

Industrial Automation Headquarters

Taiwan: Delta Electronics, Inc.
 Taoyuan Technology Center
 No.18, Xinglong Rd., Taoyuan District,
 Taoyuan City 33068, Taiwan
 TEL: +886-3-362-6301 / FAX: +886-3-371-6301

Asia

China: Delta Electronics (Shanghai) Co., Ltd.
 No.182 Minyu Rd., Pudong Shanghai, P.R.C.
 Post code : 201209
 TEL: +86-21-6872-3988 / FAX: +86-21-6872-3996
 Customer Service: 400-820-9595

Japan: Delta Electronics (Japan), Inc.
 Industrial Automation Sales Department
 2-1-14 Shibadaimon, Minato-ku
 Tokyo, Japan 105-0012
 TEL: +81-3-5733-1155 / FAX: +81-3-5733-1255

Korea: Delta Electronics (Korea), Inc.
 1511, 219, Gasan Digital 1-Ro., Geumcheon-gu,
 Seoul, 08501 South Korea
 TEL: +82-2-515-5305 / FAX: +82-2-515-5302

Singapore: Delta Energy Systems (Singapore) Pte Ltd.
 4 Kaki Bukit Avenue 1, #05-04, Singapore 417939
 TEL: +65-6747-5155 / FAX: +65-6744-9228

India: Delta Electronics (India) Pvt. Ltd.
 Plot No.43, Sector 35, HSIIDC Gurgaon,
 PIN 122001, Haryana, India
 TEL: +91-124-4874900 / FAX: +91-124-4874945

Thailand: Delta Electronics (Thailand) PCL.
 909 Soi 9, Moo 4, Bangpoo Industrial Estate (E.P.Z),
 Pattana 1 Rd., T.Phraksa, A.Muang,
 Samutprakarn 10280, Thailand
 TEL: +66-2709-2800 / FAX: +66-2709-2827

Australia: Delta Electronics (Australia) Pty Ltd.
 Unit 20-21/45 Normanby Rd., Nottling Hill Vic 3168, Australia
 TEL: +61-3-9543-3720

Americas

USA: Delta Electronics (Americas) Ltd.
 5101 Davis Drive, Research Triangle Park, NC 27709, U.S.A.
 TEL: +1-919-767-3813 / FAX: +1-919-767-3969

Brazil: Delta Electronics Brazil
 Rua Itapeva, 26 - 3º, andar Edifício Itapeva,
 One - Bela Vista 01332-000 - São Paulo - SP - Brazil
 TEL: +55-12-3932-2300 / FAX: +55-12-3932-237

Mexico: Delta Electronics International Mexico S.A. de C.V.
 Gustavo Baz No. 309 Edificio E PB 103
 Colonia La Loma, CP 54060
 Tlalnepantla, Estado de México
 TEL: +52-55-3603-9200

EMEA

EMEA Headquarters: Delta Electronics (Netherlands) B.V.
 Sales: Sales.IA.EMEA@deltaww.com
 Marketing: Marketing.IA.EMEA@deltaww.com
 Technical Support: iatechnicalsupport@deltaww.com
 Customer Support: Customer-Support@deltaww.com
 Service: Service.IA.emea@deltaww.com
 TEL: +31(0)40 800 3900

BENELUX: Delta Electronics (Netherlands) B.V.
 Automotive Campus 260, 5708 JZ Helmond, The Netherlands
 Mail: Sales.IA.Benelux@deltaww.com
 TEL: +31(0)40 800 3900

DACH: Delta Electronics (Netherlands) B.V.
 Coesterweg 45, D-59494 Soest, Germany
 Mail: Sales.IA.DACH@deltaww.com
 TEL: +49(0)2921 987 0

France: Delta Electronics (France) S.A.
 ZI du bois Challand 2, 15 rue des Pyrénées,
 Lisses, 91090 Evry Cedex, France
 Mail: Sales.IA.FR@deltaww.com
 TEL: +33(0)1 69 77 82 60

Iberia: Delta Electronics Solutions (Spain) S.L.U
 Ctra. De Villaverde a Vallecas, 265 1º Dcha Ed.
 Hormigueras – P.I. de Vallecas 28031 Madrid
 TEL: +34(0)91 223 74 20

Carrer Llacuna 166, 08018 Barcelona, Spain
 Mail: Sales.IA.Iberia@deltaww.com

Italy: Delta Electronics (Italy) S.r.l.
 Via Meda 2-22060 Novedrate(CO)
 Piazza Grazioli 18 00186 Roma Italy
 Mail: Sales.IA.Italy@deltaww.com
 TEL: +39 039 8900365

Russia: Delta Energy System LLC
 Vereyskaya Plaza II, office 112 Vereyskaya str.
 17 121357 Moscow Russia
 Mail: Sales.IA.RU@deltaww.com
 TEL: +7 495 644 3240

Turkey: Delta Greentech Elektronik San. Ltd. Sti. (Turkey)
 Şerifali Mah. Hendem Cad. Kule Sok. No:16-A
 34775 Ümraniye – İstanbul
 Mail: Sales.IA.Turkey@deltaww.com
 TEL: + 90 216 499 9910

MEA: Eltek Dubai (Eltek MEA DMCC)
 OFFICE 2504, 25th Floor, Saba Tower 1,
 Jumeirah Lakes Towers, Dubai, UAE
 Mail: Sales.IA.MEA@deltaww.com
 TEL: +971(0)4 2690148

DOPSoft User Manual



DOPSoft User Manual

Table of Contents

1

Welcome to DOPSoft

1.1	Features of DOPSoft.....	1-2
1.2	Operating environment.....	1-2
1.3	List of supported models.....	1-3

2

Installation and General Operation

2.1	How to install DOPSoft.....	2-4
2.1.1	Install DOPSoft on Windows 7 operating system.....	2-5
2.1.2	Install DOPSoft on Windows 10 operating system.....	2-11
2.2	Window taskbar.....	2-16
2.2.1	File.....	2-25
2.2.1.1	New.....	2-26
2.2.1.2	Open.....	2-31
2.2.1.3	Close.....	2-35
2.2.1.4	Save.....	2-36
2.2.1.5	Save As.....	2-37
2.2.1.6	Create Screen Data File.....	2-38
2.2.1.7	Create Auto Update Data File.....	2-39
2.2.1.8	Open Screen Data File.....	2-42
2.2.1.9	Create Download Screen Exe. File.....	2-43
2.2.1.10	Password Protect.....	2-46
2.2.2	Edit.....	2-51
2.2.2.1	Duplicate.....	2-52
2.2.2.2	Address Conversion.....	2-54
2.2.2.3	Lock Element.....	2-55
2.2.2.4	Edit Points.....	2-56
2.2.2.5	Tab Order.....	2-57
2.2.2.6	Find.....	2-58
2.2.2.7	Replace.....	2-61
2.2.2.8	Replace PLC Address.....	2-63
2.2.2.9	Group.....	2-65
2.2.2.10	UnGroup.....	2-67
2.2.2.11	Order.....	2-68

2.2.2.12	Align	2-71
2.2.2.13	Make Same Size	2-76
2.2.2.14	Text Process	2-78
2.2.2.15	Bitmap Process	2-82
2.2.2.16	Import Multi-language Text / Export Multi-language Text	2-87
2.2.3	View	2-94
2.2.3.1	Screen Management	2-95
2.2.3.2	Zoom In	2-98
2.2.3.3	Zoom Out	2-99
2.2.3.4	Actual Size	2-100
2.2.3.5	Full Screen	2-101
2.2.3.6	I/O Screen	2-102
2.2.3.7	Grid Settings	2-102
2.2.3.8	Element Address List	2-104
2.2.3.9	Memory List	2-106
2.2.4	Screen	2-108
2.2.4.1	New Screen	2-109
2.2.4.2	Open Screen	2-110
2.2.4.3	Screensaver	2-111
2.2.4.4	Cut Screen	2-114
2.2.4.5	Copy Screen	2-114
2.2.4.6	Paste Screen	2-114
2.2.4.7	Delete Screen	2-115
2.2.4.8	Export	2-115
2.2.4.9	Import	2-117
2.2.4.10	Clear imported data	2-117
2.2.4.11	Function Key	2-118
2.2.4.12	Screen Properties	2-120
2.2.4.13	Screen Map	2-129
2.2.5	Tools	2-132
2.2.5.1	Compile	2-133
2.2.5.2	Compile All	2-134
2.2.5.3	Download All Data	2-135
2.2.5.4	Upload All Data	2-137
2.2.5.5	Download Screen	2-140
2.2.5.6	Upload Recipe	2-140
2.2.5.7	Download Recipe	2-140
2.2.5.8	Download Boot Screen	2-141
2.2.5.9	Reset Default Boot Screen	2-142
2.2.5.10	On-line Simulation	2-142

2.2.5.11	Off-line Simulation	2-151
2.2.5.12	Firmware Update	2-151
2.2.5.13	Get Firmware Information	2-152
2.2.5.14	Reset HMI	2-153
2.2.6	Window	2-154
2.2.6.1	Close Current Window	2-154
2.2.6.2	Close All Windows	2-154
2.2.6.3	Next Window	2-155
2.2.6.4	Previous Window	2-155
2.2.7	Help	2-156
2.3	How to create a project?	2-157
2.3.1	Flowchart of creating a project	2-157

3

Internal Memory

3.1	Internal Register (\$)	3-3
3.2	Non-volatile Internal Register (\$M)	3-3
3.3	Indirect Address Register (*\$)	3-4
3.4	Internal Parameter	3-6

4

Control Status Block

4.1	Control Block	4-8
4.2	Status Area	4-20

5

Buttons

5.1	Set to On / Set to Off / Maintained / Momentary	5-3
5.2	Multistate	5-28
5.3	Set Value	5-52
5.4	Set Constant	5-77
5.5	Increment / Decrement	5-100
5.6	Goto Screen	5-122
5.7	Other elements	5-148
5.7.1	System Date and Time	5-148
5.7.2	Password Table Setup	5-149
5.7.3	Enter Password	5-150
5.7.4	Contrast Brightness	5-150
5.7.5	Set Low Security	5-150
5.7.6	System Menu	5-151

5.7.7	Print Output	5-151
5.7.8	Report List.....	5-151
5.7.9	Screen Capture	5-152
5.7.10	Remove Storage.....	5-153
5.7.11	Import / Export Recipe.....	5-154
5.7.12	Calibration	5-154
5.7.13	Language Change.....	5-155
5.7.14	Import / Export FileSlot.....	5-156
5.7.15	Other shared properties of elements.....	5-157
5.8	Multiple actions.....	5-164

6

Meter

6.1	Meter(1) / Meter(2) / Meter(3) / Meter(4).....	6-2
-----	--	-----

7

Bar Chart

7.1	Normal bar	7-2
7.2	Differential bar	7-13

8

Pipe Chart

8.1	Pipe(1) / Pipe(2)	8-2
8.2	Pipe(3) / Pipe(4) / Pipe(5)	8-14
8.3	Pipe(6) / Pipe(7)	8-19

9

Pie Chart

9.1	Pie(1) / Pie(2) / Pie(3) / Pie(4).....	9-2
-----	--	-----

10

Indicator

10.1	Multistate Indicator	10-2
10.2	Range Indicator	10-20
10.3	Simple Indicator.....	10-36

11

Data Display

11.1	Numeric Display	11-2
11.2	Character Display.....	11-26

11.3	Date Display / Time Display / Week Display	11-35
11.3.1	Date Display	11-36
11.3.2	Time Display	11-42
11.3.3	Week Display	11-48
11.4	General Message Display	11-56
11.5	Moving Sign	11-70
11.6	QR code display	11-83
11.7	Barcode	11-91

12 Graph Display

12.1	State Graphic	12-2
12.2	Animated Graphic	12-17
12.3	Real-time Image	12-30

13 Input

13.1	Numeric Entry	13-2
13.2	Character Entry	13-33
13.3	Barcode Input	13-56
13.4	Multi-language Input	13-72
13.5	Multi-line text input	13-88

14 Curve

14.1	Trend Graph	14-2
14.2	X-Y Chart	14-18
14.3	X-Y Distribution	14-39
14.4	Curve Input	14-50

15 Sampling

15.1	History Buffer	15-2
15.2	Historical Trend Graph	15-37
15.3	Historical Data Table	15-60
15.4	Historical Event Table	15-79
15.5	Historical Overview Table	15-94
15.6	Operation Log Table	15-118

16

Alarm

16.1	Alarm Settings	16-2
16.2	Alarm History Table	16-31
16.3	Active Alarm List	16-49
16.4	Alarm Frequency Table.....	16-67
16.5	Alarm Moving Sign	16-86

17

Keypad

17.1	Keypad(1)	17-2
17.2	Keypad(2)	17-13
17.3	Keypad(3)	17-24

18

Analog

18.1	Slider.....	18-2
------	-------------	------

19

List

19.1	ComboBox	19-2
19.2	Drop-down Menu	19-24
19.3	ListBox	19-45
19.4	GridBox	19-65
19.5	PDF Viewer	19-106
19.6	Text Viewer	19-119
19.7	ENRCP Viewer	19-137
19.8	FTP file list	19-146
19.9	FTP File Setting	19-159
19.10	Text List	19-168

20

Frame

20.1	Embedded Subscreen.....	20-2
20.2	Camera display	20-9
20.3	VGA display	20-20
20.4	Video Play	20-25
20.5	Event trigger	20-40

21

Basic Shape

21.1	Rhombus	21-3
21.2	Right Triangle	21-9
21.3	Pentagon	21-16
21.4	Pie Chart	21-22
21.5	Arc	21-28
21.6	Hexagon	21-34
21.7	Star Shape	21-40
21.8	Triangle	21-46
21.9	Hollow Circle	21-53
21.10	Stop Circle	21-59
21.11	1/4 Arc	21-65

22

Drawing

22.1	Line	22-3
22.2	Rectangle	22-10
22.3	Circle	22-24
22.4	Polygon	22-33
22.5	Text	22-39
22.6	Scale	22-49
22.7	Table	22-57

23

Recipe

23.1	16-bit Recipe	23-3
23.2	32-bit Recipe	23-20
23.3	Indirect recipe index register (*RCP)	23-38
23.4	Enhanced recipe	23-41
23.5	Enhanced indirect recipe index register (*ENRCP)	23-61

24

Macro

24.1	Types of macro	24-3
24.1.1	On Macro / Off Macro	24-4
24.1.2	Before Execute Macro	24-5
24.1.3	After Execute Macro	24-6
24.1.4	Screen Open Macro	24-7
24.1.5	Screen Close Macro	24-8
24.1.6	Screen Cycle Macro	24-9

24.1.7	Screen cycle macro manager	24-12
24.1.8	Submacro.....	24-13
24.1.9	Initial Macro	24-22
24.1.10	Background Macro	24-24
24.1.11	Clock Macro.....	24-26
24.2	Macro edit window.....	24-29
24.3	Macro commands.....	24-35
24.3.1	Arithmetic	24-41
24.3.2	Logical Operation	24-62
24.3.3	Data transfer	24-71
24.3.4	Data Conversion	24-81
24.3.5	Comparison	24-98
24.3.6	Flow Control	24-145
24.3.7	Bit Setting.....	24-151
24.3.8	Communication	24-155
24.3.9	Drawing	24-188
24.3.10	File Access	24-195
24.3.11	Others	24-207
24.4	Macro error codes	24-252

25 Multi-language

25.1	Multi-language setup.....	25-2
------	---------------------------	------

26 Print Setup

26.1	Screen Print Setup	26-3
26.2	ePrinter.....	26-10
26.2.1	PrnServer.....	26-11
26.2.2	HMI link settings	26-14
26.3	Error code of printer.....	26-18
26.4	Template printing	26-19

27 Parameter Settings

27.1	Configuration	27-2
27.2	Communication Settings.....	27-57
27.3	Change Model	27-69
27.4	Environment settings	27-70

28

Advanced Settings

28.1	Tag Table	28-2
28.2	HMI Identifier	28-13
28.3	FileSlot File Management	28-15
28.4	Device Data table.....	28-21
28.5	Picture Bank	28-26
28.6	Text Bank	28-30
28.7	Multi-Lang input character count calculation.....	28-34
28.8	Cust-Keypad	28-35
28.8.1	Create Keypad Screen	28-39
28.8.2	Delete Keypad Screen	28-45
28.8.2.1	The Keypad Screen is referred	28-47
28.8.2.2	The Keypad Screen is not referred	28-51
28.9	Sound Settings	28-52
28.10	Modbus TCP mapping table	28-63
28.11	Font management	28-68

Appendix

A

System Screen

A.1	System screen overview.....	A-3
A.2	System Setting	A-10
A.3	Up/Download	A-28
A.4	System Info	A-36
A.5	HMI Doctor	A-37

B

Multi-Drop

B.1	Multi-drop example.....	B-4
-----	-------------------------	-----

C

Communication Error Messages

C.1	Communication error messages	C-2
-----	------------------------------------	-----

D

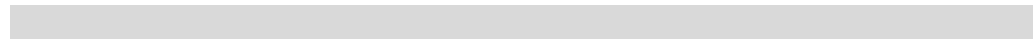
Write and Read Offset Addresses

D.1	Write and read offset addresses	D-2
-----	---------------------------------------	-----

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Welcome to DOPSoft

This chapter introduces the user-friendly features and operating environment of DOPSoft, and the list of supported models.



1.1	Features of DOPSoft	1-2
1.2	Operating environment.....	1-2
1.3	List of supported models.....	1-3

1

1.1 Features of DOPSoft

DOPSoft software supports editing the DOP-100 series HMI screens. This version provides more advanced and handy functions as follows:

- (1) User-friendly programming interface
- (2) Versatile 3D image library
- (3) Delicate elements
- (4) Smoother display for Meter and other elements
- (5) Faster software download speed
- (6) Powerful search function
- (7) Improved readability for the output results after compilation

1.2 Operating environment

Hardware / software	Specifications
PC	Pentium 4, 1.6 GHz or above
Memory	2 GB or above
Hard drive	400 MB or above
Display	Full-color display with the resolution of 1024x768 or higher
Printer	Printers compatible with Windows 10
Operating system	Windows 10

1.3 List of supported models

Series	Model number	Note
DOP-100 series	DOP-103BQ	You can open the DOP-B and DOP-W series projects on the DOP-100 series models, and the software converts them into DOP-100 series projects.
	DOP-103WQ	
	DOP-105CQ	
	DOP-107BV	
	DOP-107CV	
	DOP-107DV	
	DOP-107EG	
	DOP-107EV	
	DOP-107IV	
	DOP-107WV	
	DOP-108IG	
	DOP-110CG	
	DOP-110CS	
	DOP-110IS	
	DOP-110WS	
	DOP-112MX	
	DOP-112WX	
	DOP-115MX	
DOP-115WX		
DOP-107H series	DOP-107HE42	You can open the DOP-H series projects on the DOP-107H series models, and the software converts them into DOP-107H series projects.
	DOP-107HE46	
	DOP-107HE47	
	DOP-107HS42	
	DOP-107HS46	

1

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1

Installation and General Operation

2

This chapter covers the information about how to install the software, use the general function bars in the software window, create a project, select a controller, edit screens, and download the screens to the HMI.

2.1	How to install DOPSoft.....	2-4
2.1.1	Install DOPSoft on Windows 7 operating system	2-5
2.1.2	Install DOPSoft on Windows 10 operating system.....	2-11
2.2	Window taskbar.....	2-16
2.2.1	File.....	2-25
2.2.1.1	New.....	2-26
2.2.1.2	Open.....	2-31
2.2.1.3	Close.....	2-35
2.2.1.4	Save	2-36
2.2.1.5	Save As	2-37
2.2.1.6	Create Screen Data File.....	2-38
2.2.1.7	Create Auto Update Data File	2-39
2.2.1.8	Open Screen Data File.....	2-42
2.2.1.9	Create Download Screen Exe. File.....	2-43
2.2.1.10	Password Protect.....	2-46
2.2.2	Edit	2-51
2.2.2.1	Duplicate.....	2-52
2.2.2.2	Address Conversion	2-54
2.2.2.3	Lock Element	2-55
2.2.2.4	Edit Points.....	2-56
2.2.2.5	Tab Order.....	2-57
2.2.2.6	Find	2-58
2.2.2.7	Replace	2-61
2.2.2.8	Replace PLC Address	2-63
2.2.2.9	Group.....	2-65
2.2.2.10	UnGroup.....	2-67
2.2.2.11	Order.....	2-68
2.2.2.12	Align.....	2-71

2

2.2.2.13	Make Same Size	2-76
2.2.2.14	Text Process	2-78
2.2.2.15	Bitmap Process	2-82
2.2.2.16	Import Multi-language Text / Export Multi-language Text	2-87
2.2.3	View	2-94
2.2.3.1	Screen Management	2-95
2.2.3.2	Zoom In	2-98
2.2.3.3	Zoom Out	2-99
2.2.3.4	Actual Size	2-100
2.2.3.5	Full Screen	2-101
2.2.3.6	I/O Screen	2-102
2.2.3.7	Grid Settings	2-102
2.2.3.8	Element Address List	2-104
2.2.3.9	Memory List	2-106
2.2.4	Screen	2-108
2.2.4.1	New Screen	2-109
2.2.4.2	Open Screen	2-110
2.2.4.3	Screensaver	2-111
2.2.4.4	Cut Screen	2-114
2.2.4.5	Copy Screen	2-114
2.2.4.6	Paste Screen	2-114
2.2.4.7	Delete Screen	2-115
2.2.4.8	Export	2-115
2.2.4.9	Import	2-117
2.2.4.10	Clear imported data	2-117
2.2.4.11	Function Key	2-118
2.2.4.12	Screen Properties	2-120
2.2.4.13	Screen Map	2-129
2.2.5	Tools	2-132
2.2.5.1	Compile	2-133
2.2.5.2	Compile All	2-134
2.2.5.3	Download All Data	2-135
2.2.5.4	Upload All Data	2-137
2.2.5.5	Download Screen	2-140
2.2.5.6	Upload Recipe	2-140
2.2.5.7	Download Recipe	2-140
2.2.5.8	Download Boot Screen	2-141
2.2.5.9	Reset Default Boot Screen	2-142
2.2.5.10	On-line Simulation	2-142
2.2.5.11	Off-line Simulation	2-151

- 2.2.5.12 Firmware Update2-151
- 2.2.5.13 Get Firmware Information2-152
- 2.2.5.14 Reset HMI2-153
- 2.2.6 Window2-154
 - 2.2.6.1 Close Current Window2-154
 - 2.2.6.2 Close All Windows2-154
 - 2.2.6.3 Next Window2-155
 - 2.2.6.4 Previous Window2-155
- 2.2.7 Help2-156
- 2.3 How to create a project?2-157
 - 2.3.1 Flowchart of creating a project2-157

2.1 How to install DOPSoft

You can install the DOPSoft on Windows 7 and Windows 10 operating systems. The following section introduces the methods of installing the software on Windows 7 and Windows 10.

To download the DOPSoft, go to Delta's website at

https://downloadcenter.deltaww.com/en-US/DownloadCenter?v=1&CID=06&itemID=060302&downloadID=DOP-100&sort_expr=cdate&sort_dir=DESC.

2

2.1.1 Install DOPSoft on Windows 7 operating system

After downloading the DOPSoft software at Delta’s website, you can start your PC and enter the Windows 7 operating system. Before executing the DOPSoft, go to [Control Panel] > [User Accounts and Family Safety] > [User Accounts] > [Change User Account Control settings] and set **Never notify** for the account level, as shown in Figure 2.1.1.1 and 2.1.1.2.

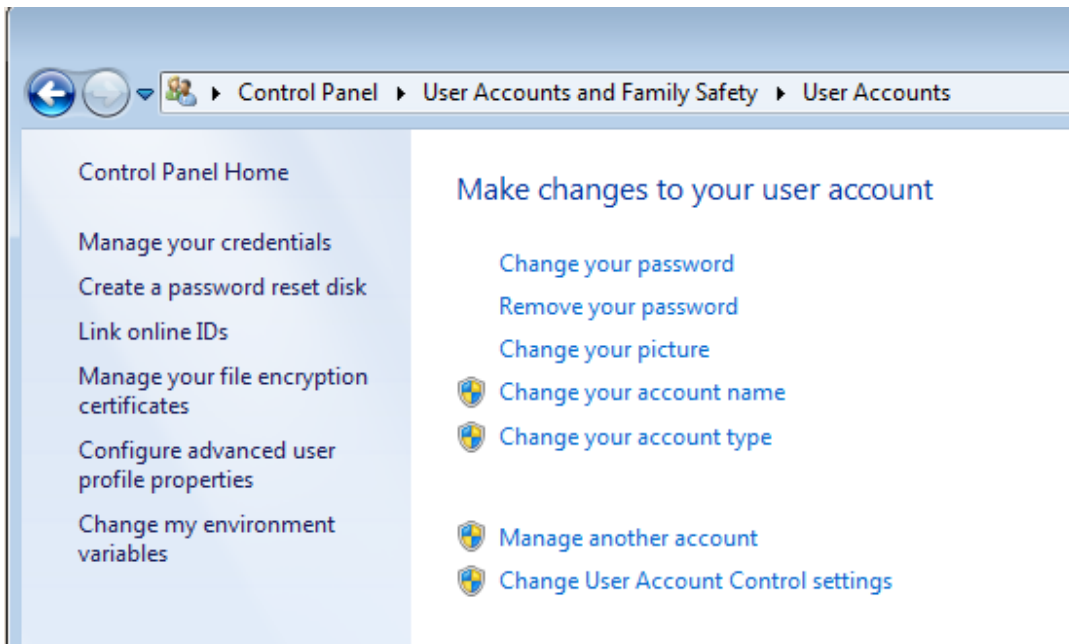


Figure 2.1.1.1 Change User Account Control settings on Windows 7

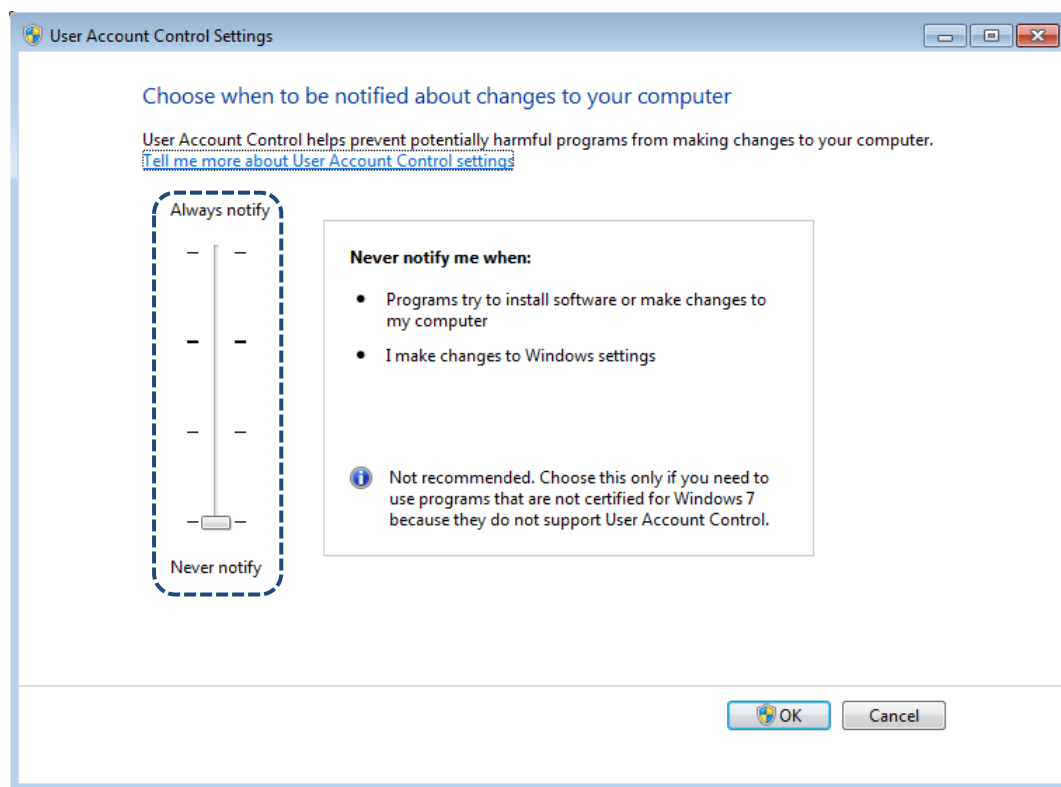


Figure 2.1.1.2 Select Never notify for the User Account Control settings on Windows 7

2

After completing the User Account Control settings, execute the DOPsoft and follow the installation instructions:

- Select the Installer Language. There are four languages available, Traditional Chinese, Simplified Chinese, English, and Turkish. After selecting the language, click **OK**.

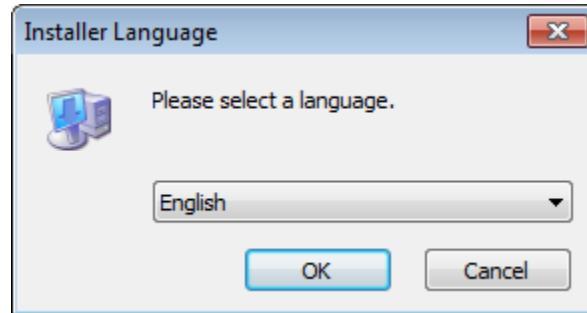


Figure 2.1.1.3 Installer Language on Windows 7

- Click **Browse** to select the installation location for the software; to use the default location, click **Next**.

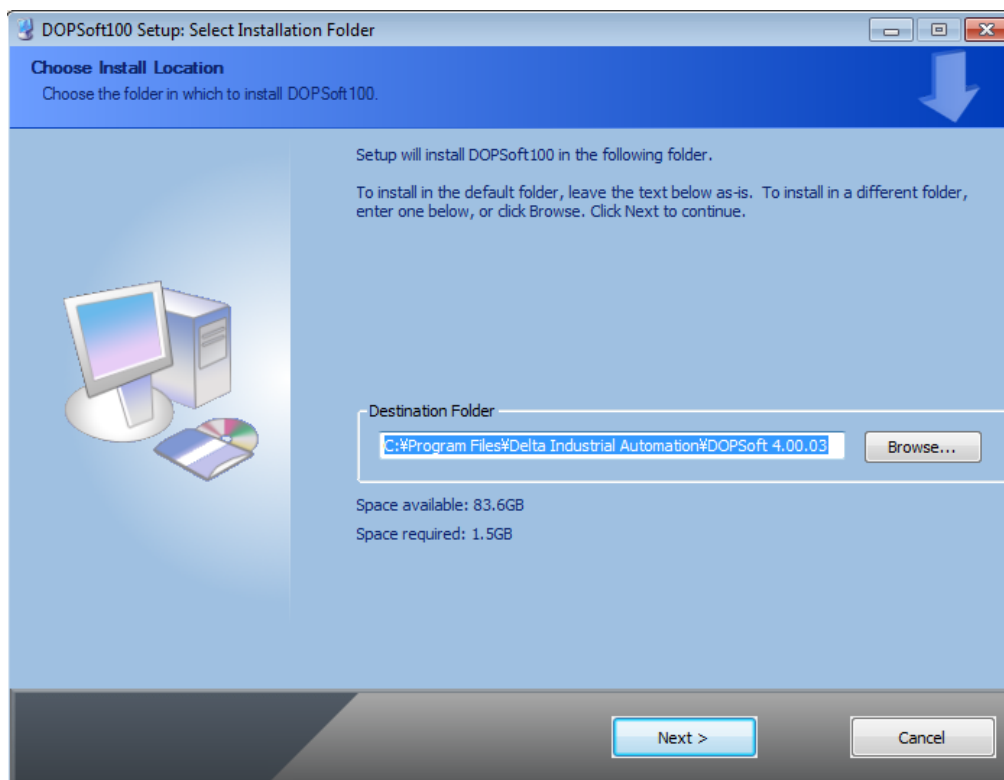


Figure 2.1.1.4 Choose Installation Location on Windows 7

- Make sure you have selected the DOPSoft100 component, as shown in Figure 2.1.1.5, and click **Install**.

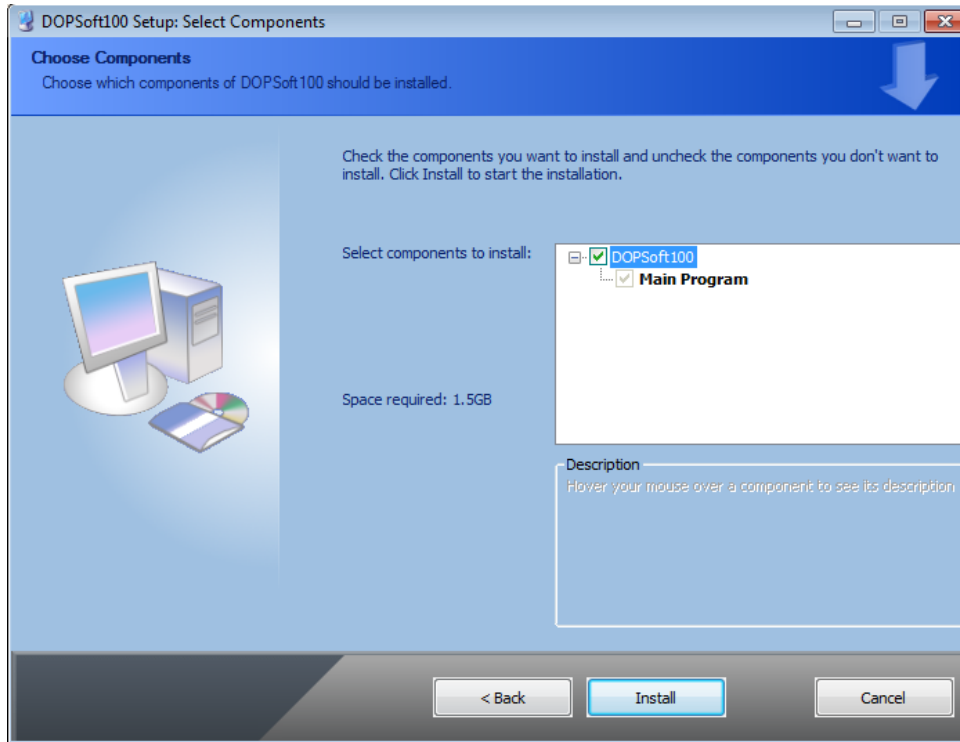


Figure 2.1.1.5 Select the component to install on Windows 7

- After you click **Install**, the software displays the installation progress bar.

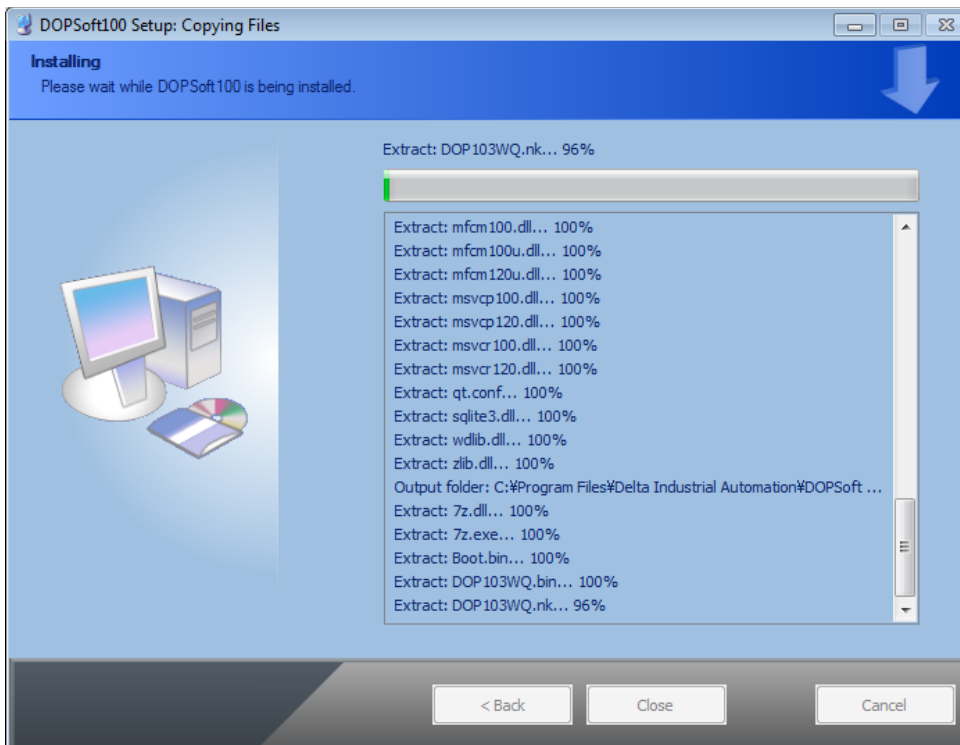


Figure 2.1.1.6 The installation progress bar on Windows 7

2

- When installation is complete, the progress bar displays “Completed”. Then, the PC displays the device driver for installation. Click **Next** to continue.

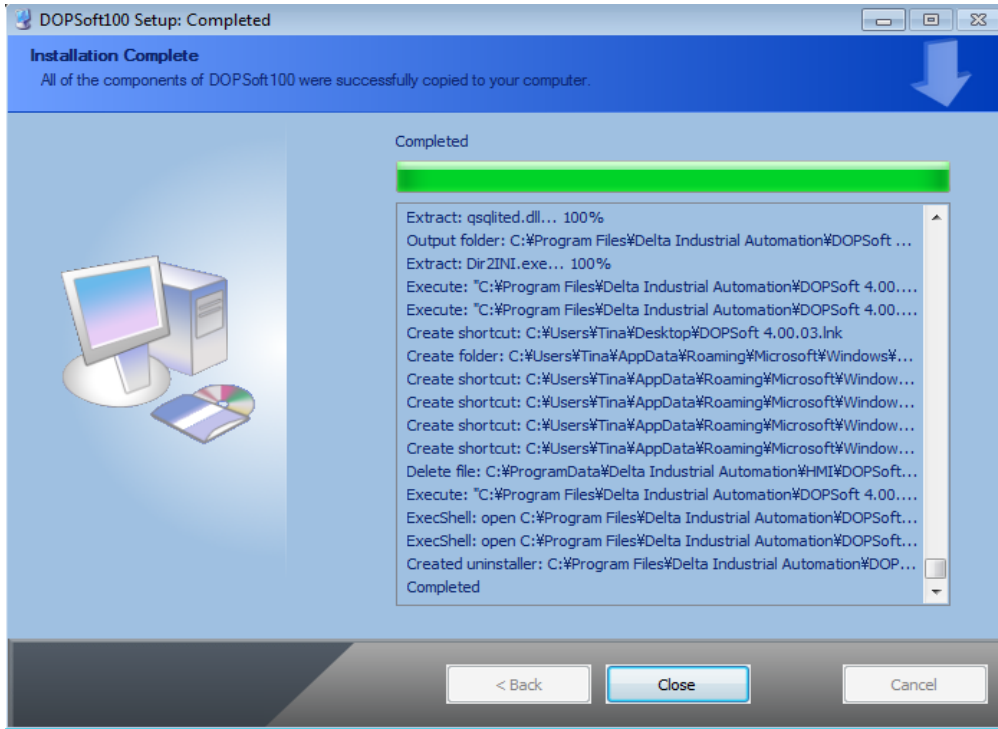


Figure 2.1.1.7 The progress bar shows the installation on Windows 7 is complete

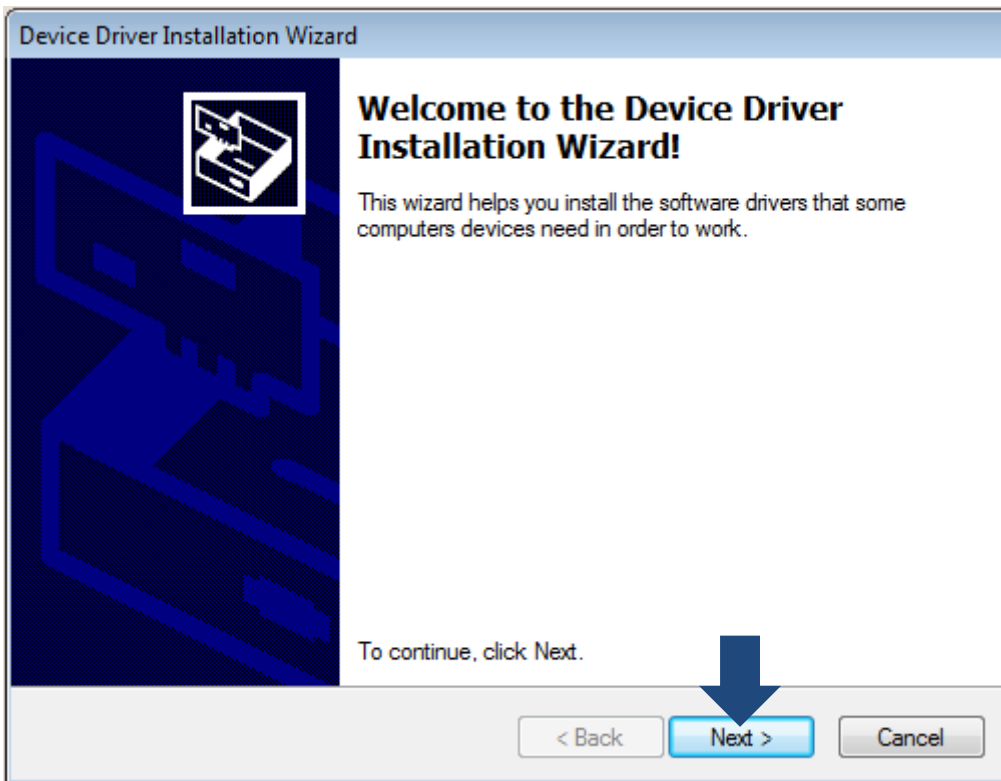


Figure 2.1.1.8 Device Driver Installation Wizard

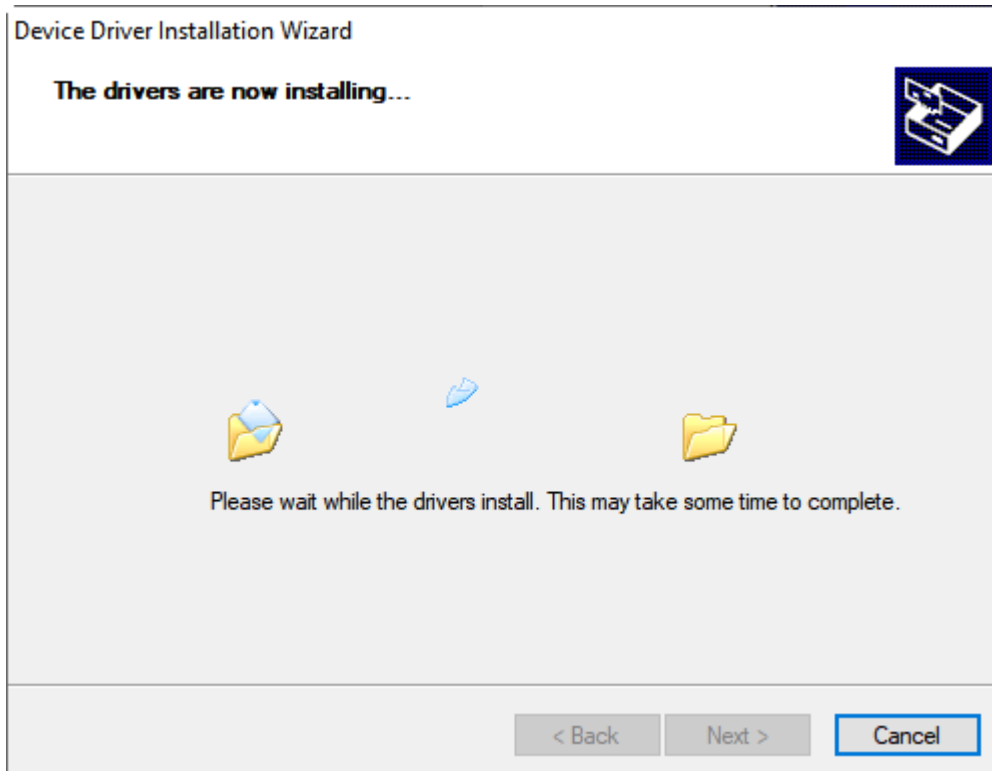


Figure 2.1.1.9 Device Driver Installation

- After the driver is installed, the screen shows the installation complete status. Click **Finish** to close the driver installation window and then click **Close** to exit the DOPSoft installation screen.

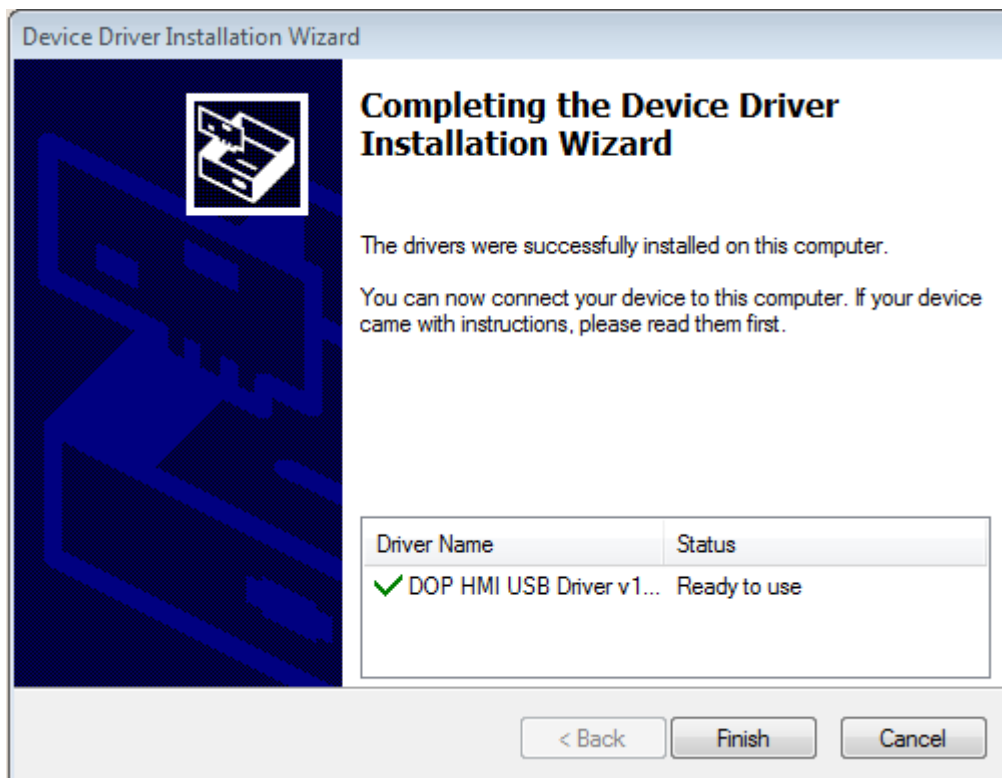


Figure 2.1.1.10 Device Driver installation is complete

2

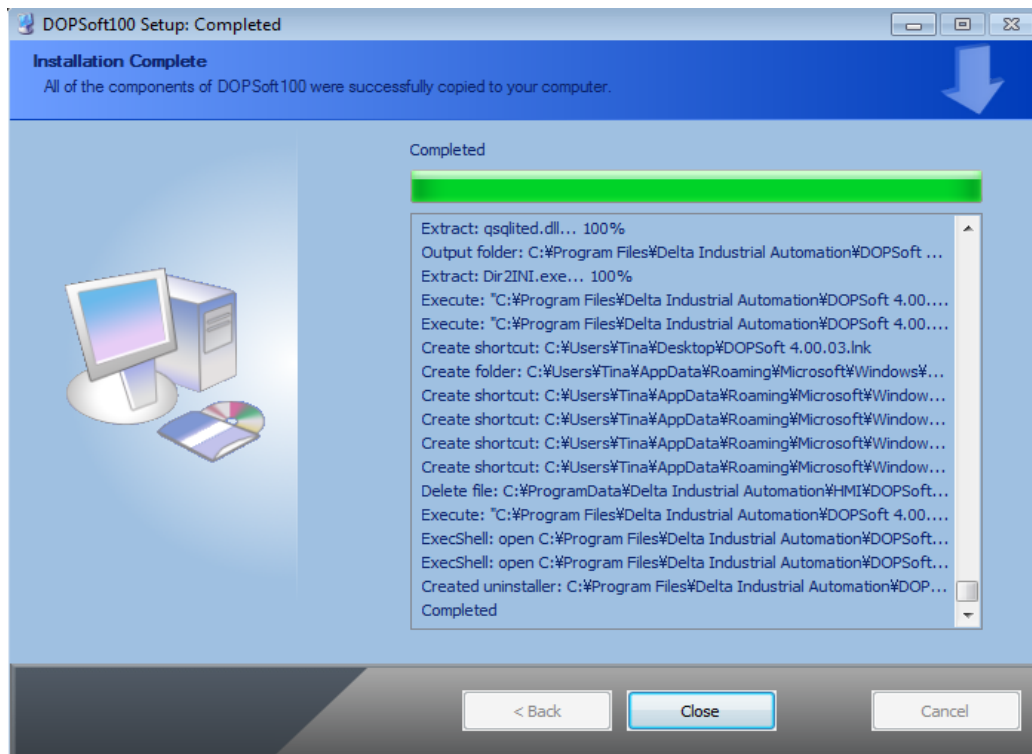


Figure 2.1.1.11 Windows 7 installation completed

- Go to the toolbar at the bottom of the PC screen. Select [Start] > [All Programs] > [Delta Industrial Automation] > [DOPSoft 4.00.08] to execute the DOPSoft application.

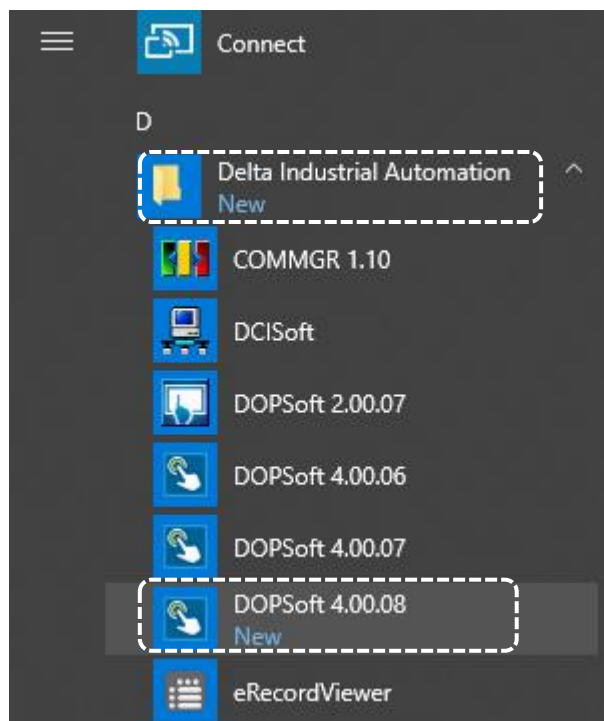


Figure 2.1.1.12 Follow the path to run the software on Windows 7

2.1.2 Install DOPSoft on Windows 10 operating system

Execute the DOPsoft and follow the installation instructions:

- Select the Installer Language. There are four languages available, Traditional Chinese, Simplified Chinese, English, and Turkish. After selecting the language, click **OK**.

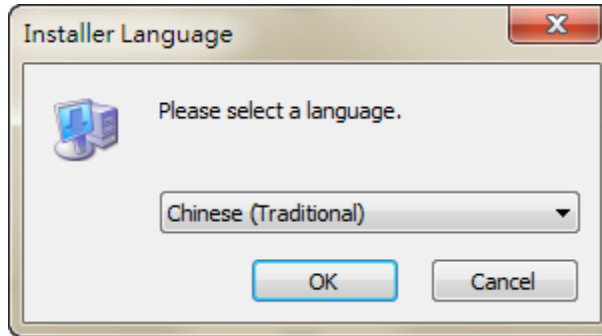


Figure 2.1.2.1 Installer Language on Windows 10

- Click **Browse** to select the installation location for the software; to use the default location, click **Next**.

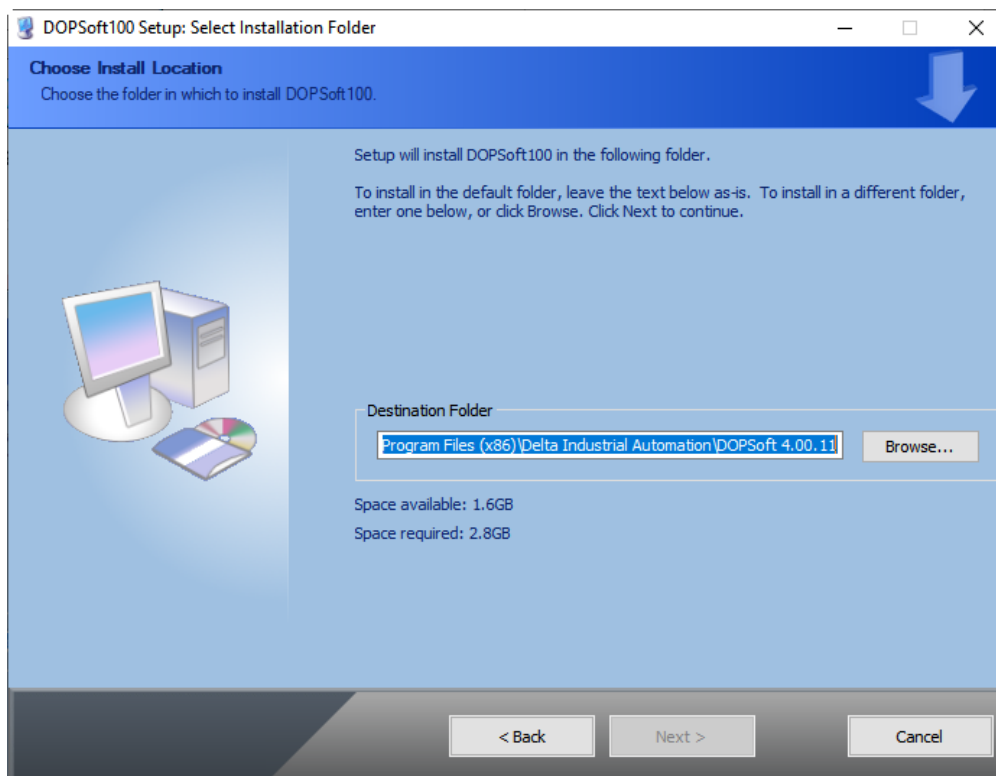


Figure 2.1.2.2 Choose Installation Location on Windows 10

2

- Make sure you have selected the DOPSoft100 component, as shown in Figure 2.1.2.3, and click **Install**.

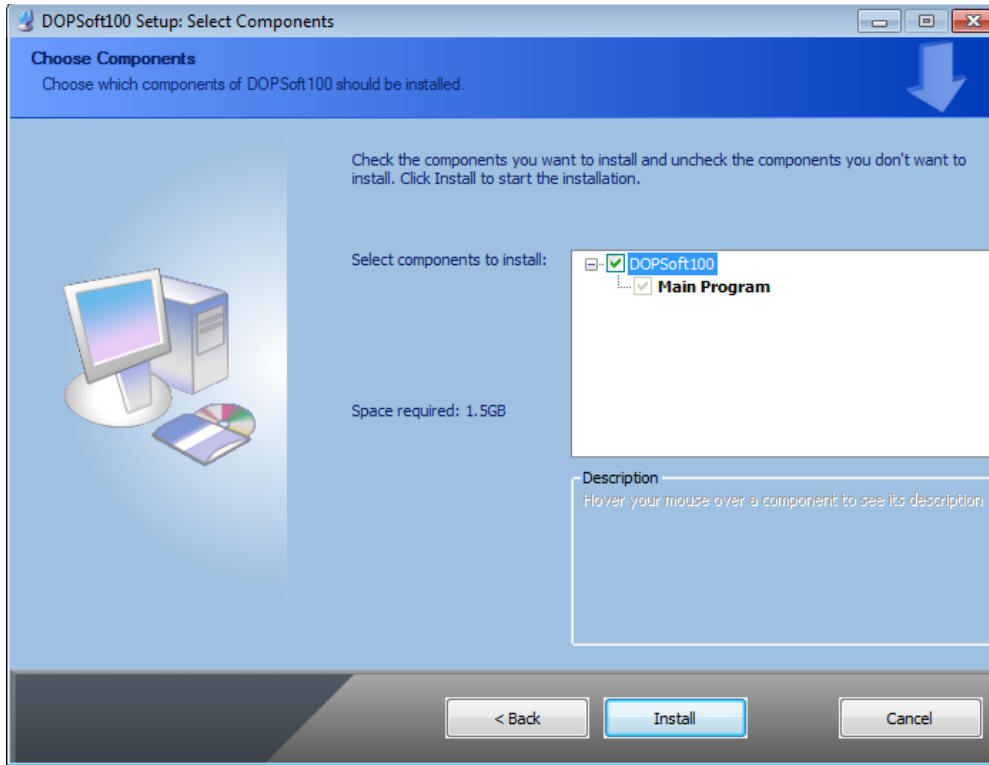


Figure 2.1.2.3 Select the component to install on Windows 10

- After you click **Install**, the software displays the installation progress bar.

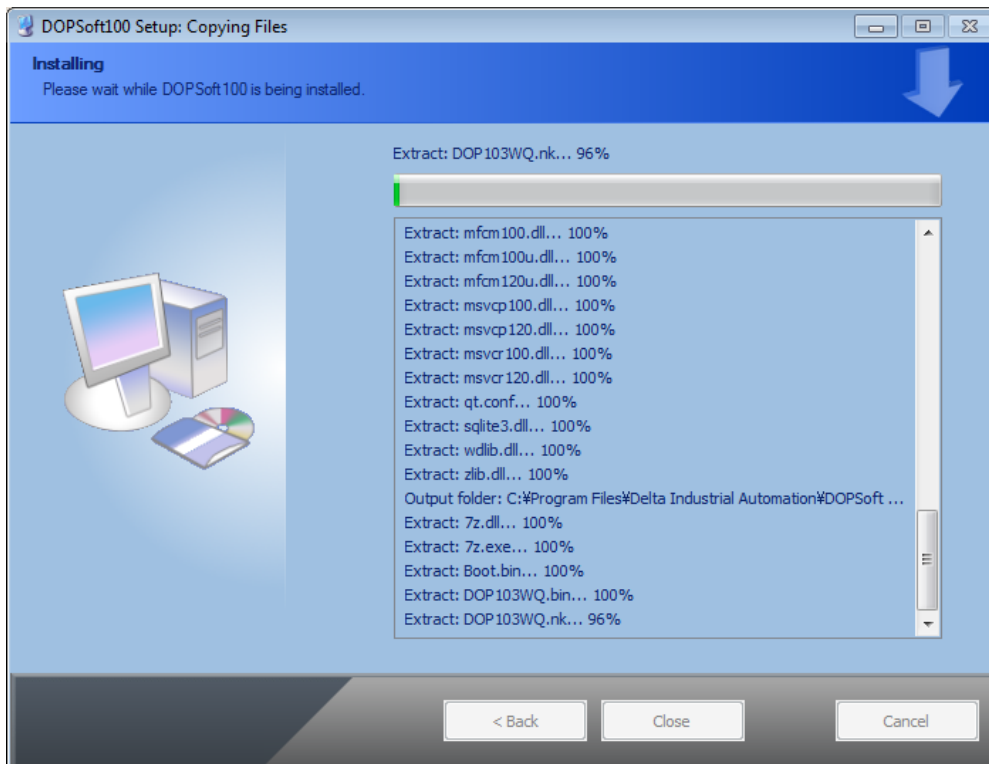
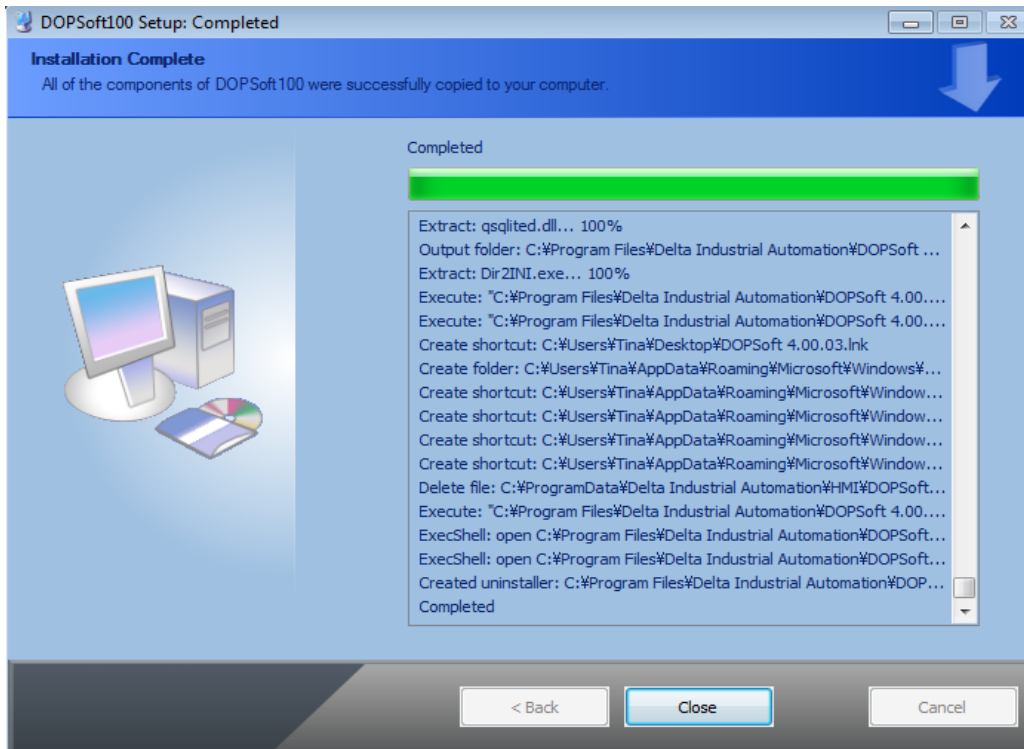


Figure 2.1.2.4 The installation progress bar on Windows 10

- When installation is complete, the progress bar displays “Completed”. Then, the PC displays the device driver for installation. Click **Next** to continue.



2

Figure 2.1.2.5 The progress bar shows the installation on Windows 10 is complete

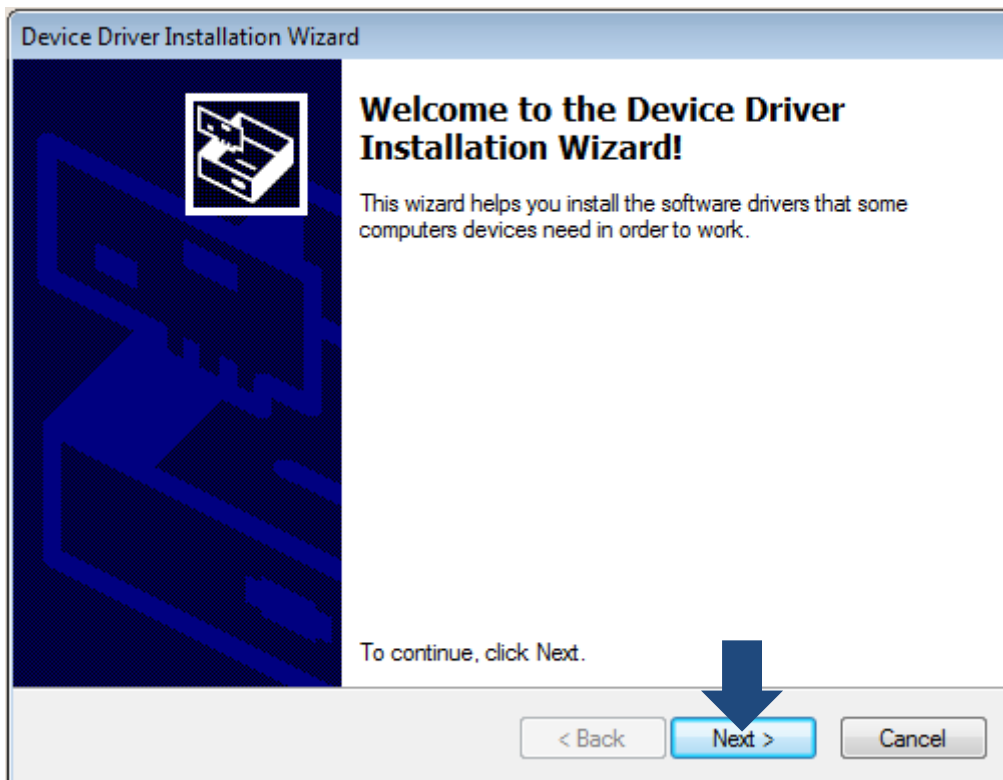


Figure 2.1.2.6 Device Driver Installation Wizard

2

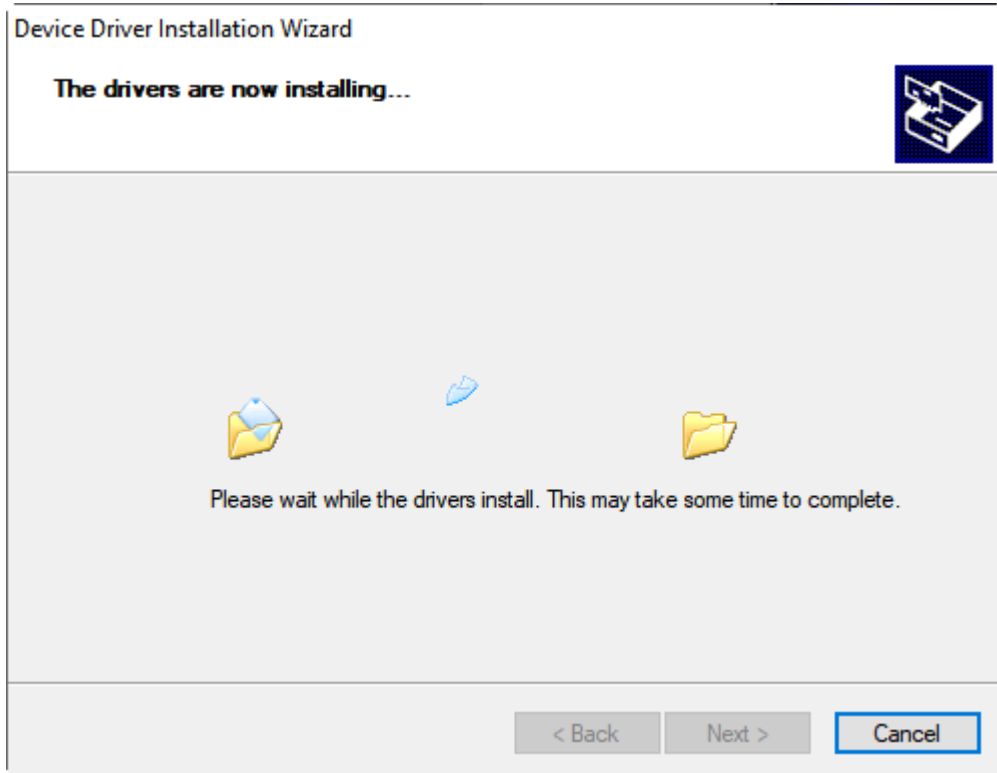


Figure 2.1.2.7 Device Driver Installation in progress

- After the driver is installed, the screen shows the installation complete status. Click **Finish** to close the driver installation window and then click **Close** to exit the DOPSoft installation screen.

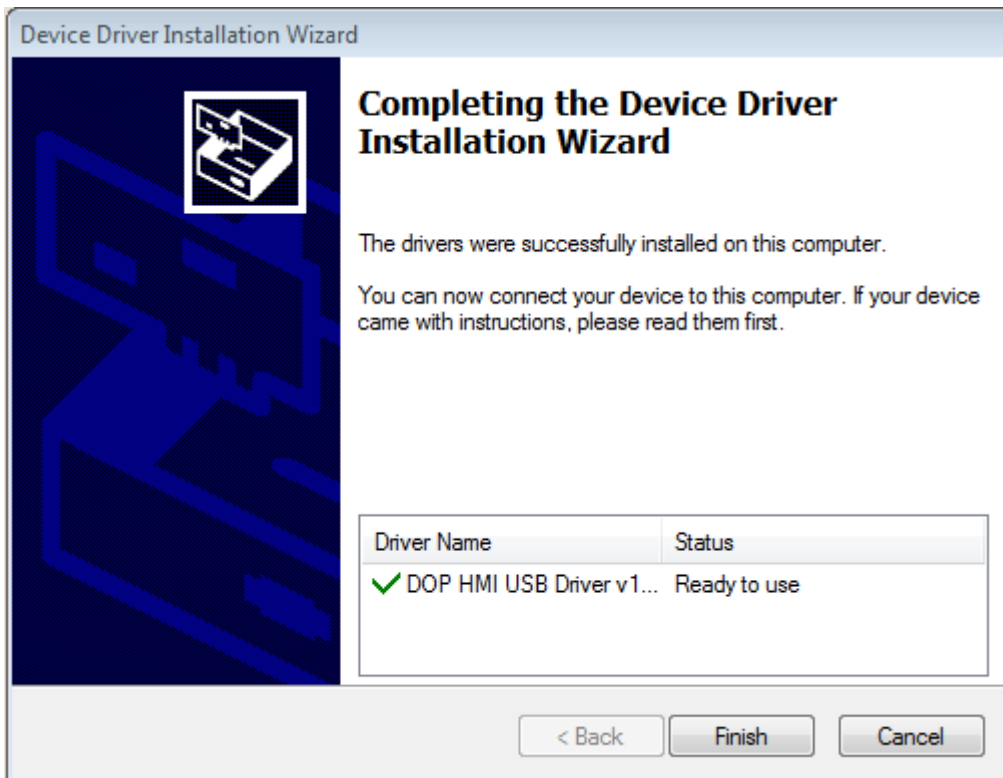


Figure 2.1.2.8 Device Driver installation is complete

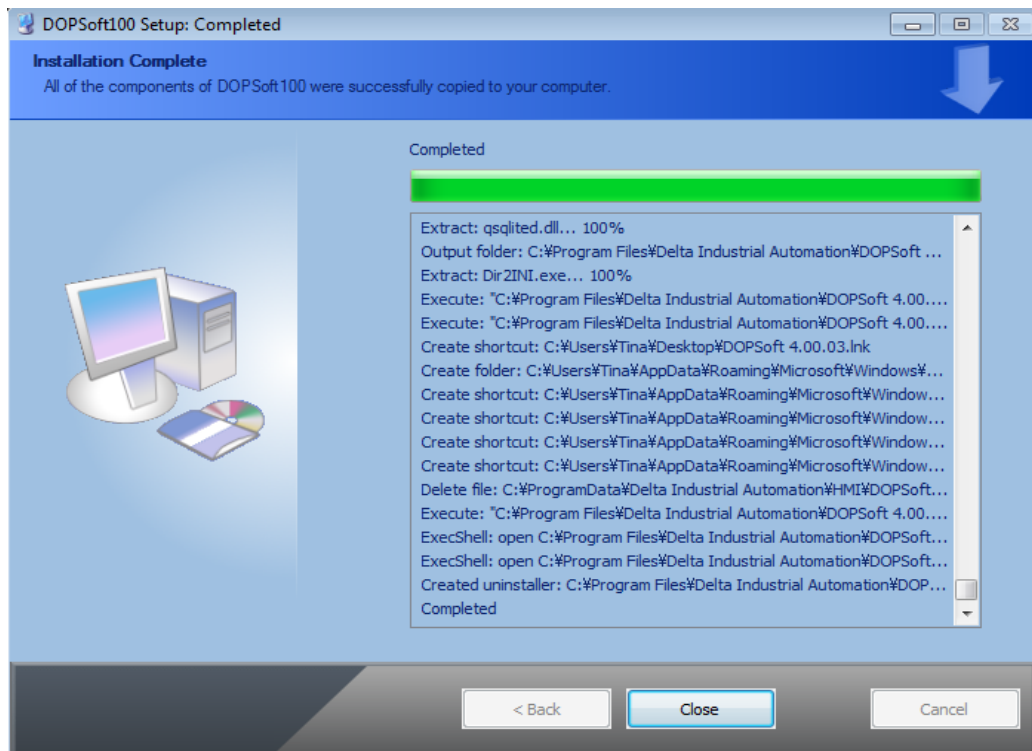


Figure 2.1.2.9 Windows 10 installation completed

- Go to the toolbar at the bottom of the PC screen. Select [Start] > [All Programs] > [Delta Industrial Automation] > [DOPSoft 4.00.08] to execute the DOPSoft application.

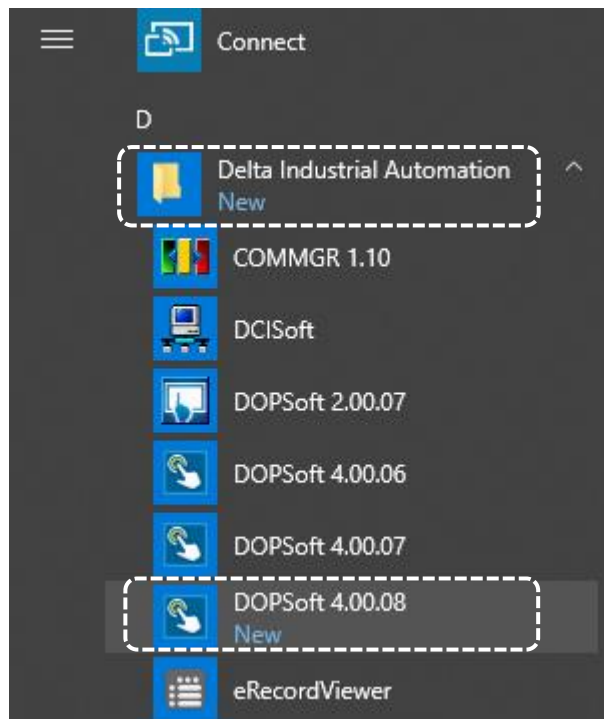


Figure 2.1.2.10 Follow the path to run the software on Windows 10

2

2.2 Window taskbar

The editing window of the DOPSoft has eight sections, including a function list, toolbars, element windows (Element List and Element Bank), a properties window, an output window, a screen management window, a screen editing window, and a status bar as shown in Figure 2.2.1. The parts marked with arrows are the toolbars provided by the software.

The toolbars are standard Windows® programs so they work the same ways as that in Windows®. They are customizable; for example, the element toolbar can be moved to the left side of the screen. You can drag the toolbars to the position based on your preference as shown in Figure 2.2.2.

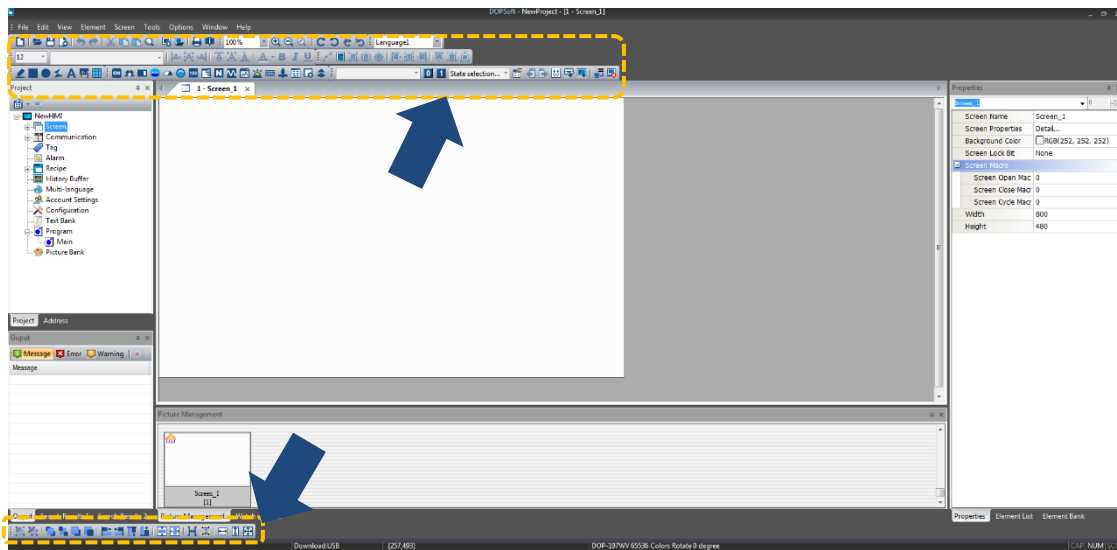


Figure 2.2.1 DOPSoft toolbars

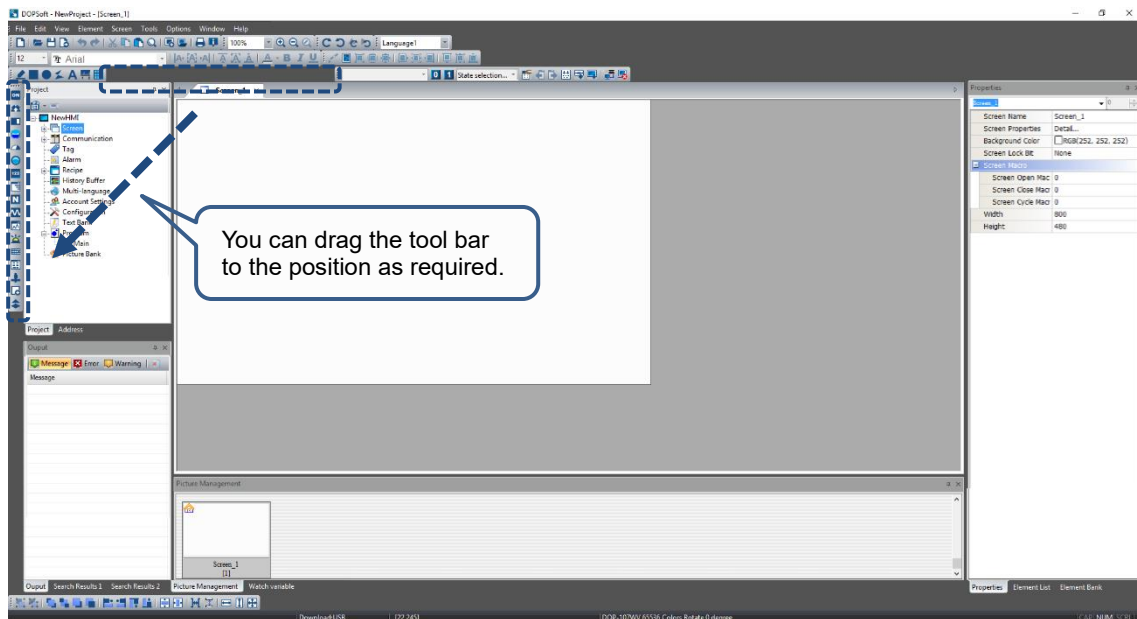
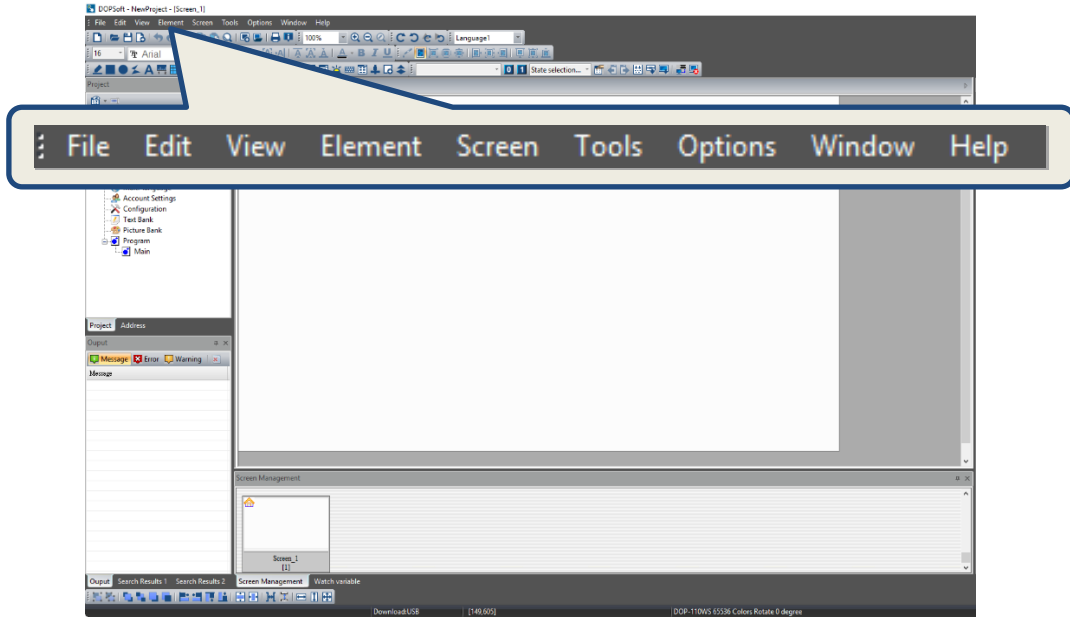


Figure 2.2.2 DOPSoft draggable toolbar

■ Function list

As shown in the following figure, the DOPSoft provides nine function categories.

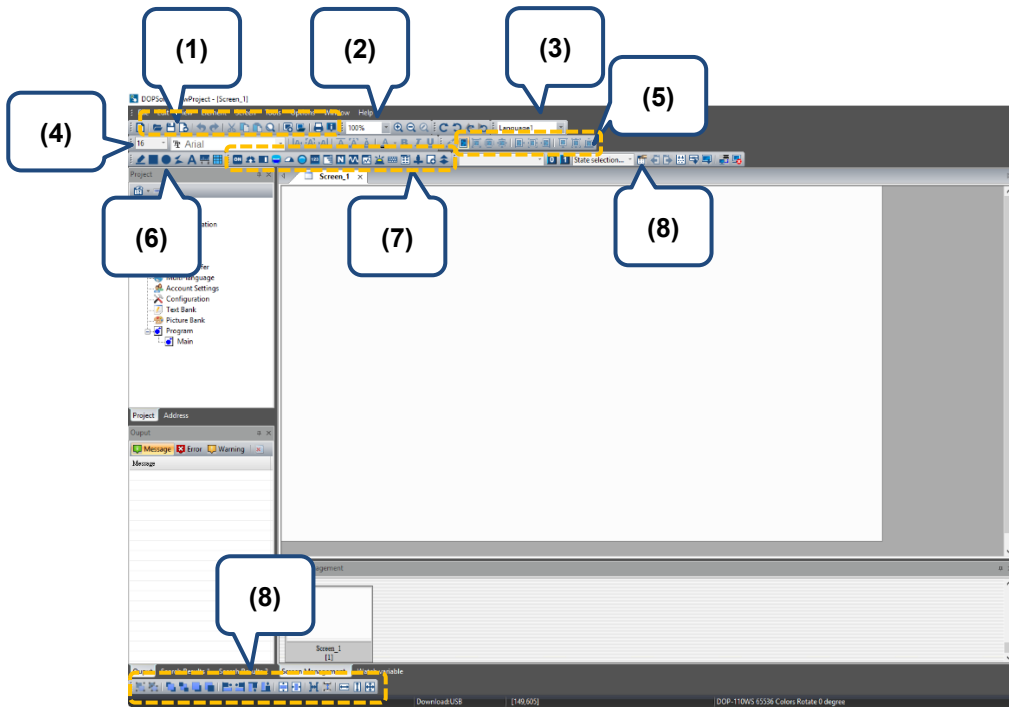


2

2

■ **Toolbar**

The DOPSoft provides 8 toolbars.



(1) General toolbar	
(2) Zoom in / out toolbar	
(3) Language selection bar	
(4) Text toolbar	
(5) Picture toolbar	
(6) Drawing toolbar	
(7) Element toolbar	
(8) Layout toolbar	

■ Element Bank window

The Element Bank window includes the Element Bank, which stores the elements you have finished editing. You can save the edited elements in the Element Bank and drag it to the editing window next time you need to use it.

2

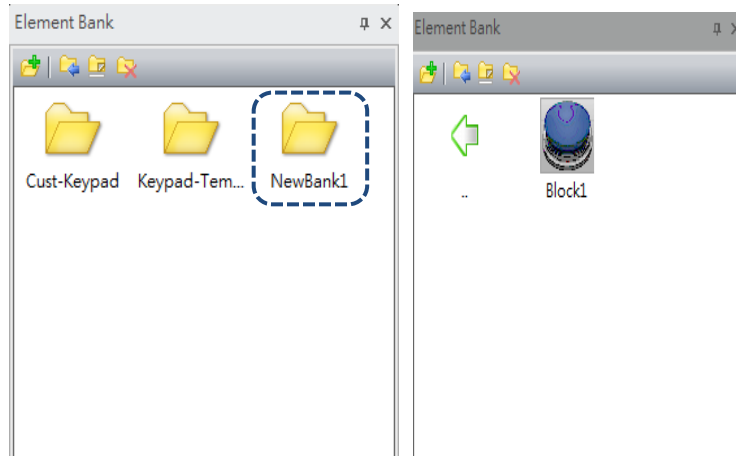




Figure 2.2.3 Element Bank

2

Figure 2.2.4 illustrates how to create an Element Bank. (1) Go to the Element Bank page. (2) Click  to create a new Element Bank. (3) Create an element; (4) Click  to import the element data.

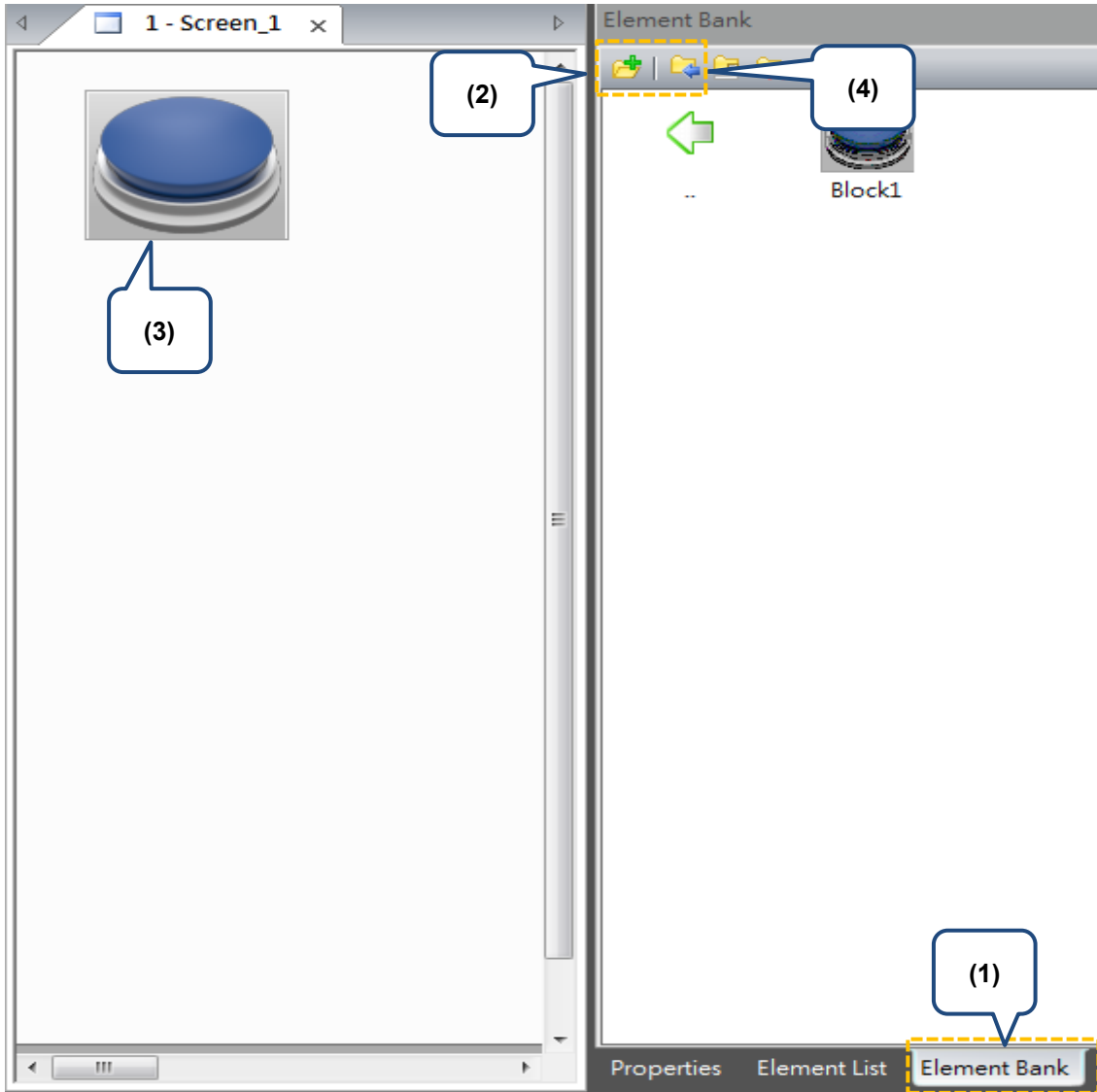
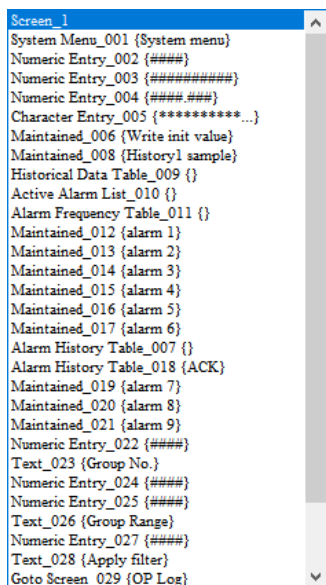
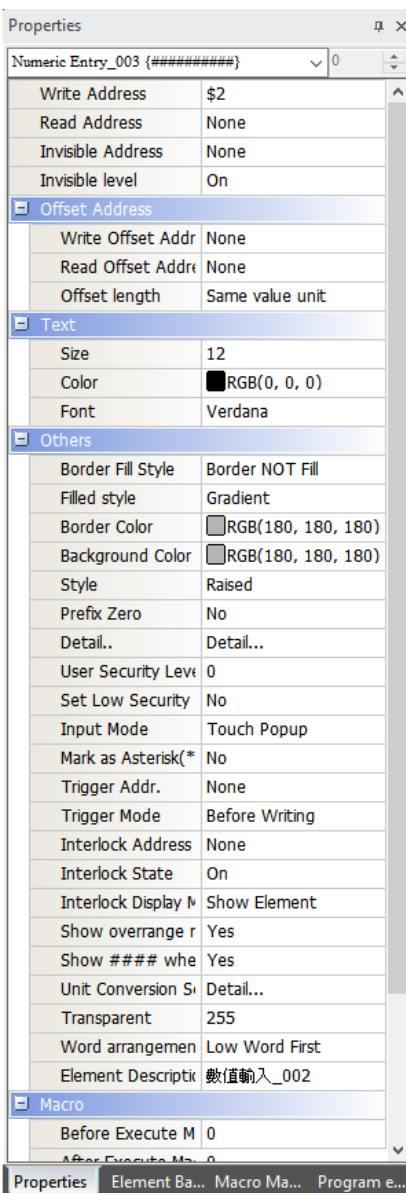


Figure 2.2.4 Steps to create the Element Bank

■ Properties



All elements of the current editing screen



← Element state count

2

Figure 2.2.5 Properties window

2

■ Output window

This window records users' editing operations and output messages for screen data compilation. When you execute the Compile function, the DOPSoft compiles the program data. After the compilation is complete, you can use the filter in the Output window to promptly check errors and warning messages. The Message tab displays all compiling records; the Error tab displays the error message only; the Warning tab displays the warning messages only, as shown in Figure 2.2.7. By clicking on the error message, you are automatically directed to the screen where the error element is located.

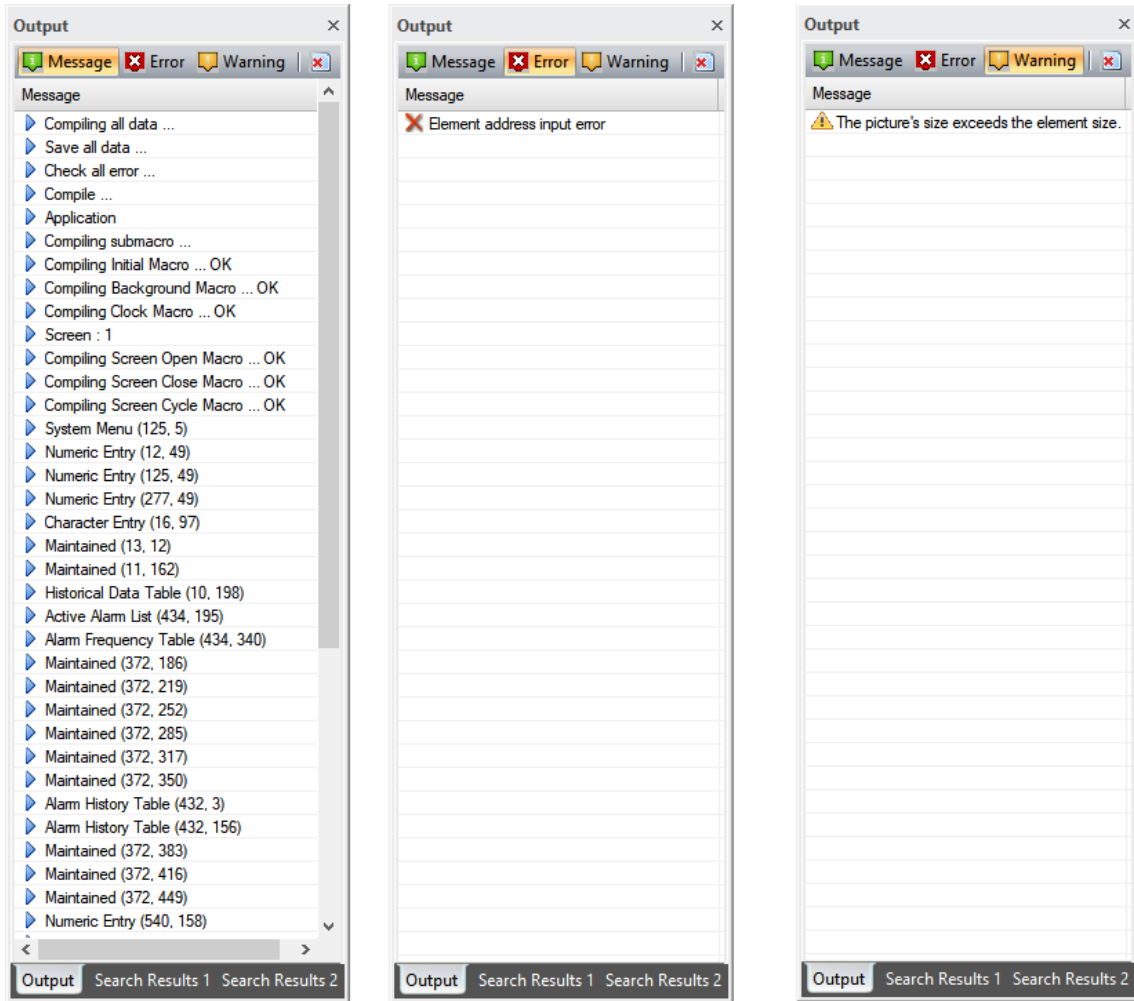


Figure 2.2.6 Output window

■ Screen Management window

If you have created multiple screens, you can use the Screen Management window to preview the screens. It allows you to check which elements are in the screen without switching to the actual screen. You can also double-click the screen you need to view and switch to this screen.

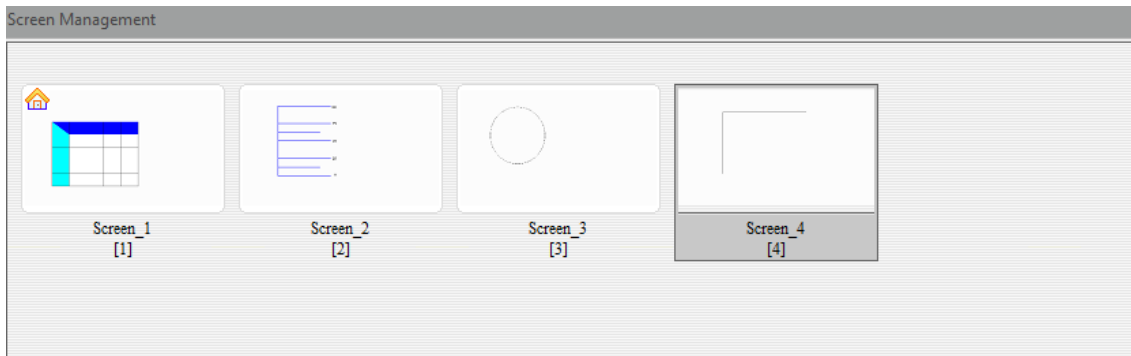


Figure 2.2.7 Screen Management window

■ Status Bar

The Status Bar displays the current editing status, as shown in Figure 2.2.8.

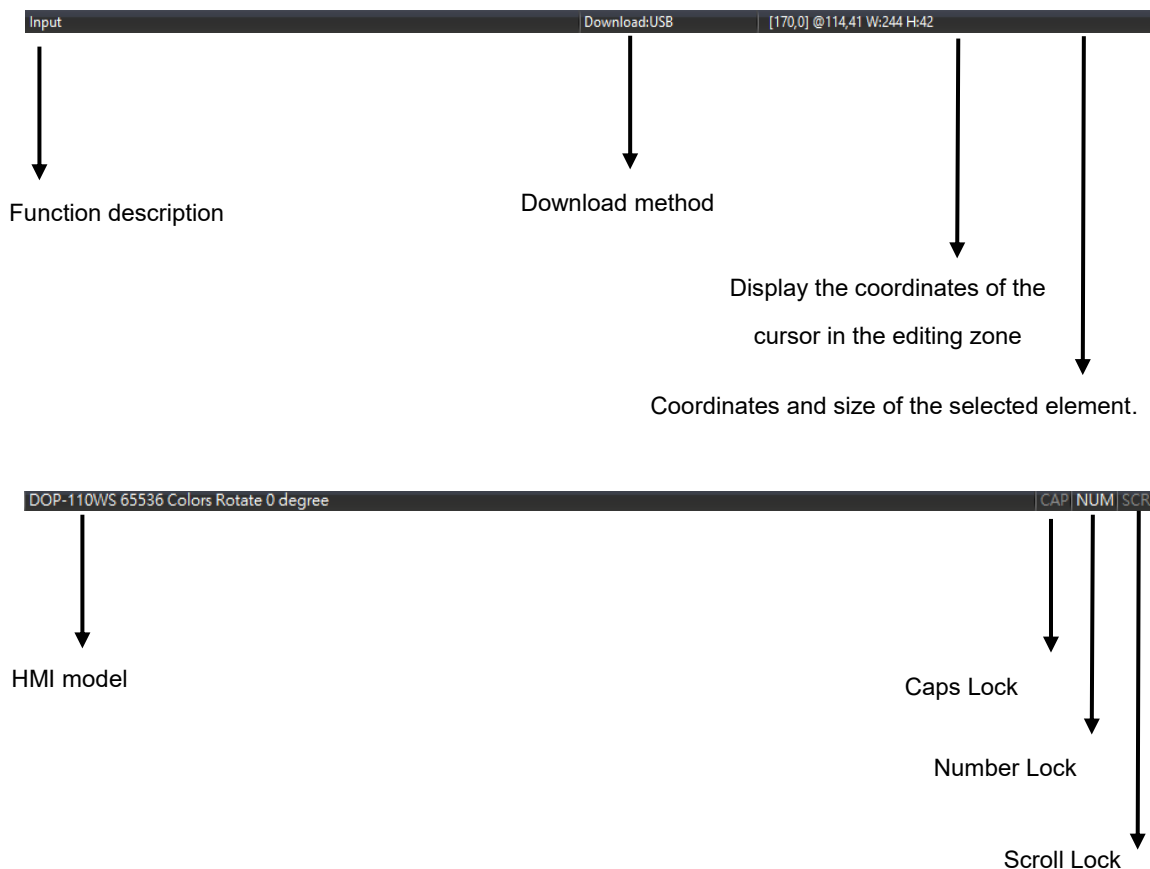


Figure 2.2.8 Status Bar

■ Screen editing zone

Provides applicable editing range based on the selected HMI model.

2

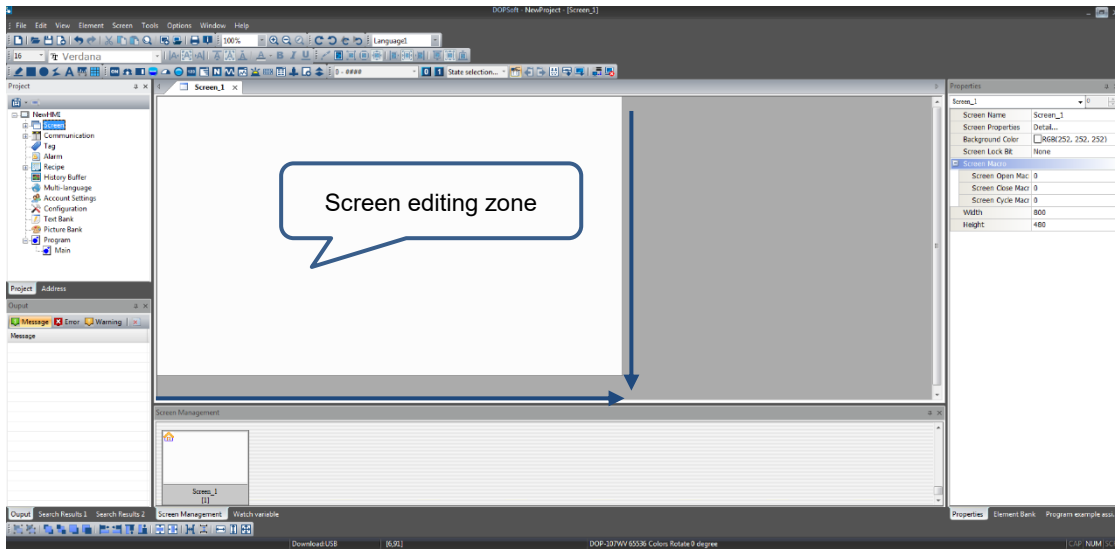
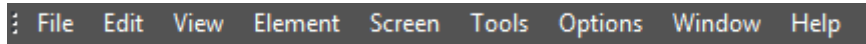


Figure 2.2.9 Screen editing zone

The following introduces the general function lists such as File, Edit, View, Screen, Tools, Window, and Help.



2.2.1 File

In addition to general functions of opening, closing, and saving files, the File list also provides options of Create Screen Data File, Create Auto Update Data File, Open Screen Data File, Create Download Screen Exe. File, and Password Protect.

2

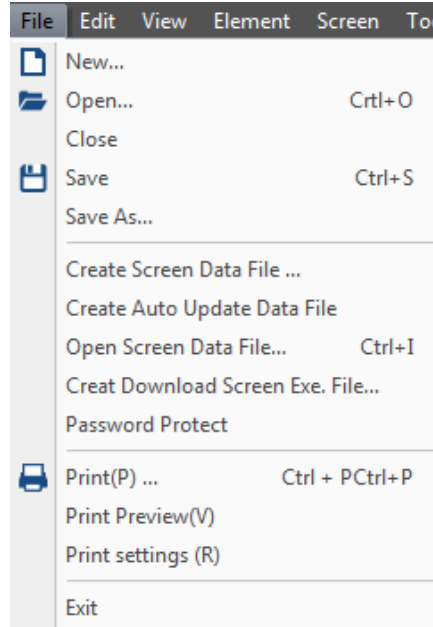



Figure 2.2.1.1 File function list

2.2.1.1 New...

2

When you click  or use the system keyboard shortcut **Ctrl+N** to create a new project, DOPSoft prompts the Project Wizard as shown in the following figure, and you can select the HMI model or printer to use and edit the project name and screen name. After you complete the basic settings in Project Setup, click **Next** to go to the Communication Settings.

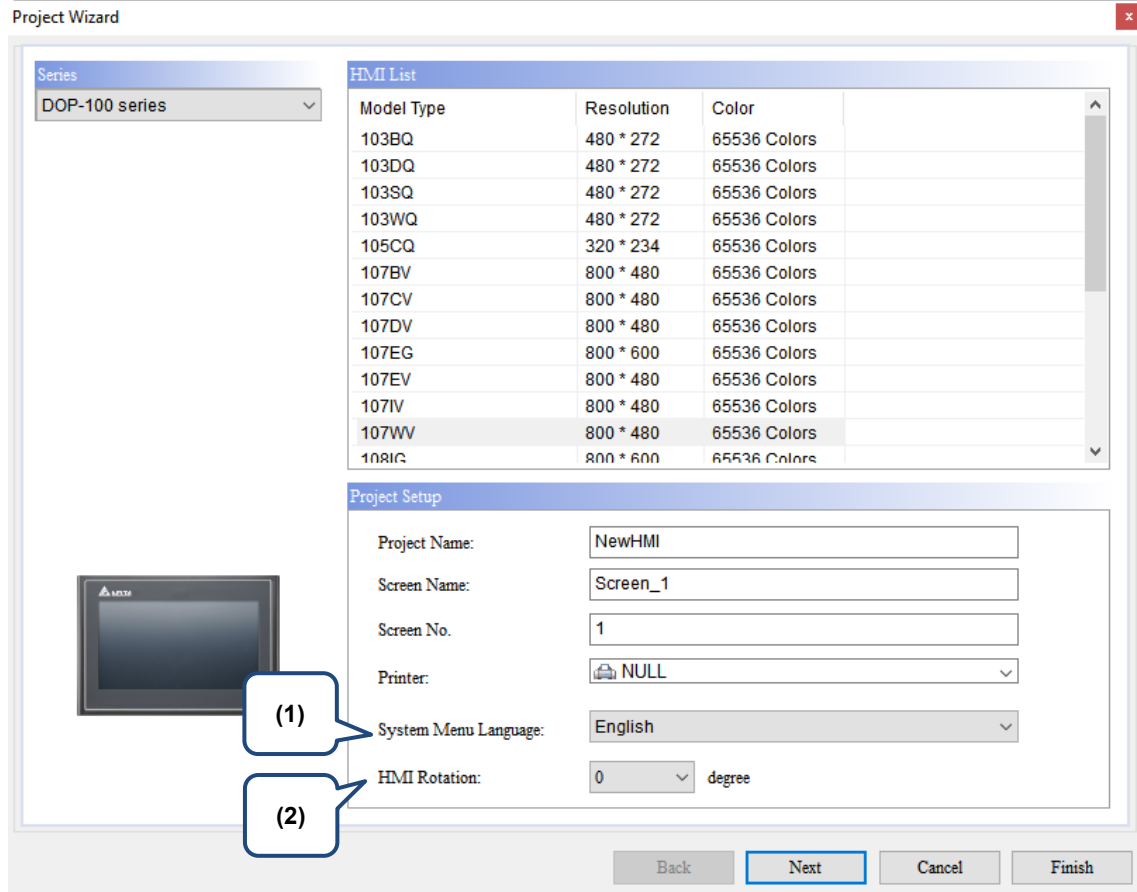


Figure 2.2.1.1.1 Project Wizard

No.	Item	Description
(1)	System Menu Language	Available system languages are English, French, Russian, Spanish, Traditional Chinese, Simplified Chinese, and Turkish.
(2)	HMI Rotation	Selectable rotation degrees are 0°, 90°, 180°, and 270°.

For Communication Settings, you can set the controller model and COM port or Ethernet port to use, as well as the parameters for communications between the HMI and controller, as shown in Figure 2.2.1.1.2.

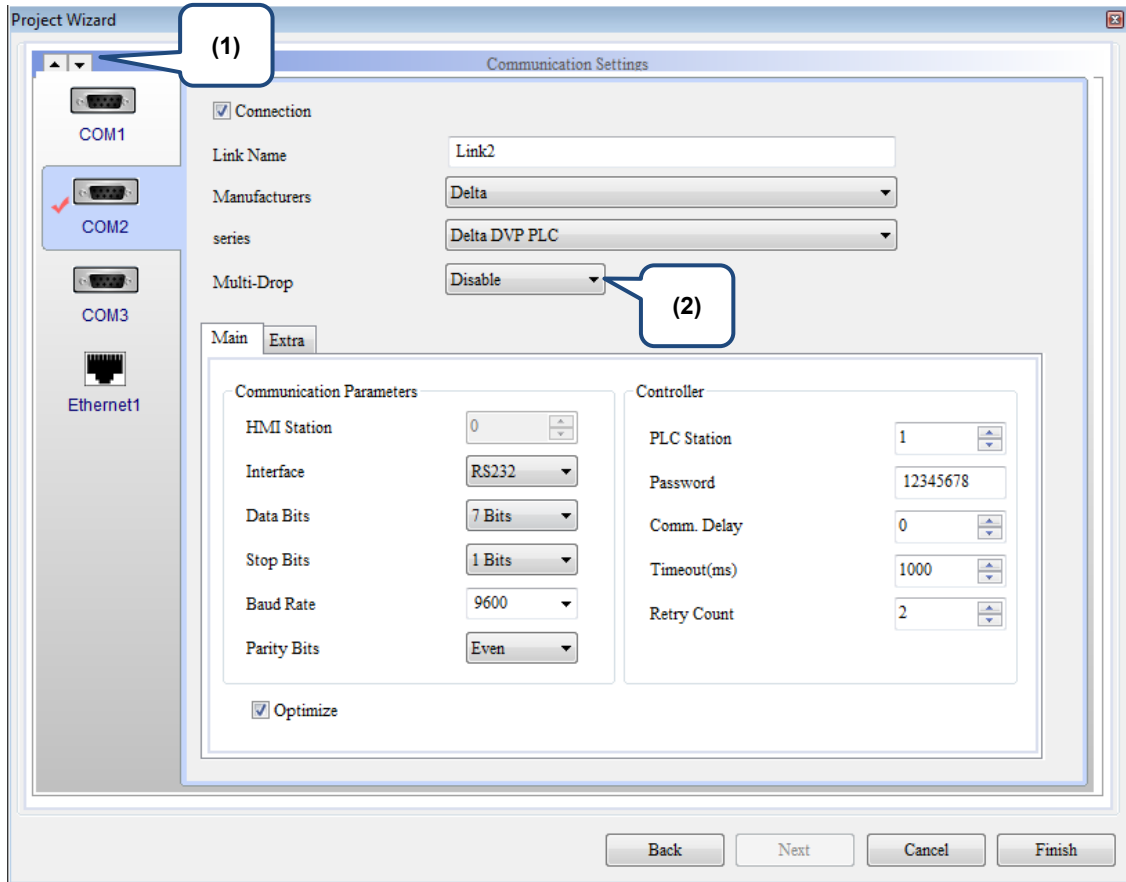



Figure 2.2.1.1.2 Project Wizard

No.	Item	Description
(1)	Up and Down arrows	Use the up and down arrows to switch among COM1, COM2, and COM3.
(2)	Multi-Drop	To enable the Multi-Drop communication mode, you can simply select Host or Client for Multi-Drop. To disable the Multi-Drop mode, select Disable.

2

If you are using Ethernet for communication, click the Ethernet1 icon to set the controller parameters. Go to the Device page and click  to add an Ethernet link and set its parameters such as Controller model, Controller IP address, Comm. Delay Time, Timeout, and Retry Count, as shown in Figure 2.2.1.1.3.

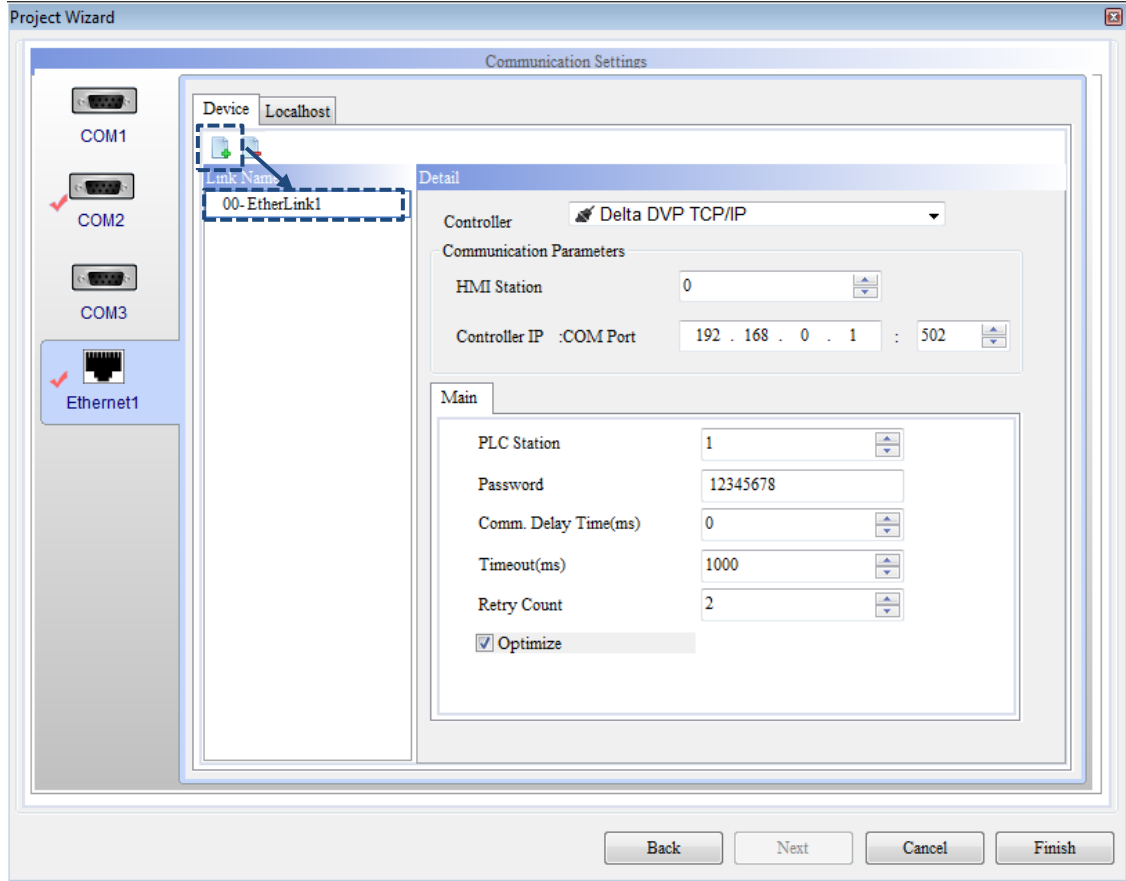
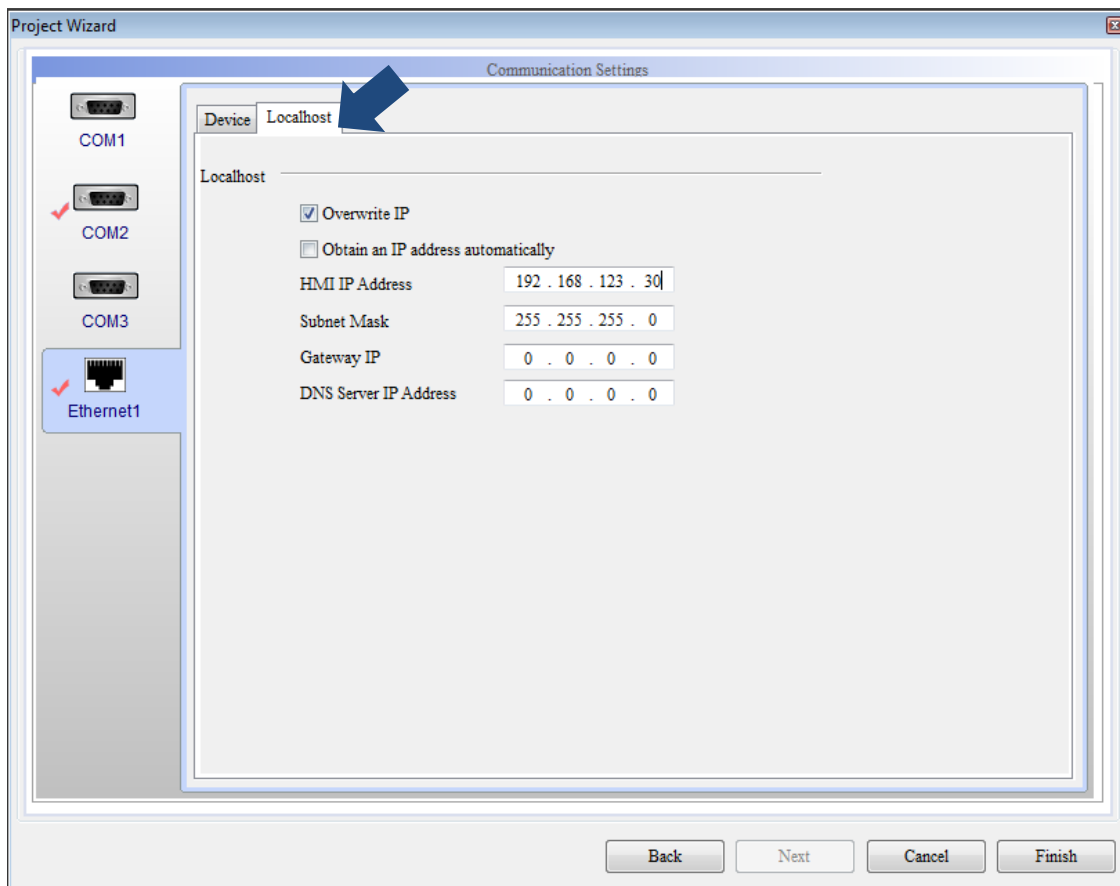


Figure 2.2.1.1.3 Project Wizard

You can also switch to the Localhost page to set the Localhost IP address and enable the network applications, as shown in Figure 2.2.1.1.4.



2

Figure 2.2.1.1.4 Project Wizard

About the Localhost:

This is the Localhost IP address of the HMI, which you can set the IP address or to obtain an IP address automatically.

- The check box for **Overwrite IP** is not selected:
When the check box is not selected, the HMI uses the default IP address, 0.0.0.1.
If you choose not to use the Overwrite IP option in the software, you can go to [System Setting] > [Network] to change its IP address.
- Select the check box for **Overwrite IP**:
If you select **Overwrite IP**, it means you are going to change the IP address with the software, so you can set the IP address to be written and the HMI model name.
- Select check boxes for both **Overwrite IP** and **Obtain an IP address automatically**:
If you select both options, it means the HMI uses the DHCP mode to get the IP address.
To check the exact IP address, you can go to [System Setting] > [Network].

After you complete all the settings, click **Finish** to go the DOPSoft project editing screen.

2

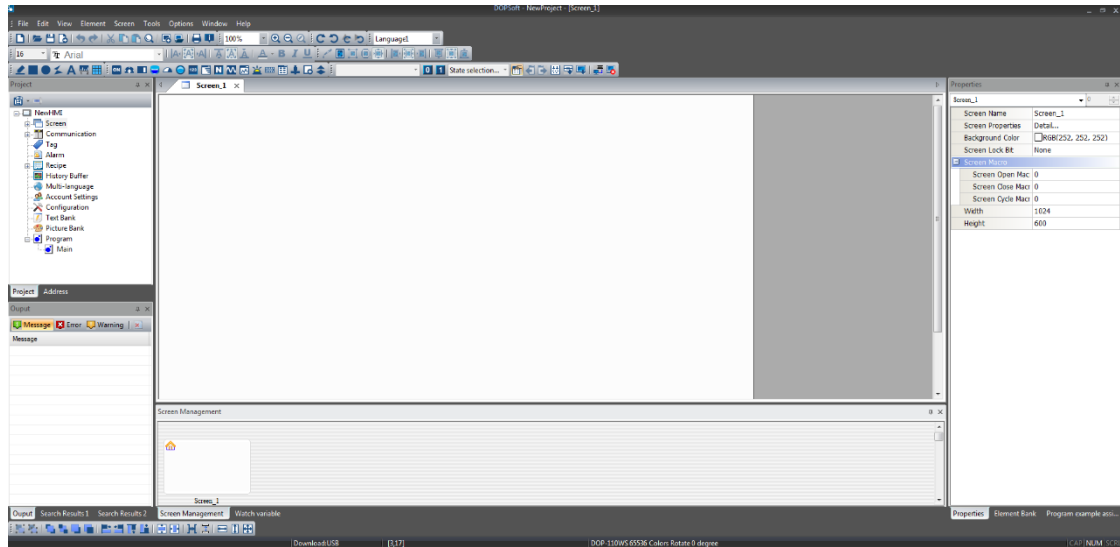



Figure 2.2.1.1.5 DOPSoft editing screen

2.2.1.2 Open...

To open the project file that has been saved in DOPSoft, you can click [File] > [Open...], as shown in Figure 2.2.1.2.1, click  in the toolbar, or use the system keyboard shortcut **Ctrl+O**.

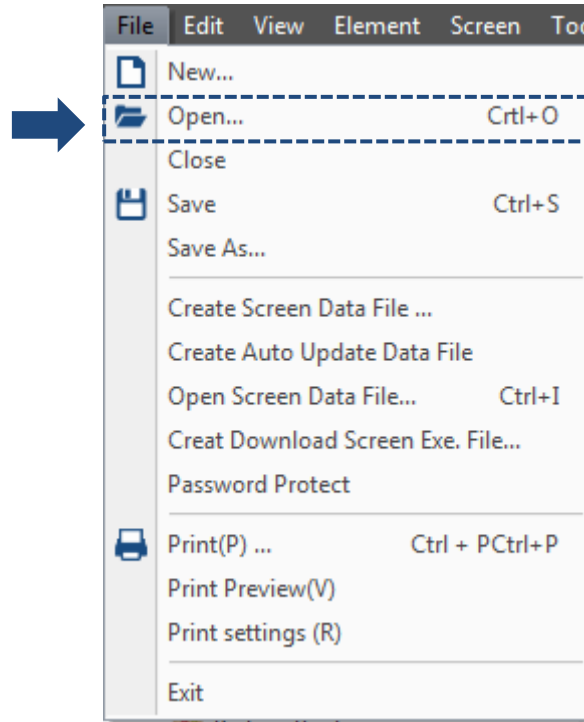


Figure 2.2.1.2.1 Open... option

If there is a modified project in the software editing screen and you click **Open...**, the software reminds you that the program has been changed and asks if you want to save the changes, as shown in Figure 2.2.1.2.2.

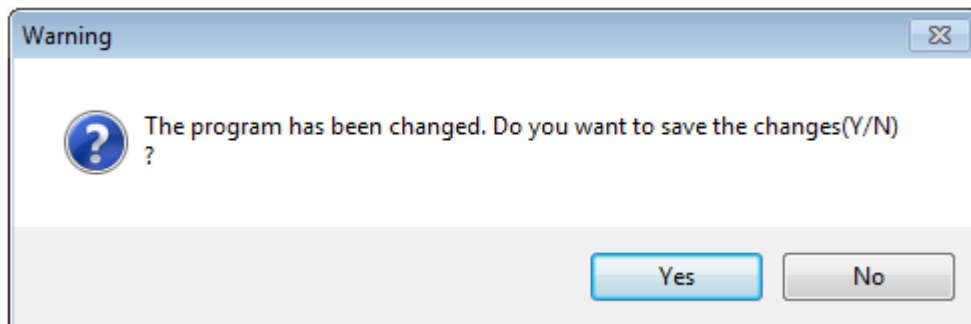


Figure 2.2.1.2.2 Confirmation dialog box for saving the changes

You can click **Yes** to save or click **No** to not to save the project. Whether the project is saved, the previous project will be opened, as shown in Figure 2.2.1.2.3.

2

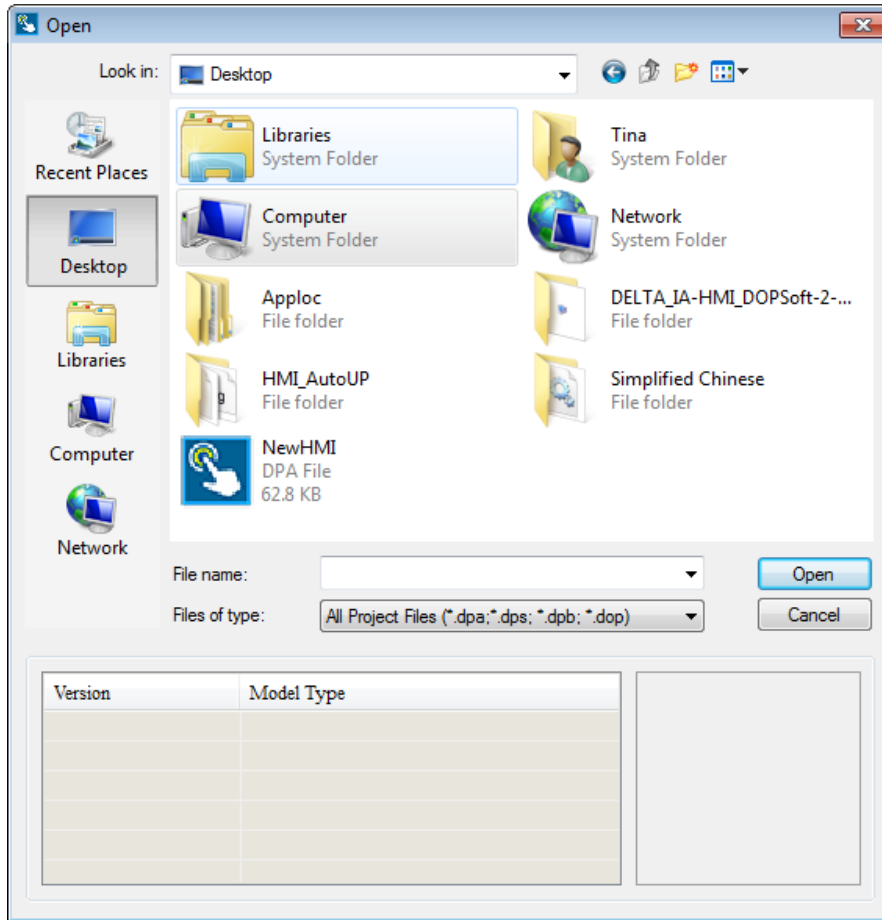


Figure 2.2.1.2.3 Open the previous project

The filename extension for the file in DOPSoft 4.0 is “.dpa”, but it can also be “.dps” (edited with DOPSoft 2.00.0x), “.dpb” (edited with Screen Editor 2.00.xx), or “.dop” (edited with Screen Editor 1.05.xx). If you open a “.dpb” file, it means the previous screen data is copied to the DOPSoft for editing without anything changed.

If you select a “.dop” file to open, the DOPSoft converts all the data in the A series HMI into the data for the 100 series for screen editing. So, the software prompts a message asking you which series of HMI to use, as shown in Figure 2.2.1.2.4 and Figure 2.2.1.2.5.

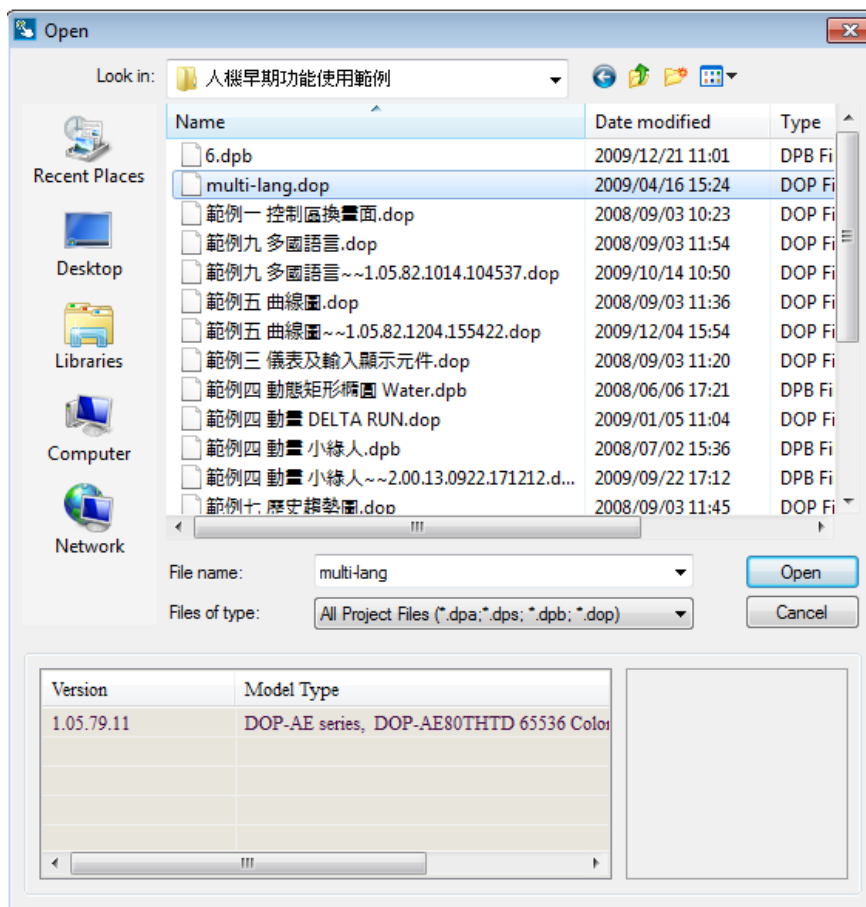


Figure 2.2.1.2.4 Open file of the A series HMI

2

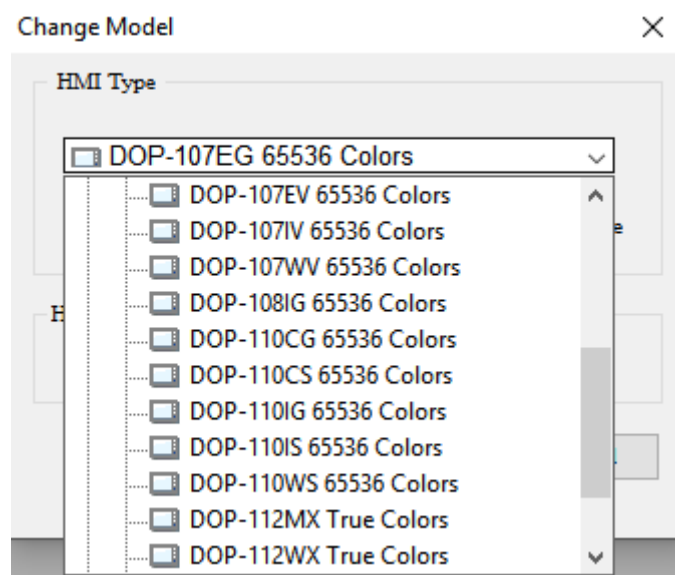
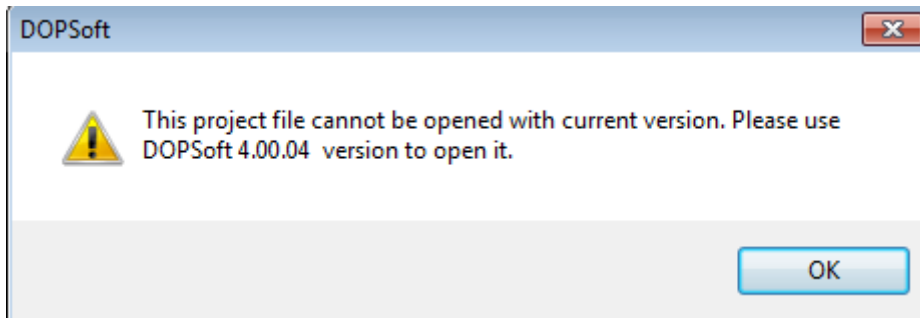


Figure 2.2.1.2.5 Select the HMI model to convert to

Note: if you open an old version HMI project such as a .dpg or .dop file that has been edited with the Screen Editor, and assume you have compiled the file with the DOPSoft and overwrite the original file, then you are unable to open this file with the previous version of DOPSoft. Therefore, backup the old file for future use if needed.



2.2.1.3 Close

It is to close the currently editing project file. To close the file, you can only go to [File] > [Close]. After the file is closed, if there are edited projects in the window, a window pops up to check whether you want to save this project. Click **Yes** to save the changes before closing the project; click **No** to discard the changes and directly close the project; or click **Cancel** to cancel the action of closing the project.

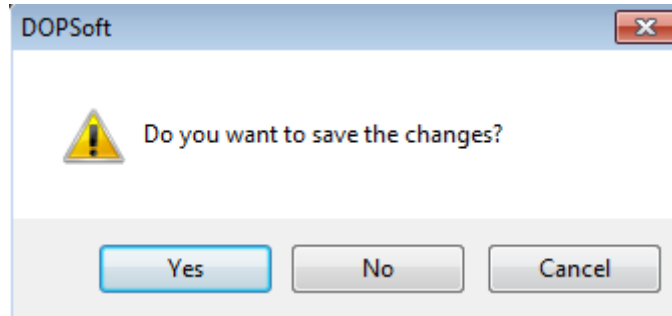



Figure 2.2.1.3.1 Close the project

2

2.2.1.4 Save

To save the current project file, you can go to [File] > [Save], use  on the toolbar, or use the keyboard shortcut **Ctrl+S** provided by the software. You can use all the above three methods to save the file. When you use any of the three methods, the software detects whether the current project file is newly created or existing. If it is a newly created project file, the software prompts a Save As window asking you to save the current project file, as shown in Figure 2.2.1.4.1. On the other hand, if it is an existing project file and you click **Save**, the current project file is directly saved without any window popping up.

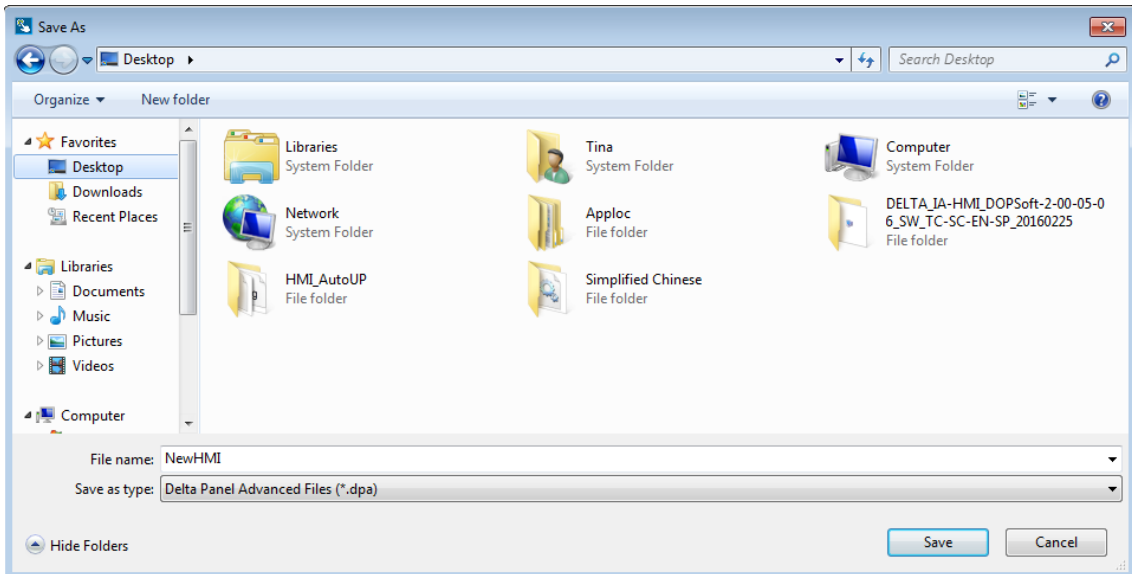


Figure 2.2.1.4.1 Save the file

2.2.1.5 Save As

Save As is to save the screen data you are editing to the system disk and you can name the file. You can execute this action only by going to [File] > [Save As]. Whether the project file is a new or an existing one, as long as you execute this function, the software prompts a Save As window, as shown in Figure 2.2.1.5.1. Click **Save** and the project will be saved in the path you specified for Save As.

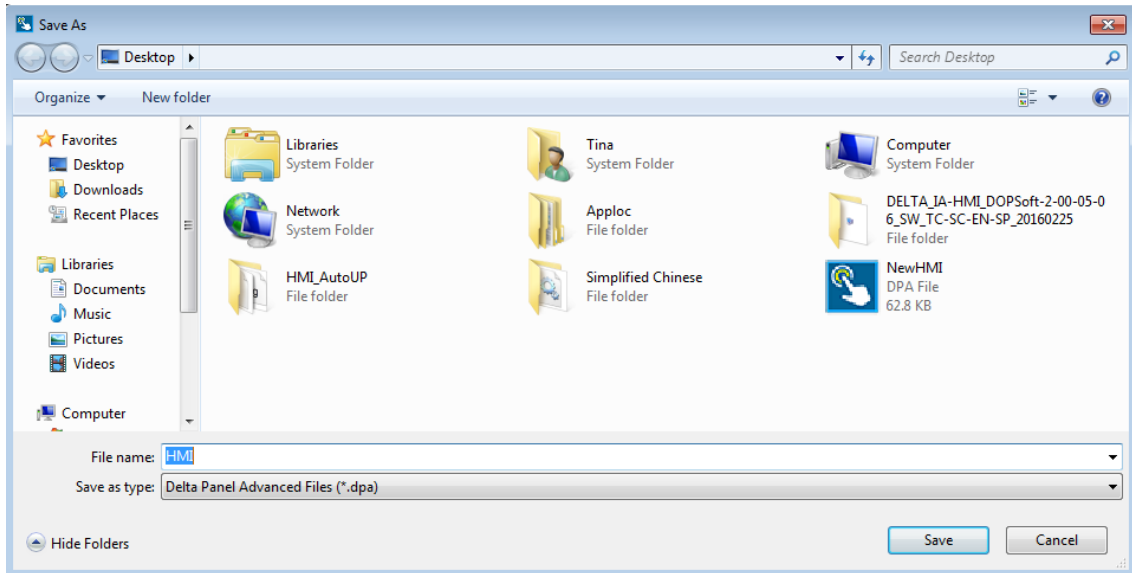


Figure 2.2.1.5.1 Save As

2

2.2.1.6 Create Screen Data File...

After you create the screen data file, the DOPSoft automatically compiles the screen data. After the compilation, the software prompts a saving directory for you to select. When you select the check box of **Enable Protection**, it means you have to enter the password you set to copy the files. The default is 12345678.

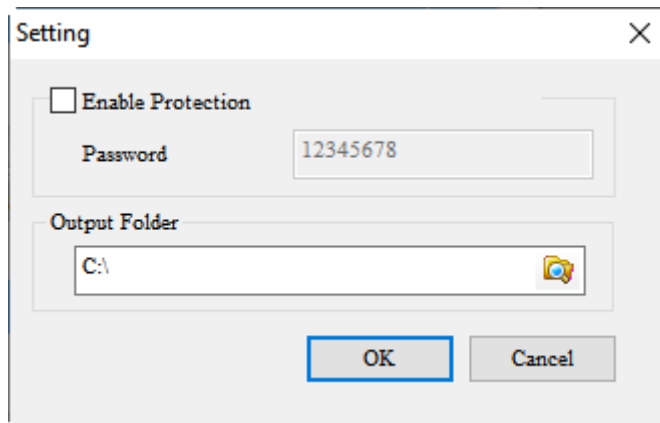


Figure 2.2.1.6.1 Create the screen data file

After you select the directory, the software copies the compiled screen data to the specified directory, which is usually in the SD Card or USB Drive, as shown in Figure 2.2.1.6.2. You can insert the SD Card or USB Drive and start the HMI. Go to the system screen and click [System Setting] > [File Manager] to use the functions of Format, File Copy, and Firmware Update. Details for these three functions are described in Appendix A System Screen.

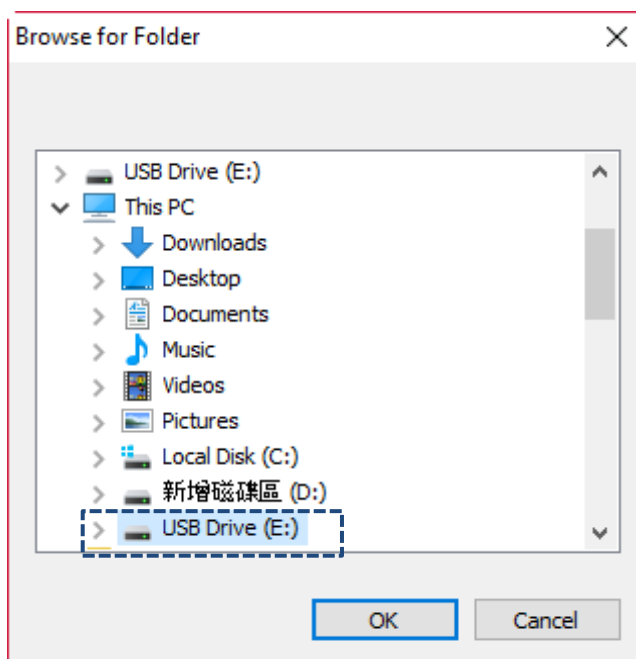


Figure 2.2.1.6.2 Directory for saving the create screen data file

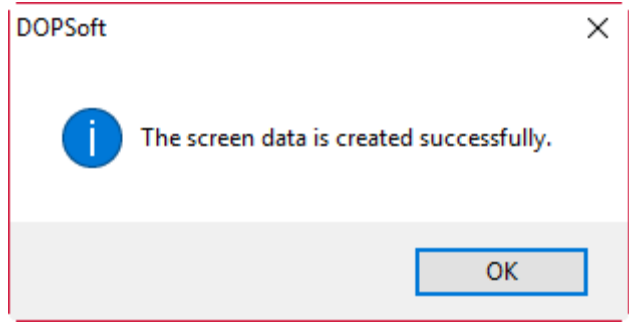


Figure 2.2.1.6.3 The screen data is created successfully

2.2.1.7 Create Auto Update Data File

After you create the auto update screen data file, the DOPSoft automatically compiles the current screen data. After the compilation, the software prompts a saving directory for you to select. When you select the check box of **Enable Protection**, it means you have to enter the password you set to copy the files. The default is 12345678.

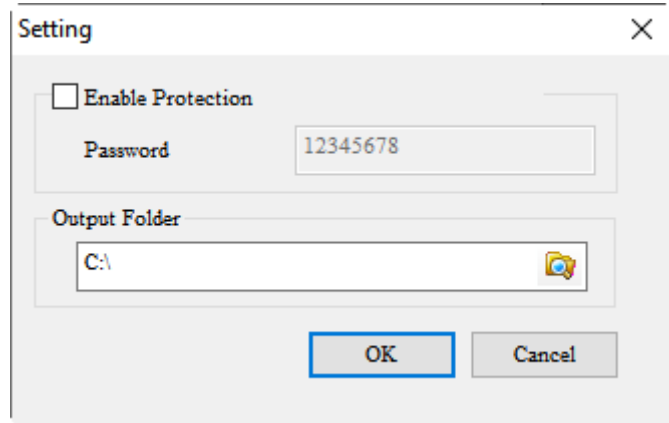


Figure 2.2.1.7.1 Create auto update data file

After you select the directory, the software copies the compiled screen data to the specified directory, which is usually in the SD card or USB drive, as shown in Figure 2.2.1.7.2.

2

The only difference between this function and Create Screen Data File is that before HMI powering on or returning to the system screen, if you insert a USB Drive, the HMI detects whether there is an auto update file (Disk Auto Update Check). If detected, the HMI prompts a window to ask if you want to start the automatic update, as shown in Figure 2.2.1.7.4. Select **OK** and the HMI automatically updates the firmware and screens; select **Cancel** and the HMI is unchanged.

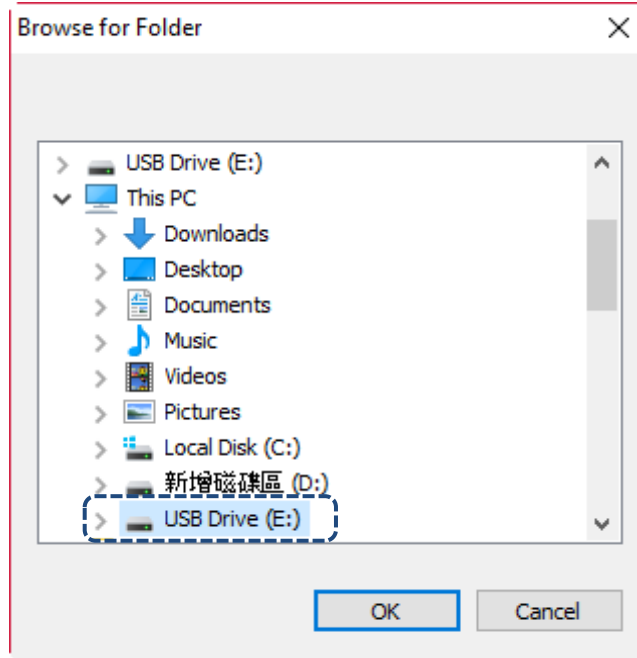


Figure 2.2.1.7.2 Directory for saving the create screen data file

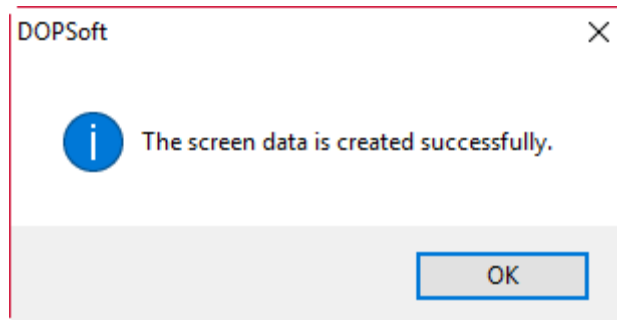


Figure 2.2.1.7.3 The screen data is created successfully

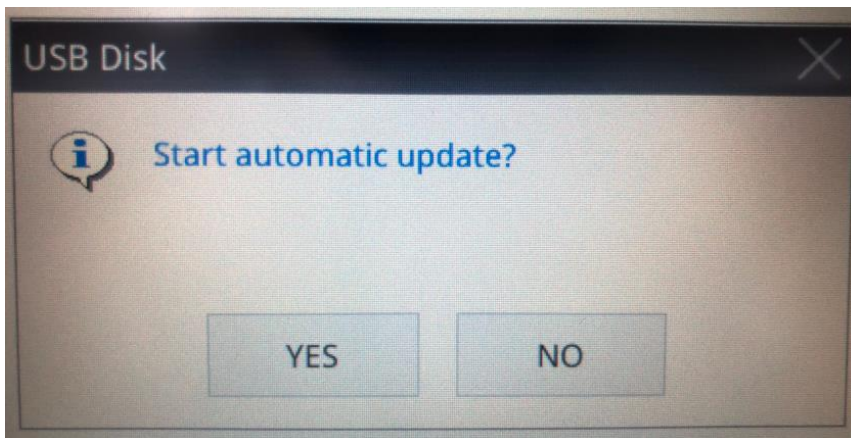


Figure 2.2.1.7.4 The HMI prompts a screen asking whether to start the automatic update

Once the auto update screen file is created, there will be an HMI_AutoUP folder saved in the external device.

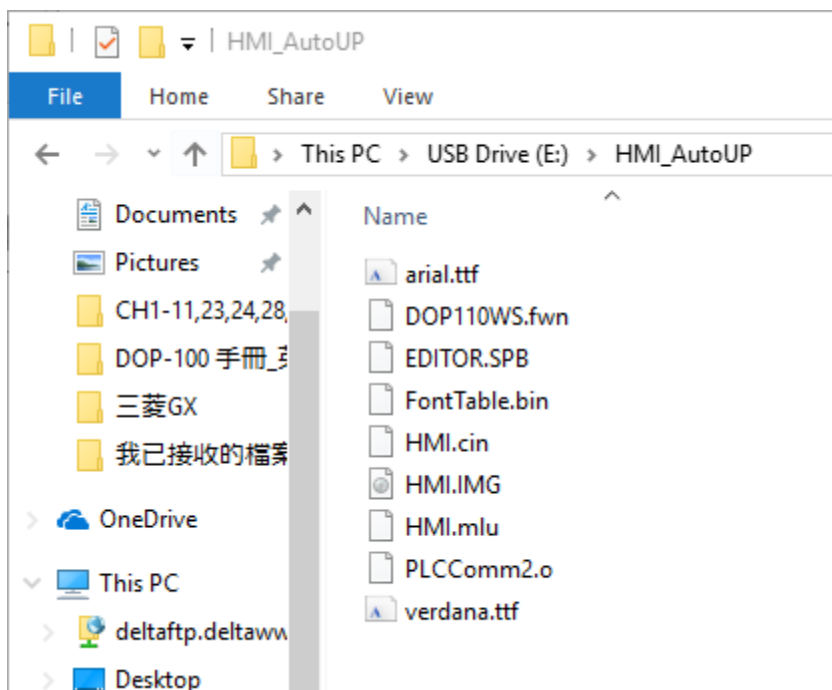


Figure 2.2.1.7.5 The directory generated by the auto update screen file you created

Note: if the external devices, the USB Disk and SD Card both have this HMI_AutoUP folder for firmware and screen update, the HMI first updates the USB Disk and then the SD Card.

The rest of the functions are the same as the function of Create Screen Data File. You can insert the SD Card or USB Disk and start the HMI to go to the system screen. Click [System Setting] > [File Manager] to use the functions of Format, File Copy, and Firmware Update. Details for these three functions are described in Appendix A System Screen.

2

2.2.1.8 Open Screen Data File...

Once you click [Open Screen Data File], the software prompts you to select the directory where the screen data file is saved, as shown in Figure 2.2.1.8.1.

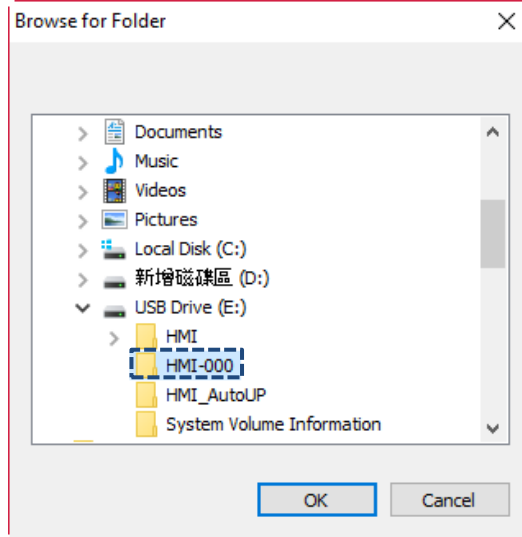


Figure 2.2.1.8.1 Select the screen data file

After you select the screen data file to open, the software will again ask you whether to rename or save the screen data file you open, as shown in Figure 2.2.1.8.2.

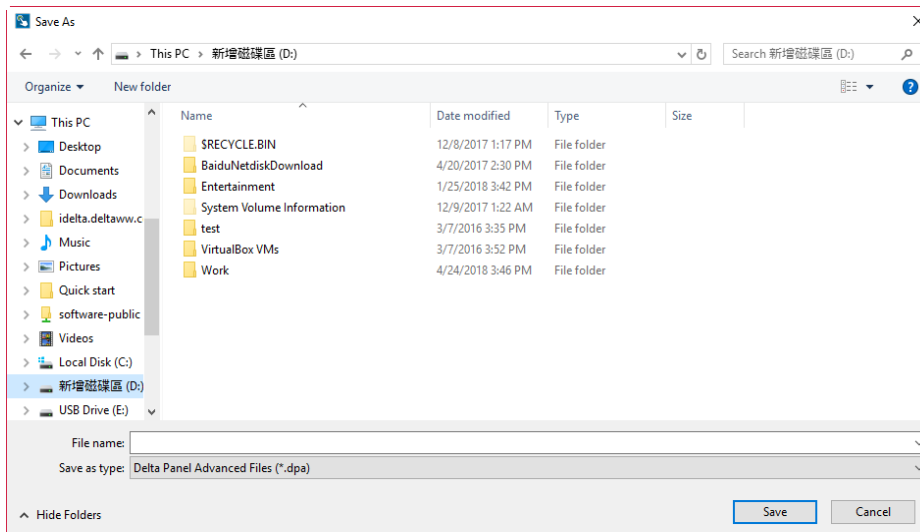
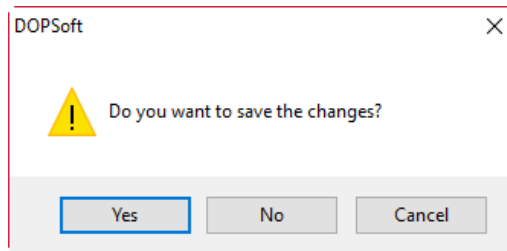


Figure 2.2.1.8.2 Save screen data file

2.2.1.9 Create Download Screen Exe. File...

This function is mainly for generating the execution file, which allows you to download the screen projects to the HMI without the DOPSoft. Click [Create Download Screen Exe. File...], and the software will prompt a directory for you to save the download screen execution file, as shown in Figure 2.2.1.9.1.

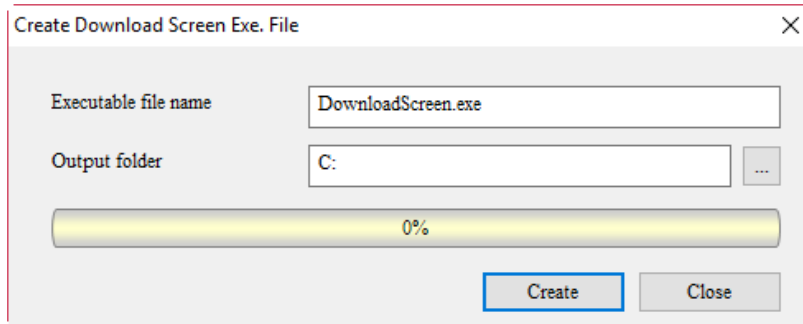


Figure 2.2.1.9.1 Select the output folder

Select the output folder and execution filename. You can also change the output folder, as shown in Figure 2.2.1.9.2.

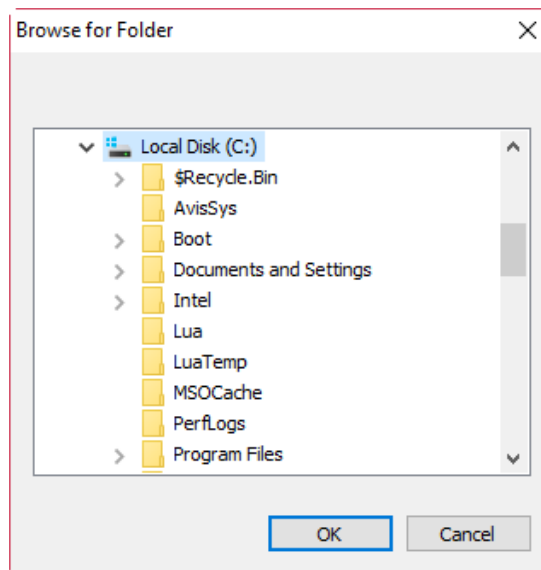


Figure 2.2.1.9.2 Directory for saving the created download screen execution file

2

Click **Create** to start creating the download execution file.

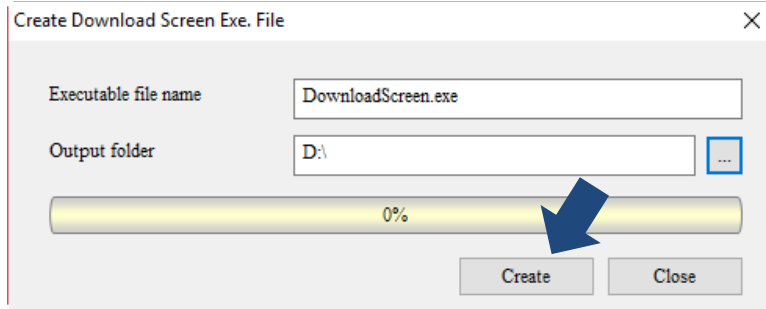


Figure 2.2.1.9.3 Start creating the download execution file

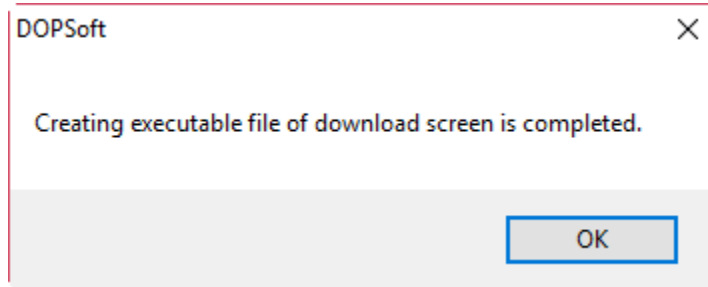


Figure 2.2.1.9.4 Creating the download execution file is complete

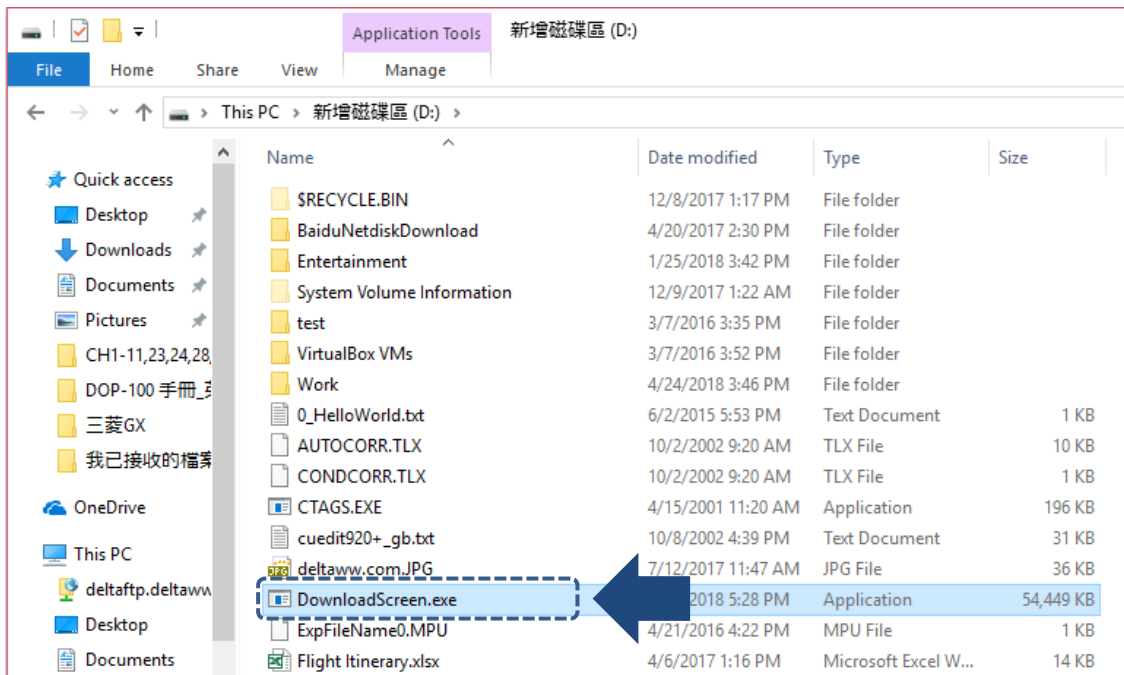


Figure 2.2.1.9.5 Execution file icon

The output folder will display the DownloadScreen.exe. file, and you can double-click the mouse left button to execute it and download the screen project to the HMI without the DOPSoft installed on your PC.

Click the DownloadScreen.exe file and the screen is shown as follows.

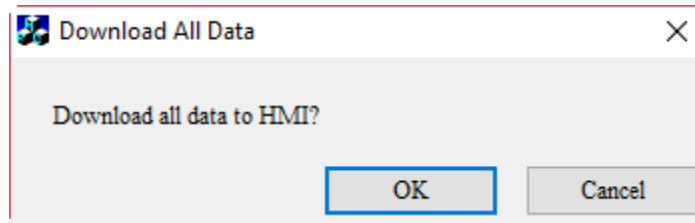


Figure 2.2.1.9.6 Execute download

Click **OK** and you can download the screen project to the HMI.

2

2.2.1.10 Password Protect

To execute password protection, you can go to [File] > [Password Protect] to enable this function. After you click [Password Protect], the software prompts a message to notify that the password protection is enabled.

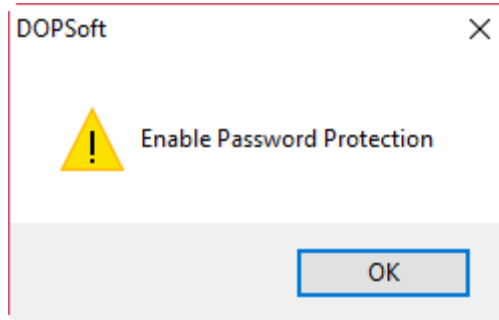


Figure 2.2.1.10.1 Password protection enabled

You can again click [File] > [Password Protect] to check if password protection is enabled for this project file. If enabled, the function list is shown as Figure 2.2.1.10.2.

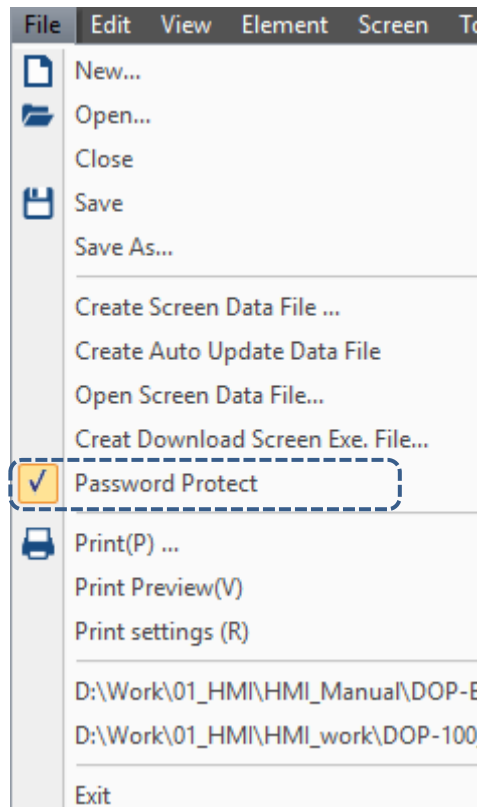


Figure 2.2.1.10.2 Password Protect enabled successfully

After Password Protect is enabled, you can change the password by going to [Options] > [Configuration] to change to a new set of password from the default Highest security password “12345678”.

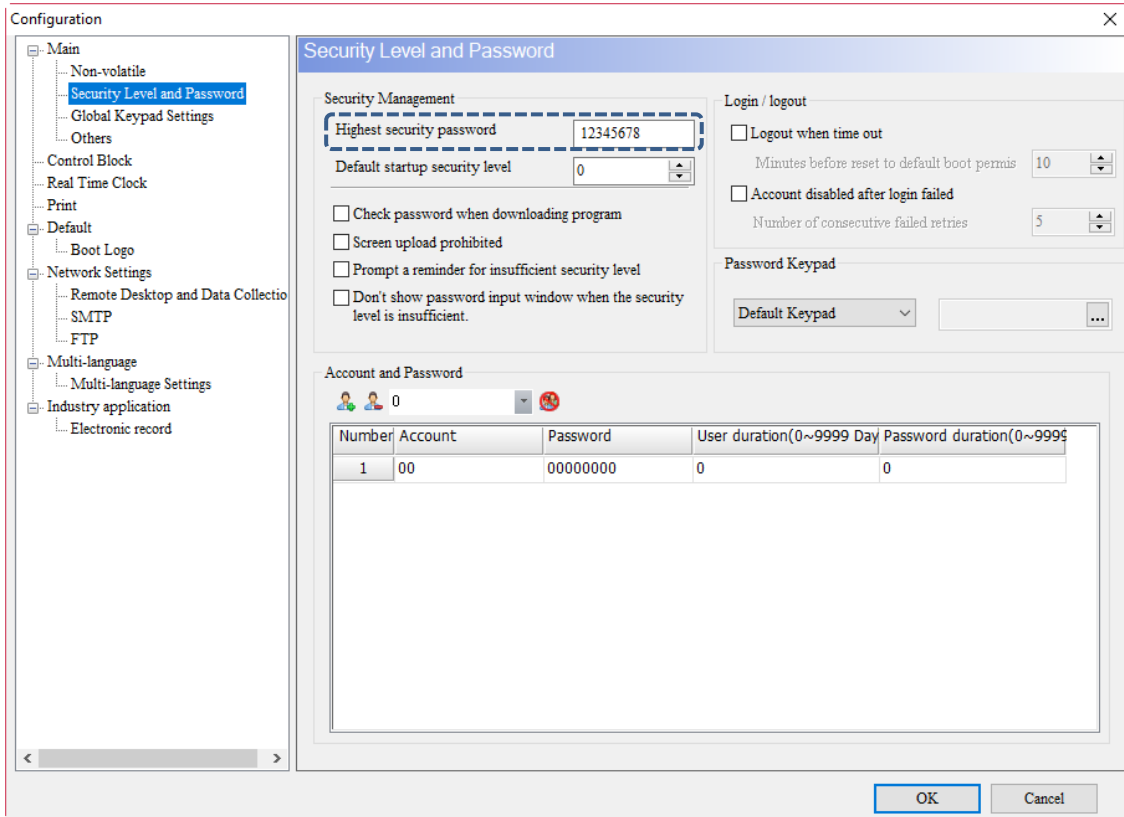


Figure 2.2.1.10.3 Security Level and Password settings

Once you complete the setting for the Highest security password, exit and save the project. And the next time you try to open the project, you will be asked to enter the password for opening this protected file.

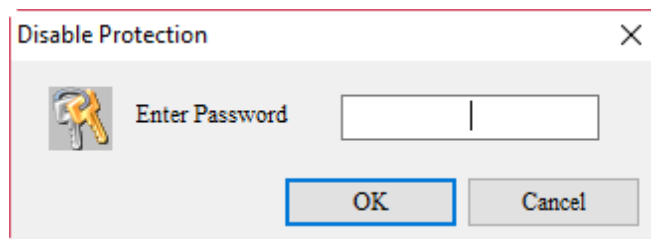


Figure 2.2.1.10.4 Request for entering the Highest security password

If you enter the wrong password, the software prompts a message window of incorrect password.

2

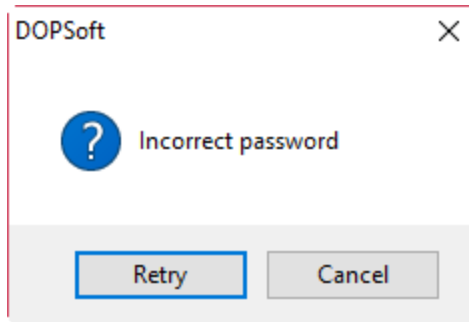


Figure 2.2.1.10.5 Enter the wrong password for the Highest security password

You can click **Retry** to re-enter the password or click **Cancel** to exit the password input window. If the password is correct, you can open the password-protected project file.

To disable the password protection, you need to go to [File] > [Password Protect] to disable this function. And the software will also prompt you that the Password Protect is disabled.

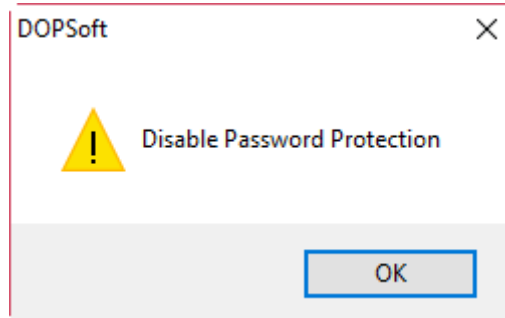


Figure 2.2.1.10.6 Password protection disabled

In the same way, you can go to [File] > [Password Protect] to check if this password protection is disabled for this project file. If it is disabled successfully, the Password Protect selection is canceled as shown in Figure 2.2.1.10.7.

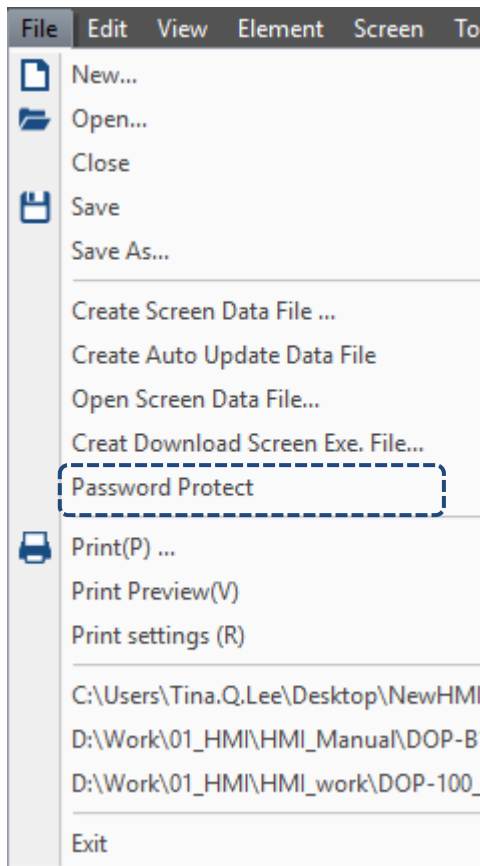


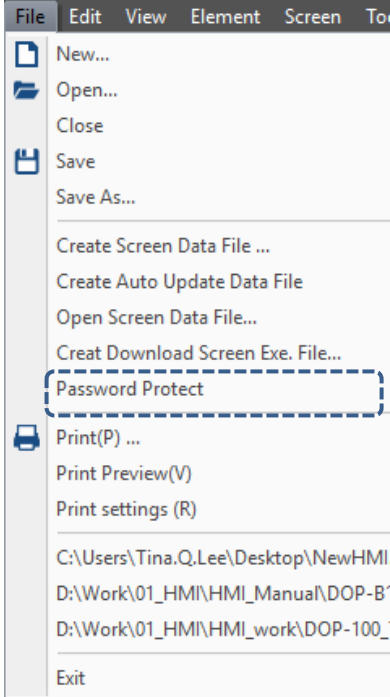
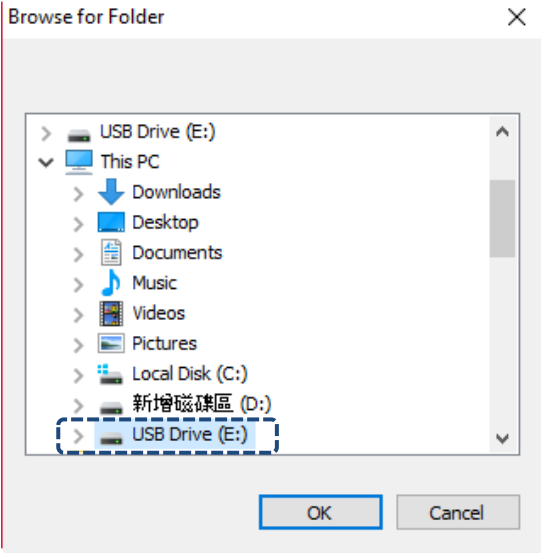
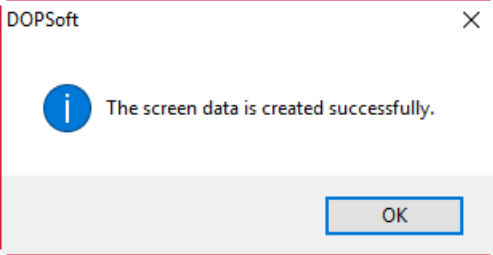
Figure 2.2.1.10.7 Password Protect disabled successfully

Once the Password Protect is disabled, exit and save the project. You do not need password verification the next time you open the project.

The Password Protect function can work with the Create Screen Data File function. This allows you to set whether a password is required for verification when you copy files from an external device to the HMI. Example descriptions for this function are as follows.

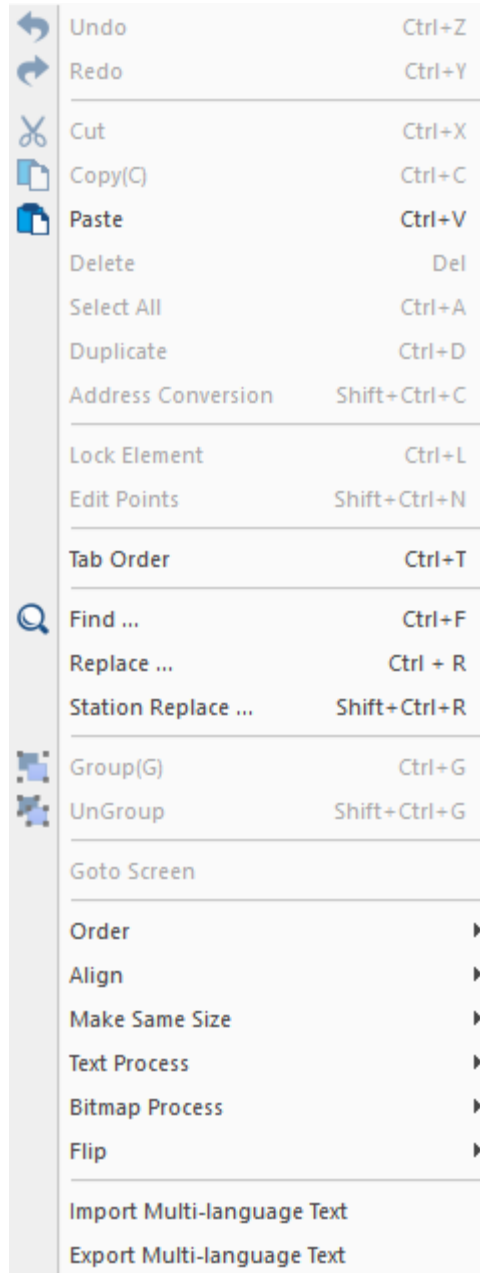
Table 2.2.1.10.1 Password Protect example

2

Password Protect	
Select Password Protect	<p>Click [File] > [Password Protect].</p> 
Create Screen Data File	<p>Select the option of [Create Screen Data File] and select an external device for storage. Once the screen data file creation is complete, go to the HMI system screen.</p>  
Execution results	<p>Insert the external storage device to the HMI. Go to [System Setting] > [File Manager], and you can copy files from the external device to the HMI without password verification.</p>

2.2.2 Edit

There is an Edit function list with the following functions for you to use.

A screenshot of a software menu titled 'Edit'. The menu is organized into sections with icons on the left. The first section includes Undo (Ctrl+Z), Redo (Ctrl+Y), Cut (Ctrl+X), Copy (Ctrl+C), Paste (Ctrl+V), Delete (Del), Select All (Ctrl+A), Duplicate (Ctrl+D), and Address Conversion (Shift+Ctrl+C). The second section includes Lock Element (Ctrl+L), Edit Points (Shift+Ctrl+N), and Tab Order (Ctrl+T). The third section includes Find (Ctrl+F), Replace (Ctrl+R), and Station Replace (Shift+Ctrl+R). The fourth section includes Group (Ctrl+G) and UnGroup (Shift+Ctrl+G). The fifth section includes Goto Screen, Order, Align, Make Same Size, Text Process, Bitmap Process, and Flip. The final section includes Import Multi-language Text and Export Multi-language Text.









	Undo	Ctrl+Z
	Redo	Ctrl+Y
<hr/>		
	Cut	Ctrl+X
	Copy(C)	Ctrl+C
	Paste	Ctrl+V
	Delete	Del
	Select All	Ctrl+A
	Duplicate	Ctrl+D
	Address Conversion	Shift+Ctrl+C
<hr/>		
	Lock Element	Ctrl+L
	Edit Points	Shift+Ctrl+N
<hr/>		
	Tab Order	Ctrl+T
<hr/>		
	Find ...	Ctrl+F
	Replace ...	Ctrl + R
	Station Replace ...	Shift+Ctrl+R
<hr/>		
	Group(G)	Ctrl+G
	UnGroup	Shift+Ctrl+G
<hr/>		
	Goto Screen	
<hr/>		
	Order	▶
	Align	▶
	Make Same Size	▶
	Text Process	▶
	Bitmap Process	▶
	Flip	▶
<hr/>		
	Import Multi-language Text	
	Export Multi-language Text	

Figure 2.2.2.1 Edit function list

2

2.2.2.1 Duplicate

The Duplicate function allows you to select one element and then right-click the mouse button to execute multiple duplicate actions. With this function, you can select one element and duplicate the element based on the addresses in descending or ascending order, which saves the time for manually setting the element addresses. You can also go to [File] > [Duplicate] to execute this function. Click [Duplicate] and the window is shown as Figure 2.2.2.1.1.

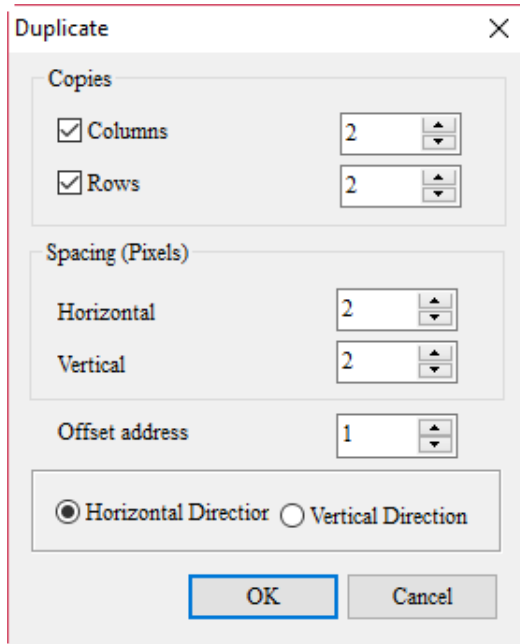
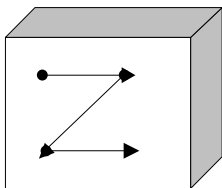
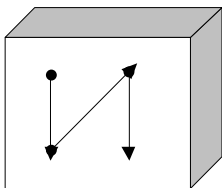
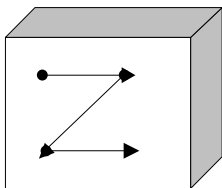
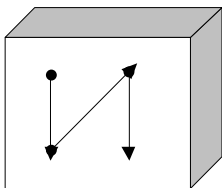
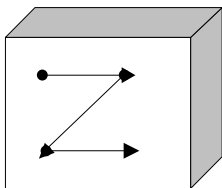
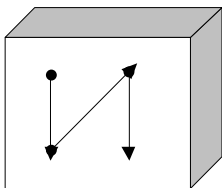


Figure 2.2.2.1.1 Duplicate

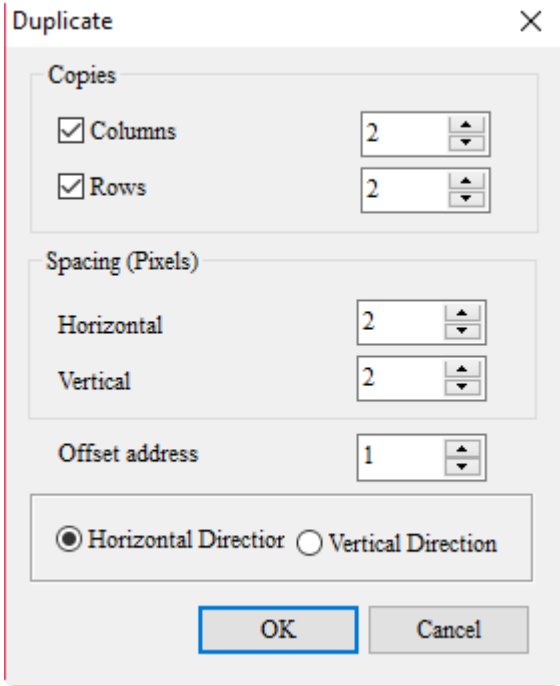
The following table is the detailed description for Duplicate, including Copies, Spacing, and Offset address.

Table 2.2.2.1.1 Duplicate

Copies	Columns	In the Copies section, select the number of columns (X) and number of rows (Y) to get a total number of X * Y elements. To duplicate the element in single direction, select Horizontal Direction or Vertical Direction to enable this function.				
	Rows					
Spacing (Pixels)	Horizontal	The spacing between each element. After you set the spacing value, the new elements will automatically be separated based on the spacing you set after the duplication is complete.				
	Vertical					
Offset address	Horizontal Direction	You can first determine the address to be set in ascending order (positive value) or descending order (negative value), and then execute Duplicate based on the settings of Horizontal Direction and Vertical Direction. If the element data type is Word, the address value increases / decreases in Word as the unit; on the other hand, if the element data type is Bit, then the address increases / decreases in Bit as the unit.				
	Vertical Direction	<table border="1" style="width: 100%; text-align: center;"> <tr> <th style="width: 50%;">Horizontal Direction</th> <th style="width: 50%;">Vertical Direction</th> </tr> <tr> <td></td> <td></td> </tr> </table>	Horizontal Direction	Vertical Direction		
Horizontal Direction	Vertical Direction					
						

For the Duplicate function example settings, refer to the following table.

Table 2.2.2.1.2 Duplicate example

Duplicate														
Element address	Word	Bit												
	\$0	\$0.0												
Copies														
Spacing (Pixels)														
Offset address														
Execution results	<table border="1"> <thead> <tr> <th colspan="2">Word</th> </tr> </thead> <tbody> <tr> <td>W:\$0 \$0</td> <td>W:\$1 \$1</td> </tr> <tr> <td>W:\$2 \$2</td> <td>W:\$3 \$3</td> </tr> </tbody> </table>	Word		W:\$0 \$0	W:\$1 \$1	W:\$2 \$2	W:\$3 \$3	<table border="1"> <thead> <tr> <th colspan="2">Bit</th> </tr> </thead> <tbody> <tr> <td>W:\$0.0 \$0.0</td> <td>W:\$0.1 \$0.1</td> </tr> <tr> <td>W:\$0.2 \$0.2</td> <td>W:\$0.3 \$0.3</td> </tr> </tbody> </table>	Bit		W:\$0.0 \$0.0	W:\$0.1 \$0.1	W:\$0.2 \$0.2	W:\$0.3 \$0.3
Word														
W:\$0 \$0	W:\$1 \$1													
W:\$2 \$2	W:\$3 \$3													
Bit														
W:\$0.0 \$0.0	W:\$0.1 \$0.1													
W:\$0.2 \$0.2	W:\$0.3 \$0.3													

2

2

2.2.2.2 Address Conversion

This function converts the address of the element which address has been set. You must set the address of the element before selecting the element for address conversion. With this function, you can easily manage and set the addresses when you add or modify communication connections.

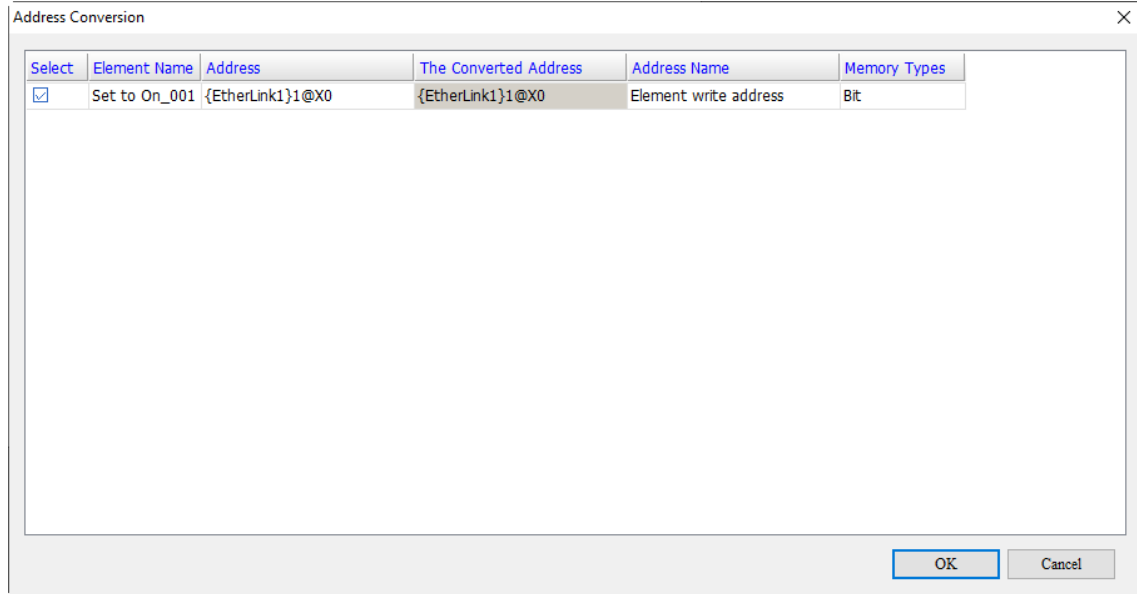
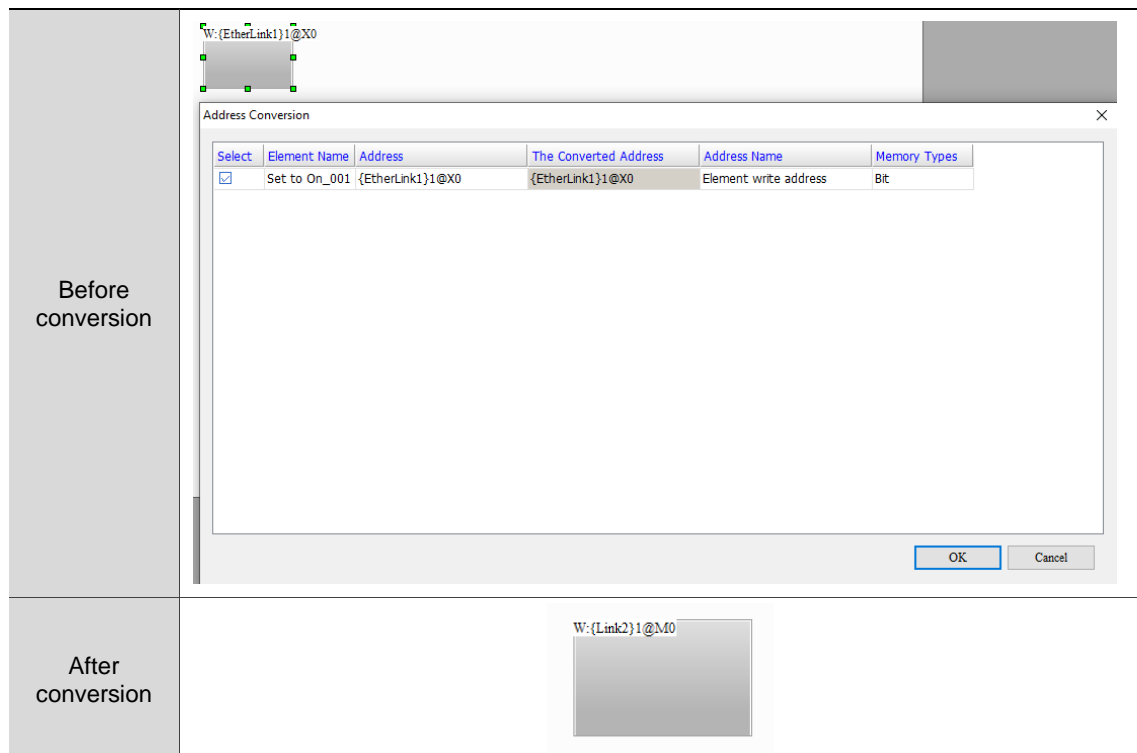


Figure 2.2.2.2.1 Address conversion

To convert the address, simply enter the modified or added address to The Converted Address column, and click **OK**.

Table 2.2.2.2.1 Address conversion example



2.2.2.3 Lock Element

When there are multiple overlapped elements, it could be difficult to select or drag the element at the bottom layer and you might accidentally move the other elements. With this function, you can lock the element by right-clicking on the element you finished editing. As shown in the following figure, a pin icon appears on the top-right corner.



Figure 2.2.2.3.1 Lock Element

The locked element will not be selected or clicked, so you can edit complicated screens more easily.

To unlock the element, simply click the pin icon. Then, the pin icon disappears and the features of this element are recovered.

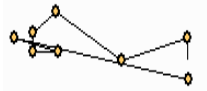
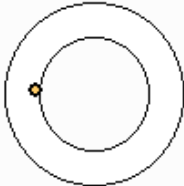
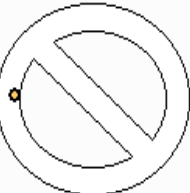

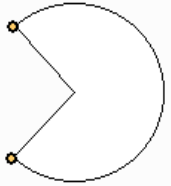
2

2.2.2.4 Edit Points

The DOPSoft also provides another function, Edit Points. This function allows you to edit the polygon, hollow circle, stop circle, arc, and pie chart elements. To use this function, create one of the elements mentioned above before clicking [Edit] > [Edit Points].


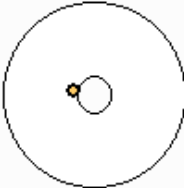
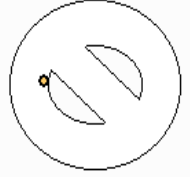
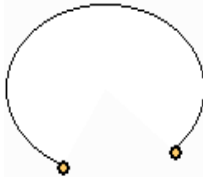
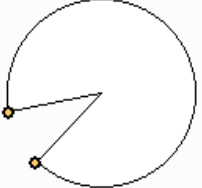
After you create the element and click [Edit] > [Edit Points], the editing points on the polygon, hollow circle, stop circle, arc, and pie chart elements are shown in Table 2.2.2.4.1.

Table 2.2.2.4.1 Before using Edit Points

Before using Edit Points				
Polygon	Hollow Circle	Stop Circle	Arc	Pie Chart
				

You can adjust the shape as required as shown in Table 2.2.2.4.2.

Table 2.2.2.4.2 After using Edit Points

After using Edit Points				
Polygon	Hollow Circle	Stop Circle	Arc	Pie Chart
				

2.2.2.5 Tab Order

With the Tab Order function, you can use the **Tab** key on the keypad to select the elements of the HMI. To use this function, create at least two elements and execute them, and the sequence numbers appear on the elements. Then, you can change the sequence numbers by clicking the number in blue at the bottom-left corner.

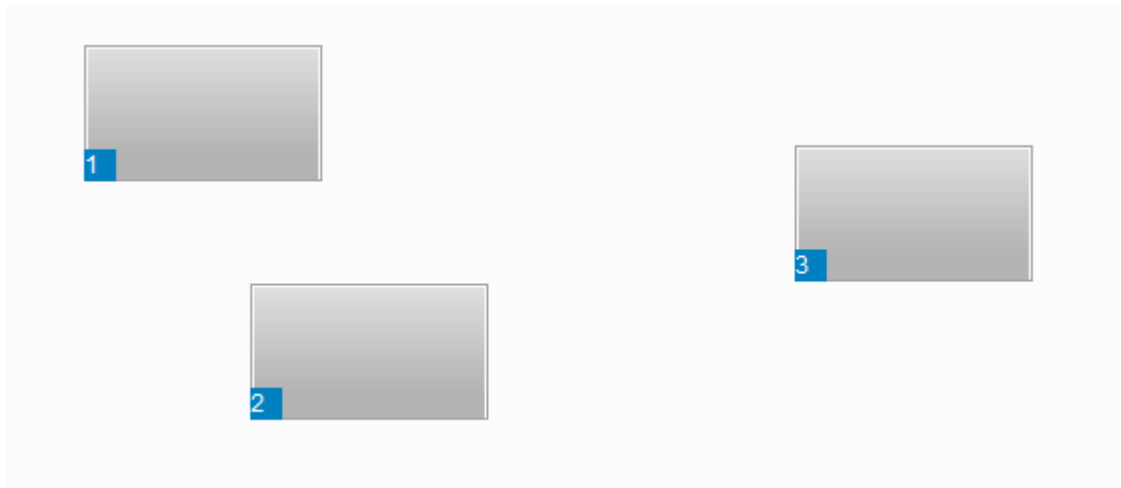


Figure 2.2.2.5.1 Tab Order

After downloading the elements to the HMI, use the **Tab** key on the keypad to select the element to be executed. The border of the selected element is in light blue.

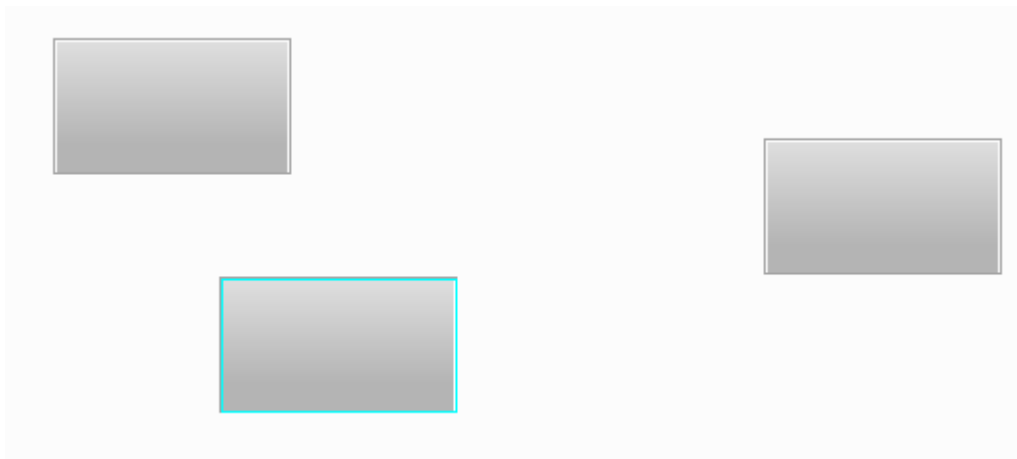


Figure 2.2.2.5.2 Execute **Tab** key action

2

2.2.2.6 Find

To find the specified text and address, you can go to [Edit] > [Find] or use the system keyboard shortcut **CTRL + F** provided by the system. This function allows you to quickly find the result. The Find function also adds the Data Type option so the results are more accurate and can be categorized in the displaying result window. After you click the Find function, enter the content to be found and then go to Options to select Current Screen or All Screens. The Type search options includes Text, Element read address, Element write address, and All Addresses. The available search options for Data Type are Bit, WORD, or DWORD, as shown in Figure 2.2.2.6.1.

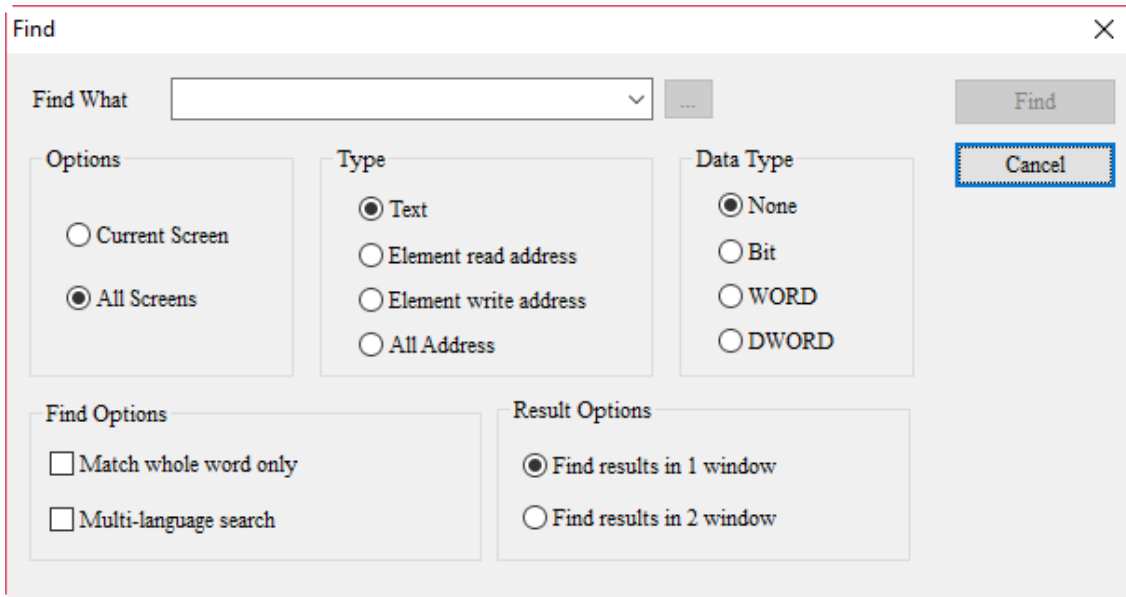


Figure 2.2.2.6.1 Find

Set the Type and Data Type to search and show the results in Search Results 1 or Search Results 2. Then, click **Find** and the system finds the matched contents for you. When the contents are found, the found elements are output to the specified result window. If you click the items in the output window, the cursor automatically specifies the corresponding element as shown in Figure 2.2.2.6.2.

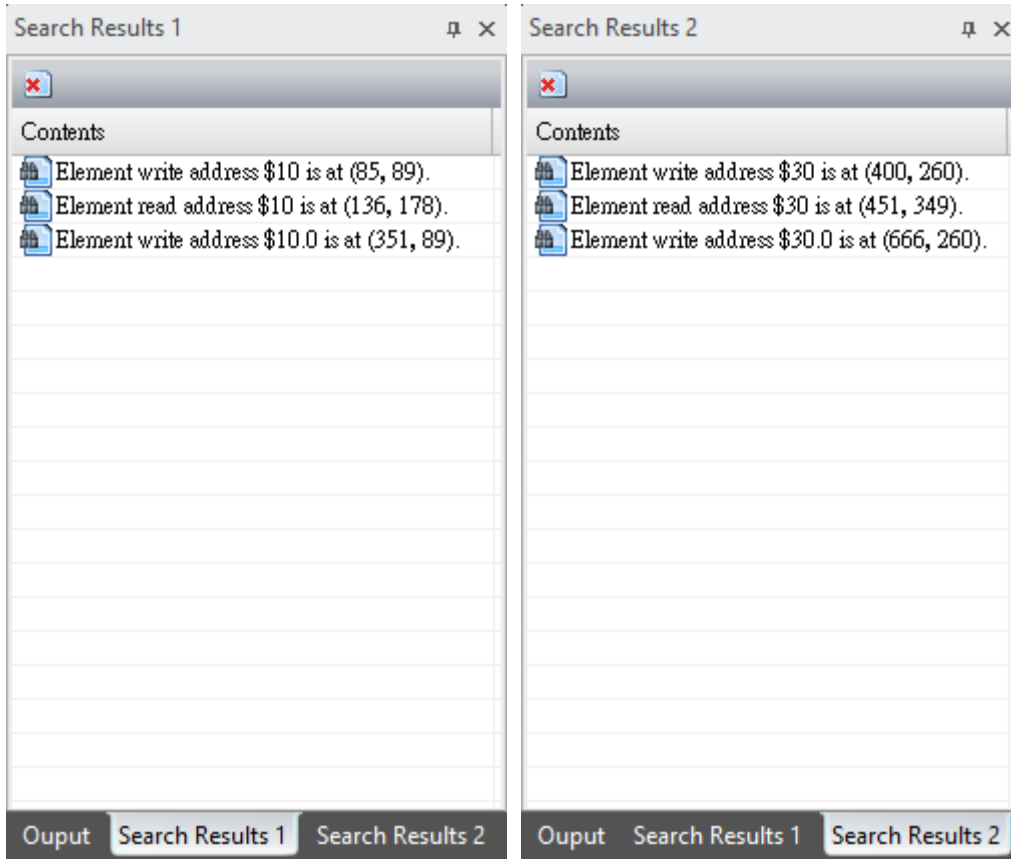


Figure 2.2.2.6.2 Output results

The following provides the setting screens for the Find function.

Table 2.2.2.6.1 Description for Find function

Find		
Find What	Enter the content to be found.	
Options	Current Screen	The system scans the current screens to compare each element in the current screen, and then displays the matched results in the output window. You can double-click the items in the output window to find the searched elements.
	All Screens	The system scans all screens to compare every element in each screen, and then displays the matched results in the output window. You can also double-click the items in the output window to find the searched elements.
Type	Text	Compare the element text.
	Element read address	Compare the element read address.
	Element write address	Compare the element write address.
	All Address	Compare the read and write addresses of the element.
Data Type	None	Search the register address without specifying the data type.
	Bit	Search for the address in Bit.
	WORD	Search for the address in WORD.
	DWORD	Search for the address in DWORD.
Find Options	Match whole word only	Compare all input contents when searching. If this check box is not selected, it means the HMI searches the contents that are both partly and fully matched; if this box is selected, the HMI only searches the content that is fully matched.
	Multi-language search	This is only available for searching texts. If this box is not selected, the HMI only searches for the contents based on the currently used language; if the box is selected, the HMI searches for the contents for all languages.
Result Options	Find results in 1 window	Output the search results to Search Results 1.
	Find results in 2 window	Output the search results to Search Results 2.

2

2.2.2.7 Replace

To replace the specified text or address, click [Edit] > [Replace] or use the system keyboard shortcut **CTRL + R**. Input the contents to find and replace, and select Current Screen or All Screens. The Type for Replace can be Text, Read Address, or Write Address. The Data Type becomes selectable only when you select Read Address or Write Address for Type. The available options are Bit, WORD, and DWORD, as shown in Figure 2.2.2.7.1.

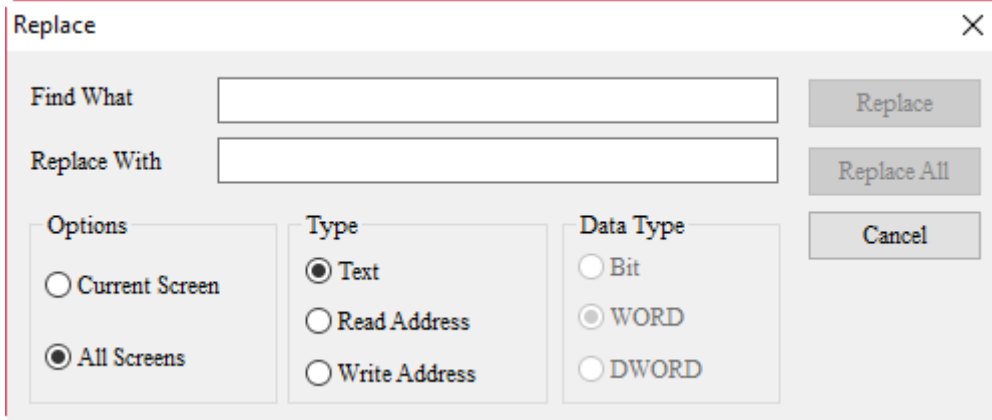


Figure 2.2.2.7.1 Replace

2

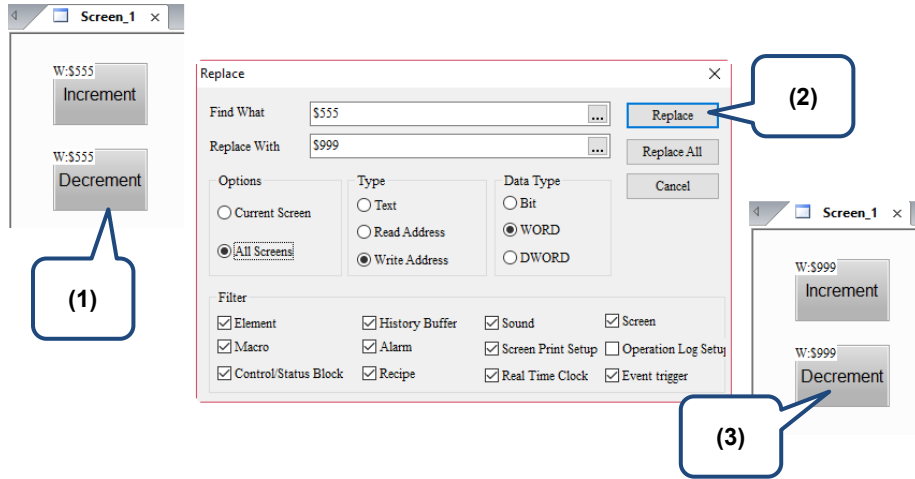
The following introduces the setting screens of the Replace function.

Table 2.2.2.7.1 Description for the Replace function

Replace	
Find What	Enter the content to be found.
Replace With	Enter the content to be replaced.
Options	Current Screen The system scans the current screens to compare each element in the current screen, and then replaces the matched items.
	All Screens The system scans all screens to compare every element in each screen, and then replaces the matched items.
Type	Text Replace the matched text.
	Read Address Replace the matched read address.
	Write Address Replace the matched write address.
Data Type	Bit This is enabled only when the target to be replaced is a read address or a write address; the available data types are Bit, WORD, and DWORD.
	WORD The Data Type you select is determined by the element data type you search.
	DWORD
Filter	It is enabled when the target to be replaced is a read address or a write address. The available options are Element, Macro, Control/Status Block, History Buffer, Alarm, Recipe, Sound, Screen Print Setup, Real Time Clock, Screen, Operation Log Setup, and Event trigger.

- (1) Set \$555 for the write addresses of the Increment and Decrement buttons.
- (2) Execute the Replace function. Input \$555 for Find What and \$999 for Replace With. Since the addresses of the Increment and Decrement buttons are write addresses, you must select Write Address for Type of the replacement. And you need to select Word because the Data Type set for the Increment and Decrement buttons is Word.
- (3) After you click **Replace All**, the addresses \$555 of the Increment and Decrement buttons are replaced with \$999.

Example



2.2.2.8 Replace PLC Address

To replace the station number, click [Edit] > [Replace PLC Address]. This function allows you to quickly find the station number and replace it with a new station number, and select its Link Name and Options. If the project file has multiple links, you can specify the link name for replacement.

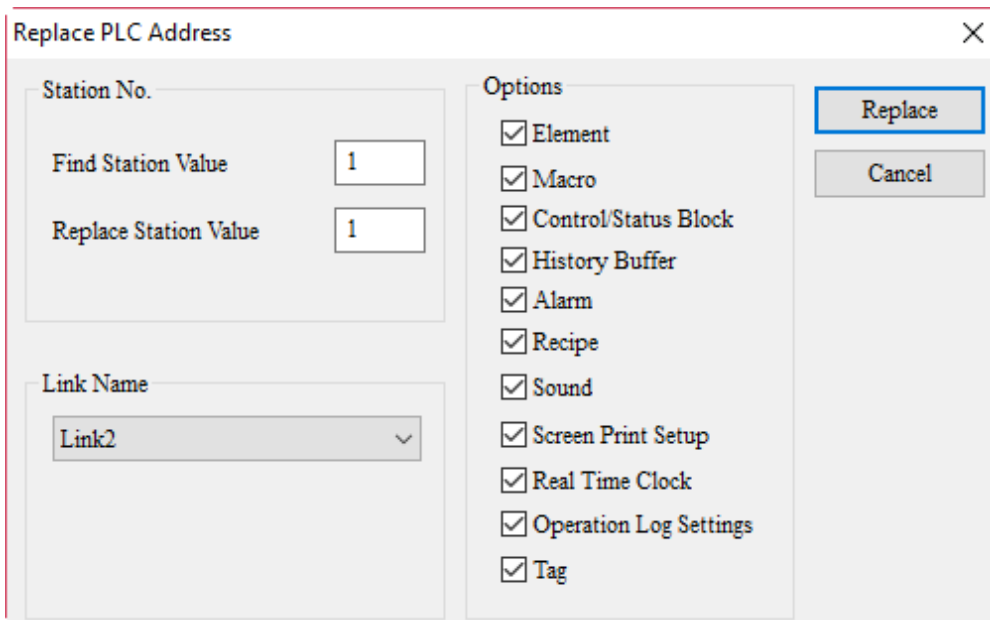


Figure 2.2.2.8.1 Replace PLC Address

Table 2.2.2.8.1 Replace PLC Address example


Replace PLC Address	
Find Station Value	Enter the content to be found.
Replace Station Value	Enter the content to be replaced.
Link Name	<p>You can determine the Link Name to be replaced based on the base port you created, as shown in the following figure.</p>

2

Replace PLC Address	
Options	<p>There are eleven categories for you to select for replacement, as shown in the following figure.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">Options</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Element <input checked="" type="checkbox"/> Macro <input checked="" type="checkbox"/> Control/Status Block <input checked="" type="checkbox"/> History Buffer <input checked="" type="checkbox"/> Alarm <input checked="" type="checkbox"/> Recipe <input checked="" type="checkbox"/> Sound <input checked="" type="checkbox"/> Screen Print Setup <input checked="" type="checkbox"/> Real Time Clock <input checked="" type="checkbox"/> Operation Log Settings <input checked="" type="checkbox"/> Tag </div>
Example	<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); padding-right: 5px;">Before replacing station No.</div> <div style="flex-grow: 1;"> </div> </div> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); padding-right: 5px;">After replacing station No.</div> <div style="flex-grow: 1;"> </div> </div> <p style="text-align: center; margin-top: 10px;">Click Replace and {Link2}1 is replaced with {Link2}10.</p>

2.2.2.9 Group

To use the Group function, select two or more elements before grouping the elements.

You can go to [Edit] > [Group], click  on the Layout toolbar

 , or go to the right-click menu to select Group.

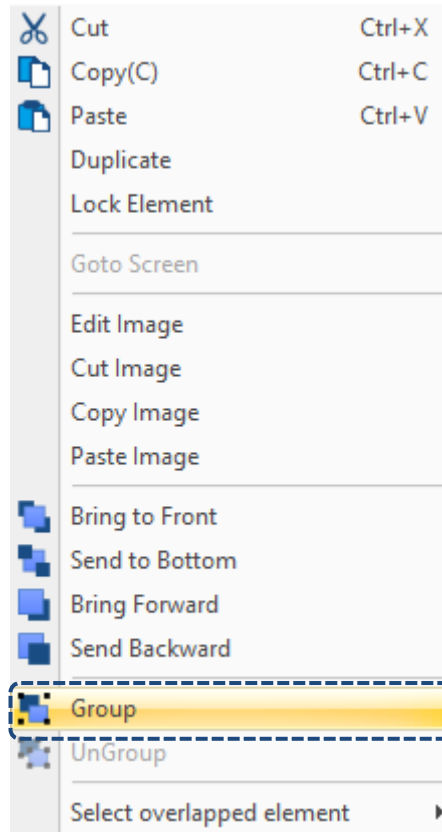


Figure 2.2.2.9.1 Group

To edit a single element in the grouped elements, you can simply click on the group, and select and double-click the element to be edited.


Note: regardless of how many elements you select, once these elements are grouped, the software treats this group of elements as one element. When you move the elements, all the grouped elements are moved all at once; when you resize the elements, the grouped elements are resized all at once.

Table 2.2.2.9.1 Group function example

2

Group					
Before grouping	<p>Select two or more elements before executing the Group function.</p>				
After grouping	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #cccccc;">Move</th> <th style="background-color: #cccccc;">Resize</th> </tr> </thead> <tbody> <tr> <td> <p>Move the grouped elements at once.</p> </td> <td> <p>Resize the grouped elements at once.</p> </td> </tr> </tbody> </table>	Move	Resize	<p>Move the grouped elements at once.</p>	<p>Resize the grouped elements at once.</p>
Move	Resize				
<p>Move the grouped elements at once.</p>	<p>Resize the grouped elements at once.</p>				

2.2.2.10 UnGroup

To use the UnGroup function, you must first select the grouped elements. Then, you can go to [Edit] > [UnGroup], click  in the Layout toolbar



or use the right-click menu to select UnGroup. The software treats the ungrouped elements as independent elements, so you can only operate them individually.

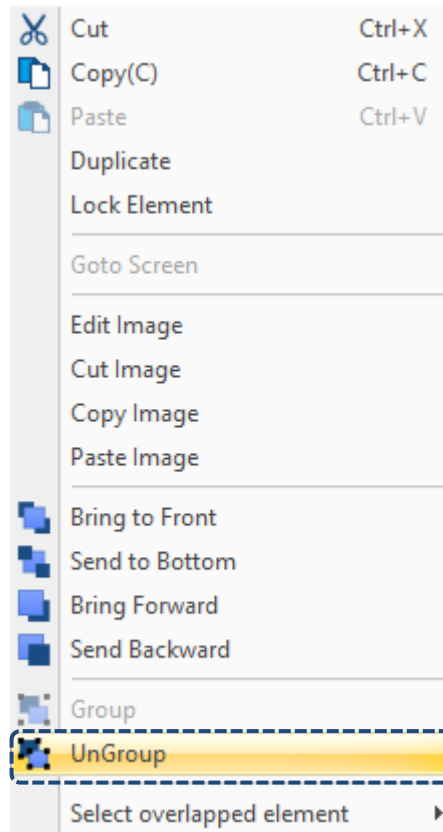


Figure 2.2.2.10.1 UnGroup

2

2.2.2.11 Order



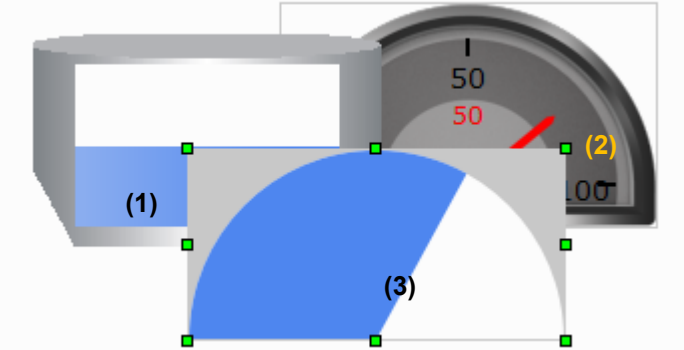



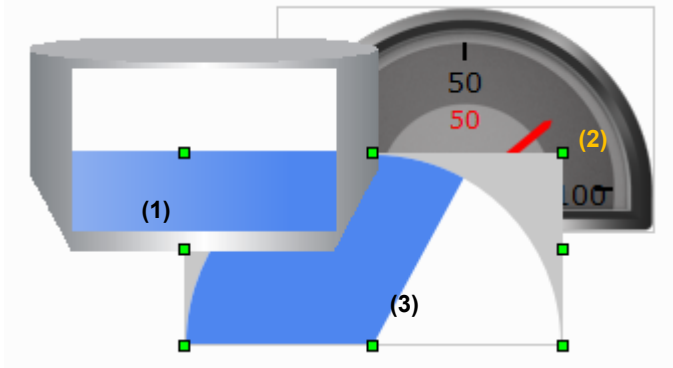
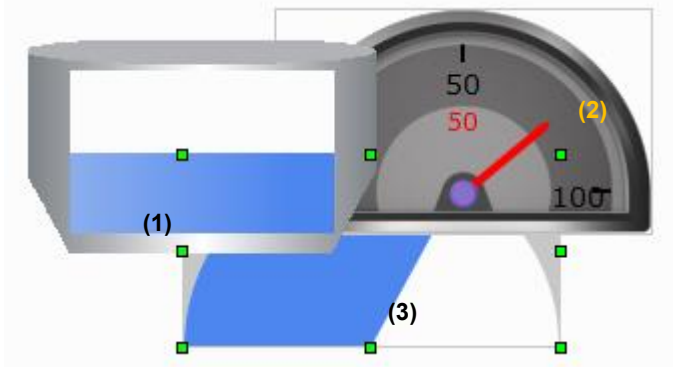
The Order function includes options of Bring to Front, Sent to Bottom, Bring Forward, and Bring Backward. After you set the order for the elements, the element layer order changes depending on the element creation order. To use this function, go to [Edit] > [Order] or click  on the layout toolbar.

Table 2.2.2.11.1 Order function example


Order		
Icon	Item	Content
	Bring to Front	<p>Before</p> <p>There are three elements in the following figure; in this example, it executes Bring to Front for element (3).</p> 
		<p>After</p> <p>After the execution, element (3) is brought to the top of the three elements.</p> 

Order		
Icon	Item	Content
	Send to Bottom	<p>Before</p> <p>Select element (3) to execute Send to Bottom.</p> 
		<p>After</p> <p>After the execution, element (3) is sent to the bottom of the three elements.</p> 
	Bring Forward	<p>Before</p> <p>Select element (3) to execute Bring Forward.</p> 
		<p>After</p> <p>After the execution, element (3) is moved up one layer, becoming the second layer of the three elements.</p> 

2

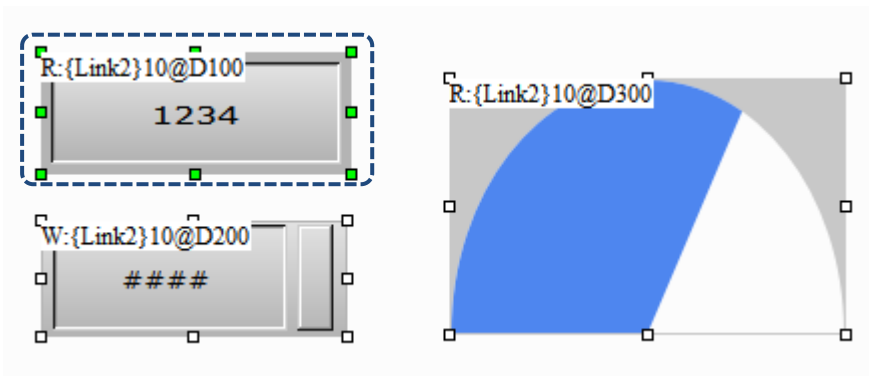
Order		
Icon	Item	Content
	Send Backward	<p>Before</p> <p>Select element (3) to execute Send Backward.</p> 
		<p>After</p> <p>After the execution, element (3) is moved down one layer, becoming the bottom layer of the elements.</p> 

2.2.2.12 Align

The Align function includes options of Align left, Align Right, Align Top, Align Bottom, Vertical Centering, Horizontal Centering, Horizontal Equal Space, and Vertical Equal Space. This function allows you to align the element coordinates. To use this function, go to [Edit] > [Align] or click  on the Layout toolbar.

Note:


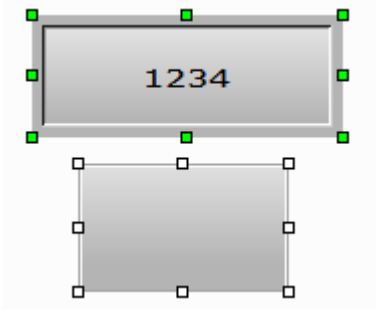
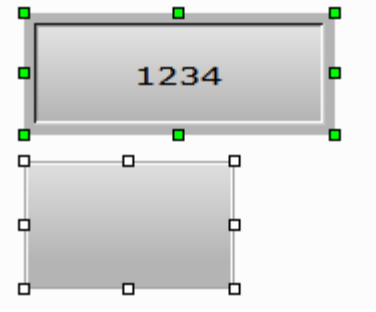

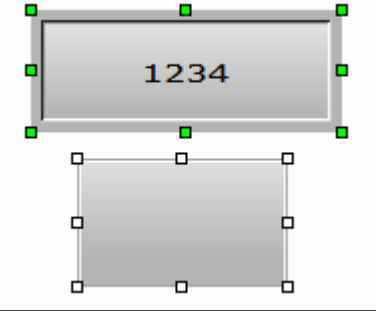
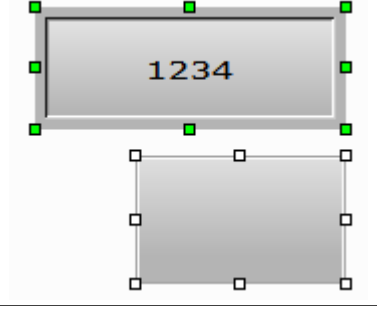
1. The reference element is the element first selected. The reference element is displayed with green squares when you select multiple elements.


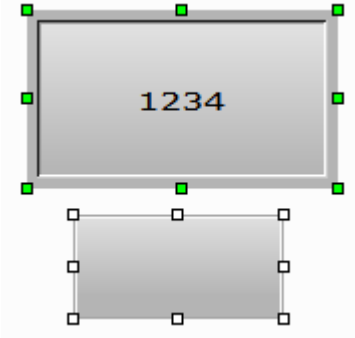
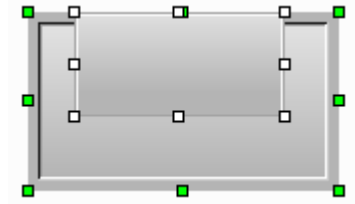

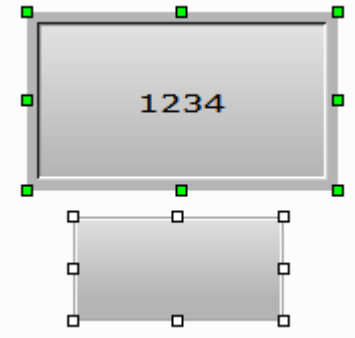
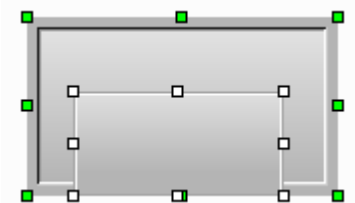

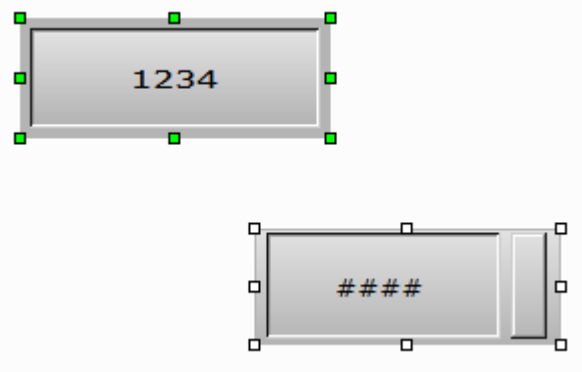
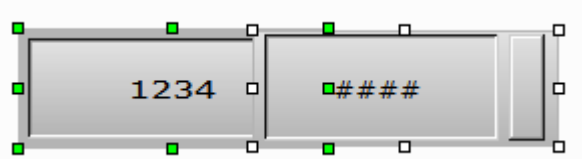


2. To execute Align Left, Align Right, Align Top, and Align Bottom, you must select at least two elements. It is because the alignment function uses the coordinates of the selected reference element's very left, right, top, and bottom as the new coordinates for all elements.
3. You can use Vertical Centering and Horizontal Centering independently. When used, these functions automatically align the element center based on the setting.
4. To execute Horizontal Equal Space and Vertical Equal Space, you must select at least three elements. When you execute Horizontal Equal Space, the software calculates the equal spaces between each element in horizontal direction and realign the elements. When you execute Vertical Equal Space, the software calculates the equal spaces between each element in vertical direction and realign the elements.


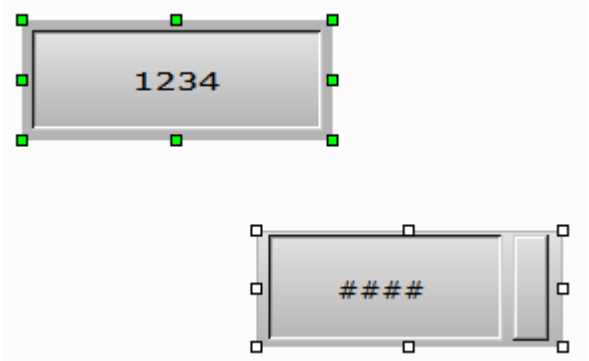
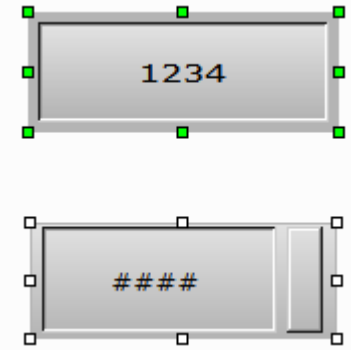



2


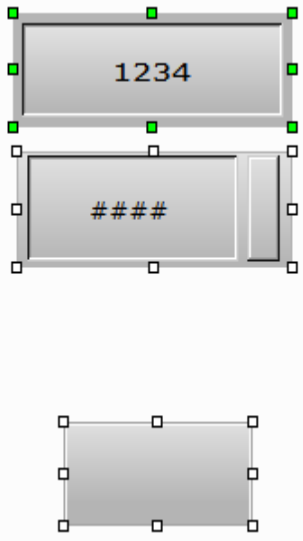
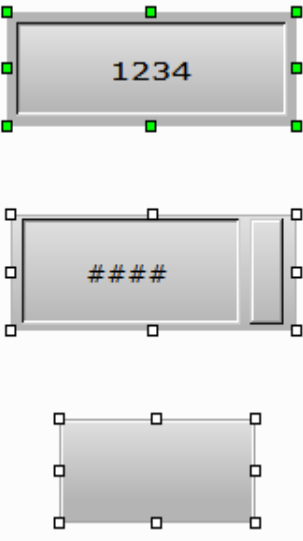
Table 2.2.2.12.1 Align function example

Align			
Icon	Item	Content	
	Align Left	Before	<p>To execute Align Left, you must select at least two elements.</p> 
		After	
	Align Right	Before	<p>To execute Align Right, you must select at least two elements.</p> 
		After	

Align			
Icon	Item	Content	
	Align Top	Before	<p>To execute Align Top, you must select at least two elements.</p> 
		After	
	Align Bottom	Before	<p>To execute Align Bottom, you must select at least two elements.</p> 
		After	
	Vertical Centering	Before	
		After	

2

Align		
Icon	Item	Content
	Horizontal Centering	<p>Before</p> 
		<p>After</p> 
	Horizontal Equal Space	<p>Before</p> <p>To execute Horizontal Equal Space, you must select at least three elements.</p> 
		<p>After</p> <p>The software calculates the equal spaces between the three elements in horizontal direction and realign them to make equal spaces between the three in horizontal direction.</p> 

Align		
Icon	Item	Content
	Vertical Equal Space	<p>Before</p> <p>To execute Vertical Equal Space, you must select at least three elements.</p> 
		<p>After</p> <p>The software calculates the equal spaces between the three elements in vertical direction and realign them to make equal spaces between the three in vertical direction.</p> 

2

2.2.2.13 Make Same Size

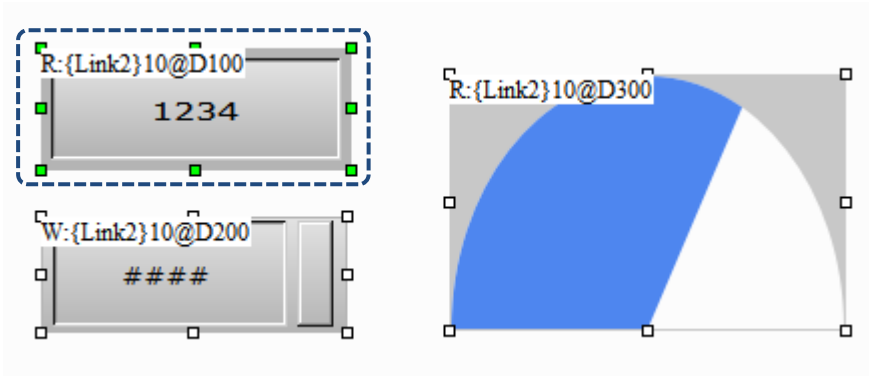
This function includes Make Same Width, Make Same Height, and Make Same Size. It allows you to make same size of the elements. You can go to [Edit] > [Make Same Size] or click



on the Layout toolbar.

Note:


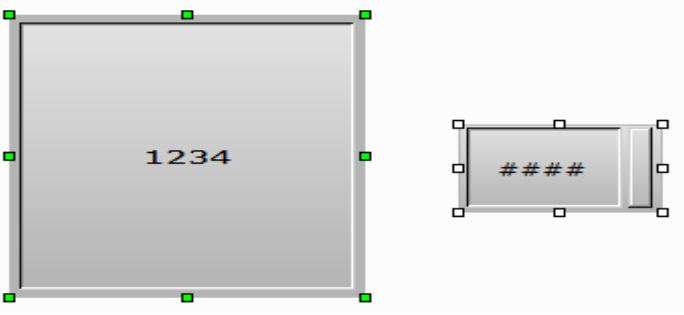
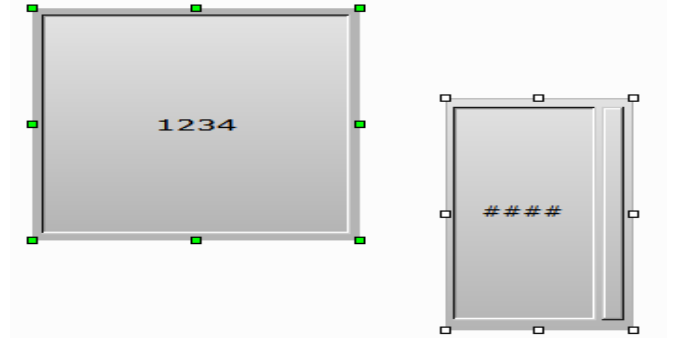

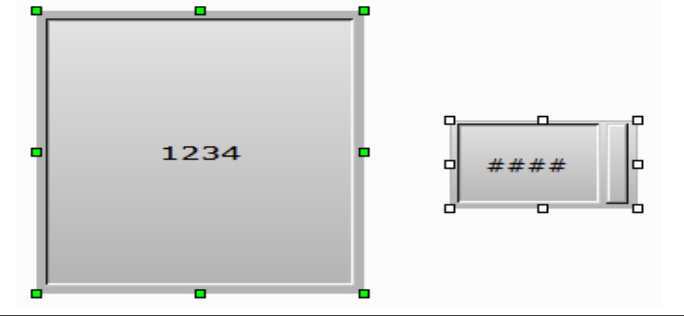
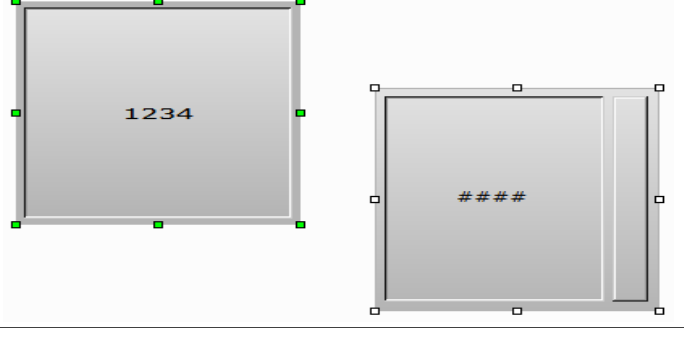
1. The reference element is the element first selected. The reference element is displayed with green squares when you select multiple elements.



2. To execute Make Same Size, select at least two elements. The software takes the selected reference element as the standard to make the elements the same width, height, or size.

Table 2.2.2.13.1 Make Same Size example

Make Same Size			
Icon	Item	Content	
	Width	Before	Use the element on the left as the reference element to make the elements the same width.
		After	The element on the right is made as the same width referring to the reference element on the left.

Make Same Size			
	Height	Before	<p>Use the element on the left as the reference element to make the elements the same height.</p> 
		After	<p>The element on the right is made as the same height referring to the reference element on the left.</p> 
	Both	Before	<p>Use the element on the left as the reference element to make the elements the same height.</p> 
		After	<p>The element on the right is made as the same size referring to the reference element on the left.</p> 















2




2.2.2.14 Text Process

This function processes the state of the element text, such as aligning the text to the left, to the right, and to the center. To use this function, you can go to [Edit] > [Text Process] or select

 on the Text toolbar.

Table 2.2.2.14.1 Text Process function example

Text Process			
Icon	Item	Content	
	Align Left	Before	
		After	
	Horiz. Centering	Before	
		After	
	Align Right	Before	
		After	
	Align Top	Before	
		After	
	Vert. Centering	Before	
		After	

Text Process			
Icon	Item	Content	
	Align Bottom	Before	
		After	

The Text Process function allows you to link with the Text Bank and import the edited texts into the selected element, as shown in the following figure.

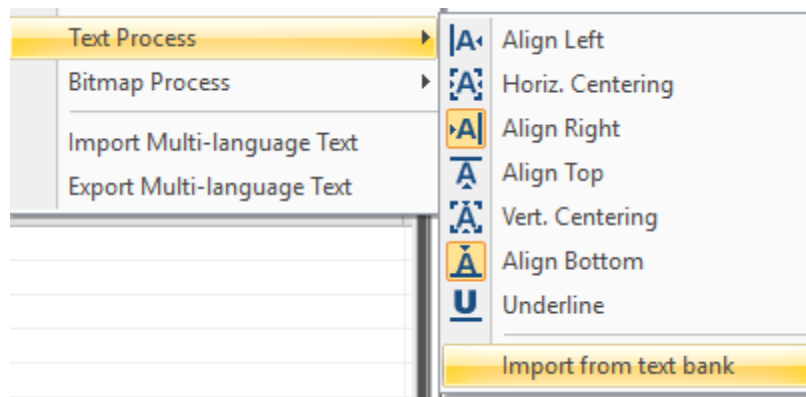


Figure 2.2.2.14.1 Import texts from Text Bank

If you have set the multi-language data, you can edit the text data in the Text Bank in advance, as shown in Figure 2.2.2.14.2.


 Arial		
No.	Chinese	English
1	台達電子	Delta TW
2	中達電通	Delta CN

Figure 2.2.2.14.2 Edit multi-language text in the Text Bank

Go to [Text Process] > [Import from text bank] and select [Import all selected languages] to import the multi-language data from the Text Bank to the specified element.

2

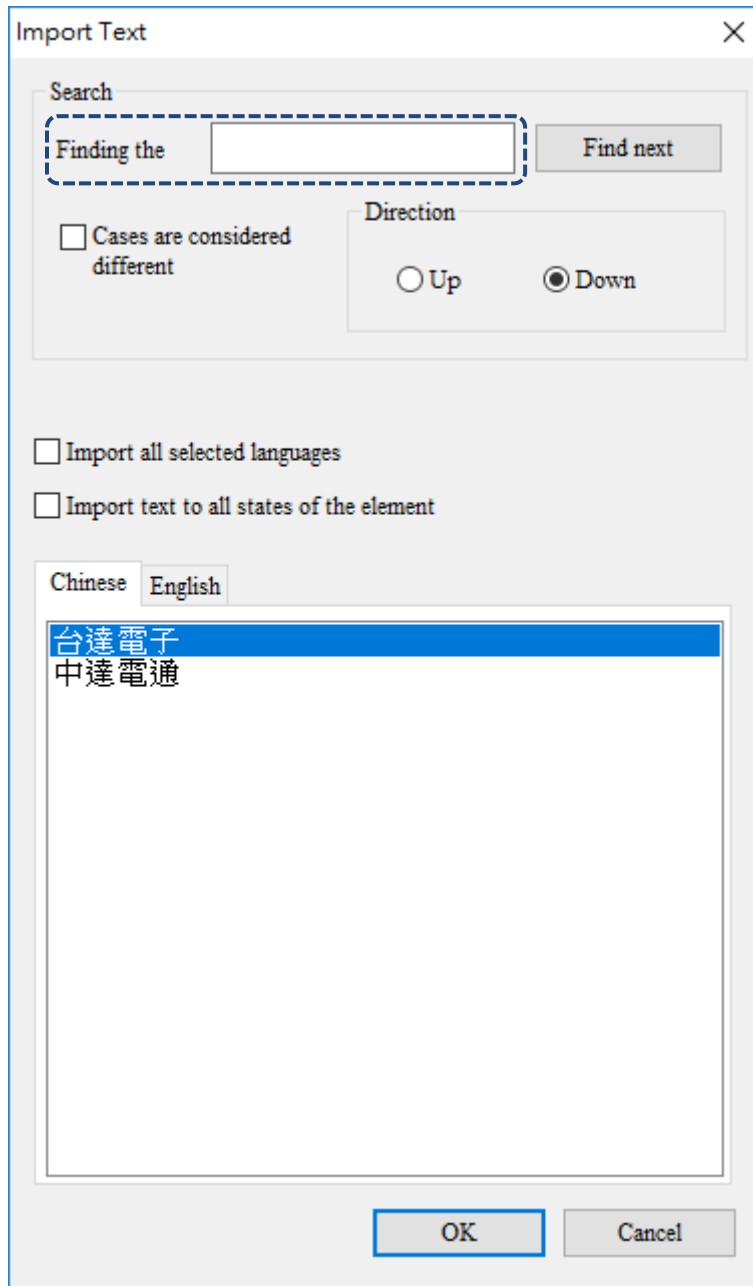


Figure 2.2.2.14.3 After importing the multi-language text data from the Text Bank

After importing the text from the Text Bank, you can go to the Text Bank to change the imported text messages. Click **Close** and you will be asked whether to update the messages. Select **Yes** to update the text message; select **No**, the text message remains unchanged.

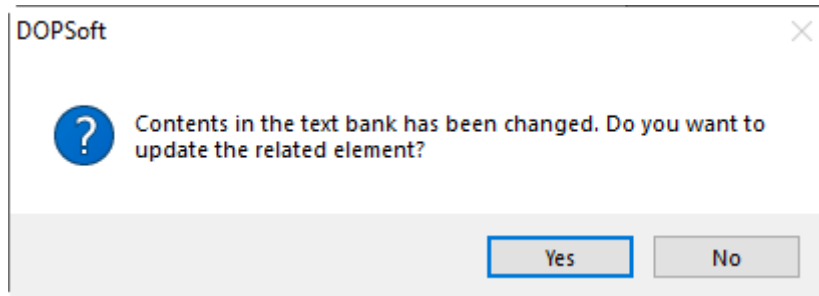


Figure 2.2.2.14.4 Synchronize the contents in Text Bank and element displaying texts

For the details on creating and using the Text Bank, refer to the introduction of Text Bank.






2








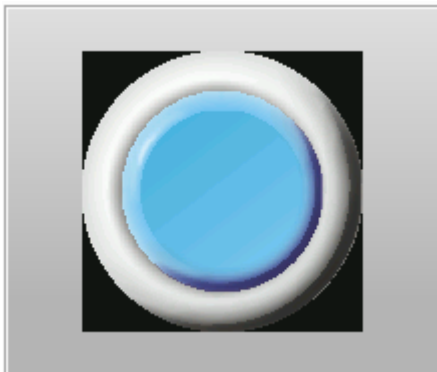
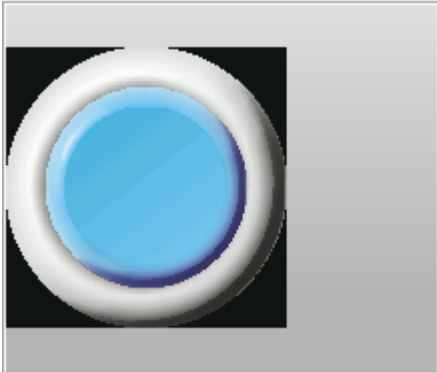
2.2.2.15 Bitmap Process

This function processes the states of the element pictures such as execute Align Left, Align Right, and Align Center for the picture. You can go to [Edit] > [Bitmap Process] or use the


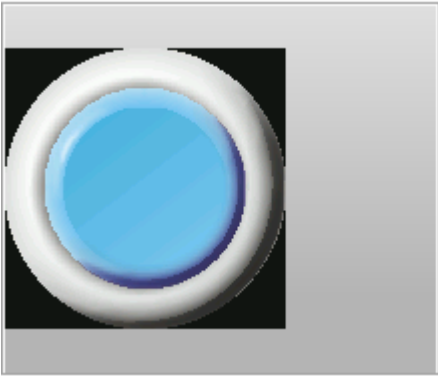


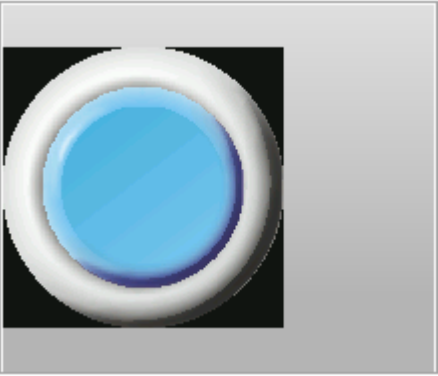




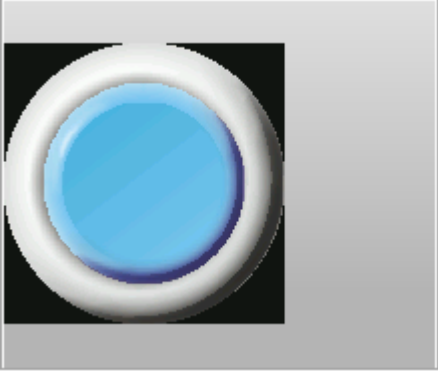




Table 2.2.2.15.1 Bitmap Process function example

Bitmap Process		
Icon	Item	Content
	Transparent Color	<p>You can specify a color in the picture and turn this color into transparent with this function. As shown in the following figure, create one element and set the Foreground Color to blue. Next, import one picture and click the  icon to select the orange part of the broom, and the software turns this part into transparent, which becomes the element foreground color blue.</p> <p style="text-align: center;">Foreground Color: <input type="color" value="blue"/></p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Before</p>  </div> <div style="text-align: center;"> <p>After</p>  </div> </div>
	Process pictures of all states	<p>If you click the icon of Process pictures of all states, assume that the elements have multiple states and some pictures do not fill the full element display area, you can use this function to process all pictures instead of setting them one by one, which saves the editing time.</p>

Bitmap Process				
Icon	Item	Content		
	Stretch to fit the element			
	Picture Stretch 1:1			
	Actual Size			
		<p>Stretch All</p> <p>If you select Stretch to fit the element, the picture fills the full element display area.</p> 	<p>Stretch 1:1</p> <p>If you select Picture Stretch 1:1, the picture displays in 1:1 size without referring to the element width and length.</p> 	<p>Actual Size</p> <p>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</p> 
	Left	<p>Before</p> 		
		<p>After</p> 		


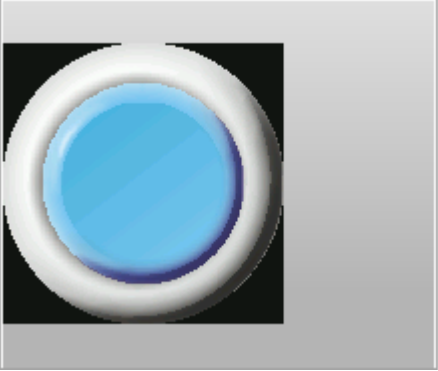

2

Bitmap Process			
Icon	Item	Content	
	Horizontal Centering	Before	
		After	
	Right	Before	
		After	

Bitmap Process			
Icon	Item	Content	
	Top	Before	
		After	
	Vertical Centering	Before	
		After	

2

2

Bitmap Process			
Icon	Item	Content	
	Bottom	Before	
		After	

2.2.2.16 Import Multi-language Text / Export Multi-language Text

These two functions allow you to import or export the text more easily when you edit multi-language texts. They are useful especially when you have multi-language texts or multiple states to edit. In addition, the import and export formats are both .xls which you can use in Excel. Contents in the import or export files are the text language data of all elements in the displaying screen.

- Export Multi-language Text

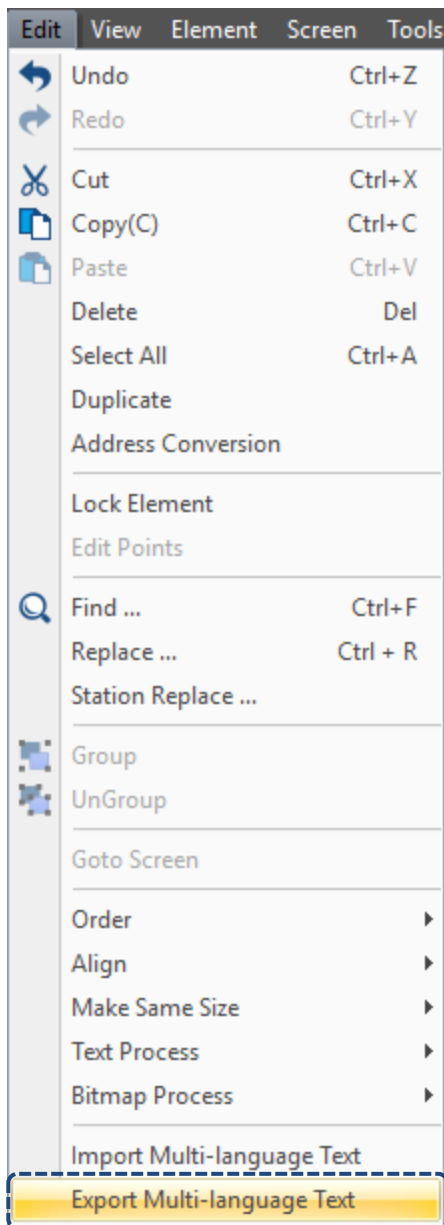


Figure 2.2.2.16.1 Export Multi-language Text

After you export the multi-language text, the software will ask you to save the file to be exported.

2

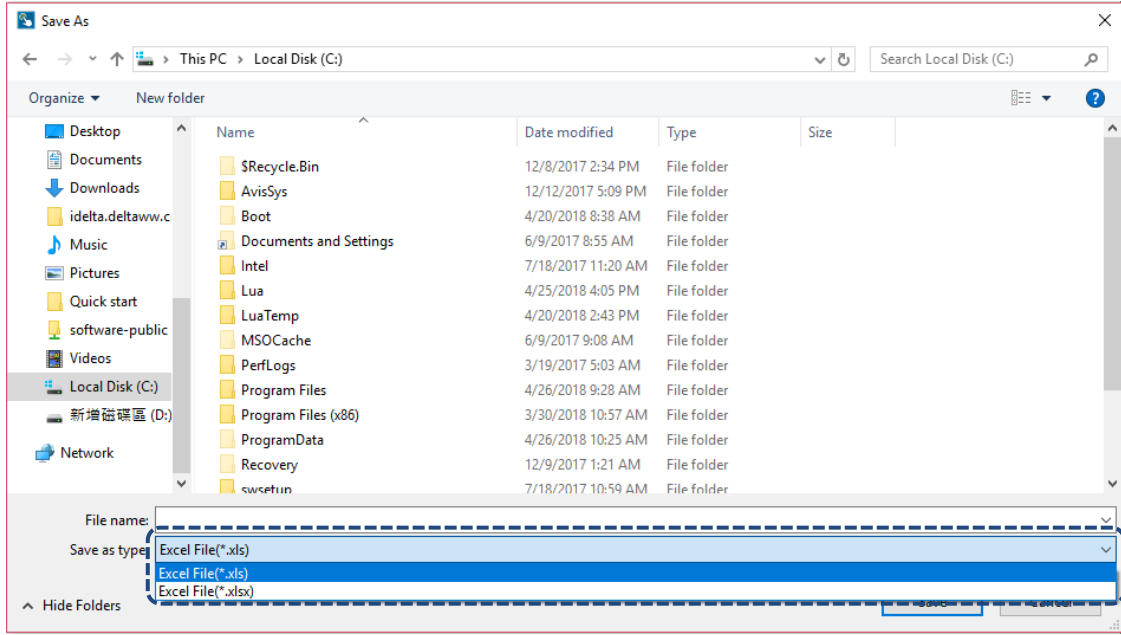


Figure 2.2.2.16.2 Save the multi-language text export file

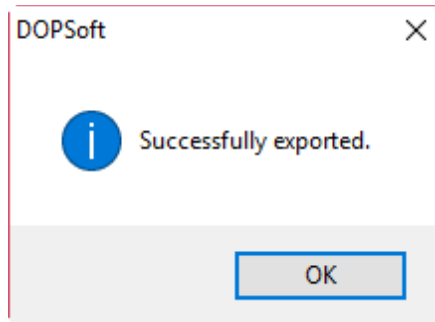
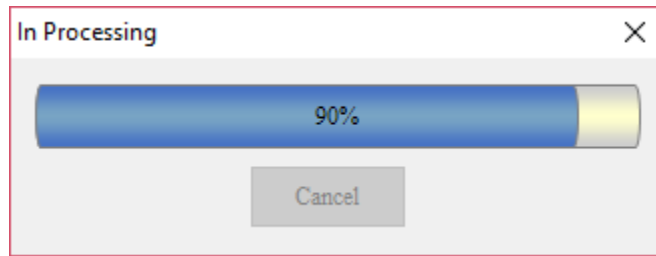


Figure 2.2.2.16.3 Saving complete for the multi-language text export file

When saving is complete, follow the path to open this file. You can see this file contains the multi-language text data of all the elements in the current project file, as shown in the following figure.

	D	E
1	Chinese	English
2		
3		
4		
5	\$0.0	
6		
7		
8	換畫面	change screen
9		
10	回前頁	go back
11		
12	系統時間日期	system time and date
13		
14	系統目錄	system menu
15		
16	設定密碼表	set password table
17		
18	調整對比亮度	contrass
19		
20	設為最低權限	level 0
21		
22	輸出報表	report list
23		
24	擷取畫面	capture
25		
26	移除儲存媒體	remove storage
27		
28	匯出配方	Export Recipe
29		
30	匯入配方	Import Recipe
31		
32	觸碰校正	Calibrate
33		
34	語系切換至英文	change language to EN
35		

Figure 2.2.2.16.4 Contents of the multi-language text export file

2

■ Import Multi-language Text

You can first edit the exported multi-language text before importing the data. See the following the example. Change the Chinese text of the 5th line \$0.0 to “設 ON 按鈕” and add the English text “ON Button”.

	D	E
1	Chinese	English
2		
3		
4		
5	設ON按鈕	ON Button
6		
7		
8	換畫面	change screen
9		
10	回前頁	go back
11		
12	系統時間日期	system time and date
13		
14	系統目錄	system menu
15		
16	設定密碼表	set password table
17		
18	調整對比亮度	contrass
19		
20	設為最低權限	level 0
21		
22	輸出報表	report list
23		
24	擷取畫面	capture
25		
26	移除儲存媒體	remove storage
27		
28	匯出配方	Export Recipe
29		
30	匯入配方	Import Recipe
31		
32	觸碰校正	Calibrate
33		
34	語系切換至英文	change language to EN
35		

Figure 2.2.2.16.5 Contents of the multi-language text import file

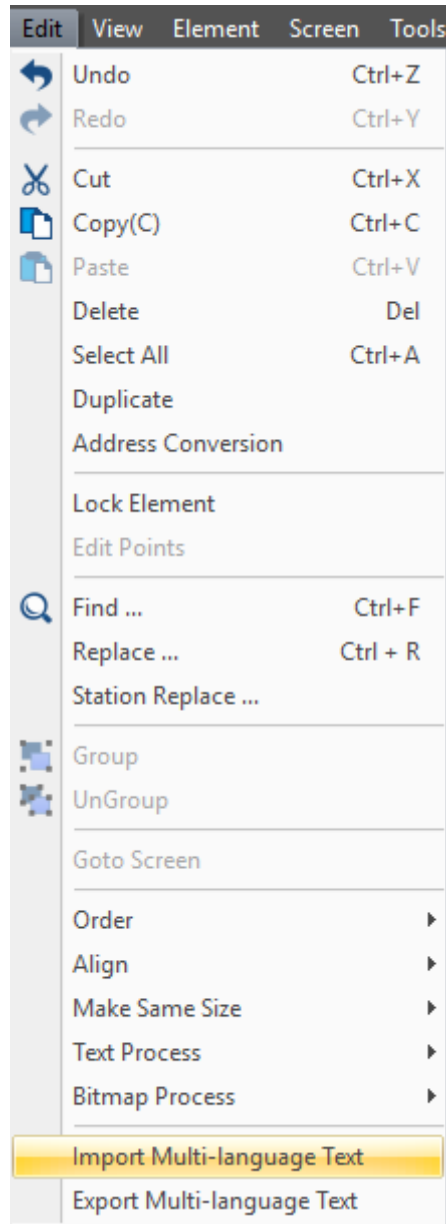


Figure 2.2.2.16.6 Import Multi-language Text

When you execute Import Multi-language Text, the software will ask you to select the file to be imported.

2

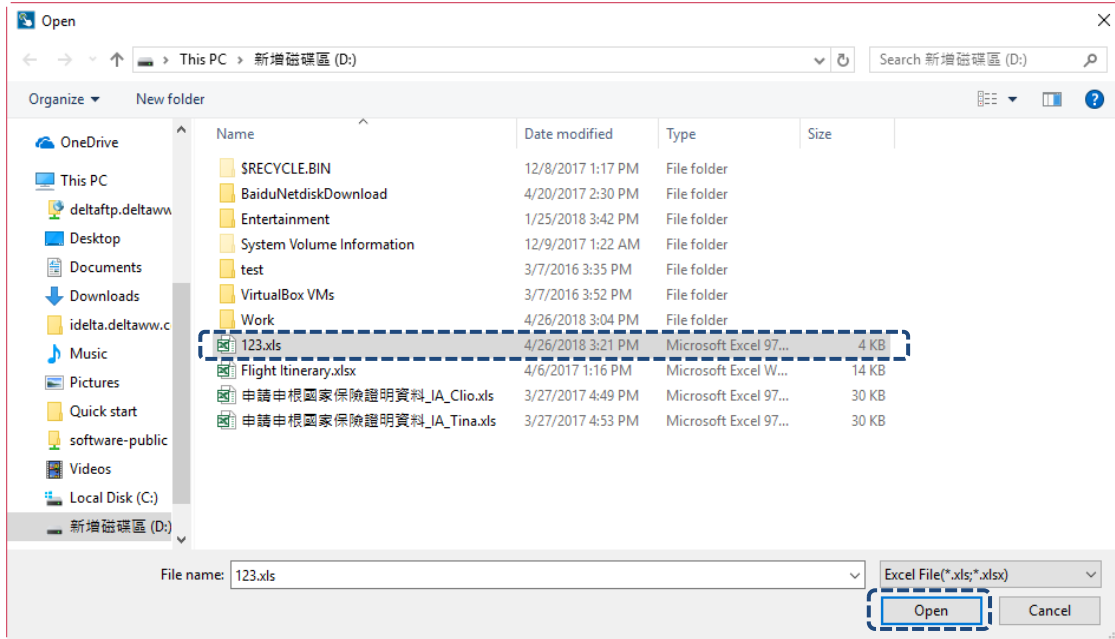


Figure 2.2.2.16.7 Select the Multi-language Text file to be imported

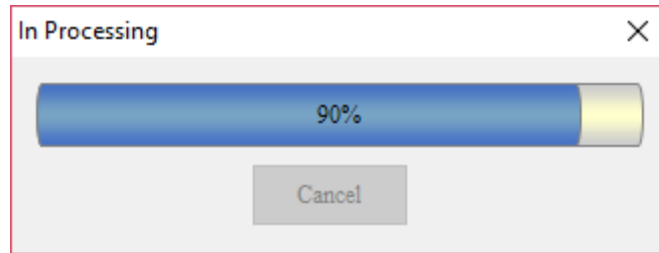


Figure 2.2.2.16.8 Import complete for the Multi-language Text file

After you import the multi-language text, you can check whether the edited data is completely imported.

	Chinese	English
Not imported	\$0.0	
	Chinese	English
Imported	設ON按鈕	ON Button

2

Refer to Chapter 25 for the usage of Multi-language.

2.2.3 View

The View option on the function list provides the following functions.

2

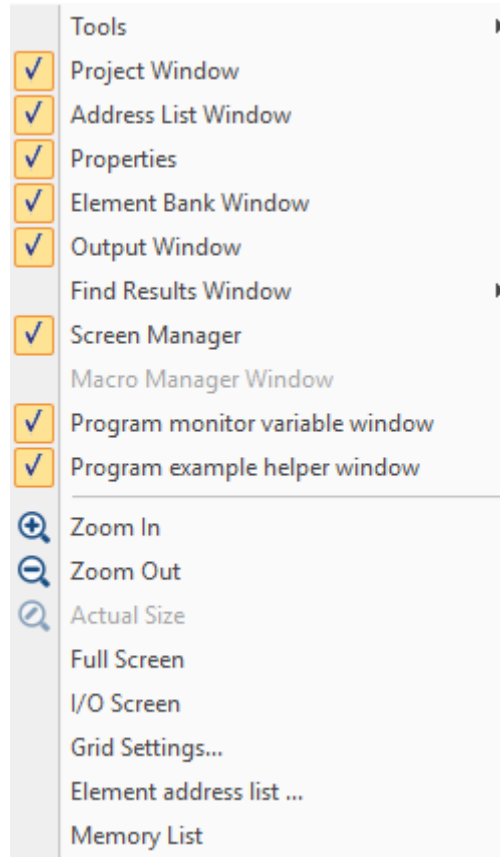


Figure 2.2.3.1 View function list

The following is the introduction of Screen Management (Manager), Zoom In, Zoom Out, Actual Size, Full Screen, I/O Screen, Grid Settings, Address Cross Reference Table, Element Address List, and Memory List.

2.2.3.1 Screen Management

The Screen Management window provided by DOPSoft allows you to easily view the elements in all screens. You can go to [View] > [Screen Manager] to determine whether to display its screen.

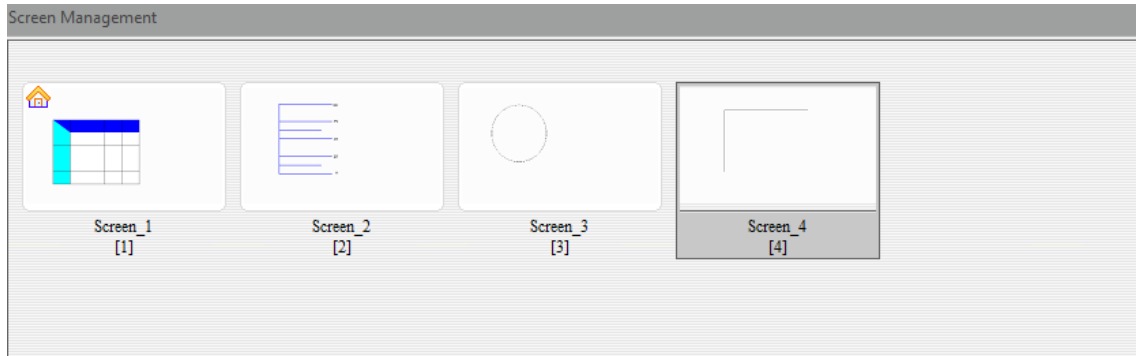


Figure 2.2.3.1.1 Screen Management window

You can right-click the Screen Management window and execute the actions relevant to the screens.

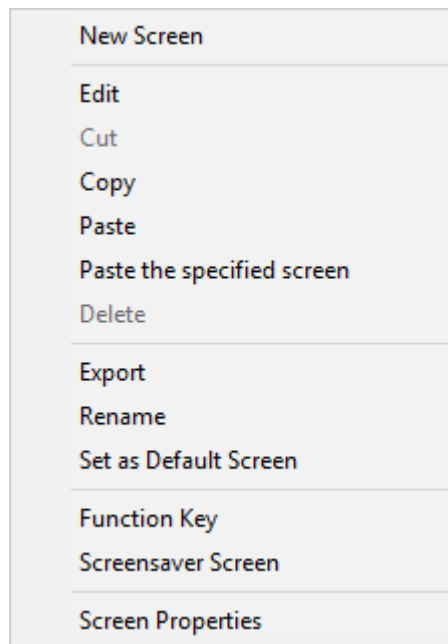
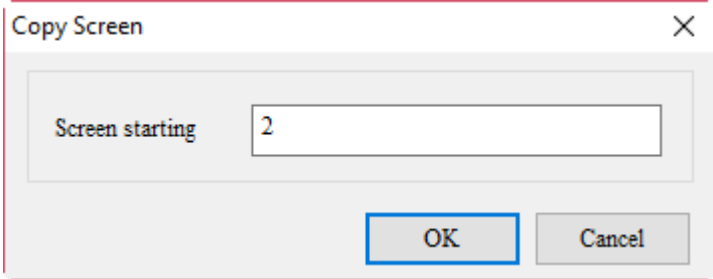
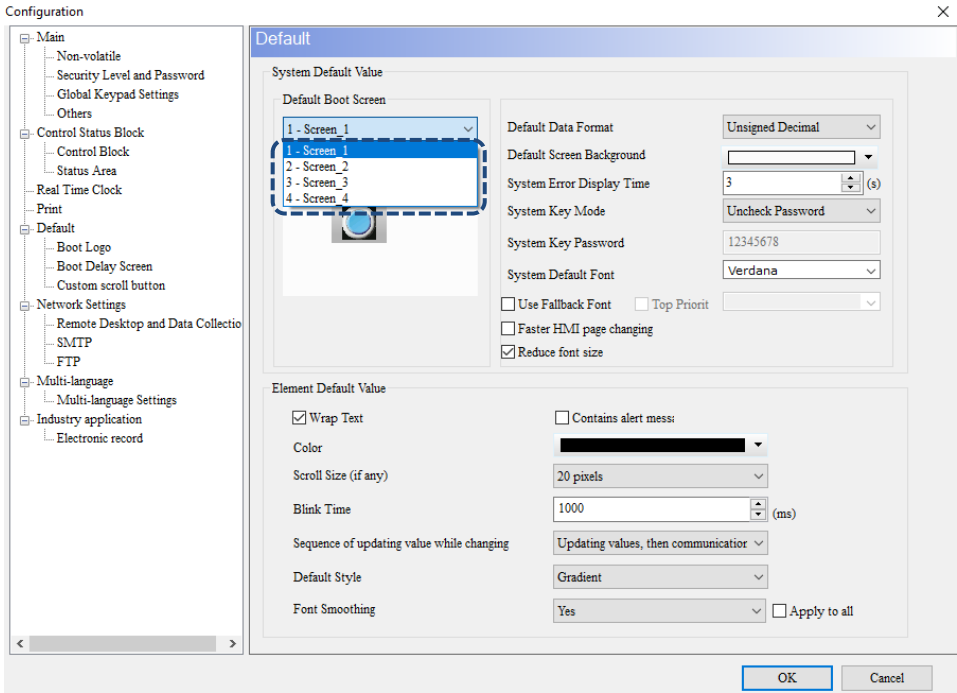


Figure 2.2.3.1.2 Screen Management window settings

2

Table 2.2.3.1.1 Screen Management window description

Screen Management window	
New Screen	Like the case of going to [Screen] > [New Screen], you can create a new screen after executing New Screen. Refer to Section 2.2.4.1 New Screen for the detailed settings.
Edit	In the Screen Management window, you can select one screen and click Edit to go to the editing window for this screen.
Cut	The actions of Cut, Copy, Paste, and Delete are identical to the actions you execute by going to [Screen] > [Cut Screen] / [Copy Screen] / [Paste Screen] / [Delete Screen]. For the detailed settings, refer to Section 2.2.4.4 Cut Screen, 2.2.4.5 Copy Screen, 2.2.4.6 Paste Screen, and 2.2.4.7 Delete Screen.
Copy	
Paste	
Delete	
Paste the specified screen	<p>After you copy the screen in the Screen Management window, you can use this function to paste this screen to the screen with the number you specified. This function also supports batch copy, with which you can copy multiple screens at once and specify the screen start number, and the system automatically numbers them in sequence.</p>  <p>Note: if the specified screen number already exists, the system automatically sets the screen number plus 1.</p>
Export	Like the case of executing the function by going to [Screen] > [Export], the Export function can export the selected screens and determine whether to display the border. Refer to Section 2.2.4.8 Export for detailed settings.
Rename	Rename the screen name that has previously been set.
Set as Default Screen	<p>This is the same as setting the default screen by going to [Options] > [Configuration] > [Default]. It can set the first screen after HMI booting.</p> 

Screen Management window	
Function Key	The function keys are supported on models of B07S201, B07S211, B07S401K, B07S411K, and DOP-H series. If the HMI has no function keys, this function is disabled. Refer to Section 2.2.4.11 Function Keys for details.
Screensaver Screen	It is the same as setting the screensaver screen by going to [Screen] > [Screensaver]. Refer to Section 2.2.4.3 Screensaver for detailed settings.
Screen Properties	Click Screen Properties and you can set the relevant properties for the screen. You can also set the screen as the subscreen, and specify the screen name, screen height and width, and the X-Y coordinates. Refer to Section 2.2.4.12 Screen Properties for detailed settings.

2.2.3.2 Zoom In


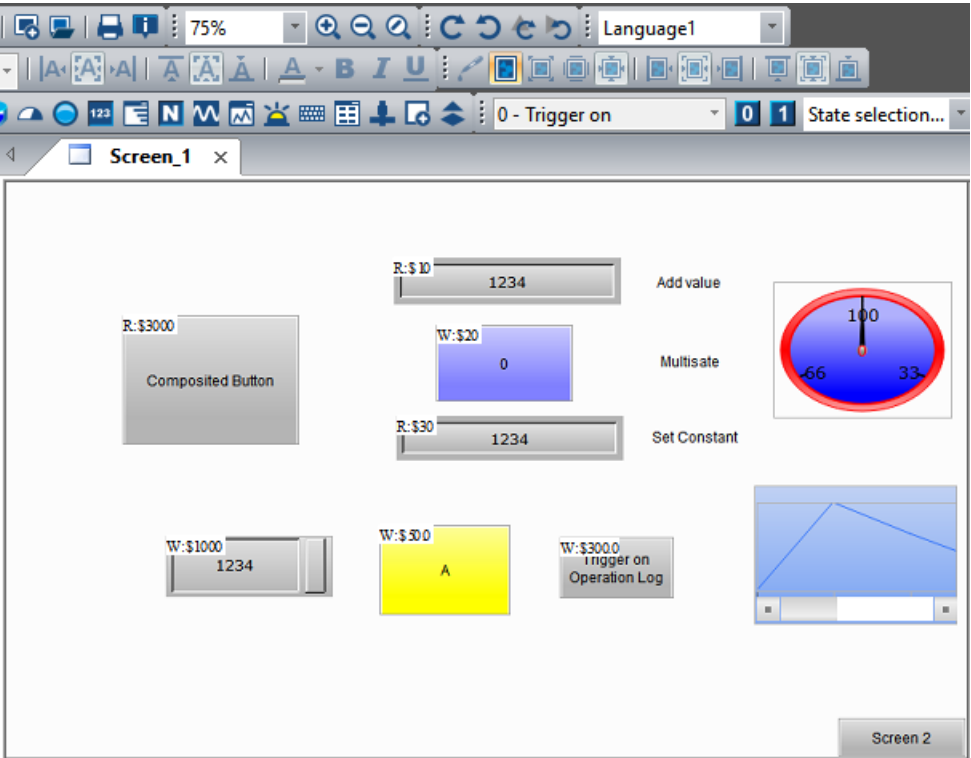
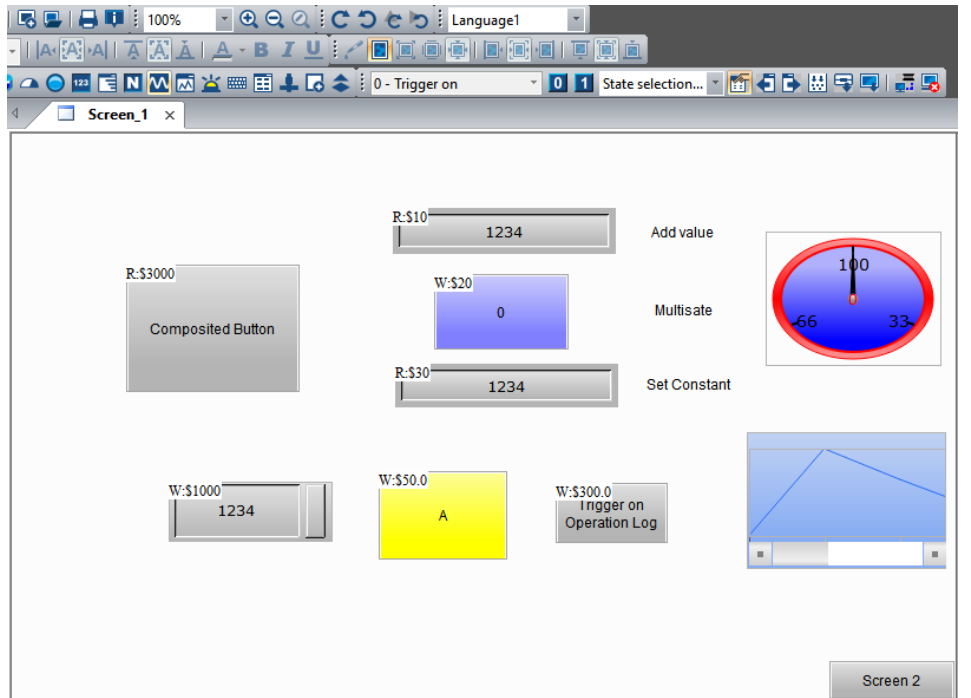

Use this function to zoom in the screen for editing. You can also use the icon  in the zoom toolbar to zoom in the image as shown in Table 2.2.3.2.1.

Table 2.2.3.2.1 Zoom In function example

<p>Before: 75%</p>	
<p>After: 100%</p>	

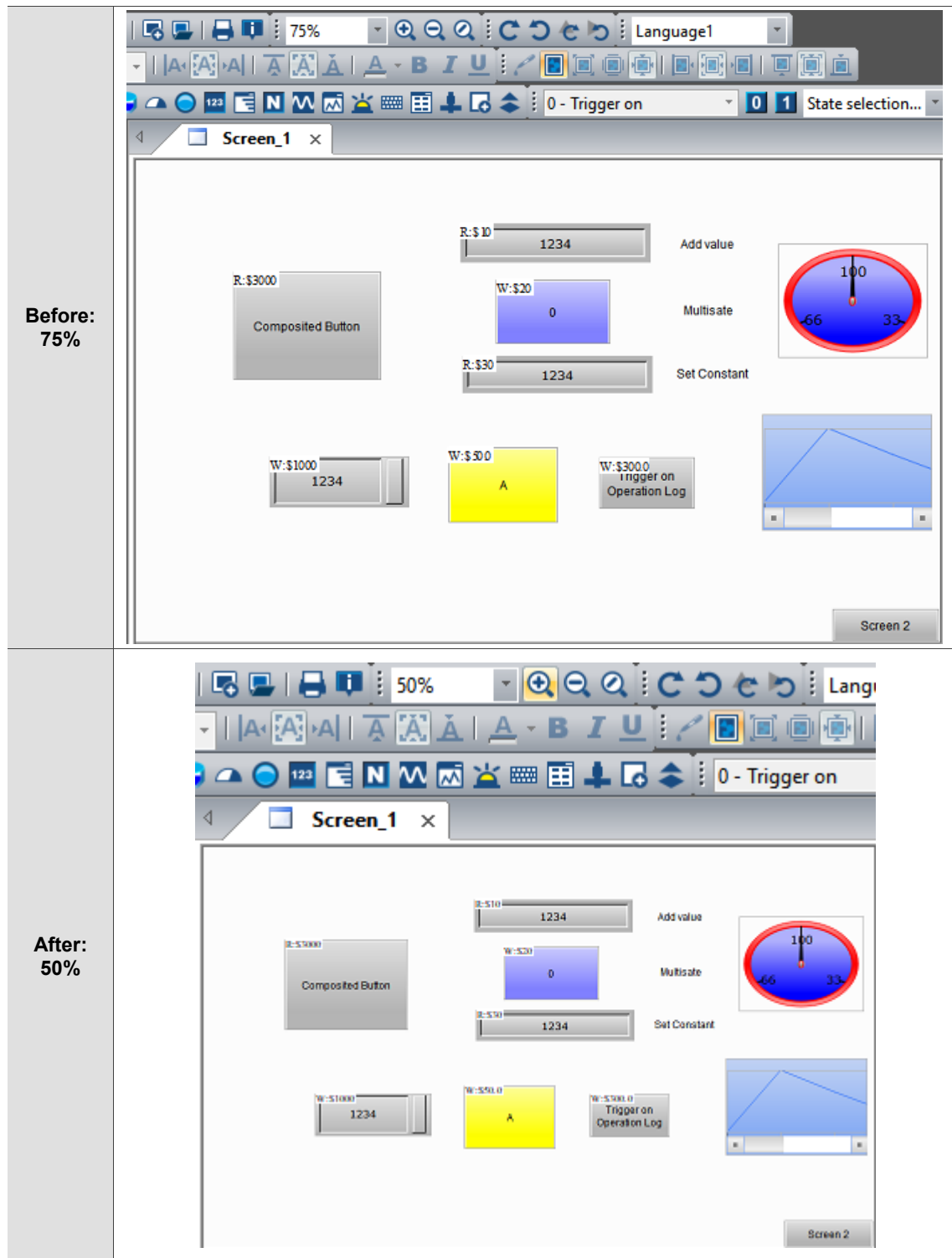
2

2.2.3.3 Zoom Out

Use this function to zoom out the editing screen. You can also click the  icon in the zoom toolbar to zoom out the screen as shown in Table 2.2.3.3.1.

2

Table 2.2.3.3.1 Zoom Out function example



2

2.2.3.4 Actual Size


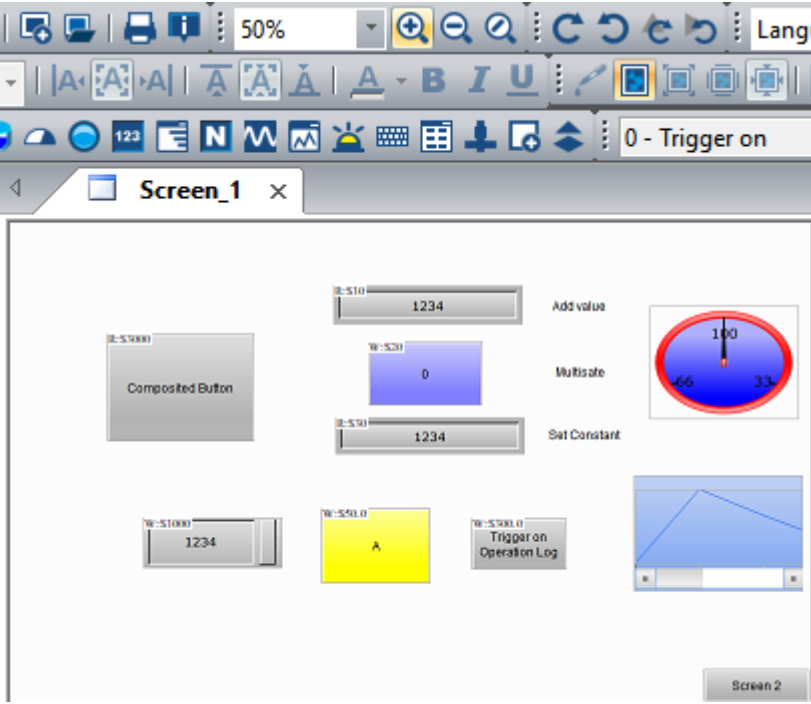
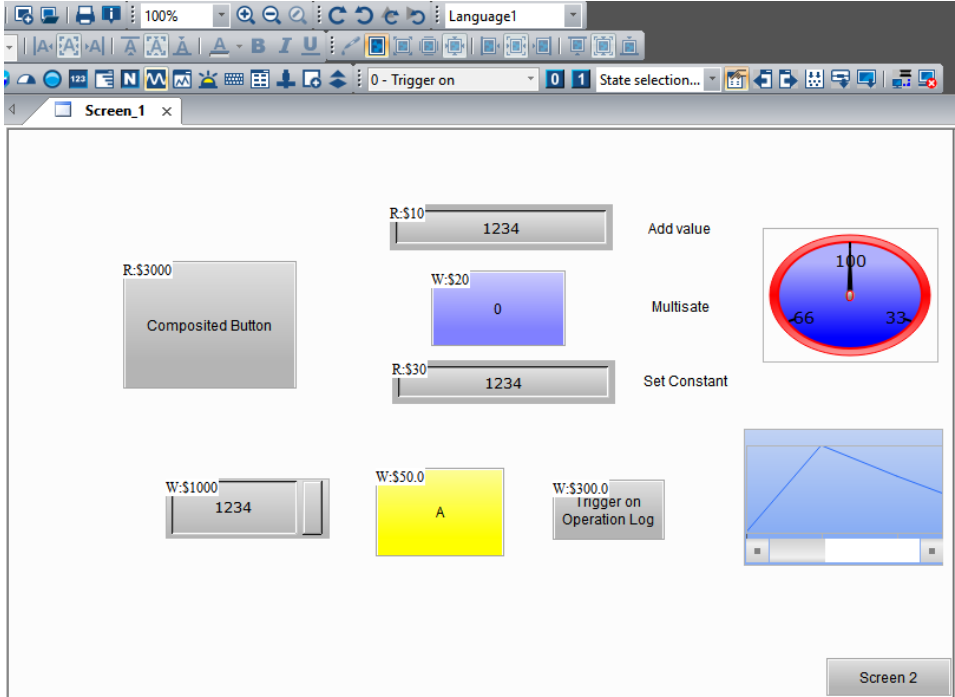
The Actual Size is to reset the screen display to ratio 100%; this ratio is adjusted based on the HMI screen. You can also click  in the zoom toolbar to reset the display to 100% as shown in Table 2.2.3.4.1.

Table 2.2.3.4.1 Actual Size function example

<p>Before: 50%</p>	
<p>After: 100%</p>	

2.2.3.5 Full Screen

This function enables the editing screen to display in full screen and have the set macro line number displayed in the lower left corner of the screen. You can use **ESC** or left-click the mouse to cancel the display in full screen.

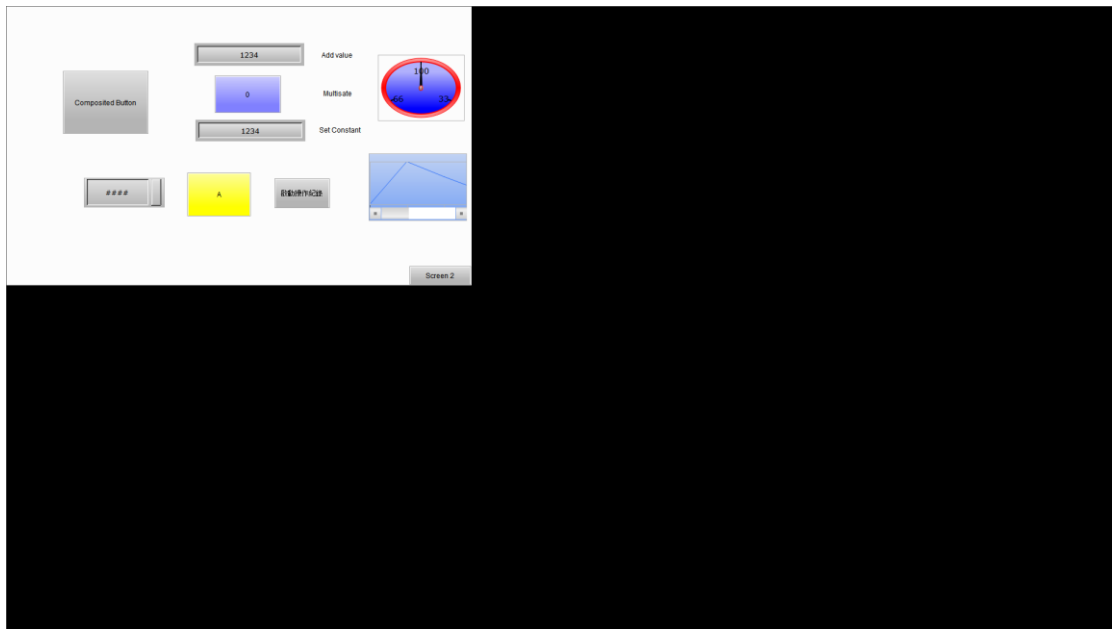


Figure 2.2.3.5.1 Full Screen

2

2

2.2.3.6 I/O Screen

It is very similar to the Full Screen function, and the only difference is that the I/O Screen displays the memory addresses on the elements. Similarly, the macro line number set in the editing screen is also displayed and you can click **ESC** or left-click the mouse to exit the display in full screen.

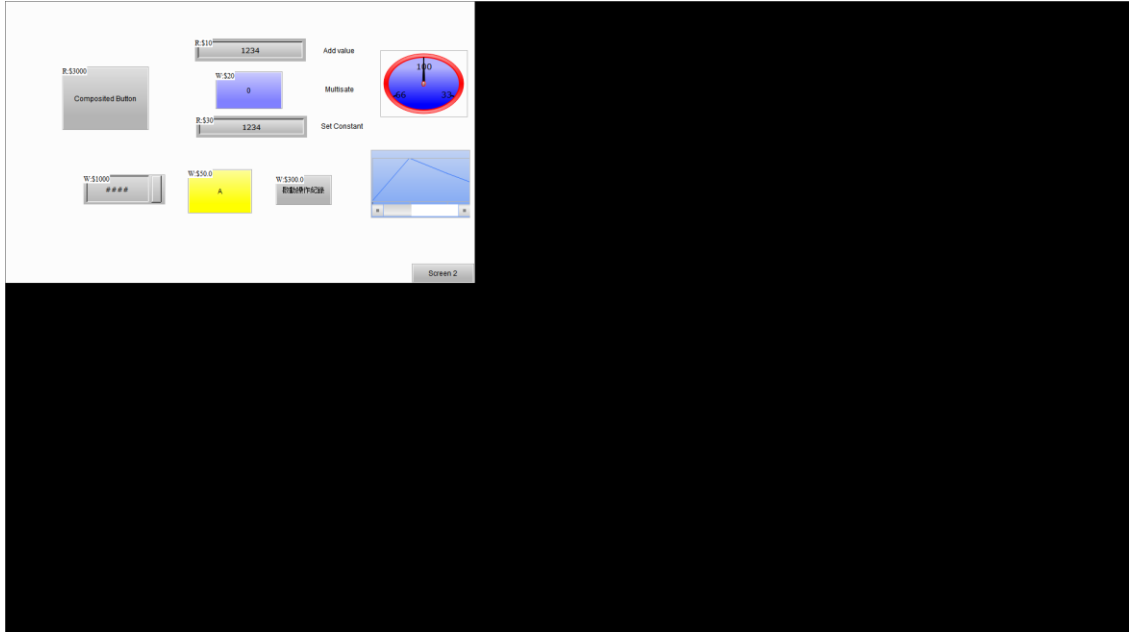


Figure 2.2.3.6.1 I/O Screen

2.2.3.7 Grid Settings

The Grid Settings has two options, Show Grid and Snap to Grid. When you select the check box of **Show Grid**, the grid is displayed on the editing screen; **Snap to Grid** helps you to better align the elements while moving them. Apart from that, you can set the spacing for the alignment grid in the range of integers 4 - 50. The default spacing of Height and Width is 4.

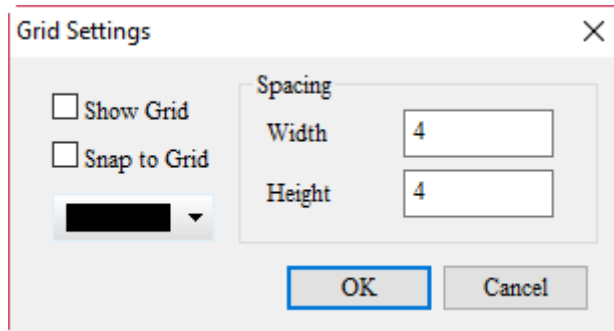


Figure 2.2.3.7.1 Grid Settings

Table 2.2.3.7.1 Grid Settings example

<p>Not Select the check box of Show Grid</p>	
<p>Select the check box of Show Grid</p>	
<p>Spacing</p>	<p>Set both the height and width spacings to 20.</p>

2

2

2.2.3.8 Element Address List

You can use this function to sort all elements in the screen by the screen number and by element type or address. All properties of the element are listed on the list by their sorting types, including Element Name, Write Address, Read Address, Trigger Address, Trigger Mode, Interlock Address, Interlock State, Data Type, Data Format, and Coordinates, and Height and Width of the element.

■ By Element

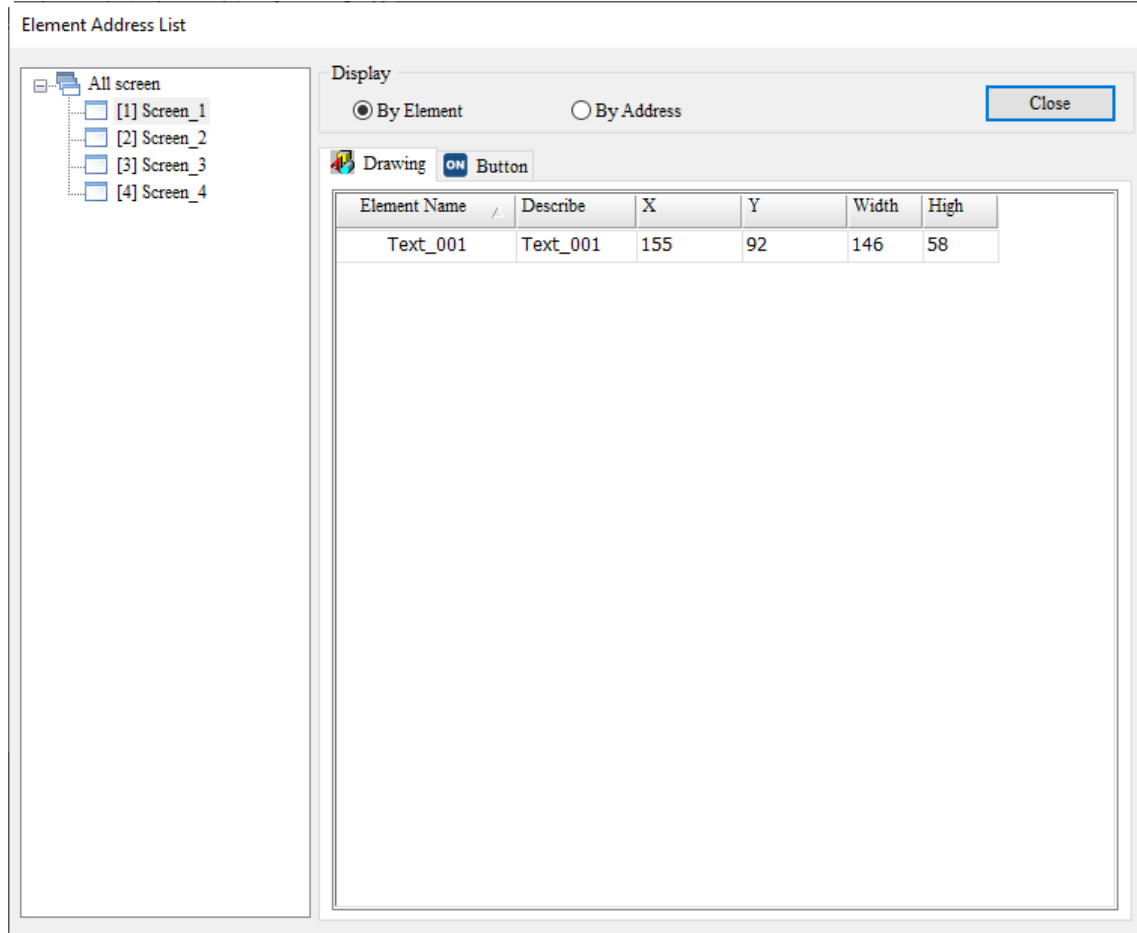
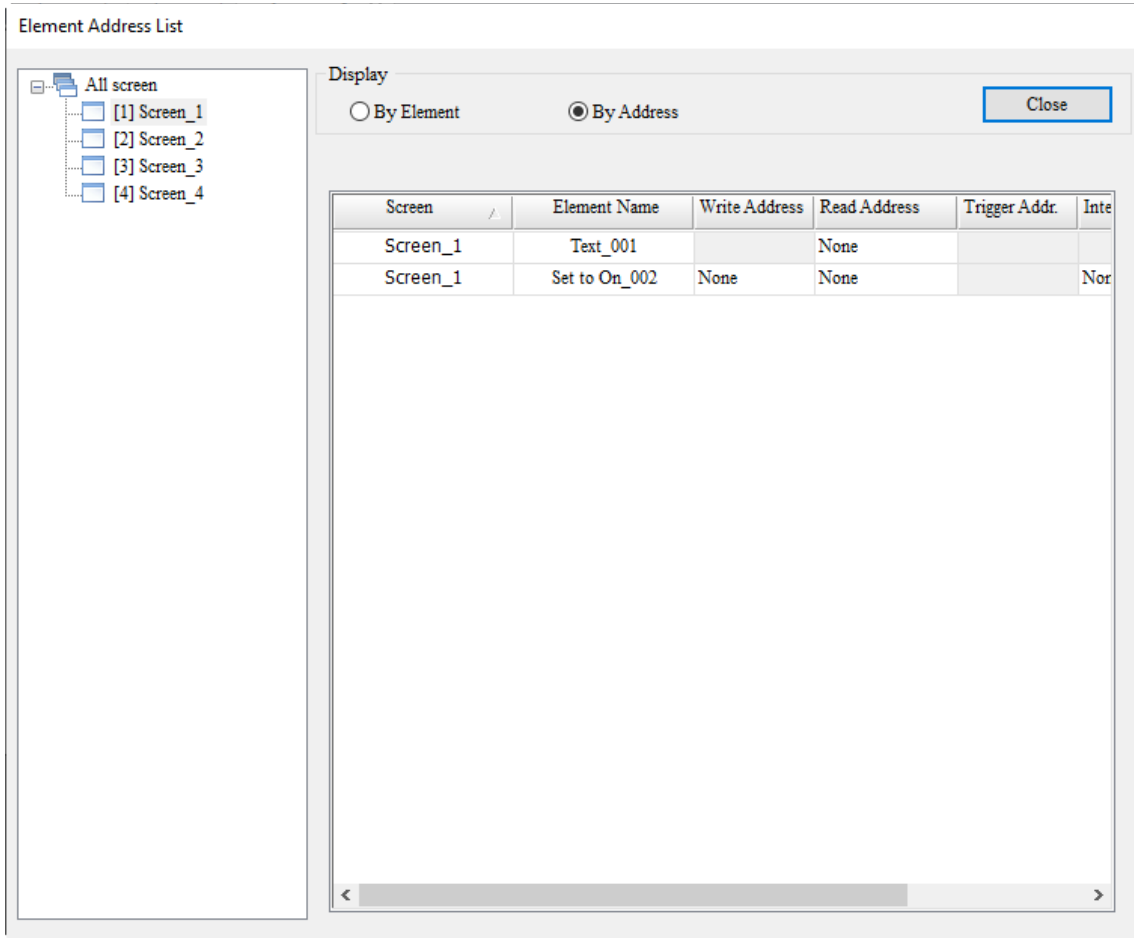


Figure 2.2.3.8.1 Element Address List - By Element

■ By Address



2

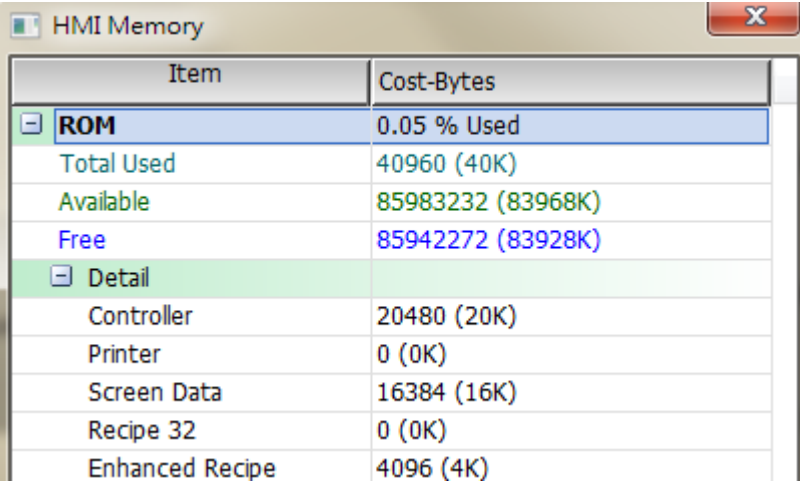
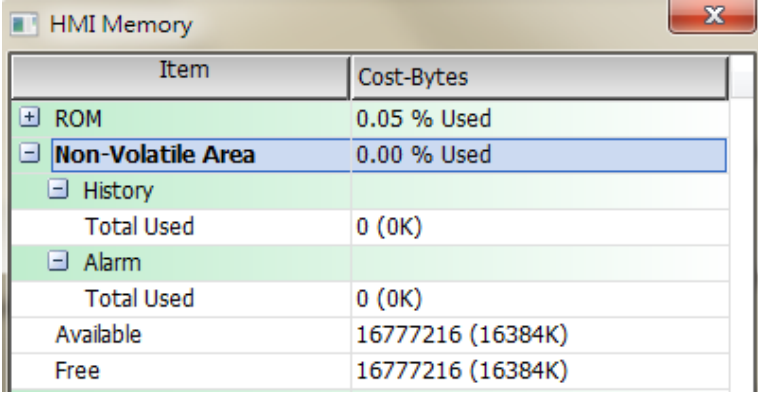
Figure 2.2.3.8.2 Element Address List - By Address

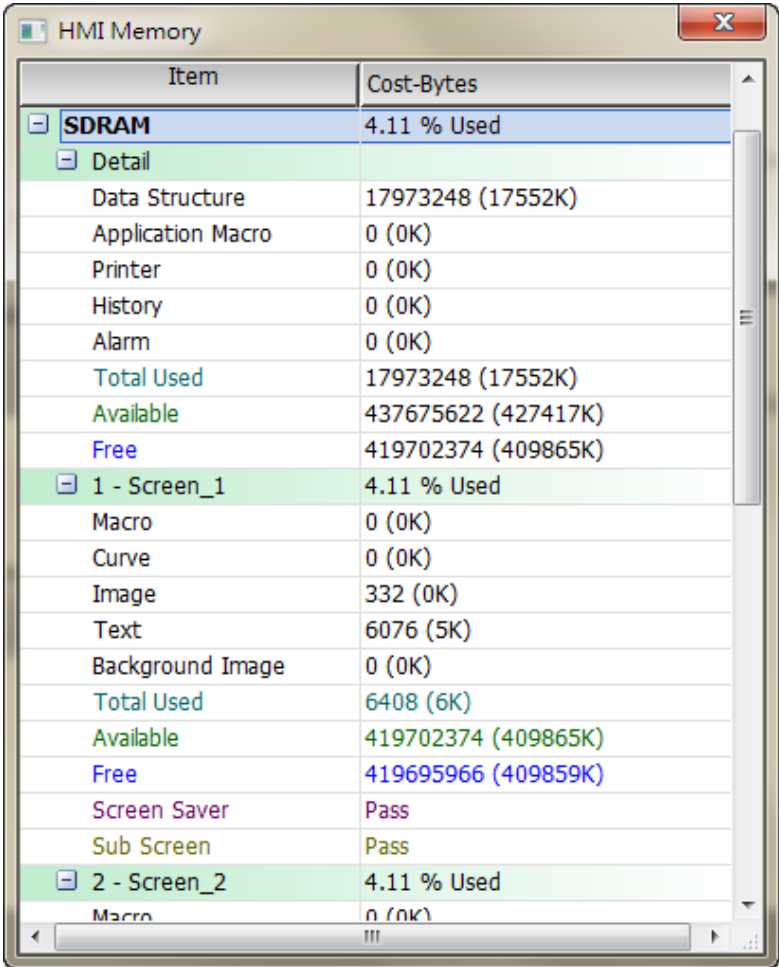
2

2.2.3.9 Memory List

This list enables you to check the memory used by the HMI screen and the remaining memory. You must create the project and compile the data to get this information. The list includes four parts, ROM, Non-Volatile Area, SDRAM, and External Storage.

Table 2.2.3.9.1 Memory List

ROM	<p>The memory used after you download the screen data to the HMI (including the recipe, screen data, and printer data)</p>  <table border="1"> <thead> <tr> <th>Item</th> <th>Cost-Bytes</th> </tr> </thead> <tbody> <tr> <td>ROM</td> <td>0.05 % Used</td> </tr> <tr> <td>Total Used</td> <td>40960 (40K)</td> </tr> <tr> <td>Available</td> <td>85983232 (83968K)</td> </tr> <tr> <td>Free</td> <td>85942272 (83928K)</td> </tr> <tr> <td>Detail</td> <td></td> </tr> <tr> <td>Controller</td> <td>20480 (20K)</td> </tr> <tr> <td>Printer</td> <td>0 (0K)</td> </tr> <tr> <td>Screen Data</td> <td>16384 (16K)</td> </tr> <tr> <td>Recipe 32</td> <td>0 (0K)</td> </tr> <tr> <td>Enhanced Recipe</td> <td>4096 (4K)</td> </tr> </tbody> </table>	Item	Cost-Bytes	ROM	0.05 % Used	Total Used	40960 (40K)	Available	85983232 (83968K)	Free	85942272 (83928K)	Detail		Controller	20480 (20K)	Printer	0 (0K)	Screen Data	16384 (16K)	Recipe 32	0 (0K)	Enhanced Recipe	4096 (4K)
Item	Cost-Bytes																						
ROM	0.05 % Used																						
Total Used	40960 (40K)																						
Available	85983232 (83968K)																						
Free	85942272 (83928K)																						
Detail																							
Controller	20480 (20K)																						
Printer	0 (0K)																						
Screen Data	16384 (16K)																						
Recipe 32	0 (0K)																						
Enhanced Recipe	4096 (4K)																						
Non-Volatile Area	<p>The default storage location of the non-volatile data is the Non-Volatile Area. When there are data such as the history records and alarms in the project file you edited, you can use this section to check the memory usage.</p>  <table border="1"> <thead> <tr> <th>Item</th> <th>Cost-Bytes</th> </tr> </thead> <tbody> <tr> <td>ROM</td> <td>0.05 % Used</td> </tr> <tr> <td>Non-Volatile Area</td> <td>0.00 % Used</td> </tr> <tr> <td>History</td> <td></td> </tr> <tr> <td>Total Used</td> <td>0 (0K)</td> </tr> <tr> <td>Alarm</td> <td></td> </tr> <tr> <td>Total Used</td> <td>0 (0K)</td> </tr> <tr> <td>Available</td> <td>16777216 (16384K)</td> </tr> <tr> <td>Free</td> <td>16777216 (16384K)</td> </tr> </tbody> </table>	Item	Cost-Bytes	ROM	0.05 % Used	Non-Volatile Area	0.00 % Used	History		Total Used	0 (0K)	Alarm		Total Used	0 (0K)	Available	16777216 (16384K)	Free	16777216 (16384K)				
Item	Cost-Bytes																						
ROM	0.05 % Used																						
Non-Volatile Area	0.00 % Used																						
History																							
Total Used	0 (0K)																						
Alarm																							
Total Used	0 (0K)																						
Available	16777216 (16384K)																						
Free	16777216 (16384K)																						

<p>SDRAM</p>	<p>Displays the SDRAM space required for the operation of each screen. The calculation of SDRAM is by page. If the project has two pages, the SDRAM displays the data for the two pages.</p>  <table border="1"> <thead> <tr> <th>Item</th> <th>Cost-Bytes</th> </tr> </thead> <tbody> <tr> <td>SDRAM</td> <td>4.11 % Used</td> </tr> <tr> <td> Detail</td> <td></td> </tr> <tr> <td> Data Structure</td> <td>17973248 (17552K)</td> </tr> <tr> <td> Application Macro</td> <td>0 (0K)</td> </tr> <tr> <td> Printer</td> <td>0 (0K)</td> </tr> <tr> <td> History</td> <td>0 (0K)</td> </tr> <tr> <td> Alarm</td> <td>0 (0K)</td> </tr> <tr> <td> Total Used</td> <td>17973248 (17552K)</td> </tr> <tr> <td> Available</td> <td>437675622 (427417K)</td> </tr> <tr> <td> Free</td> <td>419702374 (409865K)</td> </tr> <tr> <td> 1 - Screen_1</td> <td>4.11 % Used</td> </tr> <tr> <td> Macro</td> <td>0 (0K)</td> </tr> <tr> <td> Curve</td> <td>0 (0K)</td> </tr> <tr> <td> Image</td> <td>332 (0K)</td> </tr> <tr> <td> Text</td> <td>6076 (5K)</td> </tr> <tr> <td> Background Image</td> <td>0 (0K)</td> </tr> <tr> <td> Total Used</td> <td>6408 (6K)</td> </tr> <tr> <td> Available</td> <td>419702374 (409865K)</td> </tr> <tr> <td> Free</td> <td>419695966 (409859K)</td> </tr> <tr> <td> Screen Saver</td> <td>Pass</td> </tr> <tr> <td> Sub Screen</td> <td>Pass</td> </tr> <tr> <td> 2 - Screen_2</td> <td>4.11 % Used</td> </tr> <tr> <td> Macro</td> <td>0 (0K)</td> </tr> </tbody> </table>	Item	Cost-Bytes	SDRAM	4.11 % Used	Detail		Data Structure	17973248 (17552K)	Application Macro	0 (0K)	Printer	0 (0K)	History	0 (0K)	Alarm	0 (0K)	Total Used	17973248 (17552K)	Available	437675622 (427417K)	Free	419702374 (409865K)	1 - Screen_1	4.11 % Used	Macro	0 (0K)	Curve	0 (0K)	Image	332 (0K)	Text	6076 (5K)	Background Image	0 (0K)	Total Used	6408 (6K)	Available	419702374 (409865K)	Free	419695966 (409859K)	Screen Saver	Pass	Sub Screen	Pass	2 - Screen_2	4.11 % Used	Macro	0 (0K)
Item	Cost-Bytes																																																
SDRAM	4.11 % Used																																																
Detail																																																	
Data Structure	17973248 (17552K)																																																
Application Macro	0 (0K)																																																
Printer	0 (0K)																																																
History	0 (0K)																																																
Alarm	0 (0K)																																																
Total Used	17973248 (17552K)																																																
Available	437675622 (427417K)																																																
Free	419702374 (409865K)																																																
1 - Screen_1	4.11 % Used																																																
Macro	0 (0K)																																																
Curve	0 (0K)																																																
Image	332 (0K)																																																
Text	6076 (5K)																																																
Background Image	0 (0K)																																																
Total Used	6408 (6K)																																																
Available	419702374 (409865K)																																																
Free	419695966 (409859K)																																																
Screen Saver	Pass																																																
Sub Screen	Pass																																																
2 - Screen_2	4.11 % Used																																																
Macro	0 (0K)																																																
<p>External Storage</p>	<p>This refers to the memory space of the external storage. When you set the location of the non-volatile area as an external storage device, such as the USB Disk or SD Card, the data blocks originally stored in the non-volatile area (SRAM) are moved to the external storage device.</p>																																																

2.2.4 Screen

The Screen option on the function list provides the following functions.

2

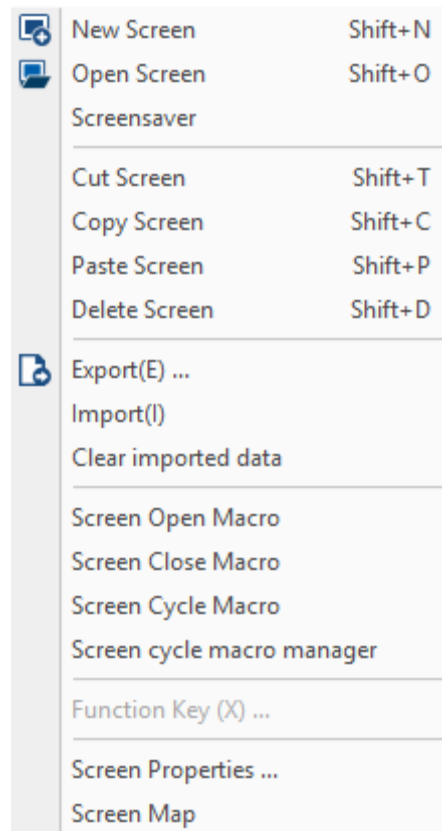



Figure 2.2.4.1 Screen function list

2.2.4.1 New Screen

To create a new editing screen, you can go to [Screen] > [New Screen], use  in the General toolbar, or use the system keyboard shortcut **Shift + N**. After creating a new screen, you can set the Screen Name, Screen No., and Screen Type to create. The Screen Type includes Screen, Subscreen, Keypad Screen, Print Screen, and Template Screen.

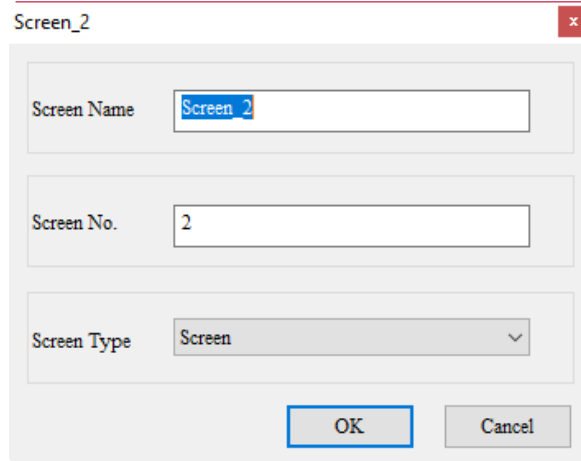



Figure 2.2.4.1.1 Create a new Screen

2

2.2.4.2 Open Screen

To open a previously created screen, you can go to [Screen] > [Open Screen], use  in the General toolbar, or use the system keyboard shortcut **Shift + O**. When you select the screen to open, you can view all the elements in the screen from the Preview section on the right.

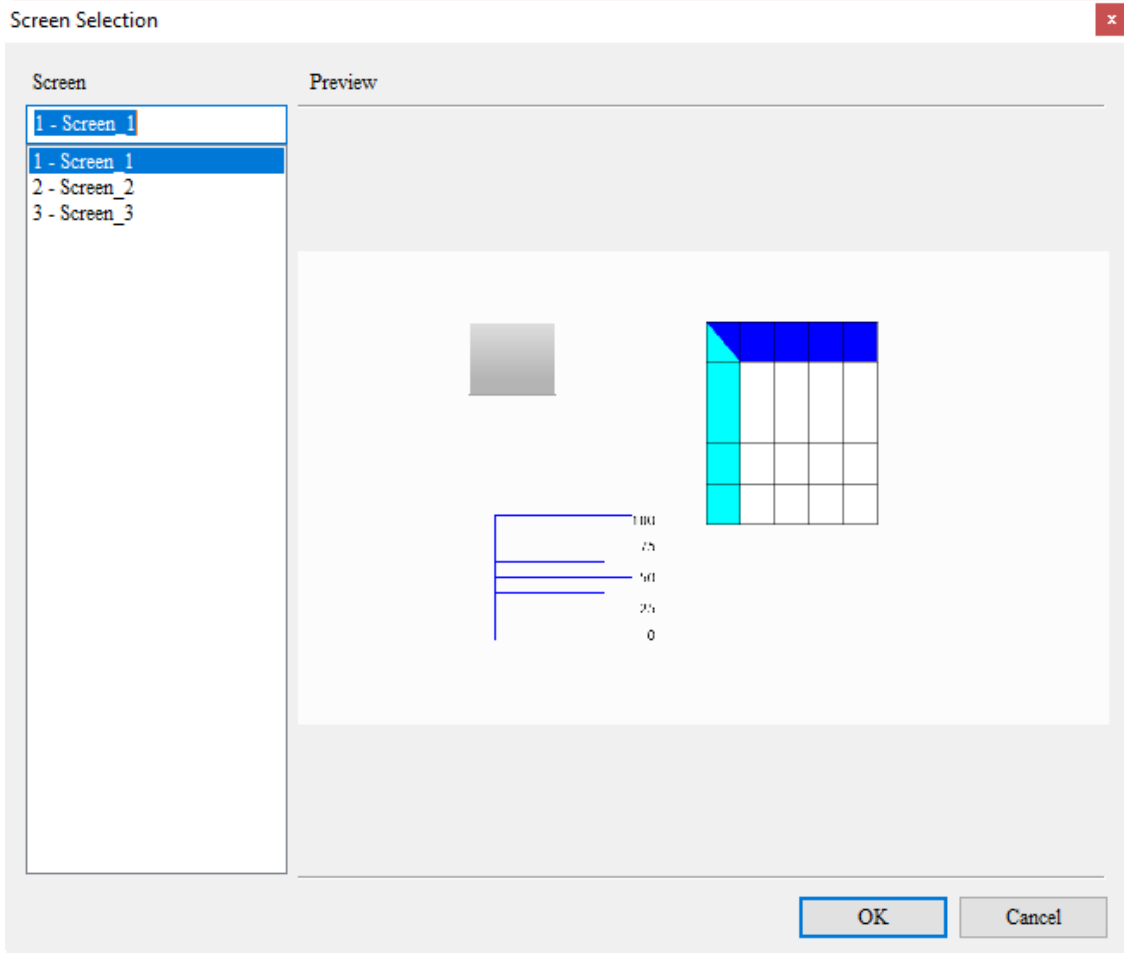
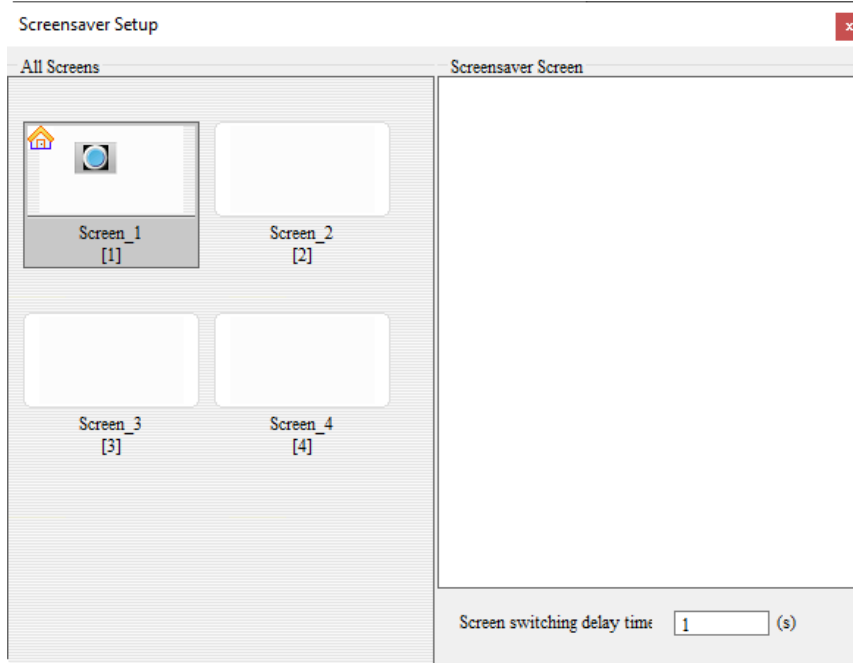


Figure 2.2.4.2.1 Open Screen

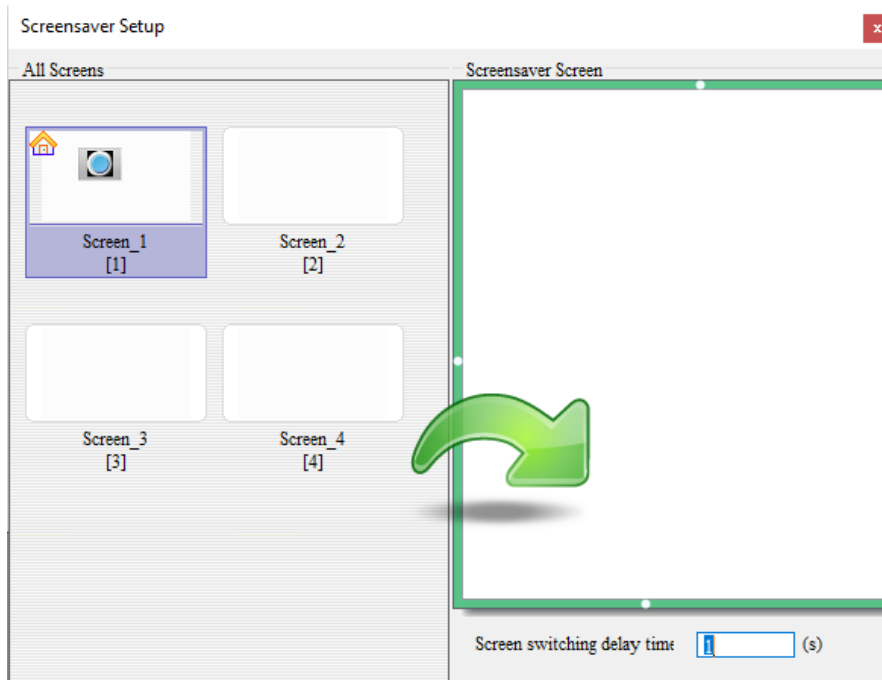
2.2.4.3 Screensaver

The setting of the DOPSoft Screensaver is the same as that of Windows. To set the screen for the screensaver, drag the screen to the Screensaver Screen section on the right. The steps are as follows:

1. Go to [Screen] > [Screensaver] to go to the Screensaver Setup page.

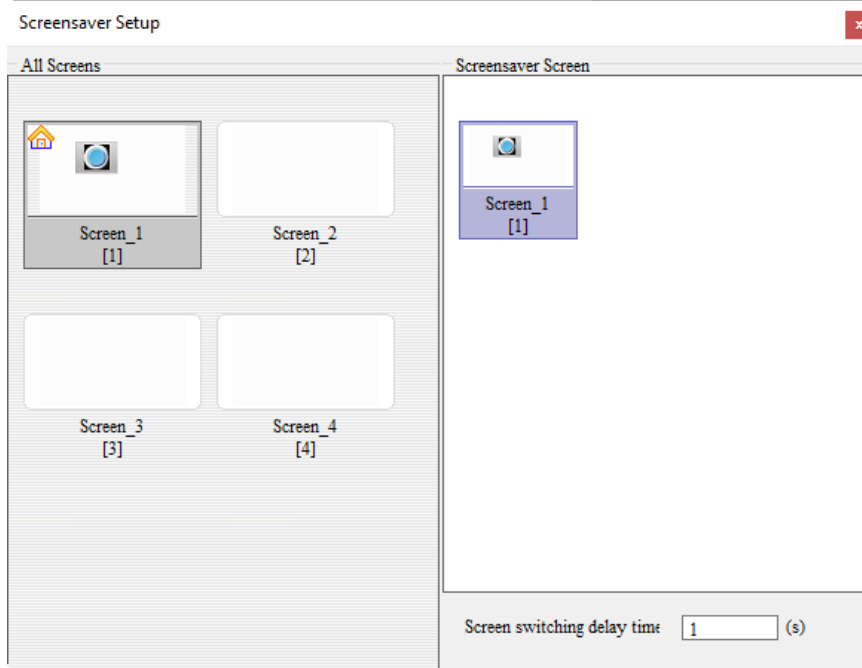


2. Select the screen for the screensaver from the left section. Left-click the mouse and hold, and a green arrow appears to direct you to drag the selected screen.

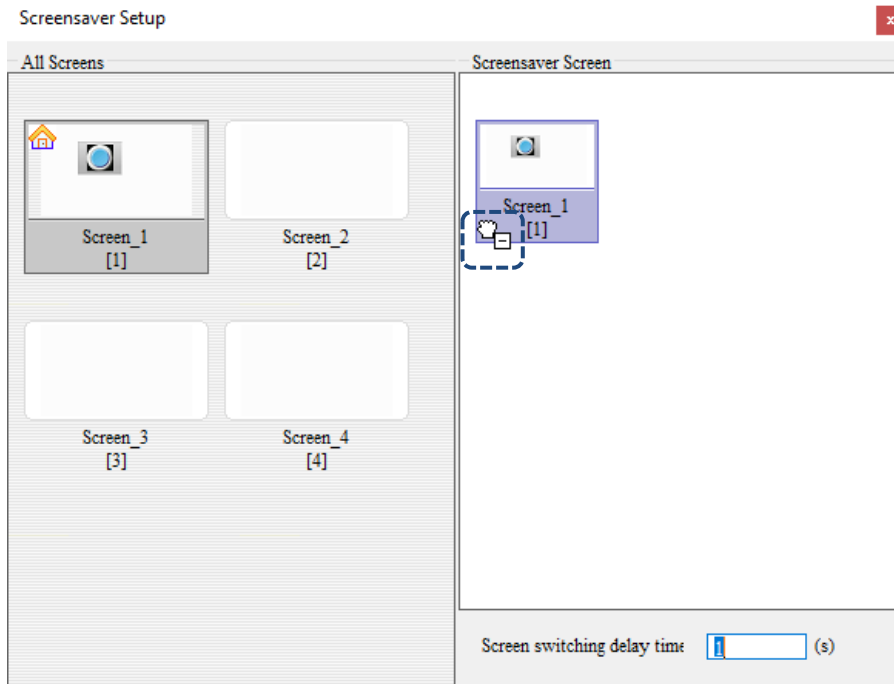


2

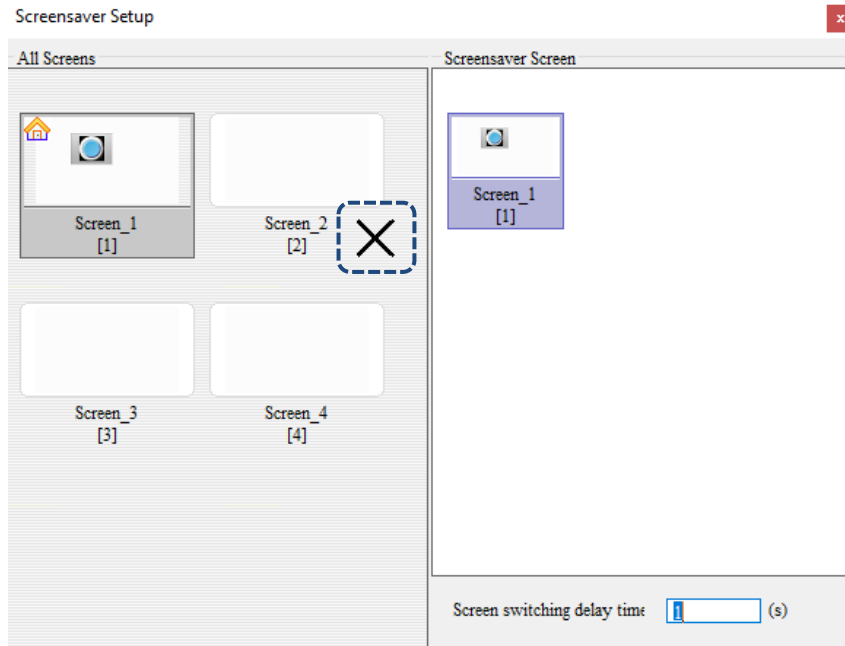
- 3. Once the green arrow appears, you can start dragging the screen. In the following figure, Screen_1 is dragged to the Screensaver Screen.



- 4. To delete the screensaver screen, click and hold the screen to be deleted, and the screen with the mark is as shown as follows.



- Next, left-click the screen to be deleted and hold the mouse button, drag the screen to the All Screens section on the left, and a black X sign appears, and then you can release the mouse left button to delete the screen for the Screensaver.



2

If you select **Enable screensaver**, you can set the Screen switching delay time. It is the interval time when screens are switched. The time range is 1- 255 s and the default time is 1 second.

2

2.2.4.4 Cut Screen

To cut the screen, you can go to [Screen] > [Cut Screen], or use the system keyboard shortcut **Shift + T**. Cut Screen is the same as the cut action for editing general texts. You can cut the screen and paste the screen.

Note: you cannot undo the action after you cut the screen.

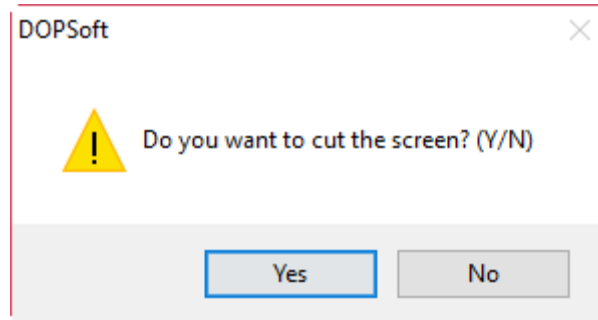


Figure 2.2.4.4.1 Cut Screen

2.2.4.5 Copy Screen

To copy the screen, you can go to [Screen] > [Copy Screen], or use the system keyboard shortcut **Shift + C**. You can first copy the screen, click Paste Screen, and then the screen you copied will be pasted, which is similar to the copy action for text editing.

2.2.4.6 Paste Screen

To paste the screen, you can go to [Screen] > [Paste Screen], or use the system keyboard shortcut **Shift + P**. Paste Screen is operable after you cut or copy the screen. After you paste the screen, the software automatically assigns the screen number.

2.2.4.7 Delete Screen

To delete the screen, you can go to [Screen] > [Delete Screen], or use the system keyboard shortcut **Shift + D**.

Note: you cannot undo the action after you delete the screen.

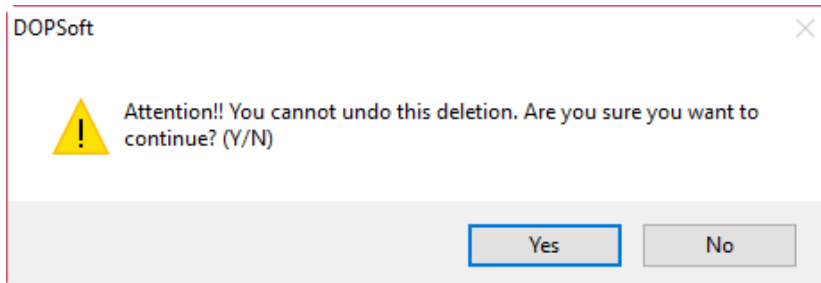



Figure 2.2.4.7.1 Delete Screen

2.2.4.8 Export

Save the current screen data as a .bmp image file in the disk. You can go to [Screen] > [Export], use  in the General toolbar, or use the system keyboard shortcut **Shift + E**. After you execute Export, you will be asked whether to show the border on the exported screen.

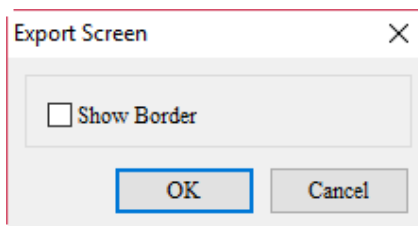


Figure 2.2.4.8.1 Export

Click **OK** and the default file name is "NewHMI" and the file format is .bmp.

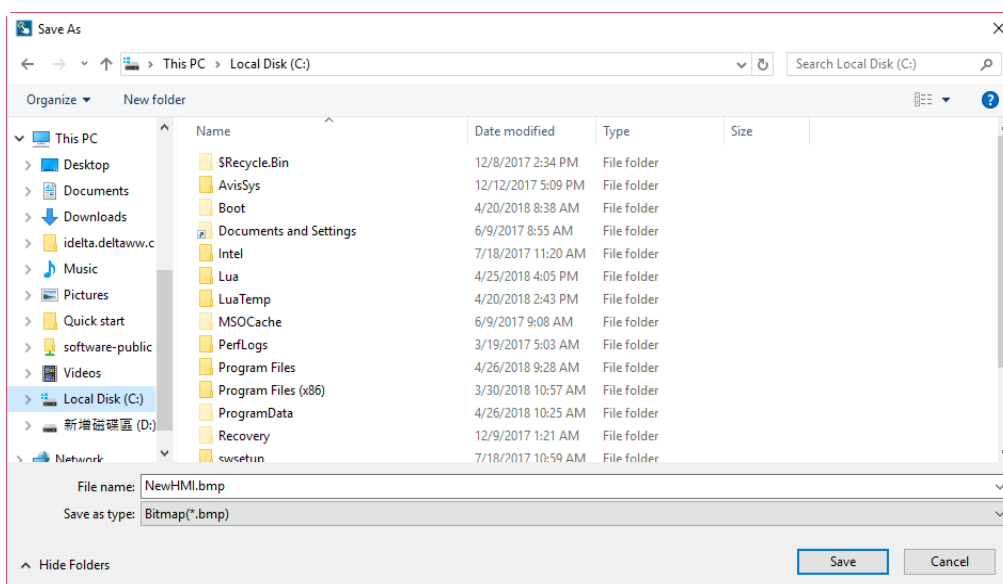


Figure 2.2.4.8.2 Export and save file

2

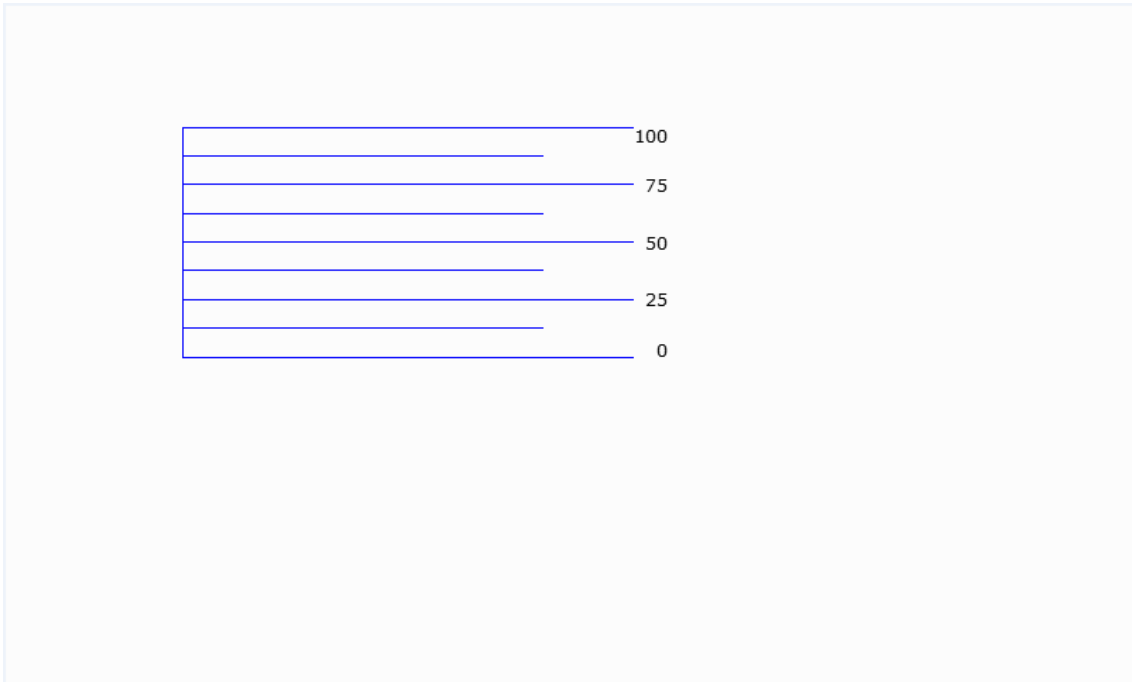


Figure 2.2.4.8.3 Image format after exported

If you have select the check box of **Show Border**, the image is presented with a bold black border line.

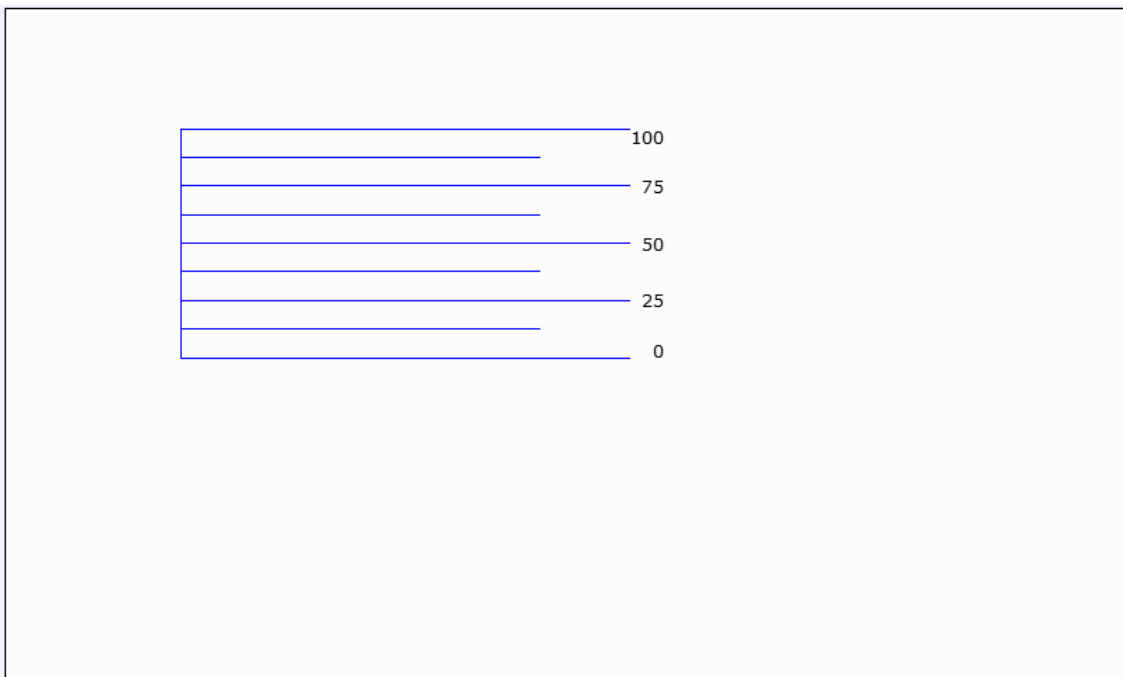


Figure 2.2.4.8.4 Image with black border

2.2.4.9 Import

Import any of the images from the file and set it as the background image for this editing screen. Supported image file formats for Import include BMP, JPG, GIF, ICO, and PNG. You can go to [Screen] > [Import] or use the system keyboard shortcut **Shift + I**.

2

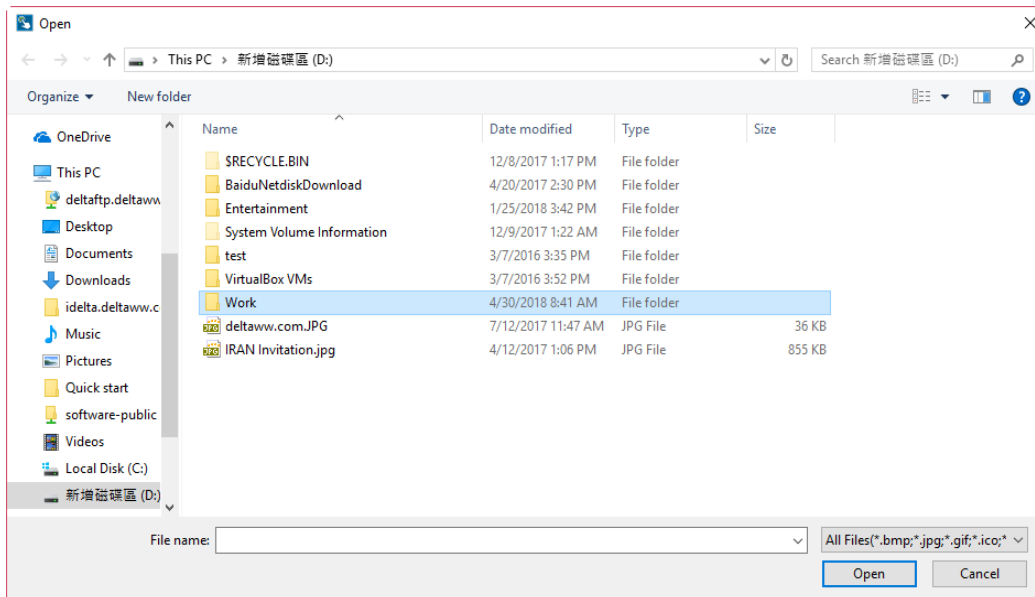


Figure 2.2.4.9.1 Supported file format for Import

Note:

1. The imported background image is different from the base screen. The imported image data is not treated as an element whereas the base screen is saved as an element in the editing screen after it is compiled.
2. For the definition and usage of the base screen, refer to 2.2.4.12 Screen Properties.

2.2.4.10 Clear imported data

To clear the imported background image, you can simply go to [Screen] > [Clear imported data] to clear the external background image in the current editing screen.

2

2.2.4.11 Function Key

The Function Key is enabled based on the HMI model types. The Function Key function is supported on DOP-B07S201, DOP-B07S211, DOP-B07S401K, DOP-B07S411K, DOP-H, and HMC07 series models. If you use models not mentioned above, when you go to [Screen] > [Function Key], the Function Key function is not available. On the other hand, if you select the models mentioned above, the **Function Key** is available.



Figure 2.2.4.11.1 DOP-B Function Key option



Figure 2.2.4.11.2 DOP-H Function Key option

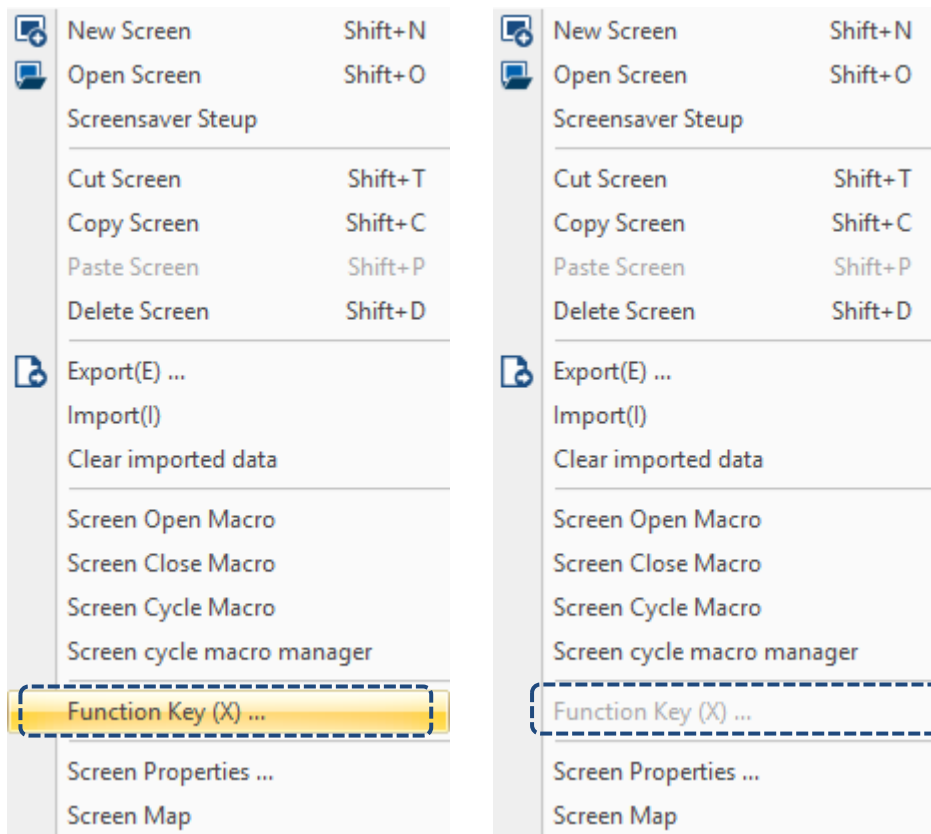


Figure 2.2.4.11.3 Function Key options

There are two types of settings for the Function Key, Local and Global. After you execute **Function Key**, the options of Local and Global are available.

Note: if you set both Local and Global, the software refers to the Global setting.



Figure 2.2.4.11.4 Local and Global

2

- Global

When you set F1 as the **System Directory** and set **Global** for the Function Key, it means when there are 10 screens, whenever you execute F1 and regardless of the screen you switch to, the system executes the action for **System Directory**.

- Local

When you set F1 as the **System Directory** and set **Local** for the Function Key in the first screen, it means the system executes the action for **System Directory** only when you execute F1 in the first screen.

2.2.4.12 Screen Properties

The Screen Properties is for setting the properties of the screen. It allows you to set the screen as a subscreen, Display Title Bar, Width and Height, and X-Y coordinates of the subscreen. You can go to [Screen] > [Screen Properties] or click the screen and then select the Screen Properties of the Properties table, as shown in Figure 2.2.4.12.1 and 2.2.4.12.2.

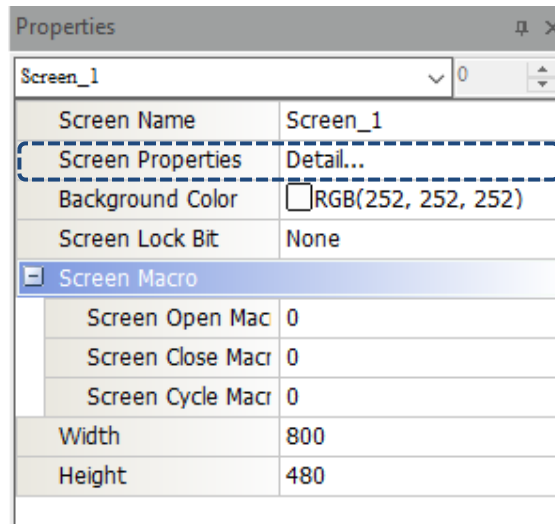


Figure 2.2.4.12.1 Screen Properties

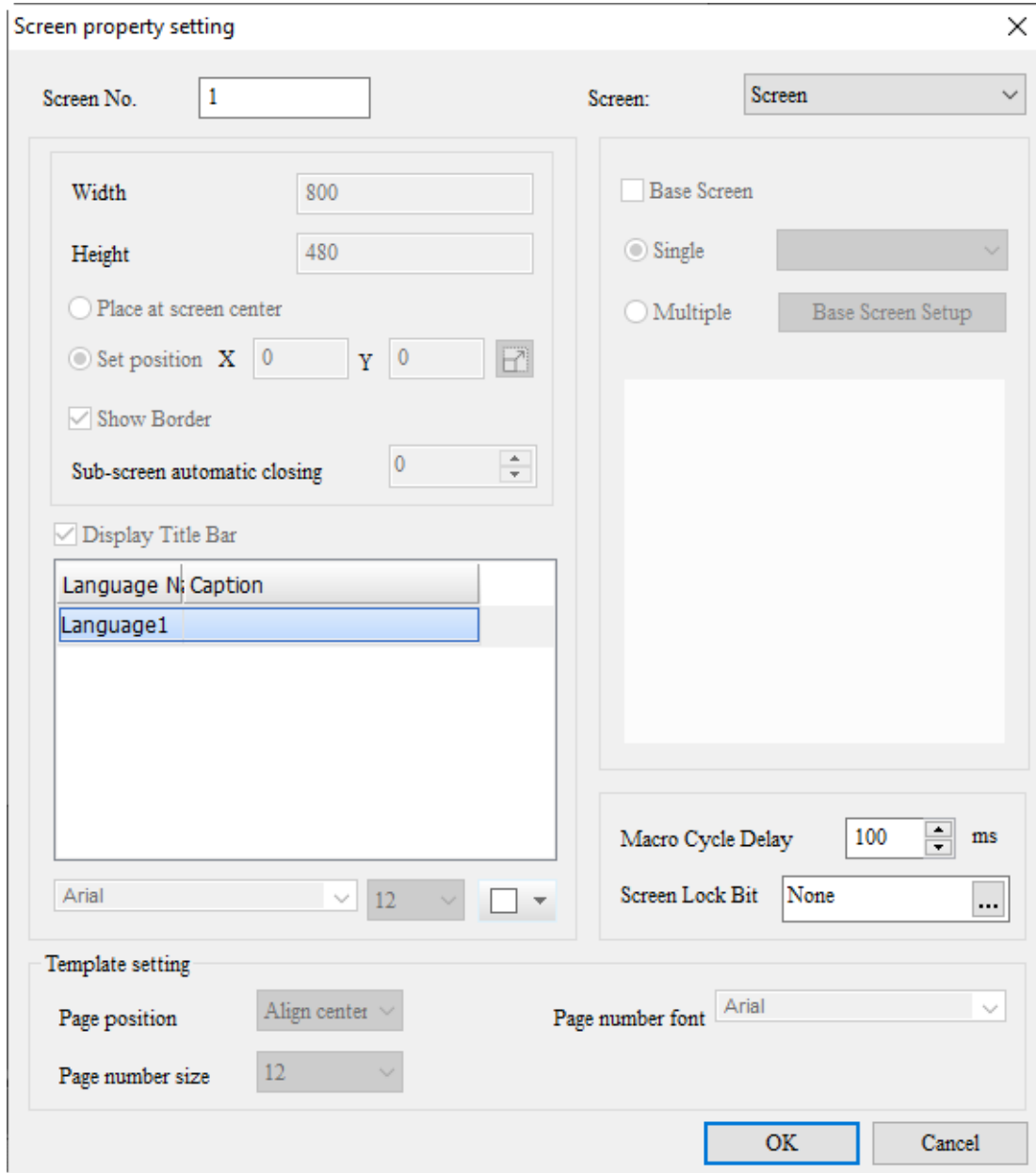
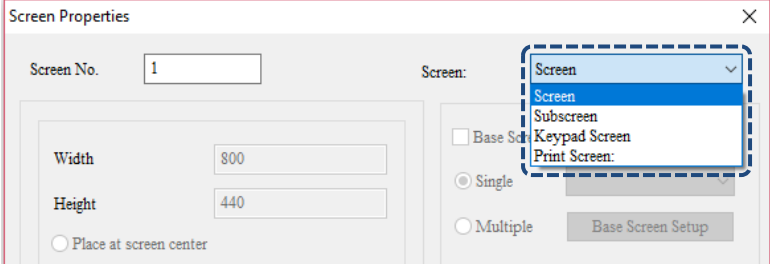
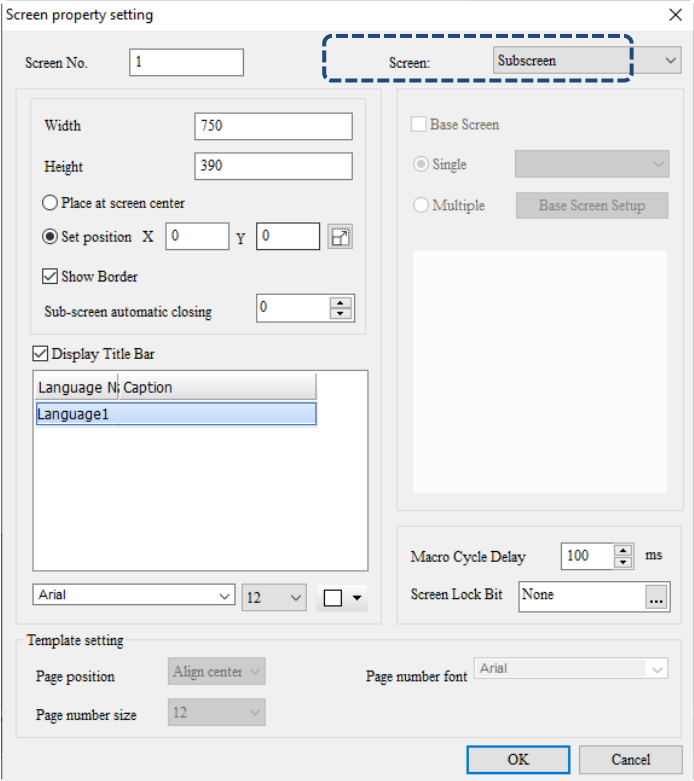

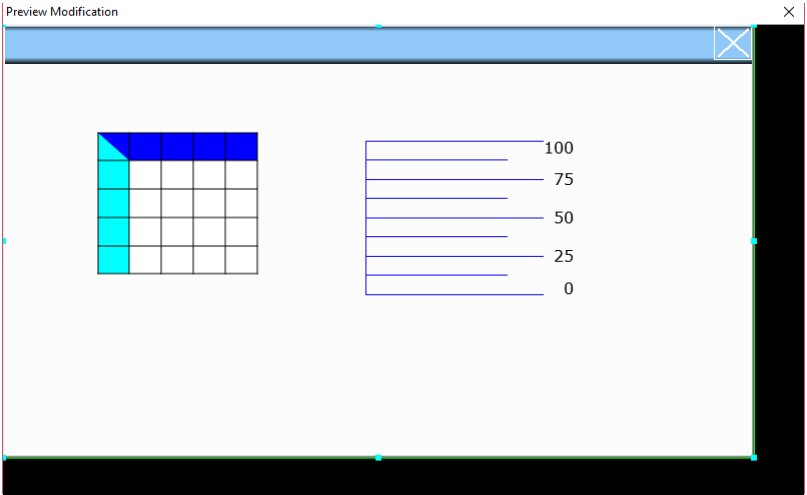
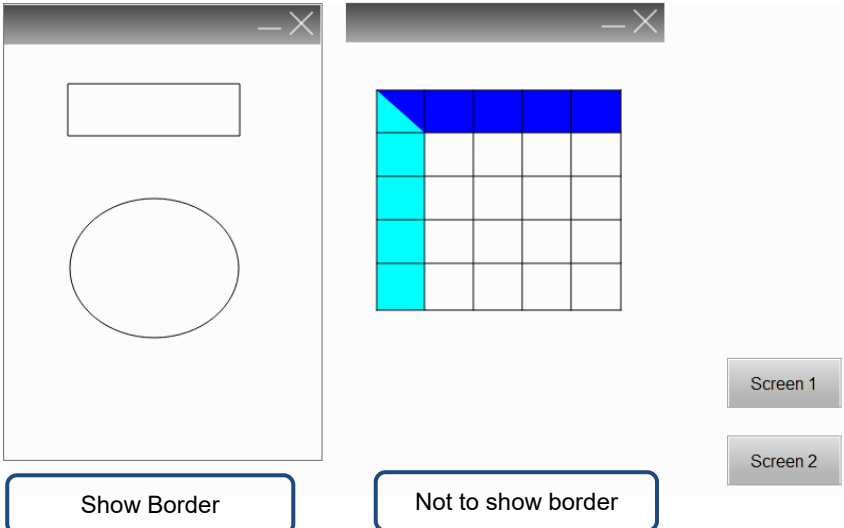


Figure 2.2.4.12.2 Screen Properties settings

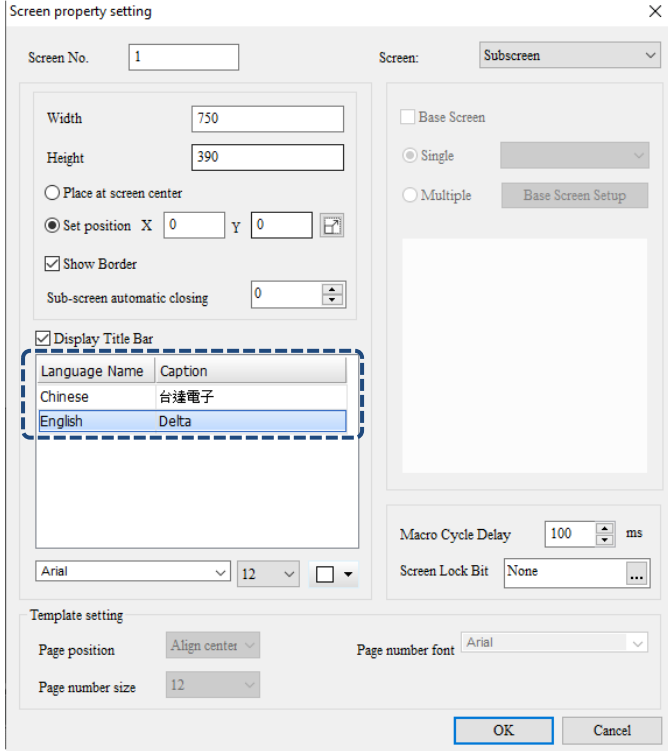
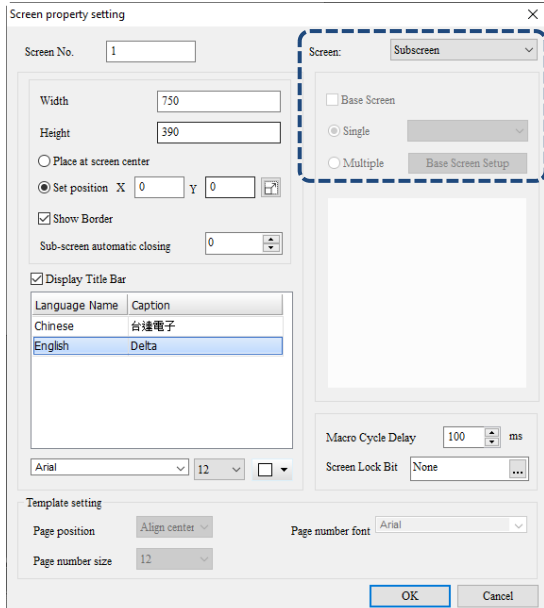
2

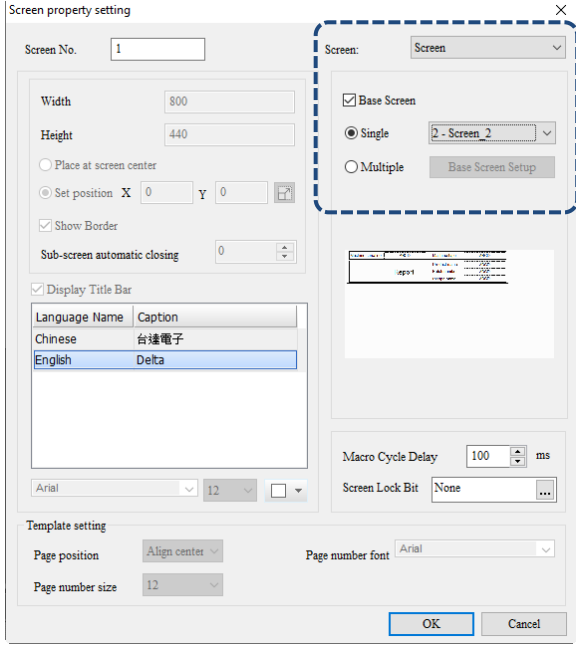
Refer to the following table for the parameter settings of Screen Properties.

Item	Description	
Screen No.	The Screen No. is from 1 to 65535 and repeating number for different screens is not allowed.	
Screen	<p>It can set the screen as Screen, Subscreen, Keypad Screen, or Print Screen.</p> 	
Subscreen settings	Select screen	<p>To set the subscreen, you must select Subscreen for Screen.</p>  <p>Note: the subscreen of DOP-100 series models supports simultaneously opening maximum 15 subscreens.</p>
	Width	Set the width of the subscreen. The unit is pixel.
	Height	Set the height of the subscreen. The unit is pixel.

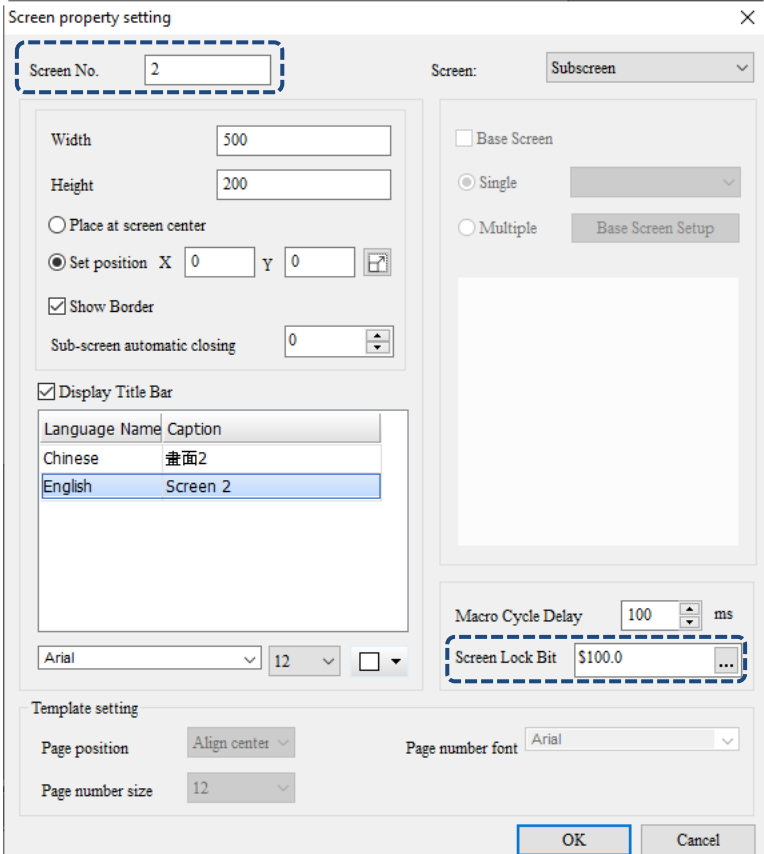
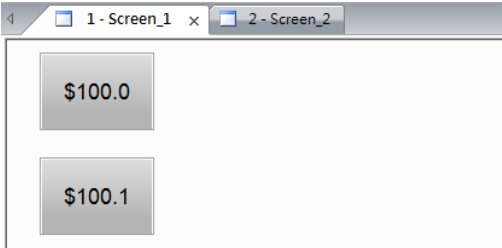
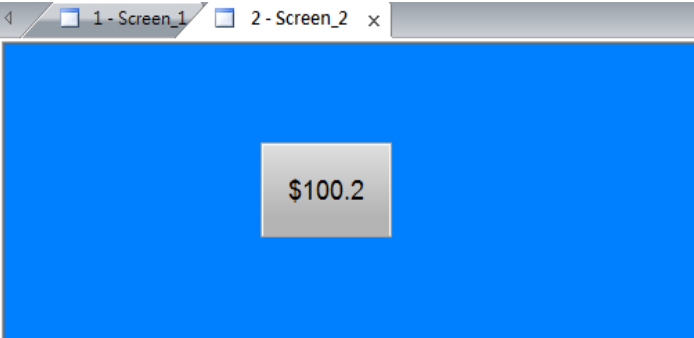
Item	Description
Subscreen settings	<p>In the subscreen settings, you can select the option of Place at screen center or select Set position to specify its position when screen opened. Directly input the coordinates or click  to go to the Preview Modification screen to adjust the size or position of the screen, as shown in the following figure.</p> 
	<p>Selecting the check box of Show Border means the subscreen displays with a border; leaving Show Border unselected means the subscreen displays without a border, as shown in the following figure.</p> 

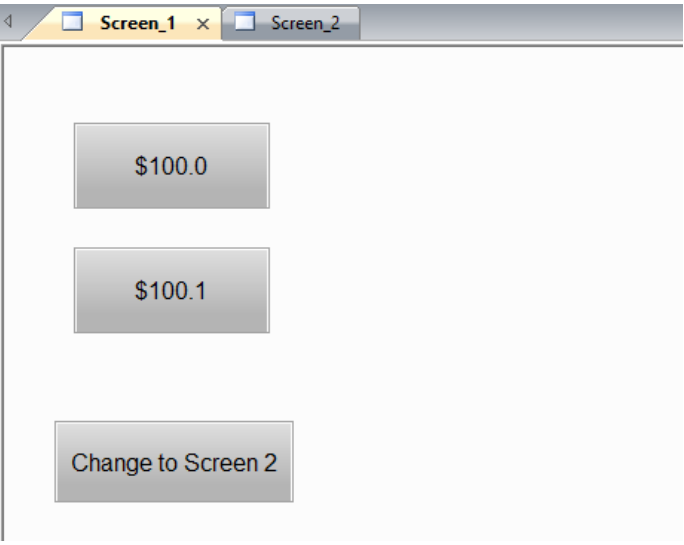
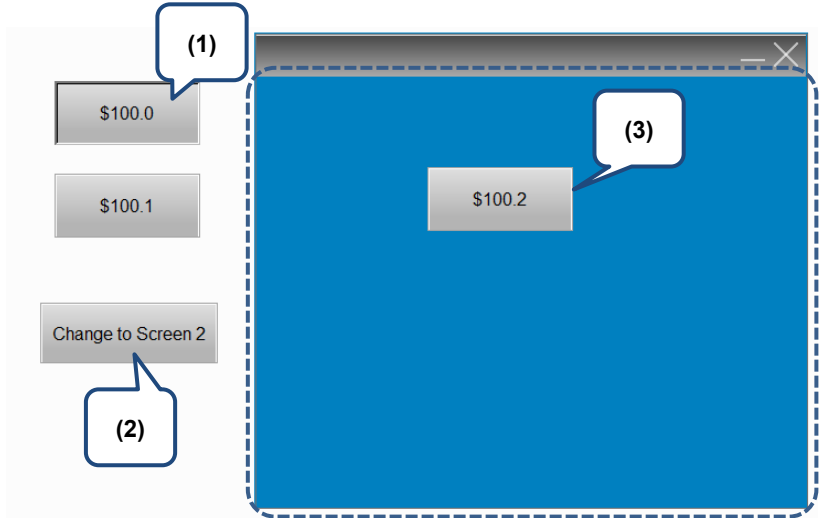
2

Item	Description
<p>Sub-screen automatic closing</p> <p style="text-align: center;">Subscreen settings</p> <p>Display Title Bar</p>	<p>Sets the time for the Subscreen to automatically go off. Unit: second.</p> <hr/> <p>You can set whether to display the title bar and set the corresponding text title based on the set language. In addition, you can set the text size, font, and color.</p> 
<p>Macro Cycle Delay</p>	<p>The interval for executing the Screen Cycle Macro. The range is 100 ms - 5000 ms with the default of 100 ms.</p>
<p>Base Screen</p> <p>Select the Base Screen check box</p>	<p>If you set the Screen as Subscreen, the base screen options are not available.</p> 

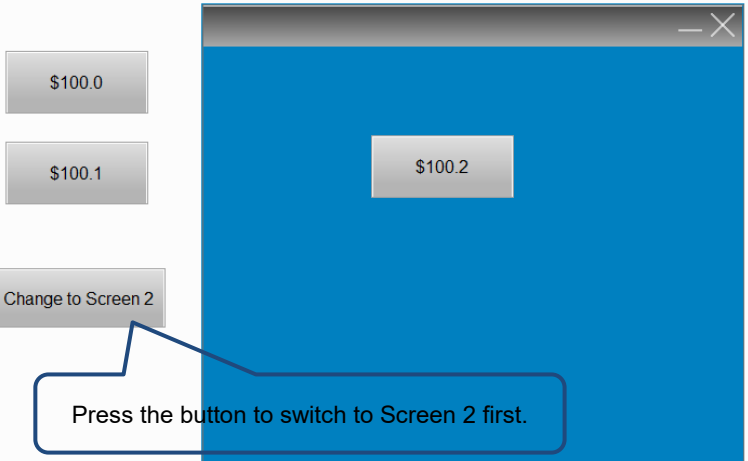
Item	Description											
<p>Base Screen</p> <p>Select the Base Screen check box</p>	<p>If you set the Screen as Screen, then you can set any of the editing screens as the base screen in all screens. The base screen is placed at the bottom layer as the background image in the editing section.</p> 											
<p>Single</p>	<p>You can go to any of the screens (except for the current screen) and set it as the base screen. The Single option indicates the base screen has only one screen.</p>											
<p>Multiple</p>	<p>The Multiple option indicates all screens except for the current one can be set as the base screen. The main difference between options of Single and Multiple is that you can use multiple screens as base screens when selecting Multiple.</p>											
<p>Screen Lock Bit</p>	<p>You can use this bit to lock the screen. When the setting value is 1, the screen is locked and you can only select the elements on the current screen; when the setting value is 0, the screen is unlocked and you can select all elements of the HMI. You can set a constant or memory address for the Screen Lock Bit.</p> <table border="1"> <thead> <tr> <th rowspan="2">Variables</th> <th colspan="3">Type</th> </tr> <tr> <th>Internal memory</th> <th>PLC register</th> <th>Constant</th> </tr> </thead> <tbody> <tr> <td>Screen Lock Bit</td> <td>⊙</td> <td>⊙</td> <td>⊙</td> </tr> </tbody> </table> <p>The example of Screen Lock Bit is as follows.</p>	Variables	Type			Internal memory	PLC register	Constant	Screen Lock Bit	⊙	⊙	⊙
Variables	Type											
	Internal memory	PLC register	Constant									
Screen Lock Bit	⊙	⊙	⊙									

2

Item	Description
<p>Create a subscreen</p> <p>Screen Lock Bit</p>	<p>Create two screens. Set Screen 2 as the subscreen and set the Screen Lock Bit as \$100.0.</p> 
<p>Create Maintained buttons</p>	<ul style="list-style-type: none"> ■ Create two buttons in Screen 1 and set their addresses as \$100.0 and \$100.1.  <ul style="list-style-type: none"> ■ Create one button in Screen 2 and set its address as \$100.2. 

Item	Description
<p>Create a Goto Screen button</p>	<p>Create a Goto Screen button in Screen 1 and set it to switch to Screen 2.</p> 
<p>Screen Lock Bit</p> <p>Execution results</p>	<p>After creating the elements, compile and download the elements to the HMI. Next, press \$100.0 and then press Change to Screen 2. In this case, Screen 2 is locked and you can only press \$100.2 on Screen 2. You can press \$100.1 on Screen 1 only after closing Screen 2.</p>  <ol style="list-style-type: none"> (1) Press \$100.0 to lock Screen 2. (2) Open Screen 2. (3) After you lock Screen 2, only the element on Screen 2 is operable.

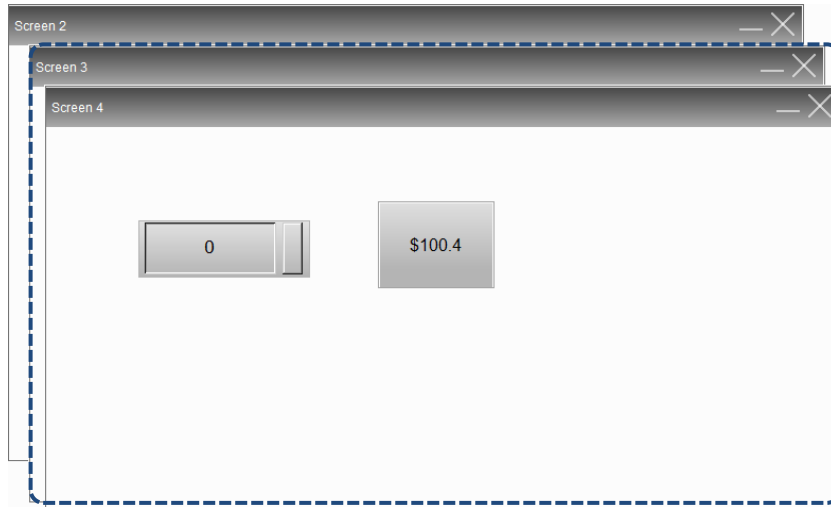
2

Item	Description
Execution results	<p>On the other hand, if you switch to Screen 2 without pressing \$100.0, as Screen 2 is unlocked, all buttons in Screen 1 and Screen 2 are operable. If you do not execute \$100.0 to lock Screen 2, all buttons in the HMI are operable.</p> 

When multiple screens use the Screen Lock Bit, the operable range is determined by the screen opening sequence. The screens opened following the lock screen are all operable; for example, if you switch from Screen 1, Screen 2, Screen 3, and then to Screen 4, when you lock Screen 3, then the selectable range will be Screens 3 and 4, so all elements in Screens 3 and 4 are operable.

Screen Lock Bit

After Screen 3 is locked, the operable range is Screen 3 and Screen 4.



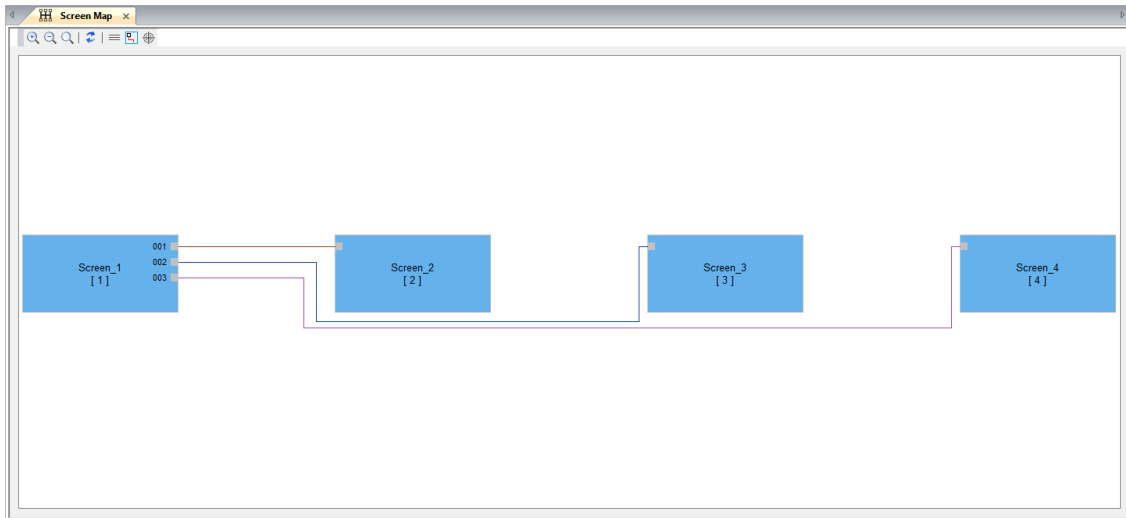
Note:

1. The embedded subscreen does not support Screen Lock Bit.
2. The subscreen remains locked even when you minimize the screen.
3. You can lock the subscreen even when it has no title setting. Make sure you created the Goto Screen button in case the subscreen cannot be closed.
4. For models without the System Key (refer to Appendix A), when the screen is locked, you can press and hold the background image to go the system directory.

2.2.4.13 Screen Map

The Screen Map allows you to view the linkage between each screen and change the screen number as required.

2


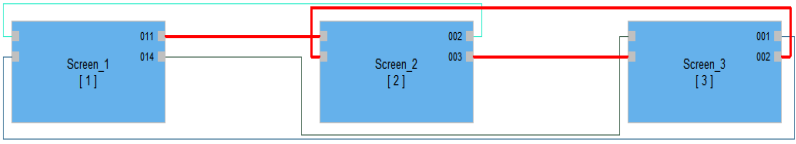

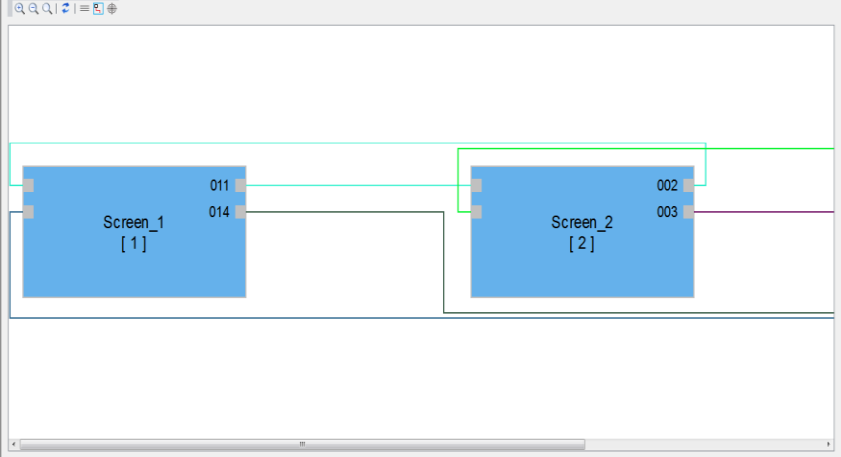

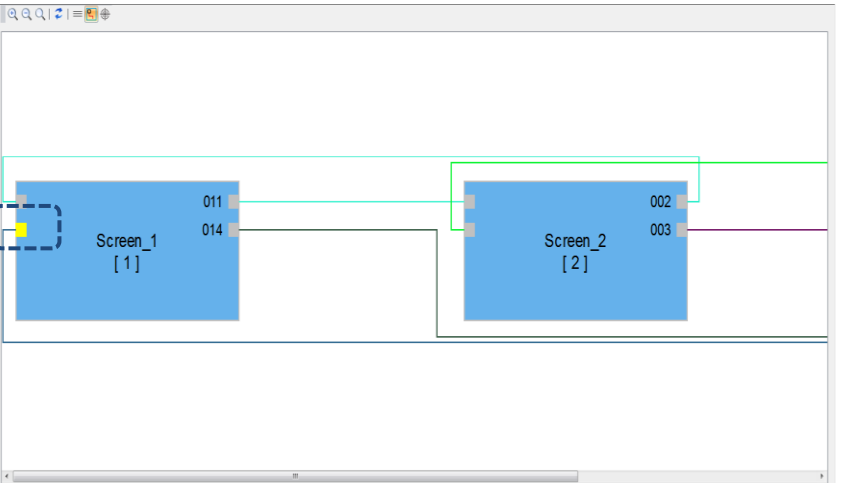



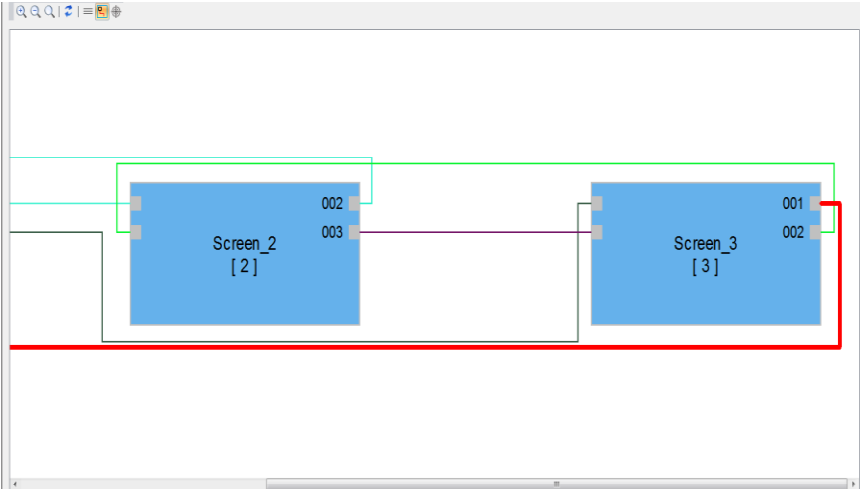

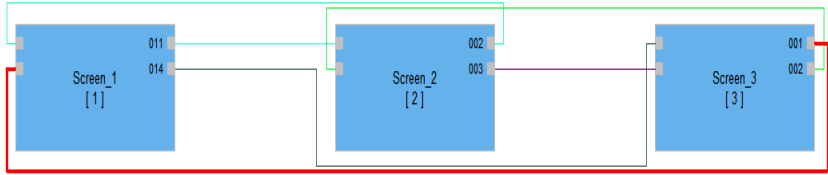

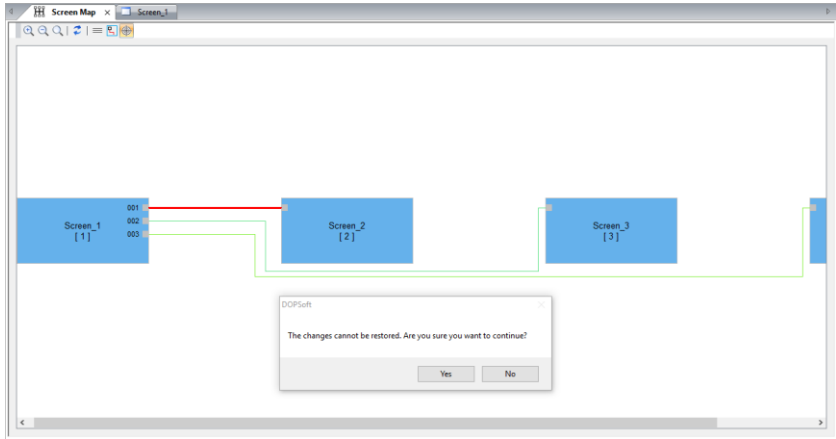
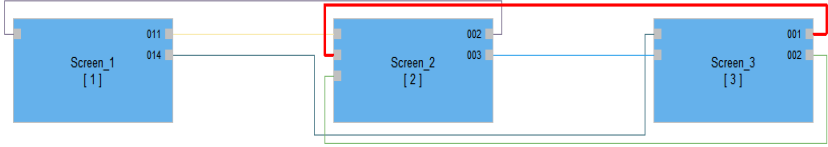
The toolbar for Screen Map:



Icon	Function name	Function description
	Zoom In	Zoom in to make the screen map appear larger.
	Zoom Out	Zoom out to make the screen map appear smaller.
	1:1	Show the screen map in the original size.
	Update	<p>If you add, modify, or delete the Goto screen button, the background color shows in pale yellow when you open the screen map, meaning the linkage between screens have been changed; meanwhile, you can click this button to update all screen numbers.</p>

2

Icon	Function name	Function description
	<p>Multiple Selection</p>	<p>It is for selecting the relation lines of multiple screens. The selected screens are linked with red lines.</p> 
	<p>Display nodes on the screen after selection</p>	<p>When the Screen Map is zoomed in and becomes too large so the screen number cannot be identified, you can use this button to select the node and switch to the linked screen number.</p> <ol style="list-style-type: none"> Zoom in the Screen Map  <ol style="list-style-type: none"> Click  to select the yellow node of Screen_1. 

Icon	Function name	Function description
	<p>Display nodes on the screen after selection</p>	<p>3. You will be directed to the screen number linking the yellow node of Screen_1.</p> 
	<p>Select Target Screen</p>	<p>This function directly changes the original linked screen number to another number on the Screen Map.</p> <p>1. Select node 001 of Screen_1.</p>  <p>2. After you click  and select Screen_2, the software prompts a message window showing the original linkage cannot be restored after this change if you want to continue. Click Yes and node 001 of Screen_1 that is originally linked to Screen_3 is changed to link to Screen_2.</p>  <p>3. The screen number linking to node 001 is changed to Screen_2.</p> 

2.2.5 Tools

The Tools option on the function list provides the following functions.

2






	Compile	Ctrl+F7
	Compile All	
	Download All Data	Ctrl+F8
	Upload All Data	
	Download Screen	Ctrl+F9
	Upload Recipe	
	Download Recipe	
	Download Boot Screen	
	Reset Default Boot Screen	
	On-line Simulation	Ctrl+F4
	Off-line Simulation	Ctrl+F5
	Firmware Update	
	Get Firmware Information	
	Reset HMI	

Figure 2.2.5.1 Toolbar function list

Note:

1. Editing Logic Data and downloading Logic Data are only supported by the HMC models.
2. If you select a non-HMC model, then these two options are not available.

2.2.5.1 Compile

For more user-friendly operation and usage, the DOPSoft provides the Compile function for individual pages. When you create multiple screens but modify only one of them, you can use Compile instead of Compile All to save the time for compiling all the screens.

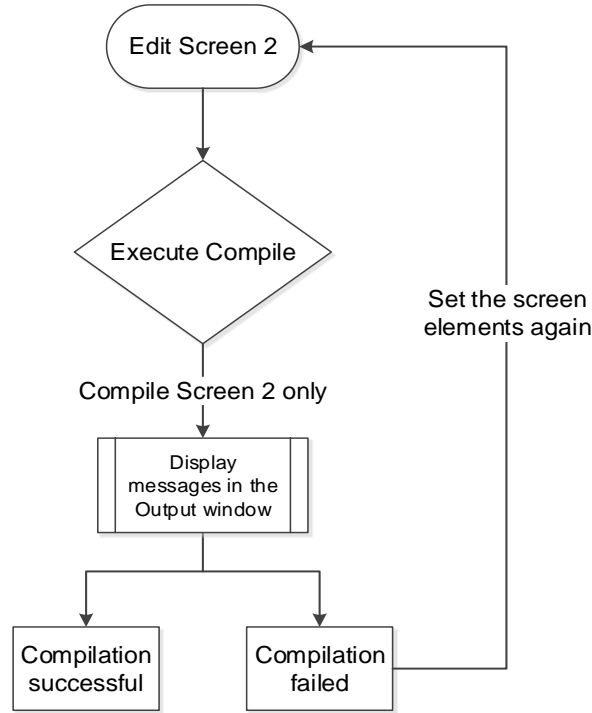



Figure 2.2.5.1.1 Flowchart of Compile

You can go to [Tools] > [Compile], use  on the Layout toolbar, or use the system keyboard shortcut **Ctrl+ F7**.

2

2.2.5.2 Compile All

This function is the same as Compile but Compile All is for compiling all screens. In the compiling process, the output column will display the related message. If an error occurs after you execute Compile, the output column also displays the error message to remind you. You can click on this message to check the element in error.

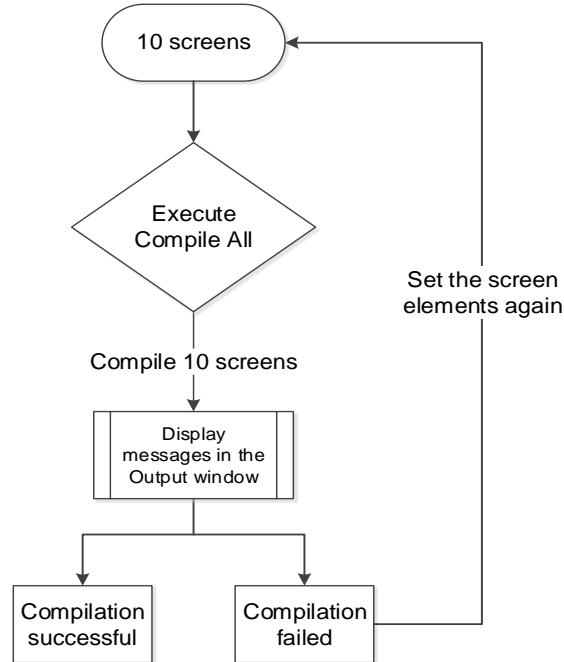



Figure 2.2.5.1.1 Flowchart of Compile All

2.2.5.3 Download All Data

The Download All Data function is for downloading both the screen data and recipes to the HMI. You can go to [Tools] > [Download All Data], use  on the Layout toolbar, or use the system keyboard shortcut **Ctrl+ F8**. When you execute Download All Data, the software detects whether the HMI is connected with the PC, and if the transmission interface is not enabled, then an error message appears for warning.

- Normal transmission

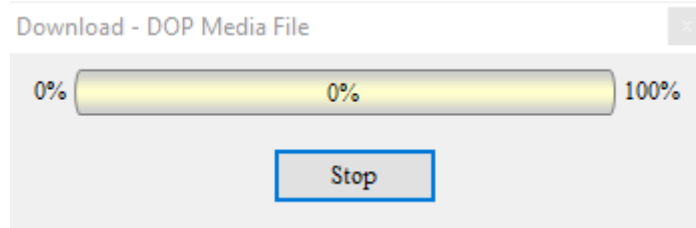
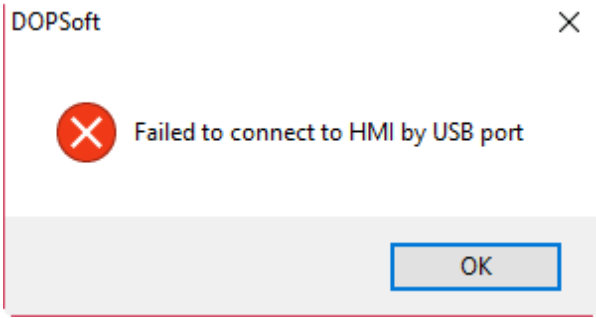
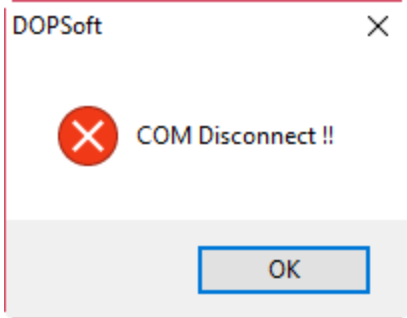
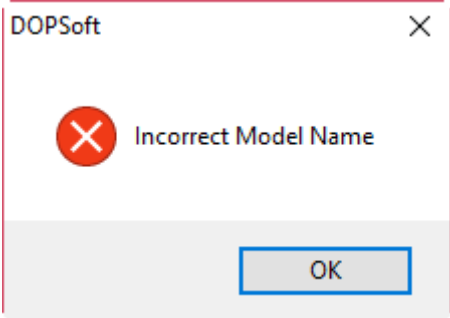


Figure 2.2.5.3.1 Download all data

2

■ Abnormal transmission

<p>USB channel check</p>	<p>The error message appears when the software fails to access the USB channel.</p>  <p>The error message appears when the transmission cable is removed or the communication is disconnected during data download.</p> 
<p>Model check</p>	<p>The HMI model name is incorrect.</p> 

2.2.5.4 Upload All Data

When you use this function to upload all data, the software will prompt you to enter the password, as shown in Figure 2.2.5.4.2. Enter the system default password “12345678” here. You can go to [Options] > [Configuration] to set its password.

2

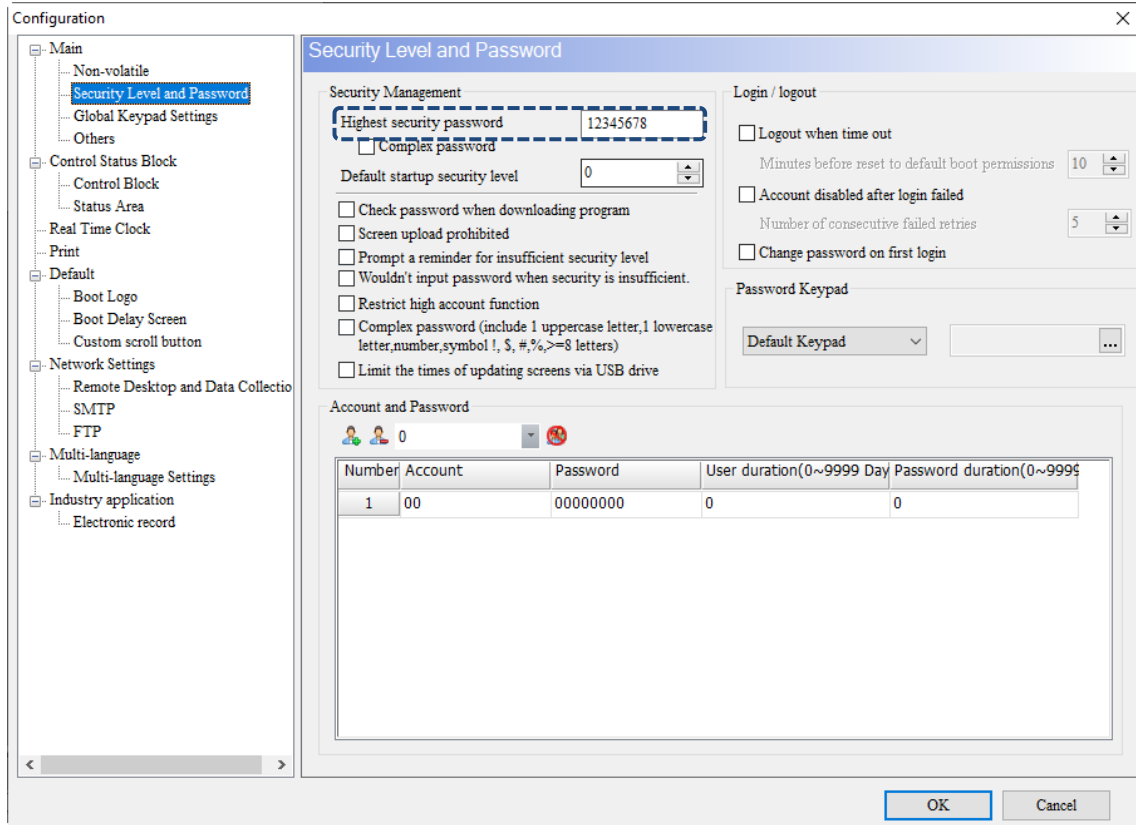


Figure 2.2.5.4.1 Set the security password

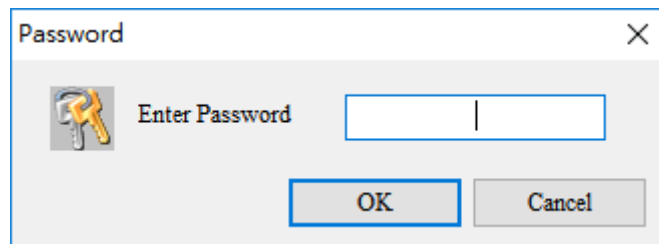


Figure 2.2.5.4.2 Upload All Data

After you enter the password, the software will ask you to save the screen file to be uploaded, as shown in Figure 2.2.5.4.3.

2

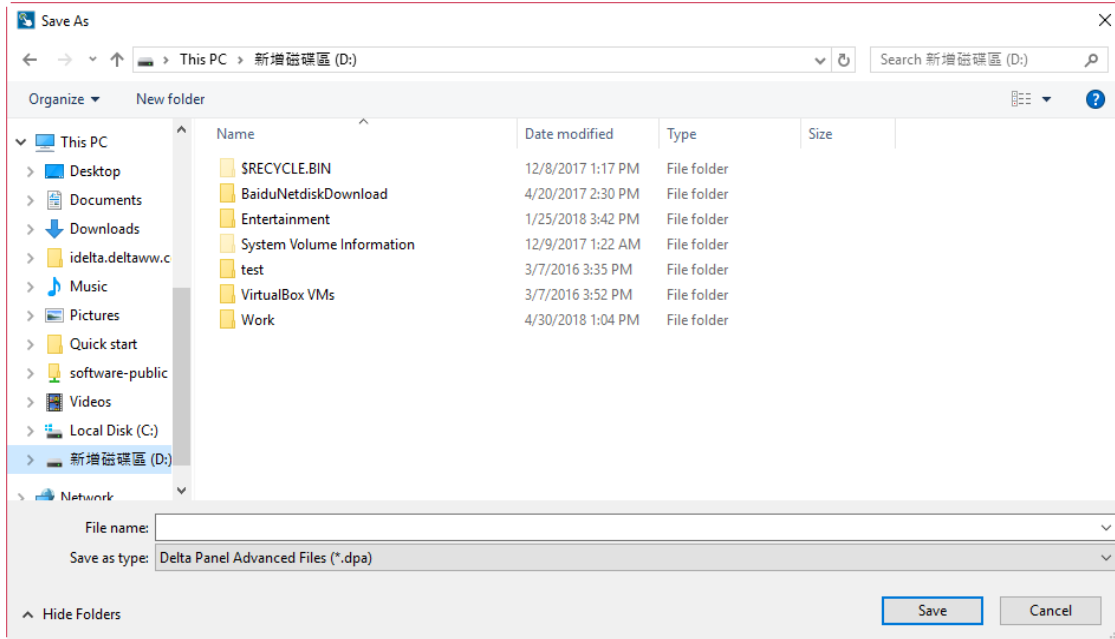


Figure 2.2.5.4.3 Save the data to be uploaded as another file

After you set the file and path to be saved, the screen data starts uploading until it reaches 100%. You can also click **Stop** to stop the data upload.

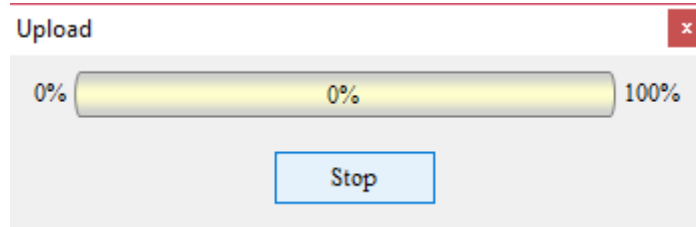


Figure 2.2.5.4.4 Data uploading

In addition to uploading the screen data to the PC, you can also go to [Options] > [Environment] to set whether to include the picture data when uploading.

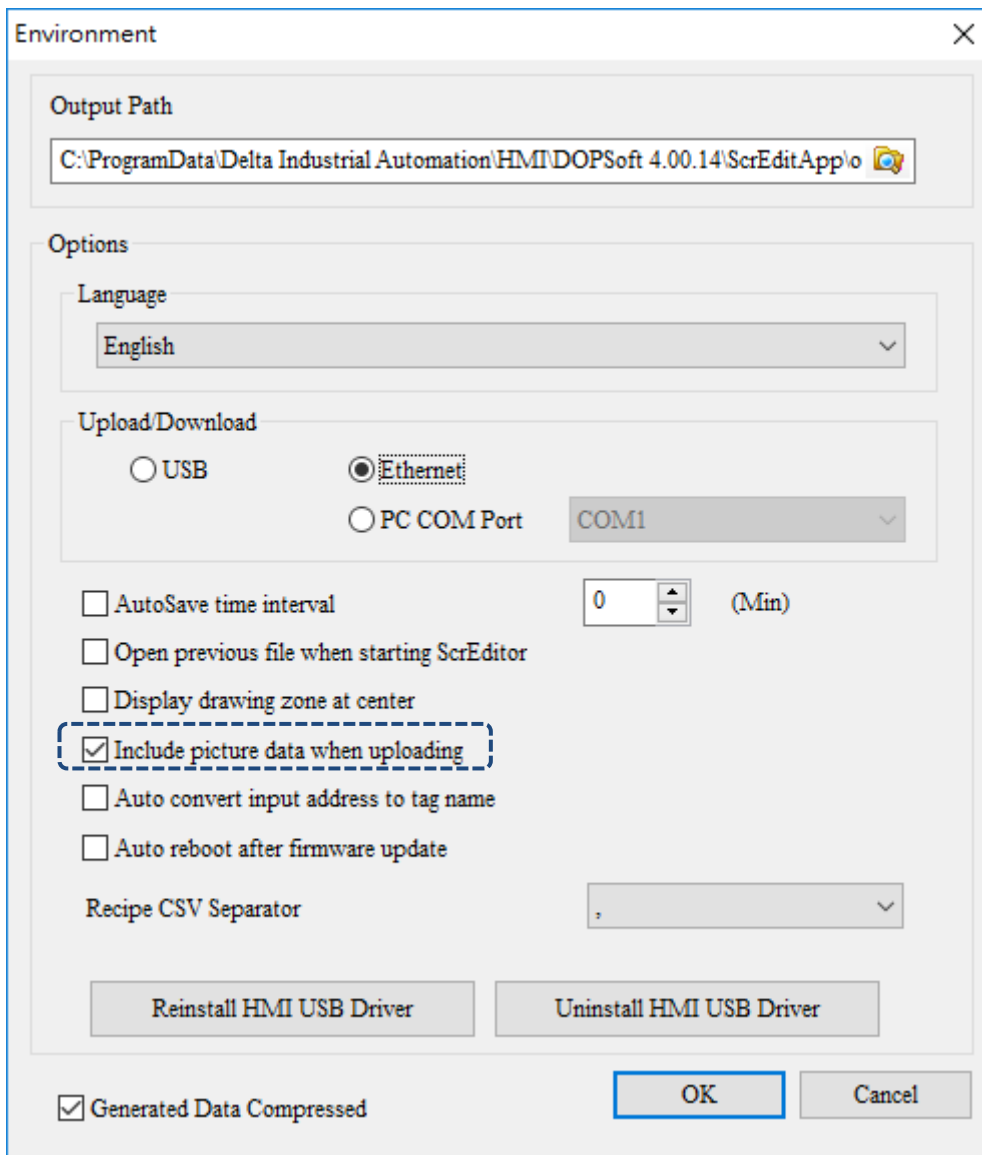



Figure 2.2.5.4.5 Include picture data when uploading

2

2

2.2.5.5 Download Screen

This function is to download the screen data without any recipe. Its download method is the same as that of Download All Data (refer to Section 2.2.5.3 Download All Data). You can go to

[Tools] > [Download Screen], use  on the Layout toolbar, or use the system keyboard shortcut **Ctrl+ F9**.

2.2.5.6 Upload Recipe

The method of uploading the recipe and uploading all data is the same; you must enter the password before uploading the recipe. The steps to set the password is identical to the description in Section 2.2.5.4 Upload All Data and you can refer to it if needed.

2.2.5.7 Download Recipe

To download the recipe only, you can simply execute Download Recipe. This function allows you to save the time for downloading the screens when you need to change the recipe without changing other screen data. After you execute the function, the software will ask you to select the recipe file (.rcp) to download. Once selected, you can start downloading this recipe file to the HMI.

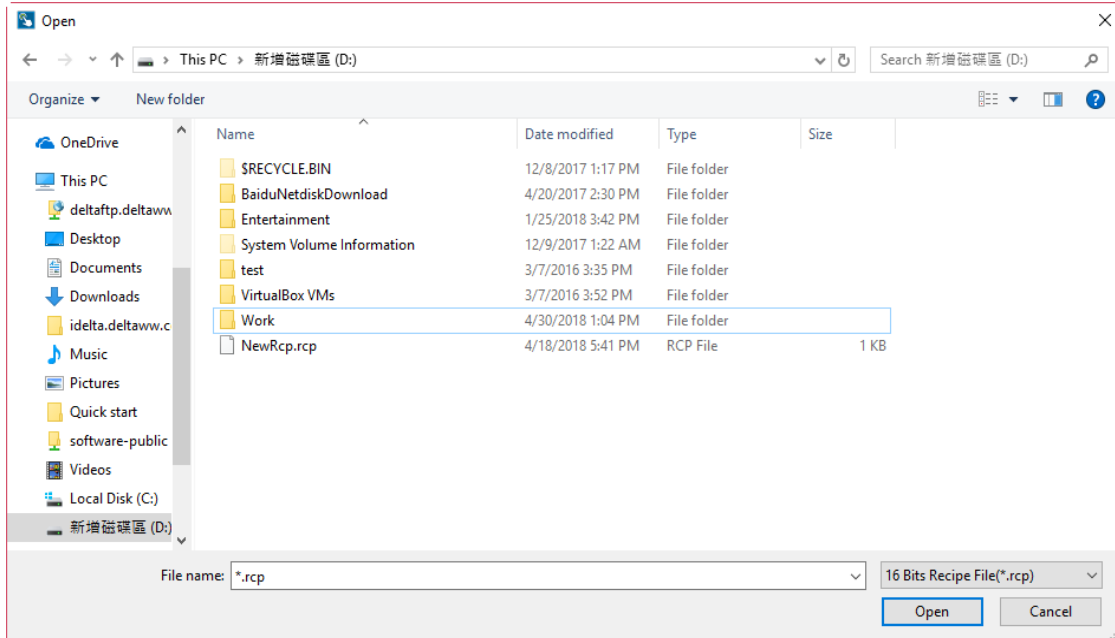


Figure 2.2.5.7.1 Download Recipe - select the recipe file

2.2.5.8 Download Boot Screen

To download the boot screen only, you can simply execute **Download Boot Screen** and then the [Download Logo...] window appears.

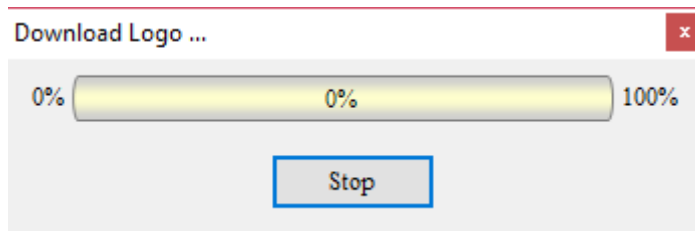


Figure 2.2.5.8.1 Download Boot Screen

When the boot screen function is disabled and you execute Download Boot Screen, an error occurs as follows.

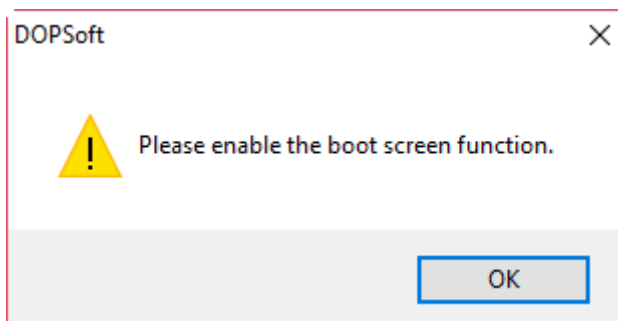


Figure 2.2.5.8.2 Enable Download Boot Screen

When you execute Download Boot Screen without selecting any of the boot screens, an error occurs as follows.

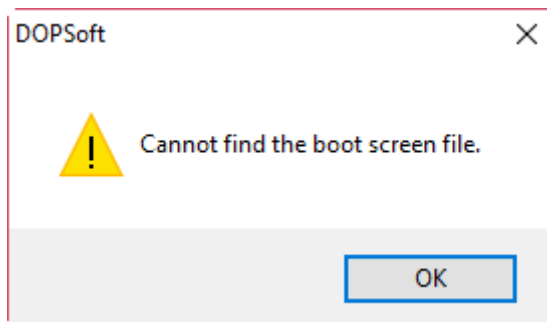


Figure 2.2.5.8.3 Cannot find the boot screen file

Note:


1. After downloading the boot screen or executing Reset Default Boot Screen, cycle power on the HMI.
2. The following models do not support boot screens: B04S211, B05S100, B05S101, B07S201, and B07S211.
3. Supported image file formats include BMP, JPG, GIF, ICO, and PNG.

2

2.2.5.9 Reset Default Boot Screen

To use the Delta HMI default boot screen, you can simply execute Reset Default Boot Screen.

2.2.5.10 On-line Simulation

The On-line simulation is to simulate the PC as the HMI to communicate with the PLC. Its way of communication is to use the PC's COM port as the communication interface to communicate with the PLC. If the communication of the On-line Simulation is OK, the PC is able to simulate the HMI operation. After executing the On-line Simulation, the software first compiles the data and checks if the screens are correct. You can go to [Tools] > [On-line Simulation], use  on the Layout toolbar, or use the system keyboard shortcut **Ctrl+F4**.

■ Procedure of On-line Simulation

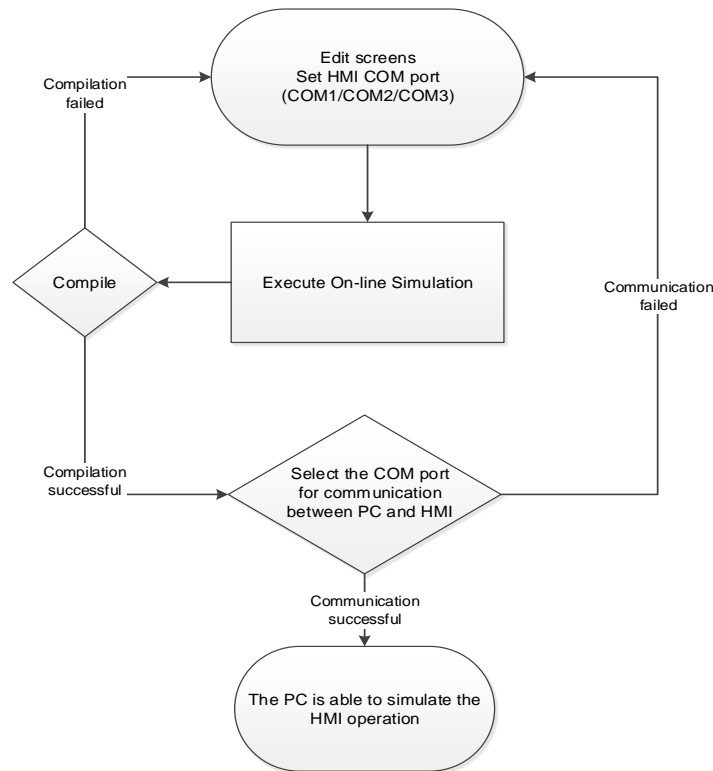
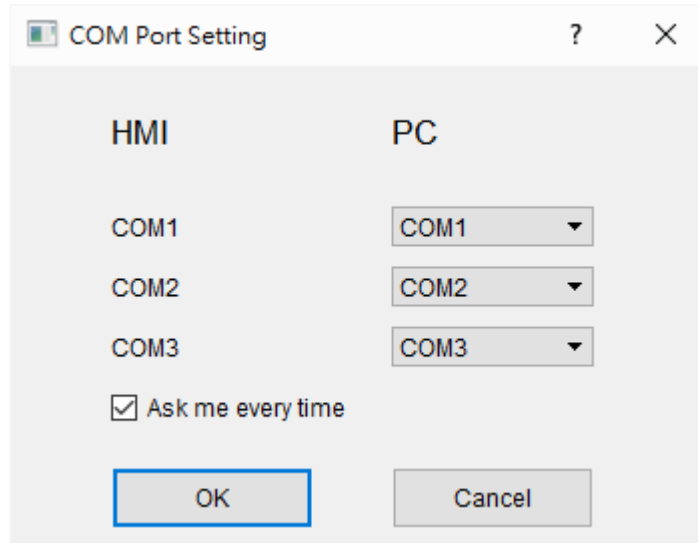


Figure 2.2.5.10.1 Flowchart of On-line Simulation

After you execute the On-line Simulation, the software will ask you to set the PC port number for communicating with the HMI, as shown in the following figure.



2

Figure 2.2.5.10.2 COM Port Setting

When all settings are correct, the On-line Simulation can start the communication with the PLC on behalf of the HMI.

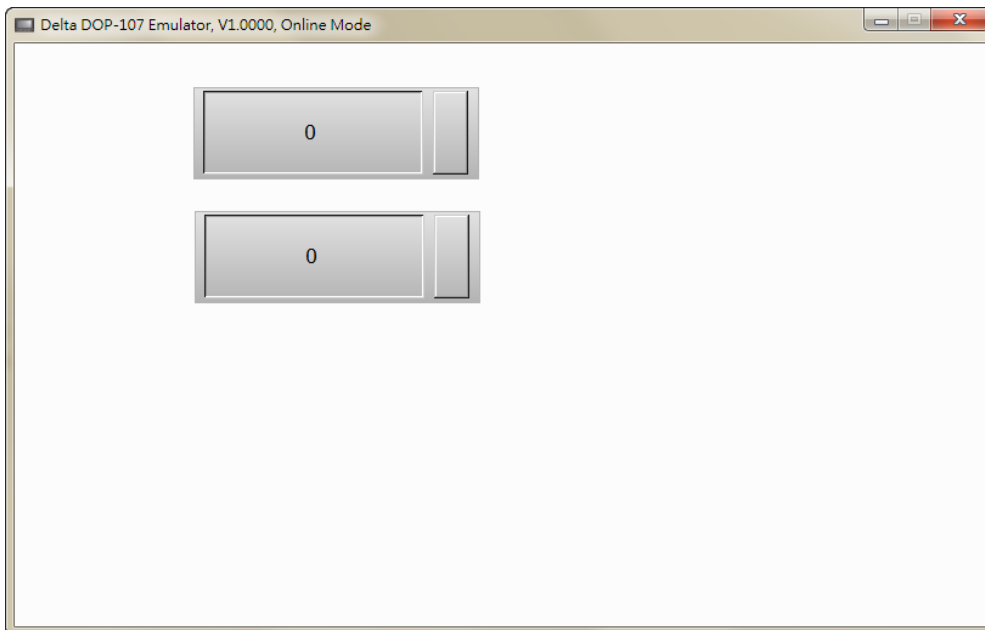


Figure 2.2.5.10.3 On-line simulation result

2

There is an option [Ask me every time] in the COM Port Setting which allows you to determine whether to prompt the Port Setting window each time you execute the On-line Simulation. If [Ask me every time] is cleared, you can right-click the mouse on the On-line Simulation screen and select COM Setting to display the window shown in Figure 2.2.5.10.2.



Figure 2.2.5.10.4 Right-click to enter COM Setting

The Monitoring IO function allows you to monitor values of the I/O devices. Right-click the On-line Simulation screen and select Monitor IO, and a window appears (shown in Figure 2.2.5.10.6) and you can start setting and monitoring the I/O devices.

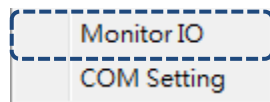


Figure 2.2.5.10.5 Right-click to go to Monitor IO screen

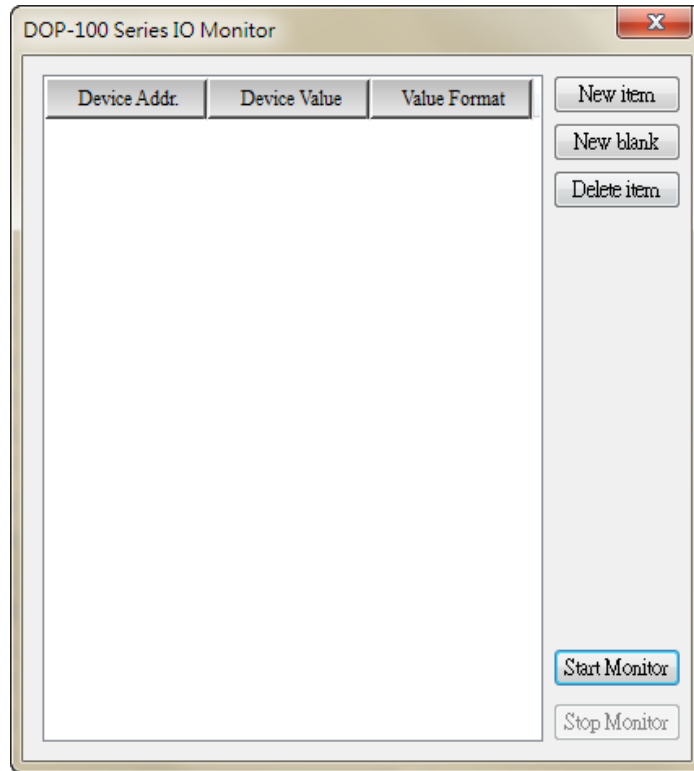


Figure 2.2.5.10.6 Monitoring IO function

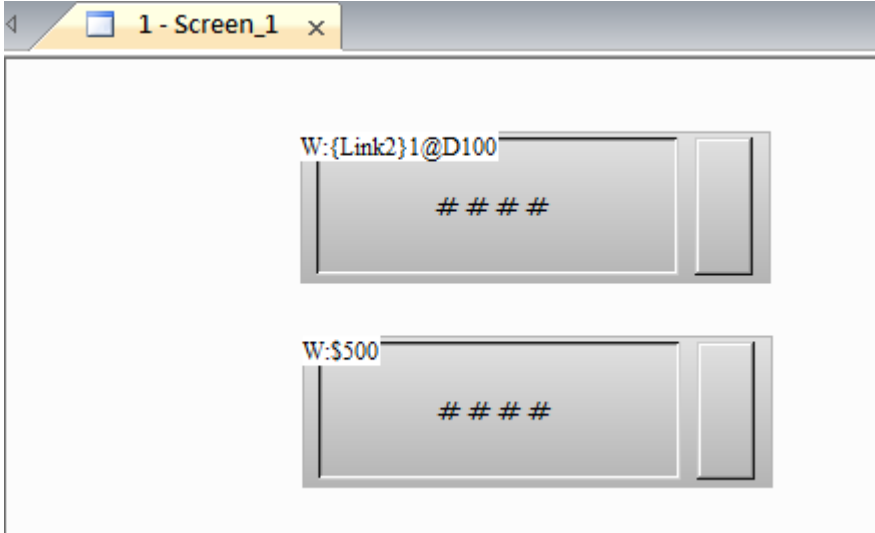
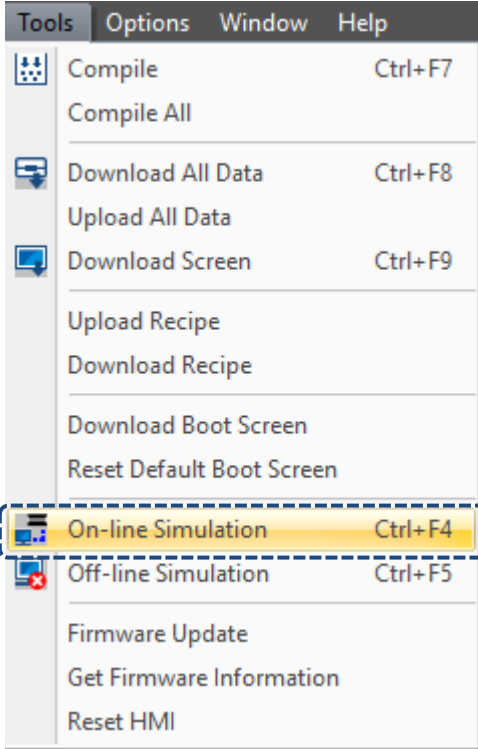
Table 2.2.5.10.1 Properties of Monitor IO

Properties of Monitor IO	
New item	Create a new monitoring address with an input box.
New blank	Add a new monitoring column. Different from the New item , you can directly copy and paste the monitoring address instead of using an input box to enter the address.
Delete item	Delete the selected monitoring address.
Start Monitor	Click this button to start monitoring.
Stop Monitor	Click this button to stop monitoring.
Device Addr.	You can select the internal memory or the controller register address.
Device Value	Displays the values of the monitored internal memory or controller register and promptly changes the values. If you are using Delta PLCs, setting the length is not required.
Value Format	There are four selectable formats: Signed Decimal, Unsigned Decimal, Hexadecimal, and Bit.

The following section is the example of Monitor IO.

2

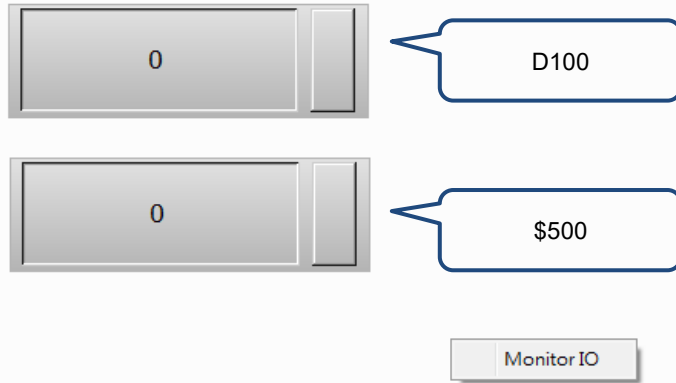
Table 2.2.5.10.2 Monitor IO example

Monitor IO example	
<p>Create two Numeric Entry elements, and set the Write Addresses to \$500 and {Link2}1@D100.</p>	
<p>Create Numeric Entry elements</p>	<p>Step1: click [Tools] > [On-line Simulation].</p> 
<p>Enter the [Monitor IO] window</p>	

Monitor IO example

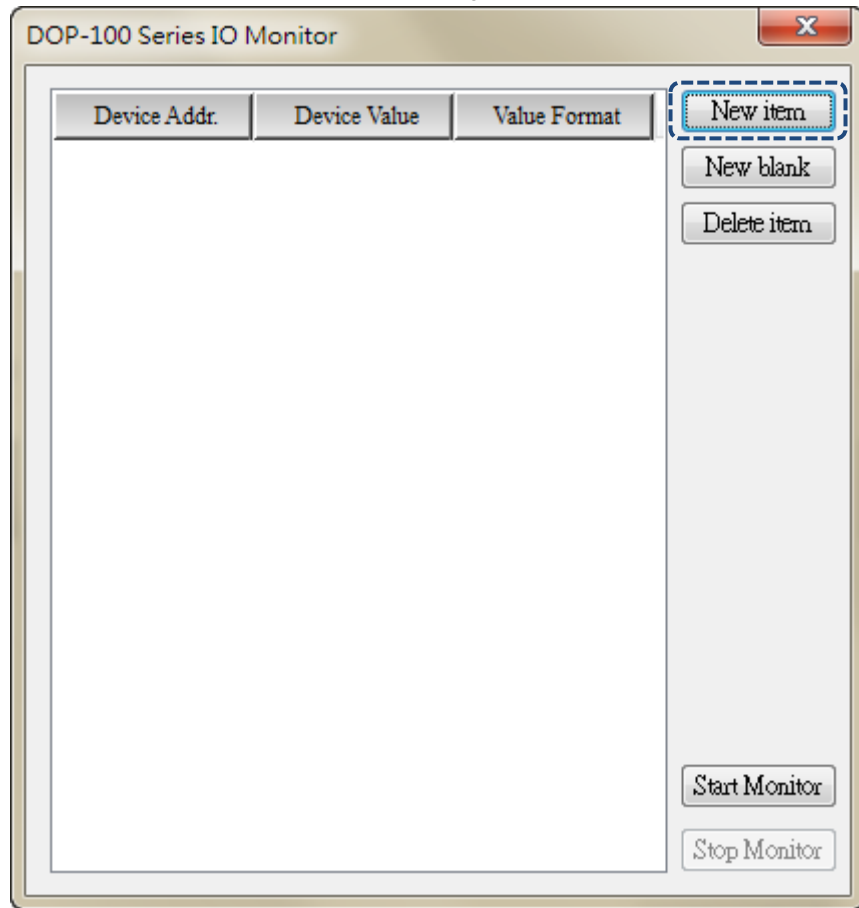
Step 2: right-click the simulation screen and select Monitor IO.

Enter the [Monitor IO] window



Step1: click **New item** to create a new monitoring address.

Set the monitoring address



2

Monitor IO example

Step 2: set {Link2}1@D100 as the monitoring address.

Link: Link2 - Delta DVP PLC

Type:

- PLC Device (Word)
- PLC Device (Bit)
- Internal Memory (Word)
- Internal Memory (Bit)

PLC Station Number: 1 Default

Detail:

Device Type: D

Address: 100

Keypad: B, C, D, E, F, Back, 6, 7, 8, 9, A, Clear, 1, 2, 3, 4, 5, Enter, 0, ., +, -, /, None

After the setting is complete, the screen is as follows:

Set the monitoring address

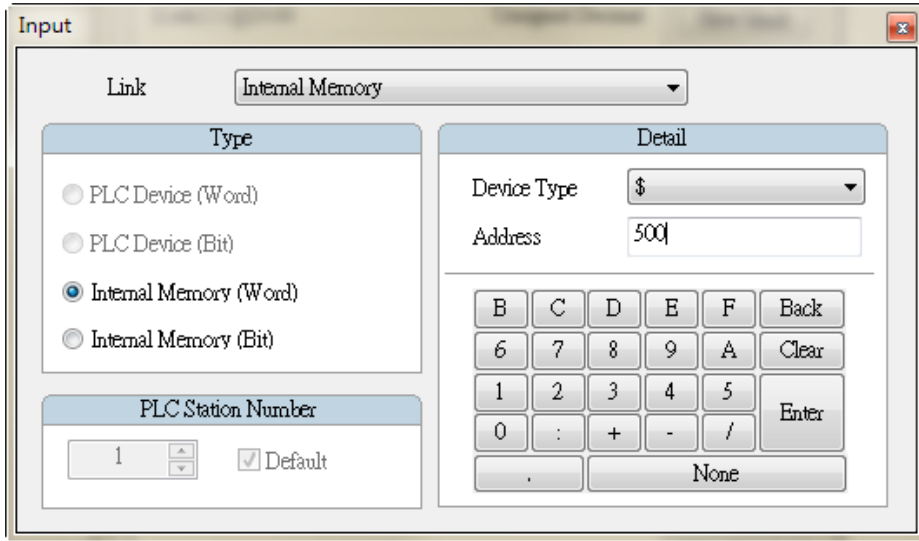
Device Addr.	Device Value	Value Format
{Link2}1@D100		Unsigned Decimal

Buttons: New item, New blank, Delete item, Start Monitor, Stop Monitor

Monitor IO example

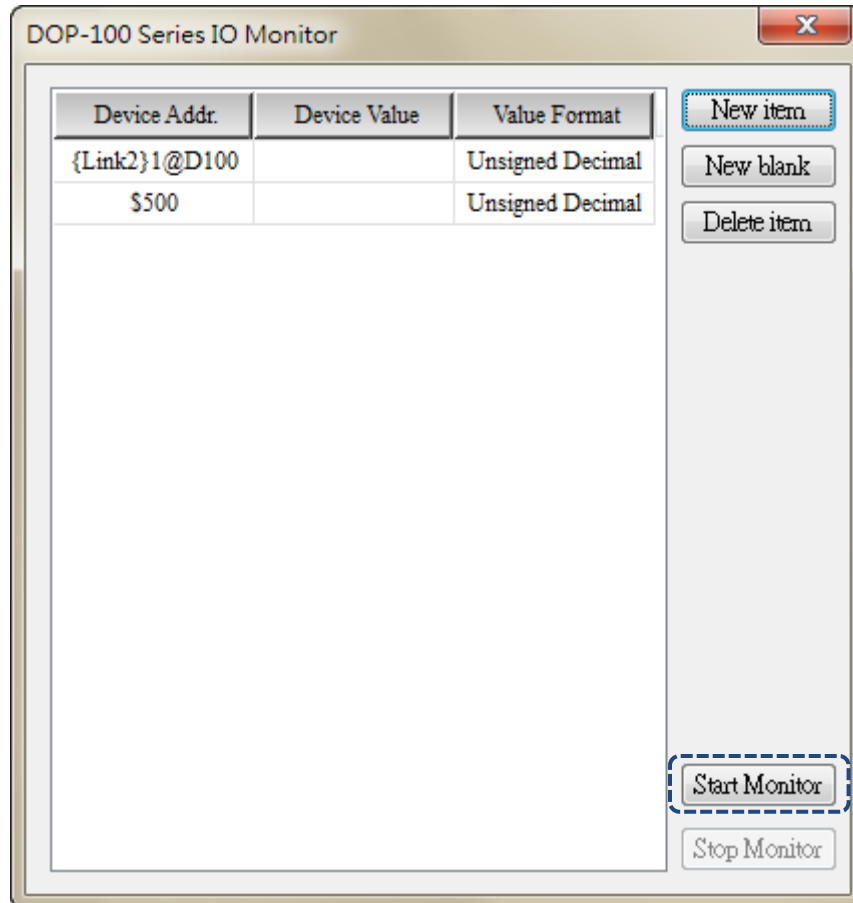
Repeat Steps 1 and 2 to set the other monitoring address \$500.

Set the monitoring address



Press **Start Monitor** to start monitoring.

Start monitoring the address

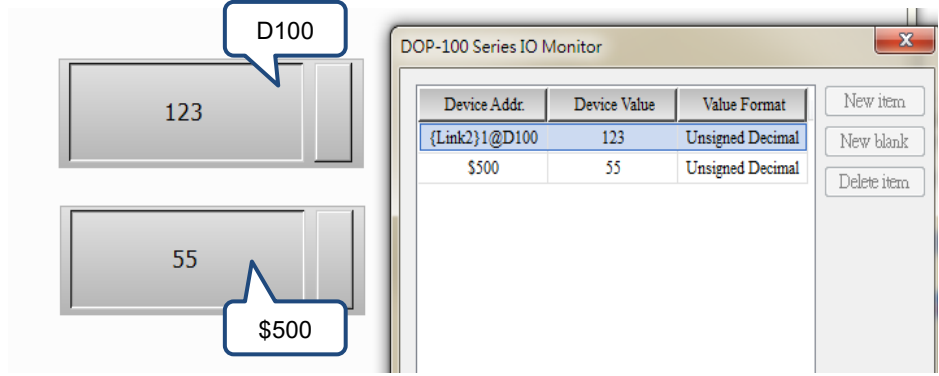


2

Monitor IO example

The Monitor IO window enables you to promptly monitor the set addresses. You can monitor the values of {Link2}1@D100 and \$500 in the Device Value column as well as modifying the device values in this window.

Execution results




The screenshot shows two digital displays. The top display shows the value 123, with a callout bubble labeled 'D100' pointing to it. The bottom display shows the value 55, with a callout bubble labeled '\$500' pointing to it. To the right is a software window titled 'DOP-100 Series IO Monitor'. It contains a table with the following data:

Device Addr.	Device Value	Value Format
{Link2}1@D100	123	Unsigned Decimal
\$500	55	Unsigned Decimal

Buttons on the right side of the window include 'New item', 'New blank', and 'Delete item'.

2.2.5.11 Off-line Simulation

The main difference between the Off-line Simulation and On-line Simulation is that the Off-line Simulation does not require PLC communication. In this case, the off-line mode is mainly for checking the correctness of the edited screens, read/write memory addresses, and macros. You can use [Tools] > [Off-line Simulation], the  icon on the Layout toolbar, or the system keyboard shortcut **Ctrl+F5**.

After you execute the Off-line Simulation, the software first compiles the data and then goes to the Off-line Simulation screen.

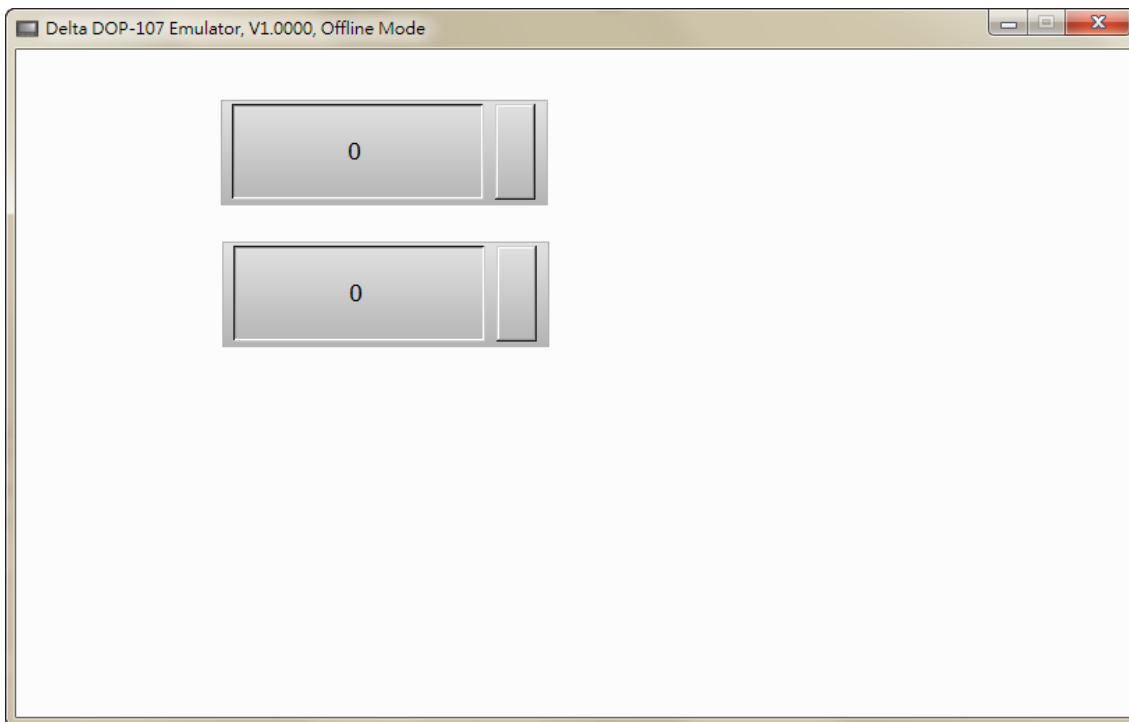


Figure 2.2.5.11.1 Off-line Simulation screen

2.2.5.12 Firmware Update

The Firmware Update function is to update the HMI firmware. This is to ensure the HMI firmware is the latest version and enables the HMI become more stable. Therefore, make sure your software version and HMI firmware version are consistent before using the DOPSoft.

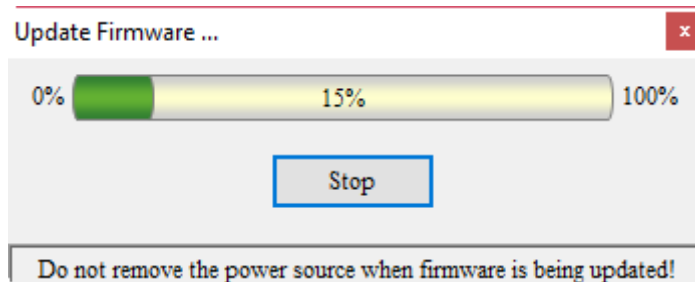


Figure 2.2.5.12.1 Firmware Update

2.2.5.13 Get Firmware Information

You can get the firmware version and related information of the HMI by using the option of Get Firmware Information.

2

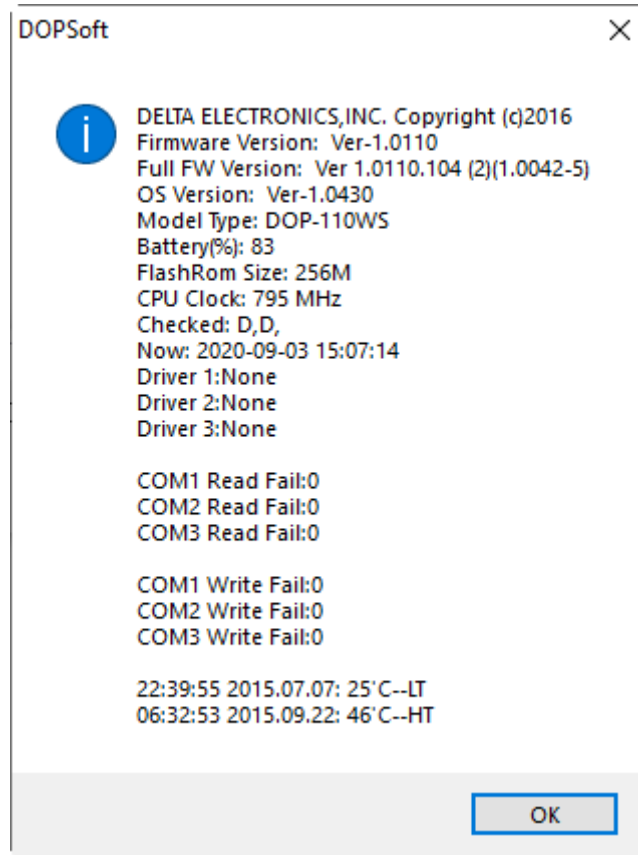


Figure 2.2.5.13.1 Get Firmware Information

2.2.5.14 Reset HMI

If you forget the Highest security password and you have selected the option of **Check password when downloading program**, you need to enter the password after uploading data to the PC. If you need to go to the system screen to format the screen, password verification is also required. In these conditions, HMI data download/upload or screen formatting cannot be done. Therefore, the DOPSoft provides the Reset HMI option for you to restore your HMI to the factory setting, which includes formatting files, deleting all screen data, and clearing passwords.

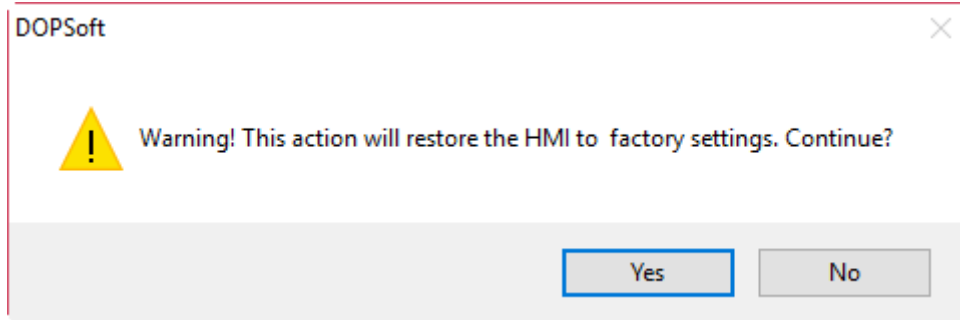


Figure 2.2.5.14.1 Reset HMI

Select **Yes** to reset the HMI.

Note:

1. After you execute this function, the HMI is reset to the default values.
2. After you execute this function, the screen data is completely cleared and you are unable to recover the file of which you forget the password.

2

2.2.6 Window

The Window function enables you to efficiently arrange the window layout and display.

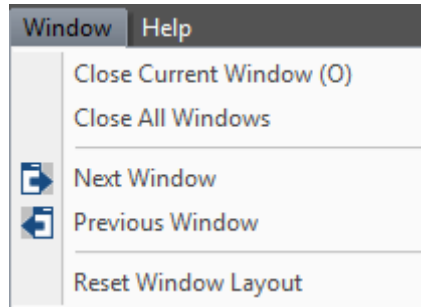


Figure 2.2.6.1 Window function list

2.2.6.1 Close Current Window

Current editing screen displayed in the software is closed after you execute this function.

2.2.6.2 Close All Windows

When you execute this function, all windows in the project are closed and no editing window is displayed.

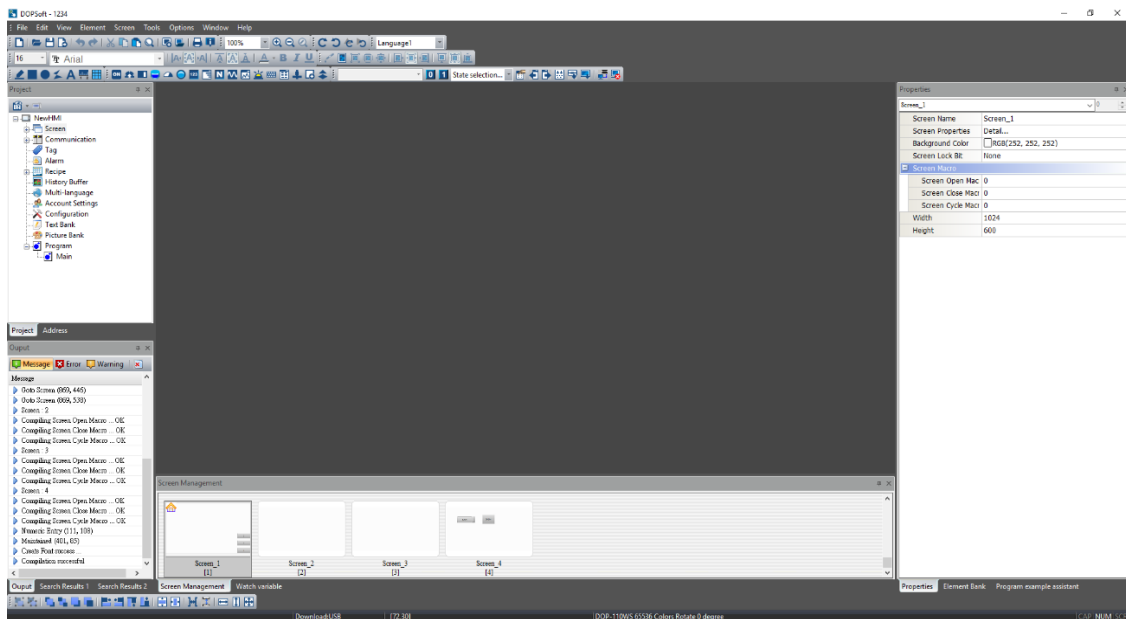


Figure 2.2.6.2.1 Close All Windows

2.2.6.3 Next Window

Use this function to go to the next window with the screen number in ascending order.

Table 2.2.6.3.1 Next Window

<p>Before</p>	
<p>After</p>	

2

2.2.6.4 Previous Window

Use this function to go the previous window with the screen number in descending order.

Table 2.2.6.4.1 Previous Window

<p>Before</p>	
<p>After</p>	

2

2.2.7 Help

This is for you to acquire the information about the current software version and firmware version.



Figure 2.2.7.1 Help function list

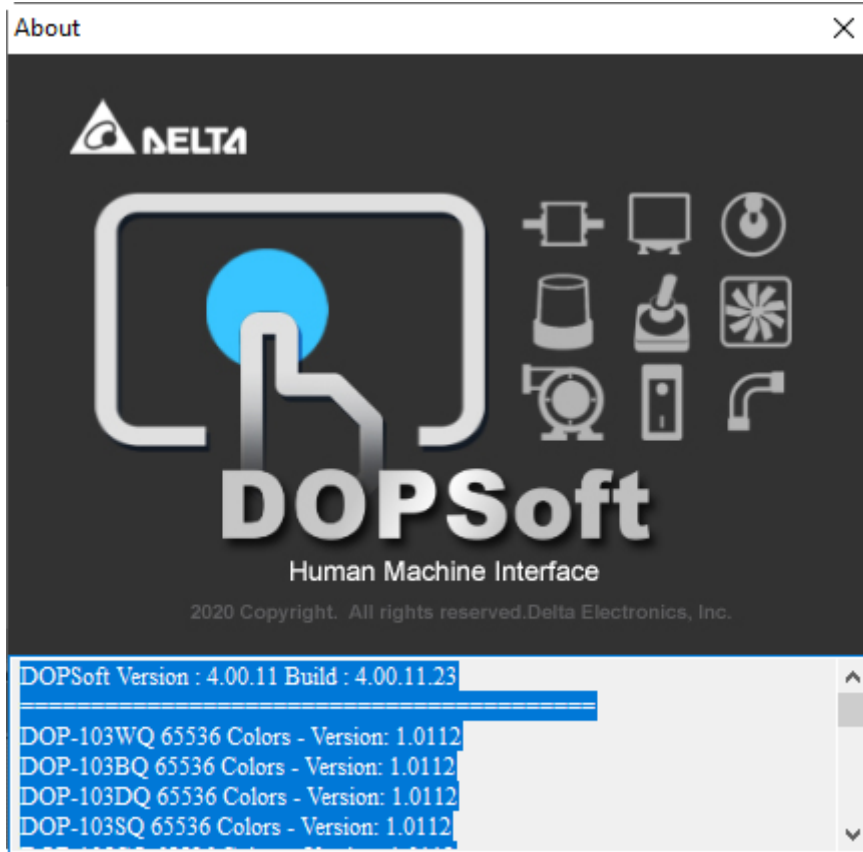


Figure 2.2.7.2 Software / firmware version information

2.3 How to create a project?

The following section provides a simple example of how to create a project.

2.3.1 Flowchart of creating a project

Refer to the following flowchart. This includes the basic steps to create a project.

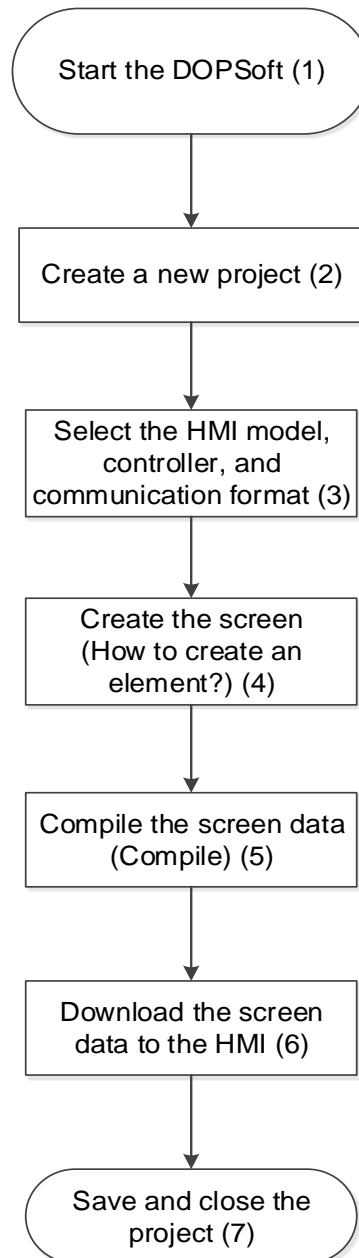
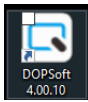


Figure 2.3.1.1 Flowchart of creating a project

Next, each step in the procedure is described as follows.

1. Start the DOPSoft

2

- a. Double-click  or go to [Start] > [All Programs] > [Delta Industrial Automation] > [DOPSoft 4.00.xx] and execute the DOPSoft 4.00.xx application.

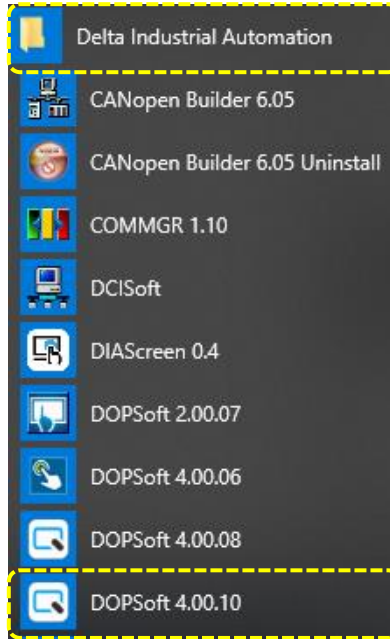


Figure 2.3.1.2 Start the DOPSoft software

- b. Execute the DOPSoft 4.00.xx application, and the screen is shown as follows.

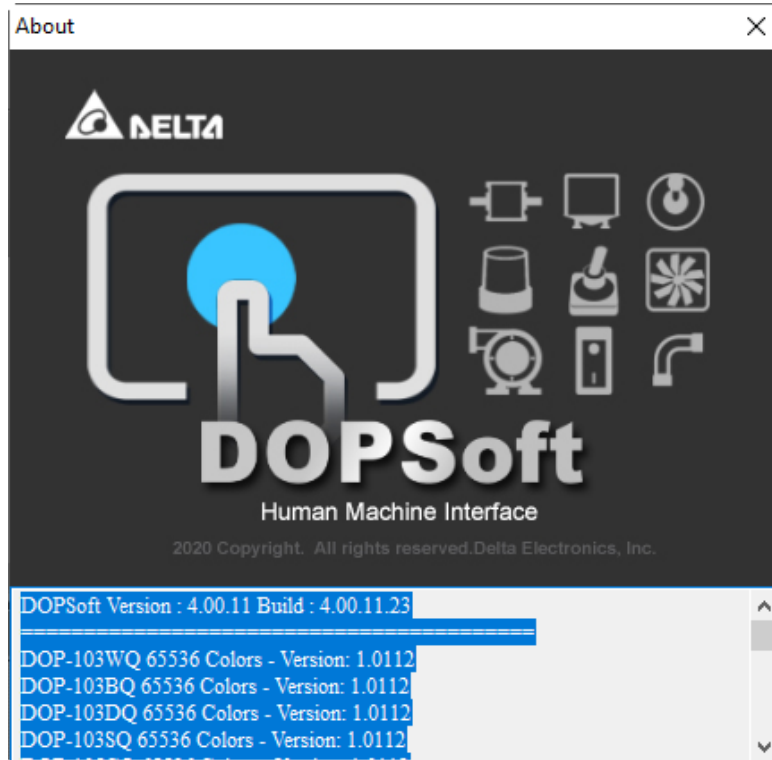



Figure 2.3.1.3 DOPSoft displaying screen

- 2. Create a new project
 - a. When you successfully start the DOPSoft, the following window appears. Click the Create Project icon  or go to [File] > [New] to create a new project.

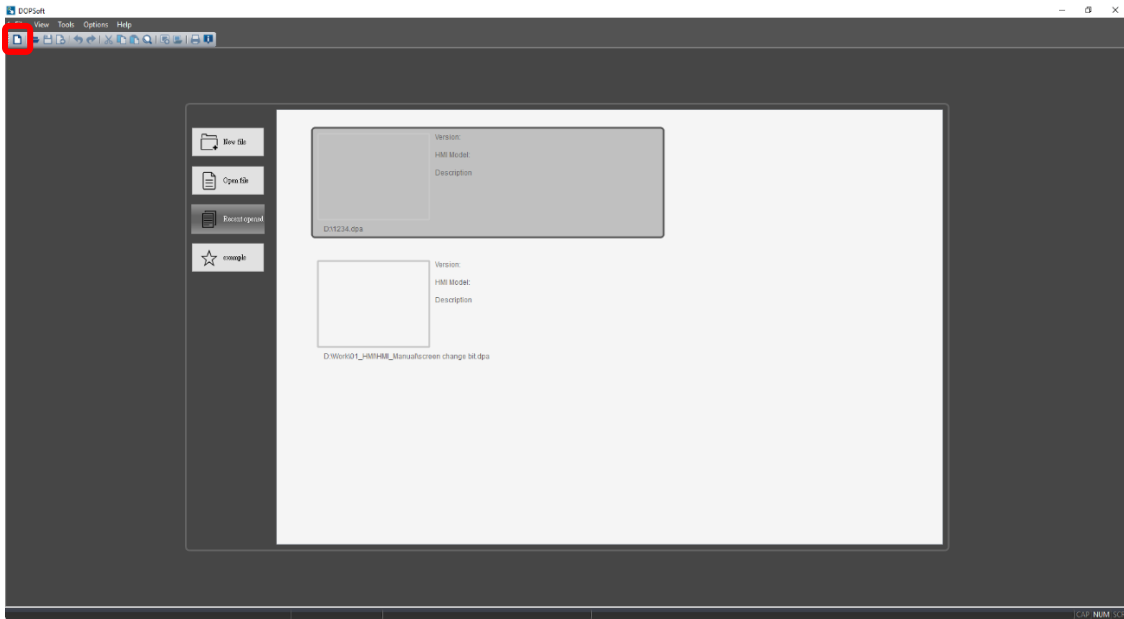


Figure 2.3.1.4 Click the icon to create a new project

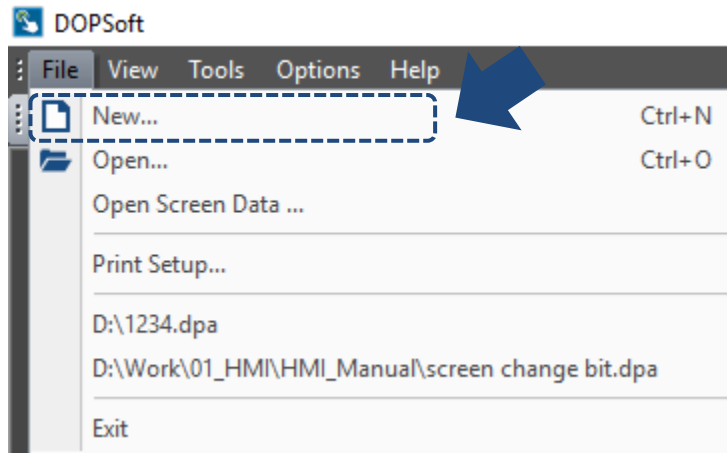


Figure 2.3.1.5 Click **New...** to create a new project

2

3. Select the HMI model, controller, and communication format
 - a. After the project is created, the Project Wizard will guide you to select the HMI model, controller, and communication format. In the following example, it selects DOP-107WV as the model and name this project as “NewHMI”.

The steps are as follows:

- (1) Select the HMI model.
- (2) Input the project name.
- (3) Click **Next**.

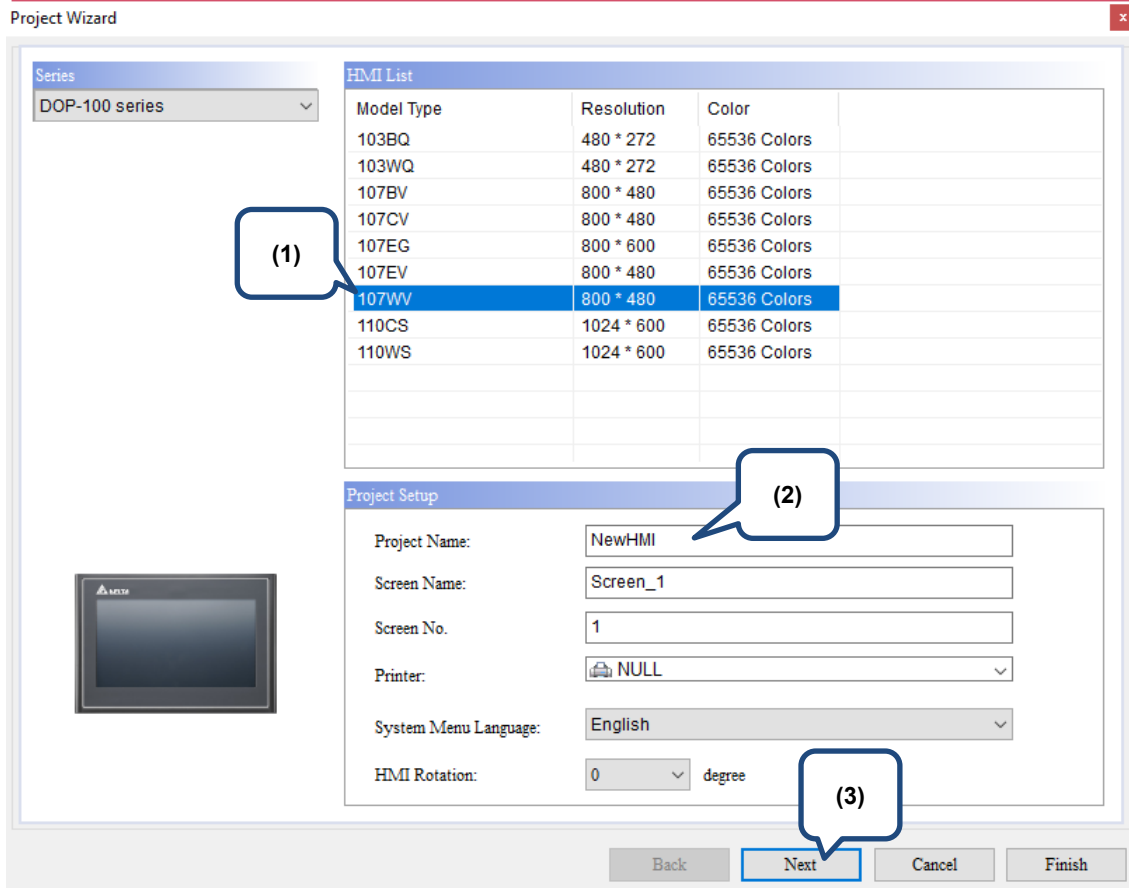


Figure 2.3.1.6 Select the HMI model and input the project name

- b. Next, select the communication port, controller, and communication format. You can use the up and down arrows at the upper left corner to select COM1, COM2, or COM3 to use. Refer to Section 27.2 Communication Settings for more details. In the following example, COM2 and Delta DVP PLC are selected.

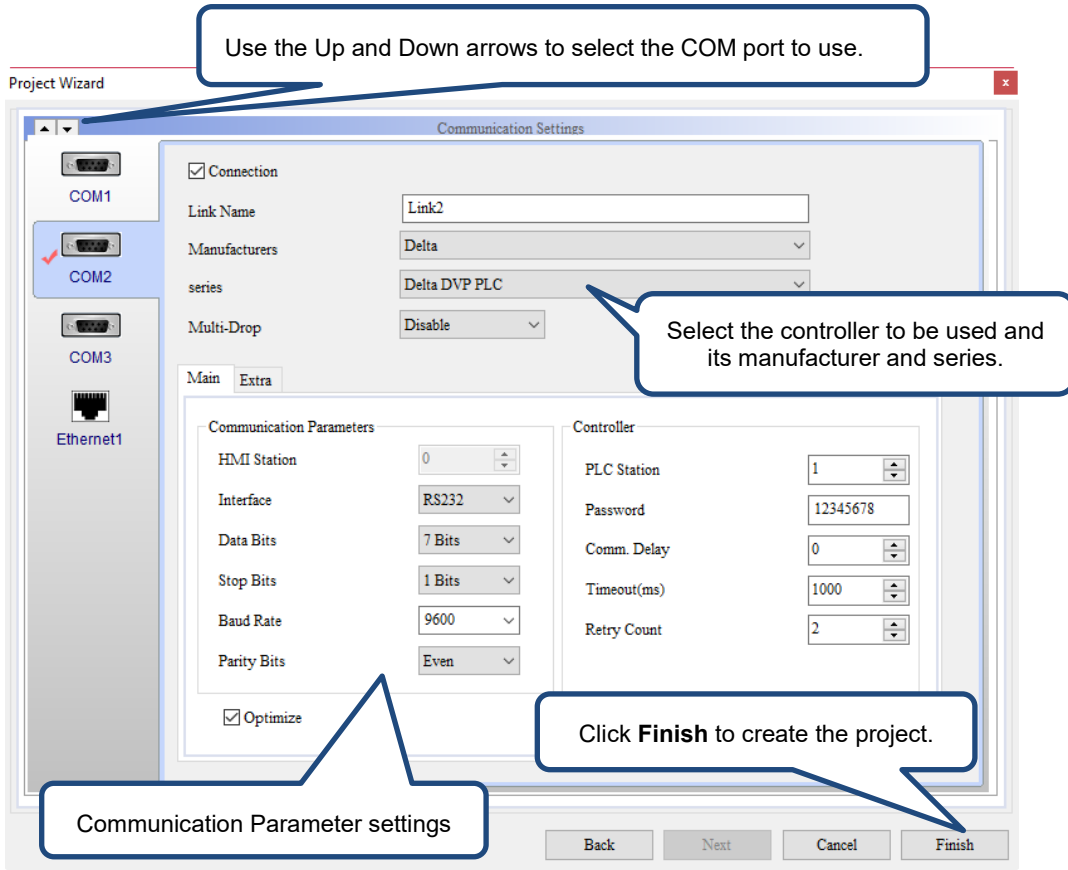


Figure 2.3.1.7 Select the communication port, controller, and communication format

- 4. Create the screen (How to create an element)
 - a. After following the Project Wizard and completing creating a new project, you can start editing the screen and creating elements.

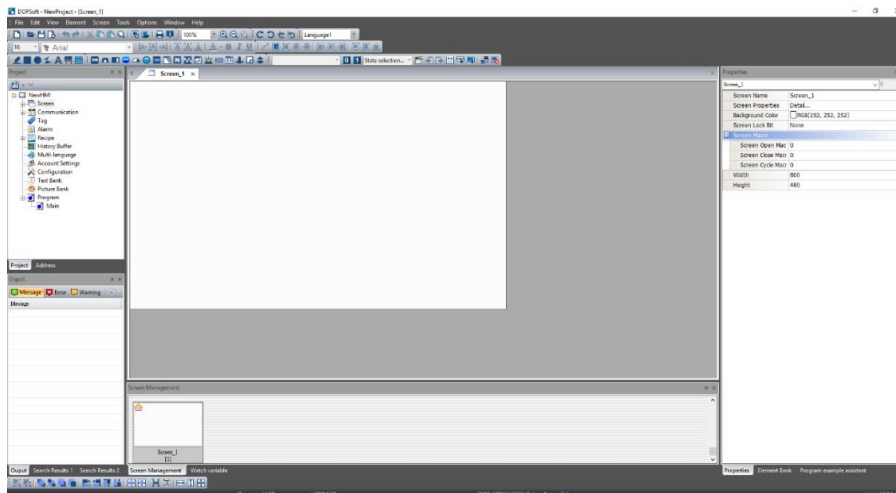


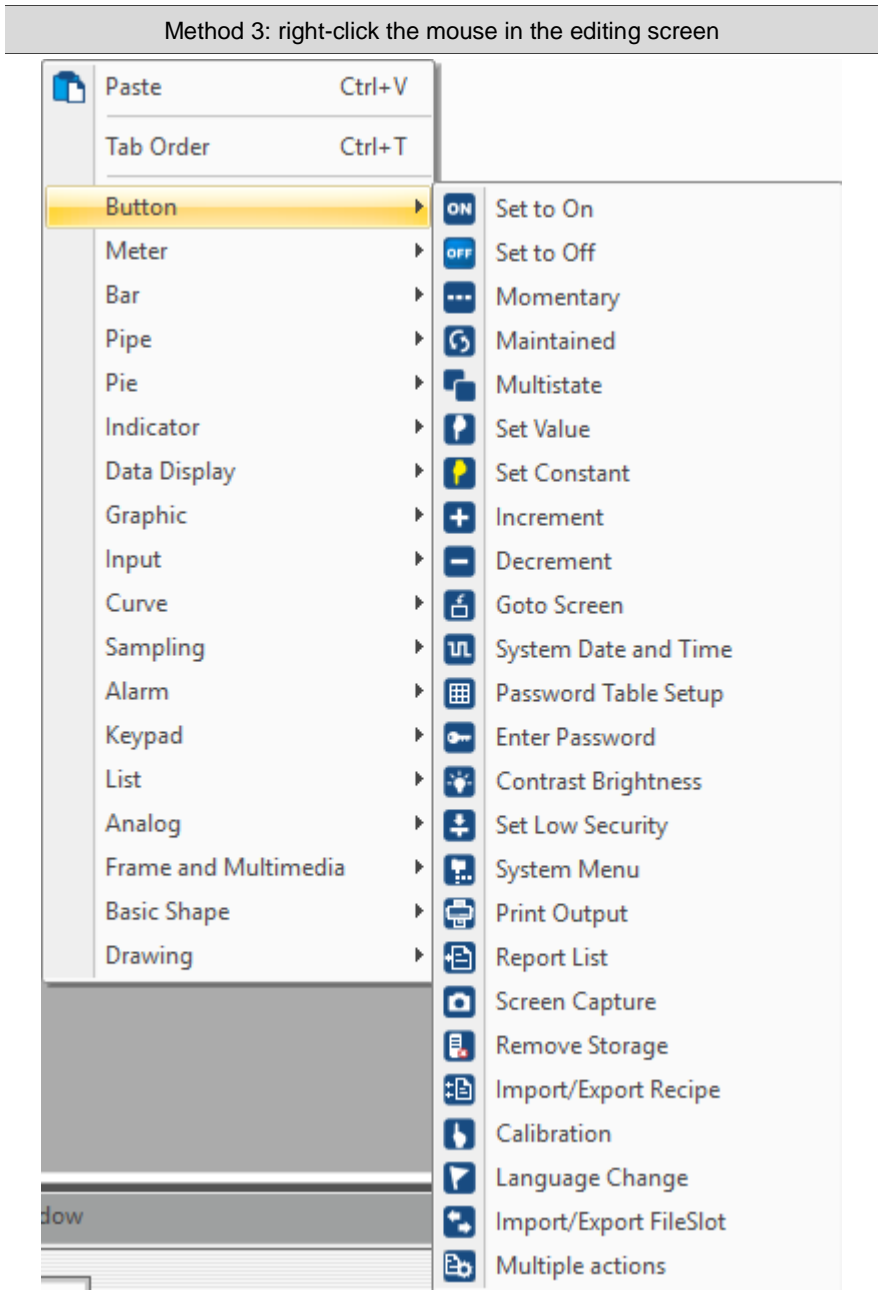
Figure 2.3.1.8 Editing screen

2

The following is the demonstration for using the Set to On, Set to Off, Momentary, and Maintained buttons (go to [Element] > [Button]) with the Multistate Indicator (go to [Element] > [Indicator]).

The software provides three methods for you to create the element and you can choose the method based on the preference. Refer to the table for the available methods.

Method 1: Function list		Method 2: Element toolbar	
Element	Screen Tools Options Window Help	ON	Set to On
Button	ON Set to On	OFF	Set to Off
Meter	OFF Set to Off	...	Momentary
Bar	... Momentary	↻	Maintained
Pipe	↻ Maintained	☐	Multistate
Pie	☐ Multistate	👤	Set Value
Indicator	👤 Set Value	📌	Set Constant
Data Display	📌 Set Constant	+	Increment
Graphic	+	-	Decrement
Input	- Decrement	📄	Goto Screen
Curve	📄 Goto Screen	🕒	System Date and Time
Sampling	🕒 System Date and Time	📅	Password Table Setup
Alarm	📅 Password Table Setup	🔑	Enter Password
Keypad	🔑 Enter Password	💡	Contrast Brightness
List	💡 Contrast Brightness	🔒	Set Low Security
Analog	🔒 Set Low Security	☰	System Menu
Frame and Multimedia	☰ System Menu	🖨	Print Output
Basic Shape	🖨 Print Output	📄	Report List
Drawing	📄 Report List	📷	Screen Capture
	📷 Screen Capture	🗑	Remove Storage
	🗑 Remove Storage	📄	Import/Export Recipe
	📄 Import/Export Recipe	👤	Calibration
	👤 Calibration	🗑	Language Change
	🗑 Language Change	🔄	Import/Export FileSlot
	🔄 Import/Export FileSlot	🔧	Multiple actions
	🔧 Multiple actions		



2

2

- b. If you use the Function list to create the Set to On, Set to Off, Momentary, and Maintained buttons from the Button option and the Multistate Indicator element from the Indicator option, you must input the memory addresses to have these elements work.
For better understanding of the element functions, the text descriptions and memory addresses are input to all the created elements for illustration. Refer to the following steps to create the elements.

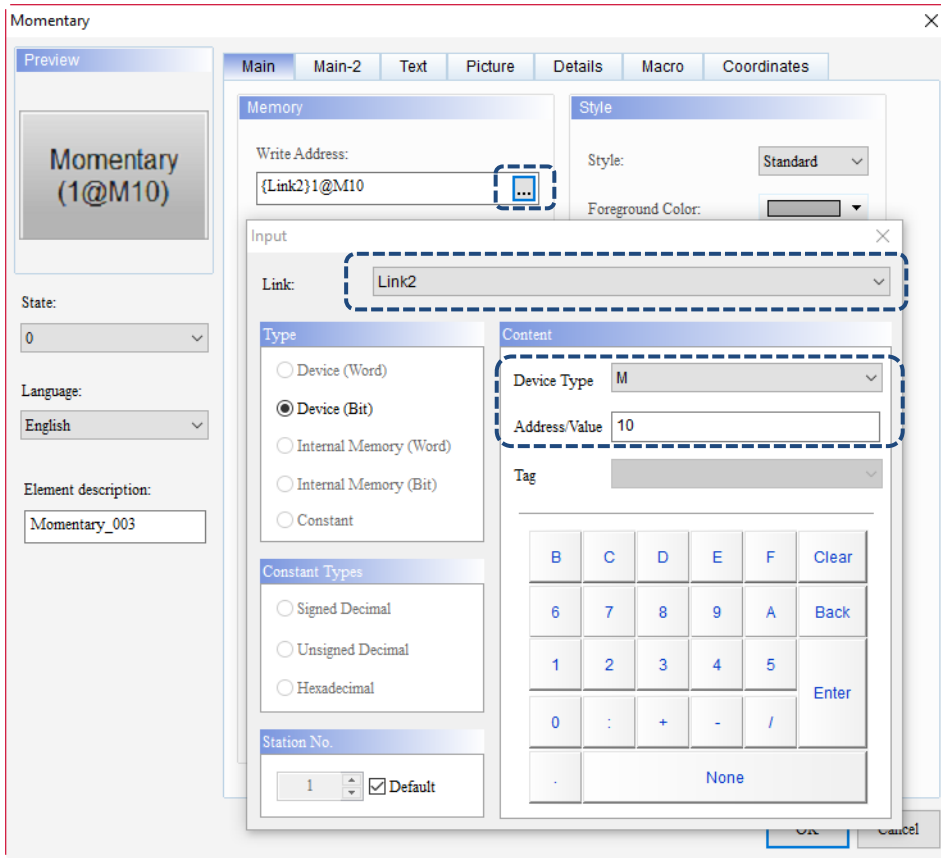
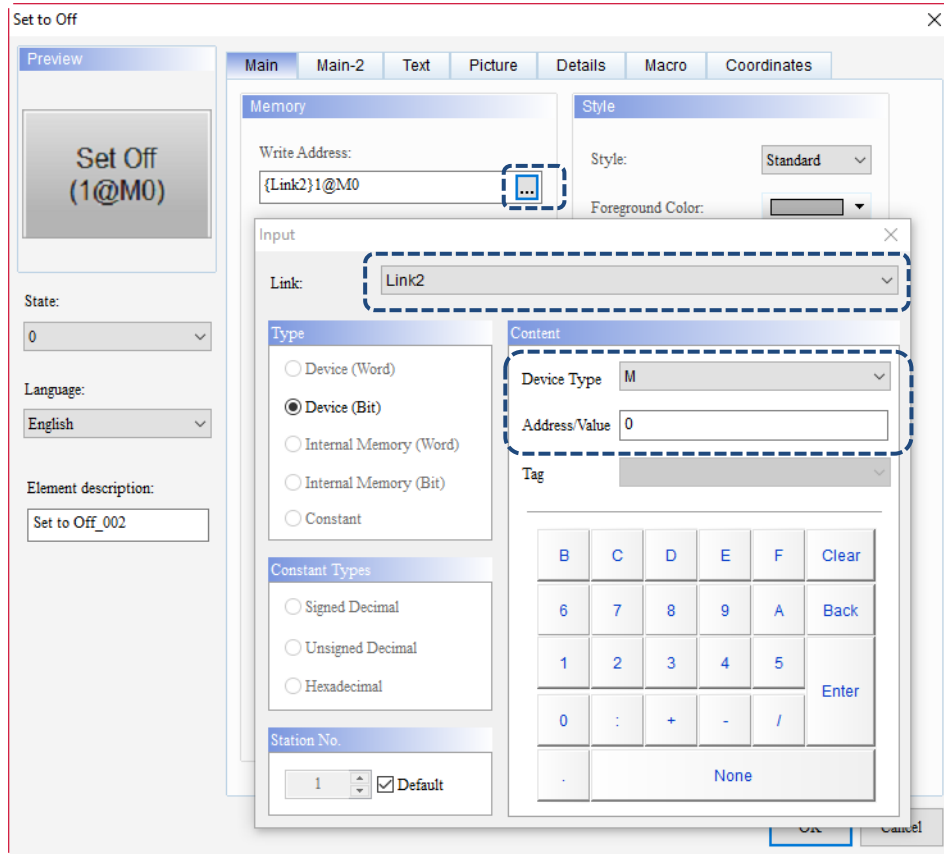
Steps to create the elements

- Go to [Element] > [Button], and select the Set to On, Set to Off, Momentary, and Maintained elements.
- Set the memory address by double-clicking the element to enter the property page or selecting the element and using the Properties window on the right. Set M0 as the Write Addresses for Set to On and Set to Off buttons; set M10 as the Write Address for the Momentary button; set M20 as the Write Address for the Maintained button.

Step 1

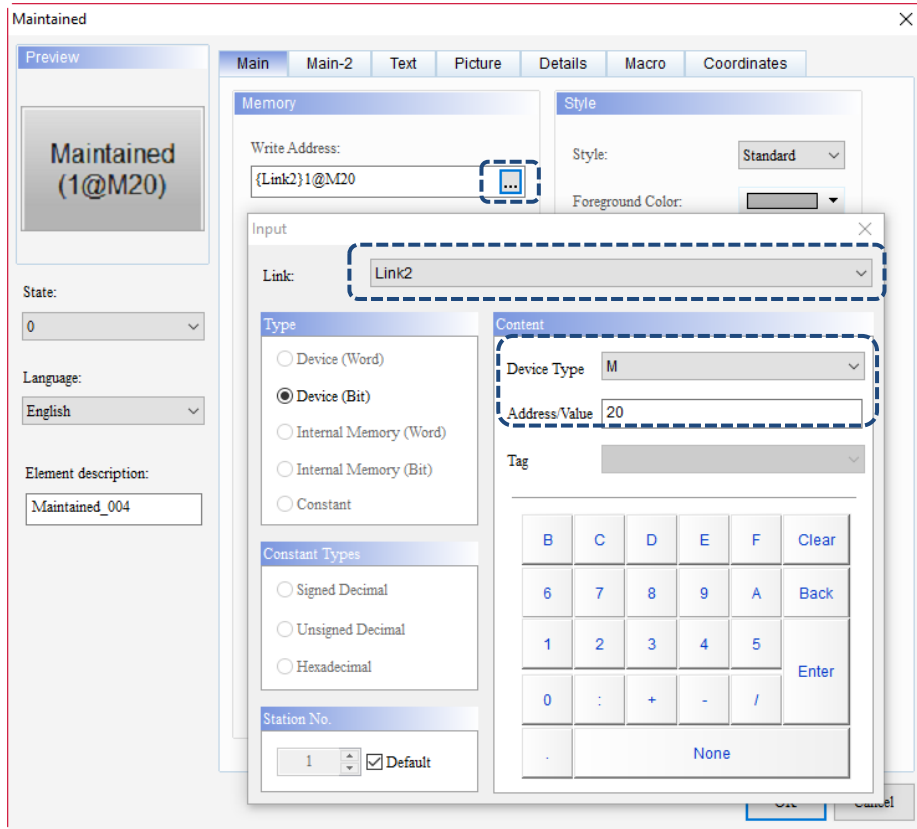
Steps to create the elements

Step 1



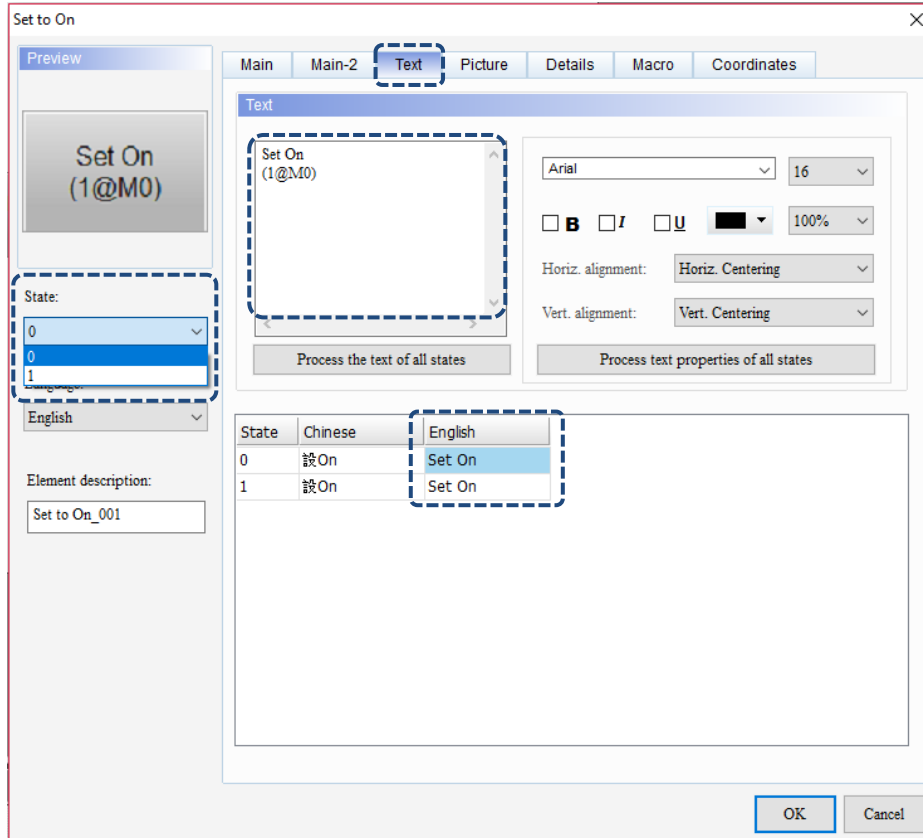
2

Steps to create the elements



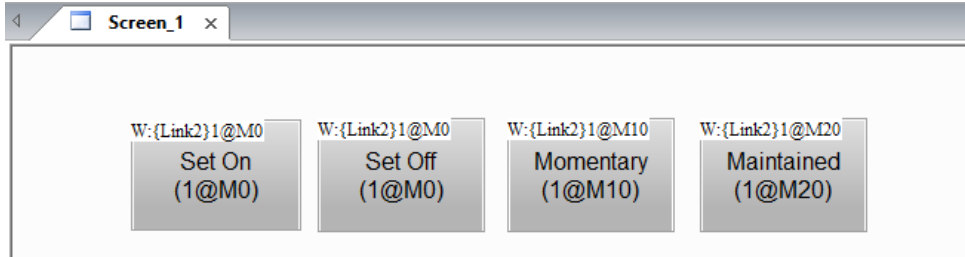
Step 1

- Double-click the element and go to the Text page to input the corresponding text. Input "Set On (1@M0)" for both State 0 and State 1 of the Set to On button. Input "Set Off (1@M0)" for State 0 and State 1 of the Set to Off button. Input "Momentary (1@M10)" for State 0 and State 1 of the Momentary button. Input "Maintained (1@M20)" for State 0 and State 1 of the Maintained button.



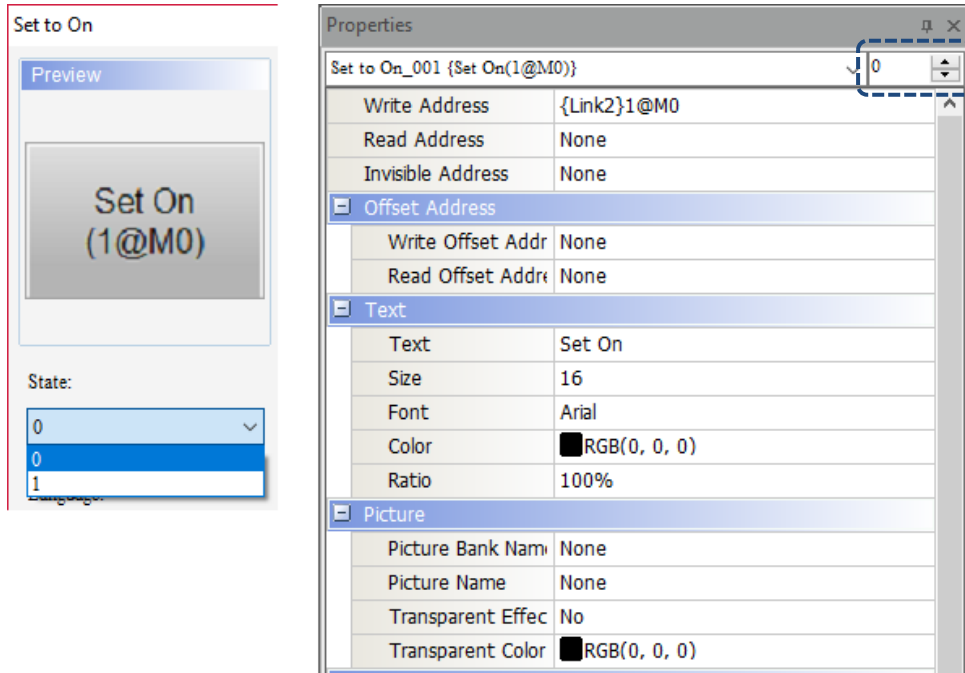
Steps to create the elements:

- After you created the Set to On, Set to Off, Momentary, and Maintained elements, the screen is shown as follows.



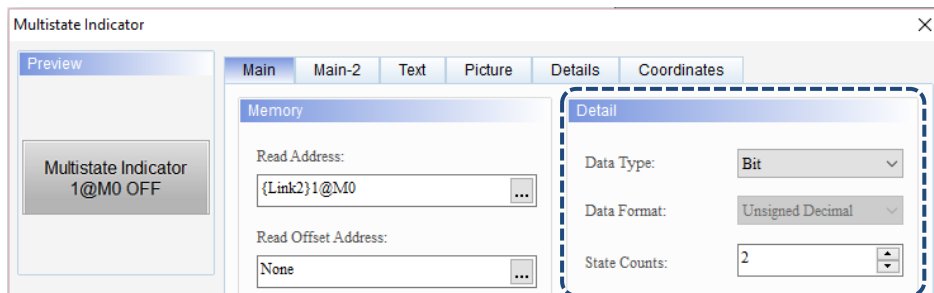
Note: Set to On, Set to Off, Momentary, and Maintained elements all have actions for State 0 and State 1. You can double-click the elements to set State 0 and State 1 or use the upper right corner of the Properties window to view State 0 and State 1.

Step 1



- Click [Elements] > [Indicator] > [Multistate Indicator]. Create three Multistate Indicator elements corresponding to Write Addresses of the Set to On / Set to Off, Momentary, and Maintained elements respectively.
- Set the memory address by double-clicking the element to enter the property page or selecting the element and using the Properties window on the right. The setting method of memory address is the same as that of button elements; you can set Data Type to Bit and set State Counts to 2.
 - Set the Read Address of the Multistate Indicator as M0 to correspond to the Set to On and Set to Off buttons.
 - Set the Read Address of the Multistate Indicator as M10 to correspond the Momentary button.
 - Set the Read Address of the Multistate Indicator as M20 to correspond to the Maintained button.

Step 2



2

Steps to create the elements:

R:{Link2}1@M0

R:{Link2}1@M10

R:{Link2}1@M20

- Double-click the element and go to the [Text] page to input the corresponding text.
 1. Input "Multistate Indicator 1@M0 OFF" for State 0; input "Multistate Indicator 1@M0 ON" for State 1.

Step 2	State 0	<div style="border: 1px solid gray; padding: 5px;"><p style="margin: 0;">Multistate Indicator</p><div style="display: flex; justify-content: space-between;"><div style="width: 45%;"><p style="margin: 0; border: 1px solid gray; padding: 2px;">Preview</p><div style="border: 1px solid gray; padding: 5px; text-align: center; margin: 5px 0;">Multistate Indicator 1@M0 OFF</div><p style="margin: 0;">State:</p><div style="border: 1px solid gray; padding: 2px; width: 80%;">0</div></div><div style="width: 50%;"><p style="margin: 0; border: 1px solid gray; padding: 2px;">Main Main-2 Text Picture</p><div style="border: 1px solid gray; padding: 5px; margin: 5px 0;"><p style="margin: 0; border: 1px solid gray; padding: 2px;">Text</p><div style="border: 1px solid gray; padding: 5px; min-height: 100px;">Multistate Indicator 1@M0 OFF</div><div style="border: 1px solid gray; padding: 2px; text-align: center; margin-top: 5px;">Process the text of all states</div></div></div></div></div>
	State 1	<div style="border: 1px solid gray; padding: 5px;"><p style="margin: 0;">Multistate Indicator</p><div style="display: flex; justify-content: space-between;"><div style="width: 45%;"><p style="margin: 0; border: 1px solid gray; padding: 2px;">Preview</p><div style="border: 1px solid gray; padding: 5px; text-align: center; margin: 5px 0;">Multistate Indicator 1@M0 ON</div><p style="margin: 0;">State:</p><div style="border: 1px solid gray; padding: 2px; width: 80%;">1</div></div><div style="width: 50%;"><p style="margin: 0; border: 1px solid gray; padding: 2px;">Main Main-2 Text Picture</p><div style="border: 1px solid gray; padding: 5px; margin: 5px 0;"><p style="margin: 0; border: 1px solid gray; padding: 2px;">Text</p><div style="border: 1px solid gray; padding: 5px; min-height: 100px;">Multistate Indicator 1@M0 ON</div><div style="border: 1px solid gray; padding: 2px; text-align: center; margin-top: 5px;">Process the text of all states</div></div></div></div></div>

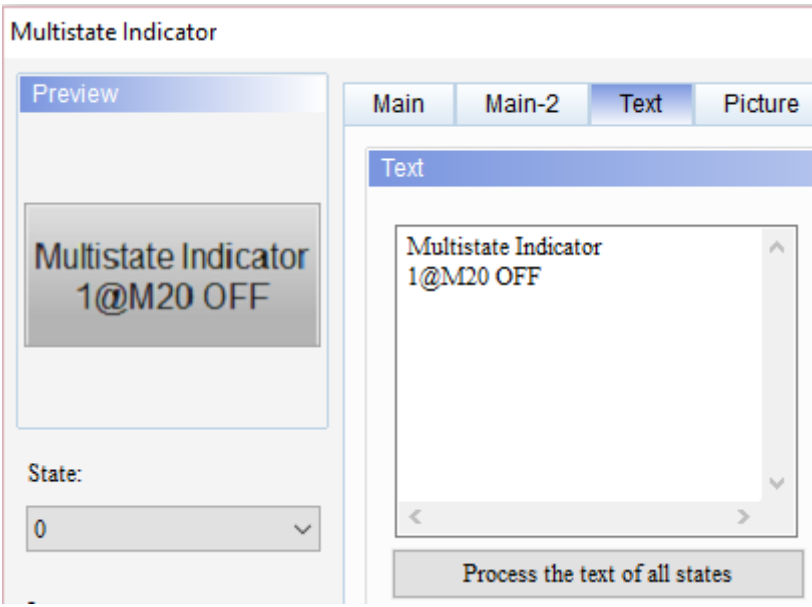
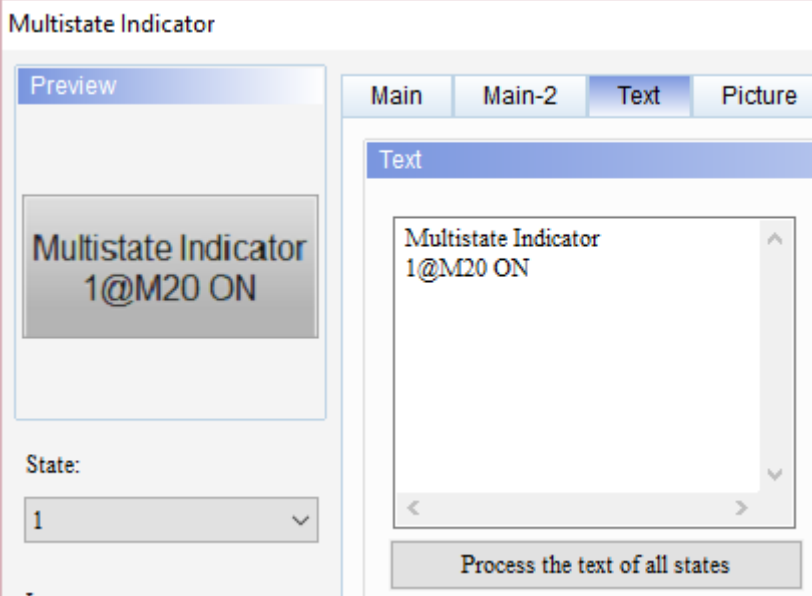
Steps to create the elements

Step 2	2. Input "Multistate Indicator 1@M10 OFF" for State 0; input "Multistate Indicator 1@M10 ON" for State 1.
	<div style="border: 1px solid gray; padding: 5px;"><p style="text-align: center;">Multistate Indicator</p><div style="display: flex; justify-content: space-between;"><div style="width: 45%;"><p>Preview</p><div style="border: 1px solid gray; padding: 5px; text-align: center; background-color: #f0f0f0;">Multistate Indicator 1@M10 OFF</div><p>State:</p><div style="border: 1px solid gray; padding: 2px; width: 80px; text-align: center;">0</div></div><div style="width: 50%;"><p>Main Main-2 Text Picture</p><div style="border: 1px solid gray; padding: 5px;"><p>Text</p><div style="border: 1px solid gray; padding: 5px; min-height: 100px;">Multistate Indicator 1@M10 OFF</div><div style="text-align: center; border: 1px solid gray; padding: 5px; margin-top: 5px;">Process the text of all states</div></div></div></div></div>
	<div style="border: 1px solid gray; padding: 5px;"><p style="text-align: center;">Multistate Indicator</p><div style="display: flex; justify-content: space-between;"><div style="width: 45%;"><p>Preview</p><div style="border: 1px solid gray; padding: 5px; text-align: center; background-color: #f0f0f0;">Multistate Indicator 1@M10 ON</div><p>State:</p><div style="border: 1px solid gray; padding: 2px; width: 80px; text-align: center;">1</div></div><div style="width: 50%;"><p>Main Main-2 Text Picture</p><div style="border: 1px solid gray; padding: 5px;"><p>Text</p><div style="border: 1px solid gray; padding: 5px; min-height: 100px;">Multistate Indicator 1@M10 ON</div><div style="text-align: center; border: 1px solid gray; padding: 5px; margin-top: 5px;">Process the text of all states</div></div></div></div></div>

2

Steps to create the elements

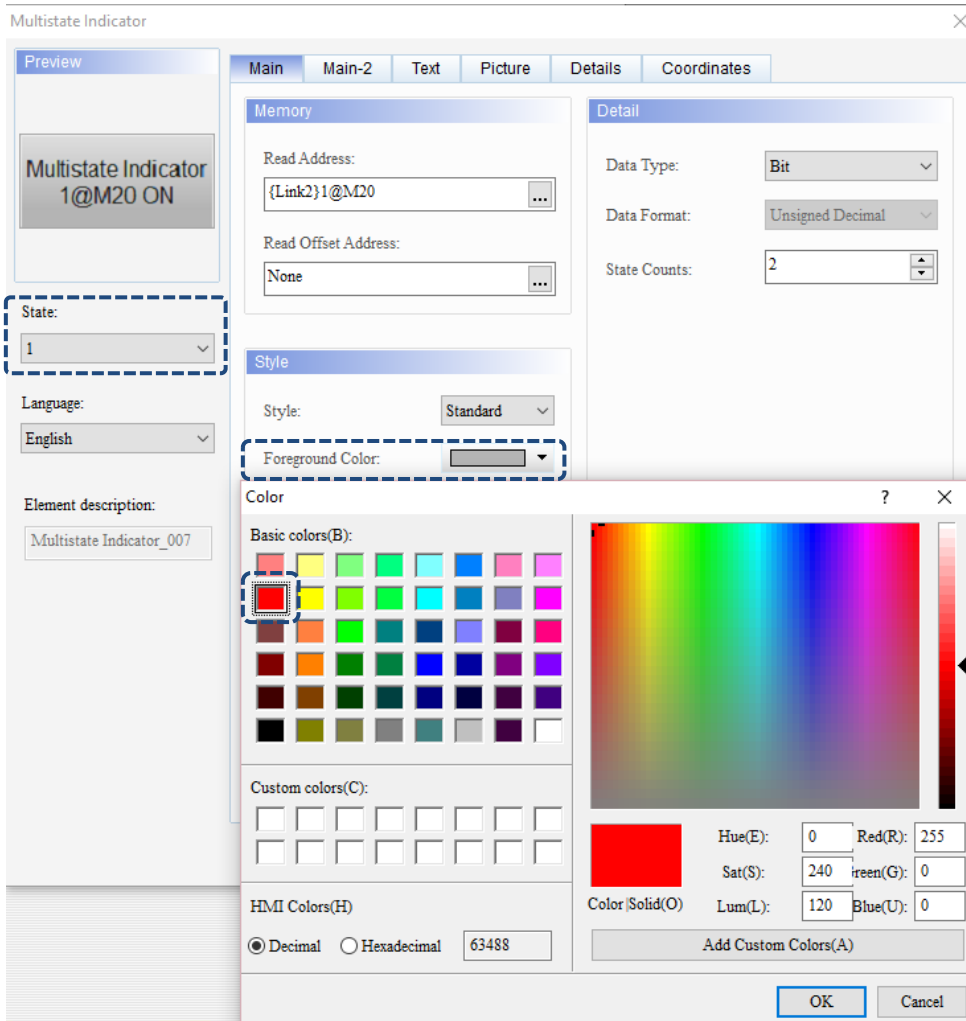
3. Input "Multistate Indicator 1@M20 OFF" for State 0; input "Multistate Indicator 1@M20 ON" for State 1.

Step 2	State 0	
	State 1	

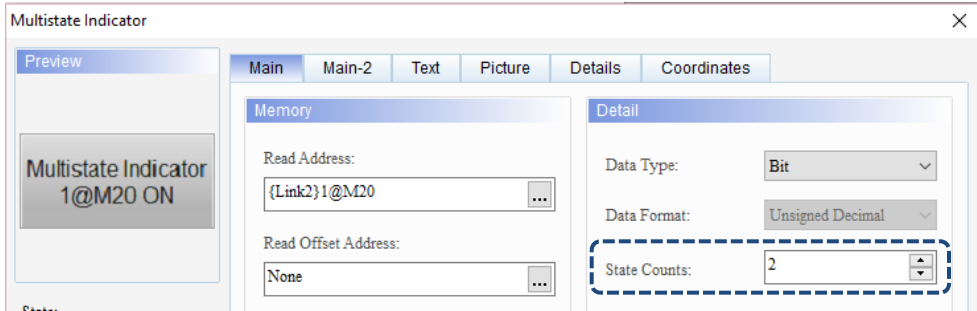
Steps to create the elements

- Double-click the three Multistate Indicator elements you just created and go to the Main page. Change the Foreground Color of State 1 to red for differentiating State 0 from State 1.

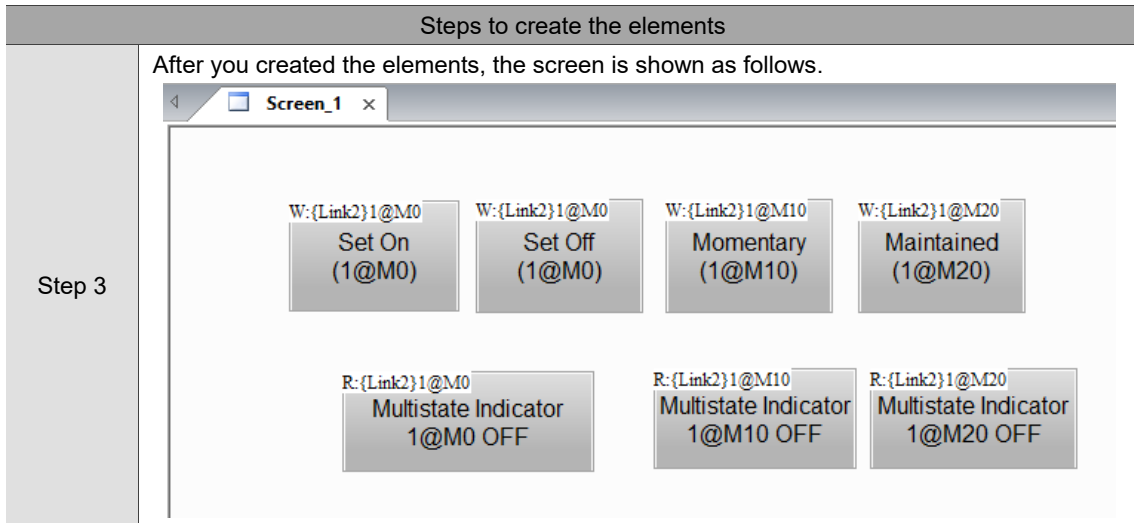
Step 2



Note: the Multistate Indicator changes its state value depending on the State Counts. Since the Set to On, Set to Off, Momentary, and Maintained buttons all have two states (States 0 and 1), you can double-click the element to set the State Counts to 2 in the Main page.



2



5. Compile

When you finish creating all the elements, compile the elements on the editing screen and make sure no error occurs. The purpose of compiling the screens is to check if you have input the memory address and ensure the memory address format you use is correct. There are two compiling methods. The first is to go to [Tools] > [Compile All] in the function list.

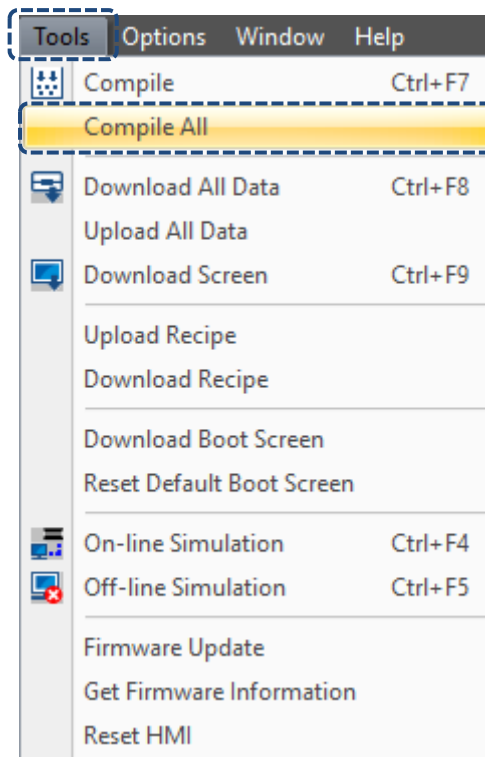

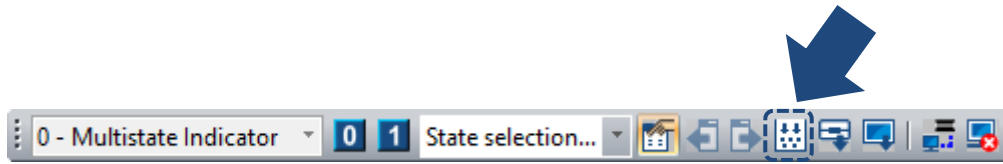


Figure 2.3.1.9 Compile All

The second method is using the Compile All icon  on the Layout toolbar.



2

After the compilation, the output messages are shown as Figure 2.3.1.10.

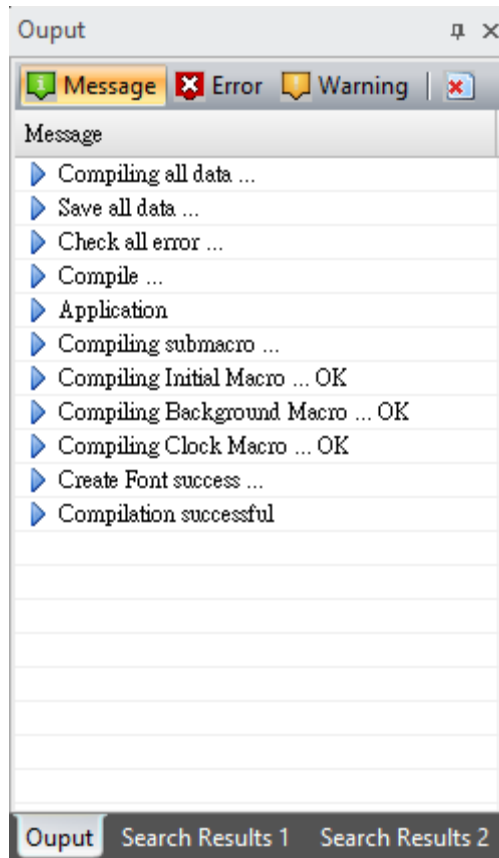


Figure 2.3.1.10 Output window for data compilation

2

6. Download screen data to the HMI

When compilation is successful, it means the screen you configure is correct and you can start downloading the screen data to the HMI. The following is the three methods of downloading screen data.

Method 1: go to [Tools] > [Download All Data].

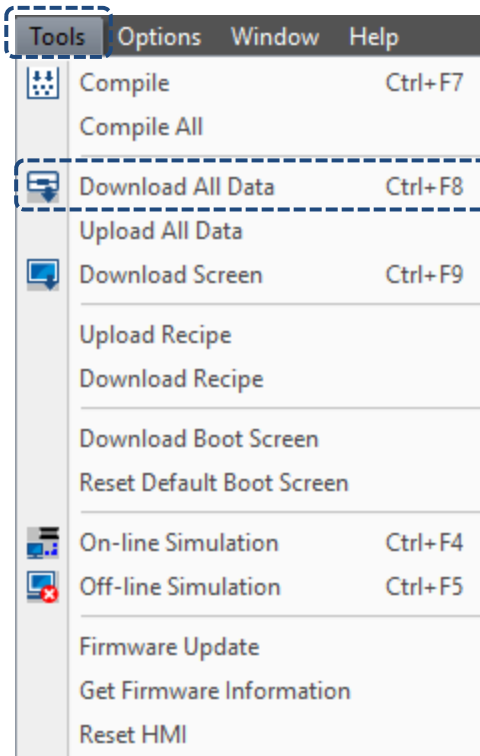
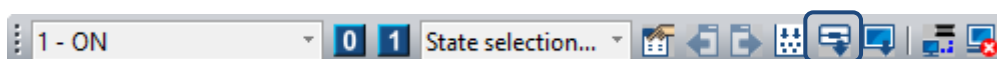


Figure 2.3.1.11 Tools function list - Download All Data

Method 2: use the download screen data icon  on the Layout toolbar.



Method 3: use the system keyboard shortcut **Ctrl + F8**.

Before downloading the screen data, make sure the USB cable is connected between the HMI and PC and the PLC communication cable is connected to COM 2.

Next, you can start downloading the screen data to the HMI. Then, the software displays the downloading progress as shown in the following figure.

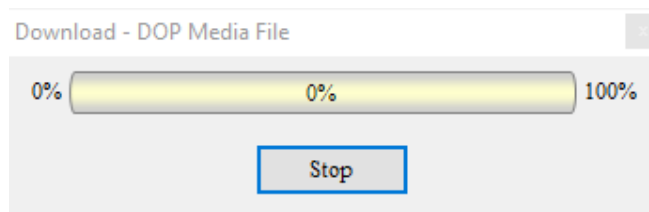
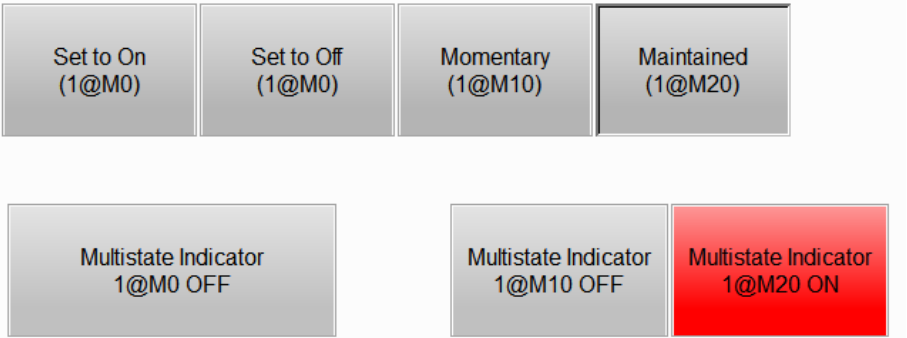


Figure 2.3.1.12 Downloading the screen data

- a. After downloading the screen data is complete, you can check the HMI to see if the screen is identical to the screen edited with the PC and check if an error occurs.
- b. The following is the button actions.

Operation	
Touch button	Execution results
Set to ON	<p>Press Set to On and the Mutistate Indicator 1@M0 displays ON.</p>
Set to OFF	<p>If you press the Set to Off , the Multistate Indicator 1@M0 displays OFF.</p>
Momentary	<p>If you press Momentary, the Multistate Indicator 1@M10 displays ON; once you release this button, the Multistate Indicator 1@M10 displays OFF.</p>

2

Operation	
Touch button	Execution results
Maintained	<p>If you press Maintained, the Multistate Indicator 1@M20 continues to display ON. To cancel the ON state, re-press Maintained.</p> 

7. Save and close the project.

Save the screen you just edited before closing the project. You can save the project with three methods:

Method 1: go to [File] > [Save] in the function list.

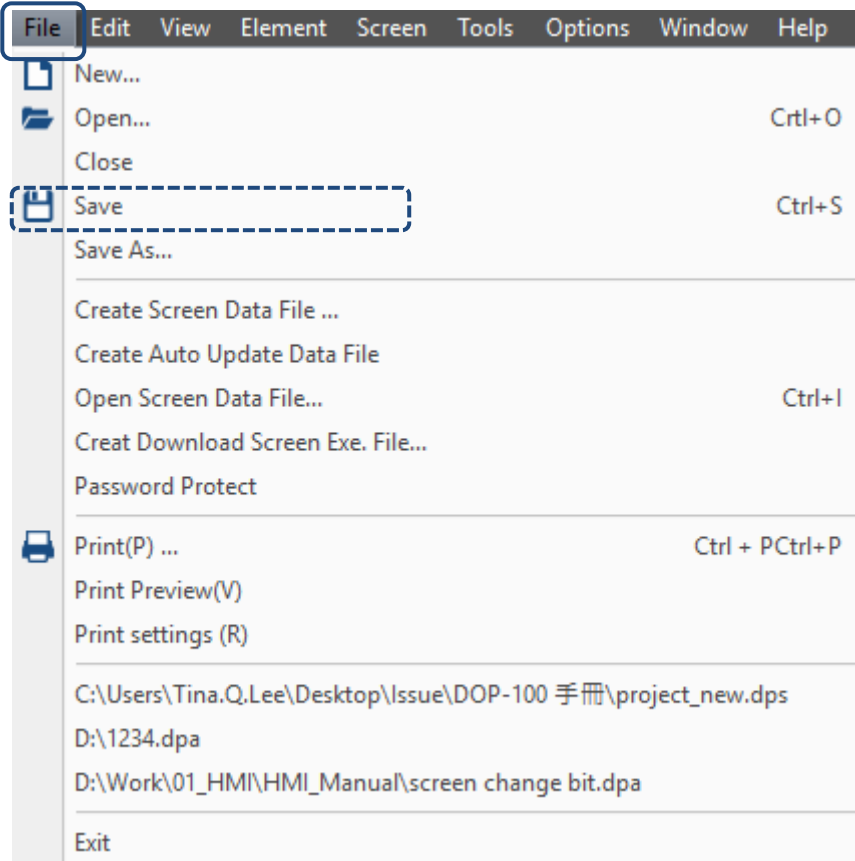
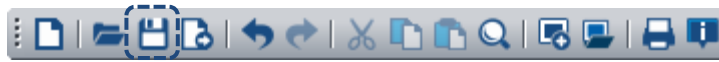


Figure 2.3.1.13 File function list - Save file

Method 2: use the save icon  in the General toolbar.



Method 3: use the system keyboard shortcut **Ctrl + S**.

Once you saved the project, the software prompts a window to ask for the file saving destination and filename. If you follow the Project Wizard to create a project, the default project name is “test”, so the filename remains “test” after you click **Save**. You can change the filename and this action will not change the project operation.

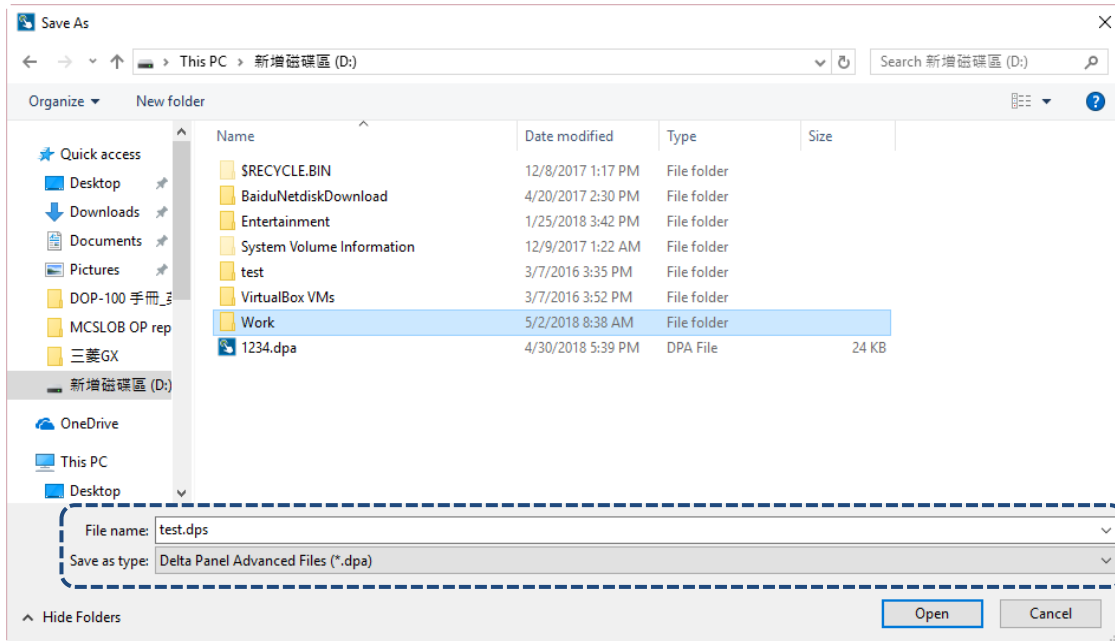


Figure 2.2.1.1 Save as file window

2

After saving the project, you can go to the destination folder to check if the project file is saved. To re-open the project, double-click the file or directly execute the DOPSoft and go to [File] > [Open...], as shown in the following figure.

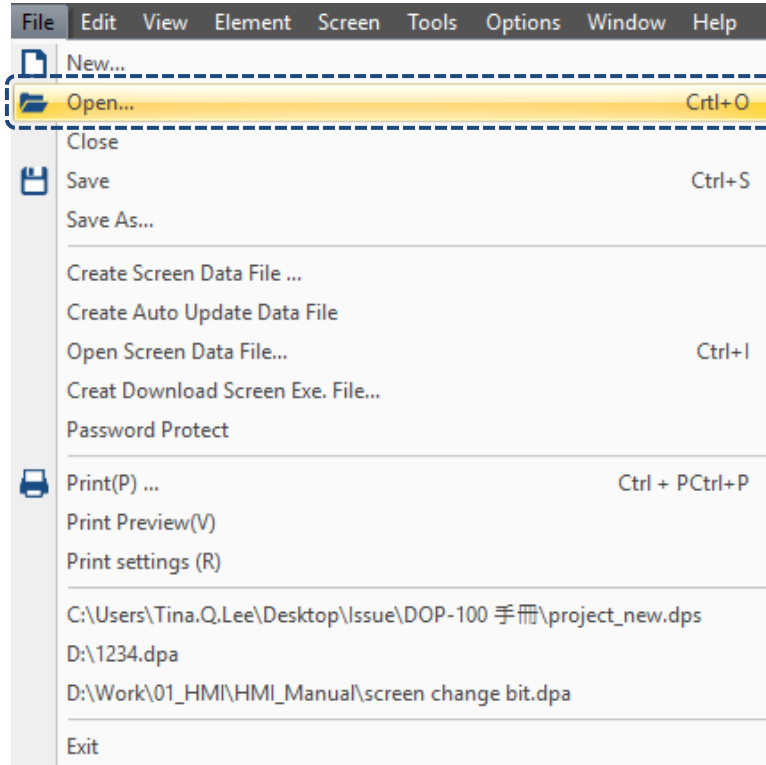

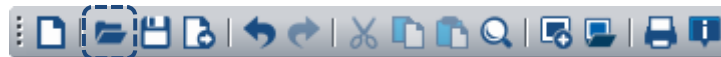


Figure 2.2.1.15 File function list - Open...

You can also click the open file icon  in the General toolbar to open the existing file.



Internal Memory

3

This chapter introduces the internal memory addresses and storage range of the HMI.

3.1	Internal Register (\$)	3-3
3.2	Non-volatile Internal Register (\$M)	3-3
3.3	Indirect Address Register (*\$)	3-4
3.4	Internal Parameter	3-6

3

Delta's HMI has registers of twelve different functions, including:

1. Internal register (\$)
2. Non-volatile internal register (\$M)
3. Indirect address register (*\$)
4. Recipe register (RCP)
5. Recipe number register (RCPNO)
6. Recipe group register (RCPG)
7. Recipe indirect address register (*RCP)
8. Enhanced recipe register (ENRCP)
9. Enhanced recipe number register (ENRCPNO)
10. Enhanced recipe group register (ENRCPG)
11. Enhanced recipe group name register (ENRCPGNAME)
12. Enhanced recipe indirect address register (*ENRCP)

The fourth to twelfth registers are introduced and explained along with the 16-bit, 32-bit, and enhanced recipes in Chapter 23.

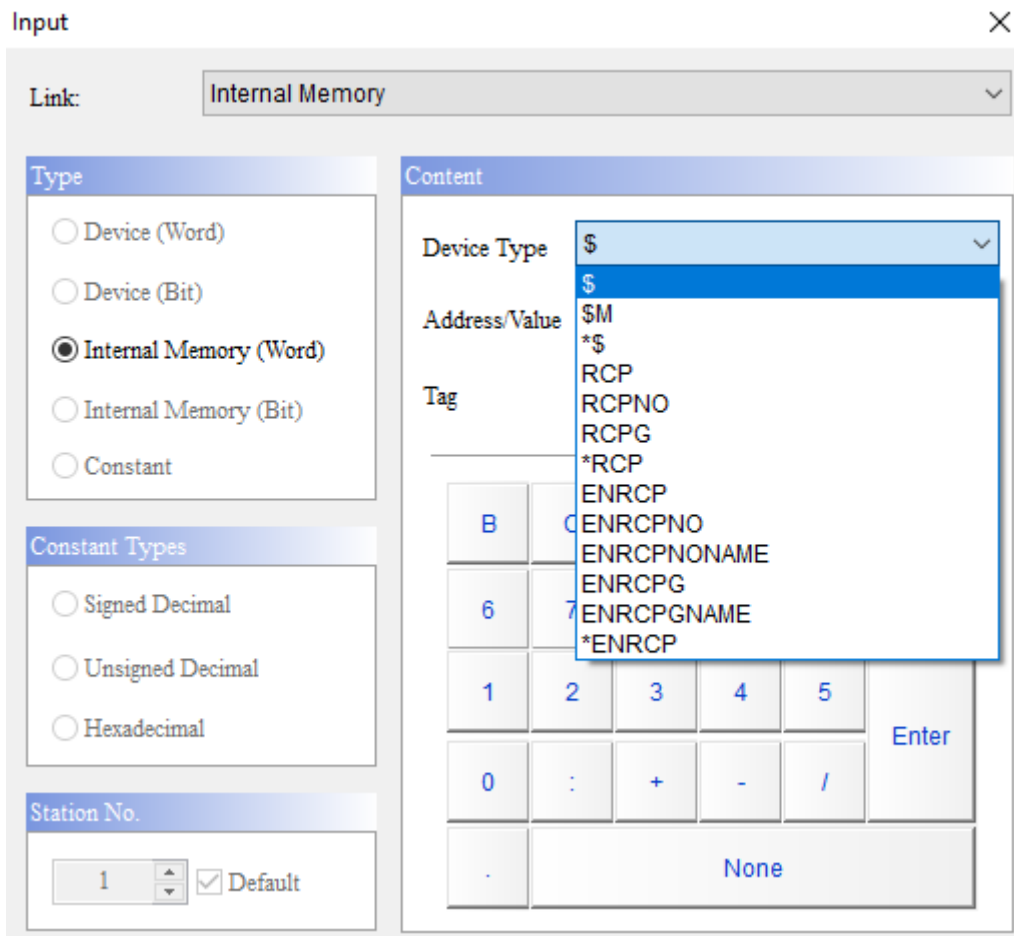


Figure 3.1 HMI Internal Memory

3.1 Internal Register (\$)

The internal register is the HMI internal memory that freely reads data and supports all kinds of configurations, such as the element communication address. The internal register is volatile, so the data in the register is not maintained when the power is off. The HMI provides 65536 sets of 16-bit internal registers.

Access type	Device type	Storage range
Word	\$n	\$0 - \$65535
Bit	\$n.b	\$0.0 - \$65535.15

Note: n = Word (0 - 65535); b = Bit (0 - 15)

The DOP-112 and DOP-115 HMI models support a wider range of internal registers of up to 200000 sets. However, the expanded internal memory is only used to set the screen elements. The internal registers used in the macro remain as 65536 sets (\$0 - \$65535).

Access type	Device type	Storage range
Word	\$n	\$0 - \$199999
Bit	\$n.b	\$0.0 - \$199999.15

Note: n = Word (0 - 199999); b = Bit (0 - 15)

3.2 Non-volatile Internal Register (\$M)

The register is a non-volatile register. The data in the register is maintained when the power is off so that you can record important data in this register. The HMI provides 1024 sets of 16-bit non-volatile internal registers (\$M0.0 - \$M1023.15).

Access type	Device type	Storage range
Word	\$Mn	\$0 - \$1023
Bit	\$Mn.b	\$0.0 - \$1023.15

Note: n = Word (0 - 1023); b = Bit (0 - 15)

3

3.3 Indirect Address Register (*\$)

The indirect address register is volatile, so the data in the register is not maintained when the power is off.

Access type	Device type	Storage range
Word	*\$n	\$0 - \$65535

Note: n = Word (0 - 65535)

The indirect address register (*\$n) obtains the value from \$n, sets the value as a new address, and then accesses the value from the new address. For instance, \$10 = 101, and \$101 = 55, so *\$10 = 55. See Figure 3.3.1.

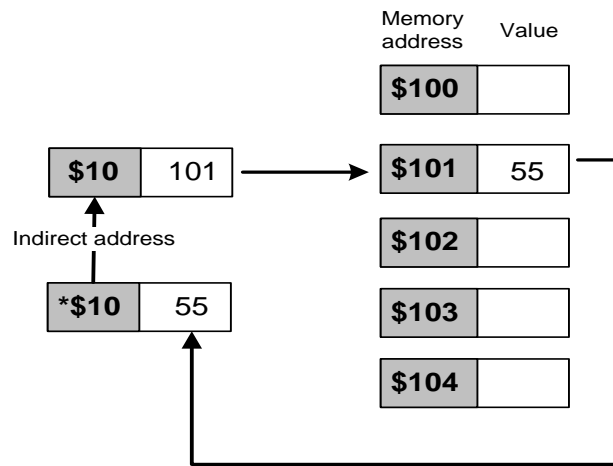


Figure 3.3.1 Diagram of indirect address

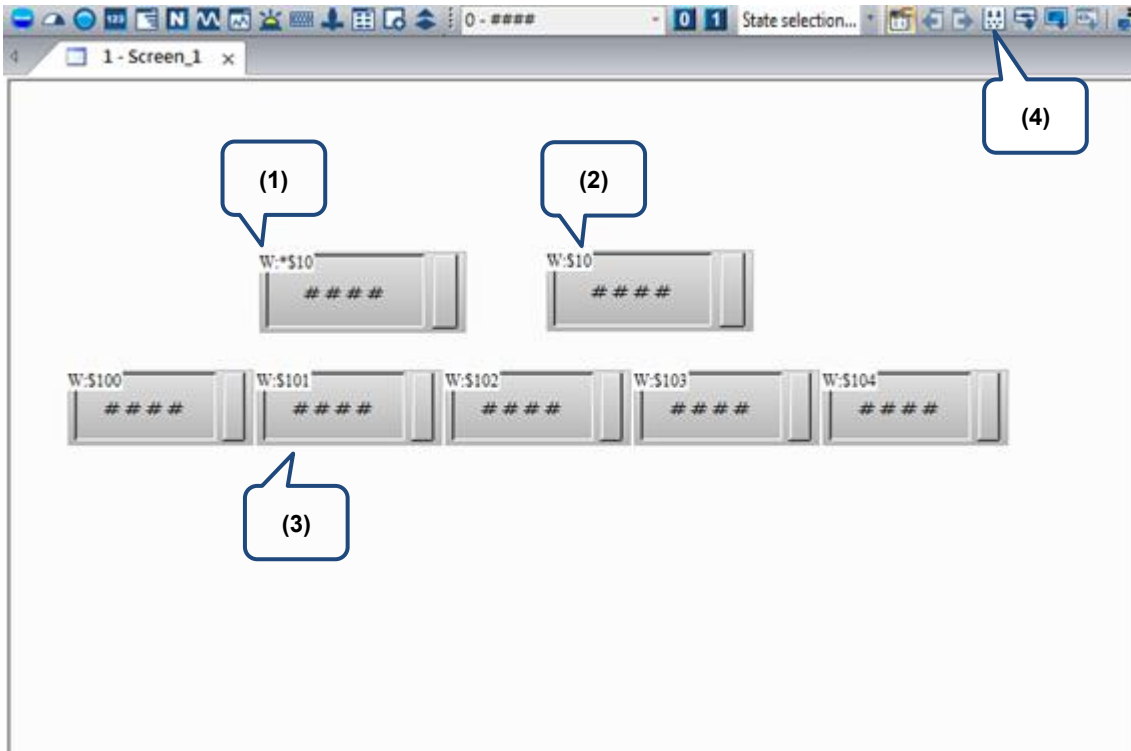



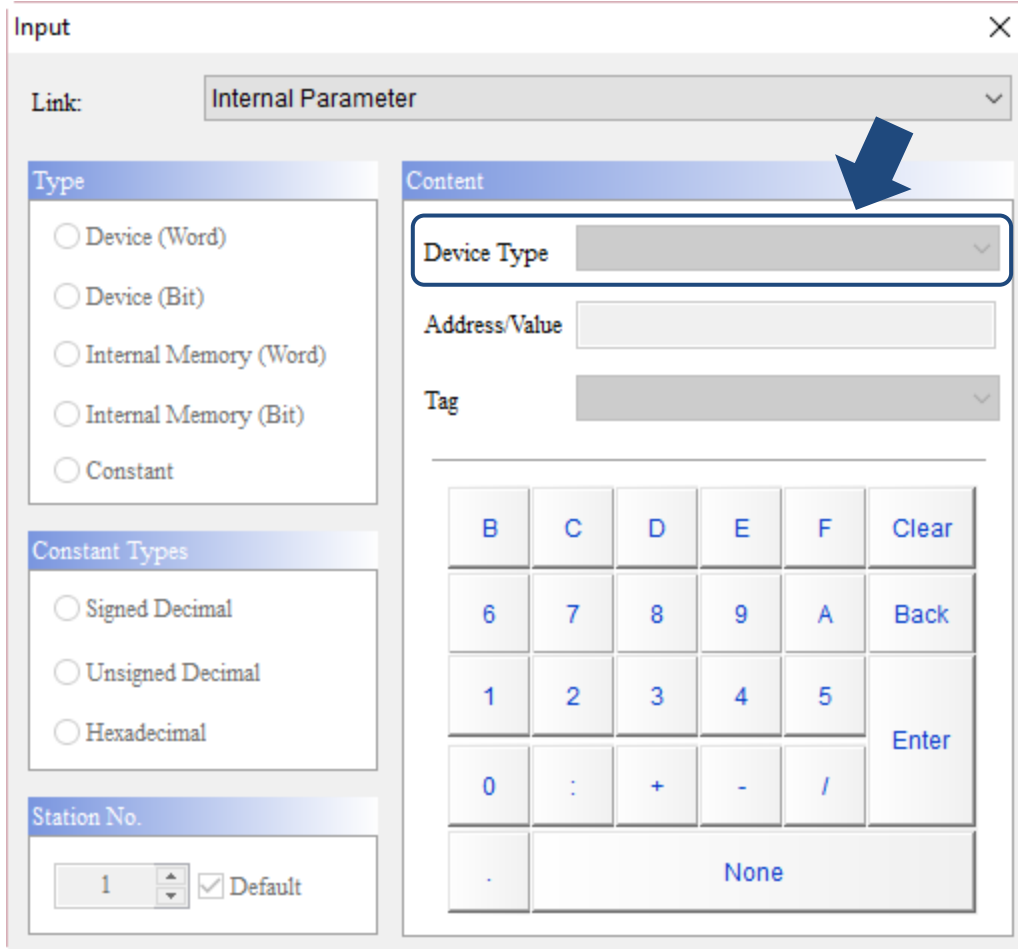
Figure 3.3.2 Example of indirect address register

Function element	Step	Executing content
Indirect address register	1	Create a Numeric Entry element and set the Write Address to *\$10.
	2	Create a Numeric Entry element and set the Write Address to \$10.
	3	Create a Numeric Entry element and set the Write Address to \$101.
	4	Use the button  to compile the data and download the data to the HMI. Firstly, input 101 to the element \$10; next, input any value to the element \$101; and then you can find that *\$10 automatically generates the value input to \$101.

3

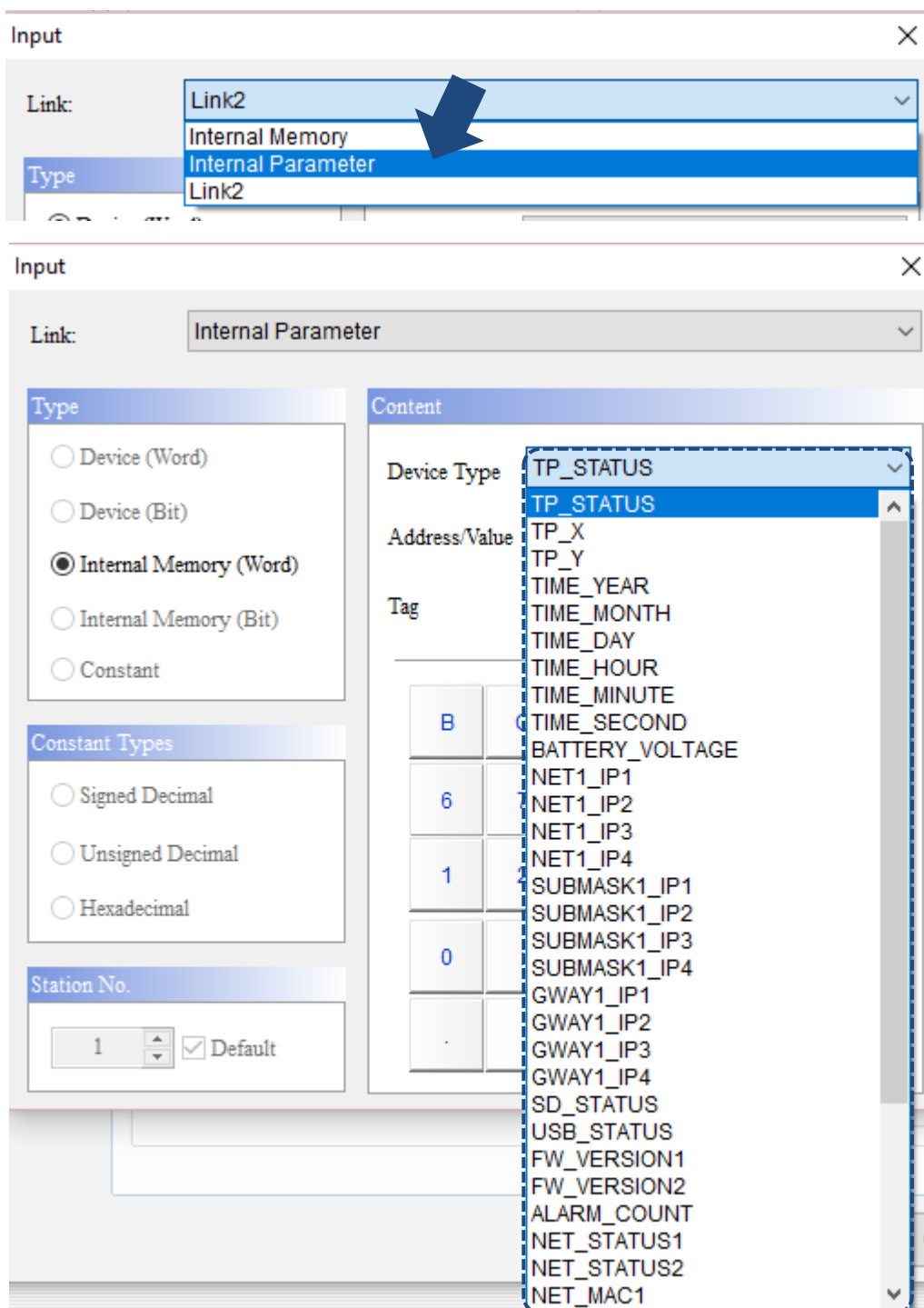
3.4 Internal Parameter

The HMI provides the Internal Parameter aside from the twelve kinds of internal memory. The Internal Parameter enables you to check the HMI internal state values through these parameters, including system time value (such as TIME_YEAR and TIME_MONTH), external storage device status (SD_STATUS and USB_STATUS), touch X / Y coordinate (TP_X and TP_Y), touch status (TP_STATUS), remaining battery voltage in percentage (BATTERY_VOLTAGE), network parameter (such as NET1_IP1 and SUBMASK_IP1), firmware version (FW_VERSION1 and FW_VERSION2), and so on.



Note: the Internal Parameter function is available only for Word elements. You are unable to select this function if you create Bit elements.

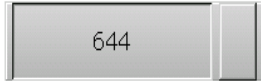
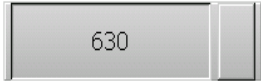
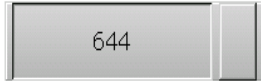
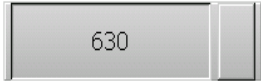
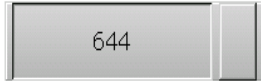
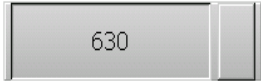
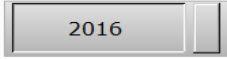

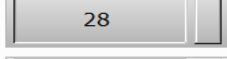
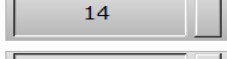
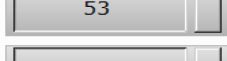
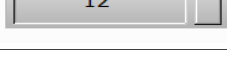
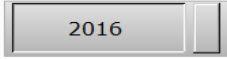

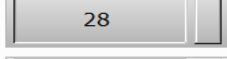
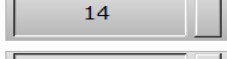
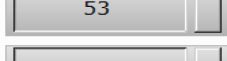
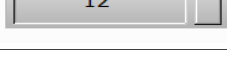
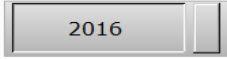

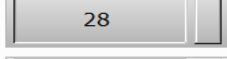
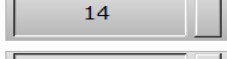
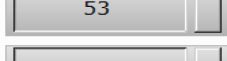
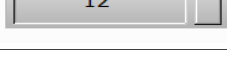
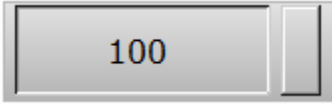
When using Word elements, to set the memory address, you can select Internal Parameter in the **Link** list to select a variety of internal parameters available on the HMI.






3

Figure 3.4.1 Internal Parameter

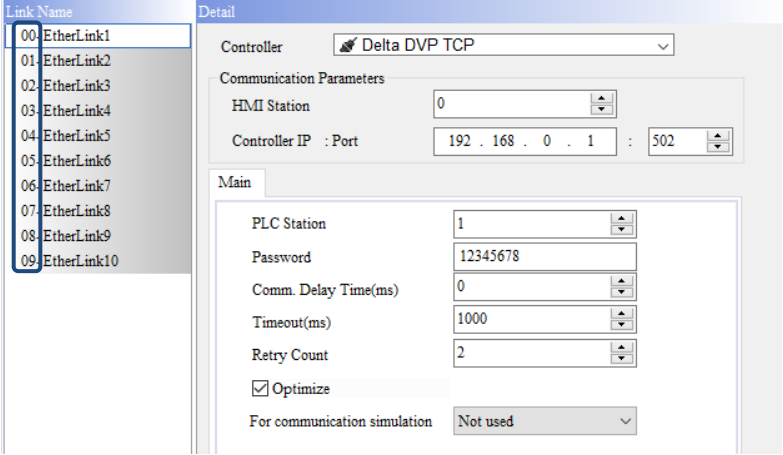
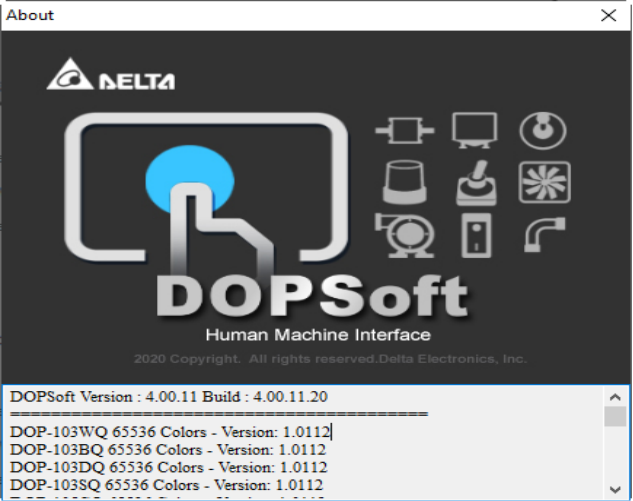
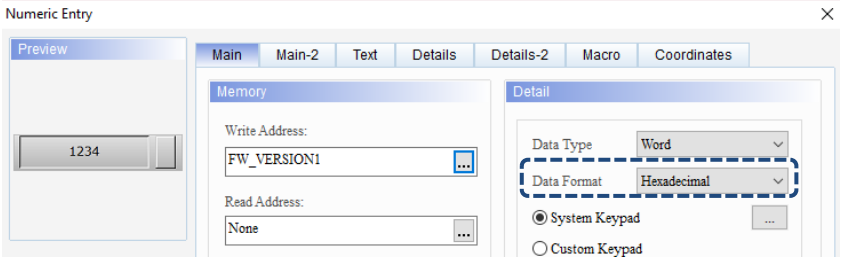
Table 3.4.1 Internal Parameter

Internal Parameter															
TP_STATUS	Displays the HMI panel state value.														
	<table border="1"> <thead> <tr> <th>State value</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Panel not touched, 0.</td> </tr> <tr> <td>1</td> <td>Panel touched, 1.</td> </tr> </tbody> </table>	State value	Result	0	Panel not touched, 0.	1	Panel touched, 1.								
	State value	Result													
0	Panel not touched, 0.														
1	Panel touched, 1.														
TP_X	Displays the X and Y coordinates when the panel is touched.														
TP_Y	<table border="1"> <thead> <tr> <th>Coordinate</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>X</td> <td></td> </tr> <tr> <td>Y</td> <td></td> </tr> </tbody> </table>	Coordinate	Result	X		Y									
Coordinate	Result														
X															
Y															
TIME_YEAR	Displays the HMI system time, including year / month / day / hour / minute / second.														
TIME_MONTH	<table border="1"> <thead> <tr> <th>Time / Date</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>TIME_YEAR (yyyy)</td> <td></td> </tr> <tr> <td>TIME_MONTH (mm)</td> <td></td> </tr> <tr> <td>TIME_DAY (dd)</td> <td></td> </tr> <tr> <td>TIME_HOUR (hr)</td> <td></td> </tr> <tr> <td>TIME_MINUTE (mi)</td> <td></td> </tr> <tr> <td>TIME_SECOND (se)</td> <td></td> </tr> </tbody> </table>	Time / Date	Result	TIME_YEAR (yyyy)		TIME_MONTH (mm)		TIME_DAY (dd)		TIME_HOUR (hr)		TIME_MINUTE (mi)		TIME_SECOND (se)	
Time / Date	Result														
TIME_YEAR (yyyy)															
TIME_MONTH (mm)															
TIME_DAY (dd)															
TIME_HOUR (hr)															
TIME_MINUTE (mi)															
TIME_SECOND (se)															
BATTERY_VOLTAGE	Displays the remaining battery voltage in percentage (%). 														

3

Internal Parameters		
<p>Some DOP-100 series HMI models have two Ethernet ports, so the network parameters are named as NET1_IP1 to NET1_IP4, SUBMASK1_IP1 to SUBMASK1_IP4, GWAY1_IP1 to GWAY1_IP4, and NET2_IP1 to NET2_IP4, SUBMASK2_IP1 to SUBMASK2_IP4, GWAY2_IP1 to GWAY2_IP4. For the DOP-100 models to be compatible with the DOP-B projects, the network parameters NET_IP1 to NET_IP4, SUBMASK_IP1 to SUBMASK_IP4, and GWAY_IP1 to GWAY_IP4 are added.</p>		
NET_IP1 NET1_IP1	Displays the HMI IP address. See the following example of 192.168.123.62.	
	NET_IP	Result
NET_IP2 NET1_IP2	NET_IP1 NET1_IP1	
NET_IP3 NET1_IP3	NET_IP2 NET1_IP2	
NET_IP4 NET1_IP4	NET_IP3 NET1_IP3	
	NET_IP4 NET1_IP4	
SUBMASK_IP1 SUBMASK1_IP1	Displays the HMI SUBMASK_IP address. See the following example of 255.255.255.0.	
	SUBMASK_IP	Result
SUBMASK_IP2 SUBMASK1_IP2	SUBMASK_IP1 SUBMASK1_IP1	
SUBMASK_IP3 SUBMASK1_IP3	SUBMASK_IP2 SUBMASK1_IP2	
SUBMASK_IP4 SUBMASK1_IP4	SUBMASK_IP3 SUBMASK1_IP3	
	SUBMASK_IP4 SUBMASK1_IP4	
GWAY_IP1 GWAY1_IP1	Displays the HMI GATEWAY_IP address. See the following example of 192.168.123.254.	
	GWAY_IP	Result
GWAY_IP2 GWAY1_IP2	GWAY_IP1 GWAY1_IP1	
GWAY_IP3 GWAY1_IP3	GWAY_IP2 GWAY1_IP2	
GWAY_IP4 GWAY1_IP4	GWAY_IP3 GWAY1_IP3	
	GWAY_IP4 GWAY1_IP4	
SD_STATUS	Displays the state value of whether an SD card is inserted.	
	State value	Result
	0	SD Card not inserted, 0.
	1	SD Card inserted, 1.
USB_STATUS	Displays the state value of whether a USB disk is inserted.	
	State value	Result
	0	USB Disk not inserted, 0.
	1	USB Disk inserted, 1.

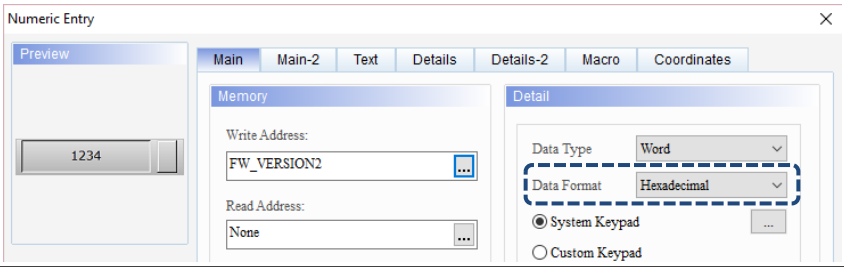
3

Internal Parameters	
<p>NET_STATUS1 NET_STATUS2</p>	<ul style="list-style-type: none"> ■ Display the HMI network connection status. ■ The parameter function sorts the newly-added EthernetLink device numbers in sequence. If the device is connected, the parameter value is 1; not connected, 0. ■ NET_STATUS1 represents the 16 connections of the first protocol; NET_STATUS2 represents the 16 connections of the second protocol. ■ Set the Data Format as Binary when setting these internal parameters. 
<p>FW_VERSION1</p>	 <p style="text-align: center; margin-top: 20px;">DOP-107WV 65536 Colors – Version1.0110</p> <div style="text-align: center; margin-top: 10px;"> Main version } Sub-version </div>
<p>FW_VERSION1</p>	<ul style="list-style-type: none"> ■ Displays the main version of the HMI firmware. ■ Set the Data Format as Hexadecimal when setting this internal parameter. 

Internal Parameters

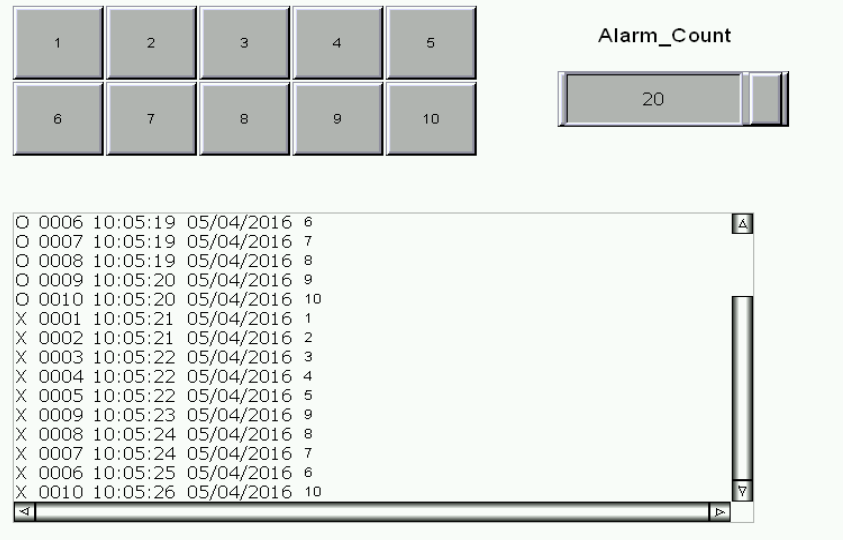
FW_VERSION2

- Displays the sub-version of the HMI firmware.
- Set the Data Format as Hexadecimal when setting this internal parameter.

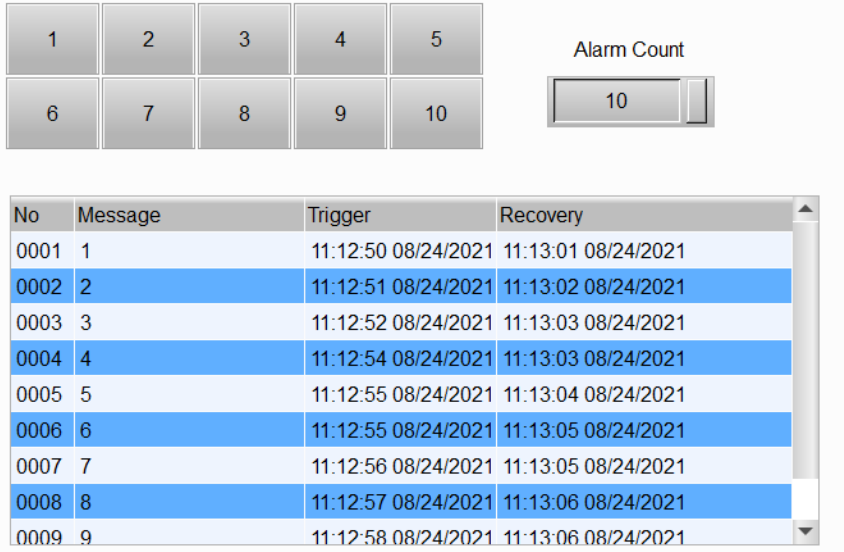


ALARM_COUNT

- Displays the total number of alarms triggered so far, including the triggered and canceled ones.
- The DOP-B, DOP-H, and HMC series models record the triggered and canceled alarms separately. As a result, Alarm_Count displays 20 when there are ten alarms.



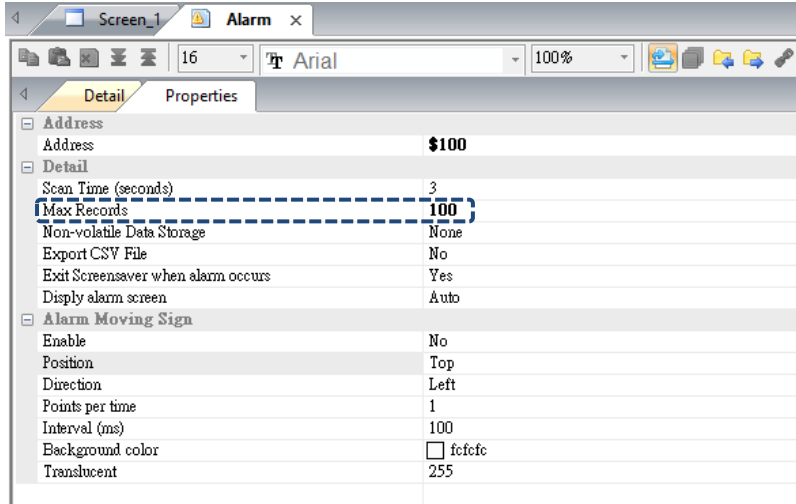
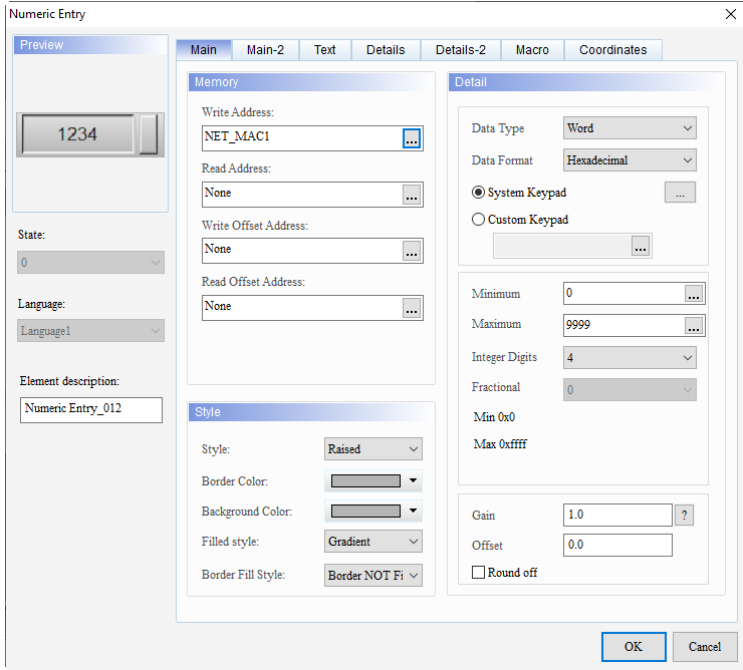
- The DOP-W and DOP-100 series models record the triggered and canceled alarms within one set of data. As a result, Alarm_Count displays 10 when there are ten alarms.

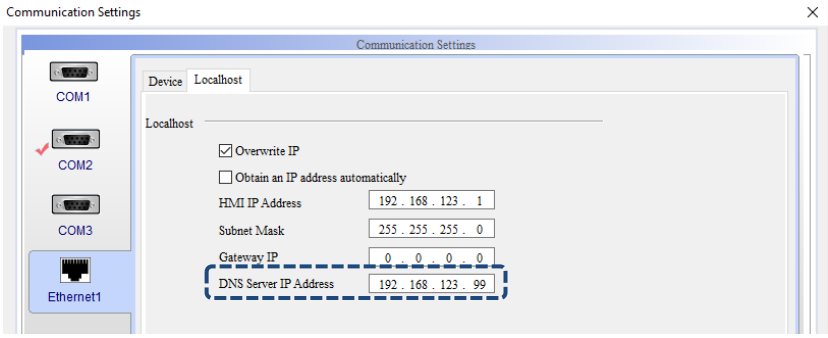


No	Message	Trigger	Recovery
0001	1	11:12:50 08/24/2021	11:13:01 08/24/2021
0002	2	11:12:51 08/24/2021	11:13:02 08/24/2021
0003	3	11:12:52 08/24/2021	11:13:03 08/24/2021
0004	4	11:12:54 08/24/2021	11:13:03 08/24/2021
0005	5	11:12:55 08/24/2021	11:13:04 08/24/2021
0006	6	11:12:55 08/24/2021	11:13:05 08/24/2021
0007	7	11:12:56 08/24/2021	11:13:05 08/24/2021
0008	8	11:12:57 08/24/2021	11:13:06 08/24/2021
0009	9	11:12:58 08/24/2021	11:13:06 08/24/2021

3-11

3

Internal Parameters	
ALARM_COUNT	<ul style="list-style-type: none"> The function reminds you to export the alarm data in case the initial alarm message contents are removed when the data reach the set maximum. 
NET_MAC1	<ul style="list-style-type: none"> For representing the MAC number of the HMI network port. Set the Data Format as Hexadecimal.
NET_MAC2	
NET_MAC3	
	
	<ul style="list-style-type: none"> The data is displayed with the high and low values swapped. If the value is 1800, it is displayed as 00:18.
REMO_COUNT	Displays the number of remote devices currently connected to the HMI. Remote devices include eServer, VNC, and LUA online debugging programs.
ACCOUNT	<ul style="list-style-type: none"> Displays the currently logged-in account. If your account contains English letters and numbers, use the Character Display element; if your account contains non-ASCII characters, use the Multi-language Input element.

Internal Parameters																																																		
PROGRAM_STATUS	Displays the current state value of LUA operations.																																																	
	<table border="1"> <thead> <tr> <th>State value</th> <th>State description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Program stopped</td> </tr> <tr> <td>1</td> <td>Program is running</td> </tr> <tr> <td>2</td> <td>Program pauses at a breakpoint</td> </tr> <tr> <td>3</td> <td>Program paused</td> </tr> </tbody> </table>	State value	State description	0	Program stopped	1	Program is running	2	Program pauses at a breakpoint	3	Program paused																																							
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PROGRAM_INFO	The current error message can be displayed through this system parameter if an error occurs during LUA operations.																																																	
KEY_CHAR	<ul style="list-style-type: none"> When a keyboard is connected to the HMI, characters can be directly input through the keyboard and displayed through this parameter. It is recommended to use Character Entry or Character Display elements. 																																																	
DNS1_IP1	Displays the HMI DNS Server IP address.																																																	
DNS1_IP2																																																		
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3

Control Status Block

4

This chapter illustrates how the HMI uses the Control Block and Status Area commands.



- 4.1 Control Block 4-8
- 4.2 Status Area 4-20

4

The DOPSoft provides the Control Block and Status Area functions for you to execute or monitor part of the system operation or status. You can define the memory start address of the Control Block and Status Area by going to [Options] > [Configuration] > [Control Status Block].

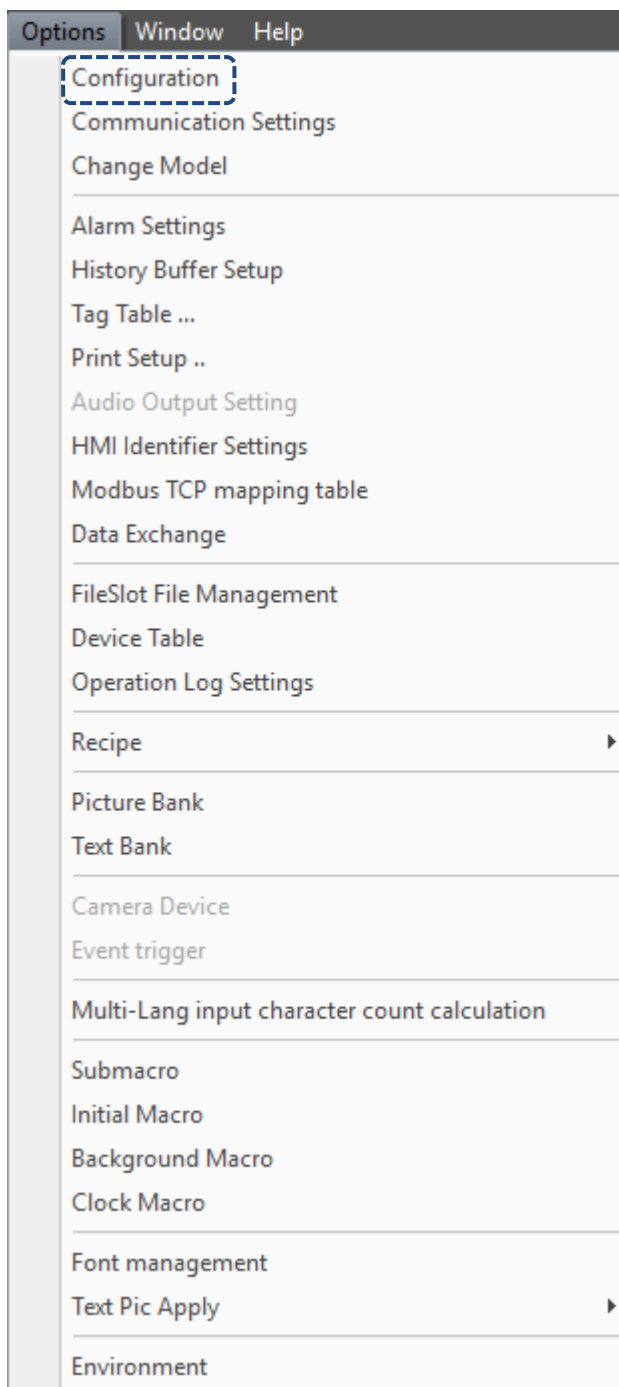


Figure 4.1 Configuration

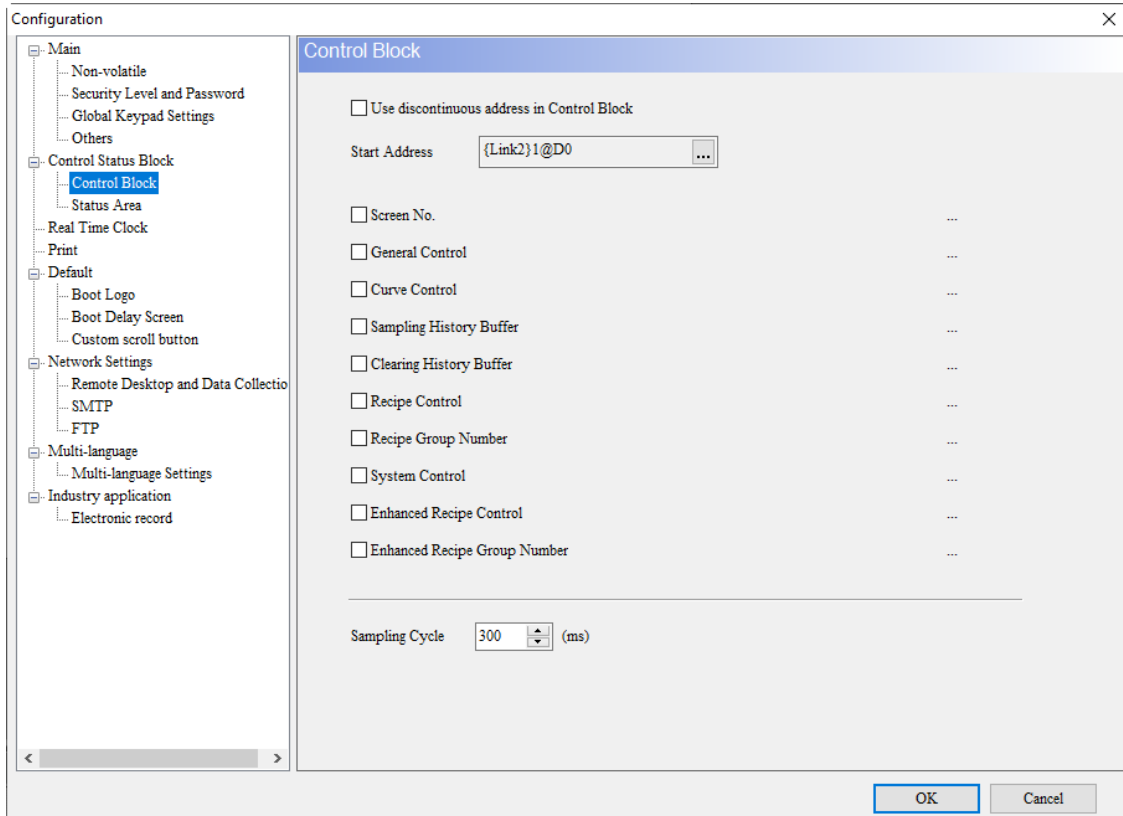


Figure 4.2 Control Block

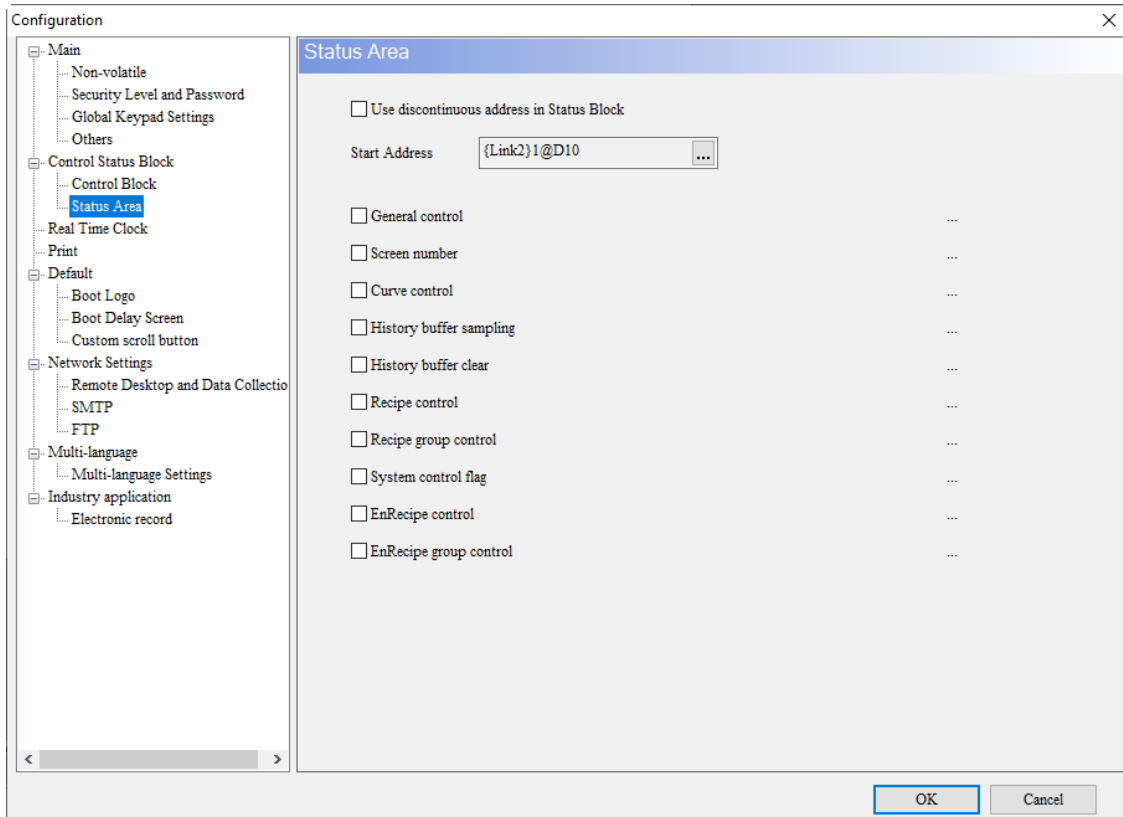


Figure 4.3 Status Area

4

The DOPSoft provides the Control Block and Status Area configurations for you to select the functions based on your needs, which is different from the previous Screen Editor. Take the Control Block for instance. As long as you select the check boxes of **Screen No.** and **Recipe Group Number**, the Control Block automatically configures the addresses in continuous form and enables the applications of screen switch and recipe number control, as shown in Figure 4.4.

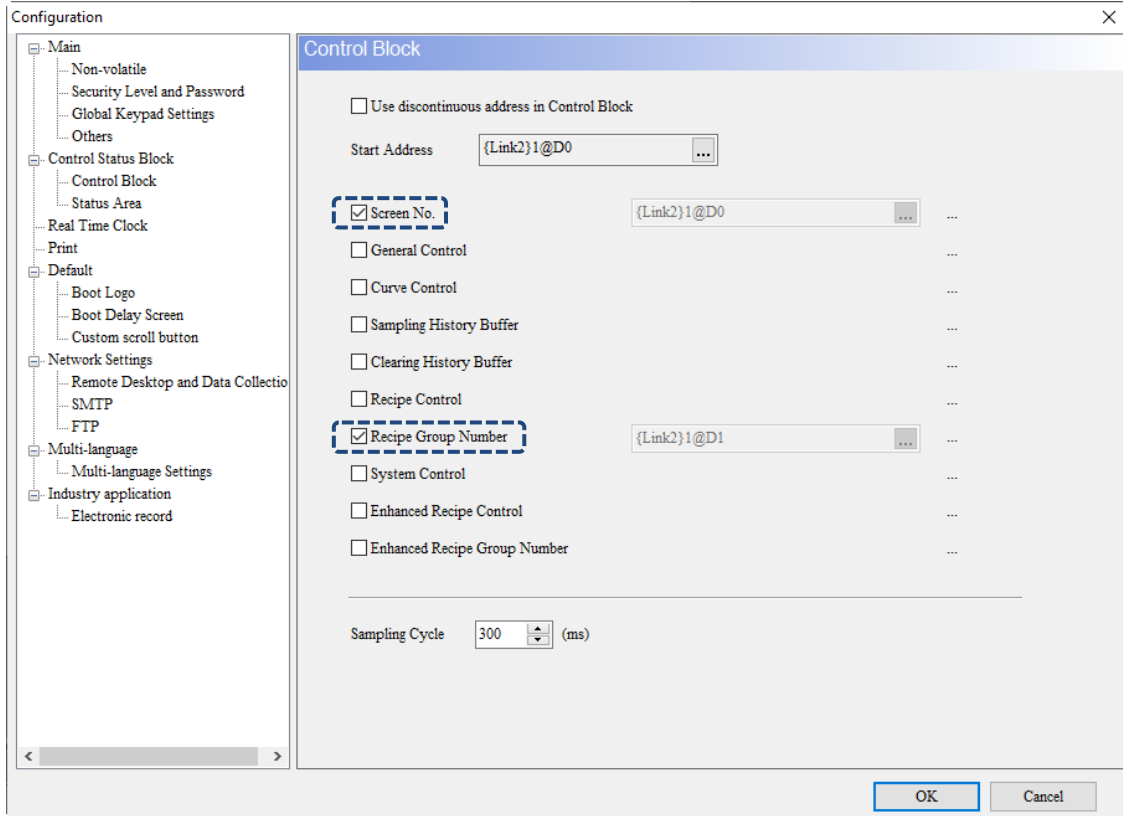


Figure 4.4 DOPSoft Control Block

If you select an additional function, such as General Control, the memory addresses are arranged in continuous sequence from top to bottom, as shown in Figure 4.5.

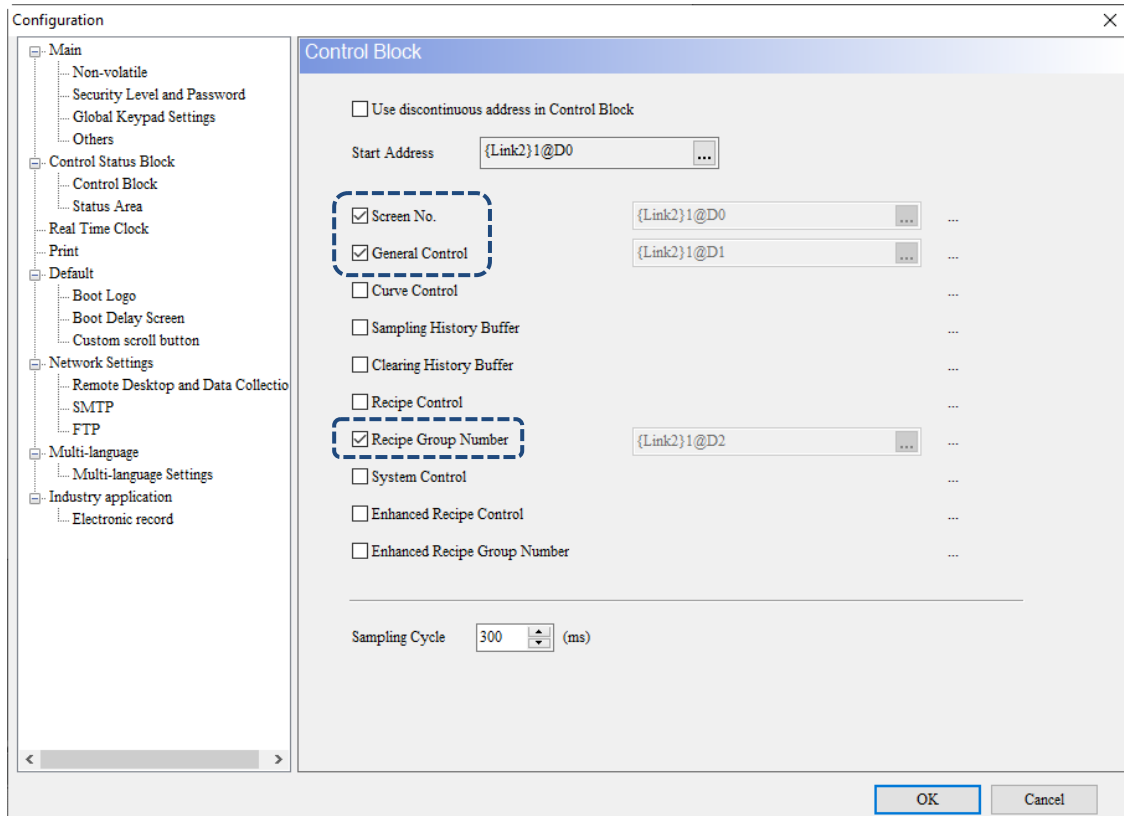
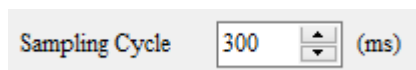


Figure 4.5 DOPSoft Control Block

■ Sampling Cycle

The Sampling Cycle enables you to control the sampling time flexibly. The default sampling cycle time is 300 ms, denoting that the interval for executing sampling is 300 ms. The minimum sampling cycle is 200 ms; the maximum sampling cycle is 1000 ms.



4

■ Action complete clear flag

To reactivate some of the functions in the Control Block, you must turn the corresponding flags OFF and then ON again. You can select the check box of **Action complete clear flag** and the HMI automatically resets the flags.

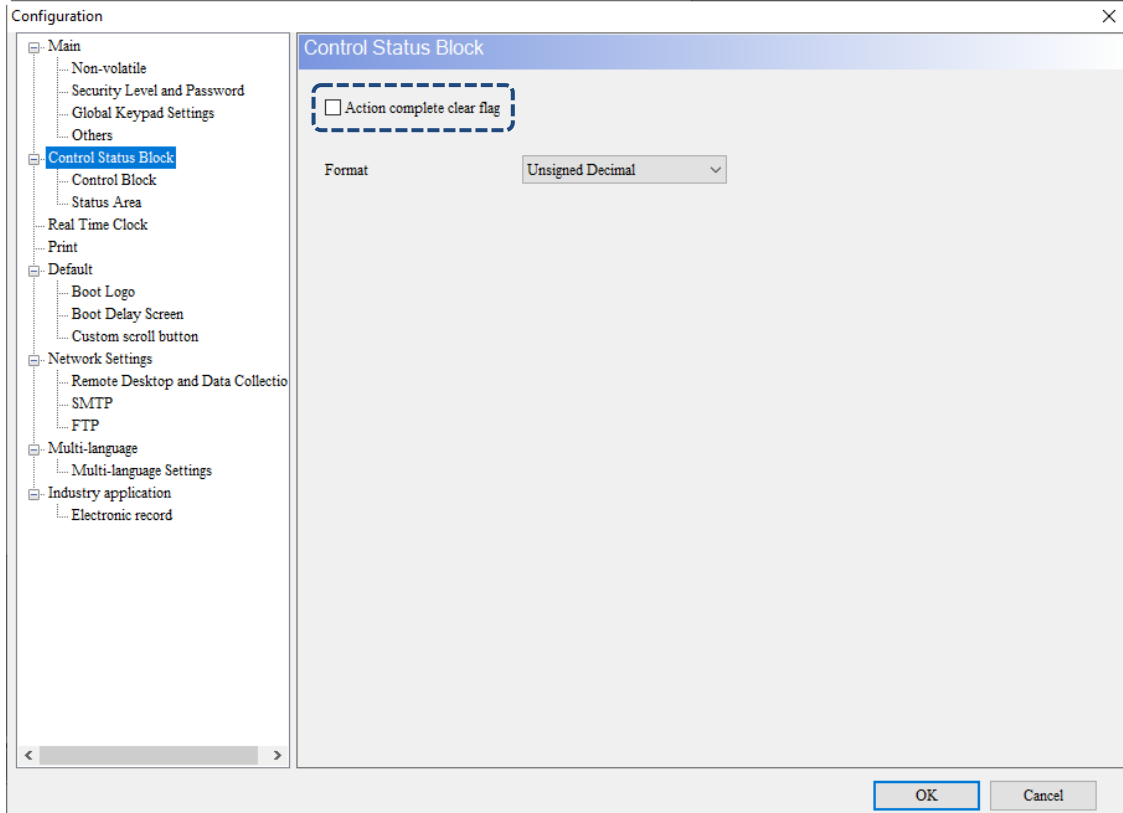
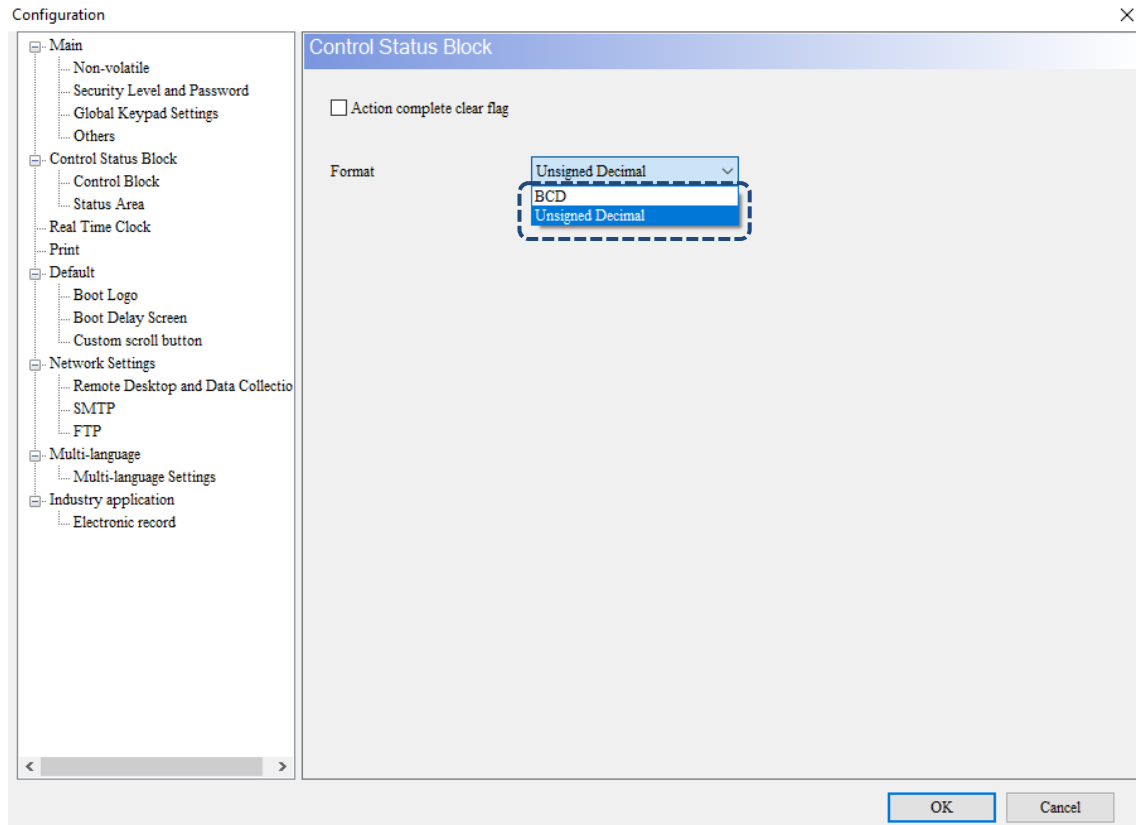


Figure 4.6 Action complete clear flag

■ Format

You can set the Format to either Unsigned Decimal or BCD.



4

Figure 4.7 Control Status Block - Format

4

4.1 Control Block

You can define the register addresses of the Control Block in the controller or the HMI internal memory. The HMI operation behaviors can be configured with the Control Block settings, such as screen switch, backlight disabling, security settings, curve and history buffer sampling or clearing, recipe control, enhanced recipe control, multi-language settings, and printing. The Control Block is a continuous data block in units of words.

Table 4.1.1 Control Block - Register type

Control Block register type	Controller register		Internal memory	
	Register (D)	Example	Register (\$)	Example
Screen No.	Dn	D0	\$n	\$15
General control	Dn+1	D1	\$n+1	\$16
Curve control	Dn+2	D2	\$n+2	\$17
History buffer sampling	Dn+3	D3	\$n+3	\$18
History buffer clearing	Dn+4	D4	\$n+4	\$19
Recipe control	Dn+5	D5	\$n+5	\$20
Recipe number control	Dn+6	D6	\$n+6	\$21
System control flag	Dn+7	D7	\$n+7	\$22
Enhanced recipe control	Dn+8	D8	\$n+8	\$23
Enhanced recipe number control	Dn+9	D9	\$n+9	\$24

■ Screen number register

Table 4.1.2 Control Block - Screen number register

Screen number register

- Write the designated screen number into the register, and the HMI switches to the designated screen.
- As shown in the following example, if you set the address of a Numeric Entry element as D0 and input the value of 1, the HMI switches to the first screen.

b0 - b15 –
Screen
number

■ General control register

Table 4.1.3 Control Block - General control register

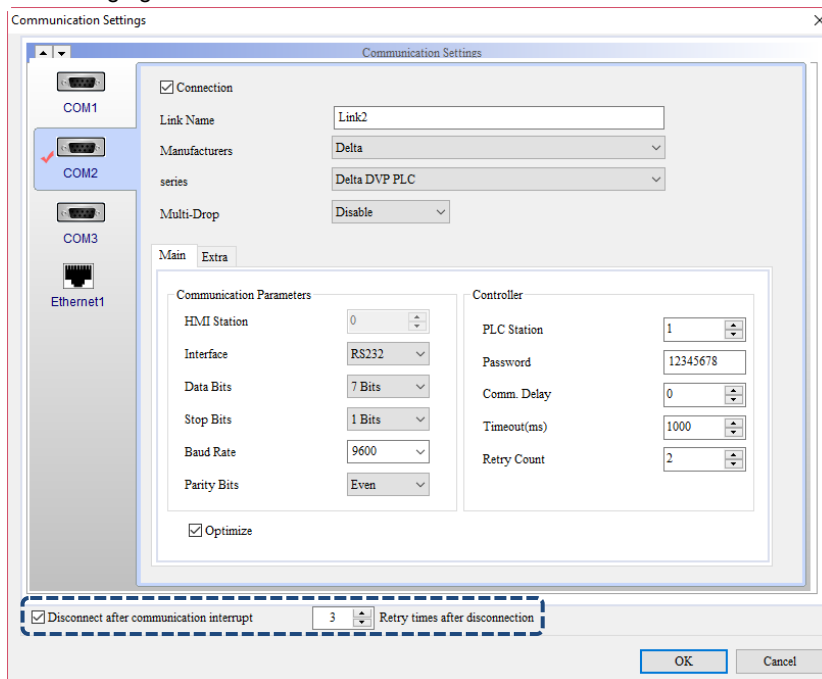
General control register

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
(10)				(9)				(8)	(7)	(6)	(5)	(4)	(3)	(2)	(1)

- (1) b0 Communication enable / disable flag
- (2) b1 Backlight enable / disable flag
- (3) b2 Buzzer enable / disable flag
- (4) b3 Alarm buffer clear flag
- (5) b4 Alarm counter clear flag
- (6) b5 External storage device cache write flag
- (7) b6 Remote control lock
- (8) b7 Reserved
- (9) b8 - b11 Set user security level
- (10) b12 - b15 Reserved

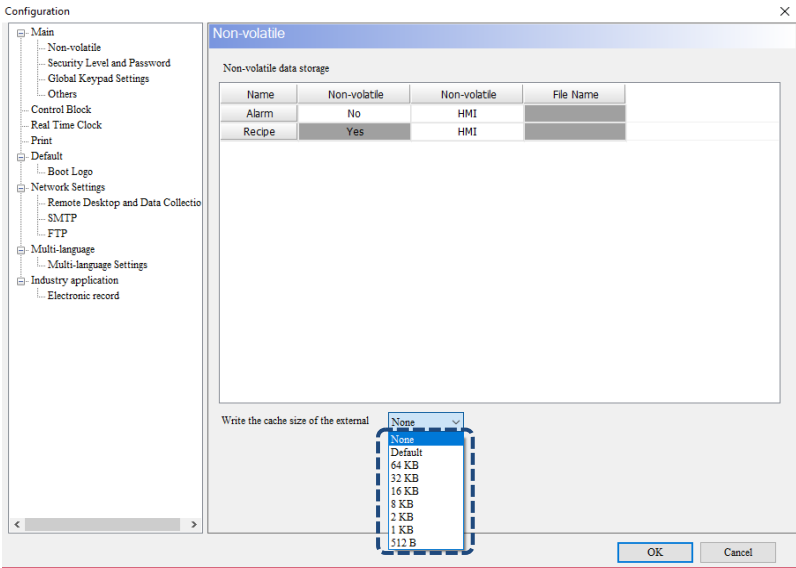
- Enable / disable the HMI communication. To use the communication enable / disable flag, click [Options] > [Communication Settings], select the check box of **Disconnect after communication interrupt**, and set the retry times. See the following figure.

b0 –
Communication
enable / disable
flag



4

General control register	
b0 – Communication enable / disable flag	<ul style="list-style-type: none"> ■ When the HMI communicates with the controller, the HMI automatically stops the communication with the controller and turns the flag ON after the number of interruption times reaches the set retry times without a communication error message appearing (this does not affect the communication between the HMI and other controllers). You can restore the communication between the HMI and the controller by turning the flag OFF. <div style="text-align: center; margin: 10px 0;"> </div> <ul style="list-style-type: none"> ■ The flag is only for restoring the communication when the communication is automatically stopped. You cannot directly stop the communication between the HMI and any controller by turning the flag ON. ■ The Action complete clear flag function is not applicable to this flag.
b1 – Backlight enable / disable flag	<ul style="list-style-type: none"> ■ Enable / disable the HMI backlight. When the flag is ON, the HMI backlight is disabled. When the flag is OFF, the HMI backlight is enabled. ■ The Action complete clear flag function is not applicable to this flag.
b2 – Buzzer enable / disable flag	<ul style="list-style-type: none"> ■ Enable / disable the HMI buzzer. When the flag is ON, the HMI buzzer is enabled. When the flag is OFF, the HMI buzzer is disabled. ■ The Action complete clear flag function is not applicable to this flag.
b3 – Alarm buffer clear flag	<p>Clear the HMI alarm buffer. When the flag is turned ON, the HMI clears the alarm buffer. To reactivate the function, you must turn the flag OFF and then ON again.</p>
b4 – Alarm counter clear flag	<p>Clear the HMI Alarm Frequency Table. When the flag is turned ON, the data in the Alarm Frequency Table is cleared. To reactivate the function, you must turn the flag OFF and then ON again.</p>

General control register																																																							
<p>b5 – External storage device cache write flag</p>	<ul style="list-style-type: none"> Update the HMI cache data into a USB Disk or an SD Card in real time. If the alarm buffer, history buffer, or recipe function is activated, and the non-volatile storage location is set to a USB Disk or an SD Card, when the flag is turned ON, the HMI updates the data temporarily stored in the cache into a USB Disk or an SD Card in real time. To reactivate the function, you must turn the flag OFF and then ON again. The data written into a USB Disk or an SD Card by the HMI is temporarily stored in the cache first. Before the cache data size reaches the set limit (shown as follows), the data is not written into a USB Disk or an SD Card. This is to prevent the USB Disk or SD Card from being damaged by frequent overwriting. However, if the data volume you are accessing is less than the buffer capacity or the power is cut off unexpectedly, part of the data may be lost. To keep the data, you can have the flag turned ON in a cyclic pattern to write the data into the USB Disk or SD Card. 																																																						
<p>b6 – Remote control lock</p>	<ul style="list-style-type: none"> Enable / disable the operation of eRemote. When the flag is ON, eRemote can only be monitored rather than be operated. When the flag is OFF, eRemote can be operated properly. The Action complete clear flag function is not applicable to this flag. 																																																						
<p>b8, b9, b10, b11 – Set user security level</p>	<ul style="list-style-type: none"> You can change the current HMI user security by activating the flags of Bit 8, Bit 9, Bit 10, and Bit 11 provided by the general control register. The HMI internal security level includes: <ol style="list-style-type: none"> Security levels 0 - 7: 0 refers to the lowest security level. Levels 0 - 7 can be controlled by Bit 8, Bit 9, and Bit 10 flags. Highest security level: can be controlled by Bit 11 flag. You can set security levels 0 to 7 with the Bit 8, Bit 9, and Bit 10 flags. Refer to the following table for more details on settings. <table border="1"> <thead> <tr> <th rowspan="2">Security level</th> <th colspan="4">Flag control</th> </tr> <tr> <th>Bit 11</th> <th>Bit 10</th> <th>Bit 9</th> <th>Bit 8</th> </tr> </thead> <tbody> <tr> <td>Security level 0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Security level 1</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>Security level 2</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>Security level 3</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>Security level 4</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>Security level 5</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>Security level 6</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> </tr> <tr> <td>Security level 7</td> <td>0</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>Highest Security Level</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	Security level	Flag control				Bit 11	Bit 10	Bit 9	Bit 8	Security level 0	0	0	0	0	Security level 1	0	0	0	1	Security level 2	0	0	1	0	Security level 3	0	0	1	1	Security level 4	0	1	0	0	Security level 5	0	1	0	1	Security level 6	0	1	1	0	Security level 7	0	1	1	1	Highest Security Level	1	0	0	0
Security level	Flag control																																																						
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Security level 2	0	0	1	0																																																			
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Security level 5	0	1	0	1																																																			
Security level 6	0	1	1	0																																																			
Security level 7	0	1	1	1																																																			
Highest Security Level	1	0	0	0																																																			

4

■ Curve control register

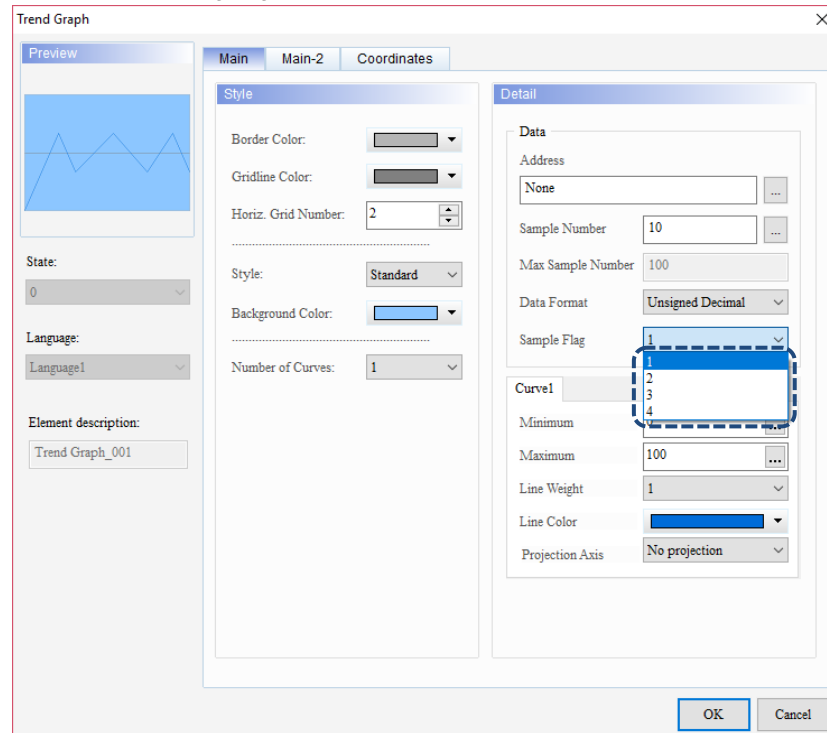
Table 4.1.4 Control Block - Curve control register

Curve control register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
(4)				(3)				(2)				(1)			

- (1) b0 - b3 Curve sampling flags 1 - 4
- (2) b4 - b7 Reserved
- (3) b8 - b11 Curve clear flags 1 - 4
- (4) b12 - 15 Reserved

- The DOPSoft provides four curve sampling flags. The curves include the Trend Graph and X-Y Chart of which the curve drawing action is controlled by the curve sampling flags.
- If the flag is turned ON, the corresponding curve element samples and draws the curve. To reactivate the function, you must turn flag OFF and then ON again.
- The sampling flag 1 of the Trend Graph element corresponds to the curve sampling flag 1; the sampling flag 2 of the Trend Graph element corresponds to the curve sampling flag 2, and so forth.

b0 - b3 –
Curve
sampling flags
(1 - 4)

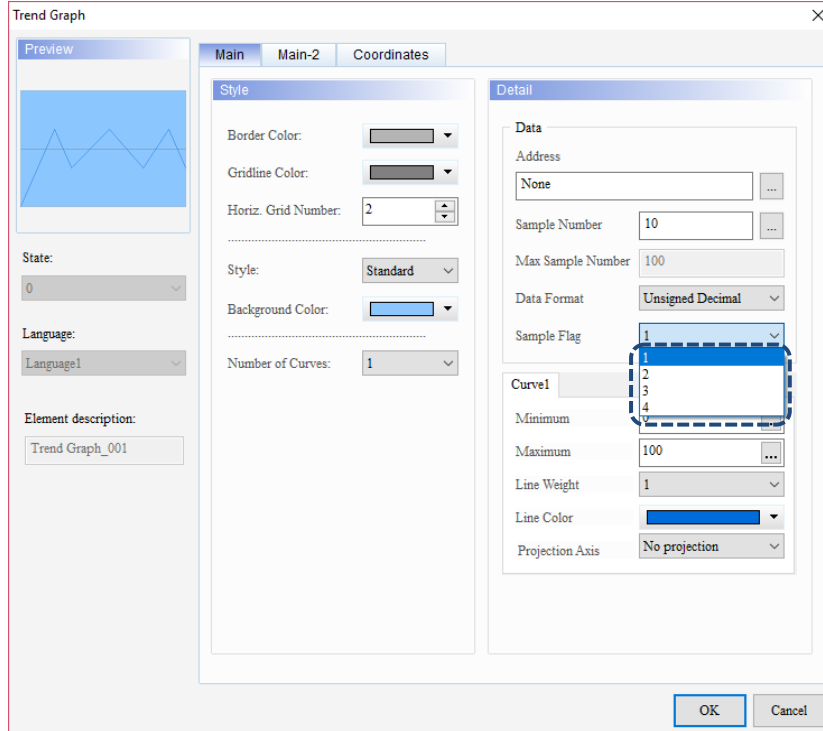


Curve control register

- The DOPSoft provides four curve clear flags. The curves include the Trend Graph and X-Y Chart of which the curve clearing action is controlled by the curve clear flags.
- If the flag is turned ON, the corresponding curve element clears the curve. To reactivate the function, you must turn the flag OFF and then ON again.
- The curve element sampling flag 1 corresponds to the curve clear flag 1; the curve element sampling flag 2 corresponds to the curve clear flag 2, and so forth.

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b8 - b11 –
Curve clear
flags (1 - 4)



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History buffer sampling register

Table 4.1.5 Control Block - History buffer sampling register

History buffer sampling register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
(2)								(1)							

(1) b0 - b11 History buffer sampling flags 1 - 12 (b0 refers to flag 1, and so forth.)
 (2) b12 - b15 Reserved

b0 - b11 – History buffer sampling flags (1 - 12)

- The history buffer sampling register can record up to twelve sets of history buffer data. Each buffer corresponds to a history buffer sampling flag. To execute sampling with the history buffer sampling flags of the control block, you must set PLC for Trigger Source of the history buffer.

No.	Address	Read Length (Word)	Sampling Cycle(ms)	Sample Number	Trigger Source	Stamp Time and Date	Auto Stop	Non-volatile	CSV
1	\$100	1	100	10	PLC	Yes	No	Yes	H0001
2	\$200	1	100	10	PLC	Yes	No	Yes	H0002
3	\$300	1	100	10	PLC	Yes	No	Yes	H0003
4	\$400	1	100	10	PLC	Yes	No	Yes	H0004
5	\$500	1	100	10	PLC	Yes	No	Yes	H0005
6	\$600	1	100	10	PLC	Yes	No	Yes	H0006
7	\$700	1	100	10	PLC	Yes	No	Yes	H0007
8	\$800	1	100	10	PLC	Yes	No	Yes	H0008
9	\$900	1	100	10	PLC	Yes	No	Yes	H0009
10	\$1000	1	100	10	PLC	Yes	No	Yes	H0010
11	\$1100	1	100	10	PLC	Yes	No	Yes	H0011
12	\$1200	1	100	10	PLC	Yes	No	Yes	H0012

- You can determine the sampling timing by triggering the history buffer sampling flags. When the history buffer sampling flag is ON, the register samples one time. To reactivate the function, you must turn the flag OFF and then ON again.

History buffer clear register

Table 4.1.6 Control Block - History buffer clear register

History buffer clear register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
(2)								(1)							



(1) b0 - b11 History buffer clear flags 1 - 12 (b0 refers to flag 1, and so forth.)
 (2) b12 - b15 Reserved

b0 - b11 – History buffer clear flags (1 - 12)

You can clear the buffer by triggering the history buffer clear flags. When the history buffer clear flag is ON, the HMI clears the buffer. To reactivate the function, you must turn the flag OFF and then ON again.

■ Recipe control register

Table 4.1.7 Control Block - Recipe control register

Recipe control register																	
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0		
						(6)					(5)			(4)	(3)	(2)	(1)
<ul style="list-style-type: none"> (1) b0 Recipe number change flag (16-bit) (2) b1 Recipe read flag (PLC → HMI) (3) b2 Recipe write flag (HMI → PLC) (4) b3 Recipe group change flag (32-bit) (5) b4 - b7 Reserved (6) b8 - b15 Designate recipe group to be changed 																	
<ul style="list-style-type: none"> ■ This is applicable to 16-bit recipes. ■ There are two ways to call or change the recipe number: <ul style="list-style-type: none"> a. Use the HMI internal register RCPNO. 																	
																	
<ul style="list-style-type: none"> b. Use the recipe number change flag. ■ To change the HMI recipe number with this flag, you should first write the recipe number to be changed into the recipe number control register (Table 4.1.8 recipe number control register) and then trigger the recipe number change flag. ■ When the recipe number change flag is turned ON, the recipe number is changed according to the number defined in the recipe number control register, and the number of the RCPNO internal register is changed automatically. To reactivate the function, you must turn the flag OFF and then ON again. 																	
<p>b0 – Recipe number change flag</p>																	
<p>b1 – Recipe read flag (PLC → HMI)</p> <p>When the recipe read flag is turned ON, the HMI reads the controller recipe data and writes the data into the designated recipe data register. To reactivate the function, you must turn the flag OFF and then ON again.</p>																	
<p>b2 – Recipe write flag (HMI → PLC)</p> <p>When the recipe write flag is turned ON, the HMI writes the designated recipe data into the controller register. To reactivate the function, you must turn the flag OFF and then ON again.</p>																	
<ul style="list-style-type: none"> ■ This is applicable to 32-bit recipes. ■ There are two ways to call or change the recipe group: <ul style="list-style-type: none"> a. Use the HMI internal register RCPG. 																	
																	
<ul style="list-style-type: none"> b. Use the recipe group change flag. ■ When the recipe group change flag is turned ON, the recipe group is changed according to the number defined in the recipe group change bits (b8 - b15), and the number of the RCPG internal register is changed automatically. To reactivate the function, you must turn the flag OFF and then ON again. 																	
<p>b3 – Recipe group change flag</p>																	
<p>b8 - b15 – Designate recipe group to be changed</p> <p>You can designate the recipe group to be changed with the high byte (Bits 8 - 15) from the recipe control register. By activating the recipe group change flag, the HMI changes the number of the RCPG internal register, thus changing the recipe group.</p>																	

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■ Recipe number control register

Table 4.1.8 Control Block - Recipe number control register

Recipe number control register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
															└─ Recipe number designation

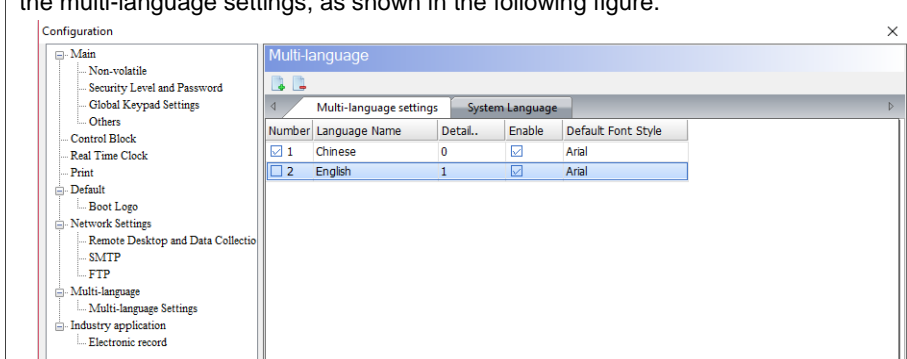
b0 - b15 – Recipe number designation	You can designate the recipe number to be changed with the recipe number control register. By activating the recipe number change flag (Table 4.1.7 recipe control register b0), the HMI automatically changes the number of the RCPNO internal register, thus changing the recipe number.
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■ System control flag register

Table 4.1.9 Control Block - System control flag register

System control flag register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
							(3)	(2)						(1)	



- (1) b0 - b7 Multi-language setting values
- (2) b8 Printer flag
- (3) b9 Printer form feed flag
- (4) b10 - b11 Reacquire the Ethernet IP address (If you are using the DOP-112 and DOP-115 models, b10 is for LAN1 control and b11 is for LAN2 control.)
- (5) b12 - b15 Reserved

b0 - b7 – Multi-language setting values	<p>The system supports 32 languages. You can change the multi-language settings to switch languages. You can click [Options] > [Configuration] > [Multi-language] to edit the multi-language settings, as shown in the following figure.</p> 
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System control flag register	
b8 – Printer flag	<ul style="list-style-type: none"> ■ The DOPSoft provides two print functions, general printing and Screen Print Setup. ■ Note that only one option is enabled at a time. The Screen Print Setup is prioritized. ■ When the printer flag is turned ON, the printing task runs according to the set mode: general printing or Screen Print Setup; when the printer flag is OFF, the printer function is idled. <p style="text-align: center;">Printer action process</p> <pre> graph TD Start([Start]) --> ReadStatus{Read printer status} ReadStatus -- No --> Start ReadStatus -- Yes --> PrinterFlag{Printer flag} PrinterFlag -- OFF --> ReadStatus PrinterFlag -- ON --> PrintProcess[Screen Print Setup or general printing] PrintProcess --> End([End]) </pre>
b9 - Printer form feed flag	<p>When the printer form feed flag is turned ON, the printer retracts the paper and aligns the paper for the next run automatically; when the flag is OFF, the printer form feed function is idled.</p> <p style="text-align: center;">Printer action process</p> <pre> graph TD Start([Start]) --> ReadStatus{Read printer status} ReadStatus -- No --> Start ReadStatus -- Yes --> FormFeedFlag{Printer form feed flag} FormFeedFlag -- OFF --> ReadStatus FormFeedFlag -- ON --> PrintPage[The printer prints the next page automatically.] PrintPage --> End([End]) </pre>
b10 – Reacquire the Ethernet IP address	<p>When the HMI does not get the IP address assigned by the DHCP server, you can trigger this bit to reacquire the IP address. If you are using the DOP-112 or DOP-115 models, b10 is for getting the IP address with LAN1 and b11 is for getting the IP address with LAN2.</p>

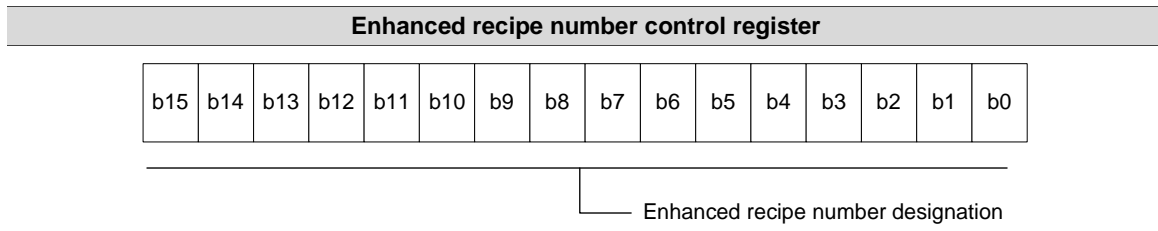
■ Enhanced recipe control register

Table 4.1.10 Control Block - Enhanced recipe control register

Enhanced recipe control register																	
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0		
						(6)					(5)			(4)	(3)	(2)	(1)
<ul style="list-style-type: none"> (1) b0 Enhanced recipe number change flag (ENRCPNO) (2) b1 Enhanced recipe read flag (PLC → HMI) (3) b2 Enhanced recipe write flag (HMI → PLC) (4) b3 Enhanced recipe group change flag (ENRCPG) (5) b4 - b7 Reserved (6) b8 - b15 Designate enhanced recipe group to be changed 																	
b0 – Enhanced recipe number change flag		<ul style="list-style-type: none"> ■ This is applicable to enhanced recipes. ■ There are two ways to call or change the enhanced recipe number: <ul style="list-style-type: none"> a. Use the HMI internal register ENRCPNO. <div style="text-align: center;">  </div> <ul style="list-style-type: none"> b. Use the enhanced recipe number change flag. ■ To change the HMI enhanced recipe number with this flag, you should first write the enhanced recipe number to be changed into the recipe number control register (Table 4.1.11 enhanced recipe number control register) and then trigger the enhanced recipe number change flag. ■ When the enhanced recipe number change flag is turned ON, the enhanced recipe number is changed according to the number defined in the enhanced recipe number control register, and the number in the internal register ENRCPNO is changed automatically. To reactivate the function, you must turn the flag OFF and then ON again. 															
b1 – Enhanced recipe read flag (PLC → HMI)		When the enhanced recipe read flag is turned ON, the HMI reads the controller enhanced recipe data and writes them into the designated enhanced recipe data register. To reactivate the function, you must turn the flag OFF and then ON again.															
b2 – Enhanced recipe write flag (HMI → PLC)		When the enhanced recipe write flag is turned ON, the HMI writes the designated enhanced recipe data into the controller register. To reactivate the function, you must turn the flag OFF and then ON again.															
b3 – Enhanced recipe group change flag		<ul style="list-style-type: none"> ■ This is applicable to enhanced recipes. ■ There are two ways to call or change enhanced recipe group: <ul style="list-style-type: none"> a. Use the HMI internal register ENRCPG. <div style="text-align: center;">  </div> <ul style="list-style-type: none"> b. Use the enhanced recipe group change flag. ■ When the enhanced recipe group change flag is turned ON, the enhanced recipe group is changed according to the number defined in the enhanced recipe group change bits (b8 - b15), and the number in the internal register ENRCPG is changed automatically. To reactivate the function, you must turn the flag OFF and then ON again. 															
b8 - b15 Designate enhanced recipe group to be changed		You can designate the enhanced recipe group to be changed with the high byte (Bits 8 - 15) from the enhanced recipe control register. By activating the enhanced recipe group change flag, the HMI changes the number in the internal register ENRCPG, thus changing the enhanced recipe group.															

■ Enhanced recipe number control register

Table 4.1.11 Control Block - Enhanced recipe number control register



b0 - b15 – Enhanced recipe number designation	You can designate the enhanced recipe number to be changed with the enhanced recipe number control register. By activating the enhanced recipe number change flag (Table 4.1.10 enhanced recipe control register b0), the HMI changes the number of the ENRCPNO internal register, thus changing the enhanced recipe number.
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4.2 Status Area

You can define the register addresses of the controller or the HMI internal memory with the Status Area. You can view the present HMI status with the Status Area settings, such as current screen number, current security level, curves and history buffer sampling status, recipe control, enhanced recipe control, multi-language settings, and printing. The Status Area is a continuous data block in units of words.

Note: when the function of Control Block is not configured, the Status Area cannot monitor the status.

Furthermore, the addresses of the Control Block and the Status Area must not be identical.

Table 4.2.1 Status Area - Register type

Status Area register type	Controller register		Internal memory	
	Register (D)	Example	Register (\$)	Example
General control status	D_n	D10	\$_n	\$25
Screen number status	D_{n+1}	D11	\$_{n+1}	\$26
Curve control status	D_{n+2}	D12	\$_{n+2}	\$27
History buffer sampling status	D_{n+3}	D13	\$_{n+3}	\$28
History buffer clear status	D_{n+4}	D14	\$_{n+4}	\$29
Recipe control status	D_{n+5}	D15	\$_{n+5}	\$30
Recipe number control status	D_{n+6}	D16	\$_{n+6}	\$31
System control flag status	D_{n+7}	D17	\$_{n+7}	\$32
Enhanced recipe control status	D_{n+8}	D18	\$_{n+8}	\$33
Enhanced recipe number control status	D_{n+9}	D19	\$_{n+9}	\$34

■ General control status register

Table 4.2.2 Status Area - General control register

General control status register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
(9)				(8)				(7)	(6)	(5)	(4)	(3)	(2)	(1)	
<p>(1) b0 Screen switch status flag</p> <p>(2) b1 - b2 Reserved</p> <p>(3) b3 Alarm buffer clear status flag</p> <p>(4) b4 Alarm counter clear status flag</p> <p>(5) b5 External storage device cache write status flag</p> <p>(6) b6 Remote control lock flag</p> <p>(7) b7 Reserved</p> <p>(8) b8 - b11 Flags for user security level settings</p> <p>(9) b12 - b15 Reserved</p>															
<p>■ When the screen is switched, the flag is turned ON.</p> <p>■ When the screen switch is complete, the flag is turned OFF.</p>															
<p>b0 – Screen switch status flag</p> <p style="text-align: center;">Screen switch status flag</p>															
<p>■ When the HMI is clearing the alarm buffer, the flag is turned ON.</p> <p>■ When clearing the alarm buffer is complete, the flag is turned OFF.</p>															
<p>b3 – Alarm buffer clear status flag</p> <p style="text-align: center;">Alarm buffer clear status flag</p>															

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General control status register																																																							
<p>b4 – Alarm counter clear status flag</p>	<ul style="list-style-type: none"> When the HMI clears the alarm counter, the flag is turned ON. When clearing the alarm counter is complete, the flag is turned OFF. <p style="text-align: center;">Alarm counter clear status flag</p>																																																						
<p>b5 – External storage device cache write status flag</p>	<ul style="list-style-type: none"> When the HMI cache data is updated into a USB Disk or an SD Card, the flag is turned ON. When data update is complete, the flag is turned OFF. <p style="text-align: center;">Flag for instant data update of USB disk or SD card</p>																																																						
<p>b6 – Remote control lock flag</p>	<ul style="list-style-type: none"> This flag indicates whether VNC is operable. When this flag is turned ON, VNC is not operable but can be monitored. When this flag is turned OFF, VNC is operable. The Action complete clear flag function is not applicable to this flag. 																																																						
<p>b8 - b11 – Flags for user security level settings</p>	<p>You can find the present HMI operator security level with Bit 8, Bit 9 and Bit 10. Bit 11 is the highest security level.</p> <table border="1"> <thead> <tr> <th rowspan="2">Security level</th> <th colspan="4">Flag control</th> </tr> <tr> <th>Bit 11</th> <th>Bit 10</th> <th>Bit 9</th> <th>Bit 8</th> </tr> </thead> <tbody> <tr> <td>Security level 0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Security level 1</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>Security level 2</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>Security level 3</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>Security level 4</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>Security level 5</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>Security level 6</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> </tr> <tr> <td>Security level 7</td> <td>0</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>Highest security level</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	Security level	Flag control				Bit 11	Bit 10	Bit 9	Bit 8	Security level 0	0	0	0	0	Security level 1	0	0	0	1	Security level 2	0	0	1	0	Security level 3	0	0	1	1	Security level 4	0	1	0	0	Security level 5	0	1	0	1	Security level 6	0	1	1	0	Security level 7	0	1	1	1	Highest security level	1	0	0	0
Security level	Flag control																																																						
	Bit 11	Bit 10	Bit 9	Bit 8																																																			
Security level 0	0	0	0	0																																																			
Security level 1	0	0	0	1																																																			
Security level 2	0	0	1	0																																																			
Security level 3	0	0	1	1																																																			
Security level 4	0	1	0	0																																																			
Security level 5	0	1	0	1																																																			
Security level 6	0	1	1	0																																																			
Security level 7	0	1	1	1																																																			
Highest security level	1	0	0	0																																																			

■ Screen number status register

Table 4.2.3 Status Area - Screen number register

Screen number status register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
<div style="display: flex; justify-content: center; align-items: center; margin-top: 10px;"> <div style="border-top: 1px solid black; width: 50%;"></div> <div style="margin-left: 10px;"> <p>└─ Screen number</p> </div> </div>															
<p>b0 - b15 – Screen number status</p>	<p>You can check the number of the last opened screen with this status register.</p>														

■ Curve control status register

Table 4.2.4 Status Area - Curve control register

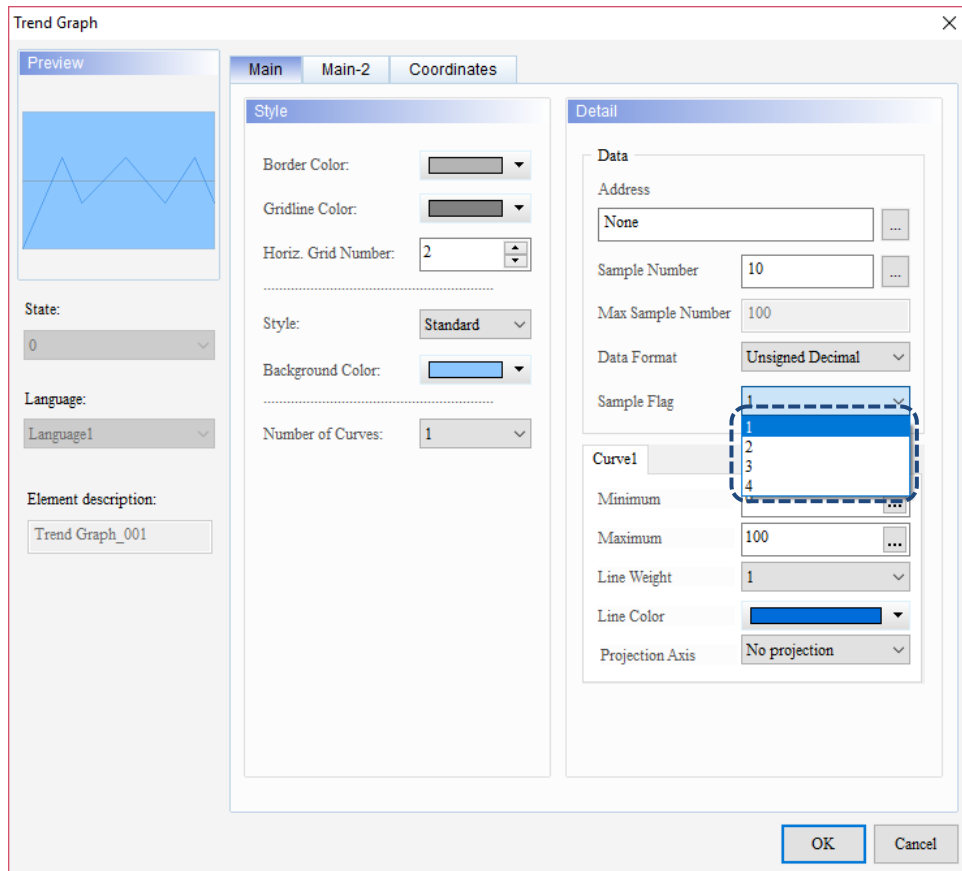
Curve control status register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
(4)				(3)				(2)				(1)			
<p>(1) b0 - b3 Curve sampling status flags 1 - 4 (b0 refers to flag 1, and so forth) (2) b4 - b7 Reserved (3) b8 - b11 Curve clear status flags 1 - 4 (b8 refers to flag 1, and so forth) (4) b12 - b15 Reserved</p>															
<p>b0 - b3 – Curve sampling status flags (1 - 4)</p>	<p>■ When the Trend Graph or X-Y Chart elements sample the data, the HMI turns the corresponding curve sampling status flag ON. When the sampling is complete, the curve sampling status flag is turned OFF in real time.</p> <div style="text-align: center; margin-top: 20px;"> <p style="margin-top: 10px;">Curve sampling status flag</p> </div>														

4

Curve control status register

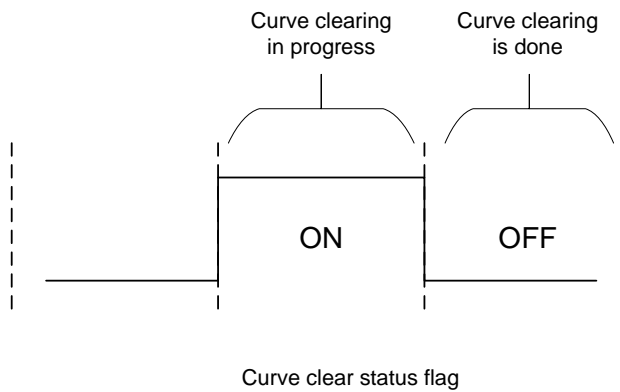
- The sampling flag 1 of the Trend Graph element corresponds to the curve sampling status flag 1; the sampling flag 2 of the Trend Graph element corresponds to the curve sampling status flag 2, and so forth.

b0 - b3 –
Curve
sampling
status flags
(1 - 4)



When the Trend Graph or X-Y Chart elements clear the data, the HMI turns the corresponding curve clear status flag ON. When the clearing is complete, the curve clear status flag is turned OFF in real time.

b8 - b11 –
Curve clear
status flags
(1 - 4)



Curve control status register

The clear flag 1 of the Trend Graph element corresponds to the curve clear status flag 1; the clear flag 2 of the Trend Graph element corresponds to the curve clear status flag 2, and so forth.

b8 - b11 –
Curve clear
status flags
(1 - 4)

Trend Graph

Preview

Style

Border Color: [dropdown]

Gridline Color: [dropdown]

Horiz. Grid Number: 2 [spin]

Style: Standard [dropdown]

Background Color: [dropdown]

Number of Curves: 1 [dropdown]

Detail

Data

Address: None [dropdown]

Sample Number: 10 [spin]

Max Sample Number: 100 [spin]

Data Format: Unsigned Decimal [dropdown]

Sample Flag: 1 [dropdown]

Curve1

Minimum: [spin]

Maximum: 100 [spin]

Line Weight: 1 [dropdown]

Line Color: [dropdown]

Projection Axis: No projection [dropdown]

OK Cancel

4

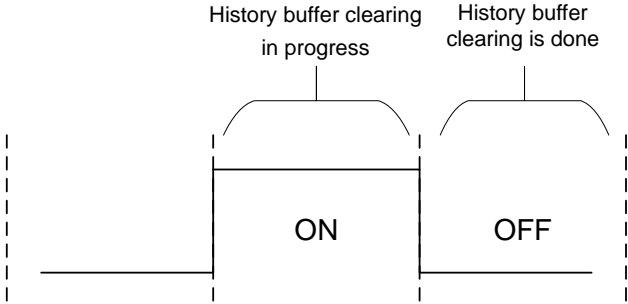
History buffer sampling status register

Table 4.2.5 Status Area - History buffer sampling register

History buffer sampling status register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
(2)								(1)							
<p>(1) b0 - b11 History buffer sampling flags 1 - 12 (b0 refers to flag 1, and so forth)</p> <p>(2) b12 - b15 Reserved</p>															
<p>b0 - b11 – History buffer sampling status flags (1 - 12)</p>				<p>When the HMI samples the history buffer, it turns the corresponding history buffer sampling status flag ON. After the sampling is complete, the history buffer sampling status flag is turned OFF in real time.</p> <div style="text-align: center; margin-top: 10px;"> <p style="margin-top: 10px;">History buffer sampling status flag</p> </div>											

History buffer clear status register

Table 4.2.6 Status Area - History buffer clear register

History buffer clear status register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
(2)								(1)							
<p>(1) b0 - b11 History buffer clear status flags 1 - 12 (b0 refers to flag 1, and so forth)</p> <p>(2) b12 - b15 Reserved</p>															
<p>b0 - b11 – History buffer clear status flags (1 - 12)</p>				<p>When the HMI clears the history buffer, it turns the corresponding history buffer clear status flag ON. After the clearing is complete, the history buffer clear status flag is turned OFF in real time.</p>  <p style="text-align: center;">History buffer clear status flag</p>											

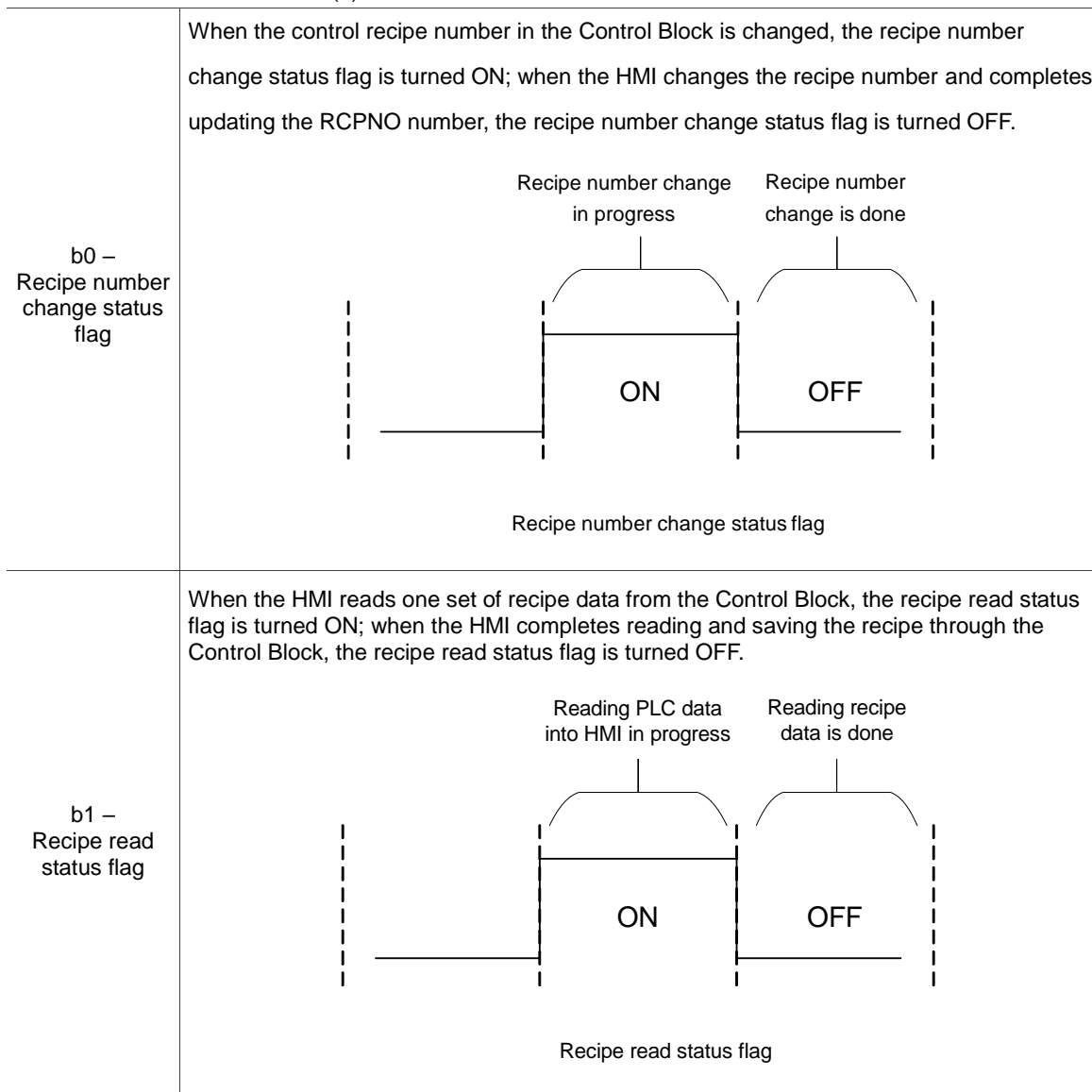
■ Recipe control status register

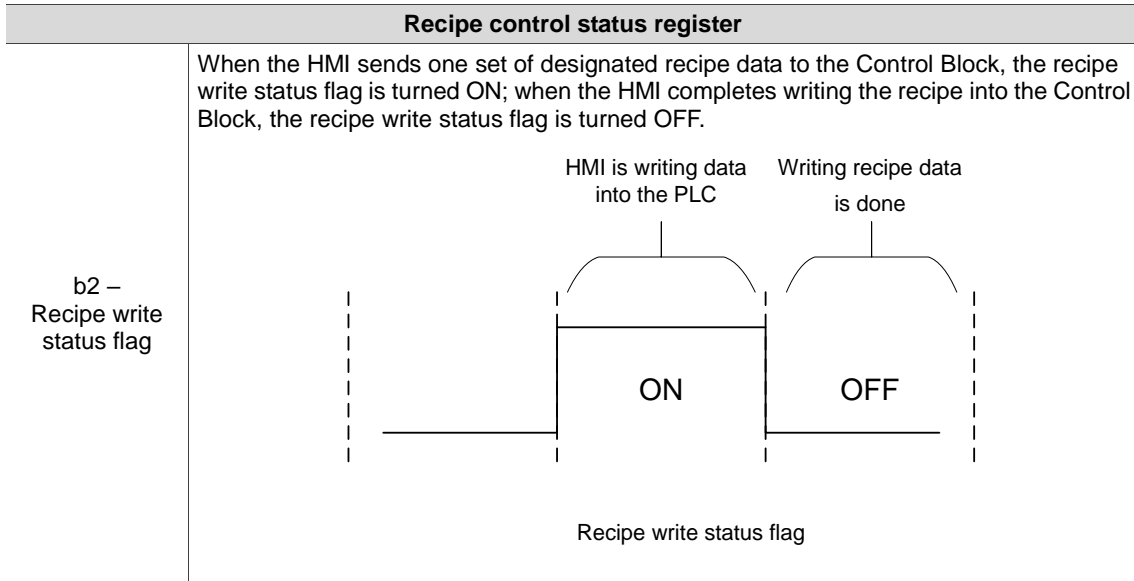
Table 4.2.7 Status Area - Recipe control register

4

Recipe control status register																
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	
												(3)			(2)	(1)
												(4)				

- (1) b0 Recipe number change status flag
- (2) b1 Recipe read status flag (PLC → HMI)
- (3) b2 Recipe write status flag (HMI → PLC)
- (4) b3 - b15 Reserved





■ Recipe number control status register

Table 4.2.8 Status Area - Recipe number control register

Recipe number control status register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
<div style="display: flex; justify-content: center; align-items: center; gap: 20px;"> <div style="border-left: 1px solid black; border-bottom: 1px solid black; width: 100px; height: 20px;"></div> <div style="border-bottom: 1px solid black; width: 100%;"></div> </div> <p style="text-align: center;">Recipe number designation status</p>															
b0 - b15 – Recipe number designation status	<ul style="list-style-type: none"> ■ No matter you designate the recipe number by using the recipe number change flag of the Control Block or by the RCPNO register, the recipe number status register updates its value as soon as the recipe number changes. ■ The recipe number designation flag must work with the recipe number change flag. Refer to Table 4.2.7 Recipe control status register b0. 														

4

■ System control status register

Table 4.2.9 Status Area - System control register

System control status register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
(5)				(4)		(3)	(2)	(1)							
b0 - b7 – Multi-language status value		Display the corresponding status value of the language in use.													
b8 – Printer status flag		When the printer status flag is turned ON, the printer prints the display screen or the edited screen of the HMI; when the printer status flag is turned OFF, the printer is idled.													
b9 – Printer form feed status flag		When the printer form feed status flag is turned ON, the printer retracts the paper and aligns the paper for the next run automatically; when the flag is OFF, the printer is idled.													
b10 - b11 – Status value of reacquiring the Ethernet IP address		Display whether the Ethernet IP address is reacquired.													

■ Enhanced recipe control status register

Table 4.2.10 Status Area - Enhanced recipe control register

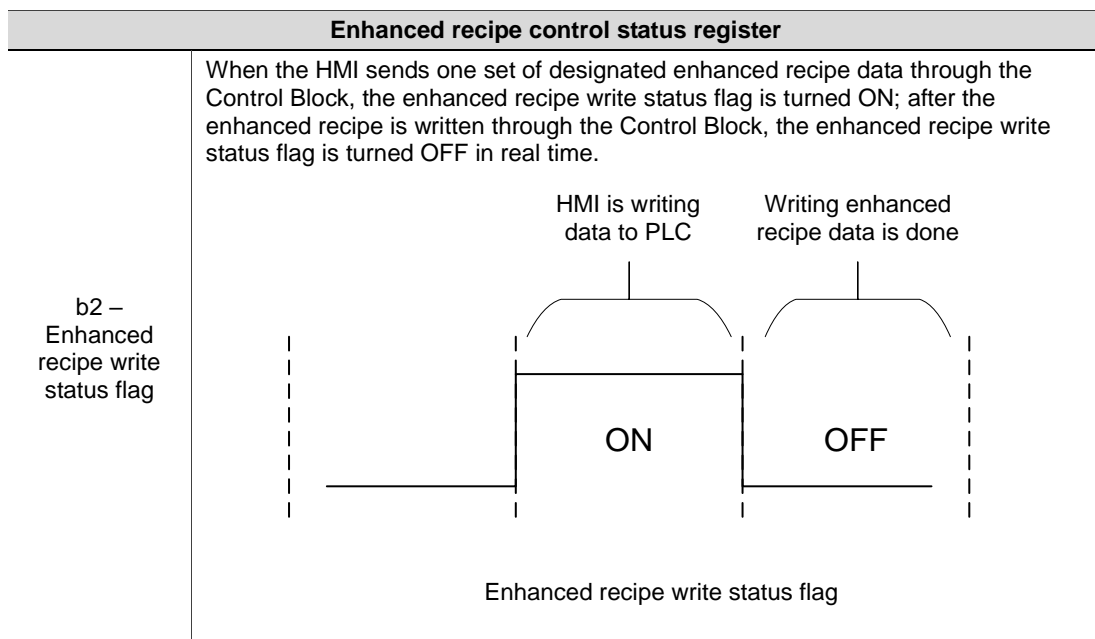
Enhanced recipe control status register

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
												(3)	(2)	(1)	

- (1) b0 Enhanced recipe number change status flag
- (2) b1 Enhanced recipe read status flag (PLC → HMI)
- (3) b2 Enhanced recipe write status flag (HMI → PLC)
- (4) b3 - b15 Reserved

<p>b0 – Enhanced recipe number change status flag</p>	<p>When the enhanced control recipe number in the Control Block is changed, the enhanced recipe number status change flag is turned ON; after the HIM changes the recipe number and updates the ENRCPNO number, the enhanced recipe number change status flag is turned OFF in real time.</p> <div style="text-align: center;"> <p style="font-size: small;">Status flag of enhanced recipe number change</p> </div>
<p>b1 – Enhanced recipe read status flag</p>	<p>When the HMI reads one set of recipe data through the Control Block, the enhanced recipe read status flag is turned ON; when the reading and saving of the enhanced recipe via the Control Block is complete, the enhanced recipe read status flag is turned OFF in real time.</p> <div style="text-align: center;"> <p style="font-size: small;">Enhanced recipe read status flag</p> </div>

4



■ Enhanced recipe number control status register

Table 4.2.11 Status Area - Enhanced recipe number control register

Enhanced recipe number control status register															
b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
<hr/> Designation status of the enhanced recipe number															
b0 - b15 – Enhanced recipe number designation status	<ul style="list-style-type: none"> ■ No matter you designate the enhanced recipe number by using the enhanced recipe number change flag of the Control Block or by the ENRCPNO register, the enhanced recipe number status register updates its value as soon as the value changes. Thus, the Control Block accesses the recipe number with this register. ■ The enhanced recipe number designation status flag must work with the enhanced recipe number change status flag. Refer to Table 4.2.10 Enhanced recipe control status register b0. 														

Buttons


























This chapter introduces the usage for the HMI Button elements.

5.1	Set to On / Set to Off / Maintained / Momentary	5-3
5.2	Multistate	5-28
5.3	Set Value	5-52
5.4	Set Constant	5-77
5.5	Increment / Decrement	5-100
5.6	Goto Screen	5-122
5.7	Other elements	5-148
5.7.1	System Date and Time	5-148
5.7.2	Password Table Setup	5-149
5.7.3	Enter Password	5-150
5.7.4	Contrast Brightness	5-150
5.7.5	Set Low Security	5-150
5.7.6	System Menu	5-151
5.7.7	Print Output	5-151
5.7.8	Report List	5-151
5.7.9	Screen Capture	5-152
5.7.10	Remove Storage	5-153
5.7.11	Import / Export Recipe	5-154
5.7.12	Calibration	5-154
5.7.13	Language Change	5-155
5.7.14	Import / Export FileSlot	5-156
5.7.15	Shared properties of other elements	5-157
5.8	Multiple actions	5-164

This chapter introduces the usage and setting details for the DOPSoft Button elements.

■ Button element classification

5


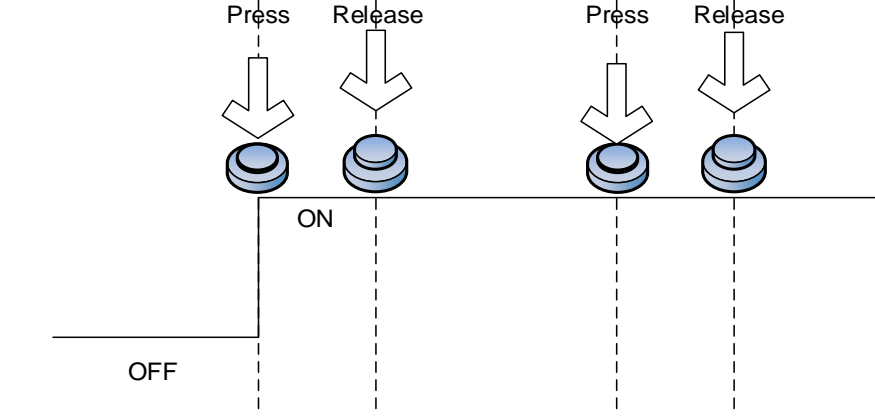

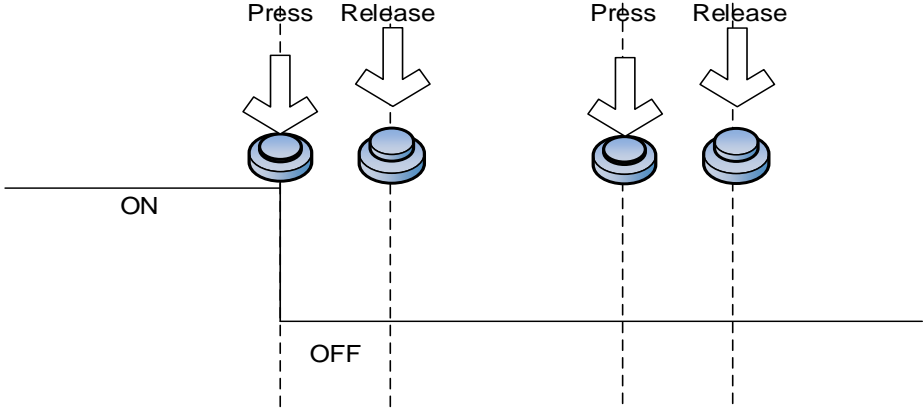
Button 		Set to On
		Set to Off
		Momentary
		Maintained
		Multistate
		Set Value
		Set Constant
		Increment
		Decrement
		Goto Screen
		System Date and Time
		Password Table Setup
		Enter Password
		Contrast Brightness
		Set Low Security
		System Menu
		Report List
		Screen Capture
		Remove Storage
		Import / Export Recipe
		Calibration
		Language Change
		Import / Export FileSlot
	Multiple actions	

5.1 Set to On / Set to Off / Maintained / Momentary


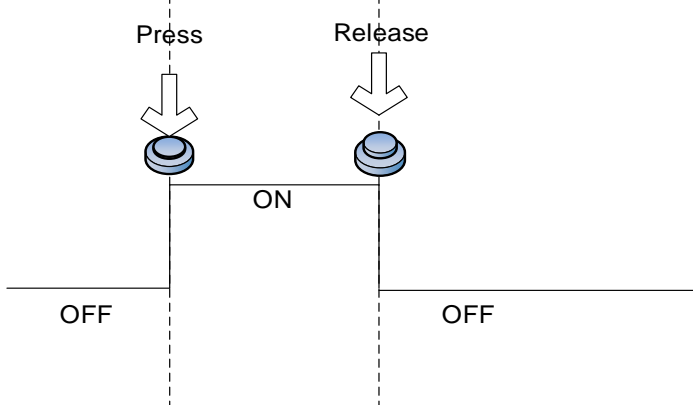

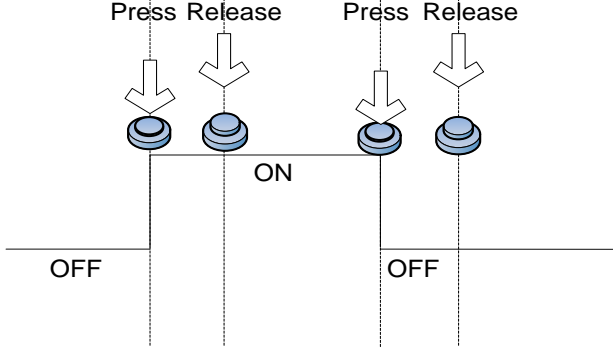
Set to On / Set to Off / Maintained / Momentary elements switch the specified communication address to ON / OFF by touching the buttons or running the macros.

You can create the Set to On and Set to Off elements by clicking [Elements] > [Button]. You can also click the icons on the element toolbar, or right-click the screen and select **Button** to create these elements.

Table 5.1.1 Differences among Set to On / Set to Off / Maintained / Momentary buttons

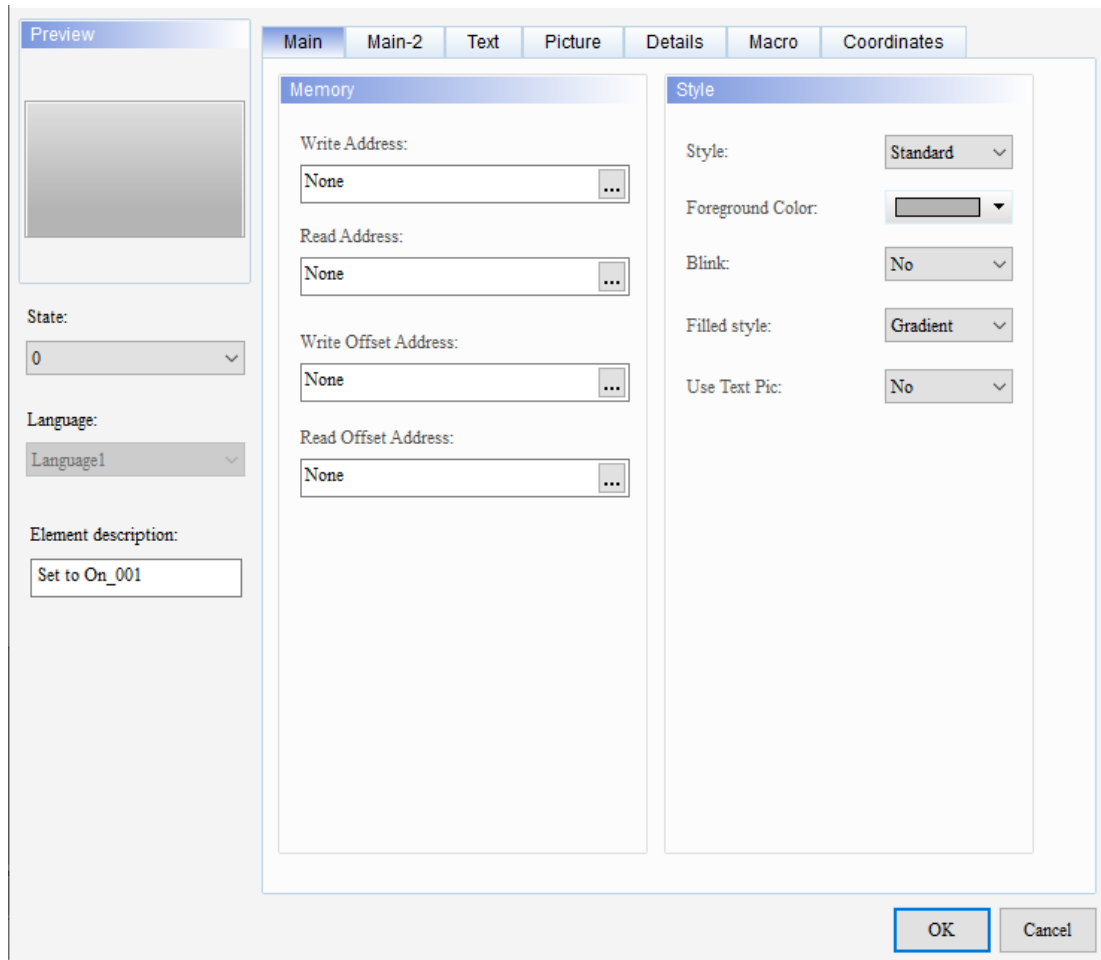
	
Set to On	The specified communication address switches to ON when you press the Set to On button. You cannot switch the state to OFF by pressing the Set to On button again.
	
Set to Off	The specified communication address switches to OFF when you press the Set to Off button. You cannot switch the state to ON by pressing the Set to Off button again.

5

	
<p>Momentary</p>	<p>The Momentary button allows you to reverse the specified communication address values. When you release the Momentary button, the communication address recovers to its original state. To keep the communication address values reversed, you must press the button continuously.</p>
	
<p>Maintained</p>	<p>The Maintained button allows you reverse the specified communication address values. The Maintained button differs from the Momentary button in that when you release the Maintained button, the specified communication address values stay reversed. You need to press the Maintained button again for the specified communication address to recover to its original state.</p>

The DOPSoft also provides convenient programming tools for you to double-click the elements to set their properties and thus edit the application screens more easily.

When you double-click the Set to On / Set to Off / Momentary / Maintained elements, the property page is shown as follows.



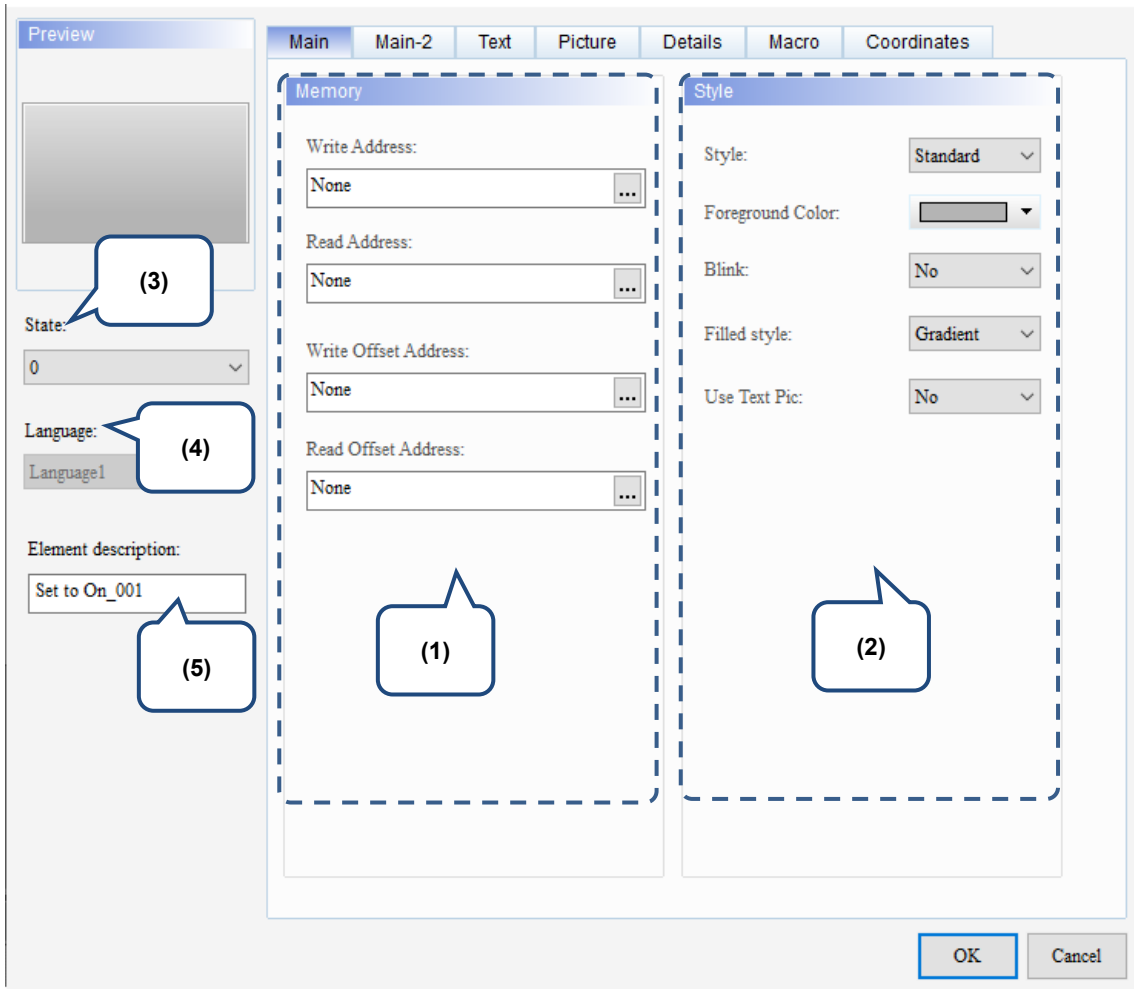
5

Figure 5.1.1 Properties of Set to On / Set to Off / Momentary / Maintained

Table 5.1.2 Function page of Set to On / Set to Off / Momentary / Maintained

Set to On / Set to Off / Maintained / Momentary	
Function page	Description
Preview	View State 0 or 1 and multi-language data display.
Main	Set the Write and Read Addresses, and Write and Read Offset Addresses. Set the Style, Foreground Color, Blink, Filled style, and Use Text Pic function.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color options.
Details	Set to On / Set to Off / Maintained
	Set the Interlock Address, Interlock State, Interlock Display Mode, Invisible Address, User Security Level, Set Low Security, Min. Press Time, Confirm Window, and Modifier + Hot Key.
	Momentary
	Set the Interlock Address, Interlock State, Interlock Display Mode, Invisible Address, User Security Level, Set Low Security, Min. Press Time, Confirm Window, Enable OFF Tone, and Modifier + Hot Key.
Macro	Set the On Macro, Off Macro, Before Execute Macro, and After Execute Macro options.
Coordinates	Set the X and Y coordinates, width, and height of the button elements.

■ Main

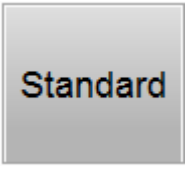



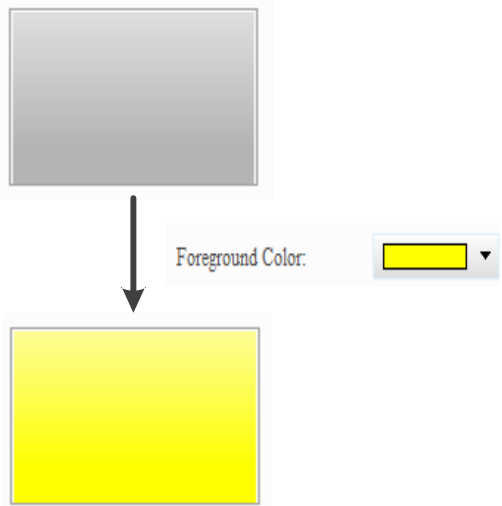
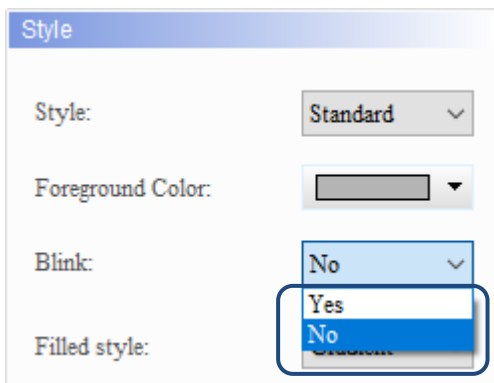
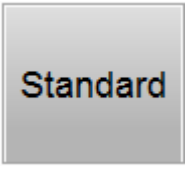



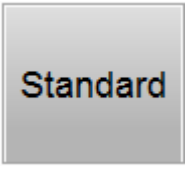





5

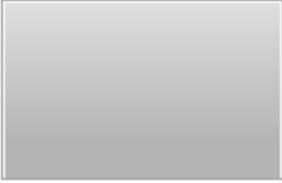

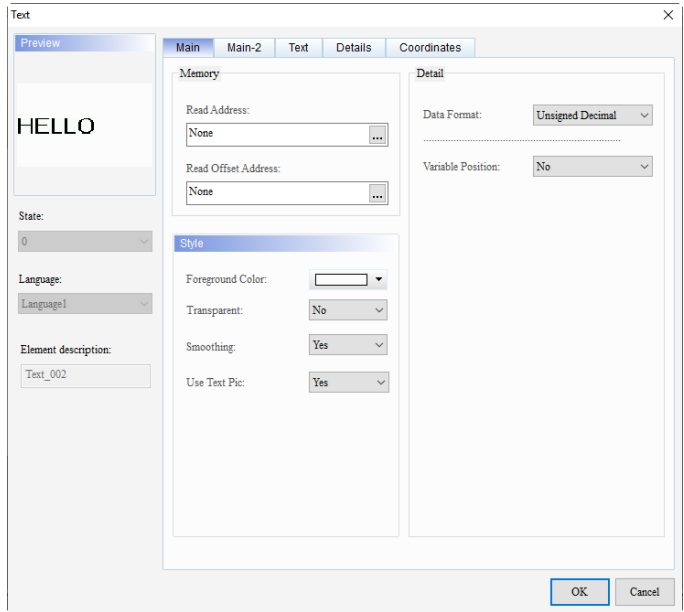
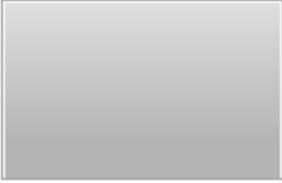

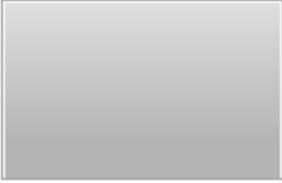

Figure 5.1.2 Main property page for the Set to On / Set to Off / Momentary / Maintained elements

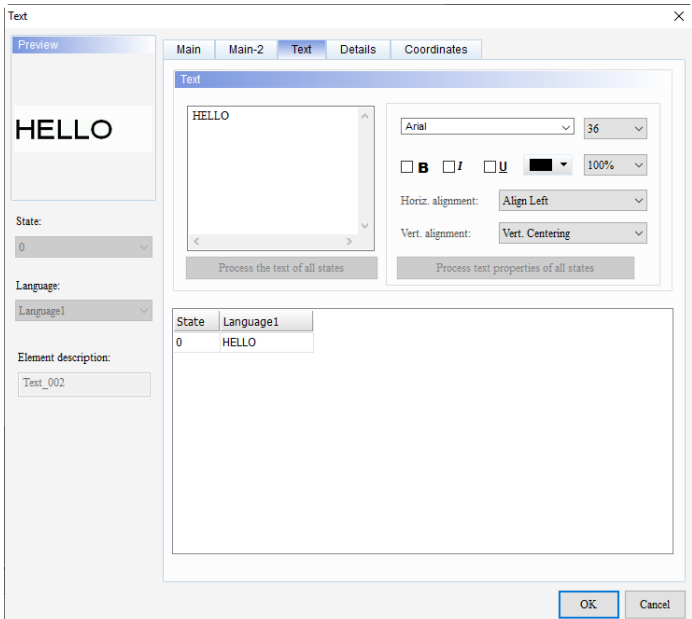
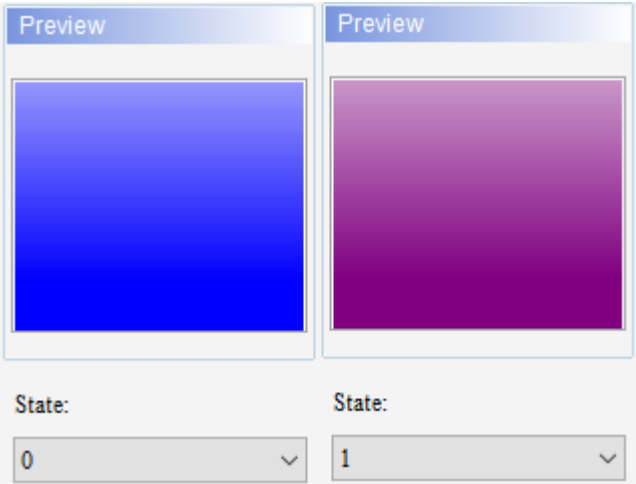
5

No.	Property	Function description
(1)	Memory	<p> <ul style="list-style-type: none"> ■ Write Address: <ol style="list-style-type: none"> 1. You can select the internal memory or the controller register address. If you set the Write Address without setting the Read Address, the HMI automatically reads the Write Address data. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> </div> 2. You can select the link for different communication devices from the Link. It displays the quantity of the set links. If you have multiple communication devices, you can select the required link from the drop-down list box. As shown in the following figure, there are Link2, Link3, Internal Memory, and Internal Parameter. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> </div> 3. Select the Link and Device Type, input correct addresses, press OK, and the selected element records the corresponding data. <ul style="list-style-type: none"> ■ Read Address: you can select the internal memory or the controller register address. Other settings are the same as that of Write Address. ■ Write Offset Address and Read Offset Address: refer to the instructions in Appendix D Write and Read Offset Addresses. </p>

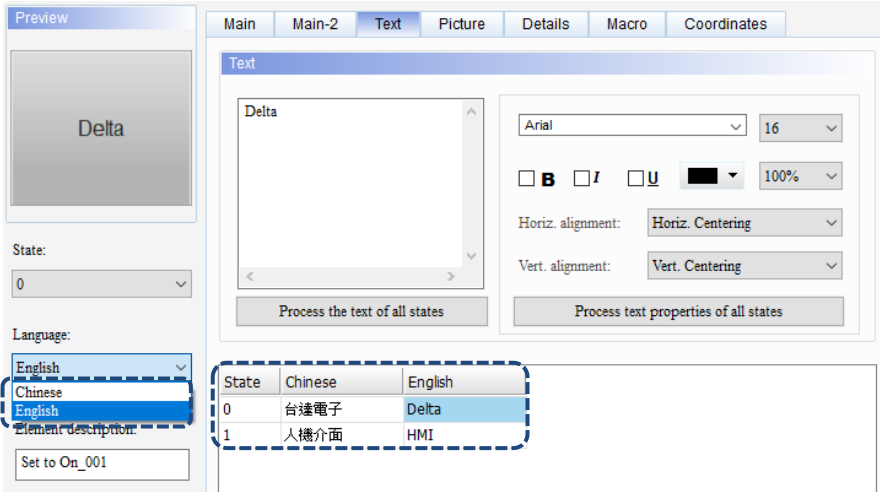
No.	Property	Function description								
(2)	Style	<ul style="list-style-type: none"> Style: the available styles are Standard, Raised, Round, and Invisible. You can change the appearance of the element with this setting. <table border="1" style="margin: 10px 0;"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Round</th> <th>Invisible</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> </tbody> </table> Foreground Color: <ol style="list-style-type: none"> Set the foreground color of the element. When you set the Style to Invisible, the Foreground Color setting is invalid. <div style="text-align: center; margin: 10px 0;">  </div> Blink: You can set the blink prompt of the element when the button changes states. The blink color is the opposite color of the foreground color. <div style="margin: 10px 0;">  </div> 	Standard	Raised	Round	Invisible				
Standard	Raised	Round	Invisible							
										

5

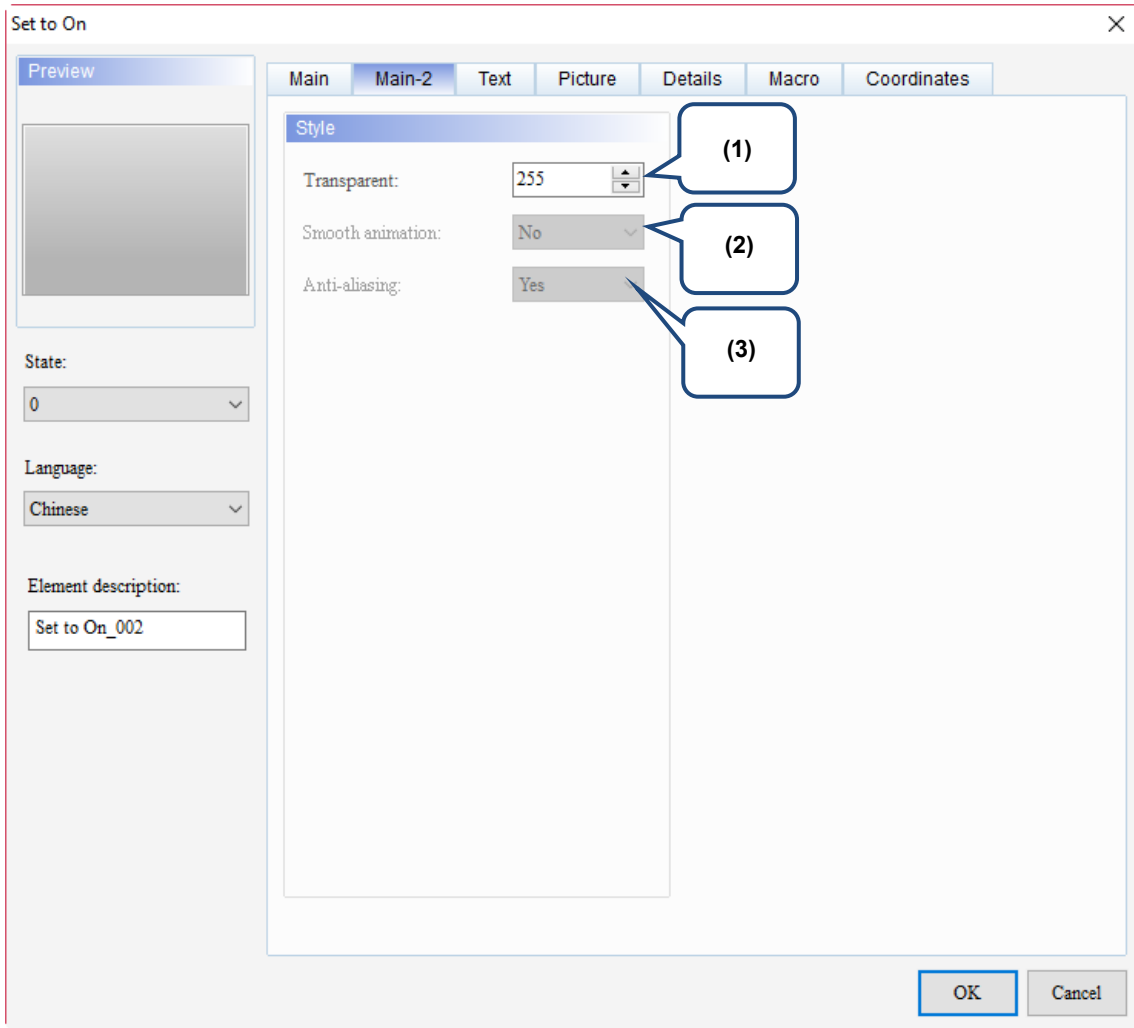
No.	Property	Function description				
(2)	Style	<p>■ Filled style: The default fill style for the elements on the DOP-100 models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table> <p>■ Use Text Pic: Unlike the DOP-B series models using pictures to present all texts, the DOP-100 series models present directly with the texts. Therefore, if the language you use for the element is not yet supported by the PC, it is possible to cause missing characters and garbled texts when the element is displayed on the HMI. To have the text display effect be the same as that on the DOP-B models, the Use Text Pic function is added for the Text, Button, and General Message Display elements. Refer to the following examples.</p> <p style="text-align: center;">Use Text Pic function</p> <p>■ Create a Text element and go to the [Main] tab to set the Use Text Pic function.</p> <div>  <p style="text-align: center;">Create Text element</p> </div> <p>Note: if you use the DOPSoft 4.00.06 version to open a DOP-B project, the Use Text Pic function is enabled (Yes) by default. If you add a DOP-100 project, then the Use Text Pic function is disabled (No) by default.</p>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						

No.	Property	Function description		
(2)	Style	<p style="text-align: center;">Use Text Pic function</p> <ul style="list-style-type: none"> Go to the [Text] tab, and type the text and set its font. 		
		<p>Execution result</p> <ul style="list-style-type: none"> After creating the element, download it to the HMI. The following table shows the results of using and not using the Use Text Pic function. <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="width: 50%;">Use Text Pic is Yes</th> <th style="width: 50%;">Use Text Pic is No</th> </tr> </thead> <tbody> <tr> <td style="font-size: 2em; font-weight: bold;">HELLO</td> <td style="font-size: 2em; font-weight: bold;">HELLO</td> </tr> </tbody> </table>	Use Text Pic is Yes	Use Text Pic is No
Use Text Pic is Yes	Use Text Pic is No			
HELLO	HELLO			
(3)	State	<p>You can preview or change the parameters set for each button element by switching the states.</p> 		

5

No.	Property	Function description																																																																																										
(4)	Language	<p>If you have set the language data, you can edit the properties of the displayed text with the Language setting of the element.</p> 																																																																																										
(5)	Element description	<p>Record the button actions to be executed. The record is written into the CSV file of the Operation Log Table so that you know what actions have been done.</p> <table border="1"> <thead> <tr> <th></th> <th>Time</th> <th>Date</th> <th>Level</th> <th>Screen</th> <th>Desc</th> <th>Action</th> <th>Pre Value</th> <th>Change Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13:37:54</td> <td>5/5/2016</td> <td>8</td> <td>Screen_24</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>13:37:56</td> <td>5/5/2016</td> <td>8</td> <td>Screen_24</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>3</td> <td>13:38:19</td> <td>5/5/2016</td> <td>8</td> <td>Screen_24</td> <td></td> <td>Level Switch</td> <td>8</td> <td>4</td> </tr> <tr> <td>4</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_24</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>5</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_24</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>6</td> <td>13:38:22</td> <td>5/5/2016</td> <td>4</td> <td>Screen_24</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>7</td> <td>13:38:23</td> <td>5/5/2016</td> <td>4</td> <td>Screen_24</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>8</td> <td>13:38:31</td> <td>5/5/2016</td> <td>4</td> <td>Screen_24</td> <td></td> <td>Level Switch</td> <td>4</td> <td>8</td> </tr> <tr> <td>9</td> <td>13:38:35</td> <td>5/5/2016</td> <td>8</td> <td>Screen_24</td> <td>\$100 Value</td> <td>Set Val</td> <td>85</td> <td>25</td> </tr> </tbody> </table>		Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value	1	13:37:54	5/5/2016	8	Screen_24	Level 1 Btn	Set Val	1	0	2	13:37:56	5/5/2016	8	Screen_24	Level 1 Btn	Set Val	0	1	3	13:38:19	5/5/2016	8	Screen_24		Level Switch	8	4	4	13:38:21	5/5/2016	4	Screen_24	Level 2 Btn	Set Val	0	1	5	13:38:21	5/5/2016	4	Screen_24	Level 2 Btn	Set Val	1	0	6	13:38:22	5/5/2016	4	Screen_24	Level 4 Btn	Set Val	0	1	7	13:38:23	5/5/2016	4	Screen_24	Level 4 Btn	Set Val	1	0	8	13:38:31	5/5/2016	4	Screen_24		Level Switch	4	8	9	13:38:35	5/5/2016	8	Screen_24	\$100 Value	Set Val	85	25
	Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value																																																																																				
1	13:37:54	5/5/2016	8	Screen_24	Level 1 Btn	Set Val	1	0																																																																																				
2	13:37:56	5/5/2016	8	Screen_24	Level 1 Btn	Set Val	0	1																																																																																				
3	13:38:19	5/5/2016	8	Screen_24		Level Switch	8	4																																																																																				
4	13:38:21	5/5/2016	4	Screen_24	Level 2 Btn	Set Val	0	1																																																																																				
5	13:38:21	5/5/2016	4	Screen_24	Level 2 Btn	Set Val	1	0																																																																																				
6	13:38:22	5/5/2016	4	Screen_24	Level 4 Btn	Set Val	0	1																																																																																				
7	13:38:23	5/5/2016	4	Screen_24	Level 4 Btn	Set Val	1	0																																																																																				
8	13:38:31	5/5/2016	4	Screen_24		Level Switch	4	8																																																																																				
9	13:38:35	5/5/2016	8	Screen_24	\$100 Value	Set Val	85	25																																																																																				

■ Main-2



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Figure 5.1.3 Main-2 property page for the Set to On / Set to Off / Momentary / Maintained elements

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

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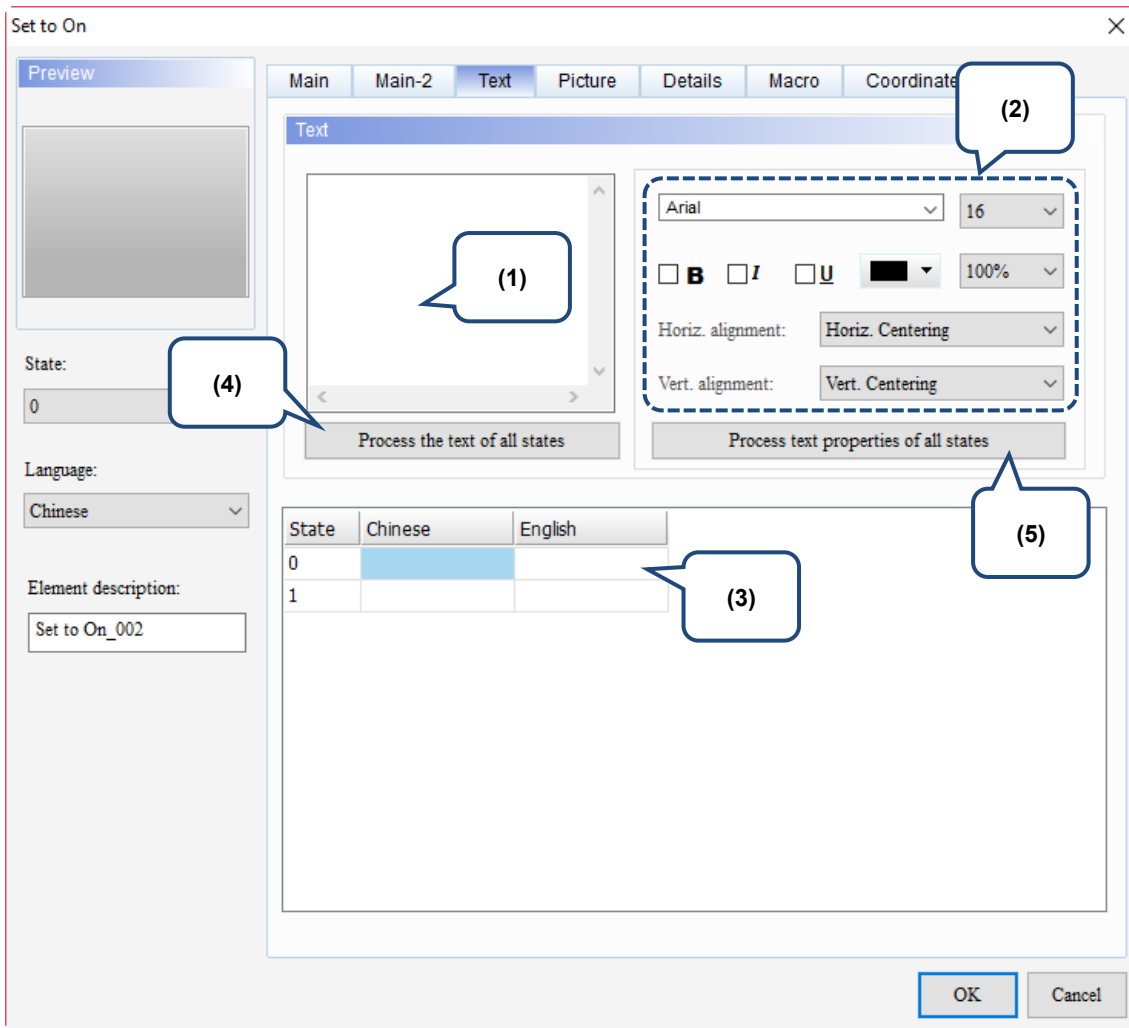
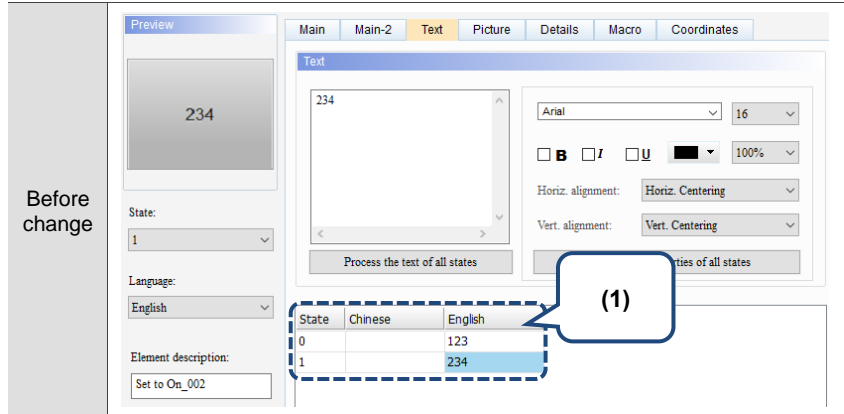
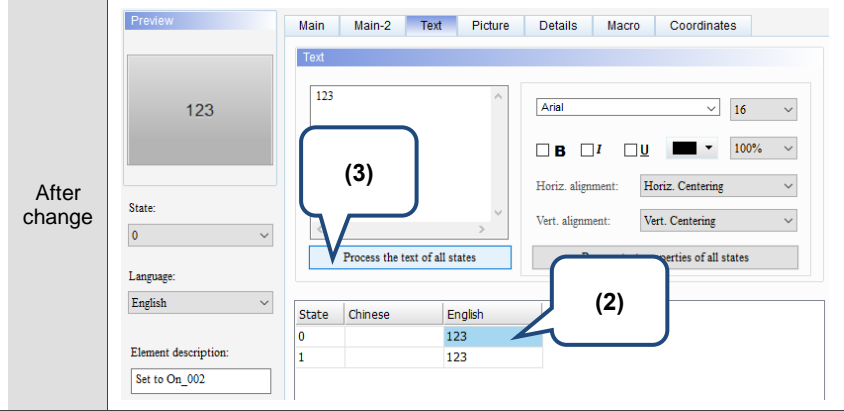
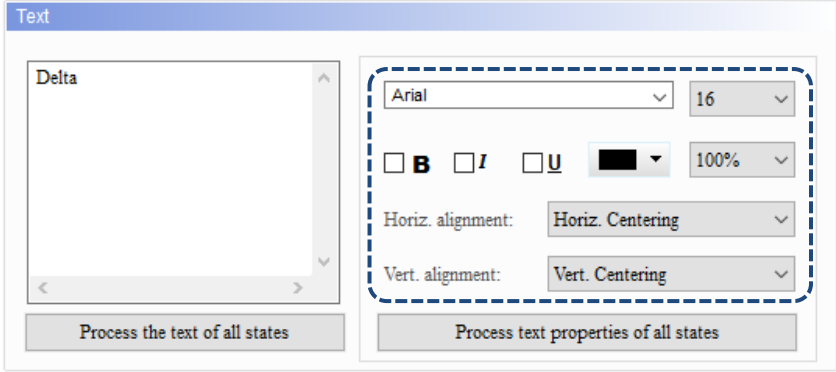
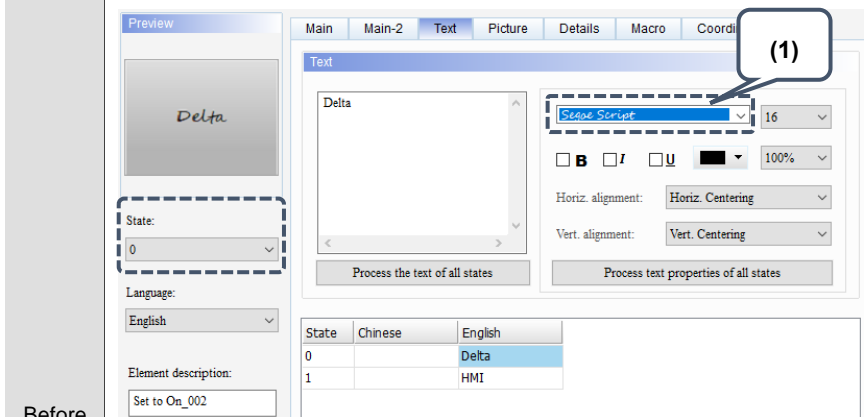
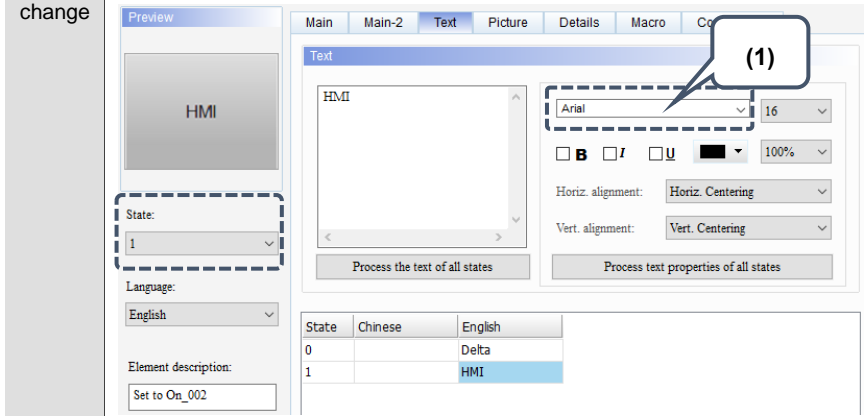
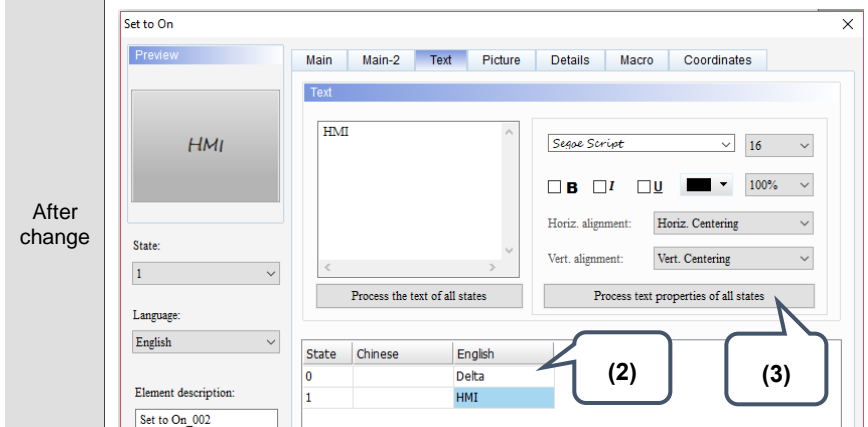


Figure 5.1.4 Text property page for the Set to On / Set to Off / Momentary / Maintained elements

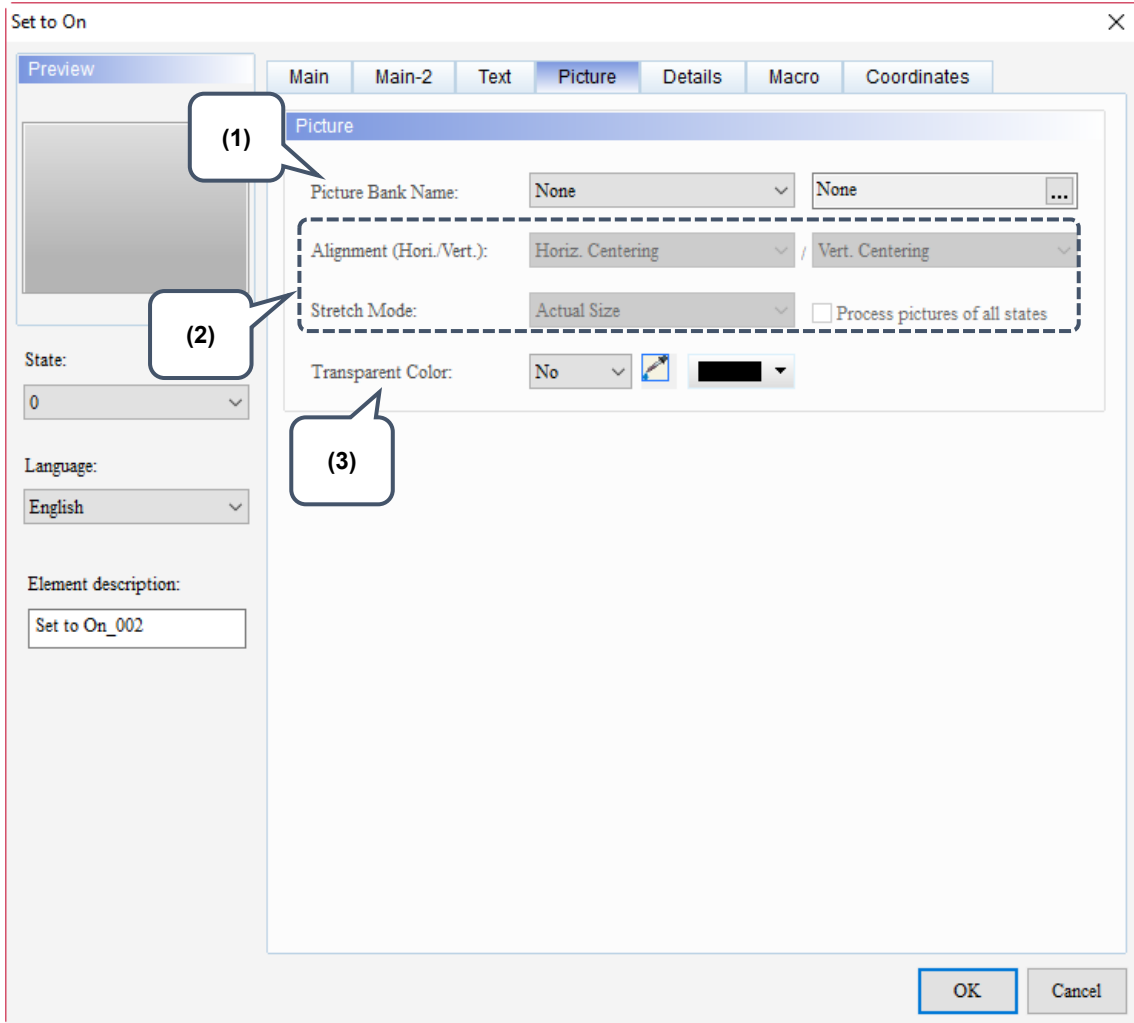
No.	Property	Function description
(1)	Text	<p>■ You can enter the text to be displayed in the text box.</p> <p>■ As long as the element allows text input, you can click the element on the screen and press the space key on the keyboard to start editing and inputting the text.</p>

No.	Property	Function description
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text.
(3)	Edit Multi-language Text	If you have added multi-language texts, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected.</p> <p>The following illustrates the steps:</p> <ol style="list-style-type: none"> Input 123 to State 0, and 234 to State 1. Click State 0. Click Process the text of all states, and the State 1 text changes to 123.  
(5)	Process text properties of all states	<p>This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p> 

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No.	Property	Function description
	(5) Process text properties of all states	<p>The following illustrates the steps:</p> <ol style="list-style-type: none"> 1. Input Delta to State 0, and set the font to Segoe Script; input HMI to State 1, and set the font to Arial. 2. Click State 0. 3. Click Process text properties of all states, and the State 1 font changes to Segoe Script.   

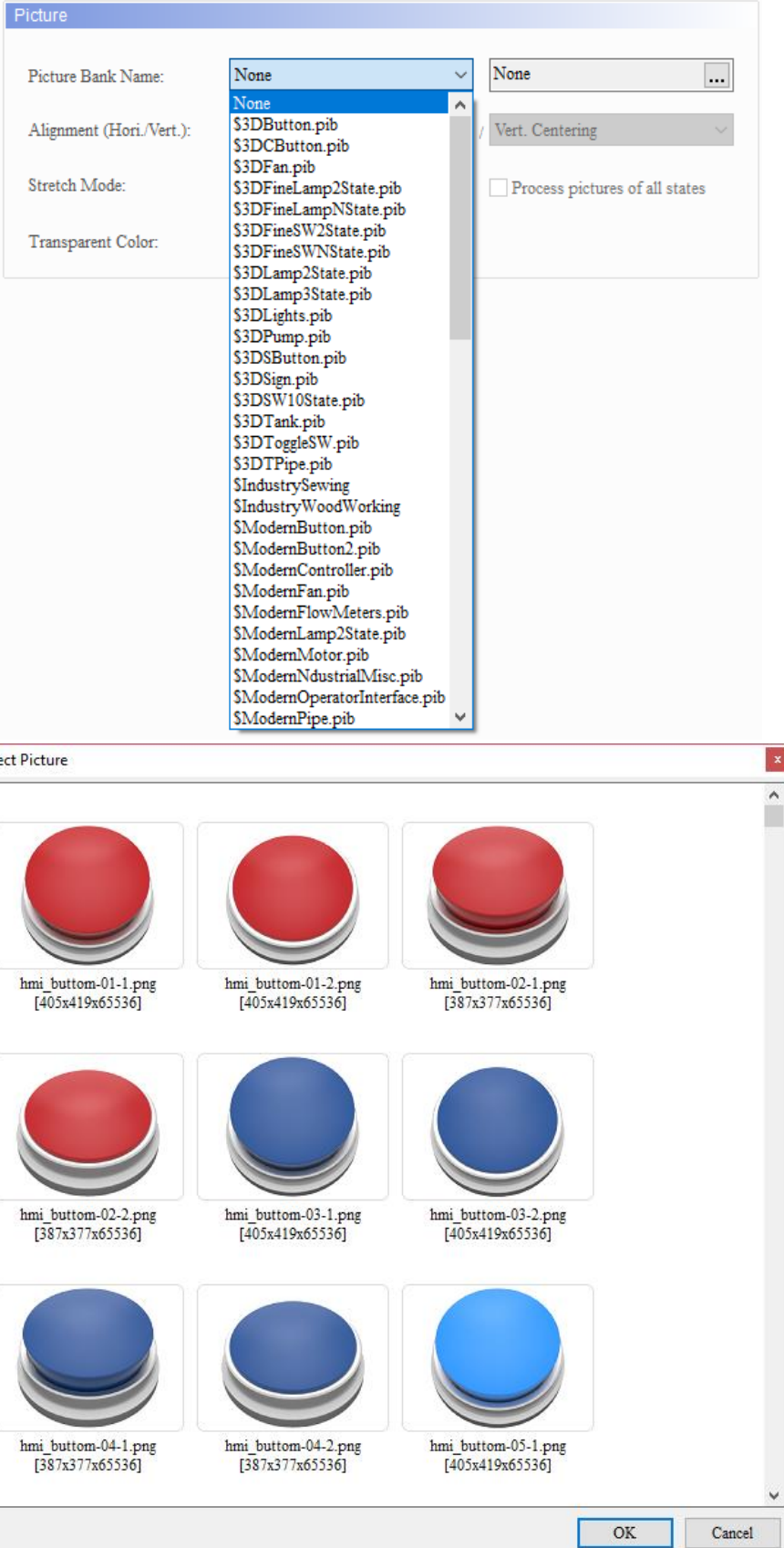
■ Picture

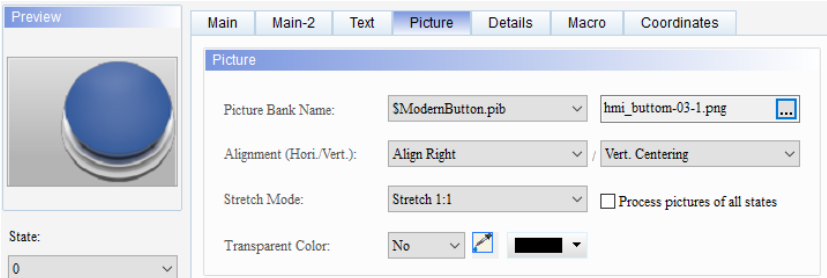





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Figure 5.1.5 Picture property page for the Set to On / Set to Off / Momentary / Maintained elements

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No.	Property	Function description
(1)	Picture Bank Name	<p>The default for Picture Bank Name is None. To set the picture display, use the drop-down list box to view the picture bank provided by the software and then select the desired pictures.</p>  <p>The 'Picture' dialog box includes the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: None (with a dropdown menu listing various picture banks such as \$3DButton.pib, \$3DCButton.pib, etc.) Alignment (Hori./Vert.): Vert. Centering Stretch Mode: (empty) Transparent Color: (empty) Process pictures of all states: <input type="checkbox"/> <p>The 'Select Picture' dialog box displays a grid of button images with the following filenames and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

No.	Property	Function description						
(2)	Alignment	<p>■ You can use the Alignment options to set how pictures are aligned.</p>  <p>■ The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size.</p> <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> </tbody> </table>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.
	Stretch All	Stretch 1:1	Actual Size					
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.						
Stretch Mode	 <p>■ If you select the check box for Process pictures of all states, it assumes that the elements have multiple states and some pictures do not fill the full element display area. You can use this function to process all pictures instead of setting them one by one, which saves the editing time.</p> <p><input checked="" type="checkbox"/> Process pictures of all states</p>							
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent. If you select the Transparent Color icon  and click the white part on the calendar, the software changes the white part into transparent, which you can see becomes identical to the element foreground color.</p> 						

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■ Details

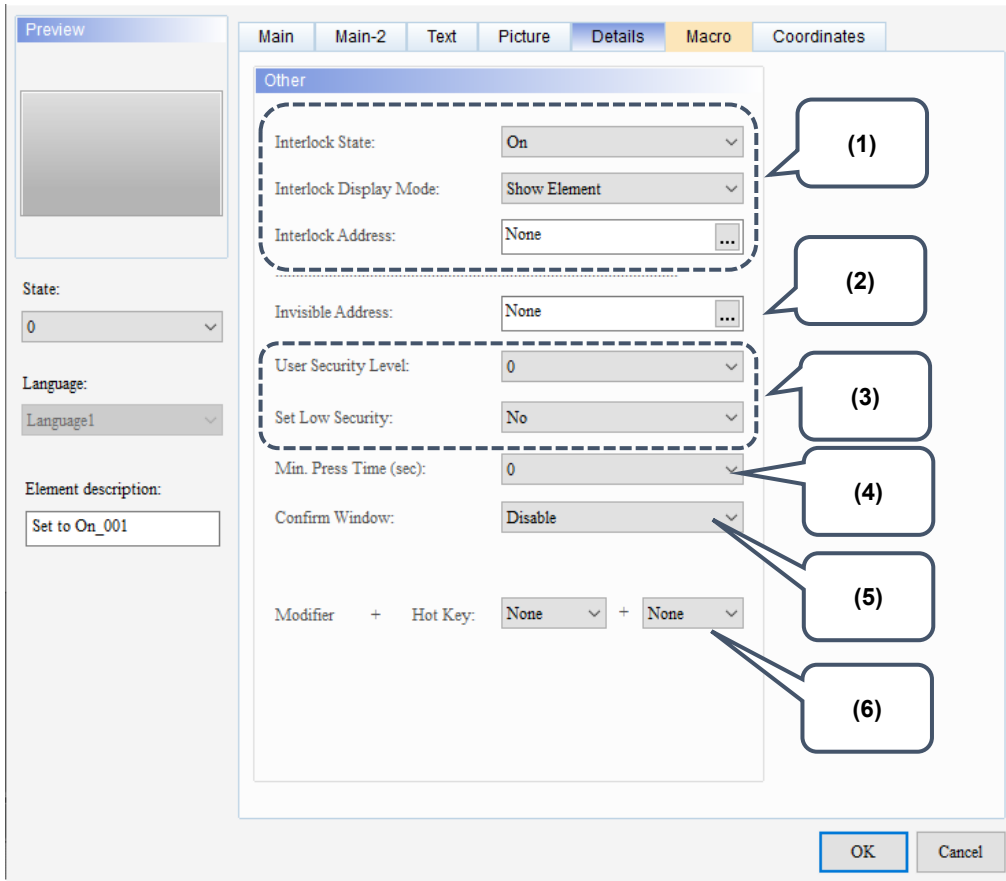
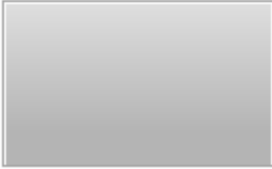

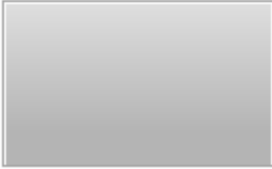

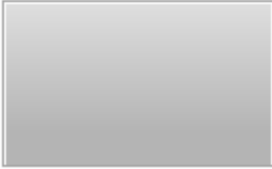

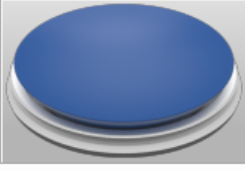
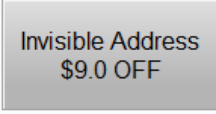
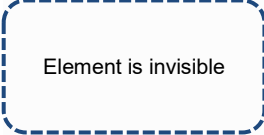
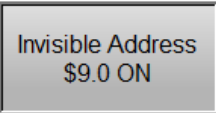
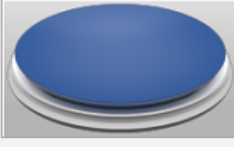
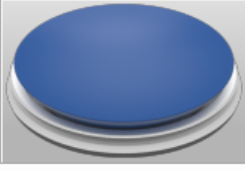
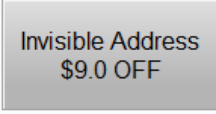
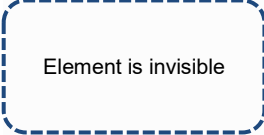
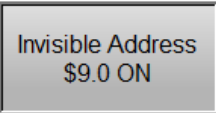
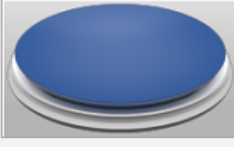
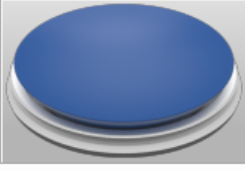
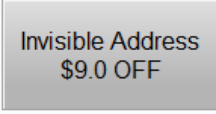
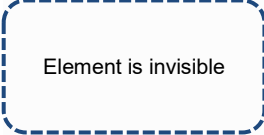
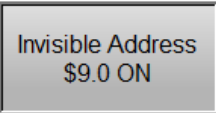
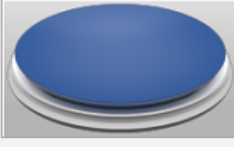
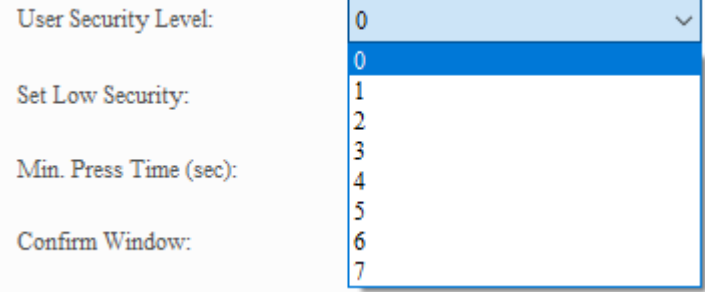
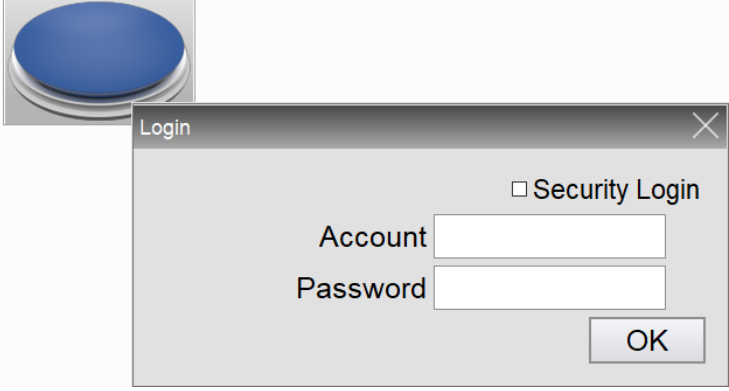
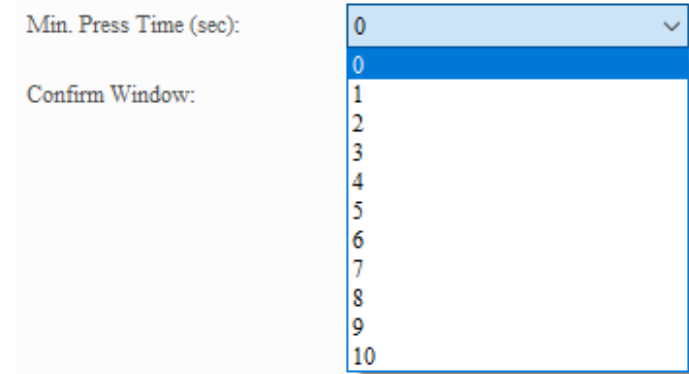


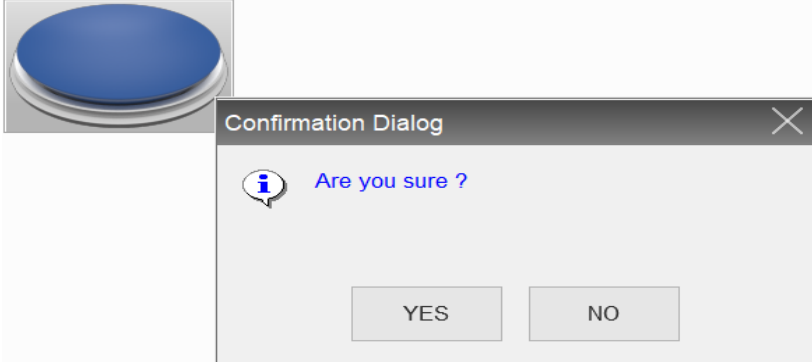
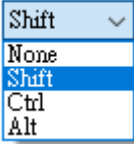
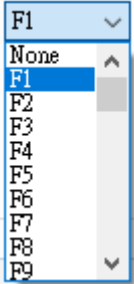
Figure 5.1.6 Details property page for the Set to On / Set to Off / Momentary / Maintained elements

No.	Property	Function description
(1)	Interlock State	<ul style="list-style-type: none"> The Interlock Address enables you to operate a certain element from this particular address, which must be operated along with the Interlock State. If the Interlock State is set to OFF, it means the Interlock Address is operable when the Interlock State is OFF; on the other hand, if the Interlock State is set to ON, the Interlock Address is operable when the Interlock State is ON. The following describes how it works: <ol style="list-style-type: none"> Create a button and set its address to \$8.0. Then, set the Interlock Address to \$8.0 for the button which address is \$99.0. Before having the button which address is \$99.0 to operate, you have to press the button which address is \$8.0 to validate the button action which address is \$99.0.
	Interlock Address	

No.	Property	Function description										
(1)	Interlock Display Mode	<ul style="list-style-type: none"> The Interlock Display Mode includes two options, Show Element and Show Prohibition Symbol. <div style="margin-left: 40px;"> <p>Interlock Display Mode: Show Element</p> <p>Interlock Address: Show Element</p> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: center; vertical-align: middle;">Show Element</td> <td style="text-align: center; vertical-align: middle;"></td> </tr> <tr> <td style="text-align: center; vertical-align: middle;">Show Prohibition Symbol</td> <td style="text-align: center; vertical-align: middle;"></td> </tr> </table>	Show Element		Show Prohibition Symbol							
		Show Element										
Show Prohibition Symbol												
(2)	Invisible Address	<ul style="list-style-type: none"> When the Invisible Address is set to ON, the button element is invisible and you cannot enable its functions. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: center; vertical-align: middle;">Invisible Address is off</td> <td style="text-align: center; vertical-align: middle;"></td> <td style="text-align: center; vertical-align: middle;"></td> </tr> <tr> <td style="text-align: center; vertical-align: middle;">Invisible Address is on</td> <td style="text-align: center; vertical-align: middle;"></td> <td style="text-align: center; vertical-align: middle;"></td> </tr> </table> <div style="margin-top: 10px;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: center;">Preview</td> <td style="text-align: center;"> <div style="border: 1px solid gray; padding: 5px;">  </div> <p>State: On</p> </td> </tr> <tr> <td colspan="2" style="text-align: center;"> <div style="border: 1px solid gray; padding: 5px;"> <p>Other</p> <p>Interlock State: On</p> <p>Interlock Address: None</p> <hr style="border: 0; border-top: 1px dashed gray;"/> <p>Invisible Address: \$9.0</p> </div> </td> </tr> </table> </div>	Invisible Address is off			Invisible Address is on			Preview	<div style="border: 1px solid gray; padding: 5px;">  </div> <p>State: On</p>	<div style="border: 1px solid gray; padding: 5px;"> <p>Other</p> <p>Interlock State: On</p> <p>Interlock Address: None</p> <hr style="border: 0; border-top: 1px dashed gray;"/> <p>Invisible Address: \$9.0</p> </div>	
		Invisible Address is off										
Invisible Address is on												
Preview	<div style="border: 1px solid gray; padding: 5px;">  </div> <p>State: On</p>											
<div style="border: 1px solid gray; padding: 5px;"> <p>Other</p> <p>Interlock State: On</p> <p>Interlock Address: None</p> <hr style="border: 0; border-top: 1px dashed gray;"/> <p>Invisible Address: \$9.0</p> </div>												

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No.	Property	Function description
(3)	User Security Level	<ul style="list-style-type: none"> You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. After you set the User Security Level and press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password through the Password Table Setup element; refer to Section 5.7.2 Password Table Setup). 
	Set Low Security	<ul style="list-style-type: none"> If you set the Set Low Security to Yes, each time you enter the password, the HMI sets the security level to the lowest. The next time you press the element, the HMI asks you to enter the password for the corresponding security level again. 
(4)	Min. Press Time (sec)	<p>Set the minimum pressing duration for the element to activate. The element is activated only when you press it for more than the set Min. Press Time. This function is to avoid misoperation of elements. The setting range is 0 - 10 second(s).</p> 

No.	Property	Function description
(5)	Confirm Window	<p>If you set the Confirm Window to Yes, the following Confirmation Dialog appears for you to confirm the pressing action after pressing the element:</p> 
(6)	Modifier + Hot Key	<ul style="list-style-type: none"> ■ Allows you to use the hot keys on the external keyboard to execute the button. ■ The Modifier options include None, Shift, Ctrl, and Alt.  <ul style="list-style-type: none"> ■ The Hot Key options include F1 to F12, English letters A to Z, and number keys 0 to 9. 

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■ Macro

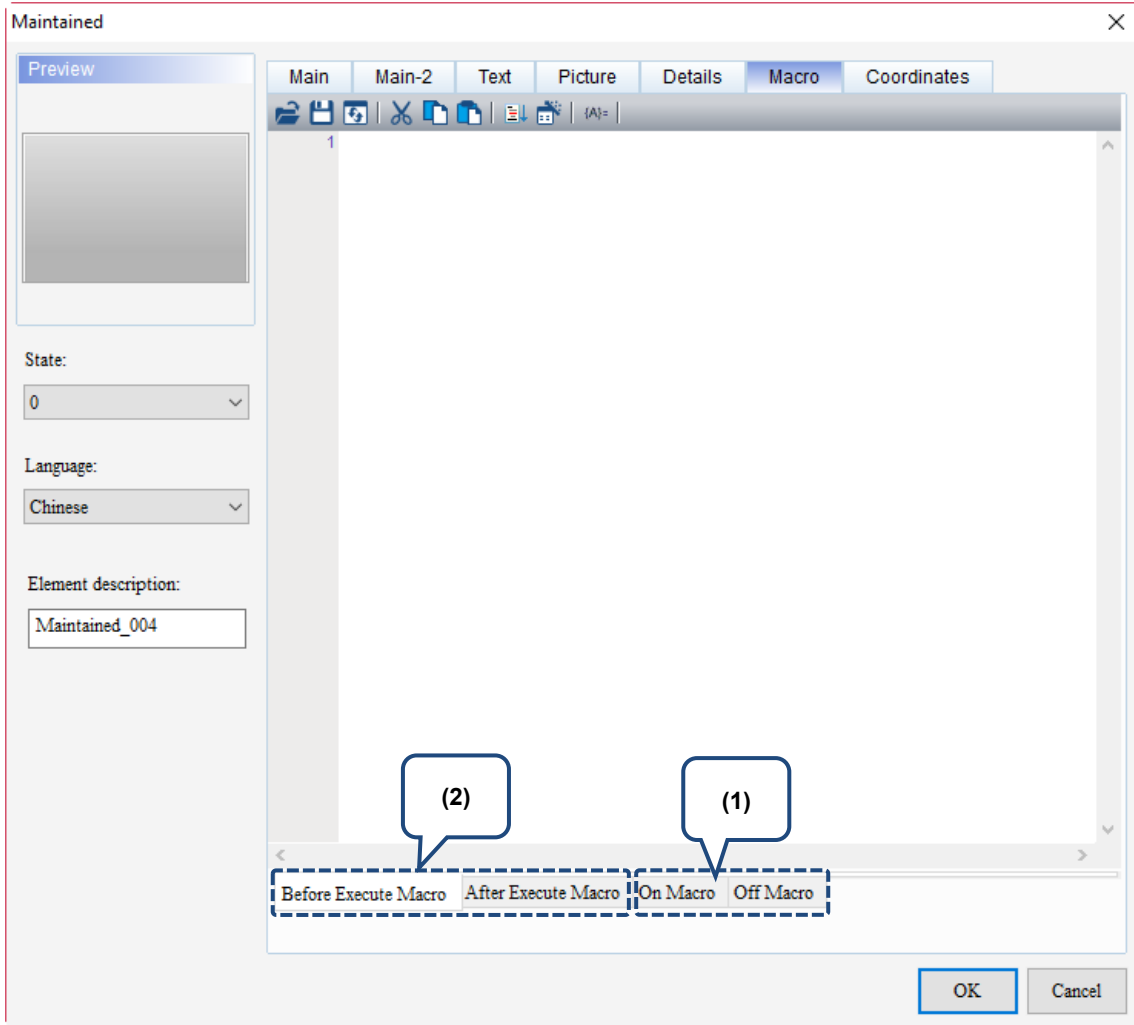


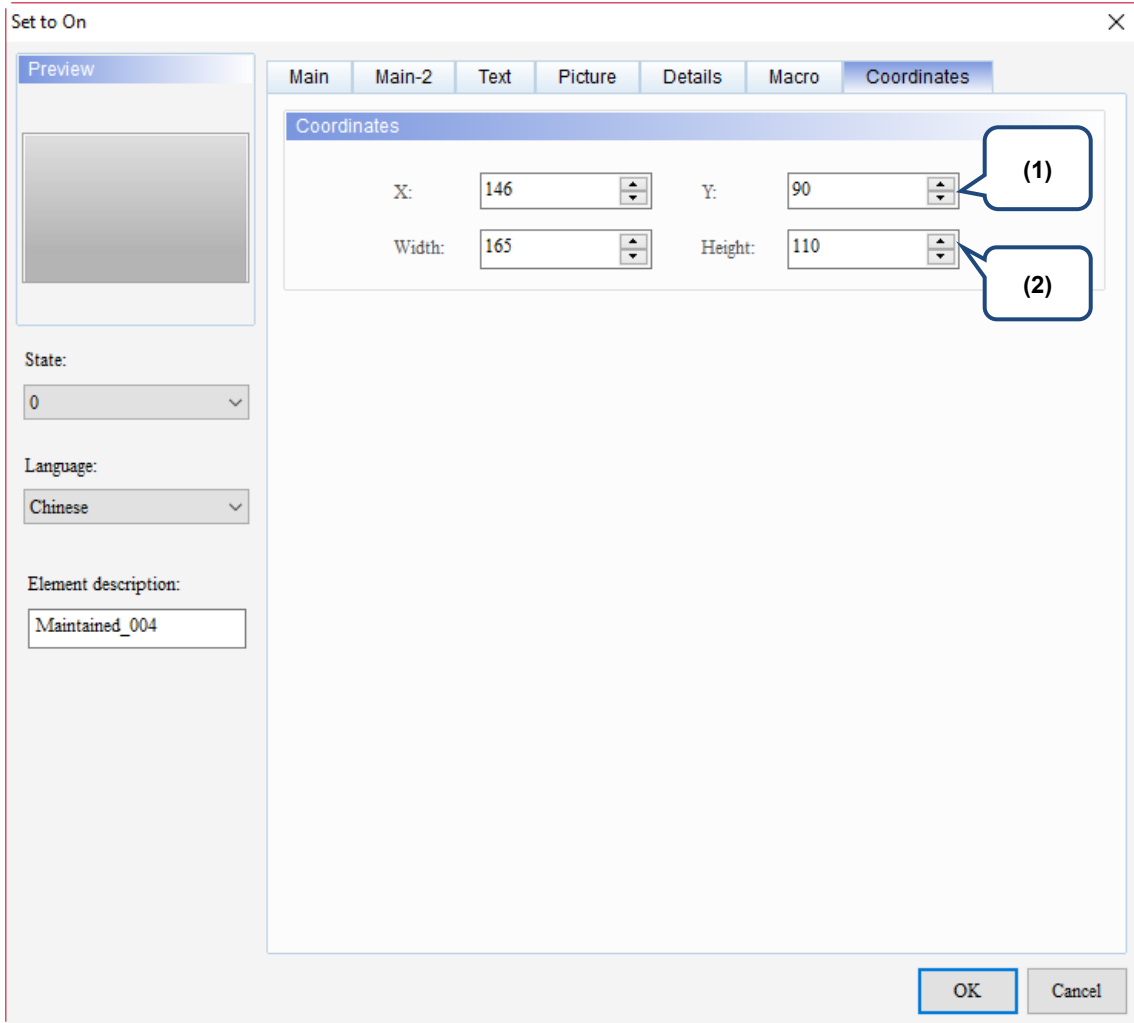
Figure 5.1.7 Macro property page for the Set to On / Set to Off / Momentary / Maintained elements

No.	Function description	
	On Macro	Off Macro
(1)	<p>Flowchart of On Macro:</p> <pre> graph TD B1[Maintained Button] -- Trigger ON --> B2[Maintained Button] B2 --> EOM[Execute On Macro] EOM -- Trigger OFF --> B3[Maintained Button] B3 -- Trigger at next time --> B2 </pre>	<p>Flowchart of Off Macro:</p> <pre> graph TD B1[Maintained Button] -- Trigger ON --> B2[Maintained Button] B2 -- Trigger OFF --> EOM[Execute OFF Macro] EOM --> B3[Maintained Button] B3 -- Trigger at next time --> B2 </pre>
	<ul style="list-style-type: none"> ■ When you press the button and set the state to ON, the HMI executes the On Macro commands. When you press the button and set the state to OFF, the HMI executes the Off Macro commands. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the On / Off Macro commands. ■ Every time when you trigger the states to ON / OFF, the HMI executes the On / Off Macros once without repeating the actions. 	

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No.	Function description	
(2)	Before Execute Macro	After Execute Macro
	<p>Flowchart of Before Execute Macro:</p> <p>When you touch the button element, the HMI executes the macro commands first, and then executes the button actions. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.</p>	<p>Flowchart of After Execute Macro:</p> <p>When you touch the button element, the HMI executes the button actions first, and then executes the macro commands. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.</p>

■ Coordinates



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Figure 5.1.8 Coordinates property page for the Set to On / Set to Off / Momentary / Maintained elements

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

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5.2 Multistate

The Multistate is for displaying multiple state pictures or state values. If you set the Multistate Memory Address to D100, Data Type to Word, and State Counts to 4, when you change the value of D100, the Multistate element changes the states according to the sequence you set. Refer to Figure 5.2.1 Multistate example.

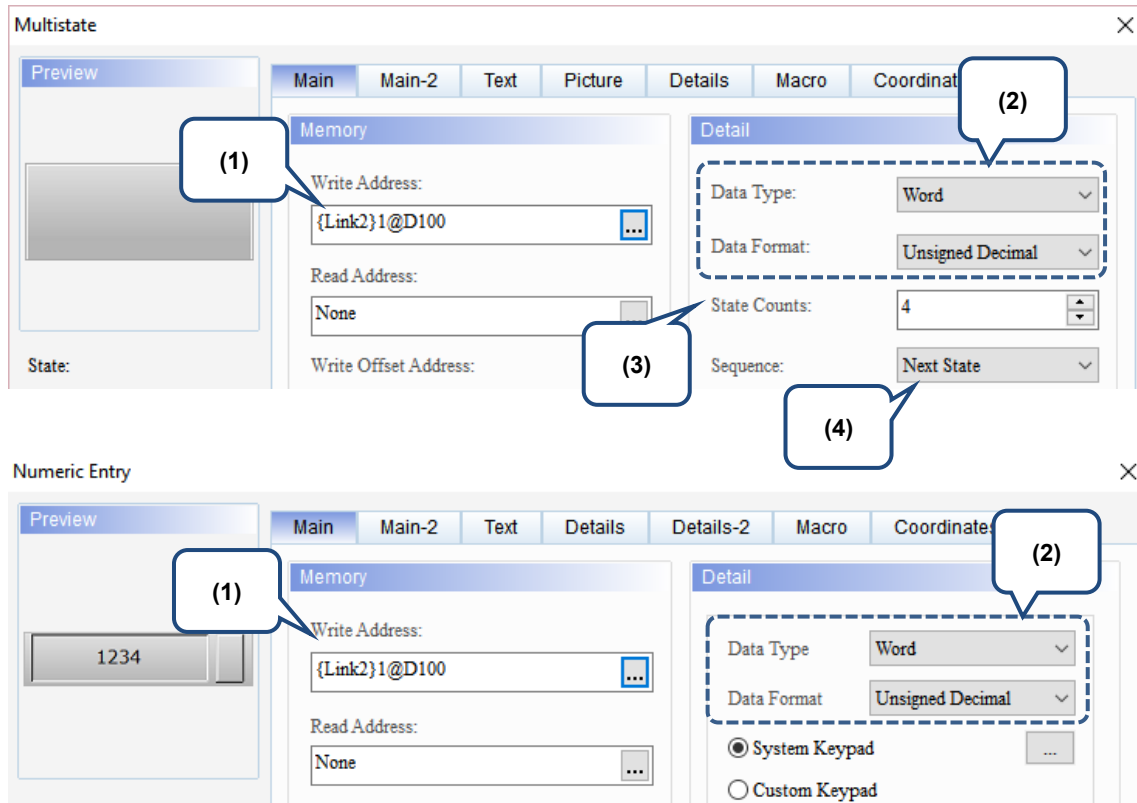


Figure 5.2.1 Multistate example - 1

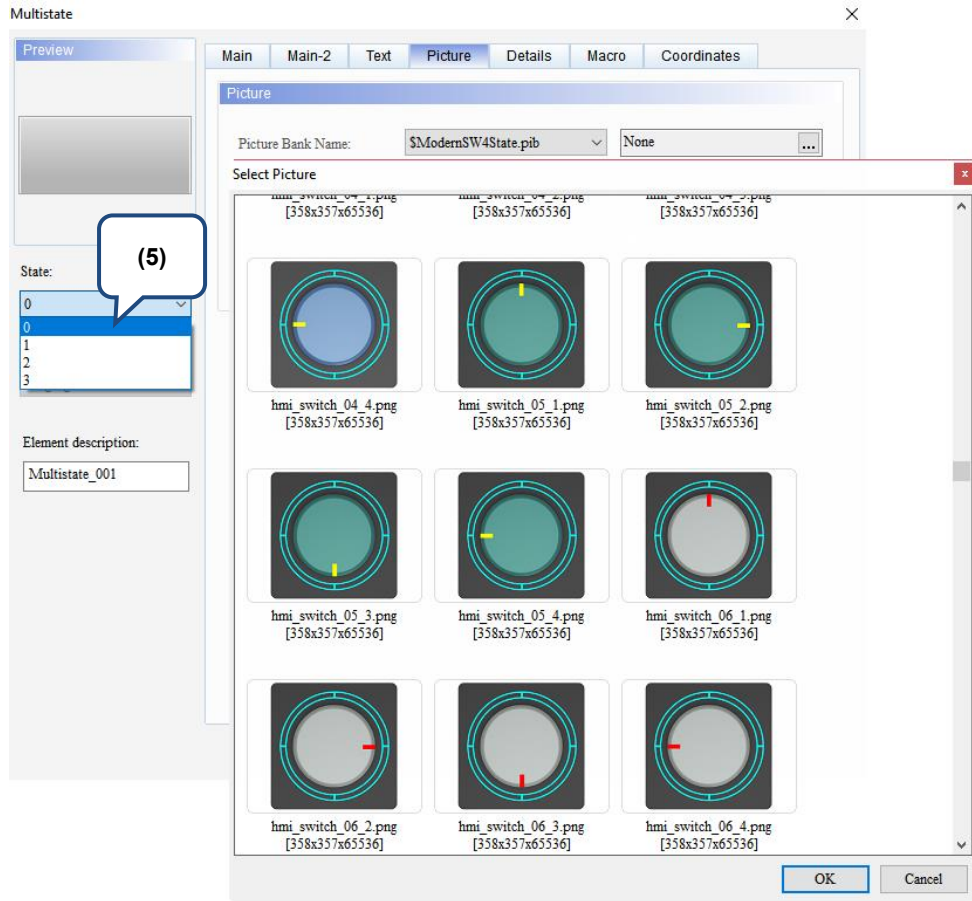


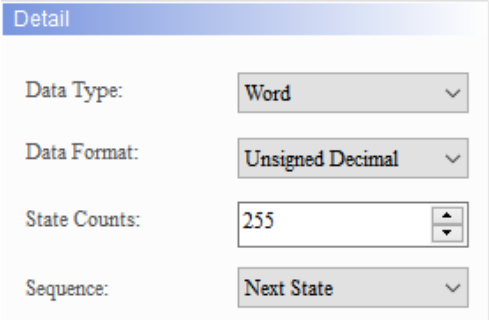
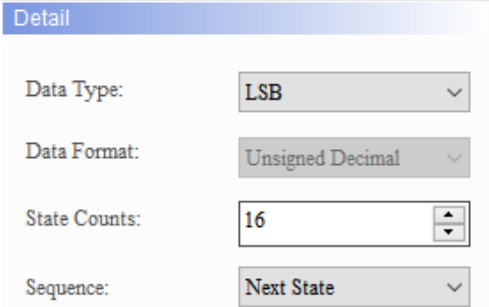
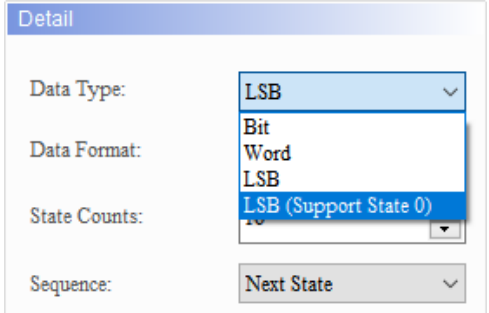

Figure 5.2.2 Multistate example - 2

No.	Item	Content
(1)	Write Address	Create a Multistate button and a Numeric Entry element and set the Write Addresses to D100.
(2)	Data Type / Data Format	Set the Data Type to Word and Data Format to Unsigned Decimal for the Multistate button and Numeric Entry element.
(3)	State Counts	Set the State Counts of the Multistate button to 4.
(4)	Sequence	Set the Sequence of the Multistate button to Next State.
(5)	Set State pictures	Set the pictures for States 0 - 3.
(6)	Execution results	<p>Set D100 = 0 to D100 = 3 sequentially, and the Multistate element pictures change as well.</p>

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The Multistate button supports four data types. See the following table for details. If you need to add or remove state counts, you can simply increase and decrease the state counts from the State Counts in the Properties window.

Table 5.2.1 Data Type of the Multistate

Multistate button	
Data Type	State Counts
Word	<p>If the Data Type is Word, you can set 1 to 256 states for the State Counts.</p> 
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> When the Data Type is set to LSB, the register data is first converted to binary data. And then, the current object state is defined by using the lowest non-zero bit. If the Data Type is LSB, you can set 1 to 16 states except for State 0.  <ul style="list-style-type: none"> To display State 0, select LSB (Support State 0) for the Data Type.  <ul style="list-style-type: none"> If you select LSB, the element displays black when State = 0.  <ul style="list-style-type: none"> If the Data Type is LSB or LSB (Support State 0), the memory address is also in Word as the unit.

Multistate button			
Data Type	State Counts		
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> The examples in the following table explains how to use the lowest non-zero bit of the binary value converted from a decimal value to determine the state value. There are also examples showing how the software determines the lowest bit to define the display state value when the decimal values are 3 and 7. 		
	Decimal	Binary	State Value
	<u>0</u>	<u>0000000000000000</u>	<u>State = 0 when all bits are 0.</u> <u>You must select LSB (Support State 0).</u>
	1	0000000000000001	The lowest non-zero bit is bit 0, State = 1.
	2	0000000000000010	The lowest non-zero bit is bit 1, State = 2.
	<u>3</u>	<u>0000000000000011</u>	<u>The lowest non-zero bit is bit 0, State = 1.</u>
	4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.
	<u>7</u>	<u>0000000000000111</u>	<u>The lowest non-zero bit is bit 0, State = 1.</u>
	8	0000000000001000	The lowest non-zero bit is bit 3, State = 4.
	16	0000000000010000	The lowest non-zero bit is bit 4, State = 5.
	32	0000000000100000	The lowest non-zero bit is bit 5, State = 6.
	64	0000000001000000	The lowest non-zero bit is bit 6, State = 7.
	128	0000000010000000	The lowest non-zero bit is bit 7, State = 8.
	256	0000000100000000	The lowest non-zero bit is bit 8, State = 9.
	512	0000001000000000	The lowest non-zero bit is bit 9, State = 10.
	1024	0000010000000000	The lowest non-zero bit is bit 10, State = 11.
	2048	0000100000000000	The lowest non-zero bit is bit 11, State = 12.
4096	0001000000000000	The lowest non-zero bit is bit 12, State = 13.	
8192	0010000000000000	The lowest non-zero bit is bit 13, State = 14.	
16384	0100000000000000	The lowest non-zero bit is bit 14, State = 15.	
32768	1000000000000000	The lowest non-zero bit is bit 15, State = 16.	
Bit	If the Data Type is set to Bit, you can only set 2 state counts.		

When you double-click the Multistate element, the property page is shown as follows.

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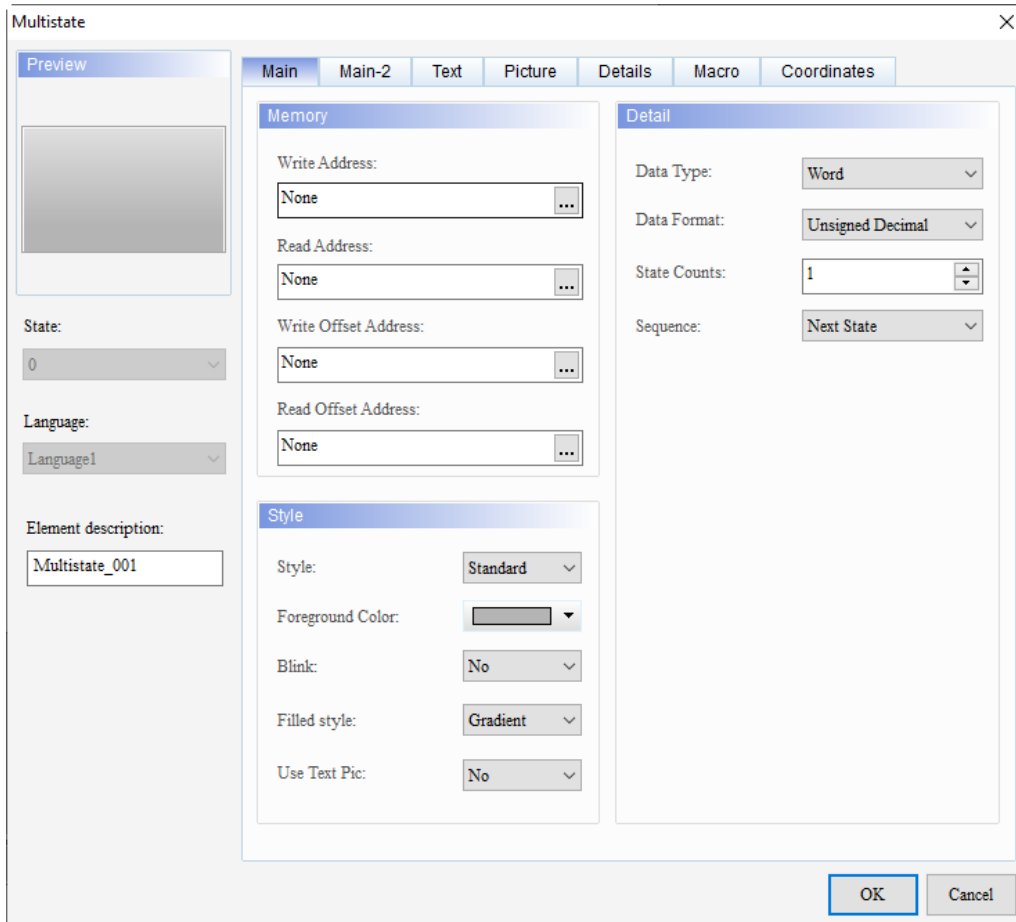
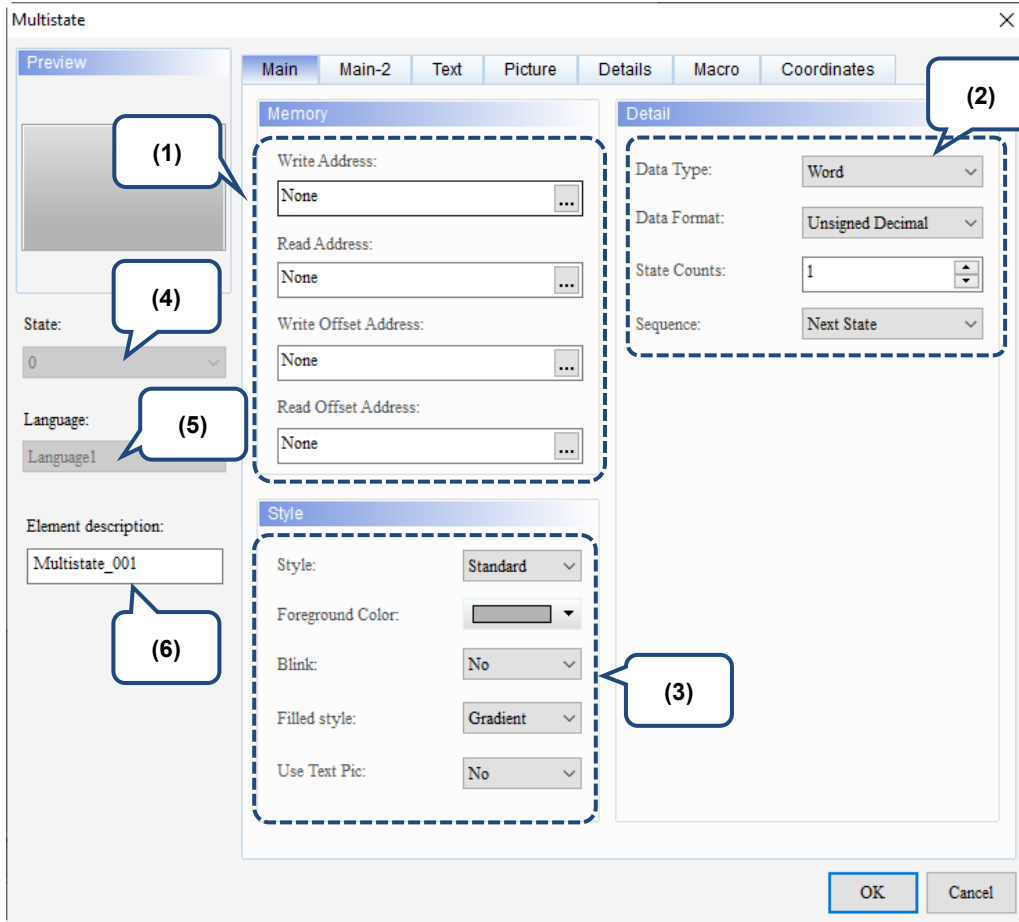


Figure 5.2.3 Properties of Multistate

Multistate	
Function page	Description
Preview	View the element multistate value and multi-language data display.
Main	Set the Write and Read Addresses, and Write and Read Offset Addresses. Set the Style, Foreground Color, Blink, Filled style, and Use Text Pic function. Set the Data Type, Data Format, State Counts, and Sequence of Multistate.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color options.
Details	Set the Interlock Address, Interlock Display Mode, Interlock State, Invisible Address, User Security Level, Set Low Security, Confirm Window, and Modifier + Hot Key.
Macro	Set the Before Execute Macro and After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the button element.

■ Main

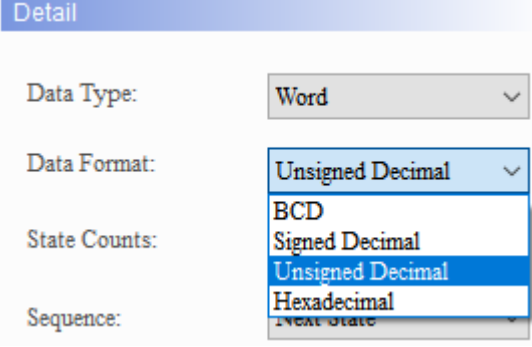
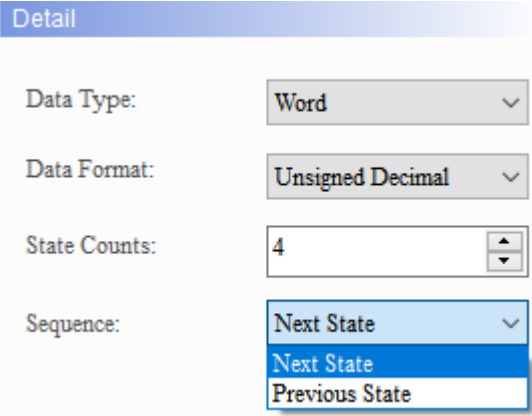


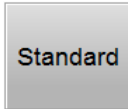


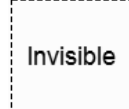
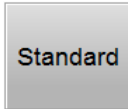


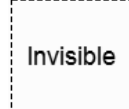
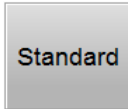


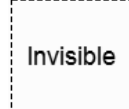
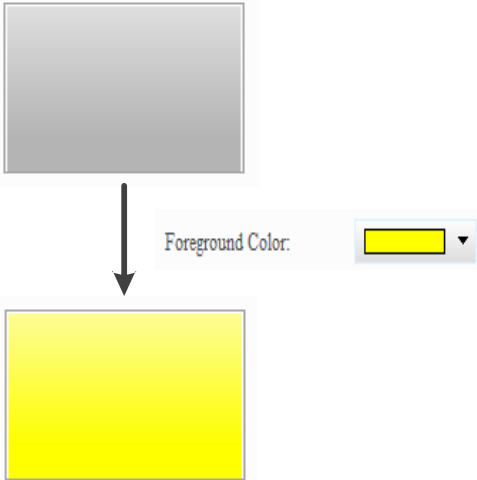
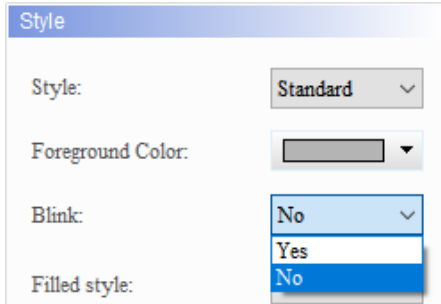






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Figure 5.2.4 Main property page for the Multistate element

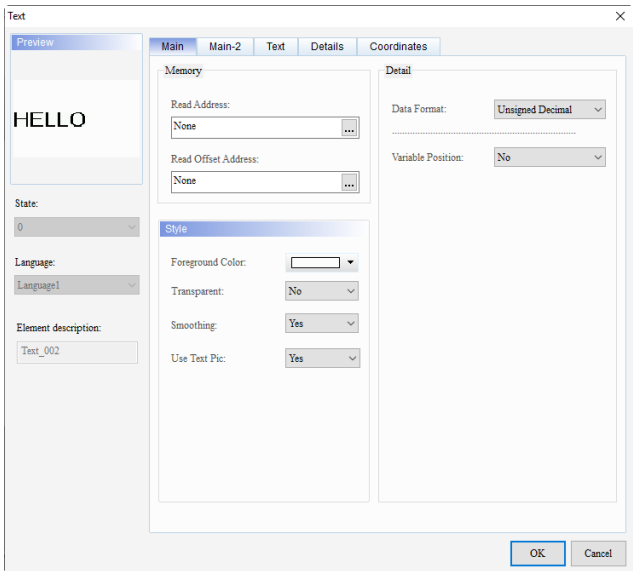
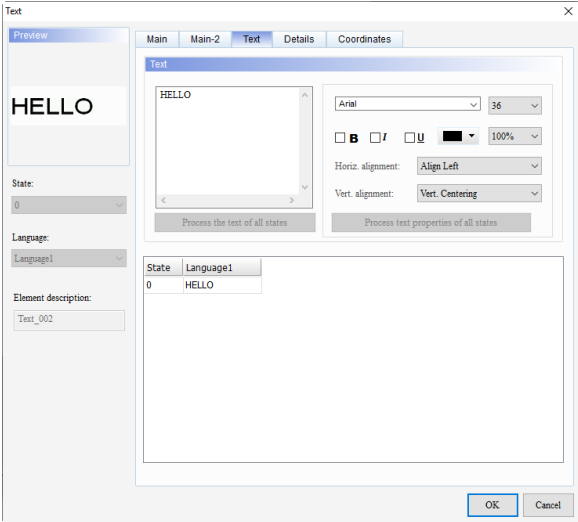
No.	Property		Function description
(1)	Memory	Write Address	<ul style="list-style-type: none"> You can choose the internal memory or the controller register address. The input memory type varies depending on the selected data type, including Word, LSB, or Bit, as shown in Table 5.2.2. If you set the Write Address without setting the Read Address, the HMI automatically reads the Write Address values. For the Link name and Device Type, refer to Section 5.1.
		Read Address	
		Write Offset Address	Refer to the instructions in Appendix D Write and Read Offset Addresses.
		Read Offset Address	

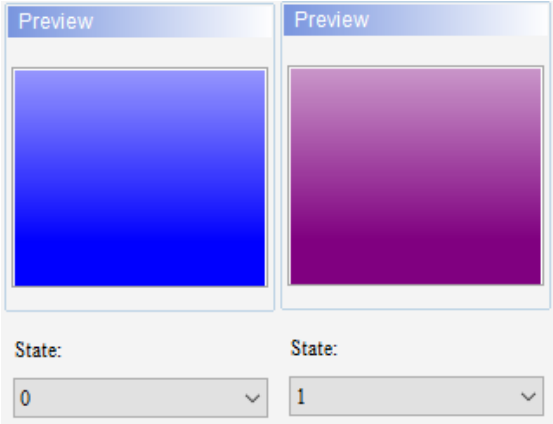
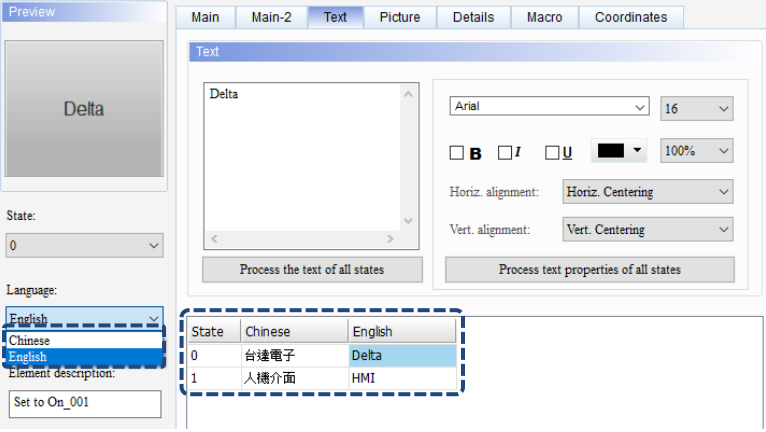
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No.	Property	Function description
(2)	Data Type	There are four data types: Bit, Word, LSB, and LSB (Support State 0). See Table 5.2.2 for more details.
	Data Format	<ul style="list-style-type: none"> ■ You can only select the Data Format when the Data Type is Word. ■ There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal. 
	State Counts	Set the State Counts of the Multistate button. When the Data Type is Word, the State Counts range from 1 to 256; when the Data Type is LSB, 16 states are available; when the Data Type is LSB (Support State 0), 17 states are available; when the Data Type is Bit, only 2 states are available. See Table 5.2.2 for more details.
	Sequence	<ul style="list-style-type: none"> ■ Set the state changing sequence for the Multistate button, including Next State and Previous State. ■ Next State: when changing states, the HMI changes the state in ascending order. ■ Previous State: when changing states, the HMI changes the state in descending order. 

No.	Property	Function description								
(3)	Style	<p>The available styles are Standard, Raised, Round, and Invisible. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Round</th> <th>Invisible</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Round	Invisible				
	Standard	Raised	Round	Invisible						
										
	Foreground Color	<ul style="list-style-type: none"> Set the foreground color of the element. When you set the Style to Invisible, the Foreground Color setting is invalid. 								
Blink	<p>You can set the blink prompt of the element when the button changes states. The blink color is the opposite color of the foreground color.</p> 									
Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tbody> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </tbody> </table>	Gradient		Fixed (Solid)						
Gradient										
Fixed (Solid)										

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No.	Property	Function description				
(3)	Style Property Use Text Pic function	<p>Unlike the DOP-B series models using pictures to present all texts, the DOP-100 series models present directly with the texts. Therefore, if the language you use for the element is not yet supported by the PC, it is possible to cause missing characters and garbled texts when the element is displayed on the HMI. To have the text display effect be the same as that on the DOP-B models, the Use Text Pic function is added for the Text, Button, and General Message Display elements. Refer to the following examples.</p> <div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center; background-color: #e0e0e0;">Use Text Pic function</p> <ul style="list-style-type: none"> ■ Create a Text element and go to the [Main] tab to set the Use Text Pic function.  </div> <p>Note: if you use the DOPSoft 4.00.06 version to open a DOP-B project, the Use Text Pic function is enabled (Yes) by default. If you add a DOP-100 project, then the Use Text Pic function is disabled (No) by default.</p> <ul style="list-style-type: none"> ■ Go to the [Text] tab, and type the text and set its font. 				
	Execution result	<ul style="list-style-type: none"> ■ After creating the element, download it to the HMI. ■ The following table shows the results of using and not using the Use Text Pic function. <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="background-color: #e0e0e0;">Use Text Pic is Yes</th> <th style="background-color: #e0e0e0;">Use Text Pic is No</th> </tr> </thead> <tbody> <tr> <td style="font-size: 2em; font-weight: bold;">HELLO</td> <td style="font-size: 2em; font-weight: bold;">HELLO</td> </tr> </tbody> </table>	Use Text Pic is Yes	Use Text Pic is No	HELLO	HELLO
Use Text Pic is Yes	Use Text Pic is No					
HELLO	HELLO					

No.	Property	Function description																																																																																										
(4)	State	<p>The Multistate element determines its number of states according to the State Counts you have defined. Therefore, you can view the states with the State.</p> 																																																																																										
(5)	Language	<p>If you have set the language data, you can edit the properties of the displayed text with the Language setting of the element.</p>  <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>台達電子</td> <td>Delta</td> </tr> <tr> <td>1</td> <td>人機介面</td> <td>HMI</td> </tr> </tbody> </table>	State	Chinese	English	0	台達電子	Delta	1	人機介面	HMI																																																																																	
State	Chinese	English																																																																																										
0	台達電子	Delta																																																																																										
1	人機介面	HMI																																																																																										
(6)	Element description	<p>Record the button actions to be executed. The record is written in the CSV file of the Operation Log Table so that you know what actions have been done.</p> <table border="1"> <thead> <tr> <th></th> <th>Time</th> <th>Date</th> <th>Level</th> <th>Screen</th> <th>Desc</th> <th>Action</th> <th>Pre Value</th> <th>Change Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13:37:54</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>13:37:56</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>3</td> <td>13:38:19</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level Switch</td> <td>Level Switch</td> <td>8</td> <td>4</td> </tr> <tr> <td>4</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>5</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>6</td> <td>13:38:22</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>7</td> <td>13:38:23</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>8</td> <td>13:38:31</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level Switch</td> <td>Level Switch</td> <td>4</td> <td>8</td> </tr> <tr> <td>9</td> <td>13:38:35</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>100 Value</td> <td>Set Val</td> <td>85</td> <td>25</td> </tr> </tbody> </table>		Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value	1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1	0	2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1	3	13:38:19	5/5/2016	8	Screen_22	Level Switch	Level Switch	8	4	4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1	5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0	6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1	7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0	8	13:38:31	5/5/2016	4	Screen_22	Level Switch	Level Switch	4	8	9	13:38:35	5/5/2016	8	Screen_22	100 Value	Set Val	85	25
	Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value																																																																																				
1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1	0																																																																																				
2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1																																																																																				
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4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1																																																																																				
5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0																																																																																				
6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1																																																																																				
7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0																																																																																				
8	13:38:31	5/5/2016	4	Screen_22	Level Switch	Level Switch	4	8																																																																																				
9	13:38:35	5/5/2016	8	Screen_22	100 Value	Set Val	85	25																																																																																				

■ Main-2

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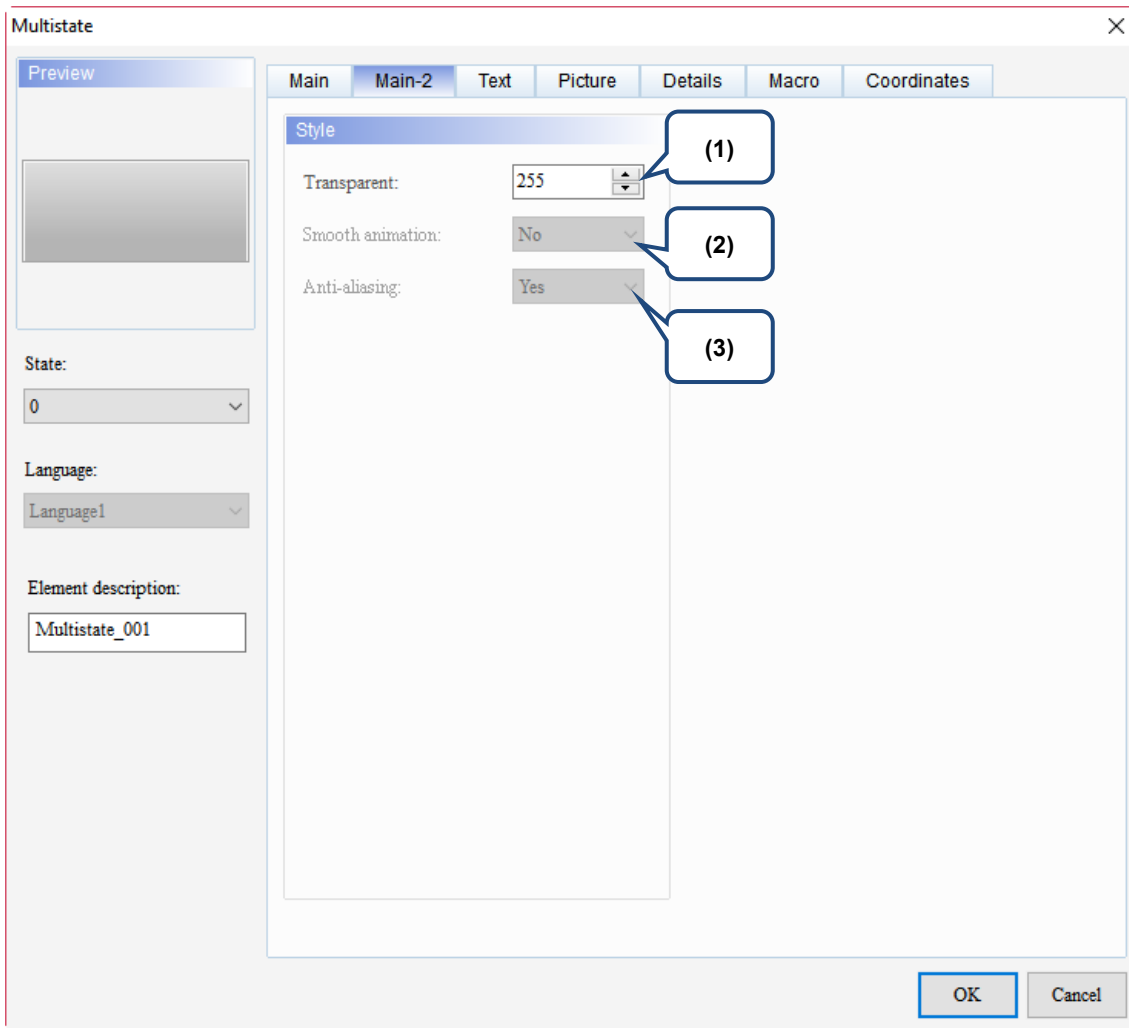


Figure 5.2.5 Main-2 property page for the Multistate element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

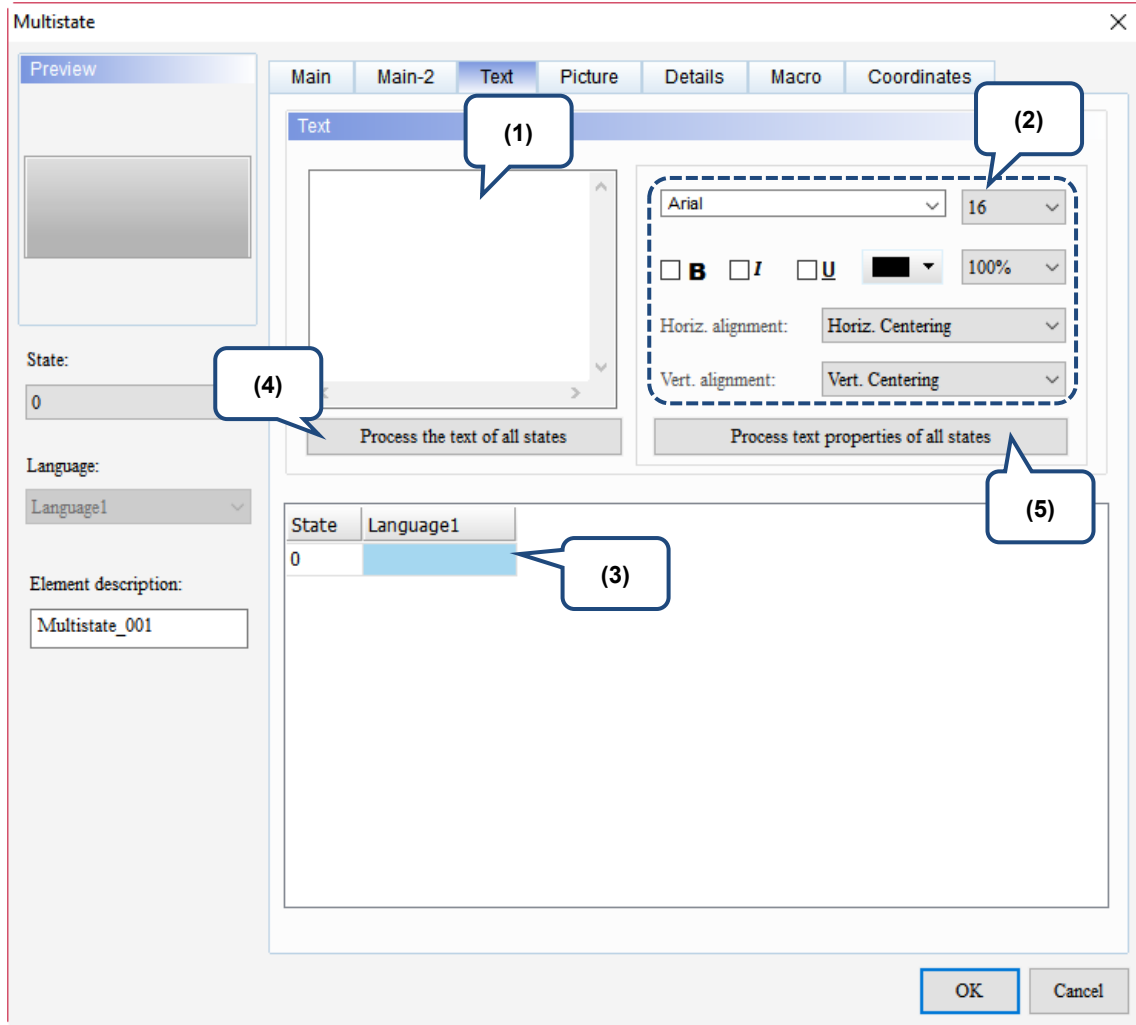
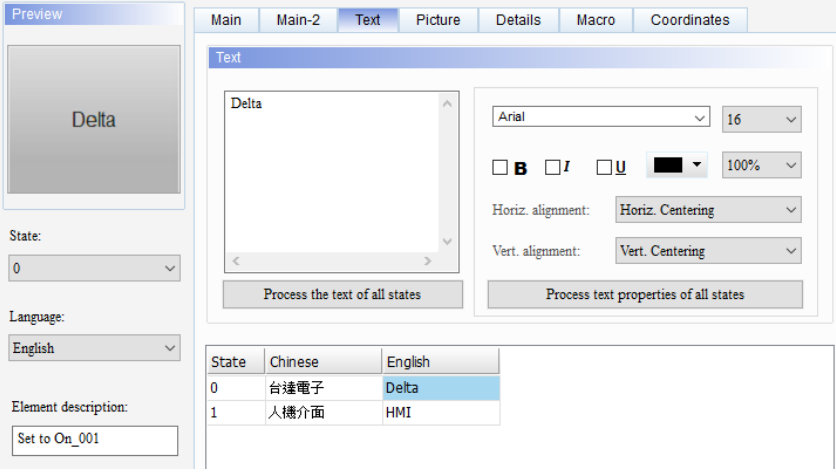
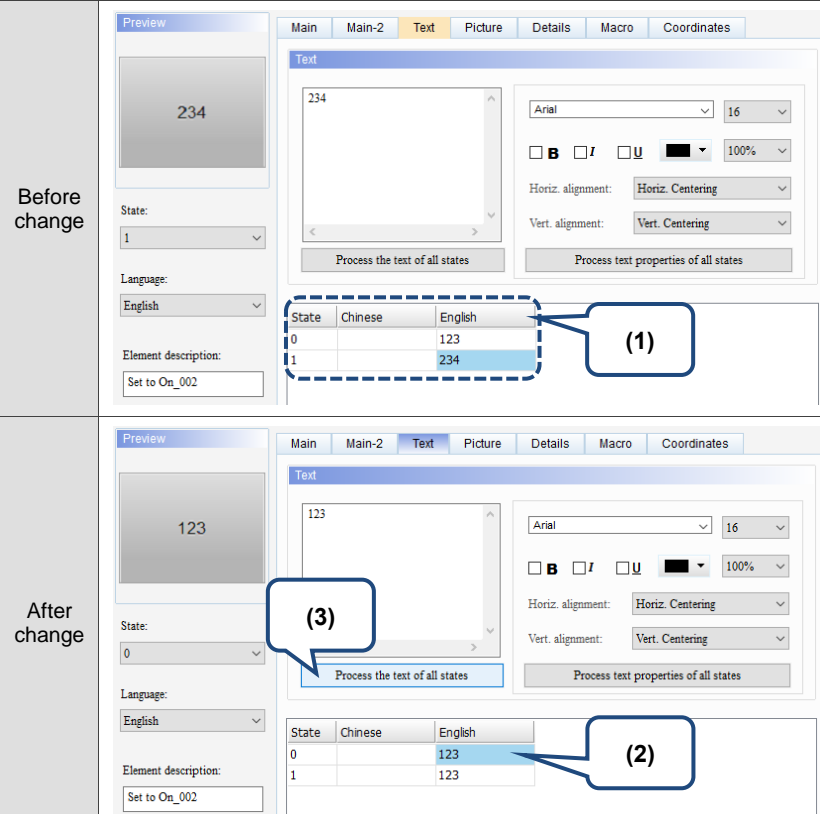
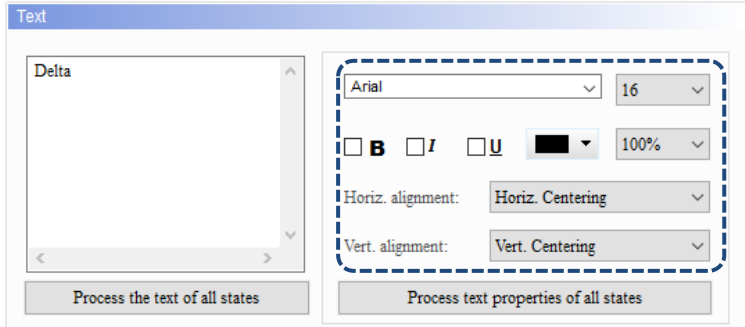
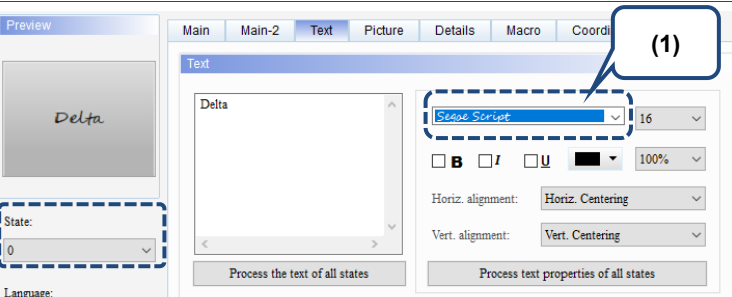
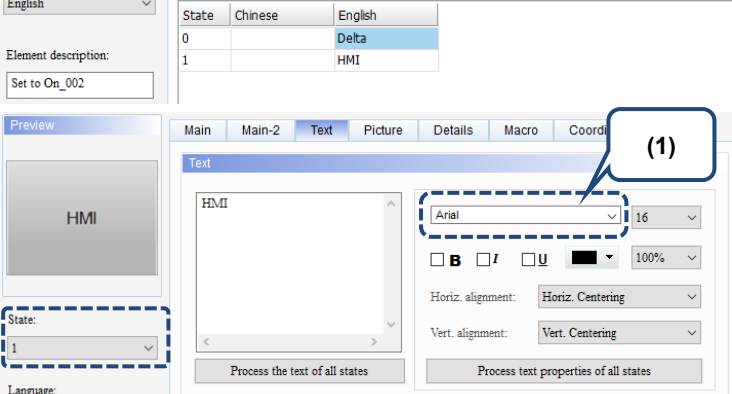


Figure 5.2.6 Text property page for the Multistate element

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No.	Property	Function description									
(1)	Text	<p>You can enter the text to be displayed in the text box.</p>  <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>台達電子</td> <td>Delta</td> </tr> <tr> <td>1</td> <td>人機介面</td> <td>HMI</td> </tr> </tbody> </table>	State	Chinese	English	0	台達電子	Delta	1	人機介面	HMI
State	Chinese	English									
0	台達電子	Delta									
1	人機介面	HMI									
(2)	Text property	<p>Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the text property setting results.</p>									
(3)	Edit multi-language text	<p>If you have added multi-language text, the Text page allows you to edit multi-language data.</p>									
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected. The following illustrates the steps:</p> <ol style="list-style-type: none"> Input 123 to State 0, and 234 to State 1. Click State 0. Click Process the text of all states, and the State 1 text changes to 123. 									

No.	Property	Function description
		<p>This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p>  <p>The following illustrates the steps:</p> <ol style="list-style-type: none"> 1. Input Delta to State 0, and set the font to Segoe Script; input HMI to State 1, and set the font to Arial. 2. Click State 0. 3. Click Process text properties of all states, and the State 1 font changes to Segoe Script. <div style="display: flex; flex-direction: column;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;">(5)</div> <div style="margin-right: 20px;">Process text properties of all states</div> </div> <div style="display: flex; flex-direction: column;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;">Before change</div>  </div> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;">After change</div>  </div> </div> </div>

5

■ Picture

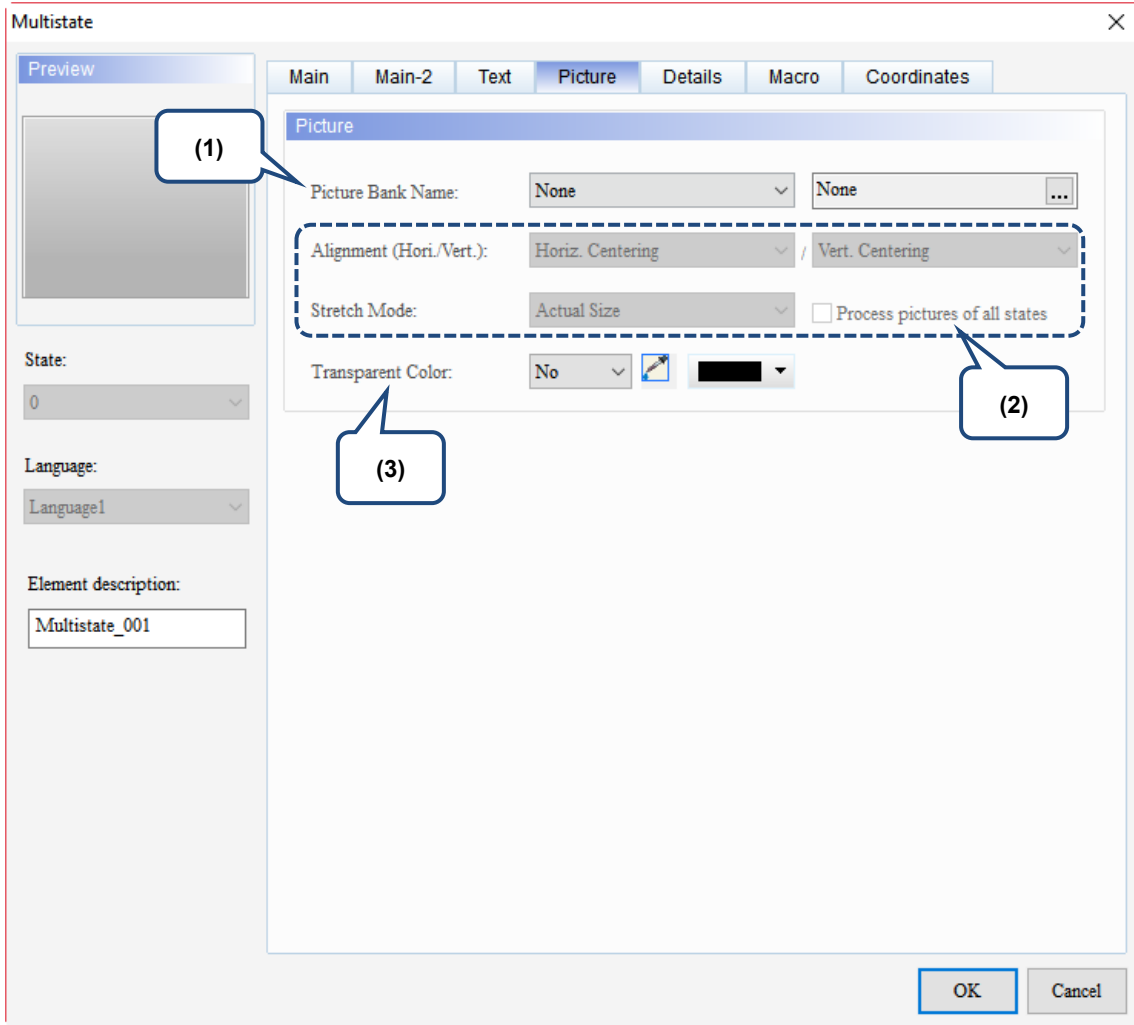
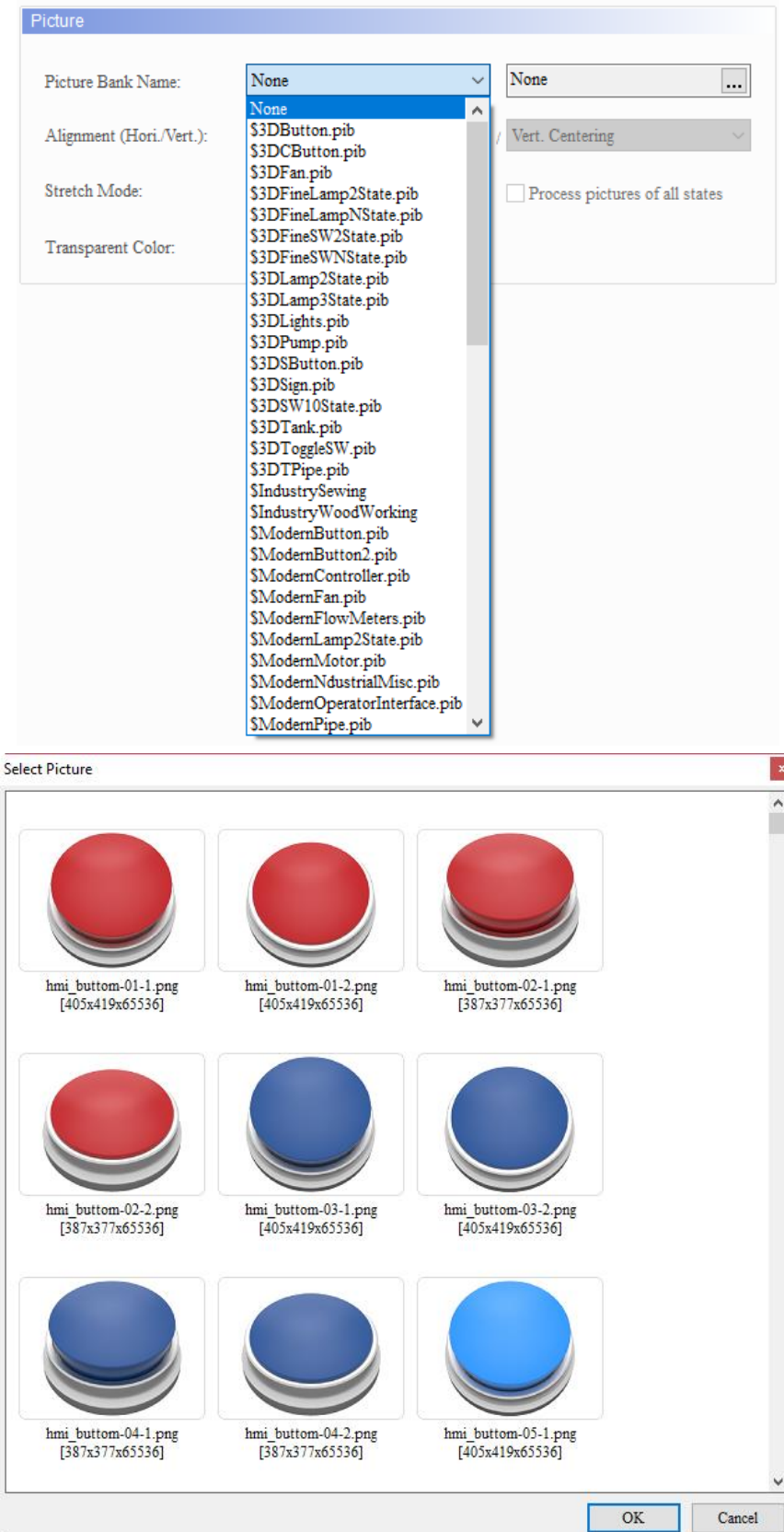
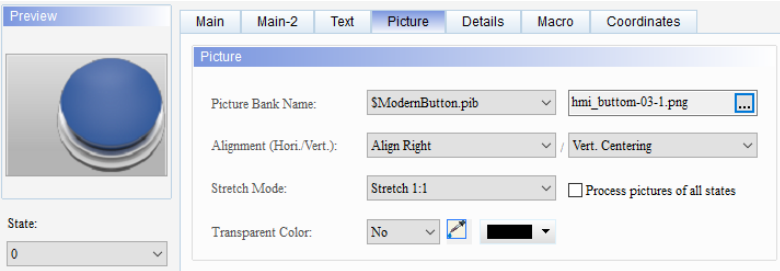













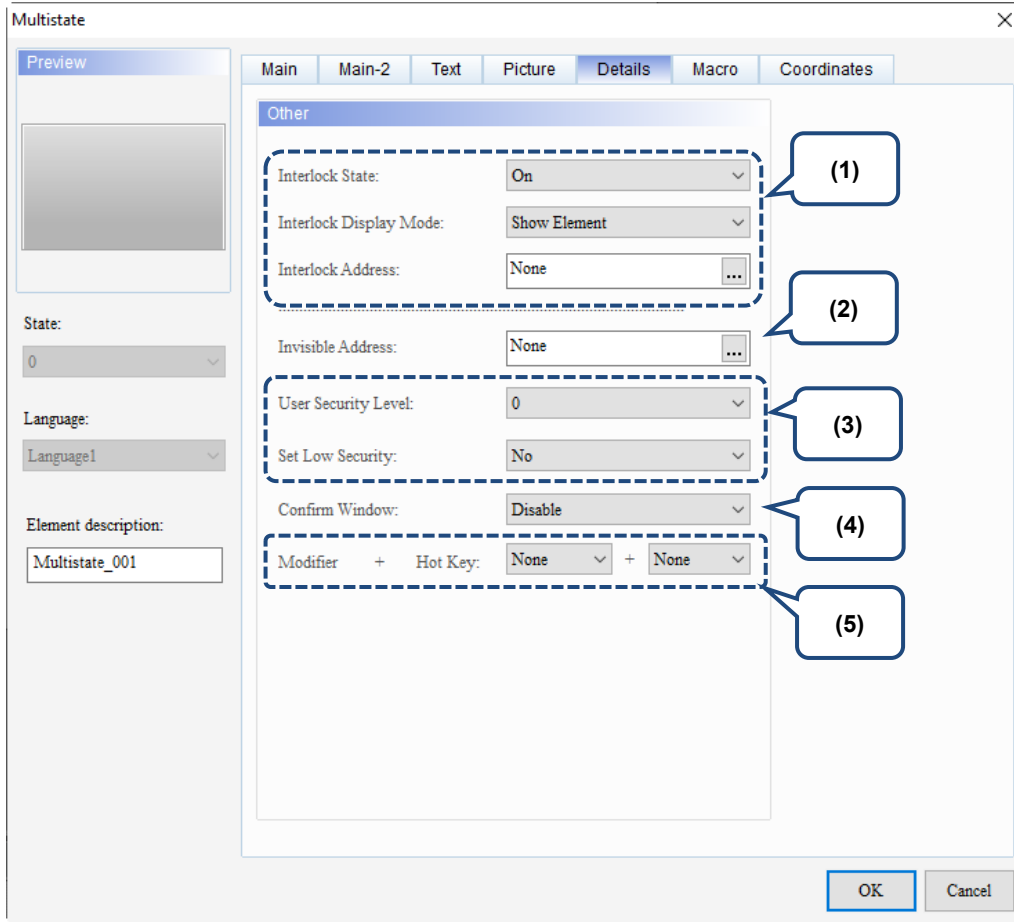
Figure 5.2.7 Picture property page for the Multistate element

No.	Property	Function description
(1)	Picture Bank Name	<p>The default for Picture Bank Name is None. To set the picture display, use the drop-down list box to view the picture bank provided by the software and then select the desired pictures.</p>  <p>The 'Picture' dialog box contains the following fields and options:</p> <ul style="list-style-type: none"> Picture Bank Name: None (dropdown menu) Alignment (Hori./Vert.): Vert. Centering (dropdown menu) Stretch Mode: (checkbox) Transparent Color: (checkbox) Process pictures of all states: (checkbox) <p>The 'Select Picture' dialog box displays a grid of button images with the following filenames and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

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No.	Property	Function description								
(2)	Alignment	<ul style="list-style-type: none"> You can use the Alignment options to set how pictures are aligned. 								
	Stretch Mode	<ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> If you select the check box for Process pictures of all states, it assumes that the elements have multiple states and some pictures do not fill the full element display area. You can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p style="text-align: center;"><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.		
Stretch All	Stretch 1:1	Actual Size								
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.								
										
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent. If you select the Transparent Color icon  and click the white part on the calendar, the software changes the white part into transparent, which you can see becomes identical to the element foreground color.</p> <p style="text-align: center;">Foreground Color: █</p> <div style="display: flex; justify-content: space-around;"> <div> <p>Preview</p>  </div> <div> <p>Preview</p>  </div> </div>								

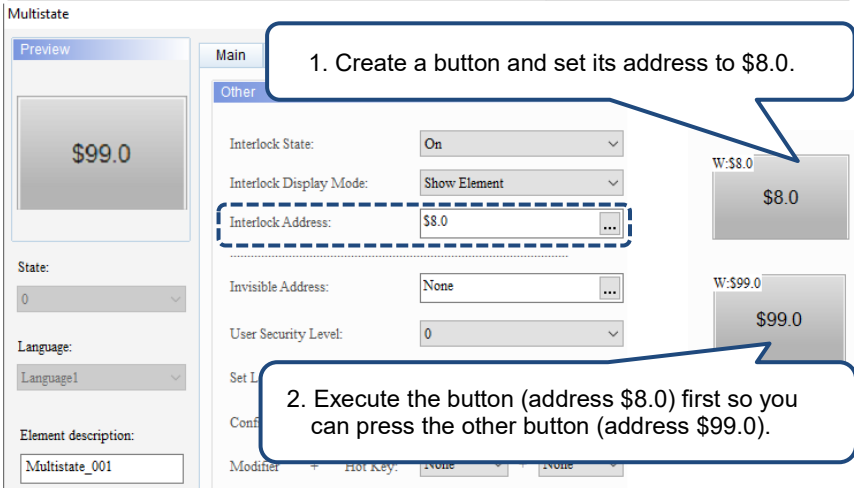
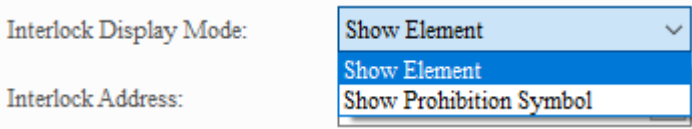
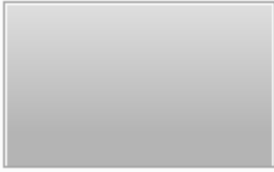

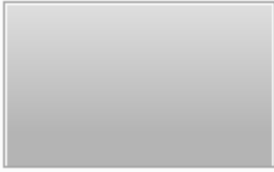

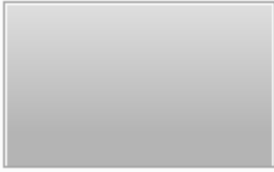


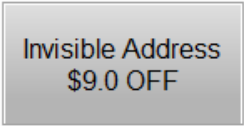

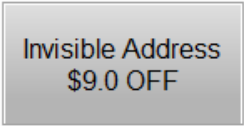

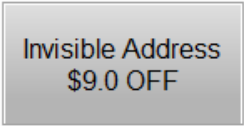
■ Details


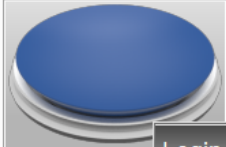


5

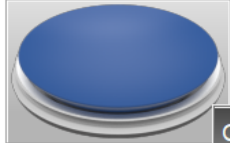
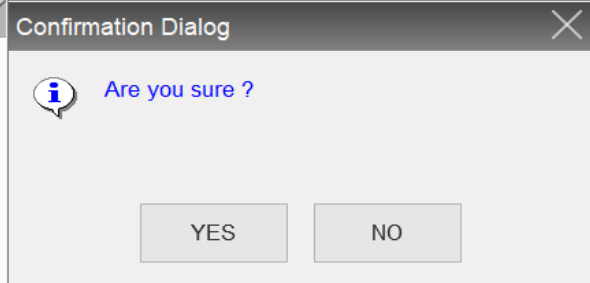
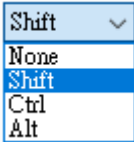
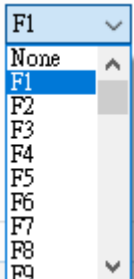
Figure 5.2.8 Details property page for the Multistate element

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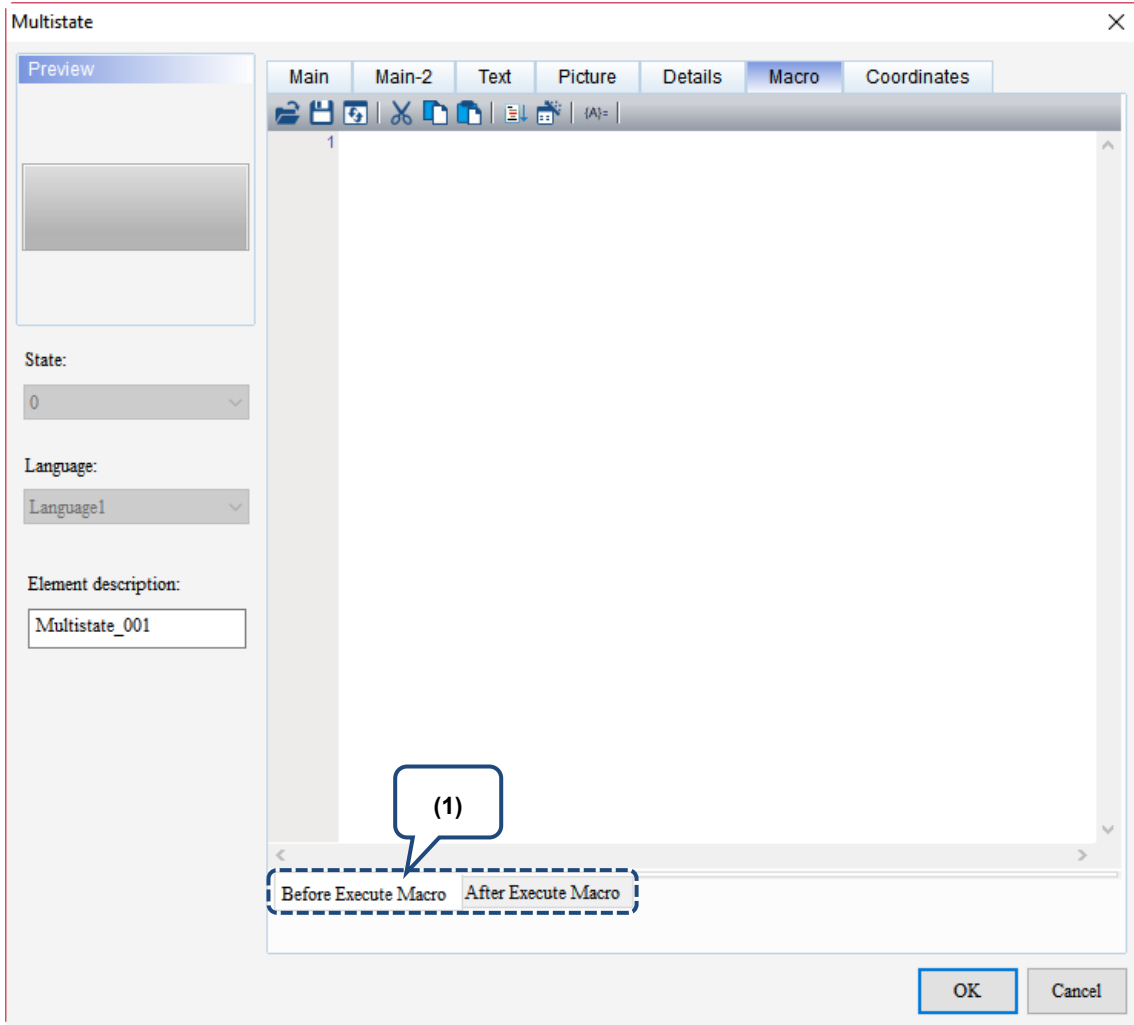
No.	Property	Function description				
(1)	Interlock State	<ul style="list-style-type: none"> The Interlock Address enables you to operate a certain element from this particular address, which must be operated along with the Interlock State. If the Interlock State is set to OFF, it means the Interlock Address is operable when the Interlock State is OFF; on the other hand, if the Interlock State is set to ON, the Interlock Address is operable when the Interlock State is ON. The following describes how it works: <ol style="list-style-type: none"> Create a button and set its address to \$8.0. Then, set the Interlock Address to \$8.0 for the button which address is \$99.0. Before having the button which address is \$99.0 to operate, you have to press the button which address is \$8.0 to validate the button action which address is \$99.0. 				
	Interlock Address					
	Interlock Display Mode	<ul style="list-style-type: none"> The Interlock Display Mode includes two options, Show Element and Show Prohibition Symbol.  <table border="1"> <tr> <td>Show Element</td> <td></td> </tr> <tr> <td>Show Prohibition Symbol</td> <td></td> </tr> </table>	Show Element		Show Prohibition Symbol	
Show Element						
Show Prohibition Symbol						
(2)	Invisible Address	<p>When the Invisible Address is set to ON, the button element is invisible and you cannot enable its functions.</p> <table border="1"> <tr> <td>Invisible Address is off</td> <td></td> <td></td> </tr> </table>	Invisible Address is off			
Invisible Address is off						

No.	Property	Function description
		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid gray; padding: 5px; background-color: #f0f0f0;">Invisible Address is on</div> <div style="border: 2px dashed blue; border-radius: 15px; padding: 10px; text-align: center;">Element is invisible</div> <div style="border: 1px solid gray; padding: 5px; background-color: #f0f0f0;">Invisible Address \$9.0 ON</div> </div> <div style="display: flex;"> <div style="border: 1px solid gray; padding: 5px; width: 25%;"> <p>Preview</p>  <p>State:</p> </div> <div style="border: 1px solid gray; padding: 5px; width: 75%;"> <p>Main Main-2 Text Picture Details Macro</p> <p>Other</p> <p>Interlock State: <input type="text" value="On"/></p> <p>Interlock Address: <input type="text" value="None"/></p> <hr/> <p>Invisible Address: <input type="text" value="\$9.0"/></p> </div> </div>
(3)	User Security Level	<ul style="list-style-type: none"> ■ You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. ■ After you set the permission level and press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password through the Password Table Setup element; refer to Section 5.7.2 Password Table Setup). <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>User Security Level: <input type="text" value="0"/></p> <p>Set Low Security: <input type="text" value="0"/></p> <p>Min. Press Time (sec): <input type="text" value="1"/></p> <p>Confirm Window: <input type="text" value="2"/></p> </div>
	Set Low Security	<ul style="list-style-type: none"> ■ If you specify Set Low Security to Yes, each time you input the password, the HMI sets the security level to the lowest. The next time you press the element, the HMI asks you to input the password for the corresponding security level. <div style="display: flex; align-items: center; margin-top: 10px;">  <div style="border: 1px solid gray; padding: 10px; width: 400px;"> <p style="text-align: center;">Login ✕</p> <p style="text-align: right;"><input type="checkbox"/> Security Login</p> <p>Account <input style="width: 150px;" type="text"/></p> <p>Password <input style="width: 150px;" type="text"/></p> <p style="text-align: right;"><input type="button" value="OK"/></p> </div> </div>

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No.	Property	Function description
(4)	Confirm Window	<p>If you set the Confirm Window to Yes, the following Confirmation Dialog appears for you to confirm the pressing action after pressing the element.</p>  
(5)	Modifier + Hot Key	<ul style="list-style-type: none"> ■ Allows you to use the hot keys on the external keyboard to execute the button. ■ The Modifier options include None, Shift, Ctrl, and Alt.  <ul style="list-style-type: none"> ■ The Hot Key options include F1 to F12, English letters A to Z, and number keys 0 to 9. 

■ Macro



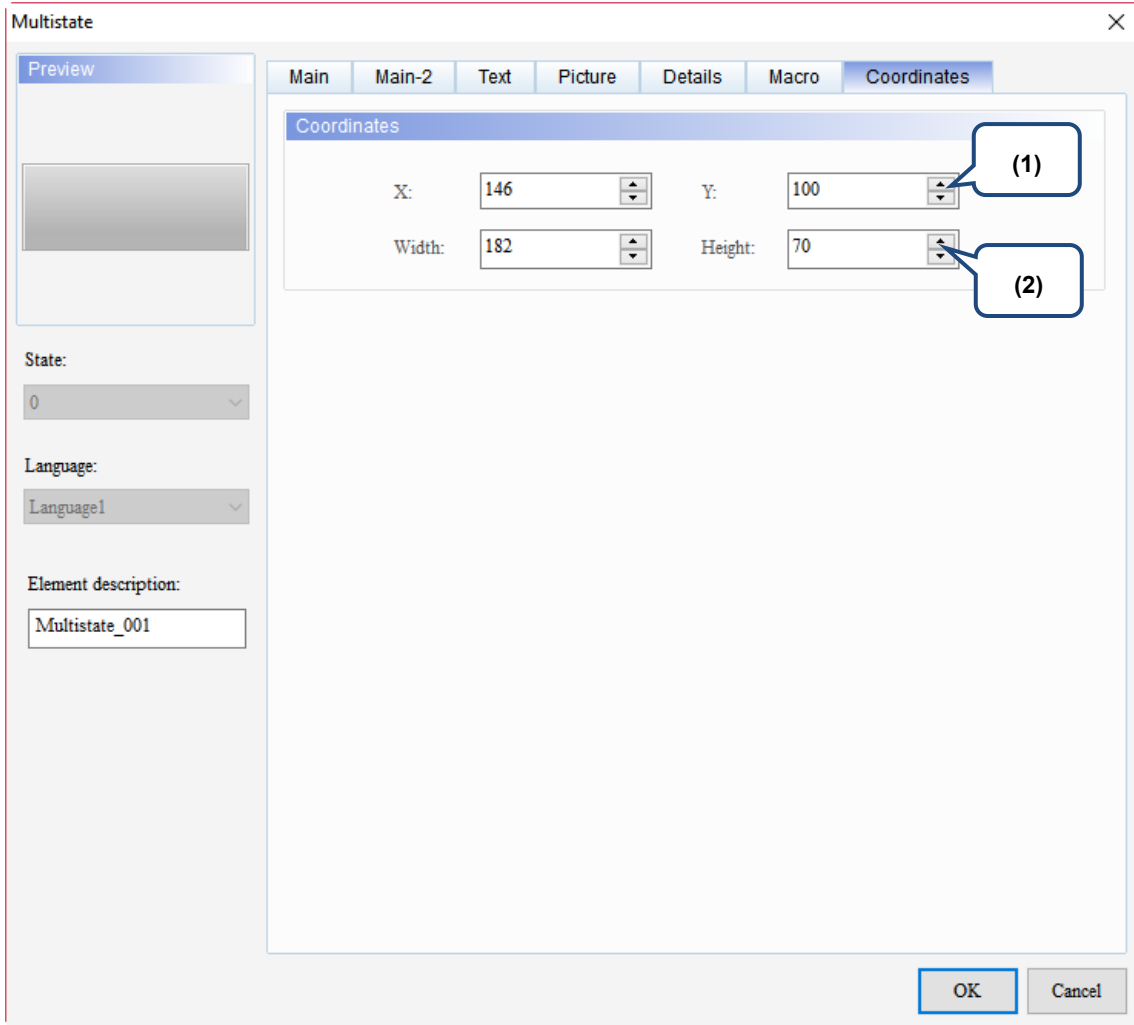
5

Figure 5.2.9 Macro property page for the Multistate element

5

No.	Function description	
(1)	<p style="text-align: center;">Before Execute Macro</p> <p>Flowchart of Before Execute Macro:</p> <p>When you touch the button element, the HMI executes the macro commands first, and then executes the button actions. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.</p>	<p style="text-align: center;">After Execute Macro</p> <p>Flowchart of After Execute Macro:</p> <p>When you touch the button element, the HMI executes the button actions first, and then executes the macro commands. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.</p>

■ Coordinates



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Figure 5.2.10 Coordinates property page for the Multistate element

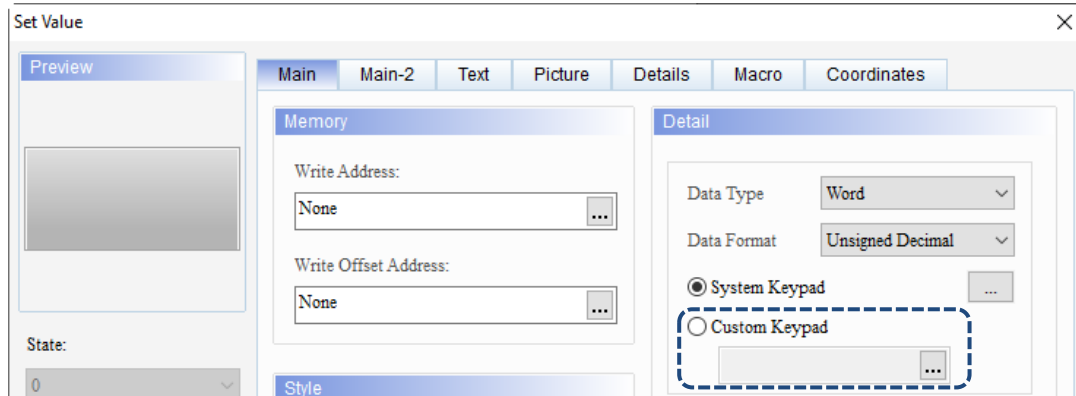
No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

5

5.3 Set Value



When you touch this button on the HMI, the built-in Numeric Keypad appears on the screen for you to input values. After you press **ENTER**, the HMI sends the values to the corresponding register. You can set the maximum and minimum input values and set the trigger mode, such as triggering the specified controller Bit address before or after writing.

Note: the Custom Keypad for the Set Value element is not supported on DOP-B, DOP-H and HMC series HMIs.



Refer to Table 5.3.1 for the Set Value example.

Table 5.3.1 Set Value example

Set Value																	
Write Address	<ul style="list-style-type: none"> ■ Create a Set Value element and set the Write Address to D50. ■ Create a Numeric Display element and set the Read Address to D50. <div style="border: 1px solid #ccc; padding: 5px;"> <p>Set Value</p> <div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid #ccc; padding: 5px; width: 45%;"> <p>Preview</p>  </div> <div style="border: 1px solid #ccc; padding: 5px; width: 50%;"> <p>Main Main-2 Text Picture</p> <p>Memory</p> <p>Write Address: <input type="text" value="{Link2}1@D50"/> ...</p> <p>Write Offset Address: <input type="text" value="None"/> ...</p> </div> </div> <hr/> <div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid #ccc; padding: 5px; width: 45%;"> <p>Preview</p>  </div> <div style="border: 1px solid #ccc; padding: 5px; width: 50%;"> <p>Main Main-2 Text Details</p> <p>Memory</p> <p>Read Address: <input type="text" value="{Link2}1@D50"/> ...</p> <p>Read Offset Address: <input type="text" value="None"/> ...</p> </div> </div> </div>																
Execution results	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="background-color: #cccccc; padding: 5px; width: 20%;">Before Set Value</div> <div style="border: 1px solid #ccc; padding: 5px; width: 80%;"> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="background-color: #333; color: white; padding: 5px 10px; border-radius: 3px;">Set Value</div> <div style="border: 1px solid #ccc; padding: 5px 15px; border-radius: 3px;">0</div> </div> <div style="margin-top: 10px;"> <div style="border: 1px solid #ccc; padding: 5px; display: flex; align-items: center;"> <input style="width: 100%; border: none;" type="text" value="100"/> 0 ~ 9999 </div> <table border="1" style="border-collapse: collapse; text-align: center; width: 100%; margin-top: 5px;"> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">3</td> <td style="padding: 5px; color: red;">DEL</td> </tr> <tr> <td style="padding: 5px;">4</td> <td style="padding: 5px;">5</td> <td style="padding: 5px;">6</td> <td style="padding: 5px; color: red;">< ></td> </tr> <tr> <td style="padding: 5px;">7</td> <td style="padding: 5px;">8</td> <td style="padding: 5px;">9</td> <td style="padding: 5px; color: red;">CLR</td> </tr> <tr> <td style="padding: 5px; color: red;">+/-</td> <td style="padding: 5px;">0</td> <td style="padding: 5px;">.</td> <td style="padding: 5px; color: red;">ENT</td> </tr> </table> </div> </div> </div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 10px;"> <div style="background-color: #cccccc; padding: 5px; width: 20%;">After Set Value</div> <div style="border: 1px solid #ccc; padding: 5px; width: 80%;"> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="background-color: #333; color: white; padding: 5px 10px; border-radius: 3px;">Set Value</div> <div style="border: 1px solid #ccc; padding: 5px 15px; border-radius: 3px;">100</div> </div> </div> </div> <p>Click Set Value, input the value of 100, and the Numeric Display element displays 100.</p>	1	2	3	DEL	4	5	6	< >	7	8	9	CLR	+/-	0	.	ENT
1	2	3	DEL														
4	5	6	< >														
7	8	9	CLR														
+/-	0	.	ENT														

When you double-click the Set Value element, the property page is shown as follows.

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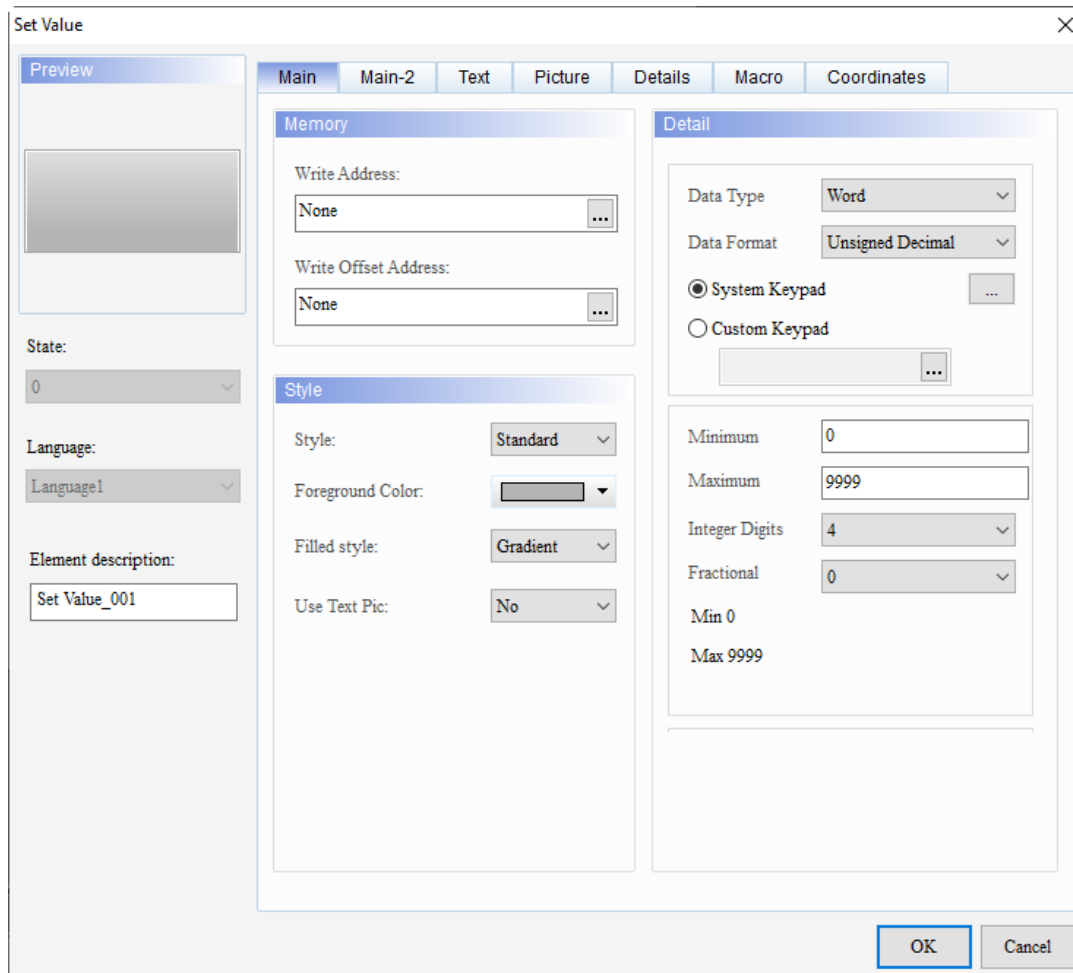
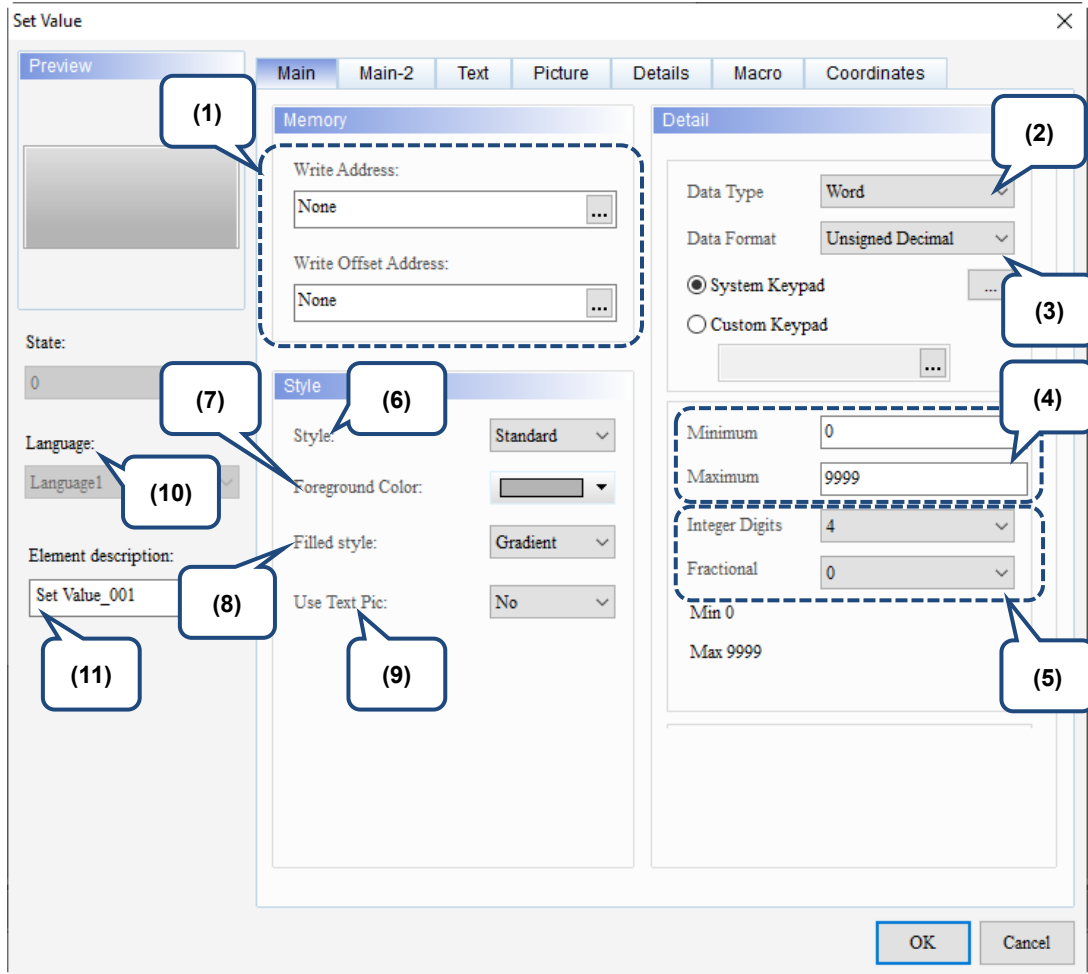


Figure 5.3.1 Properties of Set Value

Table 5.3.2 Function page of Set Value

Set Value	
Function page	Description
Preview	The Set Value element can only view multi-language data display since the multistate property is not available for this element.
Main	Set the Write Address, Write Offset Address, Style, Foreground Color, Filled style, and Use Text Pic function. Set the Data Type, Data Format, keypad style, Minimum / Maximum, Integer Digits, and Fractional of the Set Value element.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing options.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color options.
Details	Set the Interlock Address, Interlock State, Interlock Display Mode, Trigger Mode, Trigger Addr., Invisible Address, User Security Level, Set Low Security, Mark as Asterisk (*), Confirm Window, Show overrange message, and Modifier + Hot Key.
Macro	Set the Before Execute Macro and After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the button element.

■ Main

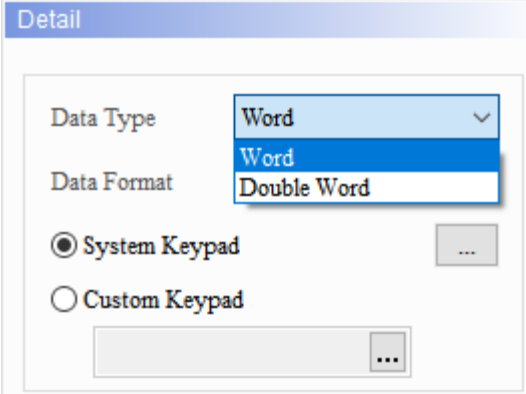
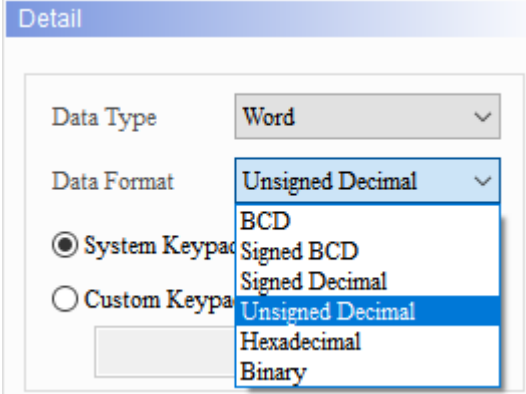
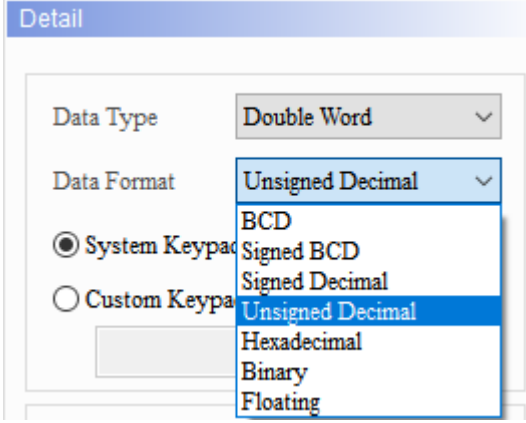


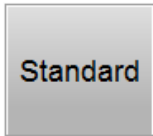



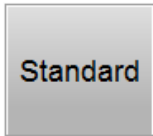



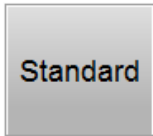



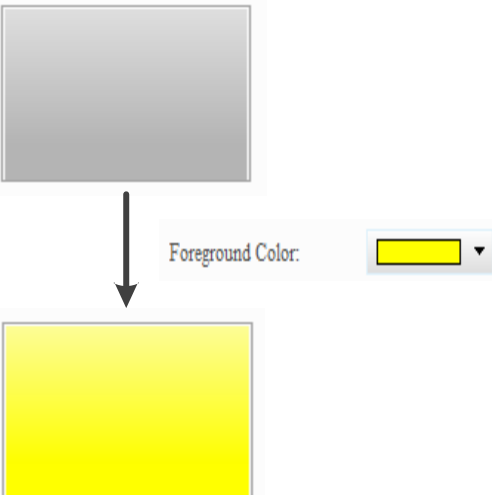
5

Figure 5.3.2 Main property page for the Set Value element







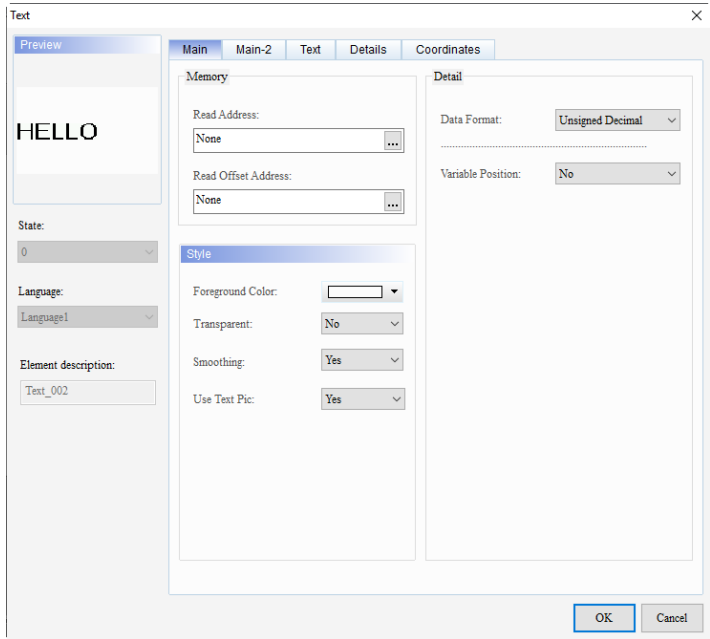
No.	Property	Function description
(1)	Write Address	<ul style="list-style-type: none"> You can choose the internal memory or the controller register address. The input memory type must be Word. For the Link name and Device Type, refer to Section 5.1.
	Write Offset Address	Refer to the instructions in Appendix D Write and Read Offset Addresses.

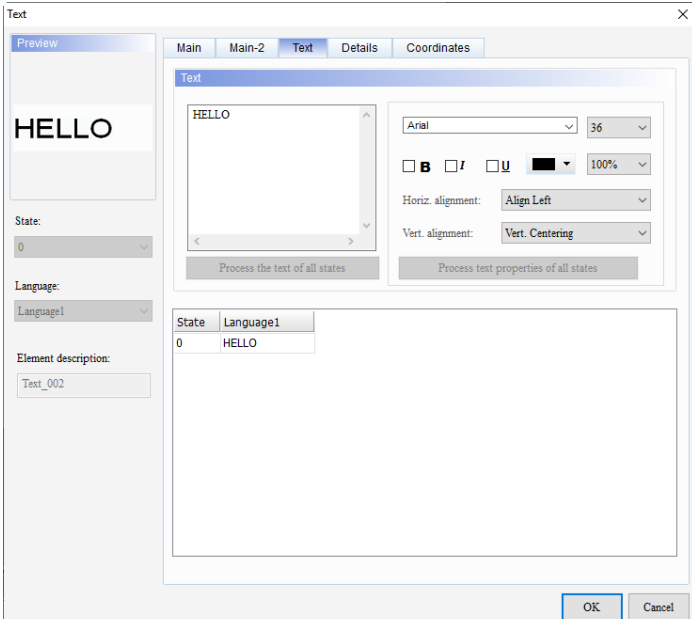
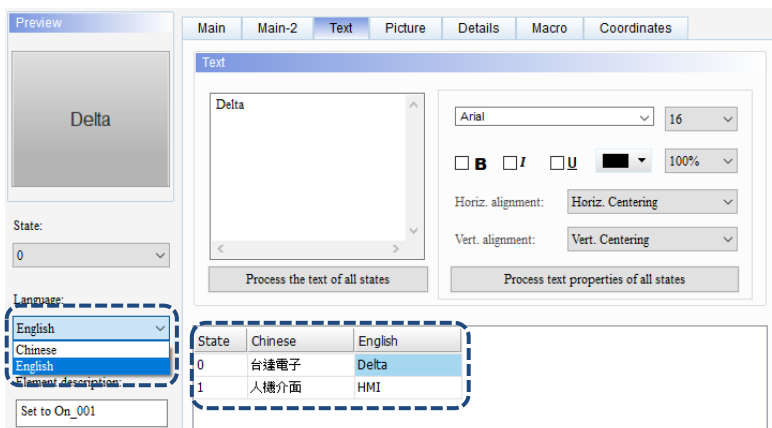
5

No.	Property	Function description	
(2)	Data Type		<p>There are two data types: Word and Double Word.</p> 
(3)	Detail settings	Data Format	<ul style="list-style-type: none"> ■ When you set the Data Type to Word, the supported data formats are as follows:  ■ When you set the Data Type to Double Word, the supported data formats are as follows: 

No.	Property	Function description																																		
(4)	Detail settings	Minimum / Maximum	<p>The allowable ranges for the minimum and maximum values are subject to change based on the selected Data Type and Data Format.</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="6">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFF</td> </tr> <tr> <td>Binary</td> <td>0 to 0xFFFF</td> </tr> <tr> <td rowspan="6">Double Word</td> <td>BCD</td> <td>0 to 99999999</td> </tr> <tr> <td>Signed BCD</td> <td>-9999999 to +9999999</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294967295</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFFFFFF</td> </tr> <tr> <td>Binary</td> <td>0 to 0xFFFFFFFF</td> </tr> <tr> <td>Floating</td> <td>0 to 99999999</td> </tr> </tbody> </table>			Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hex	0 to 0xFFFF	Binary	0 to 0xFFFF	Double Word	BCD	0 to 99999999	Signed BCD	-9999999 to +9999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294967295	Hex	0 to 0xFFFFFFFF	Binary	0 to 0xFFFFFFFF	Floating	0 to 99999999
Data Type	Data Format	Allowable range																																		
Word	BCD	0 to 9999																																		
	Signed BCD	-999 to +9999																																		
	Signed Decimal	-32768 to +32767																																		
	Unsigned Decimal	0 to 65535																																		
	Hex	0 to 0xFFFF																																		
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	Signed BCD	-9999999 to +9999999																																		
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	Unsigned Decimal	0 to 4294967295																																		
	Hex	0 to 0xFFFFFFFF																																		
	Binary	0 to 0xFFFFFFFF																																		
Floating	0 to 99999999																																			
(5)	Integer Digits Fractional Digits	You can set the displaying number of integer digits and the number of decimal places.																																		
(6)	Style	<p>The available styles are Standard, Raised, Round, and Invisible. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Round</th> <th>Invisible</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Standard	Raised	Round	Invisible																												
Standard	Raised	Round	Invisible																																	
																																				
(7)	Foreground Color	<ul style="list-style-type: none"> Set the foreground color of the element. When you set the Style to Invisible, the Foreground Color setting is invalid. 																																		

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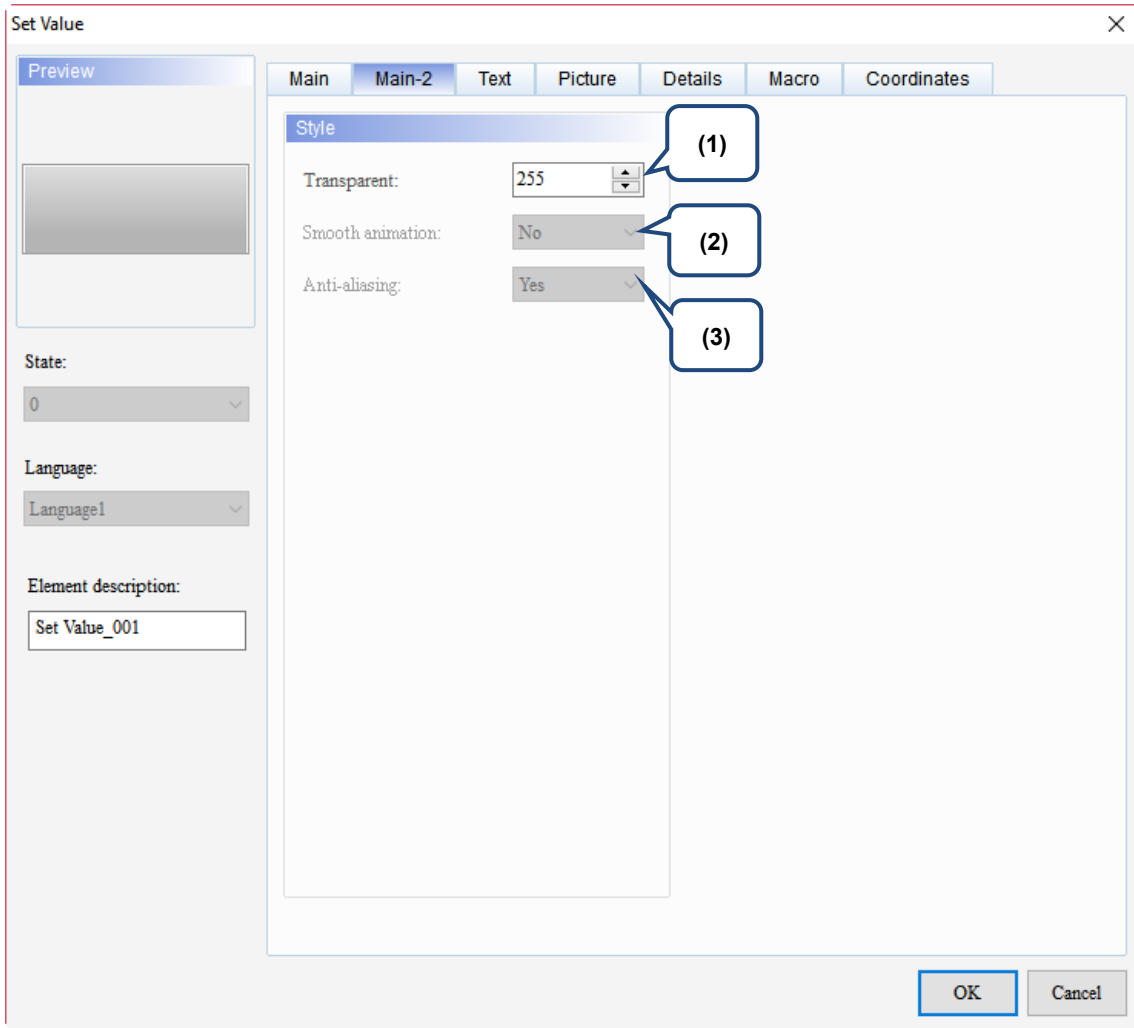
No.	Property	Function description				
(8)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						
(9)	Use Text Pic	<p>Unlike the DOP-B series models using pictures to present all texts, the DOP-100 series models present directly with the texts. Therefore, if the language you use for the element is not yet supported by the PC, it is possible to cause missing characters and garbled texts when the element is displayed on the HMI. To have the text display effect be the same as that on the DOP-B models, the Use Text Pic function is added for the Text, Button, and General Message Display elements. Refer to the following examples.</p> <p style="text-align: center;">Use Text Pic function</p> <ul style="list-style-type: none"> ■ Create a Text element and go to the [Main] tab to set the Use Text Pic function. <div style="border: 1px solid gray; padding: 5px;">  <p style="text-align: center;">Create Text element</p> </div> <p>Note: if you use the DOPSoft 4.00.06 version to open a DOP-B project, the Use Text Pic function is enabled (Yes) by default. If you add a DOP-100 project, then the Use Text Pic function is disabled (No) by default.</p>				

No.	Property	Function description									
(9)	Use Text Pic	<p style="text-align: center;">Use Text Pic function</p> <ul style="list-style-type: none"> Go to the [Text] tab, and type the text and set its font. 									
		<ul style="list-style-type: none"> After creating the element, download it to the HMI. The following table shows the results of using and not using the Use Text Pic function. <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Use Text Pic is Yes</th> <th>Use text Pic is No</th> </tr> </thead> <tbody> <tr> <td>HELLO</td> <td>HELLO</td> </tr> </tbody> </table>	Use Text Pic is Yes	Use text Pic is No	HELLO	HELLO					
Use Text Pic is Yes	Use text Pic is No										
HELLO	HELLO										
(10)	Language	<p>If you have set the language data, you can edit the properties of the displayed text with the Language setting of the element.</p>  <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>台達電子</td> <td>Delta</td> </tr> <tr> <td>1</td> <td>人機介面</td> <td>HMI</td> </tr> </tbody> </table>	State	Chinese	English	0	台達電子	Delta	1	人機介面	HMI
State	Chinese	English									
0	台達電子	Delta									
1	人機介面	HMI									

5

No.	Property	Function description																																																																																									
(11)	Element description	Record the button actions executed and to be executed. The record is written into the CSV file of the Operation Log Table.																																																																																									
		<table border="1"> <thead> <tr> <th>Time</th> <th>Date</th> <th>Level</th> <th>Screen</th> <th>Desc</th> <th>Action</th> <th>Pre Value</th> <th>Change Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13:37:54</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>13:37:56</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>3</td> <td>13:38:19</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level Switch</td> <td></td> <td>8</td> <td>4</td> </tr> <tr> <td>4</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>5</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>6</td> <td>13:38:22</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>7</td> <td>13:38:23</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>8</td> <td>13:38:31</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level Switch</td> <td></td> <td>4</td> <td>8</td> </tr> <tr> <td>9</td> <td>13:38:35</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>\$100 Value</td> <td>Set Val</td> <td>85</td> <td>25</td> </tr> </tbody> </table>	Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value	1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1	0	2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1	3	13:38:19	5/5/2016	8	Screen_22	Level Switch		8	4	4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1	5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0	6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1	7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0	8	13:38:31	5/5/2016	4	Screen_22	Level Switch		4	8	9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25
		Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value																																																																																		
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		3	13:38:19	5/5/2016	8	Screen_22	Level Switch		8	4																																																																																	
		4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1																																																																																	
		5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0																																																																																	
		6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1																																																																																	
		7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0																																																																																	
8	13:38:31	5/5/2016	4	Screen_22	Level Switch		4	8																																																																																			
9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25																																																																																			

■ Main-2



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Figure 5.3.3 Main-2 property page for the Set Value element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

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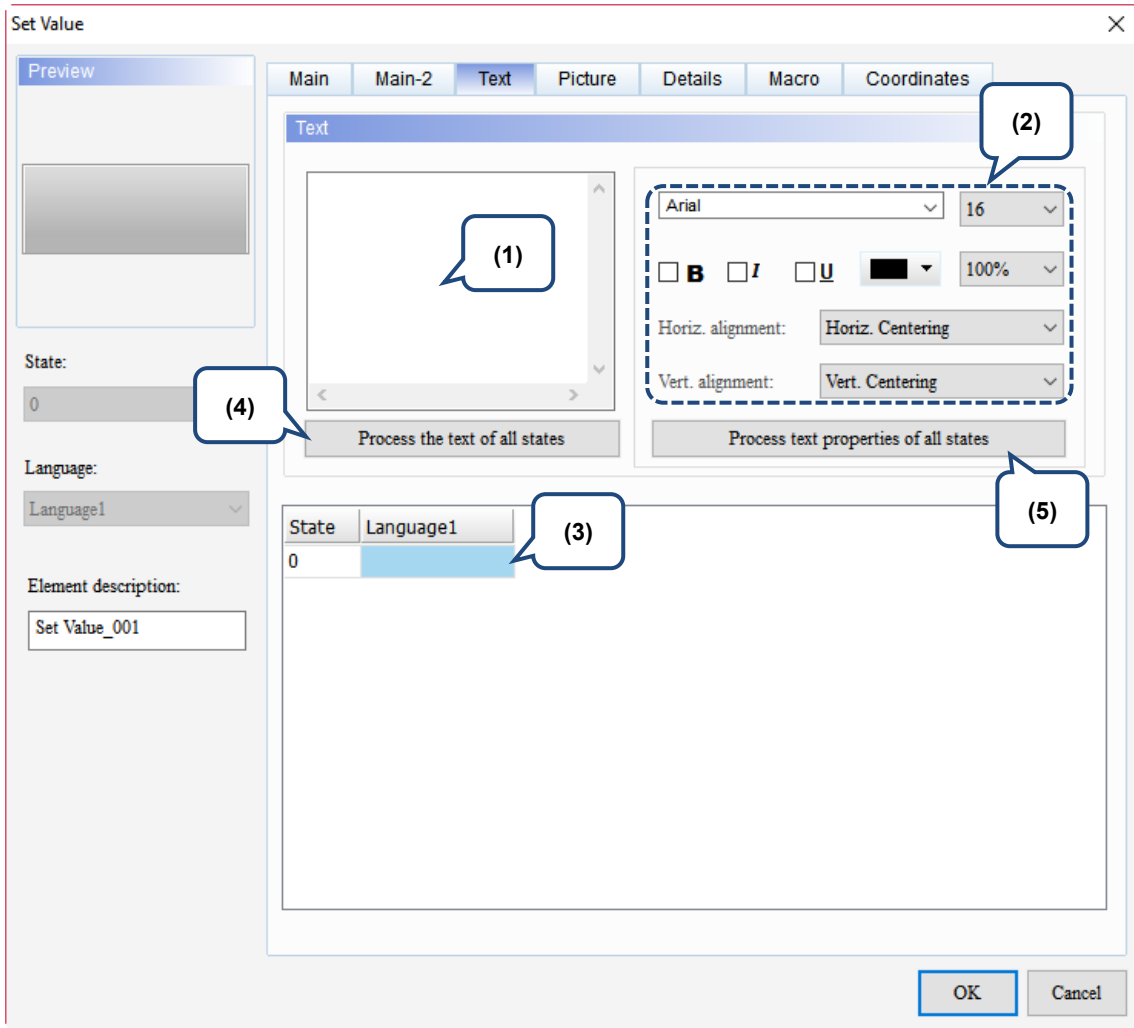
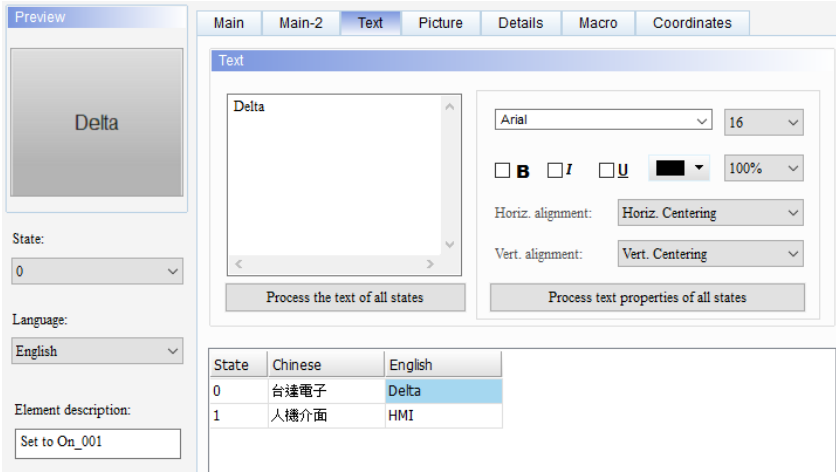
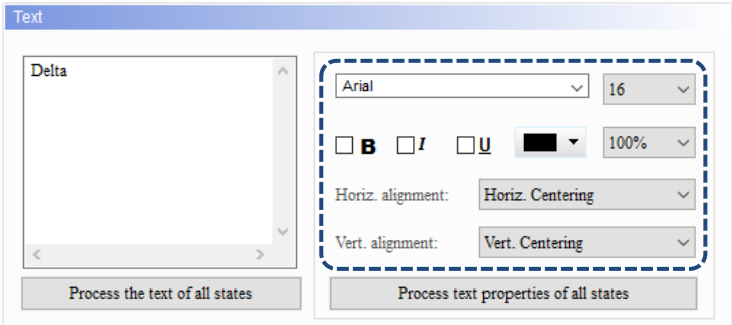
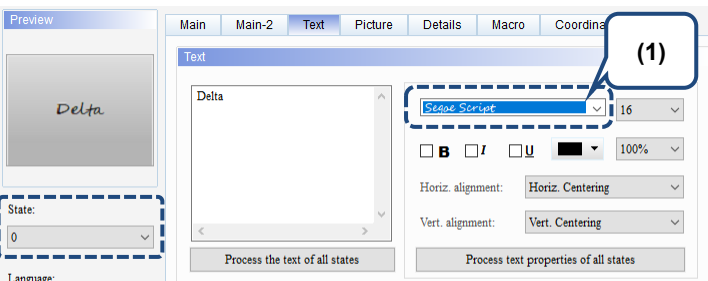
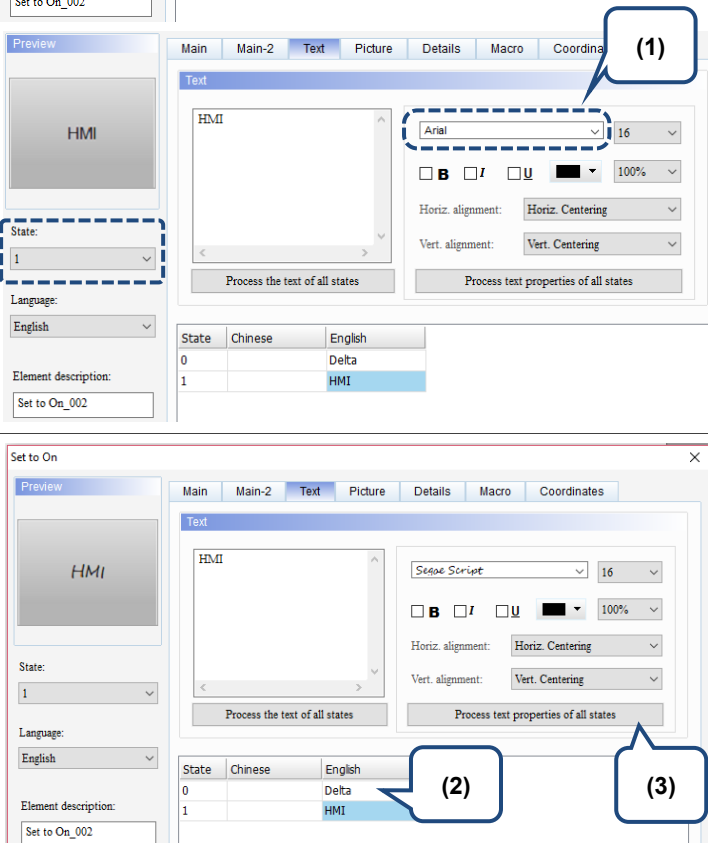


Figure 5.3.4 Text property page for the Set Value element

No.	Property	Function description
(1)	Text	<p>■ You can input the text to be displayed in the text box.</p>  <p>■ As long as the element allows text input, you can click the element on the screen and press the space key on the keyboard to start editing and inputting the text.</p>
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the text property setting results.
(3)	Edit Multi-language Text	If you have added multi-language text, the Text page allows you to edit multi-language data.

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No.	Property	Function description
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected.</p> <p>The following illustrates the steps:</p> <ol style="list-style-type: none"> 1. Input 123 to State 0, and 234 to State 1. 2. Click State 0. 3. Click Process the text of all states, and the State 1 text changes to 123. <div style="display: flex; flex-direction: column;"> <div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p>Before change</p> </div> <div style="border: 1px solid gray; padding: 5px;"> <p>After change</p> </div> </div>

No.	Property	Function description
		<p>This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p>  <ul style="list-style-type: none"> ■ The following illustrates the steps: <ol style="list-style-type: none"> 1. Input Delta to State 0, and set the font to Segoe Script; input HMI to State 1, and set the font to Arial. 2. Click State 0. 3. Click Process text properties of all states, and the State 1 font changes to Segoe Script. <div style="display: flex; flex-direction: column;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">(5)</div> <div style="margin-right: 10px;">Process text properties of all states</div> </div> <div style="display: flex; flex-direction: column;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">Before change</div> <div>  </div> </div> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">After change</div> <div>  </div> </div> </div> </div>

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■ Picture

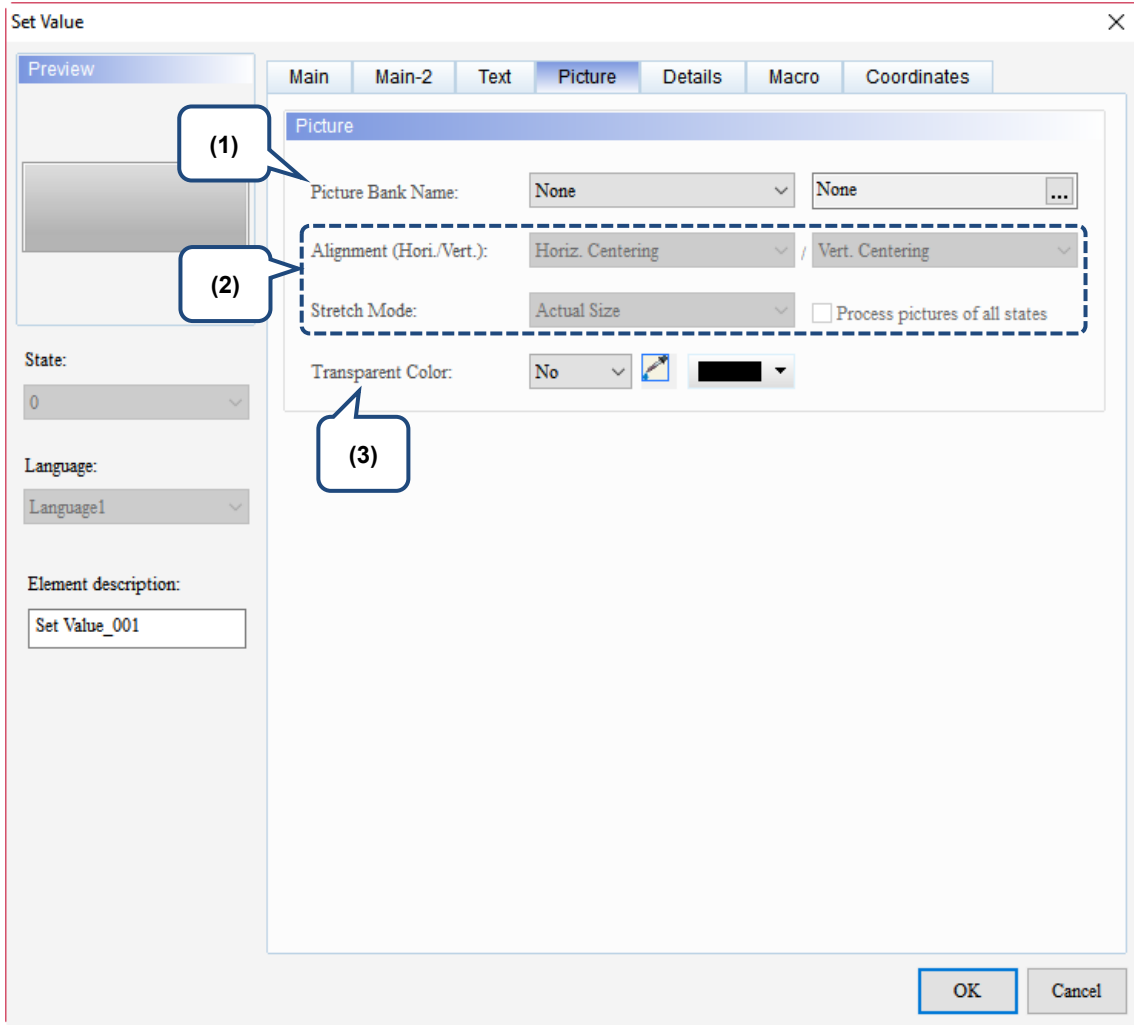
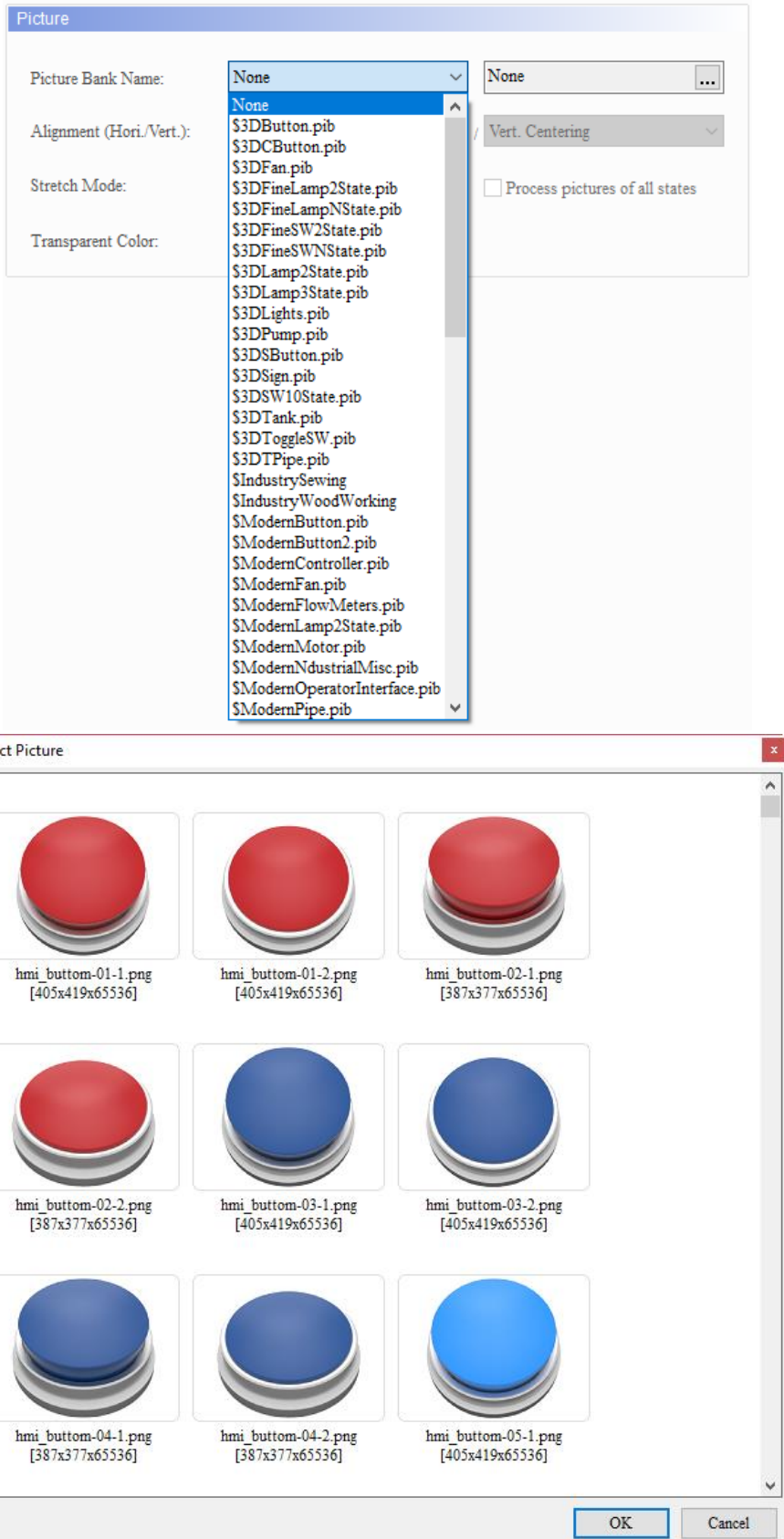
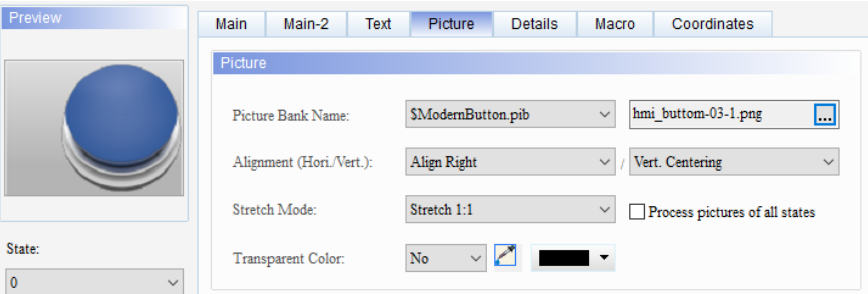














Figure 5.3.5 Picture property page for the Set Value element

No.	Property	Function description
(1)	Picture Bank Name	<p>The default for Picture Bank Name is None. To set the picture display, use the drop-down list box to view the picture bank provided by the software and then select the desired pictures.</p>  <p>The 'Picture' dialog box includes the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: None (with a dropdown menu listing various picture banks such as \$3DButton.pib, \$3DCButton.pib, etc.) Alignment (Hori./Vert.): Vert. Centering Stretch Mode: (empty) Transparent Color: (empty) <p>The 'Select Picture' dialog box displays a grid of button images with the following filenames and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

5

No.	Property	Function description									
	Alignment	<p>You can use the Alignment options to set how pictures are aligned.</p> 									
(2)	Stretch Mode	<ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> If you select the check box for Process pictures of all states, it assumes that the elements have multiple states and some pictures do not fill the full element display area. You can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p style="text-align: center;"><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.			
Stretch All	Stretch 1:1	Actual Size									
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.									
											
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent. If you select the Transparent Color icon  and select the white part on the calendar, the software changes the white part into transparent, which you can see becomes identical to the element foreground color.</p> <p style="text-align: center;">Foreground Color: </p> <div style="display: flex; justify-content: center; gap: 20px;">   </div>									

■ Details

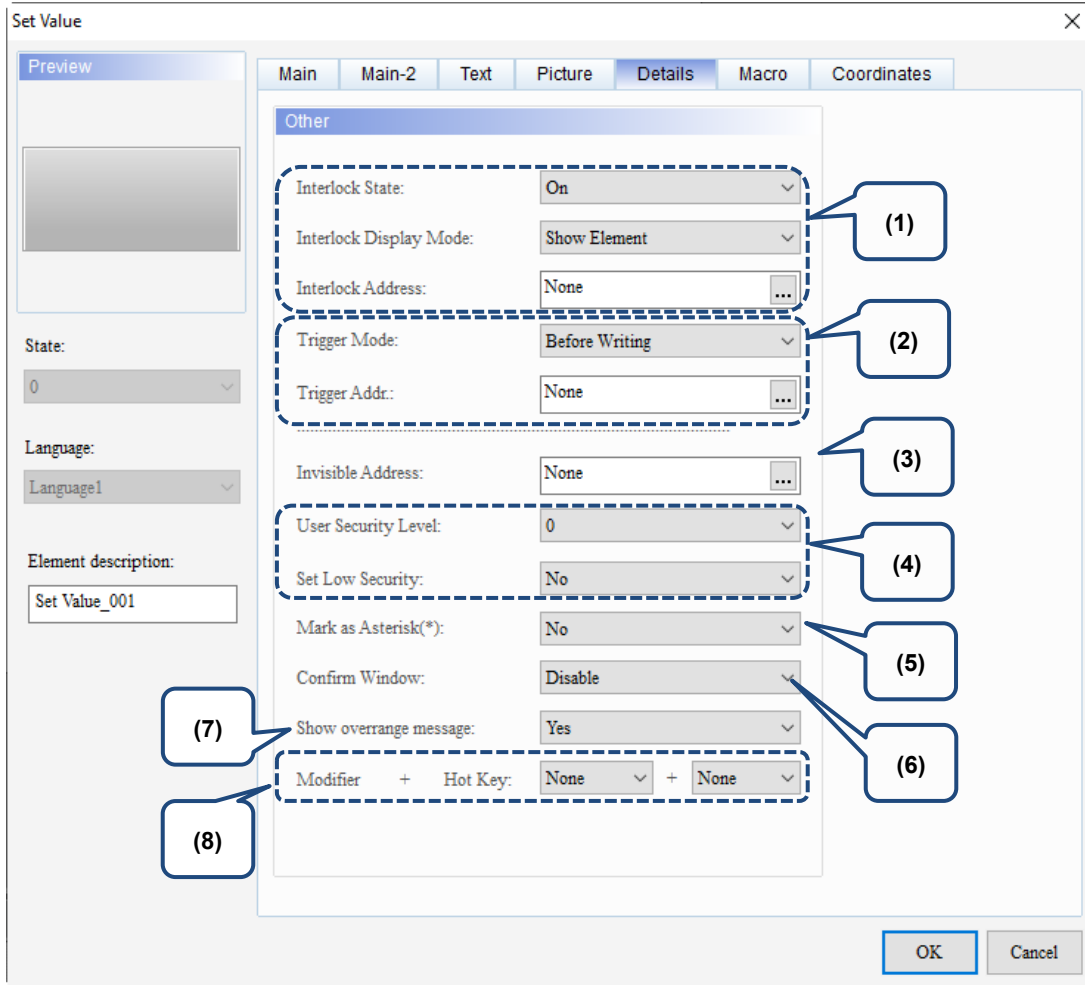
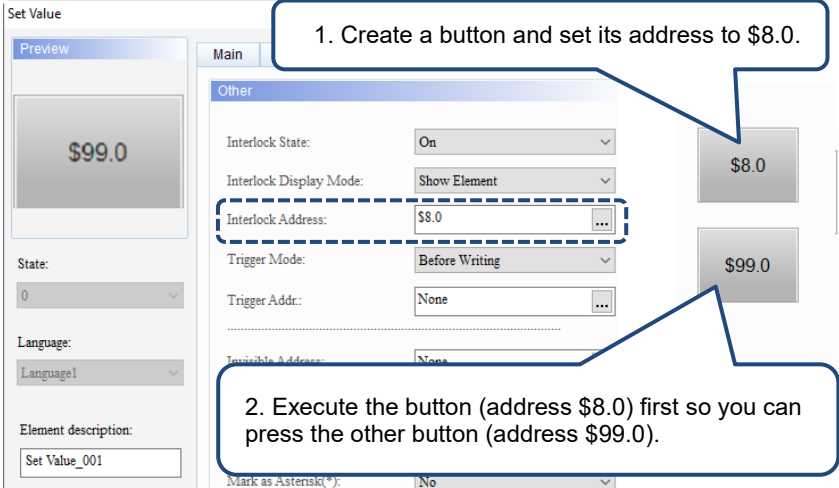
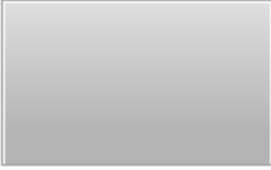

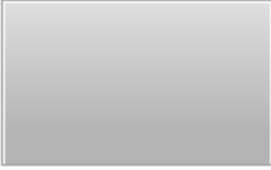

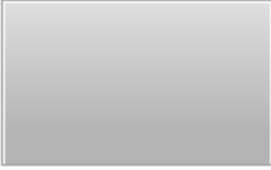

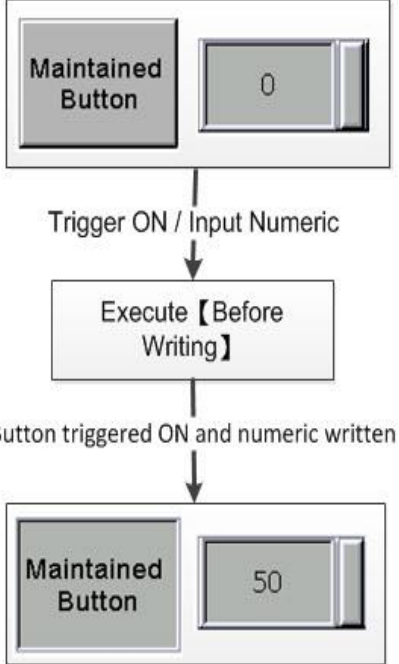
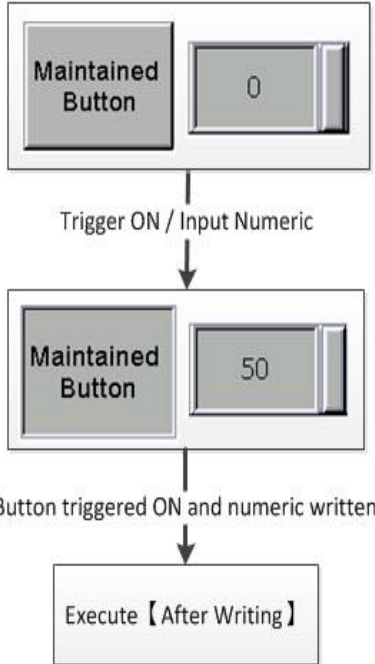
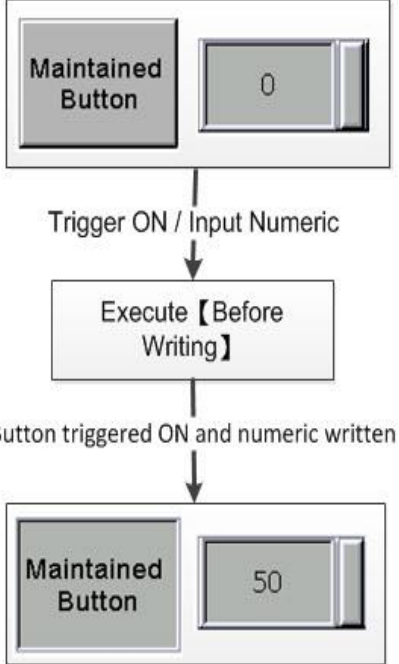
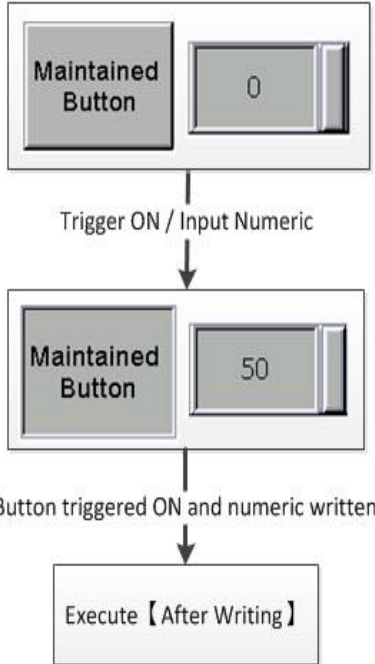
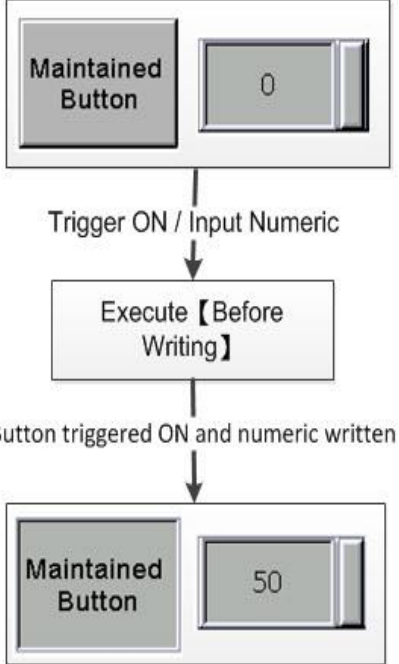
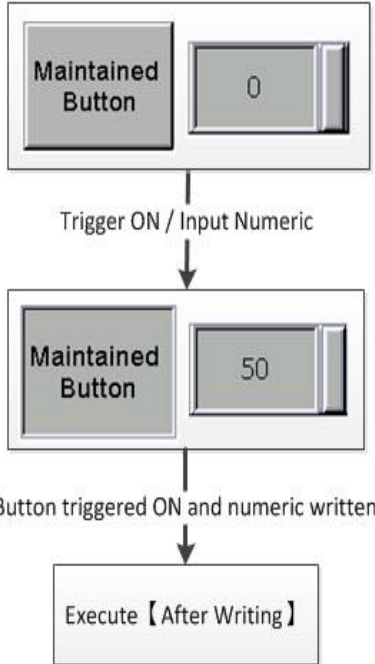

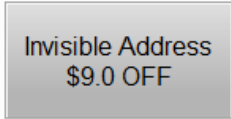
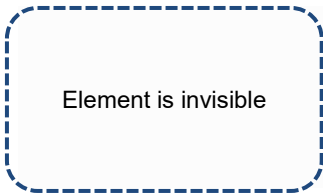
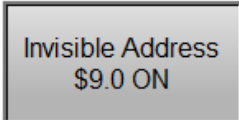


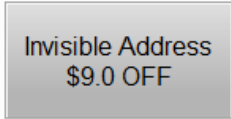
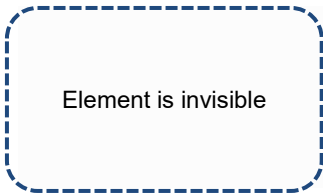
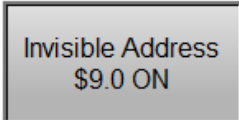


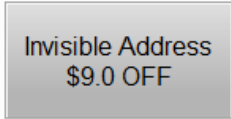
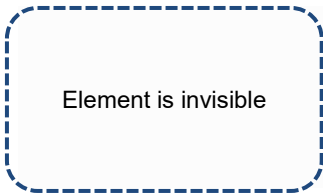
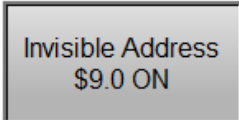



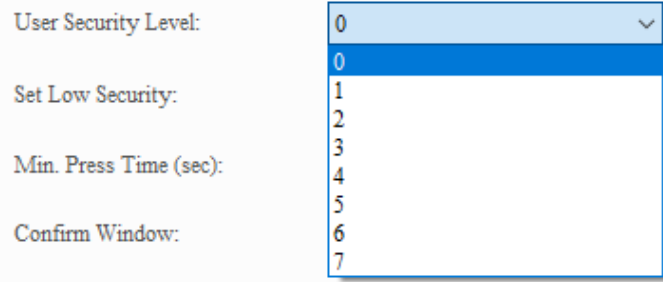
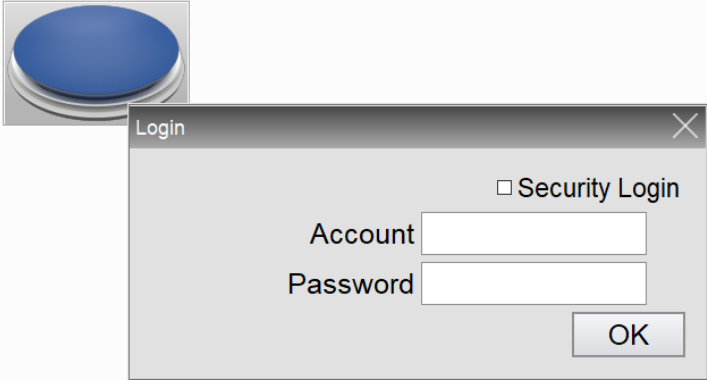
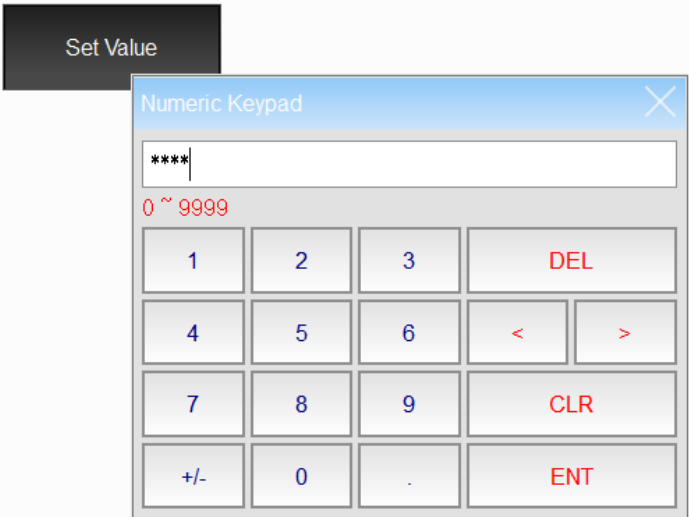
Figure 5.3.6 Details property page for the Set Value element

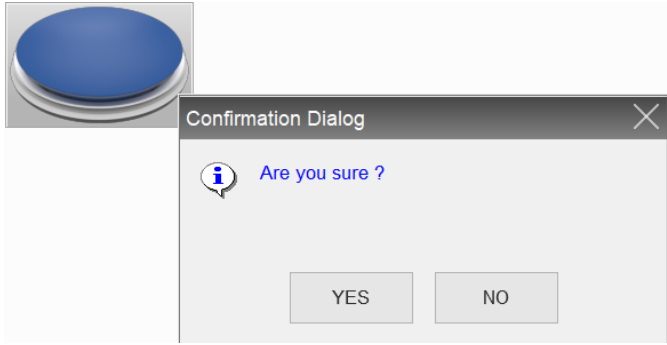
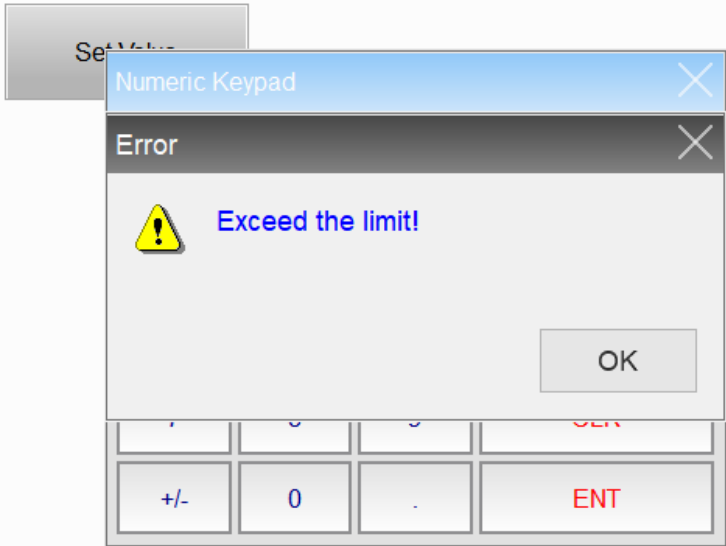
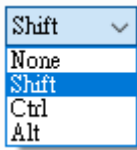
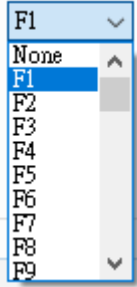
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No.	Property	Function description								
(1)	Interlock State / Interlock Address / Interlock Display Mode	<ul style="list-style-type: none"> The Interlock Address enables you to operate a certain element from this particular address, which must be operated along with the Interlock State. If the Interlock State is set to OFF, it means the Interlock Address is operable when the Interlock State is OFF; on the other hand, if the Interlock State is set to ON, the Interlock Address is operable when the Interlock is ON. The following describes how it works: <ol style="list-style-type: none"> Create a button and set its address to \$8.0. Then, set the Interlock Address to \$8.0 for the button which address is \$99.0. Before having the button which address is \$99.0 to operate, you have to press the button which address is \$8.0 to validate the button action which address is \$99.0.  <ul style="list-style-type: none"> There are two options for Interlock Display Mode, Show Element and Show Prohibition Symbol. <table border="1"> <tr> <td>Interlock Display Mode:</td> <td>Show Element</td> </tr> <tr> <td>Interlock Address:</td> <td>Show Prohibition Symbol</td> </tr> </table> <table border="1"> <tr> <td>Show Element</td> <td></td> </tr> <tr> <td>Show Prohibition Symbol</td> <td></td> </tr> </table>	Interlock Display Mode:	Show Element	Interlock Address:	Show Prohibition Symbol	Show Element		Show Prohibition Symbol	
Interlock Display Mode:	Show Element									
Interlock Address:	Show Prohibition Symbol									
Show Element										
Show Prohibition Symbol										
(2)	Trigger Mode / Trigger Address	<ul style="list-style-type: none"> There are two trigger modes: Before Writing and After Writing. <table border="1"> <thead> <tr> <th></th> <th>Before Writing</th> <th>After Writing</th> </tr> </thead> <tbody> <tr> <td>Trigger type</td> <td>Set the Trigger Address to ON before changing values.</td> <td>Change values before setting the Trigger Address to ON.</td> </tr> </tbody> </table>		Before Writing	After Writing	Trigger type	Set the Trigger Address to ON before changing values.	Change values before setting the Trigger Address to ON.		
	Before Writing	After Writing								
Trigger type	Set the Trigger Address to ON before changing values.	Change values before setting the Trigger Address to ON.								

No.	Property	Function description										
(2)	Trigger Mode / Trigger Address	<p>■ The trigger function only specifies the set Trigger Address to ON, so you need to specify the Trigger Address to OFF if triggering again is required.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Flowchart of Before Writing</th> <th style="width: 50%;">Flowchart of After Writing</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">  </td> <td style="text-align: center;">  </td> </tr> </tbody> </table>	Flowchart of Before Writing	Flowchart of After Writing								
Flowchart of Before Writing	Flowchart of After Writing											
												
(3)	Invisible Address	<p>When the Invisible Address is set to On, the button element is invisible and you cannot enable its functions.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 20%; text-align: center;">Invisible Address is off</td> <td style="width: 40%; text-align: center;">  </td> <td style="width: 40%; text-align: center;">  </td> </tr> <tr> <td style="text-align: center;">Invisible Address is on</td> <td style="text-align: center;">  </td> <td style="text-align: center;">  </td> </tr> </tbody> </table> <div style="margin-top: 10px;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Preview</th> <th style="width: 70%;">Main Main-2 Text Picture Details Macro</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">  State: </td> <td> Other Interlock State: <input type="text" value="On"/> v Interlock Address: <input type="text" value="None"/> ... <hr/> Invisible Address: <input type="text" value="\$9.0"/> ... </td> </tr> </tbody> </table> </div>	Invisible Address is off			Invisible Address is on			Preview	Main Main-2 Text Picture Details Macro	 State:	Other Interlock State: <input type="text" value="On"/> v Interlock Address: <input type="text" value="None"/> ... <hr/> Invisible Address: <input type="text" value="\$9.0"/> ...
Invisible Address is off												
Invisible Address is on												
Preview	Main Main-2 Text Picture Details Macro											
 State:	Other Interlock State: <input type="text" value="On"/> v Interlock Address: <input type="text" value="None"/> ... <hr/> Invisible Address: <input type="text" value="\$9.0"/> ...											

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No.	Property	Function description
(4)	User Security Level	 <ul style="list-style-type: none"> ■ You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. ■ After you set the User Security Level and press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password through the Password Table Setup element; refer to Section 5.7.2 Password Table Setup).
	Set Low Security	 <ul style="list-style-type: none"> ■ If you set the Set Low Security to Yes, each time you enter the password, the HMI sets the security level to the lowest. The next time you press the element, the HMI asks you to enter the password for the corresponding security level again.
(5)	Mark as Asterisk (*)	<p>If you set the item to Yes, the values are displayed with asterisks when you input values to the Numeric Keypad.</p> 

No.	Property	Function description
(6)	Confirm Window	<p>If you set the Confirm Window to Yes, the following Confirmation Dialog appears for you to confirm the pressing action after pressing the element.</p> 
(7)	Show overrange message	<p>If you set the Show overrange message to Yes, when the inputted value exceeds the set data range, an error message appears to remind you as shown as follows:</p> 
(8)	Modifier + Hot Key	<ul style="list-style-type: none"> ■ Allows you to use the hot keys on the external keyboard to execute the buttons. ■ The Modifier options include None, Shift, Ctrl, and Alt keys.  <ul style="list-style-type: none"> ■ The Hot Key options include F1 to F12, English letters A to Z, and number keys 0 to 9. 

■ Macro

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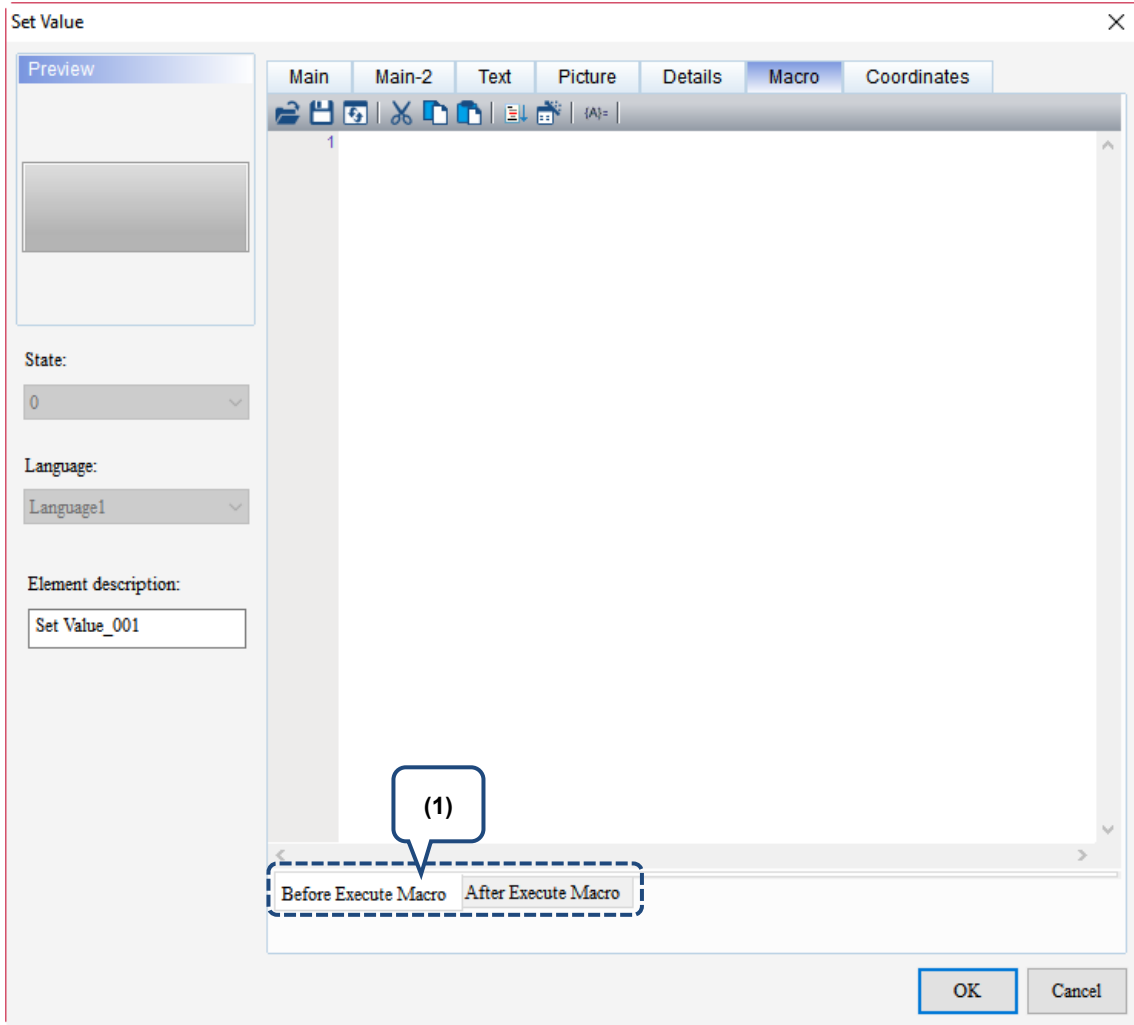


Figure 5.3.7 Macro property page for the Set Value element

No.	Property	Function description
<p>(1)</p>		<p>Flowcharts of Before / After Execute Macro:</p> <p>The diagram illustrates two scenarios for button actions with macros. In the 'Before Execute Macro' scenario, the button starts at 0. When triggered ON, the macro is executed first, changing the value to 50. When triggered OFF, the macro is executed first, changing the value to 90. In the 'After Execute Macro' scenario, the button starts at 0. When triggered ON, the button action (changing the value to 50) occurs first, followed by the macro. When triggered OFF, the button action (changing the value to 90) occurs first, followed by the macro. Both scenarios include a 'Trigger at next time' label indicating the state after the macro execution.</p>
	<p>Before Execute Macro</p>	<p>When you touch the button element, the HMI executes the macro commands first, and then executes the button actions. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.</p>
<p>After Execute Macro</p>	<p>When you touch the button element, the HMI executes the button actions first, and then executes the macro commands. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.</p>	

■ Coordinates

5

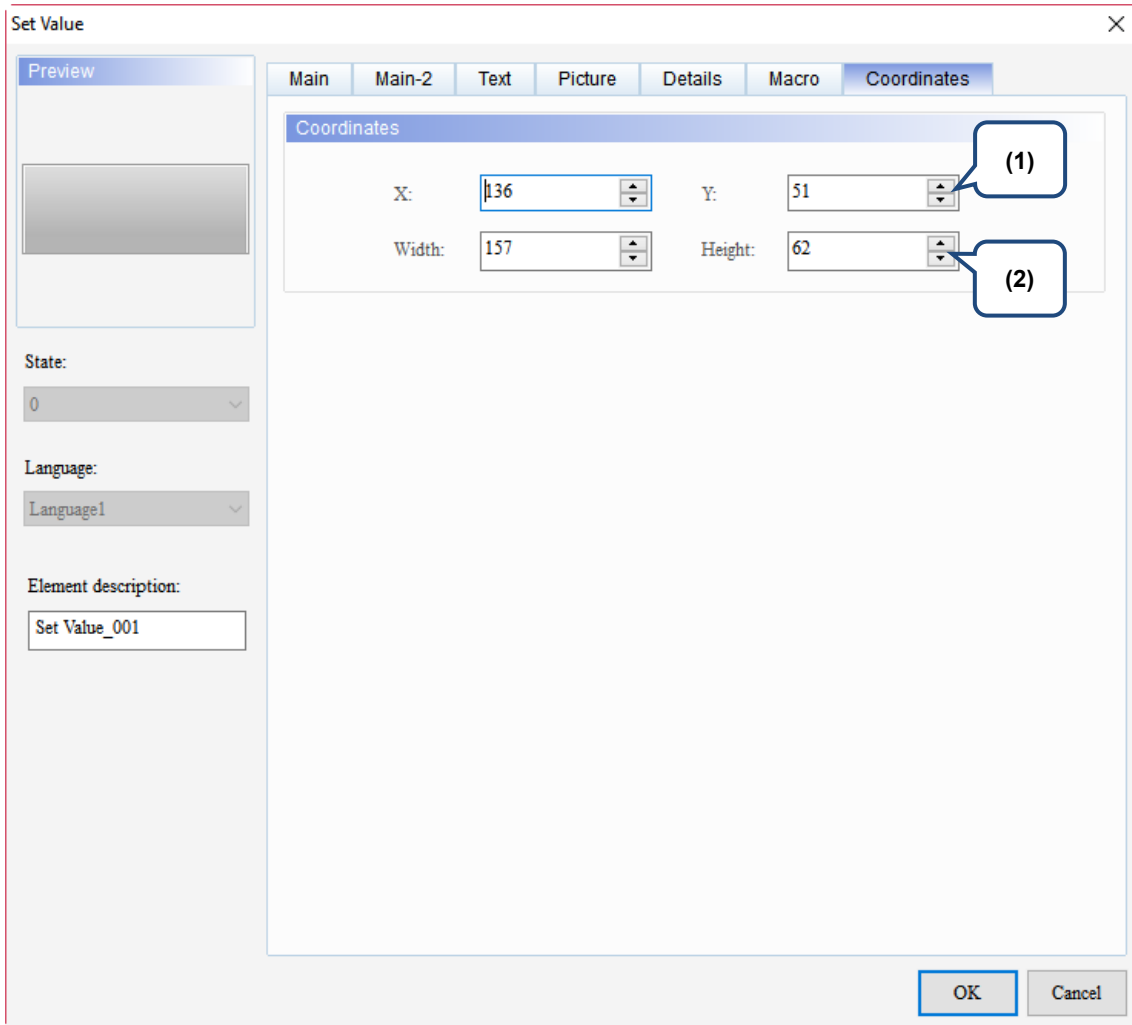


Figure 5.3.8 Coordinates property page for the Set Value element

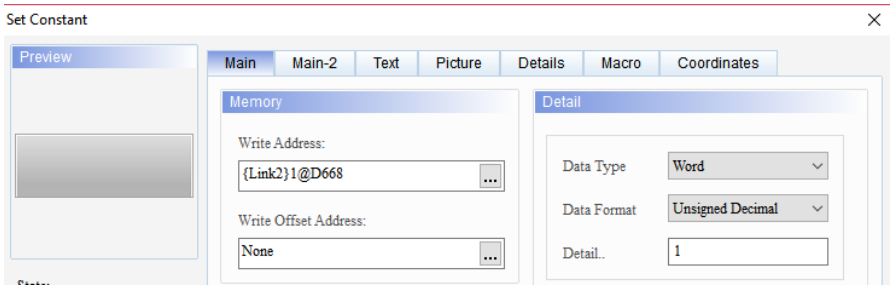


No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

5.4 Set Constant

When you touch this button on the HMI, the HMI changes the register data into the specified Constant. Refer to Table 5.4.1 Set Constant example.

5

Table 5.4.1 Set Constant example

Set Constant	
Memory address of the Set Constant element	
Detail of the Set Constant element	
Memory address of the Numeric Display element	<p>Set the Numeric Display element address to D668.</p> 
Data Type	Word
Execution results	<p>Press Set Constant to write 1 into the Numeric Display element.</p> 

When you double-click the Set Constant element, the property page is shown as follows.

5

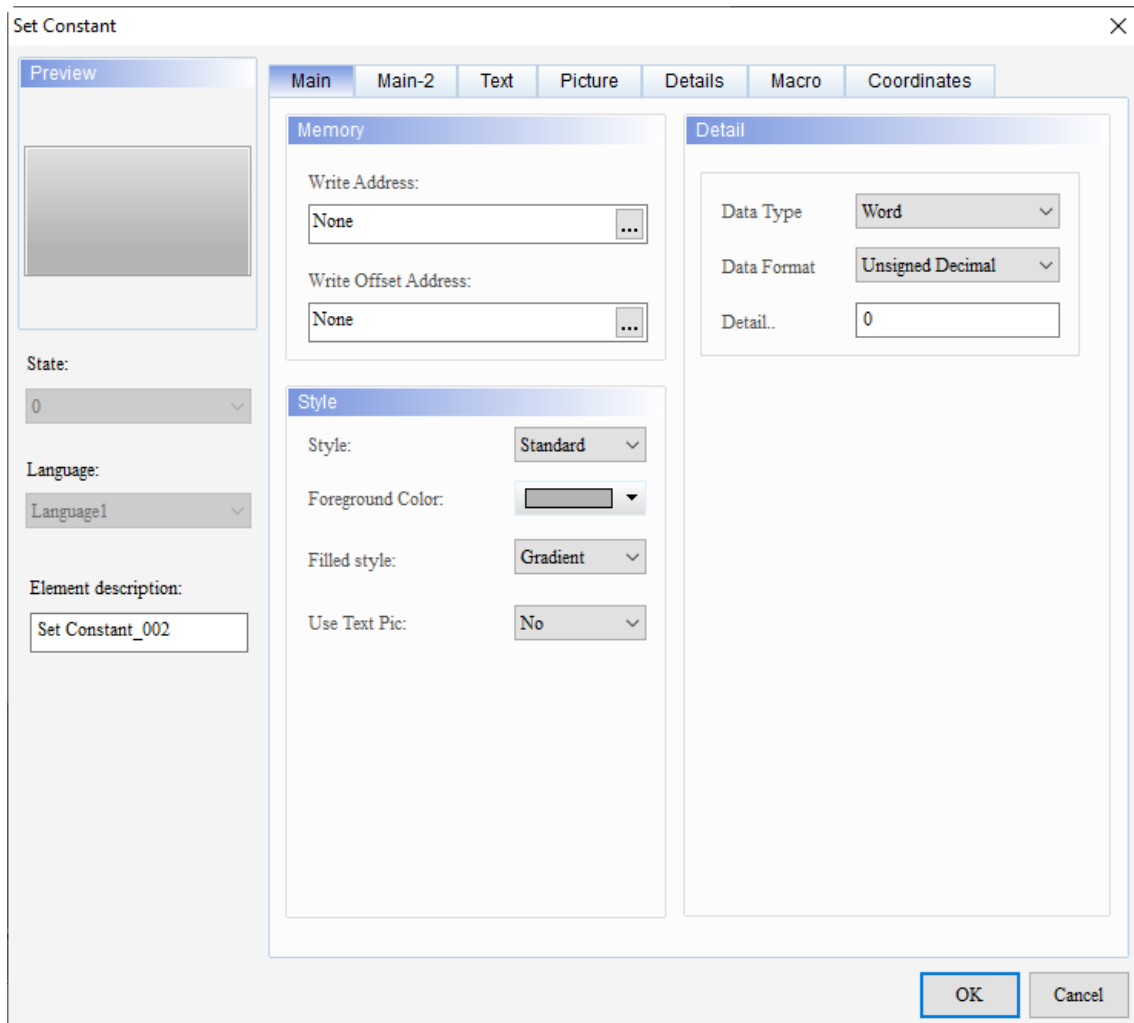


Figure 5.4.1 Properties of Set Constant

Table 5.4.2 Function page of Set Constant

Set Constant	
Function page	Description
Preview	The Set Constant elements can only view multi-language data display since the multistate property is not available for this element.
Main	Set the Write Address, Write Offset Address, Style, Foreground Color, Filled style, and Use Text Pic function. Set the Data Type, Data Format, and Detail for the Set Constant element.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing options.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color options.
Details	Set the Interlock Address, Interlock State, Interlock Display Mode, Trigger Mode, Trigger Addr., Invisible Address, User Security Level, Set Low Security, Confirm Window, and Modifier + Hot Key.
Macro	Set the Before Execute Macro and After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the button element.

■ Main

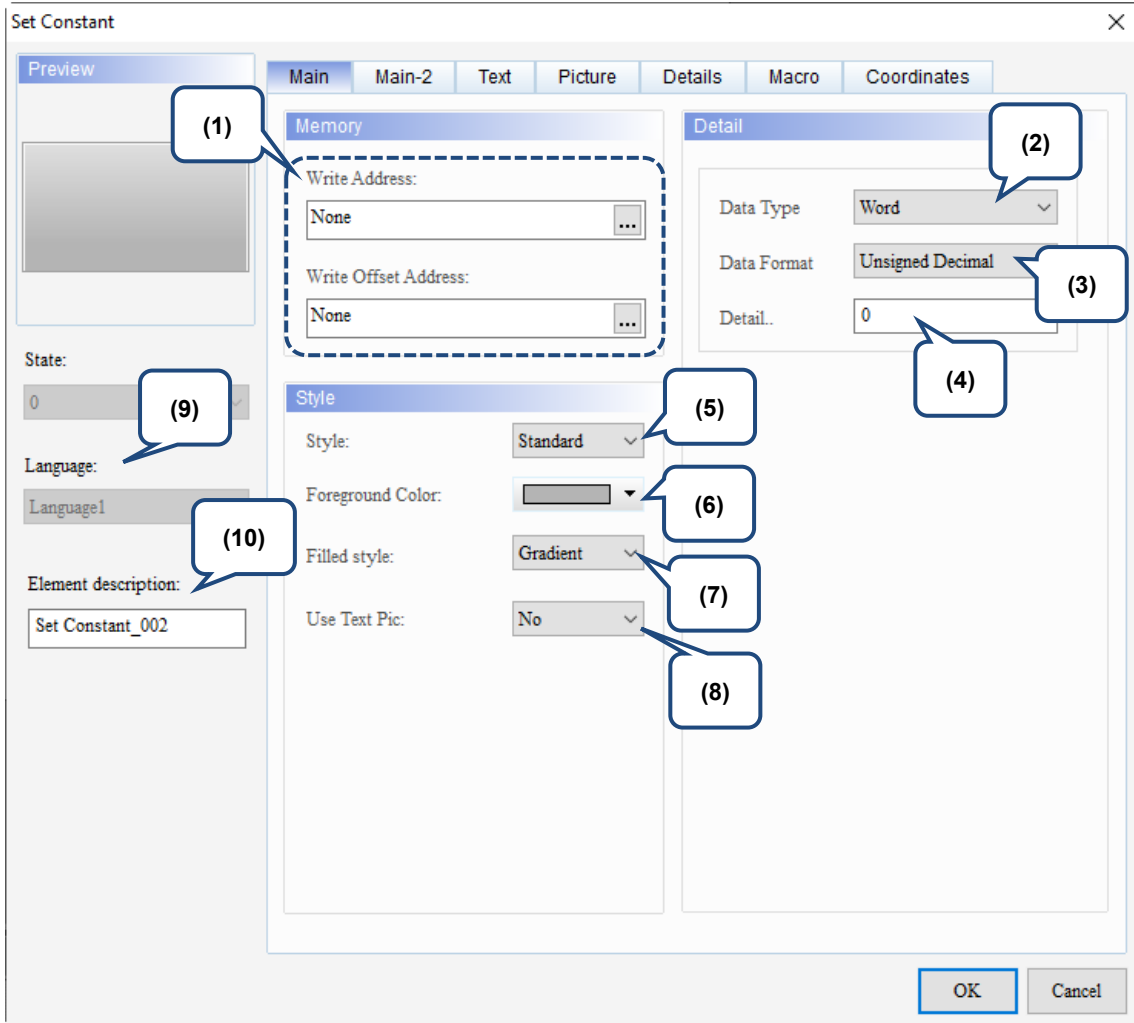
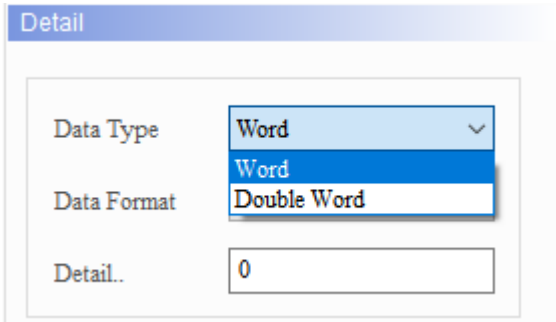
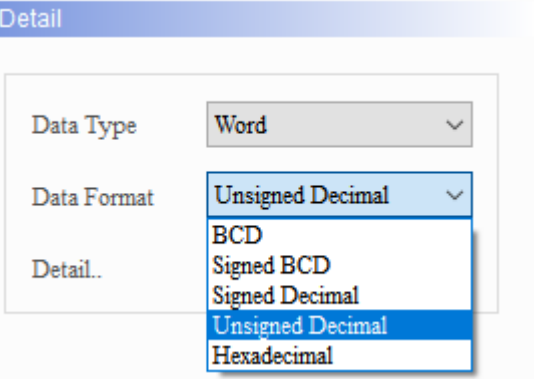
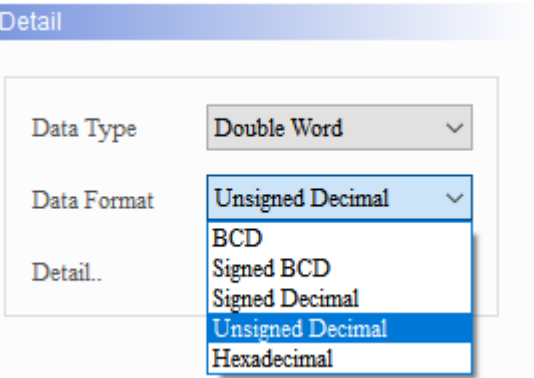
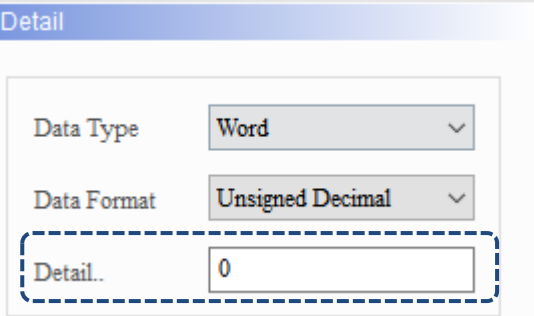
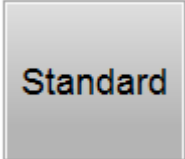
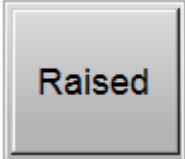

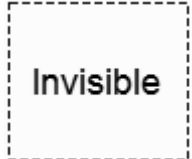
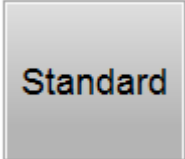
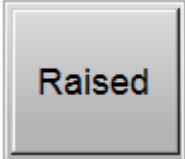

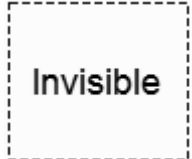
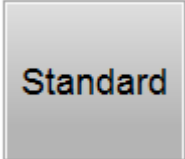
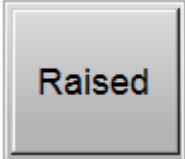

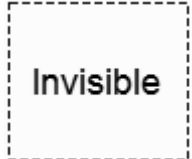
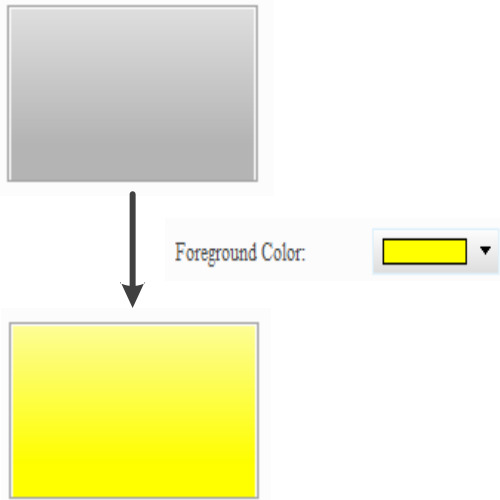








Figure 5.4.2 Main property page for the Set Constant element

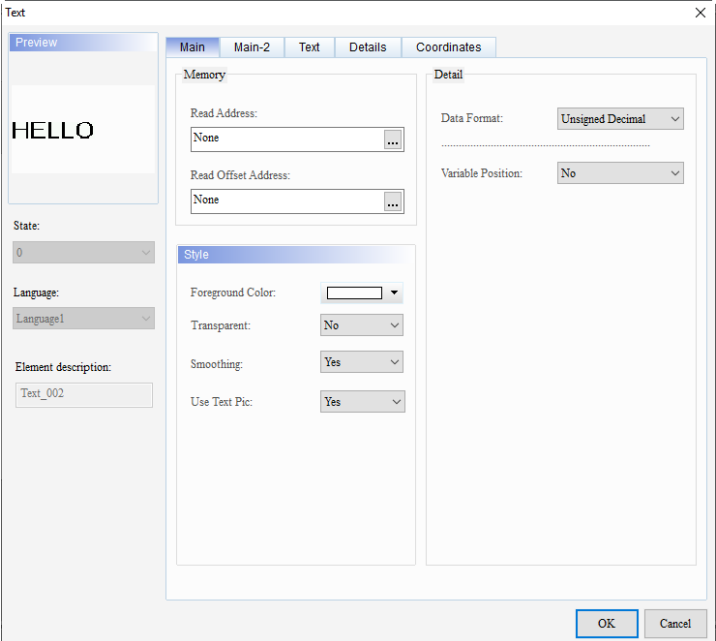
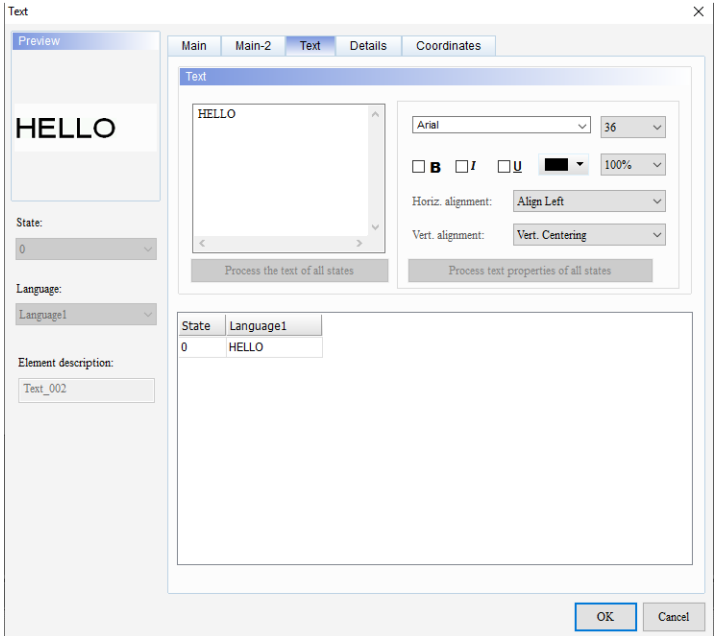
No.	Property	Function description
(1)	Write Address	<ul style="list-style-type: none"> You can choose the internal memory or the controller register address. The input memory type has to be Word. For the Link name and Device Type, refer to Section 5.1.
	Write Offset Address	Refer to the instructions in Appendix D Write and Read Offset Addresses.
(2)	Data Type	<p>There are two data types: Word and Double Word.</p> 

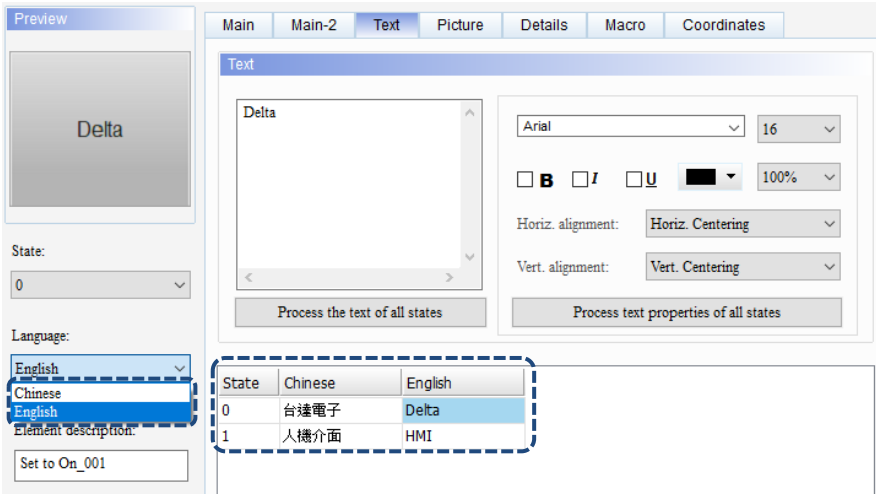
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No.	Property	Function description								
(3)	Data Format	<ul style="list-style-type: none"> When you set the Data Type to Word, the supported data formats are as follows:  When you set the Data Type to Double Word, the supported data formats are as follows:  								
(4)	Detail..	<p>Determine the constant value to input.</p> 								
(5)	Style	<p>The available element styles are Standard, Raised, Round, and Invisible. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Round</th> <th>Invisible</th> </tr> </thead> <tbody> <tr> <td>  </td> <td>  </td> <td>  </td> <td>  </td> </tr> </tbody> </table>	Standard	Raised	Round	Invisible				
Standard	Raised	Round	Invisible							
										

No.	Property	Function description				
(6)	Foreground Color	<ul style="list-style-type: none"> ■ Set the foreground color of the element. ■ When you set the Style to Invisible, the Foreground Color setting is invalid. 				
(7)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						
(8)	Use Text Pic	<p>Unlike the DOP-B series models using pictures to present all texts, the DOP-100 series models present directly with the texts. Therefore, if the language you use for the element is not yet supported by the PC, it is possible to cause missing characters and garbled texts when the element is displayed on the HMI. To have the text display effect be the same as that on the DOP-B models, the Use Text Pic function is added for the Text, Button, and General Message Display elements. Refer to the following examples.</p>				

5

No.	Property	Function description				
(8)	Use Text Pic	<p style="text-align: center;">Use Text Pic function</p> <ul style="list-style-type: none"> ■ Create a Text element and go to the [Main] tab to set the Use Text Pic function. 				
		<p>Create Text element</p> <p>Note: if you use the DOPSoft 4.00.06 version to open a DOP-B project, the Use Text Pic function is enabled (Yes) by default. If you add a DOP-100 project, then the Use Text Pic function is disabled (No) by default.</p> <ul style="list-style-type: none"> ■ Go to the [Text] tab, and type the text and set its font. 				
	Execution result	<ul style="list-style-type: none"> ■ After creating the element, download it to the HMI. ■ The following table shows the results of using and not using the Use Text Pic function. <table border="1"> <thead> <tr> <th>Use Text Pic is Yes</th> <th>Use Text Pic is No</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; font-size: 2em;">HELLO</td> <td style="text-align: center; font-size: 2em;">HELLO</td> </tr> </tbody> </table>	Use Text Pic is Yes	Use Text Pic is No	HELLO	HELLO
Use Text Pic is Yes	Use Text Pic is No					
HELLO	HELLO					

No.	Property	Function description																																																																																										
(9)	Language	<p>If you have set the language data, you can edit the properties of the displayed text with the Language setting of the element.</p>  <p>The screenshot shows a 'Text' property editor. On the left, a preview window displays the text 'Delta'. Below it, the 'Language' dropdown is set to 'English', and the 'Element description' table is visible. The table has columns for 'State', 'Chinese', and 'English'. Row 0 shows '台達電子' for Chinese and 'Delta' for English. Row 1 shows '人機介面' for Chinese and 'HMI' for English. The main editor area shows text 'Delta' with various formatting options like font (Arial), size (16), bold, italic, underline, and alignment (Horiz. Centering, Vert. Centering).</p>																																																																																										
(10)	Element description	<p>Record the button actions to be executed. The record is written in the CSV file of the Operation Log Table so that you know what actions have been done.</p> <table border="1"> <thead> <tr> <th></th> <th>Time</th> <th>Date</th> <th>Level</th> <th>Screen</th> <th>Desc</th> <th>Action</th> <th>Pre Value</th> <th>Change Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13:37:54</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>13:37:56</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>3</td> <td>13:38:19</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td></td> <td>Level Switch</td> <td>8</td> <td>4</td> </tr> <tr> <td>4</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>5</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>6</td> <td>13:38:22</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>7</td> <td>13:38:23</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>8</td> <td>13:38:31</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td></td> <td>Level Switch</td> <td>4</td> <td>8</td> </tr> <tr> <td>9</td> <td>13:38:35</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>\$100 Value</td> <td>Set Val</td> <td>85</td> <td>25</td> </tr> </tbody> </table>		Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value	1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1	0	2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1	3	13:38:19	5/5/2016	8	Screen_22		Level Switch	8	4	4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1	5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0	6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1	7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0	8	13:38:31	5/5/2016	4	Screen_22		Level Switch	4	8	9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25
	Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value																																																																																				
1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1	0																																																																																				
2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1																																																																																				
3	13:38:19	5/5/2016	8	Screen_22		Level Switch	8	4																																																																																				
4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1																																																																																				
5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0																																																																																				
6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1																																																																																				
7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0																																																																																				
8	13:38:31	5/5/2016	4	Screen_22		Level Switch	4	8																																																																																				
9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25																																																																																				

■ Main-2

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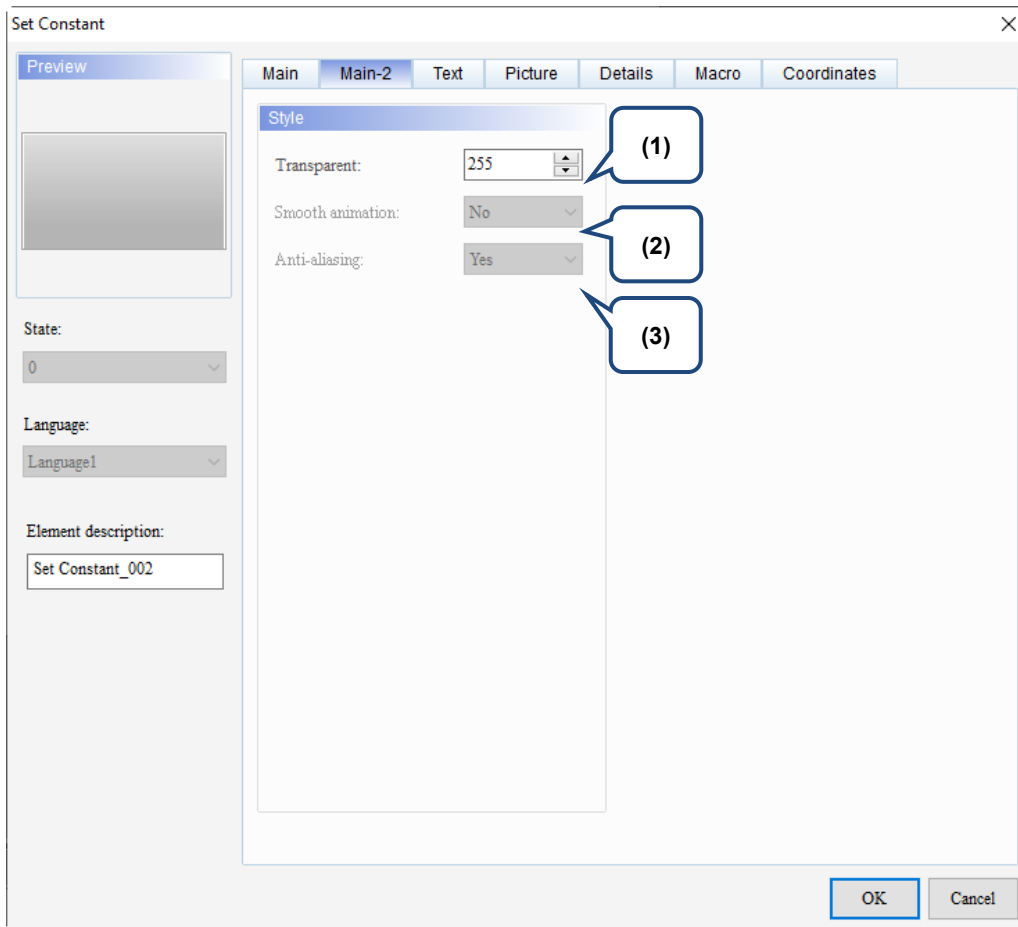


Figure 5.4.3 Main-2 property page for the Set Constant element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

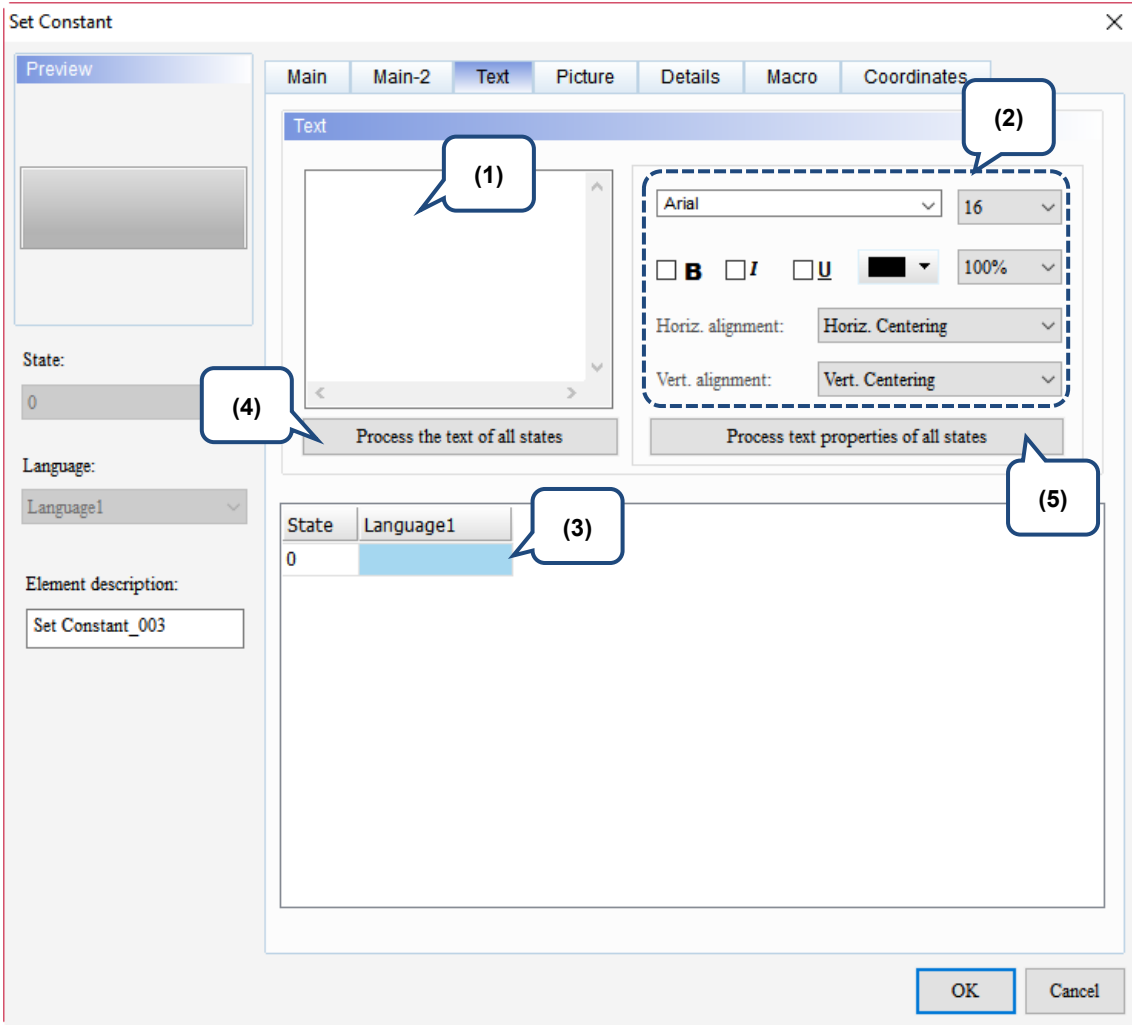
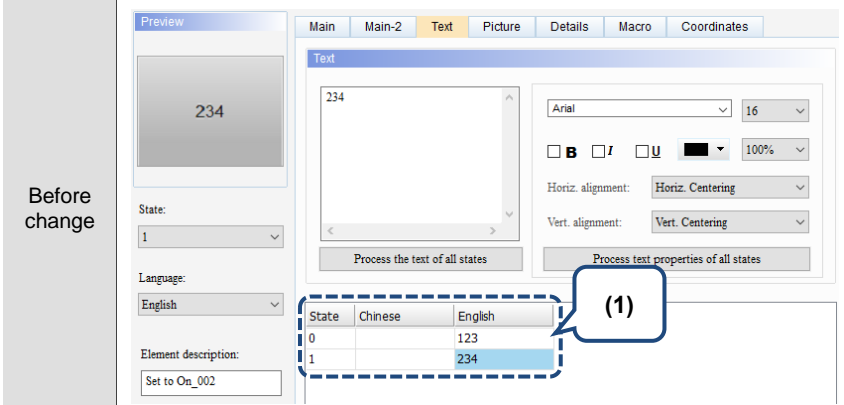
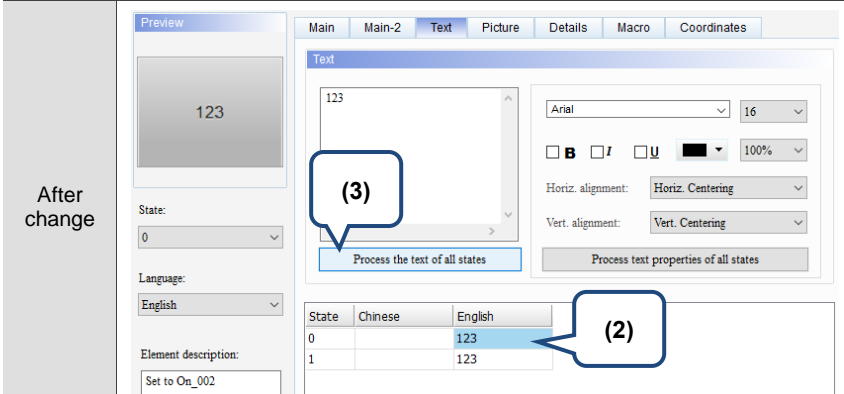


Figure 5.4.4 Text property page for the Set Constant element

No.	Property	Function description
(1)	Text	<ul style="list-style-type: none"> You can enter the text to be displayed in the text box. <ul style="list-style-type: none"> As long as the element allows text input, you can click the element on the screen and press the space key on the keyboard to start editing and inputting the text.

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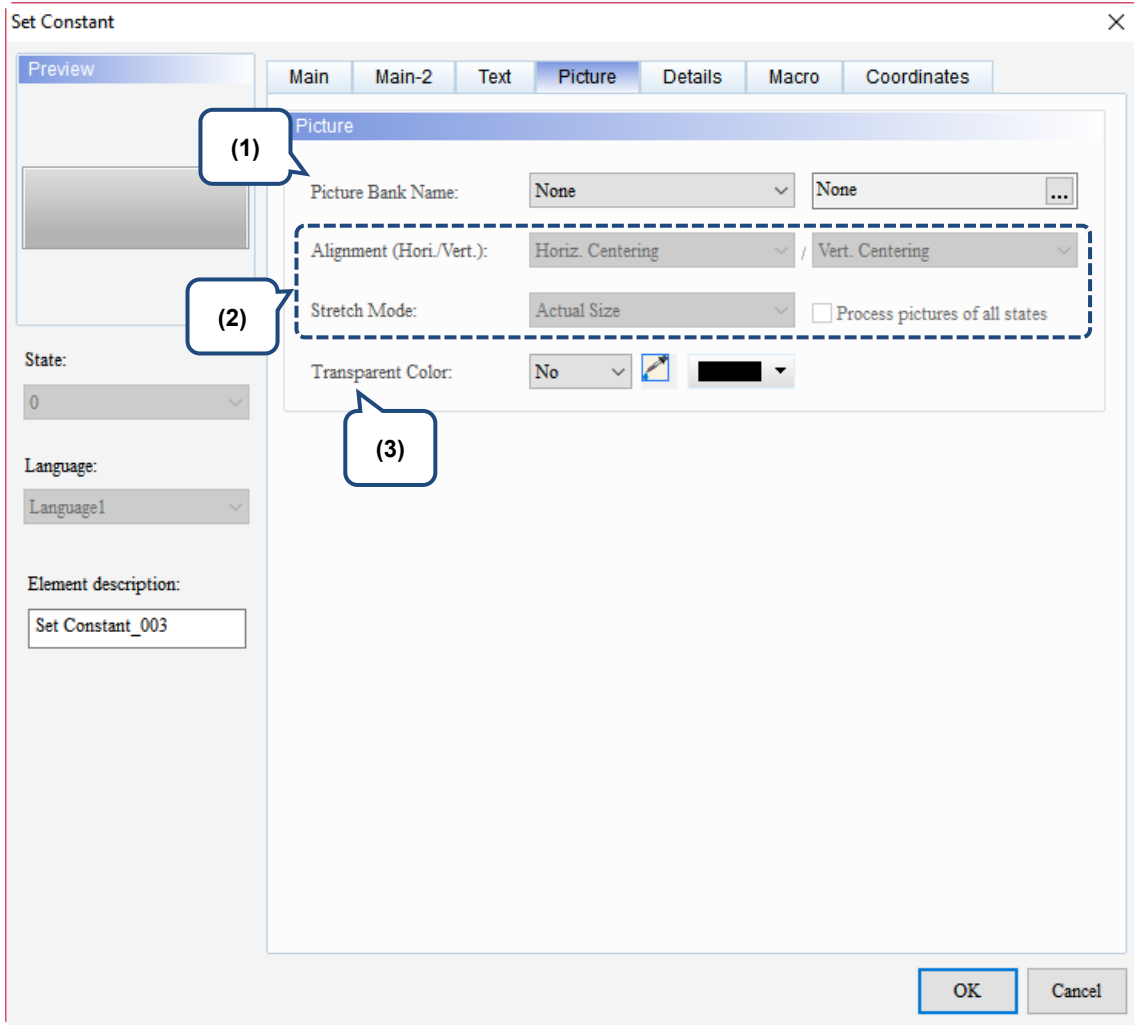
No.	Property	Function description
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the text property setting results.
(3)	Edit Multi-language Text	If you have added multi-language text, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	<p>■ This function batch changes all the texts into the text contents of the state you selected. The following illustrates the steps:</p> <ol style="list-style-type: none"> 1. Input 123 to State 0, and 234 to State 1. 2. Click State 0. 3. Click Process the text of all states, and the State 1 text changes to 123.  <p>Before change</p>  <p>After change</p>

No.	Property	Function description
(5)	Process text properties of all states	<ul style="list-style-type: none"> ■ This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> </div> ■ The following illustrates the steps: <ol style="list-style-type: none"> 1. Input Delta to State 0, and set the font to Segoe Script; input HMI to State 1, and set the font to Arial. 2. Click State 0. 3. Click Process text properties of all states, and the State 1 font changes to Segoe Script.

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No.	Property	Function description	
(5)	Process text properties of all states	Before change	
		After change	

■ Picture

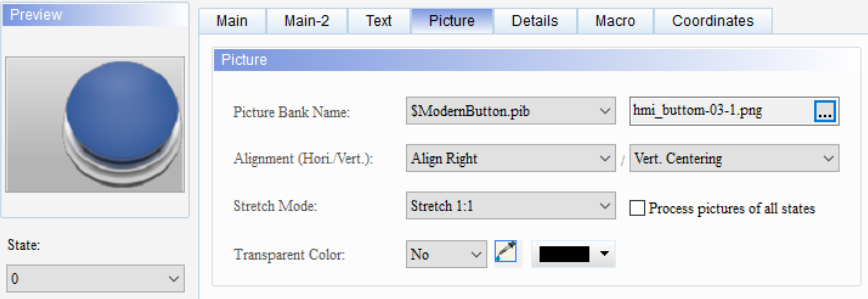












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Figure 5.4.5 Picture property page for the Set Constant element

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No.	Property	Function description
(1)	Picture Bank Name	<p>The default for Picture Bank Name is None. To set the picture display, use the drop-down list box to view the picture bank provided by the software and then select the desired pictures.</p>  <p>The 'Picture' dialog box contains the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: None (dropdown menu) Alignment (Hori./Vert.): Vert. Centering (dropdown menu) Stretch Mode: (empty) Transparent Color: (empty) Process pictures of all states: <input type="checkbox"/> <p>The 'Select Picture' dialog box displays a grid of button images with the following filenames and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

No.	Property	Function description								
(2)	Alignment	<ul style="list-style-type: none"> You can use the Alignment options to set the picture alignment. 								
	Stretch Mode	<ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> If you select the check box for Process pictures of all states, it assumes that the elements have multiple states and some pictures do not fill the full element display area. You can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p style="text-align: center;"><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.		
Stretch All	Stretch 1:1	Actual Size								
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.								
										
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent. If you select the Transparent Color icon  and click the white part on the calendar, the software changes the white part into transparent, which you can see becomes identical to the element foreground color.</p> <p style="text-align: center;">Foreground Color: </p> 								

■ Details

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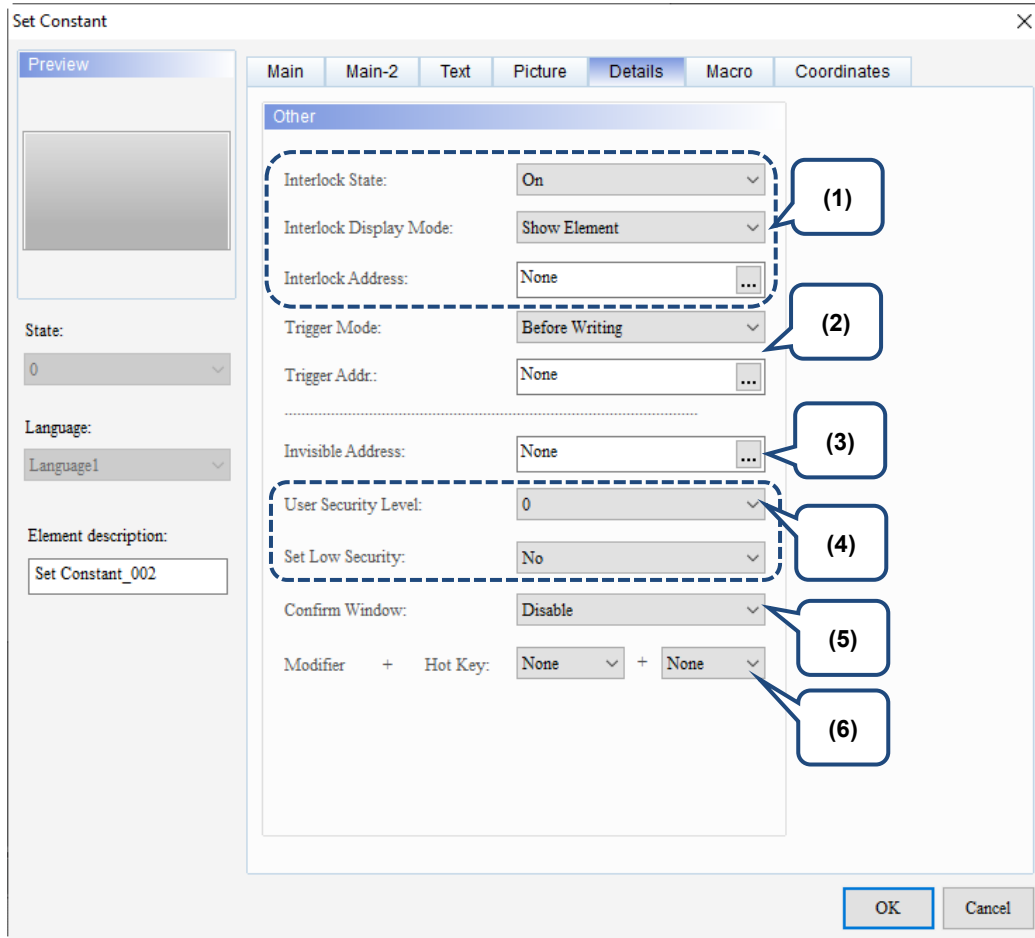
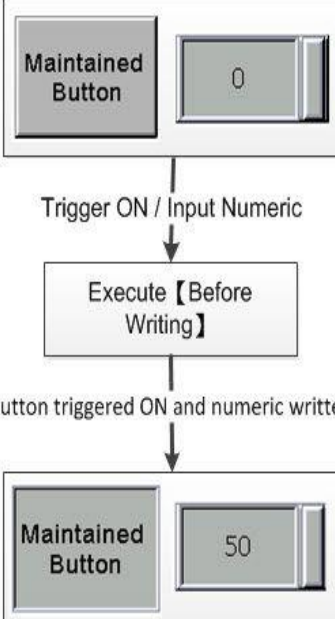
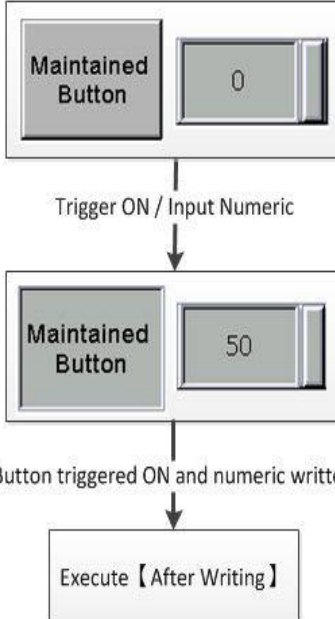

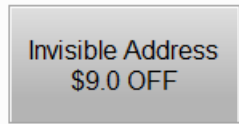
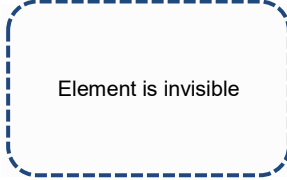
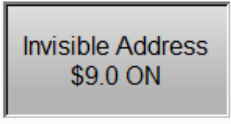
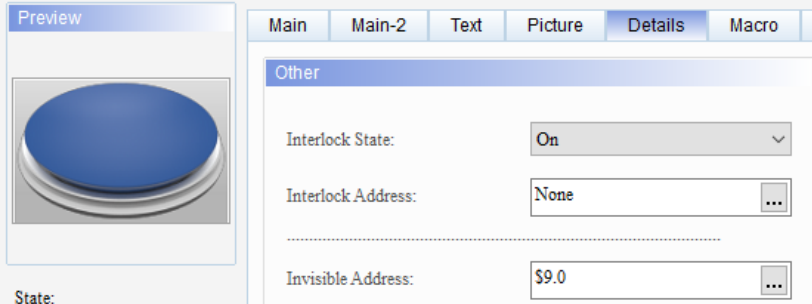

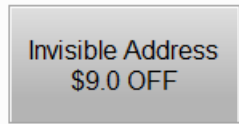
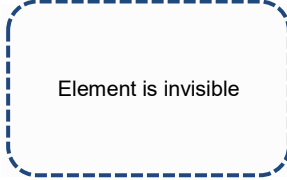
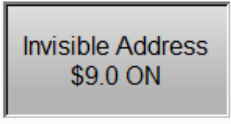

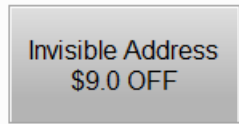
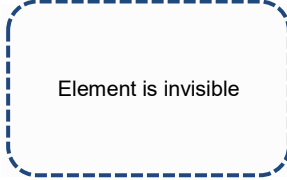
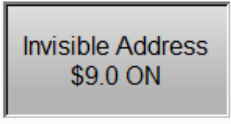
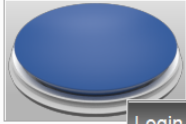


Figure 5.4.6 Details property page for the Set Constant element

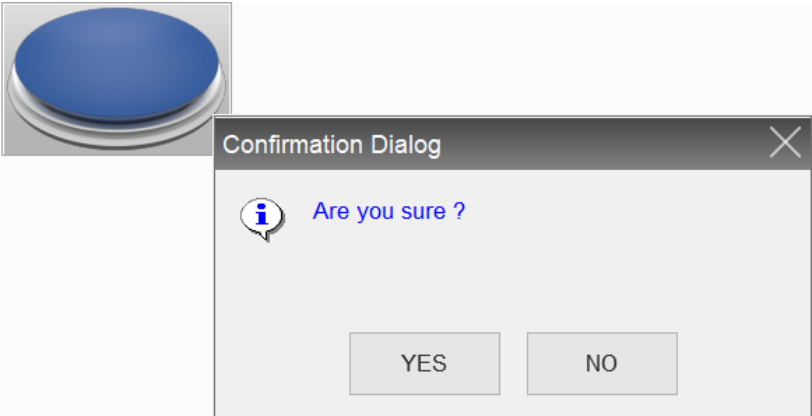
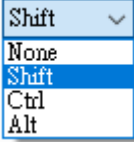
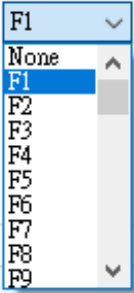
No.	Property	Function description										
(1)	Interlock State / Interlock Address / Interlock Display Mode	<ul style="list-style-type: none"> ■ The Interlock Address enables you to operate a certain element from this particular address, which must be operated along with the Interlock State. If the Interlock State is set to OFF, it means the Interlock Address is operable when the Interlock State is OFF; on the other hand, if the Interlock State is set to ON, the Interlock Address is operable when the Interlock State is ON. ■ The following describes how it works: <ol style="list-style-type: none"> 1. Create a button and set its address to \$8.0. Then, set the Interlock Address to \$8.0 for the button which address is \$99.0. 2. Before having the button which address is \$99.0 to operate, you have to press the button which address is \$8.0 to validate the button action which address is \$99.0. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> </div> <ul style="list-style-type: none"> ■ The Interlock Display Mode includes two options, Show Element and Show Prohibition Symbol. <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 30%; padding: 5px;">Interlock Display Mode:</td> <td style="padding: 5px;"> <div style="border: 1px solid gray; padding: 2px;"> Show Element </div> </td> </tr> <tr> <td style="padding: 5px;">Interlock Address:</td> <td style="padding: 5px;"> <div style="border: 1px solid gray; padding: 2px;"> Show Element </div> </td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"> <div style="border: 1px solid gray; padding: 2px;"> Show Prohibition Symbol </div> </td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 30%; padding: 5px; text-align: center;">Show Element</td> <td style="padding: 5px; text-align: center;"> </td> </tr> <tr> <td style="padding: 5px; text-align: center;">Show Prohibition Symbol</td> <td style="padding: 5px; text-align: center;"> </td> </tr> </table>	Interlock Display Mode:	<div style="border: 1px solid gray; padding: 2px;"> Show Element </div>	Interlock Address:	<div style="border: 1px solid gray; padding: 2px;"> Show Element </div>		<div style="border: 1px solid gray; padding: 2px;"> Show Prohibition Symbol </div>	Show Element		Show Prohibition Symbol	
Interlock Display Mode:	<div style="border: 1px solid gray; padding: 2px;"> Show Element </div>											
Interlock Address:	<div style="border: 1px solid gray; padding: 2px;"> Show Element </div>											
	<div style="border: 1px solid gray; padding: 2px;"> Show Prohibition Symbol </div>											
Show Element												
Show Prohibition Symbol												

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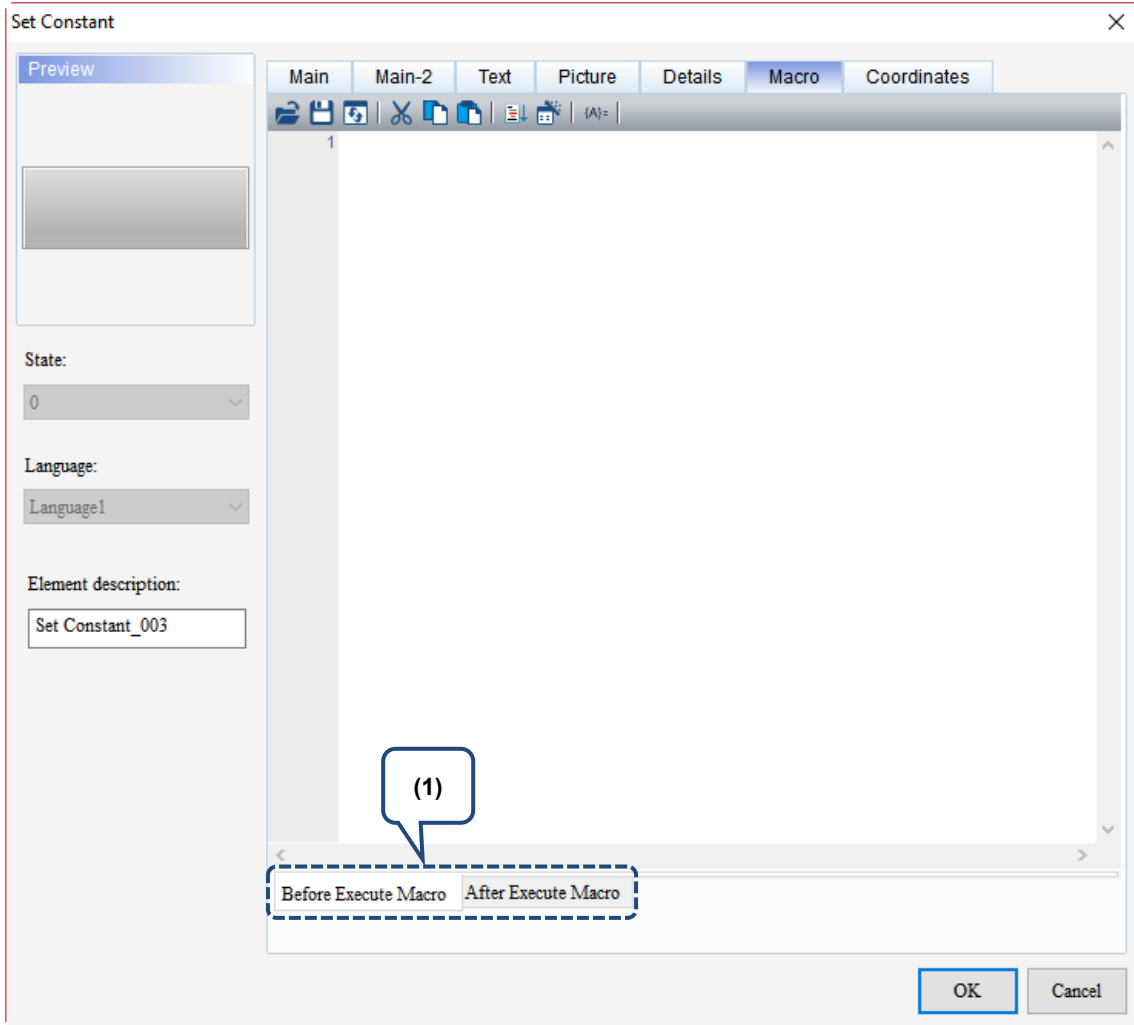
No.	Property	Function description						
(2)	Trigger Mode / Trigger Address	<ul style="list-style-type: none"> There are two trigger modes: Before Writing and After Writing. <table border="1"> <thead> <tr> <th></th> <th>Before Writing</th> <th>After Writing</th> </tr> </thead> <tbody> <tr> <td>Trigger type</td> <td>Set the button to ON before changing values.</td> <td>The button turns to ON after changing values.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> You can create a button element, set the address, and select Before Writing or After Writing to trigger the specified controller Bit address to ON. The trigger function only turns the controller address to ON, so you need to turn the address to OFF if triggering again is required. <div style="display: flex; justify-content: space-around;"> <div> <p style="text-align: center;">Flowchart of Before Writing</p>  </div> <div> <p style="text-align: center;">Flowchart of After Writing</p>  </div> </div>		Before Writing	After Writing	Trigger type	Set the button to ON before changing values.	The button turns to ON after changing values.
	Before Writing	After Writing						
Trigger type	Set the button to ON before changing values.	The button turns to ON after changing values.						
(3)	Invisible Address	<p>When the Invisible Address is set to ON, the button element is invisible and you cannot enable its functions.</p> <table border="1"> <tbody> <tr> <td>Invisible Address is off</td> <td></td> <td></td> </tr> <tr> <td>Invisible Address is on</td> <td></td> <td></td> </tr> </tbody> </table> <div>  </div>	Invisible Address is off			Invisible Address is on		
Invisible Address is off								
Invisible Address is on								

No.	Property	Function description
(4)	User Security Level	<div style="border: 1px solid gray; padding: 5px;"> <p>User Security Level: 0</p> <p>Set Low Security: 0</p> <p>Min. Press Time (sec): 1</p> <p>Confirm Window: 2</p> </div> <ul style="list-style-type: none"> ■ You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. ■ After you set the User Security Level and press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password through the Password Table Setup element; refer to Section 5.7.2 Password Table Setup).
	Set Low Security	<div style="border: 1px solid gray; padding: 5px;">  <div style="border: 1px solid gray; padding: 5px; margin-top: 5px;"> <p>Login ✕</p> <p><input type="checkbox"/> Security Login</p> <p>Account <input style="width: 100px;" type="text"/></p> <p>Password <input style="width: 100px;" type="password"/></p> <p style="text-align: right;"><input type="button" value="OK"/></p> </div> </div> <ul style="list-style-type: none"> ■ If you set the Set Low Security to Yes, each time you input the password, the HMI sets the security level to the lowest. The next time you press the element, the HMI asks you to input the password for the corresponding security level again.

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No.	Property	Function description
(5)	Confirm Window	<p>If you set the Confirm Window to Yes, the following Confirmation Dialog appears for you to confirm the pressing action after pressing the element.</p> 
(6)	Modifier + Hot Key	<ul style="list-style-type: none"> Allows you to use the hot keys on the external keyboard to execute the button. The Modifier options include None, Shift, Ctrl, and Alt.  <ul style="list-style-type: none"> The Hot Key options include F1 to F12, English letters A to Z, and number keys 0 to 9. 

■ Macro



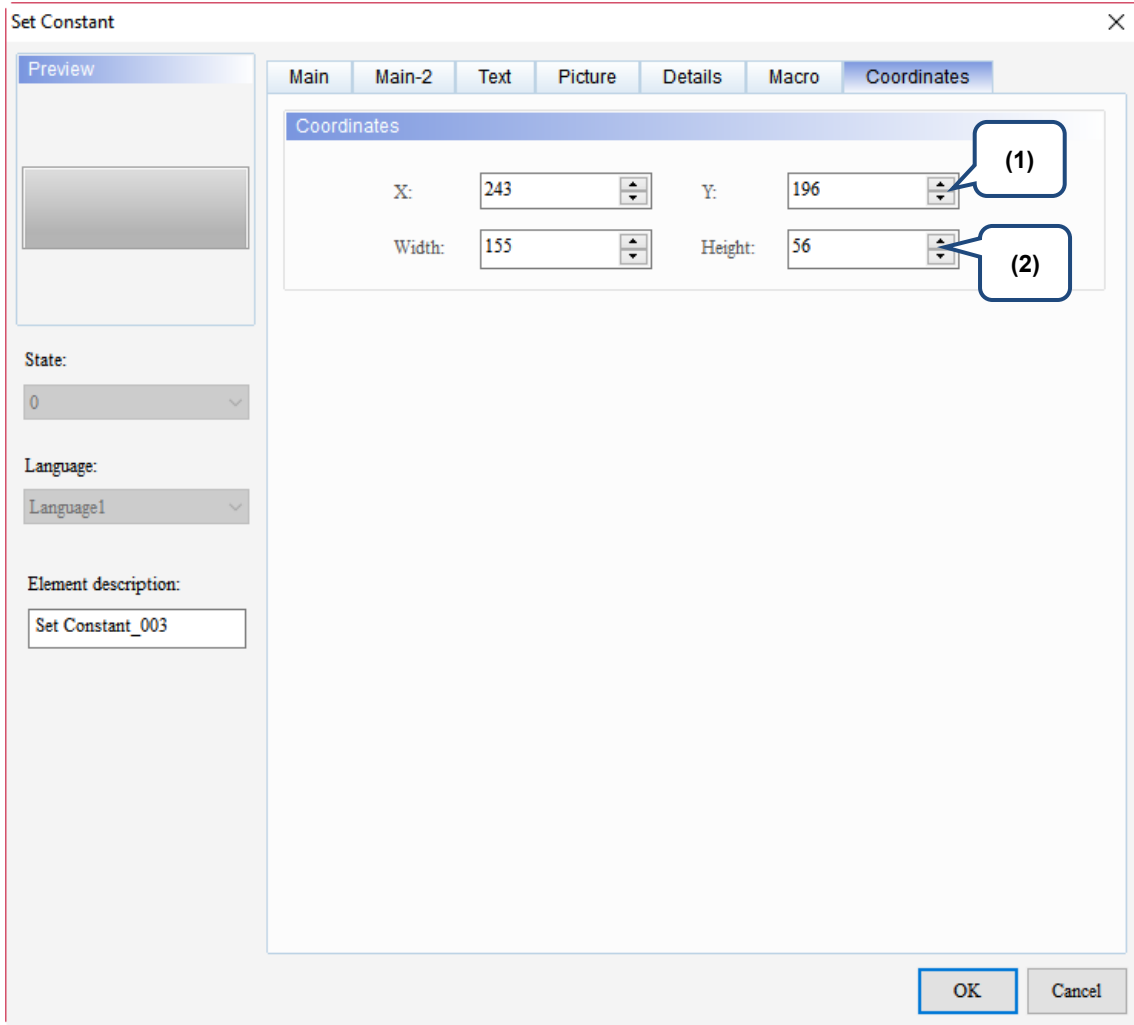
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Figure 5.4.7 Macro property page for the Set Constant element

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No.	Property	Function description
(1)		<p>Flowcharts of Before / After Execute Macro:</p>
	Before Execute Macro	When you touch the button element, the HMI executes the macro commands first, and then executes the button actions. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.
	After Execute Macro	When you touch the button element, the HMI executes the button actions first, and then executes the macro commands. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.

■ Coordinates



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Figure 5.4.8 Coordinates property page for the Set Constant element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

5

5.5 Increment / Decrement

When you touch the Increment or Decrement button on the HMI, the HMI reads the register data, adds or deducts the set increment or decrement, and then writes the results into the corresponding register. If the increased or decreased value exceeds the set upper or lower limit, the Increment / Decrement button maintains the upper / lower limit value in the corresponding register.

Note: if you press and hold the Increment / Decrement button, the value continues to increase or decrease.

Table 5.5.1 Increment / Decrement example

Increment / Decrement					
Memory address	The Increment element Write Address: \$555 The Decrement element Write Address: \$555 The Numeric Display element Read Address: \$555				
Increment/Decrement setting values	<table border="1"> <thead> <tr> <th>Increment</th> <th>Decrement</th> </tr> </thead> <tbody> <tr> <td> <div style="border: 1px solid gray; padding: 5px;"> <p>Detail</p> <p>Data Type: <input type="text" value="Word"/></p> <p>Data Format: <input type="text" value="Unsigned Decimal"/></p> <p>Increase/Decrease: <input type="text" value="5"/></p> <p>Limit: <input type="text" value="500"/></p> </div> </td> <td> <div style="border: 1px solid gray; padding: 5px;"> <p>Detail</p> <p>Data Type: <input type="text" value="Word"/></p> <p>Data Format: <input type="text" value="Signed Decimal"/></p> <p>Increase/Decrease: <input type="text" value="7"/></p> <p>Limit: <input type="text" value="-100"/></p> </div> </td> </tr> </tbody> </table>	Increment	Decrement	<div style="border: 1px solid gray; padding: 5px;"> <p>Detail</p> <p>Data Type: <input type="text" value="Word"/></p> <p>Data Format: <input type="text" value="Unsigned Decimal"/></p> <p>Increase/Decrease: <input type="text" value="5"/></p> <p>Limit: <input type="text" value="500"/></p> </div>	<div style="border: 1px solid gray; padding: 5px;"> <p>Detail</p> <p>Data Type: <input type="text" value="Word"/></p> <p>Data Format: <input type="text" value="Signed Decimal"/></p> <p>Increase/Decrease: <input type="text" value="7"/></p> <p>Limit: <input type="text" value="-100"/></p> </div>
	Increment	Decrement			
<div style="border: 1px solid gray; padding: 5px;"> <p>Detail</p> <p>Data Type: <input type="text" value="Word"/></p> <p>Data Format: <input type="text" value="Unsigned Decimal"/></p> <p>Increase/Decrease: <input type="text" value="5"/></p> <p>Limit: <input type="text" value="500"/></p> </div>	<div style="border: 1px solid gray; padding: 5px;"> <p>Detail</p> <p>Data Type: <input type="text" value="Word"/></p> <p>Data Format: <input type="text" value="Signed Decimal"/></p> <p>Increase/Decrease: <input type="text" value="7"/></p> <p>Limit: <input type="text" value="-100"/></p> </div>				
Execution results	<table border="1"> <tbody> <tr> <td style="text-align: center;">Increment</td> <td> </td> </tr> <tr> <td style="text-align: center;">Decrement</td> <td> </td> </tr> </tbody> </table>	Increment		Decrement	
Increment					
Decrement					

When you double-click the Increment / Decrement element, the property page is shown as follows.

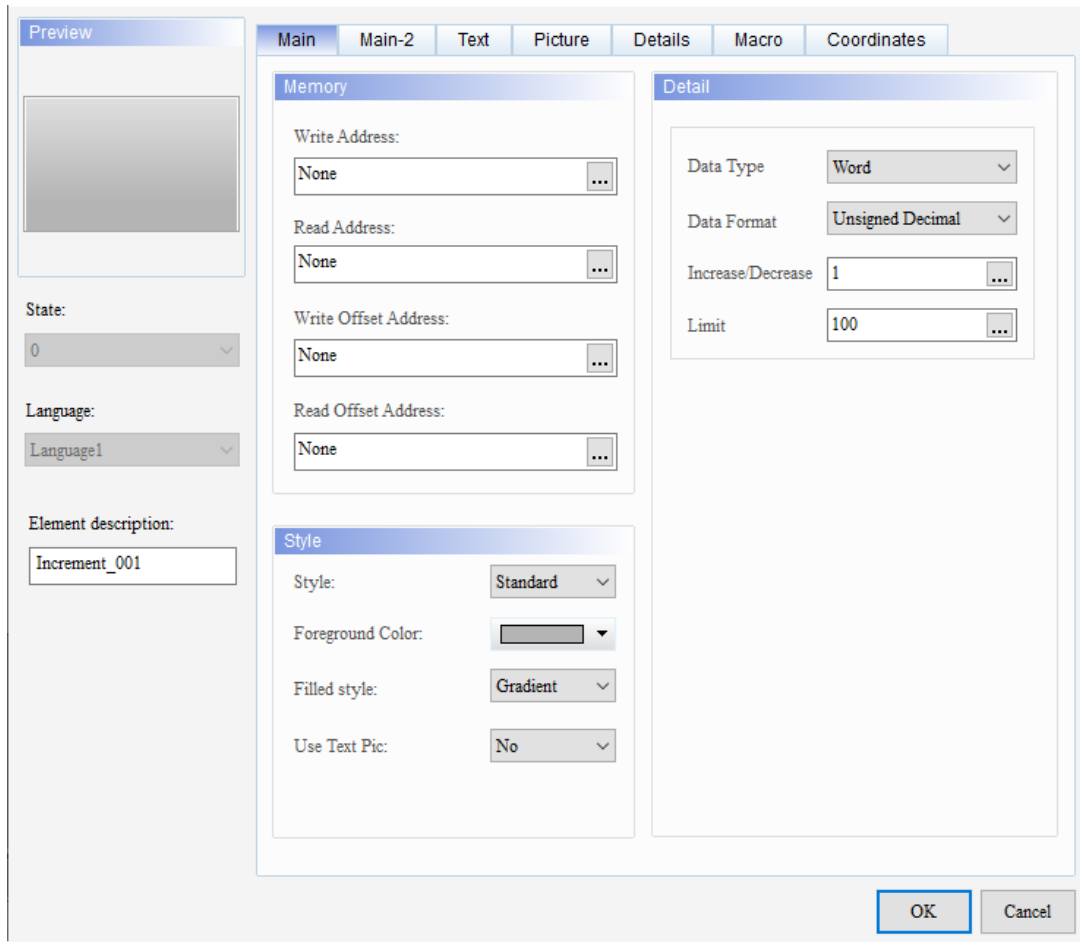


Figure 5.5.1 Properties of Increment / Decrement

Table 5.5.2 Function page of Increment / Decrement

Increment / Decrement	
Function page	Description
Preview	The Increment / Decrement elements are only for viewing multi-language data display since the multistate property is not available for the element.
Main	Set Write Address, Read Address, Write Offset Address, Read Offset Address, Style, Foreground Color, Filled style, and Use Text Pic function. Set the Data Type, Data Format, Increase / Decrease values, and Limit for the Increment / Decrement elements.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing options.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color options.
Details	Set the Interlock Address, Interlock State, Interlock Display Mode, Trigger Mode, Trigger Addr., Invisible Address, User Security Level, Set Low Security, Confirm Window, and Modifier + Hot Key.
Macro	Set the Before Execute Macro and After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the button element.

5

■ Main

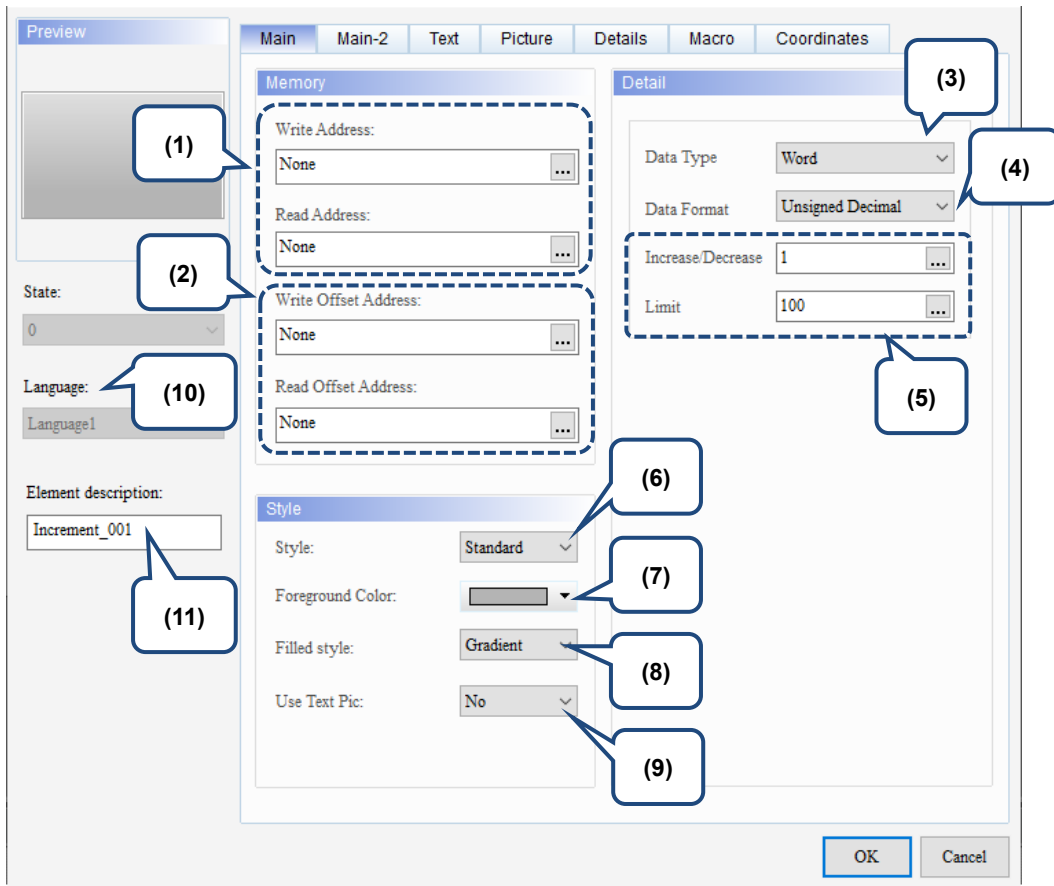
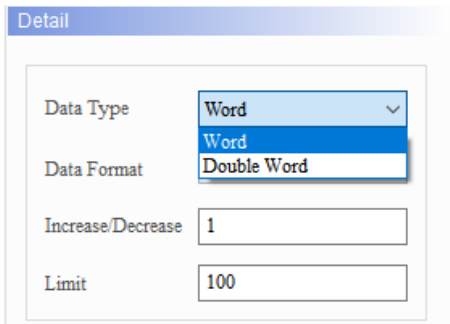
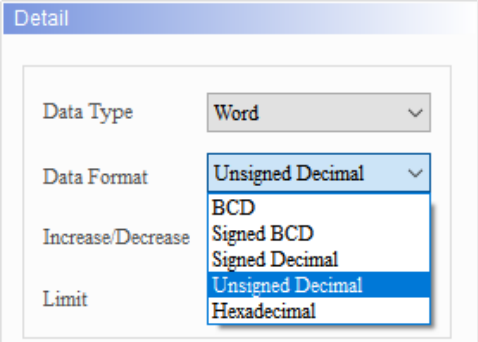
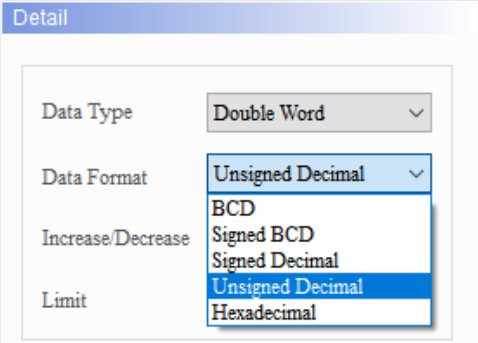
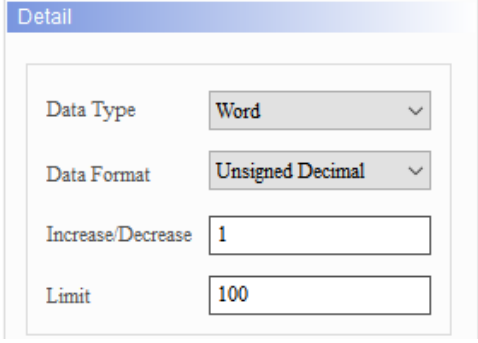
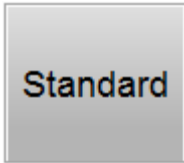
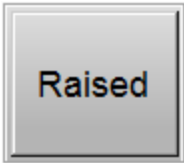

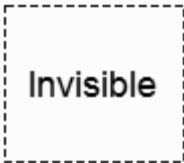
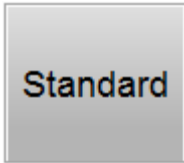
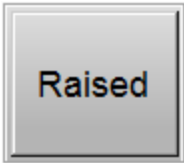

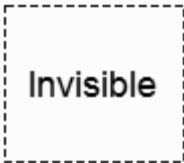
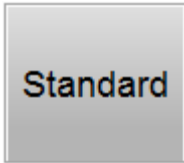
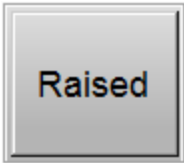

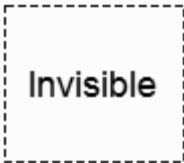
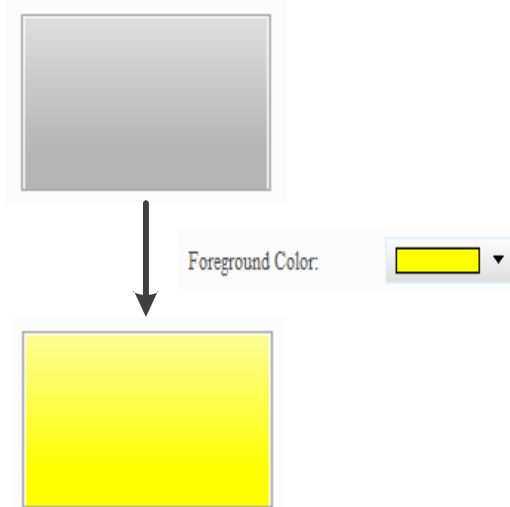
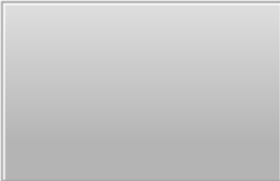

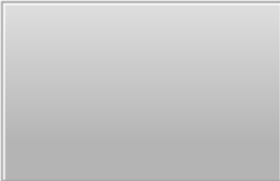

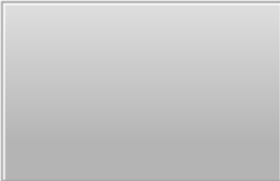



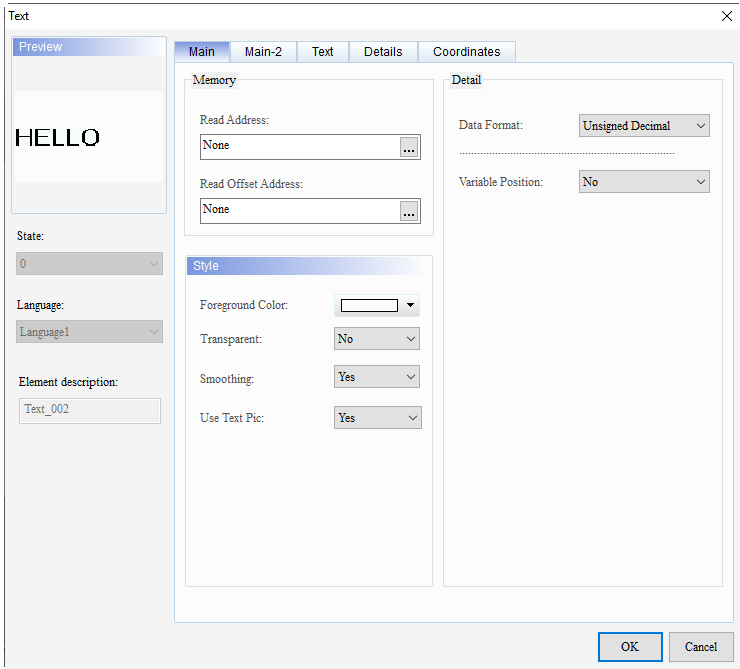
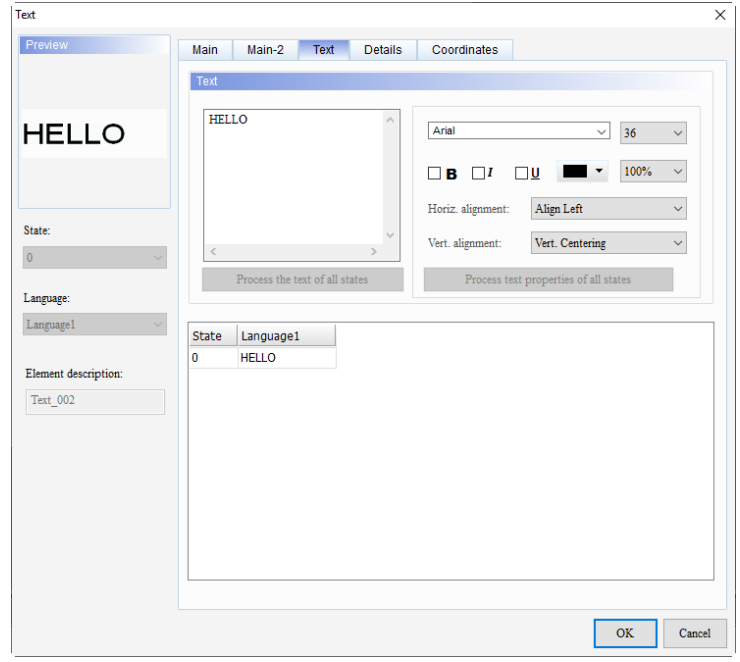
Figure 5.5.2 Main property page for the Increment / Decrement elements

No.	Property	Function description
(1)	Write Address	<ul style="list-style-type: none"> You can choose the internal memory or the controller register address. The input memory type has to be Word. For the Link name and Device Type, refer to Section 5.1.
	Read Address	
(2)	Write Offset Address	Refer to the instructions in Appendix D Write and Read Offset Addresses.
	Read Offset Address	
(3)	Data Type	<p>There are two data types: Word and Double Word.</p> 

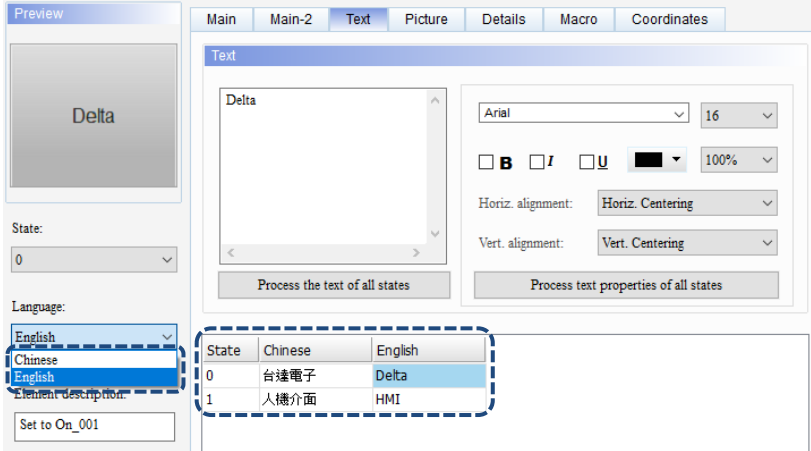
No.	Property	Function description								
(4)	Data Format	<ul style="list-style-type: none"> When you set the Data Type to Word, the supported data formats are as follows:  When you set the Data Type to Double Word, the supported data formats are as follows:  								
(5)	Increase/Decrease	<ul style="list-style-type: none"> The Increase/Decrease refers to the increment or decrement value when you touch the Increment / Decrement buttons. Limit refers to the increasing or decreasing value range. After you press OK, the DOPSoft checks the value range of the inputted Increase / Decrease values and Limit values according to the selected Data Type and Data Format. 								
	Limit									
(6)	Style	<p>The available styles are Standard, Raised, Round, and Invisible. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Round</th> <th>Invisible</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Round	Invisible				
Standard	Raised	Round	Invisible							
										

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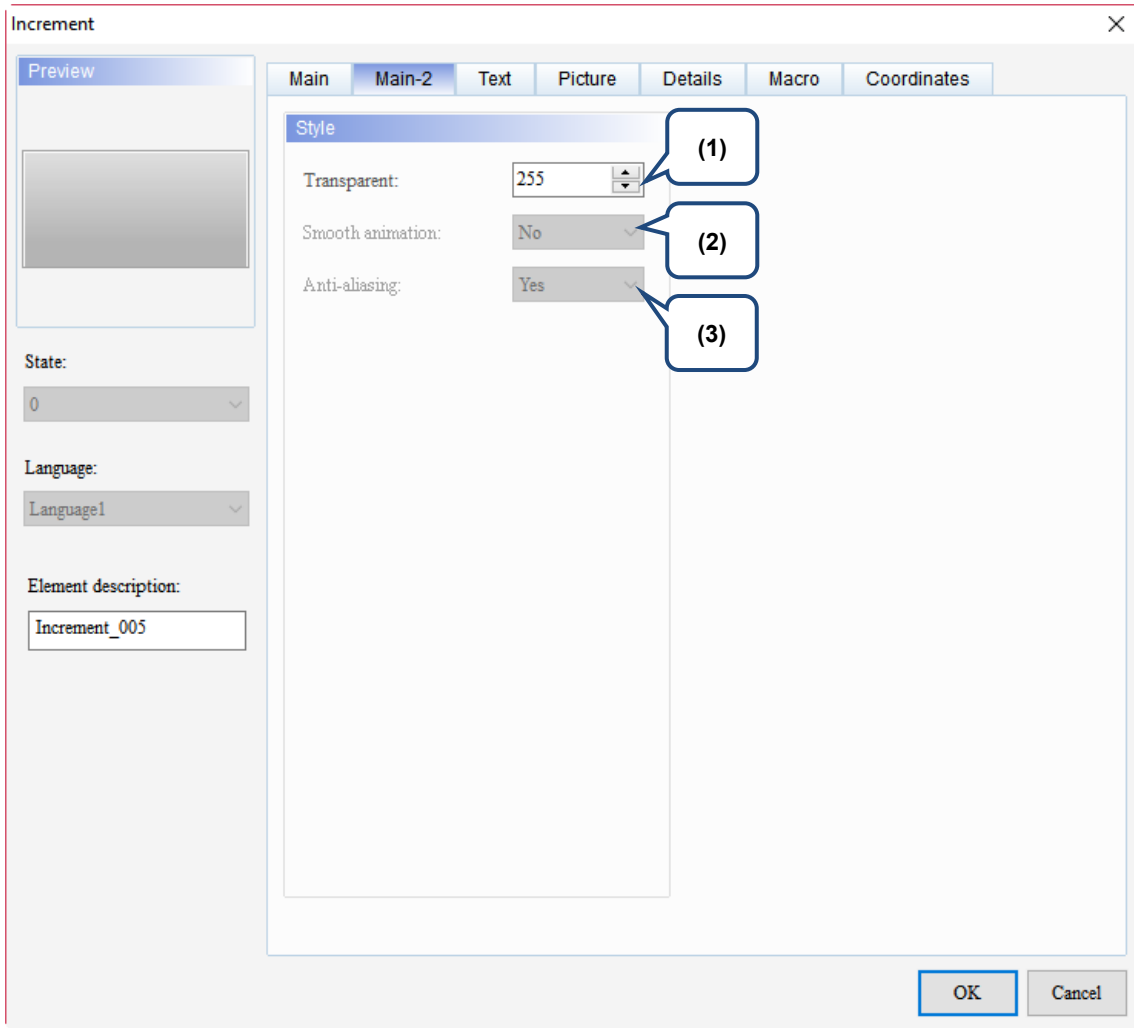
No.	Property	Function description				
(7)	Foreground Color	<ul style="list-style-type: none"> ■ Set the foreground color of the element. ■ When you set the Style to Invisible, the Foreground Color setting is invalid. 				
(8)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						
(9)	Use Text Pic	<p>Unlike the DOP-B series models using pictures to present all texts, the DOP-100 series models present directly with the texts. Therefore, if the language you use for the element is not yet supported by the PC, it is possible to cause missing characters and garbled texts when the element is displayed on the HMI. To have the text display effect be the same as that on the DOP-B models, the Use Text Pic function is added for the Text, Button, and General Message Display elements. Refer to the following examples.</p>				

No.	Property	Function description
<p>(9)</p>	<p>Use Text Pic</p>	<p style="text-align: center;">Use Text Pic function</p> <ul style="list-style-type: none"> <p>Create a Text element and go to the [Main] tab to set the Use Text Pic function.</p> 
		<p>Note: if you use the DOPSoft 4.00.06 version to open a DOP-B project, the Use Text Pic function is enabled (Yes) by default. If you add a DOP-100 project, then the Use Text Pic function is disabled (No) by default.</p> <ul style="list-style-type: none"> <p>Go to the [Text] tab, and type the text and set its font.</p> 

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No.	Property	Function description																																																																																											
(9)	Use Text Pic	Use Text Pic function																																																																																											
		Execution result	<ul style="list-style-type: none"> After creating the element, download it to the HMI. The following table shows the results of using and not using the Use Text Pic function. <table border="1"> <thead> <tr> <th>Use Text Pic is Yes</th> <th>Use Text Pic is No</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; font-size: 2em;">HELLO</td> <td style="text-align: center; font-size: 2em;">HELLO</td> </tr> </tbody> </table>	Use Text Pic is Yes	Use Text Pic is No	HELLO	HELLO																																																																																						
Use Text Pic is Yes	Use Text Pic is No																																																																																												
HELLO	HELLO																																																																																												
(10)	Language	<p>If you have set the language data, you can edit the properties of the displayed text with the Language setting of the element.</p> 																																																																																											
(11)	Element description	<p>Record the button actions to be executed. The record is written in the CSV file of the Operation Log Table so that you know what actions have been done.</p> <table border="1"> <thead> <tr> <th></th> <th>Time</th> <th>Date</th> <th>Level</th> <th>Screen</th> <th>Desc</th> <th>Action</th> <th>Pre Value</th> <th>Change Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13:37:54</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>13:37:56</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>3</td> <td>13:38:19</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td></td> <td>Level Switch</td> <td>8</td> <td>4</td> </tr> <tr> <td>4</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>5</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>6</td> <td>13:38:22</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>7</td> <td>13:38:23</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>8</td> <td>13:38:31</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td></td> <td>Level Switch</td> <td>4</td> <td>8</td> </tr> <tr> <td>9</td> <td>13:38:35</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>\$100 Value</td> <td>Set Val</td> <td>85</td> <td>25</td> </tr> </tbody> </table>			Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value	1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1	0	2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1	3	13:38:19	5/5/2016	8	Screen_22		Level Switch	8	4	4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1	5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0	6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1	7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0	8	13:38:31	5/5/2016	4	Screen_22		Level Switch	4	8	9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25
	Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value																																																																																					
1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1	0																																																																																					
2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1																																																																																					
3	13:38:19	5/5/2016	8	Screen_22		Level Switch	8	4																																																																																					
4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1																																																																																					
5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0																																																																																					
6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1																																																																																					
7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0																																																																																					
8	13:38:31	5/5/2016	4	Screen_22		Level Switch	4	8																																																																																					
9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25																																																																																					

■ Main-2



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Figure 5.5.3 Main-2 property page for the Increment / Decrement elements

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

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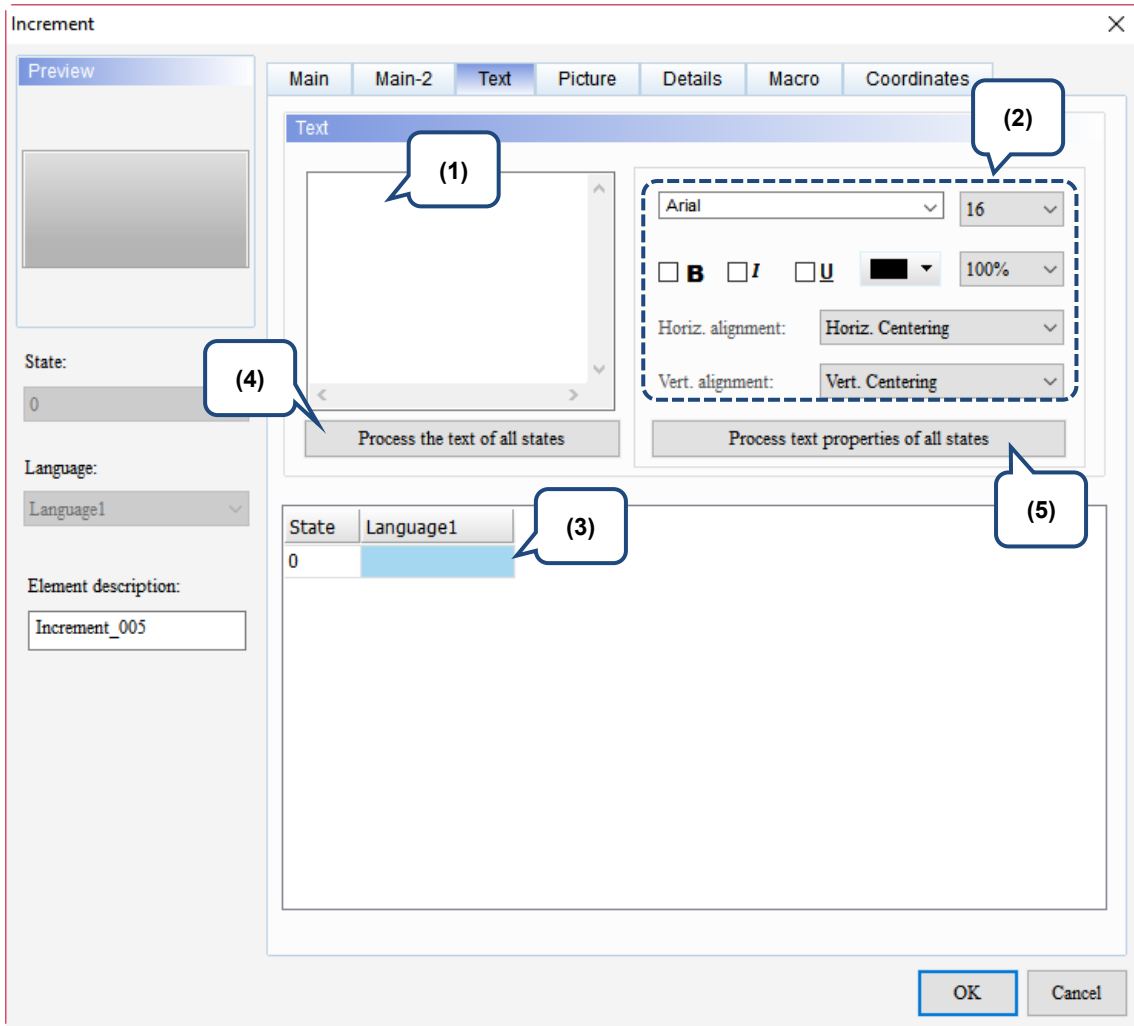
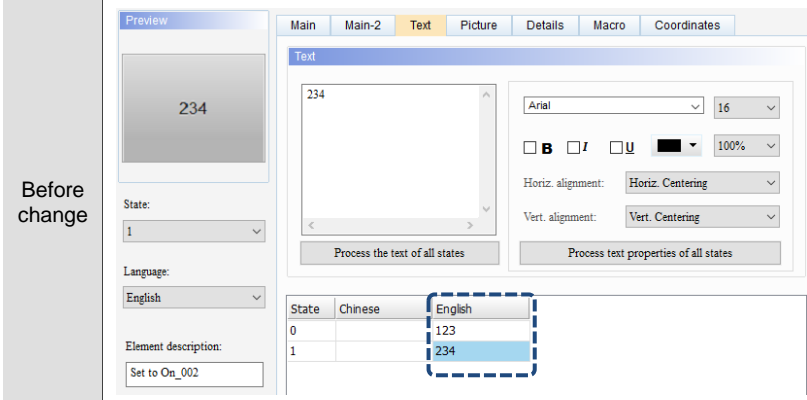
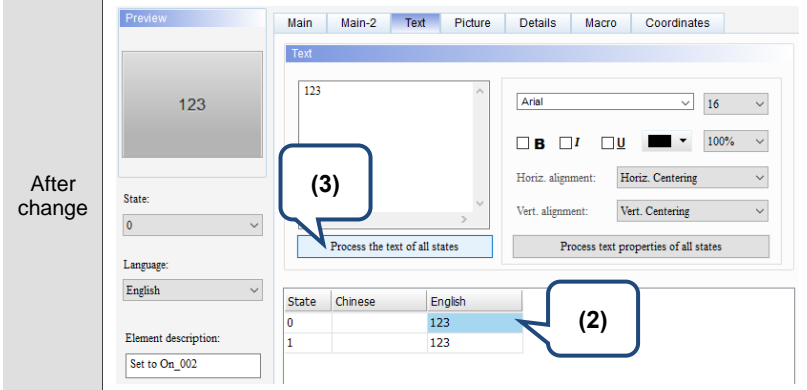
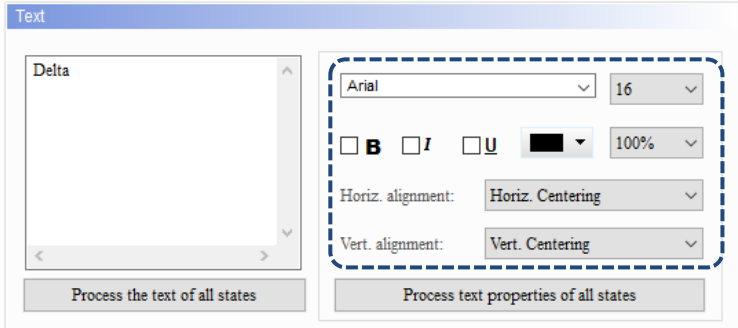
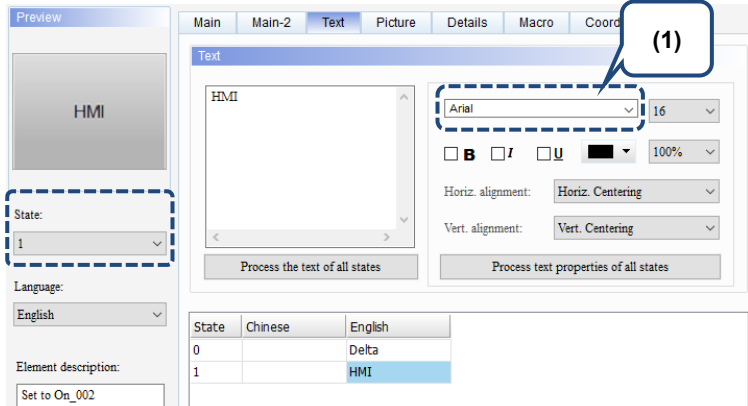


Figure 5.5.4 Text property page for the Increment / Decrement elements

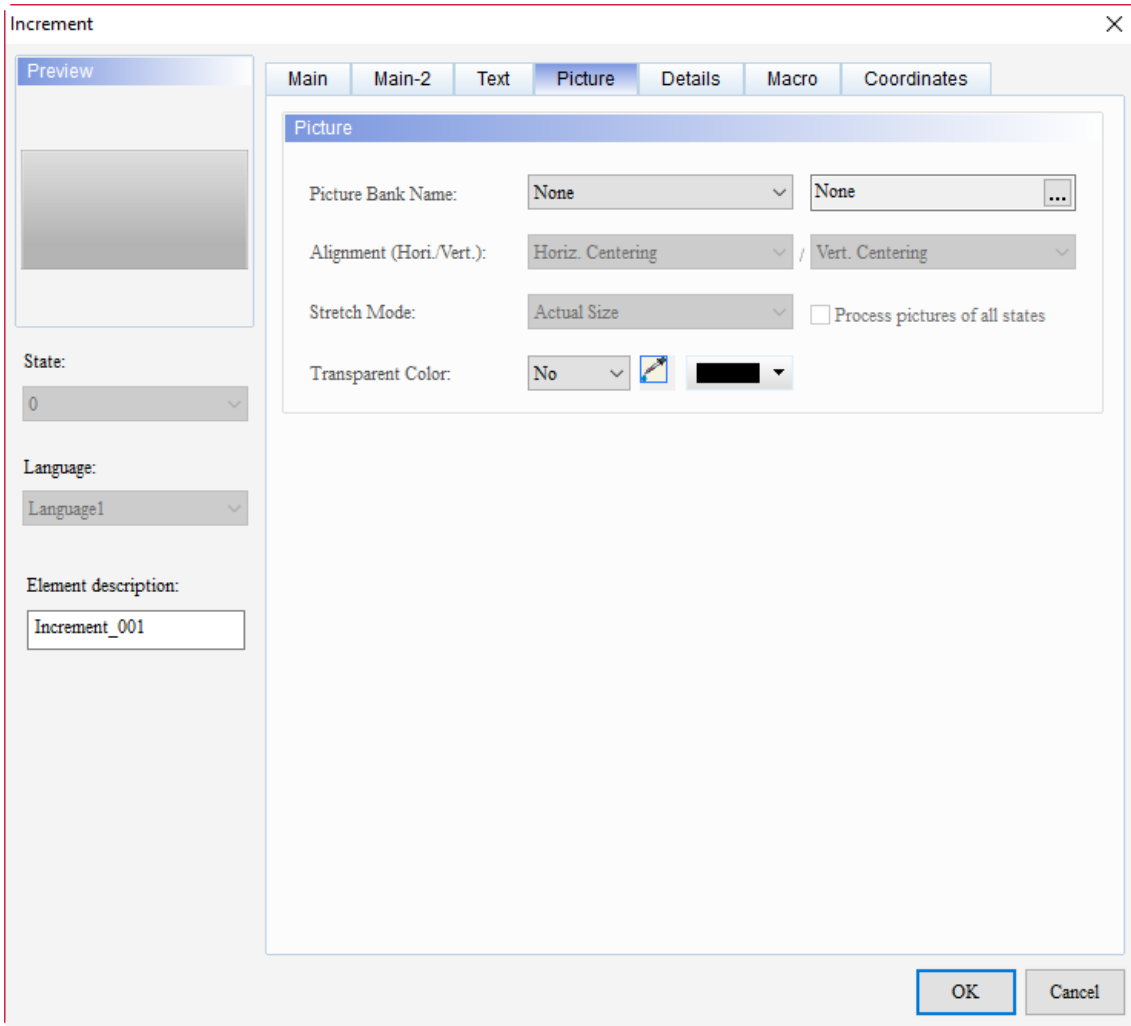
No.	Property	Function description									
(1)	Text	<ul style="list-style-type: none"> You can input the text to be displayed in the text box. <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>台達電子</td> <td>Delta</td> </tr> <tr> <td>1</td> <td>人機介面</td> <td>HMI</td> </tr> </tbody> </table> <ul style="list-style-type: none"> As long as the element allows text input, you can click the element on the screen and press the space key on the keyboard to start editing and inputting the text. 	State	Chinese	English	0	台達電子	Delta	1	人機介面	HMI
State	Chinese	English									
0	台達電子	Delta									
1	人機介面	HMI									

No.	Property	Function description
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the text property setting results.
(3)	Edit Multi-language Text	If you have added multi-language text, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	<p>■ This function batch changes all the texts into the text contents of the state you selected. The following illustrates the steps:</p> <ol style="list-style-type: none"> 1. Input 123 to State 0, and 234 to State 1. 2. Click State 0. 3. Click Process the text of all states, and the State 1 text changes to 123.  
(5)	Process text properties of all states	<p>■ This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p>  <p>The following illustrates the steps:</p> <ol style="list-style-type: none"> 1. Input Delta to State 0, and set the font to Segoe Script; input HMI to State 1, and set the font to Arial. 2. Click State 0. 3. Click Process text properties of all states, and the State 1 font changes to Segoe Script.

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No.	Property	Function description	
(5)	Process text properties of all states	Before change	 
	After change		

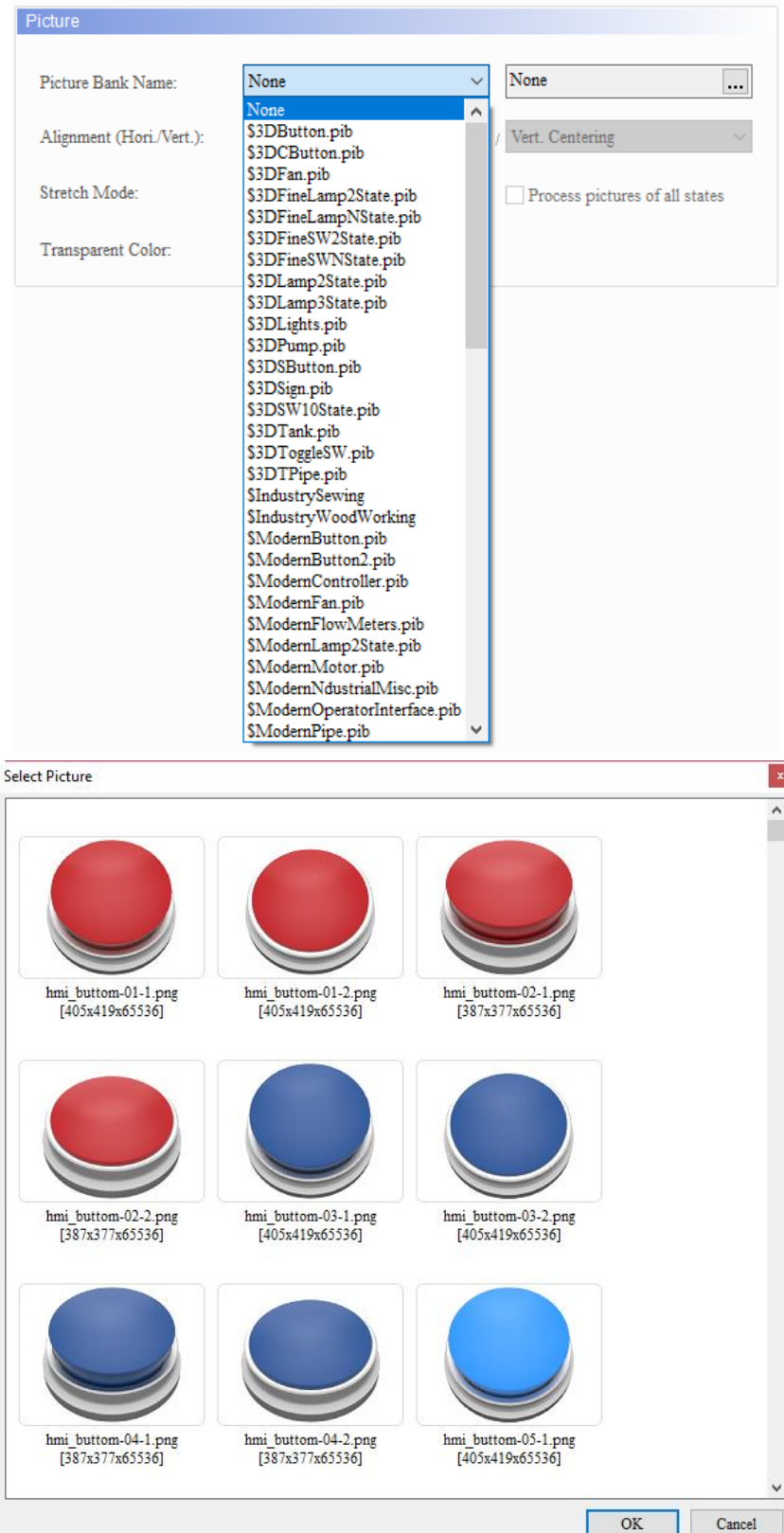
■ Picture

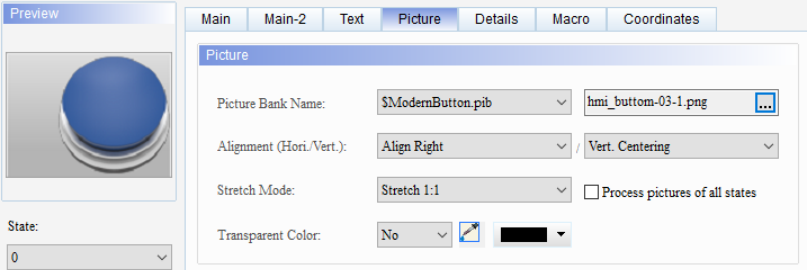













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Figure 5.5.5 Picture property page for the Increment / Decrement elements

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No.	Property	Function description
(1)	Picture Bank Name	<p>The default for Picture Bank Name is None. To set the picture display, use the drop-down list box to view the picture bank provided by the software and then select the desired pictures.</p>  <p>The 'Picture' dialog box contains the following fields and options:</p> <ul style="list-style-type: none"> Picture Bank Name: A drop-down menu currently showing 'None'. Alignment (Hori./Vert.): A dropdown menu showing 'Vert. Centering'. Stretch Mode: A dropdown menu. Transparent Color: A text input field. Process pictures of all states: An unchecked checkbox. <p>The 'Select Picture' dialog box displays a grid of 9 button images with the following filenames and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

No.	Property	Function description									
(2)	Alignment / Stretch Mode	<p>■ You can use the Alignment options to set how pictures are aligned.</p>  <p>■ The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size.</p> <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>■ If you select the check box for Process pictures of all states, it assumes that the elements have multiple states and some pictures do not fill the full element display area. You can use this function to process all pictures instead of setting them one by one, which saves the editing time.</p> <p><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.			
Stretch All	Stretch 1:1	Actual Size									
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.									
											
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent. If you select the Transparent Color icon  and click the white part on the calendar, the software changes the white part into transparent, which you can see becomes identical to the element foreground color.</p> 									

5

■ Details

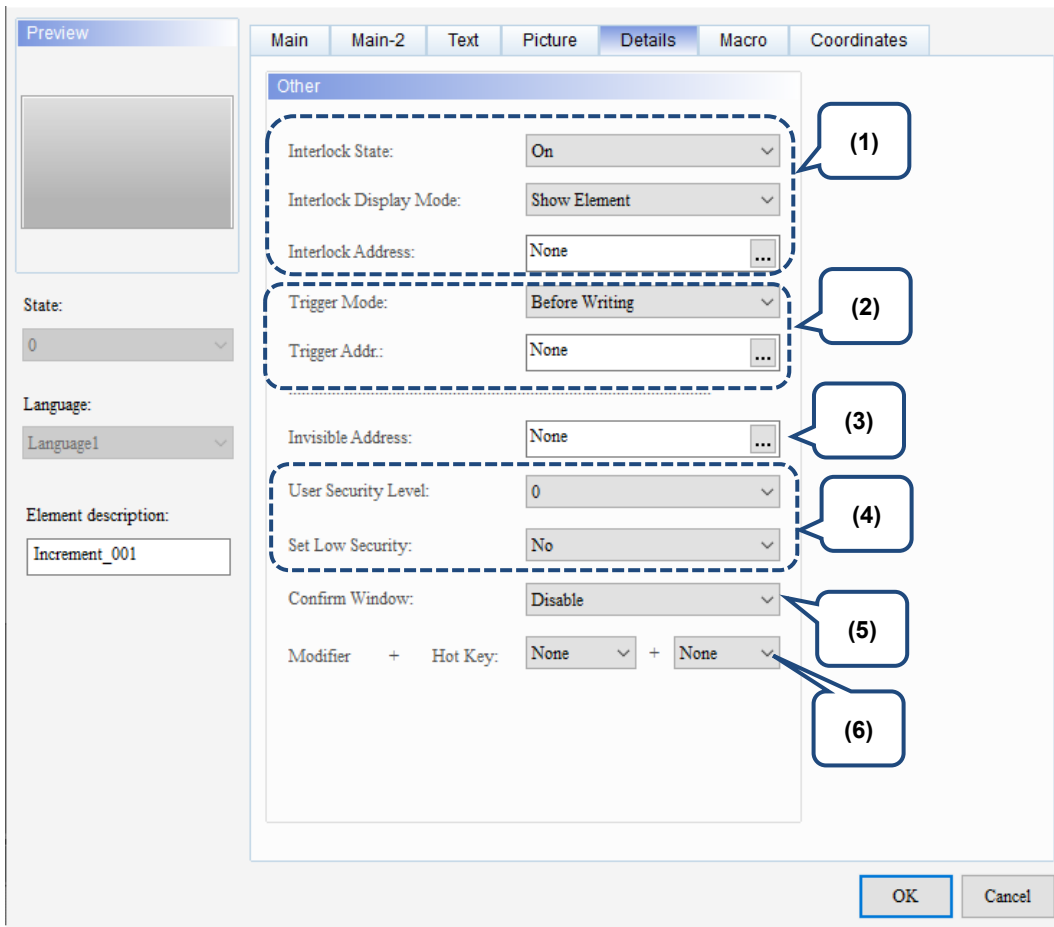






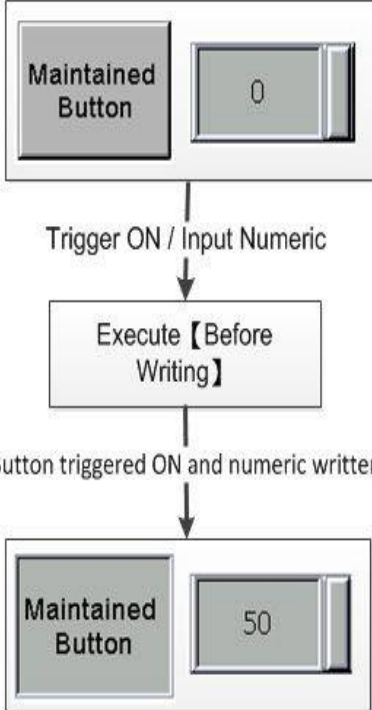
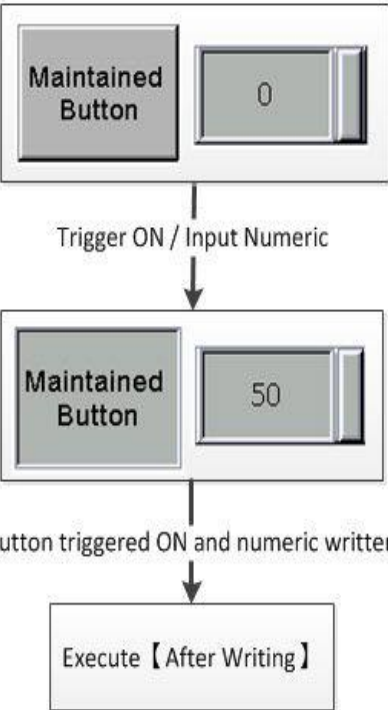

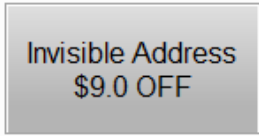

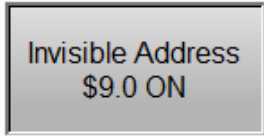


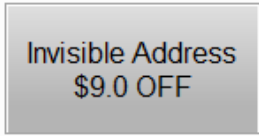

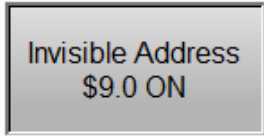


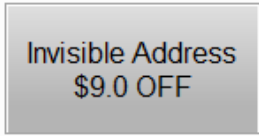

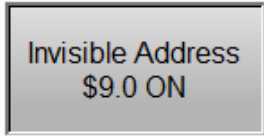

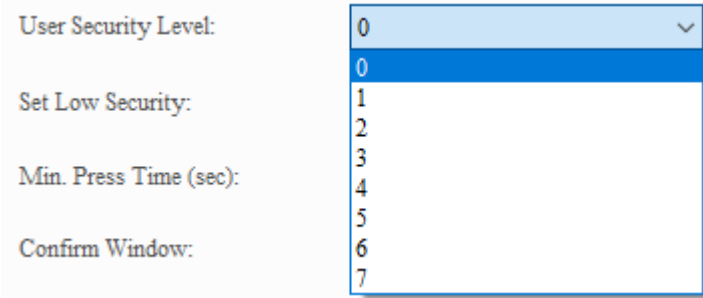
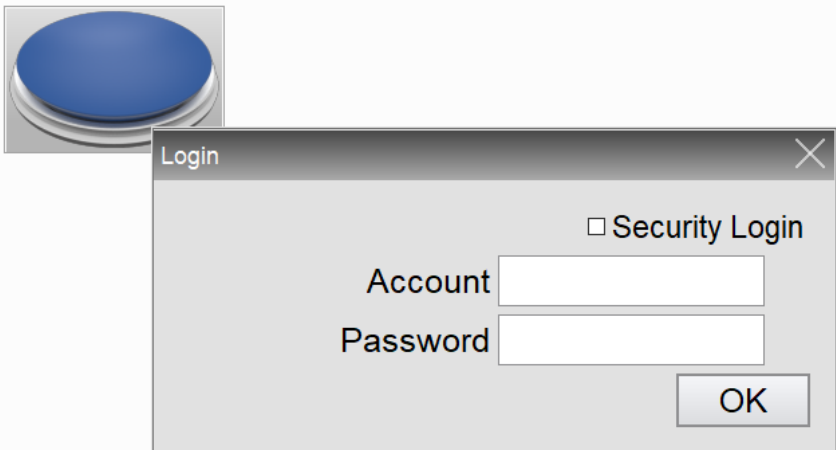
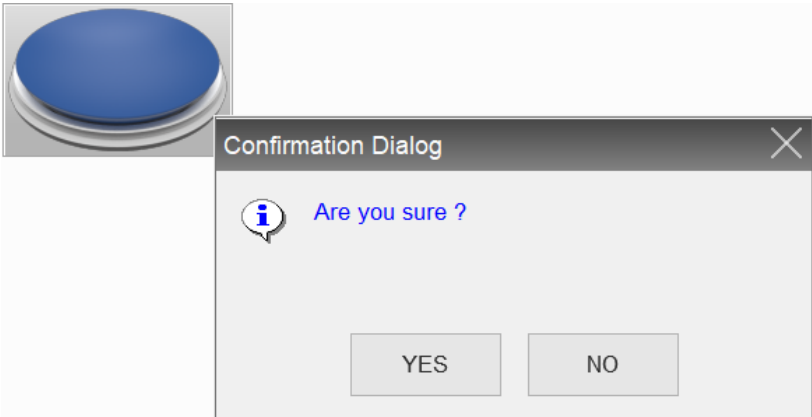


Figure 5.5.6 Details property page for the Increment / Decrement elements

No.	Property	Function description						
(1)	Interlock State	<ul style="list-style-type: none"> The Interlock Address enables you to operate a certain element from this particular address, which must be operated along with the Interlock State. If the Interlock State is set to OFF, it means the Interlock Address is operable when the Interlock State is OFF; on the other hand, if the Interlock State is set to ON, the Interlock Address is operable when the Interlock State is ON. The following describes how it works: <ol style="list-style-type: none"> Create a button and set its address to \$8.0. Then, set the Interlock Address to \$8.0 for the button which address is \$99.0. Before having the button which address is \$99.0 to operate, you have to press the button which address is \$8.0 to validate the button action which address is \$99.0. 						
	Interlock Address							
	Interlock Display Mode	<ul style="list-style-type: none"> The Interlock Display Mode includes two options, Show Element and Show Prohibition Symbol. <table border="1"> <tr> <td>Interlock Display Mode:</td> <td> <div style="border: 1px solid black; padding: 2px;"> Show Element ▼ Show Element Show Prohibition Symbol </div> </td> </tr> <tr> <td>Show Element</td> <td>  </td> </tr> <tr> <td>Show Prohibition Symbol</td> <td>  </td> </tr> </table>	Interlock Display Mode:	<div style="border: 1px solid black; padding: 2px;"> Show Element ▼ Show Element Show Prohibition Symbol </div>	Show Element		Show Prohibition Symbol	
Interlock Display Mode:	<div style="border: 1px solid black; padding: 2px;"> Show Element ▼ Show Element Show Prohibition Symbol </div>							
Show Element								
Show Prohibition Symbol								
(2)	Trigger Mode / Trigger Addr.	<ul style="list-style-type: none"> There are two trigger modes: Before Writing and After Writing. <table border="1"> <thead> <tr> <th></th> <th>Before Writing</th> <th>After Writing</th> </tr> </thead> <tbody> <tr> <td>Trigger type</td> <td>Set the button to ON before changing values.</td> <td>The button turns to ON after changing values.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> You can create a button element, set the address, and select Before Writing or After Writing to trigger the specified controller Bit address to ON. The Trigger function only turns the controller address to ON, so you need to turn the address to OFF if triggering again is required. 		Before Writing	After Writing	Trigger type	Set the button to ON before changing values.	The button turns to ON after changing values.
	Before Writing	After Writing						
Trigger type	Set the button to ON before changing values.	The button turns to ON after changing values.						

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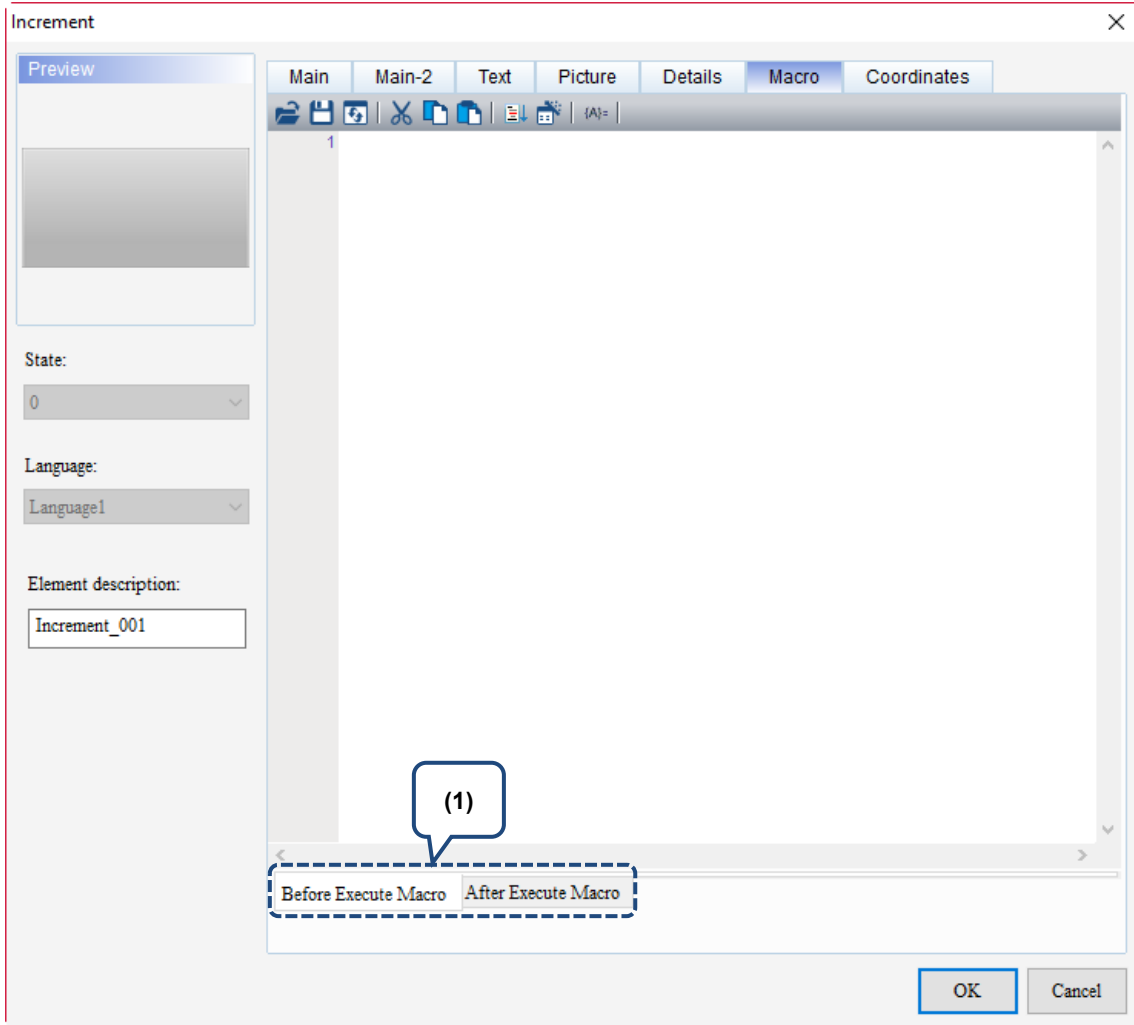
No.	Property	Function description																																													
(2)	Trigger Mode / Trigger Addr.	<p style="text-align: center;">Flowchart of Before Writing</p> 	<p style="text-align: center;">Flowchart of After Writing</p> 																																												
(3)	Invisible Address	<p>When the Invisible Address is set to ON, the button element is invisible and you cannot enable its functions.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 5px;">Invisible Address is off</td> <td style="width: 40%; text-align: center; padding: 5px;"></td> <td style="width: 40%; text-align: center; padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Invisible Address is on</td> <td style="text-align: center; padding: 5px;"></td> <td style="text-align: center; padding: 5px;"></td> </tr> </table> <div style="margin-top: 10px;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; padding: 5px;"> <div style="border: 1px solid #ccc; padding: 5px; text-align: center;">  </div> <p style="margin-top: 5px;">State:</p> </td> <td style="padding: 5px;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Main</td> <td style="text-align: center;">Main-2</td> <td style="text-align: center;">Text</td> <td style="text-align: center;">Picture</td> <td style="text-align: center;">Details</td> <td style="text-align: center;">Macro</td> </tr> <tr> <td colspan="6" style="padding: 5px;">Other</td> </tr> <tr> <td style="padding: 5px;">Interlock State:</td> <td colspan="5" style="padding: 5px;"><input type="text" value="On"/></td> </tr> <tr> <td style="padding: 5px;">Interlock Address:</td> <td colspan="5" style="padding: 5px;"><input type="text" value="None"/></td> </tr> <tr> <td colspan="6" style="padding: 5px;">.....</td> </tr> <tr> <td style="padding: 5px;">Invisible Address:</td> <td colspan="5" style="padding: 5px;"><input type="text" value="\$9.0"/></td> </tr> </table> </td> </tr> </table> </div>		Invisible Address is off			Invisible Address is on			<div style="border: 1px solid #ccc; padding: 5px; text-align: center;">  </div> <p style="margin-top: 5px;">State:</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Main</td> <td style="text-align: center;">Main-2</td> <td style="text-align: center;">Text</td> <td style="text-align: center;">Picture</td> <td style="text-align: center;">Details</td> <td style="text-align: center;">Macro</td> </tr> <tr> <td colspan="6" style="padding: 5px;">Other</td> </tr> <tr> <td style="padding: 5px;">Interlock State:</td> <td colspan="5" style="padding: 5px;"><input type="text" value="On"/></td> </tr> <tr> <td style="padding: 5px;">Interlock Address:</td> <td colspan="5" style="padding: 5px;"><input type="text" value="None"/></td> </tr> <tr> <td colspan="6" style="padding: 5px;">.....</td> </tr> <tr> <td style="padding: 5px;">Invisible Address:</td> <td colspan="5" style="padding: 5px;"><input type="text" value="\$9.0"/></td> </tr> </table>	Main	Main-2	Text	Picture	Details	Macro	Other						Interlock State:	<input type="text" value="On"/>					Interlock Address:	<input type="text" value="None"/>										Invisible Address:	<input type="text" value="\$9.0"/>				
Invisible Address is off																																															
Invisible Address is on																																															
<div style="border: 1px solid #ccc; padding: 5px; text-align: center;">  </div> <p style="margin-top: 5px;">State:</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Main</td> <td style="text-align: center;">Main-2</td> <td style="text-align: center;">Text</td> <td style="text-align: center;">Picture</td> <td style="text-align: center;">Details</td> <td style="text-align: center;">Macro</td> </tr> <tr> <td colspan="6" style="padding: 5px;">Other</td> </tr> <tr> <td style="padding: 5px;">Interlock State:</td> <td colspan="5" style="padding: 5px;"><input type="text" value="On"/></td> </tr> <tr> <td style="padding: 5px;">Interlock Address:</td> <td colspan="5" style="padding: 5px;"><input type="text" value="None"/></td> </tr> <tr> <td colspan="6" style="padding: 5px;">.....</td> </tr> <tr> <td style="padding: 5px;">Invisible Address:</td> <td colspan="5" style="padding: 5px;"><input type="text" value="\$9.0"/></td> </tr> </table>	Main	Main-2	Text	Picture	Details	Macro	Other						Interlock State:	<input type="text" value="On"/>					Interlock Address:	<input type="text" value="None"/>										Invisible Address:	<input type="text" value="\$9.0"/>														
Main	Main-2	Text	Picture	Details	Macro																																										
Other																																															
Interlock State:	<input type="text" value="On"/>																																														
Interlock Address:	<input type="text" value="None"/>																																														
.....																																															
Invisible Address:	<input type="text" value="\$9.0"/>																																														

No.	Property	Function description
(4)	User Security Level	 <ul style="list-style-type: none"> ■ You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. ■ After you set the User Security Level and press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password through the Password Table Setup element; refer to Section 5.7.2 Password Table Setup).
	Set Low Security	 <ul style="list-style-type: none"> ■ If you set the Set Low Security to Yes, each time you input the password, the HMI sets the security level to the lowest. The next time you press the element, the HMI asks you to enter the password for the corresponding security level again.
(5)	Confirm Window	<p>If you set the Confirm Window to Yes, the following Confirmation Dialog appears for you to confirm the pressing action after pressing the element.</p> 

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No.	Property	Function description
(6)	Modifier + Hot Key	<ul style="list-style-type: none"> ■ Allows you to use the hot keys on the external keyboard to execute the button. ■ The Modifier options include None, Shift, Ctrl, and Alt. <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> Shift ▾ None Shift Ctrl Alt </div> ■ The Hot Key options include F1 to F12, English letters A to Z, and number keys 0 to 9. <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> F1 ▾ None ▲ F1 F2 F3 F4 F5 F6 F7 F8 F9 ▾ </div>

■ Macro



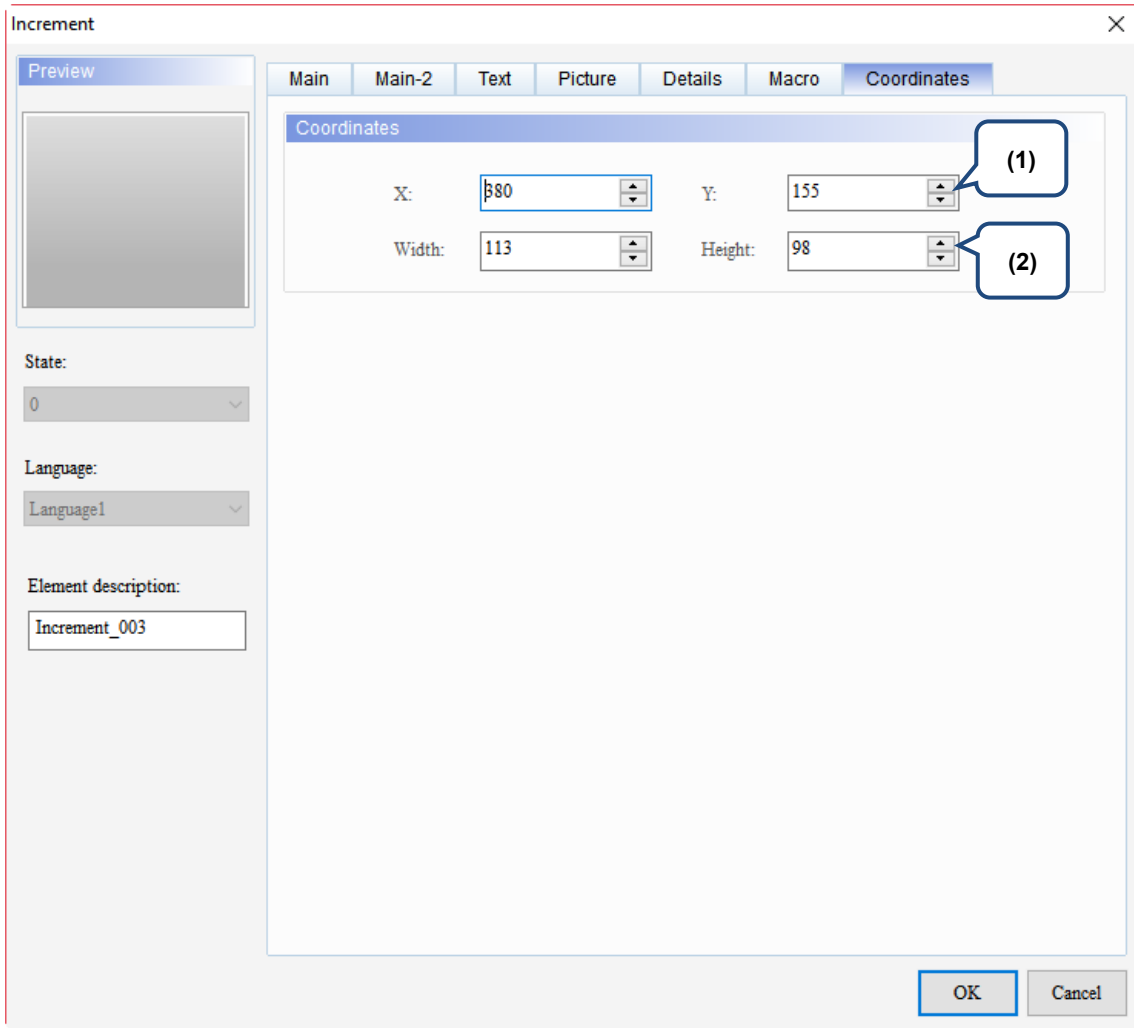
5

Figure 5.5.7 Macro property page for the Increment / Decrement elements

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No.	Property	Function description
(1)		<p>Flowcharts of Before / After Execute Macro:</p>
	Before Execute Macro	When you touch the button element, the HMI executes the macro commands first, and then executes the button actions. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.
	After Execute Macro	When you touch the button element, the HMI executes the button actions first, and then executes the macro commands. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.

■ Coordinates



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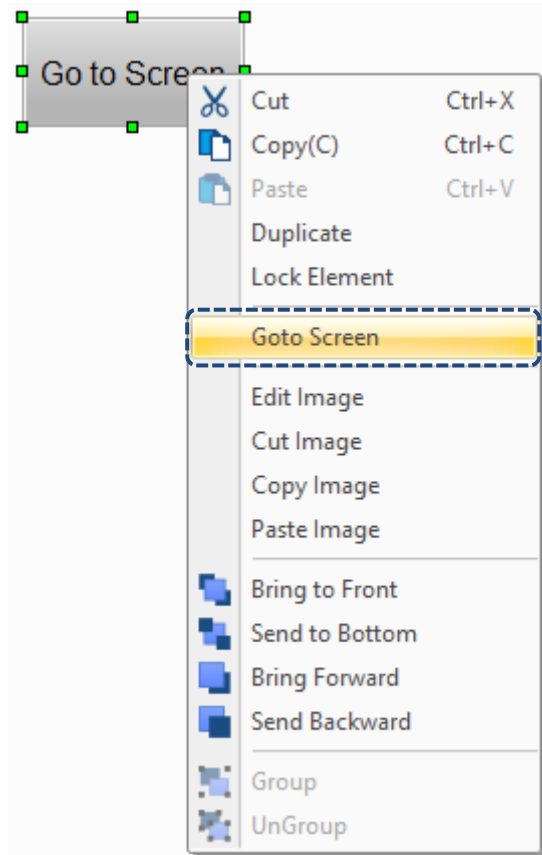
Figure 5.5.8 Coordinates property page for the Increment / Decrement elements

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

5.6 Goto Screen

The Goto Screen button enables you to right-click the button and select **Goto Screen** to go to the screen of the set number.

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The DOPSoft provides three types of Goto Screen buttons:

- Goto Screen: when you touch the **Goto Screen** button on the HMI, the HMI switches to the set screen.
- Previous Page: when you touch the **Previous Page** button on the HMI, the HMI switches to the previously displayed screen.
- Page Up: assuming that you switch the screen from Screen 1, Screen 3, and then to Screen 2, when you press the **Page Up** button, the screen goes to Screen 3, and when you press the **Page Up** button again, the screen goes to Screen 1.

You can set the functions for the three buttons with the Properties on the right-hand side or by double-clicking **Goto Screen** to enter the setting window.

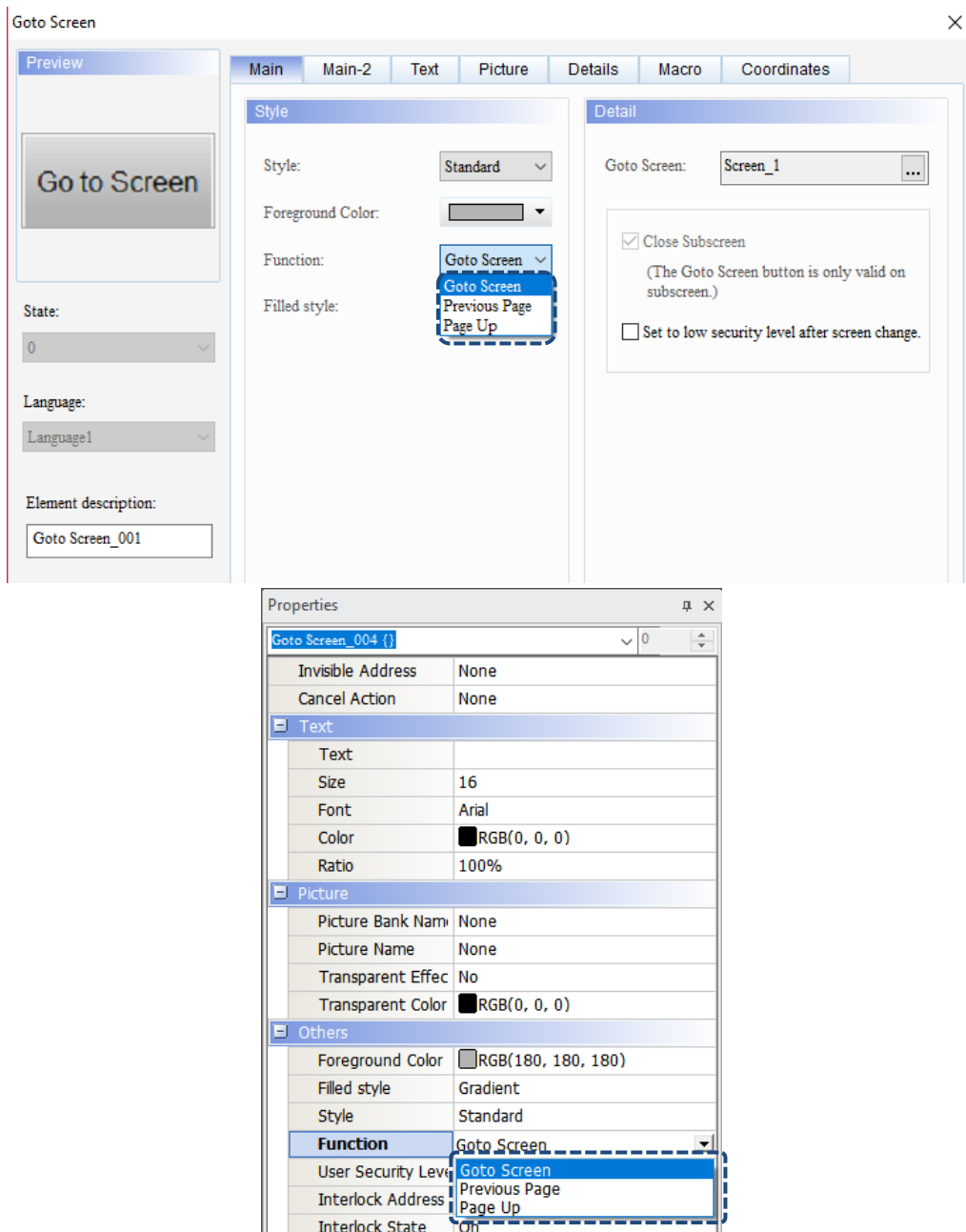
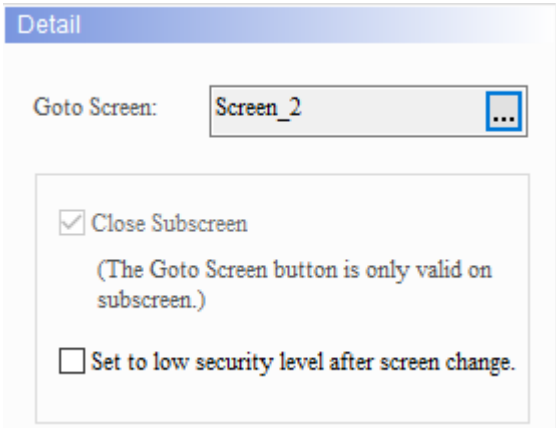
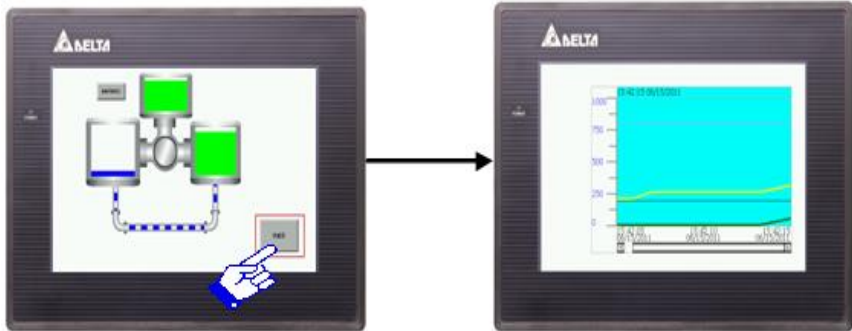
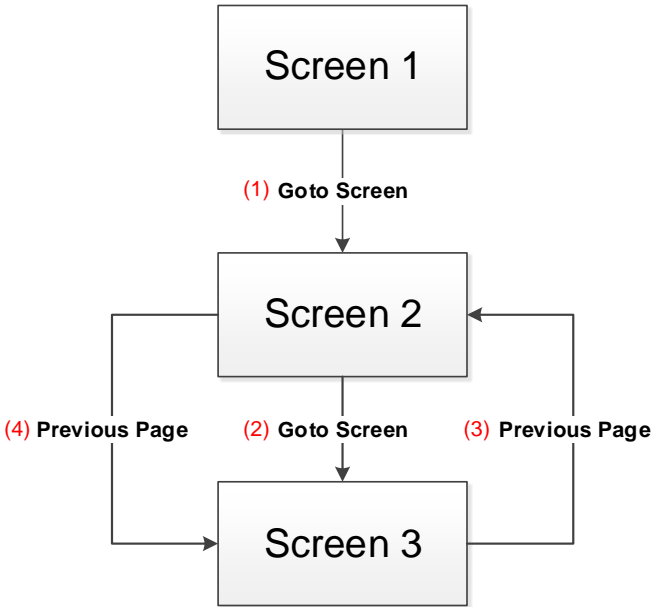
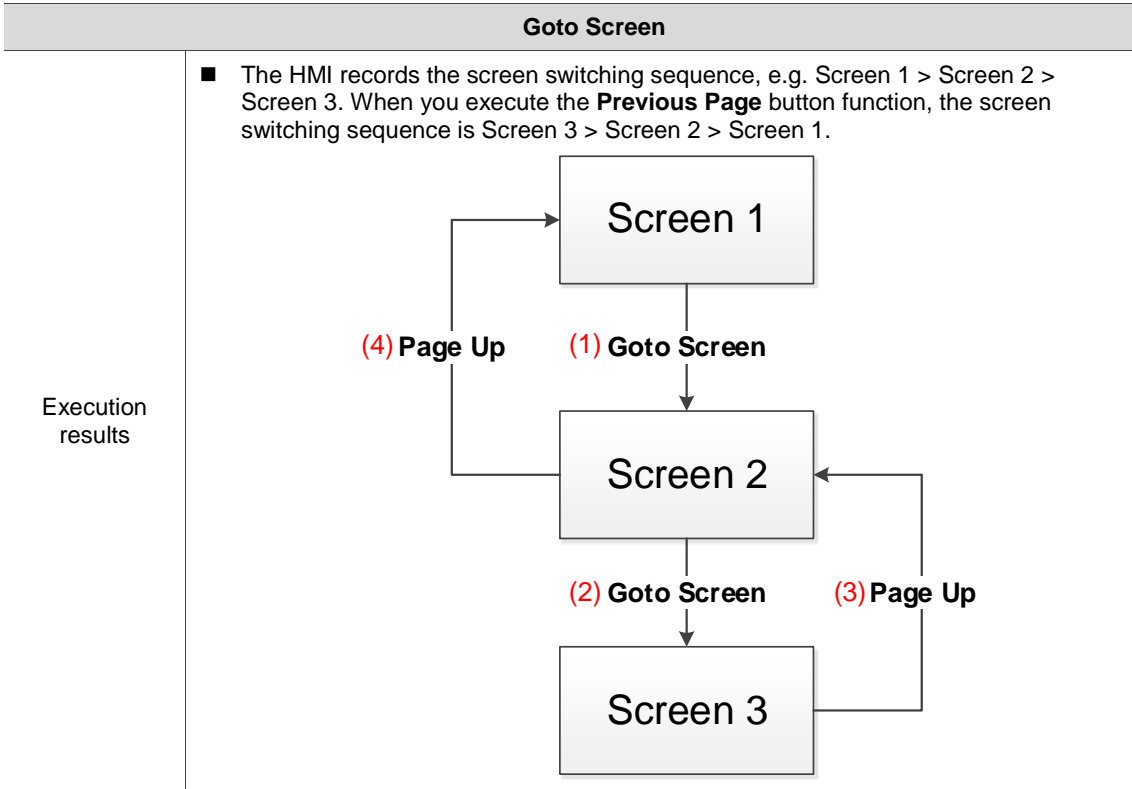


Figure 5.6.1 Properties of Goto Screen

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Table 5.6.1 Goto Screen example

Goto Screen	
<p>The Goto Screen item in the Goto Screen element</p>	
<p>Execution results</p>	<ul style="list-style-type: none"> When you touch Goto Screen, the HMI switches to the specified screen.  <ul style="list-style-type: none"> When you touch Previous Page, the HMI switches to the previously displayed screen. 



When you double-click the Goto Screen element, the property page is shown as follows.

5

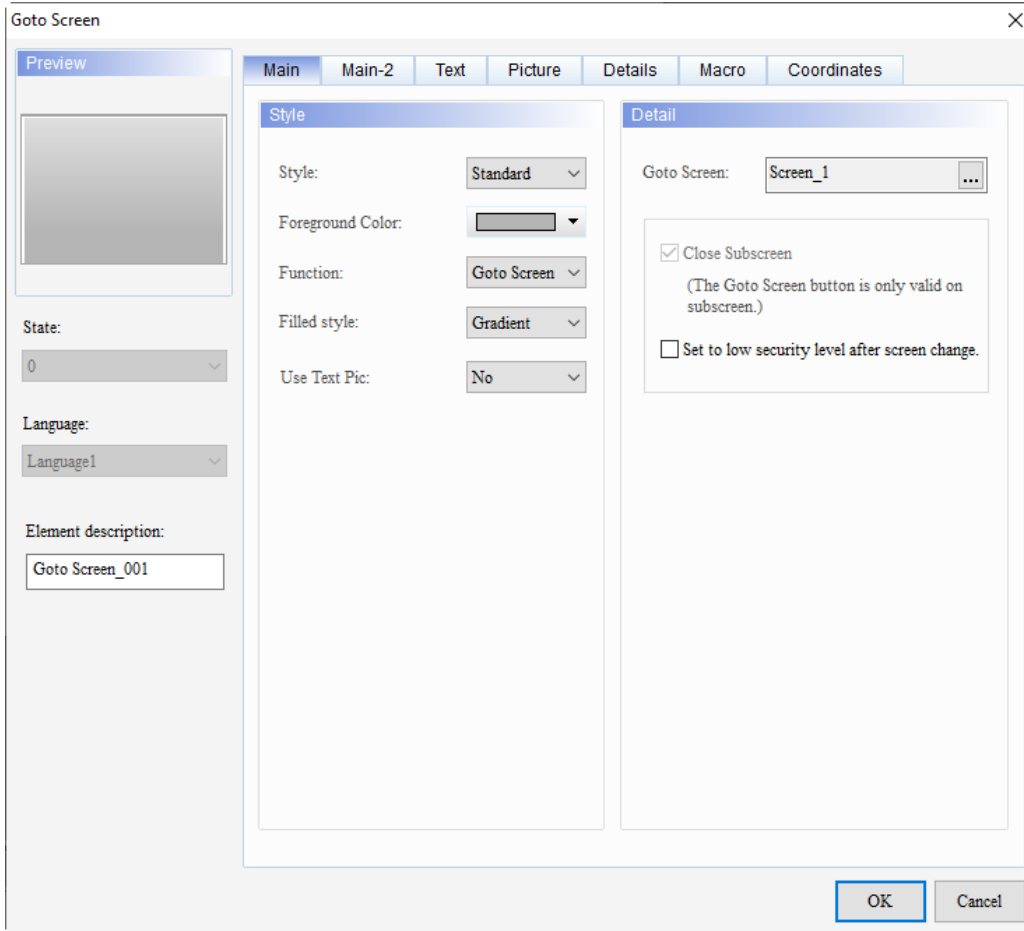


Figure 5.6.2 Properties of Goto Screen

Table 5.6.2 Function page of Goto Screen

Goto Screen	
Function page	Description
Preview	The Goto Screen element can only view multi-language data display since the multistate property is not available for this element.
Main	Set the Style and Foreground Color, Function, Filled style, Use text Pic for the element. Set the Goto Screen, Close Subscreen, and [Set to low security level after screen change] of the Goto Screen element.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing options.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color options.
Details	Goto Screen
	Set the Interlock Address, Interlock State, Interlock Display Mode, Trigger Mode, Trigger Addr., Invisible Address, Cancel Action, User Security Level, Confirm Window, and Modifier + Hot Key.
	Previous Page
	Set the Interlock Address, Interlock State, Interlock Display Mode, Trigger Mode, Trigger Addr., Invisible Address, User Security Level, Set Low Security, Confirm Window, and Modifier + Hot Key.
	Page Up
	Set the Interlock Address, Interlock State, Interlock Display Mode, Trigger Mode, Trigger Addr., Invisible Address, User Security Level, Set Low Security, Confirm Window, and Modifier + Hot Key.
Macro	Set the Before Execute Macro and After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the button element.

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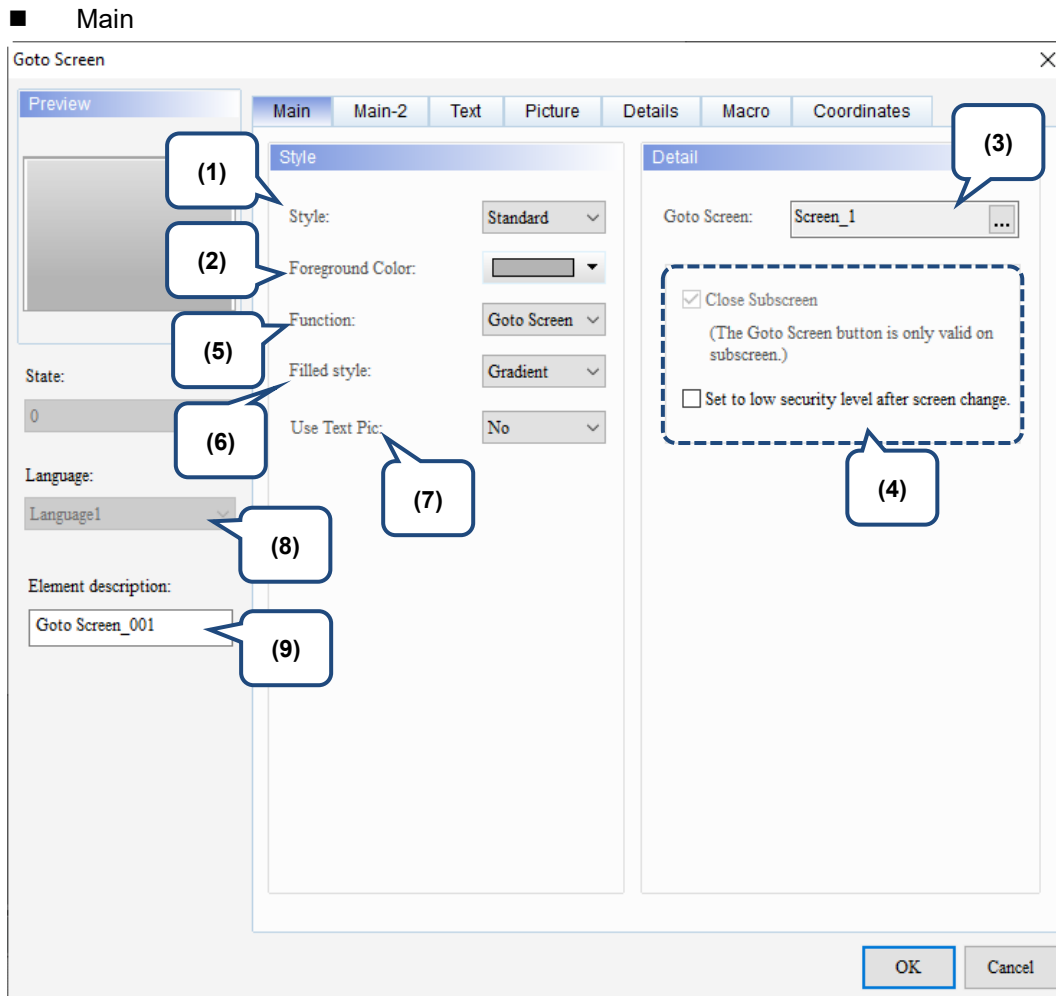
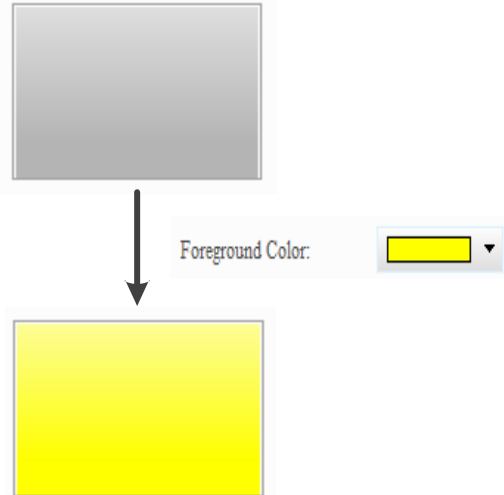
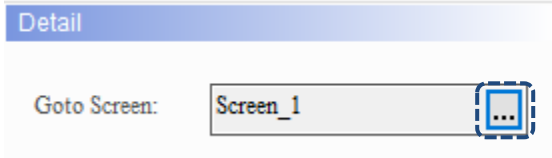

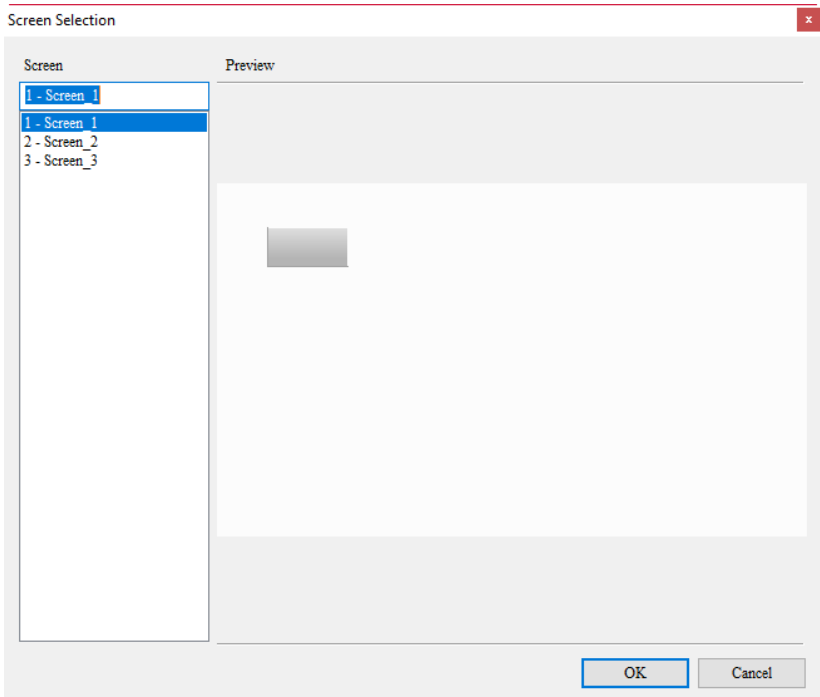
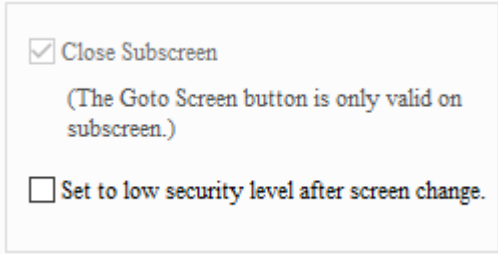
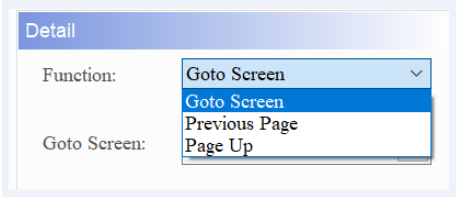
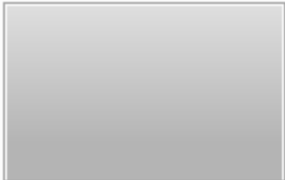

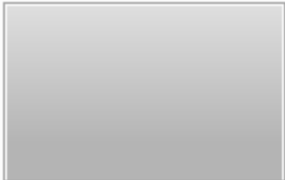

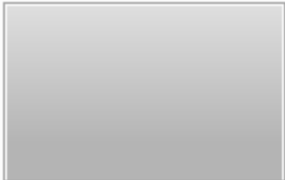



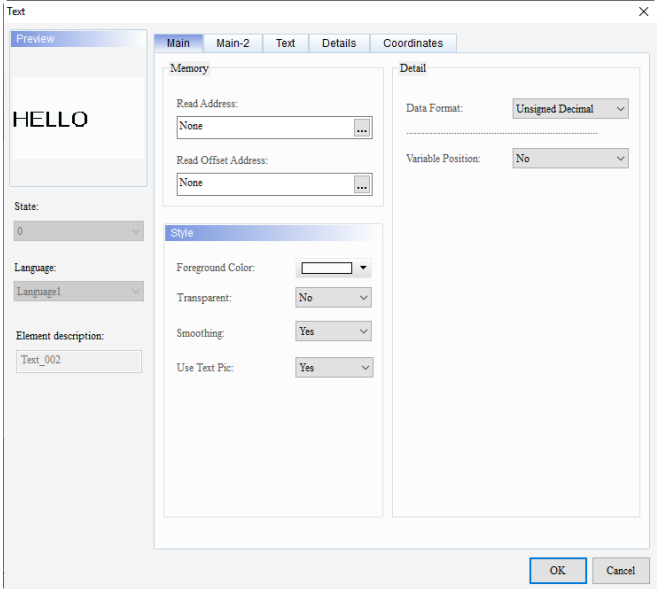
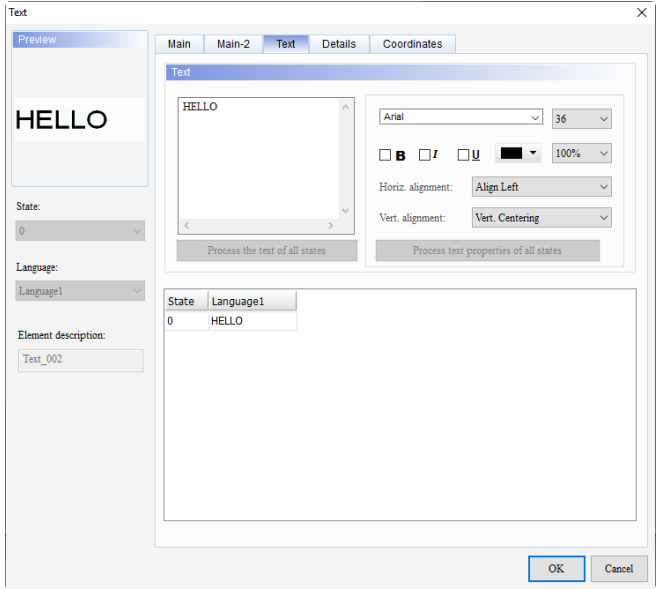
Figure 5.6.3 Main property page for the Goto Screen element

No.	Property	Function description								
(1)	Style	<p>The available styles are Standard, Raised, Round, and Invisible. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Round</th> <th>Invisible</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Standard</td> <td style="text-align: center;">Raised</td> <td style="text-align: center;">Round</td> <td style="text-align: center;">Invisible</td> </tr> </tbody> </table>	Standard	Raised	Round	Invisible	Standard	Raised	Round	Invisible
Standard	Raised	Round	Invisible							
Standard	Raised	Round	Invisible							

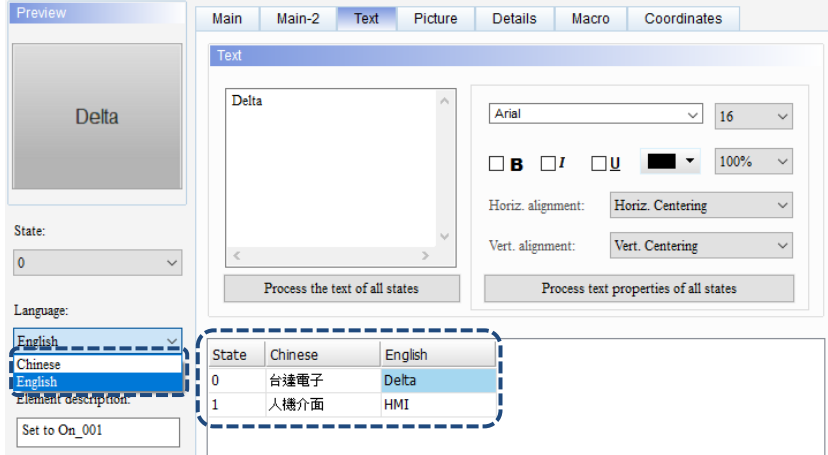
No.	Property	Function description
(2)	Foreground Color	<ul style="list-style-type: none"> ■ Set the foreground color of the element. ■ When you set the Style to Invisible, the Foreground Color setting is invalid. 
(3)	Goto Screen	 <p>The Screen Selection window appears after you click  in the preceding figure, and you can select the screen to be changed, as shown as follows:</p> 

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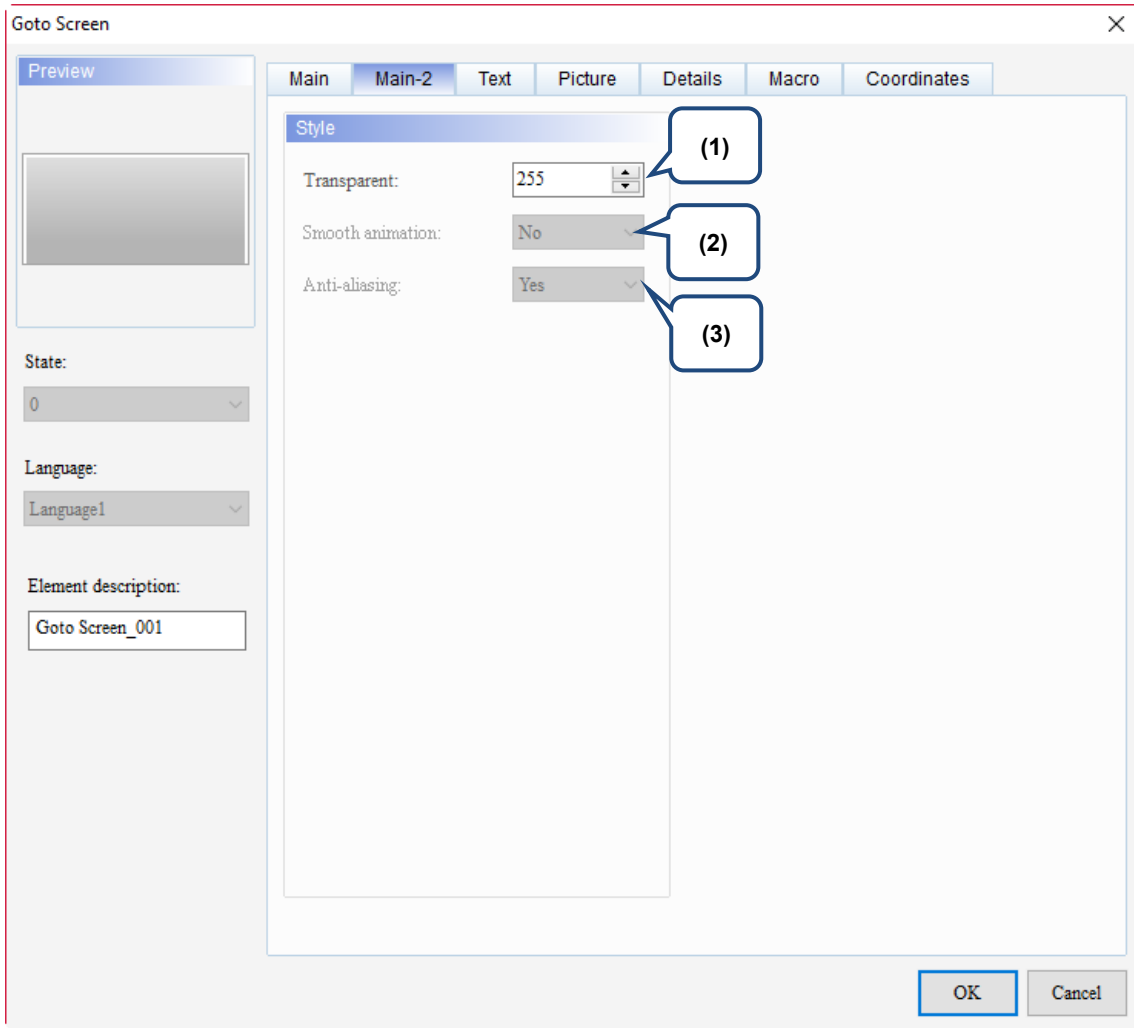
No.	Property	Function description				
(4)	Close Subscreen	<ul style="list-style-type: none"> Only when the Goto Screen button is created in the Subscreen will the Close Subscreen option be enabled. When you press Goto Screen, the current Subscreen closes at the same time. The Set to low security level after screen change function force sets the current User Security Level to the lowest after the Goto Screen button is pressed, which can prevent the element from being accidentally operated. 				
	Set to low security level after screen change.					
(5)	Function	<ul style="list-style-type: none"> The Function setting determines where the screen goes to when screen changes.  Goto Screen: press the Goto Screen button on the HMI and the HMI switches to the specified screen. Previous Page: press the Previous Page button and the HMI switches to the previous page. Page Up: assuming that you switch the screen from Screen 1, Screen 3, and then to Screen 2, when you press the Page Up button, the screen goes to Screen 3, and when you press the Page Up button again, the screen goes to Screen 1. 				
(6)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						

No.	Property	Function description				
(7)	Use Text Pic	<p>Unlike the DOP-B series models using pictures to present all texts, the DOP-100 series models present directly with the texts. Therefore, if the language you use for the element is not yet supported by the PC, it is possible to cause missing characters and garbled texts when the element is displayed on the HMI. To have the text display effect be the same as that on the DOP-B models, the Use Text Pic function is added for the Text, Button, and General Message Display elements. Refer to the following examples.</p> <p style="text-align: center;">Use Text Pic function</p> <ul style="list-style-type: none"> ■ Create a Text element and go to the [Main] tab to set the Use Text Pic function.  <p>Note: if you use the DOPSoft 4.00.06 version to open a DOP-B project, the Use Text Pic function is enabled (Yes) by default. If you add a DOP-100 project, then the Use Text Pic function is disabled (No) by default.</p> <ul style="list-style-type: none"> ■ Go to the [Text] tab, and type the text and set its font. 				
	Execution result	<ul style="list-style-type: none"> ■ After creating the element, download it to the HMI. ■ The following table shows the results of using and not using the Use Text Pic function. <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Use Text Pic is Yes</th> <th>Use Text Pic is No</th> </tr> </thead> <tbody> <tr> <td>HELLO</td> <td>HELLO</td> </tr> </tbody> </table>	Use Text Pic is Yes	Use Text Pic is No	HELLO	HELLO
Use Text Pic is Yes	Use Text Pic is No					
HELLO	HELLO					

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No.	Property	Function description																																																																																										
(8)	Language	<p>If you have set the language data, you can edit the properties of the displayed text with the Language setting of the element.</p> 																																																																																										
(9)	Element description	<p>Record the button actions to be executed. The record is written in the CSV file of the Operation Log Table so that you know what actions have been done.</p> <table border="1"> <thead> <tr> <th></th> <th>Time</th> <th>Date</th> <th>Level</th> <th>Screen</th> <th>Desc</th> <th>Action</th> <th>Pre Value</th> <th>Change Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13:37:54</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>13:37:56</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>3</td> <td>13:38:19</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td></td> <td>Level Switch</td> <td>8</td> <td>4</td> </tr> <tr> <td>4</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>5</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>6</td> <td>13:38:22</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>7</td> <td>13:38:23</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>8</td> <td>13:38:31</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td></td> <td>Level Switch</td> <td>4</td> <td>8</td> </tr> <tr> <td>9</td> <td>13:38:35</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>\$100 Value</td> <td>Set Val</td> <td>85</td> <td>25</td> </tr> </tbody> </table>		Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value	1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1	0	2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1	3	13:38:19	5/5/2016	8	Screen_22		Level Switch	8	4	4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1	5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0	6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1	7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0	8	13:38:31	5/5/2016	4	Screen_22		Level Switch	4	8	9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25
	Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value																																																																																				
1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1	0																																																																																				
2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1																																																																																				
3	13:38:19	5/5/2016	8	Screen_22		Level Switch	8	4																																																																																				
4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1																																																																																				
5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0																																																																																				
6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1																																																																																				
7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0																																																																																				
8	13:38:31	5/5/2016	4	Screen_22		Level Switch	4	8																																																																																				
9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25																																																																																				

■ Main-2



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Figure 5.6.4 Main-2 property page for the Goto Screen element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

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■ Text

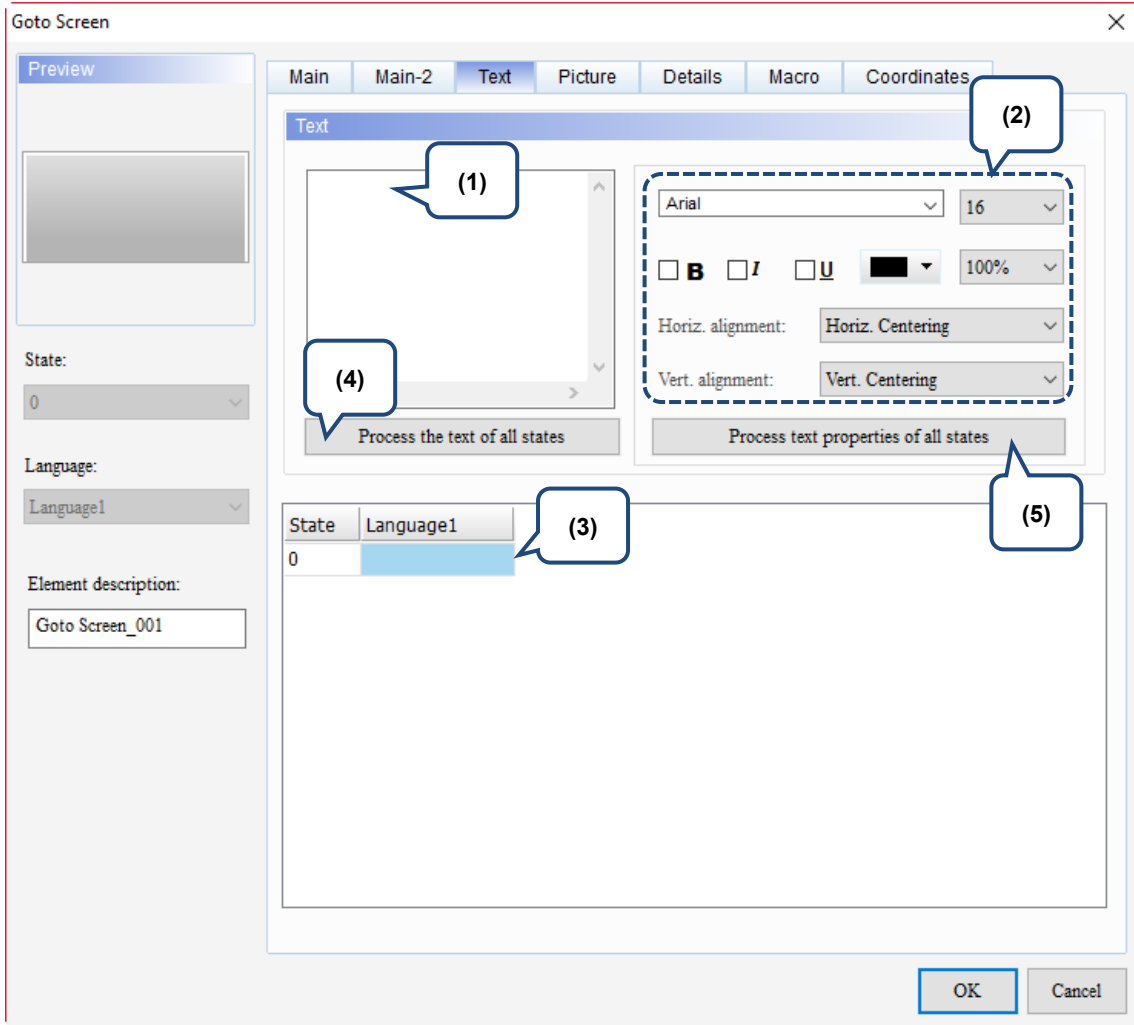
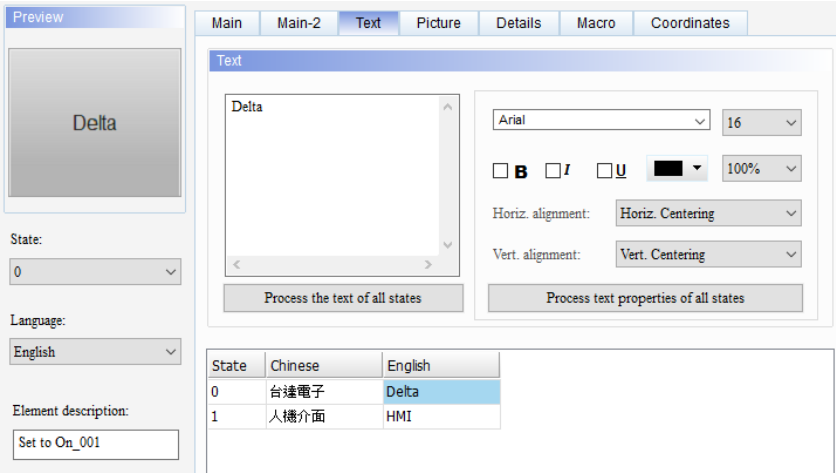
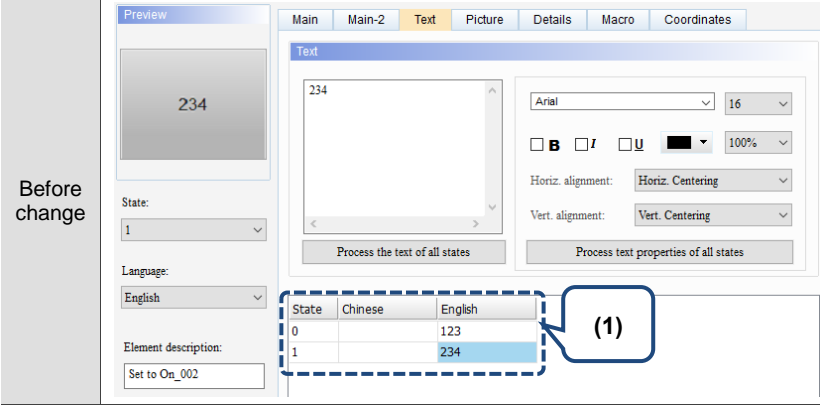
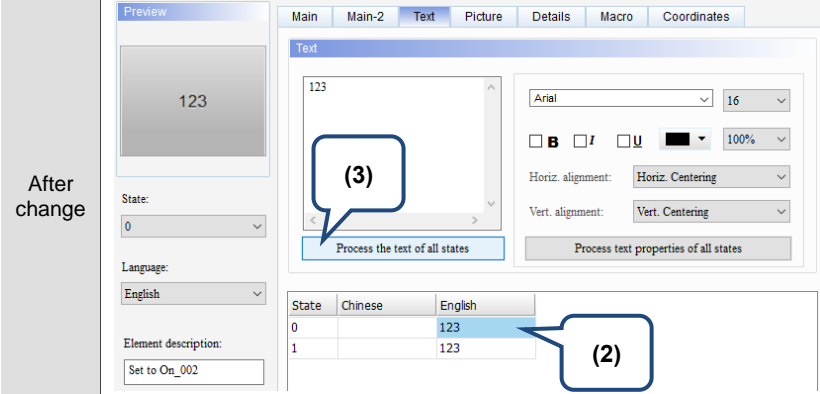


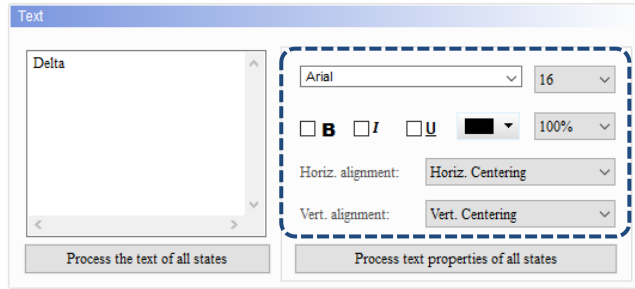
Figure 5.6.5 Text property page for the Goto Screen element

No.	Property	Function description
(1)	Text	<p>■ You can input the text to be displayed in the text box.</p>  <p>■ As long as the element allows text input, you can click the element on the screen and press the space key on the keyboard to start editing and inputting the text.</p>
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the text property setting results.
(3)	Edit Multi-language Text	If you have added multi-language text, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected.</p> <p>The following illustrates the steps:</p> <ol style="list-style-type: none"> Input 123 to State 0, and 234 to State 1. Click State 0. Click Process the text of all states, and the State 1 text changes to 123. <div style="display: flex; flex-direction: column;"> <div style="margin-bottom: 20px;"> <p>Before change</p>  </div> <div> <p>After change</p>  </div> </div>

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No.	Property	Function description
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This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.



The following illustrates the steps:

1. Input Delta to State 0, and set the font to Segoe Script; input HMI to State 1, and set the font to Arial.
2. Click State 0.
3. Click **Process text properties of all states**, and the State 1 font changes to Segoe Script.

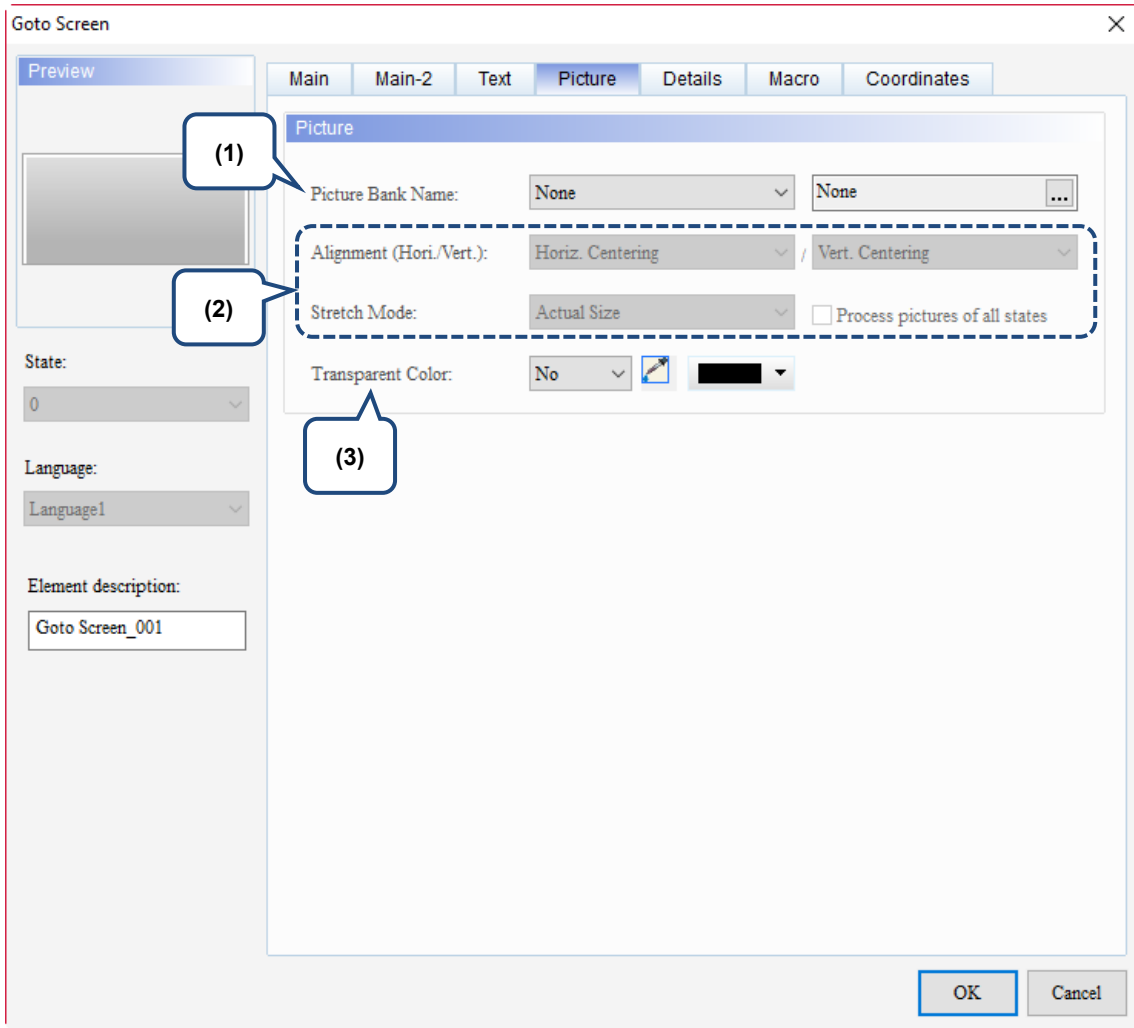
(5)

Process text properties of all states

Before change

After change

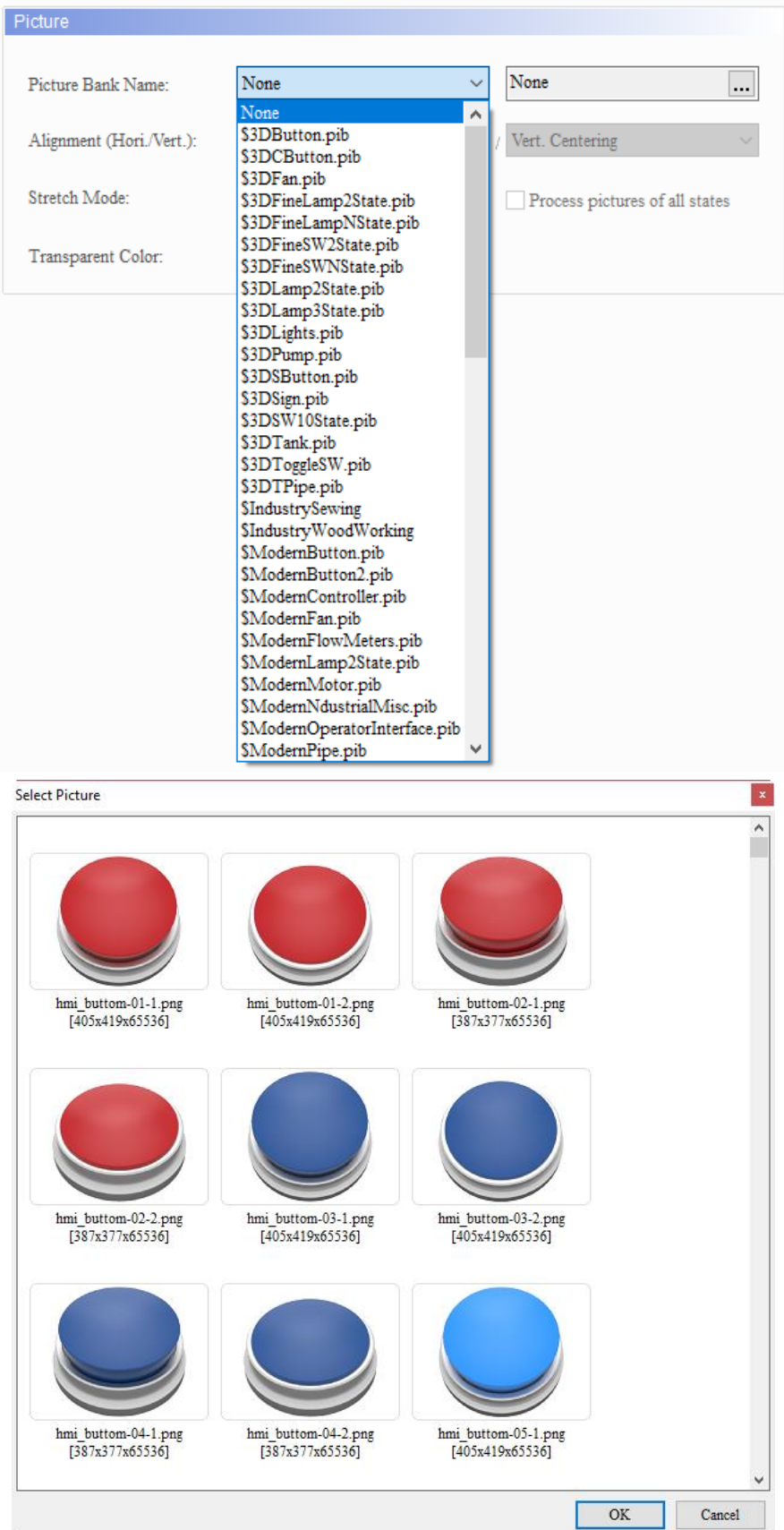
■ Picture

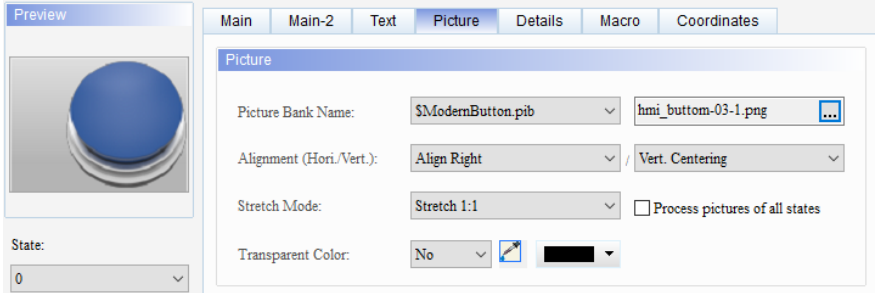












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Figure 5.6.6 Picture property page for the Goto Screen element

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No.	Property	Function description
(1)	Picture Bank Name	<p>The default for Picture Bank Name is None. To set the picture display, use the drop-down list box to view the picture bank provided by the software and then select the desired pictures.</p>  <p>The 'Picture' dialog box includes the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: A dropdown menu currently showing 'None' and a list of picture banks including \$3DButton.pib, \$3DCButton.pib, \$3DFan.pib, \$3DFineLamp2State.pib, \$3DFineLampNState.pib, \$3DFineSW2State.pib, \$3DFineSWNState.pib, \$3DLamp2State.pib, \$3DLamp3State.pib, \$3DLights.pib, \$3DPump.pib, \$3DSButton.pib, \$3DSign.pib, \$3DSW10State.pib, \$3DTank.pib, \$3DToggleSW.pib, \$3DTPipe.pib, \$IndustrySewing, \$IndustryWoodWorking, \$ModernButton.pib, \$ModernButton2.pib, \$ModernController.pib, \$ModernFan.pib, \$ModernFlowMeters.pib, \$ModernLamp2State.pib, \$ModernMotor.pib, \$ModernNdnustrialMisc.pib, \$ModernOperatorInterface.pib, and \$ModernPipe.pib. Alignment (Hori./Vert.): A dropdown menu showing 'Vert. Centering'. Stretch Mode: A dropdown menu. Transparent Color: A text input field. Process pictures of all states: A checkbox. <p>The 'Select Picture' dialog box displays a grid of nine button images with the following filenames and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

No.	Property	Function description								
(2)	Alignment	<ul style="list-style-type: none"> You can use the Alignment options to set how pictures are aligned. 								
	Stretch Mode	<ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> If you select the check box for Process pictures of all states, it assumes that the elements have multiple states and some pictures do not fill the full element display area. You can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p style="text-align: center;"><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.		
Stretch All	Stretch 1:1	Actual Size								
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.								
										
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent. If you select the Transparent Color icon  and click the white part on the calendar, the software changes the white part into transparent, which you can see becomes identical to the element foreground color.</p> 								

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■ Details

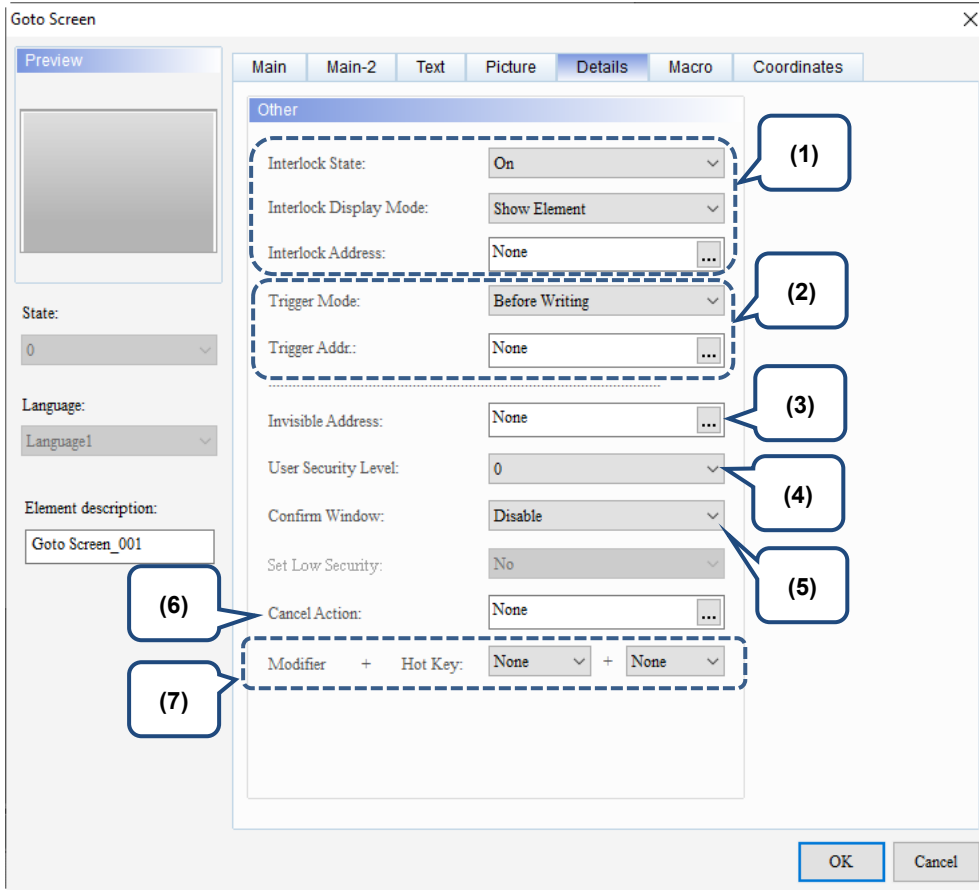
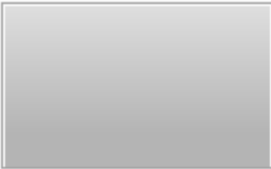

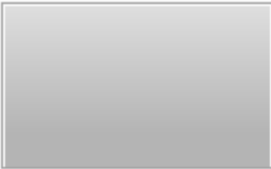

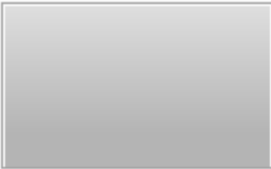

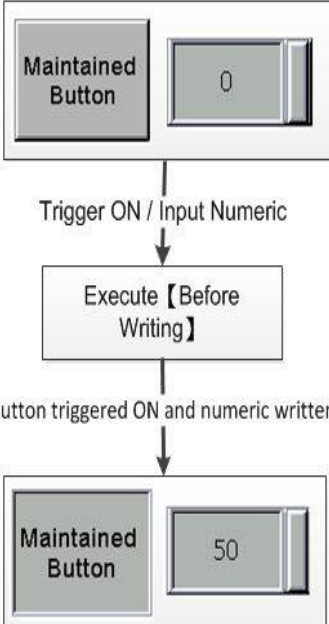
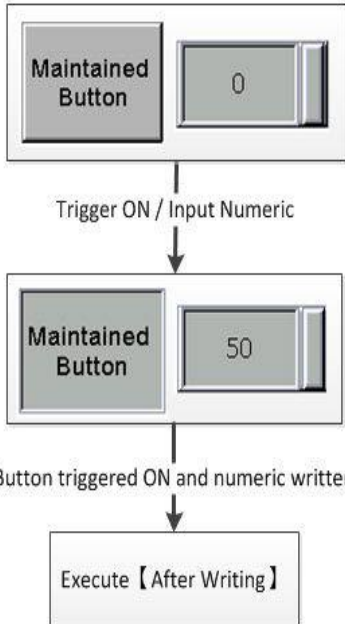
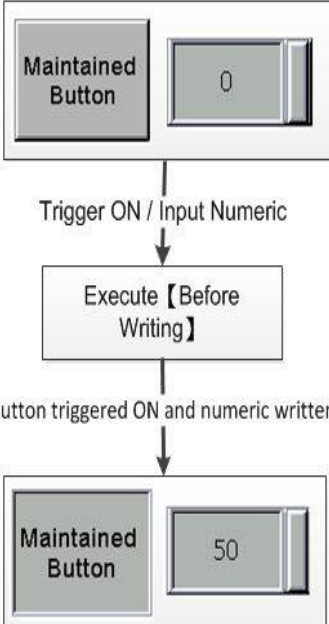
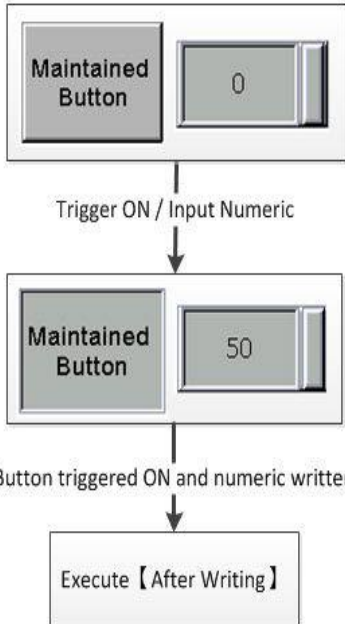
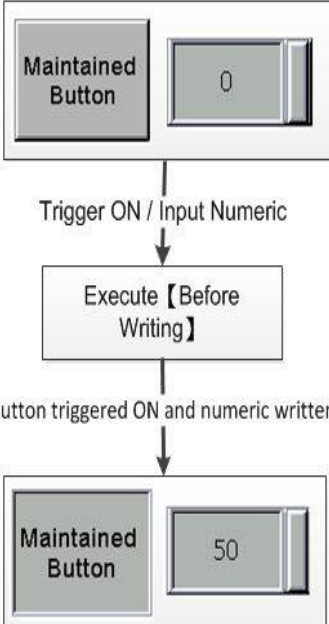
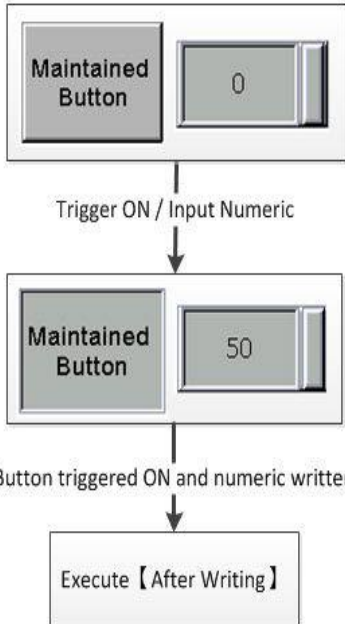






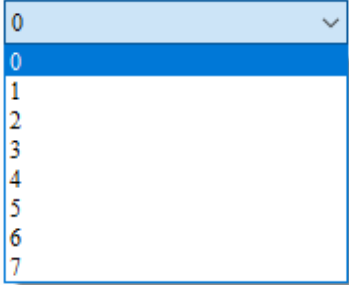

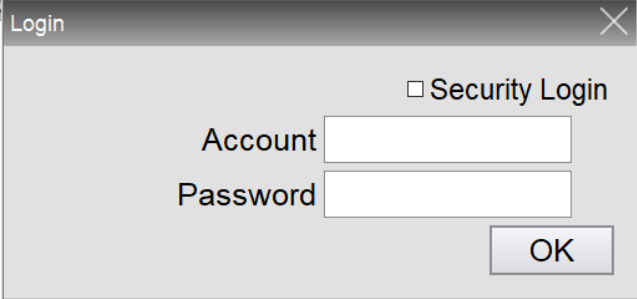

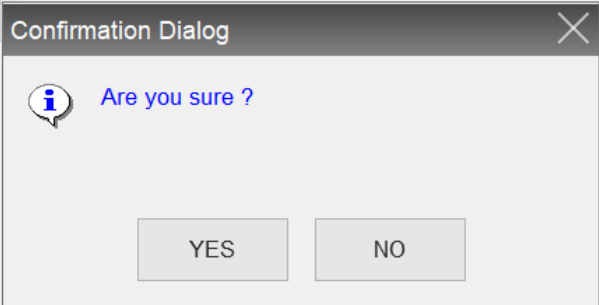


Figure 5.6.7 Details property page for the Goto Screen element

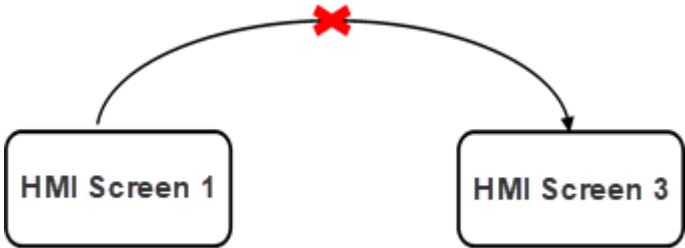
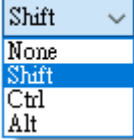
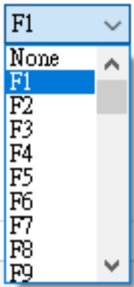
No.	Property	Function description								
<p>(1)</p>	<p>Interlock State / Interlock Address / Interlock Display Mode</p>	<ul style="list-style-type: none"> ■ The Interlock Address enables you to operate a certain element from this particular address, which must be operated along with the Interlock State. If the Interlock State is set to OFF, it means the Interlock Address is operable when the Interlock State is OFF; on the other hand, if the Interlock State is set to ON, the Interlock Address is operable when the Interlock State is ON. ■ The following describes how it works: <ol style="list-style-type: none"> 1. Create a button and set its address to \$8.0. Then, set the Interlock Address to \$8.0 for the button which address is \$99.0. 2. Before having the button which address is \$99.0 to operate, you have to press the button which address is \$8.0 to validate the button action which address is \$99.0. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> </div> <ul style="list-style-type: none"> ■ There are two options for Interlock Display Mode, Show Element and Show Prohibition Symbol. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">Interlock Display Mode:</td> <td style="padding: 5px;"> <div style="border: 1px solid gray; padding: 2px;"> Show Element </div> </td> </tr> <tr> <td style="padding: 5px;">Interlock Address:</td> <td style="padding: 5px;"> <div style="border: 1px solid gray; padding: 2px;"> Show Element Show Prohibition Symbol </div> </td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px; text-align: center;">Show Element</td> <td style="padding: 5px; text-align: center;">  </td> </tr> <tr> <td style="padding: 5px; text-align: center;">Show Prohibition Symbol</td> <td style="padding: 5px; text-align: center;">  </td> </tr> </table>	Interlock Display Mode:	<div style="border: 1px solid gray; padding: 2px;"> Show Element </div>	Interlock Address:	<div style="border: 1px solid gray; padding: 2px;"> Show Element Show Prohibition Symbol </div>	Show Element		Show Prohibition Symbol	
		Interlock Display Mode:	<div style="border: 1px solid gray; padding: 2px;"> Show Element </div>							
Interlock Address:	<div style="border: 1px solid gray; padding: 2px;"> Show Element Show Prohibition Symbol </div>									
Show Element										
Show Prohibition Symbol										

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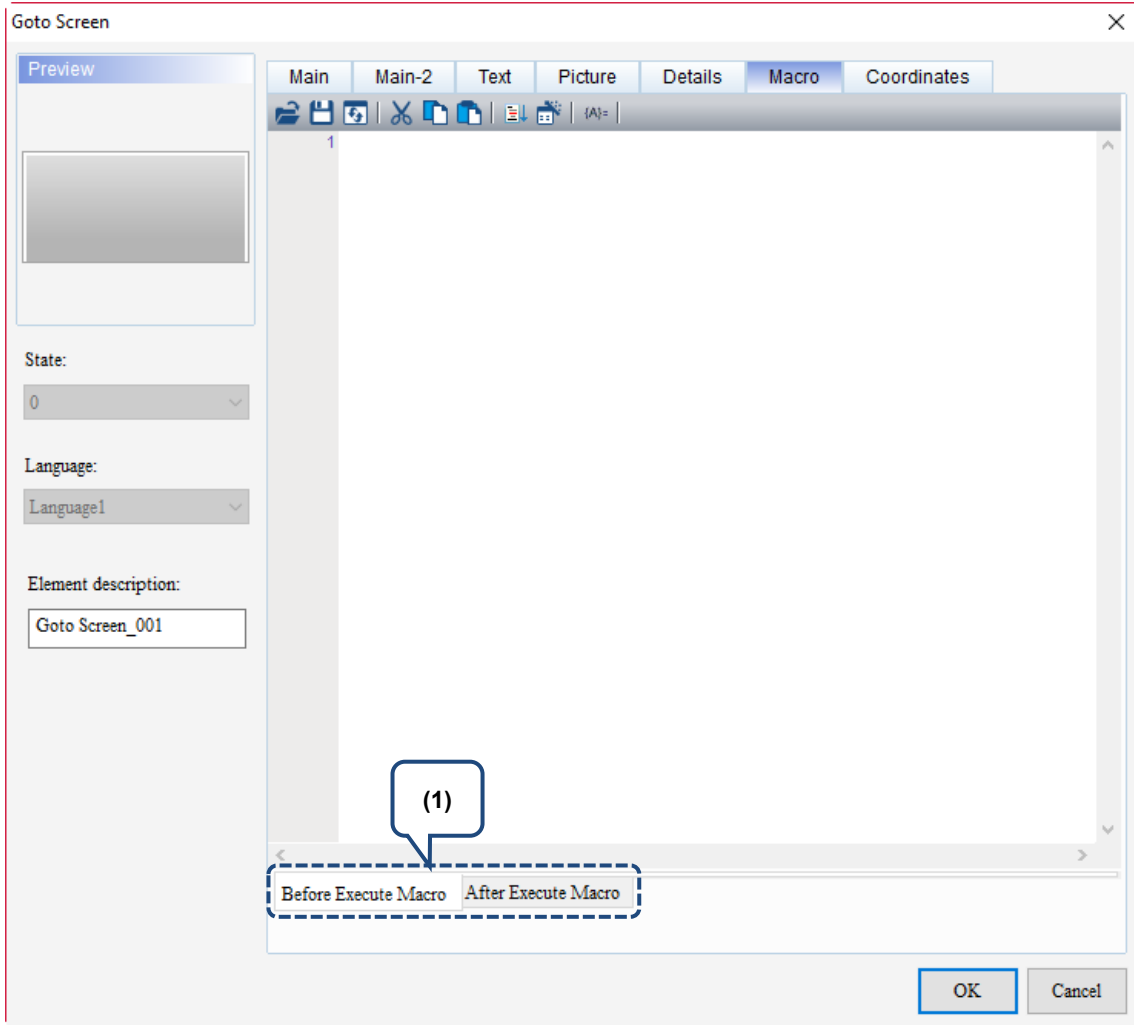
No.	Property	Function description																																										
(2)	Trigger Mode / Trigger Address	<ul style="list-style-type: none"> There are two trigger modes: Before Writing and After Writing. <table border="1"> <thead> <tr> <th>Trigger type</th> <th>Before Writing</th> <th>After Writing</th> </tr> </thead> <tbody> <tr> <td></td> <td>Set the button to ON before changing values.</td> <td>The button turns to ON after changing values.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> You can create a button element and set the address, and select Before Writing or After Writing to trigger the specified controller Bit address to ON . The Trigger function only turns the controller address to ON, so you need to turn the address to OFF if triggering again is required. <table border="1"> <thead> <tr> <th>Flowchart of Before Writing</th> <th>Flowchart of After Writing</th> </tr> </thead> <tbody> <tr> <td>  </td> <td>  </td> </tr> </tbody> </table>	Trigger type	Before Writing	After Writing		Set the button to ON before changing values.	The button turns to ON after changing values.	Flowchart of Before Writing	Flowchart of After Writing																																		
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	Set the button to ON before changing values.	The button turns to ON after changing values.																																										
Flowchart of Before Writing	Flowchart of After Writing																																											
																																												
(3)	Invisible Address	<p>When the Invisible Address is set to ON, the button element is invisible and you cannot enable its functions.</p> <table border="1"> <tbody> <tr> <td>Invisible Address is off</td> <td></td> <td>Invisible Address \$9.0 OFF</td> </tr> <tr> <td>Invisible Address is on</td> <td>Element is invisible</td> <td>Invisible Address \$9.0 ON</td> </tr> </tbody> </table> <div> <table border="1"> <thead> <tr> <th colspan="2">Preview</th> </tr> </thead> <tbody> <tr> <td colspan="2"></td> </tr> <tr> <td colspan="2">State:</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Main</th> <th>Main-2</th> <th>Text</th> <th>Picture</th> <th>Details</th> <th>Macro</th> </tr> </thead> <tbody> <tr> <td colspan="6">Other</td> </tr> <tr> <td>Interlock State:</td> <td colspan="5">On</td> </tr> <tr> <td>Interlock Address:</td> <td colspan="5">None</td> </tr> <tr> <td>Invisible Address:</td> <td colspan="5">\$9.0</td> </tr> </tbody> </table> </div>	Invisible Address is off		Invisible Address \$9.0 OFF	Invisible Address is on	Element is invisible	Invisible Address \$9.0 ON	Preview				State:		Main	Main-2	Text	Picture	Details	Macro	Other						Interlock State:	On					Interlock Address:	None					Invisible Address:	\$9.0				
Invisible Address is off		Invisible Address \$9.0 OFF																																										
Invisible Address is on	Element is invisible	Invisible Address \$9.0 ON																																										
Preview																																												
																																												
State:																																												
Main	Main-2	Text	Picture	Details	Macro																																							
Other																																												
Interlock State:	On																																											
Interlock Address:	None																																											
Invisible Address:	\$9.0																																											

No.	Property	Function description
(4)	User Security Level	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>User Security Level:</p> <p>Set Low Security:</p> <p>Min. Press Time (sec):</p> <p>Confirm Window:</p> </div> <div style="width: 50%;">  </div> </div> <ul style="list-style-type: none"> ■ You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. ■ After you set the User Security Level and press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password through the Password Table Setup element; refer to Section 5.7.2 Password Table Setup).
	Set Low Security	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;">  </div> <div style="width: 65%;">  </div> </div> <ul style="list-style-type: none"> ■ If you set the Set Low Security to Yes, each time you input the password, the HMI sets the security level to the lowest. The next time you press the element, the HMI asks you to input the password for the corresponding security level again.
(5)	Confirm Window	<p>If you set the Confirm Window to Yes, the following Confirmation Dialog appears for you to confirm the pressing action after pressing the element.</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;">  </div> <div style="width: 65%;">  </div> </div>

5

No.	Property	Function description
(6)	Cancel Action	<ul style="list-style-type: none"> ■ Cancel Action enables you to pause or cancel the Goto Screen action. ■ When you set Cancel Action to ON, the Goto Screen button function is invalid; on the other hand, if you set Cancel Action to OFF, the Goto Screen button is valid. <p>Note: the Goto Screen function is available after the Interlock Address is activated. Cancel Action enables you to cancel the Goto Screen action during its operation. If Cancel Action is set to ON continuously, you cannot change the screen even if the Interlock Address is set to ON.</p> 
(7)	Modifier + Hot Key	<ul style="list-style-type: none"> ■ Allows you to use the hot keys on the external keyboard to execute the button. ■ The Modifier options include None, Shift, Ctrl, and Alt.  <ul style="list-style-type: none"> ■ The Hot Key options include F1 to F12, English letters A to Z, and number keys 0 to 9. 

■ Macro



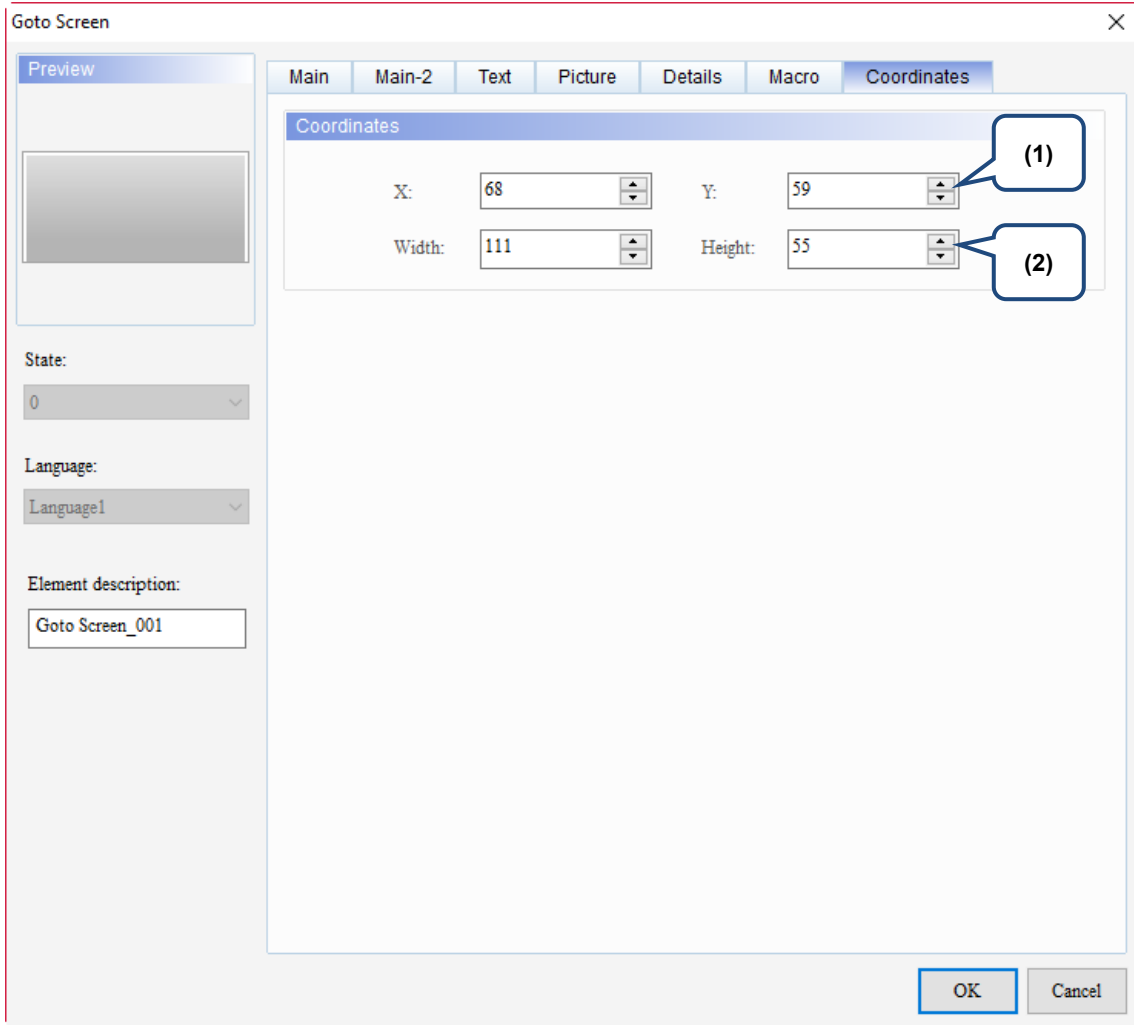
5

Figure 5.6.8 Macro property page for the Goto Screen element

5

No.	Property	Function description
(1)		<p>Flowcharts of Before / After Execute Macro:</p> <pre> graph TD subgraph Before_Execute_Macro B1[Maintained Button 0] -- Trigger ON / Input Numeric --> B1M[Before Execute Macro] B1M -- Button triggered ON and numeric written --> B2[Maintained Button 50] B2 -- Trigger OFF / Input Numeric --> B2M[Before Execute Macro] B2M -- Button triggered OFF and numeric written --> B3[Maintained Button 90] end subgraph After_Execute_Macro A1[Maintained Button 0] -- Trigger ON / Input Numeric --> A1M[After Execute Macro] A1M -- Button triggered ON and numeric written --> A2[Maintained Button 50] A2 -- Trigger OFF / Input Numeric --> A2M[After Execute Macro] A2M -- Button triggered OFF and numeric written --> A3[Maintained Button 90] end B3 -- Trigger at next time --> B1 A3 -- Trigger at next time --> A1 </pre>
	Before Execute Macro	When you touch the button element, the HMI executes the macro commands first, and then executes the button actions. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.
	After Execute Macro	When you touch the button element, the HMI executes the button actions first, and then executes the macro commands. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.

■ Coordinates



5

Figure 5.6.9 Coordinates property page for the Goto Screen element

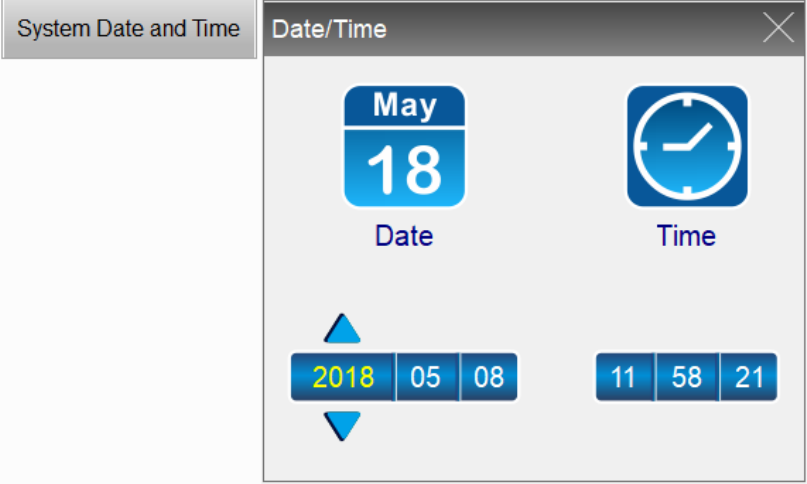
No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

5

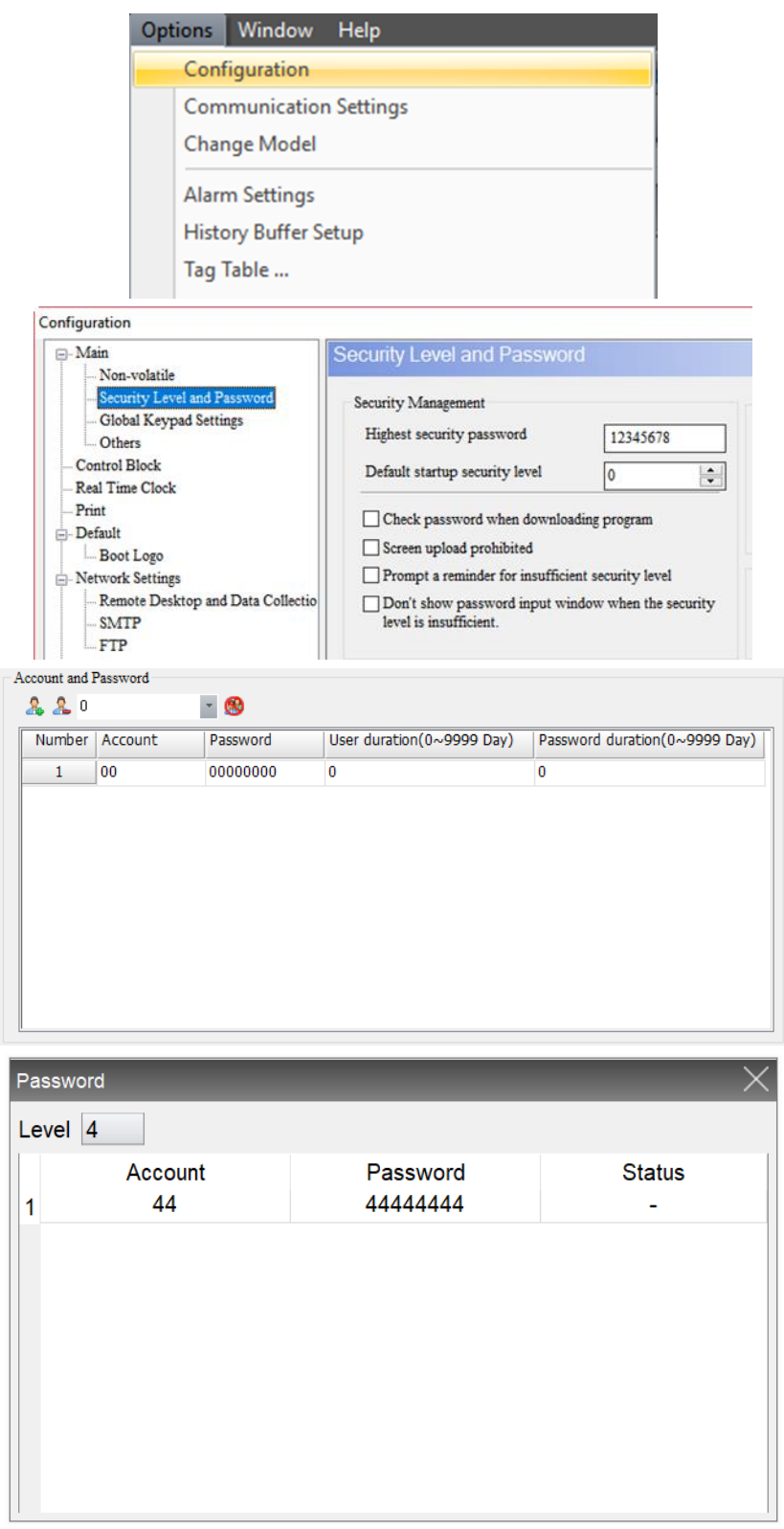
5.7 Other elements

There are 14 other button elements, including System Date and Time, Password Table Setup, Enter Password, Contrast Brightness, Set Low Security, System Menu, Print Output, Report List, Screen Capture, Remove Storage, Import/Export Recipe, Calibration, Language Change, and FileSlot Import/Export. The following describes the functions of each button element.

5.7.1 System Date and Time

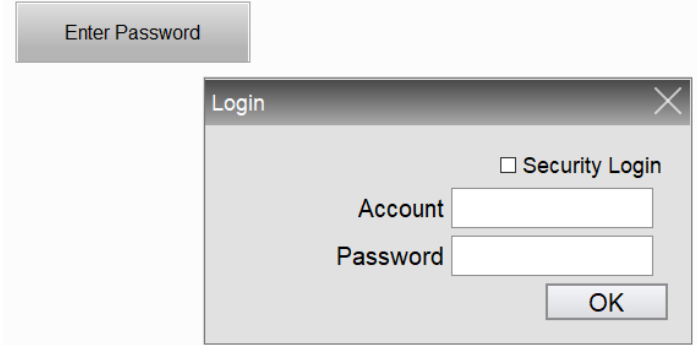
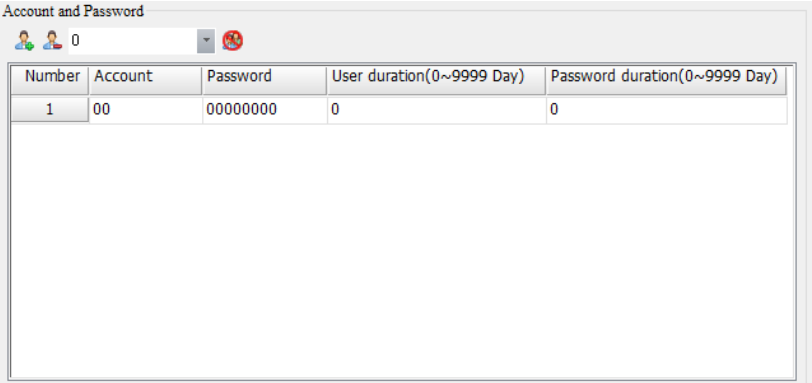
Function	Illustration
<p>You can set the system date and time on the HMI with the System Date and Time button. This function is the same as that of the Date/Time on the HMI system screen.</p>	 <p>The illustration shows a button labeled 'System Date and Time' and a screenshot of the 'Date/Time' configuration window. The window has a title bar with 'Date/Time' and a close button. It displays 'May 18' under the label 'Date' and a clock icon under the label 'Time'. Below these are two rows of numeric input fields: the first row contains '2018', '05', and '08'; the second row contains '11', '58', and '21'. Up and down arrow buttons are positioned above and below the first row of numbers.</p>

5.7.2 Password Table Setup

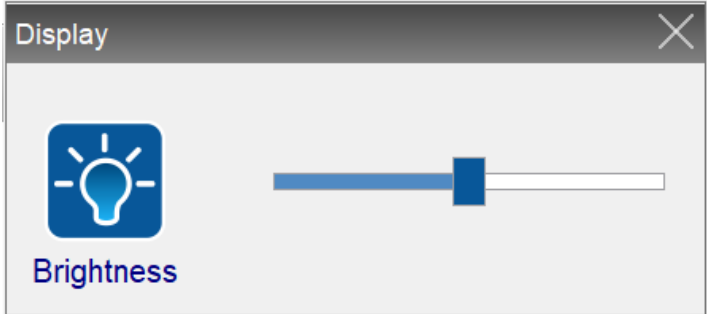
Function	Illustration
<ul style="list-style-type: none"> ■ You can select [Options] > [Configuration] > [Security Level and Password] from the drop-down list box and find the Password Table. The table shows the password settings of each security level. After setting the passwords, download them to the HMI. ■ You can use the Password Table Setup button when you need to change the Password Table during the HMI operation. The system enables the corresponding level according to the User Security Level defined in the Password Table Setup. ■ If your User Security Level is lower than the set Security Level, you are unable to open the Password Table and the Enter Password window appears. ■ Whether the inputted password level is higher than or equivalent to the set Security Level determines if you are able to open the Password Table Setup or not. You are only allowed to change the passwords lower than or equivalent to the current User Security Level after entering the Password Table Setup. You are not allowed to change or view the passwords higher than the current User Security Level. 	 <p style="text-align: center;">Security level = 4</p>

5

5.7.3 Enter Password

Function	Illustration
<ul style="list-style-type: none"> ■ The Enter Password button provides the interface for inputting passwords on the HMI. ■ You can click [Options] > [Configuration] > [Security Level and Password], and find the Password Table, and then input your account and password to log in to the corresponding level. 	 

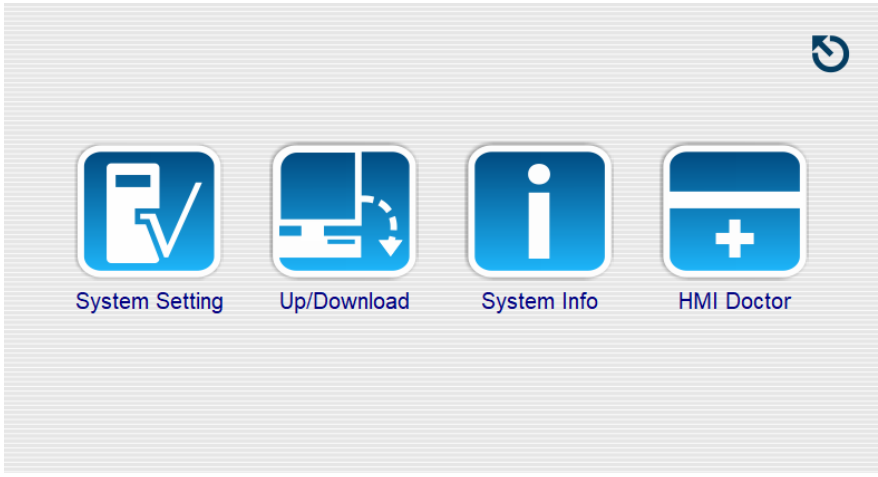
5.7.4 Contrast Brightness

Function	Illustration
<p>Adjust the HMI contrast brightness.</p>	

5.7.5 Set Low Security

Function
<p>Set the User Security Level to the lowest. You can set the User Security Level for all the DOPSoft elements so that you can protect the system parameters from being tampered or manipulated resulting in system errors.</p>

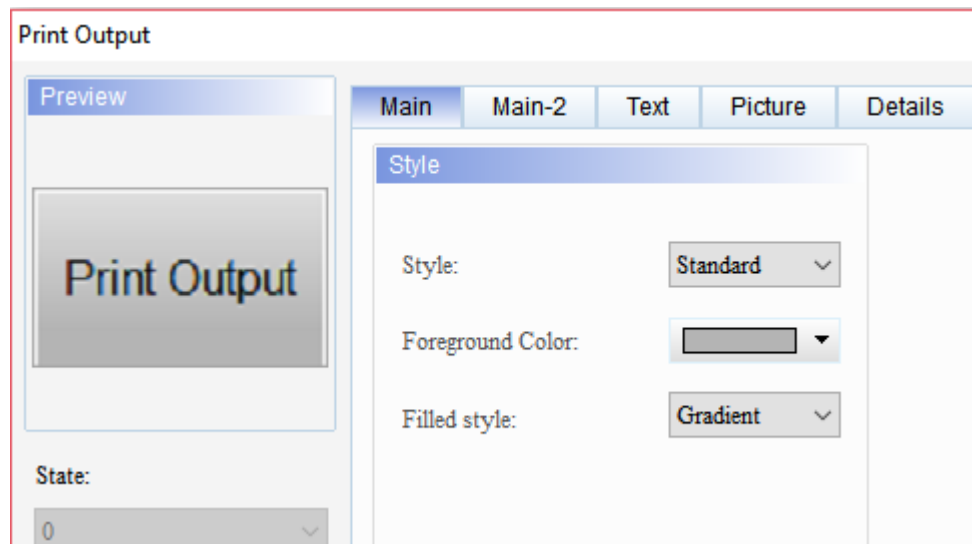
5.7.6 System Menu

Function	Illustration
<p>When you press the System Menu button, the HMI switches to the System Menu screen, as shown on the right-hand side. You can go back to the general HMI execution screen by touching the upper-right corner of the System Menu screen.</p>	

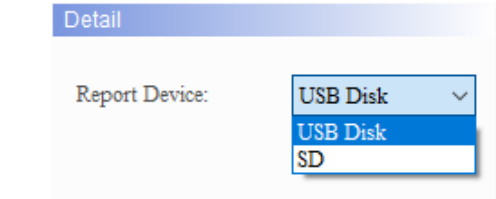
5.7.7 Print Output

Function

If the HMI project has set up a printer, you can perform printing with the **Print Output** button.

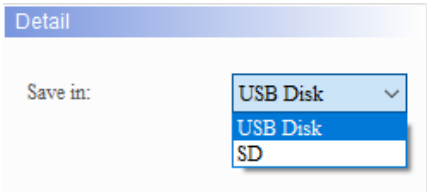
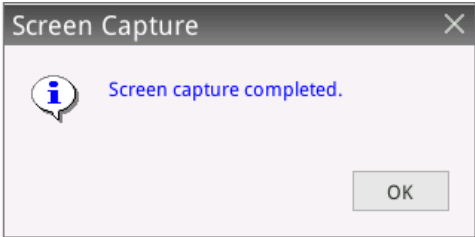




5.7.8 Report List

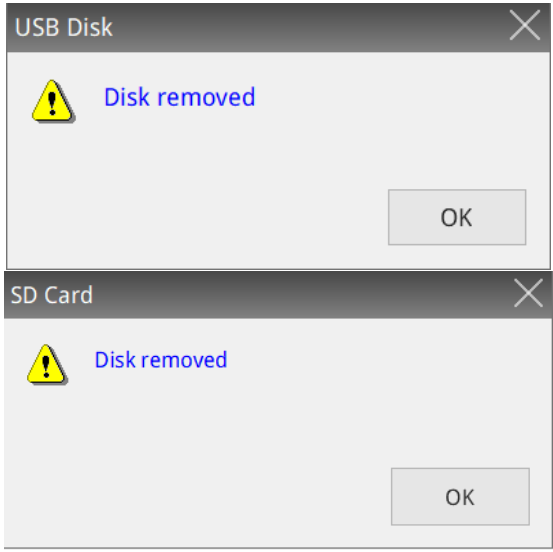
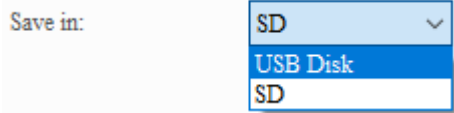
Function	Illustration
<ul style="list-style-type: none"> There are two storage devices for the Report List button: USB Disk and SD. You can select the desired device to export the Report List. Touch the Report List button, and you can output the data to the specified storage device. 	

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5.7.9 Screen Capture

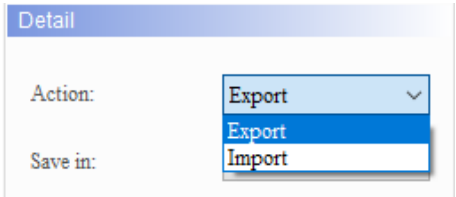
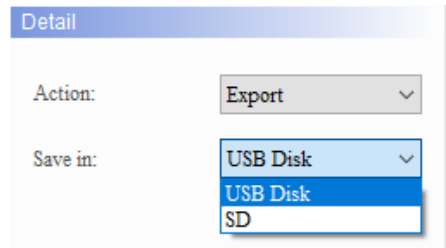
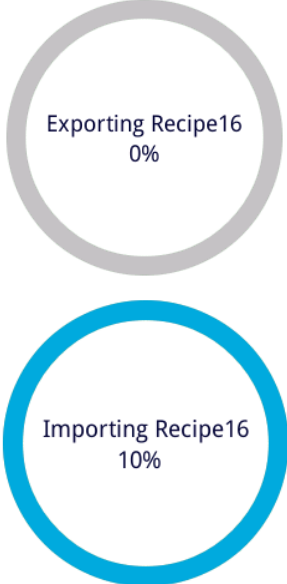
Function	Illustration
<ul style="list-style-type: none"> ■ The Screen Capture function enables you to capture the current HMI screen and store it in an external storage device, including USB Disk and SD as shown in Figure (1). ■ After you touch the Screen Capture button, the Screen Capture window appears on the HMI to inform you that it is storing the current screen to an external storage device, as shown in Figure (2). ■ You can check the files in the external devices after the saving is complete. The HMI stores the file folders by date (yyyy / mm / dd) and the screen files by time (hh / mm / ss). ■ The output picture format is .bmp, as shown in Figure (4). 	<p>(1)</p>  <p>(2)</p>  <p>(3)</p>  <p>(4)</p> 

5.7.10 Remove Storage


Function	Illustration
<ul style="list-style-type: none"> ■ <u>Prevent data loss of the storage device connected to the HMI. You must execute Remove Storage before turning off the HMI, replacing or removing the storage device.</u> ■ The HMI informs you that the storage device is removed after you execute the Remove Storage button, as shown in Figure (1). ■ The HMI supports two types of storage devices: USB Disk and SD, as shown in Figure (2). 	<p>(1)</p>  <p>(2)</p> 

5

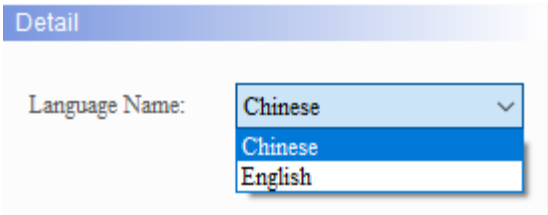
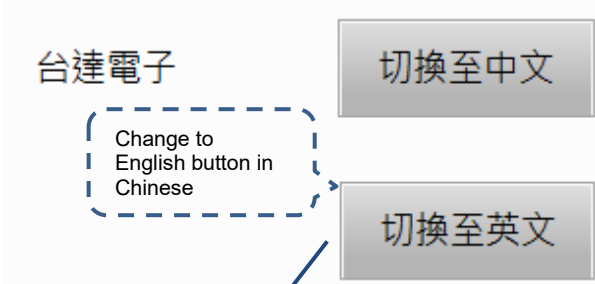
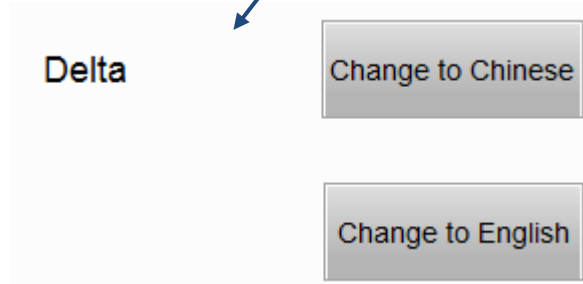

5.7.11 Import / Export Recipe

Function	Illustration
<ul style="list-style-type: none"> ■ You must edit and open the recipe first before executing the Import / Export Recipe button, or the pressing action is invalid. ■ You can set the Action of the Import / Export Recipe button to Import or Export, as shown in Figure (1). ■ You can set the Save in types, including USB Disk and SD, as shown in Figure (2). ■ The HMI informs you that the data importing / exporting is in progress after you touch the Import / Export Recipe button, as shown in Figure (3). ■ The exported file format is .CSV, and the HMI stores the files in the default folder HMI-000. 	<p>(1)</p>  <p>(2)</p>  <p>(3)</p> 

5.7.12 Calibration

Function	Illustration
<ul style="list-style-type: none"> ■ The Calibration button enables you to perform 5-point calibration. ■ After you touch the Calibration button, the HMI immediately enters the Calibration screen, as shown in the figure on the right-hand side. 	

5.7.13 Language Change

Function	Illustration
<ul style="list-style-type: none"> ■ The Language Change button enables you to quickly change the displaying language. ■ Set the displaying language to Chinese or English, as shown in Figure (1) on the right-hand side. As shown in Figure (2), when you execute the Language Change button, the HMI displays the data in English when you press 切換至英文 (Change to English); the HMI displays the data in Chinese when you press Change to Chinese, as shown in Figure (3). ■ Activate the Multi-language function before using the Language Change button. Refer to Chapter 25 for more details on the Multi-language function. 	<p>(1)</p>  <p>(2)</p>   <p>(3)</p> 

5

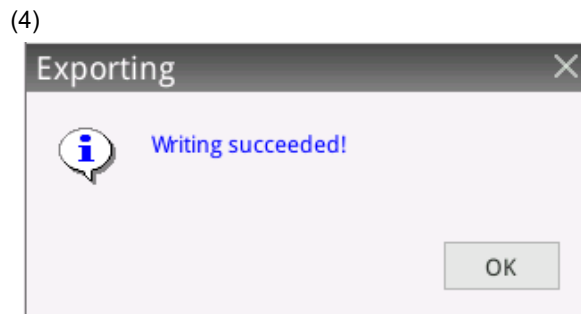
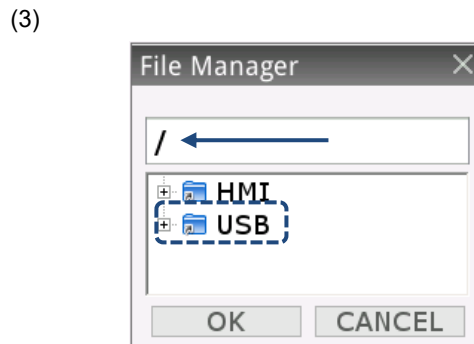
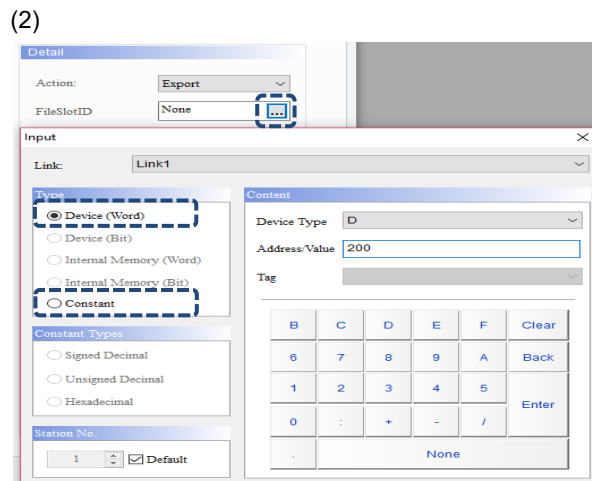
5.7.14 Import / Export FileSlot

Function	Illustration
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- You must set the count and size of FileSlots before using the **Import / Export FileSlot** button, or the pressing action is invalid.
- You can set the Action for the **Import / Export FileSlot** button to Import or Export, as shown in Figure (1) on the right-hand side.
- You need to define the FileSlot ID of the **Import / Export FileSlot** button, as shown in Figure (2). The FileSlot ID can be a memory address or a constant value.

Memory usage			
Variables	Internal memory	PLC Register	Constant
FileSlot ID	⊙	⊙	⊙

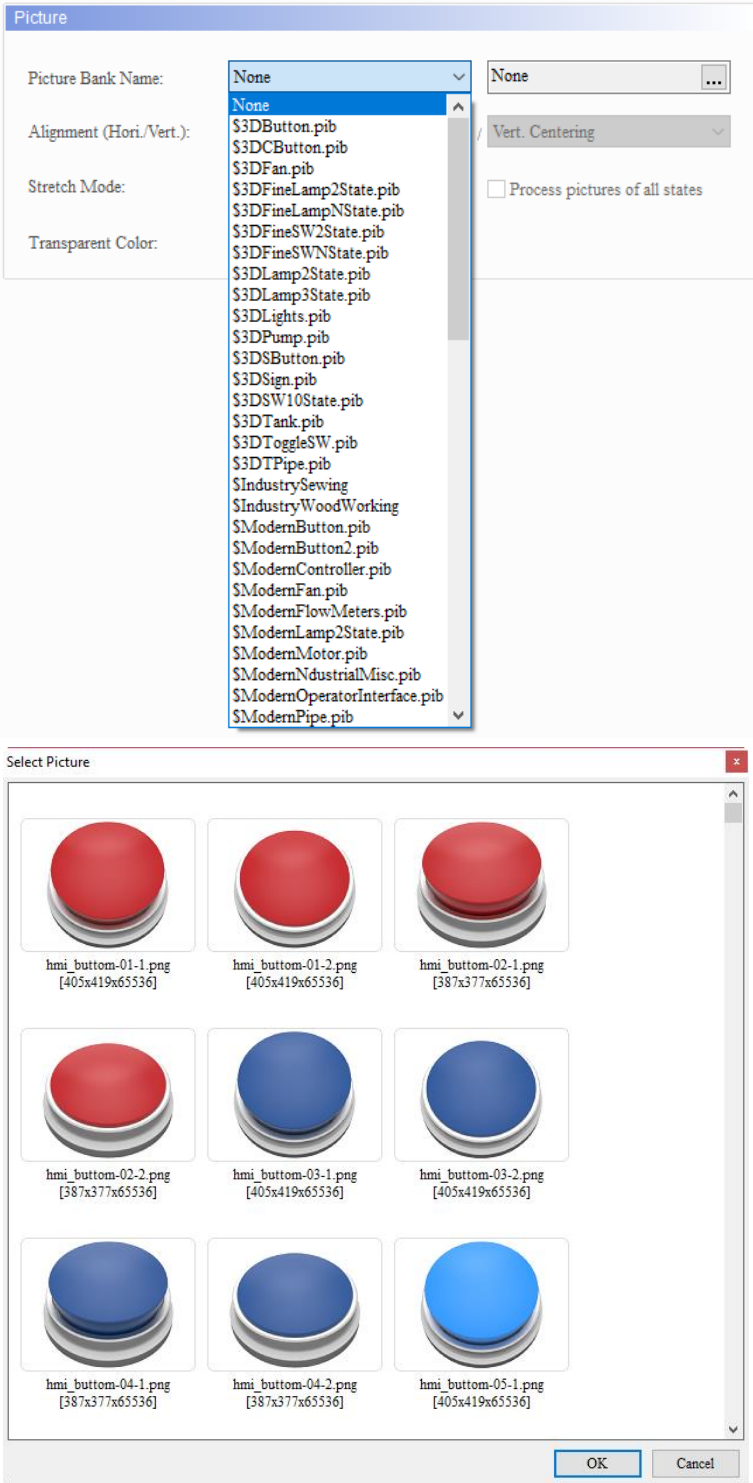
- After you press the **Import / Export FileSlot** button, the File Manager window appears for you to select the import / export position, as shown in Figure (3). Select the external storage device, and then click where the arrow points and enter the filename. After you enter the filename and click **ENT**, the exporting is complete as shown in Figure (4).
- You need to run the macro FileSlotRead to read the file data into the register after importing FileSlot.

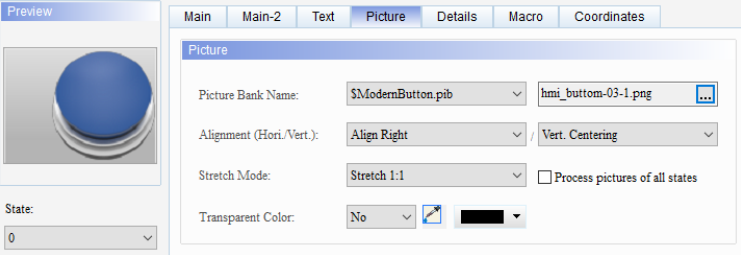














5.7.15 Other shared properties of elements

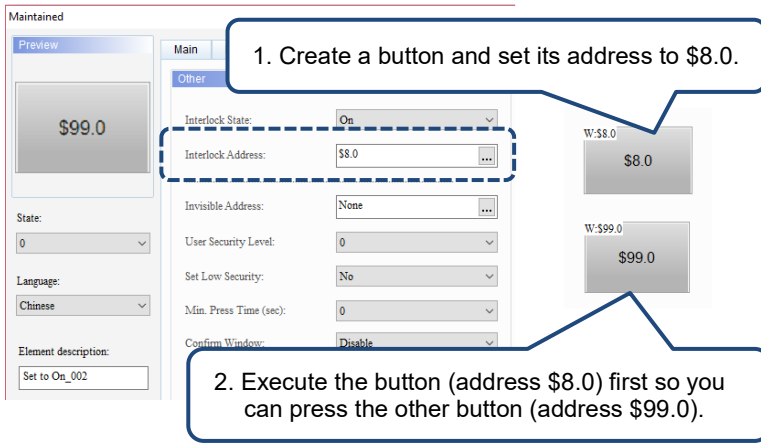
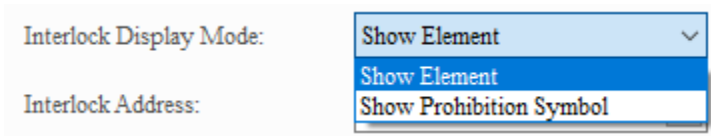





Other shared properties of elements										
Function page	Property	Function description								
Main	Style	<p>The available styles are Standard, Raised, Round, and Invisible. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Round</th> <th>Invisible</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Round	Invisible				
	Standard	Raised	Round	Invisible						
Foreground Color	<ul style="list-style-type: none"> Set the foreground color of the element. When you set the Style to Invisible, the Foreground Color setting is invalid. 									
Text	Text	<p>You can enter the text to be displayed in the text box.</p>								
	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text.								
	Edit Multi-language Text	If you have added multi-language text, the Text page allows you to edit multi-language data.								


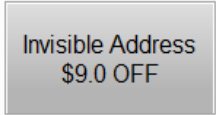
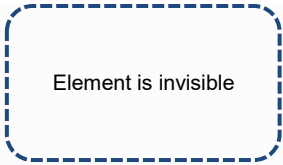
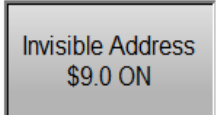

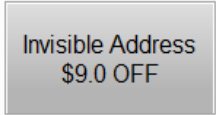
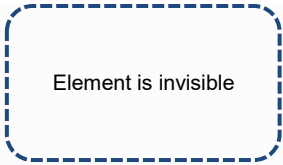
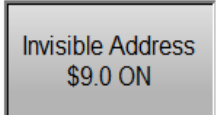

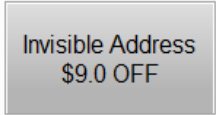
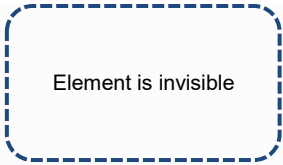
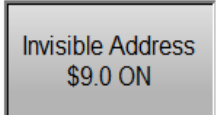
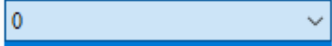




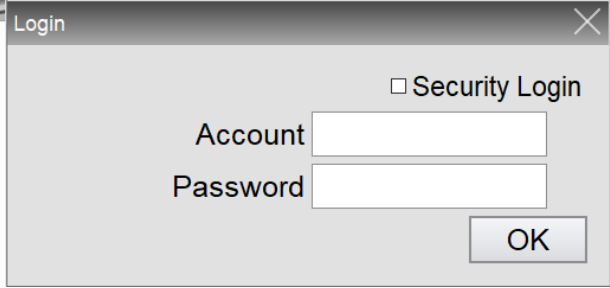
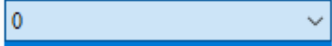




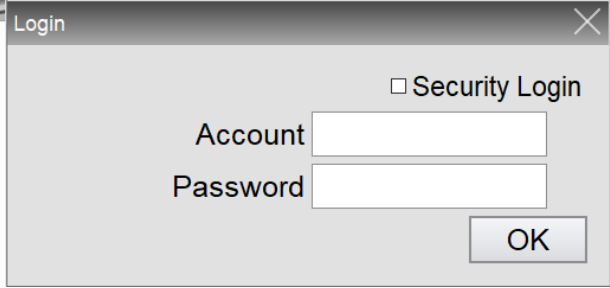
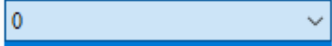




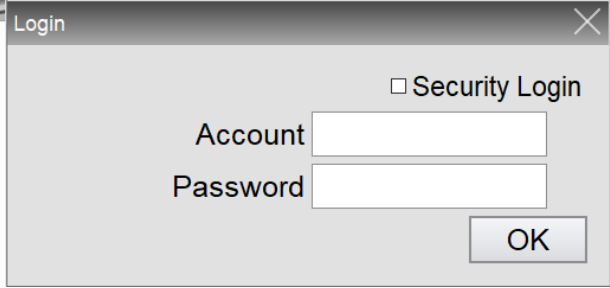
5

Other shared properties of elements		
Function page	Property	Function description
Picture	Picture Bank Name	<p>The default for Picture Bank Name is None. To set the picture display, use the drop-down list box to view the picture bank provided by the software and then select the desired pictures.</p>  <p>The 'Picture' dialog box contains the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: A drop-down menu currently showing 'None' and a list of picture banks including \$3DButton.pib, \$3DCButton.pib, \$3DFan.pib, \$3DFineLamp2State.pib, \$3DFineLampNState.pib, \$3DFineSW2State.pib, \$3DFineSWNState.pib, \$3DLamp2State.pib, \$3DLamp3State.pib, \$3DLights.pib, \$3DPump.pib, \$3DSButton.pib, \$3DSign.pib, \$3DSW10State.pib, \$3DTank.pib, \$3DToggleSW.pib, \$3DTPipe.pib, \$IndustrySewing, \$IndustryWoodWorking, \$ModernButton.pib, \$ModernButton2.pib, \$ModernController.pib, \$ModernFan.pib, \$ModernFlowMeters.pib, \$ModernLamp2State.pib, \$ModernMotor.pib, \$ModernNdustrualMisc.pib, \$ModernOperatorInterface.pib, and \$ModernPipe.pib. Alignment (Hori./Vert.): A dropdown menu set to 'Vert. Centering'. Stretch Mode: A dropdown menu. Transparent Color: A text input field. Process pictures of all states: A checkbox. <p>The 'Select Picture' dialog box displays a grid of nine button images with their respective file names and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

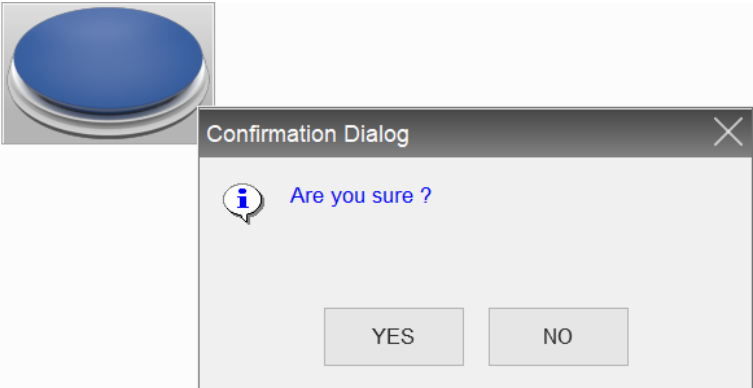
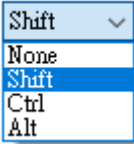
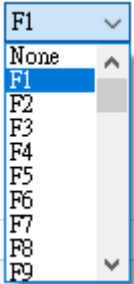
Other shared properties of elements											
Function page	Property	Function description									
Picture	Alignment	<p>You can use the Alignment options to set how pictures are aligned.</p> 									
	Stretch Mode	<ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> If you select the check box for Process pictures of all states, it assumes that the elements have multiple pictures and some pictures do not fill the full element display area. You can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.			
	Stretch All	Stretch 1:1	Actual Size								
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.									
											
Transparent Color	<p>Specify a color in the picture and turn this color into transparent. If you select the Transparent Color icon  and click the white part on the calendar, the software changes the white part into transparent, which you can see becomes identical to the element foreground color.</p> <p>Foreground Color: </p> 										

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Other shared properties of elements					
Function page	Property	Function description			
Details	Interlock State	<ul style="list-style-type: none"> The Interlock Address enables you to operate a certain element from this particular address, which must be operated along with the Interlock State. If the Interlock State is set to OFF, it means the Interlock Address is operable when the Interlock State is OFF; on the other hand, if the Interlock State is set to ON, the Interlock Address is operable when the Interlock State is ON. The following describes how it works: <ol style="list-style-type: none"> Create a button and set its address to \$8.0. Then, set the Interlock Address to \$8.0 for the button which address is \$99.0. Before having the button which address is \$99.0 to operate, you have to press the button which address is \$8.0 to validate the button action which address is \$99.0. 			
	Interlock Address				
	Interlock Display Mode	<ul style="list-style-type: none"> The Interlock Display Mode includes two options, Show Element and Show Prohibition Symbol.  <table border="1"> <tr> <td>Show Element</td> <td></td> </tr> <tr> <td>Show Prohibition Symbol</td> <td></td> </tr> </table>	Show Element		Show Prohibition Symbol
Show Element					
Show Prohibition Symbol					

Shared properties of other elements												
Function page	Property	Function description										
	Invisible Address	<p>When the Invisible Address is set to ON, the button element is invisible and you cannot execute its functions.</p> <table border="1"> <tr> <td>Invisible Address is off</td> <td></td> <td></td> </tr> <tr> <td>Invisible Address is on</td> <td></td> <td></td> </tr> </table>	Invisible Address is off			Invisible Address is on						
		Invisible Address is off										
Invisible Address is on												
Details	User Security Level	<ul style="list-style-type: none"> You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. <table border="1"> <tr> <td>User Security Level:</td> <td></td> </tr> <tr> <td>Set Low Security:</td> <td></td> </tr> <tr> <td>Min. Press Time (sec):</td> <td></td> </tr> <tr> <td>Confirm Window:</td> <td></td> </tr> </table> <ul style="list-style-type: none"> After you set the User Security Level and press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password through the Password Table Setup element; refer to Section 5.7.2 Password Table Setup). <table border="1"> <tr> <td></td> <td></td> </tr> </table>	User Security Level:		Set Low Security:		Min. Press Time (sec):		Confirm Window:			
User Security Level:												
Set Low Security:												
Min. Press Time (sec):												
Confirm Window:												
												

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Shared properties of other elements		
Function page	Property	Function description
	Confirm Window	<p>If you set the Confirm Window to Yes, the following Confirmation Dialog appears for you to confirm the pressing action after pressing the element.</p> 
Details	Modifier + Hot Key	<ul style="list-style-type: none"> Allows you to use the hot keys on the external keyboard to execute the button. The Modifier options include None, Shift, Ctrl, and Alt.  The Hot Key options include F1 to F12, English letters A to Z, and number keys 0 to 9. 

Shared properties of other elements		
Function page	Property	Function description
Macro		<p>Flowcharts of Before / After Execute Macro:</p>
	Before Execute Macro	When you touch the button element, the HMI executes the macro commands first, and then executes the button states. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.
	After Execute Macro	When you touch the button element, the HMI executes the button actions first, and then executes the macro commands. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.
Coordinates	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
	Width and Height	Set the width and height of the elements.

5

5.8 Multiple actions

The Multiple actions button allows you to execute multiple actions with one single button. You can define the actions to execute when you press, release, or long press the button. You can use this function to replace the complicated programming process of the macro to trigger the button action.

Available button actions in the Multiple actions settings are as follows:

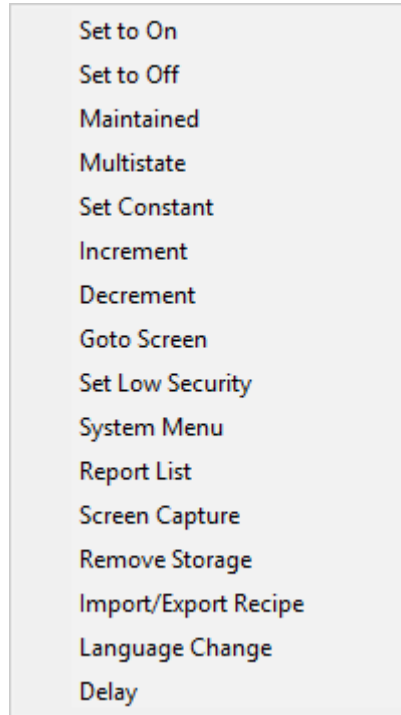


Figure 5.8.1 Button actions available for the Multiple actions button

Note:

1. You can set up to 32 actions for each press, release, and long press, so one Multiple actions button can execute up to 32*3 actions.
2. The System Menu can only be the last action, meaning you cannot add any actions following the System Menu.
3. One Multiple actions button can only have one page change action, including Goto Screen and Previous Page.
4. If the button action is set with a macro, the execution of the macro is invalid.

Example descriptions for the Multiple actions function are as follows:

Table 5.8.1 Multiple actions button example

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Multiple actions button

- Create a Multiple actions button.

Set Multiple actions

- Set the Action when pressed with Number 1 as Increment. Then, set the Write Address to \$10, the Increase / Decrease value to 3, and the Limit to 1000.

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Multiple actions button

- Set the Action when pressed with Number 2 as Multistate and the Write Address to \$20. The other settings are shown in the following figure.

Action when pressed

Number	Action Name
1	Increment - \$10
2	Multistate - \$20

Write Address: \$20
Write Offset Address: None
Data Type: Word
Data Format: Unsigned Decimal
State Counts: 3
Sequence: Next State

- Set the Action when released to Goto Screen - Screen_2.

Action when released

Number	Action Name
1	Goto Screen - Screen_2

Function: Goto Screen
Goto Screen: Screen_2
 Close Subscreen
(The button is only valid in subscreen)

Set Multiple actions

- Set the Action when long pressed to Set Constant and the Long pressed time to 3 seconds. Set the Write Address to \$30 and the Set value to 5000.

Action when long pressed: Set Constant - \$30
Long pressed time: 3

Action when long pressed

Number	Action Name
1	Set Constant - \$30

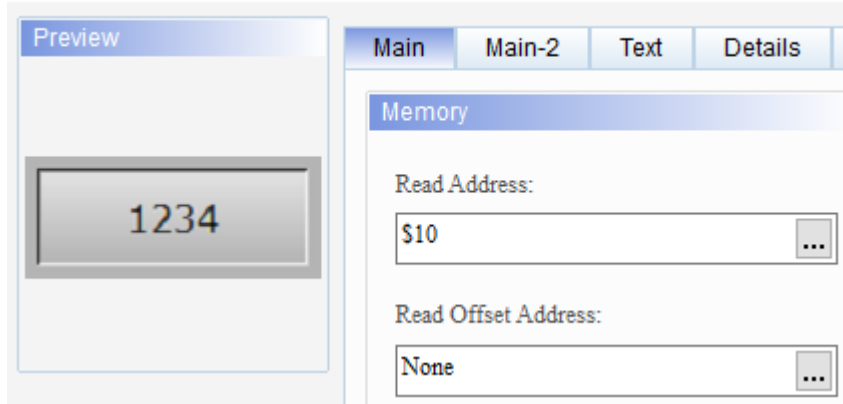
Write Address: \$30
Write Offset Address: None
Data Type: Word
Data Format: Unsigned Decimal
Set value: 5000

Multiple actions button

Set
Numeric
Display
elements

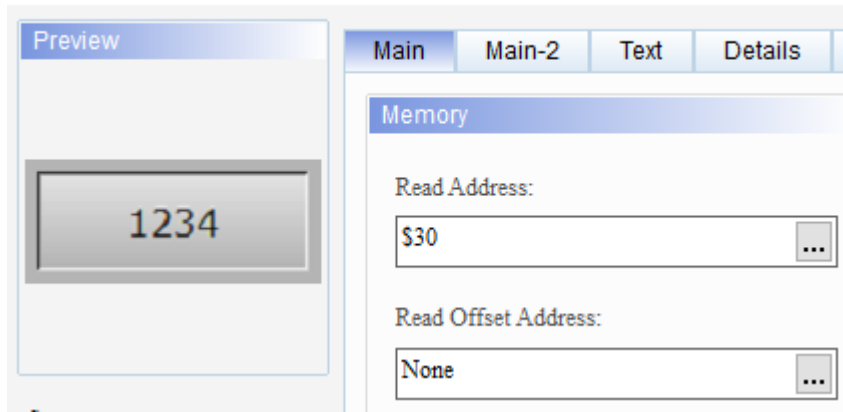
- Create a Numeric Display element which Read Address is \$10 for displaying the changed value after the increment action is executed.

Numeric Display



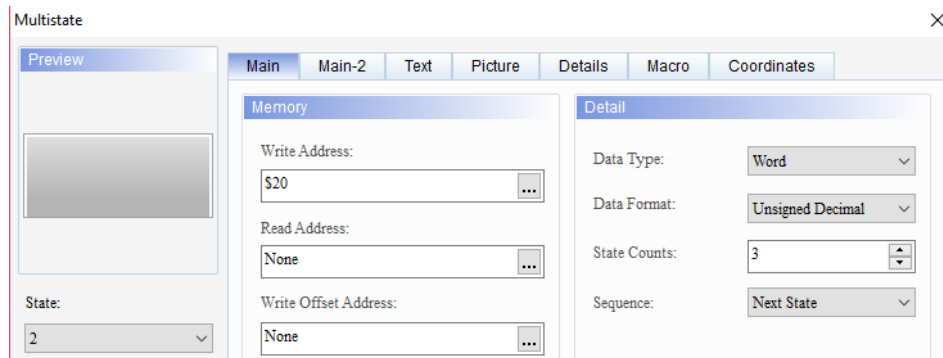
- Create a Numeric Display element which Read Address is \$30 for displaying the changed value after the Set Constant action is executed.

Numeric Display










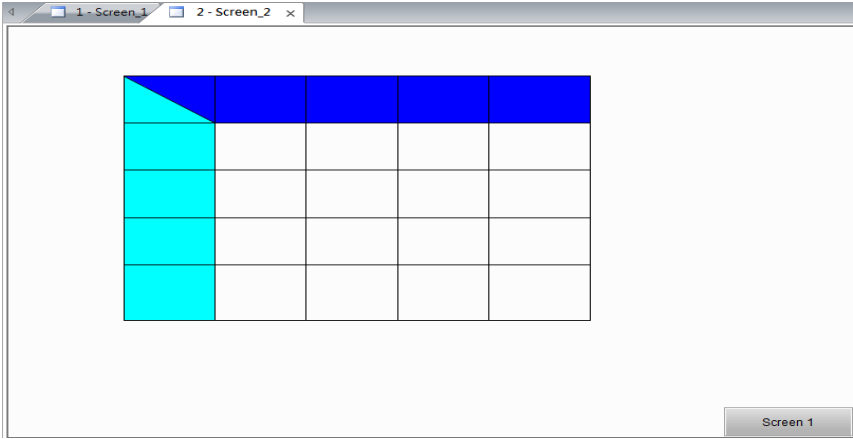


Set
Multistate

- Create a Multistate button. Set the Write Address to \$20, State Counts to 3, and the switching sequence (Sequence) to Next State.

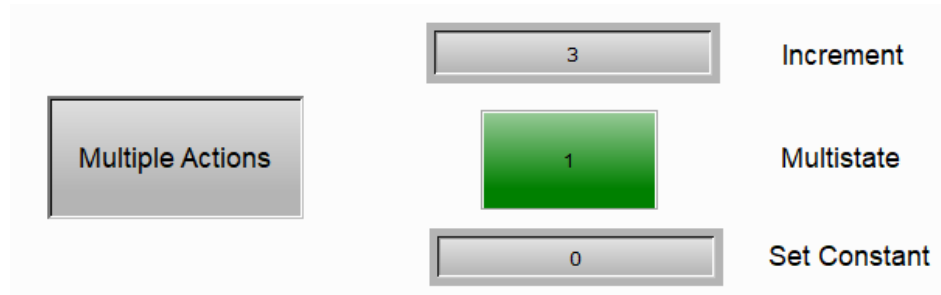


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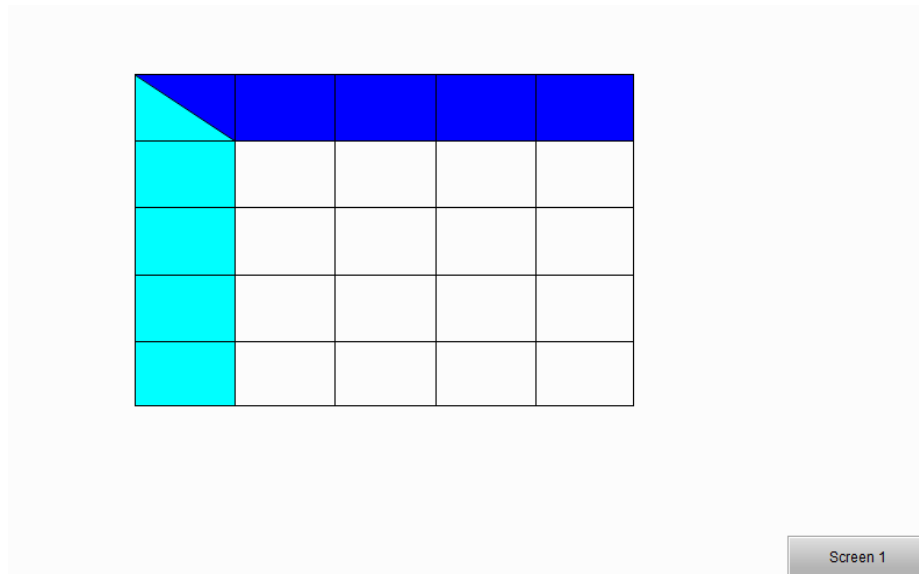
Multiple actions button									
<p>■ Set the Foreground Color for States 0, 1, and 2.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #cccccc;"> <th style="width: 30%; text-align: center; padding: 5px;">State</th> <th style="text-align: center; padding: 5px;">Foreground Color</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">  </td> </tr> <tr> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">  </td> </tr> <tr> <td style="text-align: center; padding: 5px;">2</td> <td style="text-align: center; padding: 5px;">  </td> </tr> </tbody> </table>	State	Foreground Color	0		1		2	
State	Foreground Color								
0									
1									
2									
<p>Set Multistate</p>	<p>Add Screen_2. Create a Table element and a Goto Screen button which is set to switch to Screen_1.</p>								
<p>New Screen</p>									

Multiple actions button

- If you press the **Multiple Actions** button, the Increment and Multistate actions are executed.

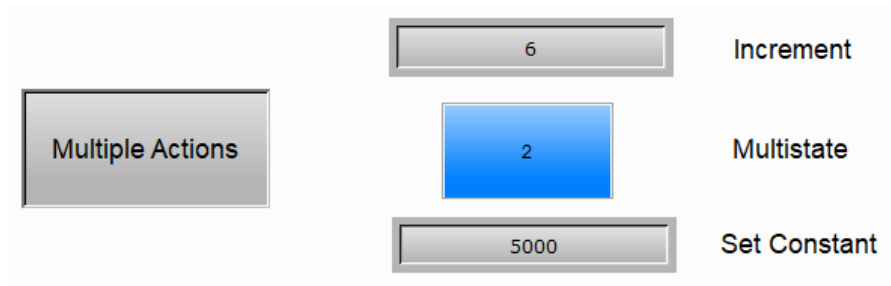


- If you release the **Multiple Actions** button, the Goto Screen action is executed and the HMI screen changes to Screen_2.



Execution results

- When you change the screen to Screen_1 and long press the **Multiple Actions** button for 3 seconds, the Set Constant action is executed. Apart from long pressing the button for 3 seconds, you also execute the press action, so the HMI executes both the Increment and Multistate actions.



When you double-click the Multiple actions button, the property page is shown as follows.

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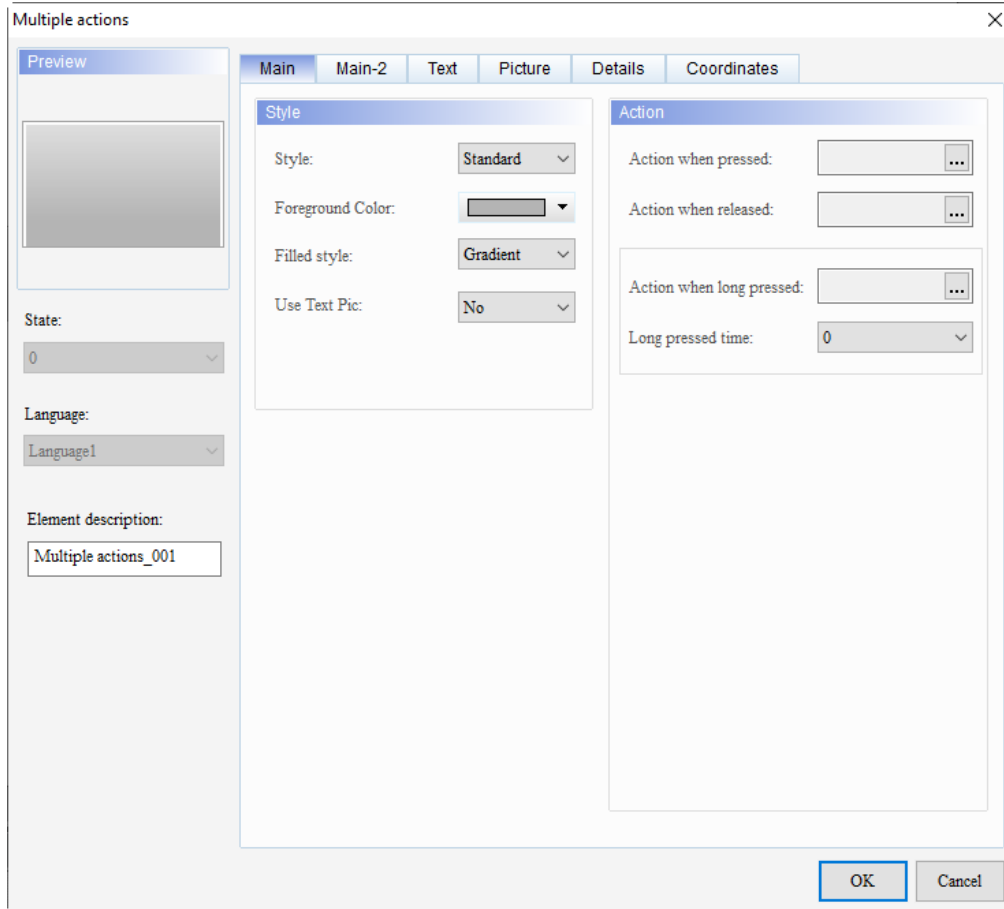
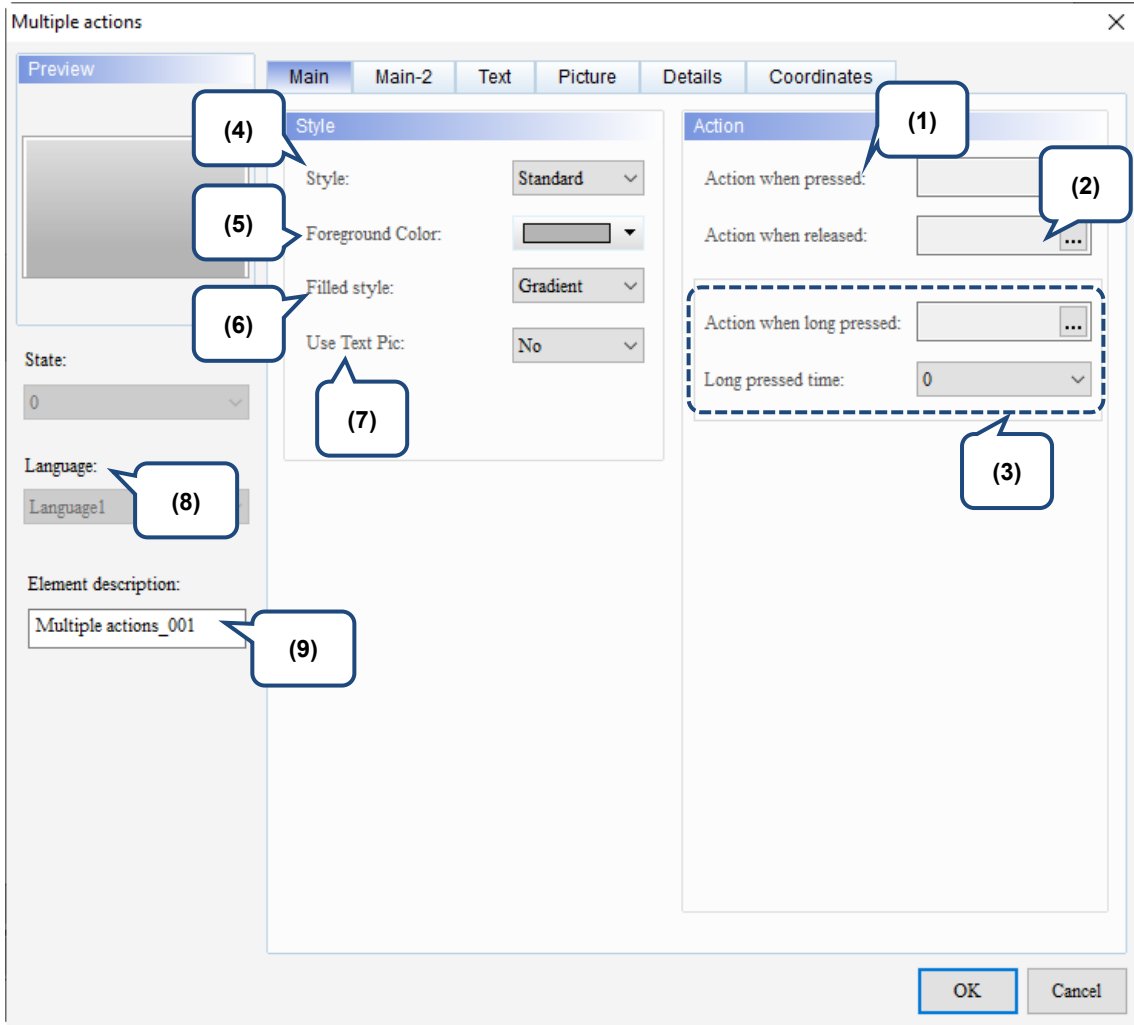


Figure 5.8.2 Properties of Multiple actions

Table 5.8.2 Function page of Multiple actions

Multiple actions button	
Function page	Description
Preview	The Multiple actions button can only view multi-language data display since the multistate property is not available for this element.
Main	Set the Style, Foreground Color, Filled style, and Use Text Pic function. Set the actions when you press, release, and long press the button as well as the long press time.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing options.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color options.
Details	Set the Interlock State, Interlock Address, Interlock Display Mode, Invisible Address, User Security Level, Set Low Security, and Modifier + Hot Key.
Coordinates	Set the X and Y coordinates, width, and height of the button element.

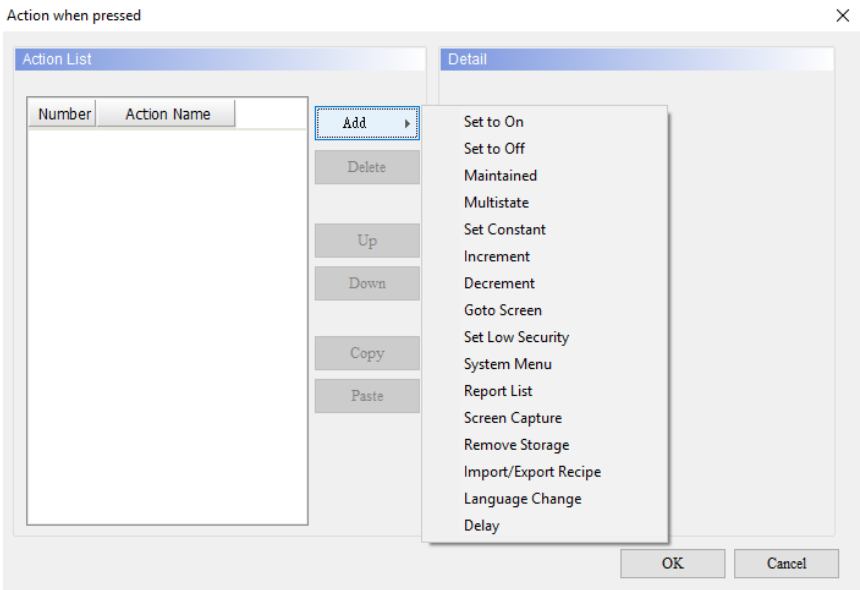
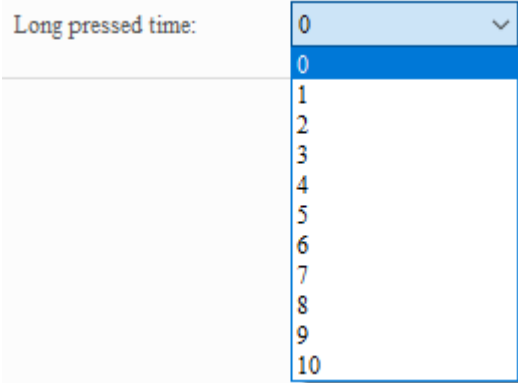
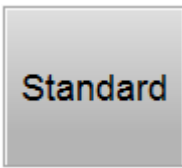



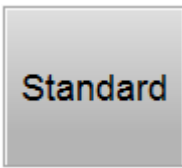



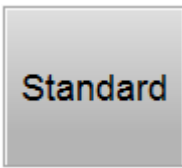



■ Main

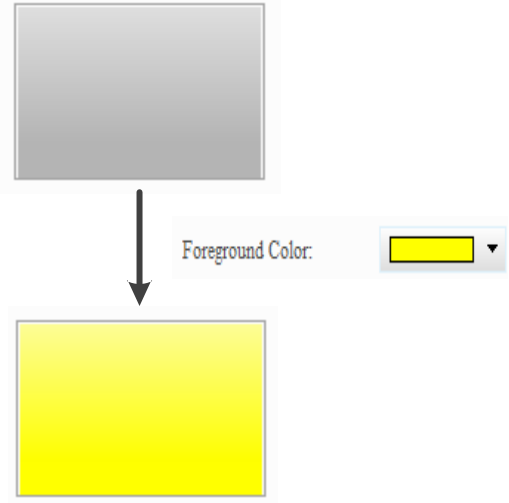

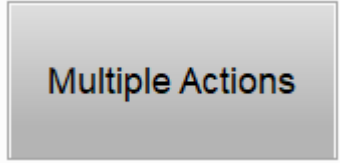
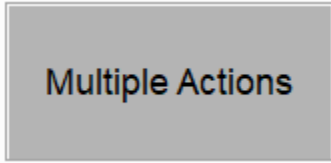
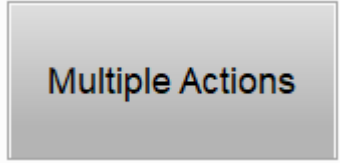
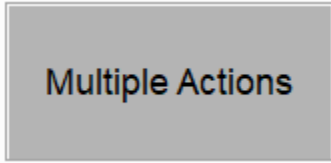
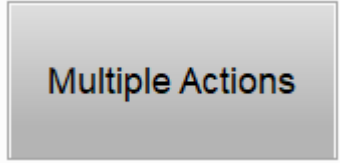
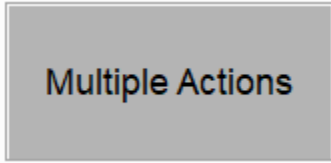


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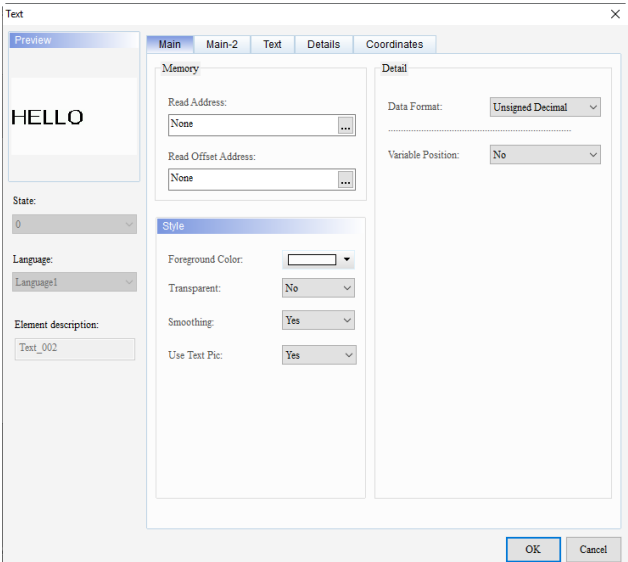
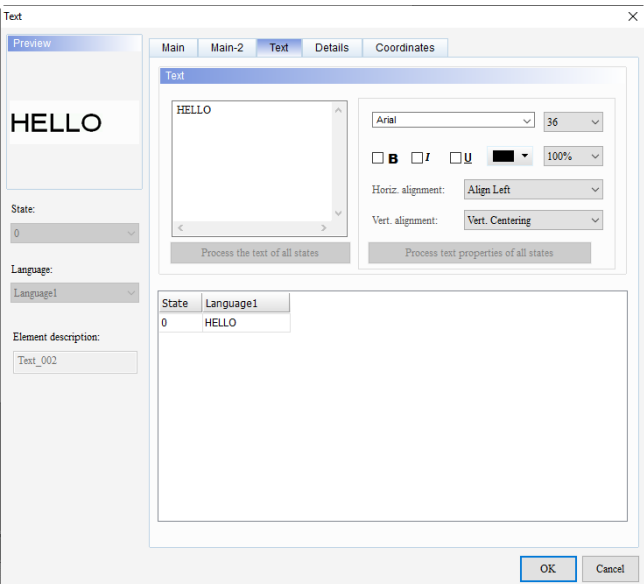
Figure 5.8.3 Main property page for the Multiple actions button element

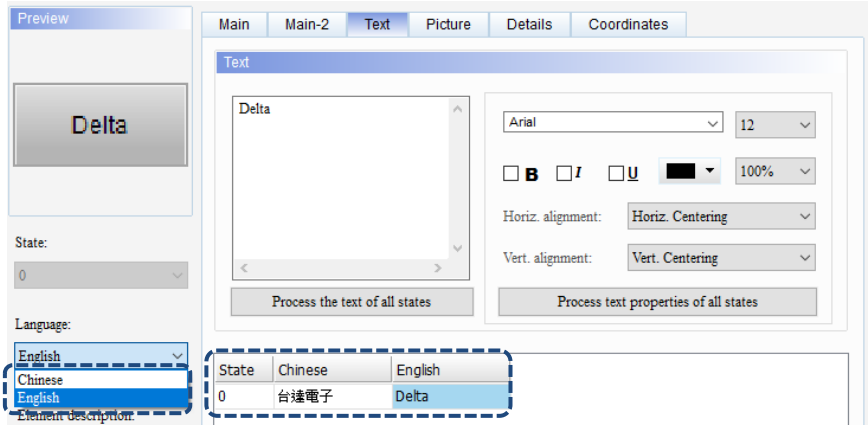
5

No.	Property	Function description								
(1)	Action when pressed	<ul style="list-style-type: none"> It is the action to execute after you press the Multiple actions button. The supported button actions after the button is pressed are shown as follows: 								
(2)	Action when released	<ul style="list-style-type: none"> It is the action to execute after you release the Multiple actions button. The supported button actions are the same as that of the Action when pressed. 								
	Action when long pressed	<ul style="list-style-type: none"> It is the action to execute after you press and hold the Multiple actions button. You must set the Long pressed time for the long press button action to work. The supported button actions are the same as that of the Action when pressed and Action when released. 								
(3)	Long pressed time	<p>The setting range for Long pressed time is 0 - 10 second(s).</p> 								
(4)	Style	<p>The available styles are Standard, Raised, Round, and Invisible. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Round</th> <th>Invisible</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Round	Invisible				
Standard	Raised	Round	Invisible							
										

No.	Property	Function description				
(5)	Foreground Color	<ul style="list-style-type: none"> ■ Set the foreground color of the element. ■ When you set the Style to Invisible, the Foreground Color setting is invalid. 				
(6)	Filled style	<p>You can set the Filled style to Gradient or Fixed.</p>  <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Gradient</th> <th>Fixed (Solid)</th> </tr> </thead> <tbody> <tr> <td>  </td> <td>  </td> </tr> </tbody> </table>	Gradient	Fixed (Solid)		
Gradient	Fixed (Solid)					
						

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No.	Property	Function description				
(7)	Use Text Pic	<p>Unlike the DOP-B series models using pictures to present all texts, the DOP-100 series models present directly with the texts. Therefore, if the language you use for the element is not yet supported by the PC, it is possible to cause missing characters and garbled texts when the element is displayed on the HMI. To have the text display effect be the same as that on the DOP-B models, the Use Text Pic function is added for the Text, Button, and General Message Display elements. Refer to the following examples.</p> <p style="text-align: center;">Use Text Pic function</p> <ul style="list-style-type: none"> ■ Create a Text element and go to the [Main] tab to set the Use Text Pic function.  <p>Note: if you use the DOPSoft 4.00.06 version to open a DOP-B project, the Use Text Pic function is enabled (Yes) by default. If you add a DOP-100 project, then the Use Text Pic function is disabled (No) by default.</p> <ul style="list-style-type: none"> ■ Go to the [Text] tab, and type the text and set its font. 				
	Execution result	<ul style="list-style-type: none"> ■ After creating the element, download it to the HMI. ■ The following table shows the results of using and not using the Use Text Pic function. <table border="1"> <thead> <tr> <th>Use Text Pic is Yes</th> <th>Use Text Pic is No</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; font-size: 2em;">HELLO</td> <td style="text-align: center; font-size: 2em;">HELLO</td> </tr> </tbody> </table>	Use Text Pic is Yes	Use Text Pic is No	HELLO	HELLO
Use Text Pic is Yes	Use Text Pic is No					
HELLO	HELLO					

No.	Property	Function description																																																																																
(8)	Language	<p>If you have set the language data, you can edit the properties of the displayed text with the Language setting of the element.</p> 																																																																																
(9)	Element description	<p>Record the button actions to be executed. The record is written in the CSV file of the Operation Log Table so that you know what actions have been done.</p> <table border="1"> <thead> <tr> <th>Time</th> <th>Date</th> <th>Level</th> <th>Screen</th> <th>Desc</th> <th>Action</th> <th>Pre Value</th> <th>Change Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13:37:54</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>1 0</td> </tr> <tr> <td>2</td> <td>13:37:56</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>0 1</td> </tr> <tr> <td>3</td> <td>13:38:19</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level Switch</td> <td></td> <td>8 4</td> </tr> <tr> <td>4</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>0 1</td> </tr> <tr> <td>5</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>1 0</td> </tr> <tr> <td>6</td> <td>13:38:22</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>0 1</td> </tr> <tr> <td>7</td> <td>13:38:23</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>1 0</td> </tr> <tr> <td>8</td> <td>13:38:31</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level Switch</td> <td></td> <td>4 8</td> </tr> <tr> <td>9</td> <td>13:38:35</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>100 Value</td> <td>Set Val</td> <td>85 25</td> </tr> </tbody> </table>	Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value	1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1 0	2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0 1	3	13:38:19	5/5/2016	8	Screen_22	Level Switch		8 4	4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0 1	5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1 0	6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0 1	7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1 0	8	13:38:31	5/5/2016	4	Screen_22	Level Switch		4 8	9	13:38:35	5/5/2016	8	Screen_22	100 Value	Set Val	85 25
Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value																																																																											
1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1 0																																																																											
2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0 1																																																																											
3	13:38:19	5/5/2016	8	Screen_22	Level Switch		8 4																																																																											
4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0 1																																																																											
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6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0 1																																																																											
7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1 0																																																																											
8	13:38:31	5/5/2016	4	Screen_22	Level Switch		4 8																																																																											
9	13:38:35	5/5/2016	8	Screen_22	100 Value	Set Val	85 25																																																																											

5

■ Main-2

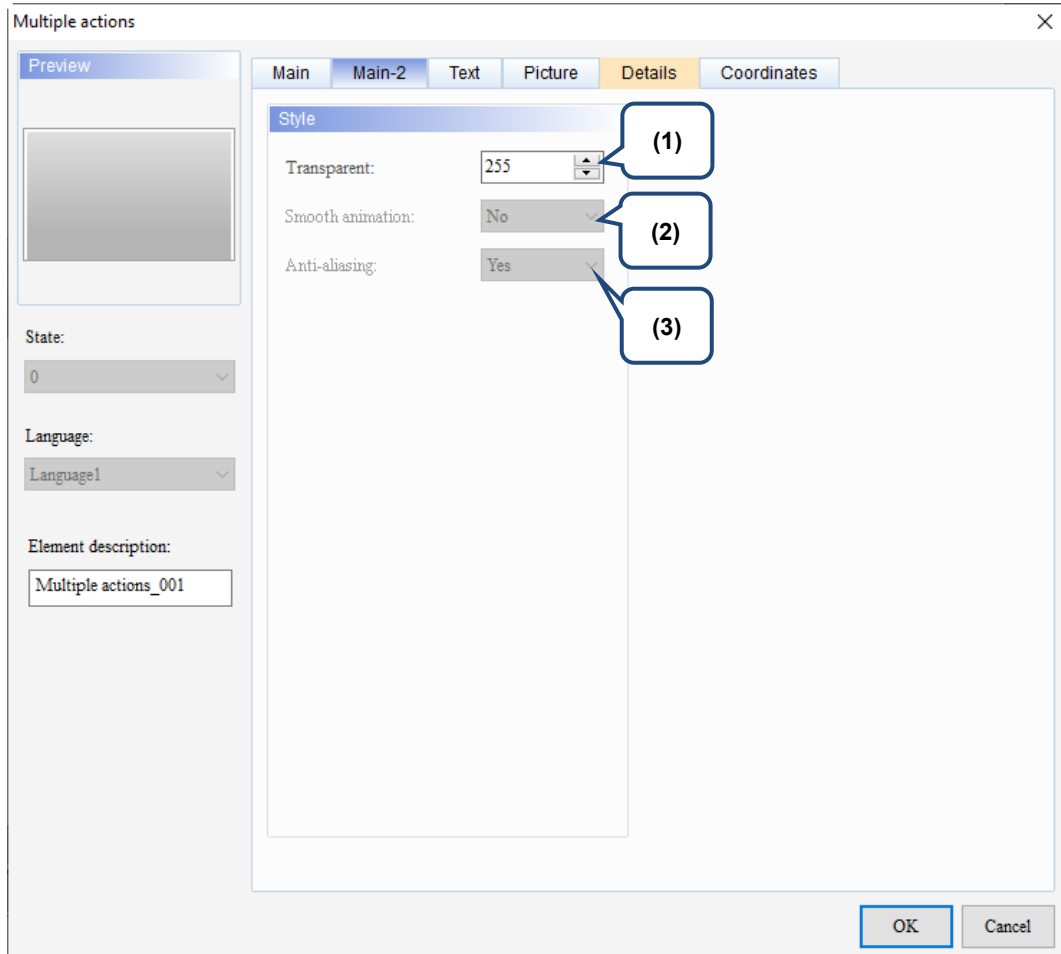
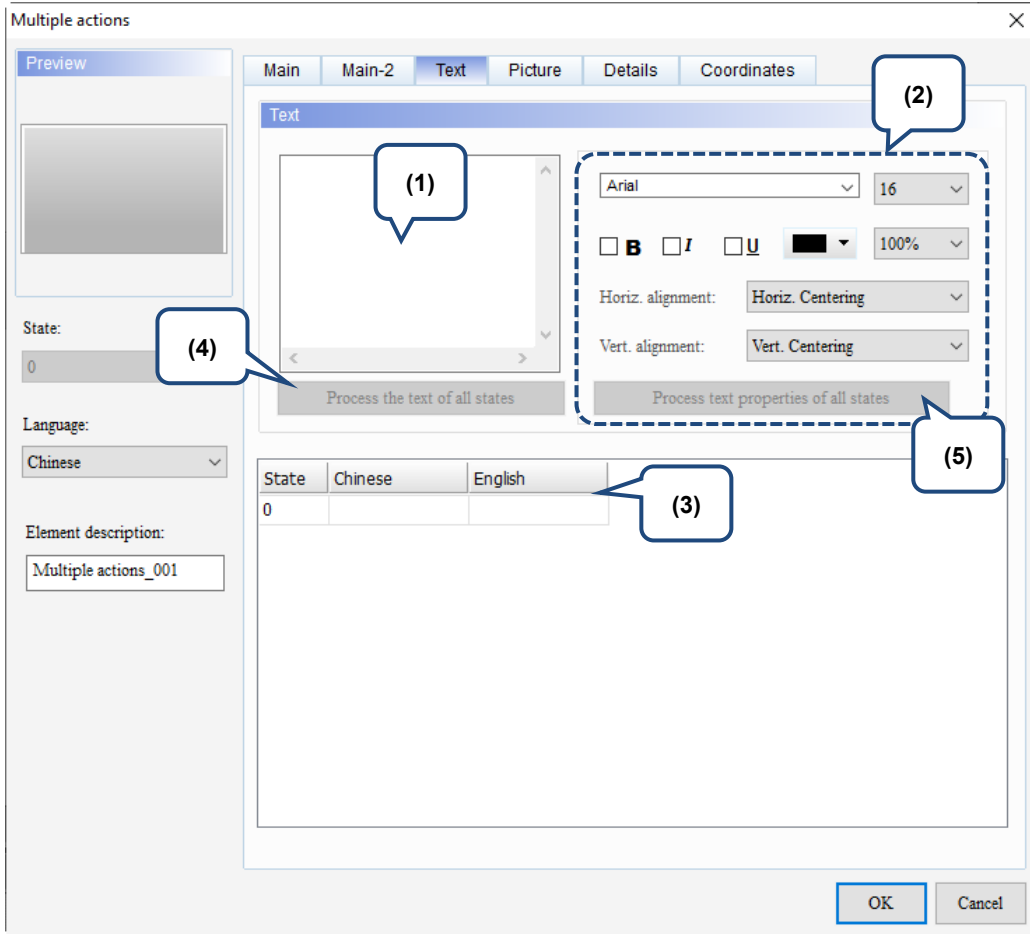


Figure 5.8.4 Main-2 property page for the Multiple actions button element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

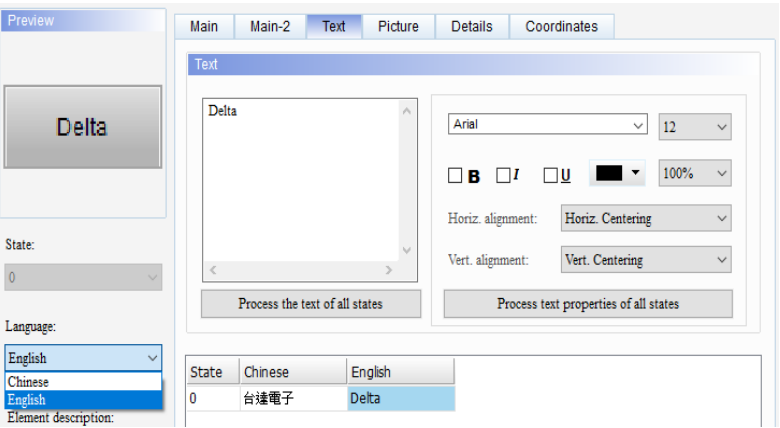
■ Text



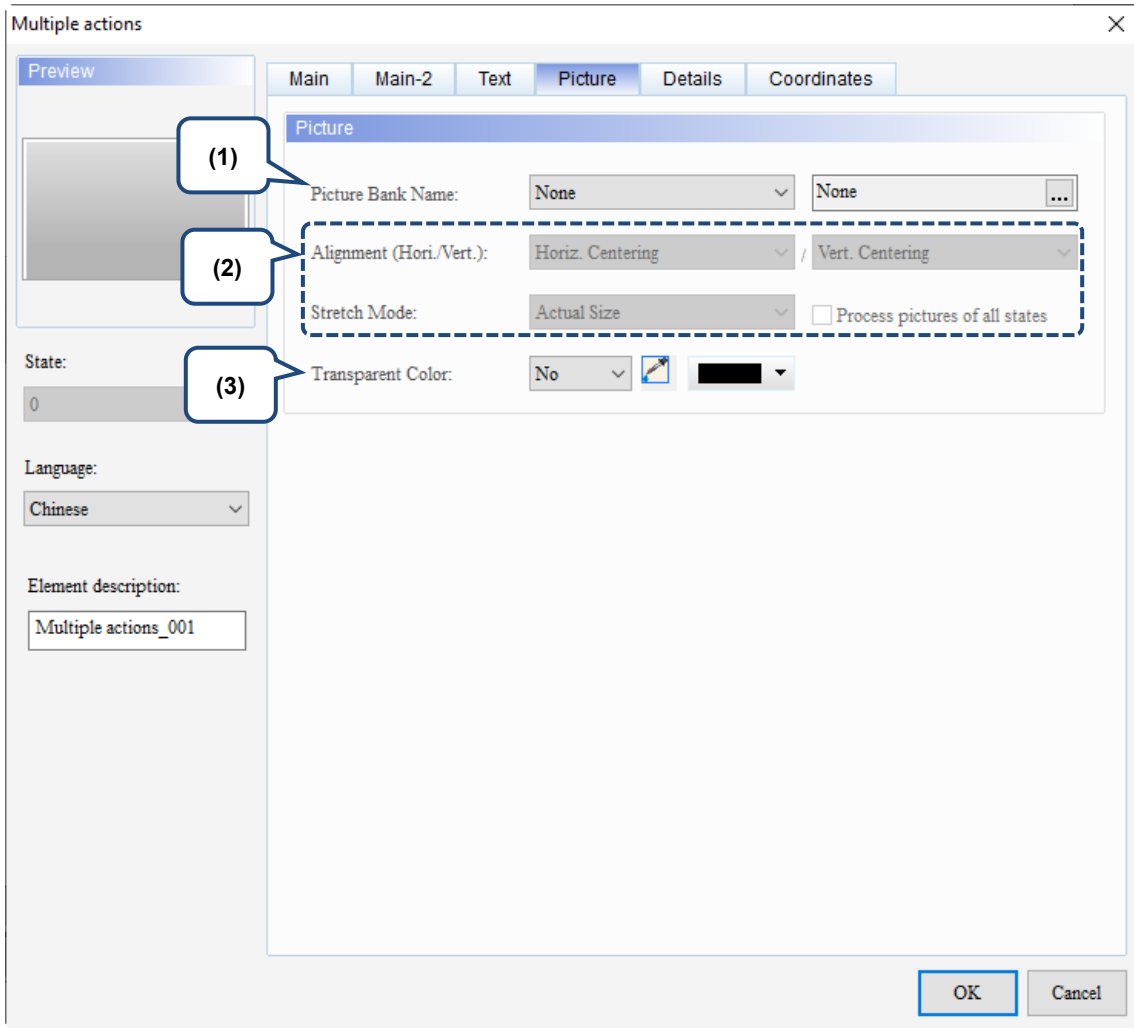
5

Figure 5.8.5 Text property page for the Multiple actions button element

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No.	Property	Function description
(1)	Text	<ul style="list-style-type: none"> You can enter the text to be displayed in the text box.  <ul style="list-style-type: none"> As long as the element allows text input, you can click the element on the screen and press the space key on the keyboard to start editing and inputting the text.
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the text property setting results.
(3)	Edit Multi-language Text	If you have added multi-language text, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	This function is not supported as this element does not have multiple states.
(5)	Process text properties of all states	This function is not supported as this element does not have multiple states.

■ Picture

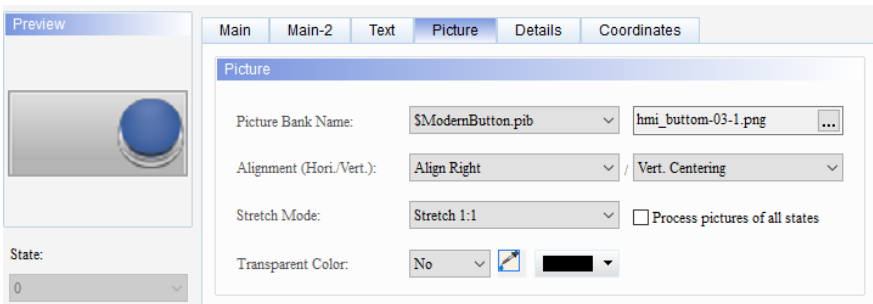










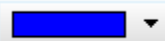



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Figure 5.8.6 Picture property page for the Multiple actions button element

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No.	Property	Function description
(1)	Picture Bank Name	<p>The default for Picture Bank Name is None. To set the picture display, use the drop-down list box to view the picture bank provided by the software and then select the desired pictures.</p>  <p>The 'Picture' dialog box contains the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: A drop-down menu currently showing 'None'. Alignment (Hori./Vert.): A field showing 'None' with a browse button (...). Stretch Mode: A field showing 'Vert. Centering' with a drop-down arrow. Transparent Color: A checkbox labeled 'Process pictures of all states' which is currently unchecked. <p>The 'Select Picture' dialog box displays a grid of nine button images with their respective file names and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

No.	Property	Function description									
	Alignment	<p>You can use the Alignment options to set how pictures are aligned.</p> 									
(2)	Stretch Mode	<ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td> <p>If you select Stretch All, the picture fills the full element display area.</p> </td> <td> <p>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</p> </td> <td> <p>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</p> </td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> If you select the check box for Process pictures of all states, it assumes that the elements have multiple states and some pictures do not fill the full element display area. You can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p style="text-align: center;"><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	<p>If you select Stretch All, the picture fills the full element display area.</p>	<p>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</p>	<p>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</p>			
Stretch All	Stretch 1:1	Actual Size									
<p>If you select Stretch All, the picture fills the full element display area.</p>	<p>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</p>	<p>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</p>									
											
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent. If you select the Transparent Color icon  and click the white part on the calendar, the software changes the white part into transparent, which you can see becomes identical to the element foreground color.</p> <p style="text-align: center;">Foreground Color: </p> 									

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■ Details

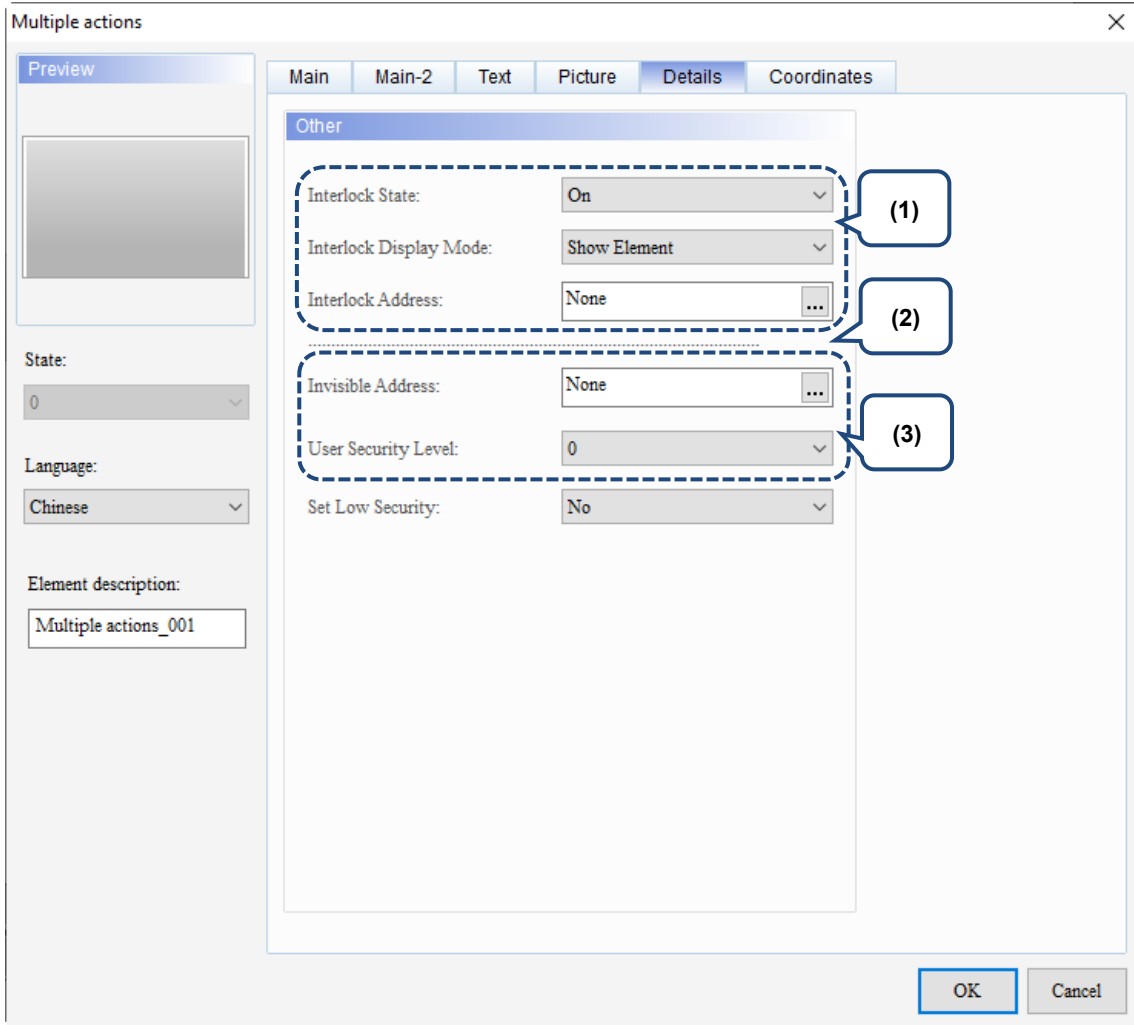
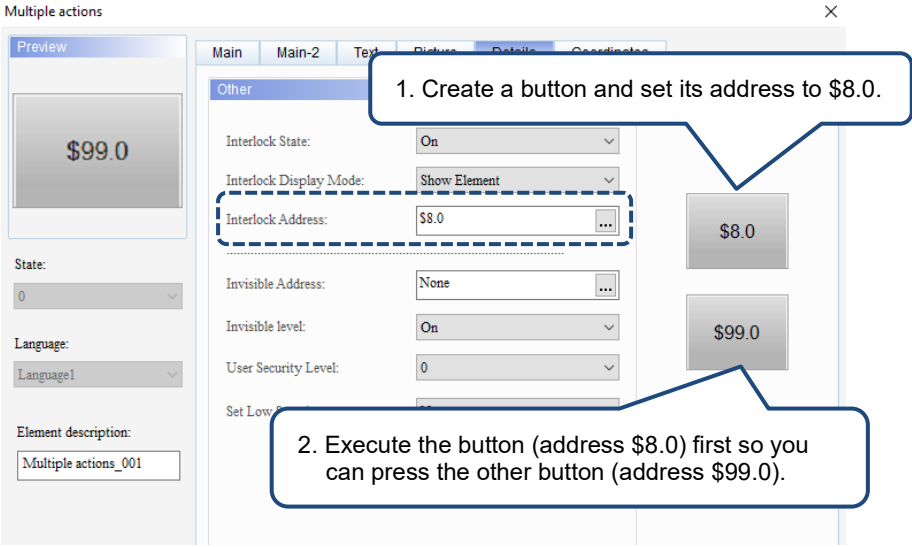
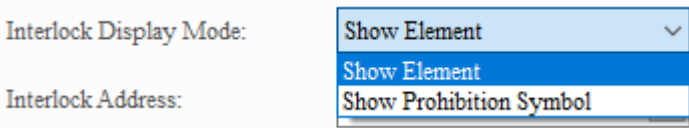








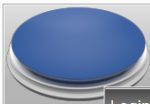


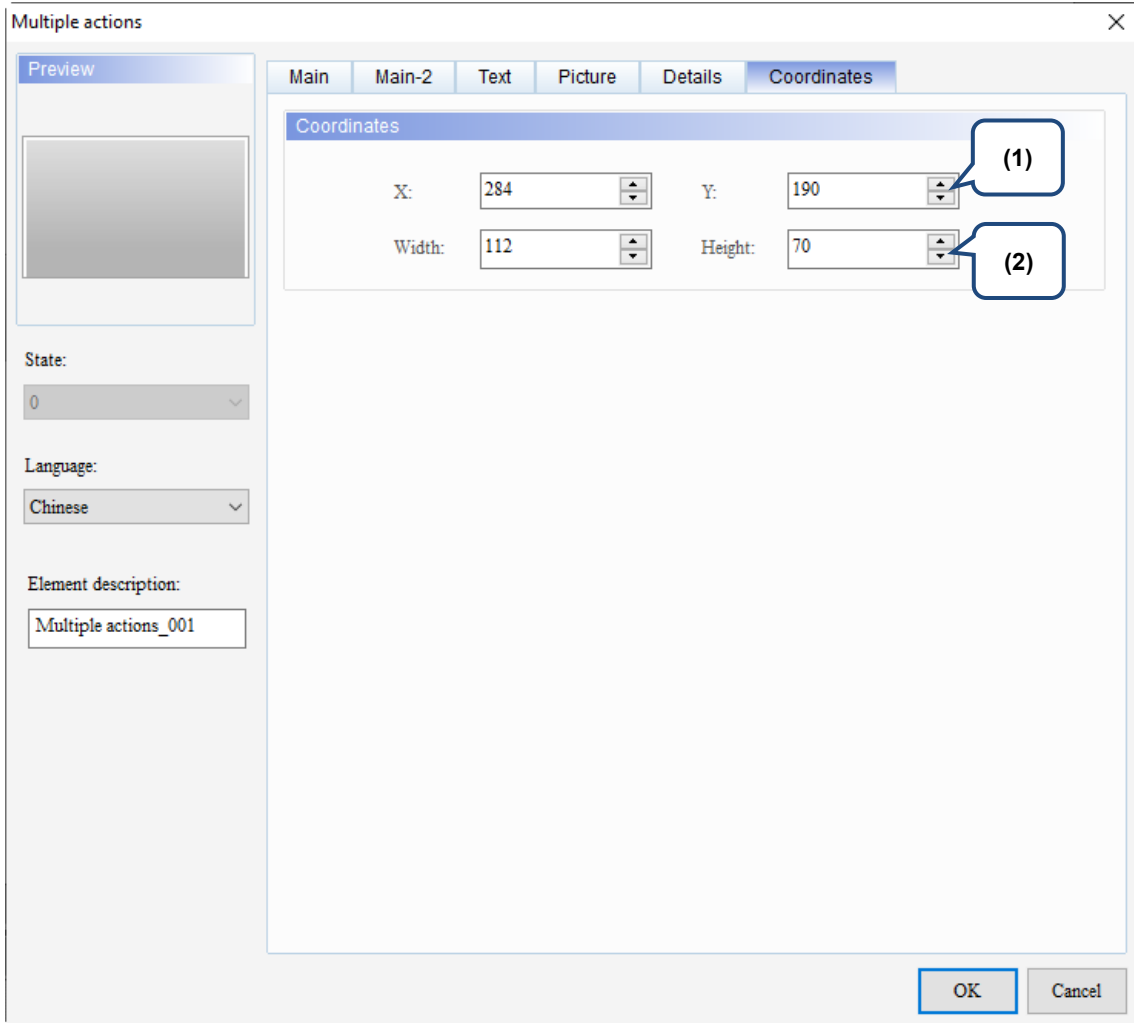
Figure 5.8.7 Details property page for the Multiple actions button element

No.	Property	Function description				
(1)	Interlock State	<ul style="list-style-type: none"> The Interlock Address enables you to operate a certain element from this particular address, which must be operated along with the Interlock State. If the Interlock State is set to OFF, it means the Interlock Address is operable when the Interlock State is OFF; on the other hand, if the Interlock State is set to ON, the Interlock Address is operable when the Interlock State is ON. The following describes how it works: <ol style="list-style-type: none"> Create a button and set its address to \$8.0. Then, set the Interlock Address to \$8.0 for the button which address is \$99.0. Before having the button which address is \$99.0 to operate, you have to press the button which address is \$8.0 to validate the button action which address is \$99.0. 				
	Interlock Address					
	Interlock Display Mode	<ul style="list-style-type: none"> The Interlock Display Mode includes two options, Show Element and Show Prohibition Symbol.  <table border="1"> <tr> <td>Show Element</td> <td></td> </tr> <tr> <td>Show Prohibition Symbol</td> <td></td> </tr> </table>	Show Element		Show Prohibition Symbol	
Show Element						
Show Prohibition Symbol						

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No.	Property	Function description
(2)	Invisible Address	<p>When the Invisible Address is set to ON, the button element is invisible and you cannot enable its functions.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid gray; padding: 5px; width: 150px;">Invisible Address is off</div>  <div style="border: 1px solid gray; padding: 5px; width: 150px; text-align: center;">Invisible Address \$9.0 OFF</div> </div>
		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid gray; padding: 5px; width: 150px;">Invisible Address is on</div> <div style="border: 2px dashed blue; padding: 10px; width: 150px; text-align: center;">Element is invisible</div> <div style="border: 1px solid gray; padding: 5px; width: 150px; text-align: center;">Invisible Address \$9.0 ON</div> </div>
<div style="display: flex; align-items: flex-start;"> <div style="border: 1px solid gray; padding: 5px; width: 150px; margin-right: 10px;"> <p>Preview</p>  <p>State:</p> </div> <div style="border: 1px solid gray; padding: 5px; width: 600px;"> <p>Main Main-2 Text Picture Details Coordinates</p> <p>Other</p> <p>Interlock State: <input type="text" value="On"/></p> <p>Interlock Address: <input type="text" value="None"/></p> <hr/> <p>Invisible Address: <input type="text" value="\$9.0"/></p> </div> </div>		
(3)	User Security Level	<ul style="list-style-type: none"> ■ You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. ■ After you set the User Security Level and press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password through the Password Table Setup element; refer to Section 5.7.2 Password Table Setup). <div style="display: flex; align-items: flex-start; margin-top: 10px;"> <div style="margin-right: 20px;"> <p>User Security Level:</p> <p>Set Low Security:</p> <p>Min. Press Time (sec):</p> <p>Confirm Window:</p> </div> <div style="border: 1px solid gray; padding: 5px;"> <input type="text" value="0"/> <ul style="list-style-type: none"> <li style="background-color: #e0e0e0;">0 1 2 3 4 5 6 7 </div> </div>
	Set Low Security	<p>If you set the Set Low Security to Yes, each time you input the password, the HMI sets the security level to the lowest. The next time you press the element, the HMI asks you to enter the password for the corresponding security level again.</p> <div style="display: flex; align-items: center; margin-top: 10px;">  <div style="margin-left: 20px;"> <div style="border: 1px solid gray; padding: 5px; width: 250px;"> <p>Login</p> <p><input type="checkbox"/> Security Login</p> <p>Account <input type="text"/></p> <p>Password <input type="text"/></p> <p style="text-align: right;"><input type="button" value="OK"/></p> </div> </div> </div>

■ Coordinates



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Figure 5.8.8 Coordinates property page for the Multiple actions button element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

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5

Meter

6

This chapter introduces the usage and setting details for the Meter elements.



6.1 Meter(1) / Meter(2) / Meter(3) / Meter(4)..... 6-2


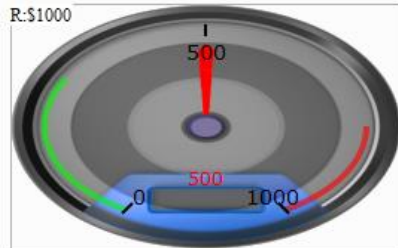
6

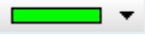



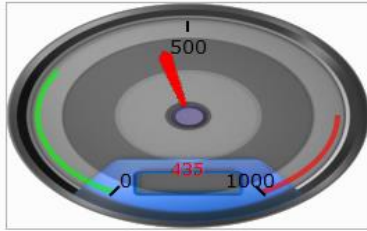
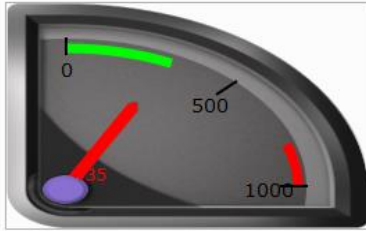
6.1 Meter(1) / Meter(2) / Meter(3) / Meter(4)

The DOPSoft provides four styles of meters to display the measuring values of the set addresses as well as to show whether the value reaches the target value or exceeds the upper or lower limit. In addition, you can define the memory addresses for the target value and upper and lower limits to make the application more flexible so it meets your requirements. You can also specify the colors for the lower limit, upper limit, and target value for easier identification. Further, the Meter elements support the Smooth animation and Anti-aliasing functions that make the display smoother and more delicate.

Refer to the following example descriptions.

Table 6.1.1 Meter example

Meter(1) / Meter(2) / Meter(3) / Meter(4)											
Read Address	Create Meter(1), Meter(2), Meter(3), and Meter(4) elements and set their read addresses to \$1000 respectively.										
											
Detail settings											
	<table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Minimum</th> <th>Maximum</th> </tr> </thead> <tbody> <tr> <td>Word</td> <td>Unsigned Decimal</td> <td>0</td> <td>1000</td> </tr> </tbody> </table>				Data Type	Data Format	Minimum	Maximum	Word	Unsigned Decimal	0
Data Type	Data Format	Minimum	Maximum								
Word	Unsigned Decimal	0	1000								
<div style="border: 1px solid gray; padding: 5px;"> <p>Detail</p> <p>Data Type: <input type="text" value="Word"/></p> <p>Data Format: <input type="text" value="Unsigned Decimal"/></p> <p>Minimum: <input type="text" value="0"/></p> <p>Maximum: <input type="text" value="1000"/></p> </div>											

Meter(1) / Meter(2) / Meter(3) / Meter(4)				
Range	Low Limit property		High Limit property	
	Low Range Color	Low Range value	High Range Color	High Range value
		300		800
Clock Macro	<pre> [*&Clock Macro] [Clock Macro] 1 \$1000 = \$1000 + 5 2 IF \$1000 > 1000 3 \$1000 = 0 4 ENDIF </pre>			
Execution results	<p>After finishing editing the screens, download them to the HMI. Then, the HMI executes the program in the Clock Macro and displays the accumulation results on the Meter elements with the corresponding addresses.</p> <div style="display: flex; flex-wrap: wrap; justify-content: space-around;">     </div>			

Meter(1), Meter(2), Meter(3), and Meter(4) are the same in functions except the styles; therefore, the following section introduces only Meter(1).

6

When you double-click the Meter element, the property page is shown as follows.

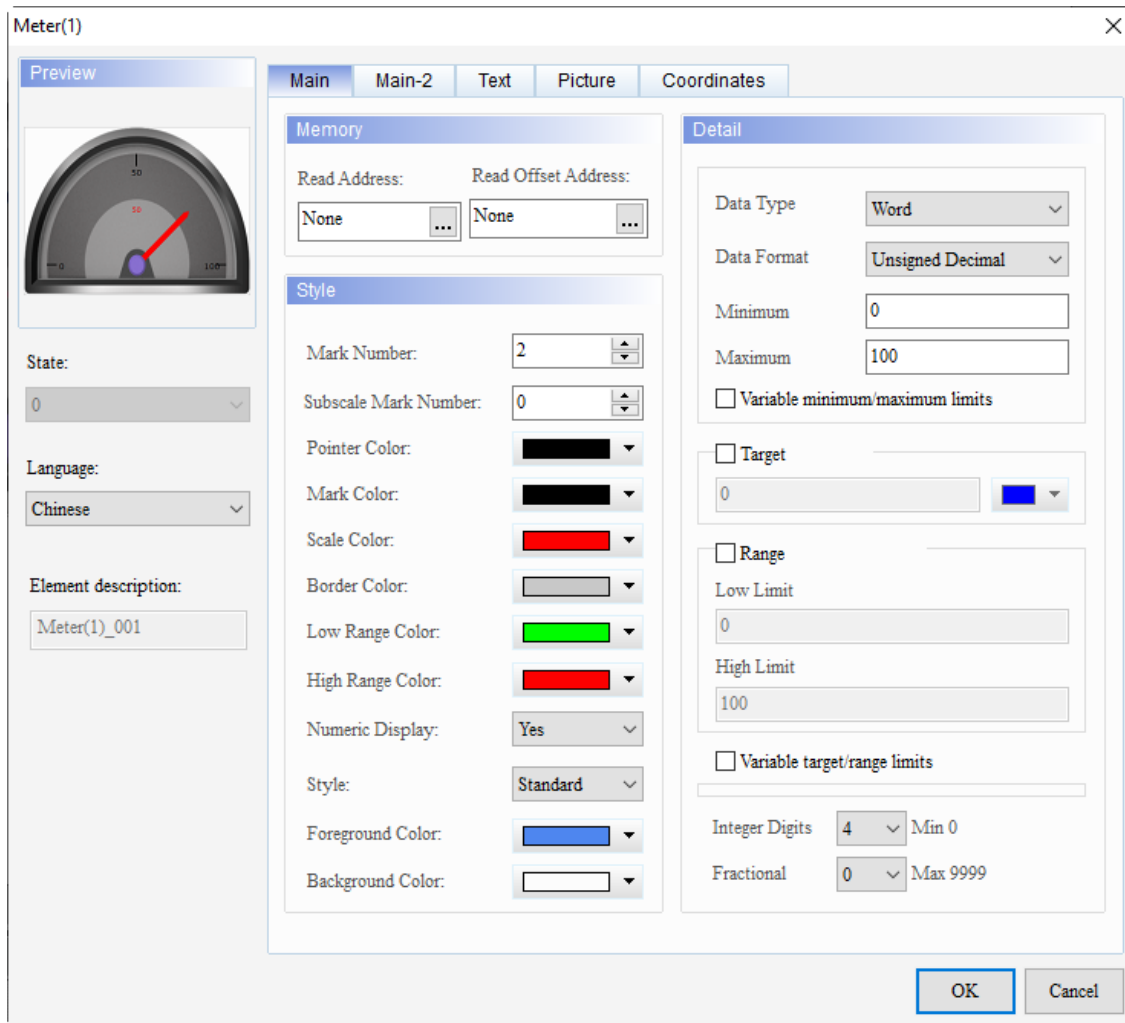
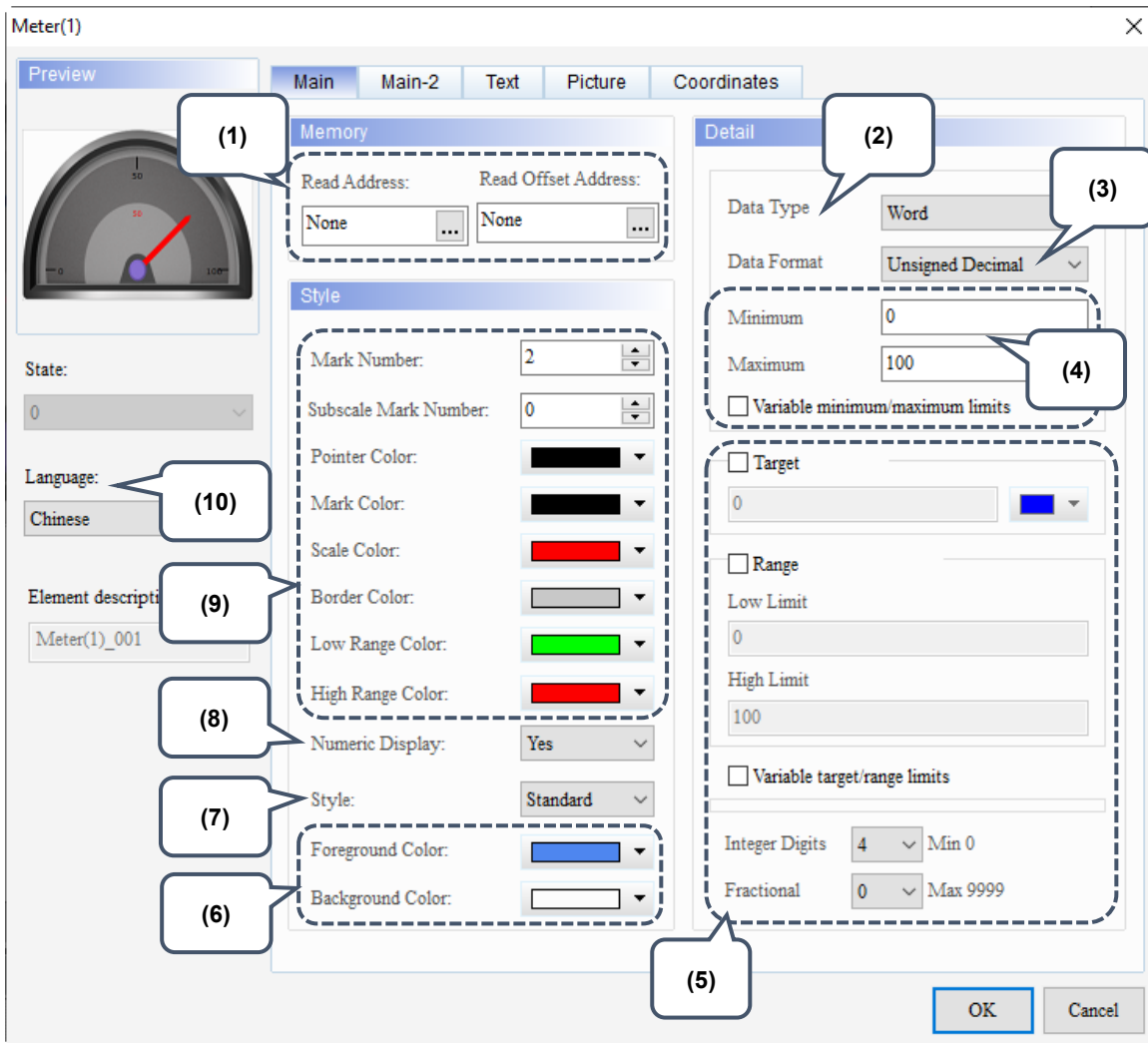


Figure 6.1.1 Properties of Meter

Table 6.1.2 Function page of Meter

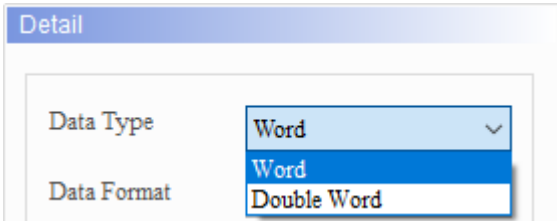
Meter(1) / Meter(2) / Meter(3) / Meter(4)	
Function page	Content description
Preview	Meter elements are only for viewing multi-language data display but do not support multiple states.
Main	Set the Read Address, Read Offset Address, Style, Foreground Color, and Background Color. Set the Mark Number, Subscale Mark Number, Pointer Color, Mark Color, Scale Color, Border Color, Low Range Color, High Range Color, and Numeric Display. Set the Data Type, Data Format, and Minimum / Maximum input value of the element, and select the check box for Variable minimum/maximum limits . Set whether to display the target value and its color, select the check boxes for Range and Variable target/range limits , and set the Integer Digits and Fractional.
Main-2	Set the Transparent, Smooth animation, Anti-aliasing, Limit Ranges Transparent, Target Value Transparent, Value Color, and Minify the scale.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set to Picture Bank Mode or Template Pattern.
Coordinates	Set the X and Y coordinates, width, and height of the element.

■ Main

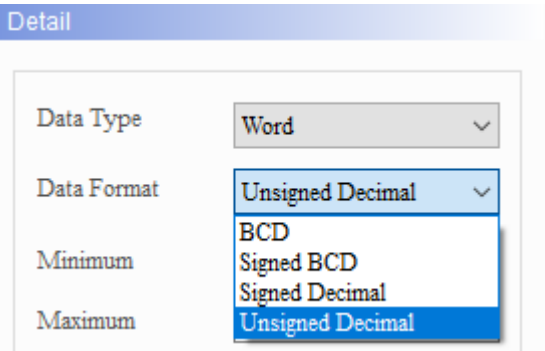
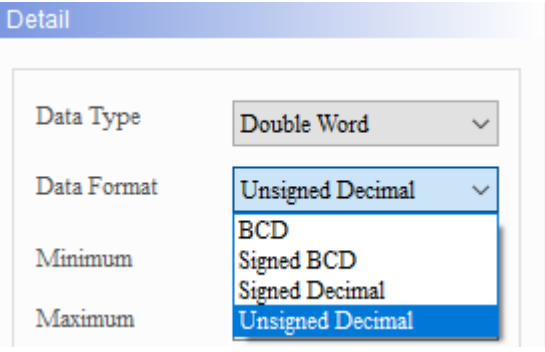


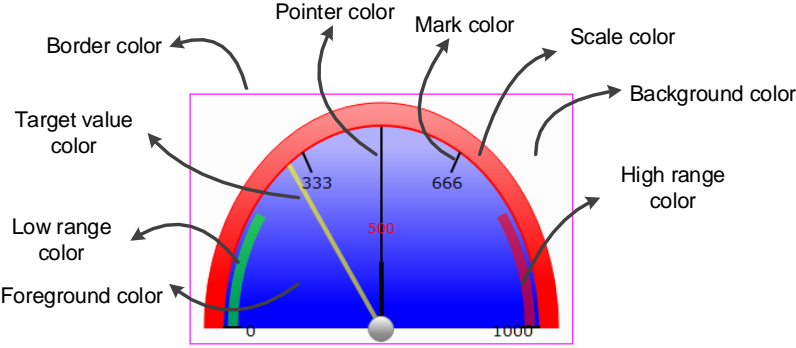
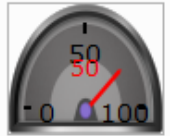


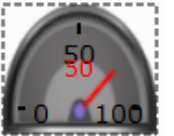
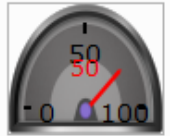


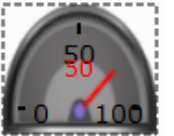
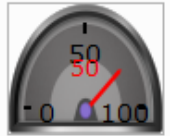


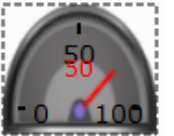

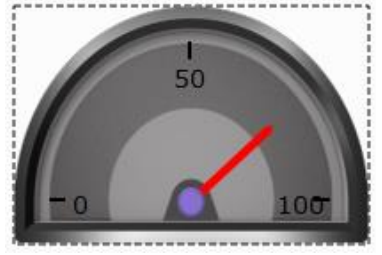

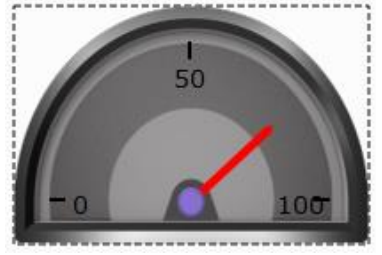

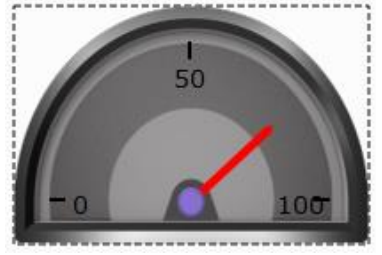
6

Figure 6.1.2 Main property page for the Meter elements

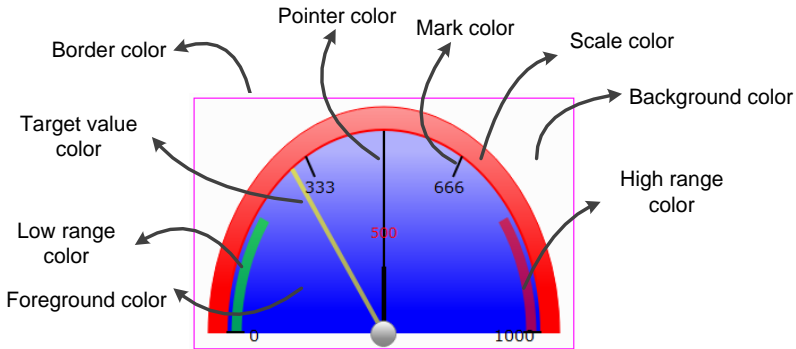
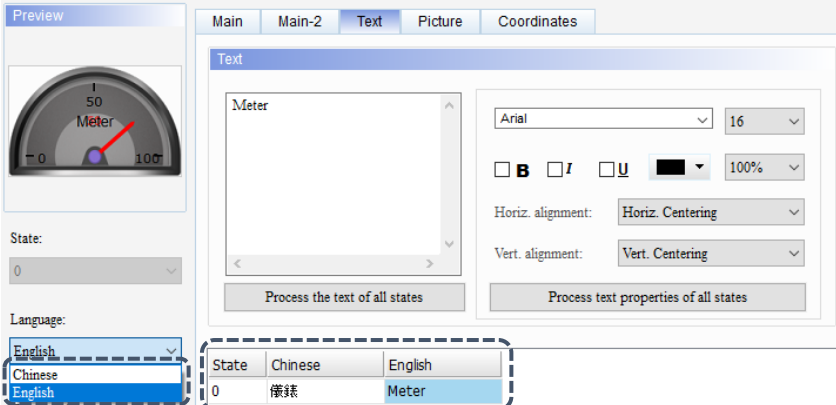
No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can choose the internal memory or the controller register address. The input memory type must be Word. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(2)	Data Type	<p>There are two data types: Word and Double Word.</p> 

6

No.	Property	Function description																					
(3)	Data Format	<ul style="list-style-type: none"> When the Data Type is Word, the supported data formats are as follows:  When the Data Type is Double Word, the supported data formats are as follows:  																					
(4)	Minimum / maximum input value	<p>The allowable ranges for the Minimum and Maximum values are subject to change based on the selected Data Type and Data Format.</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td rowspan="4">Double Word</td> <td>BCD</td> <td>0 to 99999999</td> </tr> <tr> <td>Signed BCD</td> <td>-9999999 to +9999999</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294967295</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Double Word	BCD	0 to 99999999	Signed BCD	-9999999 to +9999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294967295
	Data Type	Data Format	Allowable range																				
Word	BCD	0 to 9999																					
	Signed BCD	-999 to +9999																					
	Signed Decimal	-32768 to +32767																					
	Unsigned Decimal	0 to 65535																					
Double Word	BCD	0 to 99999999																					
	Signed BCD	-9999999 to +9999999																					
	Signed Decimal	-2147483648 to +2147483647																					
	Unsigned Decimal	0 to 4294967295																					
Variable minimum/maximum limits	<ul style="list-style-type: none"> When this check box is selected, you can define the memory addresses to dynamically change the displayed maximum and minimum values. When this check box is not selected, you can only enter constant values in the Minimum and Maximum fields to define the maximum and minimum values for the Meter element. 																						

No.	Property	Function description									
(5)	Display Format	Target	If the Variable target/range limits check box is not selected, you can only enter a constant value to define the displaying target value on the meter. You can also specify the displaying color.								
		Range	The Range includes the lower and upper limits. Like the case of the Target display, if the Variable target/range limits check box is not selected, you can only enter constant values to define the lower and upper limits of the meter.								
		Variable target/range limits	If it is selected, you can define the memory addresses to dynamically change the displaying target value, and the lower and upper limit values.								
		Integer Digits	You can set the displaying number of integer digits and the number of decimal places.								
		Fractional (Digits)									
(6)	Foreground Color and Background Color	<ul style="list-style-type: none"> Set the element foreground and background colors. The element foreground color setting is only available for the Picture Bank mode of the Picture page. 									
(7)	Style (element style)	<p>The available element styles are Standard, Raised, Sunken, and Transparent. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Standard	Raised	Sunken	Transparent				
Standard	Raised	Sunken	Transparent								
											
(8)	Numeric Display	<p>Display the value currently acquired by the meter.</p> <table border="1"> <tbody> <tr> <td>Numeric Display is set to Yes</td> <td></td> </tr> <tr> <td>Numeric Display is set to No</td> <td></td> </tr> </tbody> </table>		Numeric Display is set to Yes		Numeric Display is set to No					
Numeric Display is set to Yes											
Numeric Display is set to No											

6

No.	Property	Function description				
(9)	Style property					
		Mark Number	The minimum mark number must be no less than 1 and the maximum is up to 10.			
		Subscale Mark Number	The minimum subscale number can be 0 and the maximum is up to 99.			
		Pointer Color	You can define the pointer color to be displayed. Pointer color setting is only available for the Picture Bank Mode of the Picture page.			
		Mark Color	You can define the mark color to be displayed.			
		Scale Color	You can define the scale color to be displayed. Scale color setting is only available for the Picture Bank Mode of the Picture page.			
		Border Color	You can define the border color to be displayed.			
		Low Range Color	You can define the low range color to be displayed.			
High Range Color	You can define the high range color to be displayed.					
(10)	Language	<p>When you have set the language data, you can edit the properties of the displayed text with the Language setting of the element.</p>				
		 <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>橫錶</td> <td>Meter</td> </tr> </tbody> </table>	State	Chinese	English	0
State	Chinese	English				
0	橫錶	Meter				

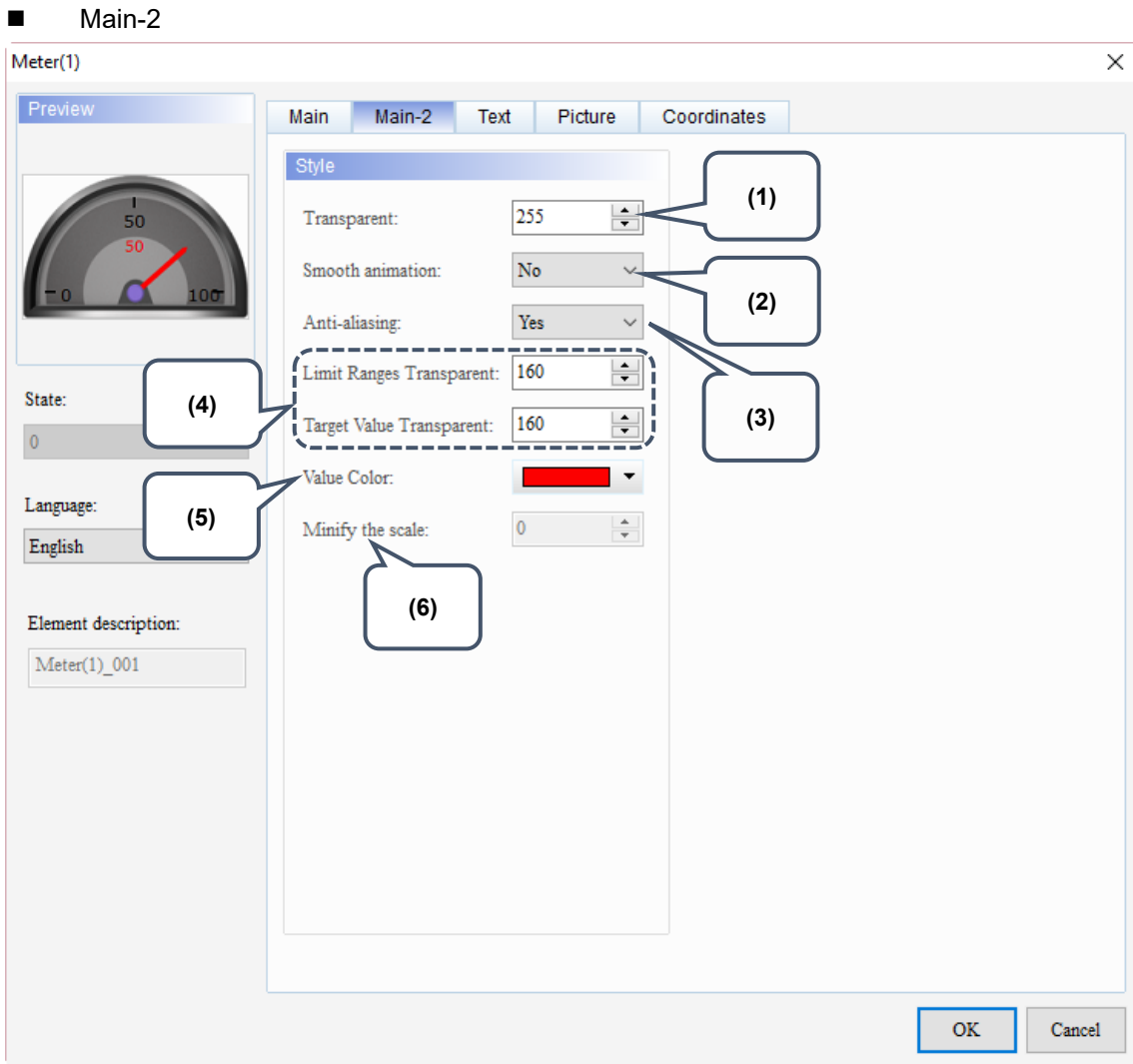
































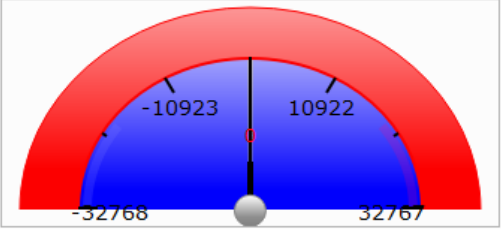
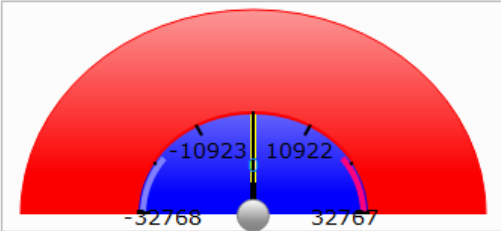
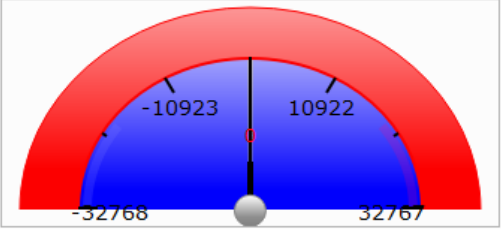
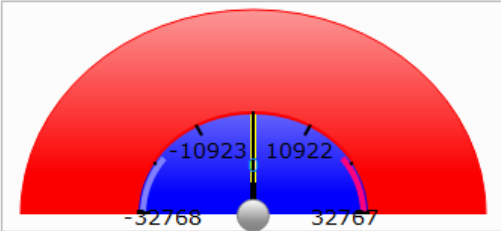
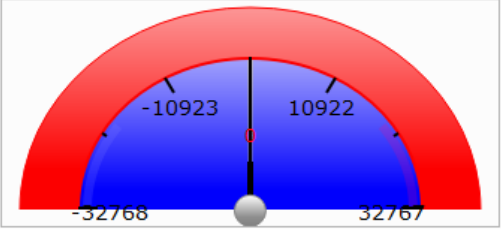
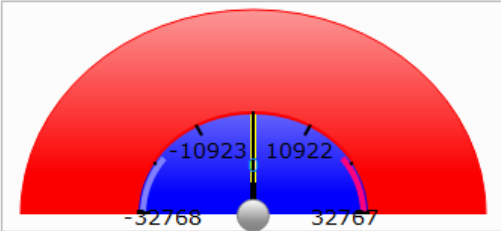


Figure 6.1.3 Main-2 property page for the Meter elements

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is available for this element. When this function is enabled, the pointer motion becomes smoother.

6

No.	Property	Function description				
(3)	Anti-aliasing	<p>The Anti-aliasing function is available for this element. When this function is enabled, the element display becomes more delicate without jagged edges.</p>				
		<table border="1"> <tr> <td>Anti-aliasing is set to Yes</td> <td>  </td> </tr> </table>	Anti-aliasing is set to Yes			
Anti-aliasing is set to Yes						
(4)	Limit Ranges Transparent	<p>You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.</p>				
		<table border="1"> <tr> <td>Limit Ranges Color</td> <td> <p>Low Range Color: <input type="color" value="#6666FF"/></p> <p>High Range Color: <input type="color" value="#FF00FF"/></p> </td> </tr> <tr> <td>Limit Ranges Transparent is set to 50</td> <td>  </td> </tr> <tr> <td>Limit Ranges Transparent is set to 255</td> <td>  </td> </tr> </table>	Limit Ranges Color	<p>Low Range Color: <input type="color" value="#6666FF"/></p> <p>High Range Color: <input type="color" value="#FF00FF"/></p>	Limit Ranges Transparent is set to 50	
Limit Ranges Color	<p>Low Range Color: <input type="color" value="#6666FF"/></p> <p>High Range Color: <input type="color" value="#FF00FF"/></p>					
Limit Ranges Transparent is set to 50						
Limit Ranges Transparent is set to 255						

No.	Property	Function description						
	Target Value Transparent	<p>You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.</p> <table border="1"> <tr> <td>Target value color</td> <td> <input checked="" type="checkbox"/> Target <input type="text" value="\$110"/>   </td> </tr> </table> <table border="1"> <tr> <td>Target Value Transparent is set to 50</td> <td>  </td> </tr> <tr> <td>Target Value Transparent is set to 255</td> <td>  </td> </tr> </table>	Target value color	<input checked="" type="checkbox"/> Target <input type="text" value="\$110"/>  	Target Value Transparent is set to 50		Target Value Transparent is set to 255	
Target value color	<input checked="" type="checkbox"/> Target <input type="text" value="\$110"/>  							
Target Value Transparent is set to 50								
Target Value Transparent is set to 255								
(5)	Value Color	<p>Display the value currently acquired by the meter.</p> <table border="1"> <tr> <td>Value Color: </td> <td>Value Color: </td> </tr> </table> <table border="1"> <tr> <td>  </td> <td>  </td> </tr> </table>	Value Color: 	Value Color: 				
Value Color: 	Value Color: 							
								
(6)	Minify the scale	<ul style="list-style-type: none"> ■ This function is only available for the Picture Bank Mode in the Picture page. ■ The Minify the scale setting range is 0 - 8. ■ The greater the value, the longer the distance from the scale mark to the meter edge. <table border="1"> <tr> <td>Minify the scale is set to 3</td> <td>  </td> </tr> <tr> <td>Minify the scale is set to 8</td> <td>  </td> </tr> </table>	Minify the scale is set to 3		Minify the scale is set to 8			
Minify the scale is set to 3								
Minify the scale is set to 8								

6

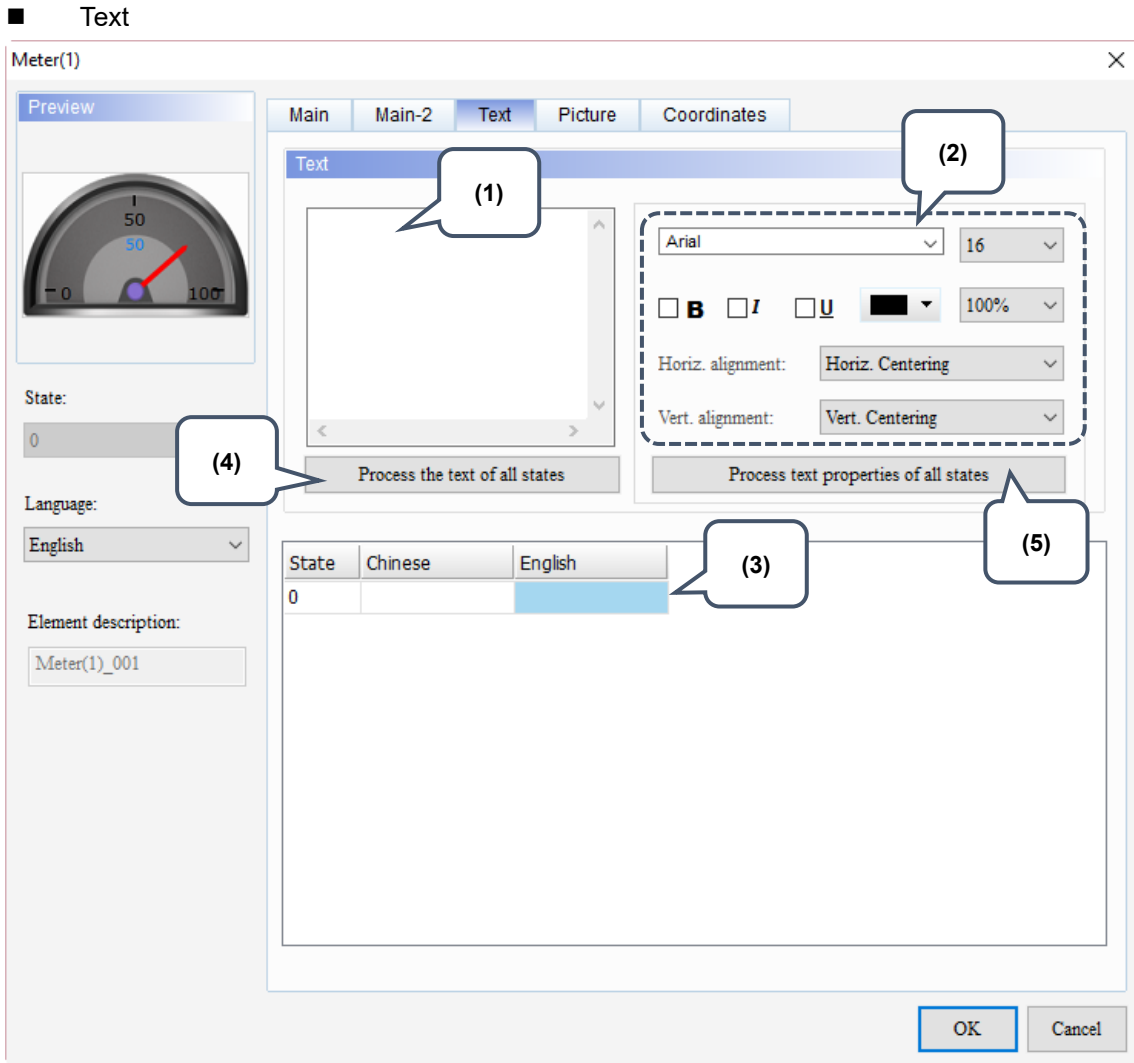
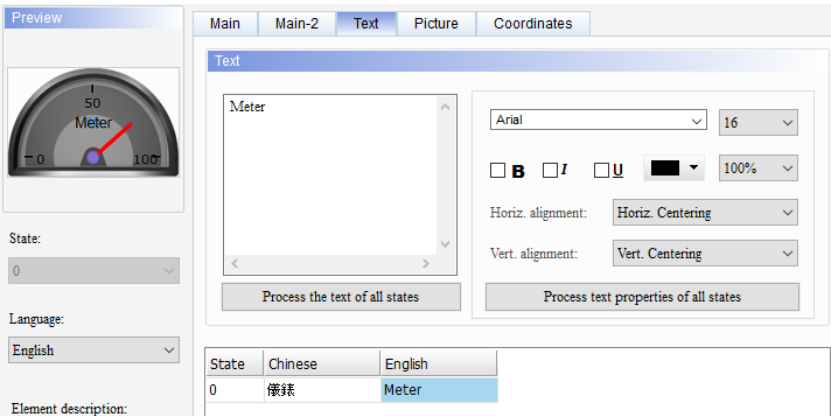
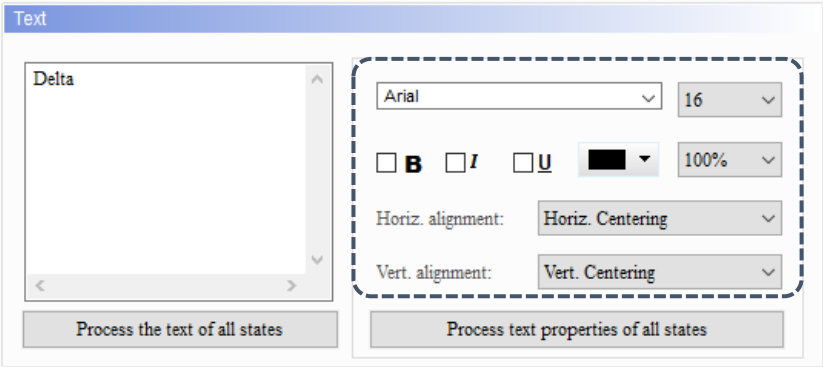
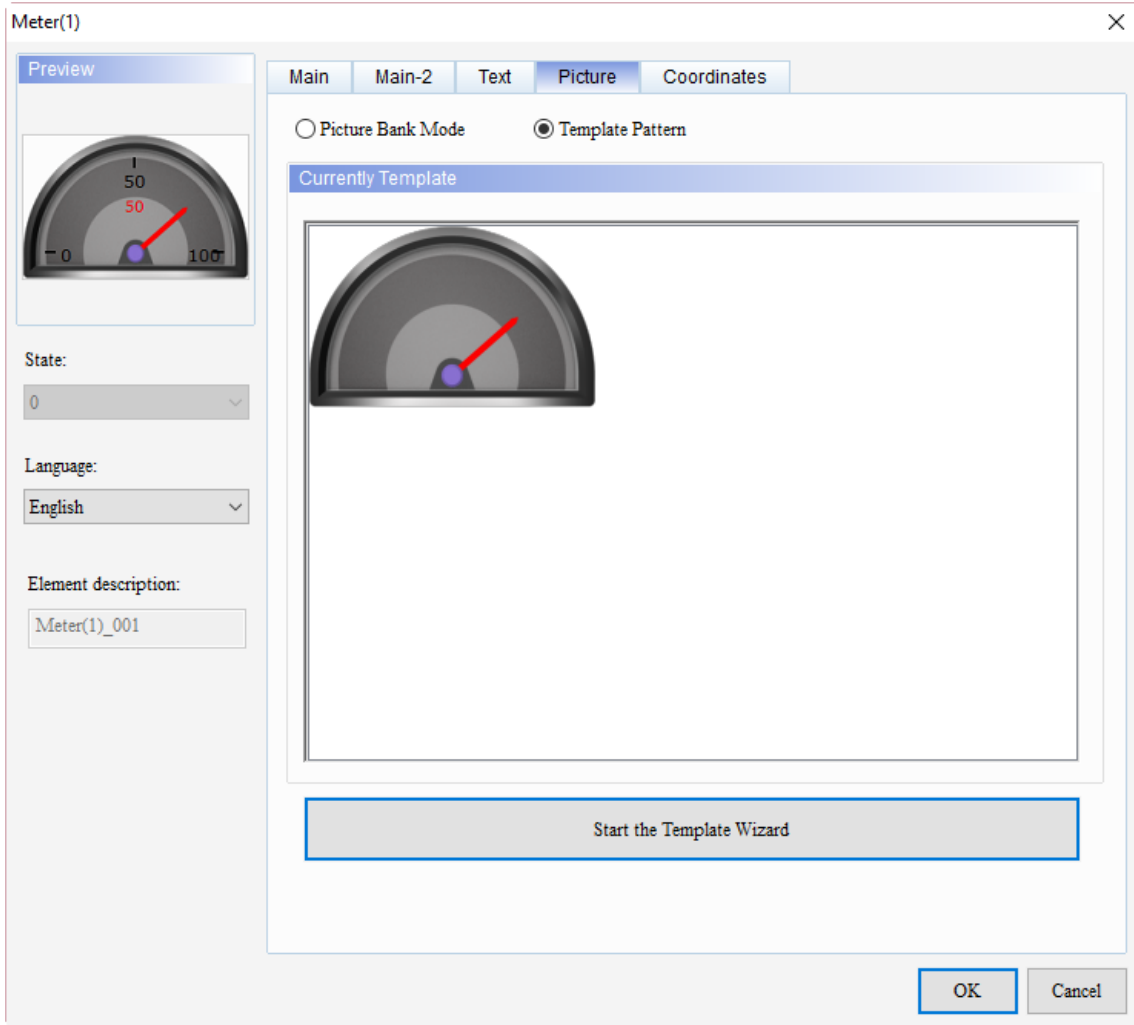


Figure 6.1.4 Text property page for the Meter elements

No.	Property	Function description
(1)	Text	<ul style="list-style-type: none"> You can enter the text to be displayed in this text box.  <ul style="list-style-type: none"> As long as the element allows text input, you can click the element on the screen and press the space key on the keyboard to start editing and entering the text.
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the text property setting results.
(3)	Edit multi-language text	If you have added multi-language text, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	<ul style="list-style-type: none"> This function batch changes all the texts into the text contents of the state you selected. Meter elements do not support multiple states, so this function is unavailable
(5)	Process text properties of all states	<ul style="list-style-type: none"> This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.  <ul style="list-style-type: none"> Meter elements do not support multiple states, so this function is unavailable.

6

Picture



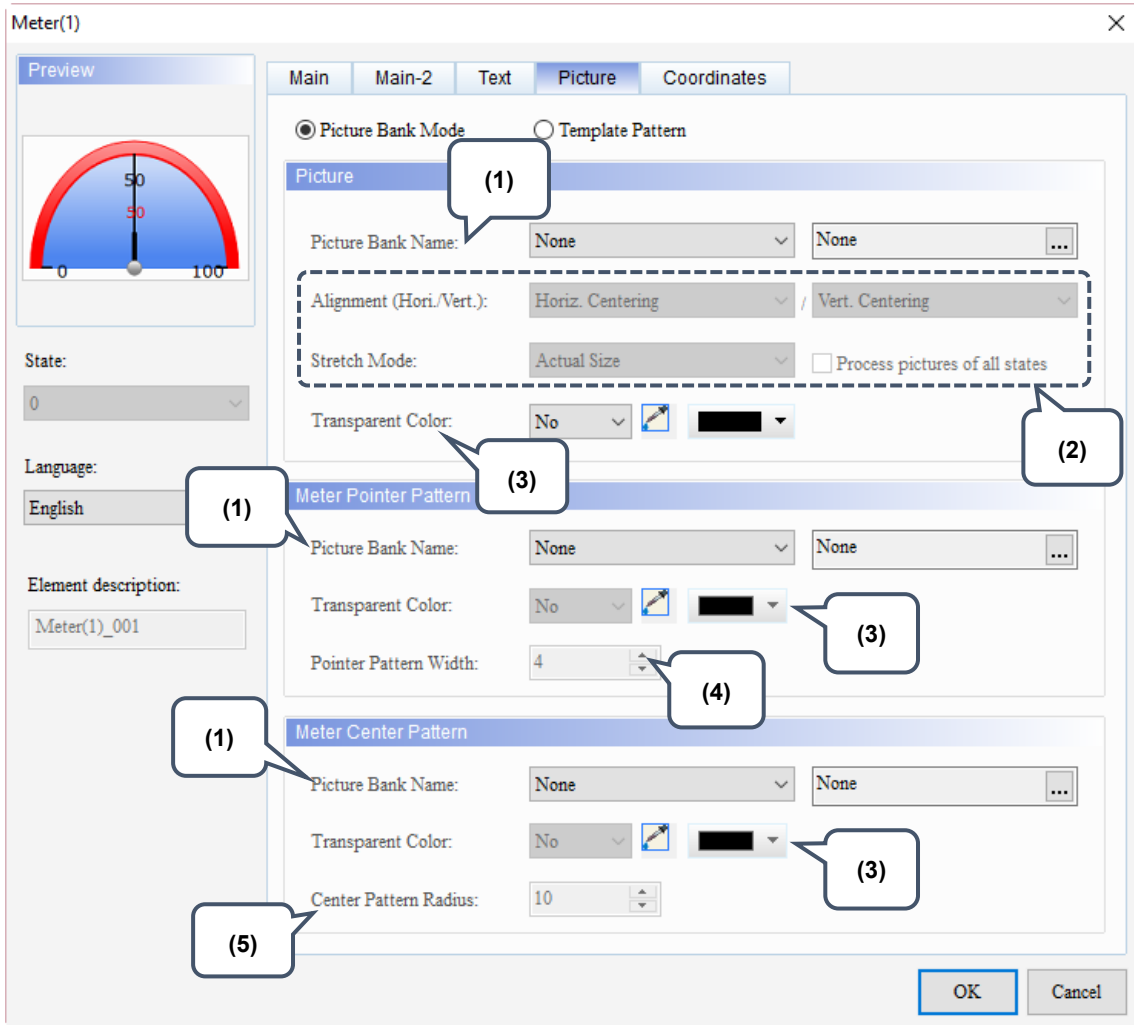


Figure 6.1.5 Picture property page for the Meter elements

The Picture page contains two modes, Template Pattern and Picture Bank Mode. When you create meter elements, the default is the Template Pattern mode, but you can select the display mode as required.

In Template Pattern mode, you can use the Template Wizard to define the meter template.

6

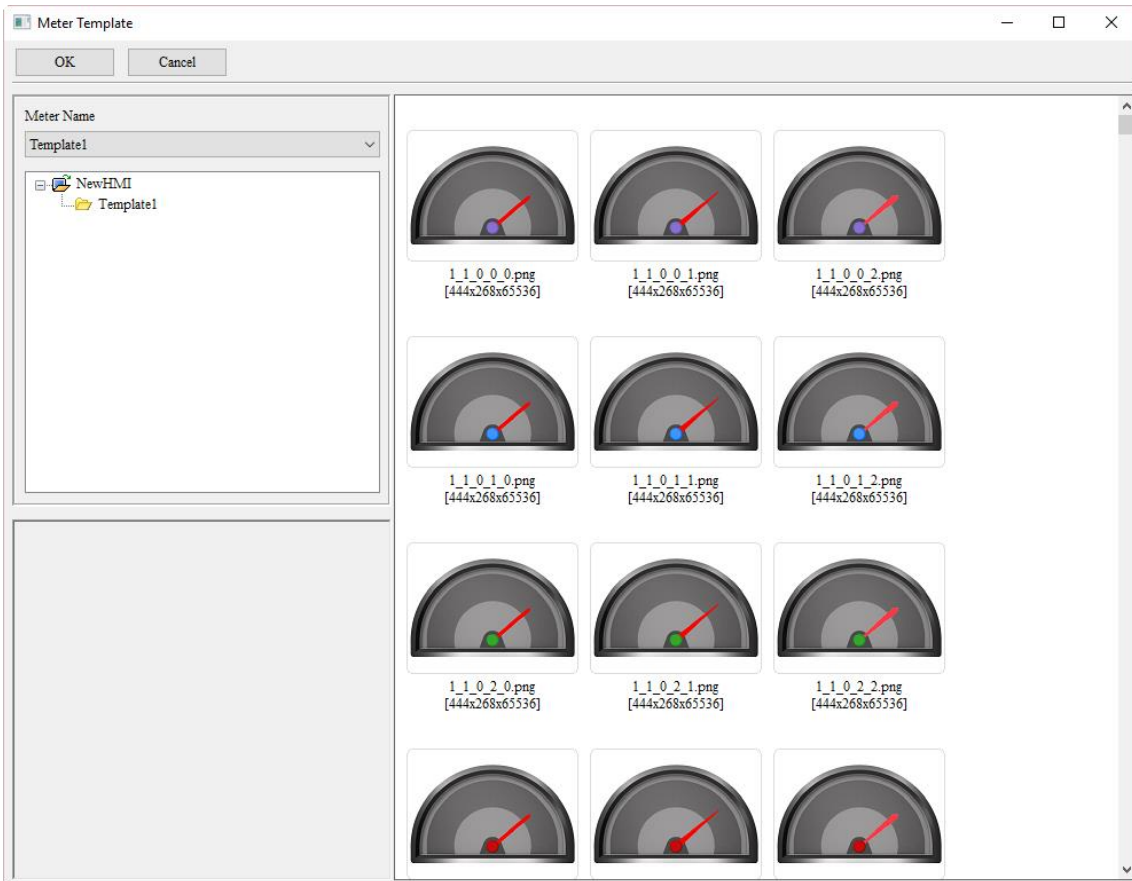
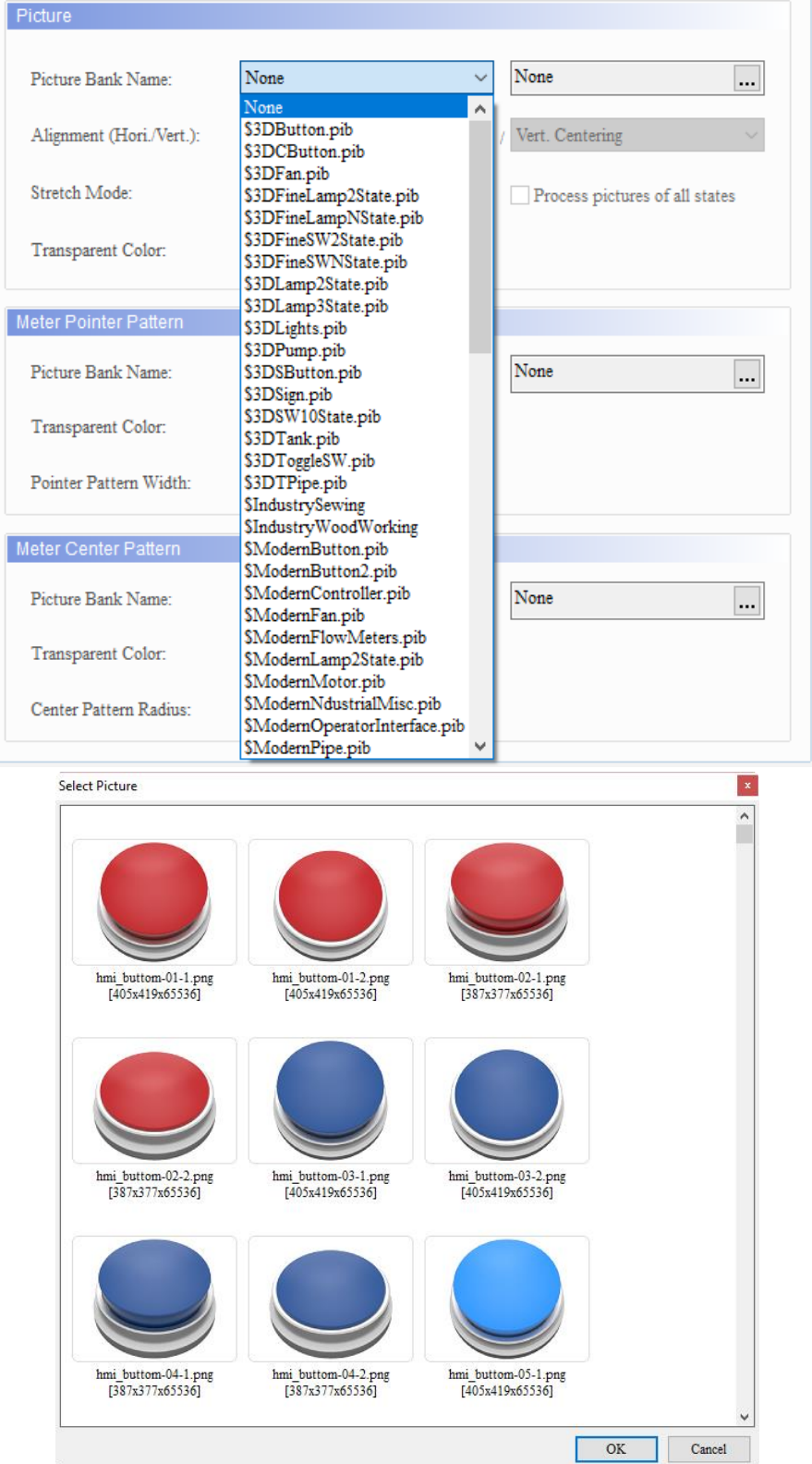
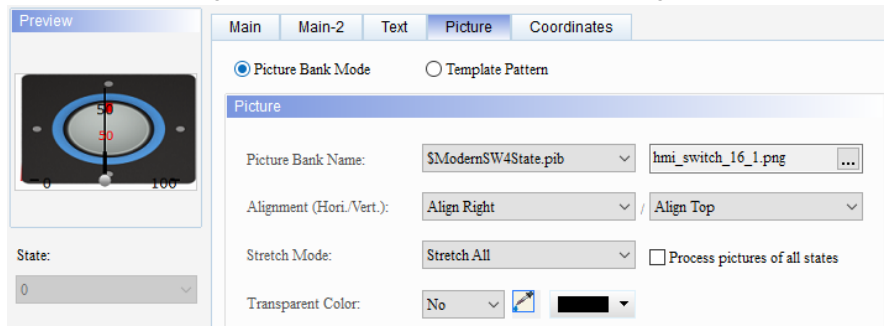

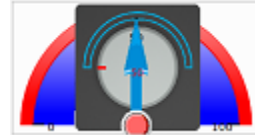
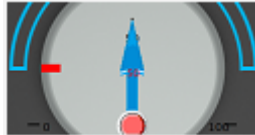

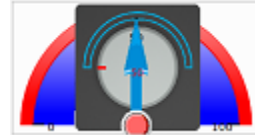
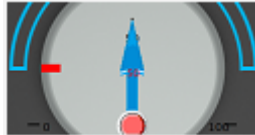

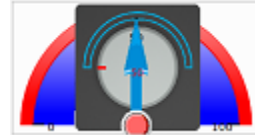
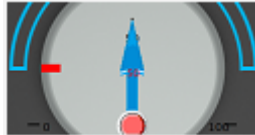





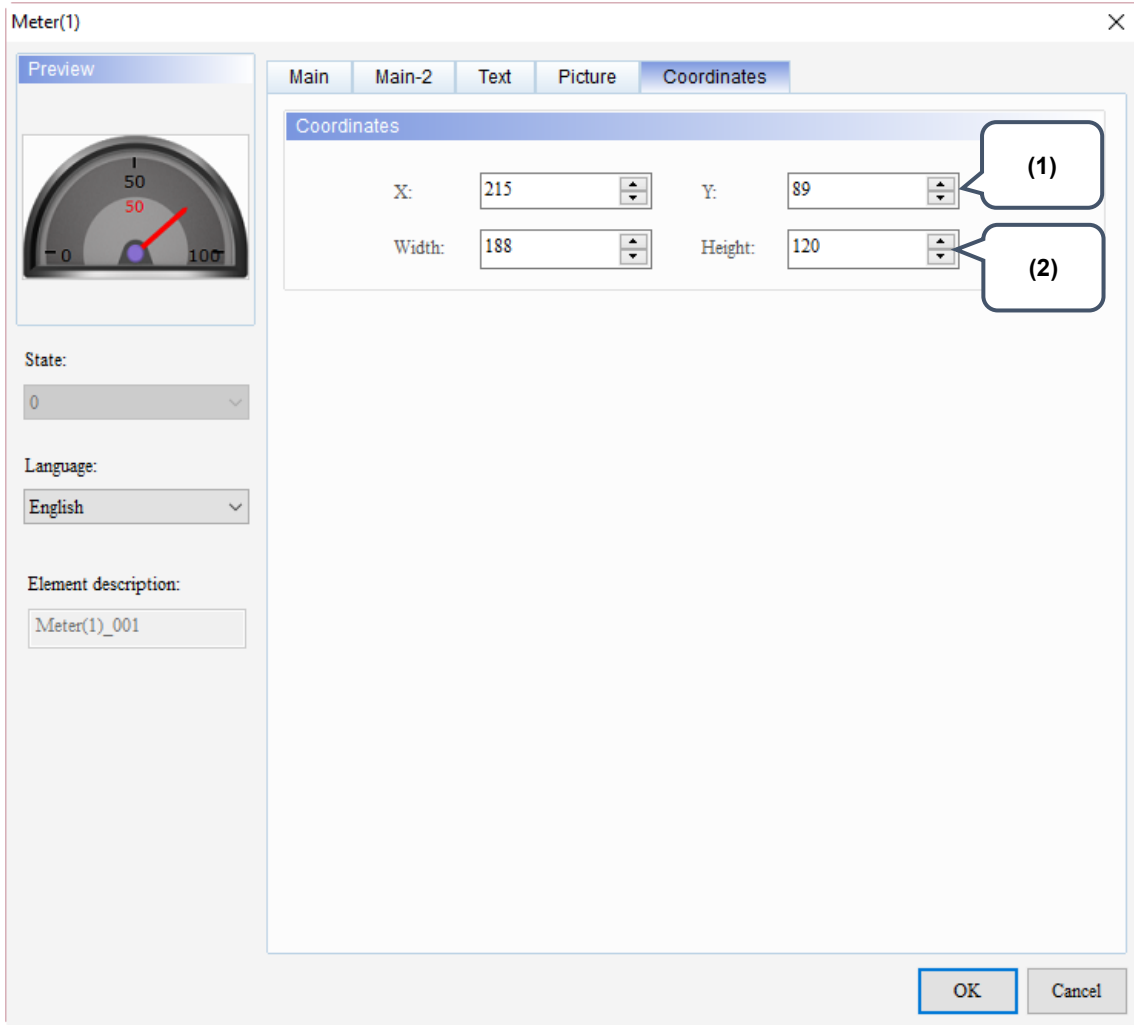
Figure 6.1.6 Meter element patterns - Template Wizard

No.	Property	Function description
(1)	Picture Bank Name	<ul style="list-style-type: none"> The default for Picture Bank Name is None. To set the picture display, use the drop-down list box to view the picture bank provided by the software and then select the desired pictures. The Meter provides patterns of meters, meter pointers, and meter centers, which you can choose from the picture bank. 

6

No.	Property	Function description									
	Alignment	<p>You can use the Alignment options to set how pictures are aligned.</p> 									
(2)	Stretch Mode	<ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> Assuming that the element has multiple states and some pictures do not fill the full element display area, if you select the check box for Process pictures of all states, you can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.			
Stretch All	Stretch 1:1	Actual Size									
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.									
											
(3)	Transparent Color	<ul style="list-style-type: none"> Specify a color in the picture and turn this color into transparent. If you select the Transparent Color icon  and click the white part on the calendar, the software changes the white part into transparent, which you can see becomes identical to the element foreground color. <p>Foreground Color: </p> 									
(4)	Pointer Pattern Width	The default is 4. The setting range is 1 - 21.									
(5)	Center Pattern Radius	The default is 10. The setting range is 1 - 53.									

■ Coordinates



6

Figure 6.1.7 Coordinates property page for the Meter elements

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

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6

Bar Chart

7

This chapter provides the usage and setting details for the Bar elements.



7.1 Normal bar 7-2
7.2 Differential bar 7-13

7.1 Normal bar

The Normal bar element displays the register values corresponding to the read addresses from minimum to maximum on the HMI. Like the case of Meter elements, you can define the memory addresses for the target value, and the upper and lower limits of the Normal bar elements, making the application more flexible and meet user requirements. You can also set the colors for the lower limit, upper limit, and target values to easily identify them with the set colors, as shown in Table 7.1.1. Refer to the following example descriptions.

Table 7.1.1 Normal bar element - identifying the upper and lower limits with colors

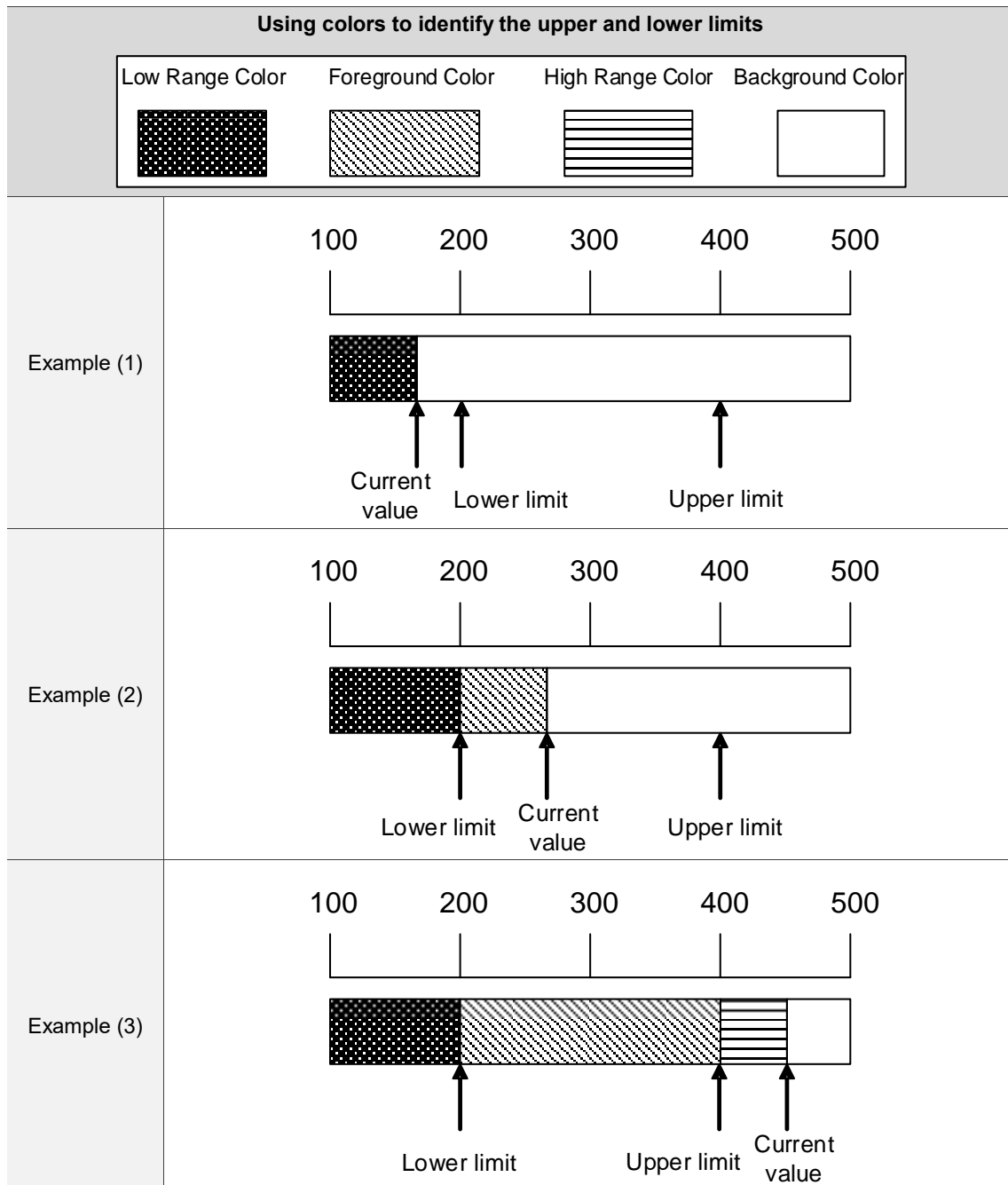

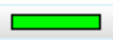
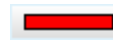
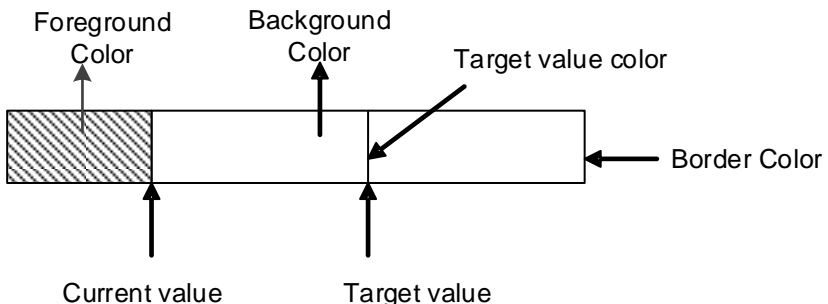

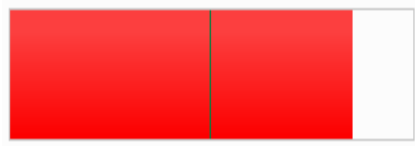


Table 7.1.2 Normal bar element example

Normal bar				
Read Address	\$1000			
Detail settings	Data Type	Data Format	Minimum	Maximum
	Word	Unsigned Decimal	0	1000
Target	Target color		Target value	
			500	
Range	Low Limit property		High Limit property	
	Low Range Color	Low Range value	High Range Color	High Range value
		300		800
Clock Macro	<pre> *&[Clock Macro] 1 \$1000 = \$1000 + 5 2 IF \$1000 > 1000 3 \$1000 = 0 4 ENDIF </pre>			
Example diagram of Normal bar element				
Execution results	<p>After editing the screen, download it to the HMI. Next, the HMI executes the program in the Clock Macro and displays the accumulation results on the Normal bar elements with the corresponding addresses.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Value < 300: displays in green</p> </div> <div style="text-align: center;">  <p>Value > 800: displays in red</p> </div> </div>			

7

When you double-click the Normal bar element, the property page is shown as follows.

7

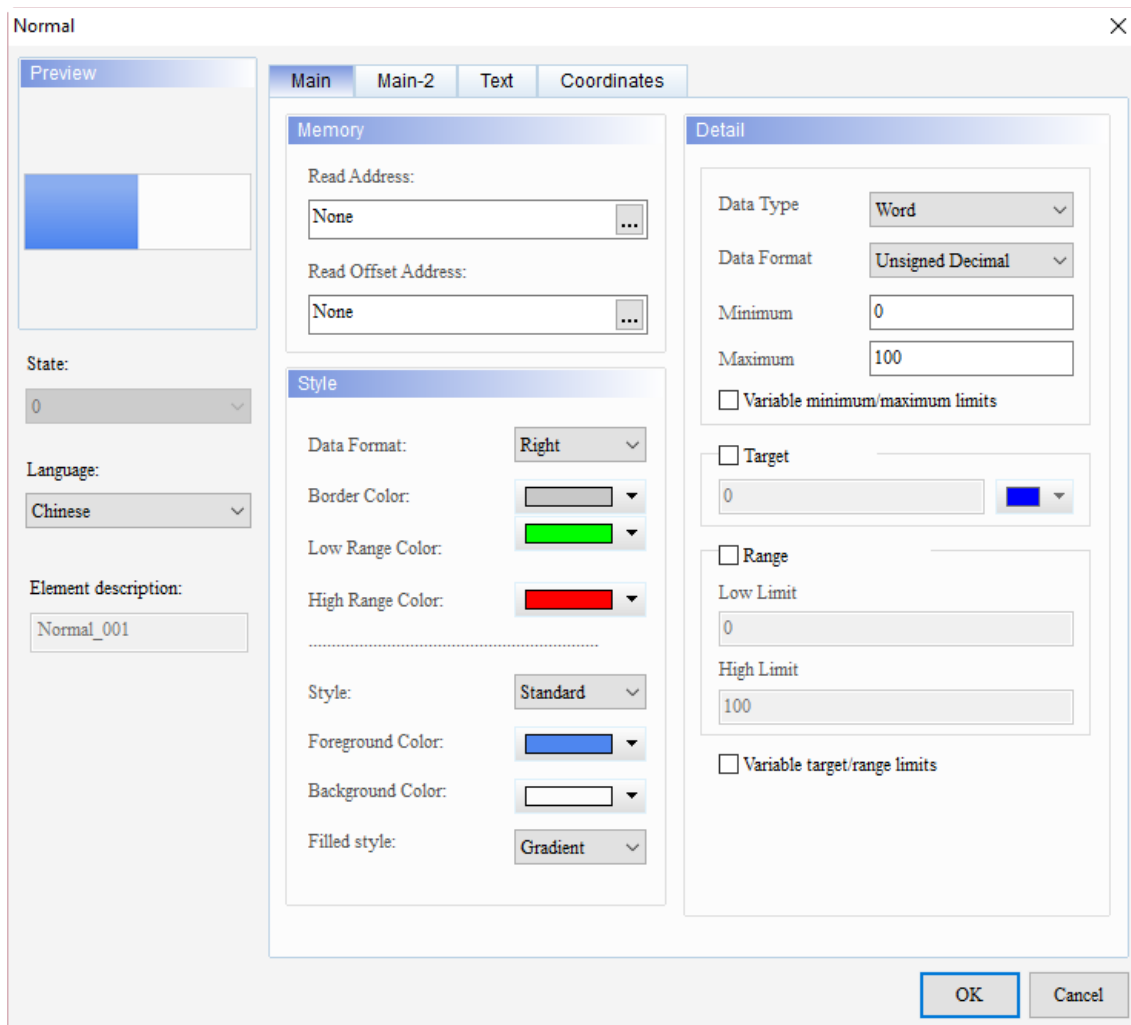
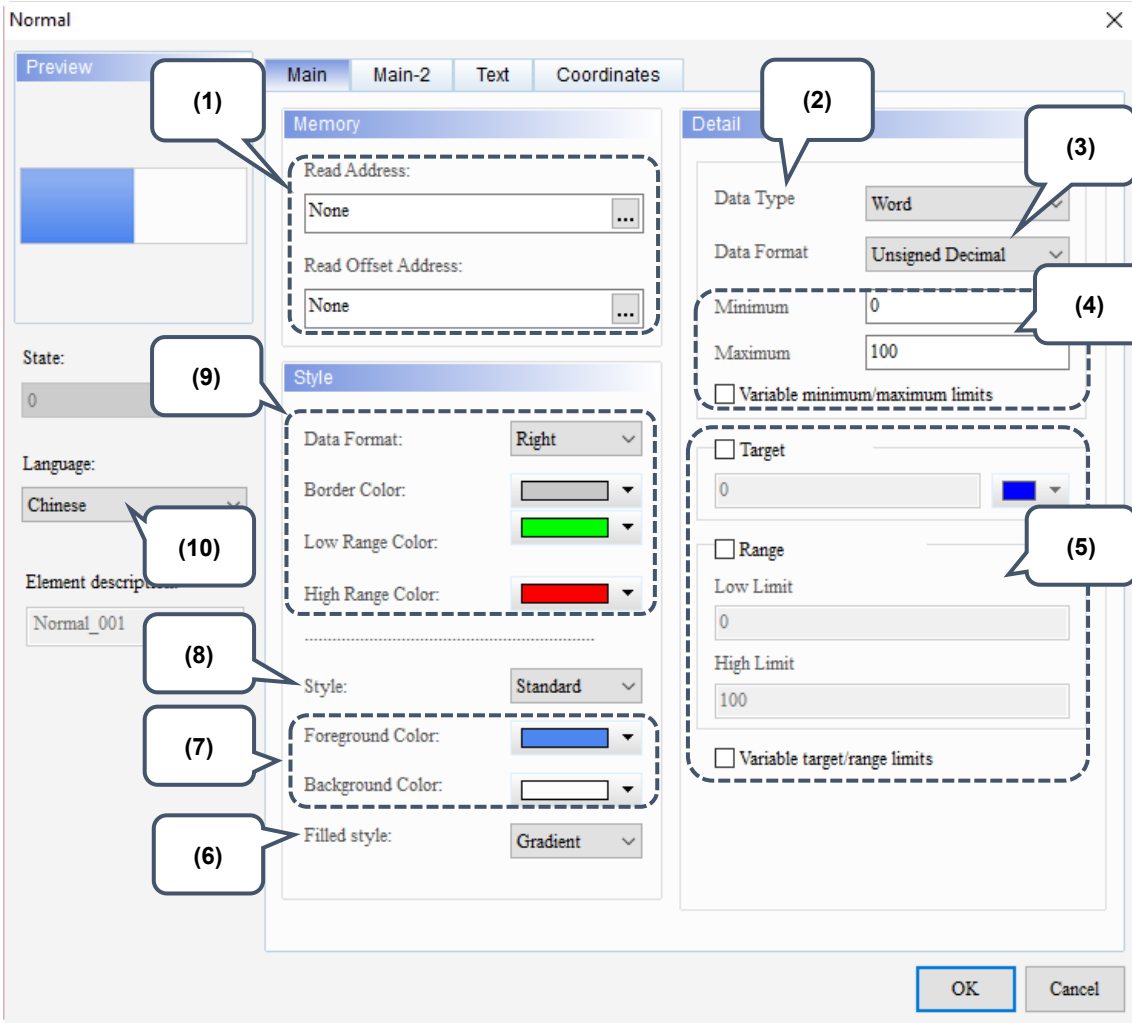


Figure 7.1.1 Properties of the Normal bar element

Table 7.1.3 Function page of Normal bar

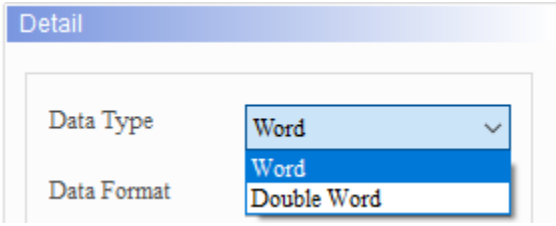
Normal bar	
Function page	Description
Preview	Normal bar elements can only view multi-language data display and do not support multiple states.
Main	<ul style="list-style-type: none"> ■ Set the Read Address, Read Offset Address, Style, Foreground Color, Background Color, and Filled style. ■ Set the Data Format, Border Color, Low Range Color, and High Range Color. ■ Set the Data Type, Data Format, and Minimum / Maximum input value of the element, and select the check box for Variable minimum/maximum limits. ■ Set whether to display the target value and select the check boxes for Range and Variable target/range limits.
Main-2	Set the Transparent, Smooth animation, Anti-aliasing, and Target Value Style.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Coordinates	Set the X and Y coordinates, width, and height of the element.

■ Main

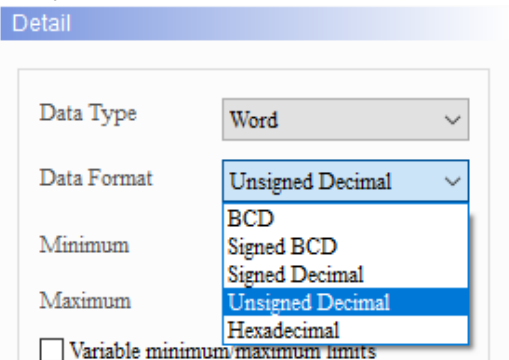
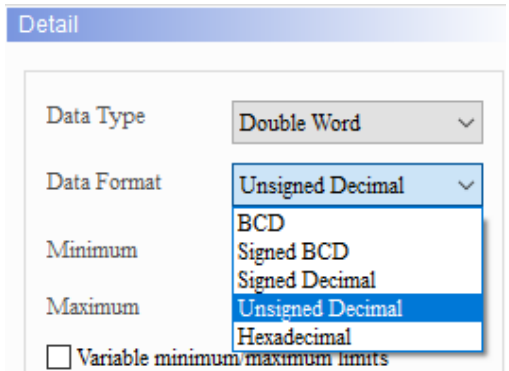
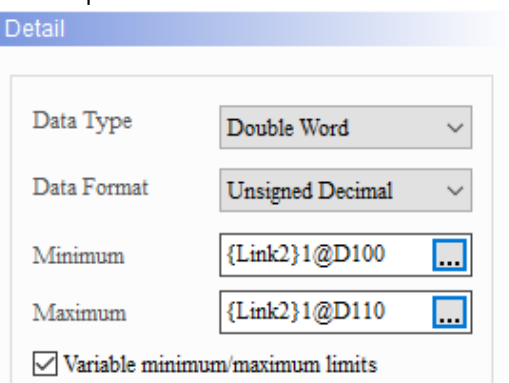


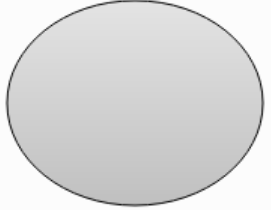
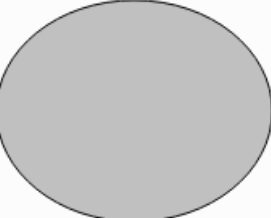
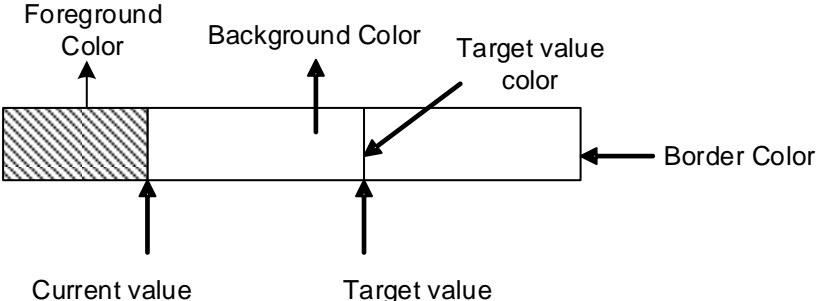









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Figure 7.1.2 Main property page for the Normal bar element



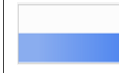



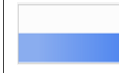



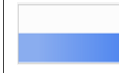

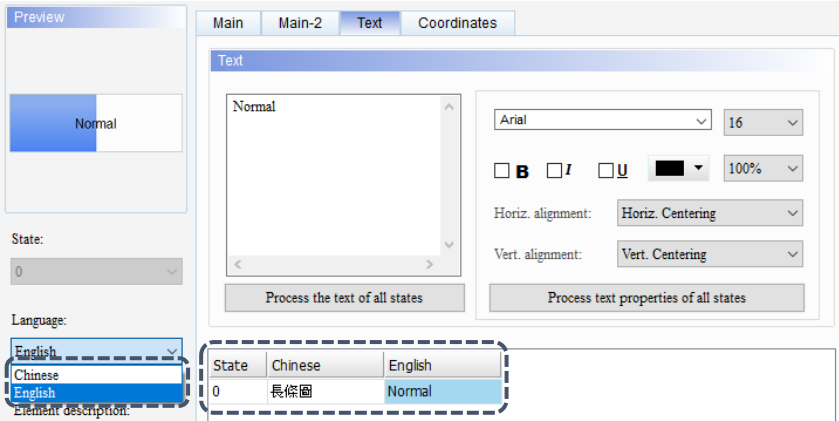
No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can select the internal memory address or the controller register address. The input memory type has to be Word. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(2)	Data Type	<p>There are two data types: Word and Double Word.</p> 

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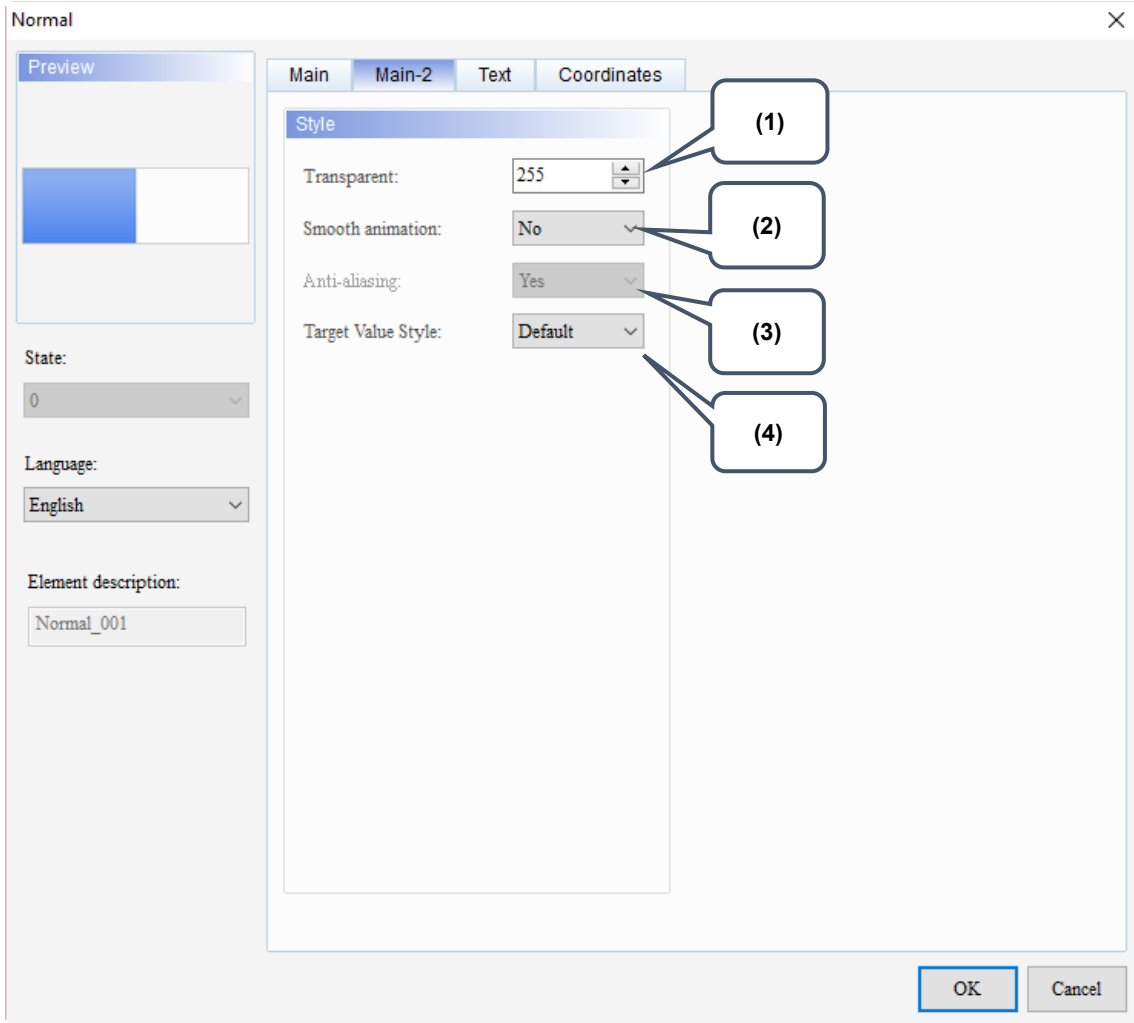
No.	Property	Function description																									
(3)	Data Format	<ul style="list-style-type: none"> When the Data Type is Word, the supported data formats are as follows:  When the Data Type is Double Word, the supported data formats are as follows:  																									
(4)	Minimum / Maximum input value	<p>The allowable ranges for the Minimum and Maximum values are subject to change based on the selected Data Type and Data Format.</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td>Hexadecimal</td> <td>0 to 0xFFFF</td> </tr> <tr> <td rowspan="5">Double Word</td> <td>BCD</td> <td>0 to 99999999</td> </tr> <tr> <td>Signed BCD</td> <td>-9999999 to +9999999</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294967295</td> </tr> <tr> <td>Hexadecimal</td> <td>0 to 0xFFFFFFFF</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hexadecimal	0 to 0xFFFF	Double Word	BCD	0 to 99999999	Signed BCD	-9999999 to +9999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294967295	Hexadecimal	0 to 0xFFFFFFFF
Data Type	Data Format	Allowable range																									
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	Signed BCD	-999 to +9999																									
	Signed Decimal	-32768 to +32767																									
	Unsigned Decimal	0 to 65535																									
	Hexadecimal	0 to 0xFFFF																									
Double Word	BCD	0 to 99999999																									
	Signed BCD	-9999999 to +9999999																									
	Signed Decimal	-2147483648 to +2147483647																									
	Unsigned Decimal	0 to 4294967295																									
	Hexadecimal	0 to 0xFFFFFFFF																									
	Variable minimum/maximum limits	<p>Select this check box to set the memory addresses for the Minimum and Maximum values. Then, write the required values to the addresses.</p> 																									

No.	Property	Function description							
(5)	Display format	Target	If the Variable target/range limits check box is not selected, you can only enter a constant value to define the displaying target value on the Normal bar. You can also specify the displaying color.						
		Range	The Range includes the lower and upper limits. Like the case of the Target display, if the Variable target/range limits check box is not selected, you can only enter constant values to define the lower and upper limits of the Normal bar.						
		Variable target/range limits	If it is selected, you can define the memory addresses to dynamically change the displaying target value, and the lower and upper limit values.						
		Integer Digits	You can set the displaying number of integer digits and the number of decimal places.						
		Fractional (Digits)							
(6)	Filled style	The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.							
		Gradient							
Fixed (Solid)									
(7)	Foreground Color and Background Color	<p>Set the element foreground and background colors.</p> 							
(8)	Style (element style)	<p>The available element styles are Standard, Raised, and Sunken. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Standard	Raised	Sunken			
Standard	Raised	Sunken							
									

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No.	Property	Function description													
(9)	Style property	<table border="1"> <tr> <td></td> <td>Left</td> <td>Right</td> <td>Top</td> <td>Bottom</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		Left	Right	Top	Bottom								
			Left	Right	Top	Bottom									
															
		Border Color	You can set the border color to be displayed.												
Low Range Color	You can set the low range color to be displayed.														
High Range Color	You can set the high range color to be displayed.														
(10)	Language	<p>When you have set the language data, you can edit the properties of the text to be displayed with the Language setting of the element.</p>  <table border="1"> <tr> <td>State</td> <td>Chinese</td> <td>English</td> </tr> <tr> <td>0</td> <td>長條圖</td> <td>Normal</td> </tr> </table>				State	Chinese	English	0	長條圖	Normal				
State	Chinese	English													
0	長條圖	Normal													

■ Main-2



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Figure 7.1.3 Main-2 property page for the Normal bar element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is available for this element. When this function is enabled, the element display becomes smoother.		
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.		
(4)	Target Value Style	There are two display styles for the target value, Default and Style 1.		
		<table border="1"> <tr> <td>Default</td> <td></td> </tr> <tr> <td>Style 1</td> <td></td> </tr> </table>	Default	
Default				
Style 1				

■ Text

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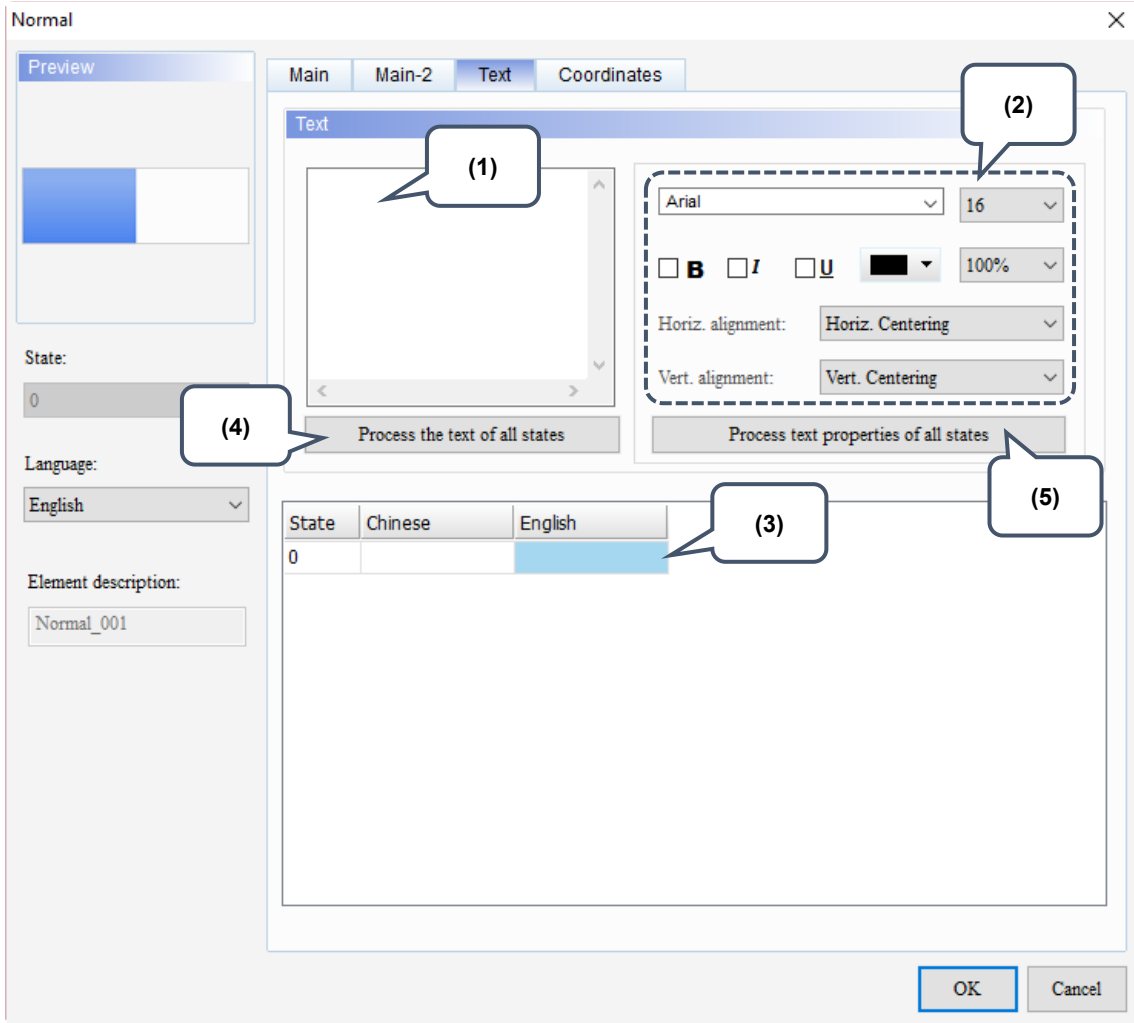
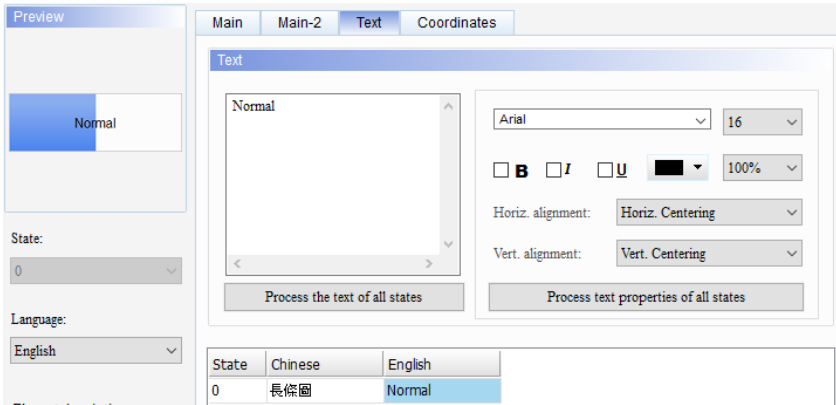
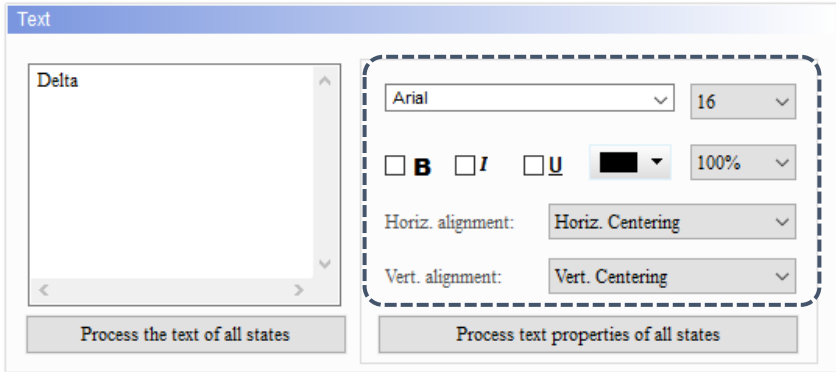


Figure 7.1.4 Text property page for the Normal bar element

No.	Property	Function description
(1)	Text	<ul style="list-style-type: none"> You can enter the text to display in this box.  <ul style="list-style-type: none"> As long as the element allows text input, you can click the element on the screen and press the space key to start editing and entering the text.
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the figure above for the Text property setting results.
(3)	Edit multi-language text	If you have added multi-language data, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	<ul style="list-style-type: none"> This function batch changes all the texts into the text contents of the state you selected. Normal bar elements do not support multiple states, so this function is unavailable.
(5)	Process text properties of all states	<ul style="list-style-type: none"> This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.  <ul style="list-style-type: none"> Normal bar elements do not support multiple states, so this function is not available.

■ Coordinates

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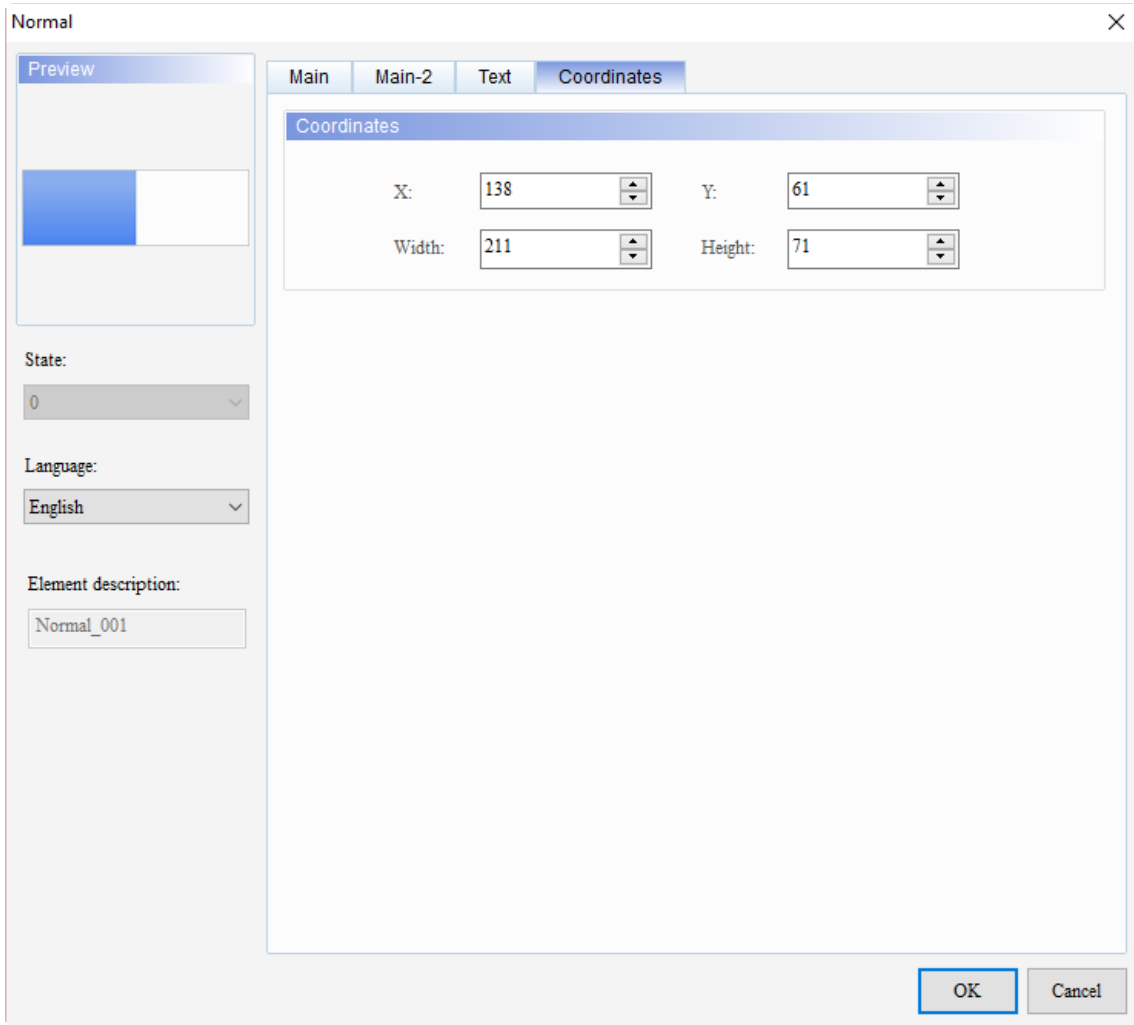


Figure 7.1.5 Coordinates property page for the Normal bar element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

7.2 Differential bar

The Differential bar displays the deviation between the value of the read address and the set target value on the HMI. Like the case of Normal bar elements, you can define the memory addresses for the target value, and the upper and lower limits of the Differential bar elements, making the application more flexible and meet user requirements, as shown in Table 7.2.1.

Table 7.2.1 Differential bar element - identifying the upper and lower limits with colors

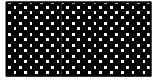
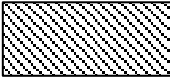
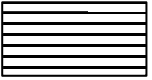
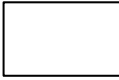
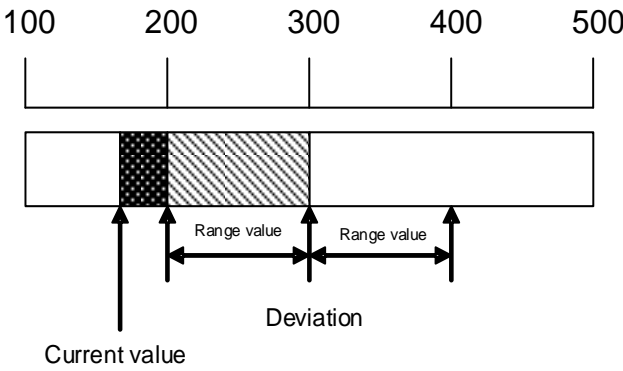
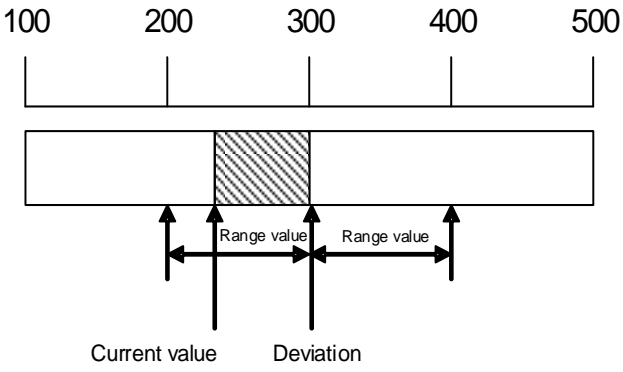
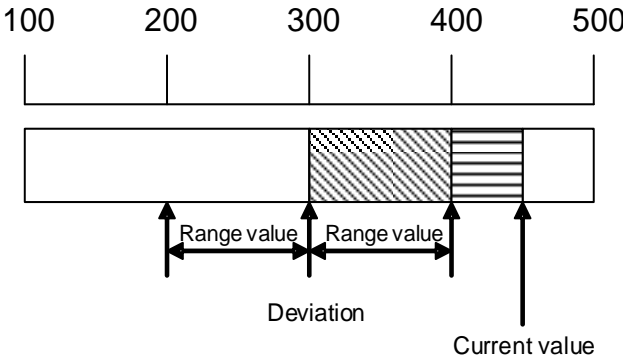


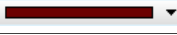



Using colors to identify the upper and lower limits			
Low Range Color	Foreground Color	High Range Color	Background Color
			
Example (1)			
Example (2)			
Example (3)			

Table 7.2.2 Differential bar element example

Differential bar				
Read Address	Differential bar element		Numeric Entry element	
	Read Address	\$444	Write Address	\$444
				
Detail settings	Data Type	Data Format	Minimum	Maximum
	Word	Unsigned Decimal	0	100
Display Deviation	Deviation color		Deviation value	Target value
			25	50
Example diagram of Differential bar element				
	<p>Compile and download the edited screen to the HMI. Then, enter the deviation value to the Numeric Entry element, and the Differential bar displays the deviation according to the input value.</p>			
Execution results	<p>When the value is within the range of ± 25, it displays in deep red.</p>			
	<p>When the value is out of the range of ± 25, it displays in the foreground color.</p>			

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When you double-click the Differential bar element, the property page is shown as follows.

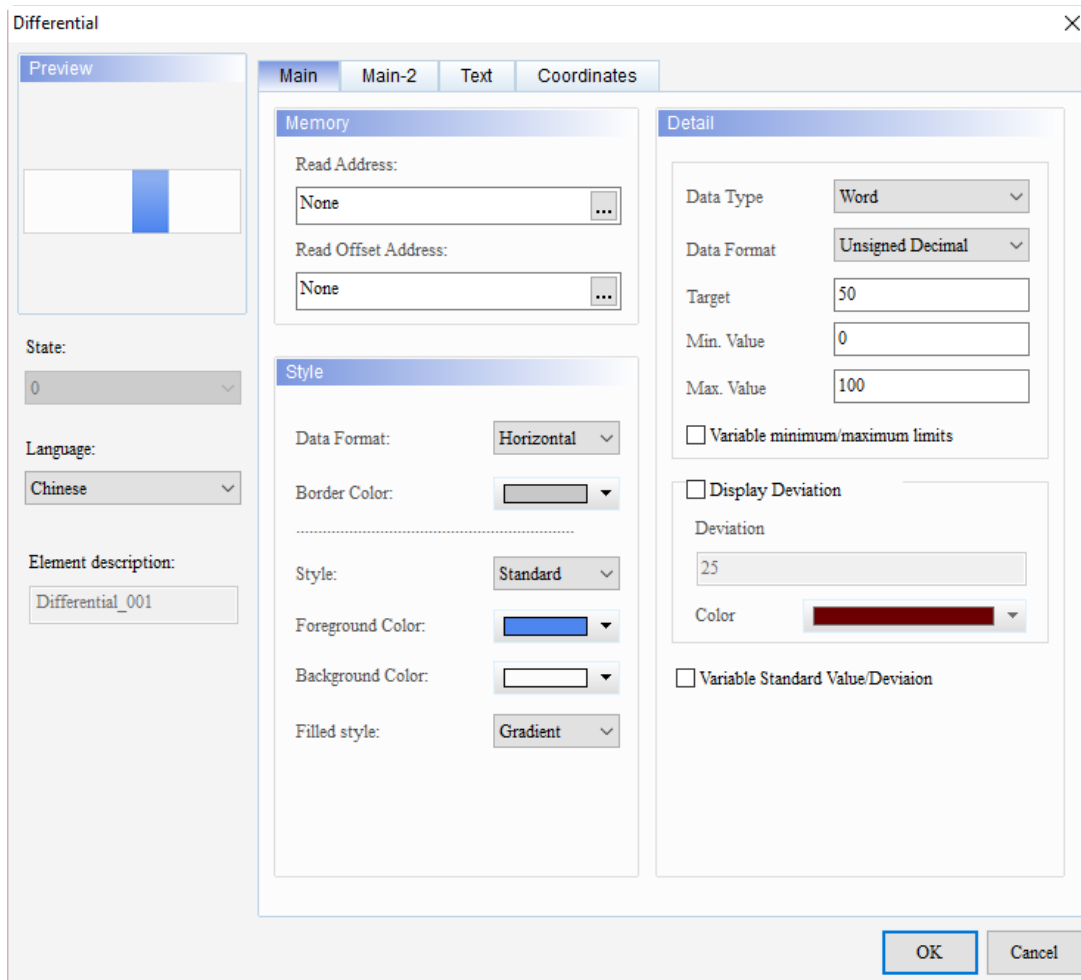


Figure 7.2.1 Properties of the Differential bar element

Table 7.2.3 Function page of Differential bar

Differential bar	
Function page	Description
Preview	Differential bar elements can only view multi-language data display and do not support multiple states.
Main	<ul style="list-style-type: none"> ■ Set the Read Address, Read Offset Address, Style, Foreground Color, Background Color, and Filled style. ■ Set the Data Format and Border Color. ■ Set the Data Type, Data Format, Target value, Minimum / Maximum input value of the element, and select the check box for Variable minimum/maximum limits. ■ Set whether to display the deviation value and its color, and select the check box for Variable Standard Value/Deviaion.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Coordinates	Set the X and Y coordinates, width, and height of the button element.

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■ Main

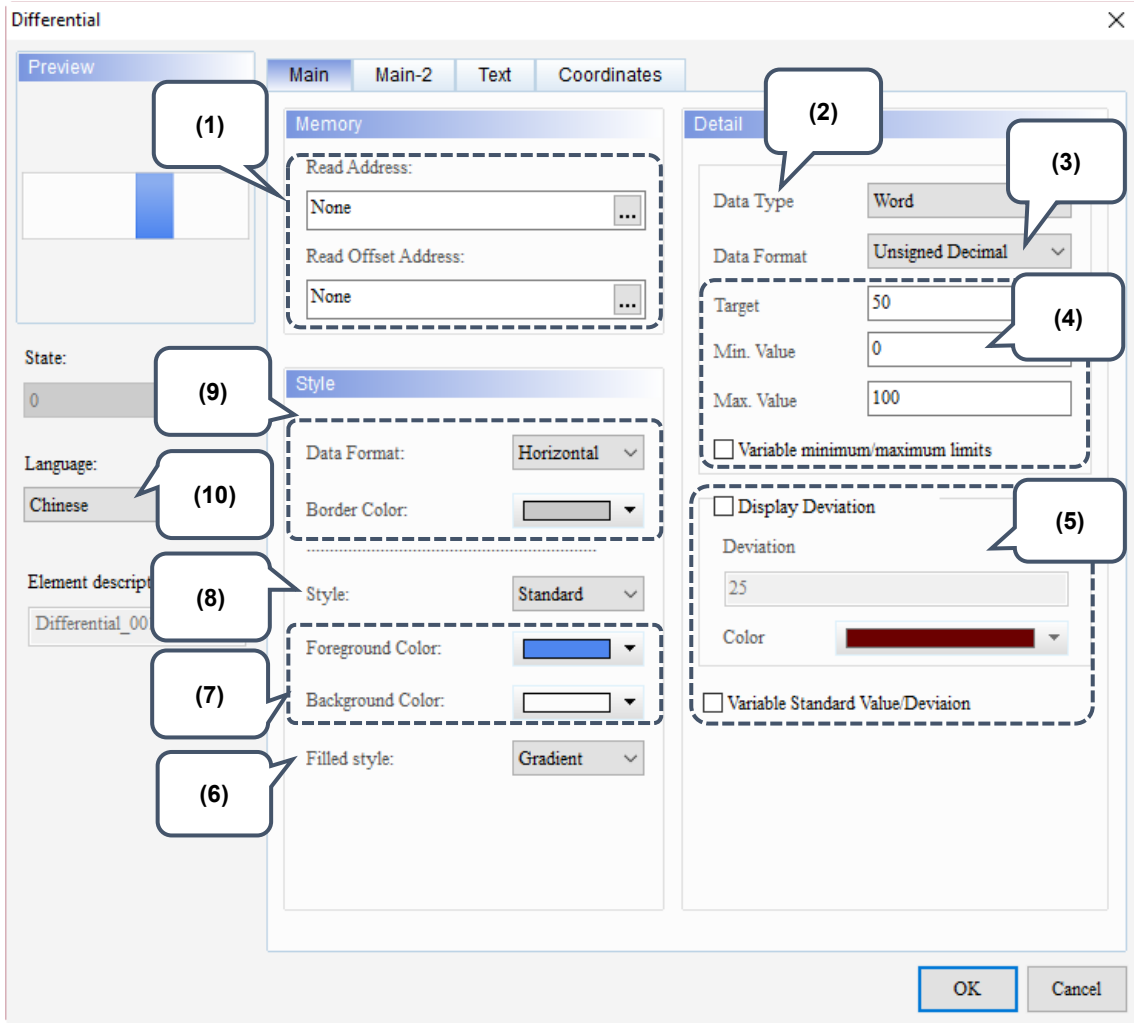
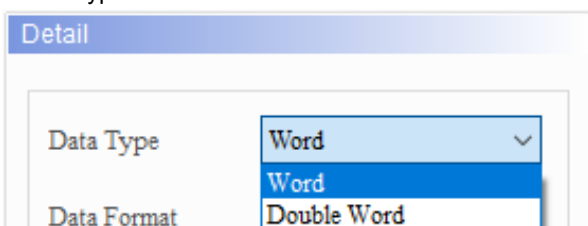
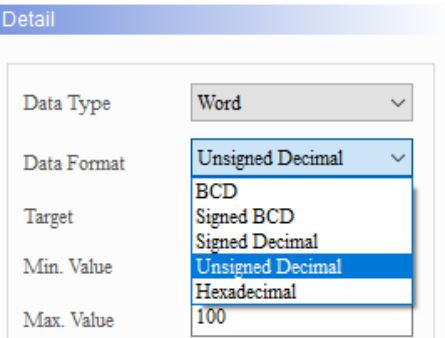
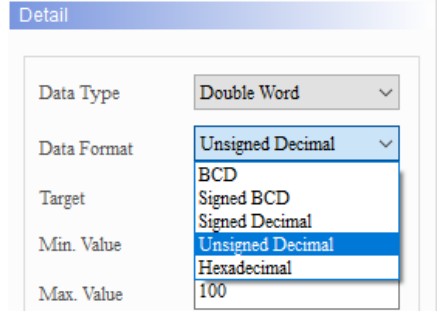
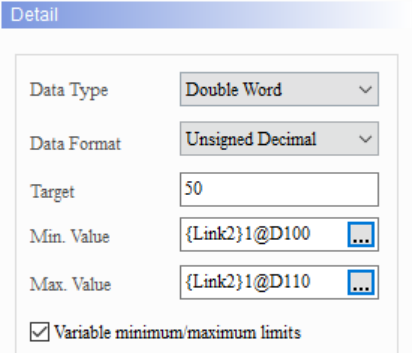
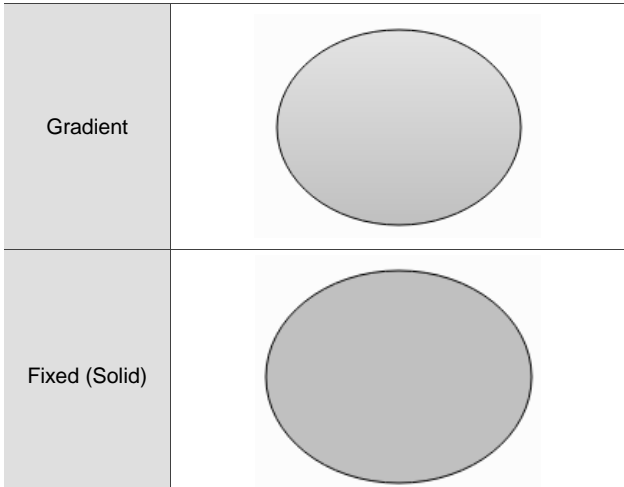
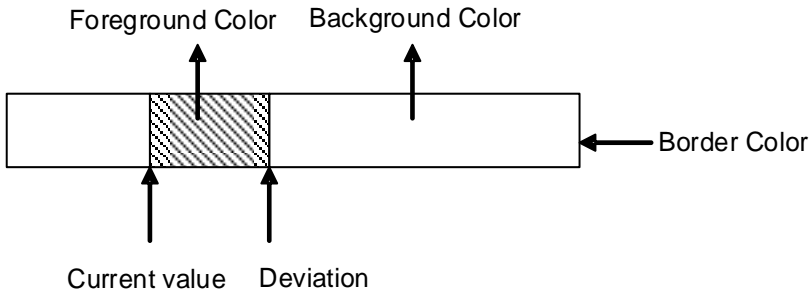
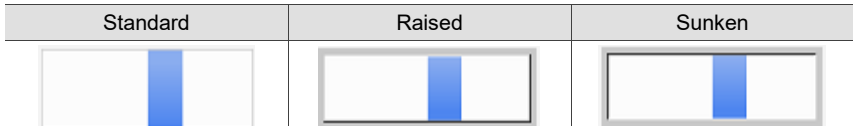
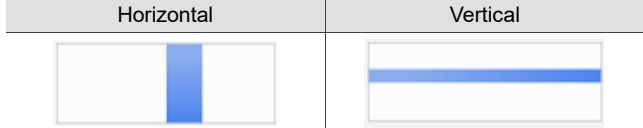
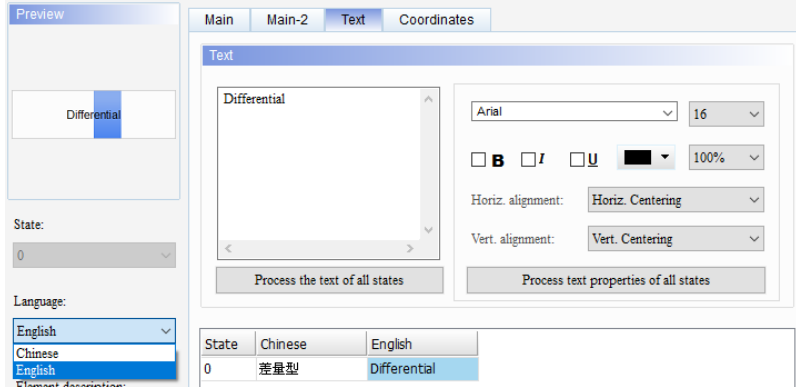


Figure 7.2.2 Main property page for the Differential bar element

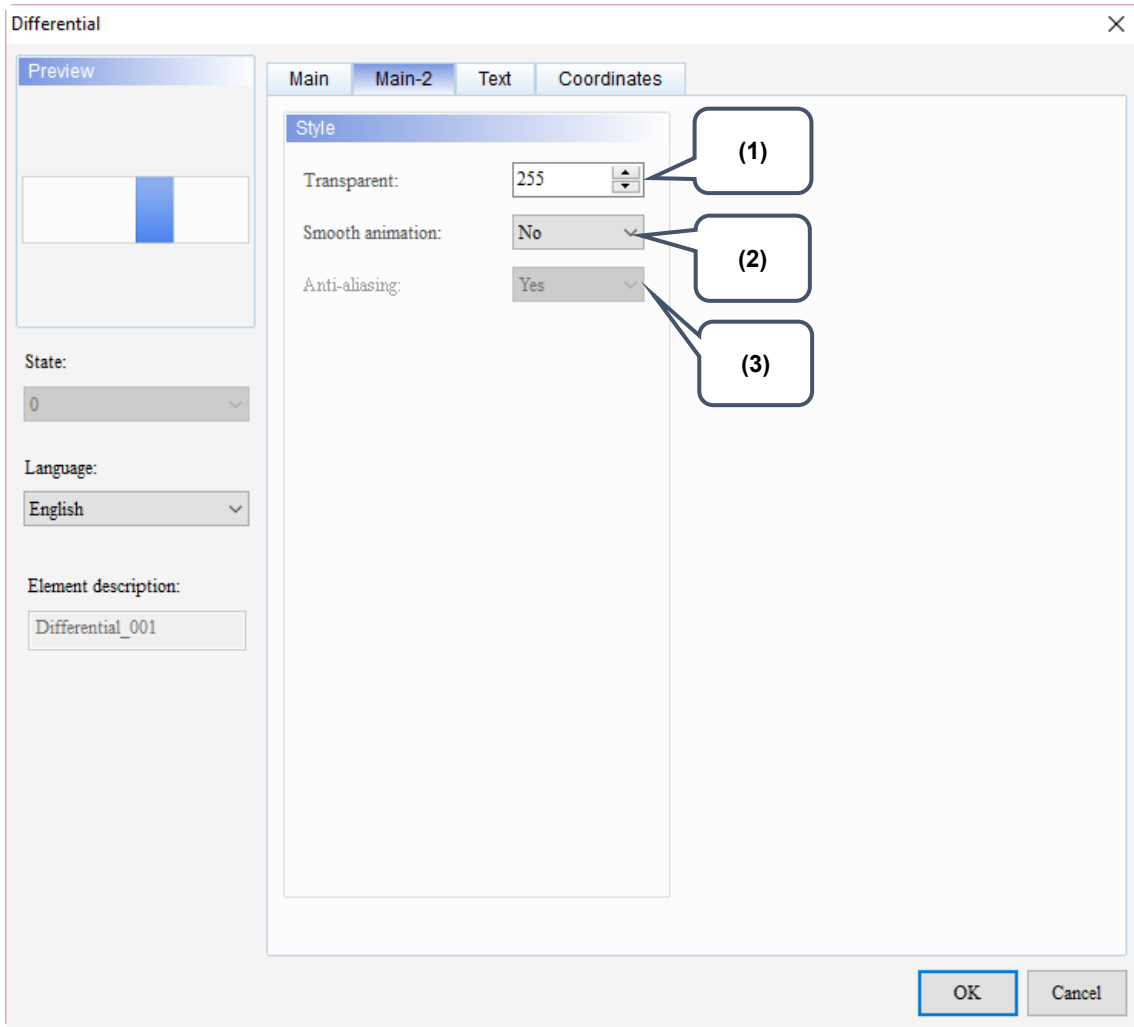
No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can choose internal memory address or controller register address. The input memory type has to be Word. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(2)	Data Type	<p>There are two data types: Word and Double Word.</p> 

No.	Property	Function description																							
(3)	Data Format	<ul style="list-style-type: none"> When the Data Type is Word, the supported data formats are as follows:  When the Data Type is Double Word, the supported data formats are as follows:  																							
(4)	Minimum / Maximum input value	<p>The allowable ranges for the Minimum and Maximum values are subject to change based on the selected Data Type and Data Format.</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-3278 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td rowspan="4">Double Word</td> <td>BCD</td> <td>0 to 99999999</td> </tr> <tr> <td>Signed BCD</td> <td>-9999999 to +9999999</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294697295</td> </tr> <tr> <td>Hexadecimal</td> <td>0 to 0xFFFFFFFF</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-3278 to +32767	Unsigned Decimal	0 to 65535	Double Word	BCD	0 to 99999999	Signed BCD	-9999999 to +9999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294697295	Hexadecimal	0 to 0xFFFFFFFF
Data Type	Data Format	Allowable range																							
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	Signed Decimal	-2147483648 to +2147483647																							
	Unsigned Decimal	0 to 4294697295																							
Hexadecimal	0 to 0xFFFFFFFF																								
	Variable minimum/ maximum limits	<p>Select this check box to set the addresses for the Minimum and Maximum values. Then, write the required values to the addresses.</p> 																							
(5)	Display Deviation	<table border="1"> <tr> <td>Deviation</td> <td>If the Variable Standard Value/Deviation check box is not selected, you can only input a constant value to define the deviation value of the Differential bar element. You can also set the displaying color of the deviation which lies within the range.</td> </tr> <tr> <td>Variable Standard Value/Deviation</td> <td>If it is selected, you can define the memory addresses to dynamically change the displaying target value and deviation value.</td> </tr> </table>	Deviation	If the Variable Standard Value/Deviation check box is not selected, you can only input a constant value to define the deviation value of the Differential bar element. You can also set the displaying color of the deviation which lies within the range.	Variable Standard Value/Deviation	If it is selected, you can define the memory addresses to dynamically change the displaying target value and deviation value.																			
Deviation	If the Variable Standard Value/Deviation check box is not selected, you can only input a constant value to define the deviation value of the Differential bar element. You can also set the displaying color of the deviation which lies within the range.																								
Variable Standard Value/Deviation	If it is selected, you can define the memory addresses to dynamically change the displaying target value and deviation value.																								

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No.	Property	Function description						
(6)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> 						
(7)	Foreground Color and Background Color	<p>Set the element foreground and background colors.</p> 						
(8)	Style (element style)	<p>The available element styles are Standard, Raised, and Sunken. You can change the appearance of the element with this setting.</p> 						
(9)	Style property	<p>Data format</p>  <p>Border Color You can set the border color to be displayed.</p>						
(10)	Language	<p>When you have set the language data, you can edit the properties of the text to be displayed with the Language setting of the element.</p>  <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>差量型</td> <td>Differential</td> </tr> </tbody> </table>	State	Chinese	English	0	差量型	Differential
State	Chinese	English						
0	差量型	Differential						

■ Main-2



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Figure 7.2.3 Main-2 property page for the Differential bar element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is available for this element. When this function is enabled, the element display becomes smoother.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

7

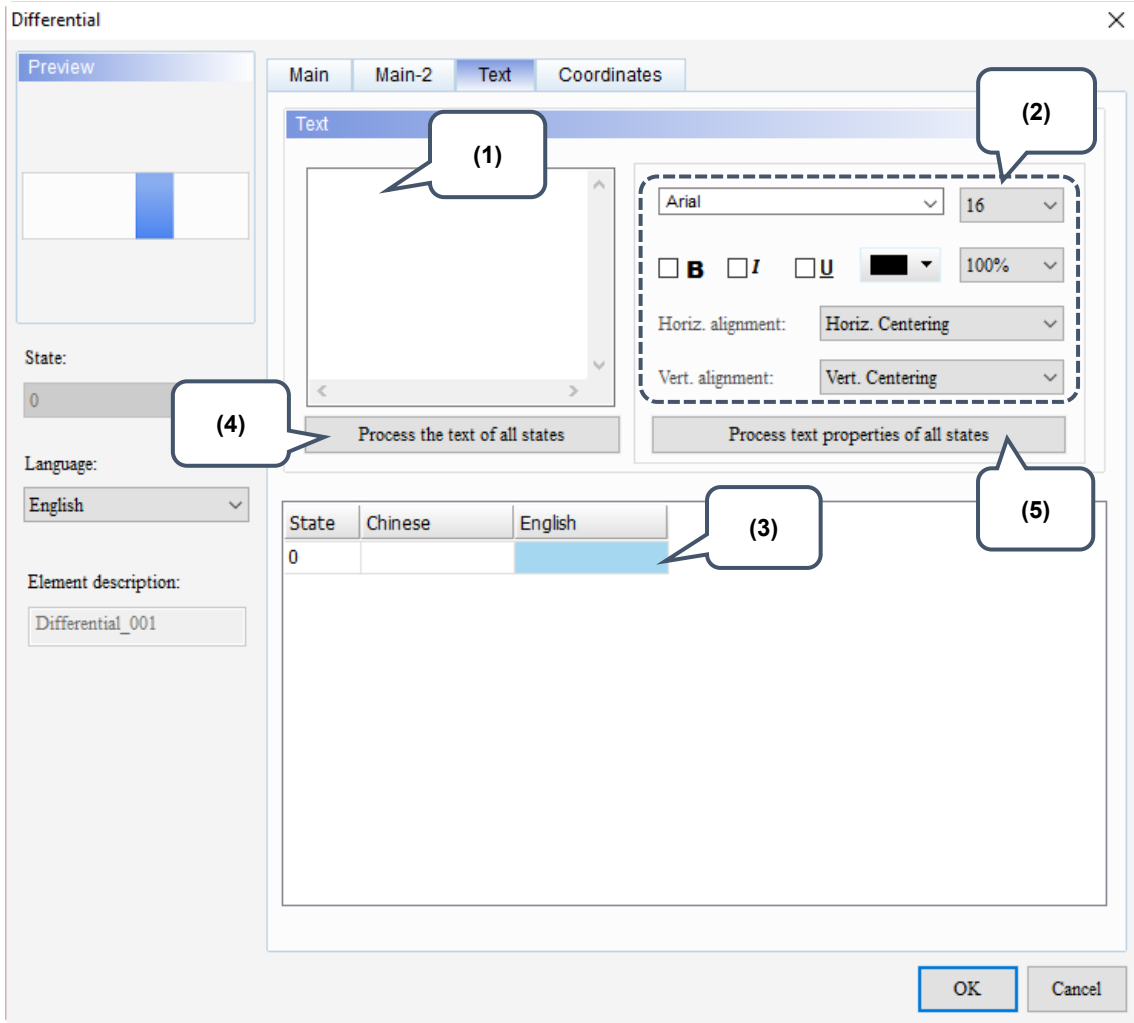
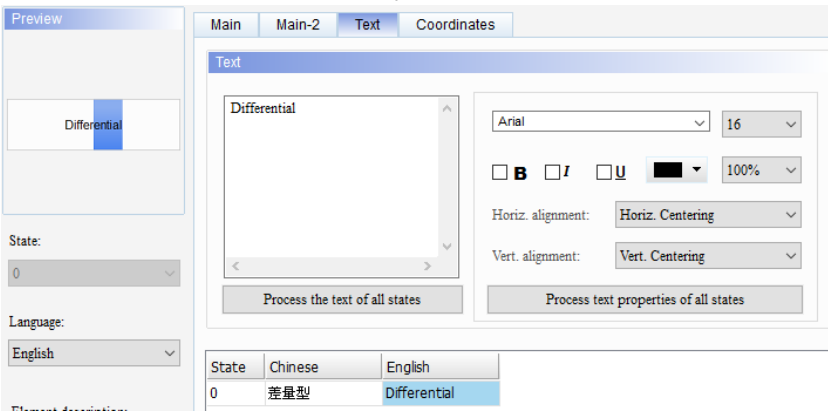
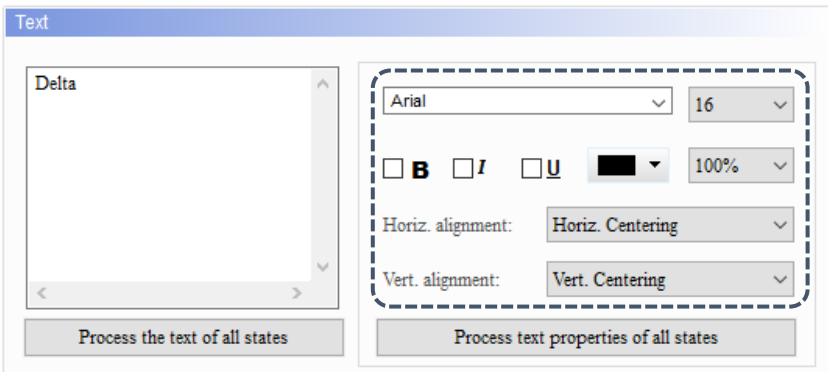


Figure 7.2.4 Text property page for the Differential bar element

No.	Property	Function description
(1)	Text	<p>■ You can enter the text to display in this box.</p>  <p>■ As long as the element allows text input, you can click the element on the screen and press the space key to start editing and entering the text.</p>
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the figure above for the Text property setting results.
(3)	Edit multi-language text	If you have added multi-language data, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	<p>■ This function batch changes all the texts into the text contents of the state you selected.</p> <p>■ Differential bar elements do not support multiple states, so this function is unavailable.</p>
(5)	Process text properties of all states	<p>■ This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p>  <p>■ Differential bar elements do not support multiple states, so this function is unavailable.</p>

Coordinates

7

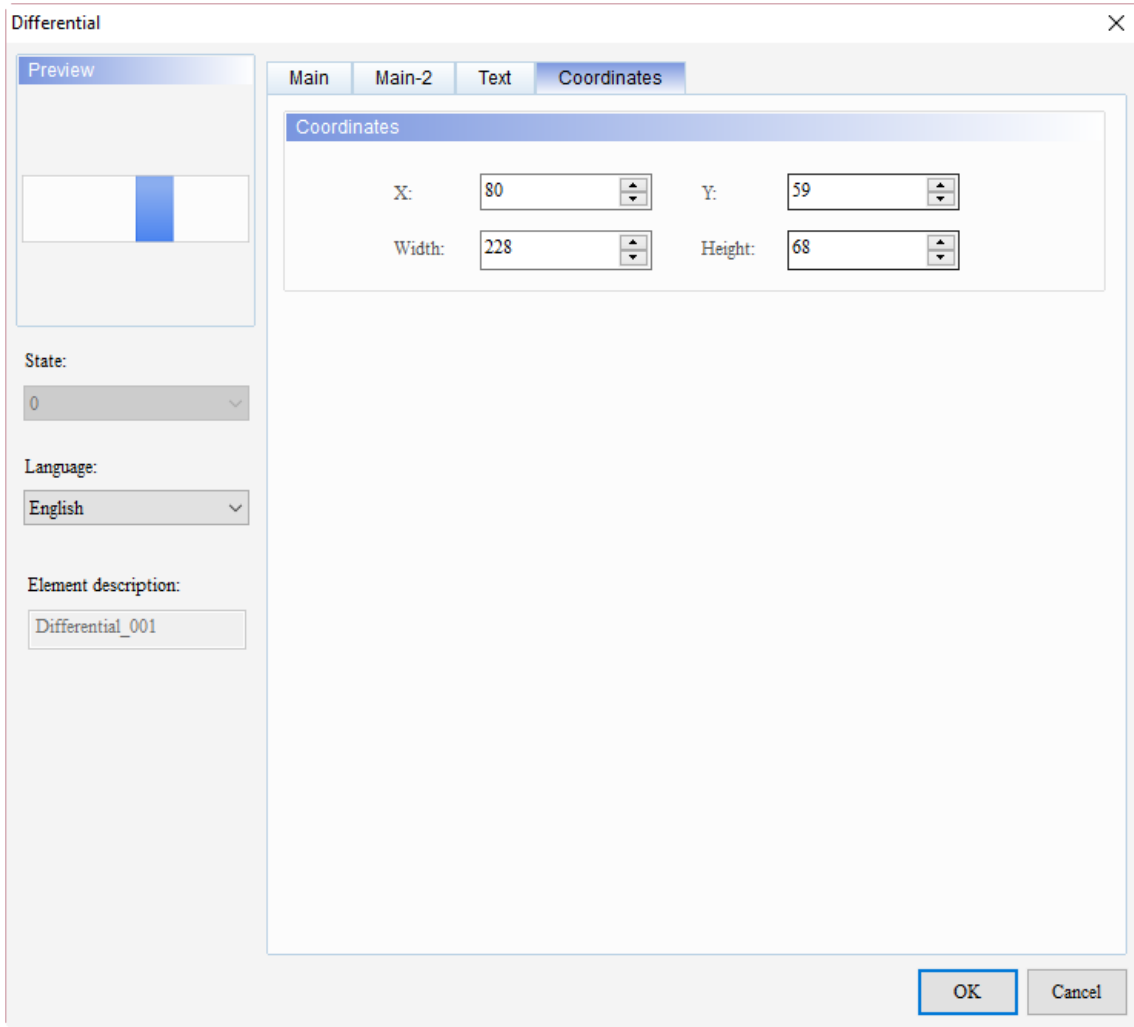


Figure 7.2.5 Coordinates property page for the Differential bar element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

Pipe Chart

This chapter provides the usage and setting details for the Pipe elements.

8.1	Pipe(1) / Pipe(2)	8-2
8.2	Pipe(3) / Pipe(4) / Pipe(5)	8-14
8.3	Pipe(6) / Pipe(7)	8-19

8

8.1 Pipe(1) / Pipe(2)

Pipe(1) and Pipe(2) differ in shapes but are the same in functions. The introduction of Pipe(1) is as follows. The software displays the Target value, lower limit, and upper limit set in the register corresponding to the read address on the Pipe element . Like the case of the Bar elements, you can define the memory addresses for the target value, lower and upper limits of the Pipe(1) element, making the application more flexible and meet user requirements, as shown in Table 8.1.1. You can set different colors for the lower limit, upper limit, and target value so users can easily identify them with the set colors.

Table 8.1.1 Pipe(1) / Pipe(2) elements - identifying the upper and lower limits with colors

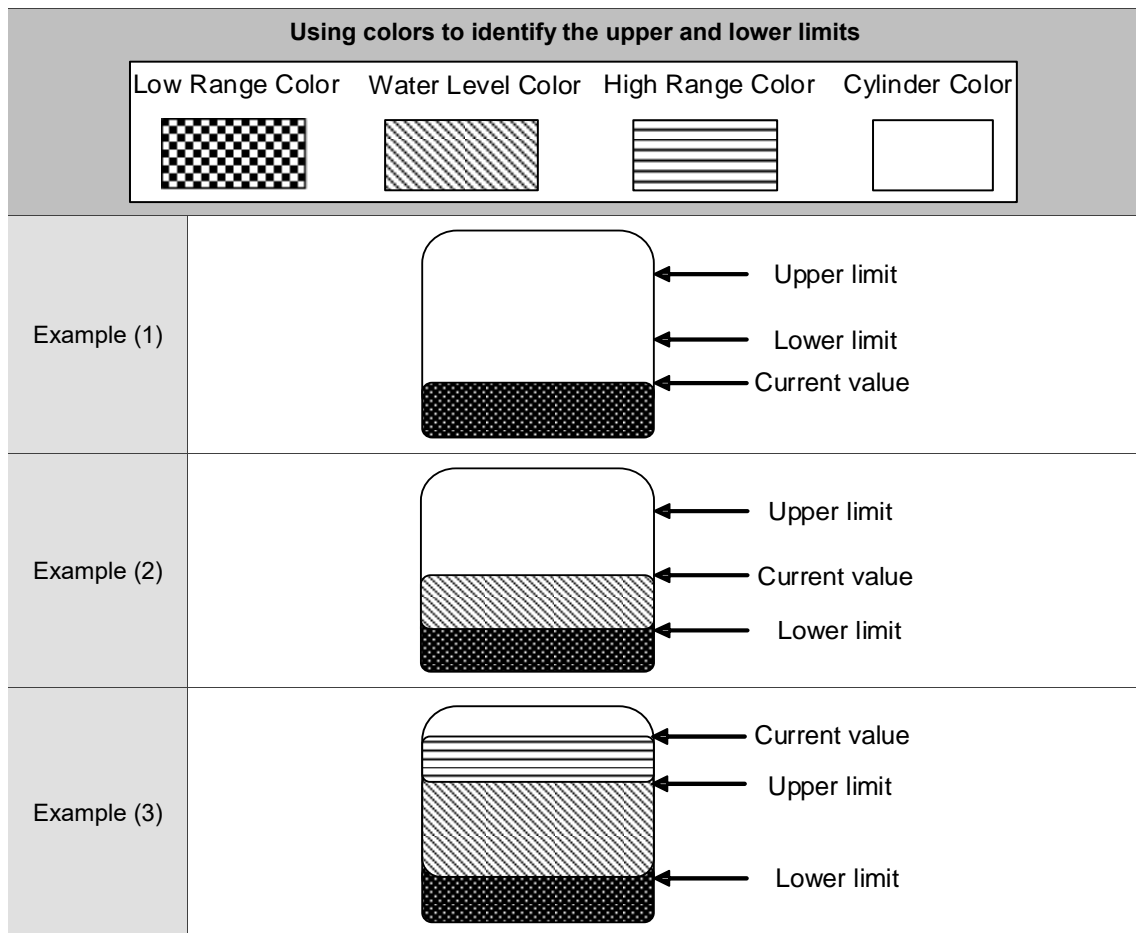



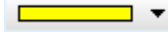
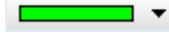
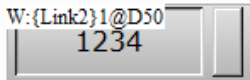
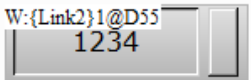
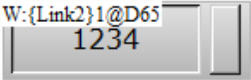





Table 8.1.2 Pipe(1) element example

Pipe(1)					
Read Address	Pipe(1) element			Numeric Entry element	
	Read Address	\$444		Write Address	\$444
					
Detail settings	Data Type	Data Format		Minimum	Maximum
	Word	Unsigned Decimal		0	100
Select the check boxes for Target, Range, and Variable target/range limits	Target color			Target value	
				{Link2}1@D50	
	Low Limit property			High Limit property	
	Low Range Color	Low Range value		High Range Color	High Range value
	{Link2}1@D55			{Link2}1@D65	
Create Numeric Entry elements	Numeric Entry element		Numeric Entry element		Numeric Entry element
	Write Address	{Link2}1@D50	Write Address	{Link2}1@D55	Write Address {Link2}1@D65
	Target Value 		Low Limit Value 		High Limit Value 

8

Pipe(1)			
	Target Value	Low Limit Value	High Limit Value
	<input type="text" value="50"/>	<input type="text" value="20"/>	<input type="text" value="80"/>
Execution results	Target	Enter 50 for Target Value and the displaying color is orange. 	
	Low Limit	Enter 15 for \$444, which is smaller than the Low Limit Value of 20, so the displaying color is yellow.  <input type="text" value="15"/>	
	High Limit	Enter 85 for \$444, which is greater than the High Limit Value of 80, so the displaying color is green.  <input type="text" value="85"/>	

When you double-click the Pipe(1) element, the property page is shown as follows.

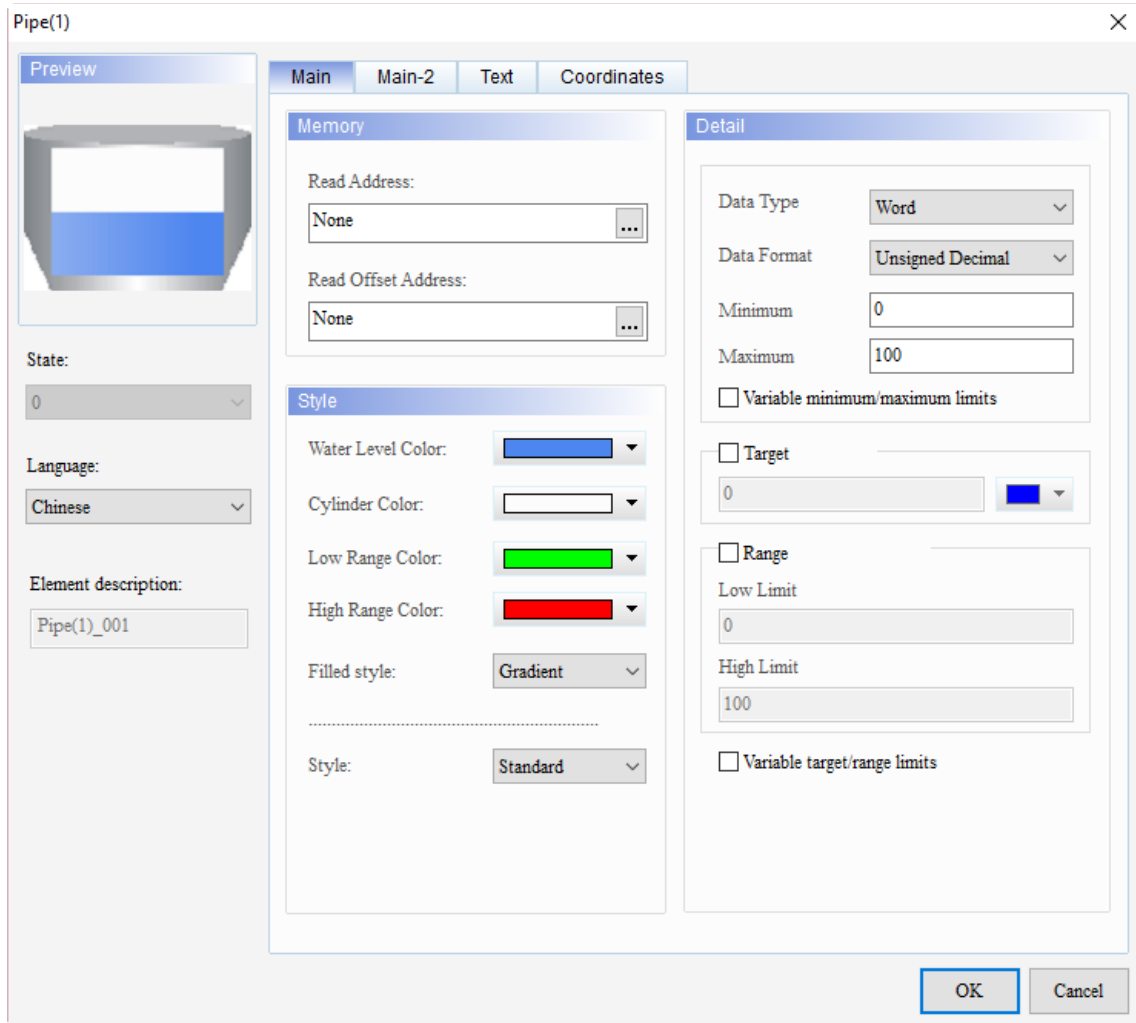


Figure 8.1.1 Properties of Pipe(1) element

Table 8.1.3 Function page of Pipe(1)

Pipe(1)	
Function page	Description
Preview	Pipe elements are only for viewing multi-language data display and do not support multiple states.
Main	Set the Read Address, Read Offset Address, and Style of the element. Set the Water Level Color, Cylinder Color, Low Range Color, High Range Color, and Filled style. Set the Data Type, Data Format, Minimum / Maximum input value for the element, and select the check box for Variable minimum/maximum limits . Set whether to display the target value and its color, and select the check boxes for Range and Variable target/range limits .
Main-2	Set the Transparent, Smooth animation, Anti-aliasing, and Target Value Style.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Coordinates	Set the X and Y coordinates, width, and height of the button element.

■ Main

8

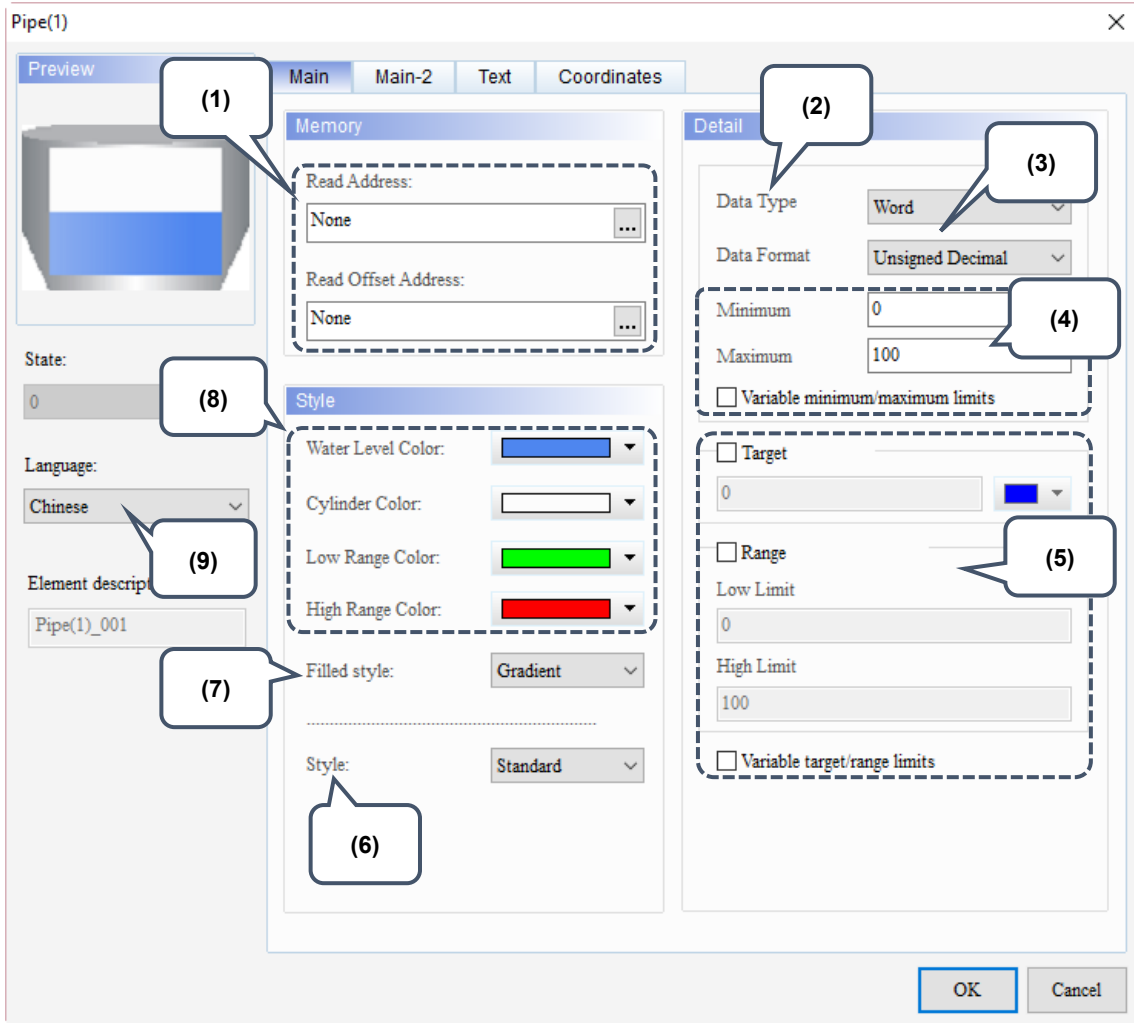
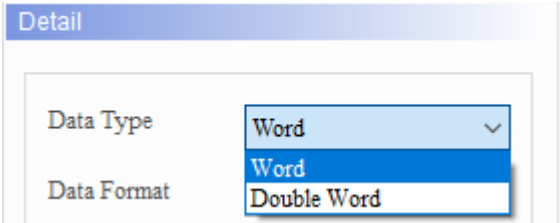
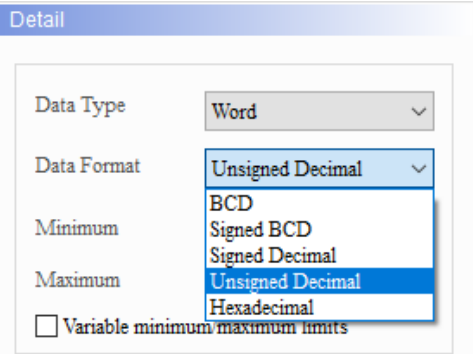
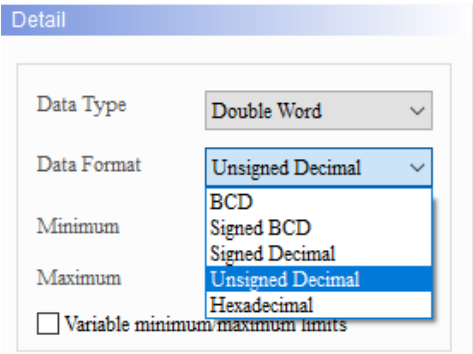
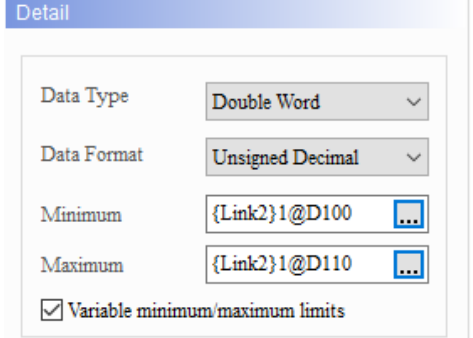






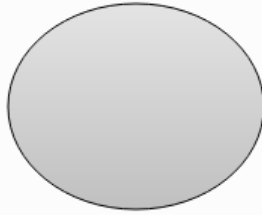
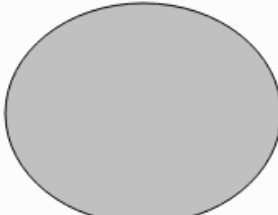
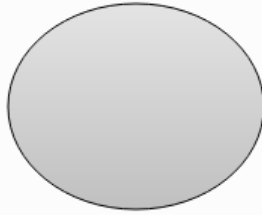
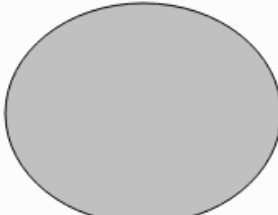
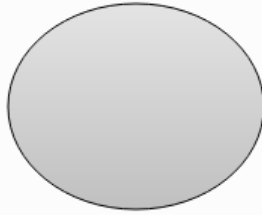
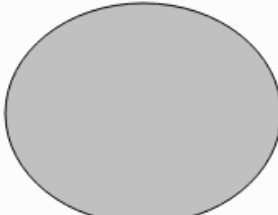
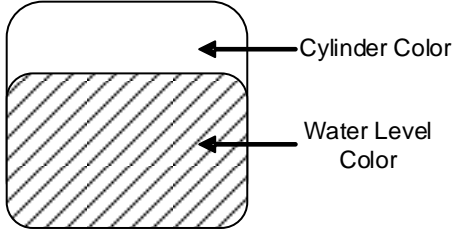
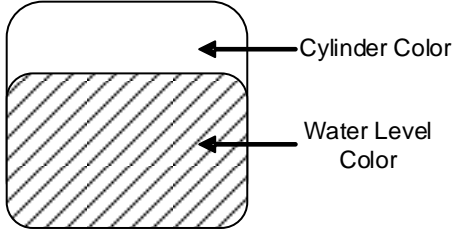
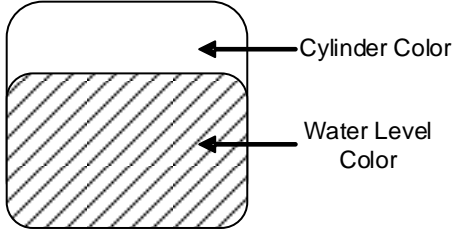


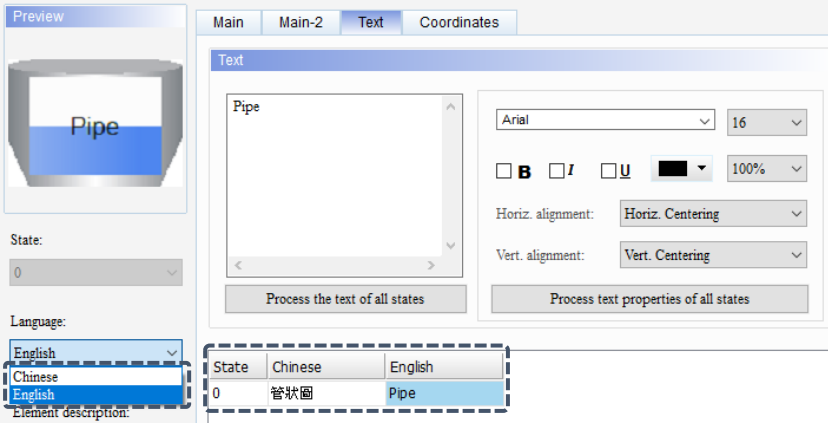
Figure 8.1.2 Main property page for the Pipe(1) element

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can choose internal memory address or controller register address. The input memory type has to be Word. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(2)	Data Type	<p>There are two data types: Word and Double Word.</p> 

No.	Property	Function description																									
(3)	Data Format	<ul style="list-style-type: none"> When the Data Type is Word, the supported Data Formats are as follows:  When the Data Type is Double Word, the supported data formats are as follows:  																									
(4)	Minimum / Maximum input value	<p>The allowable ranges for the Minimum and Maximum values are subject to change based on the selected Data Type and Data Format.</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td>Hexadecimal</td> <td>0 to 0xFFFF</td> </tr> <tr> <td rowspan="5">Double Word</td> <td>BCD</td> <td>0 to 99999999</td> </tr> <tr> <td>Signed BCD</td> <td>-99999999 to +99999999</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294967295</td> </tr> <tr> <td>Hexadecimal</td> <td>0 to 0xFFFFFFFF</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hexadecimal	0 to 0xFFFF	Double Word	BCD	0 to 99999999	Signed BCD	-99999999 to +99999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294967295	Hexadecimal	0 to 0xFFFFFFFF
Data Type	Data Format	Allowable range																									
Word	BCD	0 to 9999																									
	Signed BCD	-999 to +9999																									
	Signed Decimal	-32768 to +32767																									
	Unsigned Decimal	0 to 65535																									
	Hexadecimal	0 to 0xFFFF																									
Double Word	BCD	0 to 99999999																									
	Signed BCD	-99999999 to +99999999																									
	Signed Decimal	-2147483648 to +2147483647																									
	Unsigned Decimal	0 to 4294967295																									
	Hexadecimal	0 to 0xFFFFFFFF																									
	Variable minimum/maximum limits	<p>Select this check box to set the addresses for the Minimum and Maximum values. Then, write the required values to the addresses.</p> 																									

8

No.	Property	Function description											
(5)	Display format	Target	If the Variable target/range limits check box is not selected, you can only enter a constant value to define the displaying target value on the pipe chart. You can also specify the displaying color.										
		Range	The Range includes the lower and upper limits. Like the case of the Target display, if the Variable target/range limits check box is not selected, you can only enter constant values to define the lower and upper limits of the pipe chart.										
		Variable target/range limits	If it is selected, you can define the memory addresses to dynamically change the displaying target value, and the lower and upper limit values.										
(6)	Style (element style)	<p>The available element styles are Standard and Rotation 180. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Rotation180</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>		Standard	Rotation180								
Standard	Rotation180												
													
(7)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tbody> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </tbody> </table>		Gradient		Fixed (Solid)							
Gradient													
Fixed (Solid)													
(8)	Style property	<table border="1"> <tbody> <tr> <td colspan="2">  </td> </tr> <tr> <td>Water Level Color</td> <td>You can define the Water Level Color to be displayed.</td> </tr> <tr> <td>Cylinder Color</td> <td>You can define the Cylinder Color to be displayed.</td> </tr> <tr> <td>Low Range Color</td> <td>You can define the low range color to be displayed. Refer to Table 8.1.1.</td> </tr> <tr> <td>High Range Color</td> <td>You can define the high range color to be displayed. Refer to Table 8.1.1.</td> </tr> </tbody> </table>				Water Level Color	You can define the Water Level Color to be displayed.	Cylinder Color	You can define the Cylinder Color to be displayed.	Low Range Color	You can define the low range color to be displayed. Refer to Table 8.1.1.	High Range Color	You can define the high range color to be displayed. Refer to Table 8.1.1.
													
Water Level Color	You can define the Water Level Color to be displayed.												
Cylinder Color	You can define the Cylinder Color to be displayed.												
Low Range Color	You can define the low range color to be displayed. Refer to Table 8.1.1.												
High Range Color	You can define the high range color to be displayed. Refer to Table 8.1.1.												

No.	Property	Function description						
(9)	Language	<p>When you have set the language data, you can edit the properties of the text to be displayed with the Language setting of the element.</p>  <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>管状图</td> <td>Pipe</td> </tr> </tbody> </table>	State	Chinese	English	0	管状图	Pipe
State	Chinese	English						
0	管状图	Pipe						

■ Main-2

8

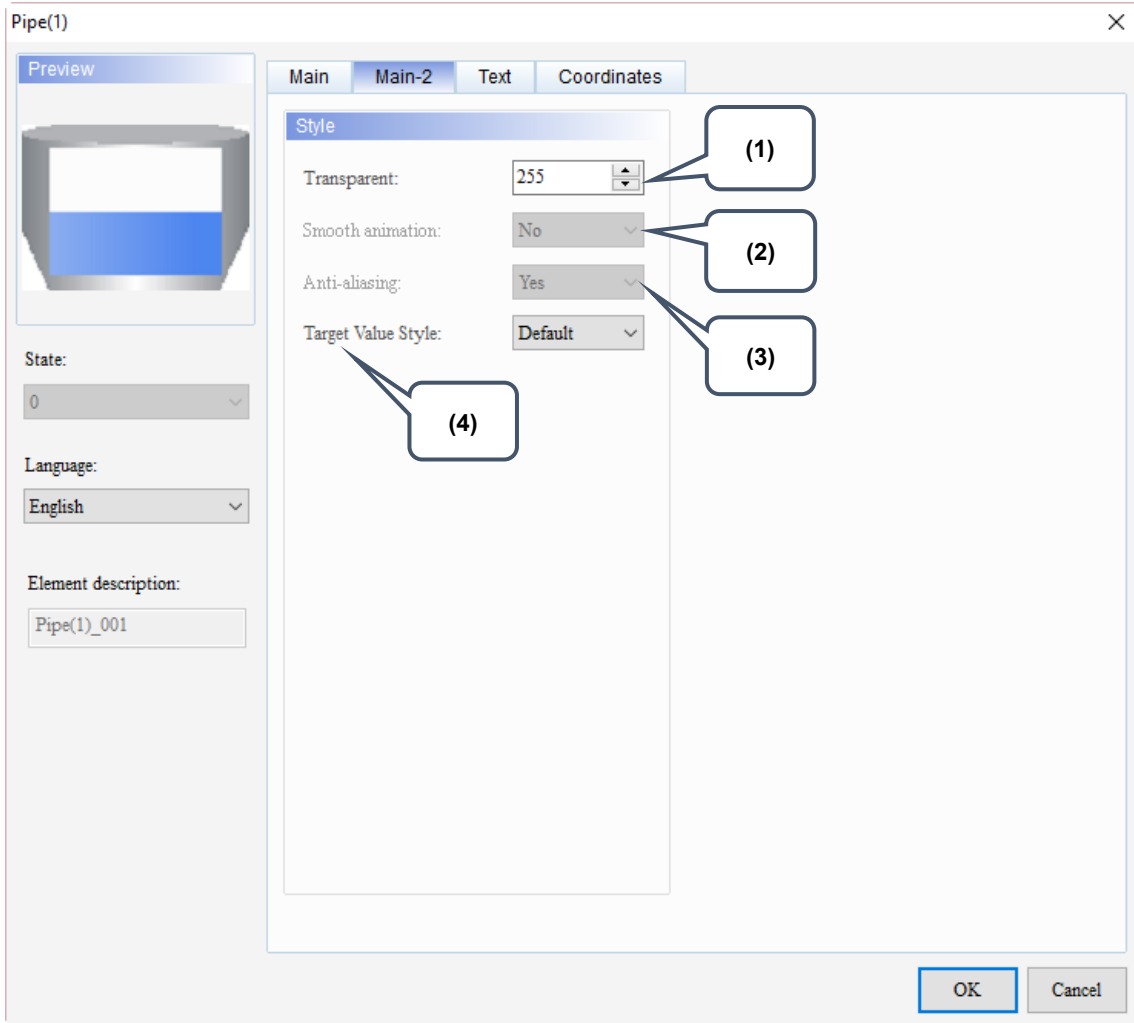








Figure 8.1.3 Main-2 property page for the Pipe(1) element

No.	Property	Function description				
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.				
(2)	Smooth animation	The Smooth animation function is not available for this element.				
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.				
(4)	Target Value Style	<p>There are two display styles for the target value, Default and Style 1.</p> <table border="1"> <tr> <td>Default</td> <td></td> </tr> <tr> <td>Style 1</td> <td></td> </tr> </table>	Default		Style 1	
Default						
Style 1						

■ Text

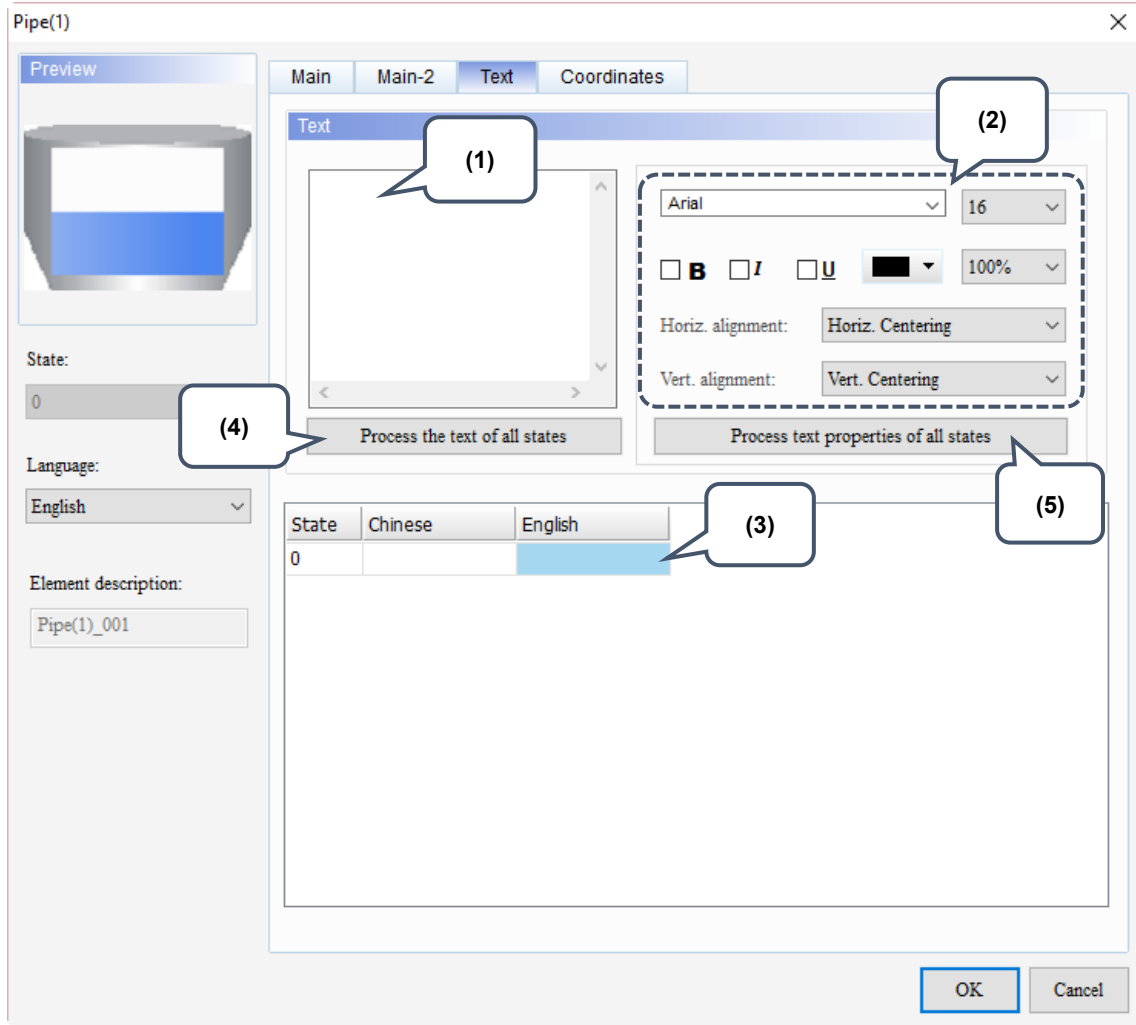
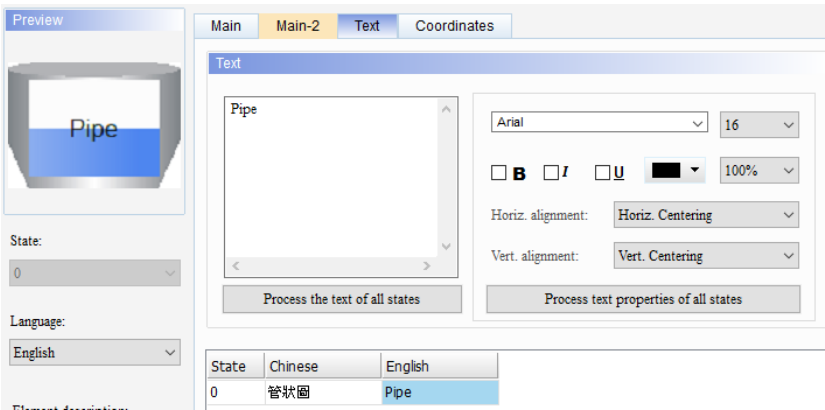
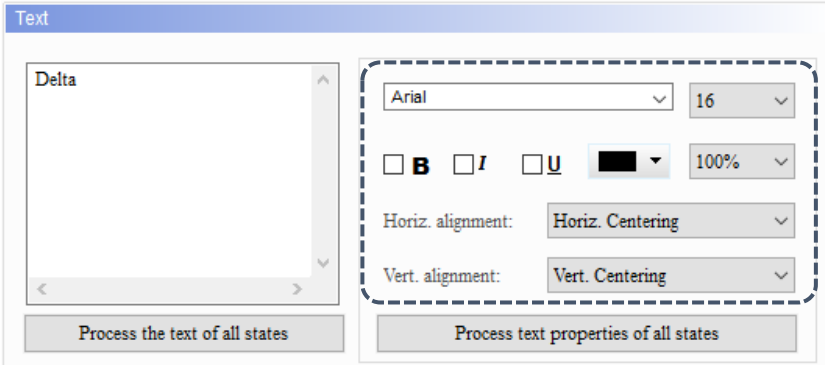
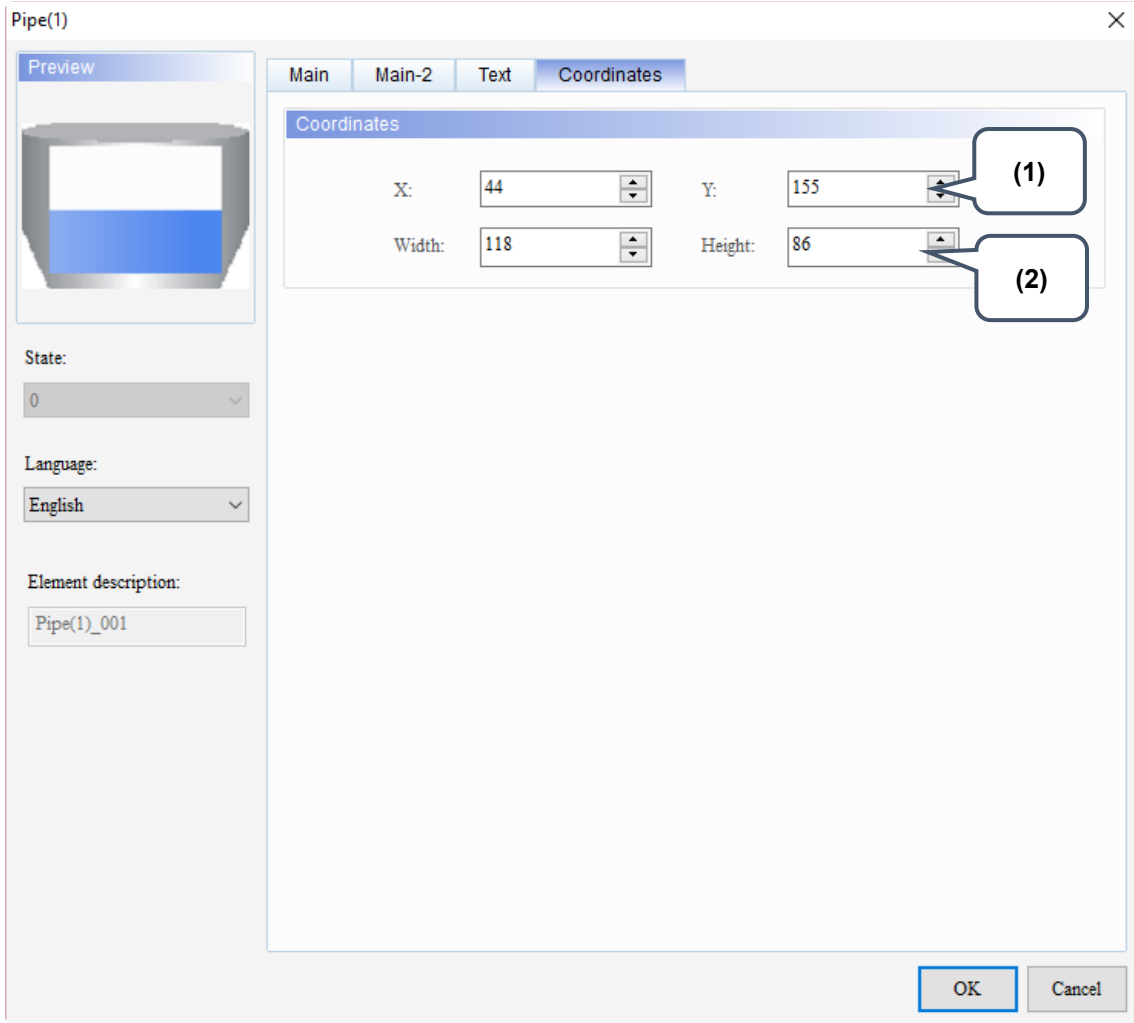


Figure 8.1.4 Text property page for the Pipe(1) element

8

No.	Property	Function description
(1)	Text	<ul style="list-style-type: none"> You can enter the text to display in this box.  <ul style="list-style-type: none"> As long as the element allows text input, you can click the element on the screen and press the space key to start editing and entering the text.
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the figure above for the text property setting results.
(3)	Edit multi-language text	If you have added multi-language text, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	<ul style="list-style-type: none"> This function batch changes all the texts into the text contents of the state you selected. Pipe(1) / Pipe(2) elements do not support multiple states, so this function is unavailable.
(5)	Process text properties of all states	<ul style="list-style-type: none"> This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.  <ul style="list-style-type: none"> Pipe(1) and Pipe(2) elements do not support multiple states, so this function is unavailable.

■ Coordinates



8

Figure 8.1.5 Coordinates property page for the Pipe(1) element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

8.2 Pipe(3) / Pipe(4) / Pipe(5)

Pipe(3) / Pipe(4) / Pipe(5) are mainly for connecting Pipe(1) / Pipe(2) / Pipe(6) / Pipe(7).

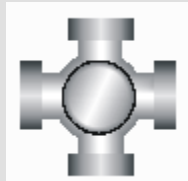
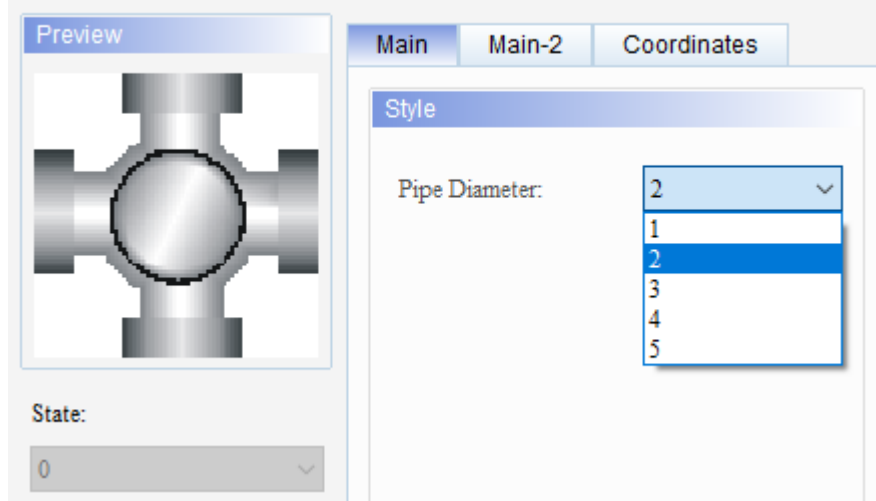
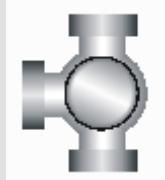
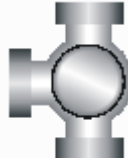

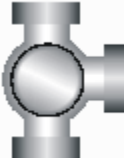

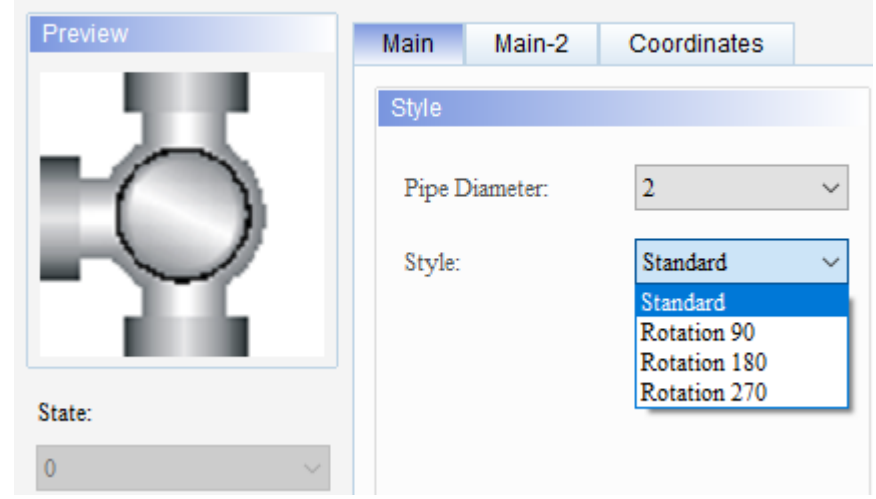
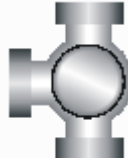

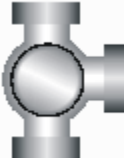

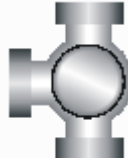

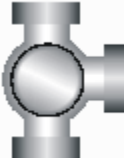

Therefore, these three pipe charts have no parameters for read / write addresses or numeric value setting. You can only set the displaying pipe diameter and rotation angle.

Table 8.2.1 Function page of Pipe(3) / Pipe(4) / Pipe(5)

Pipe(3) / Pipe(4) / Pipe(5)	
Function page	Description
Preview	These three elements are mainly for connecting to other pipe charts; they have only one state without multi-language text for editing.
Main	Set the Pipe Diameter and Style of the element.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates of the element.

■ Main





Table 8.2.2 Display style of Pipe(3) / Pipe(4) / Pipe(5)

Main property page of Pipe(3) / Pipe(4) / Pipe(5)									
<p>Pipe(3)</p> 	<p>The Pipe Diameter ranges from 1 to 5.</p> <p>Pipe(3)</p> 								
<p>Pipe(4)</p> 	<ul style="list-style-type: none"> ■ The Pipe Diameter ranges from 1 to 5. ■ The available element styles are Standard, Rotation 90, Rotation 180, and Rotation 270. You can change the appearance of the element with this setting. <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Standard</th> <th>Rotation 90</th> <th>Rotation 180</th> <th>Rotation 270</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Pipe(4)</p> 	Standard	Rotation 90	Rotation 180	Rotation 270				
Standard	Rotation 90	Rotation 180	Rotation 270						
									


8

Main property page of Pipe(3) / Pipe(4) / Pipe(5)

- The Pipe Diameter ranges from 1 to 5.
- The available element styles are Standard, Rotation 90, Rotation 180, and Rotation 270. You can change the appearance of the element with this setting.


Standard	Rotation 90	Rotation 180	Rotation 270
			

Pipe(5)



Pipe(5)

Preview



State: 0

Main Main-2 Coordinates

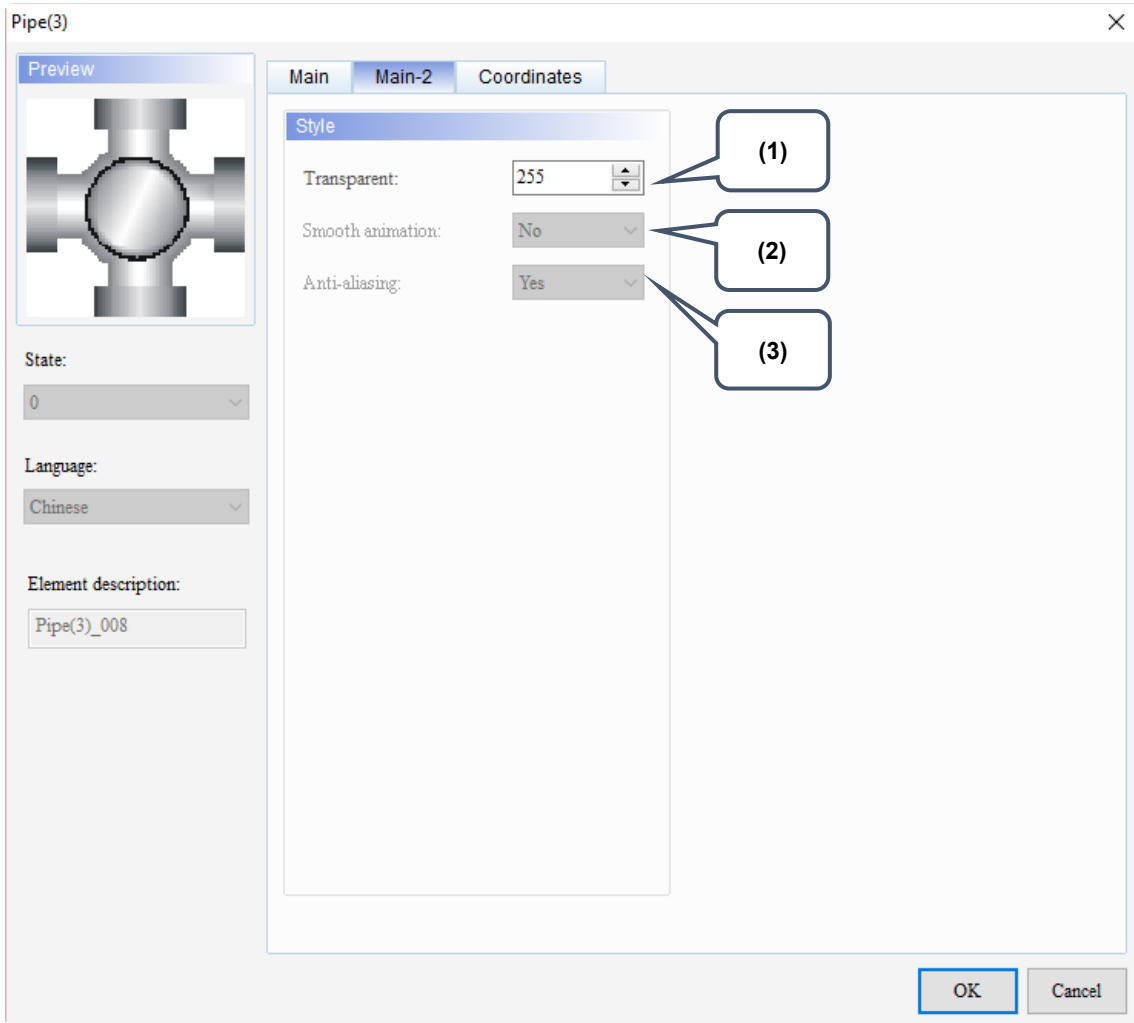
Style

Pipe Diameter: 2

Style: Standard

- Standard
- Rotation 90
- Rotation 180
- Rotation 270

■ Main-2



8

Figure 8.2.1 Main-2 property page for the Pipe(3) / Pipe(4) / Pipe(5) elements

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is available for this element. When this function is enabled, the element display becomes smoother.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

Coordinates

8

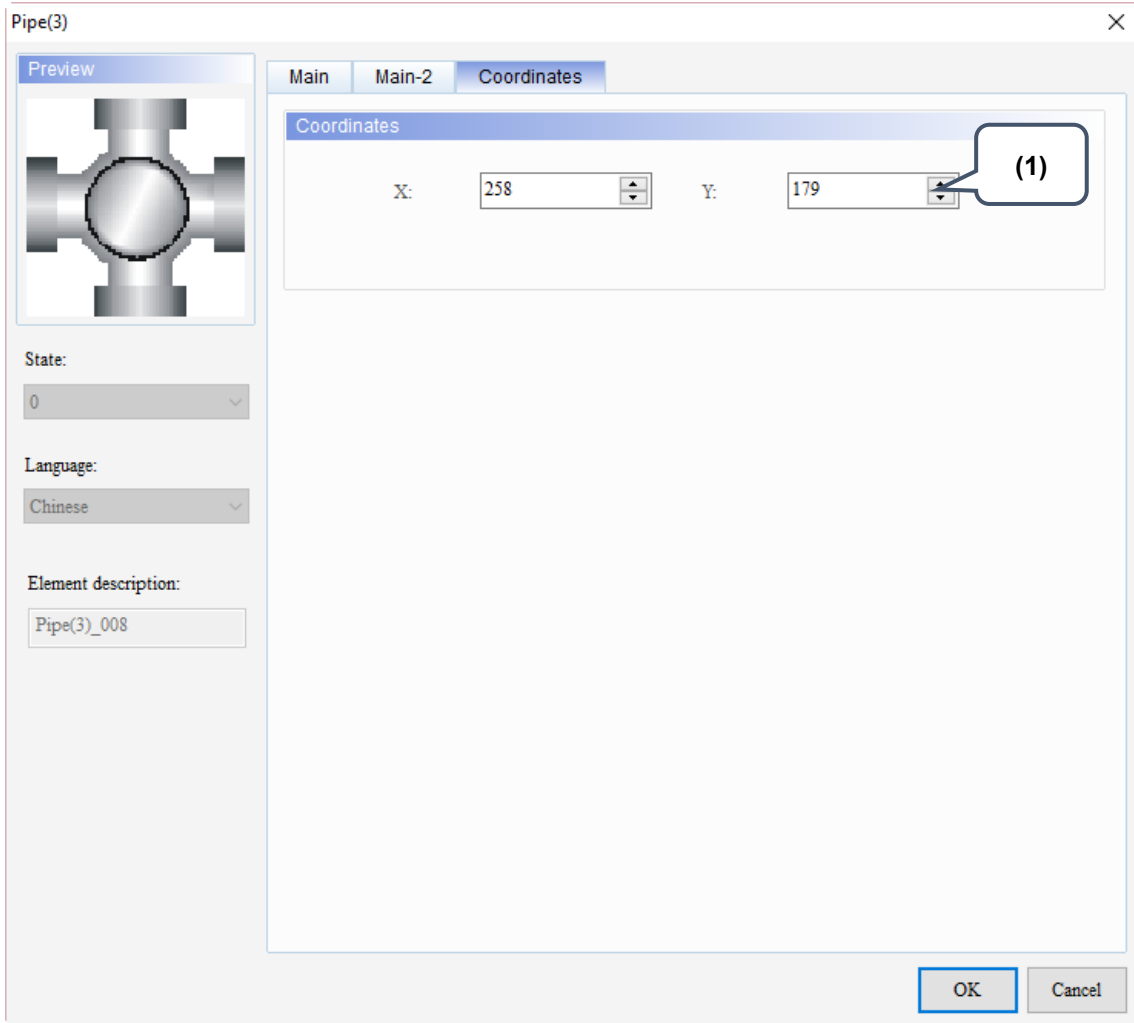


Figure 8.2.2 Coordinates property page for the Pipe(3) / Pipe(4) / Pipe(5) elements

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.

8.3 Pipe(6) / Pipe(7)

Pipe(6) and Pipe(7) can be used to connect to other Pipe elements. You can set the read addresses for these elements to set the water flow direction and cursor color.

Table 8.3.1 Function page of Pipe(6) / Pipe(7)

Pipe(6) / Pipe(7)	
Function page	Description
Preview	Pipe(6) and Pipe(7) elements are for controlling the water flow direction and have only one state without multi-language for editing.
Main	Set the Read Address, Pipe Diameter, Variable Color, and Flow Cursor Color.
Main-2	Set the Transparent, Smooth animation, Anti-aliasing, and Flow Cursor Type options.
Coordinates	Set the X and Y coordinates of the element.

■ Main

Table 8.3.2 Display style of Pipe(6) / Pipe(7)


8

Main property page of Pipe(6) / Pipe(7)

■ Set the Read Address; you can set the water flow direction with this address.

Pipe(6) ×

Preview



Main Main-2 Coordinates

Memory

Read Address: ...

Read Offset Address: ...

Style

Pipe Diameter: ▾

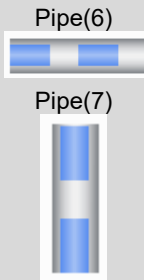
Variable Color: ▾

Flow Cursor Color: ▾

Pipe(6)		
Water flow direction	Right → Left	Read Address = 1
	Left → Right	Read Address = 2
Pipe(7)		
Water flow direction	Top → Bottom	Read Address = 2
	Bottom → Top	Read Address = 1


■ The Pipe Diameter ranges from 1 to 5.

■ If Variable Color is Yes, it means you can set the Flow Cursor Color.




Main property page of Pipe(6) / Pipe(7)

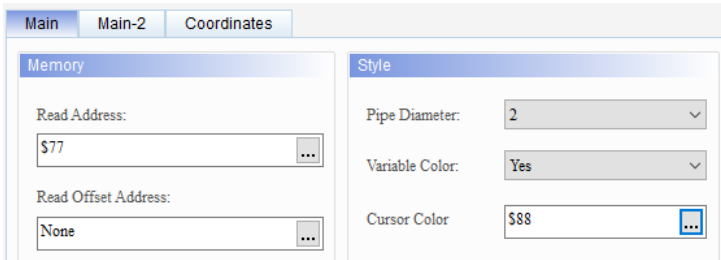
Pipe(6)



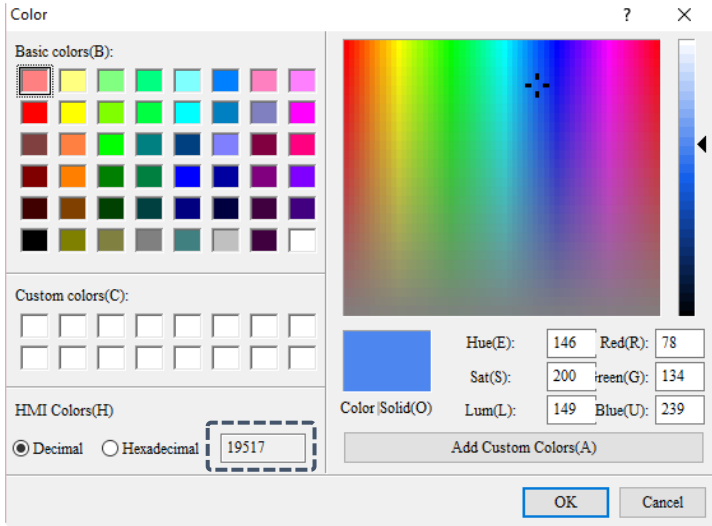
Pipe(7)



When you select Yes, it means the Cursor Color address is a variable, which can be changed dynamically.



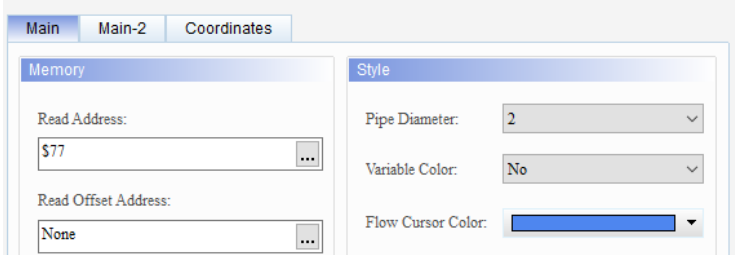
The colors corresponding to the values are shown in the following figure.



Variable Color is set to Yes

Variable Color is set to No

When you select No, it means the Cursor Color address is fixed.



■ Main-2

8

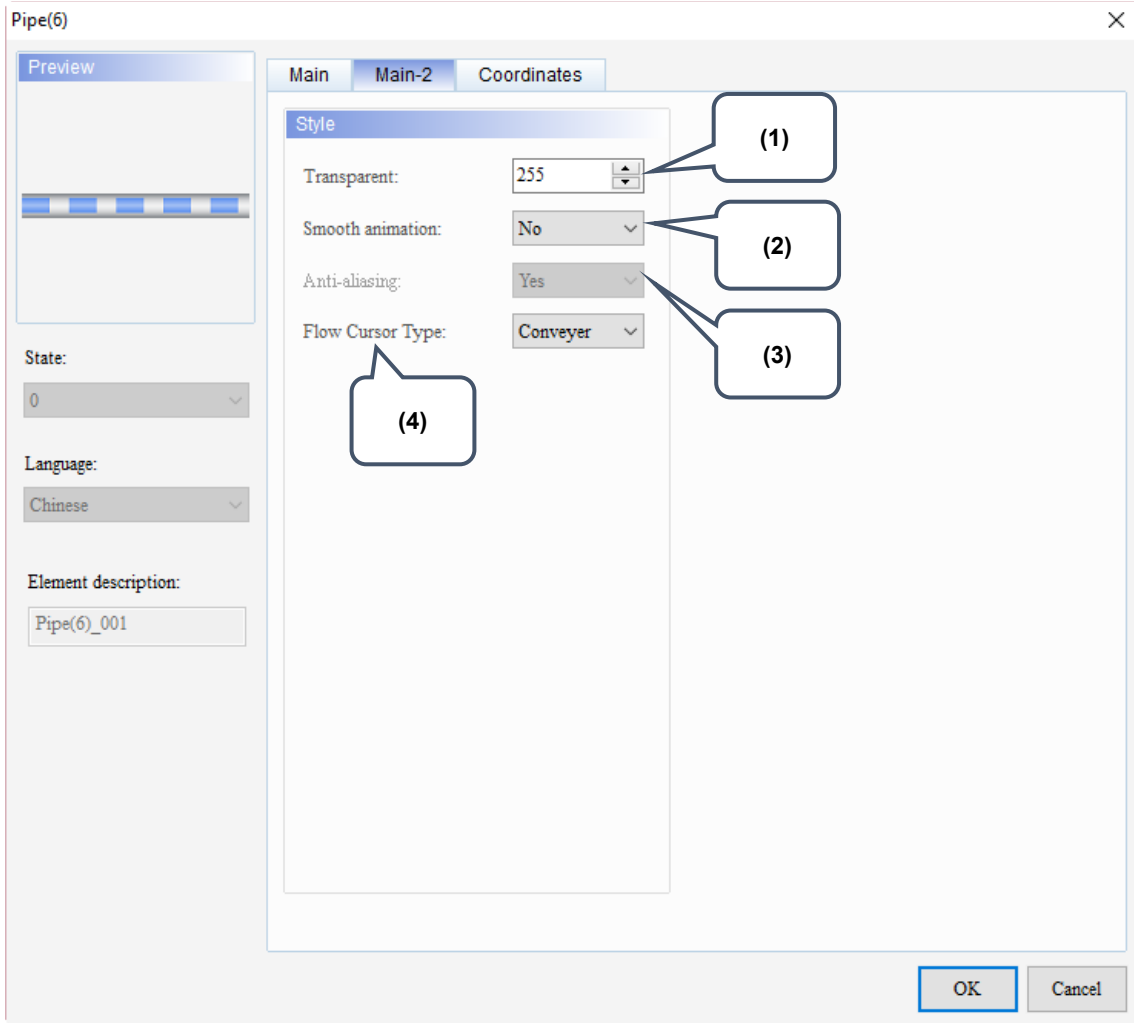



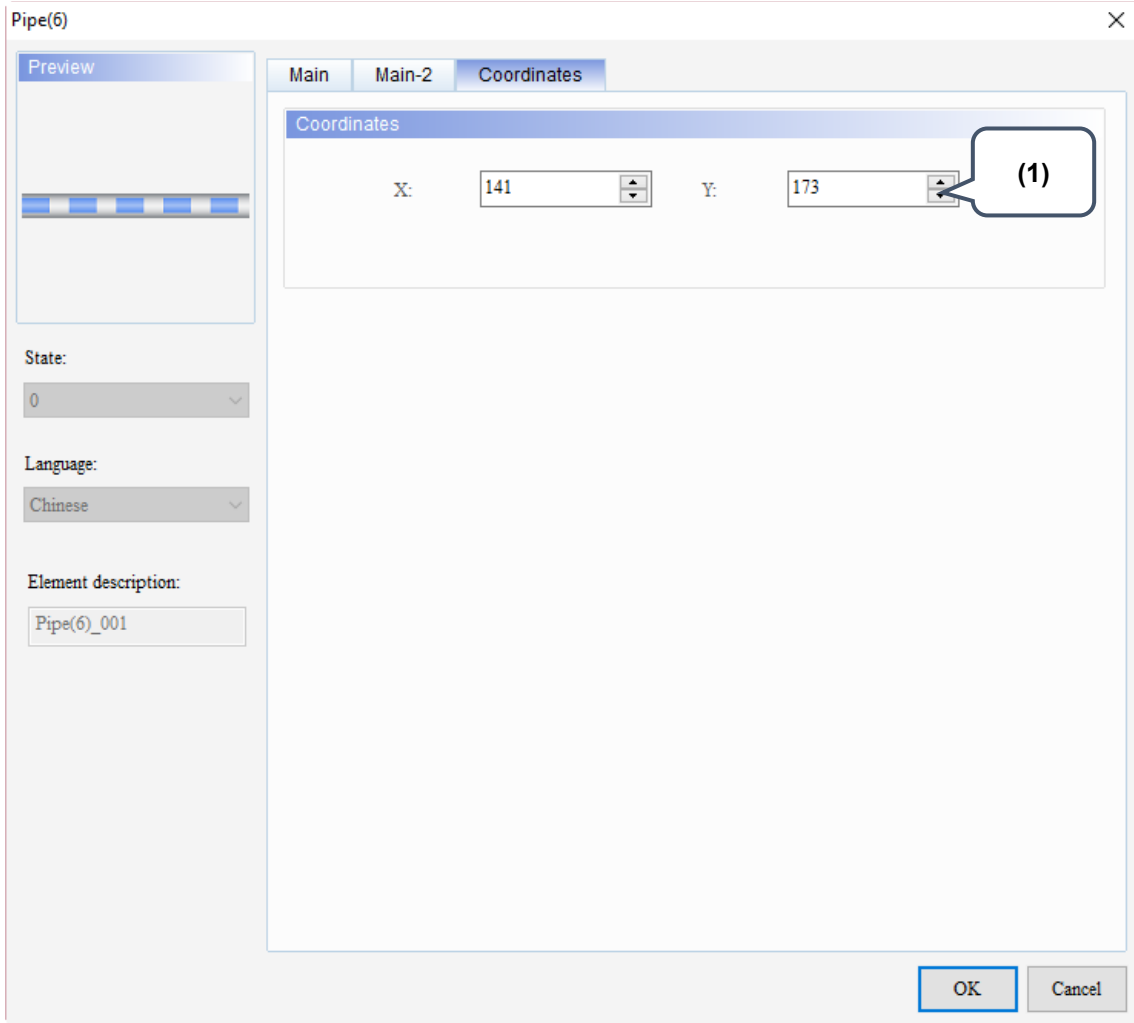


Figure 8.3.1 Main-2 property page for the Pipe(6) / Pipe(7) elements

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is available for this element. When this function is enabled, the element display becomes smoother.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.
(4)	Flow Cursor Type	The available types include Conveyer, Bubble, and Arrow.
		Conveyer 
		Bubble 
Arrow 		

■ Coordinates



8

Figure 8.3.2 Coordinates property page for the Pipe(6) / Pipe(7) elements

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.

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8

Pie Chart

This chapter provides the usage and setting details for the Pie elements.



9.1 Pie(1) / Pie(2) / Pie(3) / Pie(4)..... 9-2

9

9.1 Pie(1) / Pie(2) / Pie(3) / Pie(4)

The only difference among elements Pie(1), Pie(2), Pie(3), and Pie(4) is the shape; all other functions are the same. The introduction for Pie(1) is as follows. The software displays the Target value, lower limit, and upper limit set in the register corresponding to the read address on the Pie element. Pie(1) elements are the same as the Meter elements; you can define the memory address for the target value and upper / lower limits to make the application more flexible so it meets users' requirements. You can also set the colors for the lower limit, upper limit, and target for easier identification and viewing.

Table 9.1.1 User-defined display format for Pie(1) element

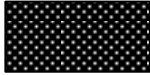



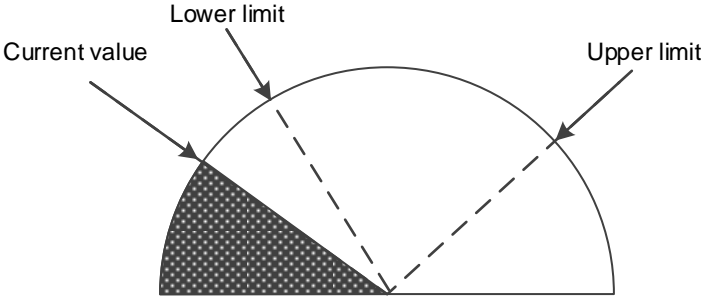
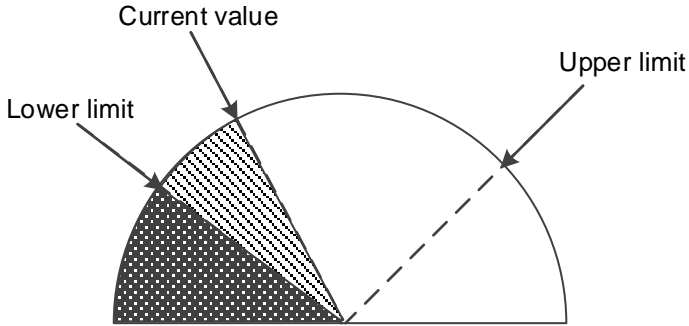
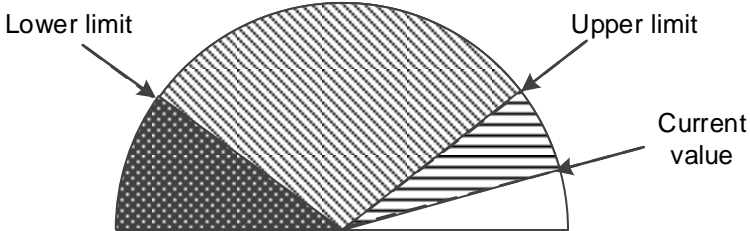


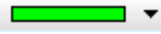
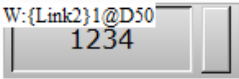


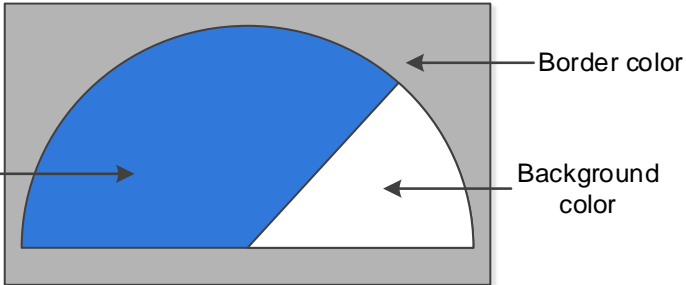



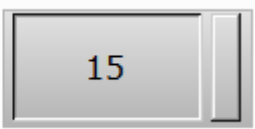


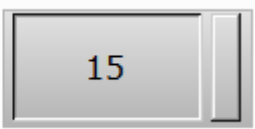

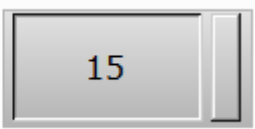
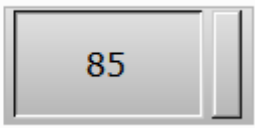
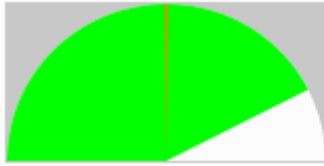
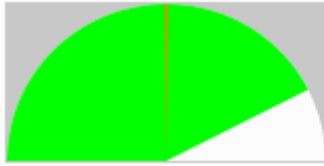
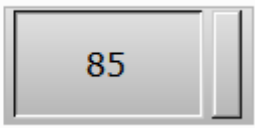
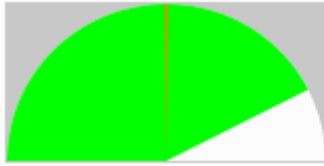
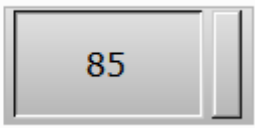
Using colors to identify the upper and lower limits			
Low range color	Foreground color	High range color	Background color
			
Example 1			
Example 2			
Example 3			

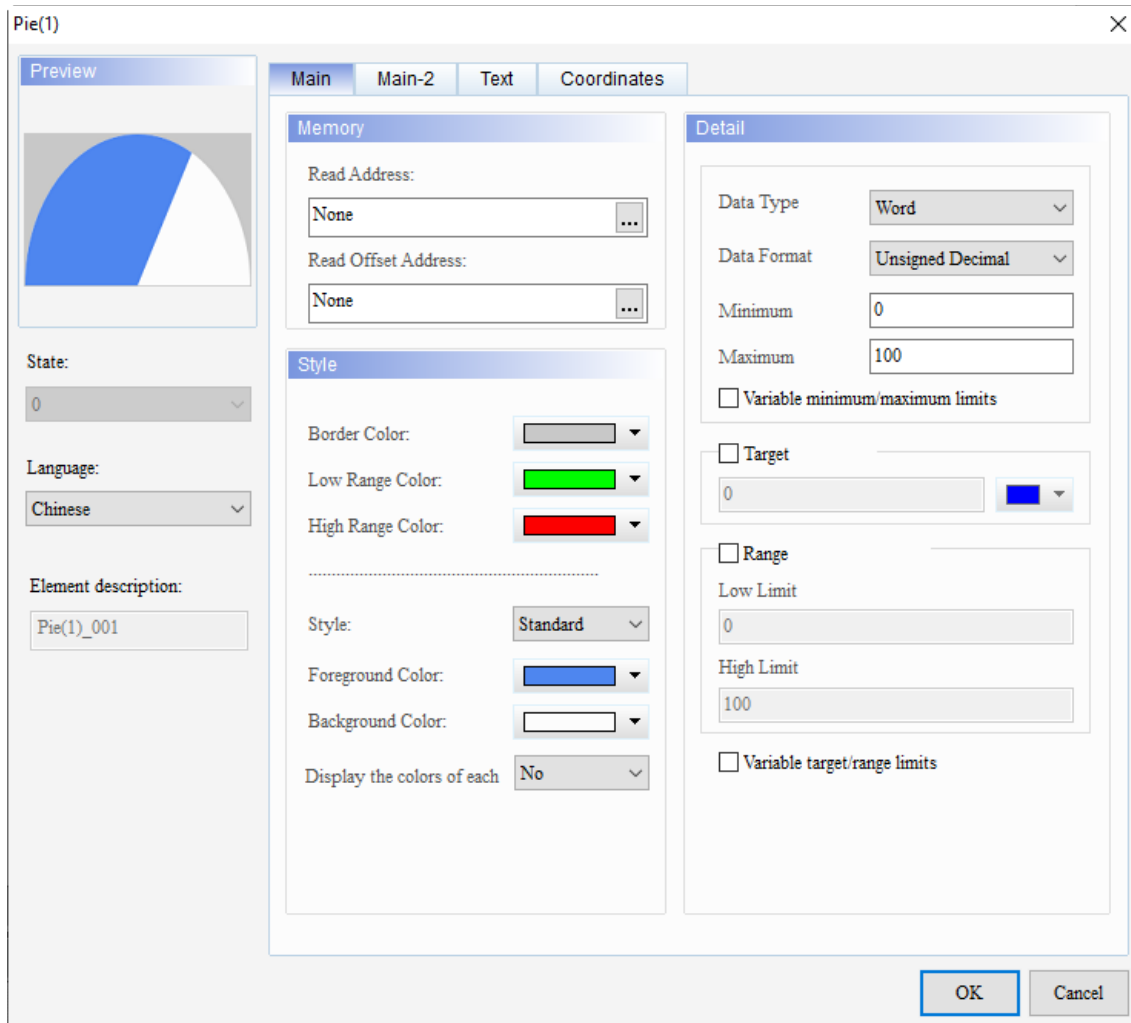
Table 9.1.2 Pie(1) element example

Pie(1)						
Read Address	Pie(1) element			Numeric Entry element		
	Read Address	\$444		Write Address	\$444	
						
Detail settings	Data Type	Data Format	Minimum	Maximum		
	Word	Unsigned Decimal	0	100		
Select the check boxes for Target , Range , and Variable target/range limits	Target value color			Target value		
				{Link2}1@D50		
	Low Limit property			High Limit property		
	Low Range Color	Low Range value	High Range Color	High Range value		
	{Link2}1@D55		{Link2}1@D65			
Create Numeric Entry elements	Numeric Entry element		Numeric Entry element		Numeric Entry element	
	Write Address	{Link2}1@D50	Write Address	{Link2}1@D55	Write Address	{Link2}1@D65
	Target Value		Low Limit Value		High Limit Value	
						
Pie(1) element diagram example						

9

Pie(1)							
	<table border="1"><thead><tr><th>Target Value</th><th>Low Limit Value</th><th>High Limit Value</th></tr></thead><tbody><tr><td><input type="text" value="50"/></td><td><input type="text" value="20"/></td><td><input type="text" value="80"/></td></tr></tbody></table>	Target Value	Low Limit Value	High Limit Value	<input type="text" value="50"/>	<input type="text" value="20"/>	<input type="text" value="80"/>
Target Value	Low Limit Value	High Limit Value					
<input type="text" value="50"/>	<input type="text" value="20"/>	<input type="text" value="80"/>					
Execution results	<table border="1"><tr><td>Target</td><td><p>Enter 50 for Target Value and the displaying color is orange.</p></td></tr></table>	Target	<p>Enter 50 for Target Value and the displaying color is orange.</p> 				
	Target	<p>Enter 50 for Target Value and the displaying color is orange.</p> 					
	<table border="1"><tr><td>Low Limit</td><td><p>Enter 15 for \$444, which is smaller than the Low Limit Value of 20, so the displaying color is yellow.</p></td></tr></table>	Low Limit	<p>Enter 15 for \$444, which is smaller than the Low Limit Value of 20, so the displaying color is yellow.</p>  				
Low Limit	<p>Enter 15 for \$444, which is smaller than the Low Limit Value of 20, so the displaying color is yellow.</p>  						
<table border="1"><tr><td>High Limit</td><td><p>Enter 85 for \$444, which is greater than the High Limit Value of 80, so the displaying color is green.</p></td></tr></table>	High Limit	<p>Enter 85 for \$444, which is greater than the High Limit Value of 80, so the displaying color is green.</p>  					
High Limit	<p>Enter 85 for \$444, which is greater than the High Limit Value of 80, so the displaying color is green.</p>  						

When you double-click the Pie(1) element, the property page is shown as follows.



9

Figure 9.1.1 Properties of Pie(1) element

Table 9.1.3 Function page of Pie(1)

Pie(1)	
Function Page	Description
Preview	Pie elements are only for viewing multi-language data display and do not support multiple states.
Main	Set the Read Address, Read Offset Address, Style, Foreground Color, and Background Color. Set the Border Color, Low Range Color, and High Range Color. Set the Data Type, Data Format, and Minimum / Maximum input value for the element, and select the check box for Variable minimum/maximum limits . Set whether to display the target value and its color, and select the check boxes for Range and Variable target/range limits .
Main-2	Set the Transparent, Smooth animation, Anti-aliasing, and Target Value Style.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Coordinates	Set the X and Y coordinates, width, and height of the button element.

9

■ Main

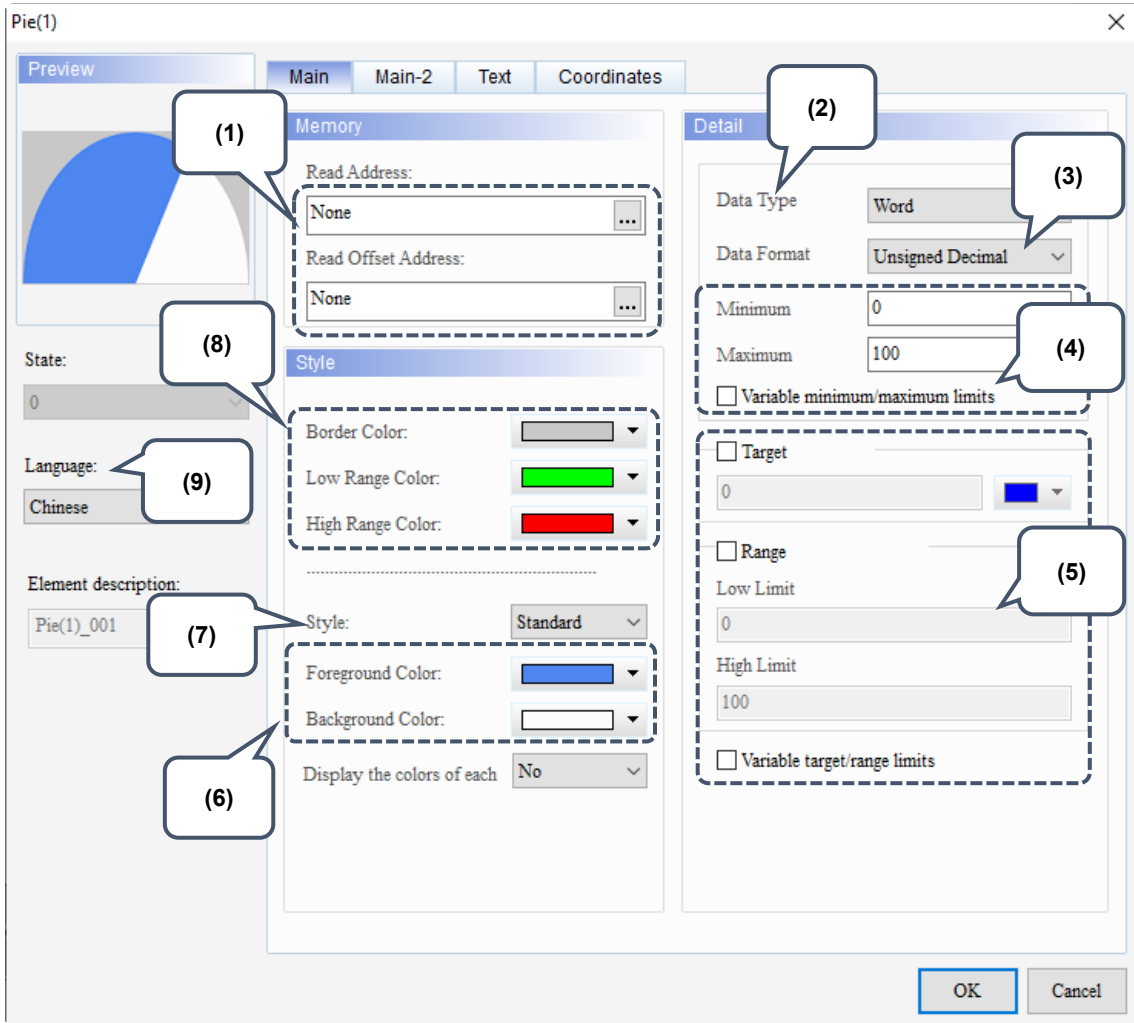
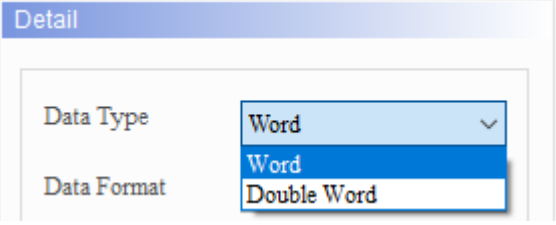
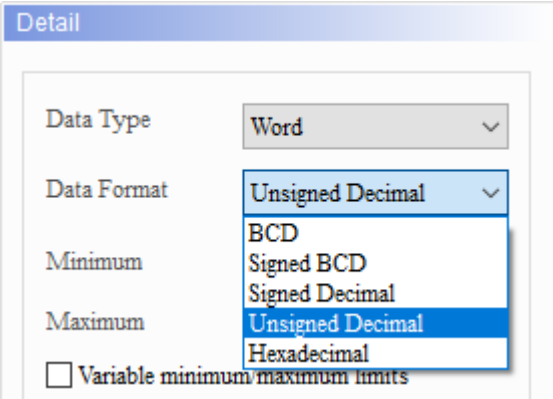
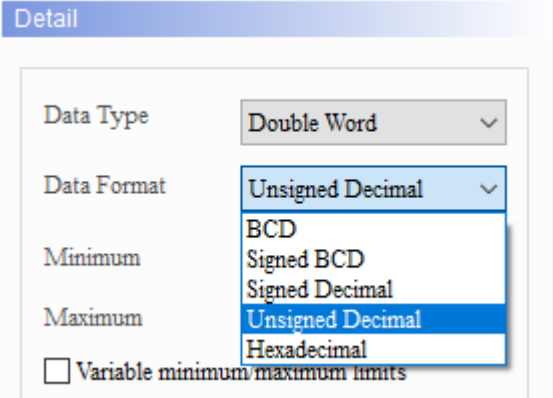
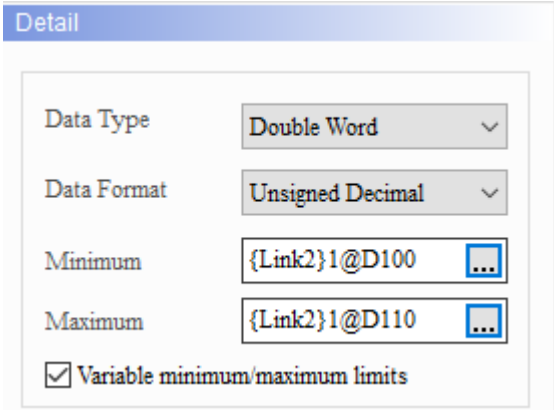
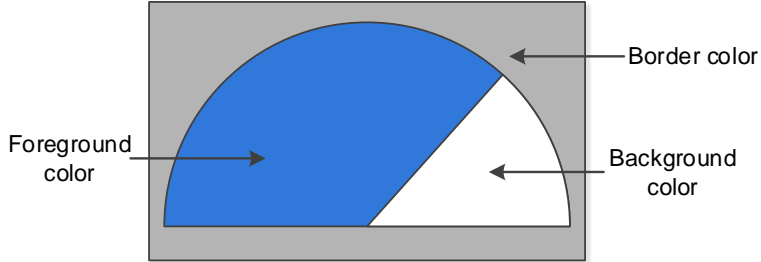














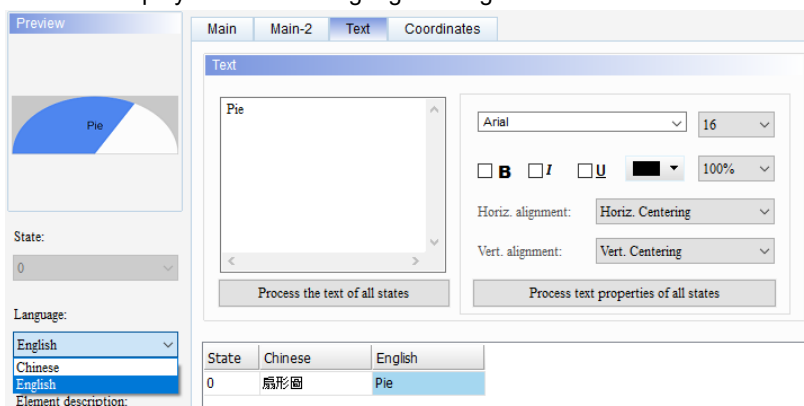
Figure 9.1.2 Main property page for the Pie(1) element

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can choose internal memory address or controller register address. The input memory type has to be Word. Select Link Name or Device Type. Refer to Chapter 5 Buttons for detail.
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(2)	Data Type	<p>There are two data types: Word and Double Word.</p> 

No.	Property	Function description																									
(3)	Data Format	<ul style="list-style-type: none"> When the Data Type is Word, the supported Data Formats are as follows:  When the Data Type is Double Word, the supported Data Formats are as follows:  																									
(4)	Minimum / Maximum input value	<p>The allowable ranges for the Minimum and Maximum values are subject to change based on the selected Data Type and Data Format.</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td>Hexadecimal</td> <td>0 to 0xFFFF</td> </tr> <tr> <td rowspan="5">Double Word</td> <td>BCD</td> <td>0 to 99999999</td> </tr> <tr> <td>Signed BCD</td> <td>-9999999 to +9999999</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294967295</td> </tr> <tr> <td>Hexadecimal</td> <td>0 to 0xFFFFFFFF</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hexadecimal	0 to 0xFFFF	Double Word	BCD	0 to 99999999	Signed BCD	-9999999 to +9999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294967295	Hexadecimal	0 to 0xFFFFFFFF
Data Type	Data Format	Allowable range																									
Word	BCD	0 to 9999																									
	Signed BCD	-999 to +9999																									
	Signed Decimal	-32768 to +32767																									
	Unsigned Decimal	0 to 65535																									
	Hexadecimal	0 to 0xFFFF																									
Double Word	BCD	0 to 99999999																									
	Signed BCD	-9999999 to +9999999																									
	Signed Decimal	-2147483648 to +2147483647																									
	Unsigned Decimal	0 to 4294967295																									
	Hexadecimal	0 to 0xFFFFFFFF																									

9

No.	Property	Function description								
(4)	Variable minimum/maximum limits	<p>Select this check box to set the addresses for the Minimum and Maximum values. Then, write the required values to the addresses.</p> 								
(5)	Display Format	<table border="1"> <tr> <td>Target</td> <td>If the Variable target/range limits check box is not selected, you can only enter a constant value to define the displaying target value on the pie chart. You can also specify the displaying color.</td> </tr> <tr> <td>Range</td> <td>The Range includes the lower and upper limits. Like the case of the Target display, if the Variable target / range limits check box is not selected, you can only enter constant values to define the lower and upper limits of the pie chart.</td> </tr> <tr> <td>Variable target/range limits</td> <td>If it is selected, you can define the memory addresses to dynamically change the displaying target value, and the lower and upper limit values.</td> </tr> </table>	Target	If the Variable target/range limits check box is not selected, you can only enter a constant value to define the displaying target value on the pie chart. You can also specify the displaying color.	Range	The Range includes the lower and upper limits. Like the case of the Target display, if the Variable target / range limits check box is not selected, you can only enter constant values to define the lower and upper limits of the pie chart.	Variable target/range limits	If it is selected, you can define the memory addresses to dynamically change the displaying target value, and the lower and upper limit values.		
Target	If the Variable target/range limits check box is not selected, you can only enter a constant value to define the displaying target value on the pie chart. You can also specify the displaying color.									
Range	The Range includes the lower and upper limits. Like the case of the Target display, if the Variable target / range limits check box is not selected, you can only enter constant values to define the lower and upper limits of the pie chart.									
Variable target/range limits	If it is selected, you can define the memory addresses to dynamically change the displaying target value, and the lower and upper limit values.									
(6)	Foreground Color Background Color	<p>Set the element foreground and background colors.</p> 								
(7)	Style (element style)	<p>The available element styles are Standard, Raised, Sunken, and Transparent. You can change the appearance of the element with this setting.</p> <table border="1"> <tr> <td>Standard</td> <td>Raised</td> <td>Sunken</td> <td>Transparent</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Standard	Raised	Sunken	Transparent				
Standard	Raised	Sunken	Transparent							
										
(8)	Style property	<table border="1"> <tr> <td>Border Color</td> <td>You can define the border color to display. Refer to the foreground and background colors of the element.</td> </tr> <tr> <td>Low Range Color</td> <td>You can define the low range color to display. Refer to Table 9.1.1.</td> </tr> <tr> <td>High Range Color</td> <td>You can define the high range color to display. Refer to Table 9.1.1.</td> </tr> </table>	Border Color	You can define the border color to display. Refer to the foreground and background colors of the element.	Low Range Color	You can define the low range color to display. Refer to Table 9.1.1.	High Range Color	You can define the high range color to display. Refer to Table 9.1.1.		
Border Color	You can define the border color to display. Refer to the foreground and background colors of the element.									
Low Range Color	You can define the low range color to display. Refer to Table 9.1.1.									
High Range Color	You can define the high range color to display. Refer to Table 9.1.1.									

No.	Property	Function description						
(9)	Language	<p>When you have set the language data, you can edit the properties of the text to be displayed with the Language setting of the element.</p>  <p>The screenshot shows the 'Text' property editor for a pie chart. It includes a preview window showing a pie chart with the word 'Pie' on it. Below the preview are controls for 'State' (set to 0) and 'Language' (set to English). The main editor area has a text input field containing 'Pie' and various formatting options: font (Arial), size (16), bold (B), italic (I), underline (U), color (black), and font weight (100%). There are also options for horizontal and vertical alignment, both set to 'Centering'. Two buttons at the bottom of the editor are 'Process the text of all states' and 'Process text properties of all states'. At the bottom of the screenshot is a table:</p> <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>扇形圖</td> <td>Pie</td> </tr> </tbody> </table>	State	Chinese	English	0	扇形圖	Pie
State	Chinese	English						
0	扇形圖	Pie						

■ Main-2

9

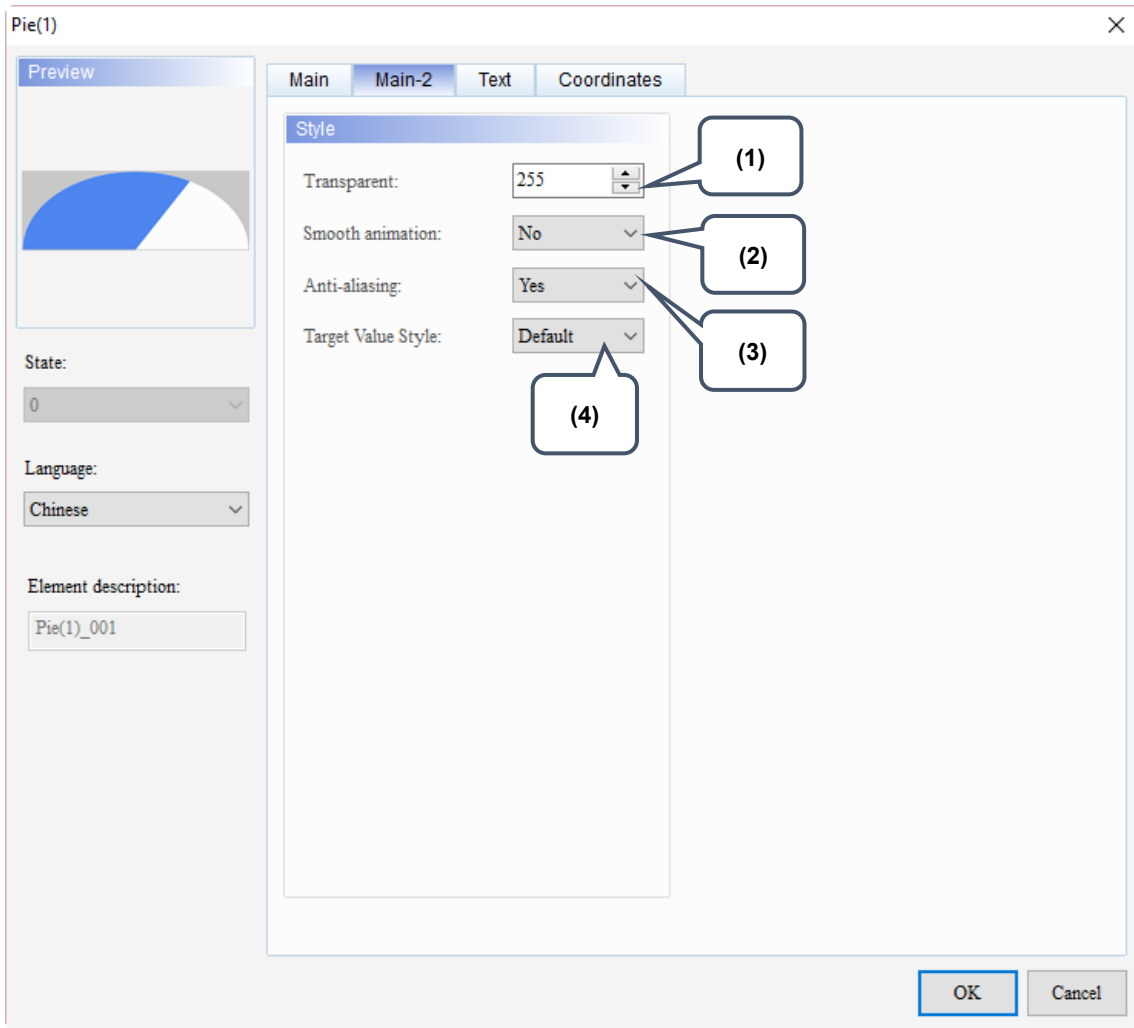







Figure 9.1.3 Main-2 property page for the Pie(1) element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is available for this element. When this function is enabled, the element display becomes smoother.		
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.		
(4)	Target Value Style	There are two display styles for the target value, Default and Style 1.		
		<table border="1"> <tr> <td>Default</td> <td>  </td> </tr> <tr> <td>Style 1</td> <td>  </td> </tr> </table>	Default	
Default				
Style 1				

■ Text

9

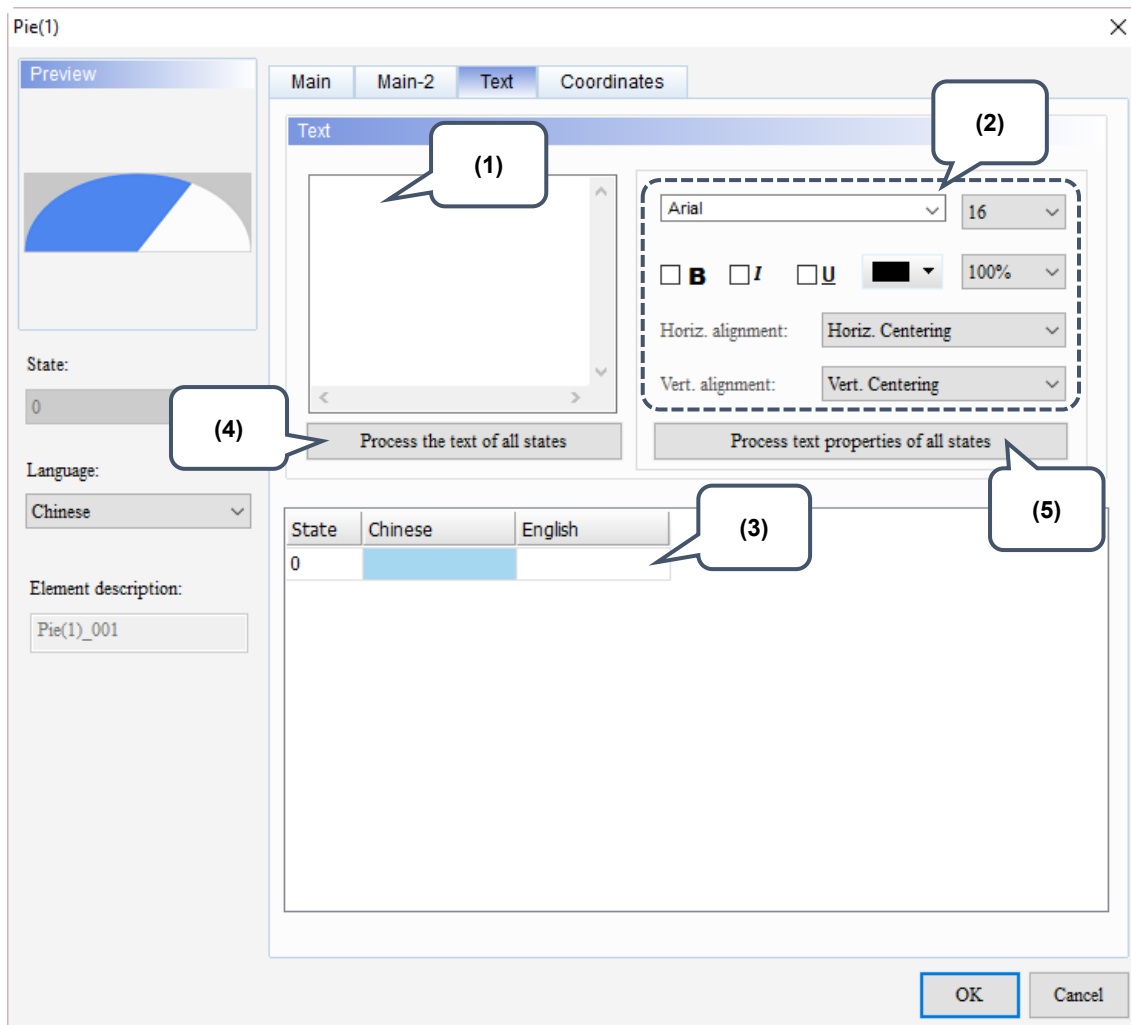
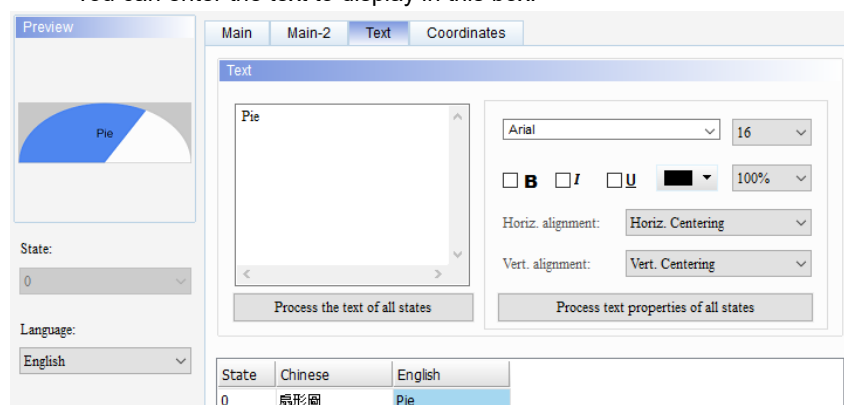


Figure 9.1.4 Text property page for the Pie(1) element

No.	Property	Function description
(1)	Text	<p>■ You can enter the text to display in this box.</p>  <p>■ As long as the element allows text input, you can click the element on the screen and press the space key to start editing and entering the text.</p>
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the figure above for the text property setting results.
(3)	Edit multi-language text	If you have added multi-language text, the Text page allows you to edit multi-language data.

No.	Property	Function description
(4)	Process the text of all states	<ul style="list-style-type: none"> ■ This function batch changes all the texts into the text contents of the state you selected. ■ Pie elements do not support multiple states, so this function is not available.
(5)	Process text properties of all states	<ul style="list-style-type: none"> ■ This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure. <div style="border: 1px solid gray; padding: 5px;"> <p style="margin: 0;">Text</p> <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="border: 1px solid gray; padding: 5px; width: 45%;"> <p style="margin: 0;">Delta</p> </div> <div style="border: 2px dashed gray; padding: 5px; width: 45%;"> <p style="margin: 0;">Arial 16</p> <p style="margin: 0;"><input type="checkbox"/> B <input type="checkbox"/> <i>I</i> <input type="checkbox"/> <u>U</u> █ 100%</p> <p style="margin: 0;">Horiz. alignment: Horiz. Centering</p> <p style="margin: 0;">Vert. alignment: Vert. Centering</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid gray; padding: 5px; width: 45%; text-align: center;">Process the text of all states</div> <div style="border: 1px solid gray; padding: 5px; width: 45%; text-align: center;">Process text properties of all states</div> </div> </div> <ul style="list-style-type: none"> ■ Pie elements do not support multiple states, so this function is not available.

■ Coordinates

9

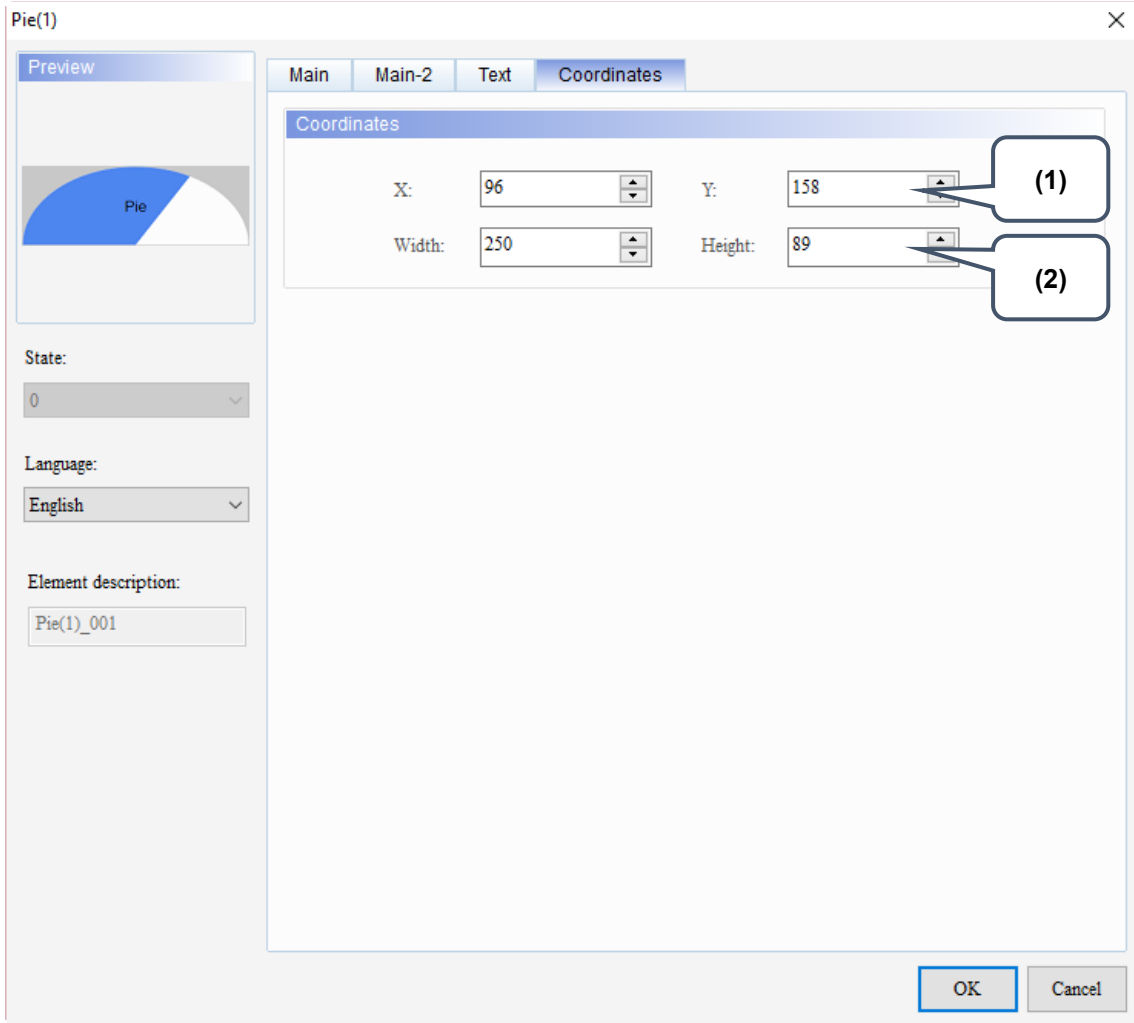


Figure 9.1.5 Coordinates property page for the Pie(1) element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

This chapter provides the usage and setting details for the Indicator elements.

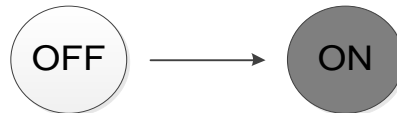


10.1	Multistate Indicator.....	10-2
10.2	Range Indicator.....	10-20
10.3	Simple Indicator	10-36

10.1 Multistate Indicator

The Multistate Indicator is for displaying the state of a given address. No matter the element uses Bit, LSB, or Word as the Data Type, once the HMI reads the memory address, the indicator prompts a change of state. You can also use different settings to have the Multistate Indicator change its light or display the corresponding messages to notify the users about the change of state value. With such notifications, checking the message for each state becomes easier.

The indicator can set to display ON and OFF states.



You can also set the pictures and colors to indicate each state.



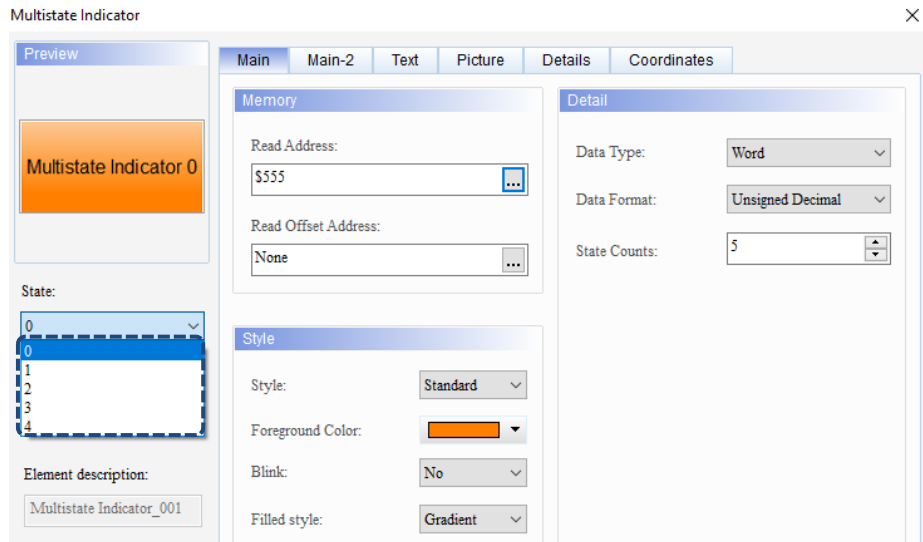
Refer to Table 10.1.1 for the Multistate Indicator example.

Table 10.1.1 Multistate Indicator example

Multistate Indicator					
Read Address	Multistate Indicator element		Numeric Entry element		
	Read Address	\$555	Write Address	\$555	
Detail settings	Data Type: Word Data Format: Unsigned Decimal State Counts: 5				
Set Foreground Color	State 0	State 1	State 2	State 3	State 4

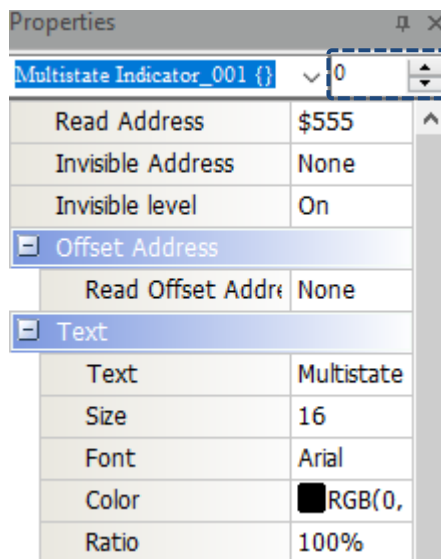
10

- Double-click the element to view the diagram of each state. In this example, the State Counts is set to 5, so the state values are 0 - 4, as shown in the blue mark in the following figure.



Multistate Indicator diagram example

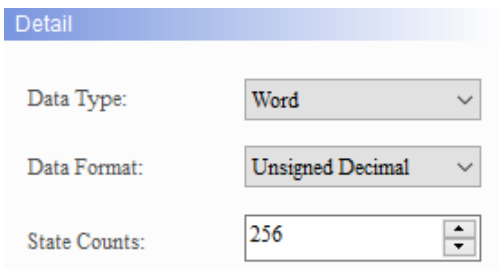
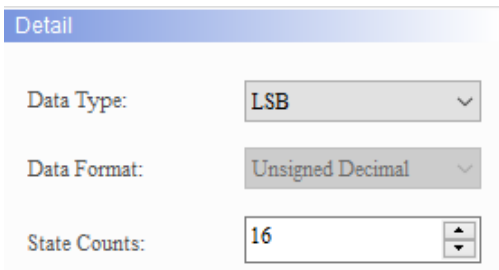
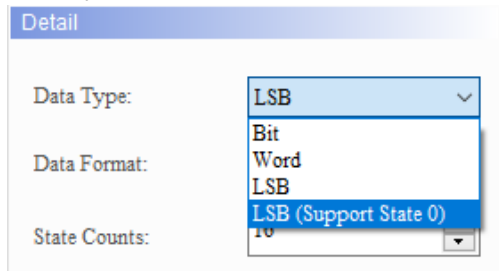

- You can also go to the upper right corner in the Properties window of the element to switch the state.

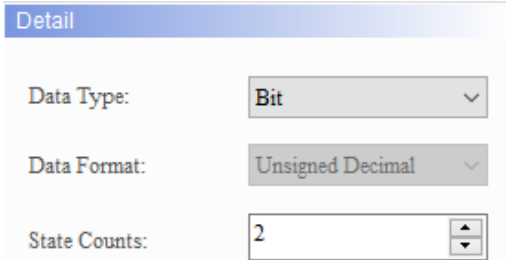


Multistate Indicator											
Execution results	<ul style="list-style-type: none"> After you download the element, the Multistate Indicator initial state is 0. Next, enter a value to the Numeric Entry element. <div style="display: flex; justify-content: space-around; align-items: center; margin: 10px 0;"> <div style="border: 1px solid black; background-color: #ff9900; padding: 10px; text-align: center; width: 150px;">Multistate Indicator 0</div> <div style="border: 1px solid black; background-color: #cccccc; padding: 10px; text-align: center; width: 150px;">0</div> </div> <ul style="list-style-type: none"> Input the values 0 - 4 in sequence and you can see the results. <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr style="background-color: #cccccc;"> <th>Value = 0</th> <th>Value = 1</th> <th>Value = 2</th> <th>Value = 3</th> <th>Value = 4</th> </tr> </thead> <tbody> <tr> <td style="background-color: #ff9900; padding: 5px;">Multistate Indicator 0</td> <td style="background-color: #008000; padding: 5px;">Multistate Indicator 1</td> <td style="background-color: #00ffff; padding: 5px;">Multistate Indicator 2</td> <td style="background-color: #ff00ff; padding: 5px;">Multistate Indicator 3</td> <td style="background-color: #ffff00; padding: 5px;">Multistate Indicator 4</td> </tr> </tbody> </table>	Value = 0	Value = 1	Value = 2	Value = 3	Value = 4	Multistate Indicator 0	Multistate Indicator 1	Multistate Indicator 2	Multistate Indicator 3	Multistate Indicator 4
	Value = 0	Value = 1	Value = 2	Value = 3	Value = 4						
	Multistate Indicator 0	Multistate Indicator 1	Multistate Indicator 2	Multistate Indicator 3	Multistate Indicator 4						

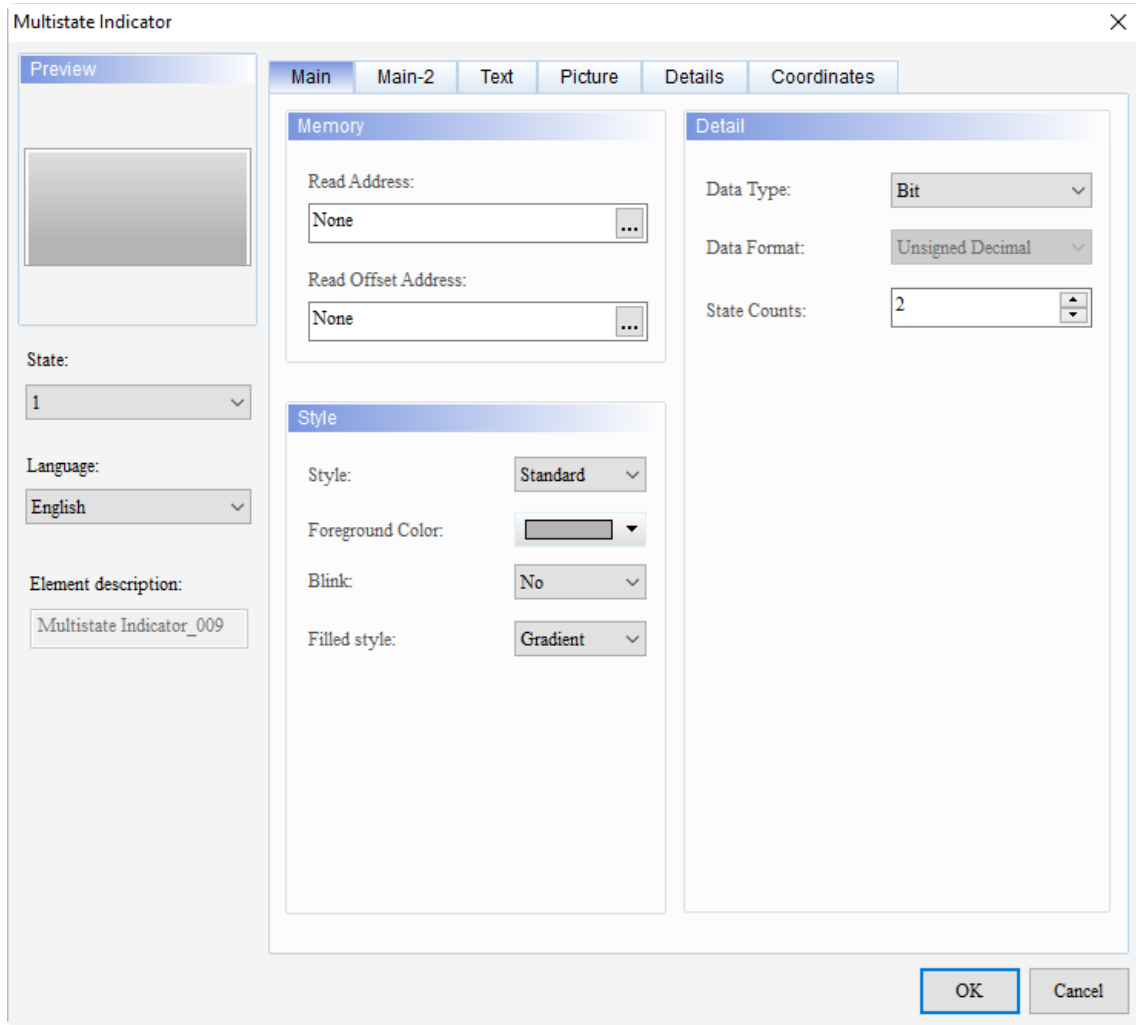
The Multistate Indicator supports four data types, as shown in the Table 10.1.2. To add or reduce the number of states, you can simply increase or decrease the number of State Counts in the Properties window.

Table 10.1.2 Data Type of Multistate Indicator

Multistate Indicator		
Data Type	State Counts	Memory Address
Word	<p>If the Data Type is Word, you can set 1 to 256 states for the State Counts.</p> 	<p>If the Data Type is Word, the memory address is in units of Word.</p>
LSB / LSB (Support State 0)	<p>LSB is to first convert the data in the register to binary data, and then use the lowest non-zero bit to determine the current state of the object. If the Data Type is LSB, you can set 1 to 16 states except for State 0.</p>  <p>To display State 0, select LSB (Support State 0) for the Data Type.</p>  <p>If you selected LSB, the element is black when the state is 0.</p> 	<p>When the Data Type is either LSB or LSB (Support State 0), the memory address is in units of Word.</p>

Multistate Indicator																																																														
Data Type	State Counts	Memory Address																																																												
LSB / LSB (Support State 0)	<p>The examples in the following table show how the state value is determined with the lowest non-zero bit of the binary value converted from a decimal value. There are also examples demonstrating how the software determines the displaying state value with the lowest bit when the decimal values are 3 and 7.</p> <table border="1"> <thead> <tr> <th>Decimal</th> <th>Binary</th> <th>State value</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0000000000000000</td> <td>State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.</td> </tr> <tr> <td>1</td> <td>0000000000000001</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>2</td> <td>0000000000000010</td> <td>The lowest non-zero bit is bit 1, State = 2.</td> </tr> <tr> <td>3</td> <td>0000000000000011</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>4</td> <td>0000000000000100</td> <td>The lowest non-zero bit is bit 2, State = 3.</td> </tr> <tr> <td>7</td> <td>0000000000000111</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>8</td> <td>0000000000001000</td> <td>The lowest non-zero bit is bit 3, State = 4.</td> </tr> <tr> <td>16</td> <td>00000000000010000</td> <td>The lowest non-zero bit is bit 4, State = 5.</td> </tr> <tr> <td>32</td> <td>00000000000100000</td> <td>The lowest non-zero bit is bit 5, State = 6.</td> </tr> <tr> <td>64</td> <td>00000000001000000</td> <td>The lowest non-zero bit is bit 6, State = 7.</td> </tr> <tr> <td>128</td> <td>00000000010000000</td> <td>The lowest non-zero bit is bit 7, State = 8.</td> </tr> <tr> <td>256</td> <td>00000000100000000</td> <td>The lowest non-zero bit is bit 8, State = 9.</td> </tr> <tr> <td>512</td> <td>00000001000000000</td> <td>The lowest non-zero bit is bit 9, State = 10.</td> </tr> <tr> <td>1024</td> <td>00000010000000000</td> <td>The lowest non-zero bit is bit 10, State = 11.</td> </tr> <tr> <td>2048</td> <td>00001000000000000</td> <td>The lowest non-zero bit is bit 11, State = 12.</td> </tr> <tr> <td>4096</td> <td>00010000000000000</td> <td>The lowest non-zero bit is bit 12, State = 13.</td> </tr> <tr> <td>8192</td> <td>00100000000000000</td> <td>The lowest non-zero bit is bit 13, State = 14.</td> </tr> <tr> <td>16384</td> <td>01000000000000000</td> <td>The lowest non-zero bit is bit 14, State = 15.</td> </tr> <tr> <td>32768</td> <td>10000000000000000</td> <td>The lowest non-zero bit is bit 15, State = 16.</td> </tr> </tbody> </table>		Decimal	Binary	State value	0	0000000000000000	State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.	1	0000000000000001	The lowest non-zero bit is bit 0, State = 1.	2	0000000000000010	The lowest non-zero bit is bit 1, State = 2.	3	0000000000000011	The lowest non-zero bit is bit 0, State = 1.	4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.	7	0000000000000111	The lowest non-zero bit is bit 0, State = 1.	8	0000000000001000	The lowest non-zero bit is bit 3, State = 4.	16	00000000000010000	The lowest non-zero bit is bit 4, State = 5.	32	00000000000100000	The lowest non-zero bit is bit 5, State = 6.	64	00000000001000000	The lowest non-zero bit is bit 6, State = 7.	128	00000000010000000	The lowest non-zero bit is bit 7, State = 8.	256	00000000100000000	The lowest non-zero bit is bit 8, State = 9.	512	00000001000000000	The lowest non-zero bit is bit 9, State = 10.	1024	00000010000000000	The lowest non-zero bit is bit 10, State = 11.	2048	00001000000000000	The lowest non-zero bit is bit 11, State = 12.	4096	00010000000000000	The lowest non-zero bit is bit 12, State = 13.	8192	00100000000000000	The lowest non-zero bit is bit 13, State = 14.	16384	01000000000000000	The lowest non-zero bit is bit 14, State = 15.	32768	10000000000000000	The lowest non-zero bit is bit 15, State = 16.
	Decimal	Binary	State value																																																											
	0	0000000000000000	State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.																																																											
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	3	0000000000000011	The lowest non-zero bit is bit 0, State = 1.																																																											
	4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.																																																											
	7	0000000000000111	The lowest non-zero bit is bit 0, State = 1.																																																											
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	16	00000000000010000	The lowest non-zero bit is bit 4, State = 5.																																																											
	32	00000000000100000	The lowest non-zero bit is bit 5, State = 6.																																																											
	64	00000000001000000	The lowest non-zero bit is bit 6, State = 7.																																																											
	128	00000000010000000	The lowest non-zero bit is bit 7, State = 8.																																																											
	256	00000000100000000	The lowest non-zero bit is bit 8, State = 9.																																																											
	512	00000001000000000	The lowest non-zero bit is bit 9, State = 10.																																																											
	1024	00000010000000000	The lowest non-zero bit is bit 10, State = 11.																																																											
	2048	00001000000000000	The lowest non-zero bit is bit 11, State = 12.																																																											
	4096	00010000000000000	The lowest non-zero bit is bit 12, State = 13.																																																											
8192	00100000000000000	The lowest non-zero bit is bit 13, State = 14.																																																												
16384	01000000000000000	The lowest non-zero bit is bit 14, State = 15.																																																												
32768	10000000000000000	The lowest non-zero bit is bit 15, State = 16.																																																												
Bit	<p>If the Data Type is Bit, you can set only 2 states.</p> 	<p>If the Data Type is Bit, the memory address is in units of Bit.</p>																																																												

When you double-click the Multistate Indicator, the property page is shown as follows.



10

Figure 10.1.1 Properties of Multistate Indicator

Table 10.1.3 Function page of Multistate Indicator

Multistate Indicator	
Function page	Description
Preview	You can view multistate values and multi-language display data of the element.
Main	Set the Read Address, Read Offset Address, Style, Foreground Color, Blink, and Filled style. Set the Data Type, Data Format, and State Counts.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color.
Details	Set the Invisible Address.
Coordinates	Set the X and Y coordinates, width, and height of the element.

■ Main

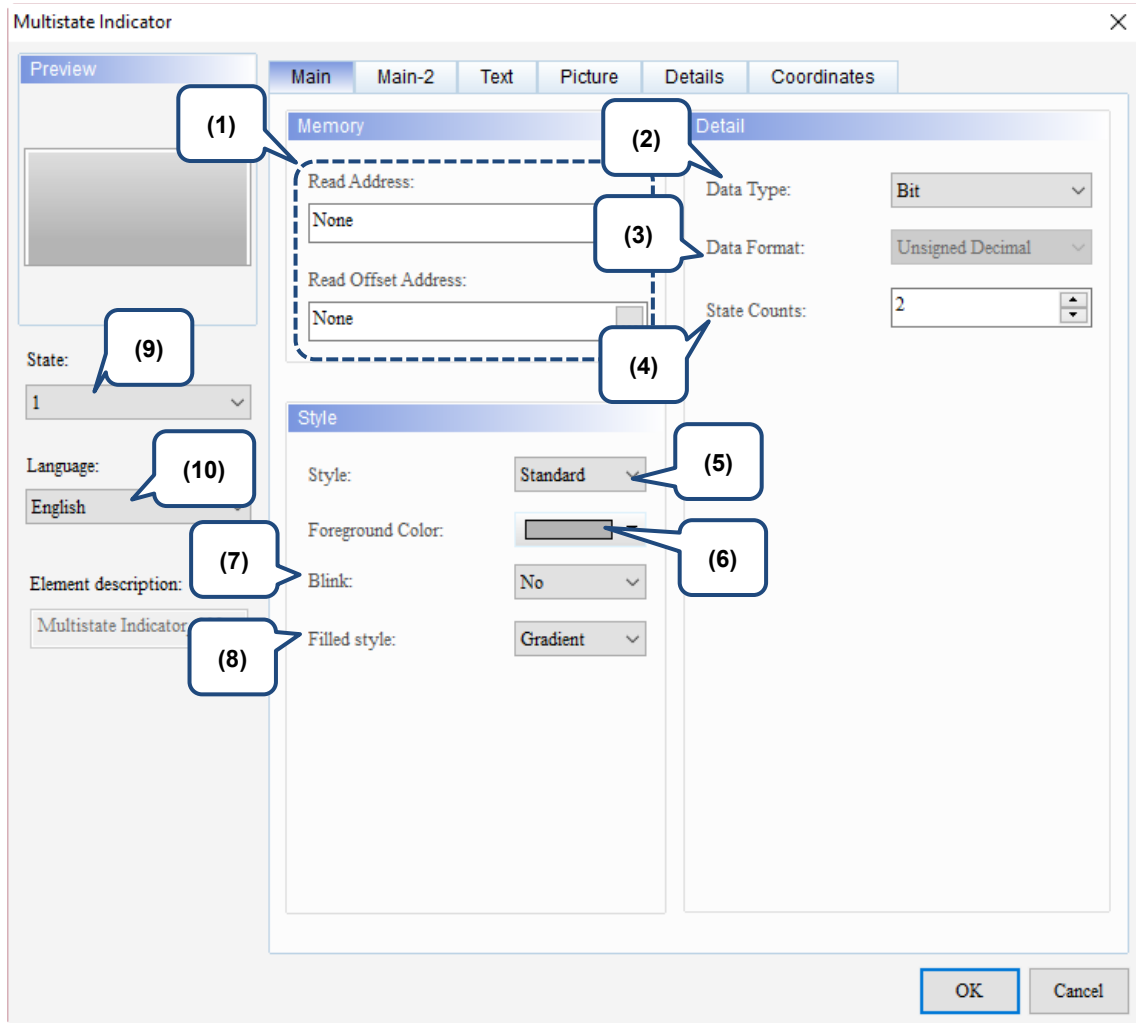
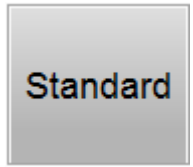



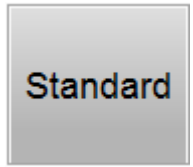



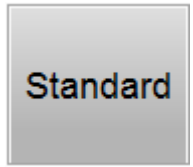



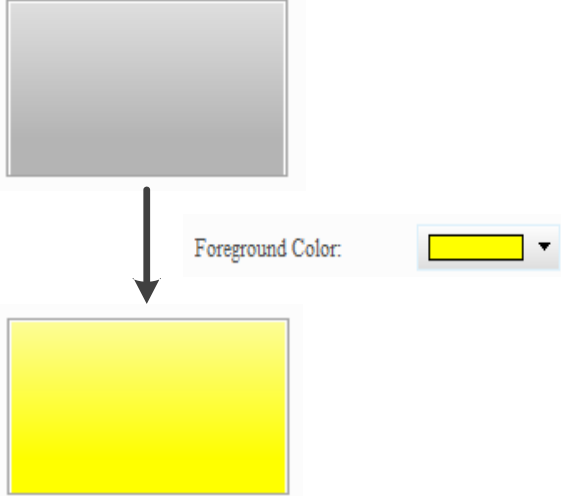
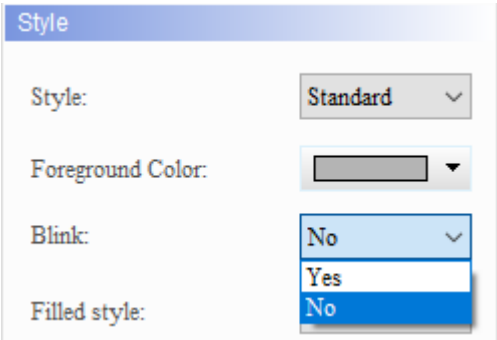






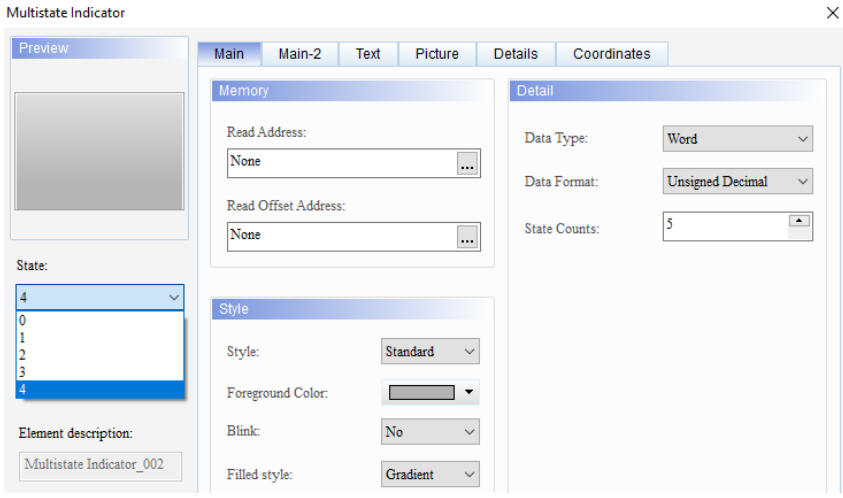
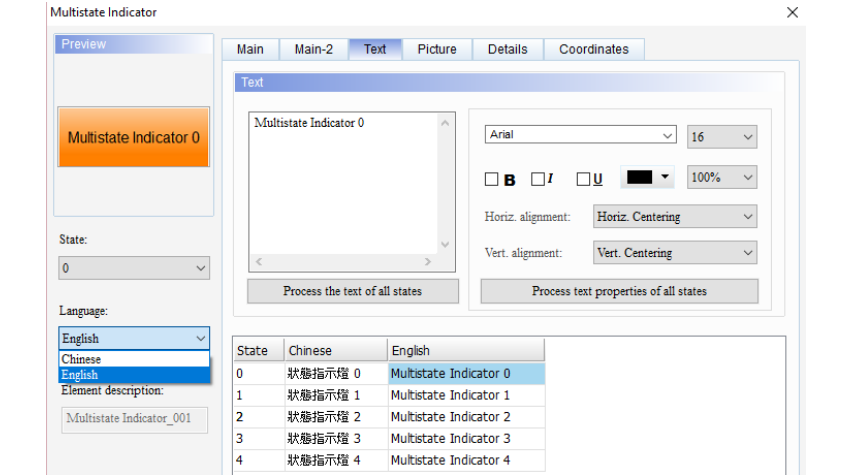


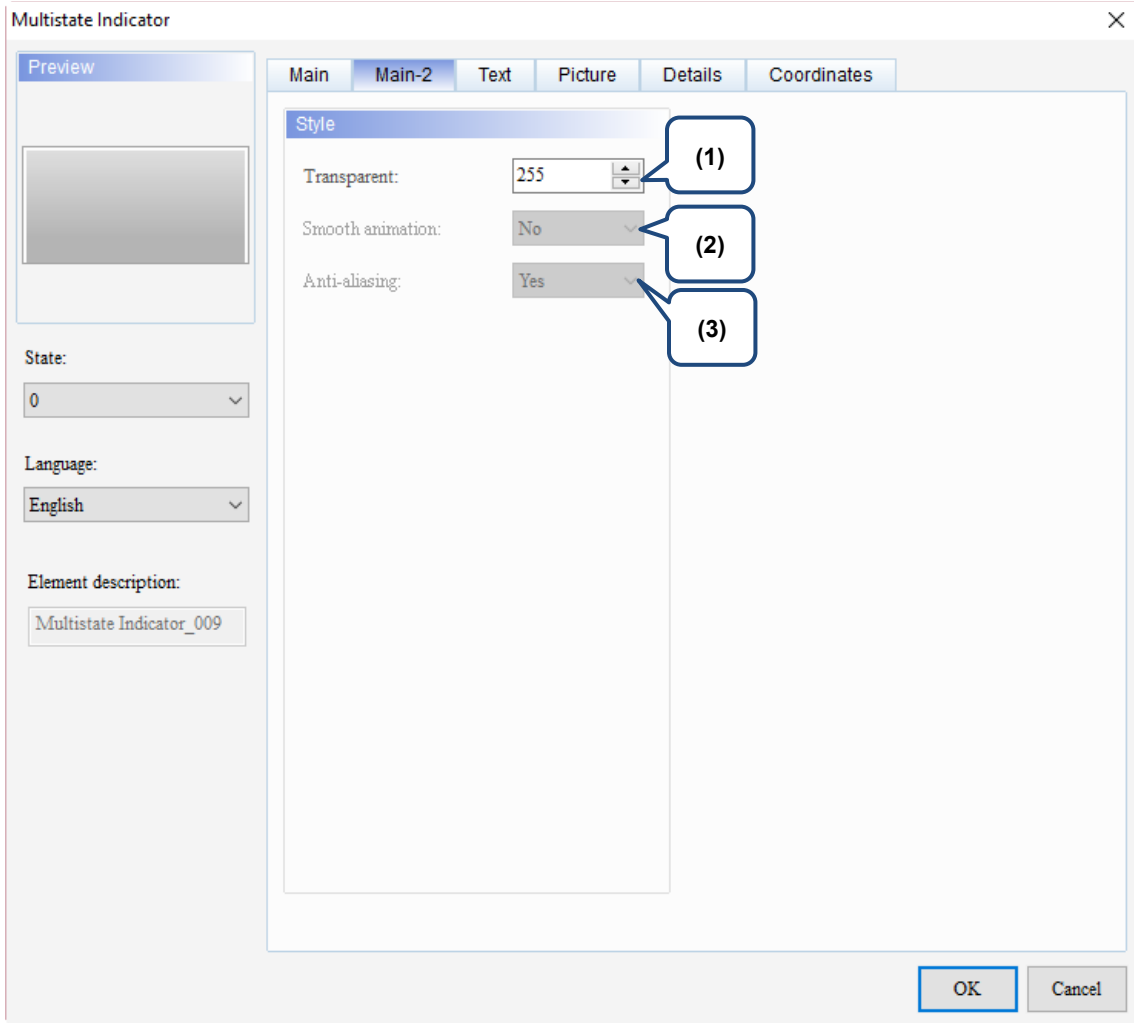
Figure 10.1.2 Main property page for the Multistate Indicator element

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can choose the internal memory or the controller register address. The input memory type varies depending on the selected data type, including Word, LSB, or Bit, as shown in Table 10.1.2. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(2)	Data Type	There are four data types, Bit, Word, LSB, and LSB (Support State 0). Refer to Table 10.1.2 for more details.
(3)	Data Format	<ul style="list-style-type: none"> You can select the Data Format only when the Data Type is Word. There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal. <div style="border: 1px solid grey; padding: 5px; margin-top: 10px;"> <p>Detail</p> <p>Data Type: Word</p> <p>Data Format: Unsigned Decimal</p> <p>State Counts:</p> </div>

No.	Property	Function description								
(4)	State Counts	Set the total state count of the Multistate Indicators. If the Data Type is Word, you can set 1 - 256 states; if the Data Type is LSB, you can set 16 states; if the Data Type is LSB (Support State 0), you can set 17 states; and if the Data Type is Bit, you can set only 2 states. Refer to Table 10.1.2 for more details.								
(5)	Style	<p>The available element styles are Standard, Raised, Round, and Invisible. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Round</th> <th>Invisible</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Round	Invisible				
Standard	Raised	Round	Invisible							
										
(6)	Foreground Color	<ul style="list-style-type: none"> ■ Set the element foreground color. ■ When you set the Style to Invisible, the Foreground Color setting is invalid. 								
(7)	Blink	<p>Set whether the indicator blinks when it switches between states; the blink color is the contrast color of the element foreground color.</p> 								

No.	Property	Function description																		
(8)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)															
Gradient																				
Fixed (Solid)																				
(9)	State	<p>By switching the State, you can preview or change the settings of each state of the element.</p>  <p>The screenshot shows the 'Multistate Indicator' dialog box with the 'State' tab selected. The 'Preview' window shows a gray square. The 'State' dropdown is set to 4. The 'Element description' is 'Multistate Indicator_002'. The 'Memory' tab is also visible, showing 'Read Address' and 'Read Offset Address' both set to 'None'. The 'Style' section shows 'Style' as 'Standard', 'Foreground Color' as a gray swatch, 'Blink' as 'No', and 'Filled style' as 'Gradient'. The 'Detail' section shows 'Data Type' as 'Word', 'Data Format' as 'Unsigned Decimal', and 'State Counts' as 5.</p>																		
(10)	Language	<p>If you have set the language data, you can edit the properties of the text to be displayed with the Language setting of the element.</p>  <p>The screenshot shows the 'Multistate Indicator' dialog box with the 'Text' tab selected. The 'Preview' window shows an orange square with the text 'Multistate Indicator 0'. The 'State' dropdown is set to 0. The 'Language' dropdown is set to 'English'. The 'Element description' is 'Multistate Indicator_001'. The 'Text' section shows the text 'Multistate Indicator 0' in a text area. The 'Text' properties are set to 'Arial' font, size 16, bold, italic, and underline. The 'Horiz. alignment' is 'Horiz. Centering' and 'Vert. alignment' is 'Vert. Centering'. There are two buttons: 'Process the text of all states' and 'Process text properties of all states'. A table at the bottom shows the state and language settings for each state.</p> <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>狀態指示燈 0</td> <td>Multistate Indicator 0</td> </tr> <tr> <td>1</td> <td>狀態指示燈 1</td> <td>Multistate Indicator 1</td> </tr> <tr> <td>2</td> <td>狀態指示燈 2</td> <td>Multistate Indicator 2</td> </tr> <tr> <td>3</td> <td>狀態指示燈 3</td> <td>Multistate Indicator 3</td> </tr> <tr> <td>4</td> <td>狀態指示燈 4</td> <td>Multistate Indicator 4</td> </tr> </tbody> </table>	State	Chinese	English	0	狀態指示燈 0	Multistate Indicator 0	1	狀態指示燈 1	Multistate Indicator 1	2	狀態指示燈 2	Multistate Indicator 2	3	狀態指示燈 3	Multistate Indicator 3	4	狀態指示燈 4	Multistate Indicator 4
State	Chinese	English																		
0	狀態指示燈 0	Multistate Indicator 0																		
1	狀態指示燈 1	Multistate Indicator 1																		
2	狀態指示燈 2	Multistate Indicator 2																		
3	狀態指示燈 3	Multistate Indicator 3																		
4	狀態指示燈 4	Multistate Indicator 4																		

■ Main-2



10

Figure 10.1.3 Main-2 property page for the Multistate Indicator element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

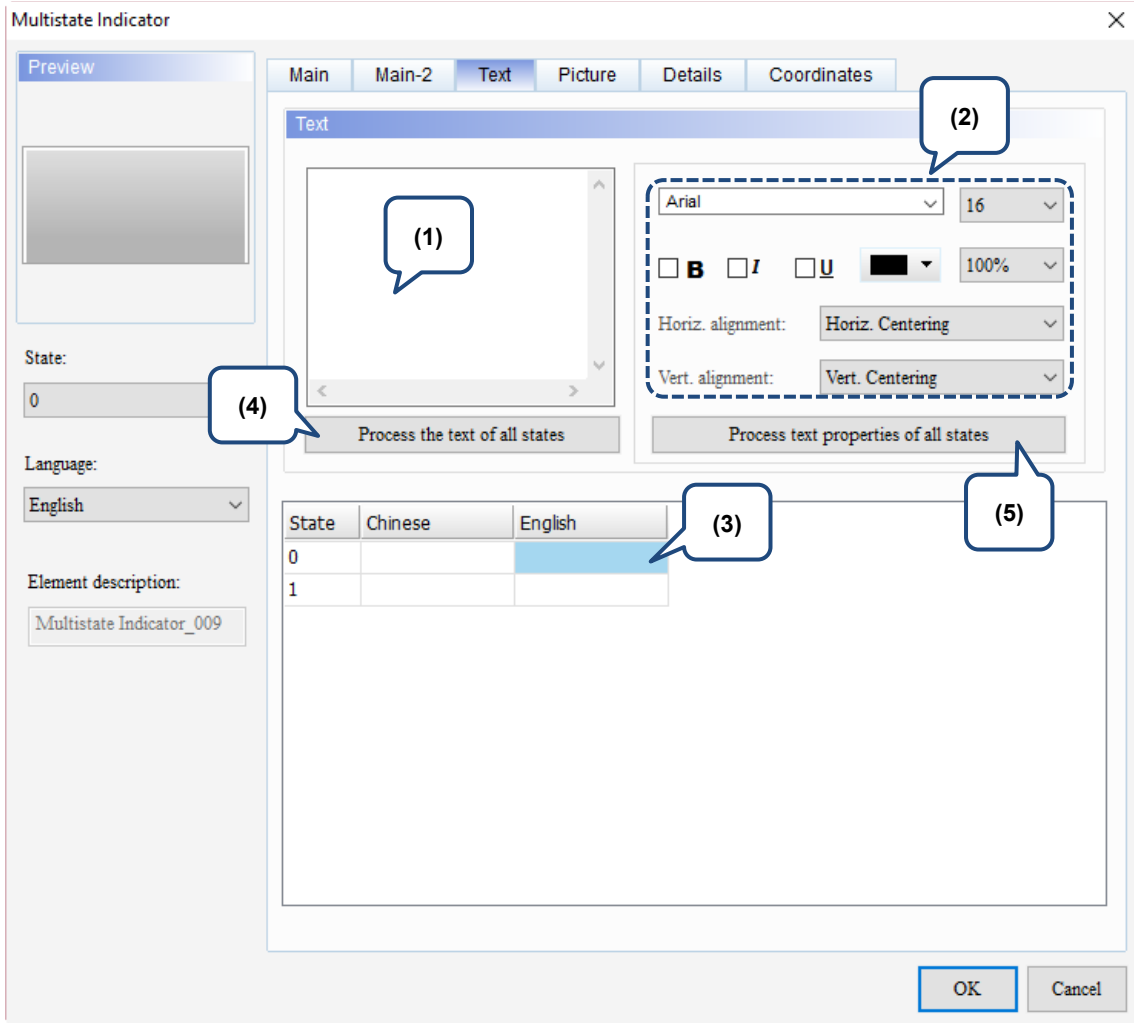
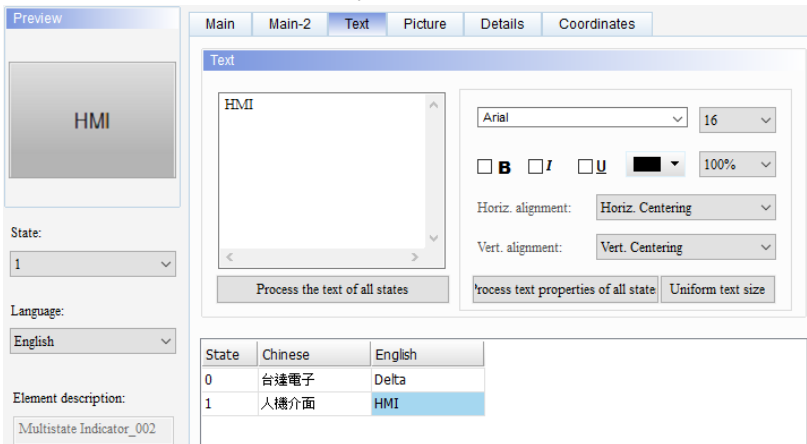
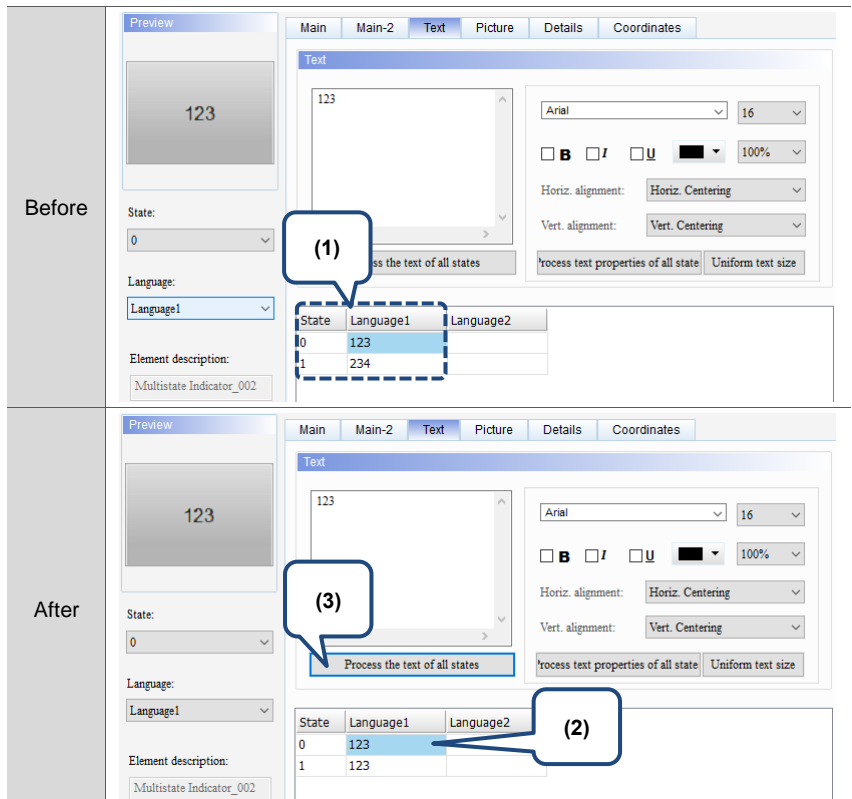
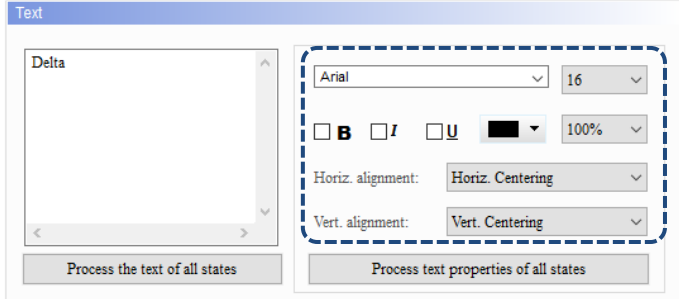

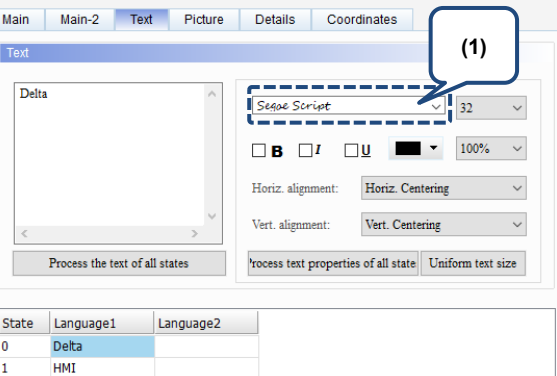
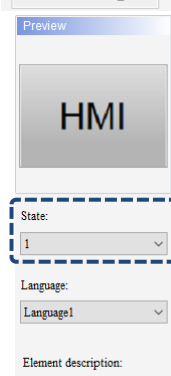
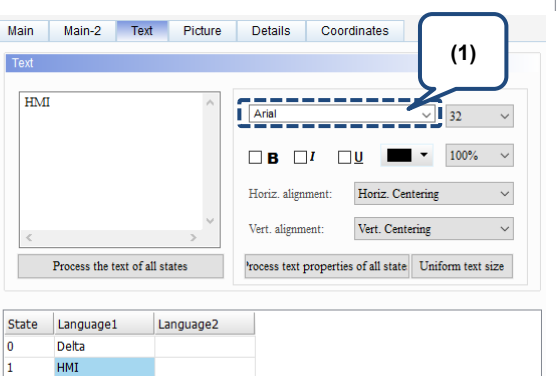


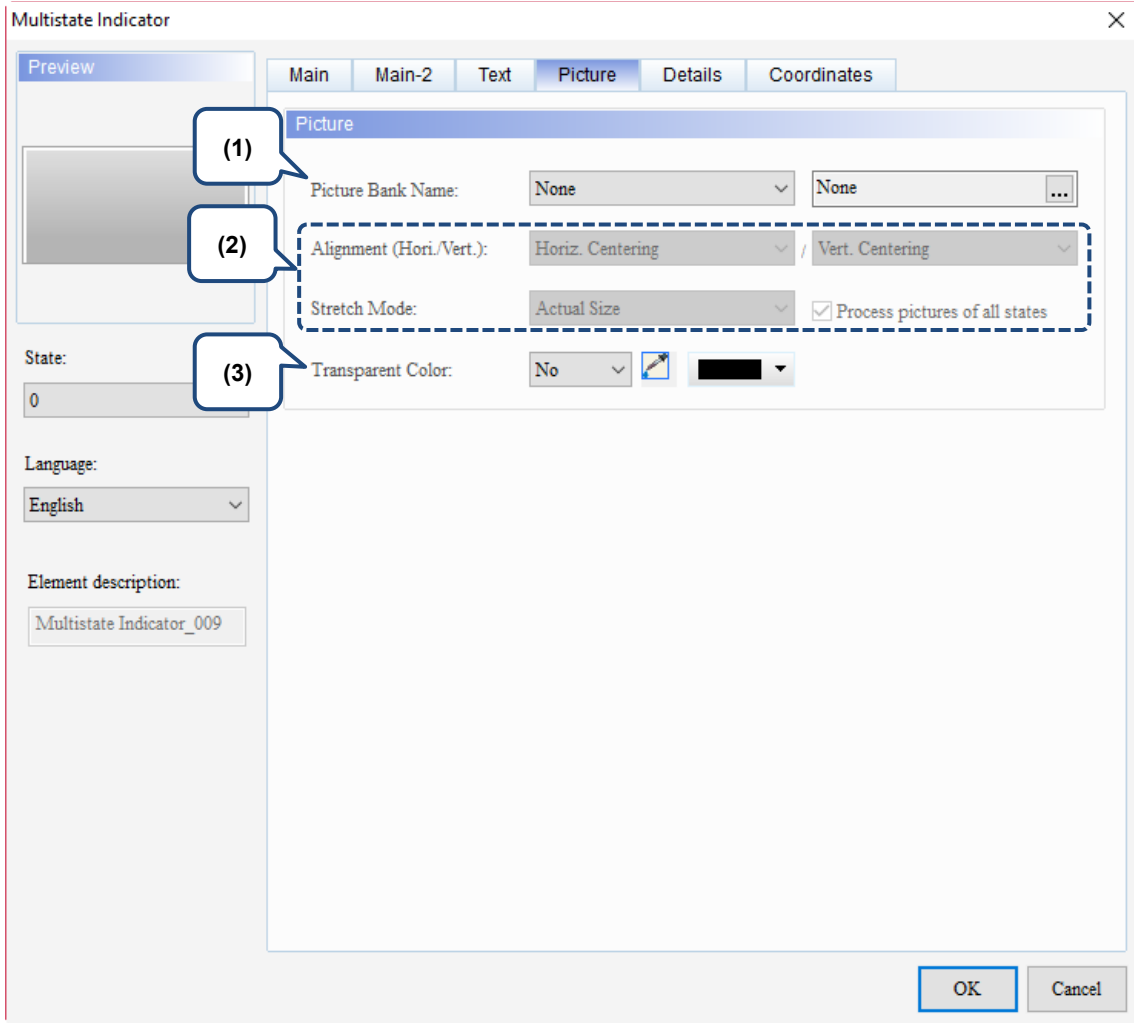
Figure 10.1.4 Text property page for the Multistate Indicator element

No.	Property	Function description
(1)	Text	<ul style="list-style-type: none"> You can enter the text to display in this box.  <ul style="list-style-type: none"> As long as the element allows text input, you can click the element on the screen and press the space key to start editing and entering the text.
(2)	Text	<p>Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the Text property setting results.</p>

No.	Property	Function description
(3)	Edit multi-language text	If you have added multi-language data, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected. The example and setting steps are as follows.</p> <ol style="list-style-type: none"> 1. Enter the text "123" for State 0 and "234" for State 1. 2. Select State 0. 3. Execute Process the text of all states, and the text of State 1 is changed to "123". 

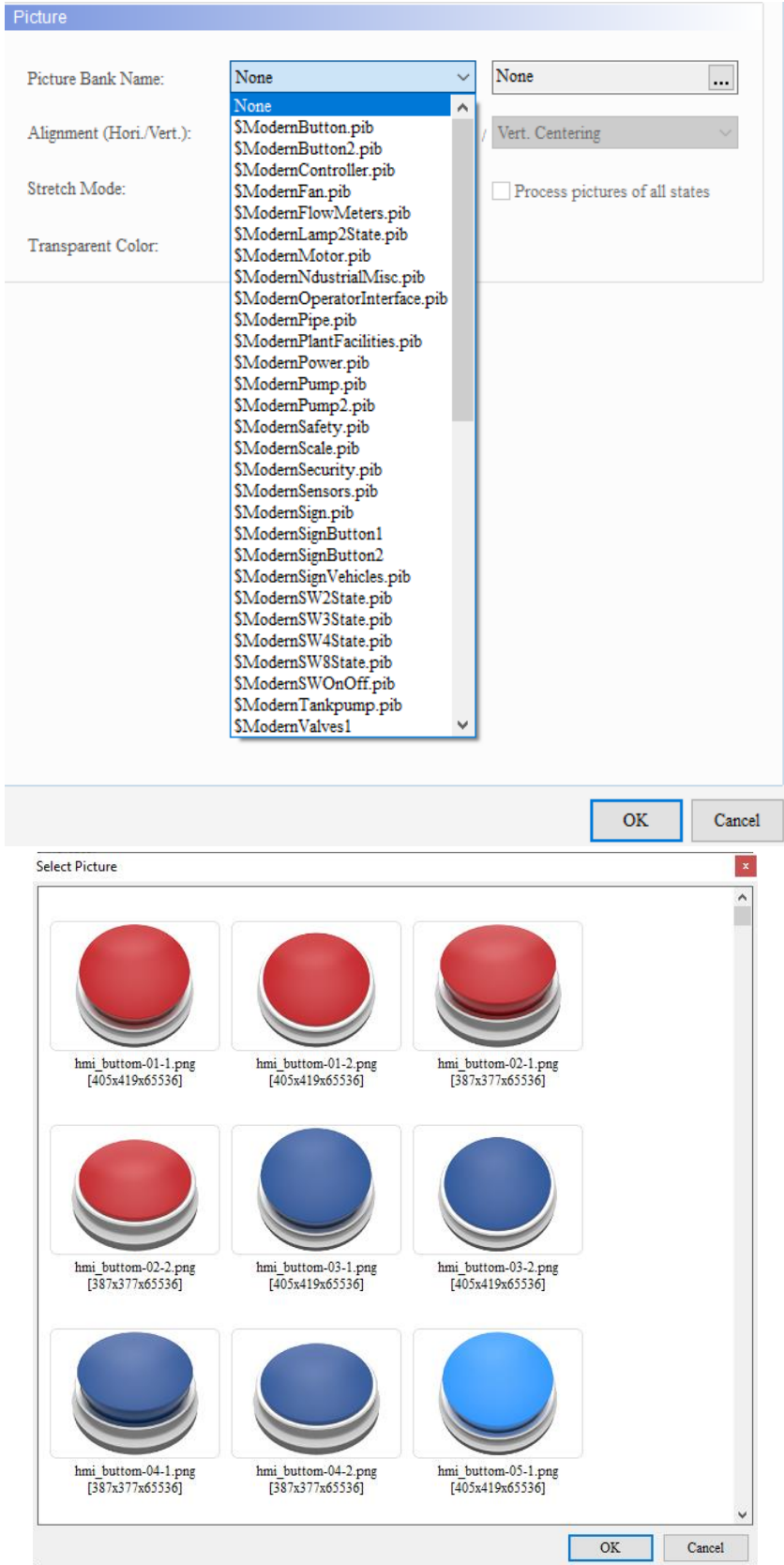
No.	Property	Function description
<p>(5)</p>	<p>Process text properties of all states</p>	<p>This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p>  <p>The example and setting steps are as follows:</p> <ol style="list-style-type: none"> 1. Enter the text “Delta” for State 0 and “HMI” for State 1. Select Segoe Script for the text font of State 0 and Arial for the text font of State 1. 2. Select State 0. 3. Execute Process text properties of all states and the text font of State 1 is changed to Segoe Script. <div style="display: flex; flex-direction: column;"> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>Before</p>  </div> <div style="width: 65%;">  </div> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>After</p>  </div> <div style="width: 65%;">  </div> </div> </div>

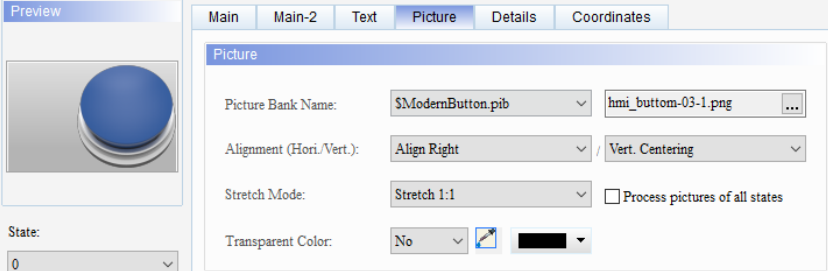




■ Picture



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Figure 10.1.5 Picture property page for the Multistate Indicator element

No.	Property	Function description
<p>(1)</p>	<p>Picture Bank Name</p>	<p>The Picture Bank Name default is None. To set the picture display, use the drop-down list box to view the picture bank provided by the software and then select the desired pictures.</p>  <p>The 'Picture' dialog box contains the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: A drop-down menu currently showing 'None' and a list of picture banks including \$ModernButton.pib, \$ModernButton2.pib, \$ModernController.pib, \$ModernFan.pib, \$ModernFlowMeters.pib, \$ModernLamp2State.pib, \$ModernMotor.pib, \$ModernNdustrualMisc.pib, \$ModernOperatorInterface.pib, \$ModernPipe.pib, \$ModernPlantFacilities.pib, \$ModernPower.pib, \$ModernPump.pib, \$ModernPump2.pib, \$ModernSafety.pib, \$ModernScale.pib, \$ModernSecurity.pib, \$ModernSensors.pib, \$ModernSign.pib, \$ModernSignButton1, \$ModernSignButton2, \$ModernSignVehicles.pib, \$ModernSW2State.pib, \$ModernSW3State.pib, \$ModernSW4State.pib, \$ModernSW8State.pib, \$ModernSWOnOff.pib, \$ModernTankpump.pib, and \$ModernValves1. Alignment (Hori./Vert.): A field with 'None' and a button to open a list. Stretch Mode: A field with 'None' and a button to open a list. Transparent Color: A field with 'None' and a button to open a list. Vert. Centering: A dropdown menu. Process pictures of all states: A checkbox. <p>The 'Select Picture' dialog box displays a grid of 9 button icons:</p> <ul style="list-style-type: none"> Row 1: hmi_buttom-01-1.png [405x419x65536], hmi_buttom-01-2.png [405x419x65536], hmi_buttom-02-1.png [387x377x65536] Row 2: hmi_buttom-02-2.png [387x377x65536], hmi_buttom-03-1.png [405x419x65536], hmi_buttom-03-2.png [405x419x65536] Row 3: hmi_buttom-04-1.png [387x377x65536], hmi_buttom-04-2.png [387x377x65536], hmi_buttom-05-1.png [405x419x65536]

No.	Property	Function description						
(2)	Alignment	<ul style="list-style-type: none"> You can use the alignment options to set how pictures are aligned.  <ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> </tbody> </table>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.
	Stretch All	Stretch 1:1	Actual Size					
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.						
Stretch Mode	 <ul style="list-style-type: none"> Assuming that the elements have multiple states and some pictures do not fill the full element display area, if you select the Process pictures of all states check box, you can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p><input checked="" type="checkbox"/> Process pictures of all states</p>							
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent.  is for selecting the transparent color. If you select the white part in the calendar, the software changes the white part into transparent, which becomes identical to the element foreground color.</p> <p>Foreground Color: </p> 						

■ Details

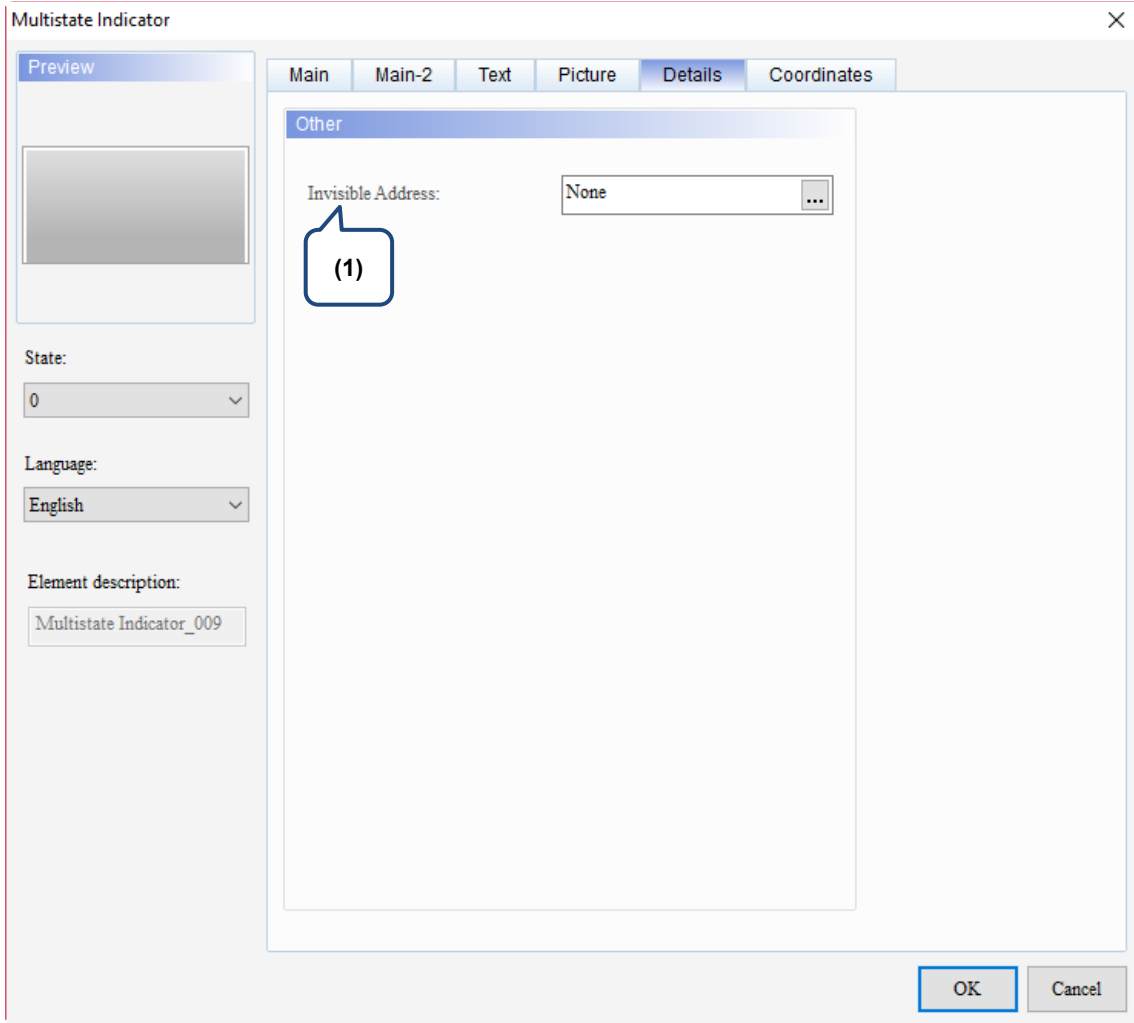

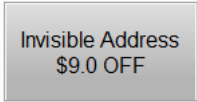
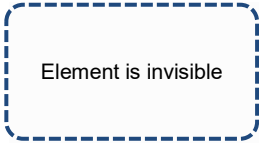
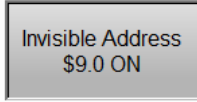

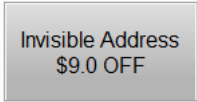
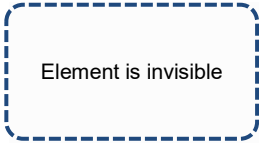
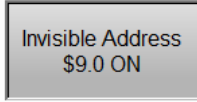

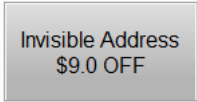
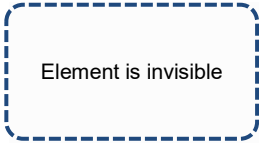
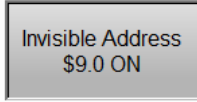
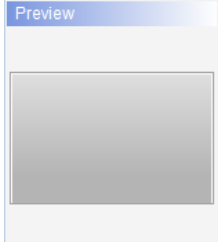
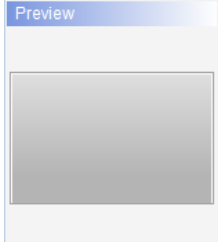
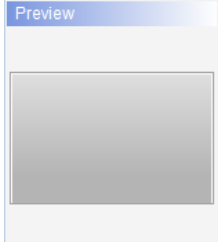
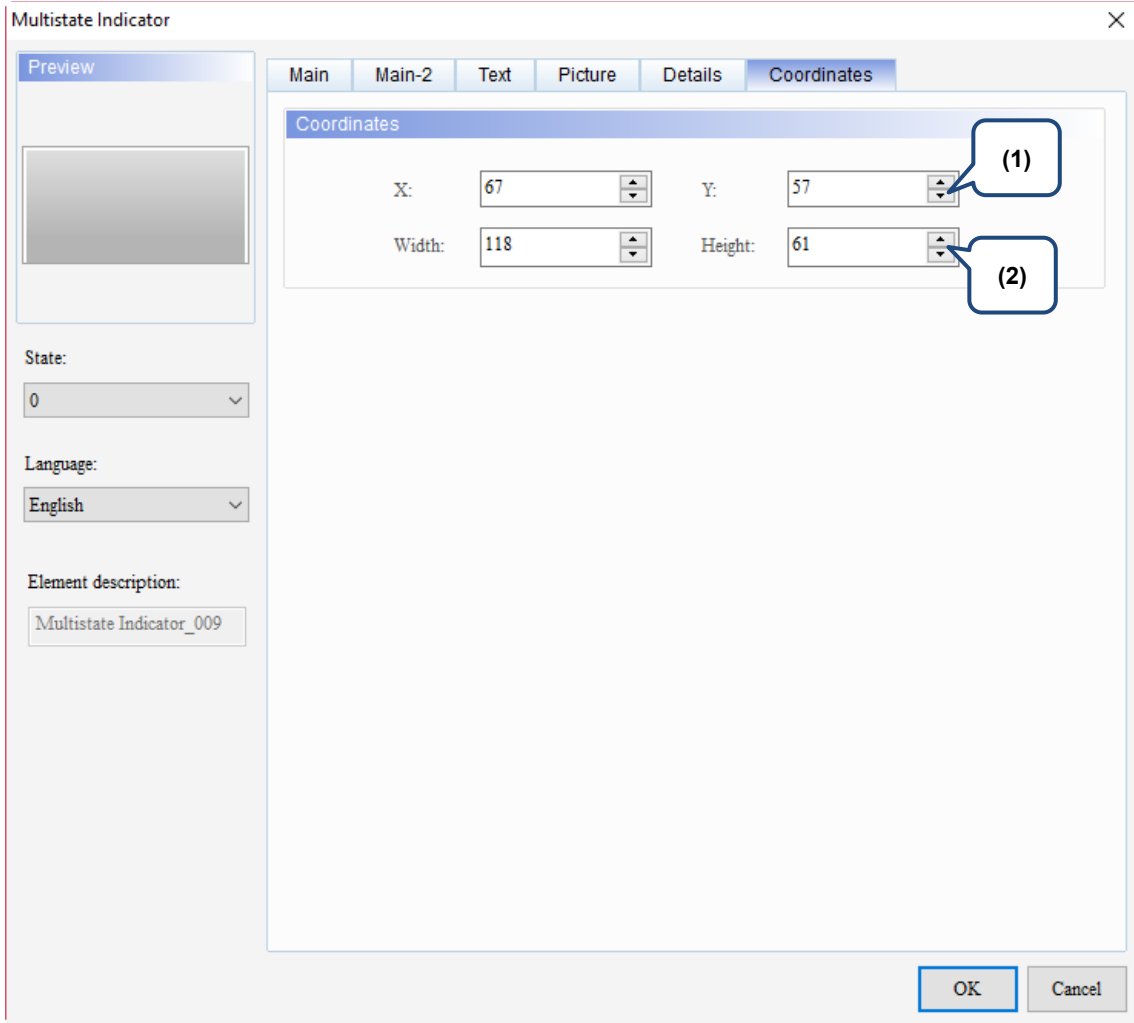


Figure 10.1.6 Details property page for the Multistate Indicator element

No.	Property	Function description																								
(1)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p>																								
		<table border="0"> <tr> <td style="text-align: center;">Invisible Address is Off</td> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;">Invisible Address is On</td> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> </table>	Invisible Address is Off			Invisible Address is On																				
		Invisible Address is Off																								
Invisible Address is On																										
<table border="0"> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"> <table border="0"> <tr> <td colspan="6" style="text-align: center;">Main Main-2 Text Picture Details Coordinates</td> </tr> <tr> <td colspan="6" style="text-align: center;">Other</td> </tr> <tr> <td>Invisible Address:</td> <td>\$9.0</td> <td>...</td> <td colspan="3"></td> </tr> <tr> <td>Invisible level:</td> <td>On</td> <td>▼</td> <td colspan="3"></td> </tr> </table> </td> </tr> </table>		<table border="0"> <tr> <td colspan="6" style="text-align: center;">Main Main-2 Text Picture Details Coordinates</td> </tr> <tr> <td colspan="6" style="text-align: center;">Other</td> </tr> <tr> <td>Invisible Address:</td> <td>\$9.0</td> <td>...</td> <td colspan="3"></td> </tr> <tr> <td>Invisible level:</td> <td>On</td> <td>▼</td> <td colspan="3"></td> </tr> </table>	Main Main-2 Text Picture Details Coordinates						Other						Invisible Address:	\$9.0	...				Invisible level:	On	▼			
	<table border="0"> <tr> <td colspan="6" style="text-align: center;">Main Main-2 Text Picture Details Coordinates</td> </tr> <tr> <td colspan="6" style="text-align: center;">Other</td> </tr> <tr> <td>Invisible Address:</td> <td>\$9.0</td> <td>...</td> <td colspan="3"></td> </tr> <tr> <td>Invisible level:</td> <td>On</td> <td>▼</td> <td colspan="3"></td> </tr> </table>	Main Main-2 Text Picture Details Coordinates						Other						Invisible Address:	\$9.0	...				Invisible level:	On	▼				
Main Main-2 Text Picture Details Coordinates																										
Other																										
Invisible Address:	\$9.0	...																								
Invisible level:	On	▼																								

■ Coordinates



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Figure 10.1.7 Coordinates property page for the Multistate Indicator element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

10.2 Range Indicator

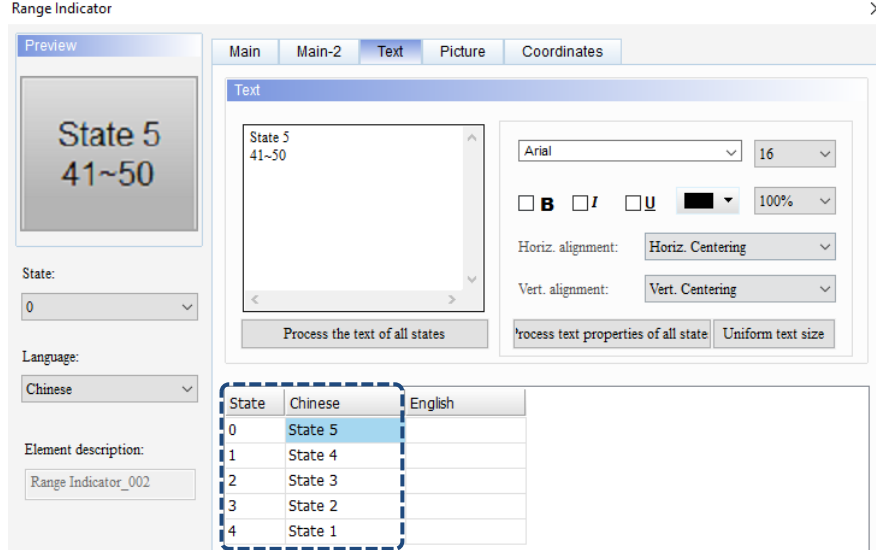
The Range Indicator is the same as the Multistate Indicator. Their function is to display the state of a given address. The element displays different states according to the range values corresponding to the read address values. Refer to Table 10.2.1 for the Range Indicator example.

Table 10.2.1 Range Indicator example

Range Indicator											
Read Address	Range Indicator element										
	<table border="1"> <tr> <td>Read Address</td> <td>\$666</td> </tr> <tr> <td colspan="2" style="text-align: center;"> <div style="border: 1px solid gray; padding: 5px; display: inline-block;"> R:\$666 Range Indicator </div> </td> </tr> </table>	Read Address	\$666	<div style="border: 1px solid gray; padding: 5px; display: inline-block;"> R:\$666 Range Indicator </div>							
Read Address	\$666										
<div style="border: 1px solid gray; padding: 5px; display: inline-block;"> R:\$666 Range Indicator </div>											
Detail settings	Data Type: Word Data Format: Unsigned Decimal State Counts: 5										
Ranges	<div style="border: 1px solid gray; padding: 5px;"> <p>Ranges</p> <p> <input checked="" type="radio"/> Constant Limits <input type="radio"/> Variable Limits </p> <table border="1"> <thead> <tr> <th colspan="2">Low limit Range</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>40</td> </tr> <tr> <td>1</td> <td>30</td> </tr> <tr> <td>2</td> <td>20</td> </tr> <tr style="background-color: #e0f0ff;"> <td>3</td> <td>10</td> </tr> </tbody> </table> </div>	Low limit Range		0	40	1	30	2	20	3	10
Low limit Range											
0	40										
1	30										
2	20										
3	10										


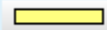



Range Indicator

Input text in the Text property page



State	Chinese	English
0	State 5	
1	State 4	
2	State 3	
3	State 2	
4	State 1	

Set the text to display for each state				
State 0	State 1	State 2	State 3	State 4
State 5 41~50	State 4 31~40	State 3 21~30	State 2 11~20	State 1 1~10

Set the foreground color for each state				
State 0	State 1	State 2	State 3	State 4
				

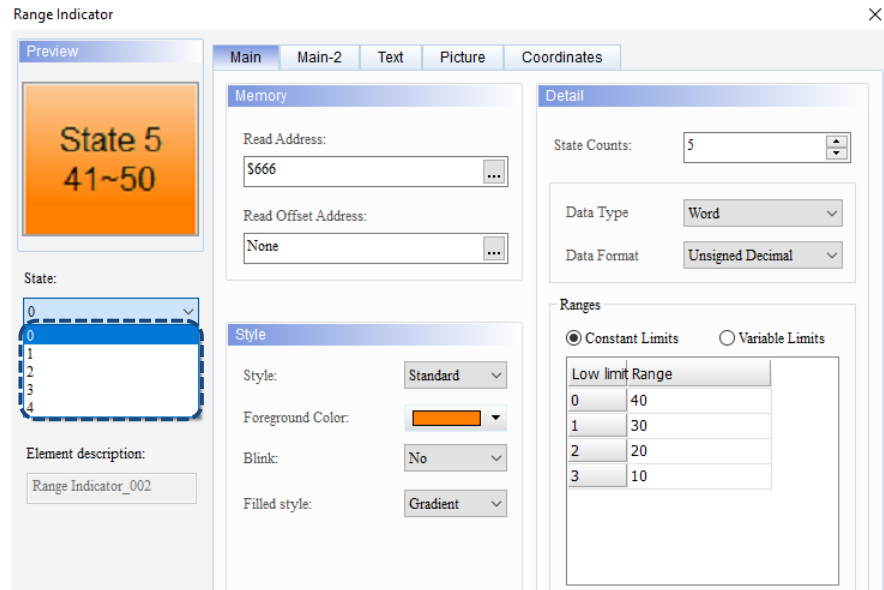
Go to [Options] > [Clock Macro] to input the following macro command.

```

[&Clock Macro]
1 $666 = $666 + 1
2 IF $666 == 50
3 $666 = 0
4 ENDIF
                    
```

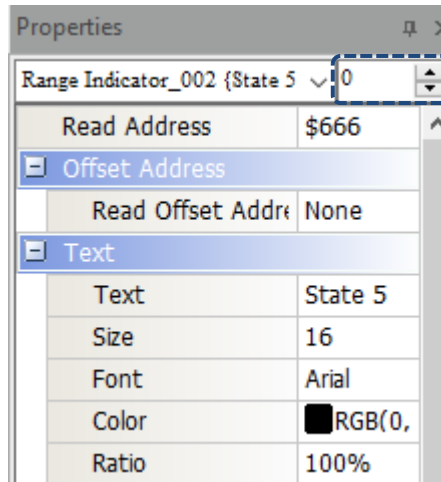

Range Indicator

- Double-click the element to view the diagram of each state. In this example, the State Counts is set to 5, so the state values are 0 - 4, as shown in the blue mark in the following figure.



Range Indicator diagram example

- You can also go to the upper right corner in the Properties window of the element to switch the state.

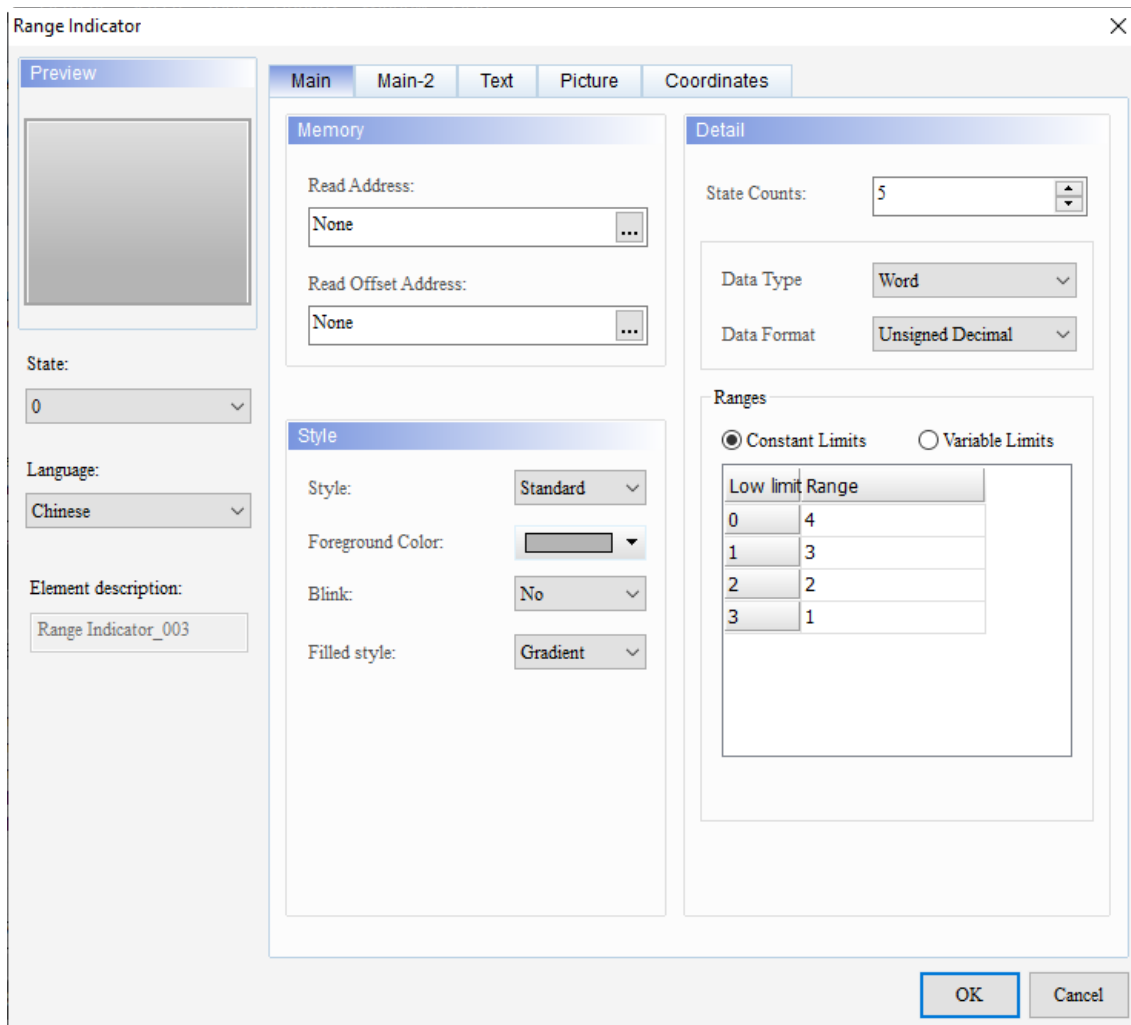


After you compile and download the screen data to the HMI, the Range Indicator displays the value range of each state on the element based on the range value set in the read address.

Execution results

Execution result of each state				
State 0	State 1	State 2	State 3	State 4
State 5 41~50	State 4 31~40	State 3 21~30	State 2 11~20	State 1 1~10

When you double-click the Range Indicator, the property page is shown as follows.



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Figure 10.2.1 Properties of Range Indicator

Table 10.2.2 Function page of Range Indicator

Range Indicator	
Function page	Description
Preview	You can view the multistate values and multi-language display data of the element.
Main	Set the Read Address and Read Offset Address. Set the Style, Foreground Color, Blink, and Filled style of the element. Set the State Counts, Data type, Data Format, Ranges (Constant Limits or Variable Limits), and select the Continuous Address check box.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color.
Coordinates	Set the X and Y coordinates, width, and height of the element.

■ Main

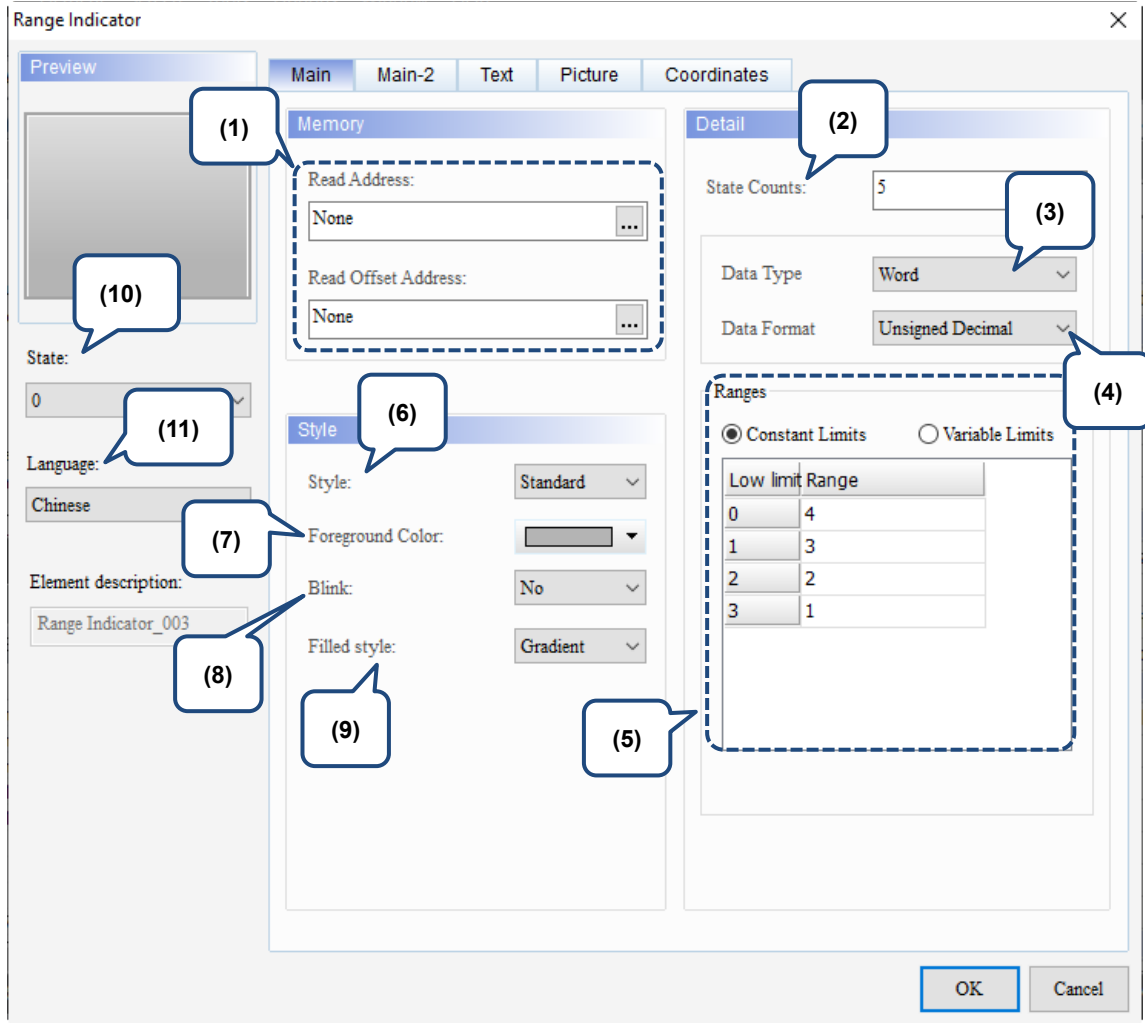
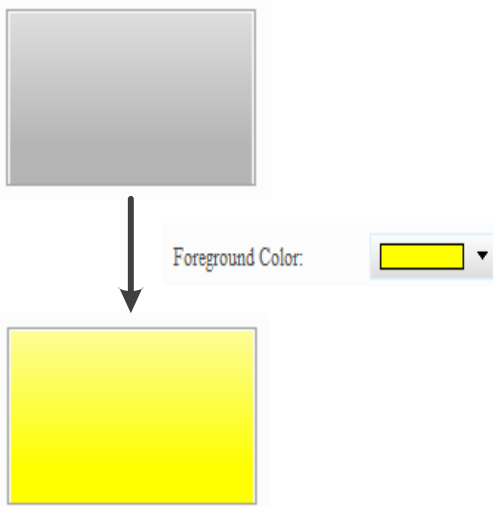
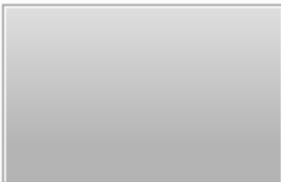

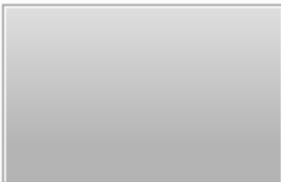

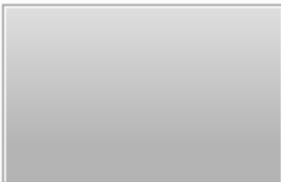

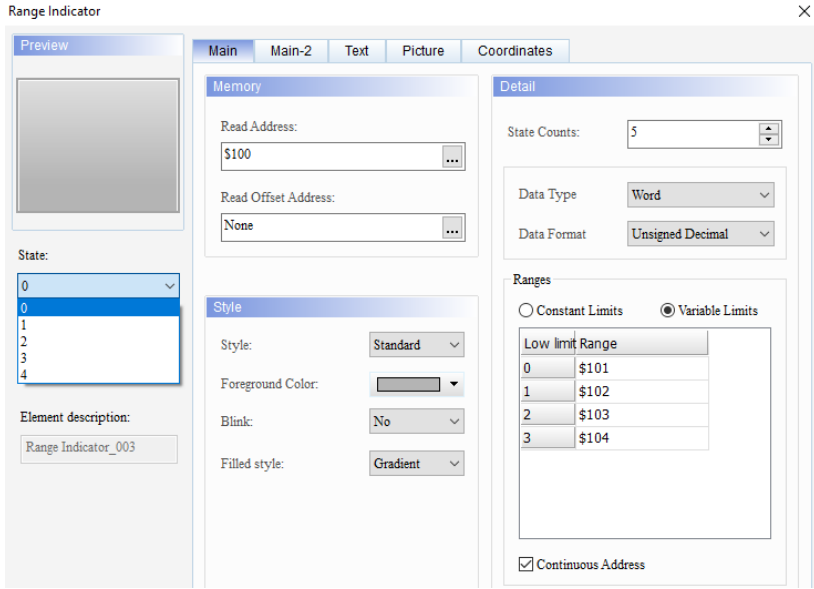
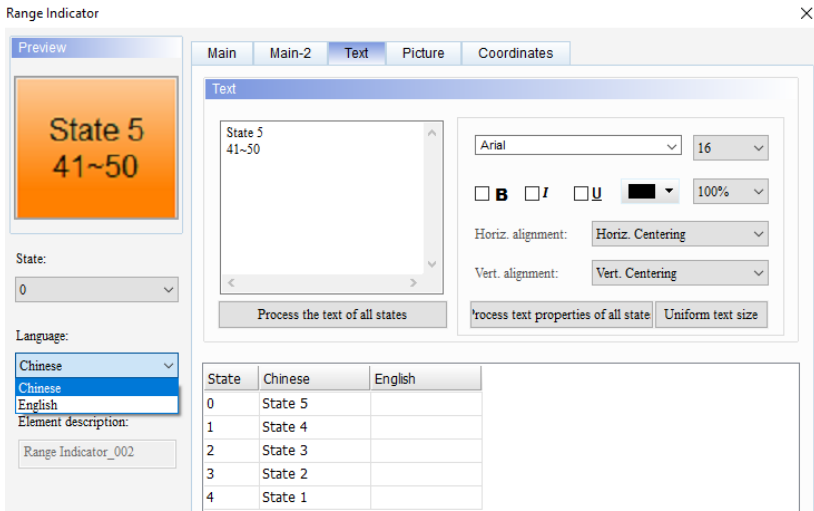


Figure 10.2.2. Main property page for the Range Indicator element

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can choose the internal memory address or controller register address. The input memory type has to be Word. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(2)	State Counts	Set the state count for the Range Indicator. If the Data Type is Word or Double Word, you can set 1 - 256 states.
(3)	Data Type	<p>There are two Data Types: Word and Double Word.</p> <p>Data Type: Word</p> <p>Data Format: Word</p>
(4)	Data Format	<p>When the Data Type is either Word or Double Word, the Data Formats include BCD, Signed BCD, Signed Decimal, and Unsigned Decimal.</p> <p>Data Type: Word</p> <p>Data Format: Unsigned Decimal</p> <p>Ranges: Constant Limits</p> <p>Data Type: Double Word</p> <p>Data Format: Unsigned Decimal</p> <p>Ranges: Constant Limits</p>

No.	Property	Function description										
(5)	Ranges	<ul style="list-style-type: none"> ■ You can set the range values as constants or variables for the Range Indicator. ■ Under Ranges, if you click Constant Limits, it means the input value is a constant; if you click Variable Limits, you can define the value with a memory address. ■ Under Ranges, if you click Variable Limits, then you can set whether it should be a continuous address. Once you select the Continuous Address check box, the software automatically calculates the address range based on the Read Address and Data Type set for the Range Indicator. ■ After selecting the Continuous Address check box, you cannot enter the memory address. <hr/> <div style="display: flex; align-items: center;"> <div style="background-color: #e0e0e0; padding: 5px; margin-right: 10px; width: 100px; text-align: center;">Constant Limits</div> <div style="border: 1px solid #ccc; padding: 5px;"> <p>Input constants in descending order from top to bottom. Whether the Continuous Address check box is selected does not influence the input constants.</p> <p>Ranges</p> <p><input checked="" type="radio"/> Constant Limits <input type="radio"/> Variable Limits</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Low limit Range</th> </tr> </thead> <tbody> <tr><td>0</td><td>4</td></tr> <tr><td>1</td><td>3</td></tr> <tr><td>2</td><td>2</td></tr> <tr><td>3</td><td>1</td></tr> </tbody> </table> </div> </div>	Low limit Range		0	4	1	3	2	2	3	1
	Low limit Range											
0	4											
1	3											
2	2											
3	1											
Variable Limits with Continuous Address selected	<p>Set \$100 for the Read Address. If you select the Continuous Address check box, then the software automatically calculates the continuous addresses, \$100 - \$104.</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Memory</p> <p>Read Address: <input type="text" value="\$100"/></p> <p>Read Offset Address: <input type="text" value="None"/></p> </div> <div style="width: 45%;"> <p>Detail</p> <p>State Counts: <input type="text" value="5"/></p> <p>Data Type: <input type="text" value="Word"/></p> <p>Data Format: <input type="text" value="Unsigned Decimal"/></p> </div> </div> <div style="margin-top: 10px;"> <p>Style</p> <p>Style: <input type="text" value="Standard"/></p> <p>Foreground Color: <input type="text" value=""/></p> <p>Blink: <input type="text" value="No"/></p> <p>Filled style: <input type="text" value="Gradient"/></p> </div> <div style="margin-top: 10px;"> <p>Ranges</p> <p><input type="radio"/> Constant Limits <input checked="" type="radio"/> Variable Limits</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Low limit Range</th> </tr> </thead> <tbody> <tr><td>0</td><td>\$101</td></tr> <tr><td>1</td><td>\$102</td></tr> <tr><td>2</td><td>\$103</td></tr> <tr><td>3</td><td>\$104</td></tr> </tbody> </table> <p><input checked="" type="checkbox"/> Continuous Address</p> </div>	Low limit Range		0	\$101	1	\$102	2	\$103	3	\$104	
Low limit Range												
0	\$101											
1	\$102											
2	\$103											
3	\$104											

No.	Property	Function description										
(5)	Ranges	<div style="display: flex; align-items: center;"> <div style="background-color: #cccccc; padding: 5px; margin-right: 10px;"> Variable Limits with Continuous Address not selected </div> <div style="border: 1px solid #ccc; padding: 5px;"> <div style="border-bottom: 1px solid #ccc; padding-bottom: 5px;"> Memory </div> <div style="padding: 5px;"> Read Address: <input type="text" value="\$100"/> ... Read Offset Address: <input type="text" value="None"/> ... </div> <div style="border-top: 1px solid #ccc; padding-top: 5px;"> Style </div> <div style="padding: 5px;"> Style: <input type="text" value="Standard"/> ... Foreground Color: <input type="text" value=""/> ... Blink: <input type="text" value="No"/> ... Filled style: <input type="text" value="Gradient"/> ... </div> </div> <div style="margin-left: 10px;"> <div style="border: 1px solid #ccc; padding: 5px;"> Detail </div> <div style="padding: 5px;"> State Counts: <input type="text" value="5"/> ... </div> <div style="padding: 5px;"> Data Type: <input type="text" value="Word"/> ... Data Format: <input type="text" value="Unsigned Decimal"/> ... </div> <div style="padding: 5px;"> Ranges </div> <div style="padding: 5px;"> <input type="radio"/> Constant Limits <input checked="" type="radio"/> Variable Limits </div> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Low limit Range</th> </tr> </thead> <tbody> <tr><td>0</td><td>\$101</td></tr> <tr><td>1</td><td>\$111</td></tr> <tr><td>2</td><td>\$200</td></tr> <tr style="background-color: #e0e0ff;"><td>3</td><td>\$350</td></tr> </tbody> </table> </div> <div style="margin-top: 5px;"> <input type="checkbox"/> Continuous Address </div> </div> </div>	Low limit Range		0	\$101	1	\$111	2	\$200	3	\$350
Low limit Range												
0	\$101											
1	\$111											
2	\$200											
3	\$350											
(6)	Style	<p>The available element styles are Standard, Raised, Round, and Invisible. You can change the appearance of the element with this setting.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #cccccc;"> <th>Standard</th> <th>Raised</th> <th>Round</th> <th>Invisible</th> </tr> </thead> <tbody> <tr> <td style="background-color: #cccccc; padding: 20px;">Standard</td> <td style="border: 2px solid #ccc; padding: 20px;">Raised</td> <td style="border: 2px solid #ccc; border-radius: 50%; padding: 20px;">Round</td> <td style="border: 2px dashed #ccc; padding: 20px;">Invisible</td> </tr> </tbody> </table>	Standard	Raised	Round	Invisible	Standard	Raised	Round	Invisible		
Standard	Raised	Round	Invisible									
Standard	Raised	Round	Invisible									
(7)	Foreground Color	<ul style="list-style-type: none"> ■ Set the element foreground color. ■ When you set the Style to Invisible, the Foreground Color setting is invalid. <div style="text-align: center; margin-top: 20px;">  </div>										
(8)	Blink	<p>Set whether the indicator blinks when it switches between states; the blink color is the contrast color of the element foreground color.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> Blink: <input type="text" value="No"/> ... Filled style: <input type="text" value="No"/> ... </div>										

No.	Property	Function description																		
(9)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)															
Gradient																				
Fixed (Solid)																				
(10)	State	<p>You can check the state values through State.</p> 																		
(11)	Language	<p>If you have set the language data, you can edit the properties of the text to be displayed with the Language setting of the element.</p>  <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>State 5</td> <td></td> </tr> <tr> <td>1</td> <td>State 4</td> <td></td> </tr> <tr> <td>2</td> <td>State 3</td> <td></td> </tr> <tr> <td>3</td> <td>State 2</td> <td></td> </tr> <tr> <td>4</td> <td>State 1</td> <td></td> </tr> </tbody> </table>	State	Chinese	English	0	State 5		1	State 4		2	State 3		3	State 2		4	State 1	
State	Chinese	English																		
0	State 5																			
1	State 4																			
2	State 3																			
3	State 2																			
4	State 1																			

■ Main-2

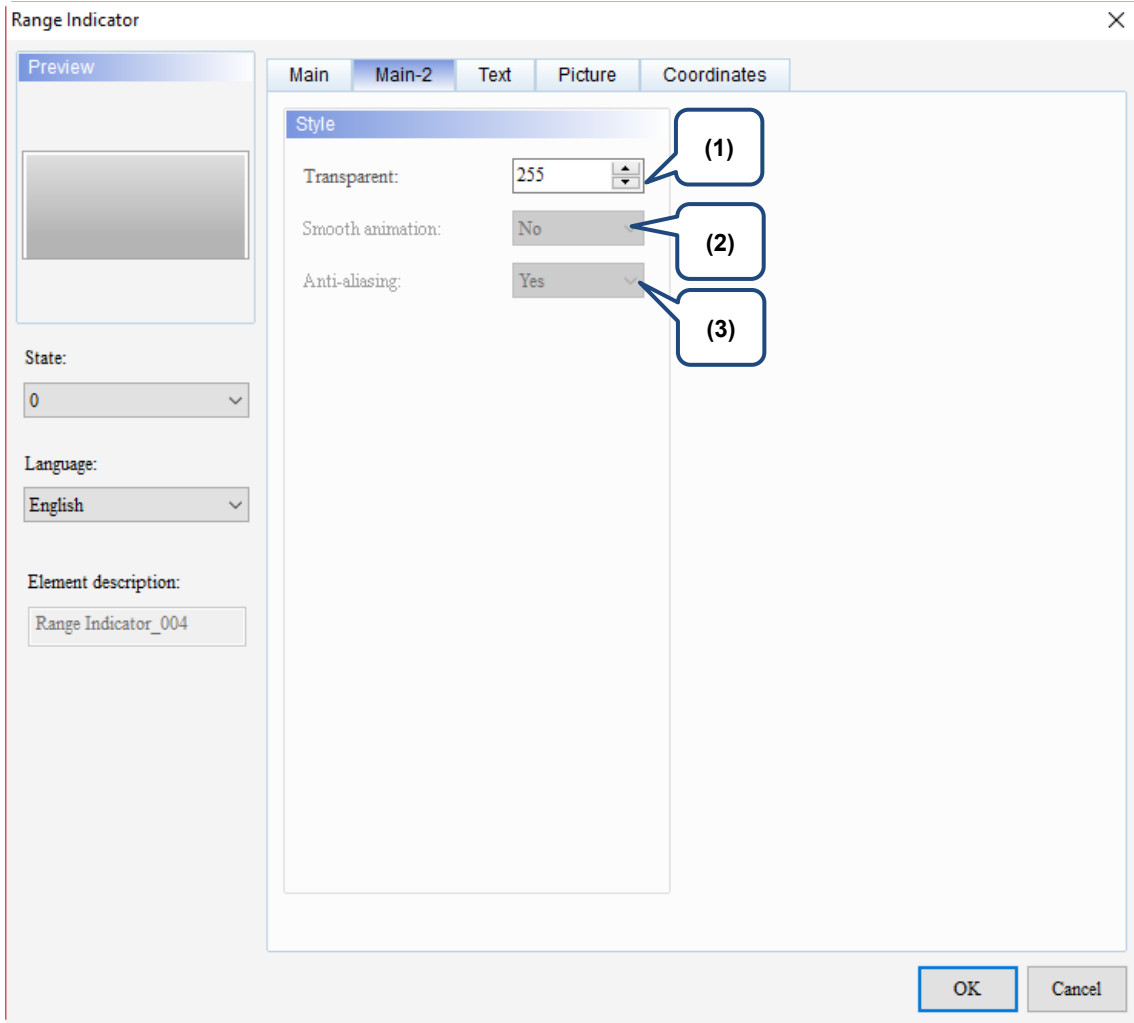
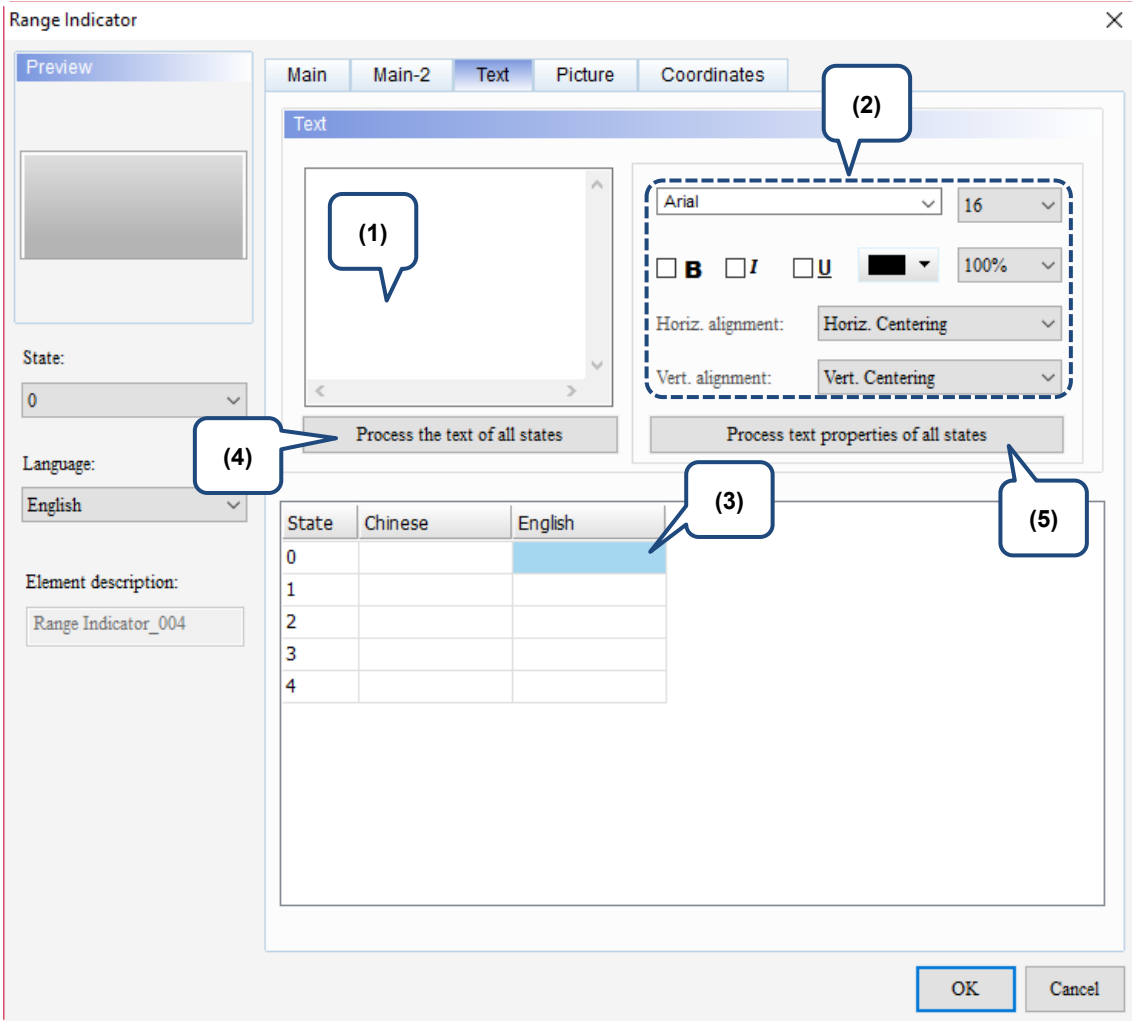


Figure 10.2.3 Main-2 property page for the Range Indicator element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

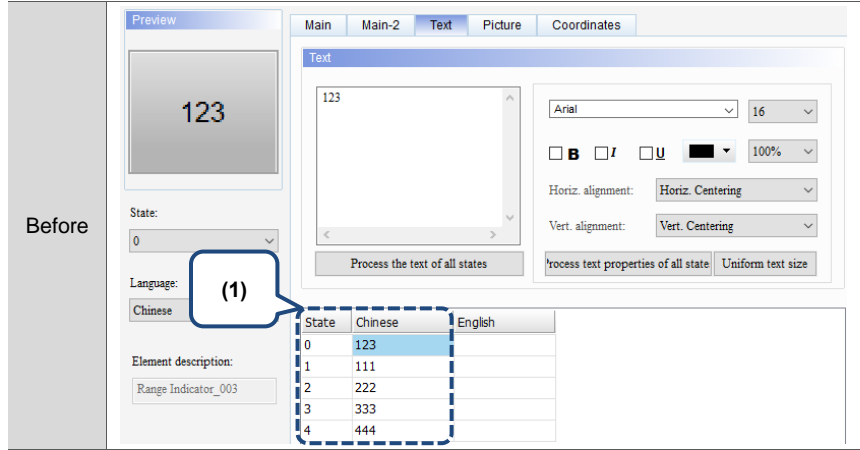
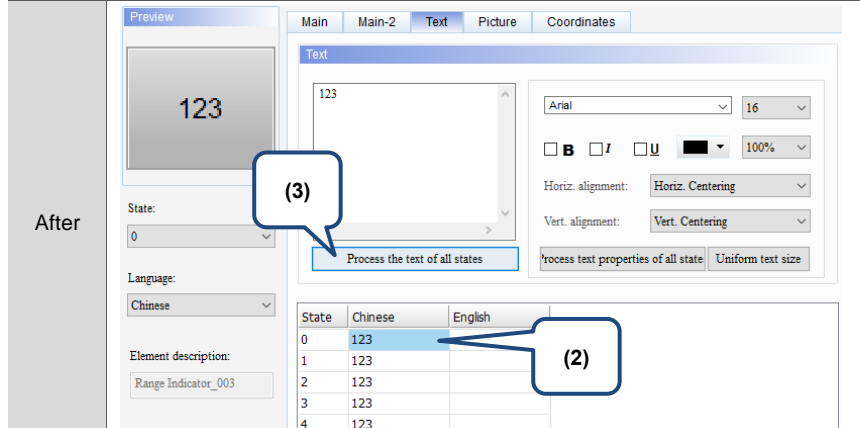
■ Text

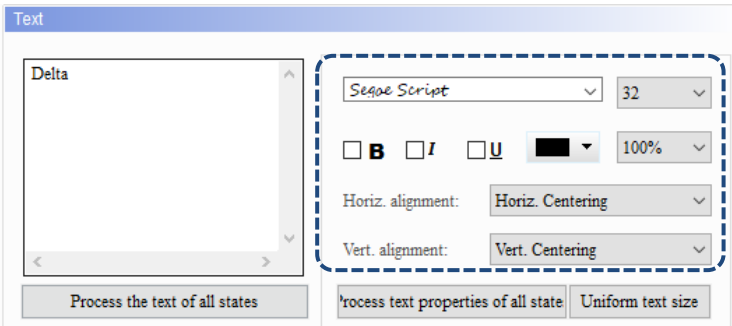
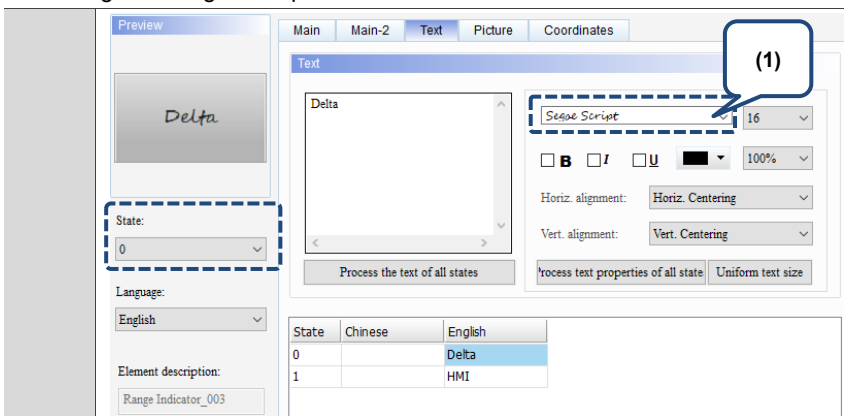



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Figure 10.2.4 Text property page for the Range Indicator element

No.	Property	Function description
(1)	Text	<ul style="list-style-type: none"> You can enter the text to display in this box. <ul style="list-style-type: none"> As long as the element allows text input, you can click the element on the screen and press the space key to start editing and entering the text.
(2)	Text	<ul style="list-style-type: none"> Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the Text property setting results.

No.	Property	Function description
(3)	Edit multi-language text	If you have added multi-language data, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected. The example and setting steps are as follows.</p> <ol style="list-style-type: none"> 1. Enter the texts for State 0 to State 4. 2. Select State 0. 3. Execute Process the text of all states and the texts of State 1 to State 4 are changed to "123".  

No.	Property	Function description
		<p>This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p>  <p>The example and setting steps are as follows:</p> <ol style="list-style-type: none"> 1. Enter the text “Delta” for State 0 and “HMI” for State 1. Select Segoe Script for the text font of State 0 and Arial for the text font of State 1. 2. Select State 0. 3. Execute Process text properties of all states and the text font of State 1 is changed to Segoe Script. <div style="display: flex; flex-direction: column;"> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">(5)</div> <div style="margin-right: 10px;">Process text properties of all states</div> </div> <div style="display: flex; flex-direction: column;"> <div style="margin-bottom: 10px;"> <p>Before</p>  </div> <div> <p>After</p>  </div> </div> </div>

■ Picture

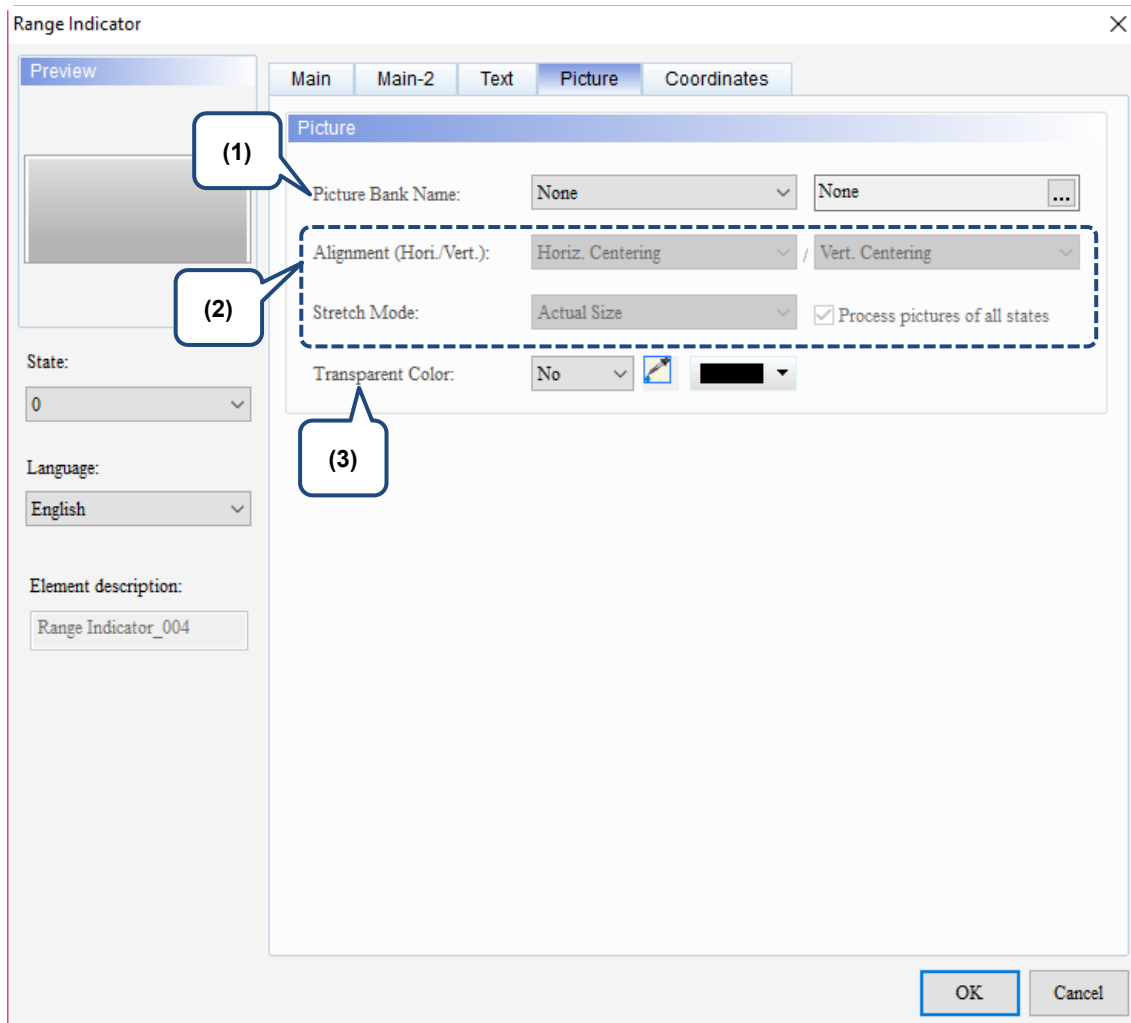
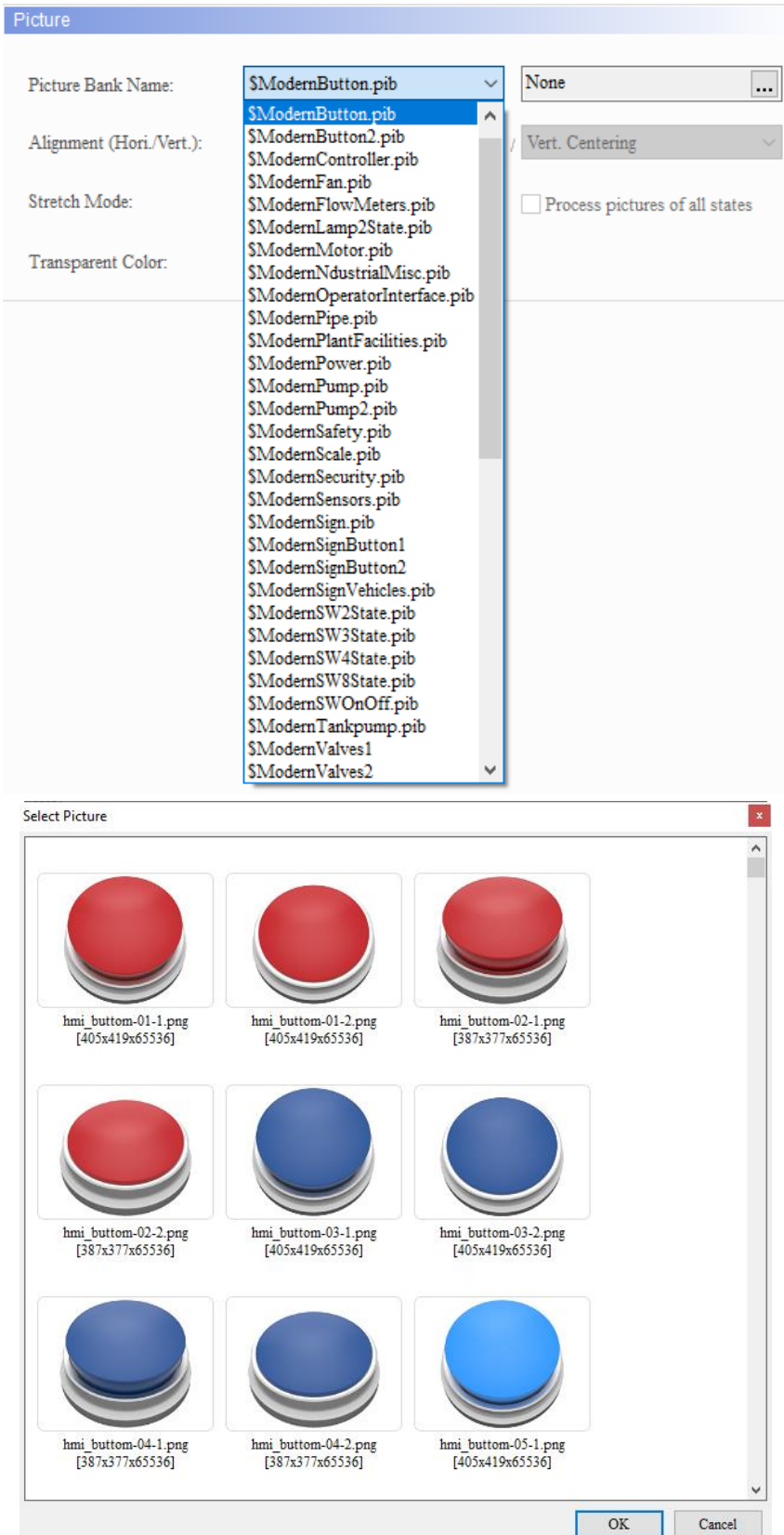
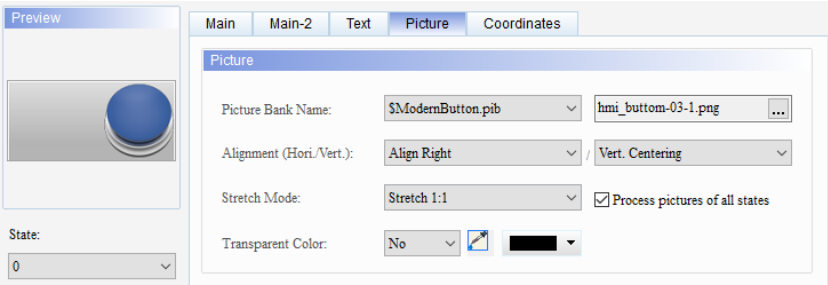



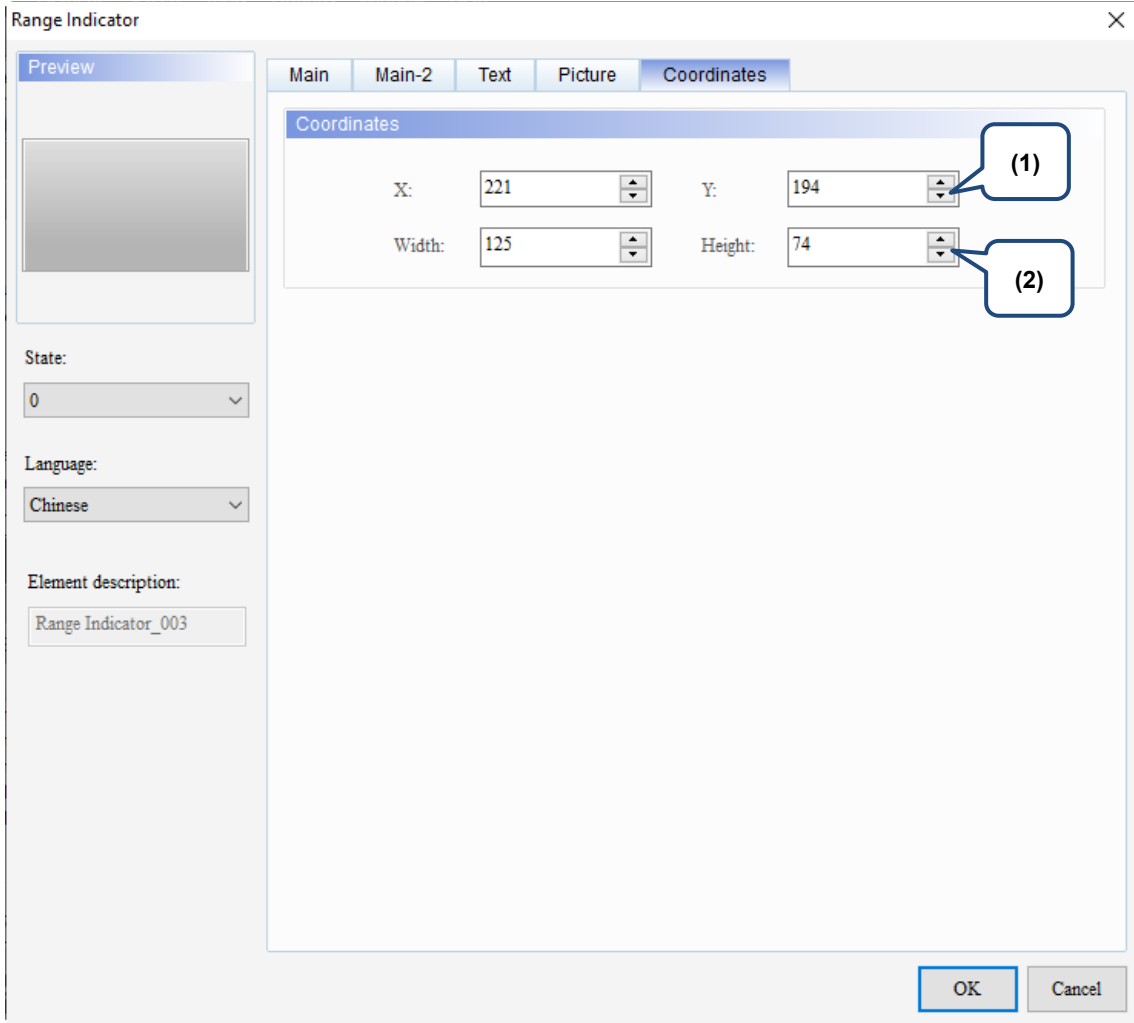


Figure 10.2.5 Picture property page for the Range Indicator element

No.	Property	Function description
(1)	Picture Bank Name	<p>The Picture Bank Name default is None. To set the picture display, use the drop-down list box to view the picture bank provided by the software and then select the desired pictures.</p>  <p>The 'Picture' dialog box includes the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: A dropdown menu currently showing '\$ModernButton.pib'. Alignment (Hori./Vert.): A dropdown menu showing 'Vert. Centering'. Stretch Mode: A dropdown menu. Transparent Color: A color selection field. Process pictures of all states: An unchecked checkbox. <p>The 'Select Picture' dialog box displays a grid of button icons:</p> <ul style="list-style-type: none"> Row 1: Three red buttons with labels 'hmi_button-01-1.png [405x419x65536]', 'hmi_button-01-2.png [405x419x65536]', and 'hmi_button-02-1.png [387x377x65536]'. Row 2: Three buttons (red, blue, blue) with labels 'hmi_button-02-2.png [387x377x65536]', 'hmi_button-03-1.png [405x419x65536]', and 'hmi_button-03-2.png [405x419x65536]'. Row 3: Three blue buttons with labels 'hmi_button-04-1.png [387x377x65536]', 'hmi_button-04-2.png [387x377x65536]', and 'hmi_button-05-1.png [405x419x65536]'.

No.	Property	Function description			
(2)	Alignment	<p>■ You can use the alignment options to set how pictures are aligned.</p>  <p>■ The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size.</p> <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> </table>	Stretch All	Stretch 1:1	Actual Size
	Stretch All	Stretch 1:1	Actual Size		
Stretch Mode	<table border="1"> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> </tbody> </table>  <p>■ Assuming that the elements have multiple states and some pictures do not fill the full element display area, if you select the Process pictures of all states check box, you can use this function to process all pictures instead of setting them one by one, which saves the editing time.</p> <p><input checked="" type="checkbox"/> Process pictures of all states</p>	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.	
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.			
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent.  is for selecting the transparent color. If you select the white part in the calendar, the software changes the white part into transparent, which becomes identical to the element foreground color.</p> 			

■ Coordinates



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Figure 10.2.6 Coordinates property page for the Range Indicator element


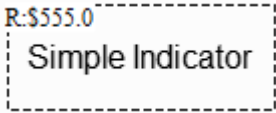

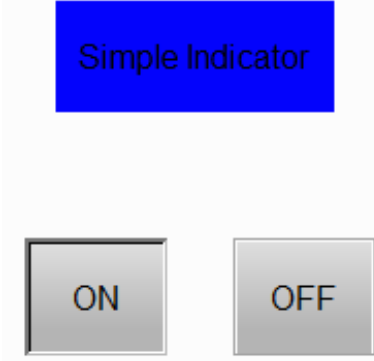
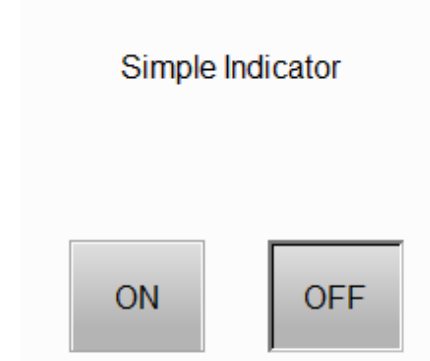
No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

10.3 Simple Indicator

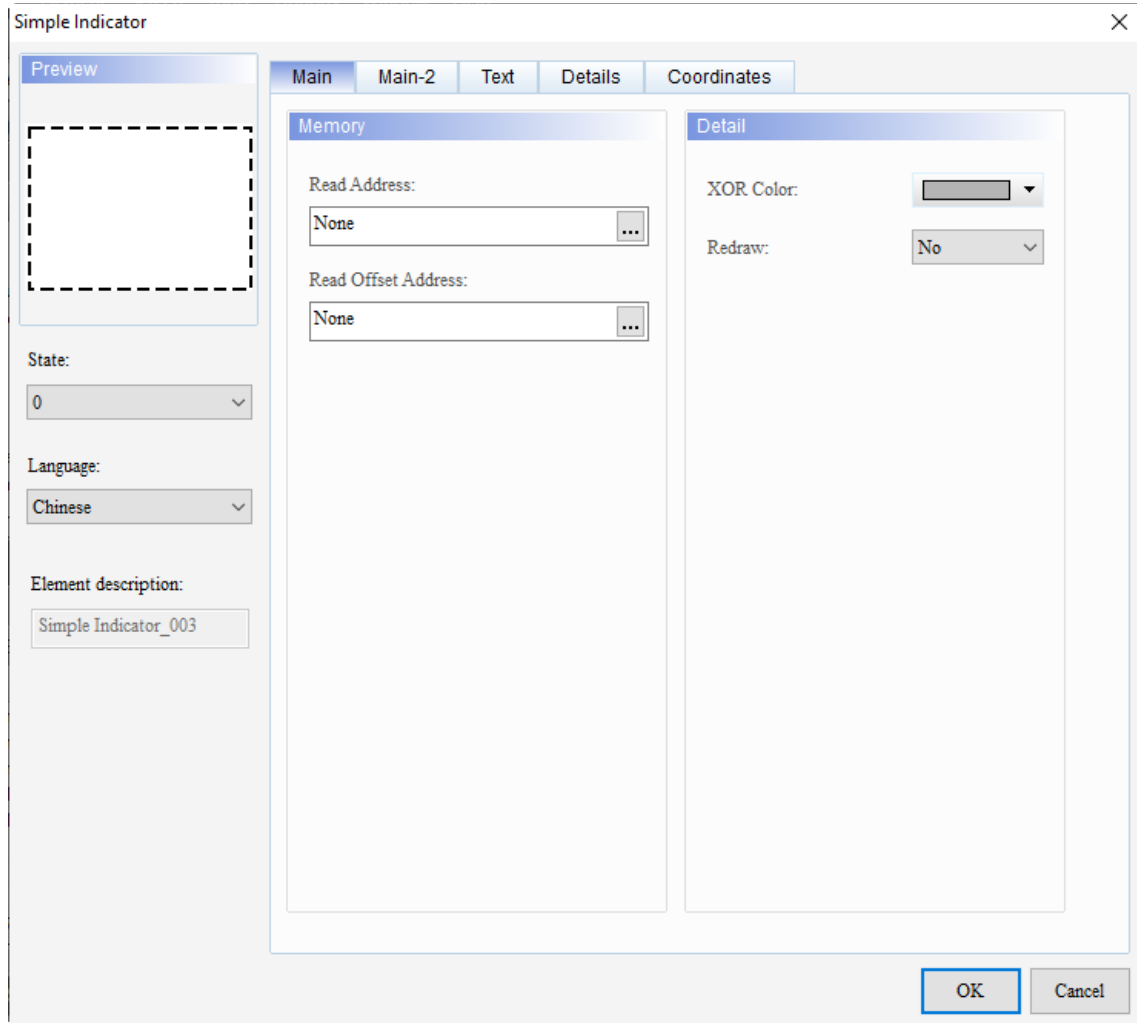
The Simple Indicator has two states, On and Off. You can change the XOR colors when the state switches. This indicator can be set with Button elements for identifying the On and Off states with different colors.

Refer to Table 10.3.1 for the Simple Indicator example

Table 10.3.1 Simple Indicator example

Simple Indicator example				
	Set to On / Set to Off elements		Simple Indicator element	
	Write Address	\$555.0	Read Address	\$555.0
Read Address				
Detail settings	XOR Color 		Redraw No	
Execution results	After you compile and download the screen data to the HMI, the Simple Indicator switches to On or Off state according to the read memory address. If you press ON , the Simple Indicator switches to State 1; if you press OFF , the indicator switches to State 0.			
	State 0		State 1	
				

When you double-click the Simple Indicator, the property page is shown as follows.



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Figure 10.3.1 Properties of Simple Indicator

Table 10.3.2 Function page of Simple Indicator

Simple Indicator	
Function page	Description
Preview	You can view the state values and multi-language display data of the element.
Main	Set the Read Address, Read Offset Address, XOR Color, and Redraw.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, alignment type, and state text.
Details	Set the Invisible Address.
Coordinates	Set the X and Y coordinates, width, and height of the element.

■ Main

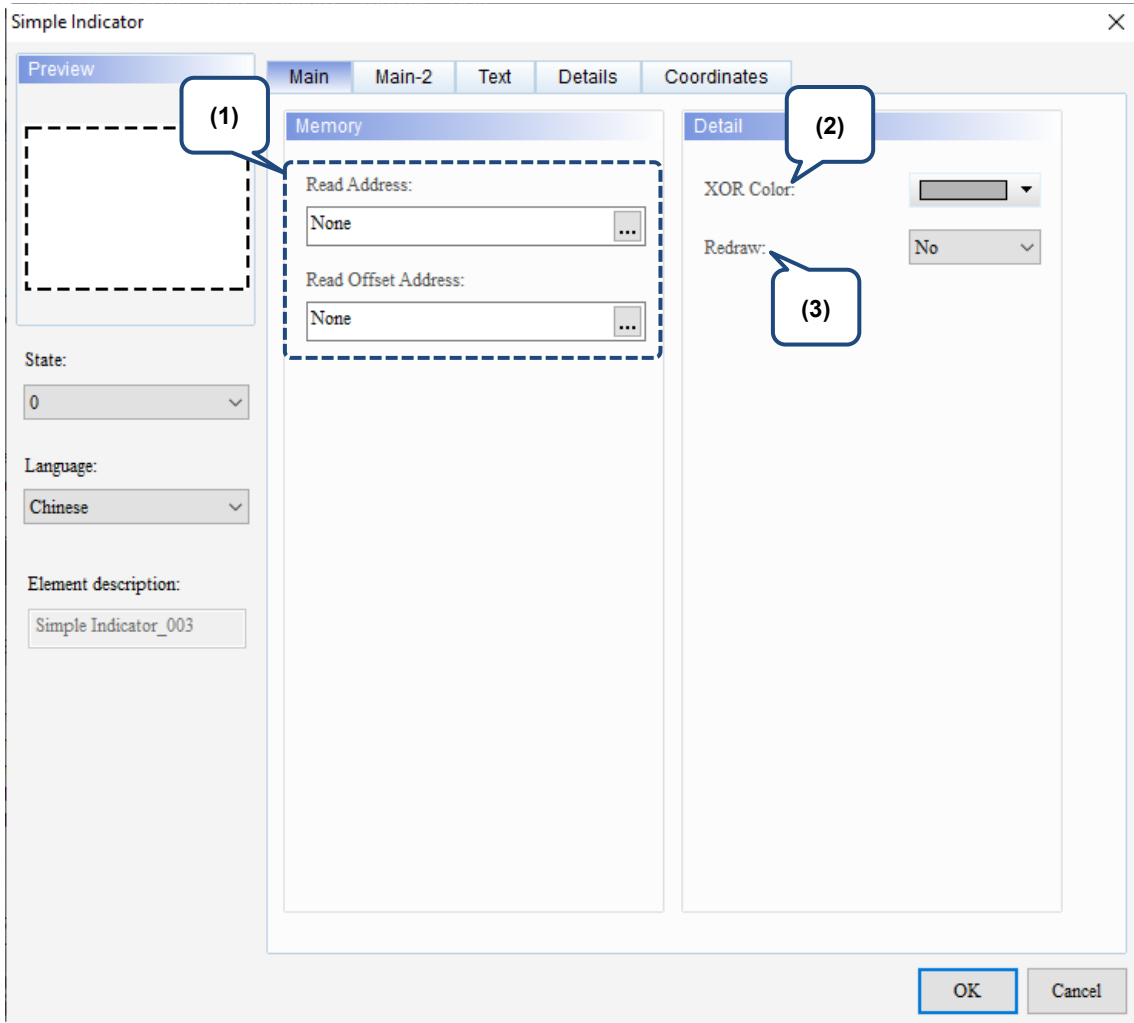

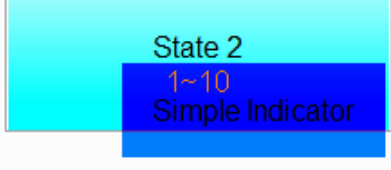


Figure 10.3.2 Main property page for the Simple Indicator element

No.	Property	Function description						
(1)	Read Address	<ul style="list-style-type: none"> ■ The Simple Indicator only supports Bit data type with options of the internal memory or controller register address. ■ Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. 						
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.						
(2)	XOR Color	<p>Specify the XOR Color.</p> <table border="1"> <tr> <td colspan="2">XOR Color: </td> </tr> <tr> <td style="text-align: center;">Before using XOR</td> <td style="text-align: center;">After using XOR</td> </tr> <tr> <td style="text-align: center; background-color: #f0f0f0;">Simple Indicator</td> <td style="text-align: center; background-color: blue; color: white;">Simple Indicator</td> </tr> </table>	XOR Color: 		Before using XOR	After using XOR	Simple Indicator	Simple Indicator
XOR Color: 								
Before using XOR	After using XOR							
Simple Indicator	Simple Indicator							

No.	Property	Function description	
(3)	Redraw	<ul style="list-style-type: none"> When you select Yes and overlap the Simple Indicator element on the dynamic element, you can successfully read the data when the dynamic element switches between states. If you select No, then the data of the dynamic element does not display. As shown in the following table, both the two pictures display the background color of State 2. The displaying text of State 2 should be State 2 11~20. However, if you set Redraw to No, you can find the range value is covered by the Simple Indicator so you cannot see the range value. 	
		Yes	No
		 <p>The diagram shows a light blue rectangular area representing 'State 2'. Inside this area, the text 'State 2' is at the top, '11~20' is in the middle, and 'Simple Indicator' is at the bottom. A green rectangular bar is overlaid on the '11~20' text, and an orange rectangular bar is overlaid on the 'Simple Indicator' text.</p>	 <p>The diagram shows a light blue rectangular area representing 'State 2'. Inside this area, the text 'State 2' is at the top, '1~10' is in the middle, and 'Simple Indicator' is at the bottom. A dark blue rectangular bar is overlaid on the '1~10' text, and a blue rectangular bar is overlaid on the 'Simple Indicator' text.</p>

■ Main-2

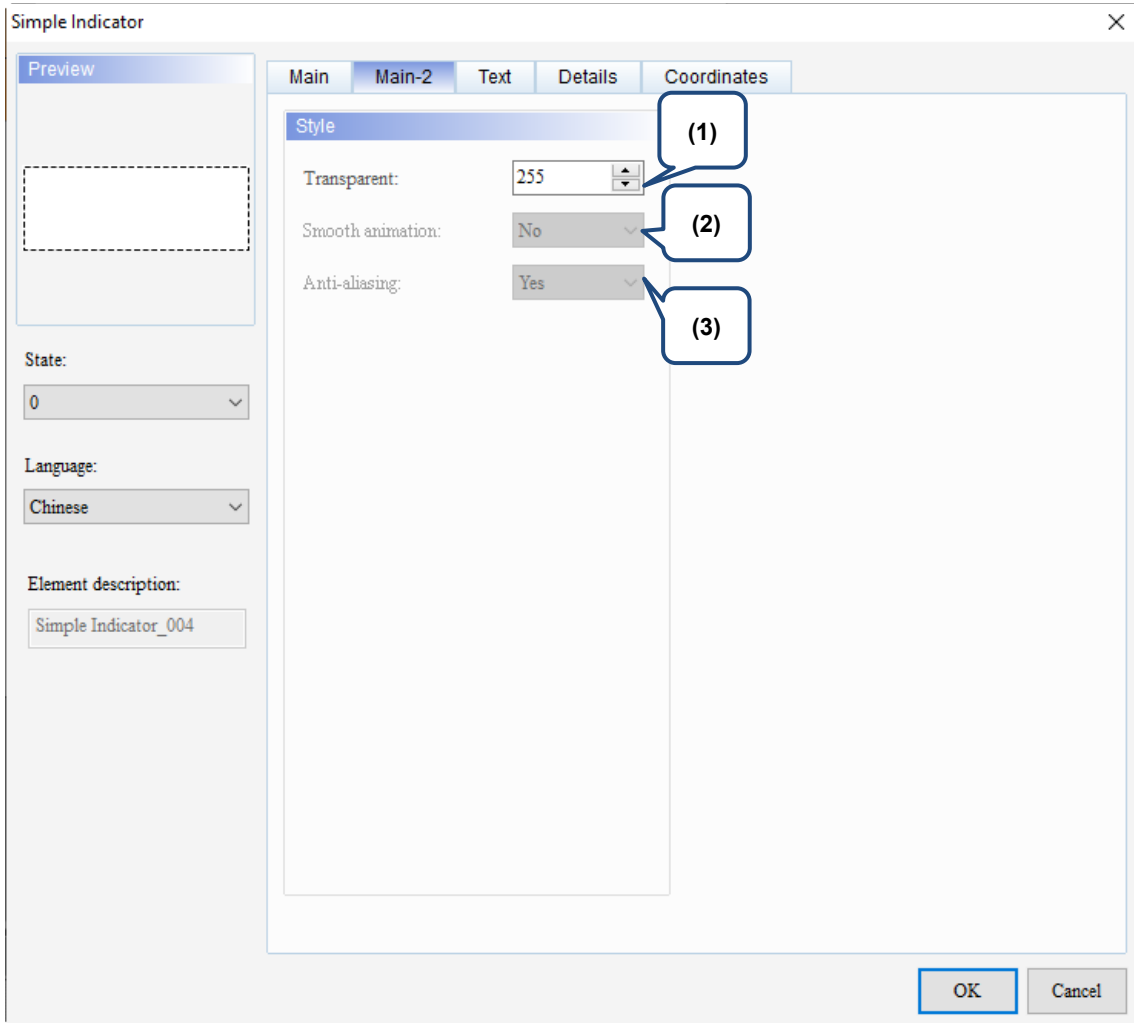


Figure 10.3.3 Main-2 property page for the Simple Indicator element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

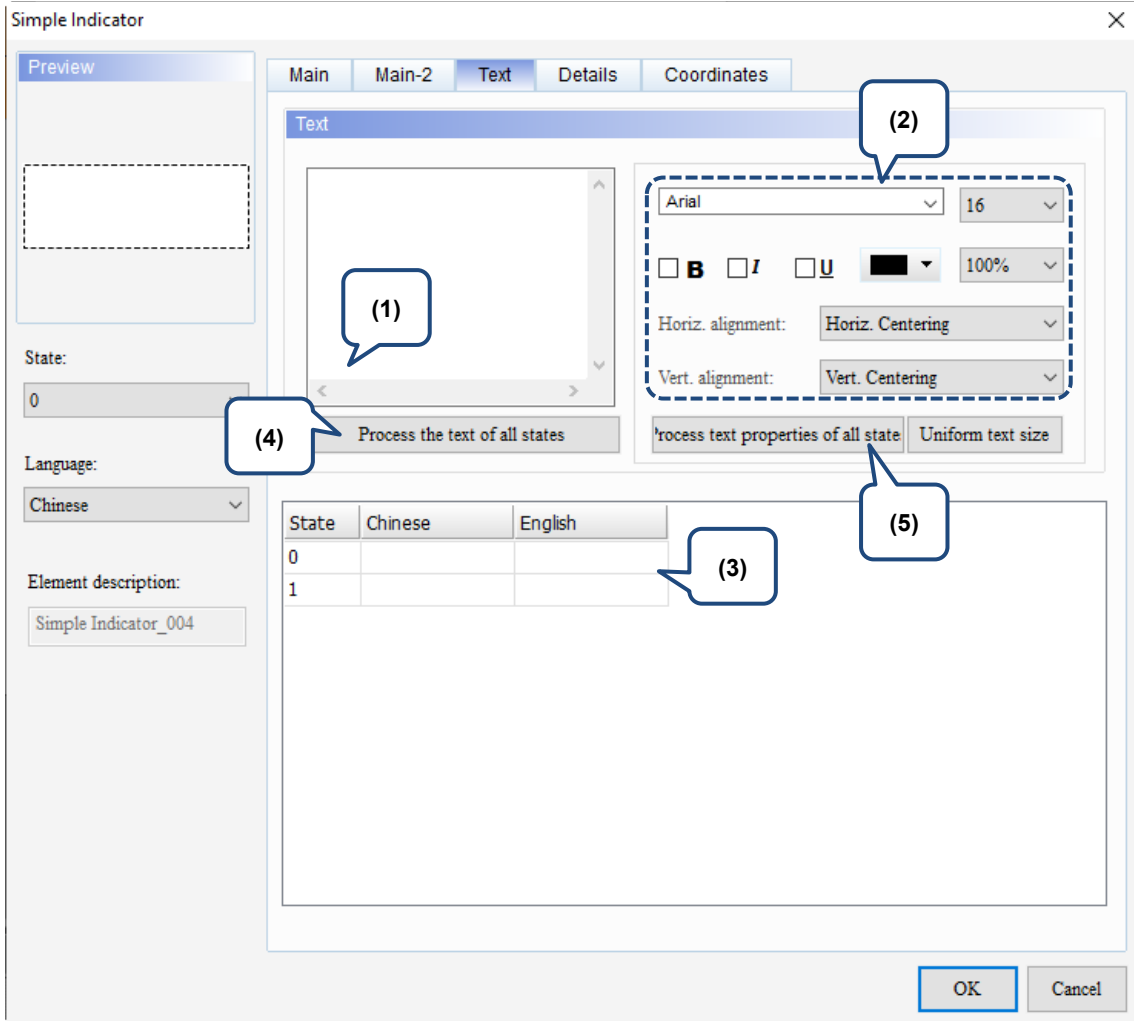
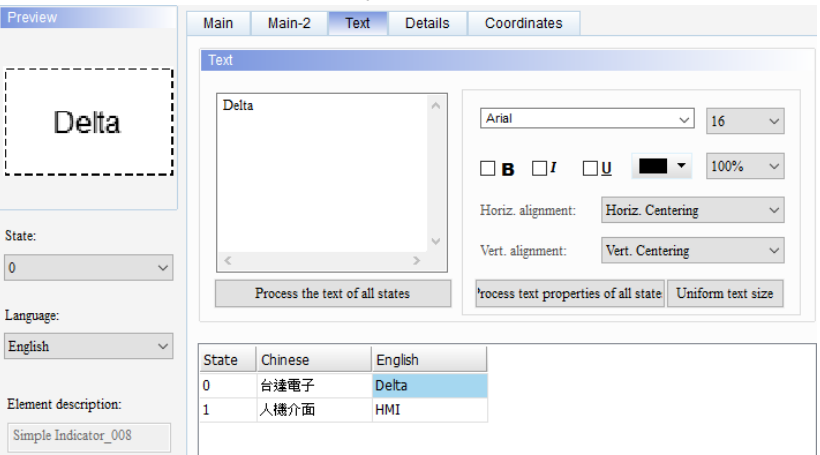
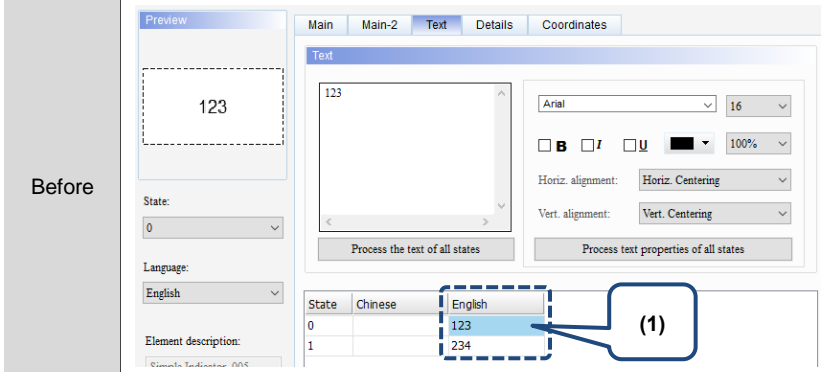
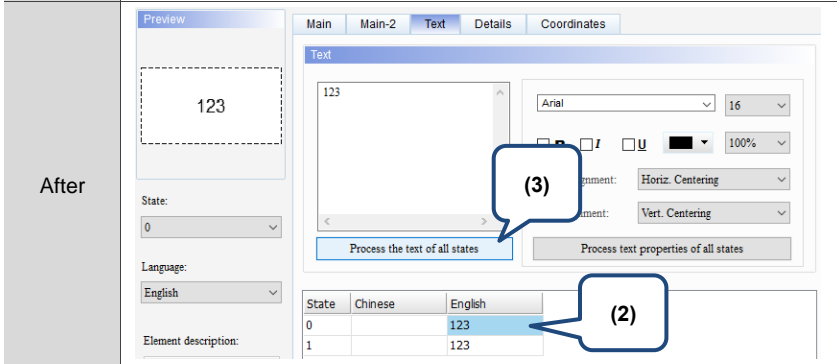
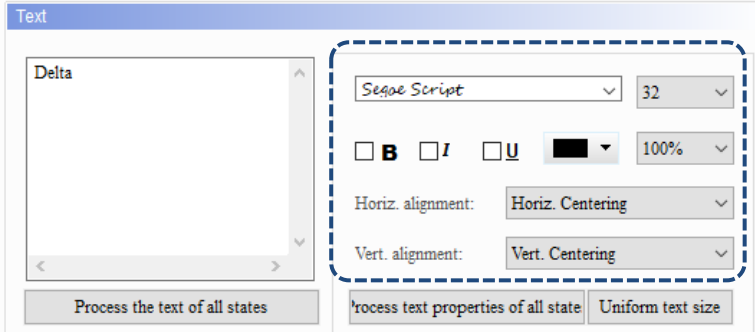


Figure 10.3.4 Text property page for the Simple Indicator element

No.	Property	Function description
(1)	Text	<p>■ You can enter the text to display in this box.</p>  <p>■ As long as the element allows text input, you can click the element on the screen and press the space key to start editing and entering the text.</p>
(2)	Text	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the Text property setting results.
(3)	Edit multi-language text	If you have added multi-language data, the Text page allows you to edit multi-language data.

No.	Property	Function description
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected. The example and setting steps are as follows.</p> <ol style="list-style-type: none"> 1. Enter the text “123” for State 0 and “234” for State 1. 2. Select State 0. 3. Execute Process the text of all states and the text of State 1 is changed to “123”.  
(5)	Process text properties of all states	<p>This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p> 

No.	Property	Function description
(5)	Process text properties of all states	<p>The example and setting steps are as follows:</p> <ol style="list-style-type: none"> 1. Enter the text “Delta” for State 0 and “HMI” for State 1. Select Segoe Script for the text font of State 0 and Arial for the text font of State 1. 2. Select State 0. 3. Execute Process text properties of all states and the text font of State 1 is changed to Segoe Script. <div style="display: flex; flex-direction: column;"> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 20%; text-align: center;"> <p>Before</p> </div> <div style="width: 80%;"> </div> </div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 10px;"> <div style="width: 20%; text-align: center;"> <p>After</p> </div> <div style="width: 80%;"> </div> </div> </div>

■ Details

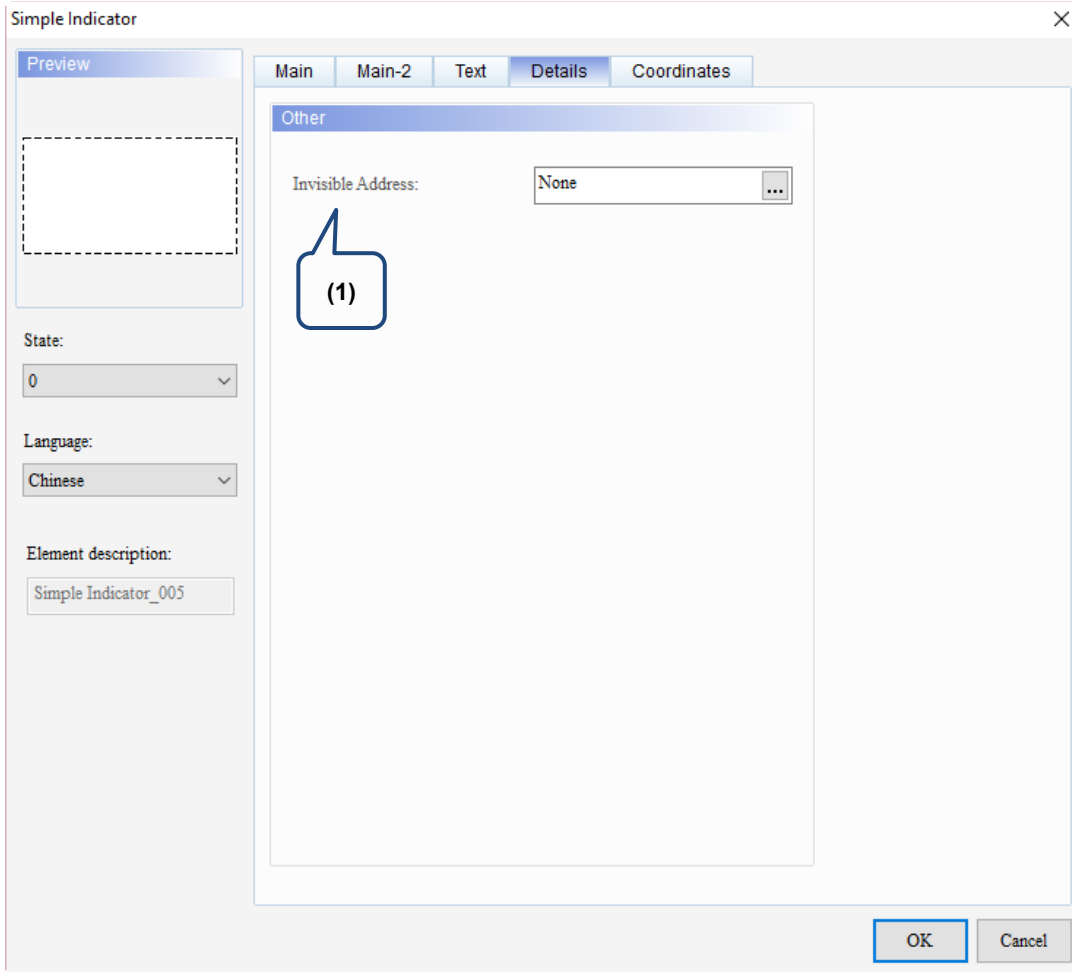
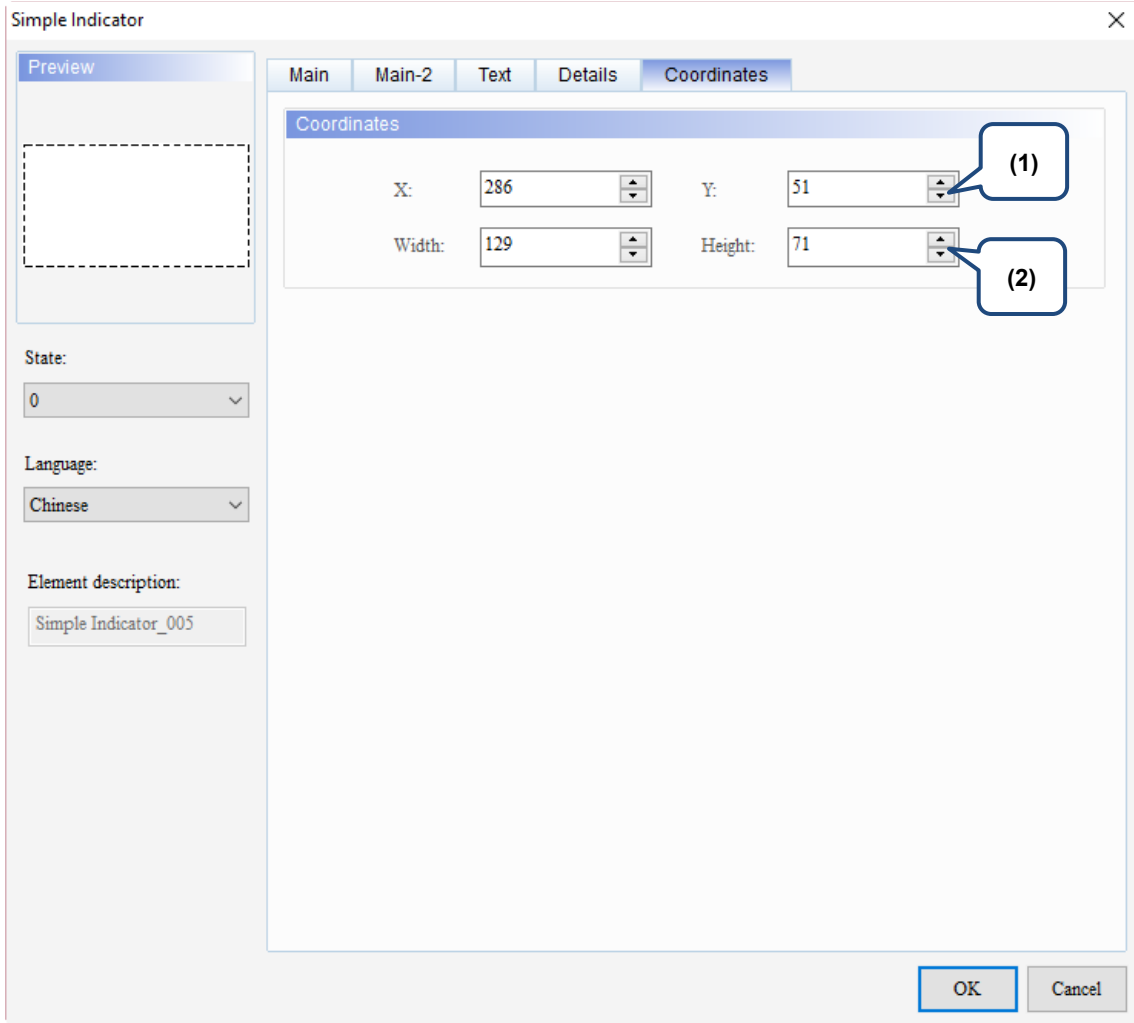


Figure 10.3.5 Details property page for the Simple Indicator element

No.	Property	Function description						
(1)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p> <table border="1"> <tr> <td>Invisible Address is Off</td> <td></td> <td>Invisible Address \$9.0 OFF</td> </tr> <tr> <td>Invisible Address is On</td> <td></td> <td>Invisible Address \$9.0 ON</td> </tr> </table>	Invisible Address is Off		Invisible Address \$9.0 OFF	Invisible Address is On		Invisible Address \$9.0 ON
		Invisible Address is Off		Invisible Address \$9.0 OFF				
Invisible Address is On		Invisible Address \$9.0 ON						

■ Coordinates



10

Figure 10.3.6 Coordinates property page for the Simple Indicator element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

(This page is intentionally left blank.)

Data Display

This chapter provides the usage and setting details for the Data Display elements.

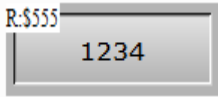
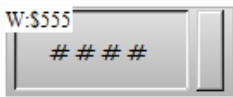

11.1	Numeric Display	11-2
11.2	Character Display	11-26
11.3	Date Display / Time Display / Week Display	11-35
11.3.1	Date Display	11-36
11.3.2	Time Display	11-42
11.3.3	Week Display	11-48
11.4	General Message Display	11-56
11.5	Moving Sign	11-70
11.6	QR code display	11-83
11.7	Barcode	11-91

11

11.1 Numeric Display

The main function of the Numeric Display is to read the value of the memory address and display the value on the element. The Numeric Display can also display the status return values of other elements, such as 0 or 1.

Table 11.1.1 Numeric Display example

Numeric Display				
Address settings	Numeric Display element		Numeric Entry element	
	Read Address	\$555	Write Address	\$555
				
Detail settings	Numeric Display element			
	Data Type	Data Format	Integer Digits	Fractional (Digits)
	Word	Unsigned Decimal	4	0
Execution results	After creating the elements, compile and download the data to the HMI. Next, enter 100 with the Numeric Entry element and the Numeric Display element will display the value you entered.			
	Enter 100 and the value is written to the specified address (\$555). 			

Numeric Display supports two data types, Word and Double Word. The allowable ranges are shown in Table 11.1.2.

Table 11.1.2 Numeric Display allowable range

Numeric Display		
	Data Format	Allowable range
Word	BCD	0 to 9999
	Signed BCD	-999 to +9999
	Signed Decimal	-32768 to +32767
	Unsigned Decimal	0 to 65535
	Hex	0 to 0xFFFF
	Binary	0 to 0xFFFF
Double Word	Data Format	Allowable range
	BCD	0 to 99999999
	Signed BCD	-99999999 to +99999999
	Signed Decimal	-2147483648 to +2147483647
	Unsigned Decimal	0 to 4294967295
	Hex	0 to 0xFFFFFFFF
	Binary	0 to 0xFFFFFFFF
	Floating	0 to 9999999
Quad Word	Data Format	Allowable range
	BCD	0 to 9999999999999999
	Signed BCD	-9999999999999999 to +9999999999999999
	Signed Decimal	-9223372036854775808 to +9223372036854775807
	Unsigned Decimal	0 to 18446744073709551615
	Hex	0 to 0xffffffffffffff
	Binary	0 to 0xffffffffffffff
	Floating	0 to 9999999999999999

When you double-click the Numeric Display, the property page is shown as follows.

11

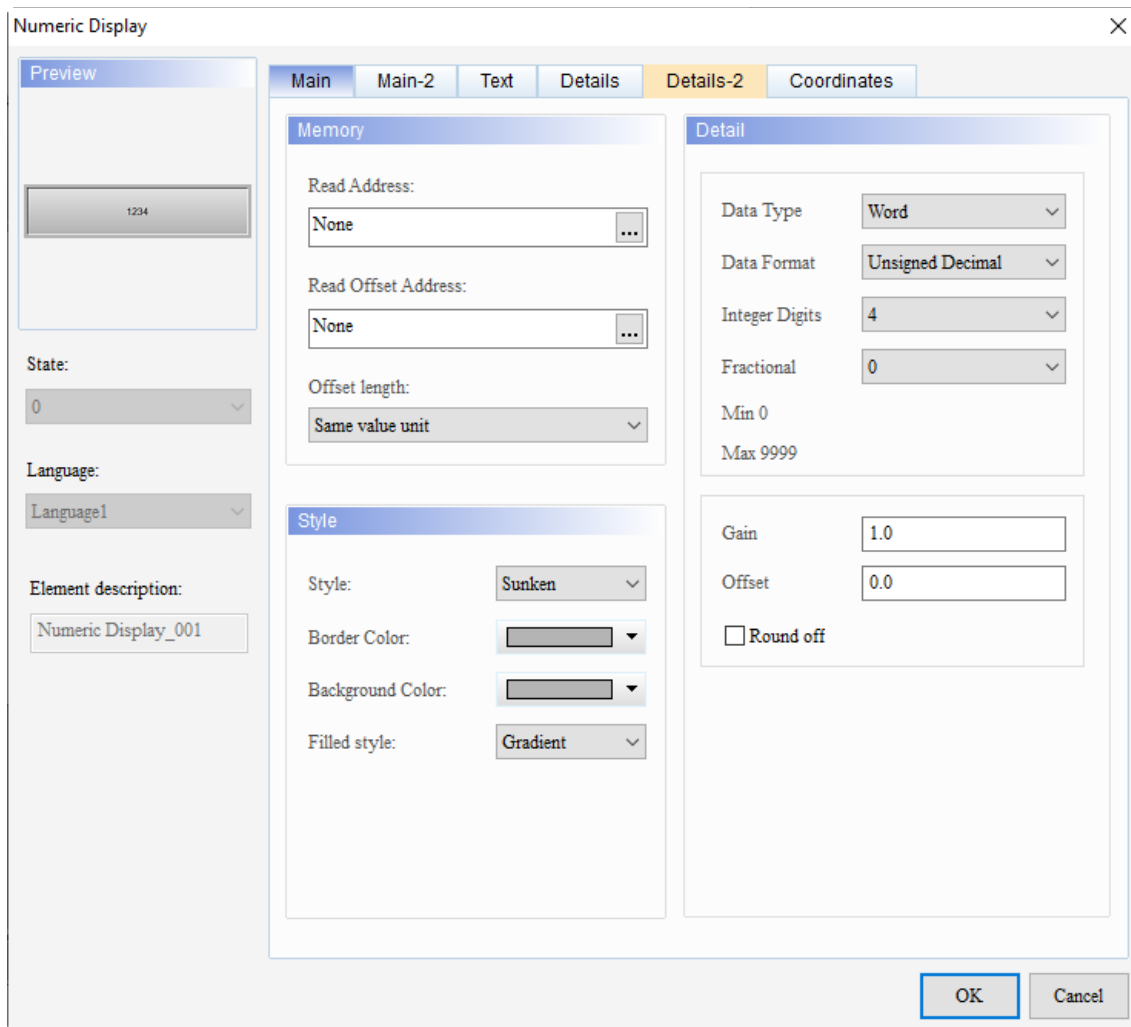
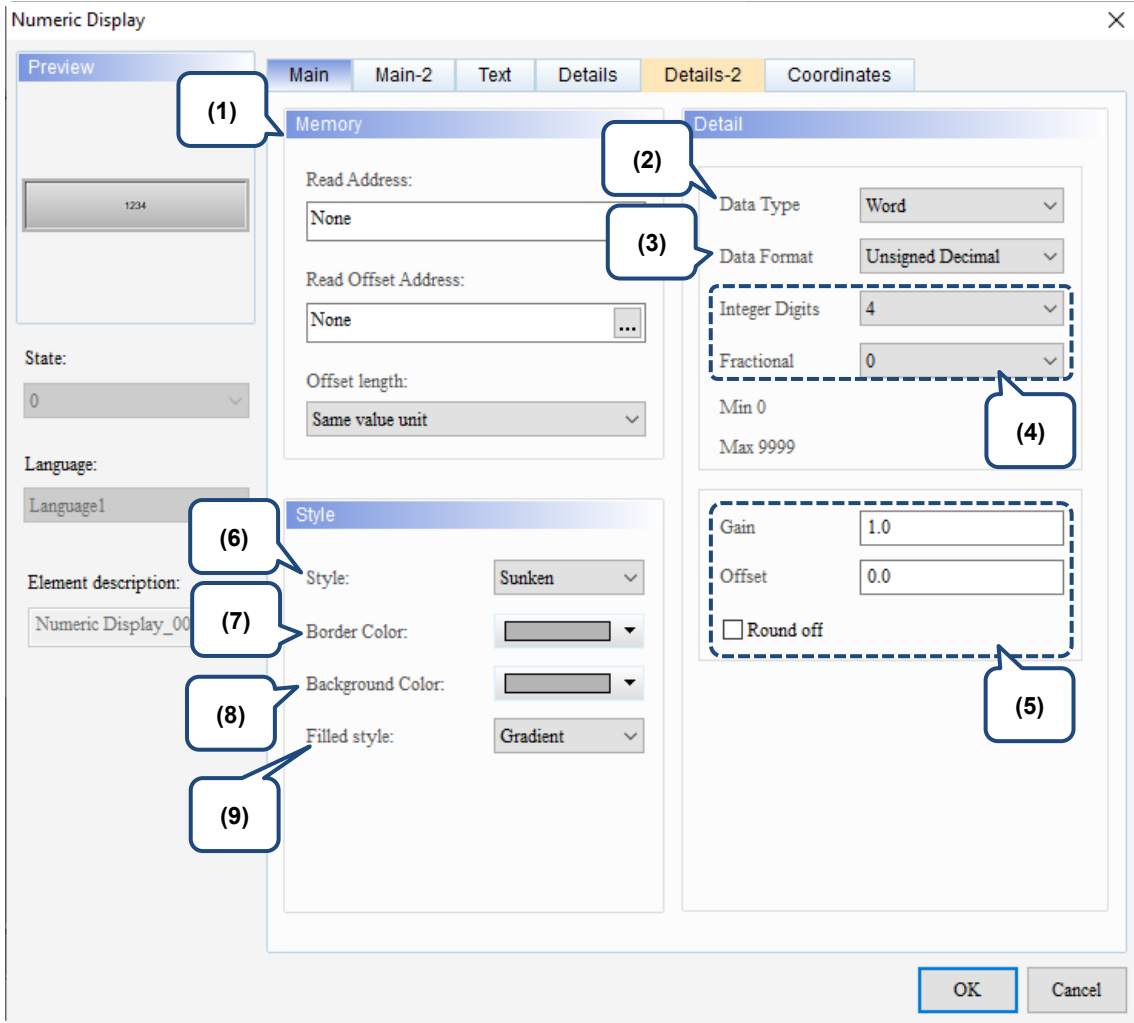


Figure 11.1.1 Properties of Numeric Display

Table 11.1.3 Function page of Numeric Display

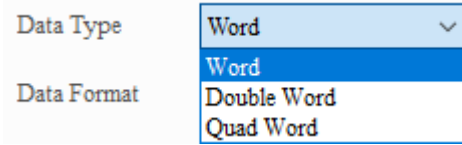
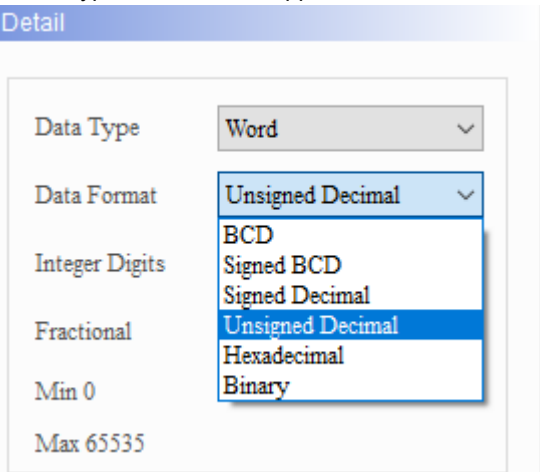
Numeric Display	
Function page	Description
Preview	Numeric Display elements do not support multiple state values and multi-language data display.
Main	Set the Read Address, Read Offset Address, Style, Border Color, Background Color, and Filled style. Set the Data Type, Data Format, Integer Digits, Fractional (Digits), Gain, Offset, and select the Round off check box.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the displaying text font, size, color, and alignment options.
Details	Set the Prefix Zero, Invisible Address, and Word arrangement.
Details-2	Set the Type, Unit and Address for the Source and Display, Custom formula, and Percentage.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

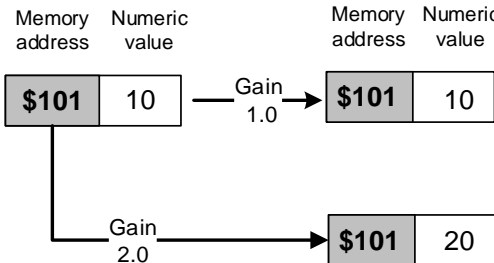
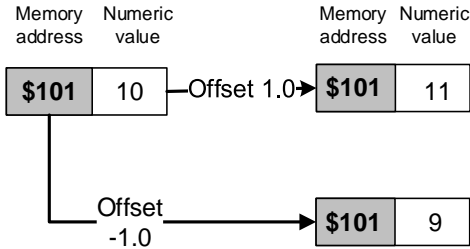
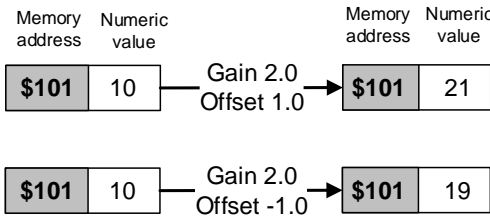



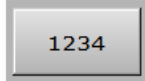
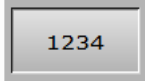


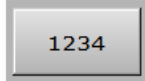
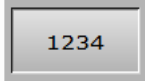


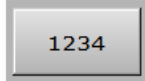
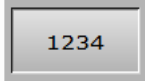

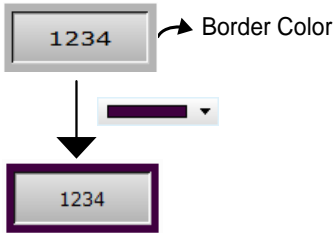
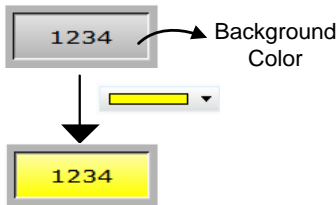
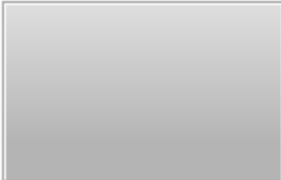

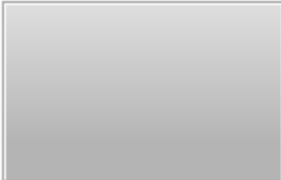

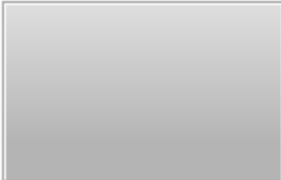

11

Figure 11.1.2. Main property page for the Numeric Display element

No.	Property	Function description																							
(1)	Read Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. 																							
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.																							
(2)	Data Type	<ul style="list-style-type: none"> There are three data types. <div style="margin-left: 20px;">  </div> If Quad Word is being used, only the internal memory and certain PLC brands are supported, as shown in the following table: <table border="1" style="margin-left: 20px; width: 100%;"> <thead> <tr> <th>Brand</th> <th>Model number</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Delta</td> <td>15MC</td> </tr> <tr> <td>15MC TCP</td> </tr> <tr> <td>10EMC</td> </tr> <tr> <td rowspan="2">Omron</td> <td>NJ FINS TCP</td> </tr> <tr> <td>NJ/NX FINS UDP</td> </tr> <tr> <td>Beckhoff</td> <td>TWINCAT TCP</td> </tr> <tr> <td rowspan="2">SIEMENS</td> <td>S7-1200</td> </tr> <tr> <td>S7-1500</td> </tr> </tbody> </table> The internal memory is only available for the DOP-112 and DOP-115 models. When the Data Type is Quad Word, the internal registers can be up to 200000 sets. However, the expanded internal memory is only used to set the screen elements. The internal registers used in the macro remain as 65536 sets (\$0 - \$65535). <table border="1" style="margin-left: 20px; width: 100%;"> <thead> <tr> <th>Access type</th> <th>Device type</th> <th>Storage range</th> </tr> </thead> <tbody> <tr> <td>Word</td> <td>\$n</td> <td>\$0 - \$199999</td> </tr> <tr> <td>Bit</td> <td>\$n.b</td> <td>\$0.0 - \$199999.15</td> </tr> </tbody> </table> <p>Note: n = Word (0 - 199999); b = Bit (0 - 15).</p> 	Brand	Model number	Delta	15MC	15MC TCP	10EMC	Omron	NJ FINS TCP	NJ/NX FINS UDP	Beckhoff	TWINCAT TCP	SIEMENS	S7-1200	S7-1500	Access type	Device type	Storage range	Word	\$n	\$0 - \$199999	Bit	\$n.b	\$0.0 - \$199999.15
		Brand	Model number																						
Delta	15MC																								
	15MC TCP																								
	10EMC																								
Omron	NJ FINS TCP																								
	NJ/NX FINS UDP																								
Beckhoff	TWINCAT TCP																								
SIEMENS	S7-1200																								
	S7-1500																								
Access type	Device type	Storage range																							
Word	\$n	\$0 - \$199999																							
Bit	\$n.b	\$0.0 - \$199999.15																							
(3)	Data Format	<ul style="list-style-type: none"> When the Data Type is Word, the supported data formats are as follows. <div style="margin-left: 20px;">  </div> 																							

No.	Property	Function description																								
(3)	Data Format	<ul style="list-style-type: none"> ■ When the Data Type is Double Word or Quad Word, the supported data formats are as follows. <div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p style="background-color: #e0e0e0; margin: 0; padding: 2px;">Detail</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;">Data Type</td> <td>Double Word ▾</td> </tr> <tr> <td>Data Format</td> <td>Unsigned Decimal ▾</td> </tr> <tr> <td>Integer Digits</td> <td>BCD Signed BCD Signed Decimal</td> </tr> <tr> <td>Fractional</td> <td>Unsigned Decimal Hexadecimal</td> </tr> <tr> <td>Min 0</td> <td>Binary Floating</td> </tr> <tr> <td>Max 4294967295</td> <td></td> </tr> </table> </div> <div style="border: 1px solid gray; padding: 5px;"> <p style="background-color: #e0e0e0; margin: 0; padding: 2px;">Detail</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;">Data Type</td> <td>Quad Word ▾</td> </tr> <tr> <td>Data Format</td> <td>Unsigned Decimal ▾</td> </tr> <tr> <td>Integer Digits</td> <td>BCD Signed BCD Signed Decimal</td> </tr> <tr> <td>Fractional</td> <td>Unsigned Decimal Hexadecimal</td> </tr> <tr> <td>Min 0</td> <td>Binary Floating</td> </tr> <tr> <td>Max 18446744073709551615</td> <td></td> </tr> </table> </div> <ul style="list-style-type: none"> ■ When the Data Type is Double Word and the Data Format is Floating, the integer and fractional digits support only 7 digits in total. When this limit is exceeded, the software displays a warning message. ■ When the Data Type is Quad Word and the Data Format is Floating, the integer and fractional digits support only 15 digits in total. When this limit is exceeded, the software displays a warning message. 	Data Type	Double Word ▾	Data Format	Unsigned Decimal ▾	Integer Digits	BCD Signed BCD Signed Decimal	Fractional	Unsigned Decimal Hexadecimal	Min 0	Binary Floating	Max 4294967295		Data Type	Quad Word ▾	Data Format	Unsigned Decimal ▾	Integer Digits	BCD Signed BCD Signed Decimal	Fractional	Unsigned Decimal Hexadecimal	Min 0	Binary Floating	Max 18446744073709551615	
Data Type	Double Word ▾																									
Data Format	Unsigned Decimal ▾																									
Integer Digits	BCD Signed BCD Signed Decimal																									
Fractional	Unsigned Decimal Hexadecimal																									
Min 0	Binary Floating																									
Max 4294967295																										
Data Type	Quad Word ▾																									
Data Format	Unsigned Decimal ▾																									
Integer Digits	BCD Signed BCD Signed Decimal																									
Fractional	Unsigned Decimal Hexadecimal																									
Min 0	Binary Floating																									
Max 18446744073709551615																										
(4)	Integer Digits Fractional (Digits)	<ul style="list-style-type: none"> ■ You can set the displaying number of integer digits and the number of decimal places. ■ The number of decimal places here is not really a decimal value, but just the display format. Only when Floating is selected for the Data Format, the Fractional setting is the actual decimal. 																								

No.	Property	Function description								
(5)	Gain and Offset	<ul style="list-style-type: none"> <p>The formula of Gain and Offset: $y = (a)x + (b)$.</p> <table border="1"> <thead> <tr> <th>y</th> <th>a</th> <th>x</th> <th>b</th> </tr> </thead> <tbody> <tr> <td>Element display value</td> <td>Gain</td> <td>Actual register value</td> <td>Offset value</td> </tr> </tbody> </table> <p>The Numeric Display element multiplies the register actual value by the set gain value, and then displays the result on the HMI screen. The default of Gain is 1.0. If you set the Gain to 2.0, when the element reads the register value 10, the actual value displayed on the element is 20.</p> <p style="text-align: center;">Numeric Display element</p>  <p>The Numeric Display element adds the register actual value to the set offset value, and then displays the sum on the HMI screen. The default offset is 0.0. If you set the Offset to 1.0 and the element reads the register value 10, then the actual value displayed on the element is 11. On the other hand, if you set the Offset to -1.0 and the element reads the register value 10, the actual value displayed on the element is 9.</p> <p style="text-align: center;">Numeric Display element</p>  <p>The following is the diagram of examples for [Gain 2.0; Offset 1.0] and [Gain 2.0; Offset -1.0].</p> <p style="text-align: center;">Numeric Display element</p>  <p>If you select the Round off check box, the calculation results are rounded off before being displayed on the Numeric Display element.</p> 	y	a	x	b	Element display value	Gain	Actual register value	Offset value
y	a	x	b							
Element display value	Gain	Actual register value	Offset value							

No.	Property	Function description								
(6)	Style	<p>The available element styles are Standard, Raised, Sunken, and Transparent.</p> <p>You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent				
Standard	Raised	Sunken	Transparent							
										
(7)	Border Color	<ul style="list-style-type: none"> Set the border color of the element. When you set the Style to Transparent, the Border Color setting is invalid. 								
(8)	Background Color	<ul style="list-style-type: none"> Set the background color of the element. When you set the Style to Transparent, the Background Color setting is invalid. 								
(9)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tbody> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </tbody> </table>	Gradient		Fixed (Solid)					
Gradient										
Fixed (Solid)										

■ Main-2

11

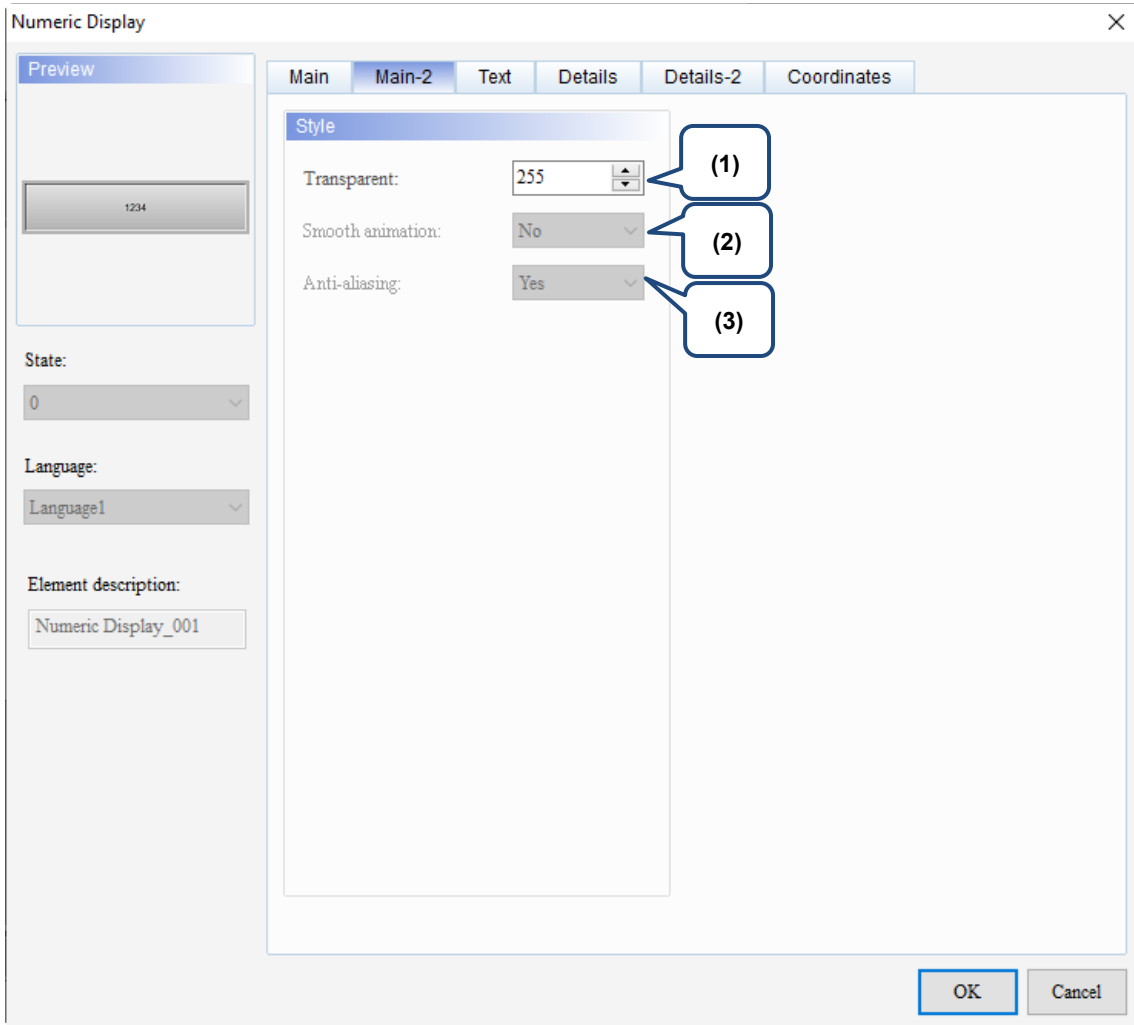
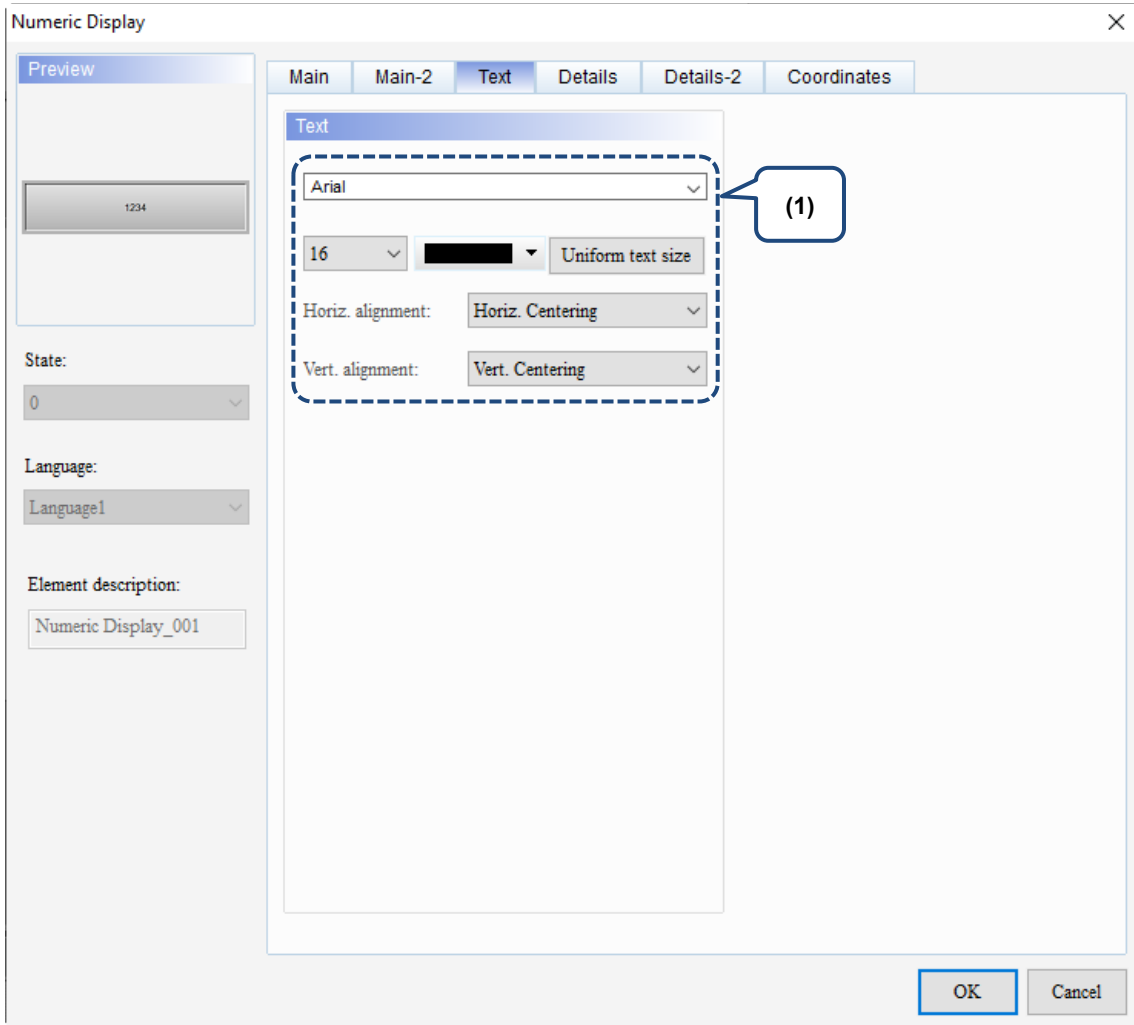


Figure 11.1.3. Main-2 property page for the Numeric Display element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text



11

Figure 11.1.4. Text property page for the Numeric Display element

No.	Property	Function description
(1)	Text	Set the text properties, including the font, size, color, and alignment.

■ Details

11

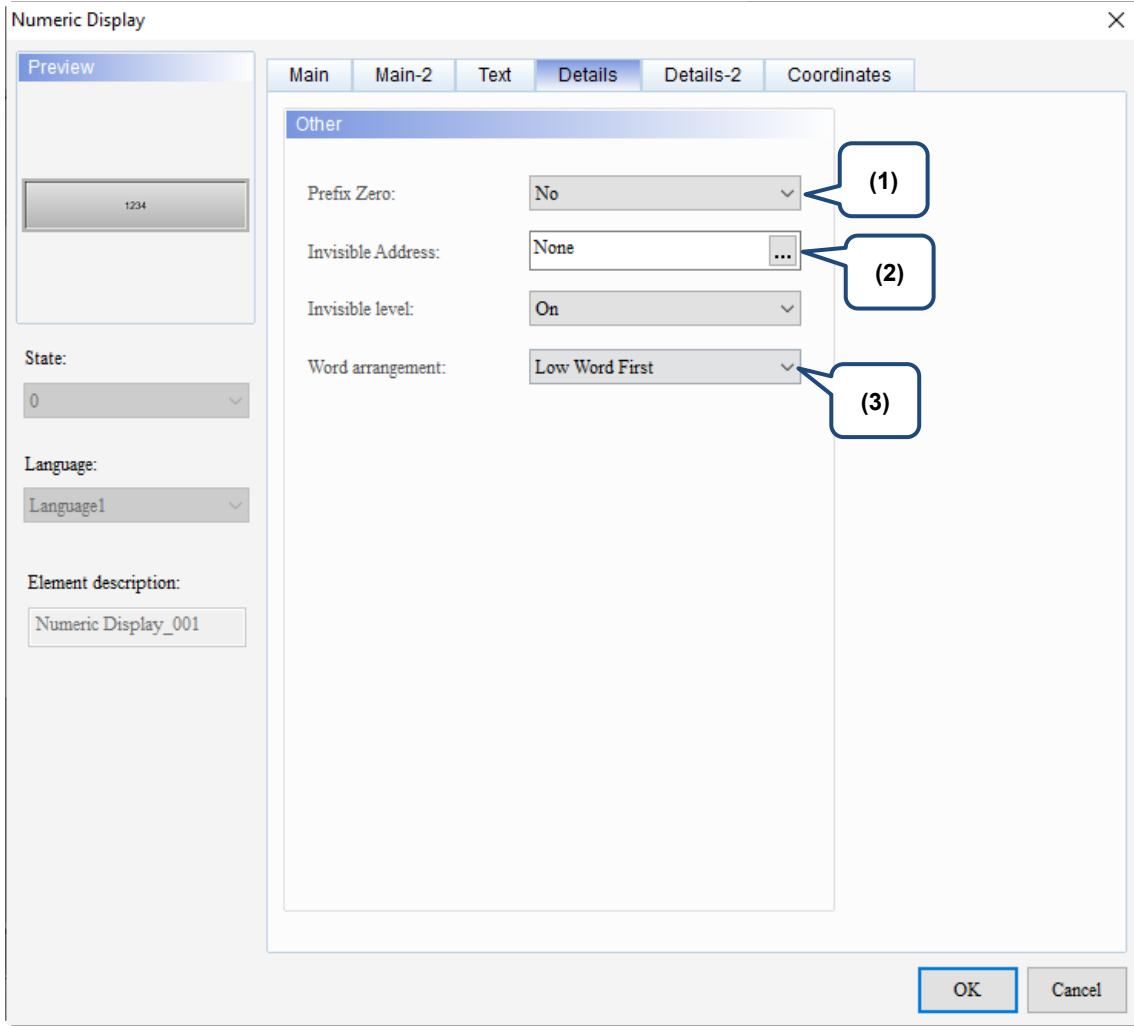

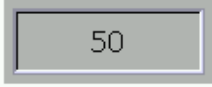
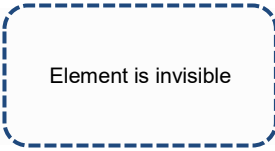
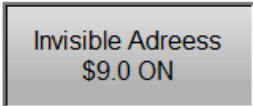

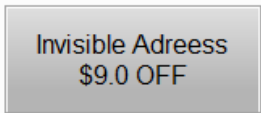
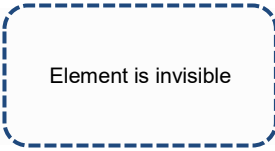
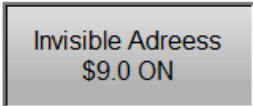

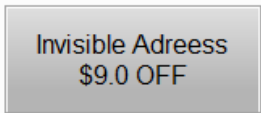
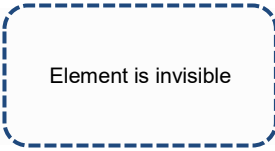
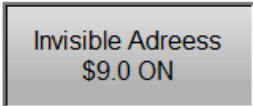

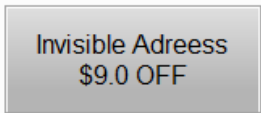


Figure 11.1.5 Details property page for the Numeric Display element

No.	Property	Function description						
(1)	Prefix Zero	<p>The Prefix Zero function determines how many zeros to add according to the set Integer Digits. Refer to the following example.</p> <p style="text-align: center;">Integer Digits is set to 5</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input checked="" type="checkbox"/> Prefix Zero  </div> <div style="text-align: center;"> <input type="checkbox"/> Prefix Zero  </div> </div>						
(2)	Invisible Address	<p>When the Invisible Address is set to On, the Numeric Display element is invisible and you cannot execute its set functions.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 5px;">Invisible Address is On</td> <td style="width: 40%; text-align: center; padding: 5px;">  Element is invisible </td> <td style="width: 40%; text-align: center; padding: 5px;">  </td> </tr> <tr> <td style="padding: 5px;">Invisible Address is Off</td> <td style="text-align: center; padding: 5px;">  </td> <td style="text-align: center; padding: 5px;">  </td> </tr> </table>	Invisible Address is On	 Element is invisible		Invisible Address is Off		
Invisible Address is On	 Element is invisible							
Invisible Address is Off								
(3)	Word arrangement	<p>You can swap the high and low words using the Word arrangement function with the options of Low Word First and High Word First.</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">Word arrangement:</div> <div style="border: 1px solid blue; padding: 2px;"> <div style="background-color: #e6f2ff; padding: 2px;">Low Word First</div> <div style="background-color: #0070c0; color: white; padding: 2px;">Low Word First</div> <div style="padding: 2px;">High Word First</div> </div> </div>						

■ Details-2

11

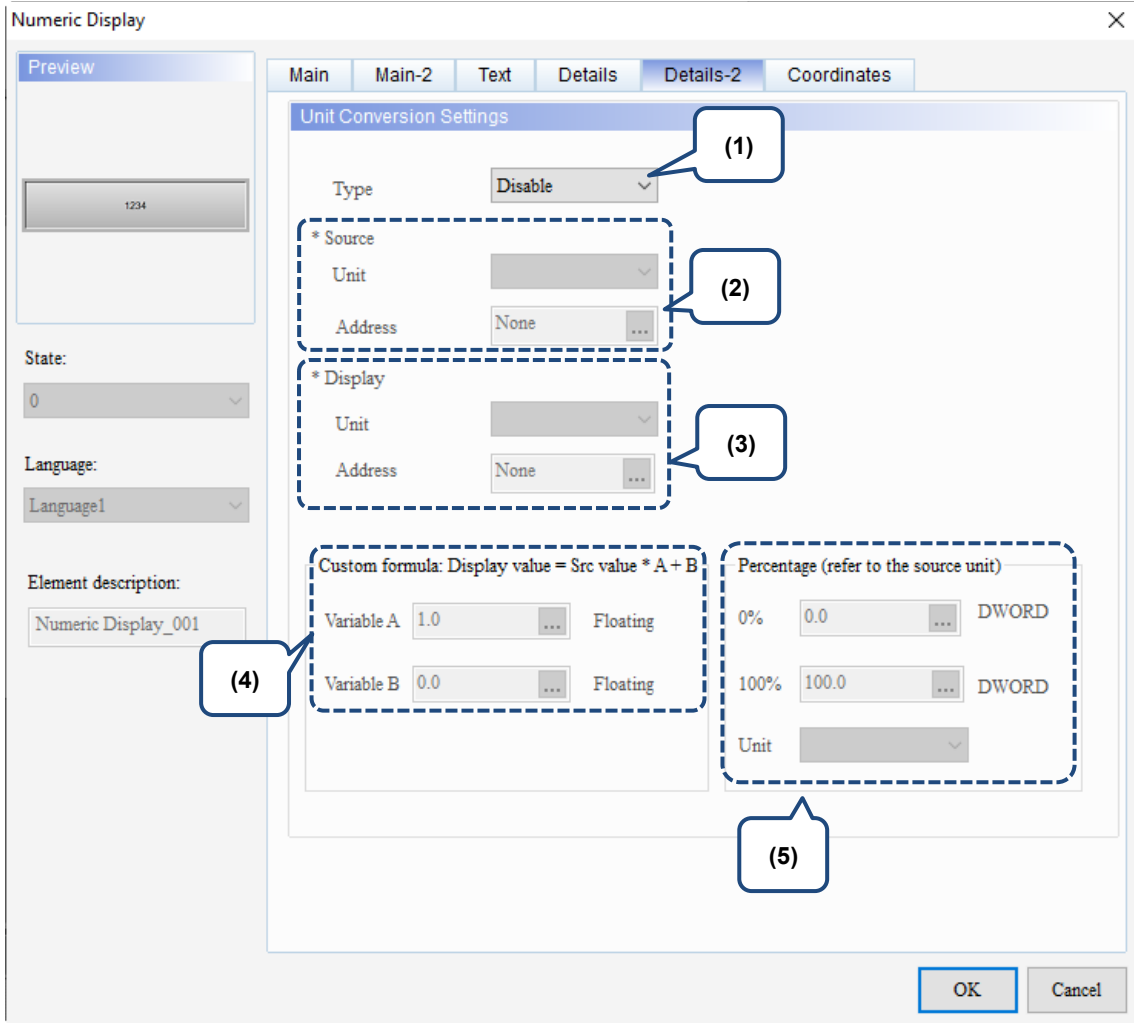
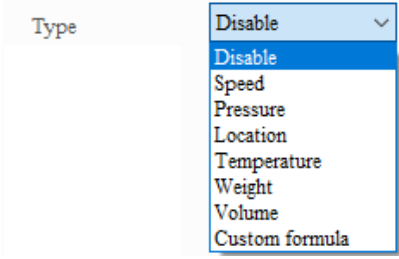
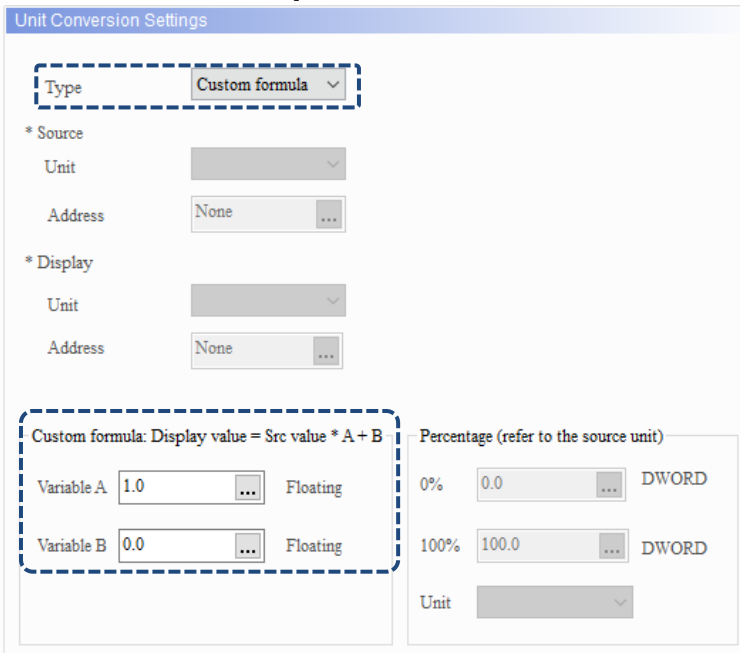


Figure 11.1.6 Details-2 property page for the Numeric Display element

No.	Property	Function description																						
(1)	Type	<ul style="list-style-type: none"> You can select the conversion type, including Speed, Pressure, Location, Temperature, Weight, Volume, and Custom formula.  <ul style="list-style-type: none"> If you select Disable, it means the value does not need conversion. When selecting the Custom formula for the Type, you have to enter values for Variable A and Variable B. The unit of Variable A and Variable B is Floating, and the formula is [Display value = Source value * A + B]. 																						
(2)	Source	<ul style="list-style-type: none"> The unit is subject to change based on the selected Type. The following table lists the corresponding units for each type. <table border="1"> <thead> <tr> <th>Type</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Speed</td> <td>mm/sec</td> </tr> <tr> <td>inch/sec</td> </tr> <tr> <td>%</td> </tr> <tr> <td>Using the code</td> </tr> <tr> <td rowspan="4">Pressure</td> <td>kg/cm</td> </tr> <tr> <td>bar</td> </tr> <tr> <td>%</td> </tr> <tr> <td>Using the code</td> </tr> <tr> <td rowspan="4">Location (position)</td> <td>mm</td> </tr> <tr> <td>inch</td> </tr> <tr> <td>%</td> </tr> <tr> <td>Using the code</td> </tr> <tr> <td rowspan="4">Temperature</td> <td>°F</td> </tr> <tr> <td>°C</td> </tr> <tr> <td>%</td> </tr> <tr> <td>Using the code</td> </tr> </tbody> </table>	Type	Unit	Speed	mm/sec	inch/sec	%	Using the code	Pressure	kg/cm	bar	%	Using the code	Location (position)	mm	inch	%	Using the code	Temperature	°F	°C	%	Using the code
Type	Unit																							
Speed	mm/sec																							
	inch/sec																							
	%																							
	Using the code																							
Pressure	kg/cm																							
	bar																							
	%																							
	Using the code																							
Location (position)	mm																							
	inch																							
	%																							
	Using the code																							
Temperature	°F																							
	°C																							
	%																							
	Using the code																							

11

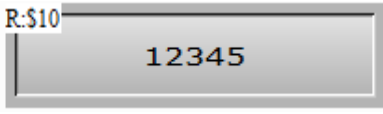

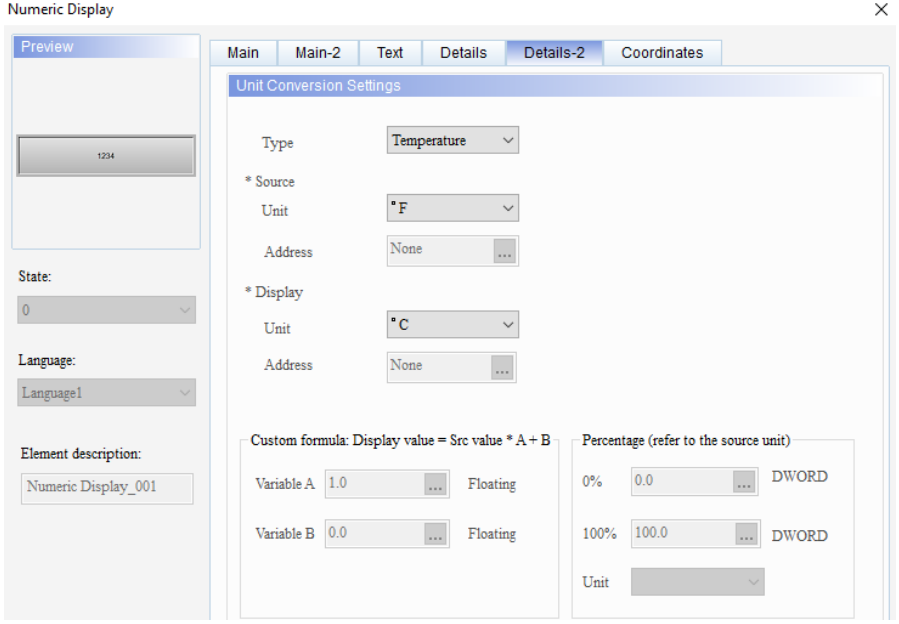
No.	Property	Function description																
		<table border="1"> <thead> <tr> <th>Type</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td rowspan="6">Weight</td> <td>ton</td> </tr> <tr> <td>kN</td> </tr> <tr> <td>g</td> </tr> <tr> <td>oz</td> </tr> <tr> <td>%</td> </tr> <tr> <td>Using the code</td> </tr> <tr> <td rowspan="5">Volume</td> <td>L</td> </tr> <tr> <td>ml</td> </tr> <tr> <td>kL</td> </tr> <tr> <td>%</td> </tr> <tr> <td>Using the code</td> </tr> </tbody> </table>	Type	Unit	Weight	ton	kN	g	oz	%	Using the code	Volume	L	ml	kL	%	Using the code	
		Type	Unit															
Weight	ton																	
	kN																	
	g																	
	oz																	
	%																	
	Using the code																	
Volume	L																	
	ml																	
	kL																	
	%																	
	Using the code																	
(2)	Source	<p>■ When you select % (Percentage) or Using the code as the unit for either the Source or Display, the Percentage setting section is enabled. When the Percentage setting section allows data input, you need to define the values for 0% and 100% which unit setting refers to the Source.</p> <div> <p>Unit Conversion Settings</p> <p>Type: Speed</p> <p>* Source Unit: mm/sec</p> <p>Address: None</p> <p>* Display Unit: %</p> <p>Address: None</p> <p>Custom formula: Display value = Src value * A + B</p> <p>Variable A: 1.0 Floating</p> <p>Variable B: 0.0 Floating</p> <p>Percentage (refer to the source unit)</p> <p>0%: 0.0 DWORD</p> <p>100%: 100.0 DWORD</p> <p>Unit: mm/sec</p> </div>																

No.	Property	Function description																																																	
(2)	Source																																																		
		<ul style="list-style-type: none"> When you select Using the code as the unit, it means you can enter variables to specify the unit codes for the Source and Display. The unit codes are as follows: <table border="1"> <thead> <tr> <th>Type</th> <th>Unit</th> <th>Code</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Speed</td> <td>mm/sec</td> <td>101</td> </tr> <tr> <td>inch/sec</td> <td>102</td> </tr> <tr> <td>%</td> <td>700</td> </tr> <tr> <td rowspan="3">Pressure</td> <td>kg/cm</td> <td>201</td> </tr> <tr> <td>bar</td> <td>202</td> </tr> <tr> <td>%</td> <td>700</td> </tr> <tr> <td rowspan="3">Location (position)</td> <td>mm</td> <td>301</td> </tr> <tr> <td>inch</td> <td>302</td> </tr> <tr> <td>%</td> <td>700</td> </tr> <tr> <td rowspan="3">Temperature</td> <td>°F</td> <td>401</td> </tr> <tr> <td>°C</td> <td>402</td> </tr> <tr> <td>%</td> <td>700</td> </tr> <tr> <td rowspan="5">Weight</td> <td>ton</td> <td>501</td> </tr> <tr> <td>kN</td> <td>502</td> </tr> <tr> <td>g</td> <td>503</td> </tr> <tr> <td>oz</td> <td>504</td> </tr> <tr> <td>%</td> <td>700</td> </tr> <tr> <td rowspan="4">Volume</td> <td>L</td> <td>601</td> </tr> <tr> <td>ml</td> <td>602</td> </tr> <tr> <td>kL</td> <td>603</td> </tr> <tr> <td>%</td> <td>700</td> </tr> </tbody> </table> <ul style="list-style-type: none"> User-defined address is available only when you select Using the code for the unit. If you select Using the code as the unit for both the Source and Display, do not use the same address. 	Type	Unit	Code	Speed	mm/sec	101	inch/sec	102	%	700	Pressure	kg/cm	201	bar	202	%	700	Location (position)	mm	301	inch	302	%	700	Temperature	°F	401	°C	402	%	700	Weight	ton	501	kN	502	g	503	oz	504	%	700	Volume	L	601	ml	602	kL	603
Type	Unit	Code																																																	
Speed	mm/sec	101																																																	
	inch/sec	102																																																	
	%	700																																																	
Pressure	kg/cm	201																																																	
	bar	202																																																	
	%	700																																																	
Location (position)	mm	301																																																	
	inch	302																																																	
	%	700																																																	
Temperature	°F	401																																																	
	°C	402																																																	
	%	700																																																	
Weight	ton	501																																																	
	kN	502																																																	
	g	503																																																	
	oz	504																																																	
	%	700																																																	
Volume	L	601																																																	
	ml	602																																																	
	kL	603																																																	
	%	700																																																	

No.	Property	Function description
(3)	Display	<ul style="list-style-type: none"> ■ Refer to the Source description for details about the units. ■ User-defined address is available only when you select Using the code for the unit. ■ If you select Using the code as the unit for both the Source and Display, do not use the same address.
(4)	Custom formula	<ul style="list-style-type: none"> ■ You can input external / internal memory addresses and constants for both Variable A and Variable B. ■ When selecting the Custom formula for the Type, you have to enter values for Variable A and Variable B. The unit of Variable A and Variable B is Floating, and the formula is [Display value = Source value * A + B].
(5)	Percentage	<ul style="list-style-type: none"> ■ You can input external / internal memory addresses and constants for both setting values of 0% and 100%. ■ When you select % (Percentage) or Using the code as the unit for either the Source or Display, the Percentage setting section is enabled. ■ The unit is subject to change based on the Source unit setting. Take the speed setting for example. If you select % (Percentage) or Using the code as the Source unit, you can select mm/sec or inch/sec from the Unit drop-down list box in the Percentage setting section; if you select mm/sec for the Source unit, mm/sec is the only unit available in the Percentage setting section.

Refer to Table 11.1.4 Unit Conversion example.

Table 11.1.4 Unit Conversion example

Unit conversion (fixed unit)				
Address settings	Numeric Display element (Display)		Numeric Entry element (Source)	
	Read Address	\$10	Write Address	\$10
				
Detail settings	Numeric Display / Numeric Entry elements			
	Data Type	Data Format	Integer Digits	Fractional (Digits)
	Word	Unsigned Decimal	5	0
Unit settings	<ul style="list-style-type: none"> Double-click the Numeric Display element and go to the Details-2 page. Select Temperature for the Type and select °F for the Source Unit and °C for the Display Unit. 			
				

11

11

Unit conversion (fixed unit)

Unit settings

- Since the Numeric Entry element does not need unit conversion, set the Type to Disable.

Numeric Entry
×

Preview

1234

State:

Language:

Element description:

Main
Main-2
Text
Details
Details-2
Macro
Coordinates

Unit Conversion Settings

Type:

* Source Unit:

Address:

* Display Unit:

Address:

Custom formula: Display value = Src value * A + B

Variable A: Floating

Variable B: Floating

Percentage (refer to the source unit)

0%: DWORD

100%: DWORD

Unit:

Execution results

After creating the elements, compile and download the data to the HMI. Then, enter 50 (°F) with the Numeric Entry element and the Numeric Display element will convert the temperature to 10 (°C).

Display °C

10

Source °F

50

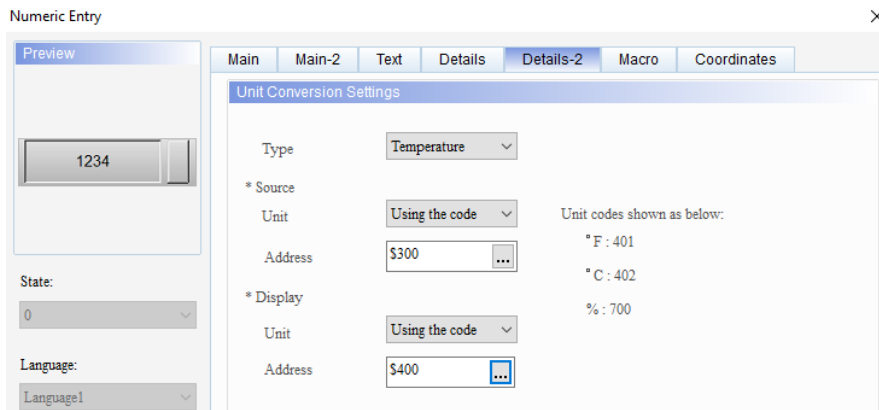
11-20

Table 11.1.5 Unit Conversion example

Unit conversion (Using the code)						
Address settings	Numeric Entry element		Numeric Entry element (Source)		Numeric Entry element (Display)	
	Read Address	\$10	Write Address	\$300	Write Address	\$400
Detail settings	Numeric Entry element					
	Data Type	Data Format	Integer Digits	Fractional (Digits)		
	Word	Unsigned Decimal	5	0		

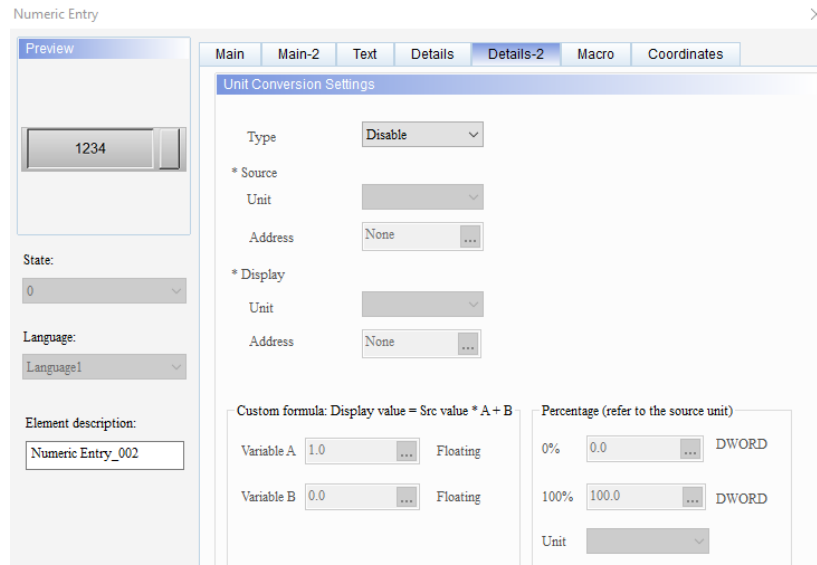
11

- Double-click the Numeric Entry element of \$10 and go to the Details-2 page. Select Temperature for the Type. For the Source settings, select Using the code for the Unit and set \$300 for the Address; for the Display settings, select Using the code for the Unit and set \$400 for the Address.



Unit settings

- Since the Numeric Entry elements of \$300 and \$400 do not need unit conversion, set the Type to Disable.



Unit conversion (Using the code)

11

Execution results

- After creating the elements, compile and download the data to the HMI and then enter 50 for \$10.

\$10	0	Source \$300
50	0	Display \$400

- Enter 401 (means °F) for \$300 and enter 402 (means °C) for \$400, and then \$10 converts the value to 10 (°C).

\$10	401	Source \$300
10	402	Display \$400

Table 11.1.6 Unit Conversion example

Unit conversion (%)				
Address settings	Numeric Display element		Numeric Entry element (Source)	
	Read Address	\$10	Write Address	\$10
Detail settings	Numeric Display / Numeric Entry elements			
	Data Type	Data Format	Integer Digits	Fractional (Digits)
	Word	Unsigned Decimal	5	0
Unit settings	<ul style="list-style-type: none"> Double-click the Numeric Display element of \$10. Go to the Details-2 page, select Temperature for the Type, set the Source unit to %, and set the Display unit to °C. 			
	<ul style="list-style-type: none"> In the Percentage setting section, set 0% to 30.0 and 100% to 1000.0. Since the Source unit is %, the Percentage setting unit can be °F or °C. In this example, °F is used as the unit. 			

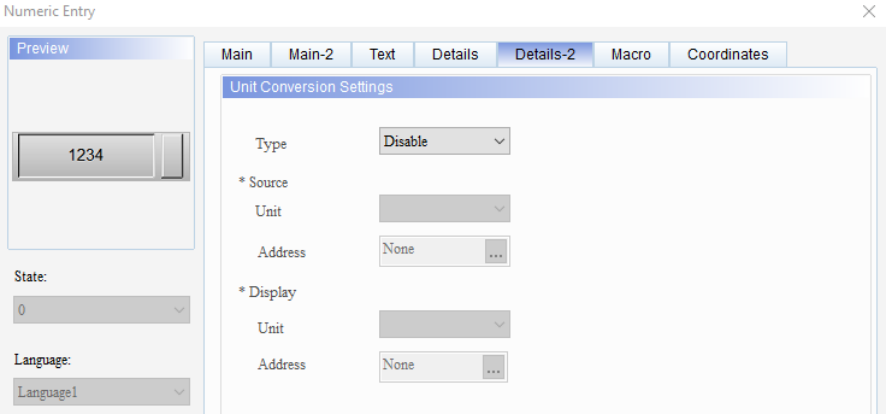
11

11

Unit conversion (%)

Unit settings

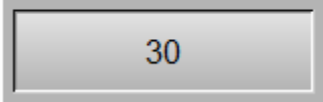
Since the Numeric Entry element of \$10 does not need unit conversion, set the Type to Disable.



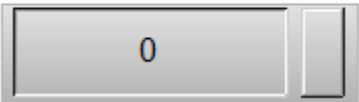
Execution results

- After creating the elements, compile and download the data to the HMI. The value for the Numeric Entry element of \$10 is 0, so the Numeric Display element displays 30, meaning the value for 0% is 30.

\$10

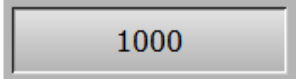


%




- If you set \$10 to 100, the Numeric Display element displays 1000, meaning the value for 100% is 1000.

\$10

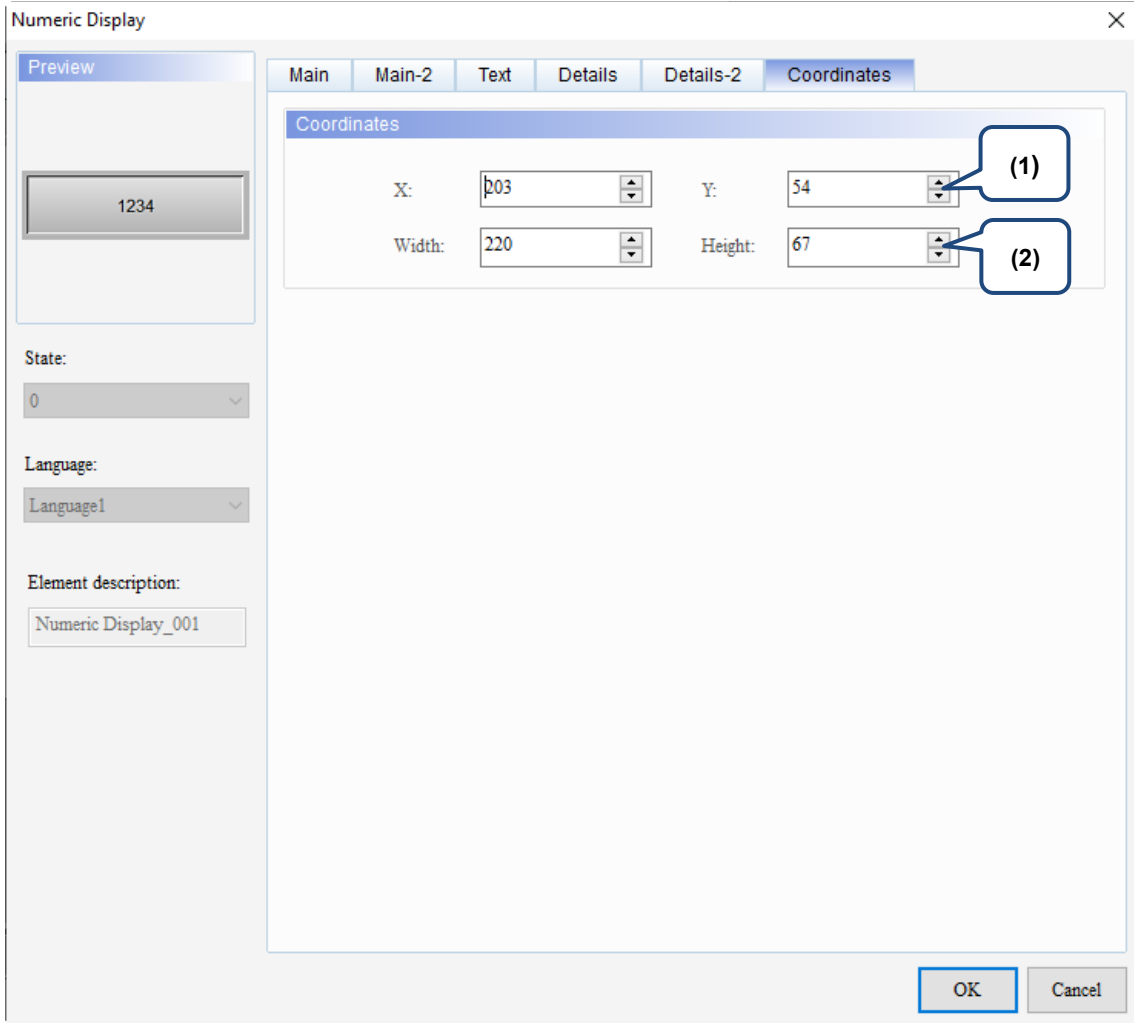


%



11-24

■ Coordinates



11

Figure 11.1.7 Coordinates property page for the Numeric Display element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

11.2 Character Display

The Character Display element is for displaying characters; therefore, the input values have to be readable ASCII codes. The software converts the ASCII codes into characters and displays them on the Character Display element. The Character Display is an element reading byte data and the default data type of the Numeric Entry element is Word, which consists of double byte, so one word represents two bytes. Then, the high and low bytes of the value read by the Character Display element swaps, and this result will be the actual characters displayed. For example, if \$0 is 4241 (Hex), it is displayed as "AB" after the high and low bytes are swapped.



The following conversion table shows the conversion between data formats and characters from A to G. The remaining characters can be deduced with the same pattern.

Table 11.2.1 ASCII code conversion table

Unsigned Decimal	Hexadecimal	Character
65	41	A
66	42	B
67	43	C
68	44	D
69	45	E
70	46	F
71	47	G

Refer to Table 11.2.2 Character Display example.

Table 11.2.2 Character Display example

Character Display																					
Address settings	Character Display element		Numeric Entry element																		
		Read Address	\$555	Write Address	\$555																
Detail settings	<ul style="list-style-type: none"> Set the String Length to 4 for the Character Display element. 																				
	<div style="border: 1px solid gray; padding: 5px;"> <p>Detail</p> <p>String Length: <input type="text" value="4"/></p> </div> <ul style="list-style-type: none"> The characters of the Character Display will display the corresponding value depending on the Data Format. Refer to Table 11.2.1. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">Numeric Entry element</th> </tr> <tr> <th>Data Type</th> <th>Data Format</th> <th>Integer Digits</th> </tr> </thead> <tbody> <tr> <td>Word</td> <td>Unsigned Decimal</td> <td>4</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">Numeric Entry element</th> </tr> <tr> <th>Data Type</th> <th>Data Format</th> <th>Integer Digits</th> </tr> </thead> <tbody> <tr> <td>Word</td> <td>Hexadecimal</td> <td>4</td> </tr> </tbody> </table>				Numeric Entry element			Data Type	Data Format	Integer Digits	Word	Unsigned Decimal	4	Numeric Entry element			Data Type	Data Format	Integer Digits	Word	Hexadecimal
Numeric Entry element																					
Data Type	Data Format	Integer Digits																			
Word	Unsigned Decimal	4																			
Numeric Entry element																					
Data Type	Data Format	Integer Digits																			
Word	Hexadecimal	4																			
Execution results	<p>Compile and download the screen data to the HMI, and then the Character Display will display the corresponding characters based on the value of the Read Address and the set Data Format.</p>																				
	<div style="text-align: center;"> <p>Unsigned Decimal</p> <table style="width: 100%; border: none;"> <tr> <td style="border: none; padding: 5px;">Numeric Entry</td> <td style="border: none; padding: 5px;">Character Display</td> </tr> <tr> <td style="border: none; text-align: center;"></td> <td style="border: none; text-align: center;"></td> </tr> </table> <p>Hexadecimal</p> <table style="width: 100%; border: none;"> <tr> <td style="border: none; padding: 5px;">Numeric Entry</td> <td style="border: none; padding: 5px;">Character Display</td> </tr> <tr> <td style="border: none; text-align: center;"></td> <td style="border: none; text-align: center;"></td> </tr> </table> </div>				Numeric Entry	Character Display			Numeric Entry	Character Display											
Numeric Entry	Character Display																				
Numeric Entry	Character Display																				

When you double-click the Character Display, the property page is shown as follows.

11

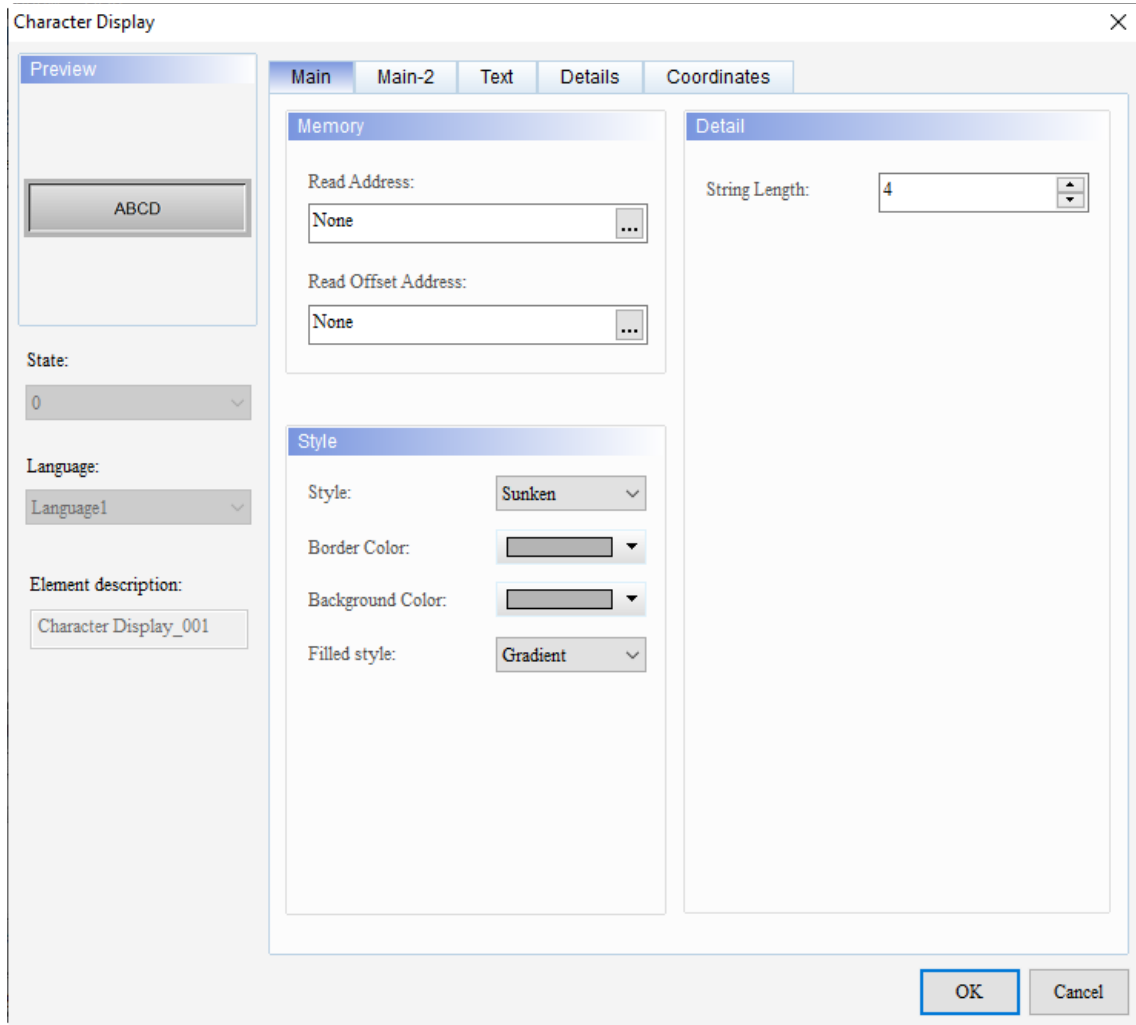
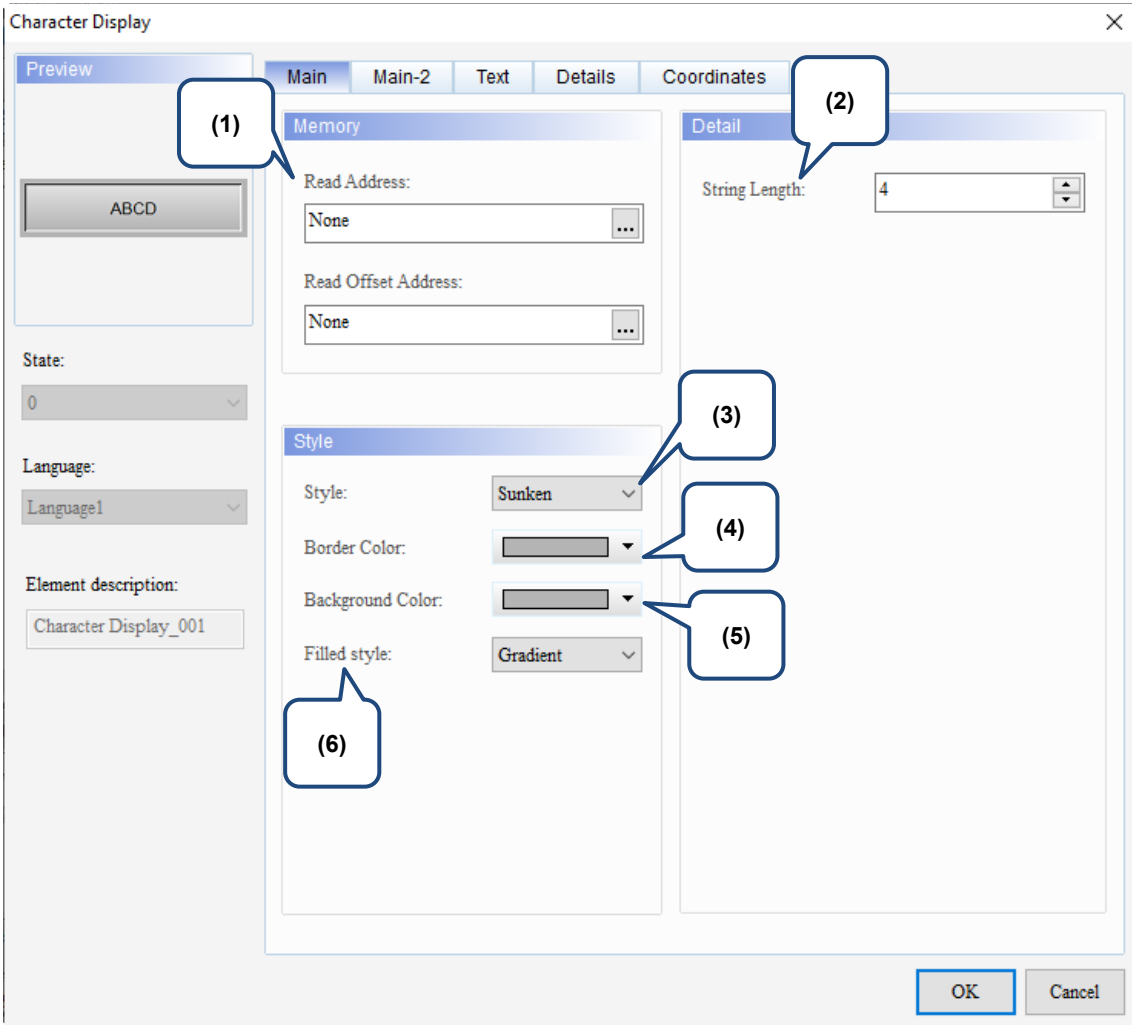


Figure 11.2.1 Properties of Character Display

Table 11.2.3 Function page of Character Display

Character Display	
Function page	Description
Preview	Character Display elements do not support multiple state values and multi-language data display.
Main	Set the Read Address, Read Offset Address, Style, Border Color, Background Color, and Filled style. Set the String Length.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the displaying text font, size, color, and alignment options.
Details	Set the Invisible Address and Insufficient string length zero.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

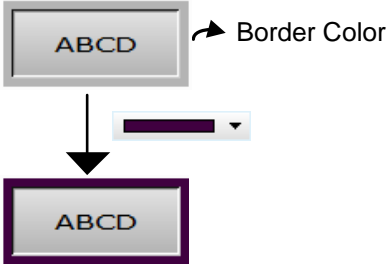
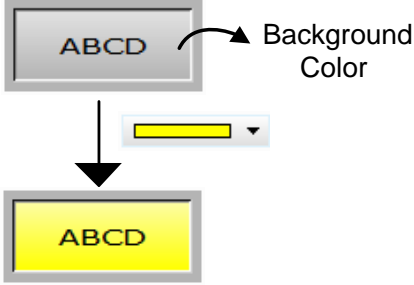
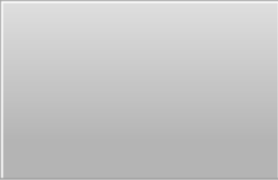

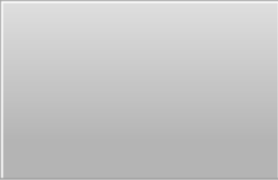

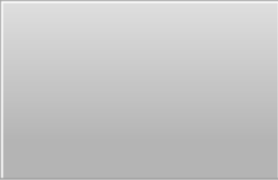

■ Main



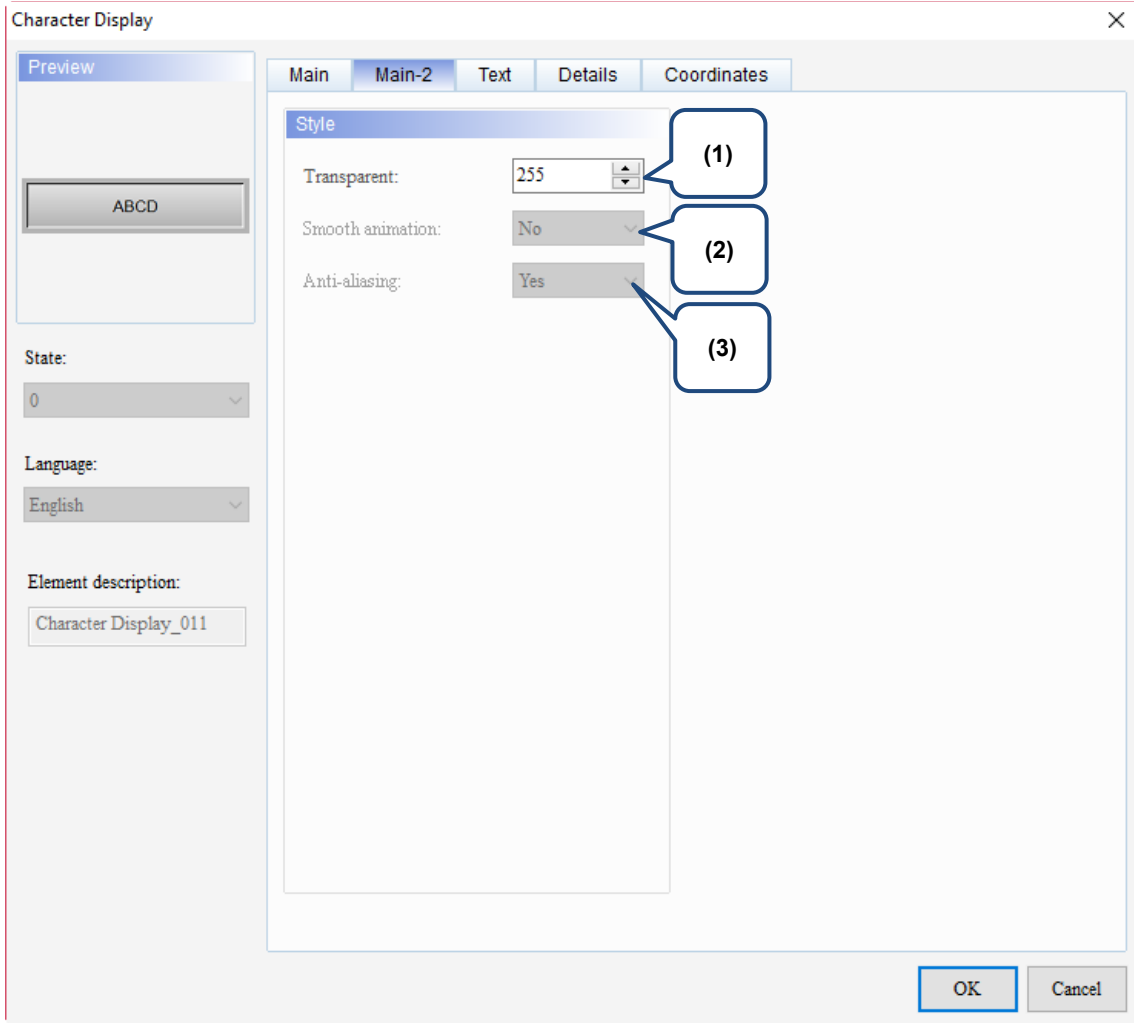
11

Figure 11.2.2. Main property page for the Character Display element

No.	Property	Function description						
(1)	Read Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. 						
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.						
(2)	String Length	The setting range of the String Length is 1 - 256.						
(3)	Style	The available element styles are Standard, Raised, Sunken, and Transparent. You can change the appearance of the element with this setting.						
		<table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent		
Standard	Raised	Sunken	Transparent					

No.	Property	Function description				
(4)	Border Color	<ul style="list-style-type: none"> ■ Set the border color of the element. ■ When you set the Style to Transparent, the Border Color setting is invalid. 				
(5)	Background Color	<ul style="list-style-type: none"> ■ Set the background color of the element. ■ When you set the Style to Transparent, the Background Color setting is invalid. 				
(6)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tbody> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </tbody> </table>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						

■ Main-2



11

Figure 11.2.3. Main-2 property page for the Character Display element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

11

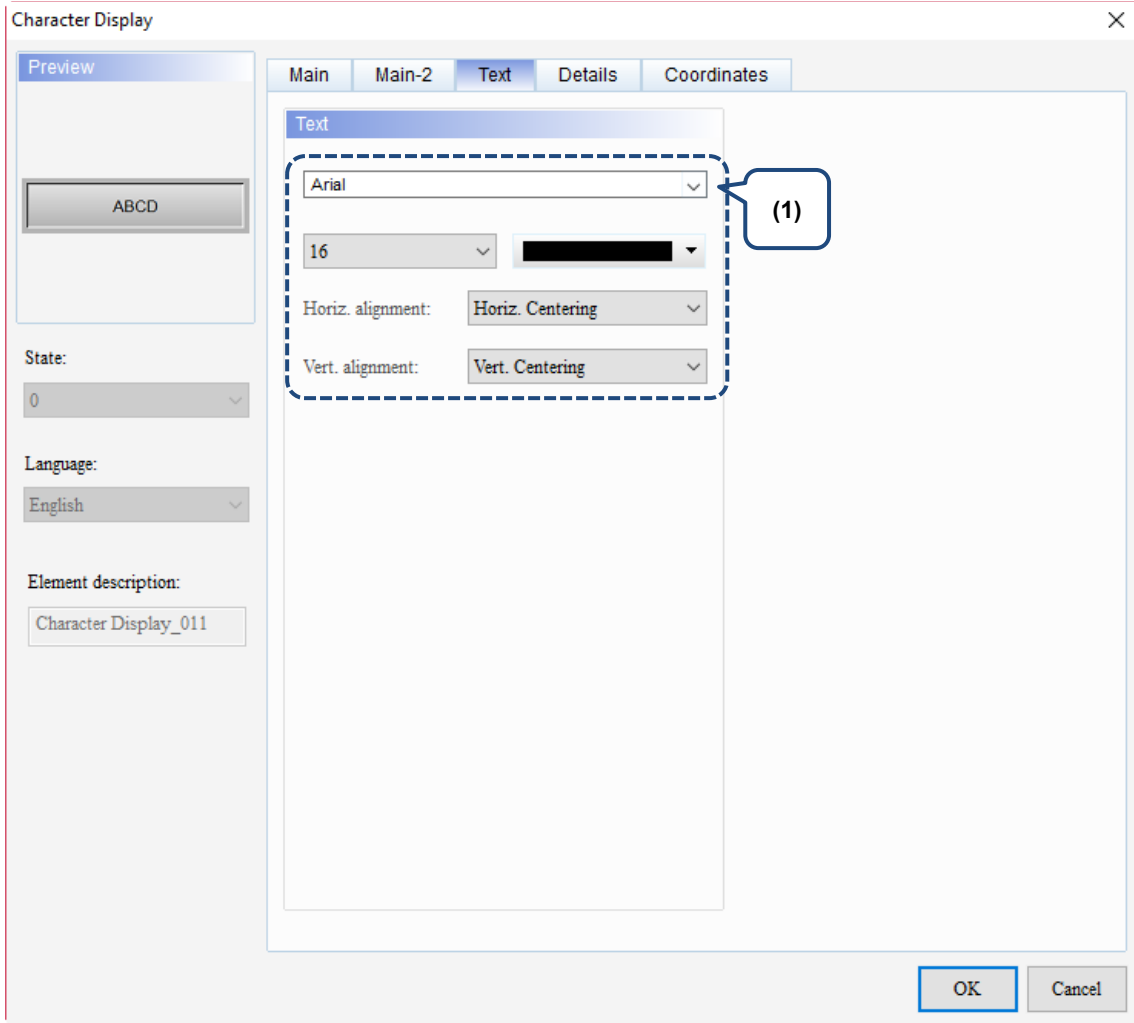
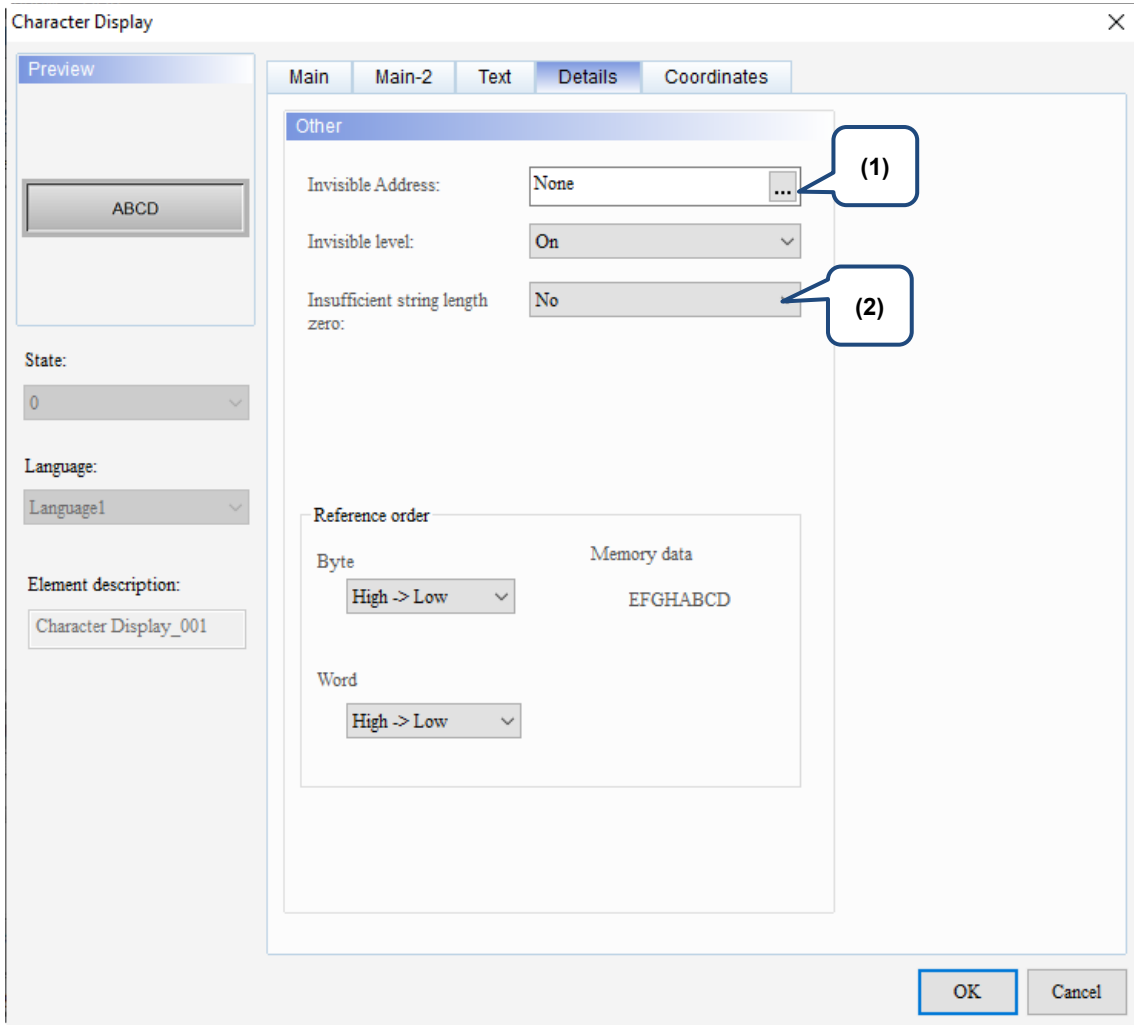


Figure 11.2.4. Text property page for the Character Display element

No.	Property	Function description
(1)	Text	Set the text properties, including the font, size, color, and alignment.

■ Details



11

Figure 11.2.5 Details property page for the Character Display element

No.	Property	Function description				
(1)	Invisible Address	When the Invisible Address is set to On, the Character Display element is invisible and you cannot execute its set functions.				
		<table border="1"> <tr> <td>Invisible Address is On</td> <td></td> <td></td> </tr> <tr> <td>Invisible Address is Off</td> <td></td> <td></td> </tr> </table>	Invisible Address is On			Invisible Address is Off
Invisible Address is On						
Invisible Address is Off						
(2)	Insufficient string length zero	When the length of the input string is less than the set String Length, the remaining characters will be filled in with zeros for display. <table border="1"> <tr> <td></td> <td></td> </tr> </table>				

■ Coordinates

11

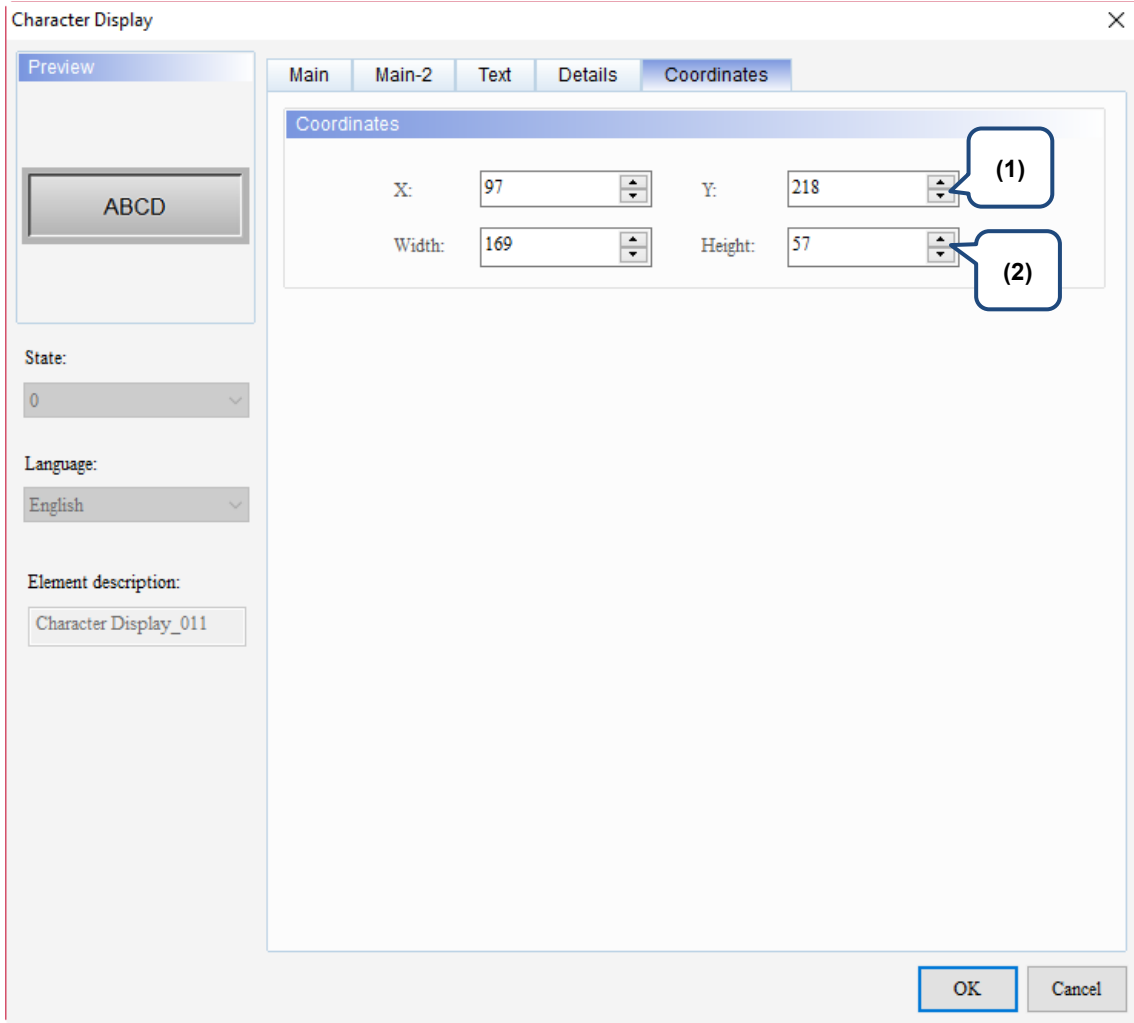


Figure 11.2.6 Coordinates property page for the Character Display element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

11.3 Date Display / Time Display / Week Display

The Date Display, Time Display, and Week Display are mainly for displaying the date, time, and week of the HMI system. You can set the format of both the Date Display and Time Display, and use the multi-language editing for the Week Display. Refer to Table 11.3.1 Date Display / Time Display / Week Display example.

Table 11.3.1 Date Display / Time Display / Week Display example

Date Display / Time Display / Week Display																										
Date Display	Date Display element		Date format																							
	Setting format	mm/dd/yy	mm/dd/yy dd/mm/yy dd.mm.yy yy.mm.dd yy/mm/dd mm.dd mm/dd																							
Time Display	Time Display element		Time format																							
	Setting format	HH:MM:SS	HH.MM.SS HH.MM																							
Week Display	If you have set the multi-language data, then you can edit the multi-language data of the element.																									
		<table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>日</td> <td>SUN</td> </tr> <tr> <td>1</td> <td>一</td> <td>MON</td> </tr> <tr> <td>2</td> <td>二</td> <td>TUE</td> </tr> <tr> <td>3</td> <td>三</td> <td>WED</td> </tr> <tr> <td>4</td> <td>四</td> <td>THR</td> </tr> <tr> <td>5</td> <td>五</td> <td>FRI</td> </tr> <tr> <td>6</td> <td>六</td> <td>SAT</td> </tr> </tbody> </table>		State	Chinese	English	0	日	SUN	1	一	MON	2	二	TUE	3	三	WED	4	四	THR	5	五	FRI	6	六
State	Chinese	English																								
0	日	SUN																								
1	一	MON																								
2	二	TUE																								
3	三	WED																								
4	四	THR																								
5	五	FRI																								
6	六	SAT																								
Execution results	Compile and download the screen to the HMI, and the HMI displays the elements as follows.																									
	Date Display	Time Display	<table border="1"> <thead> <tr> <th colspan="2">Week Display</th> </tr> <tr> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>三</td> <td>WED</td> </tr> </tbody> </table>	Week Display		Chinese	English	三	WED																	
Week Display																										
Chinese	English																									
三	WED																									

11.3.1 Date Display

When you double-click the Date Display, the property page is shown as follows.

11

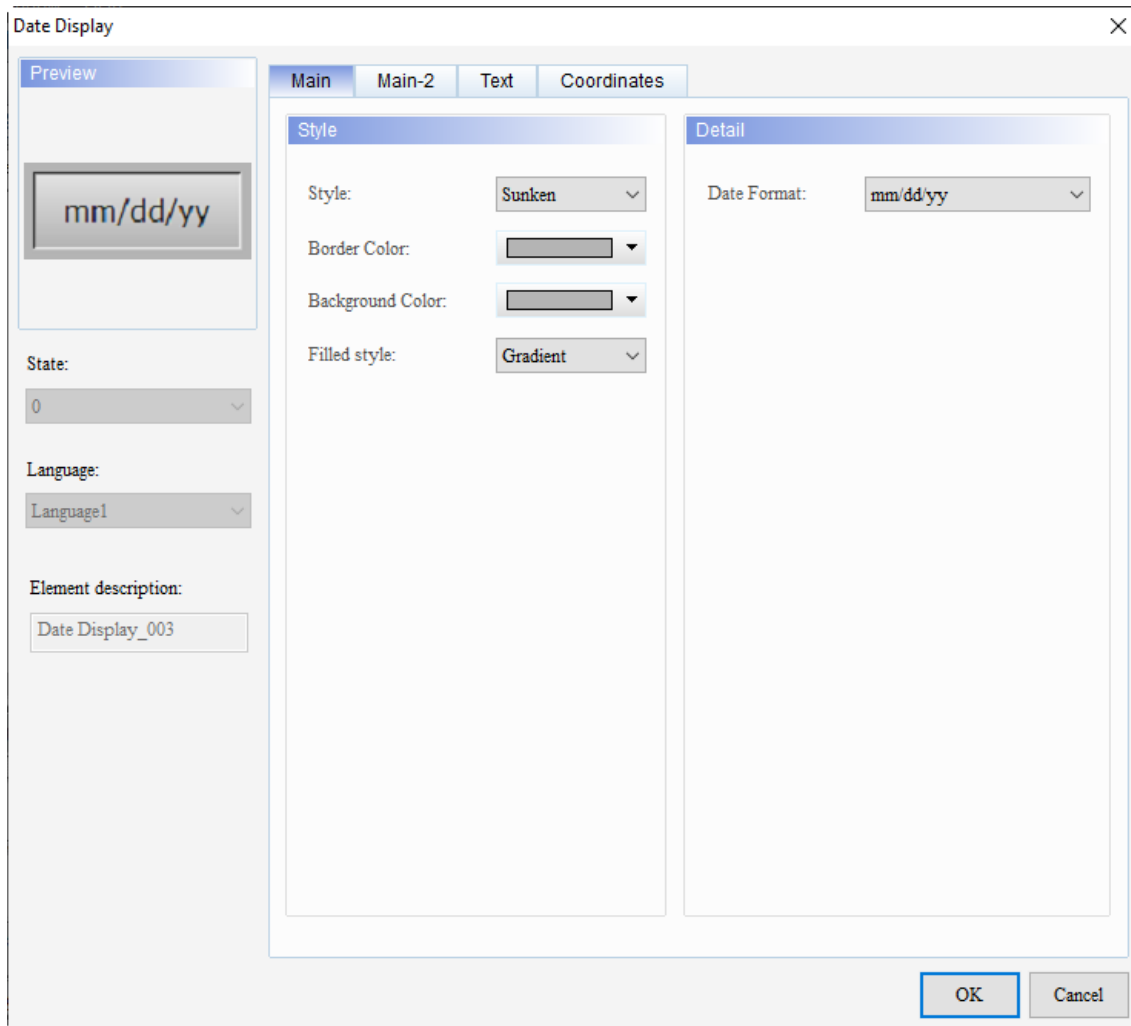
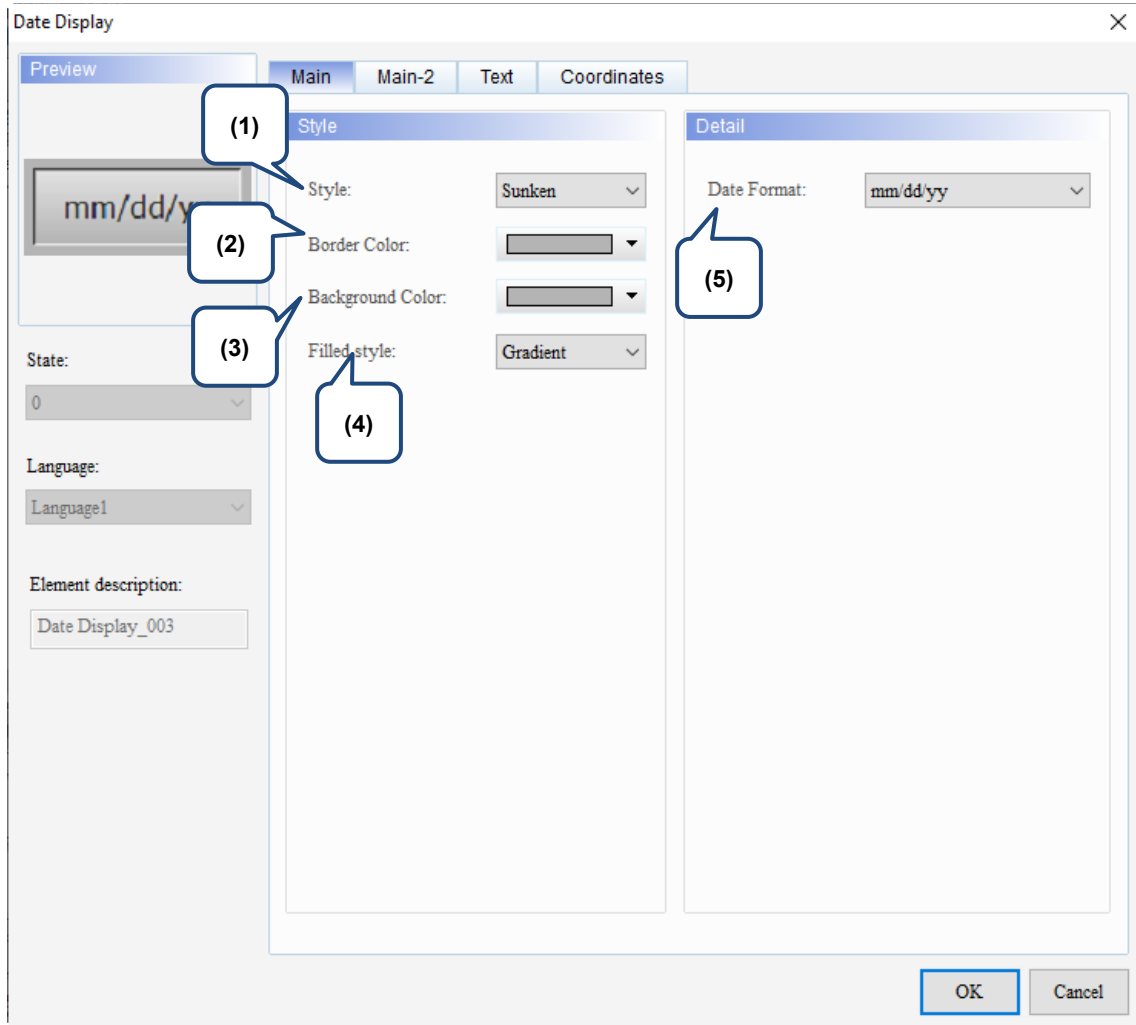


Figure 11.3.1.1 Properties of the Date Display

Table 11.3.1.1 Function page of Date Display

Date Display	
Function page	Description
Preview	The Date Display is for displaying the HMI system date. This element does not support multiple state values and multi-language display.
Main	Set the Style, Border Color, Background Color, and Filled style of the element. Set the Date Format.
Text	Set the displaying text content, font, size, color, and alignment options.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

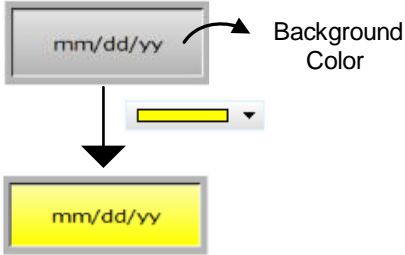
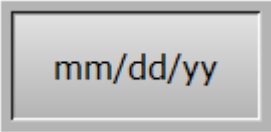
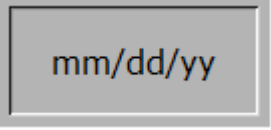
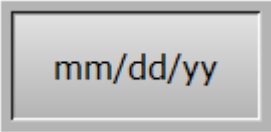
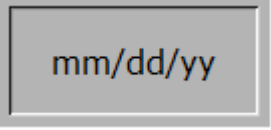
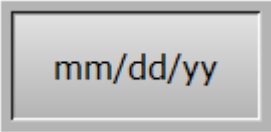
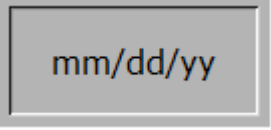
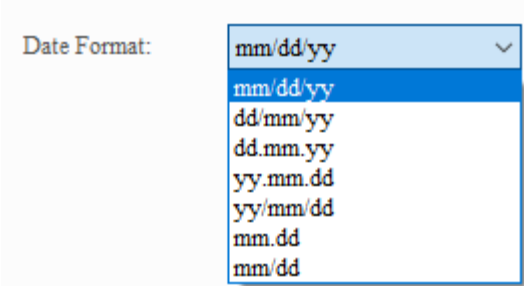
■ Main



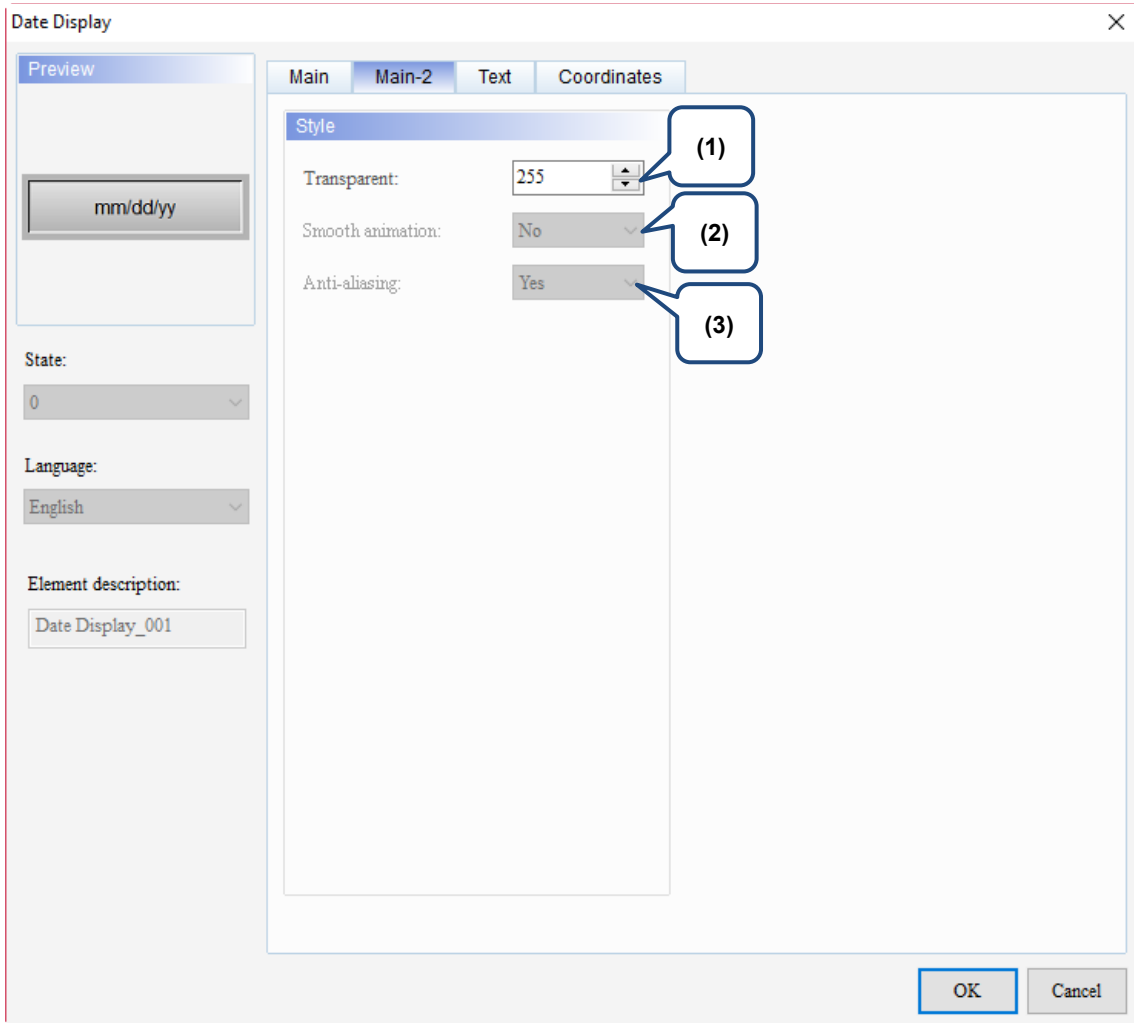
11

Figure 11.3.1.2 Main property page for the Date Display element

No.	Property	Function description								
(1)	Style	<p>The available element styles are Standard, Raised, Sunken, and Transparent. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent				
Standard	Raised	Sunken	Transparent							
(2)	Border Color	<ul style="list-style-type: none"> ■ Set the border color of the element. ■ When you set the Style to Transparent, the Border Color setting is invalid. 								

No.	Property	Function description				
(3)	Background Color	<ul style="list-style-type: none"> ■ Set the background color of the element. ■ When you set the Style to Transparent, the Background Color setting is invalid. 				
(4)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						
(5)	Date Format	<p>The software provides 7 date formats for you to select.</p> 				

■ Main-2



11

Figure 11.3.1.3 Main-2 property page for the Date Display element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

11

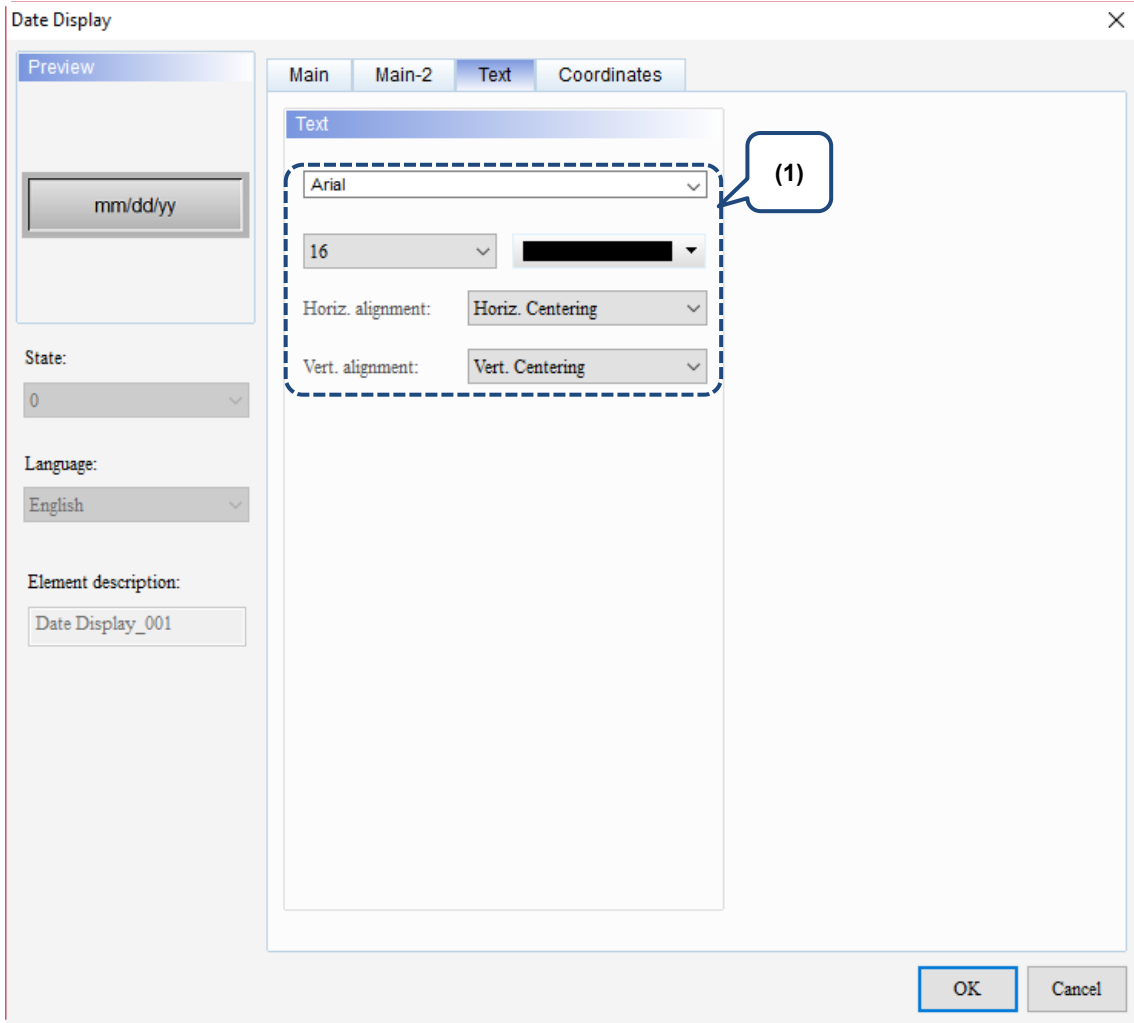
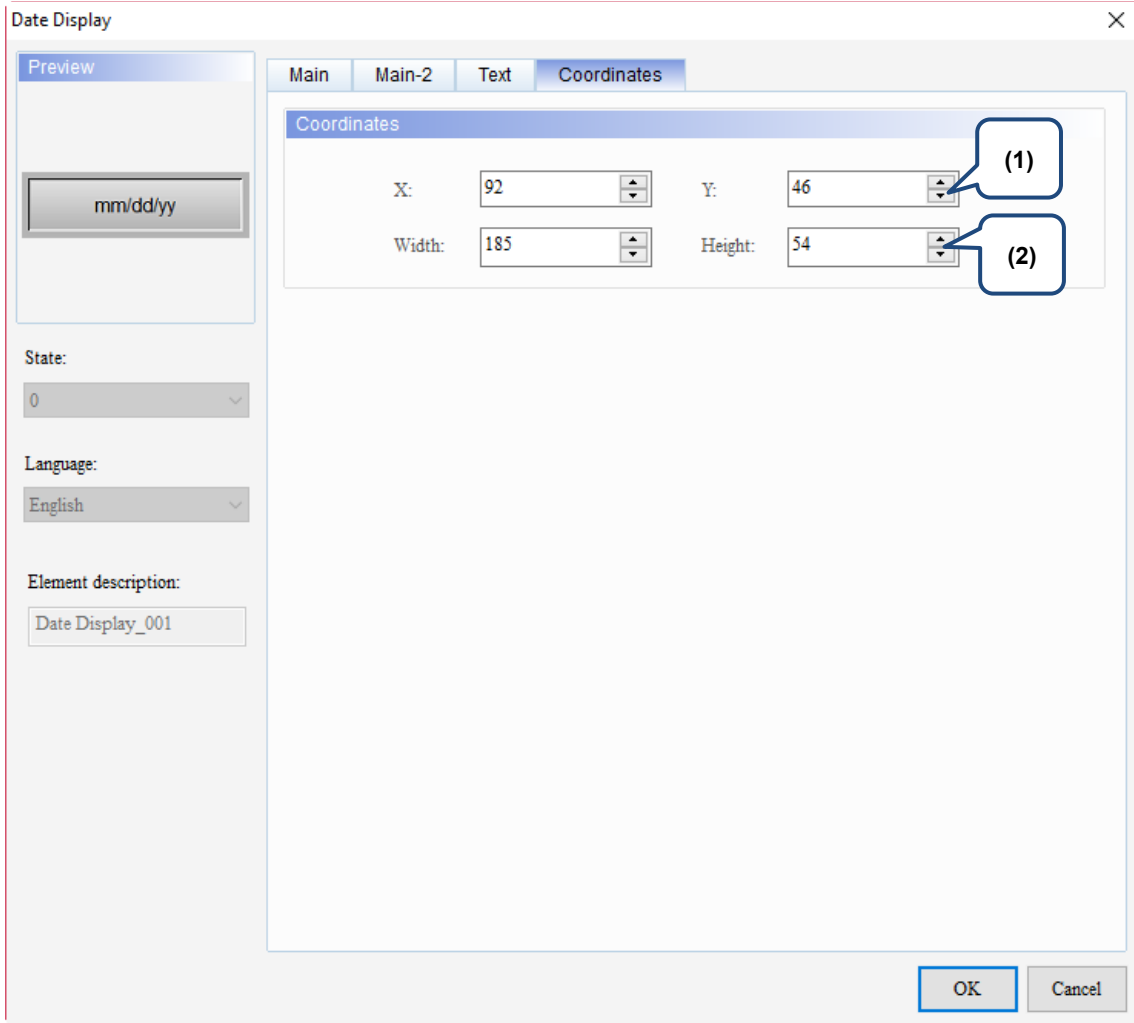


Figure 11.3.1.4 Text property page for the Date Display element

No.	Property	Function description
(1)	Text	Set the text properties, including the font, size, color, and alignment.

■ Coordinates



11

Figure 11.3.1.5 Coordinates property page for the Date Display element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

11.3.2 Time Display

When you double-click the Time Display, the property page is shown as follows.

11

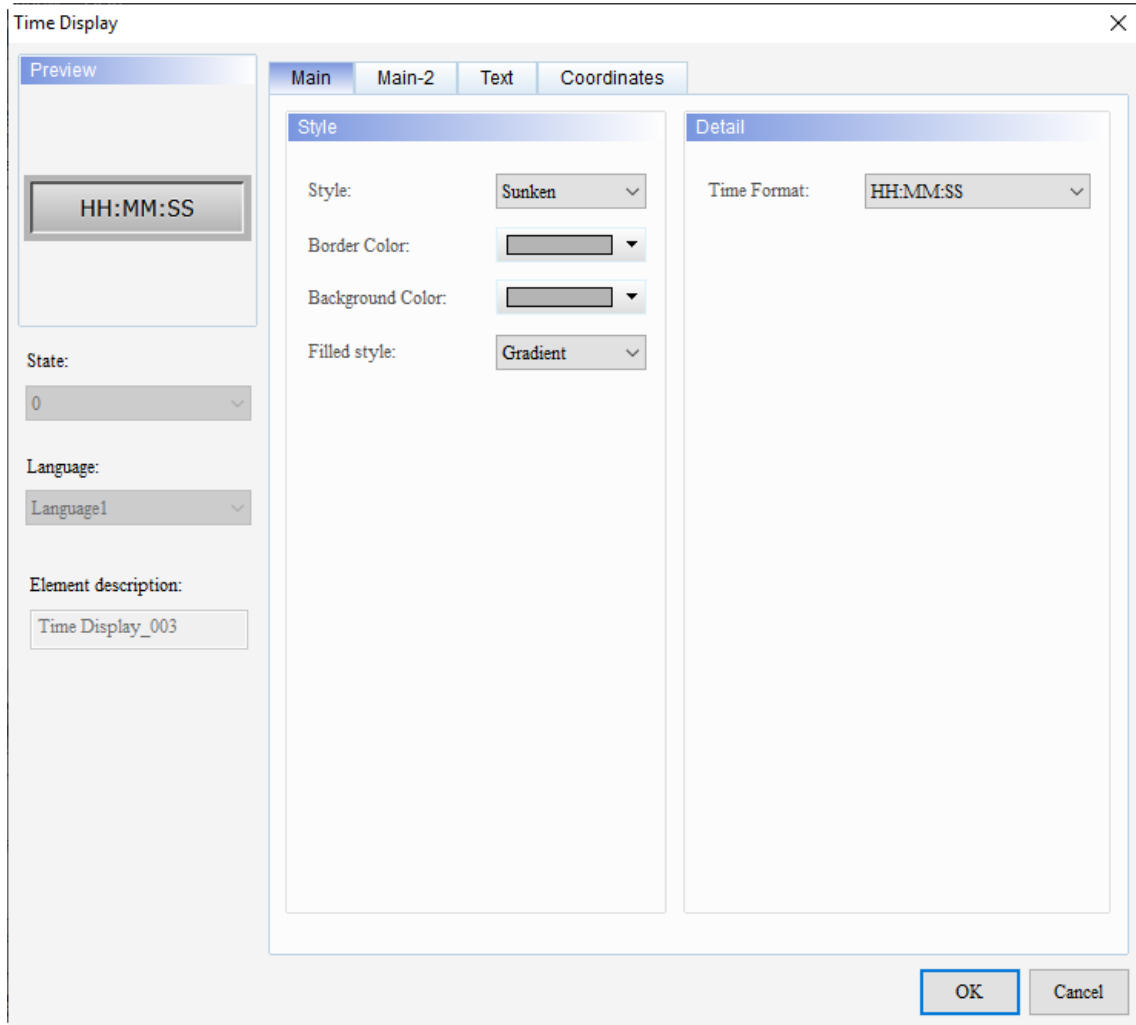
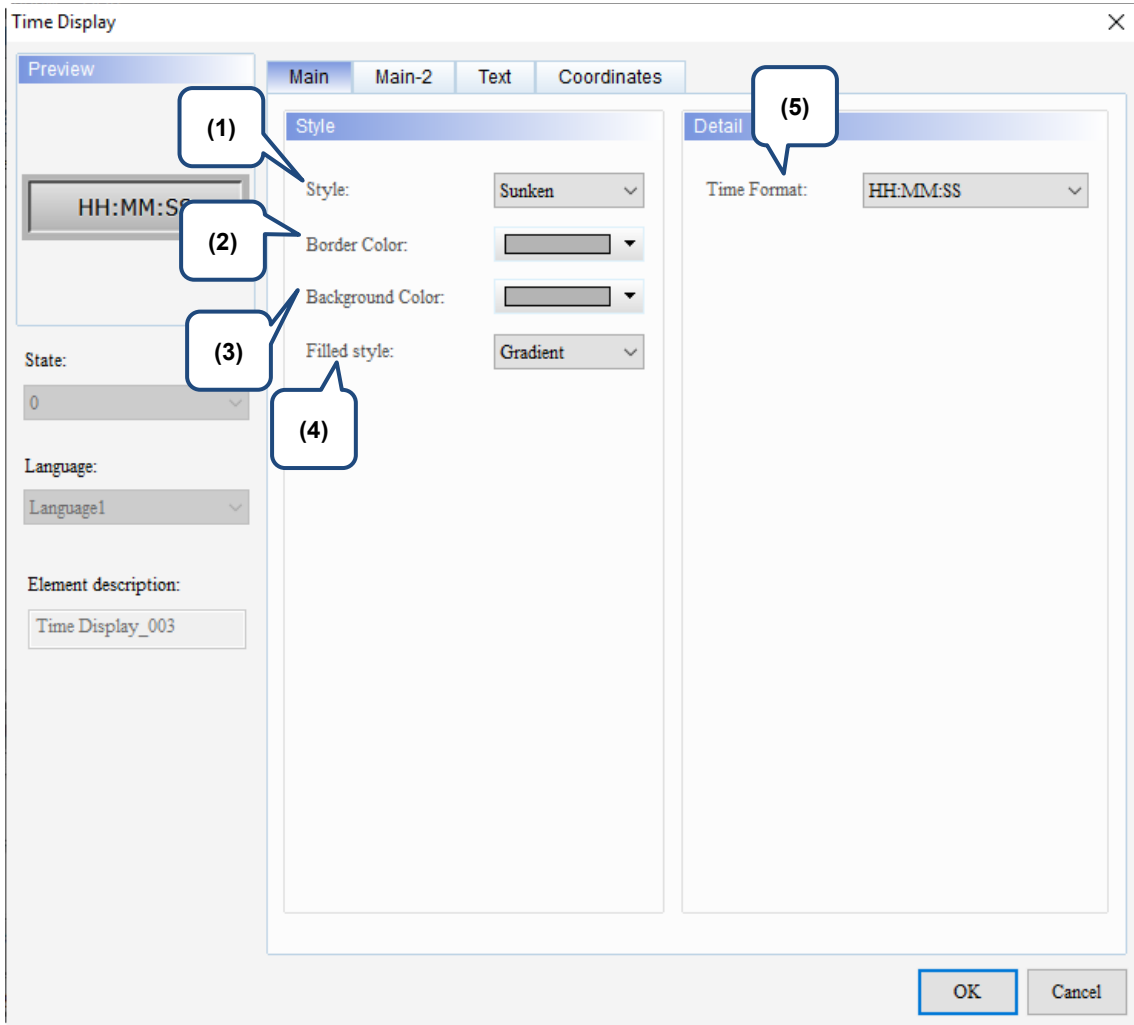


Figure 11.3.2.1 Properties of Time Display

Table 11.3.2.1 Function page of Time Display

Time Display	
Function page	Description
Preview	The Time Display is for displaying the HMI system time. This element does not support multiple state values and multi-language display.
Main	Set the Style, Border Color, Background Color, and Filled style of the element. Set the Time Format.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the displaying text content, font, size, color, and alignment options.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

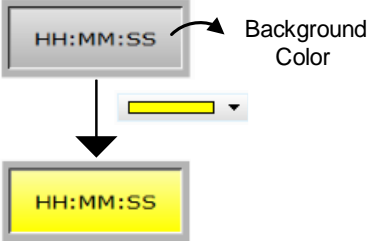
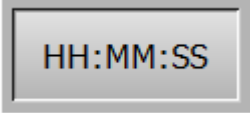
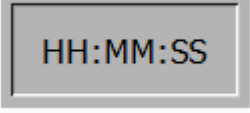
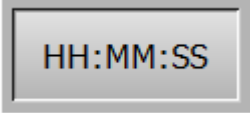
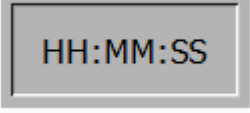
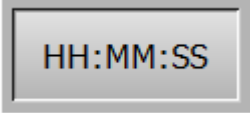
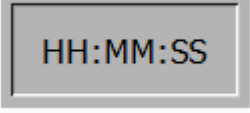
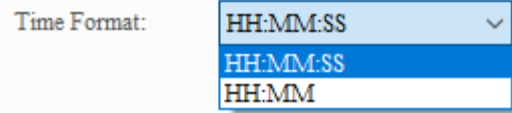


11

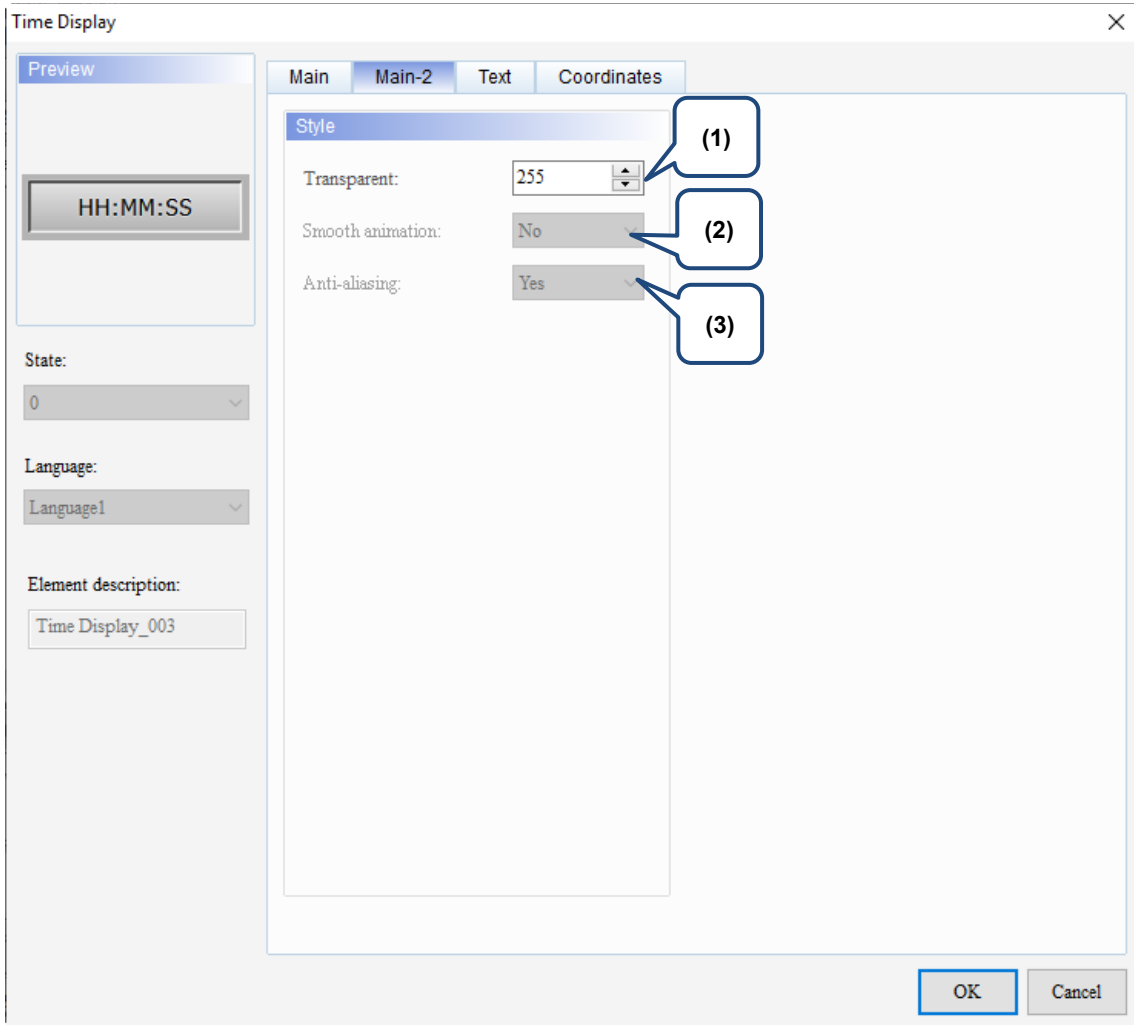
Figure 11.3.2.2 Main property page for the Time Display element

No.	Property	Function description								
(1)	Style	<p>The available element styles are Standard, Raised, Sunken, and Transparent. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent				
Standard	Raised	Sunken	Transparent							
(2)	Border Color	<ul style="list-style-type: none"> Set the border color of the element. When you set the Style to Transparent, the Border Color setting is invalid. 								

11

No.	Property	Function description				
(3)	Background Color	<ul style="list-style-type: none"> ■ Set the background color of the element. ■ When you set the Style to Transparent, the Background Color setting is invalid. 				
(4)	Filled style	<p>The default fill style for the element on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						
(5)	Time Format	<p>The software provides 2 time formats for you to select.</p> 				

■ Main-2



11

Figure 11.3.2.3 Main-2 property page for the Time Display element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

11

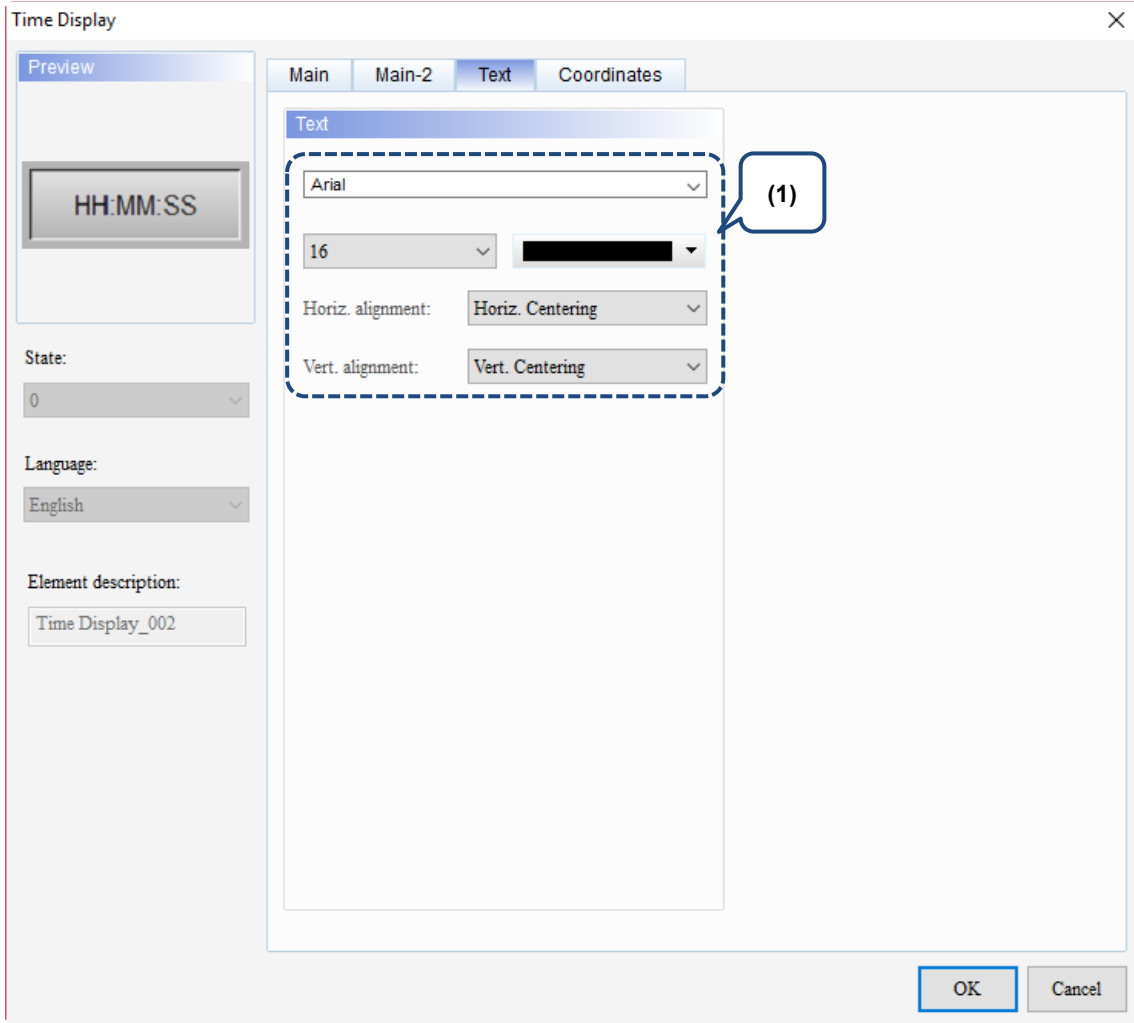
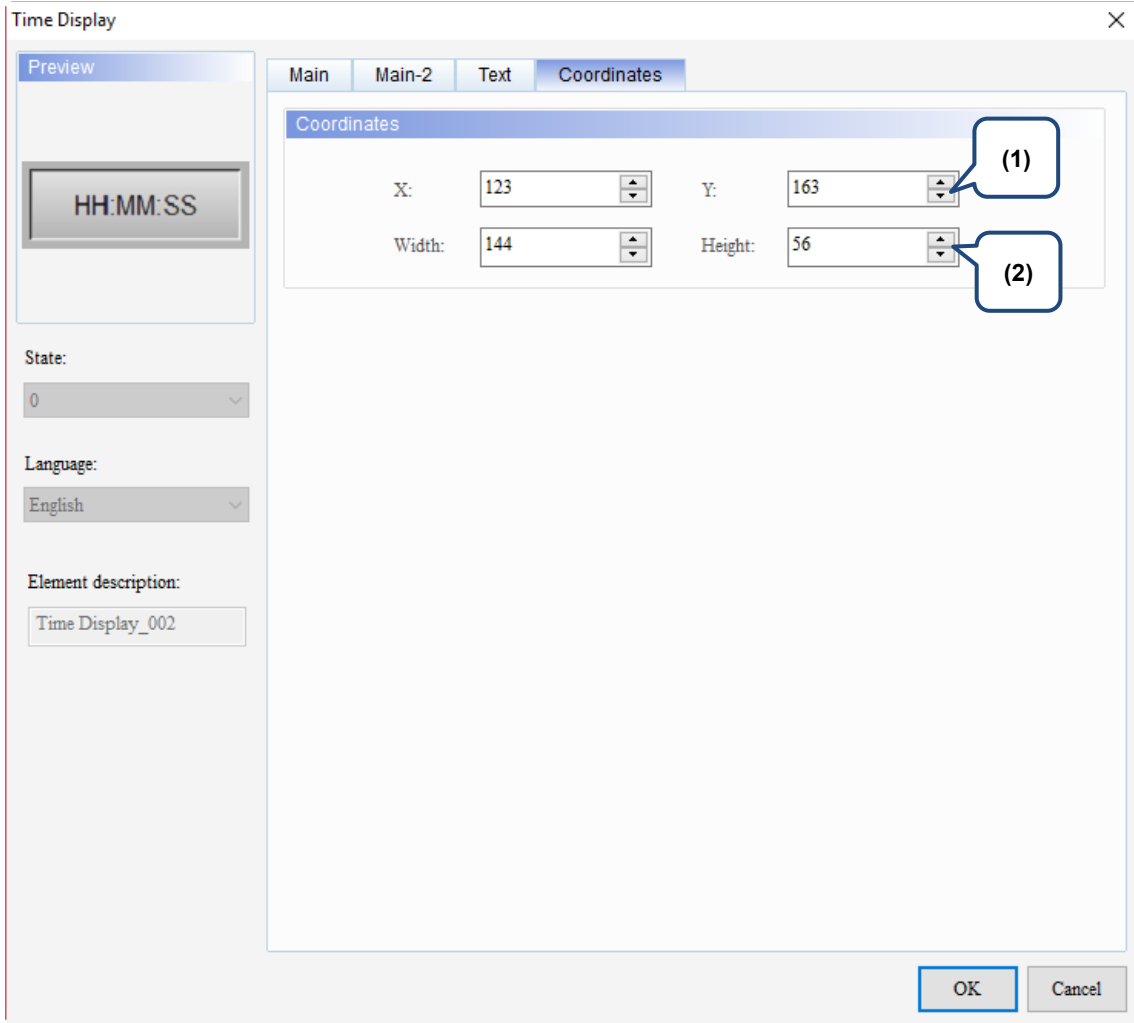


Figure 11.3.2.4 Text property page for the Time Display element

No.	Property	Function description
(1)	Text	Set the text properties, including the font, size, color, and alignment.

■ Coordinates



11

Figure 11.3.2.5 Coordinates property page for the Time Display element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

11.3.3 Week Display

When you double-click the Week Display, the property page is shown as follows.

11

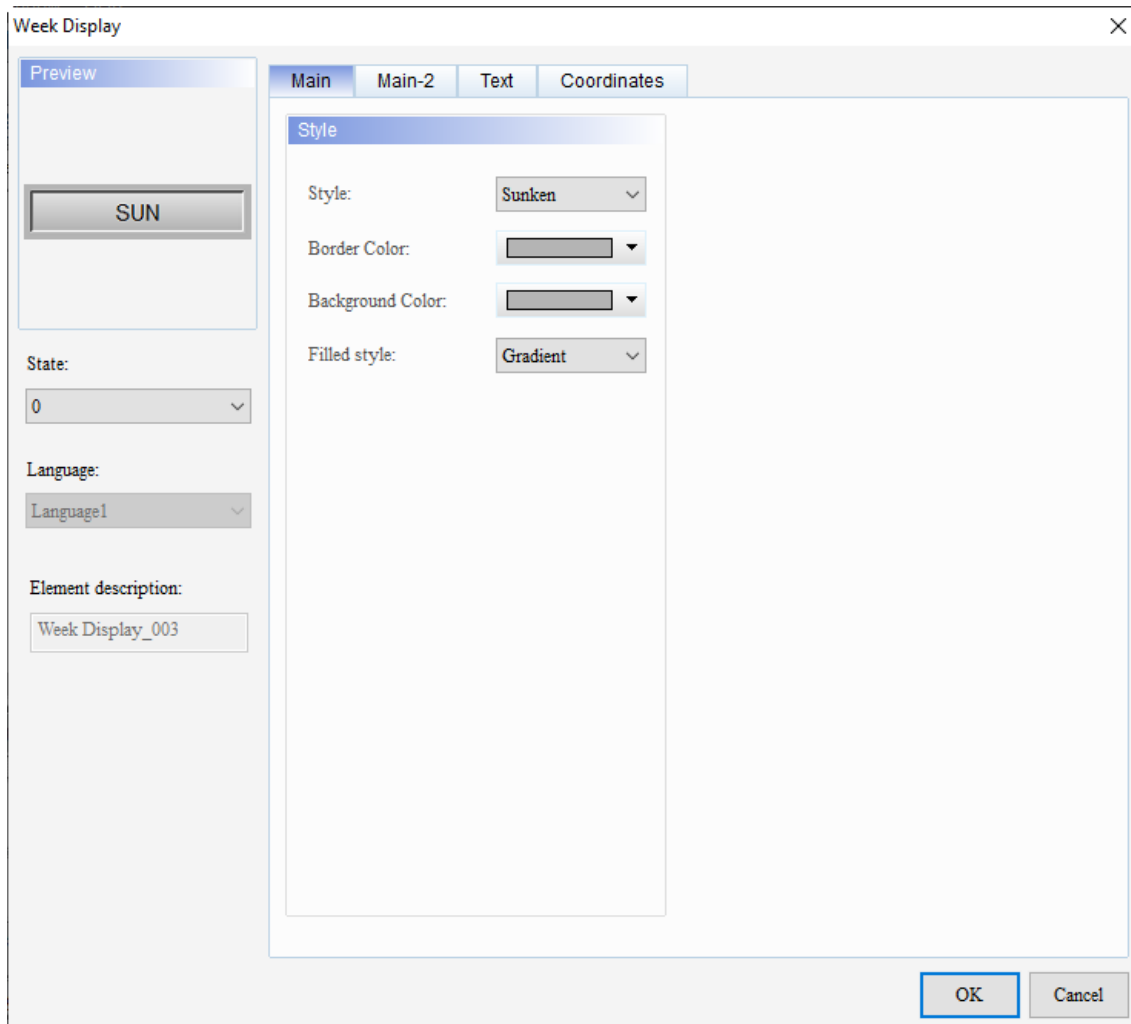
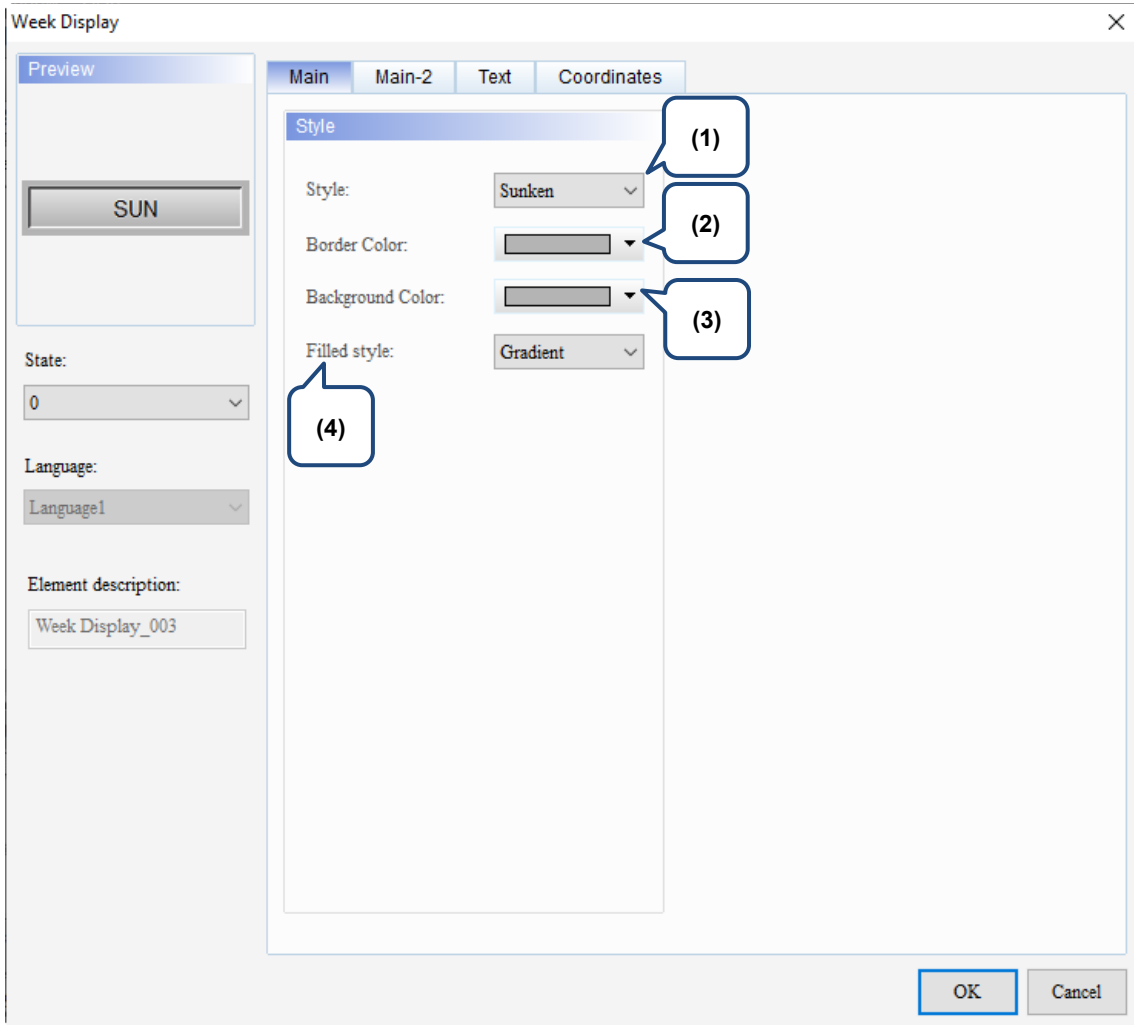


Figure 11.3.3.1 Properties of Week Display

Table 11.3.3.1 Function page of Week Display

Week Display	
Function page	Description
Preview	In addition to displaying the HMI system week, the Week Display supports multiple state values and multi-language display.
Main	Set the Style, Border Color, Background Color, and Filled style of the element.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment options. Edit the texts for the Week Display. If you have set multi-language data, you can edit data in other languages.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

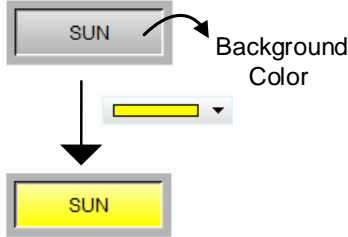
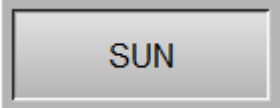

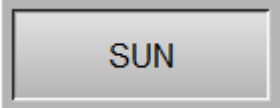

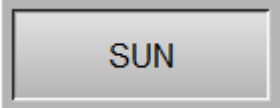



11

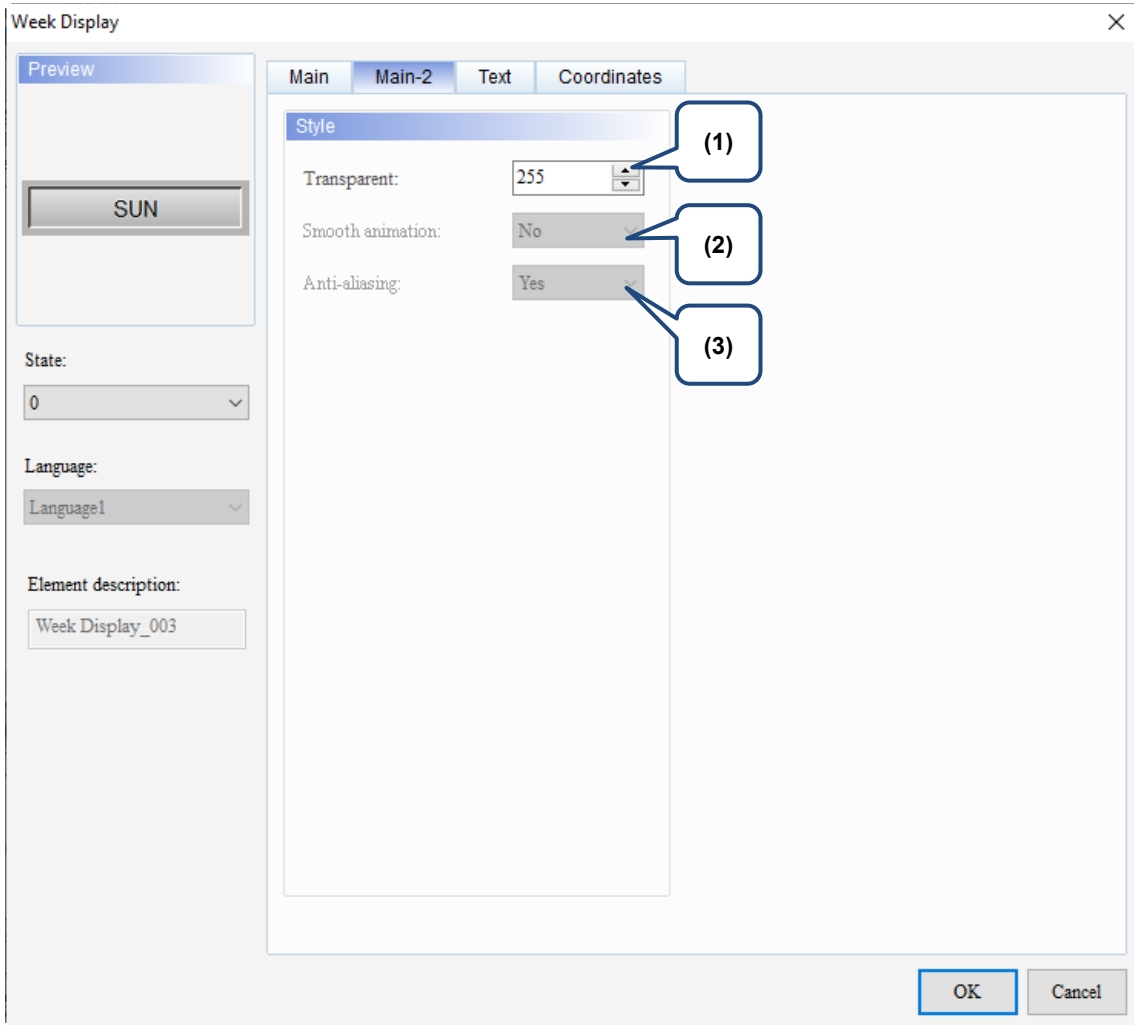
Figure 11.3.3.2 Main property page for the Week Display element

No.	Property	Function description								
(1)	Style	<p>The available element styles are Standard, Raised, Sunken, and Transparent. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent				
Standard	Raised	Sunken	Transparent							
(2)	Border Color	<ul style="list-style-type: none"> ■ Set the border color of the element. ■ When you set the Style to Transparent, the Border Color setting is invalid. 								

11

No.	Property	Function description				
(3)	Background Color	<ul style="list-style-type: none"> ■ Set the background color of the element. ■ When you set the Style to Transparent, the Background Color setting is invalid. 				
(4)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tbody> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </tbody> </table>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						

■ Main-2



11

Figure 11.3.3.3 Main-2 property page for the Week Display element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

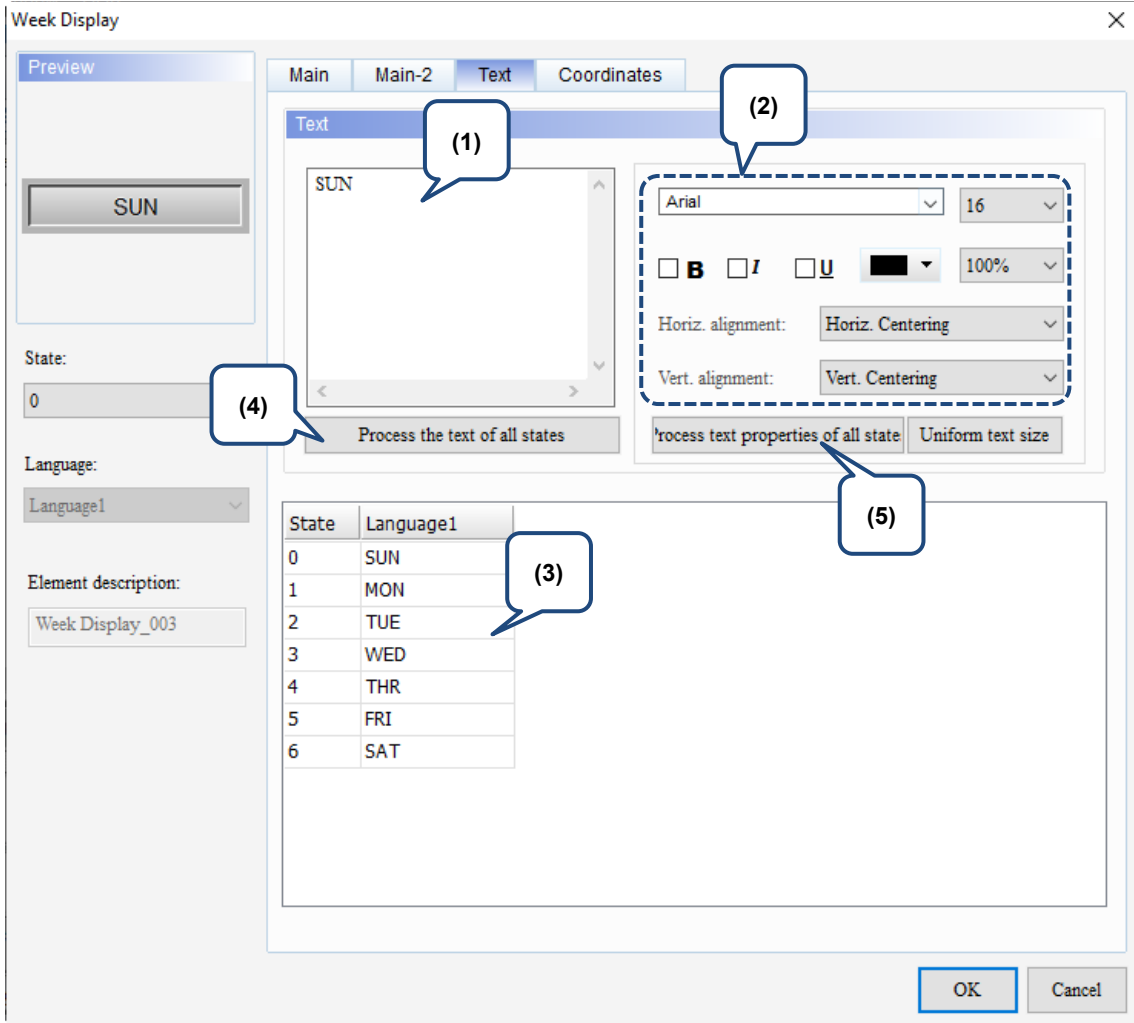
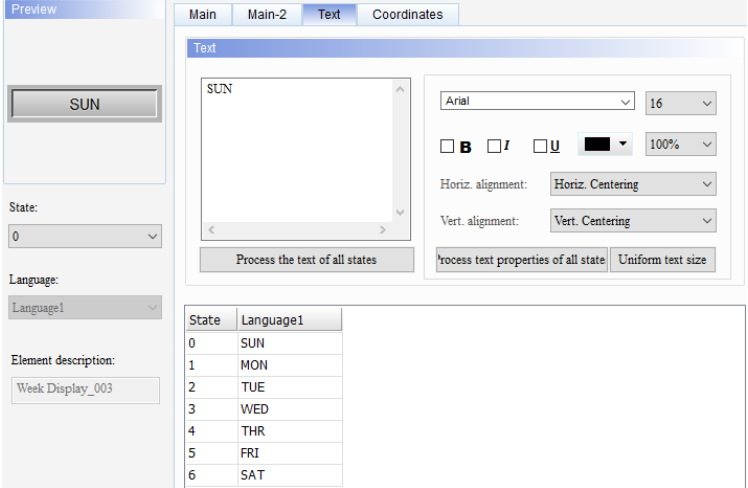
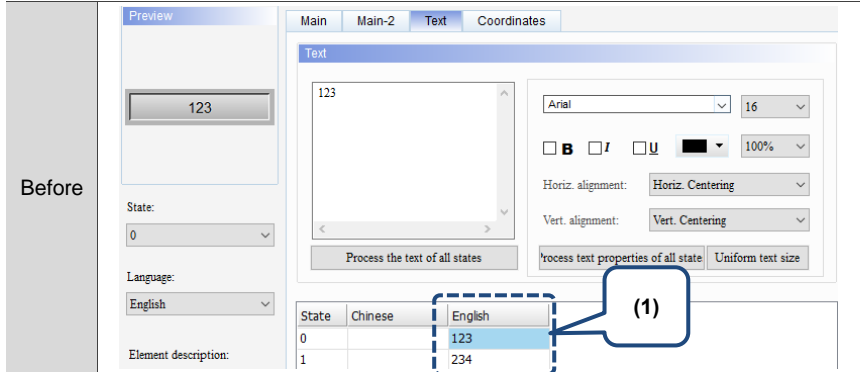
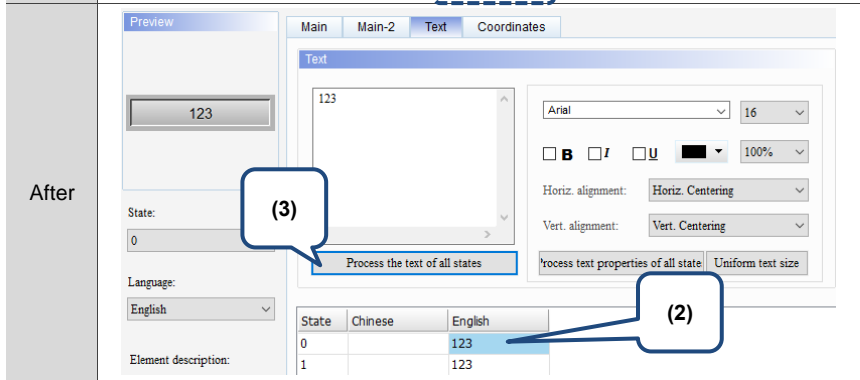
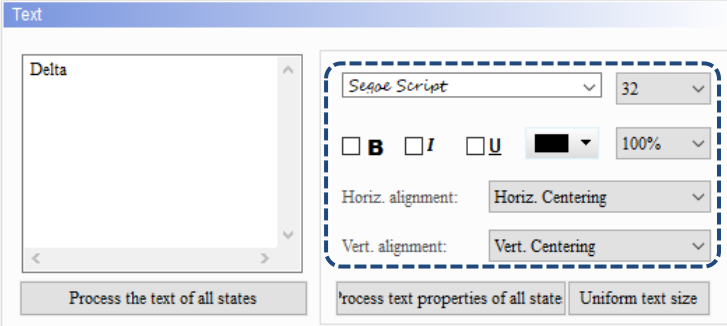
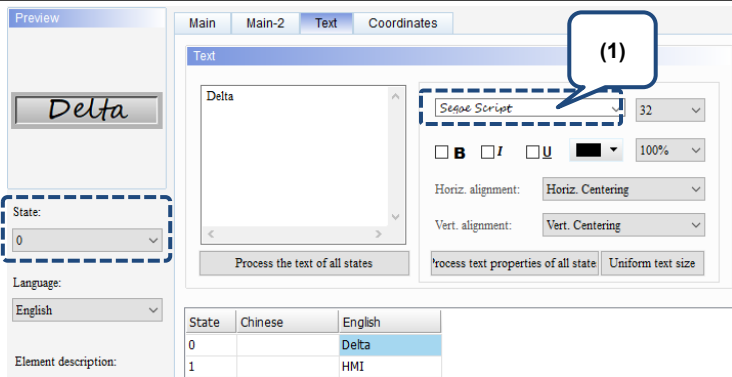
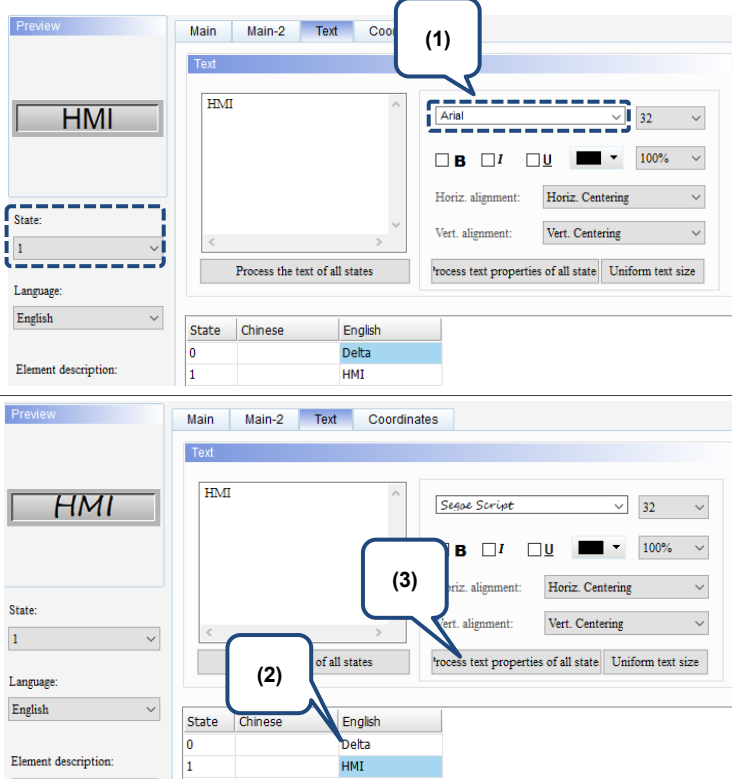


Figure 11.3.3.4 Text property page for the Week Display element

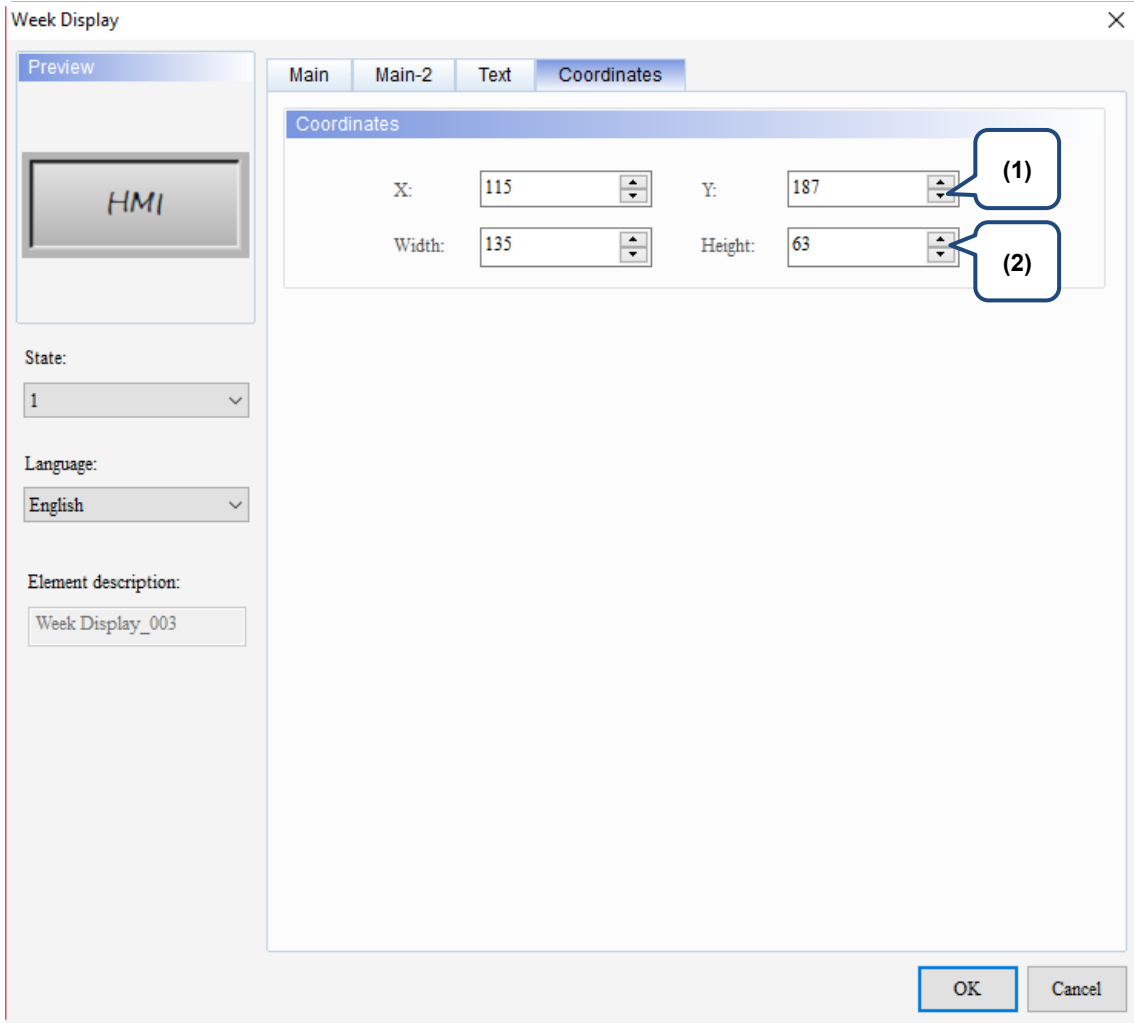
No.	Property	Function description
(1)	Text	<ul style="list-style-type: none"> You can enter the text to display in this box.  <ul style="list-style-type: none"> As long as the element allows text input, you can click the element and press the space key to start editing the text.
(2)	Text	<p>Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the Text property setting results.</p>

No.	Property	Function description
(3)	Edit multi-language text	If you have added multi-language data, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected. The example and setting steps are as follows.</p> <ol style="list-style-type: none"> 1. Enter the text "123" for State 0 and "234" for State 1. 2. Select State 0. 3. Execute Process the text of all states and the text of State 1 is changed to "123".  

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No.	Property	Function description
		<p>This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p>  <p>The example and setting steps are as follows:</p> <ol style="list-style-type: none"> 1. Enter the text “Delta” for State 0 and “HMI” for State 1. Select Segoe Script for the text font of State 0 and Arial for the text font of State 1. 2. Select State 0. 3. Execute Process text properties of all states and the text font of State 1 is changed to Segoe Script. <p>(5) Process text properties of all states</p> <p>Before</p>  <p>After</p> 

■ Coordinates



11


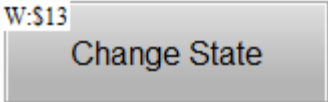


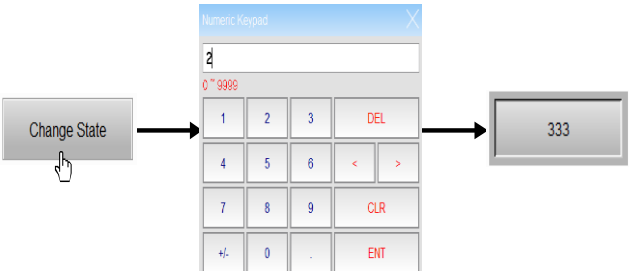
Figure 11.3.3.5 Coordinates property page for the Week Display element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

11.4 General Message Display

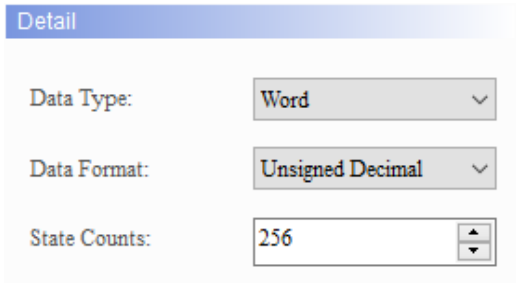
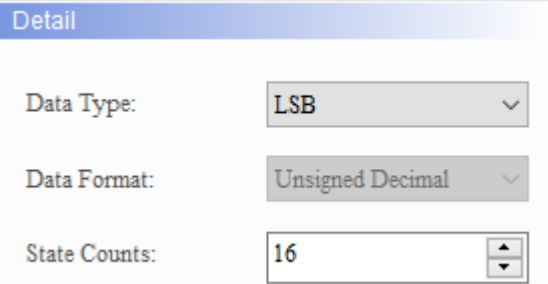
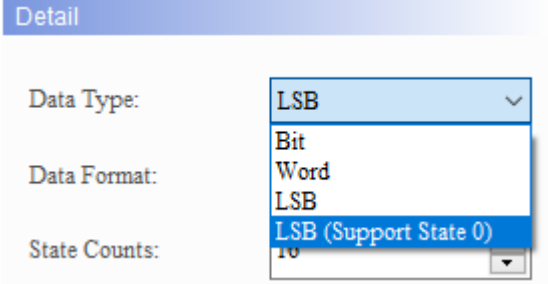

You can use the General Message Display to display the state text message to switch, and this element can read the corresponding state text based on the set memory address. Refer to Table 11.4.1 for the General Message Display example.

Table 11.4.1 General Message Display example

General Message Display															
Address settings	General Message Display element		Set Value element												
	Read Address	\$13	Write Address	\$13											
															
Detail settings	General Message Display element														
	Data Type	Data Format	State Counts												
	Word	Unsigned Decimal	3												
State displaying text	Double-click the General Message Display to go to the Text page and edit the text to display.														
	<table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td></td> <td>111</td> </tr> <tr> <td>1</td> <td></td> <td>222</td> </tr> <tr> <td>2</td> <td></td> <td>333</td> </tr> </tbody> </table>				State	Chinese	English	0		111	1		222	2	
State	Chinese	English													
0		111													
1		222													
2		333													
Execution results	After creating the elements, compile and download the data to the HMI. Then, enter 0, 1, and 2 with the Set Value element in sequence and the General Message Display element will display the corresponding text.														
	Input 0 with Set Value element														
	Input 1 with Set Value element														
Input 2 with Set Value element															

The General Message Display supports four data types, as shown in Table 11.4.2. To add or reduce the number of states, you can simply increase or decrease the number of State Counts in the Properties window.

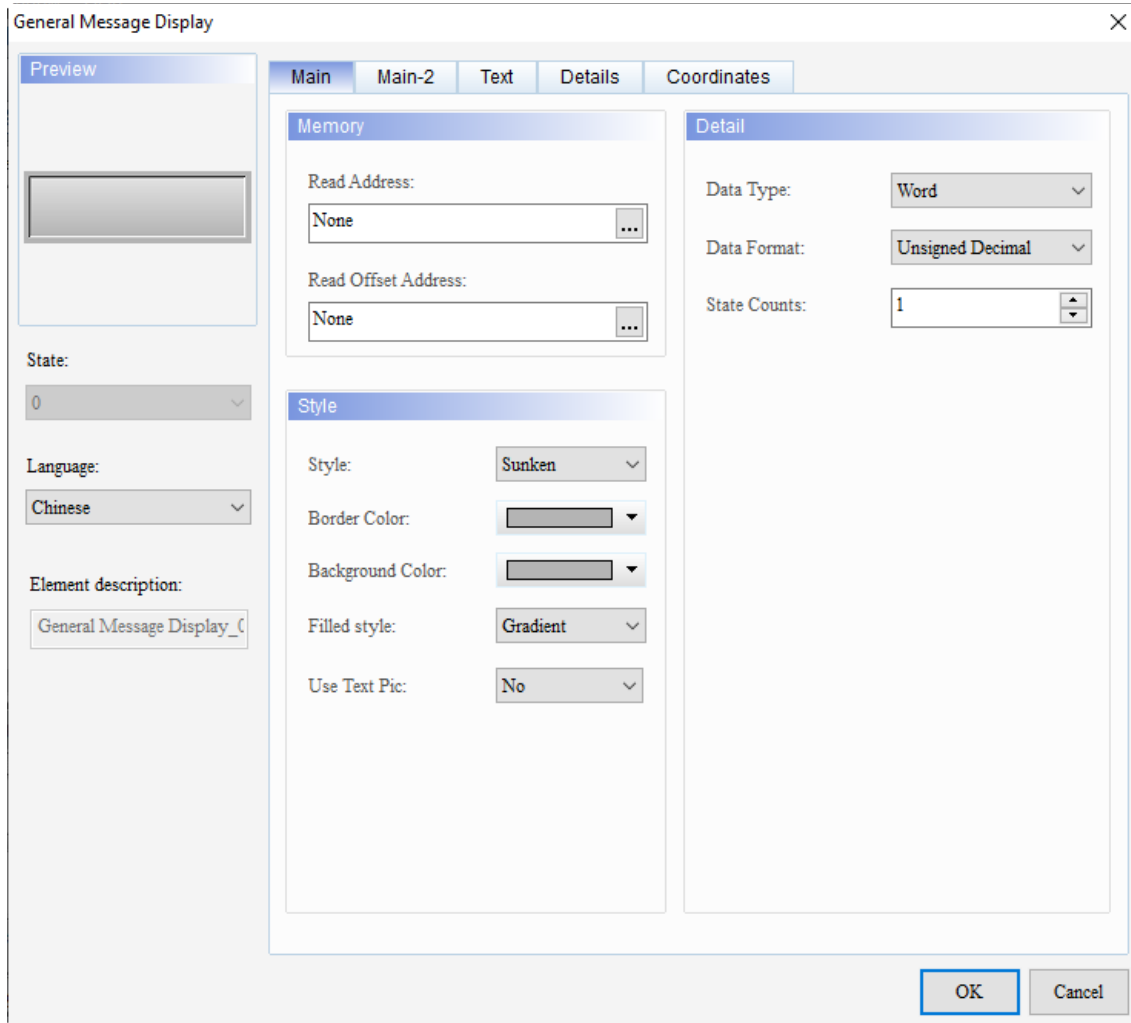
Table 11.4.2 Data Type of General Message Display

General Message Display	
Data Type	State Counts
Word	<ul style="list-style-type: none"> If the Data Type is Word, you can set 1 to 256 states for the State Counts. 
	<ul style="list-style-type: none"> If the Data Type is Word, the memory address is in units of Word.
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> LSB is to first convert the data in the register to binary data, and then use the lowest non-zero bit to determine the current state of the object. If the Data Type is LSB, you can set 1 to 16 states except for State 0. 
	<ul style="list-style-type: none"> To display State 0, select LSB (Support State 0) for the Data Type. 
	<ul style="list-style-type: none"> If you selected LSB, the element is black when the state is 0. 
	<ul style="list-style-type: none"> When the Data Type is either LSB or LSB (Support State 0), the memory address is in units of Word.

11

General Message Display		
Data Type	State Counts	
	<ul style="list-style-type: none"> The examples in the following table show how the state value is determined with the lowest non-zero bit of the binary value converted from a decimal value. There are also examples demonstrating how the software determines the displaying state value with the lowest bit when the decimal values are 3 and 7. 	
	Decimal	Binary
	0	0000000000000000
		State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.
	1	0000000000000001
	2	0000000000000010
	3	0000000000000011
		The lowest non-zero bit is bit 0, State = 1.
	4	0000000000000100
	7	0000000000000111
		The lowest non-zero bit is bit 0, State = 1.
	8	0000000000001000
	16	0000000000010000
	32	0000000000100000
	64	0000000001000000
	128	0000000010000000
	256	0000000100000000
	512	0000001000000000
	1024	0000010000000000
	2048	0000100000000000
	4096	0001000000000000
	8192	0010000000000000
	16384	0100000000000000
	32768	1000000000000000
		The lowest non-zero bit is bit 15, State = 16.
Bit	<ul style="list-style-type: none"> If the Data Type is Bit, you can set only 2 states. <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p style="background-color: #e0e0e0; margin: 0; padding: 2px;">Detail</p> <p style="margin: 5px 0;">Data Type: Bit</p> <p style="margin: 5px 0;">Data Format: Unsigned Decimal</p> <p style="margin: 5px 0;">State Counts: 2</p> </div> <ul style="list-style-type: none"> If the Data Type is Bit, the memory address is in units of Bit. 	

When you double-click the General Message Display, the property page is shown as follows.



11

Figure 11.4.1 Properties of General Message Display

Table 11.4.3 Function page of General Message Display

General Message Display	
Function page	Description
Preview	General Message Display elements can view multiple status values and multi-language data display.
Main	Set the Read Address, Read Offset Address, Style, Border Color, Background Color, Filled style, and Use Text Pic function. Set the Data Type, Data Format, and State Counts.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text font, size, color, format, zoom, and alignment options.
Details	Set the Invisible Address.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

11

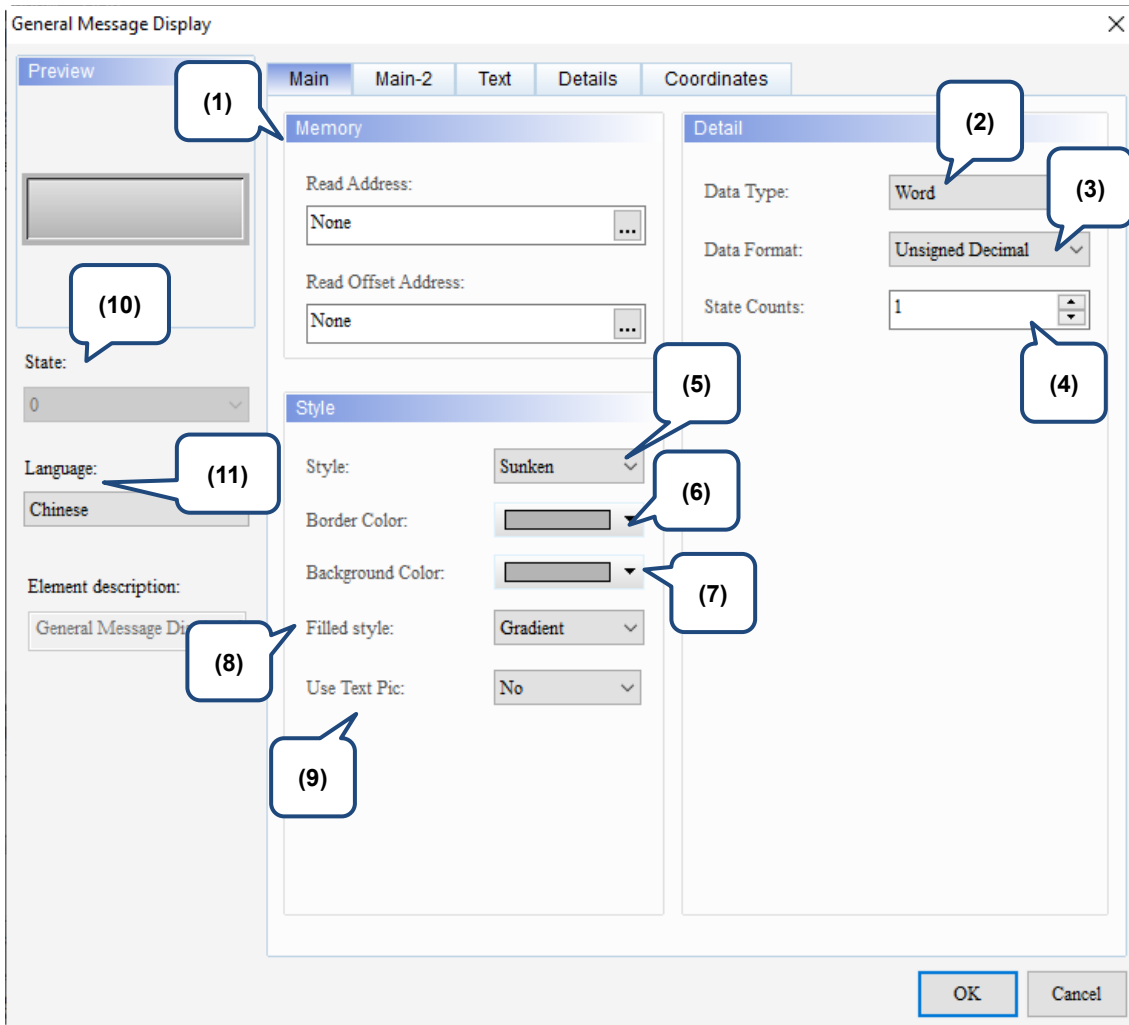
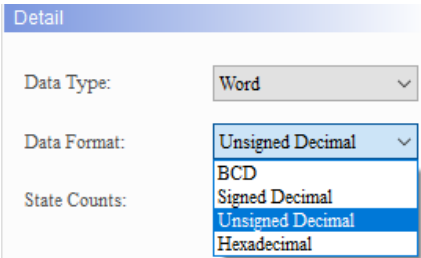


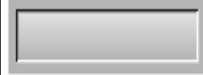



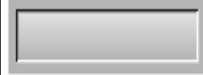



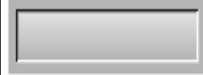

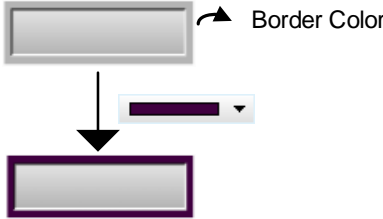
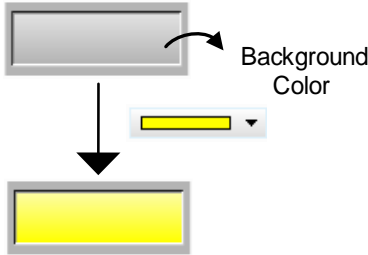






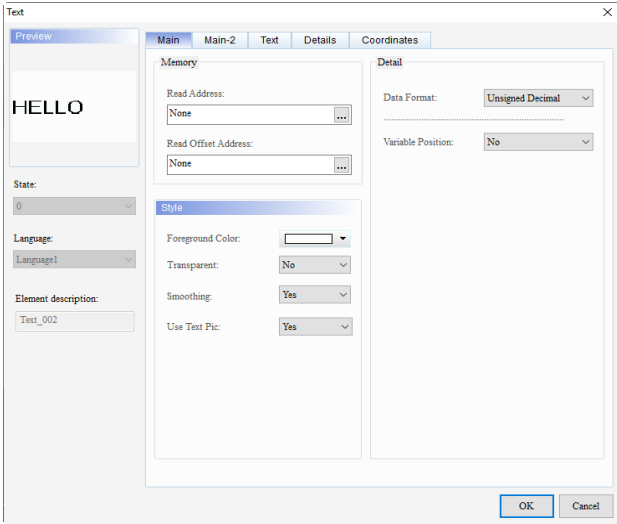
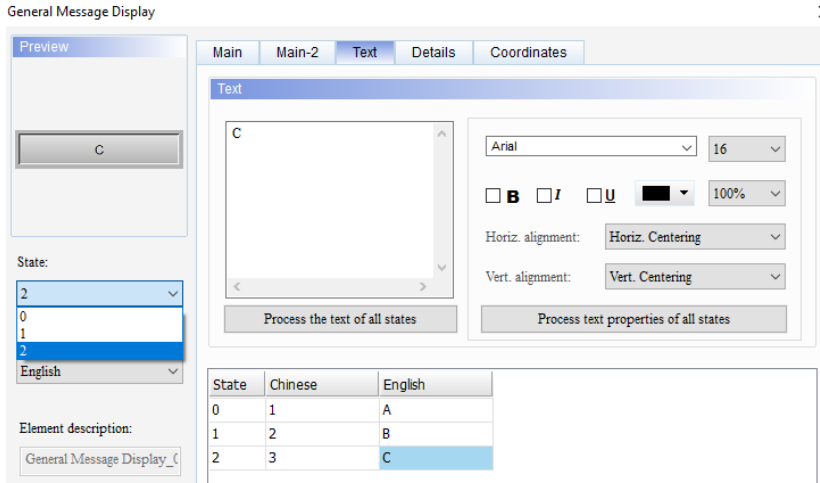
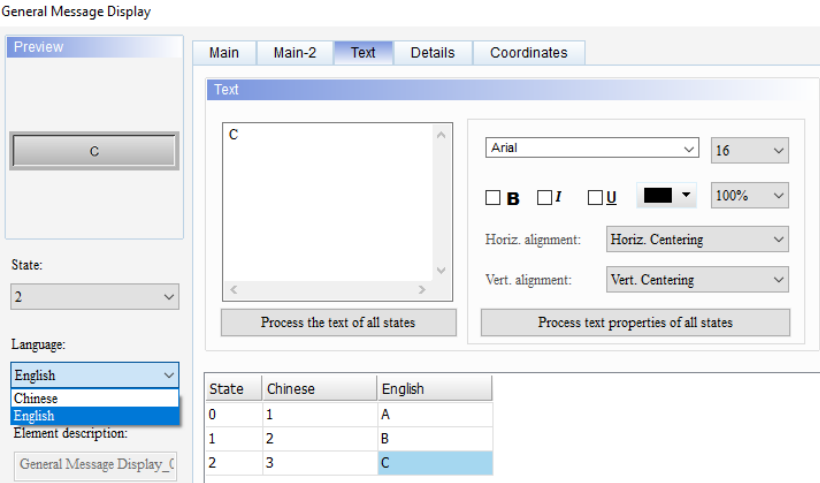


Figure 11.4.2 Main property page for the General Message Display element

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can choose the internal memory or the controller register address. The input memory type varies depending on the selected data type, including Word, LSB, or Bit, as shown in Table 11.4.2. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(2)	Data Type	There are four data types, Bit, Word, LSB, and LSB (Support State 0). Refer to Table 11.4.2 for more details.
(3)	Data Format	<ul style="list-style-type: none"> You can select the Data Format only when the Data Type is Word. There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal. 

No.	Property	Function description								
(4)	State Counts	Set the State Counts of the General Message Display element. If the Data Type is Word, you can set 1 - 256 states; if the Data Type is LSB, you can set 16 states; if the Data Type is LSB (Support State 0), you can set 17 states; and if the Data Type is Bit, you can set only 2 states. Refer to Table 11.4.2 for details.								
(5)	Style	<p>The available element styles are Standard, Raised, Sunken, and Transparent. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent				
Standard	Raised	Sunken	Transparent							
										
(6)	Border Color	<ul style="list-style-type: none"> Set the border color of the element. When you set the Style to Transparent, the Border Color setting is invalid. 								
(7)	Foreground Color	<ul style="list-style-type: none"> Set the Background Color of the element. When you set the Style to Transparent, the Background Color setting is invalid. 								
(8)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tbody> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </tbody> </table>	Gradient		Fixed (Solid)					
Gradient										
Fixed (Solid)										

No.	Property	Function description				
(9)	Use Text Pic	<p>Unlike the DOP-B series models using pictures to present all texts, the DOP-100 series models present directly with the texts. Therefore, if the language you use for the element is not yet supported by the PC, it is possible to cause missing characters and garbled texts when the element is displayed on the HMI. To have the text display effect be the same as that on the DOP-B models, the Use Text Pic function is added to the Text, Button, and General Message Display elements. Refer to the following examples.</p> <p style="text-align: center;">Use Text Pic</p> <ul style="list-style-type: none"> ■ Create a Text element and go to the [Main] tab to set the Use Text Pic function.  <p>Note: if you use the DOPSoft 4.00.06 version to open a DOP-B project, the Use Text Pic function is enabled (Yes) by default. If you added a DOP-100 project, then the Use Text Pic function is disabled (No) by default. <ul style="list-style-type: none"> ■ Go to the [Text] tab, and type the text and set its font.  </p>				
	Execution results	<ul style="list-style-type: none"> ■ After creating the element, compile and download the element to the HMI. ■ The following table shows the results of using and not using the Use Text Pic function. <table border="1"> <thead> <tr> <th>Use Text Pic is Yes</th> <th>Use Text Pic is No</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; font-size: 2em;">HELLO</td> <td style="text-align: center; font-size: 2em;">HELLO</td> </tr> </tbody> </table>	Use Text Pic is Yes	Use Text Pic is No	HELLO	HELLO
Use Text Pic is Yes	Use Text Pic is No					
HELLO	HELLO					

No.	Property	Function description												
(10)	State	<p>By switching the State, you can preview or change the settings of each state of the element.</p>  <p>General Message Display</p> <p>Preview</p> <p>State:</p> <p>2</p> <p>0</p> <p>1</p> <p>2</p> <p>English</p> <p>Element description:</p> <p>General Message Display_C</p> <p>Main Main-2 Text Details Coordinates</p> <p>Text</p> <p>C</p> <p>Arial 16</p> <p><input type="checkbox"/> B <input type="checkbox"/> I <input type="checkbox"/> U 100%</p> <p>Horiz. alignment: Horiz. Centering</p> <p>Vert. alignment: Vert. Centering</p> <p>Process the text of all states</p> <p>Process text properties of all states</p> <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>A</td> </tr> <tr> <td>1</td> <td>2</td> <td>B</td> </tr> <tr> <td>2</td> <td>3</td> <td>C</td> </tr> </tbody> </table>	State	Chinese	English	0	1	A	1	2	B	2	3	C
State	Chinese	English												
0	1	A												
1	2	B												
2	3	C												
(11)	Language	<p>If you have set the language data, you can edit the properties of the text to be displayed with the Language setting of the element.</p>  <p>General Message Display</p> <p>Preview</p> <p>State:</p> <p>2</p> <p>Language:</p> <p>English</p> <p>Chinese</p> <p>English</p> <p>Element description:</p> <p>General Message Display_C</p> <p>Main Main-2 Text Details Coordinates</p> <p>Text</p> <p>C</p> <p>Arial 16</p> <p><input type="checkbox"/> B <input type="checkbox"/> I <input type="checkbox"/> U 100%</p> <p>Horiz. alignment: Horiz. Centering</p> <p>Vert. alignment: Vert. Centering</p> <p>Process the text of all states</p> <p>Process text properties of all states</p> <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>A</td> </tr> <tr> <td>1</td> <td>2</td> <td>B</td> </tr> <tr> <td>2</td> <td>3</td> <td>C</td> </tr> </tbody> </table>	State	Chinese	English	0	1	A	1	2	B	2	3	C
State	Chinese	English												
0	1	A												
1	2	B												
2	3	C												

■ Main-2

11

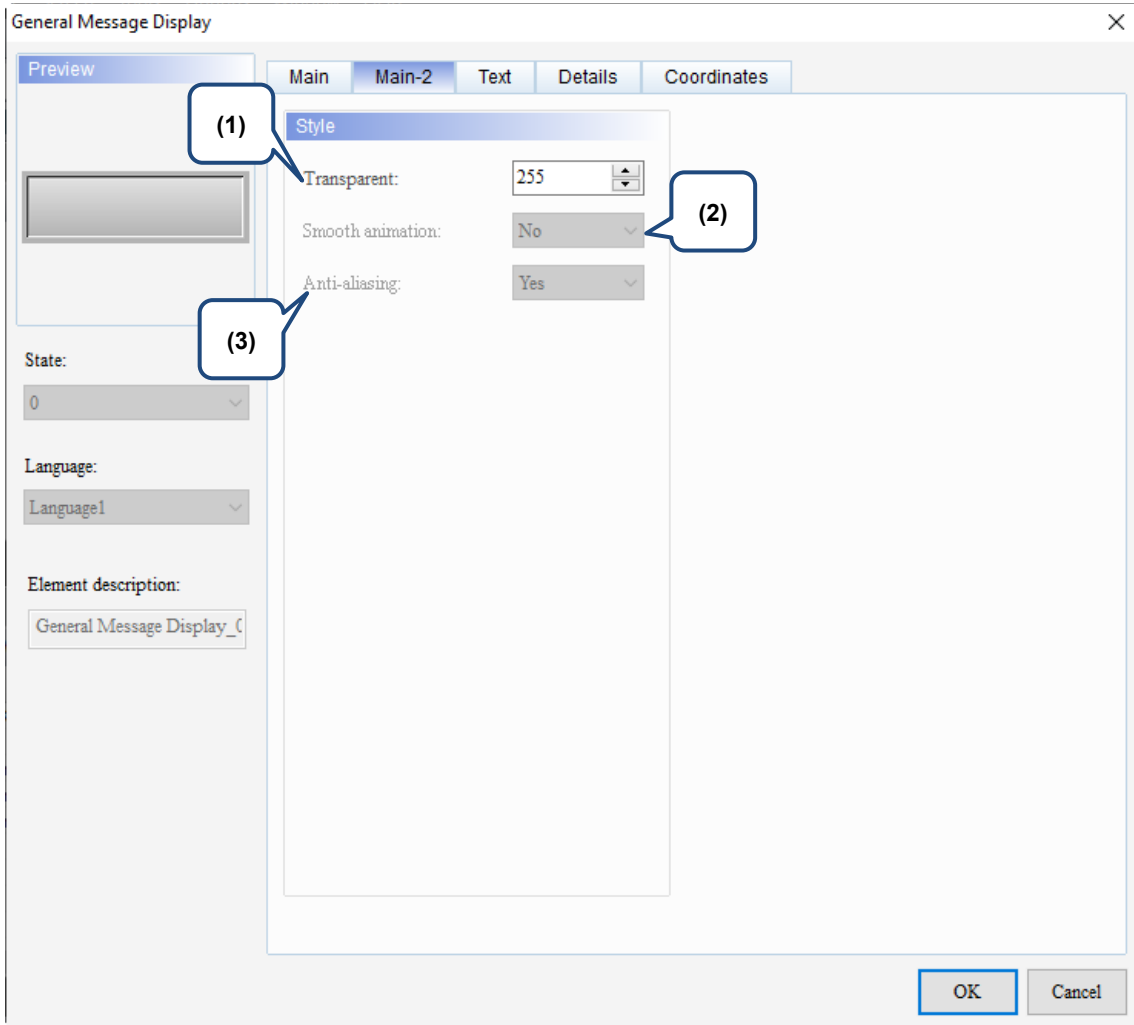
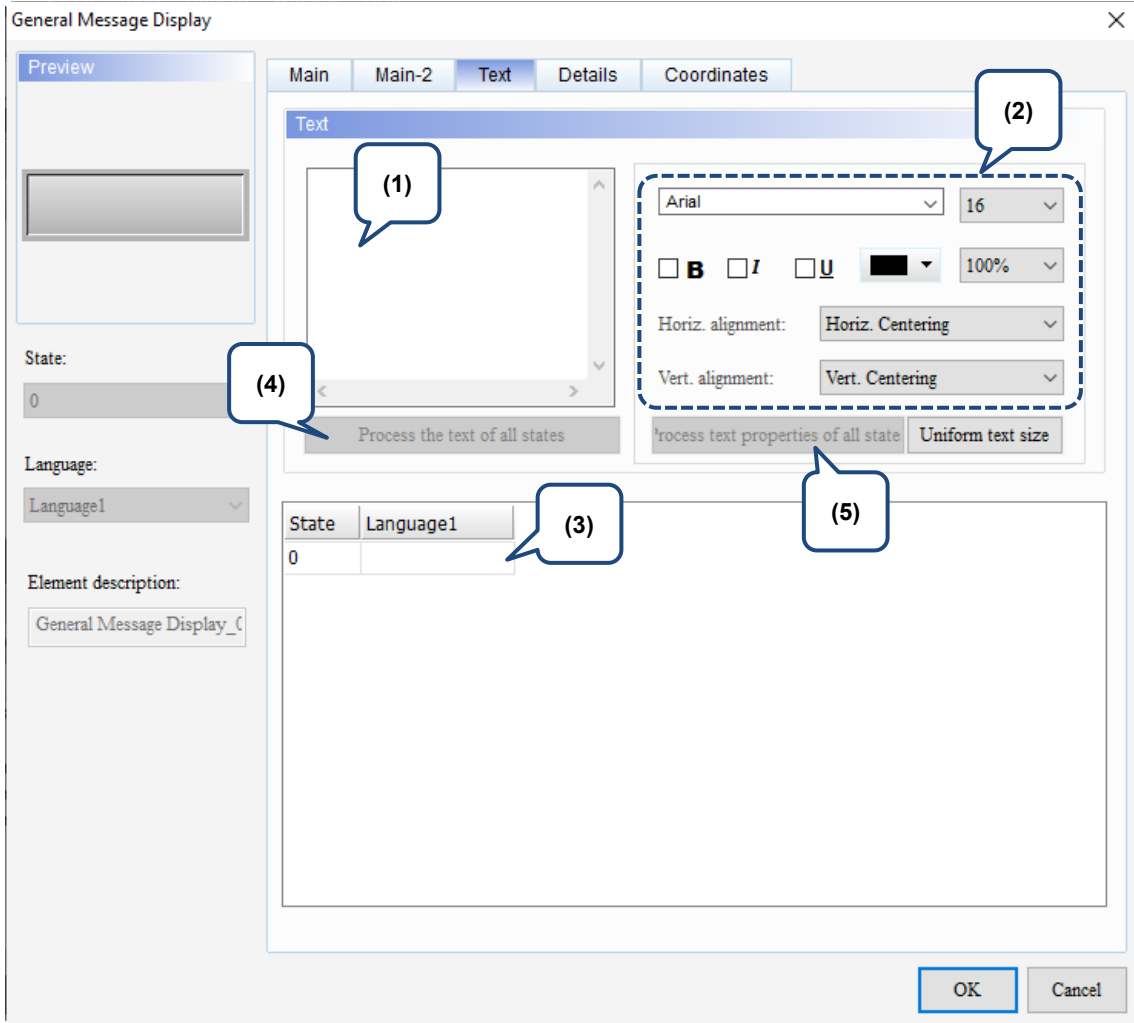


Figure 11.4.3 Main-2 property page for the General Message Display element

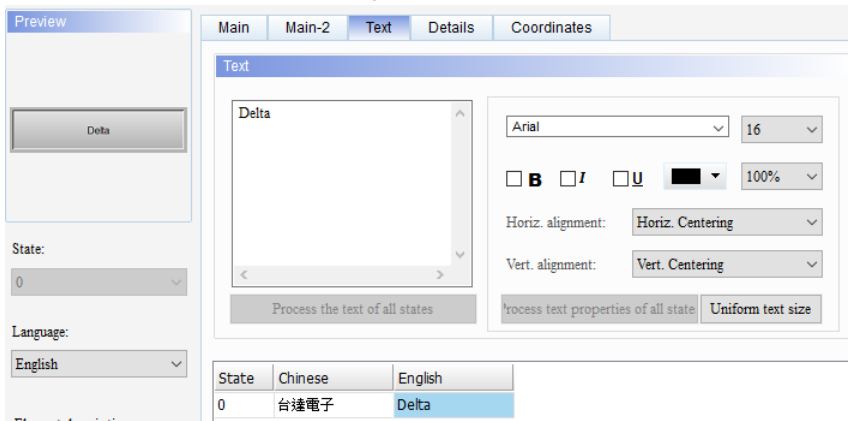
No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

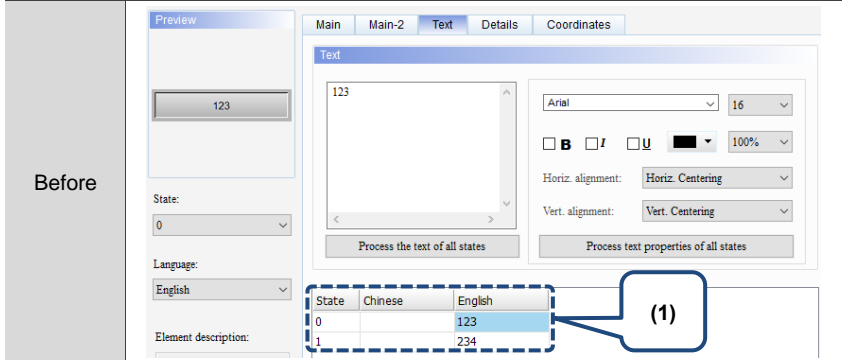


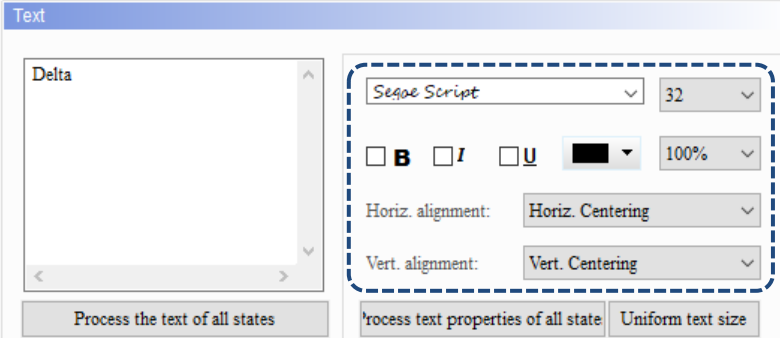
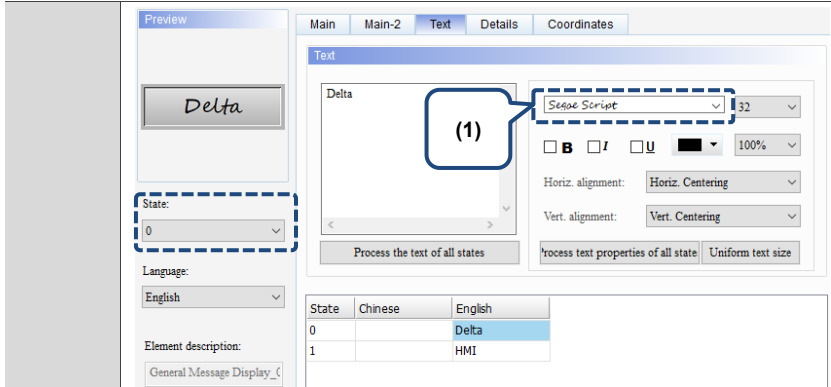
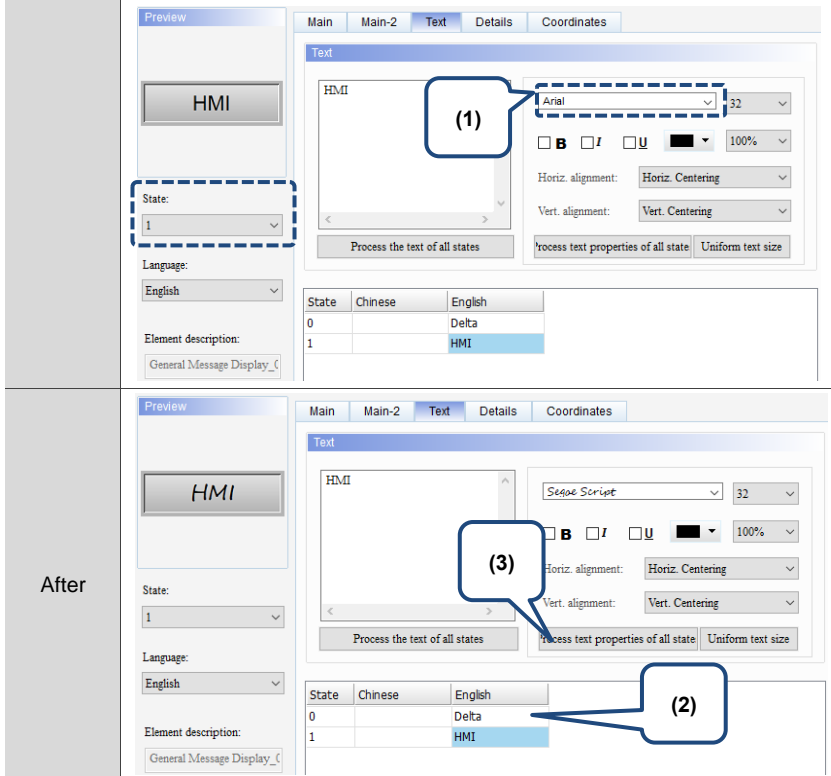
11

Figure 11.4.4 Text property page for the General Message Display element

No.	Property	Function description
(1)	Text	<ul style="list-style-type: none"> You can enter the text to display in this box. 
(2)	Text	<ul style="list-style-type: none"> As long as the element allows text input, you can click the element and press the space key to start editing the text.
(2)	Text	<ul style="list-style-type: none"> Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the Text property setting results.
(3)	Edit multi-language text	<ul style="list-style-type: none"> If you have added multi-language data, the Text page allows you to edit multi-language data.

11

No.	Property	Function description																		
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected. The example and setting steps are as follows:</p> <ol style="list-style-type: none"> 1. Enter the text "123" for State 0 and "234" for State 1. 2. Select State 0. 3. Execute Process the text of all states and the text of State 1 is changed to "123".  <p>Before</p> <p>The 'Text' dialog box shows a preview of the text '123'. The state table below is as follows:</p> <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td></td> <td>123</td> </tr> <tr> <td>1</td> <td></td> <td>234</td> </tr> </tbody> </table> <p>After</p> <p>The 'Text' dialog box shows the 'Process the text of all states' button highlighted with a callout (3). The state table below shows that the text for State 1 has been updated to '123':</p> <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td></td> <td>123</td> </tr> <tr> <td>1</td> <td></td> <td>123</td> </tr> </tbody> </table>	State	Chinese	English	0		123	1		234	State	Chinese	English	0		123	1		123
State	Chinese	English																		
0		123																		
1		234																		
State	Chinese	English																		
0		123																		
1		123																		

No.	Property	Function description
		<p>This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p>  <p>The example and setting steps are as follows:</p> <ol style="list-style-type: none"> 1. Enter the text “Delta” for State 0 and “HMI” for State 1. Select Segoe Script for the text font of State 0 and Arial for the text font of State 1. 2. Select State 0. 3. Execute Process text properties of all states and the text font of State 1 is changed to Segoe Script. <div style="display: flex; flex-direction: column;"> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="width: 30px; text-align: center;">(5)</div> <div style="margin-left: 20px;">Process text properties of all states</div> </div> <div style="display: flex;"> <div style="width: 30%; background-color: #f0f0f0; padding: 5px; text-align: center;">Before</div> <div style="width: 70%;">  </div> </div> <div style="display: flex;"> <div style="width: 30%; background-color: #f0f0f0; padding: 5px; text-align: center;">After</div> <div style="width: 70%;">  </div> </div> </div>

■ Details

11

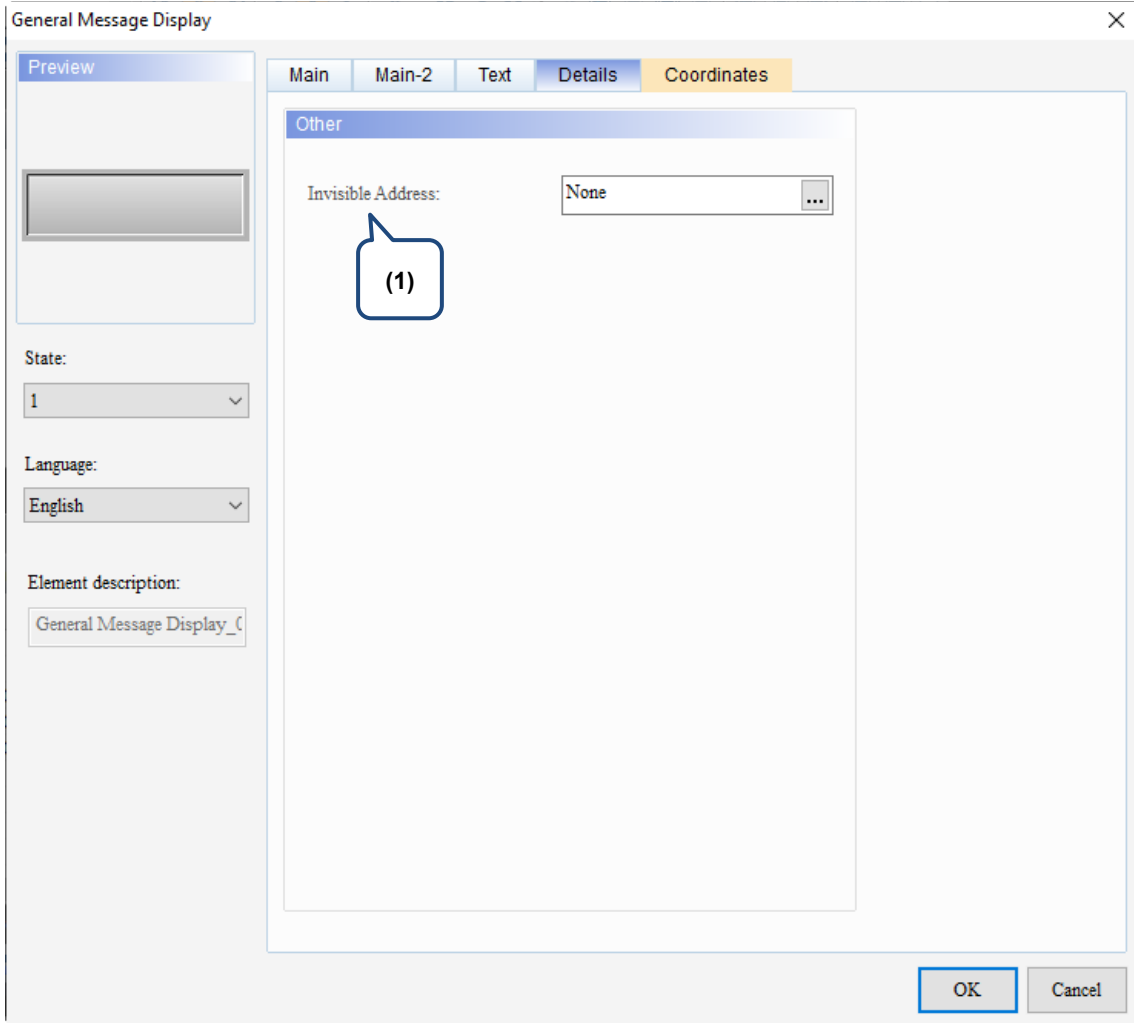
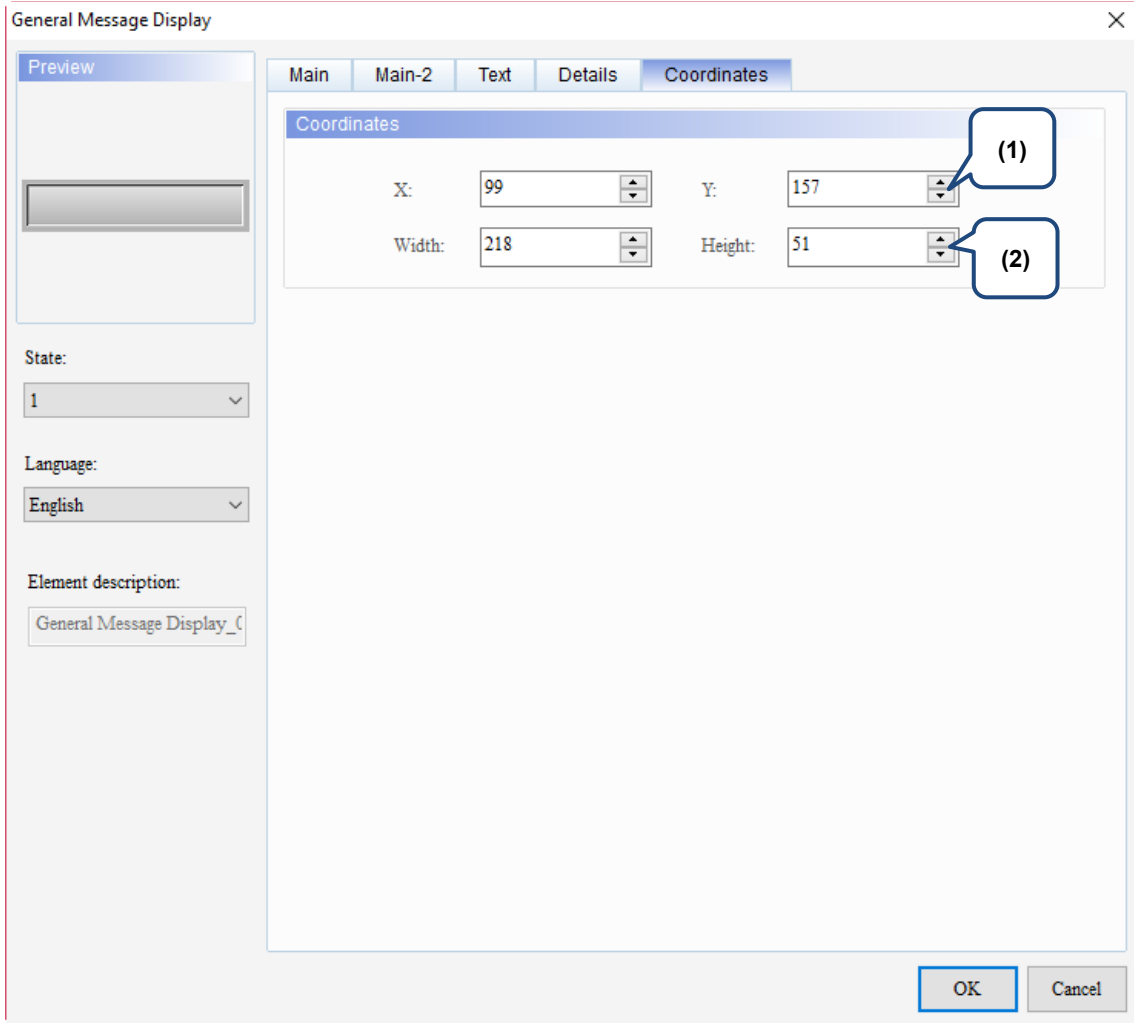


Figure 11.4.5 Details property page for the General Message Display element

No.	Property	Function description
(1)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid gray; width: 100px; height: 30px; background-color: #ccc;"></div> <div style="border: 1px solid gray; padding: 5px; background-color: #ccc;">Invisible Address \$9.0 OFF</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="border: 2px dashed blue; padding: 5px; background-color: #fff;">Element is invisible</div> <div style="border: 1px solid gray; padding: 5px; background-color: #ccc;">Invisible Address \$9.0 ON</div> </div> <div style="margin-top: 10px;"> <p>General Message Display</p> </div>

■ Coordinates



11

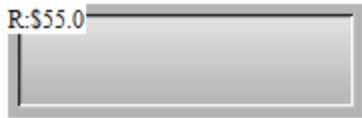
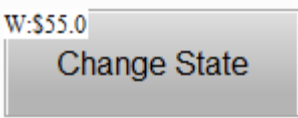


Figure 11.4.6 Coordinates property page for the General Message Display element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the element.
(2)	Width and Height	Set the width and height of the element.

11.5 Moving Sign

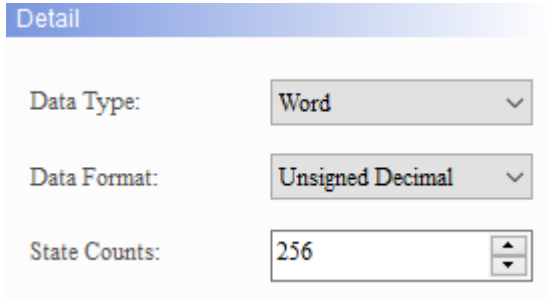
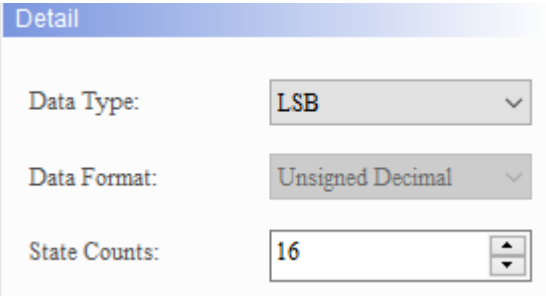
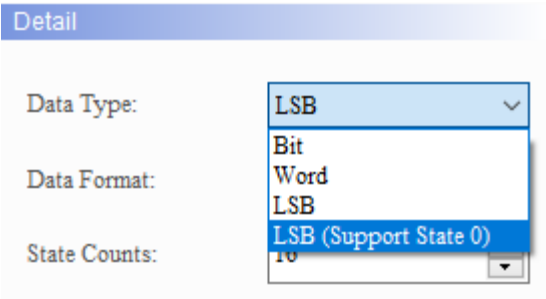

Apart from the General Message Display, you can use the Moving Sign element to switch the state text messages, as well as adjusting the text displaying direction, moving points per time, and time interval. Refer to Table 11.5.1 for the Moving Sign example.

Table 11.5.1 Moving Sign example

Moving Sign														
Set the Moving Sign element	Data Type	State Counts	Direction	Points per time	Interval									
	Bit	2	Left	1	100 (ms)									
Address settings	Moving Sign element		Maintained element											
	Read Address	\$55.0	Write Address	\$55.0										
														
State displaying text	Double-click the Moving Sign to go to the Text page and edit the text to display.													
	<table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td></td> <td>Delta</td> </tr> <tr> <td>1</td> <td></td> <td>HMI</td> </tr> </tbody> </table>					State	Chinese	English	0		Delta	1		HMI
State	Chinese	English												
0		Delta												
1		HMI												
Execution results	After creating the elements, compile and download the data to the HMI. Next, use the Maintained element to switch between State 0 and State 1, and the Moving Sign element will display the corresponding state text.													
	State 0													
State 1														

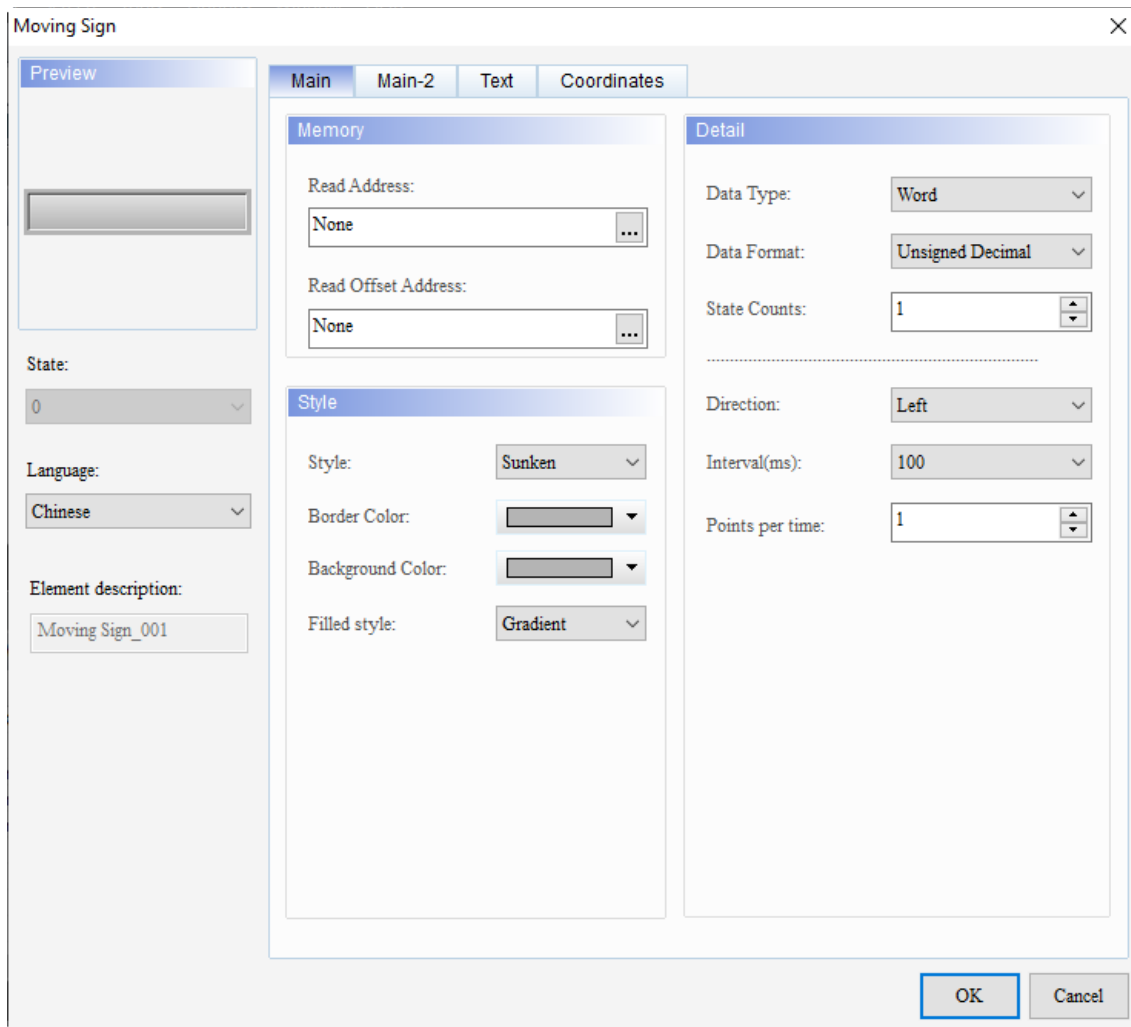
The Moving Sign supports four data types, as shown in Table 11.5.2. To add or reduce the number of states, you can simply increase or decrease the number of State Counts in the Properties window.

Table 11.5.2 Data Type of Moving Sign

Moving Sign	
Data Type	State Counts
Word	<ul style="list-style-type: none"> If the Data Type is Word, you can set 1 to 256 states for the State Counts.  <ul style="list-style-type: none"> If the Data Type is Word, the memory address is in units of Word.
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> LSB is to first convert the data in the register to binary data, and then use the lowest non-zero bit to determine the current state of the object. If the Data Type is LSB, you can set 1 to 16 states except for State 0.  <ul style="list-style-type: none"> To display State 0, select LSB (Support State 0) for the Data Type.  <ul style="list-style-type: none"> If you selected LSB, the element is black when the state is 0.  <ul style="list-style-type: none"> When the Data Type is either LSB or LSB (Support State 0), the memory address is in units of Word.

Moving Sign			
Data Type	State Counts		
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> The examples in the following table show how the state value is determined with the lowest non-zero bit of the binary value converted from a decimal value. There are also examples demonstrating how the software determines the displaying state value with the lowest bit when the decimal values are 3 and 7. 		
	0	0000000000000000	State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.
	1	0000000000000001	The lowest non-zero bit is bit 0, State = 1.
	2	0000000000000010	The lowest non-zero bit is bit 1, State = 2.
	3	0000000000000011	The lowest non-zero bit is bit 0, State = 1.
	4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.
	7	0000000000000111	The lowest non-zero bit is bit 0, State = 1.
	8	0000000000001000	The lowest non-zero bit is bit 3, State = 4.
	16	0000000000010000	The lowest non-zero bit is bit 4, State = 5.
	32	0000000000100000	The lowest non-zero bit is bit 5, State = 6.
	64	0000000001000000	The lowest non-zero bit is bit 6, State = 7.
	128	0000000010000000	The lowest non-zero bit is bit 7, State = 8.
	256	0000000100000000	The lowest non-zero bit is bit 8, State = 9.
	512	0000001000000000	The lowest non-zero bit is bit 9, State = 10.
	1024	0000010000000000	The lowest non-zero bit is bit 10, State = 11.
	2048	0000100000000000	The lowest non-zero bit is bit 11, State = 12.
	4096	0001000000000000	The lowest non-zero bit is bit 12, State = 13.
8192	0010000000000000	The lowest non-zero bit is bit 13, State = 14.	
16384	0100000000000000	The lowest non-zero bit is bit 14, State = 15.	
32768	1000000000000000	The lowest non-zero bit is bit 15, State = 16.	
Bit	<ul style="list-style-type: none"> If the Data Type is Bit, you can set only 2 states. 		
<ul style="list-style-type: none"> If the Data Type is Bit, the memory address is in units of Bit. 			

When you double-click the Moving Sign, the property page is shown as follows.



11

Figure 11.5.1 Properties of Moving Sign

Table 11.5.3 Function page of Moving Sign

Moving Sign	
Function page	Description
Preview	Moving Sign elements can view multiple state values and multi-language data display.
Main	Set the Read Address, Read Offset Address, Style, Border Color, Background Color, and Filled style. Set the Data Type, Data Format, State Counts, Direction, Interval (ms), and Points per time (for the movement).
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text font, size, color, format, zoom, and alignment options.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

11

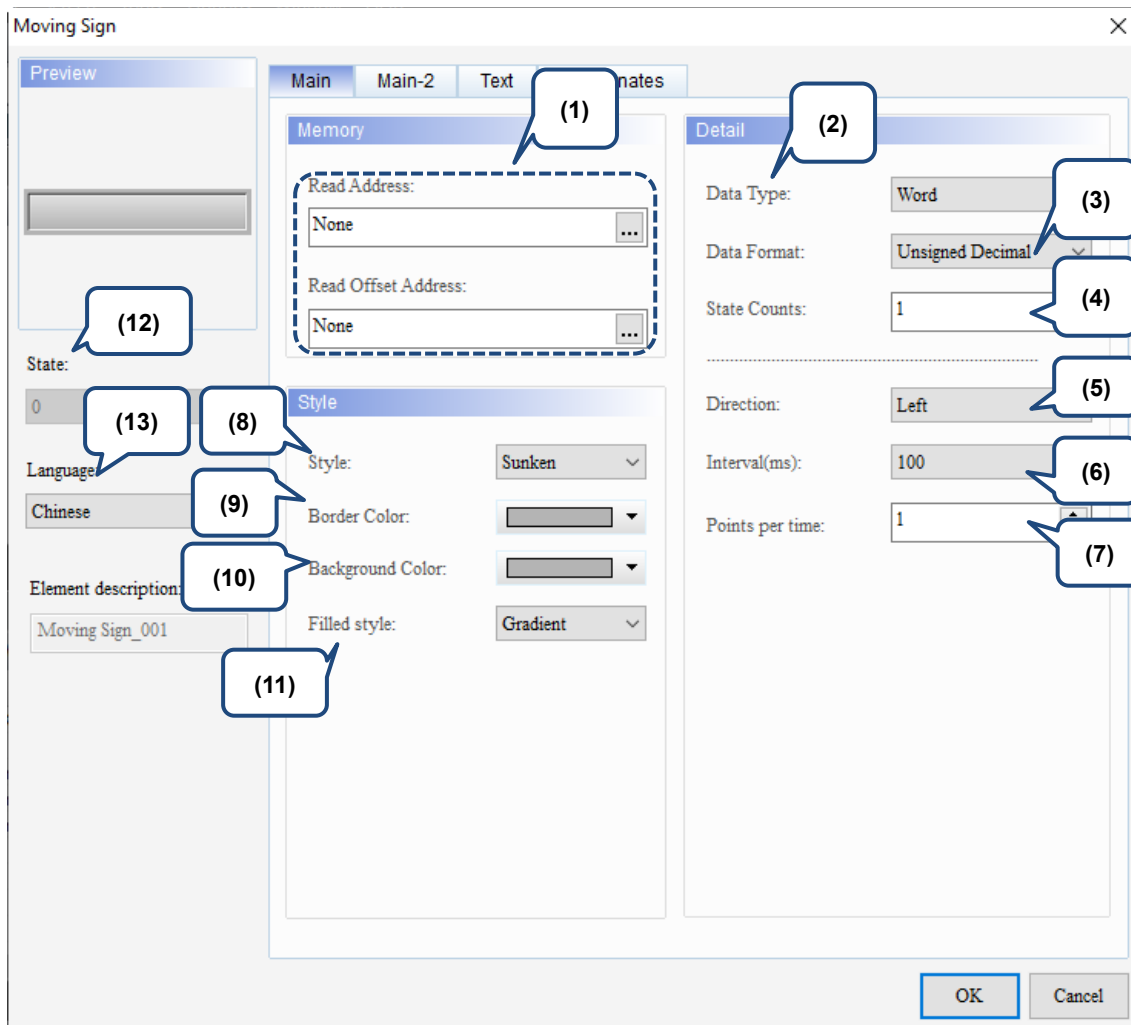
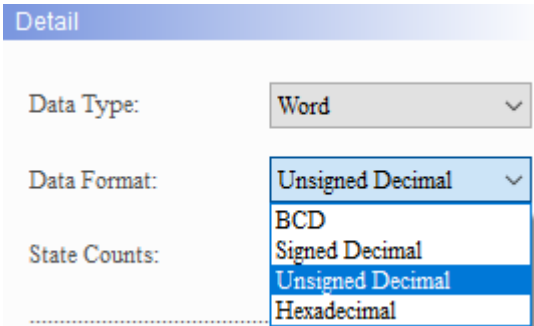
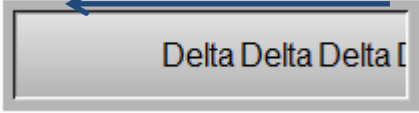
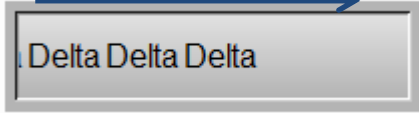
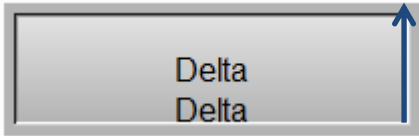
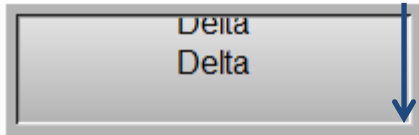
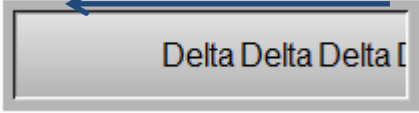
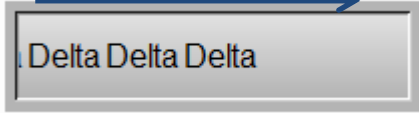
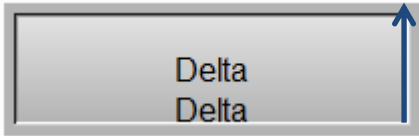
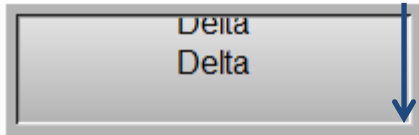
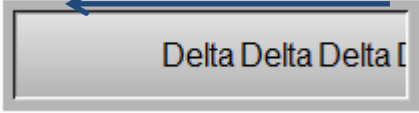
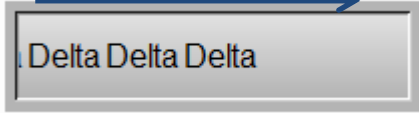
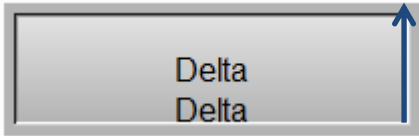
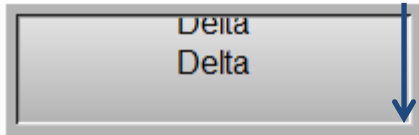












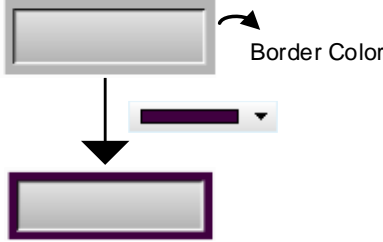
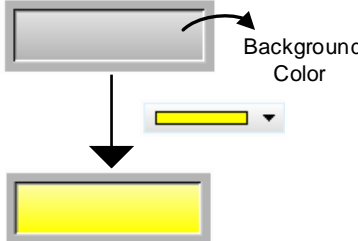






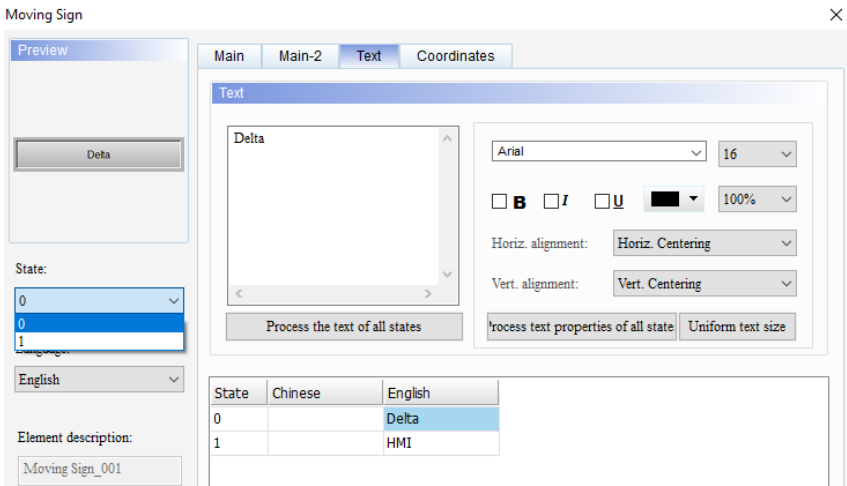


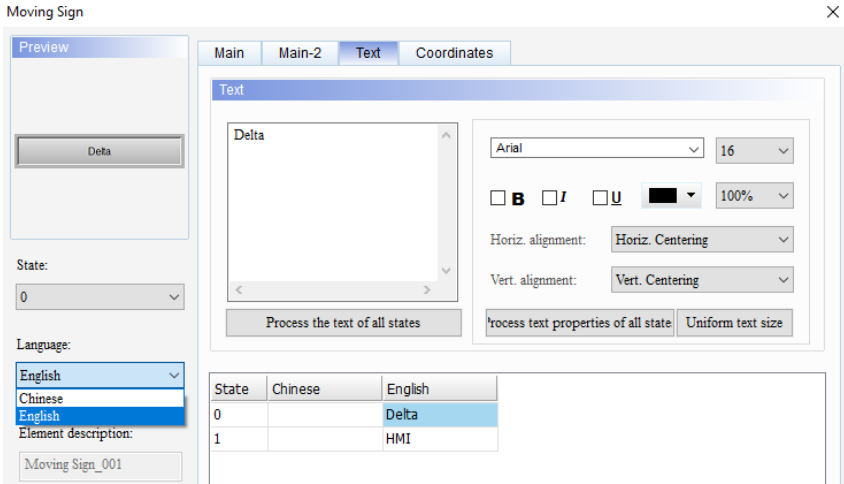
Figure 11.5.2 Main property page for the Moving Sign element

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can choose the internal memory or the controller register address. The input memory type varies depending on the selected data type, including Word, LSB, or Bit, as shown in Table 11.5.2. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(2)	Data Type	There are four data types, Bit, Word, LSB, and LSB (Support State 0). Refer to Table 11.5.2 for more details.
(3)	Data Format	<ul style="list-style-type: none"> You can select the Data Format only when the Data Type is Word. There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal. 

No.	Property	Function description								
(4)	State Counts	Set the State Counts of the Moving Sign element. If the Data Type is Word, you can set 1 - 256 states; if the Data Type is LSB, you can set 16 states; if the Data Type is LSB (Support State 0), you can set 17 states; and if the Data Type is Bit, you can set only 2 states. Refer to Table 11.5.2 for details.								
(5)	Direction	<p>The available display directions are Left, Right, Up, and Down. You can select the text moving direction to display.</p> <table border="1"> <tr> <td>Left</td> <td> From right to left  </td> </tr> <tr> <td>Right</td> <td> From left to right  </td> </tr> <tr> <td>Up</td> <td> From bottom to top  </td> </tr> <tr> <td>Down</td> <td> From top to bottom  </td> </tr> </table>	Left	From right to left 	Right	From left to right 	Up	From bottom to top 	Down	From top to bottom 
Left	From right to left 									
Right	From left to right 									
Up	From bottom to top 									
Down	From top to bottom 									
(6)	Interval (ms)	<p>The Interval (ms) defines the interval time (unit: ms) between two message movements of the Moving Sign. The moving distance is determined by the setting of Points per time.</p> <div> <p>Interval(ms): <input type="text" value="100"/></p> <p>Points per time: <input type="text" value="100"/></p> <ul style="list-style-type: none"> 100 50 100 200 300 400 500 1000 1500 2000 2500 3000 </div>								
(7)	Points per time	The greater the number of points, the greater the distance each time the text moves. The setting range is 1 - 50 pixels.								
(8)	Style	<p>The available element styles are Standard, Raised, Sunken, and Transparent. You can change the appearance of the element with this setting.</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent				
Standard	Raised	Sunken	Transparent							
										

11

No.	Property	Function description									
(9)	Border Color	<ul style="list-style-type: none"> ■ Set the border color of the element. ■ When you set the Style to Transparent, the Border Color setting is invalid. 									
(10)	Background Color	<ul style="list-style-type: none"> ■ Set the background color of the element. ■ When you set the Style to Transparent, the Background Color setting is invalid. 									
(11)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)						
Gradient											
Fixed (Solid)											
(12)	State	<p>By switching the State, you can preview or change the settings of each state of the element.</p>  <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td></td> <td>Delta</td> </tr> <tr> <td>1</td> <td></td> <td>HMI</td> </tr> </tbody> </table>	State	Chinese	English	0		Delta	1		HMI
State	Chinese	English									
0		Delta									
1		HMI									

No.	Property	Function description									
(13)	Language	<p>If you have set the language data, you can edit the properties of the text to be displayed with the Language setting of the element.</p>  <p>The screenshot shows a dialog box titled 'Moving Sign' with a close button (X) in the top right corner. It has four tabs: 'Main', 'Main-2', 'Text', and 'Coordinates'. The 'Text' tab is active, showing a text editor with the word 'Delta'. To the right of the editor are settings for font (Arial, size 16), bold (B), italic (I), underline (U), and color (black, 100%). Below these are alignment options: 'Horiz. alignment' set to 'Horiz. Centering' and 'Vert. alignment' set to 'Vert. Centering'. At the bottom of the text tab are buttons for 'Process the text of all states', 'Process text properties of all states', and 'Uniform text size'. To the left of the text editor is a 'Preview' section with a 'Delta' button. Below the preview are 'State' (0), 'Language' (English), and 'Element description' (Moving Sign_001) fields. At the bottom of the dialog is a table:</p> <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td></td> <td>Delta</td> </tr> <tr> <td>1</td> <td></td> <td>HMI</td> </tr> </tbody> </table>	State	Chinese	English	0		Delta	1		HMI
State	Chinese	English									
0		Delta									
1		HMI									

■ Main-2

11

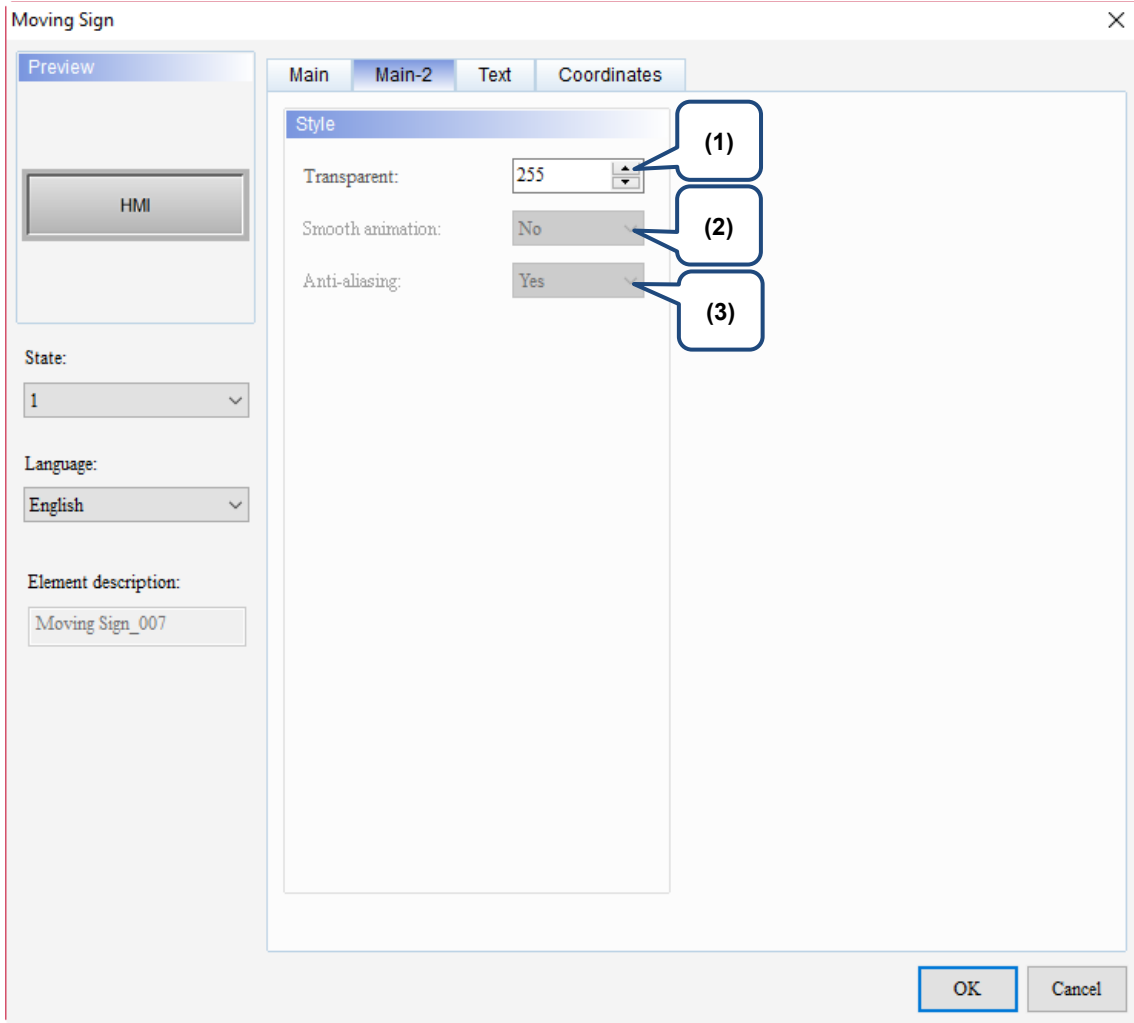
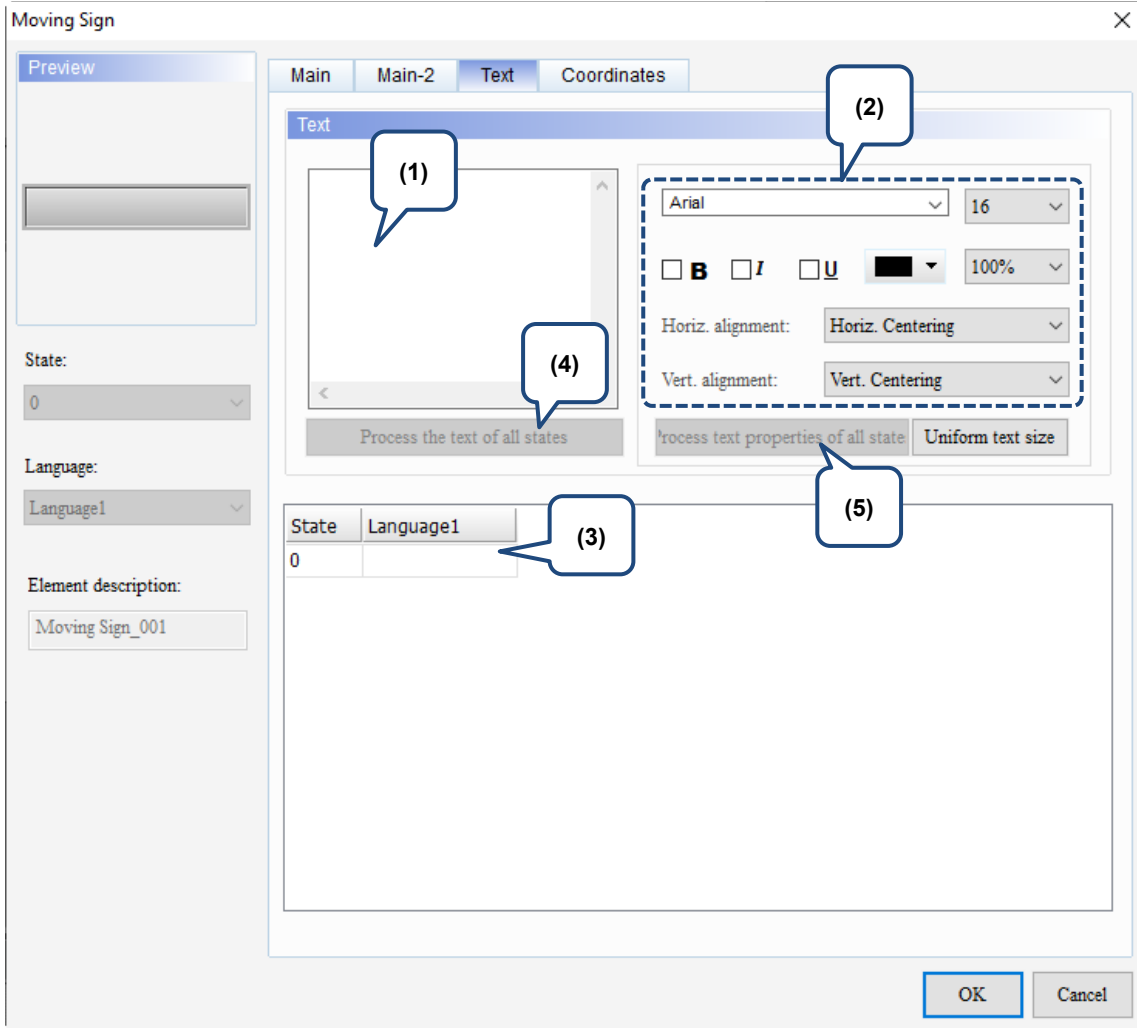


Figure 11.5.3 Main-2 property page for the Moving Sign element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

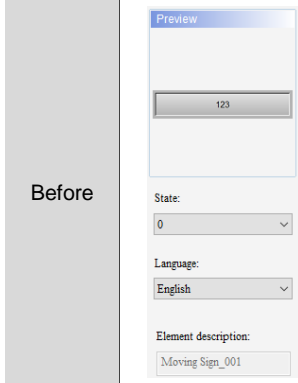
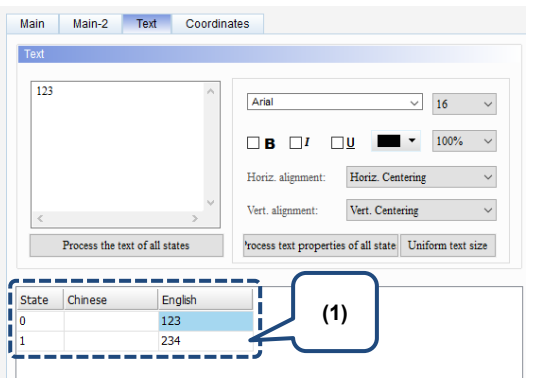
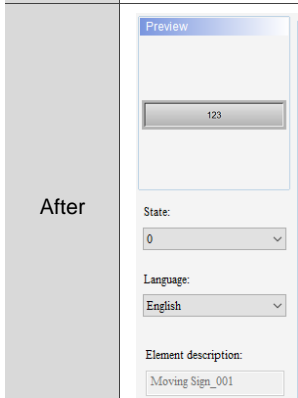
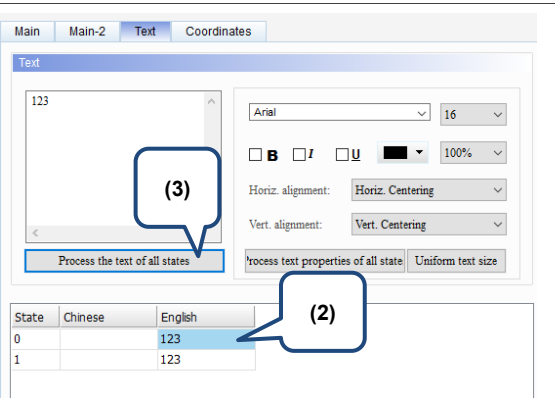


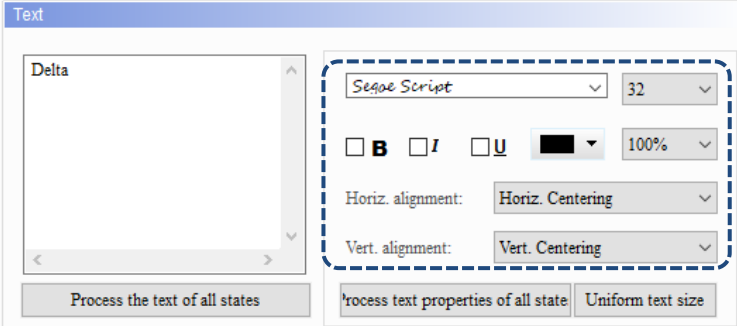
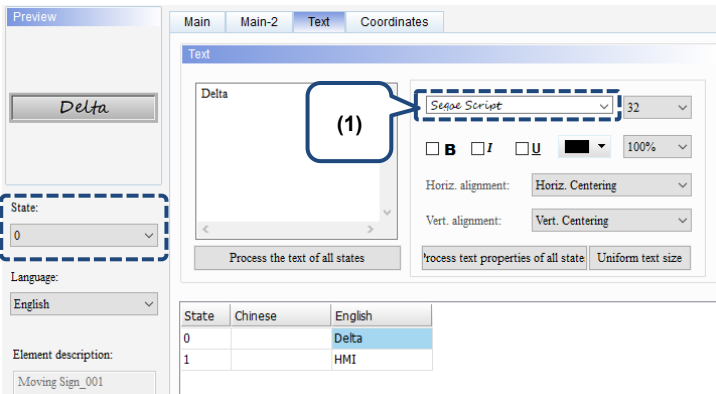
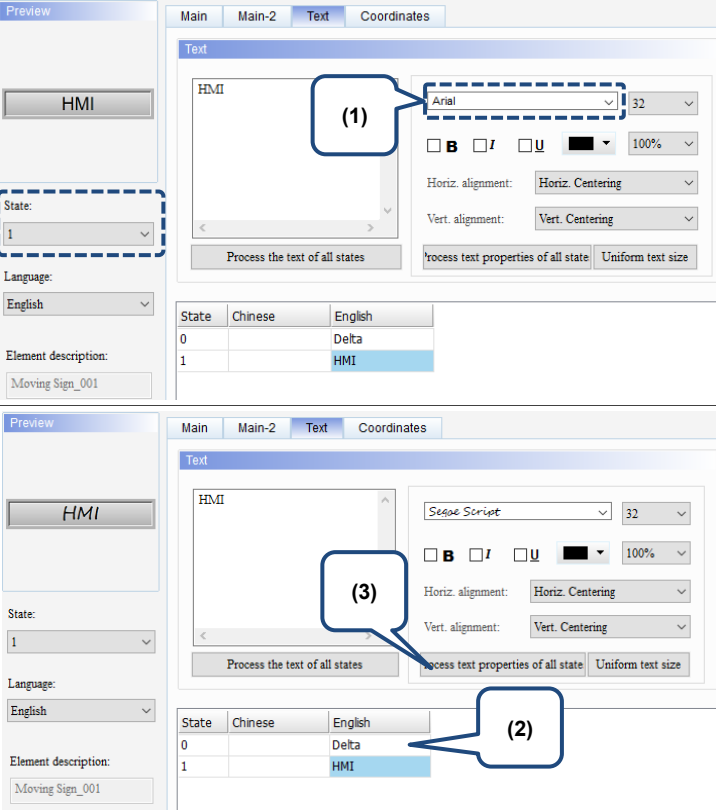
11

Figure 11.5.4 Text property page for the Moving Sign element

No.	Property	Function description
(1)	Text	<p>You can enter the text to display in this box.</p>
(2)	Text property	<p>Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the Text property setting results.</p>
(3)	Edit multi-language text	<p>If you have added multi-language data, the Text page allows you to edit multi-language data.</p>

11

No.	Property	Function description																		
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected. The example and setting steps are as follows:</p> <ol style="list-style-type: none"> 1. Enter the text "123" for State 0 and "234" for State 1. 2. Select State 0. 3. Execute Process the text of all states and the text of State 1 is changed to "123". <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>Before</p>  </div> <div style="width: 65%;">  <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td></td> <td>123</td> </tr> <tr> <td>1</td> <td></td> <td>234</td> </tr> </tbody> </table> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%;"> <p>After</p>  </div> <div style="width: 65%;">  <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td></td> <td>123</td> </tr> <tr> <td>1</td> <td></td> <td>123</td> </tr> </tbody> </table> </div> </div>	State	Chinese	English	0		123	1		234	State	Chinese	English	0		123	1		123
		State	Chinese	English																
0		123																		
1		234																		
State	Chinese	English																		
0		123																		
1		123																		

No.	Property	Function description
		<p>This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p>  <p>The example and setting steps are as follows:</p> <ol style="list-style-type: none"> 1. Enter the text "Delta" for State 0 and "HMI" for State 1. Select Segoe Script for the text font of State 0 and Arial for the text font of State 1. 2. Select State 0. 3. Execute Process text properties of all states and the text font of State 1 is changed to Segoe Script. <div style="display: flex; flex-direction: column;"> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">(5)</div> <div style="margin-right: 10px;">Process text properties of all states</div> </div> <div style="display: flex; flex-direction: column;"> <div style="margin-bottom: 10px;"> <p>Before</p>  </div> <div> <p>After</p>  </div> </div> </div>

Coordinates

11

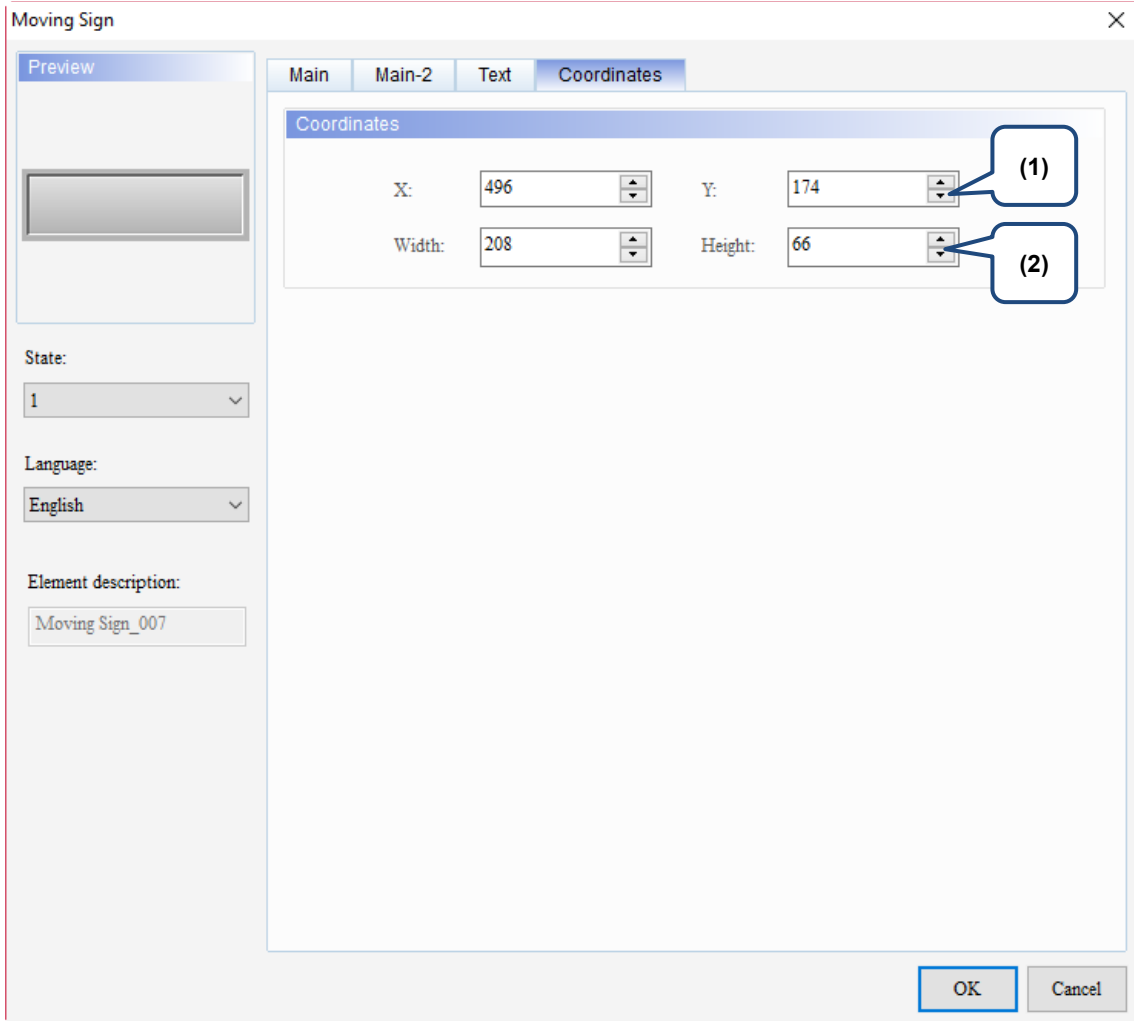


Figure 11.5.5 Coordinates property page for the Moving Sign element


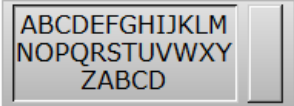
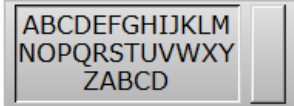
No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

11.6 QR code display

Quick Response Codes (QR codes) are also known as two-dimensional barcodes or matrix barcodes. The data types can be stored in a QR code include numbers, letters, binary data, and Kanji. A QR code is a square two-dimensional barcode comprising only two colors, black and white. There are three position markers (a square in a grid) on the three corners of the QR code and another position marker is at a position near the lower right corner. These markers are for identification and positioning, so there is no need for the user to carefully align the code while scanning. The scanning software can decode the code correctly regardless of angle and direction.

The QR code display element encodes the string to be displayed. You can scan the QR code to obtain the string. When the string is a URL, you can go to the website directly. This element also supports multi-language input. Refer to Table 11.6.1 QR code display example.

Table 11.6.1 QR code display example

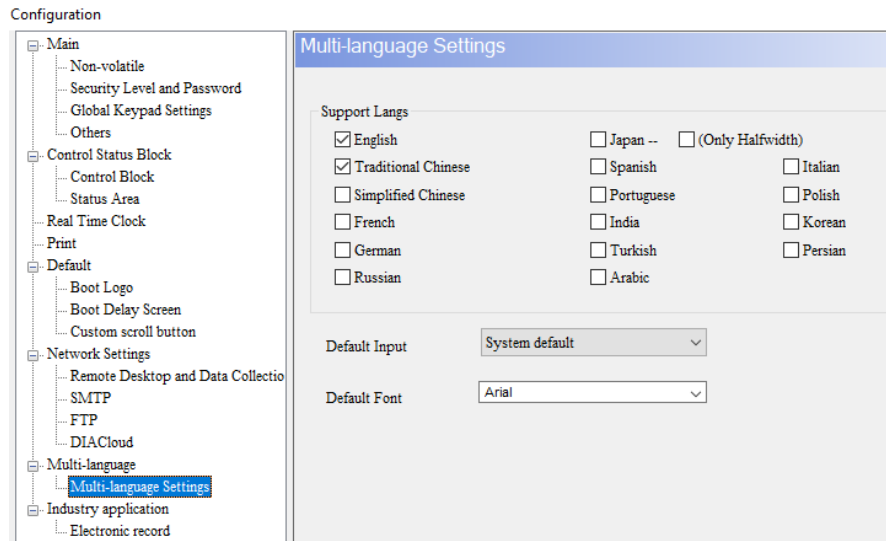
QR code display				
Create QR code display element	<div style="border: 1px solid gray; padding: 5px;"> <p>Set the Read Address and String Length.</p> <p>QR code display ×</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>Preview</p>  <p>State: 0</p> </div> <div style="width: 65%;"> <p>Main Details Coordinates</p> <div style="display: flex;"> <div style="width: 50%;"> <p>Memory</p> <p>Read Address: \$100</p> <p>Read Offset Address: None</p> </div> <div style="width: 50%;"> <p>Setting</p> <p>String Length: 30</p> <p>Error correction: HIGH</p> </div> </div> </div> </div> </div>			
Create Character Entry and Multi-language Input elements	Character Entry element		Multi-language Input element	
	Write Address	\$100	Write Address	\$100
	String Length	30	String Length	30
				

11

QR code display element


Go to [Options] > [Configuration] > [Multi-language Settings] to select the **English** and **Traditional Chinese** check boxes.

Select the language

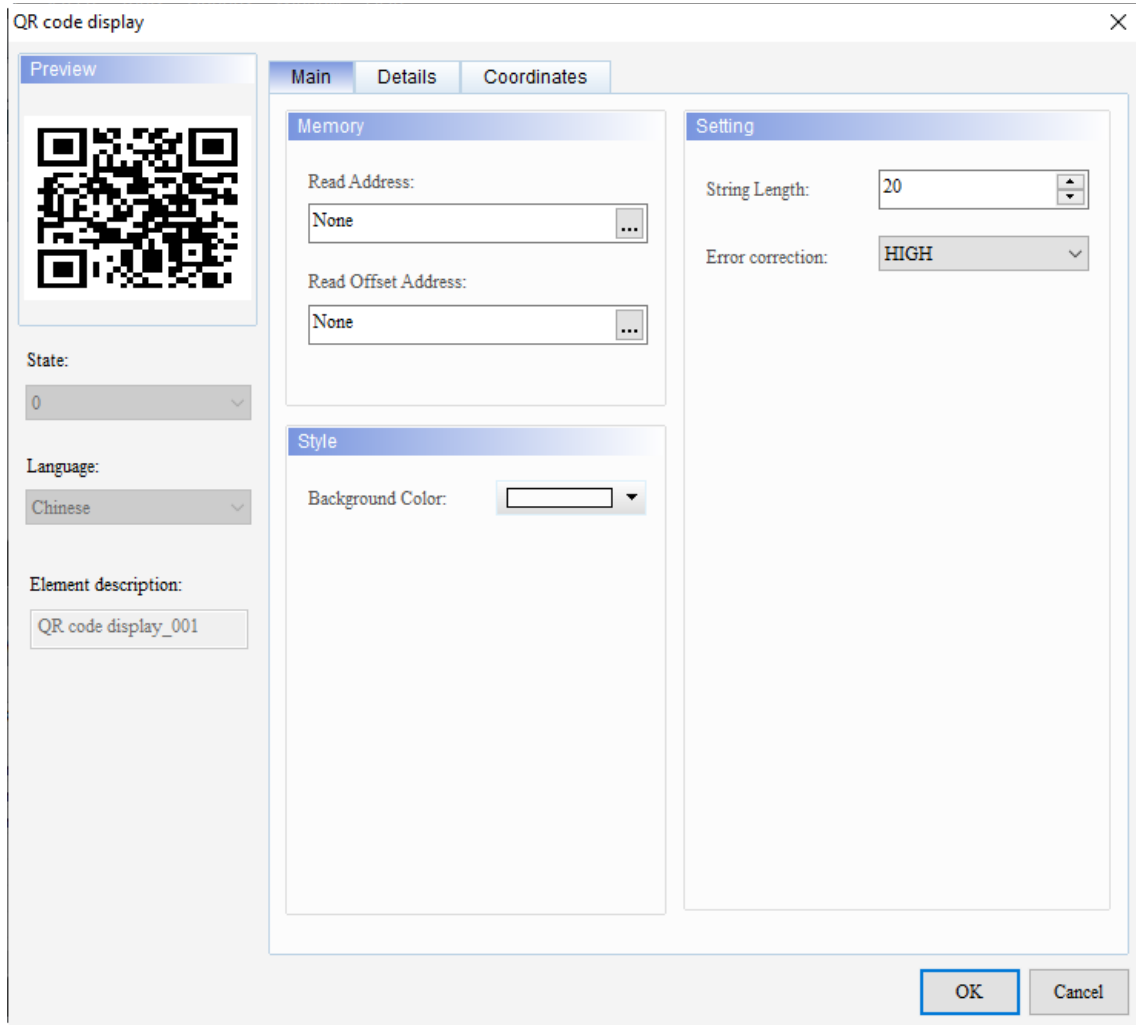


After creating the elements, compile and download the data to the HMI, and then use the Character Entry element and the Multi-language Input element to enter the strings to generate the QR codes.

Execution results

<p>Generate QR code with Character Entry element</p>	<p>Enter the Delta website URL, and the corresponding QR code is generated.</p> <div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <input type="text" value="https://www.deltaww.com"/> </div> 
<p>Generate QR code with Multi-language Input element</p>	<p>Enter DELTA, and the corresponding QR code is generated.</p> <div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <input type="text" value="DELTA"/> </div> 

When you double-click the QR code display, the property page is shown as follows.



11

Figure 11.6.1 Properties of QR code display

Table 11.6.2 Function page of QR code display

QR code display	
Function page	Description
Preview	QR code display elements do not support multiple state values and multi-language data display.
Main	Set the Read Address, Read Offset Address, and Background Color. Set the String Length and Error correction.
Details	Set the Invisible Address.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

11

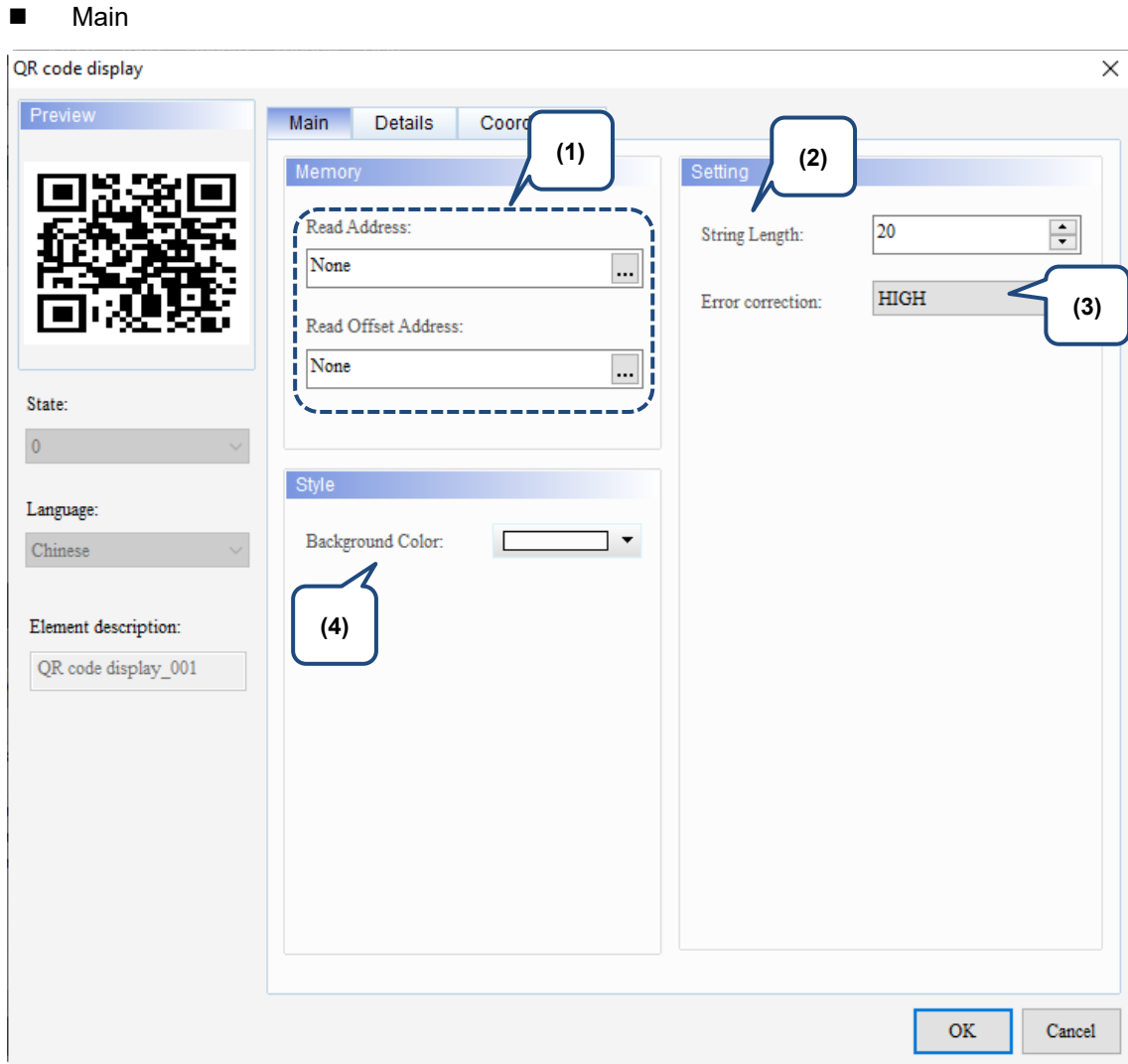
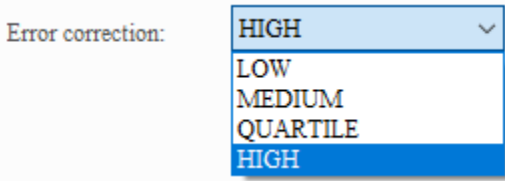
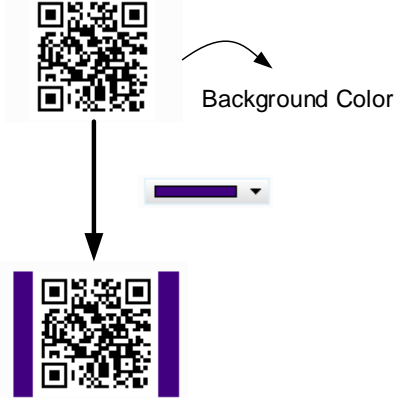


Figure 11.6.2. Main property page for the QR code display element

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(2)	String Length	The maximum string length is 256.

No.	Property	Function description										
(3)	Error correction	<ul style="list-style-type: none"> QR codes have the capability of correcting errors. There are four correction levels available, LOW, MEDIUM, QUARTILE, and HIGH, based on the error tolerance capabilities.  <ul style="list-style-type: none"> Error correction in QR codes is implemented through the Reed-Solomon code method, but the Reed-Solomon codes need twice the storage space of the original data. Therefore, the higher the level of error correction, the less the amount of data can actually be stored. In other words, if there is a graphic or picture in the middle of the QR code, when the graphic or picture is larger, a higher error correction is required to prevent data errors. Conversely, if there are no graphics or pictures in the middle, you can choose LOW for the error correction. The following is the data restoration rate for each error level. <table border="1"> <thead> <tr> <th>Error correction level</th> <th>Data restoration rate</th> </tr> </thead> <tbody> <tr> <td>LOW</td> <td>7%</td> </tr> <tr> <td>MEDIUM</td> <td>15%</td> </tr> <tr> <td>QUARTILE</td> <td>25%</td> </tr> <tr> <td>HIGH</td> <td>30%</td> </tr> </tbody> </table>	Error correction level	Data restoration rate	LOW	7%	MEDIUM	15%	QUARTILE	25%	HIGH	30%
Error correction level	Data restoration rate											
LOW	7%											
MEDIUM	15%											
QUARTILE	25%											
HIGH	30%											
(4)	Background Color	<p>Set the background color of the element.</p> 										

■ Details

11

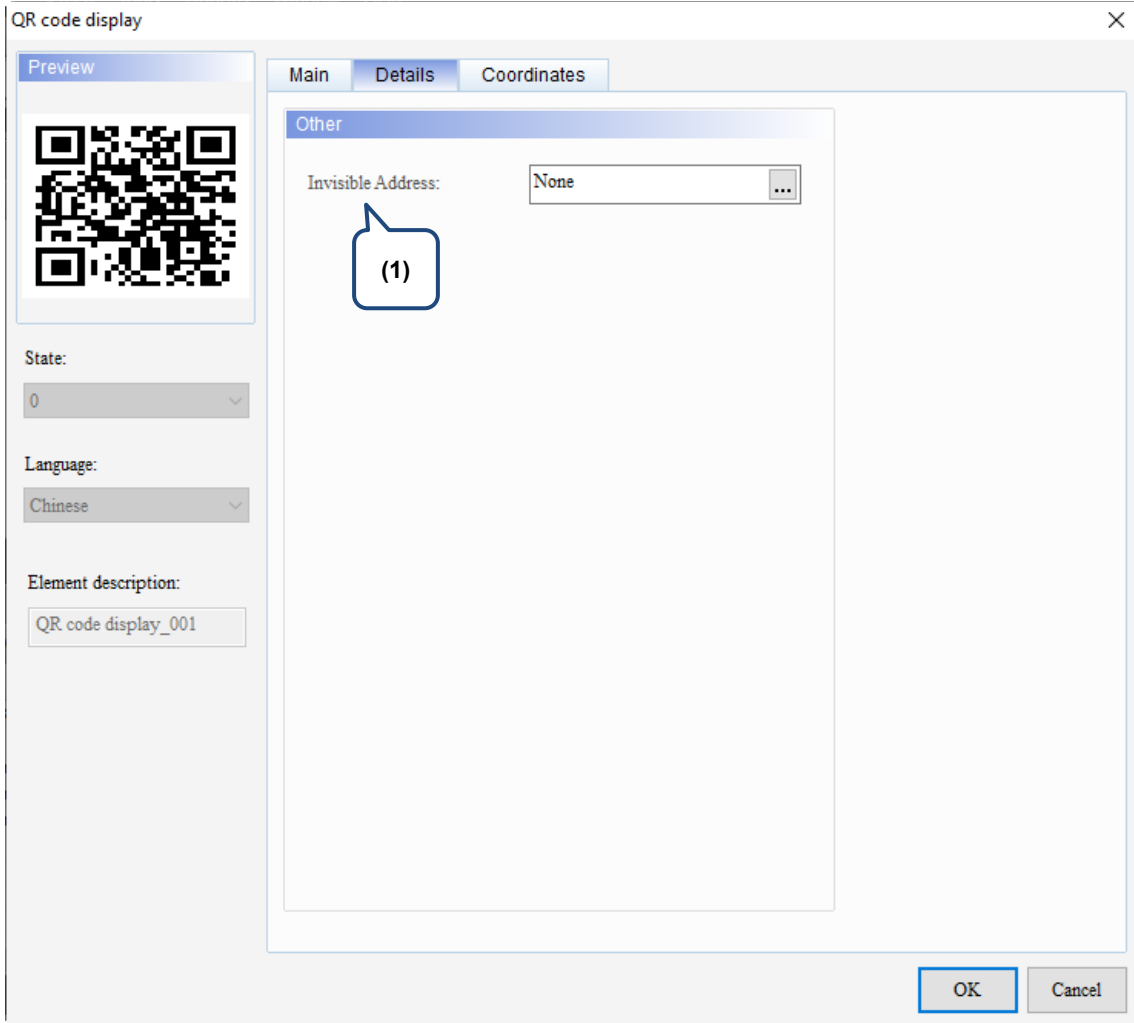


Figure 11.6.3 Details property page for the QR code display element

No.	Property	Function description
(1)	Invisible Address	<ul style="list-style-type: none"> ■ Before executing the Invisible Address for the QR code display element, you must first generate the QR code with the Character Entry element or the Multi-language Input element. ■ When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.  <p>QR code display</p> 

Coordinates

11

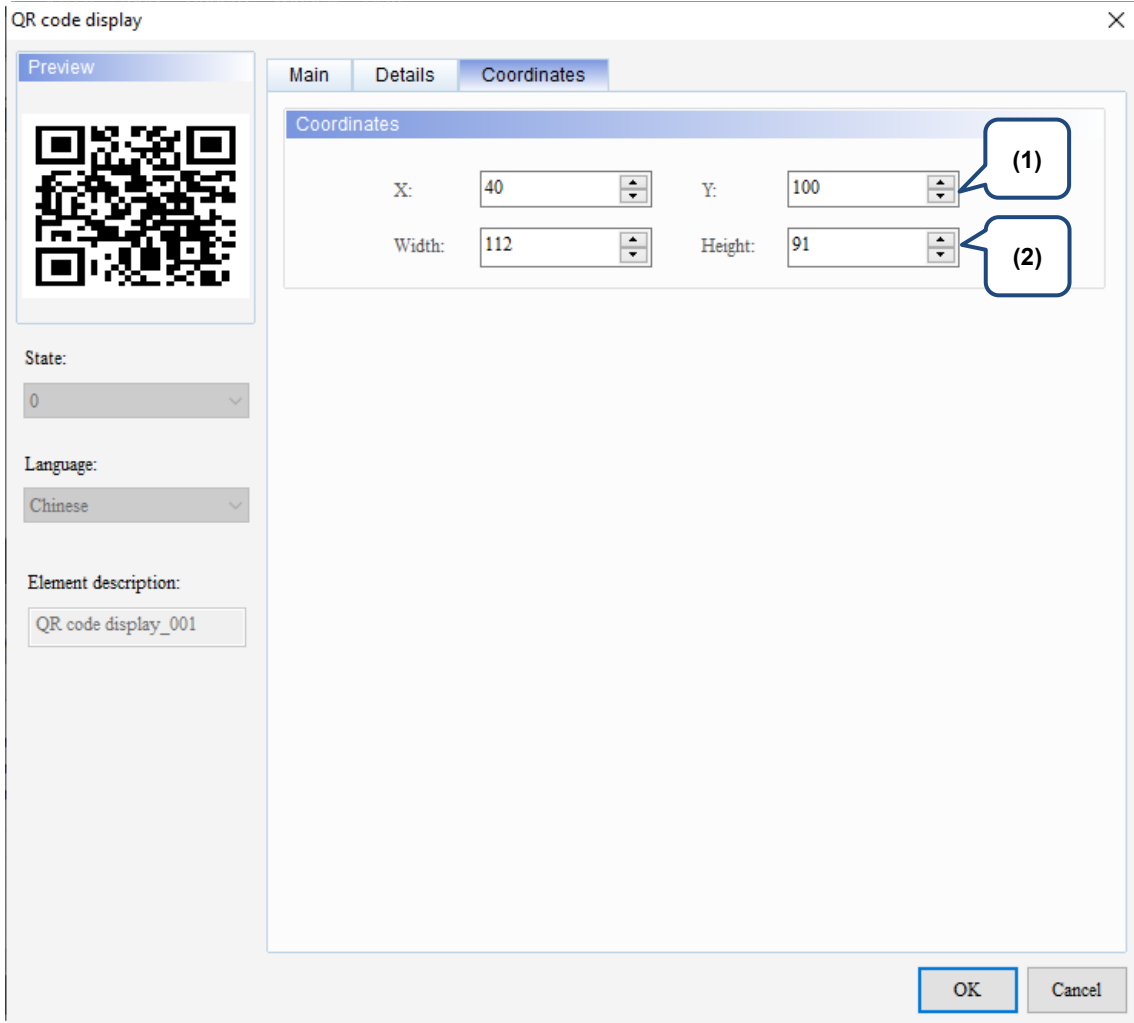


Figure 11.6.4 Coordinates property page for the QR code display element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

11.7 Barcode

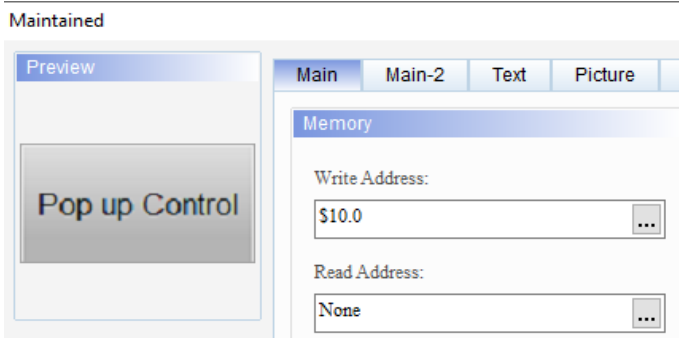


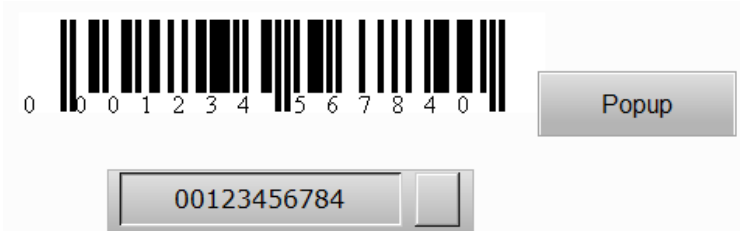
The Barcode element is used to generate barcodes, so it must be used with Barcode Input element. Refer to the Table 11.7.1 for the Barcode display example.

11

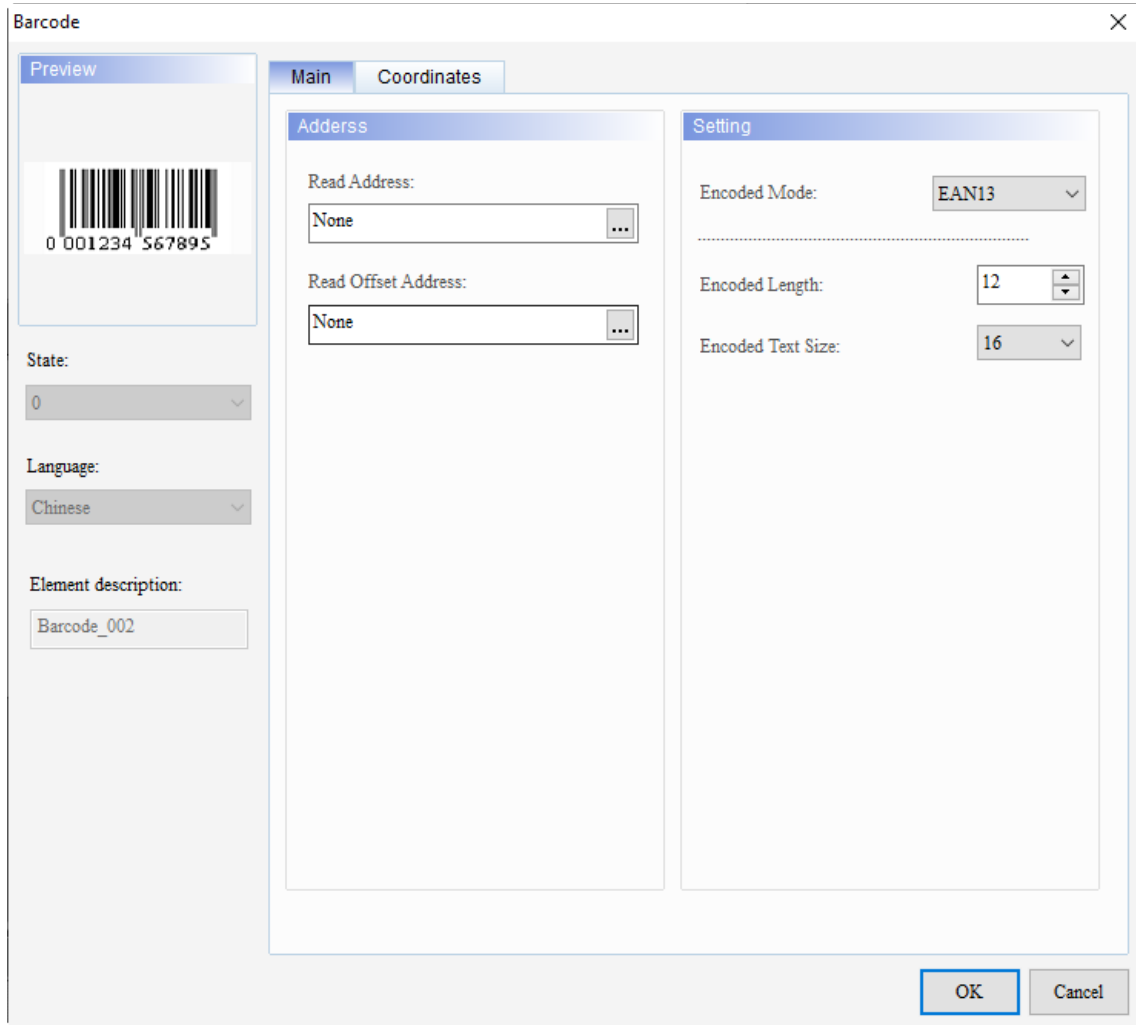
Table 11.7.1 Barcode display example

Barcode	
Create Barcode element	<p>Set the Read Address to \$100.</p>
Create Barcode Input element	<p>■ Set the Write Address and String Length.</p>
	<p>■ Set the Input Mode to Touch, and set the Popup Control Addr. to \$10.0.</p>

11

Barcode	
<p>Create Maintained button</p>	<p>Set the Write Address to \$10.0.</p> 
<p>Execution results</p>	<p>After creating the elements, compile and download the elements to the HMI.</p> <p>After you download the elements, the HMI screen is as follows:</p>  <p>Execute the Popup Control Addr. first, then click the Barcode Input element, and the input keyboard will be displayed.</p> 
	<p>After the keyboard is displayed, enter the numbers to generate the barcode.</p> 

When you double-click the Barcode, the property page is shown as follows.



11

Figure 11.7.1 Properties of Barcode

Table 11.7.2 Function page of Barcode

Barcode	
Function page	Description
Preview	Barcode elements do not support multiple state values and multi-language data display.
Main	Set the Read Address and Read Offset Address. Set the Encoded Mode, Encoded Length, and Encoded Text Size.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

11

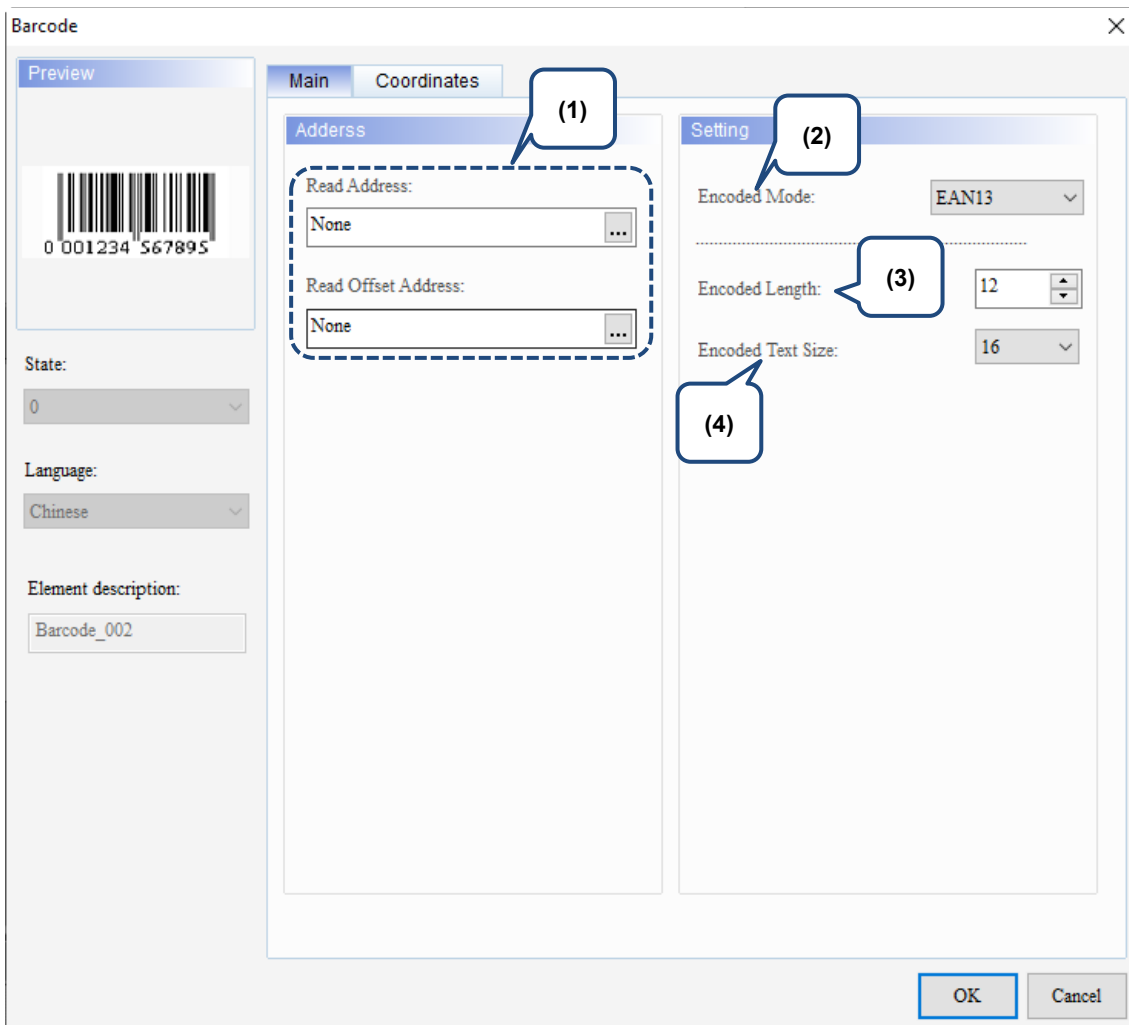






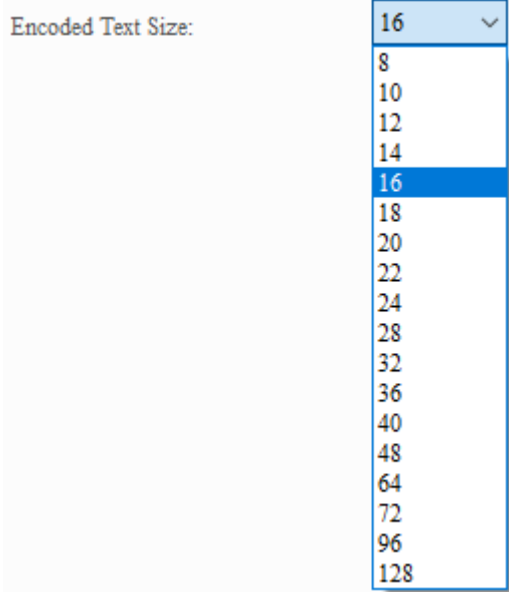


Figure 11.7.2. Main property page for the Barcode element

No.	Property	Function description				
(1)	Read Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. 				
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.				
(2)	Encoded Mode	<ul style="list-style-type: none"> There are two encoding formats, EAN13 and CODE128. <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="margin-right: 10px;">Encoded Mode:</div> <div style="border: 1px solid black; padding: 2px;"> <div style="background-color: #e0e0e0; padding: 2px;">EAN13</div> <div style="background-color: #000080; color: white; padding: 2px;">EAN13</div> <div style="background-color: #e0e0e0; padding: 2px;">CODE128</div> </div> </div> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 15%; background-color: #e0e0e0; text-align: center;">EAN13</td> <td style="text-align: center;">  0 001234 567895 </td> </tr> <tr> <td style="width: 15%; background-color: #e0e0e0; text-align: center;">CODE128</td> <td style="text-align: center;">  1234567890 </td> </tr> </table>	EAN13	 0 001234 567895	CODE128	 1234567890
EAN13	 0 001234 567895					
CODE128	 1234567890					

No.	Property	Function description
(3)	Encoded Length	<ul style="list-style-type: none"> ■ The encoding length is subject to change based on the selected Encoded Mode. ■ EAN13 supports lengths of up to 12. ■ CODE128 supports lengths of up to 48.
(4)	Encoded Text Size	<p>This function is used to determine the size of the numbers displayed on the barcode, and the default is 16.</p>  <p>The screenshot shows a dropdown menu titled "Encoded Text Size:" with a list of numerical options: 8, 10, 12, 14, 16, 18, 20, 22, 24, 28, 32, 36, 40, 48, 64, 72, 96, and 128. The value 16 is currently selected and highlighted in blue.</p>

Coordinates

11

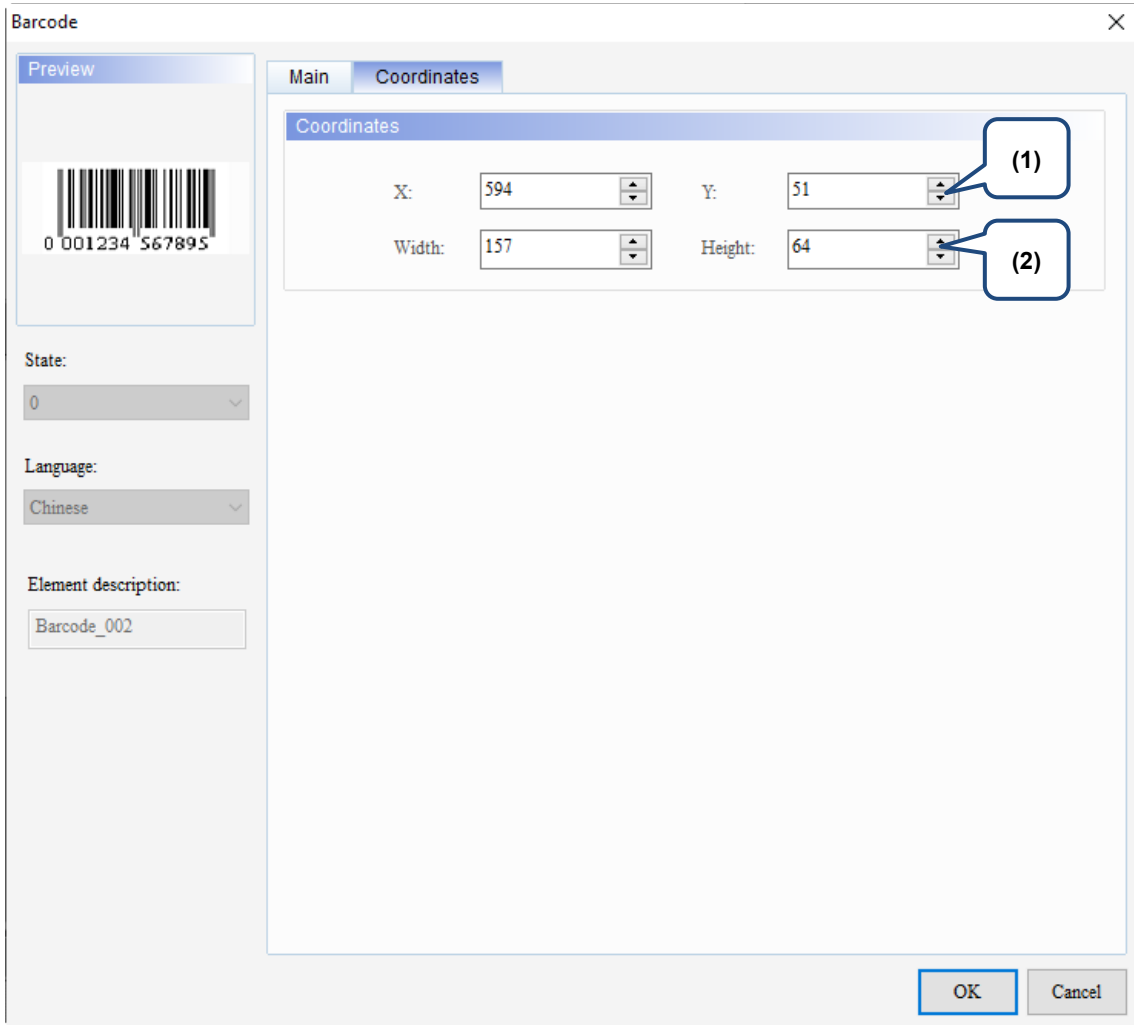


Figure 11.7.3 Coordinates property page for the Barcode element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

Graph Display

12

This chapter provides the usage and setting details for the Graph Display elements.



- 12.1 State Graphic..... 12-2
- 12.2 Animated Graphic 12-17
- 12.3 Real-time Image 12-30

12

12.1 State Graphic

You can create multi-state graphics with the State Graphic element. The value read by the set Read Address corresponds to the state value of the element, and then the set state graphic is displayed on the HMI.

The following describes three application examples: Table 12.1.1 illustrates the example of Auto Picture Change is set to No, Table 12.1.2 illustrates the example of Auto Picture Change is set to Yes, and Table 12.1.3 illustrates the example of Auto Picture Change is set to Variation.

Table 12.1.1 State Graphic example

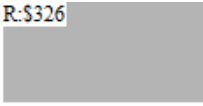
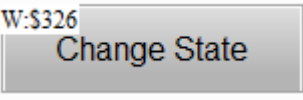
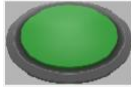

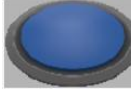
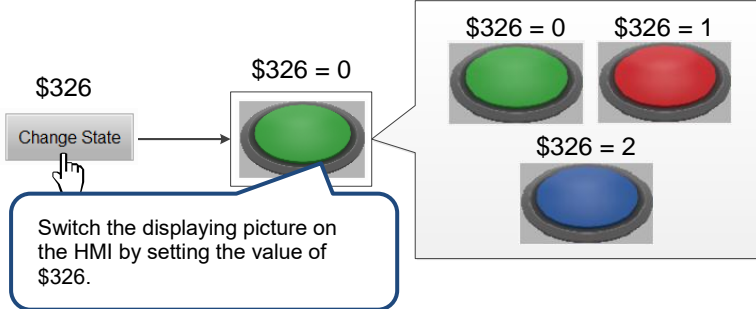
State Graphic example - Auto Picture Change is set to No				
Read Address	State Graphic element		Set Value element	
	Read Address	\$326	Write Address	\$326
				
Detail settings	State Graphic element			
	Data Type	Data Format	State Counts	Auto Picture Change
	Word	Unsigned Decimal	3	No
Picture	Set the State Graphic display			
	State 0	State 1	State 2	
			 	
Execution results	<p>After creating the elements, compile and download the elements to the HMI. Next, input a value to the Set Value element, and the State Graphic element displays the picture corresponding to the input value.</p> 			

Table 12.1.2 State Graphic example

State Graphic example - Auto Picture Change is set to Yes				
Read Address	State Graphic element		Set Value element	
	Read Address	\$326	Write Address	\$326
Detail settings	State Graphic element			
	Data Type	Data Format	State Counts	Auto Picture Change
	Word	Unsigned Decimal	3	Yes
Picture	Set the State Graphic display			
	State 0	State 1	State 2	
Execution results	<p>After creating the elements, compile and download the elements to the HMI. When you input a value other than 0 to the Set Value element, the State Graphic automatically changes to the set picture display according to the set Change Time (ms). If you input 0, the State Graphic resets to the initial state without executing any action.</p>			

12

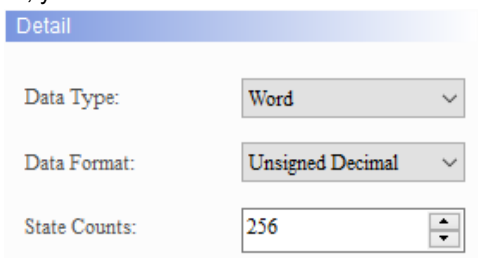
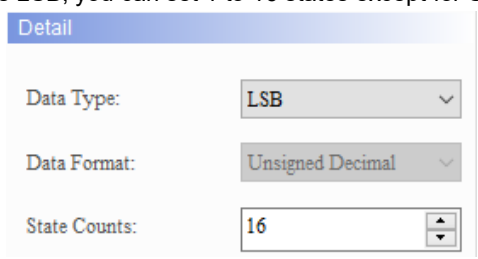
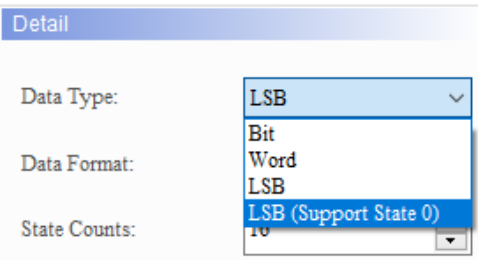

12

Table 12.1.3 State Graphic example

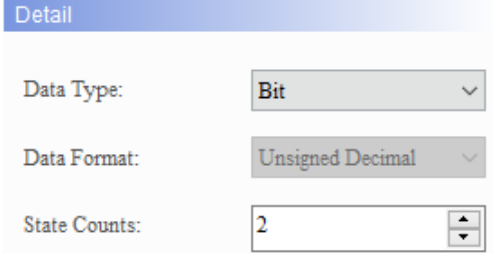
State Graphic example - Auto Picture Change is set to Variation						
Read Address	State Graphic element		Set Value element		Set Value element	
	Read Address	\$326	Write Address	\$326	Write Address	\$327
Detail settings	State Graphic element					
	Data Type	Data Format	State Counts	Auto Picture Change		
	Word	Unsigned Decimal	3	Variation		
Picture	Set the State Graphic display					
	State 0	State 1	State 2			
Execution results	<ul style="list-style-type: none"> ■ The Read Address of the State Graphic element indicates the register for the changing state pictures. [Read Address+1] is for accessing the register when Auto Picture Change is set to Variation. ■ After creating the elements, compile and download the elements to the HMI. If you press the Set Value element of \$327 and input a value other than 0, the State Graphic automatically changes to the set picture display according to the set Change Time (ms). You can also press the Set Value element of \$326 to input the value corresponding to the State Graphic at the same time. If you input 0 to the Set Value element of \$327, the State Graphic does not automatically change the state pictures. 					

State Graphic supports four data types as shown in Table 12.1.4. To add or reduce the total number of states, you can simply increase or decrease the number of State Counts in the Properties window.

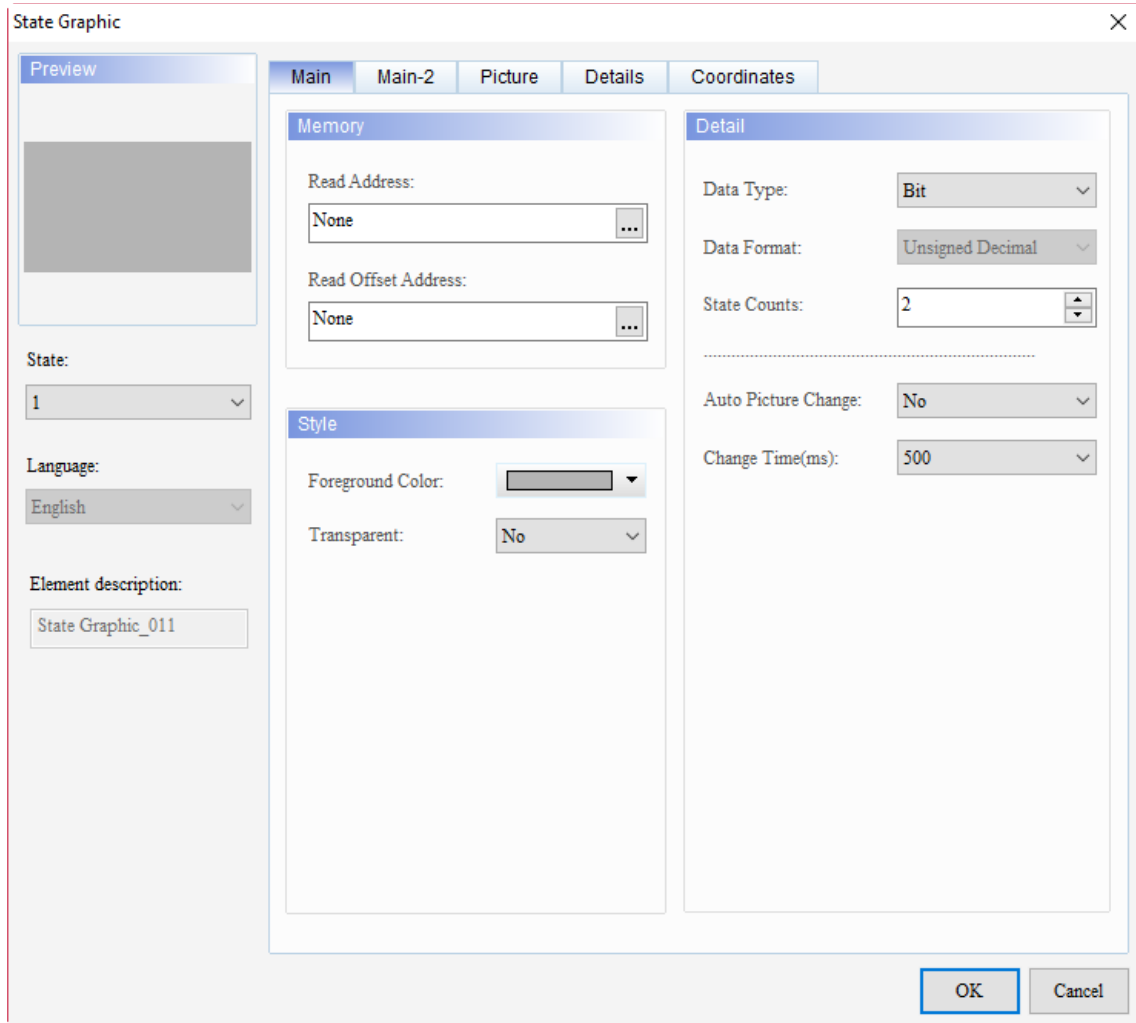
Table 12.1.4 Data Type of State Graphic

State Graphic																								
Data Type	State Counts																							
Word	<p>If the Data Type is Word, you can set 1 to 256 states for the State Counts.</p> 																							
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> LSB is to first convert the data in the register to binary format, and then use the lowest non-zero bit to determine the current state of the object. If the Data Type is LSB, you can set 1 to 16 states except for State 0. 																							
	<ul style="list-style-type: none"> To display State 0, select LSB (Support State 0) for the Data Type.  <ul style="list-style-type: none"> If you selected LSB, the element is black when the state is 0.  <ul style="list-style-type: none"> When the Data Type is LSB or LSB (Support State 0), the memory address is also in units of Word. The examples in the following table show how the state value is determined with the lowest non-zero bit of the binary value converted from a decimal value. There are also examples demonstrating how the software determines the displaying state value with the lowest bit when the decimal values are 3 and 7. <table border="1"> <thead> <tr> <th>Decimal</th> <th>Binary</th> <th>State value</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0000000000000000</td> <td>State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.</td> </tr> <tr> <td>1</td> <td>0000000000000001</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>2</td> <td>0000000000000010</td> <td>The lowest non-zero bit is bit 1, State = 2.</td> </tr> <tr> <td>3</td> <td>0000000000000011</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>4</td> <td>0000000000000100</td> <td>The lowest non-zero bit is bit 2, State = 3.</td> </tr> <tr> <td>7</td> <td>0000000000000111</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>8</td> <td>0000000000001000</td> <td>The lowest non-zero bit is bit 3, State = 4.</td> </tr> </tbody> </table>	Decimal	Binary	State value	0	0000000000000000	State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.	1	0000000000000001	The lowest non-zero bit is bit 0, State = 1.	2	0000000000000010	The lowest non-zero bit is bit 1, State = 2.	3	0000000000000011	The lowest non-zero bit is bit 0, State = 1.	4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.	7	0000000000000111	The lowest non-zero bit is bit 0, State = 1.	8	0000000000001000
Decimal	Binary	State value																						
0	0000000000000000	State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.																						
1	0000000000000001	The lowest non-zero bit is bit 0, State = 1.																						
2	0000000000000010	The lowest non-zero bit is bit 1, State = 2.																						
3	0000000000000011	The lowest non-zero bit is bit 0, State = 1.																						
4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.																						
7	0000000000000111	The lowest non-zero bit is bit 0, State = 1.																						
8	0000000000001000	The lowest non-zero bit is bit 3, State = 4.																						

12

State Graphic			
Data Type	State Counts		
	Decimal	Binary	State value
LSB / LSB (Support State 0)	16	000000000010000	The lowest non-zero bit is bit 4, State = 5.
	32	0000000000100000	The lowest non-zero bit is bit 5, State = 6.
	64	0000000001000000	The lowest non-zero bit is bit 6, State = 7.
	128	0000000010000000	The lowest non-zero bit is bit 7, State = 8.
	256	0000000100000000	The lowest non-zero bit is bit 8, State = 9.
	512	0000001000000000	The lowest non-zero bit is bit 9, State = 10.
	1024	0000010000000000	The lowest non-zero bit is bit 10, State = 11.
	2048	0000100000000000	The lowest non-zero bit is bit 11, State = 12.
	4096	0001000000000000	The lowest non-zero bit is bit 12, State = 13.
	8192	0010000000000000	The lowest non-zero bit is bit 13, State = 14.
	16384	0100000000000000	The lowest non-zero bit is bit 14, State = 15.
	32768	1000000000000000	The lowest non-zero bit is bit 15, State = 16.
Bit	If the Data Type is Bit, you can set only 2 states. 		

When you double-click the State Graphic, the property page is shown as follows.



12

Figure 12.1.1 Properties of State Graphic

Table 12.1.5 Function page of State Graphic

State Graphic	
Function page	Description
Preview	State Graphic elements support viewing the multiple state values but do not support the multi-language data display.
Main	Set the Read Address, Read Offset Address, Foreground Color, and Transparent. Set the Data Type, Data Format, State Counts, Auto Picture Change, and Change Time(ms).
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color.
Details	Set the Invisible Address.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

12

■ Main

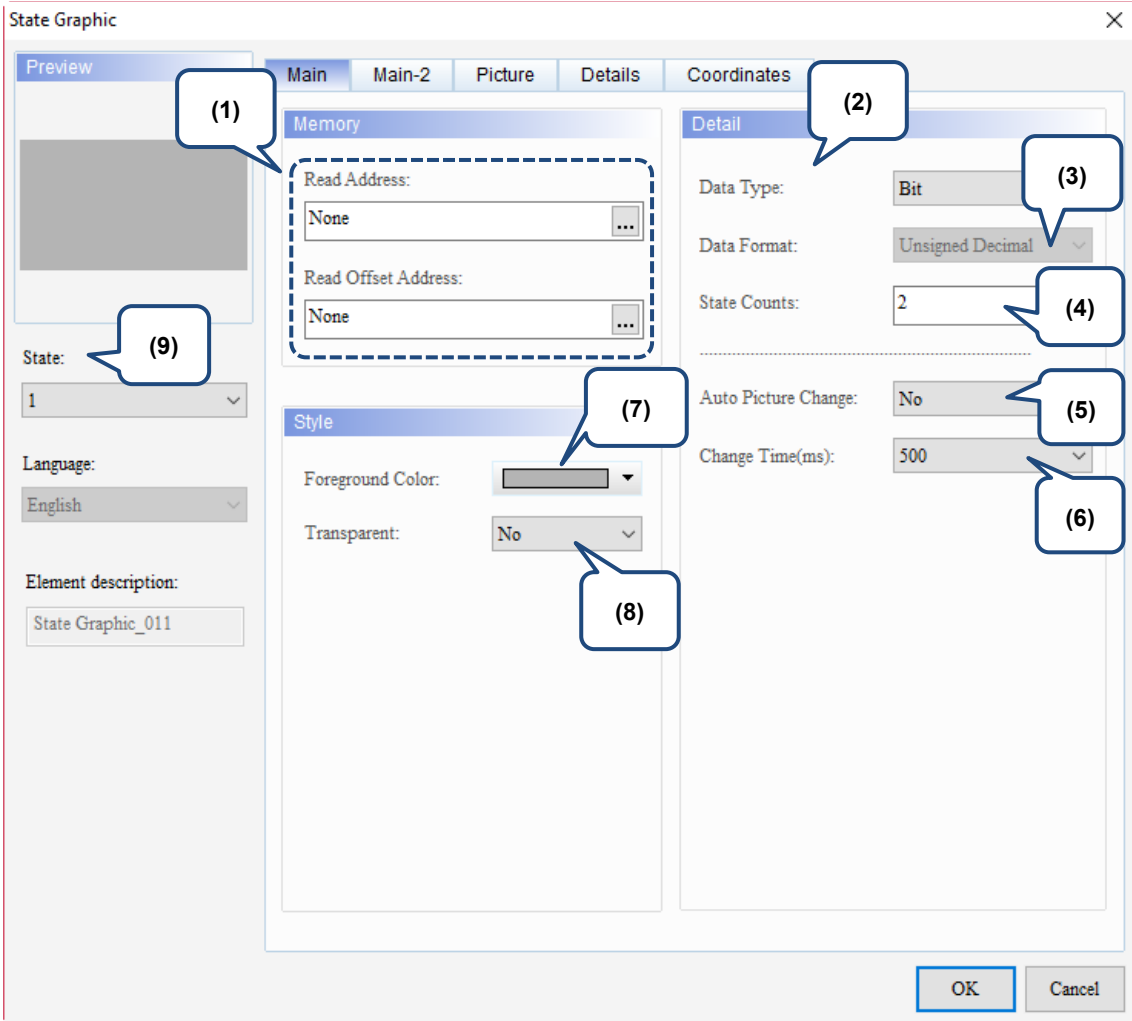
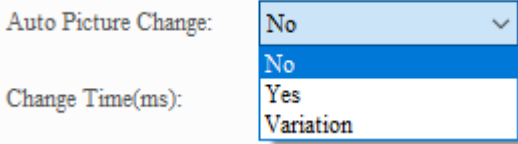
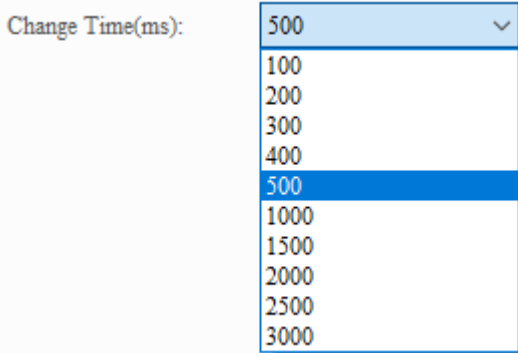
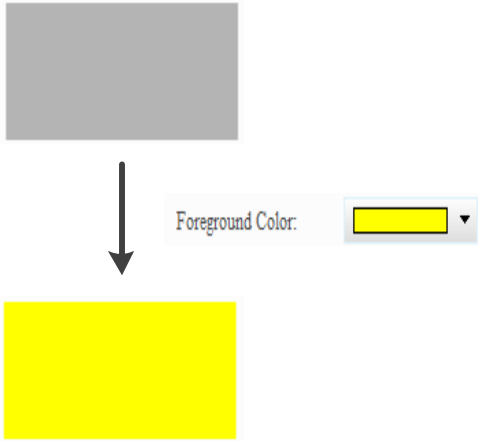




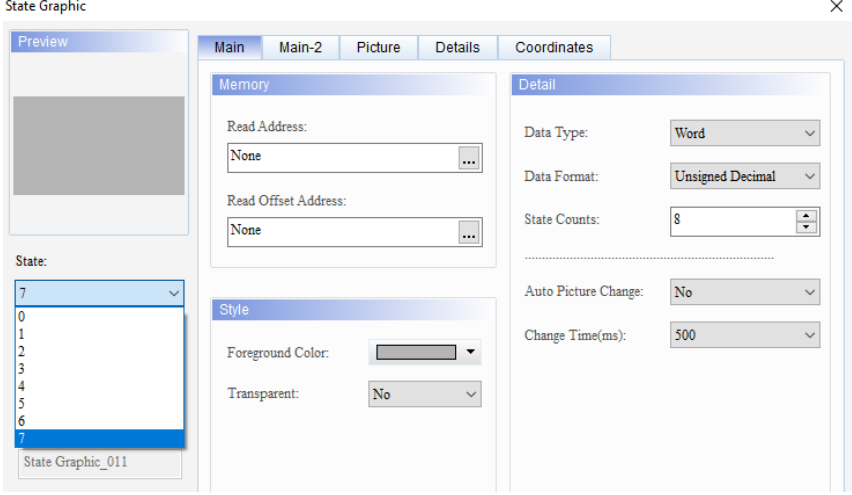


Figure 12.1.2 Main property page for the State Graphic element

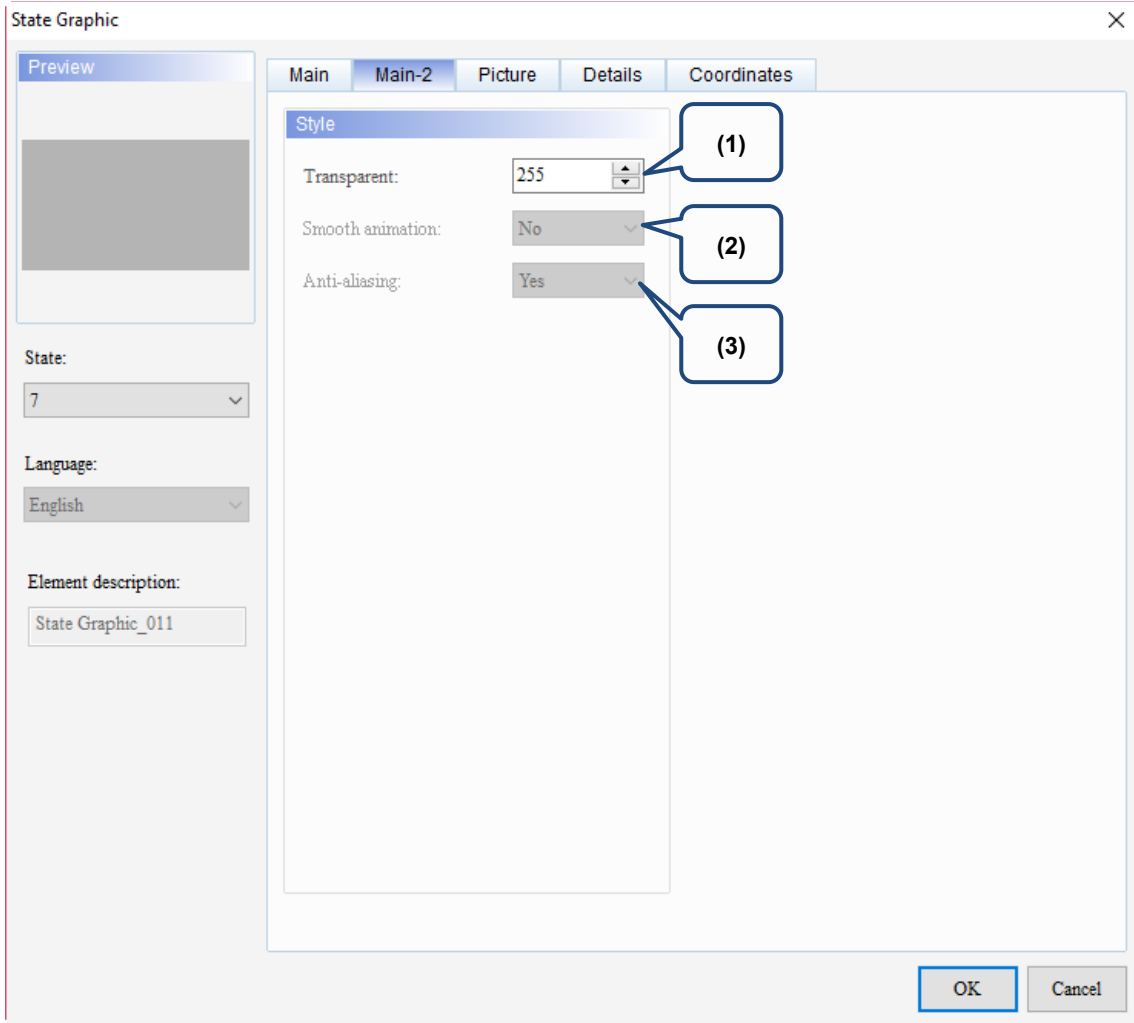
No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. The input memory type varies depending on the selected data type, including Word, LSB, or Bit, as shown in Table 12.1.4. Select Link Name or Device type. Refer to Chapter 5 Buttons for details.
	Read Offset Address	Refer to the instructions in Appendix D Write and Read Offset Addresses.
(2)	Data Type	There are four data types: Bit, Word, LSB, and LSB (Support State 0). Refer to Table 12.1.4 for details.
(3)	Data Format	<ul style="list-style-type: none"> You can select the Data Format only when the Data Type is Word. There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal. <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>Detail</p> <p>Data Type: Word</p> <p>Data Format: Unsigned Decimal</p> <p>State Counts:</p> <p>BCD</p> <p>Signed Decimal</p> <p>Unsigned Decimal</p> <p>Hexadecimal</p> </div>

No.	Property	Function description
(4)	State Counts	Set the total state count for the State Graphic. If the Data Type is Word, you can set 1 - 256 states; if the Data Type is LSB, you can set 16 states; if the Data Type is LSB (Support State 0), you can set 17 states; and if the Data Type is Bit, you can set only 2 states. Refer to Table 12.1.4 for details.
(5)	Auto Picture Change	<ul style="list-style-type: none"> There are three options for Auto Picture Change: Yes, No, and Variation.  <ul style="list-style-type: none"> Refer to Table 12.1.1, Table 12.1.2, and Table 12.1.3 for application examples of Auto Picture Change.
(6)	Change Time(ms)	<ul style="list-style-type: none"> The setting range for the picture change time is 100 - 3000 milliseconds (ms). The default is 500 ms. 
(7)	Foreground Color	<ul style="list-style-type: none"> Set the foreground color of the element. If you set Transparent to Yes, the setting of the foreground color is invalid. 

12

No.	Property	Function description
(8)	Transparent	<ul style="list-style-type: none"> When you select Yes for Transparent, the result is as follows:  You can also specify a color in the picture and turn this color into transparent.  is for selecting the transparent color. If you select the black part in the button, the software changes the black part into transparent.  If both the element and graphic are transparent, the result is as follows: 
(9)	State	<p>By switching the State, you can preview or change the settings for each state of the element.</p> 

■ Main-2



12

Figure 12.1.3 Main-2 property page for the State Graphic element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

12

■ Picture

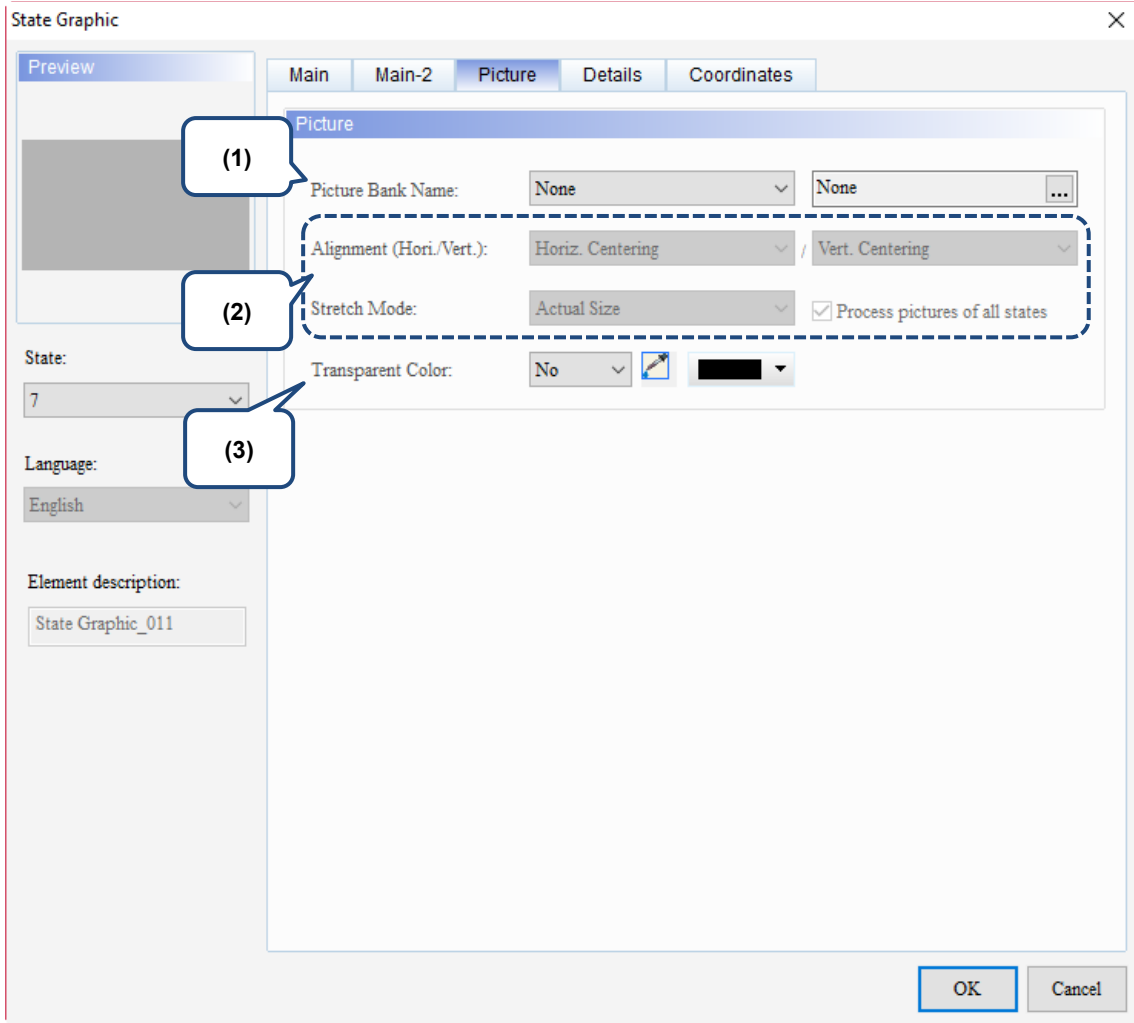
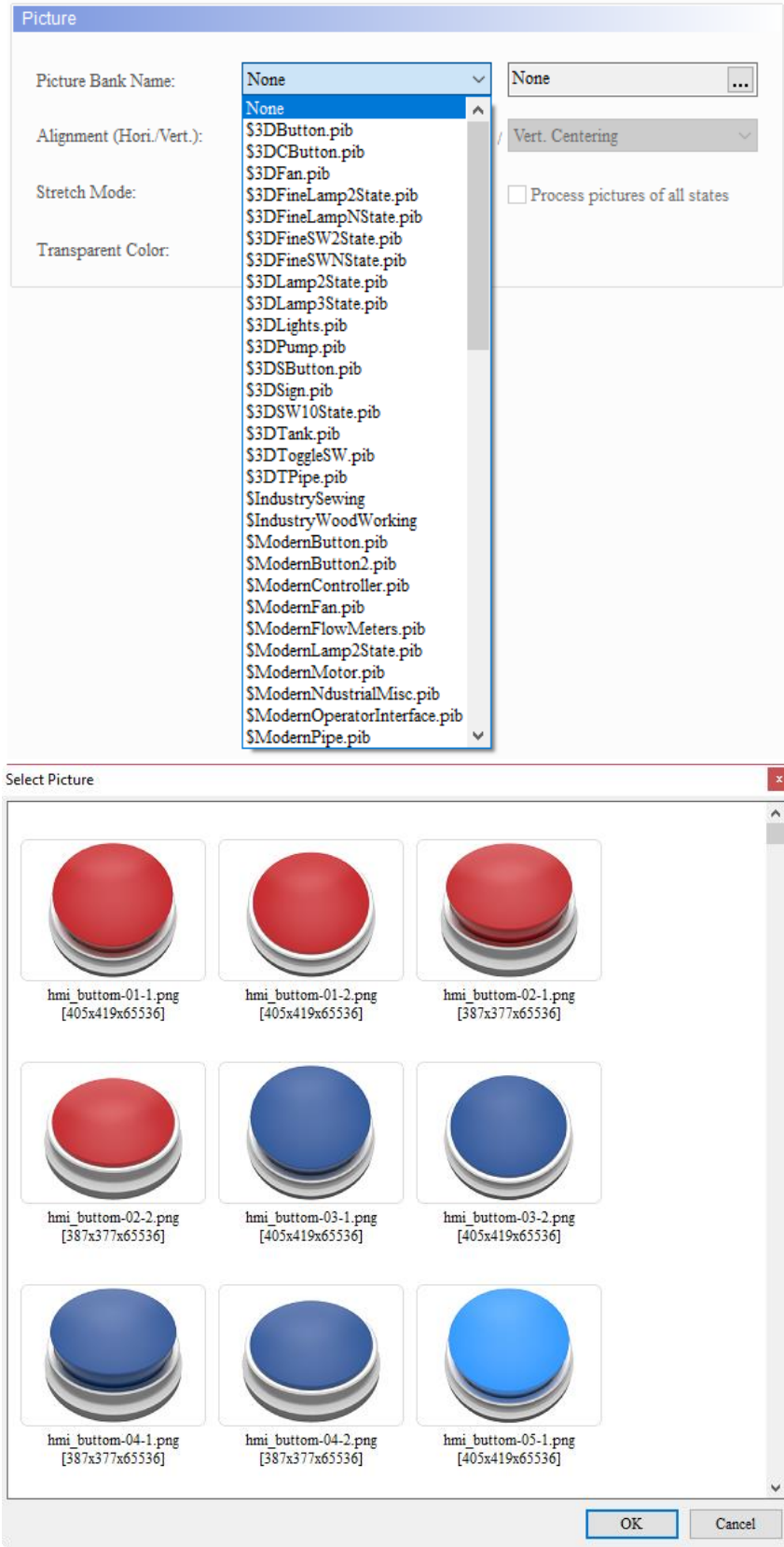
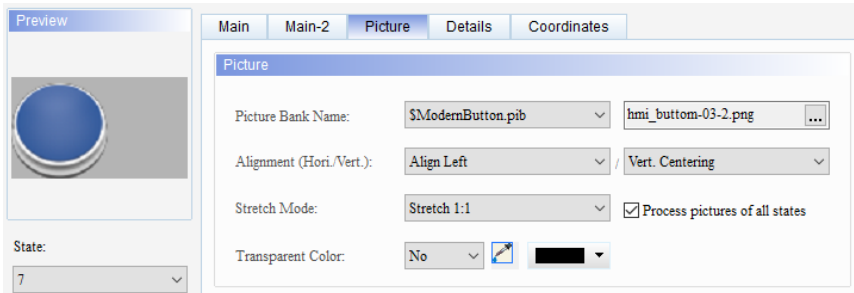
















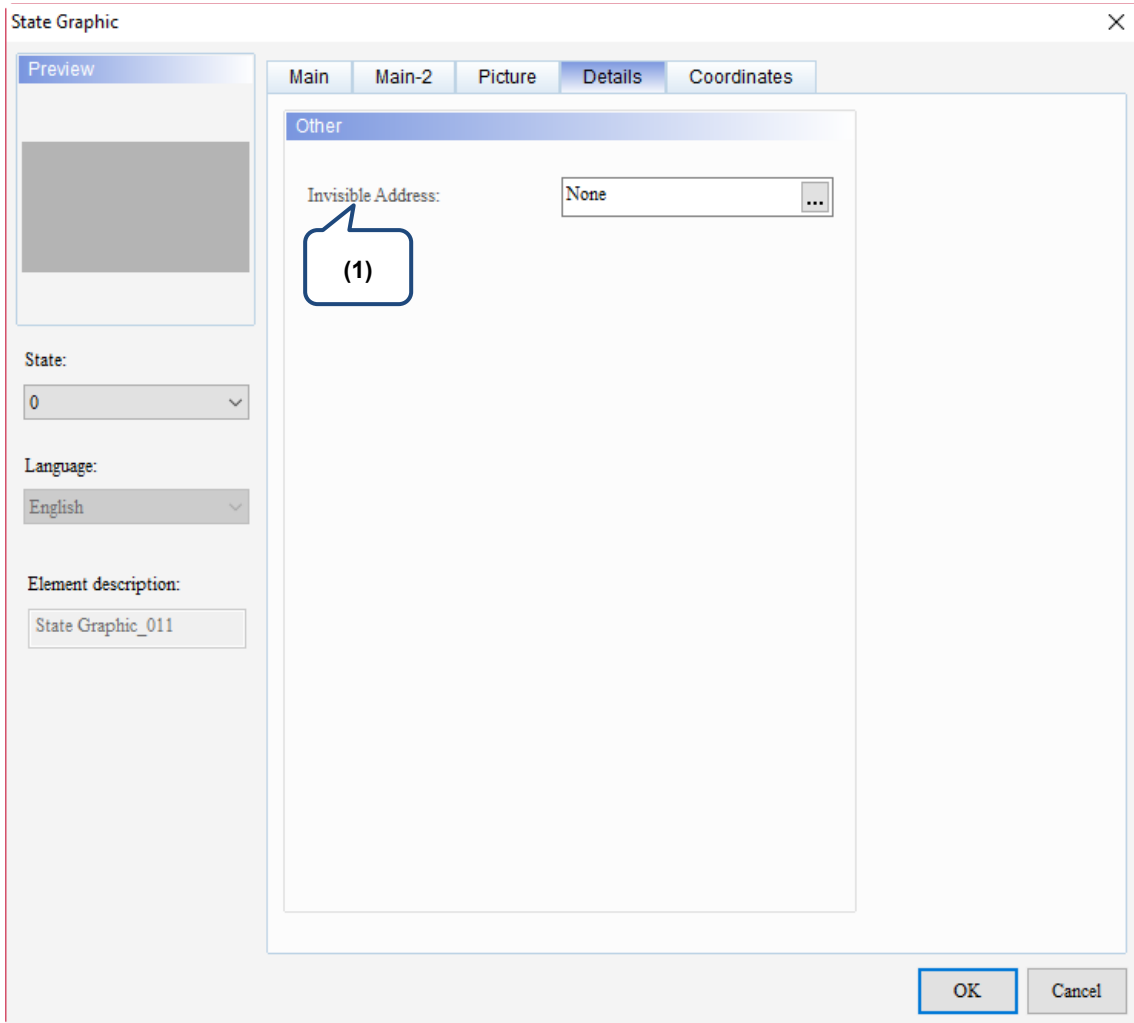
Figure 12.1.4 Picture property page for the State Graphic element

No.	Property	Function description
(1)	Picture Bank Name	<p>The Picture Bank Name default is None. To set the picture display, use the drop-down list box to select the picture bank provided by the software and then select the picture you need.</p>  <p>The 'Picture' dialog box includes the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: A drop-down menu currently showing 'None' and a list of picture banks including \$3DButton.pib, \$3DCButton.pib, \$3DFan.pib, etc. Alignment (Hori./Vert.): A field showing 'None' and a 'Vert. Centering' dropdown. Stretch Mode: A field with a 'Process pictures of all states' checkbox. Transparent Color: A field. <p>The 'Select Picture' dialog box displays a grid of button images with the following filenames and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

12

No.	Property	Function description									
	Alignment	<p>You can use the alignment options to set how pictures are aligned.</p> 									
(2)	Stretch Mode	<ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> Assuming that the element has multiple states and some pictures do not fill the full element display area, if you select the Process pictures of all states check box, you can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p style="text-align: center;"><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.			
Stretch All	Stretch 1:1	Actual Size									
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.									
											
(3)	Transparent Color	<ul style="list-style-type: none"> Specify a color in the picture and turn this color into transparent.  is for selecting the transparent color. When you set the Foreground Color to blue, you can use  to select the white part in the calendar, and the software changes the white part into transparent, which you can see becomes identical to the element foreground color. <p style="text-align: center;">Foreground Color: </p> <div style="display: flex; justify-content: space-around;">   </div>									

■ Details



12

Figure 12.1.5 Details property page for the State Graphic element

No.	Property	Function description						
(1)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p> <table border="1"> <tr> <td>Invisible Address is Off</td> <td></td> <td>Invisible Address \$9.0 OFF</td> </tr> <tr> <td>Invisible Address is On</td> <td></td> <td>Invisible Address \$9.0 ON</td> </tr> </table>	Invisible Address is Off		Invisible Address \$9.0 OFF	Invisible Address is On		Invisible Address \$9.0 ON
		Invisible Address is Off		Invisible Address \$9.0 OFF				
Invisible Address is On		Invisible Address \$9.0 ON						

■ Coordinates

12

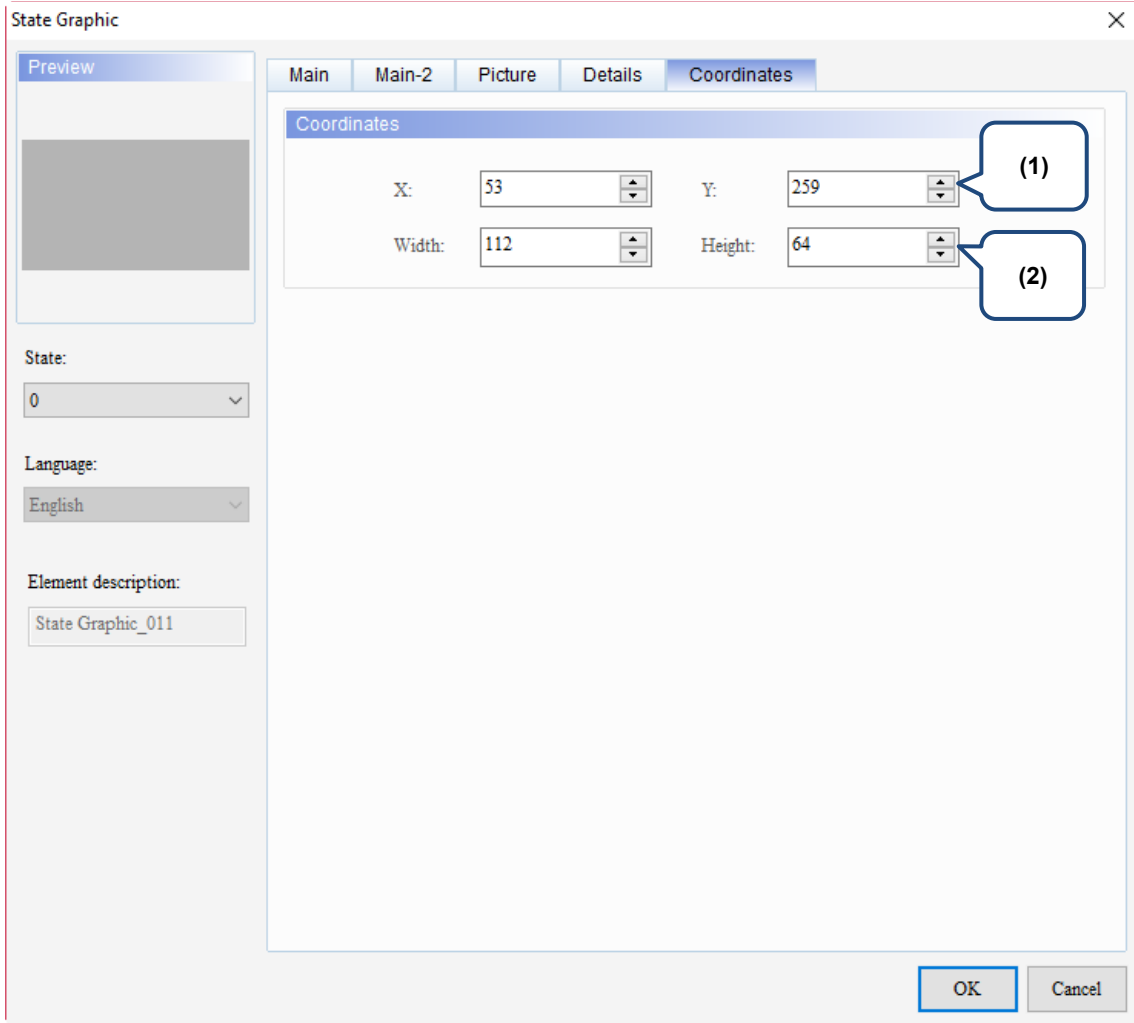


Figure 12.1.6 Coordinates property page for the State Graphic element

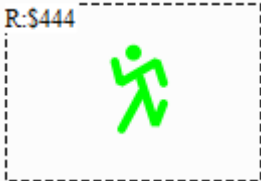
No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

12.2 Animated Graphic

You can create multiple state pictures or import .GIF images with the Animated Graphic element. The previous version of DOPSoft splits a GIF file into multiple images, and then you need to set the corresponding states one by one, which is inconvenient for programming. The new version of DOPSoft has improved the method for importing GIF images, which is one state corresponds to one GIF image.

The Read Address of the Animated Graphic element enables the read values to correspond to the switching graphics set in the Animated Graphic element, as well as specifying the target position for the element to move to. Refer to Table 12.2.1 for the Animated Graphic example.

Table 12.2.1 Animated Graphic example

Animated Graphic		
	Animated Graphic element	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Read Address</td> <td style="width: 50%;">\$444</td> </tr> </table>	Read Address
Read Address	\$444	
Read Address		
Set the properties for the Animated Graphic element	<ul style="list-style-type: none"> ■ Set the State Counts to 3; this means to import three GIF images. ■ Select Yes for Clear Picture; this means the graphic of the previous state does not stay when the HMI switches to the next graphic. 	

12

Animated Graphic


- Create a new picture bank named “test1” and import three GIF images.

Picture Bank

Picture Bank Name

test1

- NewHMI
- test
- test1






175x78px-flash--HMI-test1.gif [175x124x65536]

175x78px-flash--HMI-test2.gif [175x124x65536]

175x78px-flash--HMI-test3.gif [175x124x65536]

- Go to the Picture page of the Animated Graphic element, and import images for State 0, State 1, and State 2 respectively.

Import File	State 0	
	State 1	
	State 2	

- Go to [Options] > [Clock Macro]:
- \$445 indicates [Read Address+1], which is the X coordinate (horizontal axis) of the Animated Graphic element.
- \$446 indicates [Read Address+2], which is the Y coordinate (vertical axis) of the Animated Graphic element.

* [&Clock Macro]

(A)= * [Clock Macro]

```

1 $445 = $445 + 1
2 $446 = $446 + 1
3 IF $444 == 3 then goto label 1
4   $444 = $444 + 1
5 IF $444 < 3 then goto label 2
6
7 label 1
8 $444 = 0
9
10 label 2
11 IF $445 >= 800
12 IF $446 >= 480
13   $445 = 0
14   $446 = 0
15 ENDIF
16 ENDIF
                    
```

Animated Graphic

After you compile and download the screen data to the HMI, these three GIF images keep switching, and the positions are changed according to the memory addresses read by the horizontal and vertical axes.



Execution results

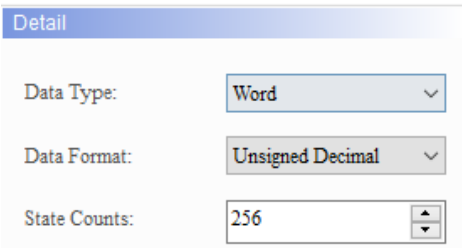
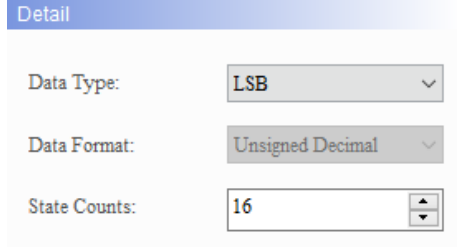
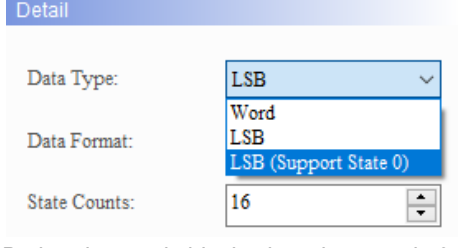

12

12

Animated Graphic element supports three data types as shown in Table 12.2.2.

To add or reduce the total number of states, you can simply increase or decrease the number of State Counts in the Properties window.

Table 12.2.2 Data Type of Animated Graphic

Animated Graphic	
Data Type	State Counts
Word	<p>If the Data Type is Word, you can set 1 to 256 states for the State Counts.</p> 
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> ■ LSB is to first convert the data in the register to binary format, and then use the lowest non-zero bit to determine the current state of the object. ■ If the Data Type is LSB, you can set 1 to 16 states except for State 0.  <ul style="list-style-type: none"> ■ To display State 0, select LSB (Support State 0) for the Data Type.  <ul style="list-style-type: none"> ■ If you selected LSB, the element is black when the state is 0.  <ul style="list-style-type: none"> ■ When the Data Type is LSB or LSB (Support State 0), the memory address is also in units of Word.

Animated Graphic			
Data Type	State Counts		
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> The examples in the following table show how the state value is determined with the lowest non-zero bit of the binary value converted from a decimal value. There are also examples demonstrating how the software determines the displaying state value with the lowest bit when the decimal values are 3 and 7. 		
	Decimal	Binary	State value
	0	0000000000000000	State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.
	1	0000000000000001	The lowest non-zero bit is bit 0, State = 1.
	2	0000000000000010	The lowest non-zero bit is bit 1, State = 2.
	3	0000000000000011	The lowest non-zero bit is bit 0, State = 1.
	4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.
	7	0000000000000111	The lowest non-zero bit is bit 0, State = 1.
	8	0000000000001000	The lowest non-zero bit is bit 3, State = 4.
	16	0000000000010000	The lowest non-zero bit is bit 4, State = 5.
	32	0000000000100000	The lowest non-zero bit is bit 5, State = 6.
	64	0000000001000000	The lowest non-zero bit is bit 6, State = 7.
	128	0000000010000000	The lowest non-zero bit is bit 7, State = 8.
	256	0000000100000000	The lowest non-zero bit is bit 8, State = 9.
	512	0000001000000000	The lowest non-zero bit is bit 9, State = 10.
	1024	0000010000000000	The lowest non-zero bit is bit 10, State = 11.
	2048	0000100000000000	The lowest non-zero bit is bit 11, State = 12.
4096	0001000000000000	The lowest non-zero bit is bit 12, State = 13.	
8192	0010000000000000	The lowest non-zero bit is bit 13, State = 14.	
16384	0100000000000000	The lowest non-zero bit is bit 14, State = 15.	
32768	1000000000000000	The lowest non-zero bit is bit 15, State = 16.	

When you double-click the Animated Graphic, the property page is shown as follows.

12

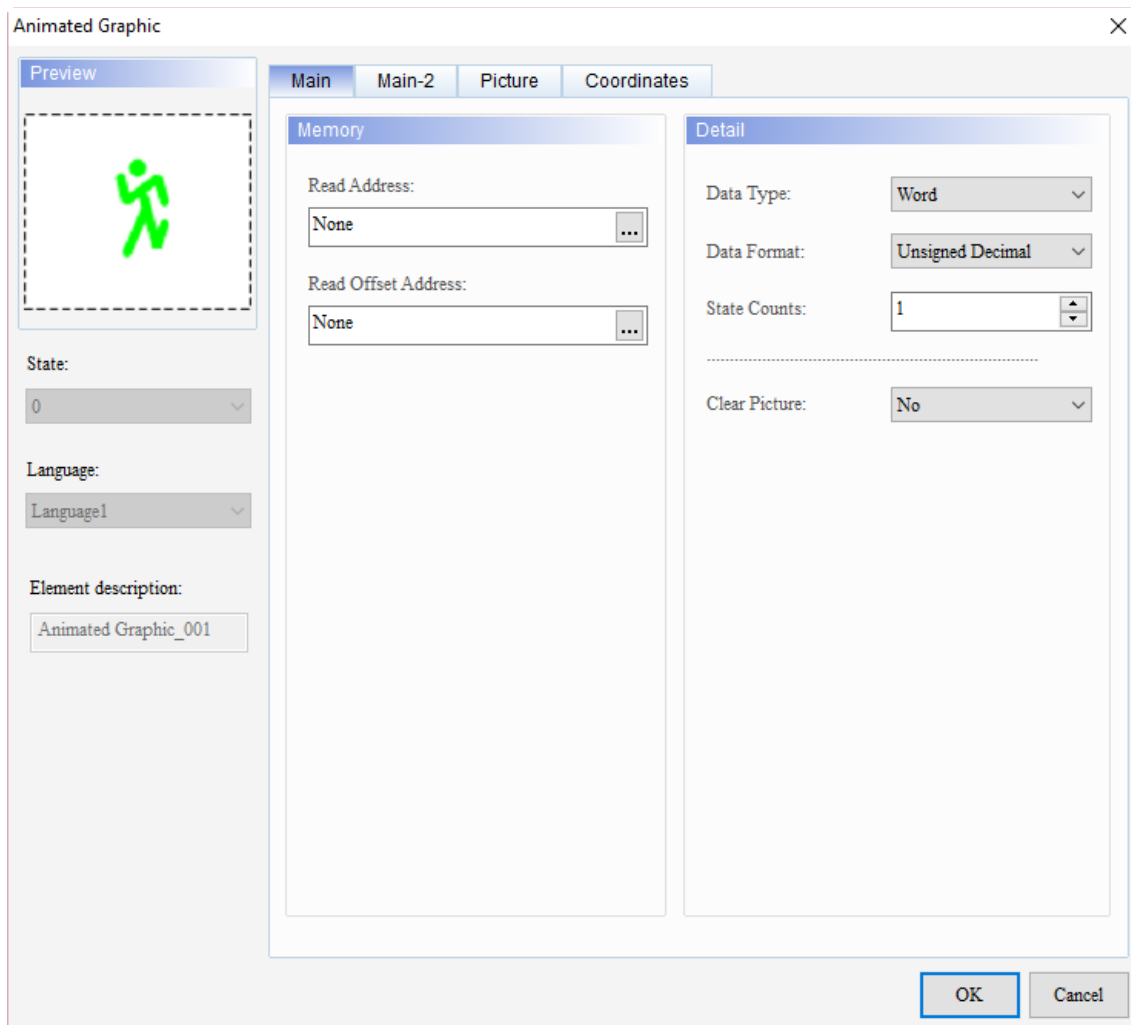


Figure 12.2.1 Properties of Animated Graphic

Figure 12.2.3 Function page of Animated Graphic

Animated Graphic	
Function page	Description
Preview	Animated Graphic elements support viewing the multiple state values but do not support the multi-language data display.
Main	Set the Read Address, Read Offset Address, Data Type, Data Format, State Counts, and Clear Picture.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

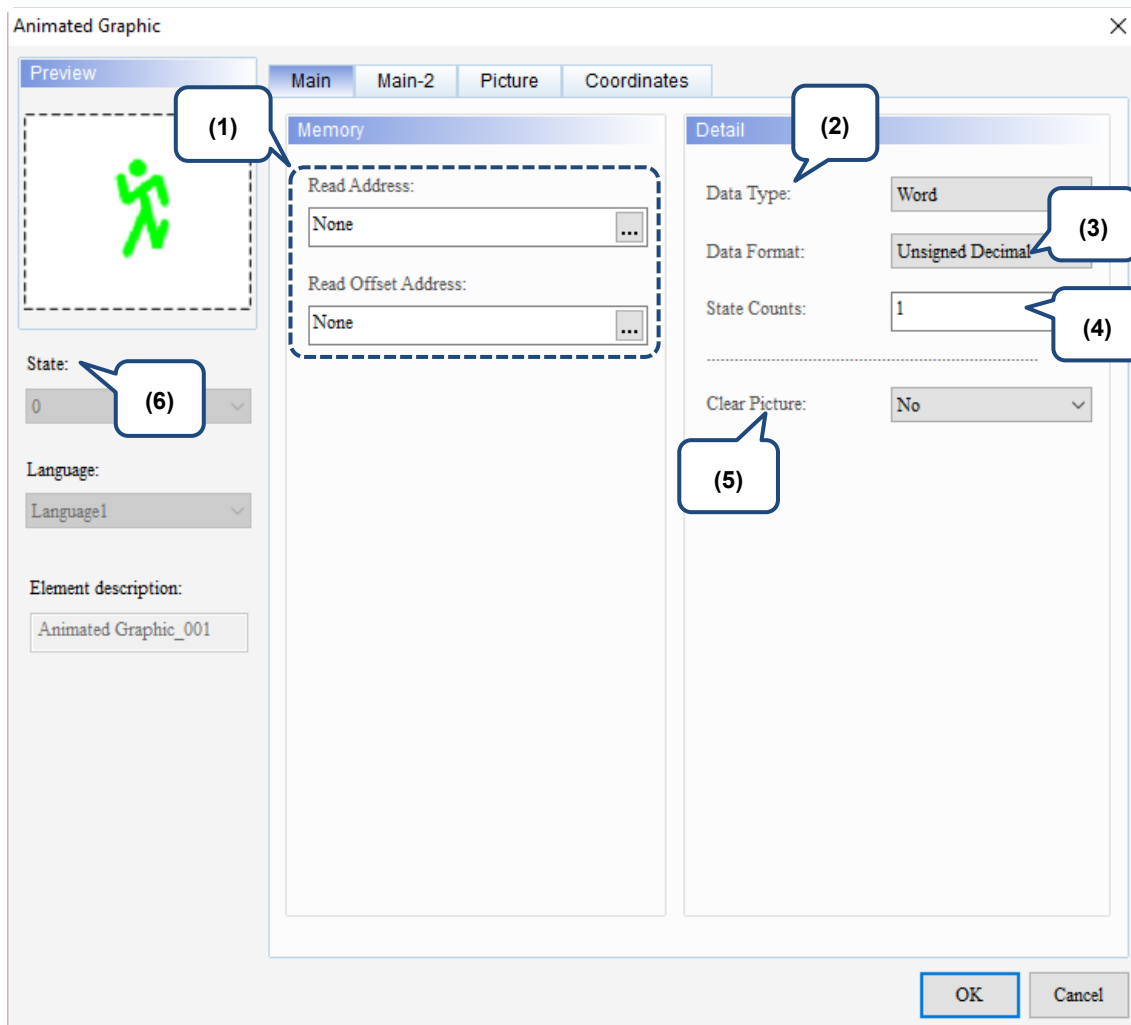
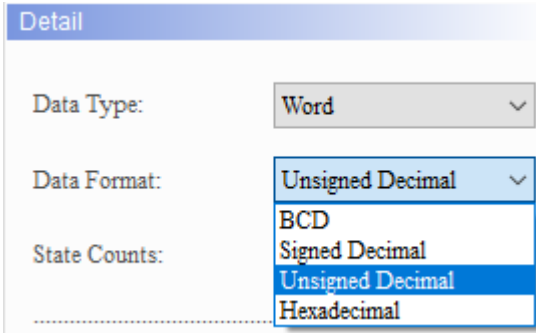
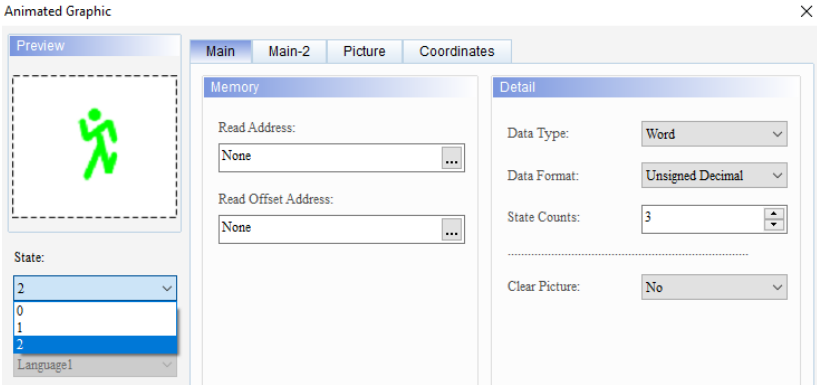


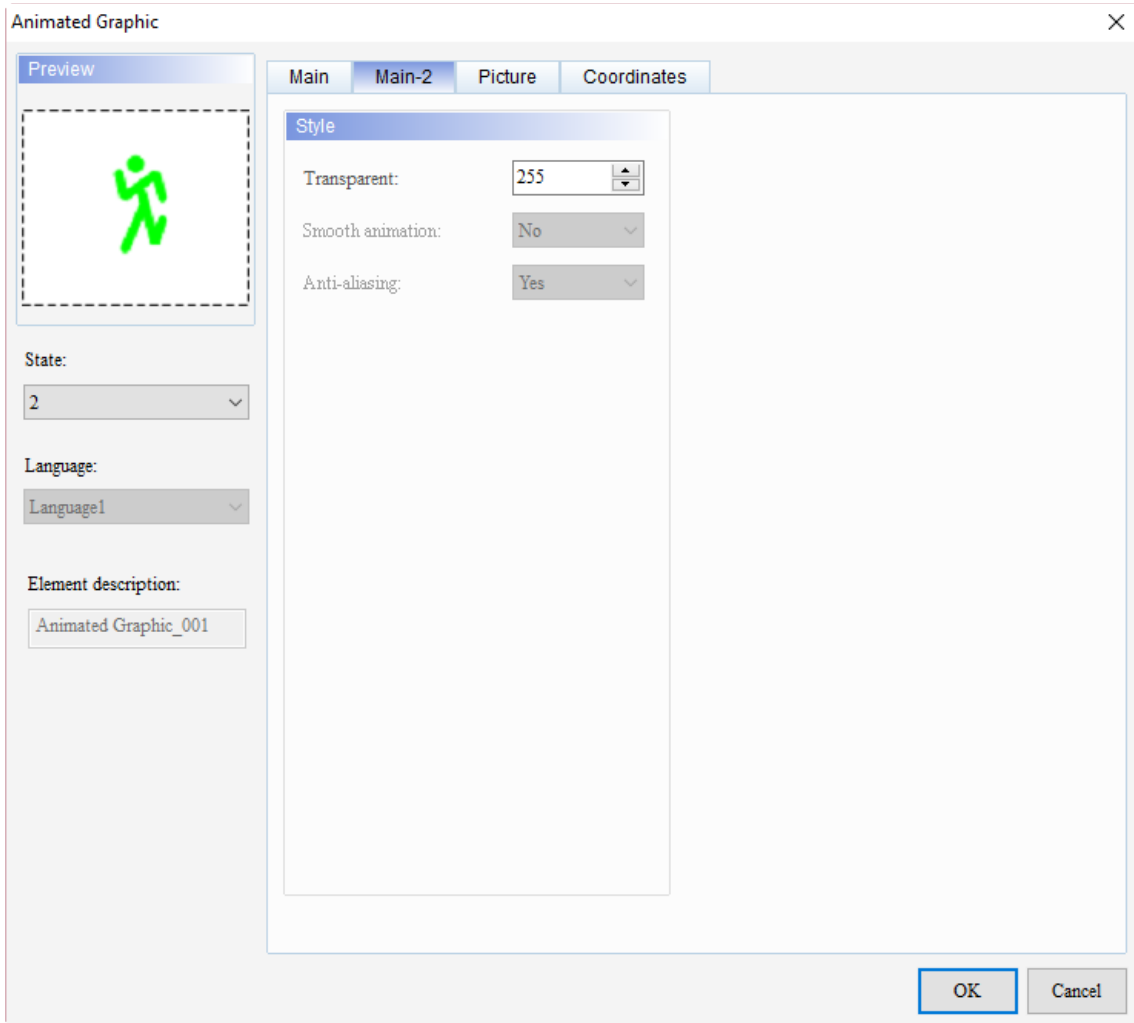
Figure 12.2.2 Main property page for the Animated Graphic element

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. The Animated Graphic switches according to the value of the Read Address. [Read Address+1] is the position where the horizontal axis (X) of the Animated Graphic element moves. [Read Address+2] is the position where the vertical axis (Y) of the Animated Graphic element moves. Select Link Name or Device type. Refer to Chapter 5 Buttons for details.
	Read Offset Address	Refer to the instructions in Appendix D Write and Read Offset Addresses.
(2)	Data Type	There are three data types: Word, LSB, and LSB (Support State 0). Refer to Table 12.2.2 for details.

12

No.	Property	Function description
(3)	Data Format	<ul style="list-style-type: none"> You can select the Data Format only when the Data Type is Word. There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal. 
(4)	State Counts	<p>Set the total state count for the Animated Graphic element. If the Data Type is Word, you can set 1 - 256 states; if the Data Type is LSB, you can set 16 states; and if the Data Type is LSB (Support State 0), you can set 17 states. Refer to Table 12.2.2 for details.</p>
(5)	Clear Picture	<ul style="list-style-type: none"> The default setting is Yes, indicating that the HMI clears the graphic of the previous state during animation and when switching the state graphics. When you select No for Clear Picture, the HMI displays the graphic of the previous state when switching to the next graphic.
(6)	State	<p>By switching the State, you can preview or change the settings for each state of the element.</p> 

■ Main-2



12

Figure 12.2.3 Main-2 property page for the Animated Graphic element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

12

■ Picture

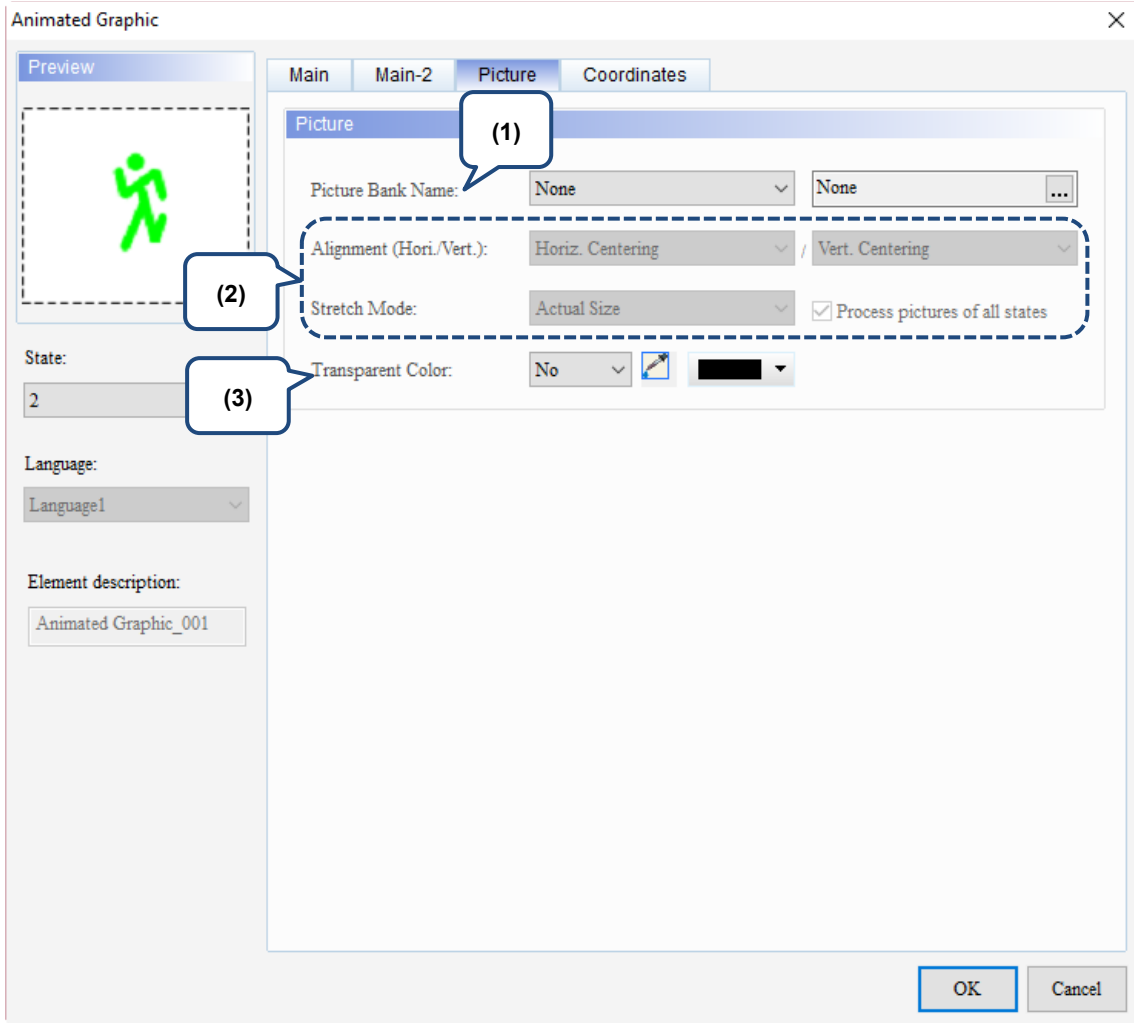
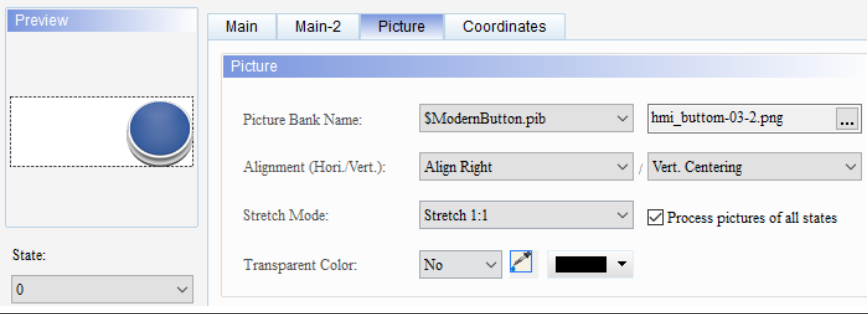















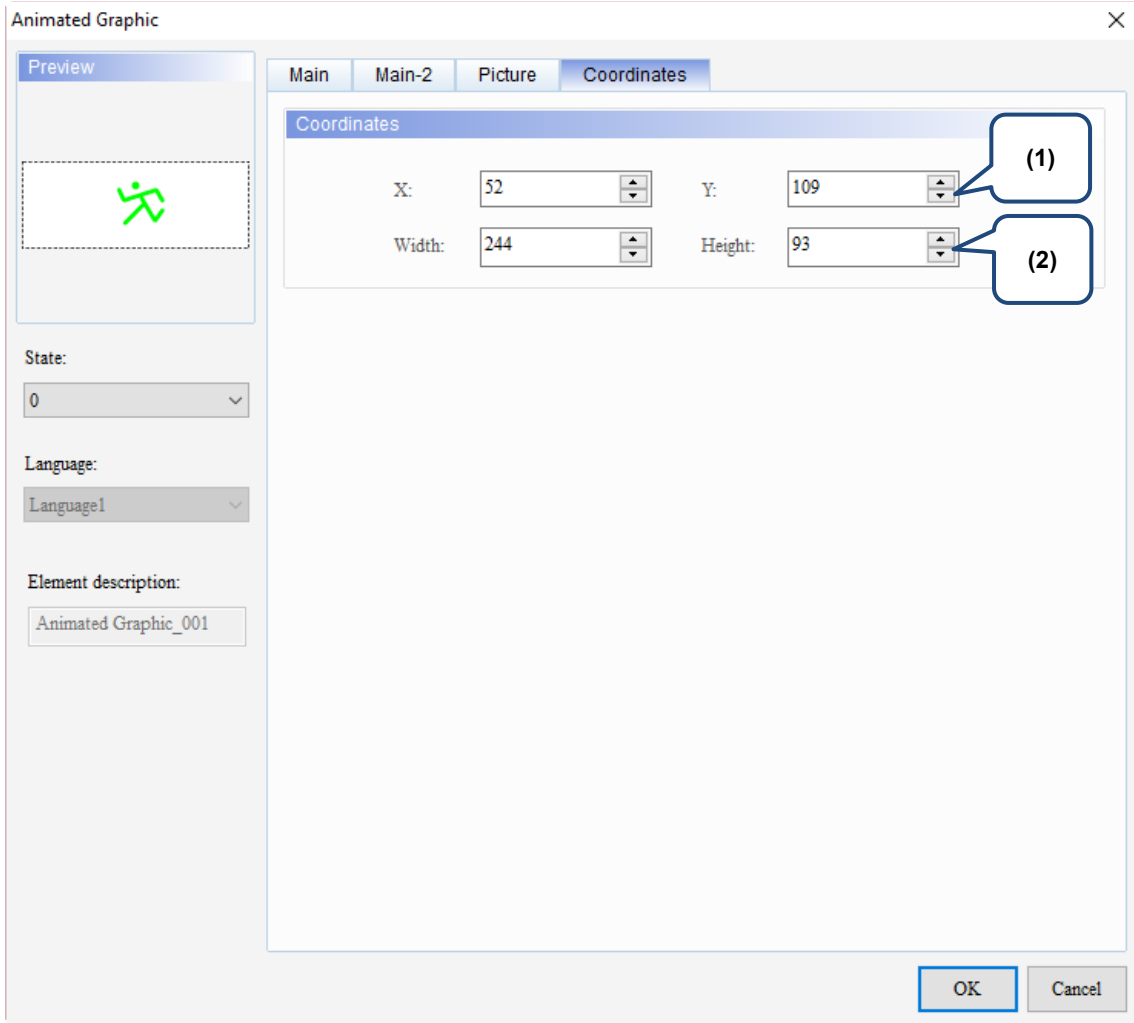
Figure 12.2.4 Picture property page for the Animated Graphic element

No.	Property	Function description
(1)	Picture Bank Name	<p>The Picture Bank Name default is None. To set the picture display, use the drop-down list box to select the picture bank provided by the software and then select the picture you need.</p>  <p>The 'Picture' dialog box contains the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: None (dropdown menu) Alignment (Hori./Vert.): Vert. Centering (dropdown menu) Stretch Mode: (empty) Transparent Color: (empty) <p>The 'Select Picture' dialog box displays a grid of 9 button images with the following filenames and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

12

No.	Property	Function description									
	Alignment	<p>You can use the alignment options to set how pictures are aligned.</p> <p>Animated Graphic</p> 									
(2)	Stretch Mode	<ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> Assuming that the element has multiple states and some pictures do not fill the full element display area, if you select the Process pictures of all states check box, you can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.			
Stretch All	Stretch 1:1	Actual Size									
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.									
											
(3)	Transparent Color	<ul style="list-style-type: none"> Specifies a color in the picture and turn this color into transparent.  is for selecting the transparent color. When you set the Foreground Color to blue, you can use  to select the white part in the calendar, and the software changes the white part into transparent, which you can see becomes identical to the element foreground color. <p>Foreground Color: </p> 									

■ Coordinates



12

Figure 12.2.5 Coordinates property page for the Animated Graphic element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

12

12.3 Real-time Image

The Real-time Image is mainly for you to use the `ImgTrans.dll` library provided by DOPSoft to write external applications and upload graphics to the HMI. Multiple Real-time Image elements can be displayed in one editing screen. The software dynamically configures the available memory capacity according to the created Real-time Image elements and the sizes of the graphics to upload. Refer to Table 12.3.1 for the Real-time Image example.

1. Data structure definition:

```
typedef struct _ETHER_INFO
```

```
{
    char    szIP[32];
           WORD  IPPort;
} ETHER_INFO;
```

,szIP is a string indicating the IP address of the Ethernet communication

,IPPort is the port of the Ethernet communication

```
typedef struct _COMM_INFO
```

```
{
    char    szCOM[10];
    unsigned long  dwStation
    ETHER_INFO  EtherInfo;
} COMM_INFO;
```

,szCOM is a string, and the input values are COM1, COM2, COM3, ...; if you are using Ethernet, set this string to "ETHERNET".

,If there is no station number, set dwStation to -1 (if using Ethernet, set dwStation to -1);

if there is a station number, set dwStation to a function which is greater than 0.

2. Function list:

- (1) `int hmOpen(const COMM_INFO* pCommInfo);`
- (2) `int hmSendImageFromFile(LPCTSTR szFileName);`
- (3) `int hmSendImageFromFileByStation(LPCTSTR szFileName, int nStation);`
- (4) `HANDLE hmAsyncSendImageFromFile(LPCTSTR szFileName);`
- (5) `HANDLE hmAsyncSendImageFromFileByStation(LPCTSTR szFileName, int nStation);`
- (6) `int hmSendImage(HBITMAP hbmp);`
- (7) `int hmSendImageByStation(HBITMAP hbmp, int nStation);`
- (8) `HANDLE hmAsyncSendImage(HBITMAP hbmp);`
- (9) `HANDLE hmAsyncSendImageByStation(HBITMAP hbmp, int nStation);`
- (10) `int hmAbortAction();`
- (11) `int hmClose();`

3. Function description:

(1) Function: `int hmOpen(const COMM_INFO* pCommInfo);`

Input value: `COMM_INFO` structure

Return value: 1 is success; 0 is failure

Description: enable the HMI communication and input the string for COM Port, such as COM1 and COM2.

(2) Function: `int hmSendImageFromFile(LPCTSTR szFileName);`

Input value: graphic file name

Return value: 1 is success; 0 is failure

Description: after the input graphic format is converted to the width/height and bits of the element on the HMI, the graphic data starts to be transferred to the HMI. This function is a synchronous function, and this function does not return the execution result until the data transfer is complete.

(3) Function: `int hmSendImageFromFileByStation(LPCTSTR szFileName, int nStation);`

Input value: graphic file name; HMI station number (must be greater than 0)

Return value: 1 is success; 0 is failure

Description: after the input graphic format is converted to the width/height and bits of the element on the HMI, the graphic data starts to be transferred to the HMI with the specified station number. This function is a synchronous function, and this function does not return the execution result until the data transfer is complete.

(4) Function: `HANDLE hmAsyncSendImageFromFile(LPCTSTR szFileName);`

Input value: graphic file name

Return value: 0 is failure; non-zero value is the Thread Handle

Description: after the input graphic format is converted to the width/height and bits of the element on the HMI, the graphic data is transferred to the HMI. This function is an asynchronous function, and you can use the Thread Handle that is currently transferring the graphic data to perform related operations.

(5) Function: `HANDLE hmAsyncSendImageFromFileByStation(LPCTSTR szFileName, int nStation);`

Input value: graphic file name; HMI station number (must be greater than 0)

Return value: 0 is failure; non-zero value is the Thread Handle

Description: after the input graphic format is converted to the width/height and bits of the element on the HMI, the graphic data starts to be transferred to the HMI with the specified station number. This function is an asynchronous function, and you can use the Thread Handle that is currently transferring the graphic data to perform related operations.

12

(6) Function: `int hmSendImage(HBITMAP hbmp);`

Input value: Windows HBITMAP Handle

Return value: 1 is success; 0 is failure

Description: after the input graphic format is converted to the width/height and bits of the element on the HMI, the graphic data starts to be transferred to the HMI. This function is a synchronous function, and this function does not return the execution result until the data transfer is complete.

(7) Function: `int hmSendImageByStation(HBITMAP hbmp, int nStation);`

Input value: Windows HBITMAP Handle; HMI station number (must be greater than 0)

Return value: 1 is success; 0 is failure

Description: after the input graphic format is converted to the width/height and bits of the element on the HMI, the graphic data starts to be transferred to the HMI with the specified station number. This function is a synchronous function, and this function does not return the execution result until the data transfer is complete.

(8) Function: `HANDLE hmAsyncSendImage(HBITMAP hbmp);`

Input value: Windows HBITMAP Handle

Return value: 0 is failure; non-zero value is the Thread Handle

Description: after the input graphic format is converted to the width/height and bits of the element on the HMI, the graphic data starts to be transferred to the HMI. This function is an asynchronous function, and you can use the Thread Handle that is currently transferring the graphic data to perform related operations.

(9) Function: `HANDLE hmAsyncSendImageByStation(HBITMAP hbmp, int nStation);`

Input value: Windows HBITMAP Handle; HMI station number (must be greater than 0)

Return value: 0 is failure; non-zero value is the Thread Handle

Description: after the input graphic format is converted to the width/height and bits of the element on the HMI, the graphic data starts to be transferred to the HMI with the specified station number. This function is an asynchronous function, and you can use the Thread Handle that is currently transferring the graphic data to perform related operations.

(10) Function: `int hmAbortAction();`

Input value: none

Return value: 0 is failure; 1 is success

Description: abort the graphics transfer of the asynchronous function.

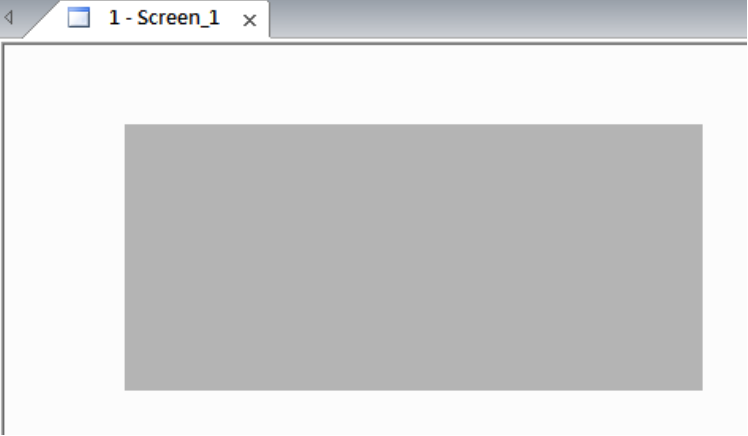
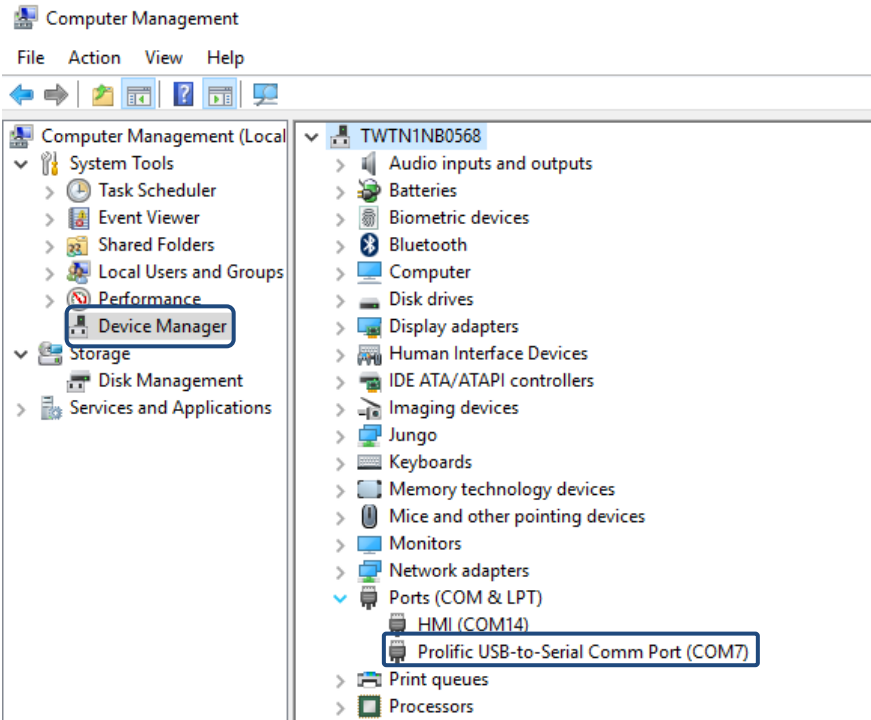
(11) Function: `int hmClose();`

Input value: none

Return value: 0 is failure; 1 is success

Description: disable the HMI communication. This function is automatically called when `ImgTrans.dll` ends.

Table 12.3.1 Real-time Image example

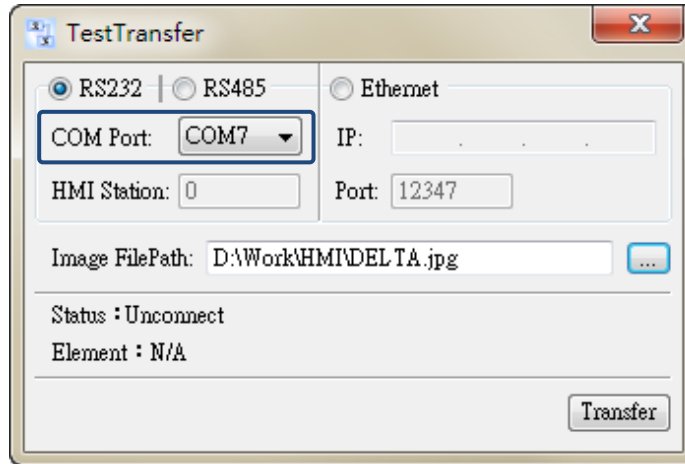
Real-time Image							
Create Real-time Image element	<p>Create a Real-time Image element on the HMI editing screen.</p> 						
Detail settings	<p>This is a communication port that connects the HMI to the PC, which is set to COM2 and transmits with the RS232 communication interface.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>HMI Station</th> <th>Interface</th> <th>COM Port</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">RS232</td> <td style="text-align: center;">COM2</td> </tr> </tbody> </table>	HMI Station	Interface	COM Port	1	RS232	COM2
HMI Station	Interface	COM Port					
1	RS232	COM2					
Compile the screen	<p>After creating a Real-time Image element and setting its communication interface and port, compile and download the screen data to the HMI.</p>						
Execute TestTransfer.exe	<ul style="list-style-type: none"> ■ Use a 9-pin transmission line and a null modem (crossover cable) to connect the PC to the HMI. ■ Click [Control Panel] > [Administrative Tools] > [Computer Management] > [Device Manager] > [Ports] to view the connection port of the PC, as shown in the following figure. 						

12

Real-time Image

Execute
TestTransfer.exe

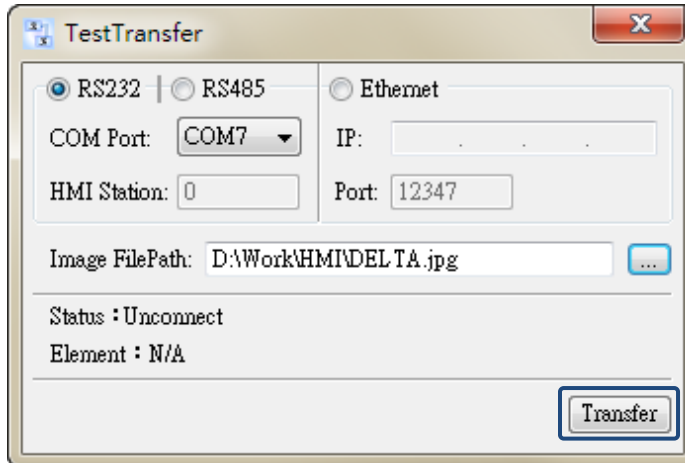
- Open [This PC], go to the following path [C:\Program Files\Delta Industrial Automation\DopSoft 4.00.11.xx\Utility\ImgTrans], and select [TestTransfer.exe]. Open this tool, set the COM port to COM7, and select the image file to upload. In this example, the image file DELTA.jpg located in D:\ is selected. See the following figure.



- The following figure is the selected DELTA.jpg file image.



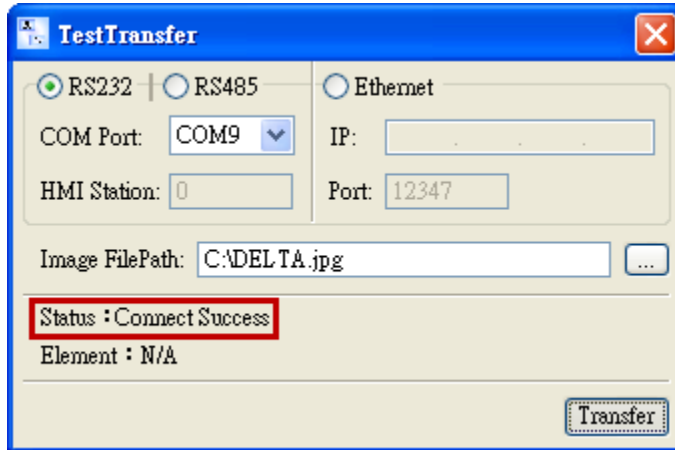
- After you select the image file to upload, click **Transfer**.



Real-time Image

Execution results

- If the connection is successful, the Status displays "Connect Success".



- The Real-time Image element on the HMI displays the uploaded image.



12

When you double-click the Real-time Image element, the property page is shown as follows.

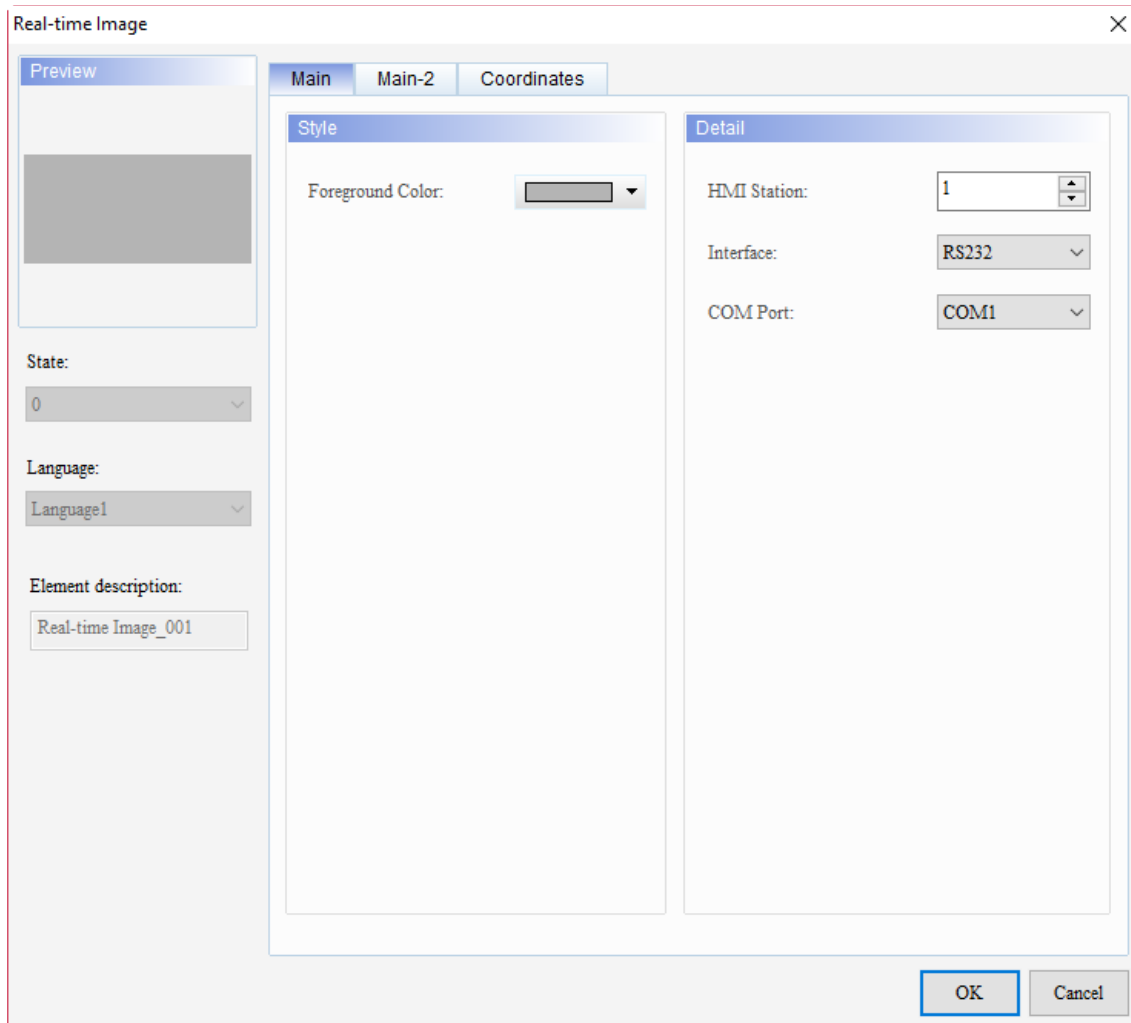
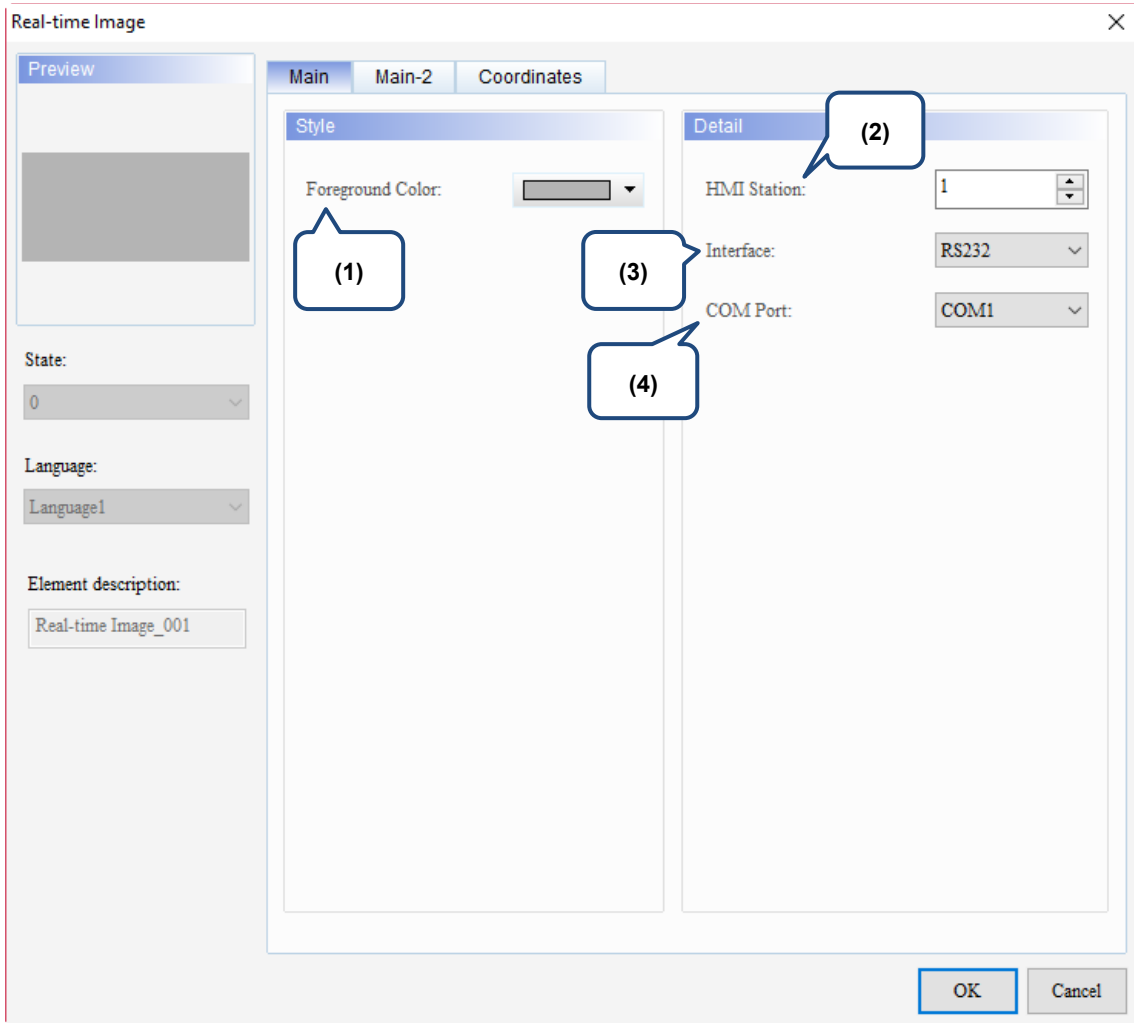


Figure 12.3.1 Properties of Real-time Image

Table 12.3.2 Function page of Real-time Image

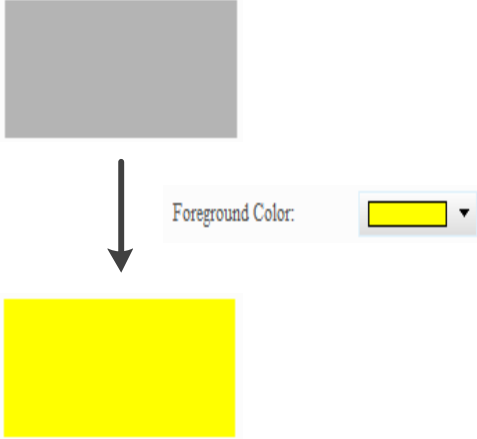
Real-time Image	
Function page	Description
Preview	The Real-time Image element does not support multiple state values and multi-language data display.
Main	Set the Foreground Color, HMI Station, Interface, and COM Port.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

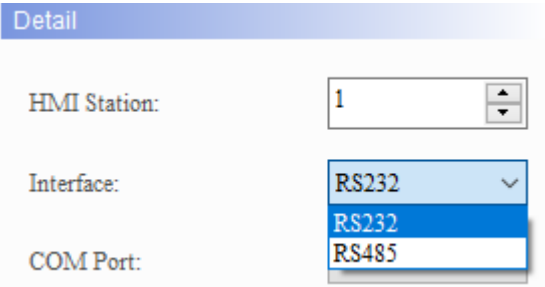
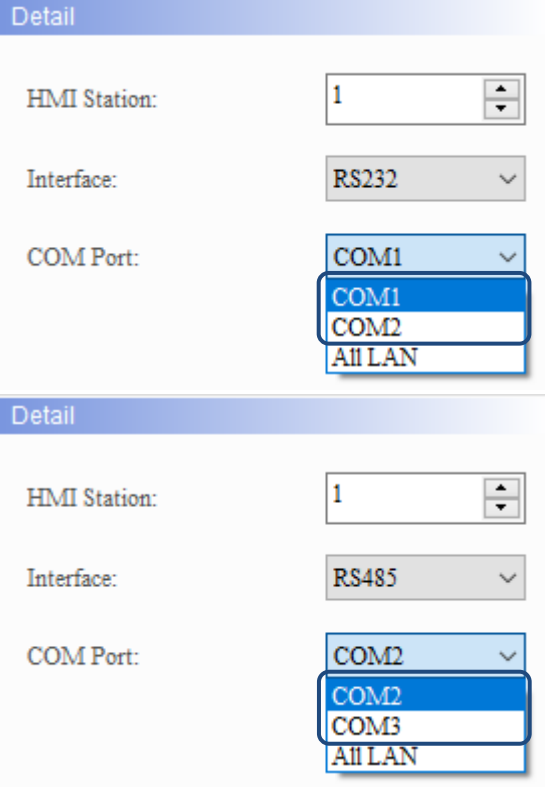
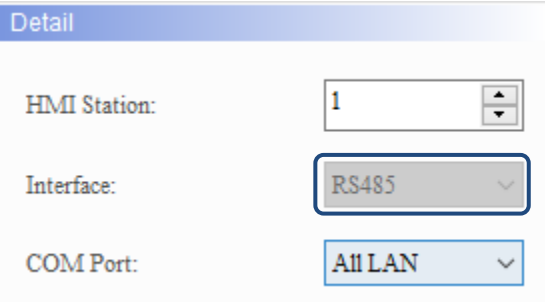


12

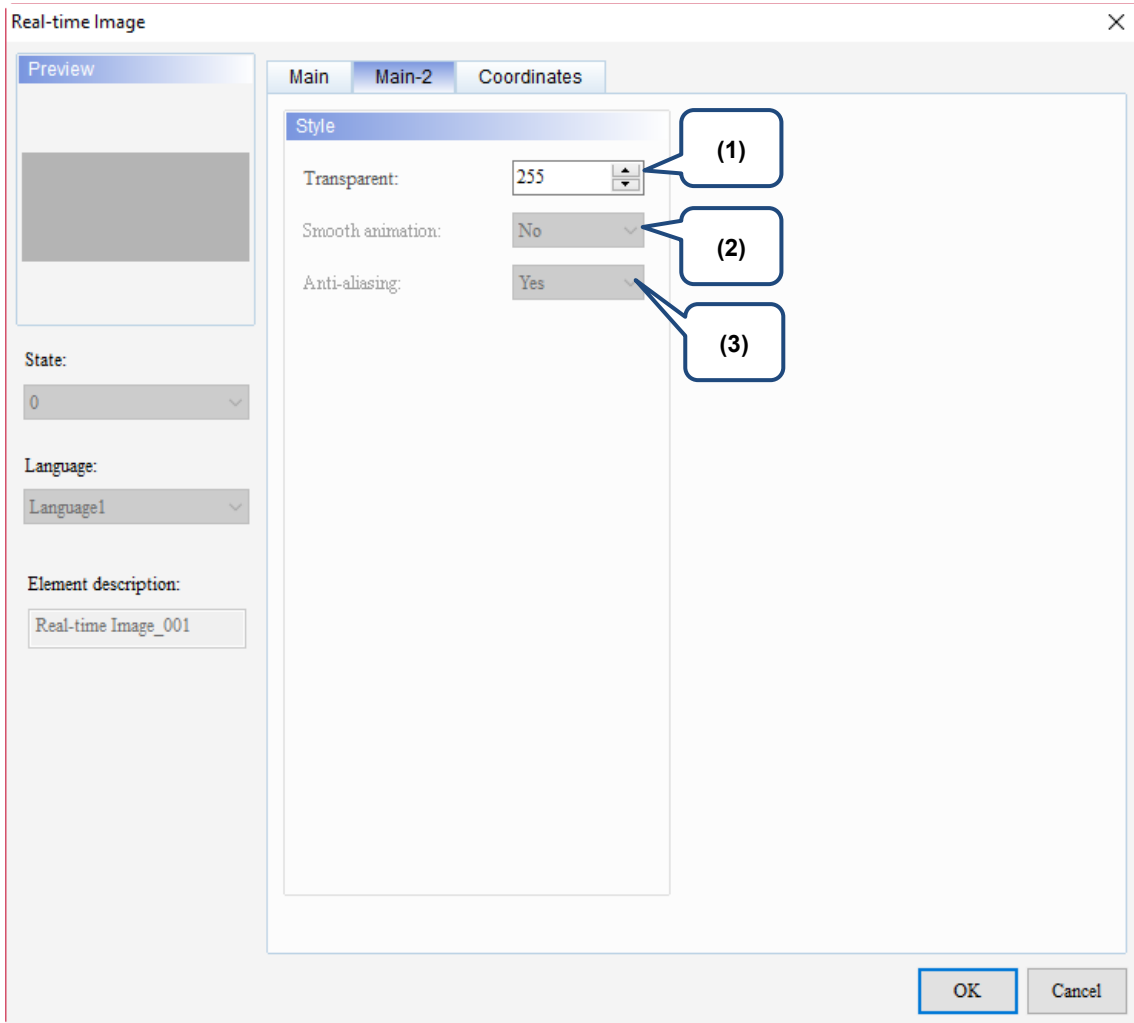
Figure 12.3.2 Main property page for the Real-time Image element

No.	Property	Function description
(1)	Foreground Color	<p>Set the foreground color of the element.</p> 
(2)	HMI Station	<p>The HMI Station number option is mainly for the RS485 transmission with the setting range from 1 to 255, and the default is 1. When you use RS485 to connect multiple HMIs in series, you can use this HMI Station number to distinguish each HMI.</p>

12

No.	Property	Function description
(3)	Interface	<ul style="list-style-type: none"> The transmission modes include RS232 and RS485.  <ul style="list-style-type: none"> The RS232 communication ports are COM1 and COM2. The RS485 communication ports are COM2 and COM3.
(4)	COM Port	<ul style="list-style-type: none"> The communication ports include COM1, COM2, COM3, and All LAN (Ethernet). Different communication ports are available depending on the transmission mode.  <ul style="list-style-type: none"> Note that the COM ports refer to the communication ports on the HMI, so you cannot use the same COM port for transmission and for connecting the PLC. For example, if COM1 is selected for PLC communication, then you can only select COM2 or COM3 for transmission. If COM1 is selected for PLC communication and RS232 is selected as the transmission mode, then you can only select COM2 for transmission. If the communication port is selected as All LAN (Ethernet), the Interface option is grayed out and cannot be set. 

■ Main-2



12

Figure 12.3.3 Main-2 property page for the Real-time Image element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

12

■ Coordinates

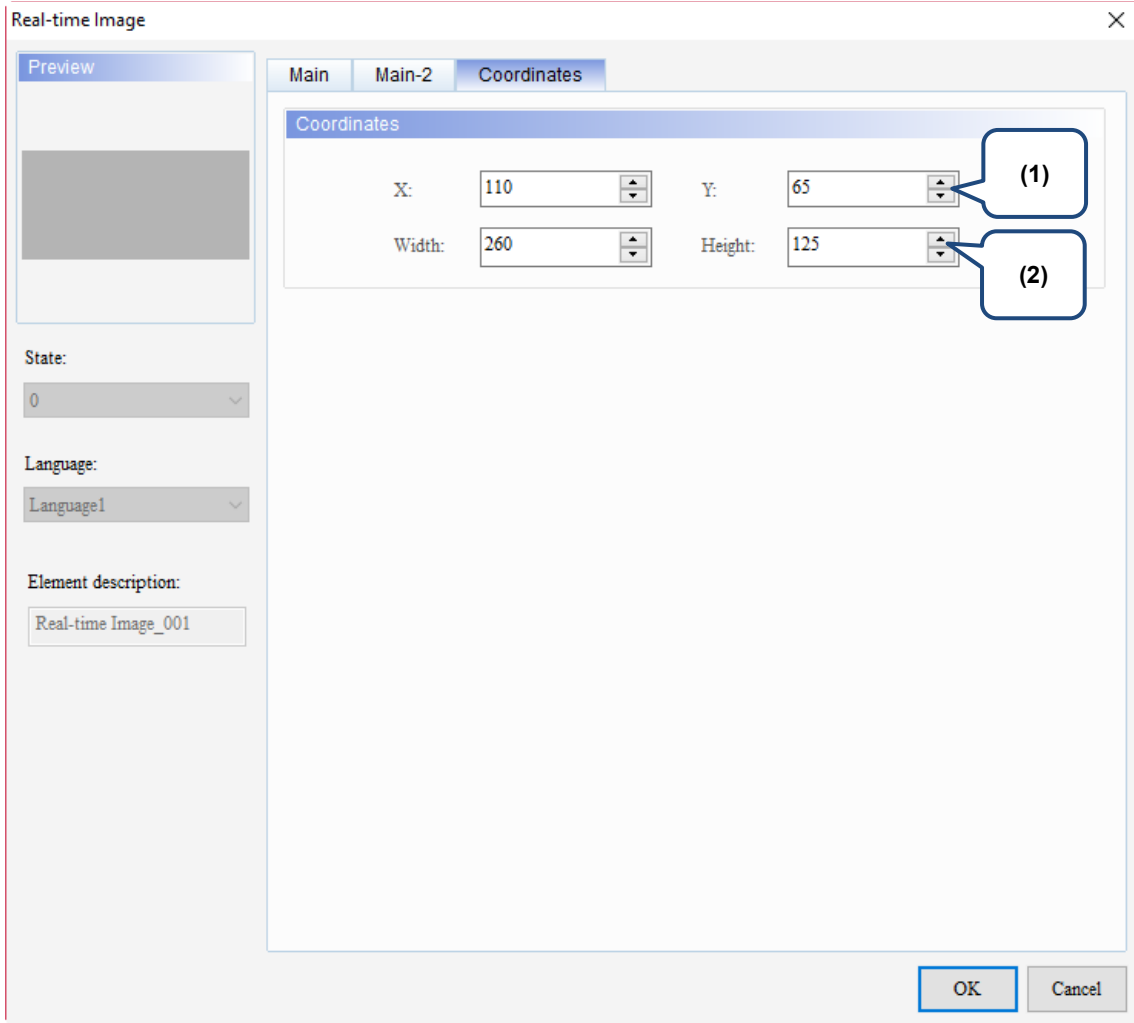


Figure 12.3.4 Coordinates property page for the Real-time Image element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

The following is the library path and function description.

Library	
Library path	C:\Program Files\Delta Industrial Automation\DopSoft 4.00.11.xx\Utility\ImgTrans
Library description	<ul style="list-style-type: none"> ■ Load ImgTrans.dll. ■ Data structure definition: <pre>typedef struct _COMM_INFO { char szCOM[8]; } COMM_INFO;</pre> ,szCOM is a string, and the input values are COM1, COM2, COM3... ■ Function examples: <ol style="list-style-type: none"> (1) int hmOpen(const COMM_INFO* pCommInfo); (2) int hmSendImageFromFile(LPCTSTR szFileName); (3) HANDLE hmAsyncSendImageFromFile(LPCTSTR szFileName); (4) int hmSendImage(HBITMAP hbmp); (5) HANDLE hmAsyncSendImage(HBITMAP hbmp); (6) int hmAbortAction(); (7) int hmClose(); ■ Function description: <ol style="list-style-type: none"> (1) Function: int hmOpen(const COMM_INFO* pCommInfo); Input value: COMM_INFO structure Return value: 1 is success; 0 is failure Description: enable the HMI communication and input the string for COM Port, such as COM1 and COM2. (2) Function: int SendImageFromFile(LPCTSTR szFileName); Input value: graphic file name Return value: 1 is success; 0 is failure Description: after the input graphic format is converted to the width/height and bits of the element on the HMI, the graphic data starts to be transferred to the HMI. This function is a synchronous function, and this function does not return the execution result until the data transfer is complete. (3) Function: HANDLE hmAsyncSendImageFromFile(LPCTSTR szFileName); Input value: graphic file name Return value: 0 is failure; non-zero value is the Thread Handle Description: after the input graphic format is converted to the width/height and bits of the element on the HMI, the graphic data starts to be transferred to the HMI. This function is an asynchronous function, and you can use the Thread Handle that is currently transferring the graphic data to perform related operations. (4) Function: int hmSendImage(HBITMAP hbmp); Input value: Windows HBITMAP Handle Return value: 1 is success; 0 is failure Description: after the input graphic format is converted to the width/height and bits of the element on the HMI, the graphic data starts to be transferred to the HMI. This function is a synchronous function, and this function does not return the execution result until the data transfer is complete. (5) Function: HANDLE hmAsyncSendImage(HBITMAP hbmp); Input value: Windows HBITMAP Handle Return value: 0 is failure; non-zero value is the Thread Handle Description: after the input graphic format is converted to the width/height and bits of the element on the HMI, the graphic data starts to be transferred to the HMI. This function is an asynchronous function, and you can use the Thread Handle that is currently transferring the graphic data to perform related operations.

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12

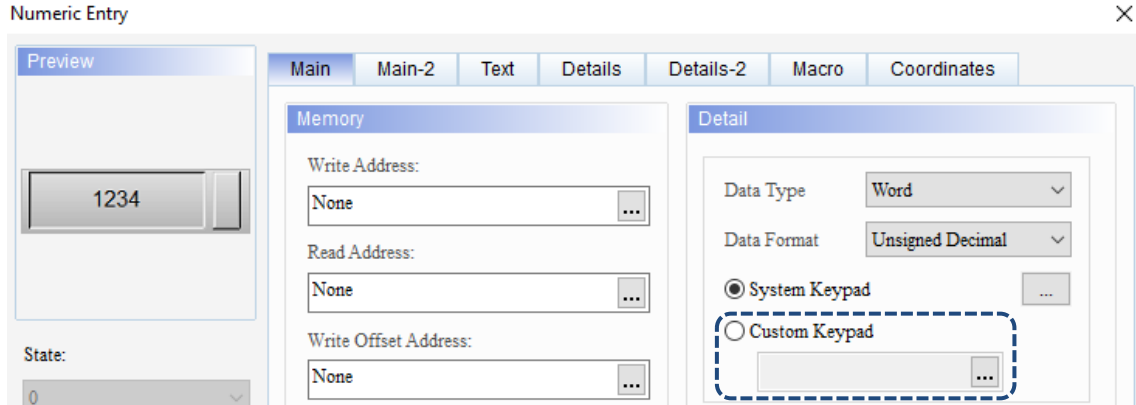
This chapter provides the usage and setting details for the Input elements.

13.1	Numeric Entry	13-2
13.2	Character Entry	13-33
13.3	Barcode Input	13-56
13.4	Multi-language Input	13-72
13.5	Multi-line text input	13-88

13

13.1 Numeric Entry

With the keypad provided by the Numeric Entry element, you can input a value to the set Write Address. Next, you can read the value with the Read Address of the Numeric Display element, and then the value is displayed on the HMI.



Note: the Custom Keypad provided for the Numeric Entry, Character Entry, and Barcode Input elements does not support DOP-B, DOP-H, and HMC series HMIs.

Refer to Table 13.1.1 for the Numeric Entry example.

Table 13.1.1 Numeric Entry example

Numeric Entry				
Address settings	Numeric Entry element		Numeric Display element	
	Write Address	\$555	Read Address	\$555
Detail settings	Numeric Entry element			
	Data Type	Data Format	Integer Digits	Fractional (Digits)
	Word	Unsigned Decimal	4	0
Execution results	After creating the elements, compile and download the elements to the HMI. Next, input 100 with the Numeric Entry element, and then the Numeric Display element will display the input value. Input a value of 100 and the value is written to the specified address (\$555)			
	Numeric Entry		Numeric Display	

Numeric Entry supports three data types: Word, Double Word, and Quad Word. The allowable range of the Numeric Entry value is as shown in Table 13.1.2.

Table 13.1.2 Numeric Entry allowable range

13

Numeric Entry		
	Data Format	Allowable range
Word	BCD	0 to 9999
	Signed BCD	-999 to +9999
	Signed Decimal	-32768 to +32767
	Unsigned Decimal	0 to 65535
	Hex	0 to 0xFFFF
	Binary	0 to 0xFFFF
Double Word	Data Format	Allowable range
	BCD	0 to 99999999
	Signed BCD	-99999999 to +99999999
	Signed Decimal	-2147483648 to +2147483647
	Unsigned Decimal	0 to 4294967295
	Hex	0 to 0xFFFFFFFF
	Binary	0 to 0xFFFFFFFF
	Floating	0 to 9999999
Quad Word	Data Format	Allowable range
	BCD	0 to 9999999999999999
	Signed BCD	-9999999999999999 to +9999999999999999
	Signed Decimal	-9223372036854775808 to +9223372036854775807
	Unsigned Decimal	0 to 18446744073709551615
	Hex	0 to 0xffffffffffffff
	Binary	0 to 0xffffffffffffff
	Floating	0 to 9999999999999999

When you double-click the Numeric Entry, the property page is shown as follows.

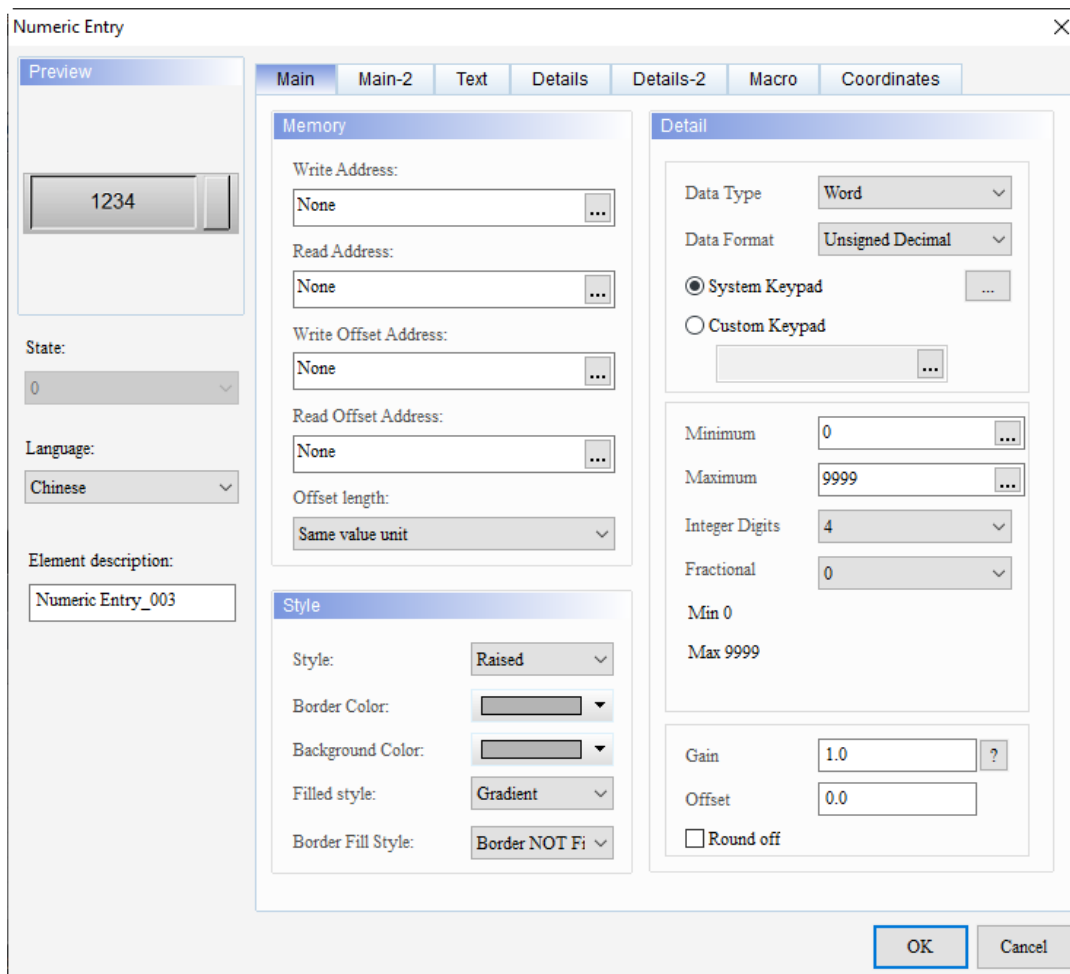


Figure 13.1.1 Properties of Numeric Entry

Table 13.1.3 Function page of Numeric Entry

Numeric Entry	
Function page	Description
Preview	Numeric Entry elements do not support multiple state values and multi-language data display.
Main	Set the Read Address, Write Address, Read Offset Address, and Write Offset Address. Set the Style, Background Color, Border Color, Filled style, and Border Fill Style. Set the Data Type, Data Format, Integer Digits, Fractional (Digits), Min, Max, Gain, and Offset.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text font, size, color, and alignment options.
Details	Set the Input Mode, Interlock State, Interlock Display, Interlock Address, Trigger Mode, Trigger Addr., Invisible Address, Prefix Zero, Show overrange message, User Security Level, Set Low Security, Mark as Asterisk (*), Show ##### when overrange, and Word arrangement.
Details-2	Set the Type, Unit and Address for the Source and Display, Custom formula, and Percentage.
Macro	Set the Before Execute Macro and After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

13

■ Main

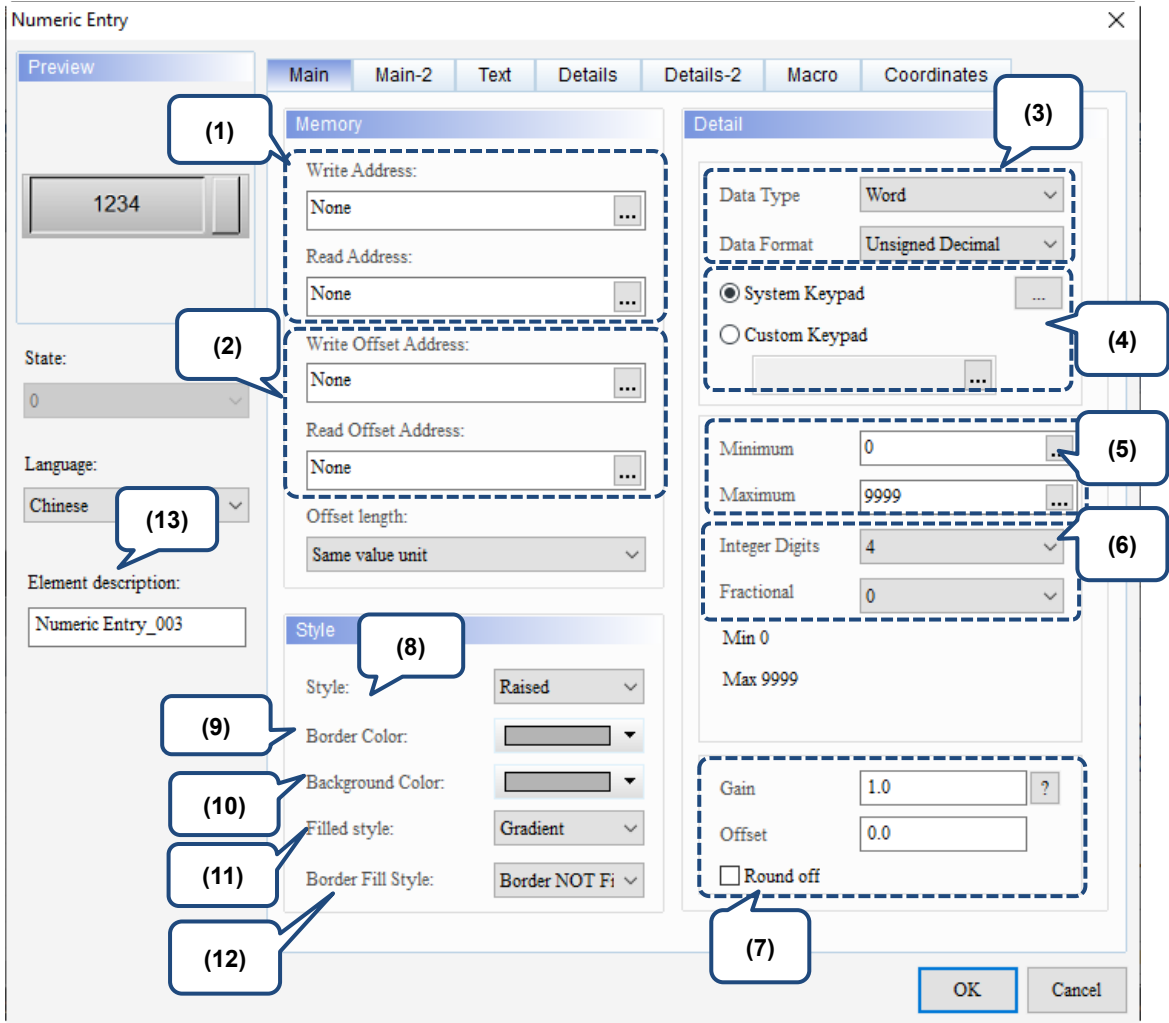
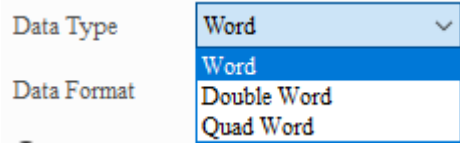
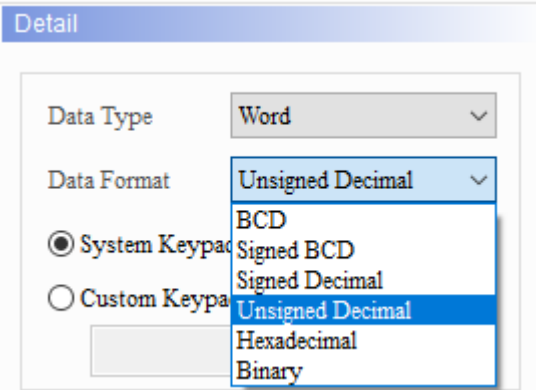
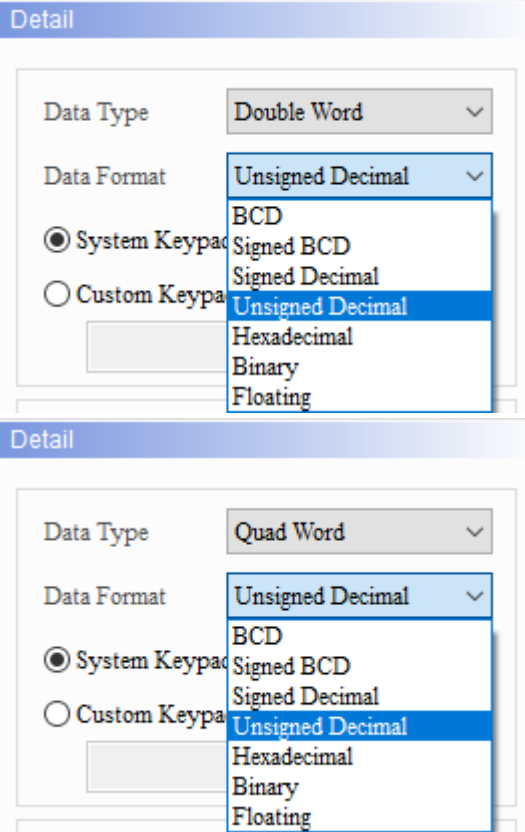
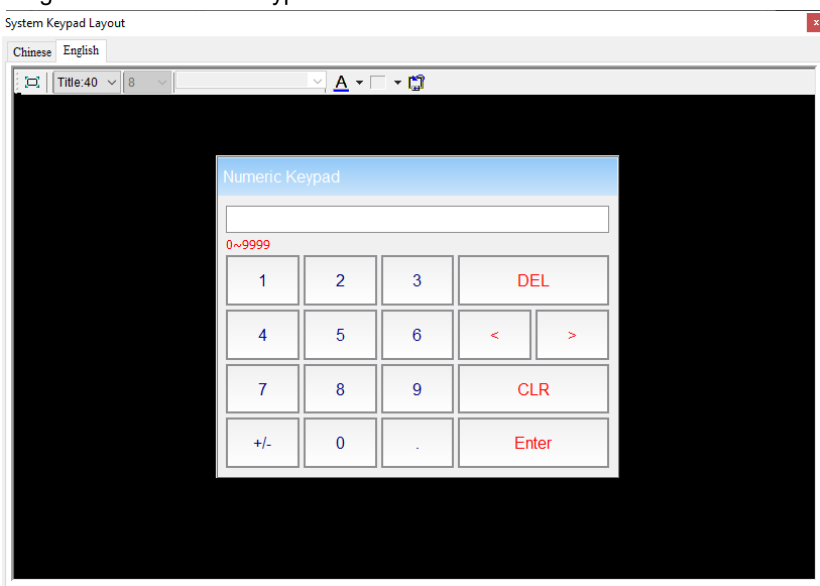









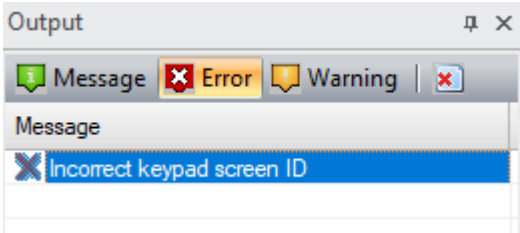
Figure 13.1.2 Main property page for the Numeric Entry element

No.	Property	Function description
(1)	Write Address	<ul style="list-style-type: none"> ■ You can select the internal memory or the controller register address. ■ Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Address	
(2)	Write Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
	Read Offset Address	


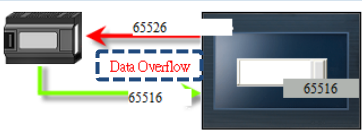
No.	Property	Function description																							
(3)	Data Type	<ul style="list-style-type: none"> There are three Data Types.  If Quad Word is being used, only the internal memory and certain PLC brands are supported, as shown in the following table: <table border="1"> <thead> <tr> <th>Brand</th> <th>Model number</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Delta</td> <td>15MC</td> </tr> <tr> <td>15MC TCP</td> </tr> <tr> <td>10EMC</td> </tr> <tr> <td rowspan="2">Omron</td> <td>NJ FINS TCP</td> </tr> <tr> <td>NJ/NX FINS UDP</td> </tr> <tr> <td>Beckhoff</td> <td>TWINCAT TCP</td> </tr> <tr> <td rowspan="2">SIEMENS</td> <td>S7-1200</td> </tr> <tr> <td>S7-1500</td> </tr> </tbody> </table> The internal memory is only available for the DOP-112 and DOP-115 models. When the Data Type is Quad Word, the internal registers can be up to 200000 sets. However, the expanded internal memory is only used to set the screen elements. The internal registers used in the macro remain as 65536 sets (\$0 - \$65535). <table border="1"> <thead> <tr> <th>Access type</th> <th>Device type</th> <th>Storage range</th> </tr> </thead> <tbody> <tr> <td>Word</td> <td>\$n</td> <td>\$0 - \$199999</td> </tr> <tr> <td>Bit</td> <td>\$n.b</td> <td>\$0.0 - \$199999.15</td> </tr> </tbody> </table> <p>Note: n = Word (0 - 199999); b = Bit (0 - 15).</p> 	Brand	Model number	Delta	15MC	15MC TCP	10EMC	Omron	NJ FINS TCP	NJ/NX FINS UDP	Beckhoff	TWINCAT TCP	SIEMENS	S7-1200	S7-1500	Access type	Device type	Storage range	Word	\$n	\$0 - \$199999	Bit	\$n.b	\$0.0 - \$199999.15
	Brand	Model number																							
Delta	15MC																								
	15MC TCP																								
	10EMC																								
Omron	NJ FINS TCP																								
	NJ/NX FINS UDP																								
Beckhoff	TWINCAT TCP																								
SIEMENS	S7-1200																								
	S7-1500																								
Access type	Device type	Storage range																							
Word	\$n	\$0 - \$199999																							
Bit	\$n.b	\$0.0 - \$199999.15																							
Data Format	<ul style="list-style-type: none"> When the Data Type is Word, the supported data formats are as follows.  																								

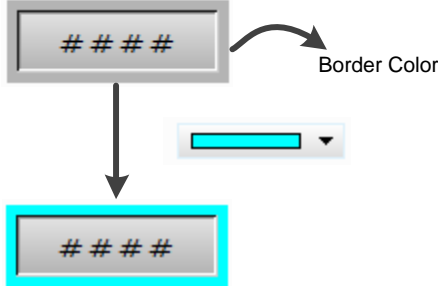
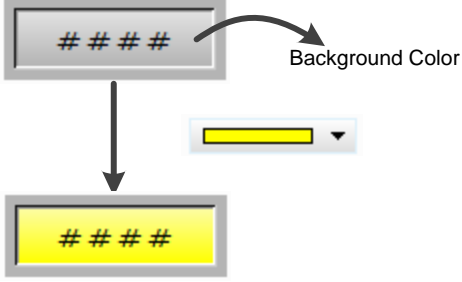






13

No.	Property	Function description
(3)	Data Format	<ul style="list-style-type: none"> When the Data Type is Double Word or Quad Word, the supported data formats are as follows.  <ul style="list-style-type: none"> When the Data Type is Double Word and the Data Format is Floating, the integer and fractional digits support only 7 digits in total. When this limit is exceeded, the software displays a warning message. When the Data Type is Quad Word and the Data Format is Floating, the integer and fractional digits support only 15 digits in total. When this limit is exceeded, the software displays a warning message.
(4)	System Keypad	<p>In the System Keypad Layout window, you can adjust the size of the keypad window, title size, font size / type / color of the numeric display, and the background color of the keypad window.</p> 

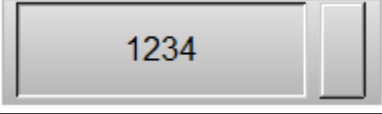
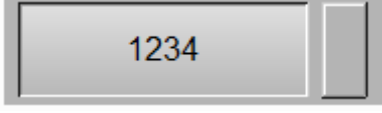
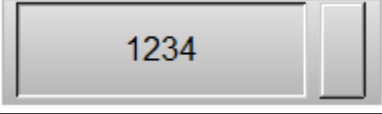
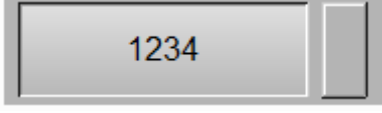
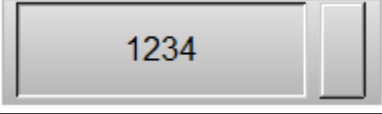
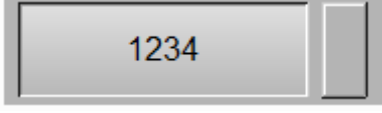
No.	Property	Function description																															
(4)	System Keypad	 Select the size of the System Keypad.																															
		 Set the title column height.																															
		 Set the font size.																															
		 Set the font type.																															
		 Set the font color.																															
		 Set the background color.																															
		 Default size.																															
	Custom Keypad	<p>You can select the Custom Keypad function only if there is a Keypad Screen in the editing screen. When there is no Keypad Screen, the following message displays when you compile.</p> 																															
(5)	Minimum / Maximum	<p>The allowable ranges for the Minimum and Maximum values are subject to change based on the selected Data Type and Data Format.</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="6">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFF</td> </tr> <tr> <td>Binary</td> <td>0 to 0xFFFF</td> </tr> <tr> <td rowspan="7">Double Word</td> <td>BCD</td> <td>0 to 99999999</td> </tr> <tr> <td>Signed BCD</td> <td>-9999999 to +9999999</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294967295</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFFFFFF</td> </tr> <tr> <td>Binary</td> <td>0 to 0xFFFFFFFF</td> </tr> <tr> <td>Floating</td> <td>0 to 9999999</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hex	0 to 0xFFFF	Binary	0 to 0xFFFF	Double Word	BCD	0 to 99999999	Signed BCD	-9999999 to +9999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294967295	Hex	0 to 0xFFFFFFFF	Binary	0 to 0xFFFFFFFF	Floating	0 to 9999999
Data Type	Data Format	Allowable range																															
Word	BCD	0 to 9999																															
	Signed BCD	-999 to +9999																															
	Signed Decimal	-32768 to +32767																															
	Unsigned Decimal	0 to 65535																															
	Hex	0 to 0xFFFF																															
	Binary	0 to 0xFFFF																															
Double Word	BCD	0 to 99999999																															
	Signed BCD	-9999999 to +9999999																															
	Signed Decimal	-2147483648 to +2147483647																															
	Unsigned Decimal	0 to 4294967295																															
	Hex	0 to 0xFFFFFFFF																															
	Binary	0 to 0xFFFFFFFF																															
	Floating	0 to 9999999																															
(6)	Integer Digits Fractional (Digits)	<ul style="list-style-type: none"> You can set the displaying number of integer digits and the number of decimal places. The number of decimal places here is not really a decimal value, but just the display format. Only when Floating is selected for the Data Format, the Fractional setting is the actual decimal. 																															
(7)	Gain and Offset	<ul style="list-style-type: none"> The formula for gain and offset is $y = (a)x + (b)$. <table border="1"> <thead> <tr> <th>y</th> <th>a</th> <th>x</th> <th>b</th> </tr> </thead> <tbody> <tr> <td>Result</td> <td>Gain value</td> <td>Input value</td> <td>Offset value</td> </tr> </tbody> </table> <ul style="list-style-type: none"> If the set Gain or Offset value is a decimal, set the Data Format to Floating. 	y	a	x	b	Result	Gain value	Input value	Offset value																							
y	a	x	b																														
Result	Gain value	Input value	Offset value																														

13

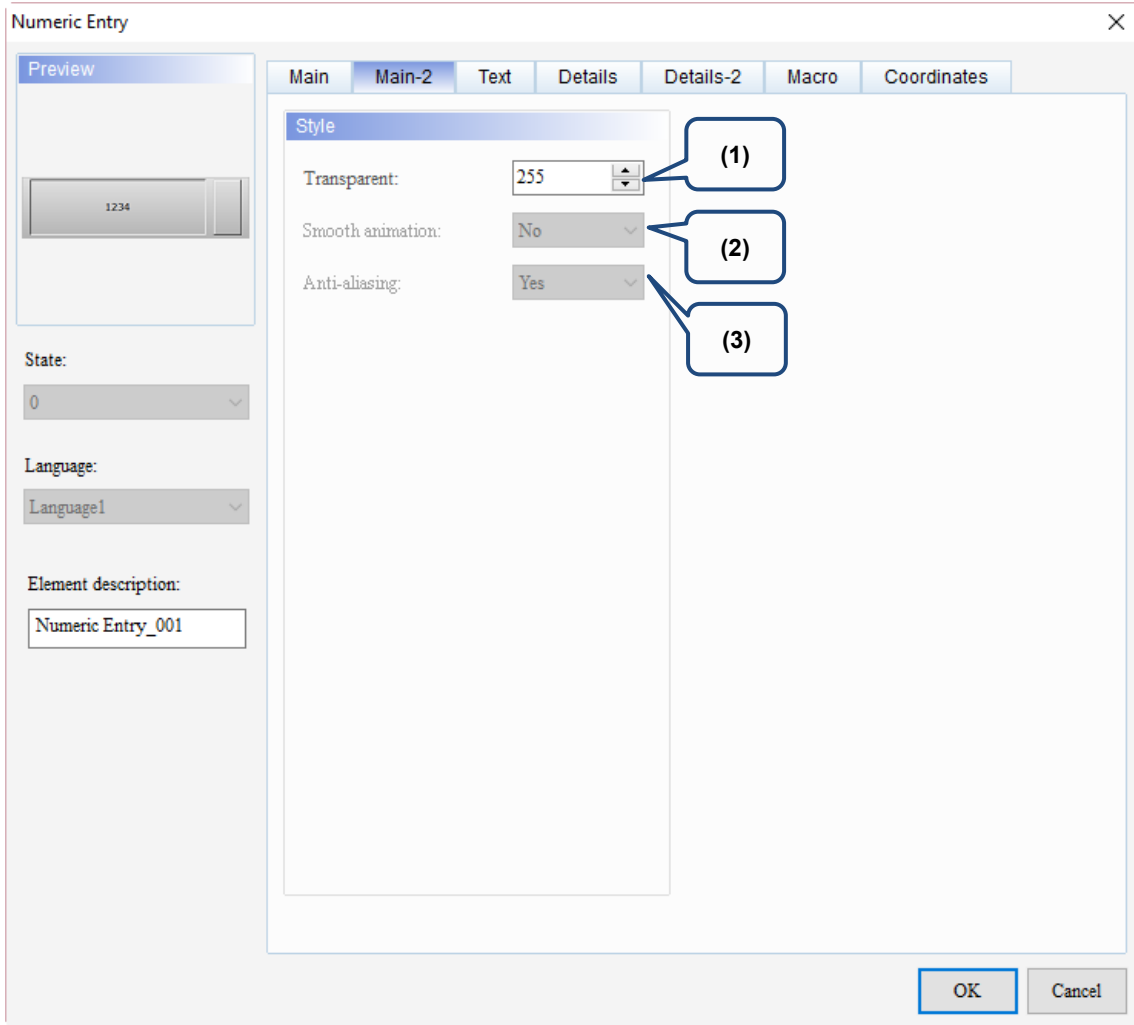
No.	Property	Function description																																								
(7)	Gain and Offset	<ul style="list-style-type: none"> The Numeric Entry element provides an estimation button to make it easier for users to understand the gain and offset calculations, which is shown as follows: <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Gain <input type="text" value="2.0"/> ?</p> <p>Offset <input type="text" value="1.0"/></p> <p><input type="checkbox"/> Round off</p> </div> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;">  <p>If the input value is 100, substitute it into the equation $(y = ax + b)$:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <th>Input</th> <th>Fractional Dig...</th> <th>Offset</th> <th>Gain</th> <th>Write Value</th> </tr> <tr> <td>(100.0)</td> <td>* 10 ^ 0</td> <td>- 1.0</td> <td>/ 2.0</td> <td>= 49</td> </tr> <tr> <th>Gain</th> <th>Offset</th> <th>Fractional Digits</th> <th>Read Value</th> <td></td> </tr> <tr> <td>(49)</td> <td>* 2.0</td> <td>+ 1.0</td> <td>/ 10 ^ 0</td> <td>= 99</td> </tr> </table> </div> If you select the Round off check box, the calculation results are rounded off before displayed on the Numeric Display element. When the Data Format is Unsigned Decimal, a message "Data Overflow" appears when you input a negative value in the Input field. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Numeric Entry</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>Preview</p> <p><input type="text" value="12345"/></p> <p>State: 0</p> <p>Language: Chinese</p> </div> <div style="width: 40%;"> <p>Main Main-2 Text Details Details-2 Macro Coordinates</p> <p>Memory</p> <p>Write Address: \$100</p> <p>Read Address: None</p> <p>Write Offset Address: None</p> <p>Read Offset Address: None</p> <p>Offset length:</p> </div> <div style="width: 25%;"> <p>Detail</p> <p>Data Type: Word</p> <p>Data Format: Unsigned Decimal</p> <p><input checked="" type="radio"/> System Keypad</p> <p><input type="radio"/> Custom Keypad</p> <p>Minimum: 0</p> <p>Maximum: 9999</p> <p>Integer Digits: 5</p> <p>Fractional: 0</p> <p>Min 0</p> <p>Max 65535</p> <p>Gain: 2.0 ?</p> <p>Offset: 0.0</p> <p><input type="checkbox"/> Round off</p> </div> </div> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;">  </div> <p>If the input value is 100, substitute it into the equation $(y = ax + b)$:</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <th>Input</th> <th>Fractional Dig...</th> <th>Offset</th> <th>Gain</th> <th>Write Value</th> </tr> <tr> <td>(-19)</td> <td>10 ^ 0</td> <td>- 0.0</td> <td>/ 2.0</td> <td>= 65526</td> </tr> <tr> <th>Gain</th> <th>Offset</th> <th>Fractional Digits</th> <th>Read Value</th> <td></td> </tr> <tr> <td>(65526)</td> <td>* 2.0</td> <td>+ 0.0</td> <td>/ 10 ^ 0</td> <td>= 65516</td> </tr> </table> </div>	Input	Fractional Dig...	Offset	Gain	Write Value	(100.0)	* 10 ^ 0	- 1.0	/ 2.0	= 49	Gain	Offset	Fractional Digits	Read Value		(49)	* 2.0	+ 1.0	/ 10 ^ 0	= 99	Input	Fractional Dig...	Offset	Gain	Write Value	(-19)	10 ^ 0	- 0.0	/ 2.0	= 65526	Gain	Offset	Fractional Digits	Read Value		(65526)	* 2.0	+ 0.0	/ 10 ^ 0	= 65516
Input	Fractional Dig...	Offset	Gain	Write Value																																						
(100.0)	* 10 ^ 0	- 1.0	/ 2.0	= 49																																						
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(65526)	* 2.0	+ 0.0	/ 10 ^ 0	= 65516																																						

No.	Property	Function description								
(8)	Style	<p>You can change the appearance of the element with this setting. There are four types of element styles:</p> <table border="1"> <tr> <td>Standard</td> <td>Raised</td> <td>Sunken</td> <td>Transparent</td> </tr> <tr> <td>####</td> <td>####</td> <td>####</td> <td>####</td> </tr> </table>	Standard	Raised	Sunken	Transparent	####	####	####	####
Standard	Raised	Sunken	Transparent							
####	####	####	####							
(9)	Border Color	<ul style="list-style-type: none"> Set the border color of the element. When you set the Style to Transparent, the Border Color setting is invalid.  <p>The diagram shows a rectangular box with a grey border and the text '####' inside. An arrow labeled 'Border Color' points from the border to a color picker showing a cyan color. Below this, the box is shown with a cyan border, indicating the color change.</p>								
(10)	Background Color	<ul style="list-style-type: none"> Set the background color of the element. When you set the Style to Transparent, the Background Color setting is invalid.  <p>The diagram shows a rectangular box with a grey background and the text '####' inside. An arrow labeled 'Background Color' points from the background to a color picker showing a yellow color. Below this, the box is shown with a yellow background, indicating the color change.</p>								
(11)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)					
Gradient										
Fixed (Solid)										

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No.	Property	Function description																																																																																																																																																																																																																																																			
(12)	Border Fill Style	<ul style="list-style-type: none"> The border display of the Entry elements on the DOP-100 series models is different from that on the DOP-B series models. To have the border display effect be the same as that on the DOP-B series models, when you open the DOP-B project on a DOP-100 series model, the border is displayed with solid color. The default Border Fill Style for the DOP-100 series models is Border NOT Fill, meaning the border of the element is displayed with a gradient color. <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 30%;">Border NOT Fill (gradient color)</td> <td></td> </tr> <tr> <td>Border Fill (solid color)</td> <td></td> </tr> </table>	Border NOT Fill (gradient color)		Border Fill (solid color)																																																																																																																																																																																																																																																
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Border Fill (solid color)																																																																																																																																																																																																																																																					
(13)	Element description	<p>Record the element actions to be executed. The record is written in the CSV file of the Operation Log Table so users can know what actions have been done.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Time</th> <th>Date</th> <th>Level</th> <th>Screen</th> <th>Desc</th> <th>Action</th> <th>Pre Value</th> <th>Change Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13:37:54</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>13:37:56</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>3</td> <td>13:38:19</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td></td> <td>Level Switch</td> <td>8</td> <td>4</td> </tr> <tr> <td>4</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>5</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>6</td> <td>13:38:22</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>7</td> <td>13:38:23</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>8</td> <td>13:38:31</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td></td> <td>Level Switch</td> <td>4</td> <td>8</td> </tr> <tr> <td>9</td> <td>13:38:35</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>\$100 Value</td> <td>Set Val</td> <td>85</td> <td>25</td> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value	1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1	0	2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1	3	13:38:19	5/5/2016	8	Screen_22		Level Switch	8	4	4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1	5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0	6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1	7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0	8	13:38:31	5/5/2016	4	Screen_22		Level Switch	4	8	9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25																																																																																																																																																									
	Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value																																																																																																																																																																																																																																													
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2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1																																																																																																																																																																																																																																													
3	13:38:19	5/5/2016	8	Screen_22		Level Switch	8	4																																																																																																																																																																																																																																													
4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1																																																																																																																																																																																																																																													
5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0																																																																																																																																																																																																																																													
6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1																																																																																																																																																																																																																																													
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9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25																																																																																																																																																																																																																																													

■ Main-2



13

Figure 13.1.3 Main-2 property page for the Numeric Entry element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

13

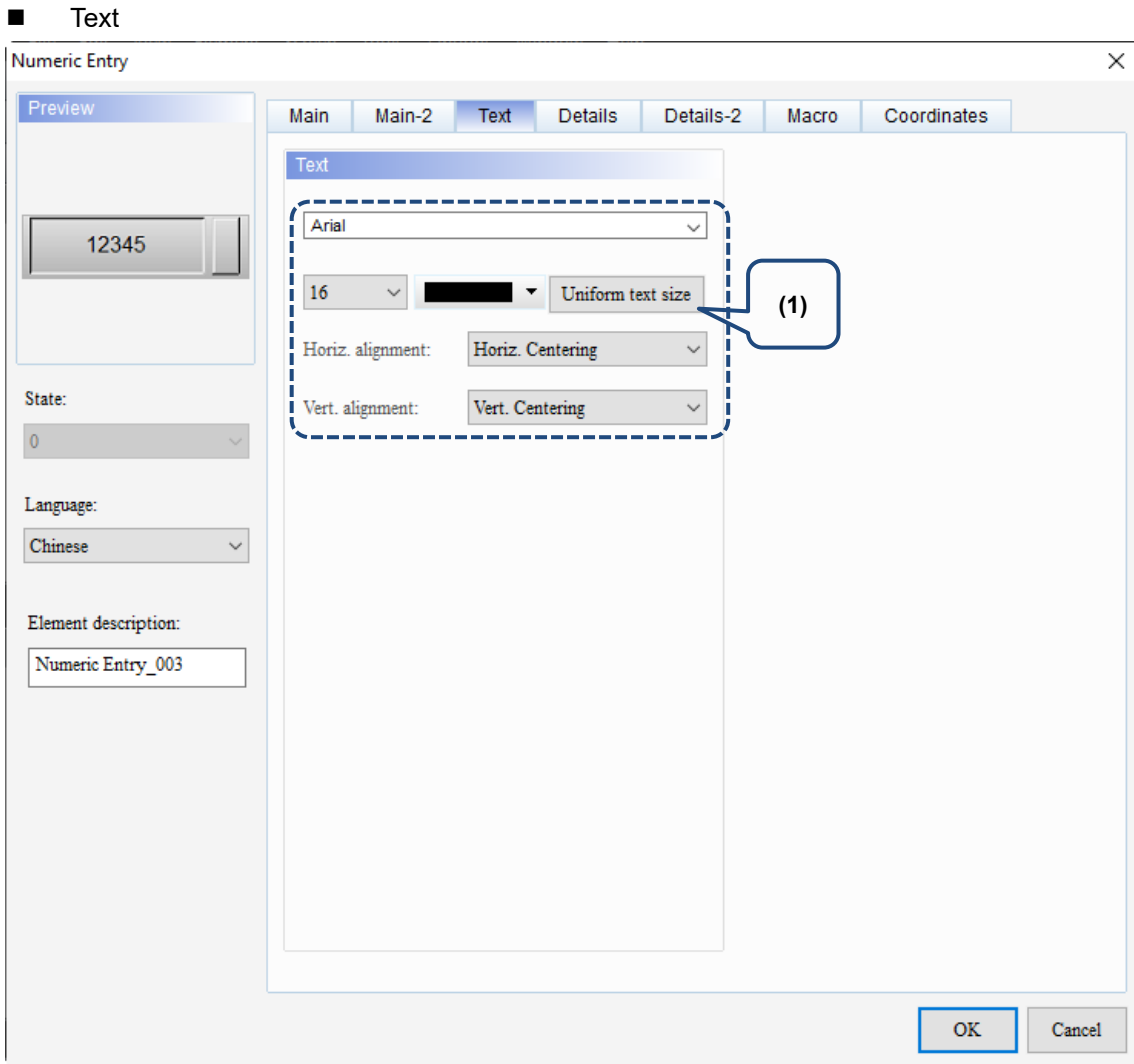
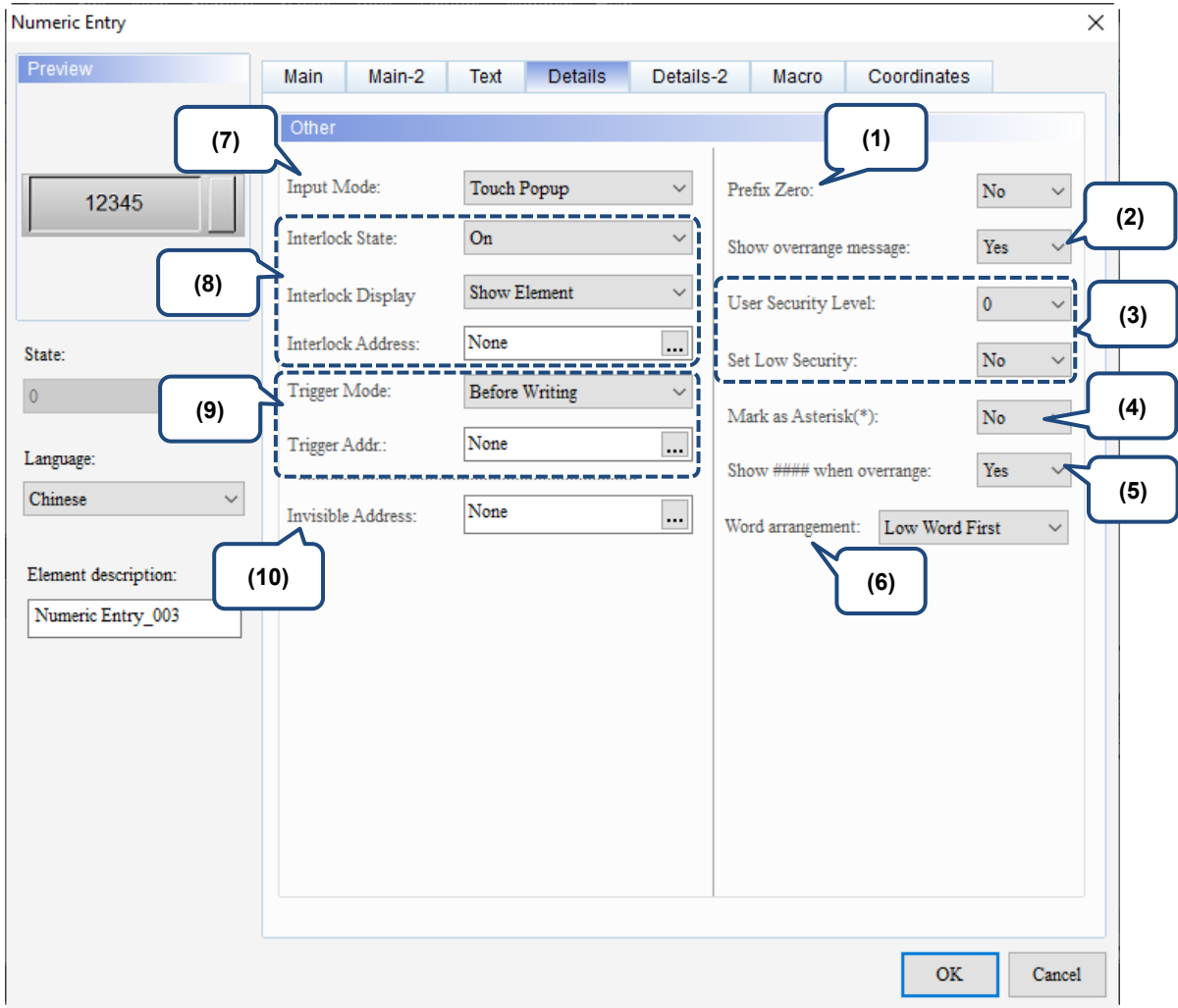


Figure 13.1 4 Text property page for the Numeric Entry element

No.	Property	Function description
(1)	Text	Set the text properties, including the font, size, color, and alignment.

■ Details

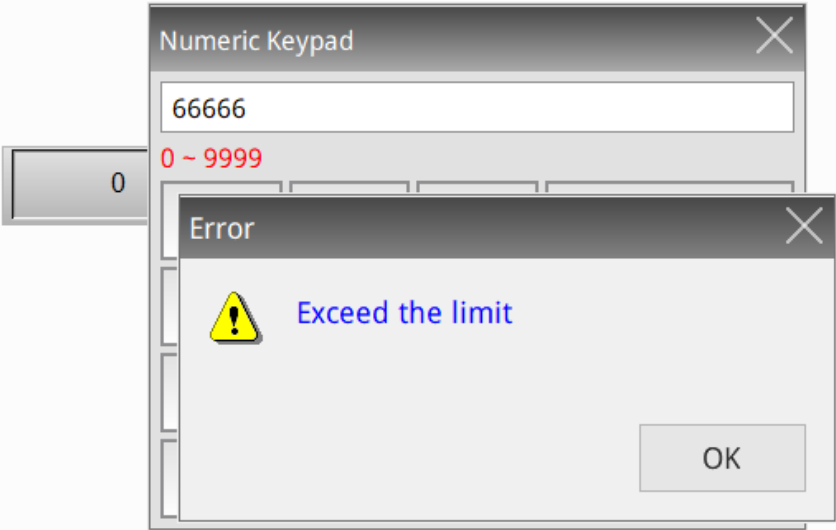
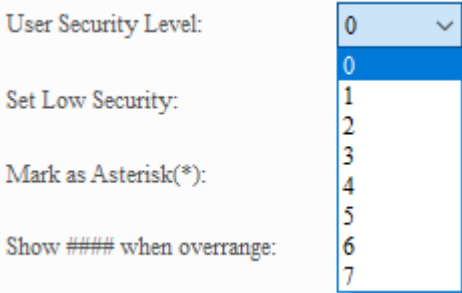
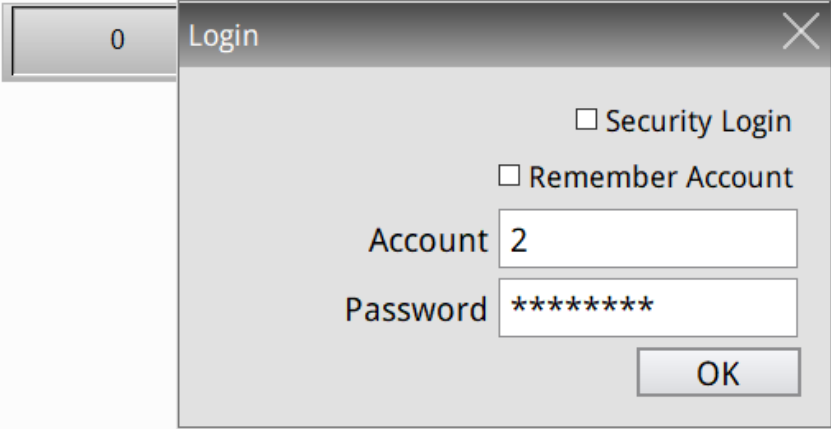


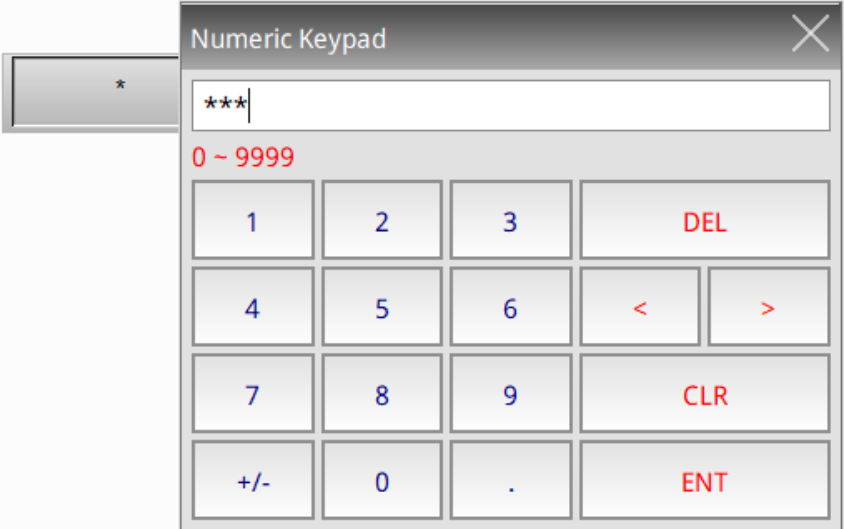

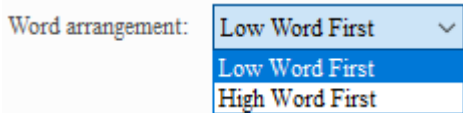
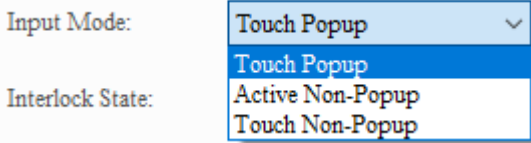

13

Figure 13.1.5 Details property page for the Numeric Entry element

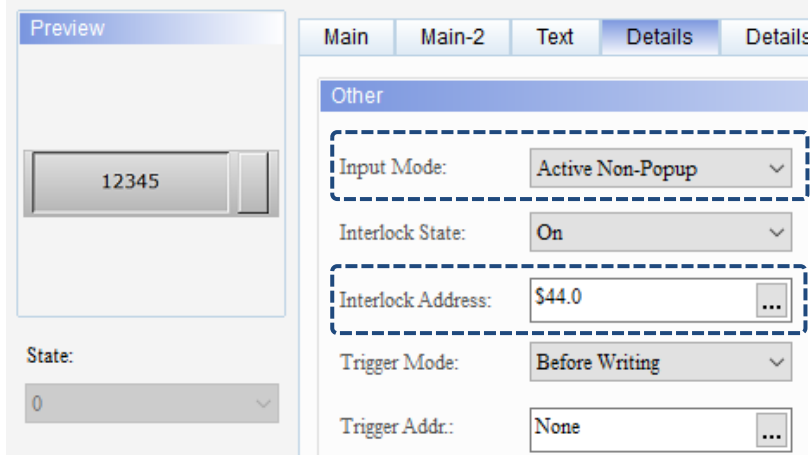
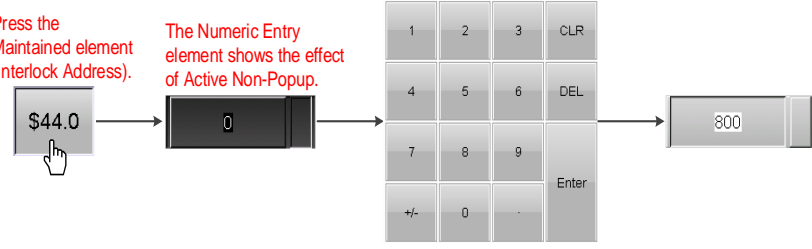
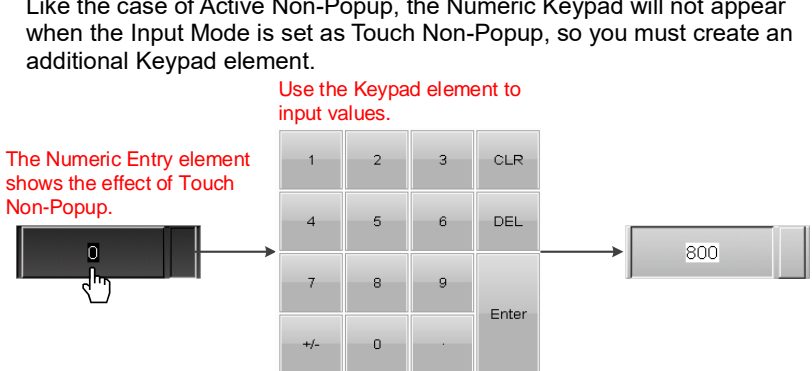
No.	Property	Function description
(1)	Prefix Zero	<p>The Prefix Zero function determines how many zeros to add according to the set Integer Digits. Refer to the following example.</p> <p style="text-align: center;">Integer Digits is 5</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input checked="" type="checkbox"/> Prefix Zero <input type="text" value="00181"/> </div> <div style="text-align: center;"> <input type="checkbox"/> Prefix Zero <input type="text" value="181"/> </div> </div>

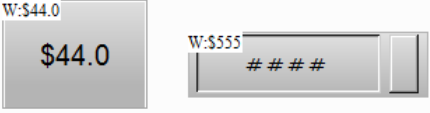
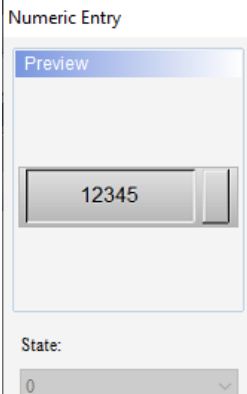
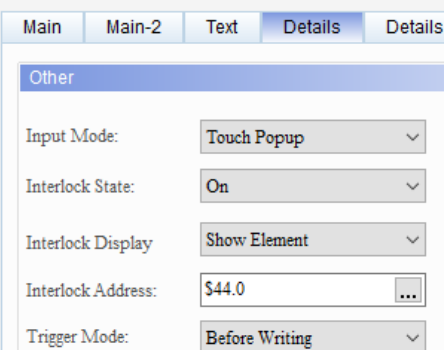
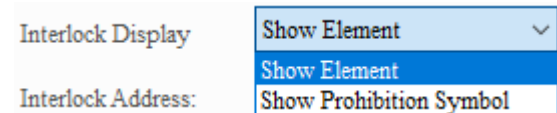
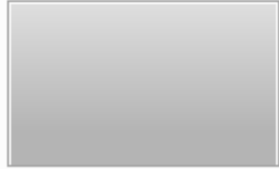

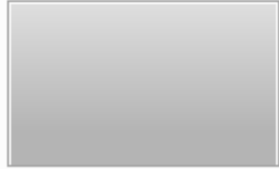
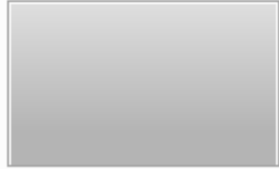

13

No.	Property	Function description
(2)	Show overrange message	<p>If you set Show overrange message to Yes, the following error message appears when you input a value exceeding the allowable range.</p> 
(3)	User Security Level	<ul style="list-style-type: none"> You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level.  <ul style="list-style-type: none"> After you set the User Security Level and press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password with the Password Table element; refer to Section 5.7.2 Password Table Setup).
	Set Low Security	 <ul style="list-style-type: none"> If you specify Set Low Security to Yes, the HMI automatically sets the security level to the lowest each time you enter the password. Next time you press the element, you will be asked again to enter the password for the corresponding security level.

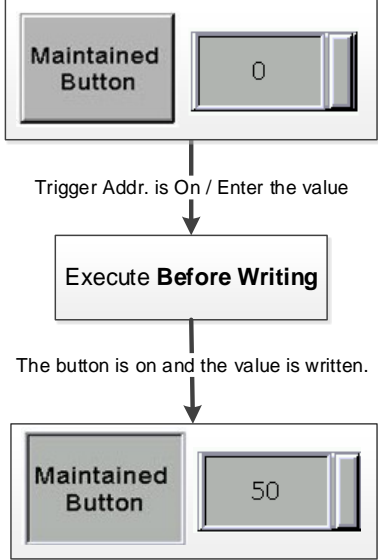
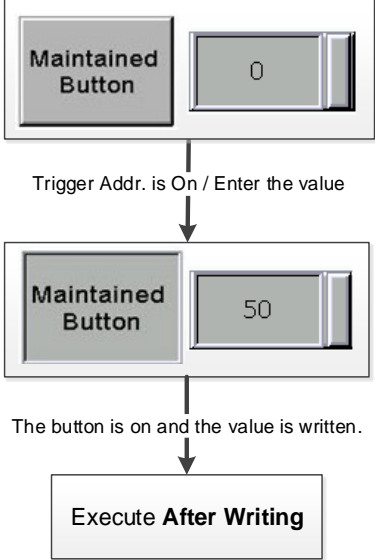
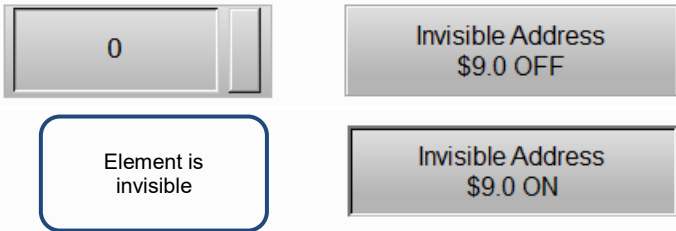
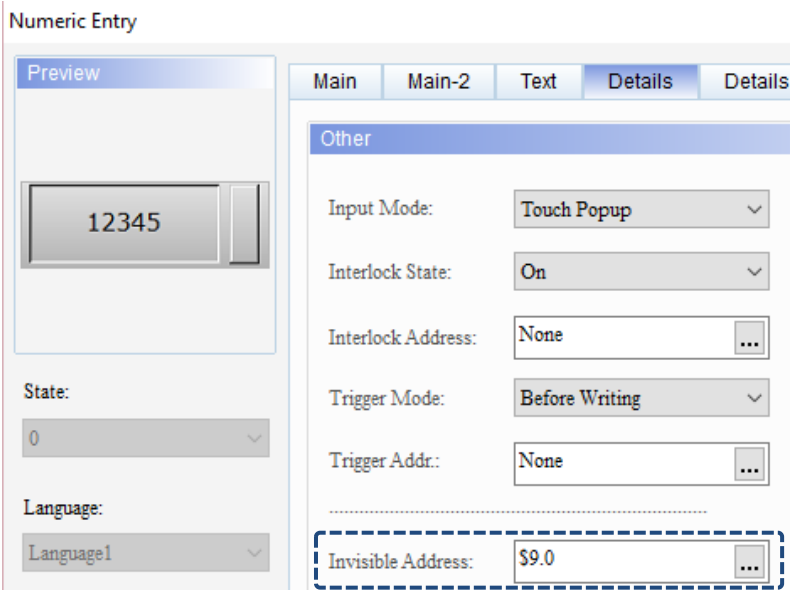
No.	Property	Function description
(4)	Mark as Asterisk (*)	<p>If you specify Mark as Asterisk (*) to Yes, the value appears as asterisks when you input a value to the Numeric Keypad, as shown in the following figure:</p> 
(5)	Show ##### when overrange	<ul style="list-style-type: none"> If you specify Show ##### when overrange to Yes, the value appears in ##### when you input a value that is not within the defined minimum and maximum range. When you set the Minimum as 10 and the Maximum as 50 and enable this function, since the default value of the Numeric Entry element is 0 which is not within the set range of 10 - 50, the value appears in #. 
(6)	Word arrangement	<p>You can swap the high and low words using the Word arrangement function with the options of Low Word First and High Word First.</p> 
(7)	Input Mode	<ul style="list-style-type: none"> The types of Input Mode include Touch Popup, Active Non-Popup, and Touch Non-Popup. Touch Popup is the default Input Mode for the Numeric Entry element.  <ul style="list-style-type: none"> Touch Popup means that after the Numeric Entry element is pressed, the Numeric Keypad will appear. <p style="color: red;">When the popup keypad appears, enter the value with the keypad. Then, press ENT.</p> 

13

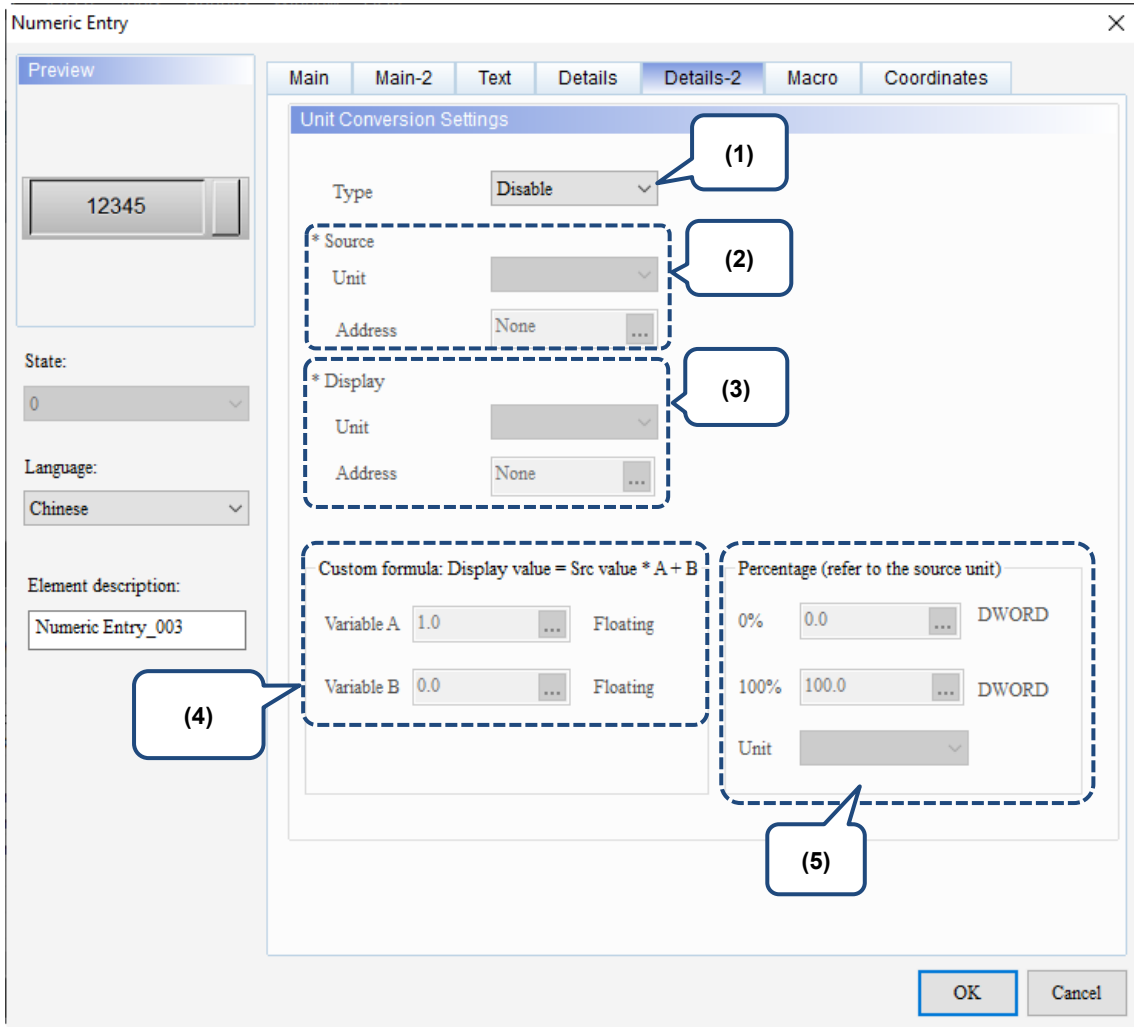
No.	Property	Function description
(7)	Input Mode	<ul style="list-style-type: none"> The Numeric Keypad will not appear with the Input Mode set as Active Non-Popup or Touch Non-Popup. You must create an additional Keypad element. Active Non-Popup must be used with Interlock Address. Set the Input Mode for the Numeric Entry element as Active Non-Popup and the Interlock Address as \$44.0. Then, create a Maintained element and set its Write Address as \$44.0. <p>Numeric Entry</p>  <p>Press the Maintained element (Interlock Address). The Numeric Entry element shows the effect of Active Non-Popup.</p>  <ul style="list-style-type: none"> Like the case of Active Non-Popup, the Numeric Keypad will not appear when the Input Mode is set as Touch Non-Popup, so you must create an additional Keypad element. <p>The Numeric Entry element shows the effect of Touch Non-Popup. Use the Keypad element to input values.</p> 

No.	Property	Function description			
(8)	Interlock State	<ul style="list-style-type: none"> ■ The Interlock Address is for enabling the operation of another element and has to be used with Interlock State. If Interlock State is set to Off, it means the Interlock Address is operable when this Interlock State is off; on the other hand, if Interlock State is set to On, the Interlock Address is operable when this Interlock State is on. ■ The following describes how it works: <ol style="list-style-type: none"> a. First, create a Maintained button and set its Write Address as \$44.0. Next, set the Write Address as \$555 and the Interlock Address as \$44.0 for the Numeric Entry element. b. In order for the Numeric Entry element \$555 to become operable, you need to first press the Maintained button \$44.0 to enable \$555. 			
	Interlock Address	<div style="text-align: center; margin-bottom: 10px;">  </div> <div style="margin-bottom: 10px;">  </div> <div>  </div>			
	Interlock Display	<ul style="list-style-type: none"> ■ There are two modes for the Interlock Display, Show Element and Show Prohibition Symbol. <div style="margin-bottom: 10px;">  </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center; padding: 10px;">Show Element</td> <td style="width: 50%; text-align: center; padding: 10px;"></td> </tr> <tr> <td style="text-align: center; padding: 10px;">Show Prohibition Symbol</td> <td style="text-align: center; padding: 10px;"></td> </tr> </table>	Show Element		Show Prohibition Symbol
Show Element					
Show Prohibition Symbol					

13

No.	Property	Function description				
(9)	<p>Trigger Mode</p> <hr/> <p>Trigger Addr.</p>	<ul style="list-style-type: none"> The Trigger Modes include Before Writing and After Writing. <table border="1"> <thead> <tr> <th>Before Writing</th> <th>After Writing</th> </tr> </thead> <tbody> <tr> <td>Trigger Addr. must be set to on before the value changes.</td> <td>Value is changed before the Trigger Addr. is set to on.</td> </tr> </tbody> </table> The triggering function only switches the set Trigger Addr. to on, so if triggering again is required, you need to set the Trigger Addr. to off. <p>Flowchart of Before Writing:</p>  <p>Flowchart of After Writing:</p>  	Before Writing	After Writing	Trigger Addr. must be set to on before the value changes.	Value is changed before the Trigger Addr. is set to on.
Before Writing	After Writing					
Trigger Addr. must be set to on before the value changes.	Value is changed before the Trigger Addr. is set to on.					
(10)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p>  <p>Numeric Entry</p> 				

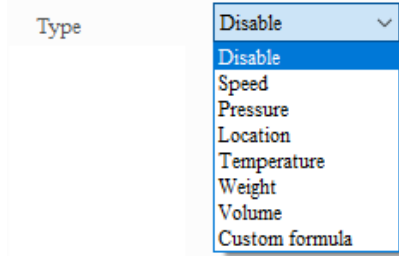
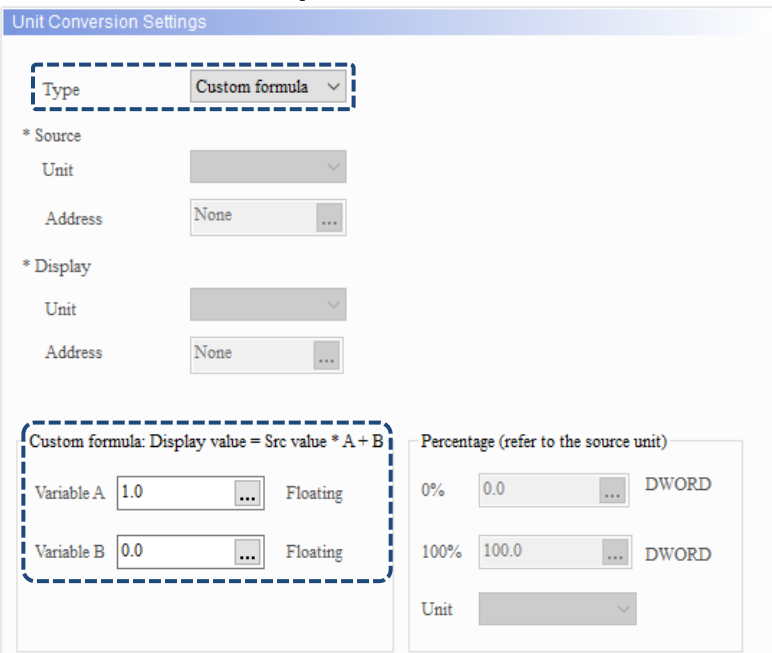
■ Details-2



13

Figure 13.1.6 Details-2 property page for the Numeric Entry element

13

No.	Property	Function description																						
(1)	Type	<ul style="list-style-type: none"> You can select the conversion type, including Speed, Pressure, Location, Temperature, Weight, Volume, and Custom formula.  <ul style="list-style-type: none"> If you select Disable, it means the value does not need conversion. When selecting the Custom formula for the Type, you have to enter values for Variable A and Variable B. The unit of Variable A and Variable B is Floating, and the formula is [Display value = Source value * A + B]. 																						
(2)	Source	<ul style="list-style-type: none"> The unit is subject to change based on the selected Type. The following table lists the corresponding units for each type. <table border="1"> <thead> <tr> <th>Type</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Speed</td> <td>mm/sec</td> </tr> <tr> <td>inch/sec</td> </tr> <tr> <td>%</td> </tr> <tr> <td>Using the code</td> </tr> <tr> <td rowspan="4">Pressure</td> <td>kg/cm</td> </tr> <tr> <td>bar</td> </tr> <tr> <td>%</td> </tr> <tr> <td>Using the code</td> </tr> <tr> <td rowspan="4">Location (position)</td> <td>mm</td> </tr> <tr> <td>inch</td> </tr> <tr> <td>%</td> </tr> <tr> <td>Using the code</td> </tr> <tr> <td rowspan="4">Temperature</td> <td>°F</td> </tr> <tr> <td>°C</td> </tr> <tr> <td>%</td> </tr> <tr> <td>Using the code</td> </tr> </tbody> </table>	Type	Unit	Speed	mm/sec	inch/sec	%	Using the code	Pressure	kg/cm	bar	%	Using the code	Location (position)	mm	inch	%	Using the code	Temperature	°F	°C	%	Using the code
Type	Unit																							
Speed	mm/sec																							
	inch/sec																							
	%																							
	Using the code																							
Pressure	kg/cm																							
	bar																							
	%																							
	Using the code																							
Location (position)	mm																							
	inch																							
	%																							
	Using the code																							
Temperature	°F																							
	°C																							
	%																							
	Using the code																							

No.	Property	Function description																
		<table border="1"> <thead> <tr> <th>Type</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Weight</td> <td>ton</td> </tr> <tr> <td>kN</td> </tr> <tr> <td>g</td> </tr> <tr> <td>oz</td> </tr> <tr> <td>%</td> </tr> <tr> <td></td> <td>Using the code</td> </tr> <tr> <td rowspan="5">Volume</td> <td>L</td> </tr> <tr> <td>ml</td> </tr> <tr> <td>kL</td> </tr> <tr> <td>%</td> </tr> <tr> <td>Using the code</td> </tr> </tbody> </table>	Type	Unit	Weight	ton	kN	g	oz	%		Using the code	Volume	L	ml	kL	%	Using the code
Type	Unit																	
Weight	ton																	
	kN																	
	g																	
	oz																	
	%																	
	Using the code																	
Volume	L																	
	ml																	
	kL																	
	%																	
	Using the code																	

- When you select % (Percentage) or Using the code as the unit for either the Source or Display, the Percentage setting section is enabled. When the Percentage setting section allows data input, you need to define the values for 0% and 100% which unit setting refers to the Source.

(2) Source

Unit Conversion Settings

Type: Speed

* Source Unit: mm/sec

Address: None

* Display Unit: %

Address: None

Custom formula: Display value = Src value * A + B

Variable A: 1.0 Floating

Variable B: 0.0 Floating

Percentage (refer to the source unit)

0%: 0.0 DWORD

100%: 100.0 DWORD

Unit: mm/sec

Unit Conversion Settings

Type: Speed

* Source Unit: Using the code

Address: None

* Display Unit: inch/sec

Address: None

Unit codes shown as below:

mm/sec : 101

inch/sec : 102

% : 700

Custom formula: Display value = Src value * A + B

Variable A: 1.0 Floating

Variable B: 0.0 Floating

Percentage (refer to the source unit)

0%: 0.0 DWORD

100%: 100.0 DWORD

Unit: mm/sec

13

No.	Property	Function description																																																			
(2)	Source	<ul style="list-style-type: none"> When you select Using the code as the unit, it means you can enter variables to specify the unit codes for the Source and Display. The unit codes are as follows: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Type</th> <th>Unit</th> <th>Code</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Speed</td> <td>mm/sec</td> <td>101</td> </tr> <tr> <td>inch/sec</td> <td>102</td> </tr> <tr> <td>%</td> <td>700</td> </tr> <tr> <td rowspan="3">Pressure</td> <td>kg/cm</td> <td>201</td> </tr> <tr> <td>bar</td> <td>202</td> </tr> <tr> <td>%</td> <td>700</td> </tr> <tr> <td rowspan="3">Location (position)</td> <td>mm</td> <td>301</td> </tr> <tr> <td>inch</td> <td>302</td> </tr> <tr> <td>%</td> <td>700</td> </tr> <tr> <td rowspan="3">Temperature</td> <td>°F</td> <td>401</td> </tr> <tr> <td>°C</td> <td>402</td> </tr> <tr> <td>%</td> <td>700</td> </tr> <tr> <td rowspan="5">Weight</td> <td>ton</td> <td>501</td> </tr> <tr> <td>kN</td> <td>502</td> </tr> <tr> <td>g</td> <td>503</td> </tr> <tr> <td>oz</td> <td>504</td> </tr> <tr> <td>%</td> <td>700</td> </tr> <tr> <td rowspan="4">Volume</td> <td>L</td> <td>601</td> </tr> <tr> <td>ml</td> <td>602</td> </tr> <tr> <td>kL</td> <td>603</td> </tr> <tr> <td>%</td> <td>700</td> </tr> </tbody> </table> User-defined address is available only when you select Using the code for the unit. If you select Using the code as the unit for both the Source and Display, do not use the same address. 	Type	Unit	Code	Speed	mm/sec	101	inch/sec	102	%	700	Pressure	kg/cm	201	bar	202	%	700	Location (position)	mm	301	inch	302	%	700	Temperature	°F	401	°C	402	%	700	Weight	ton	501	kN	502	g	503	oz	504	%	700	Volume	L	601	ml	602	kL	603	%	700
Type	Unit	Code																																																			
Speed	mm/sec	101																																																			
	inch/sec	102																																																			
	%	700																																																			
Pressure	kg/cm	201																																																			
	bar	202																																																			
	%	700																																																			
Location (position)	mm	301																																																			
	inch	302																																																			
	%	700																																																			
Temperature	°F	401																																																			
	°C	402																																																			
	%	700																																																			
Weight	ton	501																																																			
	kN	502																																																			
	g	503																																																			
	oz	504																																																			
	%	700																																																			
Volume	L	601																																																			
	ml	602																																																			
	kL	603																																																			
	%	700																																																			
(3)	Display	<ul style="list-style-type: none"> Refer to the Source description for details about the units. User-defined address is available only when you select Using the code for the unit. If you select Using the code as the unit for both the Source and Display, do not use the same address. 																																																			
(4)	Custom formula	<ul style="list-style-type: none"> You can input external / internal memory addresses and constants for both Variable A and Variable B. When selecting the Custom formula for the Type, you have to enter values for Variable A and Variable B. The unit of Variable A and Variable B is Floating, and the formula is [Display value = Source value * A + B]. 																																																			
(5)	Percentage settings	<ul style="list-style-type: none"> You can input external / internal memory addresses and constants for both setting values of 0% and 100%. When you select % (Percentage) or Using the code as the unit for either the Source or Display, the Percentage setting section is enabled. The unit is subject to change based on the Source unit setting. Take the speed setting for example. If you select % (Percentage) or Using the code as the Source unit, you can select mm/sec or inch/sec from the Unit drop-down list box in the Percentage setting section; if you select mm/sec for the Source unit, mm/sec is the only unit available in the Percentage setting section. 																																																			

Refer to the Unit Conversion examples in Tables 13.1.4 to 13.1.6.

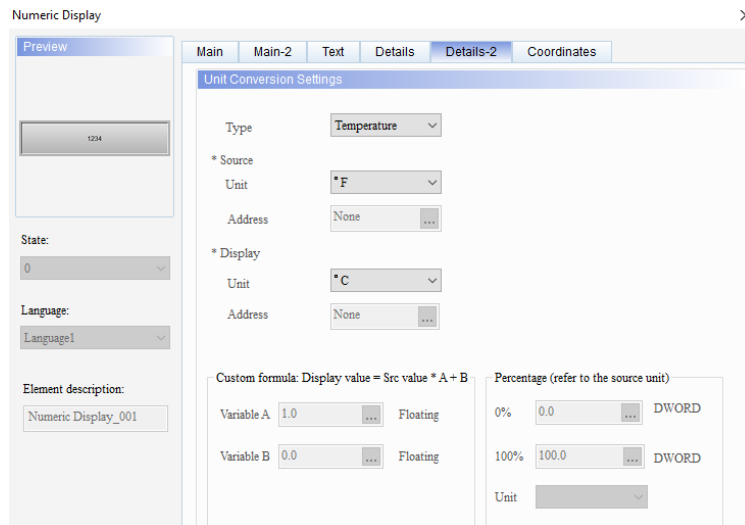
Table 13.1.4 Unit conversion example

Unit conversion (fixed unit)				
Address settings	Numeric Display element (Display)		Numeric Entry element (Source)	
	Read Address	\$10	Write Address	\$10
	R:\$10 12345		W:\$10 #####	
Detail settings	Numeric Display / Numeric Entry elements			
	Data Type	Data Format	Integer Digits	Fractional (Digits)
	Word	Unsigned Decimal	5	0

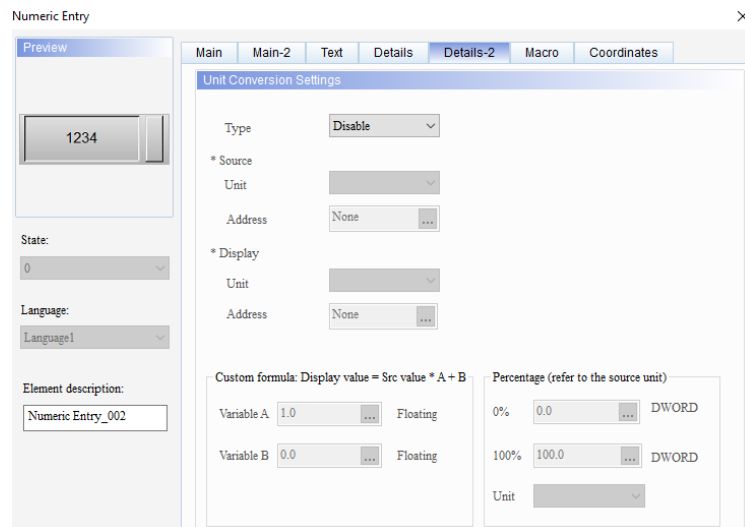
13

- Double-click the Numeric Display element and go to the Details-2 page. Select Temperature for the Type, °F for the Source Unit, and °C for the Display Unit.

Unit settings



- Since the Numeric Entry element does not need unit conversion, set the Type to Disable.



Execution results

After creating the elements, compile and download the elements to the HMI. Then, enter 50 (°F) to the Numeric Entry element and the Numeric Display element will convert the temperature to 10 (°C).

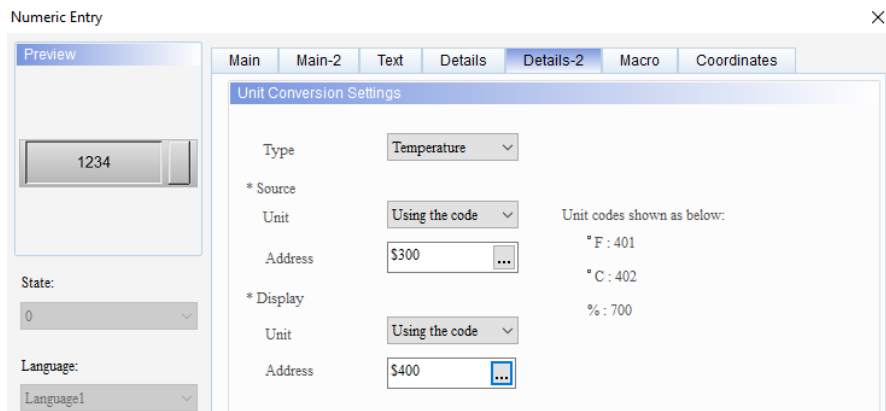


Table 13.1.5 Unit conversion example

13

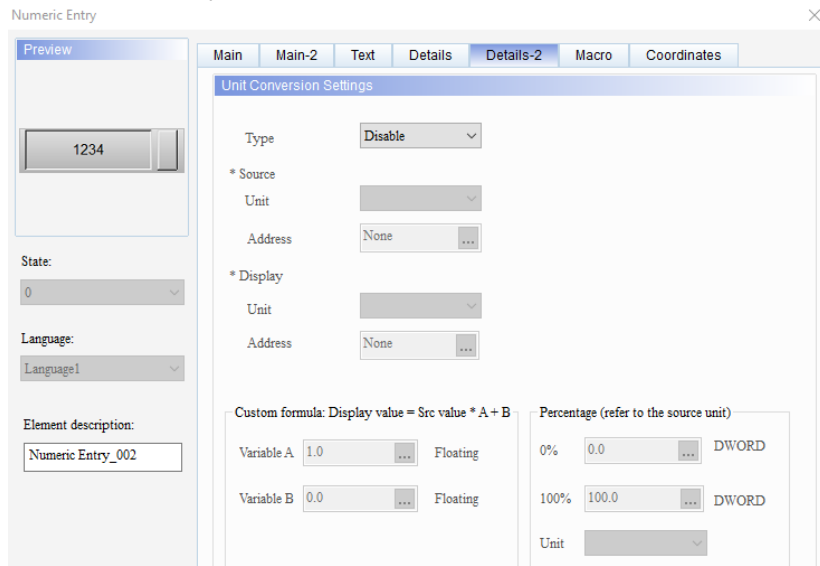
Unit conversion (Using the code)						
Address settings	Numeric Entry element		Numeric Entry element (Source)		Numeric Entry element (Display)	
	Read Address	\$10	Write Address	\$300	Write Address	\$400
	W:\$10 #####		W:\$300 #####		W:\$400 #####	
Detail settings	Numeric Entry element					
	Data Type	Data Format	Integer Digits	Fractional (Digits)		
	Word	Unsigned Decimal	5	0		

- Double-click the Numeric Entry element of \$10 and go to the Details-2 page. Select Temperature for the Type. For the Source settings, select Using the code for the Unit and set \$300 for the Address; for the Display settings, select Using the code for the Unit and set \$400 for the Address.



Unit settings

- Since the Numeric Entry elements of \$300 and \$400 do not need unit conversion, select Disable for Type.



Unit conversion (Using the code)

Execution results


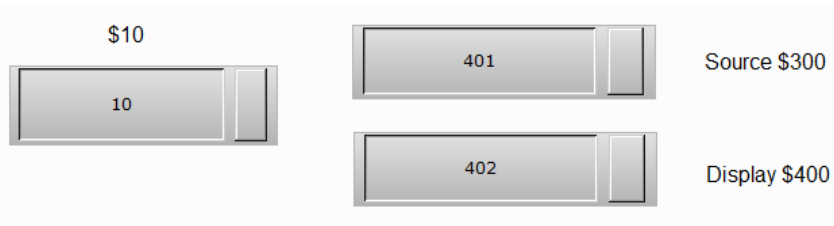
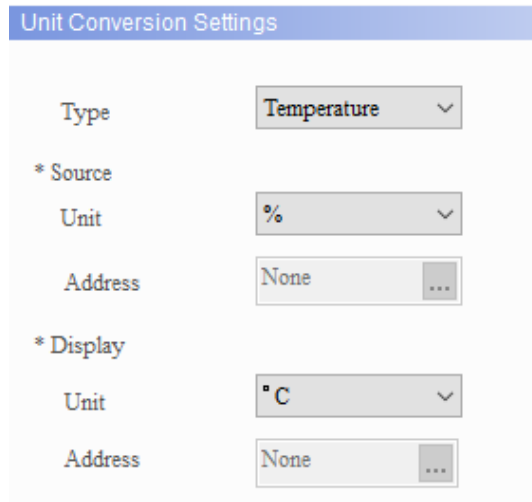
- After creating the elements, compile and download the elements to the HMI, and then enter 50 for \$10.

- Enter 401 (means °F) for \$300 and enter 402 (means °C) for \$400, and then \$10 converts the value to 10 (°C).


Table 13.1.6 Unit conversion example

13

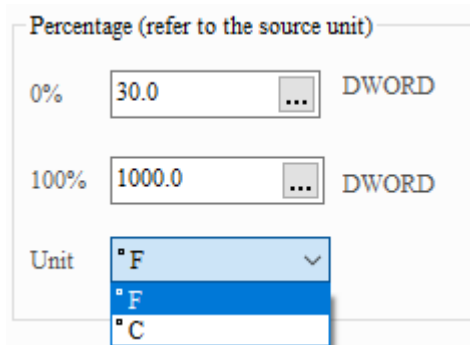
Unit conversion (%)				
Address settings	Numeric Display element		Numeric Entry element (Source)	
	Read Address	\$10	Write Address	\$10
	W:\$10 #####		W:\$300 #####	
Detail settings	Numeric Display / Numeric Entry elements			
	Data Type	Data Format	Integer Digits	Fractional (Digits)
	Word	Unsigned Decimal	5	0

- Double-click the Numeric Display element of \$10. Go to the Details-2 page, select Temperature for the Type, and set the Source unit to % and the Display unit to °C.

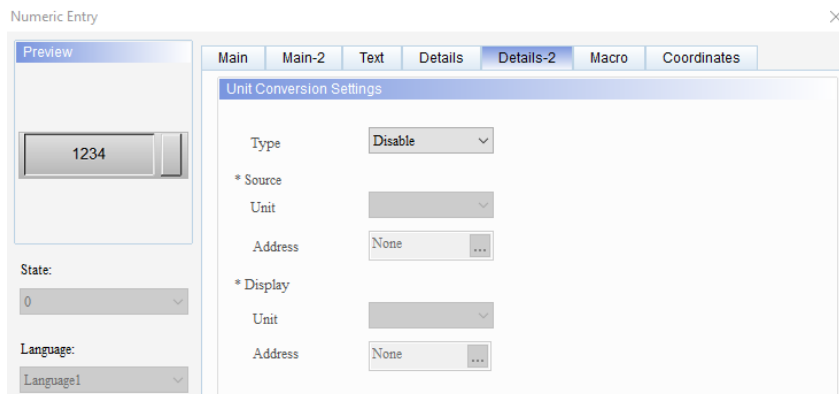




- Set the percentage 0% to 30.0 and 100% to 1000.0.
- Since the Source unit is %, the percentage setting unit can be °F or °C. In this example, °F is used as the unit.

Unit settings



- Since the Numeric Entry element of \$10 does not need unit conversion, select Disable for the Type.



Unit conversion (%)	
Execution results	<ul style="list-style-type: none">After creating the elements, compile and download the elements to the HMI. The value for the Numeric Entry element of \$10 is 0, so the Numeric Display element displays 30, meaning the value for 0% is 30. 
	<ul style="list-style-type: none">If you set \$10 to 100, the Numeric Display element displays 1000, meaning the value for 100% is 1000. 

13

Macro

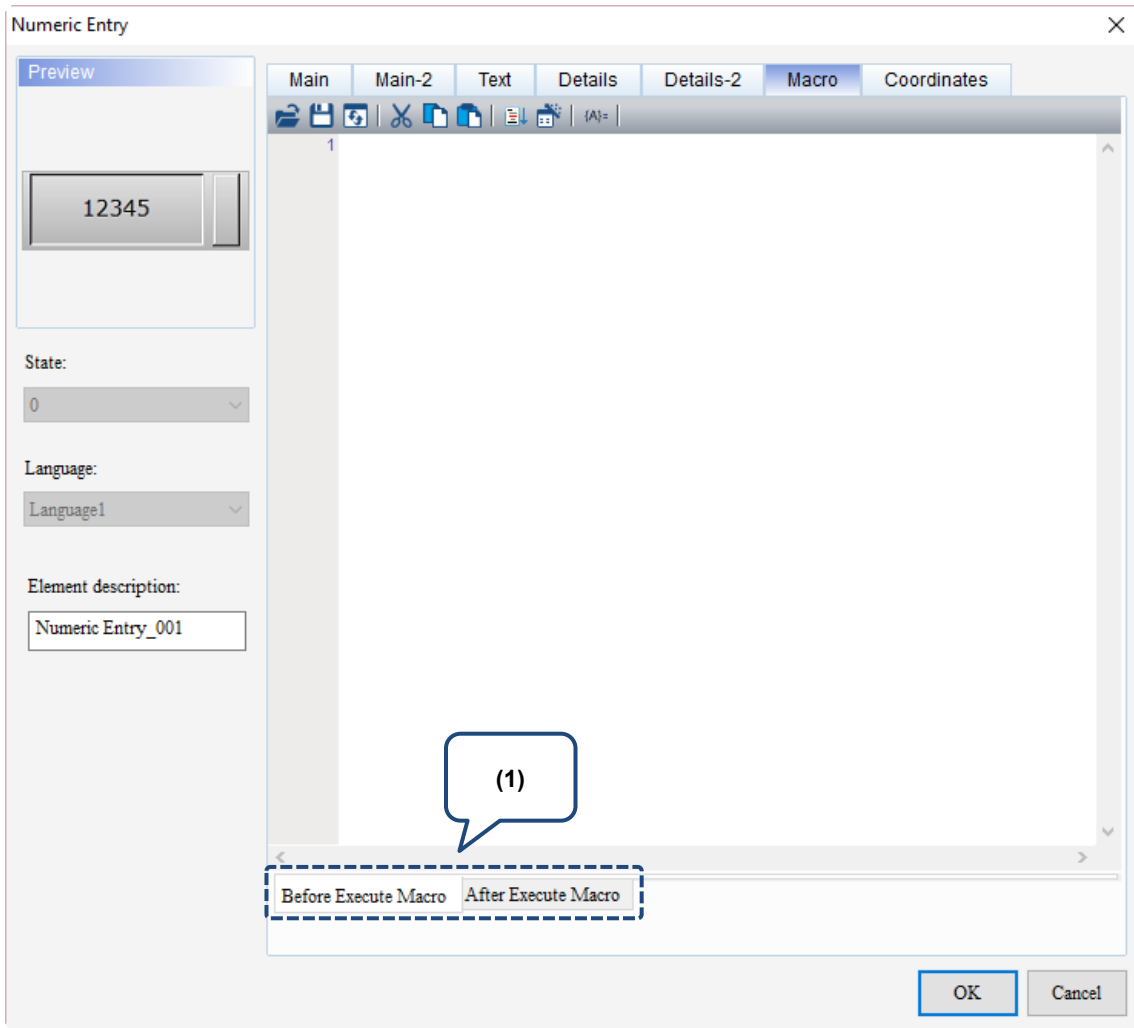
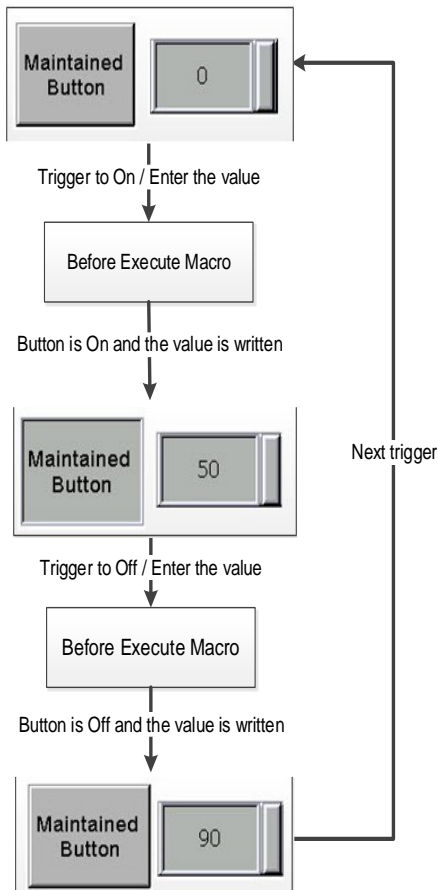


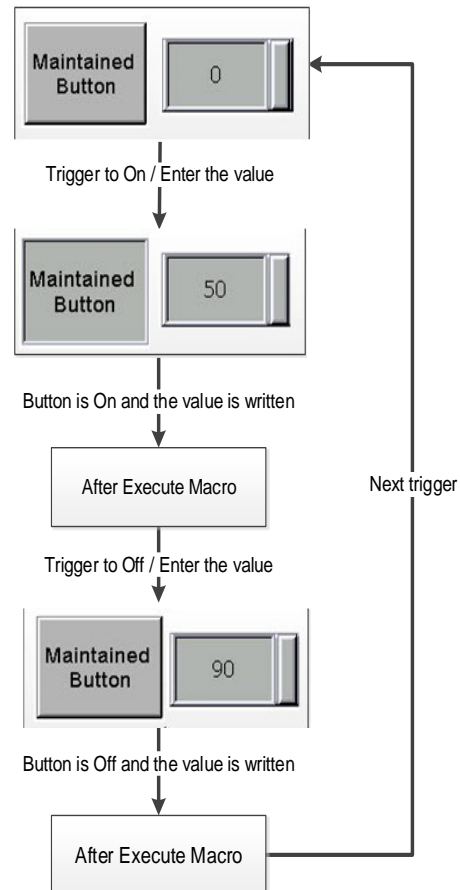
Figure 13.1.7 Macro property page for the Numeric Entry element

No.	Property	Function description
(1)	Before Execute Macro	When you press the button element, the HMI will first execute the macro commands, and then execute the action of the button. However, if the state of the button is not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.
	After Execute Macro	When you press the button element, the HMI will first execute the action of the button, and then execute the macro commands. However, if the state of the button is not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.

Flowchart of Before Execute Macro:



Flowchart of After Execute Macro:



Coordinates

13

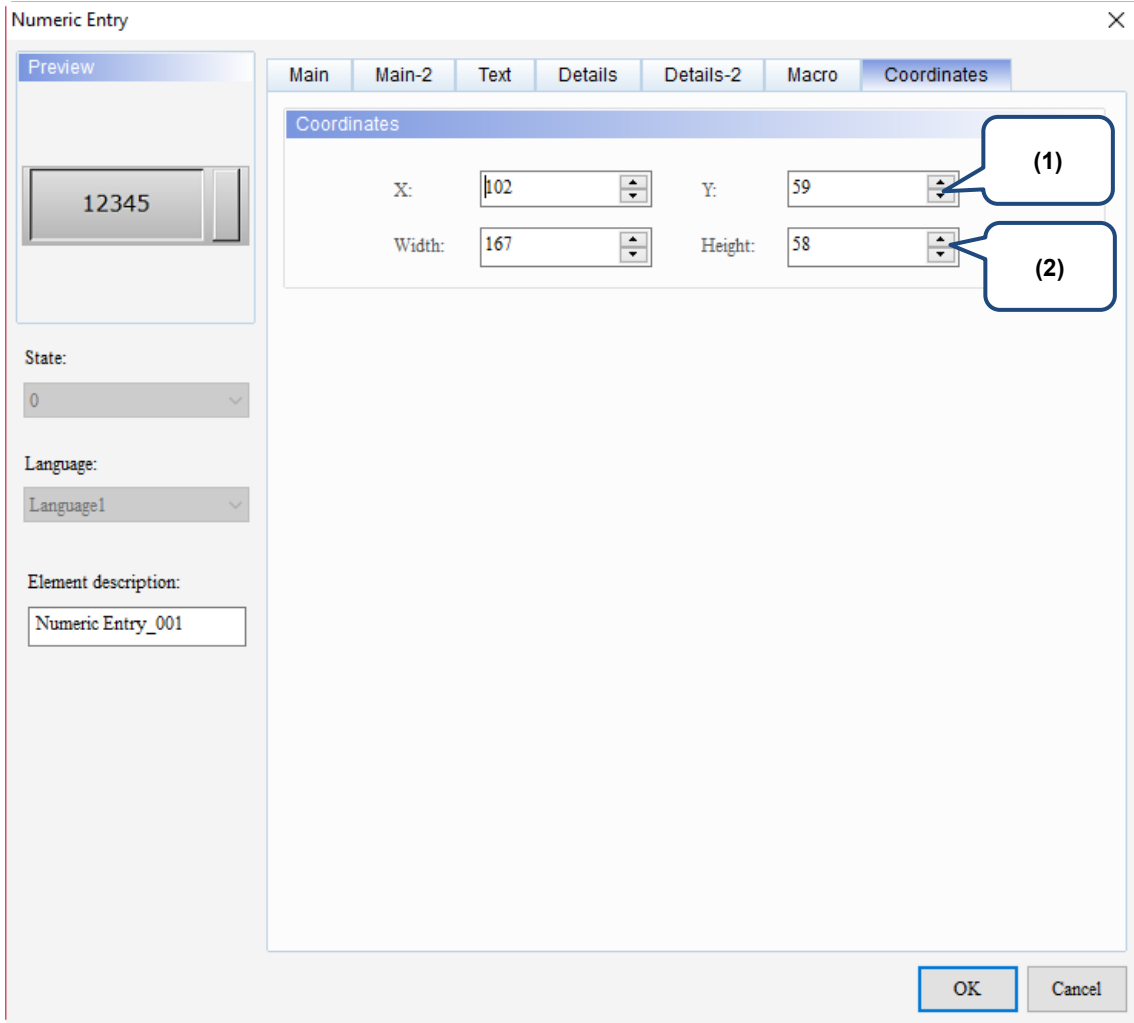


Figure 13.1.8 Coordinates property page for the Numeric Entry element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

13.2 Character Entry

The Character Entry element supports only the ASCII code input. Therefore, the format of the display and input is character. You can switch to the ASCII input mode with the ALT key as shown in the following figure.



Figure 13.2.1 ASCII keyboard



Figure 13.2.2 ASCII keyboard

13

The following conversion table shows the conversion between data formats and characters from A to G. The remaining characters can be deduced with the same pattern.

Unsigned Decimal	Hexadecimal	Character
65	41	A
66	42	B
67	43	C
68	44	D
69	45	E
70	46	F
71	47	G

Table 13.2.1 ASCII code conversion table

According to Table 13.2.1, if you input the character A to the Character Entry element, the Numeric Entry element will display 65 (Unsigned Decimal).

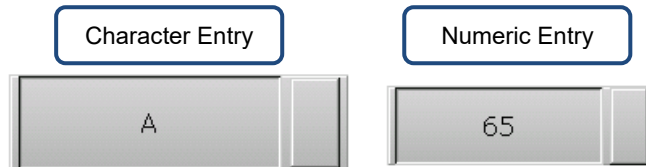
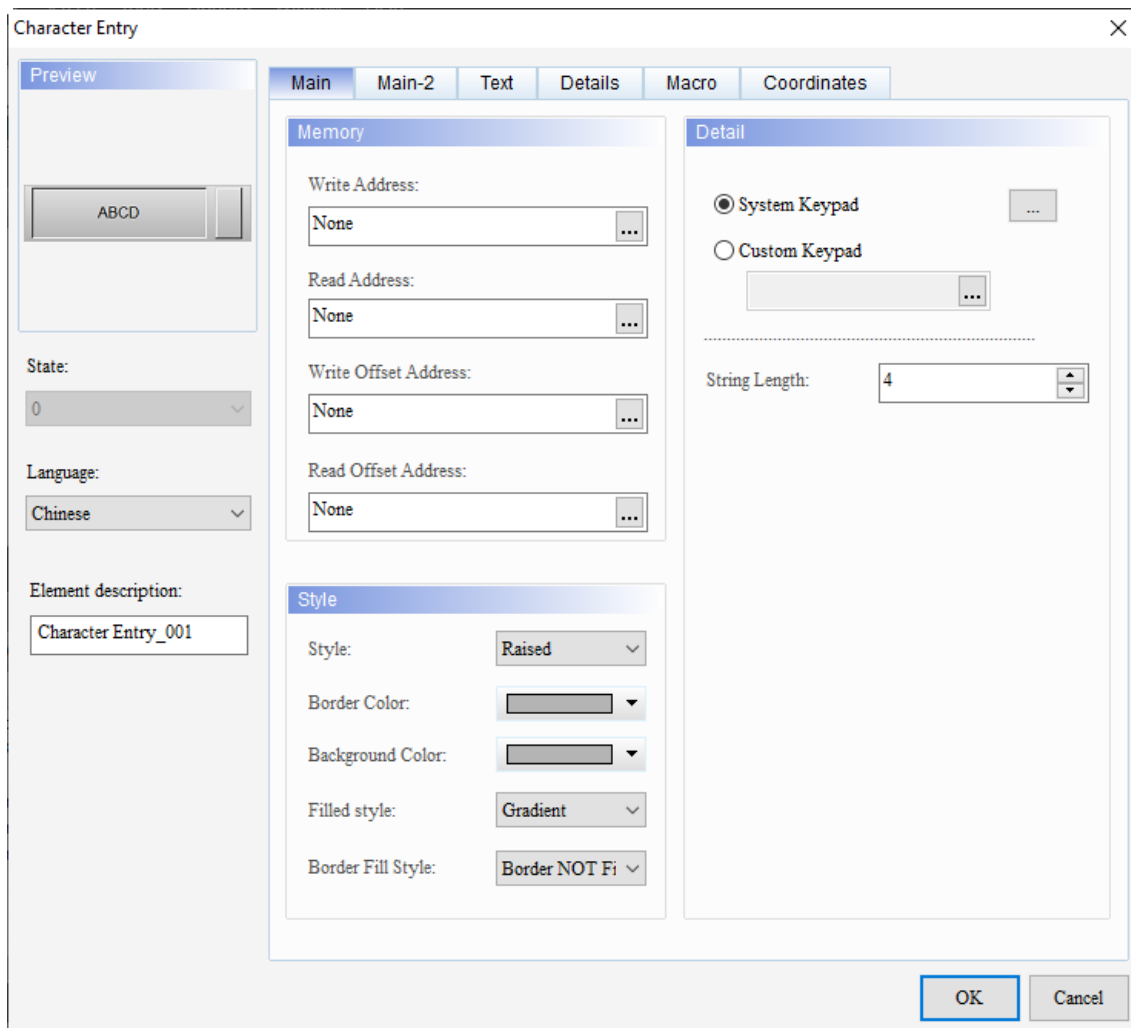


Table 13.2.2 Character Entry example

Character Entry				
Address settings	Character Entry element		Numeric Entry element	
	Write Address	\$555	Write Address	\$555
Detail settings	Character Entry element			
	String Length		4	
	Numeric Entry element			
	Data Type	Data Format	Integer Digits	Fractional (Digits)
	Word	Unsigned Decimal	4	0
Execution results	After creating the elements, compile and download the elements to the HMI. Next, input A to the Character Entry element, and then the Numeric Entry element will display 65 which is converted from the corresponding ASCII code.			

When you double-click the Character Entry, the property page is shown as follows.



13

Figure 13.2.3 Properties of Character Entry

Table 13.2.3 Function page of Character Entry

Character Entry	
Function page	Description
Preview	Character Entry elements do not support multiple state values and multi-language data display.
Main	Set the Read Address, Write Address, Read Offset Address, Write Offset Address; set the Style, Background Color, Border Color, Filled style, Border Fill Style, and String Length.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the displaying text font, size, color, and alignment options.
Details	Set the Input Mode, Interlock State, Interlock Display, Interlock Address, Trigger Mode, Trigger Addr., Invisible Address, User Security Level, Set Low Security, Mark as Asterisk (*), and Insufficient string length zero.
Macro	Set the Before Execute Macro and After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

13

■ Main

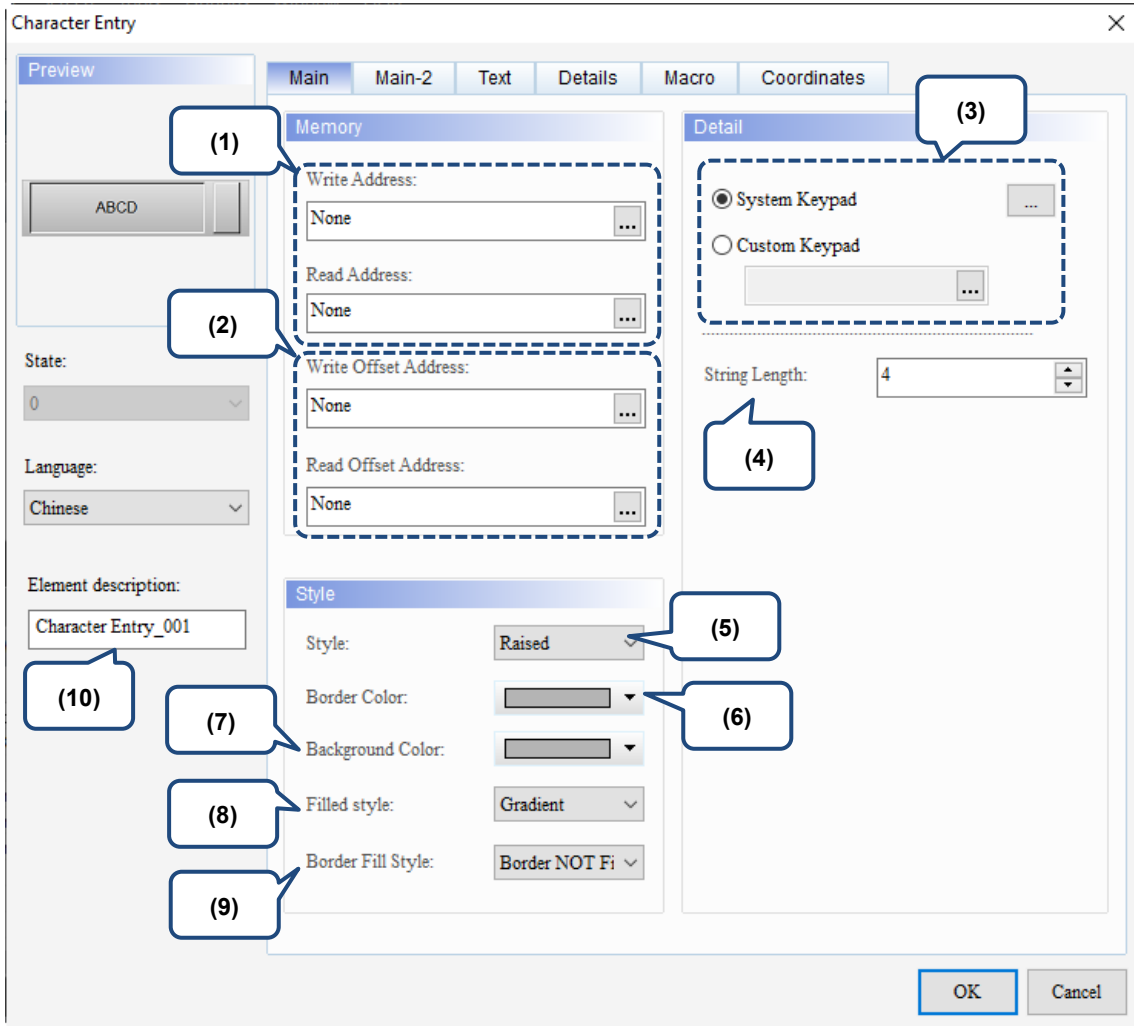
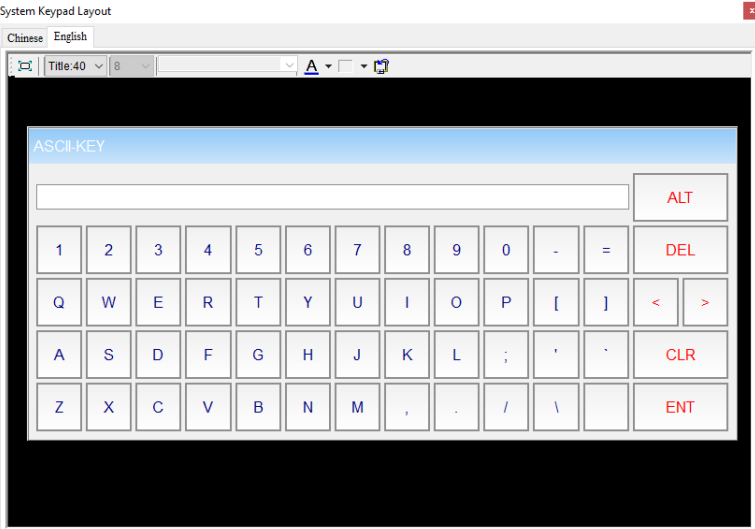
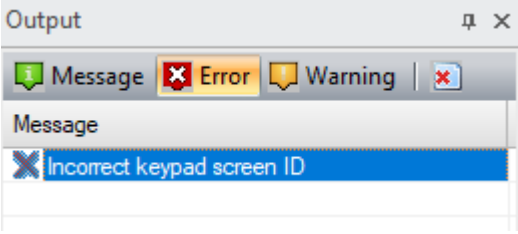
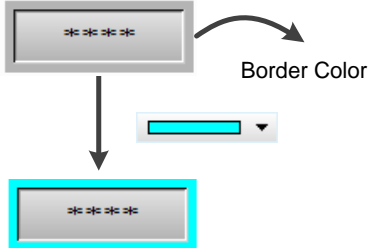
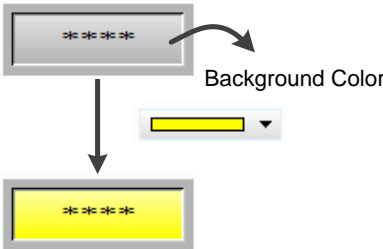






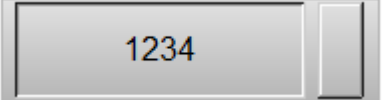
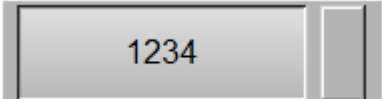
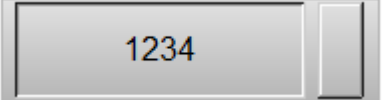
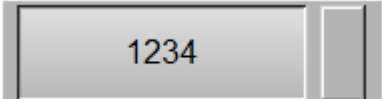
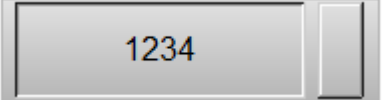
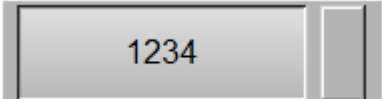


Figure 13.2.4 Main property page for the Character Entry element

No.	Property	Function description
(1)	Write Address	■ You can select the internal memory or the controller register address.
	Read Address	■ Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
(2)	Write Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
	Read Offset Address	

No.	Property	Function description														
(3)	System Keypad	<p>In the System Keypad Layout window, you can adjust the size of the keypad window, title size, font size / type / color of the numeric display, and the background color of the keypad window.</p>  <table border="1"> <tr> <td></td> <td>Select the size of the System Keypad.</td> </tr> <tr> <td>Title:40</td> <td>Set the title column height.</td> </tr> <tr> <td>10</td> <td>Set the font size.</td> </tr> <tr> <td>Arial</td> <td>Set the font type.</td> </tr> <tr> <td></td> <td>Set the font color.</td> </tr> <tr> <td></td> <td>Set the background color.</td> </tr> <tr> <td></td> <td>Default size.</td> </tr> </table>		Select the size of the System Keypad.	Title:40	Set the title column height.	10	Set the font size.	Arial	Set the font type.		Set the font color.		Set the background color.		Default size.
		Select the size of the System Keypad.														
Title:40	Set the title column height.															
10	Set the font size.															
Arial	Set the font type.															
	Set the font color.															
	Set the background color.															
	Default size.															
Custom Keypad	<p>You can select the Custom Keypad function only if there is a Keypad Screen in the editing screen. When there is no Keypad Screen, the following message displays when you compile.</p> 															
(4)	String Length	The range of the String Length is 1 - 256.														
(5)	Style	<p>You can change the appearance of the element with this setting. There are four types of element styles:</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent										
Standard	Raised	Sunken	Transparent													

13

No.	Property	Function description				
(6)	Border Color	<ul style="list-style-type: none"> ■ Set the border color of the element. ■ When you set the Style to Transparent, the Border Color setting is invalid. 				
(7)	Background Color	<ul style="list-style-type: none"> ■ Set the background color of the element. ■ When you set the Style to Transparent, the Background Color setting is invalid. 				
(8)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						
(9)	Border Fill Style	<ul style="list-style-type: none"> ■ The border display of the Entry elements on the DOP-100 series models is different from that on the DOP-B series models. To have the border display effect be the same as that on the DOP-B series models, when you open the DOP-B project on a DOP-100 series model, the border is displayed with solid color. ■ The default Border Fill Style for the DOP-100 series models is Border NOT Fill, meaning the border of the element is displayed with a gradient color. <table border="1"> <tr> <td>Border NOT Fill (gradient color)</td> <td></td> </tr> <tr> <td>Border Fill (solid color)</td> <td></td> </tr> </table>	Border NOT Fill (gradient color)		Border Fill (solid color)	
Border NOT Fill (gradient color)						
Border Fill (solid color)						

No.	Property	Function description																																																																																																																																																																																											
(8)	Element description	Record the element actions to be executed. The record is written in the CSV file of the Operation Log Table so users can know what actions have been done.																																																																																																																																																																																											
		<table border="1"> <thead> <tr> <th></th> <th>Time</th> <th>Date</th> <th>Level</th> <th>Screen</th> <th>Desc</th> <th>Action</th> <th>Pre Value</th> <th>Change Value</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13:37:54</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>13:37:56</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>13:38:19</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td></td> <td>Level Switch</td> <td>8</td> <td>4</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>13:38:22</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> <td></td> <td></td> </tr> <tr> <td>7</td> <td>13:38:23</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> <td></td> <td></td> </tr> <tr> <td>8</td> <td>13:38:31</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td></td> <td>Level Switch</td> <td>4</td> <td>8</td> <td></td> <td></td> </tr> <tr> <td>9</td> <td>13:38:35</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>\$100 Value</td> <td>Set Val</td> <td>85</td> <td>25</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value			1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1	0			2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1			3	13:38:19	5/5/2016	8	Screen_22		Level Switch	8	4			4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1			5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0			6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1			7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0			8	13:38:31	5/5/2016	4	Screen_22		Level Switch	4	8			9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25																																																																															
			Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value																																																																																																																																																																																			
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9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25																																																																																																																																																																																					

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■ Main-2

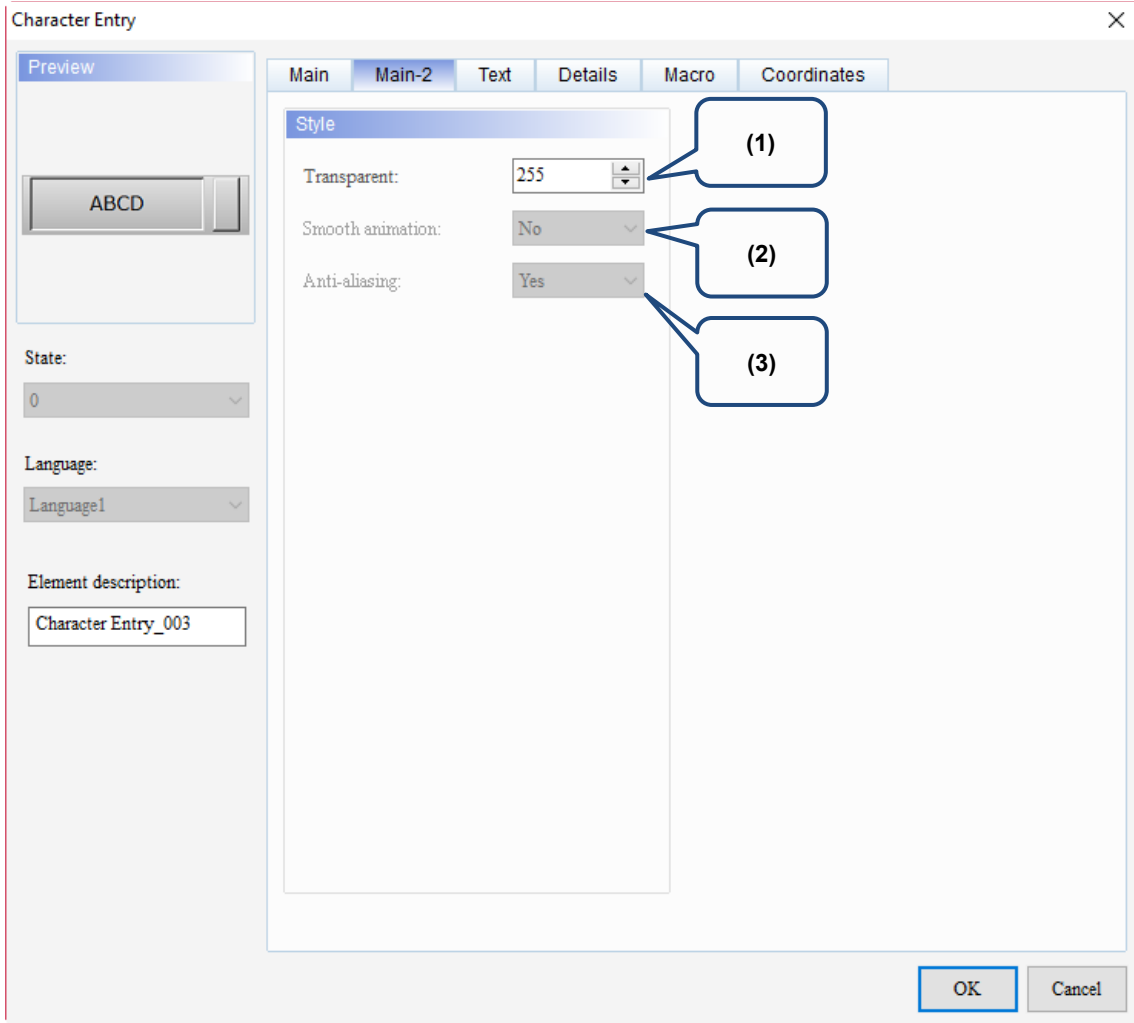


Figure 13.2.5 Main-2 property page for the Character Entry element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

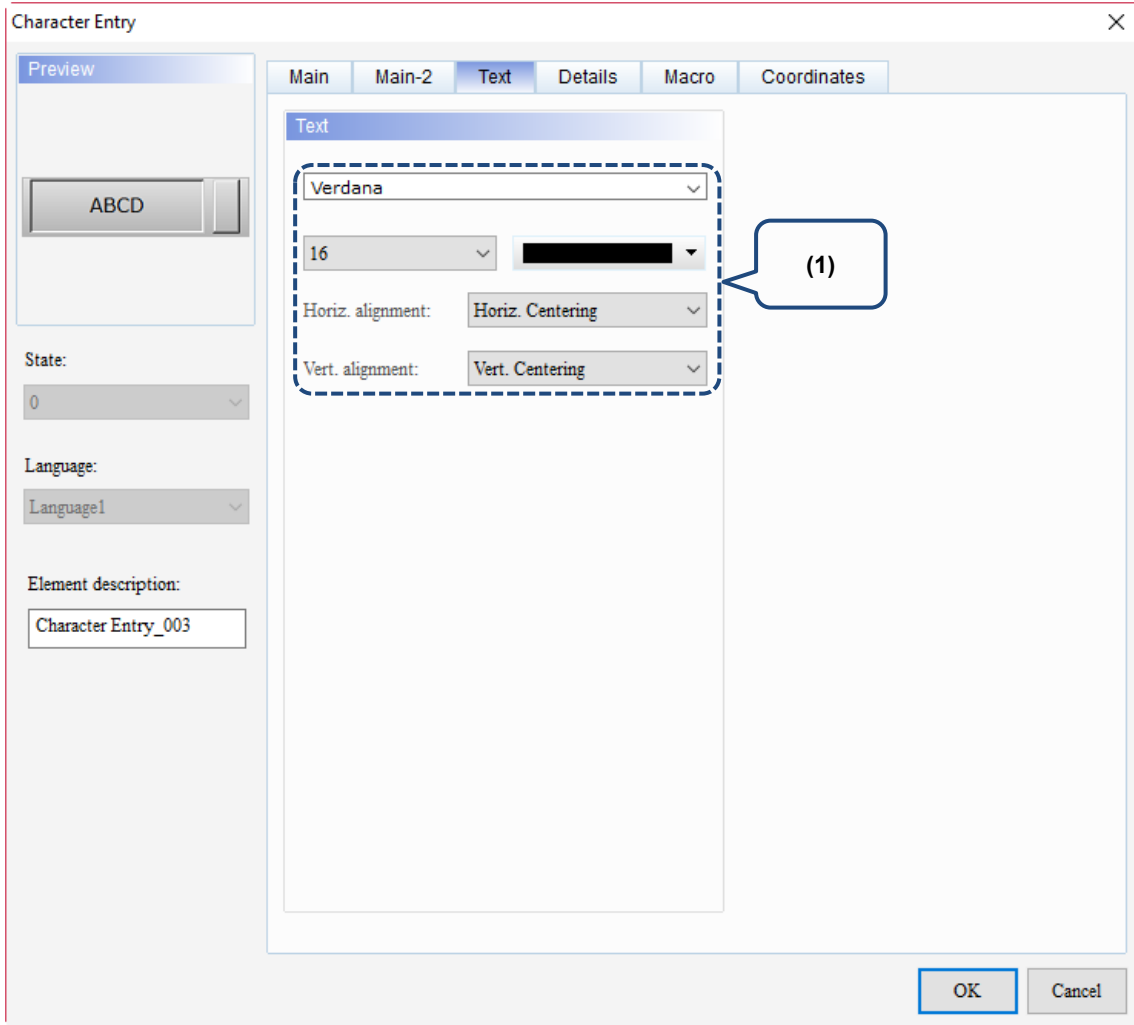


Figure 13.2.6 Text property page for the Character Entry element

No.	Property	Function description
(1)	Text	Set the text properties, including the font, size, color, and alignment.

13

■ Details

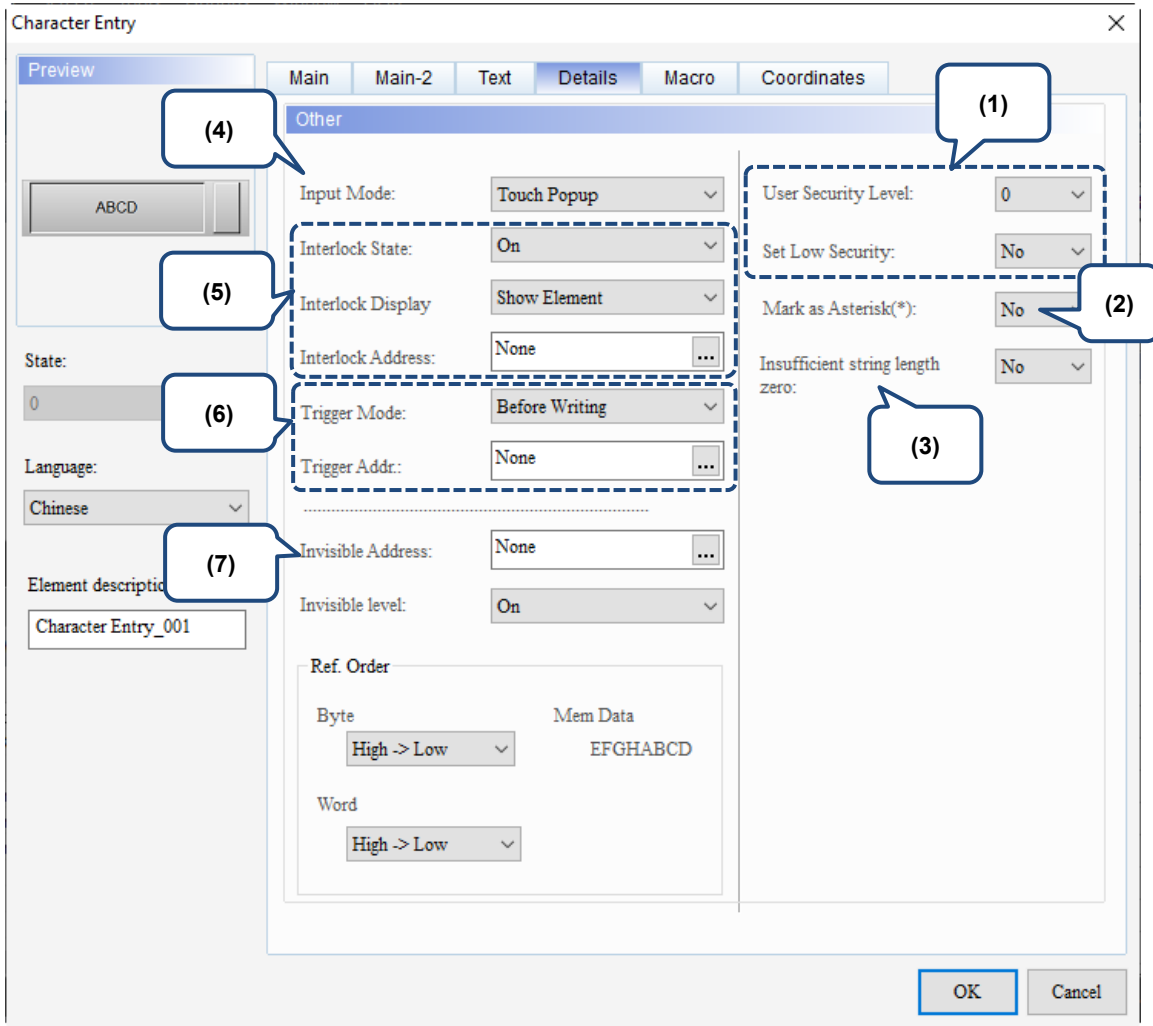
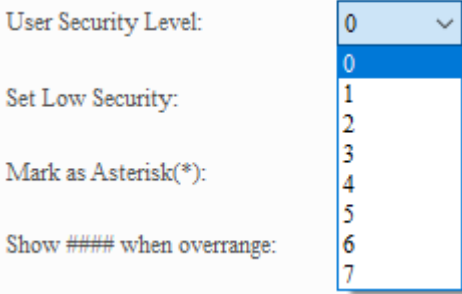
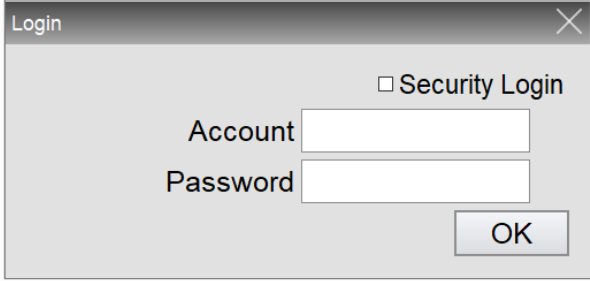

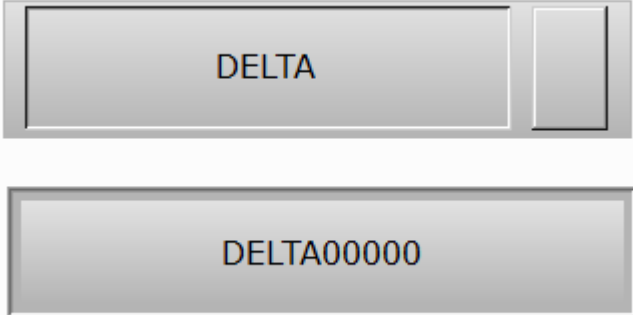
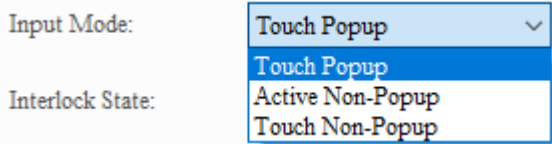

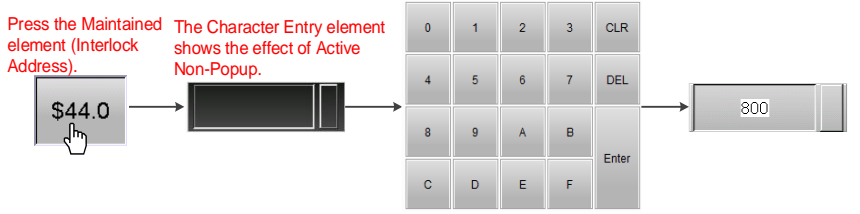
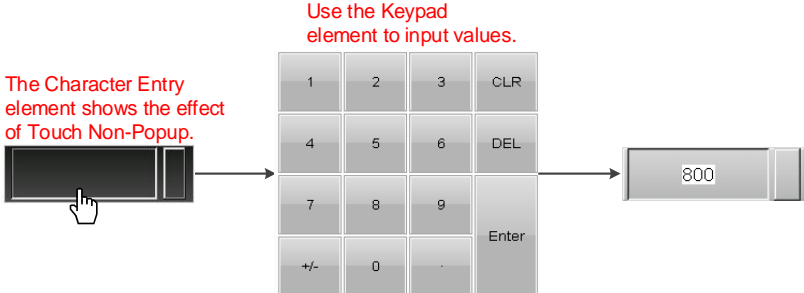
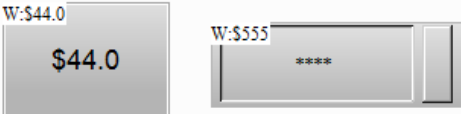
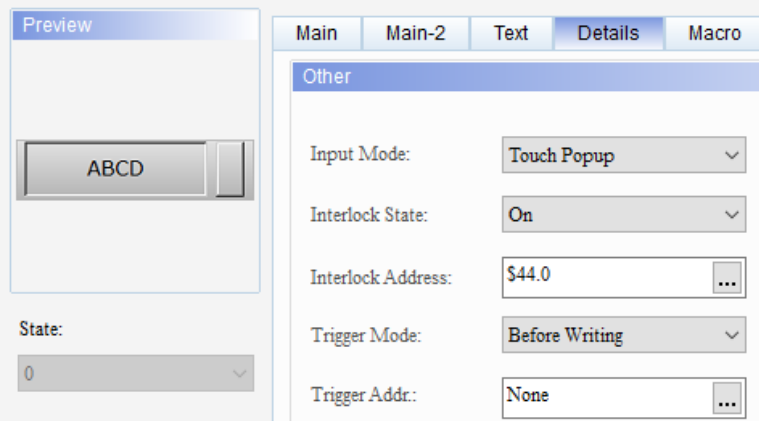


Figure 13.2.7 Details property page for the Character Entry element

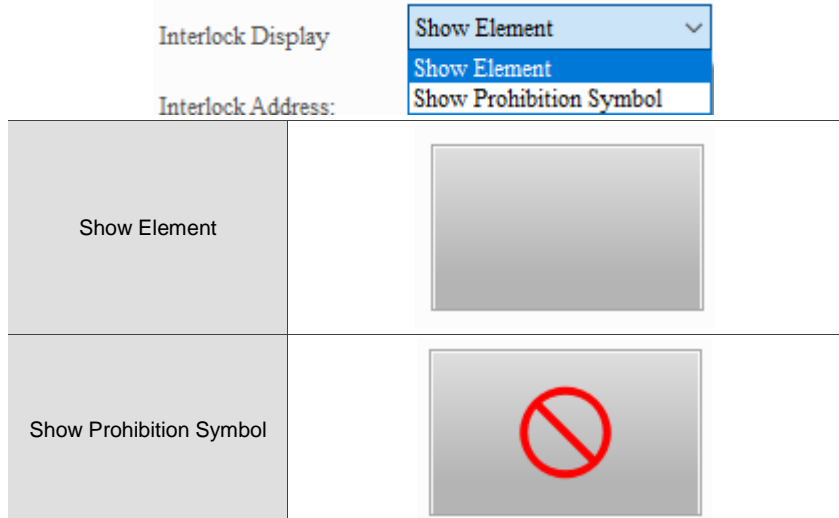
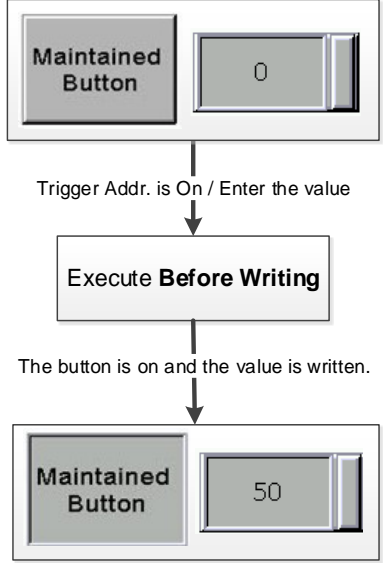
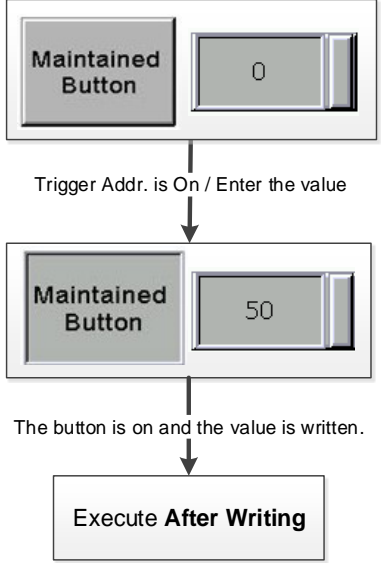
No.	Property	Function description
(1)	User Security Level	<ul style="list-style-type: none"> You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. 
	Set Low Security	<ul style="list-style-type: none"> After you set the User Security Level and press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password with the Password Table element; refer to Section 5.7.2 Password Table Setup). 
(2)	Mark as Asterisk (*)	<p>If you specify Mark as Asterisk (*) to Yes, the value appears as asterisks when you input a value to the ASCII Keypad, as shown in the following figure:</p> 



13

No.	Property	Function description
(3)	Insufficient string length zero	<p>When the length of the input string is less than the set length, the remaining characters will be filled in with zeros for display.</p> 
(4)	Input Mode	<ul style="list-style-type: none"> The types of Input Mode include Touch Popup, Active Non-Popup, and Touch Non-Popup. Touch Popup is the default Input Mode for the Character Entry element.  <ul style="list-style-type: none"> Touch Popup means that after the Character Entry element is pressed, the ASCII Keypad will appear. <p>When the ASCII Keypad pops up, input the characters, and then press ENT when you are done.</p>  The ASCII Keypad will not appear when you press the Character Entry elements with the Input Mode set as Active Non-Popup or Touch Non-Popup. You must create an additional Keypad element. Active Non-Popup must be used with Interlock Address. Set the Input Mode as Active Non-Popup and the Interlock Address as \$44.0 for the Character Entry element. Then, create a Maintained element and set its Write Address as \$44.0. 

No.	Property	Function description
(4)	Input Mode	<ul style="list-style-type: none"> Like the case of Active Non-Popup, the ASCII Keypad will not appear when the Input Mode is set as Touch Non-Popup, so you must create an additional Keypad element. <p>The Character Entry element shows the effect of Touch Non-Popup.</p>  <p>Use the Keypad element to input values.</p>
(5)	Interlock State	<ul style="list-style-type: none"> The Interlock Address is for enabling the operation of another element and has to be used with Interlock State. If Interlock State is set to Off, it means the Interlock Address is operable when this Interlock State is off; on the other hand, if Interlock State is set to On, the Interlock Address is operable when this Interlock State is on. The following describes how it works: <ol style="list-style-type: none"> First, create a Maintained button and set its Write Address as \$44.0. Next, set the Write Address as \$555 and the Interlock Address as \$44.0 for the Character Entry element. In order for the Character Entry element \$555 to become operable, you need to first press the Maintained button \$44.0 to enable \$555. 
	Interlock Address	<p>Character Entry</p> 

13

No.	Property	Function description				
(5)	Interlock Display	<ul style="list-style-type: none"> There are two modes for the Interlock Display, Show Element and Show Prohibition Symbol. 				
(6)	Trigger Mode	<ul style="list-style-type: none"> The Trigger Modes include Before Writing and After Writing. <table border="1"> <thead> <tr> <th>Before Writing</th> <th>After Writing</th> </tr> </thead> <tbody> <tr> <td>Trigger Addr. must be set to on before the value changes.</td> <td>Value is changed before the Trigger Addr. is set to on.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The triggering function only switches the set Trigger Addr. to on, so if triggering again is required, you need to set the Trigger Addr. to off. <p>Flowchart of Before Writing:</p>  <p>Flowchart of After Writing:</p> 	Before Writing	After Writing	Trigger Addr. must be set to on before the value changes.	Value is changed before the Trigger Addr. is set to on.
Before Writing	After Writing					
Trigger Addr. must be set to on before the value changes.	Value is changed before the Trigger Addr. is set to on.					
	Trigger Addr.					

No.	Property	Function description
(7)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p> <div style="text-align: center;">   </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Character Entry</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Preview</p> <div style="border: 1px solid gray; padding: 5px; text-align: center; margin-bottom: 10px;">ABCD</div> <p>State: 0</p> <p>Language: Chinese</p> </div> <div style="width: 50%;"> <p>Main | Main-2 | Text | Details | Macro</p> <p>Other</p> <p>Input Mode: Touch Popup</p> <p>Interlock State: On</p> <p>Interlock Display: Show Element</p> <p>Interlock Address: None</p> <p>Trigger Mode: Before Writing</p> <p>Trigger Addr.: None</p> <p>Invisible Address: \$9.0</p> </div> </div> </div>

13

EASCII instructions

The DOP-100 series support EASCII by default. You can enter the contents by simply creating a Keypad Screen or Keypad element. Refer to the following example descriptions for more details.

- The default of this function is Yes meaning the HMI can support Swedish.
- There are IBM and ISO/IEC 8859-1 defined Extended ASCII. The EASCII version is different in every operating system, but most of them follow the characters defined in ISO/IEC 8859-1. Microsoft adopts the definition of ISO/IEC 8859-1, so the HMI also adopts the definition of ISO/IEC 8859-1.

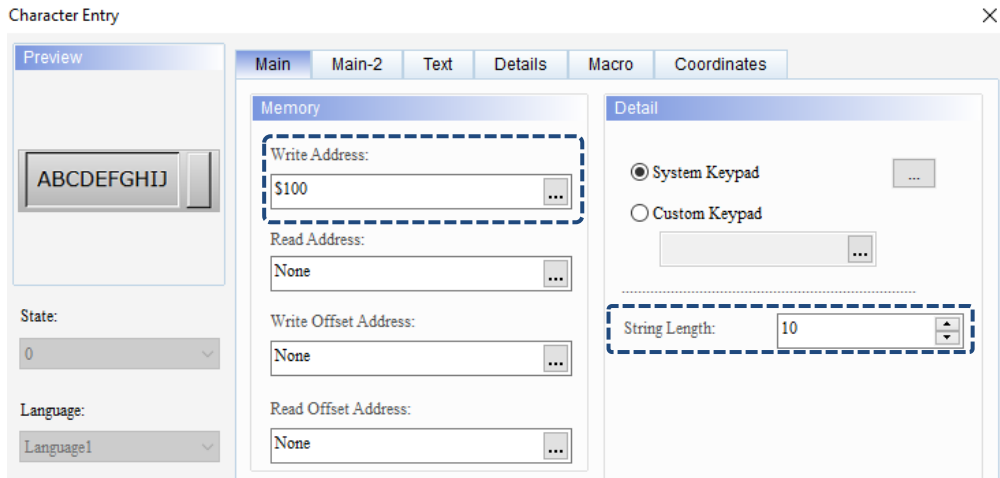
The supported extended characters are shown in the following table:

Character						
€	—	¬	ı	Ò	â	ø
,	~		À	Ó	æ	ù
f	™	®	Á	Ô	ç	ú
”	š	-	Â	Õ	è	û
...	›	°	Ã	Ö	é	ü
†	œ	±	Ä	×	ê	ý
‡	ž	²	Å	Ø	ë	þ
^	ÿ	³	Æ	Ù	ì	ÿ
‰	ı	´	Ç	Ú	í	
Š	ç	µ	È	Û	î	
‹	£	¶	É	Ü	ï	
Œ	¤	·	Ê	Ý	ð	
Ž	¥	¸	Ë	Þ	ñ	
‘	ı	¹	Ì	ß	ò	
’	§	º	Í	à	ó	
“	”	»	Î	á	ô	
”	©	¼	Ï	â	õ	
•	ª	½	Ð	ã	ö	
–	«	¾	Ñ	ä	÷	

Method 1: Keypad element.

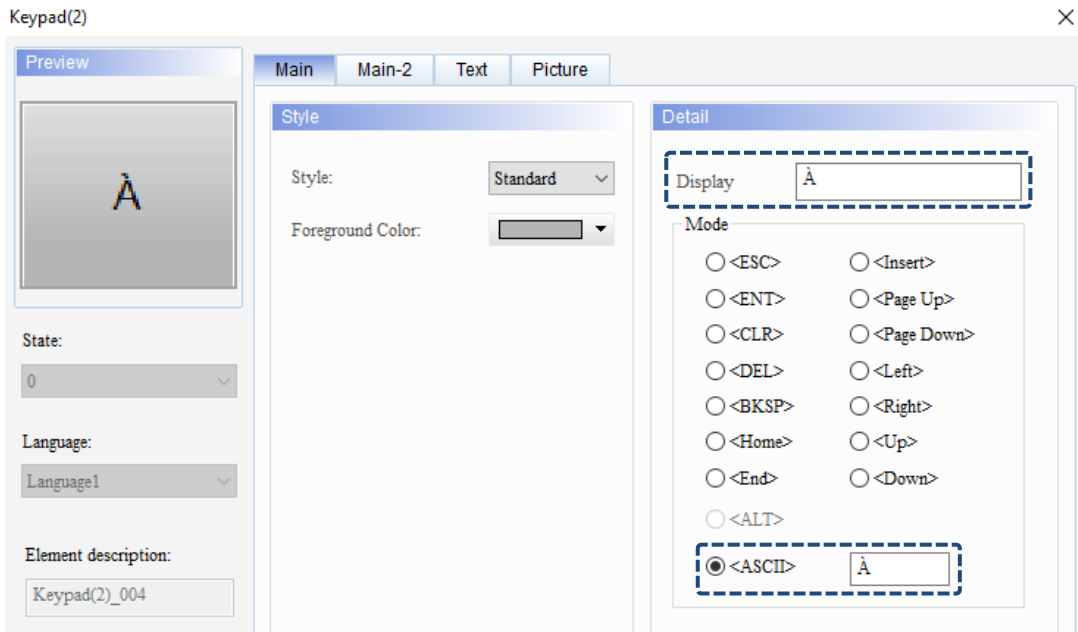
The following explains how the Keypad element works with EASCII.

1. **Create a Character Entry element:** set the Write Address to \$100 and String Length to 10.



2. **Create a Keypad(2) element:**

- (1) Enter any of the earlier mentioned extended characters to the ASCII Display field.



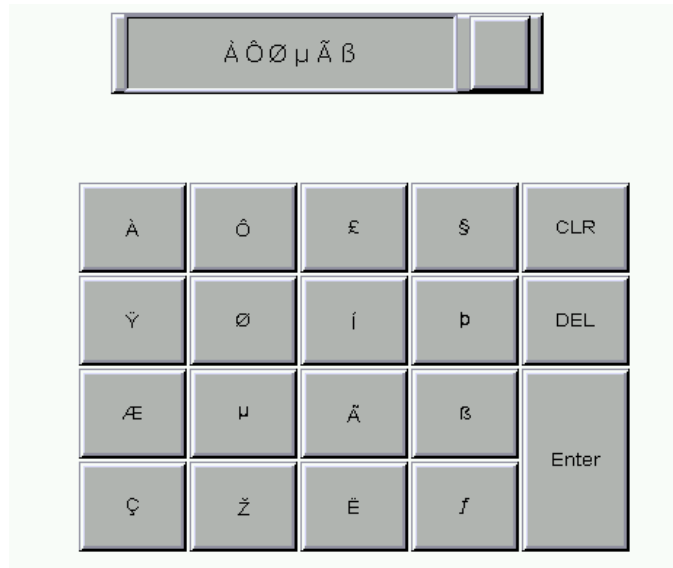
- (2) Continue with the previous step and complete the settings for all characters.

À	Ô	£	§	CLR
ÿ	ø	í	þ	DEL
Æ	μ	Ä	ß	Enter
ç	ž	È	f	

13

- 3. **Compile and download:** after completing all settings, compile and download the elements to the HMI.

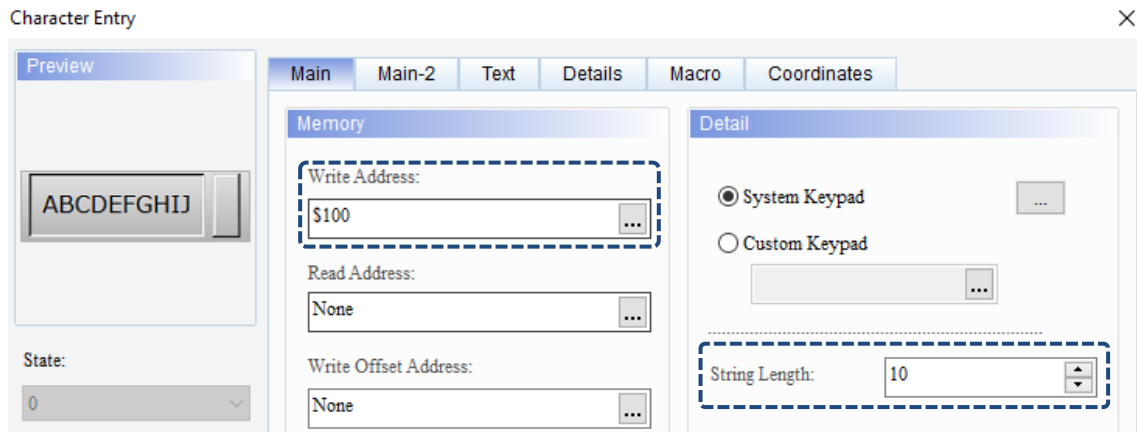
First, press the Character Entry element, and then press the extended characters on the keypad. When you are done inputting, press **Enter**.



Method 2: Keypad Screen.

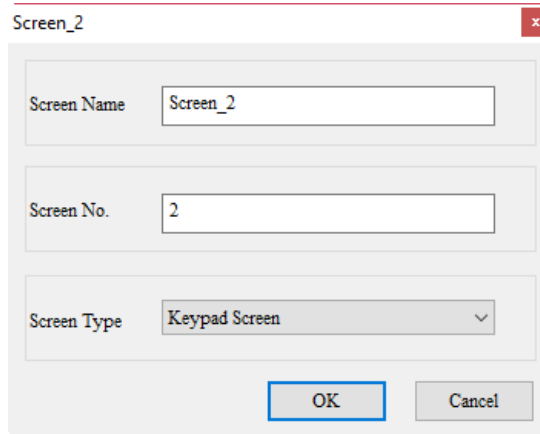
The following explains how to create a Keypad Template with the Keypad Screen to work with EASCII.

- 1. **Create a Character Entry element:** set the Write Address to \$100 and String Length to 10.

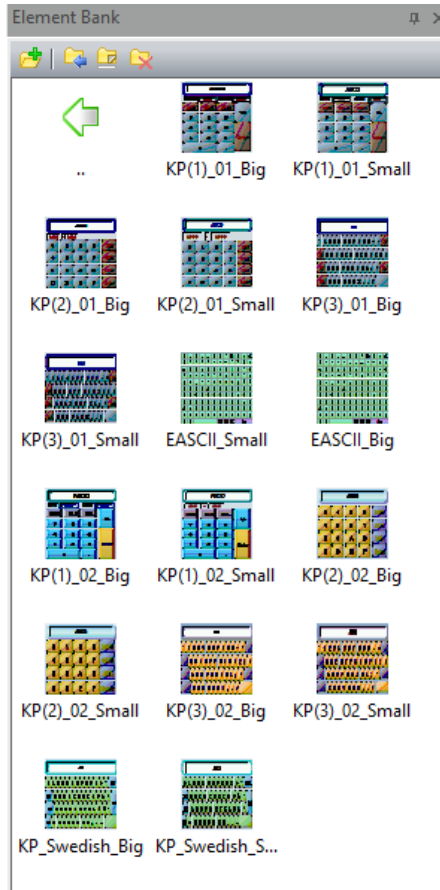
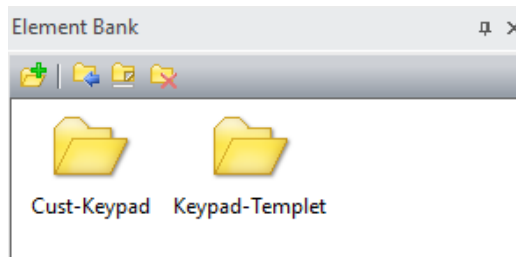


2. Create a Keypad Screen:

(1) Create a new screen and set the Screen Type as Keypad Screen.

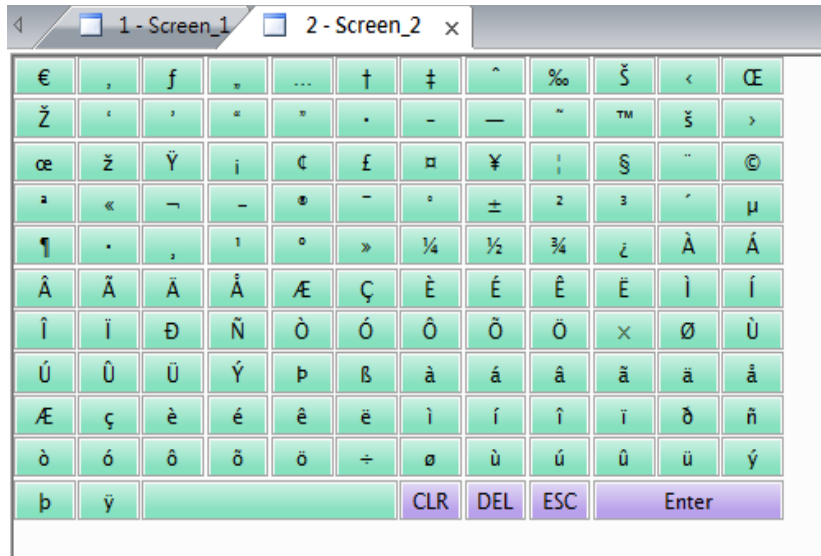


(2) Go to the Element Bank, select Keypad-Template, and create an EASCII_Small template keypad.



13

(3) The following figure is how the keypad looks like.

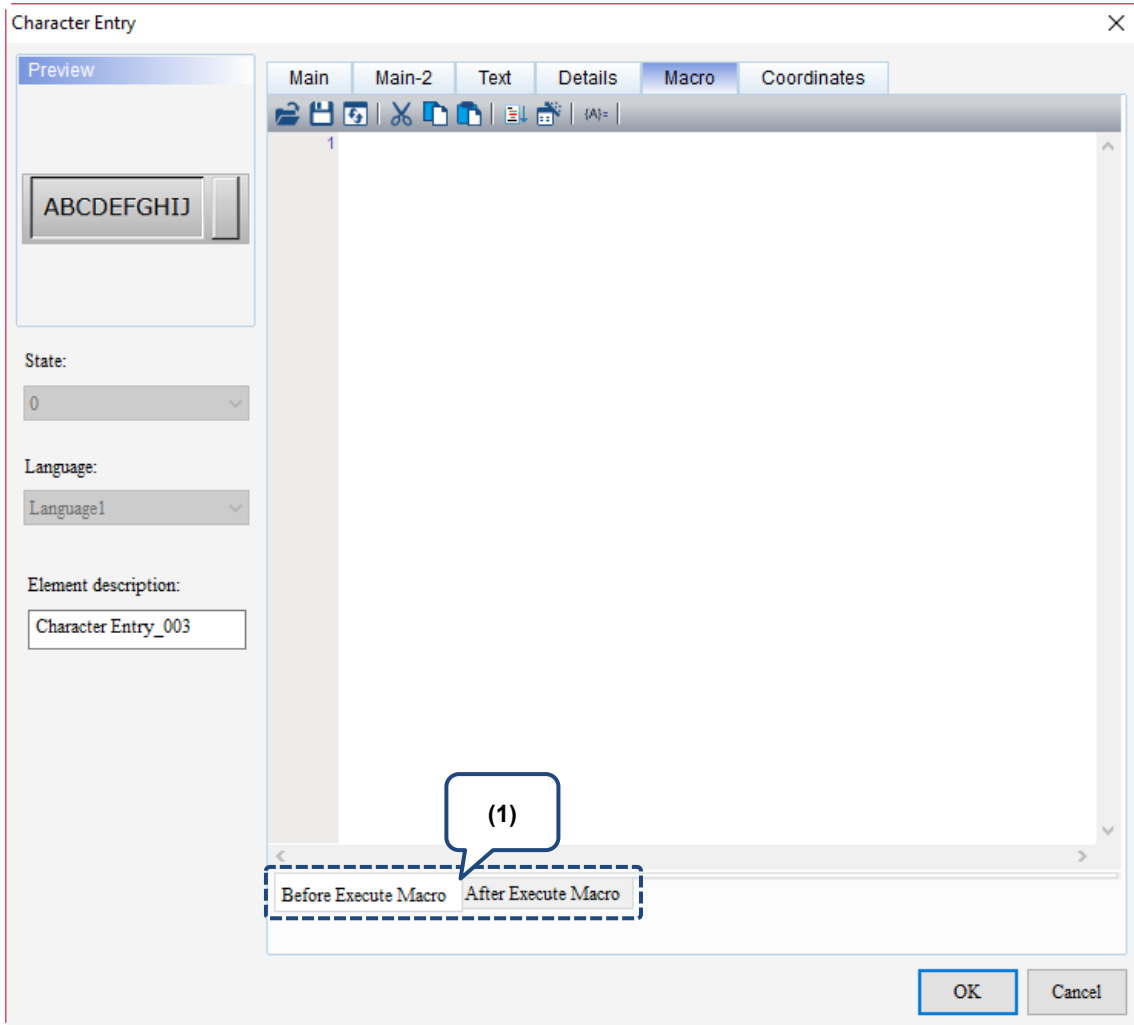


3. **Compile and download:** after completing all settings, compile and download the elements to the HMI.

First, press the Character Entry element, then the Keypad Template element appears, and then you can input the Extended ASCII characters.



■ Macro



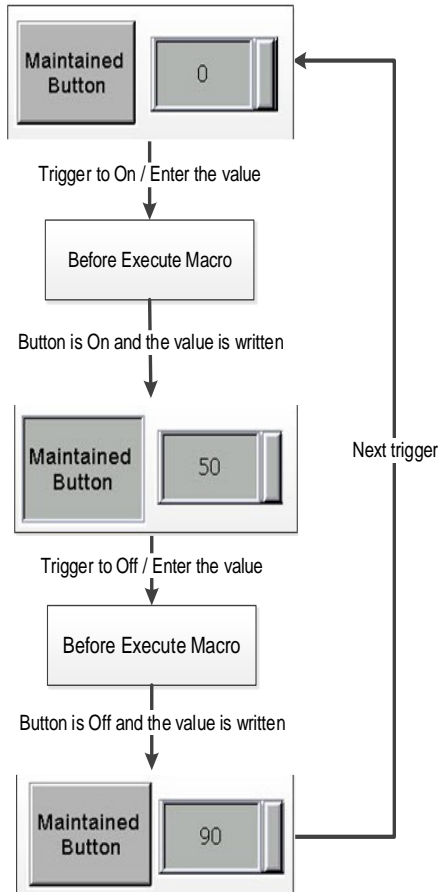
13

Figure 13.2.8 Macro property page for the Character Entry element

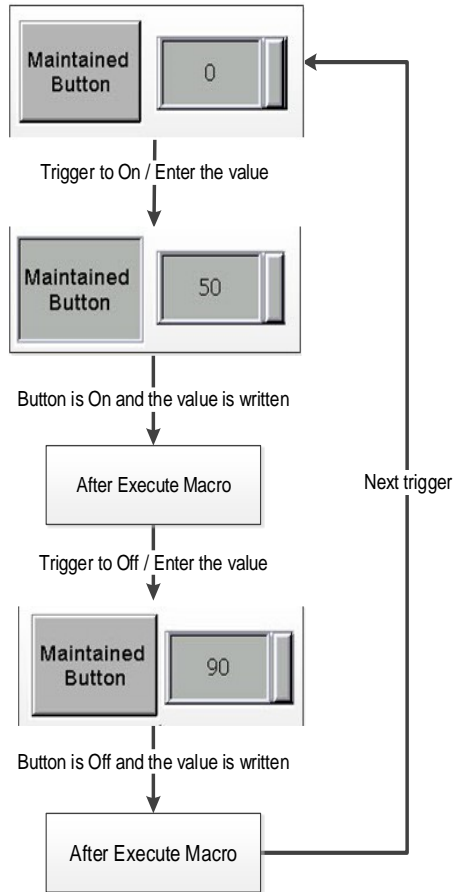
13

No.	Property	Function description
(1)	Before Execute Macro	When you press the button element, the HMI will first execute the macro commands, and then execute the action of the button. However, if the state of the button is not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.
	After Execute Macro	When you press the button element, the HMI will first execute the action of the button, and then execute the macro commands. However, if the state of the button is not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.

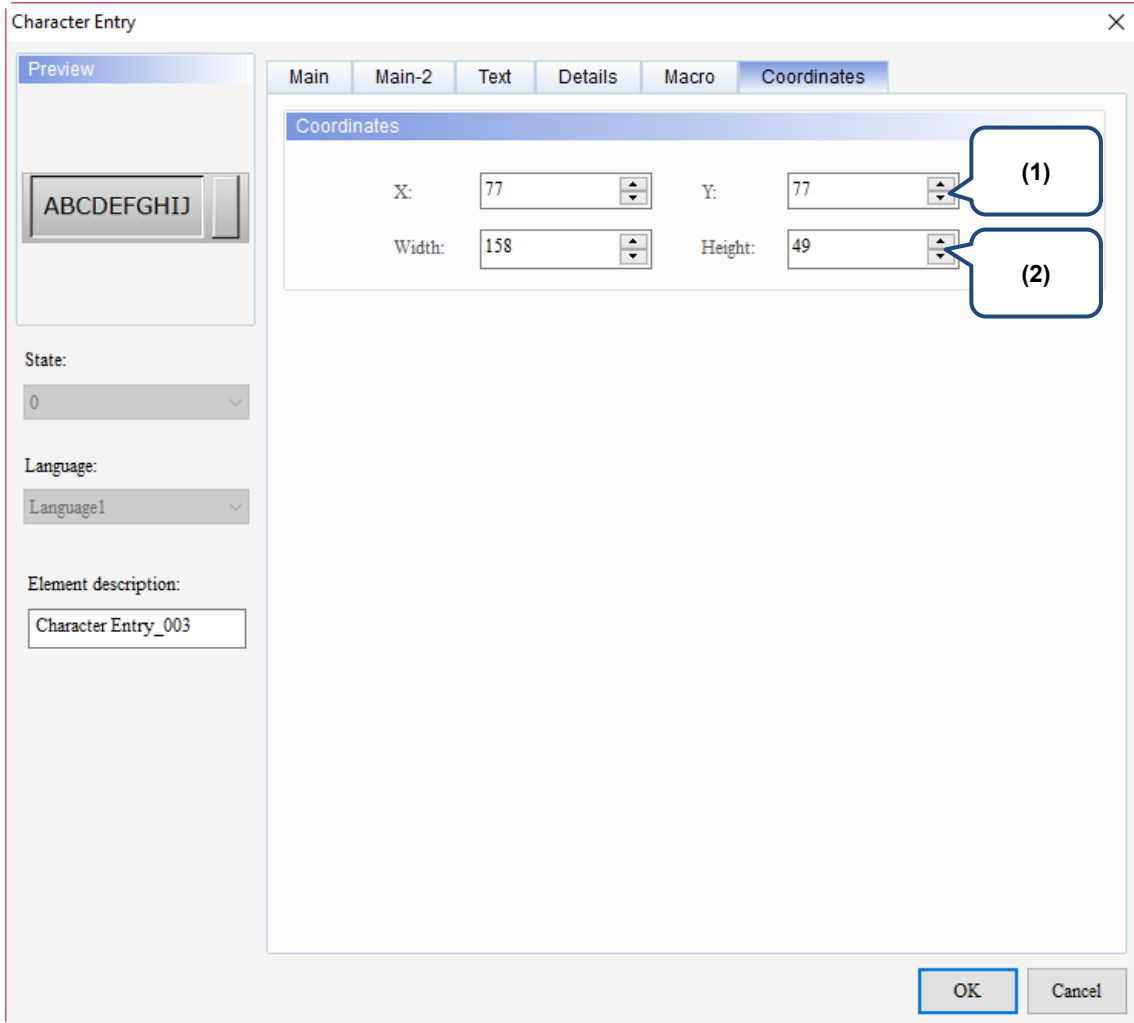
Flowchart of Before Execute Macro:



Flowchart of After Execute Macro:



■ Coordinates



13

Figure 13.2.9 Coordinates property page for the Character Entry element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.


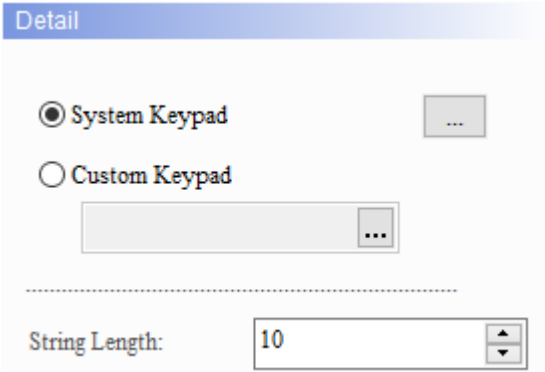
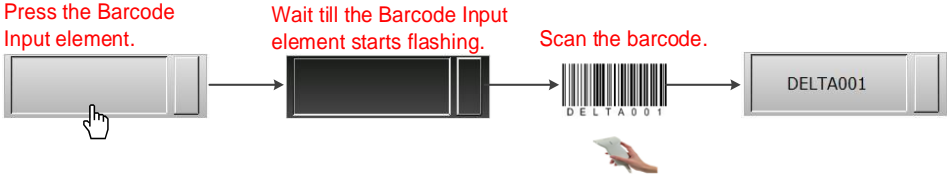
13

13.3 Barcode Input

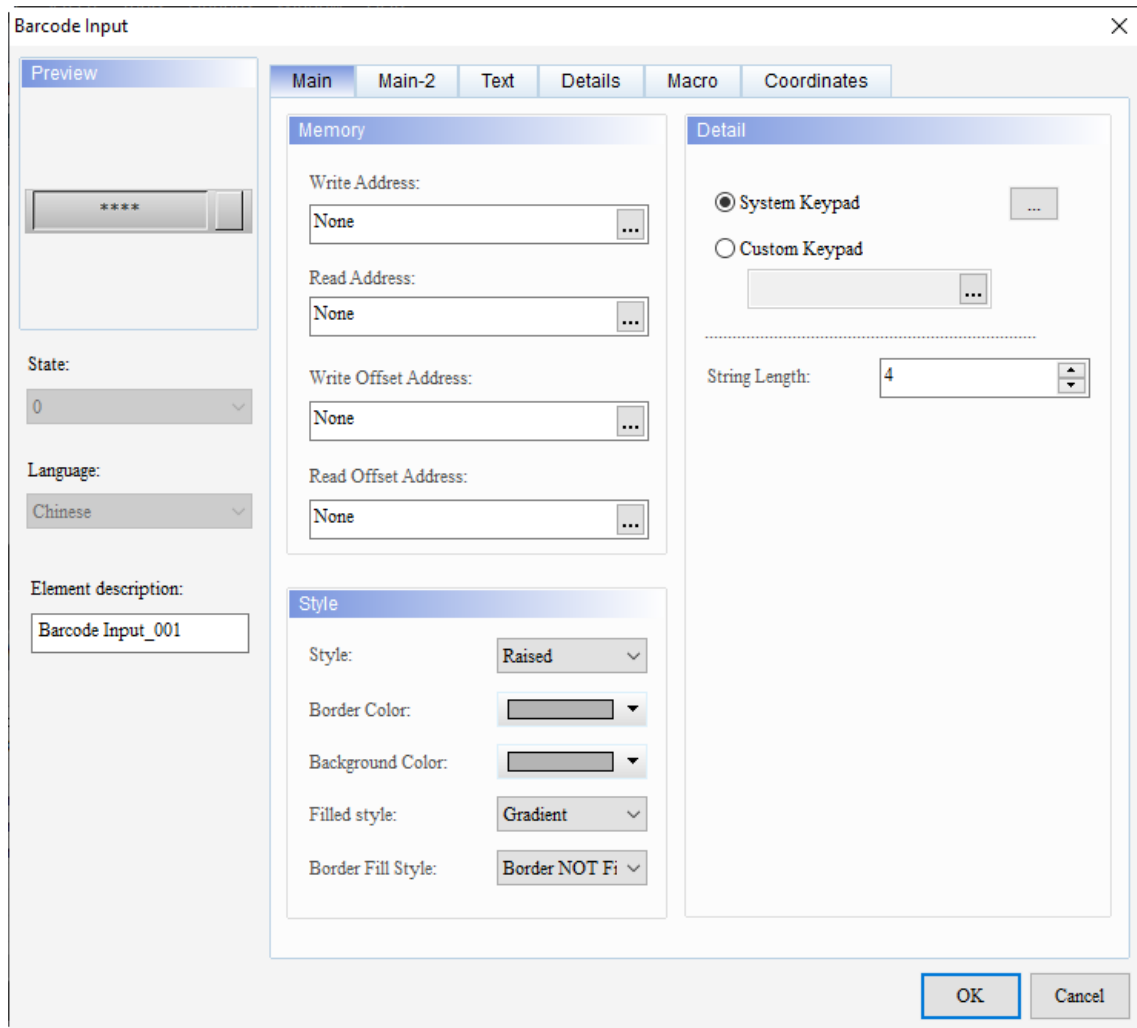
The Barcode Input element supports only the 1D barcode input of ASCII code. Therefore, the format is character for both the display and input.

The barcode reader supported by the HMI is a scanning device that does not require additional drivers. Refer to Table 13.3.1 for the Barcode Input example.

Table 13.3.1 Barcode Input example

Barcode Input					
Address settings	<table border="1"> <thead> <tr> <th colspan="2">Barcode Input element</th> </tr> </thead> <tbody> <tr> <td>Write Address</td> <td>\$555</td> </tr> </tbody> </table> 	Barcode Input element		Write Address	\$555
Barcode Input element					
Write Address	\$555				
Detail settings	<table border="1"> <thead> <tr> <th colspan="2">Barcode Input element</th> </tr> </thead> <tbody> <tr> <td>String Length</td> <td>10</td> </tr> </tbody> </table> 	Barcode Input element		String Length	10
Barcode Input element					
String Length	10				
Execution results	<ul style="list-style-type: none"> After creating the element, compile and download the element to the HMI, and then connect the barcode reader to the HMI. The HMI will beep once it recognizes the barcode reader. Press the Barcode Input element first. When the element starts flashing, scan the barcode, and the codes are displayed on the Barcode Input element. 				

When you double-click the Barcode Input, the property page is shown as follows.



13

Figure 13.3.1 Properties of Barcode Input

Table 13.3.2 Function page of Barcode Input

Barcode Input	
Function page	Description
Preview	Barcode Input elements do not support multiple state values and multi-language data display.
Main	Set the Read Address, Write Address, Read Offset Address, Write Offset Address; set the Style, Background Color, Border Color, Filled style, Border Fill Style, and String Length.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the displaying text font, size, color, and alignment options.
Details	Set the Input Mode, Interlock State, Interlock Display Mode, Interlock Address, Trigger Mode, Trigger Addr., Invisible Address, User Security Level, Set Low Security, and Mark as Asterisk (*).
Macro	Set the Before Execute Macro and After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

13

■ Main

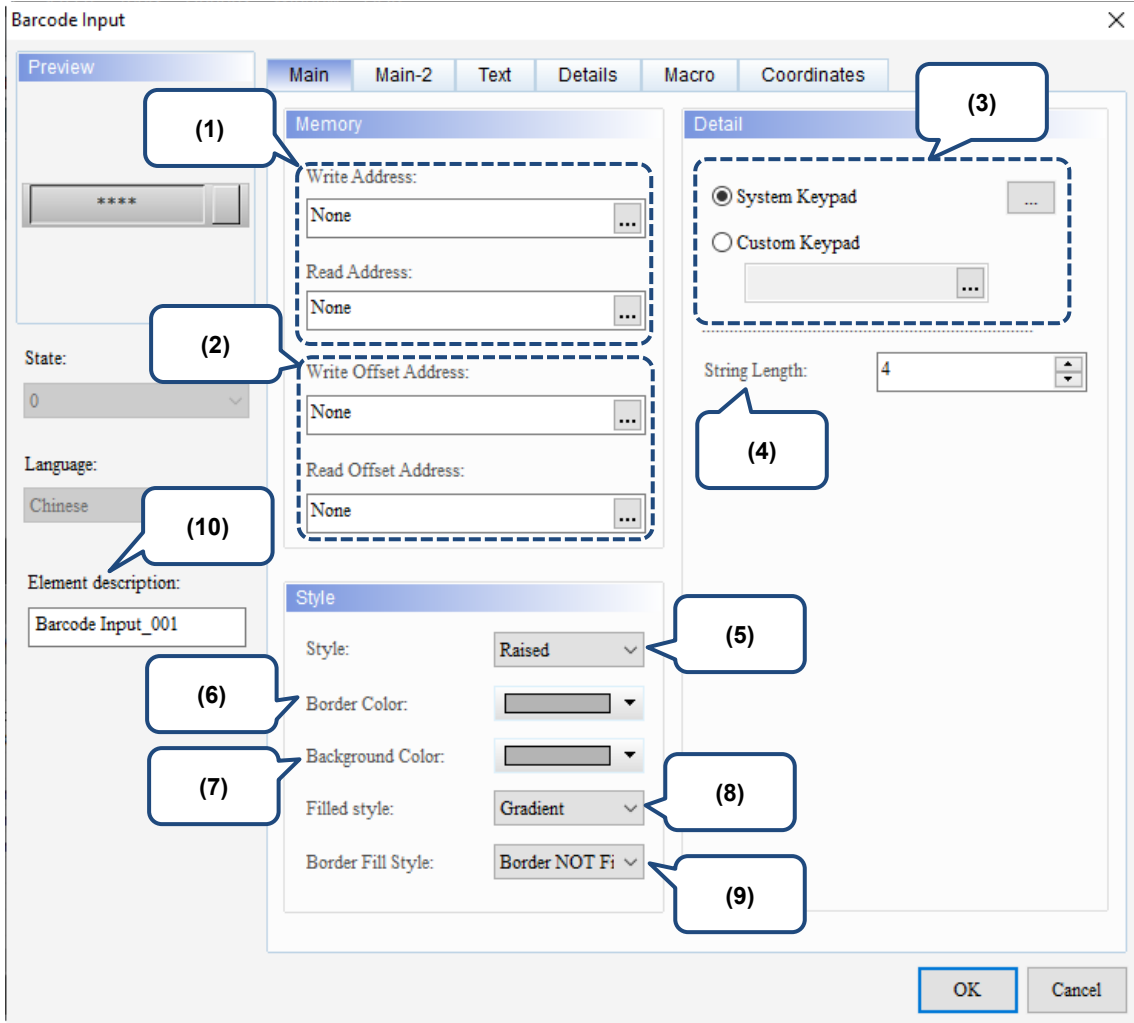
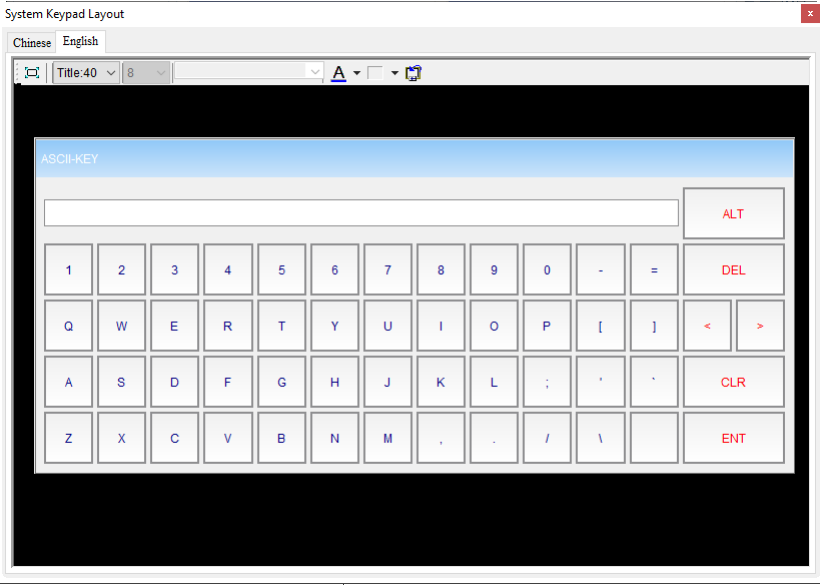

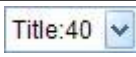






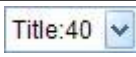






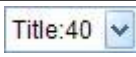





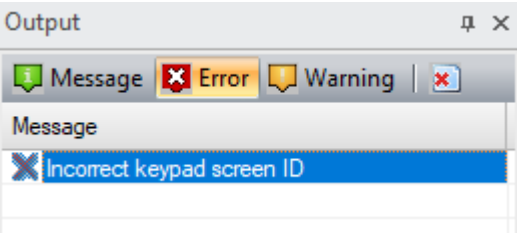
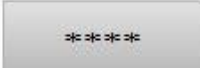
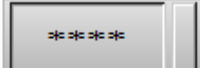
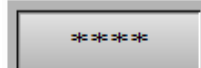
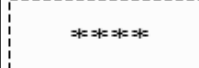
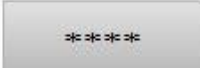
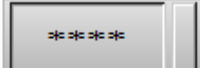
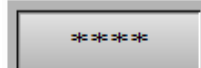
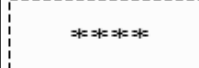
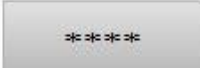
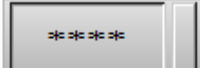
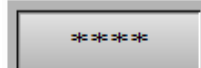
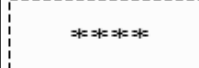
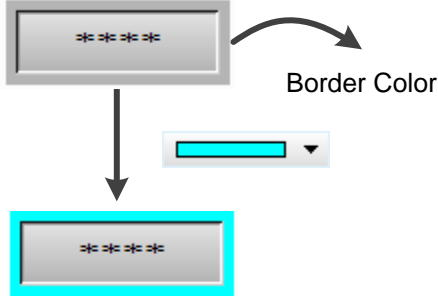
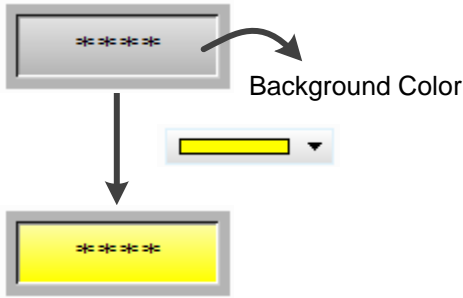






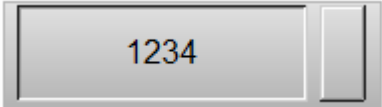
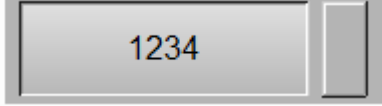
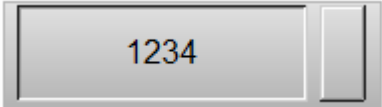
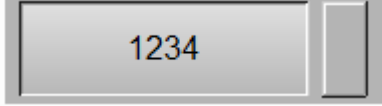
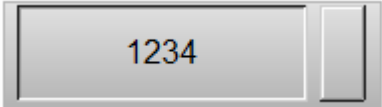
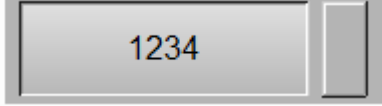


Figure 13.3.2 Main property page for the Barcode Input element

No.	Property	Function description
(1)	Write Address	■ You can select the internal memory or the controller register address.
	Read Address	■ Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
(2)	Write Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
	Read Offset Address	

No.	Property	Function description														
<p>(3)</p>	<p>System Keypad</p>	<p>In the System Keypad Layout window, you can adjust the size of the keypad window, title size, font size / type / color of the numeric display, and the background color of the keypad window.</p>  <table border="1"> <tr> <td></td> <td>Select the size of the System Keypad.</td> </tr> <tr> <td></td> <td>Set the title column height.</td> </tr> <tr> <td></td> <td>Set the font size.</td> </tr> <tr> <td></td> <td>Set the font type.</td> </tr> <tr> <td></td> <td>Set the font color.</td> </tr> <tr> <td></td> <td>Set the background color.</td> </tr> <tr> <td></td> <td>Default size.</td> </tr> </table>		Select the size of the System Keypad.		Set the title column height.		Set the font size.		Set the font type.		Set the font color.		Set the background color.		Default size.
		Select the size of the System Keypad.														
	Set the title column height.															
	Set the font size.															
	Set the font type.															
	Set the font color.															
	Set the background color.															
	Default size.															
<p>Custom Keypad</p>	<ul style="list-style-type: none"> You can select the Custom Keypad function only if there is a Keypad Screen in the editing screen. When there is no Keypad Screen, the following message displays when you compile. 															
<p>(4)</p>	<p>String Length</p>	<p>The range of the String Length is 1 - 256.</p>														
<p>(5)</p>	<p>Style</p>	<p>You can change the appearance of the element with this setting. There are four types of element styles:</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent										
Standard	Raised	Sunken	Transparent													
																

13

No.	Property	Function description				
(6)	Border Color	<ul style="list-style-type: none"> ■ Set the border color of the element. ■ When you set the Style to Transparent, the Border Color setting is invalid. 				
(7)	Background Color	<ul style="list-style-type: none"> ■ Set the background color of the element. ■ When you set the Style to Transparent, the Background Color setting is invalid. 				
(8)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tbody> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </tbody> </table>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						
(9)	Border Fill Style	<ul style="list-style-type: none"> ■ The border display of the Entry elements on the DOP-100 series models is different from that on DOP-B series models. To have the border display effect be the same as that on the DOP-B series models, when you open the DOP-B project on a DOP-100 series model, the border is displayed with solid color. ■ The default Border Fill Style for the DOP-100 series models is Border NOT Fill, meaning the border of the element is displayed with a gradient color. <table border="1"> <tbody> <tr> <td>Border NOT Fill (gradient color)</td> <td></td> </tr> <tr> <td>Border Fill (solid color)</td> <td></td> </tr> </tbody> </table>	Border NOT Fill (gradient color)		Border Fill (solid color)	
Border NOT Fill (gradient color)						
Border Fill (solid color)						

No.	Property	Function description									
(10)	Element description	Record the element actions to be executed. The record is written in the CSV file of the Operation Log Table so users can know what actions have been done.									
		Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value		
		1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	1	0	
		2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1	
		3	13:38:19	5/5/2016	8	Screen_22		Level Switch	8	4	
		4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	0	1	
		5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0	
		6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	0	1	
		7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0	
		8	13:38:31	5/5/2016	4	Screen_22		Level Switch	4	8	
		9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Set Val	85	25	

13

■ Main-2

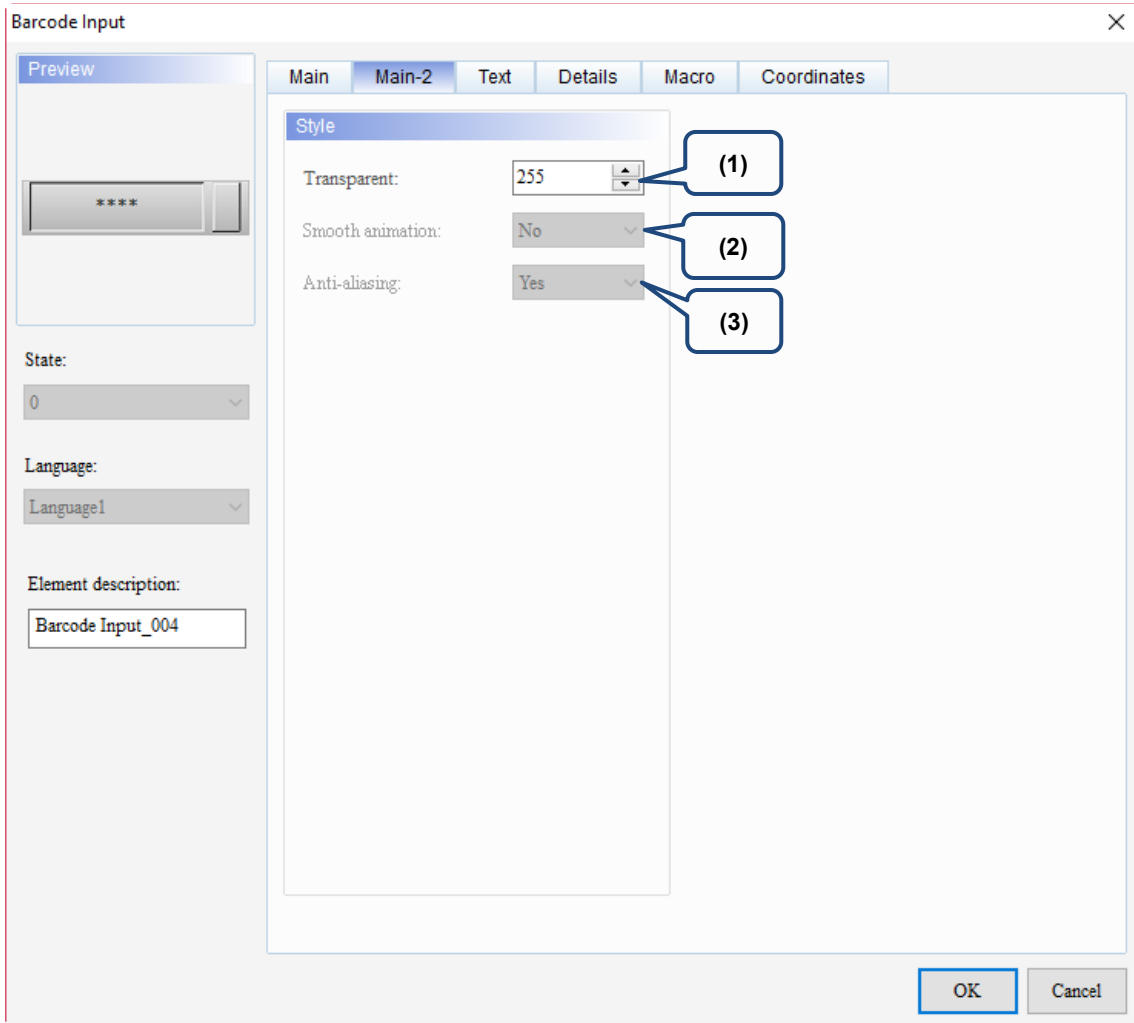
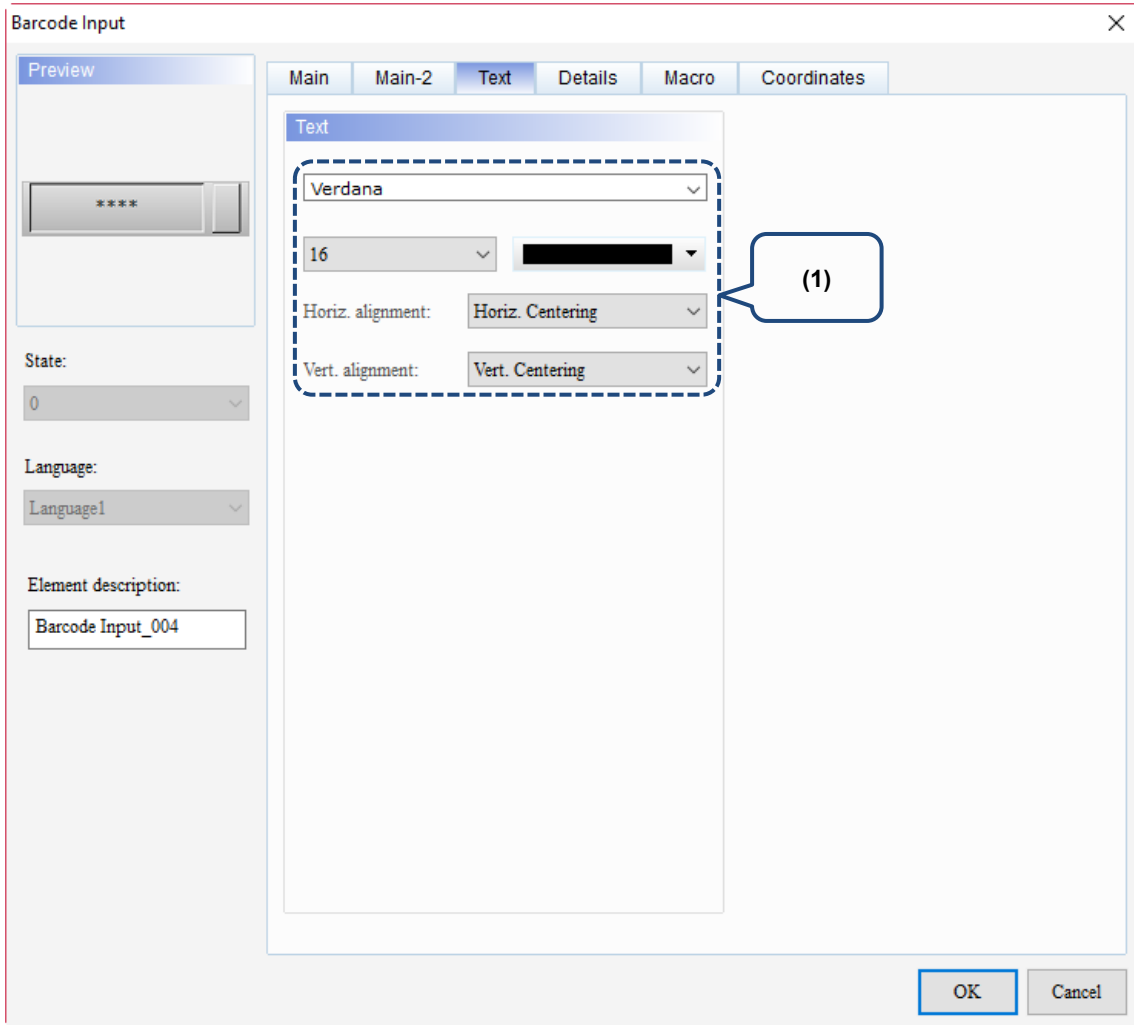


Figure 13.3.3 Main-2 property page for the Barcode Input element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text



13

Figure 13.3 4 Text property page for the Barcode Input element

No.	Property	Function description
(1)	Text	Set the text properties, including the font, size, color, and alignment.

13

■ Details

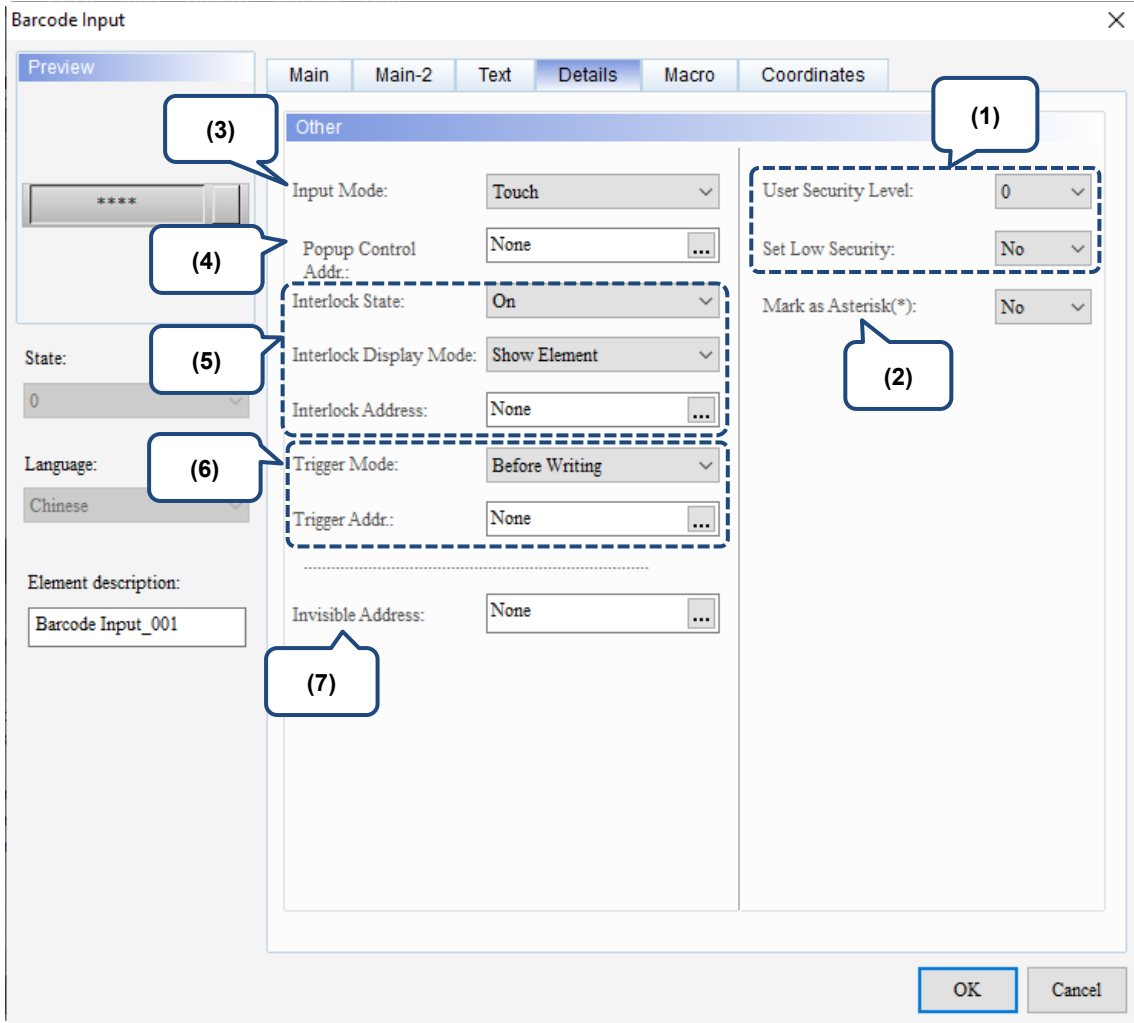
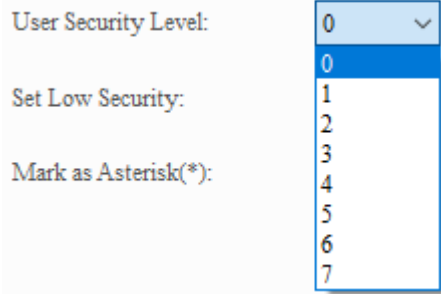
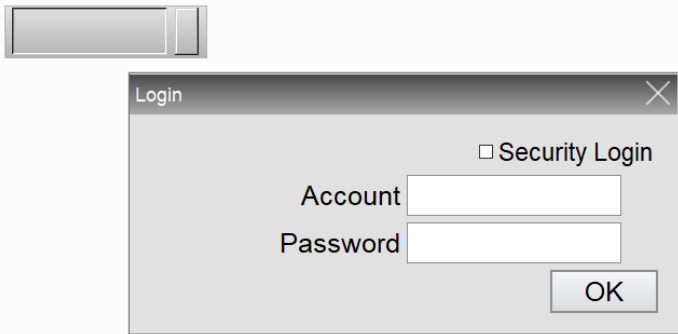

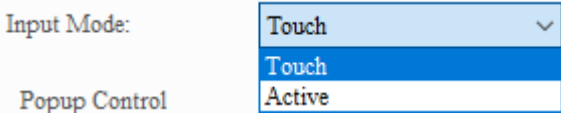

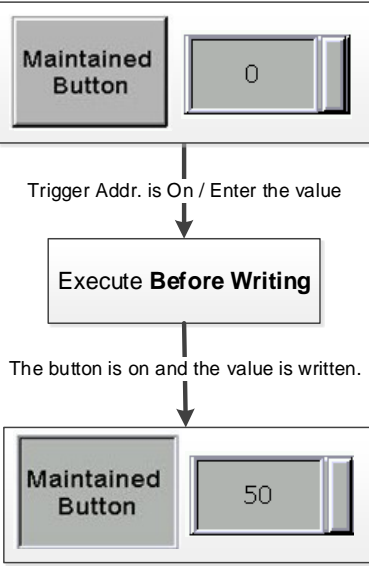
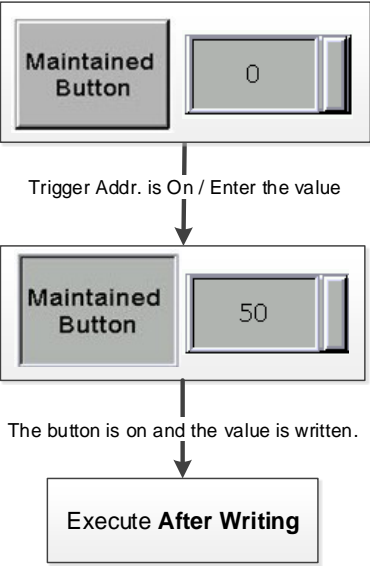


Figure 13.3.5 Details property page for the Barcode Input element

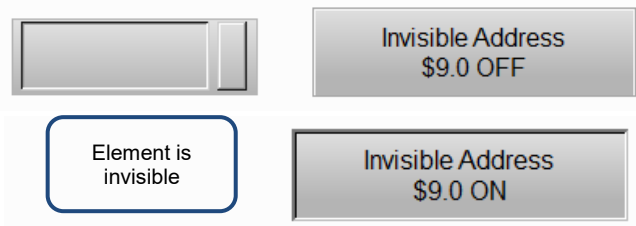
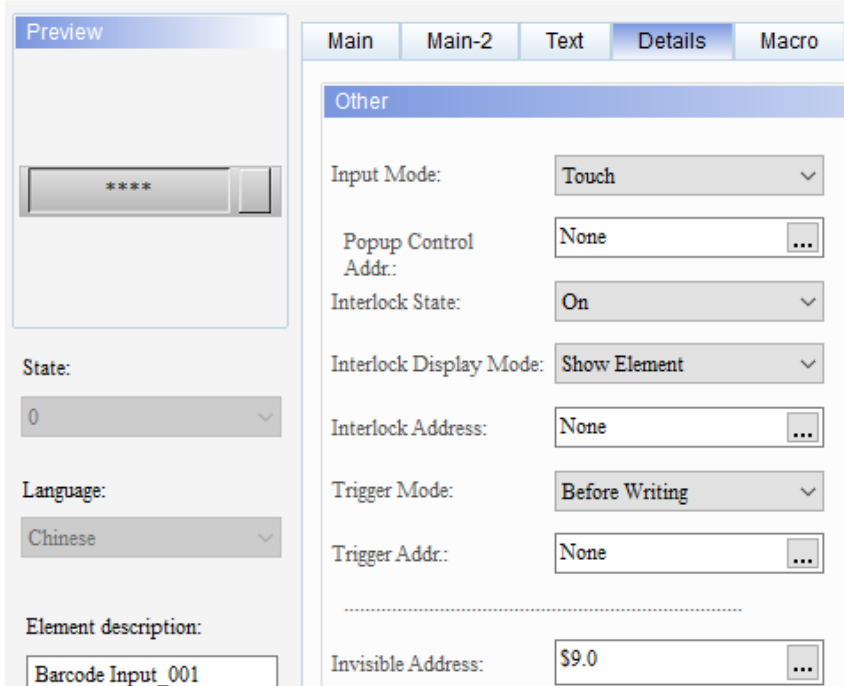
No.	Property	Function description
(1)	User Security Level	<ul style="list-style-type: none"> You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. 
	Set Low Security	<ul style="list-style-type: none"> After you set the User Security Level and press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password with the Password Table element; refer to Section 5.7.2 Password Table Setup).  <ul style="list-style-type: none"> If you specify Set Low Security to Yes, the HMI automatically sets the security level to the lowest each time you enter the password. Next time you press the element, you will be asked again to enter the password for the corresponding security level.
(2)	Mark as Asterisk (*)	<p>If you specify Mark as Asterisk (*) to Yes, the value appears as asterisks when you input a value to the ASCII Keypad, as shown in the following figure:</p> 

13

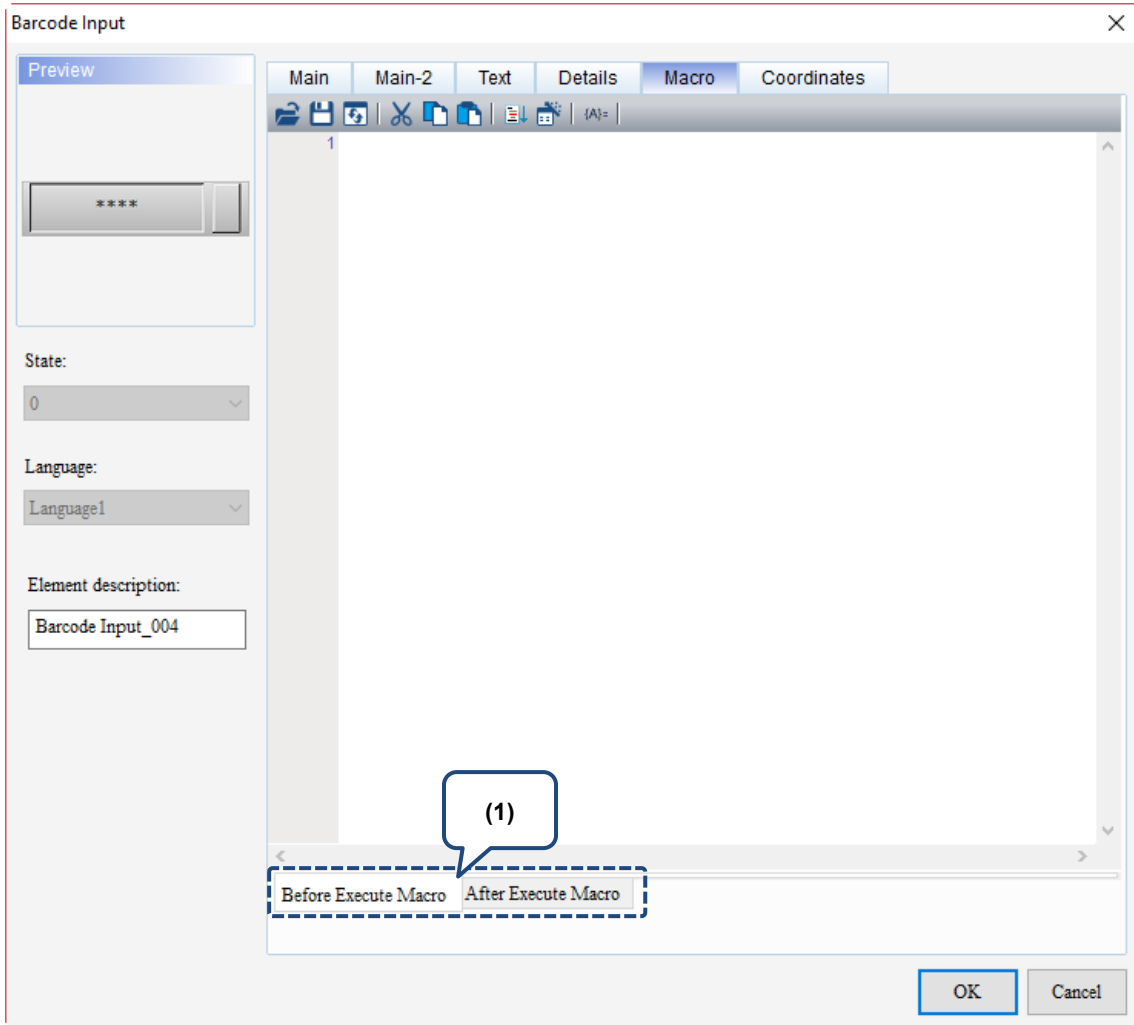
No.	Property	Function description
(3)	Input Mode	<ul style="list-style-type: none"> The types of Input Mode include Touch and Active. Touch is the default Input Mode for the Barcode Input element.  <p>Input Mode: Touch Popup Control</p> <ul style="list-style-type: none"> Touch means after the Barcode Input element is pressed and then starts to flash, you scan the barcode or input the barcode using the Custom Keypad. Then, the Barcode Input element will display the barcode. <p>Press the Barcode Input element. → Wait till the Barcode Input element starts flashing. → Scan the barcode. → DELTA001</p> <p>Press the Barcode Input element. → Wait till the Barcode Input element starts flashing. → Use the Keypad element to input the barcode. → DELTA002</p> <ul style="list-style-type: none"> Active must be used with Interlock Address. Set the Input Mode as Active and the Interlock Address as \$44.0 for the Barcode Input element. Then, create a Maintained element and set its Write Address as \$44.0. If you set the Input Mode to Active, you can directly use the barcode reader or Keypad element to input the barcode. <p>Press the Maintained element (Interlock Address). → The Barcode Input element shows the effect of Active flashing. → Use the barcode reader to scan the barcode. → DELTA001</p> <p>Press the Maintained element (Interlock Address). → The Barcode Input element shows the effect of Active flashing. → Use the Keypad element to input the barcode. → DELTA002</p>
(4)	Popup Control Addr.	<ul style="list-style-type: none"> Set the Popup Control Addr. to determine whether to display the System Keypad or not. If you set the Popup Control Addr. to On, when you press the Barcode Input element, the System Keypad appears on the screen. When the System Keypad appears, the Popup Control Addr. is switched to Off. Before you input the barcode next time, you must set the Popup Control Addr. to On again. The Popup Control Addr. setting is valid only when the Input Mode is set to Touch. If the Input Mode is set to Active, it means the System Keypad will not appear, and thus the setting for the Popup Control Addr. is invalid. The following example illustrates when the Input Mode is set as Touch. Set the Popup Control Addr. of the Barcode Input element to \$556.0. When you press the Barcode Input element, and then press the Popup Control Addr., the ASCII Keypad appears on the screen. <p>Press the Barcode Input element. → Wait till the Barcode Input element starts flashing. → Press the Maintained element (Popup Control Addr.). → When the Popup Control Addr. is on, the System Keypad pops up. → DELTA002</p>

No.	Property	Function description				
(5)	Interlock State	<ul style="list-style-type: none"> The Interlock Address is for enabling the operation of another element and has to be used with Interlock State. If the Interlock State is set to Off, it means the Interlock Address is operable when this Interlock State is off; on the other hand, if the Interlock State is set to On, the Interlock Address is operable when this Interlock State is on. The following describes how it works: <ol style="list-style-type: none"> First, create a Maintained button and set its Write Address as \$44.0. Next, set the Write Address as \$555 and the Interlock Address as \$44.0 for the Barcode Input element. In order for the Barcode Input element \$555 to become operable, you need to first press the Maintained button \$44.0 to enable \$555. 				
	Interlock Address					
	Interlock Display Mode	<ul style="list-style-type: none"> There are two Interlock Display Modes, Show Element and Show Prohibition Symbol. <p>Interlock Display Mode: Show Element <input type="button" value="v"/></p> <p>Interlock Address: Show Element Show Prohibition Symbol</p> <table border="1"> <tr> <td>Show Element</td> <td></td> </tr> <tr> <td>Show Prohibition Symbol</td> <td></td> </tr> </table>	Show Element		Show Prohibition Symbol	
Show Element						
Show Prohibition Symbol						
(6)	Trigger Mode	<ul style="list-style-type: none"> The Trigger Modes include Before Writing and After Writing. <table border="1"> <thead> <tr> <th>Before Writing</th> <th>After Writing</th> </tr> </thead> <tbody> <tr> <td>Trigger Addr. must be set to on before the value changes.</td> <td>Value is changed before the Trigger Addr. is set to on.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The triggering function only switches the set Trigger Addr. to on, so if triggering again is required, you need to set the Trigger Addr. to off. <p>Flowchart of Before Writing:</p>  <p>Flowchart of After Writing:</p> 	Before Writing	After Writing	Trigger Addr. must be set to on before the value changes.	Value is changed before the Trigger Addr. is set to on.
	Before Writing	After Writing				
Trigger Addr. must be set to on before the value changes.	Value is changed before the Trigger Addr. is set to on.					
Trigger Addr.	<p>The flowcharts above illustrate the sequence of operations for both 'Before Writing' and 'After Writing' modes, showing the state of the Maintained Button and the resulting value on the input element.</p>					

13

No.	Property	Function description
(7)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p>  <p>Barcode Input</p>  <p>Preview</p> <p>State: 0</p> <p>Language: Chinese</p> <p>Element description: Barcode Input_001</p> <p>Main Main-2 Text Details Macro</p> <p>Other</p> <p>Input Mode: Touch</p> <p>Popup Control Addr.: None</p> <p>Interlock State: On</p> <p>Interlock Display Mode: Show Element</p> <p>Interlock Address: None</p> <p>Trigger Mode: Before Writing</p> <p>Trigger Addr.: None</p> <p>Invisible Address: \$9.0</p>

■ Macro



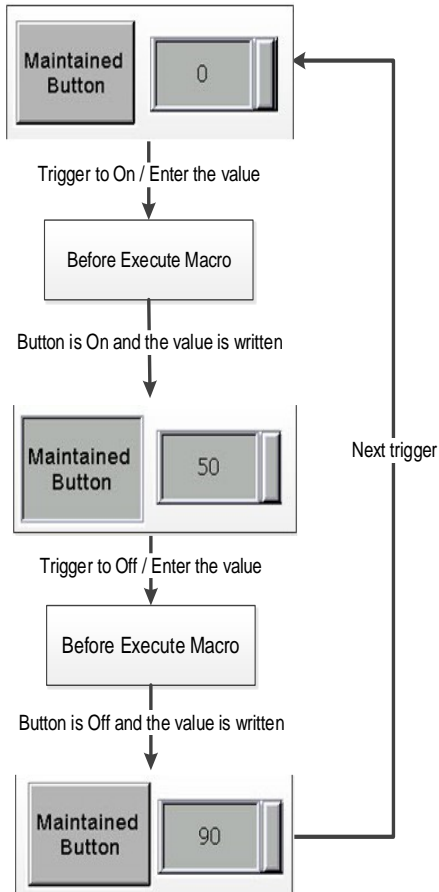
13

Figure 13.3.6 Macro property page for the Barcode Input element

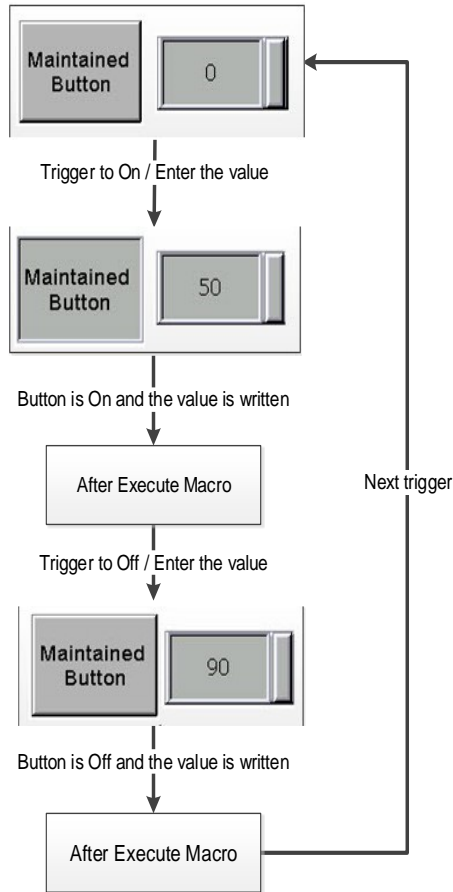
13

No.	Property	Function description
(1)	Before Execute Macro	When you press the button element, the HMI will first execute the macro commands, and then execute the action of the button. However, if the state of the button is not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.
	After Execute Macro	When you press the button element, the HMI will first execute the action of the button, and then execute the macro commands. However, if the state of the button is not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.

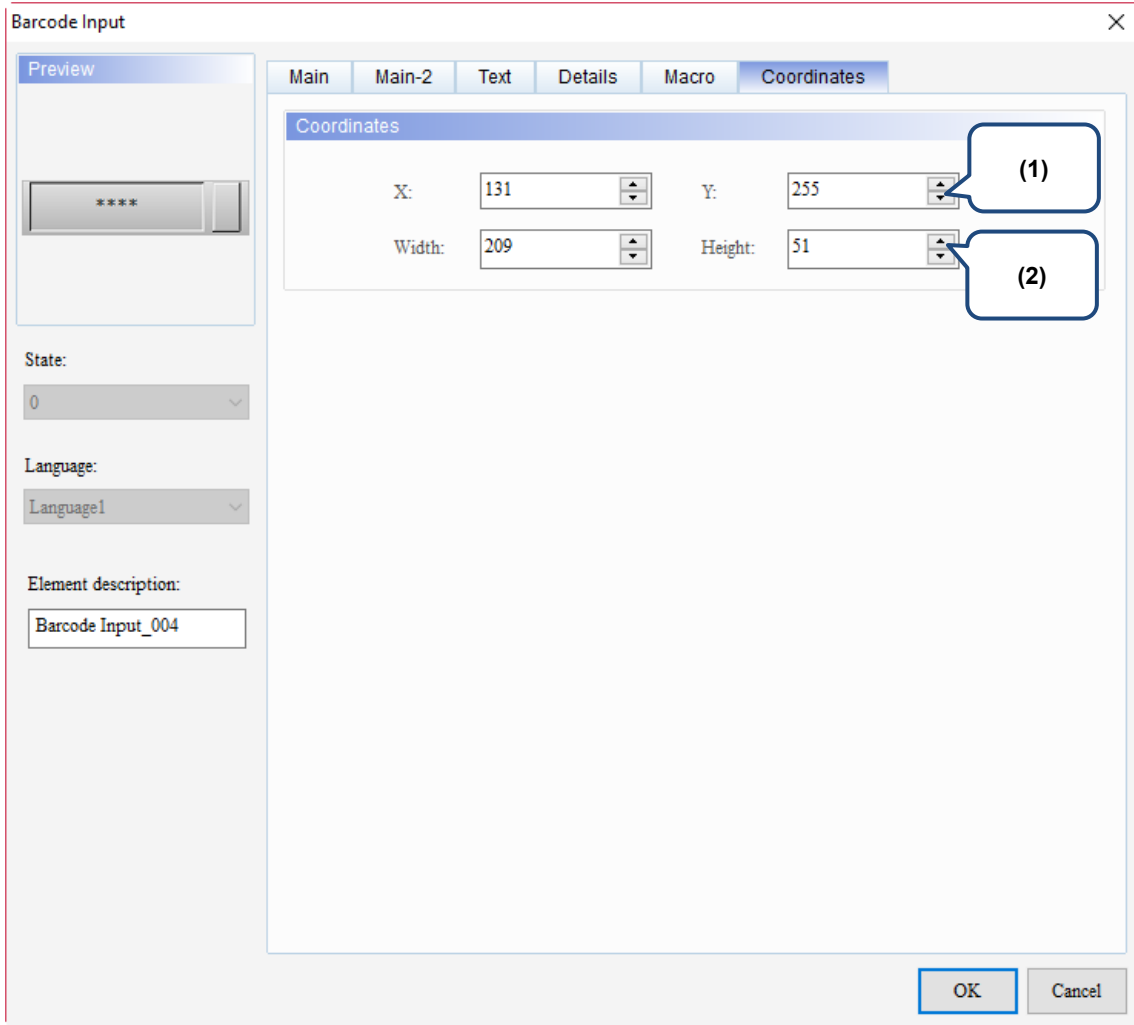
Flowchart of Before Execute Macro:



Flowchart of After Execute Macro:



Coordinates



13

Figure 13.3.7 Coordinates property page for the Barcode Input element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

13

13.4 Multi-language Input

The Multi-language Input function supports up to 16 languages and you can select the languages to edit the display texts.

Go to [Options] > [Configuration] > [Multi-language Settings] to select the preferred languages. Then, you can use the Multi-language Input element to enter contents in multiple languages.

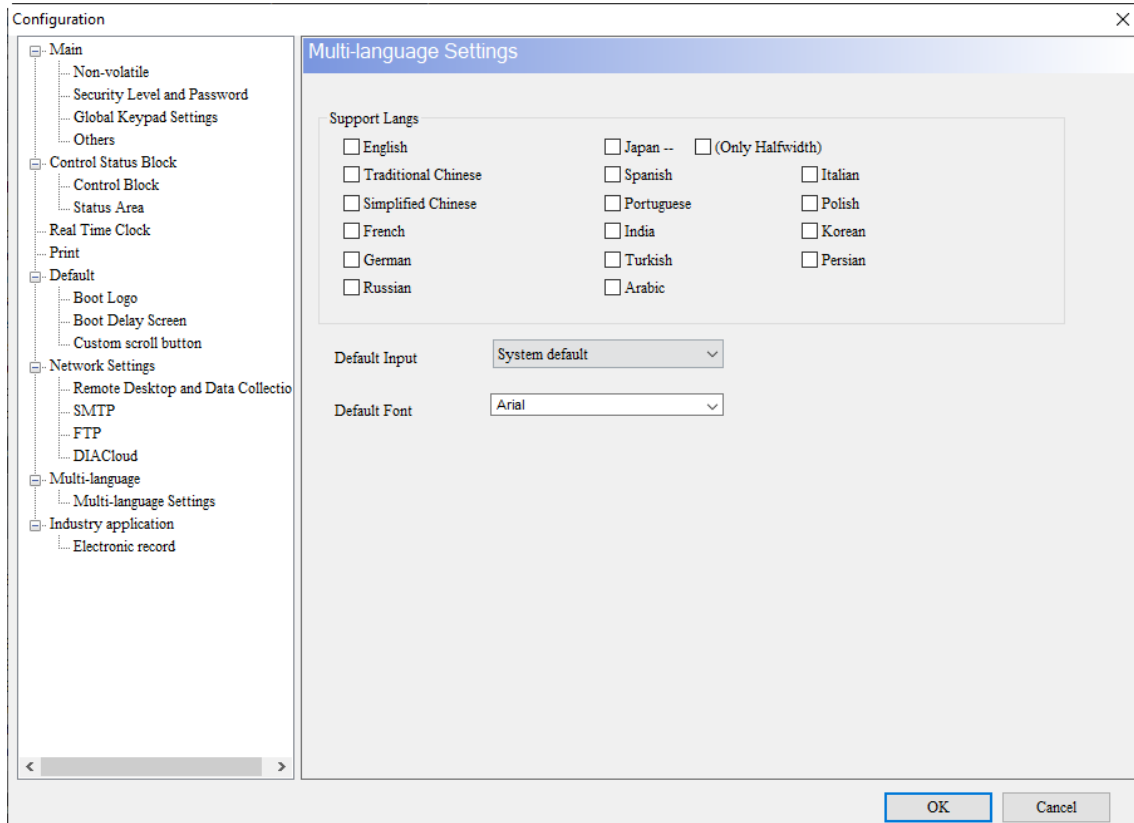


Figure 13.4.1 Multi-language Input

The Multi-language Input element on DOP-100 series models provides various functions, including Enhanced Recipe Group naming, Enhanced Recipe Char format, and account input, so that you can input Unicode characters for the names and content.

Note: the Multi-language Input function does not support online and offline simulations.

Refer to Table 13.4.1 for the Multi-language Input example.

Table 13.4.1 Multi-language Input example

Multi-language Input																
<p>Write Address</p>	<ul style="list-style-type: none"> ■ Create a Numeric Entry element and set the Write Address to \$10. <div style="text-align: center; margin: 10px 0;"> </div> ■ Set the User Security Level to 1. <div style="margin-top: 10px;"> </div> 															
<p>Settings</p>	<ul style="list-style-type: none"> ■ Go to [Options] > [Configuration] > [Security Level and Password] to create a level 1 account as the following. <div style="margin-top: 10px;"> <table border="1" style="margin-top: 5px; border-collapse: collapse; width: 100%;"> <thead> <tr> <th>Number</th> <th>Account</th> <th>Password</th> <th>User duration(0~9999 Day)</th> <th>Password duration(0~9995)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>11</td> <td>11111111</td> <td>0</td> <td>0</td> </tr> <tr style="border: 2px dashed blue;"> <td>2</td> <td>DELTA</td> <td>12345</td> <td>0</td> <td>0</td> </tr> </tbody> </table> </div> ■ Go to [Options] > [Configuration] > [Multi-language Settings] to select the English and Traditional Chinese check boxes as the following. <div style="margin-top: 10px;"> </div> 	Number	Account	Password	User duration(0~9999 Day)	Password duration(0~9995)	1	11	11111111	0	0	2	DELTA	12345	0	0
Number	Account	Password	User duration(0~9999 Day)	Password duration(0~9995)												
1	11	11111111	0	0												
2	DELTA	12345	0	0												

13

Multi-language Input

- After creating the elements, compile and download the elements to the HMI.
- Press the Numeric Entry element and the screen will display the following input window.



- Press the Account field and the screen displays the Multi-language Input window. Press **ZH_TW** to switch to EN and input DELTA.

Execution results



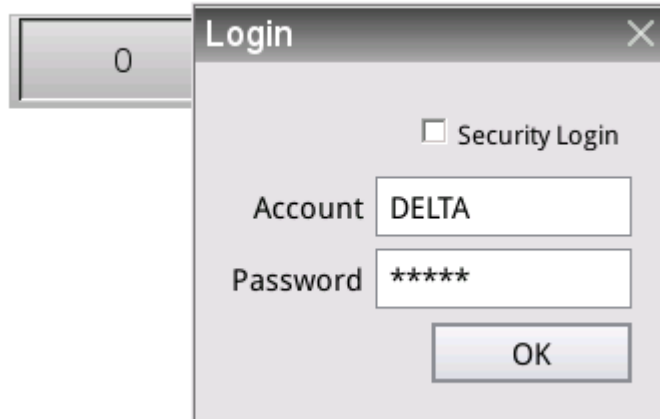
- Press **?123** to switch to the numeric keyboard and input 12345 as the password.



Multi-language Input

- Press **OK** to use the Numeric Entry element.

Execution results



When you double-click the Multi-language Input, the property page is shown as follows.

13

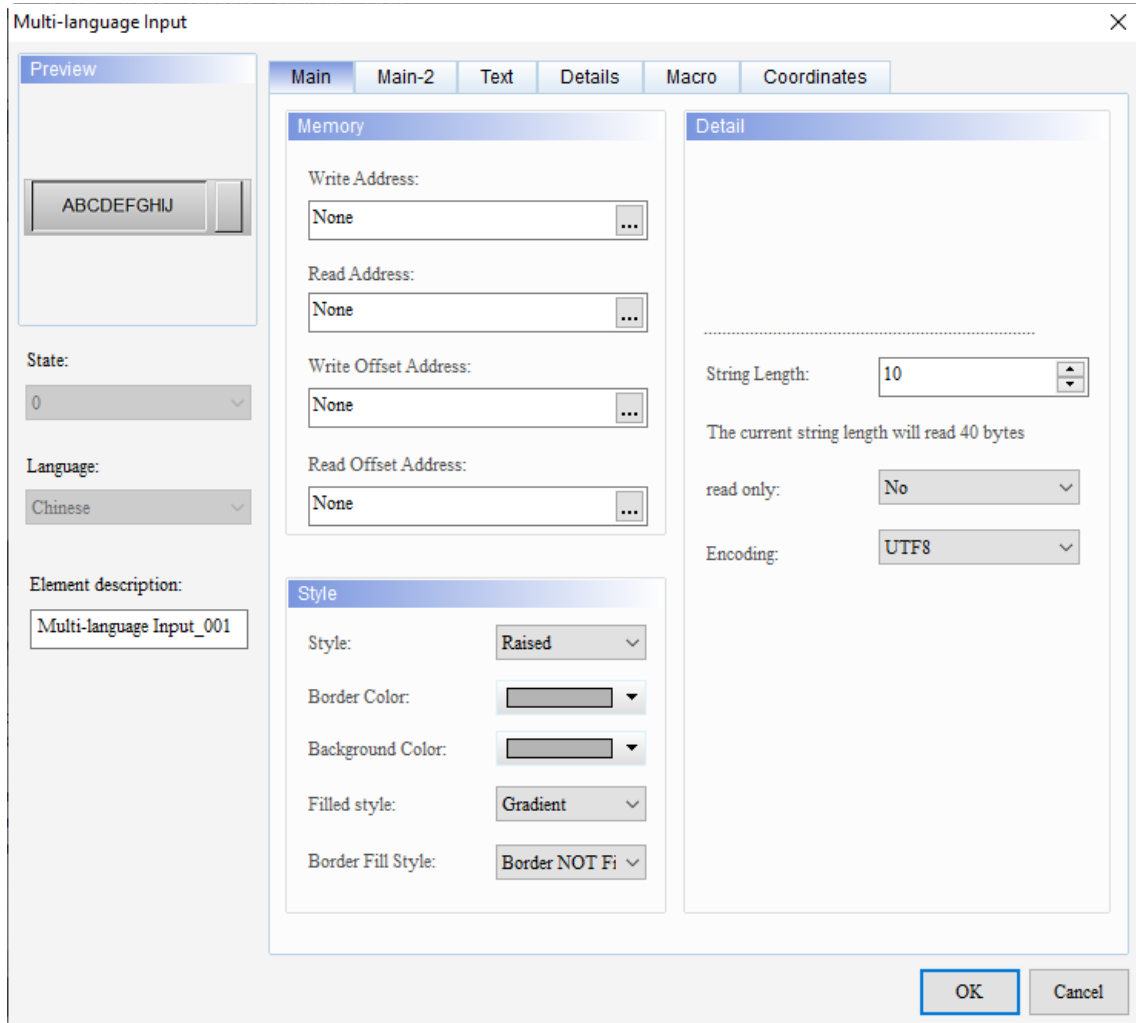


Figure 13.4.2 Properties of Multi-language Input

Table 13.4.2 Function page of Multi-language Input

Multi-language Input	
Function page	Description
Preview	Multi-language Input elements do not support multiple state values and multi-language data display.
Main	Set the Read Address, Write Address, Read Offset Address, Write Offset Address, Style, Background Color, Border Color, Filled style, and Border Fill Style. Set the String Length, read only, and Encoding.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the displaying text font, size, color, and alignment options.
Details	Set the Input Mode, Interlock State, Interlock Display, Interlock Address, Trigger Mode, Trigger Addr., Invisible Address, User Security Level, Set Low Security, Mark as Asterisk (*), and Insufficient string length zero.
Macro	Set the Before Execute Macro and After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

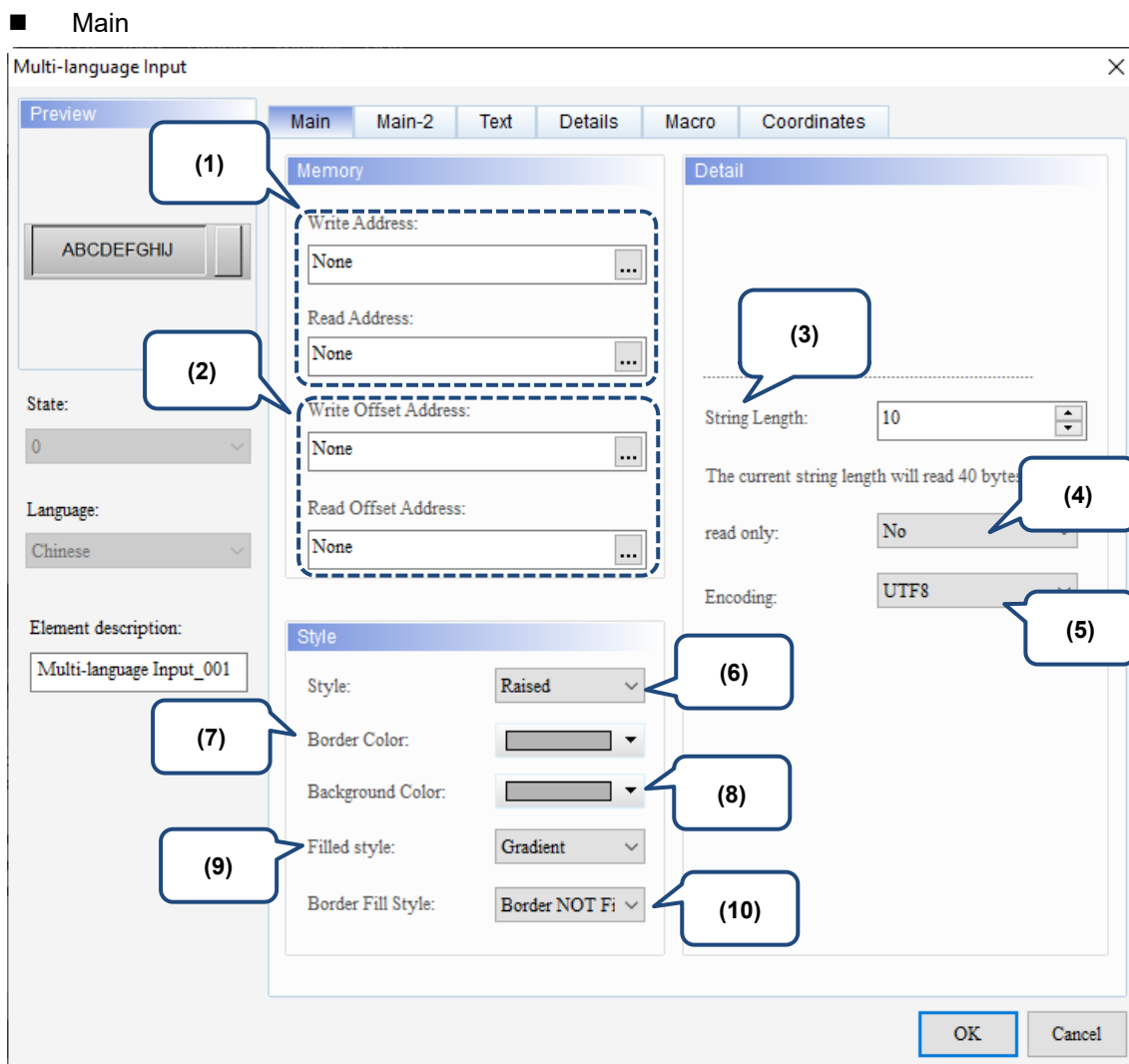
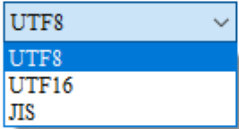

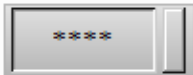

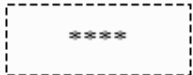

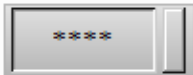

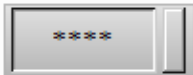

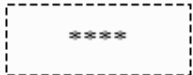
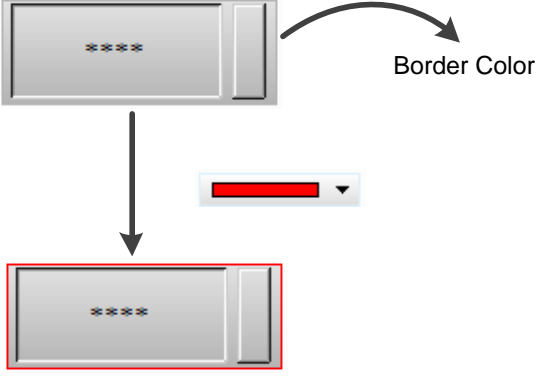
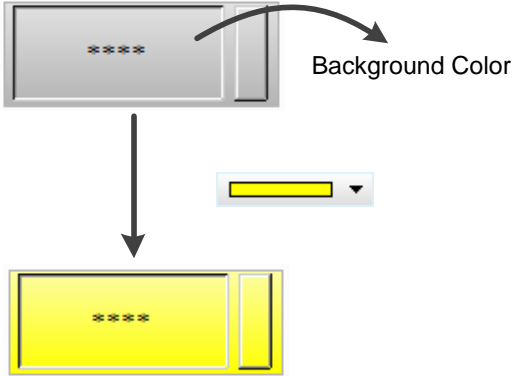






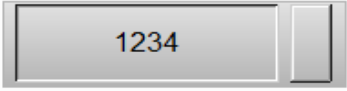
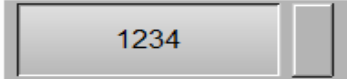
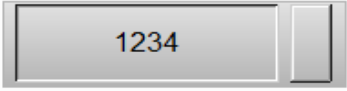
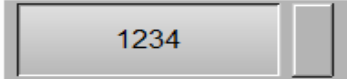
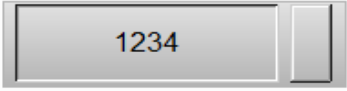
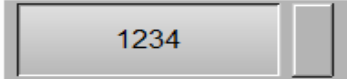


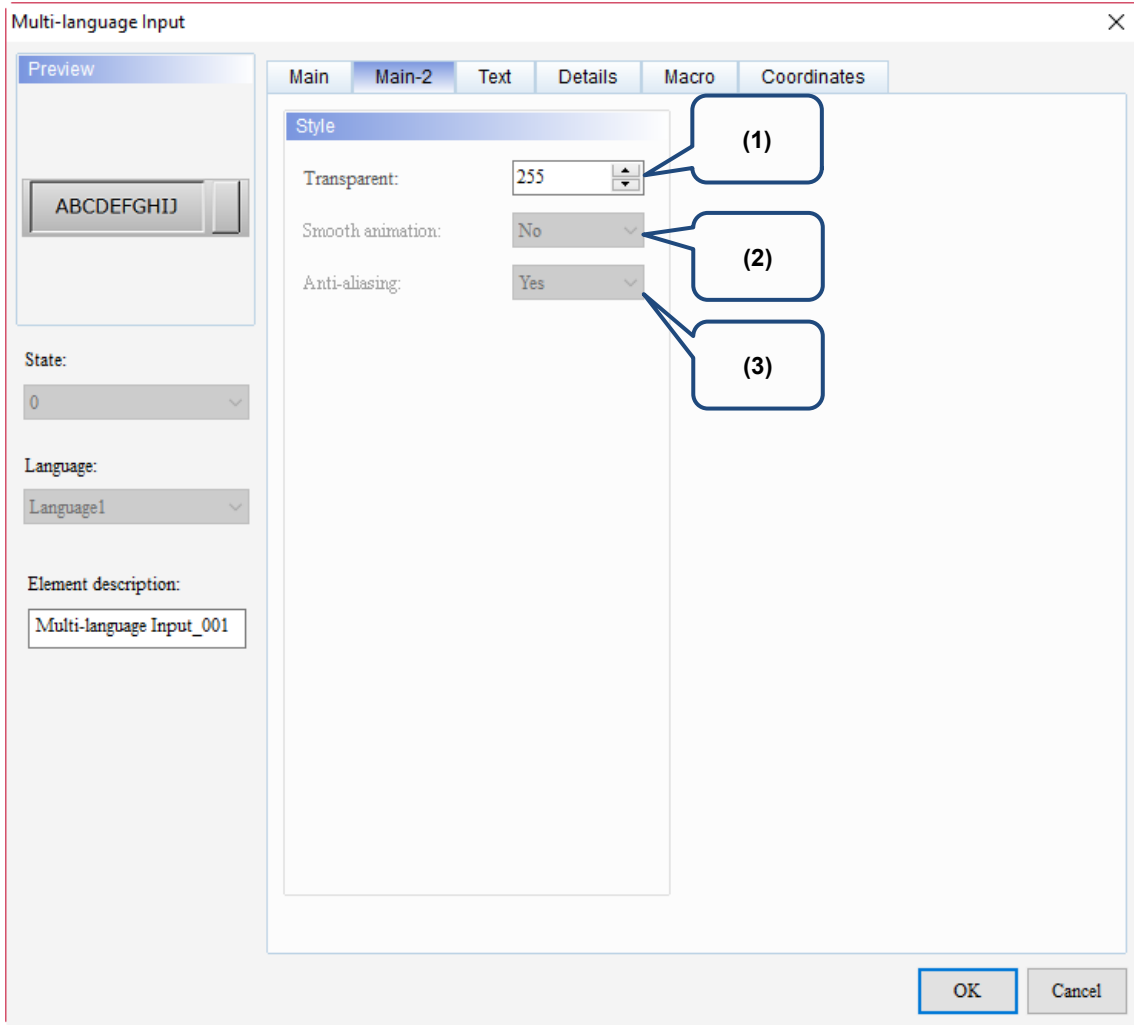
Figure 13.4.3 Main property page for the Multi-language Input element

No.	Property	Function description						
(1)	Write Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. 						
	Read Address	<ul style="list-style-type: none"> Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. 						
(2)	Write Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.						
	Read Offset Address							
(3)	String Length	<ul style="list-style-type: none"> The range of the String Length is 1 - 256. After the length is entered, a prompt will appear underneath indicating the read length in bytes after conversion. 						
(4)	read only	The default is No. If you choose Yes, you will be able to read but not write data.						
(5)	Encoding	There are three encoding formats. 						
(6)	Style	You can change the appearance of the element with this setting. There are four types of element styles:						
		<table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent		
Standard	Raised	Sunken	Transparent					
								

13

No.	Property	Function description				
(7)	Border Color	<ul style="list-style-type: none"> ■ Set the border color of the element. ■ When you set the Style to Transparent, the Border Color setting is invalid. 				
(8)	Background Color	<ul style="list-style-type: none"> ■ Set the background color of the element. ■ When you set the Style to Transparent, the Background Color setting is invalid. 				
(9)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						
(10)	Border Fill Style	<ul style="list-style-type: none"> ■ The border display of the Entry elements on the DOP-100 series models is different from that on the DOP-B series models. To have the border display effect be the same as that on the DOP-B series models, when you open the DOP-B project on a DOP-100 series model, the border is displayed with solid color. ■ The default Border Fill Style for the DOP-100 series models is Border NOT Fill, meaning the border of the element is displayed with a gradient color. <table border="1"> <tr> <td>Border NOT Fill (gradient color)</td> <td></td> </tr> <tr> <td>Border Fill (solid color)</td> <td></td> </tr> </table>	Border NOT Fill (gradient color)		Border Fill (solid color)	
Border NOT Fill (gradient color)						
Border Fill (solid color)						

■ Main-2



13

Figure 13.4.4 Main-2 property page for the Multi-language Input element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

13

■ Text

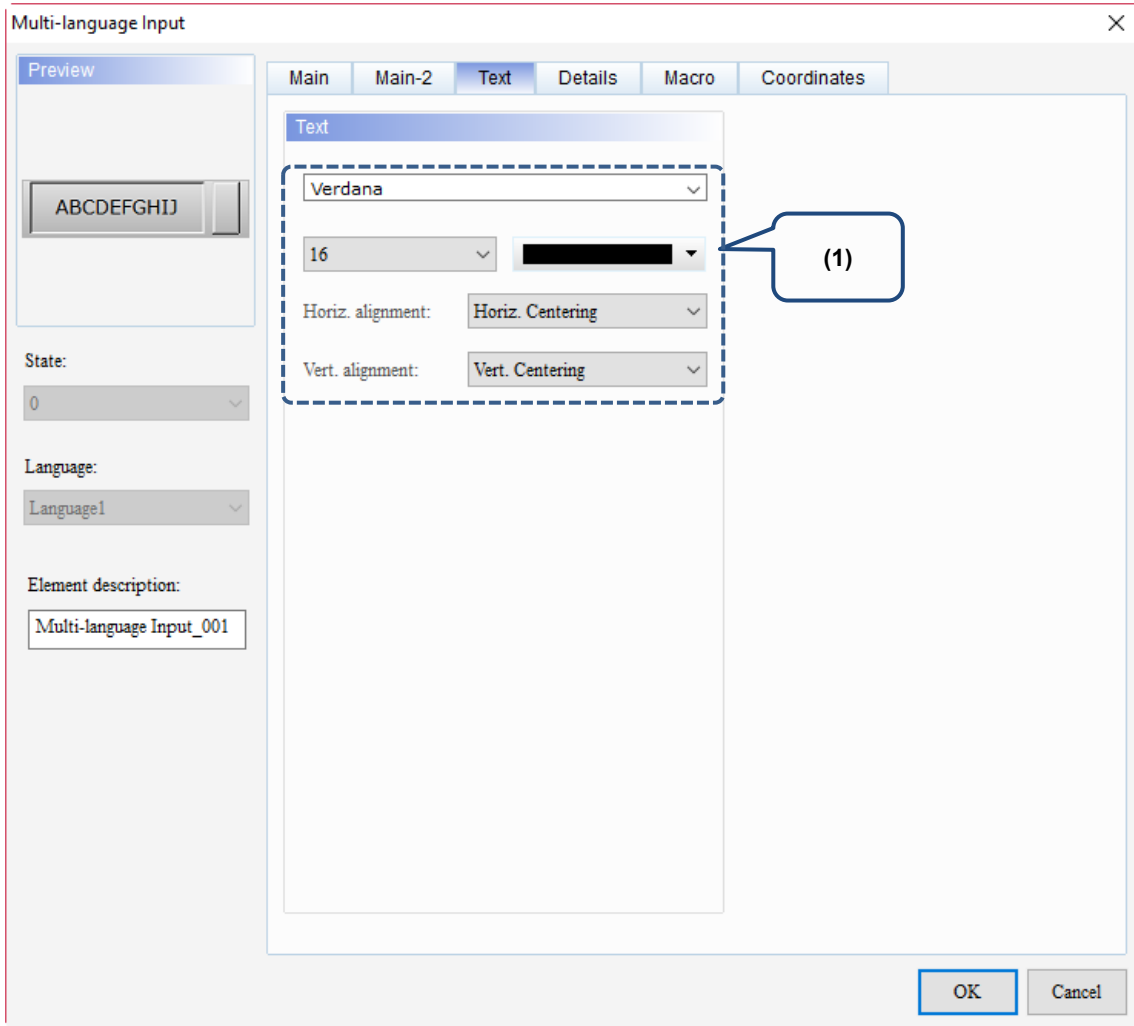
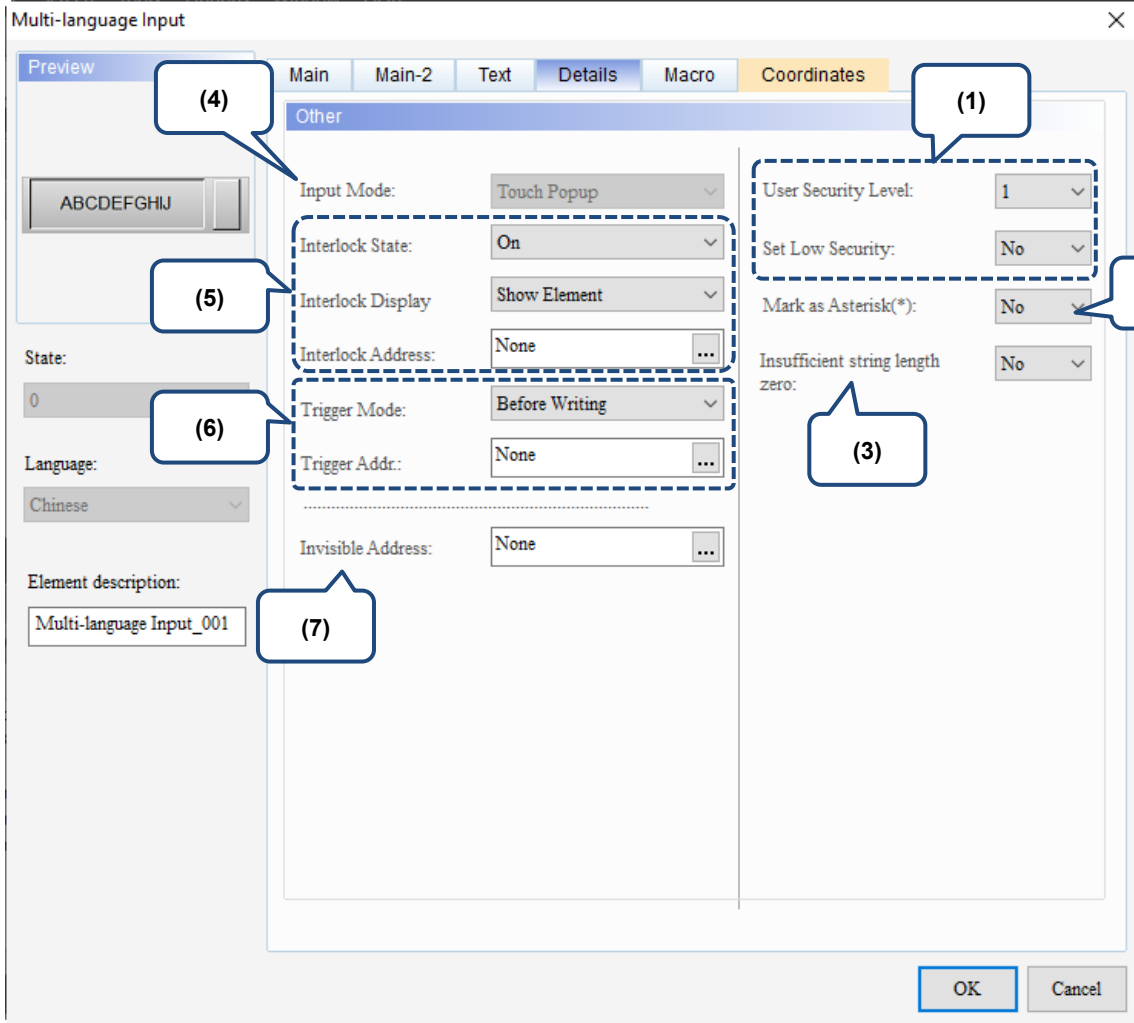


Figure 13.4 5 Text property page for the Multi-language Input element

No.	Property	Function description
(1)	Text	Set the text properties, including the font, size, color, and alignment.

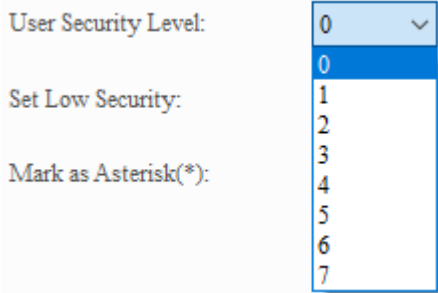


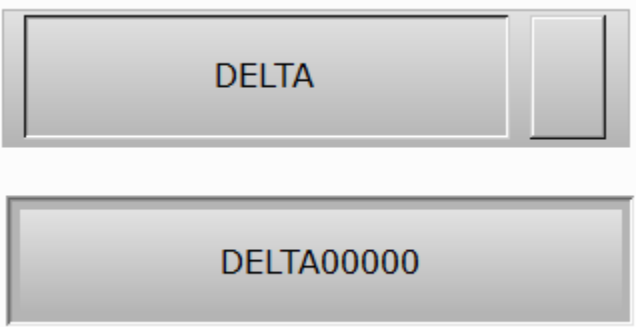
■ Details


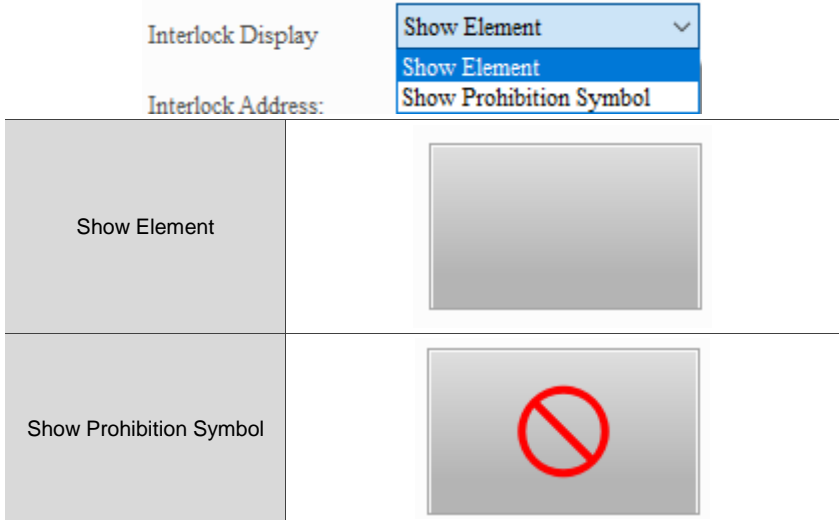


13

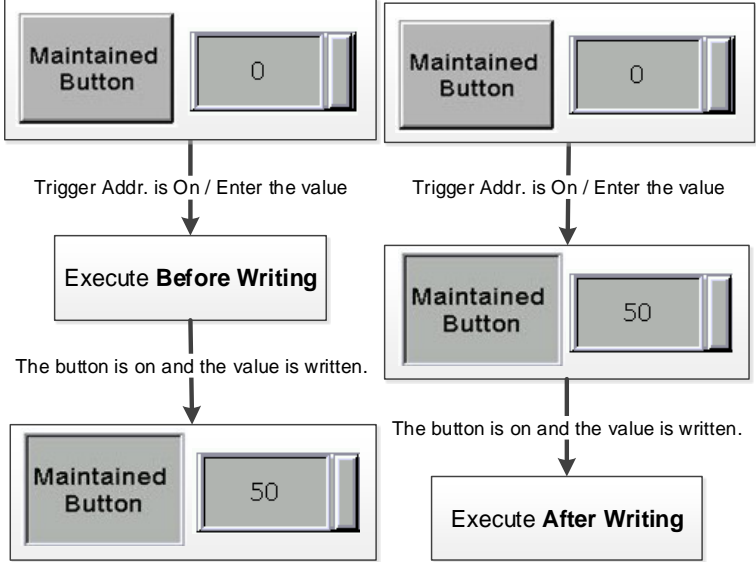
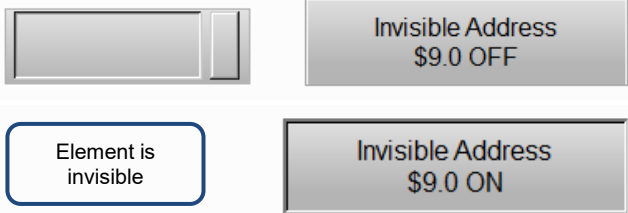
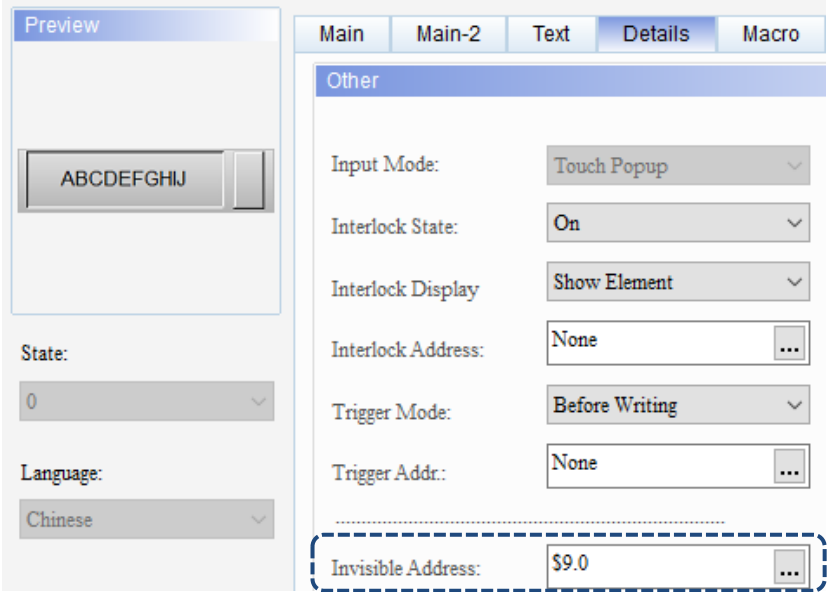
Figure 13.4.6 Details property page for the Multi-language Input element

13

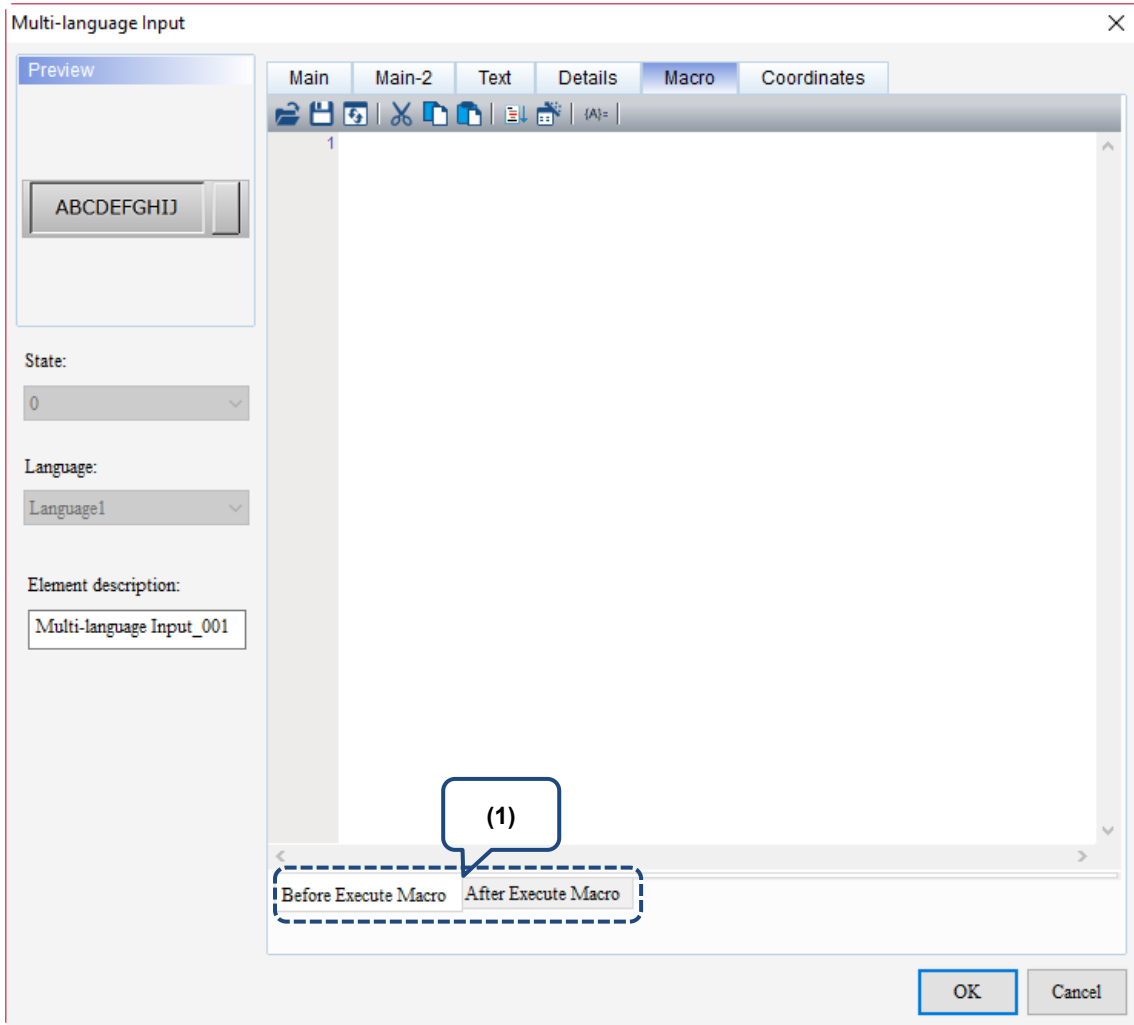
No.	Property	Function description
(1)	User Security Level	<ul style="list-style-type: none"> You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. 
	Set Low Security	<ul style="list-style-type: none"> After you set the User Security Level and press the element, a password input window appears to confirm whether the security level password is correct.  <ul style="list-style-type: none"> If you specify Set Low Security to Yes, the HMI automatically sets the security level to the lowest each time you enter the password. Next time you press the element, you will be asked again to enter the password for the corresponding security level.
(2)	Mark as Asterisk (*)	<p>If you specify Mark as Asterisk (*) to Yes, the value appears as asterisks when you input characters in the Multi-language Input window and press Enter, as shown in the following figure:</p> 
(3)	Insufficient string length zero	<p>When the length of the input string is less than the set length, the remaining characters will be filled in with zeros for display.</p> 
(4)	Input Mode	The Multi-language Input element does not support setting the Input Mode.

No.	Property	Function description
	Interlock State	<ul style="list-style-type: none"> The Interlock Address is for enabling the operation of another element and has to be used with the Interlock State. If the Interlock State is set to Off, it means the Interlock Address is operable when this Interlock State is off; on the other hand, if the Interlock State is set to On, the Interlock Address is operable when this Interlock State is on. The following describes how it works: <ol style="list-style-type: none"> First, create a Maintained button and set its Write Address as \$44.0. Next, set the Write Address as \$555 and the Interlock Address as \$44.0 for the Multi-language Input element. In order for the Multi-language Input element \$555 to become operable, you need to first press the Maintained button \$44.0 to enable \$555.
	Interlock Address	
(5)	Interlock Display	<ul style="list-style-type: none"> There are two modes for the Interlock Display, Show Element and Show Prohibition Symbol. 

13

No.	Property	Function description				
(6)	<p>Trigger Mode</p> <hr/> <p>Trigger Addr.</p>	<ul style="list-style-type: none"> The Trigger Modes include Before Writing and After Writing. <table border="1"> <tr> <th>Before Writing</th> <th>After Writing</th> </tr> <tr> <td>Trigger Addr. must be set to on before the value changes.</td> <td>Value is changed before the Trigger Addr. is set to on.</td> </tr> </table> The triggering function only switches the set Trigger Addr. to on, so if triggering again is required, you need to set the Trigger Addr. to off. <p>Flowchart of Before Writing: Flowchart of After Writing:</p> 	Before Writing	After Writing	Trigger Addr. must be set to on before the value changes.	Value is changed before the Trigger Addr. is set to on.
Before Writing	After Writing					
Trigger Addr. must be set to on before the value changes.	Value is changed before the Trigger Addr. is set to on.					
(7)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p>  <p>Multi-language Input</p> 				

■ Macro



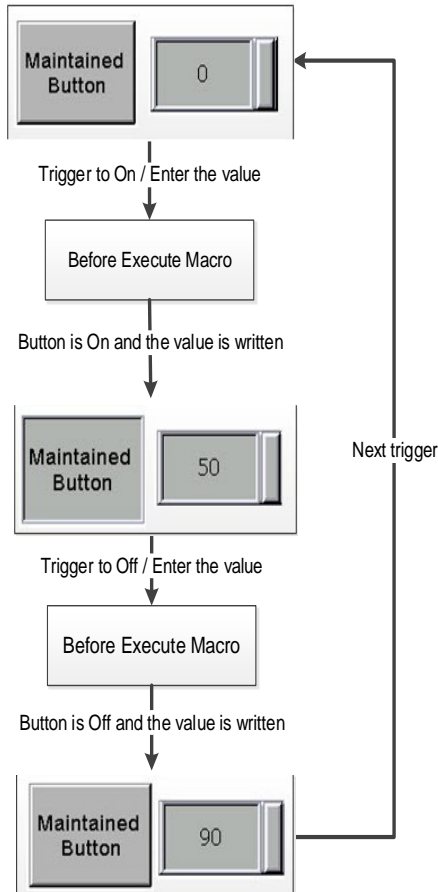
13

Figure 13.4.7 Macro property page for the Multi-language Input element

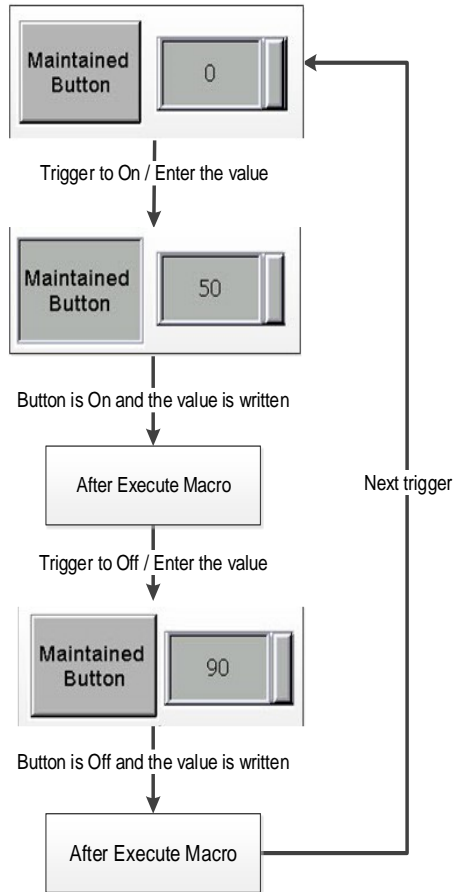
13

No.	Property	Function description
(1)	Before Execute Macro	When you press the button element, the HMI will first execute the macro commands, then execute the action of the button. However, if the state of the button is not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.
	After Execute Macro	When you press the button element, the HMI will first execute the action of the button, then execute the macro commands. However, if the state of the button is not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.

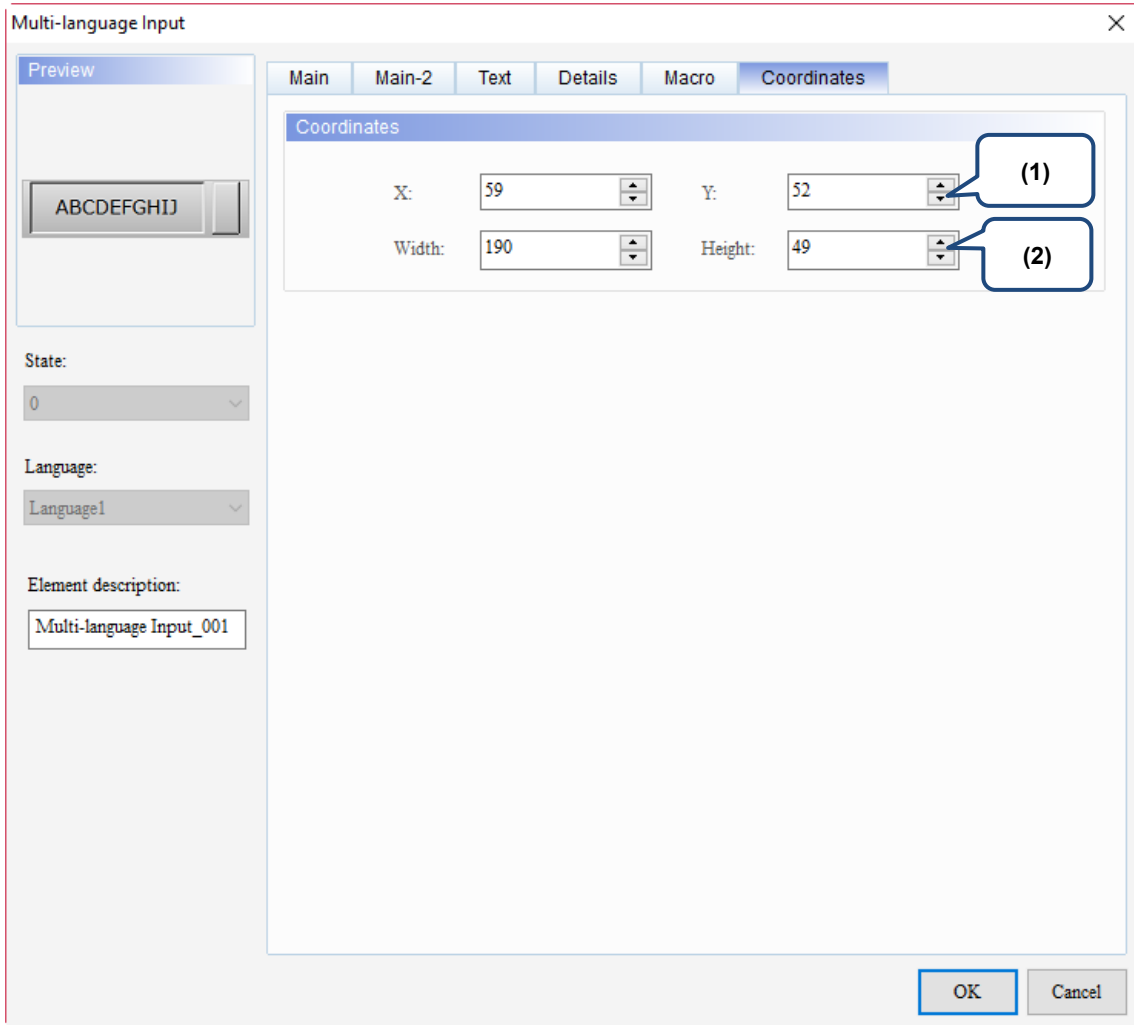
Flowchart of Before Execute Macro:



Flowchart of After Execute Macro:



■ Coordinates



13

Figure 13.4.8 Coordinates property page for the Multi-language Input element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

13

13.5 Multi-line text input

This element can be used to view and edit text files and G-code files, and supports multi-language display. Refer to Table 13.5.1 for the Multi-line text input example.

Table 13.5.1 Multi-line text input example

Multi-line text input

Set the memory addresses to be used as shown in the following figure.

Create multi-line text input

Multi-line text input

Preview

State: 0

Language: Language1

Element description: Multi-line text input_001

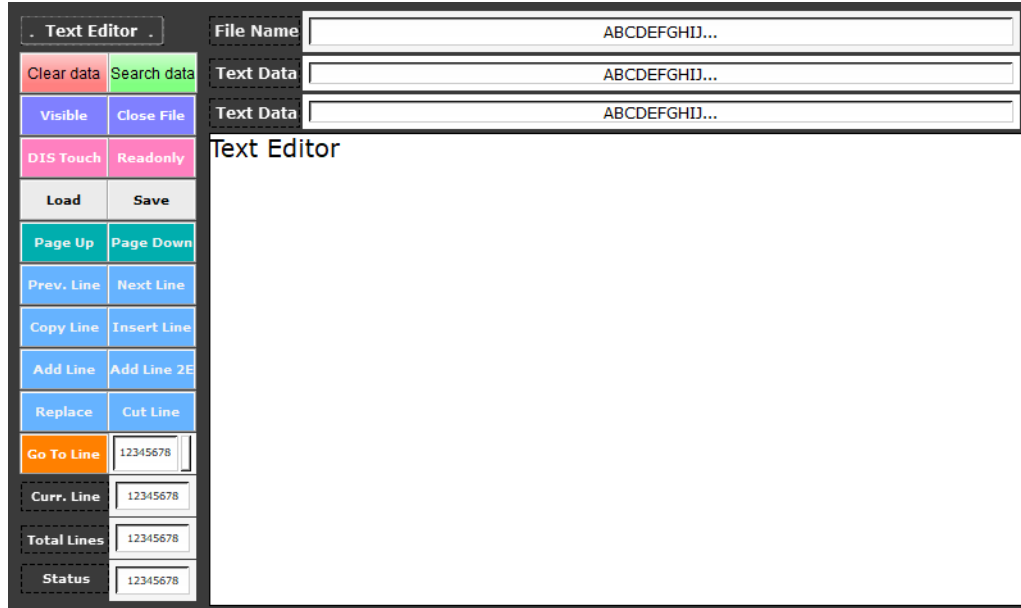
Main		Coordinates	
Other			
Interlock State:	On		
Interlock Address:	None		...
Set Selected Row Address	None		...
Set Selected Row Trigger	None		...
Previous Page Trigger Address	None		...
Next Page Trigger Address	None		...
Line Up Trigger Address	None		...
Line Down Trigger Address	None		...
File			
File Close Trigger Address	None		...
File Name Address (string length 256)	None		...
Load File Trigger Address	None		...
Save File Trigger Address	None		...
Operation			
Theme	Default		
Insert Selected Row Trigger	None		...
Increase Selected Row Trigger	None		...
Increase Selected Row to Text End	None		...
Copy Selected Row Trigger	None		...
Replace Selected Row Trigger	None		...
Cut Selected Row Trigger	None		...
Text Clear Trigger Address	None		...
Search Trigger Address	None		...
Current Selection Row	None		...
Total Number of Rows	None		...
Editable Trigger Address	None		...
Operational Status Address	None		...
Address of Search Temporary Area	None		...
Address of Text Temporary Storage Area	None		...

OK
Cancel

13-88

Multi-line text input

Create the elements with the memory addresses set as shown in the preceding figure. The configuration is as follows:



Create elements

- This example is an offline simulation, so the file is placed in a local directory on the computer. If you want to open a text file stored on a USB drive or SD card, enter /USB/[text file name] or /SD/[text file name] in the File Name field.
- Edit the following text file before putting it in the specific directory.

Put the completed text file in the directory to be used

```

Language.txt - Notepad
File Edit Format View Help
中文測試
중국어 시험
中国語テスト
Čínský test
К и т а й с к и й т е с т
중국어 시험
Éditeur de texte
Kinverska prófið

```

- After completing the edits, put the text file in the following directory: C:\Users\Tina.Q.Lee\Desktop.

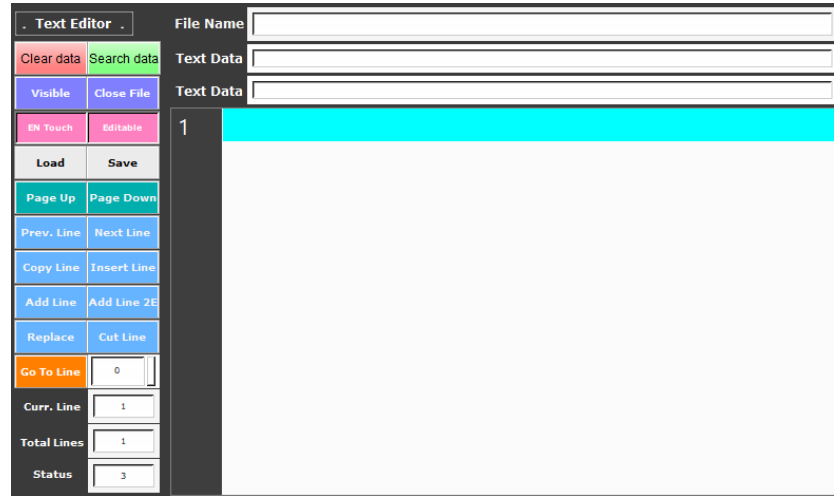
13

Multi-line text input

Compile and download the elements to the HMI.

After the elements are downloaded, the HMI screen displays the following:

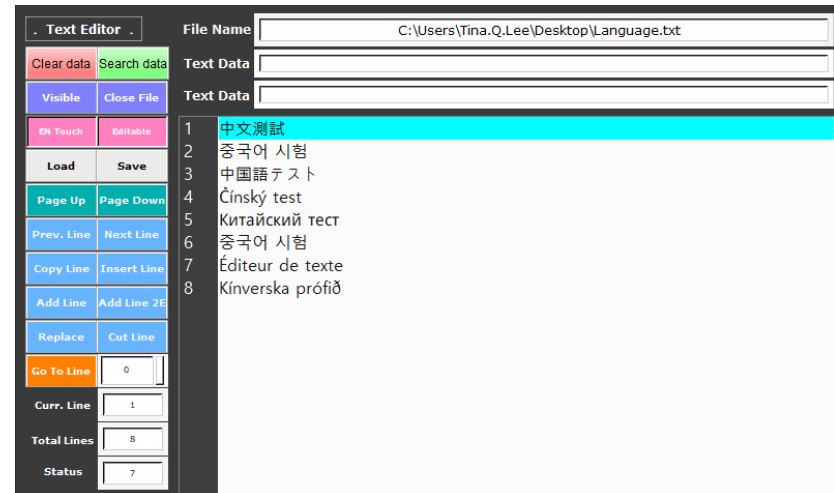
Download the screen



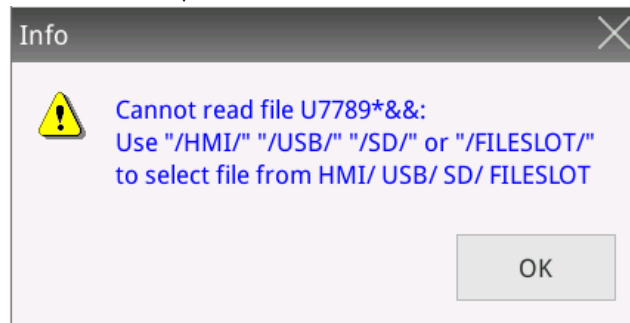
Execution results

- In the File Name field, enter the path of the text file to be opened: C:\Users\Tina.Q.Lee\Desktop\Language.txt.
- After entering the path, click **Load**.

Open the file



- If the entered file path is not correct, the following message appears to provide instructions on how to open the file.



Multi-line text input

- For example, to open a file saved in a USB drive, the following path should be entered: /USB/Language.txt.



Open the file

- Add text strings to the document by entering text data, and then edit the texts using the functions of Copy Line, Insert Line, Add Line, Add Line 2E, Replace, and Cut Line.

Execution results

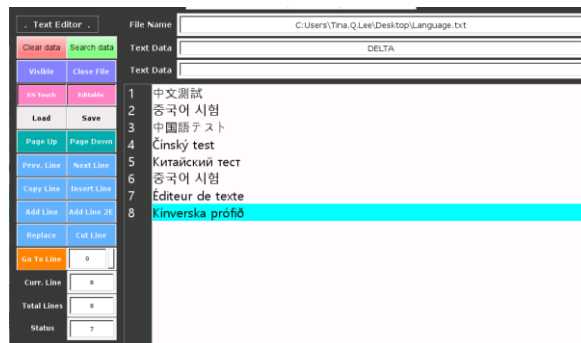
Edit the text

Copy Line Select the text string to be copied and click **Copy Line**. The selected text string will be copied and displayed in the Text Data field.

Enter the text in the Text Data field and click **Insert Line**. The text data will be inserted before the selected line.

Before inserting

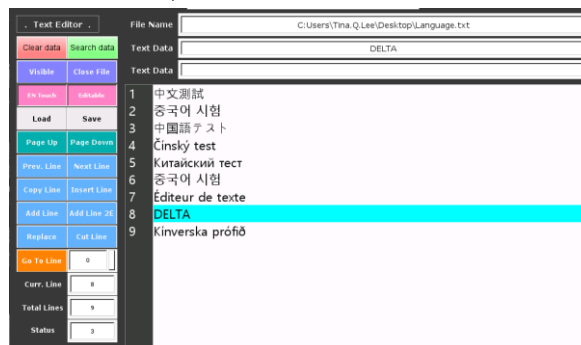
Select the 8th line and enter "DELTA" in the Text Data field.



Insert Line

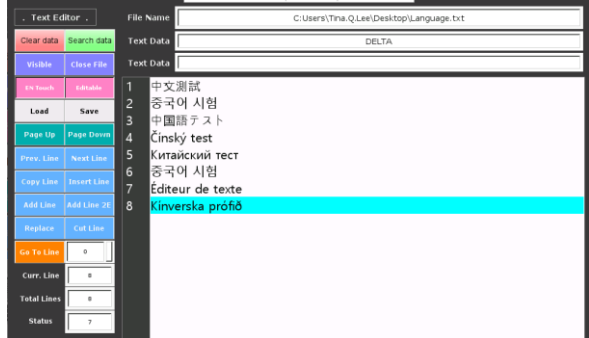
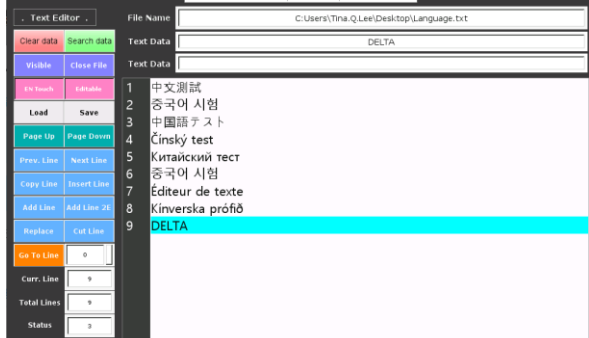
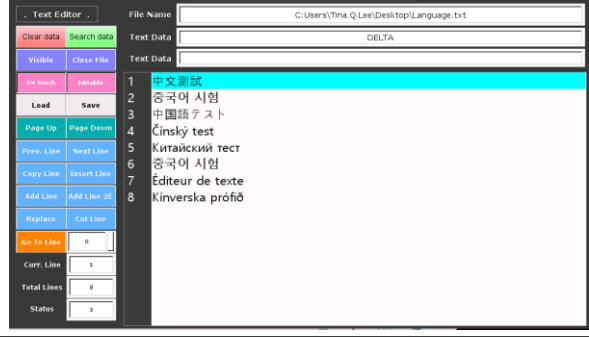
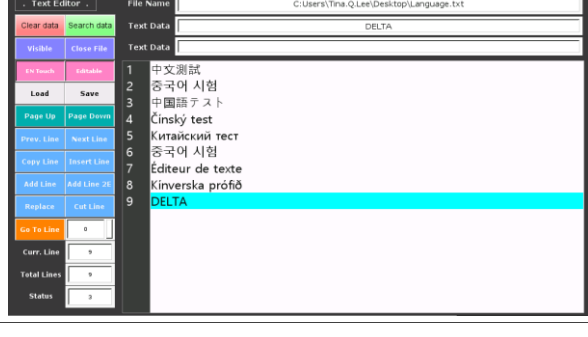
Click **Insert Line**, and "DELTA" is inserted to the 8th line.

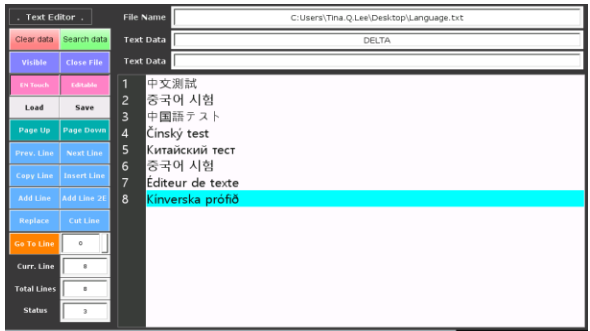
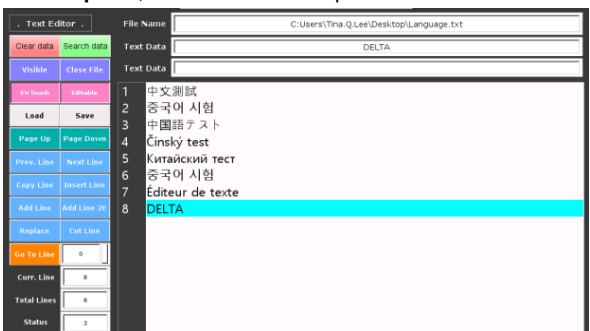
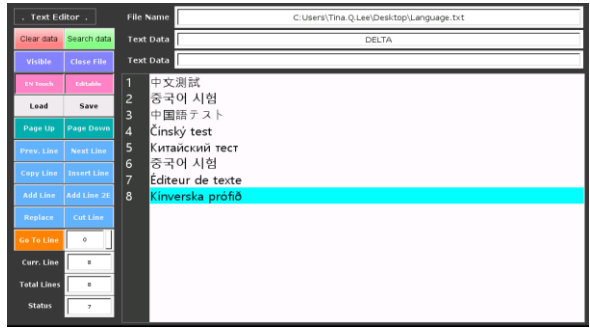
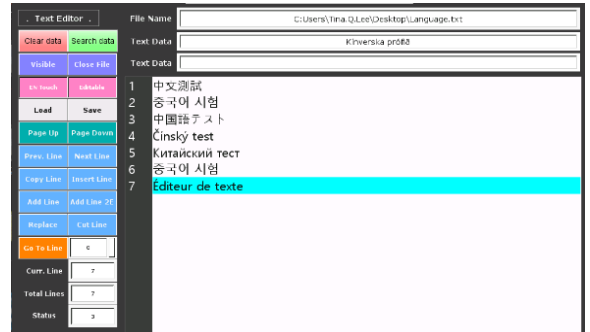
After inserting



13

Multi-line text input

Execution results	Edit the text	Add Line	<p>Enter the text in the Text Data field and click Add Line. The text data will be added after the selected line.</p>
			<p>Click the 8th line and enter "DELTA" in the Text Data field.</p> 
			<p>Click Add Line, and "DELTA" is inserted to the 9th line.</p> 
			<p>Enter the text in the Text Data field and click Add Line 2E. The text data will be added to the last line.</p>
		Add Line 2E	<p>Select any line and enter "DELTA" in the Text Data field.</p> 
			<p>Click Add Line 2E, and "DELTA" is inserted to the last line.</p> 

Multi-line text input			
Execution results	Edit the text	Replace	<p>Enter the text in the Text Data field and click Replace. The selected string will be replaced with the entered text.</p> <p>Select the 8th line and enter "DELTA" in the Text Data field.</p>  <p>Before replacing</p>
		Replace	<p>Click Replace, and the 8th line is replaced with "DELTA".</p>  <p>After replacing</p>
		Cut Line	<p>Select the line of text to be deleted and click Cut Line, and then the text data is deleted.</p> <p>Select the 8th line.</p>  <p>Before deleting</p>
		Cut Line	<p>Click Cut Line, and the 8th line is deleted.</p>  <p>After deleting</p>

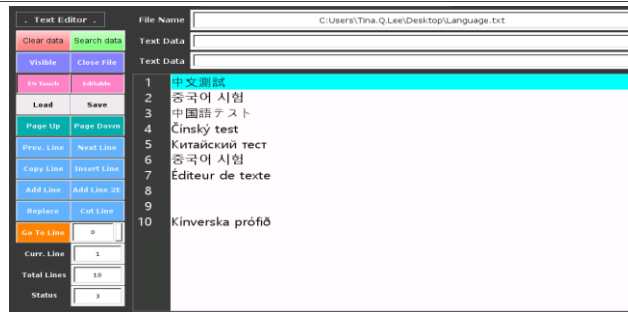
13

Multi-line text input

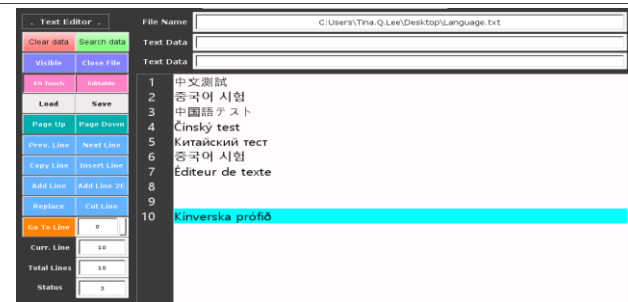
- Click on **Page Up**, **Page Down**, **Prev. Line**, or **Next Line** to switch to the specific line.
- If the text contents are within one page, the first line is selected when you click **Page Up** and the last line is selected when you click **Page Down**.

Switch to specific line

Page Up

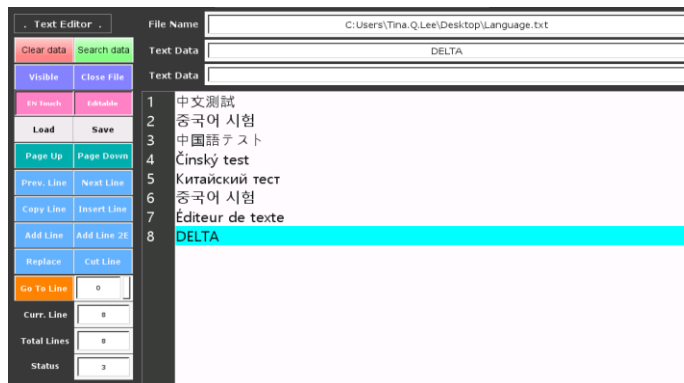


Page Down

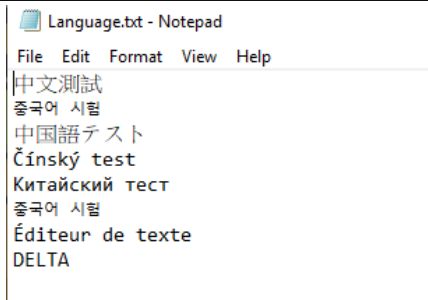


- Enter "DELTA" in the Text Data field, click the eighth line of text, and click **Replace**. Then, click **Save** to save the modified text data. You can open the file on the computer to check whether the data has been modified and saved.

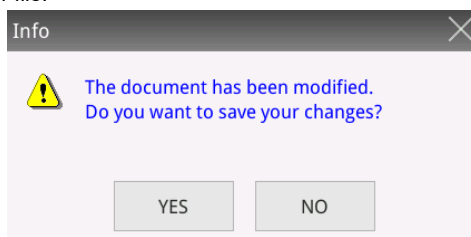
Execution results

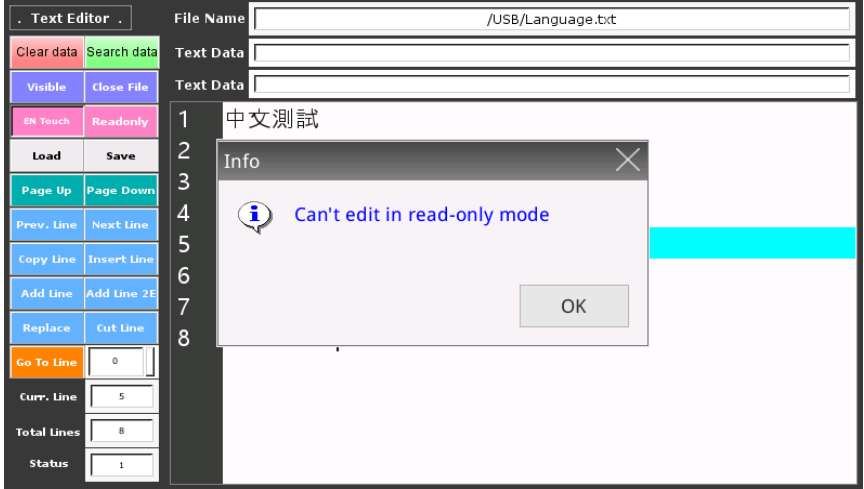
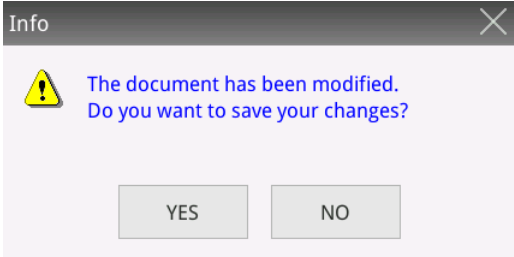


Save



- If the file is not saved after modification and you are opening another file, then the following message appears to remind the user to save the modified text before loading another file.



Multi-line text input		
Execution results	Write-protected	<p>When the Editable Trigger Address is set to Off, writing to this text file will be prohibited. When you want to write text data, the HMI will display the following message.</p> 
	Invalid touch	<p>If the Interlock Address has been set, when the Interlock Address is ON, you can click the buttons to edit the text data; if the Interlock Address is OFF, the buttons are not available.</p>
	Close	<p>Click Close File to close the currently opened file. If the file has been modified before closed, the following window will also be displayed.</p> 

When you double-click the Multi-line text input, the property page is shown as follows.

13

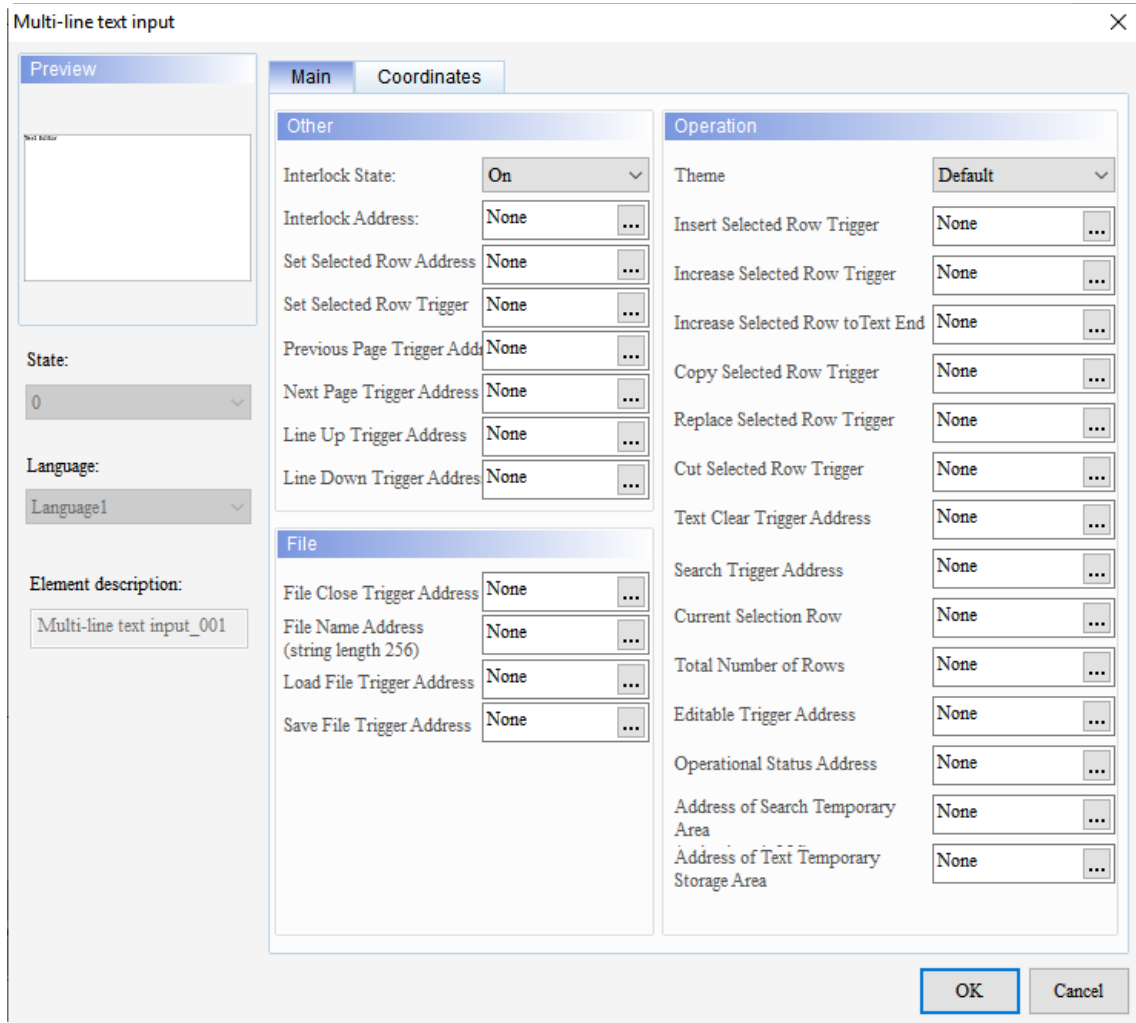
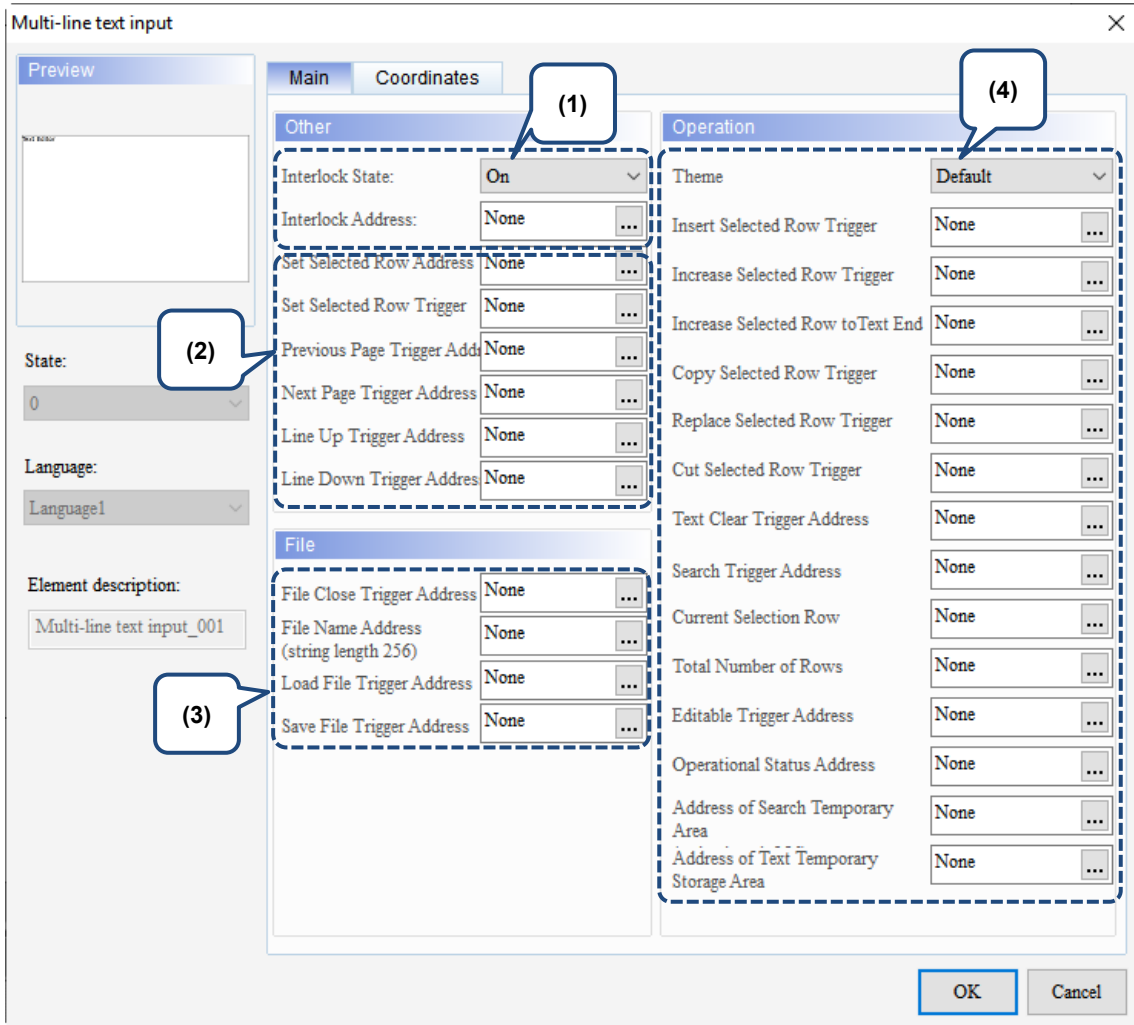


Figure 13.5.1 Properties of Multi-line text input

Table 13.5.2 Function page of Multi-line text input

Multi-line text input	
Function page	Description
Preview	Multi-line text input does not support viewing multiple state values and multi-language data display.
Main	<p>The settings are divided into Other, File, and Operation:</p> <ul style="list-style-type: none"> ■ Other: Interlock State, Interlock Address, Set Selected Row Address, Set Selected Row Trigger, Previous Page Trigger Address, Next Page Trigger Address, Line Up Trigger Address, and Line Down Trigger Address. ■ File: File Close Trigger Address, File Name Address, Load File Trigger Address, and Save File Trigger Address. ■ Operation: Theme, Insert Selected Row Trigger, Increase Selected Row Trigger, Increase Selected Row to Text End, Copy Selected Row Trigger, Replace Selected Row Trigger, Cut Selected Row Trigger, Text Clear Trigger Address, Search Trigger Address, Current Selection Row, Total Number of Rows, Editable Trigger Address, Operational Status Address, Address of Search Temporary Area, and Address of Text Temporary Storage Area.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

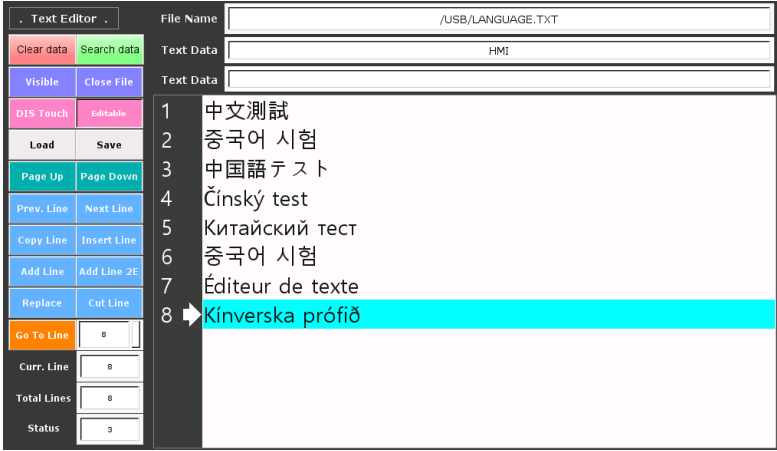
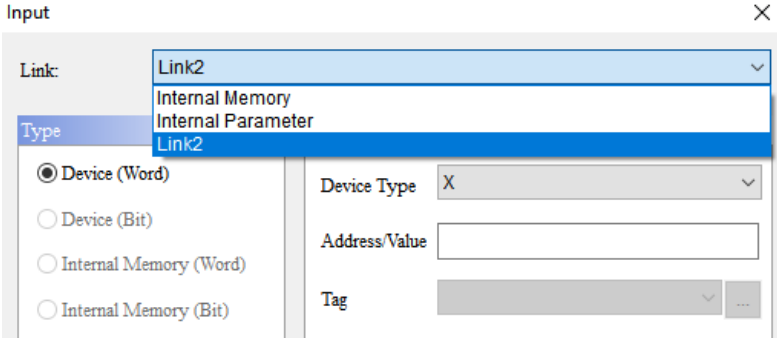
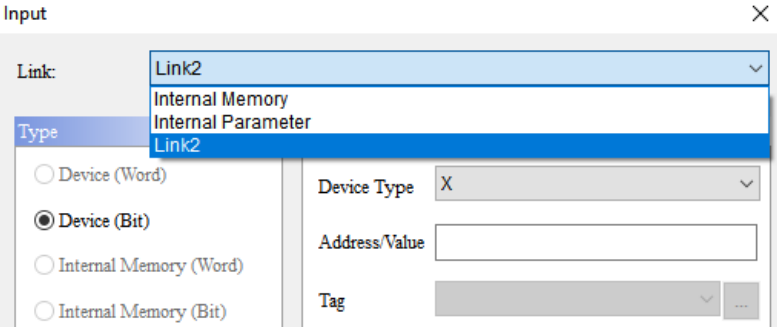


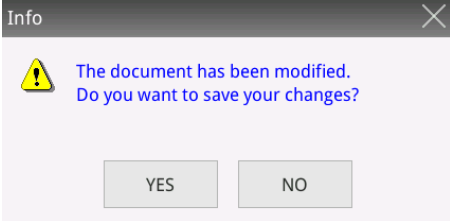
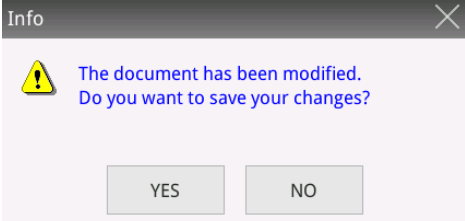
13

Figure 13.5.2 Main property page for the Multi-line text input element

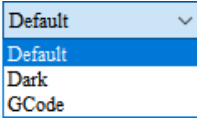
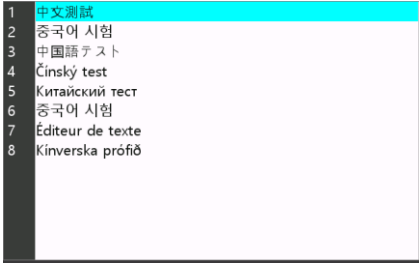
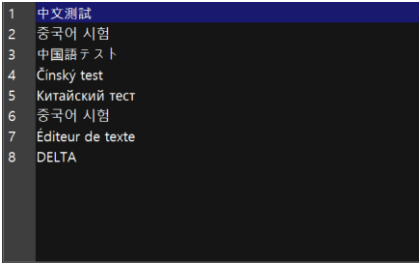
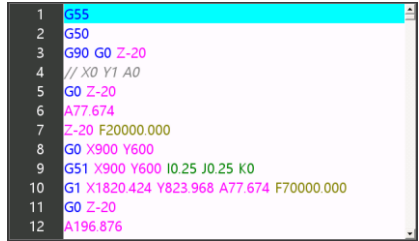
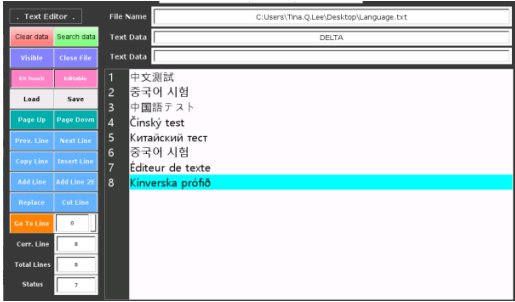
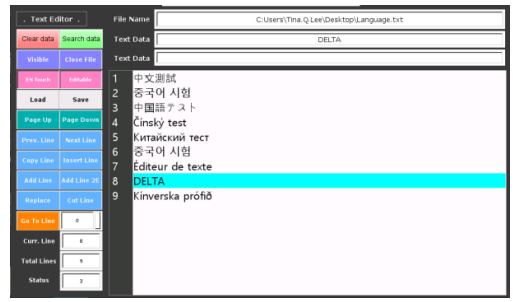
No.	Property	Function description
(1)	Interlock State	The Interlock Address enables you to operate a certain element from this particular address, which must be operated along with the Interlock State. If Interlock State is set to Off, it means the Interlock Address is operable when this Interlock State is off; on the other hand, if Interlock State is set to On, the Interlock Address is operable when this Interlock State is on.
	Interlock Address	

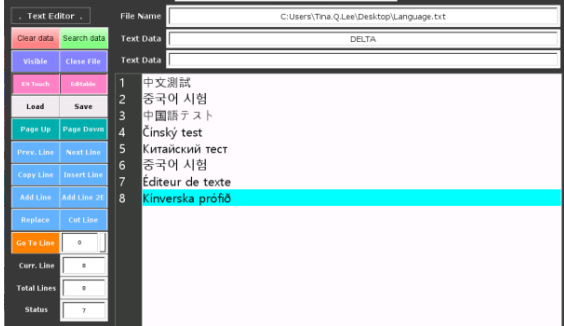
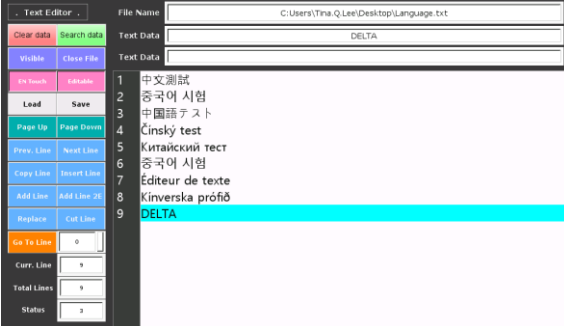
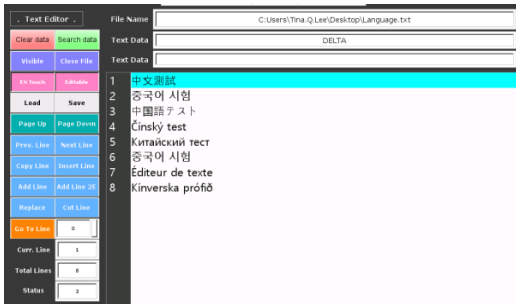
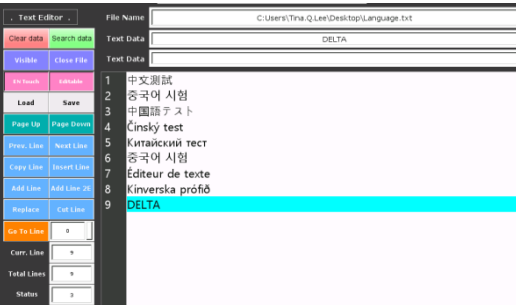
13

No.	Property	Function description
(2)	Set Selected Row Address	<ul style="list-style-type: none"> Specify the line to select with the Set Select Row Address. Then, set the Set Selected Row Trigger to On, and the element will display the selected item. Set to select the eighth row, press the Go To Line button, and the eighth row is selected. 
	Set Selected Row Trigger	<ul style="list-style-type: none"> For the Set Select Row Address, the controller address (Word) and the internal register address (Word) are supported.  <ul style="list-style-type: none"> For the Set Selected Row Trigger, the controller address (Bit) and the internal register address (Bit) are supported. 
	Previous Page Trigger Address	<ul style="list-style-type: none"> When the Previous Page Trigger Address bit is on, the element display switches to the previous page and the bit is automatically cleared once the action is complete. If the text message does not exceed one page, the first line is selected when you click Page Up. For the Previous Page Trigger Address, the controller address (Bit) and the internal register address (Bit) are supported.
	Next Page Trigger Address	<ul style="list-style-type: none"> When the Next Page Trigger Address bit is on, the element display switches to the next page and the bit is automatically cleared once the action is complete. If the text message does not exceed one page, the last line is selected when you click Page Down. For the Next Page Trigger Address, the controller address (Bit) and the internal register address (Bit) are supported.

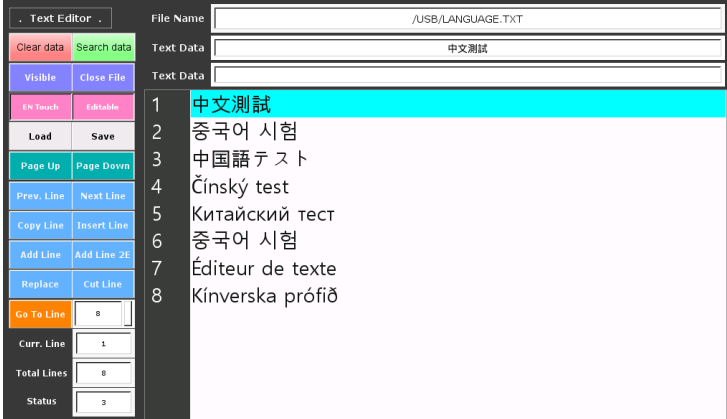
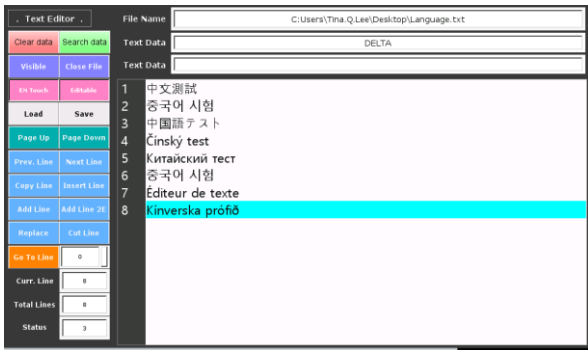
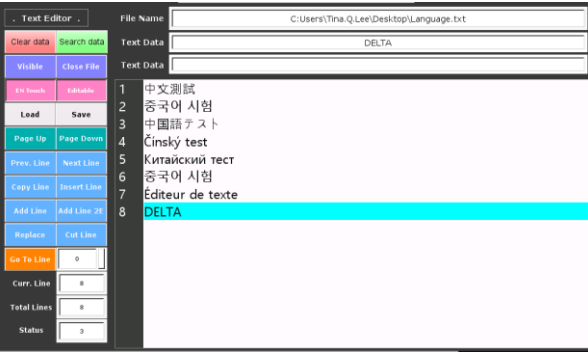
No.	Property	Function description
(2)	Line Up Trigger Address	<ul style="list-style-type: none"> ■ When the Line Up Trigger Address bit is on, the previous line is selected and the bit is automatically cleared once the action is complete. ■ Each time the Line Up Trigger Address is executed, the Curr. Line decreases by 1 automatically to show how many lines are currently selected. ■ For the Line Up Trigger Address, the controller address (Bit) and the internal register address (Bit) are supported.
	Line Down Trigger Address	<ul style="list-style-type: none"> ■ When the Line Down Trigger Address bit is on, the next line is selected and the bit is automatically cleared once the action is complete. ■ Each time the Line Down Trigger Address is executed, the Curr. Line increases by 1 automatically to show how many lines are currently selected. ■ For the Line Down Trigger Address, the controller address (Bit) and the internal register address (Bit) are supported.
(3)	File Close Trigger Address	<ul style="list-style-type: none"> ■ Execute the File Close Trigger Address to close the currently opened file. ■ If the file has been modified before closed, the software displays the following window.  <ul style="list-style-type: none"> ■ For the File Close Trigger Address, the controller address (Bit) and the internal register address (Bit) are supported.
	File Name Address	<ul style="list-style-type: none"> ■ The File Name Address is used to input the path and file name of the text file to be opened. ■ The length supports a maximum of 256 characters or 512 words. ■ For the File Name Address, the controller address (Word) and the internal register address (Word) are supported.
	Load File Trigger Address	<ul style="list-style-type: none"> ■ After entering the file name and path, execute the Load File Trigger Address to open the file. ■ The size of the text file to be opened should not exceed 20 MB. ■ If the entered file path is not correct, the HMI displays the following message to remind the user how to enter the correct path. <ul style="list-style-type: none"> ■ For the Load File Trigger Address, the controller address (Bit) and the internal register address (Bit) are supported.
	Save File Trigger Address	<ul style="list-style-type: none"> ■ When the contents of the file undergo any modifications, the modified or added content can be saved through the Save File Trigger Address. ■ If you execute the Load File Trigger Address before saving the file, the HMI displays the following message.  <ul style="list-style-type: none"> ■ For the Save File Trigger Address, the controller address (Bit) and the internal register address (Bit) are supported.

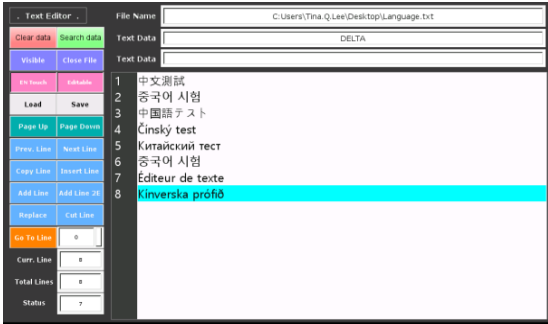
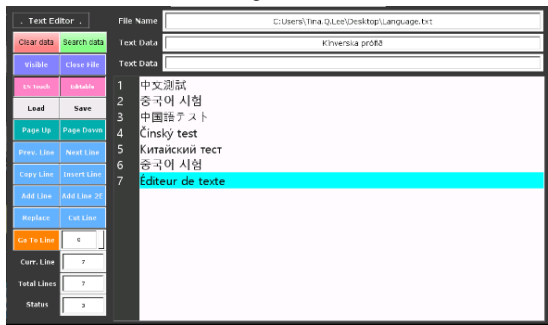
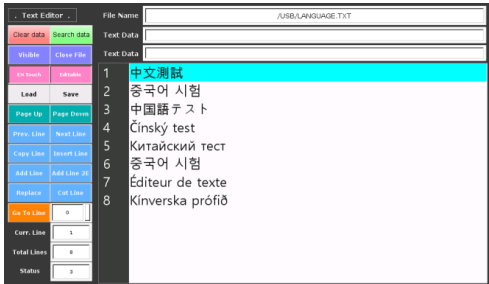
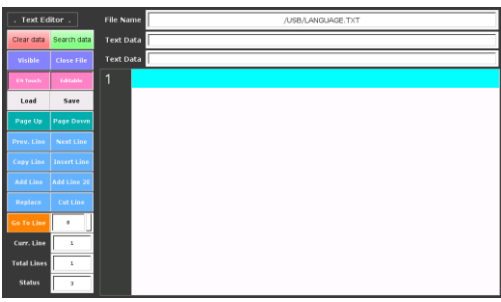
13

No.	Property	Function description	
(4)	Theme	<p>There are three themes: Default, Dark, and GCode.</p> 	
		Default	
		Dark	
<p>When you select GCode for the Theme and load an NC file containing G codes, the text appears in color.</p> 			
	Insert Selected Row Trigger	<ul style="list-style-type: none"> When the Insert Selected Row Trigger bit is On, the text data will be inserted before the selected line and this bit will be automatically cleared once the action is complete. 	
		<p>Select the 8th line and enter "DELTA" to the Text Data field.</p>  <p>Click Insert Line and "DELTA" is inserted to the 8th line.</p>  <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. 	


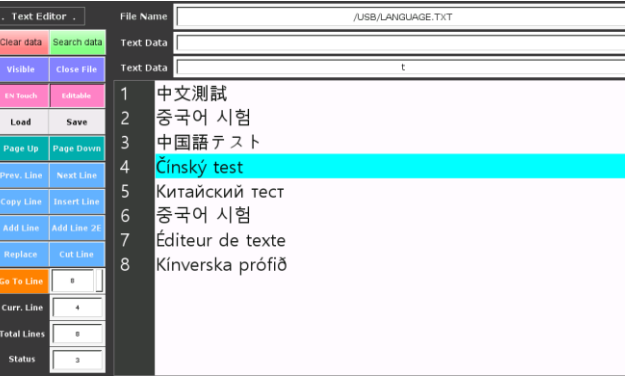
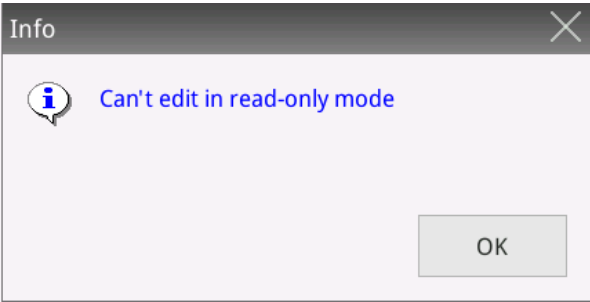
No.	Property	Function description
(4)	Increase Selected Row Trigger	<ul style="list-style-type: none"> When the Increase Selected Row Trigger bit is On, the text data will be inserted after the selected line and this bit will be automatically cleared once the action is complete. <div style="display: flex; justify-content: space-between;"> <div style="width: 20%; background-color: #f0f0f0; padding: 5px;">Before adding</div> <div style="width: 80%; padding: 5px;"> <p>Select the 8th line and enter “DELTA” to the Text Data field.</p>  </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 20%; background-color: #f0f0f0; padding: 5px;">After adding</div> <div style="width: 80%; padding: 5px;"> <p>Click Add Line and “DELTA” is inserted to the 9th line.</p>  </div> </div>
	Increase Selected Row to Text End	<ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. <ul style="list-style-type: none"> When the Increase Selected Row to Text End bit is On, the text data will be inserted to the end of the lines and this bit will be automatically cleared once the action is complete. <div style="display: flex; justify-content: space-between;"> <div style="width: 20%; background-color: #f0f0f0; padding: 5px;">Before adding to the end of file</div> <div style="width: 80%; padding: 5px;"> <p>Select any line and enter “DELTA” to the Text Data field.</p>  </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 20%; background-color: #f0f0f0; padding: 5px;">After adding to the end of file</div> <div style="width: 80%; padding: 5px;"> <p>Click Add Line 2E, and “DELTA” is inserted to the end of the file.</p>  </div> </div> <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported.

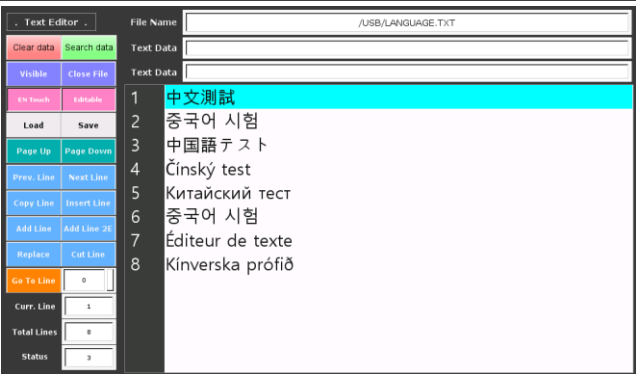
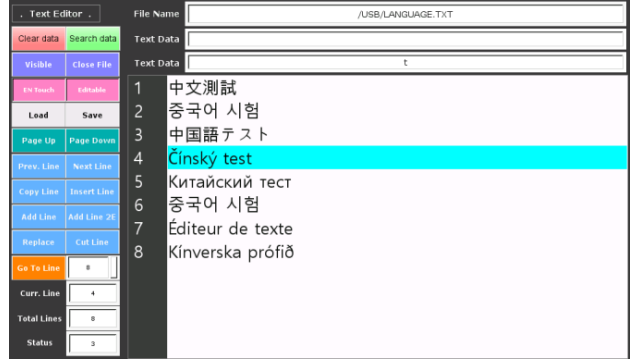
13

No.	Property	Function description
	Copy Selected Row Trigger	<ul style="list-style-type: none"> When the Copy Selected Row Trigger bit is on, the current selected line is copied and the bit is automatically cleared once the action is complete. After the copying is complete, the copied text data will be displayed in the text data buffer field.  <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported.
(4)	Replace Selected Row Trigger	<p>Select the 8th line and enter "DELTA" to the Text Data field.</p>  <p>Click Replace to replace the eighth line of text with DELTA.</p>  <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported.

No.	Property	Function description
<p>(4)</p>	<p>Cut Selected Row Trigger</p>	<ul style="list-style-type: none"> When the Cut Selected Row Trigger bit is On, the text data will be deleted and this bit will be automatically cleared once the action is complete. <div style="display: flex; justify-content: space-between;"> <div style="width: 20%; background-color: #e0e0e0; padding: 5px;"> <p>Before deleting</p> </div> <div style="width: 80%;"> <p>Select the 8th line.</p>  </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 20%; background-color: #e0e0e0; padding: 5px;"> <p>After deleting</p> </div> <div style="width: 80%;"> <p>Press Cut Line to delete the eighth line of text.</p>  </div> </div>
	<p>Text Clear Trigger Address</p>	<ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. <ul style="list-style-type: none"> When the Text Clear Trigger Address bit is On, all text data will be cleared, and this bit will be cleared automatically once the action is complete. <div style="display: flex; justify-content: space-between;"> <div style="width: 20%; background-color: #e0e0e0; padding: 5px;"> <p>Before clearing</p> </div> <div style="width: 80%;">  </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 20%; background-color: #e0e0e0; padding: 5px;"> <p>After clearing</p> </div> <div style="width: 80%;"> <p>Click Clear data to clear all texts.</p>  </div> </div> <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported.

13

No.	Property	Function description
(4)	Search Trigger Address	<ul style="list-style-type: none"> ■ The Search Trigger Address must be used with the Address of Search Temporary Area. ■ After a keyword to be searched for is entered in the text search buffer address, the Search Trigger Address is then executed, and the corresponding text line will be displayed. 
		<p>Executing Search data to search for the entered text, and the corresponding text data is selected.</p>  <ul style="list-style-type: none"> ■ The controller address (Bit) and the internal register address (Bit) are supported.
Current Selection Row		<ul style="list-style-type: none"> ■ Displays the number of currently selected lines. ■ The controller address (Word) and the internal register address (Word) are supported.
Total Number of Rows		<ul style="list-style-type: none"> ■ Displays the total number of lines in the opened file. ■ The controller address (Word) and the internal register address (Word) are supported.
Editable Trigger Address		<ul style="list-style-type: none"> ■ When the Editable Trigger Address is On, you can perform any operation on the texts. ■ When the Editable Trigger Address is Off, if you attempt to perform any operation on the texts, the following message is displayed.  <ul style="list-style-type: none"> ■ The controller address (Bit) and the internal register address (Bit) are supported.

No.	Property	Function description																		
	Operational Status Address	<ul style="list-style-type: none"> Refer to the state value for the current status of the file. <table border="1"> <thead> <tr> <th>State value</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>1</td><td>Operation in progress</td></tr> <tr><td>2</td><td>Operation canceled</td></tr> <tr><td>3</td><td>Execution success</td></tr> <tr><td>4</td><td>Execution failed / execution error</td></tr> <tr><td>7</td><td>File loading success</td></tr> <tr><td>8</td><td>File saving success</td></tr> <tr><td>9</td><td>File is empty</td></tr> <tr><td>10</td><td>File not found</td></tr> </tbody> </table> The controller address (Word) and the internal register address (Word) are supported. 	State value	Description	1	Operation in progress	2	Operation canceled	3	Execution success	4	Execution failed / execution error	7	File loading success	8	File saving success	9	File is empty	10	File not found
State value	Description																			
1	Operation in progress																			
2	Operation canceled																			
3	Execution success																			
4	Execution failed / execution error																			
7	File loading success																			
8	File saving success																			
9	File is empty																			
10	File not found																			
(4)	Address of Search Temporary Area	<ul style="list-style-type: none"> The Address of Search Temporary Area must be used with the Search Trigger Address. The length supports a maximum of 256 characters or 512 words. After the keyword to be searched for is entered in the text search buffer address, the Search Trigger Address is then executed, and the corresponding text line will be displayed. <div> <p>Before searching</p>  </div> <p>Executing Search data to search for the entered text and the corresponding text data is selected.</p> <div> <p>After searching</p>  </div>																		

Coordinates

13

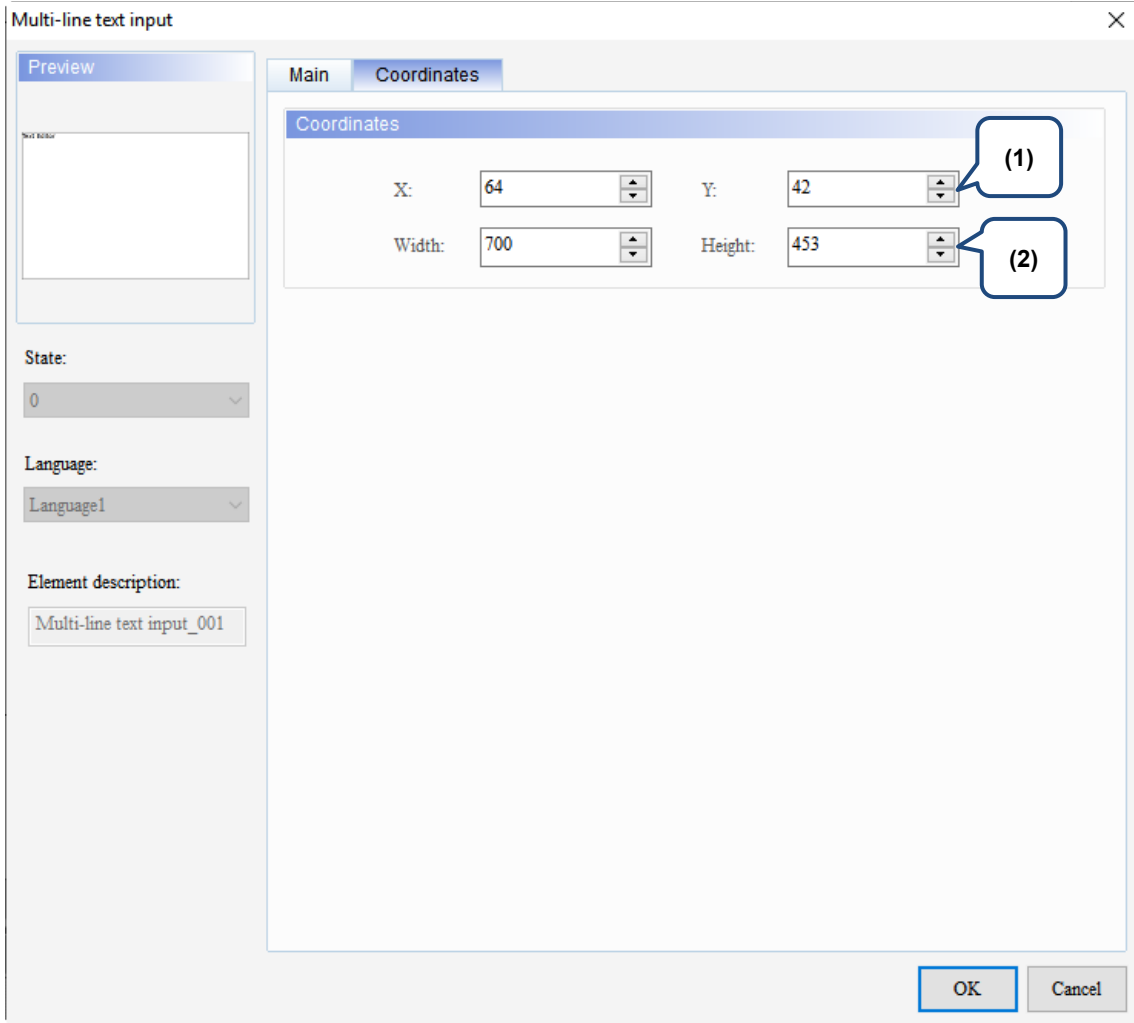



Figure 13.5.3 Coordinates property page for the Multi-line text input element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

This chapter provides the usage and setting details for the Curve elements.



14.1	Trend Graph	14-2
14.2	X-Y Chart	14-18
14.3	X-Y Distribution	14-39
14.4	Curve Input	14-50

14

14.1 Trend Graph

Trend Graph is drawn according to the set Address, and you can also define the curve count to be displayed. A Trend Graph element supports up to 4 curves. This element requires using the Curve sampling flag from [Options] > [Configuration] > [Control Status Block] > [Control Block] > [Curve Control] to draw curves. The Curve sampling flags 1 - 4 correspond to the Sampling flags 1 - 4 of the Trend Graph element respectively.

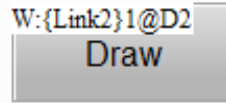
Refer to Table 14.1.1 for the Trend Graph example.

Table 14.1.1 Trend Graph example

Trend Graph													
Trend Graph element	<p>Create a Trend Graph element and set its parameters.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="background-color: #cccccc;">Trend Graph element</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Address</td> <td style="text-align: center;">\$2000</td> </tr> <tr> <td style="text-align: center;">Sample Number</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: center;">Sample Flag</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">Number of Curves</td> <td style="text-align: center;">1</td> </tr> </tbody> </table> <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>Minimum / Maximum Line Weight / Line Color Projection Axis</p> </div> <div style="flex: 2; border: 1px solid #ccc; padding: 5px;"> <p>Curve1</p> <p>Minimum <input type="text" value="0"/> ...</p> <p>Maximum <input type="text" value="1000"/> ...</p> <p>Line Weight <input type="text" value="5"/> ▾</p> <p>Line Color <input style="background-color: #0070c0; color: white;" type="text" value="Blue"/> ▾</p> <p>Projection Axis <input type="text" value="No projection"/> ▾</p> </div> </div> 	Trend Graph element		Address	\$2000	Sample Number	5	Sample Flag	1	Number of Curves	1		
Trend Graph element													
Address	\$2000												
Sample Number	5												
Sample Flag	1												
Number of Curves	1												
Numeric Entry element	<p>Create 5 Numeric Entry elements. As the Sample Number of the Trend Graph is set to 5, 5 sampling points are used to draw a curve. Then, the set Address \$2000 of the Trend Graph starts reading 5 addresses in sequence, which are \$2000, \$2001, \$2002, \$2003, and \$2004.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="6" style="background-color: #cccccc;">Numeric Entry element</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Write Address</td> <td style="text-align: center;">\$2000</td> <td style="text-align: center;">\$2001</td> <td style="text-align: center;">\$2002</td> <td style="text-align: center;">\$2003</td> <td style="text-align: center;">\$2004</td> </tr> </tbody> </table>	Numeric Entry element						Write Address	\$2000	\$2001	\$2002	\$2003	\$2004
Numeric Entry element													
Write Address	\$2000	\$2001	\$2002	\$2003	\$2004								

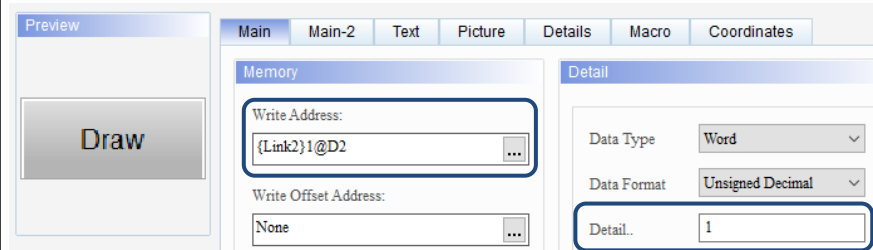
Trend Graph

- Create a Set Constant element and set its Write Address as D2. This D2 address is for the Curve Control flag in the Control Block.

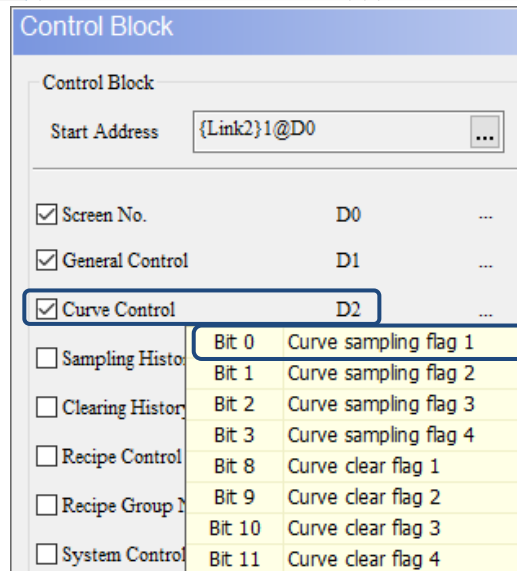


- Set the Detail.. of the Set Constant element to 1. 1 corresponds to **Bit 0 Curve sampling flag 1**; 2 corresponds to **Bit 1 Curve sampling flag 2**; 4 corresponds to **Bit 2 Curve sampling flag 3**, and so on. You can also find that the Sample Flag setting of the Trend Graph element is 1 as well.

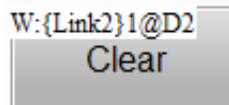
Set Constant



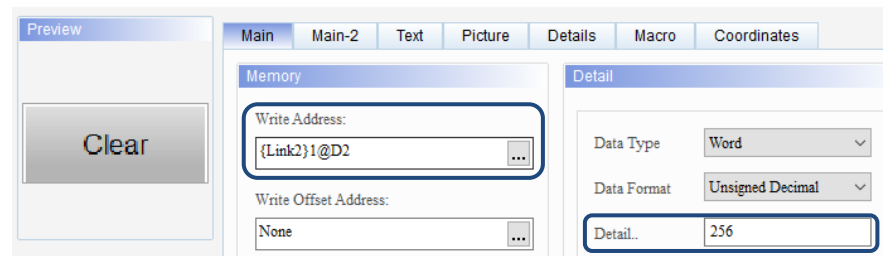
Set Constant element



- Create another Set Constant element and set its Write Address as D2 as well, and set the Detail.. as 256. 256 corresponds to **Bit 8 Curve clear flag 1**.



Set Constant



14

Trend Graph

Control Block

Control Block

Start Address ...

Screen No. D0 ...

General Control D1 ...

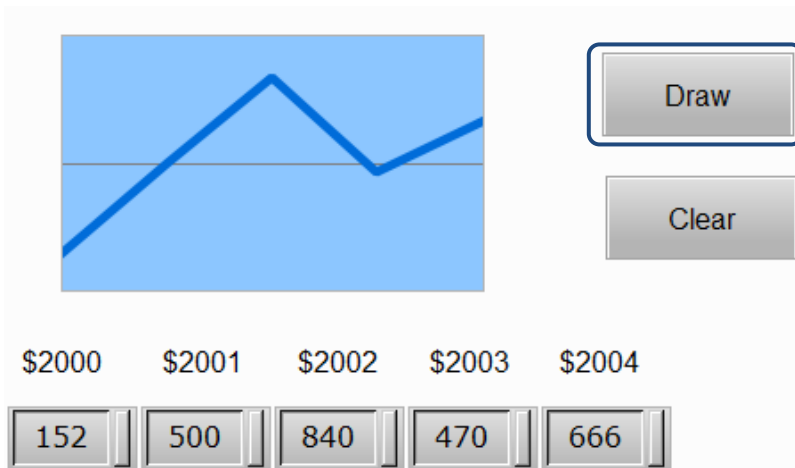
Curve Control D2 ...

<input type="checkbox"/> Sampling History	Bit 0	Curve sampling flag 1
<input type="checkbox"/> Clearing History	Bit 1	Curve sampling flag 2
<input type="checkbox"/> Recipe Control	Bit 2	Curve sampling flag 3
<input type="checkbox"/> Recipe Group	Bit 3	Curve sampling flag 4
<input type="checkbox"/> System Control	Bit 8	Curve clear flag 1
	Bit 9	Curve clear flag 2
	Bit 10	Curve clear flag 3
	Bit 11	Curve clear flag 4

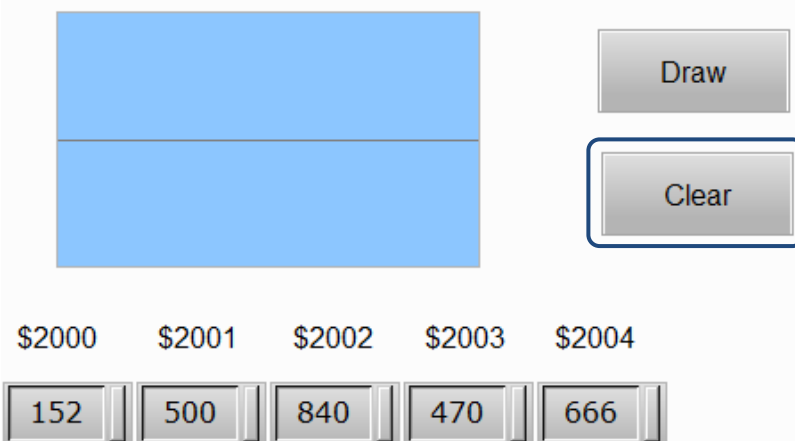
Set Constant element

- After creating the elements, compile and download the elements to the HMI. Next, enter any values to the Numeric Entry elements, and then press **Draw** to draw the curve.

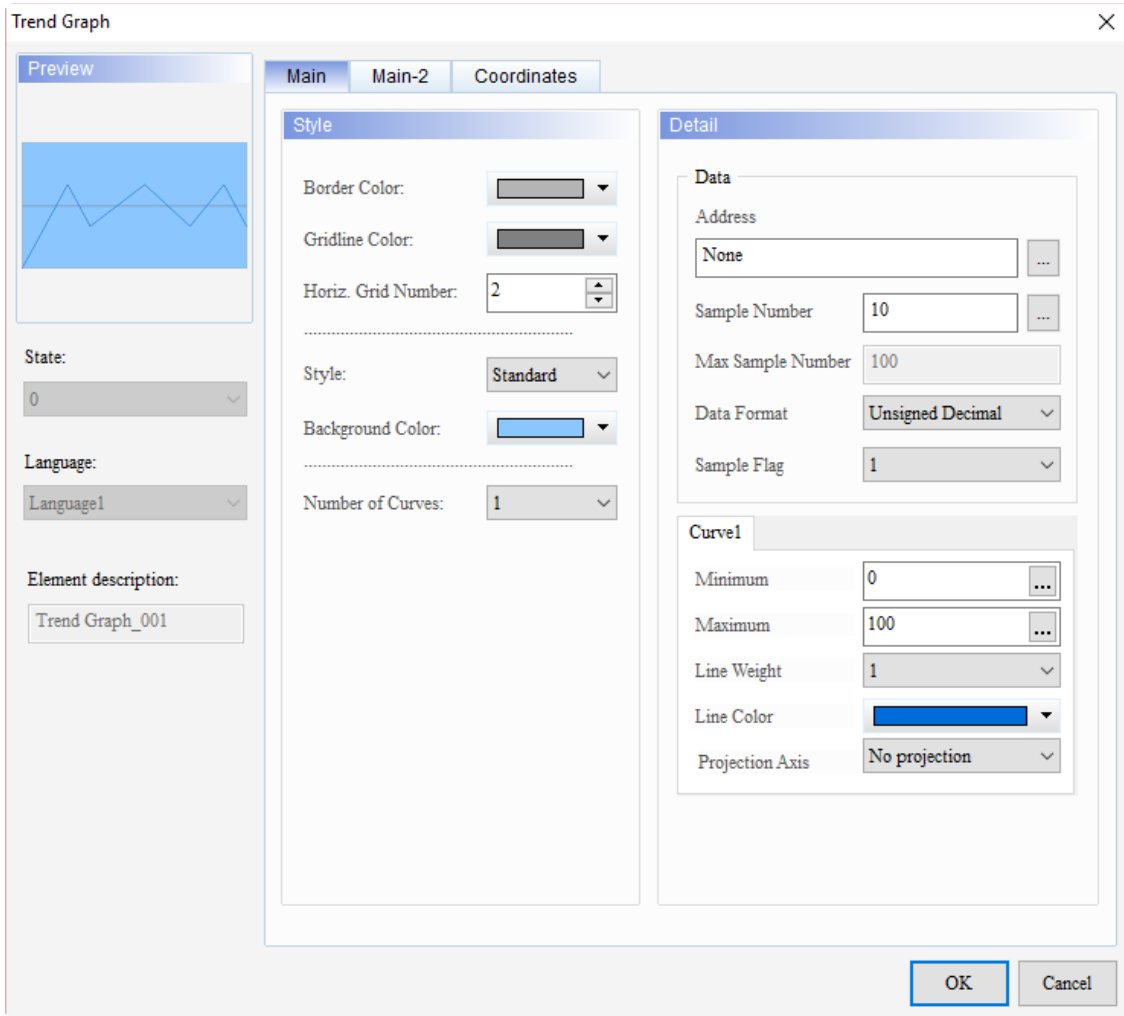
Execution results



- After the curve is drawn, if you press **Clear**, the HMI clears the drawn curve.



When you double-click the Trend Graph, the property page is shown as follows.



14

Figure 14.1.1 Properties of Trend Graph

Table 14.1.2 Function page of Trend Graph

Trend Graph	
Function page	Description
Preview	The Trend Graph elements do not support multiple state values and multi-language data display.
Main	Set the Address, Sample Number, Max Sample Number, Data Format, Sample Flag, Minimum, Maximum, Line Weight, Line Color, and Projection Axis. Set the Border Color, Gridline Color, Horiz. Grid Number, Style, Background Color, and Number of Curves.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

14

■ Main

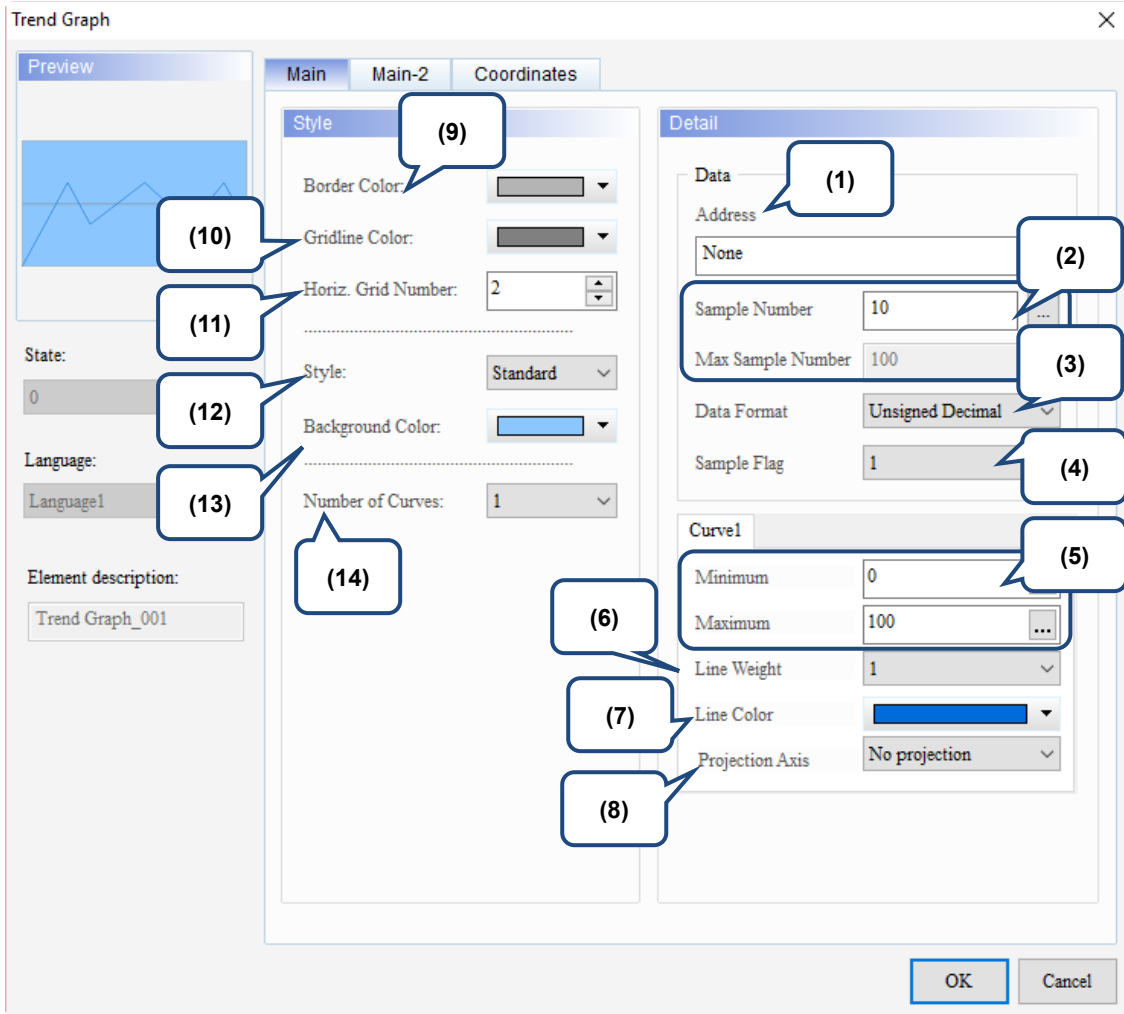
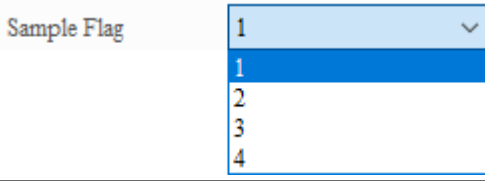
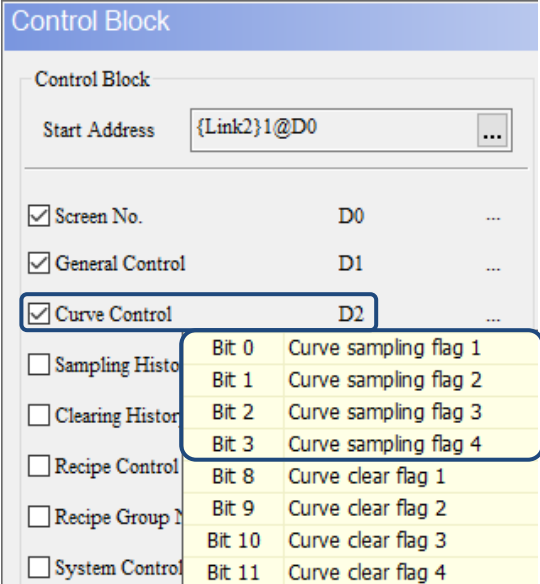
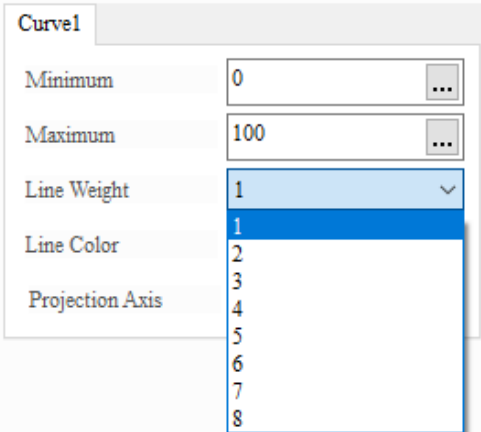
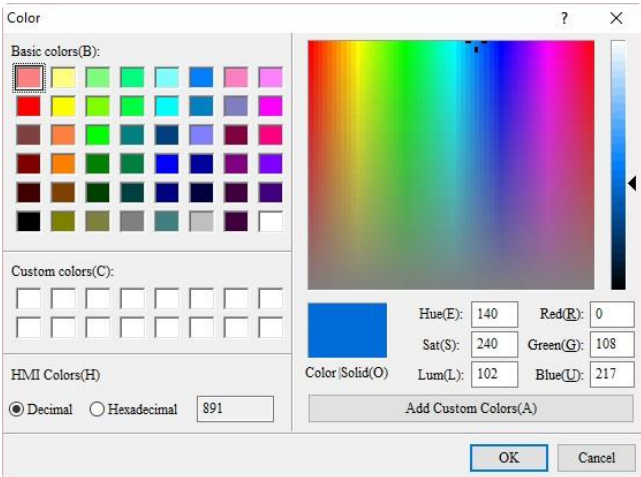
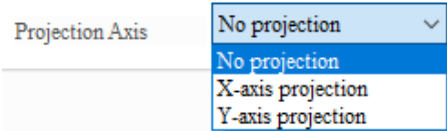
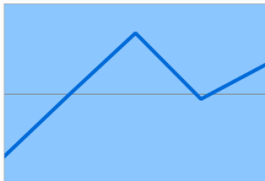
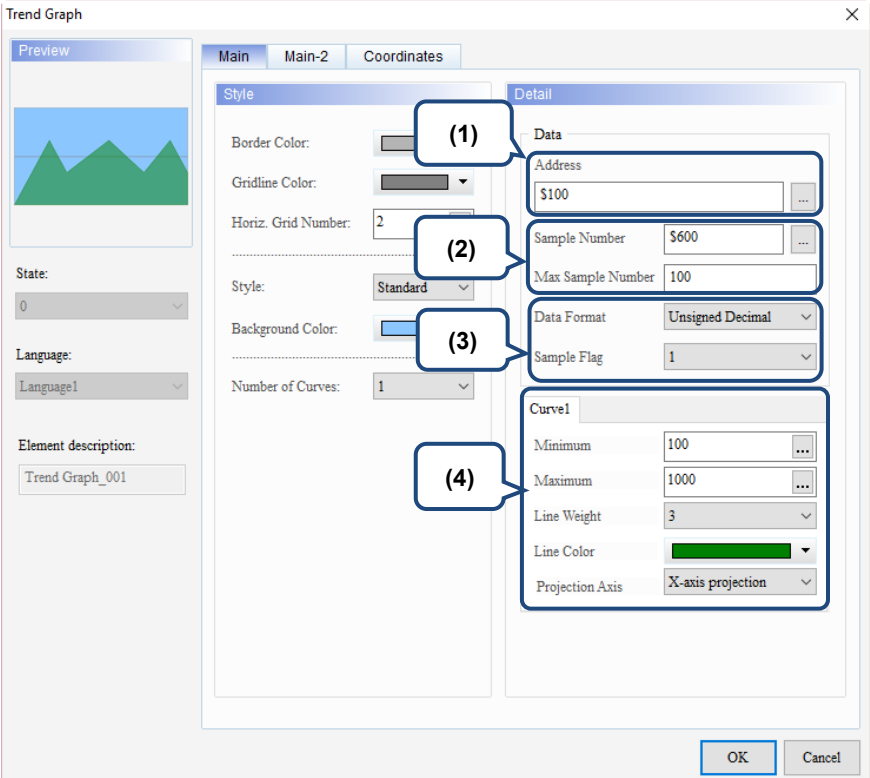


Figure 14.1.2 Main property page for the Trend Graph element


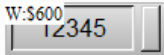
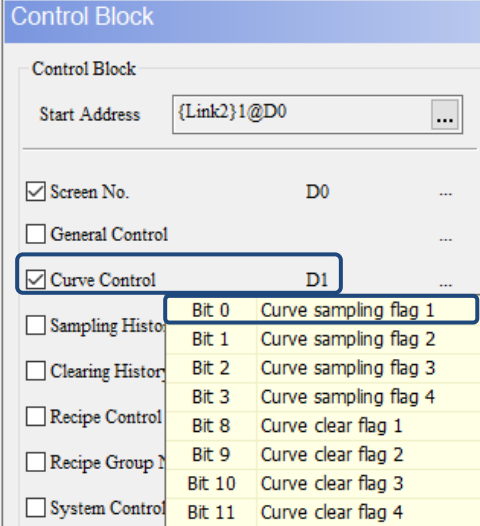
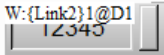
No.	Property	Function description
(1)	Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
(2)	Sample Number / Max Sample Number	<ul style="list-style-type: none"> The number of sampling points is determined by the element width and style. When you set the Style of the Trend Graph element as Standard and its width as 391, then the maximum number of points that can be displayed is 391. But if you set the Style of the Trend Graph element as Raised or Sunken (border width is 7 points) and its width as 391, then the maximum number of points that can be displayed is 377 (391 - (7*2) = 377). Sampling Number can be set as a constant or a variable. When you set the Sample Number as a constant, the Max Sample Number is grayed out and cannot be set. <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <p>Detail</p> <p>Data</p> <p>Address: None</p> <p>Sample Number: 10</p> <p>Max Sample Number: 100</p> <p>Data Format: Unsigned Decimal</p> <p>Sample Flag: 1</p> </div> <ul style="list-style-type: none"> When you set the Sample Number as a variable, you can define its read address. Also, you need to set the Max Sample Number, which is determined by the element width. If the set Sample Number is greater than the Max Sample Number, the software refers to the setting of the Max Sample Number. <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <p>Detail</p> <p>Data</p> <p>Address: None</p> <p>Sample Number: {Link2}1@D10</p> <p>Max Sample Number: 100</p> <p>Data Format: Unsigned Decimal</p> <p>Sample Flag: 1</p> </div>
(3)	Data Format	<p>Trend Graph supports the following data formats:</p> <div style="border: 1px solid #ccc; padding: 5px;"> <p>Data Format</p> <ul style="list-style-type: none"> Unsigned Decimal BCD Signed BCD Signed Decimal Unsigned Decimal Hexadecimal </div>

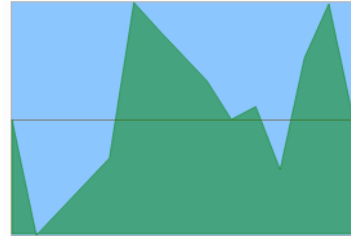
14

No.	Property	Function description														
(4)	Sample Flag	<p>There are 4 sampling flags corresponding to the Curve sampling flags 1 - 4 of the Curve Control in the Control Block respectively.</p>  														
(5)	Minimum / Maximum	<ul style="list-style-type: none"> You can set the minimum and maximum values as constants or variables. When the minimum and maximum values are variables, the controller address (Word) and the internal register address (Word) are supported. When the minimum and maximum values are constants, the allowable ranges for the minimum and maximum values are subject to change based on the selected Data Type and Data Format. <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFF</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hex	0 to 0xFFFF
Data Type	Data Format	Allowable range														
Word	BCD	0 to 9999														
	Signed BCD	-999 to +9999														
	Signed Decimal	-32768 to +32767														
	Unsigned Decimal	0 to 65535														
	Hex	0 to 0xFFFF														
(6)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 														


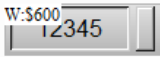
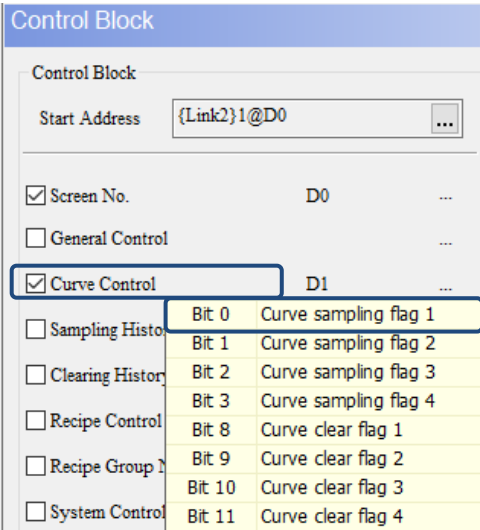



No.	Property	Function description
(7)	Line Color	<p>You can set the line color for the curve.</p> 
(8)	Projection Axis	<ul style="list-style-type: none"> There are three types of Projection axis: No projection, X-axis projection, and Y-axis projection.  <ul style="list-style-type: none"> When the Projection Axis is set to No projection, the setting is the same as the default setting, so only the curve is displayed.  <ul style="list-style-type: none"> The following describes the details of X-axis projection and Y-axis projection. <p>X-axis projection</p> 

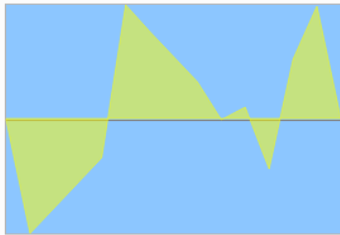
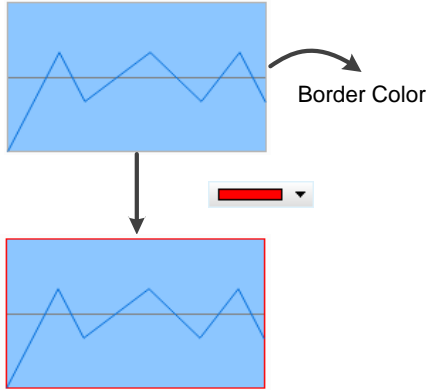
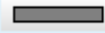
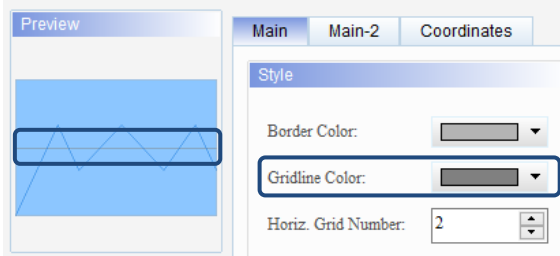
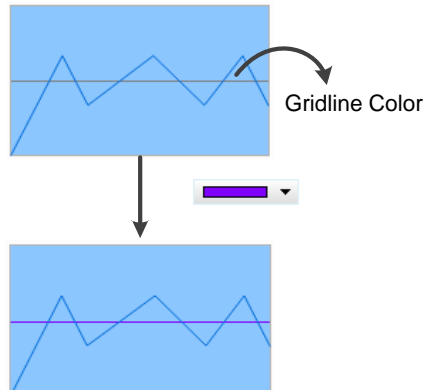
14

No.	Property	Function description
(8)	Projection Axis	<ul style="list-style-type: none"> (1) Set the Address to \$100. (2) Set the Sample Number to \$600 and the Max Sample Number to 100. (3) Set the Data Format to Unsigned Decimal and the Sample Flag to 1. (4) Set the Minimum as 100 and the Maximum as 1000. Set the Projection Axis to X-axis projection.
		<ul style="list-style-type: none"> ■ Create the Numeric Entry elements of \$100 - \$114 and set their Data Format as Unsigned Decimal. <div style="text-align: center; margin: 5px 0;"> \$100~\$114 Unsigned Decimal </div>  ■ Create a Numeric Entry element of \$600 for inputting the Sample Number. <div style="text-align: center; margin: 5px 0;"> Sample Number  </div> ■ Go to [Options] > [Configuration] > [Control Status Block] and select the Curve Control check box with the address as D1.  ■ Create a Numeric Entry element with the Write Address set as D1. <div style="text-align: center; margin: 5px 0;"> Sampling flag 1: draw 256: clear  </div> ■ After completing the preceding steps, compile and download the elements to the HMI.

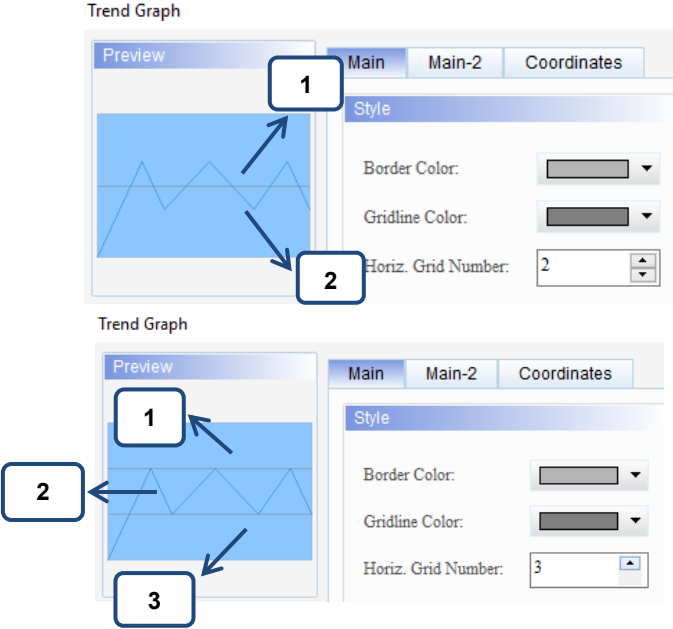
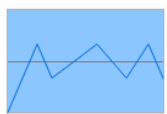
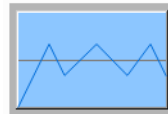
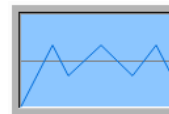

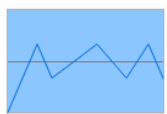
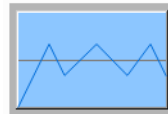
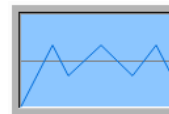

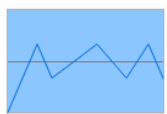
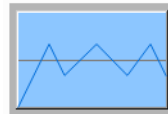
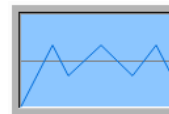

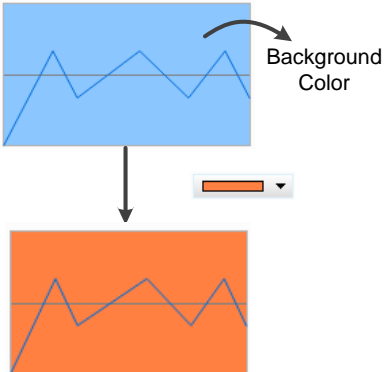
No.	Property	Function description								
(8)	Projection Axis	<ul style="list-style-type: none"> Enter any values to the Numeric Entry elements of \$100 - \$114, and input 15 to the Sample Number and 1 to the Sampling flag.  <ul style="list-style-type: none"> When you complete inputting the values, the Trend Graph is as follows: 								
		<p>Y-axis projection</p>  <table border="1"> <tr> <td>(1)</td> <td>Set the Address to \$100.</td> </tr> <tr> <td>(2)</td> <td>Set the Sample Number to \$600 and the Max Sample Number to 100.</td> </tr> <tr> <td>(3)</td> <td>Set the Data Format to Unsigned Decimal and the Sample Flag to 1.</td> </tr> <tr> <td>(4)</td> <td>Set the Minimum as 100 and the Maximum as 1000.</td> </tr> <tr> <td></td> <td>Set the Projection Axis to Y-axis projection.</td> </tr> </table>	(1)	Set the Address to \$100.	(2)	Set the Sample Number to \$600 and the Max Sample Number to 100.	(3)	Set the Data Format to Unsigned Decimal and the Sample Flag to 1.	(4)	Set the Minimum as 100 and the Maximum as 1000.
(1)	Set the Address to \$100.									
(2)	Set the Sample Number to \$600 and the Max Sample Number to 100.									
(3)	Set the Data Format to Unsigned Decimal and the Sample Flag to 1.									
(4)	Set the Minimum as 100 and the Maximum as 1000.									
	Set the Projection Axis to Y-axis projection.									

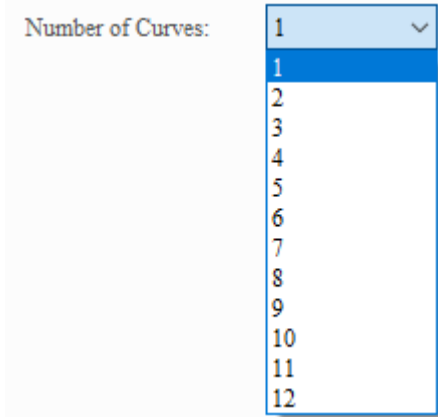
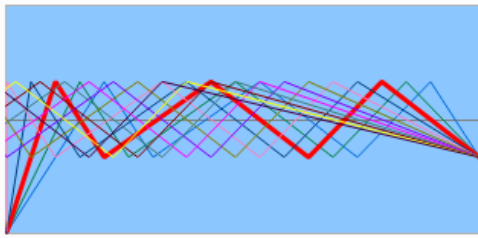
14

No.	Property	Function description
(8)	Projection Axis	<ul style="list-style-type: none"> <p>■ Create the Numeric Entry elements of \$100 - \$114 and set their Data Format as Unsigned Decimal.</p> <p>\$100~\$114 Unsigned Decimal</p>  <p>■ Create a Numeric Entry element of \$600 for inputting the Sample Number.</p> <p>Sample Number</p>  <p>■ Go to [Options] > [Configuration] > [Control Status Block] and select the Curve Control check box with the address as D1.</p>  <p>■ Create a Numeric Entry element with the Write Address set as D1.</p> <p>Sampling flag 1: draw 256: clear</p>  <p>■ After completing the preceding steps, compile and download the elements to the HMI.</p> <p>■ Enter any values to the Numeric Entry elements of \$100 - \$114, and input 15 to the Sample Number and 1 to the Sampling flag.</p> <p>Sample Number Sampling flag 1: draw 256: clear</p>  <p>\$100~\$114 Unsigned Decimal</p> 

No.	Property	Function description
(8)	Projection Axis	<ul style="list-style-type: none"> When you complete inputting the values, the Trend Graph is as follows:  <p>Note: when using the Projection Axis, if there is more than one curve displayed on the Trend Graph at the same time, the curve of the greater number covers the curve of the smaller number.</p>
(9)	Border Color	<p>Set the Border Color of the Trend Graph element.</p> 
(10)	Gridline Color	<ul style="list-style-type: none"> The Gridline Color is the color of the grid line in the Trend Graph. The default is . <p>Trend Graph</p>  <ul style="list-style-type: none"> You can change the color of the grid line. 

14

No.	Property	Function description								
(11)	Horiz. Grid Number	<ul style="list-style-type: none"> ■ The maximum horizontal grid count is 50. ■ Horiz. Grid Number sets the number of zones the Trend Graph element is divided into. The default is 2, meaning there is one grid line dividing the Trend Graph element into two zones. If the Horiz. Grid Number is set to 3, there are two grid lines dividing the Trend Graph element into 3 zones, and so on. 								
(12)	Style	<p>You can change the appearance of the element with this setting. There are four types of element styles:</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent				
Standard	Raised	Sunken	Transparent							
										
(13)	Background Color	<p>Set the background color of the element.</p> 								

No.	Property	Function description
(14)	Number of Curves	<ul style="list-style-type: none">■ The Trend Graph element supports up to 12 curves. ■ You can also change the width and color of the curves. ■ If you want to use 12 curves, you only need to set the Address as a Continuous Address for sampling. Assuming the Address is \$1000 and the Sample Number is 5, then 60 sampling points are required for 12 curves. Thus, the Addresses are \$1000 - \$1059.

■ Main-2

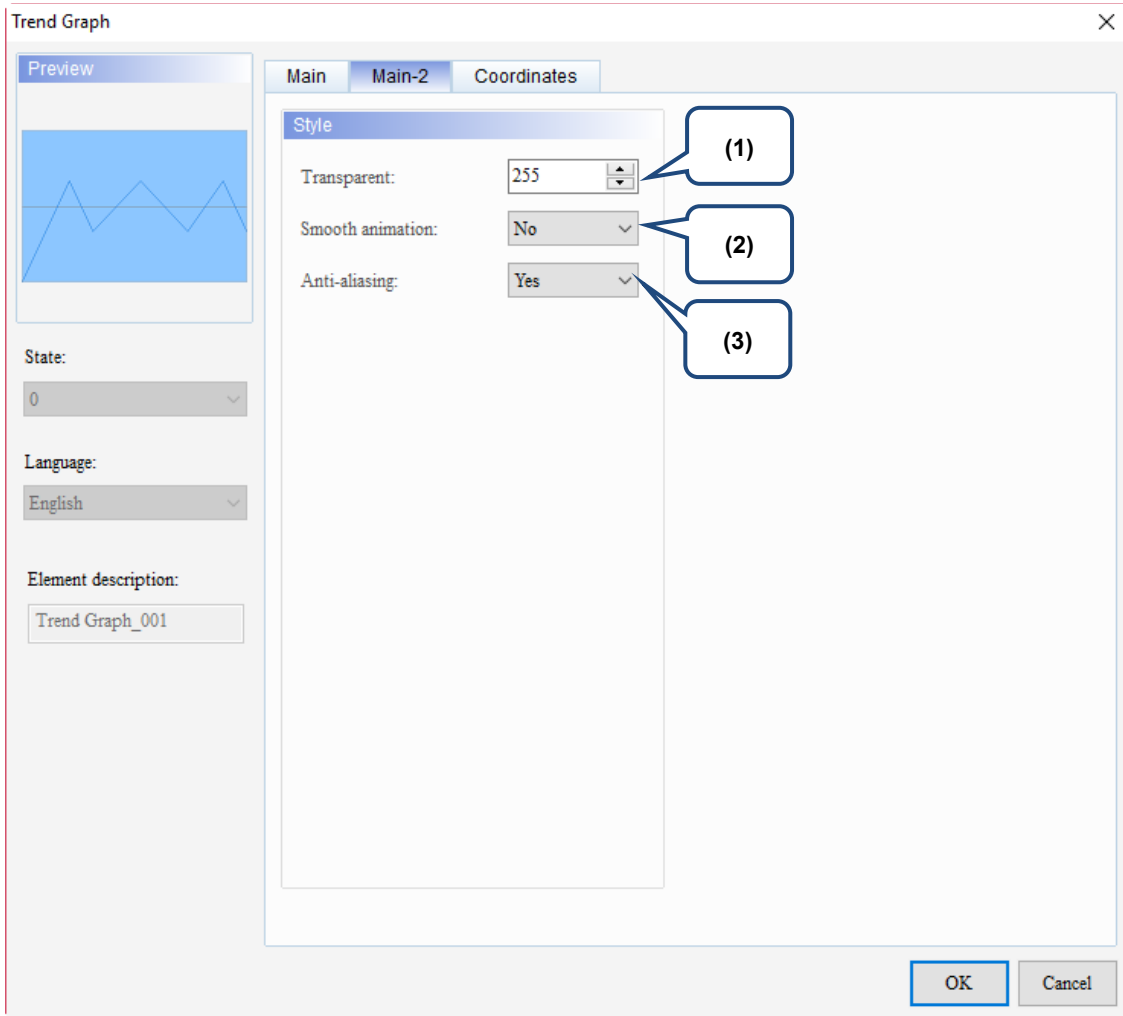
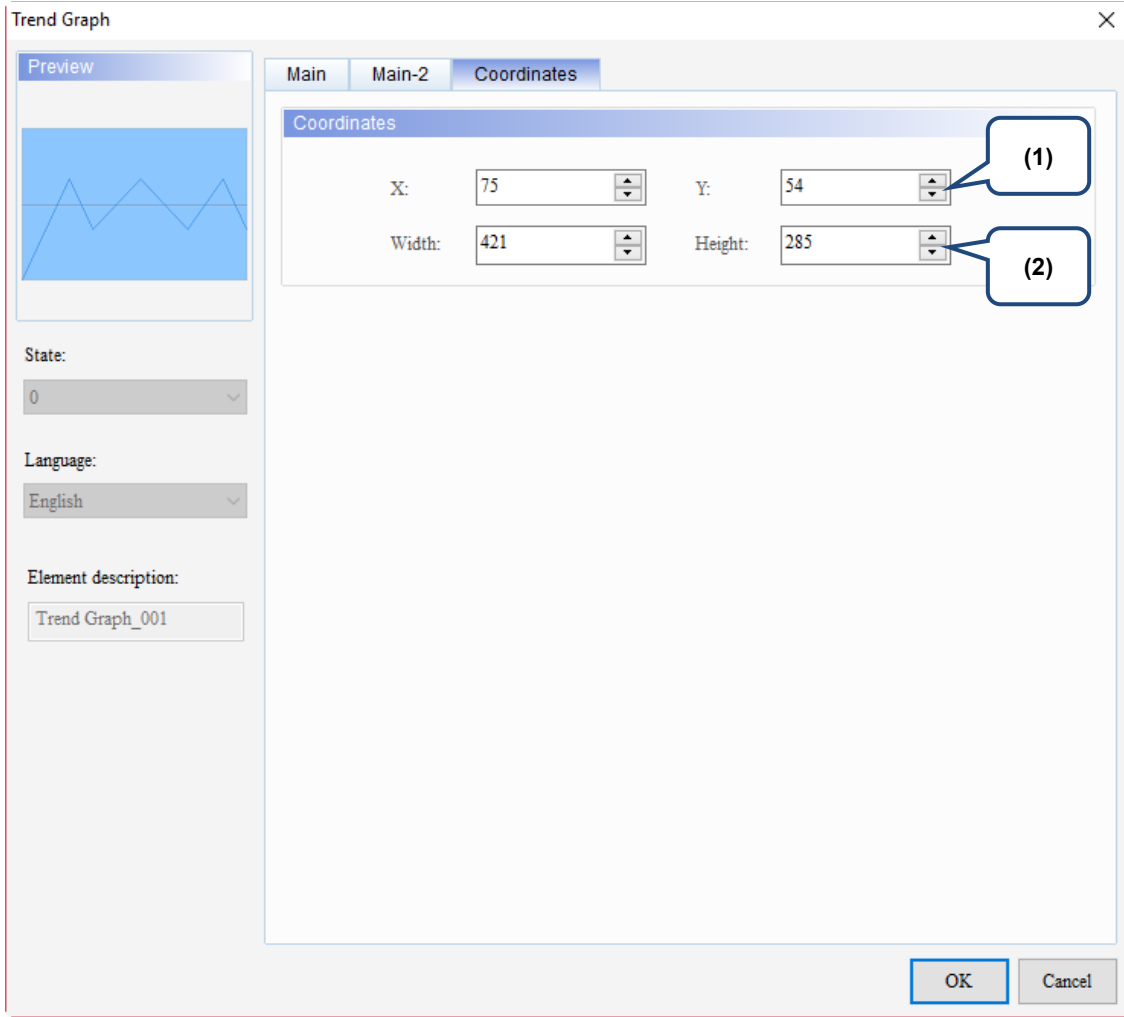


Figure 14.1.3 Main-2 property page for the Trend Graph element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is available for this element. When this function is enabled, the curve motion is smoother.
(3)	Anti-aliasing	The Anti-aliasing function is available for this element. When this function is enabled, the element display becomes more delicate without jagged edges.

■ Coordinates



14

Figure 14.1.4 Coordinates property page for the Trend Graph element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

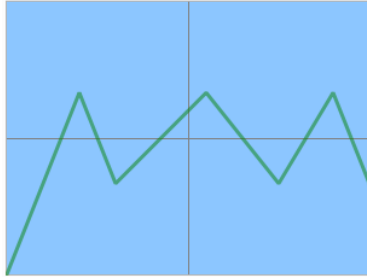
14

14.2 X-Y Chart

X-Y Chart is drawn according to the set Horiz. Read Address and Vert. Read Address. You can also define the curve count to be displayed, and if X and Y points are connected. An X-Y Chart element supports up to 4 curves. This element requires using the Curve sampling flag from [Options] > [Configuration] > [Control Status Block] > [Control Block] > [Curve Control] to draw curves. The Curve sampling flags 1 - 4 correspond to the Sampling flags 1 - 4 of the X-Y Chart element respectively.

Refer to Table 14.2.1 for the X-Y Chart example.

Table 14.2.1 X-Y Chart example

X-Y Chart																															
X-Y Chart element	<p>Create an X-Y Chart element and set its parameters.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="background-color: #cccccc;">X-Y Chart element</th> </tr> </thead> <tbody> <tr> <td>Horiz. Read Address</td> <td style="text-align: right;">\$3000</td> </tr> <tr> <td>Vert. Read Address</td> <td style="text-align: right;">\$4000</td> </tr> <tr> <td>Sample Number</td> <td style="text-align: center;">5</td> </tr> <tr> <td>Sample Flag</td> <td style="text-align: center;">1</td> </tr> <tr> <td>Number of Curves</td> <td style="text-align: center;">1</td> </tr> <tr> <td>Connect Adjacent Points</td> <td style="text-align: center;">Yes</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Curve1</th> <th style="width: 50%;"></th> </tr> </thead> <tbody> <tr> <td>Horiz. Minimum</td> <td style="text-align: right;">0</td> </tr> <tr> <td>Horiz. Maximum</td> <td style="text-align: right;">1000</td> </tr> <tr> <td>Vert. Minimum</td> <td style="text-align: right;">0</td> </tr> <tr> <td>Vert. Maximum</td> <td style="text-align: right;">1000</td> </tr> <tr> <td>Line Weight</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Line Color</td> <td style="text-align: center;">[Green]</td> </tr> <tr> <td>Projection Axis</td> <td style="text-align: center;">No projection</td> </tr> </tbody> </table> 	X-Y Chart element		Horiz. Read Address	\$3000	Vert. Read Address	\$4000	Sample Number	5	Sample Flag	1	Number of Curves	1	Connect Adjacent Points	Yes	Curve1		Horiz. Minimum	0	Horiz. Maximum	1000	Vert. Minimum	0	Vert. Maximum	1000	Line Weight	3	Line Color	[Green]	Projection Axis	No projection
	X-Y Chart element																														
Horiz. Read Address	\$3000																														
Vert. Read Address	\$4000																														
Sample Number	5																														
Sample Flag	1																														
Number of Curves	1																														
Connect Adjacent Points	Yes																														
Curve1																															
Horiz. Minimum	0																														
Horiz. Maximum	1000																														
Vert. Minimum	0																														
Vert. Maximum	1000																														
Line Weight	3																														
Line Color	[Green]																														
Projection Axis	No projection																														
Numeric Entry element	<p>Create 5 Numeric Entry elements for the Horiz. Read Address and Vert. Read Address respectively. As the Sample Number of the X-Y Chart is set to 5, the X-axis and Y-axis each samples 5 points to draw the curve. Therefore, the set Horiz. Read Address \$3000 of the X-Y Chart starts reading 5 addresses in sequence, which are \$3000, \$3001, \$3002, \$3003, and \$3004; the Vert. Read Address \$4000 starts reading 5 addresses in sequence, which are \$4000, \$4001, \$4002, \$4003, and \$4004.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="6" style="background-color: #cccccc;">Numeric Entry element</th> </tr> </thead> <tbody> <tr> <td style="background-color: #cccccc;">Write Address</td> <td>\$3000</td> <td>\$3001</td> <td>\$3002</td> <td>\$3003</td> <td>\$3004</td> </tr> <tr> <td style="background-color: #cccccc;">Write Address</td> <td>\$4000</td> <td>\$4001</td> <td>\$4002</td> <td>\$4003</td> <td>\$4004</td> </tr> </tbody> </table>	Numeric Entry element						Write Address	\$3000	\$3001	\$3002	\$3003	\$3004	Write Address	\$4000	\$4001	\$4002	\$4003	\$4004												
Numeric Entry element																															
Write Address	\$3000	\$3001	\$3002	\$3003	\$3004																										
Write Address	\$4000	\$4001	\$4002	\$4003	\$4004																										

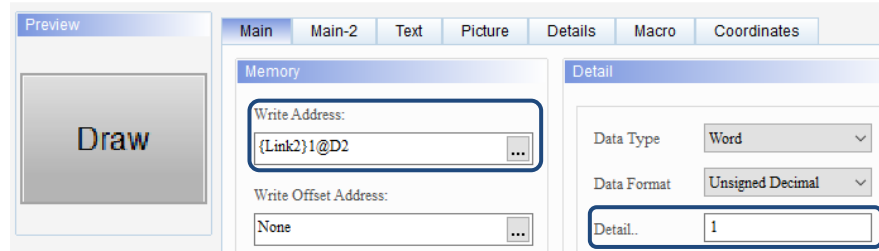
X-Y Chart

- Create a Set Constant element and set its Write Address as D2. This D2 address is for the Curve Control flag in the Control Block.

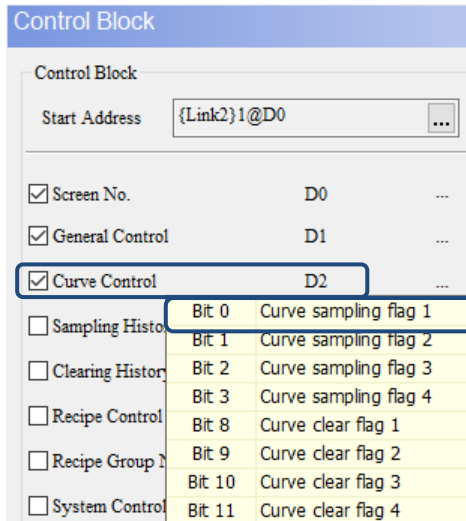


- Set the Detail.. of the Set Constant element to 1. 1 corresponds to **Bit 0 Curve sampling flag 1**; 2 corresponds to **Bit 1 Curve sampling flag 2**; 4 corresponds to **Bit 2 Curve sampling flag 3**, and so on. You can also find that the Sample Flag setting of the X-Y Chart element is 1 as well.

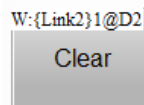
Set Constant



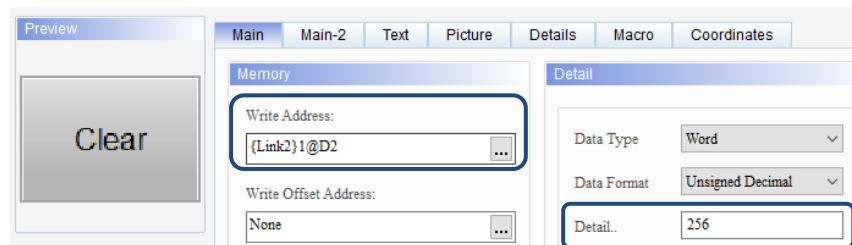
Set Constant element



- Create another Set Constant element and set its Write Address as D2 as well, and set the Detail.. as 256. 256 corresponds to **Bit 8 Curve clear flag 1**.



Set Constant



14

Set Constant element

X-Y Chart

Control Block

Control Block

Start Address {Link2}1@D0

<input checked="" type="checkbox"/>	Screen No.	D0	...
<input checked="" type="checkbox"/>	General Control	D1	...
<input checked="" type="checkbox"/>	Curve Control	D2	...
<input type="checkbox"/>	Sampling History	Bit 0	Curve sampling flag 1
<input type="checkbox"/>	Clearing History	Bit 1	Curve sampling flag 2
<input type="checkbox"/>	Recipe Control	Bit 2	Curve sampling flag 3
<input type="checkbox"/>	Recipe Group	Bit 3	Curve sampling flag 4
<input type="checkbox"/>	System Control	Bit 8	Curve clear flag 1
		Bit 9	Curve clear flag 2
		Bit 10	Curve clear flag 3
		Bit 11	Curve clear flag 4

- After creating the elements, compile and download the elements to the HMI. Next, enter any values for the X-axis and Y-axis to the Numeric Entry elements, then press **Draw**, and the X-Y Chart draws the curve according to the input values.

Execution results

Draw

Clear

100 300 500 700 900

800 200 800 200 800

- If you press **Clear**, the HMI clears the drawn X-Y curve.

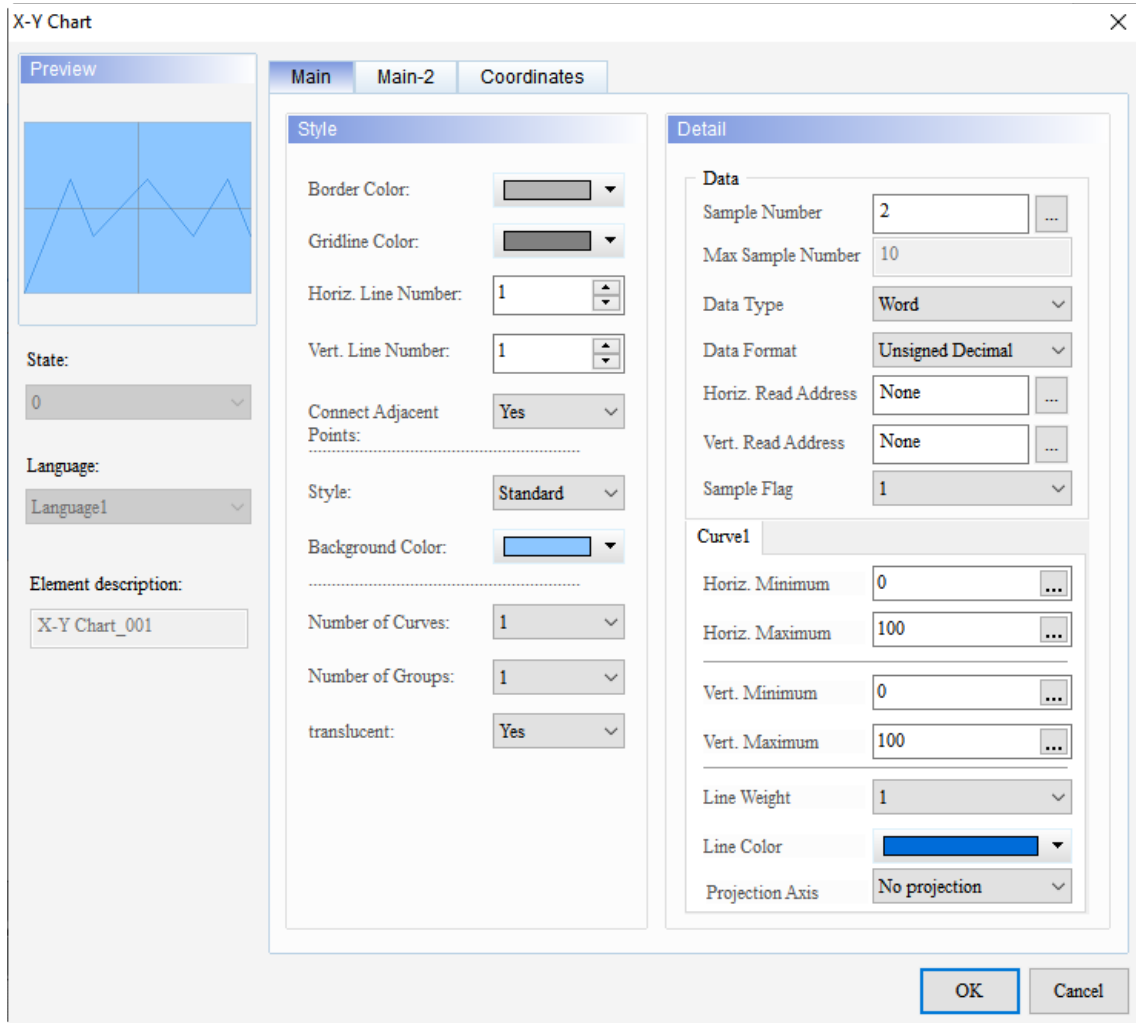
Draw

Clear

100 300 500 700 900

800 200 800 200 800

When you double-click the X-Y Chart, the property page is shown as follows.



14

Figure 14.2.1 Properties of X-Y Chart

Table 14.2.2 Function page of X-Y Chart

X-Y Chart	
Function page	Description
Preview	The X-Y Chart elements do not support multiple state values and multi-language data display.
Main	Set the Sample Number, Max Sample Number, Data Type, Data Format, Horiz. Read Address, Vert. Read Address, Sample Flag, Horiz. Minimum, Horiz. Maximum, Vert. Minimum, Vert. Maximum, Line Weight, Line Color, and Projection Axis. Set the Border Color, Gridline Color, Horiz. Line Number, Vert. Line Number, Connect Adjacent Points, Style, Background Color, Number of Curves, Number of Groups, and translucent.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

14

■ Main

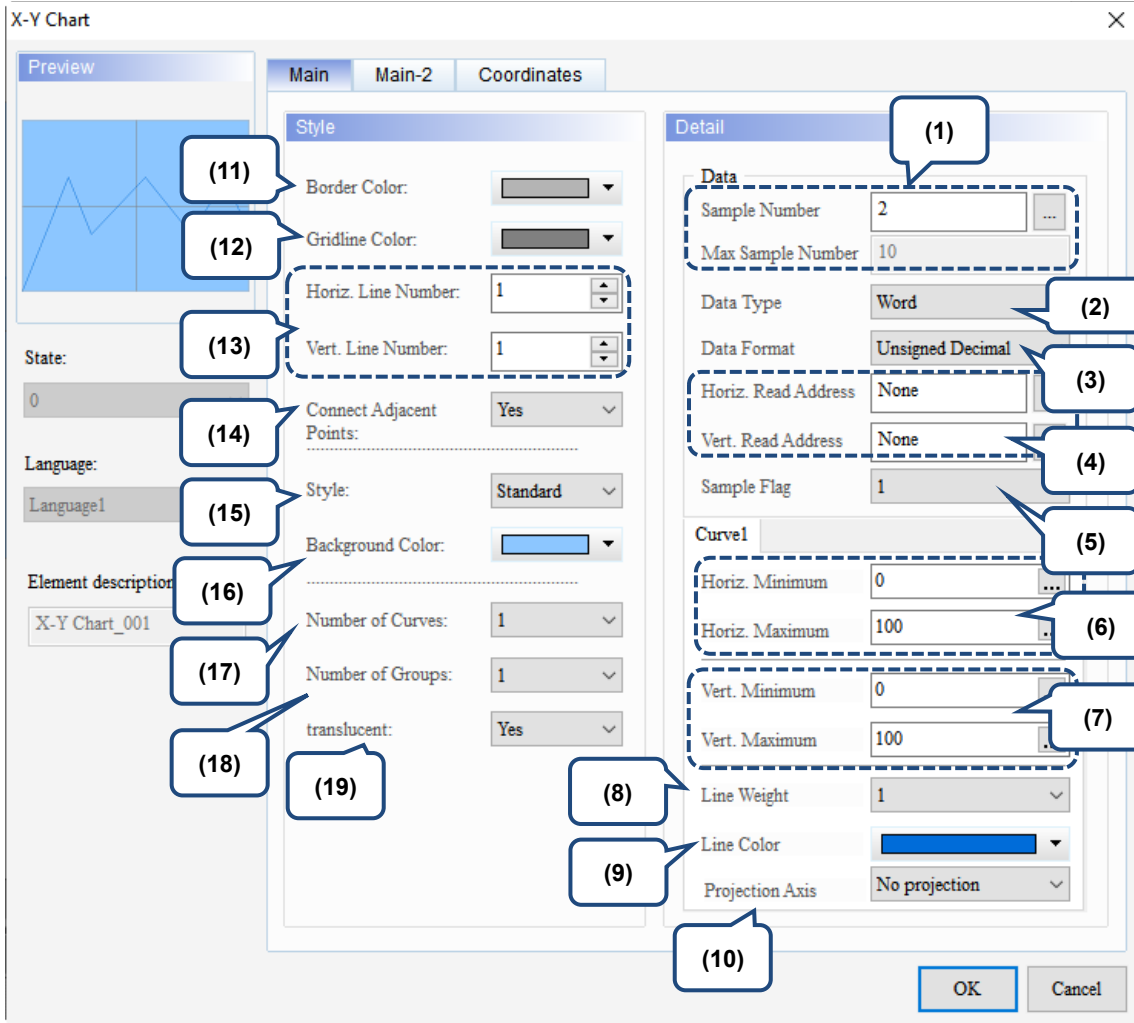
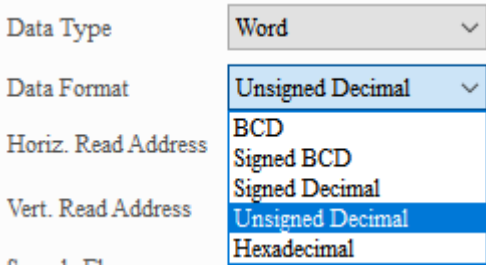
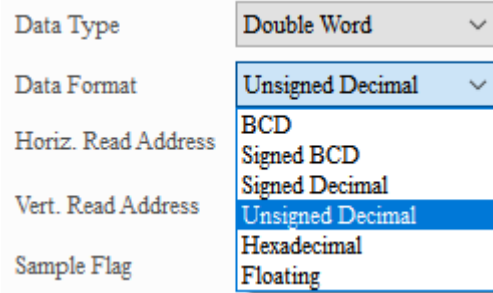
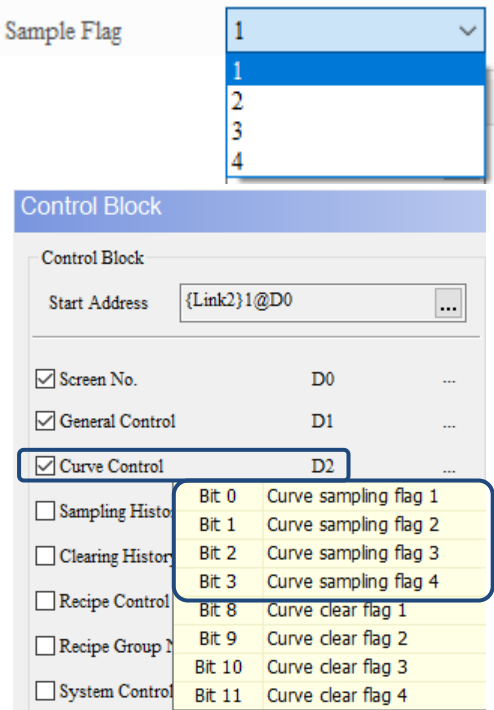
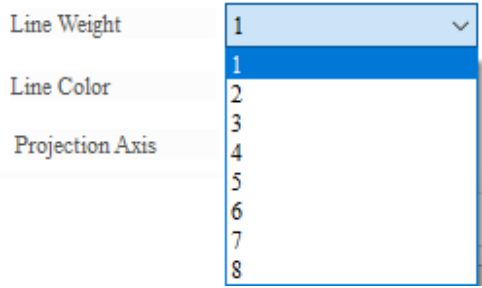
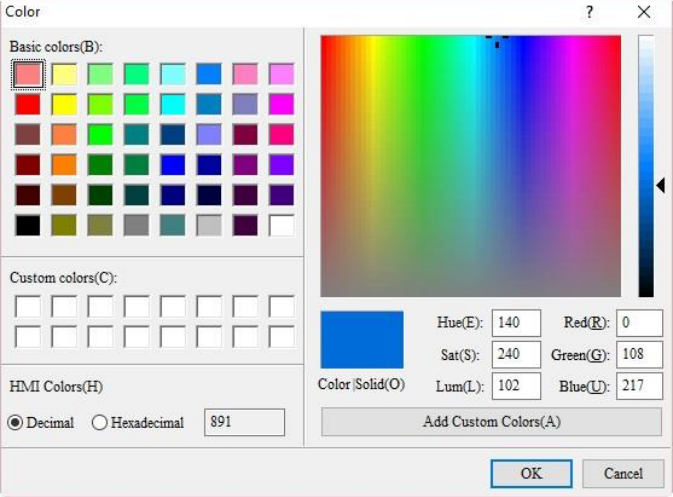


Figure 14.2.2 Main property page for the X-Y Chart element

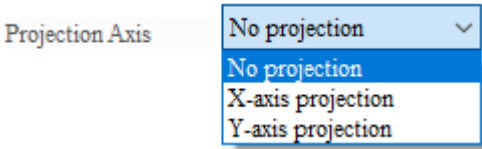
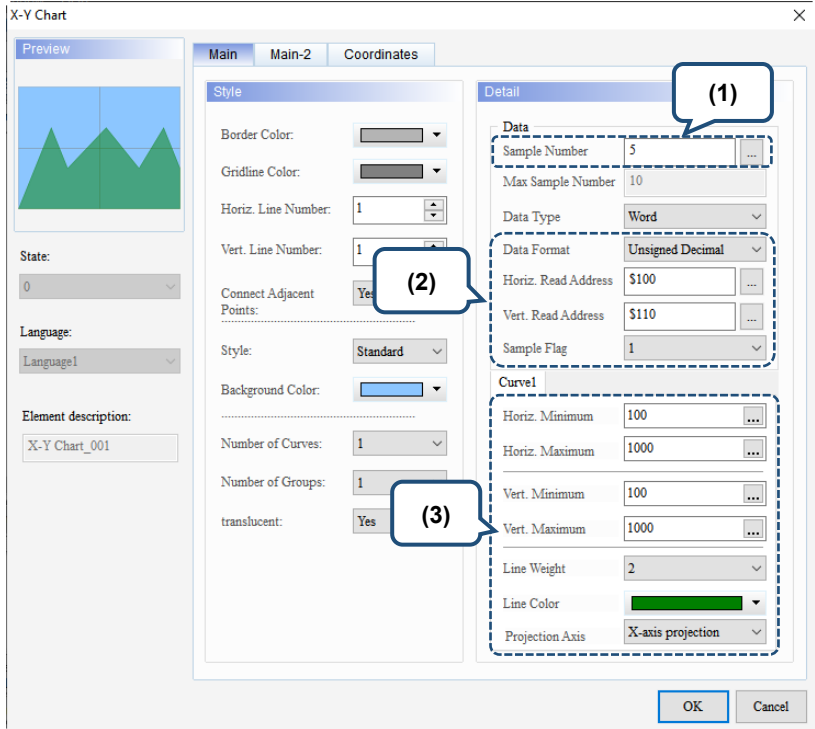

No.	Property	Function description
(1)	Sample Number / Max Sample Number	<ul style="list-style-type: none"> The number of sampling points is determined by the element width / height and style. When you set the Style of the X-Y Chart element as Standard and set its width as 363 and height as 231, then the maximum number of points that can be displayed is 231 (based on the minimum value of element width and height). But if you set the Style of the X-Y Chart element as Raised or Sunken (border width is 7 points) and its width and height as 231, then the maximum number of points that can be displayed is 217 ($231 - (7 * 2) = 217$). When you set the Sample Number as a constant, the Max Sample Number is grayed out and cannot be set. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Detail</p> <p>Data</p> <p>Sample Number <input type="text" value="2"/> ...</p> <p>Max Sample Number <input type="text" value="10"/></p> <p>Data Type <input type="text" value="Word"/> ▾</p> <p>Data Format <input type="text" value="Unsigned Decimal"/> ▾</p> <p>Horiz. Read Address <input type="text" value="None"/> ...</p> <p>Vert. Read Address <input type="text" value="None"/> ...</p> <p>Sample Flag <input type="text" value="1"/> ▾</p> </div> When you set the Sample Number as a variable, you can define its read address. Also, you need to set the Max Sample Number, which is determined by the element width. If the set Sample Number is greater than the Max Sample Number, the software refers to the setting of the Max Sample Number. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Detail</p> <p>Data</p> <p>Sample Number <input type="text" value="{Link2}1@D5"/> ...</p> <p>Max Sample Number <input type="text" value="100"/></p> <p>Data Type <input type="text" value="Word"/> ▾</p> <p>Data Format <input type="text" value="Unsigned Decimal"/> ▾</p> <p>Horiz. Read Address <input type="text" value="None"/> ...</p> <p>Vert. Read Address <input type="text" value="None"/> ...</p> <p>Sample Flag <input type="text" value="1"/> ▾</p> </div>
(2)	Data Type	<p>Data Type includes Word and Double Word.</p> <div style="border: 1px solid gray; padding: 5px;"> <p>Data Type <input type="text" value="Word"/> ▾</p> <p>Data Format <input type="text" value="Word"/> ▾</p> <p style="margin-left: 20px;">Double Word</p> </div>

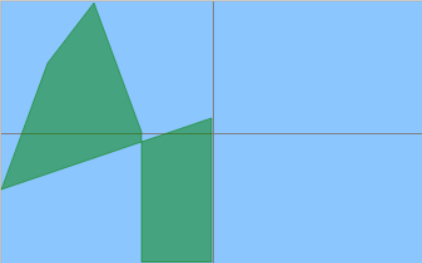
14

No.	Property	Function description
(3)	Data Format	<ul style="list-style-type: none"> When the Data Type is Word, the supported data formats are as follows.  When the Data Type is Double Word, the supported data formats are as follows. 
(4)	Horiz. Read Address	<ul style="list-style-type: none"> Horiz. Read Address represents the X-axis and Vert. Read Address represents the Y-axis.
(4)	Vert. Read Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address for both Horiz. Read Address and Vert. Read Address. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
(5)	Sample Flag	<p>There are 4 sampling flags corresponding to the Curve sampling flags 1 - 4 in the Control Block respectively.</p> 

No.	Property	Function description														
(6)	Horiz. Minimum / Horiz. Maximum	<ul style="list-style-type: none"> ■ You can set the Horiz. Minimum and Horiz. Maximum as constants or variables. ■ When the Horiz. Minimum and Horiz. Maximum are variables, the controller address (Word) and the internal register address (Word) are supported. ■ When the Horiz. Minimum and Horiz. Maximum are constants, the allowable ranges for the Horiz. Minimum and Horiz. Maximum are subject to change based on the selected Data Type and Data Format. <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="5" style="text-align: center;">Word</td> <td style="text-align: center;">BCD</td> <td style="text-align: center;">0 to 9999</td> </tr> <tr> <td style="text-align: center;">Signed BCD</td> <td style="text-align: center;">-999 to +9999</td> </tr> <tr> <td style="text-align: center;">Signed Decimal</td> <td style="text-align: center;">-32768 to +32767</td> </tr> <tr> <td style="text-align: center;">Unsigned Decimal</td> <td style="text-align: center;">0 to 65535</td> </tr> <tr> <td style="text-align: center;">Hex</td> <td style="text-align: center;">0 to 0xFFFF</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hex	0 to 0xFFFF
Data Type	Data Format	Allowable range														
Word	BCD	0 to 9999														
	Signed BCD	-999 to +9999														
	Signed Decimal	-32768 to +32767														
	Unsigned Decimal	0 to 65535														
	Hex	0 to 0xFFFF														
(7)	Vert. Minimum / Vert. Maximum	<ul style="list-style-type: none"> ■ You can set the Vert. Minimum and Vert. Maximum as constants or variables. ■ When the Vert. Minimum and Vert. Maximum are variables, the controller address (Word) and the internal register address (Word) are supported. ■ When the Vert. Minimum and Vert. Maximum are constants, the allowable ranges for the Vert. Minimum and Vert. Maximum are subject to change based on the selected Data Type and Data Format. <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="5" style="text-align: center;">Word</td> <td style="text-align: center;">BCD</td> <td style="text-align: center;">0 to 9999</td> </tr> <tr> <td style="text-align: center;">Signed BCD</td> <td style="text-align: center;">-999 to +9999</td> </tr> <tr> <td style="text-align: center;">Signed Decimal</td> <td style="text-align: center;">-32768 to +32767</td> </tr> <tr> <td style="text-align: center;">Unsigned Decimal</td> <td style="text-align: center;">0 to 65535</td> </tr> <tr> <td style="text-align: center;">Hex</td> <td style="text-align: center;">0 to 0xFFFF</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hex	0 to 0xFFFF
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	Signed BCD	-999 to +9999														
	Signed Decimal	-32768 to +32767														
	Unsigned Decimal	0 to 65535														
	Hex	0 to 0xFFFF														
(8)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 														
(9)	Line Color	<p>You can set the line color for the curve.</p> 														

14

No.	Property	Function description						
(10)	Projection Axis	<ul style="list-style-type: none"> There are three types of Projection Axis: No projection, X-axis projection, and Y-axis projection.  <ul style="list-style-type: none"> When the Projection Axis is set to No projection, the setting is the same as the default setting, so only the curve is displayed. The following describes the details of X-axis projection and Y-axis projection. <p>X-axis projection</p>  <table border="1"> <tr> <td>(1)</td> <td>Set the Sample Number to 5.</td> </tr> <tr> <td>(2)</td> <td>Set the Horiz. Read Address to \$100. Set the Vert. Read Address to \$110. Set the Data Format to Unsigned Decimal and the Sample Flag to 1.</td> </tr> <tr> <td>(3)</td> <td>Set the Horiz. Minimum to 100 and Horiz. Maximum to 1000. Set the Vert. Minimum to 100 and Vert. Maximum to 1000. Set the Projection Axis to X-axis projection.</td> </tr> </table> <ul style="list-style-type: none"> Create the Numeric Entry elements of \$100 - \$104 and \$110 - \$114, and set their Data Format as Unsigned Decimal. 	(1)	Set the Sample Number to 5.	(2)	Set the Horiz. Read Address to \$100. Set the Vert. Read Address to \$110. Set the Data Format to Unsigned Decimal and the Sample Flag to 1.	(3)	Set the Horiz. Minimum to 100 and Horiz. Maximum to 1000. Set the Vert. Minimum to 100 and Vert. Maximum to 1000. Set the Projection Axis to X-axis projection.
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(2)	Set the Horiz. Read Address to \$100. Set the Vert. Read Address to \$110. Set the Data Format to Unsigned Decimal and the Sample Flag to 1.							
(3)	Set the Horiz. Minimum to 100 and Horiz. Maximum to 1000. Set the Vert. Minimum to 100 and Vert. Maximum to 1000. Set the Projection Axis to X-axis projection.							

No.	Property	Function description																																		
(10)	Projection Axis	<ul style="list-style-type: none"> Go to [Options] > [Configuration] > [Control Status Block] and select the Curve Control check box with the address as D1. <div style="border: 1px solid gray; padding: 5px; margin: 5px 0;"> <p>Control Block</p> <p>Control Block</p> <p>Start Address {Link2}1@D0</p> <p><input checked="" type="checkbox"/> Screen No. D0</p> <p><input type="checkbox"/> General Control</p> <p><input checked="" type="checkbox"/> Curve Control D1</p> <table border="1"> <tr><td><input type="checkbox"/> Sampling History</td><td>Bit 0</td><td>Curve sampling flag 1</td></tr> <tr><td><input type="checkbox"/> Clearing History</td><td>Bit 1</td><td>Curve sampling flag 2</td></tr> <tr><td><input type="checkbox"/> Recipe Control</td><td>Bit 2</td><td>Curve sampling flag 3</td></tr> <tr><td><input type="checkbox"/> Recipe Group 1</td><td>Bit 3</td><td>Curve sampling flag 4</td></tr> <tr><td><input type="checkbox"/> System Control</td><td>Bit 8</td><td>Curve clear flag 1</td></tr> <tr><td></td><td>Bit 9</td><td>Curve clear flag 2</td></tr> <tr><td></td><td>Bit 10</td><td>Curve clear flag 3</td></tr> <tr><td></td><td>Bit 11</td><td>Curve clear flag 4</td></tr> </table> </div> Create a Numeric Entry element with the Write Address set as D1. <div style="border: 1px solid gray; padding: 5px; margin: 5px 0;"> <p>Sampling flag 1: draw 256: clear</p> <p>W:{Link2}1@D1 12345</p> </div> After completing the preceding steps, compile and download the elements to the HMI. Enter any values to the Numeric Entry elements of \$100 - \$104 and \$110 - \$114, and input 1 to the Sampling flag. When you complete inputting the values, the X-Y Chart is as follows: <div style="border: 1px solid gray; padding: 5px; margin: 5px 0;">  <div style="float: right; text-align: right;"> <p>Sampling flag 1: draw 256: clear</p> <p>1</p> </div> <p>Unsigned Decimal</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>550</td><td>100</td><td>200</td><td>300</td><td>400</td> </tr> <tr> <td>600</td><td>355</td><td>789</td><td>999</td><td>555</td> </tr> </table> </div> 	<input type="checkbox"/> Sampling History	Bit 0	Curve sampling flag 1	<input type="checkbox"/> Clearing History	Bit 1	Curve sampling flag 2	<input type="checkbox"/> Recipe Control	Bit 2	Curve sampling flag 3	<input type="checkbox"/> Recipe Group 1	Bit 3	Curve sampling flag 4	<input type="checkbox"/> System Control	Bit 8	Curve clear flag 1		Bit 9	Curve clear flag 2		Bit 10	Curve clear flag 3		Bit 11	Curve clear flag 4	550	100	200	300	400	600	355	789	999	555
<input type="checkbox"/> Sampling History	Bit 0	Curve sampling flag 1																																		
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	Bit 11	Curve clear flag 4																																		
550	100	200	300	400																																
600	355	789	999	555																																

14

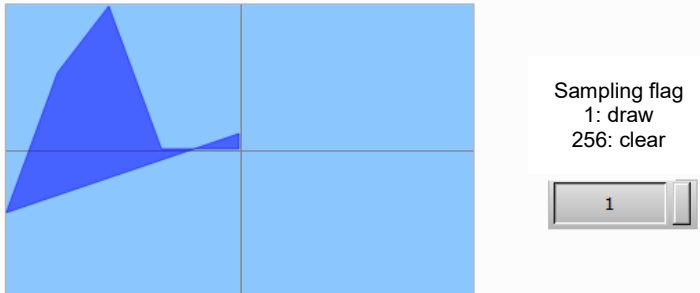
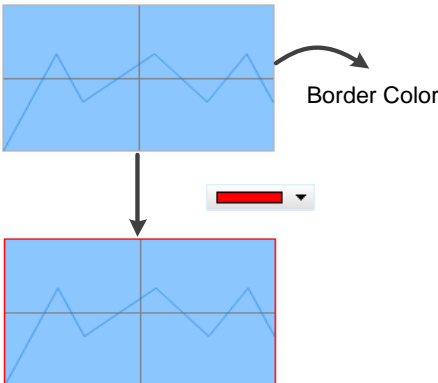
No.	Property	Function description
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(10)	Projection Axis	Y-axis projection
		<p>(1) Set the Sample Number to 5.</p> <p>(2) Set the Horiz. Read Address to \$100. Set the Vert. Read Address to \$110. Set the Data Format to Unsigned Decimal and the Sample Flag to 1.</p> <p>(3) Set the Horiz. Minimum to 100 and Horiz. Maximum to 1000. Set the Vert. Minimum to 100 and Vert. Maximum to 1000. Set the Projection Axis to Y-axis projection.</p>
		<ul style="list-style-type: none"> ■ Create the Numeric Entry elements of \$100 - \$104 and \$110 - \$114, and set their Data Format as Unsigned Decimal.

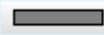
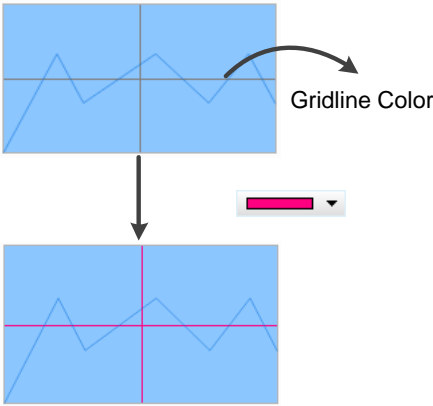
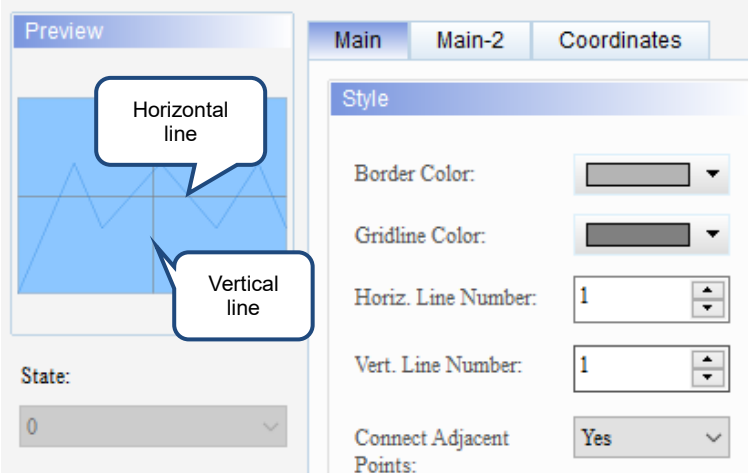
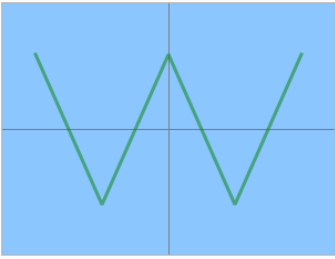
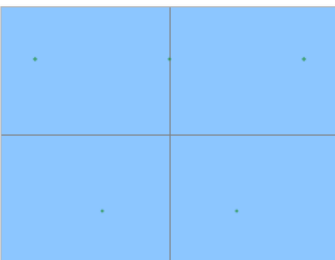
- Create the Numeric Entry elements of \$100 - \$104 and \$110 - \$114, and set their Data Format as Unsigned Decimal.

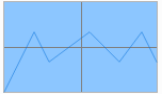
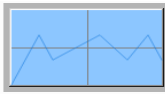
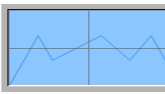
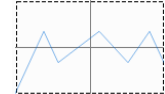
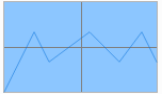
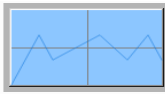
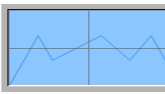
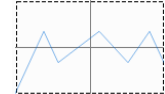
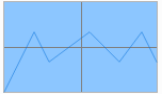
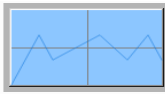
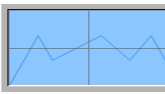
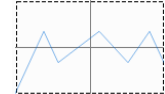
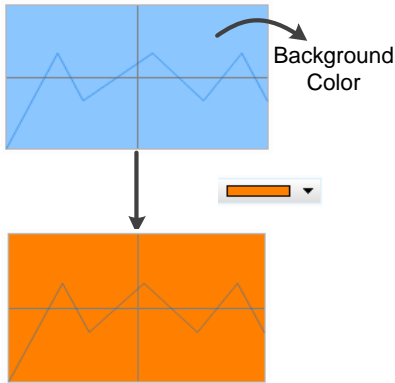
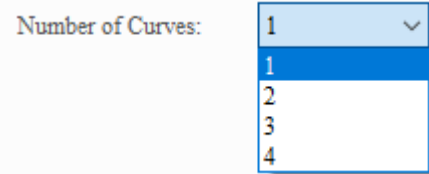
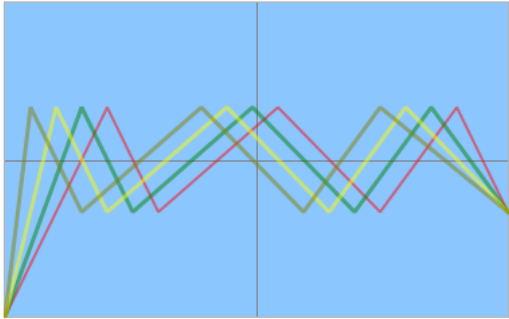


- Go to [Options] > [Configuration] > [Control Status Block] and select the **Curve Control** check box with the address as D1.

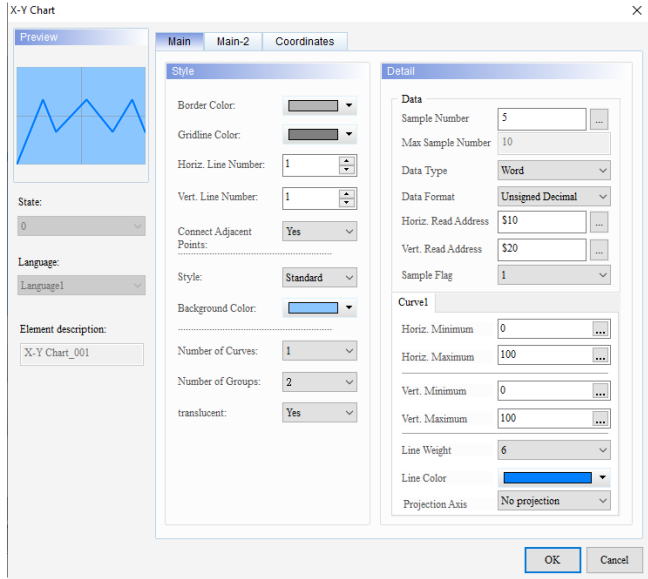

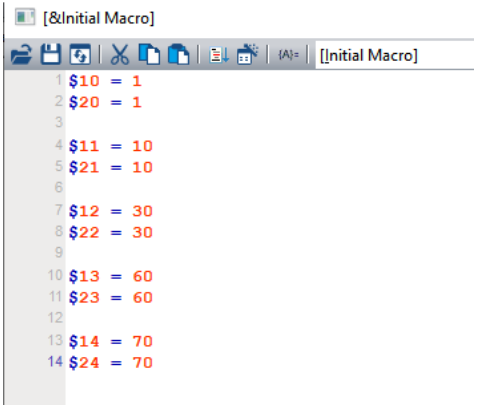
No.	Property	Function description										
(10)	Projection Axis	<ul style="list-style-type: none"> ■ Create a Numeric Entry element with the Write Address set as D1. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">Sampling flag 1: draw 256: clear</p> <p style="text-align: center;">W:({Link2})1@D1 12345</p> </div> <ul style="list-style-type: none"> ■ After completing the preceding steps, compile and download the elements to the HMI. ■ Enter any values to the Numeric Entry elements of \$100 - \$104 and \$110 - \$114, and input 1 to the Sampling flag. ■ When you complete inputting the values, the X-Y Chart is as follows: <div style="border: 1px solid gray; padding: 10px; margin: 10px 0;">  <p style="text-align: center;">Unsigned Decimal</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 20%;">550</td> <td style="width: 20%;">100</td> <td style="width: 20%;">200</td> <td style="width: 20%;">300</td> <td style="width: 20%;">400</td> </tr> <tr> <td>600</td> <td>355</td> <td>789</td> <td>999</td> <td>555</td> </tr> </table> </div>	550	100	200	300	400	600	355	789	999	555
550	100	200	300	400								
600	355	789	999	555								
(11)	Border Color	<p>Set the Border Color of the X-Y Chart element.</p> <div style="border: 1px solid gray; padding: 10px; margin: 10px 0;">  </div>										

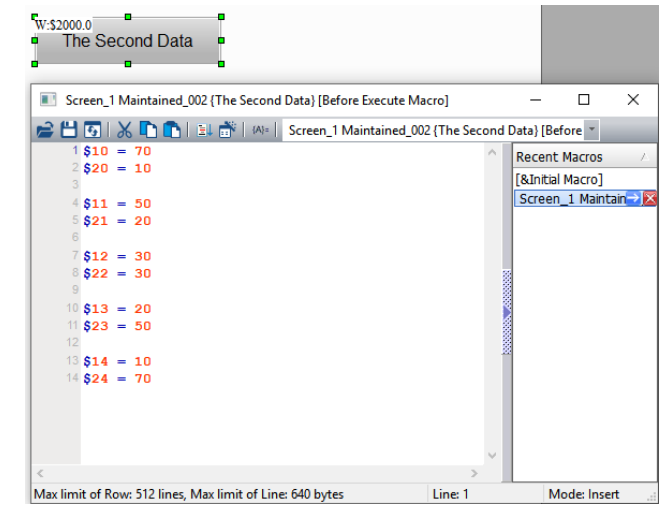
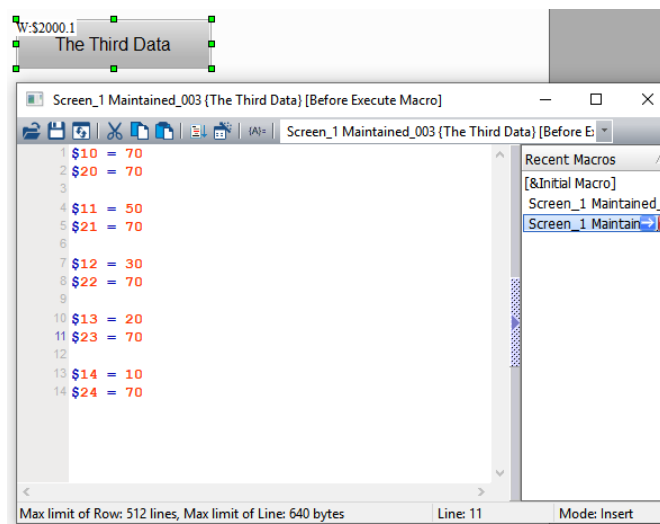
14

No.	Property	Function description
(12)	Gridline Color	<ul style="list-style-type: none"> The Gridline Color is the color of the grid line in the X-Y Chart. The default is . You can change the color of the grid line. 
(13)	Horiz. Line Number / Vert. Line Number	<ul style="list-style-type: none"> Both Horiz. Line Number and Vert. Line Number support a maximum of 99 lines. Horiz. Line Number refers to the number of lines which are parallel to the X-axis and Vert. Line Number refers to the number of lines which are parallel to the Y-axis. The default is 1 for both settings. <p>X-Y Chart</p> 
(14)	Connect Adjacent Points	<ul style="list-style-type: none"> You can select Yes or No for Connect Adjacent Points. If you select Yes, the coordinate points are connected with lines to form a curve.  <ul style="list-style-type: none"> If you select No, the chart displays the coordinate points. 

No.	Property	Function description								
(15)	Style	<p>You can change the appearance of the element with this setting. There are four types of element styles:</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent				
Standard	Raised	Sunken	Transparent							
										
(16)	Background Color	<p>Set the background color of the element.</p> 								
(17)	Number of Curves	<ul style="list-style-type: none"> ■ The X-Y Chart element supports up to 4 curves.  <ul style="list-style-type: none"> ■ You can also change the width and color of the curves.  <ul style="list-style-type: none"> ■ If you want to use 4 curves, you only need to set the Horiz. Read Address and Vert. Read Address as Continuous Address for sampling. Assuming the Horiz. Read Address is \$3000, Vert. Read Address is \$4000, and the Sample Number is 5, then 40 sampling points are required for 4 curves (20 points each for horizontal and vertical). Thus, the Read Addresses are \$3000 - \$3019 and \$4000 - \$4019. 								

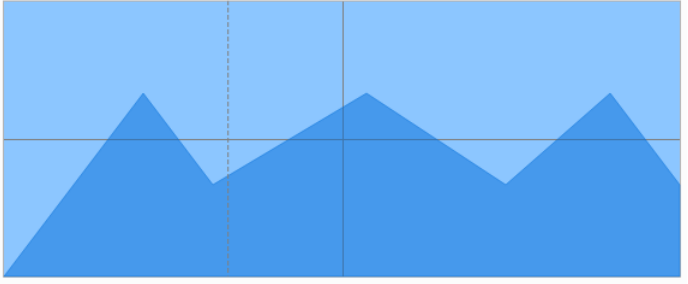
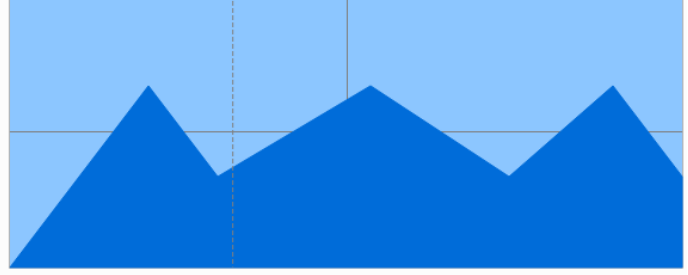
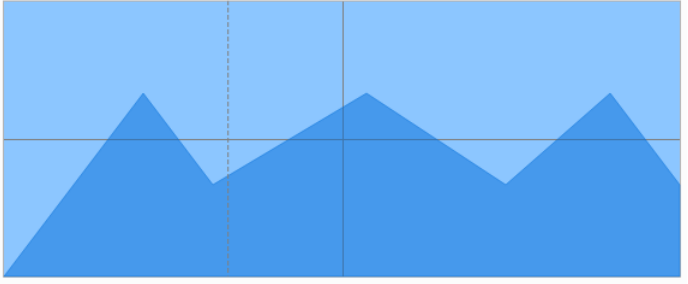
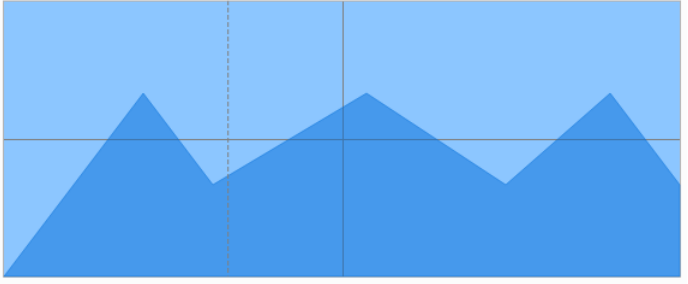
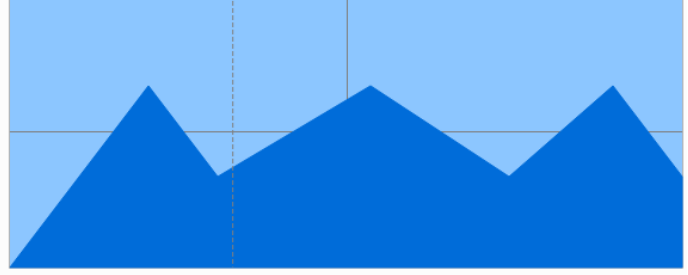
14

No.	Property	Function description
(18)	Number of Groups	<ul style="list-style-type: none"> The X-Y Chart reads one set of point data at a time. To read the next set of point data, you need to enter the values again. The function of Number of Groups allows you to record and write multiple sets of parameters, and supports displaying up to ten sets of point data. Refer to the following example. <p>After creating the X-Y Chart element, set the parameters as follows.</p> 
	Create Numeric Entry elements	<p>Create the Numeric Entry elements of \$10 - \$14 and \$20 - \$24.</p> 
	Multiple sets of data	<ul style="list-style-type: none"> The Number of Groups of the X-Y Chart is set to 2, meaning that apart from the currently displayed \$10 - \$14 and \$20 - \$24, two more sets of data can be displayed. The first set of data is written in the Initial Macro. 

No.	Property	Function description
(18)	Number of Groups	<p>The second set of data is written in the Before Execute Macro of the Maintained button element.</p> 
		<p>The third set of data is written in the Before Execute Macro of the Maintained button element.</p> 

14

No.	Property	Function description
	Control Block - Curve Control	<ul style="list-style-type: none"> ■ Enable the Curve Control flag. <div> </div> ■ Create a Maintained button for the Curve Control flag with the Write Address as \$1000.0. <div> </div>
(18)	Number of Groups	<ul style="list-style-type: none"> ■ After you download the created elements, the first set of data is loaded at first. Press Curve Control, and the curve is drawn as follows. <div> </div> ■ Press The Second Data maintained button to load the second set of data, then press Curve Control, and the curve is drawn as follows. <div> </div> ■ Press The Third Data maintained button to load the third set of data, then press Curve Control, and the curve is drawn as follows. <div> </div>
	Execution results	

No.	Property	Function description		
(19)	translucent	<p>The translucent setting is valid only when the Projection Axis is set to X-axis projection or Y-axis projection.</p>		
		<table border="1"> <tr> <td>translucent is set to Yes</td> <td>  </td> </tr> <tr> <td>translucent is set to No</td> <td>  </td> </tr> </table>	translucent is set to Yes	
translucent is set to Yes				
translucent is set to No				

■ Main-2

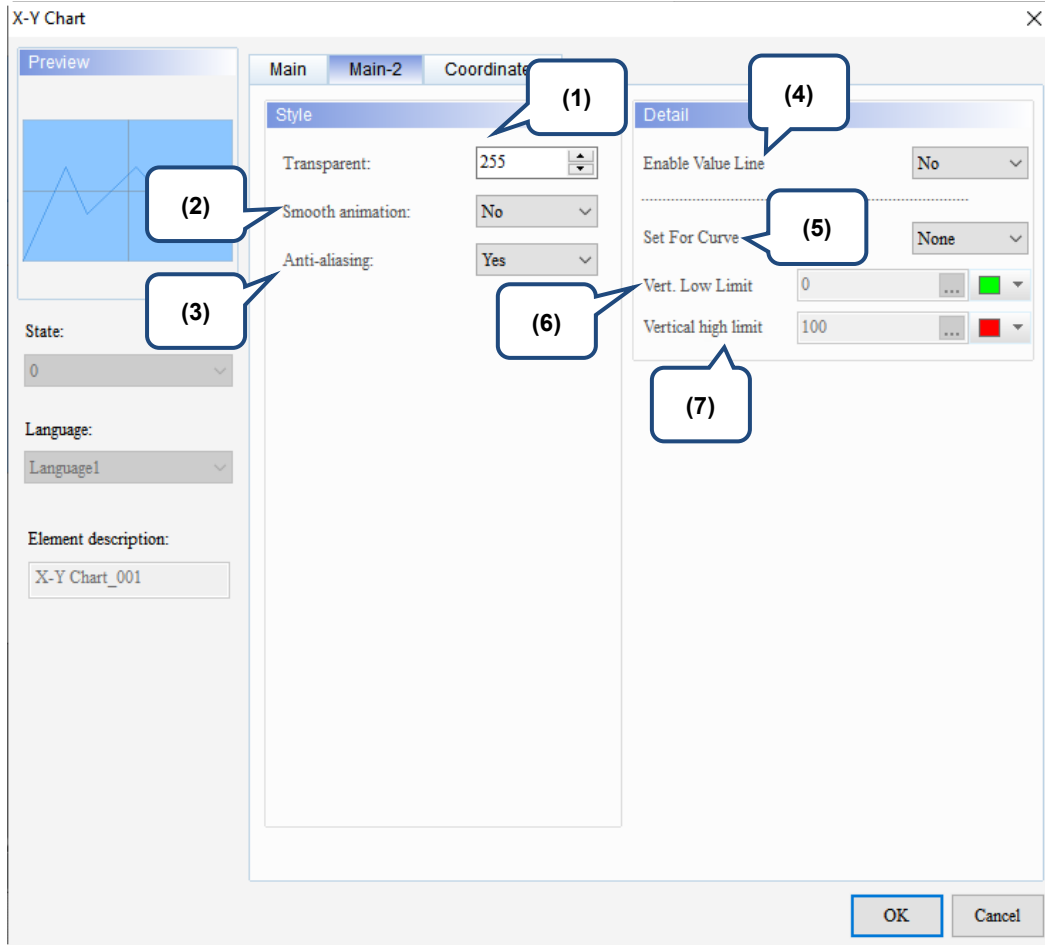

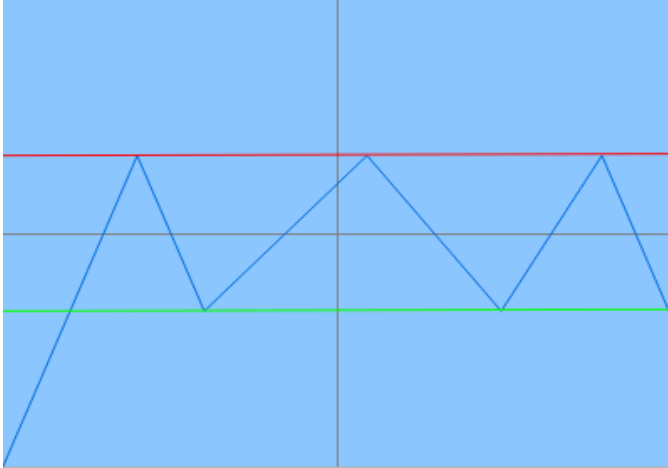


Figure 14.2.3 Main-2 property page for the X-Y Chart element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is available for this element. When this function is enabled, the curve motion is smoother.
(3)	Anti-aliasing	The Anti-aliasing function is available for this element. When this function is enabled, the element display becomes more delicate without jagged edges.
(4)	Enable Value Line	<ul style="list-style-type: none"> When the Enable Value Line is set to Yes, you can click on the curve and the currently sampled value is displayed. If there are multiple sets of data, this function is available only for the set of data which is currently sampled.
(5)	Set For Curve	<p>Select the curve for which you will set the low and high limits of the vertical axis (Y-axis).</p> 

No.	Property	Function description
(6)	Vert. Low Limit	<ul style="list-style-type: none"> ■ Set the values for the low and high limits of the vertical axis (Y-axis), which can be constants or variables. ■ The default color for the low limit is green; the default color for the high limit is red.
(7)	Vertical high limit	

■ Coordinates

14

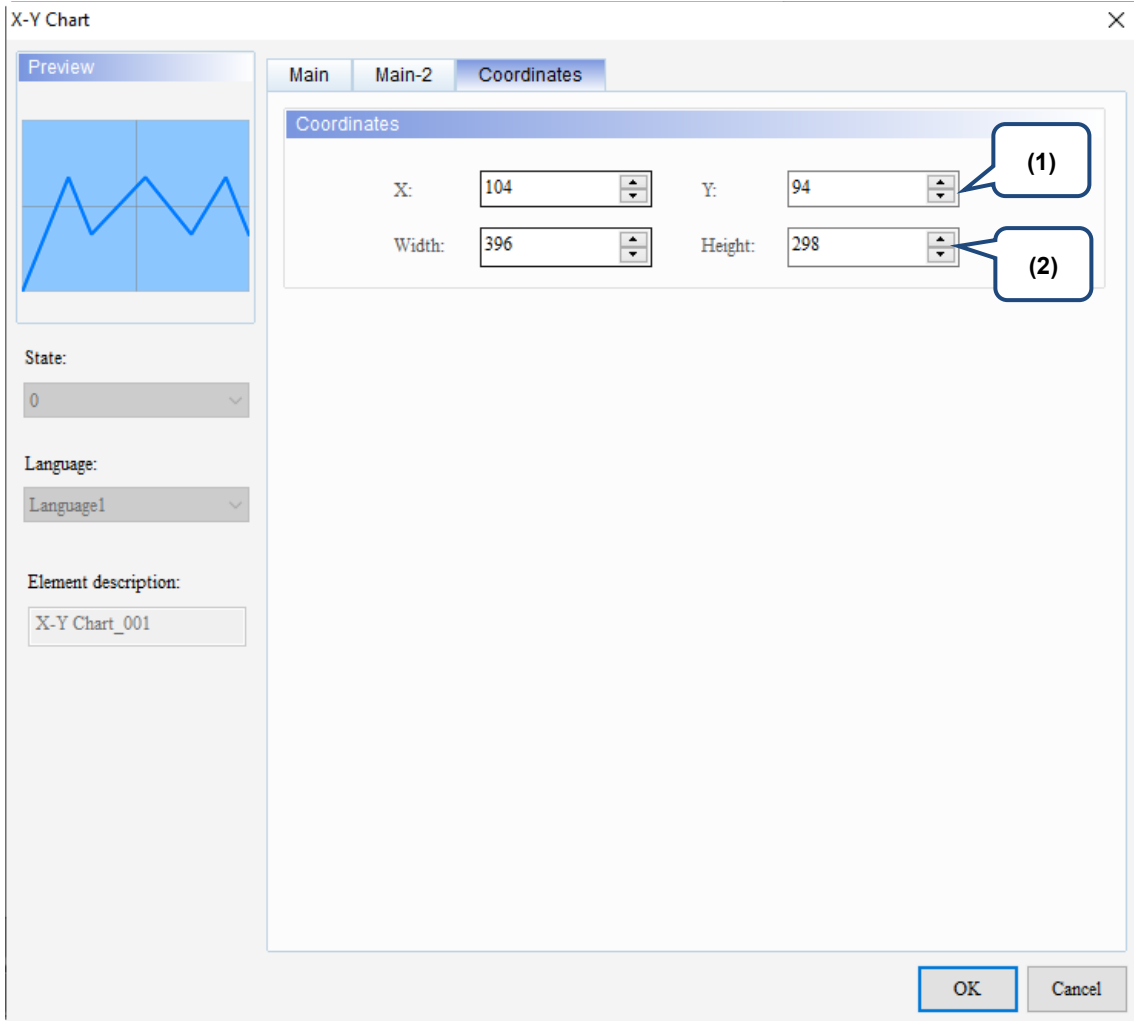


Figure 14.2.4 Coordinates property page for the X-Y Chart element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

14.3 X-Y Distribution

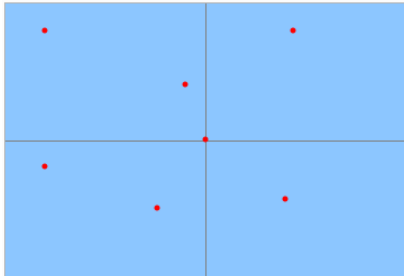
X-Y Distribution allows you to set the Address to read as a Continuous Address which can continuously sample points on the X-axis and Y-axis with no maximum on the number of sampling points. Although X-Y Chart also uses Continuous Addresses, its number of sampling points is determined by the style, width, and height of the element. When the **Continuous Address** check box is not selected, you can set the Read Addresses for both X and Y, and you can also define the Color and Connection as Read Addresses or constants. On the contrary, if the **Continuous Address** check box is selected, both X and Y can only be set as continuous addresses, and the Color and Connection are automatically set as the subsequent addresses of X and Y. In this case, you are unable to change the addresses; you can only reset them to constants.

An X-Y Distribution element supports up to 4 sets of samples. The main difference between the X-Y Distribution element and the Trend Graph and X-Y Chart elements is that the X-Y Distribution element does not require the Curve sampling flag from [Options] > [Configuration] > [Control Status Block] > [Control Block] > [Curve Control] to draw curves, instead it has its own Control flags. Bit 0 is for sampling and Bit 1 is for clearing.

Refer to Table 14.3.1 for the X-Y Distribution example.

Table 14.3.1 X-Y Distribution example

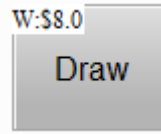
14

X-Y Distribution																																					
Create an X-Y Distribution element and set its parameters.																																					
X-Y Distribution element																																					
Control	<div style="border: 1px solid #ccc; padding: 5px;"> <div style="background-color: #e0e0e0; padding: 2px; margin-bottom: 5px;">Detail</div> <div style="display: flex; align-items: center;"> Control <input style="width: 100px; border: 1px solid #ccc;" type="text" value="\$8"/> ... </div> <div style="margin-top: 5px;"> <input checked="" type="checkbox"/> Auto clear </div> </div>																																				
Continuous Address	<input checked="" type="checkbox"/> Continuous Address																																				
Sample Number	2																																				
X-Y Distribution element	<div style="border: 1px solid #ccc; padding: 5px;"> <div style="display: flex; border-bottom: 1px solid #ccc;"> Sample 0 Sample 1 </div> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <thead> <tr> <th style="width: 50%;">Name</th> <th style="width: 50%;">Address</th> </tr> </thead> <tbody> <tr><td>X</td><td>\$20</td></tr> <tr><td>Y</td><td>\$21</td></tr> <tr><td>Color</td><td>\$22</td></tr> <tr><td>Connection</td><td>\$23</td></tr> <tr><td>X Min.</td><td>0</td></tr> <tr><td>X Max.</td><td>1000</td></tr> <tr><td>Y Min.</td><td>0</td></tr> <tr><td>Y Max.</td><td>1000</td></tr> </tbody> </table> <div style="border: 1px solid #ccc; padding: 5px;"> <div style="display: flex; border-bottom: 1px solid #ccc;"> Sample 0 Sample 1 </div> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <thead> <tr> <th style="width: 50%;">Name</th> <th style="width: 50%;">Address</th> </tr> </thead> <tbody> <tr><td>X</td><td>\$30</td></tr> <tr><td>Y</td><td>\$31</td></tr> <tr><td>Color</td><td>\$32</td></tr> <tr><td>Connection</td><td>\$33</td></tr> <tr><td>X Min.</td><td>0</td></tr> <tr><td>X Max.</td><td>1000</td></tr> <tr><td>Y Min.</td><td>0</td></tr> <tr><td>Y Max.</td><td>1000</td></tr> </tbody> </table> </div> <div style="text-align: center;">  </div> </div>	Name	Address	X	\$20	Y	\$21	Color	\$22	Connection	\$23	X Min.	0	X Max.	1000	Y Min.	0	Y Max.	1000	Name	Address	X	\$30	Y	\$31	Color	\$32	Connection	\$33	X Min.	0	X Max.	1000	Y Min.	0	Y Max.	1000
Name	Address																																				
X	\$20																																				
Y	\$21																																				
Color	\$22																																				
Connection	\$23																																				
X Min.	0																																				
X Max.	1000																																				
Y Min.	0																																				
Y Max.	1000																																				
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X Min.	0																																				
X Max.	1000																																				
Y Min.	0																																				
Y Max.	1000																																				
Sampling settings																																					
Numeric Entry element	<ul style="list-style-type: none"> ■ As the Sample Number is set as 2, there will be two sets of settings (Sample 0 and Sample 1). ■ Create Numeric Entry elements of \$20 - \$23 as the X, Y, Color, and Connection of Sample 0. ■ Create Numeric Entry elements of \$30 - \$33 as the X, Y, Color, and Connection of Sample 1. <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px; margin-top: 10px;"> <thead> <tr> <th style="width: 15%;">Sample Number</th> <th style="width: 15%;">X</th> <th style="width: 15%;">Y</th> <th style="width: 15%;">Color</th> <th style="width: 15%;">Connection</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Sample 0</td> <td style="text-align: center;">\$20</td> <td style="text-align: center;">\$21</td> <td style="text-align: center;">\$22</td> <td style="text-align: center;">\$23</td> </tr> <tr> <td style="text-align: center;">Sample 1</td> <td style="text-align: center;">\$30</td> <td style="text-align: center;">\$31</td> <td style="text-align: center;">\$32</td> <td style="text-align: center;">\$33</td> </tr> </tbody> </table>	Sample Number	X	Y	Color	Connection	Sample 0	\$20	\$21	\$22	\$23	Sample 1	\$30	\$31	\$32	\$33																					
Sample Number	X	Y	Color	Connection																																	
Sample 0	\$20	\$21	\$22	\$23																																	
Sample 1	\$30	\$31	\$32	\$33																																	

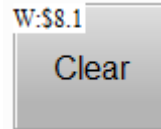
X-Y Distribution

Maintained button element

- Create a Maintained button element and set its Write Address as \$8.0, meaning the sampling starts when Bit 0 is on.



- Next, create another Maintained button element and set its Write Address as \$8.1, meaning the clearing starts when Bit 1 is on.



Execution results

- After creating the elements, compile and download the elements to the HMI. Next, enter any values for the X-axis and Y-axis to the Numeric Entry elements, and then the X-Y Distribution draws the curve according to the input values.

- For the first input, two points are drawn.

- For the second input, \$23 and \$33 are both set to 1, so the dots are connected by the lines.

14

When you double-click the X-Y Distribution, the property page is shown as follows.

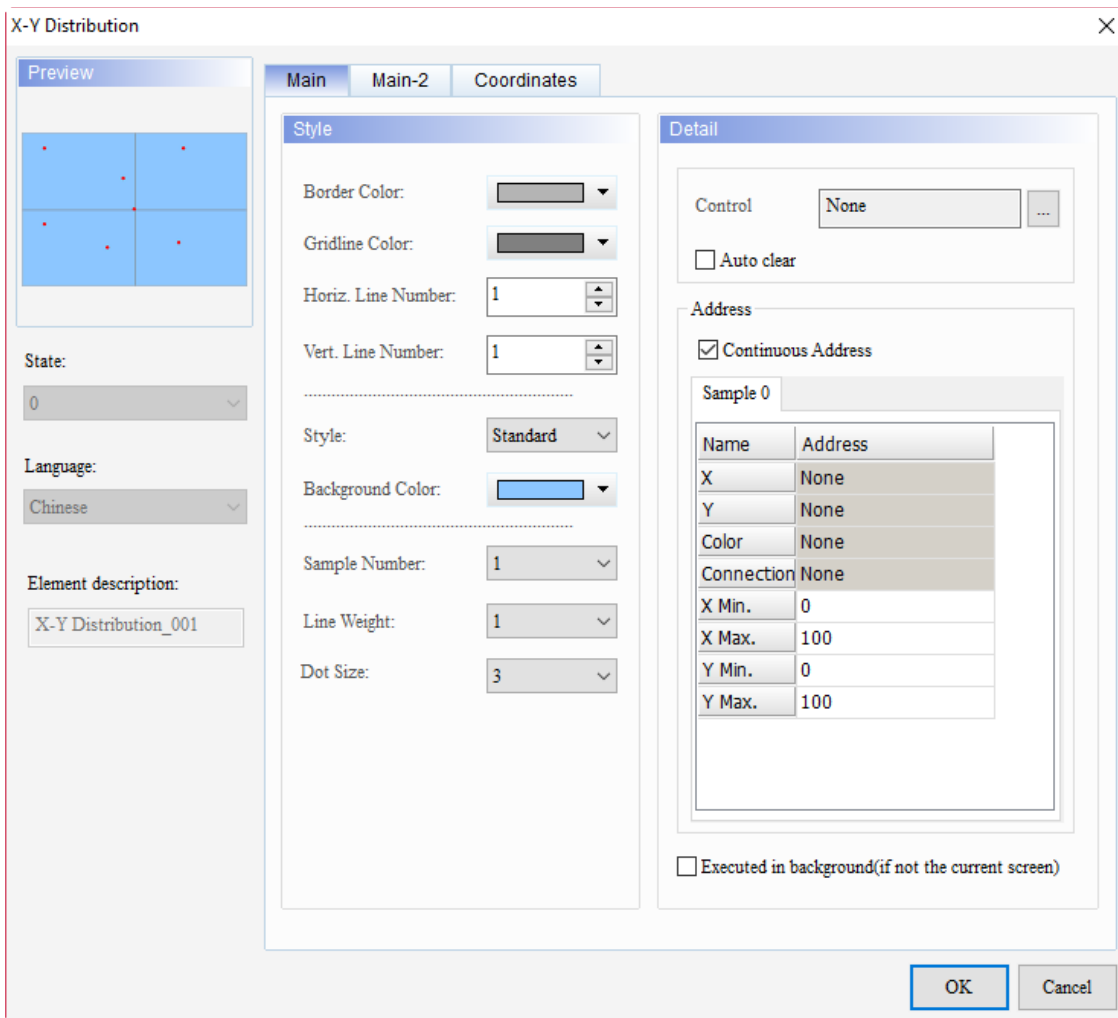


Figure 14.3.1 Properties of X-Y Distribution

Table 14.3.2 Function page of X-Y Distribution

X-Y Distribution	
Function page	Description
Preview	The X-Y Distribution elements do not support multiple state values and multi-language data display.
Main	Set the Control, Addresses of X, Y, Color, and Connection, X Min., X Max., Y Min., Y Max., and select the Auto clear , Continuous Address , and Executed in background(if not the current screen) check boxes. Set the Border Color, Gridline Color, Horiz. Line Number, Vert. Line Number, Style, Background Color, Sample Number, Line Weight, and Dot Size.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

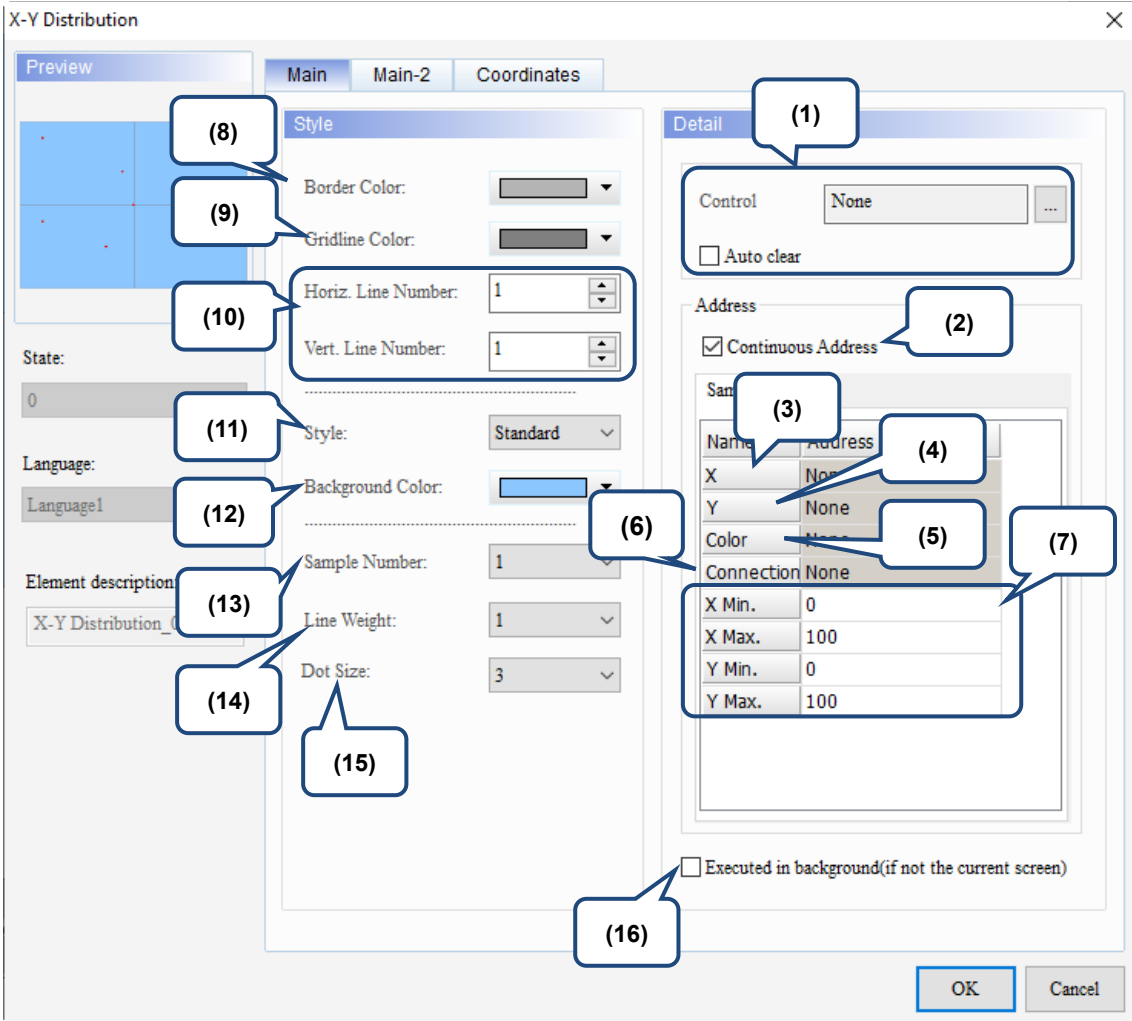
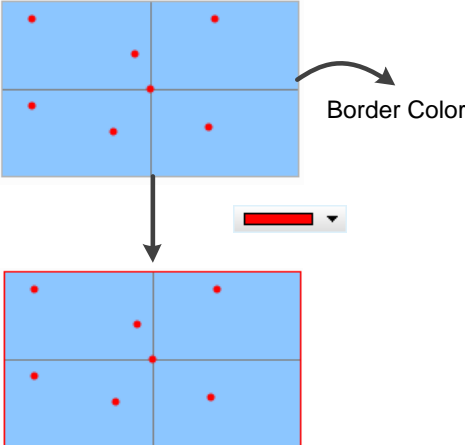

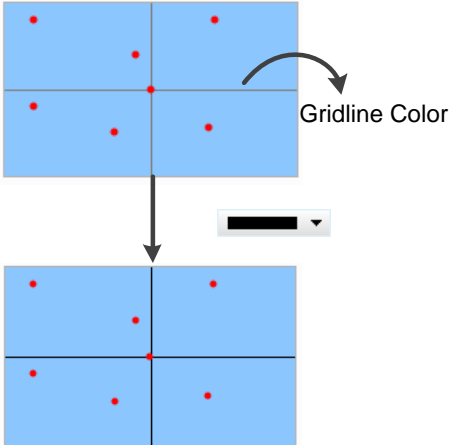


Figure 14.3.2 Main property page for the X-Y Distribution element

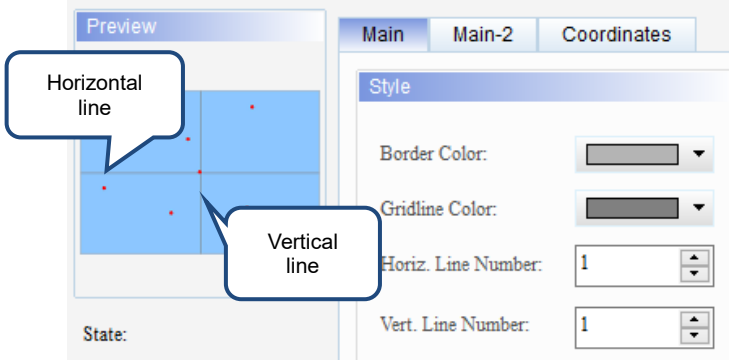
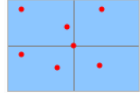
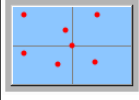
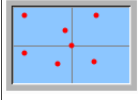
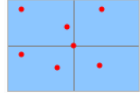
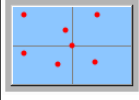
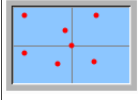
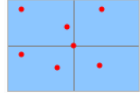
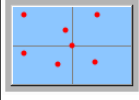
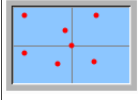
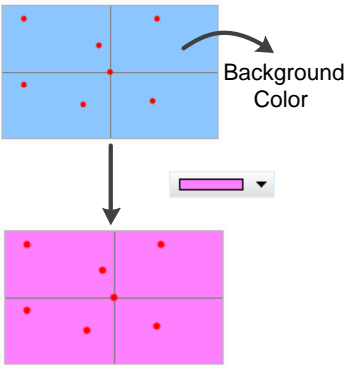
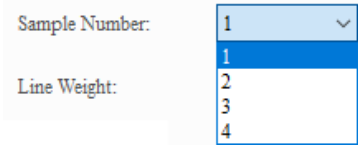
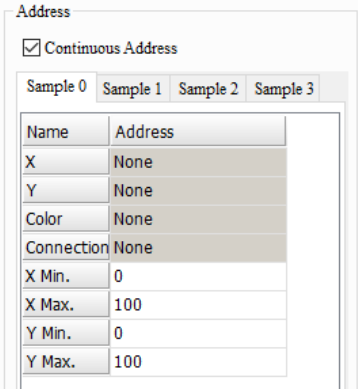
No.	Property	Function description
(1)	Control	<ul style="list-style-type: none"> Control address is the independent Curve Control flag of the X-Y Distribution. You do not need to sample data with the Curve Control flags in the Control Block. You can select the internal memory or the controller address for this Control address. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. Trigger Bit 0 to draw the sampling points and trigger Bit 1 to clear the sampling points. The X-Y Distribution element draws only one point each time you trigger the Curve Control flag. To draw the second point, you need to set this flag to off and then trigger it again. You can select the Auto clear check box to have the HMI automatically clear the flag. <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>Detail</p> <p>Control None ...</p> <p><input type="checkbox"/> Auto clear</p> </div>

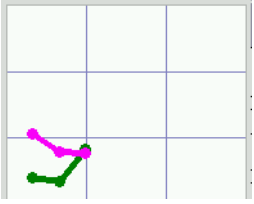
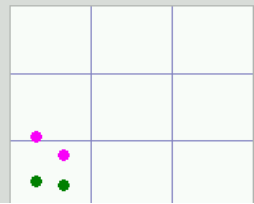
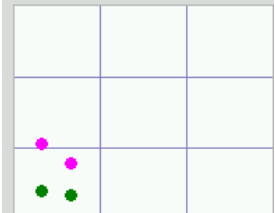
14

No.	Property	Function description
(2)	Continuous Address	<ul style="list-style-type: none"> ■ If the Continuous Address check box is selected, when you set the address of X, the addresses of Y, Color, and Connection are set as the subsequent addresses of X. For example, if the X address is \$1000, then the addresses of Y, Color, and Connection are \$1001 - \$1003. If you need to change the Read Addresses of X and Y, you can only change the setting of the X address. Also, you are unable to change the Read Addresses of the Color and Connection; you can only set them as constants. ■ If the Continuous Address check box is not selected, the addresses of X, Y, Color, and Connection can be discontinuous, and you can define each Read Address as needed. Also, you can set the Color and Connection as Read Addresses or constants.
(3)	X	<ul style="list-style-type: none"> ■ You can select the internal memory or the controller register address for the X coordinate. ■ Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
(4)	Y	<ul style="list-style-type: none"> ■ You can select the internal memory or the controller register address for the Y coordinate. ■ Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
(5)	Color	<ul style="list-style-type: none"> ■ You can select the internal memory, controller register address, or constant for the Color coordinate. ■ Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. ■ To set the color with constants, you can press Color and directly select the color for the sampling point. <div> </div> <ul style="list-style-type: none"> ■ You can also enter the value ranging from 0 to 65535 to the Address/Value field. <div> </div>

No.	Property	Function description														
(6)	Connection	<ul style="list-style-type: none"> You can select the internal memory, controller register address, or constant for the Connection. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. The setting of Connection is to determine if the sampling point connects with the previous sampling point to form a line. Set the Connection as the constant 1 to connect and set as 0 for no connection. 														
(7)	X Min. / X Max. / Y Min. / Y Max.	<p>The allowable ranges for the X / Y Min. and X / Y Max. values are subject to change based on the selected Data Type and Data Format.</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFF</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hex	0 to 0xFFFF
Data Type	Data Format	Allowable range														
Word	BCD	0 to 9999														
	Signed BCD	-999 to +9999														
	Signed Decimal	-32768 to +32767														
	Unsigned Decimal	0 to 65535														
	Hex	0 to 0xFFFF														
(8)	Border Color	<p>Set the Border Color of the X-Y Distribution element.</p> 														
(9)	Gridline Color	<ul style="list-style-type: none"> The Gridline Color is the color of the grid line in the X-Y Distribution. The default is . You can change the color of the grid line. 														

14

No.	Property	Function description						
(10)	Horiz. Line Number / Vert. Line Number	<ul style="list-style-type: none"> Both Horiz. Line Number and Vert. Line Number support a maximum of 99 lines. Horiz. Line Number refers to the number of lines which are parallel to the X-axis and Vert. Line Number refers to the number of lines which are parallel to the Y-axis. The default is 1 for both settings. <p>X-Y Distribution</p> 						
(11)	Style	<p>You can change the appearance of the element with this setting. There are three types of element styles:</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken			
Standard	Raised	Sunken						
								
(12)	Background Color	<p>Set the background color of the element.</p> 						
(13)	Sample Number	<ul style="list-style-type: none"> The X-Y Distribution element supports up to 4 sets of samples.  <ul style="list-style-type: none"> To use 4 sets of samples, you only need to set the X and Y Read Addresses of Sample 0, Sample 1, Sample 2, and Sample 3 for sampling. 						

No.	Property	Function description
(14)	Line Weight	<p>The line width setting ranges from 1 to 8. When the Connection is set from 0 to 1, the connecting lines are displayed, and this setting is valid in that scenario.</p> <div style="display: flex; align-items: center;"> <div style="border: 1px solid gray; padding: 5px; margin-right: 10px;">Connection = 1</div>  </div> <hr style="border: 0.5px solid gray;"/> <div style="display: flex; align-items: center;"> <div style="border: 1px solid gray; padding: 5px; margin-right: 10px;">Connection = 0</div>  </div>
(15)	Dot Size	<p>The Dot Size setting ranges from 1 to 8. When it is set to 5, the dot size is as follows.</p> 
(16)	Executed in background (if not the current screen)	<p>If you select the check box of this function, it means that X-Y Distribution can also execute sampling when you are on other screens. For example, assuming that Screen 1 has a set X-Y Distribution and Screen 2 does not, if the sampling is executing on Screen 2, but you switch the screen back to Screen 1, X-Y Distribution continues to finish the sampling.</p> <p>Note: if you did not select the Auto clear check box, be sure to set the sampling flag to off after the sampling on other screens is complete.</p>

■ Main-2

14

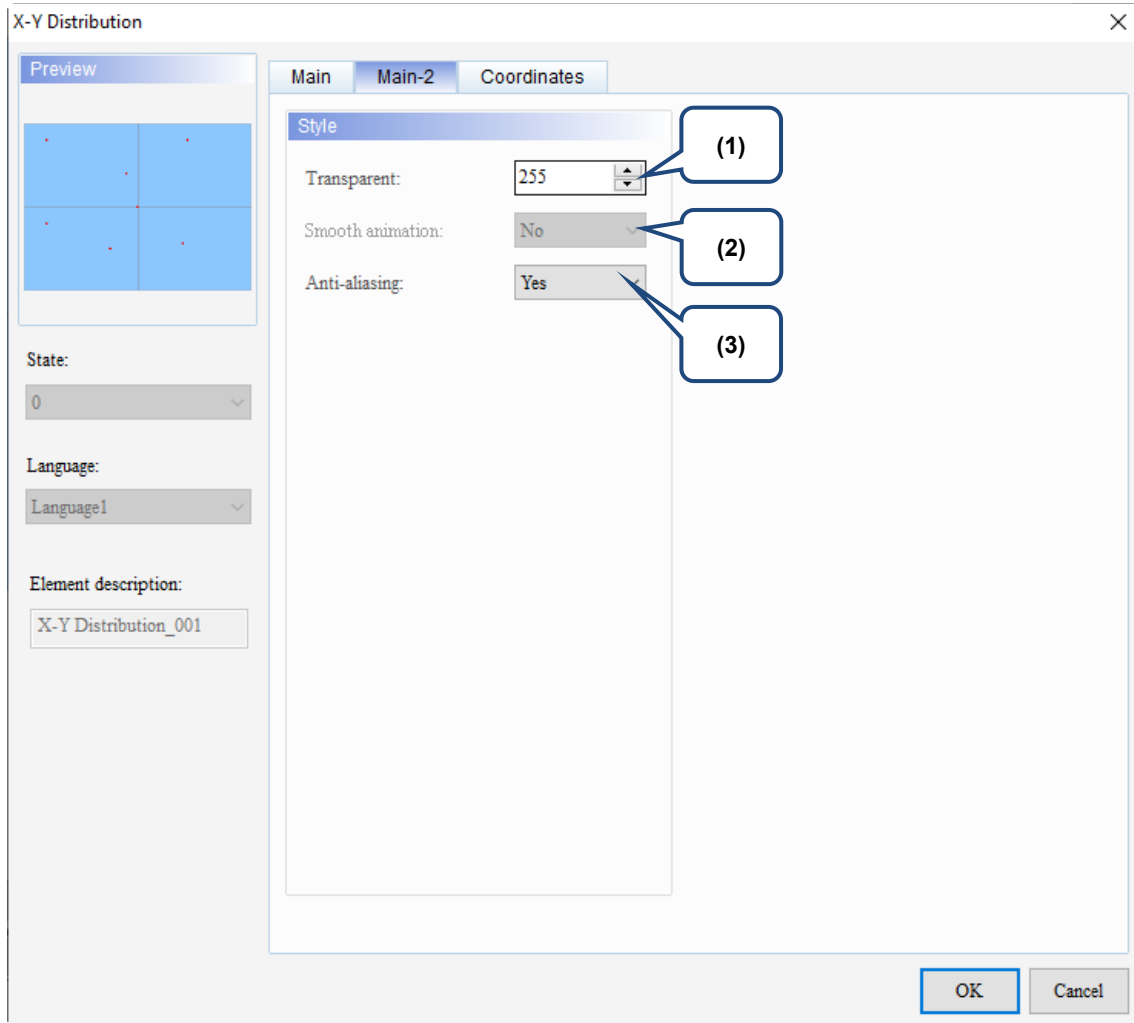
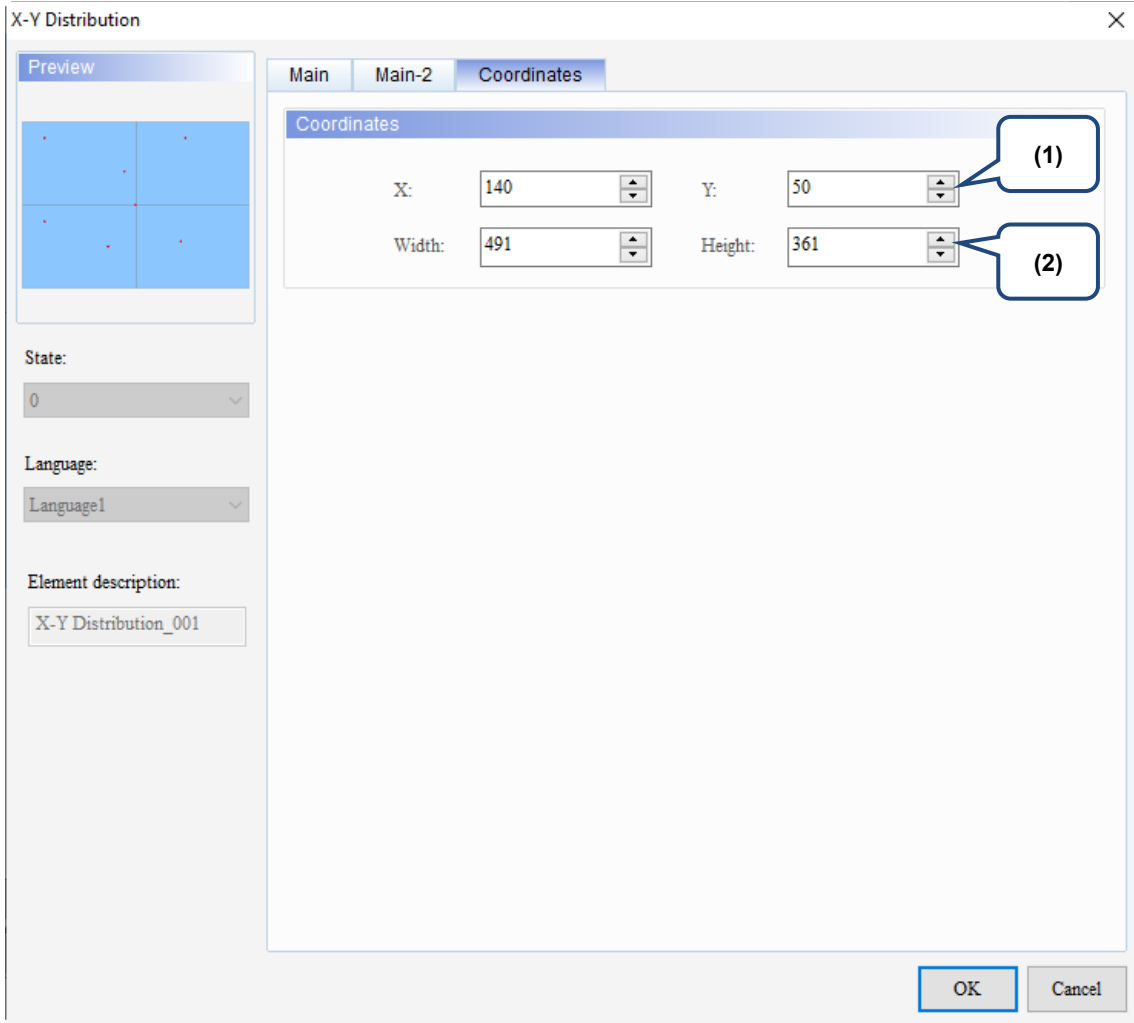


Figure 14.3.3 Main-2 property page for the X-Y Distribution element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is available for this element. When this function is enabled, the element display becomes more delicate without jagged edges.

■ Coordinates



14

Figure 14.3.4 Coordinates property page for the X-Y Distribution element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

14

14.4 Curve Input

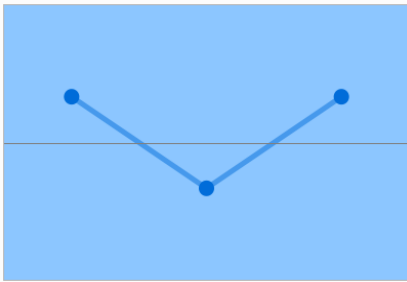
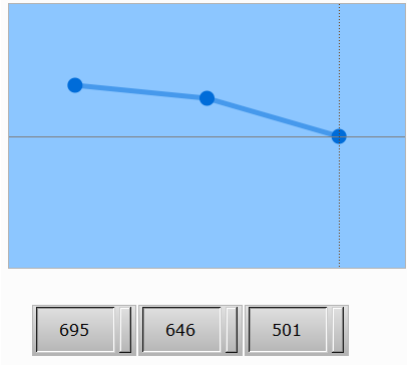
Curve Input draws curves according to the continuous sampling by the set Address.

You can also press the Curve Input element to move the curve to the required position.

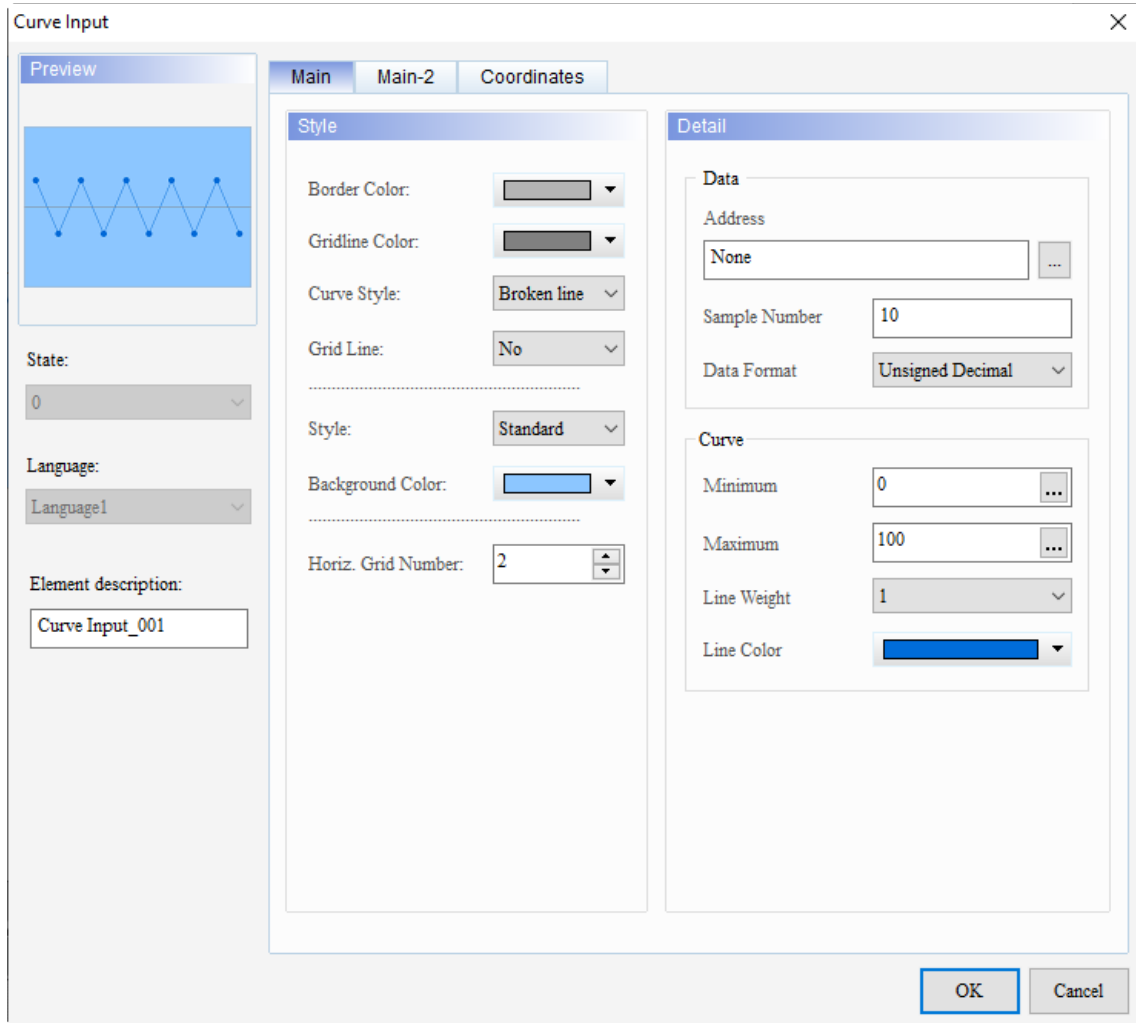
Curve Input provides two Curve Style options with different effects: Broken line and Block graphs.

Refer to Table 14.4.1 for the Curve Input example.

Table 14.4.1 Curve Input example

Curve Input											
Curve Input element	<p>Create a Curve Input element and set its parameters.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Curve Input element</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Address</td> <td style="text-align: center;">\$1058</td> </tr> <tr> <td style="text-align: center;">Sample Number</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">Curve Style</td> <td style="text-align: center;">Broken line</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; vertical-align: top;">Minimum / Maximum Line Weight / Line Color</td> <td style="padding: 5px;"> <p>Curve</p> <p>Minimum <input style="width: 100%;" type="text" value="0"/></p> <p>Maximum <input style="width: 100%;" type="text" value="1000"/></p> <p>Line Weight <input style="width: 100%;" type="text" value="5"/></p> <p>Line Color <input style="width: 100%;" type="color"/></p> </td> </tr> </table> 	Curve Input element		Address	\$1058	Sample Number	3	Curve Style	Broken line	Minimum / Maximum Line Weight / Line Color	<p>Curve</p> <p>Minimum <input style="width: 100%;" type="text" value="0"/></p> <p>Maximum <input style="width: 100%;" type="text" value="1000"/></p> <p>Line Weight <input style="width: 100%;" type="text" value="5"/></p> <p>Line Color <input style="width: 100%;" type="color"/></p>
Curve Input element											
Address	\$1058										
Sample Number	3										
Curve Style	Broken line										
Minimum / Maximum Line Weight / Line Color	<p>Curve</p> <p>Minimum <input style="width: 100%;" type="text" value="0"/></p> <p>Maximum <input style="width: 100%;" type="text" value="1000"/></p> <p>Line Weight <input style="width: 100%;" type="text" value="5"/></p> <p>Line Color <input style="width: 100%;" type="color"/></p>										
Numeric Entry element	<p>Create 3 Numeric Entry elements. As the Sample Number of the Curve Input is set to 3, 3 sampling points are used to draw a curve. Then, the set Address \$1058 of the Curve Input starts reading 3 addresses in sequence, which are \$1058, \$1059, and \$1060.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">Numeric Entry element</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Write Address</td> <td style="text-align: center;">\$1058</td> <td style="text-align: center;">\$1059</td> <td style="text-align: center;">\$1060</td> </tr> </tbody> </table>	Numeric Entry element				Write Address	\$1058	\$1059	\$1060		
Numeric Entry element											
Write Address	\$1058	\$1059	\$1060								
Execution results	<p>After creating the elements, compile and download the elements to the HMI. Next, enter any values to the Numeric Entry elements, and then the Curve Input draws the curve according to the input values. You can also press the Curve Input element to move the curve to the required position.</p> 										

When you double-click the Curve Input, the property page is shown as follows.



14

Figure 14.4.1 Properties of Curve Input

Table 14.4.2 Function page of Curve Input

Curve Input	
Function page	Description
Preview	Curve Input elements do not support multiple state values and multi-language data display.
Main	Set the Address, Sample Number, Data Format, Minimum, Maximum, Line Weight, and Line Color. Set the Border Color, Gridline Color, Curve Style, Grid Line, Style, Background Color, and Horiz. Grid Number.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

14

■ Main

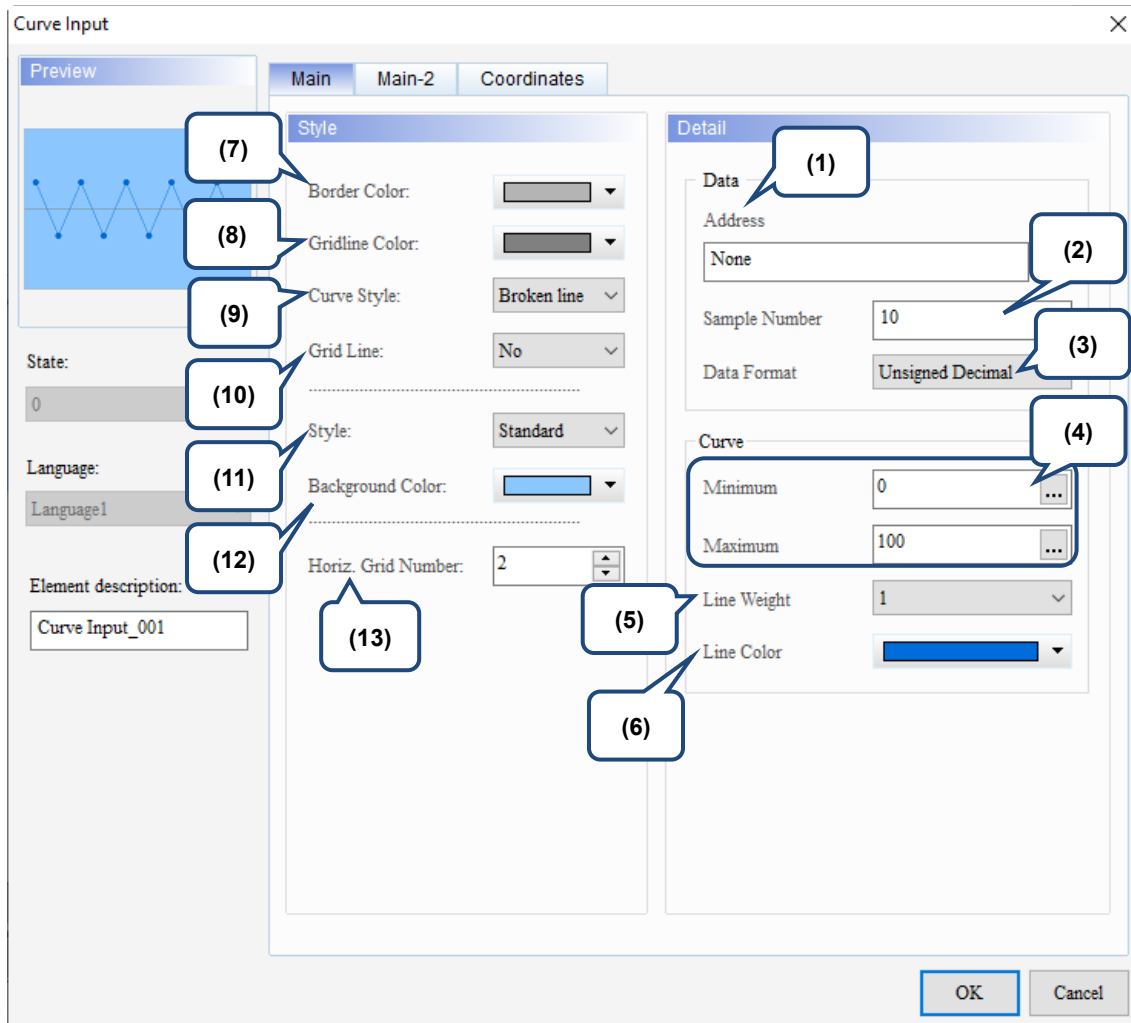
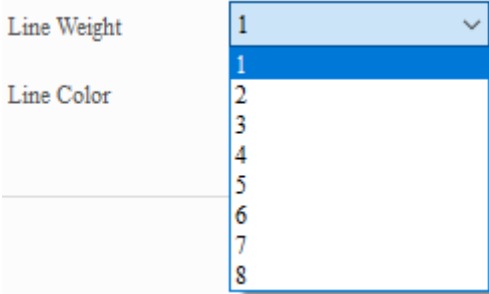
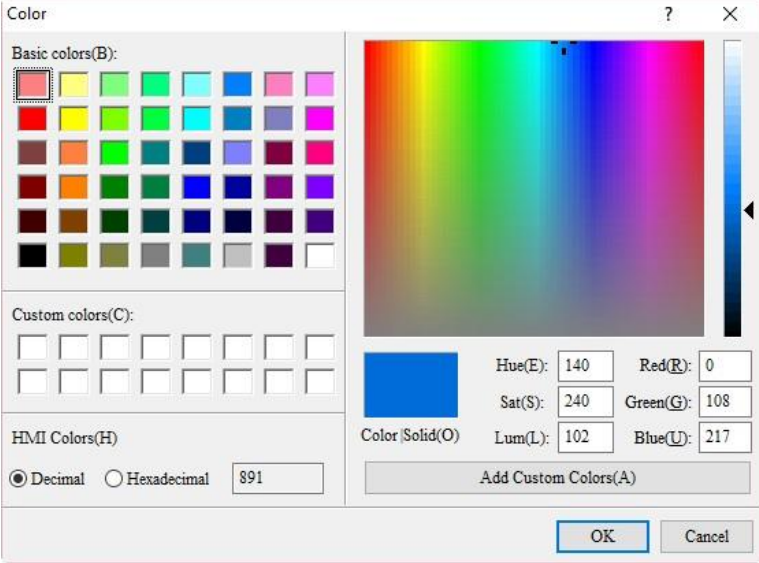
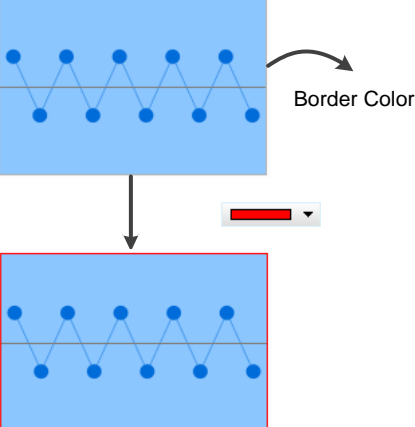
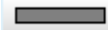
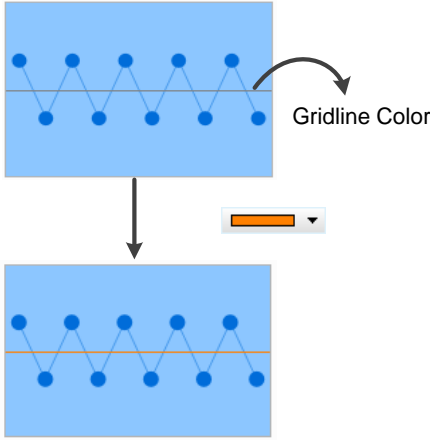
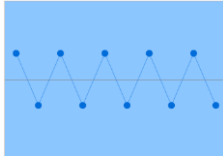
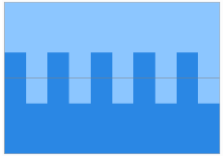
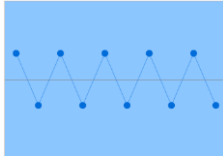
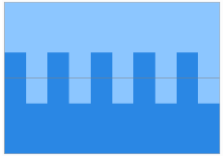
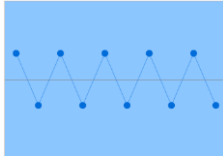
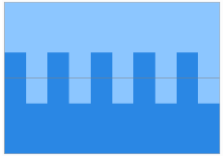

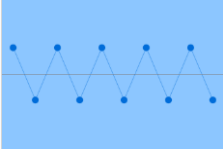

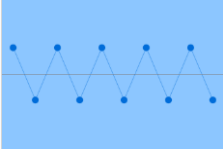

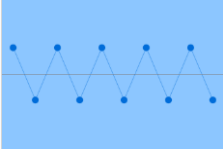









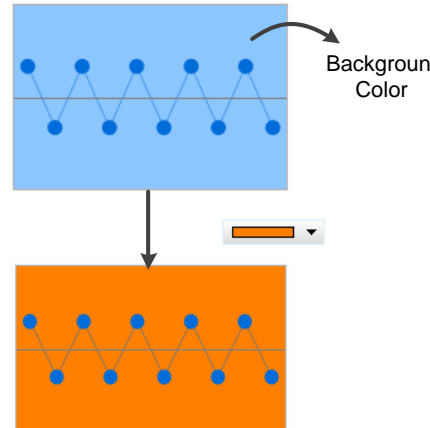


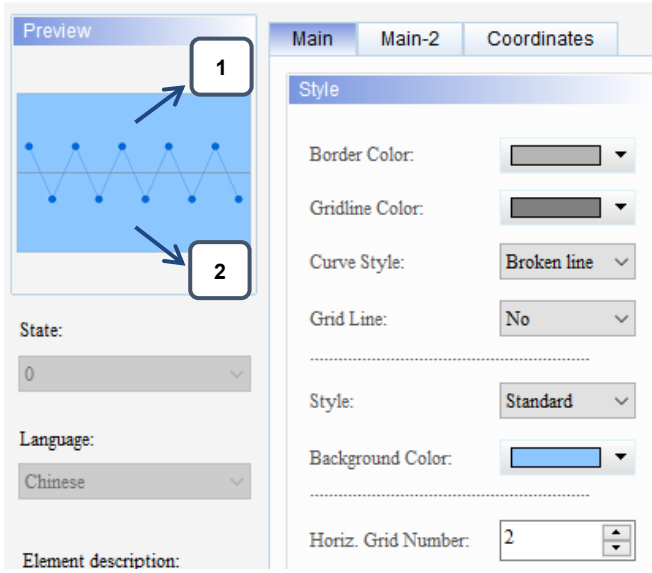
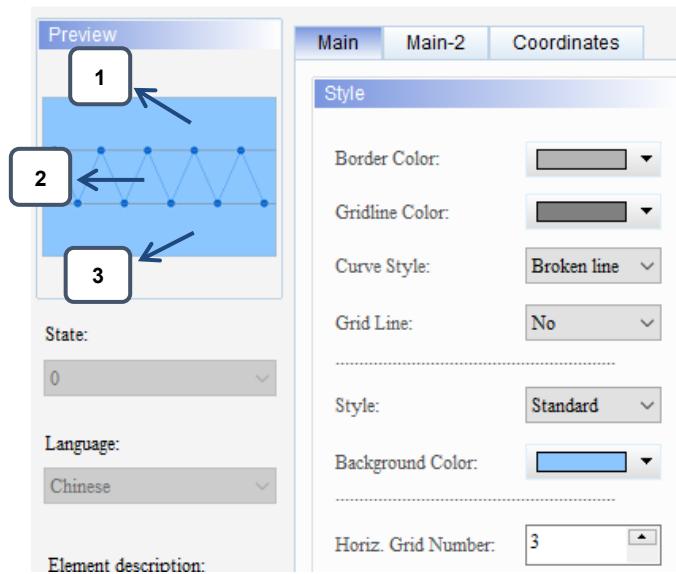
Figure 14.4.2 Main property page for the Curve Input element

No.	Property	Function description
(1)	Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
(2)	Sample Number	<ul style="list-style-type: none"> The set value of sampling points must be a constant. The number of sampling points is determined by the element width and style. When you set the Style of the Curve Input element as Standard and its width as 167, then the maximum number of points that can be displayed is 167. But if you set the Style of the Curve Input element as Raised or Sunken (border width is 7 points) and its width as 167, then the maximum number of points that can be displayed is 153 ($167 - (7 \times 2) = 153$).
(3)	Data Format	<p>Curve Input supports the following data formats:</p>

No.	Property	Function description														
(4)	Minimum / Maximum	<ul style="list-style-type: none"> You can set the minimum and maximum values as constants or variables. When the minimum and maximum values are variables, the controller address (Word) and the internal register address (Word) are supported. When the minimum and maximum values are constants, the allowable ranges for the minimum and maximum values are subject to change based on the selected Data Type and Data Format. <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFF</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hex	0 to 0xFFFF
Data Type	Data Format	Allowable range														
Word	BCD	0 to 9999														
	Signed BCD	-999 to +9999														
	Signed Decimal	-32768 to +32767														
	Unsigned Decimal	0 to 65535														
	Hex	0 to 0xFFFF														
(5)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 														
(6)	Line Color	<p>You can set the line color for the curve.</p> 														
(7)	Border Color	<p>Set the Border Color of the Curve Input element.</p> 														

14

No.	Property	Function description						
(8)	Gridline Color	<ul style="list-style-type: none"> The Gridline Color is the color of the grid line in the Curve Input. The default is . You can change the color of the grid line. 						
(9)	Curve Style	<p>There are two Curve Style options: Broken line and Block graphs.</p> <table border="1"> <thead> <tr> <th>Broken line</th> <th>Block graphs</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Broken line	Block graphs				
Broken line	Block graphs							
								
(10)	Grid Line	<p>You can select Yes or No for Grid Line.</p> <table border="1"> <thead> <tr> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Yes	No				
Yes	No							
								
(11)	Style	<p>You can change the appearance of the element with this setting. There are three types of element styles:</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Raised	Sunken			
Standard	Raised	Sunken						
								
(12)	Background Color	<p>Set the background color of the element.</p> 						

No.	Property	Function description
(13)	Horiz. Grid Number	<ul style="list-style-type: none"> ■ The maximum horizontal grid count is 50. ■ Horiz. Grid Number sets the number of zones the Curve Input element is divided into. The default is 2, meaning there is one grid line dividing the Curve Input element into two zones. If the Horiz. Grid Number is set to 3, there are two grid lines dividing the Curve Input element into 3 zones, and so on. <p>Curve Input</p>  <p>Curve Input</p> 

14

■ Main-2

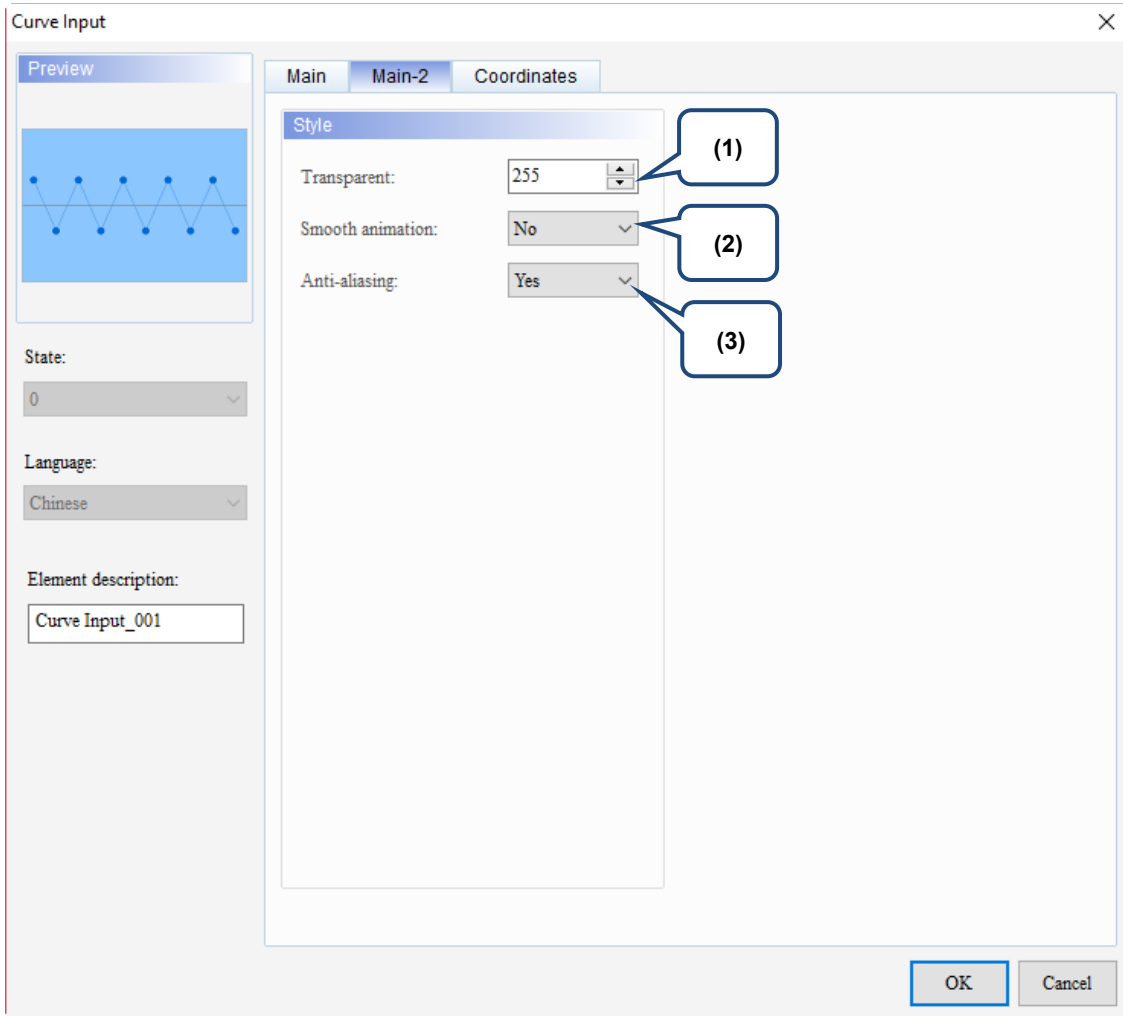
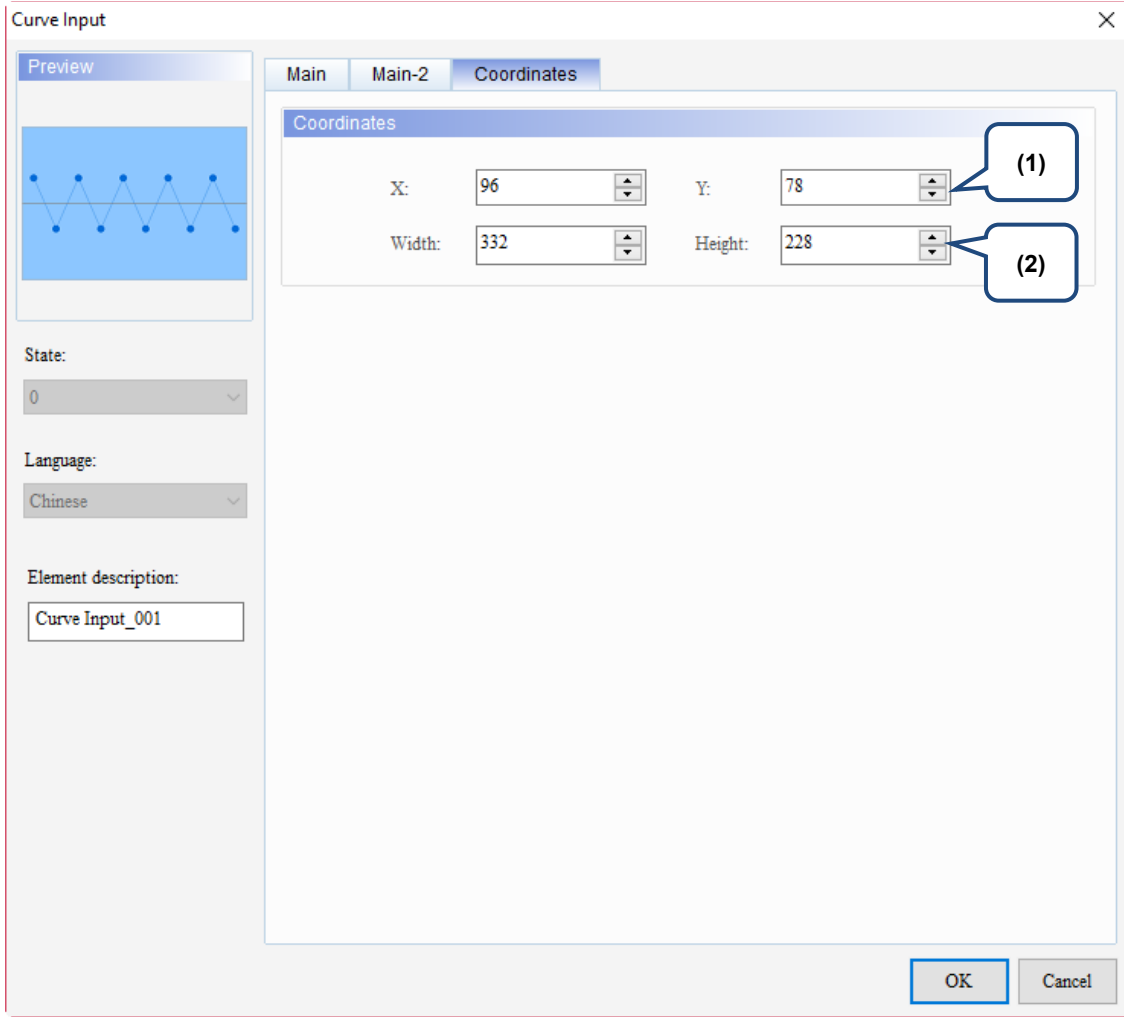


Figure 14.4.3 Main-2 property page for the Curve Input element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is available for this element. When this function is enabled, the curve motion is smoother.
(3)	Anti-aliasing	The Anti-aliasing function is available for this element. When this function is enabled, the element display becomes more delicate without jagged edges.

■ Coordinates



14

Figure 14.4.4 Coordinates property page for the Curve Input element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

(This page is intentionally left blank.)

14

Sampling

15

This chapter introduces the sampling function of the history data and provides the usage and setting details.

15.1	History Buffer	15-2
15.2	Historical Trend Graph	15-37
15.3	Historical Data Table	15-60
15.4	Historical Event Table.....	15-79
15.5	Historical Overview Table.....	15-94
15.6	Operation Log Table	15-118

15

15.1 History Buffer

Before introducing the elements relevant to the sampling function, this section first explains how to use the functions in the History Buffer Setup. The History Buffer Setup is mainly used to define the relevant properties required for setting the sampling function elements, such as read address, data length, sampling points, trigger source, whether to record the time and date, and whether to store the data in an external device or export as a CSV file.

The formula provided by the software computes all the History Buffer relevant data you have edited. Then, the set non-volatile memory saves these computation results. If the data is saved in the HMI, the History Buffer size is subject to change based on the HMI model. Refer to the hardware specifications for non-volatile memory in the HMI Instruction Sheet. For the data saved in the USB Disk or SD Card, the History Buffer size is determined by the external storage devices.

When you download the history data to the HMI, two log files are generated: one DAT file and one CSV file.

1. Formulas to calculate the DAT file size

Each history data is stored as an Hxxxx.dat file. xxxx indicates the sequence number of the history data record. Each .dat file size is calculated by the following formula.

$$\frac{\{[6 \text{ Bytes}(a) + 2 \text{ Bytes}(b)] \times N(c)\}}{1024 \times 1024} = \text{Actual file size in MBytes}$$

a: time / date data

b: data type

c: sample number

The size of file header is calculated additionally.

$$\{[8 \text{ Bytes}(a)] \times N(b)\} = \text{Actual file size in Bytes}$$

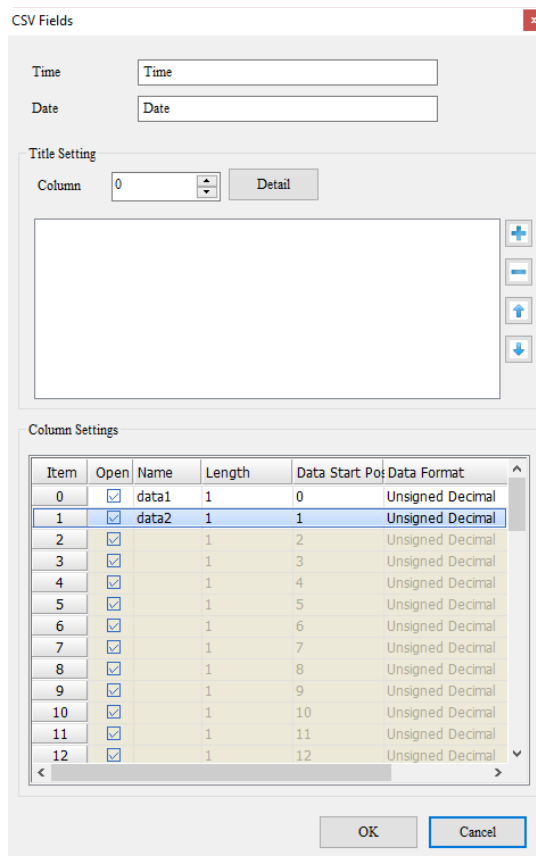
a: file header of each history data

b: sample number

2. Formulas to calculate the CSV file size

The CSV file calculation method is by dynamic configuration, which is calculated based on each character counted as 2 bytes. Each item must be separated by a comma (,) and the comma is also 2 bytes. At the end of each row, a total of 4 bytes for the newline command, 0x0D and 0x0A, is also included. The following describes how the CSV file size is calculated.

■ Title



Here are two examples on how to calculate the data size of the title:

1. Each character is counted as 2 bytes (characters*2 bytes)

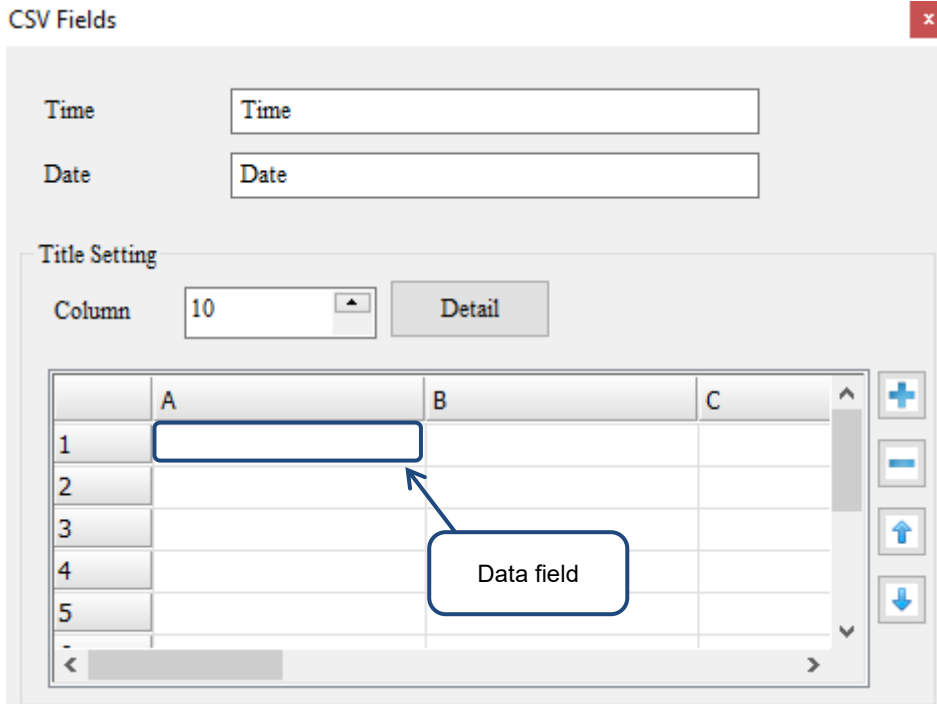
File header	Time column setting	Separator	Date column setting	Separator	Data column setting	Newline command
	Time	.	Date	.	Data1	
2 bytes	8 bytes	2 bytes	8 bytes	2 bytes	10 bytes	4 bytes
36 bytes in total						

2. Each character is counted as 2 bytes (characters*2 bytes)

File header	Time column setting	Separator	Date column setting	Separator	Data column setting	Data column setting	Newline command
	Time	.	Date	.	Data1	Data2	
2 bytes	8 bytes	2 bytes	8 bytes	2 bytes	10 bytes	10 bytes	4 bytes
46 bytes in total							

15

■ Field column



CSV field supports up to 10 columns and 10 rows.

Each data field supports up to 128 bytes and each character counts as 2 bytes.

Each character is counted as 2 bytes (characters*2 bytes). Column*row = 2*2.

A1 setting	Separator	B1 setting	Separator	A2 setting	Separator	B2 setting	Newline command
123	.	Delta	.	abc	.	QWE	
6 bytes	2 bytes	10 bytes	2 bytes	6 bytes	2 bytes	6 bytes	4 bytes

38 bytes in total

■ Data row

15

Buffer Properties

Sampling

Address: \$1

Read Length (Word): 2

Sample Number: 10

File Output

Non-volatile: USB Disk

Auto Stop

Export CSV File: Field Name

Enable active bit: None

Trigger

Timer

Sampling Cycle (ms): 100

Custom Cycle (ms) Use DWORD: None

Stamp Time and Date

Time Format: hh:mm:ss

Date Format: mm/dd/yy

Save As Single

File Name: H0001

Save As Multi

File Date: %y %m %d

File Time: %H %M %S

File Name: H0001

Archive trigger bit: None

OK Cancel

CSV Fields

Time: Time

Date: Date

Title Setting

Column: 0 Detail

Length	Data Start Pos	Data Format	Integer digit	Fractional
1	0	Unsigned Decimal	5	0
1	1	Unsigned Decimal	5	0
1	2	Unsigned Decimal	5	0
1	3	Unsigned Decimal	5	0
1	4	Unsigned Decimal	5	0
1	5	Unsigned Decimal	5	0
1	6	Unsigned Decimal	5	0
1	7	Unsigned Decimal	5	0
1	8	Unsigned Decimal	5	0
1	9	Unsigned Decimal	5	0
1	10	Unsigned Decimal	5	0
1	11	Unsigned Decimal	5	0
1	12	Unsigned Decimal	5	0

OK Cancel

15

Here are three examples of how to calculate the data size of the data row:

1. Each character is counted as 2 bytes (characters*2 bytes)

Time Format setting	Separator	Date Format setting	Separator	Integer digits setting	Fractional digits setting	Newline command
hh:mm:ss	.	mm/dd/yy	.	5	0	
16 bytes	2 bytes	16 bytes	2 bytes	10 bytes	0 bytes	4 bytes
50 bytes in total						

2. Each character is counted as 2 bytes (characters*2 bytes)

Time Format setting	Separator	Date Format setting	Separator	Integer digits setting	Fractional digits setting	Newline command
hh:mm	.	mm.dd	.	4	1	
10 bytes	2 bytes	10 bytes	2 bytes	8 bytes	2 bytes	4 bytes
38 bytes in total						

3. Each character is counted as 2 bytes (characters*2 bytes)

Time Format setting	Separator	Date Format setting	Separator	Data 1		Data 2		Newline command
				Integer digits setting	Fractional digits setting	Integer digits setting	Fractional digits setting	
N/A	.	N/A	.	4	1	3	2	
0 bytes	2 bytes	0 bytes	2 bytes	8 bytes	2 bytes	6 bytes	4 bytes	4 bytes
28 bytes in total								

The data size of each of the preceding data row must multiply by the Sample Number N(a). Therefore, Title + Field column + Data row*Sample Number N(a) is the CSV file size exported from the History Buffer.

The formula is as follows:

$$\frac{\text{Title data size Bytes} + \text{Field column size Bytes} + \text{Data row size Bytes} \times N(a)}{1024 \times 1024} = \text{Actual file size in MBytes}$$

a: Sample Number

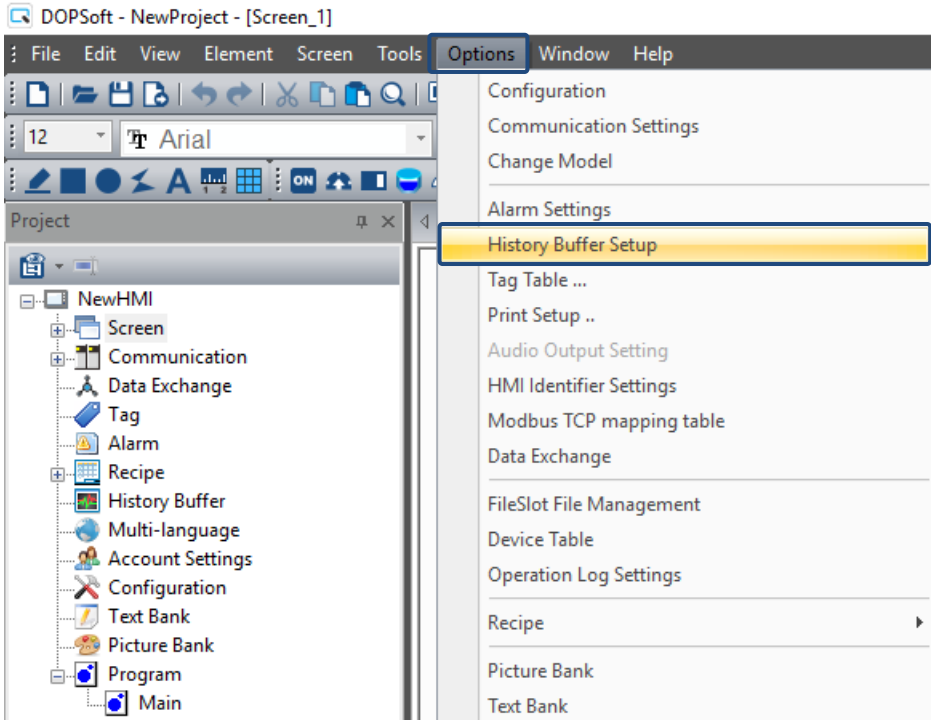
This chapter introduces all element examples used by the sampling function, including History Buffer Setup, Historical Trend Graph, Historical Data Table, Historical Event Table, and Historical Overview Table.

Refer to Table 15.1.1 for the History Buffer Setup example.

Table 15.1.1 History Buffer Setup example


History Buffer Setup

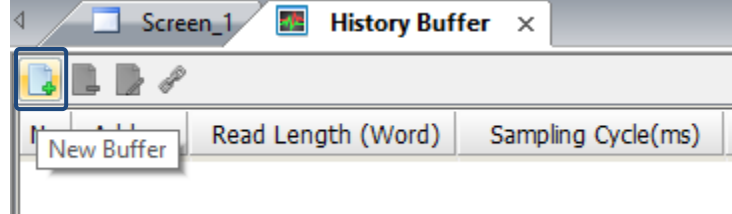
Step 1: go to [Options] > [History Buffer Setup] to set up the properties of the history data.



The screenshot shows the DOPSoft interface with the 'Options' menu open. The 'History Buffer Setup' option is highlighted in yellow. The project tree on the left shows 'NewHMI' with various sub-items including 'History Buffer'.

History Buffer Setup steps

Step 2: press  to add data to the History Buffer.



The screenshot shows the 'History Buffer' dialog box with a 'New Buffer' button highlighted by a blue box. Other buttons include 'Read Length (Word)' and 'Sampling Cycle(ms)'.

15

History Buffer Setup steps

History Buffer Setup

Step 3: set the buffer properties as follows.

The screenshot shows the 'Buffer Properties' dialog box with several sections highlighted by blue boxes and arrows. The 'Sampling' section includes 'Address' (set to \$0), 'Read Length (Word)' (set to 1), and 'Sample Number' (set to 100). The 'File Output' section has 'Non-volatile' checked and 'HMI' selected in the dropdown. The 'Export CSV File' checkbox is checked, and a callout box labeled 'Field Name' points to the 'Export CSV File' option. The 'CSV Fields' section has 'Time' and 'Date' fields. The 'Title Setting' section has 'Column' set to 0 and a 'Detail' button. The 'Stamp Time and Date' checkbox is checked. The 'Column Settings' table at the bottom shows two columns: 'Data0' and 'Data1', both with length 1 and data start position 0 and 1 respectively.

You can set the name for the CSV column header.

Step 4: after completing the preceding settings, you can see a new row of data is created in the History Buffer.

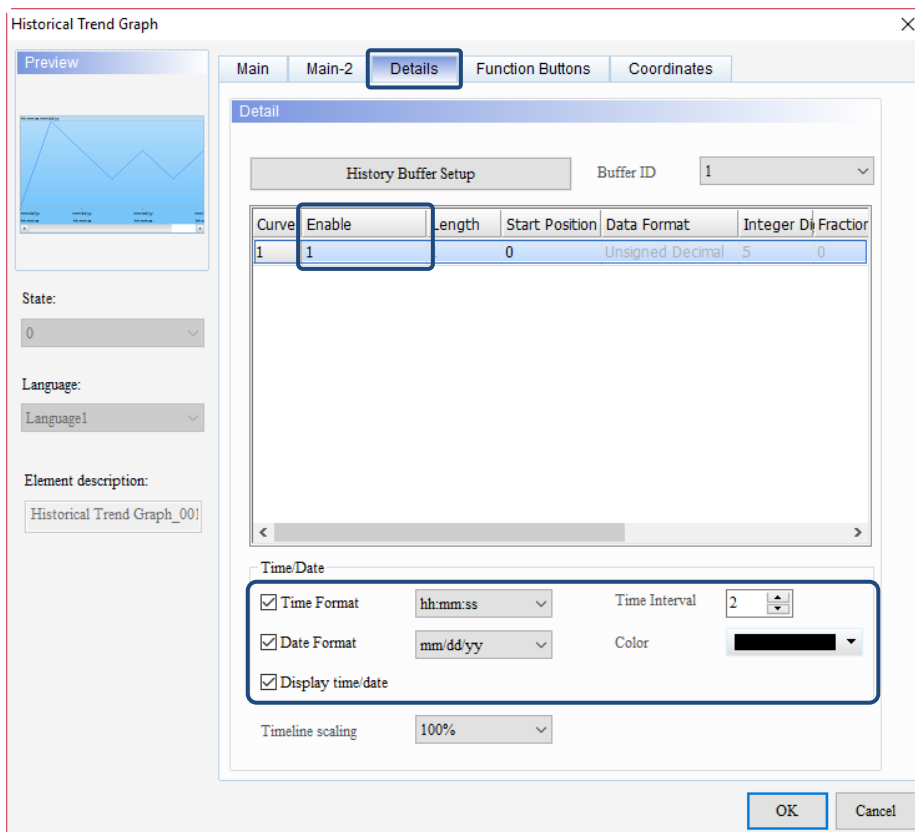
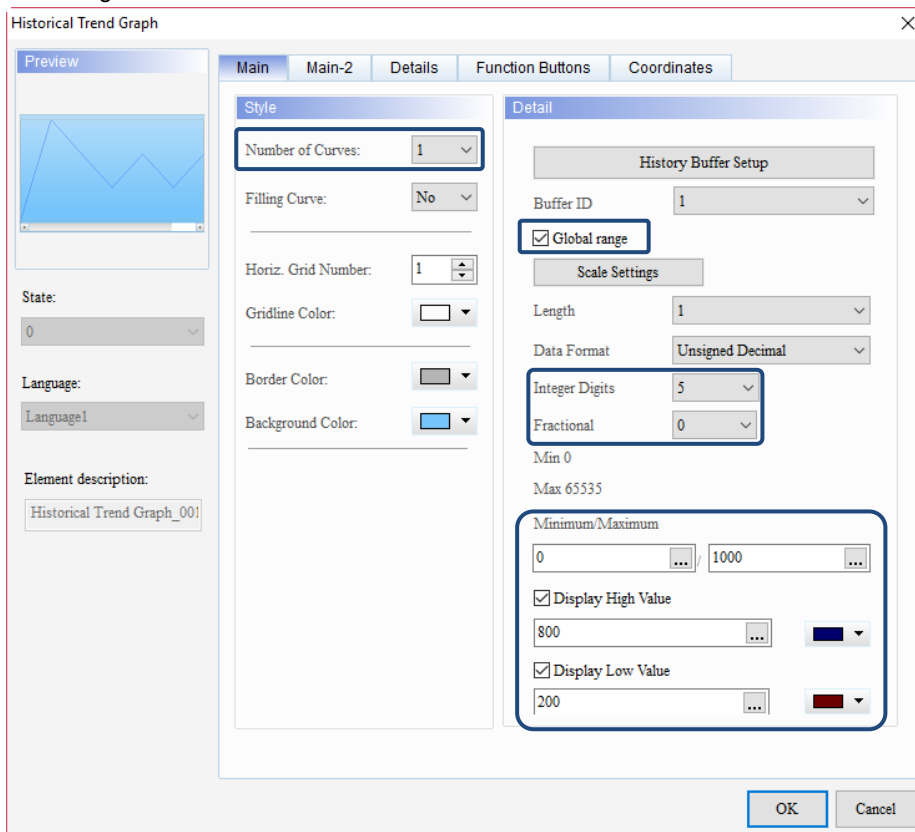
No.	Address	Read Length (Word)	Sampling Cycle(ms)	Sample Number	Trigger Source	Stamp Time and Date
1	\$0	1	100	100	Timer	Yes

History Buffer Setup

Step 5: create a Historical Trend Graph element and set the properties, such as the display for the time and date, displaying integer and fractional digits, and whether to select the **Global range** check box. Then, go to the Details page to set Curve 1 to 1 to enable the reading of this data.

15

History Buffer Setup steps



15

History Buffer Setup steps

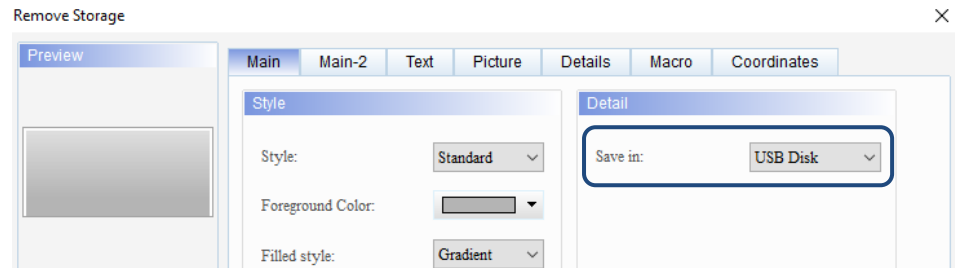
History Buffer Setup

Step 6: go to [Options] > [Clock Macro] and edit the macro command to allow auto increment of \$0.

```

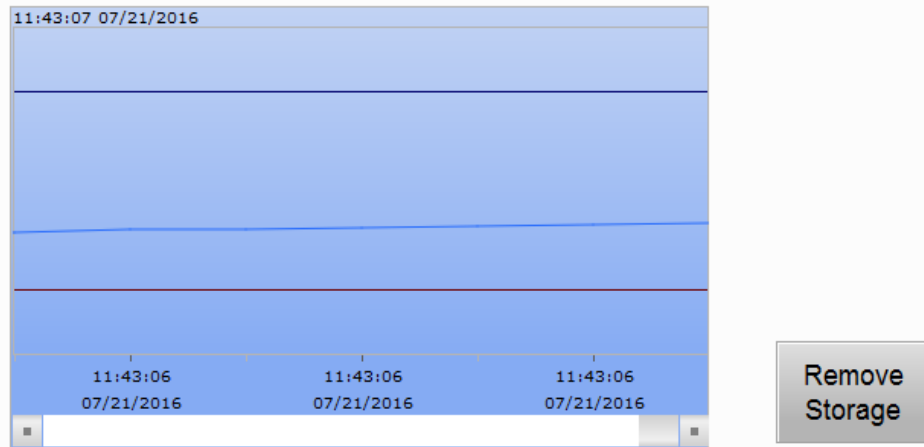
*&Clock Macro
1 $0 = $0 + 3
2 If $0 > 1000
3 $0 = 0
4 ENDIF
    
```

Step 7: create a Remove Storage button and select USB Disk for the Save in setting. This ensures that the data is correctly written to the USB Disk. If you do not safely eject the USB Disk before removing it, data read and write errors may occur, leading to the corruption of the saved file.

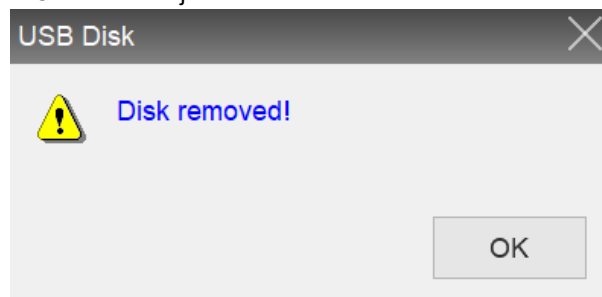


- After setting the History Buffer Setup and creating the Historical Trend Graph and Remove Storage elements, compile and download the elements to the HMI. The non-volatile memory setting in this example is the USB Disk, so when the HMI reads the screen, the data of H.had and Delta.dat are generated and stored in the USB Disk. Then, the History Buffer executes the command in the Clock Macro to change the data, and continues to store the data in the CSV file to the USB Disk. To stop saving the data, press the **Remove Storage** button to eject the external device for ensuring the data is saved correctly.

Execution results



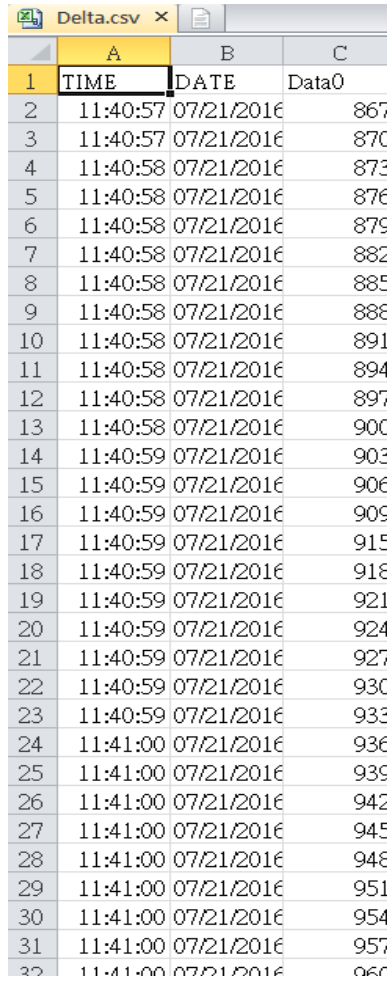
- Press the **Remove Storage** button and the following message appears to inform you that the USB Disk is ejected.



History Buffer Setup

You can insert the USB Disk to the PC to read the CSV file and make sure that the data and file name are correct. The file name in this example is Delta, and the path to save all CSV files is HMI\HMI-000\CSV\History\xxxxx.CSV.

Execution results



	A	B	C
1	TIME	DATE	Data0
2	11:40:57	07/21/2016	867
3	11:40:57	07/21/2016	870
4	11:40:58	07/21/2016	873
5	11:40:58	07/21/2016	876
6	11:40:58	07/21/2016	879
7	11:40:58	07/21/2016	882
8	11:40:58	07/21/2016	885
9	11:40:58	07/21/2016	888
10	11:40:58	07/21/2016	891
11	11:40:58	07/21/2016	894
12	11:40:58	07/21/2016	897
13	11:40:58	07/21/2016	900
14	11:40:59	07/21/2016	903
15	11:40:59	07/21/2016	906
16	11:40:59	07/21/2016	909
17	11:40:59	07/21/2016	915
18	11:40:59	07/21/2016	918
19	11:40:59	07/21/2016	921
20	11:40:59	07/21/2016	924
21	11:40:59	07/21/2016	927
22	11:40:59	07/21/2016	930
23	11:40:59	07/21/2016	933
24	11:41:00	07/21/2016	936
25	11:41:00	07/21/2016	939
26	11:41:00	07/21/2016	942
27	11:41:00	07/21/2016	945
28	11:41:00	07/21/2016	948
29	11:41:00	07/21/2016	951
30	11:41:00	07/21/2016	954
31	11:41:00	07/21/2016	957
32	11:41:00	07/21/2016	960

Refer to Table 15.1.2 for the Historical Trend Graph example.

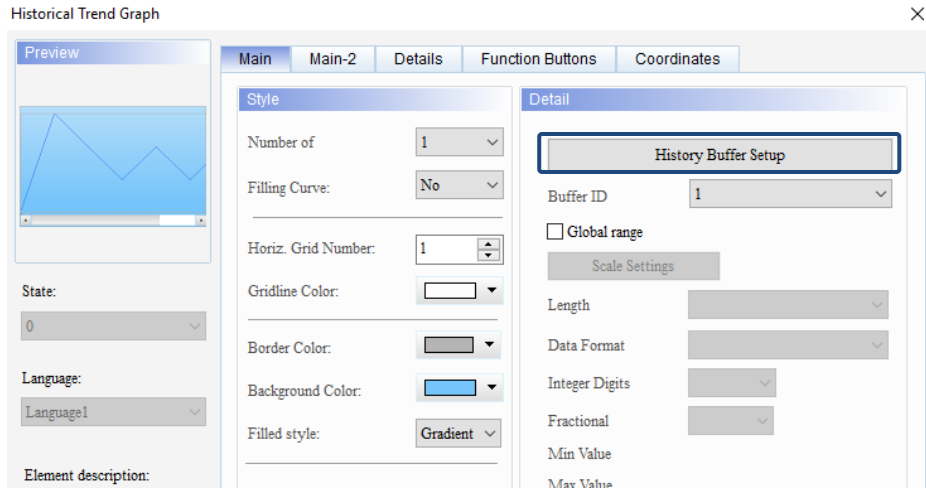
Table 15.1.2 Historical Trend Graph example


15

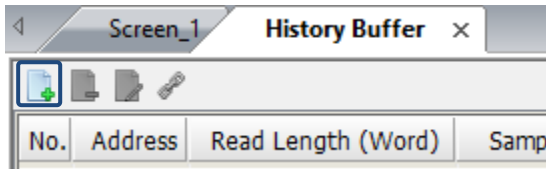
Create Historical Trend Graph element

Historical Trend Graph

Step 1: double-click the Historical Trend Graph element and press **History Buffer Setup** to set the parameters.



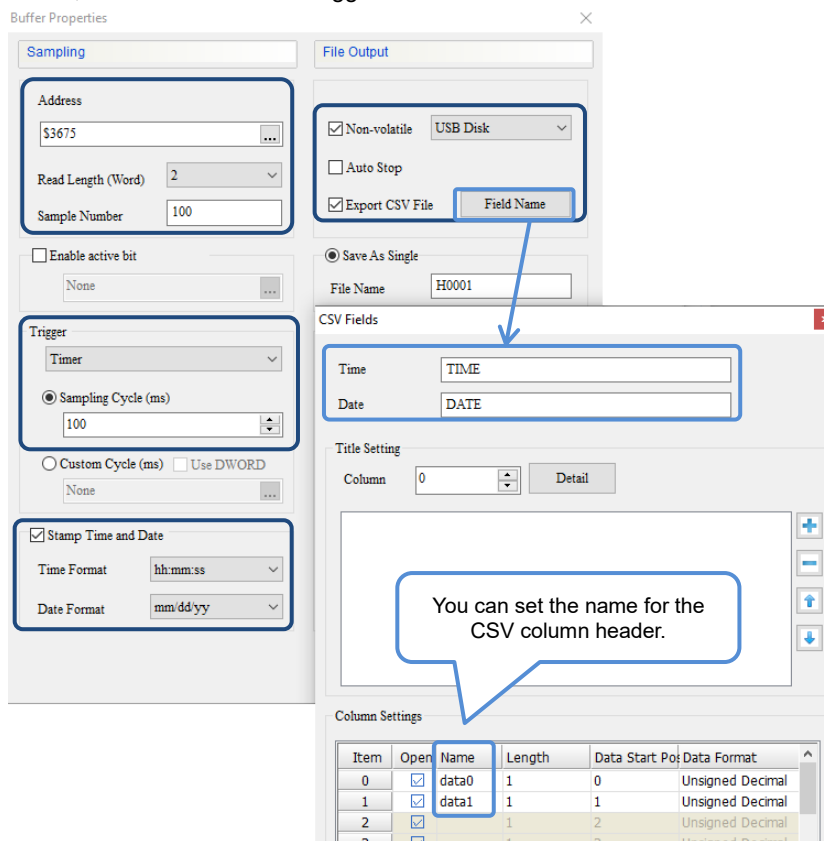
Step 2: press  to add new history data.



Historical Trend Graph

Step 3: set the Address to \$3675, Read Length (Word) to 2, Sample Number to 100, and select the **Stamp Time and Date** check box. Use the default File Name H0001, select USB Disk for the Non-volatile memory, select the **Export CSV File** check box, set the Name fields, and select Timer for Trigger.

Create Historical Trend Graph element



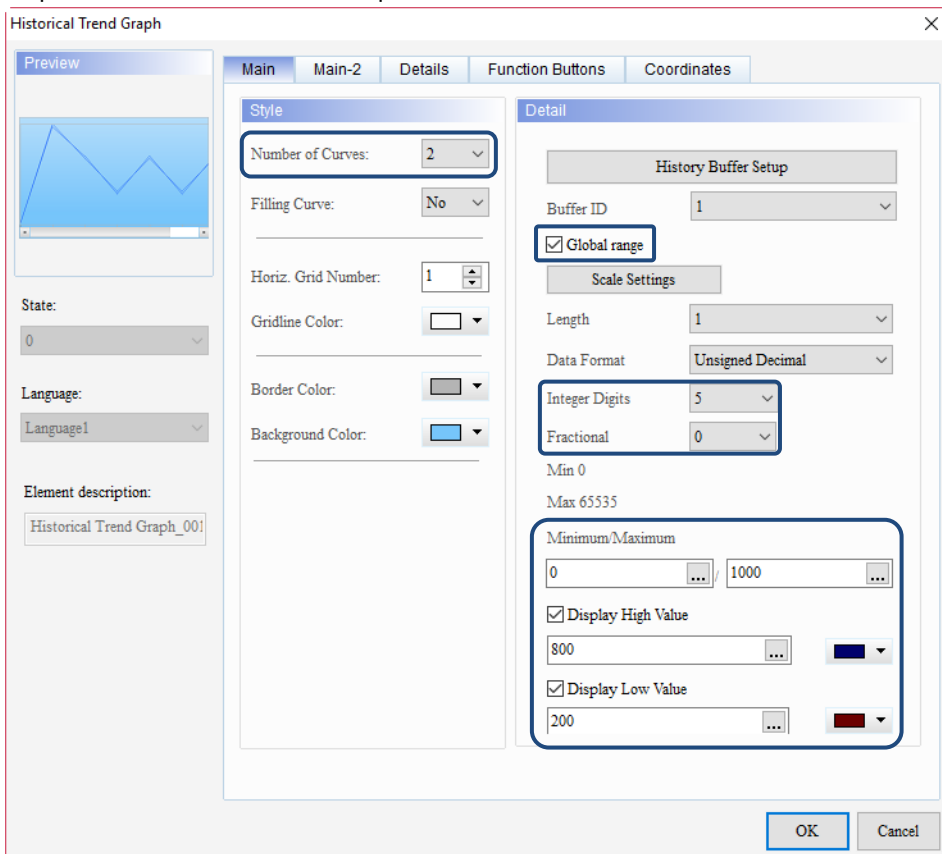
Step 4: after completing the preceding settings, you can see a new row of data is created in the History Buffer.

No.	Address	Read Length (Word)	Sampling Cycle(ms)	Sample Number	Trigger Source	Stamp Time and Date
1	\$3675	2	100	100	Timer	Yes

15

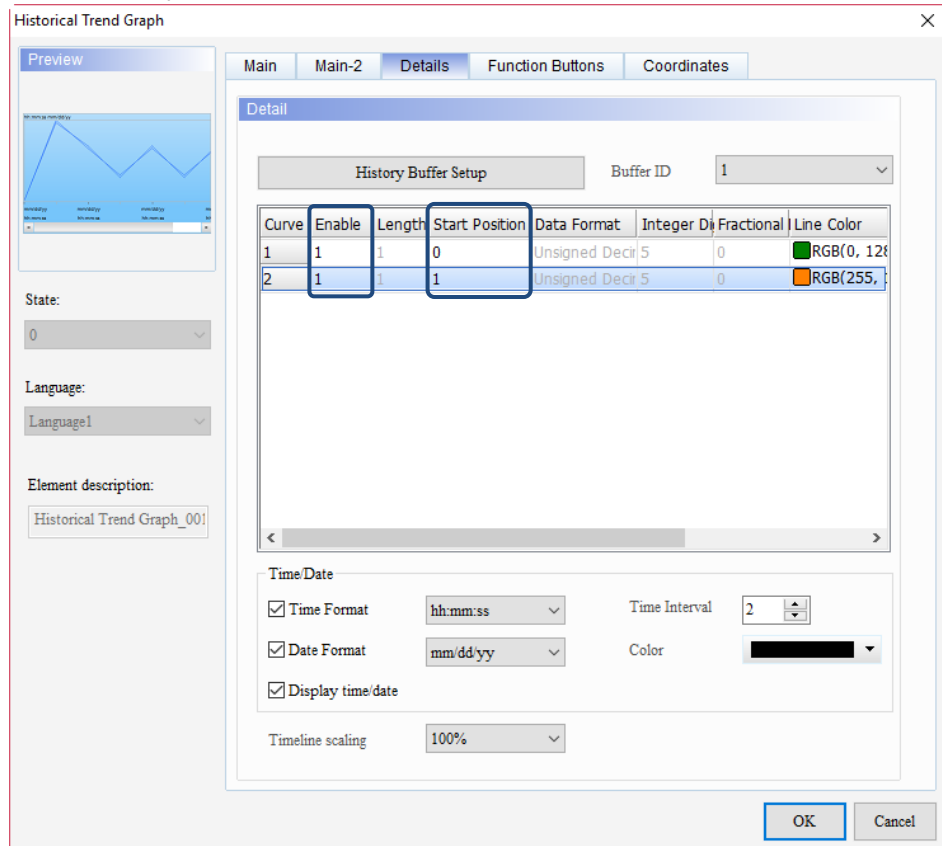
Historical Trend Graph

Step 5: set the Historical Trend Graph as follows.



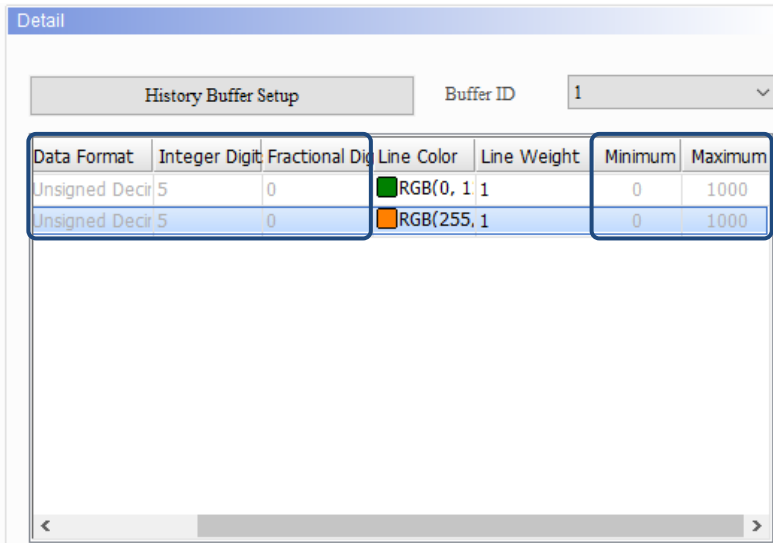
Create Historical Trend Graph element

- Go to the Details page to set the Enable field as 1 to enable the data reading of the curves, and set the Start Positions of the data for Curve 1 and Curve 2 to 0 and 1 respectively.



Historical Trend Graph

- Since the **Global range** check box is selected, you cannot set the Data Format, Integer Digits, Fractional Digits, and Minimum / Maximum values for each curve.



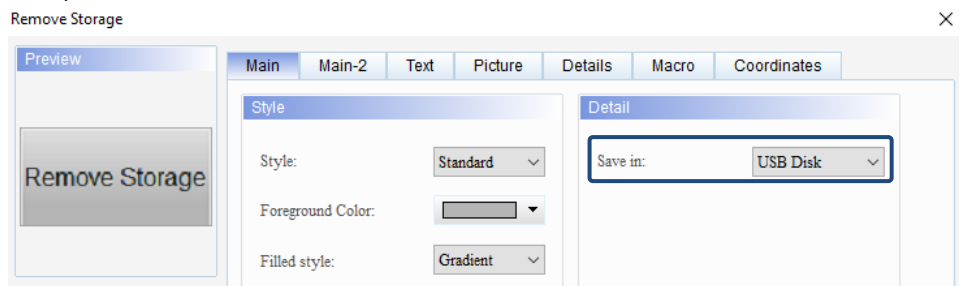
Step 6: go to [Options] > [Clock Macro] to edit the macro program to change the data in the History Buffer, and save the data in the USB Disk. Since the Read Length is set to read two words, there are two data locations available for access. Thus, in addition to the originally set Address \$3675, there is a data address \$3676 in the macro as well.

Create Historical Trend Graph element

```

*[*[Clock Macro]]
1 $3675 = $3675 + 3
2 IF $3675 > 1000
3 $3675 = 0
4 ENDIF
5
6 $3676 = $3676 + 6
7 IF $3676 > 1000
8 $3676 = 0
9 ENDIF
    
```

Step 7: create a Remove Storage button and select USB Disk for the Save in setting. This ensures that the data is correctly written to the USB Disk. If you do not safely eject the USB Disk before removing it, data read and write errors may occur, leading to the corruption of the saved file.

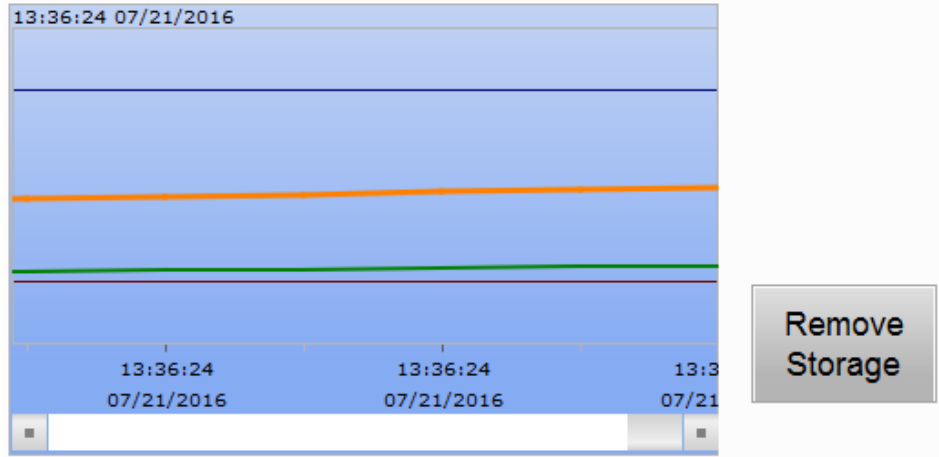


15

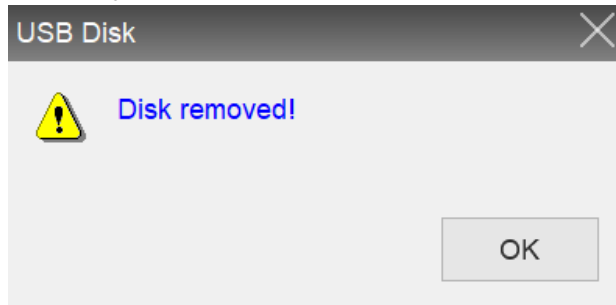
Historical Trend Graph

Execution results

- After setting the History Buffer and creating the Historical Trend Graph and Remove Storage elements, compile and download the elements to the HMI. The non-volatile memory setting in this example is the USB Disk, so when the HMI reads the screen, the data of H.had and H0001.dat are generated and stored in the USB Disk. Then, the History Buffer executes the command in the Clock Macro to change the data, and continues to store the data in the CSV file to the USB Disk. To stop saving the data, press the **Remove Storage** button to eject the external device for ensuring the data is saved correctly.



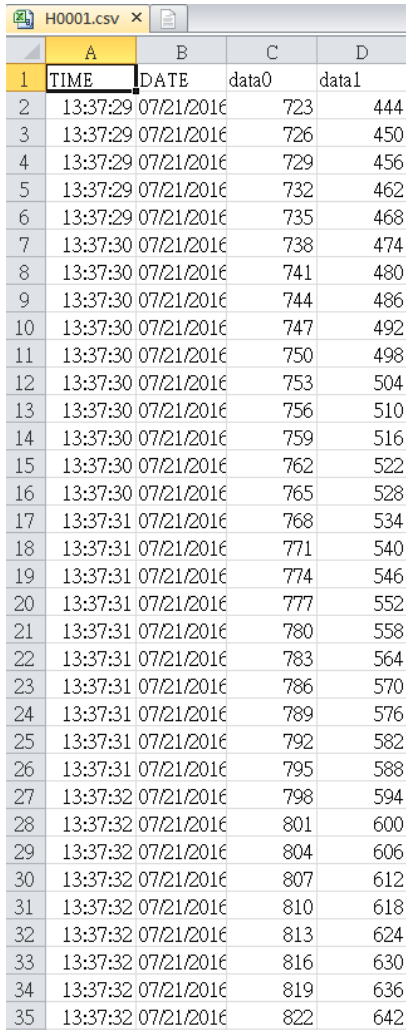
- Press the **Remove Storage** button and the following message appears to inform you that the USB Disk is ejected.



Historical Trend Graph

You can insert the USB Disk to the PC to read the CSV file and make sure that the data and file name are correct. The file name in this example is H0001 and the path to save all CSV files is HMI\HMI-000\CSV\xxxxx.CSV.

Execution results



	A	B	C	D
1	TIME	DATE	data0	data1
2	13:37:29	07/21/2016	723	444
3	13:37:29	07/21/2016	726	450
4	13:37:29	07/21/2016	729	456
5	13:37:29	07/21/2016	732	462
6	13:37:29	07/21/2016	735	468
7	13:37:30	07/21/2016	738	474
8	13:37:30	07/21/2016	741	480
9	13:37:30	07/21/2016	744	486
10	13:37:30	07/21/2016	747	492
11	13:37:30	07/21/2016	750	498
12	13:37:30	07/21/2016	753	504
13	13:37:30	07/21/2016	756	510
14	13:37:30	07/21/2016	759	516
15	13:37:30	07/21/2016	762	522
16	13:37:30	07/21/2016	765	528
17	13:37:31	07/21/2016	768	534
18	13:37:31	07/21/2016	771	540
19	13:37:31	07/21/2016	774	546
20	13:37:31	07/21/2016	777	552
21	13:37:31	07/21/2016	780	558
22	13:37:31	07/21/2016	783	564
23	13:37:31	07/21/2016	786	570
24	13:37:31	07/21/2016	789	576
25	13:37:31	07/21/2016	792	582
26	13:37:31	07/21/2016	795	588
27	13:37:32	07/21/2016	798	594
28	13:37:32	07/21/2016	801	600
29	13:37:32	07/21/2016	804	606
30	13:37:32	07/21/2016	807	612
31	13:37:32	07/21/2016	810	618
32	13:37:32	07/21/2016	813	624
33	13:37:32	07/21/2016	816	630
34	13:37:32	07/21/2016	819	636
35	13:37:32	07/21/2016	822	642

Refer to Table 15.1.3 for the Historical Data Table example.

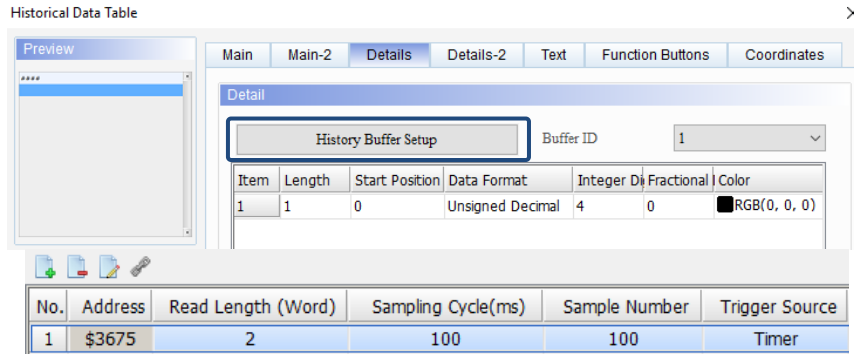
Table 15.1.3 Historical Data Table example

15

Historical Data Table

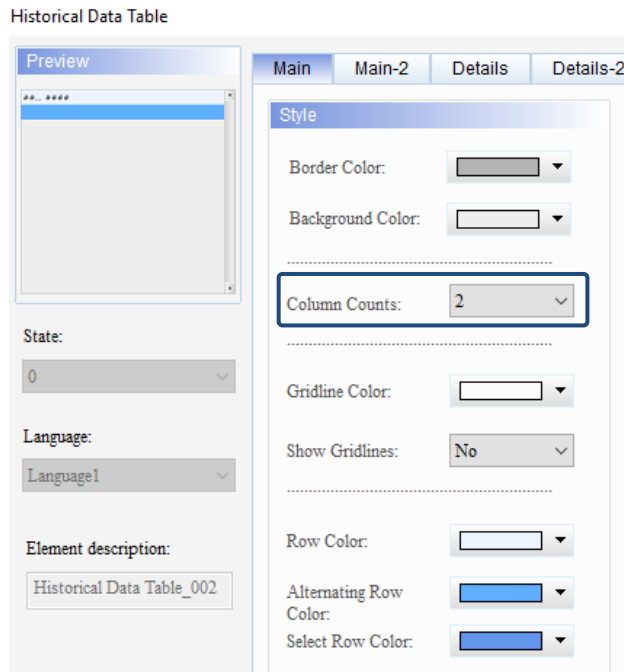
Historical Data Table should be used with Historical Trend Graph, so you may also refer to Table 15.1.2 Historical Trend Graph example. Use the previously created Historical Trend Graph and then execute the following setup procedures.

Step 1: double-click the Historical Data Table element and press **History Buffer Setup**, and then you can see the data created in the Historical Trend Graph example in Table 15.1.2.



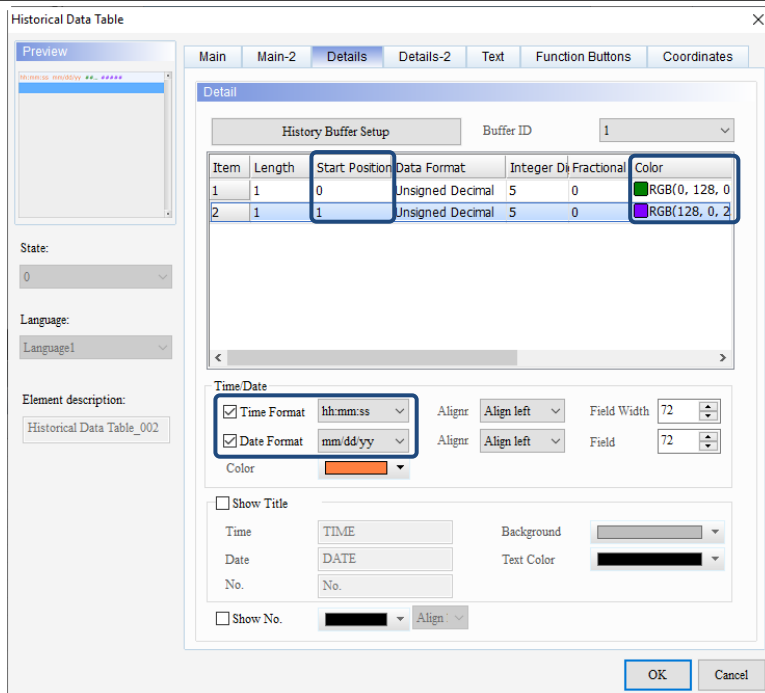
Step 2: set the Column Counts to 2 (corresponding to the set Read Length of 2 in the History Buffer). When the Column Counts is 2, you need to set the relevant parameters for Data 1 and Data 2. Set the Start Positions for Data 1 and Data 2 to 0 and 1 respectively, set the displaying color for the values, and select the **Time Format** and **Date Format** check boxes to display the time and date.

Create Historical Data Table element



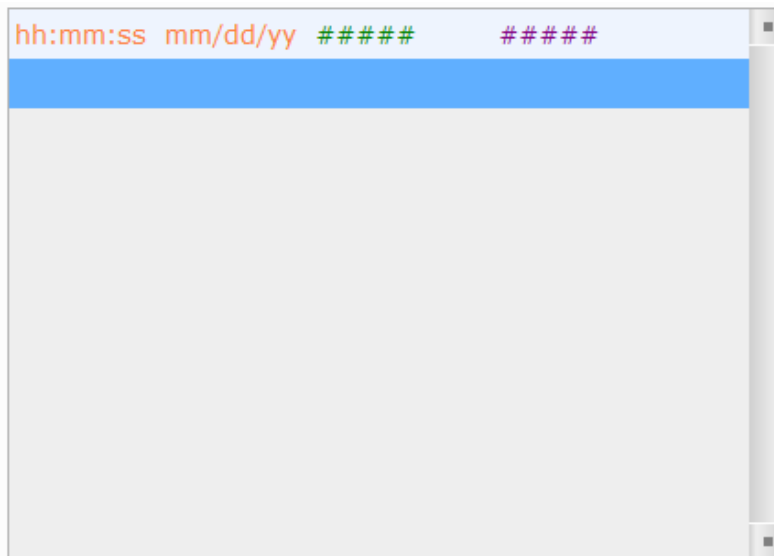
Historical Data Table

15



Step 3: the created Historical Data Table is as shown as follows.

Create Historical Data Table element



Step 4: go to [Options] > [Clock Macro] to edit the macro program to change the data in the History Buffer, and save the data in the USB Disk. Since the Read Length is set to read two words and the Column Counts is also 2, the Historical Data Table displays two columns to read two data locations respectively.

```

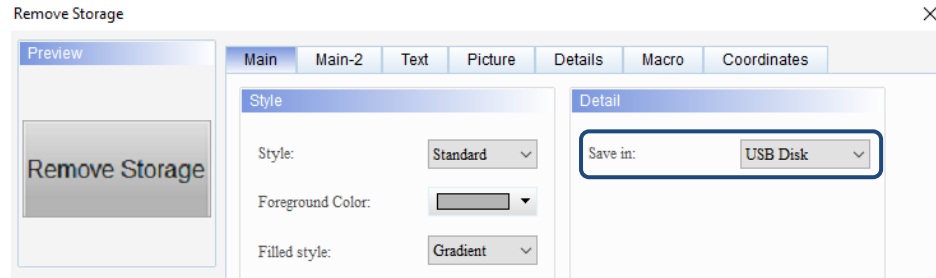
* [&Clock Macro]
1 $3675 = $3675 + 3
2 IF $3675 > 1000
3 $3675 = 0
4 ENDIF
5
6 $3676 = $3676 + 6
7 IF $3676 > 1000
8 $3676 = 0
9 ENDIF
    
```

15

Create Historical Data Table element

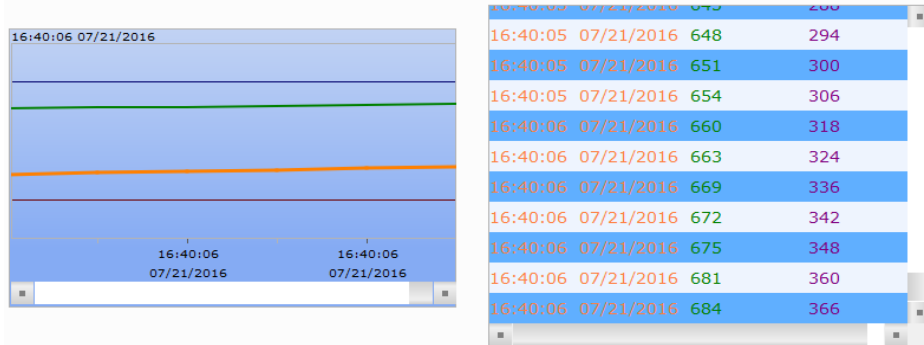
Historical Data Table

Step 5: create a Remove Storage button and select USB Disk for the Save in setting. This ensures that the data is correctly written to the USB Disk. If you do not safely eject the USB Disk before removing it, data read and write errors may occur, leading to the corruption of the saved file.

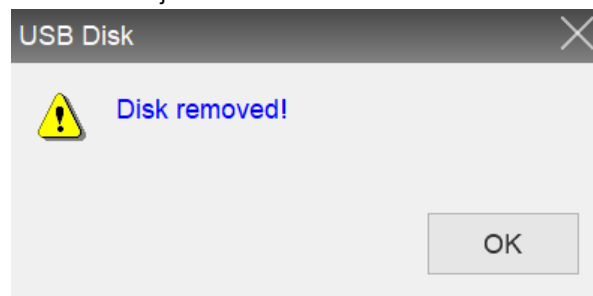


- After setting the History Buffer Setup and creating the Historical Data Table and Remove Storage elements, compile and download the elements to the HMI. The non-volatile memory setting in this example is the USB Disk, so when the HMI reads the screen, the data of H.had and H0001.dat are generated and stored in the USB Disk. Then, the History Buffer executes the command in the Clock Macro to change the data, and continues to store the data in the CSV file to the USB Disk. To stop saving the data, press the **Remove Storage** button to eject the external device for ensuring the data is saved correctly.

Execution results



- Press the **Remove Storage** button and the following message appears to inform you that the USB Disk is ejected.



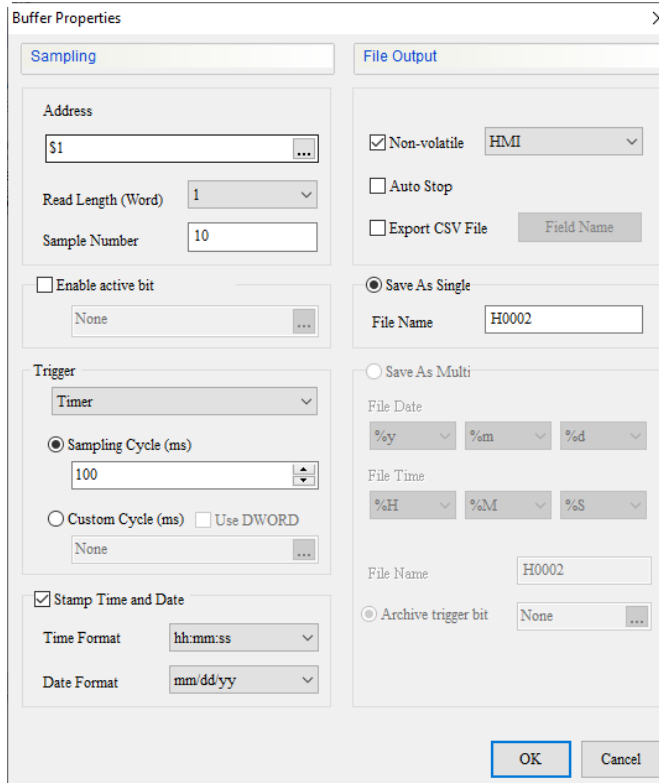
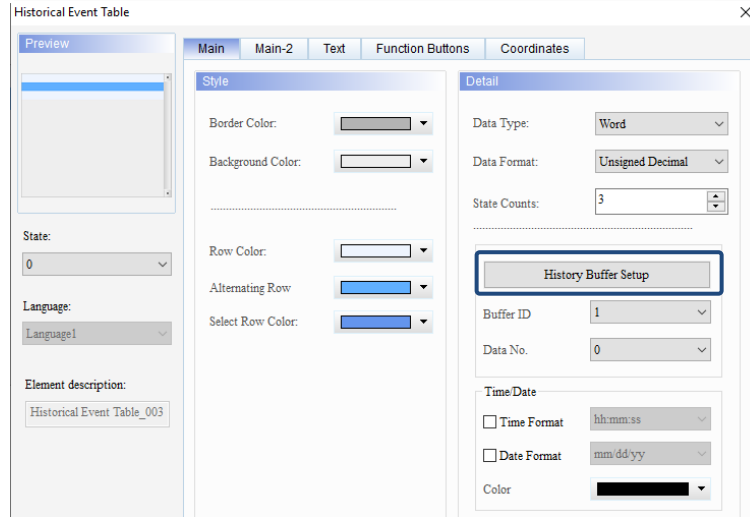
Refer to Table 15.1.4 for the Historical Event Table example.

Table 15.1.4 Historical Event Table example

Historical Event Table

Step 1: double-click the Historical Event Table element and press **History Buffer Setup** to create a new buffer. Set the Address to \$1, Read Length (Word) to 1, and select HMI for the Non-volatile memory.

Create Historical Event Table element



No.	Address	Read Length (Word)	Sampling Cycle(ms)	Sample Number	Trigger Source
1	\$3675	2	100	100	Timer
2	\$1	1	100	10	Timer

15

Historical Event Table

Step 2: set the Buffer ID to 2 (corresponding to No. 2 in the History Buffer), Data Type to Word, State Counts to 16, and select the **Time Format** and **Date Format** check boxes to display the time and date.

Create Historical Event Table element

Historical Event Table

Preview: hh:mm:ss mm/dd/yy

State: 15

Language: Language1

Element description: Historical Event Table_003

Main Main-2 Text Function Buttons Coordinates

Style

Border Color: [dropdown]

Background Color: [dropdown]

Row Color: [dropdown]

Alternating Row: [dropdown]

Select Row Color: [dropdown]

Detail

Data Type: Word

Data Format: Unsigned Decimal

State Counts: 16

History Buffer Setup

Buffer ID: 2

Data No.: 0

Time/Date

Time Format hh:mm:ss

Date Format mm/dd/yy

Color: [dropdown]

OK Cancel

Step 3: go to the Text page to edit the text message to display.

Historical Event Table

Preview: hh:mm:ss mm/dd/yy 1

State: 0

Language: Language1

Element description: Historical Event Table_003

Main Main-2 Text Function Buttons Coordinates

Text

16

Process the text of all states

Process text properties of all states

Arial 16

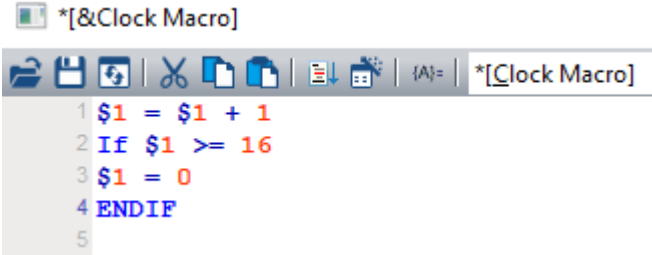
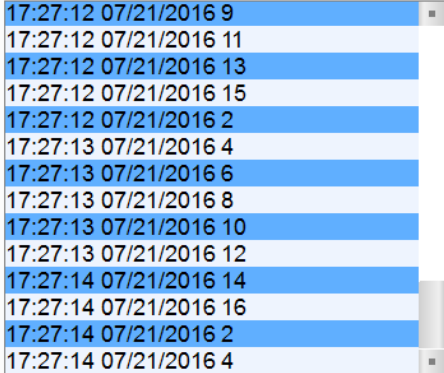
B I U [color] 100%

Horiz. alignment: Horiz. Centering

Vert. alignment: Vert. Centering

State	Language1
0	1
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11

OK Cancel

Historical Event Table	
<p>Create Historical Event Table element</p>	<p>Step 4: go to [Options] >[Clock Macro] to edit the macro program to change the data in the History Buffer, and display the user-defined text message in the Historical Event Table.</p>  <pre> *&Clock Macro 1 \$1 = \$1 + 1 2 If \$1 >= 16 3 \$1 = 0 4 ENDIF 5 </pre>
<p>Execution results</p>	<p>After creating the Historical Event Table element, compile and download the element to the HMI. Then, the Historical Event Table executes the command in the Clock Macro to change the data and display the user-defined text message.</p>  <pre> 17:27:12 07/21/2016 9 17:27:12 07/21/2016 11 17:27:12 07/21/2016 13 17:27:12 07/21/2016 15 17:27:12 07/21/2016 2 17:27:13 07/21/2016 4 17:27:13 07/21/2016 6 17:27:13 07/21/2016 8 17:27:13 07/21/2016 10 17:27:13 07/21/2016 12 17:27:14 07/21/2016 14 17:27:14 07/21/2016 16 17:27:14 07/21/2016 2 17:27:14 07/21/2016 4 </pre>

Refer to Table 15.1.5 for the Historical Overview Table example.

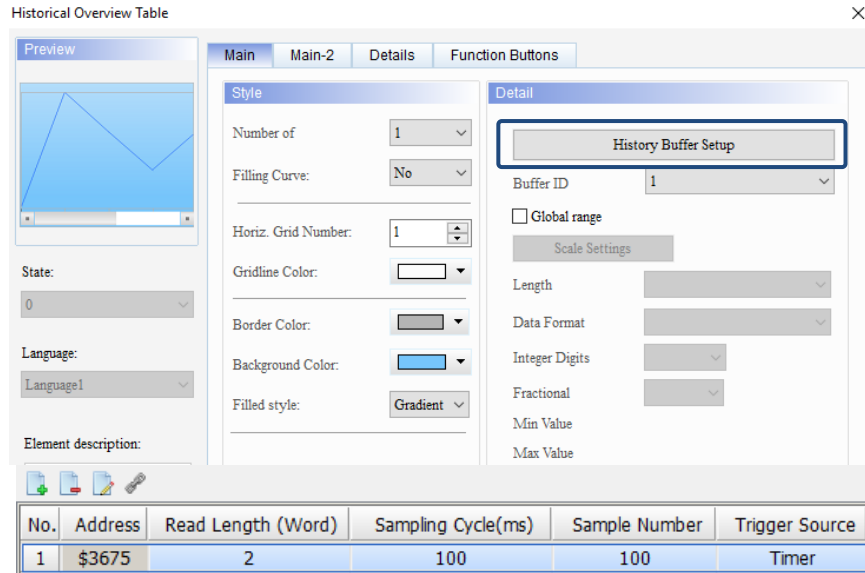
Table 15.1.5 Historical Overview Table example

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Historical Overview Table

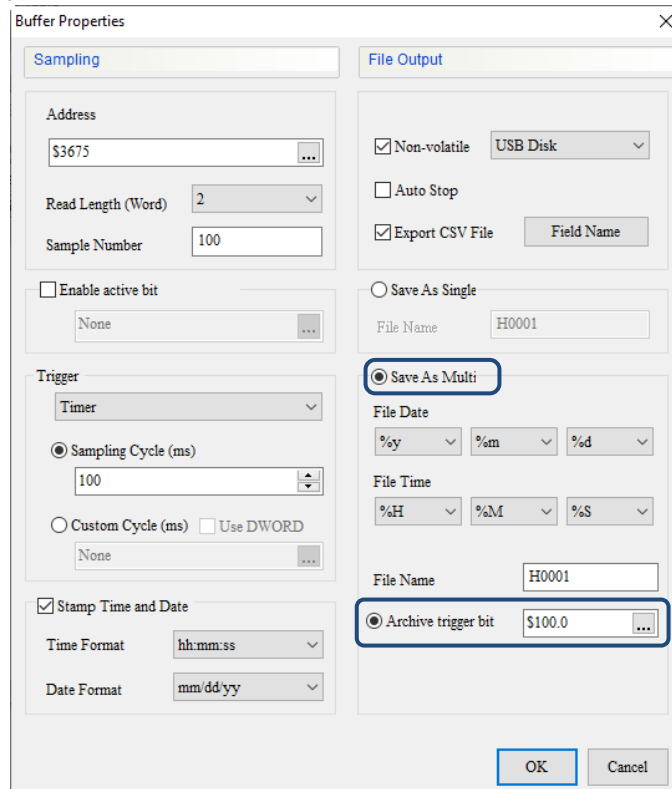
Historical Overview Table should be used with Historical Trend Graph, so you may also refer to Table 15.1.2 Historical Trend Graph example. Use the previously created Historical Trend Graph and then execute the following setup procedures.

Step 1: double-click the Historical Overview Table element and press **History Buffer Setup**, and then you can see the data created in the Historical Trend Graph example in Table 15.1.2.



Create Historical Overview Table element

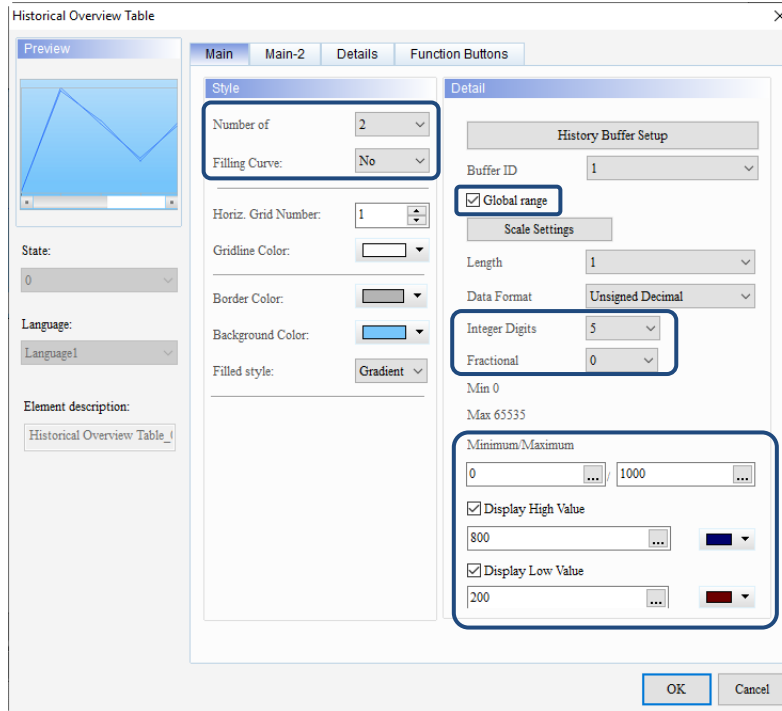
Step 2: press  to modify the History Buffer setting. Click **Save As Multi**, and set the Archive trigger bit to \$100.0.



Historical Overview Table

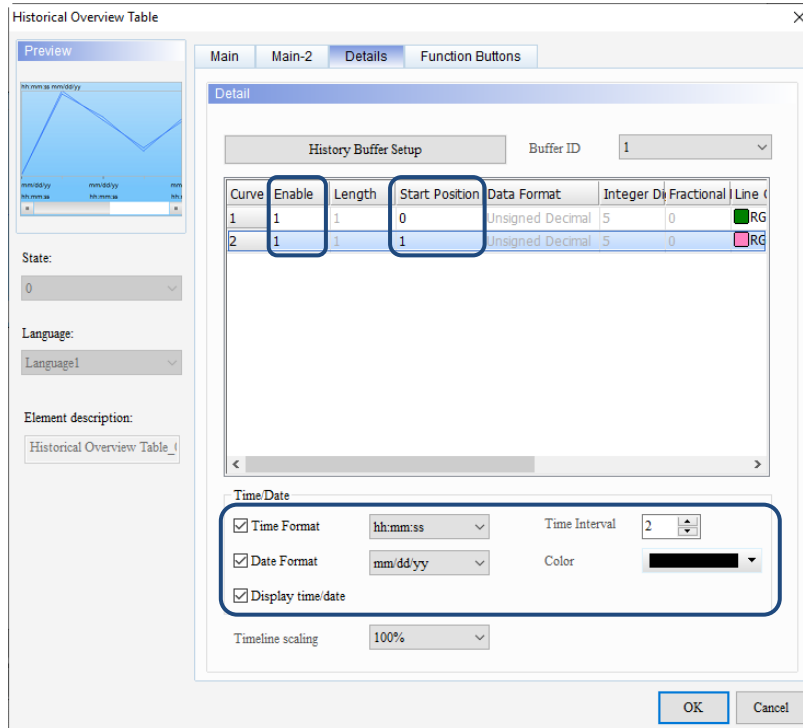
Step 3: complete other settings for the Historical Overview Table element, such as the display for the time and date, displaying integer and fractional digits, and select the **Global range** check box.

15



Create Historical Overview Table element

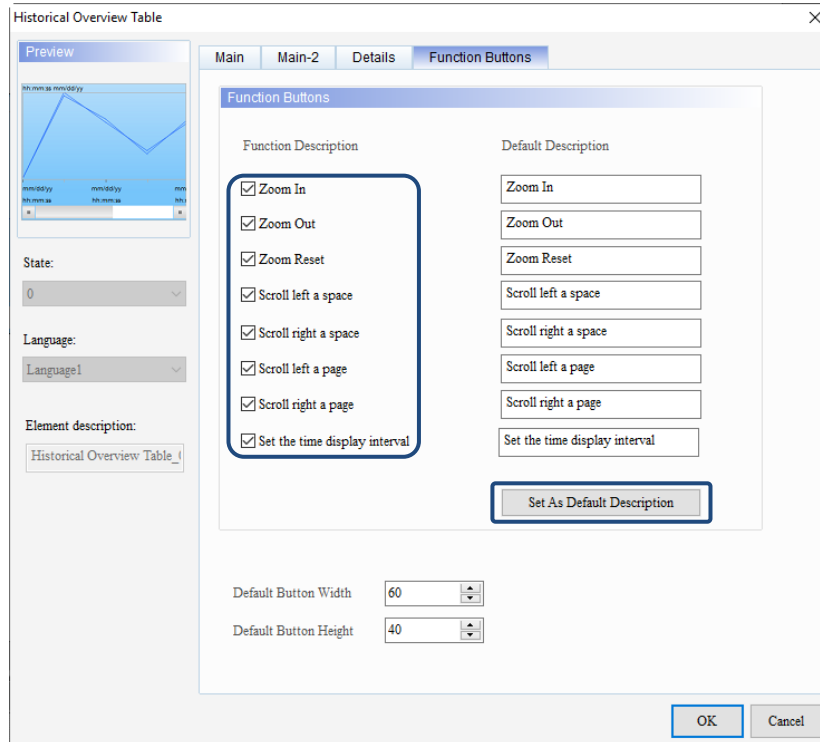
Go to the Details page to set the Enable field as 1 to enable the data reading of the curves, and set the Start Positions of the data for Curve 1 and Curve 2 to 0 and 1 respectively. Since the **Global range** check box is selected, you cannot set the Minimum and Maximum values for each curve.



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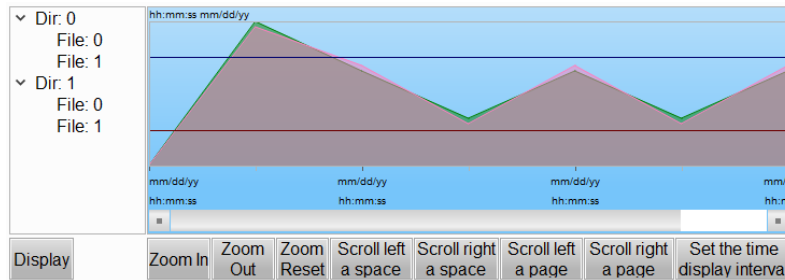
Historical Overview Table

Step 4: go to the Function Buttons page and select the function buttons to display, and then press **Set As Default Description**.



Create Historical Overview Table element

When the setting is complete, the Historical Overview Table is as follows.



Step 5: go to [Options] > [Clock Macro] to edit the macro program to change the data in the History Buffer, and save the data in the USB Disk. Since the Read Length is set to two words, there are two data locations available for access. Thus, in addition to the originally set Address \$3675, there is a data address \$3676 in the macro as well.

```

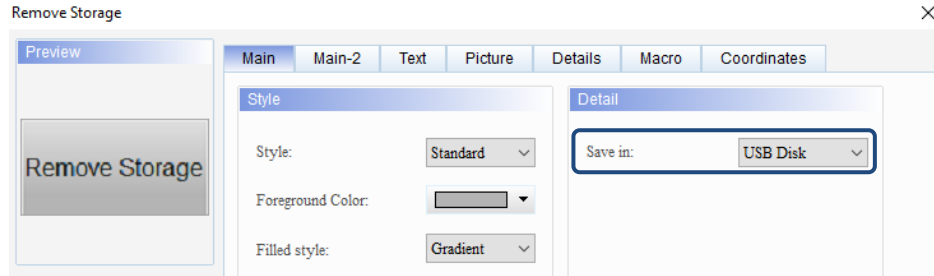
* [&Clock Macro]
1 $3675 = $3675 + 3
2 IF $3675 > 1000
3 $3675 = 0
4 ENDIF
5
6 $3676 = $3676 + 6
7 IF $3676 > 1000
8 $3676 = 0
9 ENDIF
    
```

Historical Overview Table

Create Historical Overview Table element

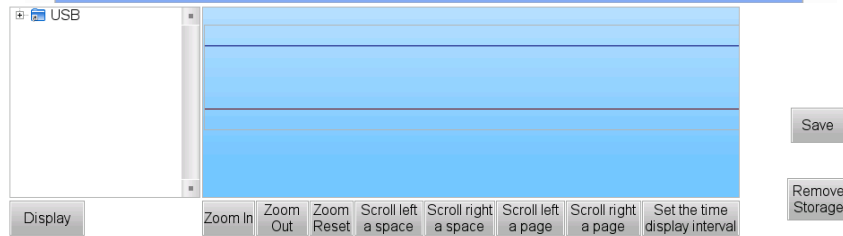
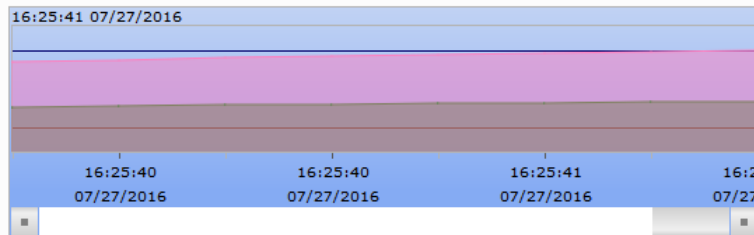
Step 6: create a Maintained button and set its address as \$100.0. Execute this button to immediately save the data of the History Buffer without having to wait for the set Sample Number to be reached.

Step 7: create a Remove Storage button and select USB Disk for the Save in setting. This ensures that the data is correctly written to the USB Disk. If you do not safely eject the USB Disk before removing it, data read and write errors may occur, leading to the corruption of the saved file.

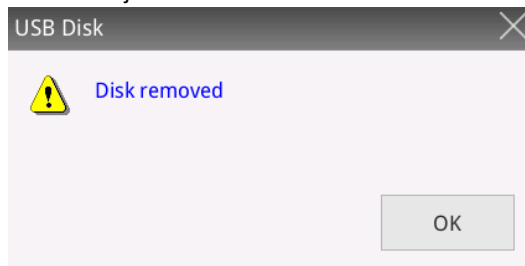


- After setting the History Buffer and creating the Historical Overview Table and Remove Storage elements, compile and download the elements to the HMI. The non-volatile memory setting in this example is the USB Disk, so when the HMI reads the screen, the data of H.had and H0001.dat are generated and stored in the USB Disk. Then, the History Buffer executes the command in the Clock Macro to change the data, and continues to store the data in the CSV file to the USB Disk. To stop saving the data, press the **Remove Storage** button to eject the external device for ensuring the data is saved correctly.

Execution results

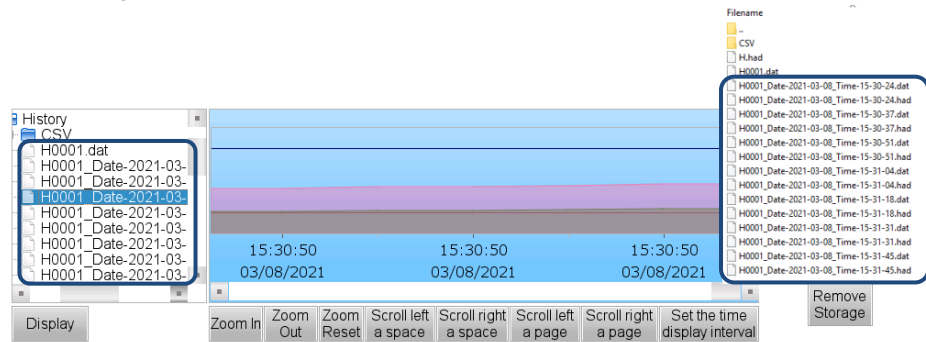


- Press the **Remove Storage** button and the following message appears to inform you that the USB Disk is ejected.

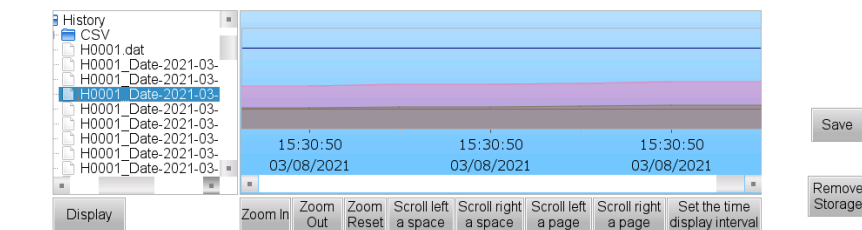


Historical Overview Table

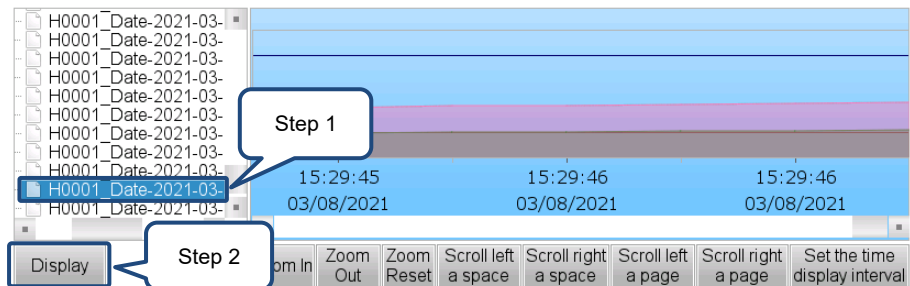
- When the set Sample Number is reached or the Archive trigger bit is triggered, the file is stored in the HMI\HMI-000\History folder under the USB directory according to the Save As Multi setting, and a new file is created to continue sampling. You can view the saved files with the Historical Overview Table.



- Press **Save** to immediately save the current History Buffer data.



- In the file browser on the left side of the Historical Overview Table, click [USB] and select the previously saved file, and then press **Display** to see the stored Historical Trend Graph on the right side.



Execution results

After the examples for all the sampling functions are introduced, the following table illustrates the detailed function descriptions of the History Buffer Setup properties.

Table 15.1.6 Property descriptions for History Buffer Setup

Property descriptions for History Buffer Setup

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- is for creating additional data buffers and up to 12 sets of buffers are supported. These 12 sets of data buffers also correspond to the sampling flags 1 - 12 and clear flags 1 - 12 of the history buffer respectively in the Control Block.

No.	Address	Read Length (Word)	Sampling Cycle(ms)	Sample Number	Trigger Source	Stamp Time and Date	Auto Stop	Non-volatile	CSV
1	\$0	1	100	10	Timer	No	No	Yes	H0001
2	\$1	1	100	10	Timer	No	No	Yes	H0002
3	\$2	1	100	10	Timer	No	No	Yes	H0003
4	\$3	1	100	10	Timer	No	No	Yes	H0004
5	\$4	1	100	10	Timer	No	No	Yes	H0005
6	\$5	1	100	10	Timer	No	No	Yes	H0006
7	\$6	1	100	10	Timer	No	No	Yes	H0007
8	\$7	1	100	10	Timer	No	No	Yes	H0008
9	\$8	1	100	10	Timer	No	No	Yes	H0009
10	\$9	1	100	10	Timer	No	No	Yes	H0010
11	\$10	1	100	10	Timer	No	No	Yes	H0011
12	\$11	1	100	10	Timer	No	No	Yes	H0012

- Add
- Delete
- Modify

Control Block

Control Block

Start Address {Link2}1@D0

Screen No. ...

General Control ...

Curve Control ...

Sampling History Buffer D0

- Bit 0 Sampling flag 1 of history buff
- Bit 1 Sampling flag 2 of history buff
- Bit 2 Sampling flag 3 of history buff
- Bit 3 Sampling flag 4 of history buff
- Bit 4 Sampling flag 5 of history buff
- Bit 5 Sampling flag 6 of history buff
- Bit 6 Sampling flag 7 of history buff
- Bit 7 Sampling flag 8 of history buff
- Bit 8 Sampling flag 9 of history buff
- Bit 9 Sampling flag 10 of history buff
- Bit 10 Sampling flag 11 of history buff
- Bit 11 Sampling flag 12 of history buff

Clearing History Buffer ...

Recipe Control ...

Recipe Group ...

System Control ...

Enhanced Recipe ...

Enhanced Recipe ...

Sampling Cycle

Auto Reset Flag ...

Control Block

Control Block

Start Address {Link2}1@D0

Screen No. ...

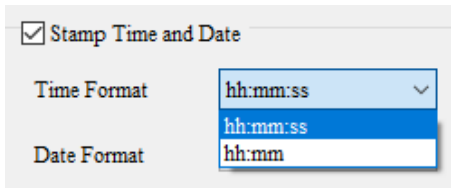
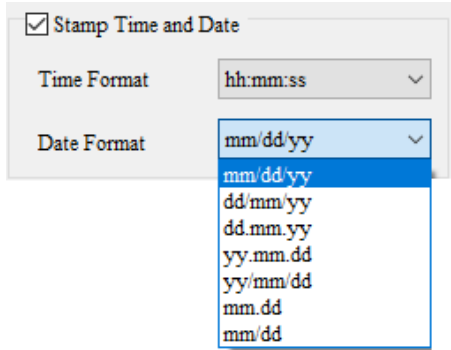
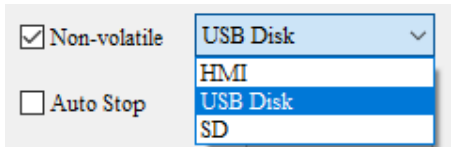
General Control ...

Curve Control ...

Clearing History Buffer D1

- Bit 0 Clear flag 1 of history buffer
- Bit 1 Clear flag 2 of history buffer
- Bit 2 Clear flag 3 of history buffer
- Bit 3 Clear flag 4 of history buffer
- Bit 4 Clear flag 5 of history buffer
- Bit 5 Clear flag 6 of history buffer
- Bit 6 Clear flag 7 of history buffer
- Bit 7 Clear flag 8 of history buffer
- Bit 8 Clear flag 9 of history buffer
- Bit 9 Clear flag 10 of history buffer
- Bit 10 Clear flag 11 of history buffer
- Bit 11 Clear flag 12 of history buffer

- Press to delete a data buffer.
- Press to go to the Buffer Properties window to change the relevant settings.

Property descriptions for History Buffer Setup	
Enable optimized alarm reading	<ul style="list-style-type: none"> It is recommended to enable this function when the buffer addresses set in the History Buffer are switched from continuous to non-continuous. When multiple buffer addresses are set as continuous, enabling this function may slow down the reading speed instead.
Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
Read Length (Word)	Read Length defines the number of words to be sampled, which indicates the data length and supports up to 30 consecutive words.
Sample Number	<ul style="list-style-type: none"> Sample Number is the number of data to be recorded and is usually used with the Auto Stop function. If the Auto Stop check box is selected, the recording stops automatically when it reaches the set Sample Number. If the Auto Stop check box is not selected, the recording does not stop when it reaches the set Sample Number; instead, the recording restarts from the first record and overwrites the previous data. Sample Number supports up to 9,999,999 sampling points.
Enable active bit	<ul style="list-style-type: none"> When the Trigger is set to Timer for history data sampling, the HMI immediately records the sampling data as soon as it starts up. The Enable active bit function allows you to determine when to start sampling. This function is available when the Trigger is set to Timer or PLC.
Stamp Time and Date	<p>Time Format</p> <p>There are two time formats for selection.</p> 
	<p>Date Format</p> <p>There are seven date formats for selection.</p> 
Non-volatile	<p>Saving location</p> <ul style="list-style-type: none"> The saving location includes HMI, USB Disk, and SD Card.  <ul style="list-style-type: none"> When you choose to store the data in the HMI, it means when the power is cut off, the data is saved in the HMI SRAM. If the Export CSV File check box is selected, set the Non-volatile memory to USB Disk.
Auto Stop	<ul style="list-style-type: none"> The Auto Stop function determines whether the recording stops automatically when the set Sample Number is reached. If the Auto Stop check box is selected, the recording stops automatically when the setting in the Sample Number field is reached. If the Auto Stop check box is not selected, the recording does not stop when the setting in the Sample Number field is reached; instead, the recording restarts from the first record and overwrites the previous data.

Property descriptions for History Buffer Setup

- When the Read Length is 1 (Word) or 2 (Words), the supported data formats are different. The supported data formats are as follows.
- For the Char format, if the Read Length is 1, it represents 2 Chars; if the Read Length is 2, it represents 4 Chars, and so on. When the Read Length is 3 or above, Char is the only supported format.

Data Format

Read Length is 1		
Data Type	Data Format	Allowable range
Word	BCD	0 to 9999
	Signed BCD	-999 to +9999
	Signed Decimal	-32768 to +32767
	Unsigned Decimal	0 to 65535
	Hex	0 to 0xFFFF
	Char	2 characters

Read Length is 2		
Data Type	Data Format	Allowable range
DWord	BCD	0 to 99999999
	Signed BCD	-99999999 to +99999999
	Signed Decimal	-2147483648 to +2147483647
	Unsigned Decimal	0 to 4294967295
	Hex	0 to 0xFFFFFFFF
	Char	4 characters
	Floating	0 to 9999999

Export CSV File

You can input the field names to display on the exported CSV file, including the time, date, and data name.

Field Name

Item	Open	Name	Length	Data Start Pos	Data Format
0	<input checked="" type="checkbox"/>		1	0	Unsigned Decimal
1	<input checked="" type="checkbox"/>		1	1	Unsigned Decimal
2	<input checked="" type="checkbox"/>		1	2	Unsigned Decimal
3	<input checked="" type="checkbox"/>		1	3	Unsigned Decimal
4	<input checked="" type="checkbox"/>		1	4	Unsigned Decimal
5	<input checked="" type="checkbox"/>		1	5	Unsigned Decimal
6	<input checked="" type="checkbox"/>		1	6	Unsigned Decimal
7	<input checked="" type="checkbox"/>		1	7	Unsigned Decimal
8	<input checked="" type="checkbox"/>		1	8	Unsigned Decimal
9	<input checked="" type="checkbox"/>		1	9	Unsigned Decimal
10	<input checked="" type="checkbox"/>		1	10	Unsigned Decimal
11	<input checked="" type="checkbox"/>		1	11	Unsigned Decimal
12	<input checked="" type="checkbox"/>		1	12	Unsigned Decimal

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Property descriptions for History Buffer Setup

- You can define the Time and Date fields (1), the number of columns (2), and the Name fields of data (3), and the naming format supports multi-languages.
- The maximum number of columns and rows is 10 x 10. You can set the displaying name for the title column.

Export CSV File

CSV Fields

Time

Date

Column

Name

CSV Fields

Time: TIME

Date: DATE

Title Setting

Column: 3

	A	B	C
1	11	12	13
2	14	15	16
3	17	18	19

Column Settings

Item	Open	Name	Length	Data Start Pos	Data Format
0	<input checked="" type="checkbox"/>	data0	1	0	Unsigned Decimal
1	<input checked="" type="checkbox"/>	data1	1	1	Unsigned Decimal
2	<input checked="" type="checkbox"/>	data2	1	2	Unsigned Decimal
3	<input checked="" type="checkbox"/>		1	3	Unsigned Decimal
4	<input checked="" type="checkbox"/>		1	4	Unsigned Decimal
5	<input checked="" type="checkbox"/>		1	5	Unsigned Decimal
6	<input checked="" type="checkbox"/>		1	6	Unsigned Decimal
7	<input checked="" type="checkbox"/>		1	7	Unsigned Decimal
8	<input checked="" type="checkbox"/>		1	8	Unsigned Decimal
9	<input checked="" type="checkbox"/>		1	9	Unsigned Decimal
10	<input checked="" type="checkbox"/>		1	10	Unsigned Decimal
11	<input checked="" type="checkbox"/>		1	11	Unsigned Decimal
12	<input checked="" type="checkbox"/>		1	12	Unsigned Decimal

OK Cancel

- The actual exported CSV file is the same as the setting in the software, as the (1), (2), and (3) shown in the following figure.

	A	B	C		
1	11	12	13		
2	14	15	16		
3	17	18	19		
4	TIME	DATE	data0	data1	data2
5	13:39:26	07/28/2016	615	20	30
6	13:39:26	07/28/2016	618	25	40
7	13:39:26	07/28/2016	621	30	50
8	13:39:26	07/28/2016	624	35	60
9	13:39:26	07/28/2016	627	40	70
10	13:39:26	07/28/2016	630	45	80
11	13:39:26	07/28/2016	633	50	90
12	13:39:26	07/28/2016	636	55	100
13	13:39:26	07/28/2016	639	60	110
14	13:39:27	07/28/2016	642	65	120
15	13:39:27	07/28/2016	645	70	130
16	13:39:27	07/28/2016	648	75	140
17	13:39:27	07/28/2016	651	80	150
18	13:39:27	07/28/2016	654	85	160
19	13:39:27	07/28/2016	657	90	170
20	13:39:27	07/28/2016	660	95	180
21	13:39:27	07/28/2016	663	100	190
22	13:39:27	07/28/2016	666	105	200
23	13:39:28	07/28/2016	669	110	210
24	13:39:28	07/28/2016	672	115	220
25	13:39:28	07/28/2016	675	120	230

Property descriptions for History Buffer Setup

The Length corresponds to the Read Length (Word) setting. If the Read Length (Word) is 4, the Length ranges from 1 to 4.

Export CSV File

Field Name

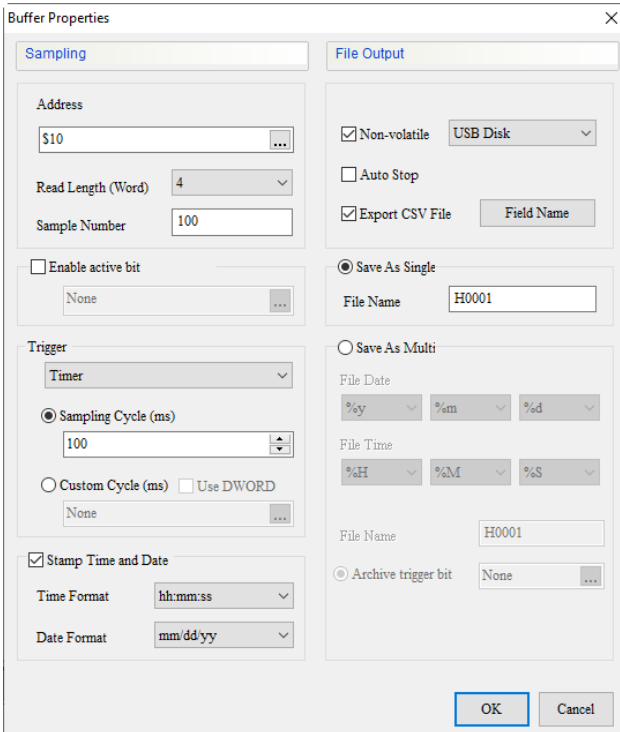
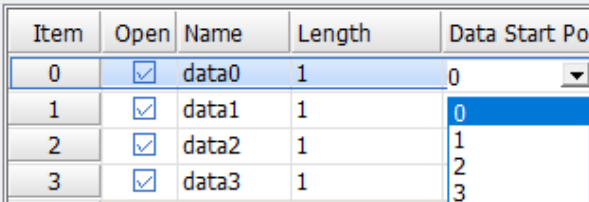
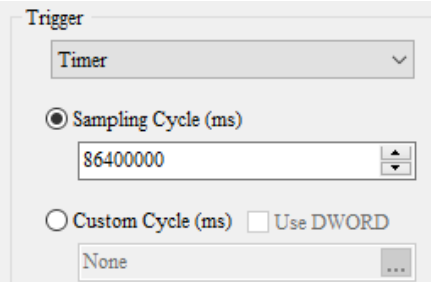
Length

Column Settings

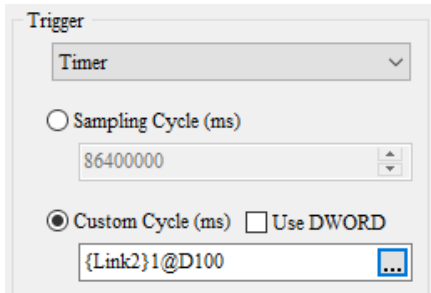
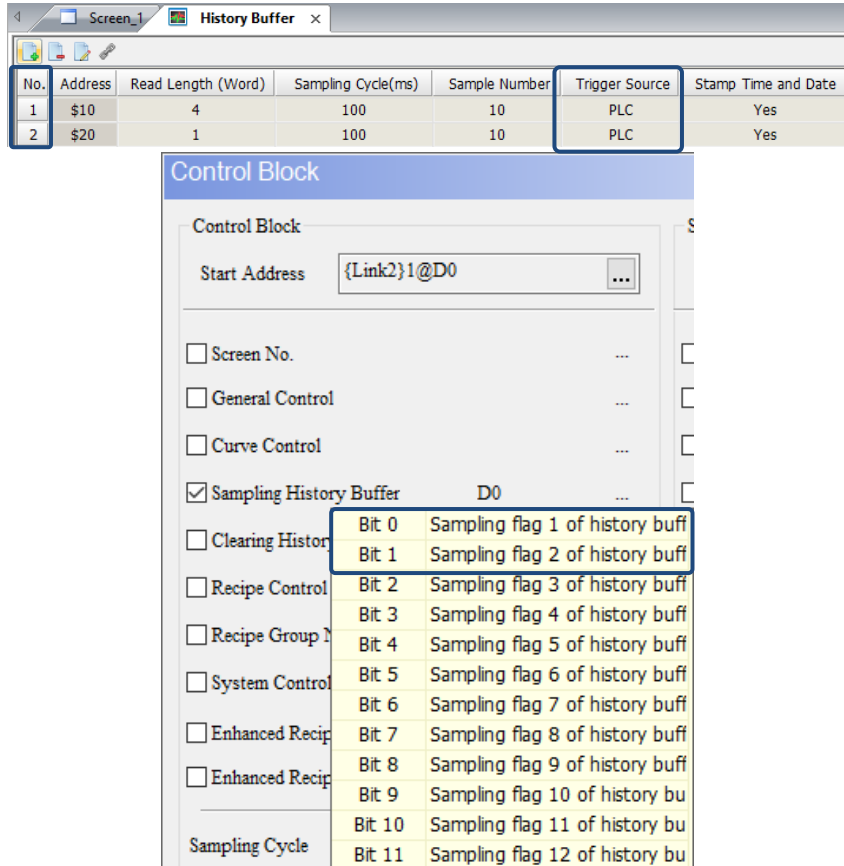
Item	Open	Name	Length	Data Start Pos
0	<input checked="" type="checkbox"/>	data0	1	0
1	<input checked="" type="checkbox"/>	data1	1	1
2	<input checked="" type="checkbox"/>	data2	2	2
3	<input checked="" type="checkbox"/>	data3	3	3

15

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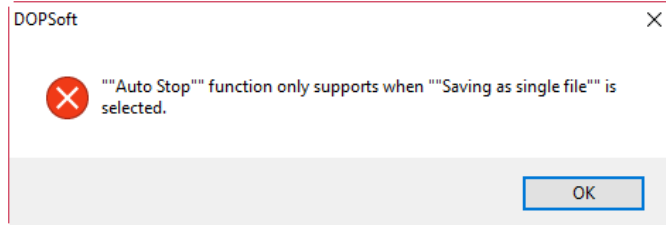
Property descriptions for History Buffer Setup		
Export CSV File	Field Name	<p>Data Start Position</p> <ul style="list-style-type: none"> ■ The Data Start Position corresponds to the Read Length (Word) setting as well. ■ If the Read Length (Word) is 4, the Data Start Position ranges from 0 to 3.  
		<p>Integer Digits</p> <ul style="list-style-type: none"> ■ Set the integer and fractional digits according to the required format. <p>Fractional Digits</p> <ul style="list-style-type: none"> ■ When the Length is 1, the total number of digits of the integer and fractional digits is 5. ■ When the Length is 2, the total number of digits of the integer and fractional digits is 10.
Trigger	Timer	<p>When Timer is the Trigger source, there are two setting options for the Sampling Cycle (ms).</p> <ul style="list-style-type: none"> ■ Fixed sampling cycle: minimum 100 ms; maximum 86400000 ms. 

Property descriptions for History Buffer Setup

<p>Timer</p>	<ul style="list-style-type: none"> Dynamic sampling cycle: you can dynamically change the sampling cycle time by using the specified memory address to trigger the sampling action. The data type of DWORD is supported. 																					
<p>Trigger</p> <p>PLC</p>	<ul style="list-style-type: none"> When the PLC is the Trigger Source, the sampling action is triggered by using the history buffer flags in the Control Block. The sampling action is performed when the corresponding Bit is on, and thus it is irrelevant to the sampling cycle time. The Enable active bit function is added to allow flexible sampling time. Assuming that there are two sets of History Buffer, the Trigger source PLC of the first set corresponds to sampling flag 1 of history buffer and the Trigger source PLC of the second set corresponds to sampling flag 2 of history buffer, and so on.  <table border="1"> <thead> <tr> <th>No.</th> <th>Address</th> <th>Read Length (Word)</th> <th>Sampling Cycle(ms)</th> <th>Sample Number</th> <th>Trigger Source</th> <th>Stamp Time and Date</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>\$10</td> <td>4</td> <td>100</td> <td>10</td> <td>PLC</td> <td>Yes</td> </tr> <tr> <td>2</td> <td>\$20</td> <td>1</td> <td>100</td> <td>10</td> <td>PLC</td> <td>Yes</td> </tr> </tbody> </table>	No.	Address	Read Length (Word)	Sampling Cycle(ms)	Sample Number	Trigger Source	Stamp Time and Date	1	\$10	4	100	10	PLC	Yes	2	\$20	1	100	10	PLC	Yes
No.	Address	Read Length (Word)	Sampling Cycle(ms)	Sample Number	Trigger Source	Stamp Time and Date																
1	\$10	4	100	10	PLC	Yes																
2	\$20	1	100	10	PLC	Yes																
<p>Save As Single</p>	<p>The default for File Name is H0001, but you can change it according to your preference. The File Name supports alphabetical and numeric characters with the length up to 8 characters.</p>																					

Property descriptions for History Buffer Setup

- If you click **Save As Multi**, when the set History Buffer Sample Number is reached or the Archive trigger bit is triggered, the current data is saved and the sampling continues.
- The file name of the data file that is currently sampling is the set File Name, such as H0001.dat. And when you click **Save as Multi** to save the file, the date and time when it was saved is added to the file name, for example, H0001_Date-2015-06-26_Time-12-02-30.dat.
- If you click **Save As Multi**, the Auto Stop function is unavailable. And when you press **OK** on the Buffer Properties window, the HMI displays the following warning message.



Save As Multi	File Date	<ul style="list-style-type: none"> ■ You can arrange the display order of the year, month, and day in the file name with the File Date setting, or you can also choose not to display the date.
	File Time	<ul style="list-style-type: none"> ■ You can arrange the display order of the hour, minute, and second in the file name with the File Time setting, or you can also choose not to display the time.
	File Name	<ul style="list-style-type: none"> ■ If the File Time, File Date, and File Name are set as follows, and the set Sample Number is reached at the time of 2015/6/26 12:02:30, then the file name for this file is: H0001_Date-2015-06-26_Time-12-02-30.
	Archive trigger bit	<ul style="list-style-type: none"> ■ In addition to waiting for the set Sample Number to be reached, you can also trigger the Archive trigger bit to execute the Save As Multi function. ■ The controller address (Bit) and the internal register address (Bit) are supported.

15.2 Historical Trend Graph

The Historical Trend Graph is for storing and displaying address values read during a specific time period. This element can display up to 60 curves and read up to 60 Words. You can save the data displayed on the Historical Trend Graph to the external storage devices that the HMI supports, including USB Disk and SD Card.

When you double-click the Historical Trend Graph, the property page is shown as follows.

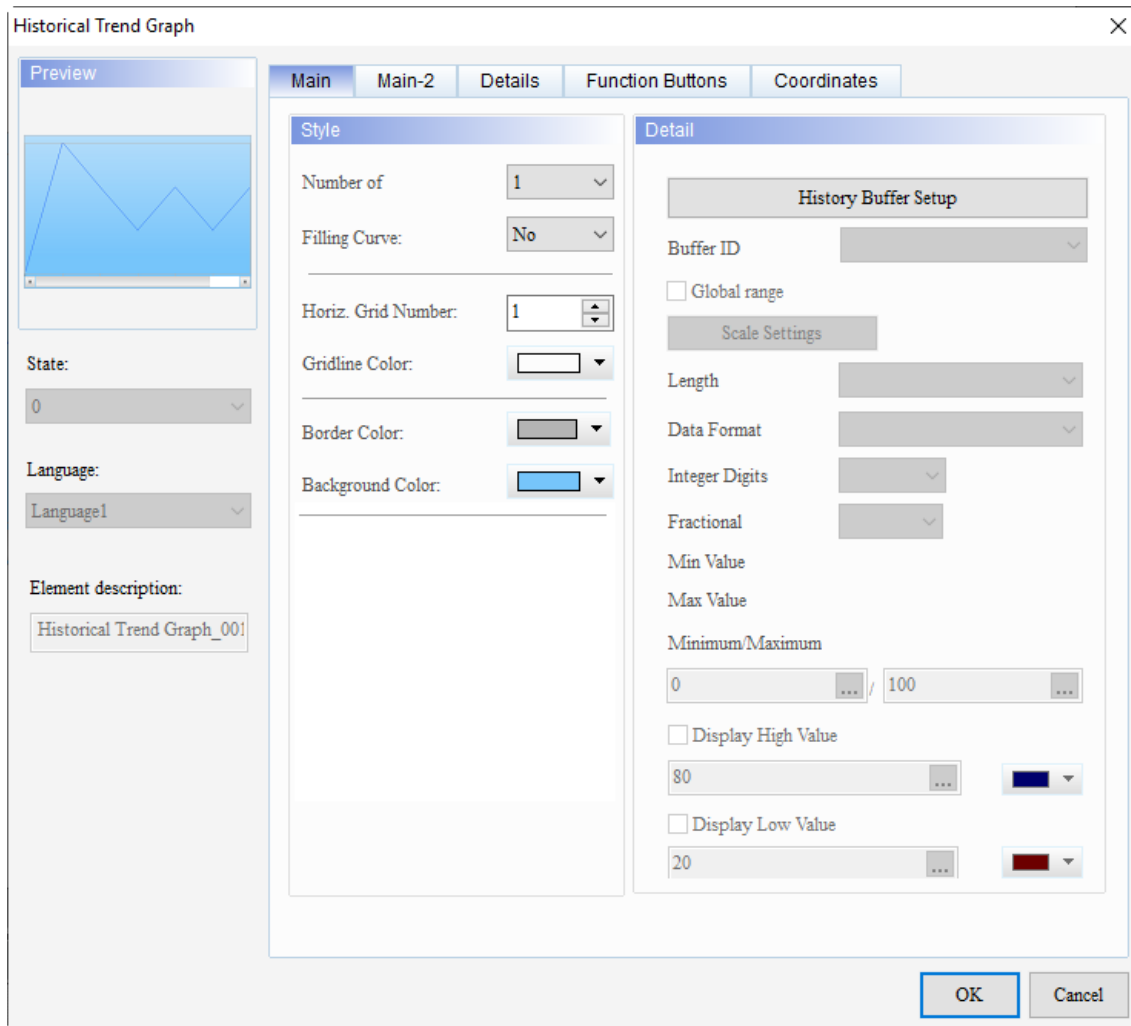


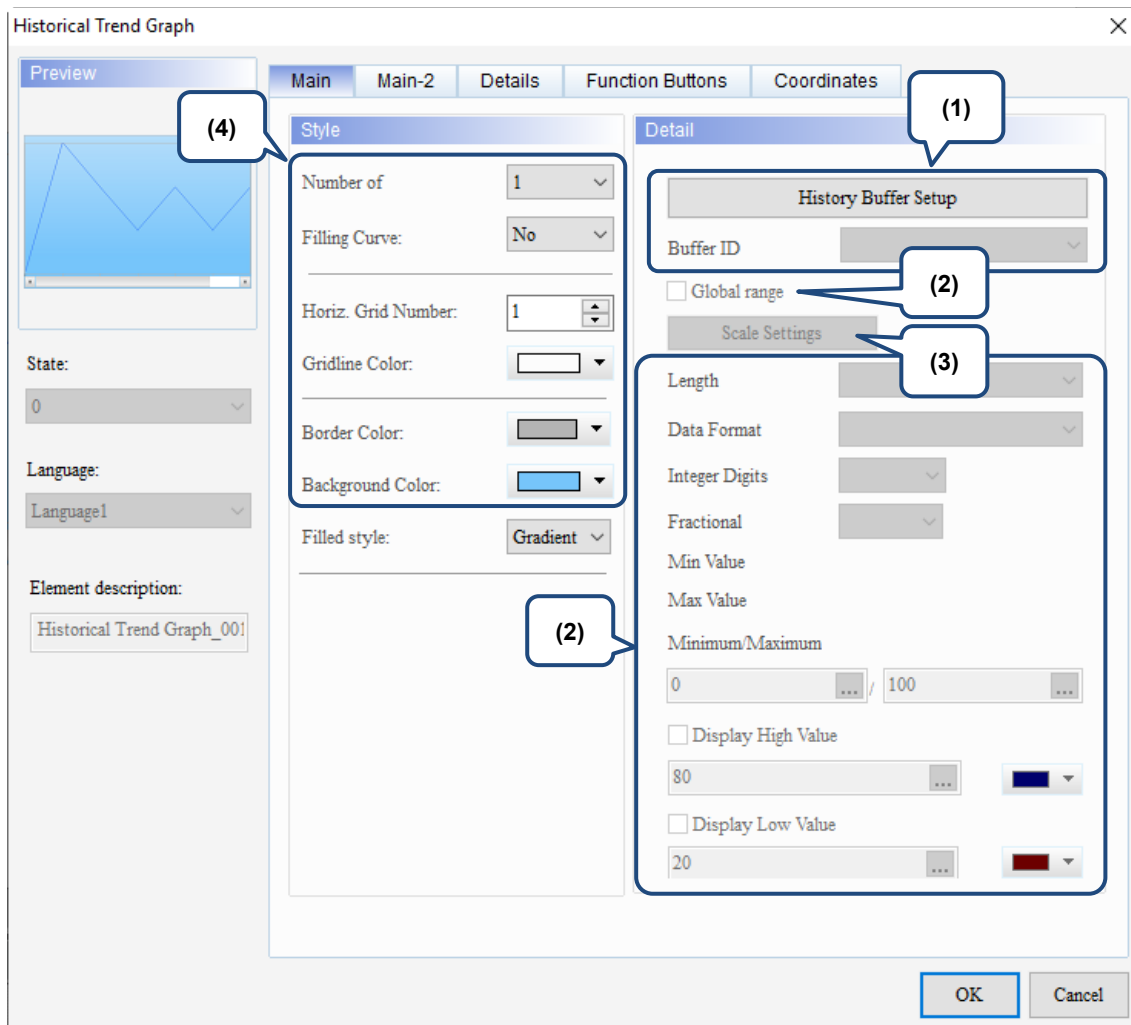
Figure 15.2.1 Properties of Historical Trend Graph

Table 15.2.1 Function page of Historical Trend Graph

Historical Trend Graph		
Function page	Description	
Preview	The Historical Trend Graph elements do not support multiple state values and multi-language data display.	
Main	Data	Set the Buffer ID.
	Global range	Set the Scale Settings, Length, Data Format, Integer Digits, Fractional, Minimum / Maximum, Display High Value, Display Low Value, High Value color, and Low Value color.
	Scale Settings	Set the Display scale, Display mark, Font size, Text Color, Mark Color, Scale Mark No., Subscale Mark No., and Scale Width.
	Style	Set the Number of Curves, Filling Curve, Horiz. Grid Number, Gridline Color, Border Color, and Background Color.
Main-2	Set the Transparent, Smooth animation, Anti-aliasing, and Margin functions.	
Details	Scope setting	Set whether to enable the curve and set the Length, Start Position, Data Format, Integer Digits, Fractional Digits, Line Weight and Color, Minimum, and Maximum.
	Time/Date	Set the Display time/date, Time Interval, Time format, Date Format, and Color.
Function Buttons	Select the function buttons to enable and set the width and height of the buttons.	
Coordinates	Set the X and Y coordinates, width, and height of the elements.	

15

■ Main

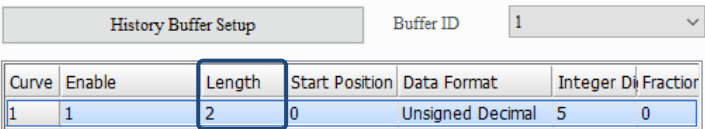
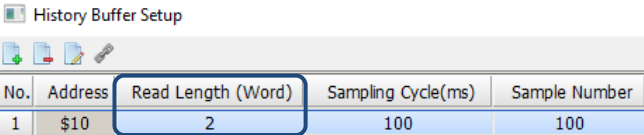
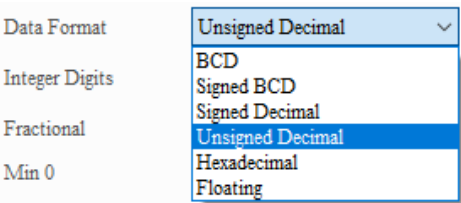


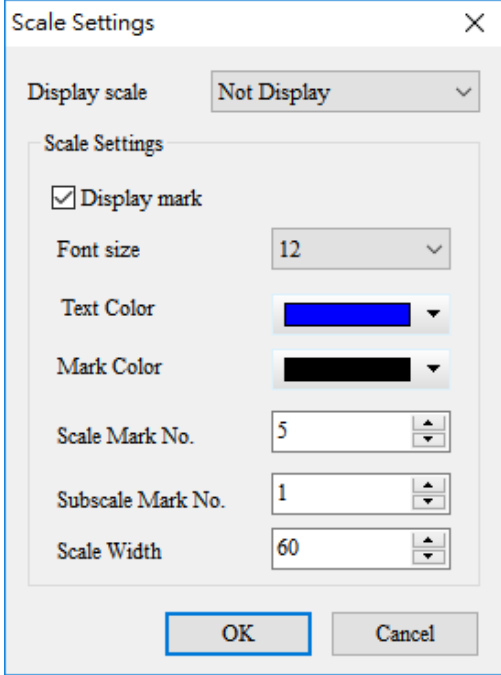
15

Figure 15.2.2 Main property page for the Historical Trend Graph element

No.	Property	Function description																																																				
(1)	Buffer ID	<p>The Buffer ID corresponds to the set data number in the History Buffer Setup. The History Buffer Setup can set up to 12 sets of data, so the Buffer ID can be up to 12 sets.</p> <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>No.</th> <th>Address</th> <th>Read Length (Word)</th> <th>Sampling Cycle(ms)</th> </tr> </thead> <tbody> <tr><td>1</td><td>\$0</td><td>1</td><td>100</td></tr> <tr><td>2</td><td>\$1</td><td>1</td><td>100</td></tr> <tr><td>3</td><td>\$2</td><td>1</td><td>100</td></tr> <tr><td>4</td><td>\$3</td><td>1</td><td>100</td></tr> <tr><td>5</td><td>\$4</td><td>1</td><td>100</td></tr> <tr><td>6</td><td>\$5</td><td>1</td><td>100</td></tr> <tr><td>7</td><td>\$6</td><td>1</td><td>100</td></tr> <tr><td>8</td><td>\$7</td><td>1</td><td>100</td></tr> <tr><td>9</td><td>\$8</td><td>1</td><td>100</td></tr> <tr><td>10</td><td>\$9</td><td>1</td><td>100</td></tr> <tr><td>11</td><td>\$10</td><td>1</td><td>100</td></tr> <tr><td>12</td><td>\$11</td><td>1</td><td>100</td></tr> </tbody> </table>	No.	Address	Read Length (Word)	Sampling Cycle(ms)	1	\$0	1	100	2	\$1	1	100	3	\$2	1	100	4	\$3	1	100	5	\$4	1	100	6	\$5	1	100	7	\$6	1	100	8	\$7	1	100	9	\$8	1	100	10	\$9	1	100	11	\$10	1	100	12	\$11	1	100
No.	Address	Read Length (Word)	Sampling Cycle(ms)																																																			
1	\$0	1	100																																																			
2	\$1	1	100																																																			
3	\$2	1	100																																																			
4	\$3	1	100																																																			
5	\$4	1	100																																																			
6	\$5	1	100																																																			
7	\$6	1	100																																																			
8	\$7	1	100																																																			
9	\$8	1	100																																																			
10	\$9	1	100																																																			
11	\$10	1	100																																																			
12	\$11	1	100																																																			

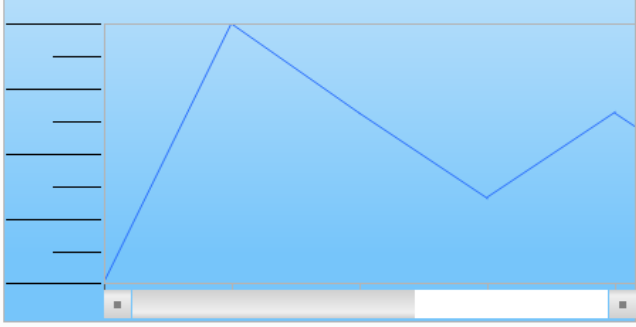
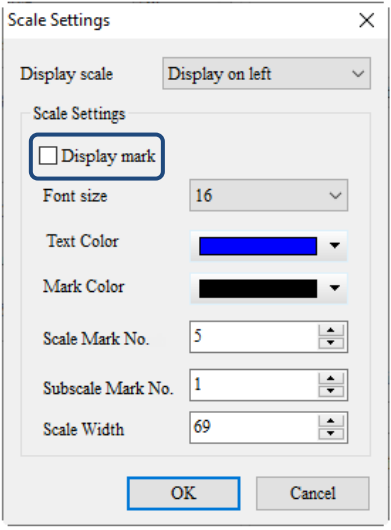
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No.	Property	Function description																											
(2)	Global range	<p>Length</p> <ul style="list-style-type: none"> The Length can be set as 1 or 2. If the Length is 1, it means the length of the read data is 1 word; if the Length is 2, it means the length of the read data is 2 words. <p>Note: when you select 2 as the Length, the Read Length must be 2 or above.</p>  <p>The screenshot shows the 'History Buffer Setup' dialog with 'Buffer ID' set to 1. A table below it has columns: Curve, Enable, Length, Start Position, Data Format, Integer D, Fraction. The 'Length' column is highlighted with a blue box and contains the value 2.</p>  <p>The screenshot shows the 'History Buffer Setup' dialog with a table below it. The table has columns: No., Address, Read Length (Word), Sampling Cycle(ms), Sample Number. The 'Read Length (Word)' column is highlighted with a blue box and contains the value 2.</p>																											
		<p>Data Format</p> <ul style="list-style-type: none"> Historical Trend Graph supports the following data formats:  <p>The screenshot shows a dropdown menu for 'Data Format' with options: Unsigned Decimal, BCD, Signed BCD, Signed Decimal, Unsigned Decimal, Hexadecimal, Floating. The 'Unsigned Decimal' option is selected.</p> <ul style="list-style-type: none"> Floating is available only when the Length is 2. 																											
		<p>Integer / Fractional Digits</p> <p>You can set the displaying number of integer digits and the number of decimal places.</p>																											
		<p>Minimum / Maximum</p> <ul style="list-style-type: none"> If the Global range check box is selected, you cannot set the Minimum and Maximum values for the curves on the Details page; instead, the range is determined by the minimum and maximum of the Global range. If the Global range check box is not selected, you can set the Minimum and Maximum values on the Details page. You can set the Minimum and maximum values as constants or variables. When the Minimum and Maximum values are variables, the controller address (Word) and the internal register address (Word) are supported. When the Minimum and Maximum values are constants, the allowable ranges for the Minimum and Maximum values are subject to change based on the selected Data Type and Data Format. <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFF</td> </tr> <tr> <td rowspan="5">DWord</td> <td>BCD</td> <td>0 to 99999999</td> </tr> <tr> <td>Signed BCD</td> <td>-9999999 to +9999999</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294967295</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFFFFFF</td> </tr> <tr> <td>Floating</td> <td>0 to 9999999</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hex	0 to 0xFFFF	DWord	BCD	0 to 99999999	Signed BCD	-9999999 to +9999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294967295	Hex	0 to 0xFFFFFFFF	Floating	0 to 9999999
		Data Type	Data Format	Allowable range																									
Word	BCD	0 to 9999																											
	Signed BCD	-999 to +9999																											
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	Unsigned Decimal	0 to 65535																											
	Hex	0 to 0xFFFF																											
DWord	BCD	0 to 99999999																											
	Signed BCD	-9999999 to +9999999																											
	Signed Decimal	-2147483648 to +2147483647																											
	Unsigned Decimal	0 to 4294967295																											
	Hex	0 to 0xFFFFFFFF																											
Floating	0 to 9999999																												
<p>Display High Value / Display Low Value</p> <p>Display High / Low Values are available on the Historical Trend Graph. You can set the Display High / Low Values with constants or using the internal memory or controller register address (Word). Also, you can set the displaying colors for Display High / Low Values.</p>																													

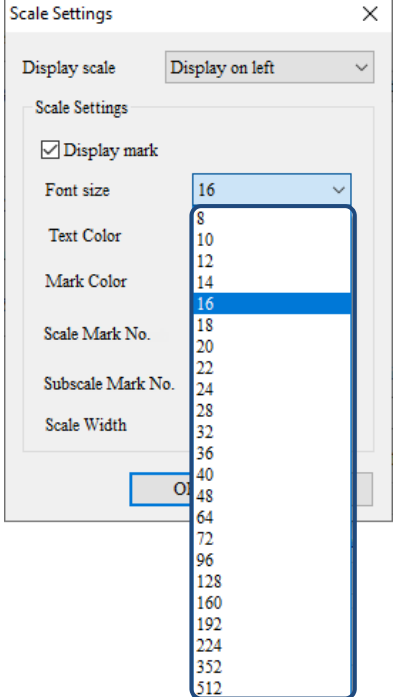
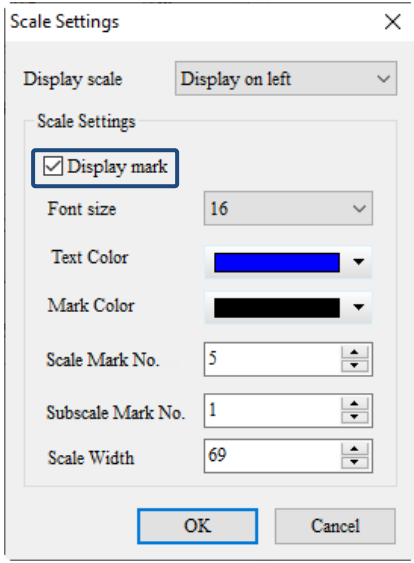
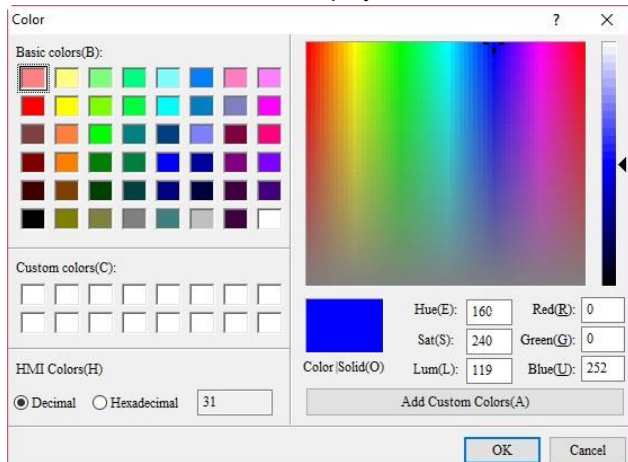
No.	Property	Function description
(3)	Scale Settings	 <p>The dialog box 'Scale Settings' has a 'Display scale' dropdown set to 'Not Display'. Below it, a 'Scale Settings' section contains: 'Display mark' (checked), 'Font size' (12), 'Text Color' (blue), 'Mark Color' (black), 'Scale Mark No.' (5), 'Subscale Mark No.' (1), and 'Scale Width' (60). 'OK' and 'Cancel' buttons are at the bottom.</p>
		<p>Scale Settings is available only when the Global range check box is selected.</p> <p><input type="checkbox"/> Global range</p> <p>Scale Settings</p> <p>Length 1</p> <p>Data Format Unsigned Decimal</p> <p>Integer Digits 4</p> <p>Fractional 0</p> <p>Min 0</p> <p>Max 9999</p>
		<p><input checked="" type="checkbox"/> Global range</p> <p>Scale Settings</p> <p>Length 1</p> <p>Data Format Unsigned Decimal</p> <p>Integer Digits 4</p> <p>Fractional 0</p> <p>Min 0</p> <p>Max 9999</p>

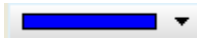
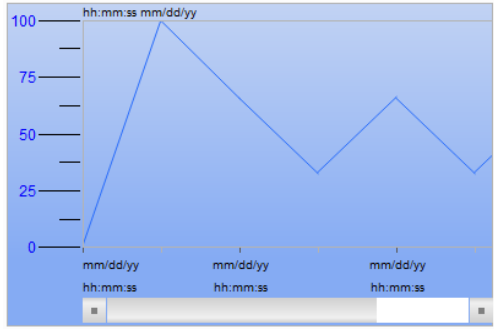

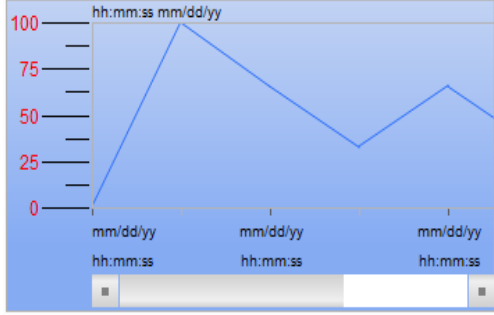
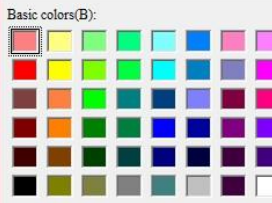

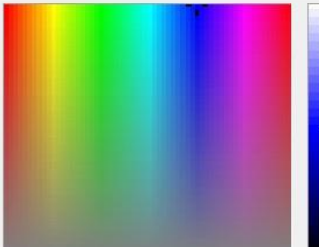
15

No.	Property	Function description						
(3)	Scale Settings	<div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p style="text-align: right;">Scale Settings ×</p> <p>Display scale: Not Display v</p> <p style="margin-left: 20px;"> Not Display Display on left Display on Right </p> <p>Scale Settings</p> <p><input checked="" type="checkbox"/> Display mark</p> <p>Font size: 16 v</p> <p>Text Color: v</p> <p>Mark Color: v</p> <p>Scale Mark No.: 5 v</p> <p>Subscale Mark No.: 1 v</p> <p>Scale Width: 69 v</p> <p style="text-align: center;"> OK Cancel </p> </div> <p>The Display scale options include Not Display, Display on left, and Display on Right.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: center; vertical-align: middle;">Not Display</td> <td style="text-align: center;">  </td> </tr> <tr> <td style="text-align: center; vertical-align: middle;">Display on left</td> <td style="text-align: center;">  </td> </tr> <tr> <td style="text-align: center; vertical-align: middle;">Display on Right</td> <td style="text-align: center;">  </td> </tr> </table>	Not Display		Display on left		Display on Right	
Not Display								
Display on left								
Display on Right								


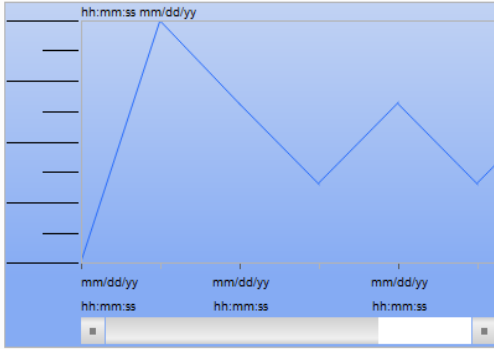
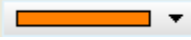
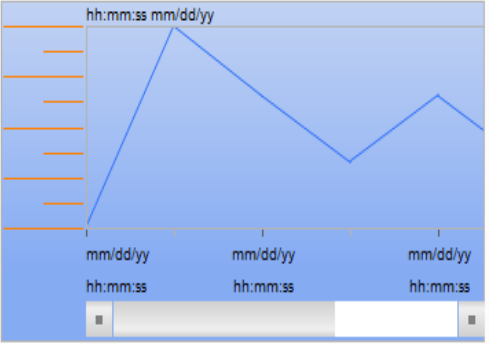
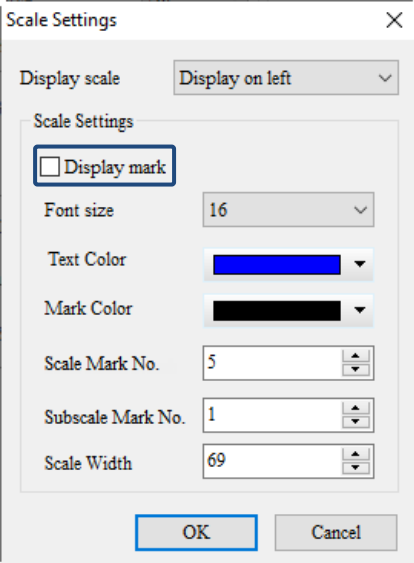
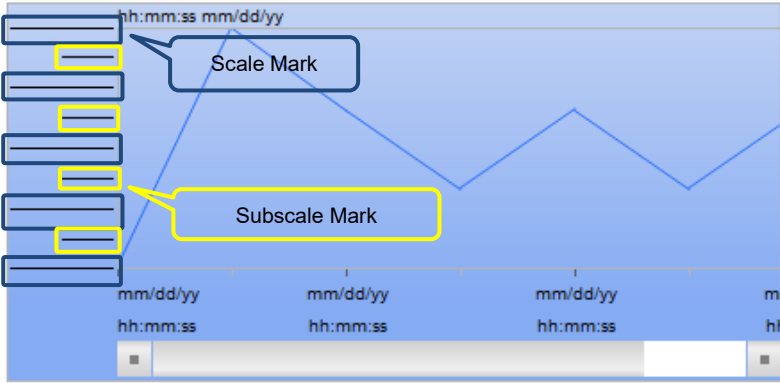
No.	Property	Function description
	Display mark	<p>Select to display the scale numbers or not.</p> <div style="display: flex; border: 1px solid gray;"> <div style="border-right: 1px solid gray; padding: 5px; width: 150px; text-align: center;">Not selected</div> <div style="padding: 5px;">  </div> </div> <div style="display: flex; border: 1px solid gray; margin-top: 5px;"> <div style="border-right: 1px solid gray; padding: 5px; width: 150px; text-align: center;">Selected</div> <div style="padding: 5px;">  </div> </div>
(3)	Scale Settings	<p>The Font size setting is valid only when Display mark is selected.</p> 
	Font size	

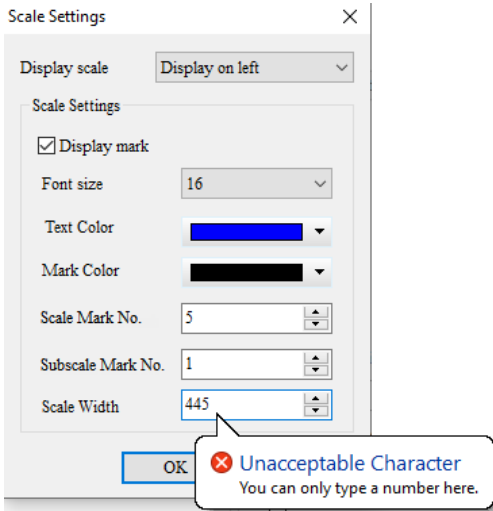
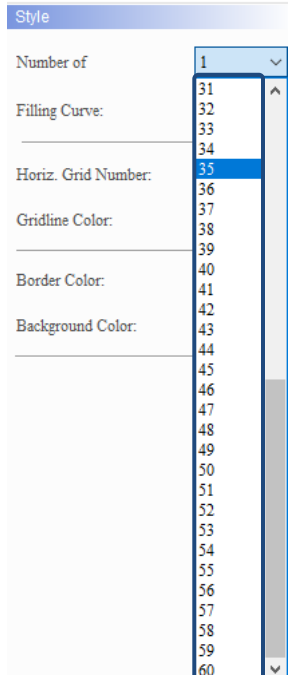
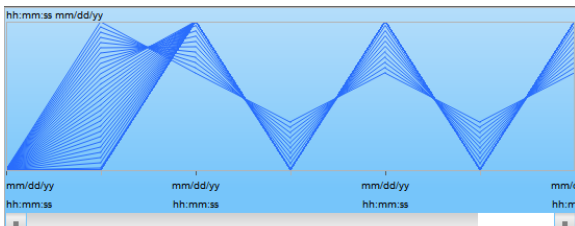
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No.	Property	Function description
	Font size	<p>Font size is for setting the size of the numbers displayed on the scale with the sizes 8 - 512 available.</p> 
(3)	Scale Settings	<p>The Text Color setting is valid only when Display mark is selected.</p>  <p>You can define the text color to be displayed.</p> 

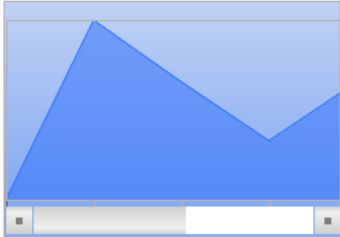
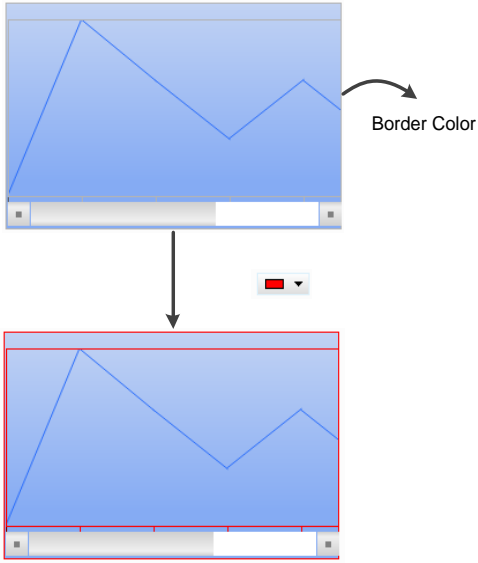
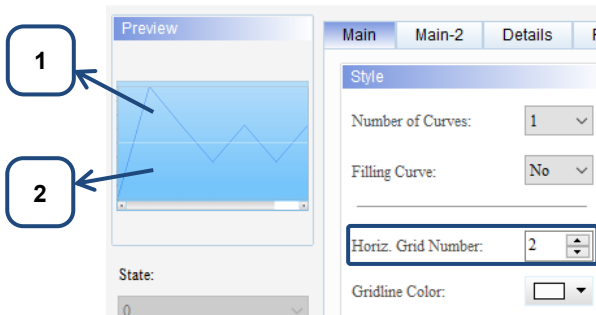
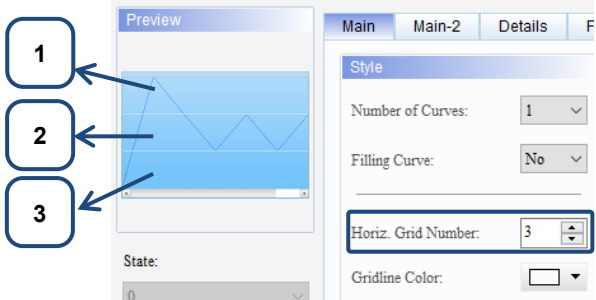
No.	Property	Function description	
		Text Color	<div style="display: flex; flex-direction: column;"> <div style="margin-bottom: 10px;"> <p>Before change</p>  </div> <div style="margin-bottom: 10px;">  </div> <div> <p>After change</p>  </div> <div>  </div> </div>
(3)	Scale Settings	Mark Color	<ul style="list-style-type: none"> ■ The Mark Color setting is valid even if Display mark is not selected. <div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p>Scale Settings</p> <p>Display scale: Display on left</p> <p><input type="checkbox"/> Display mark</p> <p>Font size: 16</p> <p>Text Color: Blue</p> <p>Mark Color: Black</p> <p>Scale Mark No.: 5</p> <p>Subscale Mark No.: 1</p> <p>Scale Width: 69</p> <p>OK Cancel</p> </div> <ul style="list-style-type: none"> ■ You can define the mark color to be displayed. <div style="border: 1px solid gray; padding: 5px;"> <p>Color</p> <div style="display: flex;"> <div style="flex: 1;"> <p>Basic colors(B):</p>  <p>Custom colors(C):</p>  <p>HMI Colors(H)</p> <p><input checked="" type="radio"/> Decimal <input type="radio"/> Hexadecimal 31</p> </div> <div style="flex: 2;">  <p>Hue(E): 160 Red(R): 0</p> <p>Sat(S): 240 Green(G): 0</p> <p>Lum(L): 119 Blue(B): 252</p> <p>Color (Solid(O))</p> <p>Add Custom Colors(A)</p> <p>OK Cancel</p> </div> </div> </div>

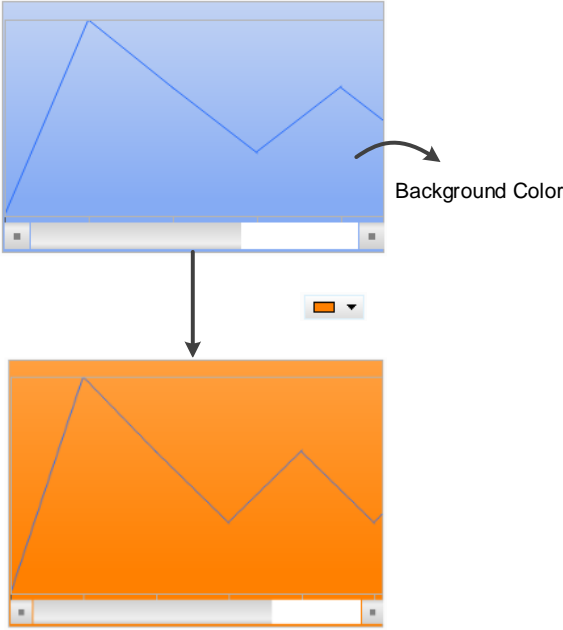


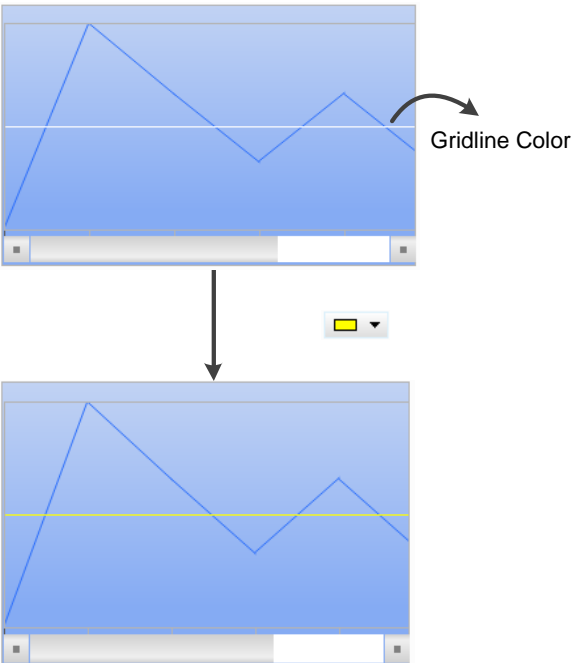
15

No.	Property	Function description	
	Mark Color		<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;"> <p>Before change</p>  </div>  </div> <hr/> <div style="margin-bottom: 10px;"> <p>After change</p>  </div> 
(3)	Scale Settings	Scale Mark No.	<ul style="list-style-type: none"> ■ The Scale Mark No. and Subscale Mark No. settings are valid even if Display mark is not selected. 
		Subscale Mark No.	<ul style="list-style-type: none"> ■ The minimum is 1 and the maximum is 99 for both the Scale Mark No. and Subscale Mark No. ■ When the Scale Mark No. is 5 and the Subscale Mark No. is 1, the graph is as follows. 

No.	Property	Function description
(3)	Scale Settings Scale Width	<p>When the font size is set too big, you can adjust the Scale Width to show the text.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. The Scale Width must be smaller than the element width. 2. When you set the value to be larger than the element width, the Scale Width is immediately adjusted to the element width minus 1. 3. If you enter a non-numeric character, the software displays the following error message. 
(4)	Style Number of Curves	<ul style="list-style-type: none"> ■ A Historical Trend Graph element supports up to 60 curves.  <ul style="list-style-type: none"> ■ If you select 60 curves, you can still change the width and color of each curve. 

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No.	Property	Function description
		<ul style="list-style-type: none"> ■ Set to fill the area under the curve. ■ The default is No. If set to Yes, the curve is as follows. 
(4)	Style	<p>Set the Historical Trend Graph element border color.</p> 
	Style	<ul style="list-style-type: none"> ■ The maximum horizontal grid count is 50. ■ Horiz. Grid Number sets the number of zones the Historical Trend Graph element is divided into. The default is 1, meaning there is no grid line. If the Horiz. Grid Number is set to 2, there is one grid line dividing the Historical Trend Graph element into 2 zones; if set to 3, there are two grid lines dividing the element into 3 zones, and so on. <p>Historical Trend Graph</p>  <p>Historical Trend Graph</p> 

No.	Property	Function description
	Background Color	<p>Set the background color of the element.</p> 
(4)	Style	<p>■ The Gridline Color is the color of the grid line in the Historical Trend Graph. The default is  .</p>  <p>■ You can change the color of the grid line.</p> 

■ Main-2

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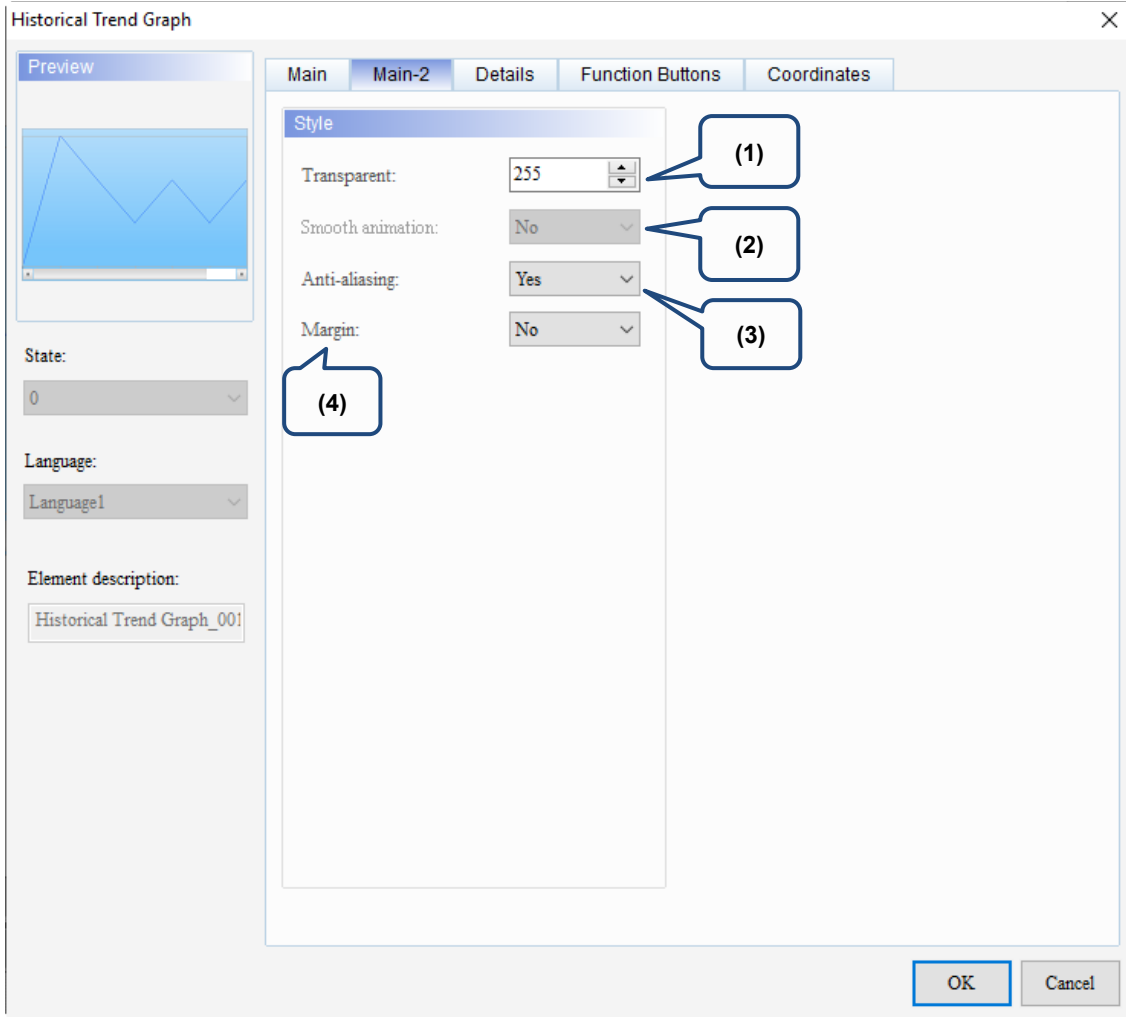


Figure 15.2.3 Main-2 property page for the Historical Trend Graph element

No.	Property	Function description				
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.				
(2)	Smooth animation	The Smooth animation function is not available for this element.				
(3)	Anti-aliasing	The Anti-aliasing function is available for this element. When this function is enabled, the element display becomes more delicate without jagged edges.				
(4)	Margin	<p>The Margin function is available for this element. When you select Yes for Margin, the element indents as shown in the following figure.</p> <table border="1"> <tr> <td>Margin is set to Yes</td> <td></td> </tr> <tr> <td>Margin is set to No</td> <td></td> </tr> </table>	Margin is set to Yes		Margin is set to No	
Margin is set to Yes						
Margin is set to No						

■ Details

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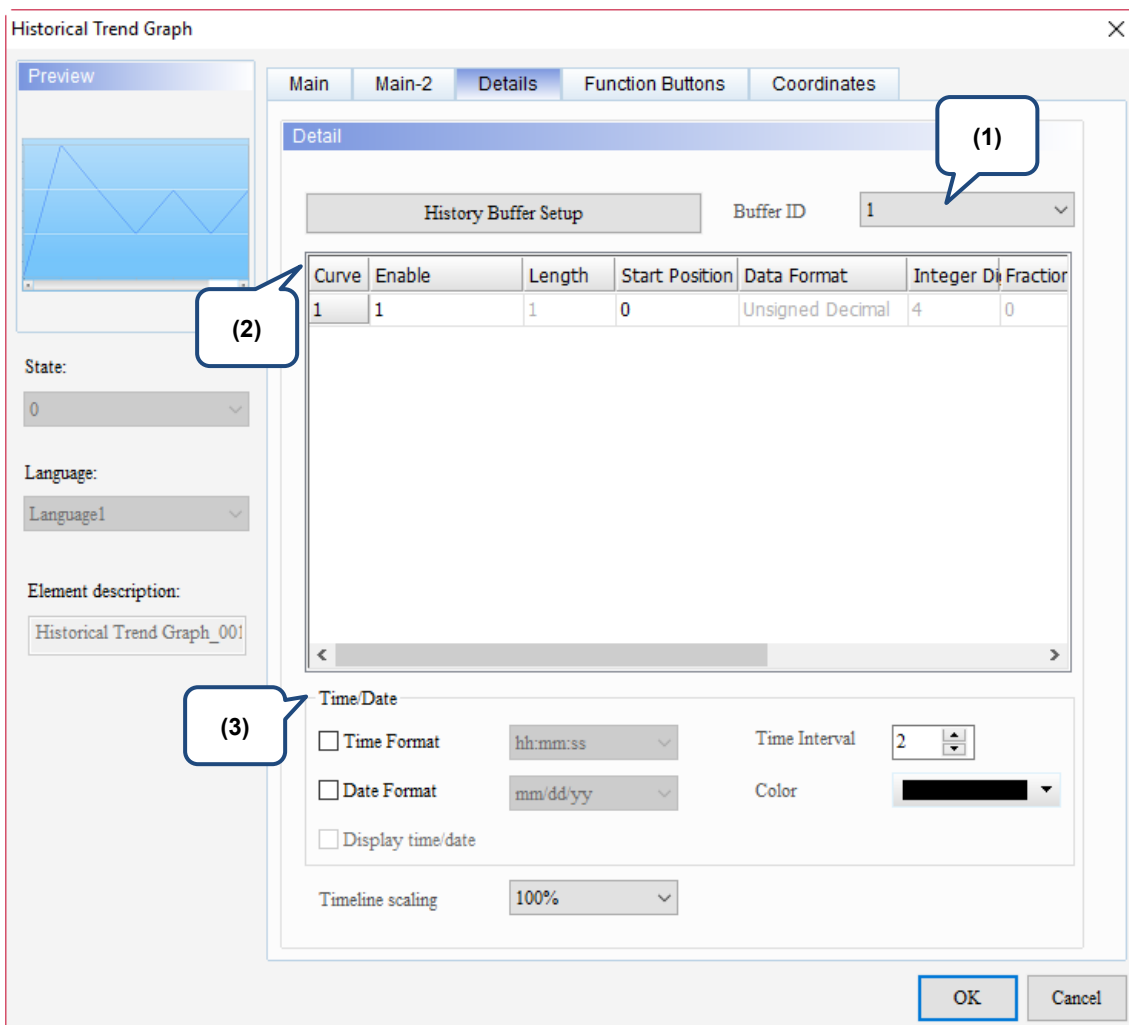
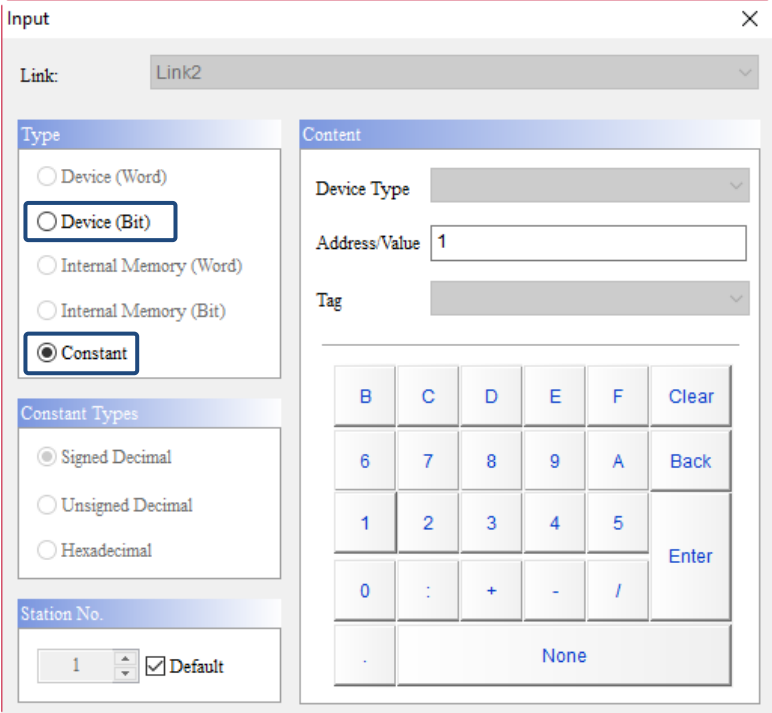
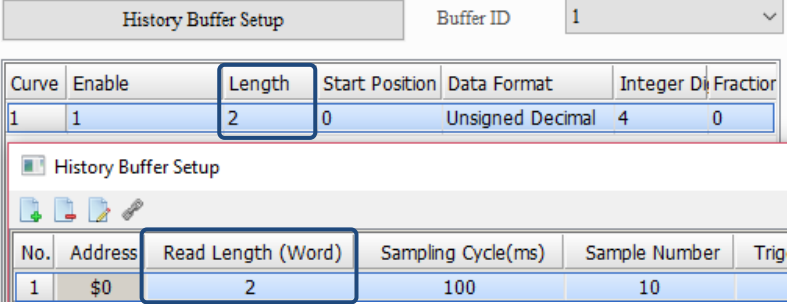
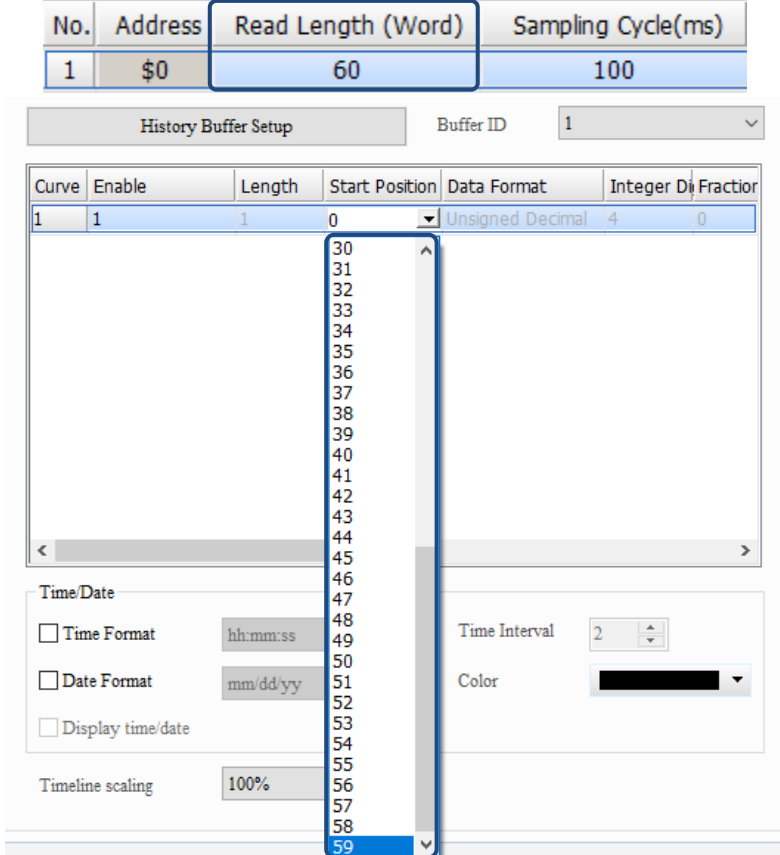
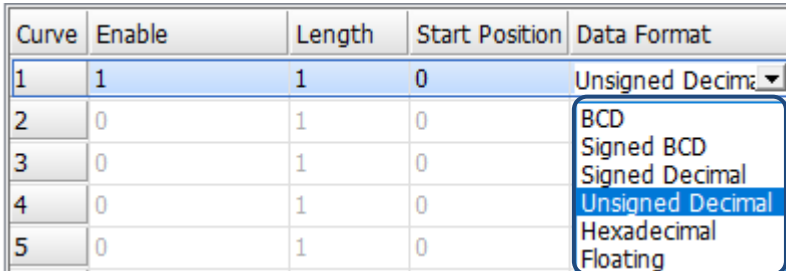
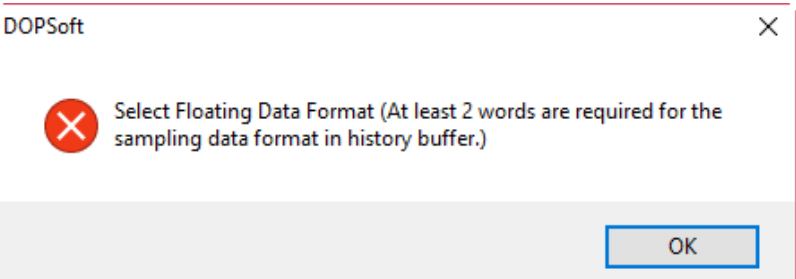


Figure 15.2.4 Details property page for the Historical Trend Graph element

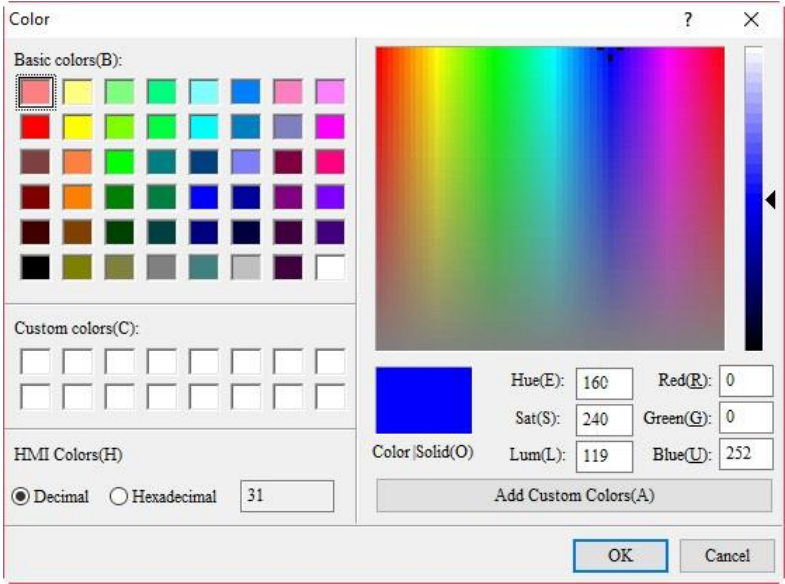
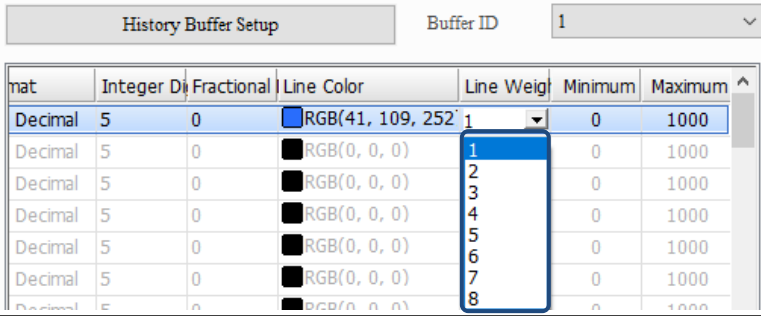
No.	Property	Function description
(1)	Buffer ID	<p>The Buffer ID corresponds to the set data number in the History Buffer Setup. The History Buffer Setup can set up to 12 sets of data, so the Buffer ID can be up to 12 sets.</p>

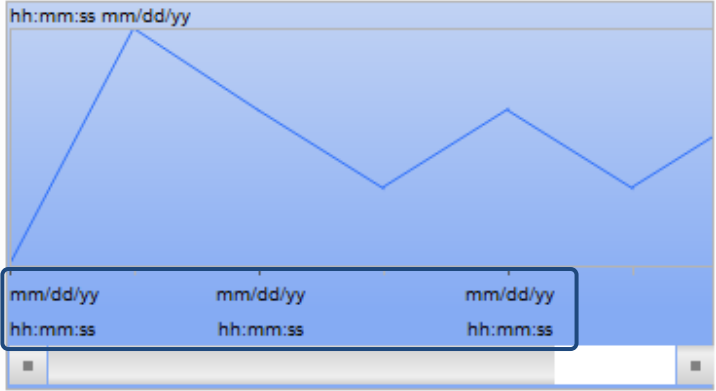
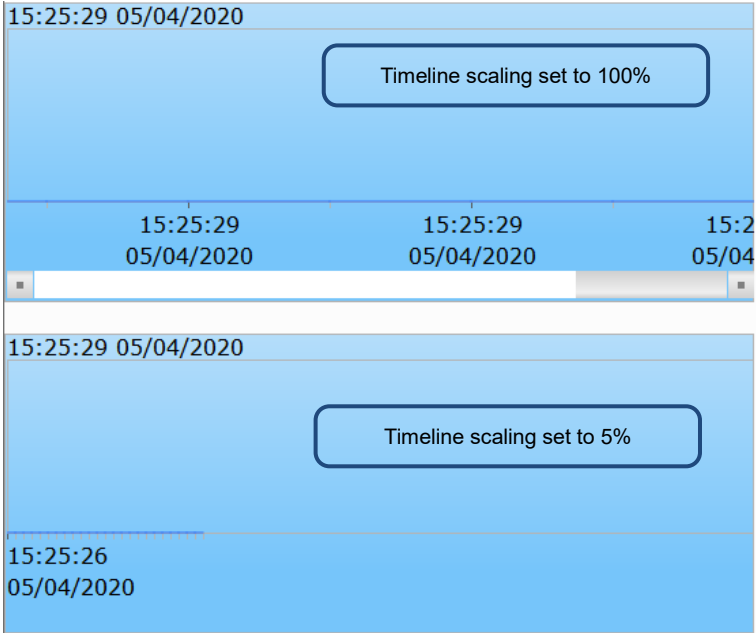
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No.	Property	Function description
(2)	Curve setting	<ul style="list-style-type: none"> Set whether to enable the curve for data reading. If Constant is selected for Type, then setting the value to 1 indicates to enable and setting to 0 indicates to disable. If Bit is selected for Type, then Bit On indicates to enable and Bit Off indicates to disable. The Value supports the data types of Device (Bit), Internal Memory (Bit), and Constant. 
	Length	<ul style="list-style-type: none"> You can set the Length to 1 or 2. You can set the Length to 2 only when Read Length (Word) in the History Buffer Setup is set to 2 or above.  <ul style="list-style-type: none"> When the Global range check box is selected, you cannot set this function.

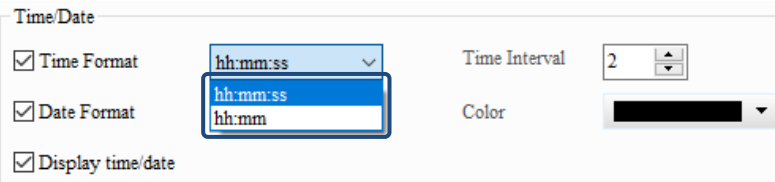
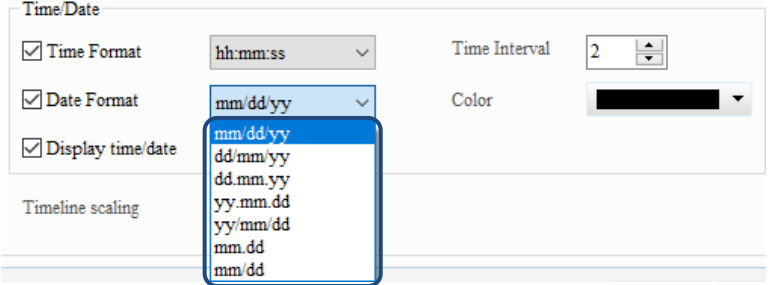

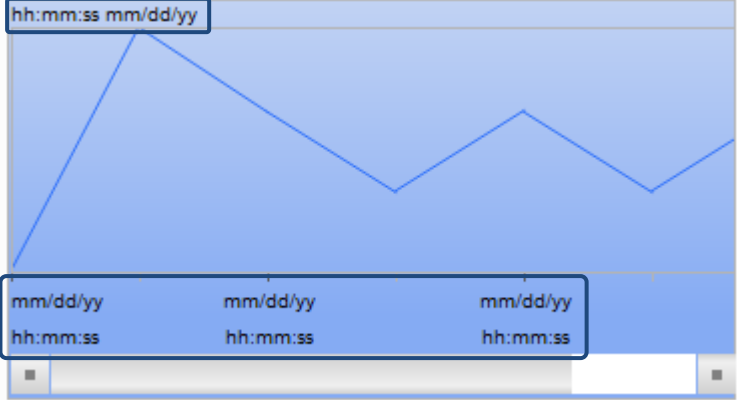
No.	Property	Function description
(2)	Curve setting	<ul style="list-style-type: none"> The Start Position setting is determined by the set Read Length (Word). If the Read Length (Word) is 60, the Start Position ranges from 0 to 59. 
	Data Format	<ul style="list-style-type: none"> The supported data formats are as follows:  <ul style="list-style-type: none"> When the Global range check box is selected, you cannot set this function. <p>Note:</p> <ol style="list-style-type: none"> If you select Floating as the Data Format, set the Length to 2. If you select Floating as the Data Format, but set the Length to 1 word, the software displays a message to remind you that you need to set the Length to 2 or above. 

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No.	Property	Function description																										
(2)	Integer / Fractional Digits	<ul style="list-style-type: none"> You can set the displaying number of integer digits and the number of decimal places. When the Global range check box is selected, you cannot set this function. 																										
	Line Color	<p>You can set the line color for the curve.</p> 																										
	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 																										
Minimum / Maximum	<ul style="list-style-type: none"> If the Global range check box is selected, you cannot set the Minimum and Maximum values for the curves; instead, the range is determined by the minimum and maximum of the Global range. If the Global range check box is not selected, you can set the Minimum and Maximum values for the curves. The allowable ranges for the Minimum and Maximum values are subject to change based on the selected Data Type and Data Format. <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFF</td> </tr> <tr> <td rowspan="5">DWord</td> <td>BCD</td> <td>0 to 99999999</td> </tr> <tr> <td>Signed BCD</td> <td>-99999999 to +99999999</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294967295</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFFFFFF</td> </tr> <tr> <td>Floating</td> <td>0 to 9999999</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hex	0 to 0xFFFF	DWord	BCD	0 to 99999999	Signed BCD	-99999999 to +99999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294967295	Hex	0 to 0xFFFFFFFF	Floating	0 to 9999999
Data Type	Data Format	Allowable range																										
Word	BCD	0 to 9999																										
	Signed BCD	-999 to +9999																										
	Signed Decimal	-32768 to +32767																										
	Unsigned Decimal	0 to 65535																										
	Hex	0 to 0xFFFF																										
DWord	BCD	0 to 99999999																										
	Signed BCD	-99999999 to +99999999																										
	Signed Decimal	-2147483648 to +2147483647																										
	Unsigned Decimal	0 to 4294967295																										
	Hex	0 to 0xFFFFFFFF																										
Floating	0 to 9999999																											

No.	Property	Function description
(3)	Display time/date	<ul style="list-style-type: none"> When you select the Display time/date check box, the time scale displays at the bottom of the Historical Trend Graph element; if it is not selected, the time scale does not display.  <ul style="list-style-type: none"> You can set the number of the Time Interval (up to 9,999) when you select the Display time/date check box. The preceding figure displays two time intervals.
	Time/Date	<ul style="list-style-type: none"> The default is 100%. The smaller the setting value, the more sampling points can be displayed. 

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No.	Property	Function description
(3)	Time/Date	<p>Time Format / Date Format</p> <ul style="list-style-type: none"> Two time formats are supported as follows:  Seven date formats are supported as follows: 
	Color	<p>With this setting, you can change the displaying color of the time and date, including the recorded time and date shown on top of the Historical Trend Graph and the time scales. The default is .</p> 

■ Function Buttons

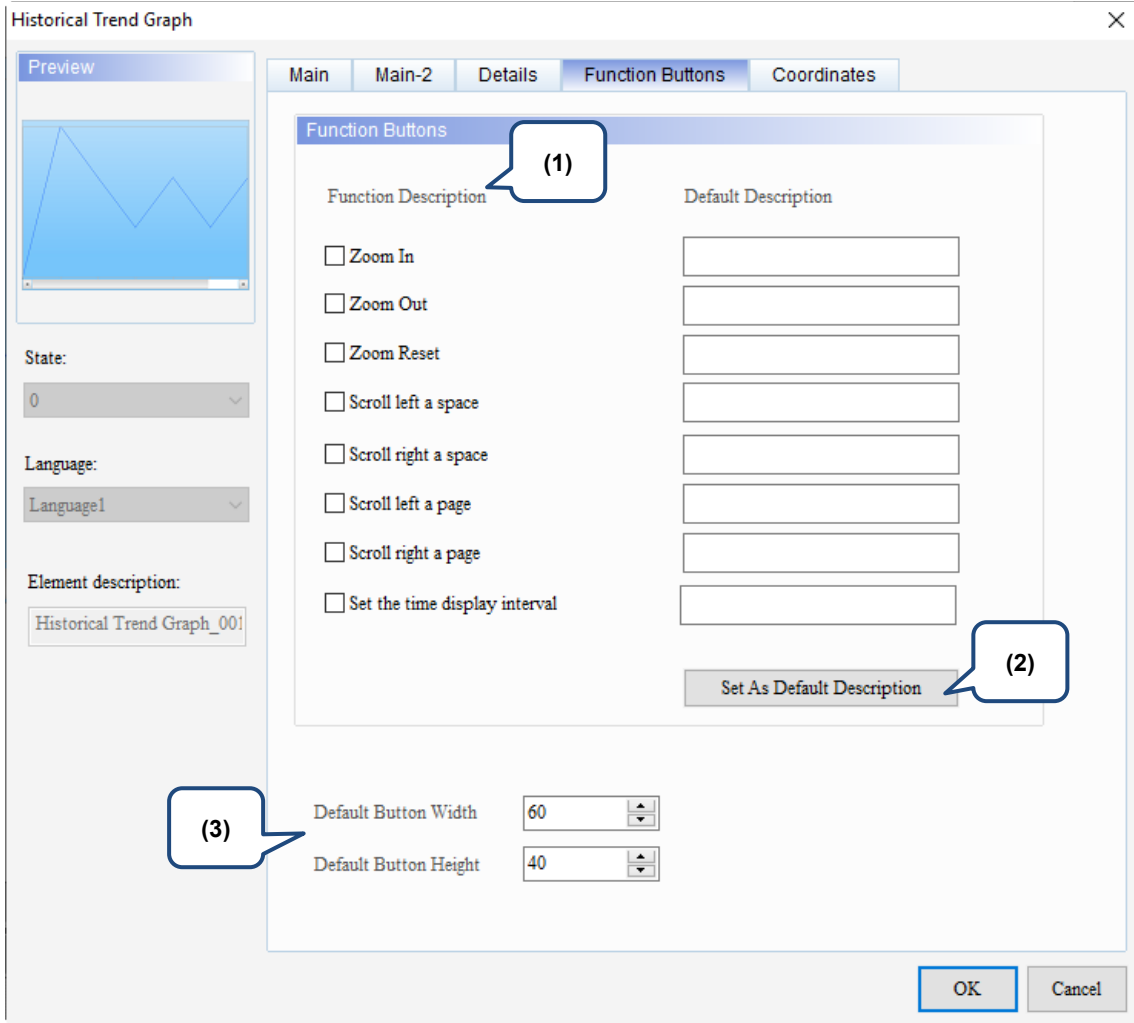
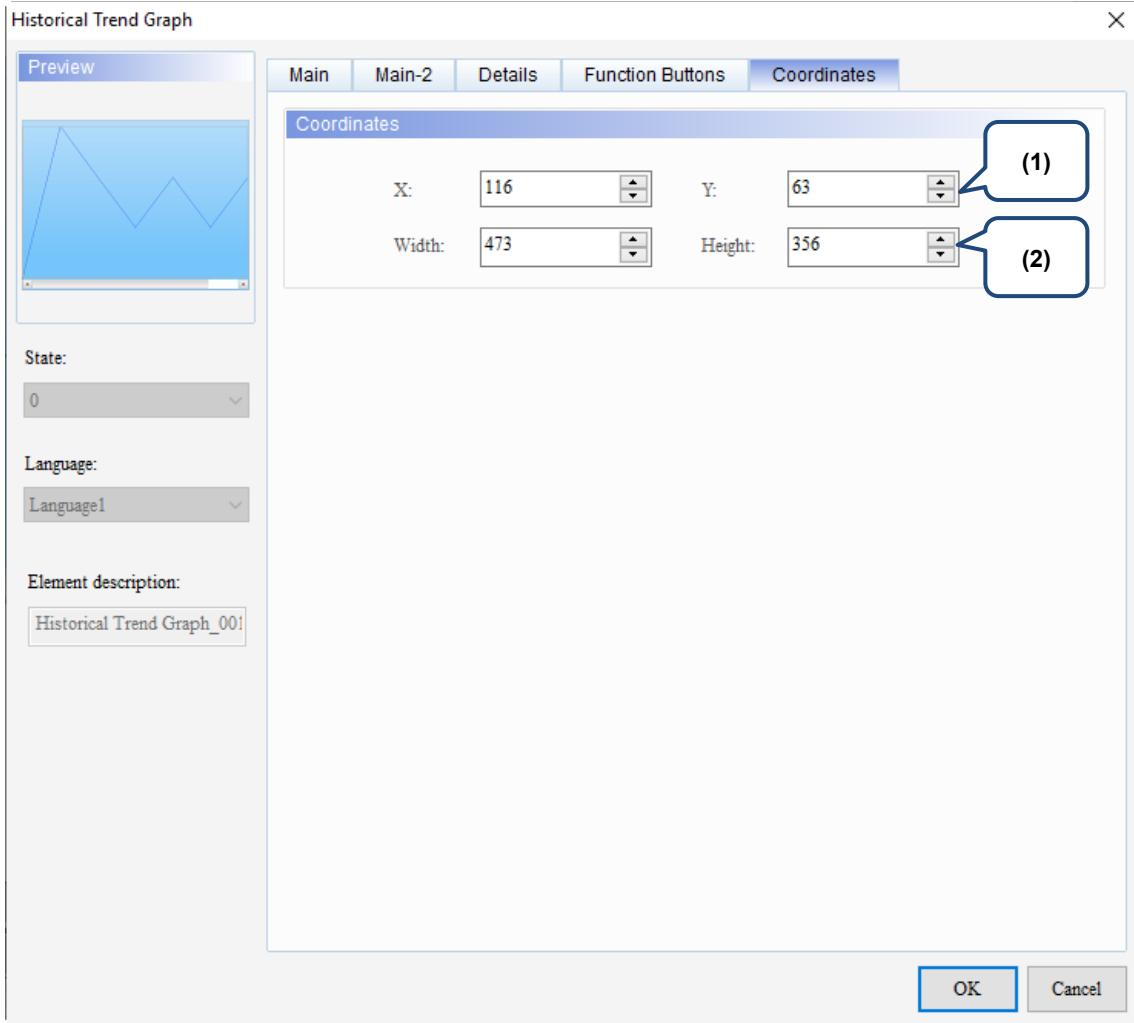


Figure 15.2.5 Function Buttons property page for the Historical Trend Graph element

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No.	Property	Function description																		
(1)	Function Description	<p>Select the function buttons to display on the Historical Trend Graph element.</p> <table border="1"> <tr> <td>Zoom In</td> <td>Zoom in on the history data of X-axis.</td> </tr> <tr> <td>Zoom Out</td> <td>Zoom out on the history data of X-axis.</td> </tr> <tr> <td>Zoom Reset</td> <td>Reset the history data of X-axis to the default size.</td> </tr> <tr> <td>Scroll left a space</td> <td>Scroll to the left a bit.</td> </tr> <tr> <td>Scroll right a space</td> <td>Scroll to the right a bit.</td> </tr> <tr> <td>Scroll left a page</td> <td>Scroll to the left for a page.</td> </tr> <tr> <td>Scroll right a page</td> <td>Scroll to the right for a page.</td> </tr> <tr> <td>Set the time display interval</td> <td>Display the corresponding data according to the set time interval.</td> </tr> </table>	Zoom In	Zoom in on the history data of X-axis.	Zoom Out	Zoom out on the history data of X-axis.	Zoom Reset	Reset the history data of X-axis to the default size.	Scroll left a space	Scroll to the left a bit.	Scroll right a space	Scroll to the right a bit.	Scroll left a page	Scroll to the left for a page.	Scroll right a page	Scroll to the right for a page.	Set the time display interval	Display the corresponding data according to the set time interval.		
Zoom In	Zoom in on the history data of X-axis.																			
Zoom Out	Zoom out on the history data of X-axis.																			
Zoom Reset	Reset the history data of X-axis to the default size.																			
Scroll left a space	Scroll to the left a bit.																			
Scroll right a space	Scroll to the right a bit.																			
Scroll left a page	Scroll to the left for a page.																			
Scroll right a page	Scroll to the right for a page.																			
Set the time display interval	Display the corresponding data according to the set time interval.																			
(2)	Set As Default Description	<p>When you press Set As Default Description, the default strings are automatically filled in the Default Description fields.</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p style="background-color: #e6f2ff; margin: -10px -10px 10px -10px; padding: 2px 5px;">Function Buttons</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid #ccc;">Function Description</th> <th style="text-align: left; border-bottom: 1px solid #ccc;">Default Description</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Zoom In</td> <td><input style="width: 100%;" type="text" value="Zoom In"/></td> </tr> <tr> <td><input type="checkbox"/> Zoom Out</td> <td><input style="width: 100%;" type="text" value="Zoom Out"/></td> </tr> <tr> <td><input type="checkbox"/> Zoom Reset</td> <td><input style="width: 100%;" type="text" value="Zoom Reset"/></td> </tr> <tr> <td><input type="checkbox"/> Scroll left a space</td> <td><input style="width: 100%;" type="text" value="Scroll left a space"/></td> </tr> <tr> <td><input type="checkbox"/> Scroll right a space</td> <td><input style="width: 100%;" type="text" value="Scroll right a space"/></td> </tr> <tr> <td><input type="checkbox"/> Scroll left a page</td> <td><input style="width: 100%;" type="text" value="Scroll left a page"/></td> </tr> <tr> <td><input type="checkbox"/> Scroll right a page</td> <td><input style="width: 100%;" type="text" value="Scroll right a page"/></td> </tr> <tr> <td><input type="checkbox"/> Set the time display interval</td> <td><input style="width: 100%;" type="text" value="Set the time display interval"/></td> </tr> </tbody> </table> <p style="text-align: right; margin-top: 10px;"><input style="background-color: #e6f2ff; border: 1px solid #007bff; color: #007bff;" type="button" value="Set As Default Description"/></p> </div>	Function Description	Default Description	<input type="checkbox"/> Zoom In	<input style="width: 100%;" type="text" value="Zoom In"/>	<input type="checkbox"/> Zoom Out	<input style="width: 100%;" type="text" value="Zoom Out"/>	<input type="checkbox"/> Zoom Reset	<input style="width: 100%;" type="text" value="Zoom Reset"/>	<input type="checkbox"/> Scroll left a space	<input style="width: 100%;" type="text" value="Scroll left a space"/>	<input type="checkbox"/> Scroll right a space	<input style="width: 100%;" type="text" value="Scroll right a space"/>	<input type="checkbox"/> Scroll left a page	<input style="width: 100%;" type="text" value="Scroll left a page"/>	<input type="checkbox"/> Scroll right a page	<input style="width: 100%;" type="text" value="Scroll right a page"/>	<input type="checkbox"/> Set the time display interval	<input style="width: 100%;" type="text" value="Set the time display interval"/>
Function Description	Default Description																			
<input type="checkbox"/> Zoom In	<input style="width: 100%;" type="text" value="Zoom In"/>																			
<input type="checkbox"/> Zoom Out	<input style="width: 100%;" type="text" value="Zoom Out"/>																			
<input type="checkbox"/> Zoom Reset	<input style="width: 100%;" type="text" value="Zoom Reset"/>																			
<input type="checkbox"/> Scroll left a space	<input style="width: 100%;" type="text" value="Scroll left a space"/>																			
<input type="checkbox"/> Scroll right a space	<input style="width: 100%;" type="text" value="Scroll right a space"/>																			
<input type="checkbox"/> Scroll left a page	<input style="width: 100%;" type="text" value="Scroll left a page"/>																			
<input type="checkbox"/> Scroll right a page	<input style="width: 100%;" type="text" value="Scroll right a page"/>																			
<input type="checkbox"/> Set the time display interval	<input style="width: 100%;" type="text" value="Set the time display interval"/>																			
(3)	Default Button Width / Height	You can adjust the button height and width.																		

■ Coordinates



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Figure 15.2.6 Coordinates property page for the Historical Trend Graph element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

15.3 Historical Data Table

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The Historical Data Table displays the numerical values converted from the data read by the History Buffer. The 60 columns of the Historical Data Table correspond to the Read Length of 60 words in the Historical Trend Graph.

When you double-click the Historical Data Table, the property page is shown as follows.

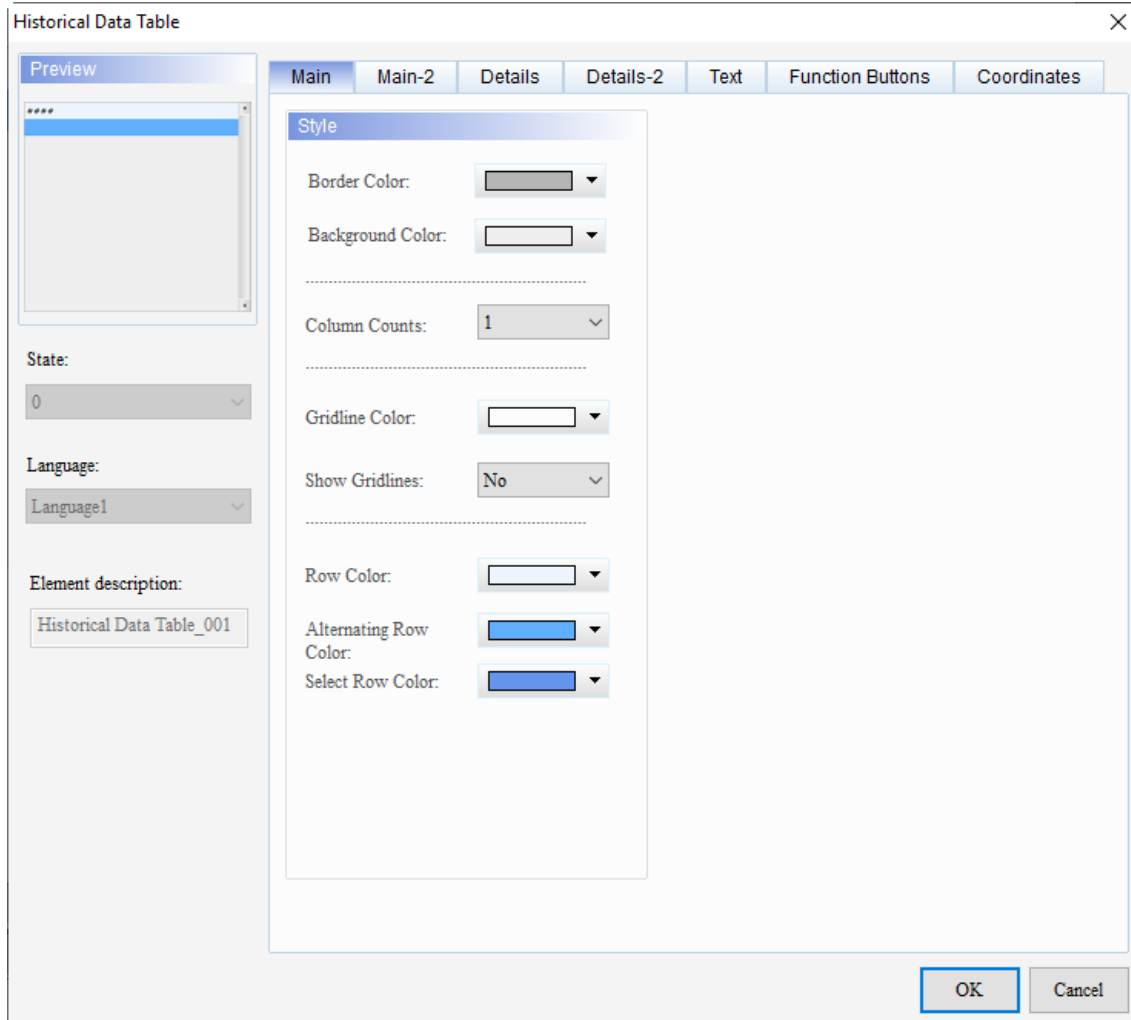


Figure 15.3.1 Properties of Historical Data Table

Table 15.3.1 Function page of Historical Data Table

Historical Data Table	
Function page	Description
Preview	The Historical Data Table elements do not support multiple state values and multi-language data display.
Main	Set the Border Color, Background Color, Column Counts, Gridline Color, Show Gridlines, Row Color, Alternating Row Color, and Select Row Color.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Details	Set the Buffer ID. Set the Time/Date. Set the Length, Start Position, Data Format, Integer Digits, Fractional Digits, Color, Column Width, Prefix Zero, Title, and Field alignment. Select the Show Title check box and set the Background Color, Text Color, Time, Date, and No. Select the Show No. check box and set its displaying color and alignment.
Details-2	Set the Sort Method.
Text	Set the text size of the displayed numeric data.
Function Buttons	Select the function buttons to enable and set the width and height of the buttons.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

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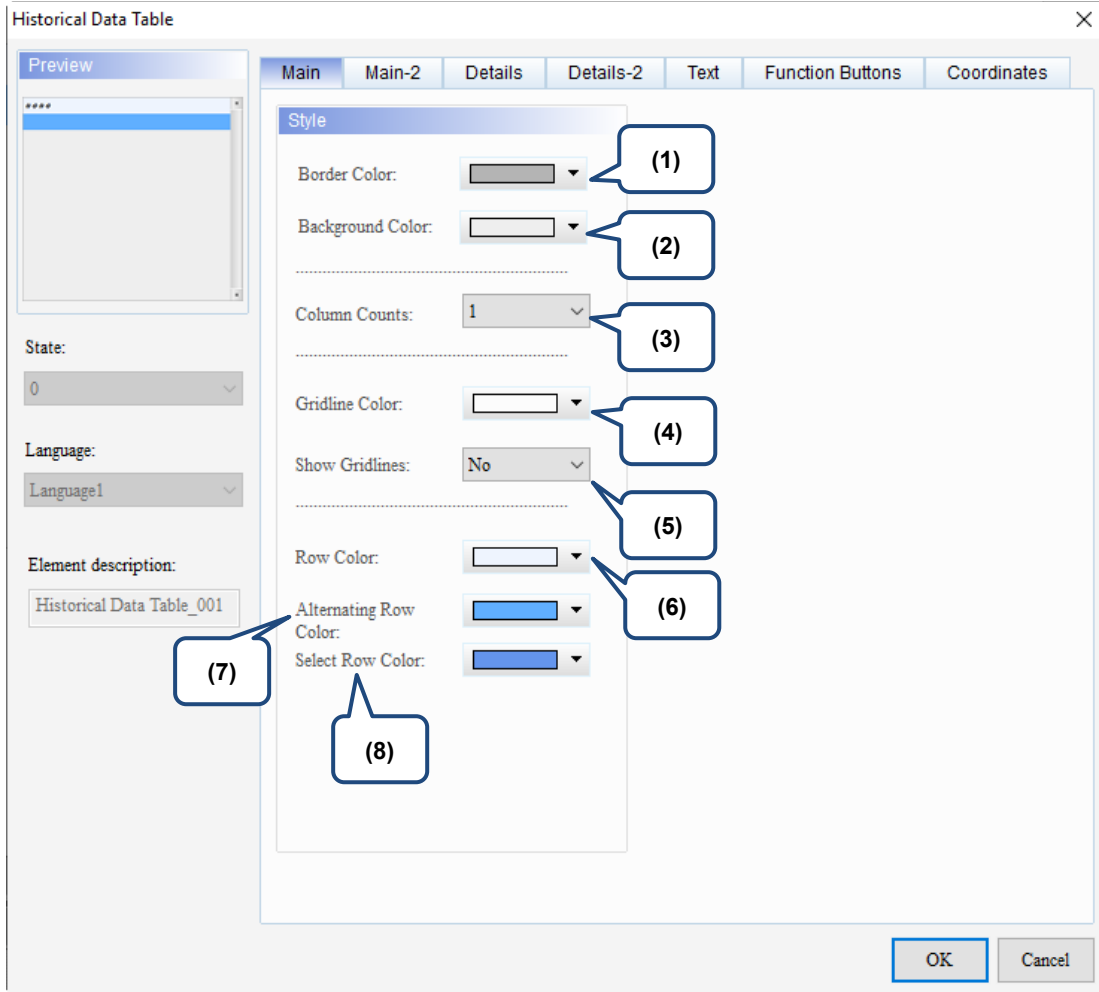
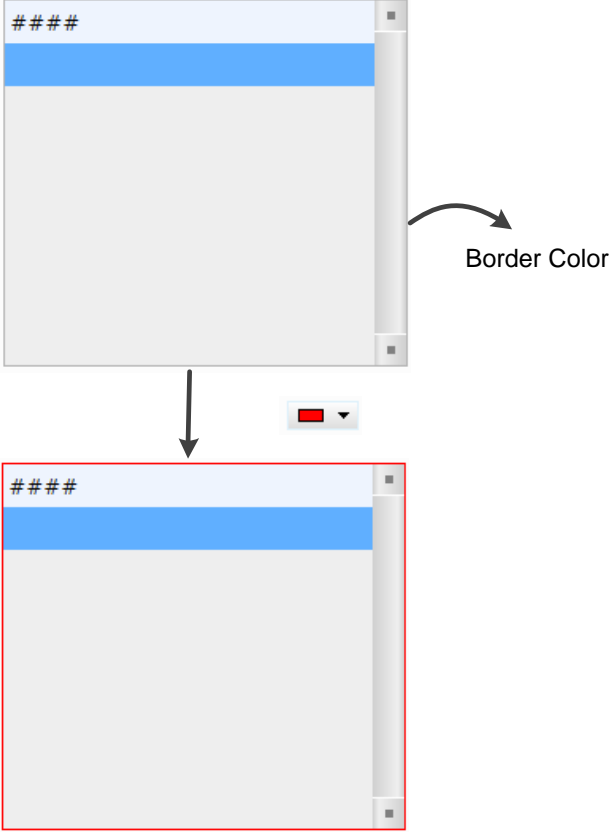
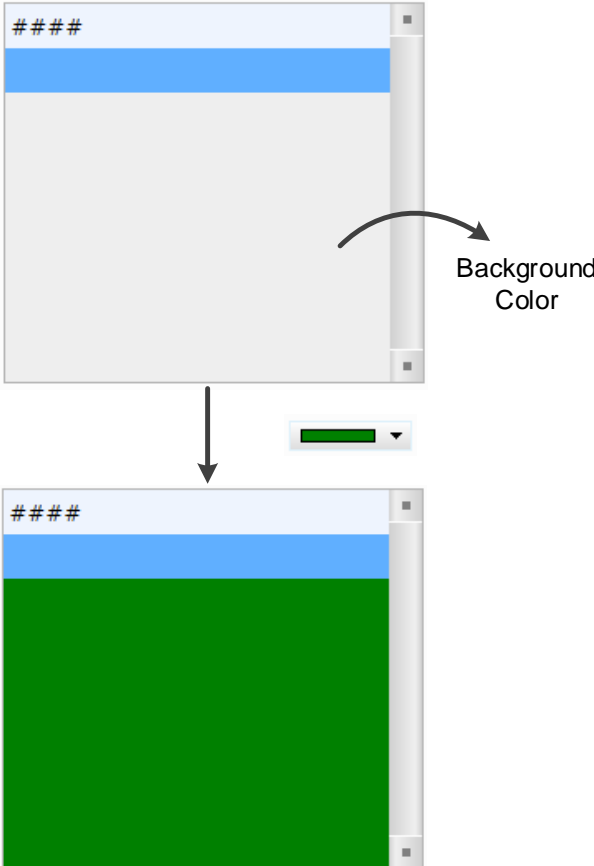
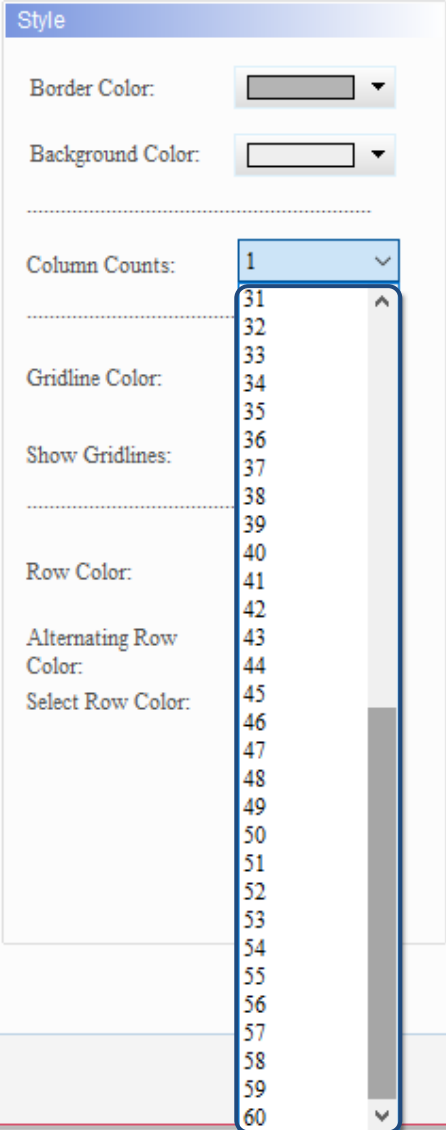
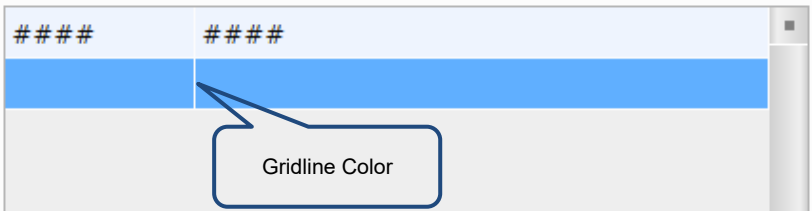



Figure 15.3.2 Main property page for the Historical Data Table element

No.	Property	Function description
(1)	Border Color	<p>Set the Historical Data Table element border color.</p> 
(2)	Background Color	<p>Set the background color of the element.</p> 

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No.	Property	Function description
(3)	Column Counts	<p>The maximum of Column Counts is 60 which correspond to the Read Length of 60 words in the History Buffer Setup respectively.</p> 
(4)	Gridline Color	<ul style="list-style-type: none"> ■ Set the gridline color of the element. The default is white. ■ The Gridline color setting is valid only when Show Gridlines is set to Yes and Column Counts is set to 2 or above. 
(5)	Show Gridlines	

No.	Property	Function description																				
(6)	Row Color	<p>Color of the odd rows. The default is <input type="text" value=""/> .</p> <table border="1"> <tr><td>370</td><td>740</td></tr> <tr><td>375</td><td>750</td></tr> <tr><td>385</td><td>770</td></tr> <tr><td>390</td><td>780</td></tr> <tr><td>395</td><td>790</td></tr> <tr><td>400</td><td>800</td></tr> <tr><td>410</td><td>820</td></tr> <tr><td>415</td><td>830</td></tr> <tr><td>425</td><td>850</td></tr> <tr><td>430</td><td>860</td></tr> </table>	370	740	375	750	385	770	390	780	395	790	400	800	410	820	415	830	425	850	430	860
370	740																					
375	750																					
385	770																					
390	780																					
395	790																					
400	800																					
410	820																					
415	830																					
425	850																					
430	860																					
(7)	Alternating Row Color	<p>Color of the even rows. The default is <input type="text" value=""/> .</p> <table border="1"> <tr><td>370</td><td>740</td></tr> <tr><td>375</td><td>750</td></tr> <tr><td>385</td><td>770</td></tr> <tr><td>390</td><td>780</td></tr> <tr><td>395</td><td>790</td></tr> <tr><td>400</td><td>800</td></tr> <tr><td>410</td><td>820</td></tr> <tr><td>415</td><td>830</td></tr> <tr><td>425</td><td>850</td></tr> <tr><td>430</td><td>860</td></tr> </table>	370	740	375	750	385	770	390	780	395	790	400	800	410	820	415	830	425	850	430	860
370	740																					
375	750																					
385	770																					
390	780																					
395	790																					
400	800																					
410	820																					
415	830																					
425	850																					
430	860																					
(8)	Select Row Color	<p>When you select the data rows to view, the rows are in the color specified in this setting. The default is <input type="text" value=""/> .</p> <table border="1"> <tr><td>165</td><td>330</td></tr> <tr><td>175</td><td>350</td></tr> <tr><td>180</td><td>360</td></tr> <tr><td>185</td><td>370</td></tr> <tr><td>190</td><td>380</td></tr> <tr><td>200</td><td>400</td></tr> <tr><td>205</td><td>410</td></tr> <tr><td>215</td><td>430</td></tr> <tr><td>220</td><td>440</td></tr> <tr><td>225</td><td>450</td></tr> </table>	165	330	175	350	180	360	185	370	190	380	200	400	205	410	215	430	220	440	225	450
165	330																					
175	350																					
180	360																					
185	370																					
190	380																					
200	400																					
205	410																					
215	430																					
220	440																					
225	450																					

■ Main-2

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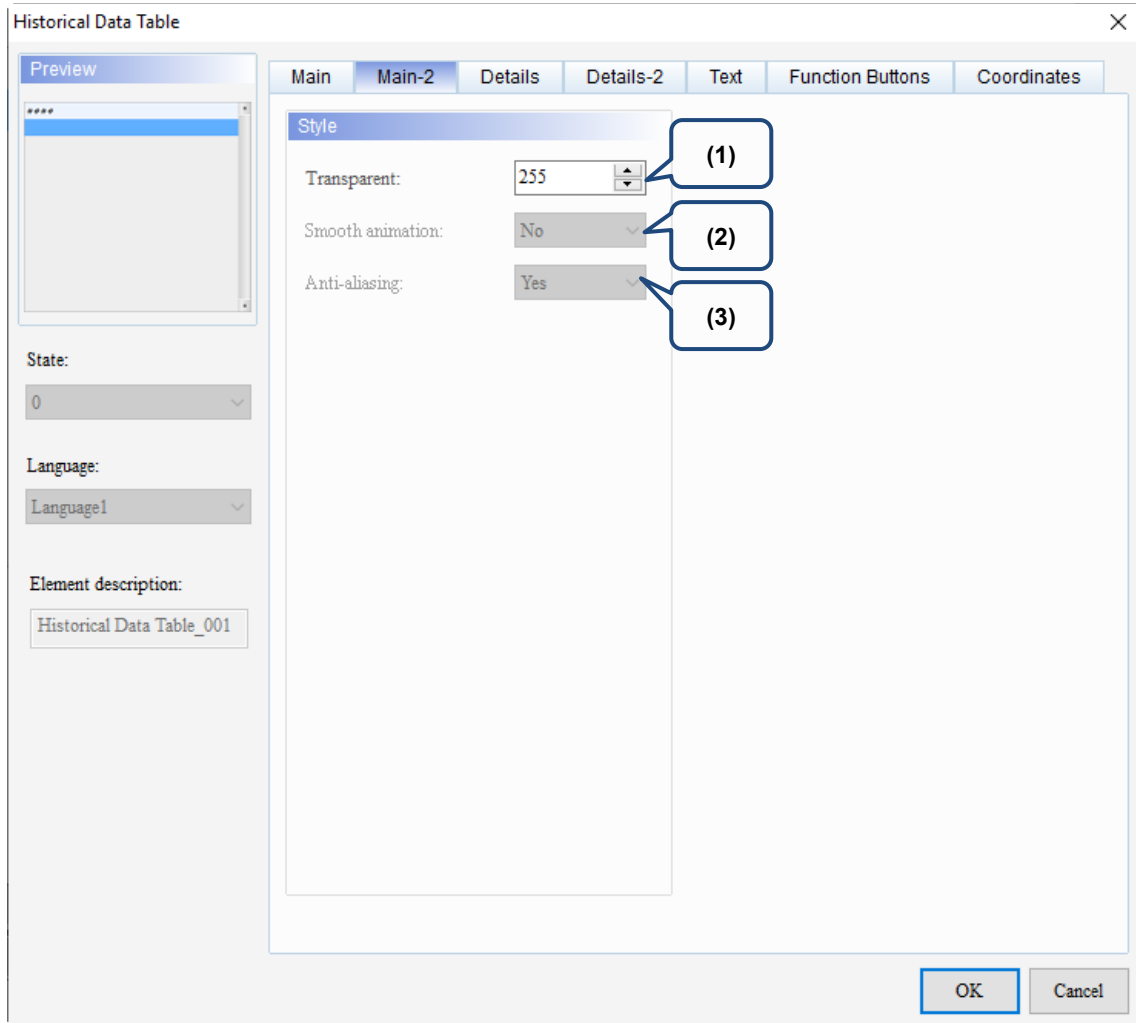
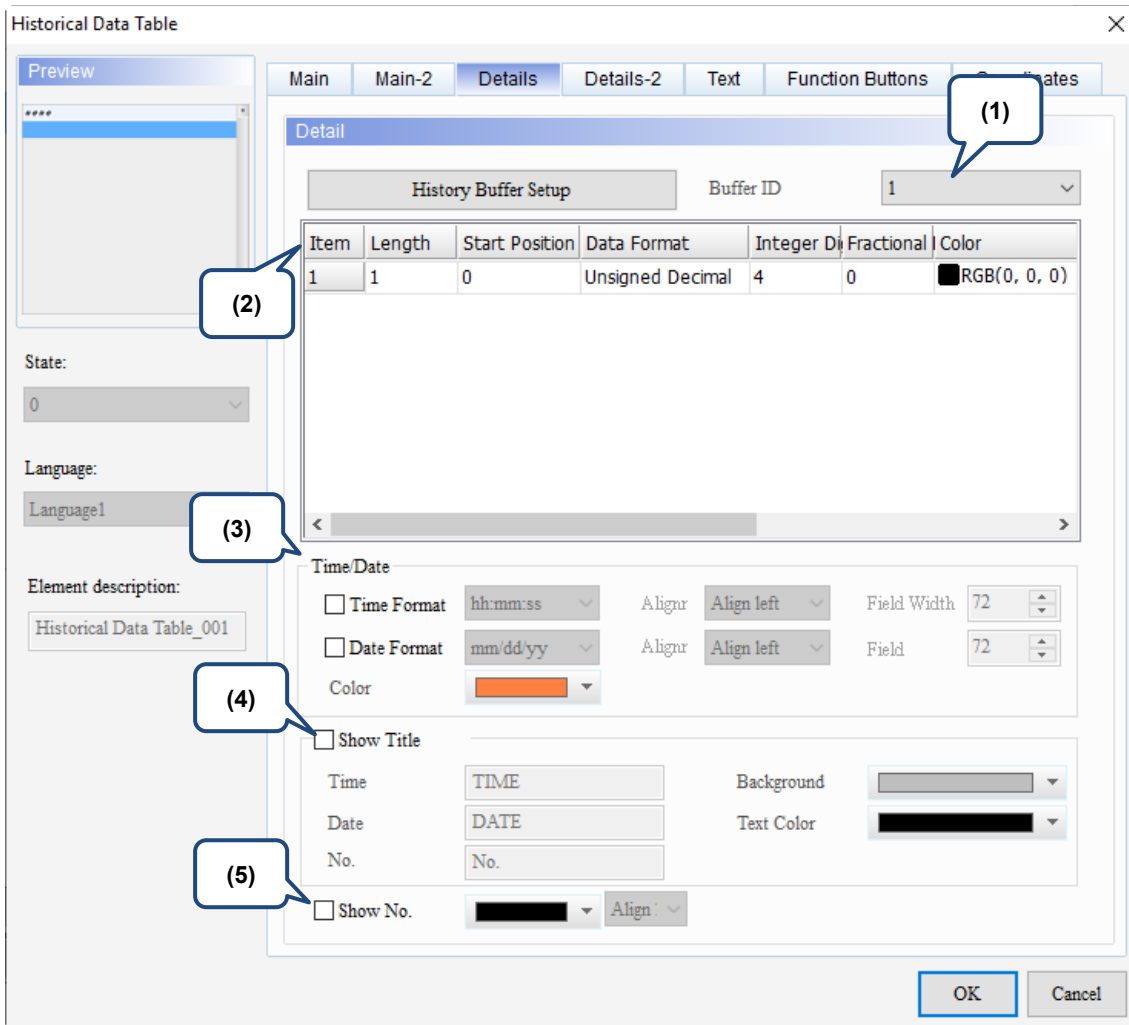


Figure 15.3.3 Main-2 property page for the Historical Data Table element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Details

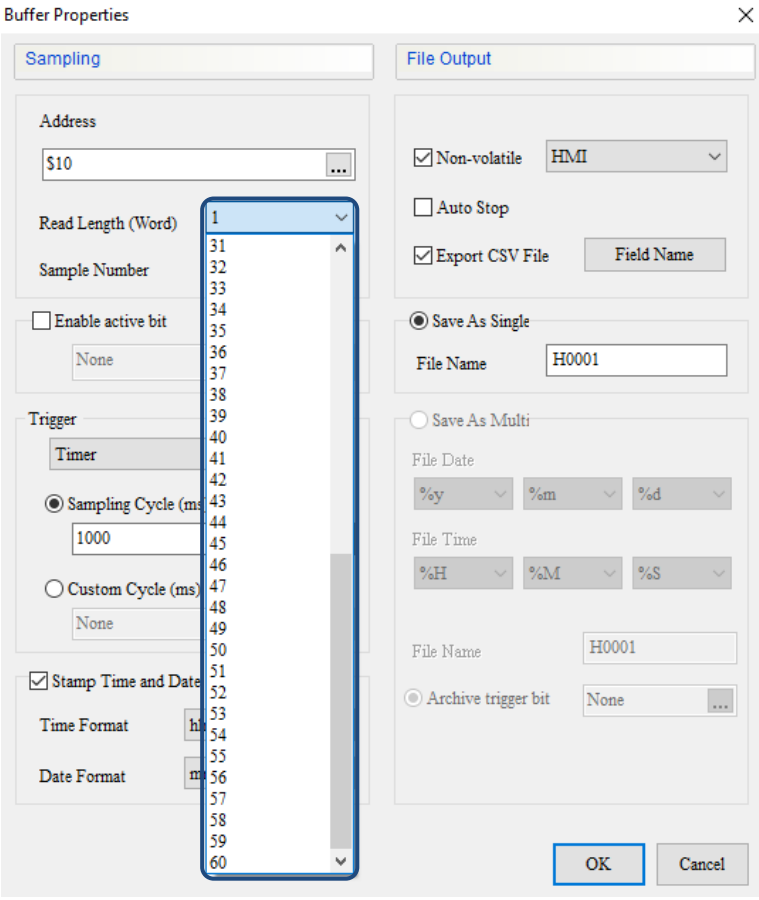
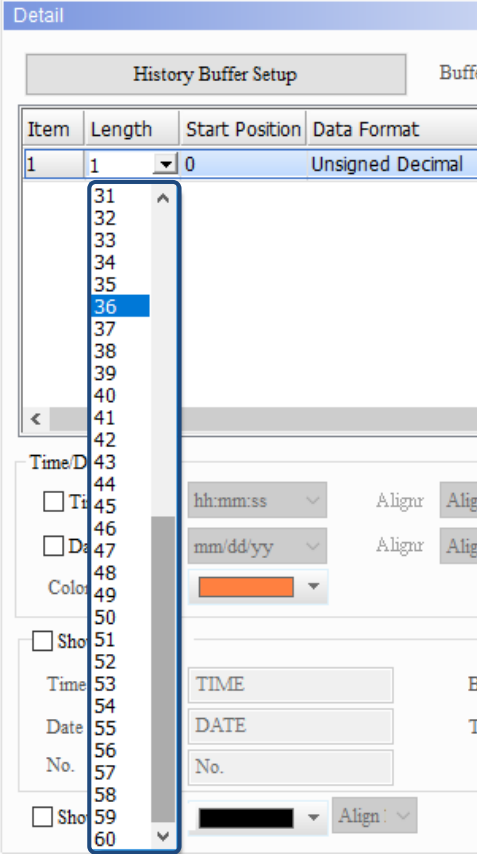


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Figure 15.3.4 Details property page for the Historical Data Table element

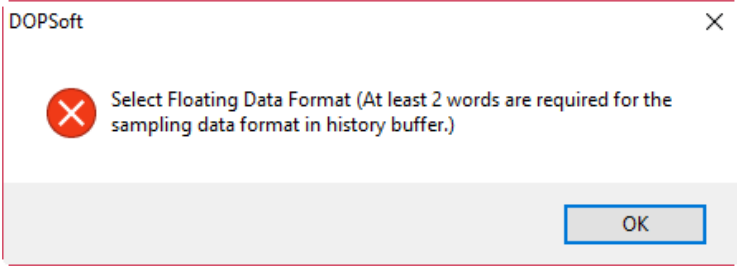
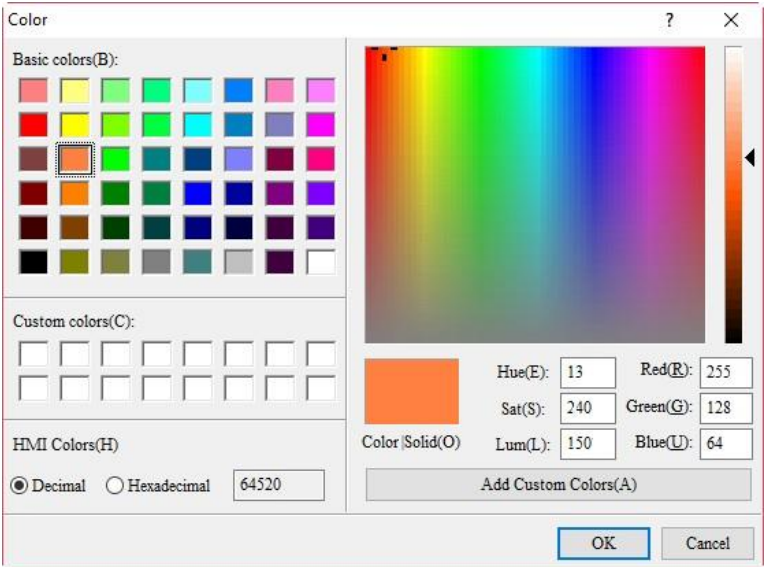
No.	Property	Function description
(1)	Buffer ID	<p>The Buffer ID corresponds to the set data number in the History Buffer Setup. The History Buffer Setup can set up to 12 sets of data, so the Buffer ID can be up to 12 sets.</p>

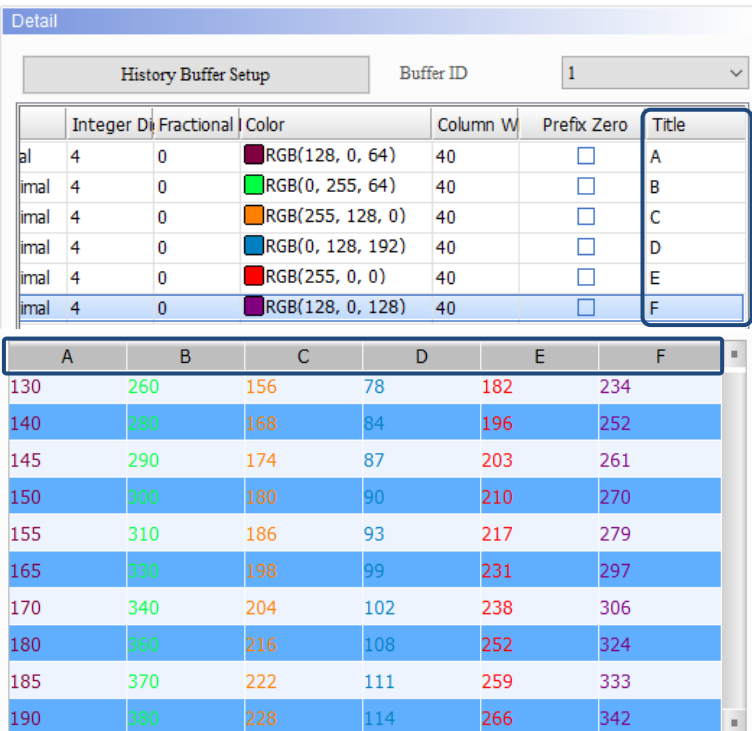
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No.	Property	Function description								
(2)	Item setting	<p>The Length corresponds to the Read Length (Word) in the History Buffer. If the Read Length (Word) is 60, the Length ranges from 1 to 60.</p>  <p>Buffer Properties</p> <p>Sampling: \$10</p> <p>Read Length (Word): 1</p> <p>Sample Number: None</p> <p>Trigger: Sampling Cycle (ms) 1000</p> <p>Stamp Time and Date: hh:mm:ss</p> <p>File Output: H0001</p>  <p>History Buffer Setup</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Length</th> <th>Start Position</th> <th>Data Format</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>0</td> <td>Unsigned Decimal</td> </tr> </tbody> </table>	Item	Length	Start Position	Data Format	1	1	0	Unsigned Decimal
Item	Length	Start Position	Data Format							
1	1	0	Unsigned Decimal							

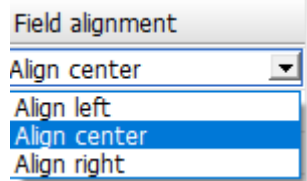
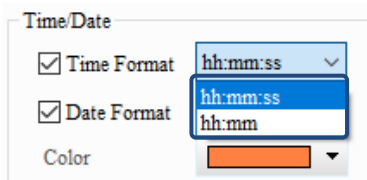
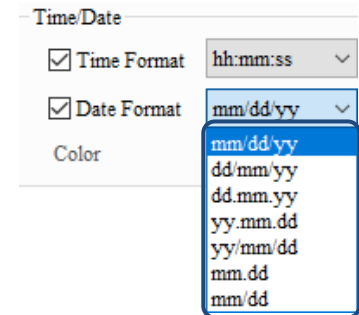
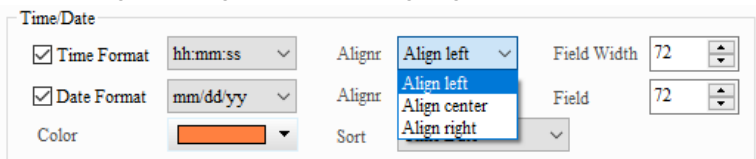
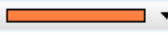
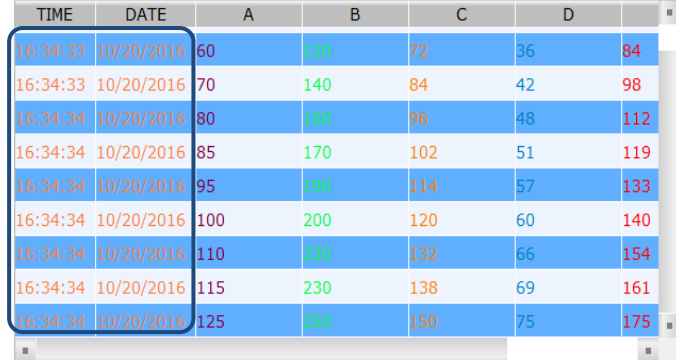
No.	Property	Function description																	
(2)	Item setting	<ul style="list-style-type: none"> The Start Position setting is determined by the set Read Length (Word). If the Read Length (Word) is 60, the Start Position ranges from 0 to 59. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>No.</th> <th>Address</th> <th>Read Length (Word)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>\$10</td> <td>60</td> </tr> </tbody> </table> <p style="text-align: center;">Start Position</p>	No.	Address	Read Length (Word)	1	\$10	60											
		No.	Address	Read Length (Word)															
1	\$10	60																	
<ul style="list-style-type: none"> When the Read Length is 1 (Word) or 2 (Words), the supported data formats are different. The supported data formats are as follows. For the Char format, if the Read Length is 1, it represents 2 Chars; if the Read Length is 2, it represents 4 Chars, and so on. When the Read Length is 3 or above, Char is the only supported format. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th colspan="3">Read Length is 1</th> </tr> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="6" style="text-align: center;">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFF</td> </tr> <tr> <td>Char</td> <td>2 characters</td> </tr> </tbody> </table> <p style="text-align: center;">Data Format</p>	Read Length is 1			Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hex	0 to 0xFFFF	Char	2 characters
Read Length is 1																			
Data Type	Data Format	Allowable range																	
Word	BCD	0 to 9999																	
	Signed BCD	-999 to +9999																	
	Signed Decimal	-32768 to +32767																	
	Unsigned Decimal	0 to 65535																	
	Hex	0 to 0xFFFF																	
	Char	2 characters																	

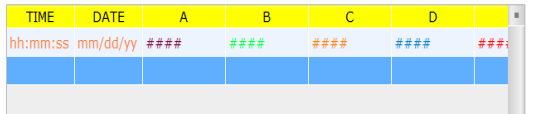
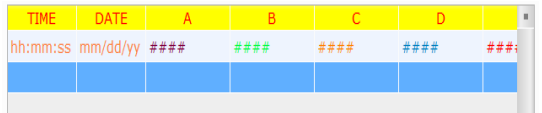
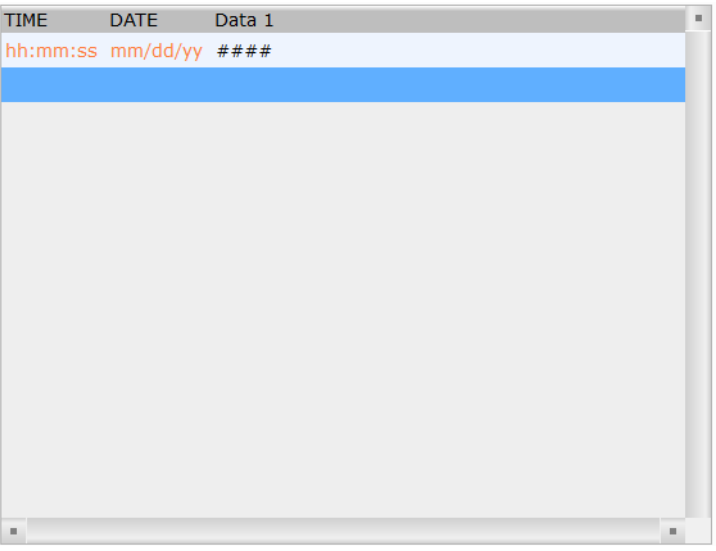
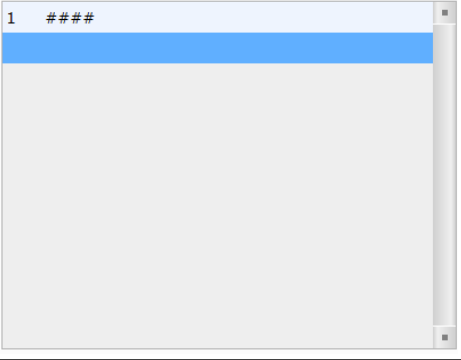
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No.	Property	Function description																		
(2)	Data Format	<p style="text-align: center;">Read Length is 2</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="7">DWord</td> <td>BCD</td> <td>0 to 99999999</td> </tr> <tr> <td>Signed BCD</td> <td>-9999999 to +9999999</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294967295</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFFFFFF</td> </tr> <tr> <td>Char</td> <td>4 characters</td> </tr> <tr> <td>Floating</td> <td>0 to 9999999</td> </tr> </tbody> </table> <p>Note:</p> <ol style="list-style-type: none"> If you select Floating as the Data Format, set the Length to 2. If you select Floating as the Data Format, but set the Length to 1 word, the software displays a message to remind you that you need to set the Length to 2 or above. 	Data Type	Data Format	Allowable range	DWord	BCD	0 to 99999999	Signed BCD	-9999999 to +9999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294967295	Hex	0 to 0xFFFFFFFF	Char	4 characters	Floating	0 to 9999999
	Data Type	Data Format	Allowable range																	
	DWord	BCD	0 to 99999999																	
Signed BCD		-9999999 to +9999999																		
Signed Decimal		-2147483648 to +2147483647																		
Unsigned Decimal		0 to 4294967295																		
Hex		0 to 0xFFFFFFFF																		
Char		4 characters																		
Floating		0 to 9999999																		
Integer / Fractional Digits	<ul style="list-style-type: none"> You can set the displaying number of integer digits and the number of decimal places. When the Global range check box is selected, you cannot set this function. 																			
Color	<p>You can set the color for the display value.</p> 																			
Column Width	<ul style="list-style-type: none"> Column Width is for setting the distance between the numeric data records. For example, if the Column Counts is set to 2 and Column Width is set to 40, then the width between the first and second data records is 40. The Column Width is 40 by default and the setting range is 0 - 999. 																			

No.	Property	Function description																																													
(2)	Item setting	Prefix Zero	<p>The Prefix Zero function determines how many zeros to add to the beginning of the values based on the set number of integer digits. The following example illustrates integers of four digits.</p> <table border="1"> <thead> <tr> <th colspan="2">Selected</th> </tr> </thead> <tbody> <tr><td>0140</td><td>0280</td></tr> <tr><td>0145</td><td>0290</td></tr> <tr><td>0150</td><td>0300</td></tr> <tr><td>0160</td><td>0320</td></tr> <tr><td>0165</td><td>0330</td></tr> <tr><td>0175</td><td>0350</td></tr> <tr><td>0180</td><td>0360</td></tr> <tr><td>0185</td><td>0370</td></tr> <tr><td>0195</td><td>0390</td></tr> <tr><td>0200</td><td>0400</td></tr> </tbody> <thead> <tr> <th colspan="2">Not selected</th> </tr> </thead> <tbody> <tr><td>370</td><td>740</td></tr> <tr><td>375</td><td>750</td></tr> <tr><td>385</td><td>770</td></tr> <tr><td>390</td><td>780</td></tr> <tr><td>395</td><td>790</td></tr> <tr><td>400</td><td>800</td></tr> <tr><td>410</td><td>820</td></tr> <tr><td>415</td><td>830</td></tr> <tr><td>425</td><td>850</td></tr> <tr><td>430</td><td>860</td></tr> </tbody> </table>	Selected		0140	0280	0145	0290	0150	0300	0160	0320	0165	0330	0175	0350	0180	0360	0185	0370	0195	0390	0200	0400	Not selected		370	740	375	750	385	770	390	780	395	790	400	800	410	820	415	830	425	850	430	860
		Selected																																													
0140	0280																																														
0145	0290																																														
0150	0300																																														
0160	0320																																														
0165	0330																																														
0175	0350																																														
0180	0360																																														
0185	0370																																														
0195	0390																																														
0200	0400																																														
Not selected																																															
370	740																																														
375	750																																														
385	770																																														
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395	790																																														
400	800																																														
410	820																																														
415	830																																														
425	850																																														
430	860																																														
Title	<p>This function allows you to name the titles for the data display.</p>  <p>The screenshot shows a 'Detail' window with a 'History Buffer Setup' section. It includes a 'Buffer ID' dropdown set to '1' and a table with columns: Integer D, Fractional, Color, Column W, Prefix Zero, and Title. The table lists six columns with their respective colors and titles (A-F). Below this is a data display grid with columns A-F and rows 130-190, where each cell contains a number colored to match its column header.</p>																																														

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No.	Property	Function description	
(2)	Item setting	Field alignment	<p>Set the alignment style for the text in the title field. The alignment styles include: Align left, Align center, and Align right.</p> 
(3)	Time/Date	Time Format	<p>Two time formats are supported as follows:</p> 
		Date Format	<p>Seven date formats are supported as follows:</p> 
		Alignment	<p>Set the alignment style for the date and time. The alignment styles include: Align left, Align center, and Align right.</p> 
		Field Width	Set the width for the date and time fields.
		Color	<p>Set the displaying color of the date and time. The default is .</p> 

No.	Property	Function description	
(4)	Show Title	Background	<p>Set the background color of the title column.</p> <p>The background color is changed to yellow</p> 
		Text Color	<p>Set the color of the title text.</p> <p>The text color is changed to red</p> 
		Time	<p>■ The default names are in English.</p> <p><input checked="" type="checkbox"/> Show Title</p> <p>Time: <input type="text" value="TIME"/></p> <p>Date: <input type="text" value="DATE"/></p> <p>No.: <input type="text" value="No."/></p> <p>■ You can set the title names for the Time, Date, and No.</p> 
		Date	
		No.	
(5)	Show No.	Show No.	<p>When selected, the No. column is displayed.</p> 
		Color	<p>Set the text color of the No. The default is black.</p>
		Alignment	<p>Set the alignment style for the No. The default is Align left.</p> <p><input checked="" type="checkbox"/> Show No. <input type="text" value=""/> Align: <input type="button" value="Align left"/> <input type="button" value="Align cent"/> <input type="button" value="Align right"/></p>

■ Details-2

15

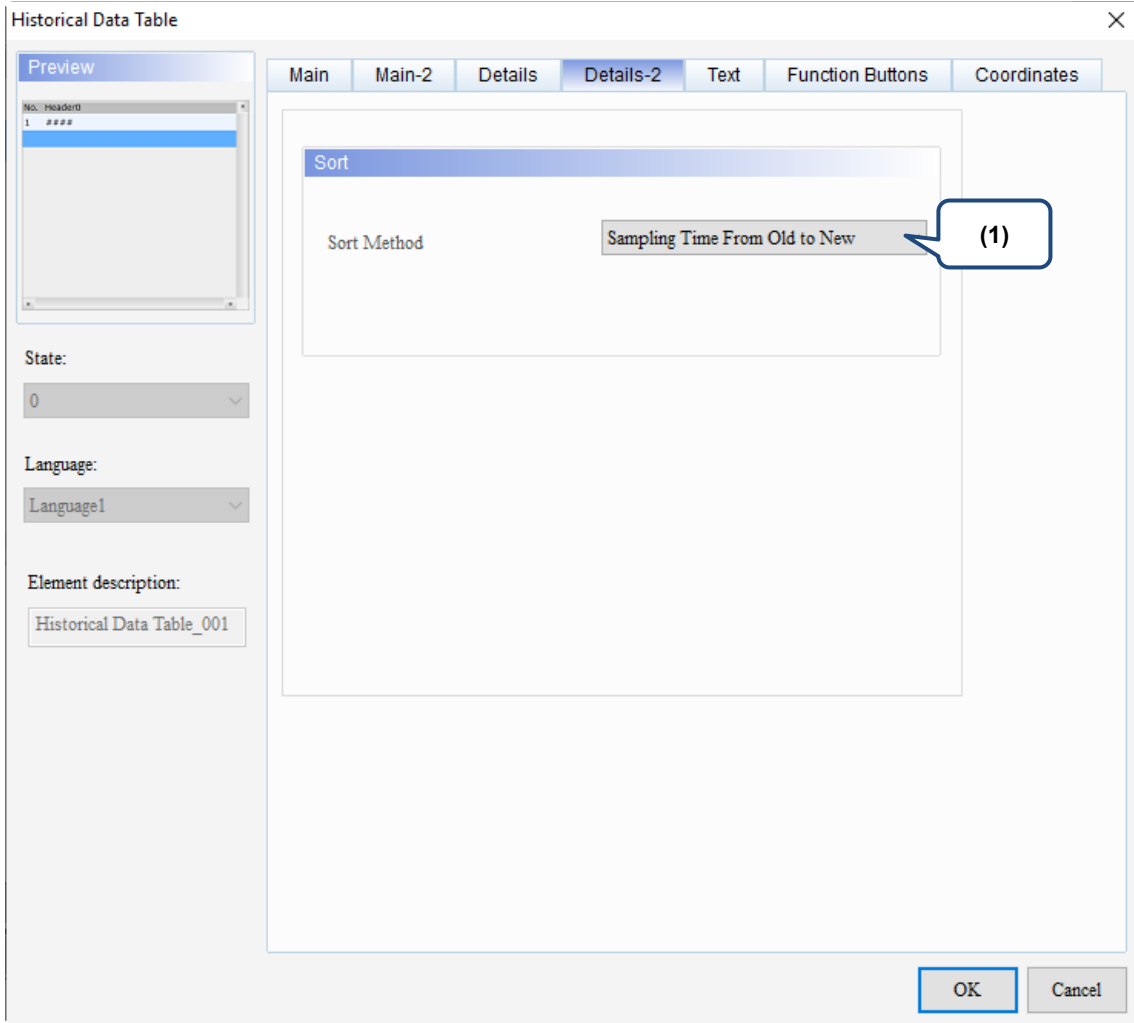
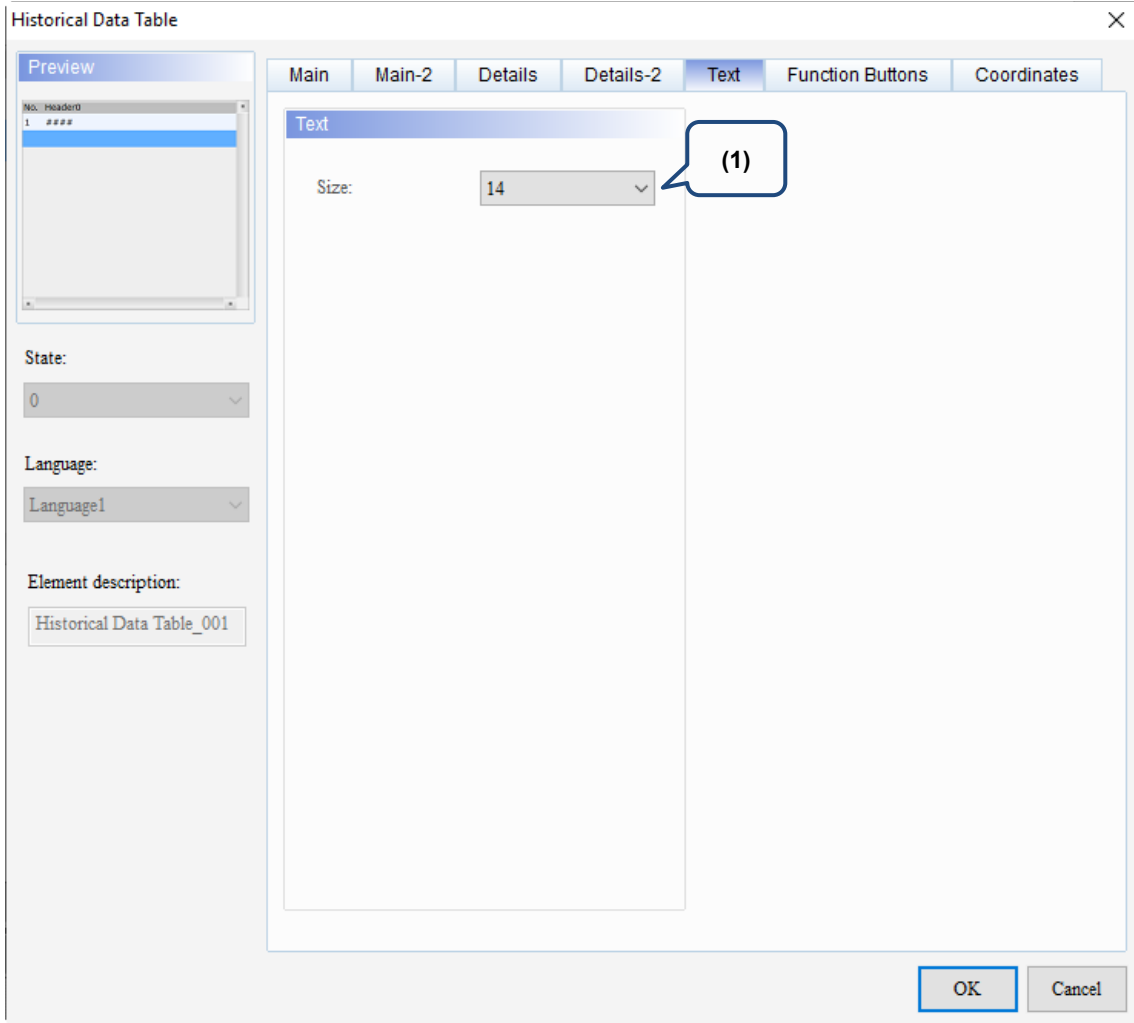


Figure 15.3.5 Details-2 property page for the Historical Data Table element

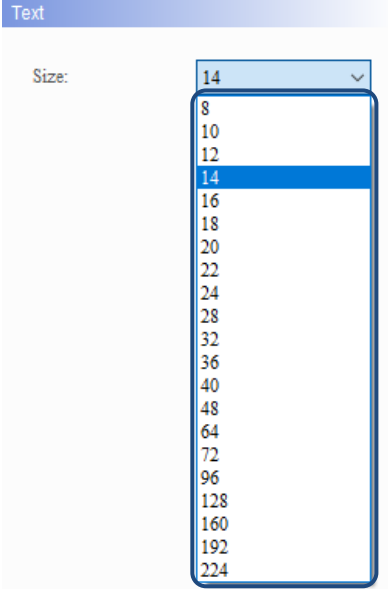
No.	Property	Function description
(1)	Sort Method	Select the data sorting method. <div style="display: flex; align-items: center;"> Sort Method <div style="border: 1px solid black; padding: 2px;"> <div style="background-color: #e0e0e0; padding: 2px;">Sampling Time From Old to New</div> <div style="background-color: #0070c0; color: white; padding: 2px;">Sampling Time From Old to New</div> <div style="background-color: #e0e0e0; padding: 2px;">Sampling Time From New To Old</div> </div> </div>

■ Text



15

Figure 15.3.6 Text property page for the Historical Data Table element

No.	Property	Function description
(1)	Text	<p>Set the text size of the displayed numeric data.</p> 

■ Function Buttons

15

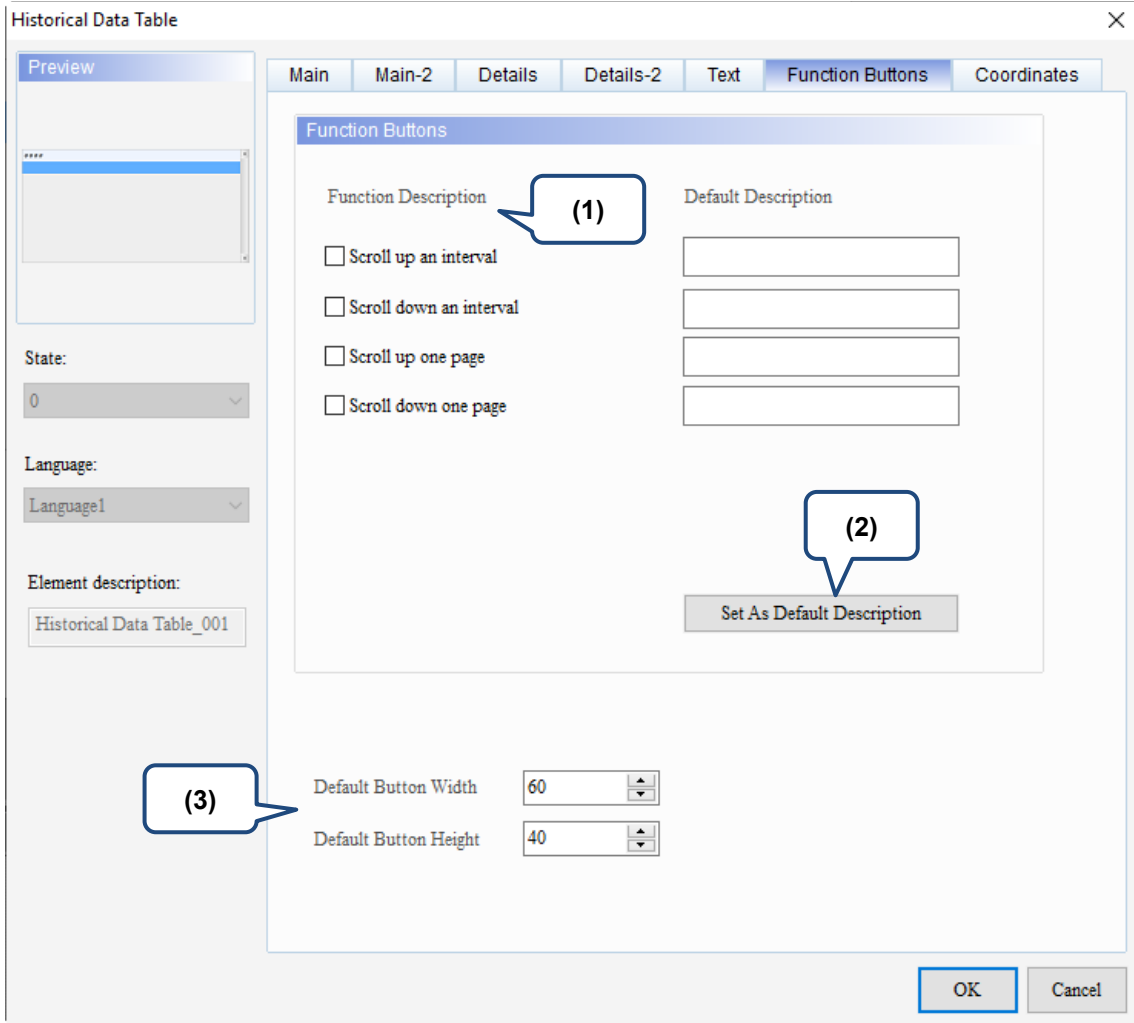
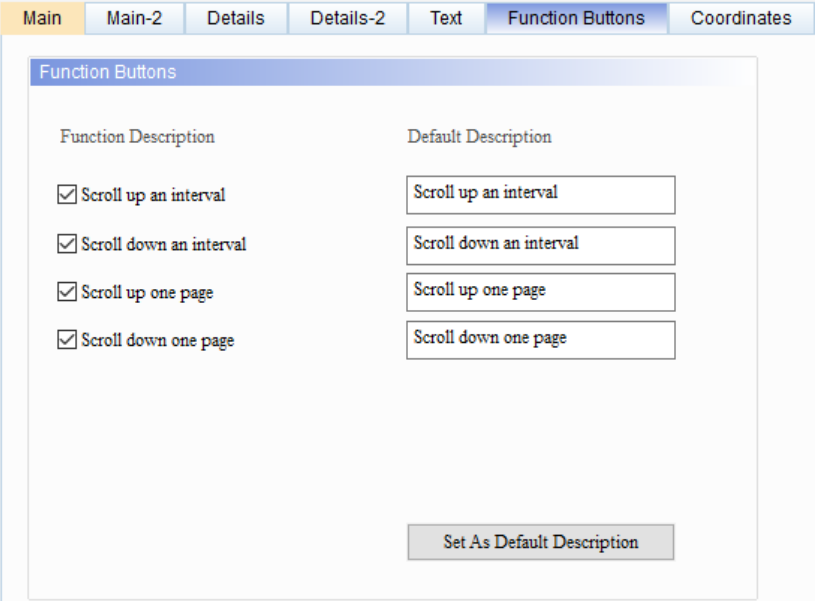


Figure 15.3.7 Function Buttons property page for the Historical Data Table element

No.	Property	Function description								
(1)	Function Description	<p>Select the function buttons to display on the Historical Data Table element.</p> <table border="1"> <tr> <td>Scroll up an interval</td> <td>Scroll up an interval.</td> </tr> <tr> <td>Scroll down an interval</td> <td>Scroll down an interval.</td> </tr> <tr> <td>Scroll up one page</td> <td>Scroll up one page.</td> </tr> <tr> <td>Scroll down one page</td> <td>Scroll down one page.</td> </tr> </table>	Scroll up an interval	Scroll up an interval.	Scroll down an interval	Scroll down an interval.	Scroll up one page	Scroll up one page.	Scroll down one page	Scroll down one page.
Scroll up an interval	Scroll up an interval.									
Scroll down an interval	Scroll down an interval.									
Scroll up one page	Scroll up one page.									
Scroll down one page	Scroll down one page.									
(2)	Set As Default Description	<p>When you press Set as Default Description, the default strings are automatically filled in the Default Description fields.</p> 								
(3)	Default Button Width / Height	You can adjust the button height and width.								

Coordinates

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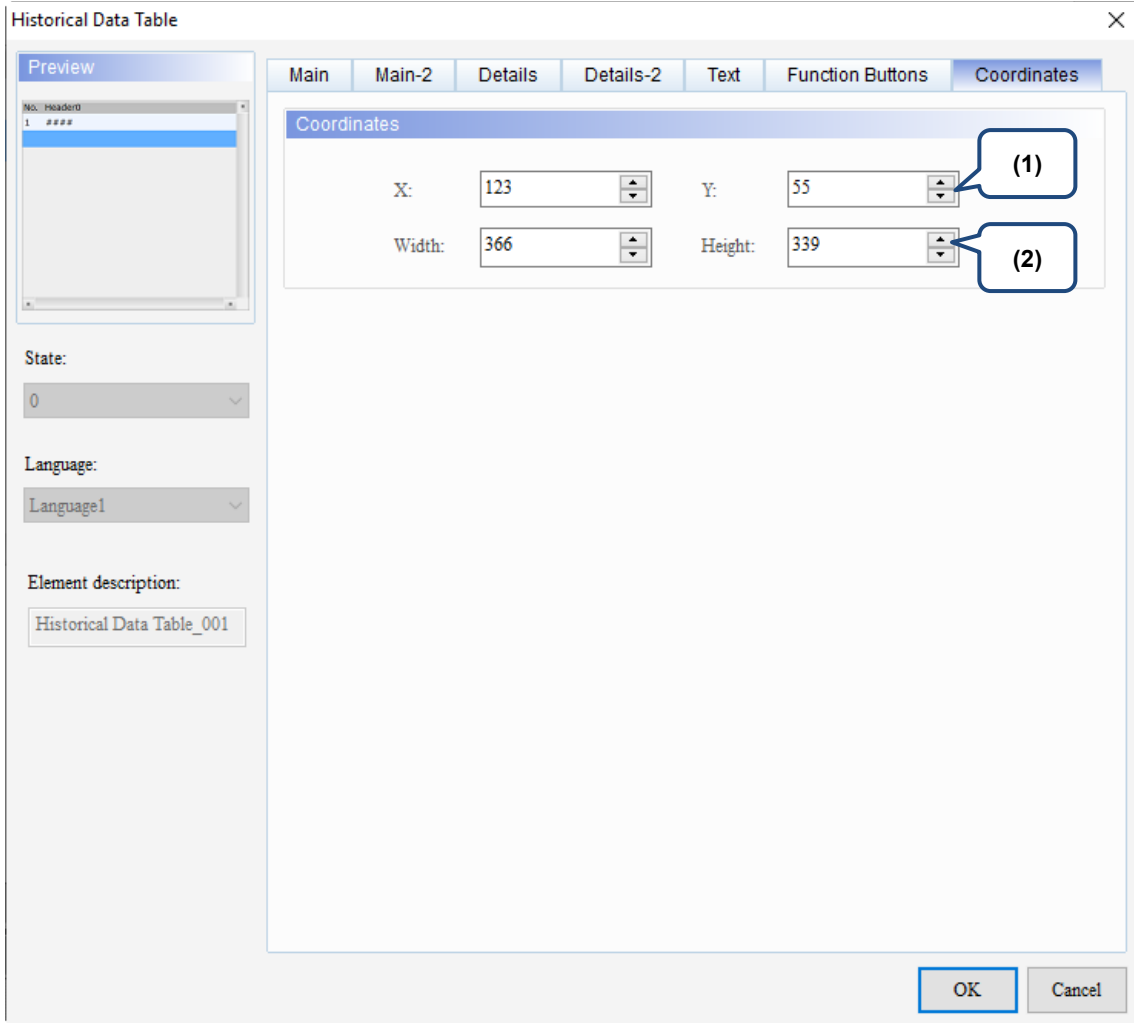


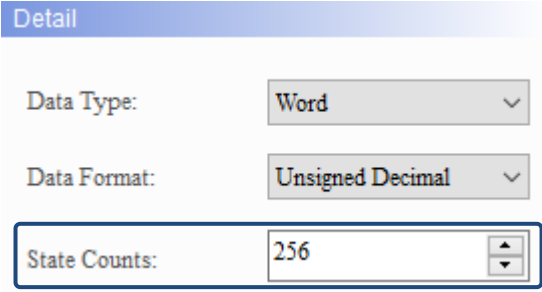
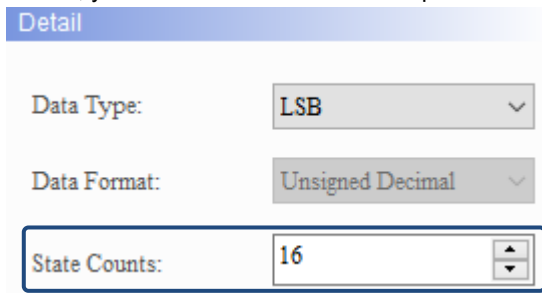
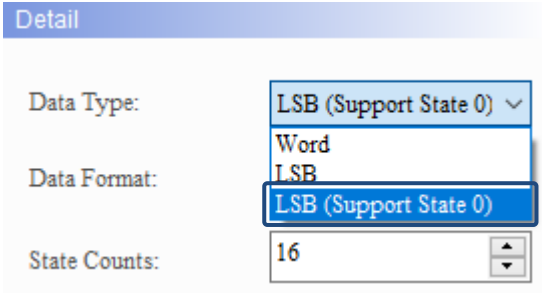

Figure 15.3.8 Coordinates property page for the Historical Data Table element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

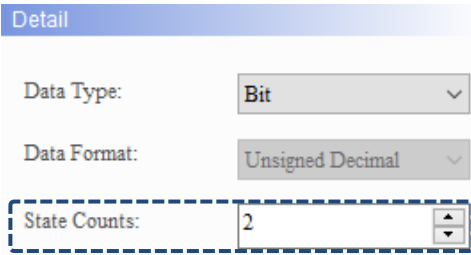
15.4 Historical Event Table

Historical Event Table supports three data types as shown in Table 15.4.1. To add or reduce the total number of states, you can simply increase or decrease the number of State Counts in the Properties window.

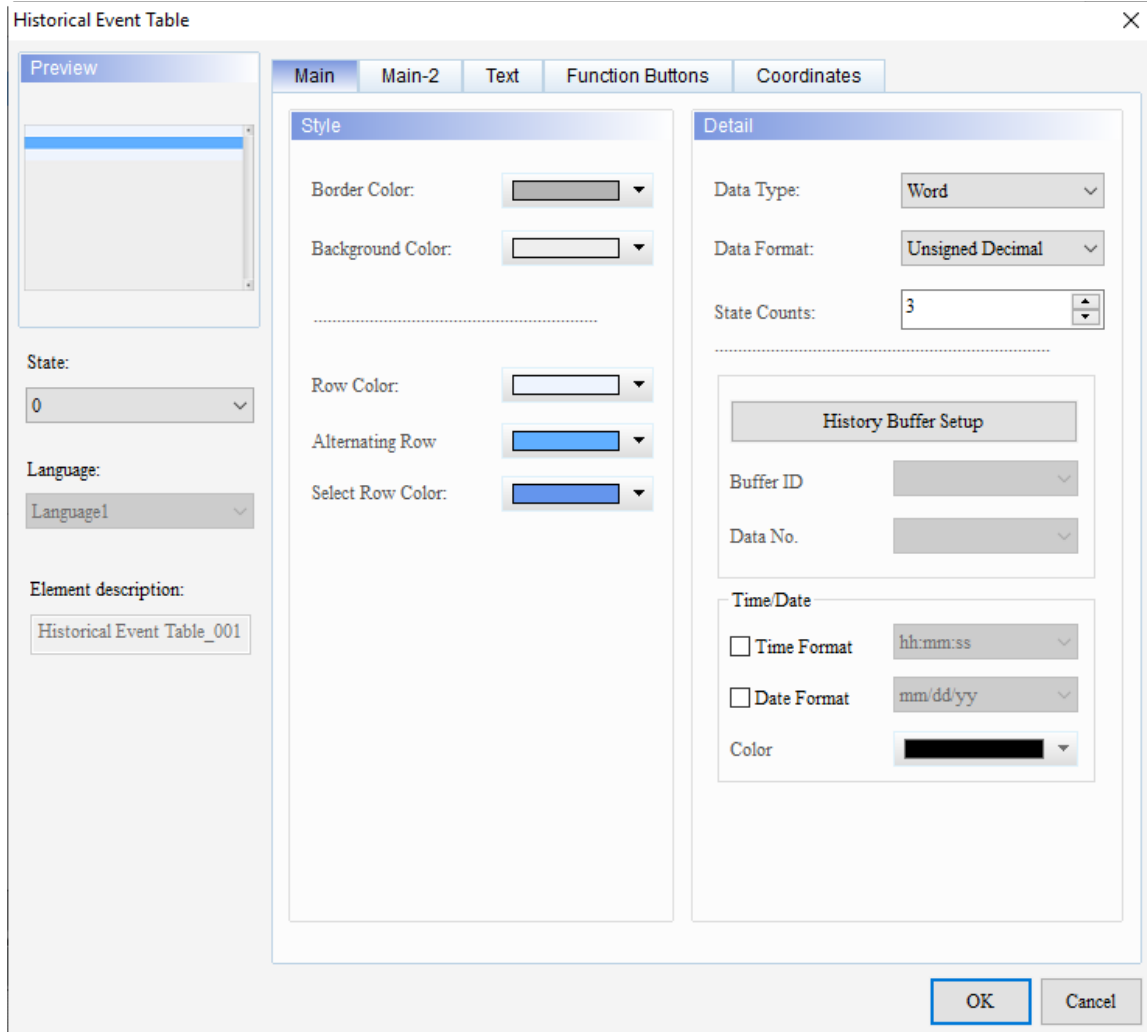
Table 15.4.1 Data Type of the Historical Event Table

Historical Event Table	
Data Type	State Counts
Word	<ul style="list-style-type: none"> If the Data Type is Word, you can set 1 to 256 states for the State Counts.  <ul style="list-style-type: none"> If the Data Type is Word, the memory address is in units of Word.
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> LSB is to first convert the data in the register to binary data, and then use the lowest non-zero bit to determine the current state of the object. If the Data Type is LSB, you can set 1 to 16 states except for State 0.  <ul style="list-style-type: none"> To display State 0, select LSB (Support State 0) for the Data Type.  <ul style="list-style-type: none"> If you selected LSB, the element is black when the state is 0.  When the Data Type is LSB or LSB (Support State 0), the memory address is also in units of Word.

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Historical Event Table																																																														
Data Type	State Counts																																																													
LSB / LSB (Support State 0)	<p>The examples in the following table show how the state value is determined with the lowest non-zero bit of the binary value converted from a decimal value. There are also examples demonstrating how the software determines the displaying state value with the lowest bit when the decimal values are 3 and 7.</p> <table border="1"> <thead> <tr> <th>Decimal</th> <th>Binary</th> <th>State value</th> </tr> </thead> <tbody> <tr> <td><u>0</u></td> <td><u>0000000000000000</u></td> <td>State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.</td> </tr> <tr> <td>1</td> <td>0000000000000001</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>2</td> <td>0000000000000010</td> <td>The lowest non-zero bit is bit 1, State = 2.</td> </tr> <tr> <td><u>3</u></td> <td><u>0000000000000011</u></td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>4</td> <td>0000000000000100</td> <td>The lowest non-zero bit is bit 2, State = 3.</td> </tr> <tr> <td><u>7</u></td> <td><u>0000000000000111</u></td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>8</td> <td>0000000000001000</td> <td>The lowest non-zero bit is bit 3, State = 4.</td> </tr> <tr> <td>16</td> <td>0000000000100000</td> <td>The lowest non-zero bit is bit 4, State = 5.</td> </tr> <tr> <td>32</td> <td>0000000001000000</td> <td>The lowest non-zero bit is bit 5, State = 6.</td> </tr> <tr> <td>64</td> <td>0000000010000000</td> <td>The lowest non-zero bit is bit 6, State = 7.</td> </tr> <tr> <td>128</td> <td>0000000100000000</td> <td>The lowest non-zero bit is bit 7, State = 8.</td> </tr> <tr> <td>256</td> <td>0000001000000000</td> <td>The lowest non-zero bit is bit 8, State = 9.</td> </tr> <tr> <td>512</td> <td>0000010000000000</td> <td>The lowest non-zero bit is bit 9, State = 10.</td> </tr> <tr> <td>1024</td> <td>0000100000000000</td> <td>The lowest non-zero bit is bit 10, State = 11.</td> </tr> <tr> <td>2048</td> <td>0001000000000000</td> <td>The lowest non-zero bit is bit 11, State = 12.</td> </tr> <tr> <td>4096</td> <td>0010000000000000</td> <td>The lowest non-zero bit is bit 12, State = 13.</td> </tr> <tr> <td>8192</td> <td>0100000000000000</td> <td>The lowest non-zero bit is bit 13, State = 14.</td> </tr> <tr> <td>16384</td> <td>1000000000000000</td> <td>The lowest non-zero bit is bit 14, State = 15.</td> </tr> <tr> <td>32768</td> <td>1000000000000000</td> <td>The lowest non-zero bit is bit 15, State = 16.</td> </tr> </tbody> </table>		Decimal	Binary	State value	<u>0</u>	<u>0000000000000000</u>	State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.	1	0000000000000001	The lowest non-zero bit is bit 0, State = 1.	2	0000000000000010	The lowest non-zero bit is bit 1, State = 2.	<u>3</u>	<u>0000000000000011</u>	The lowest non-zero bit is bit 0, State = 1.	4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.	<u>7</u>	<u>0000000000000111</u>	The lowest non-zero bit is bit 0, State = 1.	8	0000000000001000	The lowest non-zero bit is bit 3, State = 4.	16	0000000000100000	The lowest non-zero bit is bit 4, State = 5.	32	0000000001000000	The lowest non-zero bit is bit 5, State = 6.	64	0000000010000000	The lowest non-zero bit is bit 6, State = 7.	128	0000000100000000	The lowest non-zero bit is bit 7, State = 8.	256	0000001000000000	The lowest non-zero bit is bit 8, State = 9.	512	0000010000000000	The lowest non-zero bit is bit 9, State = 10.	1024	0000100000000000	The lowest non-zero bit is bit 10, State = 11.	2048	0001000000000000	The lowest non-zero bit is bit 11, State = 12.	4096	0010000000000000	The lowest non-zero bit is bit 12, State = 13.	8192	0100000000000000	The lowest non-zero bit is bit 13, State = 14.	16384	1000000000000000	The lowest non-zero bit is bit 14, State = 15.	32768	1000000000000000	The lowest non-zero bit is bit 15, State = 16.
	Decimal	Binary	State value																																																											
	<u>0</u>	<u>0000000000000000</u>	State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.																																																											
	1	0000000000000001	The lowest non-zero bit is bit 0, State = 1.																																																											
	2	0000000000000010	The lowest non-zero bit is bit 1, State = 2.																																																											
	<u>3</u>	<u>0000000000000011</u>	The lowest non-zero bit is bit 0, State = 1.																																																											
	4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.																																																											
	<u>7</u>	<u>0000000000000111</u>	The lowest non-zero bit is bit 0, State = 1.																																																											
	8	0000000000001000	The lowest non-zero bit is bit 3, State = 4.																																																											
	16	0000000000100000	The lowest non-zero bit is bit 4, State = 5.																																																											
	32	0000000001000000	The lowest non-zero bit is bit 5, State = 6.																																																											
	64	0000000010000000	The lowest non-zero bit is bit 6, State = 7.																																																											
	128	0000000100000000	The lowest non-zero bit is bit 7, State = 8.																																																											
	256	0000001000000000	The lowest non-zero bit is bit 8, State = 9.																																																											
	512	0000010000000000	The lowest non-zero bit is bit 9, State = 10.																																																											
	1024	0000100000000000	The lowest non-zero bit is bit 10, State = 11.																																																											
	2048	0001000000000000	The lowest non-zero bit is bit 11, State = 12.																																																											
4096	0010000000000000	The lowest non-zero bit is bit 12, State = 13.																																																												
8192	0100000000000000	The lowest non-zero bit is bit 13, State = 14.																																																												
16384	1000000000000000	The lowest non-zero bit is bit 14, State = 15.																																																												
32768	1000000000000000	The lowest non-zero bit is bit 15, State = 16.																																																												
Bit	<ul style="list-style-type: none"> When the Data Type is Bit, you can set only 2 states. 																																																													
	<ul style="list-style-type: none"> When the Data Type is Bit, the memory address is in units of Bit. 																																																													

When you double-click the Historical Event Table, the property page is shown as follows.



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Figure 15.4.1 Properties of Historical Event Table

Table 15.4.2 Function page of Historical Event Table

Historical Event Table	
Function page	Description
Preview	The Historical Event Table elements support multiple state values and multi-language data display.
Main	Set the Border Color, Background Color, Row Color, Alternating Row, and Select Row Color. Set the Data Type, Data Format, State Counts, Buffer ID, and Data No. Set the Time/Date.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment type.
Function Buttons	Select the function buttons to enable and set the width and height of the buttons.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

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■ Main

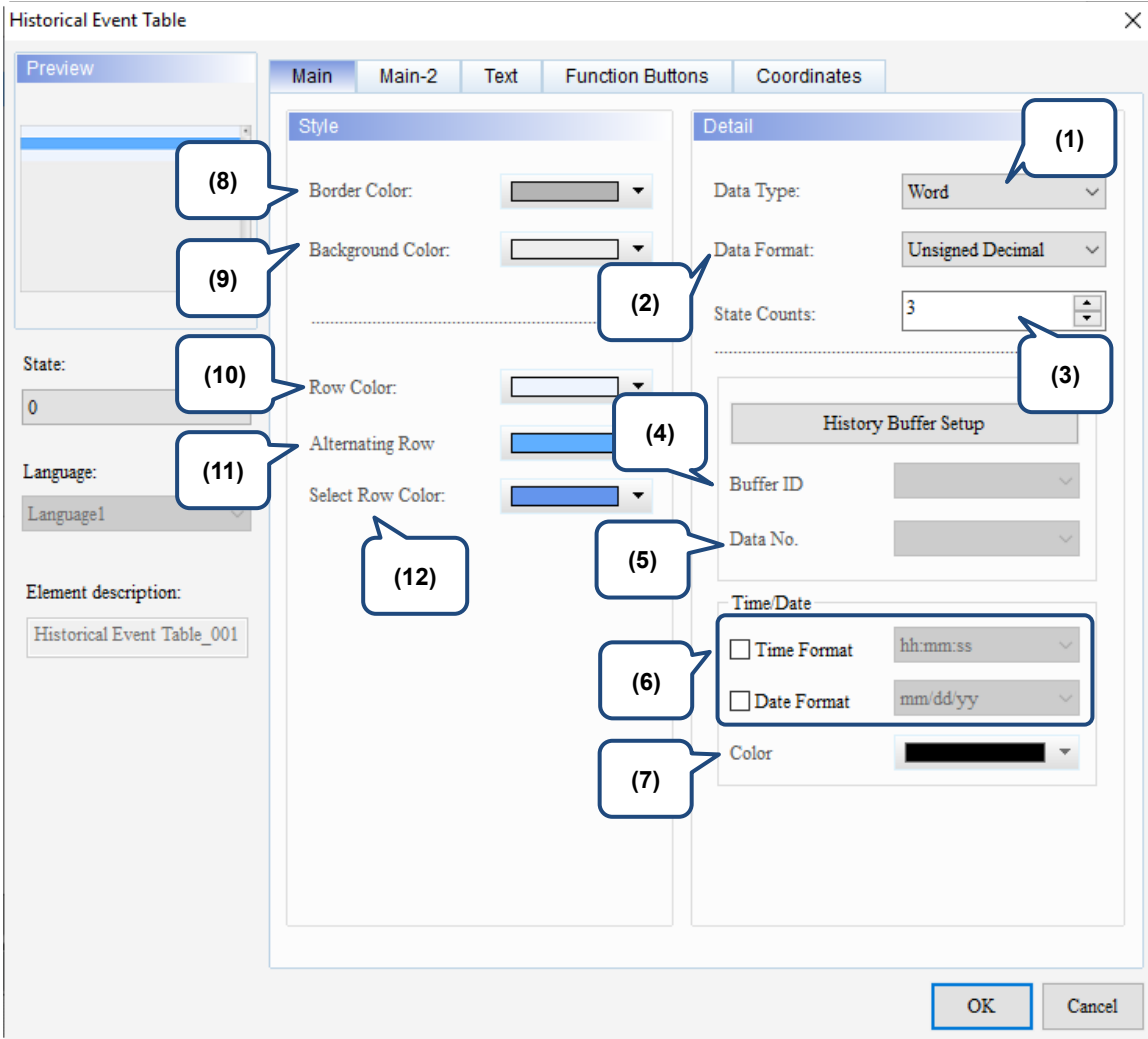
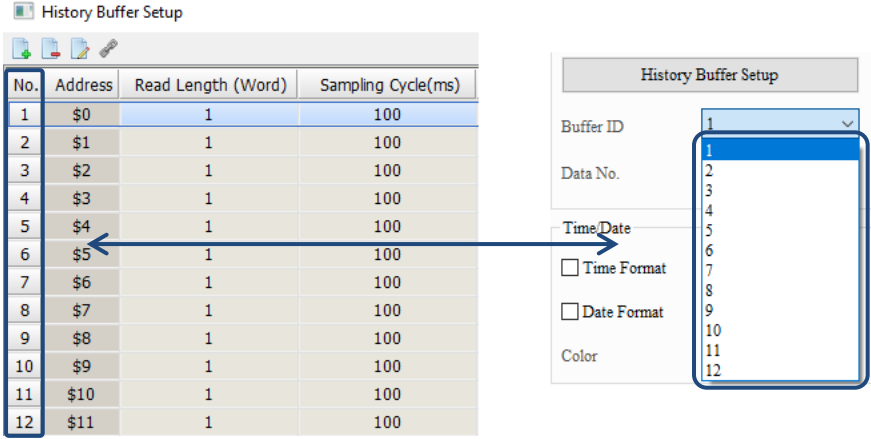
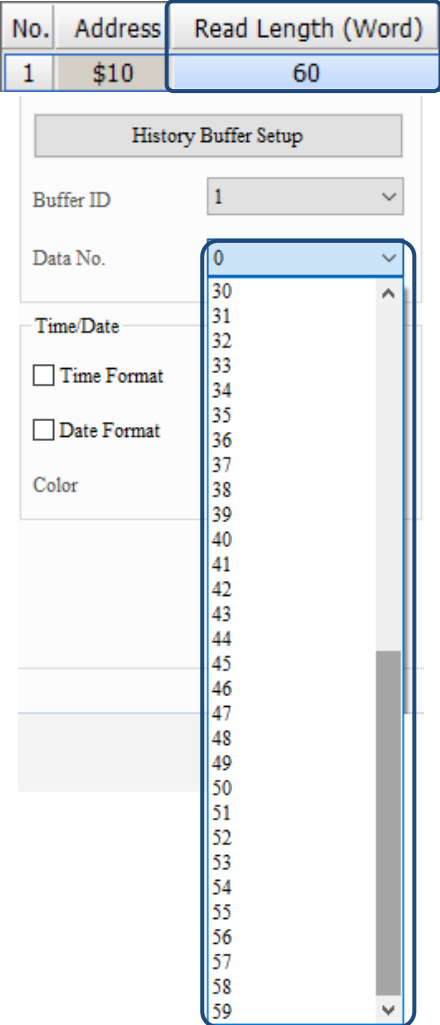
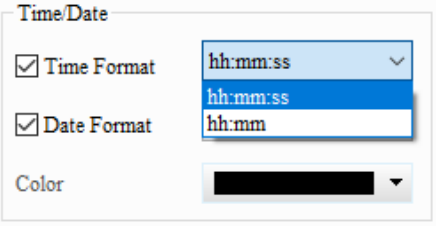
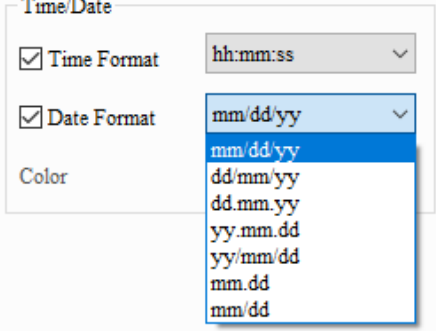
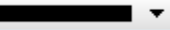
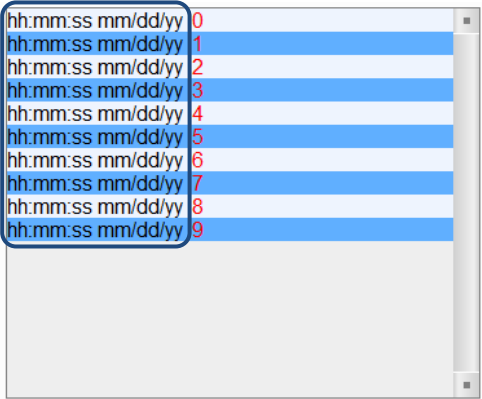
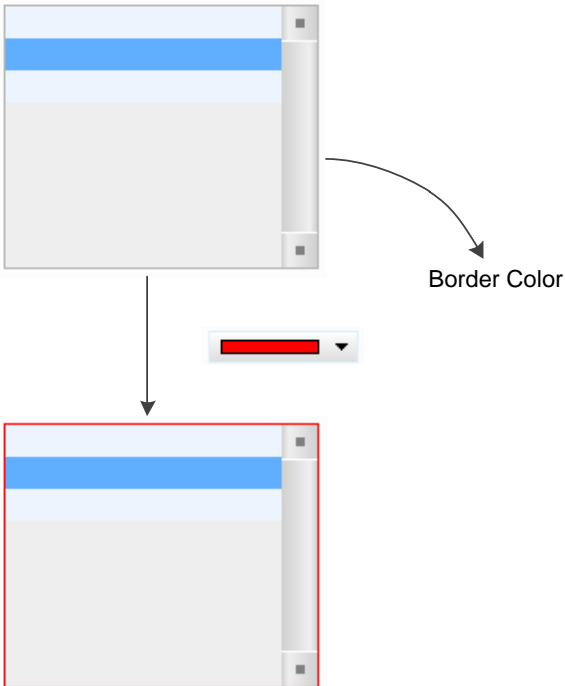


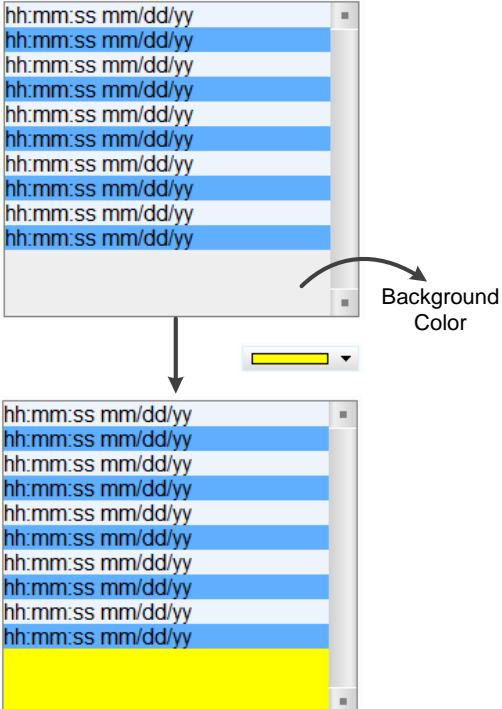
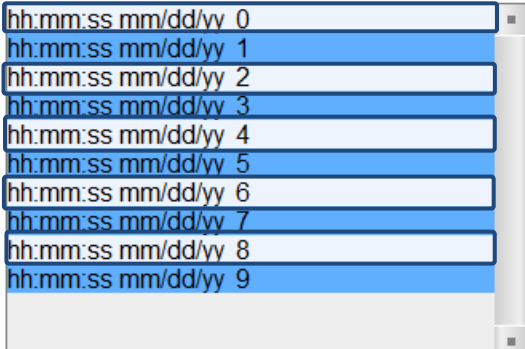
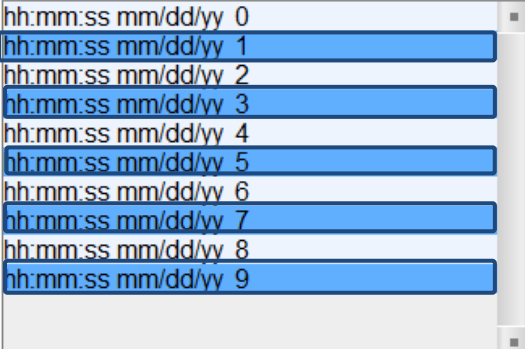
Figure 15.4.2 Main property page for the Historical Event Table element

No.	Property	Function description
(1)	Data Type	<p>There are three data types available: Word, LSB, and LSB (Support State 0).</p>
(2)	Data Format	<p>You can select the Data Format only when the Data Type is Word. There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal.</p>

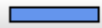
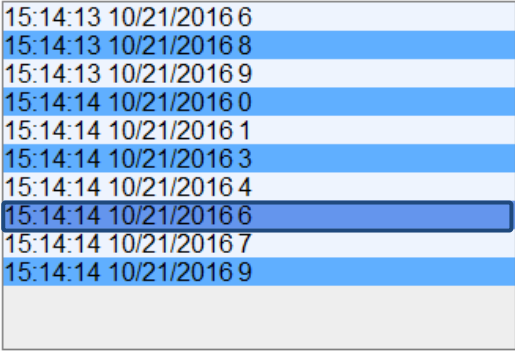
No.	Property	Function description																																																				
(3)	State Counts	Set the State Counts for the Historical Event Table. If the Data Type is Word, you can set 1 - 256 states; if the Data Type is LSB, you can set 16 states; and if the Data Type is LSB (Support State 0), you can set 17 states. Refer to Table 15.4.1 for details.																																																				
(4)	Buffer ID	<p>The Buffer ID corresponds to the set data number in the History Buffer Setup. The History Buffer Setup can set up to 12 sets of data, so the Buffer ID can be up to 12 sets.</p>  <table border="1"> <thead> <tr> <th>No.</th> <th>Address</th> <th>Read Length (Word)</th> <th>Sampling Cycle(ms)</th> </tr> </thead> <tbody> <tr><td>1</td><td>\$0</td><td>1</td><td>100</td></tr> <tr><td>2</td><td>\$1</td><td>1</td><td>100</td></tr> <tr><td>3</td><td>\$2</td><td>1</td><td>100</td></tr> <tr><td>4</td><td>\$3</td><td>1</td><td>100</td></tr> <tr><td>5</td><td>\$4</td><td>1</td><td>100</td></tr> <tr><td>6</td><td>\$5</td><td>1</td><td>100</td></tr> <tr><td>7</td><td>\$6</td><td>1</td><td>100</td></tr> <tr><td>8</td><td>\$7</td><td>1</td><td>100</td></tr> <tr><td>9</td><td>\$8</td><td>1</td><td>100</td></tr> <tr><td>10</td><td>\$9</td><td>1</td><td>100</td></tr> <tr><td>11</td><td>\$10</td><td>1</td><td>100</td></tr> <tr><td>12</td><td>\$11</td><td>1</td><td>100</td></tr> </tbody> </table>	No.	Address	Read Length (Word)	Sampling Cycle(ms)	1	\$0	1	100	2	\$1	1	100	3	\$2	1	100	4	\$3	1	100	5	\$4	1	100	6	\$5	1	100	7	\$6	1	100	8	\$7	1	100	9	\$8	1	100	10	\$9	1	100	11	\$10	1	100	12	\$11	1	100
No.	Address	Read Length (Word)	Sampling Cycle(ms)																																																			
1	\$0	1	100																																																			
2	\$1	1	100																																																			
3	\$2	1	100																																																			
4	\$3	1	100																																																			
5	\$4	1	100																																																			
6	\$5	1	100																																																			
7	\$6	1	100																																																			
8	\$7	1	100																																																			
9	\$8	1	100																																																			
10	\$9	1	100																																																			
11	\$10	1	100																																																			
12	\$11	1	100																																																			
(5)	Data No.	<p>Data No. corresponds to the Read Length (Word) set in the History Buffer Setup. When the Read Length is 1, the Data No. is 0; when the Read Length is 2, the Data No. can be 0 or 1. Thus, when the Read Length is 60 words, the Data No. is 0 - 59.</p>  <table border="1"> <thead> <tr> <th>No.</th> <th>Address</th> <th>Read Length (Word)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>\$10</td> <td>60</td> </tr> </tbody> </table>	No.	Address	Read Length (Word)	1	\$10	60																																														
No.	Address	Read Length (Word)																																																				
1	\$10	60																																																				

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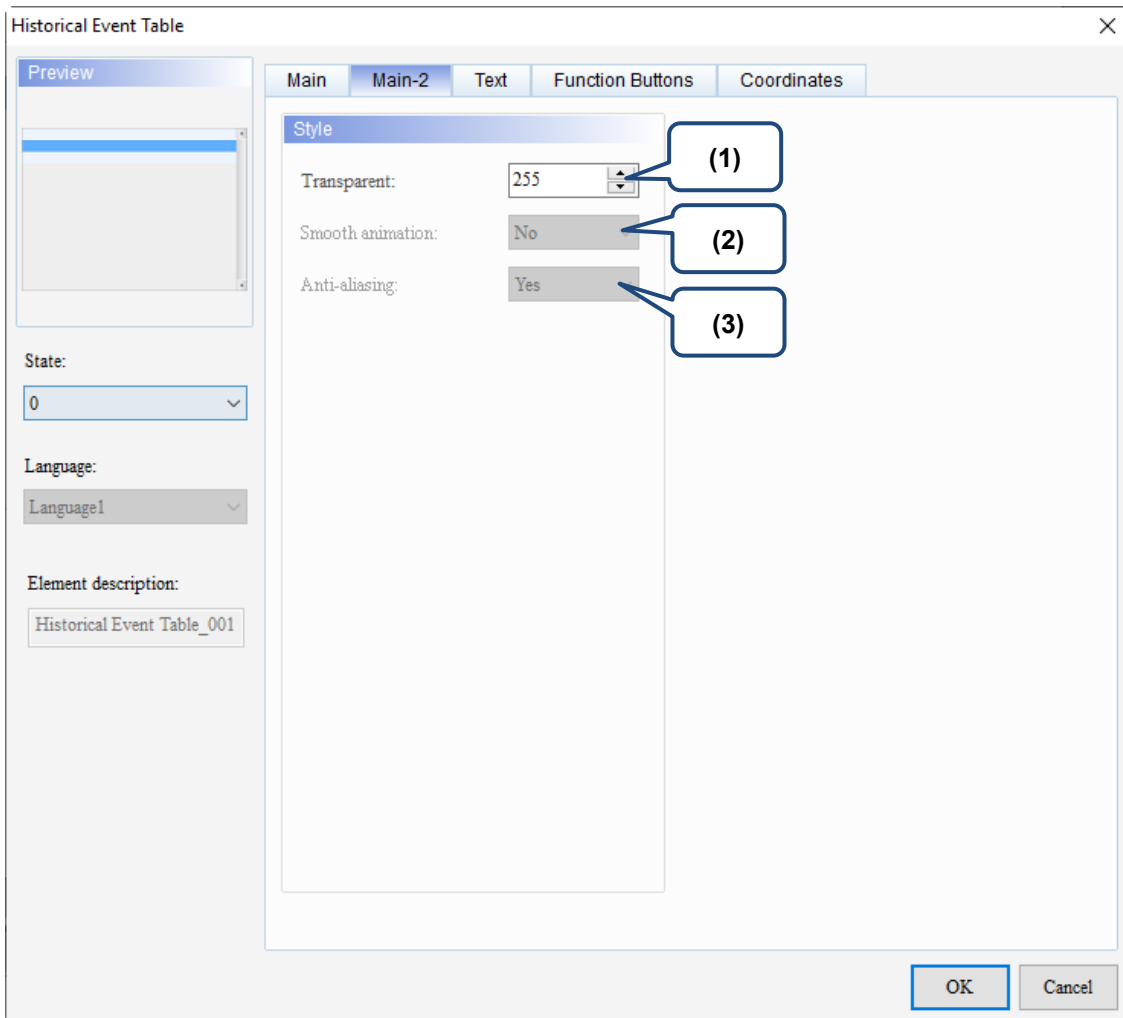
No.	Property	Function description
(6)	Time Format	<ul style="list-style-type: none"> Two time formats are supported as follows: 
	Date Format	<ul style="list-style-type: none"> Seven date formats are supported as follows: 
(7)	Color	<p>Set the displaying color of the date and time. The default is .</p> 
(8)	Border Color	<p>Set the Historical Event Table element border color.</p> 

No.	Property	Function description
(9)	Background Color	<p>Set the background color of the element.</p> 
(10)	Row Color	<p>Color of the odd rows. The default is <input type="text" value=""/> .</p> 
(11)	Alternating Row	<p>Color of the even rows. The default is <input type="text" value=""/> .</p> 

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No.	Property	Function description										
(12)	Select Row Color	<p>When you select the data rows to view, the rows are in the color specified in this setting. The default is  .</p>  <table border="1"> <tr><td>15:14:13 10/21/2016 6</td></tr> <tr><td>15:14:13 10/21/2016 8</td></tr> <tr><td>15:14:13 10/21/2016 9</td></tr> <tr><td>15:14:14 10/21/2016 0</td></tr> <tr><td>15:14:14 10/21/2016 1</td></tr> <tr><td>15:14:14 10/21/2016 3</td></tr> <tr><td>15:14:14 10/21/2016 4</td></tr> <tr><td>15:14:14 10/21/2016 6</td></tr> <tr><td>15:14:14 10/21/2016 7</td></tr> <tr><td>15:14:14 10/21/2016 9</td></tr> </table>	15:14:13 10/21/2016 6	15:14:13 10/21/2016 8	15:14:13 10/21/2016 9	15:14:14 10/21/2016 0	15:14:14 10/21/2016 1	15:14:14 10/21/2016 3	15:14:14 10/21/2016 4	15:14:14 10/21/2016 6	15:14:14 10/21/2016 7	15:14:14 10/21/2016 9
15:14:13 10/21/2016 6												
15:14:13 10/21/2016 8												
15:14:13 10/21/2016 9												
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15:14:14 10/21/2016 1												
15:14:14 10/21/2016 3												
15:14:14 10/21/2016 4												
15:14:14 10/21/2016 6												
15:14:14 10/21/2016 7												
15:14:14 10/21/2016 9												

■ Main-2



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Figure 15.4.3 Main-2 property page for the Historical Event Table element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

15

■ Text

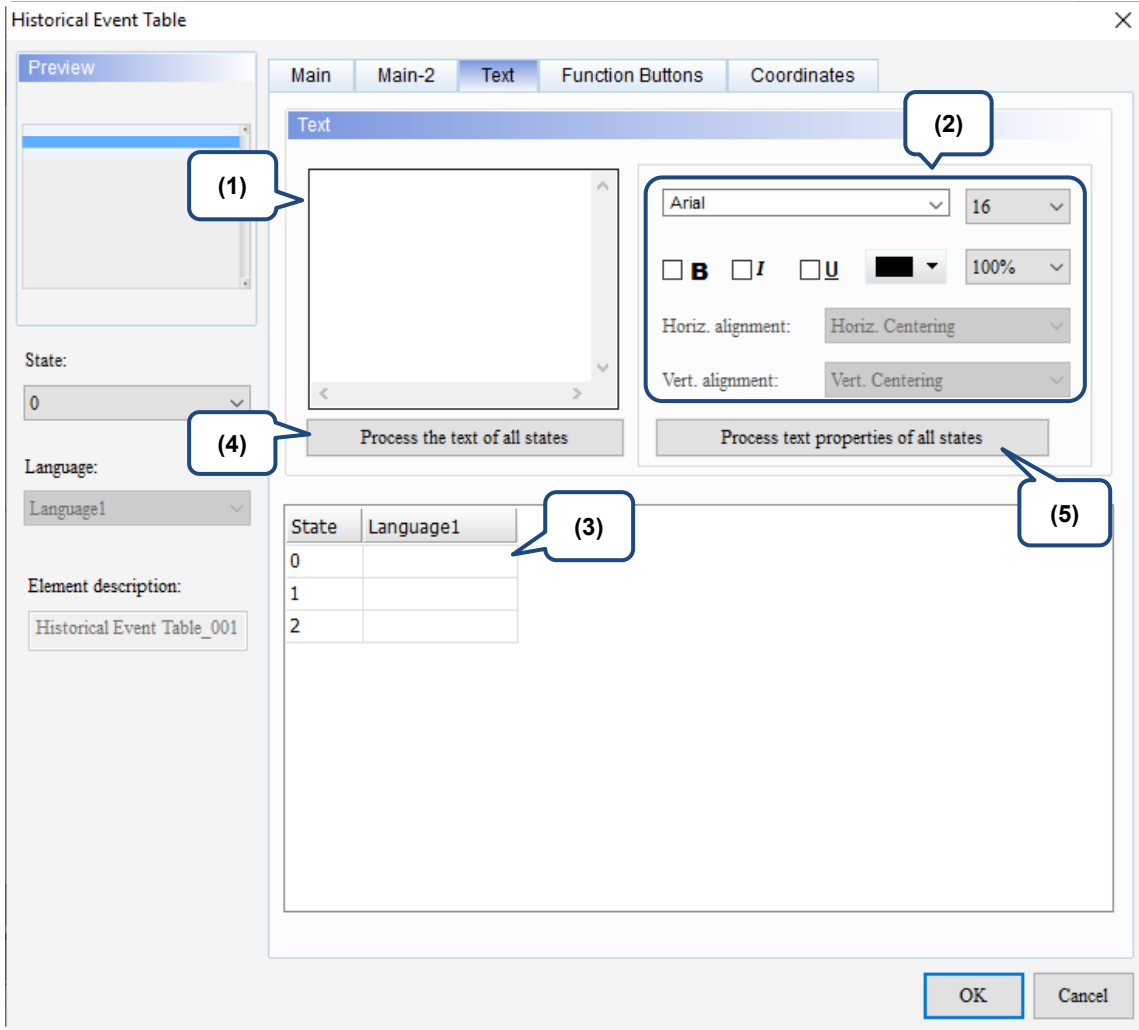
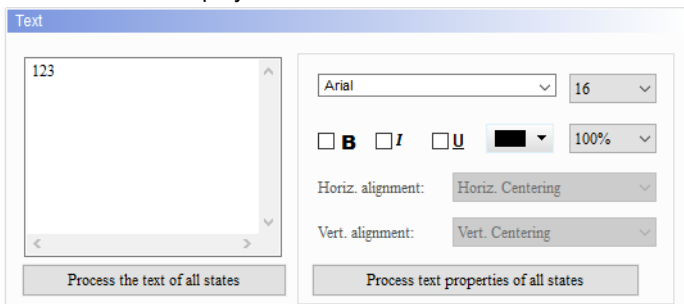
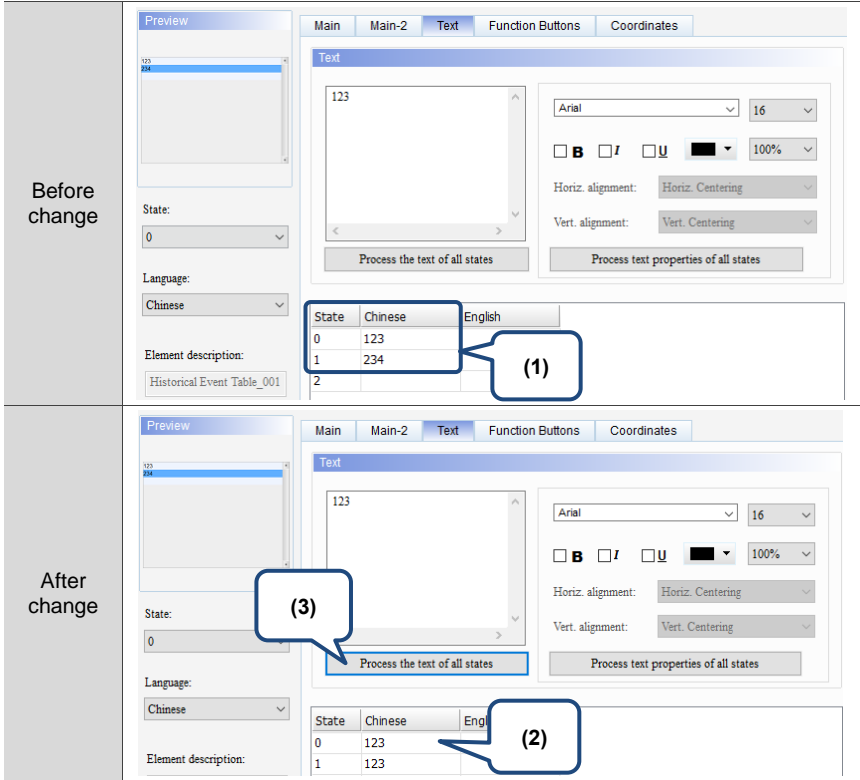
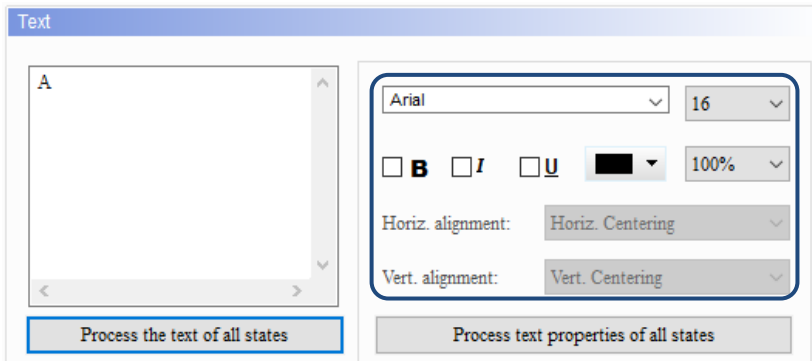
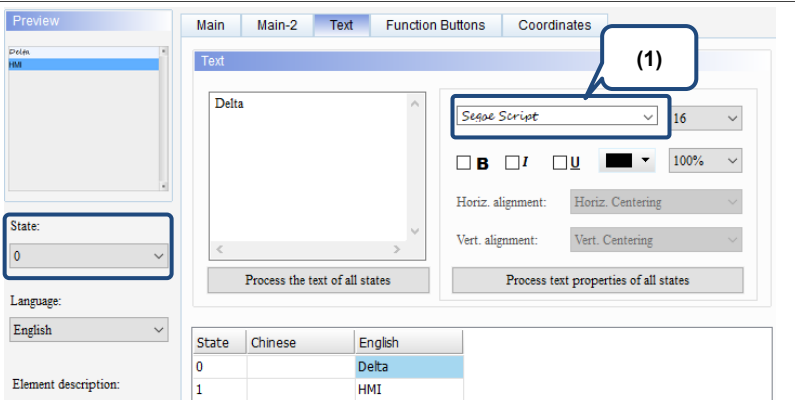
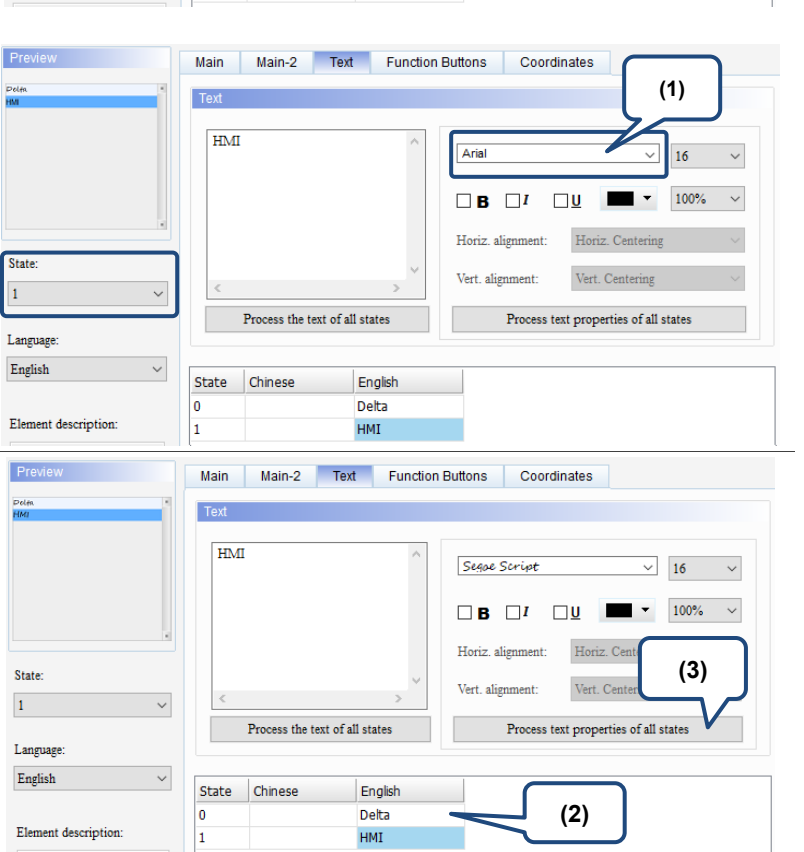


Figure 15.4.4 Text property page for the Historical Event Table element

No.	Property	Function description												
(1)	Text	<p>You can enter the text to display in this box.</p>  <table border="1"> <thead> <tr> <th>State</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>123</td> <td></td> </tr> <tr> <td>1</td> <td>234</td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> </tr> </tbody> </table>	State	Chinese	English	0	123		1	234		2		
State	Chinese	English												
0	123													
1	234													
2														
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the texts. You can refer to the Preview section in the preceding figure for the Text property setting results.												
(3)	Edit multi-language text	If you have added multi-language texts, the Text page allows you to edit multi-language data.												

No.	Property	Function description
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected. Refer to the following example: Step 1: enter the text "123" for State 0 and "234" for State 1. Step 2: select State 0. Step 3: execute Process the text of all states, and the text of State 1 is changed to "123".</p> 
(5)	Process text properties of all states	<p>This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p> 

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No.	Property	Function description
(5)	Process text properties of all states	<p>Refer to the following example: Step 1: enter the text "Delta" for State 0 and "HMI" for State 1. Select Segoe Script for the text font of State 0 and Arial for the text font of State 1. Step 2: select State 0. Step 3: execute Process text properties of all states, and the font of State 1 is changed to Segoe Script.</p>
		<p>Before change</p> 
		<p>After change</p> 

■ Function Buttons

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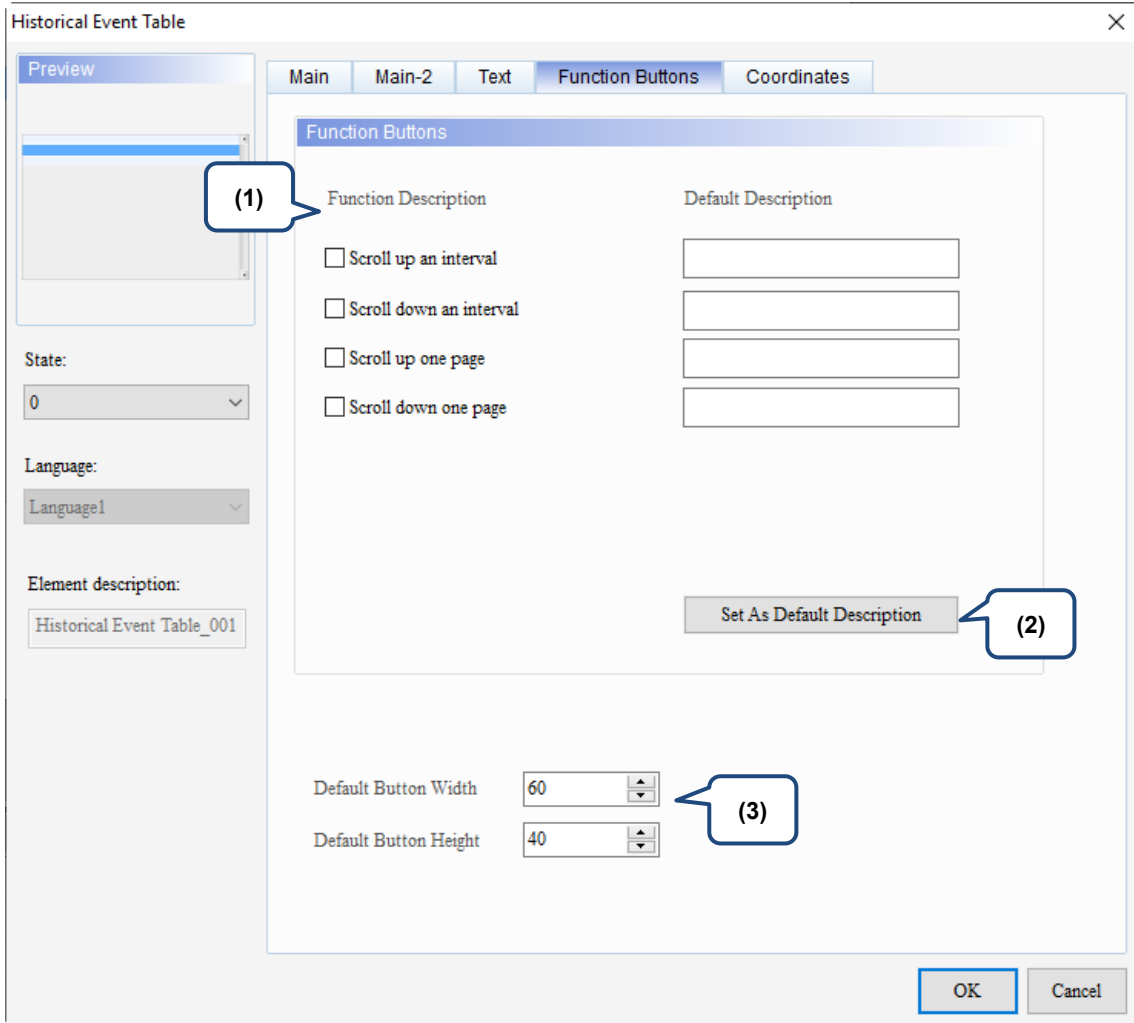
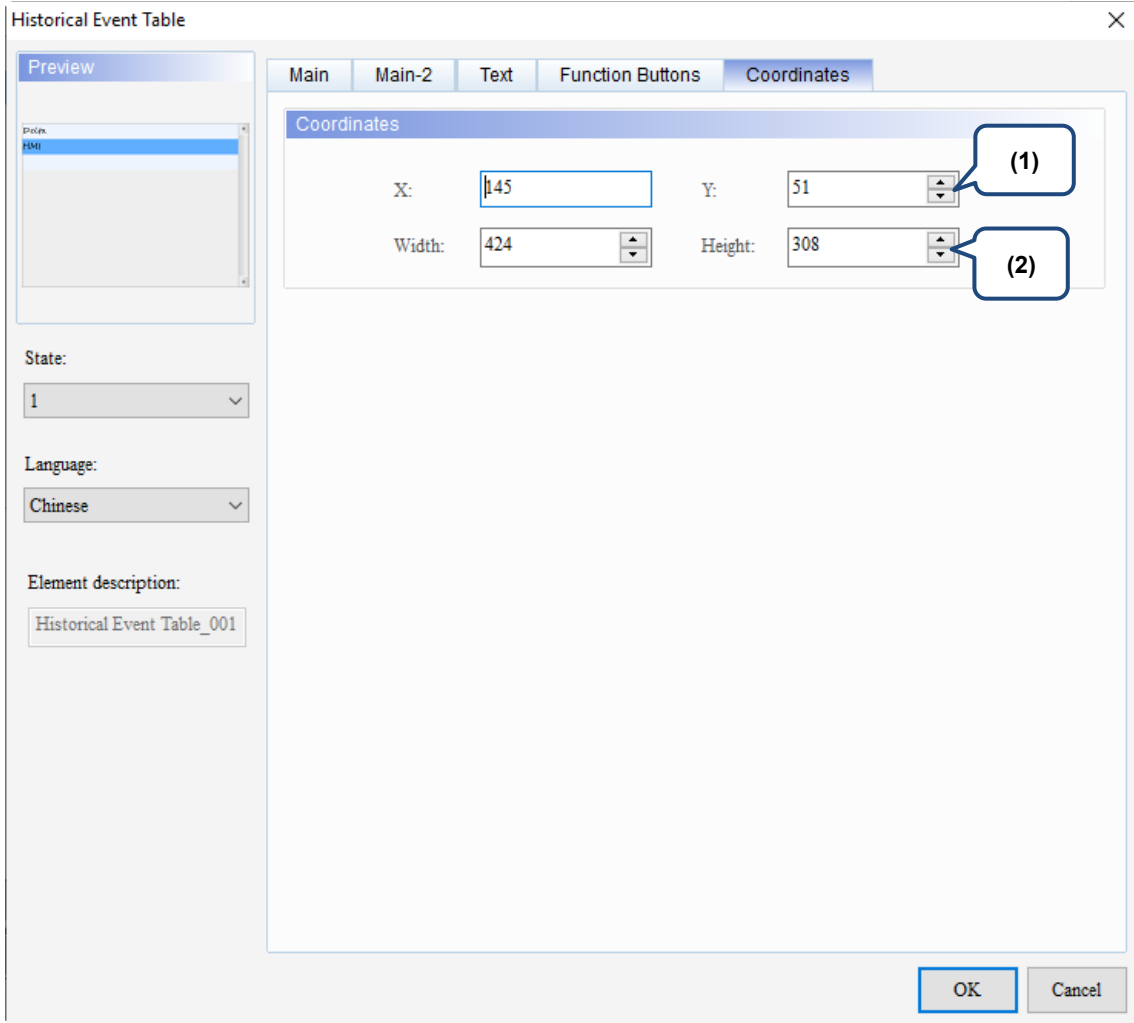


Figure 15.4.5 Function Buttons property page for the Historical Event Table element

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No.	Property	Function description										
(1)	Function Description	<p>Select the function buttons to display on the Historical Event Table element.</p> <table border="1"> <tr> <td>Scroll up an interval</td> <td>Scroll up an interval.</td> </tr> <tr> <td>Scroll down an interval</td> <td>Scroll down an interval.</td> </tr> <tr> <td>Scroll up one page</td> <td>Scroll up one page.</td> </tr> <tr> <td>Scroll down one page</td> <td>Scroll down one page.</td> </tr> </table>	Scroll up an interval	Scroll up an interval.	Scroll down an interval	Scroll down an interval.	Scroll up one page	Scroll up one page.	Scroll down one page	Scroll down one page.		
Scroll up an interval	Scroll up an interval.											
Scroll down an interval	Scroll down an interval.											
Scroll up one page	Scroll up one page.											
Scroll down one page	Scroll down one page.											
(2)	Set As Default Description	<p>When you press Set As Default Description, the default strings are automatically filled in the Default Description fields.</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Function Buttons</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Function Description</th> <th style="width: 50%;">Default Description</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> Scroll up an interval</td> <td><input type="text" value="Scroll up an interval"/></td> </tr> <tr> <td><input checked="" type="checkbox"/> Scroll down an interval</td> <td><input type="text" value="Scroll down an interval"/></td> </tr> <tr> <td><input checked="" type="checkbox"/> Scroll up one page</td> <td><input type="text" value="Scroll up one page"/></td> </tr> <tr> <td><input checked="" type="checkbox"/> Scroll down one page</td> <td><input type="text" value="Scroll down one page"/></td> </tr> </tbody> </table> <p style="text-align: right; margin-top: 20px;"><input type="button" value="Set As Default Description"/></p> </div>	Function Description	Default Description	<input checked="" type="checkbox"/> Scroll up an interval	<input type="text" value="Scroll up an interval"/>	<input checked="" type="checkbox"/> Scroll down an interval	<input type="text" value="Scroll down an interval"/>	<input checked="" type="checkbox"/> Scroll up one page	<input type="text" value="Scroll up one page"/>	<input checked="" type="checkbox"/> Scroll down one page	<input type="text" value="Scroll down one page"/>
Function Description	Default Description											
<input checked="" type="checkbox"/> Scroll up an interval	<input type="text" value="Scroll up an interval"/>											
<input checked="" type="checkbox"/> Scroll down an interval	<input type="text" value="Scroll down an interval"/>											
<input checked="" type="checkbox"/> Scroll up one page	<input type="text" value="Scroll up one page"/>											
<input checked="" type="checkbox"/> Scroll down one page	<input type="text" value="Scroll down one page"/>											
(3)	Default Button Width / Height	You can adjust the button height and width.										

■ Coordinates



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Figure 15.4.4 Coordinates property page for the Historical Event Table element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

15.5 Historical Overview Table

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The Historical Overview Table element is for viewing the stored Historical Trend Graph data.

The left side of the element is the file browsing area and the right side is the trend graph. You can select Historical Trend Graph data stored in the USB Disk or SD Card through the file browsing area on the left. Like the Historical Trend Graph, a Historical Overview Table can display up to 60 curves and read 60 words.

When you double-click the Historical Overview Table, the property page is shown as follows.

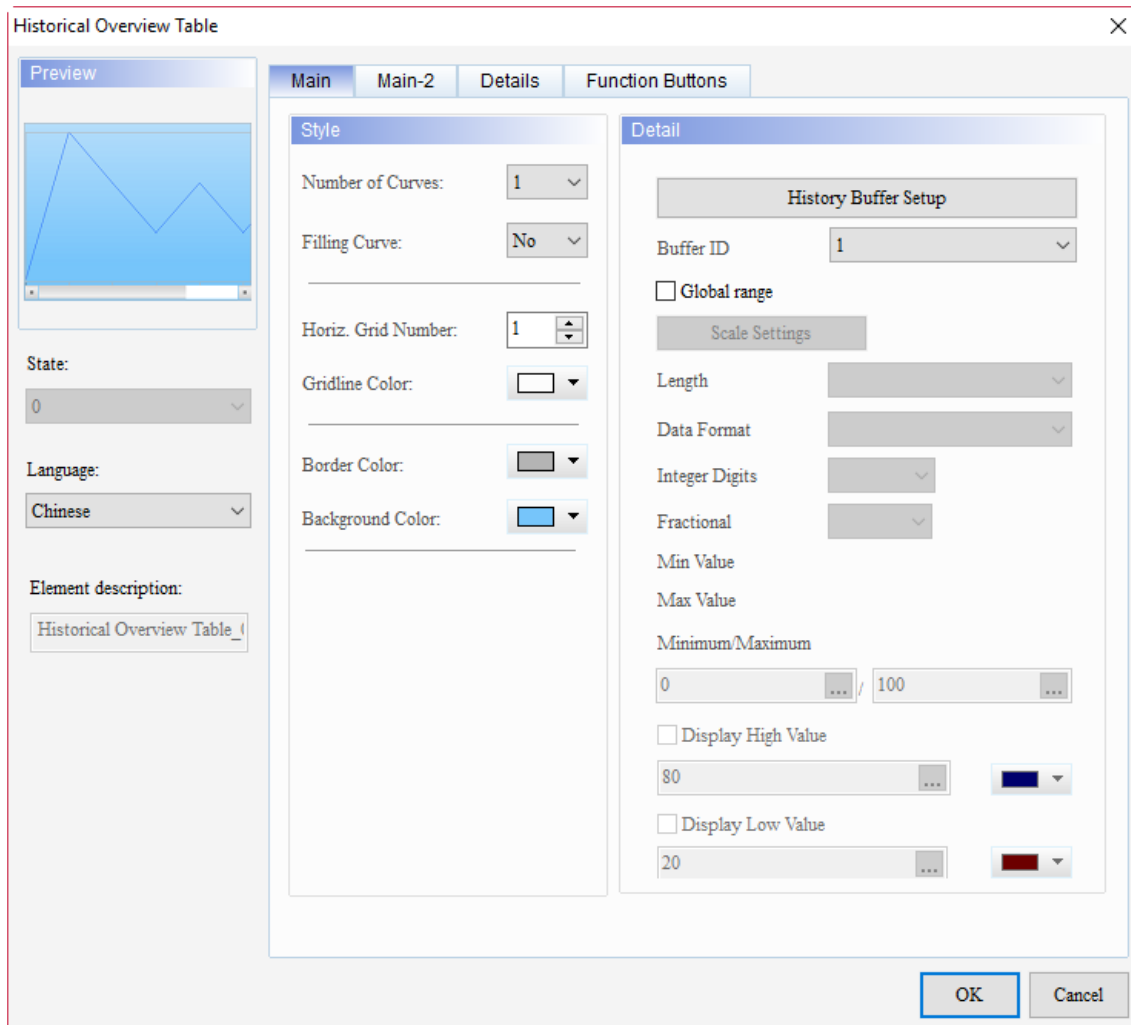


Figure 15.5.1 Properties of Historical Overview Table

Table 15.5.1 Function page of Historical Overview Table

Historical Overview Table		
Function page	Description	
Preview	The Historical Overview Table elements do not support multiple state values and multi-language data display.	
Main	Data	Set the Buffer ID.
	Global range	Set the Scale Settings, Length, Data Format, Integer Digits, Fractional, Minimum / Maximum, Display High Value, Display Low Value, High Value color, and Low Value color.
	Scale Settings	Set the Display scale, Display mark, Font size, Text Color, Mark Color, Scale Mark No., Subscale Mark No., and Scale Width.
	Style	Set the Number of Curves, Filling Curve, Horiz. Grid Number, Gridline Color, Border Color, and Background Color.
Main-2	Set the Transparent, Smooth animation, Anti-aliasing, and Margin functions.	
Details	Scope setting	Set whether to enable the curve and set the Length, Start Position, Data Format, Integer Digits, Fractional Digits, Line Color, Line Weight, Minimum, and Maximum.
	Time/Date	Select the Display time/date check box and set the Time Interval, Time format, Date Format, Color, and Timeline scaling.
Function Buttons	Select the function buttons to enable and set the width and height of the buttons.	

■ Main

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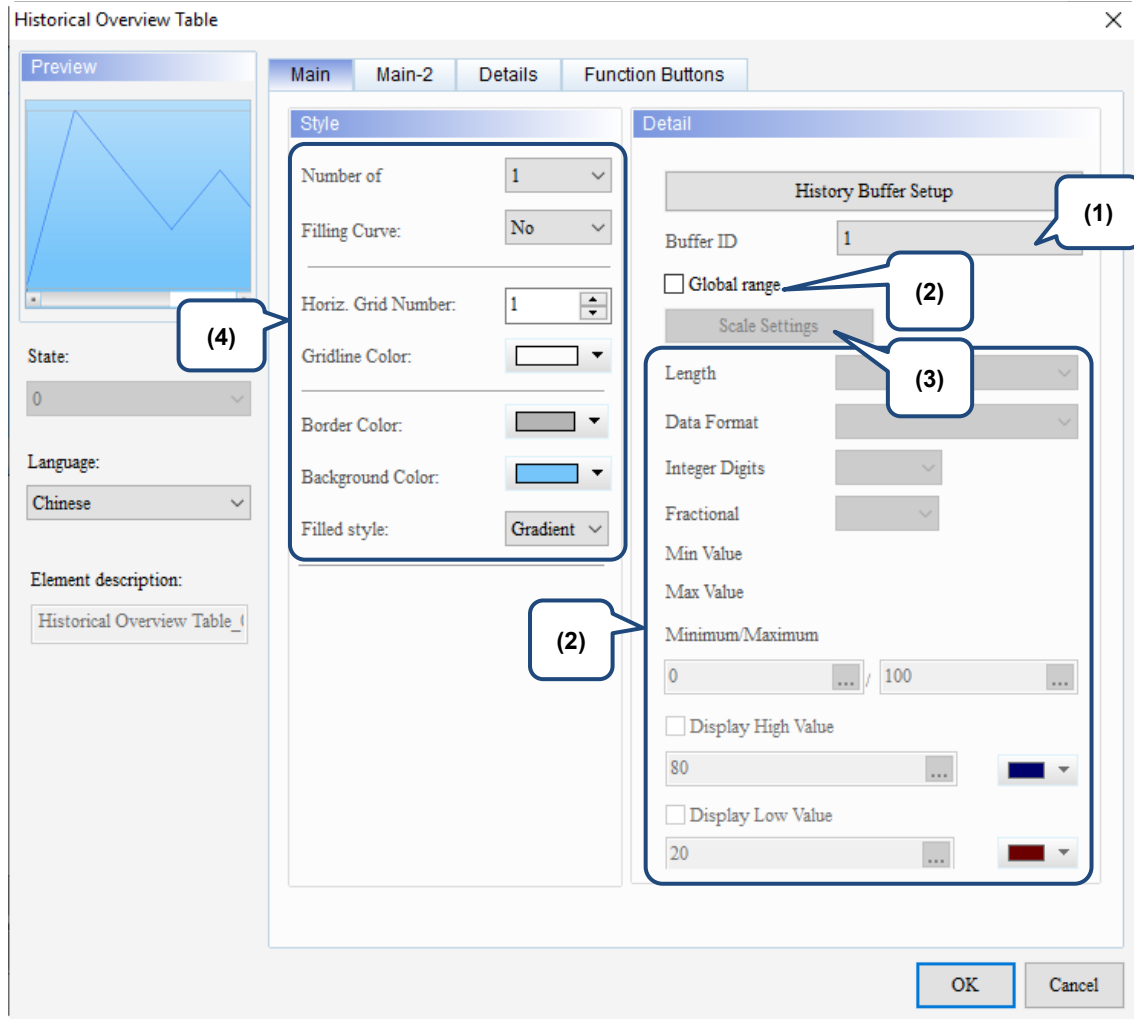


Figure 15.5.2 Main property page for the Historical Overview Table element

No.	Property	Function description																																																				
(1)	Buffer ID	<p>The Buffer ID corresponds to the set data number in the History Buffer Setup. The History Buffer Setup can set up to 12 sets of data, so the Buffer ID can be up to 12 sets.</p> <p>History Buffer Setup</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Address</th> <th>Read Length (Word)</th> <th>Sampling Cycle(ms)</th> </tr> </thead> <tbody> <tr><td>1</td><td>\$0</td><td>1</td><td>100</td></tr> <tr><td>2</td><td>\$1</td><td>1</td><td>100</td></tr> <tr><td>3</td><td>\$2</td><td>1</td><td>100</td></tr> <tr><td>4</td><td>\$3</td><td>1</td><td>100</td></tr> <tr><td>5</td><td>\$4</td><td>1</td><td>100</td></tr> <tr><td>6</td><td>\$5</td><td>1</td><td>100</td></tr> <tr><td>7</td><td>\$6</td><td>1</td><td>100</td></tr> <tr><td>8</td><td>\$7</td><td>1</td><td>100</td></tr> <tr><td>9</td><td>\$8</td><td>1</td><td>100</td></tr> <tr><td>10</td><td>\$9</td><td>1</td><td>100</td></tr> <tr><td>11</td><td>\$10</td><td>1</td><td>100</td></tr> <tr><td>12</td><td>\$11</td><td>1</td><td>100</td></tr> </tbody> </table> <p>Detail</p> <p>History Buffer Setup</p> <p>Buffer ID: 1</p> <p><input type="checkbox"/> Global range</p> <p>Scale Settings</p> <p>Length: 1</p> <p>Data Format</p> <p>Integer Digits</p> <p>Fractional</p>	No.	Address	Read Length (Word)	Sampling Cycle(ms)	1	\$0	1	100	2	\$1	1	100	3	\$2	1	100	4	\$3	1	100	5	\$4	1	100	6	\$5	1	100	7	\$6	1	100	8	\$7	1	100	9	\$8	1	100	10	\$9	1	100	11	\$10	1	100	12	\$11	1	100
No.	Address	Read Length (Word)	Sampling Cycle(ms)																																																			
1	\$0	1	100																																																			
2	\$1	1	100																																																			
3	\$2	1	100																																																			
4	\$3	1	100																																																			
5	\$4	1	100																																																			
6	\$5	1	100																																																			
7	\$6	1	100																																																			
8	\$7	1	100																																																			
9	\$8	1	100																																																			
10	\$9	1	100																																																			
11	\$10	1	100																																																			
12	\$11	1	100																																																			

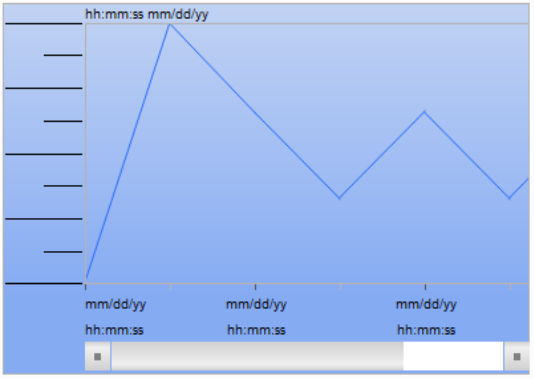
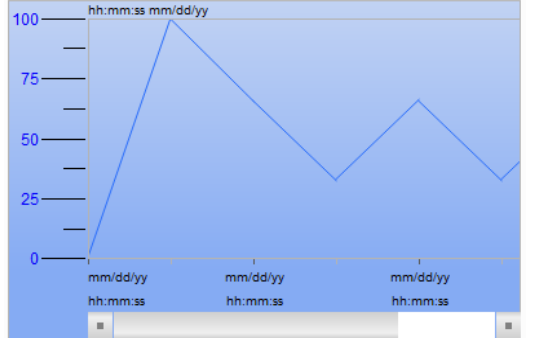
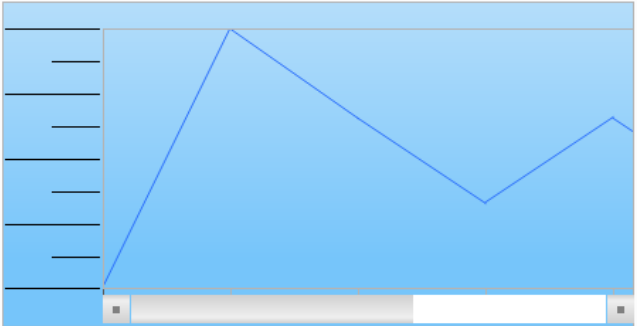
No.	Property	Function description																													
(2)	Global range	<p>Length</p> <ul style="list-style-type: none"> The Length can be set as 1 or 2. If Length is 1, it means the length of the read data is 1 word; if Length is 2, it means the length of the read data is 2 words. <p>Note: when you select 2 as the Length, the Read Length must be 2 or above.</p>																													
		<p>Data Format</p> <ul style="list-style-type: none"> Historical Overview Table supports the following data formats: BCD, Signed BCD, Signed Decimal, Unsigned Decimal, Hexadecimal, and Floating. Floating is available only when Length is 2. 																													
		<p>Integer / Fractional Digits</p> <p>You can set the displaying number of integer digits and the number of decimal places.</p>																													
		<p>Minimum / Maximum</p> <ul style="list-style-type: none"> If the Global range check box is selected, you cannot set the Minimum and Maximum values for the curves on the Details page; instead, the range is determined by the minimum and maximum of the Global range. If the Global range check box is not selected, you can set the Minimum and Maximum values for the curves respectively. You can set the minimum and maximum values as constants or variables. When the Minimum and Maximum values are variables, the controller address (Word) and the internal register address (Word) are supported. When the Minimum and Maximum values are constants, the allowable ranges for the minimum and maximum values are subject to change based on the selected Data Type and Data Format. <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td rowspan="5">DWord</td> <td>Hex</td> <td>0 to 0xFFFF</td> </tr> <tr> <td>BCD</td> <td>0 to 99999999</td> </tr> <tr> <td>Signed BCD</td> <td>-9999999 to +9999999</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294967295</td> </tr> <tr> <td></td> <td>Hex</td> <td>0 to 0xFFFFFFFF</td> </tr> <tr> <td></td> <td>Floating</td> <td>0 to 9999999</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	DWord	Hex	0 to 0xFFFF	BCD	0 to 99999999	Signed BCD	-9999999 to +9999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294967295		Hex	0 to 0xFFFFFFFF		Floating	0 to 9999999
		Data Type	Data Format	Allowable range																											
Word	BCD	0 to 9999																													
	Signed BCD	-999 to +9999																													
	Signed Decimal	-32768 to +32767																													
	Unsigned Decimal	0 to 65535																													
DWord	Hex	0 to 0xFFFF																													
	BCD	0 to 99999999																													
	Signed BCD	-9999999 to +9999999																													
	Signed Decimal	-2147483648 to +2147483647																													
	Unsigned Decimal	0 to 4294967295																													
	Hex	0 to 0xFFFFFFFF																													
	Floating	0 to 9999999																													
<p>Display High Value</p> <p>Display High Value is available on the Historical Overview Table. You can set the constant, select the internal memory or the controller register address (Word), and set the displaying color for the Display High Value.</p>																															
<p>Display Low Value</p> <p>Display Low Value is available on the Historical Overview Table. You can set the constant, select the internal memory or the controller register address (Word), and set the displaying color for the Display Low Value.</p>																															

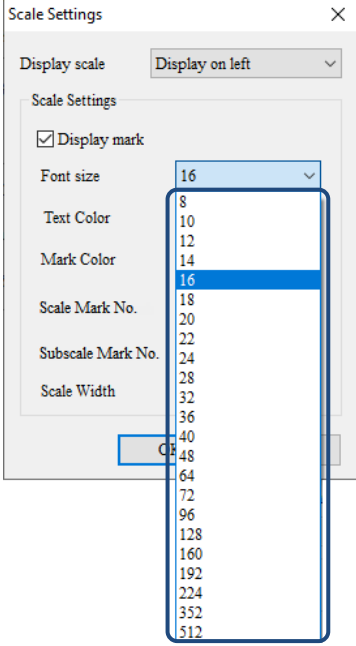
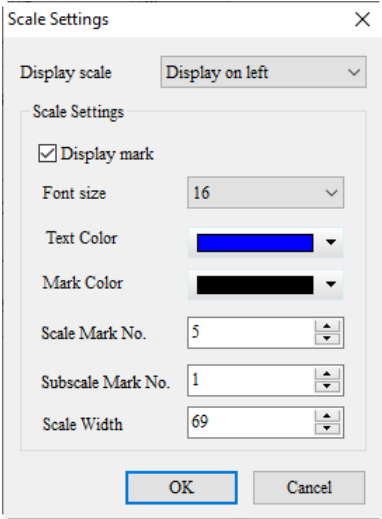
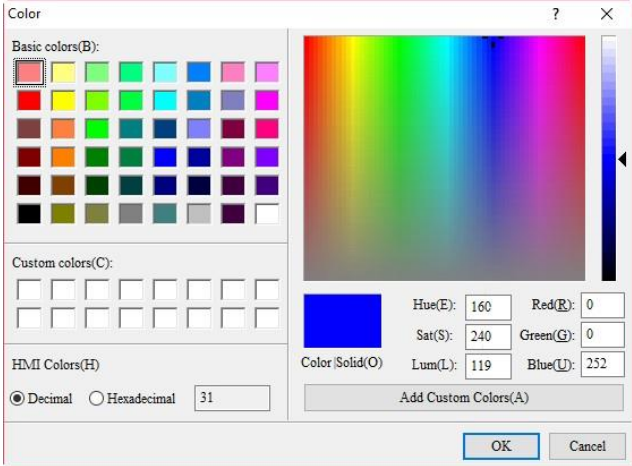
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No.	Property	Function description				
(3)	Scale Settings	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Scale Settings ✕</p> <p>Display scale Not Display ▾</p> <p>Scale Settings</p> <p><input checked="" type="checkbox"/> Display mark</p> <p>Font size 12 ▾</p> <p>Text Color ▾</p> <p>Mark Color ▾</p> <p>Scale Mark No. 5 ▴ ▾</p> <p>Subscale Mark No. 1 ▴ ▾</p> <p>Scale Width 60 ▴ ▾</p> <p style="text-align: center;"> OK Cancel </p> </div> <p>Scale Settings is available only when the Global range check box is selected.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center; vertical-align: middle;">Not selected</td> <td style="padding: 5px;"> <input type="checkbox"/> Global range <div style="border: 1px solid gray; padding: 2px; margin: 5px 0;">Scale Settings</div> <p>Length 1 ▾</p> <p>Data Format Unsigned Decimal ▾</p> <p>Integer Digits 4 ▾</p> <p>Fractional 0 ▾</p> </td> </tr> <tr> <td style="text-align: center; vertical-align: middle;">Selected</td> <td style="padding: 5px;"> <input checked="" type="checkbox"/> Global range <div style="border: 1px solid gray; padding: 2px; margin: 5px 0;">Scale Settings</div> <p>Length 1 ▾</p> <p>Data Format Unsigned Decimal ▾</p> <p>Integer Digits 4 ▾</p> <p>Fractional 0 ▾</p> </td> </tr> </table>	Not selected	<input type="checkbox"/> Global range <div style="border: 1px solid gray; padding: 2px; margin: 5px 0;">Scale Settings</div> <p>Length 1 ▾</p> <p>Data Format Unsigned Decimal ▾</p> <p>Integer Digits 4 ▾</p> <p>Fractional 0 ▾</p>	Selected	<input checked="" type="checkbox"/> Global range <div style="border: 1px solid gray; padding: 2px; margin: 5px 0;">Scale Settings</div> <p>Length 1 ▾</p> <p>Data Format Unsigned Decimal ▾</p> <p>Integer Digits 4 ▾</p> <p>Fractional 0 ▾</p>
Not selected	<input type="checkbox"/> Global range <div style="border: 1px solid gray; padding: 2px; margin: 5px 0;">Scale Settings</div> <p>Length 1 ▾</p> <p>Data Format Unsigned Decimal ▾</p> <p>Integer Digits 4 ▾</p> <p>Fractional 0 ▾</p>					
Selected	<input checked="" type="checkbox"/> Global range <div style="border: 1px solid gray; padding: 2px; margin: 5px 0;">Scale Settings</div> <p>Length 1 ▾</p> <p>Data Format Unsigned Decimal ▾</p> <p>Integer Digits 4 ▾</p> <p>Fractional 0 ▾</p>					


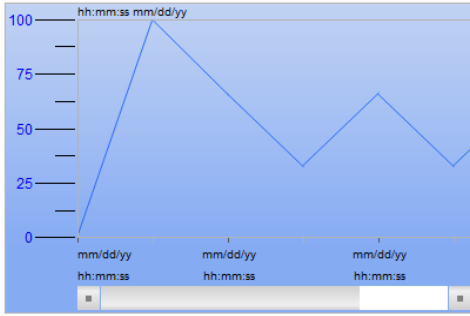
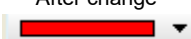
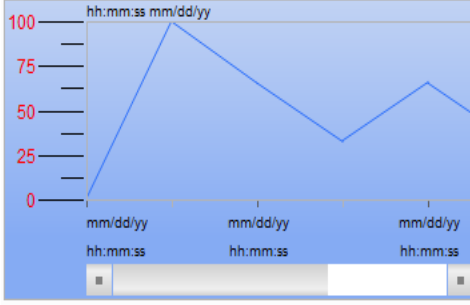


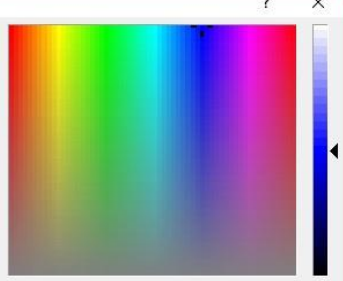

No.	Property	Function description		
(3)	Scale Settings	Display scale		
			<p>The Display scale options include Not Display, Display on left, and Display on Right.</p>	
			Not Display	
			Display on left	
Display on Right				

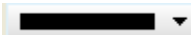
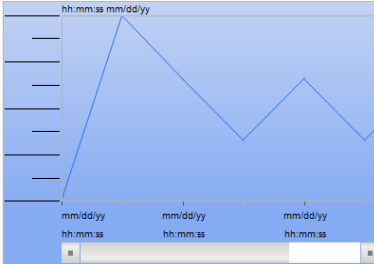

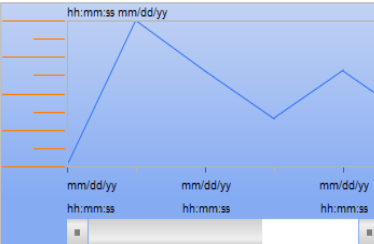
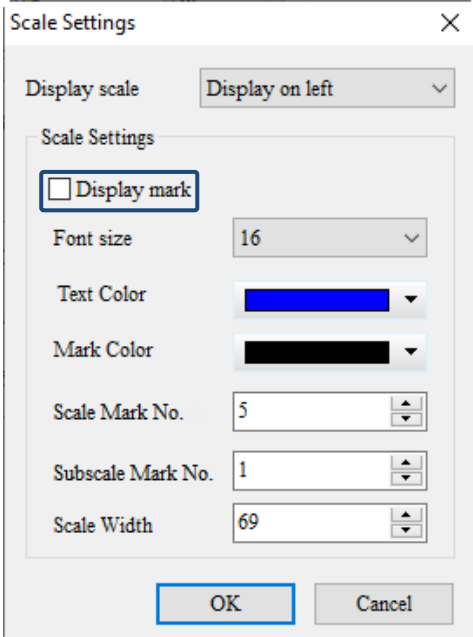
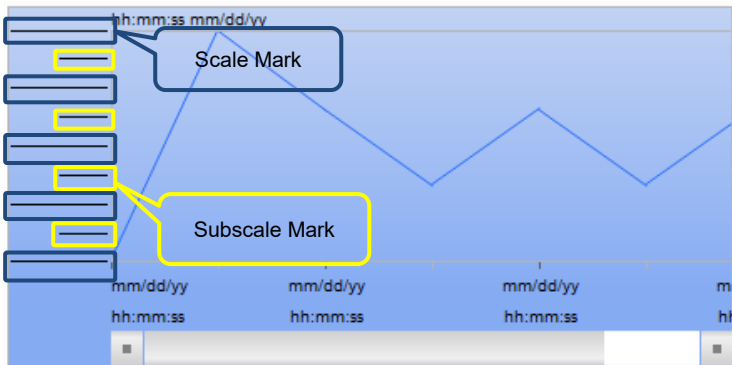
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No.	Property	Function description
		<p>Select to display the scale numbers or not.</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid gray; padding: 5px; width: 45%;"> <p style="text-align: center;">Not selected</p>  </div> <div style="border: 1px solid gray; padding: 5px; width: 45%;"> <p style="text-align: center;">Selected</p>  </div> </div>
(3)	Scale Settings	<p>If the Display mark check box is not selected when you set the Font size, the texts are not displayed on the scale, but the spacing for the set Font size is reserved on the scale. For example, if you selected 72 for the Font size, the spacing on the scale is wider, but without the texts.</p>  <div style="border: 1px solid gray; padding: 10px; margin-top: 10px;"> <p>Scale Settings</p> <p>Display scale: Display on left</p> <p>Scale Settings</p> <p><input type="checkbox"/> Display mark</p> <p>Font size: 16</p> <p>Text Color: [Blue]</p> <p>Mark Color: [Black]</p> <p>Scale Mark No.: 5</p> <p>Subscale Mark No.: 1</p> <p>Scale Width: 69</p> <p style="text-align: right;"> OK Cancel </p> </div>
		Font size

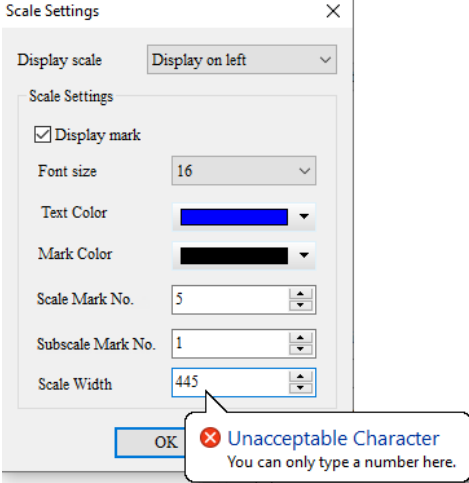
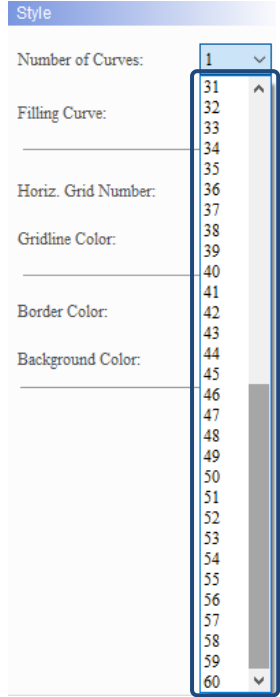
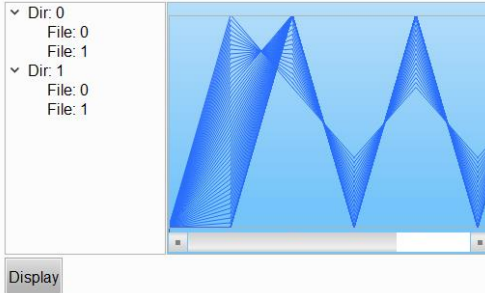
No.	Property	Function description
		<p>The Font size is for setting the size of the numbers displayed on the scale with the sizes 8 - 512 available.</p> 
(3)	Scale Settings	<ul style="list-style-type: none"> ■ The Text Color setting is valid only when the Display mark check box is selected.  <ul style="list-style-type: none"> ■ You can define the text color to be displayed. 

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No.	Property	Function description	
		Text Color	<div style="display: flex; flex-direction: column;"> <div style="margin-bottom: 10px;"> <p>Before change</p>  </div> <div>  </div> <hr/> <div style="margin-bottom: 10px;"> <p>After change</p>  </div> <div>  </div> </div>
(3)	Scale Settings	Mark Color	<ul style="list-style-type: none"> The Mark Color setting is valid even if the Display mark check box is not selected. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Scale Settings</p> <p>Display scale: Display on left</p> <p><input type="checkbox"/> Display mark</p> <p>Font size: 16</p> <p>Text Color: Blue</p> <p>Mark Color: Black</p> <p>Scale Mark No.: 5</p> <p>Subscale Mark No.: 1</p> <p>Scale Width: 69</p> <p style="text-align: right;">OK Cancel</p> </div> <ul style="list-style-type: none"> You can define the mark color to be displayed. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Color</p> <div style="display: flex;"> <div style="flex: 1;"> <p>Basic colors(B):</p>  <p>Custom colors(C):</p>  <p>HMI Colors(H)</p> <p><input checked="" type="radio"/> Decimal <input type="radio"/> Hexadecimal 31</p> </div> <div style="flex: 2;">  <div style="margin-top: 10px;"> <p> Hue(E): 160 Red(R): 0</p> <p>Sat(S): 240 Green(G): 0</p> <p>Lum(L): 119 Blue(L): 252</p> <p>Add Custom Colors(A)</p> <p style="text-align: right;">OK Cancel</p> </div> </div> </div> </div>


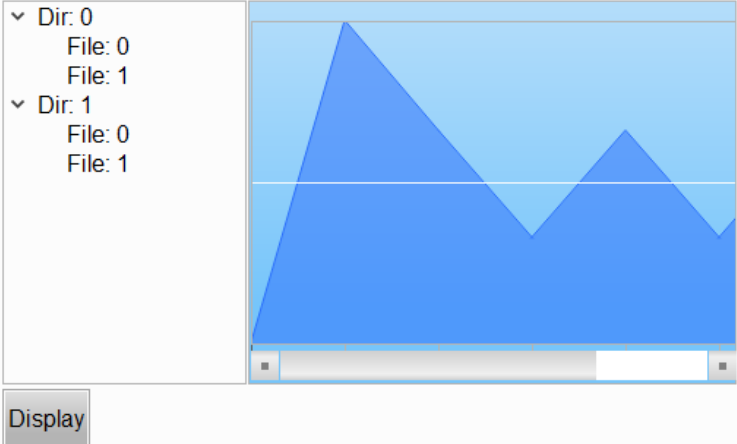
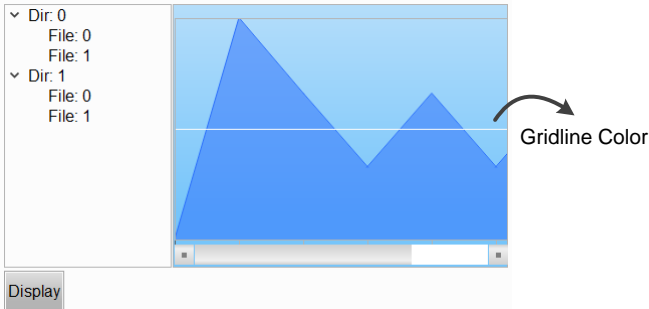
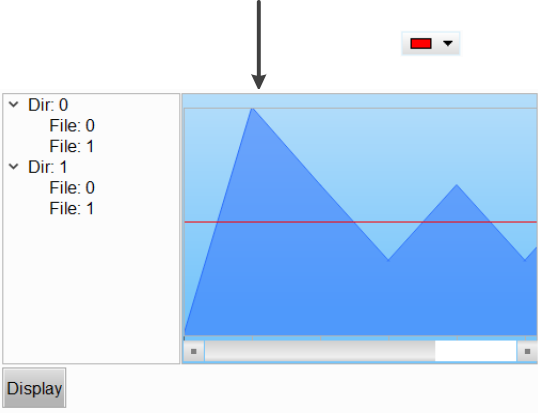
No.	Property	Function description	
		Mark Color	<div style="display: flex; flex-direction: column;"> <div style="margin-bottom: 10px;"> <p>Before change</p>  </div> <div>  </div> <hr/> <div style="margin-bottom: 10px;"> <p>After change</p>  </div> <div>  </div> </div>
(3)	Scale Settings	Scale Mark No.	<ul style="list-style-type: none"> ■ The Scale Mark No. and Subscale Mark No. settings are valid even if the Display mark check box is not selected. 
		Subscale Mark No.	<ul style="list-style-type: none"> ■ The minimum is 1 and the maximum is 99 for both the Scale Mark No. and Subscale Mark No. ■ When the Scale Mark No. is 5 and the Subscale Mark No. is 1, the graph is as follows. 

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No.	Property	Function description
(3)	Scale Settings Scale Width	<p>When the font size is set too big, you can adjust Scale Width to show the text.</p> <p>Note:</p> <ol style="list-style-type: none"> The Scale Width must be smaller than the element width. When you set the value to be larger than the element width, the Scale Width is immediately adjusted to the element width minus 1. If you enter a non-numeric character, the software displays the following error message. 
(4)	Style Number of Curves	<ul style="list-style-type: none"> A Historical Overview Table element supports up to 60 curves.  <ul style="list-style-type: none"> If you select 60 curves, you can still change the width and color of each curve. 

No.	Property	Function description
		<p>■ Set to fill the area under the curve.</p> <p>■ The default is No. If set to Yes, the curve is as follows.</p> <div> </div>
(4)	Style	<p>■ The maximum horizontal grid count is 50.</p> <p>■ Horiz. Grid Number sets the number of zones the trend graph on the right side of the Historical Overview Table is divided into. The default is 1, meaning there is no grid line. If the Horiz. Grid Number is set to 2, there is one grid line dividing the trend graph into 2 zones; if set to 3, there are two grid lines dividing the trend graph into 3 zones, and so on.</p> <div> </div> <div> </div>

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No.	Property	Function description
(4)	Style	<p>Gridline Color</p> <ul style="list-style-type: none"> <li>■ The Gridline Color is the color of the grid line in the trend graph on the right side of the Historical Overview Table. <p>The default is .</p> <div>  </div> <ul style="list-style-type: none"> <li>■ You can change the color of the grid line. <div>  </div> <div>  </div>

No.	Property	Function description
(4)	Style	<p>Set the Historical Overview Table element border color.</p> <div> </div> <p>Border Color</p>
		<p>Set the Historical Overview Table element background color.</p> <div> </div> <p>Background Color</p>

■ Main-2

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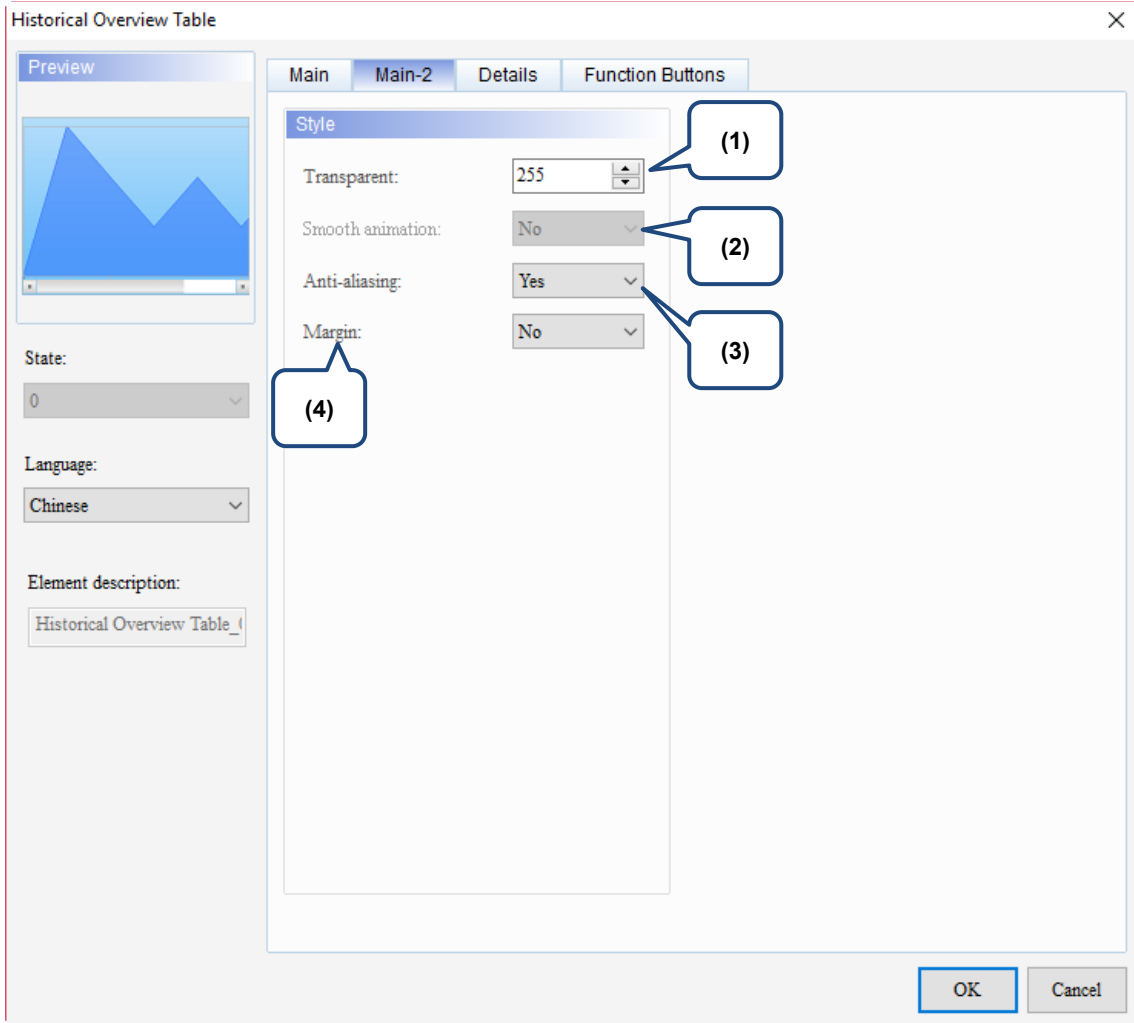
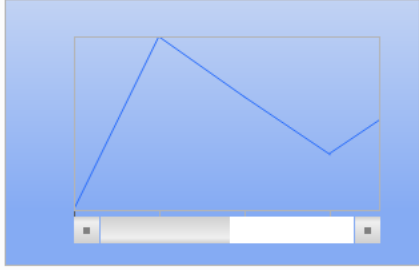
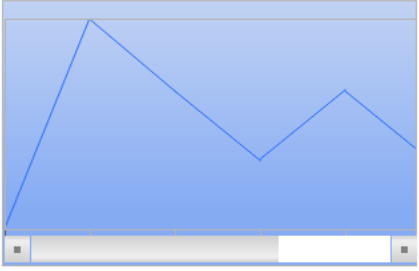
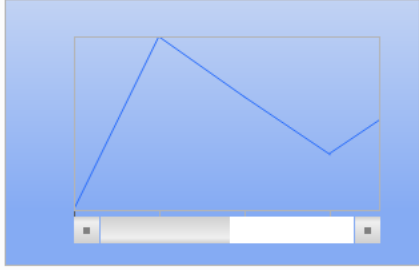
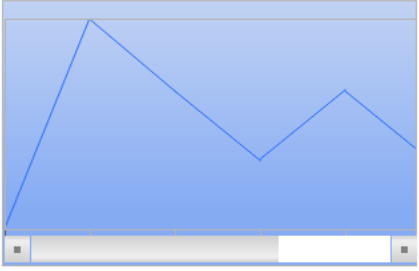
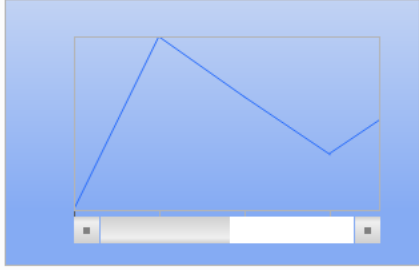
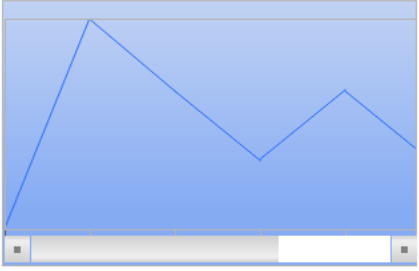


Figure 15.5.3 Main-2 property page for the Historical Overview Table element

No.	Property	Function description				
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.				
(2)	Smooth animation	The Smooth animation function is not available for this element.				
(3)	Anti-aliasing	The Anti-aliasing function is available for this element. When this function is enabled, the element display becomes more delicate without jagged edges.				
(4)	Margin	<p>The Margin function is available for this element. When you select Yes for Margin, the element indents as shown in the following figure.</p> <table border="1"> <tbody> <tr> <td>Margin is set to Yes</td> <td>  </td> </tr> <tr> <td>Margin is set to No</td> <td>  </td> </tr> </tbody> </table>	Margin is set to Yes		Margin is set to No	
Margin is set to Yes						
Margin is set to No						

■ Details

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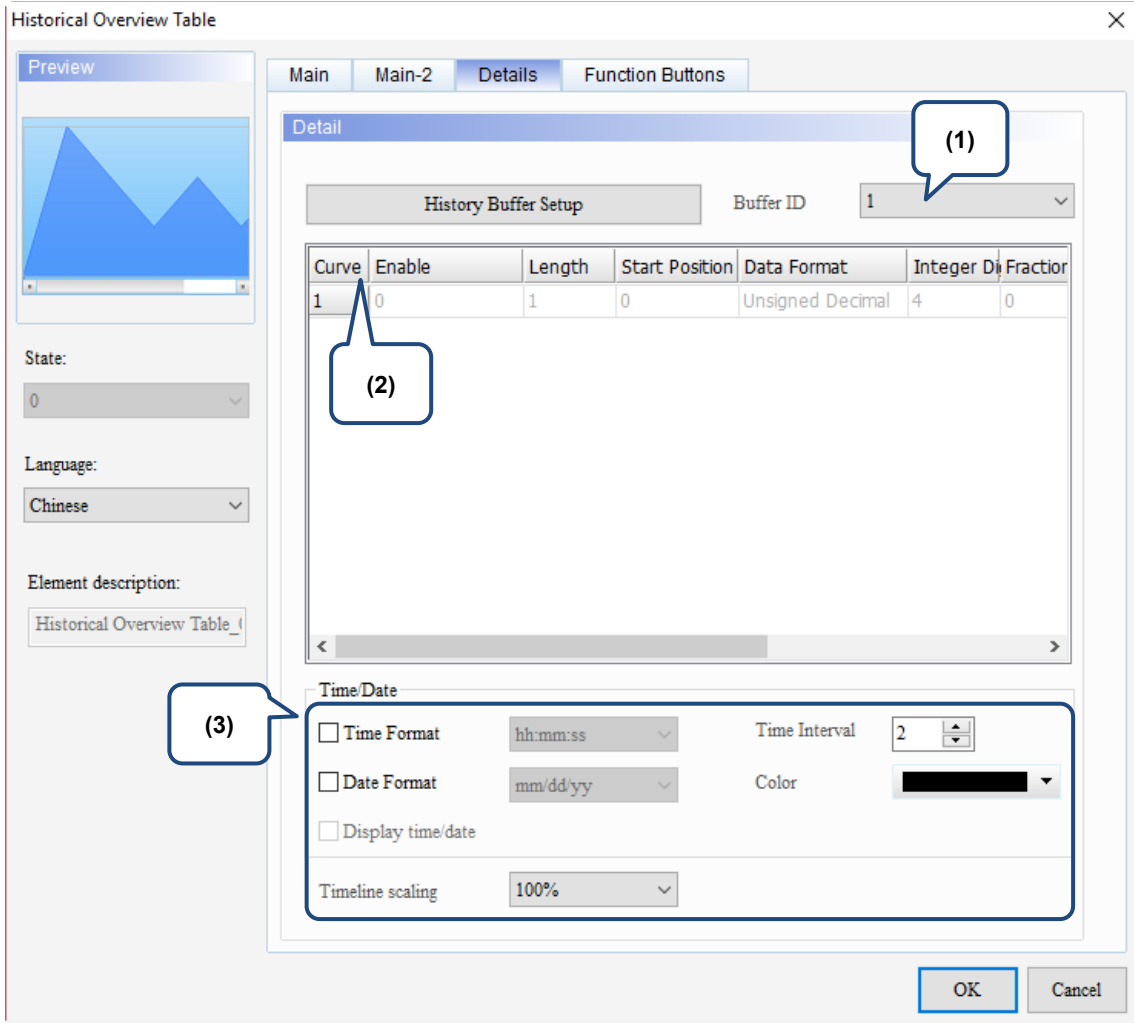
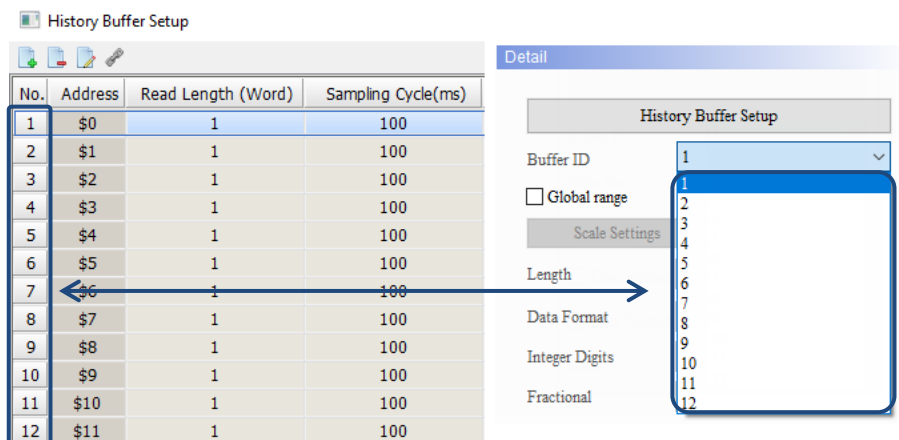
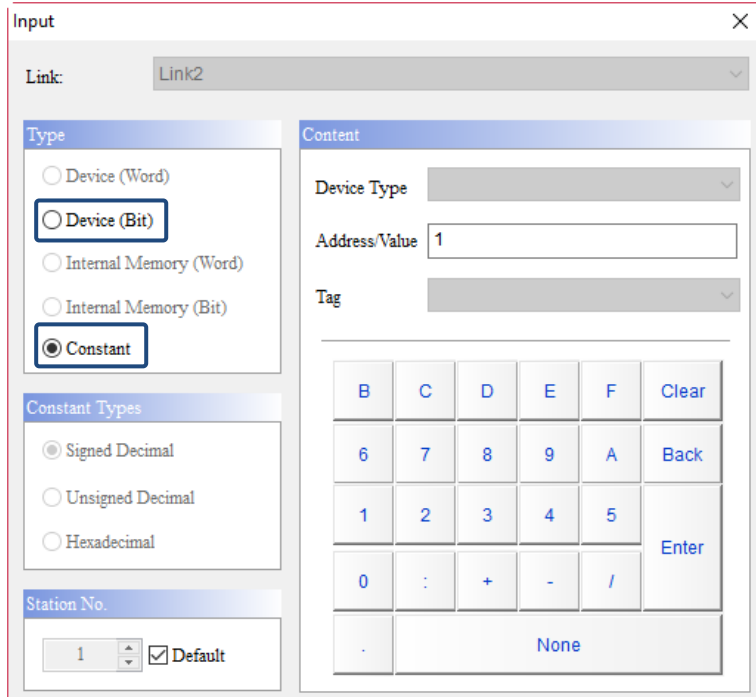
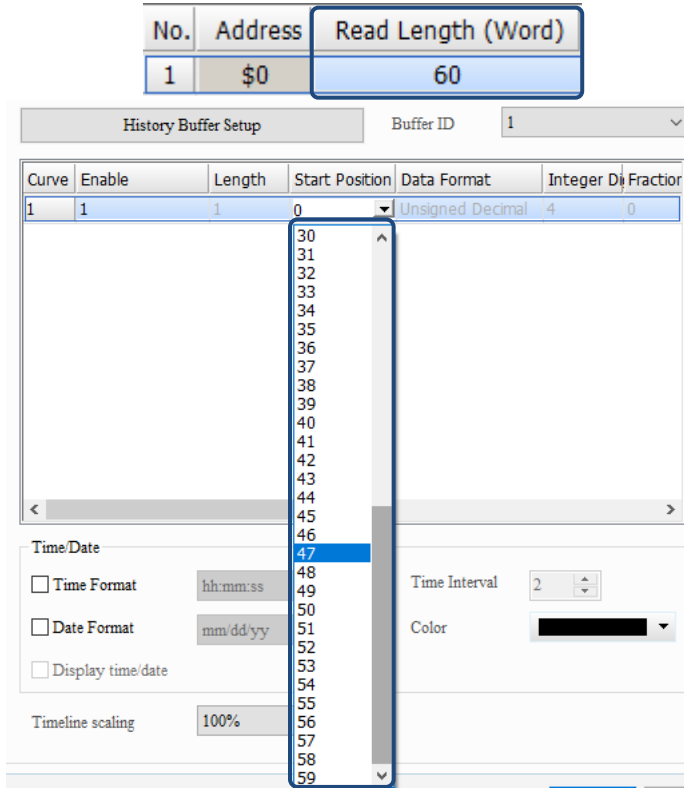
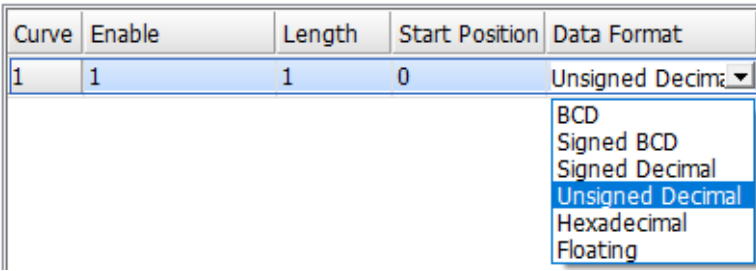
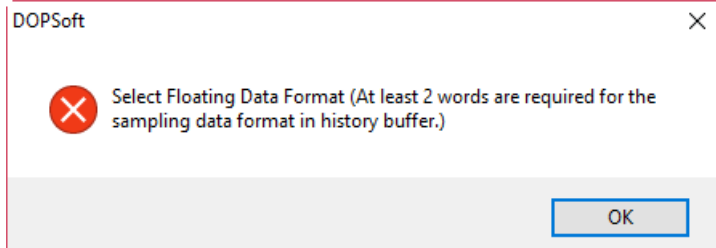
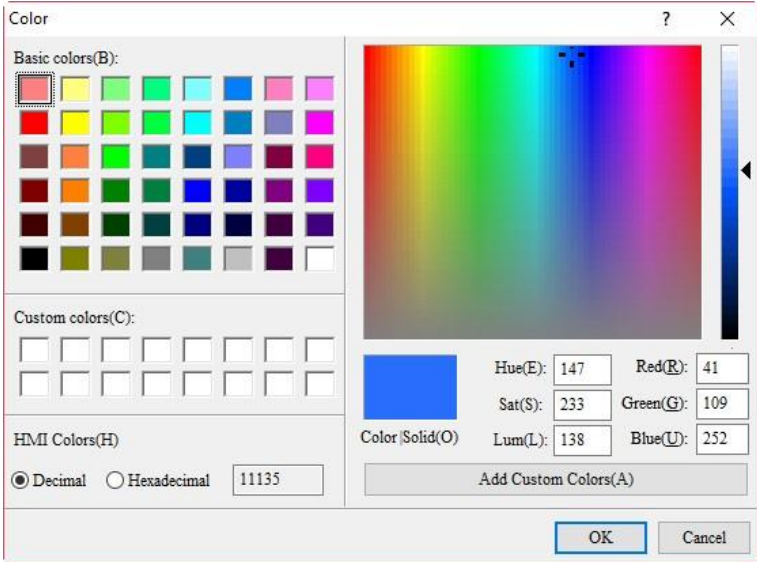
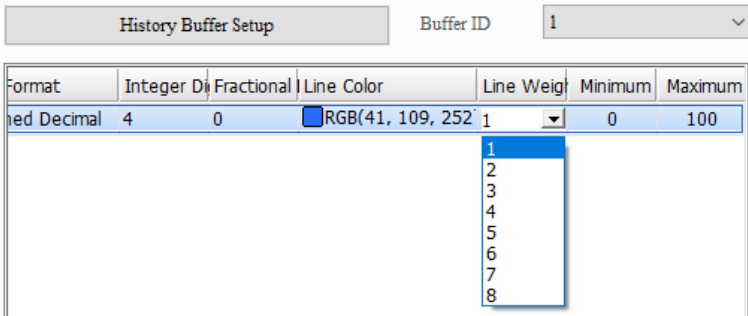


Figure 15.5.4 Details property page for the Historical Overview Table element

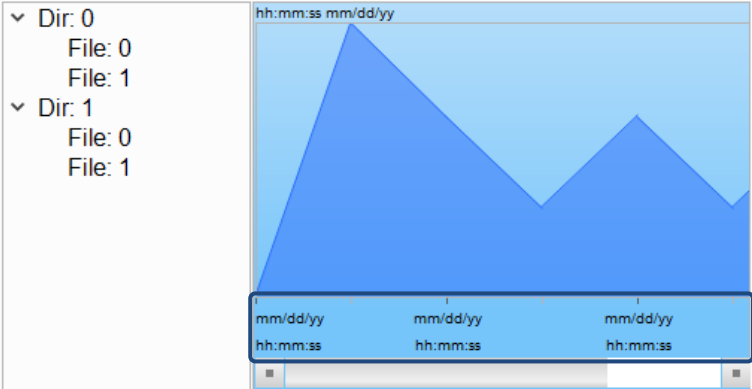
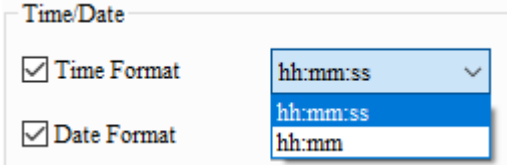
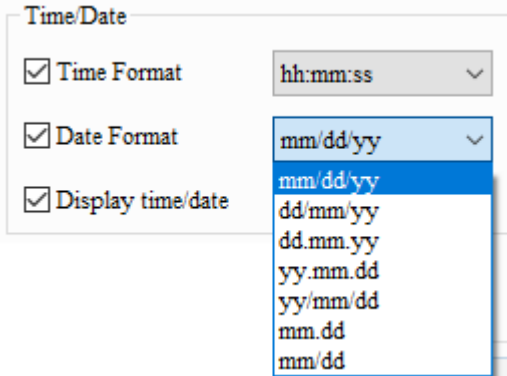
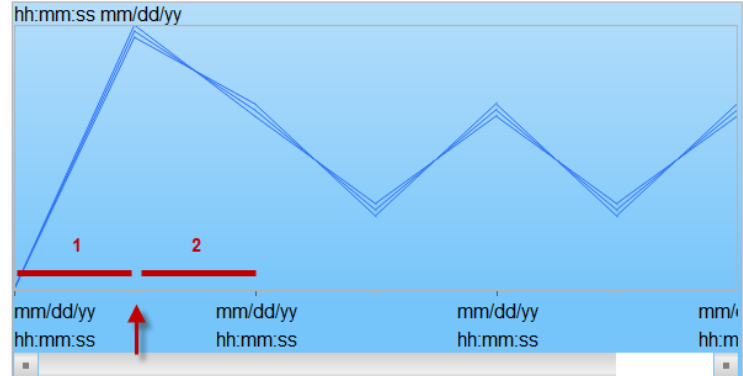
No.	Property	Function description												
(1)	Buffer ID	<p>The Buffer ID corresponds to the set data number in the History Buffer Setup. The History Buffer Setup can set up to 12 sets of data, so the Buffer ID can be up to 12 sets.</p> 												
(2)	Curve setting	<ul style="list-style-type: none"> Set whether to enable the curve for data reading. If Constant is selected for Type, then setting the value to 1 indicates to enable and setting to 0 indicates to disable. If Bit is selected for Type, then Bit On indicates to enable and Bit Off indicates to disable. The value supports the Bit of the element, Bit of the internal memory, and constant setting.  <ul style="list-style-type: none"> You can set Length to 1 or 2. You can set the Length to 2 only when the Read Length (Word) is set to 2 or above. <table border="1"> <thead> <tr> <th>No.</th> <th>Address</th> <th>Read Length (Word)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>\$0</td> <td>2</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Curve</th> <th>Enable</th> <th>Length</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>2</td> </tr> </tbody> </table> <ul style="list-style-type: none"> When the Global range check box is selected, you cannot set this function. 	No.	Address	Read Length (Word)	1	\$0	2	Curve	Enable	Length	1	1	2
No.	Address	Read Length (Word)												
1	\$0	2												
Curve	Enable	Length												
1	1	2												

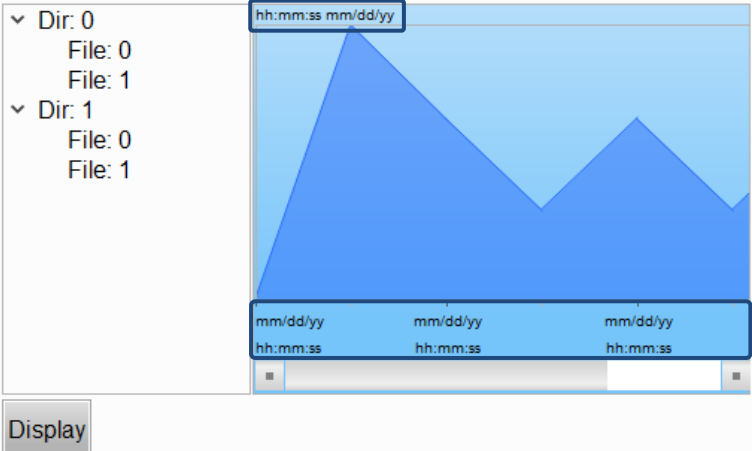
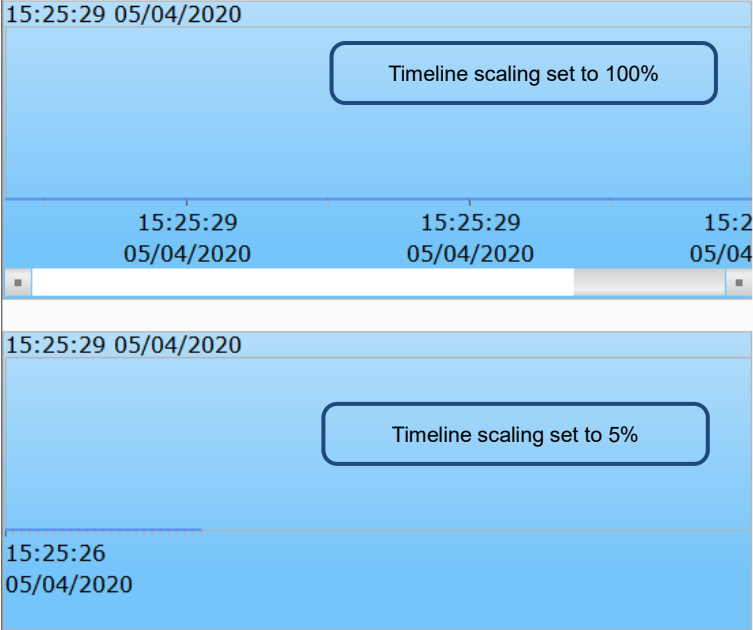
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No.	Property	Function description
(2)	Curve setting	<ul style="list-style-type: none"> The Start Position setting is determined by the set Read Length (Word). If the Read Length (Word) is 60, the Start Position ranges from 0 to 59. 
	Data Format	<ul style="list-style-type: none"> The supported data formats are as follows:  <ul style="list-style-type: none"> When the Global range check box is selected, you cannot set this function. <p>Note:</p> <ol style="list-style-type: none"> If you select Floating as the Data Format, set the Length to 2. If you select Floating as the Data Format, but set the Length to 1 word, the software displays a message to remind you that you need to set Length to 2 or above. 

No.	Property	Function description																											
(2)	Integer / Fractional Digits	<ul style="list-style-type: none"> You can set the displaying number of integer digits and the number of decimal places. When the Global range check box is selected, you cannot set this function. 																											
	Line Color	<p>You can set the line color for the curve.</p> 																											
	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 																											
Minimum / Maximum	<ul style="list-style-type: none"> If the Global range check box is selected, you cannot set the Minimum and Maximum values for the curves; instead, the range is determined by the minimum and maximum of the Global range. If the Global range check box is not selected, you can set the Minimum and Maximum values for the curves. The allowable ranges for the Minimum and Maximum values are subject to change based on the selected Data Type and Data Format. <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Word</td> <td>BCD</td> <td>0 to 9999</td> </tr> <tr> <td>Signed BCD</td> <td>-999 to +9999</td> </tr> <tr> <td>Signed Decimal</td> <td>-32768 to +32767</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFF</td> </tr> <tr> <td rowspan="5">DWord</td> <td>BCD</td> <td>0 to 99999999</td> </tr> <tr> <td>Signed BCD</td> <td>-99999999 to +99999999</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294967295</td> </tr> <tr> <td>Hex</td> <td>0 to 0xFFFFFFFF</td> </tr> <tr> <td></td> <td>Floating</td> <td>0 to 9999999</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hex	0 to 0xFFFF	DWord	BCD	0 to 99999999	Signed BCD	-99999999 to +99999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294967295	Hex	0 to 0xFFFFFFFF		Floating	0 to 9999999
Data Type	Data Format	Allowable range																											
Word	BCD	0 to 9999																											
	Signed BCD	-999 to +9999																											
	Signed Decimal	-32768 to +32767																											
	Unsigned Decimal	0 to 65535																											
	Hex	0 to 0xFFFF																											
DWord	BCD	0 to 99999999																											
	Signed BCD	-99999999 to +99999999																											
	Signed Decimal	-2147483648 to +2147483647																											
	Unsigned Decimal	0 to 4294967295																											
	Hex	0 to 0xFFFFFFFF																											
	Floating	0 to 9999999																											

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No.	Property	Function description
	Display time/date	<ul style="list-style-type: none"> When you select the Display time/date check box, the time scale displays at the bottom of the trend graph; if it is not selected, the time scale does not display.  <ul style="list-style-type: none"> You can set the number of the Time Interval (up to 9,999) when you select the Display time/date check box. The preceding figure displays two time intervals.
(3)	Time/Date	<ul style="list-style-type: none"> Two time formats are supported as follows:  <ul style="list-style-type: none"> Seven date formats are supported as follows: 
	Time Interval	<ul style="list-style-type: none"> Select the Display time/date check box to enable this function. The default setting is 2, meaning there are two intervals between each displayed time/date. 

No.	Property	Function description
(3)	Color	<p>With this setting, you can change the displaying color of the time and date, including the recorded time and date shown on top of the trend graph and the time scales. The default is .</p> 
	Time/Date	<ul style="list-style-type: none"> ■ The default is 100%. ■ The smaller the setting value, the more sampling points can be displayed. 

■ Function Buttons

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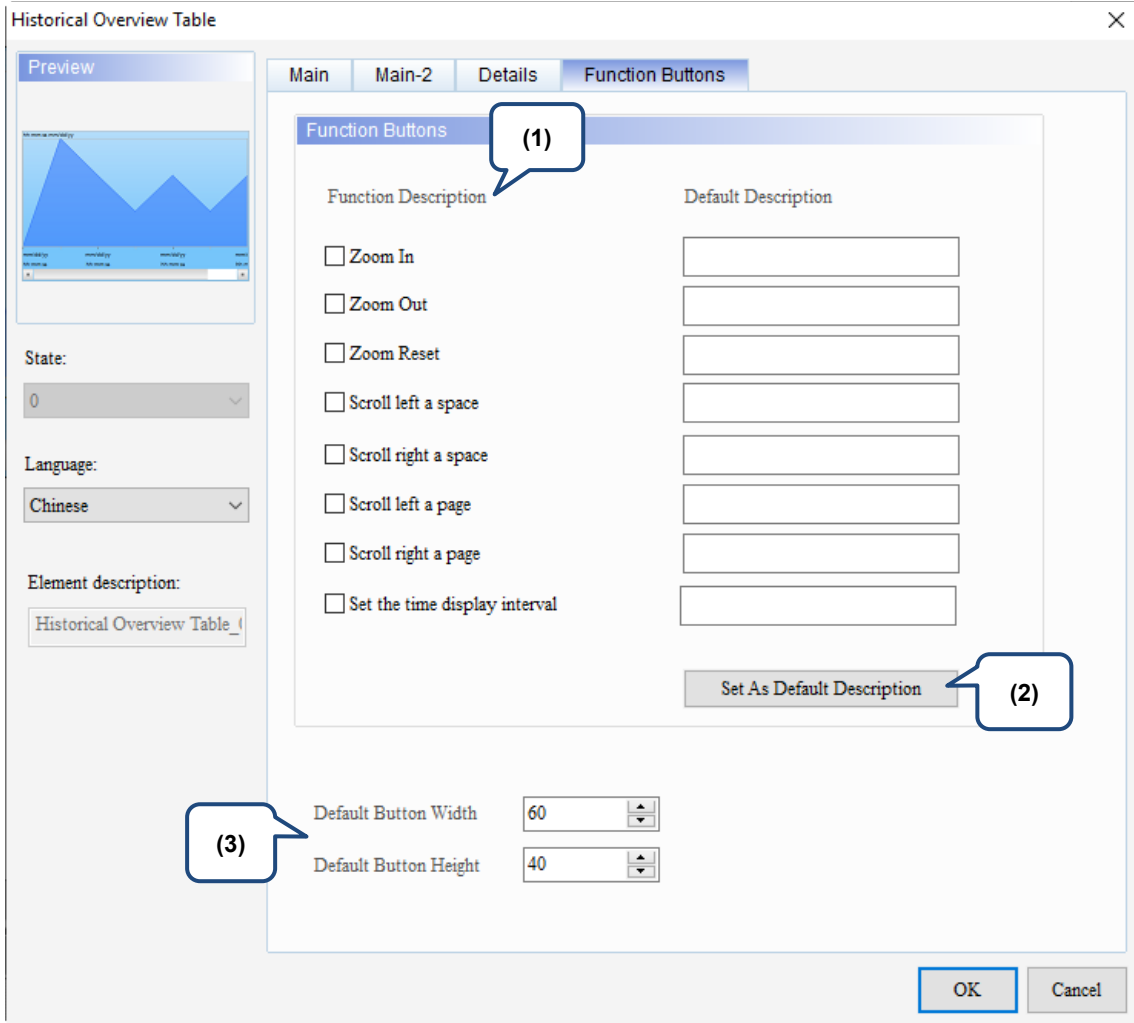
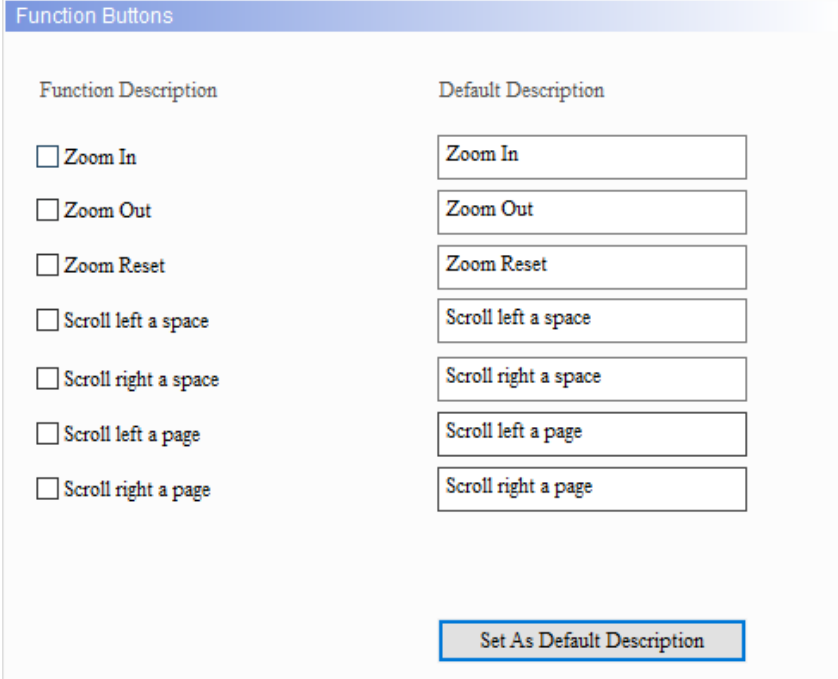
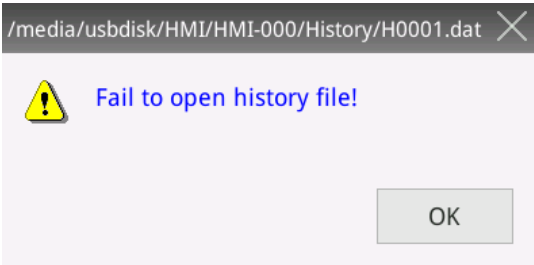


Figure 15.5.5 Function Buttons property page for the Historical Overview Table element

No.	Property	Function description																
(1)	Function description	<p>Select the function buttons to display on the Historical Overview Table element.</p> <table border="1"> <tr> <td>Zoom In</td> <td>Zoom in on the history data of X-axis.</td> </tr> <tr> <td>Zoom Out</td> <td>Zoom out on the history data of X-axis.</td> </tr> <tr> <td>Zoom Reset</td> <td>Reset the history data of X-axis to the default size.</td> </tr> <tr> <td>Scroll left a space</td> <td>Scroll to the left a bit.</td> </tr> <tr> <td>Scroll right a space</td> <td>Scroll to the right a bit.</td> </tr> <tr> <td>Scroll left a page</td> <td>Scroll to the left for a page.</td> </tr> <tr> <td>Scroll right a page</td> <td>Scroll to the right for a page.</td> </tr> <tr> <td>Set the time display interval</td> <td>Display the corresponding data according to the set time interval.</td> </tr> </table>	Zoom In	Zoom in on the history data of X-axis.	Zoom Out	Zoom out on the history data of X-axis.	Zoom Reset	Reset the history data of X-axis to the default size.	Scroll left a space	Scroll to the left a bit.	Scroll right a space	Scroll to the right a bit.	Scroll left a page	Scroll to the left for a page.	Scroll right a page	Scroll to the right for a page.	Set the time display interval	Display the corresponding data according to the set time interval.
Zoom In	Zoom in on the history data of X-axis.																	
Zoom Out	Zoom out on the history data of X-axis.																	
Zoom Reset	Reset the history data of X-axis to the default size.																	
Scroll left a space	Scroll to the left a bit.																	
Scroll right a space	Scroll to the right a bit.																	
Scroll left a page	Scroll to the left for a page.																	
Scroll right a page	Scroll to the right for a page.																	
Set the time display interval	Display the corresponding data according to the set time interval.																	
(2)	Set As Default Description	<p>When you press Set As Default Description, the default strings are automatically filled in the Default Description fields.</p>  <p>Note:</p> <ol style="list-style-type: none"> The display area for the trend graph on the right can only display .dat files. If the file in the file browsing area has the same file name as the File Name set in the Buffer Properties without containing any time and date, it means the History Buffer file is still sampling and cannot be displayed by the Historical Overview Table . If you press Display in the file browsing area on the left, the following warning appears. 																
(3)	Default Button Width / Height	You can adjust the button height and width.																

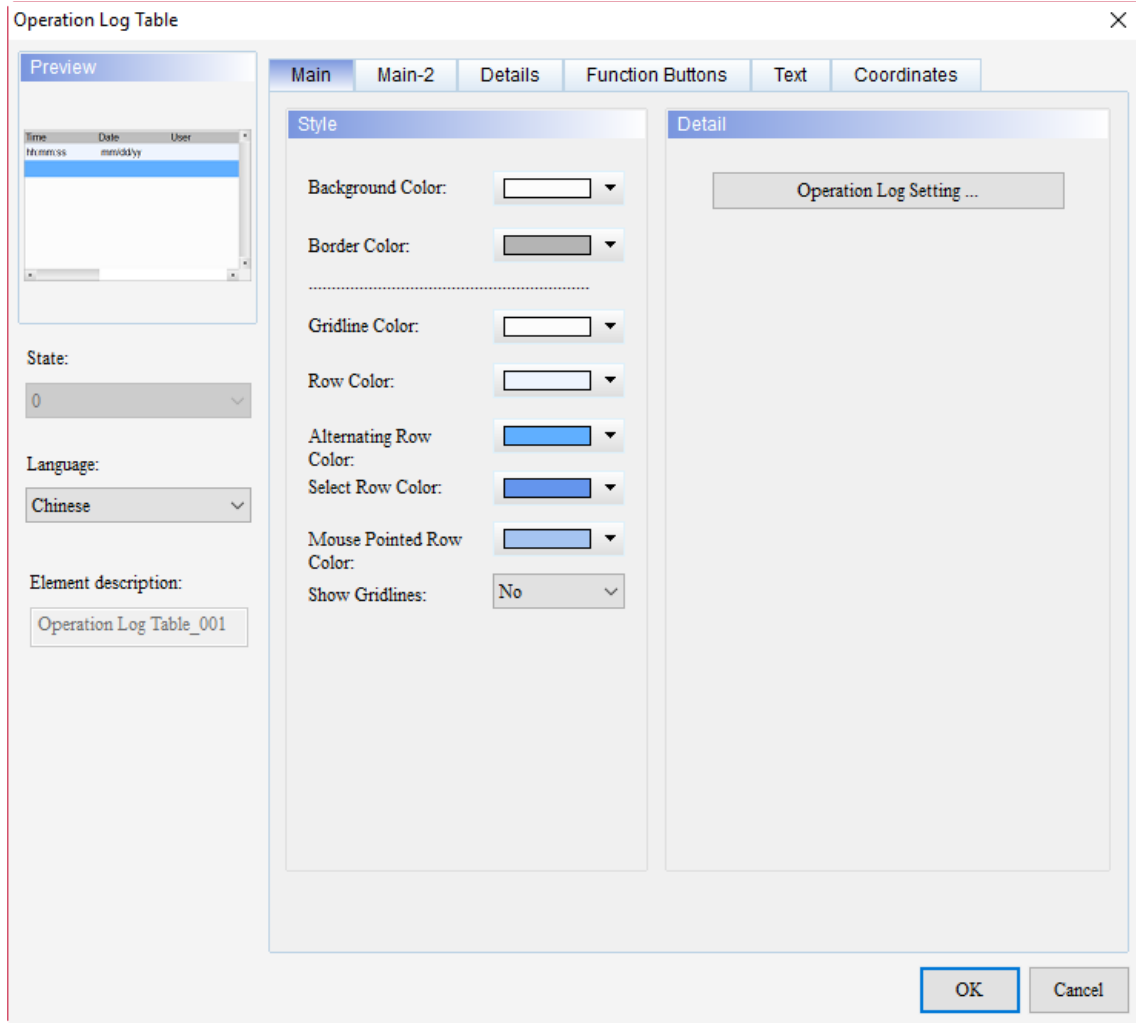
15.6 Operation Log Table

The Operation Log Table is for recording the operation and date/time of the operation of each element when you enter the HMI screen. The operations include changing the element data, security level, and switching elements. You may refer to the Operation Log Table when the machine malfunctions or there are defects in the products. In addition, you can save the records as CSV files and view them with PCs.

Note:

1. The default for the Operation Log Table is a CSV file which saves up to 10,000 sets of data.
When you save data in the HMI, the maximum number of data records is 10,000. When you save data in the USB disk or SD card, if the default 10,000 records have been exceeded, the HMI then operates with the setting of Overwrite Files or Stop Log in the Save Settings.
2. The Operation Log Table can be saved in the HMI, USB Disks, or SD Cards. When you save data in the HMI, the read / write speed is faster. When you save data in the external device, the read speed is determined by the read / write speed of the external device. If the read / write speed of the external storage device is slow, the display speed of the Operation Log Table and the update speed of the screen operation are affected.

When you double-click the Operation Log Table, the property page is shown as follows.



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Figure 15.6.1 Properties of Operation Log Table

Table 15.6.1 Function page of Operation Log Table

Operation Log Table		
Function page	Description	
Preview	The Operation Log Table elements do not support multiple state values and multi-language data display.	
Main	Style	Set the Background Color, Border Color, Gridline Color, Row Color, Alternating Row Color, Select Row Color, Mouse Pointed Row Color, and Show Gridlines.
	Detail	Enable, Trigger, Save Settings (storage space setting and solutions for insufficient space), and CSV output settings (set the Time/Date Format and select the titles to output to the CSV file in an external device).
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.	
Details	Display settings	You can set whether to record the Time, Date, User Account, Level, Screen, Description, Action, Address, Previous value, New value, and adjust the Column order.
	Title setting	Set the text alignment, background color, and text color.
	Time/Date	Set the Time Format, Date Format, and Color.
Function Buttons	Select the function buttons to enable, and set the width and height of the buttons.	
Text	Set the text font, size, and color.	
Coordinates	Set the X and Y coordinates, width, and height of the elements.	

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■ Main

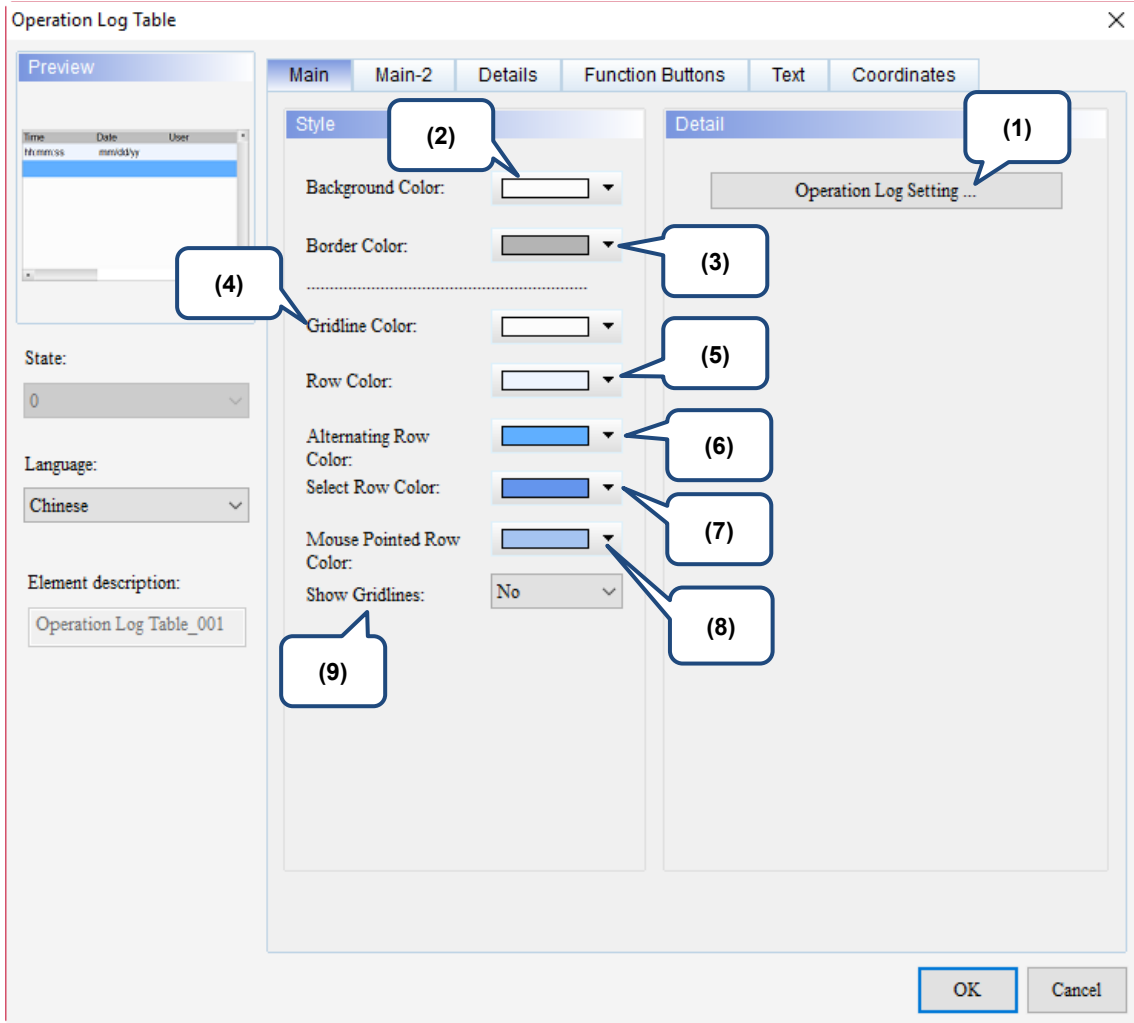
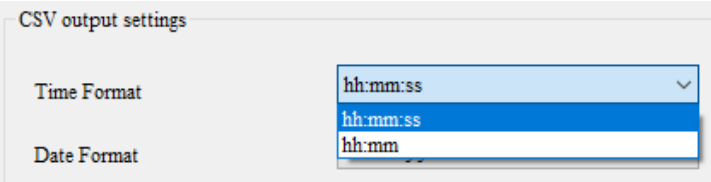
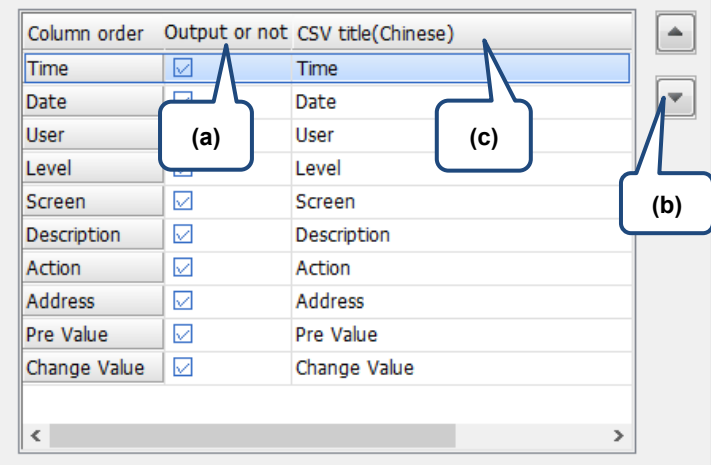


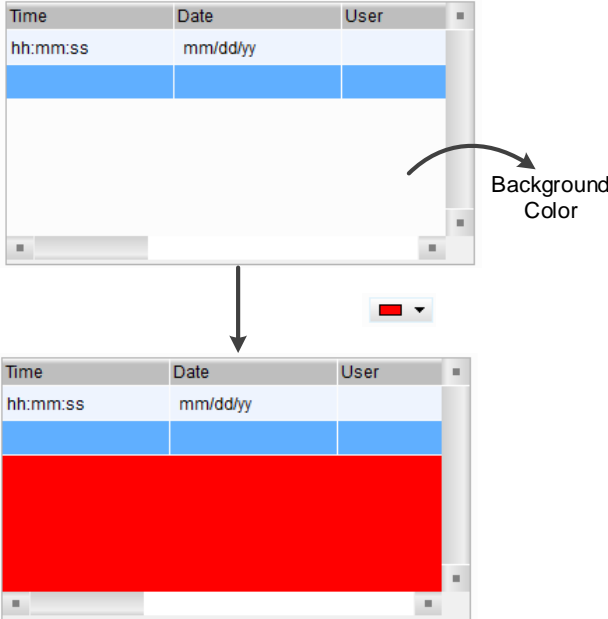

Figure 15.6.2 Main property page for the Operation Log Table element

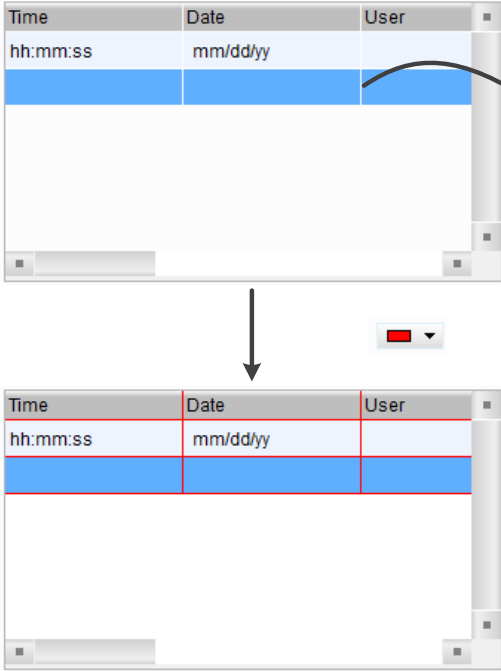
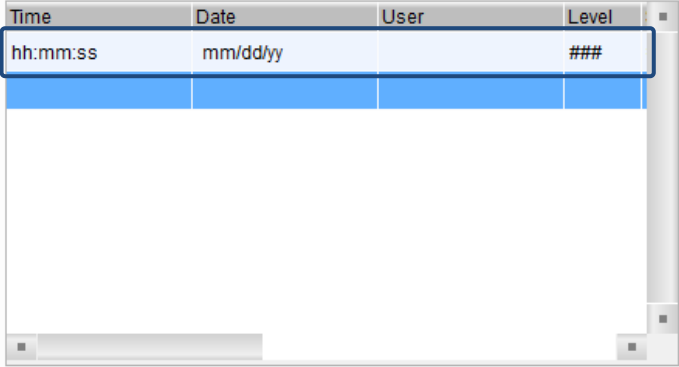
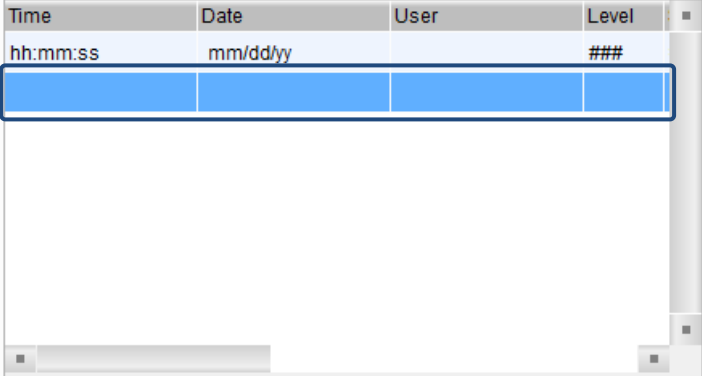
15

No.	Property	Function description
(1)	Operation Log Settings	<p>You can start the setting by pressing Operation Log Setting... or by going to [Options] > [Operation Log Settings].</p> <p>The screenshot shows the 'Operation Log Settings' dialog box with the following details:</p> <ul style="list-style-type: none"> Enable: A checkbox that is currently unchecked. Trigger: A text field containing 'None' and a browse button. Save Settings: <ul style="list-style-type: none"> Save in: A dropdown menu set to 'USB Disk'. Insufficient storage: A dropdown menu set to 'Stop Log'. Maximum file size: A text field with '10' and a 'MB' unit. CSV output settings: <ul style="list-style-type: none"> Time Format: A dropdown menu set to 'hh:mm:ss'. Date Format: A dropdown menu set to 'mm/dd/yy'. Table: A table with columns 'Column order', 'Output or not', and 'CSV title(Language1)'. All 'Output or not' checkboxes are checked.
	Enable	Not enabled by default. Select the Enable check box to edit settings.
	Trigger	Set the Operation Log Table trigger address, which supports addresses of the internal memory and the external PLC. This function only supports bit trigger. As soon as this address is triggered, the Operation Log Table starts recording all operations of the HMI.
	Save Settings	<ul style="list-style-type: none"> ■ Set to save the Operation Log Table in the HMI, USB Disk, or SD Card in CSV format. ■ When the external storage space is insufficient, two solutions are available, Stop Log and Overwrite Files. Stop Log is to stop recording the HMI operations; Overwrite Files is to delete the recorded operation data and start recording the operations all over again. <p>The screenshot shows the 'Save Settings' section with 'Save in' set to 'USB Disk' and 'Insufficient storage' set to 'Overwrite Files'.</p>


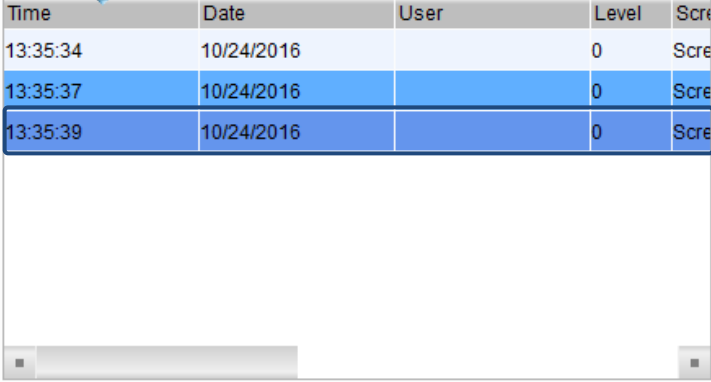
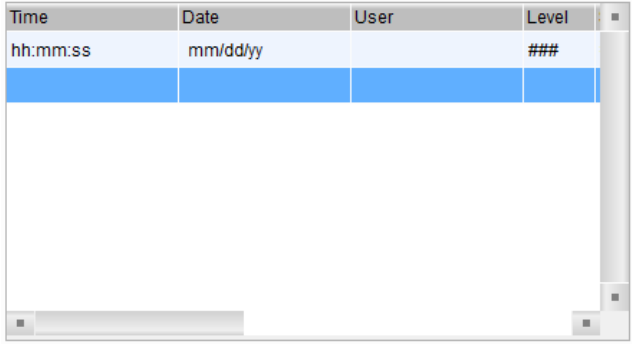
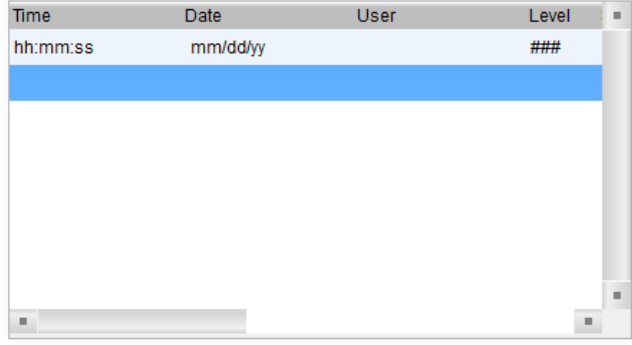
No.	Property	Function description
(1)	Operation Log Settings	<p>■ Set the recording time and date formats for the CSV file to output.</p>  <p>■ Select the display columns to output to the CSV file (a), adjust the column displaying order (b), and define the display titles of the selected columns (c).</p> 

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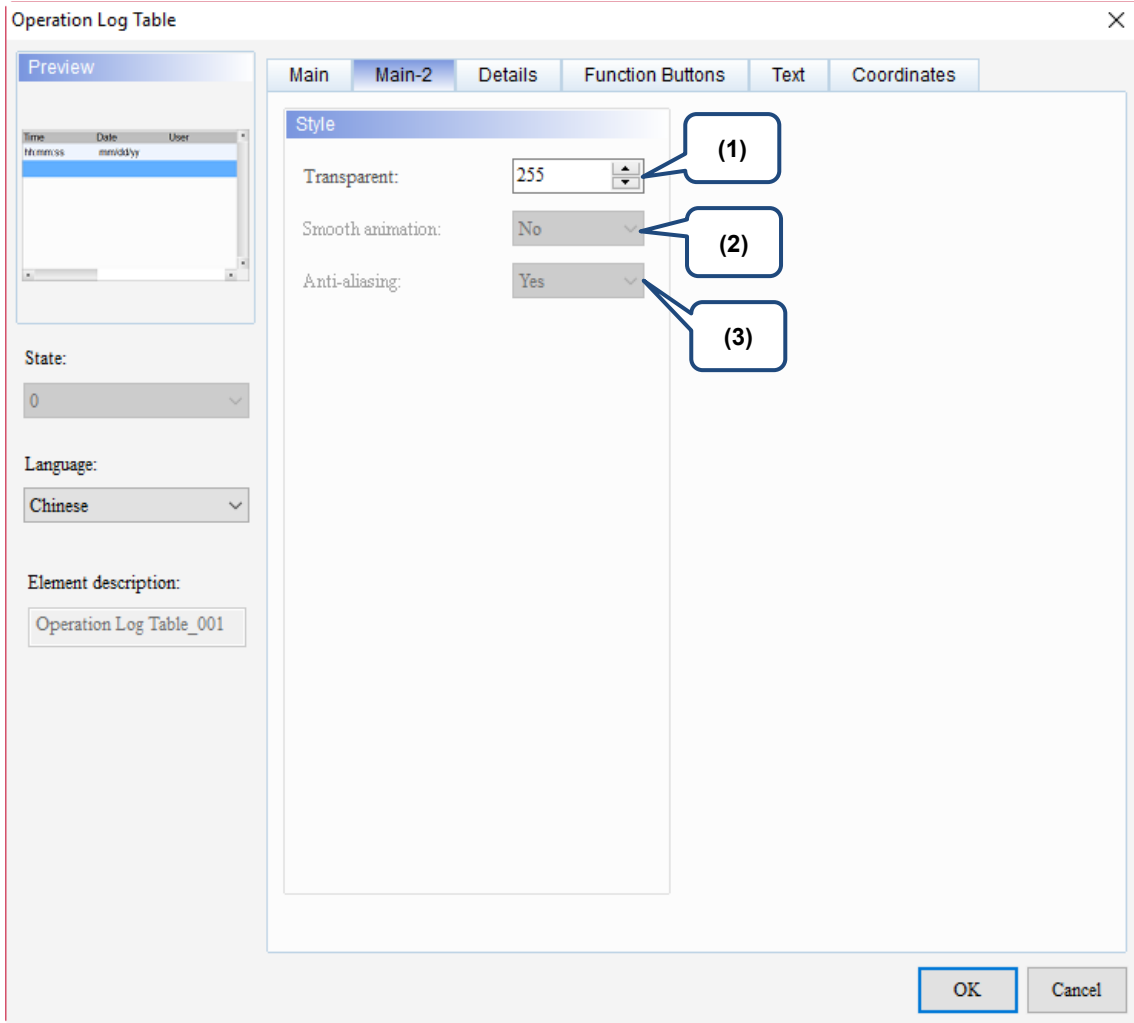
No.	Property	Function description
(2)	Background Color	<p>Set the background color for the Operation Log Table element.</p> 
(3)	Border Color	<p>Set the border color of the Operation Log Table element.</p> 

No.	Property	Function description
(4)	Gridline Color	<p>Set the gridline color of the Operation Log Table element.</p> 
(5)	Row Color	<p>Color of the odd rows. The default is <input type="text" value=""/> .</p> 
(6)	Alternating Row Color	<p>Color of the even rows. The default is <input type="text" value=""/> .</p> 

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No.	Property	Function description
(7)	Select Row Color	<p>When you select the data rows to view, the rows are in the color specified in this setting. The default is .</p> 
(8)	Mouse Pointed Row Color	<p>When the cursor is enabled, the row changes to the specified color where the cursor is placed at.</p>
(9)	Show Gridlines	<p>The default is Yes meaning to show gridlines between each data entry in the Operation Log Table.</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: #cccccc; padding: 5px;"> <p>Select Yes for Show Gridlines</p> </div> <div style="width: 65%;">  </div> </div> <hr/> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: #cccccc; padding: 5px;"> <p>Select No for Show Gridlines</p> </div> <div style="width: 65%;">  </div> </div>

■ Main-2



15

Figure 15.6.3 Main-2 property page for the Operation Log Table element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Details

15

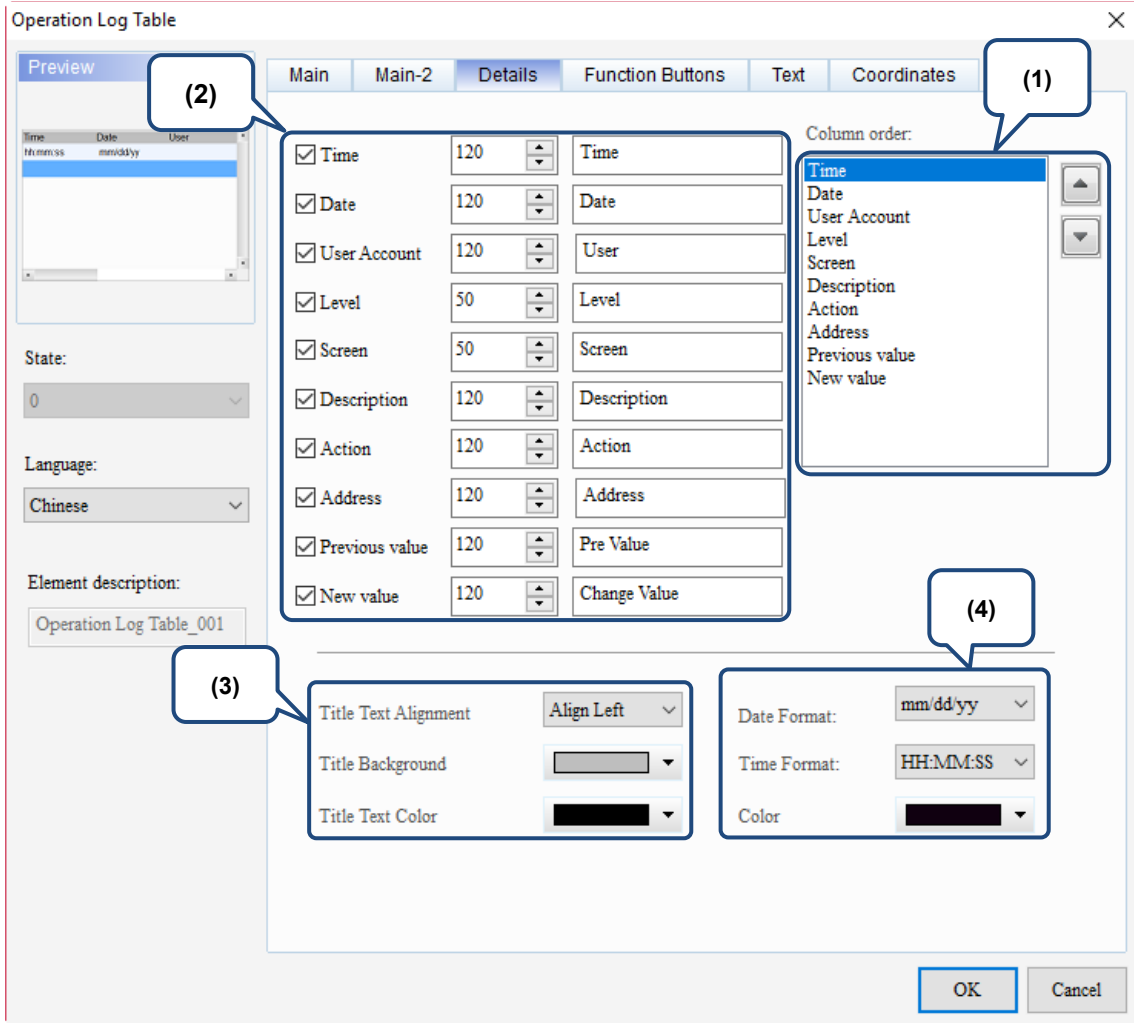
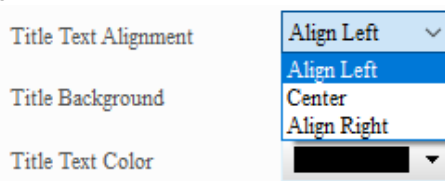
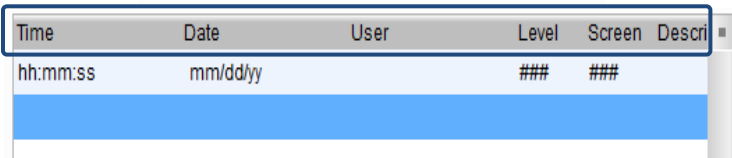
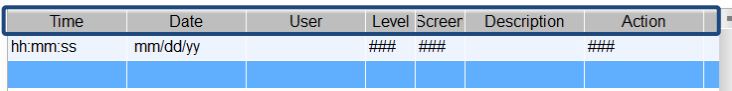
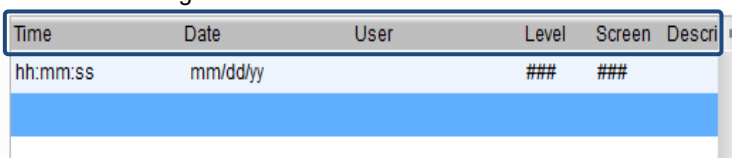
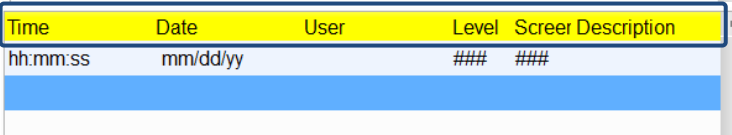
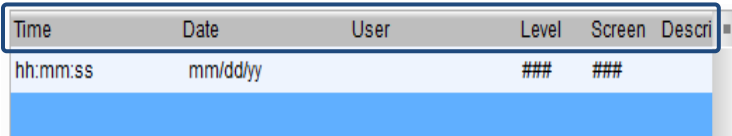
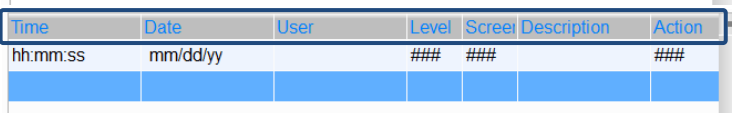
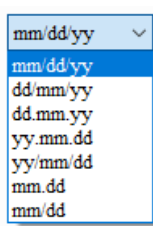
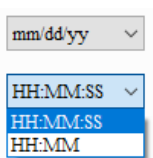
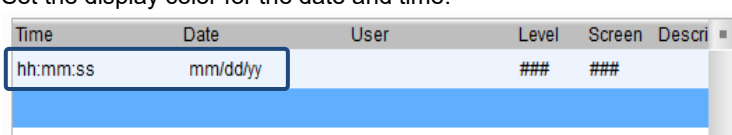


Figure 15.6.4 Details property page for the Operation Log Table element

No.	Property	Function description
(1)	Column order	<p>Set the column display order in the Operation Log Table.</p>

No.	Property	Function description																														
(2)	Column Settings	<p>Select the columns to display</p> <p>In the default setting, all columns are selected and shown in the Operation Log Table. You can select or clear the check boxes of the display columns as required.</p> <table border="1"> <tr><td><input checked="" type="checkbox"/> Time</td><td>120</td><td>Time</td></tr> <tr><td><input checked="" type="checkbox"/> Date</td><td>120</td><td>Date</td></tr> <tr><td><input checked="" type="checkbox"/> User Account</td><td>120</td><td>User</td></tr> <tr><td><input checked="" type="checkbox"/> Level</td><td>50</td><td>Level</td></tr> <tr><td><input checked="" type="checkbox"/> Screen</td><td>50</td><td>Screen</td></tr> <tr><td><input checked="" type="checkbox"/> Description</td><td>120</td><td>Description</td></tr> <tr><td><input checked="" type="checkbox"/> Action</td><td>120</td><td>Action</td></tr> <tr><td><input checked="" type="checkbox"/> Address</td><td>120</td><td>Address</td></tr> <tr><td><input checked="" type="checkbox"/> Previous value</td><td>120</td><td>Pre Value</td></tr> <tr><td><input checked="" type="checkbox"/> New value</td><td>120</td><td>Change Value</td></tr> </table>	<input checked="" type="checkbox"/> Time	120	Time	<input checked="" type="checkbox"/> Date	120	Date	<input checked="" type="checkbox"/> User Account	120	User	<input checked="" type="checkbox"/> Level	50	Level	<input checked="" type="checkbox"/> Screen	50	Screen	<input checked="" type="checkbox"/> Description	120	Description	<input checked="" type="checkbox"/> Action	120	Action	<input checked="" type="checkbox"/> Address	120	Address	<input checked="" type="checkbox"/> Previous value	120	Pre Value	<input checked="" type="checkbox"/> New value	120	Change Value
	<input checked="" type="checkbox"/> Time	120	Time																													
	<input checked="" type="checkbox"/> Date	120	Date																													
<input checked="" type="checkbox"/> User Account	120	User																														
<input checked="" type="checkbox"/> Level	50	Level																														
<input checked="" type="checkbox"/> Screen	50	Screen																														
<input checked="" type="checkbox"/> Description	120	Description																														
<input checked="" type="checkbox"/> Action	120	Action																														
<input checked="" type="checkbox"/> Address	120	Address																														
<input checked="" type="checkbox"/> Previous value	120	Pre Value																														
<input checked="" type="checkbox"/> New value	120	Change Value																														
Adjust column width	<p>Adjust the column width in the Operation Log Table.</p> <table border="1"> <tr><td><input checked="" type="checkbox"/> Time</td><td>120</td><td>Time</td></tr> <tr><td><input checked="" type="checkbox"/> Date</td><td>120</td><td>Date</td></tr> <tr><td><input checked="" type="checkbox"/> User Account</td><td>120</td><td>User</td></tr> <tr><td><input checked="" type="checkbox"/> Level</td><td>50</td><td>Level</td></tr> <tr><td><input checked="" type="checkbox"/> Screen</td><td>50</td><td>Screen</td></tr> <tr><td><input checked="" type="checkbox"/> Description</td><td>120</td><td>Description</td></tr> <tr><td><input checked="" type="checkbox"/> Action</td><td>120</td><td>Action</td></tr> <tr><td><input checked="" type="checkbox"/> Address</td><td>120</td><td>Address</td></tr> <tr><td><input checked="" type="checkbox"/> Previous value</td><td>120</td><td>Pre Value</td></tr> <tr><td><input checked="" type="checkbox"/> New value</td><td>120</td><td>Change Value</td></tr> </table>	<input checked="" type="checkbox"/> Time	120	Time	<input checked="" type="checkbox"/> Date	120	Date	<input checked="" type="checkbox"/> User Account	120	User	<input checked="" type="checkbox"/> Level	50	Level	<input checked="" type="checkbox"/> Screen	50	Screen	<input checked="" type="checkbox"/> Description	120	Description	<input checked="" type="checkbox"/> Action	120	Action	<input checked="" type="checkbox"/> Address	120	Address	<input checked="" type="checkbox"/> Previous value	120	Pre Value	<input checked="" type="checkbox"/> New value	120	Change Value	
<input checked="" type="checkbox"/> Time	120	Time																														
<input checked="" type="checkbox"/> Date	120	Date																														
<input checked="" type="checkbox"/> User Account	120	User																														
<input checked="" type="checkbox"/> Level	50	Level																														
<input checked="" type="checkbox"/> Screen	50	Screen																														
<input checked="" type="checkbox"/> Description	120	Description																														
<input checked="" type="checkbox"/> Action	120	Action																														
<input checked="" type="checkbox"/> Address	120	Address																														
<input checked="" type="checkbox"/> Previous value	120	Pre Value																														
<input checked="" type="checkbox"/> New value	120	Change Value																														
Edit display title	<p>You can edit the column titles in the Operation Log Table. The defaults are English strings, but Chinese characters are also supported.</p> <table border="1"> <tr><td><input checked="" type="checkbox"/> Time</td><td>120</td><td>Time</td></tr> <tr><td><input checked="" type="checkbox"/> Date</td><td>120</td><td>Date</td></tr> <tr><td><input checked="" type="checkbox"/> User Account</td><td>120</td><td>User</td></tr> <tr><td><input checked="" type="checkbox"/> Level</td><td>50</td><td>Level</td></tr> <tr><td><input checked="" type="checkbox"/> Screen</td><td>50</td><td>Screen</td></tr> <tr><td><input checked="" type="checkbox"/> Description</td><td>120</td><td>Description</td></tr> <tr><td><input checked="" type="checkbox"/> Action</td><td>120</td><td>Action</td></tr> <tr><td><input checked="" type="checkbox"/> Address</td><td>120</td><td>Address</td></tr> <tr><td><input checked="" type="checkbox"/> Previous value</td><td>120</td><td>Pre Value</td></tr> <tr><td><input checked="" type="checkbox"/> New value</td><td>120</td><td>Change Value</td></tr> </table>	<input checked="" type="checkbox"/> Time	120	Time	<input checked="" type="checkbox"/> Date	120	Date	<input checked="" type="checkbox"/> User Account	120	User	<input checked="" type="checkbox"/> Level	50	Level	<input checked="" type="checkbox"/> Screen	50	Screen	<input checked="" type="checkbox"/> Description	120	Description	<input checked="" type="checkbox"/> Action	120	Action	<input checked="" type="checkbox"/> Address	120	Address	<input checked="" type="checkbox"/> Previous value	120	Pre Value	<input checked="" type="checkbox"/> New value	120	Change Value	
<input checked="" type="checkbox"/> Time	120	Time																														
<input checked="" type="checkbox"/> Date	120	Date																														
<input checked="" type="checkbox"/> User Account	120	User																														
<input checked="" type="checkbox"/> Level	50	Level																														
<input checked="" type="checkbox"/> Screen	50	Screen																														
<input checked="" type="checkbox"/> Description	120	Description																														
<input checked="" type="checkbox"/> Action	120	Action																														
<input checked="" type="checkbox"/> Address	120	Address																														
<input checked="" type="checkbox"/> Previous value	120	Pre Value																														
<input checked="" type="checkbox"/> New value	120	Change Value																														

15

No.	Property	Function description
(3)	Title Settings	<p>Adjust the alignment of the titles.</p>  <p>Title Text Alignment</p> <p>Title Background</p> <p>Title Text Color</p>  <p>The following figure is an example of setting the Title Text Alignment to Center.</p> 
		<p>Set the title background color.</p>  
		<p>Set the display title text color.</p>  
(4)	Date and time settings	<p>Set the date display format.</p>  <p>Date Format:</p> <p>Time Format:</p> <p>Color</p>
		<p>Set the time display format.</p>  <p>Date Format:</p> <p>Time Format:</p> <p>Color</p>
		<p>Set the display color for the date and time.</p> 

■ Function Buttons

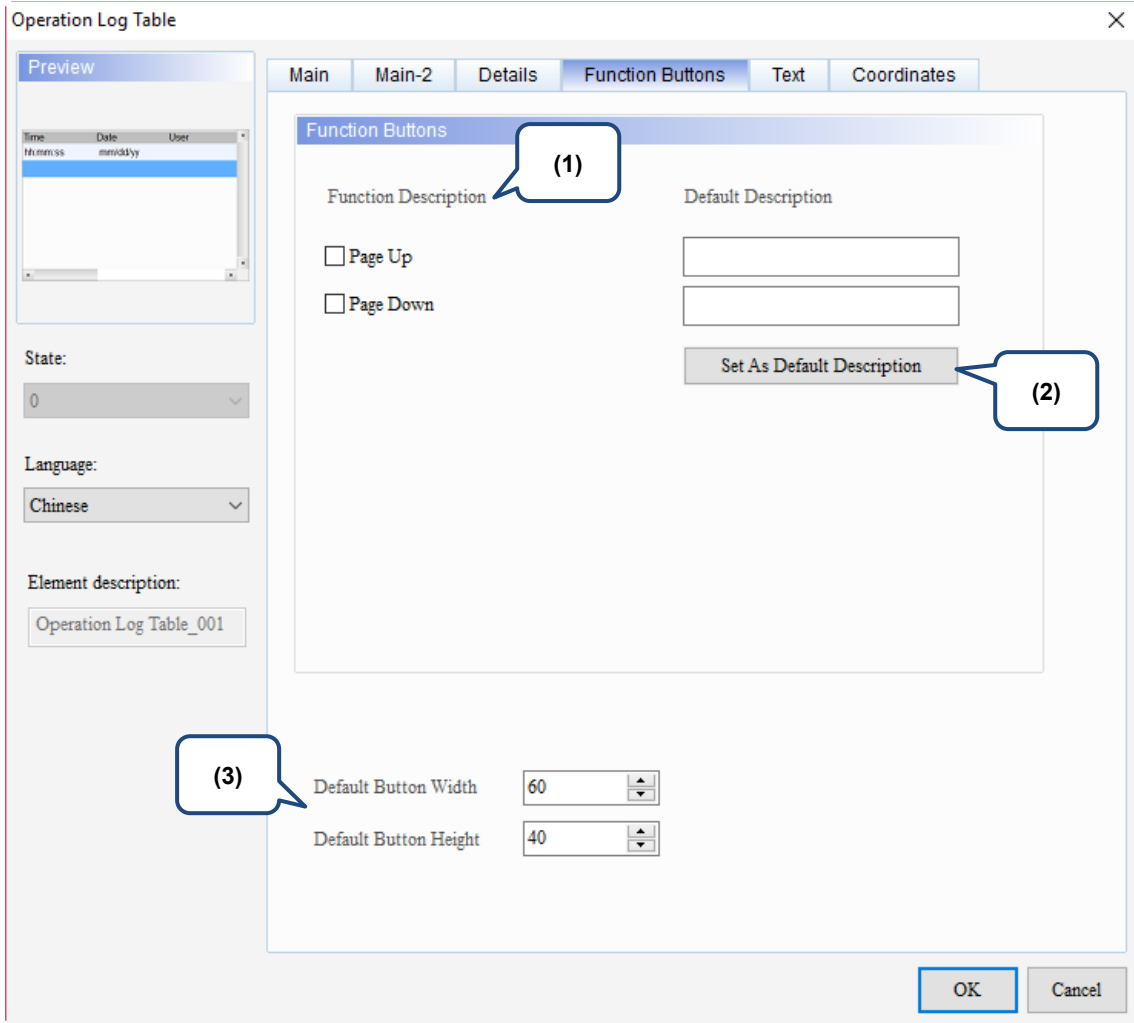
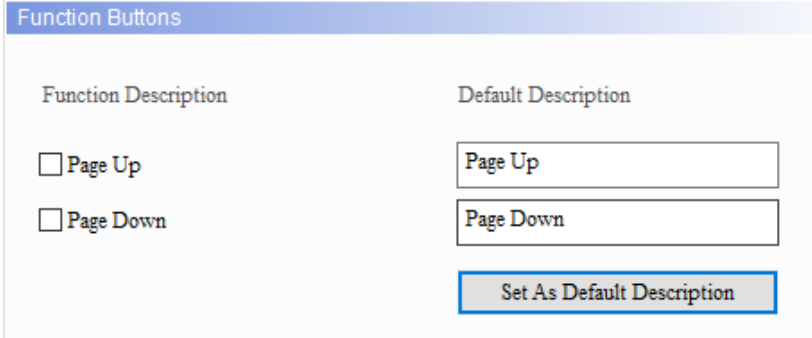
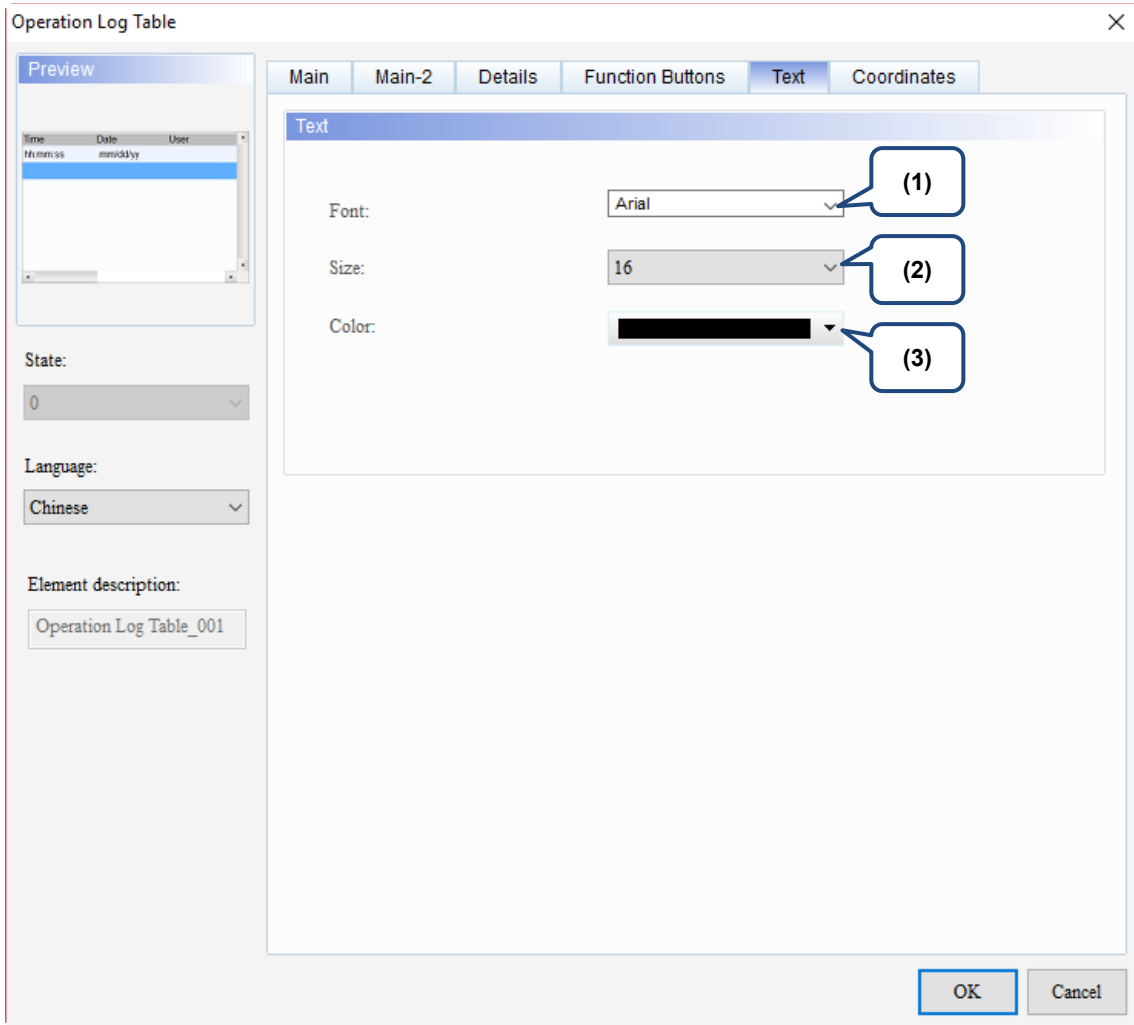


Figure 15.6.5 Function Buttons property page for the Operation Log Table element

15

No.	Property	Function description				
(1)	Function Description	<ul style="list-style-type: none"> Select the function buttons to display on the Operation Log Table element. <table border="1" style="margin-left: 20px;"> <tr> <td>Page Up</td> <td>Go to the previous page of the Operation Log Table.</td> </tr> <tr> <td>Page Down</td> <td>Go to the next page of the Operation Log Table.</td> </tr> </table> You can use Page Up and Page Down to change the page only when there are more than 10,000 sets of data in the Operation Log Table. That is, one CSV file contains 10,000 operation log data, and Page Up and Page Down are for switching between files of Operation Log Tables. 	Page Up	Go to the previous page of the Operation Log Table.	Page Down	Go to the next page of the Operation Log Table.
Page Up	Go to the previous page of the Operation Log Table.					
Page Down	Go to the next page of the Operation Log Table.					
(2)	Set As Default Description	<p>When you press Set As Default Description, the default strings are automatically filled in the Default Description fields.</p> 				
(3)	Default Button Width / Height	You can adjust the button height and width.				

■ Text



15

Figure 15.6.6 Text property page for the Operation Log Table element

No.	Property	Function description
(1)	Font	Set the display text font of the Operation Log Table.
(2)	Size	Set the display text size of the Operation Log Table.
(3)	Color	Set the display text color of the Operation Log Table.

Coordinates

15

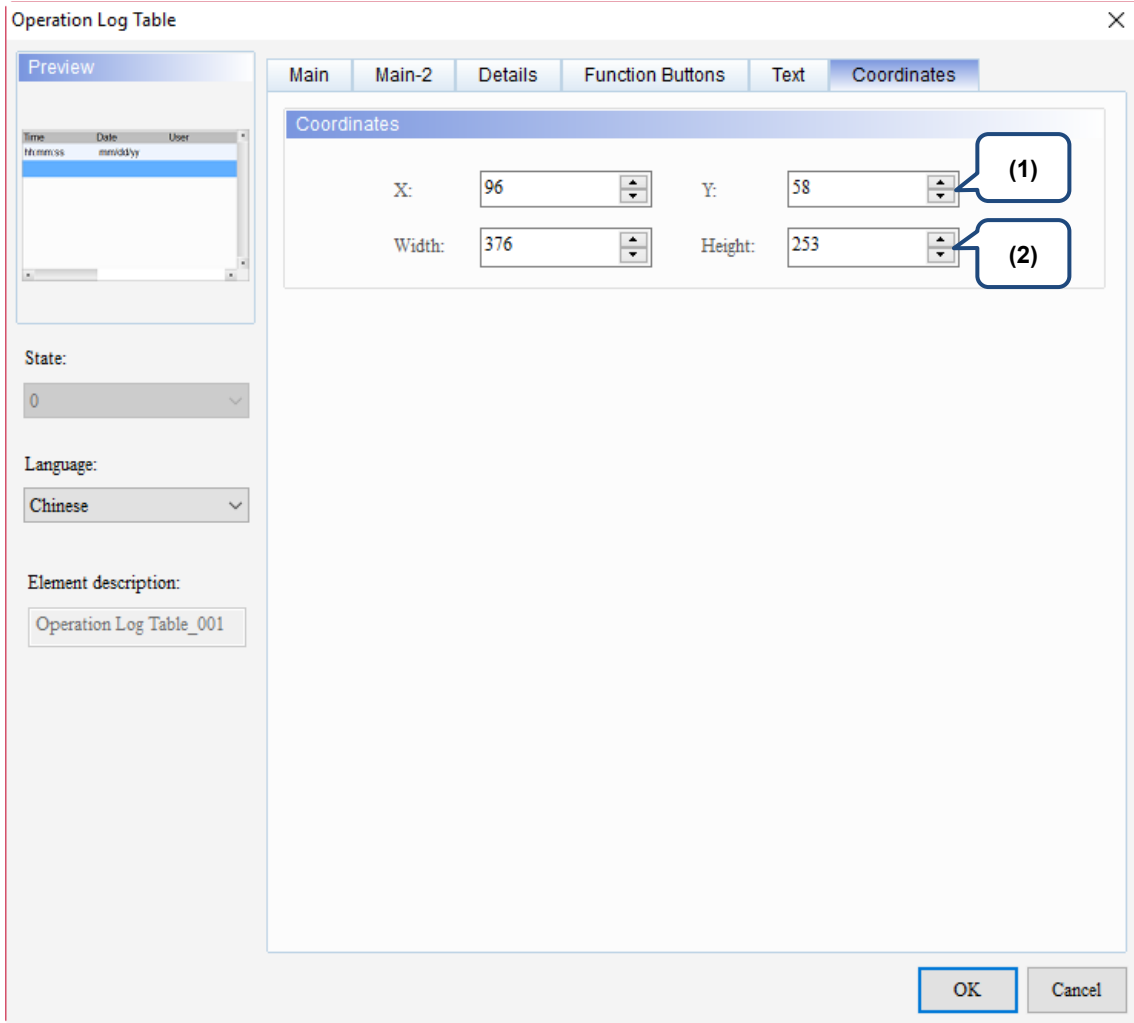


Figure 15.6.7 Coordinates property page for the Operation Log Table element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

Alarm

16

This chapter provides the usage and setting details for the Alarm elements.

16.1 Alarm Settings	16-2
16.2 Alarm History Table	16-31
16.3 Active Alarm List	16-49
16.4 Alarm Frequency Table	16-67
16.5 Alarm Moving Sign	16-86

16

16.1 Alarm Settings

The Alarm Settings page is for setting the read address, sampling cycle, maximum savable data, non-volatile memory, alarm moving sign, exporting the data to a CSV file, and editing the alarm message to be displayed for the displaying alarm.

The DOP-B and DOP-H series HMIs use continuous Word addresses for the alarms, while the DOP-W and DOP-100 series HMIs use non-continuous addresses. Through non-continuous addresses, alarms can be triggered with either Bit or Word addresses, which is more flexible and user-friendly. In addition, alarm messages now support dynamic modification. In the previous version, the temperatures displayed on the alarm messages were fixed, e.g. 100 degrees; now you can add %d1 and %f1 to the alarm message and use the monitoring address in Alarm Settings to input the value, so the HMI displays the modified value when the alarm is triggered next time.

Alarm message supports up to 4,096 data entries. DOPSoft also provides a batch tasks tool which allows you to quickly complete the group settings when you input the alarm group numbers. You can sort and filter the display of the alarms on the Alarm History Table, so the alarm messages are displayed in a way that is easier for you to view.

The formula provided by the software computes all the alarm relevant data edited by the users. Then, the set non-volatile memory saves these computation results. If the data is saved in the HMI, the alarm data size is subject to change based on the HMI model. Refer to the specifications for non-volatile memory in the HMI installation manual. For data saved in the USB Disk or SD Card, the alarm data size is determined by the external storage devices.

The alarm formulas are applicable to the alarm log file and Alarm Frequency Table, but since the CSV file size is determined by the message (length) input by the user, there is no formula for the CSV file.

The following are the formulas for the alarm log file and Alarm Frequency Table:

- Alarm log file

$$\{[6 \text{ Bytes}(a) + 2 \text{ Bytes}(b)] \times N(c)\} + 6 \text{ Bytes}(d) = \text{Actual file size Bytes}$$

a	Time / date data
b	Alarm data
c	Sampling number
d	Data file header

- Alarm Frequency Table

$$2 \text{ Bytes}(a) \times N(b) = \text{Actual file size Bytes}$$

a	Alarm frequency data
b	Alarm records

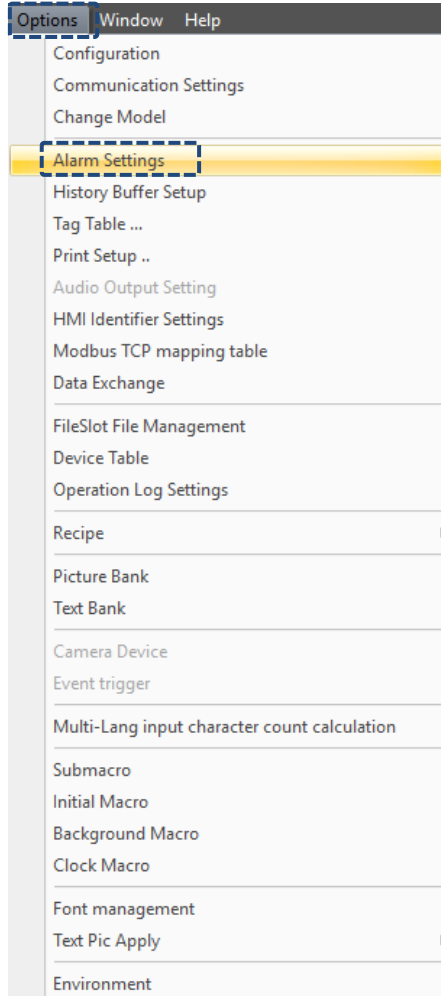
The following section provides an example for non-continuous addresses settings. Refer to Table 16.1.1 shown as follows.

Table 16.1.1 Alarm Settings example

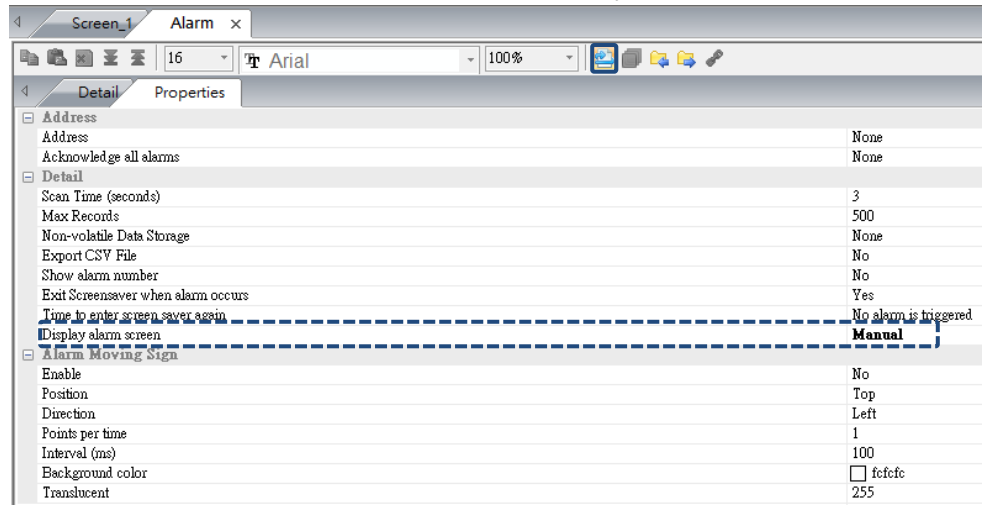
Alarm Settings

Step 1: go to [Options] > [Alarm Settings] to set up the alarm message display properties.

Alarm setting steps



Step 2: switch to non-continuous address and set [Display alarm screen] to [Manual].



16

Alarm setting steps

Alarm Settings

Set ten alarms as follows:

No.	Message Content	Category	Type	Address	Trigger Condition	Monitor At	Text Color	Alarm Screen
1*	Alarm 1 %d1 degree(s)	1	Bit	\$50.0	On	*	RGB(0, 0, 0)	2 - Screen_2
2*	Alarm 2 %d1 kilogram(s)	1	Bit	\$50.1	On	*	RGB(0, 0, 0)	None
3*	Alarm 3 %d1 gram(s)	1	Bit	\$50.2	On	*	RGB(0, 0, 0)	None
4*	Alarm 4 %d1 meter(s)	1	Bit	\$50.3	On	*	RGB(0, 0, 0)	None
5*	Alarm 5 %d1 inch(es)	1	Bit	\$50.4	On	*	RGB(0, 0, 0)	None
6*	Alarm 6	5	Word	\$100	\$100 = \$200	...	RGB(0, 0, 0)	2 - Screen_2
7*	Alarm 7	5	Word	\$110	\$110 < \$210	...	RGB(0, 0, 0)	None
8*	Alarm 8	5	Word	{Link2}1@D100	{Link2}1@D200 <= {Link2}1@D100	...	RGB(0, 0, 0)	None
9*	Alarm 9	5	Word	\$120	0 <= \$120 <= 10	...	RGB(0, 0, 0)	None
10*	Alarm 10	5	Word	{Link2}1@M16	{Link2}1@M16 >= 100	...	RGB(0, 0, 0)	None

■ Set the Main page as follows:

Create Alarm History Table element

■ Set the Details page as follows:

Alarm Settings

■ Set the Details-2 page as follows:

Create Alarm History Table element

Create Numeric Entry elements and Maintained buttons for Alarm Settings and Alarm History Table addresses

Create Maintained buttons and Numeric Entry elements.

Create Alarm Screens

After you create an alarm screen and define it as a sub-screen, go to [Options] > [Alarms Settings] to specify Alarm 1 and Alarm 6 screens as Screen_2.



No.	Message Content	Category	Type	Address	Trigger Condition	Monitor At	Text Color	Alarm Screen
1*	Alarm 1 %d1 degree(s)	1	Bit	\$50.0	On	*	RGB(0, 0, 0)	2 - Screen_2
2*	Alarm 2 %d1 kilogram(s)	1	Bit	\$50.1	On	*	RGB(0, 0, 0)	None
3*	Alarm 3 %d1 gram(s)	1	Bit	\$50.2	On	*	RGB(0, 0, 0)	None
4*	Alarm 4 %d1 meter(s)	1	Bit	\$50.3	On	*	RGB(0, 0, 0)	None
5*	Alarm 5 %d1 inch(es)	1	Bit	\$50.4	On	*	RGB(0, 0, 0)	None
6*	Alarm 6	5	Word	\$100	\$100 = \$200	...	RGB(0, 0, 0)	2 - Screen_2
7*	Alarm 7	5	Word	\$110	\$110 < \$210	...	RGB(0, 0, 0)	None
8*	Alarm 8	5	Word	{Link2}1@D100	{Link2}1@D200 <= {Link2}1@D100	...	RGB(0, 0, 0)	None
9*	Alarm 9	5	Word	\$120	0 <= \$120 <= 10	...	RGB(0, 0, 0)	None
10*	Alarm 10	5	Word	{Link2}1@M16	{Link2}1@M16 >= 100	...	RGB(0, 0, 0)	None

16

Alarm Settings

Go to [Initial Macro] to edit the commands as follows. The action is set to "when the HMI screen is turned on", Alarms 6 - 10 are on because the trigger conditions are met.

6*	alarm 6	5	Word	\$100	\$100 = \$200
7*	alarm 7	5	Word	\$110	\$110 < \$210
8*	alarm 8	5	Word	{Link2}1@D100	{Link2}1@D200 <= {Link2}1@D100 <= {Link2}1@D300
9*	alarm 9	5	Word	\$120	0 <= \$120 <= 10
10*	alarm 10	5	Word	{Link2}1@M16	{Link2}1@M16 >= 100

Write Macro
Commands

```

* [Initial Macro]
#Word Control
#rule1 $100 = $200
$100 = 5
$200 = 5
#Word Control
#rule2 $110 < $210
$110 = 66
$210 = 100
#Word Control
#rule3 {Link2}1@D200 <= {Link2}1@D100 <= {Link2}1@D300
({Link2}1@D200) = 888
({Link2}1@D100) = 999
({Link2}1@D300) = 1111
#Word Control
#rule4 0 <= $120 <= 10
$120 = 8
#Word Control
#rule5 {Link2}1@M16 >= 100
({Link2}1@M16) = 101
#Monitor address
$500 = 30
$501 = 10
$502 = 250
$503 = 800
$504 = 3
    
```


Max limit of Row: 512 lines, Max limit of Line: 640 bytes Line: 17

Alarm Settings

Compile and download all screen data to the HMI. The actions are illustrated as follows:

Display alarm screen action

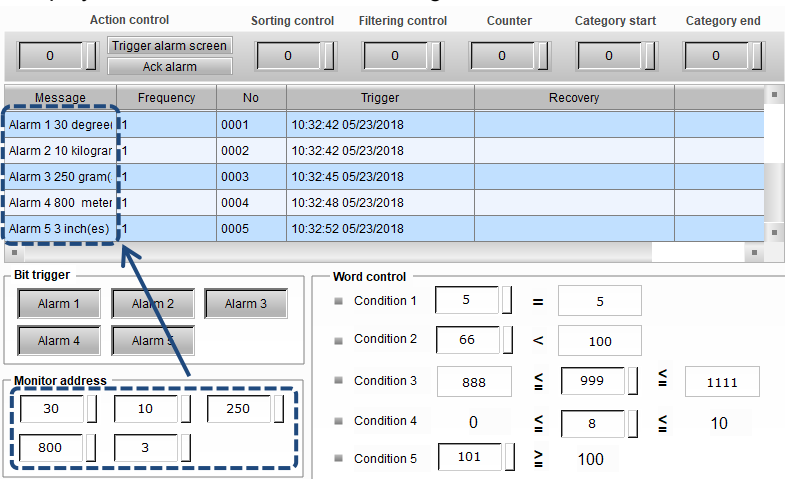
- The setting conditions for this example: set [Display alarm screen] to Manual and set Action Control Addr. to 2, and then the HMI displays the alarm screen.
- If you set [Display alarm screen] to Auto and the trigger condition for Alarm 6 is met and thus the alarm switches to on, then the HMI automatically displays the set alarm screen.



Execution results

Trigger Alarms 1 - 5 with Bit Control

- Close the alarm display screen.
- Use Bit addresses to trigger Alarms 1- 5, and the Alarm History Table displays the user-defined alarm messages.



Message	Frequency	No	Trigger	Recovery
Alarm 1 30 degree	1	0001	10:32:42 05/23/2018	
Alarm 2 10 kilograr	1	0002	10:32:42 05/23/2018	
Alarm 3 250 gram(	1	0003	10:32:45 05/23/2018	
Alarm 4 800 meter	1	0004	10:32:48 05/23/2018	
Alarm 5 3 inch(es)	1	0005	10:32:52 05/23/2018	

16

Alarm Settings

■ If you change the values of Monitor address and trigger Alarms 1 - 5 again, the alarm messages change according to the modified values.

Trigger Alarms 1 - 5 with Bit Control

The screenshot shows the 'Alarm Settings' window. At the top, there are control buttons for 'Action control', 'Sorting control', 'Filtering control', 'Counter', 'Category start', and 'Category end', all set to 0. Below these is a table of alarm messages:

Message	Frequency	No	Trigger	Recovery
Alarm 1 40 degree	2	0001	10:34:20 05/23/2018	
Alarm 2 20 kilograr	2	0002	10:34:29 05/23/2018	
Alarm 3 300 gram	2	0003	10:34:32 05/23/2018	
Alarm 4 700 meter	2	0004	10:34:36 05/23/2018	
Alarm 5 5 inch(es)	2	0005	10:34:39 05/23/2018	

Below the table are 'Bit trigger' buttons for Alarm 1 through Alarm 5, and 'Word control' conditions 1 through 5. A 'Monitor address' section has input fields for 40, 20, 300, 700, and 5. A blue dashed box highlights the 'Monitor address' fields, and a blue arrow points from the 'Alarm 1' button to the '40' field.

Execution results

When you use Bit or Word addresses to trigger the alarm and the trigger conditions are met, the Alarm History Table shows the trigger date and time.

The screenshot shows the 'Alarm History Table' with the following data:

Message	Frequency	No	Trigger	Recovery
Alarm 1 40 degree	2	0001	10:34:20 05/23/2018	
Alarm 2 20 kilograr	2	0002	10:34:29 05/23/2018	
Alarm 3 300 gram	2	0003	10:34:32 05/23/2018	
Alarm 4 700 meter	2	0004	10:34:36 05/23/2018	
Alarm 5 5 inch(es)	2	0005	10:34:39 05/23/2018	

A blue dashed box highlights the 'Trigger' column in the table.

Acknowledge Time

Specify an alarm with the setting of Action Control Addr. as 1, and then the alarm acknowledge time is displayed.

The screenshot shows the 'Alarm Settings' window with 'Action control' set to 1. Below the table, an 'Ack' column has been added to the table:

Frequency	No	Trigger	Recovery	Ack
2	0001	10:34:20 05/23/2018		10:37:47 05/23/2018
2	0002	10:34:29 05/23/2018		10:37:50 05/23/2018
2	0003	10:34:32 05/23/2018		
2	0004	10:34:36 05/23/2018		
2	0005	10:34:39 05/23/2018		

A blue dashed box highlights the 'Ack' column in the table.

Alarm Settings

Recovery Time

Action Control Addr.

Execution results

Sorting Control Addr.

When you use Bit addresses to cancel the alarm-triggering action or when the Word trigger conditions are not met (such as Condition 1 and Condition 2), the Alarm History Table will show the recovery time.

Frequency	No	Trigger	Recovery	Ack
1	0001	10:32:42 05/23/2018	10:34:10 05/23/2018	
1	0002	10:32:42 05/23/2018	10:34:10 05/23/2018	
1	0003	10:32:45 05/23/2018	10:34:14 05/23/2018	
1	0004	10:32:48 05/23/2018	10:34:14 05/23/2018	
1	0005	10:32:52 05/23/2018	10:34:17 05/23/2018	

- If Action Control Addr. is 0, the Alarm History Table has no action.
- If Action Control Addr. is 1, the Alarm History Table shows the acknowledge time.
- If Action Control Addr. is 2 and [Display alarm screen] is set to Manual, the HMI displays the alarm screen.

■ If Sorting Control Addr. is 0, the Alarm History Table has no action.

■ If Sorting Control Addr. is 1, the alarms are sorted based on the trigger time.

Message	Frequency	No	Trigger	Recovery	Ack
Alarm 1 30 degree	1	0001	10:53:35 05/23/2018	10:53:51 05/23/2018	
Alarm 2 10 kilograr	1	0002	10:53:38 05/23/2018	10:53:54 05/23/2018	
Alarm 3 250 gram(	1	0003	10:53:41 05/23/2018	10:53:54 05/23/2018	
Alarm 4 800 meter	1	0004	10:53:44 05/23/2018	10:53:57 05/23/2018	
Alarm 5 3 inch(es)	1	0005	10:53:47 05/23/2018	10:53:57 05/23/2018	

- If Sorting Control Addr. is 2, the alarms are sorted based on the acknowledge time.

Frequency	No	Trigger	Recovery	Ack
1	0005	10:53:47 05/23/2018	10:53:57 05/23/2018	10:55:44 05/23/2018
2	0001	10:54:18 05/23/2018		10:55:46 05/23/2018
2	0004	10:54:31 05/23/2018		10:55:48 05/23/2018
2	0002	10:54:24 05/23/2018		10:55:48 05/23/2018
1	0001	10:53:35 05/23/2018	10:53:51 05/23/2018	10:55:50 05/23/2018

- If Sorting Control Addr. is 3, the alarms are sorted based on the recovery time.

Message	Frequency	No	Trigger	Recovery	Ack
Alarm 1 30 degree	1	0001	10:53:35 05/23/2018	10:53:51 05/23/2018	10:55:50 05/23/2018
Alarm 2 10 kilograr	1	0002	10:53:38 05/23/2018	10:53:54 05/23/2018	
Alarm 3 250 gram(	1	0003	10:53:41 05/23/2018	10:53:54 05/23/2018	
Alarm 4 800 meter	1	0004	10:53:44 05/23/2018	10:53:57 05/23/2018	
Alarm 5 3 inch(es)	1	0005	10:53:47 05/23/2018	10:53:57 05/23/2018	

16

Alarm Settings

- If Sorting Control Addr. is 4, the alarms are sorted based on the alarm frequency from low to high.

Action control		Sorting control	Filtering control	Counter	Category start	Category end
0	Trigger alarm screen Ack alarm	4	0	0	0	0

Message	Frequency	No	Trigger	Recovery	
Alarm 1 30 degreee	1	0001	10:53:35 05/23/2018	10:53:51 05/23/2018	10:55:50 05/23/2018
Alarm 2 10 kilograr	1	0002	10:53:38 05/23/2018	10:53:54 05/23/2018	
Alarm 3 250 gram(	1	0003	10:53:41 05/23/2018	10:53:54 05/23/2018	
Alarm 4 800 meter	1	0004	10:53:44 05/23/2018	10:53:57 05/23/2018	
Alarm 5 3 inch(es)	1	0005	10:53:47 05/23/2018	10:53:57 05/23/2018	

- If Sorting Control Addr. is 5, the alarms are sorted based on the alarm category numbers in ascending order.

Action control		Sorting control	Filtering control	Counter	Category start	Category end
0	Trigger alarm screen Ack alarm	5	0	0	0	0

Message	Frequency	No	Trigger	Recovery	
Alarm 1 40 degreee	2	0001	10:54:18 05/23/2018		10:55:44 05/23/2018
Alarm 2 20 kilograr	2	0002	10:54:24 05/23/2018		10:55:48 05/23/2018
Alarm 3 300 gram(	2	0003	10:54:27 05/23/2018		
Alarm 4 700 meter	2	0004	10:54:31 05/23/2018		10:55:46 05/23/2018
Alarm 5 5 inch(es)	2	0005	10:54:34 05/23/2018		

No.	Message Content	Category
1*	Alarm 1 %d1 degree(s)	1
2*	Alarm 2 %d1 kilogram(s)	1
3*	Alarm 3 %d1 gram(s)	1
4*	Alarm 4 %d1 meter(s)	1
5*	Alarm 5 %d1 inch(es)	1
6*	Alarm 6	5
7*	Alarm 7	5
8*	Alarm 8	5
9*	Alarm 9	5
10*	Alarm 10	5

Sorting control address

Execution results

- If the Sorting Control Addr. is 6, the alarms are sorted based on the alarm numbers in ascending order.

Action control		Sorting control	Filtering control	Counter	Category start	Category end
0	Trigger alarm screen Ack alarm	6	0	0	0	0

Message	Frequency	No	Trigger	Recovery	
Alarm 1 40 degreee	2	0001	10:54:18 05/23/2018		10:55:44 05/23/2018
Alarm 1 30 degreee	1	0001	10:53:35 05/23/2018	10:53:51 05/23/2018	10:55:50 05/23/2018
Alarm 2 20 kilograr	2	0002	10:54:24 05/23/2018		10:55:48 05/23/2018
Alarm 2 10 kilograr	1	0002	10:53:38 05/23/2018	10:53:54 05/23/2018	
Alarm 3 300 gram(	2	0003	10:54:27 05/23/2018		

- If Filtering Control Addr. is 0, the Alarm History Table displays all the triggered alarms.
- If Filtering Control Addr. is 1, the Alarm History Table hides alarms with both the recovery time and acknowledge time.

Filtering Control Addr.

Action control		Sorting control	Filtering control	Counter	Category start	Category end
0	Trigger alarm screen Ack alarm	0	0	0	0	0

Frequency	No	Trigger	Recovery	Ack
2	0001	10:54:18 05/23/2018	11:08:56 05/23/2018	10:55:44 05/23/2018
2	0002	10:54:24 05/23/2018	11:09:06 05/23/2018	10:55:48 05/23/2018
2	0003	10:54:27 05/23/2018		
2	0004	10:54:31 05/23/2018		10:55:46 05/23/2018
2	0005	10:54:34 05/23/2018		

Action control		Sorting control	Filtering control	Counter	Category start	Category end
0	Trigger alarm screen Ack alarm	0	0	0	0	0

Frequency	No	Trigger	Recovery	Ack
2	0003	10:54:27 05/23/2018		
2	0004	10:54:31 05/23/2018		10:55:46 05/23/2018
2	0005	10:54:34 05/23/2018		

Not hidden

Hidden

Alarm Settings

- If Filtering Control Addr. is 2, the Alarm History Table hides the alarms with recovery time.

Not hidden	Action control: <input type="button" value="0"/> Trigger alarm screen Ack alarm	Sorting control: <input type="button" value="0"/>	Filtering control: <input type="button" value="0"/>	Counter: <input type="button" value="0"/>	Category start: <input type="button" value="0"/>	Category end: <input type="button" value="0"/>																																			
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- If Filtering Control Addr. is 3, the Alarm History Table hides the alarms with recovery time or acknowledge time.

Not hidden	Action control: <input type="button" value="0"/> Trigger alarm screen Ack alarm	Sorting control: <input type="button" value="0"/>	Filtering control: <input type="button" value="0"/>	Counter: <input type="button" value="0"/>	Category start: <input type="button" value="0"/>	Category end: <input type="button" value="0"/>																																			
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1	0003	10:53:41 05/23/2018	10:53:54 05/23/2018																																						

Execution results

Filtering Control Addr.

16

Alarm Settings

Execution results

- When Filtering Control Addr. is 5 and [Counter] (Alarm counter display) is set to 1, the Alarm History Table hides the data with the alarm frequency less than 1. In this example, since there is no alarm frequency less than 1, all alarms are displayed.

Action control		Sorting control		Filtering control		Counter		Category start		Category end	
<input type="text" value="0"/>	<input type="text" value="Trigger alarm screen"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="Ack alarm"/>											
Message	Frequency	No	Trigger	Recovery							
Alarm 1 40 degree	2	0001	10:54:18 05/23/2018	11:08:56 05/23/2018		10:55:44 05/23/2018					
Alarm 2 20 kilograr	2	0002	10:54:24 05/23/2018	11:09:06 05/23/2018		10:55:48 05/23/2018					
Alarm 3 300 gram	2	0003	10:54:27 05/23/2018								
Alarm 4 700 meter	2	0004	10:54:31 05/23/2018								
Alarm 5 5 inch(es)	2	0005	10:54:34 05/23/2018								

- When Filtering Control Addr. is 5 and [Counter] (Alarm counter display) is set to 2, the Alarm History Table hides the data with the alarm frequency less than 2. In this example, all the alarms occurred only once, so all alarms are hidden.

Action control		Sorting control		Filtering control		Counter		Category start		Category end	
<input type="text" value="0"/>	<input type="text" value="Trigger alarm screen"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="5"/>	<input type="text" value="5"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="Ack alarm"/>											
Message	Frequency	No	Trigger	Recovery							
Alarm 1 30 degree	1	0001	10:32:42 05/23/2018								
Alarm 2 10 kilograr	1	0002	10:32:42 05/23/2018								
Alarm 3 250 gram	1	0003	10:32:45 05/23/2018								
Alarm 4 800 meter	1	0004	10:32:48 05/23/2018								
Alarm 5 3 inch(es)	1	0005	10:32:52 05/23/2018								

Alarm Settings

- When Filtering Control Addr. is 6 with the alarm category display start address [Category start] as 1 and the end address [Category end] as 3, the alarm category numbers that are out of the range specified by [Category start] and [Category end] will be hidden.

Filtering control Counter Category start Category end

6	0	1	3
---	---	---	---

No.	Message Content	Category
1*	Alarm 1 %d1 degree(s)	1
2*	Alarm 2 %d1 kilogram(s)	1
3*	Alarm 3 %d1 gram(s)	1
4*	Alarm 4 %d1 meter(s)	1
5*	Alarm 5 %d1 inch(es)	1
6*	Alarm 6	5
7*	Alarm 7	5
8*	Alarm 8	5
9*	Alarm 9	5
10*	Alarm 10	5

Execution results

Filtering Control Addr.

Not hidden	Action control	Trigger alarm screen	Sorting control	Filtering control	Counter	Category start	Category end
	0	Ack alarm	0	0	0	0	0
	Message	Frequency	No	Trigger	Recovery		Ack
	Alarm 6	1	0006	11:27:59 05/23/2018			
	Alarm 7	1	0007	11:27:59 05/23/2018			
	Alarm 8	1	0008	11:27:59 05/23/2018			
	Alarm 9	1	0009	11:27:59 05/23/2018			
	Alarm 10	1	0010	11:27:59 05/23/2018			

Hidden	Action control	Trigger alarm screen	Sorting control	Filtering control	Counter	Category start	Category end
	0	Ack alarm	0	6	0	1	3
	Message	Frequency	No	Trigger	Recovery		Ack
	Alarm 1 40 degree	2	0001	11:22:30 05/23/2018	11:23:04 05/23/2018		11:22:59 05/23/2018
	Alarm 2 20 kilograr	2	0002	11:22:33 05/23/2018	11:23:07 05/23/2018		11:23:01 05/23/2018
	Alarm 3 300 gram	2	0003	11:22:36 05/23/2018			
	Alarm 4 700 meter	2	0004	11:22:39 05/23/2018	11:23:22 05/23/2018		
	Alarm 5 5 inch(es)	2	0005	11:22:42 05/23/2018			

- When Filtering Control Addr. is 6 with the alarm category display start address [Category start] as 3 and the end address [Category end] as 5, the alarm category numbers that are out of the range specified by [Category start] and [Category end] will be hidden.

Filtering control Counter Category start Category end

6	0	3	5
---	---	---	---

No.	Message Content	Category
1*	Alarm 1 %d1 degree(s)	1
2*	Alarm 2 %d1 kilogram(s)	1
3*	Alarm 3 %d1 gram(s)	1
4*	Alarm 4 %d1 meter(s)	1
5*	Alarm 5 %d1 inch(es)	1
6*	Alarm 6	5
7*	Alarm 7	5
8*	Alarm 8	5
9*	Alarm 9	5
10*	Alarm 10	5

16

Alarm Settings																																										
Execution results	Filtering Control Addr.	Not hidden	Action control Sorting control Filtering control Counter Category start Category end <input type="button" value="0"/> <input type="button" value="Trigger alarm screen"/> <input type="button" value="0"/> <input type="button" value="0"/> <input type="button" value="0"/> <input type="button" value="0"/> <input type="button" value="0"/>																																							
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Alarm 10	1	0010	11:27:59 05/23/2018																																							

The following introduces the detailed property functions for Alarm Settings.

Table 16.1.2 Properties of Alarm Settings

Properties of Alarm Settings	
Address	None
Acknowledge all alarms	None
Detail	
Scan Time (seconds)	3
Max Records	500
Non-volatile Data Storage	None
Export CSV File	No
Show alarm number	No
Exit Screensaver when alarm occurs	Yes
Time to enter screen saver again	No alarm is triggered
Display alarm screen	Manual
Alarm Moving Sign	
Enable	No
Position	Top
Direction	Left
Points per time	1
Interval (ms)	100
Background color	<input type="checkbox"/> fcfcf
Translucent	255

16


Alarm Settings

- The default is continuous address. Its usage is the same as that of the DOP-B models.

No.	Message Content	Category	Trigger Condition	Monitor Address	Text Color	Alarm Screen	Mail
1		0	On	...	RGB(0, 0, 0)	None	
2		0	On	...	RGB(0, 0, 0)	None	
3		0	On	...	RGB(0, 0, 0)	None	
4		0	On	...	RGB(0, 0, 0)	None	
5		0	On	...	RGB(0, 0, 0)	None	
6		0	On	...	RGB(0, 0, 0)	None	
7		0	On	...	RGB(0, 0, 0)	None	
8		0	On	...	RGB(0, 0, 0)	None	
9		0	On	...	RGB(0, 0, 0)	None	
10		0	On	...	RGB(0, 0, 0)	None	

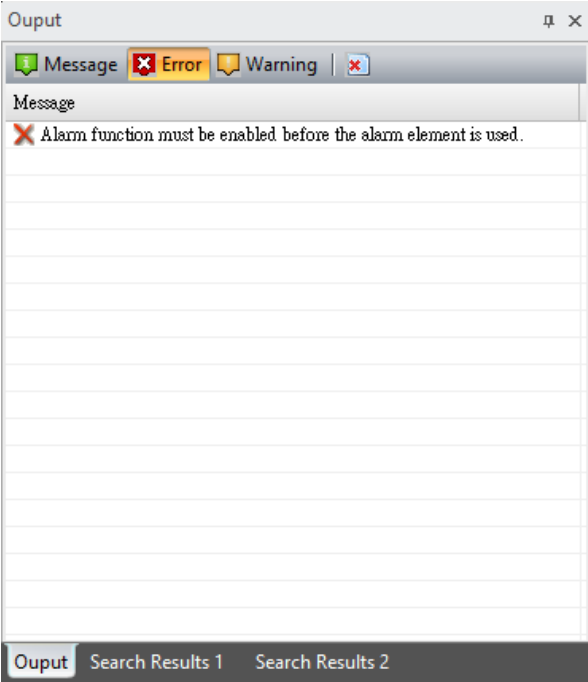
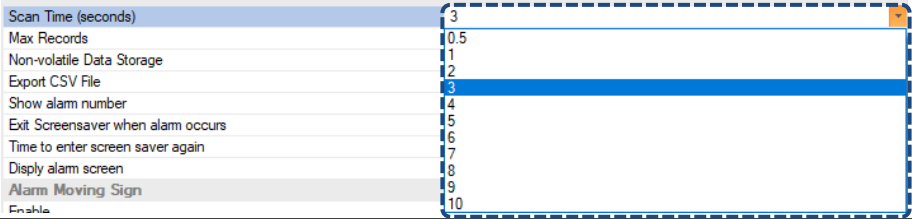
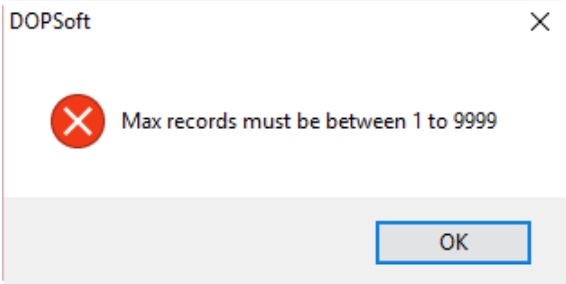
Switch between continuous and non-continuous addresses

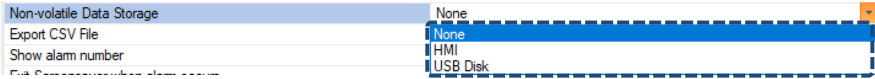


- Press the  button, and the setting changes to non-continuous address. When the setting is non-continuous address, you can use Bit or Word addresses for alarm triggering.

No.	Message Content	Category	Type	Address	Trigger Condition	Monitor Address	Text Color	Alarm Screen	Mail
1		0	Bit	None	On	...	RGB(0, 0, 0)	None	
2		0	Bit	None	On	...	RGB(0, 0, 0)	None	
3		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4		0	Bit	None	On	...	RGB(0, 0, 0)	None	
5		0	Bit	None	On	...	RGB(0, 0, 0)	None	
6		0	Bit	None	On	...	RGB(0, 0, 0)	None	
7		0	Bit	None	On	...	RGB(0, 0, 0)	None	
8		0	Bit	None	On	...	RGB(0, 0, 0)	None	
9		0	Bit	None	On	...	RGB(0, 0, 0)	None	
10		0	Bit	None	On	...	RGB(0, 0, 0)	None	

16

Properties of Alarm Settings	
Alarm Settings	
Read Address	<ul style="list-style-type: none"> Only applicable to continuous addresses. You can select the internal memory or the controller register address. Select Link Name or Element Style. Refer to Chapter 5 Buttons for details. <p>Note: if you have created an alarm related element without setting the alarm read address, the software displays the following message when compiling data.</p> 
Scan Time (seconds)	<p>Scan Time specifies the frequency to execute the sampling action.</p> 
Max Records	<ul style="list-style-type: none"> Max Records refers to the recorded data. When the recorded sampling number reaches the maximum, the record starts from 1 and overwrites the previous data. The maximum record is 9,999. <p>Note:</p> <ol style="list-style-type: none"> The maximum record must not be 0. If you enter 0, the software displays the following message. 

Properties of Alarm Settings																																																																																																													
Alarm Settings																																																																																																													
Non-volatile Data Storage	<ul style="list-style-type: none"> Options for the storage location include None, HMI, USB Disk, and SD Card. If the model does not support using an SD Card, it only shows HMI and USB Disk; on the other hand, if the model does not support using a USB Disk, it only shows HMI and SD Card.  <ul style="list-style-type: none"> When you set to store the data in the HMI, it means when the power is cut off, the data is saved in the HMI SRAM. If [Export CSV File] is set to Yes, set the non-volatile memory to USB Disk or SD Card. 																																																																																																												
Export CSV File	<p>Setting [Export CSV File] to Yes means you can save the alarm data as CSV files in the external storage devices such as USB Disks or SD Cards.</p> <table border="1"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> <th>G</th> <th>H</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Group No.</td> <td>Trigger Time</td> <td></td> <td>ACK Time</td> <td></td> <td>Recovery Time</td> <td></td> <td>Message</td> </tr> <tr> <td>2</td> <td>5</td> <td>5/23/2018 13:30:09</td> <td></td> <td>5/23/2018 13:31:16</td> <td></td> <td></td> <td></td> <td>Alarm 6</td> </tr> <tr> <td>3</td> <td>5</td> <td>5/23/2018 13:30:09</td> <td></td> <td>5/23/2018 13:31:19</td> <td></td> <td></td> <td></td> <td>Alarm 7</td> </tr> <tr> <td>4</td> <td>5</td> <td>5/23/2018 13:30:09</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Alarm 8</td> </tr> <tr> <td>5</td> <td>5</td> <td>5/23/2018 13:30:09</td> <td></td> <td>5/23/2018 13:31:20</td> <td></td> <td></td> <td></td> <td>Alarm 9</td> </tr> <tr> <td>6</td> <td>5</td> <td>5/23/2018 13:30:09</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Alarm 10</td> </tr> <tr> <td>7</td> <td>1</td> <td>5/23/2018 13:30:18</td> <td></td> <td></td> <td></td> <td>5/23/2018 13:31:04</td> <td></td> <td>Alarm 1 30 degree(s)</td> </tr> <tr> <td>8</td> <td>1</td> <td>5/23/2018 13:30:21</td> <td></td> <td></td> <td></td> <td>5/23/2018 13:31:04</td> <td></td> <td>Alarm 2 10 kilogram(s)</td> </tr> <tr> <td>9</td> <td>1</td> <td>5/23/2018 13:30:24</td> <td></td> <td></td> <td></td> <td>5/23/2018 13:31:04</td> <td></td> <td>Alarm 3 250 gram(s)</td> </tr> <tr> <td>10</td> <td>1</td> <td>5/23/2018 13:30:27</td> <td></td> <td></td> <td></td> <td>5/23/2018 13:31:07</td> <td></td> <td>Alarm 4 800 meter(s)</td> </tr> <tr> <td>11</td> <td>1</td> <td>5/23/2018 13:30:27</td> <td></td> <td></td> <td></td> <td>5/23/2018 13:31:07</td> <td></td> <td>Alarm 5 3 inch(es)</td> </tr> </tbody> </table>		A	B	C	D	E	F	G	H	1	Group No.	Trigger Time		ACK Time		Recovery Time		Message	2	5	5/23/2018 13:30:09		5/23/2018 13:31:16				Alarm 6	3	5	5/23/2018 13:30:09		5/23/2018 13:31:19				Alarm 7	4	5	5/23/2018 13:30:09						Alarm 8	5	5	5/23/2018 13:30:09		5/23/2018 13:31:20				Alarm 9	6	5	5/23/2018 13:30:09						Alarm 10	7	1	5/23/2018 13:30:18				5/23/2018 13:31:04		Alarm 1 30 degree(s)	8	1	5/23/2018 13:30:21				5/23/2018 13:31:04		Alarm 2 10 kilogram(s)	9	1	5/23/2018 13:30:24				5/23/2018 13:31:04		Alarm 3 250 gram(s)	10	1	5/23/2018 13:30:27				5/23/2018 13:31:07		Alarm 4 800 meter(s)	11	1	5/23/2018 13:30:27				5/23/2018 13:31:07		Alarm 5 3 inch(es)
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Show alarm number	<p>When you set [Show alarm number] to Yes, the exported CSV files include the alarm numbers. When you set [Show alarm number] to No, the alarm numbers are not displayed.</p> <table border="1"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> <th>G</th> <th>H</th> <th>I</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Group No.</td> <td>Trigger Time</td> <td></td> <td>ACK Time</td> <td></td> <td>Recovery Time</td> <td></td> <td>Alarm No.</td> <td>Message</td> </tr> <tr> <td>2</td> <td>0</td> <td>2020/4/17 10:55:23</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>3</td> <td>alarm3</td> </tr> <tr> <td>3</td> <td>0</td> <td>2020/4/17 10:55:25</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2</td> <td>alarm2</td> </tr> <tr> <td>4</td> <td>0</td> <td>2020/4/17 10:55:25</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td>alarm1</td> </tr> </tbody> </table>		A	B	C	D	E	F	G	H	I	1	Group No.	Trigger Time		ACK Time		Recovery Time		Alarm No.	Message	2	0	2020/4/17 10:55:23						3	alarm3	3	0	2020/4/17 10:55:25						2	alarm2	4	0	2020/4/17 10:55:25						1	alarm1																																																										
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4	0	2020/4/17 10:55:25						1	alarm1																																																																																																				

16

Properties of Alarm Settings

Alarm Settings

- These functions are used with the screensaver. The default setting for [Exit Screensaver when alarm occurs] is Yes.
- Assume that the screensaver is enabled and the screensaver image is set, the HMI does not show the screensaver image if alarm occurs; if the screensaver image is not set, the HMI does not enter the backlight mode.
- If you disable the [Exit Screensaver when alarm occurs] function, then the HMI exits the screensaver when the alarm is triggered for the first time. After that, whether the alarm is cleared or not, the HMI enters the screensaver mode according to the set time.
- [Time to enter screen saver again] is enabled only when [Exit Screensaver when alarm occurs] is set to Yes. It is enabled under either of the two conditions, [No alarm is triggered] or [No alarm is triggered during the screen saver waiting time].

<small>Time to enter screen saver again</small>	<small>No alarm is triggered</small>
<small>Display alarm screen</small>	<small>No alarm is triggered</small>
<small>Alarm Moving Sign</small>	<small>No alarm is triggered during the screen saver waiting time</small>

<p>No alarm is triggered</p>	<p>When [Exit Screensaver when alarm occurs] is set to Yes for the HMI, once the alarm occurs, the screensaver is exited immediately. If [Time to enter screen saver again] is set to No alarm is triggered, as long as no alarm is triggered, the HMI can enter the screensaver mode.</p>
<p>No alarm is triggered during the screen saver waiting time</p>	<p>When [Exit Screensaver when alarm occurs] is set to Yes for the HMI, once the alarm occurs, the screensaver is exited immediately. If [Time to enter screen saver again] is set to No alarm is triggered during the screen saver waiting time, as long as no alarm is triggered during the waiting time, the HMI can enter the screensaver mode.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p style="text-align: center; margin: 0;">Screensaver Setup</p> <p style="margin: 0;"><input checked="" type="checkbox"/> Enable Screensaver Wait: <input style="width: 40px;" type="text" value="1"/> (Min)</p> </div>

Exit Screensaver when alarm occurs / Time to enter screen saver again

Example

- Create the alarm data.

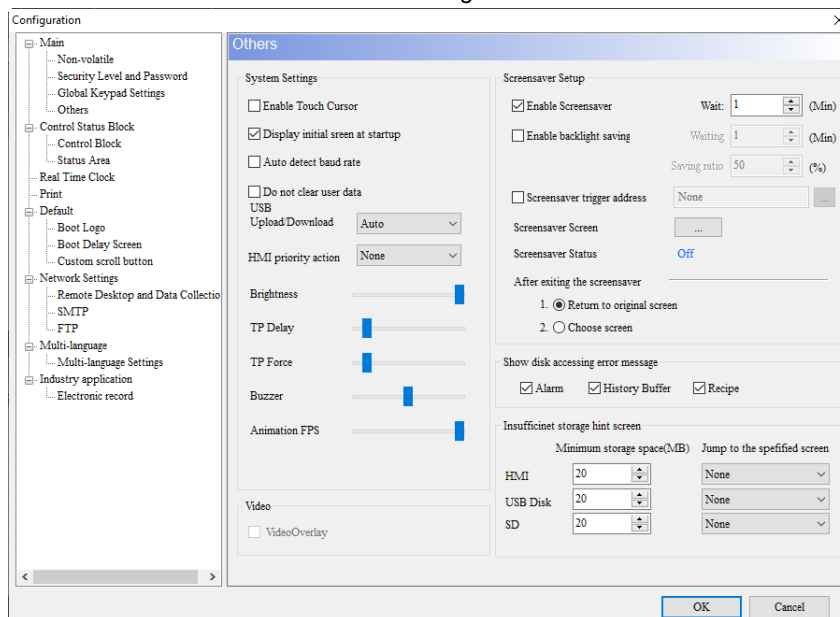
The screenshot shows the 'Properties' window for an alarm. The 'Detail' tab is active, displaying various settings for the alarm. Below the settings is a table of alarm data.

No.	Message Content	Category	Trigger Condition	Monitor Ac	Text Color	Alarm Screen
1*	111	0	On	...	■ RGB(0, 0, 0)	None
2*	222	0	On	...	■ RGB(0, 0, 0)	None
3*	333	0	On	...	■ RGB(0, 0, 0)	None

Properties of Alarm Settings

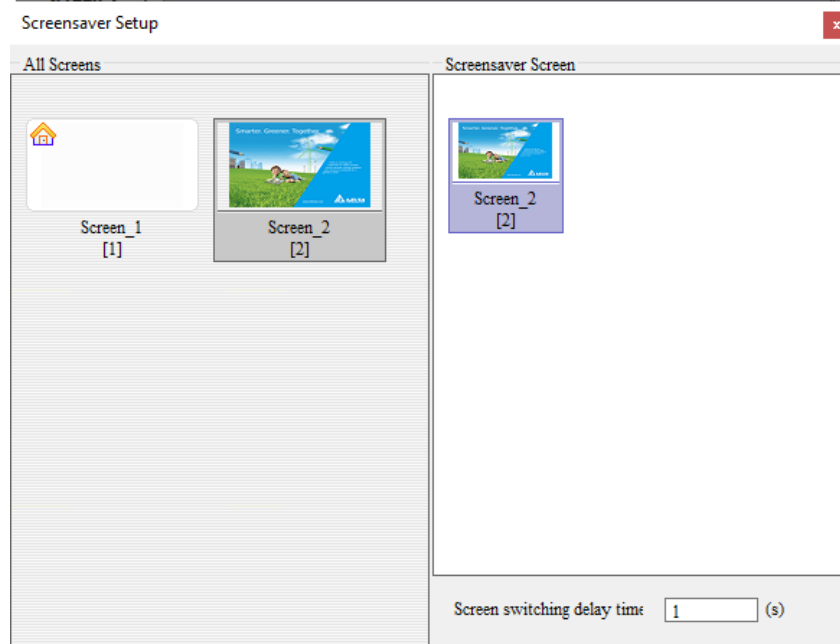
Alarm Settings

- Create a Numeric Entry element and set the Write Address to \$100.
- Go to [Options] > [Configuration] > [Main] > [Others], and select the **Enable Screensaver** check box and set the waiting time as 1 minute.



Exit Screensaver when alarm occurs

- Go to [Screen] > [Screensaver Setup] to create the screensaver screen.

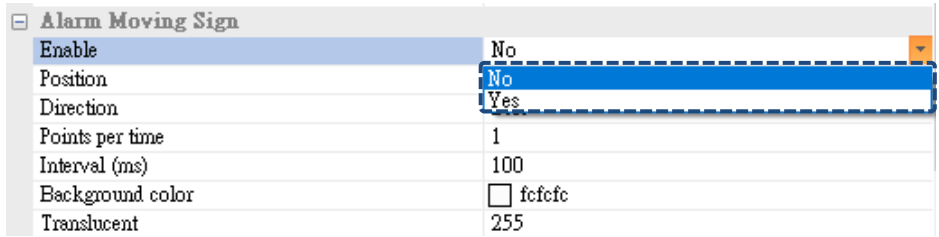
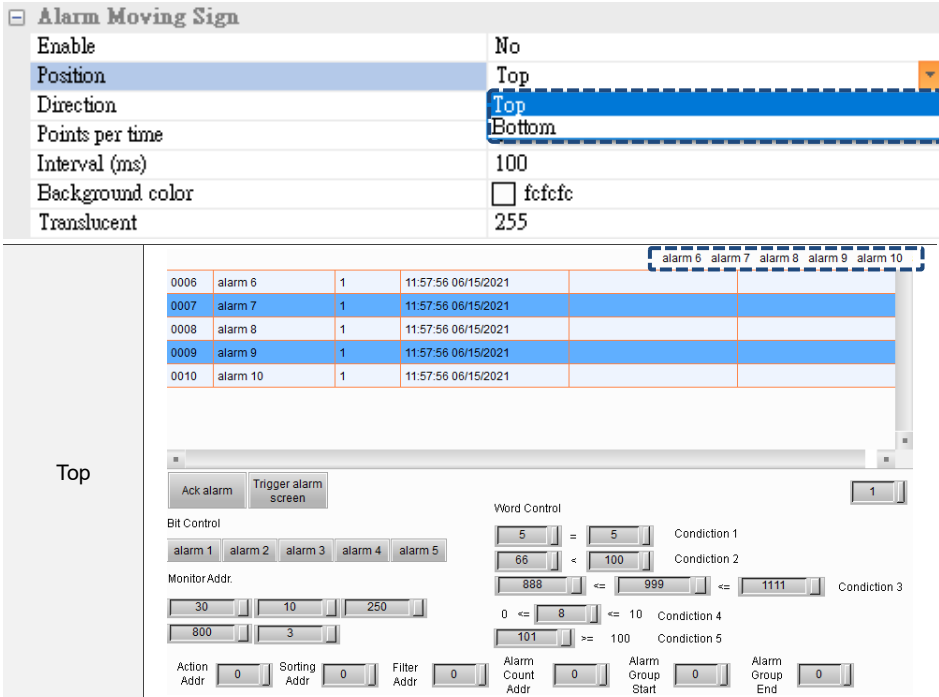
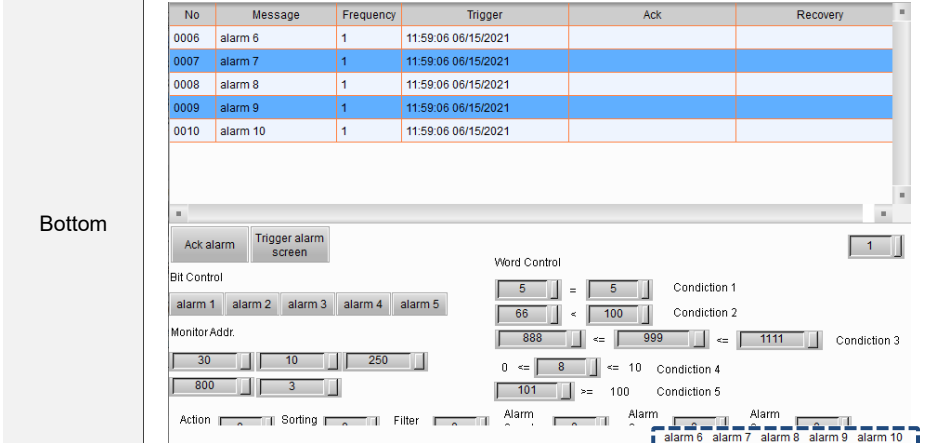


- Compile the project and download the screen to the HMI. Enter 1 to the Numeric Entry element \$100 to trigger the alarm. Wait 1 minute for the screensaver to enable. When the HMI detects an alarm, it automatically exits the screensaver mode.

Display alarm screen

- It can be set to Auto or Manual mode.
- Auto: the HMI displays the alarm screen as soon as the alarm with a set alarm screen is triggered.
- Manual: to have the HMI display the alarm screen, you must go to the Details page of the Alarm History Table element and enter 2 to Action Control Addr., or you can select the **Trigger alarm screen** check box in the Function Buttons page of the Alarm History Table element to display the alarm screen.

16

Properties of Alarm Settings	
Alarm Moving Sign	
Enable	<p>You can set Yes or No for this function. When the alarm is triggered, selecting Yes means the alarm message shows at the specified position on the screen, whereas No means not to show the alarm message.</p> 
	<p>Available display positions are Top and Bottom. If you select Top, once the alarm is triggered, the alarm message shows at the top of the HMI screen; if you select Bottom, the alarm message shows at the bottom of the HMI screen.</p>
Position	<p>Top</p> 
	<p>Bottom</p> 

Properties of Alarm Settings																																																																																							
Alarm Moving Sign																																																																																							
	<p>Available moving directions are Left, Right, Up, and Down.</p> <div style="border: 1px solid #ccc; padding: 5px;"> <p><input type="checkbox"/> Alarm Moving Sign</p> <p>Enable Yes</p> <p>Position Bottom</p> <p>Direction Left</p> <p>Points per time Left</p> <p>Interval (ms) Right</p> <p>Background color Up</p> <p>Translucent Down</p> </div>																																																																																						
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Points per time	The greater the number, the greater the distance each time the text moves. The setting range is 1 - 50 pixels.																																																																																						
Interval (ms)	<p>The Interval (ms) defines the time interval (unit: ms) between two message movements of the Moving Sign. The moving distance is determined by the setting of Points per time.</p> <div style="border: 1px solid #ccc; padding: 5px;"> <p><input type="checkbox"/> Alarm Moving Sign</p> <p>Enable Yes</p> <p>Position Bottom</p> <p>Direction Left</p> <p>Points per time 1</p> <p>Interval (ms) 100</p> <p>Background color 50</p> <p>Translucent</p> </div>																																																																																						
Background color	<p>■ This is the background color of the Alarm Moving Sign as shown in the following figure.</p> <table border="1"> <tr><td>0006</td><td>alarm 6</td><td>1</td><td>17:03:36 01/26/2017</td><td></td><td></td></tr> <tr><td>0007</td><td>alarm 7</td><td>1</td><td>17:03:36 01/26/2017</td><td></td><td></td></tr> <tr><td>0008</td><td>alarm 8</td><td>1</td><td>17:03:36 01/26/2017</td><td></td><td></td></tr> <tr><td>0009</td><td>alarm 9</td><td>1</td><td>17:03:36 01/26/2017</td><td></td><td></td></tr> <tr><td>0010</td><td>alarm 10</td><td>1</td><td>17:03:36 01/26/2017</td><td></td><td></td></tr> </table> <p>■ The default is white. <input type="checkbox"/> Background color <input type="checkbox"/> Default</p>	0006	alarm 6	1	17:03:36 01/26/2017			0007	alarm 7	1	17:03:36 01/26/2017			0008	alarm 8	1	17:03:36 01/26/2017			0009	alarm 9	1	17:03:36 01/26/2017			0010	alarm 10	1	17:03:36 01/26/2017																																																										
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Properties of Alarm Settings

Alarm Moving Sign

Set the transparency level for the message of the Alarm Moving Sign. The default is 255. The minimum is 0.

16

Translucent

Translucent is set to 255


alarm 9 alarm 10					
No	Message	Frequency	Trigger	Ack	Recovery
0006	alarm 6	1	14:55:57 02/09/2017		
0007	alarm 7	1	14:55:57 02/09/2017		
0008	alarm 8	1	14:55:57 02/09/2017		
0009	alarm 9	1	14:55:57 02/09/2017		
0010	alarm 10	1	14:55:57 02/09/2017		

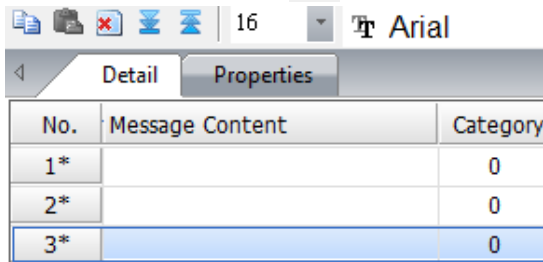
Translucent is set to 100

alarm 10 alarm 6					
No	Message	Frequency	Trigger	Ack	Recovery
0006	alarm 6	1	15:15:25 02/09/2017		
0007	alarm 7	1	15:15:25 02/09/2017		
0008	alarm 8	1	15:15:25 02/09/2017		
0009	alarm 9	1	15:15:25 02/09/2017		
0010	alarm 10	1	15:15:25 02/09/2017		

Properties of Alarm Settings

Alarm Message Display Content

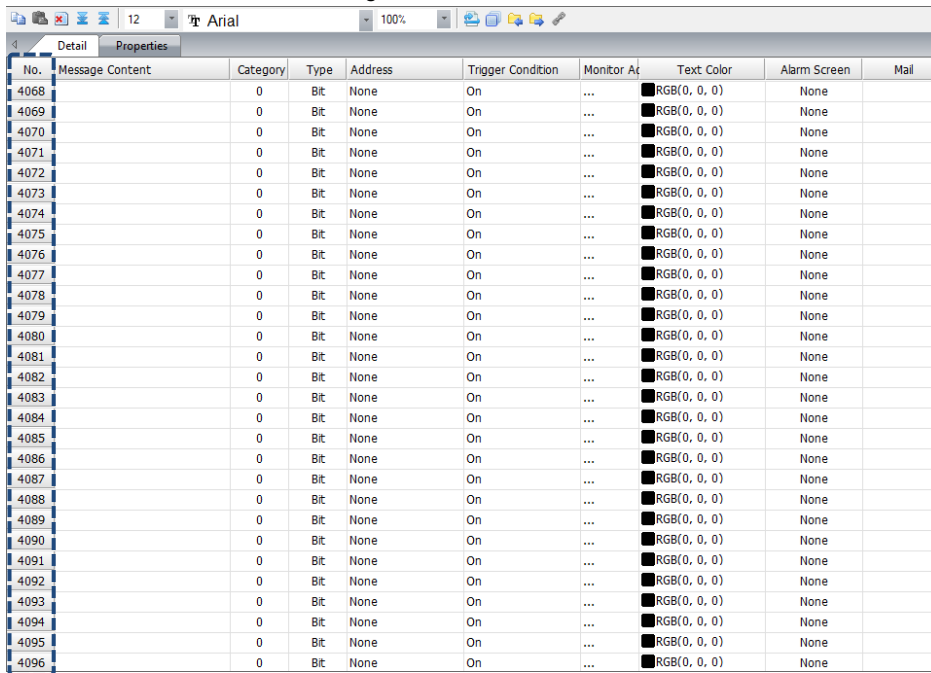
- When you use the **Backspace** or **Delete** key to delete the message content or leave the content blank, the number is marked with an asterisk (*), reminding you that this alarm message still exists unless you use  to delete the alarm message.



No.	Message Content	Category
1*		0
2*		0
3*		0

- No. stands for the alarm message number, which maximum is 4,096.

No.

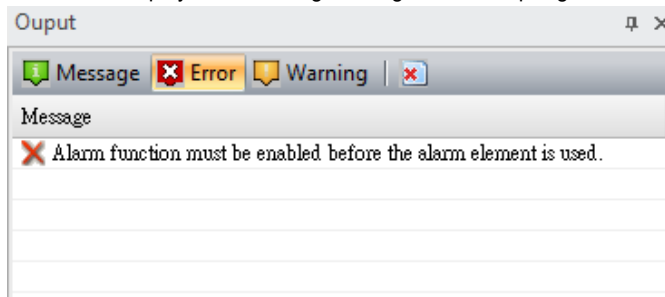


No.	Message Content	Category	Type	Address	Trigger Condition	Monitor Act	Text Color	Alarm Screen	Mail
4068		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4069		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4070		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4071		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4072		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4073		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4074		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4075		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4076		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4077		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4078		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4079		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4080		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4081		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4082		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4083		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4084		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4085		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4086		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4087		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4088		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4089		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4090		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4091		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4092		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4093		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4094		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4095		0	Bit	None	On	...	RGB(0, 0, 0)	None	
4096		0	Bit	None	On	...	RGB(0, 0, 0)	None	

- In the Message Content field, you can edit the alarm messages to be displayed.
- To modify the message, you can modify it directly in the field.
- You can add the “%d1” formatted string after the message content, e.g. Alarm%d1. This string must be used with monitoring addresses.

Note: if you have created an alarm related element with alarm read address but leave the message content blank, the software displays the following message when compiling data.


Message Content



16

Properties of Alarm Settings

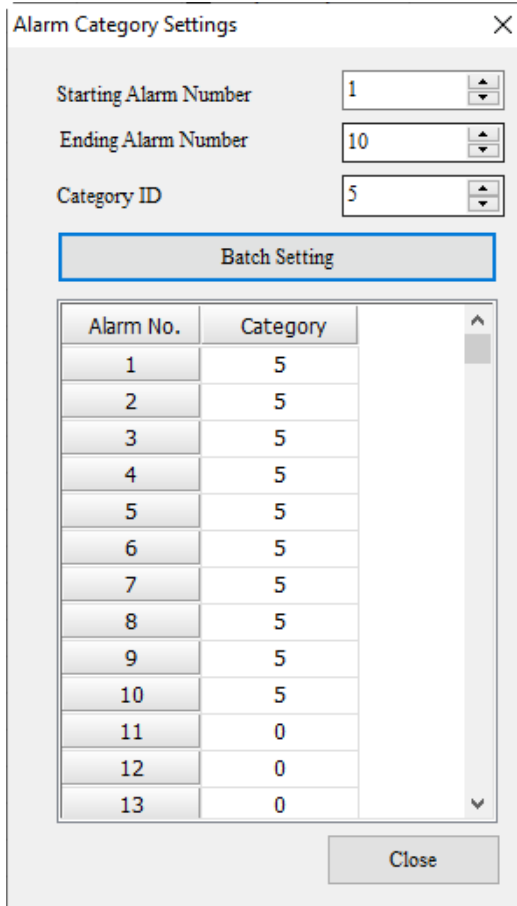
Alarm Message Display Content

- Refers to the category of the alarm number, which idea is similar to groups.
- The supported range is 0 - 4095.
- You can use the batch tasks tool  to quickly set the category numbers.





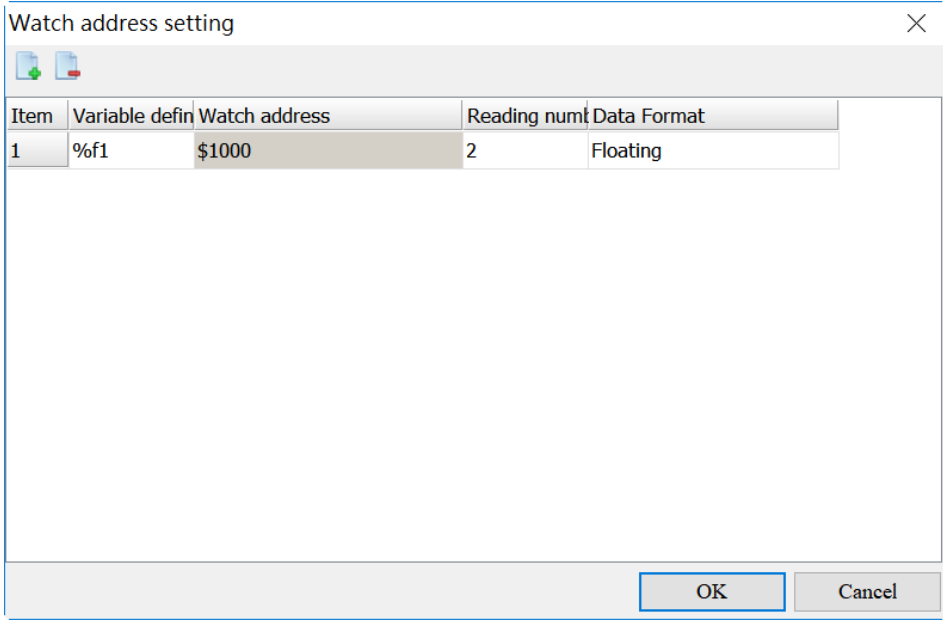
- Specify 1 as the Starting Alarm Number, 10 as the Ending Alarm Number, 5 as the Category ID, press **Batch Setting**, and then Alarm No. 1 - 10 are defined as Category 5.

Category



Type

- When the alarm continuous address button  is canceled, this field is displayed. Cancel the selection of this field and then the alarm read address is disabled. You can trigger the alarms individually depending on the alarm address type setting which is Bit or Word.
- Available types are Bit and Word.
- Bit address: user-defined Bit address for alarm triggering.
- Word address: user-defined Word address for alarm triggering.

Properties of Alarm Settings																	
Alarm Message Display Content																	
Address	<ul style="list-style-type: none"> When the alarm continuous address button  is canceled, this field is displayed. Cancel the selection of this field and then the alarm read address is disabled. You can trigger the alarms individually depending on the alarm address type setting which is Bit or Word. You can set the corresponding addresses to trigger the alarms according to the type settings (Bit or Word). If you select Bit, enter the Bit address for alarm triggering. If you select Word, statements for determining when to trigger the alarm are provided. <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Statement</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>=</td><td>Equal to</td></tr> <tr><td>></td><td>Greater than</td></tr> <tr><td><</td><td>Less than</td></tr> <tr><td>>=</td><td>Greater than or equal to</td></tr> <tr><td><=</td><td>Less than or equal to</td></tr> <tr><td>>, <</td><td>Out of the range</td></tr> <tr><td><=, <=</td><td>Within the range</td></tr> </tbody> </table>	Statement	Description	=	Equal to	>	Greater than	<	Less than	>=	Greater than or equal to	<=	Less than or equal to	>, <	Out of the range	<=, <=	Within the range
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=	Equal to																
>	Greater than																
<	Less than																
>=	Greater than or equal to																
<=	Less than or equal to																
>, <	Out of the range																
<=, <=	Within the range																
Trigger Condition	The trigger conditions are On and off. If you select On, it means the alarm is triggered when the bit is on; if you select Off, it means the alarm is triggered when the bit is off.																
Monitor Address	<ul style="list-style-type: none"> Monitor Address is for displaying the user-defined alarm messages. 																

16

Properties of Alarm Settings																																																											
Alarm Message Display Content																																																											
<p>■ Two types of format are supported, %d (positive integer) and %f (floating-point number). Besides, one alarm can set up to 8 monitoring addresses.</p>	<div style="border: 1px solid gray; padding: 5px;"> <p>Watch address setting</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Variable def</th> <th>Watch address</th> <th>Reading num</th> <th>Data Format</th> </tr> </thead> <tbody> <tr><td>1</td><td>%d1</td><td>\$1</td><td>1</td><td>Unsigned Decimal</td></tr> <tr><td>2</td><td>%d2</td><td>\$2</td><td>1</td><td>Unsigned Decimal</td></tr> <tr><td>3</td><td>%d3</td><td>\$3</td><td>1</td><td>Unsigned Decimal</td></tr> <tr><td>4</td><td>%d4</td><td>\$4</td><td>1</td><td>Unsigned Decimal</td></tr> <tr><td>5</td><td>%d5</td><td>\$5</td><td>1</td><td>Unsigned Decimal</td></tr> <tr><td>6</td><td>%d6</td><td>\$6</td><td>1</td><td>Unsigned Decimal</td></tr> <tr><td>7</td><td>%f7</td><td>\$7</td><td>2</td><td>Floating</td></tr> <tr><td>8</td><td>%f8</td><td>\$9</td><td>2</td><td>Floating</td></tr> </tbody> </table> <p style="text-align: right;">OK Cancel</p> </div> <p>Monitor Address</p> <p>■ Enter the alarm message to be displayed in the Message Content field, and add the set monitoring address such as %dx or %fx where x indicates 1 - 8.</p> <div style="border: 1px solid gray; padding: 5px;"> <table border="1"> <thead> <tr> <th>Alarm message setting</th> <th>Detail</th> <th>Properties</th> </tr> </thead> <tbody> <tr> <td>No.</td> <td colspan="2">Message Content</td> </tr> <tr> <td>1*</td> <td colspan="2">X:%d1,Y:%d2,Velocity:%d3,Acceleration:%d4,Frequency:%d5,Temperature:%d6, Angle:%f7,length:%f8</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Execution results</th> <th>Message</th> </tr> </thead> <tbody> <tr> <td></td> <td>X:1,Y:2,Velocity:3,Acceleration:4,Frequency:-5,Temperature:-9, Angle:5.9,length:66.8</td> </tr> </tbody> </table> </div>	Item	Variable def	Watch address	Reading num	Data Format	1	%d1	\$1	1	Unsigned Decimal	2	%d2	\$2	1	Unsigned Decimal	3	%d3	\$3	1	Unsigned Decimal	4	%d4	\$4	1	Unsigned Decimal	5	%d5	\$5	1	Unsigned Decimal	6	%d6	\$6	1	Unsigned Decimal	7	%f7	\$7	2	Floating	8	%f8	\$9	2	Floating	Alarm message setting	Detail	Properties	No.	Message Content		1*	X:%d1,Y:%d2,Velocity:%d3,Acceleration:%d4,Frequency:%d5,Temperature:%d6, Angle:%f7,length:%f8		Execution results	Message		X:1,Y:2,Velocity:3,Acceleration:4,Frequency:-5,Temperature:-9, Angle:5.9,length:66.8
Item	Variable def	Watch address	Reading num	Data Format																																																							
1	%d1	\$1	1	Unsigned Decimal																																																							
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4	%d4	\$4	1	Unsigned Decimal																																																							
5	%d5	\$5	1	Unsigned Decimal																																																							
6	%d6	\$6	1	Unsigned Decimal																																																							
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	X:1,Y:2,Velocity:3,Acceleration:4,Frequency:-5,Temperature:-9, Angle:5.9,length:66.8																																																										
<p>Title Text Color</p>	<p>The text color of the displaying alarm message. The default is black.</p>																																																										
<p>Alarm Screen</p>	<p>Set whether to show the specified alarm screen when the alarm is triggered. If you have created other screens, use the drop-down list box to select the screen number to display.</p> <table border="1"> <thead> <tr> <th>Text Color</th> <th>Alarm Screen</th> </tr> </thead> <tbody> <tr> <td>■ RGB(0, 0, 0)</td> <td>2 - Screen_2</td> </tr> <tr> <td>■ RGB(0, 0, 0)</td> <td>None</td> </tr> <tr> <td>■ RGB(0, 0, 0)</td> <td>1 - Screen_1</td> </tr> <tr> <td>■ RGB(0, 0, 0)</td> <td>2 - Screen_2</td> </tr> </tbody> </table>	Text Color	Alarm Screen	■ RGB(0, 0, 0)	2 - Screen_2	■ RGB(0, 0, 0)	None	■ RGB(0, 0, 0)	1 - Screen_1	■ RGB(0, 0, 0)	2 - Screen_2																																																
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■ RGB(0, 0, 0)	2 - Screen_2																																																										

Properties of Alarm Settings

Alarm Message Display Content

- When an alarm occurs, the Mail function sends an e-mail to relevant recipients. Note that you must go to [Options] > [Configuration] > [Network Settings] to enable the [SMTP] function to have the Mail function work.
- After the SMTP function is enabled, you can enter the email content in the Mail data fields.

Mail

To	Fill in the recipient's email address for receiving the notification when an alarm occurs. Same as regular email systems, you can fill in multiple recipients by using semi-columns (;) to separate the recipients' email addresses.
Cc	Apart from the main recipients, you can also send alarm notifications to other recipients by entering their email addresses in this field. Note that main recipients can see those who are in the Cc field.
Bcc	Send blind copies to the recipients in this field. The main and carbon copy recipients cannot see those who are in the Bcc field in the alarm notification.
Subject	The content in the Subject field is not editable in the Mail screen. The subject is generated based on the alarm message content. To modify the subject, go to the message content field to change the display message.
Attach current screen	If you select this option, the current alarm screen is attached in this email and sent to the recipients. The attachment is in .bmp format.
Content	<ul style="list-style-type: none"> ■ You can enter the email content as needed. ■ This content supports the formatted strings "%d" and "%f", which must be used with monitoring addresses.

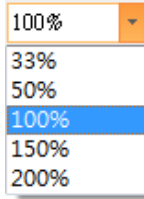



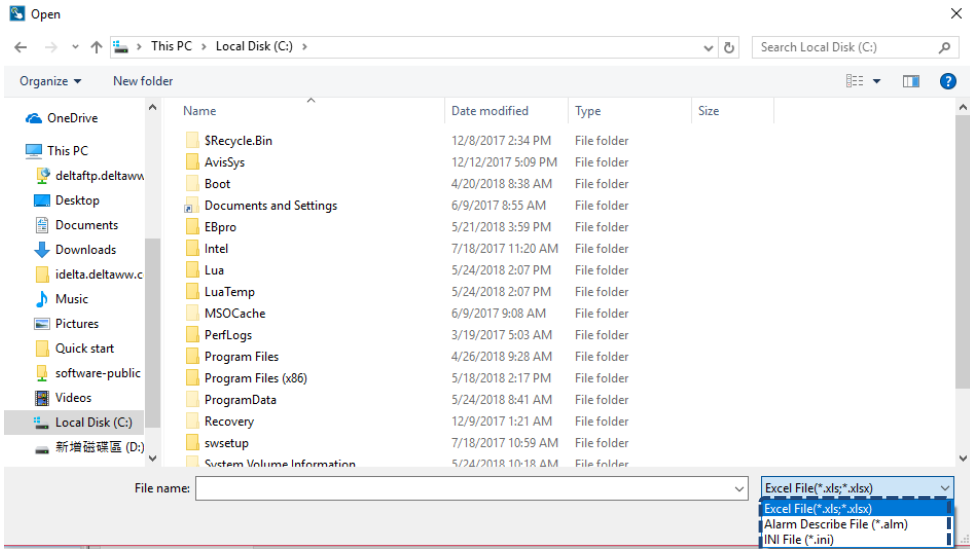
16

Properties of Alarm Settings

Alarm Message Text Properties

16
Arial
100%

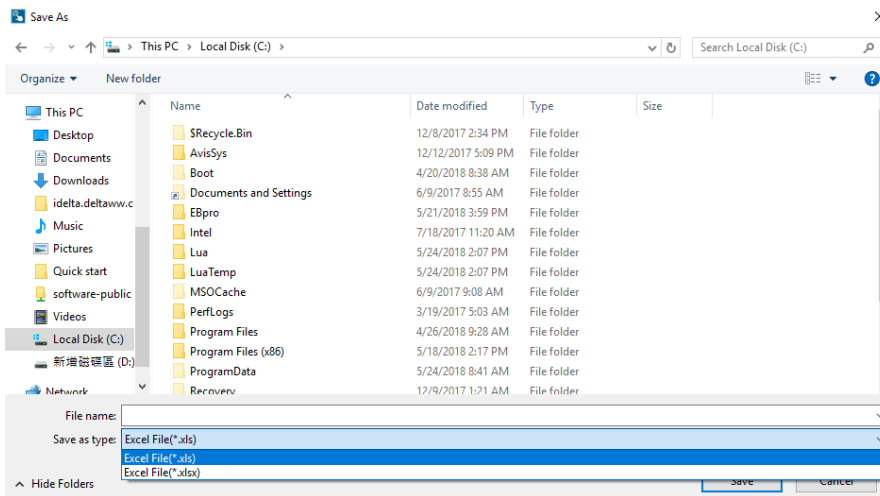
Copy 	<ul style="list-style-type: none"> ■ Support single and multiple copy functions. ■ Use the Ctrl key to select the alarm number to copy, and use the Shift key to select a range of alarm numbers to copy. 										
Paste 	The Paste function becomes available after you execute the Copy function. It supports single and multiple paste functions.										
Delete 	<p>After creating the alarm message, you can select the message to be deleted and press the Delete button to complete the deletion.</p> <p>Note: if you enter the message in the Message Content field and then move on to the next row, it means you have created a new alarm message. Next, if you delete this alarm message with the Delete or Backspace key on your keyboard instead of the Delete button, the HMI shows a blank alarm at the specified position after you exit Alarm Settings and download the screens to the HMI.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr style="background-color: #cccccc;"> <th>No</th> <th>Message</th> <th>Trigger</th> <th>Frequency</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0001</td> <td style="border: 2px dashed blue;"></td> <td style="text-align: center;">12:09:25 06/15/</td> <td style="text-align: center;">1</td> <td></td> </tr> </tbody> </table>	No	Message	Trigger	Frequency	Recovery	0001		12:09:25 06/15/	1	
No	Message	Trigger	Frequency	Recovery							
0001		12:09:25 06/15/	1								
Font	You can set the font for the displaying alarm message. Arial										
Size	<p>The size for the displaying alarm message.</p> <div style="border: 1px solid gray; padding: 2px; width: fit-content; margin-left: 20px;"> 16 </div> <ul style="list-style-type: none"> 8 10 12 14 16 18 20 22 <li style="background-color: #0070c0; color: white; padding: 2px;">24 28 32 36 40 48 64 72 96 128 160 192 224 352 512 										

Properties of Alarm Settings																	
Alarm Message Text Properties																	
	<p>If you have set the zooming function, you can see the zooming effect on the title and text. The default is 100%.</p> 																
<p>Resize</p>	<table border="1"> <tr> <td>100%</td> <td> <table border="1"> <thead> <tr> <th>Message</th> <th>Trigger</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> <td>1</td> </tr> </tbody> </table> </td> </tr> <tr> <td>150%</td> <td> <table border="1"> <thead> <tr> <th>Message</th> <th>Trigger</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>#####</td> <td>hh:mm:ss m...</td> <td>1</td> </tr> </tbody> </table> </td> </tr> </table>	100%	<table border="1"> <thead> <tr> <th>Message</th> <th>Trigger</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> <td>1</td> </tr> </tbody> </table>	Message	Trigger	No	####	hh:mm:ss mm/dd/yy	1	150%	<table border="1"> <thead> <tr> <th>Message</th> <th>Trigger</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>#####</td> <td>hh:mm:ss m...</td> <td>1</td> </tr> </tbody> </table>	Message	Trigger	No	#####	hh:mm:ss m...	1
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Message	Trigger	No															
#####	hh:mm:ss m...	1															
<p>Next 2,048 entries</p> 	<p>When you press this button, it shows Alarm No. 2049 - 4096.</p>																
<p>Previous 2,048 entries</p> 	<p>When you press this button, it shows Alarm No. 1 - 2048.</p>																
<p>Import</p> 	<p>You can press this button to import the alarm data. Supported file formats are .xls or .xlsx, .alm, and .ini.</p> 																

Properties of Alarm Settings

Alarm Message Text Properties

- You can export the edited alarm messages. Supported file formats are .xls and .xlsx.



- Apart from the alarm messages, the editable alarm parameters include the alarm mail and alarm properties, as shown in the following diagram.

O	P	Q	R	S	T
[Mail To]	[CC]	[BCC]	[AttachScreen]	[Language1 Mail Content]	[Language2 Mail Content]
收件者	副本	密件副本	附件加入警報畫面	[Language1 郵件內容]	[Language2 郵件內容]
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	

Export



	A	B	C	D
1	[Language]	[Font]	[Size]	[Ratio]
2		字型	大小	縮放
3	Language1	Arial	12	100
4	Language2	Arial	12	100
5				
6	Alarm Setting	位址		
7	Address	讀取位址	None	
8	Scan Time	取樣週期(秒)	0.500000	
9	Max Records	最多可存筆數		9999
10	Hold	啟用斷電保持		1
11	Hold Place	斷電保持於		0
12	CSV	輸出CSV		0
13	Exit Screen Saver	警報發生時離開螢幕係		1
14	Screen Display Mode	警報畫面顯示		1
15	Continue Address	警報位址連續		0
16				
17	Alarm Moving Sign	警報走馬燈		
18	Enable	啟動		1
19	Position	視屏顯示位置		0
20	Direction	移動方式		3
21	Moving Points	每次移動點數		1
22	Interval	間隔時間(毫秒)		100
23	BackgroundColor	背景顏色	RGB(252,252,252)	
24	Opacity	半透明		255

Enable optimized alarm reading



Switch the addresses from continuous to non-continuous to enable this function. This function optimizes the speed of alarm reading for non-continuous addresses.

16.2 Alarm History Table

Different from the previous alarm recording method, the Alarm History Table adds alarm trigger time, alarm acknowledge time, and alarm recovery time so the alarm triggered and recovered times are displayed in the same row, making it easier for viewing.

No	Message	Frequency	Trigger	Ack	Recovery
0006	alarm 6	1	18:00:57 02/09/2017		18:01:02 02/09/2017
0007	alarm 7	1	18:00:57 02/09/2017		
0008	alarm 8	1	18:00:57 02/09/2017	18:01:16 02/09/2017	
0009	alarm 9	1	18:00:57 02/09/2017	18:01:18 02/09/2017	18:01:24 02/09/2017
0010	alarm 10	1	18:00:57 02/09/2017		

This element provides sorting and filtering functions for you to filter the information you want to see and sort them in ascending or descending order, enhancing the readability of data.

Refer to Table 16.1.1 Alarm Settings example for the Alarm History Table setting example.

16

When you double-click the Alarm History Table, the property page is shown as follows.

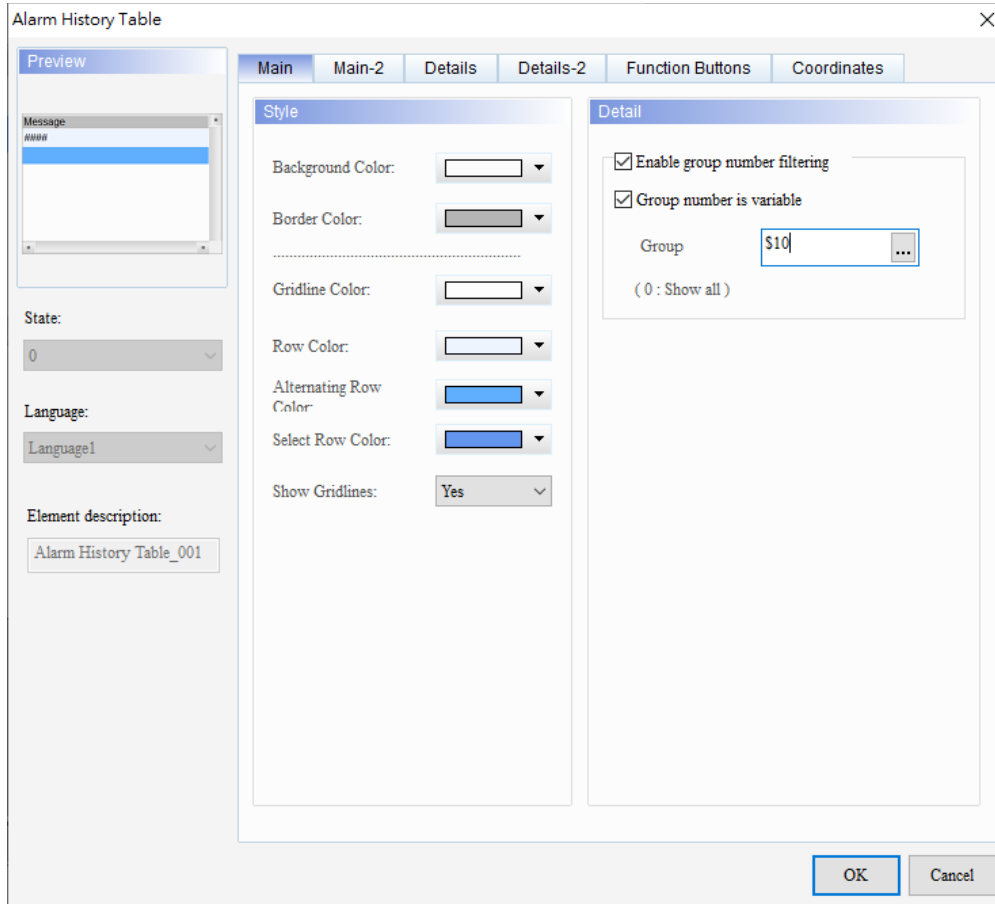
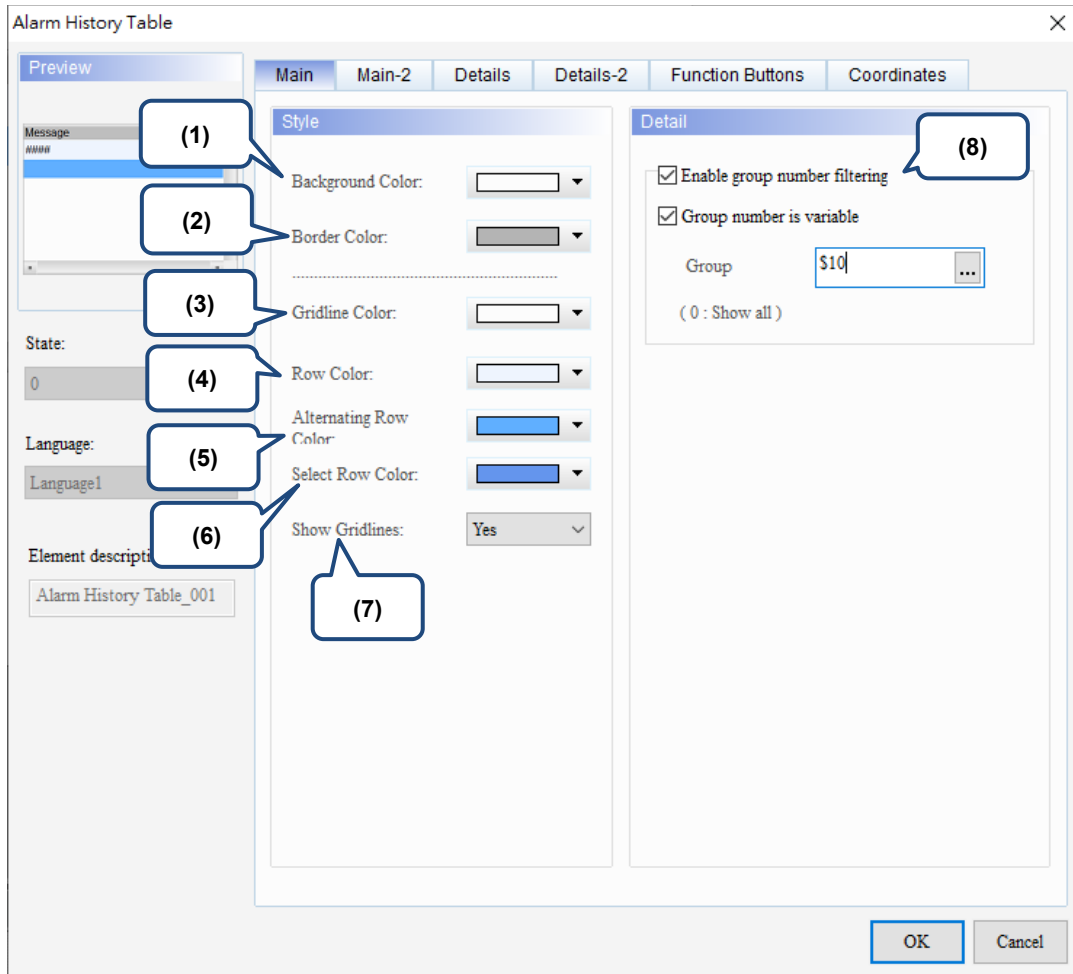


Figure 16.2.1 Properties of Alarm History Table

Table 16.2.1 Function page of Alarm History Table

Alarm History Table	
Function page	Description
Preview	The Alarm History Table elements do not support multiple state values and multi-language data display.
Main	Style: set the Background Color, Border Color, Gridline Color, Row Color, Alternating Row Color, Select Row Color, and Show Gridlines of the elements. Detail: select the Enable group number filtering check box.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Details	Set the Action Control Addr.; select the Use header controls to sort check box, set Sorting Control Addr. and Sorting Order Address; set Filter control address, Alarm counter display (addr.), Alarm category start addr., and Alarm category end addr.
Details-2	Set the displaying alarm columns, width, description, the order of the columns, and select the Allow to change the field width check box. Set the Title Text Alignment, Title Background, Title Text Color, and format / color of the date / time.
Function Buttons	Set Function Buttons: select the Trigger alarm screen and Ack alarm check boxes. Select the Scroll up an interval , Scroll down an interval , Scroll up one page , and Scroll down one page check boxes. Set the displaying texts and default width / height of the buttons.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

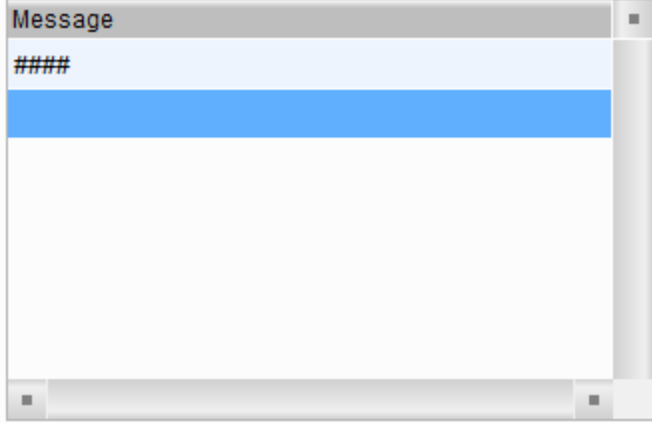

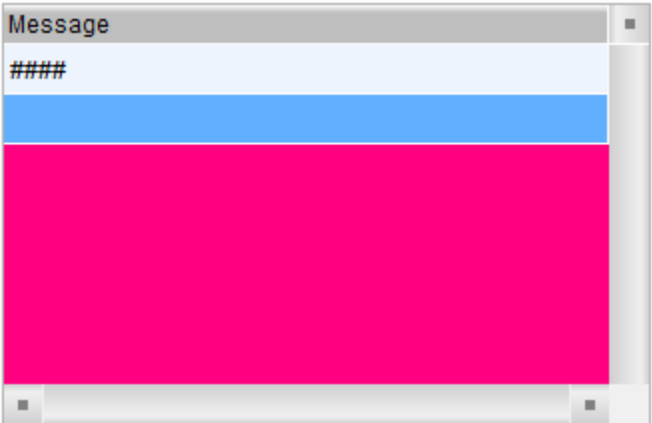
■ Main

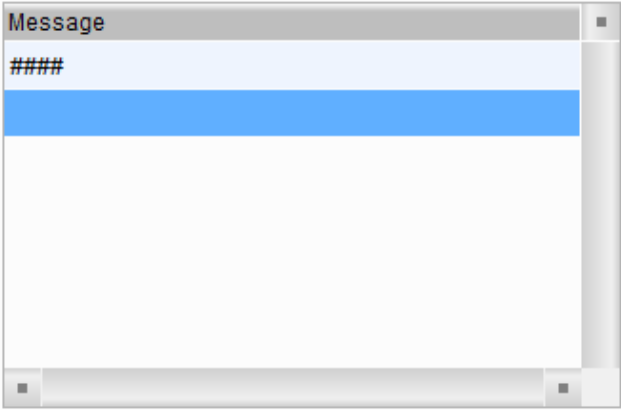

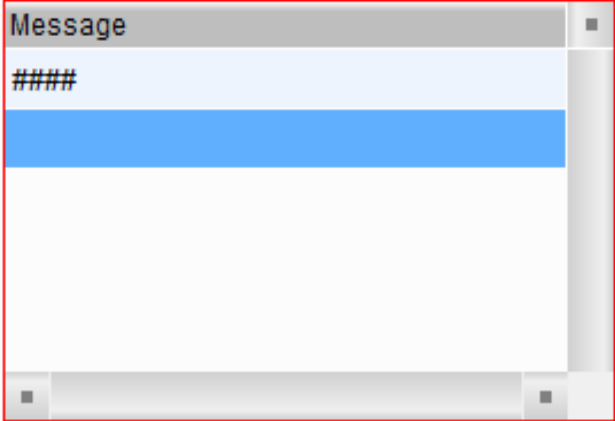


16

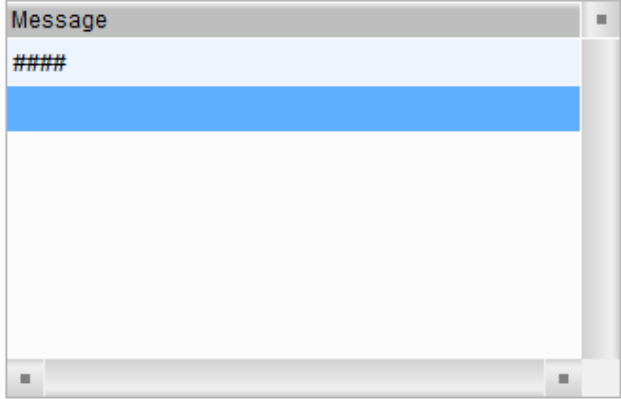

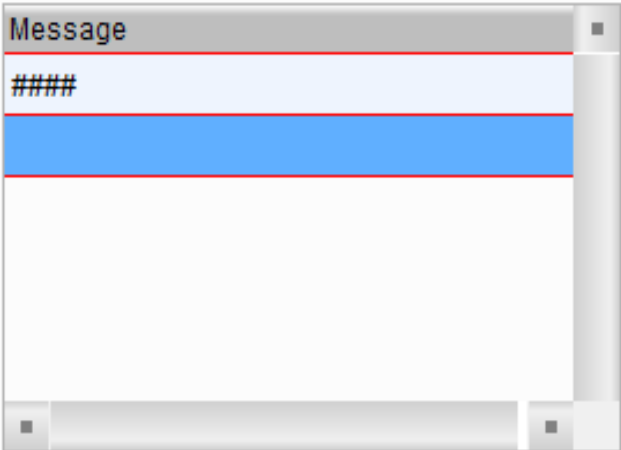
Figure 16.2.2 Main property page for the Alarm History Table element

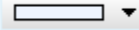
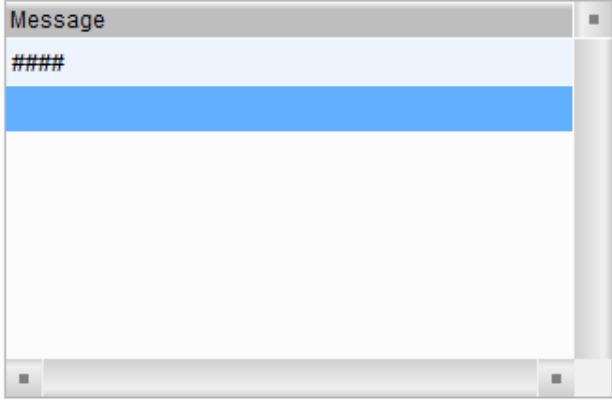

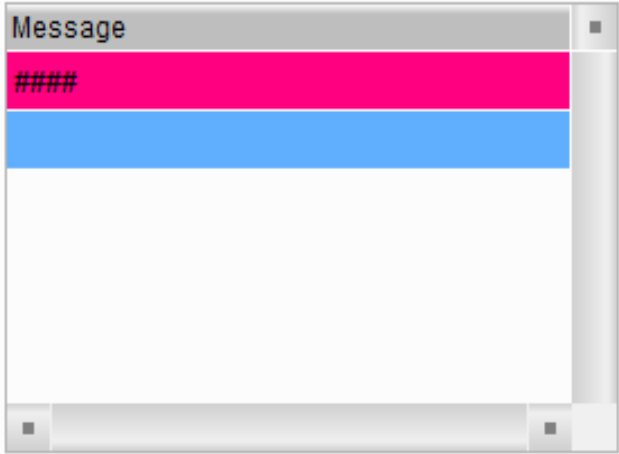
16

No.	Property	Function description
(1)	Background Color	<p>Set the Background Color of the element. The default is white.</p>  <p>Background Color: </p> 


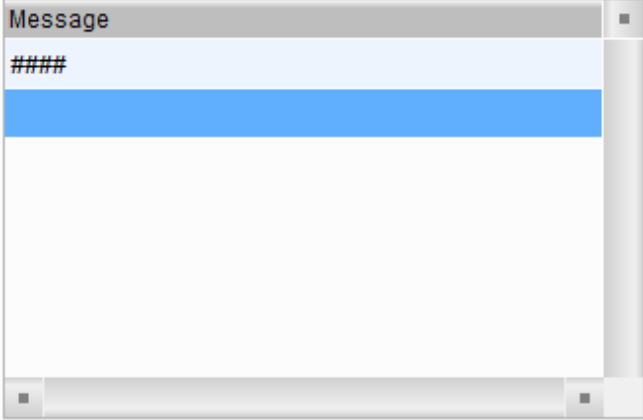

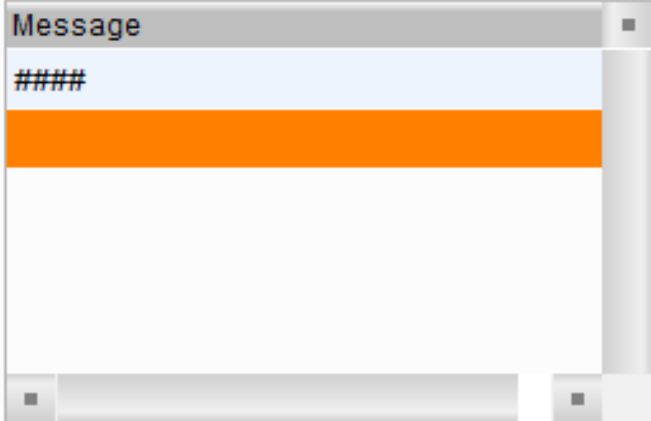
No.	Property	Function description
(2)	Border Color	<p>Set the Border Color of the element. The default is gray.</p>  <p>↓</p>  <p>↓</p> 

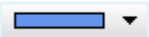
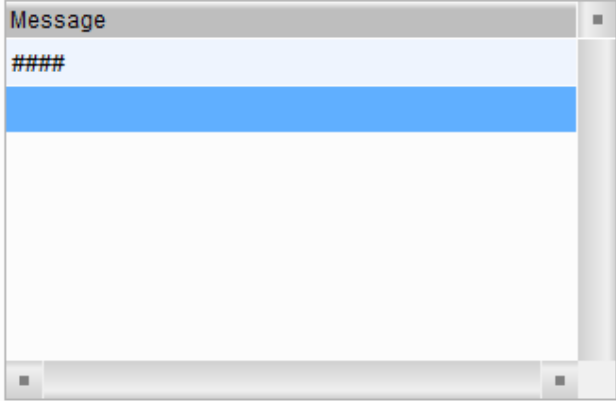
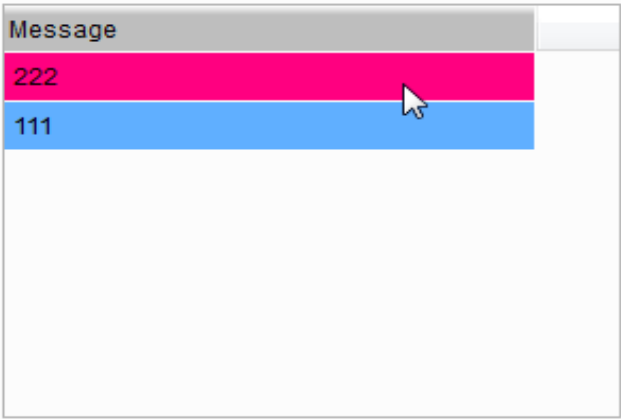
16

No.	Property	Function description
(3)	Gridline Color	<ul style="list-style-type: none">■ The Gridline Color setting is valid only when you select Yes for Show Gridlines.■ Set the Gridline Color of the element. The default is white.  <p>The top screenshot shows a window titled "Message" with a light blue header containing "####". A horizontal blue bar is present below the header. A white gridline is visible at the top of the main content area.</p>  <p>The middle part shows a property control labeled "Gridline Color:" with a red color selection box and a dropdown arrow.</p>  <p>The bottom screenshot shows the same "Message" window, but the gridline is now red, matching the color selected in the control above.</p>

No.	Property	Function description
(4)	Row Color	<p>Set the color for each row of the alarm. The default is .</p>  <p>↓</p> <p></p> 

16

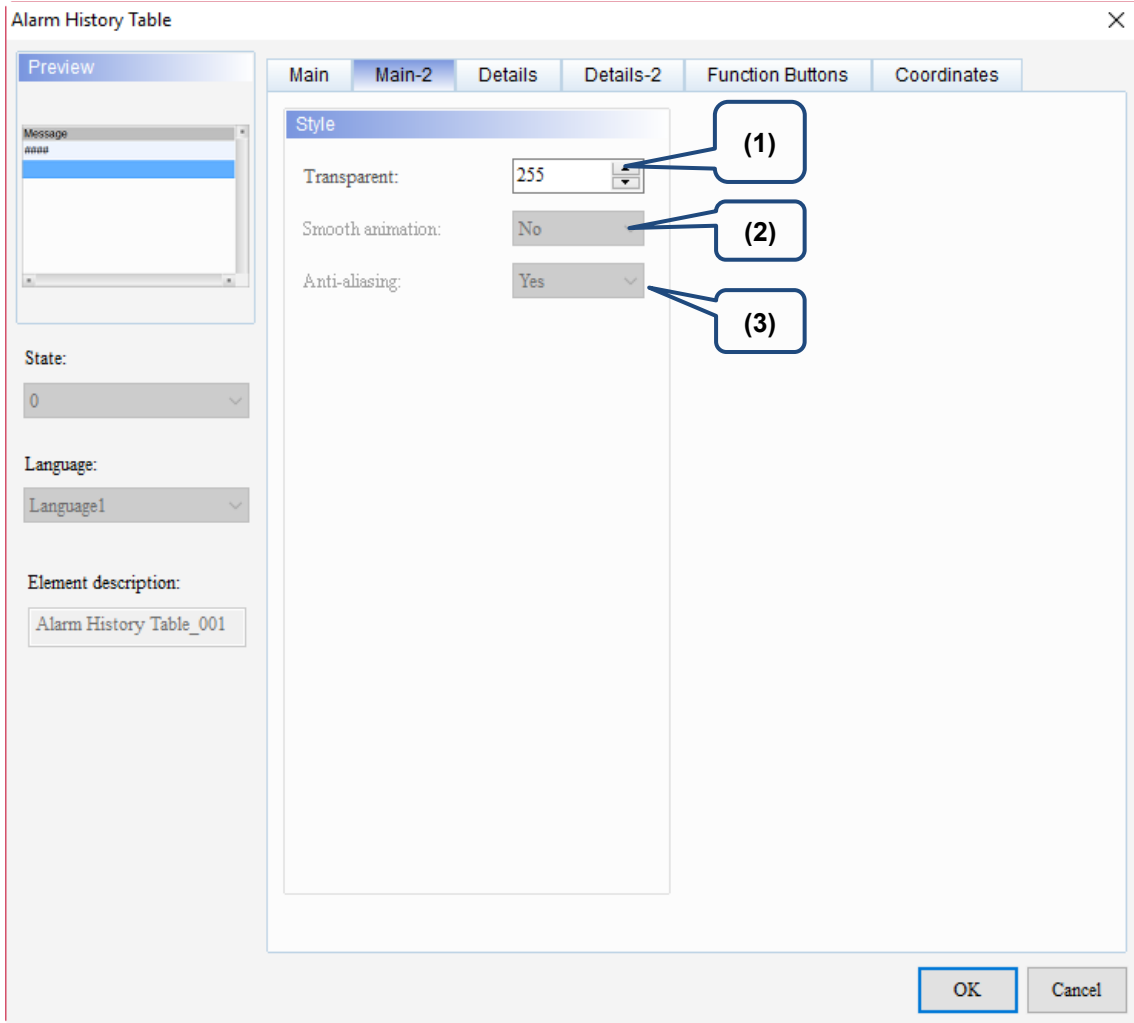
No.	Property	Function description
(5)	Alternating Row Color	<p>Set the color for the alternating row of the alarm. The default is  .</p>  <p>↓</p>  <p>↓</p> 

No.	Property	Function description
(6)	Select Row Color	<ul style="list-style-type: none"> ■ The row color when you select an alarm history data. ■ Set the color of the selected row. The default is  .  <p style="text-align: center;">↓</p> 
(7)	Show Gridlines	<ul style="list-style-type: none"> ■ The default is Yes. ■ When you select No, the Gridline Color setting is invalid.

16

No.	Property	Function description																																																						
(8)	Enable group number filtering	<ul style="list-style-type: none"> ■ Select the Enable group number filtering check box to filter the alarms to be displayed. You can specify the group number to display the alarms in groups. ■ The value of the group number can be a variable or constant. ■ When the Group is 0, all alarms are displayed. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Detail</p> <p><input checked="" type="checkbox"/> Enable group number filtering</p> <p><input checked="" type="checkbox"/> Group number is variable</p> <p>Group <input type="text" value="\$10"/> ...</p> <p>(0 : Show all)</p> </div> <ul style="list-style-type: none"> ■ Display example: <p>When the Group is 0:</p> <table border="1"> <thead> <tr> <th>No</th> <th>Group</th> <th>Message</th> <th>Trigger</th> <th>Frequency</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td>0001</td> <td>1</td> <td>alarm 1</td> <td>14:23:18 06/15/</td> <td>1</td> <td></td> </tr> <tr> <td>0002</td> <td>1</td> <td>alarm 2</td> <td>14:23:19 06/15/</td> <td>1</td> <td></td> </tr> <tr> <td>0003</td> <td>2</td> <td>alarm 3</td> <td>14:23:19 06/15/</td> <td>1</td> <td></td> </tr> <tr> <td>0004</td> <td>3</td> <td>alarm 4</td> <td>14:23:20 06/15/</td> <td>1</td> <td></td> </tr> <tr> <td>0005</td> <td>5</td> <td>alarm 5</td> <td>14:23:20 06/15/</td> <td>1</td> <td></td> </tr> </tbody> </table> <p>When the Group is 1:</p> <table border="1"> <thead> <tr> <th>No</th> <th>Group</th> <th>Message</th> <th>Trigger</th> <th>Frequency</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td>0001</td> <td>1</td> <td>alarm 1</td> <td>14:23:18 06/15/</td> <td>1</td> <td></td> </tr> <tr> <td>0002</td> <td>1</td> <td>alarm 2</td> <td>14:23:19 06/15/</td> <td>1</td> <td></td> </tr> </tbody> </table>	No	Group	Message	Trigger	Frequency	Recovery	0001	1	alarm 1	14:23:18 06/15/	1		0002	1	alarm 2	14:23:19 06/15/	1		0003	2	alarm 3	14:23:19 06/15/	1		0004	3	alarm 4	14:23:20 06/15/	1		0005	5	alarm 5	14:23:20 06/15/	1		No	Group	Message	Trigger	Frequency	Recovery	0001	1	alarm 1	14:23:18 06/15/	1		0002	1	alarm 2	14:23:19 06/15/	1	
No	Group	Message	Trigger	Frequency	Recovery																																																			
0001	1	alarm 1	14:23:18 06/15/	1																																																				
0002	1	alarm 2	14:23:19 06/15/	1																																																				
0003	2	alarm 3	14:23:19 06/15/	1																																																				
0004	3	alarm 4	14:23:20 06/15/	1																																																				
0005	5	alarm 5	14:23:20 06/15/	1																																																				
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0001	1	alarm 1	14:23:18 06/15/	1																																																				
0002	1	alarm 2	14:23:19 06/15/	1																																																				

■ Main-2



16

Figure 16.2.3 Main-2 property page for the Alarm History Table element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

16

■ Details

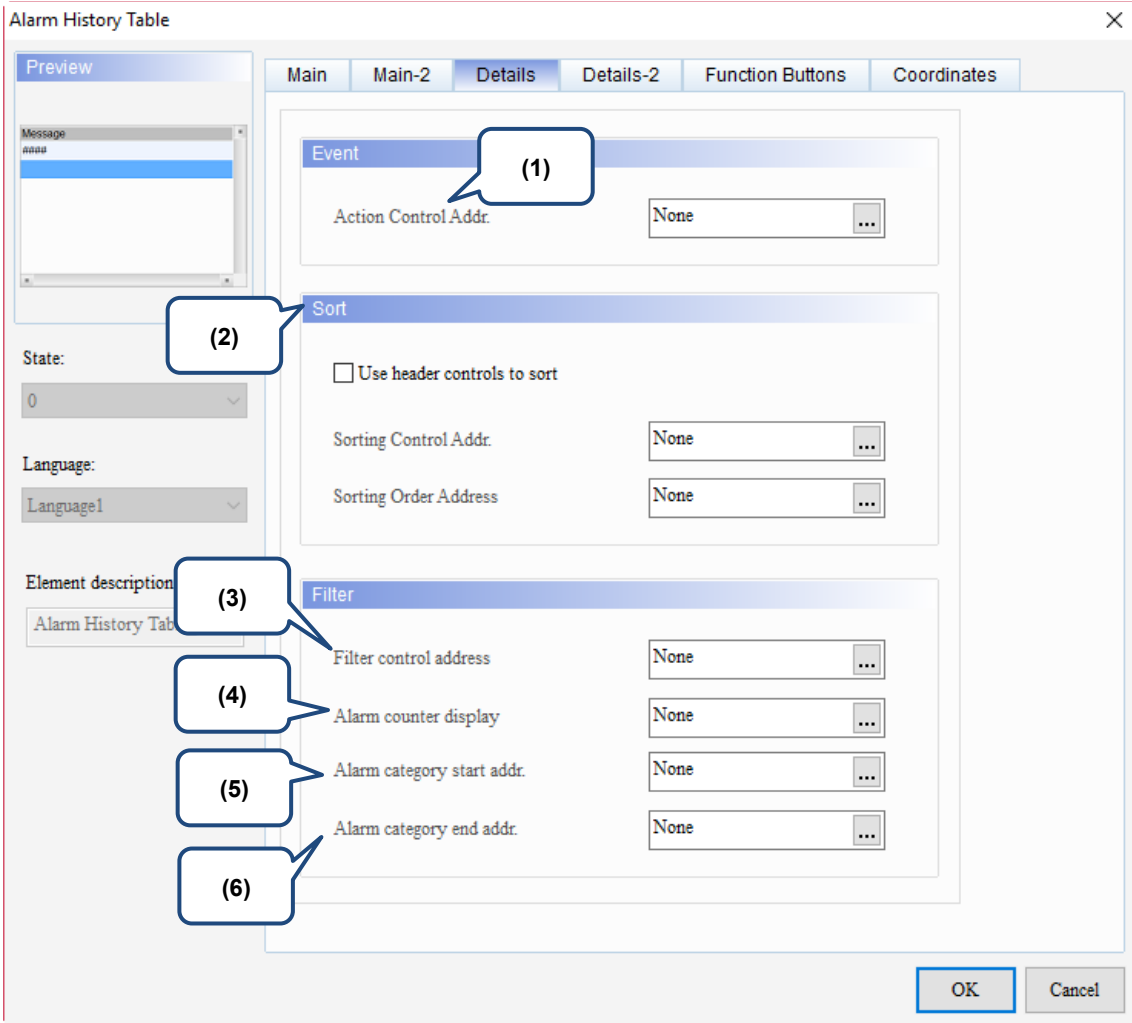


Figure 16.2.4 Details property page for the Alarm History Table element

No.	Property	Function description																																				
(1)	Action Control Addr.	<p>You can specify the alarms to change screens or acknowledge the alarms with Action Control Addr.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Default; no actions.</td> </tr> <tr> <td>1</td> <td>Acknowledge the selected alarms in the Alarm History Table.</td> </tr> <tr> <td>2</td> <td>If the selected alarm in the Alarm History Table has a set alarm screen which is set to display manually, the alarm screen is displayed when the value is 2.</td> </tr> </tbody> </table>	Value	Description	0	Default; no actions.	1	Acknowledge the selected alarms in the Alarm History Table.	2	If the selected alarm in the Alarm History Table has a set alarm screen which is set to display manually, the alarm screen is displayed when the value is 2.																												
Value	Description																																					
0	Default; no actions.																																					
1	Acknowledge the selected alarms in the Alarm History Table.																																					
2	If the selected alarm in the Alarm History Table has a set alarm screen which is set to display manually, the alarm screen is displayed when the value is 2.																																					
(2)	Sort Control Addr.	<p>■ When you select the Use header controls to sort check box, you can press the Alarm History Table header to sort the alarms in ascending or descending order. Once you select this function, you cannot set Sorting Control Addr. and Sorting Order Address.</p> <table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Frequency</th> <th>Trigger</th> <th>Ack</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td>0006</td> <td>alarm 6</td> <td>1</td> <td>18:00:57 02/09/2017</td> <td></td> <td>02/09/2017</td> </tr> <tr> <td>0007</td> <td>alarm 7</td> <td>1</td> <td>18:00:57 02/09/2017</td> <td></td> <td></td> </tr> <tr> <td>0008</td> <td>alarm 8</td> <td>1</td> <td>18:00:57 02/09/2017</td> <td>18:01:16 02/09/2017</td> <td></td> </tr> <tr> <td>0009</td> <td>alarm 9</td> <td>1</td> <td>18:00:57 02/09/2017</td> <td>18:01:18 02/09/2017</td> <td>18:01:24 02/09/2017</td> </tr> <tr> <td>0010</td> <td>alarm 10</td> <td>1</td> <td>18:00:57 02/09/2017</td> <td></td> <td></td> </tr> </tbody> </table>	No	Message	Frequency	Trigger	Ack	Recovery	0006	alarm 6	1	18:00:57 02/09/2017		02/09/2017	0007	alarm 7	1	18:00:57 02/09/2017			0008	alarm 8	1	18:00:57 02/09/2017	18:01:16 02/09/2017		0009	alarm 9	1	18:00:57 02/09/2017	18:01:18 02/09/2017	18:01:24 02/09/2017	0010	alarm 10	1	18:00:57 02/09/2017		
No	Message	Frequency	Trigger	Ack	Recovery																																	
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0007	alarm 7	1	18:00:57 02/09/2017																																			
0008	alarm 8	1	18:00:57 02/09/2017	18:01:16 02/09/2017																																		
0009	alarm 9	1	18:00:57 02/09/2017	18:01:18 02/09/2017	18:01:24 02/09/2017																																	
0010	alarm 10	1	18:00:57 02/09/2017																																			

No.	Property	Function description																						
(2)	Sort Control Addr.	<ul style="list-style-type: none"> The Use header controls to sort function does not support the sorting of the Message column. You can specify the item for sorting with Sort Control Addr. <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Default; no sorting.</td> </tr> <tr> <td>1</td> <td>Sort by Trigger Time.</td> </tr> <tr> <td>2</td> <td>Sort by Acknowledge Time.</td> </tr> <tr> <td>3</td> <td>Sort by Recovery Time.</td> </tr> <tr> <td>4</td> <td>Sort by the alarm count.</td> </tr> <tr> <td>5</td> <td>Sort by the alarm category.</td> </tr> <tr> <td>6</td> <td>Sort by the alarm No.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The values of Sorting Order Address and Sorting Control Addr. determine the ascending or descending order of the items. For example, if you set Sorting Control Addr. to 1 and Sorting Order Address to 0, the trigger time is sorted in ascending order. <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Sort in ascending order.</td> </tr> <tr> <td>1</td> <td>Sort in descending order.</td> </tr> </tbody> </table>	Value	Description	0	Default; no sorting.	1	Sort by Trigger Time.	2	Sort by Acknowledge Time.	3	Sort by Recovery Time.	4	Sort by the alarm count.	5	Sort by the alarm category.	6	Sort by the alarm No.	Value	Description	0	Sort in ascending order.	1	Sort in descending order.
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6	Sort by the alarm No.																							
Value	Description																							
0	Sort in ascending order.																							
1	Sort in descending order.																							
(3)	Filter control address	<p>You can filter the specified items with Filter control address.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Default; display all triggered alarms.</td> </tr> <tr> <td>1</td> <td>Hide the alarms with both Recovery Time and Acknowledge Time.</td> </tr> <tr> <td>2</td> <td>Hide the alarms with Recovery Time.</td> </tr> <tr> <td>3</td> <td>Hide the alarms with Recovery Time or Acknowledge Time.</td> </tr> <tr> <td>4</td> <td>Hide the alarms with Acknowledge Time.</td> </tr> <tr> <td>5</td> <td>This setting must be used with Alarm counter display. The alarm display count refers to the value of Alarm counter display. When the alarm display count is smaller than this value, the alarm is hidden.</td> </tr> <tr> <td>6</td> <td>This setting must be used with Alarm category start addr. and Alarm category end addr. When the alarm category number is not within the range set by these two addresses, the alarm is hidden.</td> </tr> </tbody> </table>	Value	Description	0	Default; display all triggered alarms.	1	Hide the alarms with both Recovery Time and Acknowledge Time.	2	Hide the alarms with Recovery Time.	3	Hide the alarms with Recovery Time or Acknowledge Time.	4	Hide the alarms with Acknowledge Time.	5	This setting must be used with Alarm counter display. The alarm display count refers to the value of Alarm counter display. When the alarm display count is smaller than this value, the alarm is hidden.	6	This setting must be used with Alarm category start addr. and Alarm category end addr. When the alarm category number is not within the range set by these two addresses, the alarm is hidden.						
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(4)	Alarm counter display	<ul style="list-style-type: none"> This setting must be used with Filter control address. When Filter control address is set to 5, input the value of the alarm count. <table border="1"> <thead> <tr> <th>Example</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Triggered alarms with alarm counts of 1, 2, and 3 times</td> <td>If you input 1, the Alarm History Table displays the triggered alarms with 1 or more alarm counts; if you input 2, the Table displays the triggered alarms with 2 or more alarm counts; if you input 3, the Table displays the triggered alarms with 3 or more alarm counts.</td> </tr> </tbody> </table>	Example	Description	Triggered alarms with alarm counts of 1, 2, and 3 times	If you input 1, the Alarm History Table displays the triggered alarms with 1 or more alarm counts; if you input 2, the Table displays the triggered alarms with 2 or more alarm counts; if you input 3, the Table displays the triggered alarms with 3 or more alarm counts.																		
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(5)	Alarm category start addr.	<ul style="list-style-type: none"> This setting must be used with Filter control address. When Filter control address is set to 6, input the alarm category number. <table border="1"> <thead> <tr> <th>Example</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Alarms with alarm category numbers 1 and 5</td> <td>When you input 1 to Alarm category start addr. and 3 to Alarm category end addr., the Alarm History Table displays the category 1 triggered alarms. When you input 1 to Alarm category start addr. and 5 to Alarm category end addr., the Alarm History Table displays the category 1 and 5 triggered alarms.</td> </tr> </tbody> </table>	Example	Description	Alarms with alarm category numbers 1 and 5	When you input 1 to Alarm category start addr. and 3 to Alarm category end addr., the Alarm History Table displays the category 1 triggered alarms. When you input 1 to Alarm category start addr. and 5 to Alarm category end addr., the Alarm History Table displays the category 1 and 5 triggered alarms.																		
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(6)	Alarm category end addr.	<table border="1"> <thead> <tr> <th>Example</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Alarms with alarm category numbers 1 and 5</td> <td>When you input 1 to Alarm category start addr. and 3 to Alarm category end addr., the Alarm History Table displays the category 1 triggered alarms. When you input 1 to Alarm category start addr. and 5 to Alarm category end addr., the Alarm History Table displays the category 1 and 5 triggered alarms.</td> </tr> </tbody> </table>	Example	Description	Alarms with alarm category numbers 1 and 5	When you input 1 to Alarm category start addr. and 3 to Alarm category end addr., the Alarm History Table displays the category 1 triggered alarms. When you input 1 to Alarm category start addr. and 5 to Alarm category end addr., the Alarm History Table displays the category 1 and 5 triggered alarms.																		
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16

■ Details-2

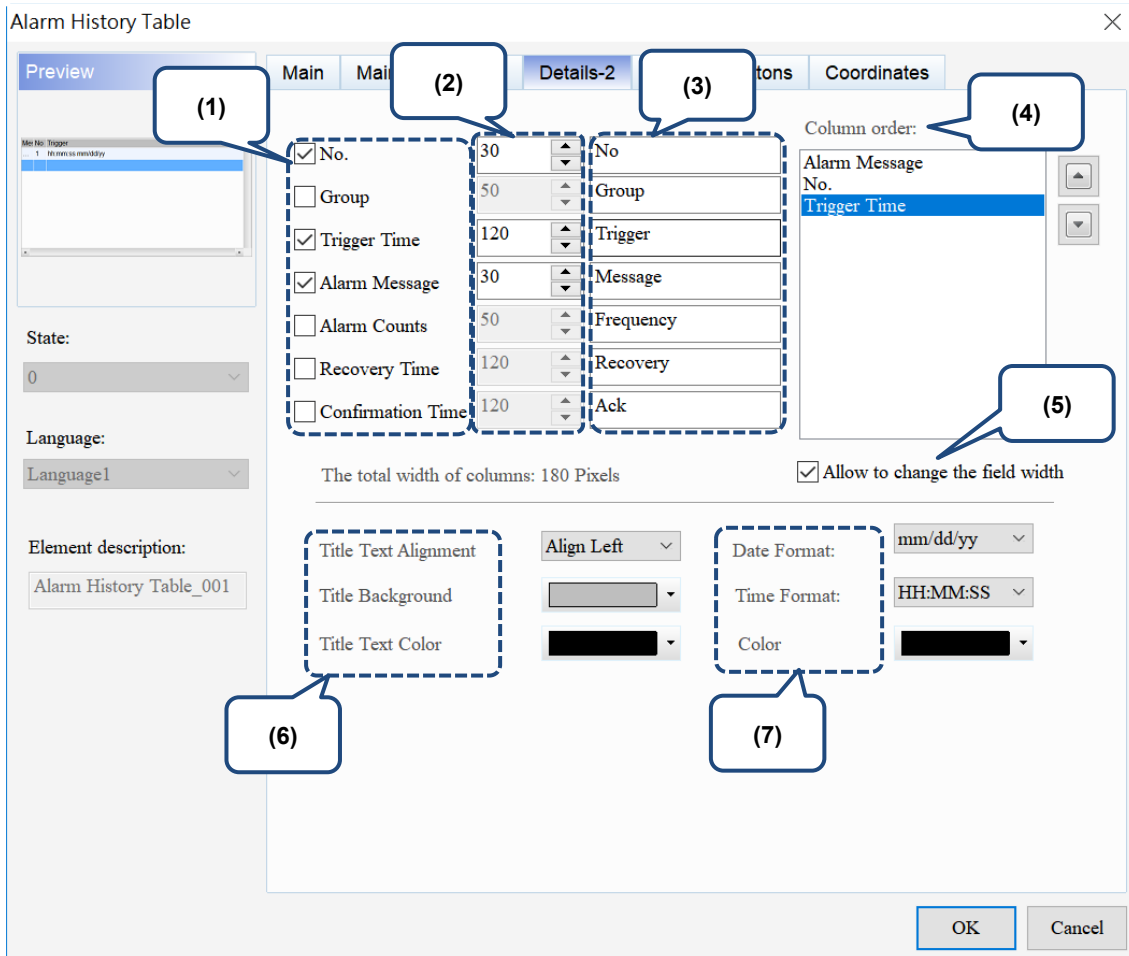




Figure 16.2.5 Details-2 property page for the Alarm History Table element

No.	Property	Function description
(1)	Column display	Select the columns you want to display in the element.
(2)	Column Width	You can adjust the width for each column.
(3)	Column title	You can define the titles for each column.
(4)	Column order	After selecting the columns you want to display, you can use  and  to adjust the column displaying order.
(5)	Allow to change the field width	After selecting this check box, you can drag to adjust the displaying field width on the HMI.

No.	Property	Function description																								
(6)	Title	<p>Set the column title to align left, center, or right.</p> <table border="1"> <tr> <td rowspan="2">Align Left</td> <td> <table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>#</td> </tr> </tbody> </table> </td> </tr> <tr> <td rowspan="2">Center</td> <td> <table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>#</td> </tr> </tbody> </table> </td> </tr> <tr> <td rowspan="2">Align Right</td> <td> <table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>#</td> </tr> </tbody> </table> </td> </tr> </table>	Align Left	<table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>#</td> </tr> </tbody> </table>	No	Message	Frequency	1	####	#	Center	<table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>#</td> </tr> </tbody> </table>	No	Message	Frequency	1	####	#	Align Right	<table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>#</td> </tr> </tbody> </table>	No	Message	Frequency	1	####	#
		Align Left		<table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>#</td> </tr> </tbody> </table>	No	Message	Frequency	1	####	#																
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1	####	#																								
Title Background	<p>Set the background color of the column title.</p> <table border="1"> <tr> <td rowspan="2">Default</td> <td> <table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>#</td> </tr> </tbody> </table> </td> </tr> <tr> <td rowspan="2">After</td> <td> <table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>#</td> </tr> </tbody> </table> </td> </tr> </table>	Default	<table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>#</td> </tr> </tbody> </table>	No	Message	Frequency	1	####	#	After	<table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>#</td> </tr> </tbody> </table>	No	Message	Frequency	1	####	#									
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	No	Message	Frequency																							
1	####	#																								
(7)	Date and time	<p>Select the display format for the date from the following options.</p> <p>Date Format: <input type="text" value="mm/dd/yy"/> <input type="text" value="dd/mm/yy"/> <input type="text" value="dd/mm/yy"/> <input type="text" value="yy.mm.dd"/> <input type="text" value="yy/mm/dd"/> <input type="text" value="mm.dd"/> <input type="text" value="mm/dd"/></p>																								
		<p>Select the display format for the time from the following options.</p> <p>Time Format: <input type="text" value="HH:MM:SS"/> <input type="text" value="HH:MM:SS"/> <input type="text" value="HH:MM"/></p>																								
		<p>Set the display color for the date and time.</p> <table border="1"> <tr> <td rowspan="2">Default</td> <td> <table border="1"> <thead> <tr> <th>No</th> <th>Trigger</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>hh:mm:ss mm/dd/yy</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </tbody> </table> </td> </tr> <tr> <td rowspan="2">After</td> <td> <table border="1"> <thead> <tr> <th>No</th> <th>Trigger</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>hh:mm:ss mm/dd/yy</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </tbody> </table> </td> </tr> </table>	Default	<table border="1"> <thead> <tr> <th>No</th> <th>Trigger</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>hh:mm:ss mm/dd/yy</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </tbody> </table>	No	Trigger	Recovery	1	hh:mm:ss mm/dd/yy	hh:mm:ss mm/dd/yy	After	<table border="1"> <thead> <tr> <th>No</th> <th>Trigger</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>hh:mm:ss mm/dd/yy</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </tbody> </table>	No	Trigger	Recovery	1	hh:mm:ss mm/dd/yy	hh:mm:ss mm/dd/yy								
Default	<table border="1"> <thead> <tr> <th>No</th> <th>Trigger</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>hh:mm:ss mm/dd/yy</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </tbody> </table>	No		Trigger	Recovery	1	hh:mm:ss mm/dd/yy	hh:mm:ss mm/dd/yy																		
	No	Trigger	Recovery																							
1	hh:mm:ss mm/dd/yy	hh:mm:ss mm/dd/yy																								
After	<table border="1"> <thead> <tr> <th>No</th> <th>Trigger</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>hh:mm:ss mm/dd/yy</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </tbody> </table>	No	Trigger	Recovery	1	hh:mm:ss mm/dd/yy	hh:mm:ss mm/dd/yy																			
	No	Trigger	Recovery																							
1	hh:mm:ss mm/dd/yy	hh:mm:ss mm/dd/yy																								

■ Function Buttons

16

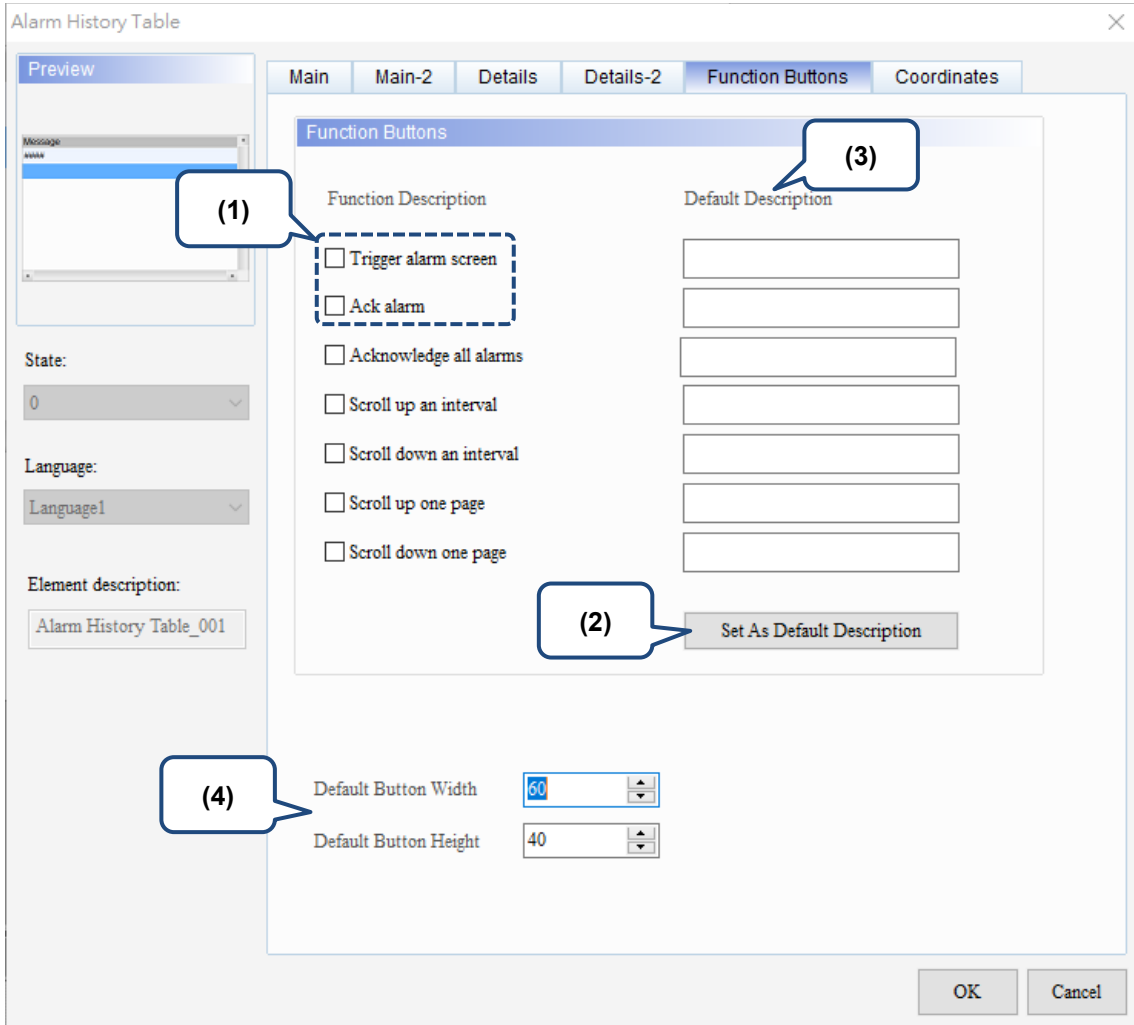


Figure 16.2.6 Function Buttons property page for the Alarm History Table element

No.	Property	Function description																				
(1)	Function Buttons	<ul style="list-style-type: none"> ■ Two button options are provided for the Action Control function: Trigger alarm screen and Ack alarm. ■ By triggering the Function Buttons, it is easier to edit the screen. You can use the functions provided by Action Control Addr. without setting the address and value. <table border="1"> <thead> <tr> <th>Value</th> <th>Function button</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Default; no actions.</td> <td></td> </tr> <tr> <td>1</td> <td>Ack alarm</td> <td>Acknowledge the selected alarms in the Alarm History Table.</td> </tr> <tr> <td>2</td> <td>Trigger alarm screen</td> <td>If the selected alarm in the Alarm History Table has a set alarm screen which is set to display manually, the alarm screen is displayed when the value is 2.</td> </tr> </tbody> </table> <p>Description for other function buttons are as follows:</p> <table border="1"> <tbody> <tr> <td>Scroll up an interval</td> <td>Scroll up an interval.</td> </tr> <tr> <td>Scroll down an interval</td> <td>Scroll down an interval.</td> </tr> <tr> <td>Scroll up one page</td> <td>Scroll up one page.</td> </tr> <tr> <td>Scroll down one page</td> <td>Scroll down one page.</td> </tr> </tbody> </table>	Value	Function button	Description	0	Default; no actions.		1	Ack alarm	Acknowledge the selected alarms in the Alarm History Table.	2	Trigger alarm screen	If the selected alarm in the Alarm History Table has a set alarm screen which is set to display manually, the alarm screen is displayed when the value is 2.	Scroll up an interval	Scroll up an interval.	Scroll down an interval	Scroll down an interval.	Scroll up one page	Scroll up one page.	Scroll down one page	Scroll down one page.
Value	Function button	Description																				
0	Default; no actions.																					
1	Ack alarm	Acknowledge the selected alarms in the Alarm History Table.																				
2	Trigger alarm screen	If the selected alarm in the Alarm History Table has a set alarm screen which is set to display manually, the alarm screen is displayed when the value is 2.																				
Scroll up an interval	Scroll up an interval.																					
Scroll down an interval	Scroll down an interval.																					
Scroll up one page	Scroll up one page.																					
Scroll down one page	Scroll down one page.																					
(2)	Set As Default Description	Press this button to insert the default strings to the Default Description fields.																				
(3)	Default Description	Press Set As Default Description to insert the default strings to the fields. You can also enter user-defined strings.																				
(4)	Default Button Width and Height	You can adjust the width and height of the function buttons.																				

Coordinates

16

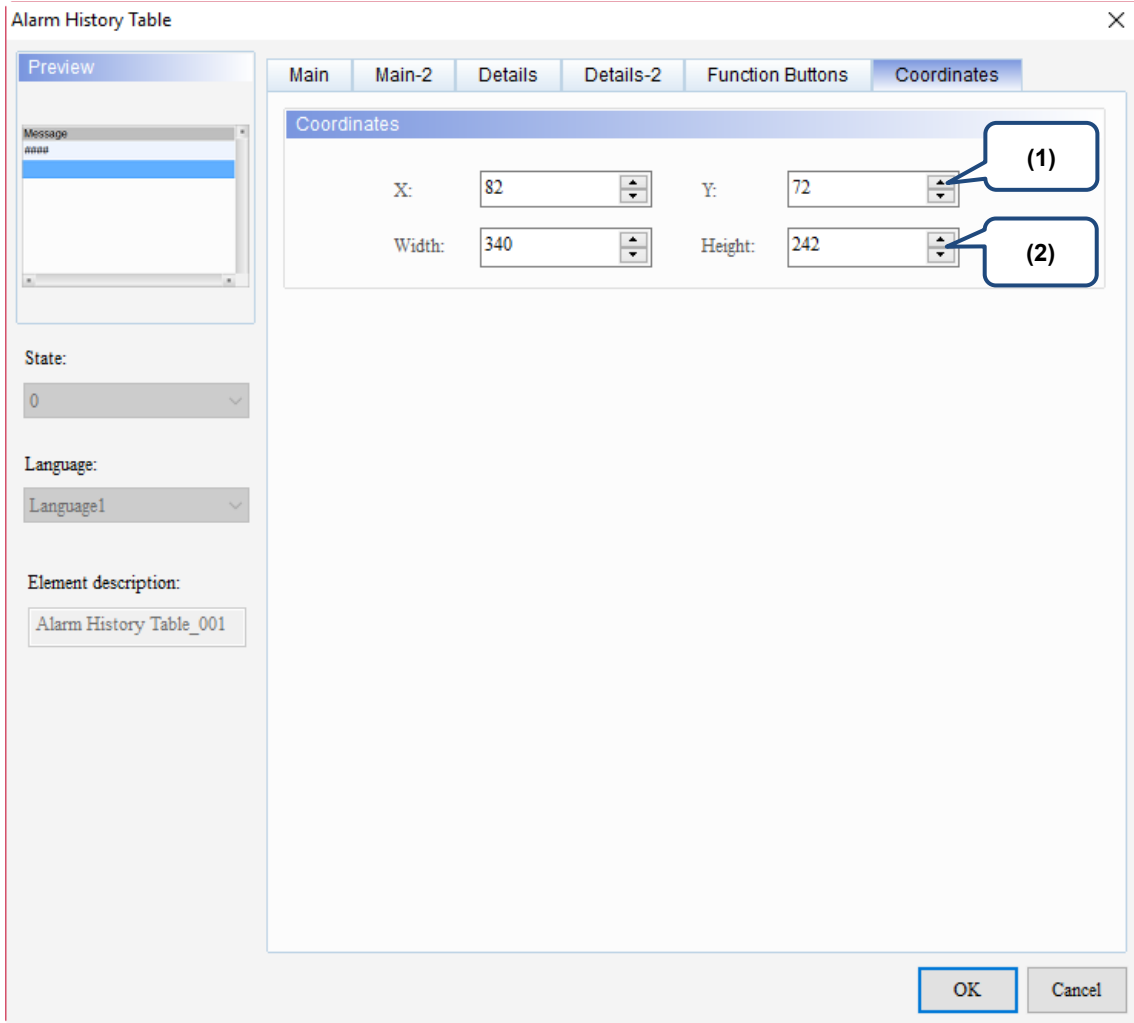


Figure 16.2.7 Coordinates property page for the Alarm History Table element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

16.3 Active Alarm List

The Active Alarm List element displays the information of the current alarms. Refer to Table 16.3.1 for the Active Alarm List example.

Table 16.3.1 Active Alarm List example

Active Alarm List

This example uses the alarm parameters in Table 16.1.1 Alarm Settings example.

The screenshot shows a software window titled "Screen_1 Alarm x". It has a toolbar with icons for file operations and a font setting of Arial at 100%. Below the toolbar are two tabs: "Detail" (selected) and "Properties".

The "Detail" tab shows a tree view with the following settings:

- Address: None
- Acknowledge all alarms: None
- Detail:
 - Scan Time (seconds): 3
 - Max Records: 500
 - Non-volatile Data Storage: None
 - Export CSV File: No
 - Show alarm number: No
 - Exit Screensaver when alarm occurs: Yes
 - Time to enter screen saver again: No alarm is triggered
 - Display alarm screen: **Manual**
- Alarm Moving Sign:
 - Enable: No
 - Position: Top
 - Direction: Left
 - Points per time: 1
 - Interval (ms): 100
 - Background color: fcfcfc
 - Translucent: 255

Below the settings is a table of active alarms:

No.	Message Content	Category	Type	Address	Trigger Condition	Monitor Ad	Text Color	Alarm Screen
1*	Alarm 1 %d1 degree(s)	1	Bit	\$50.0	On	*	RGB(0, 0, 0)	2 - Screen_2
2*	Alarm 2 %d1 kilogram(s)	1	Bit	\$50.1	On	*	RGB(0, 0, 0)	None
3*	Alarm 3 %d1 gram(s)	1	Bit	\$50.2	On	*	RGB(0, 0, 0)	None
4*	Alarm 4 %d1 meter(s)	1	Bit	\$50.3	On	*	RGB(0, 0, 0)	None
5*	Alarm 5 %d1 inch(es)	1	Bit	\$50.4	On	*	RGB(0, 0, 0)	None
6*	Alarm 6	5	Word	\$100	\$100 = \$200	...	RGB(0, 0, 0)	2 - Screen_2
7*	Alarm 7	5	Word	\$110	\$110 < \$210	...	RGB(0, 0, 0)	None
8*	Alarm 8	5	Word	{Link2}1@D100	{Link2}1@D200 <= {Link2}1@D100	...	RGB(0, 0, 0)	None
9*	Alarm 9	5	Word	\$120	0 <= \$120 <= 10	...	RGB(0, 0, 0)	None
10*	Alarm 10	5	Word	{Link2}1@M16	{Link2}1@M16 >= 100	...	RGB(0, 0, 0)	None

The screenshot shows the control interface for the alarm list. It includes several sections:

- Action control:** A "Trigger alarm screen" button and an "Ack alarm" button.
- Sorting control:** A numeric input field with the value "1234".
- Filtering control:** A numeric input field with the value "1234".
- Counter:** A numeric input field with the value "1234".
- Category start:** A numeric input field with the value "1234".
- Category end:** A numeric input field with the value "1234".

Below these controls is a table with columns: Message, Frequency, No, Trigger, Recovery, and a blank column. The first row contains placeholders: "####", "#", "1", "hh:mm:ss mm/dd/yy", "hh:mm:ss mm/dd/yy", and "hh:mm:ss mm/dd/yy".

At the bottom, there are two main control panels:

- Bit trigger:** Five buttons labeled "Alarm 1" through "Alarm 5".
- Monitor address:** Two rows of numeric input fields, each containing the value "1234".
- Word control:** Five conditions with numeric inputs and operators:
 - Condition 1: 1234 = 1234
 - Condition 2: 1234 < 1234
 - Condition 3: 1234 <= 1234
 - Condition 4: 0 <= 1234
 - Condition 5: 1234 >= 100

16

Create Active Alarm List element

Active Alarm List

Step 1: create an Active Alarm List element.

No	Trigger	Message
1	hh:mm:ss mm/dd/yy	####

Step 2: select the **No.** and **Trigger Time** check boxes. **Alarm Message** is selected by default. Then, the Active Alarm List will display the alarm number, alarm trigger time, and alarm message.

Active Alarm List configuration window showing the following settings:

- No. (width: 30)
- Group (width: 50)
- Trigger Time (width: 120)
- Alarm Message (width: 250)

Column order list: No., Trigger Time, Alarm Message.

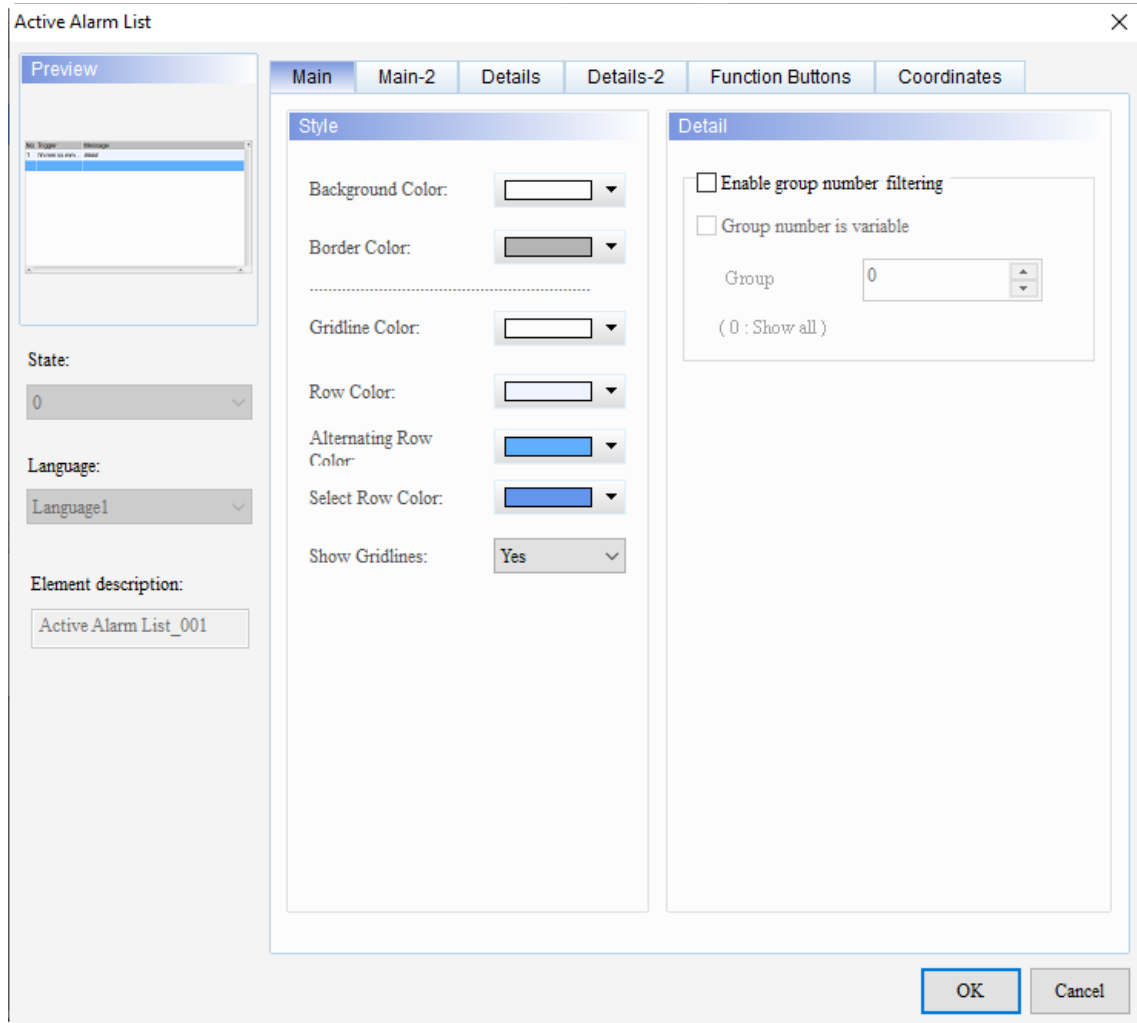
After creating the Active Alarm List element, compile and download it to the HMI. When the trigger conditions are met for Alarms 6 - 10, the Active Alarm List displays the current alarm time and date, alarm No., and alarm message. When the alarms are cleared, no items are displayed on the Active Alarm List.

Execution results

No	Trigger	Message
0006	17:36:08 03/06/2017	alarm 6
0007	17:36:08 03/06/2017	alarm 7
0008	17:36:08 03/06/2017	alarm 8
0009	17:36:08 03/06/2017	alarm 9
0010	17:36:08 03/06/2017	alarm 10

No	Trigger	Message

When you double-click the Active Alarm List, the property page is shown as follows.



16

Figure 16.3.1 Properties of Active Alarm List

Table 16.3.2 Function page of Active Alarm List

Active Alarm List	
Function page	Description
Preview	The Active Alarm List elements do not support multiple state values and multi-language data display.
Main	Style: set the Background Color, Border Color, Gridline Color, Row Color, Alternating Row Color, Select Row Color, and Show Gridlines. Detail: select the Enable group number filtering check box.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Details	Set the Filter control address, Alarm category start addr., and Alarm category end addr. Select the Use header controls to sort check box and set the Default sort field.
Details-2	Set the displaying alarm columns, width, description, the order of the columns, and select the Allow to change the field width check box. Set the Title Text Alignment, Title Background, Title Text Color, and format / color of the date / time.
Function Buttons	Select the Scroll up an interval , Scroll down an interval , Scroll up one page , and Scroll down one page check boxes. Set the displaying texts and default width / height of the buttons.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

16

■ Main

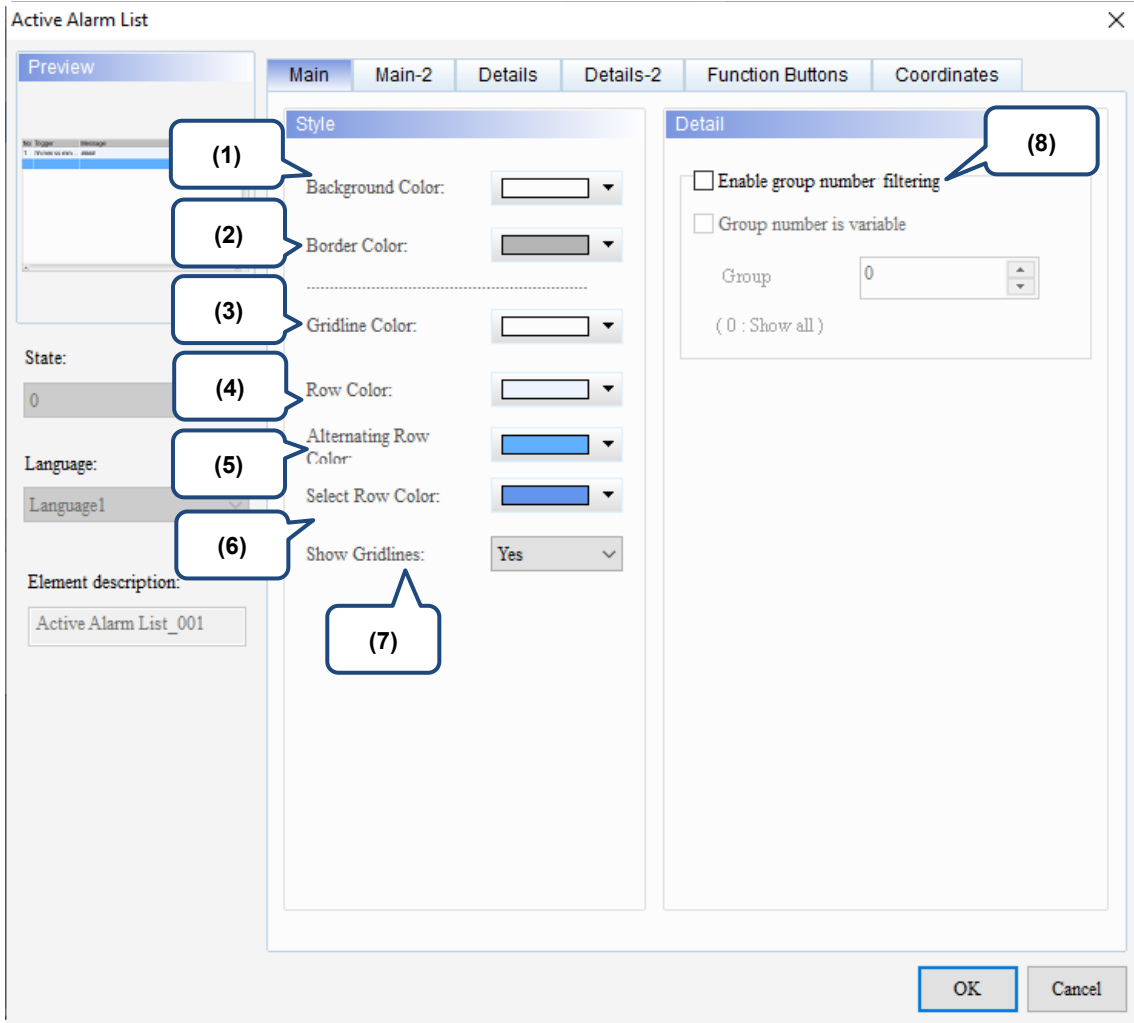
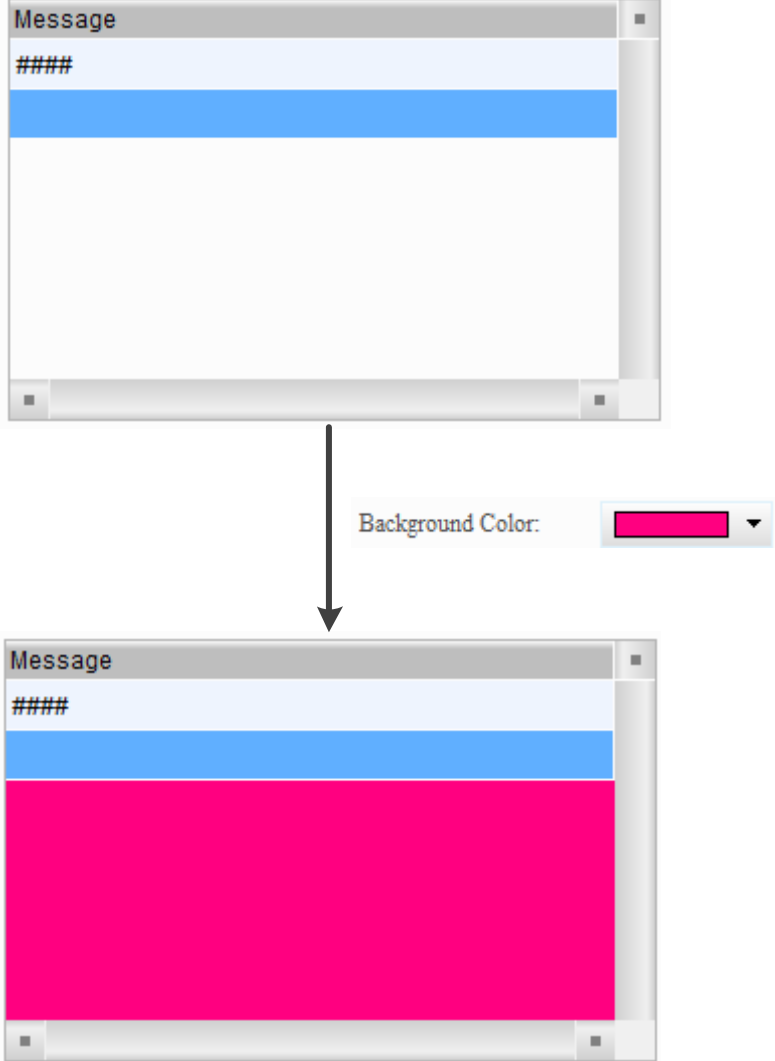
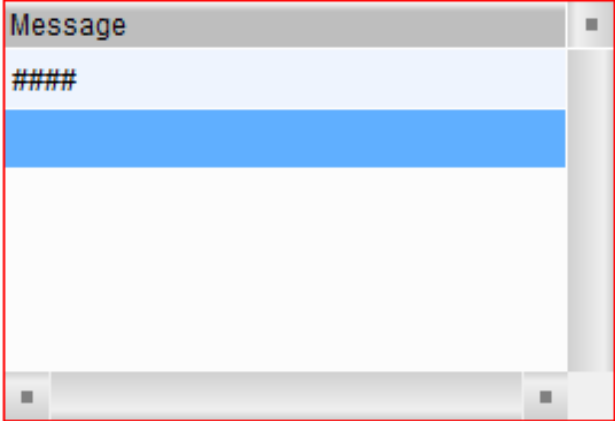
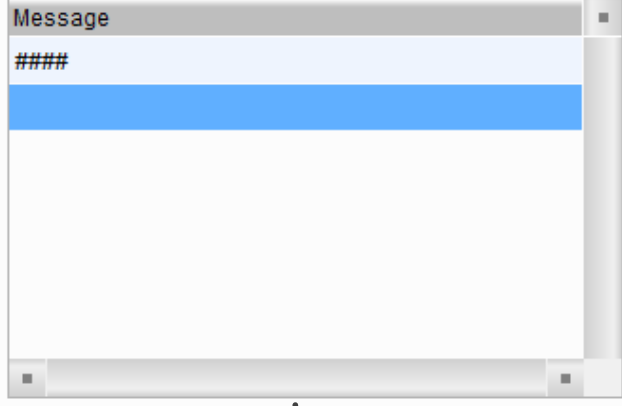

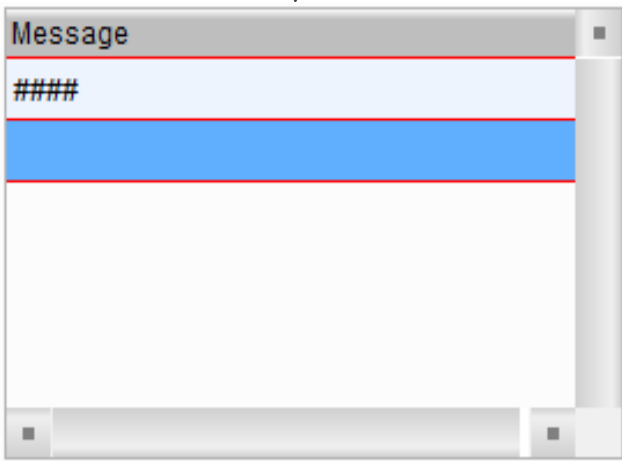


Figure 16.3.2 Main property page for the Active Alarm List element


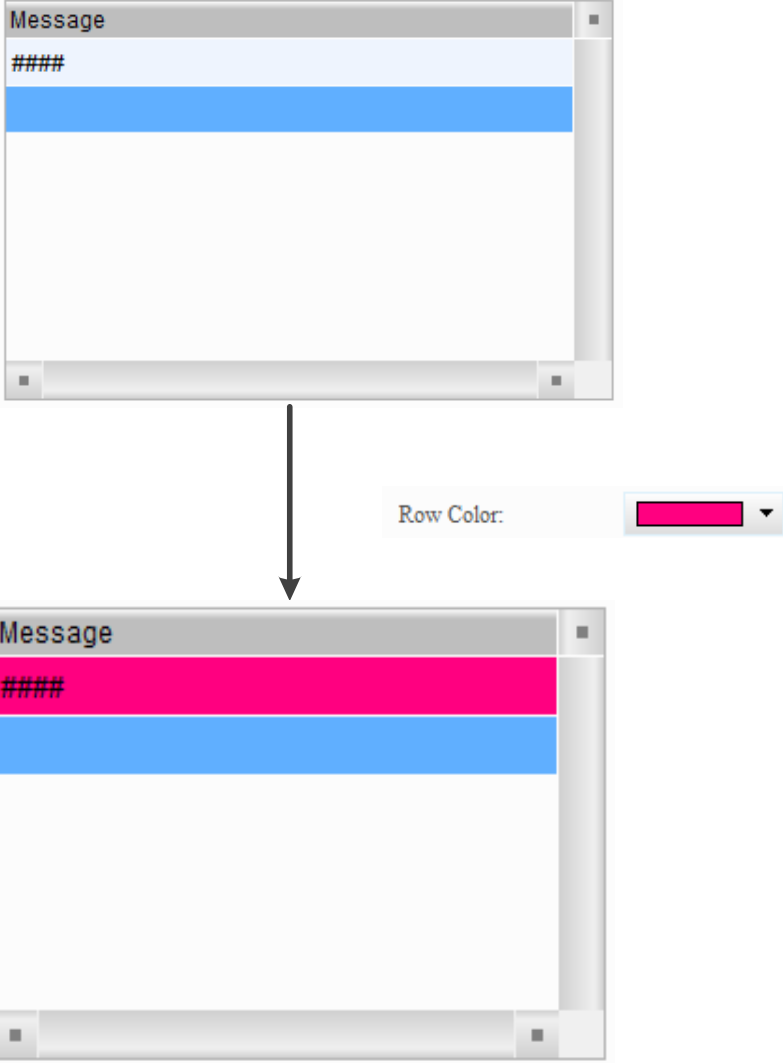
No.	Property	Function description
(1)	Background Color	<p>Set the Background Color of the element. The default is white.</p>  <p>The diagram illustrates the application of the 'Background Color' property. It shows a 'Message' window with a blue header bar and a white main area. An arrow points to a 'Background Color' color picker set to red. A second arrow points to the same 'Message' window, now with a red background.</p>


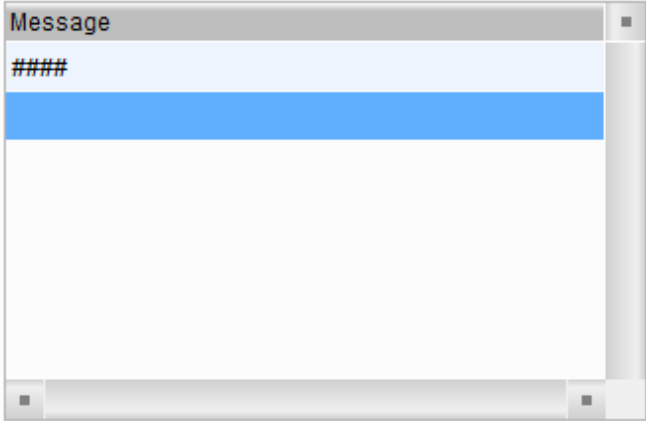

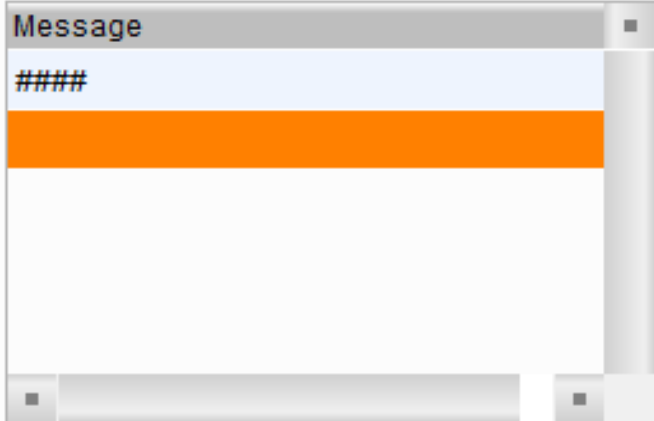
16

No.	Property	Function description
(2)	Border Color	<p>Set the Border Color of the element. The default is gray.</p>  <p>↓</p>  <p>↓</p> 

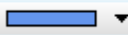
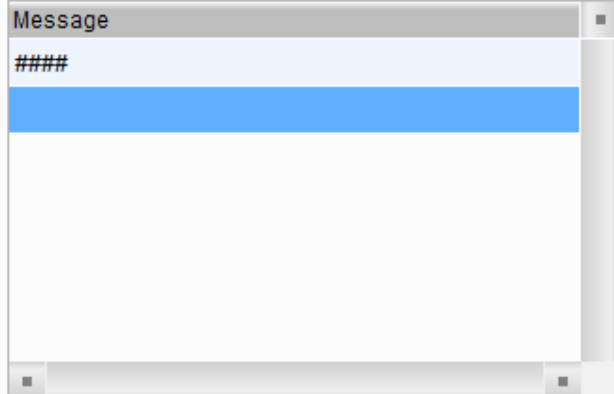

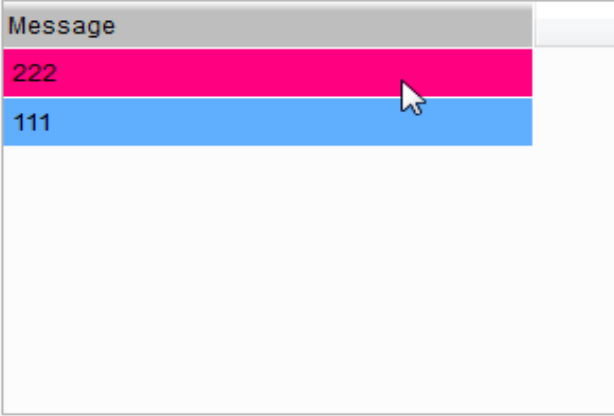
No.	Property	Function description
(3)	Gridline Color	<ul style="list-style-type: none">■ The Gridline Color setting is valid only when you select Yes for Show Gridlines.■ Set the Gridline Color of the element. The default is white.  <p style="text-align: center;">↓</p>  <p style="text-align: center;">↓</p> 

16

No.	Property	Function description
(4)	Row Color	<p>Set the color for each row of the alarm. The default is  .</p> 

No.	Property	Function description
(5)	Alternating Row Color	<p>Set the color for the alternating row of the alarm. The default is  .</p>  <p>↓</p> <p>Alternating Row Color </p> 

16

No.	Property	Function description
(6)	Selected Row Color	<ul style="list-style-type: none"> ■ The row color when you select an alarm history data. ■ Set the color of the selected row. The default is  . <div style="text-align: center; margin: 10px 0;">  </div> <div style="text-align: center; margin: 10px 0;">  </div> <div style="text-align: center; margin: 10px 0;">  </div>
(7)	Show Gridlines	<ul style="list-style-type: none"> ■ The default is Yes. ■ When you select No, the Gridline Color setting is invalid.

No.	Property	Function description																																																						
(8)	Enable group number filtering	<ul style="list-style-type: none"> ■ Select the Enable group number filtering check box to filter the alarms to be displayed. You can specify the group number to display the alarms in groups. ■ The value of the group number can be a variable or constant. ■ When the Group is 0, all alarms are displayed. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p style="margin: 0;">Detail</p> <p style="margin: 0;"><input checked="" type="checkbox"/> Enable group number filtering</p> <p style="margin: 0;"><input checked="" type="checkbox"/> Group number is variable</p> <p style="margin: 0;">Group <input style="width: 50px;" type="text" value="\$10"/> ...</p> <p style="margin: 0;">(0 : Show all)</p> </div> <ul style="list-style-type: none"> ■ Display example: <p style="margin-left: 20px;">When the Group is 0:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No</th> <th>Group</th> <th>Message</th> <th>Trigger</th> <th>Frequency</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td>0001</td> <td>1</td> <td>alarm 1</td> <td>14:23:18 06/15/</td> <td>1</td> <td></td> </tr> <tr style="background-color: #e0f0ff;"> <td>0002</td> <td>1</td> <td>alarm 2</td> <td>14:23:19 06/15/</td> <td>1</td> <td></td> </tr> <tr> <td>0003</td> <td>2</td> <td>alarm 3</td> <td>14:23:19 06/15/</td> <td>1</td> <td></td> </tr> <tr style="background-color: #e0f0ff;"> <td>0004</td> <td>3</td> <td>alarm 4</td> <td>14:23:20 06/15/</td> <td>1</td> <td></td> </tr> <tr> <td>0005</td> <td>5</td> <td>alarm 5</td> <td>14:23:20 06/15/</td> <td>1</td> <td></td> </tr> </tbody> </table> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 70%;"></div> <div style="width: 25%; text-align: right;"> <p>Alarm 1</p><p>Alarm 2</p><p>Alarm 3</p><p>Alarm 4</p><p>Alarm 5</p><p>Group Filter</p><p>0</p> </div> </div> <p style="margin-left: 20px;">When the Group is 1:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No</th> <th>Group</th> <th>Message</th> <th>Trigger</th> <th>Frequency</th> <th>Recovery</th> </tr> </thead> <tbody> <tr style="background-color: #e0f0ff;"> <td>0001</td> <td>1</td> <td>alarm 1</td> <td>14:23:18 06/15/</td> <td>1</td> <td></td> </tr> <tr style="background-color: #e0f0ff;"> <td>0002</td> <td>1</td> <td>alarm 2</td> <td>14:23:19 06/15/</td> <td>1</td> <td></td> </tr> </tbody> </table> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 70%;"></div> <div style="width: 25%; text-align: right;"> <p>Alarm 1</p><p>Alarm 2</p><p>Alarm 3</p><p>Alarm 4</p><p>Alarm 5</p><p>Group Filter</p><p>1</p> </div> </div>	No	Group	Message	Trigger	Frequency	Recovery	0001	1	alarm 1	14:23:18 06/15/	1		0002	1	alarm 2	14:23:19 06/15/	1		0003	2	alarm 3	14:23:19 06/15/	1		0004	3	alarm 4	14:23:20 06/15/	1		0005	5	alarm 5	14:23:20 06/15/	1		No	Group	Message	Trigger	Frequency	Recovery	0001	1	alarm 1	14:23:18 06/15/	1		0002	1	alarm 2	14:23:19 06/15/	1	
No	Group	Message	Trigger	Frequency	Recovery																																																			
0001	1	alarm 1	14:23:18 06/15/	1																																																				
0002	1	alarm 2	14:23:19 06/15/	1																																																				
0003	2	alarm 3	14:23:19 06/15/	1																																																				
0004	3	alarm 4	14:23:20 06/15/	1																																																				
0005	5	alarm 5	14:23:20 06/15/	1																																																				
No	Group	Message	Trigger	Frequency	Recovery																																																			
0001	1	alarm 1	14:23:18 06/15/	1																																																				
0002	1	alarm 2	14:23:19 06/15/	1																																																				

16

■ Main-2

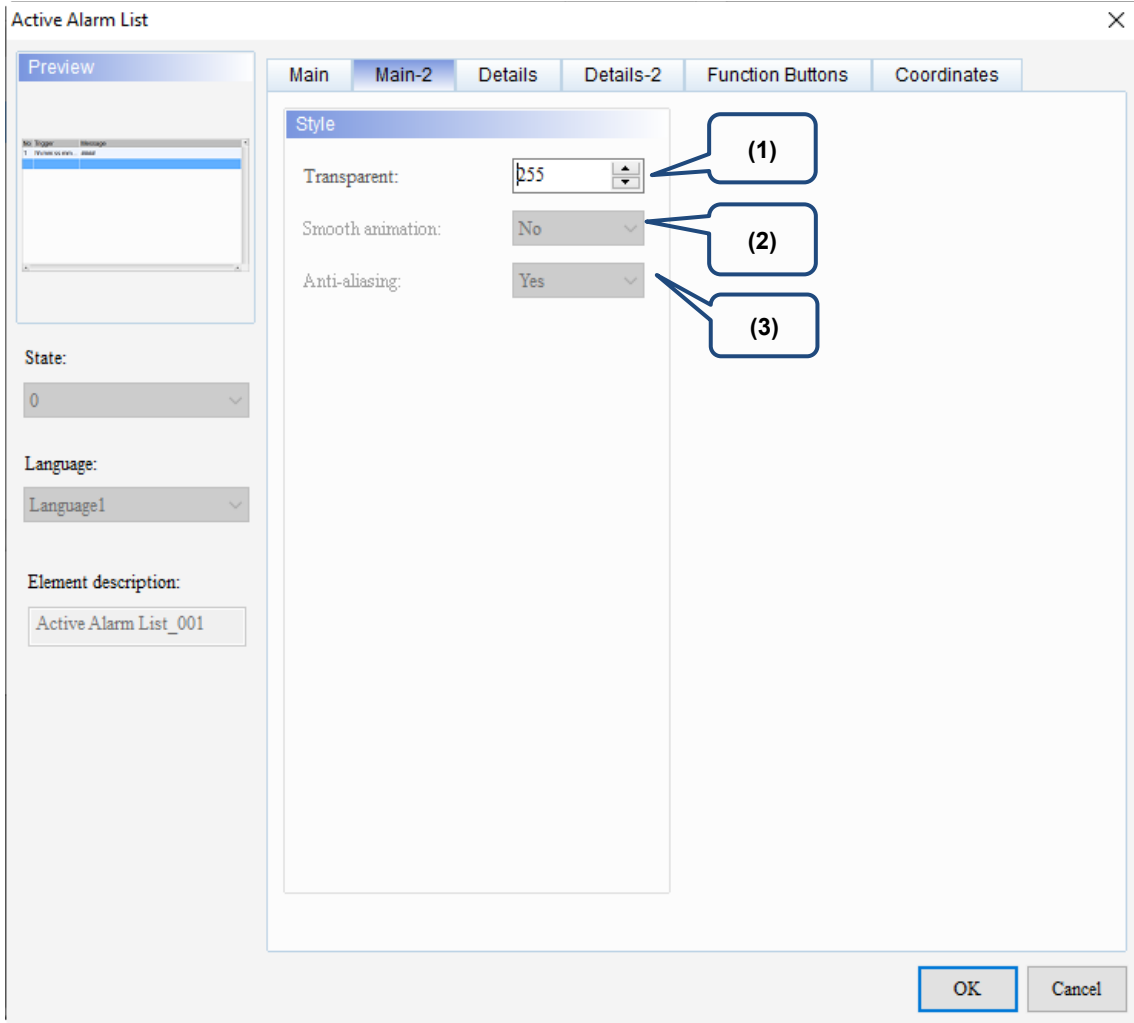
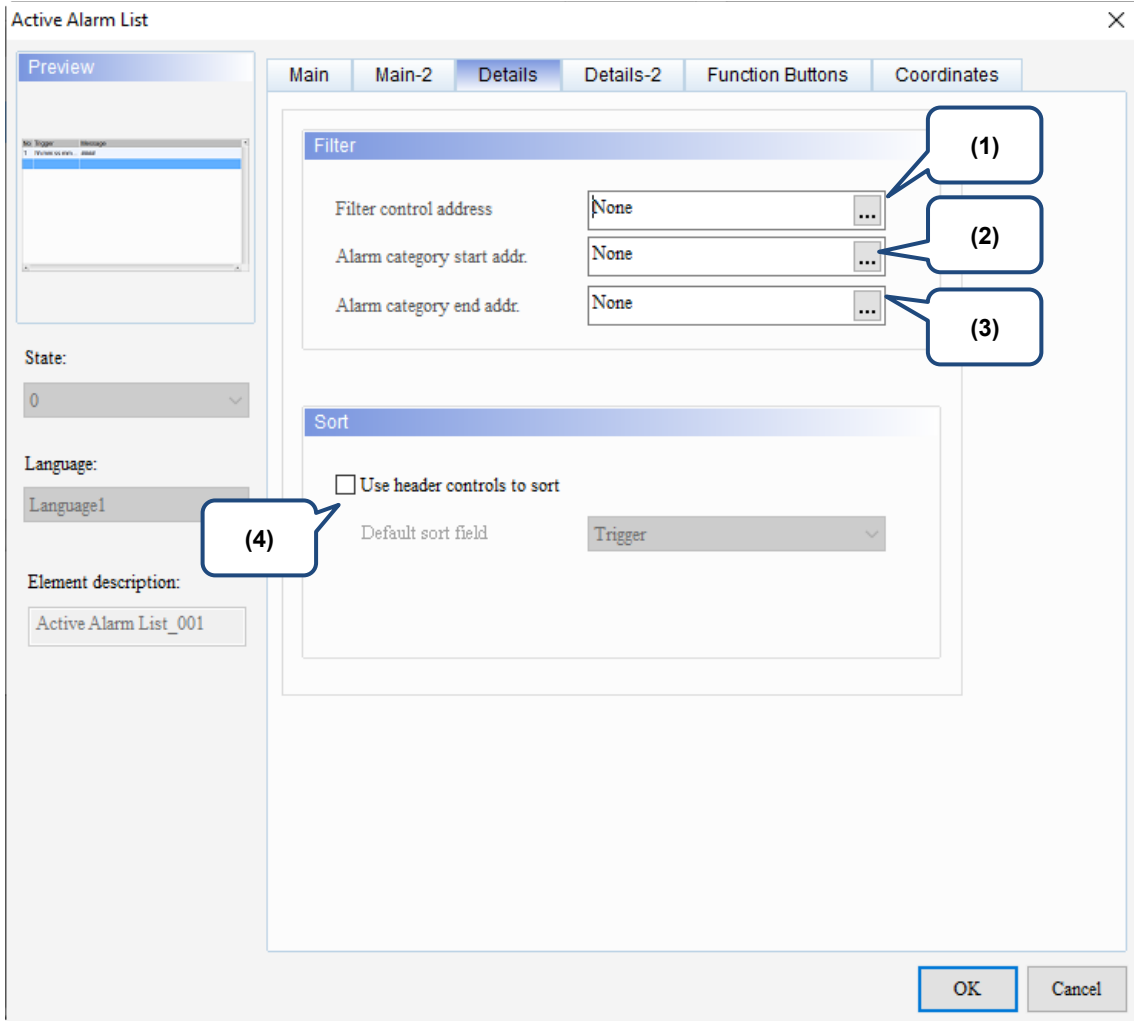


Figure 16.3.3 Main-2 property page for the Active Alarm List element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Details

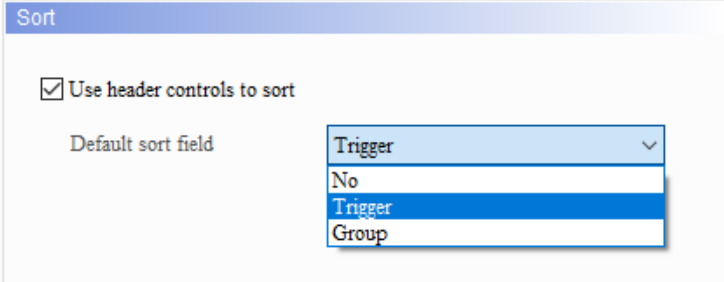
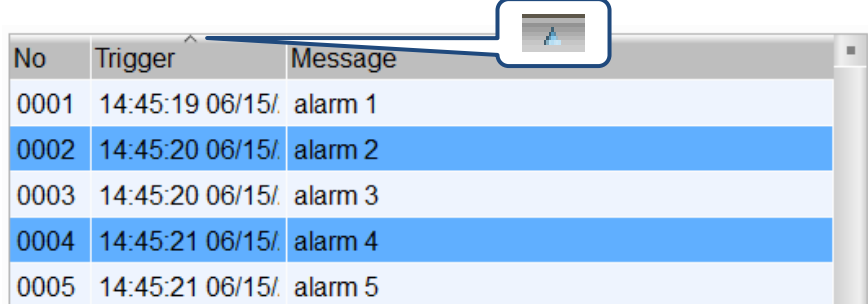


16

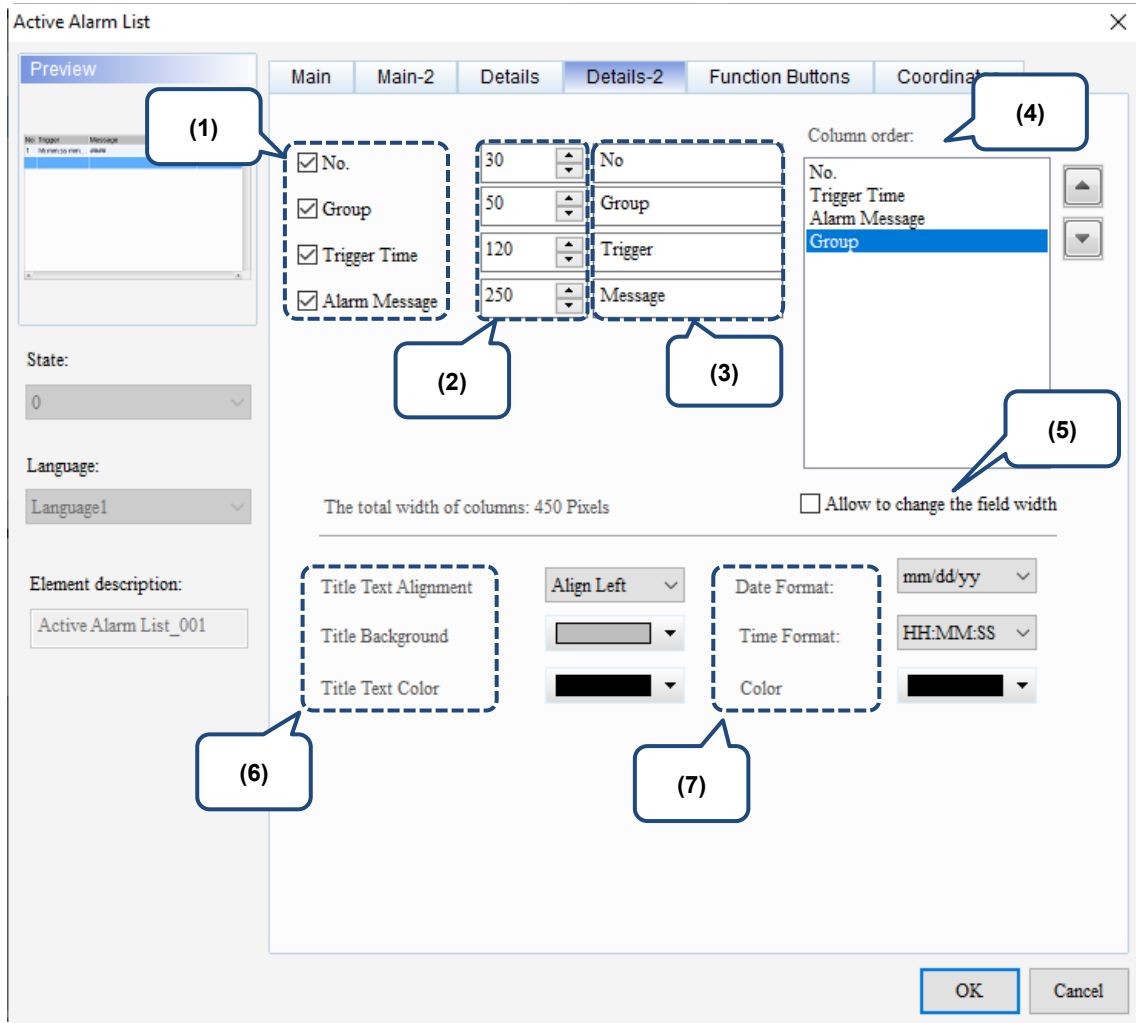
Figure 16.3.4 Details property page for the Active Alarm List element

No.	Property	Function description																
(1)	Filter control address	You can filter the specified items with Filter control address.																
		<table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Default; display all triggered alarms.</td> </tr> <tr> <td>1</td> <td>Hide the alarms with both Recovery Time and Acknowledge Time.</td> </tr> <tr> <td>2</td> <td>Hide the alarms with Recovery Time.</td> </tr> <tr> <td>3</td> <td>Hide the alarms with Recovery Time or Acknowledge Time.</td> </tr> <tr> <td>4</td> <td>Hide the alarms with Acknowledge Time.</td> </tr> <tr> <td>5</td> <td>This setting must be used with Alarm counter display. The alarm display count refers to the value of Alarm counter display. When the alarm display count is smaller than this value, the alarm is hidden.</td> </tr> <tr> <td>6</td> <td>This setting must be used with Alarm category start addr. and Alarm category end addr. When the alarm category number is not within the range set by these two addresses, the alarm is hidden.</td> </tr> </tbody> </table>	Value	Description	0	Default; display all triggered alarms.	1	Hide the alarms with both Recovery Time and Acknowledge Time.	2	Hide the alarms with Recovery Time.	3	Hide the alarms with Recovery Time or Acknowledge Time.	4	Hide the alarms with Acknowledge Time.	5	This setting must be used with Alarm counter display. The alarm display count refers to the value of Alarm counter display. When the alarm display count is smaller than this value, the alarm is hidden.	6	This setting must be used with Alarm category start addr. and Alarm category end addr. When the alarm category number is not within the range set by these two addresses, the alarm is hidden.
		Value	Description															
		0	Default; display all triggered alarms.															
		1	Hide the alarms with both Recovery Time and Acknowledge Time.															
		2	Hide the alarms with Recovery Time.															
		3	Hide the alarms with Recovery Time or Acknowledge Time.															
4	Hide the alarms with Acknowledge Time.																	
5	This setting must be used with Alarm counter display. The alarm display count refers to the value of Alarm counter display. When the alarm display count is smaller than this value, the alarm is hidden.																	
6	This setting must be used with Alarm category start addr. and Alarm category end addr. When the alarm category number is not within the range set by these two addresses, the alarm is hidden.																	

16



No.	Property	Function description				
(2)	Alarm category start addr.	<ul style="list-style-type: none"> ■ This setting must be used with Filter control address. ■ When Filter control address is set to 6, input the alarm category number. 				
(3)	Alarm category end addr.	<table border="1"> <thead> <tr> <th>Example</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Alarms with alarm category numbers 1 and 5</td> <td> When you input 1 to Alarm category start addr. and 3 to Alarm category end addr., the Alarm History Table displays the category 1 triggered alarms. When you input 1 to Alarm category start addr. and 5 to Alarm category end addr., the Alarm History Table displays the category 1 and 5 triggered alarms. </td> </tr> </tbody> </table>	Example	Description	Alarms with alarm category numbers 1 and 5	When you input 1 to Alarm category start addr. and 3 to Alarm category end addr., the Alarm History Table displays the category 1 triggered alarms. When you input 1 to Alarm category start addr. and 5 to Alarm category end addr., the Alarm History Table displays the category 1 and 5 triggered alarms.
Example	Description					
Alarms with alarm category numbers 1 and 5	When you input 1 to Alarm category start addr. and 3 to Alarm category end addr., the Alarm History Table displays the category 1 triggered alarms. When you input 1 to Alarm category start addr. and 5 to Alarm category end addr., the Alarm History Table displays the category 1 and 5 triggered alarms.					
(4)	Sorting control address	<p>Select the Use header controls to sort check box and set the Default sort field to the alarm number (No), alarm trigger time (Trigger), or alarm group (Group).</p>  				

■ Details-2



16

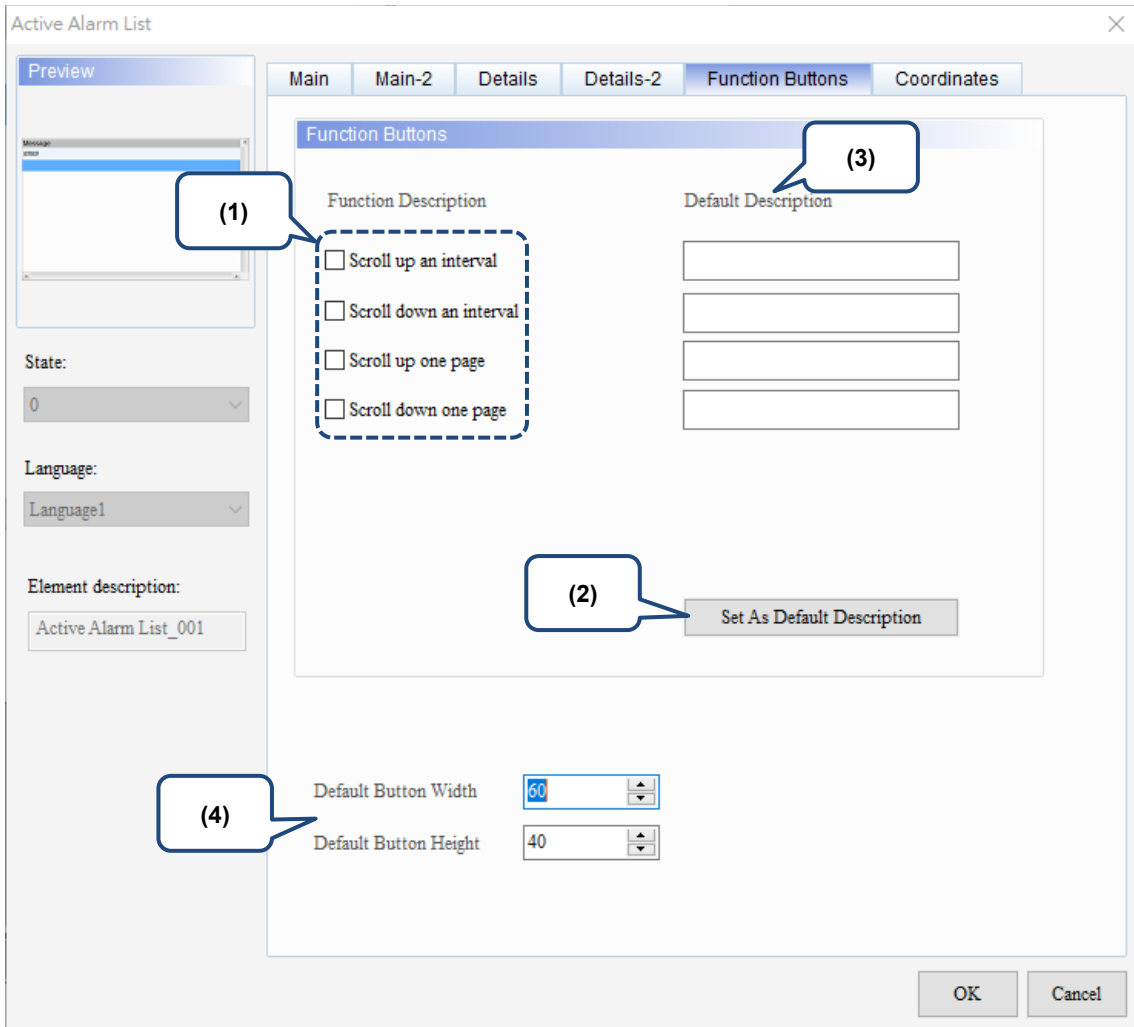
Figure 16.3.5 Details-2 property page for the Active Alarm List element

No.	Property	Function description
(1)	Column display	Select the columns you want to display in the element.
(2)	Column Width	You can adjust the width for each column.
(3)	Column title	You can define the titles for each column.
(4)	Column order	After selecting the columns you want to display, you can use  and  to adjust the column displaying order.
(5)	Allow to change the field width	After selecting this check box, you can drag to adjust the displaying field width on the HMI.

16

No.	Property	Function description							
(6)	Title	<p>Set the column title to align left, center, or right.</p> <table border="1"> <tr> <td rowspan="2">Align Left</td> <td>No</td> <td>Message</td> <td>Trigger</td> </tr> <tr> <td>1</td> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </table>	Align Left	No	Message	Trigger	1	####	hh:mm:ss mm/dd/yy
		Align Left		No	Message	Trigger			
			1	####	hh:mm:ss mm/dd/yy				
	<table border="1"> <tr> <td rowspan="2">Center</td> <td>No</td> <td>Message</td> <td>Trigger</td> </tr> <tr> <td>1</td> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </table>	Center	No	Message	Trigger	1	####	hh:mm:ss mm/dd/yy	
	Center		No	Message	Trigger				
		1	####	hh:mm:ss mm/dd/yy					
<table border="1"> <tr> <td rowspan="2">Align Right</td> <td>No</td> <td>Message</td> <td>Trigger</td> </tr> <tr> <td>1</td> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </table>	Align Right	No	Message	Trigger	1	####	hh:mm:ss mm/dd/yy		
Align Right		No	Message	Trigger					
	1	####	hh:mm:ss mm/dd/yy						
Title Background	<p>Set the background color of the column title.</p> <table border="1"> <tr> <td rowspan="2">Default</td> <td>No</td> <td>Message</td> <td>Trigger</td> </tr> <tr> <td>1</td> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </table>	Default	No	Message	Trigger	1	####	hh:mm:ss mm/dd/yy	
	Default		No	Message	Trigger				
1		####	hh:mm:ss mm/dd/yy						
<table border="1"> <tr> <td rowspan="2">After</td> <td>No</td> <td>Message</td> <td>Trigger</td> </tr> <tr> <td>1</td> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </table>	After	No	Message	Trigger	1	####	hh:mm:ss mm/dd/yy		
After		No	Message	Trigger					
	1	####	hh:mm:ss mm/dd/yy						
Title Text Color	<p>Set the text color of the column title.</p> <table border="1"> <tr> <td rowspan="2">Default</td> <td>No</td> <td>Message</td> <td>Trigger</td> </tr> <tr> <td>1</td> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </table>	Default	No	Message	Trigger	1	####	hh:mm:ss mm/dd/yy	
	Default		No	Message	Trigger				
1		####	hh:mm:ss mm/dd/yy						
<table border="1"> <tr> <td rowspan="2">After</td> <td>No</td> <td>Message</td> <td>Trigger</td> </tr> <tr> <td>1</td> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </table>	After	No	Message	Trigger	1	####	hh:mm:ss mm/dd/yy		
After		No	Message	Trigger					
	1	####	hh:mm:ss mm/dd/yy						
(7)	Date and time	<p>Select the display format for the date from the following options.</p> <p>Date Format: <input type="text" value="mm/dd/yy"/></p> <p>Time Format: <input type="text" value="dd/mm/yy"/></p> <p>Color: <input type="text" value="yy.mm.dd"/></p>							
		<p>Select the display format for the time from the following options.</p> <p>Time Format: <input type="text" value="HH:MM:SS"/></p> <p>Color: <input type="text" value="HH:MM"/></p>							
		<p>Set the display color for the date and time.</p> <table border="1"> <tr> <td rowspan="2">Default</td> <td>No</td> <td>Message</td> <td>Trigger</td> </tr> <tr> <td>1</td> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </table>	Default	No	Message	Trigger	1	####	hh:mm:ss mm/dd/yy
Default	No	Message		Trigger					
	1	####	hh:mm:ss mm/dd/yy						
<table border="1"> <tr> <td rowspan="2">After</td> <td>No</td> <td>Message</td> <td>Trigger</td> </tr> <tr> <td>1</td> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </table>	After	No	Message	Trigger	1	####	hh:mm:ss mm/dd/yy		
After		No	Message	Trigger					
	1	####	hh:mm:ss mm/dd/yy						

■ Function Buttons



16

Figure 16.3.6 Function Buttons property page for the Active Alarm List element

No.	Property	Function description	
(1)	Function Buttons	Description for function buttons are as follows:	
		Scroll up an interval	Scroll up an interval.
		Scroll down an interval	Scroll down an interval.
		Scroll up one page	Scroll up one page.
(2)	Set As Default Description	Press this button to insert the default strings to the Default Description fields.	
		Press Set As Default Description to insert the default strings to the fields. You can also enter user-defined strings.	
(3)	Default Description	Press Set As Default Description to insert the default strings to the fields. You can also enter user-defined strings.	
(4)	Default Button Width and Height	You can adjust the width and height of the function buttons.	

Coordinates

16

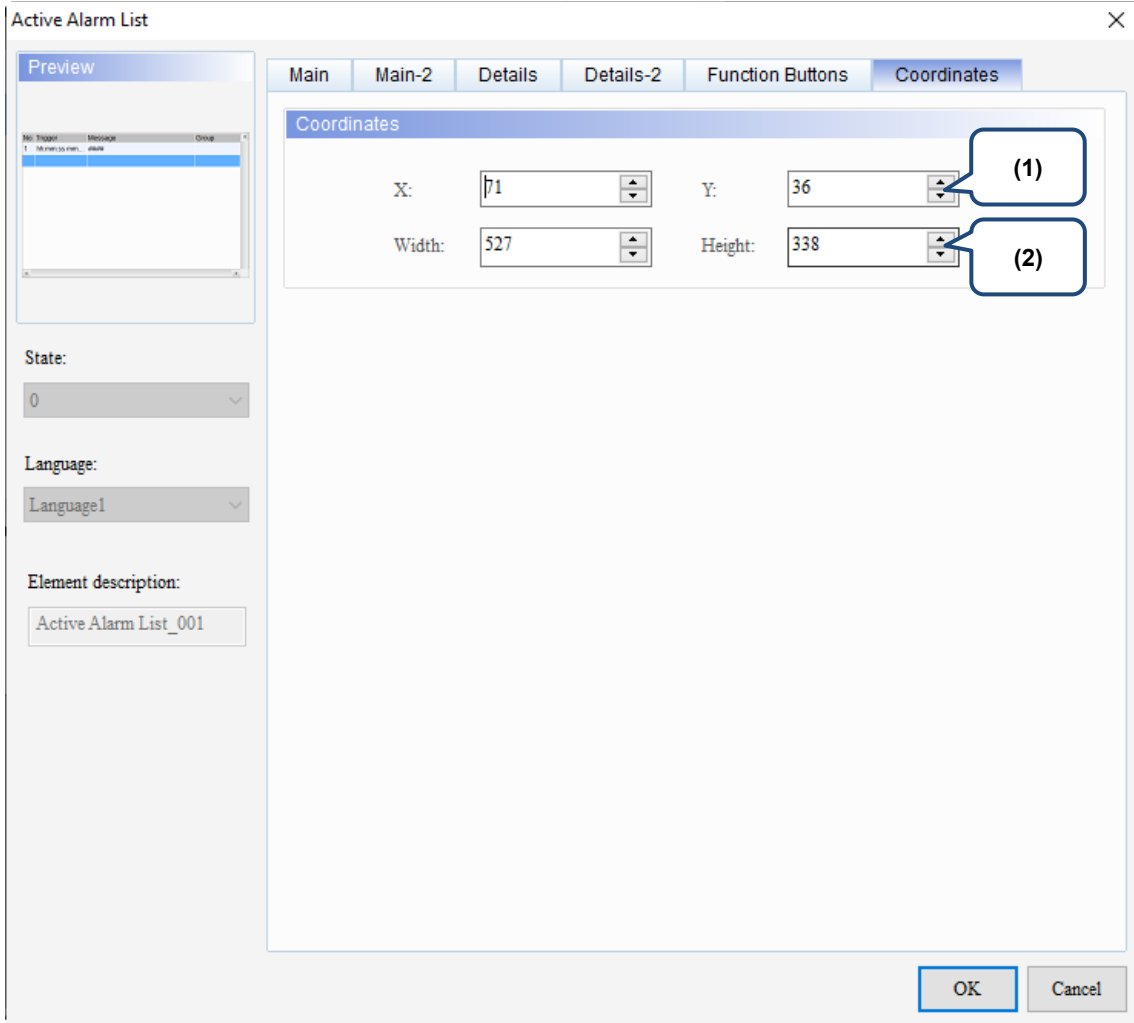


Figure 16.3.7 Coordinates property page for the Active Alarm List element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

16.4 Alarm Frequency Table

The Alarm Frequency Table element records and displays the occurrence times of each alarm. Refer to Table 16.4.1 for the Alarm Frequency Table example.

Table 16.4.1 Alarm Frequency Table example

Alarm Frequency Table

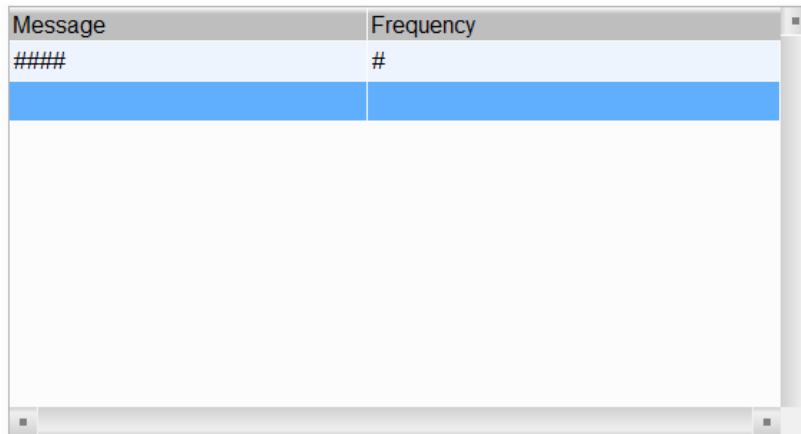
This example uses the alarm parameters in Table 16.1.1 Alarm Settings example.

No.	Message Content	Category	Type	Address	Trigger Condition	Monitor Address	Text Color	Alarm Screen
1*	Alarm 1 %d1 degree(s)	1	Bit	\$50.0	On	*	RGB(0, 0, 0)	2 - Screen_2
2*	Alarm 2 %d1 kilogram(s)	1	Bit	\$50.1	On	*	RGB(0, 0, 0)	None
3*	Alarm 3 %d1 gram(s)	1	Bit	\$50.2	On	*	RGB(0, 0, 0)	None
4*	Alarm 4 %d1 meter(s)	1	Bit	\$50.3	On	*	RGB(0, 0, 0)	None
5*	Alarm 5 %d1 inch(es)	1	Bit	\$50.4	On	*	RGB(0, 0, 0)	None
6*	Alarm 6	5	Word	\$100	\$100 = \$200	...	RGB(0, 0, 0)	2 - Screen_2
7*	Alarm 7	5	Word	\$110	\$110 < \$210	...	RGB(0, 0, 0)	None
8*	Alarm 8	5	Word	{Link2}1@D100	{Link2}1@D200 <= {Link2}1@D100	...	RGB(0, 0, 0)	None
9*	Alarm 9	5	Word	\$120	0 <= \$120 <= 10	...	RGB(0, 0, 0)	None
10*	Alarm 10	5	Word	{Link2}1@M16	{Link2}1@M16 >= 100	...	RGB(0, 0, 0)	None

16

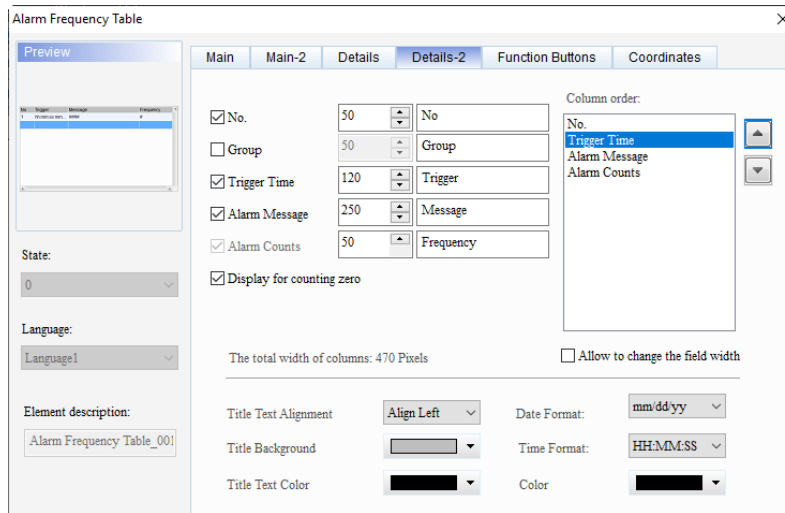
Alarm Frequency Table

Step 1: create an Alarm Frequency Table element.



Create Alarm Frequency Table element

Step 2: select the **No.** and **Trigger Time** check boxes. **Alarm Message**, **Alarm Counts**, and **Display for counting zero** are selected by default. Then, the Alarm Frequency Table will display the alarm number, alarm trigger time, alarm message, and will also record the occurrence times of each alarm.



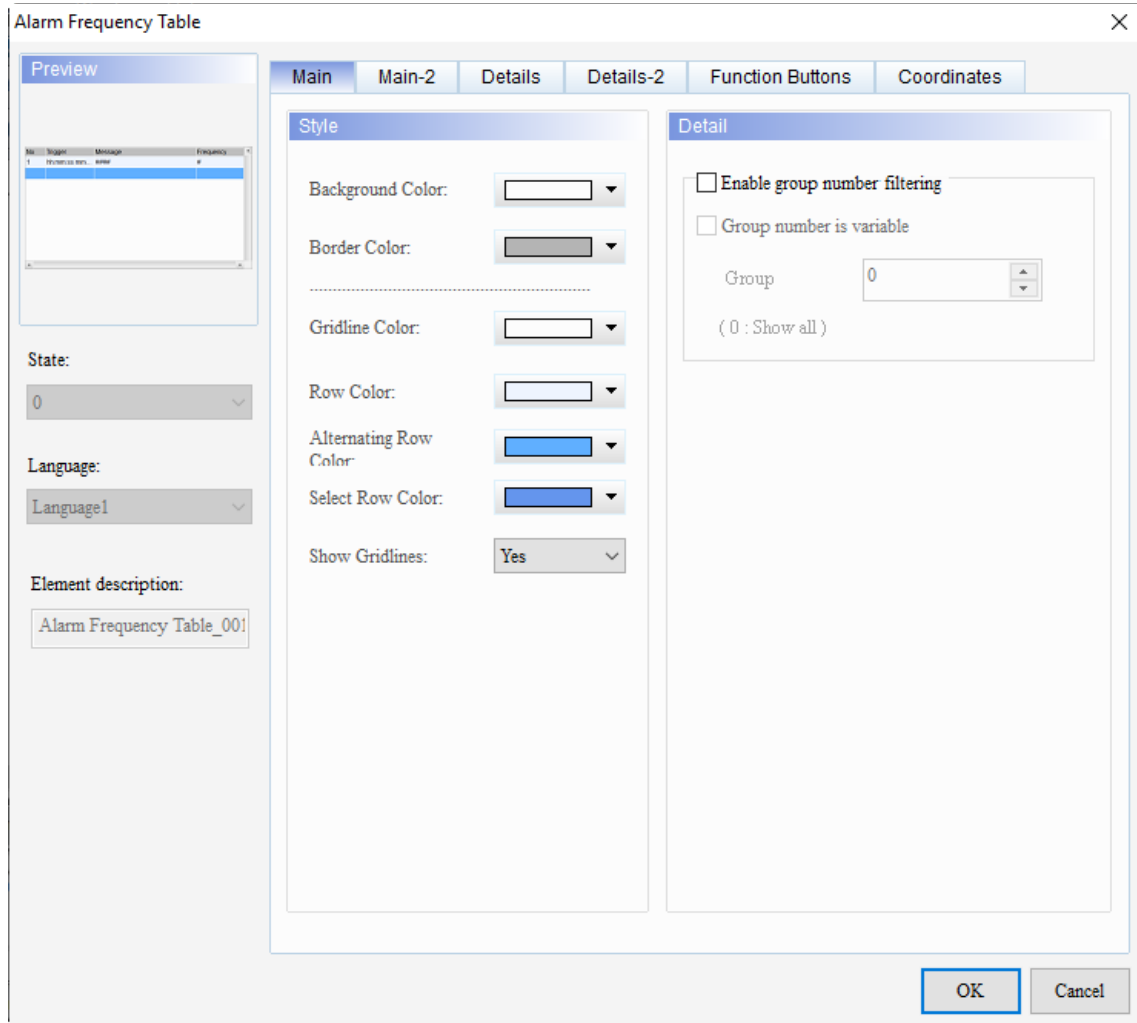
- After creating the Alarm Frequency Table element, compile and download it to the HMI. When the trigger conditions are met for Alarms 6 - 10, the Alarm Frequency Table shows the current alarm time and date, alarm No., alarm message, and alarm counts. When the **Display for counting zero** check box is selected, the Alarm Frequency Table displays Alarms 1 - 5 with the Frequency as 0 even though they are not triggered.
- After the alarm is cleared, the recorded alarm counts in the Alarm Frequency Table will not be cleared.

Execution results

No	Trigger	Message	Frequency
0001	00:00:00 00/00/0000	Alarm 1 %d1 degree(s)	0
0002	00:00:00 00/00/0000	Alarm 2 %d1 kilogram(s)	0
0003	00:00:00 00/00/0000	Alarm 3 %d1 gram(s)	0
0004	00:00:00 00/00/0000	Alarm 4 %d1 meter(s)	0
0005	00:00:00 00/00/0000	Alarm 5 %d1 inch(es)	0
0006	14:52:07 05/25/2018	Alarm 6	1

No	Trigger	Message	Frequency
0001	00:00:00 00/00/0000	Alarm 1 %d1 degree(s)	0
0002	00:00:00 00/00/0000	Alarm 2 %d1 kilogram(s)	0
0003	00:00:00 00/00/0000	Alarm 3 %d1 gram(s)	0
0004	00:00:00 00/00/0000	Alarm 4 %d1 meter(s)	0
0005	00:00:00 00/00/0000	Alarm 5 %d1 inch(es)	0
0006	14:52:07 05/25/2018	Alarm 6	1

When you double-click the Alarm Frequency Table, the property page is shown as follows.



16

Figure 16.4.1 Properties of Alarm Frequency Table

Table 16.4.2 Function page of Alarm Frequency Table

Alarm Frequency Table	
Function page	Description
Preview	The Alarm Frequency Table elements do not support multiple state values and multi-language data display.
Main	Style: set the Background Color, Border Color, Gridline Color, Row Color, Alternating Row Color, Select Row Color, and Show Gridlines of the elements. Detail: select the Enable group number filtering check box.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing.
Details	Set the Filter control address, Alarm category start addr., and Alarm category end addr. Select the Use header controls to sort check box and set the Default sort field.
Details-2	Set the displaying alarm columns, width, description, the order of the columns, and select the Allow to change the field width check box. Set the Title Text Alignment, Title Background, Title Text Color, and format / color of the date / time.
Function Buttons	Select the Scroll up an interval , Scroll down an interval , Scroll up one page , and Scroll down one page check boxes. Set the displaying texts and default width / height of the buttons.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

16

■ Main

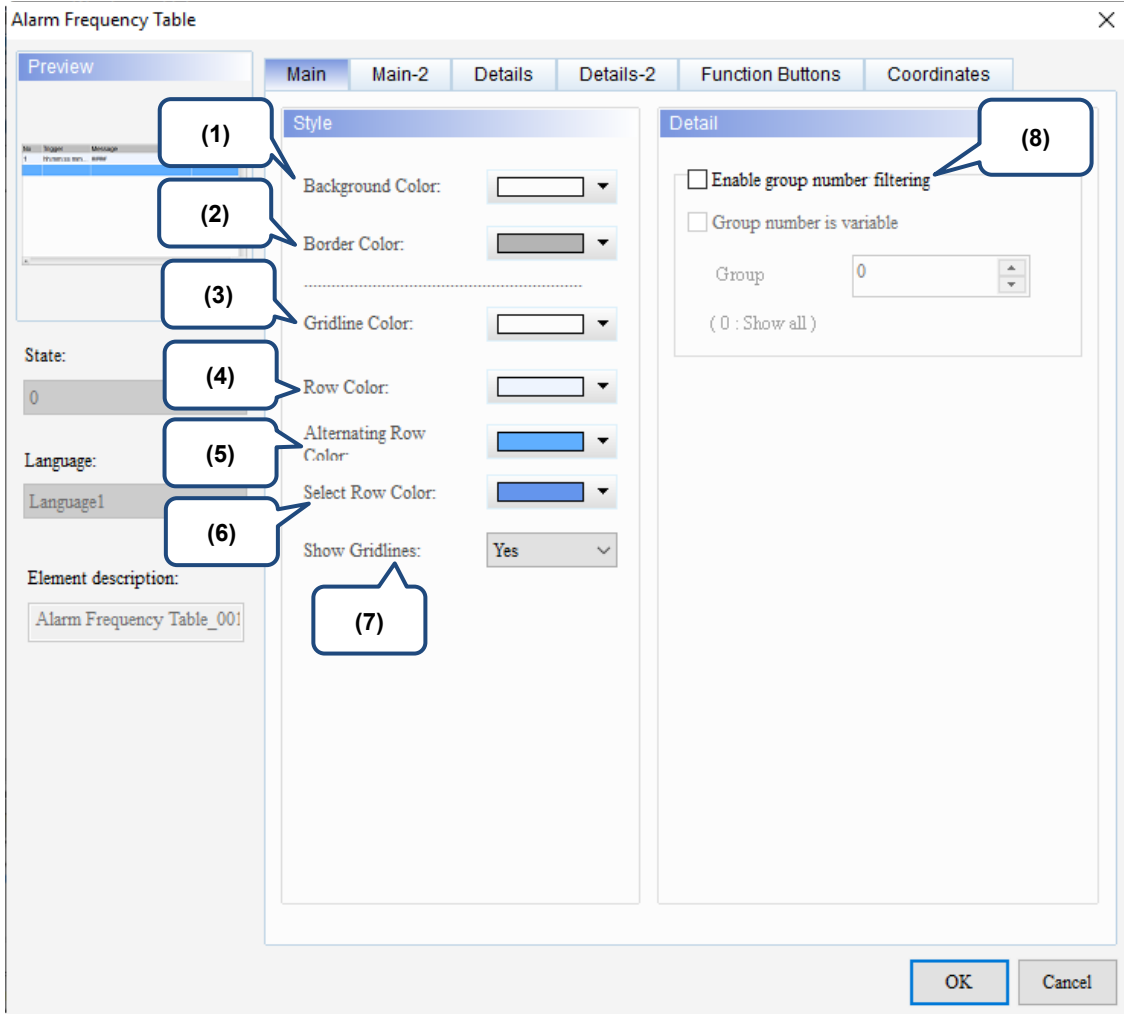
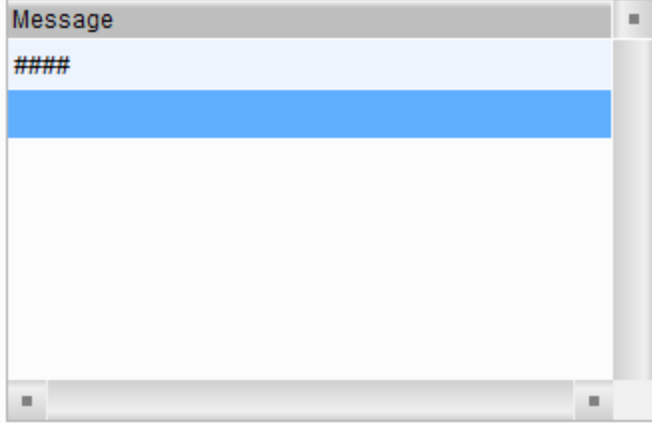


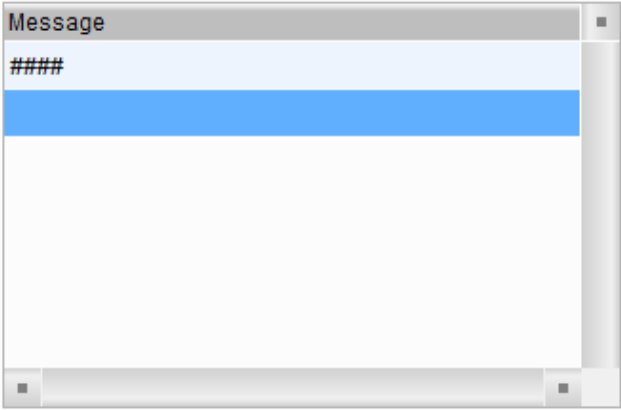

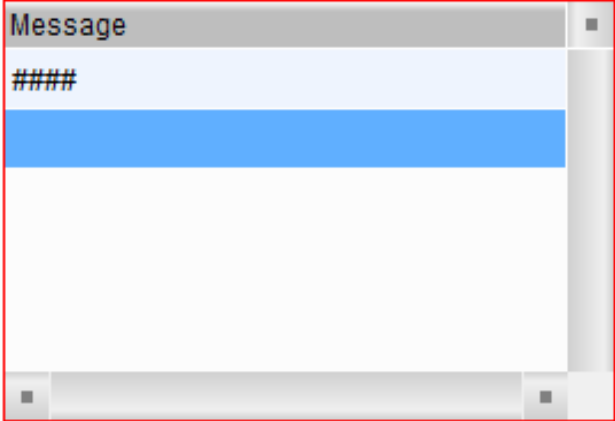
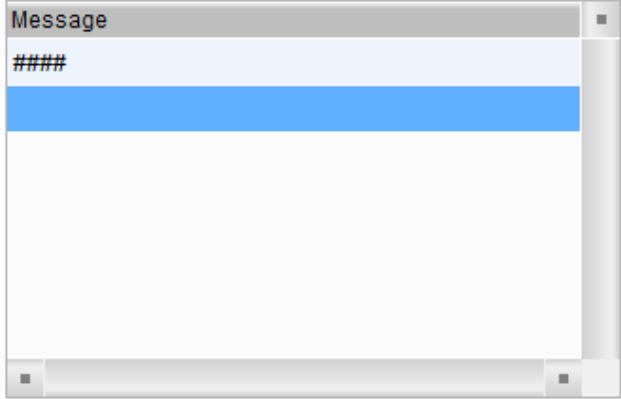
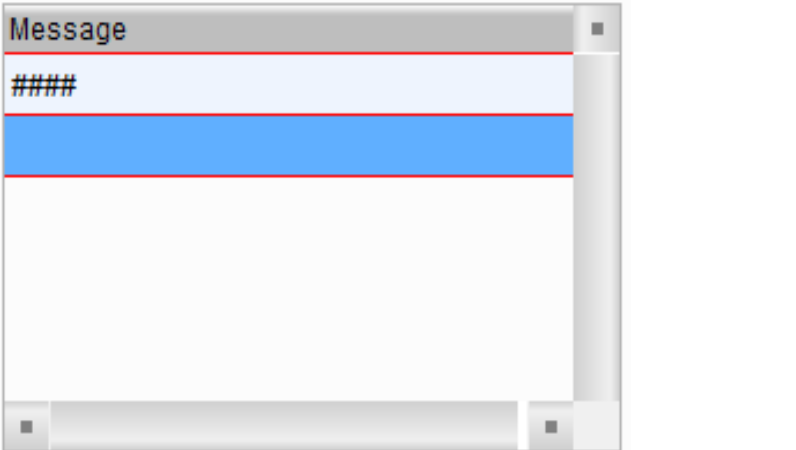


Figure 16.4.2 Main property page for the Alarm Frequency Table element


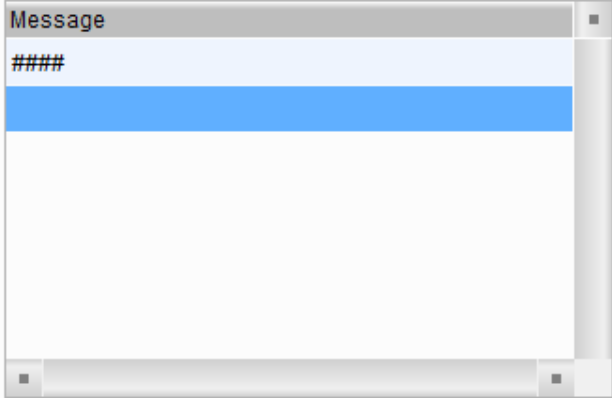

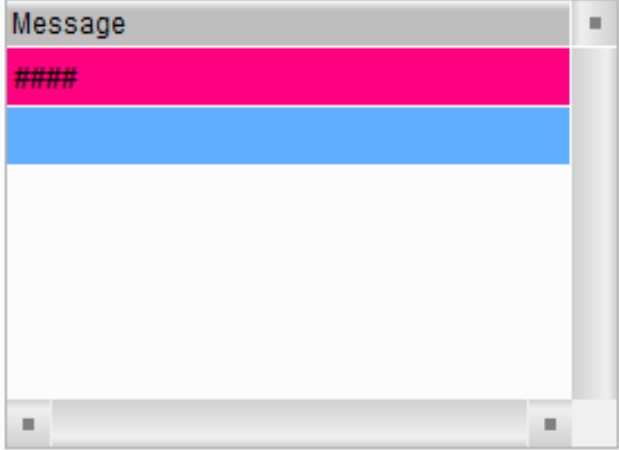
No.	Property	Function description
(1)	Background Color	<p>Set the Background Color of the element. The default is white.</p>  <p>Background Color: </p> 


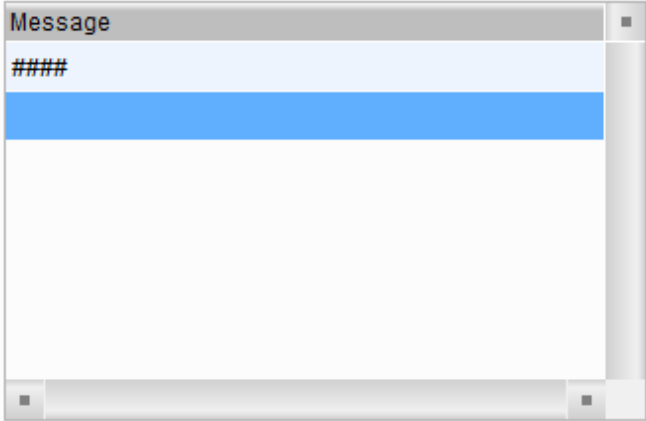

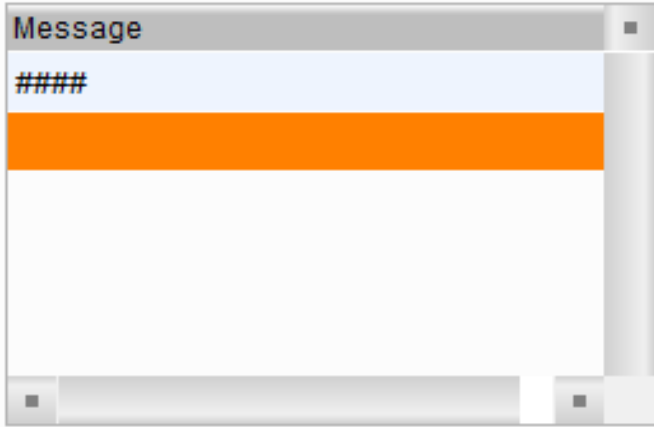
16

No.	Property	Function description
(2)	Border Color	<p>Set the Border Color of the element. The default is gray.</p>  <p>↓</p>  <p>↓</p> 


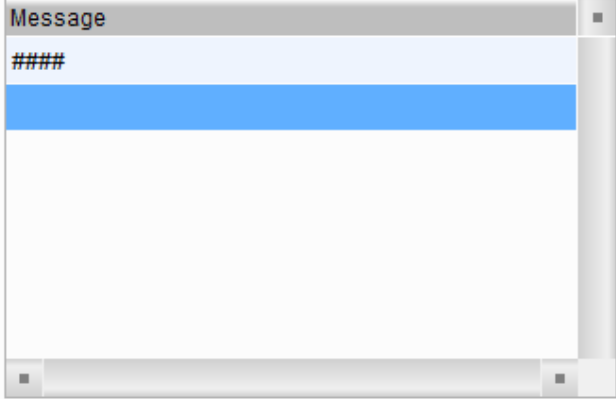
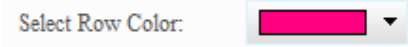
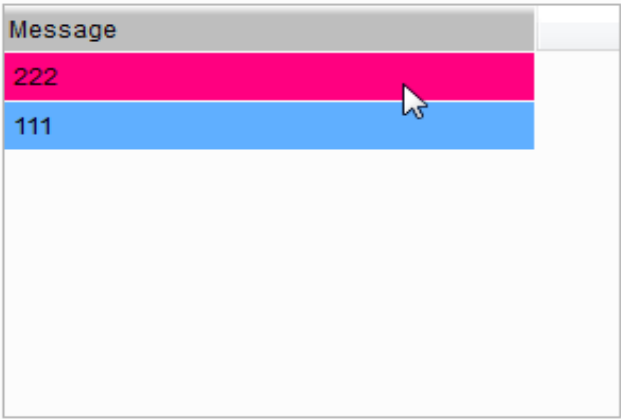
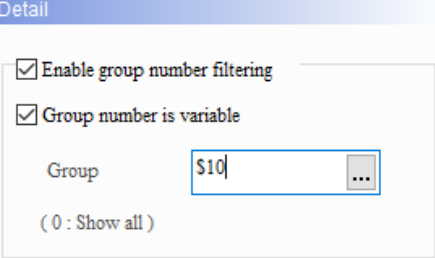
No.	Property	Function description
(3)	Gridline Color	<ul style="list-style-type: none"> ■ The Gridline Color setting is valid only when you select Yes for Show Gridlines. ■ Set the Gridline Color of the element. The default is white.  <p style="text-align: center;">↓</p> 

16

No.	Property	Function description
(4)	Row Color	<p>Set the color for each row of the alarm. The default is  .</p>  <p>↓</p> <p></p> 

No.	Property	Function description
(5)	Alternating Row Color	<p>Set the color for the alternating row of the alarm. The default is  .</p>  <p>↓</p>  <p>↓</p> 

16

No.	Property	Function description
(6)	Selected Row Color	<ul style="list-style-type: none"> The row color when you select an alarm history data. Set the color of the selected row. The default is .  <p style="text-align: center;">↓</p>  
(7)	Show Gridlines	<ul style="list-style-type: none"> The default is Yes. When you select No, the Gridline Color setting is invalid.
(8)	Enable group number filtering	<ul style="list-style-type: none"> Select the Enable group number filtering check box to filter the alarms to be displayed. You can specify the group number to display the alarms in groups. The value of the group number can be a variable or constant. When the Group is 0, all alarms are displayed. 

No.	Property	Function description																																																						
(8)	Enable group number filtering	<p>■ Display example:</p> <p>When the Group is 0:</p> <table border="1"> <thead> <tr> <th>No</th> <th>Group</th> <th>Message</th> <th>Trigger</th> <th>Frequency</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td>0001</td> <td>1</td> <td>alarm 1</td> <td>14:23:18 06/15/</td> <td>1</td> <td></td> </tr> <tr> <td>0002</td> <td>1</td> <td>alarm 2</td> <td>14:23:19 06/15/</td> <td>1</td> <td></td> </tr> <tr> <td>0003</td> <td>2</td> <td>alarm 3</td> <td>14:23:19 06/15/</td> <td>1</td> <td></td> </tr> <tr> <td>0004</td> <td>3</td> <td>alarm 4</td> <td>14:23:20 06/15/</td> <td>1</td> <td></td> </tr> <tr> <td>0005</td> <td>5</td> <td>alarm 5</td> <td>14:23:20 06/15/</td> <td>1</td> <td></td> </tr> </tbody> </table> <p>When the Group is 1:</p> <table border="1"> <thead> <tr> <th>No</th> <th>Group</th> <th>Message</th> <th>Trigger</th> <th>Frequency</th> <th>Recovery</th> </tr> </thead> <tbody> <tr> <td>0001</td> <td>1</td> <td>alarm 1</td> <td>14:23:18 06/15/</td> <td>1</td> <td></td> </tr> <tr> <td>0002</td> <td>1</td> <td>alarm 2</td> <td>14:23:19 06/15/</td> <td>1</td> <td></td> </tr> </tbody> </table>	No	Group	Message	Trigger	Frequency	Recovery	0001	1	alarm 1	14:23:18 06/15/	1		0002	1	alarm 2	14:23:19 06/15/	1		0003	2	alarm 3	14:23:19 06/15/	1		0004	3	alarm 4	14:23:20 06/15/	1		0005	5	alarm 5	14:23:20 06/15/	1		No	Group	Message	Trigger	Frequency	Recovery	0001	1	alarm 1	14:23:18 06/15/	1		0002	1	alarm 2	14:23:19 06/15/	1	
		No	Group	Message	Trigger	Frequency	Recovery																																																	
0001	1	alarm 1	14:23:18 06/15/	1																																																				
0002	1	alarm 2	14:23:19 06/15/	1																																																				
0003	2	alarm 3	14:23:19 06/15/	1																																																				
0004	3	alarm 4	14:23:20 06/15/	1																																																				
0005	5	alarm 5	14:23:20 06/15/	1																																																				
No	Group	Message	Trigger	Frequency	Recovery																																																			
0001	1	alarm 1	14:23:18 06/15/	1																																																				
0002	1	alarm 2	14:23:19 06/15/	1																																																				

Alarm 1

Alarm 2

Alarm 3

Alarm 4

Alarm 5

Group Filter

0

Alarm 1

Alarm 2

Alarm 3

Alarm 4

Alarm 5

Group Filter

1

■ Main-2

16

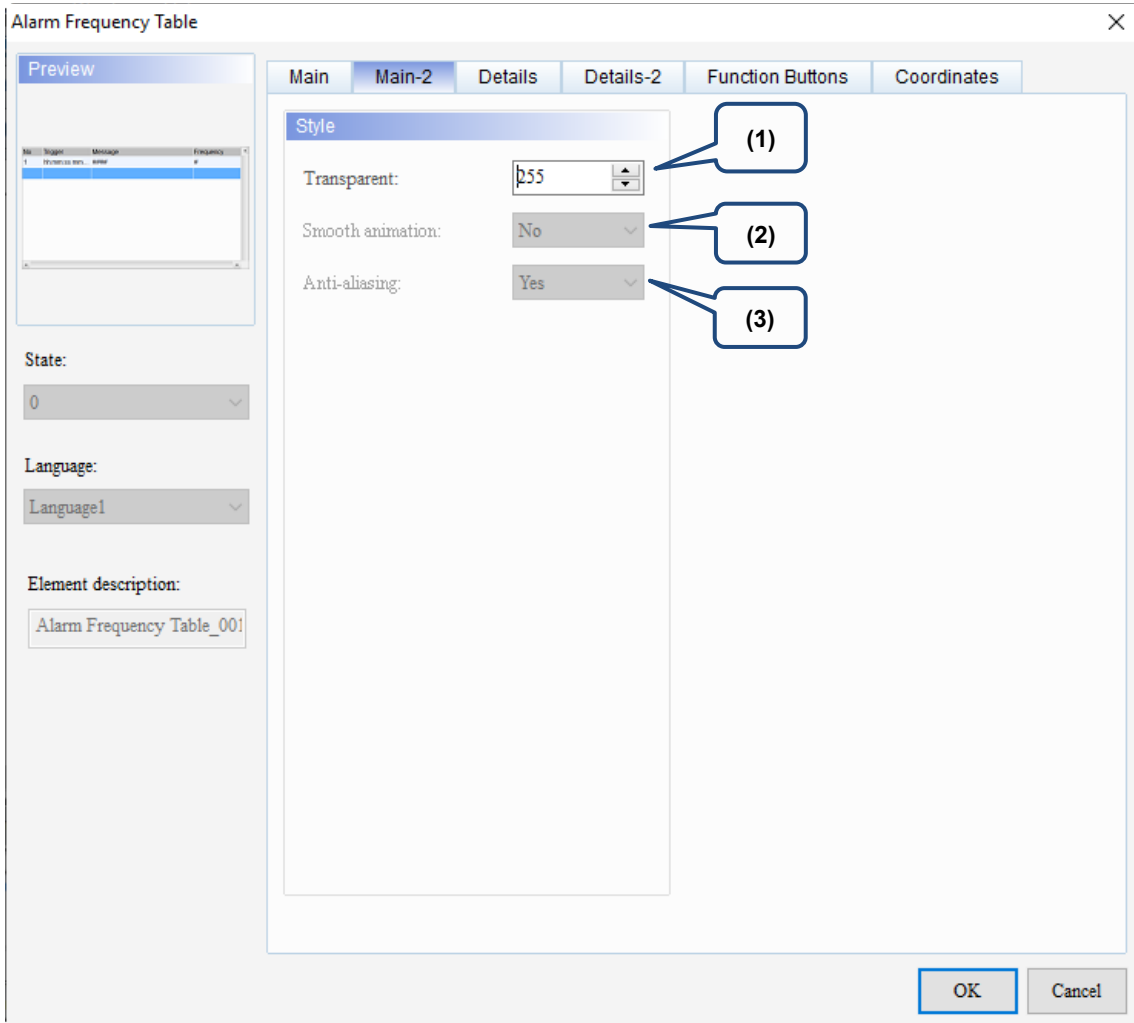
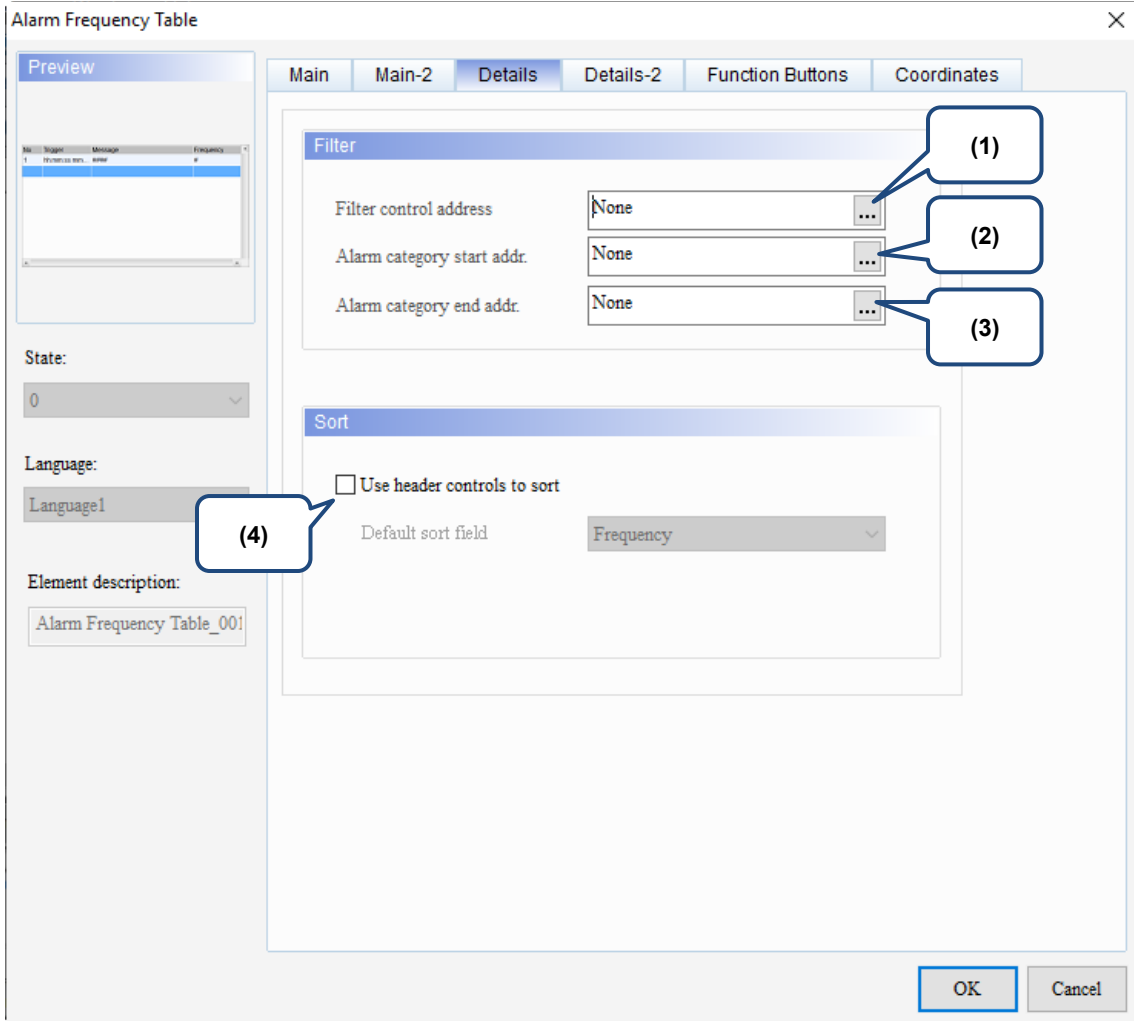


Figure 16.4.3 Main-2 property page for the Alarm Frequency Table element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Details

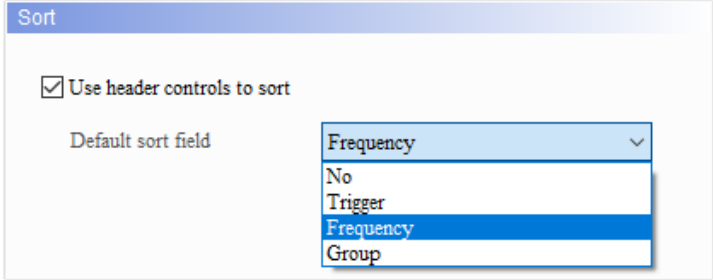


16

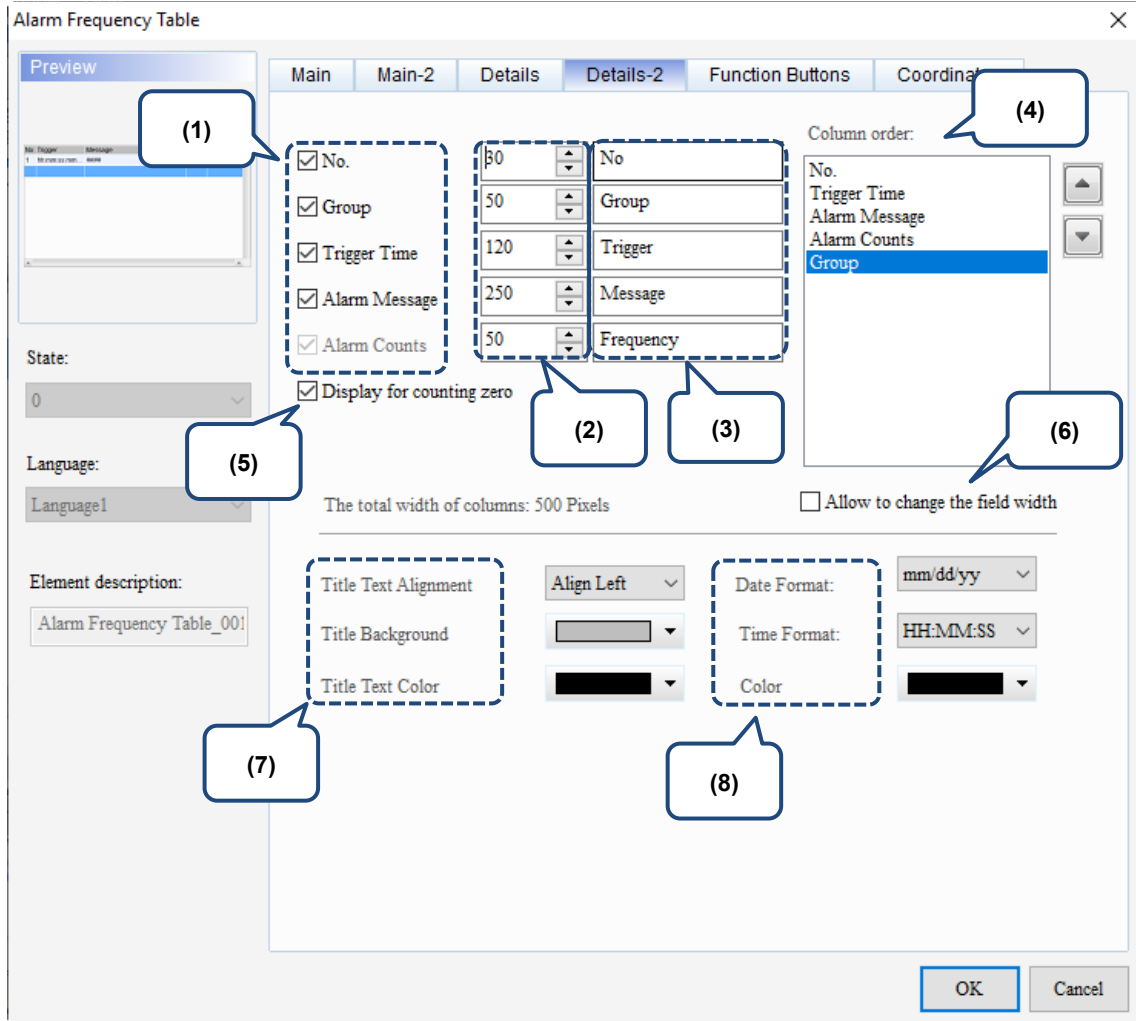
Figure 16.4.4 Details property page for the Alarm Frequency Table element

No.	Property	Function description																
(1)	Filter control address	You can filter the specified items with Filter control address.																
		<table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Default; display all triggered alarms.</td> </tr> <tr> <td>1</td> <td>Hide the alarms with both Recovery Time and Acknowledge Time.</td> </tr> <tr> <td>2</td> <td>Hide the alarms with Recovery Time.</td> </tr> <tr> <td>3</td> <td>Hide the alarms with Recovery Time or Acknowledge Time.</td> </tr> <tr> <td>4</td> <td>Hide the alarms with Acknowledge Time.</td> </tr> <tr> <td>5</td> <td>This setting must be used with Alarm counter display. The alarm display count refers to the value of Alarm counter display. When the alarm display count is smaller than this value, the alarm is hidden.</td> </tr> <tr> <td>6</td> <td>This setting must be used with Alarm category start addr. and Alarm category end addr. When the alarm category number is not within the range set by these two addresses, the alarm is hidden.</td> </tr> </tbody> </table>	Value	Description	0	Default; display all triggered alarms.	1	Hide the alarms with both Recovery Time and Acknowledge Time.	2	Hide the alarms with Recovery Time.	3	Hide the alarms with Recovery Time or Acknowledge Time.	4	Hide the alarms with Acknowledge Time.	5	This setting must be used with Alarm counter display. The alarm display count refers to the value of Alarm counter display. When the alarm display count is smaller than this value, the alarm is hidden.	6	This setting must be used with Alarm category start addr. and Alarm category end addr. When the alarm category number is not within the range set by these two addresses, the alarm is hidden.
		Value	Description															
		0	Default; display all triggered alarms.															
		1	Hide the alarms with both Recovery Time and Acknowledge Time.															
		2	Hide the alarms with Recovery Time.															
		3	Hide the alarms with Recovery Time or Acknowledge Time.															
4	Hide the alarms with Acknowledge Time.																	
5	This setting must be used with Alarm counter display. The alarm display count refers to the value of Alarm counter display. When the alarm display count is smaller than this value, the alarm is hidden.																	
6	This setting must be used with Alarm category start addr. and Alarm category end addr. When the alarm category number is not within the range set by these two addresses, the alarm is hidden.																	

16



No.	Property	Function description																								
(2)	Alarm category start addr.	<ul style="list-style-type: none"> This setting must be used with Filter control address. When Filter control address is set to 6, input the alarm category number. <table border="1"> <thead> <tr> <th>Example</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Alarms with alarm category numbers 1 and 5</td> <td>When you input 1 to Alarm category start addr. and 3 to Alarm category end addr., the Alarm History Table displays the category 1 triggered alarms.</td> </tr> <tr> <td></td> <td>When you input 1 to Alarm category start addr. and 5 to Alarm category end addr., the Alarm History Table displays the category 1 and 5 triggered alarms.</td> </tr> </tbody> </table>	Example	Description	Alarms with alarm category numbers 1 and 5	When you input 1 to Alarm category start addr. and 3 to Alarm category end addr., the Alarm History Table displays the category 1 triggered alarms.		When you input 1 to Alarm category start addr. and 5 to Alarm category end addr., the Alarm History Table displays the category 1 and 5 triggered alarms.																		
Example	Description																									
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	When you input 1 to Alarm category start addr. and 5 to Alarm category end addr., the Alarm History Table displays the category 1 and 5 triggered alarms.																									
(3)	Alarm category end addr.																									
(4)	Sorting control address	<p>Select the Use header controls to sort check box and set the Default sort field to the alarm number (No), alarm trigger time (Trigger), alarm count (Frequency), or alarm group (Group).</p>  <table border="1"> <thead> <tr> <th>No</th> <th>Trigger</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>0005</td> <td>00:00:00 00/00/</td> <td>alarm 5</td> <td>0</td> </tr> <tr> <td>0001</td> <td>14:51:25 06/15/</td> <td>alarm 1</td> <td>1</td> </tr> <tr> <td>0002</td> <td>14:51:26 06/15/</td> <td>alarm 2</td> <td>1</td> </tr> <tr> <td>0003</td> <td>14:51:28 06/15/</td> <td>alarm 3</td> <td>1</td> </tr> <tr> <td>0004</td> <td>14:51:29 06/15/</td> <td>alarm 4</td> <td>1</td> </tr> </tbody> </table>	No	Trigger	Message	Frequency	0005	00:00:00 00/00/	alarm 5	0	0001	14:51:25 06/15/	alarm 1	1	0002	14:51:26 06/15/	alarm 2	1	0003	14:51:28 06/15/	alarm 3	1	0004	14:51:29 06/15/	alarm 4	1
No	Trigger	Message	Frequency																							
0005	00:00:00 00/00/	alarm 5	0																							
0001	14:51:25 06/15/	alarm 1	1																							
0002	14:51:26 06/15/	alarm 2	1																							
0003	14:51:28 06/15/	alarm 3	1																							
0004	14:51:29 06/15/	alarm 4	1																							

■ Details-2



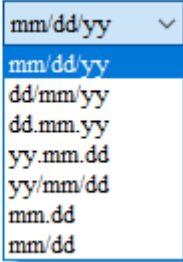
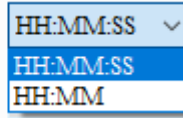
16

Figure 16.4.5 Details-2 property page for the Alarm Frequency Table element

No.	Property	Function description
(1)	Column display	Select the columns you want to display in the element.
(2)	Column Width	You can adjust the width for each column.
(3)	Column title	You can define the titles for each column.
(4)	Column order	After selecting the columns you want to display, you can use  and  to adjust the column displaying order.

16

No.	Property	Function description																																																				
(5)	Display for counting zero	<p>If the check box of this option is selected, 0 is displayed on the Alarm Frequency Table when the alarm is not triggered; otherwise, the alarm message is not displayed when the occurrence time of the alarm is zero.</p> <table border="1"> <thead> <tr> <th>No</th> <th>Trigger</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>0001</td> <td>00:00:00 00/00/0000</td> <td>Alarm 1 %d1 degree(s)</td> <td>0</td> </tr> <tr> <td>0002</td> <td>00:00:00 00/00/0000</td> <td>Alarm 2 %d1 kilogram(s)</td> <td>0</td> </tr> <tr> <td>0003</td> <td>00:00:00 00/00/0000</td> <td>Alarm 3 %d1 gram(s)</td> <td>0</td> </tr> <tr> <td>0004</td> <td>00:00:00 00/00/0000</td> <td>Alarm 4 %d1 meter(s)</td> <td>0</td> </tr> <tr> <td>0005</td> <td>00:00:00 00/00/0000</td> <td>Alarm 5 %d1 inch(es)</td> <td>0</td> </tr> <tr> <td>0006</td> <td>14:53:32 05/25/2018</td> <td>Alarm 6</td> <td>2</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>No</th> <th>Trigger</th> <th>Message</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>0006</td> <td>15:03:44 05/25/2018</td> <td>Alarm 6</td> <td>1</td> </tr> <tr> <td>0007</td> <td>15:03:44 05/25/2018</td> <td>Alarm 7</td> <td>1</td> </tr> <tr> <td>0008</td> <td>15:03:44 05/25/2018</td> <td>Alarm 8</td> <td>1</td> </tr> <tr> <td>0009</td> <td>15:03:44 05/25/2018</td> <td>Alarm 9</td> <td>1</td> </tr> <tr> <td>0010</td> <td>15:03:44 05/25/2018</td> <td>Alarm 10</td> <td>1</td> </tr> </tbody> </table>	No	Trigger	Message	Frequency	0001	00:00:00 00/00/0000	Alarm 1 %d1 degree(s)	0	0002	00:00:00 00/00/0000	Alarm 2 %d1 kilogram(s)	0	0003	00:00:00 00/00/0000	Alarm 3 %d1 gram(s)	0	0004	00:00:00 00/00/0000	Alarm 4 %d1 meter(s)	0	0005	00:00:00 00/00/0000	Alarm 5 %d1 inch(es)	0	0006	14:53:32 05/25/2018	Alarm 6	2	No	Trigger	Message	Frequency	0006	15:03:44 05/25/2018	Alarm 6	1	0007	15:03:44 05/25/2018	Alarm 7	1	0008	15:03:44 05/25/2018	Alarm 8	1	0009	15:03:44 05/25/2018	Alarm 9	1	0010	15:03:44 05/25/2018	Alarm 10	1
No	Trigger	Message	Frequency																																																			
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0009	15:03:44 05/25/2018	Alarm 9	1																																																			
0010	15:03:44 05/25/2018	Alarm 10	1																																																			
(6)	Allow to change the field width	After selecting the check box of this option, you can drag to adjust the displaying field width on the HMI.																																																				
(7)	Title	<p>Set the column title to align left, center, or right.</p> <table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Trigger</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </tbody> </table>	No	Message	Trigger	1	####	hh:mm:ss mm/dd/yy																																														
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1	####	hh:mm:ss mm/dd/yy																																																				

No.	Property	Function description								
(8)	Date and time	Date Format	<p>Select the display format for the date from the following options.</p> <p>Date Format: </p>							
		Time Format	<p>Select the display format for the time from the following options.</p> <p>Time Format: </p>							
		Color	<p>Set the display color for the date and time.</p> <table border="1"> <thead> <tr> <th>No</th> <th>Message</th> <th>Trigger</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> </tr> <tr> <td>1</td> <td>####</td> <td>hh:mm:ss mm/dd/yy</td> </tr> </tbody> </table>	No	Message	Trigger	1	####	hh:mm:ss mm/dd/yy	1
No	Message	Trigger								
1	####	hh:mm:ss mm/dd/yy								
1	####	hh:mm:ss mm/dd/yy								

16

■ Function Buttons

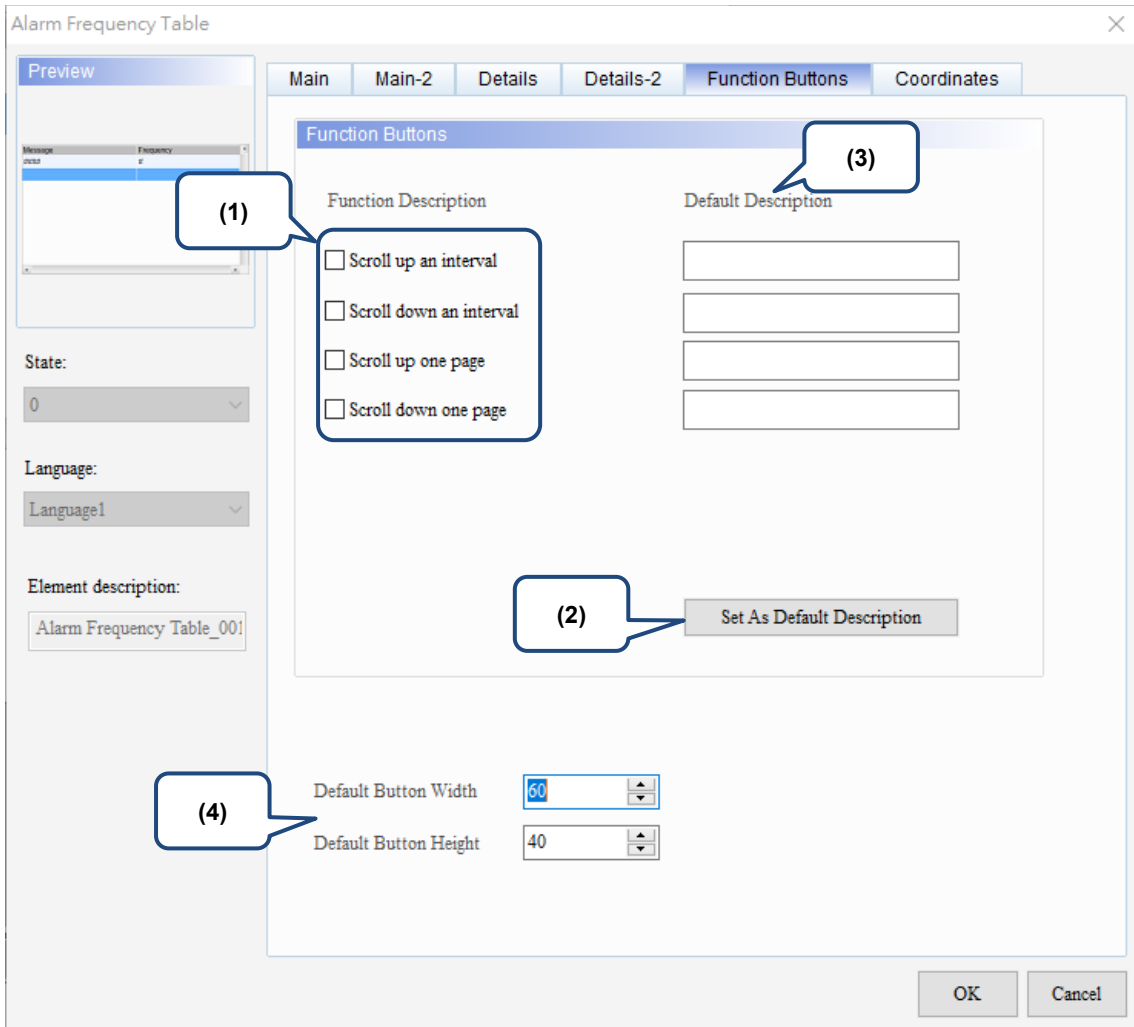
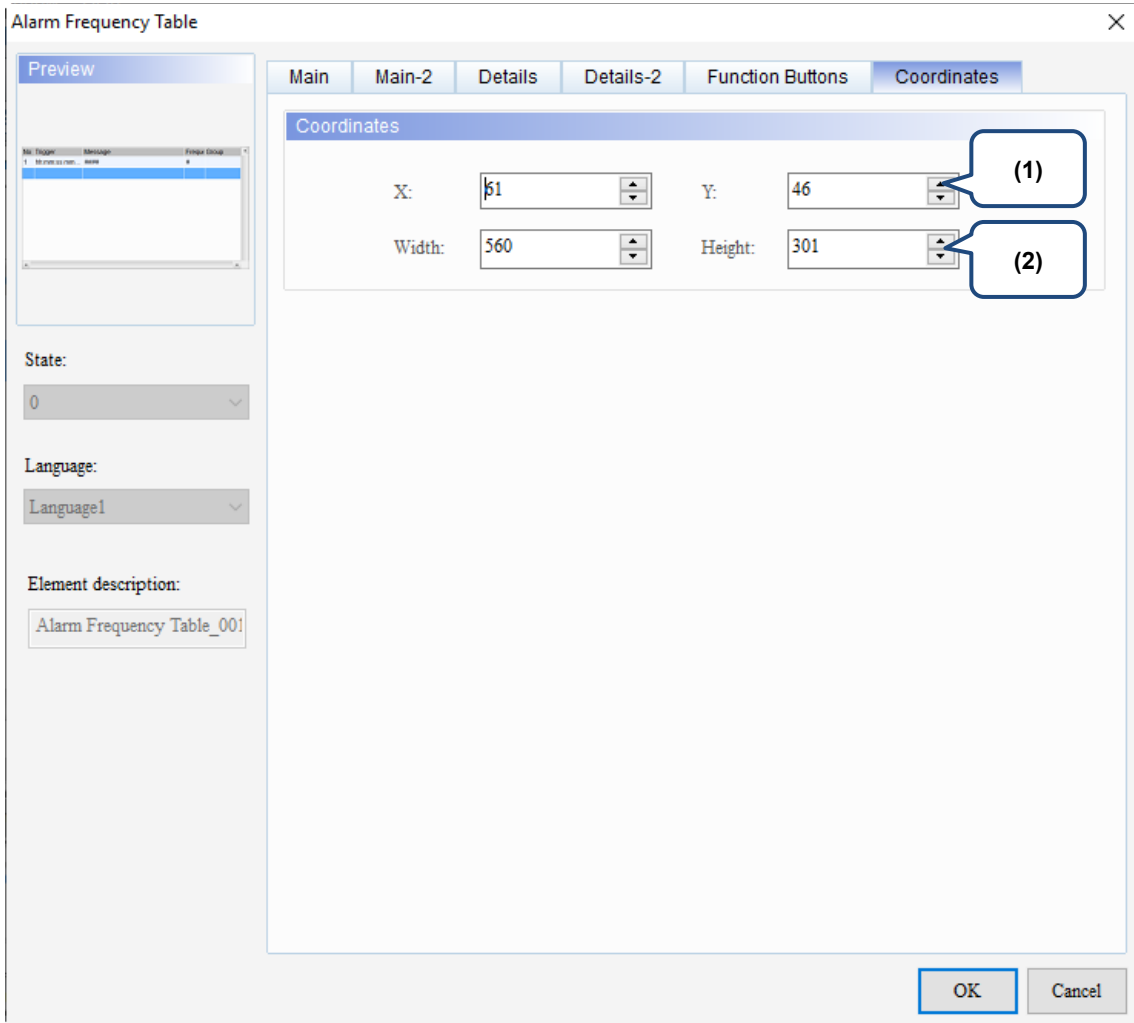


Figure 16.4.6 Function Buttons property page for the Alarm Frequency Table element

No.	Property	Function description	
(1)	Function Buttons	Description for function buttons are as follows:	
		Scroll up an interval	Scroll up an interval.
		Scroll down an interval	Scroll down an interval.
		Scroll up one page.	Scroll up one page.
		Scroll down one page.	Scroll down one page.
(2)	Set As Default Description	Press this button to insert the default strings to the Default Description fields.	
(3)	Default Description	Press Set As Default Description to insert the default strings to the fields. You can also enter user-defined strings.	
(4)	Default Button Width and Height	You can adjust the width and height of the function buttons.	

Coordinates



16

Figure 16.4.7 Coordinates property page for the Alarm Frequency Table element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

16

16.5 Alarm Moving Sign

The Alarm Moving Sign element records the alarm number and the alarm trigger time and date. You can also define the time interval and moving distance of the Alarm Moving Sign.

The effects of the Alarm Moving Sign element and the Alarm Moving Sign in [Options] > [Alarm Settings] are the same, such as the moving distance and the time interval. The main difference is the Alarm Moving Sign in the Alarm Settings generates a moving sign message as soon as an alarm is triggered regardless of the operating page you are on. You can use both functions at the same time, but the two settings are independent and not cross-referenced.

Refer to Table 16.5.1 for the Alarm Moving Sign example.

Table 16.5.1 Alarm Moving Sign example

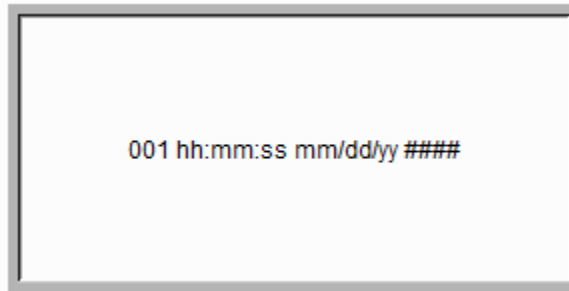
Alarm Moving Sign

This example uses the alarm parameters in Table 16.1.1 Alarm Settings example.

No.	Message Content	Category	Type	Address	Trigger Condition	Monitor Ad	Text Color	Alarm Screen
1*	alarm 1 %d1 度	1	Bit	\$50.0	On	*	RGB(0, 0, 0)	2 - Screen_2
2*	alarm 2 %d1 斤	1	Bit	\$50.1	On	*	RGB(0, 0, 0)	None
3*	alarm 3 %d1 克	1	Bit	\$50.2	On	*	RGB(0, 0, 0)	None
4*	alarm 4 %d1 尺	1	Bit	\$50.3	On	*	RGB(0, 0, 0)	None
5*	alarm 5 %d1 吋	1	Bit	\$50.4	On	*	RGB(0, 0, 0)	None
6*	alarm 6	5	Word	\$100	\$100 = \$200	...	RGB(0, 0, 0)	2 - Screen_2
7*	alarm 7	5	Word	\$110	\$110 < \$210	...	RGB(0, 0, 0)	None
8*	alarm 8	5	Word	{Link2}1@D100	{Link2}1@D200 <= {Link2}1@D100	...	RGB(0, 0, 0)	None
9*	alarm 9	5	Word	\$120	0 <= \$120 <= 10	...	RGB(0, 0, 0)	None
10*	alarm 10	5	Word	{Link2}1@M16	{Link2}1@M16 >= 100	...	RGB(0, 0, 0)	None

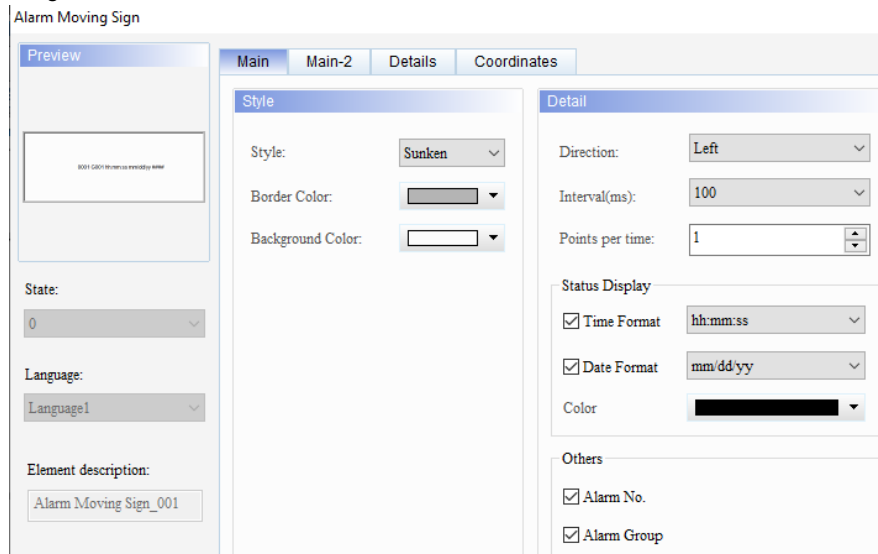
Alarm Moving Sign

Step 1: create an Alarm Moving Sign element.



Step 2: select the **Time Format**, **Date Format**, and **Alarm No.** check boxes. Then, the Alarm Moving Sign will display the alarm number, alarm trigger time and date, and alarm message.

Create Alarm Moving Sign element



- After creating the Alarm Moving Sign element, compile and download it to the HMI. When the trigger conditions are met for Alarms 6 - 10, the Alarm Moving Sign shows the alarm time and date, alarm number, and alarm message of the current alarm.
- After the alarm is cleared, the Alarm Moving Sign will not show any alarm.

Execution results

Alarm on	
Alarm off	

16

When you double-click the Alarm Moving Sign, the property page is shown as follows.

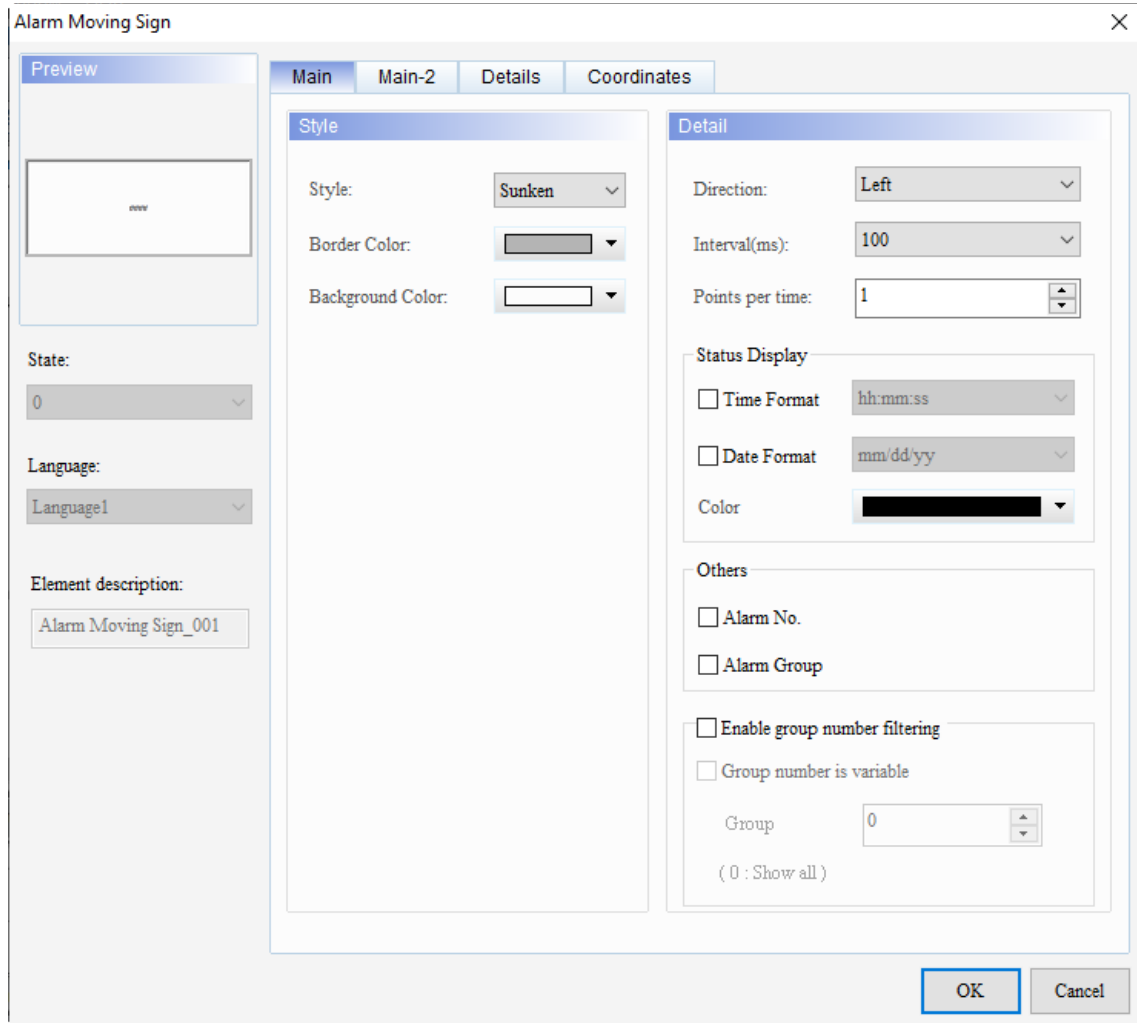
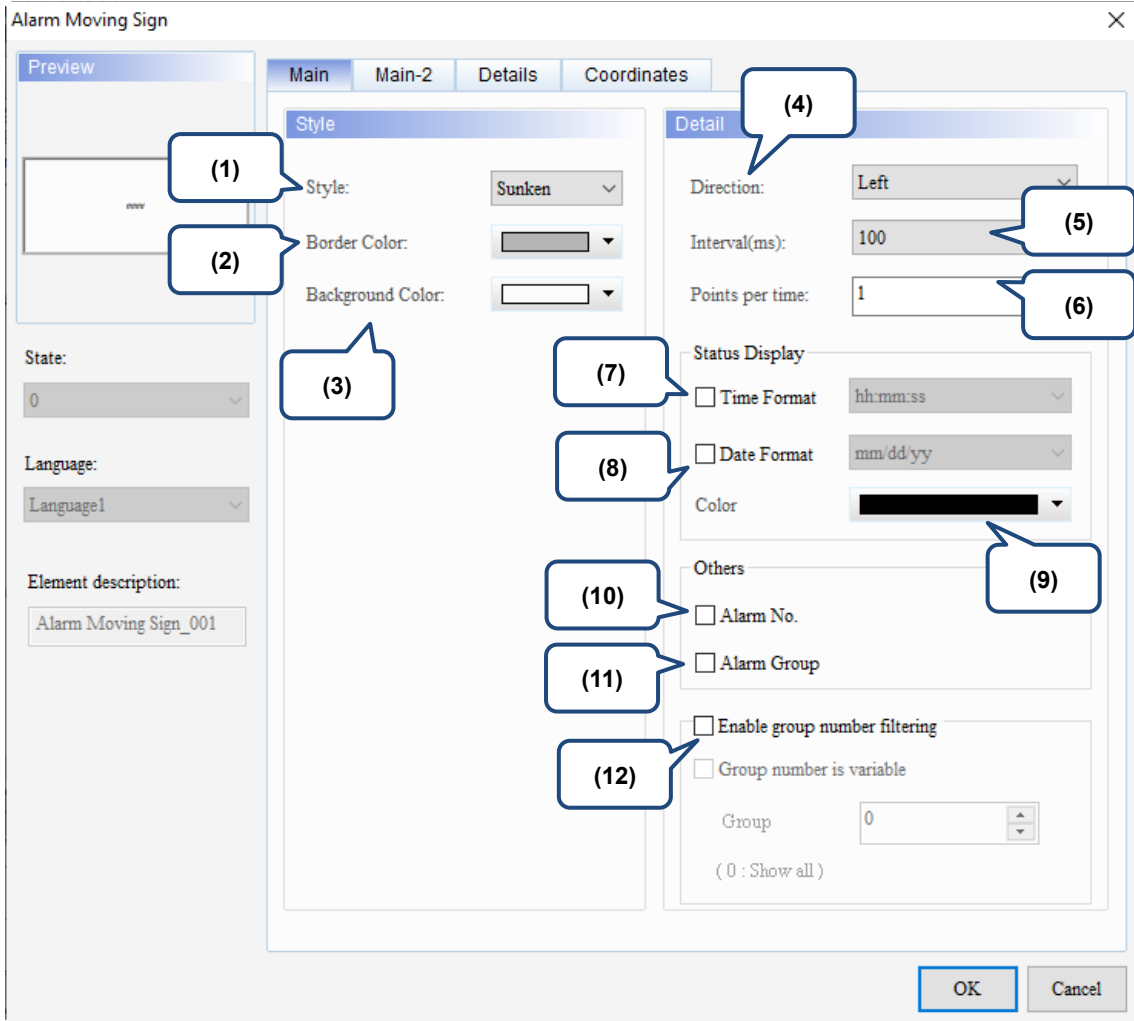


Figure 16.5.1 Properties of Alarm Moving Sign

Table 16.5.2 Function page of Alarm Moving Sign

Alarm Moving Sign	
Function page	Description
Preview	The Alarm Moving Sign elements do not support multiple state values and multi-language data display.
Main	Set the Style, Border Color, Background Color, Direction, Interval (ms), Points per time, Time Format , Date Format , Color, Alarm No. , and Alarm Group . Select the Enable group number filtering check box.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing.
Details	Set the Filter control address, Alarm category start addr., and Alarm category end addr.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

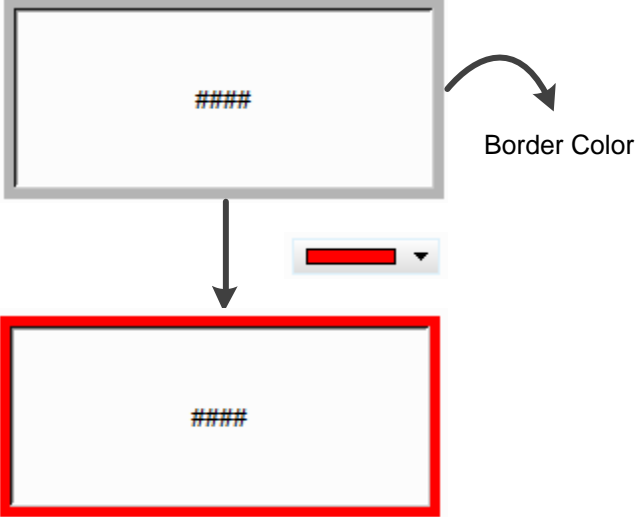
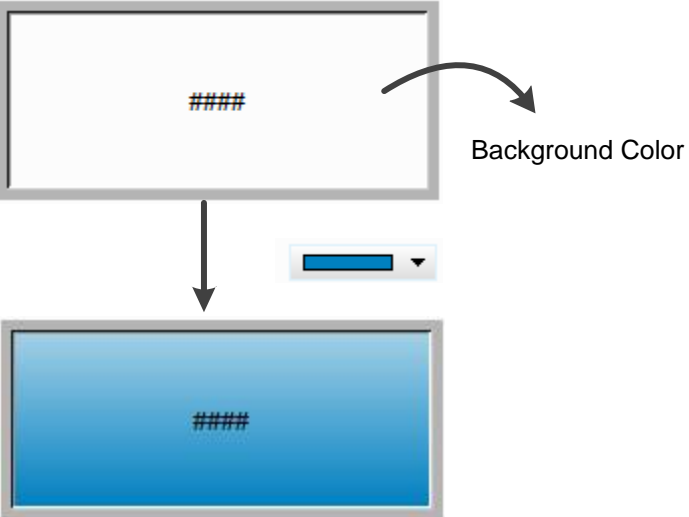


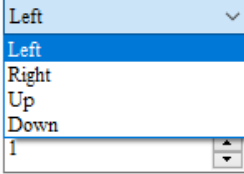

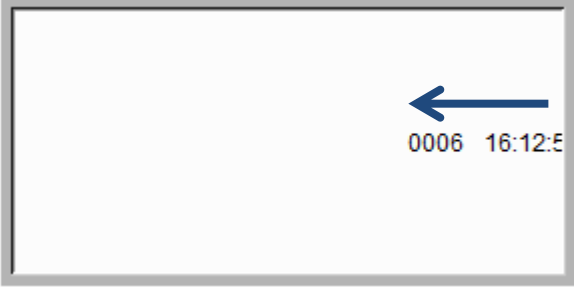

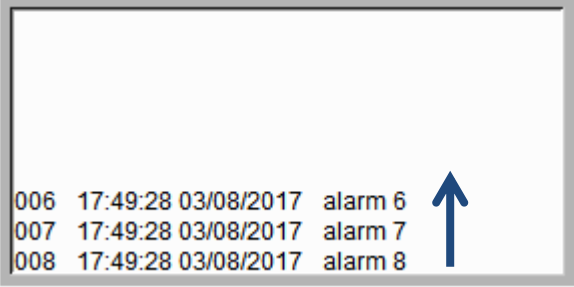
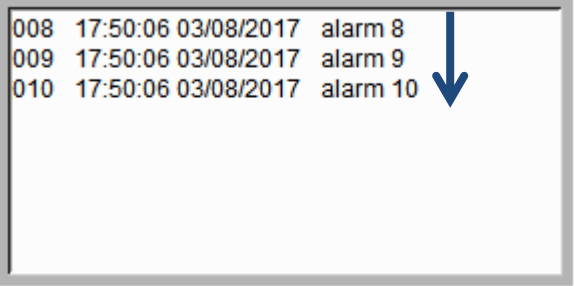
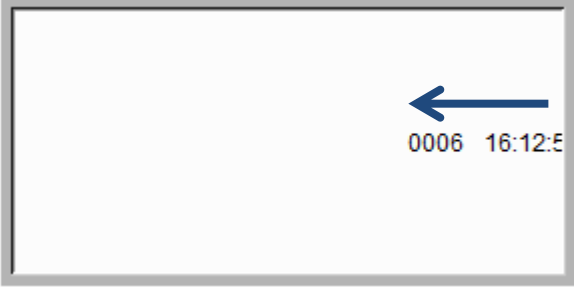

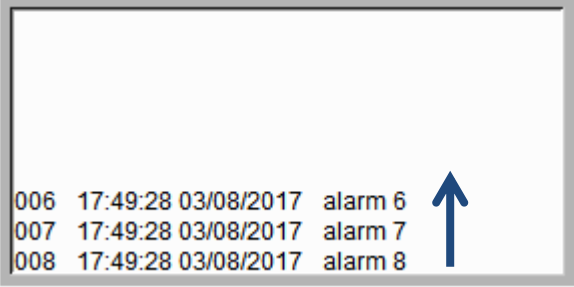
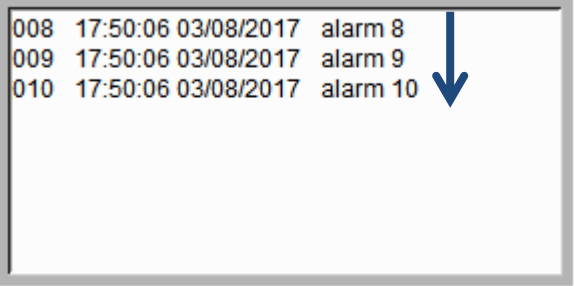
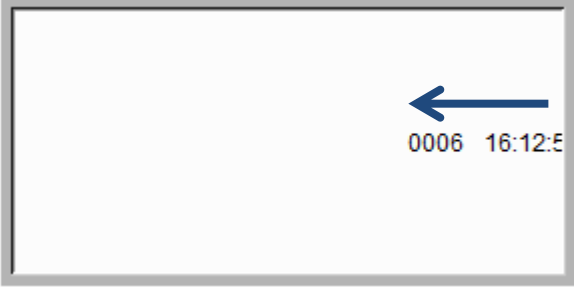

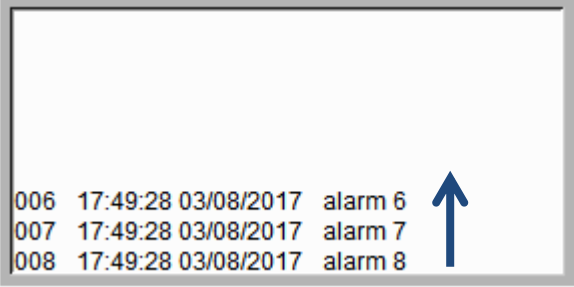
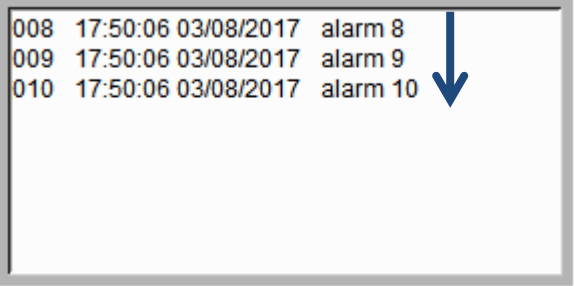
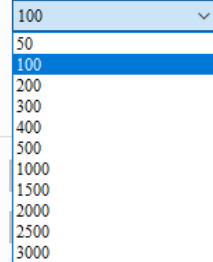

16

Figure 16.5.2 Main property page for the Alarm Moving Sign element

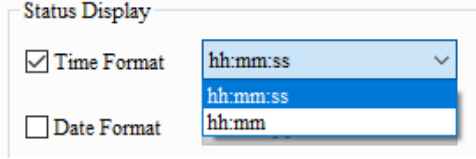
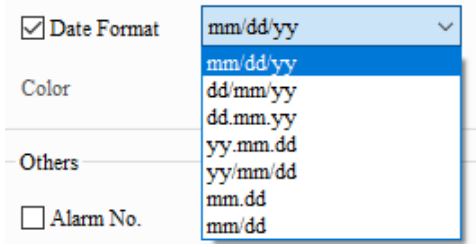

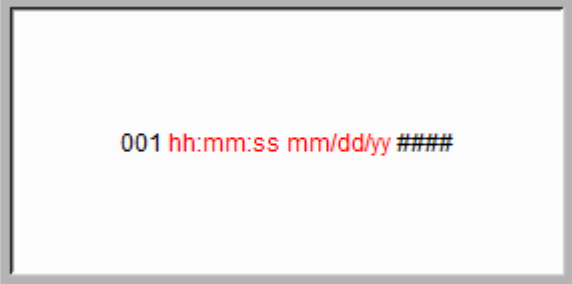
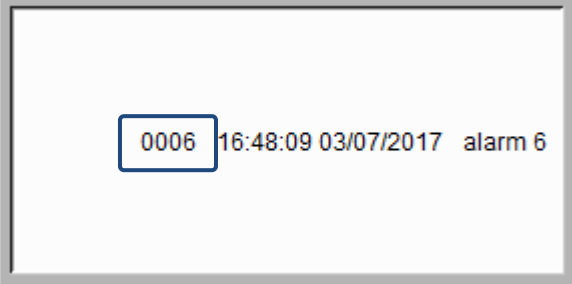
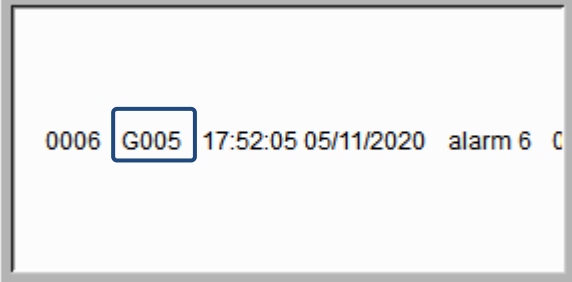
No.	Property	Function description						
(1)	Style	The available element styles are Standard, Raised, Sunken, and Transparent. You can change the appearance of the element with this setting.						
		<table border="1"> <thead> <tr> <th>Standard</th> <th>Raised</th> <th>Sunken</th> <th>Transparent</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">####</td> <td style="text-align: center;">####</td> <td style="text-align: center;">####</td> <td style="text-align: center;">####</td> </tr> </tbody> </table>	Standard	Raised	Sunken	Transparent	####	####
Standard	Raised	Sunken	Transparent					
####	####	####	####					

16

No.	Property	Function description
(2)	Border Color	<p>Set the Border Color of the element. The default is gray.</p> 
(3)	Background Color	<p>Set the Background Color of the element. The default is white.</p> 

No.	Property	Function description								
(4)	Direction	<p>Available display directions are Left, Right, Up, and Down.</p> <p>Direction: </p> <p>Interval(ms):</p> <p>Points per time: </p> <table border="1"> <tr> <td>Left</td> <td>  </td> </tr> <tr> <td>Right</td> <td>  </td> </tr> <tr> <td>Up</td> <td>  </td> </tr> <tr> <td>Down</td> <td>  </td> </tr> </table>	Left		Right		Up		Down	
Left										
Right										
Up										
Down										
(5)	Interval (ms)	<p>The Interval (ms) defines the time interval (unit: ms) between two message movements of the Alarm Moving Sign. The moving distance is determined by the setting of Points per time.</p> <p>Interval(ms): </p> <p>Points per time: </p> <p>Status Display</p> <p><input type="checkbox"/> Time Format</p> <p><input type="checkbox"/> Date Format</p>								

16

No.	Property	Function description
(6)	Points per time	The greater the number, the greater the distance each time the text moves. The setting range is 1 - 50 pixels.
(7)	Time Format	Two time formats are supported. 
(8)	Date Format	Seven date formats are supported. 
(9)	Color	Set the display color for the date and time. The default is  
(10)	Alarm No.	If the Alarm No. check box is selected, the element shows the alarm number when an alarm is triggered. 
(11)	Alarm Group	If the Alarm Group check box is selected, the element shows the alarm group when an alarm is triggered. 

No.	Property	Function description																																																						
(12)	Enable group number filtering	<ul style="list-style-type: none"> ■ Select the Enable group number filtering check box to filter the alarms to be displayed. You can specify the group number to display the alarms in groups. ■ The value of the group number can be a variable or constant. ■ When the Group is 0, all alarms are displayed. <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <p style="text-align: center; border-bottom: 1px solid #ccc; margin: 0;">Detail</p> <div style="display: flex; align-items: center; gap: 10px;"> <input checked="" type="checkbox"/> Enable group number filtering <input checked="" type="checkbox"/> Group number is variable </div> <div style="margin-top: 5px;"> Group <input style="width: 80px;" type="text" value="\$I0"/> ... </div> <p style="font-size: small; margin-top: 5px;">(0 : Show all)</p> </div> <ul style="list-style-type: none"> ■ Display example: <p>When the Group is 0:</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>No</th> <th>Group</th> <th>Message</th> <th>Trigger</th> <th>Frequency</th> <th>Recovery</th> </tr> </thead> <tbody> <tr><td>0001</td><td>1</td><td>alarm 1</td><td>14:23:18 06/15/</td><td>1</td><td></td></tr> <tr style="background-color: #e0f0ff;"><td>0002</td><td>1</td><td>alarm 2</td><td>14:23:19 06/15/</td><td>1</td><td></td></tr> <tr><td>0003</td><td>2</td><td>alarm 3</td><td>14:23:19 06/15/</td><td>1</td><td></td></tr> <tr style="background-color: #e0f0ff;"><td>0004</td><td>3</td><td>alarm 4</td><td>14:23:20 06/15/</td><td>1</td><td></td></tr> <tr><td>0005</td><td>5</td><td>alarm 5</td><td>14:23:20 06/15/</td><td>1</td><td></td></tr> </tbody> </table> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 80%; border: 1px solid #ccc; padding: 2px;">Group Filter</div> <div style="width: 15%; border: 1px solid #ccc; padding: 2px; text-align: center;">0</div> </div> <p>When the Group is 1:</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>No</th> <th>Group</th> <th>Message</th> <th>Trigger</th> <th>Frequency</th> <th>Recovery</th> </tr> </thead> <tbody> <tr style="background-color: #e0f0ff;"><td>0001</td><td>1</td><td>alarm 1</td><td>14:23:18 06/15/</td><td>1</td><td></td></tr> <tr style="background-color: #e0f0ff;"><td>0002</td><td>1</td><td>alarm 2</td><td>14:23:19 06/15/</td><td>1</td><td></td></tr> </tbody> </table> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 80%; border: 1px solid #ccc; padding: 2px;">Group Filter</div> <div style="width: 15%; border: 1px solid #ccc; padding: 2px; text-align: center;">1</div> </div>	No	Group	Message	Trigger	Frequency	Recovery	0001	1	alarm 1	14:23:18 06/15/	1		0002	1	alarm 2	14:23:19 06/15/	1		0003	2	alarm 3	14:23:19 06/15/	1		0004	3	alarm 4	14:23:20 06/15/	1		0005	5	alarm 5	14:23:20 06/15/	1		No	Group	Message	Trigger	Frequency	Recovery	0001	1	alarm 1	14:23:18 06/15/	1		0002	1	alarm 2	14:23:19 06/15/	1	
		No	Group	Message	Trigger	Frequency	Recovery																																																	
0001	1	alarm 1	14:23:18 06/15/	1																																																				
0002	1	alarm 2	14:23:19 06/15/	1																																																				
0003	2	alarm 3	14:23:19 06/15/	1																																																				
0004	3	alarm 4	14:23:20 06/15/	1																																																				
0005	5	alarm 5	14:23:20 06/15/	1																																																				
No	Group	Message	Trigger	Frequency	Recovery																																																			
0001	1	alarm 1	14:23:18 06/15/	1																																																				
0002	1	alarm 2	14:23:19 06/15/	1																																																				

16

■ Main-2

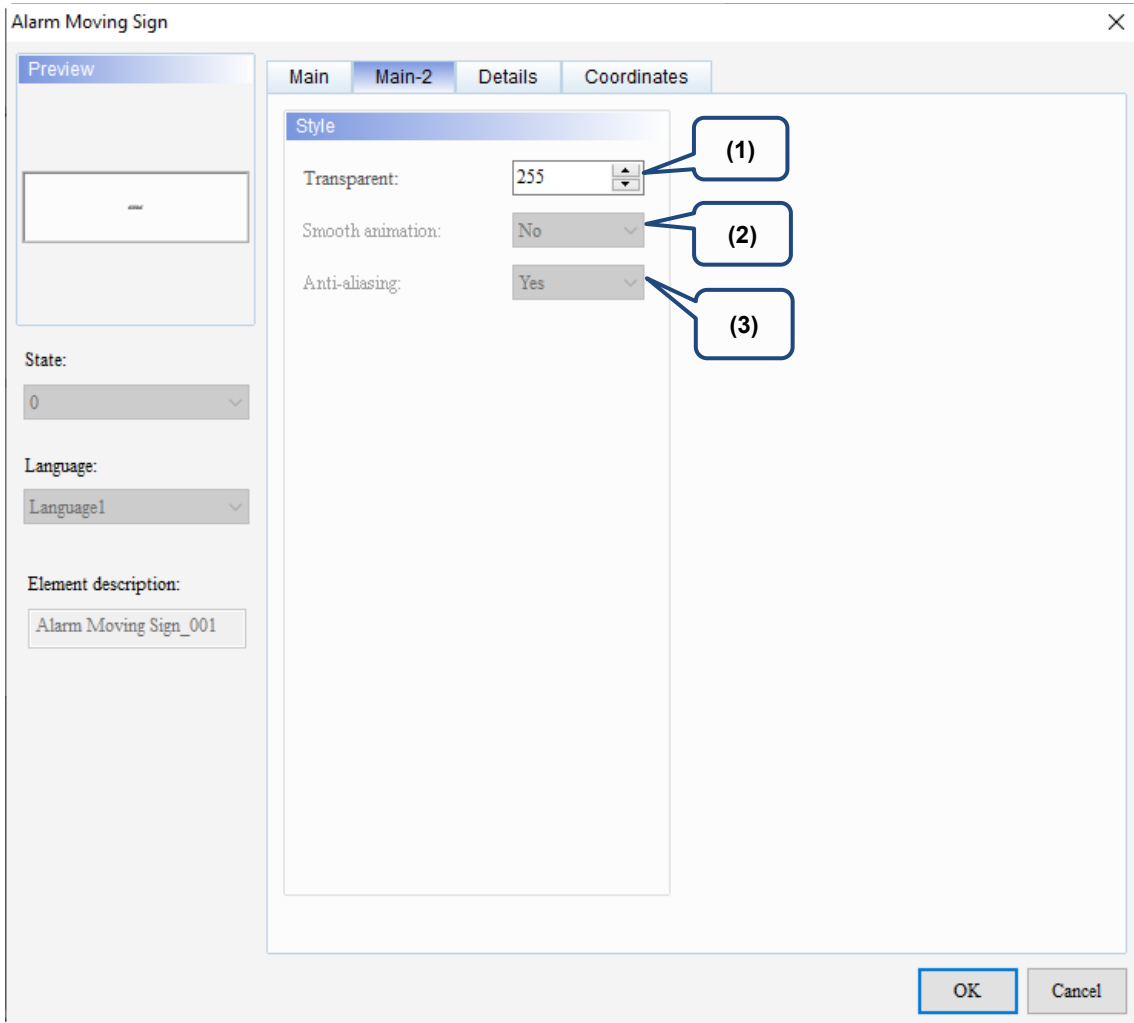


Figure 16.5.3 Main-2 property page for the Alarm Moving Sign element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Details

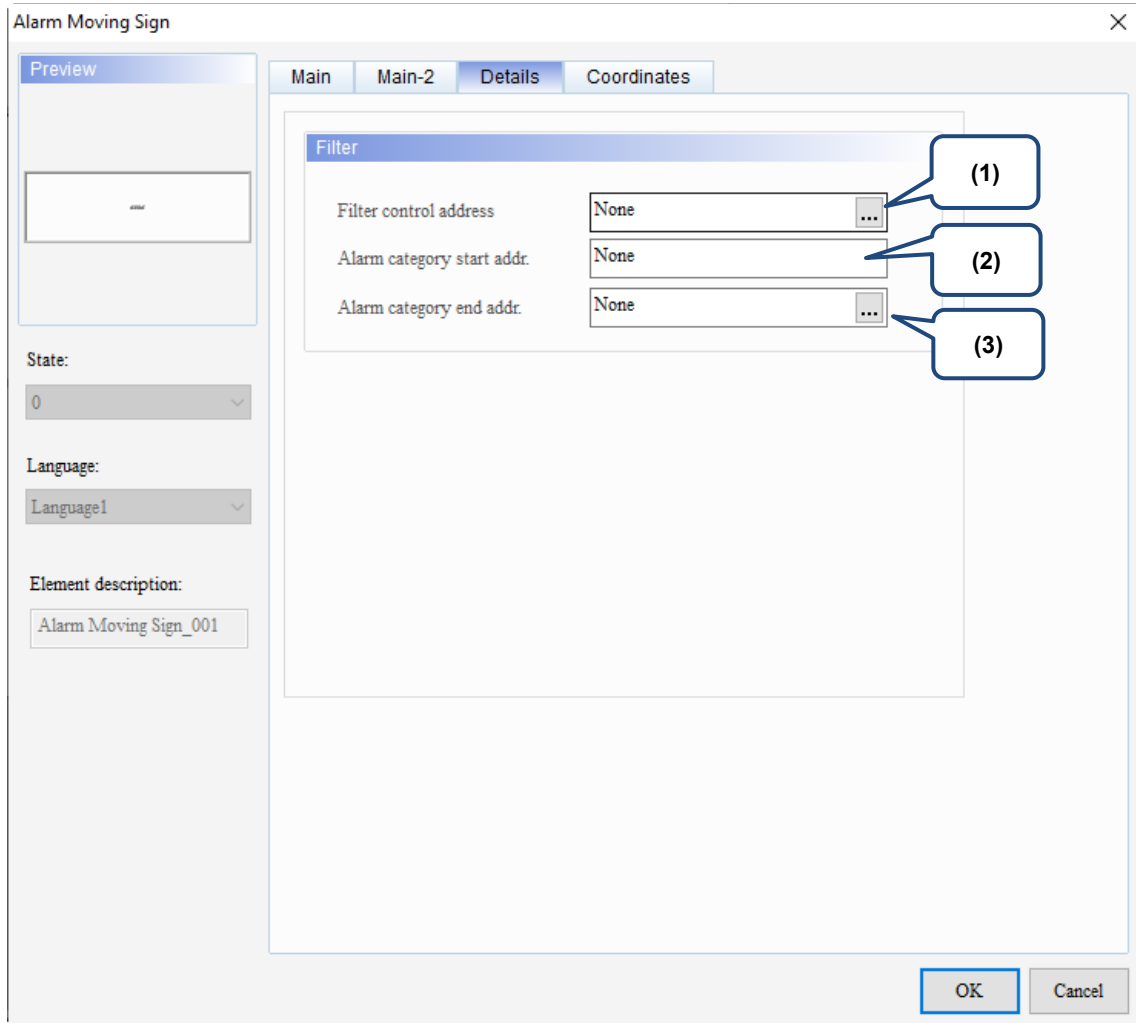
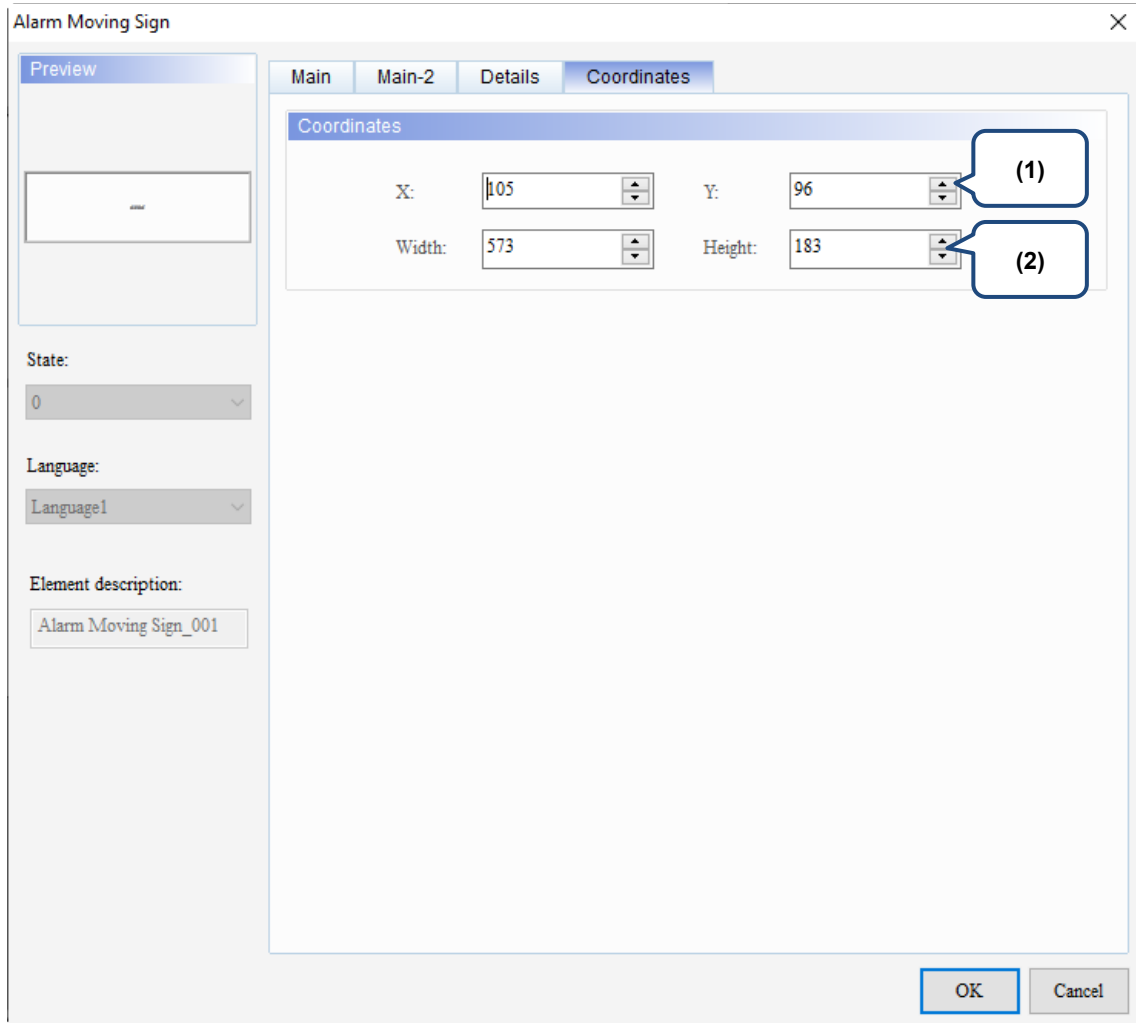


Figure 16.5.4 Details property page for the Alarm Moving Sign element

16

No.	Property	Function description	
(1)	Filter control address	You can filter the specified items with Filter control address.	
		Value	Description
		0	Default; display all triggered alarms.
		1	Hide the alarms with both Recovery Time and Acknowledge Time.
		2	Hide the alarms with Recovery Time.
		3	Hide the alarms with Recovery Time or Acknowledge Time.
		4	Hide the alarms with Acknowledge Time.
(2)	Alarm category start addr.	<ul style="list-style-type: none"> ■ This setting must be used with Filter control address. ■ When Filter control address is set to 6, input the alarm category number. 	
		Example	Description
(3)	Alarm category end addr.	Alarms with alarm category numbers 1 and 5	<p>When you input 1 to Alarm category start addr. and 3 to Alarm category end addr., the Alarm History Table displays the category 1 triggered alarms.</p> <p>When you input 1 to Alarm category start addr. and 5 to Alarm category end addr., the Alarm History Table displays the category 1 and 5 triggered alarms.</p>

■ Coordinates



16

Figure 16.5.5 Coordinates property page for the Alarm Moving Sign element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

(This page is intentionally left blank.)

16

Keypad

17

This chapter provides the usage and setting details for the Keypad elements.

17.1 Keypad(1)	17-2
17.2 Keypad(2)	17-13
17.3 Keypad(3)	17-24

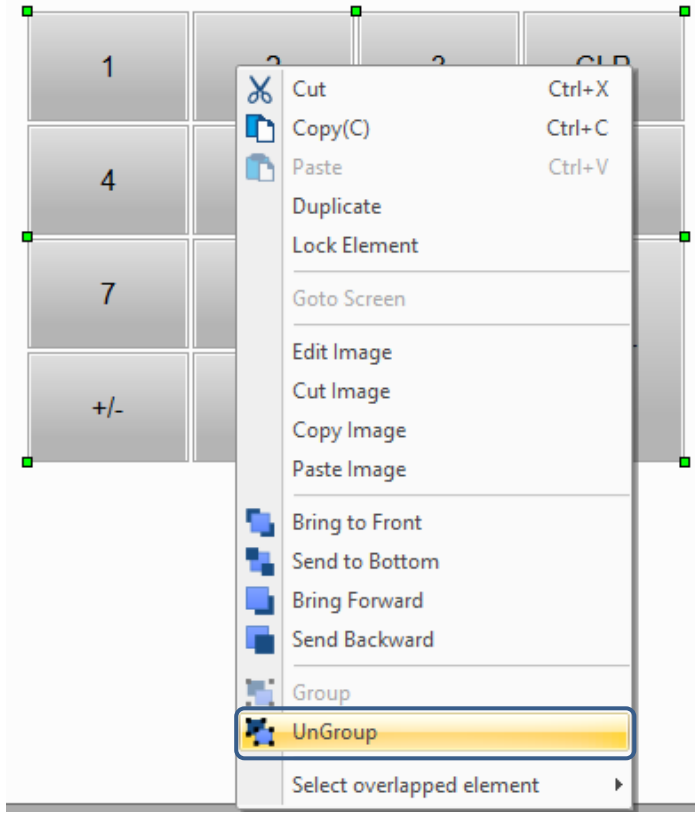
17

17.1 Keypad(1)

Three types of Keypad elements are provided to use with the Numeric Entry element, Character Entry element, and Barcode Input element. For Numeric Entry and Character Entry elements, the Input Mode must be set as Active Non-Popup or Touch Non-Popup; while the Input Mode for the Barcode Input element must be set as Active. The Interlock Addresses for these three elements must be set up at the same time, but if the Input Mode is set as Touch Non-Popup, the Interlock Address setting is not required. Refer to Chapter 13 Input for more setting details.

Keypad(1) is a decimal keypad, for which you can customize the font, size, color, and alignment. It also provides a variety of modes for selection, including ESC, ENT, CLR, DEL, and ASCII.

Keypad(1) is a grouped element, but you can right-click on the element and select Ungroup to separate the buttons on the keypad. You can also double-click the buttons for editing and making changes.

Grouped	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>CLR</td></tr><tr><td>4</td><td>5</td><td>6</td><td>DEL</td></tr><tr><td>7</td><td>8</td><td>9</td><td rowspan="2">Enter</td></tr><tr><td>+/-</td><td>0</td><td>.</td></tr></table>	1	2	3	CLR	4	5	6	DEL	7	8	9	Enter	+/-	0	.	
	1	2	3	CLR													
4	5	6	DEL														
7	8	9	Enter														
+/-	0	.															
Right-click on the grouped element and select UnGroup.																	
																	
Not grouped	<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>CLR</td></tr><tr><td>4</td><td>5</td><td>6</td><td>DEL</td></tr><tr><td>7</td><td>8</td><td>9</td><td>Enter</td></tr><tr><td>+/-</td><td>0</td><td>.</td><td></td></tr></table>	1	2	3	CLR	4	5	6	DEL	7	8	9	Enter	+/-	0	.	
1	2	3	CLR														
4	5	6	DEL														
7	8	9	Enter														
+/-	0	.															

When you double-click the Keypad(1), the property page is shown as follows.

17

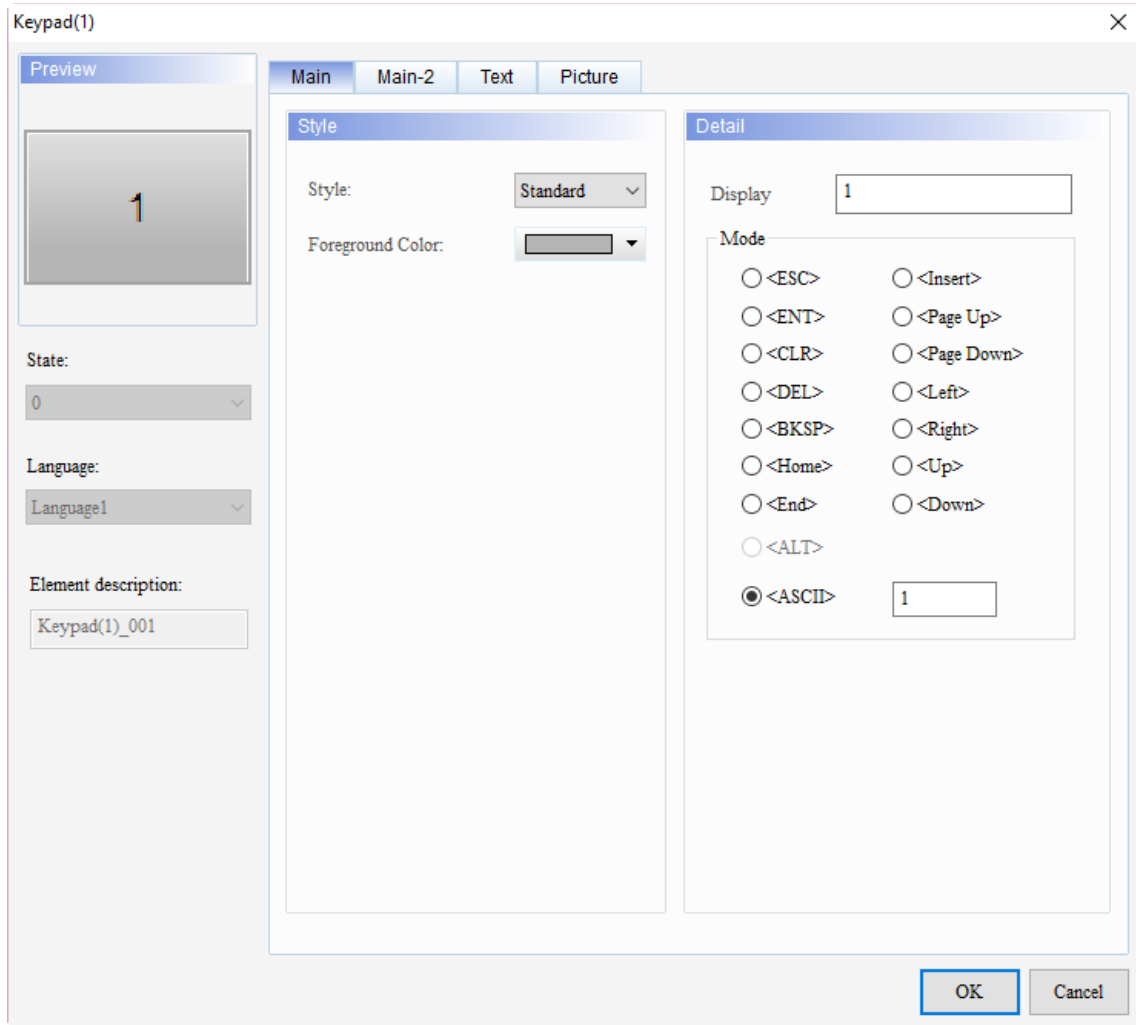
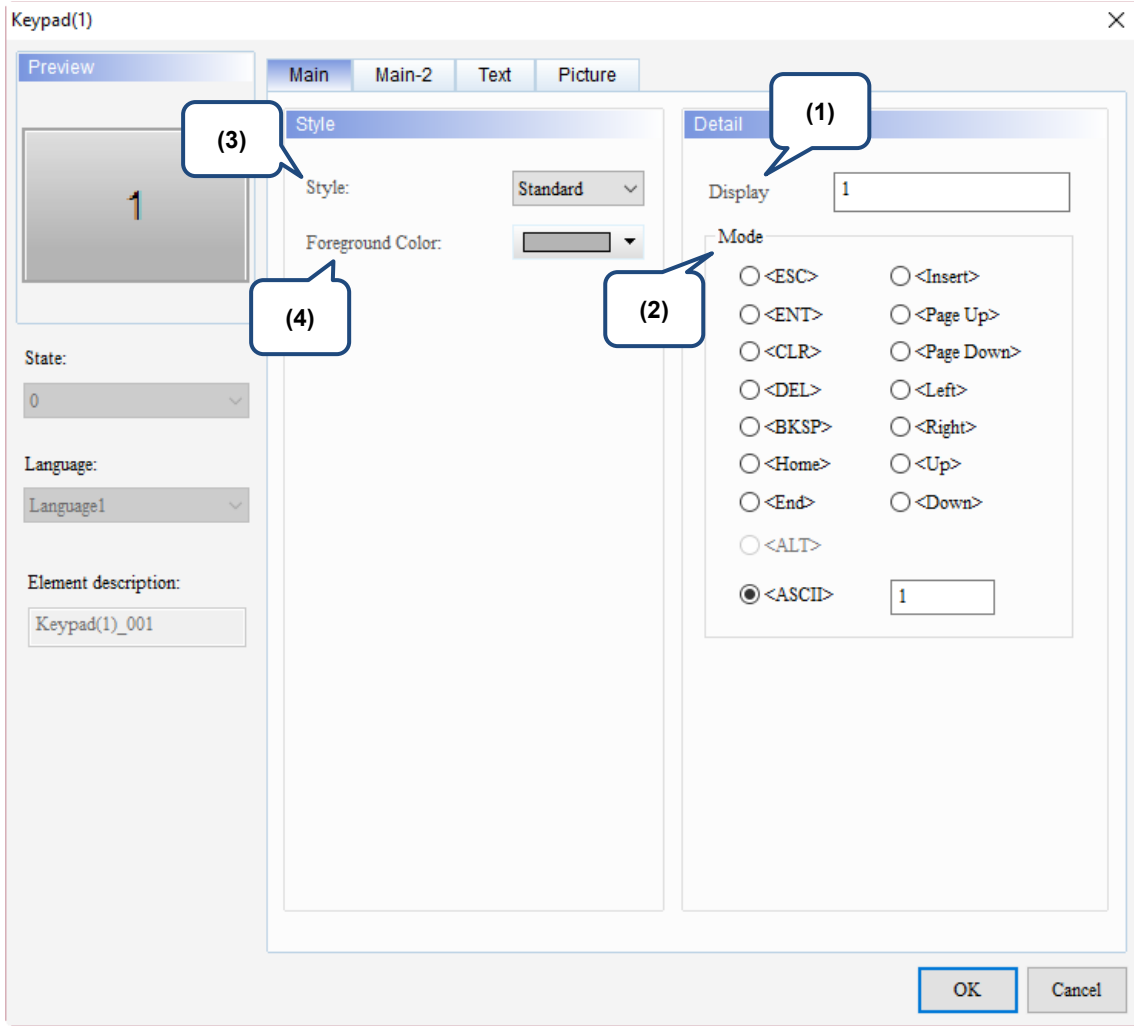


Figure 17.1.1 Properties of Keypad(1)

Table 17.1.1 Function page of Keypad(1)

Keypad(1)	
Function page	Description
Preview	Keypad(1) elements do not support multiple state values, but can edit multi-language data display.
Main	Set the Style, Foreground Color, Display, and Mode.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color.

■ Main

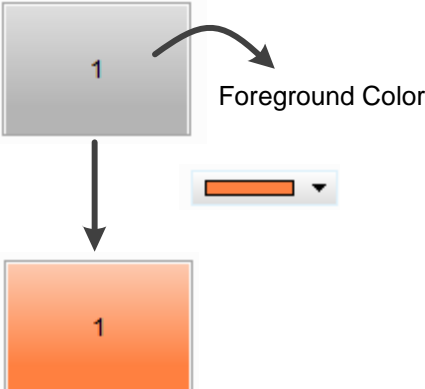


17

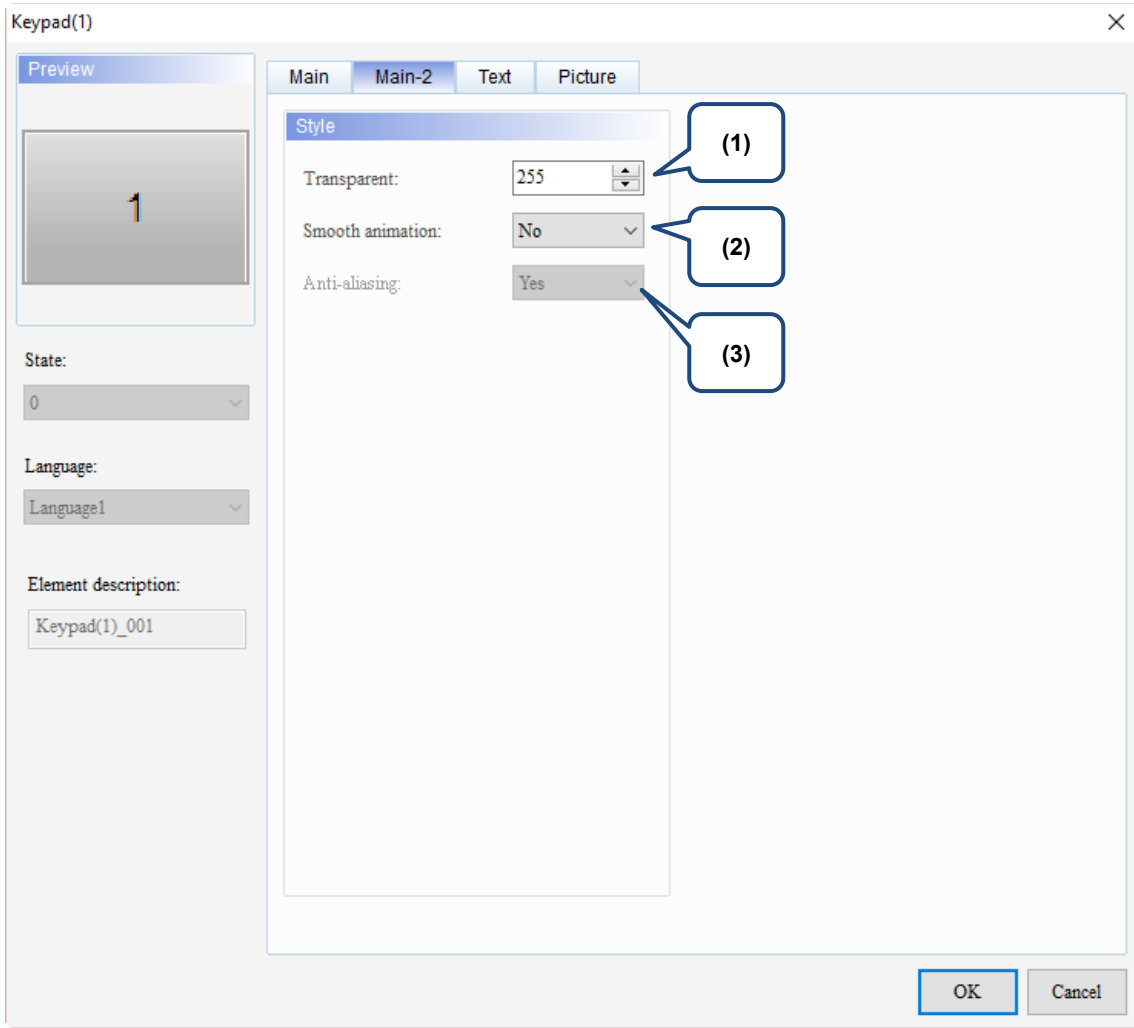
Figure 17.1.2 Main property page for the Keypad(1) element

No.	Property	Function description
(1)	Display	<p>When you press a button on Keypad(1), this will be the displaying value of that button.</p>

17

No.	Property	Function description				
(2)	Mode	<p>You can select a mode to define the action of a button. The 15 available modes include <ESC>, <ENT>, <CLR>, , <BKSP>, <Home>, <End>, <Insert>, <Page Up>, <Page Down>, <Left>, <Right>, <Up>, <Down>, and <ASCII>.</p> <ul style="list-style-type: none"> ■ <ESC>: cancel the entry. If the Keypad element is on a sub-screen, executing ESC will also close the sub-screen. ■ <ENT>: input the entry. ■ <CLR>: clear a string of characters. ■ : delete a single character. ■ <BKSP>: delete a single character. ■ <Home>: move the input cursor to the beginning of that line. ■ <End>: move the input cursor to the end of that line. ■ <Insert>: switch between insert and replace. ■ <Page Up>: switch the current page to the previous page. ■ <Page Down>: switch the current page to the next page. ■ <Left>: move the input cursor to the left by one character. ■ <Right>: move the input cursor to the right by one character. ■ <Up>: move the input cursor up a line. ■ <Down>: move the input cursor down a line. ■ <ASCII>: you can specify the input code. 				
(3)	Style	<p>The available styles are Standard and Raised. You can change the appearance of the element with this setting.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Standard</th> <th>Raised</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> </tr> </tbody> </table>	Standard	Raised	1	1
Standard	Raised					
1	1					
(4)	Foreground Color	<p>Set the foreground color of the element.</p> 				

■ Main-2



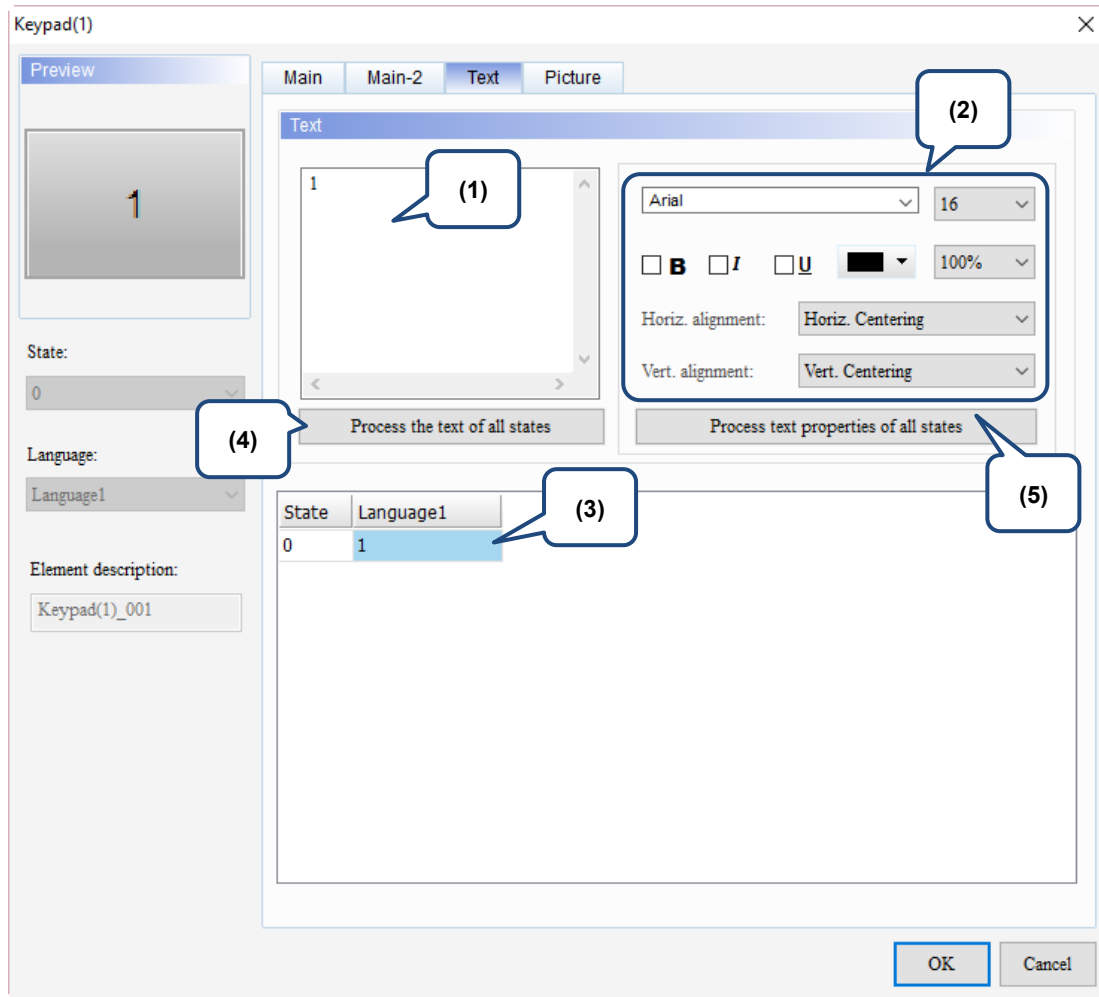
17

Figure 17.1.3 Main-2 property page for the Keypad(1) element

17

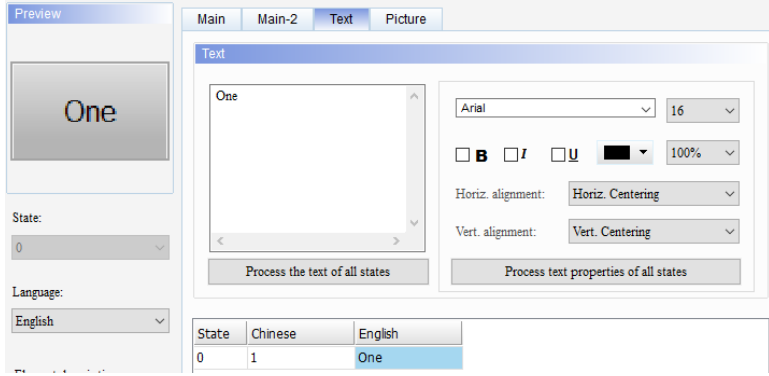
No.	Property	Function description																																											
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.																																											
(2)	Smooth animation	<ul style="list-style-type: none"> ■ The Smooth animation function is available for this element. ■ After ungrouping the button elements for the Keypad element, you can activate the Smooth animation function per button. When you activate the Smooth animation function, the button with this setting will enlarge when you press it. <table border="1" style="margin-top: 10px; width: 100%; text-align: center;"> <tr> <td rowspan="2" style="vertical-align: middle;">Yes</td> <td style="border: 2px solid black; padding: 5px;">1</td> <td colspan="3"></td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>CLR</td> </tr> <tr> <td>4</td> <td>5</td> <td>6</td> <td colspan="2">DEL</td> </tr> <tr> <td>7</td> <td>8</td> <td>9</td> <td colspan="2" rowspan="2">Enter</td> </tr> <tr> <td>+/-</td> <td>0</td> <td>.</td> <td colspan="2"></td> </tr> <tr> <td rowspan="2" style="vertical-align: middle;">No</td> <td>1</td> <td>2</td> <td>3</td> <td>CLR</td> </tr> <tr> <td>4</td> <td>5</td> <td>6</td> <td>DEL</td> </tr> <tr> <td>7</td> <td>8</td> <td>9</td> <td colspan="2" rowspan="2">Enter</td> </tr> <tr> <td>+/-</td> <td>0</td> <td>.</td> <td colspan="2"></td> </tr> </table>	Yes	1				1	2	3	CLR	4	5	6	DEL		7	8	9	Enter		+/-	0	.			No	1	2	3	CLR	4	5	6	DEL	7	8	9	Enter		+/-	0	.		
Yes	1																																												
	1	2	3	CLR																																									
4	5	6	DEL																																										
7	8	9	Enter																																										
+/-	0	.																																											
No	1	2	3	CLR																																									
	4	5	6	DEL																																									
7	8	9	Enter																																										
+/-	0	.																																											
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.																																											

■ Text



17

Figure 17.1.4 Text property page for the Keypad(1) element

No.	Property	Function description
(1)	Text	<p>You can enter the text to display in this box.</p> 
(2)	Text	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the texts.
(3)	Edit multi-language text	If you have added multi-language texts, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	This function is not supported as the Keypad element does not have multiple states.
(5)	Process text properties of all states	This function is not supported as the Keypad element does not have multiple states.

17

■ Picture

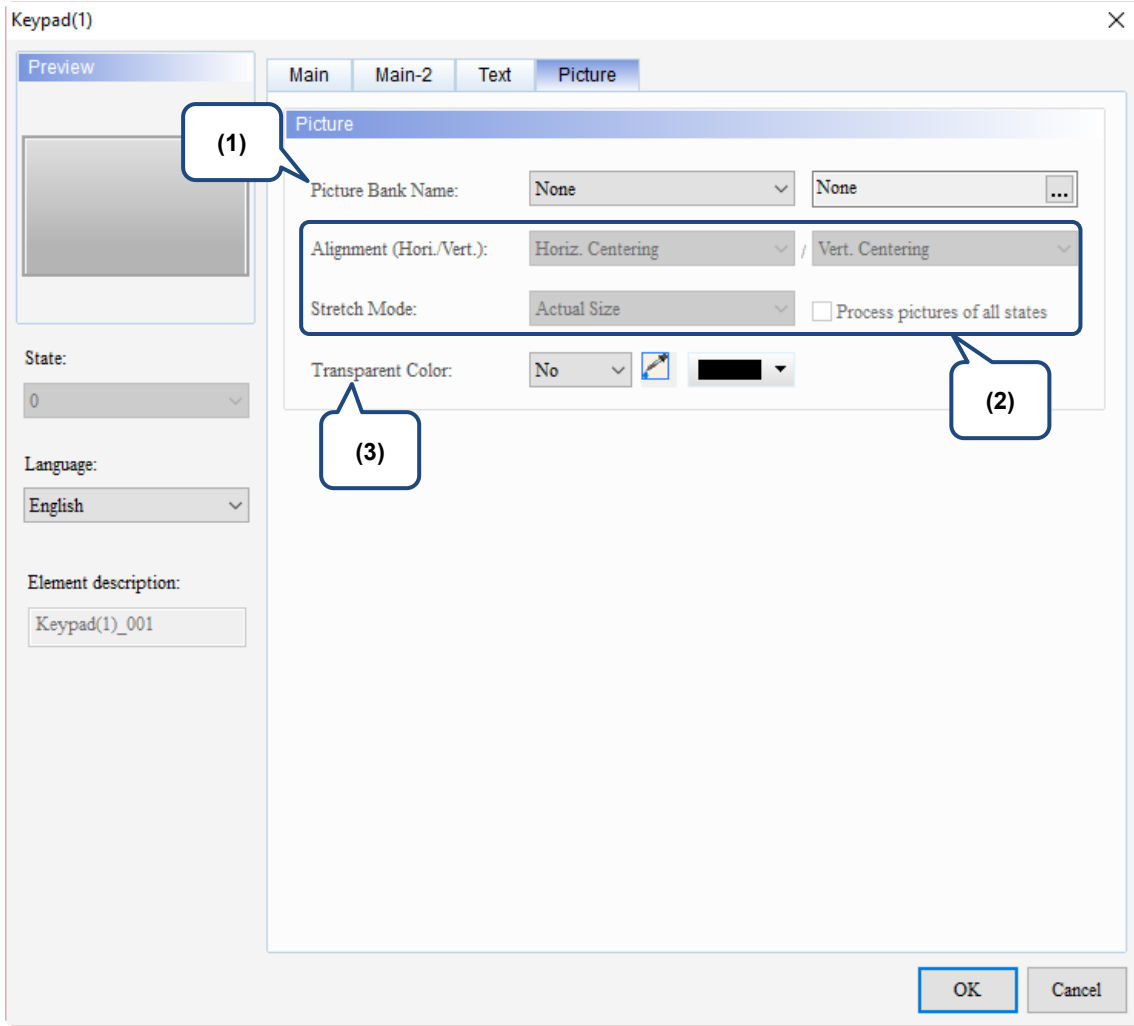
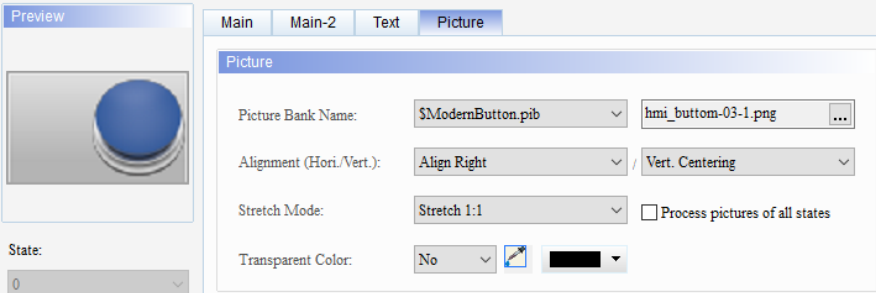













Figure 17.1.5 Picture property page for the Keypad(1) element

No.	Property	Function description
(1)	Picture Bank Name	<p>The Picture Bank Name default is None. To set the picture display, use the drop-down list box to select the picture bank provided by the software and then select the picture you need.</p>  

17

No.	Property	Function description								
(2)	Alignment	<ul style="list-style-type: none"> You can use the alignment options to set how pictures are aligned. 								
	Stretch Mode	<ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> Assuming that the elements have multiple states and some pictures do not fill the full element display area, if you select the Process pictures of all states check box, you can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p style="text-align: center;"><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.		
Stretch All	Stretch 1:1	Actual Size								
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.								
										
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent.  is for selecting the transparent color. If you select the white part in the calendar, the software changes the white part into transparent, which becomes identical to the element foreground color.</p> <p style="text-align: center;">Foreground Color: █</p> <div style="display: flex; justify-content: space-around;"> <div>  </div> <div>  </div> </div>								

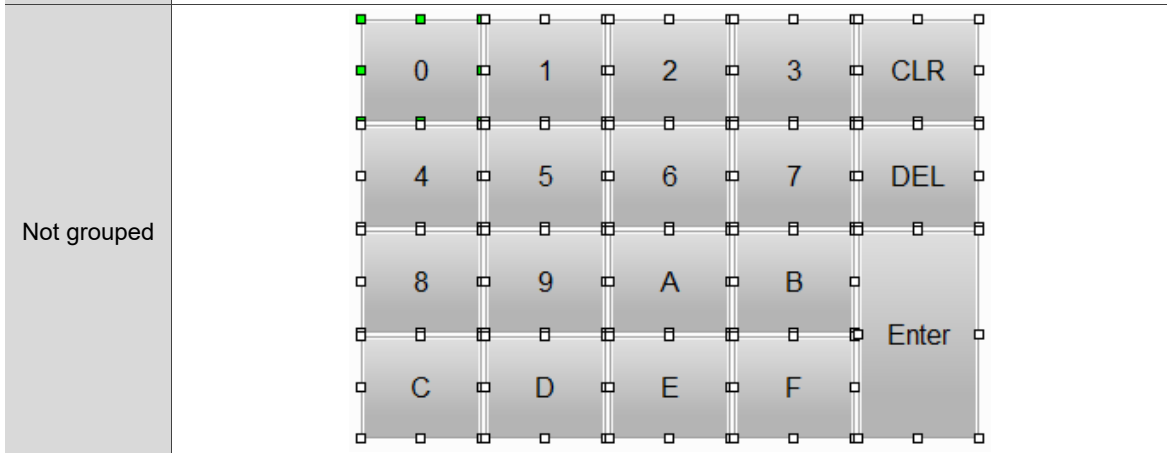
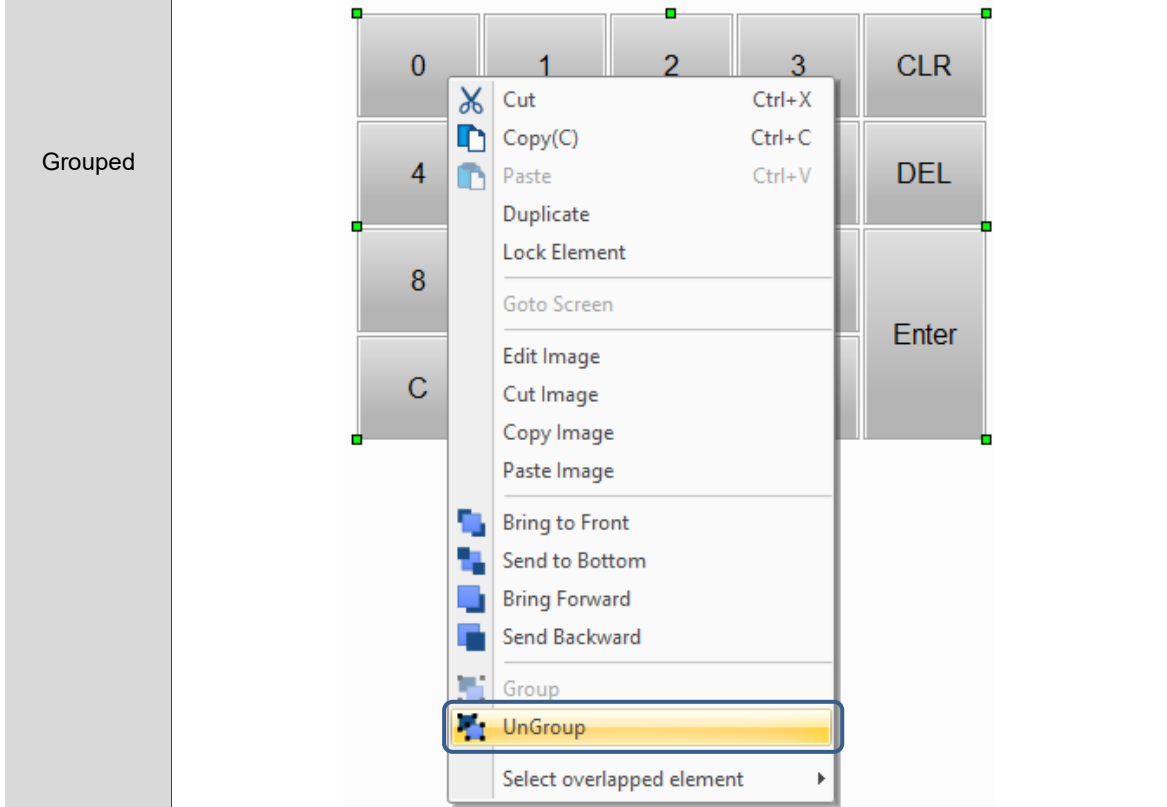
17.2 Keypad(2)

Keypad(2) is a hexadecimal keypad, for which you can customize the font, size, color, and alignment. It also provides a variety of modes for selection, including ESC, ENT, CLR, DEL, and ASCII. Keypad(2) is a grouped element, but you can right-click on the element to ungroup the element and separate the buttons on the keypad. You can also double-click the buttons for editing and making changes.

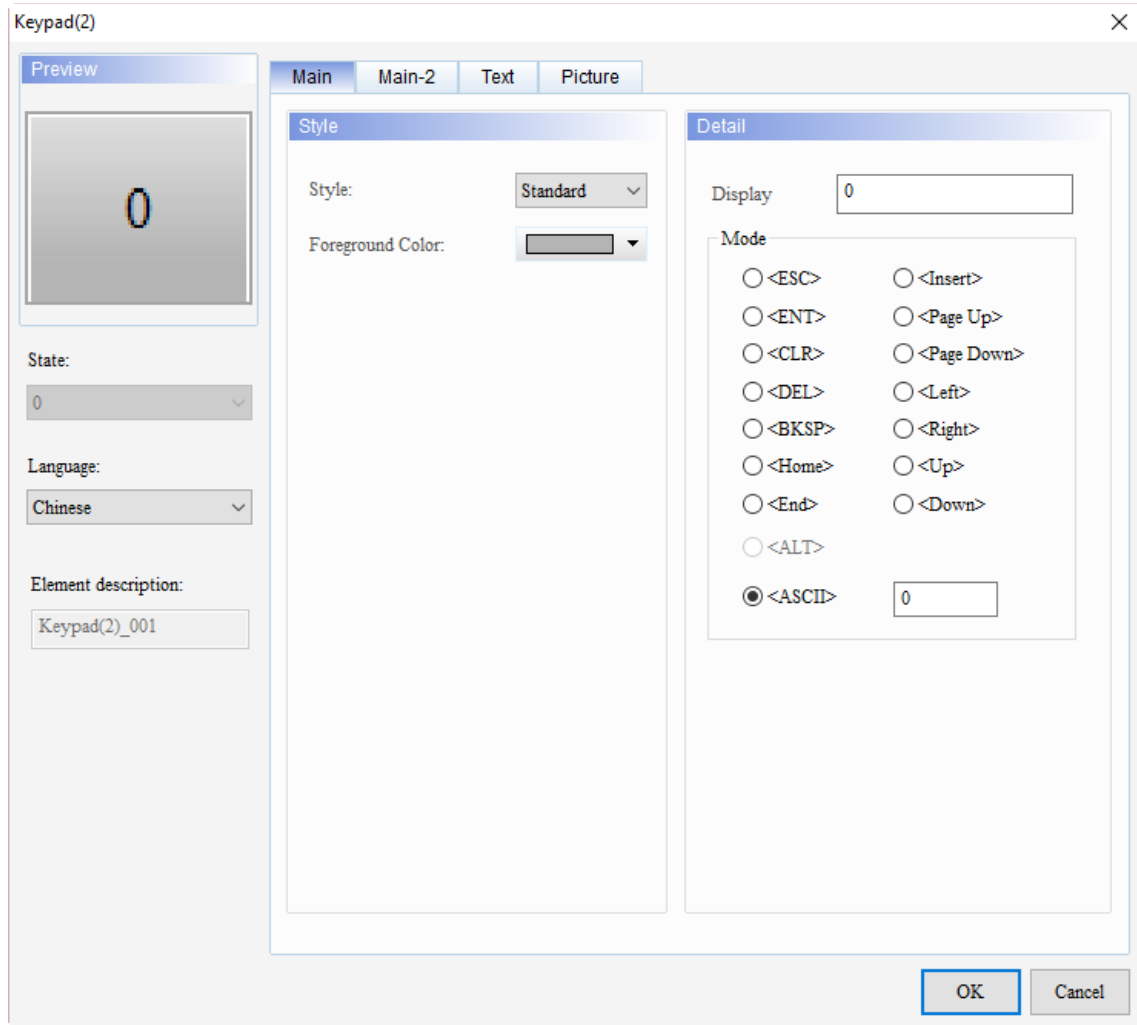
17



Right-click on the grouped element and select UnGroup.



When you double-click the Keypad(2), the property page is shown as follows.



17

Figure 17.2.1 Properties of Keypad(2)

Table 17.2.1 Function page of Keypad(2)

Keypad(2)	
Function page	Description
Preview	Keypad(2) elements do not support multiple state values, but can edit multi-language data display.
Main	Set the Style, Foreground Color, Display, and Mode.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color.

17

■ Main

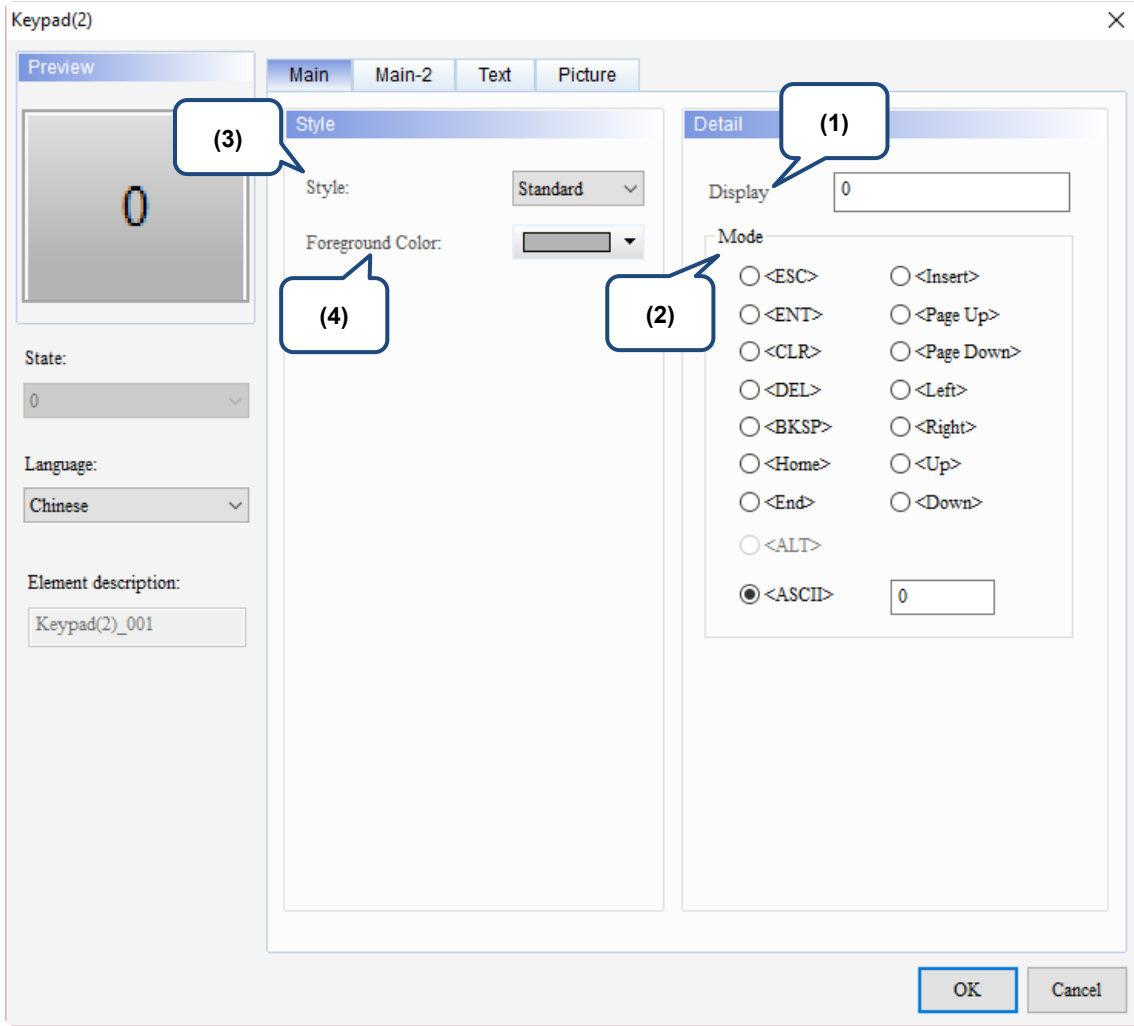
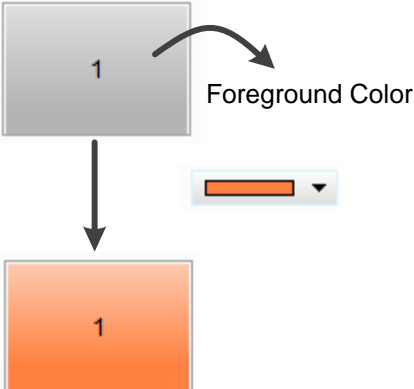


Figure 17.2.2 Main property page for the Keypad(2) element

No.	Property	Function description
(1)	Display	<p>When you press a button on Keypad(2), this will be the displaying value of that button.</p>

No.	Property	Function description				
(2)	Mode	<p>You can select a mode to define the action of a button. The 15 available modes include <ESC>, <ENT>, <CLR>, , <BKSP>, <Home>, <End>, <Insert>, <Page Up>, <Page Down>, <Left>, <Right>, <Up>, <Down>, and <ASCII>.</p> <ul style="list-style-type: none"> ■ <ESC>: cancel the entry. If the Keypad element is on a sub-screen, executing ESC will also close the sub-screen. ■ <ENT>: input the entry. ■ <CLR>: clear a string of characters. ■ : delete a single character. ■ <BKSP>: delete a single character. ■ <Home>: move the input cursor to the beginning of that line. ■ <End>: move the input cursor to the end of that line. ■ <Insert>: switch between insert and replace. ■ <Page Up>: switch the current page to the previous page. ■ <Page Down>: switch the current page to the next page. ■ <Left>: move the input cursor to the left by one character. ■ <Right>: move the input cursor to the right by one character. ■ <Up>: move the input cursor up a line. ■ <Down>: move the input cursor down a line. ■ <ASCII>: you can specify the input code. 				
(3)	Style	<p>The available element styles are Standard and Raised. You can change the appearance of the element with this setting.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Standard</th> <th>Raised</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> </tr> </tbody> </table>	Standard	Raised	1	1
Standard	Raised					
1	1					
(4)	Foreground Color	<p>Set the foreground color of the element.</p> 				

■ Main-2

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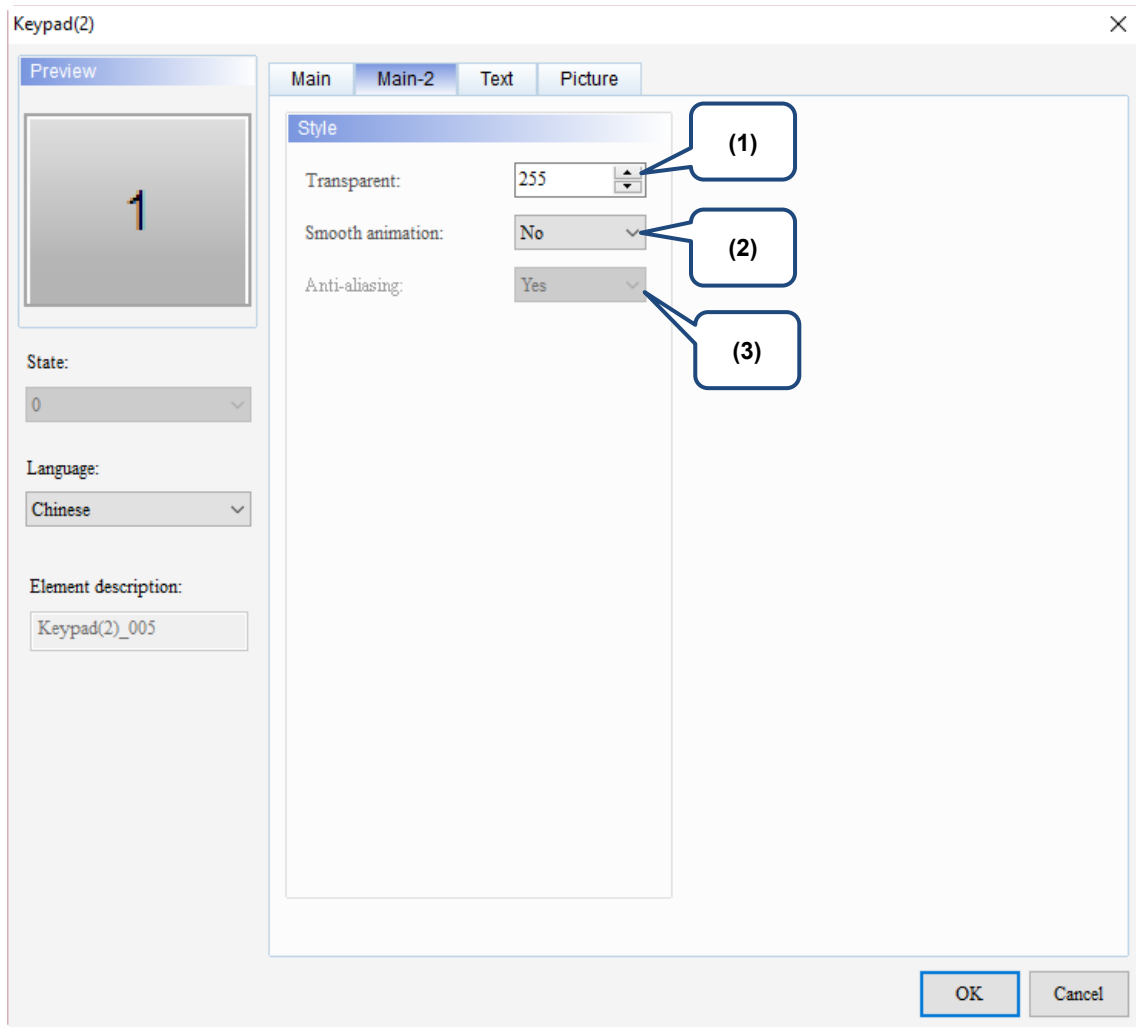
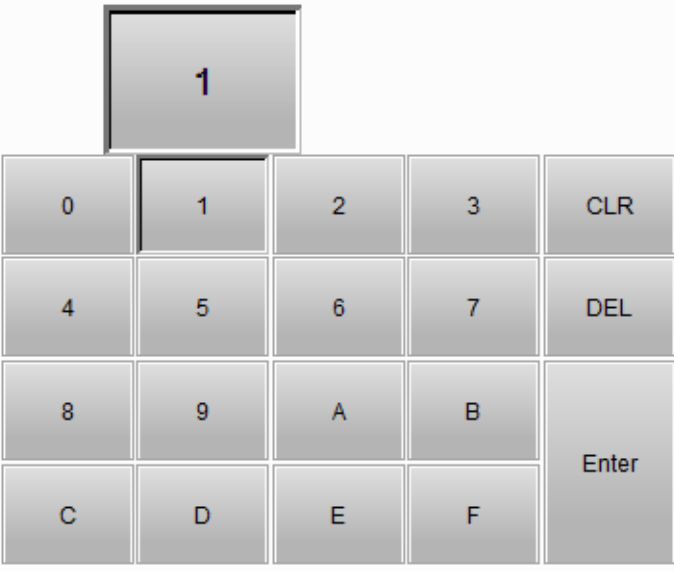



Figure 17.2.3 Main-2 property page for the Keypad(2) element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	<ul style="list-style-type: none"> ■ The Smooth animation function is available for this element. ■ After ungrouping the button elements for the Keypad element, you can activate the Smooth animation function per button. When you activate the Smooth animation function, the button with this setting will enlarge when you press it. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid gray; padding: 5px; margin-right: 10px;">Yes</div>  </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="border: 1px solid gray; padding: 5px; margin-right: 10px;">No</div>  </div>
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

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■ Text

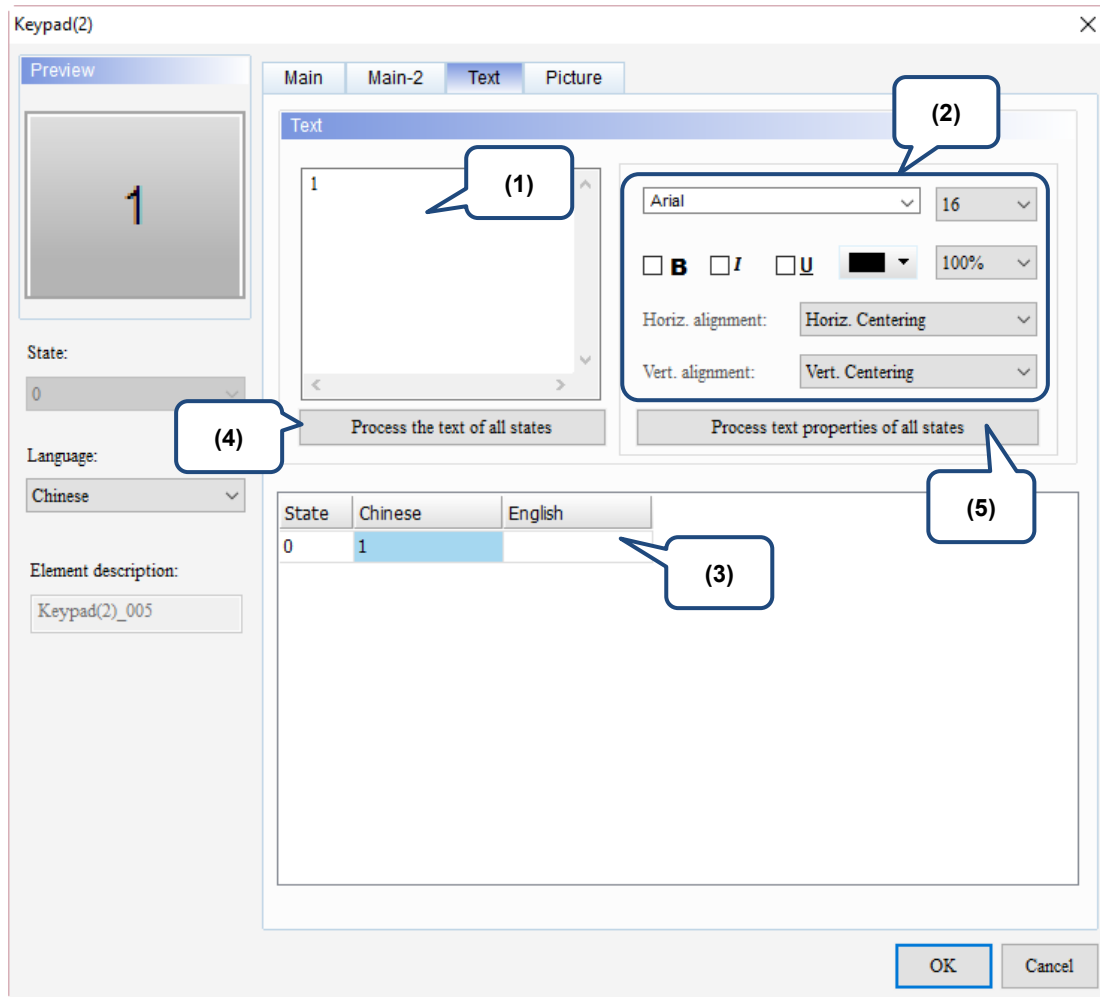
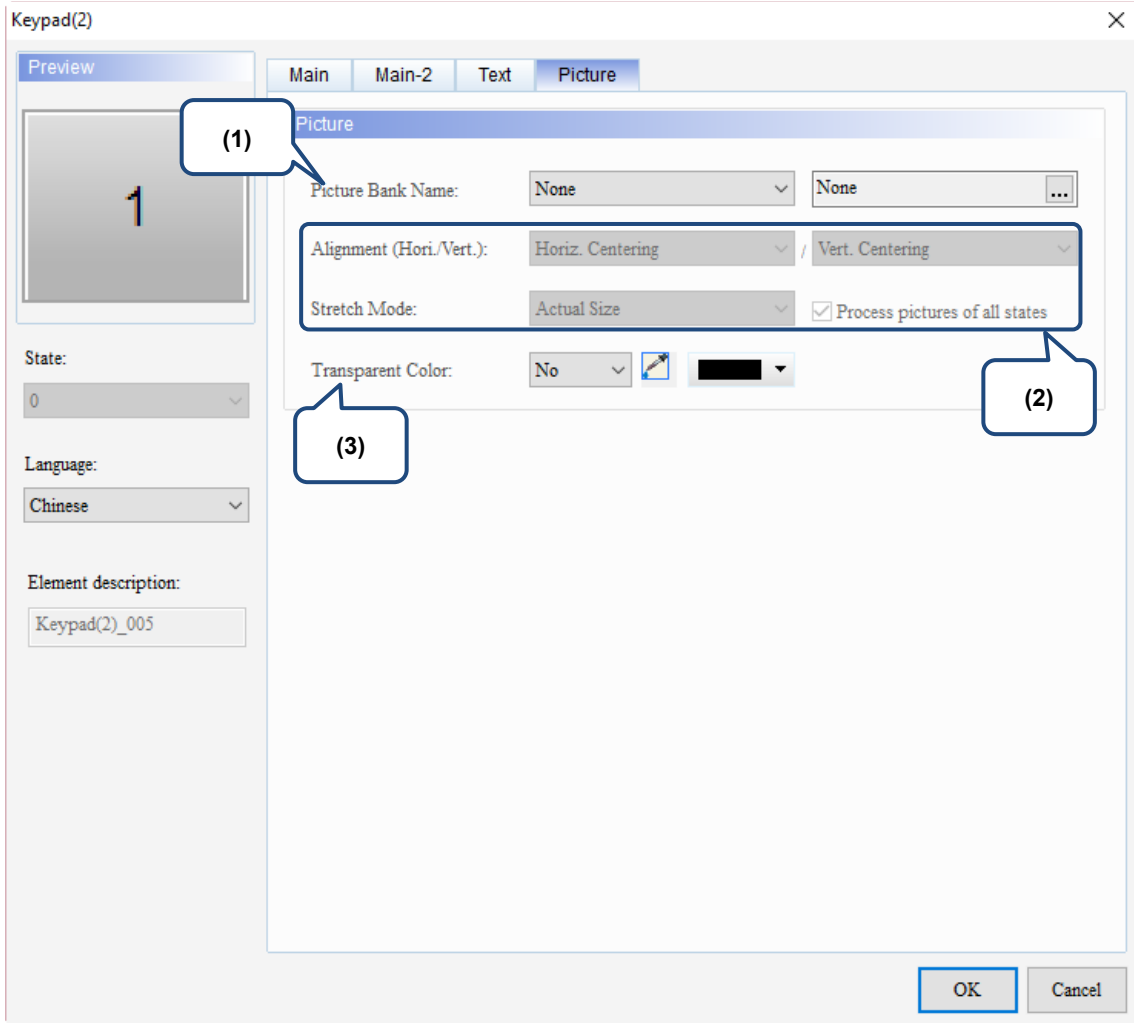


Figure 17.2.4 Text property page for the Keypad(2) element

No.	Property	Function description
(1)	Text	<p>You can enter the text to display in this box.</p>
(2)	Text Property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the texts.
(3)	Edit multi-language text	If you have added multi-language texts, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	This function is not supported as the Keypad element does not have multiple states.
(5)	Process text properties of all states	This function is not supported as the Keypad element does not have multiple states.

■ Picture

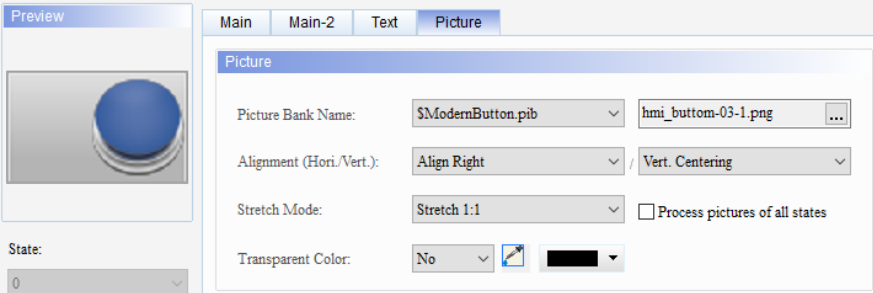














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Figure 17.2.5 Picture property page for the Keypad(2) element

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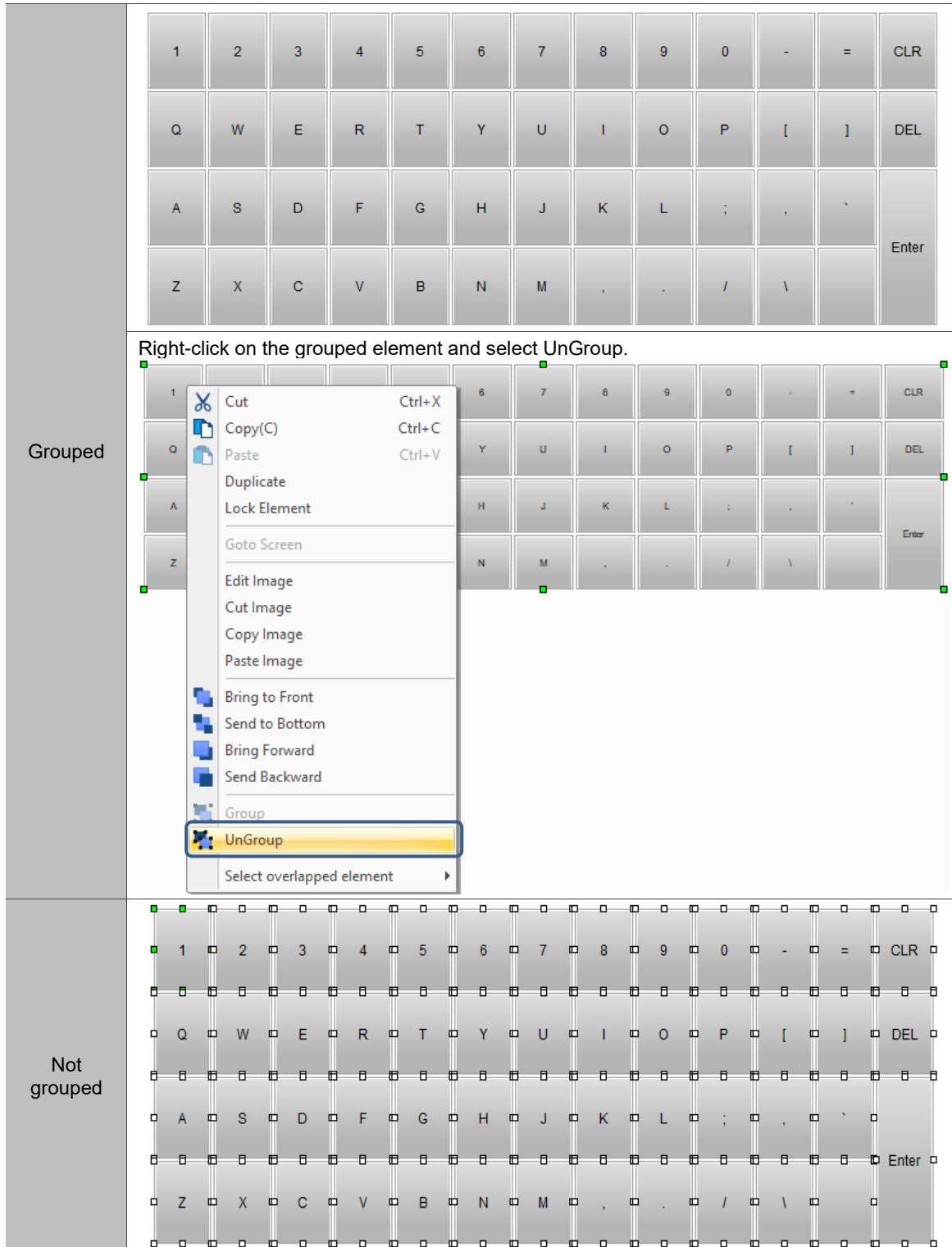
No.	Property	Function description
(1)	Picture Bank Name	<p>The Picture Bank Name default is None. To set the picture display, use the drop-down list box to select the picture bank provided by the software and then select the picture you need.</p>  <p>The 'Picture' dialog box includes the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: None (dropdown menu) Alignment (Hori./Vert.): Vert. Centering (dropdown menu) Stretch Mode: (checkbox) Transparent Color: (checkbox) <p>The 'Select Picture' dialog box displays a grid of button images with the following filenames and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

No.	Property	Function description								
<p>(2)</p>	<p>Alignment</p>	<ul style="list-style-type: none"> You can use the alignment options to set how pictures are aligned. 								
	<p>Stretch Mode</p>	<ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td> <p>If you select Stretch All, the picture fills the full element display area.</p> </td> <td> <p>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</p> </td> <td> <p>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</p> </td> </tr> <tr> <td>  </td> <td>  </td> <td>  </td> </tr> </tbody> </table> <ul style="list-style-type: none"> Assuming that the elements have multiple states and some pictures do not fill the full element display area, if you select the Process pictures of all states check box, you can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p style="text-align: center;"><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	<p>If you select Stretch All, the picture fills the full element display area.</p>	<p>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</p>	<p>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</p>		
Stretch All	Stretch 1:1	Actual Size								
<p>If you select Stretch All, the picture fills the full element display area.</p>	<p>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</p>	<p>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</p>								
										
<p>(3)</p>	<p>Transparent Color</p>	<p>Specify a color in the picture and turn this color into transparent.  is for selecting the transparent color. If you select the white part in the calendar, the software changes the white part into transparent, which becomes identical to the element foreground color.</p> <p style="text-align: center;">Foreground Color: </p> <div style="display: flex; justify-content: space-around;">   </div>								

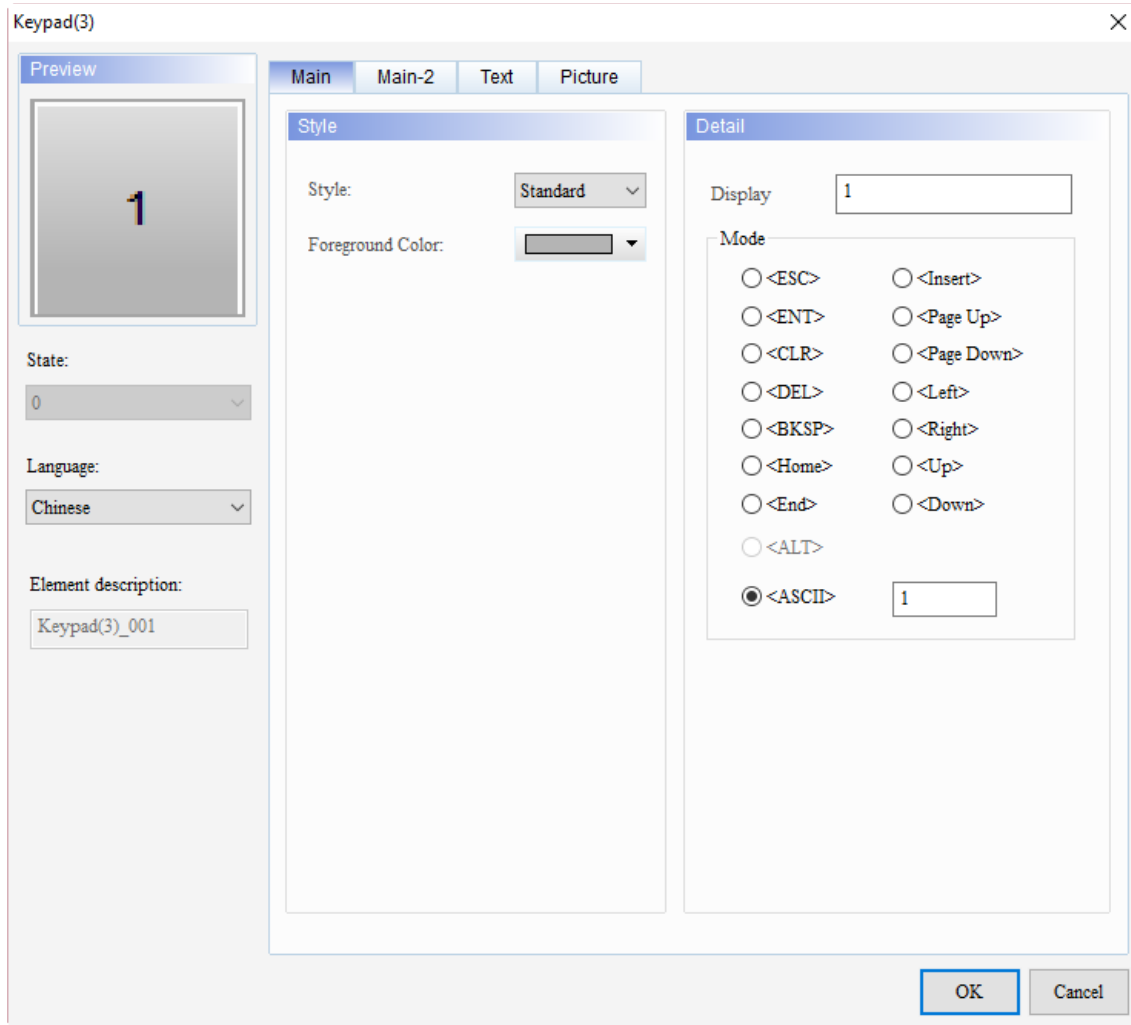
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17.3 Keypad(3)

Keypad(3) is an alphanumeric input keypad, for which you can customize the font, size, color, and alignment. It also provides a variety of modes for selection, including ESC, ENT, CLR, DEL, and ASCII. Keypad(3) is a grouped element, but you can right-click on the element to ungroup the element and separate the buttons on the keypad. You can also double-click the buttons for editing and making changes.



When you double-click the Keypad(3), the property page is shown as follows.



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Figure 17.3.1 Properties of Keypad(3)

Table 17.3.1 Function page of Keypad(3)

Keypad(3)	
Function page	Description
Preview	Keypad(3) elements do not support multiple state values, but can edit multi-language data display.
Main	Set the Style, Foreground Color, Display, and Mode.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color.

17

■ Main

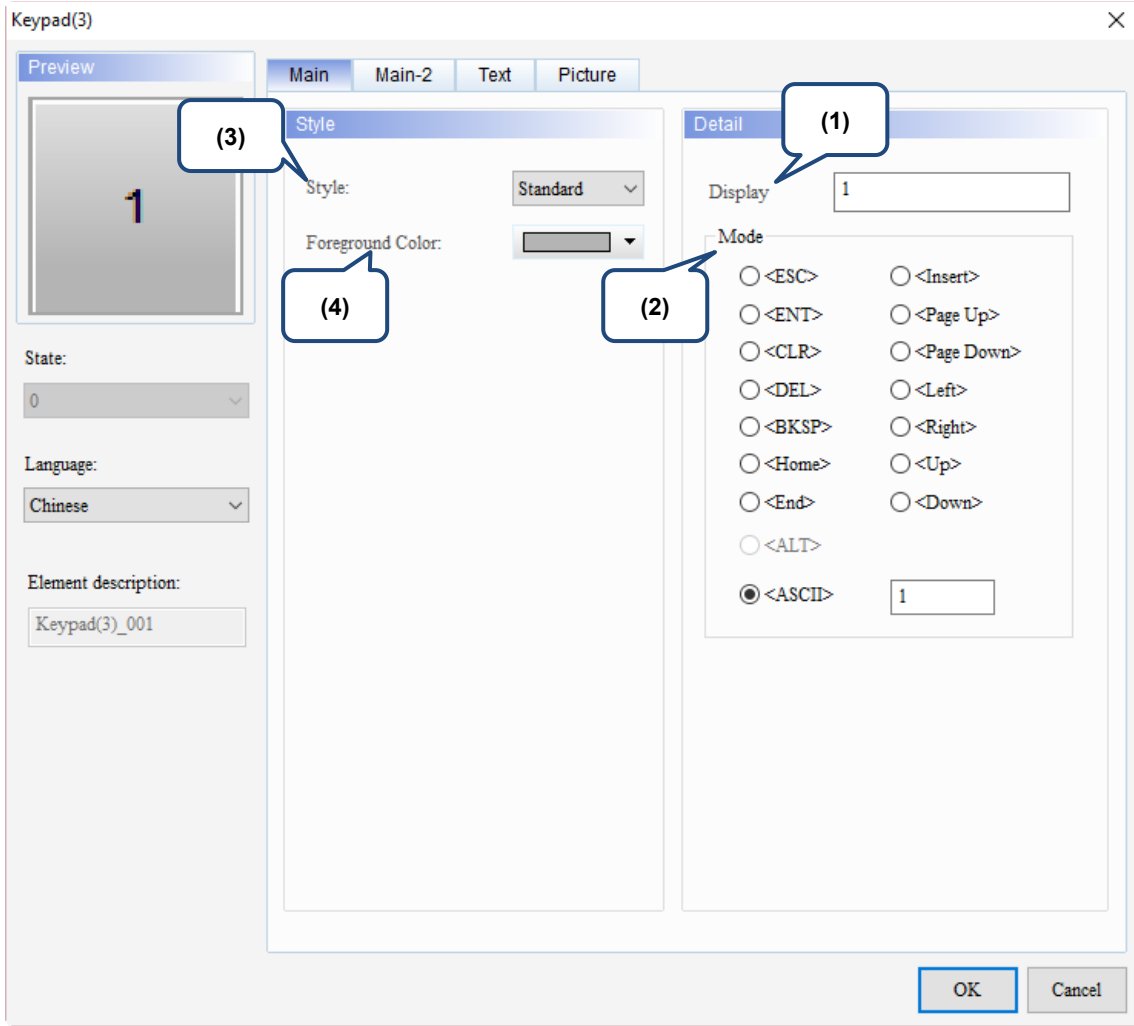
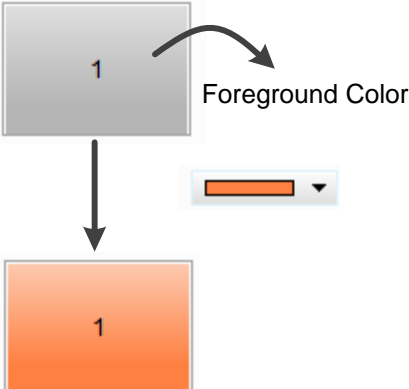


Figure 17.3.2 Main property page for the Keypad(3) element

No.	Property	Function description
(1)	Display	<p>When you press a button on Keypad(3), this will be the displaying value of that button.</p>

No.	Property	Function description				
(2)	Mode	<p>You can select a mode to define the action of a button. The 15 available modes include <ESC>, <ENT>, <CLR>, , <BKSP>, <Home>, <End>, <Insert>, <Page Up>, <Page Down>, <Left>, <Right>, <Up>, <Down>, and <ASCII>.</p> <ul style="list-style-type: none"> ■ <ESC>: cancel the entry. If the Keypad element is on a sub-screen, executing ESC will also close the sub-screen. ■ <ENT>: input the entry. ■ <CLR>: clear a string of characters. ■ : delete a single character. ■ <BKSP>: delete a single character. ■ <Home>: move the input cursor to the beginning of that line. ■ <End>: move the input cursor to the end of that line. ■ <Insert>: switch between insert and replace. ■ <Page Up>: switch the current page to the previous page. ■ <Page Down>: switch the current page to the next page. ■ <Left>: move the input cursor to the left by one character. ■ <Right>: move the input cursor to the right by one character. ■ <Up>: move the input cursor up a line. ■ <Down>: move the input cursor down a line. ■ <ASCII>: you can specify the input code. 				
(3)	Style	<p>The available element styles are Standard and Raised. You can change the appearance of the element with this setting.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Standard</th> <th>Raised</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> </tr> </tbody> </table>	Standard	Raised	1	1
Standard	Raised					
1	1					
(4)	Foreground Color	<p>Set the foreground color of the element.</p> 				

■ Main-2

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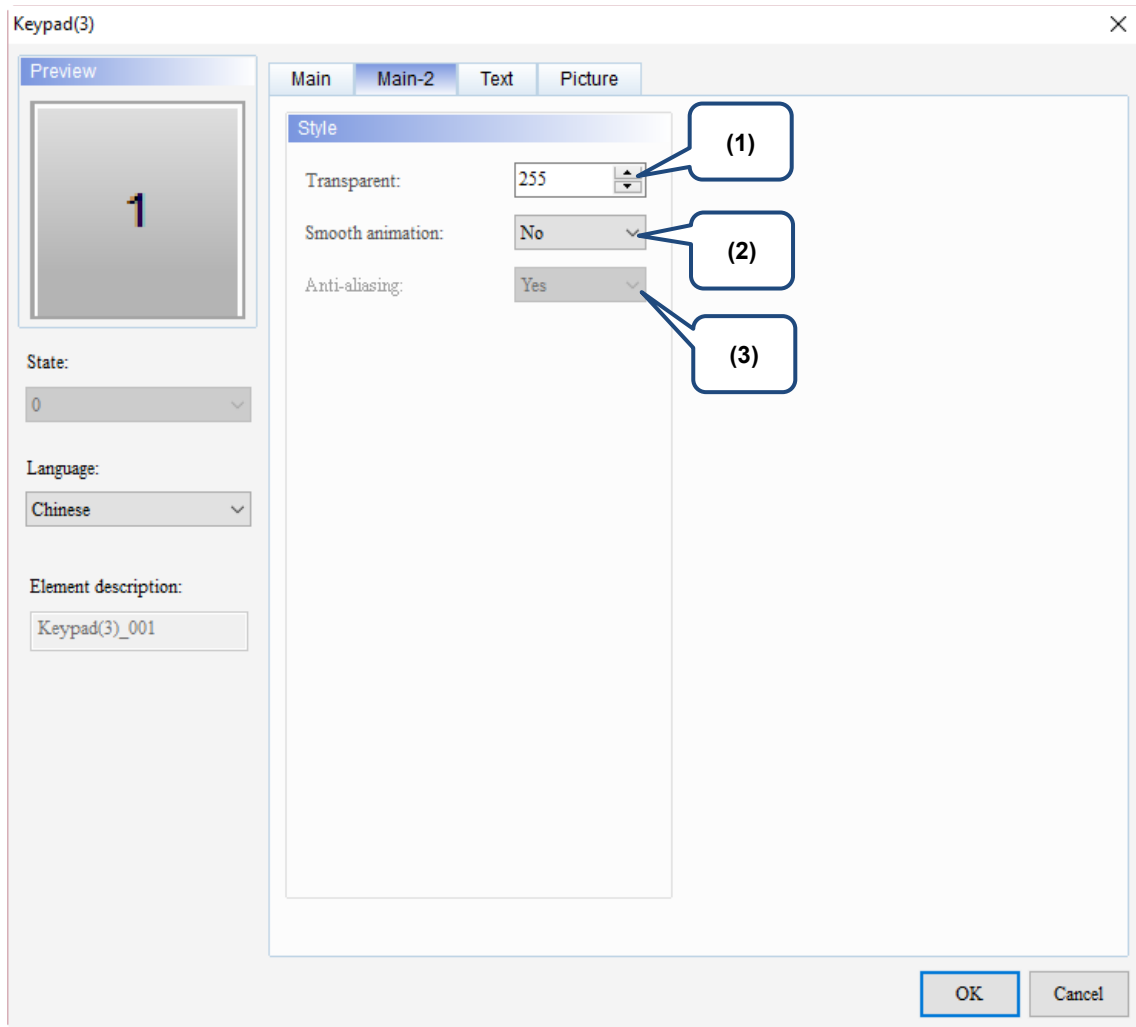








Figure 17.3.3 Main-2 property page for the Keypad(3) element

No.	Property	Function description																																																																																																																																						
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.																																																																																																																																						
(2)	Smooth animation	<ul style="list-style-type: none"> ■ The Smooth animation function is available for this element. ■ After ungrouping the button elements for the Keypad element, you can activate the Smooth animation function per button. When you activate the Smooth animation function, the button with this setting will enlarge when you press it. <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td rowspan="2" style="vertical-align: middle;">Yes</td> <td colspan="14">  </td> </tr> <tr> <td> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td><td>-</td><td>=</td><td>CLR</td></tr> <tr><td>Q</td><td>W</td><td>E</td><td>R</td><td>T</td><td>Y</td><td>U</td><td>I</td><td>O</td><td>P</td><td>[</td><td>]</td><td>DEL</td></tr> <tr><td>A</td><td>S</td><td>D</td><td>F</td><td>G</td><td>H</td><td>J</td><td>K</td><td>L</td><td>;</td><td>,</td><td>'</td><td rowspan="2">Enter</td></tr> <tr><td>Z</td><td>X</td><td>C</td><td>V</td><td>B</td><td>N</td><td>M</td><td>.</td><td>.</td><td>/</td><td>\</td><td></td></tr> </table> </td> </tr> <tr> <td rowspan="2" style="vertical-align: middle;">No</td> <td colspan="14">  </td> </tr> <tr> <td> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td><td>-</td><td>=</td><td>CLR</td></tr> <tr><td>Q</td><td>W</td><td>E</td><td>R</td><td>T</td><td>Y</td><td>U</td><td>I</td><td>O</td><td>P</td><td>[</td><td>]</td><td>DEL</td></tr> <tr><td>A</td><td>S</td><td>D</td><td>F</td><td>G</td><td>H</td><td>J</td><td>K</td><td>L</td><td>;</td><td>,</td><td>'</td><td rowspan="2">Enter</td></tr> <tr><td>Z</td><td>X</td><td>C</td><td>V</td><td>B</td><td>N</td><td>M</td><td>.</td><td>.</td><td>/</td><td>\</td><td></td></tr> </table> </td> </tr> </table>	Yes															<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td><td>-</td><td>=</td><td>CLR</td></tr> <tr><td>Q</td><td>W</td><td>E</td><td>R</td><td>T</td><td>Y</td><td>U</td><td>I</td><td>O</td><td>P</td><td>[</td><td>]</td><td>DEL</td></tr> <tr><td>A</td><td>S</td><td>D</td><td>F</td><td>G</td><td>H</td><td>J</td><td>K</td><td>L</td><td>;</td><td>,</td><td>'</td><td rowspan="2">Enter</td></tr> <tr><td>Z</td><td>X</td><td>C</td><td>V</td><td>B</td><td>N</td><td>M</td><td>.</td><td>.</td><td>/</td><td>\</td><td></td></tr> </table>	1	2	3	4	5	6	7	8	9	0	-	=	CLR	Q	W	E	R	T	Y	U	I	O	P	[]	DEL	A	S	D	F	G	H	J	K	L	;	,	'	Enter	Z	X	C	V	B	N	M	.	.	/	\		No															<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td><td>-</td><td>=</td><td>CLR</td></tr> <tr><td>Q</td><td>W</td><td>E</td><td>R</td><td>T</td><td>Y</td><td>U</td><td>I</td><td>O</td><td>P</td><td>[</td><td>]</td><td>DEL</td></tr> <tr><td>A</td><td>S</td><td>D</td><td>F</td><td>G</td><td>H</td><td>J</td><td>K</td><td>L</td><td>;</td><td>,</td><td>'</td><td rowspan="2">Enter</td></tr> <tr><td>Z</td><td>X</td><td>C</td><td>V</td><td>B</td><td>N</td><td>M</td><td>.</td><td>.</td><td>/</td><td>\</td><td></td></tr> </table>	1	2	3	4	5	6	7	8	9	0	-	=	CLR	Q	W	E	R	T	Y	U	I	O	P	[]	DEL	A	S	D	F	G	H	J	K	L	;	,	'	Enter	Z	X	C	V	B	N	M	.	.	/	\	
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	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td><td>-</td><td>=</td><td>CLR</td></tr> <tr><td>Q</td><td>W</td><td>E</td><td>R</td><td>T</td><td>Y</td><td>U</td><td>I</td><td>O</td><td>P</td><td>[</td><td>]</td><td>DEL</td></tr> <tr><td>A</td><td>S</td><td>D</td><td>F</td><td>G</td><td>H</td><td>J</td><td>K</td><td>L</td><td>;</td><td>,</td><td>'</td><td rowspan="2">Enter</td></tr> <tr><td>Z</td><td>X</td><td>C</td><td>V</td><td>B</td><td>N</td><td>M</td><td>.</td><td>.</td><td>/</td><td>\</td><td></td></tr> </table>	1	2	3	4	5	6	7	8	9	0	-	=	CLR	Q	W	E	R	T	Y	U	I	O	P	[]	DEL	A	S	D	F	G	H	J	K	L	;	,	'	Enter	Z	X	C	V	B	N	M	.	.	/	\																																																																																					
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Z	X	C	V	B	N	M	.	.	/	\																																																																																																																														
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.																																																																																																																																						

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■ Text

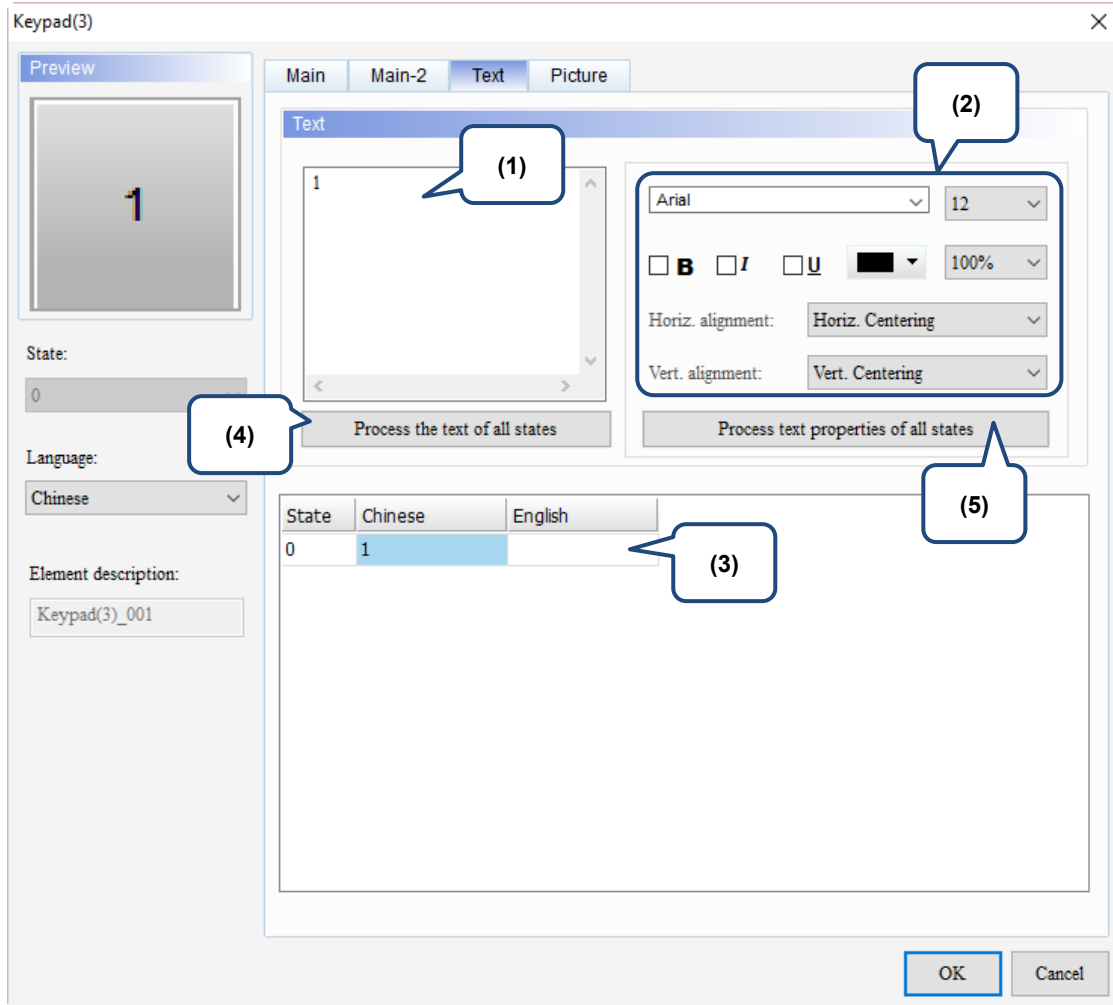
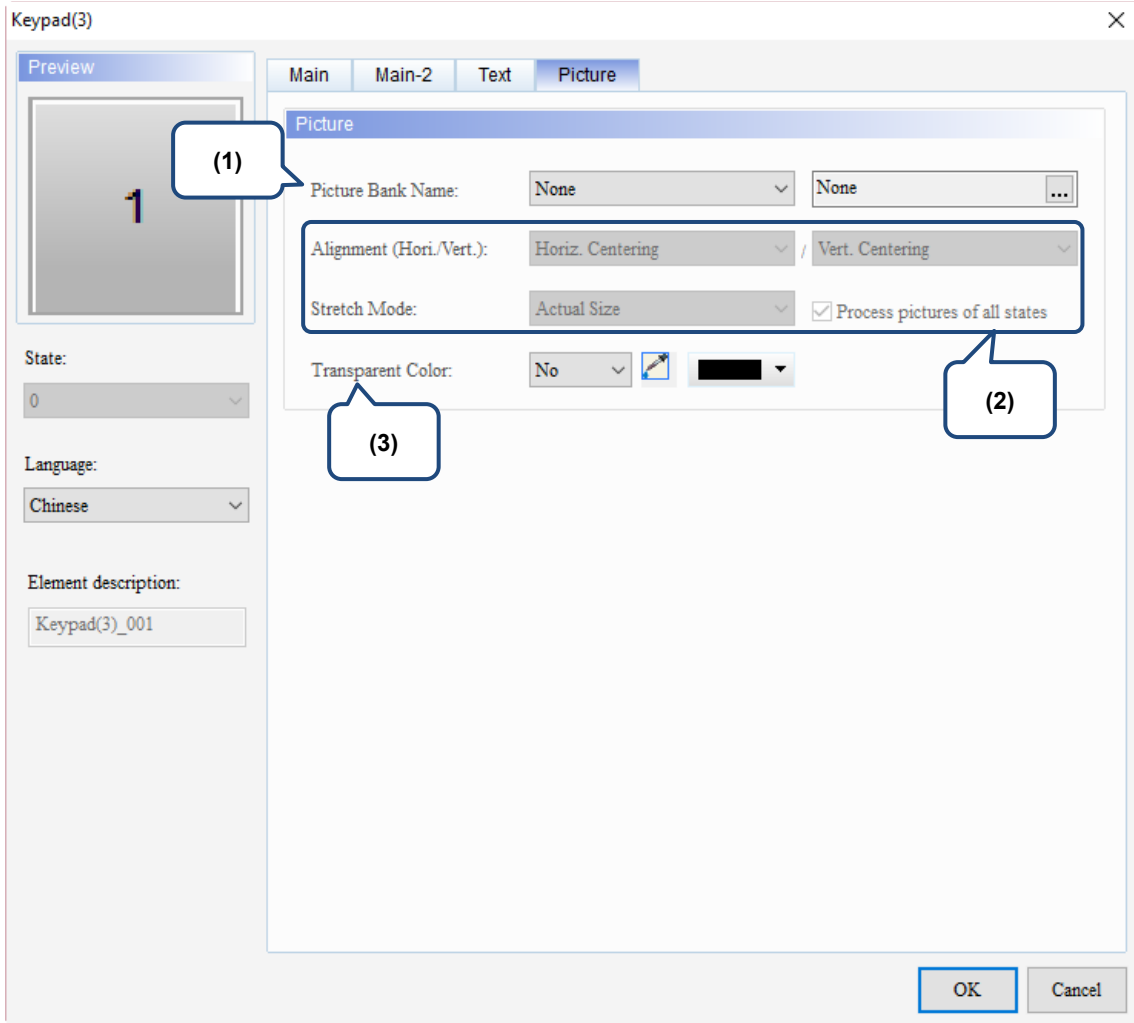


Figure 17.3.4 Text property page for the Keypad(3) element

No.	Property	Function description
(1)	Text	<p>You can enter the text to display in this box.</p>
(2)	Text Property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the texts.
(3)	Edit multi-language text	If you have added multi-language texts, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	This function is not supported as the Keypad element does not have multiple states.
(5)	Process text properties of all states	This function is not supported as the Keypad element does not have multiple states.

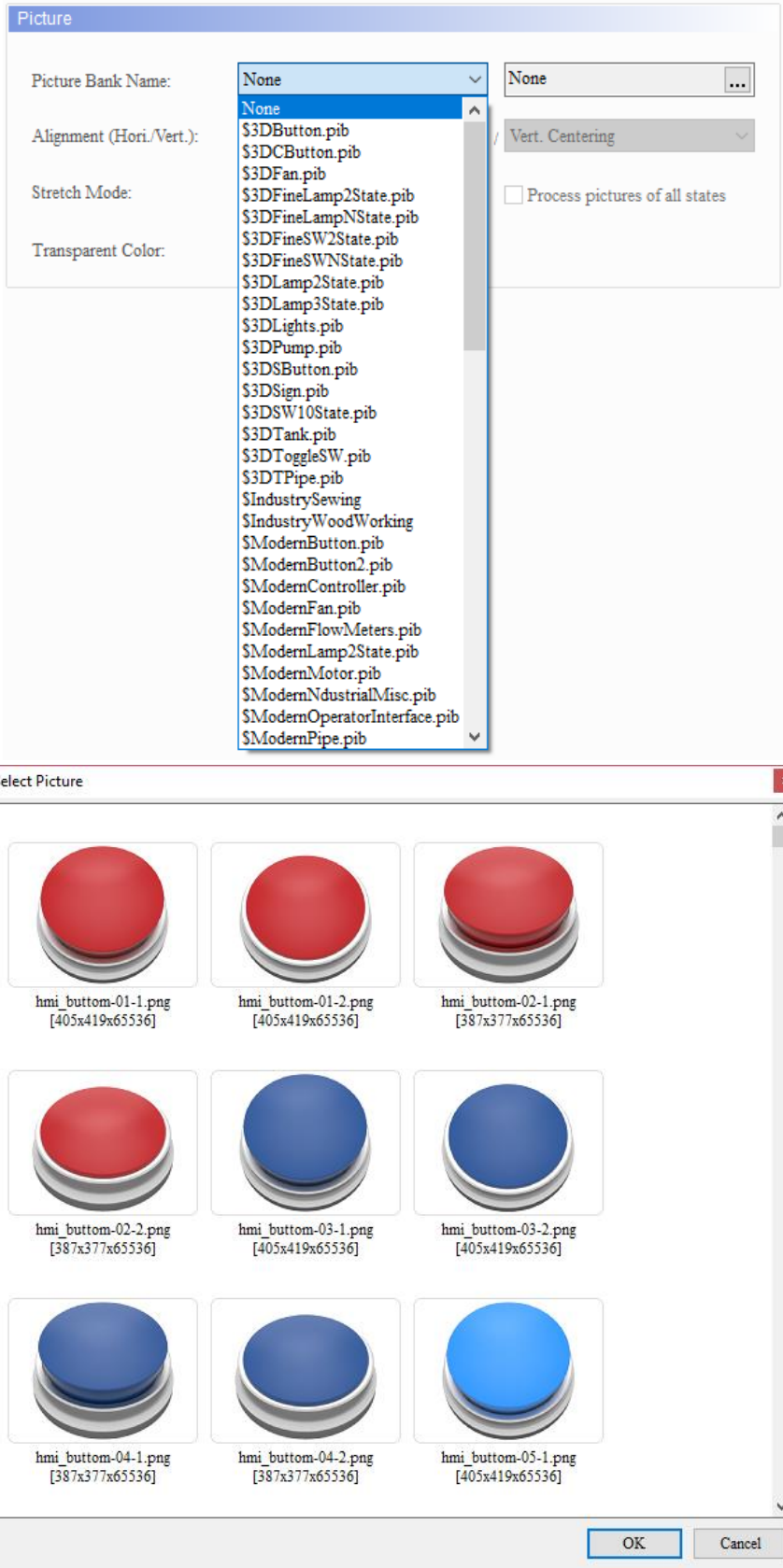
■ Picture

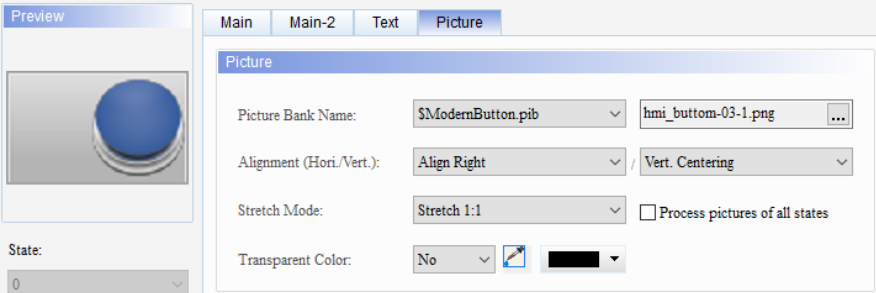














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Figure 17.3.5 Picture property page for the Keypad(3) element

17

No.	Property	Function description
(1)	Picture Bank Name	<p>The Picture Bank Name default is None. To set the picture display, use the drop-down list box to select the picture bank provided by the software and then select the picture you need.</p>  <p>The 'Picture' dialog box includes the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: A drop-down menu currently showing 'None' and a list of picture banks including \$3DButton.pib, \$3DCButton.pib, \$3DFan.pib, \$3DFineLamp2State.pib, \$3DFineLampNState.pib, \$3DFineSW2State.pib, \$3DFineSWNState.pib, \$3DLamp2State.pib, \$3DLamp3State.pib, \$3DLights.pib, \$3DPump.pib, \$3DSButton.pib, \$3DSign.pib, \$3DSW10State.pib, \$3DTank.pib, \$3DToggleSW.pib, \$3DTPipe.pib, \$IndustrySewing, \$IndustryWoodWorking, \$ModernButton.pib, \$ModernButton2.pib, \$ModernController.pib, \$ModernFan.pib, \$ModernFlowMeters.pib, \$ModernLamp2State.pib, \$ModernMotor.pib, \$ModernNdustrualMisc.pib, \$ModernOperatorInterface.pib, and \$ModernPipe.pib. Alignment (Hori./Vert.): A field showing 'Vert. Centering'. Stretch Mode: A field. Transparent Color: A field. Process pictures of all states: A checkbox. <p>The 'Select Picture' dialog box displays a grid of nine button images with their respective file names and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

No.	Property	Function description									
(2)	Alignment	<p>■ You can use the alignment options to set how pictures are aligned.</p>  <p>■ The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size.</p> <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.			
	Stretch All	Stretch 1:1	Actual Size								
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.									
											
Stretch Mode	<p>■ Assuming that the elements have multiple states and some pictures do not fill the full element display area, if you select the Process pictures of all states check box, you can use this function to process all pictures instead of setting them one by one, which saves the editing time.</p> <p><input checked="" type="checkbox"/> Process pictures of all states</p>										
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent.  is for selecting the transparent color. If you select the white part in the calendar, the software changes the white part into transparent, which becomes identical to the element foreground color.</p> <p>Foreground Color: </p> 									

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17

This chapter provides the usage and setting details for the Slider elements.



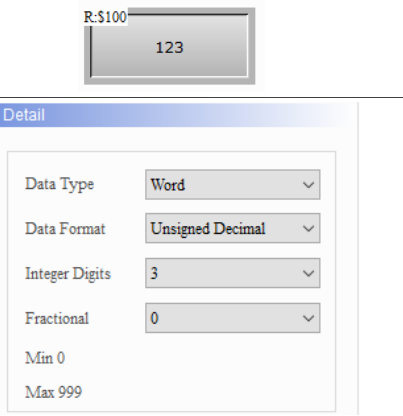
18.1	Slider	18-2
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18

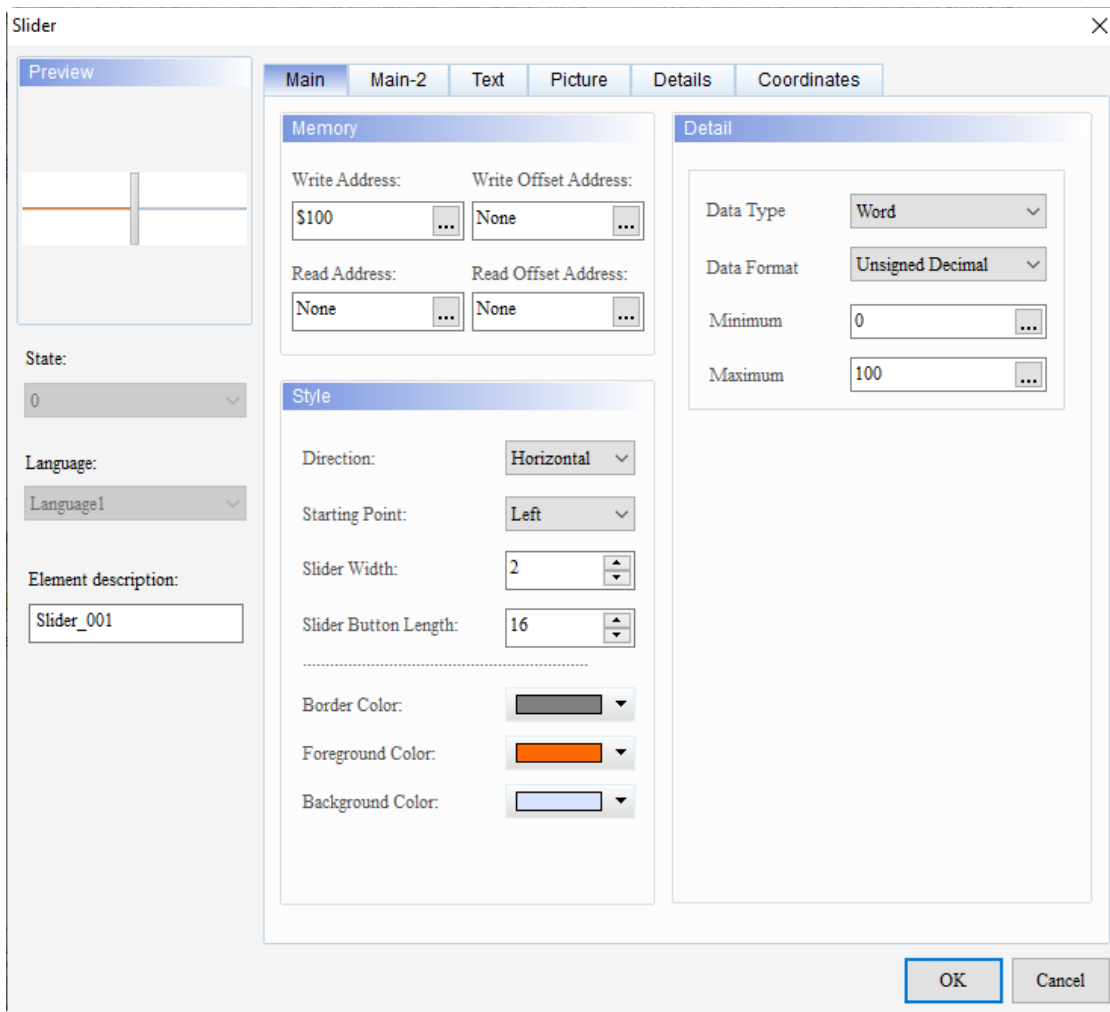
18.1 Slider

You can use the Slider element to drag and adjust the value easily. Refer to Table 18.1.1 for the Slider element example.

Table 18.1.1 Slider element example

Slider		
<p>Create Slider element</p>	<p>Step 1: create a Slider element with its Write Address as \$100, and then set the Minimum and Maximum as 0 and 100 respectively.</p> 	
<p>Create Numeric Display element</p>	<p>Numeric Display element</p>	<p>Step 2: create a Numeric Display element with its Read Address as \$100 and complete the Detail settings.</p> 
<p>Execution results</p>	<p>After creating the elements, compile and download the elements to the HMI. When you move the Slider element, the Numeric Display element will show the value corresponding to the movement of the Slider element.</p> 	

When you double-click the Slider element, the property page is shown as follows.



18

Figure 18.1.1 Properties of the Slider element

Table 18.1.2 Function page of the Slider element

Slider	
Function page	Description
Preview	Slider elements do not support multiple state values, but can edit multi-language data display.
Main	Set the Write Address, Read Address, Write Offset Address, Read Offset Address, Data Type, Data Format, Minimum, and Maximum. Set the Direction, Starting Point, Slider Width, Slider Button Length, Border Color, Foreground Color, and Background Color.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment type.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color.
Details	Set the Interlock State, Interlock Display Mode, and Interlock Address.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

18

■ Main

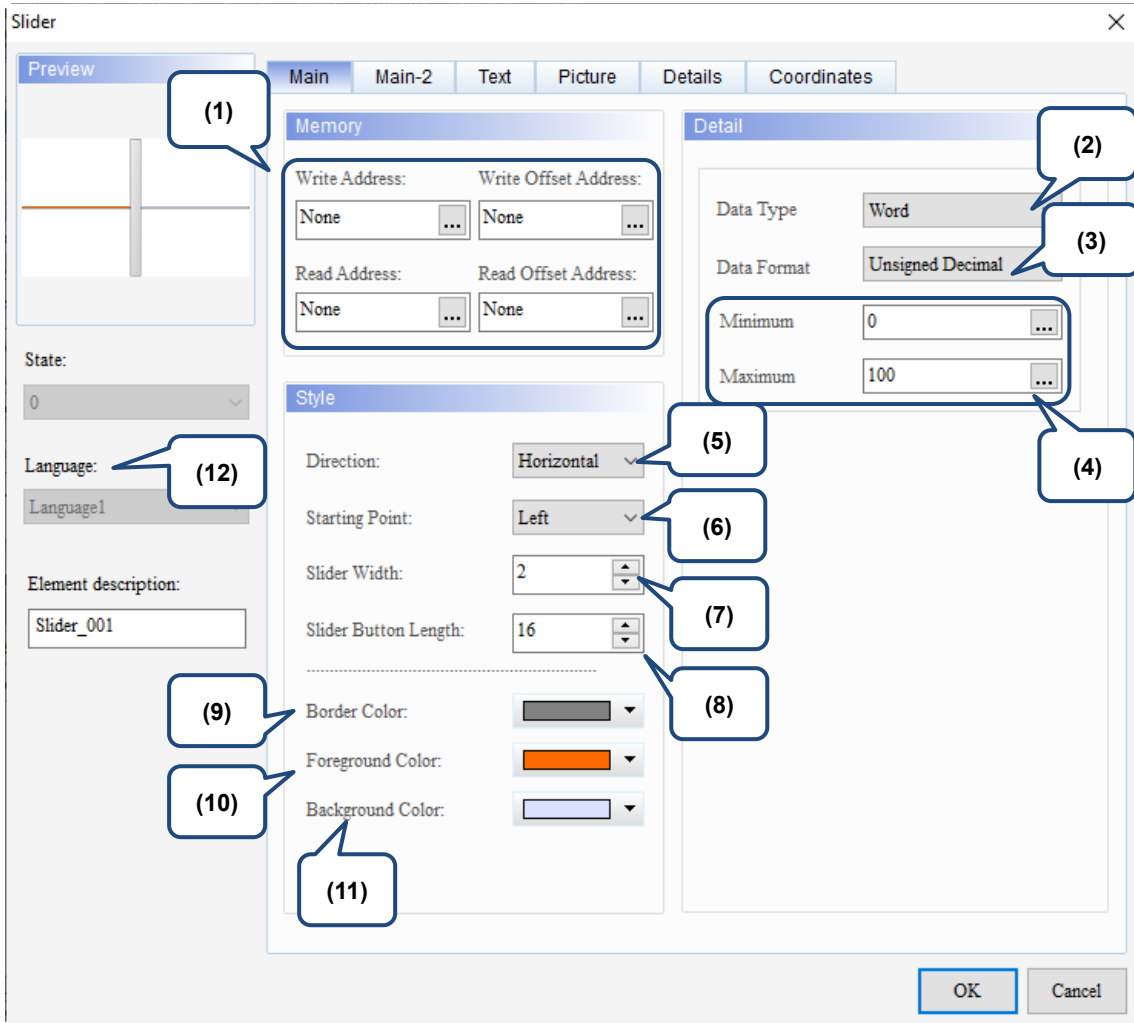
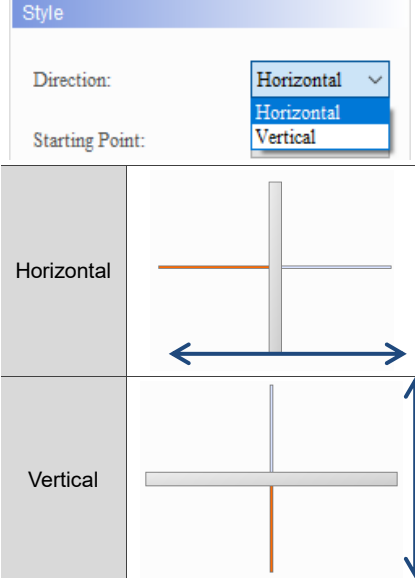
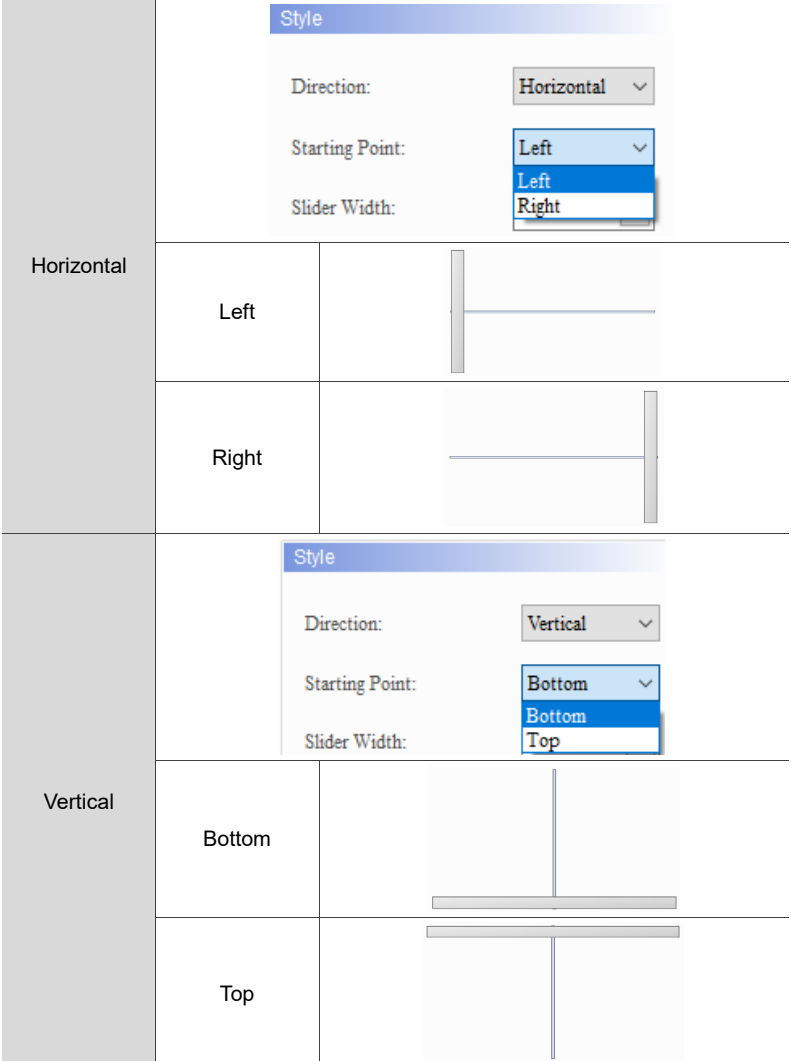


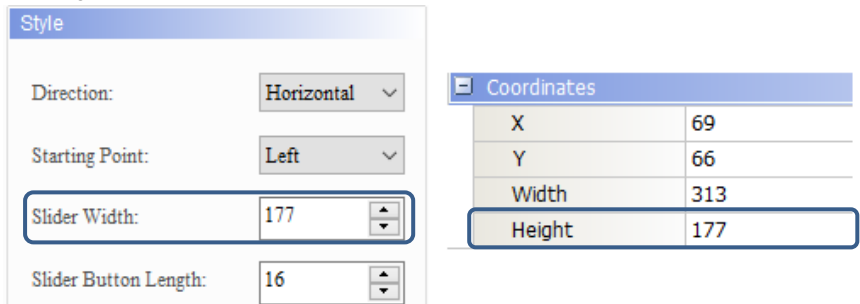
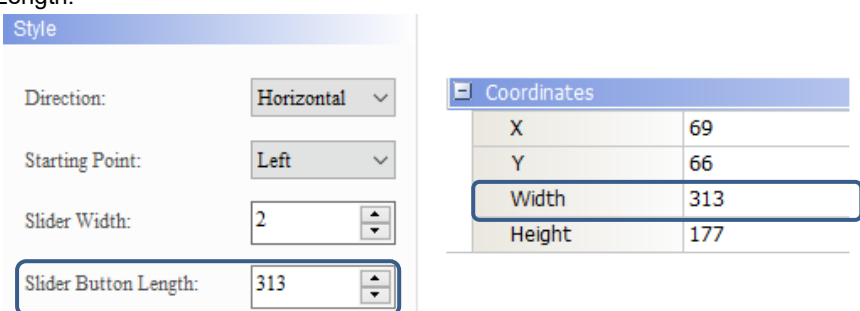
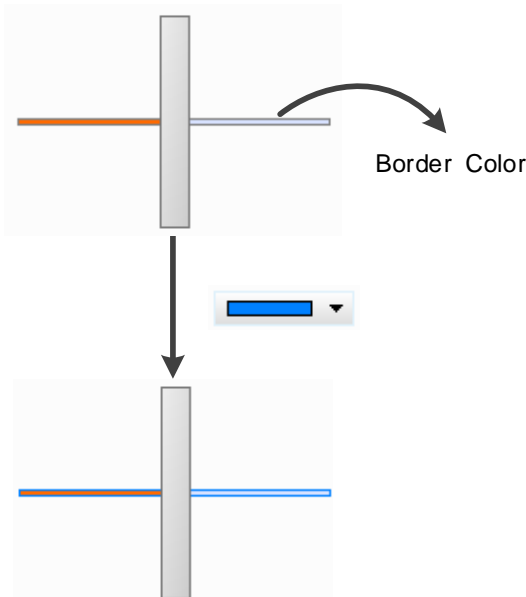
Figure 18.1.2 Main property page for the Slider element

No.	Property	Function description								
(1)	Write Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. The input memory type has to be Word. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. 								
	Read Address									
	Write Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.								
	Read Offset Address									
(2)	Data Type	Data Type includes Word and Double Word. <div style="border: 1px solid grey; padding: 5px; margin-top: 10px;"> <p style="text-align: center; background-color: #e0e0e0; margin: 0;">Detail</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Data Type</td> <td style="border: 1px solid grey;">Word v</td> </tr> <tr> <td>Data Format</td> <td style="border: 1px solid grey;">Word Double Word</td> </tr> <tr> <td>Minimum</td> <td style="border: 1px solid grey;">0</td> </tr> <tr> <td>Maximum</td> <td style="border: 1px solid grey;">100</td> </tr> </table> </div>	Data Type	Word v	Data Format	Word Double Word	Minimum	0	Maximum	100
Data Type	Word v									
Data Format	Word Double Word									
Minimum	0									
Maximum	100									

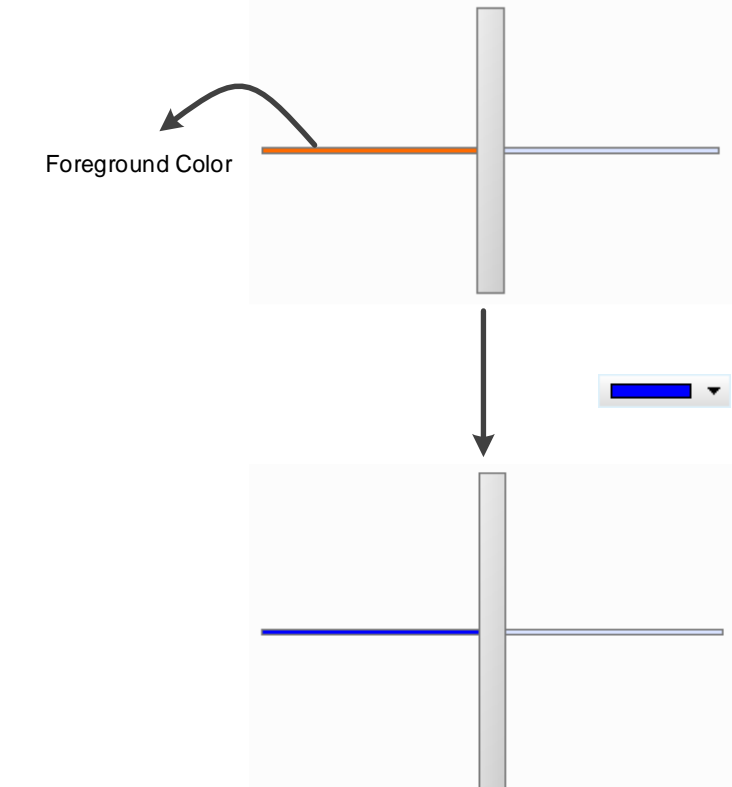
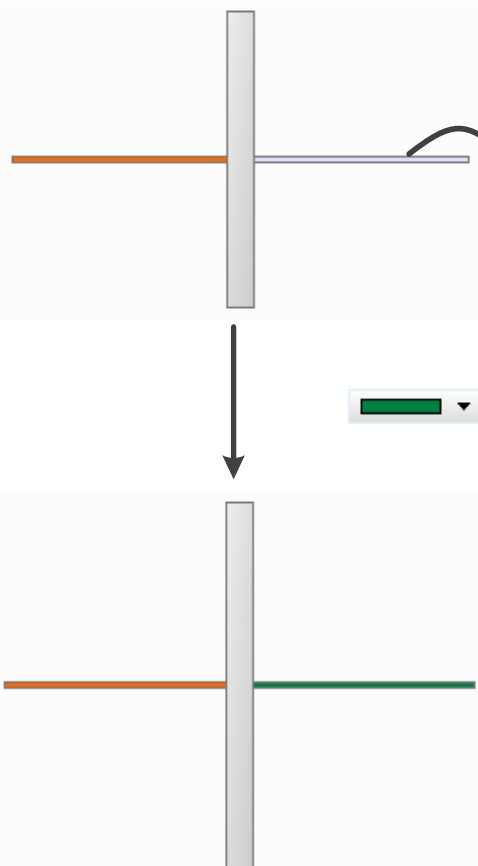
No.	Property	Function description																										
(3)	Data Format	<ul style="list-style-type: none"> ■ When the Data Type is Word, the supported data formats are as follows: <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> Detail <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Data Type</td> <td>Word</td> </tr> <tr> <td>Data Format</td> <td>Unsigned Decimal</td> </tr> <tr> <td>Minimum</td> <td>BCD Signed BCD Signed Decimal</td> </tr> <tr> <td>Maximum</td> <td>Unsigned Decimal Hexadecimal</td> </tr> </table> </div> ■ When the Data Type is Double Word, the supported data formats are as follows: <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> Detail <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Data Type</td> <td>Double Word</td> </tr> <tr> <td>Data Format</td> <td>Unsigned Decimal</td> </tr> <tr> <td>Minimum</td> <td>BCD Signed BCD Signed Decimal</td> </tr> <tr> <td>Maximum</td> <td>Unsigned Decimal Hexadecimal</td> </tr> </table> </div> 	Data Type	Word	Data Format	Unsigned Decimal	Minimum	BCD Signed BCD Signed Decimal	Maximum	Unsigned Decimal Hexadecimal	Data Type	Double Word	Data Format	Unsigned Decimal	Minimum	BCD Signed BCD Signed Decimal	Maximum	Unsigned Decimal Hexadecimal										
Data Type	Word																											
Data Format	Unsigned Decimal																											
Minimum	BCD Signed BCD Signed Decimal																											
Maximum	Unsigned Decimal Hexadecimal																											
Data Type	Double Word																											
Data Format	Unsigned Decimal																											
Minimum	BCD Signed BCD Signed Decimal																											
Maximum	Unsigned Decimal Hexadecimal																											
(4)	Minimum / Maximum	<p>The allowable ranges for the minimum and maximum values vary based on the selected data type, integer digits, and fractional digits. In the following example, no fractional digit is set.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Data Type</th> <th style="width: 30%;">Data Format</th> <th style="width: 50%;">Allowable range</th> </tr> </thead> <tbody> <tr> <td rowspan="5" style="text-align: center; vertical-align: middle;">Word</td> <td style="text-align: center;">BCD</td> <td style="text-align: center;">0 to 9999</td> </tr> <tr> <td style="text-align: center;">Signed BCD</td> <td style="text-align: center;">-999 to +9999</td> </tr> <tr> <td style="text-align: center;">Signed Decimal</td> <td style="text-align: center;">-32768 to +32767</td> </tr> <tr> <td style="text-align: center;">Unsigned Decimal</td> <td style="text-align: center;">0 to 65535</td> </tr> <tr> <td style="text-align: center;">Hex</td> <td style="text-align: center;">0 to 0xFFFF</td> </tr> <tr> <td rowspan="4" style="text-align: center; vertical-align: middle;">Double Word</td> <td style="text-align: center;">BCD</td> <td style="text-align: center;">0 to 99999999</td> </tr> <tr> <td style="text-align: center;">Signed BCD</td> <td style="text-align: center;">-99999999 to +99999999</td> </tr> <tr> <td style="text-align: center;">Signed Decimal</td> <td style="text-align: center;">-2147483648 to +2147483647</td> </tr> <tr> <td style="text-align: center;">Unsigned Decimal</td> <td style="text-align: center;">0 to 4294967295</td> </tr> <tr> <td></td> <td style="text-align: center;">Hex</td> <td style="text-align: center;">0 to 0xFFFFFFFF</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Word	BCD	0 to 9999	Signed BCD	-999 to +9999	Signed Decimal	-32768 to +32767	Unsigned Decimal	0 to 65535	Hex	0 to 0xFFFF	Double Word	BCD	0 to 99999999	Signed BCD	-99999999 to +99999999	Signed Decimal	-2147483648 to +2147483647	Unsigned Decimal	0 to 4294967295		Hex	0 to 0xFFFFFFFF
Data Type	Data Format	Allowable range																										
Word	BCD	0 to 9999																										
	Signed BCD	-999 to +9999																										
	Signed Decimal	-32768 to +32767																										
	Unsigned Decimal	0 to 65535																										
	Hex	0 to 0xFFFF																										
Double Word	BCD	0 to 99999999																										
	Signed BCD	-99999999 to +99999999																										
	Signed Decimal	-2147483648 to +2147483647																										
	Unsigned Decimal	0 to 4294967295																										
	Hex	0 to 0xFFFFFFFF																										

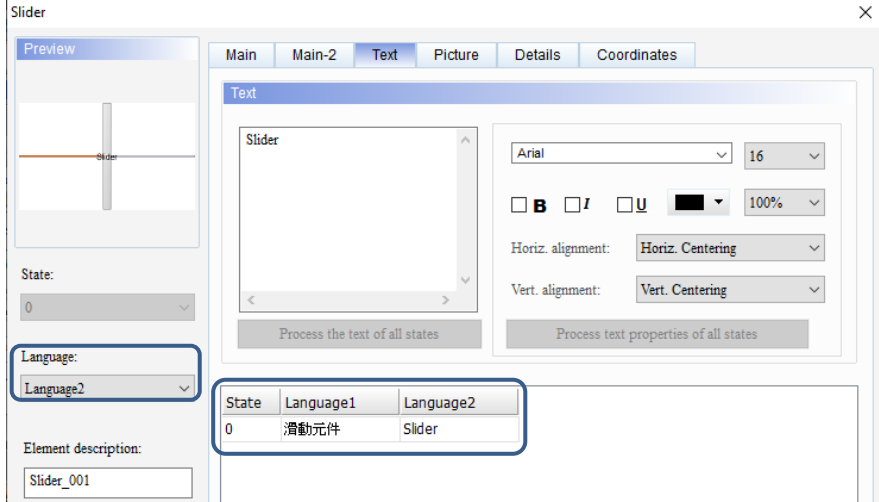
18

No.	Property	Function description
(5)	Direction	<p>The options for Direction include Horizontal and Vertical. Horizontal means the Slider button moves horizontally (left and right); Vertical means the Slider button moves vertically (up and down).</p> 
(6)	Starting Point	<ul style="list-style-type: none"> Starting Point varies depending on the selected Direction. This is the starting point position of the Slider button after the Slider element is loaded. The Starting Point is Left or Right when the Direction is Horizontal; the Starting Point is Bottom or Top when the Direction is Vertical. 

No.	Property	Function description
(7)	Slider Width	<p>The height of the Slider element determines the maximum value of the Slider Width.</p> 
(8)	Slider Button Length	<p>The width of the Slider element determines the maximum value of the Slider Button Length.</p> 
(9)	Border Color	<p>Set the border color of the element.</p> 

18

No.	Property	Function description
(10)	Foreground Color	<p>Set the foreground color of the element.</p> 
(11)	Background Color	<p>Set the background color of the element.</p> 

No.	Property	Function description						
(12)	Language	<p>If you have set the language data, you can edit the properties of the text to be displayed with the Language setting of the element.</p>  <p>The screenshot shows the 'Slider' element's configuration window. The 'Text' tab is selected, showing a text area with the word 'Slider'. Below the text area are buttons for 'Process the text of all states' and 'Process text properties of all states'. On the left, there are formatting options: font (Arial), size (16), bold (B), italic (I), underline (U), and color (black). Alignment options are 'Horiz. Centering' and 'Vert. Centering'. At the bottom, a table shows the text for different states:</p> <table border="1"> <thead> <tr> <th>State</th> <th>Language1</th> <th>Language2</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>滑動元件</td> <td>Slider</td> </tr> </tbody> </table> <p>The 'Language' dropdown is set to 'Language2', and the 'Element description' field contains 'Slider_001'.</p>	State	Language1	Language2	0	滑動元件	Slider
State	Language1	Language2						
0	滑動元件	Slider						

18

18

■ Main-2

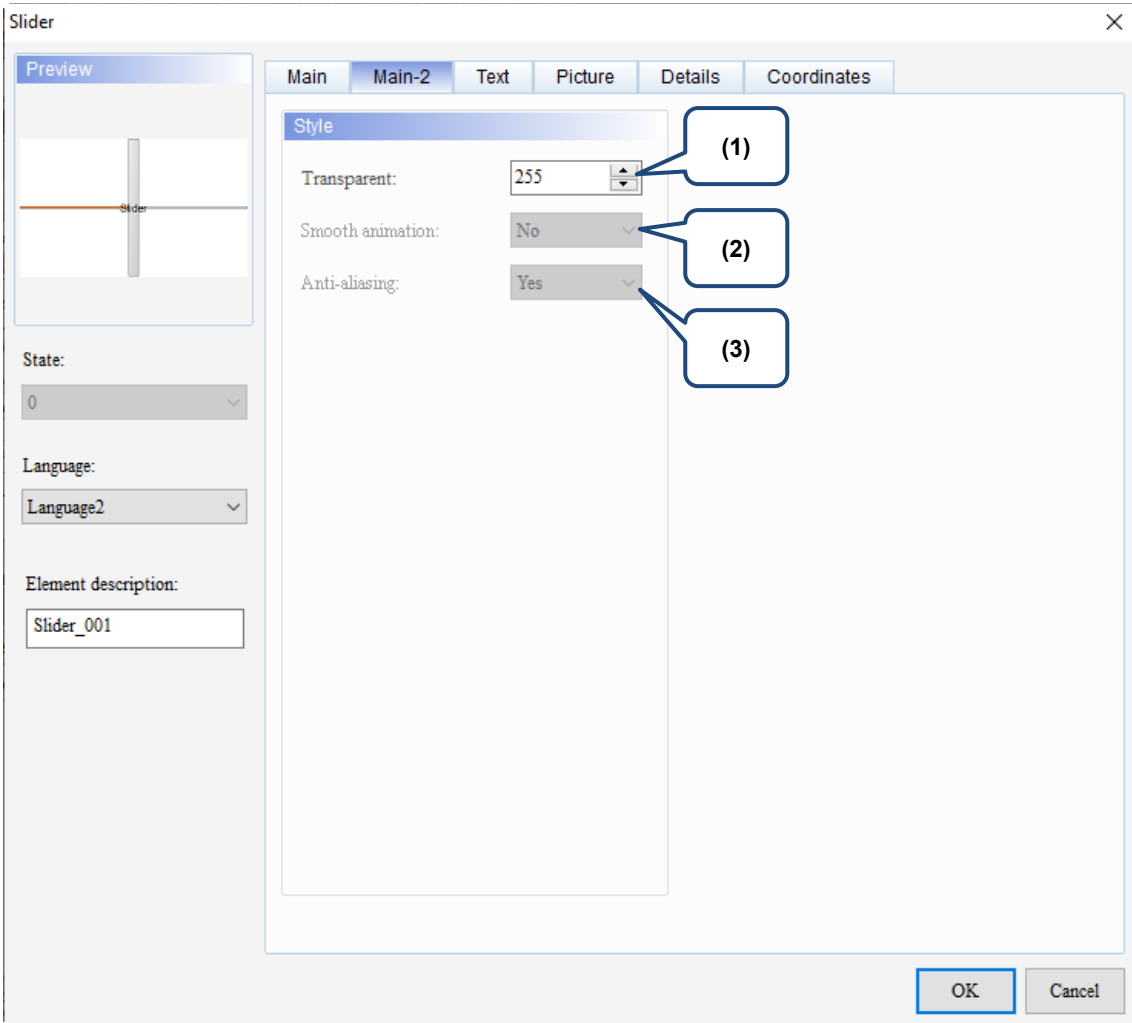
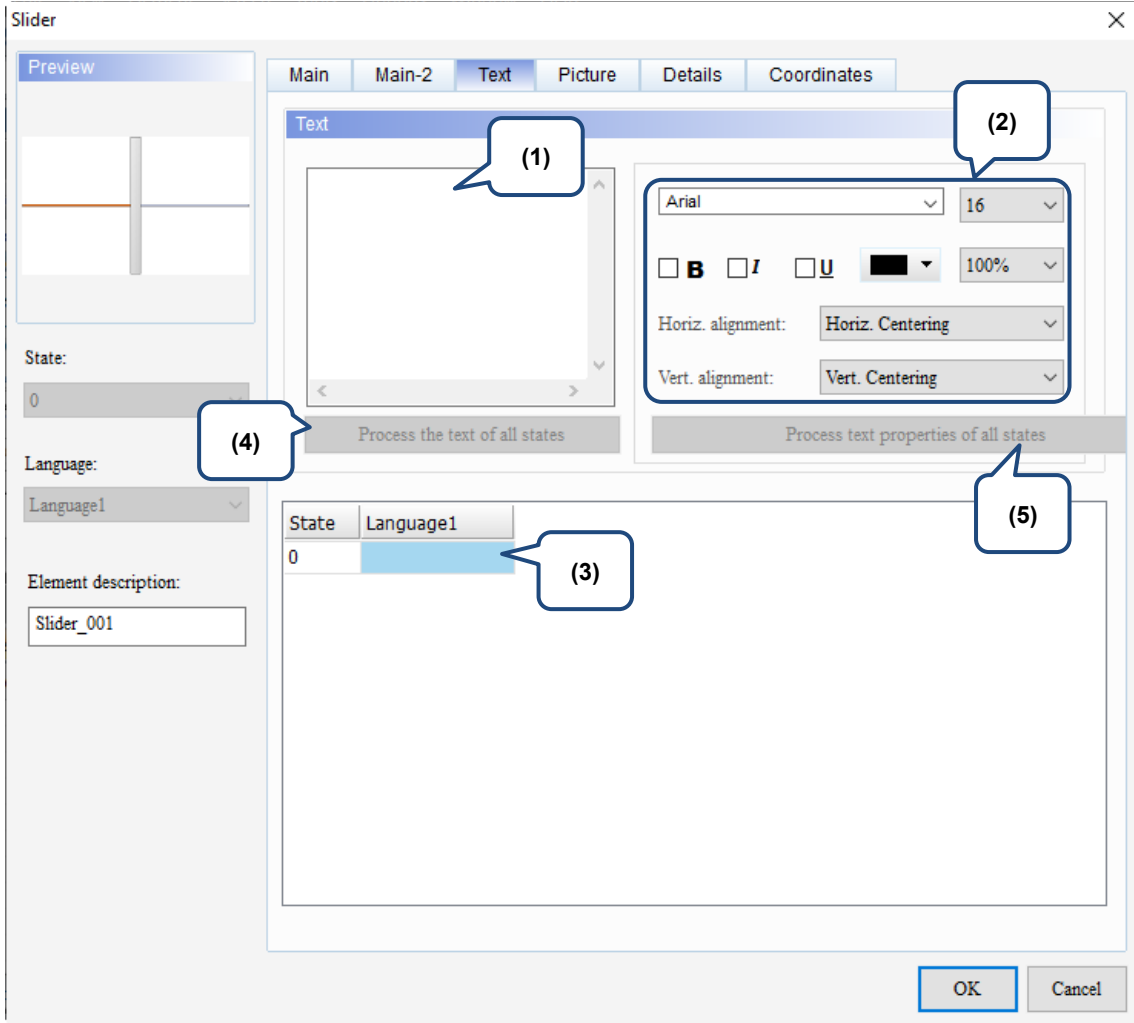


Figure 18.1.3 Main-2 property page for the Slider element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

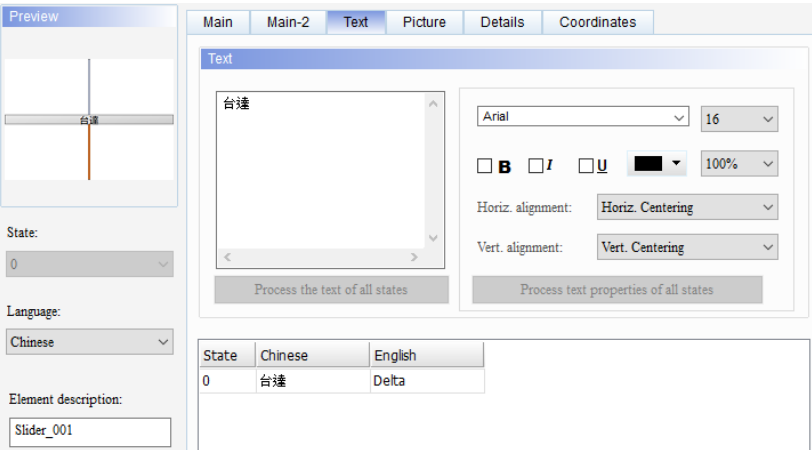
■ Text



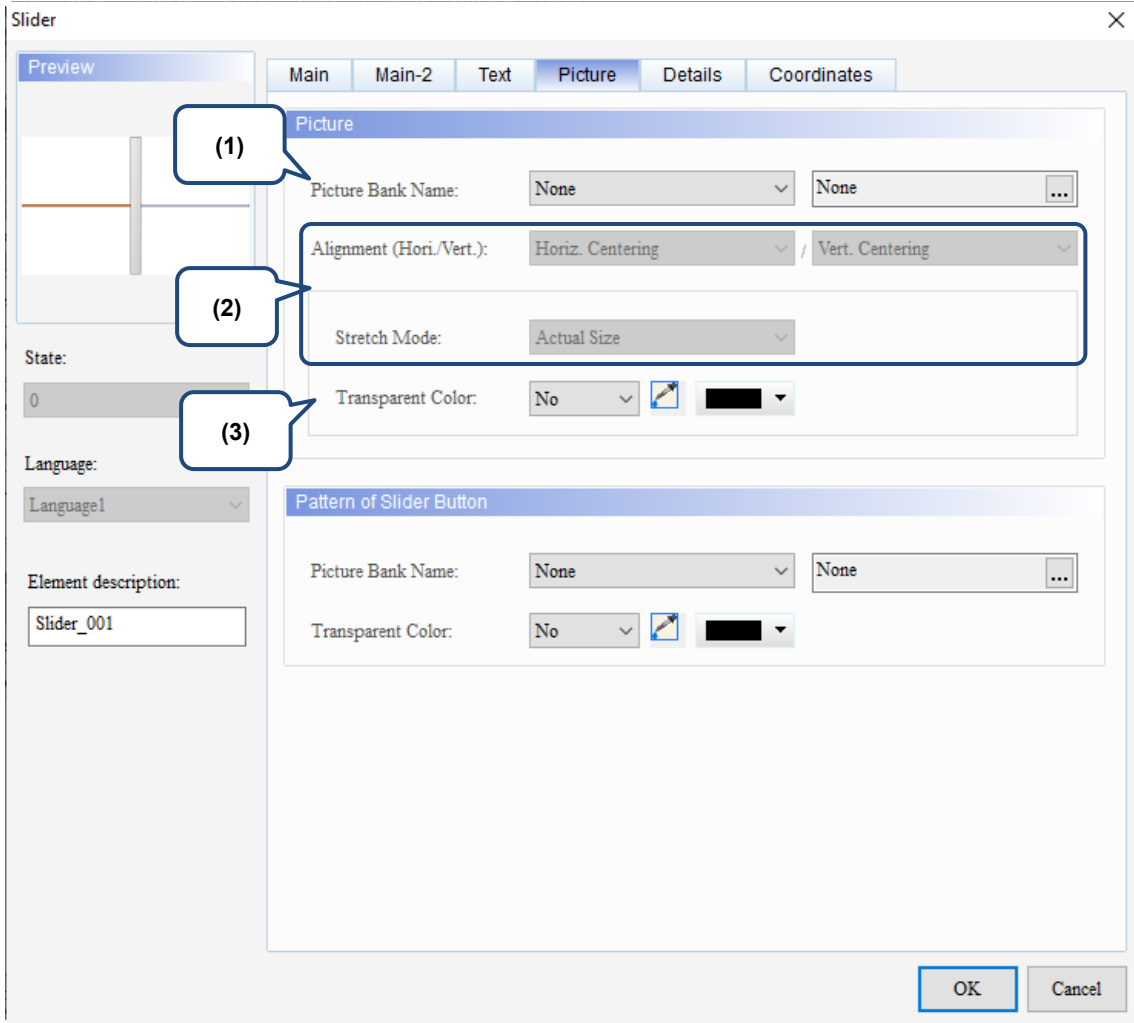
18

Figure 18.1.4 Text property page for the Slider element

18

No.	Property	Function description
(1)	Text	<p>■ You can enter the text to display in this box.</p>  <p>■ As long as the element allows text input, you can click the element and press the space key to start editing the text.</p>
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text.
(3)	Edit multi-language text	If you have added multi-language texts, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	This function is not supported as the Slider element does not have multiple states.
(5)	Process text properties of all states	This function is not supported as the Slider element does not have multiple states.

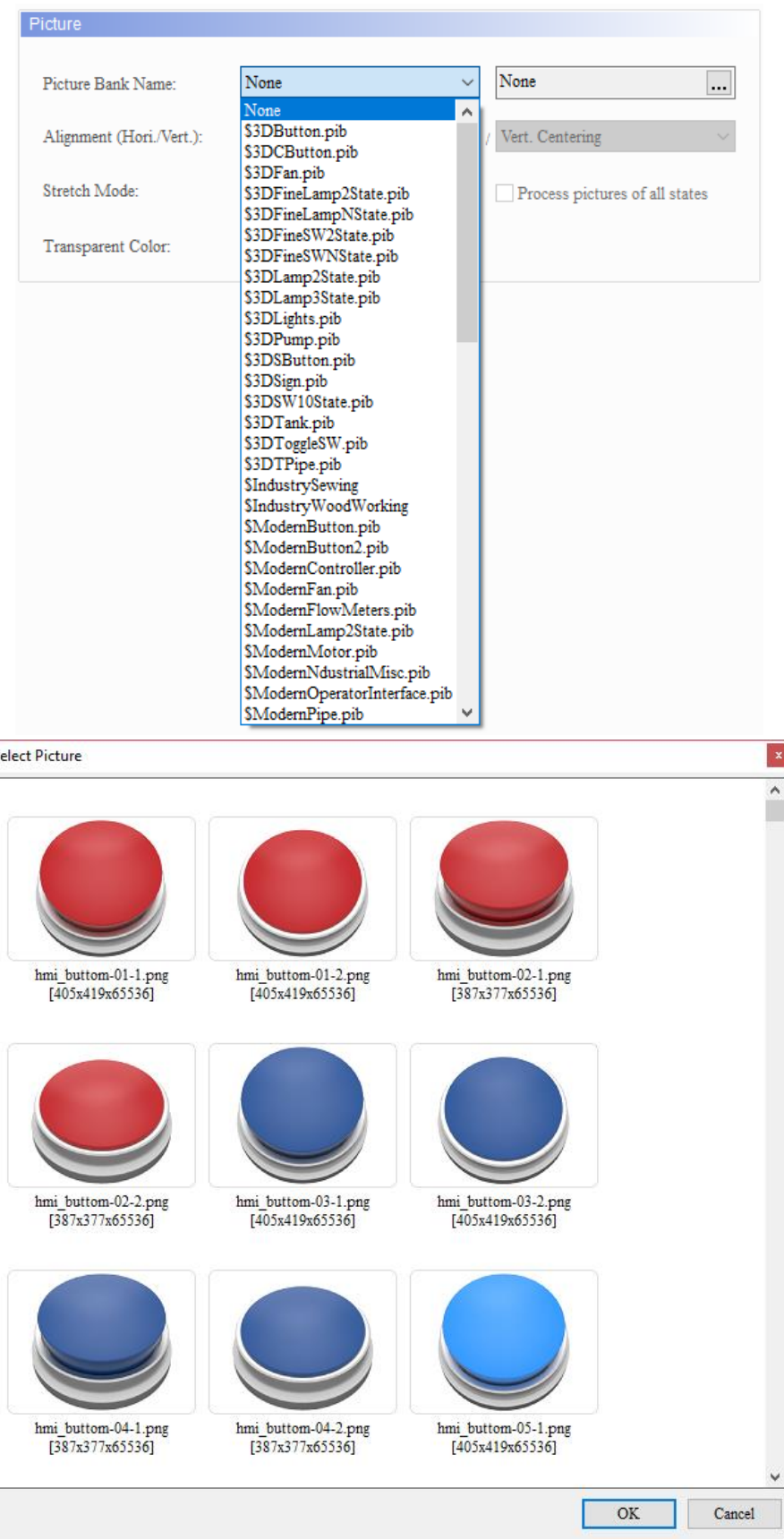
■ Picture

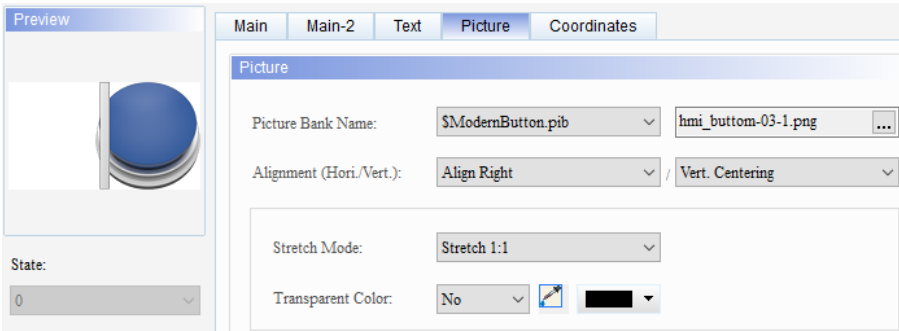














18

Figure 18.1.5 Picture property page for the Slider element

18

No.	Property	Function description
(1)	Picture Bank Name	<p>The Picture Bank Name default is None. To set the picture display, use the drop-down list box to select the picture bank provided by the software and then select the picture you need.</p>  <p>The 'Picture' dialog box includes the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: A drop-down menu currently set to 'None', with a list of banks including \$3DButton.pib, \$3DCButton.pib, \$3DFan.pib, \$3DFineLamp2State.pib, \$3DFineLampNState.pib, \$3DFineSW2State.pib, \$3DFineSWNState.pib, \$3DLamp2State.pib, \$3DLamp3State.pib, \$3DLights.pib, \$3DPump.pib, \$3DSButton.pib, \$3DSign.pib, \$3DSW10State.pib, \$3DTank.pib, \$3DToggleSW.pib, \$3DTPipe.pib, \$IndustrySewing, \$IndustryWoodWorking, \$ModernButton.pib, \$ModernButton2.pib, \$ModernController.pib, \$ModernFan.pib, \$ModernFlowMeters.pib, \$ModernLamp2State.pib, \$ModernMotor.pib, \$ModernNdustrialMisc.pib, and \$ModernOperatorInterface.pib. Alignment (Hori./Vert.): A dropdown menu set to 'Vert. Centering'. Stretch Mode: A dropdown menu. Transparent Color: A text input field. Process pictures of all states: An unchecked checkbox. <p>The 'Select Picture' dialog box displays a grid of 9 button images with the following filenames and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

No.	Property	Function description									
(2)	Alignment	<p>■ You can use the alignment options to set how pictures are aligned.</p>  <p>■ The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size.</p> <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.			
	Stretch All	Stretch 1:1	Actual Size								
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.									
											
Stretch Mode	<p>■ Assuming that the elements have multiple states and some pictures do not fill the full element display area, if you select the Process pictures of all states check box, you can use this function to process all pictures instead of setting them one by one, which saves the editing time.</p> <p><input checked="" type="checkbox"/> Process pictures of all states</p>										
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent.  is for selecting the transparent color. If you select the white part in the calendar, the software changes the white part into transparent, which becomes identical to the element foreground color.</p> <p>Foreground Color: </p> 									

18

■ Details

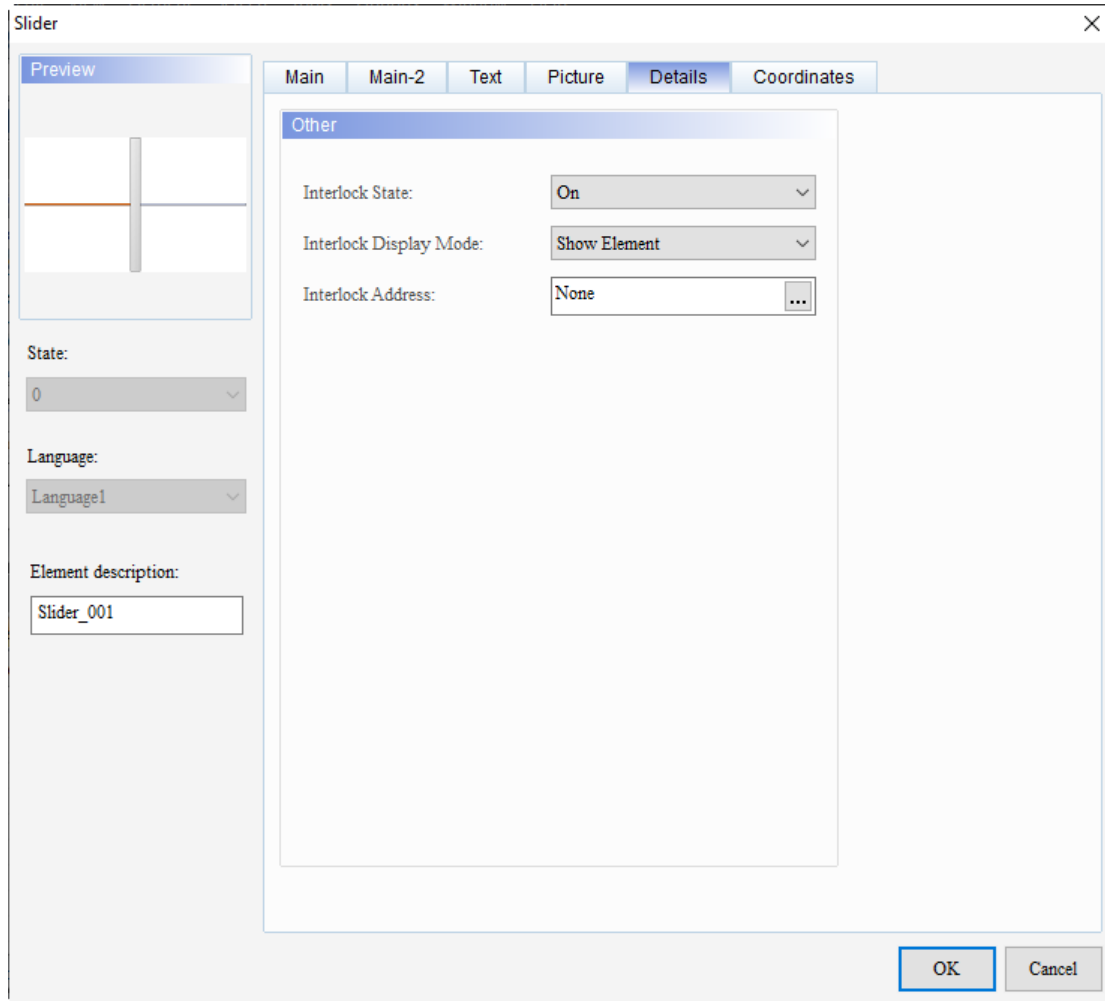
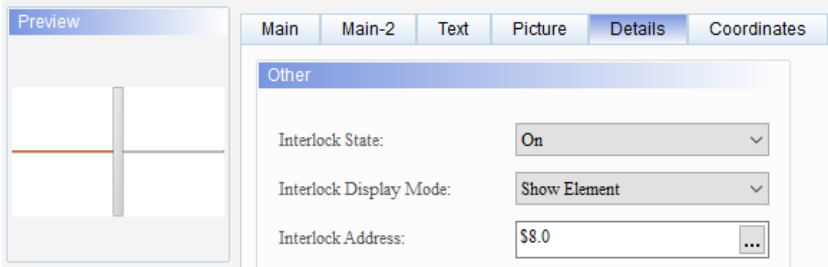
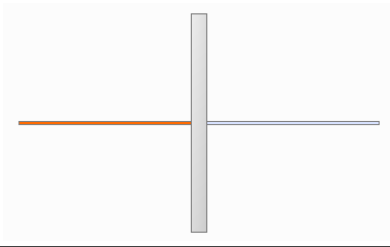
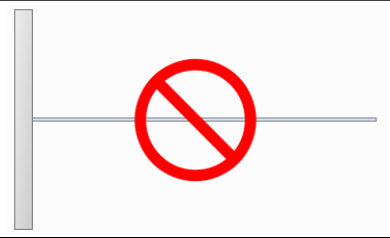
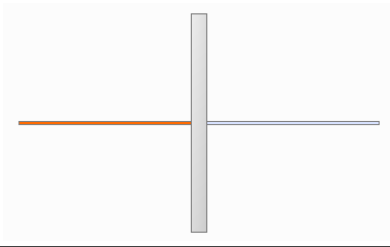
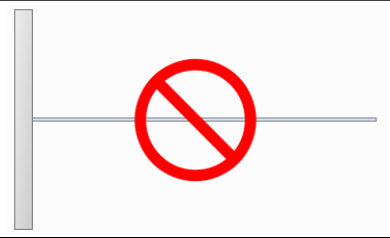
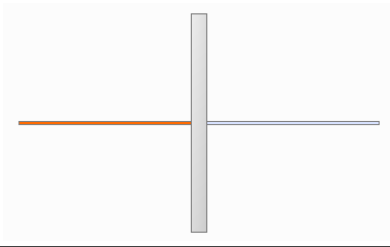
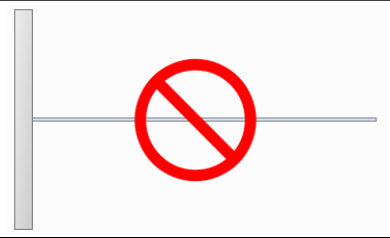


Figure 18.1.6 Details property page for the Slider element

No.	Property	Function description
(1)	Interlock State	<p>■ The Interlock Address enables you to operate a certain element from this particular address, which must be operated along with the Interlock State. If the Interlock State is set to Off, it means that Interlock Address is operable when the Interlock State is Off; on the other hand, if the Interlock State is set to On, the Interlock Address is operable when the Interlock State is On.</p> <p>The Interlock Address usage example is as follows:</p> <ol style="list-style-type: none"> 1. Create a Slider element and set its address to \$8.0. Then, set the Interlock Address to \$8.0 for the Slider element which address is \$100. 2. Before activating the element which address is \$100, you have to execute the element which address is \$8.0. <p>Slider</p> 

No.	Property	Function description				
(1)	Interlock State	<ul style="list-style-type: none"> The options for the Interlock Display Mode are Show Element and Show Prohibition Symbol. <div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p>Interlock Display Mode: Show Element</p> <p>Interlock Address: Show Element</p> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center; vertical-align: middle;">Show Element</td> <td style="text-align: center; vertical-align: middle;">  </td> </tr> <tr> <td style="width: 20%; text-align: center; vertical-align: middle;">Show Prohibition Symbol</td> <td style="text-align: center; vertical-align: middle;">  </td> </tr> </table>	Show Element		Show Prohibition Symbol	
		Show Element				
Show Prohibition Symbol						

18

Coordinates

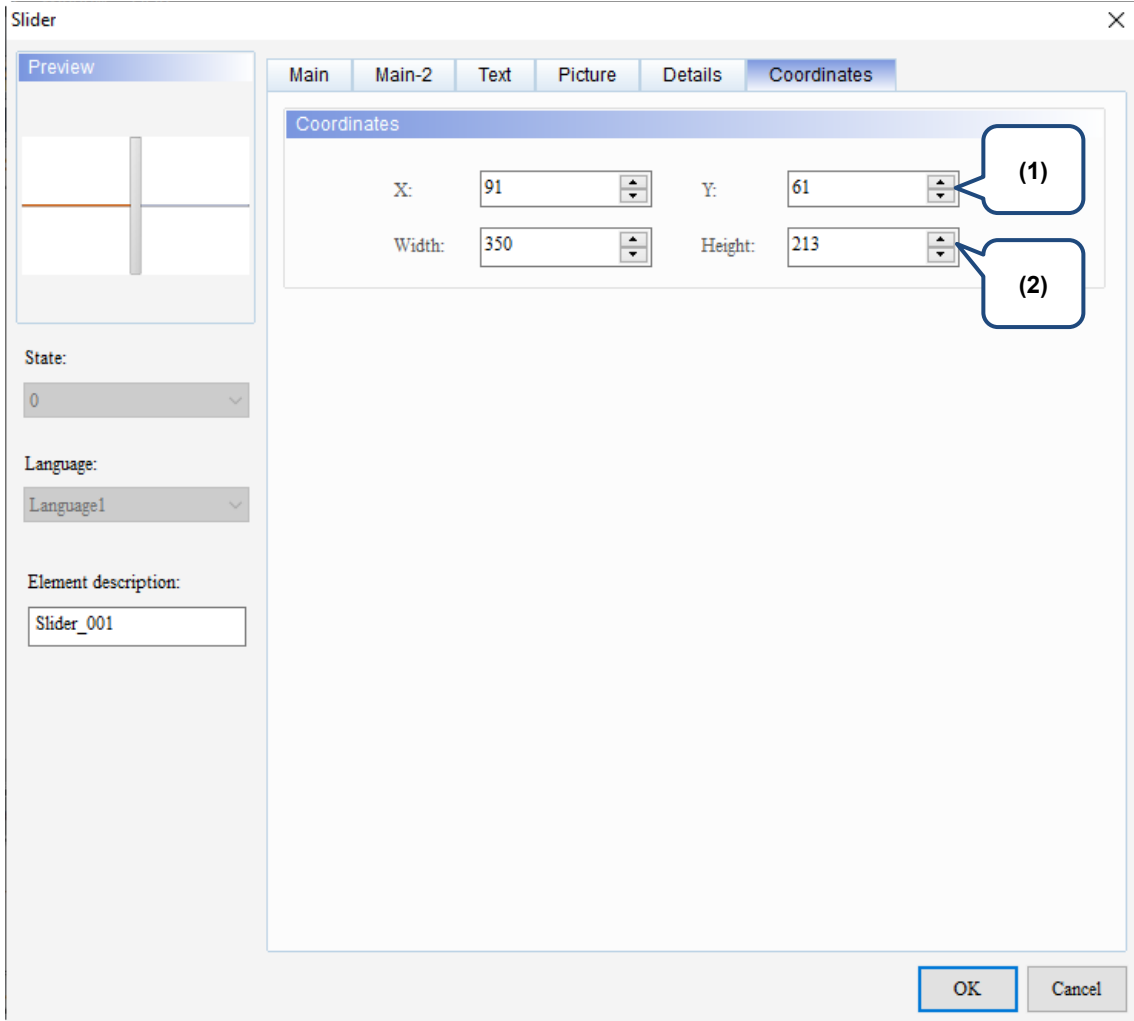


Figure 18.1.7 Coordinates property page for the Slider element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

This chapter provides the usage and setting details for the list elements.

19.1	ComboBox	19-2
19.2	Drop-down Menu	19-24
19.3	ListBox	19-45
19.4	GridBox	19-65
19.5	PDF Viewer	19-106
19.6	Text Viewer	19-119
19.7	ENRCP Viewer	19-137
19.8	FTP file list	19-146
19.9	FTP File Setting	19-159
19.10	Text List	19-168

19

19.1 ComboBox

ComboBox provides display messages of multiple states allowing users to select the options for execution with the drop-down function. The functions of the same type are grouped in the same drop-down list, and only the currently selected item is displayed in the combo box.

Refer to Table 19.1.1 for the ComboBox example.

Table 19.1.1 ComboBox example

ComboBox

- Create a ComboBox with its Write Address as \$10, select Word for the Data Type, and then set the State Counts to 16 and Number of Rows to 5.

ComboBox
×

Preview

State: 15

Language: Chinese

Main
Main-2
Text
Details
Macro
Coordinates

Memory

Write Address: \$10

Read Address: None

Write Offset Address: None

Read Offset Address: None

Detail

Data Type: Word

Data Format: Unsigned Decimal

State Counts: 16

Number of Rows: 5

- On the Text page, edit the text messages to be displayed for the 16 states which are the characters of A to P respectively.

ComboBox
×

Preview

A

State: 0

Language: English

Element description: ComboBox_001

Main
Main-2
Text
Details
Macro
Coordinates

Text

A

Process the text of all states

Arial 16

B I U 100%

Horiz. alignment: Horiz. Centering

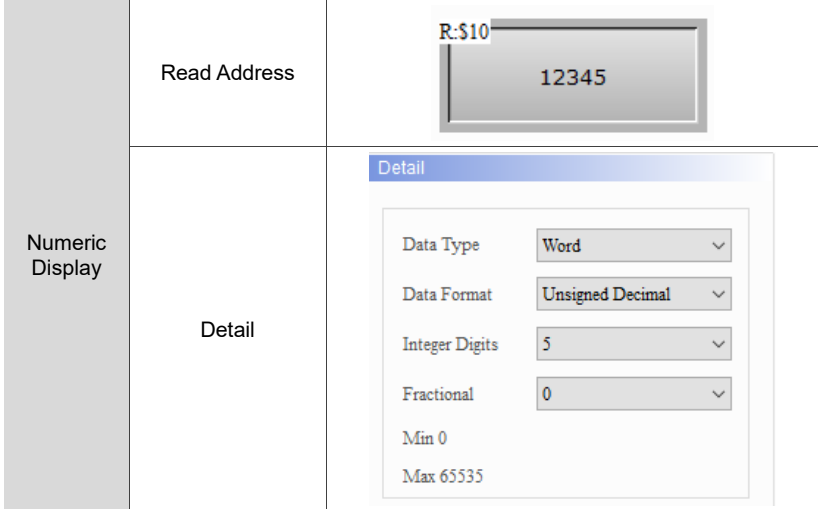
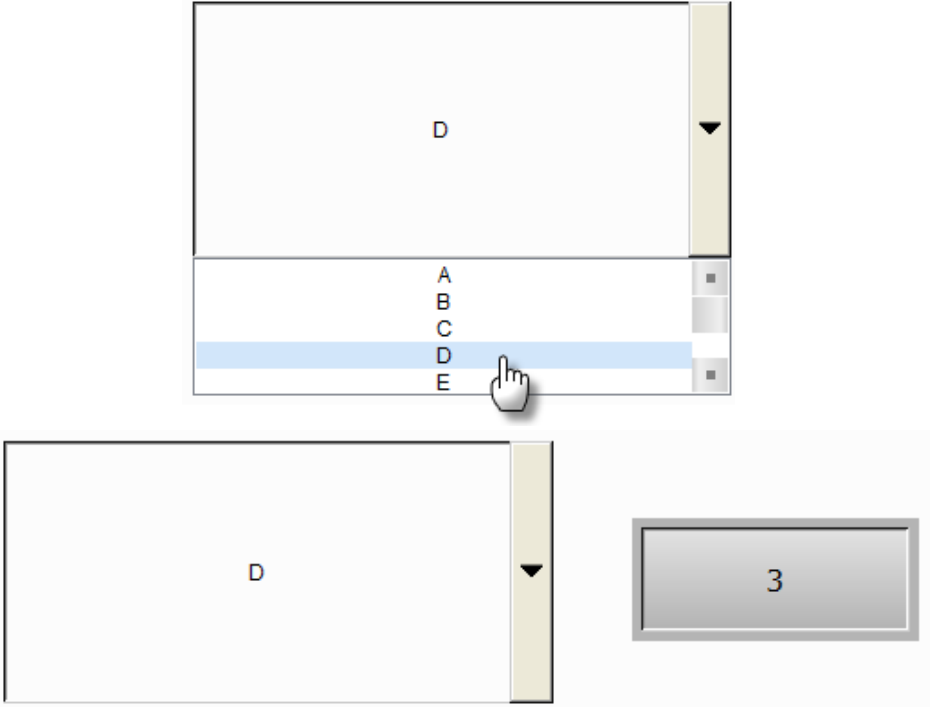
Vert. alignment: Vert. Centering

Process text properties of all states

State	State Index	State invisible address	Chinese	English
0	0	None	1	A
1	1	None	2	B
2	2	None	3	C
3	3	None	4	D
4	4	None	5	E
5	5	None	6	F
6	6	None	7	G
7	7	None	8	H
8	8	None	9	I
9	9	None	10	J
10	10	None	11	K

OK
Cancel

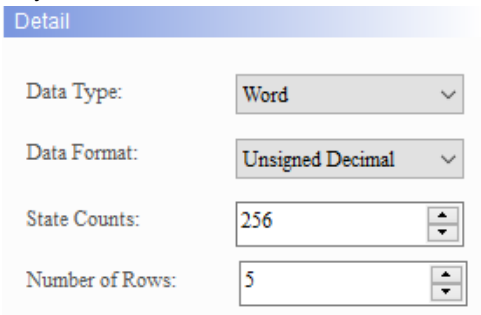
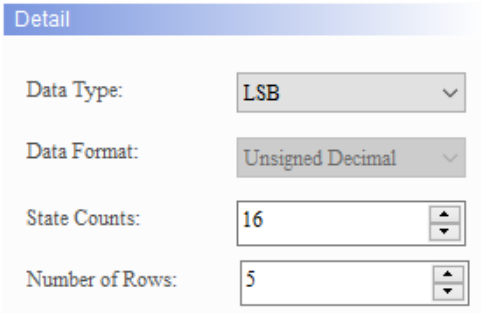
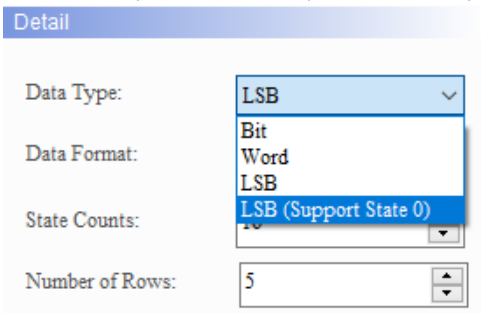

Create
ComboBox
element

ComboBox		
Create Numeric Display element		Create a Numeric Display element and set its Read Address as \$10 and complete the Detail settings.
	Numeric Display	
Execution results		After creating the elements, compile and download the elements to the HMI. When you press the ComboBox, as the displaying number of rows is set to 5 in this example, five rows, A, B, C, D, and E are displayed accordingly. And the Numeric Display element will show the state value corresponding to the item you selected in the ComboBox.
		

19

ComboBox supports four data types as shown in Table 19.1.2. To add or reduce the total number of states, you can simply increase or decrease the number of State Counts in the Properties window.

Table 19.1.2 Data Type of ComboBox

ComboBox	
Data Type	State Counts
Word	<p>If the Data Type is Word, you can set 1 to 256 for the State Counts.</p> 
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> ■ LSB is to first convert the data in the register to binary data, and then use the lowest non-zero bit to determine the current state of the object. ■ If the Data Type is LSB, you can set 1 to 16 states except for State 0. 
	<ul style="list-style-type: none"> ■ To display State 0, select LSB (Support State 0) for the Data Type.  <ul style="list-style-type: none"> ■ If you selected LSB, the element is black when the state is 0.  ■ When the Data Type is LSB or LSB (Support State 0), the memory address is also in units of Word.

ComboBox																																																														
Data Type	State Counts																																																													
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> The examples in the following table show how the state value is determined with the lowest non-zero bit of the binary value converted from a decimal value. There are also examples demonstrating how the software determines the displaying state value with the lowest bit when the decimal values are 3 and 7. 																																																													
	<table border="1"> <thead> <tr> <th>Decimal</th> <th>Binary</th> <th>State value</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0000000000000000</td> <td>State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.</td> </tr> <tr> <td>1</td> <td>0000000000000001</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>2</td> <td>0000000000000010</td> <td>The lowest non-zero bit is bit 1, State = 2.</td> </tr> <tr> <td>3</td> <td>0000000000000011</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>4</td> <td>0000000000000100</td> <td>The lowest non-zero bit is bit 2, State = 3.</td> </tr> <tr> <td>7</td> <td>0000000000000111</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>8</td> <td>0000000000001000</td> <td>The lowest non-zero bit is bit 3, State = 4.</td> </tr> <tr> <td>16</td> <td>0000000000010000</td> <td>The lowest non-zero bit is bit 4, State = 5.</td> </tr> <tr> <td>32</td> <td>0000000001000000</td> <td>The lowest non-zero bit is bit 5, State = 6.</td> </tr> <tr> <td>64</td> <td>0000000010000000</td> <td>The lowest non-zero bit is bit 6, State = 7.</td> </tr> <tr> <td>128</td> <td>0000000010000000</td> <td>The lowest non-zero bit is bit 7, State = 8.</td> </tr> <tr> <td>256</td> <td>0000000100000000</td> <td>The lowest non-zero bit is bit 8, State = 9.</td> </tr> <tr> <td>512</td> <td>0000001000000000</td> <td>The lowest non-zero bit is bit 9, State = 10.</td> </tr> <tr> <td>1024</td> <td>0000010000000000</td> <td>The lowest non-zero bit is bit 10, State = 11.</td> </tr> <tr> <td>2048</td> <td>0000100000000000</td> <td>The lowest non-zero bit is bit 11, State = 12.</td> </tr> <tr> <td>4096</td> <td>0001000000000000</td> <td>The lowest non-zero bit is bit 12, State = 13.</td> </tr> <tr> <td>8192</td> <td>0010000000000000</td> <td>The lowest non-zero bit is bit 13, State = 14.</td> </tr> <tr> <td>16384</td> <td>0100000000000000</td> <td>The lowest non-zero bit is bit 14, State = 15.</td> </tr> <tr> <td>32768</td> <td>1000000000000000</td> <td>The lowest non-zero bit is bit 15, State = 16.</td> </tr> </tbody> </table>	Decimal	Binary	State value	0	0000000000000000	State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.	1	0000000000000001	The lowest non-zero bit is bit 0, State = 1.	2	0000000000000010	The lowest non-zero bit is bit 1, State = 2.	3	0000000000000011	The lowest non-zero bit is bit 0, State = 1.	4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.	7	0000000000000111	The lowest non-zero bit is bit 0, State = 1.	8	0000000000001000	The lowest non-zero bit is bit 3, State = 4.	16	0000000000010000	The lowest non-zero bit is bit 4, State = 5.	32	0000000001000000	The lowest non-zero bit is bit 5, State = 6.	64	0000000010000000	The lowest non-zero bit is bit 6, State = 7.	128	0000000010000000	The lowest non-zero bit is bit 7, State = 8.	256	0000000100000000	The lowest non-zero bit is bit 8, State = 9.	512	0000001000000000	The lowest non-zero bit is bit 9, State = 10.	1024	0000010000000000	The lowest non-zero bit is bit 10, State = 11.	2048	0000100000000000	The lowest non-zero bit is bit 11, State = 12.	4096	0001000000000000	The lowest non-zero bit is bit 12, State = 13.	8192	0010000000000000	The lowest non-zero bit is bit 13, State = 14.	16384	0100000000000000	The lowest non-zero bit is bit 14, State = 15.	32768	1000000000000000	The lowest non-zero bit is bit 15, State = 16.	
	Decimal	Binary	State value																																																											
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	512	0000001000000000	The lowest non-zero bit is bit 9, State = 10.																																																											
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16384	0100000000000000	The lowest non-zero bit is bit 14, State = 15.																																																												
32768	1000000000000000	The lowest non-zero bit is bit 15, State = 16.																																																												
Bit	If the Data Type is Bit, you can set only 2 states.																																																													

When you double-click the ComboBox, the property page is shown as follows.

19

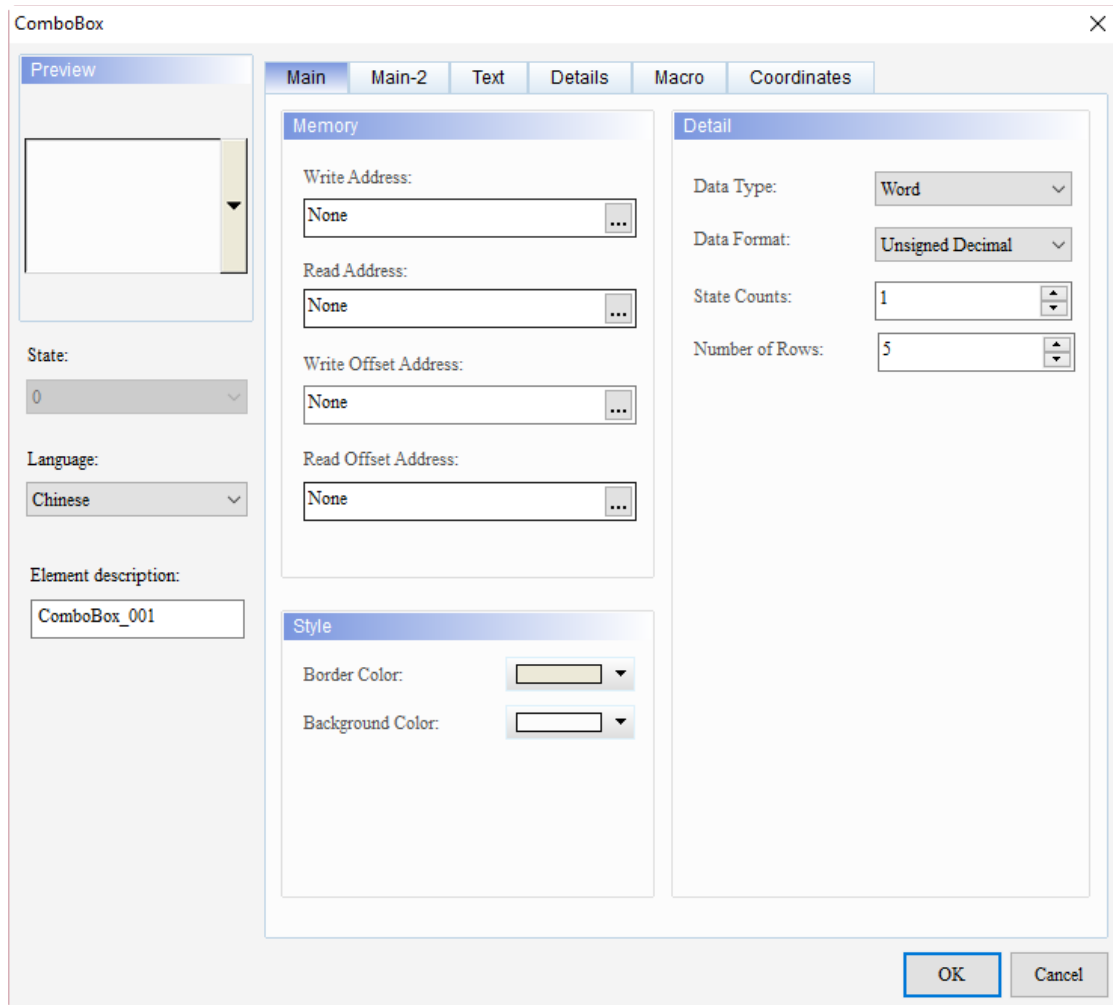
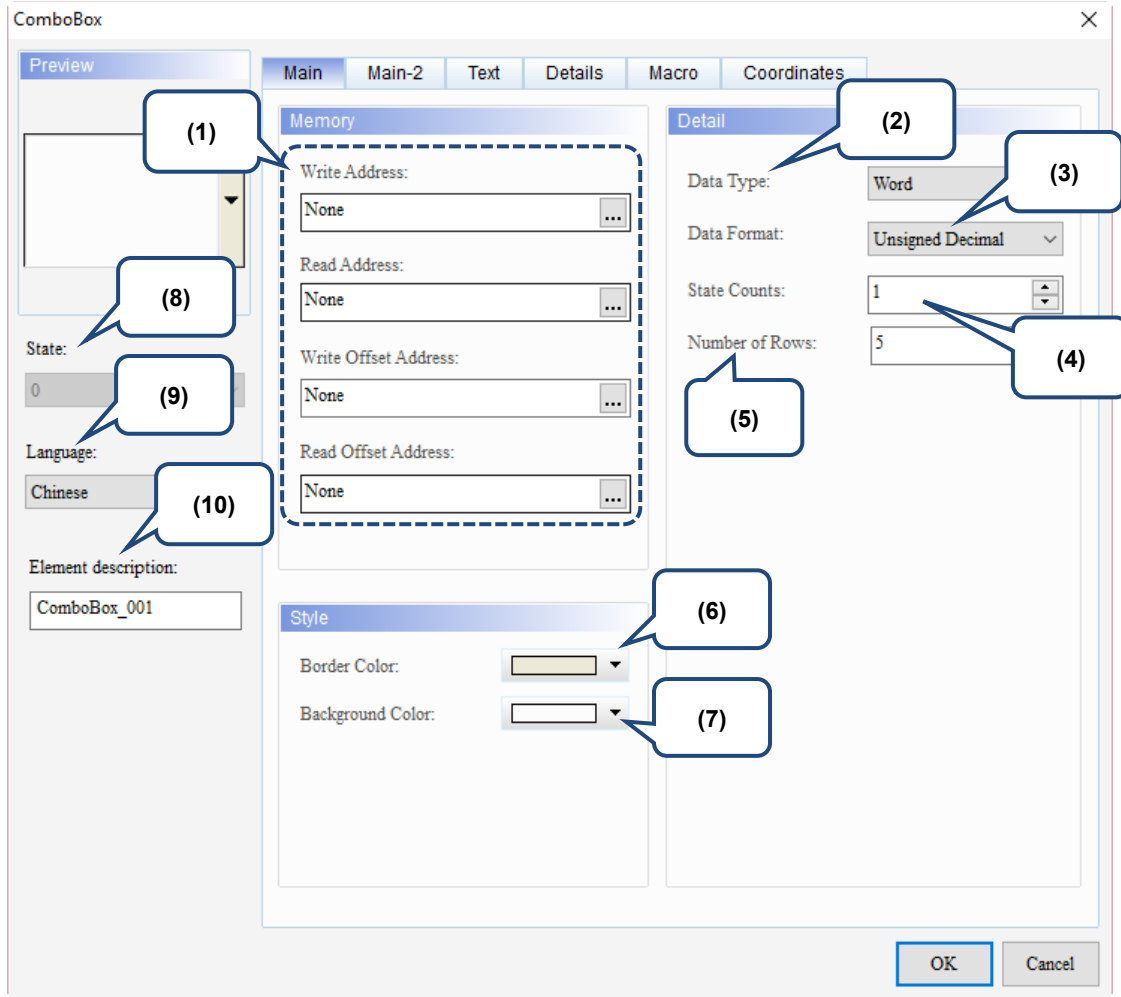


Figure 19.1.1 Properties of ComboBox

Table 19.1.3 Function page of the ComboBox element

ComboBox	
Function page	Description
Preview	ComboBox supports multiple state values and multi-language data display.
Main	Set the Write Address, Read Address, Write Offset Address, Read Offset Address, Data Type, Data Format, State Counts, Number of Rows, Border Color, and Background Color.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Details	Set the options of Interlock State, Interlock Display Mode, Interlock Address, Trigger Mode, Trigger Addr., Invisible Address, User Security Level, Set Low Security, and Confirm Window.
Macro	Set the Before Execute Macro and After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

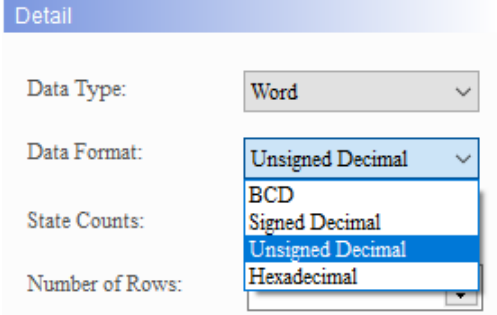
■ Main

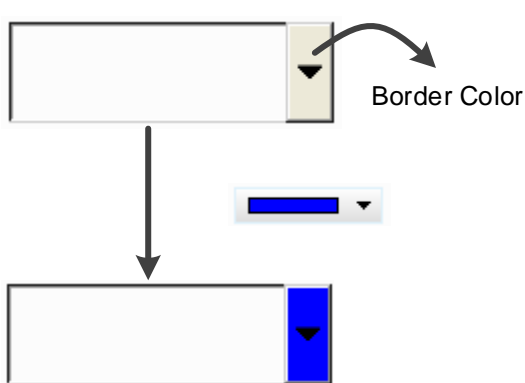


19

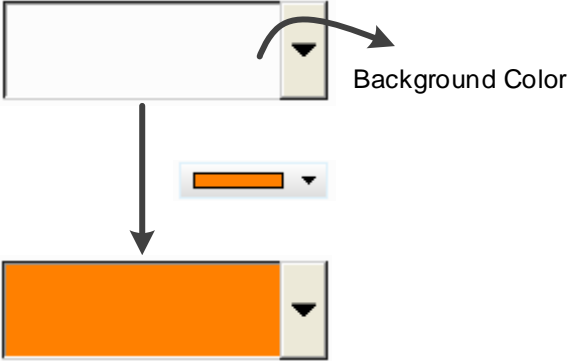
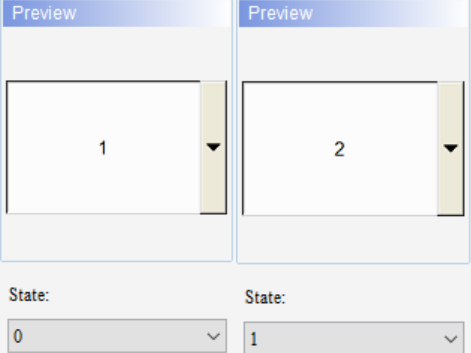
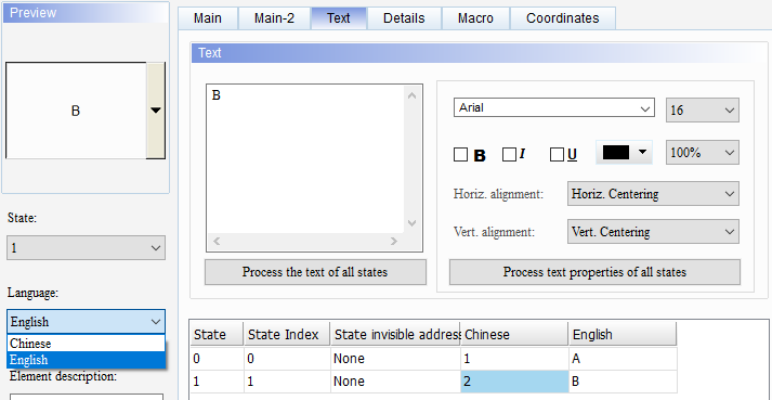
Figure 19.1.2 Main property page for the ComboBox element

19

No.	Property	Function description
(1)	Write Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. The input memory type varies depending on the selected data type, including Word, LSB, or Bit, as shown in Table 19.1.2. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Address	
	Write Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
	Read Offset Address	
(2)	Data Type	There are four types, Bit, Word, LSB, and LSB (Support State 0). Refer to Table 19.1.2 for more details.
(3)	Data Format	<ul style="list-style-type: none"> You can select the Data Format only when the Data Type is Word. There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal. 
(4)	State Counts	Set the state counts for the ComboBox element. If the Data Type is Word, you can set 1 - 256 states; if the Data Type is LSB, you can set 16 states; if the Data Type is LSB (Support State 0), you can set 17 states; and if the Data Type is Bit, you can set only 2 states. Refer to Table 19.1.2 for details.

No.	Property	Function description
(5)	Number of Rows	<ul style="list-style-type: none"> ■ Set the displaying number of rows when you press the ComboBox. ■ The default is 5 and the maximum is 15. <div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="background-color: #cccccc; padding: 5px; margin-right: 10px;">Number of Rows is set to 5</div> <div style="border: 1px solid black; padding: 5px; text-align: center; width: 200px; height: 100px;">D</div> </div> <div style="border: 2px dashed blue; padding: 5px; margin-bottom: 10px;"> <div style="display: flex; flex-direction: column; align-items: center; text-align: center;"> <div style="margin-bottom: 2px;">A</div> <div style="margin-bottom: 2px;">B</div> <div style="margin-bottom: 2px;">C</div> <div style="margin-bottom: 2px; background-color: #add8e6;">D</div> <div style="margin-bottom: 2px;">E</div> </div> </div> <div style="display: flex; align-items: center;"> <div style="background-color: #cccccc; padding: 5px; margin-right: 10px;">Number of Rows is set to 15</div> <div style="border: 1px solid black; padding: 5px; text-align: center; width: 200px; height: 150px;">A</div> </div> <div style="border: 2px dashed blue; padding: 5px; margin-top: 10px;"> <div style="display: flex; flex-direction: column; align-items: center; text-align: center;"> <div style="margin-bottom: 2px;">A</div> <div style="margin-bottom: 2px;">B</div> <div style="margin-bottom: 2px;">C</div> <div style="margin-bottom: 2px;">D</div> <div style="margin-bottom: 2px;">E</div> <div style="margin-bottom: 2px;">F</div> <div style="margin-bottom: 2px;">G</div> <div style="margin-bottom: 2px;">H</div> <div style="margin-bottom: 2px;">I</div> <div style="margin-bottom: 2px;">J</div> <div style="margin-bottom: 2px;">K</div> <div style="margin-bottom: 2px;">L</div> <div style="margin-bottom: 2px;">M</div> <div style="margin-bottom: 2px;">N</div> <div style="margin-bottom: 2px;">O</div> </div> </div> </div>
(6)	Border Color	<p>Set the border color of the element.</p> <div style="text-align: center;">  </div>

19

No.	Property	Function description															
(7)	Background Color	<p>Set the background color of the element.</p> 															
(8)	State	<p>By switching the State, you can preview or change the settings of each state of the element.</p> 															
(9)	Language	<p>If you have set the language data, you can edit the properties of the text to be displayed with the Language setting of the element.</p>  <table border="1"> <thead> <tr> <th>State</th> <th>State Index</th> <th>State invisible address</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>None</td> <td>1</td> <td>A</td> </tr> <tr> <td>1</td> <td>1</td> <td>None</td> <td>2</td> <td>B</td> </tr> </tbody> </table>	State	State Index	State invisible address	Chinese	English	0	0	None	1	A	1	1	None	2	B
State	State Index	State invisible address	Chinese	English													
0	0	None	1	A													
1	1	None	2	B													

No.	Property	Function description																																																																																									
(10)	Element description	Record the button actions to be executed. The record is also written in the CSV file of the Operation Log Table so users can know what actions have been done.																																																																																									
		<table border="1"> <thead> <tr> <th>Time</th> <th>Date</th> <th>Level</th> <th>Screen</th> <th>Desc</th> <th>Action</th> <th>Pre Value</th> <th>Change Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13:37:54</td> <td>5/5/2016</td> <td>8</td> <td>Screen_24</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>13:37:56</td> <td>5/5/2016</td> <td>8</td> <td>Screen_24</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>3</td> <td>13:38:19</td> <td>5/5/2016</td> <td>8</td> <td>Screen_24</td> <td></td> <td>Level Switch</td> <td>8</td> <td>4</td> </tr> <tr> <td>4</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_24</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>5</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_24</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>6</td> <td>13:38:22</td> <td>5/5/2016</td> <td>4</td> <td>Screen_24</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>7</td> <td>13:38:23</td> <td>5/5/2016</td> <td>4</td> <td>Screen_24</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>8</td> <td>13:38:31</td> <td>5/5/2016</td> <td>4</td> <td>Screen_24</td> <td></td> <td>Level Switch</td> <td>4</td> <td>8</td> </tr> <tr> <td>9</td> <td>13:38:35</td> <td>5/5/2016</td> <td>8</td> <td>Screen_24</td> <td>\$100 Value</td> <td>Set Val</td> <td>85</td> <td>25</td> </tr> </tbody> </table>	Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value	1	13:37:54	5/5/2016	8	Screen_24	Level 1 Btn	Set Val	1	0	2	13:37:56	5/5/2016	8	Screen_24	Level 1 Btn	Set Val	0	1	3	13:38:19	5/5/2016	8	Screen_24		Level Switch	8	4	4	13:38:21	5/5/2016	4	Screen_24	Level 2 Btn	Set Val	0	1	5	13:38:21	5/5/2016	4	Screen_24	Level 2 Btn	Set Val	1	0	6	13:38:22	5/5/2016	4	Screen_24	Level 4 Btn	Set Val	0	1	7	13:38:23	5/5/2016	4	Screen_24	Level 4 Btn	Set Val	1	0	8	13:38:31	5/5/2016	4	Screen_24		Level Switch	4	8	9	13:38:35	5/5/2016	8	Screen_24	\$100 Value	Set Val	85	25
		Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value																																																																																		
		1	13:37:54	5/5/2016	8	Screen_24	Level 1 Btn	Set Val	1	0																																																																																	
		2	13:37:56	5/5/2016	8	Screen_24	Level 1 Btn	Set Val	0	1																																																																																	
		3	13:38:19	5/5/2016	8	Screen_24		Level Switch	8	4																																																																																	
		4	13:38:21	5/5/2016	4	Screen_24	Level 2 Btn	Set Val	0	1																																																																																	
		5	13:38:21	5/5/2016	4	Screen_24	Level 2 Btn	Set Val	1	0																																																																																	
		6	13:38:22	5/5/2016	4	Screen_24	Level 4 Btn	Set Val	0	1																																																																																	
		7	13:38:23	5/5/2016	4	Screen_24	Level 4 Btn	Set Val	1	0																																																																																	
8	13:38:31	5/5/2016	4	Screen_24		Level Switch	4	8																																																																																			
9	13:38:35	5/5/2016	8	Screen_24	\$100 Value	Set Val	85	25																																																																																			

19

19

■ Main-2

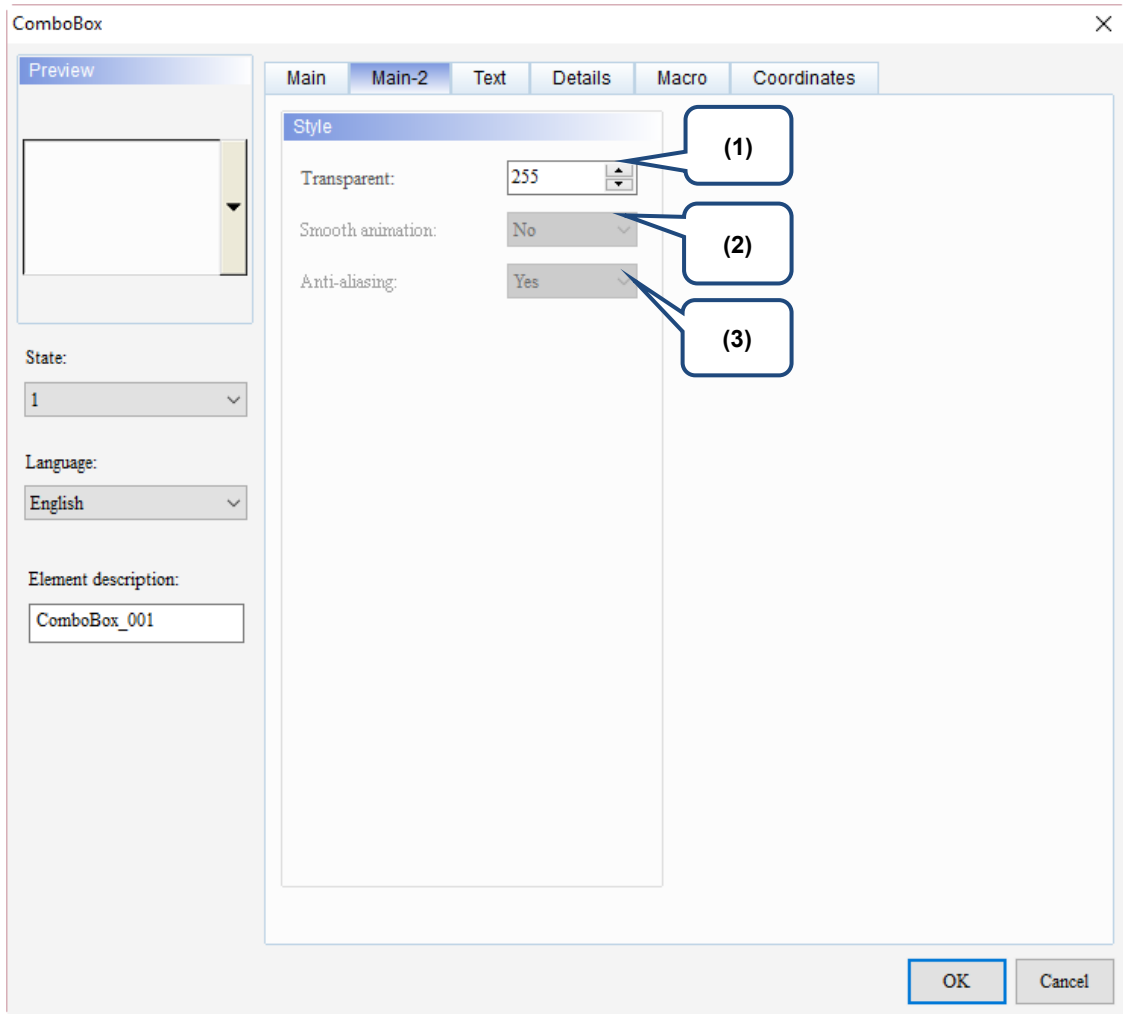
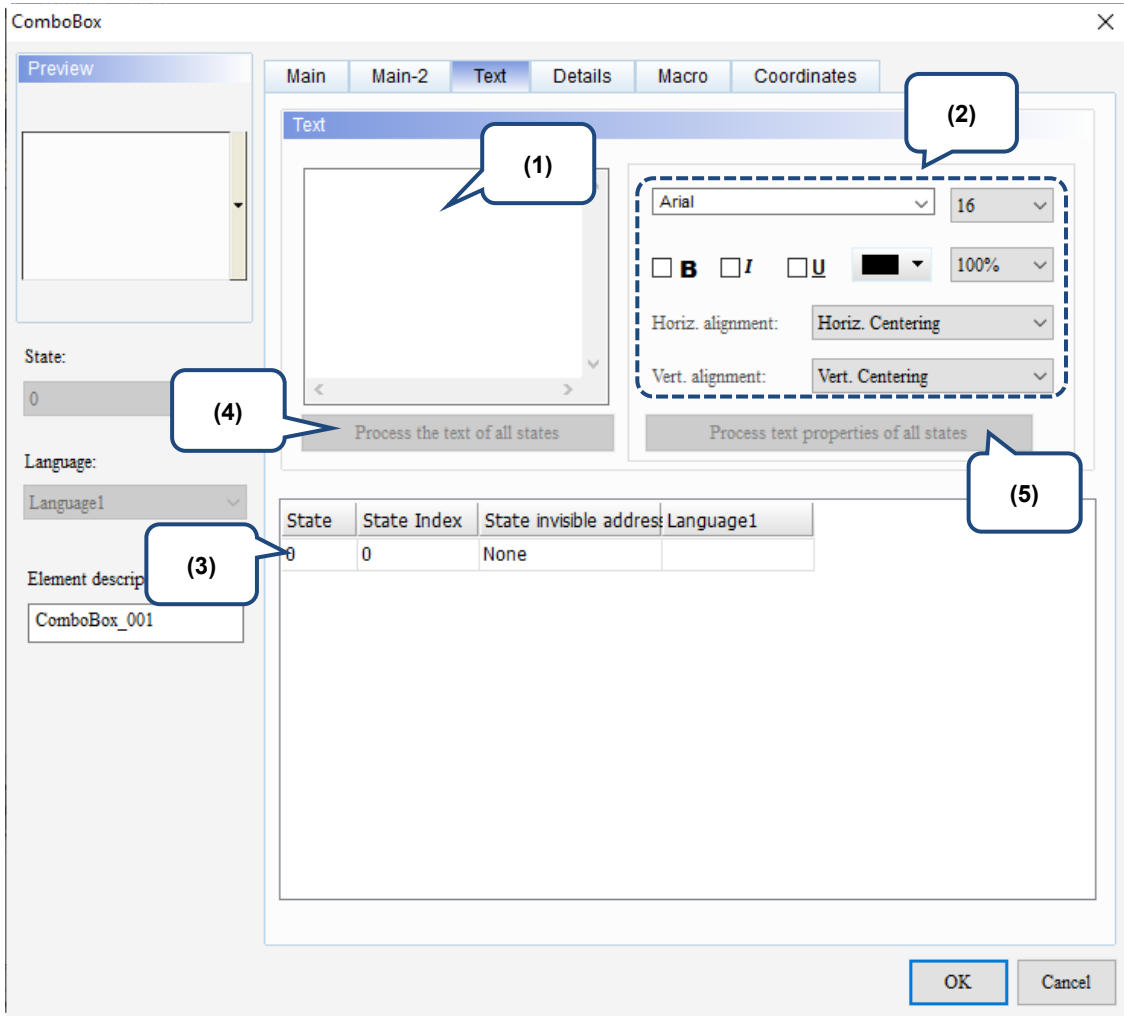


Figure 19.1.3 Main-2 property page for the ComboBox element

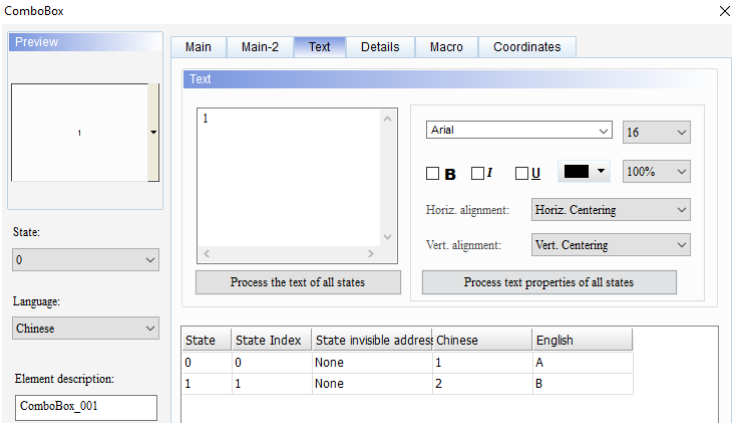
No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

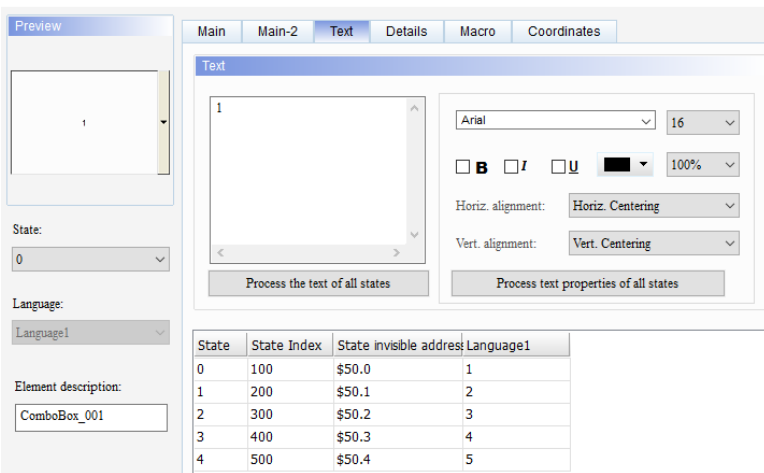
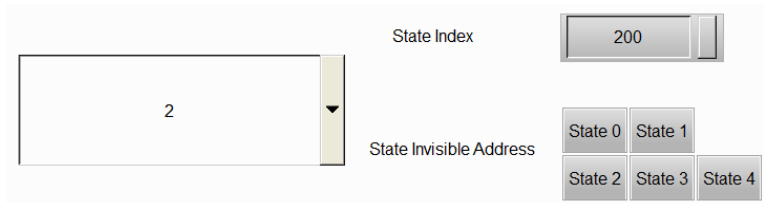
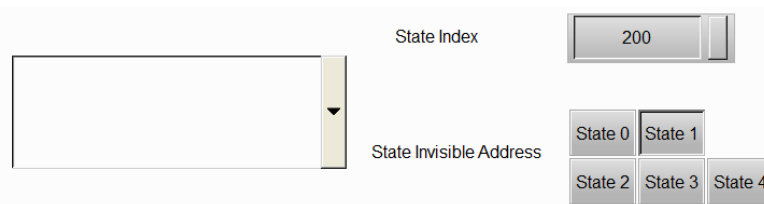


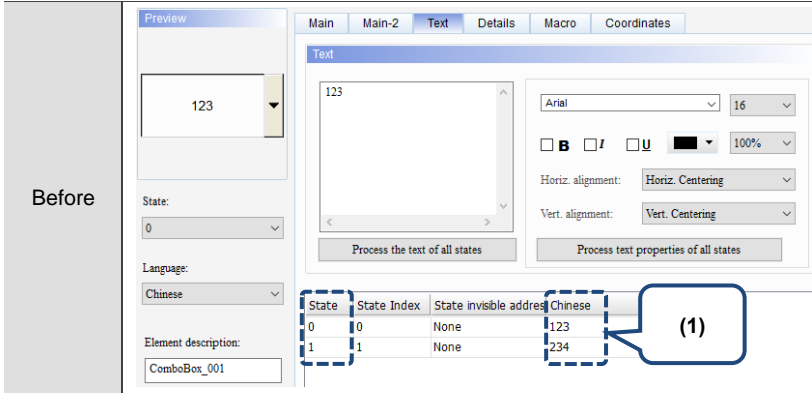
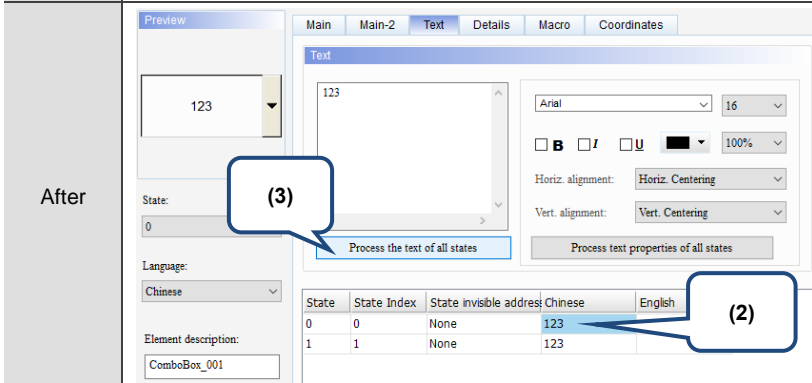
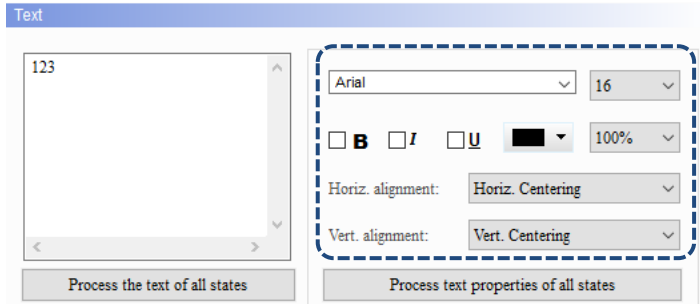
19

Figure 19.1.4 Text property page for the ComboBox element

No.	Property	Function description
(1)	Text	<p>■ You can enter the text to display in this box.</p>  <p>■ As long as the element allows text input, you can click the element and press the space key to start editing the text.</p>
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the texts.

19

No.	Property	Function description
(3)	Edit multi-language text	<ul style="list-style-type: none"> ■ If you have added multi-language texts, the Text page allows you to edit multi-language data. ■ State Index: define the index value for displaying the corresponding state. ■ State invisible address: when the Invisible Address is On, the specified state is hidden. <p>ComboBox</p>  <p>Enter 200 to the State Index, and then the ComboBox element displays the text "2" of State 1.</p>  <p>When the State 1 button (\$50.1) is triggered to On, the text "2" of State 1 is hidden.</p> 

No.	Property	Function description
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected. Refer to the following example:</p> <ol style="list-style-type: none"> 1. Enter the text “123” for State 0 and “234” for State 1. 2. Select State 0. 3. Execute Process the text of all states and the text of State 1 is changed to “123”.  
(5)	Process text properties of all states	<ul style="list-style-type: none"> ■ This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.  <ul style="list-style-type: none"> ■ Refer to the following example: <ol style="list-style-type: none"> 1. Enter the text “123” for State 0 and “234” for State 1. Select Segoe Script for the text font of State 0 and Arial for the text font of State 1. 2. Select State 0. 3. Execute Process text properties of all states and the text font of State 1 is changed to Segoe Script.

19

No.	Property	Function description
(5)	Process text properties of all states	<div style="display: flex; justify-content: space-between;"> <div style="width: 25%; text-align: center;"> <p>Before</p> </div> <div style="width: 75%;"> </div> </div>
		<div style="display: flex; justify-content: space-between;"> <div style="width: 25%; text-align: center;"> <p>After</p> </div> <div style="width: 75%;"> </div> </div>

■ Details

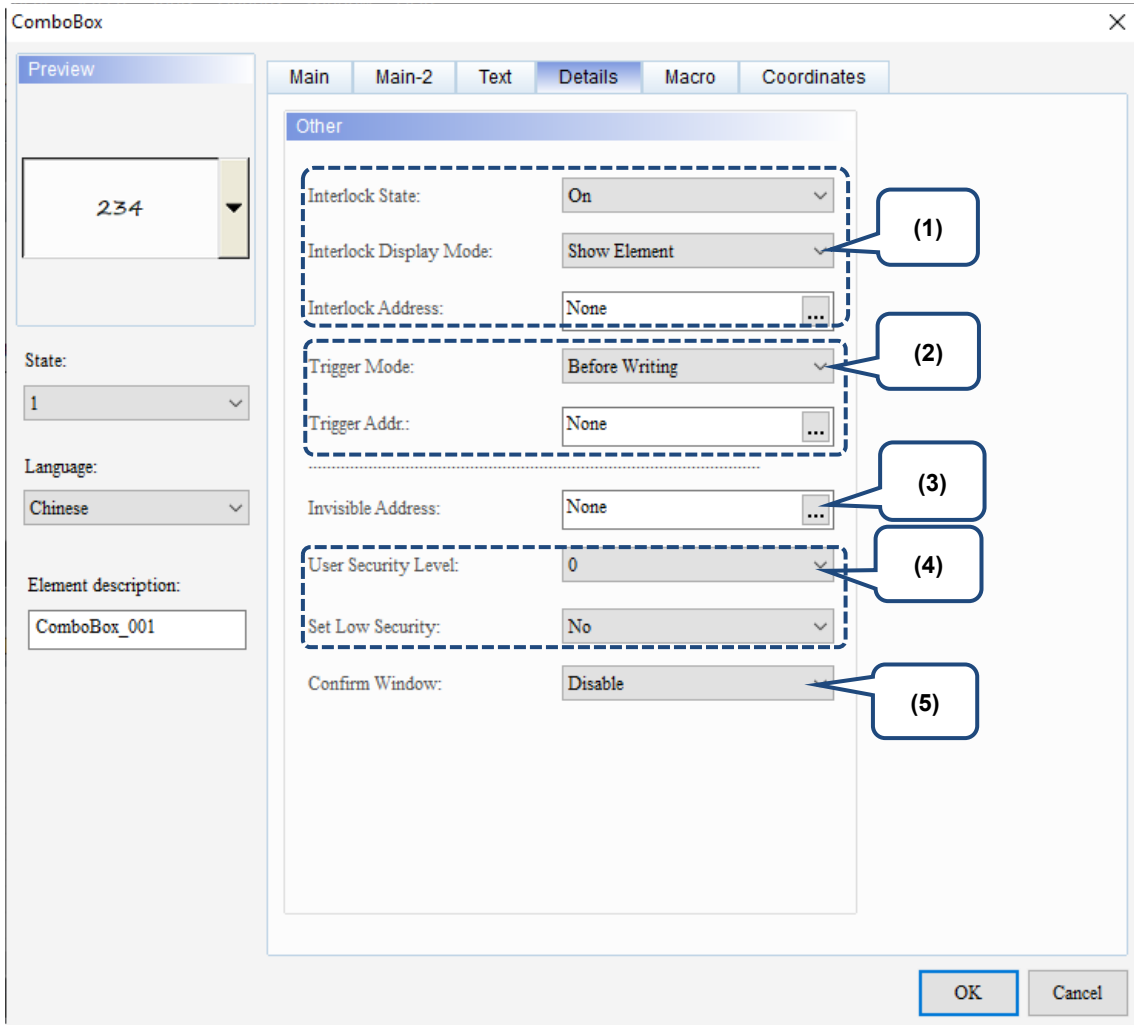
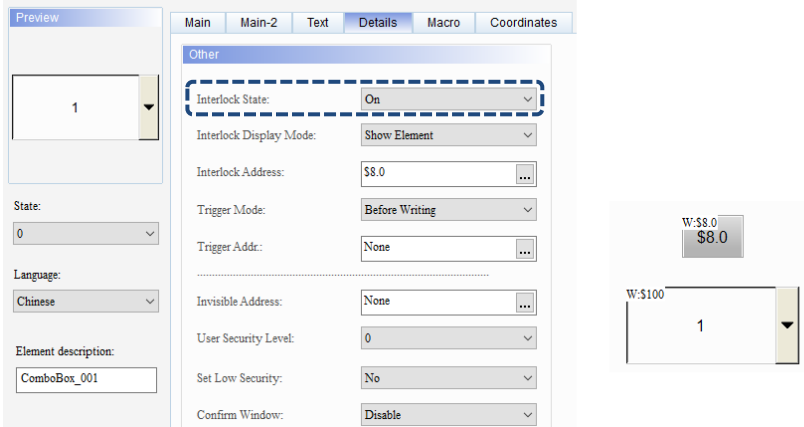
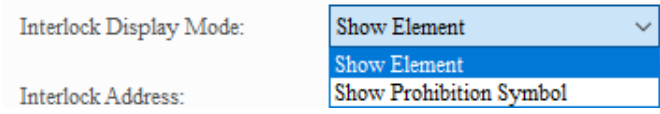






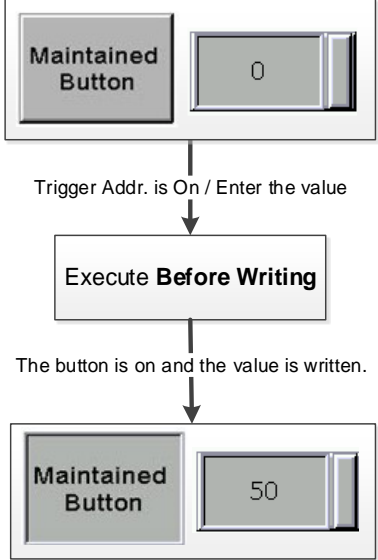
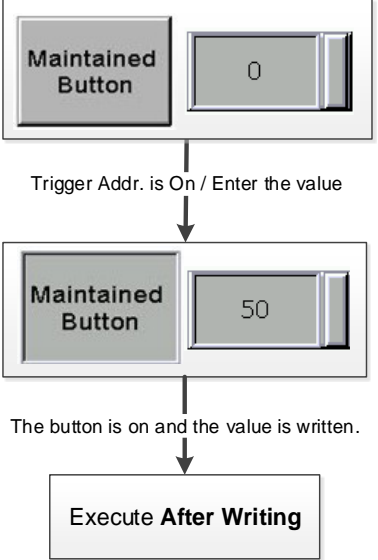
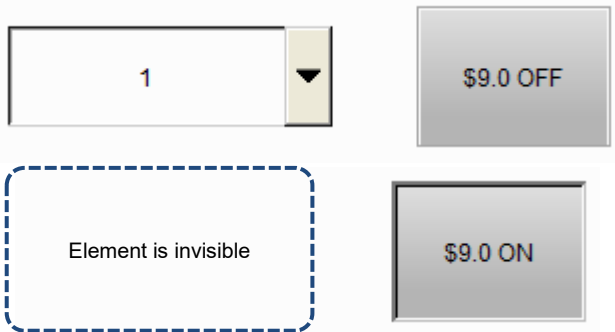
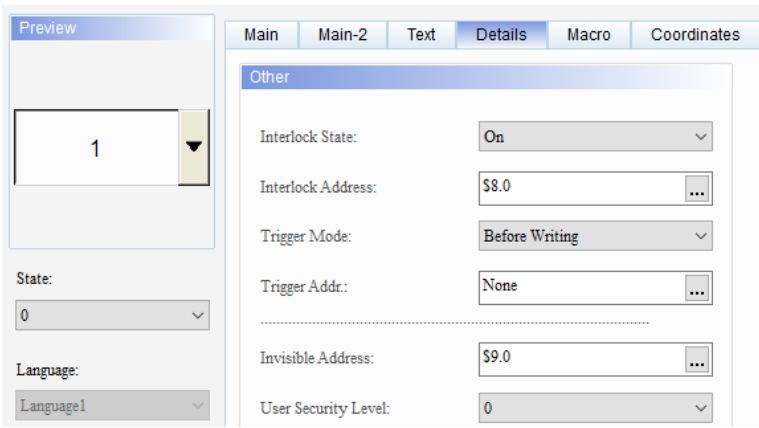


Figure 19.1.5 Details property page for the ComboBox element

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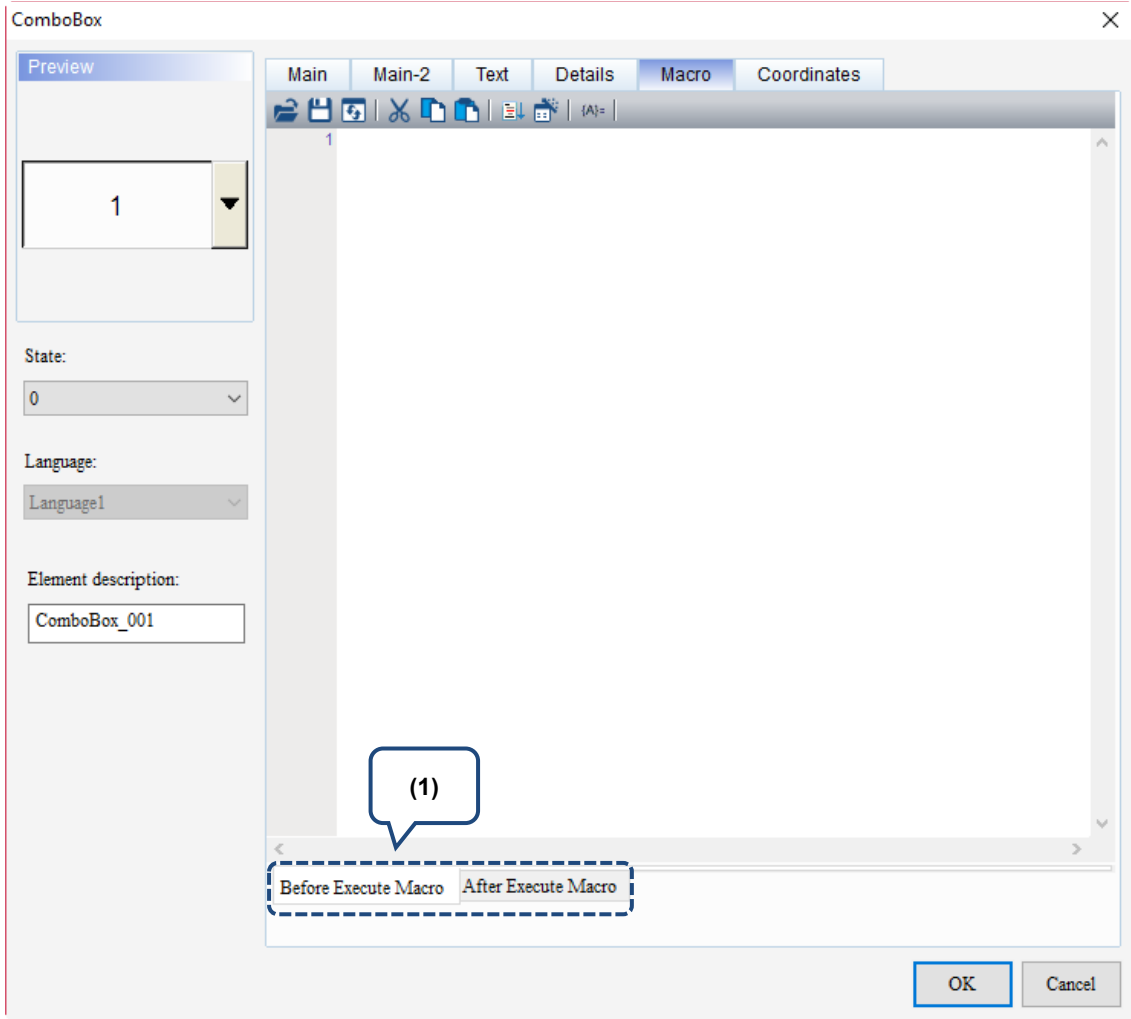
No.	Property	Function description				
	Interlock State	<p>The Interlock Address is for enabling the operation of another element and has to be used with the Interlock State. If the Interlock State is set to Off, it means the Interlock Address is operable when this Interlock State is Off. On the other hand, if the Interlock State is set to On, the Interlock Address is operable when this Interlock State is On.</p> <ul style="list-style-type: none"> ■ Create a button and set its address to \$8.0. Then, set the Interlock Address to \$8.0 for the ComboBox which address is \$100. ■ In order for the ComboBox to obtain the correct state value after you press it, you must first press the \$8.0 button to validate the action of the ComboBox. 				
(1)	Interlock Address					
	Interlock Display Mode	<p>The options for Interlock Display Mode are Show Element and Show Prohibition Symbol.</p>  <table border="1"> <tr> <td>Show Element</td> <td>  </td> </tr> <tr> <td>Show Prohibition Symbol</td> <td>  </td> </tr> </table>	Show Element		Show Prohibition Symbol	
Show Element						
Show Prohibition Symbol						

No.	Property	Function description						
(2)	Trigger Mode	<ul style="list-style-type: none"> Trigger Modes include Before Writing and After Writing. <table border="1"> <thead> <tr> <th></th> <th>Before Writing</th> <th>After Writing</th> </tr> </thead> <tbody> <tr> <td>Triggering action</td> <td>Trigger Addr. must be set to On before the value changes.</td> <td>Value is changed before the Trigger Addr. is set to On.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The triggering function only switches the set Trigger Addr. to On, so if triggering again is required, you need to set the Trigger Addr. to Off. <p>Flowchart of Before Writing:</p>  <p>Flowchart of After Writing:</p> 		Before Writing	After Writing	Triggering action	Trigger Addr. must be set to On before the value changes.	Value is changed before the Trigger Addr. is set to On.
		Before Writing	After Writing					
Triggering action	Trigger Addr. must be set to On before the value changes.	Value is changed before the Trigger Addr. is set to On.						
Trigger Addr.	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p>  <p>ComboBox</p> 							
(3)	Invisible Address							

19

No.	Property	Function description
(4)	User Security Level	<div> </div> <ul style="list-style-type: none"> ■ You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. ■ After you set the User Security Level, when you press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password with the Password Table element. Refer to Section 5.7.2 Password Table Setup).
	Set Low Security	<div> </div> <ul style="list-style-type: none"> ■ If you set the Set Low Security to Yes, the HMI automatically sets the security level to the lowest each time you enter the password. Next time you press the element, you will be asked again to enter the password for the corresponding security level.
(5)	Confirm Window	<p>If you set the Confirm Window to Yes, the following Confirmation Dialog appears for you to confirm the action after you press the element.</p> <div> </div>

■ Macro



19

Figure 19.1.6 Macro property page for the ComboBox element

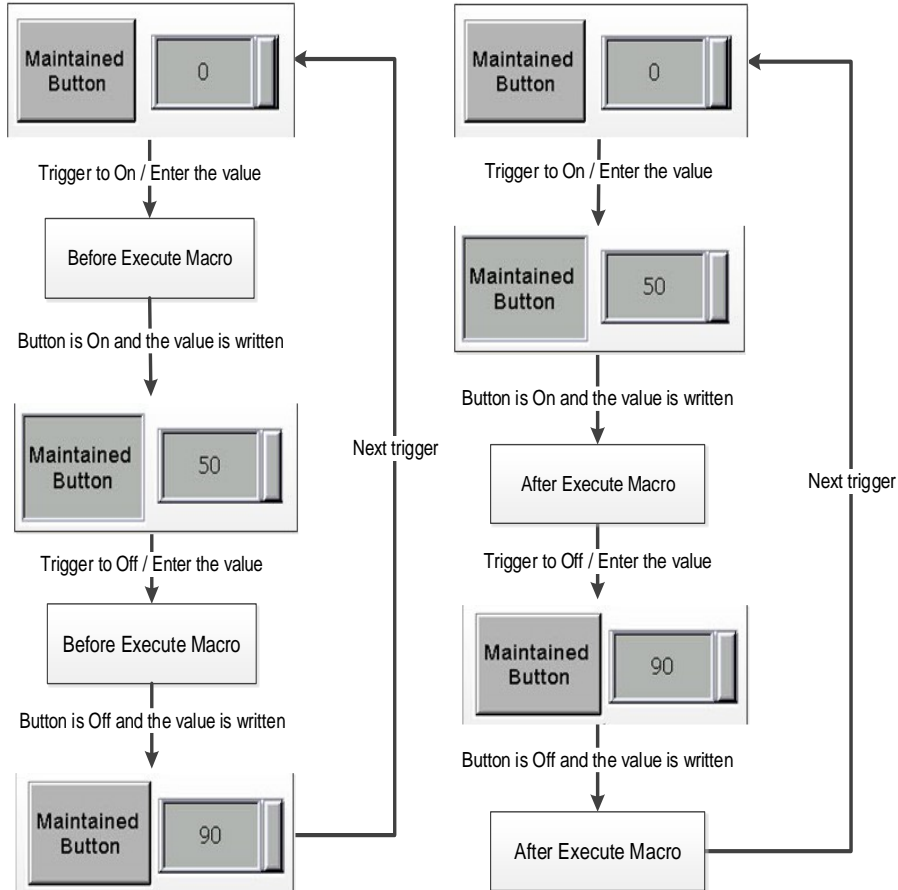
19

No.	Property	Function description
	Before Execute Macro	When you press the button element, the HMI will first execute the macro commands and then execute the action of the button. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.
	After Execute Macro	When you press the button element, the HMI will first execute the action of the button and then execute the macro commands. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.

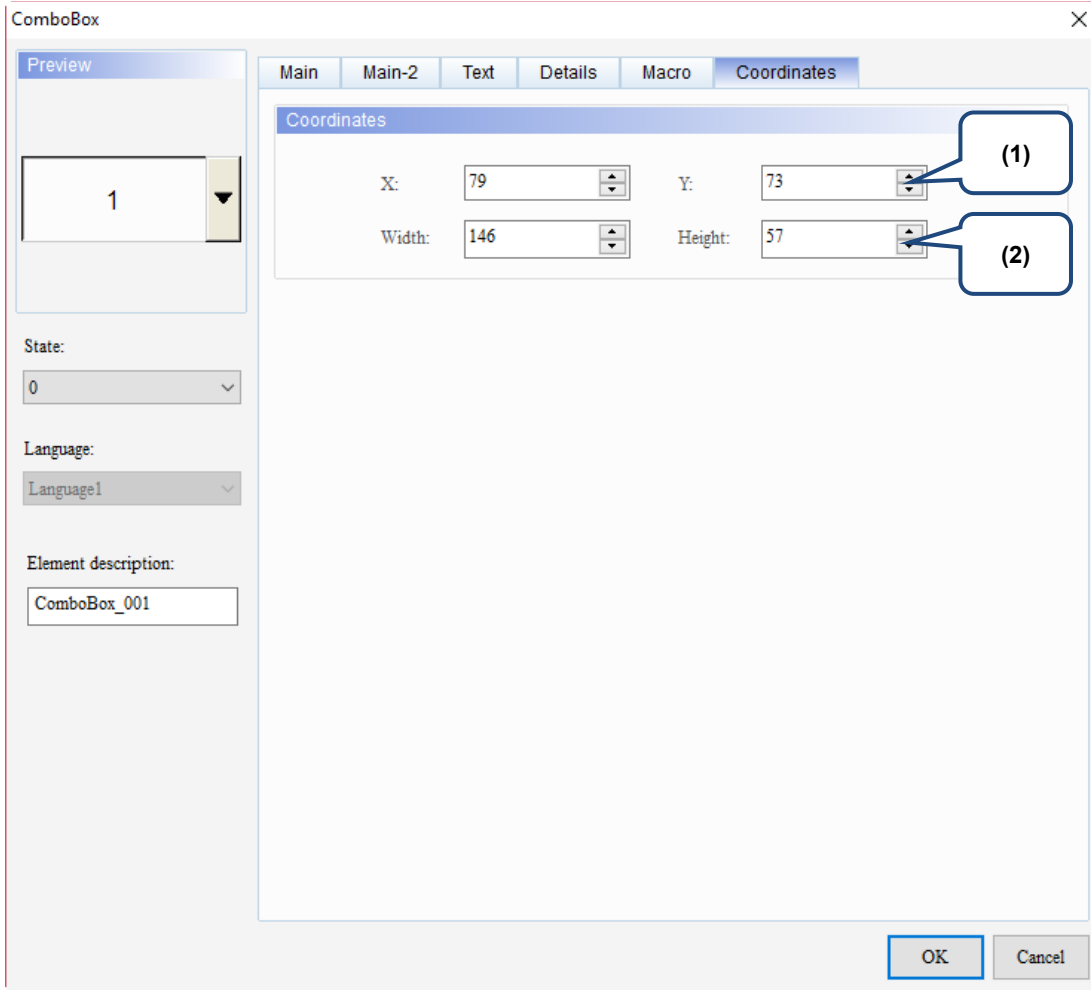
Flowchart of Before Execute Macro:

Flowchart of After Execute Macro:

(1)



Coordinates



19

Figure 19.1.7 Coordinates property page for the ComboBox element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

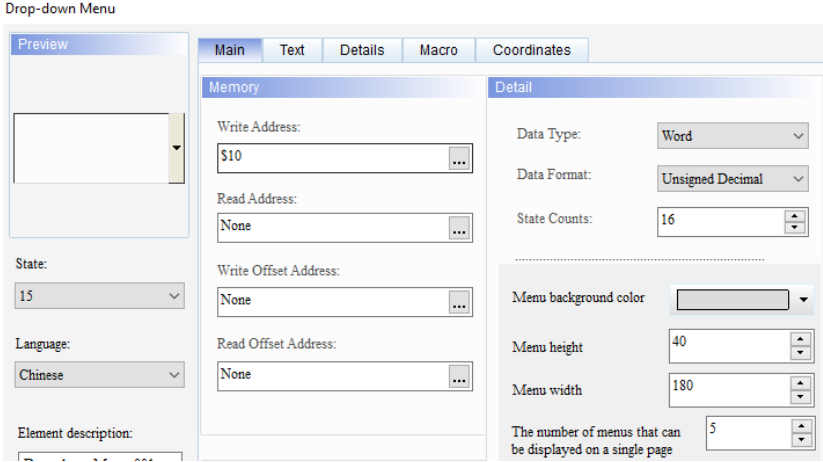
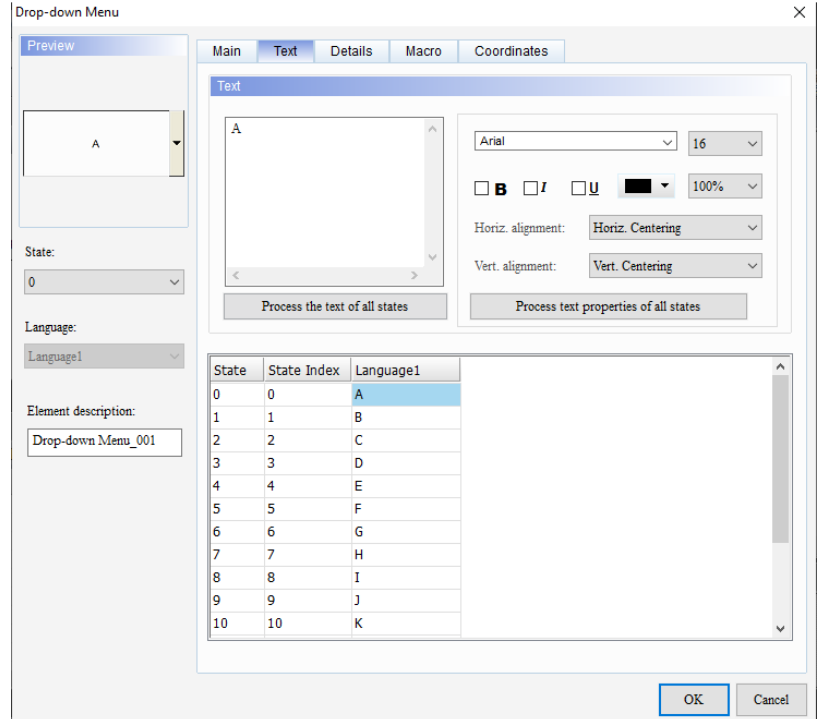
19

19.2 Drop-down Menu

Drop-down Menu provides display messages of multiple states allowing users to select the options for execution. Different from ComboBox, after selecting the item to execute in the Drop-down Menu, you need to press **OK** to complete the selection.

Refer to Table 19.2.1 for the Drop-down Menu example.

Table 19.2.1 Drop-down Menu example

Drop-down Menu																																					
<p>■ Create a Drop-down Menu with its Write Address as \$10, select Word for the Data Type, and then set 16 for the State Counts and 5 for The number of menus that can be displayed on a single page.</p>																																					
<p>■ On the Text page, edit the text messages to be displayed for the 16 states which are the characters of A to P respectively.</p>	 <table border="1"> <thead> <tr> <th>State</th> <th>State Index</th> <th>Language1</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td><td>A</td></tr> <tr><td>1</td><td>1</td><td>B</td></tr> <tr><td>2</td><td>2</td><td>C</td></tr> <tr><td>3</td><td>3</td><td>D</td></tr> <tr><td>4</td><td>4</td><td>E</td></tr> <tr><td>5</td><td>5</td><td>F</td></tr> <tr><td>6</td><td>6</td><td>G</td></tr> <tr><td>7</td><td>7</td><td>H</td></tr> <tr><td>8</td><td>8</td><td>I</td></tr> <tr><td>9</td><td>9</td><td>J</td></tr> <tr><td>10</td><td>10</td><td>K</td></tr> </tbody> </table>	State	State Index	Language1	0	0	A	1	1	B	2	2	C	3	3	D	4	4	E	5	5	F	6	6	G	7	7	H	8	8	I	9	9	J	10	10	K
State	State Index	Language1																																			
0	0	A																																			
1	1	B																																			
2	2	C																																			
3	3	D																																			
4	4	E																																			
5	5	F																																			
6	6	G																																			
7	7	H																																			
8	8	I																																			
9	9	J																																			
10	10	K																																			

Create Drop-down Menu element

Drop-down Menu		
Create Numeric Display element		Create a Numeric Display element and set its Read Address as \$10 and complete the Detail settings.
	Numeric Display	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">Read Address</div> <div style="border: 1px solid gray; padding: 5px;">R:\$10 12345</div> </div> <div style="border: 1px solid gray; padding: 5px;"> <p>Detail</p> <p>Data Type: Word</p> <p>Data Format: Unsigned Decimal</p> <p>Integer Digits: 5</p> <p>Fractional: 0</p> </div>

After creating the elements, compile and download the elements to the HMI. Select the content in the Drop-down Menu then press **OK** to complete the selection. As the number of menus that can be displayed on a single page is set to 5 in this example, five rows, A, B, C, D, and E are displayed accordingly. And the Numeric Display element will show the state value corresponding to the item you selected in the Drop-down Menu.

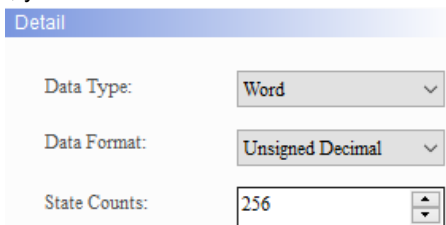
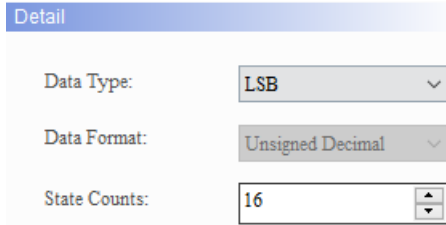
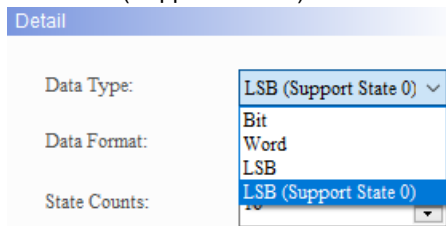

Execution results

The screenshot shows the HMI interface during execution. At the top, a drop-down menu displays the letter 'A'. Below it, a list of five items (A, B, C, D, E) is shown. Item 'B' is highlighted in blue, and a mouse cursor is pointing at it. A callout box labeled 'Step 1' points to item 'B'. Below the list are three buttons: an up arrow, a down arrow, and an 'OK' button. A callout box labeled 'Step 2' points to the 'OK' button. To the right of the 'OK' button, the text '1/4' is visible. Below the menu and buttons, there are two elements: a drop-down menu displaying 'B' and a numeric display element showing the value '1'.

19

The Drop-down Menu supports four Data Types as shown in Table 19.2.2. To add or reduce the total number of states, you can simply increase or decrease the number of State Counts in the Properties window.

Table 19.2.2 Data Type of Drop-down Menu

Drop-down Menu	
Data Type	State Counts
Word	<p>If the Data Type is Word, you can set 1 to 256 for the State Counts.</p> 
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> ■ LSB is to first convert the data in the register to binary data, then use the lowest non-zero bit to determine the current state of the object. ■ If the Data Type is LSB, you can set 1 to 16 states except for State 0. 
	<ul style="list-style-type: none"> ■ To display State 0, select LSB (Support State 0) for the Data Type.  <ul style="list-style-type: none"> ■ If you selected LSB, the element is black when the state is 0.  <ul style="list-style-type: none"> ■ When the Data Type is LSB or LSB (Support State 0), the memory address is also in units of Word.

Drop-down Menu																																																													
Data Type	State Counts																																																												
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> The examples in the following table show how the state value is determined with the lowest non-zero bit of the binary value converted from a decimal value. There are also examples demonstrating how the software determines the displaying state value with the lowest bit when the decimal values are 3 and 7. <table border="1"> <thead> <tr> <th>Decimal</th> <th>Binary</th> <th>State value</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0000000000000000</td> <td>State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.</td> </tr> <tr> <td>1</td> <td>0000000000000001</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>2</td> <td>0000000000000010</td> <td>The lowest non-zero bit is bit 1, State = 2.</td> </tr> <tr> <td>3</td> <td>0000000000000011</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>4</td> <td>0000000000000100</td> <td>The lowest non-zero bit is bit 2, State = 3.</td> </tr> <tr> <td>7</td> <td>0000000000000111</td> <td>The lowest non-zero bit is bit 0, State = 1.</td> </tr> <tr> <td>8</td> <td>0000000000001000</td> <td>The lowest non-zero bit is bit 3, State = 4.</td> </tr> <tr> <td>16</td> <td>0000000000010000</td> <td>The lowest non-zero bit is bit 4, State = 5.</td> </tr> <tr> <td>32</td> <td>000000000100000</td> <td>The lowest non-zero bit is bit 5, State = 6.</td> </tr> <tr> <td>64</td> <td>000000001000000</td> <td>The lowest non-zero bit is bit 6, State = 7.</td> </tr> <tr> <td>128</td> <td>000000001000000</td> <td>The lowest non-zero bit is bit 7, State = 8.</td> </tr> <tr> <td>256</td> <td>000000010000000</td> <td>The lowest non-zero bit is bit 8, State = 9.</td> </tr> <tr> <td>512</td> <td>000000100000000</td> <td>The lowest non-zero bit is bit 9, State = 10.</td> </tr> <tr> <td>1024</td> <td>000001000000000</td> <td>The lowest non-zero bit is bit 10, State = 11.</td> </tr> <tr> <td>2048</td> <td>000010000000000</td> <td>The lowest non-zero bit is bit 11, State = 12.</td> </tr> <tr> <td>4096</td> <td>000100000000000</td> <td>The lowest non-zero bit is bit 12, State = 13.</td> </tr> <tr> <td>8192</td> <td>001000000000000</td> <td>The lowest non-zero bit is bit 13, State = 14.</td> </tr> <tr> <td>16384</td> <td>010000000000000</td> <td>The lowest non-zero bit is bit 14, State = 15.</td> </tr> <tr> <td>32768</td> <td>100000000000000</td> <td>The lowest non-zero bit is bit 15, State = 16.</td> </tr> </tbody> </table>	Decimal	Binary	State value	0	0000000000000000	State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.	1	0000000000000001	The lowest non-zero bit is bit 0, State = 1.	2	0000000000000010	The lowest non-zero bit is bit 1, State = 2.	3	0000000000000011	The lowest non-zero bit is bit 0, State = 1.	4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.	7	0000000000000111	The lowest non-zero bit is bit 0, State = 1.	8	0000000000001000	The lowest non-zero bit is bit 3, State = 4.	16	0000000000010000	The lowest non-zero bit is bit 4, State = 5.	32	000000000100000	The lowest non-zero bit is bit 5, State = 6.	64	000000001000000	The lowest non-zero bit is bit 6, State = 7.	128	000000001000000	The lowest non-zero bit is bit 7, State = 8.	256	000000010000000	The lowest non-zero bit is bit 8, State = 9.	512	000000100000000	The lowest non-zero bit is bit 9, State = 10.	1024	000001000000000	The lowest non-zero bit is bit 10, State = 11.	2048	000010000000000	The lowest non-zero bit is bit 11, State = 12.	4096	000100000000000	The lowest non-zero bit is bit 12, State = 13.	8192	001000000000000	The lowest non-zero bit is bit 13, State = 14.	16384	010000000000000	The lowest non-zero bit is bit 14, State = 15.	32768	100000000000000	The lowest non-zero bit is bit 15, State = 16.
	Decimal	Binary	State value																																																										
	0	0000000000000000	State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.																																																										
	1	0000000000000001	The lowest non-zero bit is bit 0, State = 1.																																																										
	2	0000000000000010	The lowest non-zero bit is bit 1, State = 2.																																																										
	3	0000000000000011	The lowest non-zero bit is bit 0, State = 1.																																																										
	4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.																																																										
	7	0000000000000111	The lowest non-zero bit is bit 0, State = 1.																																																										
	8	0000000000001000	The lowest non-zero bit is bit 3, State = 4.																																																										
	16	0000000000010000	The lowest non-zero bit is bit 4, State = 5.																																																										
	32	000000000100000	The lowest non-zero bit is bit 5, State = 6.																																																										
	64	000000001000000	The lowest non-zero bit is bit 6, State = 7.																																																										
	128	000000001000000	The lowest non-zero bit is bit 7, State = 8.																																																										
	256	000000010000000	The lowest non-zero bit is bit 8, State = 9.																																																										
	512	000000100000000	The lowest non-zero bit is bit 9, State = 10.																																																										
	1024	000001000000000	The lowest non-zero bit is bit 10, State = 11.																																																										
	2048	000010000000000	The lowest non-zero bit is bit 11, State = 12.																																																										
	4096	000100000000000	The lowest non-zero bit is bit 12, State = 13.																																																										
8192	001000000000000	The lowest non-zero bit is bit 13, State = 14.																																																											
16384	010000000000000	The lowest non-zero bit is bit 14, State = 15.																																																											
32768	100000000000000	The lowest non-zero bit is bit 15, State = 16.																																																											
Bit	<p>If the Data Type is Bit, you can set only 2 states.</p>																																																												

When you double-click the Drop-down Menu, the property page is shown as follows.

19

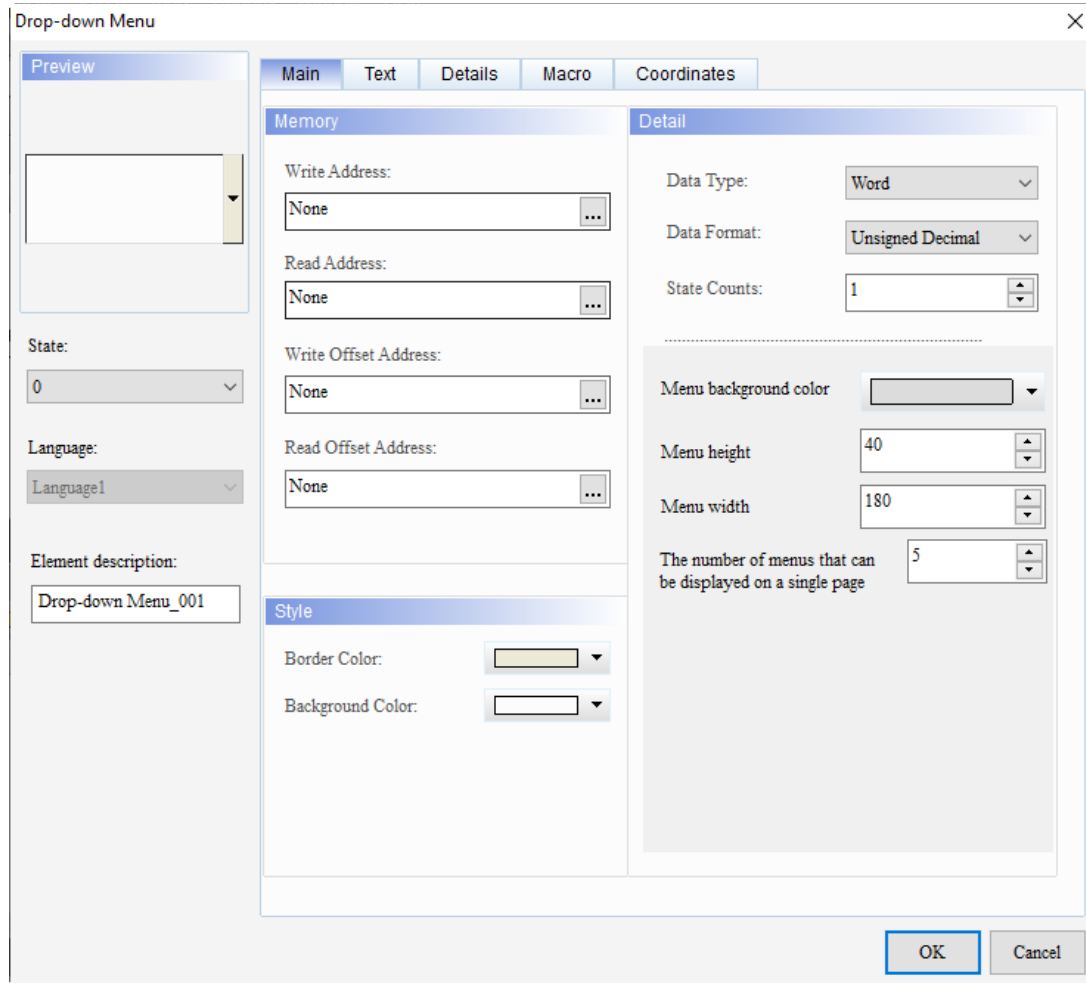


Figure 19.2.1 Properties of Drop-down Menu

Table 19.2.3 Function page of the Drop-down Menu element

Drop-down Menu	
Function page	Description
Preview	Drop-down Menu supports multiple state values and multi-language data display.
Main	Set the Write Address, Read Address, Write Offset Address, Read Offset Address, Data Type, Data Format, and State Counts. Set the Border Color and Background Color. Set the Menu background color, Menu height, Menu width, and The number of menus that can be displayed on a single page.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Details	Set the options of Interlock State, Interlock Display Mode, Interlock Address, Trigger Mode, Trigger Addr., Invisible Address, User Security Level, Set Low Security, and Confirm Window.
Macro	Set the Before Execute Macro and After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

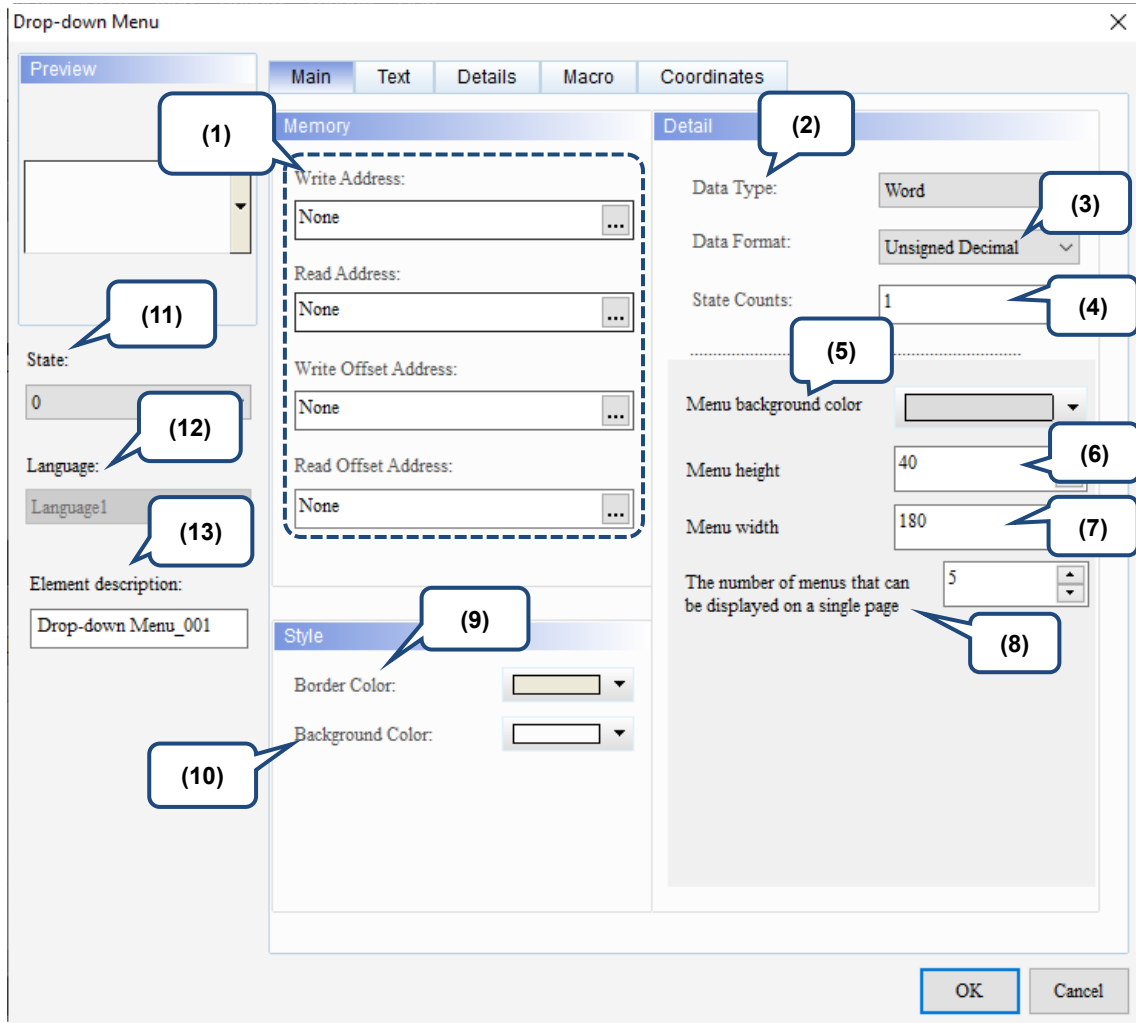
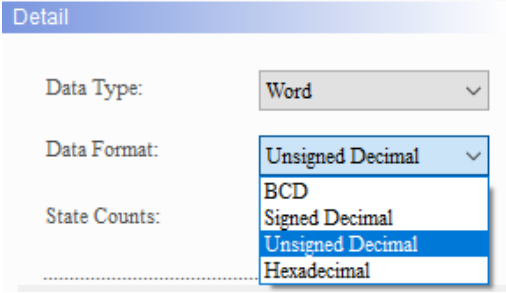
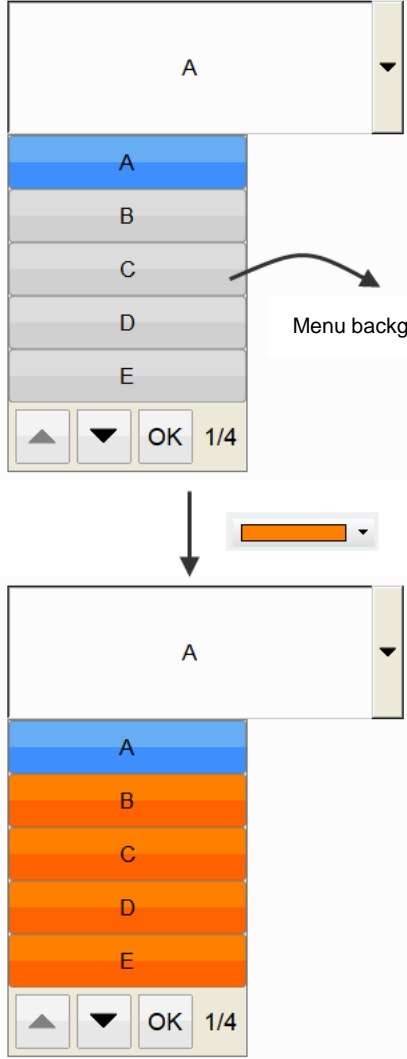
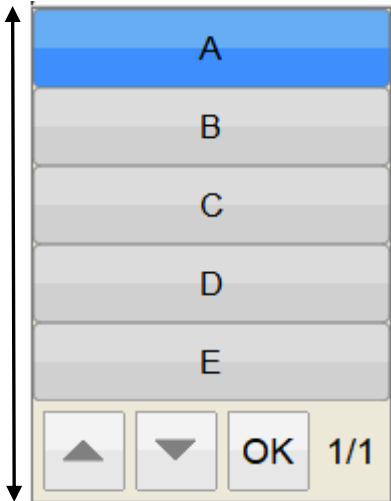


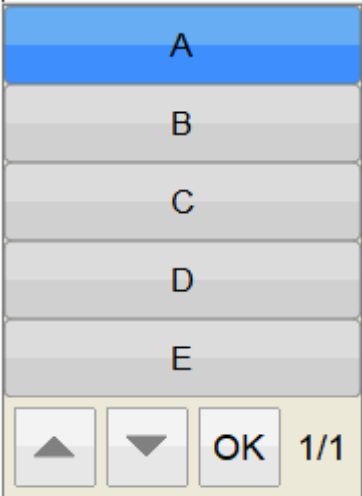


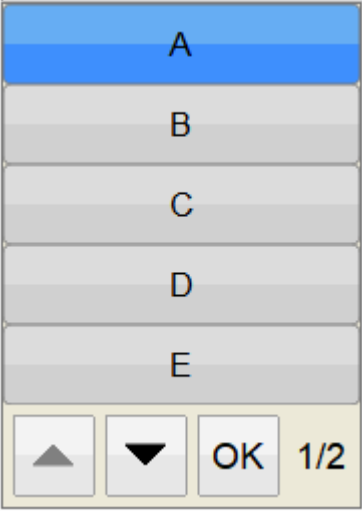
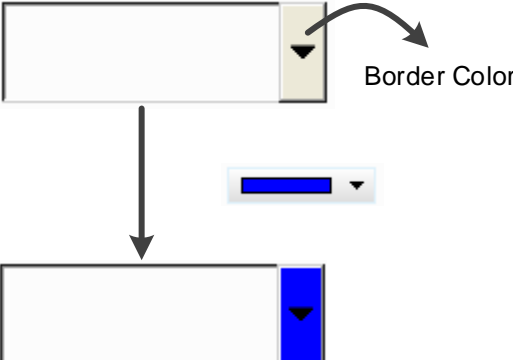
Figure 19.2.2 Main property page for the Drop-down Menu element

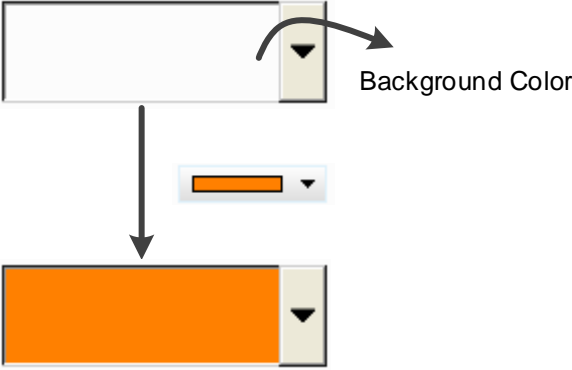
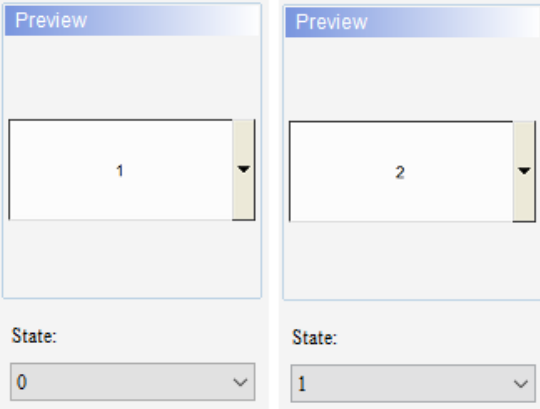
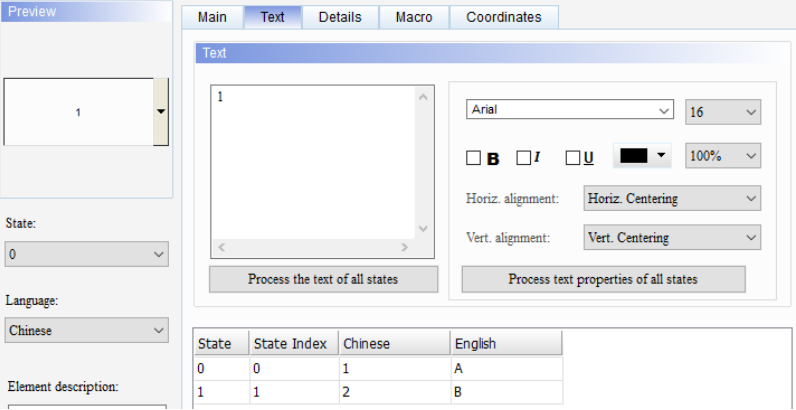
19

No.	Property	Function description
(1)	Write Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. The input memory type varies depending on the selected data type, including Word, LSB, or Bit, as shown in Table 19.2.2. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Address	
	Write Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
	Read Offset Address	
(2)	Data Type	There are four types, Bit, Word, LSB, and LSB (Support State 0). Refer to Table 19.2.2 for more details.
(3)	Data Format	<ul style="list-style-type: none"> You can select the Data Format only when the Data Type is Word. There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal. 
(4)	State Counts	Set the state counts for the Drop-down Menu element. If the Data Type is Word, you can set 1 - 256 states; if the Data Type is LSB, you can set 16 states; if the Data Type is LSB (Support State 0), you can set 17 states; and if the Data Type is Bit, you can set only 2 states. Refer to Table 19.2.2 for details.

No.	Property	Function description
(5)	Menu background color	<p>Set the background color of the menu.</p>  <p>The diagram illustrates the process of setting the menu background color. It shows a menu with items A, B, C, D, and E. A color selection dialog is shown, with an arrow pointing from the 'Menu background color' label to the dialog. The dialog shows a color selection bar and a dropdown menu. The bottom part of the diagram shows the menu with items B, C, D, and E highlighted in orange, indicating the selected color.</p>
(6)	Menu height	<p>Set the height of the menu.</p>  <p>The diagram illustrates the process of setting the menu height. It shows a menu with items A, B, C, D, and E. A vertical double-headed arrow indicates the height of the menu, which includes items A-E and the control buttons.</p>

19

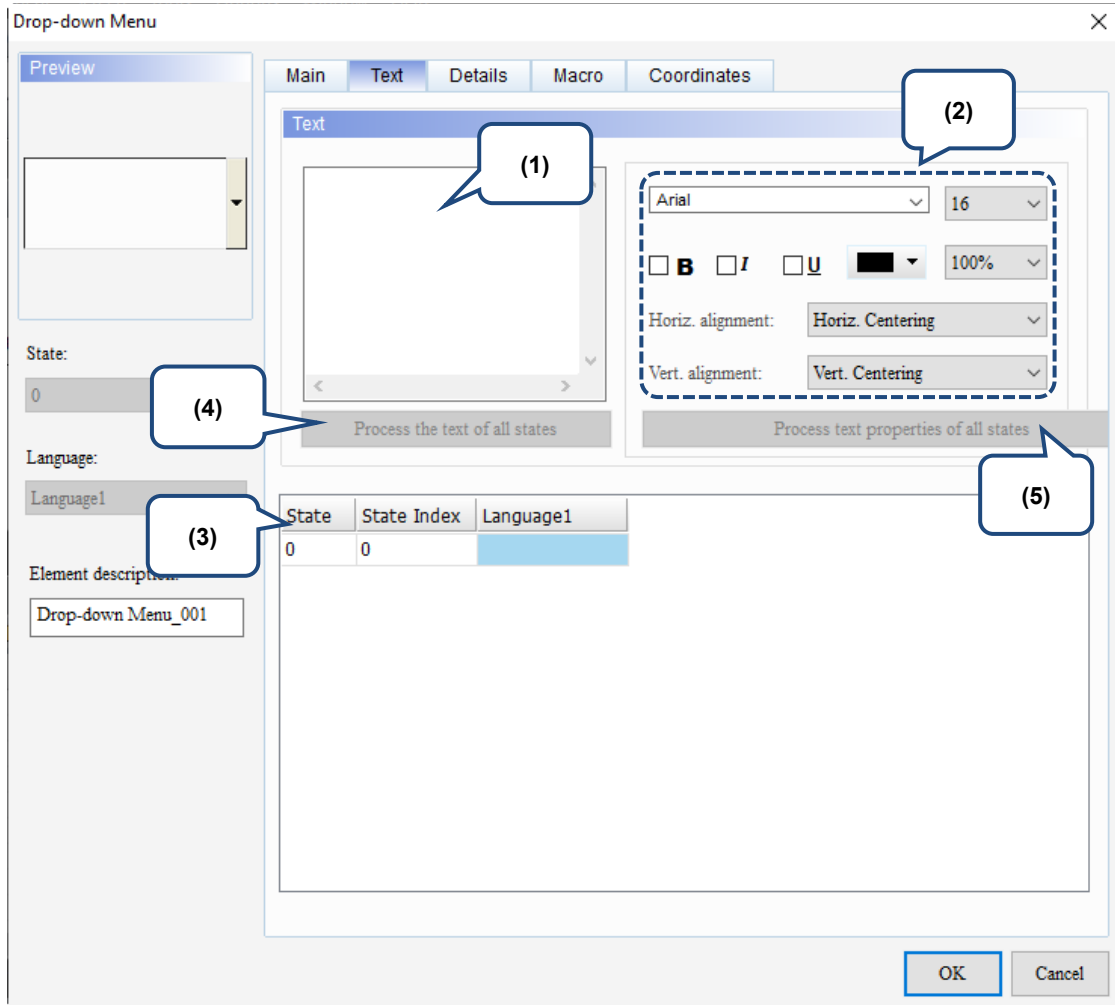
No.	Property	Function description
(7)	Menu width	<p>Set the width of the menu.</p> 
(8)	The number of menus that can be displayed on a single page	<ul style="list-style-type: none"> ■ Set the number of items that can be displayed on a single page of the menu. The default setting is 5. ■ If there are more than 5 items, press the  and  buttons to turn pages. 
(9)	Border Color	<p>Set the border color of the element.</p> 

No.	Property	Function description												
(10)	Background Color	<p>Set the background color of the element.</p> 												
(11)	State	<p>By switching the State, you can preview or change the settings of each state of the element.</p> 												
(12)	Language	<p>If you have set the language data, you can edit the properties of the text to be displayed with the Language setting of the element.</p>  <table border="1"> <thead> <tr> <th>State</th> <th>State Index</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> <td>A</td> </tr> <tr> <td>1</td> <td>1</td> <td>2</td> <td>B</td> </tr> </tbody> </table>	State	State Index	Chinese	English	0	0	1	A	1	1	2	B
State	State Index	Chinese	English											
0	0	1	A											
1	1	2	B											

19

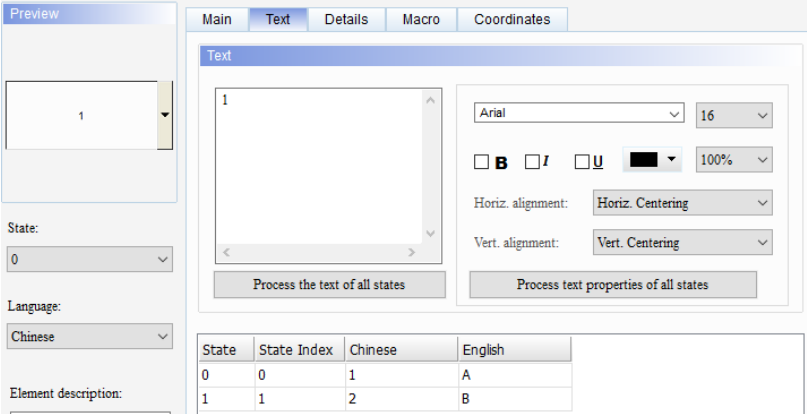
No.	Property	Function description																																																																																									
(13)	Element description	Record the button actions to be executed. The record is also written in the CSV file of the Operation Log Table so users can know what actions have been done.																																																																																									
		<table border="1"> <thead> <tr> <th>Time</th> <th>Date</th> <th>Level</th> <th>Screen</th> <th>Desc</th> <th>Action</th> <th>Pre Value</th> <th>Change Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13:37:54</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Get Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>13:37:56</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>3</td> <td>13:38:19</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td></td> <td>Level Switch</td> <td>8</td> <td>4</td> </tr> <tr> <td>4</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Get Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>5</td> <td>13:38:21</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>6</td> <td>13:38:22</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Get Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>7</td> <td>13:38:23</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>8</td> <td>13:38:31</td> <td>5/5/2016</td> <td>4</td> <td>Screen_22</td> <td></td> <td>Level Switch</td> <td>4</td> <td>8</td> </tr> <tr> <td>9</td> <td>13:38:35</td> <td>5/5/2016</td> <td>8</td> <td>Screen_22</td> <td>\$100 Value</td> <td>Get Val</td> <td>85</td> <td>25</td> </tr> </tbody> </table>	Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value	1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Get Val	1	0	2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1	3	13:38:19	5/5/2016	8	Screen_22		Level Switch	8	4	4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Get Val	0	1	5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0	6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Get Val	0	1	7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0	8	13:38:31	5/5/2016	4	Screen_22		Level Switch	4	8	9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Get Val	85	25
		Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value																																																																																		
		1	13:37:54	5/5/2016	8	Screen_22	Level 1 Btn	Get Val	1	0																																																																																	
		2	13:37:56	5/5/2016	8	Screen_22	Level 1 Btn	Set Val	0	1																																																																																	
		3	13:38:19	5/5/2016	8	Screen_22		Level Switch	8	4																																																																																	
		4	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Get Val	0	1																																																																																	
		5	13:38:21	5/5/2016	4	Screen_22	Level 2 Btn	Set Val	1	0																																																																																	
		6	13:38:22	5/5/2016	4	Screen_22	Level 4 Btn	Get Val	0	1																																																																																	
		7	13:38:23	5/5/2016	4	Screen_22	Level 4 Btn	Set Val	1	0																																																																																	
		8	13:38:31	5/5/2016	4	Screen_22		Level Switch	4	8																																																																																	
9	13:38:35	5/5/2016	8	Screen_22	\$100 Value	Get Val	85	25																																																																																			

■ Text

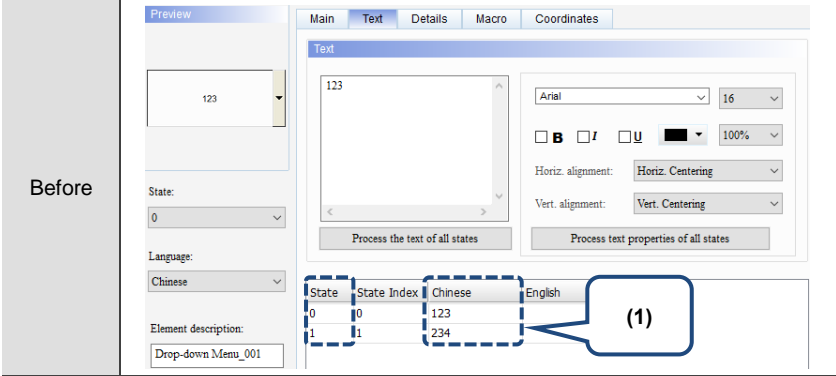
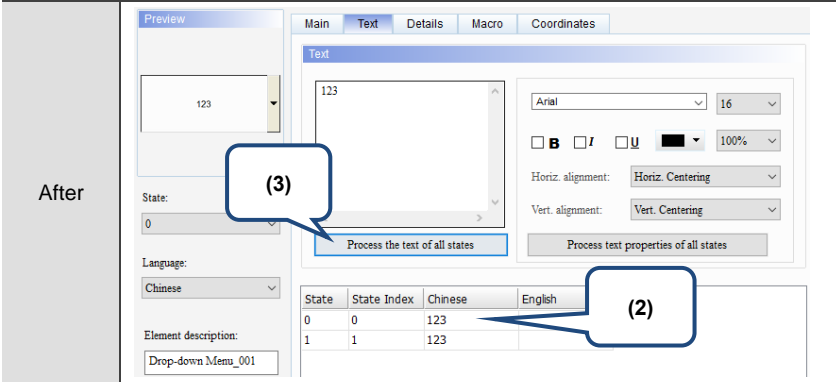
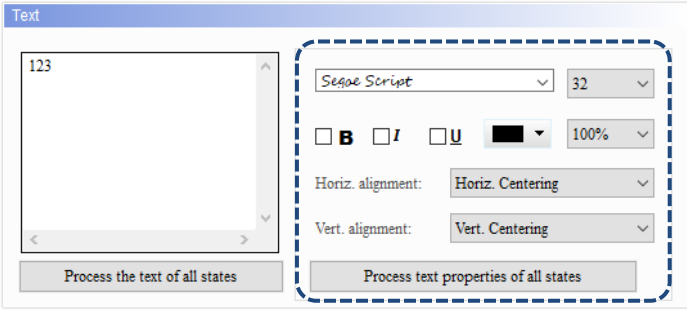


19

Figure 19.2.3 Text property page for the Drop-down Menu element

No.	Property	Function description
(1)	Text	<p>■ You can enter the text to display in this box.</p>  <p>■ As long as the element allows text input, you can click the element and press the space key to start editing the text.</p>
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the texts.
(3)	Edit multi-language text	If you have added multi-language texts, the Text page allows you to edit multi-language data.

19

No.	Property	Function description
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected. Refer to the following example:</p> <ol style="list-style-type: none"> 1. Enter the text “123” for State 0 and “234” for State 1. 2. Select State 0. 3. Execute Process the text of all states and the text of State 1 is changed to “123”.  
(5)	Process text properties of all states	<p>This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p>  <p>Refer to the following example:</p> <ol style="list-style-type: none"> 1. Enter the text “123” for State 0 and “234” for State 1. Select Segoe Script for the text font of State 0 and Arial for the text font of State 1. 2. Select State 0. 3. Execute Process text properties of all states and the text font of State 1 is changed to Segoe Script.

No.	Property	Function description													
(5)	Process text properties of all states	Before	<p>State: 0</p> <p>Language: Chinese</p> <p>Element description: Drop-down Menu_001</p> <table border="1"> <thead> <tr> <th>State</th> <th>State Index</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>123</td> <td></td> </tr> <tr> <td>1</td> <td>1</td> <td>234</td> <td></td> </tr> </tbody> </table>	State	State Index	Chinese	English	0	0	123		1	1	234	
		State	State Index	Chinese	English										
		0	0	123											
1	1	234													
After	<p>State: 1</p> <p>Language: Chinese</p> <p>Element description: Drop-down Menu_001</p> <table border="1"> <thead> <tr> <th>State</th> <th>State Index</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>123</td> <td></td> </tr> <tr> <td>1</td> <td>1</td> <td>234</td> <td></td> </tr> </tbody> </table>	State	State Index	Chinese	English	0	0	123		1	1	234			
State	State Index	Chinese	English												
0	0	123													
1	1	234													

19

■ Details

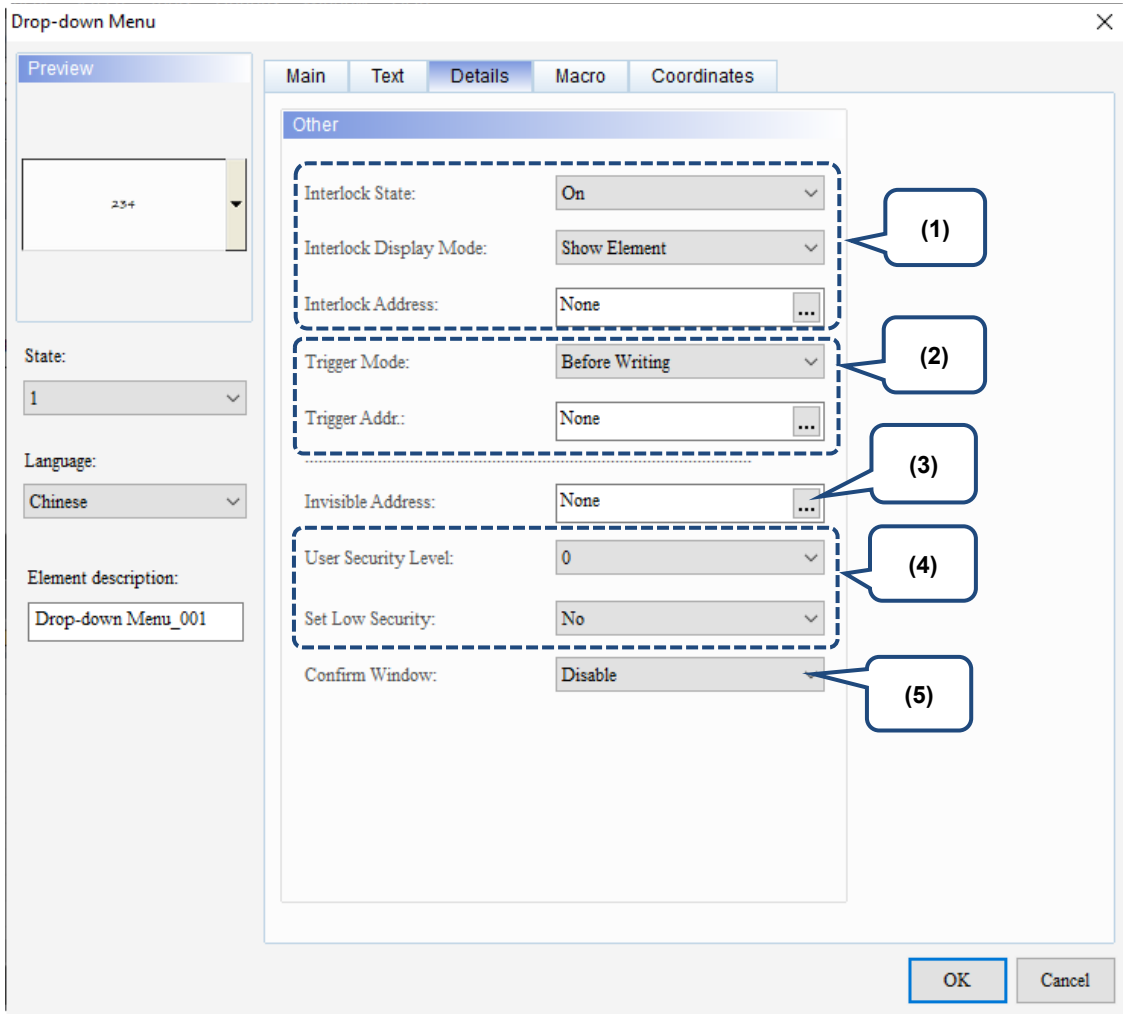
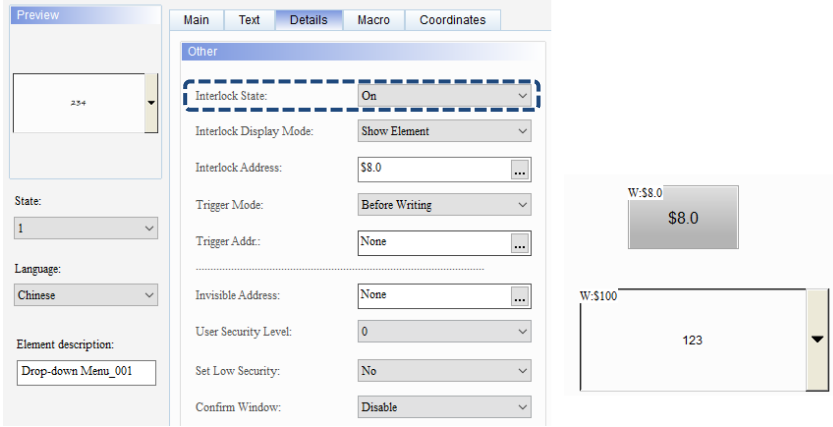
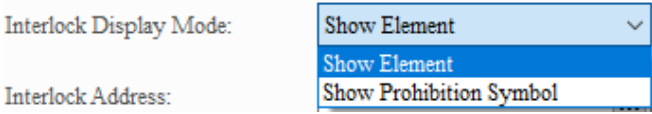






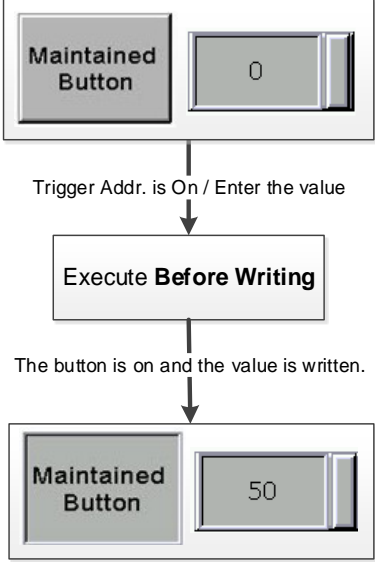
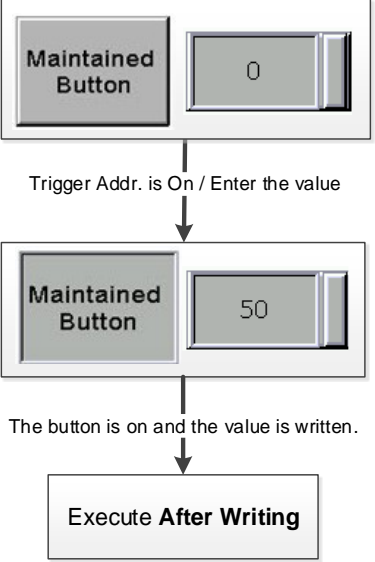
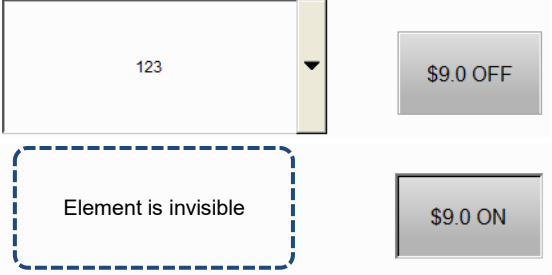
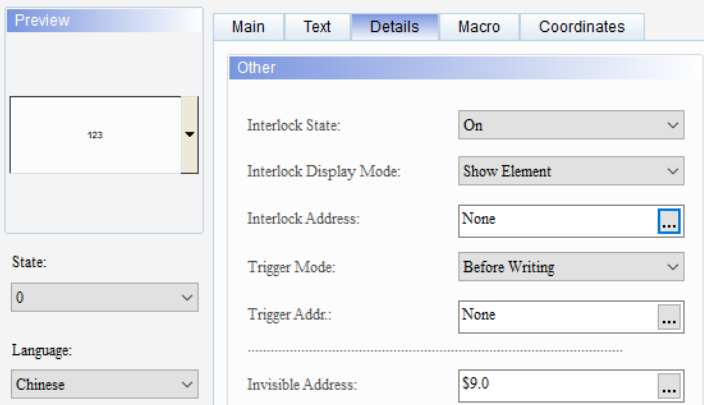
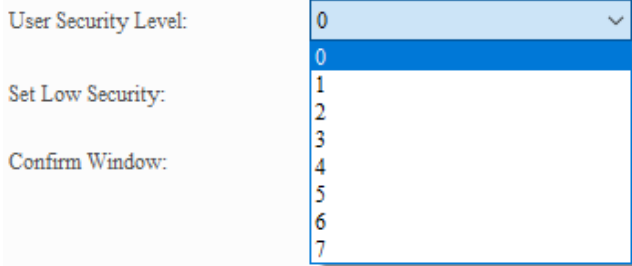
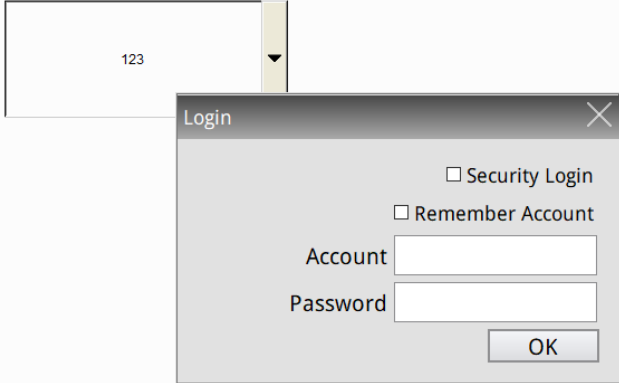
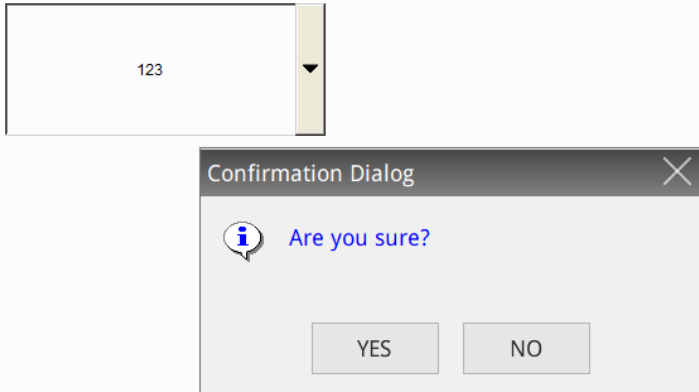


Figure 19.2.4 Details property page for the Drop-down Menu element

No.	Property	Function description				
(1)	Interlock State	<p>The Interlock Address is for enabling the operation of another element and has to be used with the Interlock State. If the Interlock State is set to Off, it means the Interlock Address is operable when this Interlock State is Off. On the other hand, if the Interlock State is set to On, the Interlock Address is operable when this Interlock State is On.</p> <ul style="list-style-type: none"> ■ Create a button and set its address to \$8.0. Then, set the Interlock Address to \$8.0 for the Drop-down Menu which address is \$100. ■ In order for the Drop-down Menu to obtain the correct state value after you press it, you must first press the \$8.0 button to validate the action of the Drop-down Menu. 				
	Interlock Address	<p>Drop-down Menu</p> 				
	Interlock Display Mode	<p>The options for Interlock Display Mode are Show Element and Show Prohibition Symbol.</p>  <table border="1"> <tr> <td>Show Element</td> <td>  </td> </tr> <tr> <td>Show Prohibition Symbol</td> <td>  </td> </tr> </table>	Show Element		Show Prohibition Symbol	
Show Element						
Show Prohibition Symbol						

19

No.	Property	Function description						
(2)	<p>Trigger Mode</p> <hr/> <p>Trigger Addr.</p>	<ul style="list-style-type: none"> Trigger Modes include Before Writing and After Writing. <table border="1"> <thead> <tr> <th></th> <th>Before Writing</th> <th>After Writing</th> </tr> </thead> <tbody> <tr> <td>Triggering action</td> <td>Trigger Addr. must be set to On before the value changes.</td> <td>Value is changed before the Trigger Addr. is set to On.</td> </tr> </tbody> </table> The triggering function only switches the set Trigger Addr. to On, so if triggering again is required, you need to set the Trigger Addr. to Off. <p>Flowchart of Before Writing:</p>  <p>Flowchart of After Writing:</p>  		Before Writing	After Writing	Triggering action	Trigger Addr. must be set to On before the value changes.	Value is changed before the Trigger Addr. is set to On.
	Before Writing	After Writing						
Triggering action	Trigger Addr. must be set to On before the value changes.	Value is changed before the Trigger Addr. is set to On.						
(3)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p>  <p>Drop-down Menu</p> 						

No.	Property	Function description
(4)	User Security Level	 <ul style="list-style-type: none"> ■ You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. ■ After you set the User Security Level, when you press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password with the Password Table element. Refer to Section 5.7.2 Password Table Setup).
	Set Low Security	 <ul style="list-style-type: none"> ■ If you set the Set Low Security to Yes, the HMI automatically sets the security level to the lowest each time you enter the password. Next time you press the element, you will be asked again to enter the password for the corresponding security level.
(5)	Confirm Window	<p>If you set the Confirm Window to Yes, the following Confirmation Dialog appears for you to confirm the action after you press the element.</p> 

19

■ Macro

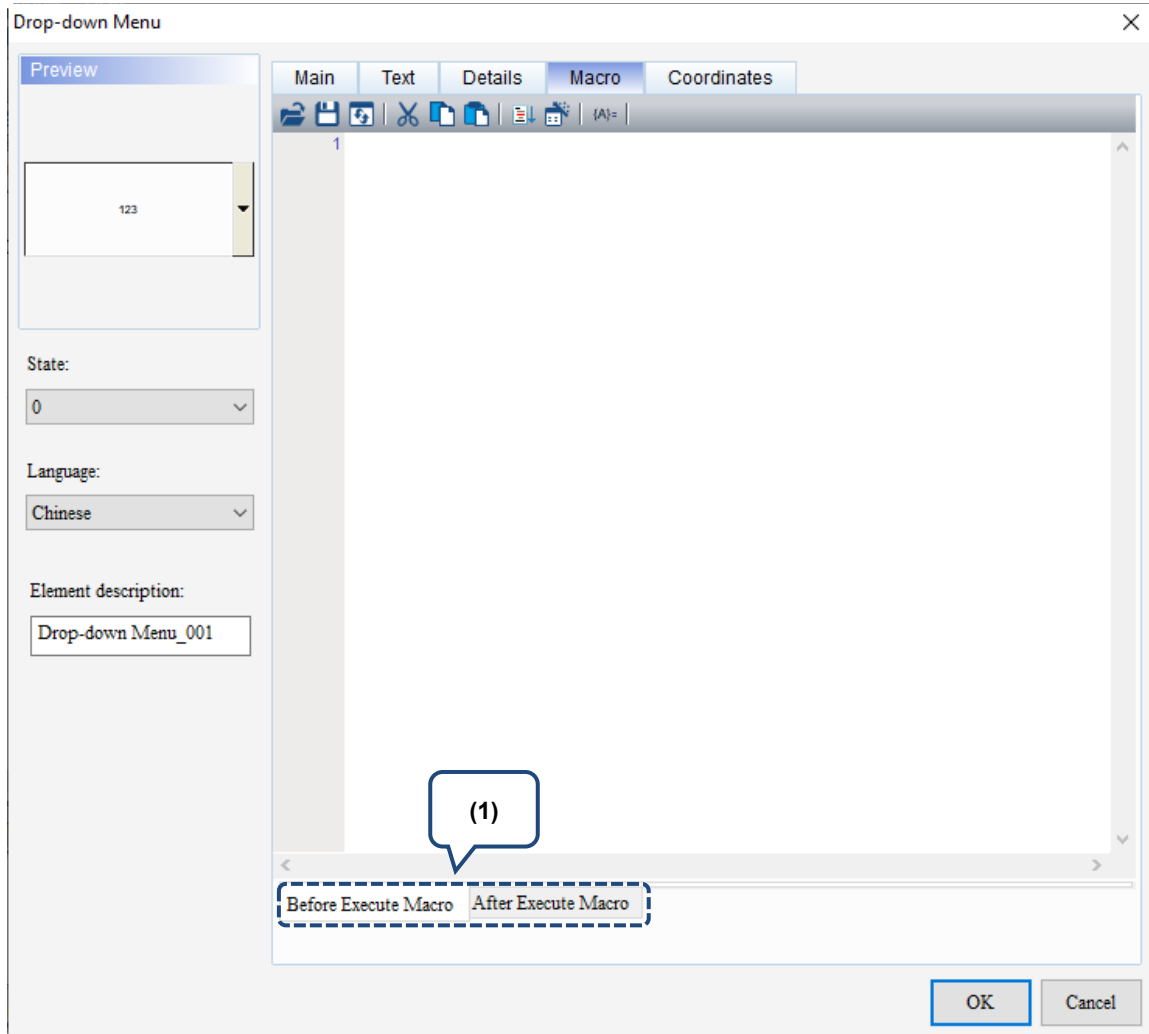
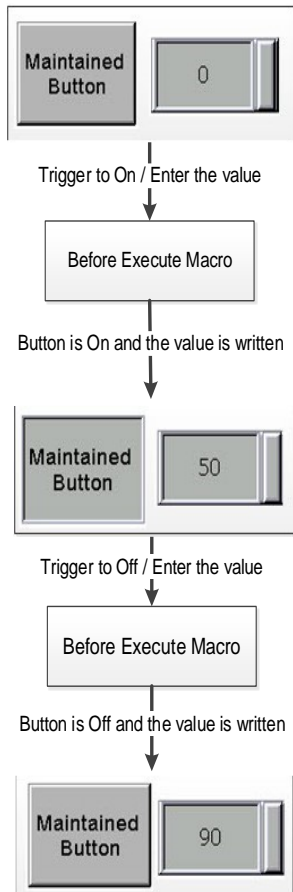


Figure 19.2.5 Macro property page for the Drop-down Menu element

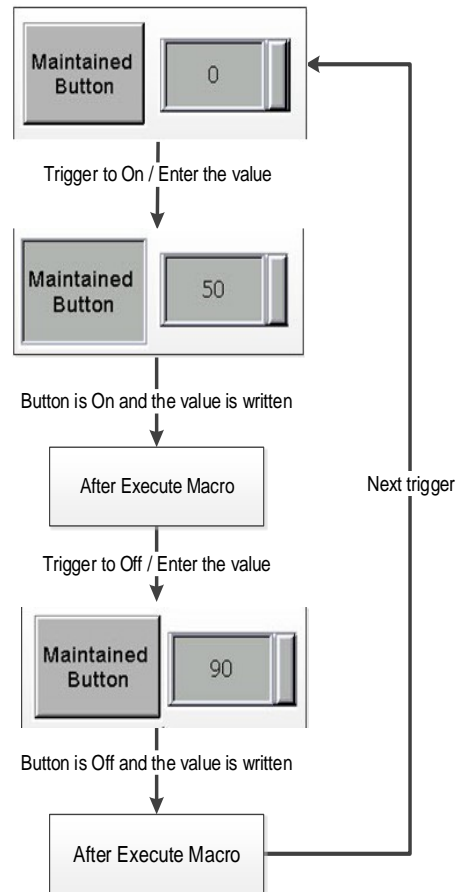
No.	Property	Function description
	Before Execute Macro	When you press the button element, the HMI will first execute the macro commands and then execute the action of the button. However, if the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.
	After Execute Macro	When you press the button element, the HMI will first execute the action of the button and then execute the macro commands. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.

(1)

Flowchart of Before Execute Macro:



Flowchart of After Execute Macro:



Next trigger

Next trigger

Coordinates

19

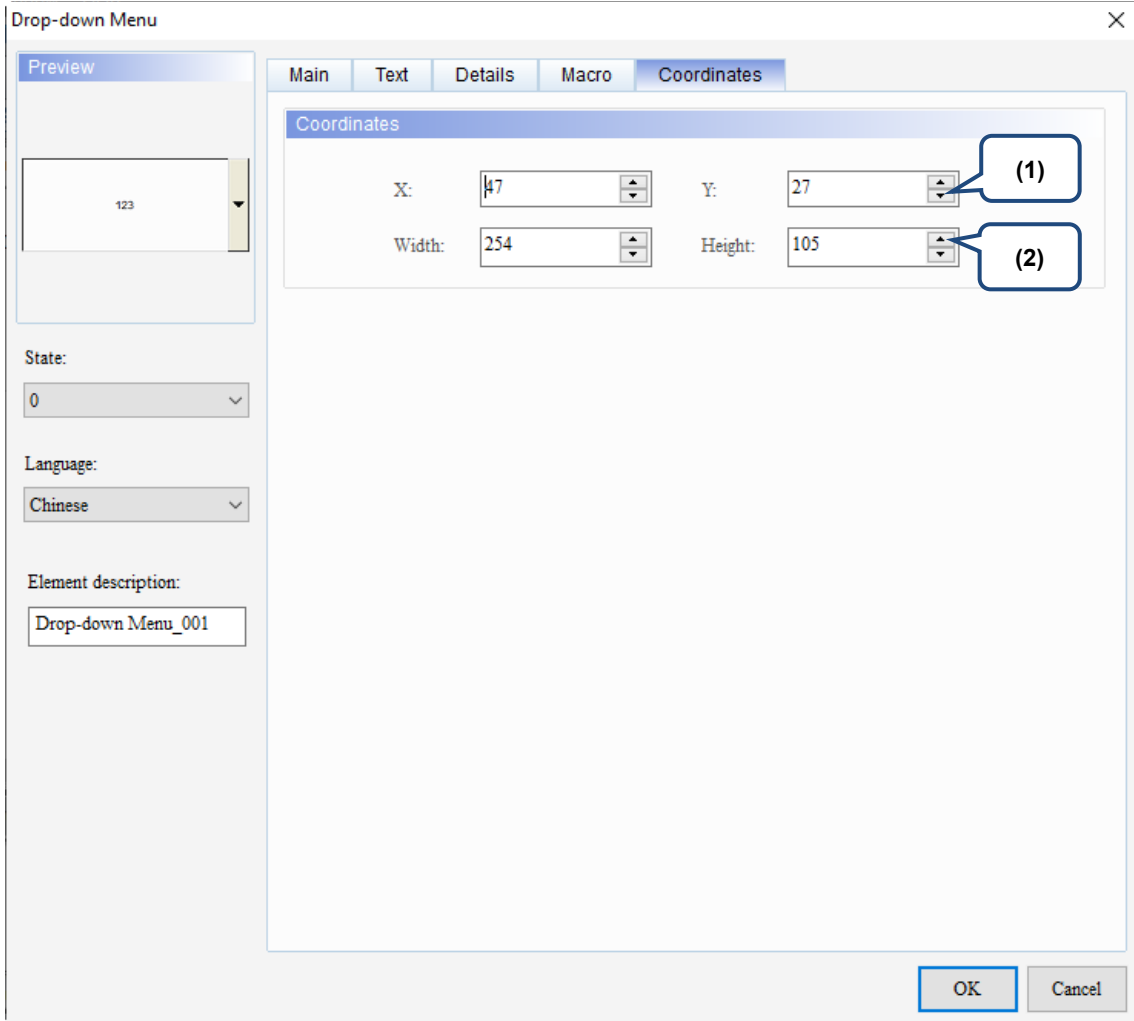


Figure 19.2.6 Coordinates property page for the Drop-down Menu element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

19.3 ListBox

Same as the ComboBox, the ListBox provides display messages of multiple states, but the ListBox allows users to view and select the options in a more intuitive way. Refer to Table 19.3.1 for the ListBox example.

Table 19.3.1 ListBox example

ListBox

- Create a ListBox element with its Write Address as \$10 Select Word for the Data Type and then set the State Counts to 16.

ListBox ×

Preview

Main Main-2 Text Details Macro Coordinates

Memory

Write Address:

Read Address:

Detail

Data Type:

Data Format:

State Counts:

- On the Text page, edit the text messages to be displayed for the 16 states which are the characters of A to P respectively.

ListBox ×

Preview

A
B
C
D
E
F
G
H
I

State:

Language:

Element description:

Main Main-2 Text Details Macro Coordinates

Text

P

Arial

B I U

Horiz. alignment:

Vert. alignment:

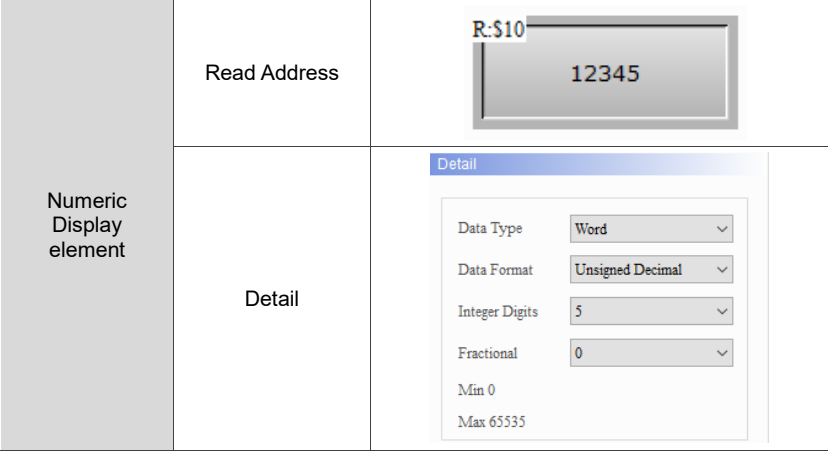
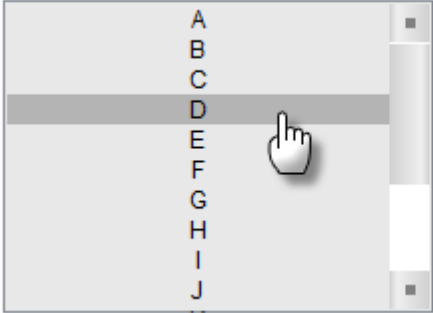
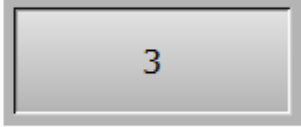
Process the text of all states Process text properties of all states

State	State Index	Chinese	English
0	0	1	A
1	1	2	B
2	2	3	C
3	3	4	D
4	4	5	E
5	5	6	F
6	6	7	G
7	7	8	H
8	8	9	I
9	9	10	J
10	10	11	K

Create
ListBox
element

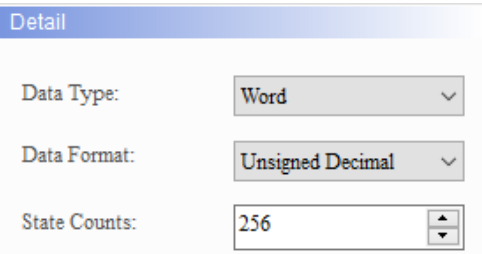
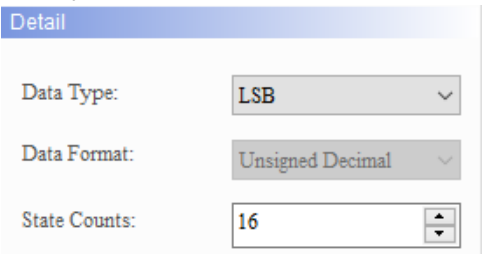
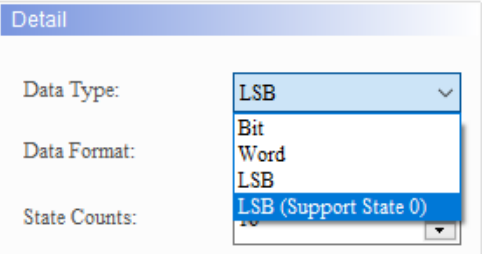

19-45

19

ListBox		
Create Numeric Display element	Create a Numeric Display element and set its Read Address as \$10 and complete the Detail settings.	
		
Execution results	After creating the elements, compile and download the elements to the HMI. The Numeric Display element will show the state value corresponding to the item you selected in the ListBox element.	
		

ListBox supports four data types as shown in Table 19.3.2. If you need to add or reduce the total number of states, simply increase or decrease the number of State Counts in the Properties window.

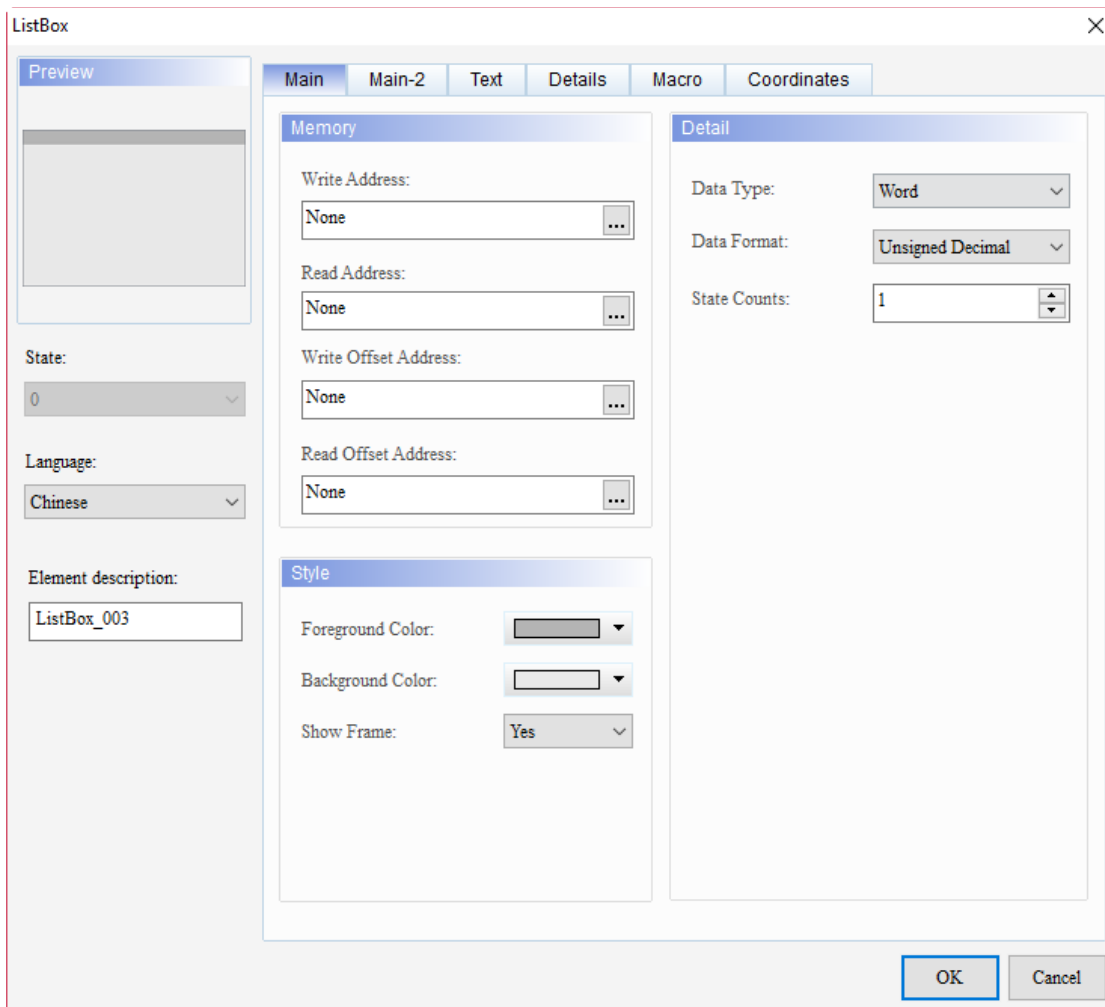
Table 19.3.2 Data Type of ListBox

ListBox	
Data Type	State Counts
Word	<p>If the Data Type is Word, you can set 1 to 256 for the State Counts.</p> 
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> ■ LSB is first convert the data in the register to binary data and then use the lowest non-zero bit to determine the current state of the object. ■ If the Data Type is LSB, you can set 1 to 16 states except for State 0. 
	<ul style="list-style-type: none"> ■ To display State 0, select LSB (Support State 0) for the Data Type.  <ul style="list-style-type: none"> ■ If you selected LSB, the element is black when the state is 0.  <ul style="list-style-type: none"> ■ When the Data Type is LSB or LSB (Support State 0), the memory address is also in units of Word.

19

ListBox			
Data Type	State Counts		
LSB / LSB (Support State 0)	<ul style="list-style-type: none"> The examples in the following table show how the state value is determined with the lowest non-zero bit of the binary value converted from a decimal value. There are also examples demonstrating how the software determines the displaying state value with the lowest bit when the decimal values are 3 and 7. 		
	Decimal	Binary	State value
	0	0000000000000000	State = 0 when all bits are 0. Note: LSB (Support State 0) must be selected.
	1	0000000000000001	The lowest non-zero bit is bit 0, State = 1.
	2	0000000000000010	The lowest non-zero bit is bit 1, State = 2.
	3	0000000000000011	The lowest non-zero bit is bit 0, State = 1.
	4	0000000000000100	The lowest non-zero bit is bit 2, State = 3.
	7	0000000000000111	The lowest non-zero bit is bit 0, State = 1.
	8	0000000000001000	The lowest non-zero bit is bit 3, State = 4.
	16	0000000000010000	The lowest non-zero bit is bit 4, State = 5.
	32	0000000000100000	The lowest non-zero bit is bit 5, State = 6.
	64	0000000001000000	The lowest non-zero bit is bit 6, State = 7.
	128	0000000010000000	The lowest non-zero bit is bit 7, State = 8.
	256	0000000100000000	The lowest non-zero bit is bit 8, State = 9.
	512	0000001000000000	The lowest non-zero bit is bit 9, State = 10.
	1024	0000010000000000	The lowest non-zero bit is bit 10, State = 11.
	2048	0000100000000000	The lowest non-zero bit is bit 11, State = 12.
	4096	0001000000000000	The lowest non-zero bit is bit 12, State = 13.
	8192	0010000000000000	The lowest non-zero bit is bit 13, State = 14.
16384	0100000000000000	The lowest non-zero bit is bit 14, State = 15.	
32768	1000000000000000	The lowest non-zero bit is bit 15, State = 16.	
Bit	If the Data Type is Bit, you can set only 2 states.		

When you double-click the ListBox, the property page is shown as follows.



19

Figure 19.3.1 Properties of ListBox

Table 19.3.3 Function page of the ListBox element

ListBox	
Function page	Description
Preview	ListBox supports multiple state values and multi-language data display.
Main	Set the Write Address, Read Address, Write Offset Address, Read Offset Address, Data Type, Data Format, and State Counts. Set the Background Color, Foreground Color, and Show Frame.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Details	Set the options of Interlock State, Interlock Display Mode, Interlock Address, Trigger Mode, Trigger Addr., Invisible Address, User Security Level, Set Low Security, and Confirm Window.
Macro	Set the Before Execute Macro and After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

19

■ Main

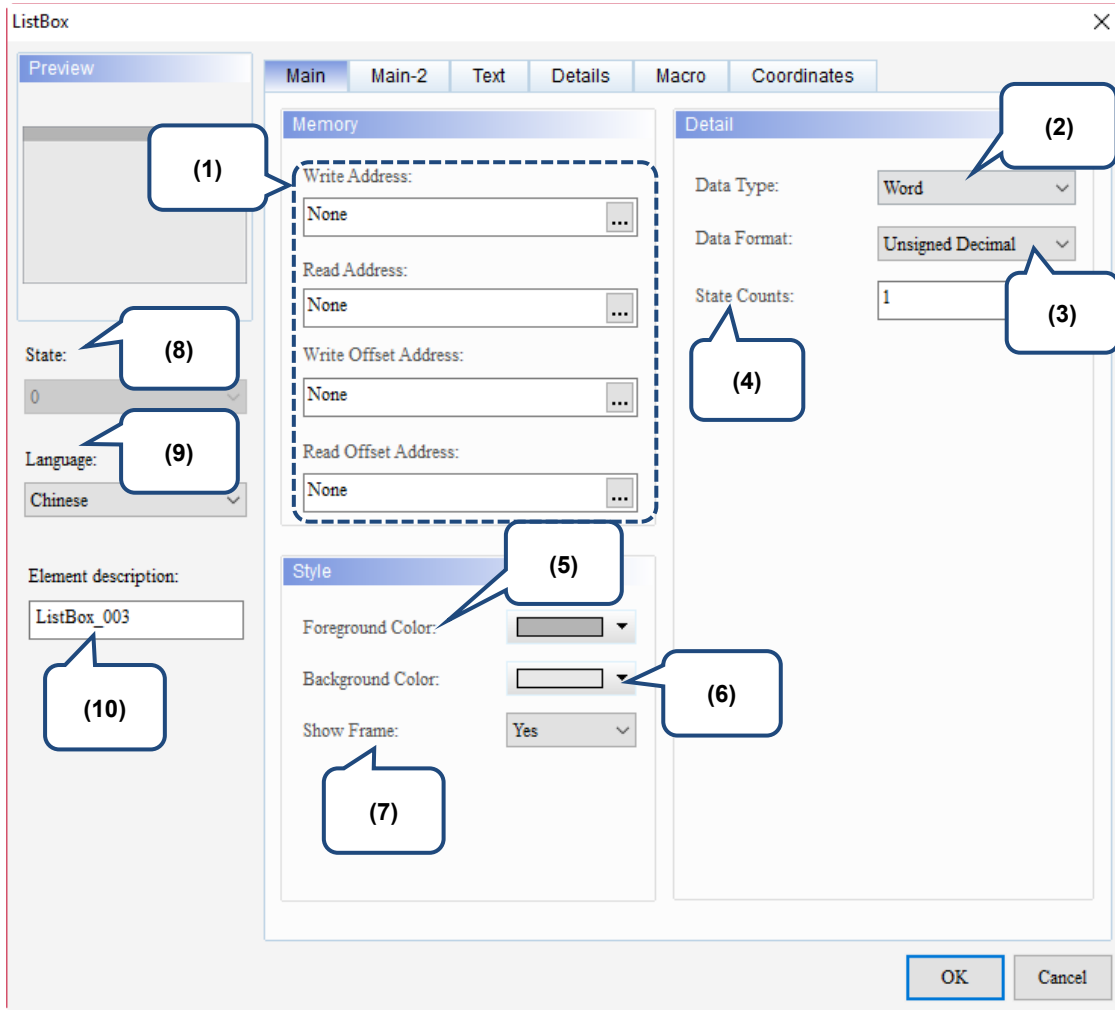
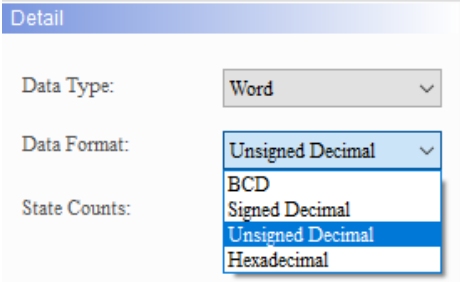
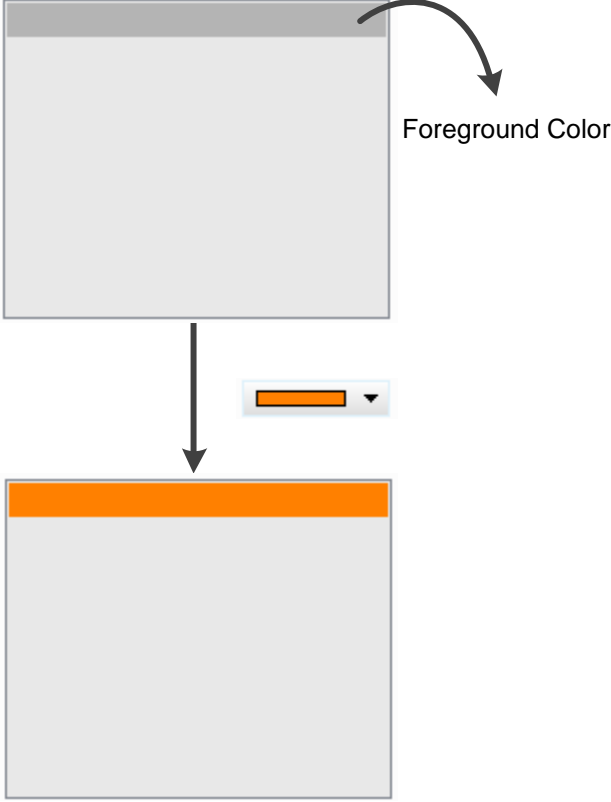
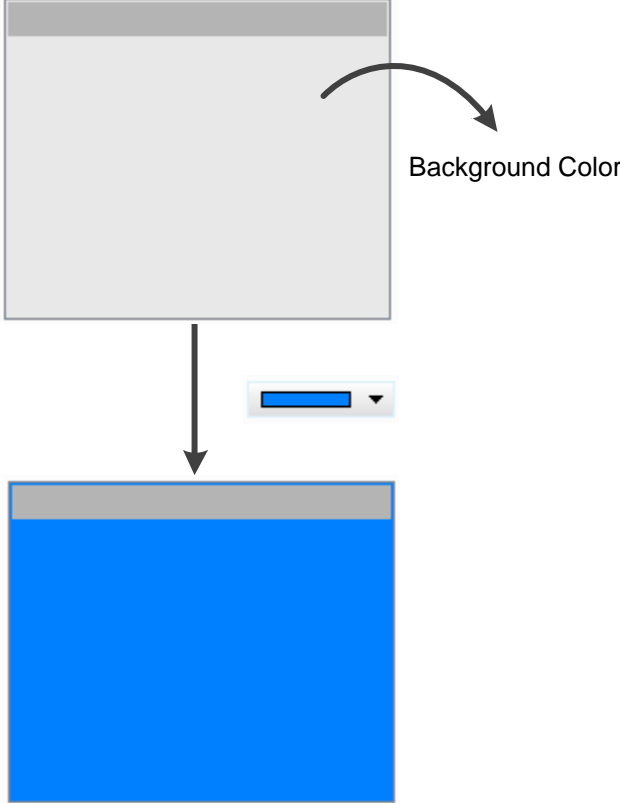
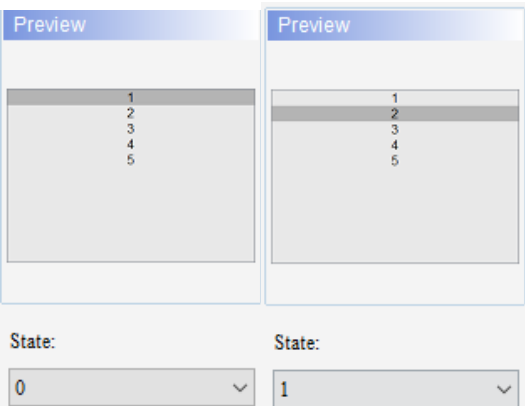


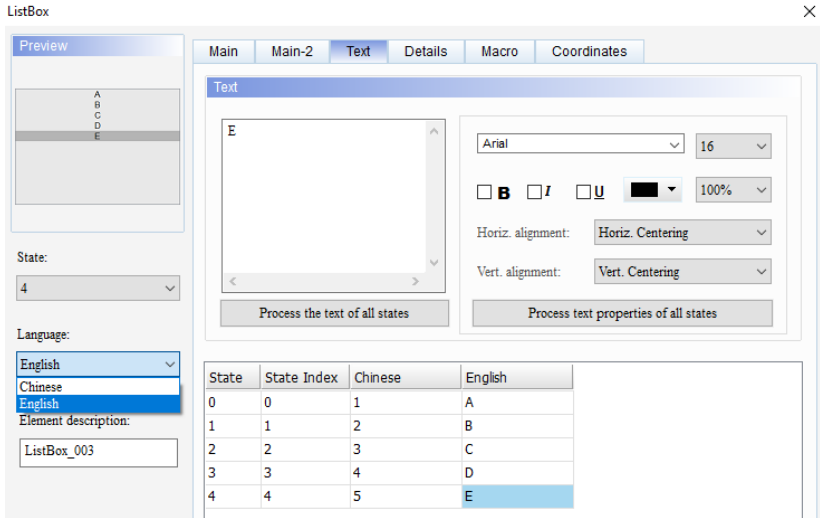
Figure 19.3.2 Main property page for the ListBox element

No.	Property	Function description
(1)	Write Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. The input memory type varies depending on the selected data type, including Word, LSB, or Bit, as shown in Table 19.3.2. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Address	
	Write Offset Address	
	Read Offset Address	
		Refer to Appendix D for instructions on writing and reading the offset address.
(2)	Data Type	There are four types, Bit, Word, LSB, and LSB (Support State 0). Refer to Table 19.3.2 for more details.

No.	Property	Function description
(3)	Data Format	<ul style="list-style-type: none"> ■ You can select the Data Format only when the Data Type is Word. ■ There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal. 
(4)	State Counts	<p>Set the state counts for the ListBox element. If the Data Type is Word, you can set 1 - 256 states; if the Data Type is LSB, you can set 16 states; if the Data Type is LSB (Support State 0), you can set 17 states; and if the Data Type is Bit, you can set only 2 states. Refer to Table 19.3.2 for details.</p>
(5)	Foreground Color	<p>Set the foreground color of the element.</p> 

19

No.	Property	Function description				
(6)	Background Color	<p>Set the background color of the element.</p> 				
(7)	Show Frame	<p>Set whether or not to display the border of the ListBox.</p> <table border="1"> <thead> <tr> <th>Show Frame is set to Yes</th> <th>Show Frame is set to No</th> </tr> </thead> <tbody> <tr> <td> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">A</p> <p style="text-align: center;">B</p> <p style="text-align: center;">C</p> </div> </td> <td> <div style="border: none; padding: 5px;"> <p style="text-align: center;">A</p> <p style="text-align: center;">B</p> <p style="text-align: center;">C</p> </div> </td> </tr> </tbody> </table>	Show Frame is set to Yes	Show Frame is set to No	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">A</p> <p style="text-align: center;">B</p> <p style="text-align: center;">C</p> </div>	<div style="border: none; padding: 5px;"> <p style="text-align: center;">A</p> <p style="text-align: center;">B</p> <p style="text-align: center;">C</p> </div>
Show Frame is set to Yes	Show Frame is set to No					
<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">A</p> <p style="text-align: center;">B</p> <p style="text-align: center;">C</p> </div>	<div style="border: none; padding: 5px;"> <p style="text-align: center;">A</p> <p style="text-align: center;">B</p> <p style="text-align: center;">C</p> </div>					
(8)	State	<p>By switching the State, you can preview or change the settings of each state of the element.</p> 				

No.	Property	Function description																																																																																										
(9)	Language	<p>If you have set the language data, you can edit the properties of the text to be displayed with the Language setting of the element.</p>  <table border="1"> <thead> <tr> <th>State</th> <th>State Index</th> <th>Chinese</th> <th>English</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> <td>A</td> </tr> <tr> <td>1</td> <td>1</td> <td>2</td> <td>B</td> </tr> <tr> <td>2</td> <td>2</td> <td>3</td> <td>C</td> </tr> <tr> <td>3</td> <td>3</td> <td>4</td> <td>D</td> </tr> <tr> <td>4</td> <td>4</td> <td>5</td> <td>E</td> </tr> </tbody> </table>	State	State Index	Chinese	English	0	0	1	A	1	1	2	B	2	2	3	C	3	3	4	D	4	4	5	E																																																																		
State	State Index	Chinese	English																																																																																									
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3	3	4	D																																																																																									
4	4	5	E																																																																																									
(10)	Element description	<p>Record the button actions to be executed. The record is also written in the CSV file of the Operation Log Table so users can know what actions have been done.</p> <table border="1"> <thead> <tr> <th></th> <th>Time</th> <th>Date</th> <th>Level</th> <th>Screen</th> <th>Desc</th> <th>Action</th> <th>Pre Value</th> <th>Change Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13:37:54</td> <td>5/5/2016</td> <td></td> <td>8 Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>13:37:56</td> <td>5/5/2016</td> <td></td> <td>8 Screen_22</td> <td>Level 1 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>3</td> <td>13:38:19</td> <td>5/5/2016</td> <td></td> <td>8 Screen_22</td> <td>Level Switch</td> <td>Level Switch</td> <td>8</td> <td>4</td> </tr> <tr> <td>4</td> <td>13:38:21</td> <td>5/5/2016</td> <td></td> <td>4 Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>5</td> <td>13:38:21</td> <td>5/5/2016</td> <td></td> <td>4 Screen_22</td> <td>Level 2 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>6</td> <td>13:38:22</td> <td>5/5/2016</td> <td></td> <td>4 Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>0</td> <td>1</td> </tr> <tr> <td>7</td> <td>13:38:23</td> <td>5/5/2016</td> <td></td> <td>4 Screen_22</td> <td>Level 4 Btn</td> <td>Set Val</td> <td>1</td> <td>0</td> </tr> <tr> <td>8</td> <td>13:38:31</td> <td>5/5/2016</td> <td></td> <td>4 Screen_22</td> <td>Level Switch</td> <td>Level Switch</td> <td>4</td> <td>8</td> </tr> <tr> <td>9</td> <td>13:38:35</td> <td>5/5/2016</td> <td></td> <td>8 Screen_22</td> <td>\$100 Value</td> <td>Set Val</td> <td>85</td> <td>25</td> </tr> </tbody> </table>		Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value	1	13:37:54	5/5/2016		8 Screen_22	Level 1 Btn	Set Val	1	0	2	13:37:56	5/5/2016		8 Screen_22	Level 1 Btn	Set Val	0	1	3	13:38:19	5/5/2016		8 Screen_22	Level Switch	Level Switch	8	4	4	13:38:21	5/5/2016		4 Screen_22	Level 2 Btn	Set Val	0	1	5	13:38:21	5/5/2016		4 Screen_22	Level 2 Btn	Set Val	1	0	6	13:38:22	5/5/2016		4 Screen_22	Level 4 Btn	Set Val	0	1	7	13:38:23	5/5/2016		4 Screen_22	Level 4 Btn	Set Val	1	0	8	13:38:31	5/5/2016		4 Screen_22	Level Switch	Level Switch	4	8	9	13:38:35	5/5/2016		8 Screen_22	\$100 Value	Set Val	85	25
	Time	Date	Level	Screen	Desc	Action	Pre Value	Change Value																																																																																				
1	13:37:54	5/5/2016		8 Screen_22	Level 1 Btn	Set Val	1	0																																																																																				
2	13:37:56	5/5/2016		8 Screen_22	Level 1 Btn	Set Val	0	1																																																																																				
3	13:38:19	5/5/2016		8 Screen_22	Level Switch	Level Switch	8	4																																																																																				
4	13:38:21	5/5/2016		4 Screen_22	Level 2 Btn	Set Val	0	1																																																																																				
5	13:38:21	5/5/2016		4 Screen_22	Level 2 Btn	Set Val	1	0																																																																																				
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7	13:38:23	5/5/2016		4 Screen_22	Level 4 Btn	Set Val	1	0																																																																																				
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9	13:38:35	5/5/2016		8 Screen_22	\$100 Value	Set Val	85	25																																																																																				

■ Main-2

19

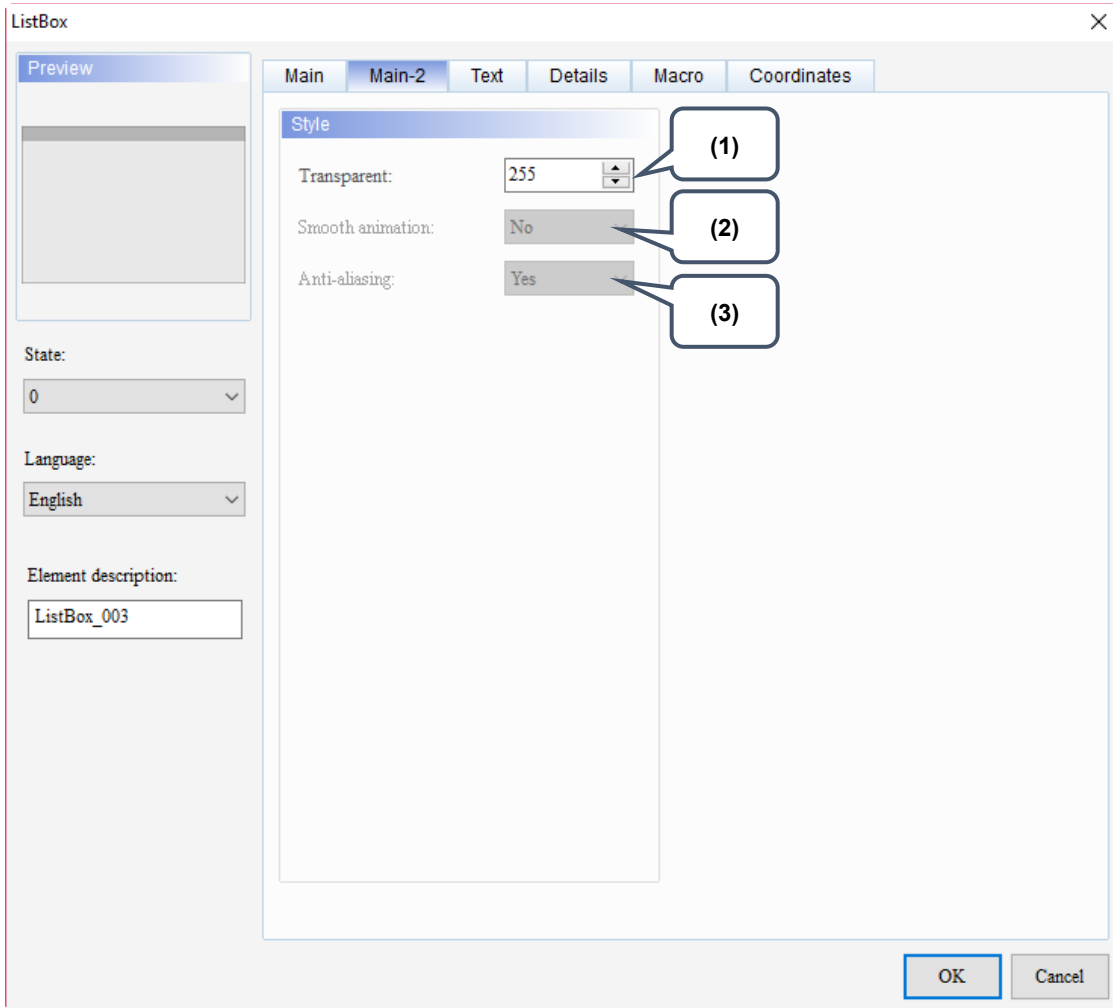
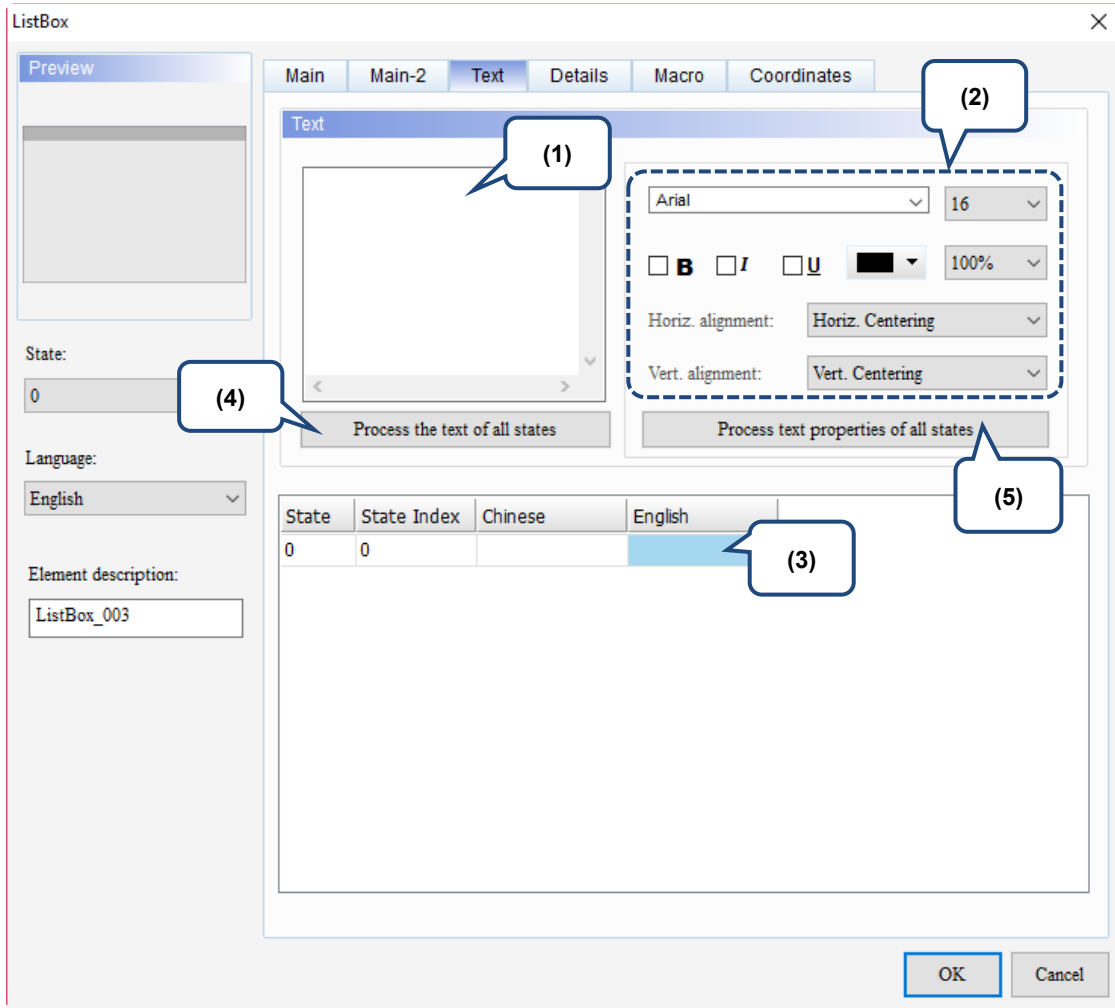


Figure 19.3.3 Main-2 property page for the ListBox element

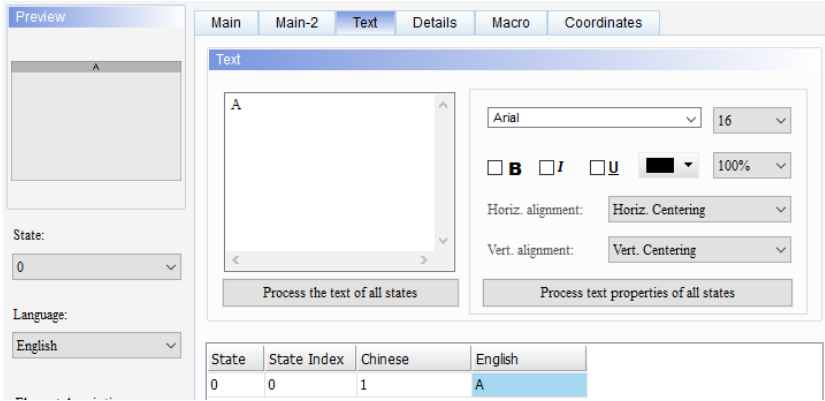
No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

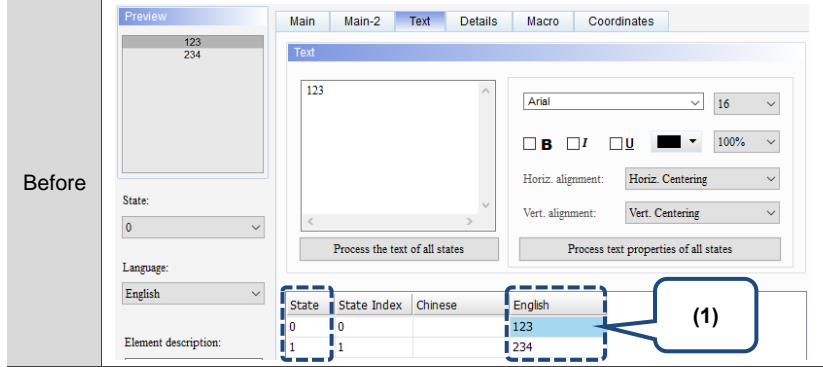
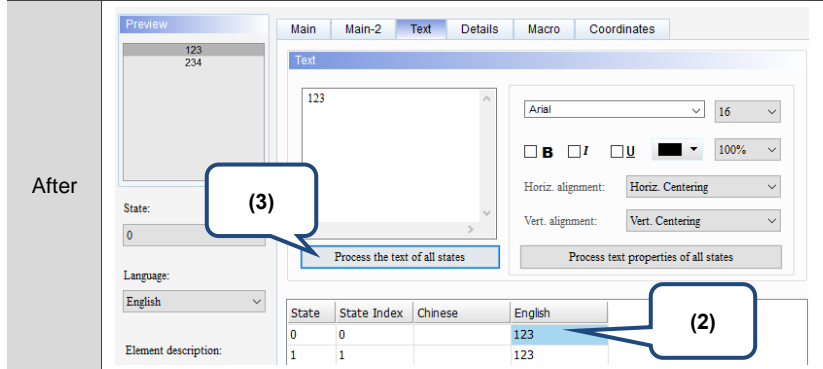
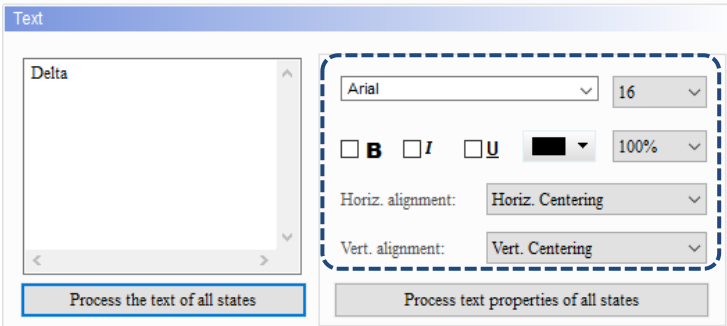


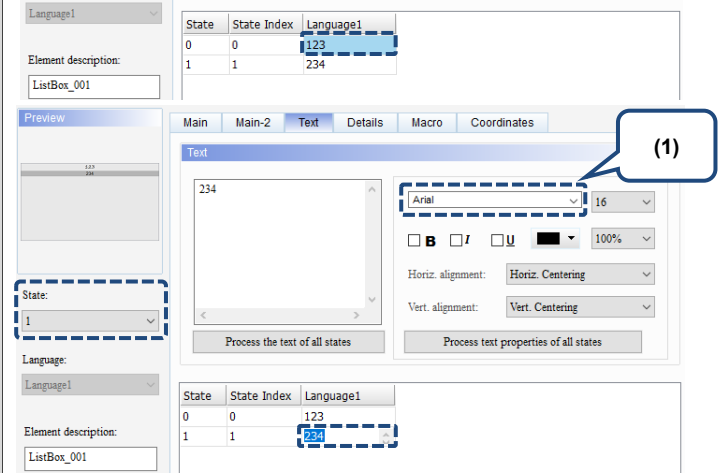
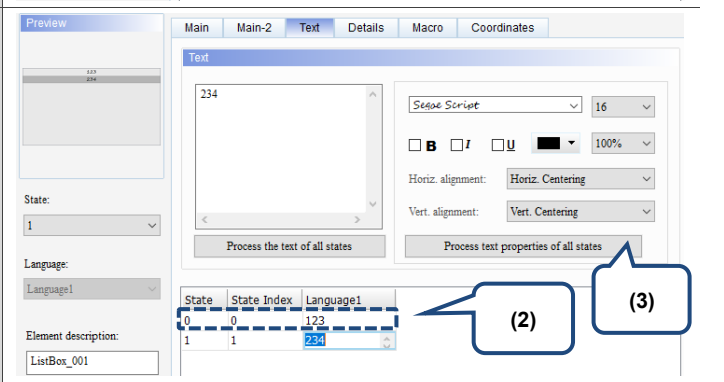
19

Figure 19.3.4 Text property page for the ListBox element

No.	Property	Function description
(1)	Text	<ul style="list-style-type: none"> You can enter the text to display in this box.  <ul style="list-style-type: none"> As long as the element allows text input, you can click the element and press the space key to start editing the text.
(2)	Text property	Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the texts.

19

No.	Property	Function description
(3)	Edit multi-language text	If you have added multi-language texts, the Text page allows you to edit multi-language data.
(4)	Process the text of all states	<p>This function batch changes all the texts into the text contents of the state you selected. Refer to the following example:</p> <ol style="list-style-type: none"> 1. Enter the text "123" for State 0 and "234" for State 1. 2. Select State 0. 3. Execute Process the text of all states and the text of State 1 is changed to "123".  
(5)	Process text properties of all states	<p>This function batch changes all the text properties based on the state you selected. Items included in the text property are shown in the following figure.</p>  <p>Refer to the following example:</p> <ol style="list-style-type: none"> 1. Enter the text "123" for State 0 and "234" for State 1. Select Segoe Script for the text font of State 0 and Arial for the text font of State 1. 2. Select State 0. 3. Execute Process text properties of all states and the text font of State 1 is changed to Segoe Script.

No.	Property	Function description
(5)	Process text properties of all states	<p>Before</p>  <p>After</p> 
		<p>After</p> 

■ Details

19

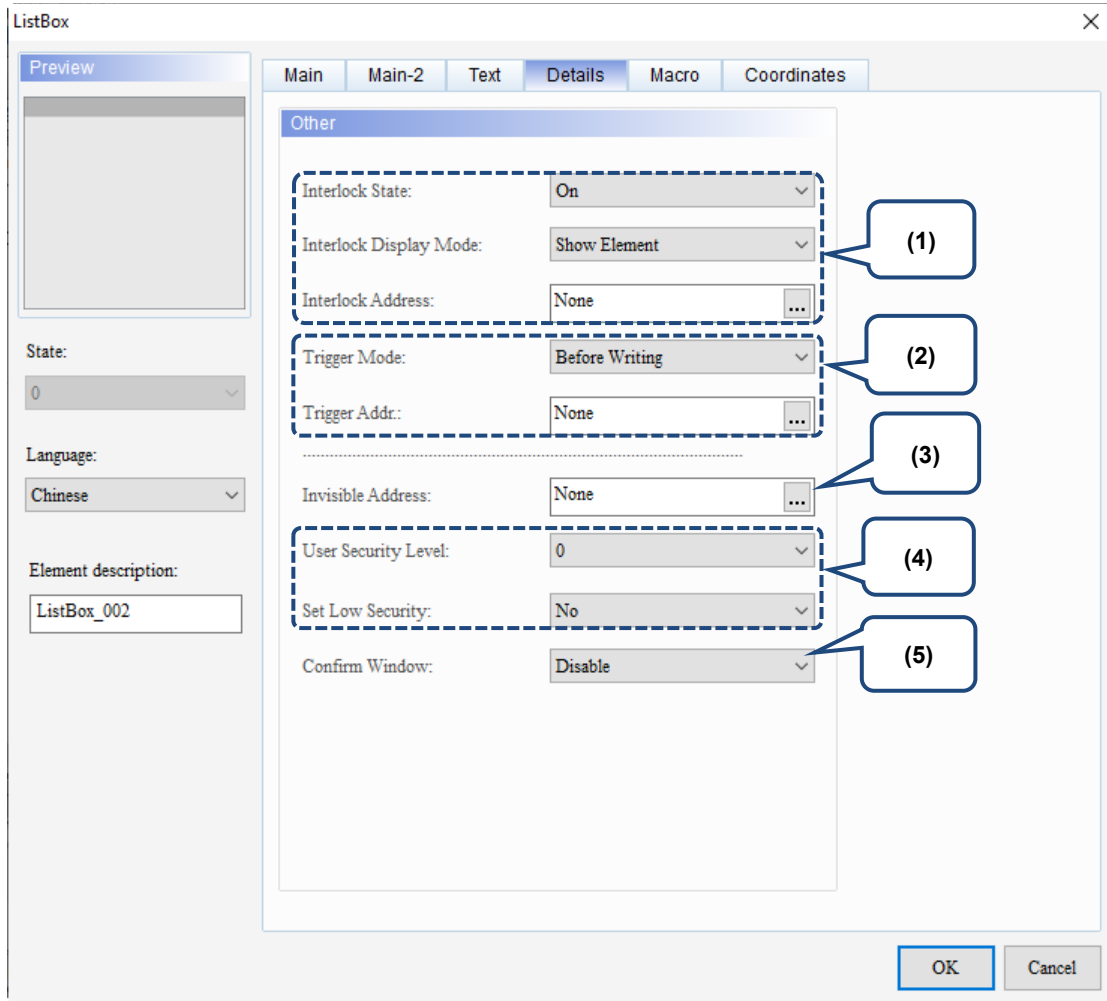
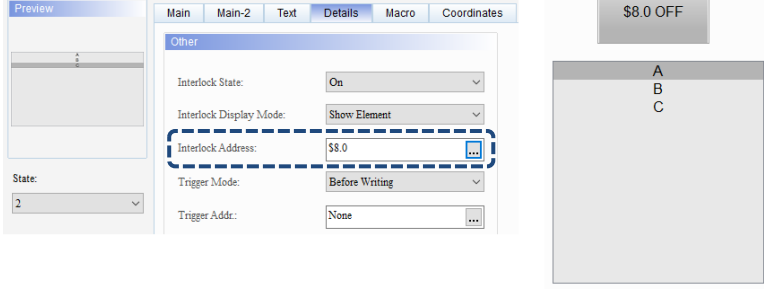
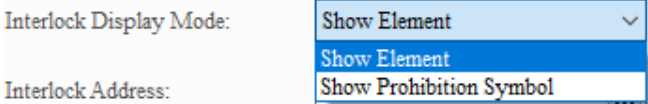
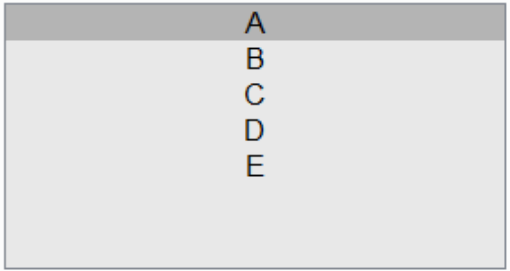
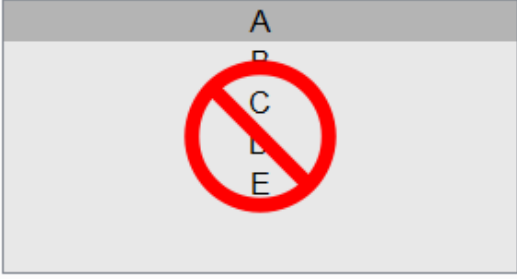
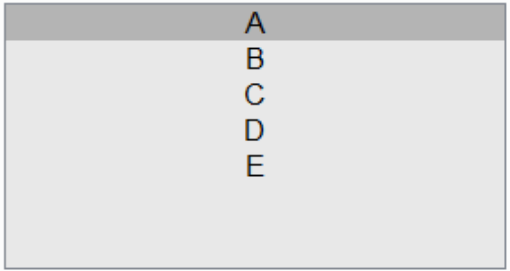
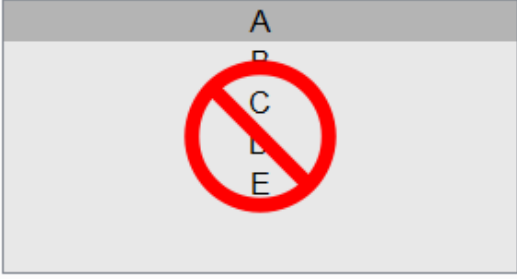
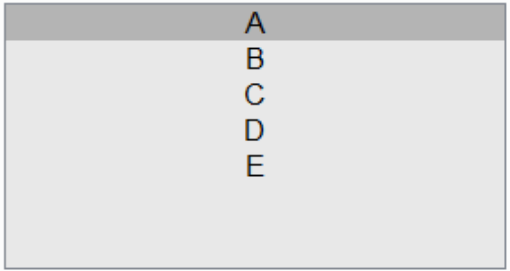
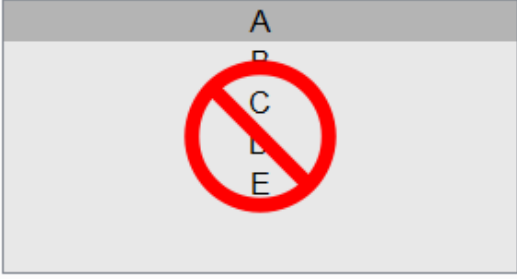
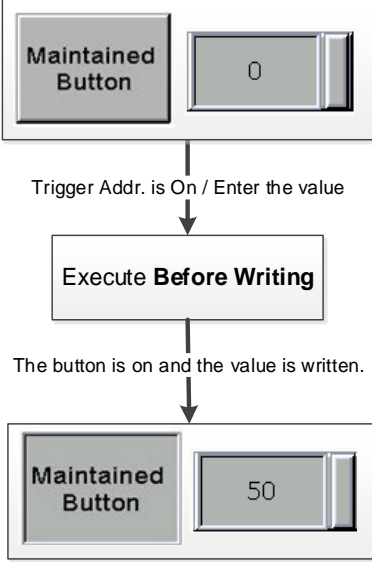
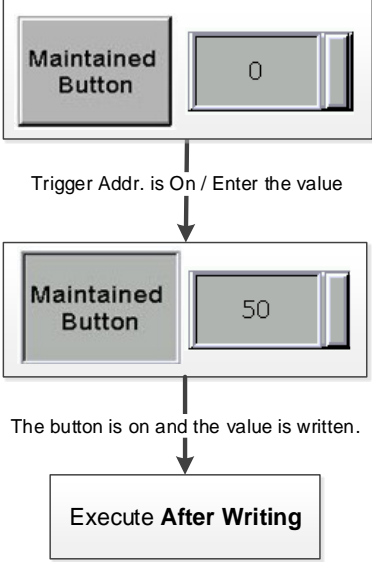
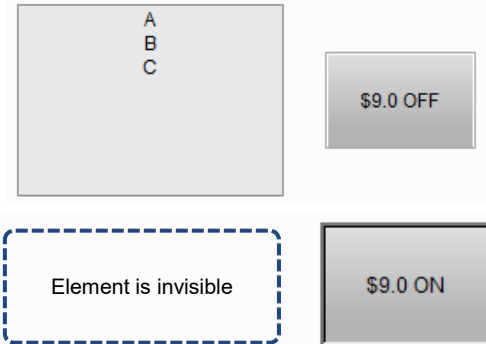
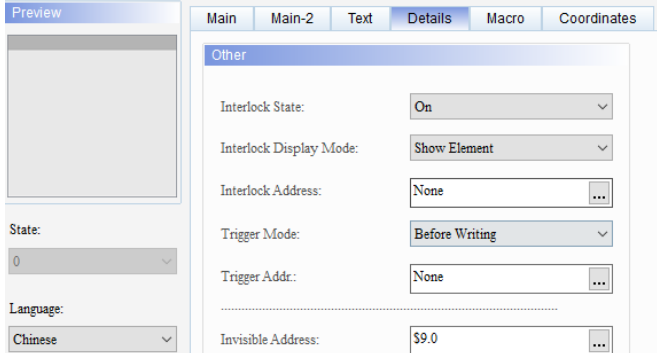
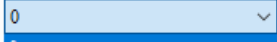
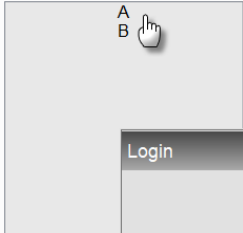
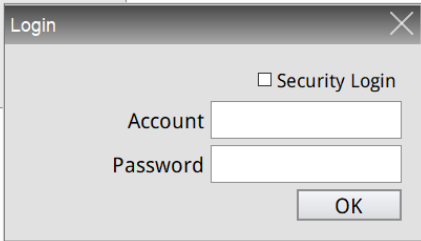
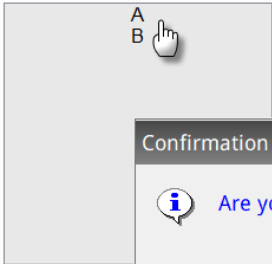
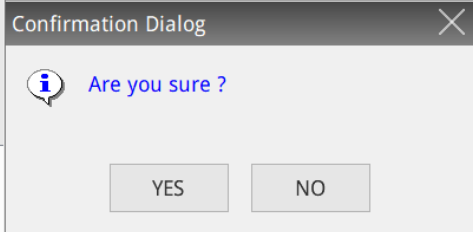


Figure 19.3.5 Details property page for the ListBox element

No.	Property	Function description				
	Interlock State	<p>The Interlock Address is for enabling the operation of another element and has to be used with the Interlock State. If the Interlock State is set to Off, it means the Interlock Address is operable when this Interlock State is Off. On the other hand, if the Interlock State is set to On, the Interlock Address is operable when this Interlock State is On.</p> <ul style="list-style-type: none"> ■ Create a button and set its address to \$8.0. Then, set the Interlock Address to \$8.0 for the ListBox which address is \$100. ■ In order for the ListBox to obtain the correct state value after you press it, you must first press the \$8.0 button to validate the action of the ListBox. 				
	Interlock Address	<p>ListBox</p> 				
(1)	Interlock Display Mode	<p>The options for Interlock Display Mode are Show Element and Show Prohibition Symbol.</p>  <table border="1"> <tr> <td>Show Element</td> <td>  </td> </tr> <tr> <td>Show Prohibition Symbol</td> <td>  </td> </tr> </table>	Show Element		Show Prohibition Symbol	
Show Element						
Show Prohibition Symbol						

19

No.	Property	Function description						
(2)	Trigger Mode	<ul style="list-style-type: none"> Trigger Modes include Before Writing and After Writing. <table border="1"> <thead> <tr> <th>Triggering action</th> <th>Before Writing</th> <th>After Writing</th> </tr> </thead> <tbody> <tr> <td></td> <td>Trigger Addr. must be set to On before the value changes.</td> <td>Value is changed before the Trigger Addr. is set to On.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The triggering function only switches the set Trigger Addr. to On, so if triggering again is required, you need to set the Trigger Addr. to Off. <p>Flowchart of Before Writing:</p>  <p>Flowchart of After Writing:</p> 	Triggering action	Before Writing	After Writing		Trigger Addr. must be set to On before the value changes.	Value is changed before the Trigger Addr. is set to On.
	Triggering action	Before Writing	After Writing					
	Trigger Addr. must be set to On before the value changes.	Value is changed before the Trigger Addr. is set to On.						
Trigger Addr.	<p>When the Invisible Address is set to On, the button element is invisible and you cannot execute its set functions.</p>  							
(3)	Invisible Address							

No.	Property	Function description
(4)	User Security Level	<p>User Security Level: </p> <p>Set Low Security:</p> <p>Confirm Window:</p> <ul style="list-style-type: none"> You can use this function to set the permissions for the pressing action of the element. Users can execute the element action only when their account level is equivalent to or higher than the set User Security Level. After you set the User Security Level, when you press the element, a password input window appears to confirm whether the security level password is correct (you can modify this password with the Password Table element. Refer to Section 5.7.2 Password Table Setup).
	Set Low Security	<p></p> <p></p> <ul style="list-style-type: none"> If you set the Set Low Security to Yes, the HMI automatically sets the security level to the lowest each time you enter the password. Next time you press the element, you will be asked again to enter the password for the corresponding security level.
(5)	Confirm Window	<p>If you set the Confirm Window to Yes, the following Confirmation Dialog appears for you to confirm the action after you press the element.</p> <p></p> <p></p>

■ Macro

19

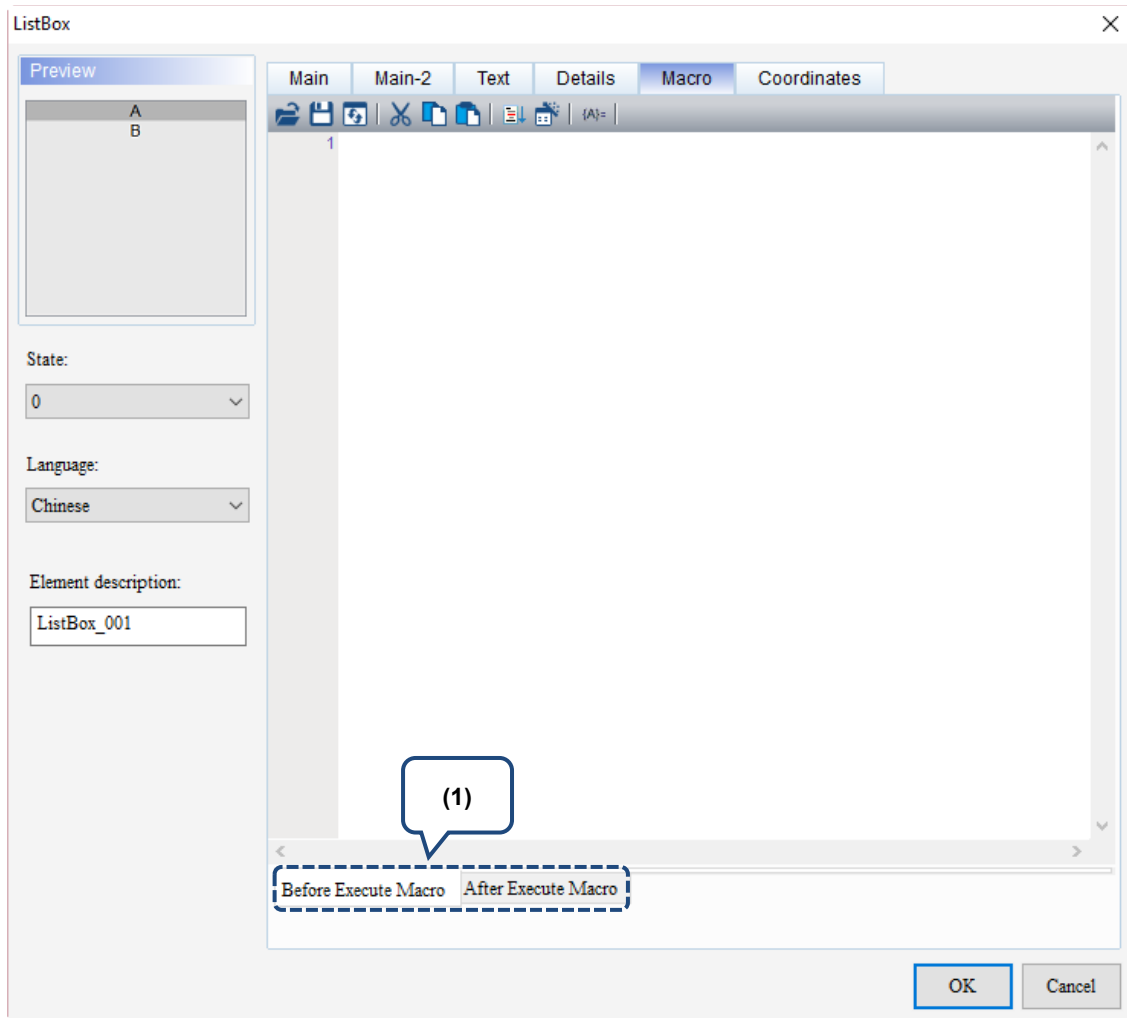
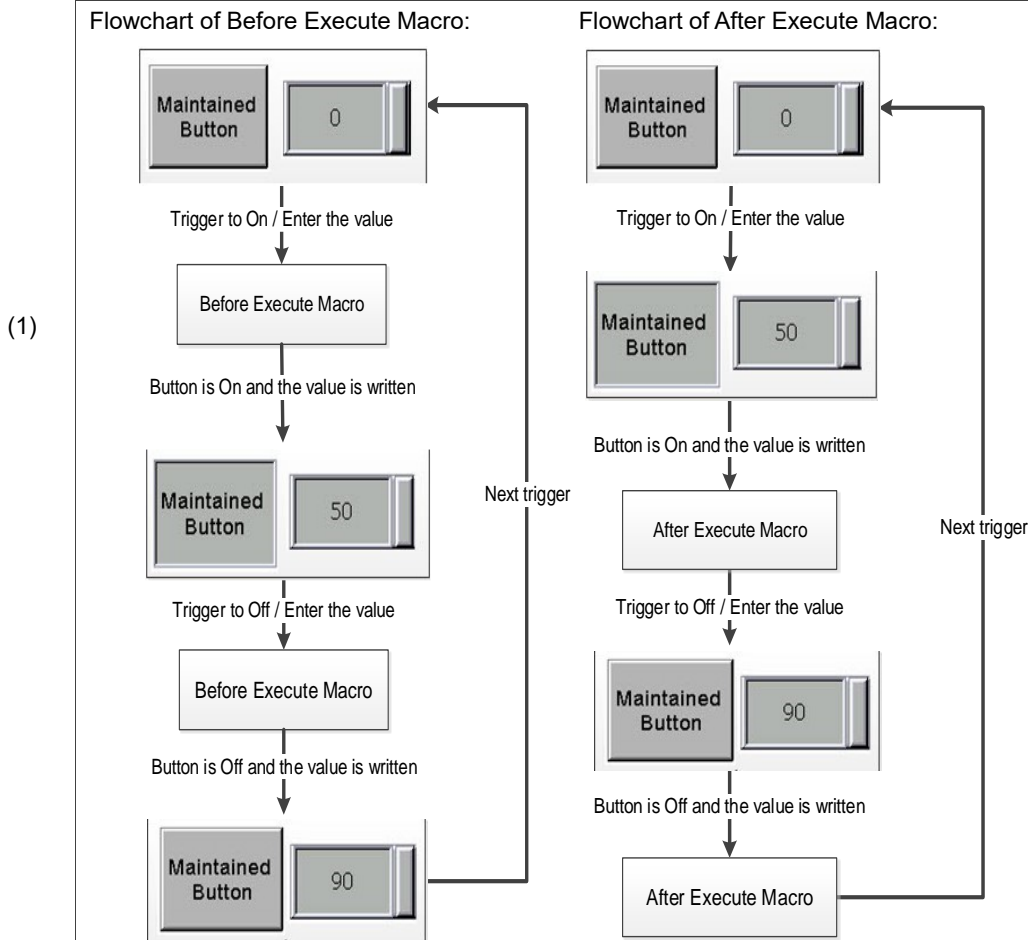


Figure 19.3.6 Macro property page for the ListBox element

No.	Property	Function description
	Before Execute Macro	When you press the button element, the HMI will first execute the macro commands and then execute the action of the button. However, if the state of the button is not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.
	After Execute Macro	When you press the button element, the HMI will first execute the action of the button and then execute the macro commands. However, if the state of the button is not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.



Coordinates

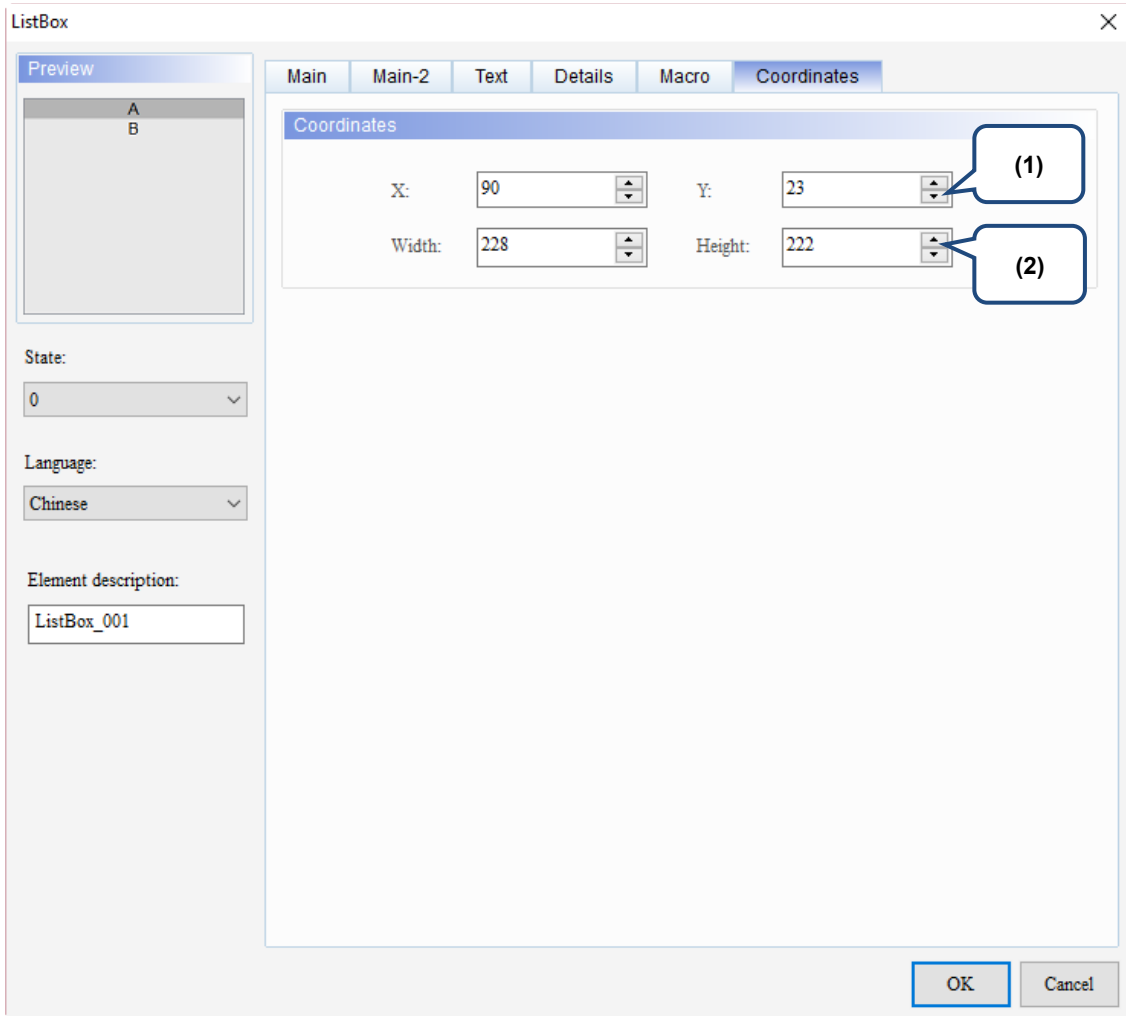


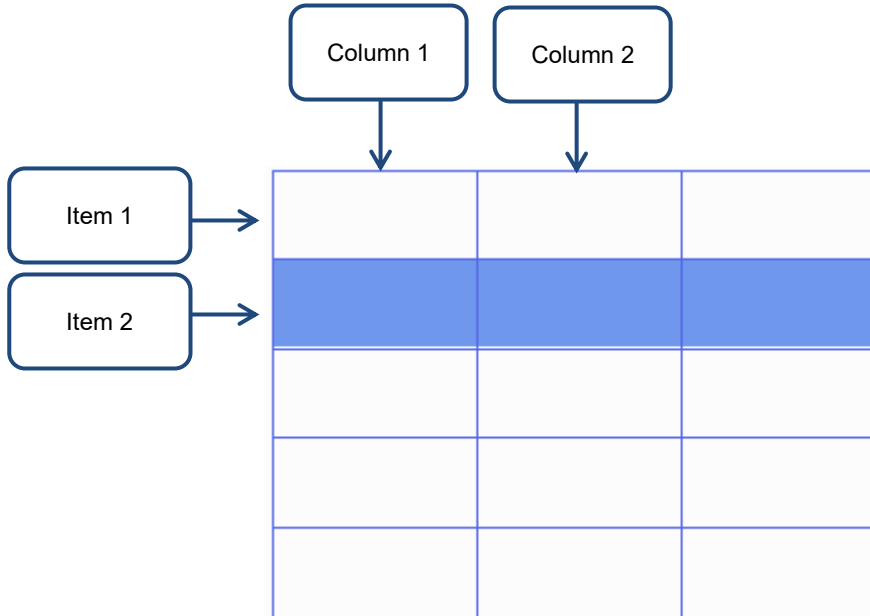
Figure 19.3.7 Coordinates property page for the ListBox element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

19

19.4 GridBox

This element displays the data set by users in a gridbox format providing an interface for easier selection and operation. Its functions include automatic page change, insert, delete, copy, and paste.



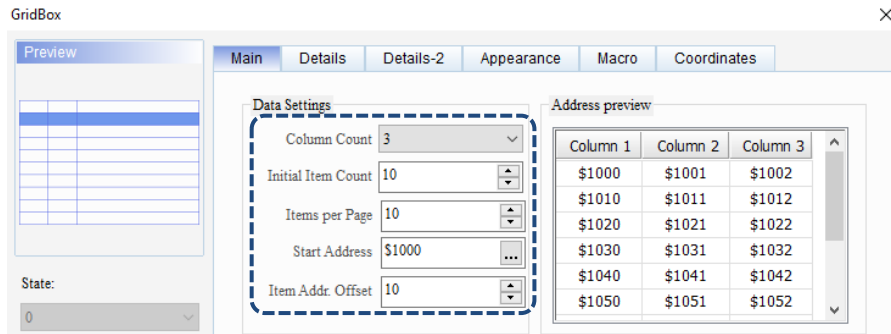
Refer to Table 19.4.1 for the GridBox example.

Table 19.4.1 GridBox example

19

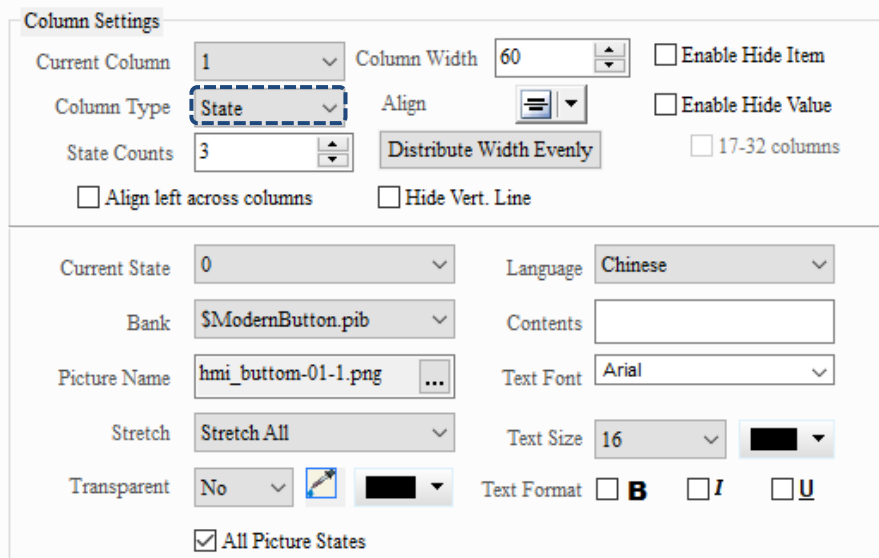
GridBox

1. Select [List] > [GridBox] in the element tool of the editing screen and create the GridBox element on Screen 1. Set the Column Count as 3, Start Address as \$1000, and Item Addr. Offset as 10.

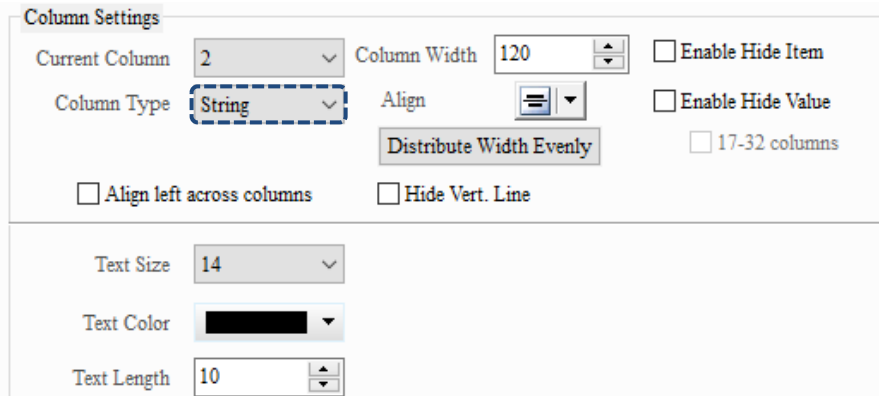


2. Set the Column Type of Column 1 to State as follows.

Create GridBox element



3. Set the Column Type of Column 2 to String and you can set the string length. The settings are as follows.



GridBox

- Set the Column Type of Column 3 to Numeric and you can set the Data Type to WORD or DWORD. The settings are as follows.

Column Settings

Current Column	3	Column Width	334	<input type="checkbox"/> Enable Hide Item
Column Type	Numeric	Align		<input type="checkbox"/> Enable Hide Value
			<input type="checkbox"/> Distribute Width Evenly	<input type="checkbox"/> 17-32 columns
<input type="checkbox"/> Align left across columns		<input type="checkbox"/> Hide Vert. Line		

Data Type	DWORD	Fractional	0
Data Format	Signed Decimal	Min	-2147483648
Text Size	14	Max	2147483647
Text Color			

- The settings for the control addresses on the Details page are as follows.

Create GridBox element

Main	Details	Details-2	Appearance	Macro	Coordinates
------	----------------	-----------	------------	-------	-------------

State

Selected Item	\$100	...
Actual Item Count	\$101	...
Visible Item Count	\$102	...
Current Page	\$103	...
Total Page	\$104	...
Auto Update Data <input type="checkbox"/> Yes		
Update Data	\$110.0	...

Custom Data

Data Start Addr.	\$3000	...
Data Offset	15	▲▼
Data Length	5	▲▼

Others

Max item count	1000	▲▼
----------------	------	----

Operation

Invisible Address:	\$110.1	...
Invisible level:	On	▼
Page Up Trigger Addr.	\$110.2	...
Page Down Trigger	\$110.3	...
Previous Item Addr.	\$110.4	...
Next Item Addr.	\$110.5	...
Copy Trigger Addr.	\$110.6	...
Paste Trigger Addr.	\$110.7	...
Replace Trigger Addr.	None	...
Insert Trigger Addr.	\$110.8	...
Cut Trigger Addr.	\$110.9	...
Touch Protect Addr.	\$110.10	...
Select Item Addr.	\$105	...
Trigger Selected Item	\$110.11	...
Item Count Addr.	\$106	...
Trigger Item Count	\$110.12	...

19-67

GridBox

6. The settings for the control addresses on the Details-2 page are as follows.

7. Set the Custom Data to start from \$3000 with the Data Offset as 15 Words and the Data Length for each data as 5 Words.

Create GridBox element

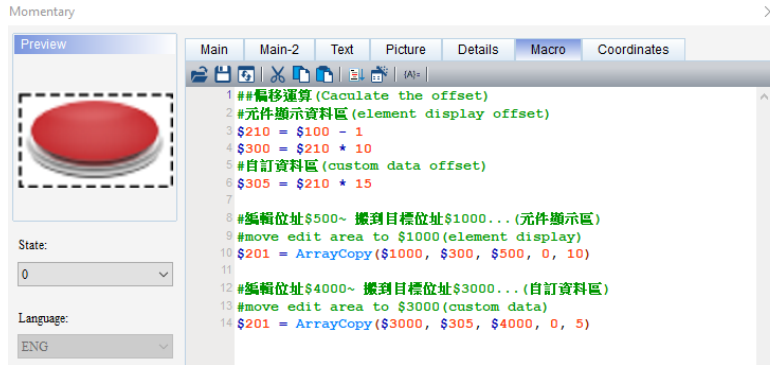
1. Create two Numeric Entry elements and set the addresses as \$500 and \$506. Create a Character Entry element and set its address as \$501. These three elements are registers. With the set control bit of the GridBox, the data in these registers can be written into the GridBox.
2. Create a Character Entry element and set the address as \$4000. This element is an editing area with a user-defined address. You can use a macro to write the data of this editing area to the user-defined data of the GridBox.

Create Numeric Entry and Character Entry elements

GridBox

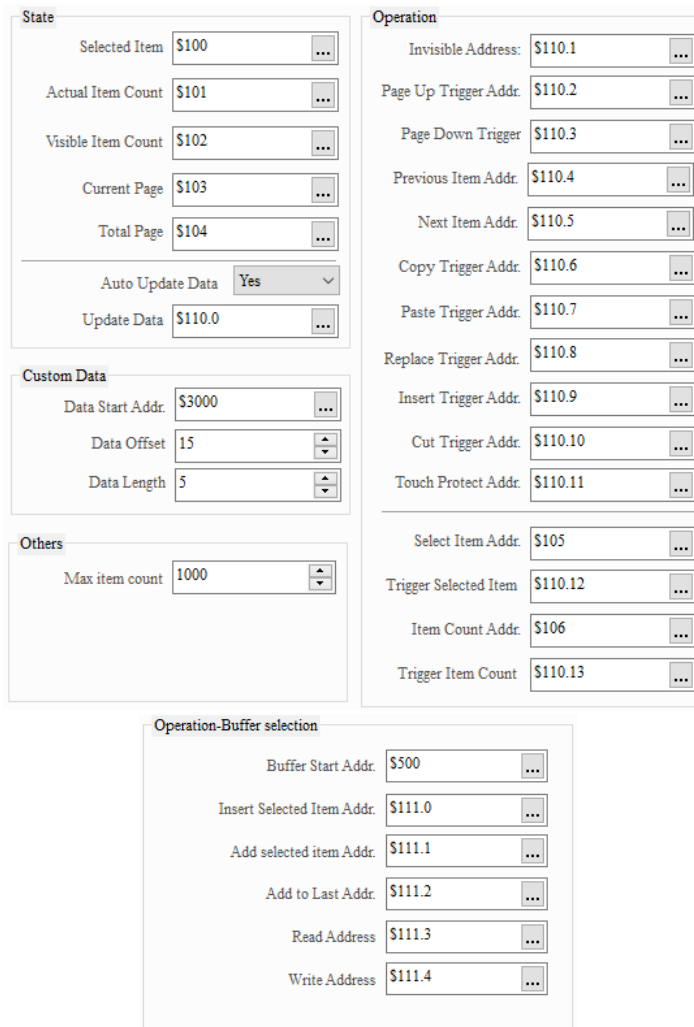
Create Momentary button element

Create a Momentary button element and set its address as \$200.0. [On Macro] will copy the data from the editing area to the selected items in the GridBox element.



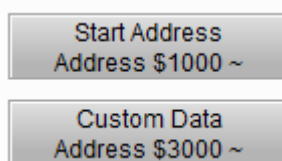
Create Numeric Entry elements (\$100 - \$106, \$500) and Maintained button elements (\$110.0 - \$110.13, \$110.0 - \$111.4)

Create the figure of the Details setting for the GridBox on the screen and place the corresponding elements and buttons on the figure for editing the element.



Create Goto Screen button element

Create two Goto Screen buttons and open Screen 2 and Screen 3 to view the actual data in the GridBox.



19

Create Numeric Entry elements (\$1000 - \$1169)

GridBox

Create Screen 2 to display the contents shown in the GridBox (\$1000, \$1001...).

W-\$1000	W-\$1001	W-\$1002	W-\$1003	W-\$1004	W-\$1005	W-\$1006	W-\$1007	W-\$1008	W-\$1009
W-\$1010	W-\$1011	W-\$1012	W-\$1013	W-\$1014	W-\$1015	W-\$1016	W-\$1017	W-\$1018	W-\$1019
W-\$1020	W-\$1021	W-\$1022	W-\$1023	W-\$1024	W-\$1025	W-\$1026	W-\$1027	W-\$1028	W-\$1029
W-\$1030	W-\$1031	W-\$1032	W-\$1033	W-\$1034	W-\$1035	W-\$1036	W-\$1037	W-\$1038	W-\$1039
W-\$1040	W-\$1041	W-\$1042	W-\$1043	W-\$1044	W-\$1045	W-\$1046	W-\$1047	W-\$1048	W-\$1049
W-\$1050	W-\$1051	W-\$1052	W-\$1053	W-\$1054	W-\$1055	W-\$1056	W-\$1057	W-\$1058	W-\$1059
W-\$1060	W-\$1061	W-\$1062	W-\$1063	W-\$1064	W-\$1065	W-\$1066	W-\$1067	W-\$1068	W-\$1069
W-\$1070	W-\$1071	W-\$1072	W-\$1073	W-\$1074	W-\$1075	W-\$1076	W-\$1077	W-\$1078	W-\$1079
W-\$1080	W-\$1081	W-\$1082	W-\$1083	W-\$1084	W-\$1085	W-\$1086	W-\$1087	W-\$1088	W-\$1089
W-\$1090	W-\$1091	W-\$1092	W-\$1093	W-\$1094	W-\$1095	W-\$1096	W-\$1097	W-\$1098	W-\$1099
W-\$1100	W-\$1101	W-\$1102	W-\$1103	W-\$1104	W-\$1105	W-\$1106	W-\$1107	W-\$1108	W-\$1109
W-\$1110	W-\$1111	W-\$1112	W-\$1113	W-\$1114	W-\$1115	W-\$1116	W-\$1117	W-\$1118	W-\$1119
W-\$1120	W-\$1121	W-\$1122	W-\$1123	W-\$1124	W-\$1125	W-\$1126	W-\$1127	W-\$1128	W-\$1129
W-\$1130	W-\$1131	W-\$1132	W-\$1133	W-\$1134	W-\$1135	W-\$1136	W-\$1137	W-\$1138	W-\$1139
W-\$1140	W-\$1141	W-\$1142	W-\$1143	W-\$1144	W-\$1145	W-\$1146	W-\$1147	W-\$1148	W-\$1149

\$1000~

Back

Create Numeric Entry elements (\$3000 - \$3254)

Create Screen 3 to display the user-defined data in the GridBox (\$3000, \$3001...).

W-\$3000	W-\$3001	W-\$3002	W-\$3003	W-\$3004	W-\$3005	W-\$3006	W-\$3007	W-\$3008	W-\$3009
W-\$3010	W-\$3011	W-\$3012	W-\$3013	W-\$3014	W-\$3015	W-\$3016	W-\$3017	W-\$3018	W-\$3019
W-\$3020	W-\$3021	W-\$3022	W-\$3023	W-\$3024	W-\$3025	W-\$3026	W-\$3027	W-\$3028	W-\$3029
W-\$3030	W-\$3031	W-\$3032	W-\$3033	W-\$3034	W-\$3035	W-\$3036	W-\$3037	W-\$3038	W-\$3039
W-\$3040	W-\$3041	W-\$3042	W-\$3043	W-\$3044	W-\$3045	W-\$3046	W-\$3047	W-\$3048	W-\$3049
W-\$3050	W-\$3051	W-\$3052	W-\$3053	W-\$3054	W-\$3055	W-\$3056	W-\$3057	W-\$3058	W-\$3059
W-\$3060	W-\$3061	W-\$3062	W-\$3063	W-\$3064	W-\$3065	W-\$3066	W-\$3067	W-\$3068	W-\$3069
W-\$3070	W-\$3071	W-\$3072	W-\$3073	W-\$3074	W-\$3075	W-\$3076	W-\$3077	W-\$3078	W-\$3079
W-\$3080	W-\$3081	W-\$3082	W-\$3083	W-\$3084	W-\$3085	W-\$3086	W-\$3087	W-\$3088	W-\$3089
W-\$3090	W-\$3091	W-\$3092	W-\$3093	W-\$3094	W-\$3095	W-\$3096	W-\$3097	W-\$3098	W-\$3099
W-\$3100	W-\$3101	W-\$3102	W-\$3103	W-\$3104	W-\$3105	W-\$3106	W-\$3107	W-\$3108	W-\$3109
W-\$3110	W-\$3111	W-\$3112	W-\$3113	W-\$3114	W-\$3115	W-\$3116	W-\$3117	W-\$3118	W-\$3119
W-\$3120	W-\$3121	W-\$3122	W-\$3123	W-\$3124	W-\$3125	W-\$3126	W-\$3127	W-\$3128	W-\$3129
W-\$3130	W-\$3131	W-\$3132	W-\$3133	W-\$3134	W-\$3135	W-\$3136	W-\$3137	W-\$3138	W-\$3139
W-\$3140	W-\$3141	W-\$3142	W-\$3143	W-\$3144	W-\$3145	W-\$3146	W-\$3147	W-\$3148	W-\$3149

\$3000~

Back

GridBox

- After creating the elements, compile the elements and download the screen to the HMI.

Execution results

The screenshot shows the GridBox HMI interface. On the left, there is a list of 10 items, each with a circular icon and a value of 0. Below the list is a red button. At the bottom, there are two buttons: "Start Address Address \$1000~" and "Custom Data Address \$3000~". To the right of the list are three configuration panels: "State", "Custom Data", and "Operation".

State Panel:

- Selected Item: \$100, value 1
- Actual Item Count: \$101, value 10
- Visible Item Count: \$102, value 10
- Current Page: \$103, value 1
- Total Page: \$104, value 1
- Auto Update Data: Yes
- Update Data: \$110.0

Custom Data Panel:

- Data Start Addr: \$3000
- Data Offset: 15
- Data Length: 5

Others Panel:

- Max item count: 1000

Operation Panel:

- Invisible Address: \$110.1 OFF
- Page Up Trigger Addr: \$110.2 OFF
- Page Down Trigger: \$110.3 OFF
- Previous Item Addr: \$110.4 OFF
- Next Item Addr: \$110.5 OFF
- Copy Trigger Addr: \$110.6 OFF
- Paste Trigger Addr: \$110.7 OFF
- Replace Trigger Addr: \$110.8 OFF
- Insert Trigger Addr: \$110.9 OFF
- Cut Trigger Addr: \$110.10 OFF
- Touch Protect Addr: \$110.11 OFF
- Select Item Addr: \$105, value 0
- Trigger Selected Item: \$110.12 OFF
- Item Count Addr: \$106, value 0
- Trigger Item Count: \$110.13 OFF

A "Buffer setting" button is located at the bottom of the configuration panels.

- Select the item and edit the data editing area.

The screenshot shows the GridBox HMI interface with the second item selected. The list of items now shows the second item with a value of 0. Below the list, the data editing area is active, showing the value "12345". The red button and bottom buttons are still present. The configuration panels on the right are the same as in the previous screenshot, but the "Selected Item" value in the State panel is now 2.

State Panel:

- Selected Item: \$100, value 2
- Actual Item Count: \$101, value 10
- Visible Item Count: \$102, value 10
- Current Page: \$103, value 1
- Total Page: \$104, value 1
- Auto Update Data: Yes
- Update Data: \$110.0

Custom Data Panel:

- Data Start Addr: \$3000
- Data Offset: 15
- Data Length: 5

Others Panel:

- Max item count: 1000

Operation Panel:

- Invisible Address: \$110.1 OFF
- Page Up Trigger Addr: \$110.2 OFF
- Page Down Trigger: \$110.3 OFF
- Previous Item Addr: \$110.4 OFF
- Next Item Addr: \$110.5 OFF
- Copy Trigger Addr: \$110.6 OFF
- Paste Trigger Addr: \$110.7 OFF
- Replace Trigger Addr: \$110.8 OFF
- Insert Trigger Addr: \$110.9 OFF
- Cut Trigger Addr: \$110.10 OFF
- Touch Protect Addr: \$110.11 OFF
- Select Item Addr: \$105, value 0
- Trigger Selected Item: \$110.12 OFF
- Item Count Addr: \$106, value 0
- Trigger Item Count: \$110.13 OFF

The "Buffer setting" button is still present at the bottom.

19

Execution results

GridBox

- Press the red button and the data displayed on the element changes.

The screenshot shows the GridBox interface. On the left is a table with 10 rows. The second row is highlighted with a blue dashed border and contains 'ABC' and '123'. Below the table are three input fields: '1', 'ABC', and '123'. A red button is highlighted with a blue dashed border. Below the button are two buttons: 'Start Address Address \$1000~' and 'Custom Data Address \$3000~'. To the right are several configuration panels: 'State' (Selected Item: \$100, 2; Actual Item Count: \$101, 10; Visible Item Count: \$102, 10; Current Page: \$103, 1; Total Page: \$104, 1; Auto Update Data: Yes; Update Data: \$110.0), 'Custom Data' (Data Start Addr: \$3000; Data Offset: 15; Data Length: 5), 'Others' (Max item count: 1000), and 'Operation' (Invisible Address: \$110.1 OFF; Page Up Trigger Addr: \$110.2 OFF; Page Down Trigger: \$110.3 OFF; Previous Item Addr: \$110.4 OFF; Next Item Addr: \$110.5 OFF; Copy Trigger Addr: \$110.6 OFF; Paste Trigger Addr: \$110.7 OFF; Replace Trigger Addr: \$110.8 OFF; Insert Trigger Addr: \$110.9 OFF; Cut Trigger Addr: \$110.10 OFF; Touch Protect Addr: \$110.11 OFF; Select Item Addr: \$105, 0; Trigger Selected Item: \$110.12 OFF; Item Count Addr: \$106, 0; Trigger Item Count: \$110.13 OFF).

- Trigger the Write Address in the Buffer section and the data displayed on the element changes.

The screenshot shows the GridBox interface after a write operation. The table's second row is now highlighted with 'FFF' and '5555'. The 'State' panel shows 'Selected Item' as \$100, 5. The 'Operation' panel shows 'Write Address' as \$111.4 OFF, which is highlighted with a blue dashed border. A 'Buffer selection' dialog is open, showing 'Buffer Start Addr: \$500' and 'Write Address: \$111.4 OFF' highlighted with a blue dashed border. Other panels remain the same as in the previous screenshot.

GridBox

- Press **Start Address Address \$1000~** to switch the screen to Screen 2, set the value of \$1019 (hidden value) to 1, and then the content in the first field in the second column will be hidden.

0	0	0	0	0	0	0	0	0	0
1	16961	67	0	0	0	123	0	0	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
2	17990	70	0	0	0	5555	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0

19

Execution results

\$1000~
Back

		0
	ABC	123
		0
		0
	FFF	5555
		0
		0
		0
		0
		0

2

FFF

5555

12345

Start Address
Address \$1000~

Custom Data
Address \$3000~

State

Selected Item: \$100 5

Actual Item Count: \$101 10

Visible Item Count: \$102 10

Current Page: \$103 1

Total Page: \$104 1

Auto Update Data: Yes

Update Data: \$110.0

Custom Data

Data Start Addr: \$3000

Data Offset: 15

Data Length: 5

Others

Max item count: 1000

Buffer setting

Operation

Invisible Address: \$110.1 \$110.1 OFF

Page Up Trigger Addr: \$110.2 \$110.2 OFF

Page Down Trigger: \$110.3 \$110.3 OFF

Previous Item Addr: \$110.4 \$110.4 OFF

Next Item Addr: \$110.5 \$110.5 OFF

Copy Trigger Addr: \$110.6 \$110.6 OFF

Paste Trigger Addr: \$110.7 \$110.7 OFF

Replace Trigger Addr: \$110.8 \$110.8 OFF

Insert Trigger Addr: \$110.9 \$110.9 OFF

Cut Trigger Addr: \$110.10 \$110.10 OFF

Touch Protect Addr: \$110.11 \$110.11 OFF

Select Item Addr: \$105 0

Trigger Selected Item: \$110.12 \$110.12 OFF

Item Count Addr: \$106 0

Trigger Item Count: \$110.13 \$110.13 OFF

19

GridBox

- Set the value of \$1018 (hidden item) on Screen 2 to 1, and then this item will not be displayed and the Actual Item Count is greater than the Visible Item Count.

0	0	0	0	0	0	0	0	0	0
1	16961	67	0	0	0	123	0	1	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
2	17990	70	0	0	0	5555	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0

Execution results

\$1000~
Back

		0
		0
		0
	FFF	5555
		0
		0
		0
		0
		0

2

FFF

5555

12345

Start Address
Address \$1000~

Custom Data
Address \$3000~

State	
Selected Item	\$100 5
Actual Item Count	\$101 10
Visible Item Count	\$102 9
Current Page	\$103 1
Total Page	\$104 1
Auto Update Data Yes	
Update Data	\$110.0
Custom Data	
Data Start Addr.	\$3000
Data Offset	15
Data Length	5
Others	
Max item count	1000
Buffer setting	

Operation	
Invisible Address:	\$110.1 \$110.1 OFF
Page Up Trigger Addr.	\$110.2 \$110.2 OFF
Page Down Trigger	\$110.3 \$110.3 OFF
Previous Item Addr.	\$110.4 \$110.4 OFF
Next Item Addr.	\$110.5 \$110.5 OFF
Copy Trigger Addr.	\$110.6 \$110.6 OFF
Paste Trigger Addr.	\$110.7 \$110.7 OFF
Replace Trigger Addr.	\$110.8 \$110.8 OFF
Insert Trigger Addr.	\$110.9 \$110.9 OFF
Cut Trigger Addr.	\$110.10 \$110.10 OFF
Touch Protect Addr.	\$110.11 \$110.11 OFF
Select Item Addr.	\$105 0
Trigger Selected Item	\$110.12 \$110.12 OFF
Item Count Addr.	\$106 0
Trigger Item Count	\$110.13 \$110.13 OFF

GridBox

- Set Select Item Addr. to 6 and press **Trigger Selected Item**, and then the 6th item is selected.

The screenshot shows the GridBox interface with a table of 10 items. The 6th item is highlighted in blue. Below the table are buttons for '2', 'FFF', and '5555', and a red circular button. To the right, the 'State' section shows 'Selected Item' set to 6. The 'Operation' section shows 'Select Item Addr.' set to 6 and 'Trigger Selected Item' set to OFF.

		0
	ABC	123
		0
		0
	FFF	5555
		0
		0
		0
		0
		0

Buttons: 2, FFF, 5555, 12345, Start Address Address \$1000~, Custom Data Address \$3000~

State: Selected Item \$100: 6, Actual Item Count \$101: 10, Visible Item Count \$102: 10, Current Page \$103: 1, Total Page \$104: 1, Auto Update Data: Yes, Update Data: \$110.0

Custom Data: Data Start Addr: \$3000, Data Offset: 15, Data Length: 5

Others: Max item count: 1000

Operation: Invisible Address: \$110.1 \$110.1 OFF, Page Up Trigger Addr: \$110.2 \$110.2 OFF, Page Down Trigger: \$110.3 \$110.3 OFF, Previous Item Addr: \$110.4 \$110.4 OFF, Next Item Addr: \$110.5 \$110.5 OFF, Copy Trigger Addr: \$110.6 \$110.6 OFF, Paste Trigger Addr: \$110.7 \$110.7 OFF, Replace Trigger Addr: \$110.8 \$110.8 OFF, Insert Trigger Addr: \$110.9 \$110.9 OFF, Cut Trigger Addr: \$110.10 \$110.10 OFF, Touch Protect Addr: \$110.11 \$110.11 OFF, Select Item Addr: \$105: 6, Trigger Selected Item: \$110.12 \$110.12 OFF, Item Count Addr: \$106: 0, Trigger Item Count: \$110.13 \$110.13 OFF

Execution results

- Set Item Count Addr. to 5 and press **Trigger Item Count**, and then the number of the displaying items becomes 5 and the other data will not be shown.

The screenshot shows the GridBox interface with only the first 5 items displayed in the table. The 6th item is no longer visible. Below the table are buttons for '2', 'FFF', and '5555', and a red circular button. To the right, the 'State' section shows 'Actual Item Count' set to 5. The 'Operation' section shows 'Item Count Addr.' set to 5.

		0
	ABC	123
		0
		0
	FFF	5555

Buttons: 2, FFF, 5555, 12345, Start Address Address \$1000~, Custom Data Address \$3000~

State: Selected Item \$100: 0, Actual Item Count \$101: 5, Visible Item Count \$102: 5, Current Page \$103: 1, Total Page \$104: 1, Auto Update Data: Yes, Update Data: \$110.0

Custom Data: Data Start Addr: \$3000, Data Offset: 15, Data Length: 5

Others: Max item count: 1000

Operation: Invisible Address: \$110.1 \$110.1 OFF, Page Up Trigger Addr: \$110.2 \$110.2 OFF, Page Down Trigger: \$110.3 \$110.3 OFF, Previous Item Addr: \$110.4 \$110.4 OFF, Next Item Addr: \$110.5 \$110.5 OFF, Copy Trigger Addr: \$110.6 \$110.6 OFF, Paste Trigger Addr: \$110.7 \$110.7 OFF, Replace Trigger Addr: \$110.8 \$110.8 OFF, Insert Trigger Addr: \$110.9 \$110.9 OFF, Cut Trigger Addr: \$110.10 \$110.10 OFF, Touch Protect Addr: \$110.11 \$110.11 OFF, Select Item Addr: \$105: 6, Trigger Selected Item: \$110.12 \$110.12 OFF, Item Count Addr: \$106: 5, Trigger Item Count: \$110.13 \$110.13 OFF

19

GridBox

- Select Item 2 and press **Copy Trigger Addr.**, then select Item 4 and press **Replace Trigger Addr.**, and the content of Item 2 will be copied to Item 4.

Execution results

The screenshot displays the GridBox interface in two states. The top state shows Item 2 selected (ABC, 123) with the 'Copy Trigger Addr.' set to \$110.6 OFF. The bottom state shows Item 4 selected (ABC, 123) with the 'Replace Trigger Addr.' set to \$110.8 OFF. The configuration panels on the right show various settings for State, Operation, Custom Data, and Others.

Item	Content	Value
1		0
2	ABC	123
3		0
4		0
5		0
6		0
7		0
8		0
9		0
10		0

Start Address Address \$1000~ Custom Data Address \$3000~

12345

State

Selected Item \$100 2

Actual Item Count \$101 10

Visible Item Count \$102 10

Current Page \$103 1

Total Page \$104 1

Auto Update Data Yes

Update Data \$110.0

Custom Data

Data Start Addr. \$3000

Data Offset 15

Data Length 5

Others

Max item count 1000

Operation

Invisible Address: \$110.1 \$110.1 OFF

Page Up Trigger Addr: \$110.2 \$110.2 OFF

Page Down Trigger: \$110.3 \$110.3 OFF

Previous Item Addr: \$110.4 \$110.4 OFF

Next Item Addr: \$110.5 \$110.5 OFF

Copy Trigger Addr: \$110.6 \$110.6 OFF

Paste Trigger Addr: \$110.7 \$110.7 OFF

Replace Trigger Addr: \$110.8 \$110.8 OFF

Insert Trigger Addr: \$110.9 \$110.9 OFF

Cut Trigger Addr: \$110.10 \$110.10 OFF

Touch Protect Addr: \$110.11 \$110.11 OFF

Select Item Addr: \$105 6

Trigger Selected Item \$110.12 \$110.12 OFF

Item Count Addr: \$106 10

Trigger Item Count \$110.13 \$110.13 OFF

Buffer setting

Execution results

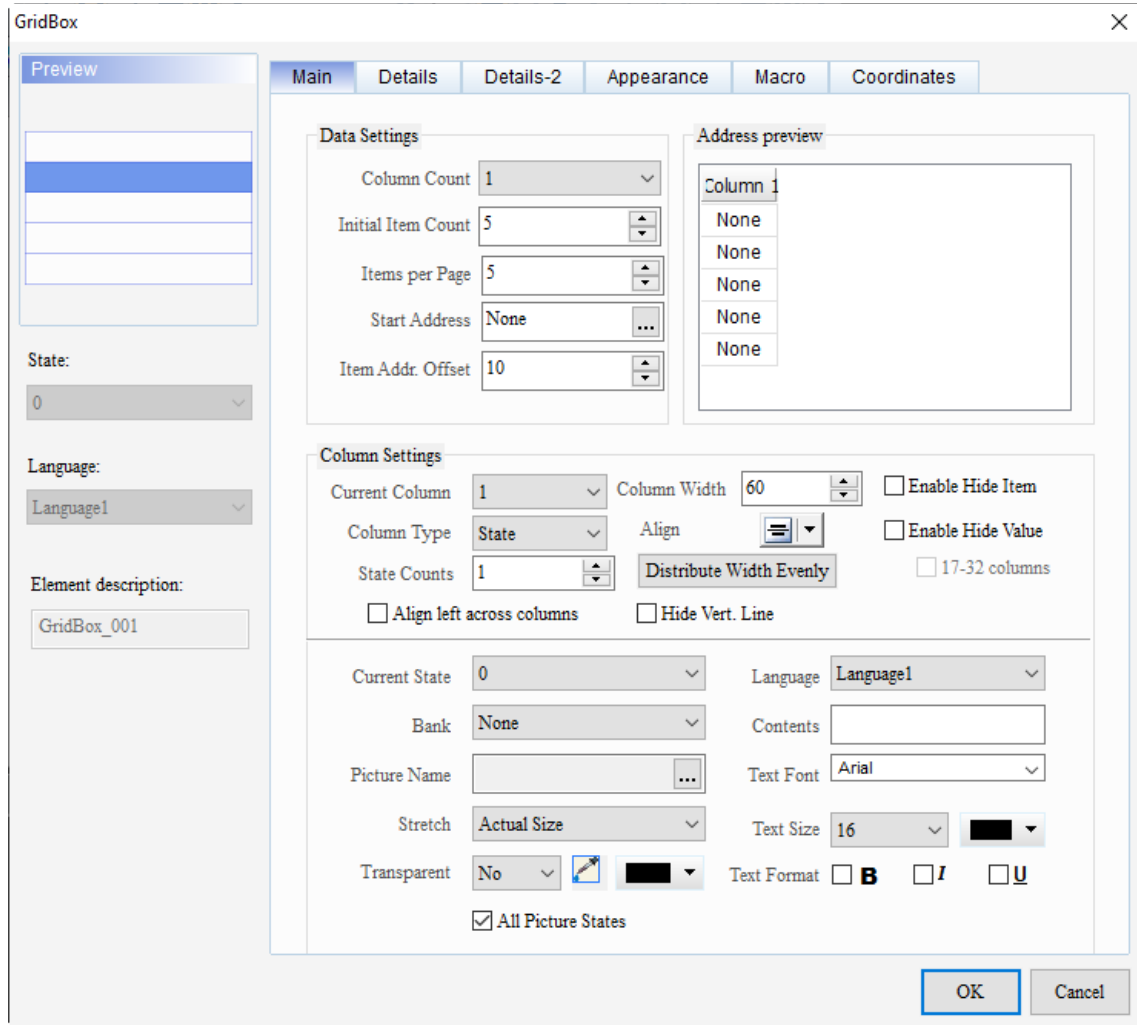
- Press **Custom Data Address \$3000~** to switch the screen and you can see the user-defined data of Item 2 is also copied to Item 4.

The screenshot shows a numeric keypad with a grid of buttons. The second row of buttons displays the values 12849, 13363, and 53, indicating that the custom data from Item 2 has been copied to Item 4.

\$3000~

Back

When you double-click the GridBox, the property page is shown as follows.



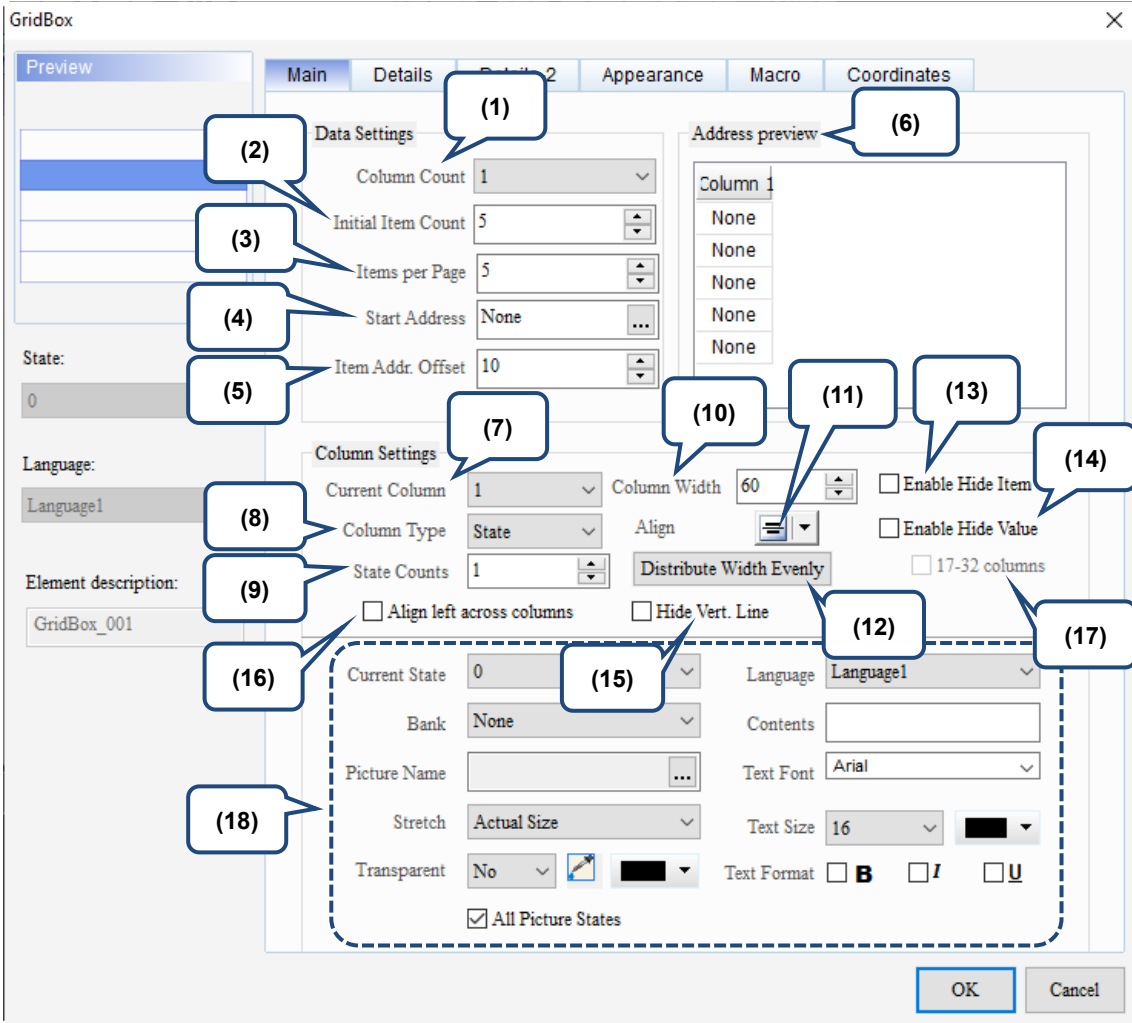
19

Figure 19.4.1 Properties of GridBox

Table 19.4.2 Function page of the GridBox element


GridBox	
Function page	Description
Main	<p>It includes Data Settings and Column Settings.</p> <ul style="list-style-type: none"> ■ Data Settings: set the Column Count, Initial Item Count, Items per Page, Start Address, and Item Addr. Offset. ■ Column Settings: set the Current Column, Column Width, Column Type, Align, State Counts, press Distribute Width Evenly, and select the check boxes for Enable Hide Item, Enable Hide Value, Hide Vert. Line, Align left across columns, and 17-32 columns. ■ The required settings vary according to the setting of Column Type. ■ Address preview can be used to preview the assigned addresses according to the set data.
Details	<p>It includes State, Custom Data, Others, and Operation.</p> <ul style="list-style-type: none"> ■ State: set the Selected Item, Actual Item Count, Visible Item Count, Current Page, Total Page, Auto Update Data, and Update Data. ■ Custom Data: set the Data Start Addr., Data Offset, and Data Length. ■ Others: set the Max item count. ■ Operation: set the Invisible Address, Page Up Trigger Addr., Page Down Trigger, Previous Item Addr., Next Item Addr., Copy Trigger Addr., Paste Trigger Addr., Replace Trigger Addr., Insert Trigger Addr., Cut Trigger Addr., Touch Protect Addr., Select Item Addr., Trigger Selected Item, Item Count Addr., and Trigger Item Count.
Details-2	Set the Operation-Buffer selection, including Buffer Start Addr., Insert Selected Item Addr., Add selected item Addr., Add to Last Addr., Read Address, and Write Address.
Appearance	<p>It includes Column Settings and Style.</p> <ul style="list-style-type: none"> ■ Column Settings: select the check box for Enable auto numbering and set the Column Width, Font size, and Text Color. ■ Style: set the Gridline Color, Background Color, Select Color, and Show Gridlines.
Macro	Set the After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

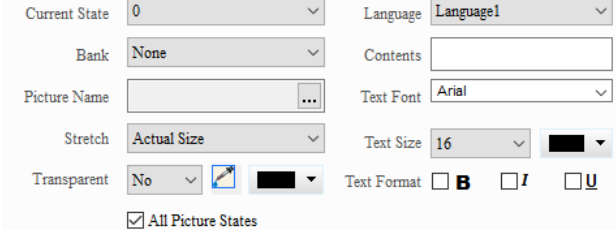

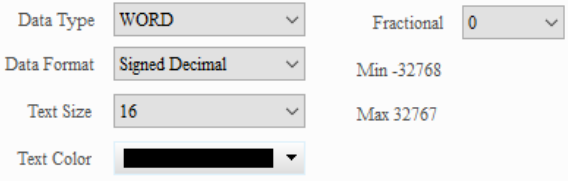
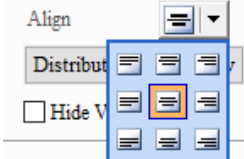
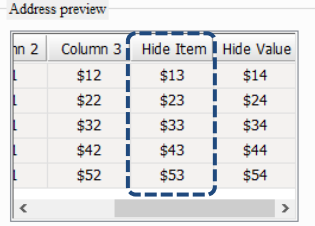


19

Figure 19.4.2 Main property page for the GridBox element

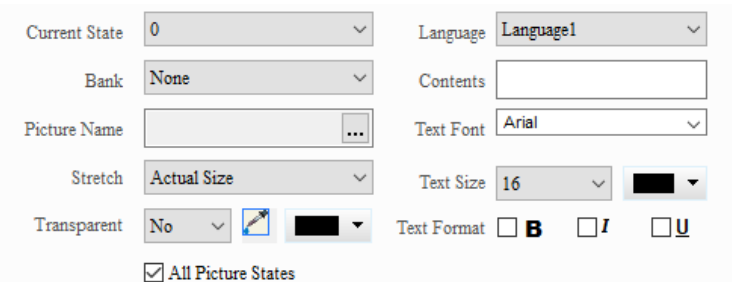
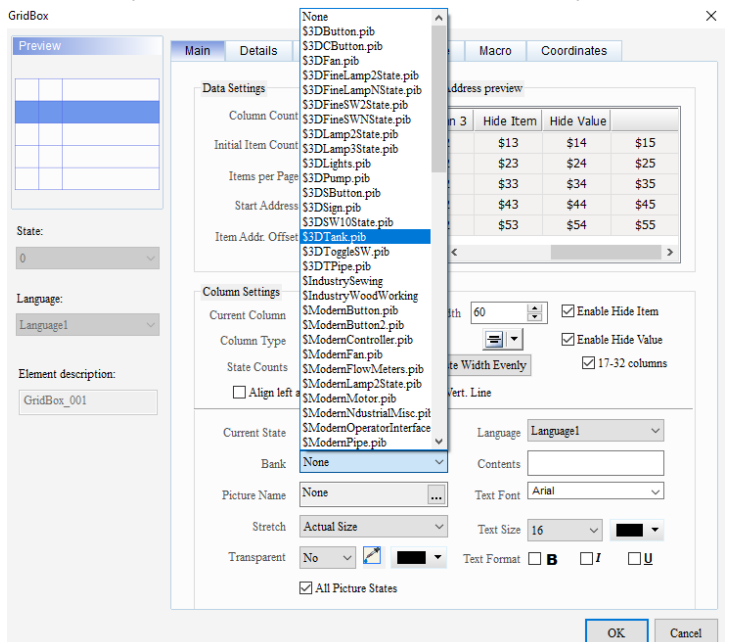
No.	Property	Function description
(1)	Column Count	<ul style="list-style-type: none"> Set the number of columns used by the GridBox element and the maximum setting is 32. If the Column Count is greater than the Item Addr. Offset, a warning message is displayed to remind you of the overlapping addresses.
(2)	Initial Item Count	Set the Initial Item Count of the element and the maximum setting is 1,000.
(3)	Items per Page	Set the number of items that can be displayed on a single page of the element, and the maximum setting is 100.
(4)	Start Address	<ul style="list-style-type: none"> Set the address that the element starts to read. The controller address (Word) and the internal register address (Word) are supported. 
(5)	Item Addr. Offset	Set the address offset for the items and the maximum setting is 10,000. If the Item Addr. Offset is greater than the Column Count, a warning message is displayed to remind you of the overlapping addresses.
(6)	Address preview	According to the current property settings of the element, it displays the start address of each field.

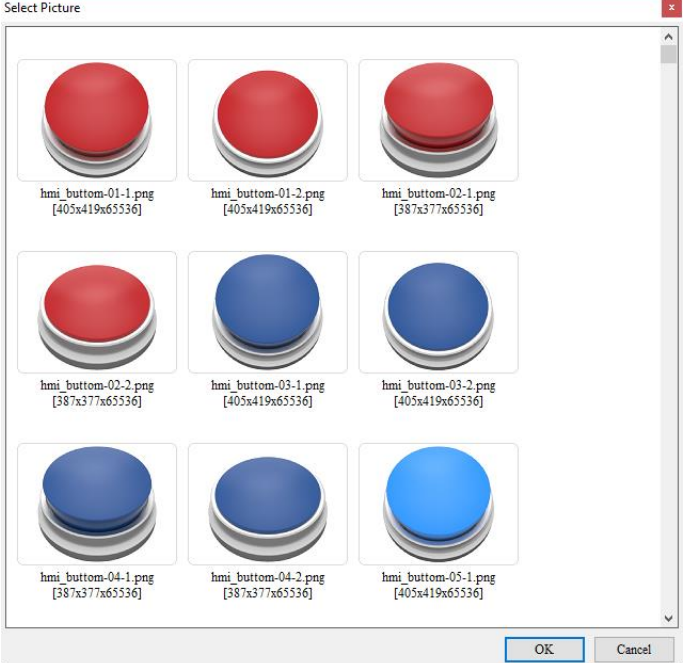









19

No.	Property	Function description
(7)	Current Column	Select the column for editing. The largest number does not exceed the setting of Column Count.
(8)	Column Type	<ul style="list-style-type: none"> ■ The Column Types include State, String, and Numeric. ■ State: status display; String: string display; Numeric: numeric display. ■ If you select State, the settings in No. (18) are shown as follows.  ■ If you select String, the settings in No. (18) are shown as follows.  ■ If you select Numeric, the settings in No. (18) are shown as follows. 
(9)	State Counts	<ul style="list-style-type: none"> ■ The State Counts field is shown only when you select State for the Column Type. ■ The maximum setting is 256 states and mainly for indicating the number of state pictures. This setting will affect the displayed number of Current State. If the State Counts is set to 3, then the Current State includes States 0, 1, and 2.
(10)	Column Width	Set the width of the column and the maximum setting is 65535.
(11)	Align	Set the alignment style in the cell. 
(12)	Distribute Width Evenly	Press this button to distribute the width of the columns evenly.
(13)	Enable Hide Item	When you select the check box for this function, the corresponding addresses of the hidden items will be shown in the Address preview. When the Hide Item address value of an item is not 0, this item will not be displayed on the element. 


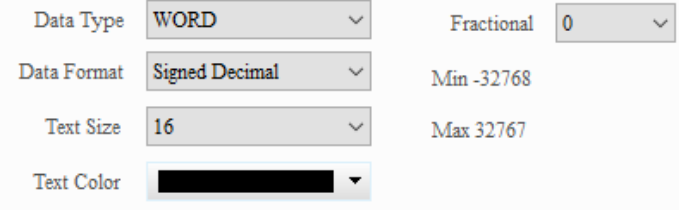
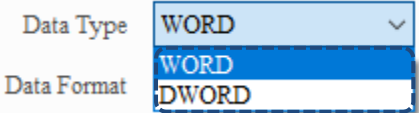
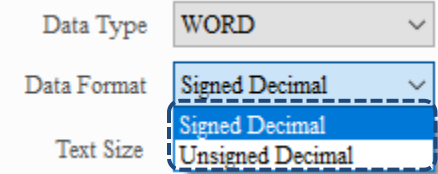
No.	Property	Function description																								
(14)	Enable Hide Value	<ul style="list-style-type: none"> When you select the check box for Enable Hide Value, the corresponding addresses of the hidden values will be shown in the Address preview. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p style="text-align: center; margin: 0;">Address preview</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Column 2</th> <th style="width: 20%;">Column 3</th> <th style="width: 20%;">Hide Item</th> <th style="width: 20%;">Hide Value</th> </tr> </thead> <tbody> <tr><td></td><td>\$12</td><td>\$13</td><td>\$14</td></tr> <tr><td></td><td>\$22</td><td>\$23</td><td>\$24</td></tr> <tr><td></td><td>\$32</td><td>\$33</td><td>\$34</td></tr> <tr><td></td><td>\$42</td><td>\$43</td><td>\$44</td></tr> <tr><td></td><td>\$52</td><td>\$53</td><td>\$54</td></tr> </tbody> </table> </div> If you select the check box for Enable Hide Value, only Columns 1 - 16 are hidden. To hide Columns 17 - 32, you need to select the check box for 17-32 columns. Each bit of the address in the Hide Value column determines whether to display the corresponding column. For example, when Bit 0 is On, it means the data in the first column of this item will not be shown; when Bit 1 is On, it means the data in the second column of this item will not be shown. The same is true for other bits. 	Column 2	Column 3	Hide Item	Hide Value		\$12	\$13	\$14		\$22	\$23	\$24		\$32	\$33	\$34		\$42	\$43	\$44		\$52	\$53	\$54
Column 2	Column 3	Hide Item	Hide Value																							
	\$12	\$13	\$14																							
	\$22	\$23	\$24																							
	\$32	\$33	\$34																							
	\$42	\$43	\$44																							
	\$52	\$53	\$54																							
(15)	Hide Vert. Line	<p>If you enable this function, the right vertical line of the selected column in the table will be hidden.</p>																								
(16)	Align left across columns	<ul style="list-style-type: none"> This function allows the data to merge left with the data in the left field. If this function is enabled, you can combine the data in two fields. To merge data, you need to enable this function for the fields to be merged. For example, if you want to merge the data of Field 2 and Field 3, select the check box for Align left across columns for both Field 2 and Field 3. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Align left across columns not enabled</th> <th style="width: 50%; text-align: center;">Align left across columns enabled for Fields 2 and 3</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"> <input checked="" type="checkbox"/> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50%;">ABC</td><td style="width: 50%;">123</td></tr> <tr><td></td><td style="text-align: center;">0</td></tr> </table> </td> <td style="text-align: center;"> <input checked="" type="checkbox"/> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50%;">ABC123</td><td style="width: 50%;"></td></tr> <tr><td></td><td style="text-align: center;">0</td></tr> </table> </td> </tr> </tbody> </table> </div>	Align left across columns not enabled	Align left across columns enabled for Fields 2 and 3	<input checked="" type="checkbox"/> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50%;">ABC</td><td style="width: 50%;">123</td></tr> <tr><td></td><td style="text-align: center;">0</td></tr> </table>	ABC	123		0	<input checked="" type="checkbox"/> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50%;">ABC123</td><td style="width: 50%;"></td></tr> <tr><td></td><td style="text-align: center;">0</td></tr> </table>	ABC123			0												
Align left across columns not enabled	Align left across columns enabled for Fields 2 and 3																									
<input checked="" type="checkbox"/> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50%;">ABC</td><td style="width: 50%;">123</td></tr> <tr><td></td><td style="text-align: center;">0</td></tr> </table>	ABC	123		0	<input checked="" type="checkbox"/> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50%;">ABC123</td><td style="width: 50%;"></td></tr> <tr><td></td><td style="text-align: center;">0</td></tr> </table>	ABC123			0																	
ABC	123																									
	0																									
ABC123																										
	0																									
(17)	17-32 columns	<ul style="list-style-type: none"> Previously the Enable Hide Value function of the GridBox element only supports hiding 1 - 16 fields, but now you can hide up to 32 fields. When you select the check box for 17-32 columns, there will be two addresses for each hidden value. The bits of the first address correspond to Columns 1 - 16; the bits of the second address correspond to Columns 17 - 32. <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p style="text-align: center; margin: 0;">Address preview</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Column 3</th> <th style="width: 20%;">Hide Item</th> <th style="width: 20%;">Hide Value</th> </tr> </thead> <tbody> <tr><td></td><td>\$13</td><td>\$14 \$15</td></tr> <tr><td></td><td>\$23</td><td>\$24 \$25</td></tr> <tr><td></td><td>\$33</td><td>\$34 \$35</td></tr> <tr><td></td><td>\$43</td><td>\$44 \$45</td></tr> <tr><td></td><td>\$53</td><td>\$54 \$55</td></tr> </tbody> </table> </div>	Column 3	Hide Item	Hide Value		\$13	\$14 \$15		\$23	\$24 \$25		\$33	\$34 \$35		\$43	\$44 \$45		\$53	\$54 \$55						
Column 3	Hide Item	Hide Value																								
	\$13	\$14 \$15																								
	\$23	\$24 \$25																								
	\$33	\$34 \$35																								
	\$43	\$44 \$45																								
	\$53	\$54 \$55																								

19

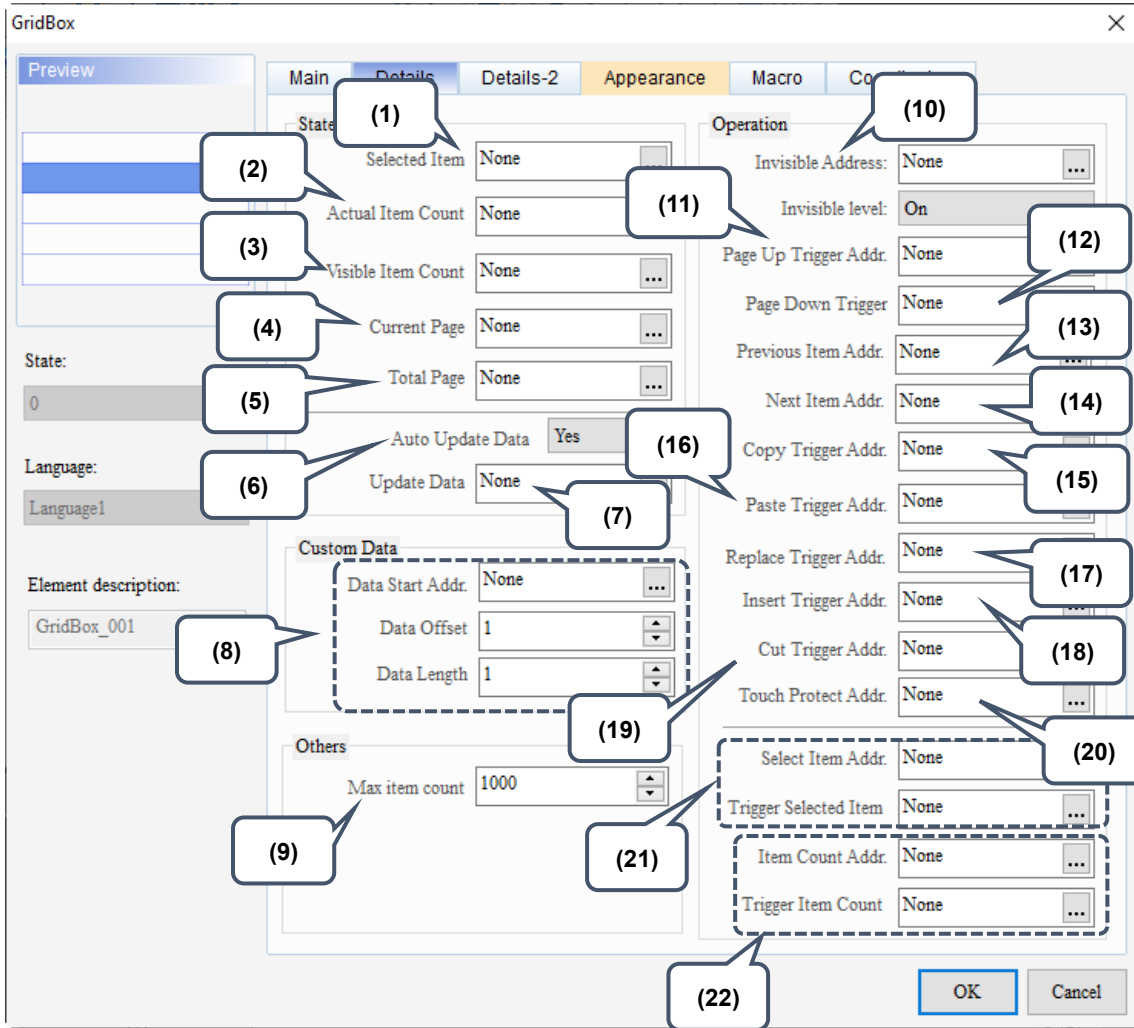
No.	Property	Function description
(18)	Column data settings	<ul style="list-style-type: none"> ■ Edit the detailed settings of the column selected in Current Column. <p>Column Type of the Current State is State</p>  <ul style="list-style-type: none"> ■ Text properties: set the font, size, color, bold / italic / underline for the texts. ■ Language: if you have added multiple languages, you can select the language data for display. ■ Picture Bank: the default for the Bank name is "None". To set the picture display, use the drop-down list box to select the picture bank provided by the software and then select the picture you need. 

No.	Property	Function description							
(18)	Column data settings	 <ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. 							
		<table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> If you select the check box for Process pictures of all states, assuming that the elements have multiple states and some pictures do not fill the full element display area, you can use this function to process all pictures instead of setting them one by one, which saves the editing time. <div style="text-align: center;"> <input checked="" type="checkbox"/> All Picture States </div> You can specify a color in the picture and turn this color into transparent with this function.  is for selecting the transparent color. If you select the white part in the calendar, the software changes the white part into transparent, which becomes identical to the element foreground color. <div style="text-align: center;"> Foreground Color: </div>  	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.	
Stretch All	Stretch 1:1	Actual Size							
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.							
									

19

No.	Property	Function description
(18)	Column data settings	<p>Column Type of the Current State is String</p>  <ul style="list-style-type: none"> ■ Set the Text Size, Text Color, and Text Length. ■ The maximum setting for Text Length is 60. <p>Column Type of the Current State is Numeric</p>  <ul style="list-style-type: none"> ■ The Data Type includes WORD and DWORD.  <ul style="list-style-type: none"> ■ The Data Format supports only Signed Decimal and Unsigned Decimal regardless of your selection of the Data Type as WORD or DWORD.  <ul style="list-style-type: none"> ■ If the Data Type is set to WORD, the setting range of the fractional digits is 0 - 5; if the Data Type is set to DWORD, the setting range of the fractional digits is 0 - 10.

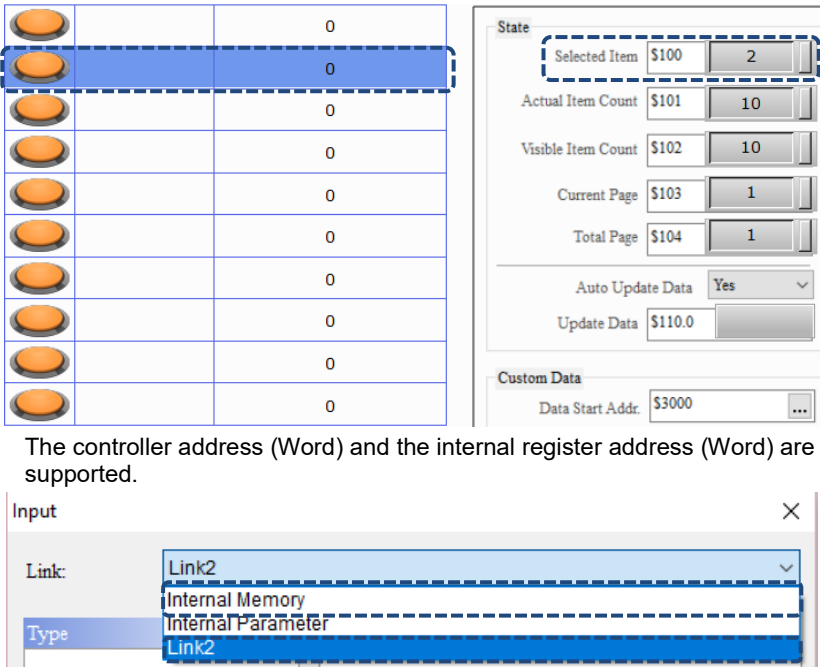
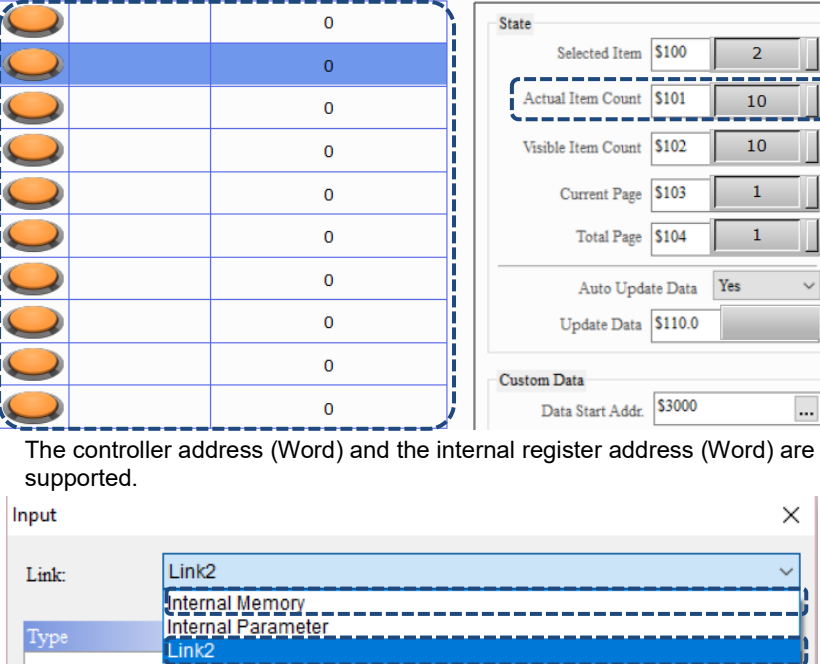
■ Details

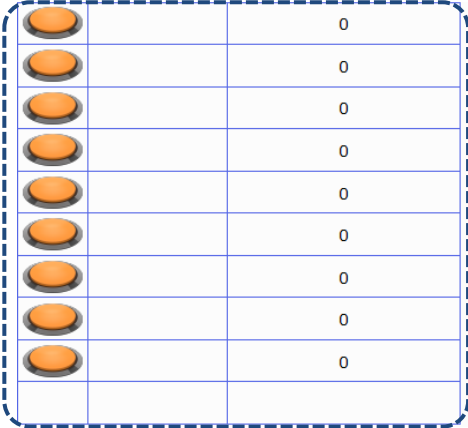
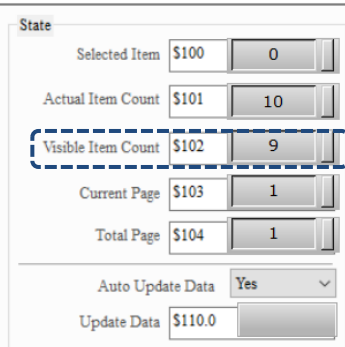

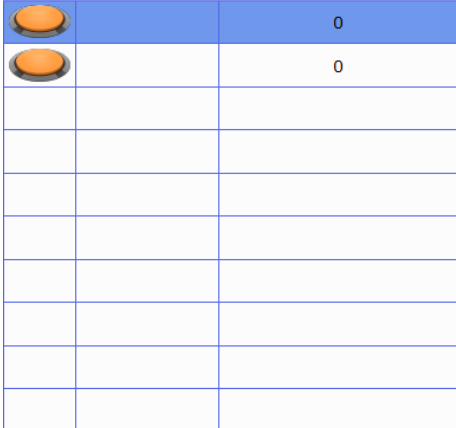
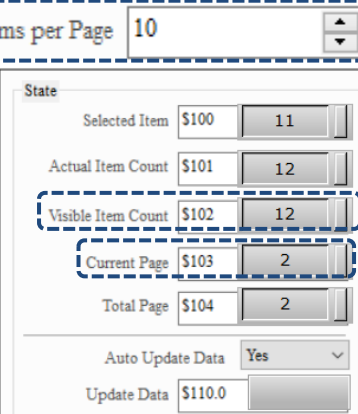



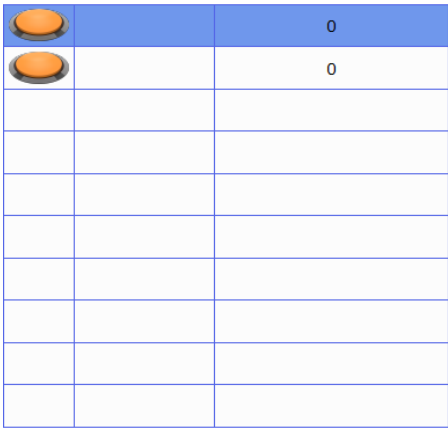
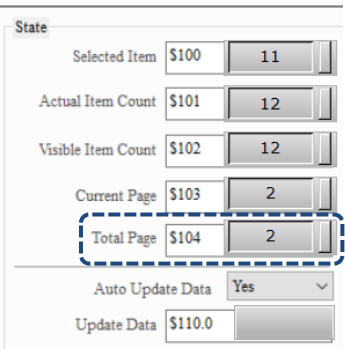
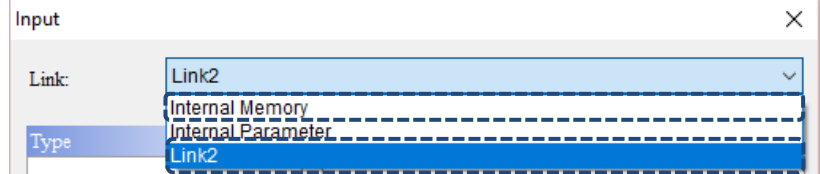
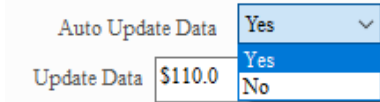
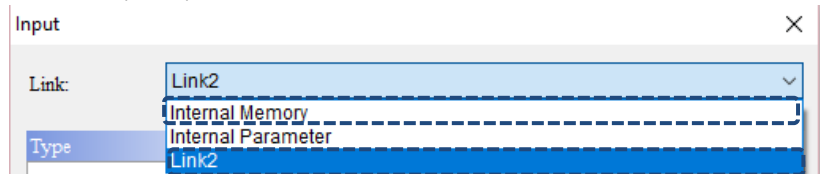
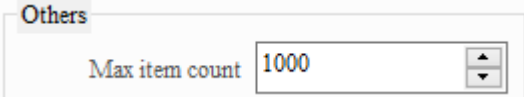
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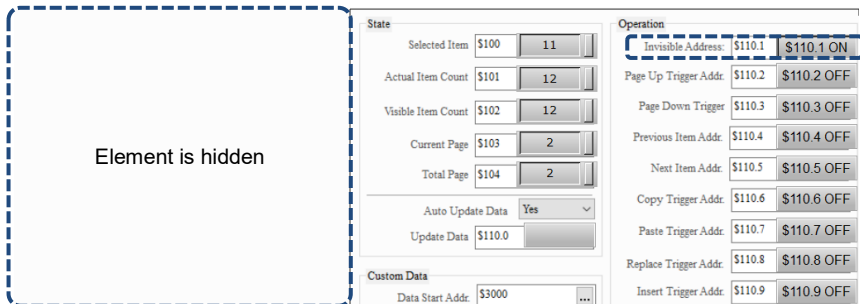
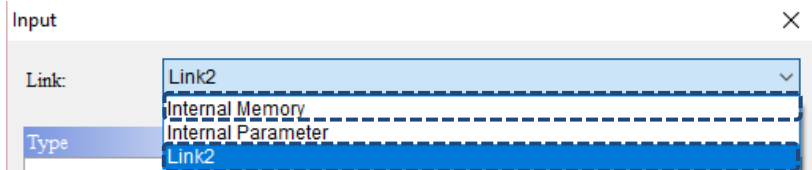
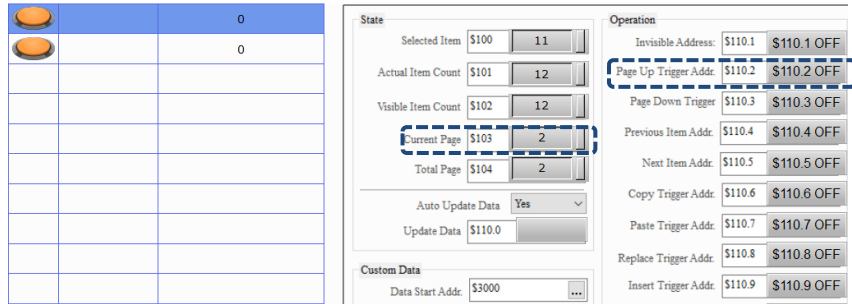
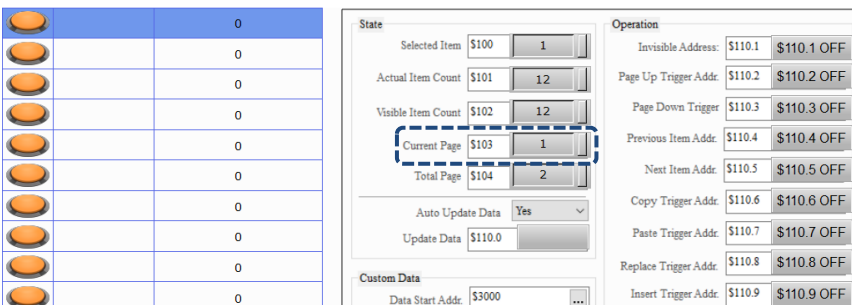

Figure 19.4.3 Details property page for the GridBox element

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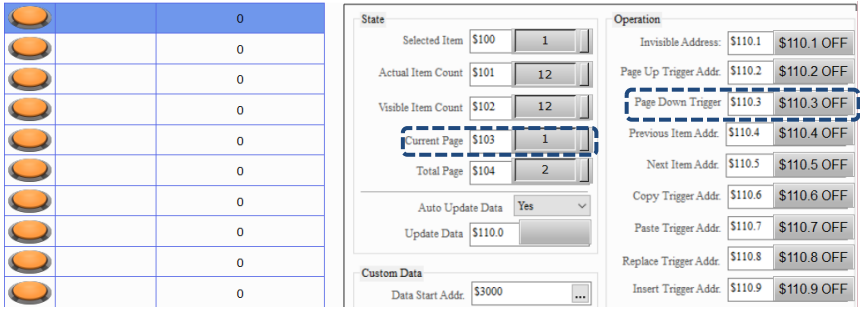
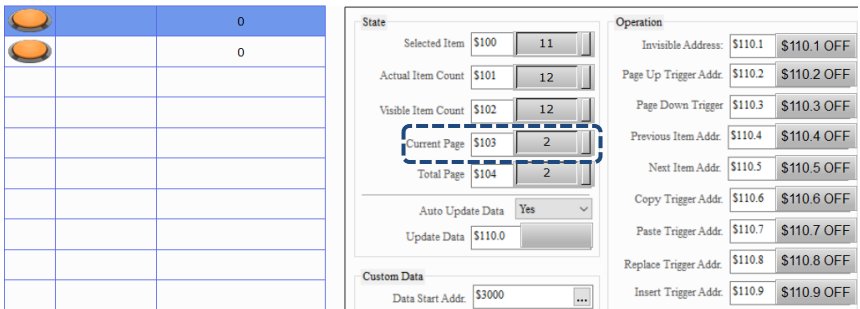

No.	Property	Function description
(1)	Selected Item	<ul style="list-style-type: none"> The number of the selected item of the element. When you select the second item of the GridBox, the value shown in Selected Item is 2.  <ul style="list-style-type: none"> The controller address (Word) and the internal register address (Word) are supported.
(2)	Actual Item Count	<ul style="list-style-type: none"> The total number of items actually displayed on the element.  <ul style="list-style-type: none"> The controller address (Word) and the internal register address (Word) are supported.

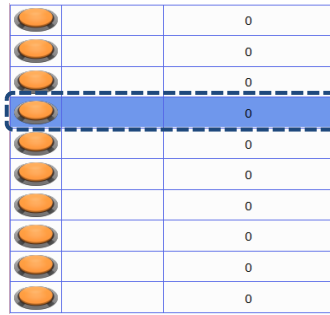
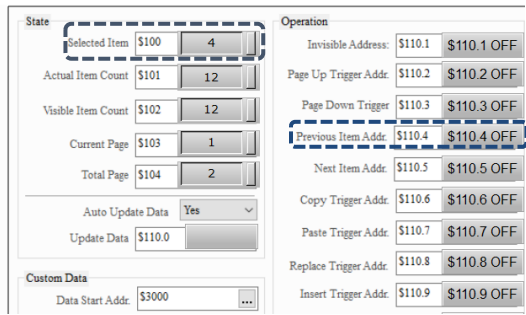
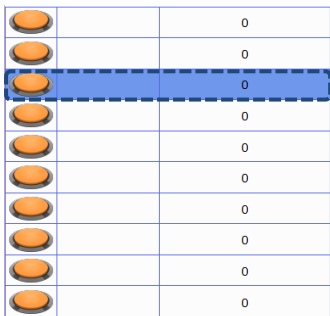
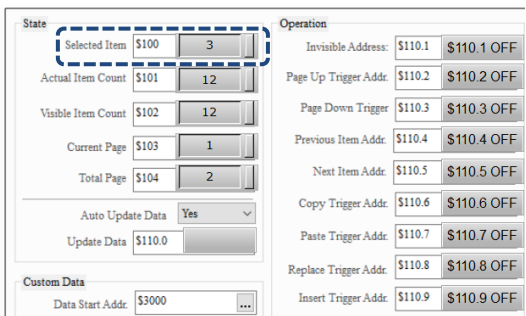

No.	Property	Function description
(3)	Visible Item Count	<ul style="list-style-type: none"> Visible Item Count is the value of the Actual Item Count minus the hidden item count.   <ul style="list-style-type: none"> The controller address (Word) and the internal register address (Word) are supported. 
(4)	Current Page	<ul style="list-style-type: none"> When the value of Visible Item Count is greater than Items per Page, the data will be shown on different pages. And the value of Current Page is the currently displaying page of the element.   <ul style="list-style-type: none"> The controller address (Word) and the internal register address (Word) are supported. 

No.	Property	Function description
(5)	Total Page	<ul style="list-style-type: none"> The total number of pages used to display the visible items on the element.   <ul style="list-style-type: none"> The controller address (Word) and the internal register address (Word) are supported. 
(6)	Auto Update Data	<p>If you select Yes, the element automatically updates the data; if you select No, you need to trigger the Update Data bit to update the element display.</p> 
(7)	Update Data	<p>When Auto Update Data is No, the currently displayed content of the element is updated only when you trigger the Update Data bit to On.</p>
(8)	Custom Data	<ul style="list-style-type: none"> Set the Data Start Addr., Data Offset, and Data Length. You can customize another data block and the data changes as you edit the element. Data Start Addr.: the controller address (Word) and the internal register address (Word) are supported. 
(9)	Max item count	<ul style="list-style-type: none"> Max item count is for setting the maximum number of items that can be added to the GridBox. The maximum setting for Max item count is 1000. 

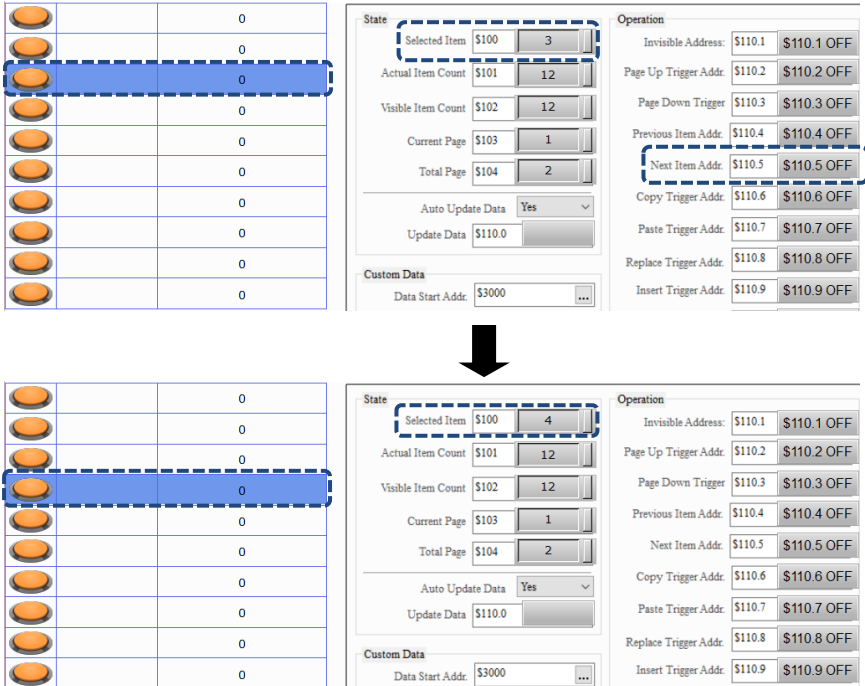
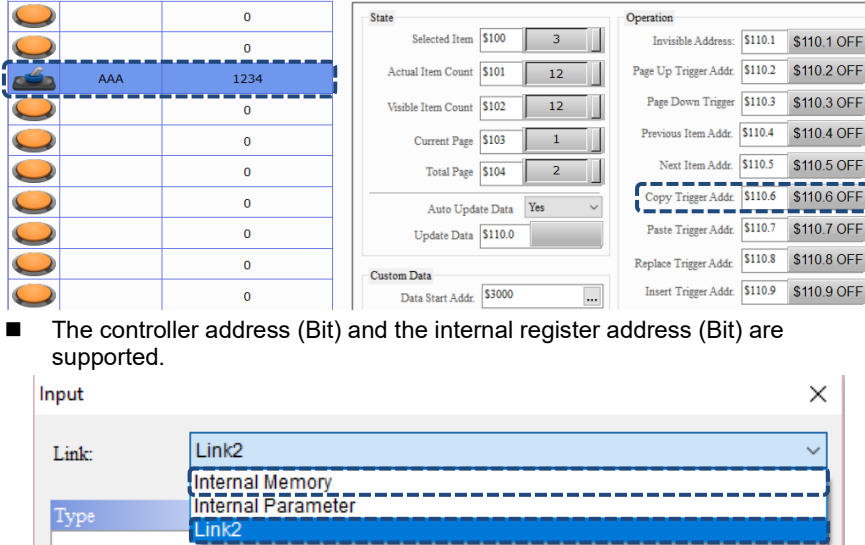
No.	Property	Function description
(10)	Invisible Address	<ul style="list-style-type: none"> When the Invisible Address is On, the GridBox element is hidden.  <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. 
(11)	Page Up Trigger Addr.	<ul style="list-style-type: none"> When the Page Up Trigger Addr. bit is On, the element display switches to the previous page and this bit is automatically cleared once the action is complete. When the Page Up Trigger Addr. bit is not On, the Current Page shows 2; when it is On, the Current Page shows 1.  <p style="text-align: center;">↓</p>  <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. 

19

No.	Property	Function description
(12)	Page Down Trigger	<ul style="list-style-type: none"> When the Page Down Trigger bit is On, the element display switches to the next page and this bit is automatically cleared once the action is complete. When the Page Down Trigger bit is not On, the Current Page shows 1; when it is On, the Current Page shows 2.  <p style="text-align: center;">↓</p>  <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. 

No.	Property	Function description
(13)	Previous Item Addr.	<ul style="list-style-type: none"> When the Previous Item Addr. bit is On, the previous item on the element is selected and this bit is automatically cleared once the action is complete. When the Previous Item Addr. bit is not On, the Selected Item shows 4; when it is On, the Selected Item shows 3.     <p>The controller address (Bit) and the internal register address (Bit) are supported.</p> 

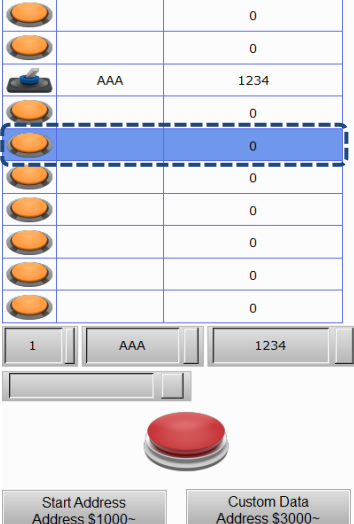
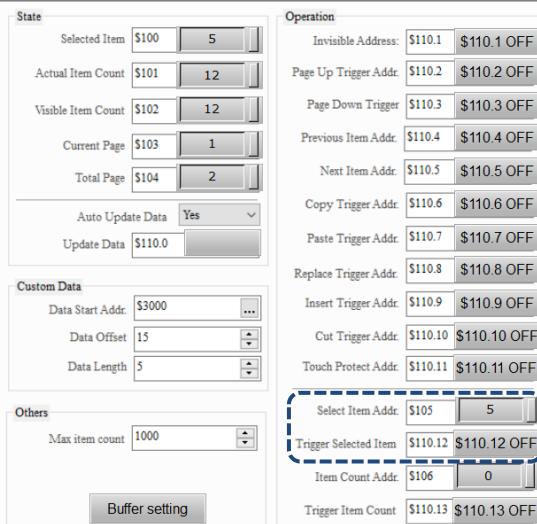


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No.	Property	Function description
(14)	Next Item Addr.	<ul style="list-style-type: none"> When the Next Item Addr. bit is On, the next item on the element is selected and this bit is automatically cleared once the action is complete. When the Next Item Addr. bit is not On, the Selected Item shows 3; when it is On, the Selected Item shows 4.  <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported.
(15)	Copy Trigger Addr.	<ul style="list-style-type: none"> When the Copy Trigger Addr. bit is On, the current item is copied and this bit is automatically cleared once the action is complete.  <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported.

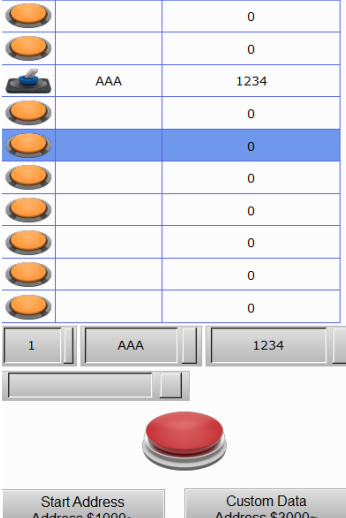
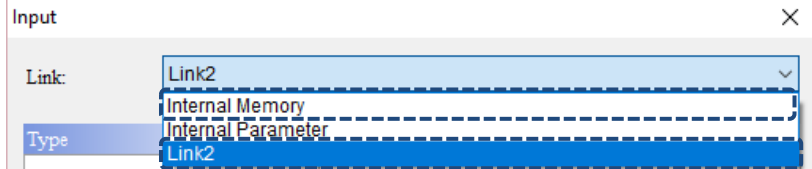
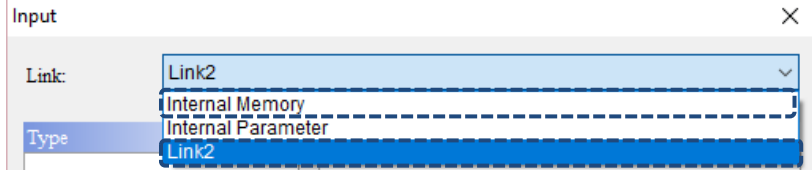
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(16)	Paste Trigger Addr.	<ul style="list-style-type: none"> When the Paste Trigger Addr. bit is On, the copied item is pasted and this bit is automatically cleared once the action is complete. The copied item is pasted after the selected row. <table border="1"> <thead> <tr> <th colspan="3">Before</th> <th colspan="3">After</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td>AAA</td><td>1234</td><td></td><td>AAA</td><td>1234</td></tr> <tr><td></td><td></td><td>0</td><td></td><td>AAA</td><td>1234</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> </tbody> </table> <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. <div> <p>Input ✕</p> <p>Link: Link2</p> <p>Type: Internal Memory Internal Parameter Link2</p> </div>	Before			After					0			0			0			0		AAA	1234		AAA	1234			0		AAA	1234			0			0			0			0			0			0			0			0			0			0			0			0			0			0
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(17)	Replace Trigger Addr.	<ul style="list-style-type: none"> When the Replace Trigger Addr. bit is On, the copied item replaces the selected item and this bit is automatically cleared once the action is complete. The copied item appears on the selected row. <table border="1"> <thead> <tr> <th colspan="3">Before</th> <th colspan="3">After</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td>AAA</td><td>1234</td><td></td><td>AAA</td><td>1234</td></tr> <tr><td></td><td></td><td>0</td><td></td><td>AAA</td><td>1234</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> </tbody> </table> <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. <div> <p>Input ✕</p> <p>Link: Link2</p> <p>Type: Internal Memory Internal Parameter Link2</p> </div>	Before			After					0			0			0			0		AAA	1234		AAA	1234			0		AAA	1234			0			0			0			0			0			0			0			0			0			0			0			0			0			0
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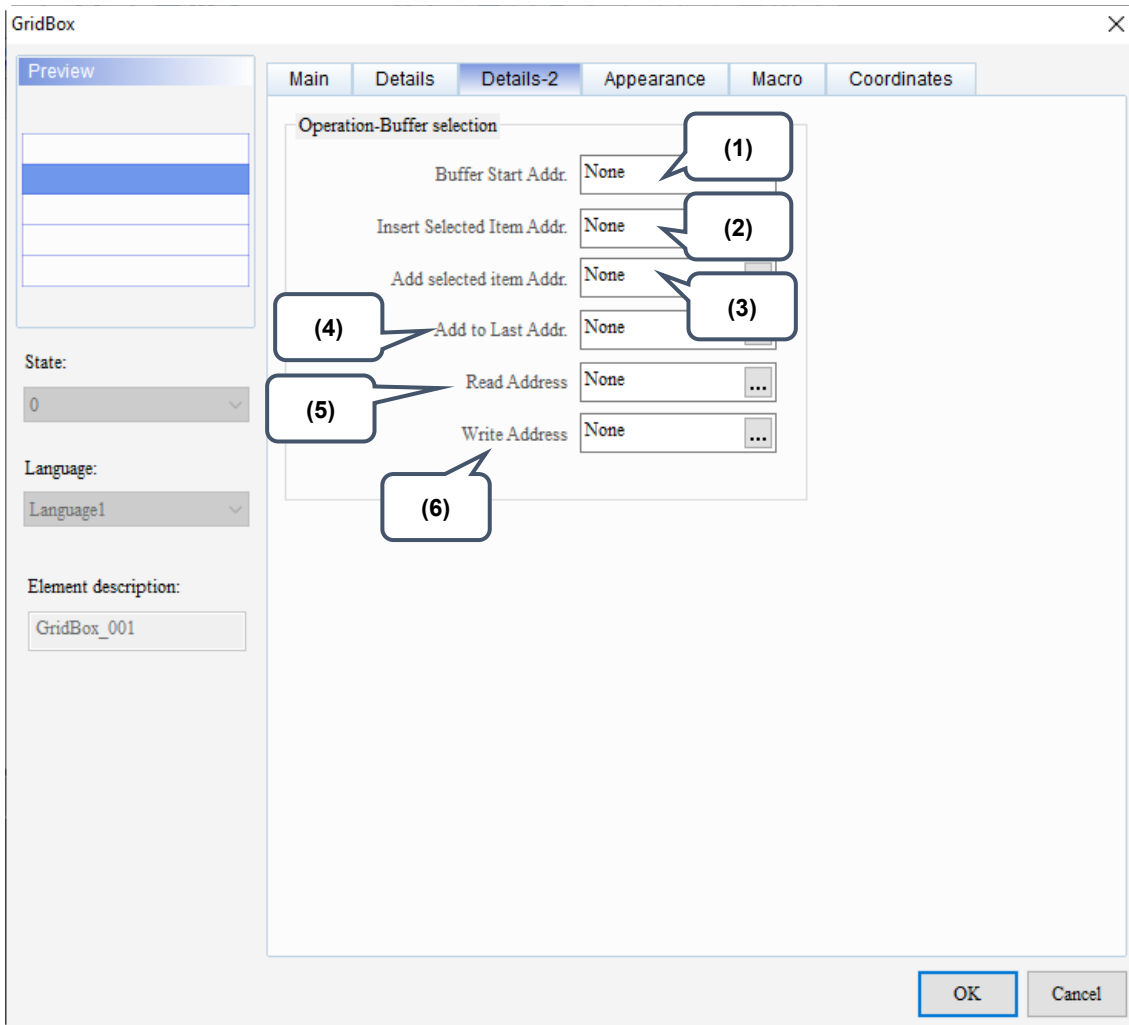
No.	Property	Function description																																																																		
(18)	Insert Trigger Addr.	<ul style="list-style-type: none"> When the Insert Trigger Addr. bit is On, a new blank item is inserted and this bit is automatically cleared once the action is complete. The blank item is inserted after the selected row. <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="3">Before</th> <th colspan="3">After</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td>AAA</td><td>1234</td><td></td><td>AAA</td><td>1234</td></tr> <tr><td></td><td>AAA</td><td>1234</td><td></td><td>AAA</td><td>1234</td></tr> <tr><td></td><td>AAA</td><td>1234</td><td></td><td>0</td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td>AAA</td><td>1234</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> </tbody> </table> <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. <div style="border: 1px solid gray; padding: 5px;"> <p>Input ×</p> <p>Link: Link2</p> <p style="margin-left: 20px;">Internal Memory</p> <p style="margin-left: 20px;">Internal Parameter</p> <p>Type: Link2</p> </div>	Before			After					0			0			0			0		AAA	1234		AAA	1234		AAA	1234		AAA	1234		AAA	1234		0	0			0		AAA	1234			0			0			0			0			0			0			0			0
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(19)	Cut Trigger Addr.	<ul style="list-style-type: none"> When the Cut Trigger Addr. bit is On, the current item is deleted and this bit is automatically cleared once the action is complete. <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="3">Before</th> <th colspan="3">After</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td>AAA</td><td>1234</td><td></td><td>AAA</td><td>1234</td></tr> <tr><td></td><td>AAA</td><td>1234</td><td></td><td>AAA</td><td>1234</td></tr> <tr><td></td><td>AAA</td><td>1234</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> </tbody> </table> <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. <div style="border: 1px solid gray; padding: 5px;"> <p>Input ×</p> <p>Link: Link2</p> <p style="margin-left: 20px;">Internal Memory</p> <p style="margin-left: 20px;">Internal Parameter</p> <p>Type: Link2</p> </div>	Before			After					0			0			0			0		AAA	1234		AAA	1234		AAA	1234		AAA	1234		AAA	1234			0			0			0			0			0			0			0			0			0			0			0
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(20)	Touch Protect Addr.	<ul style="list-style-type: none"> When the Touch Protect Addr. bit is On, you cannot click the GridBox element. The controller address (Bit) and the internal register address (Bit) are supported. <div style="border: 1px solid gray; padding: 5px;"> <p>Input ×</p> <p>Link: Link2</p> <p style="margin-left: 20px;">Internal Memory</p> <p style="margin-left: 20px;">Internal Parameter</p> <p>Type: Link2</p> </div>																																																																		

No.	Property	Function description
(21)	Select Item Addr.	<ul style="list-style-type: none"> Use Select Item Addr. to specify the item to select. Then, set the Trigger Selected Item to On, and the specified item is selected.  
	Trigger Selected Item	<ul style="list-style-type: none"> The controller address (Word) and the internal register address (Word) are supported.  <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. 

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No.	Property	Function description
(22)	Item Count Addr.	<ul style="list-style-type: none"> Use the Item Count Addr. to specify the visible items. Then, set the Trigger Item Count to On, and the element changes the value of Visible Item Count. 
	Trigger Item Count	<ul style="list-style-type: none"> The controller address (Word) and the internal register address (Word) are supported.  <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. 

■ Details-2



19

Figure 19.4.4 Details-2 property page for the GridBox element

No.	Property	Function description
(1)	Buffer Start Addr.	<ul style="list-style-type: none"> ■ This is the start address where the element temporarily stores data. The data in the buffer can be inserted, added, and written into the selected item, and the data in the selected item can also be read to the buffer. ■ The controller address (Word) and the internal register address (Word) are supported.

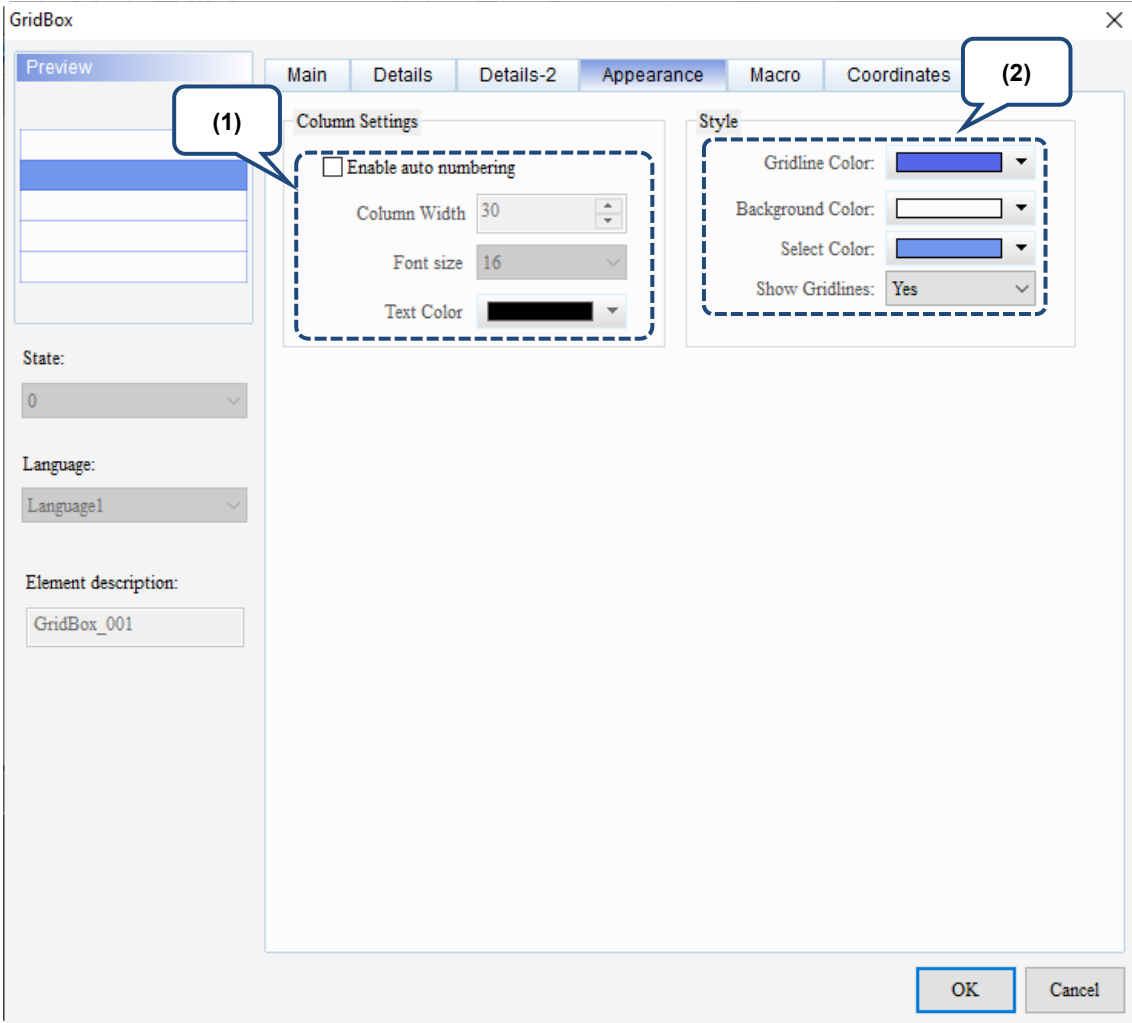
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No.	Property	Function description																																																																																																																																																																		
(2)	Insert Selected Item Addr.	<ul style="list-style-type: none"> When the Insert Selected Item Addr. bit is On, the Selected Item will be inserted from the Buffer Start Addr. plus the Item Addr. Offset. Then, the Actual Item Count increases by 1. If the Actual Item Count has reached the Max item count, the selected item cannot be inserted. <table border="1"> <thead> <tr> <th colspan="3">Before</th> <th colspan="3">After</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td>ABC</td><td>123456789</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr> <tr> <td>2</td> <td>ABC</td> <td>123456789</td> <td>2</td> <td>ABC</td> <td>123456789</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The controller address (Bit) and the internal register address (Bit) are supported. <div style="border: 1px solid gray; padding: 5px;"> <p>Input X</p> <p>Link: <input type="text" value="Link2"/> v</p> <ul style="list-style-type: none"> Internal Memory Internal Parameter Link2 <p>Type v</p> </div>	Before			After					0			0			0			0			0		ABC	123456789			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0	2	ABC	123456789	2	ABC	123456789																		
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No.	Property	Function description																																																																								
(6)	Write Address	<ul style="list-style-type: none">When the Write Address bit is On, the Selected Item will be written from the Buffer Start Addr. plus the Item Addr. Offset. <table border="1"><thead><tr><th colspan="3">Before</th><th colspan="3">After</th></tr></thead><tbody><tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td>0</td><td></td><td>ABC</td><td>123456789</td></tr><tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td>0</td><td></td><td></td><td>0</td></tr></tbody></table>The controller address (Bit) and the internal register address (Bit) are supported. 	Before			After					0			0			0			0			0		ABC	123456789			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0			0
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■ Appearance

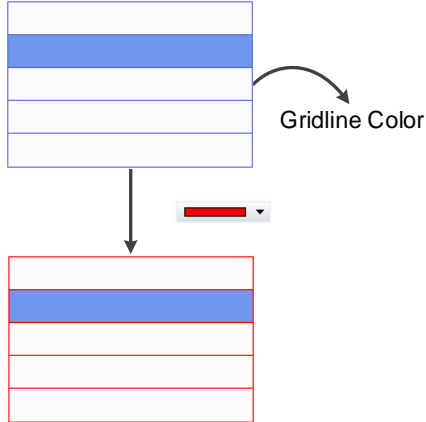
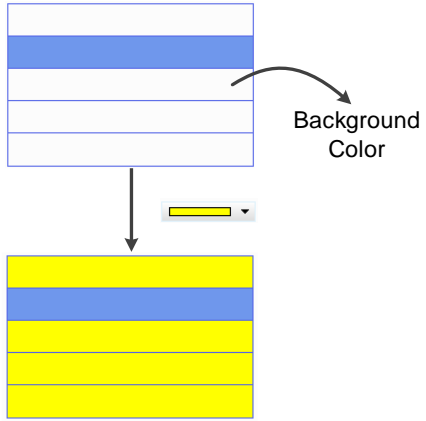
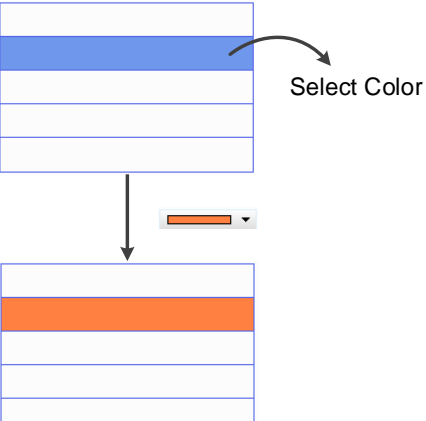








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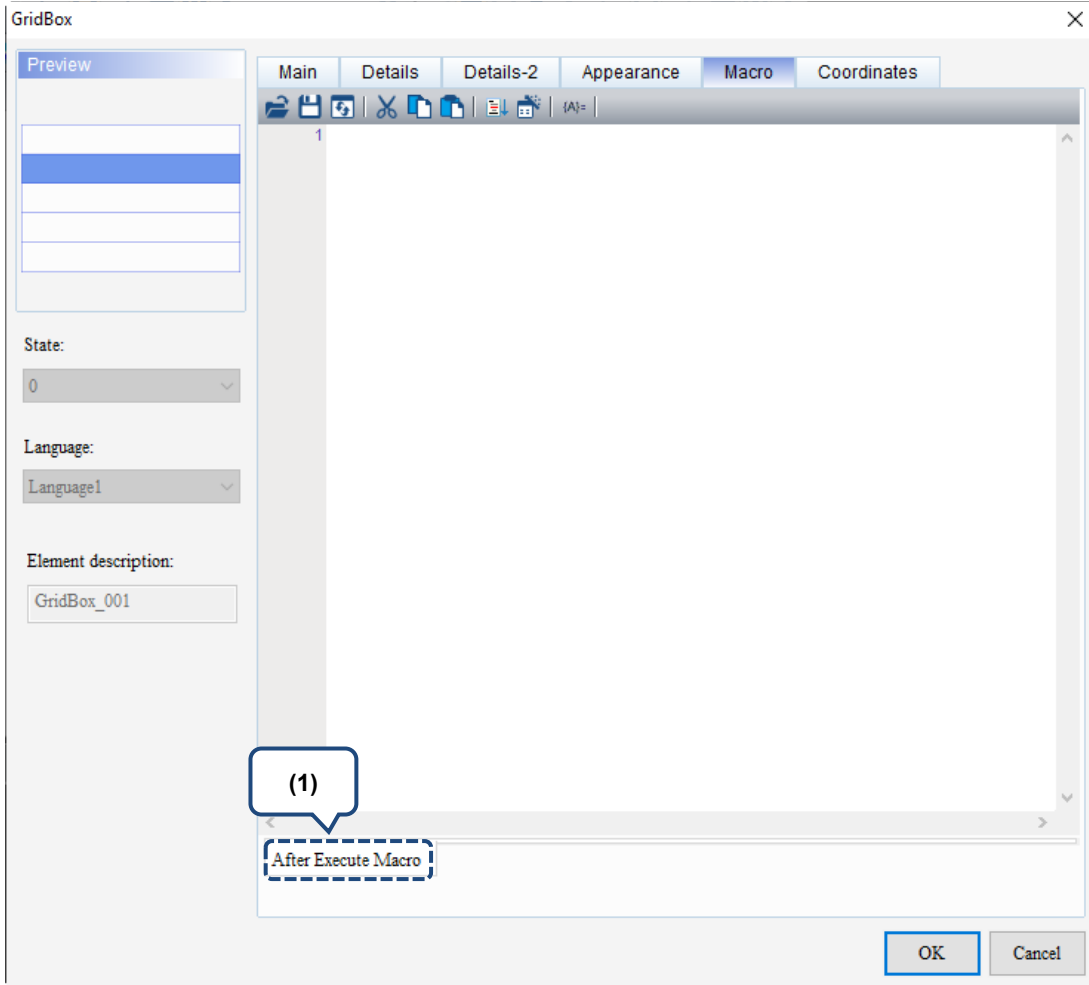
Figure 19.4.5 Appearance property page for the GridBox element

No.	Property	Function description				
(1)	Column Settings	<ul style="list-style-type: none"> ■ Select the check box for Enable auto numbering and set Column Width, Font size, and Text Color. ■ The Enable auto numbering function is for setting whether to display the auto numbering, the width of the auto numbering column, and the font color and size of the auto numbering. ■ Display auto numbering <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: left;">Enable auto numbering not selected</th> <th style="width: 50%; text-align: left;">Enable auto numbering selected</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> </tbody> </table> ■ Column width: set the width of the auto numbering column and the maximum setting is 65535. 	Enable auto numbering not selected	Enable auto numbering selected		
Enable auto numbering not selected	Enable auto numbering selected					

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No.	Property	Function description				
(2)	Style	<p>The Style function is for setting the color and gridline of the element, which include the Gridline Color, Background Color, Select Color, and Show Gridlines.</p> <ul style="list-style-type: none"> <p>■ Gridline Color</p>  <p>■ Background Color</p>  <p>■ Select Color</p>  <p>■ Show Gridlines</p> <table border="1"> <thead> <tr> <th>Show Gridlines is set to Yes</th> <th>Show Gridlines is set to No</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table> 	Show Gridlines is set to Yes	Show Gridlines is set to No		
Show Gridlines is set to Yes	Show Gridlines is set to No					
						

■ Macro



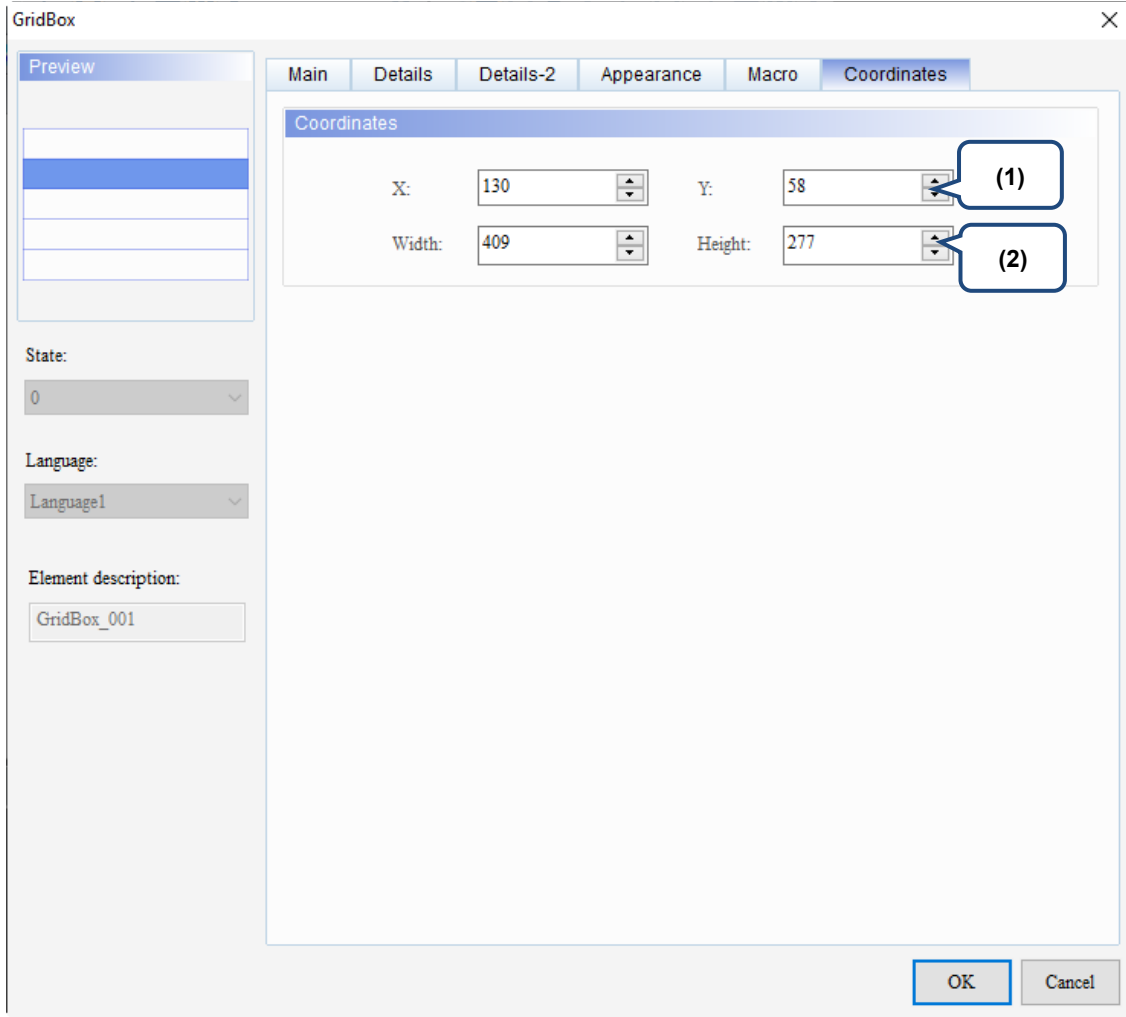
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Figure 19.4.6 Macro property page for the GridBox element

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No.	Property	Function description
(1)	After Execute Macro	When you press the button element, the HMI will first execute the action of the button, and then execute the macro commands. However, if the state of the button is not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.
	Flowchart of After Execute Macro:	<pre> graph TD A["Maintained Button 0"] -- "Trigger to On / Enter the value" --> B["Maintained Button 50"] B -- "Button is On and the value is written" --> C["After Execute Macro"] C -- "Trigger to Off / Enter the value" --> D["Maintained Button 90"] D -- "Button is Off and the value is written" --> E["After Execute Macro"] E -- "Next trigger" --> A </pre>

■ Coordinates



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Figure 19.4.7 Coordinates property page for the GridBox element

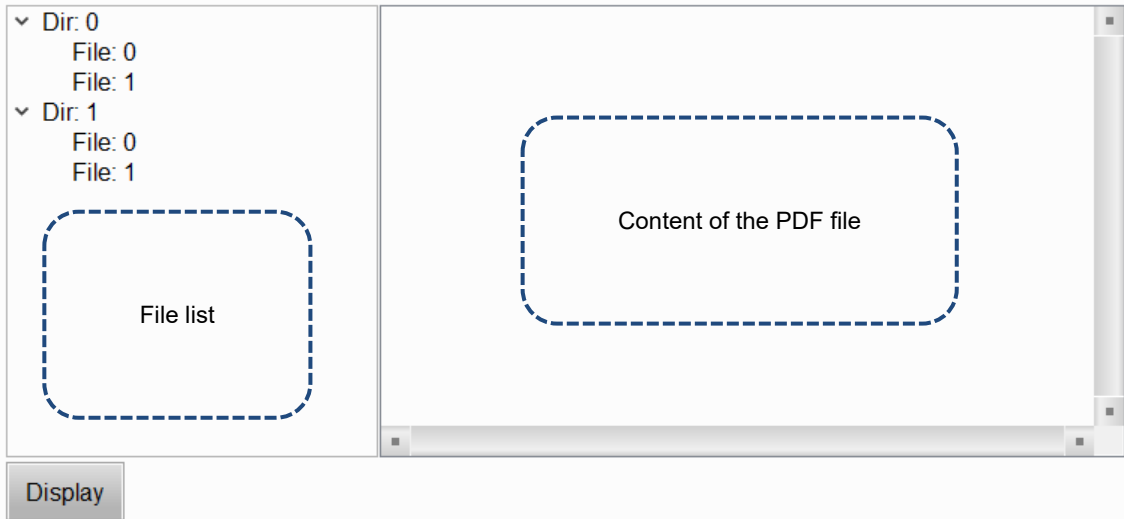
No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

19

19.5 PDF Viewer

You can use the PDF Viewer function to read PDF files on the HMI by saving the PDF files in an external storage device and inserting it to the HMI. With this feature, you can view the operation steps without a PC or printouts, which is more convenient and efficient.

The PDF Viewer is divided into two sections: the file list is on the left and the content of the PDF file is displayed on the right.



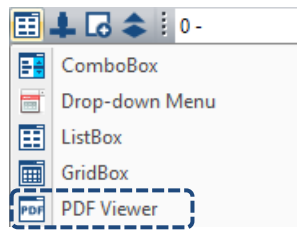
PDF files are displayed on the HMI from the external storage device, so if the USB Disk or SD Card read and write speed is too slow or the PDF file size is too big, the displaying speed of the PDF file will be affected.

Refer to Table 19.5.1 for the PDF Viewer example.

Table 19.5.1 PDF Viewer example

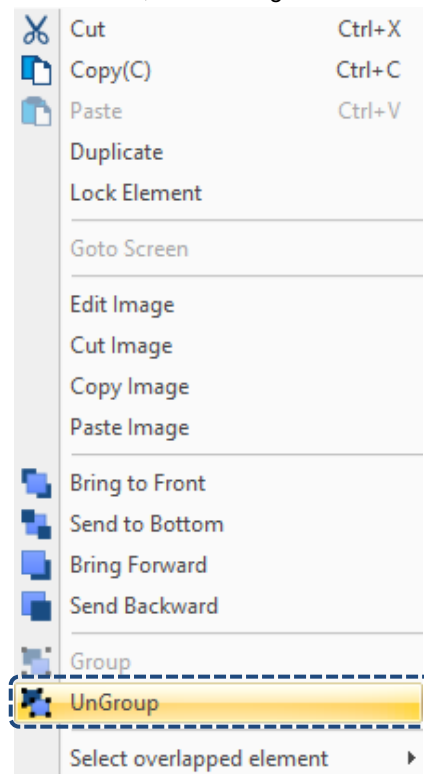
PDF Viewer

Step 1: create a PDF Viewer element.



Create PDF Viewer element

Step 2: click the PDF Viewer element, and then right click and select UnGroup.

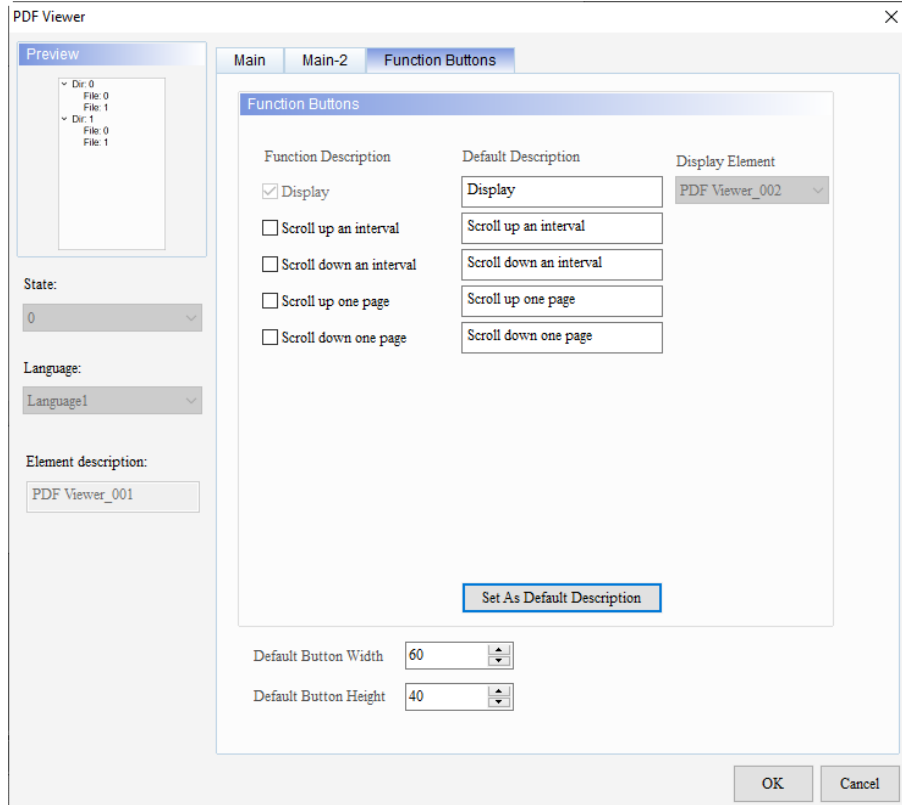


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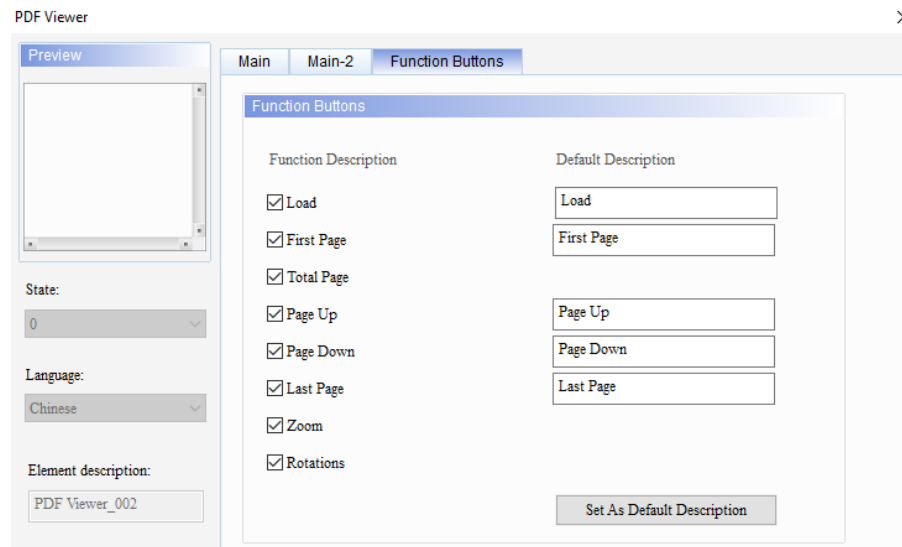
Create PDF Viewer element

PDF Viewer

Step 3: click the File List on the left and go to the Function Buttons page to set the functions as follows.



Step 4: click the display content on the right and go to the Function Buttons page to set the functions as follows.



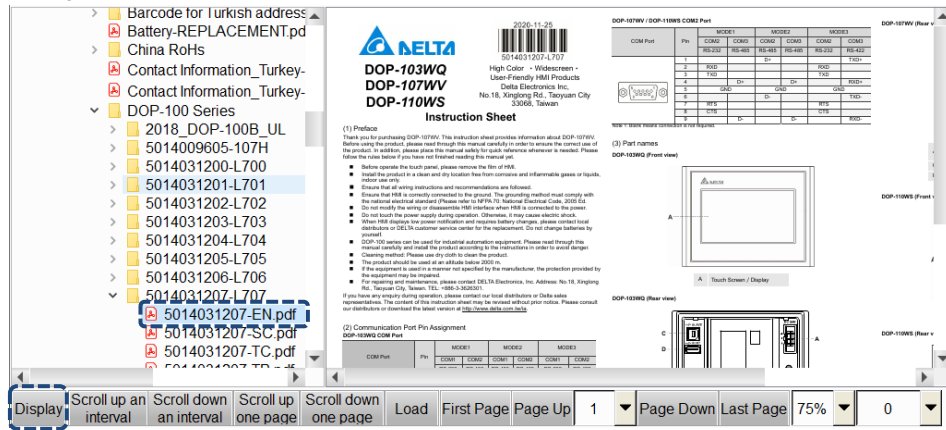
PDF Viewer

Step 5: when the settings are complete, the editing screen is as follows.



Create PDF Viewer element

Step 6: compile the screen prior to performing off-line simulation. Select the PDF file to display, press **Display**, and then you can see the content of the PDF file displayed on the right.



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The following will explain the properties of the File List on the left and the display content on the right.

When you double-click the File List on the left, the property page is shown as follows.

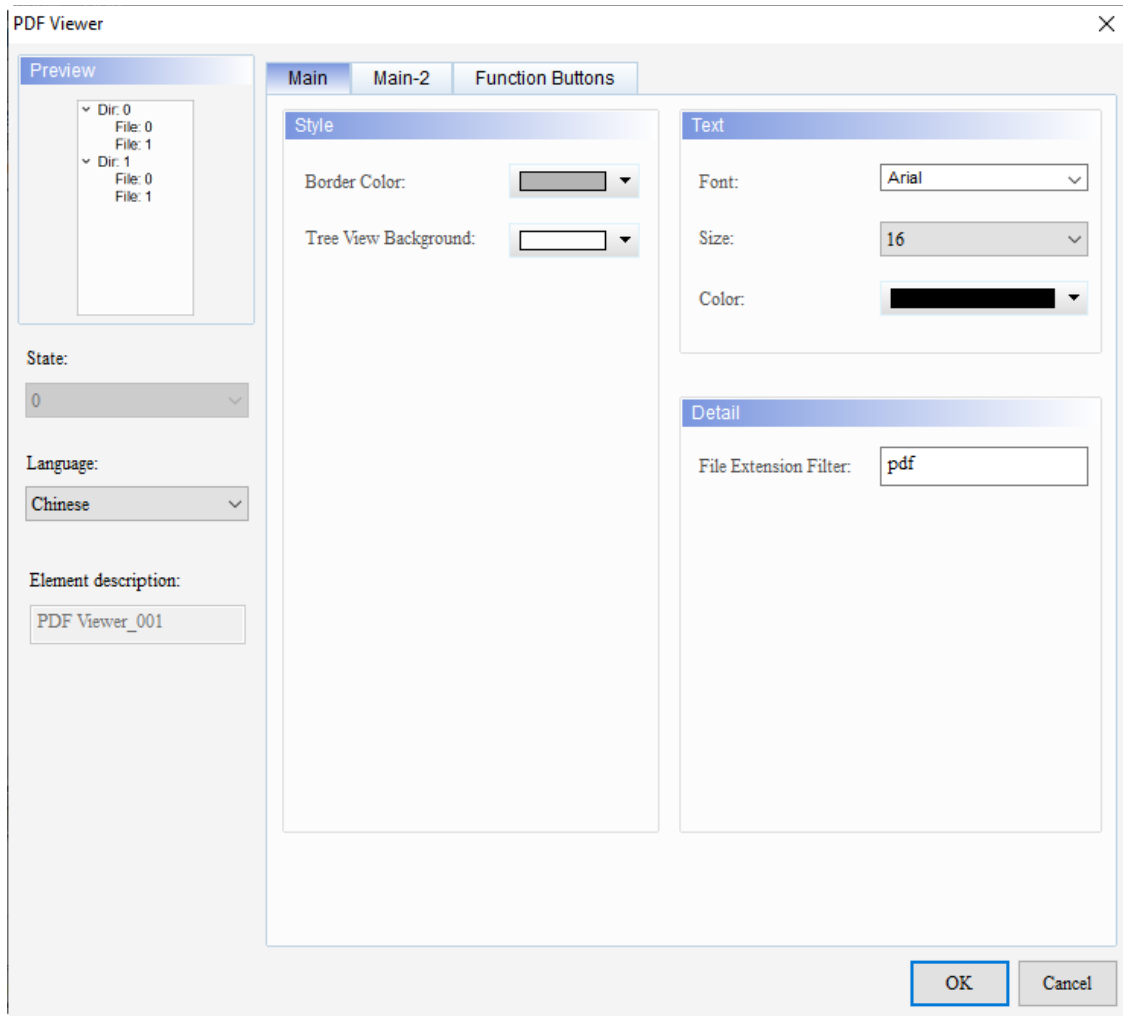
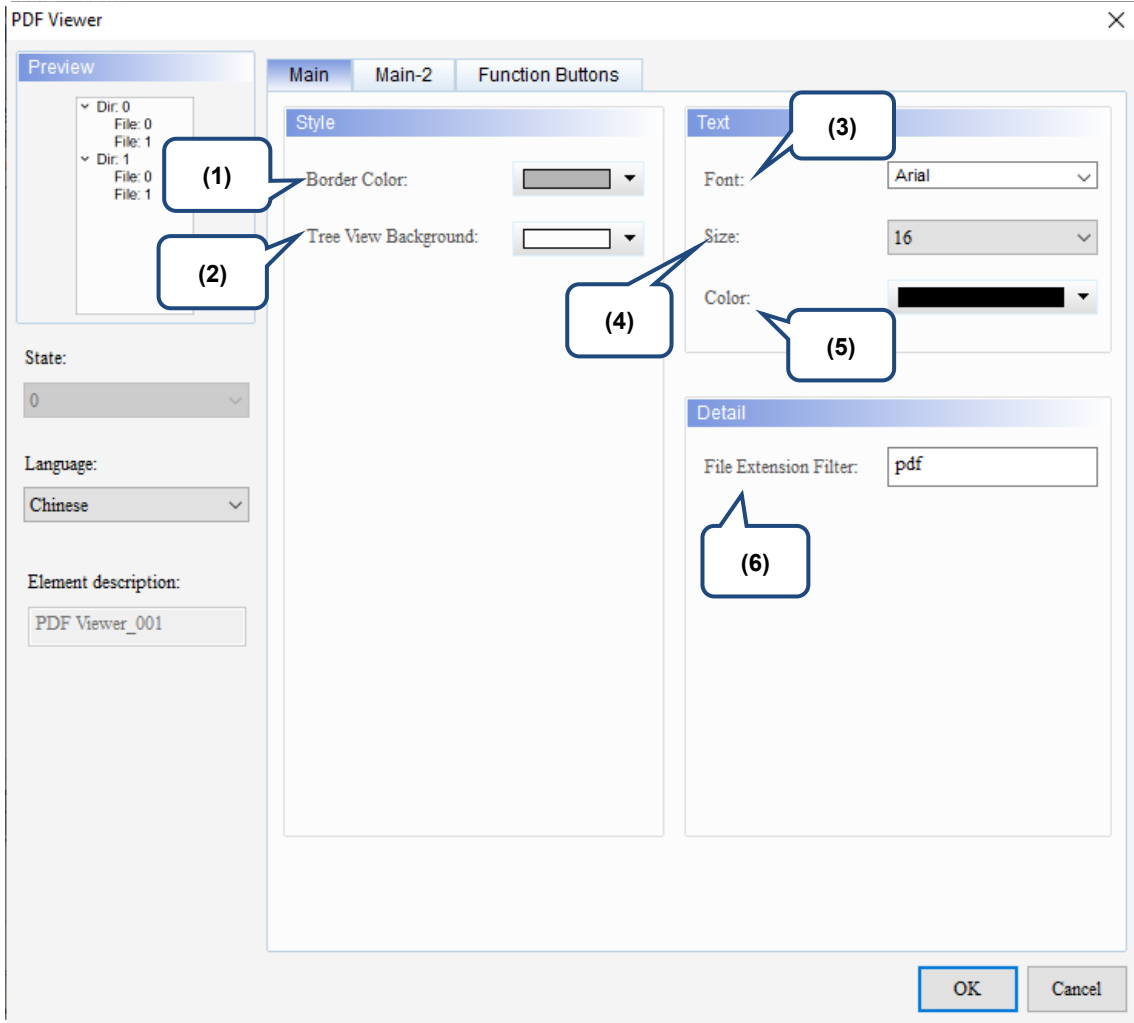


Figure 19.5.1 Properties of the PDF Viewer (Left side)

Table 19.5.2 Function page of the PDF Viewer element (Left side)

PDF Viewer (File List on the left)	
Function page	Description
Main	Set the Border Color, Tree View Background, Font, Size, and Color. Set the File Extension Filter.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Function Buttons	Select the check boxes for Scroll up an interval , Scroll down an interval , Scroll up one page , and Scroll down one page . Press Set As Default Description . Set the width and height of the buttons.

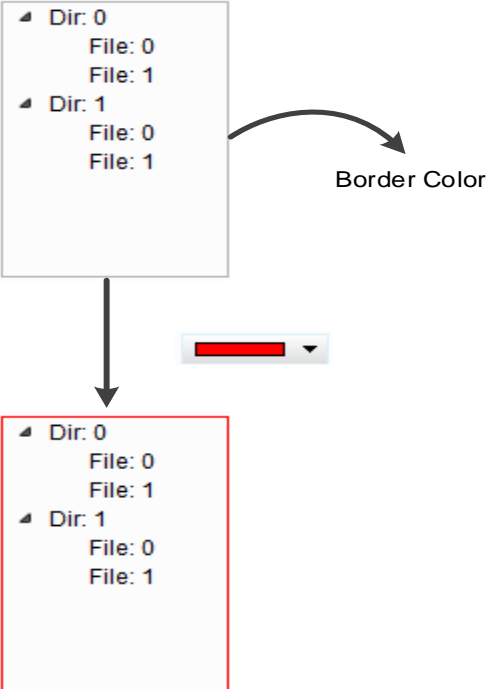
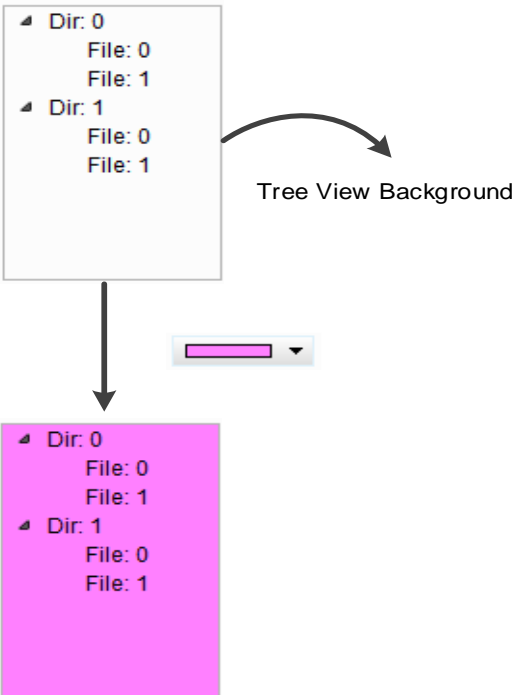
■ Main



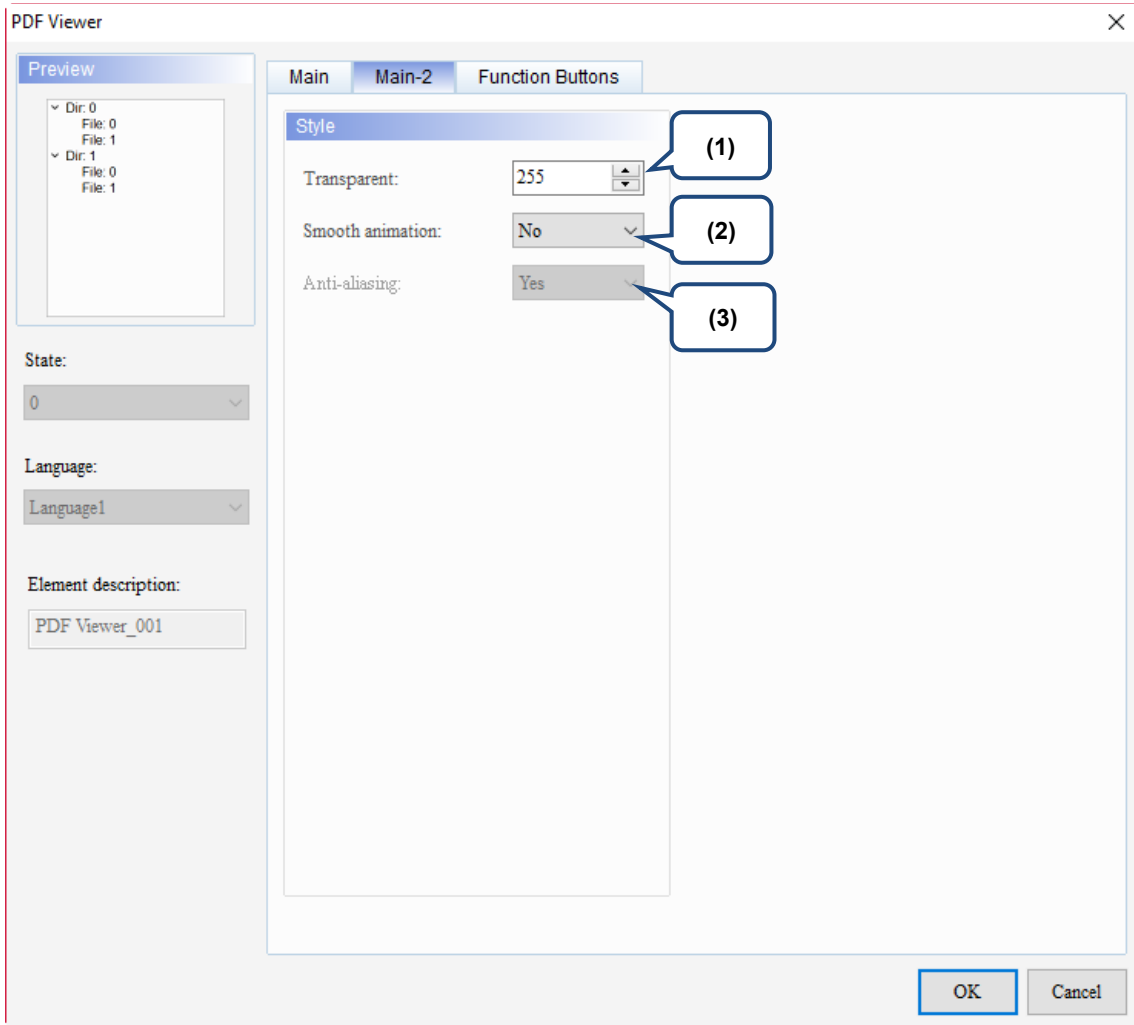
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Figure 19.5.2 Main property page for the PDF Viewer element (Left side)

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No.	Property	Function description
(1)	Border Color	<p>Set the border color of the file list on the left.</p> 
(2)	Tree View Background	<p>Set the Tree View Background color of the file list on the left.</p> 
(3)	Font	Set the text font for the file list on the left.
(4)	Size	Set the text size for the file list on the left.
(5)	Color	Set the text color for the file list on the left.
(6)	File Extension Filter	Set the file extension of the files to view. The default is "pdf". Setting the File Extension Filter to "pdf" means only files in pdf format are displayed.

■ Main-2



19

Figure 19.5.3 Main-2 property page for the PDF Viewer element (Left side)

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is available for this element. When you activate the Smooth animation function, there is a sliding effect when the file list is expanded or collapsed.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

19

■ Function Buttons

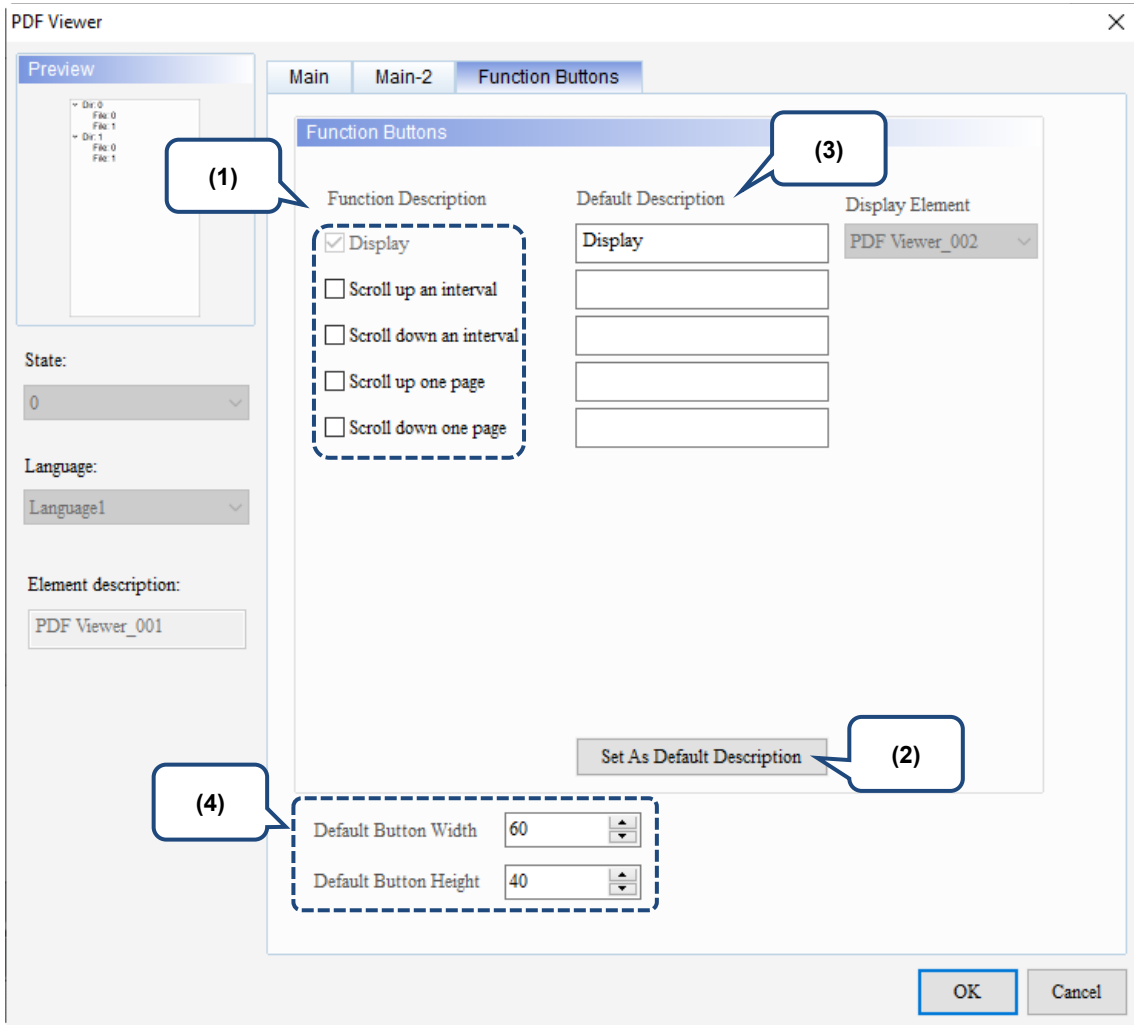
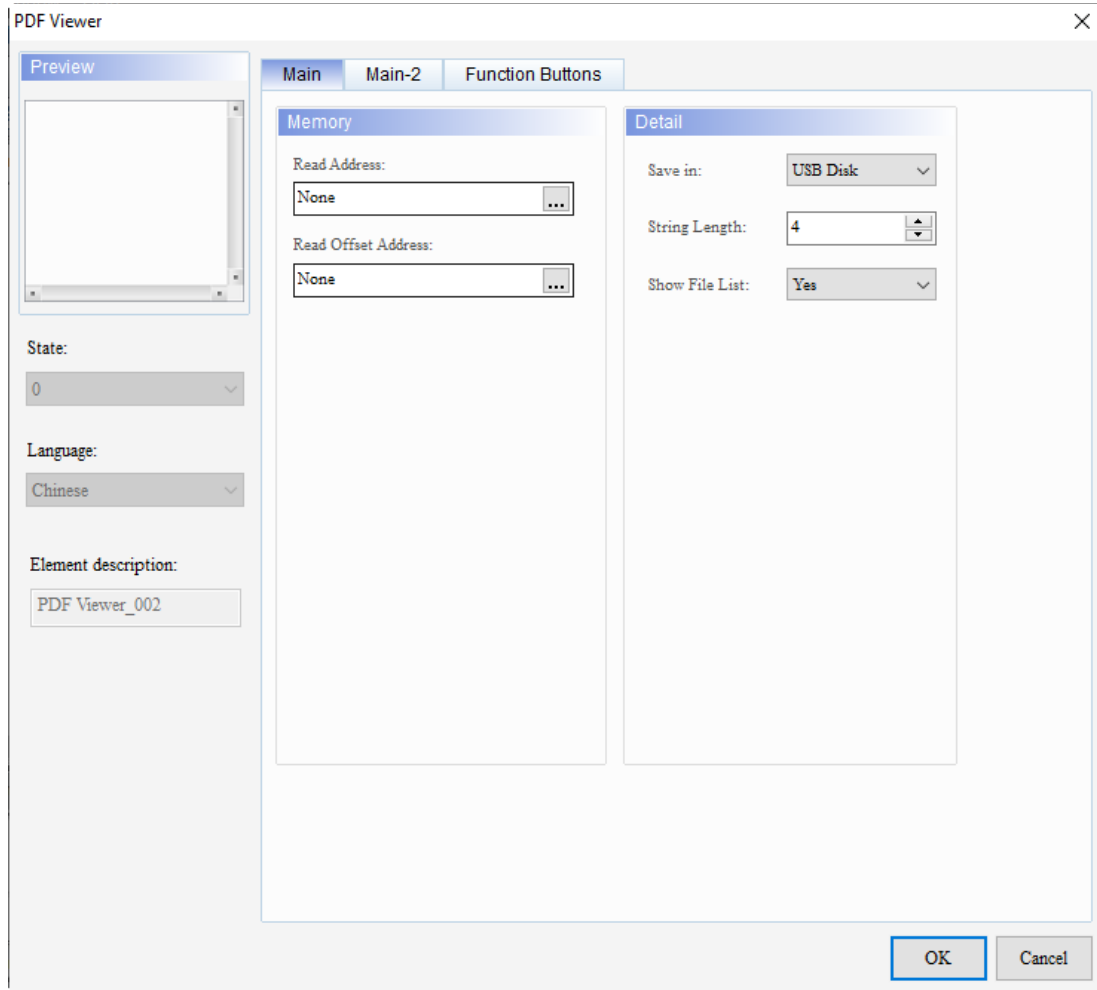


Figure 19.5.4 Function Buttons property page for the PDF Viewer element (Left side)

No.	Property	Function description
(1)	Function Buttons	<ul style="list-style-type: none"> These are function buttons for the File List on the left. Display is selected by default and cannot be canceled. Other function buttons including Scroll up an interval, Scroll down an interval, Scroll up one page, and Scroll down one page are used to scroll the file list and determine how many lines to scroll each time.
(2)	Set As Default Description	Press this button to insert the default strings to the Default Description fields.
(3)	Default Description	Press Set As Default Description to insert the default strings to the fields. You can also enter user-defined strings.
(4)	Default Button Width and Height	You can adjust the width and height of the function buttons.

When you double-click the display content on the right, the property page is shown as follows.



19

Figure 19.5.5 Properties of the PDF Viewer (Right side)

Table 19.5.3 Function page of the PDF Viewer element (Right side)

PDF Viewer (display content on the right)	
Function page	Description
Main	Set the Read Address and Read Offset Address. Set the Save in, String Length, and Show File List.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Function Buttons	<ul style="list-style-type: none"> ■ Select the check boxes for Load, First Page, Total Page, Page Up, Page Down, Last Page, Zoom, and Rotations. ■ Press Set As Default Description. ■ Set the width and height of the buttons.

■ Main

19

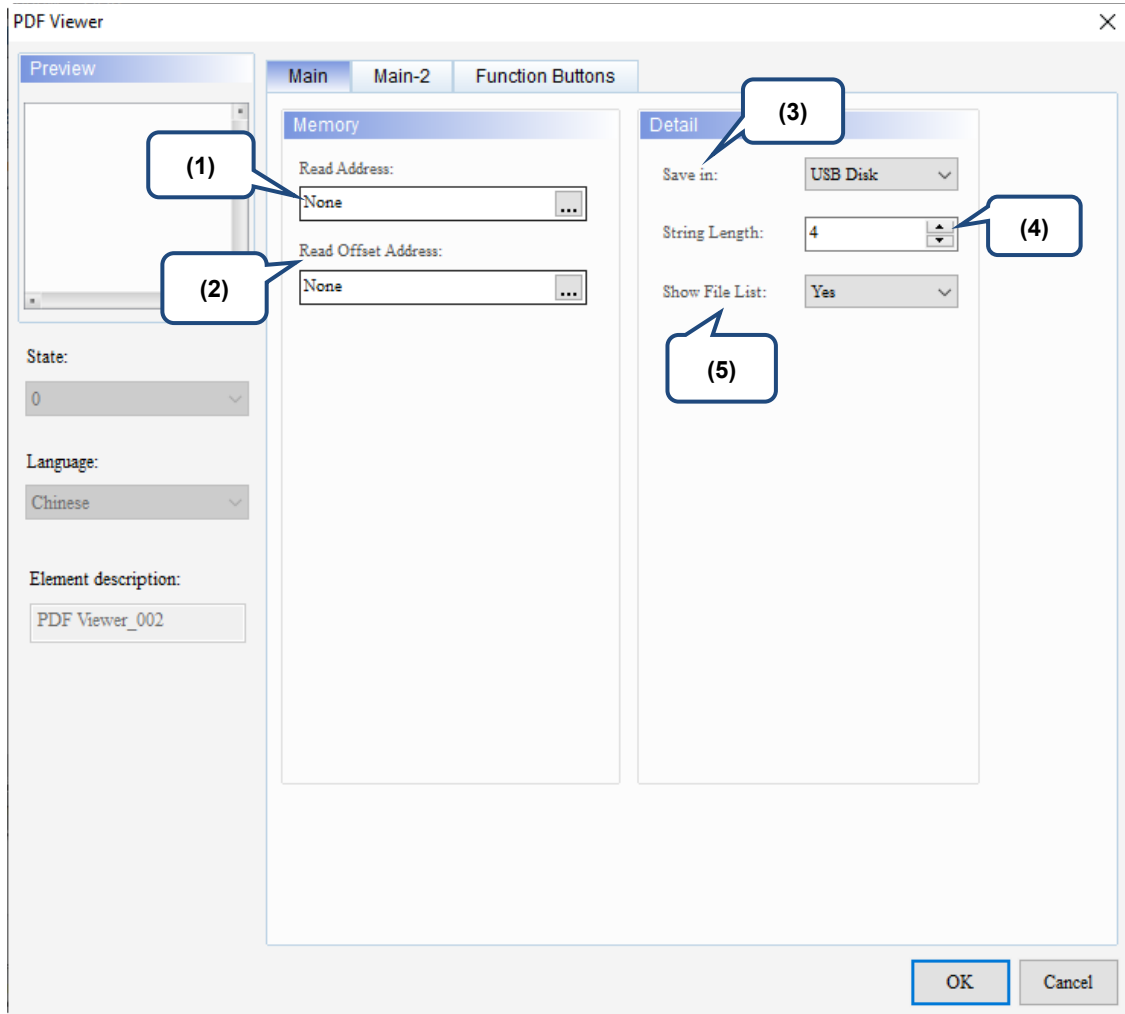
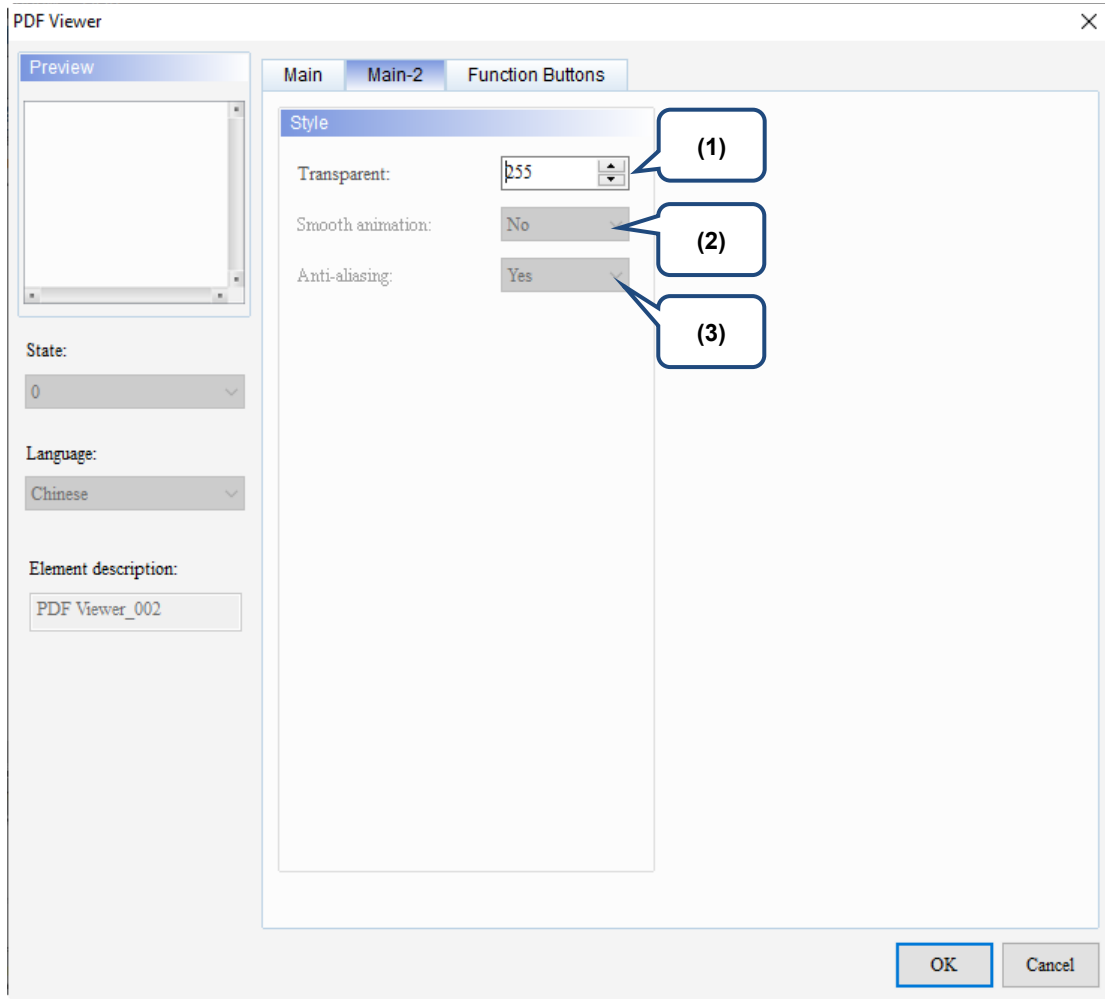


Figure 19.5.6 Main property page for the PDF Viewer element (Right side)

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. If you choose the Read Address setting, you need to create a Character Entry element and set the String Length for the PDF file to display on the HMI.
(2)	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(3)	Save in	<ul style="list-style-type: none"> You can select USB Disk or SD Card as the storage device. When you save the PDF file in the USB Disk or SD Card, the HMI can read the PDF file from the storage device.
(4)	String Length	<ul style="list-style-type: none"> The String Length setting is mainly used with the Character Entry element. The length of the string determines the input file name of the PDF.
(5)	Show File list	<ul style="list-style-type: none"> Set whether to show the File List on the left. The default is Yes. If you set the Show File List to No, the file list on the left is not shown.

■ Main-2



19

Figure 19.5.7 Main-2 property page for the PDF View element (Right side)

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Function Buttons

19

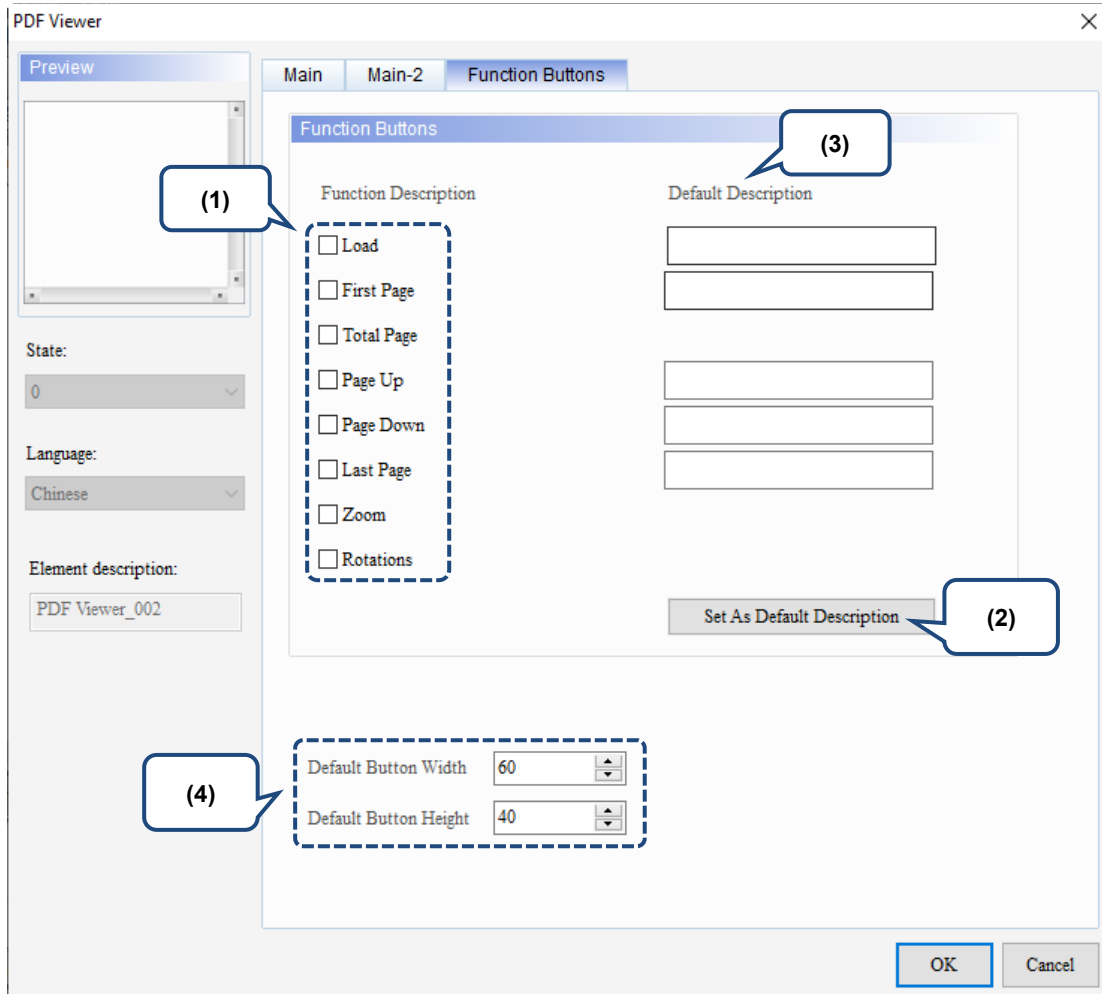


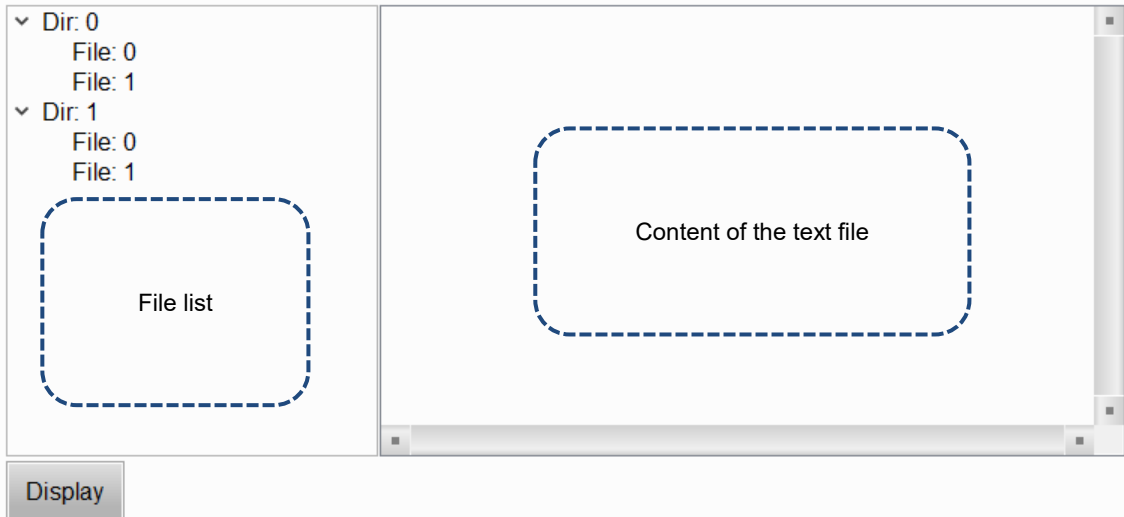
Figure 19.5.8 Function Buttons property page for the PDF Viewer element (Right side)

No.	Property	Function description
(1)	Function Buttons	<ul style="list-style-type: none"> These are function buttons for the display content on the right, including Load, First Page, Total Page, Page Up, Page Down, Last Page, Zoom, and Rotations. The Load function button for the display content and the Display function button for the File List are both used to read and display PDF files, but the way to use them are different. For the Load button, you need to manually enter the PDF file name and use the set Read Address to display the PDF file on the HMI. As for the Display button, you only need to save the PDF file to a USB Disk or SD Card to display the PDF file on the HMI without manually entering the PDF file name.
(2)	Set As Default Description	<ul style="list-style-type: none"> Press this button to insert the default strings to the Default Description fields. There are no default descriptions for Total Page, Zoom, and Rotations.
(3)	Default Description	<ul style="list-style-type: none"> Press Set As Default Description to insert the default strings to the fields. You can also enter user-defined strings.
(4)	Default Button Width and Height	You can adjust the width and height of the function buttons.

19.6 Text Viewer

You can use the Text Viewer function to read .txt or .csv files on the HMI by saving the text files in an external storage device and inserting it to the HMI. With this feature, you can view the operation steps without a PC or printouts or record the data with the HMI, which is more convenient and efficient.

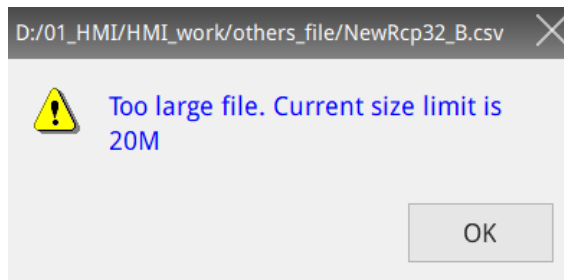
The Text Viewer is divided into two sections: the file list is on the left and the content of the text file is displayed on the right.



Text files are displayed on the HMI from the external storage device, so if the USB Disk or SD Card read and write speed is too slow or the text file size is too big, the displaying speed of the text file will be affected.

Note:

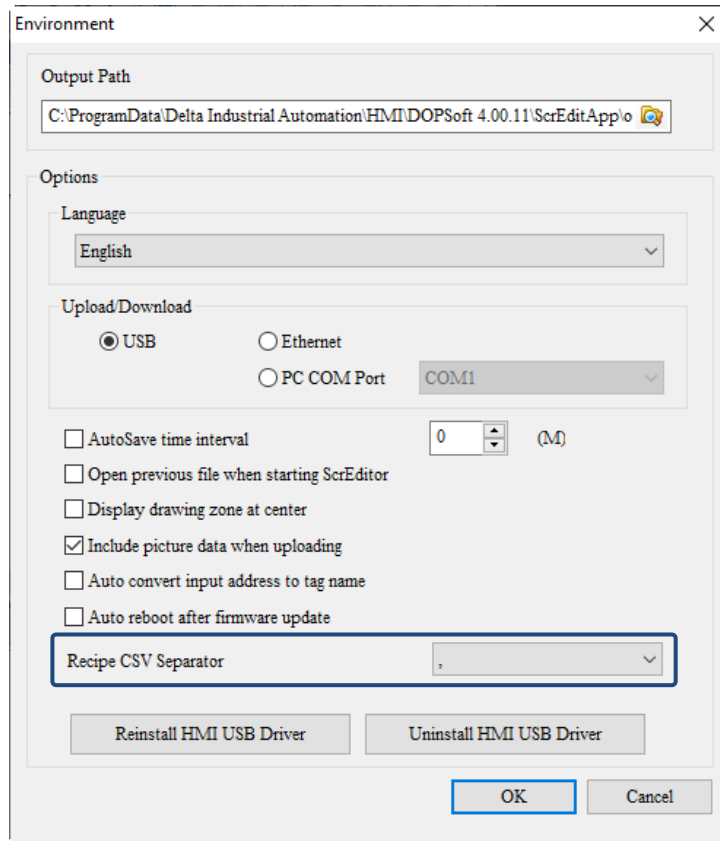
1. The maximum supported file size is 20 M. When the file size exceeds the limit, the software displays the following alarm message.



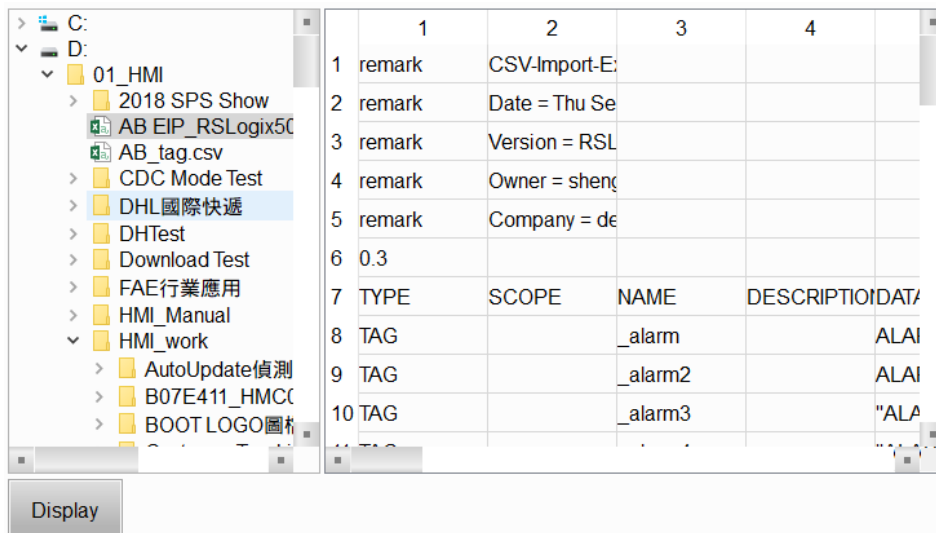
2. This function supports multi-language contents encoded in UTF-8. Multi-language contents not encoded in UTF-8 are displayed as garbled text.
3. You can create only one Text Viewer element on the screen.

19

- If the text file is a CSV file, the table is drawn by referring to the setting of Recipe CSV Separator in [Options] > [Environment]. The default is “,”.

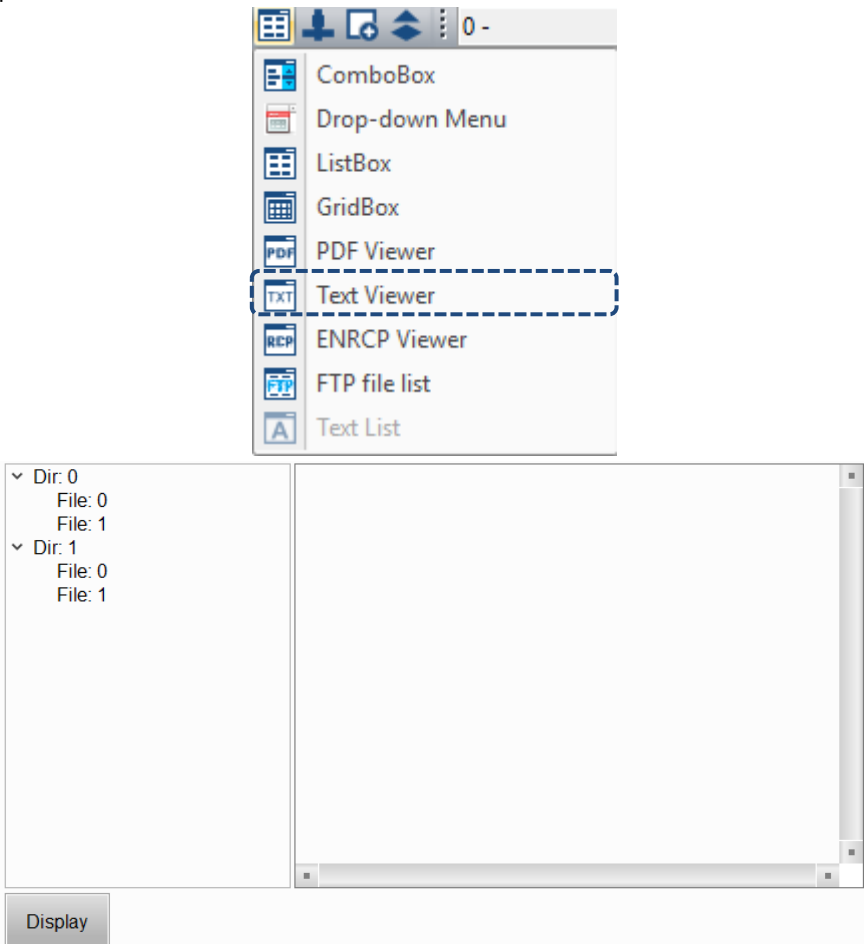


- If the text file is a CSV file, the column width is evenly distributed based on the column count and element width.



Refer to Table 19.6.1 for the Text Viewer example.

Table 19.6.1 Text Viewer example

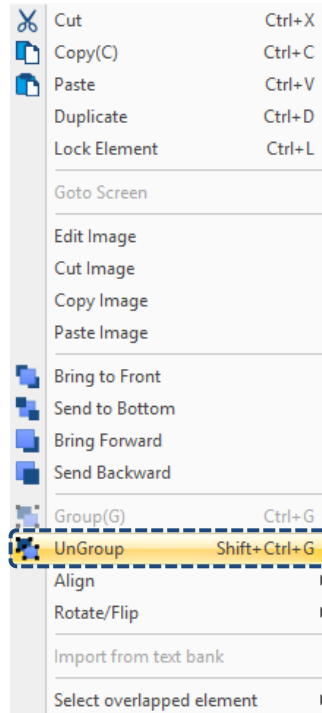
Text Viewer	
Step 1: create a Text Viewer element.	

Create Text Viewer element

19

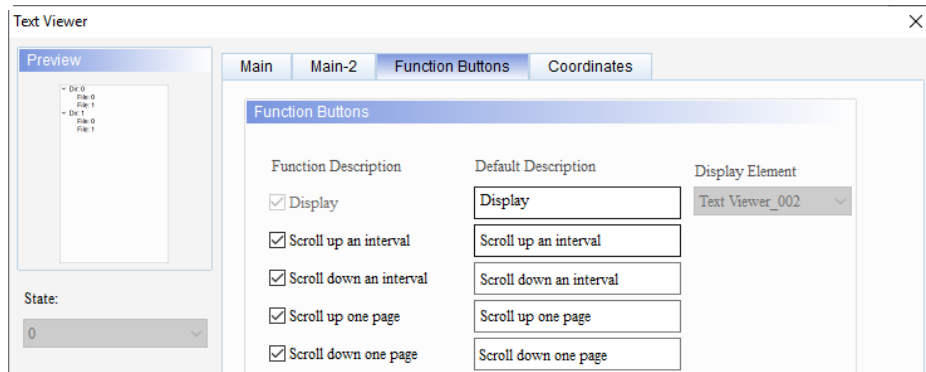
Text Viewer

Step 2: click the Text Viewer element, and then right click and select UnGroup.

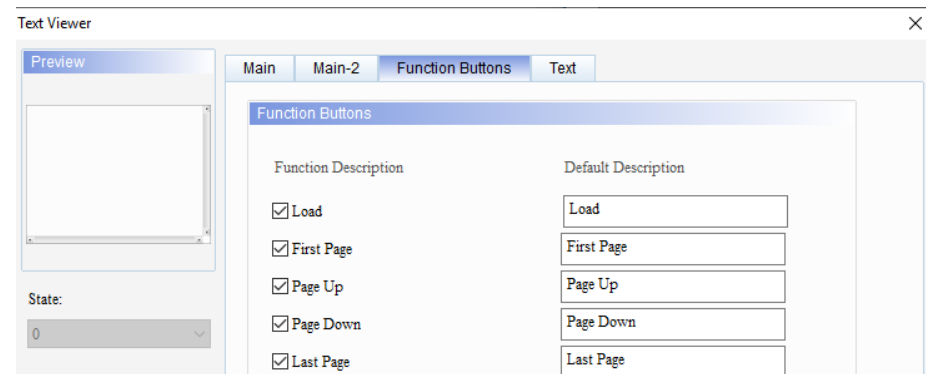


Create Text Viewer element

Step 3: click the File List on the left and go to the Function Buttons page to set the functions as follows.




Step 4: click the display content on the right and go to the Function Buttons page to set the functions as follows.




Text Viewer

Step 5: when the settings are complete, the editing screen is as follows.



Step 6: compile the screen prior to performing off-line simulation. Select the text file to display, press **Display**, and then you can see the content of the text file displayed on the right.



Create Text Viewer element

The following will explain the properties of the File List on the left and the display content on the right.

When you double-click the File List on the left, the property page is shown as follows.

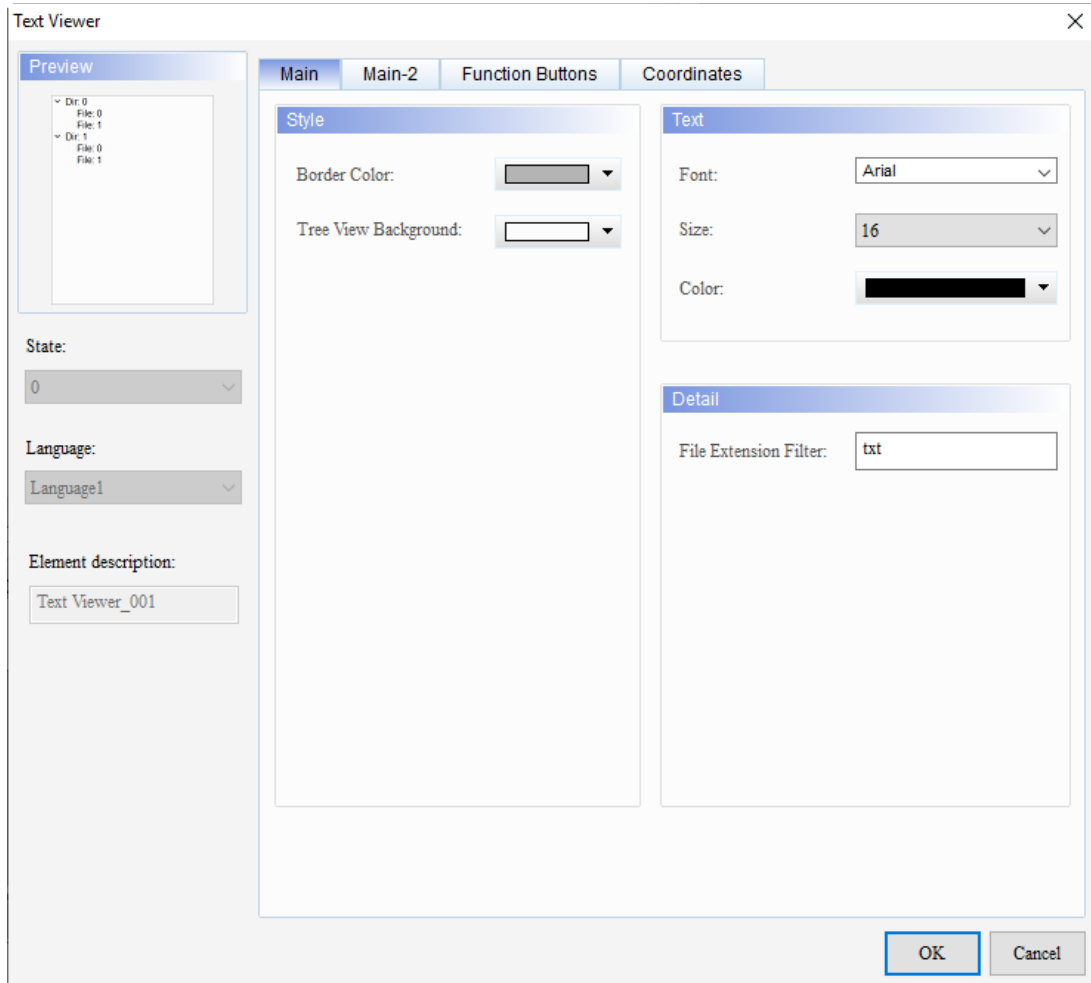
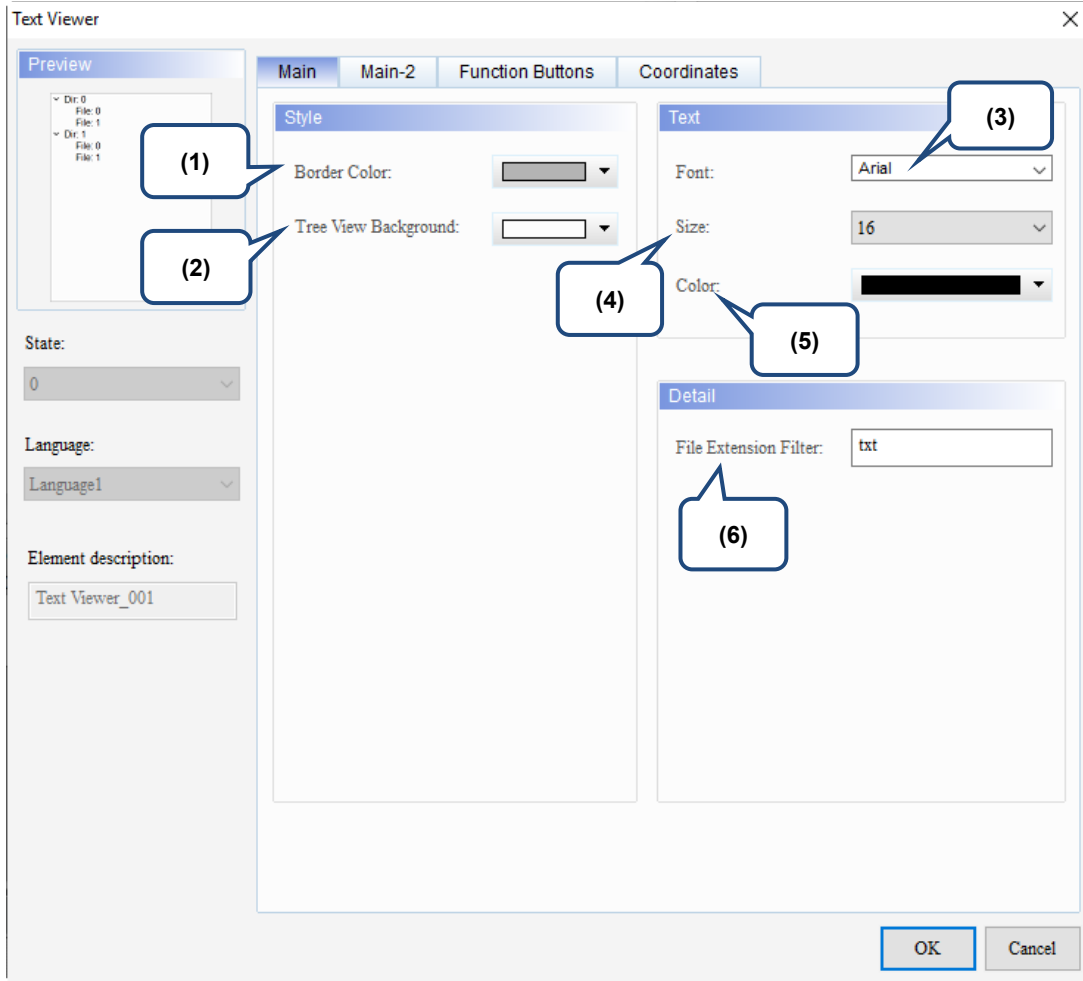


Figure 19.6.1 Properties of the Text Viewer (Left side)

Table 19.6.2 Function page of the Text Viewer element (Left side)

Text Viewer (File List on the left)	
Function page	Description
Main	Set the Border Color, Tree View Background, Font, Size, and Color. Set the File Extension Filter.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Function Buttons	Select the check boxes for Scroll up an interval , Scroll down an interval , Scroll up one page , and Scroll down one page . Press Set As Default Description . Set the width and height of the buttons.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

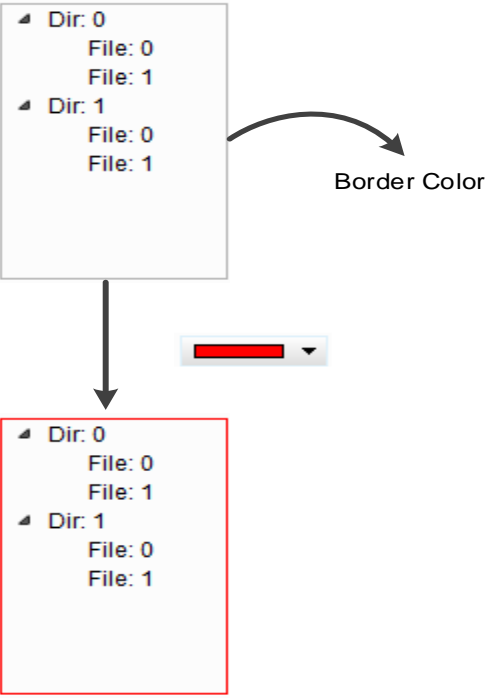
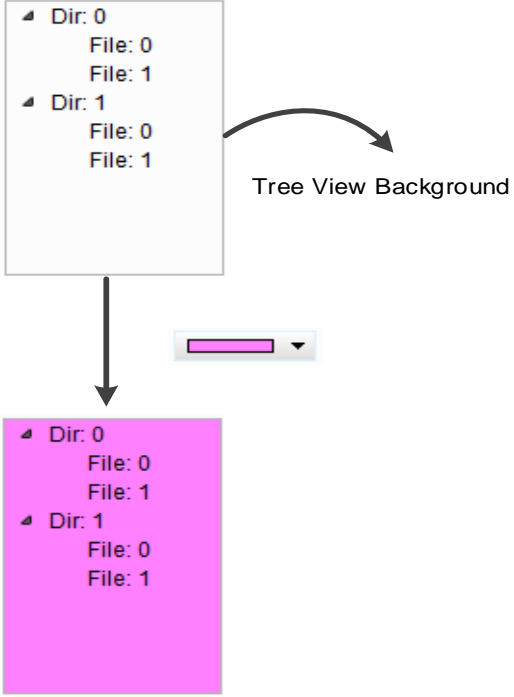
■ Main



19

Figure 19.6.2 Main property page for the Text Viewer element (Left side)

19

No.	Property	Function description
(1)	Border Color	<p>Set the border color of the file list on the left.</p> 
(2)	Tree View Background	<p>Set the Tree View Background color of the file list on the left.</p> 
(3)	Font	Set the text font for the file list on the left.
(4)	Size	Set the text size for the file list on the left.
(5)	Color	Set the text color for the file list on the left.

No.	Property	Function description
(6)	File Extension Filter	<ul style="list-style-type: none"> ■ Set the file format(s) to display in the file list on the left. This function supports displaying files of multiple formats. The default is “txt”. ■ To display files of multiple formats, you can insert a “|” symbol between file extensions. For example, if you enter “txt|csv” in the File Extension Filter field, both .txt and .csv files are displayed in the file list on the left. You can also enter “*” in the File Extension Filter field to display all files. <div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; padding: 5px; margin-right: 10px;"> <p style="margin: 0;">Detail</p> <p style="margin: 0;">File Extension Filter: <input type="text" value="txt"/></p> </div> <div style="font-size: 2em; margin-right: 10px;">→</div> <div style="border: 1px solid #ccc; padding: 5px; margin-right: 10px;"> <ul style="list-style-type: none"> ▼ Desktop > Error_Login > test > 英文手冊改版 4.00.11.07下載連結 APPLE ID.txt Language.txt Omron tag.txt </div> </div> <hr/> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid #ccc; padding: 5px; margin-right: 10px;"> <p style="margin: 0;">Detail</p> <p style="margin: 0;">File Extension Filter: <input type="text" value="txt csv"/></p> </div> <div style="font-size: 2em; margin-right: 10px;">→</div> <div style="border: 1px solid #ccc; padding: 5px; margin-right: 10px;"> <ul style="list-style-type: none"> Desktop Error_Login test 英文手冊改版 4.00.11.07下載連結.txt AB EIP_RSLogix5000_Tags.CSV APPLE ID.txt Language.txt Omron tag.txt </div> </div> <hr/> <div style="display: flex; align-items: center;"> <div style="border: 1px solid #ccc; padding: 5px; margin-right: 10px;"> <p style="margin: 0;">Detail</p> <p style="margin: 0;">File Extension Filter: <input type="text" value="*"/></p> </div> <div style="font-size: 2em; margin-right: 10px;">→</div> <div style="border: 1px solid #ccc; padding: 5px; margin-right: 10px;"> <ul style="list-style-type: none"> APPLE ID.txt CloudDemo2.dpa Cloud Service_... DetailHMI-Test-2... DOPSoft.exe DopSoft.exe DopSoft.exe EBProject1.emtp Example.dpa History.dpa HMI 10929 IME... </div> </div> </div>

■ Main-2

19

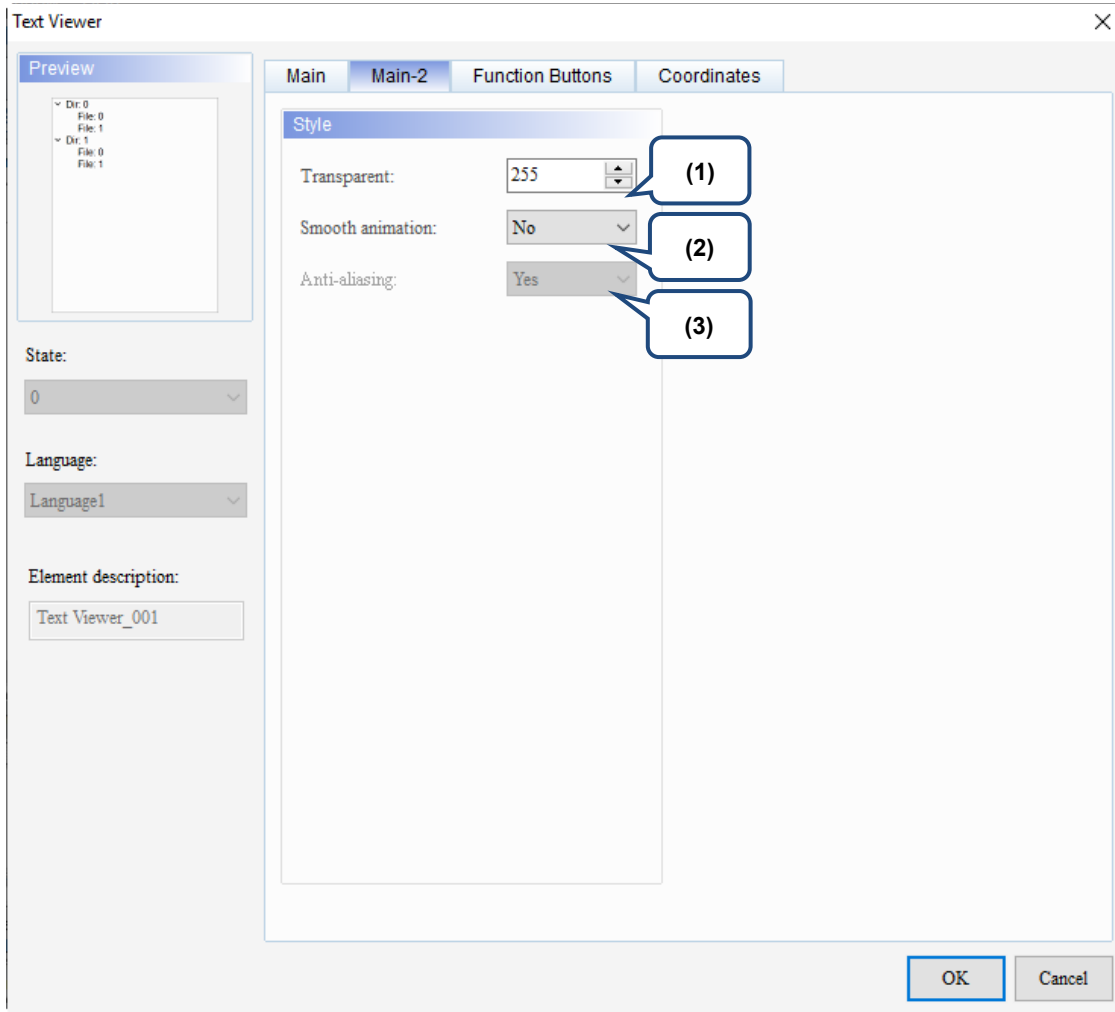
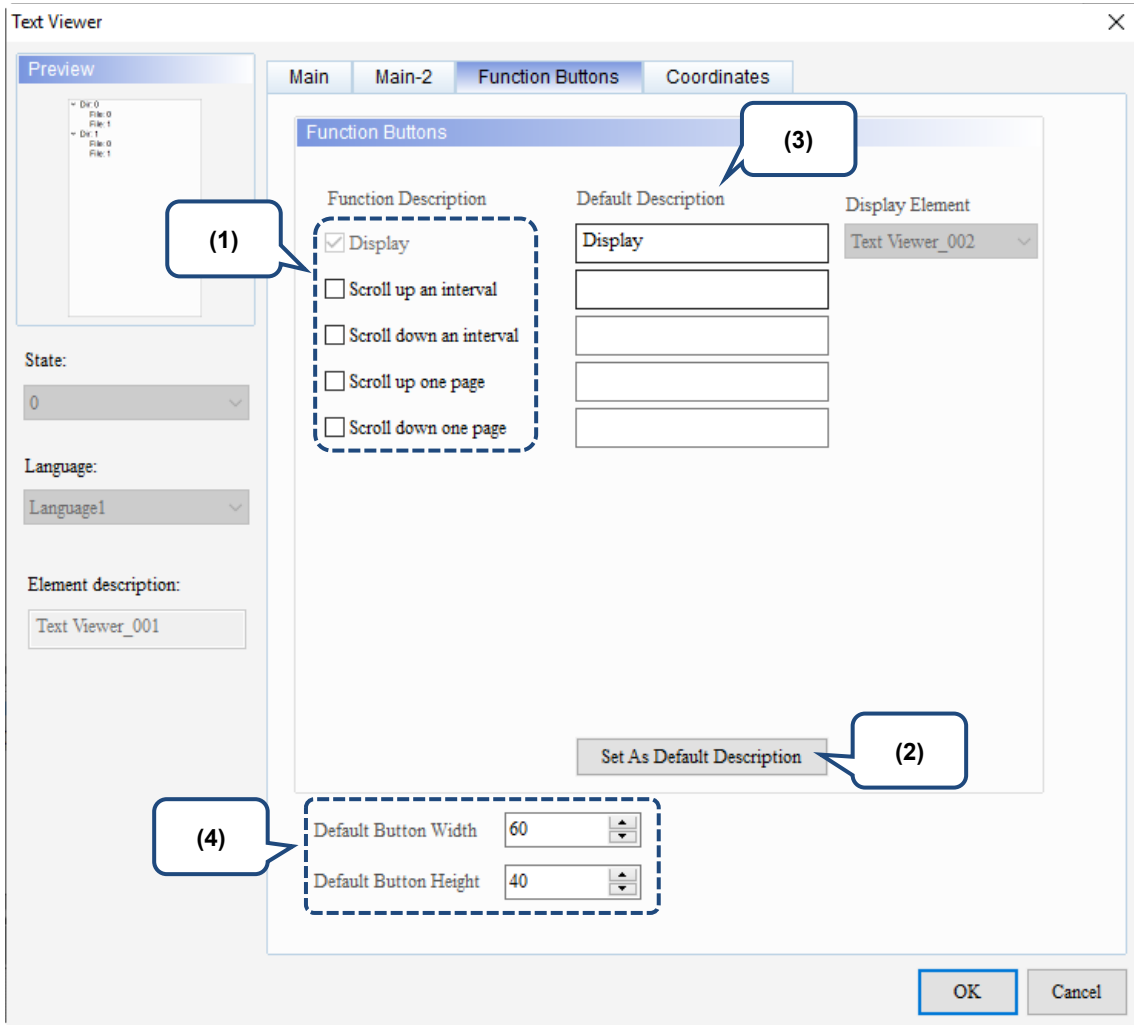


Figure 19.6.3 Main-2 property page for the Text Viewer element (Left side)

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is available for this element. When you activate the Smooth animation function, there is a sliding effect when the file list is expanded or collapsed.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Function Buttons



19

Figure 19.6.4 Function Buttons property page for the Text Viewer element (Left side)

No.	Property	Function description
(1)	Function Buttons	<ul style="list-style-type: none"> These are function buttons for the File List on the left. Display is selected by default and cannot be canceled. Other function buttons, including Scroll up an interval, Scroll down an interval, Scroll up one page, and Scroll down one page, are used to scroll the file list and determine how many lines to scroll each time.
(2)	Set As Default Description	Press this button to insert the default strings to the Default Description fields.
(3)	Default Description	Press Set As Default Description to insert the default strings to the fields. You can also enter user-defined strings.
(4)	Default Button Width and Height	You can adjust the width and height of the function buttons.

19

■ Coordinates

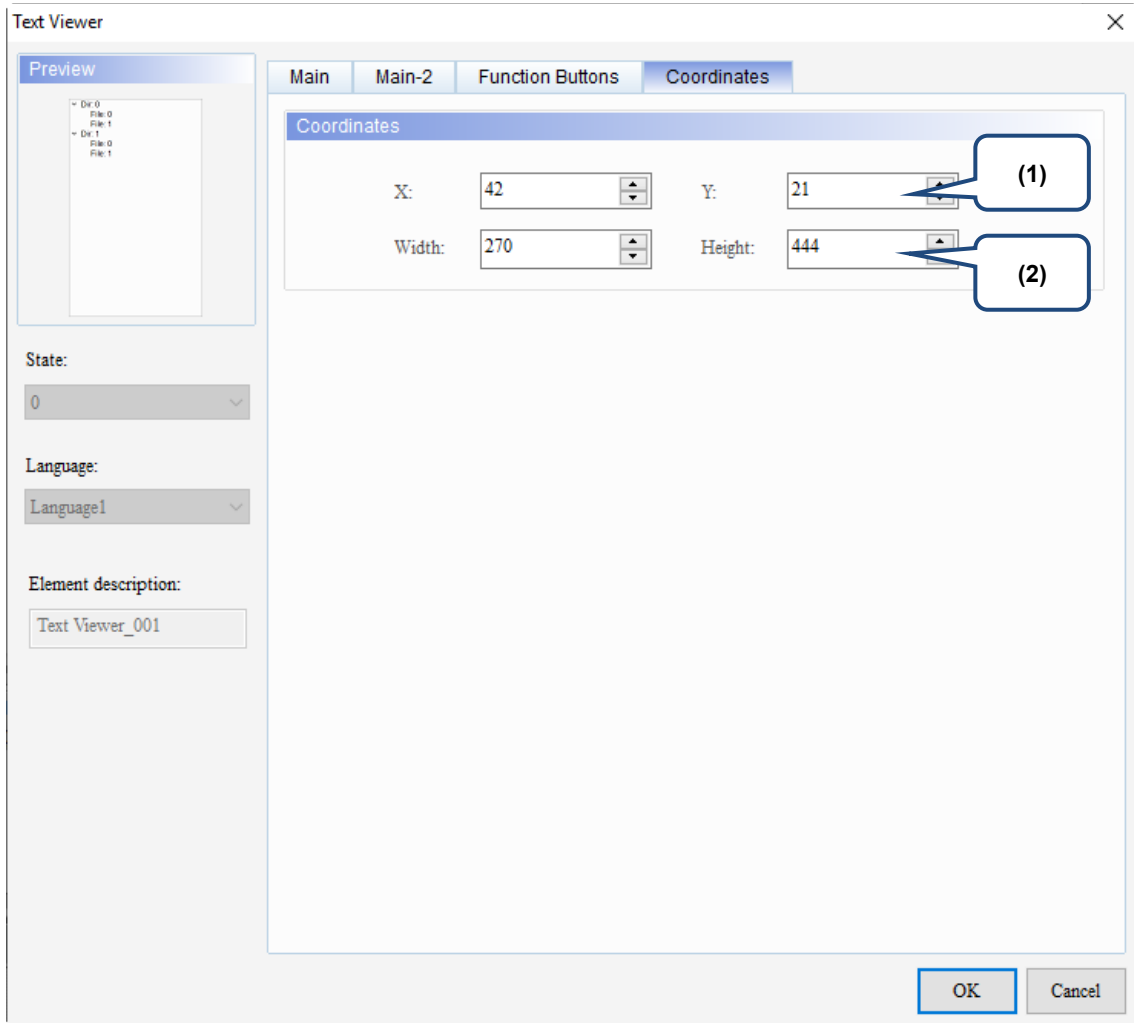
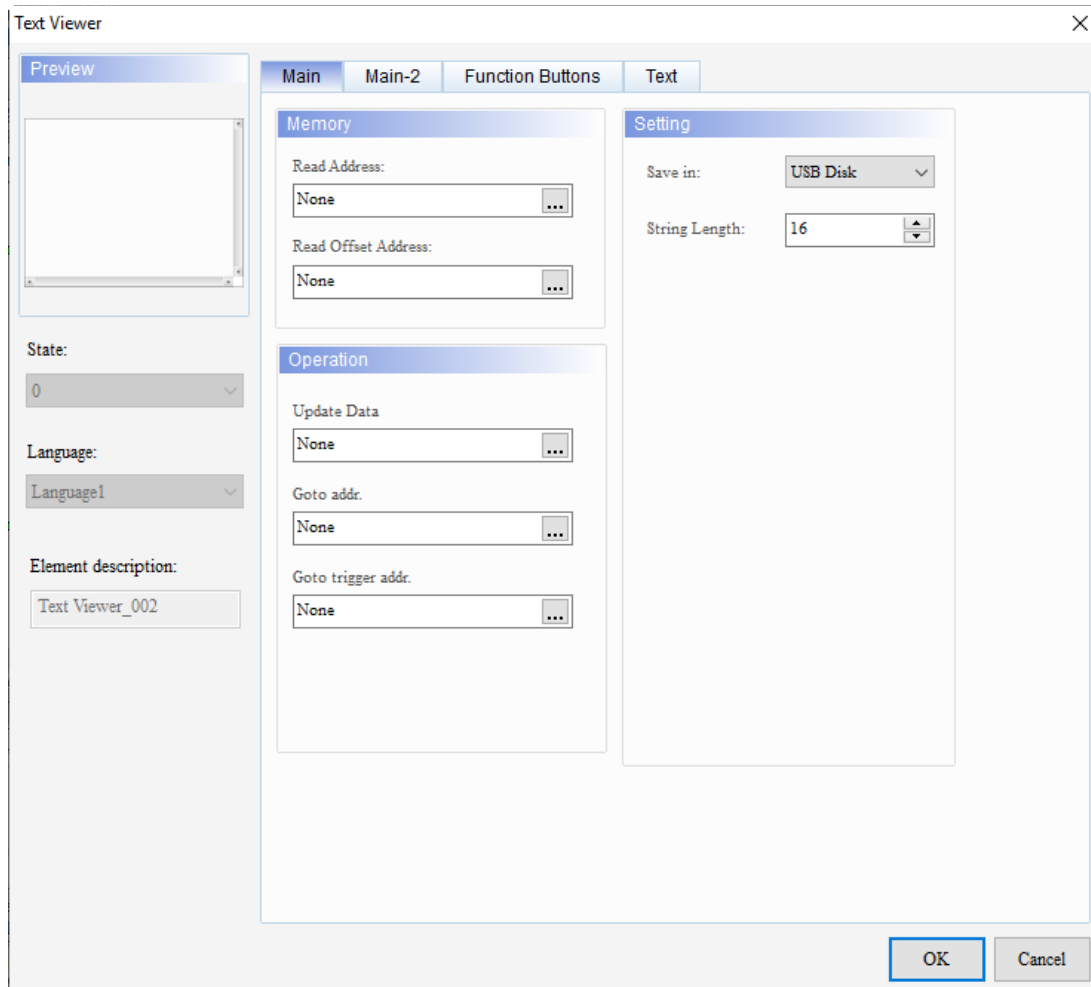


Figure 19.6.5 Coordinates property page for the Text Viewer element (Left side)

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

When you double-click the display content on the right, the property page is shown as follows.



19

Figure 19.6.6 Properties of the Text Viewer (Right side)

Table 19.6.3 Function page of the Text Viewer element (Right side)

Text Viewer (display content on the right)	
Function page	Description
Main	Set the Read Address and Read Offset Address. Set the Update Data, Goto addr., and Goto trigger addr. Set the Save in and String Length.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Function Buttons	Select the check boxes for Load , First Page , Page Up , Page Down , and Last Page . Press Set As Default Description . Set the width and height of the buttons.
Text	Set the text properties, including the font, size, and color.

19

■ Main

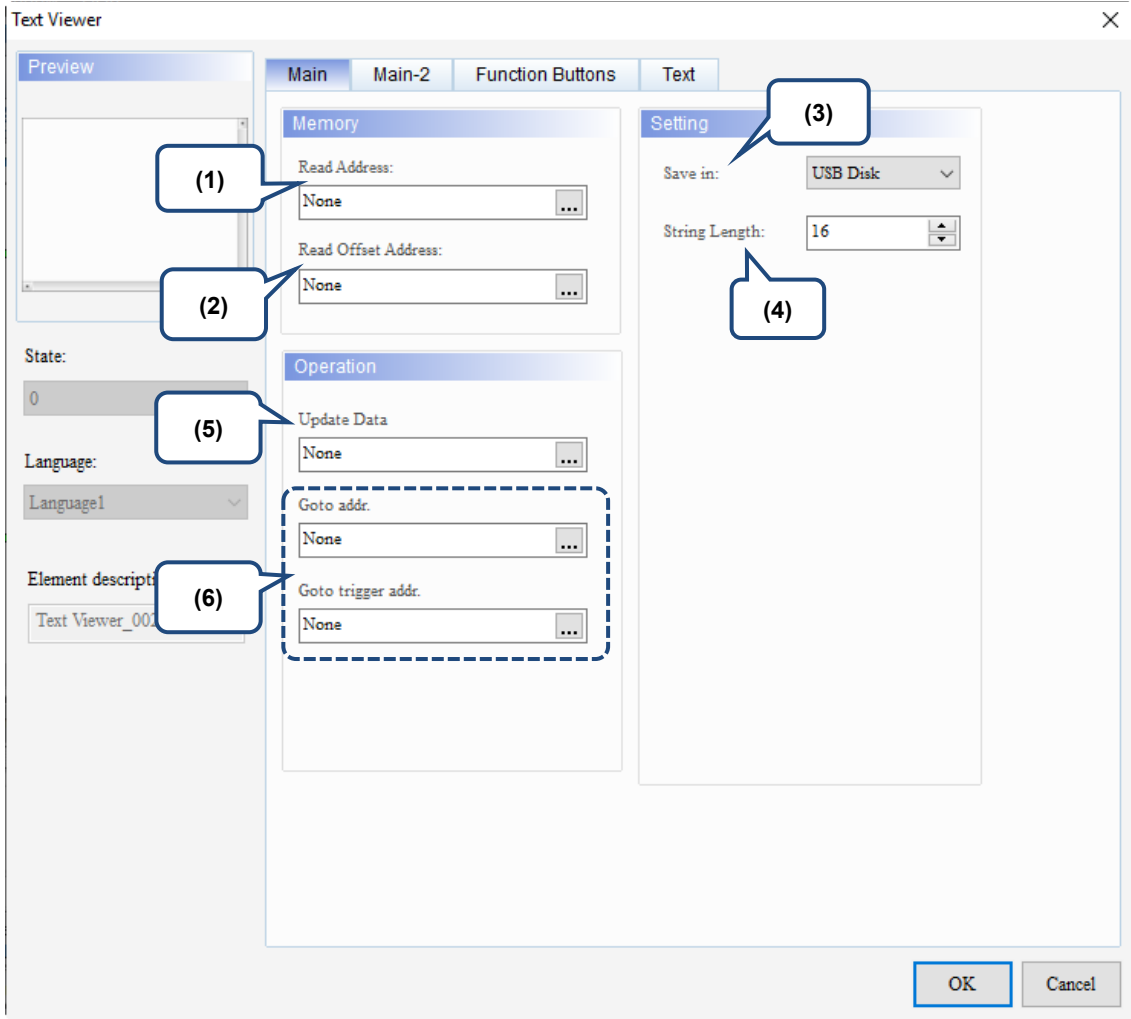


Figure 19.6.7 Main property page for the Text Viewer element (Right side)

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> ■ You can select the internal memory or the controller register address. ■ Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. ■ If you choose the Read Address setting, you need to create a Character Entry element and set the String Length for the text file to display on the HMI.
(2)	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(3)	Save in	<ul style="list-style-type: none"> ■ You can select USB Disk or SD Card as the storage device. ■ When you save the text file in the USB Disk or SD Card, the HMI can read the text file from the storage device.
(4)	String Length	<ul style="list-style-type: none"> ■ The String Length setting is mainly used with the Character Entry element. ■ The length of the string determines the input file name of the text file.
(5)	Update Data	<ul style="list-style-type: none"> ■ When the Update Data bit is On, the HMI rereads the text file set in the memory address. ■ Note that the file displayed here is the file set in the Read Address rather than the file selected in the file list on the left.
(6)	Goto addr.	<ul style="list-style-type: none"> ■ Use Goto addr. to specify the line to be selected. Then, set Goto trigger addr. to On, and the specified line is selected. ■ The Goto addr. function supports the controller address (Word) and the internal register address (Word).
	Goto trigger addr.	<ul style="list-style-type: none"> ■ The Goto trigger addr. supports the controller address (Bit) and the internal register address (Bit).

■ Main-2

19

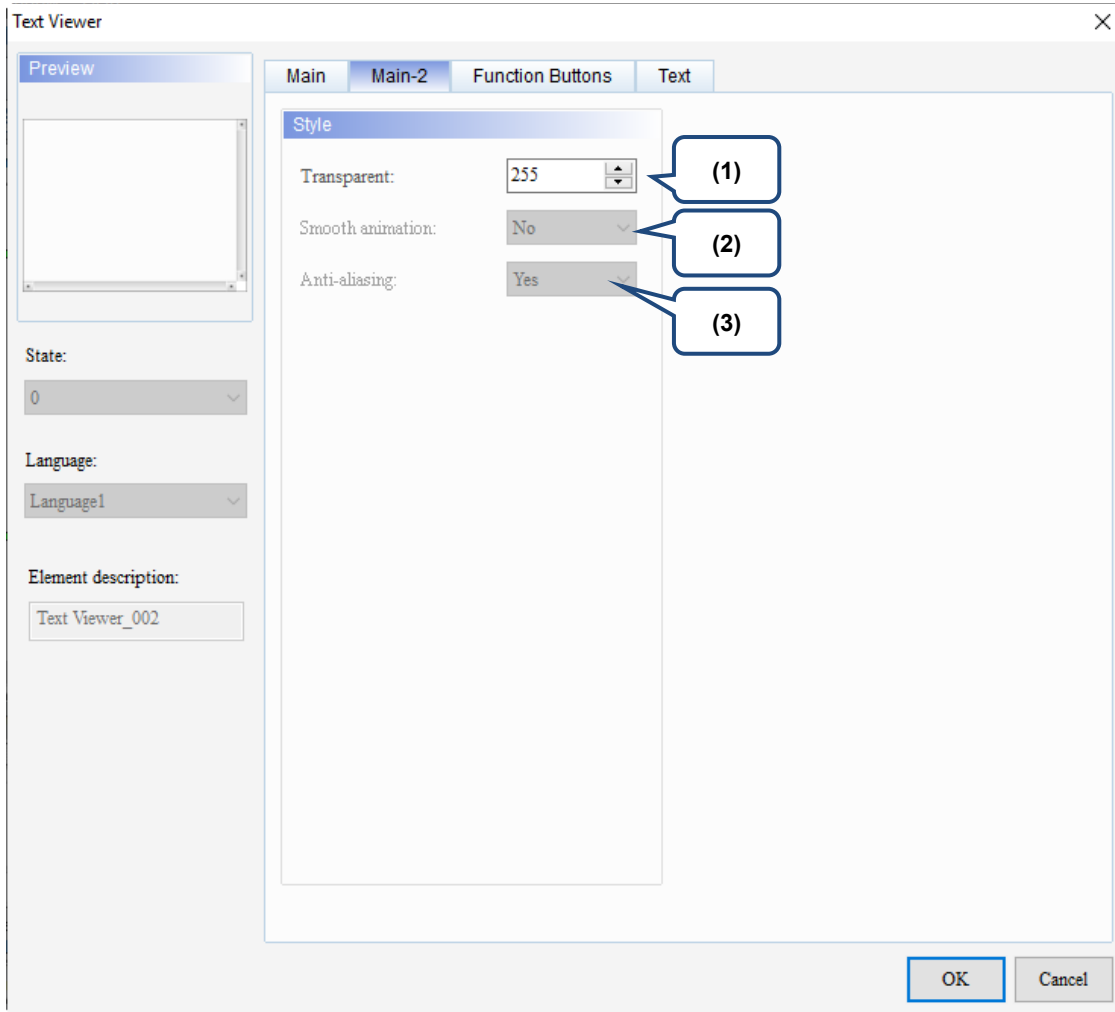
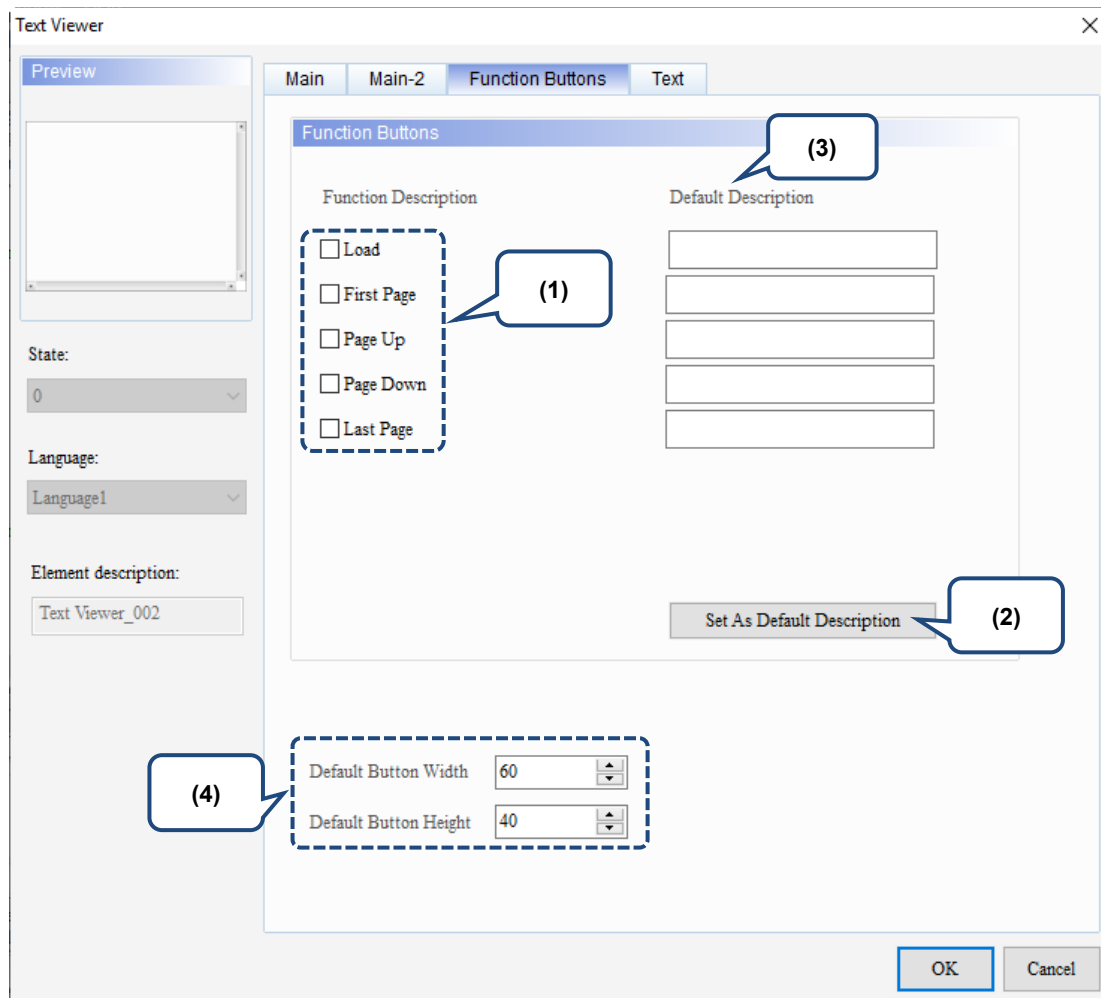


Figure 19.6.8 Main-2 property page for the Text Viewer element (Right side)

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Function Buttons



19

Figure 19.6.9 Function Buttons property page for the Text Viewer element (Right side)

No.	Property	Function description
(1)	Function Buttons	<ul style="list-style-type: none"> These are function buttons for the display content on the right, including Load, First Page, Page Up, Page Down, and Last Page. The Load function button for the display content and the Display function button for the File List are both used to read and display text files, but the way to use them are different. For the Load button, you need to manually enter the file name of the text file and use the set Read Address to display the text on the HMI. As for the Display button, you only need to save the text file to a USB Disk or SD Card to display the text file on the HMI without manually entering the file name of the text file.
(2)	Set As Default Description	Press this button to insert the default strings to the Default Description fields.
(3)	Default Description	<ul style="list-style-type: none"> Press Set As Default Description to insert the default strings to the fields. You can also enter user-defined strings.
(4)	Default Button Width and Height	You can adjust the width and height of the function buttons.

19

■ Text

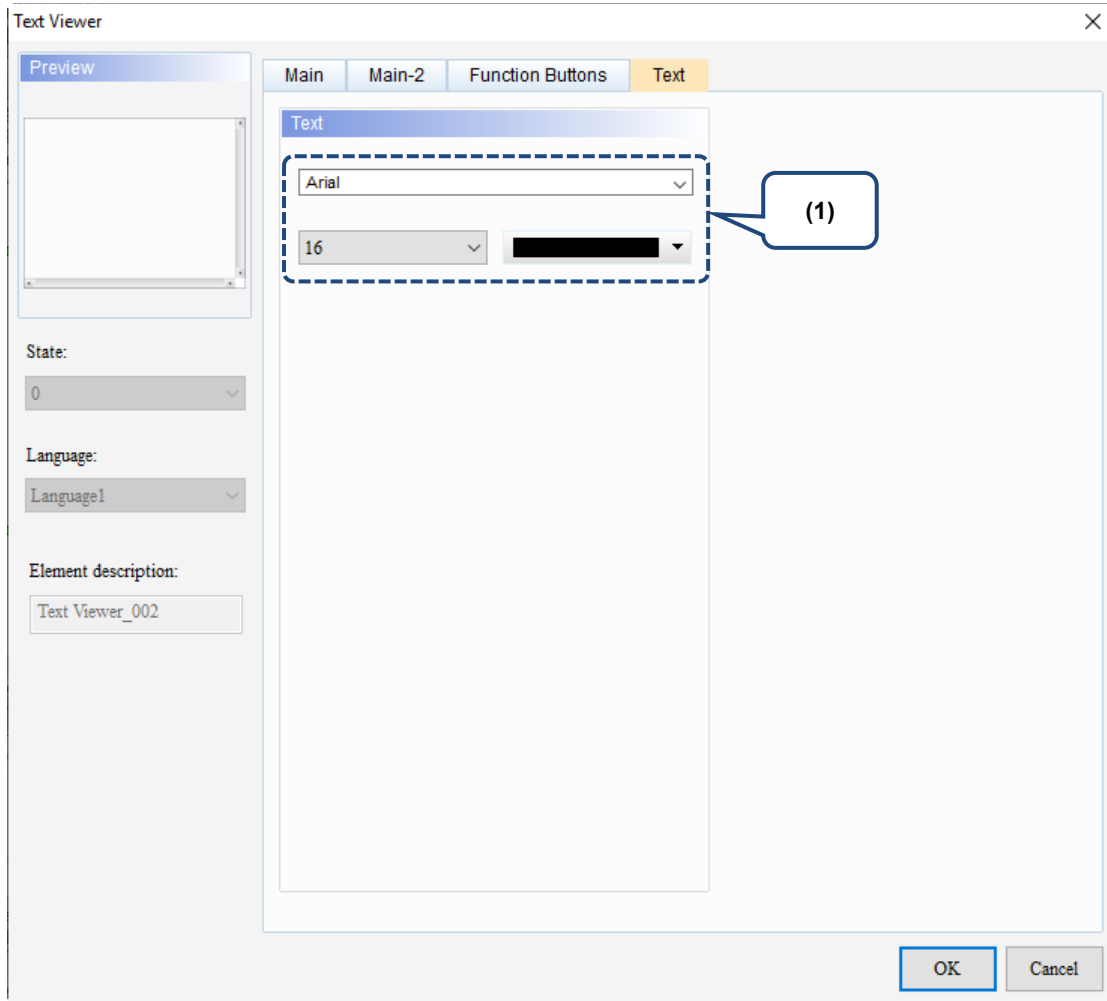


Figure 19.6.10 Text property page for the Text Viewer element (Right side)

No.	Property	Function description
(1)	Text property	Set the text properties, including the font, size, and color.

19.7 ENRCP Viewer

Users used to display the recipe parameters on the HMI by using the GridBox element with the recipe addresses, which is not flexible and convenient because the settings are complicated and the recipe addresses do not match. Therefore, the ENRCP Viewer element is provided to allow users to list and modify each enhanced recipe parameter in the table.

Refer to Table 19.7.1 for the ENRCP Viewer example.

Table 19.7.1 ENRCP Viewer example

ENRCP Viewer

Step 1: go to [Options] > [Recipe] > [Enhanced Recipe] to create two enhanced recipe groups.

Enable
Enhanced Recipe Address:

1
1
(Groups, Fields) Search

RCPNOname index

1:ENRCP1 (5X5)
2:ENRCP2 (5X5)

	RCPNO Name	1 Unsigned Decimal 1 Word	2 Unsigned Decimal 1 Word	3 Unsigned Decimal 1 Word	4 Unsigned Decimal 1 Word	5 Unsigned Decimal 1 Word
Title						
1	DELTA	1	2	3	4	5
2	HMI	6	7	8	9	10
3	PLC	11	12	13	14	15
4	Servo	16	17	18	19	20
5	Inverter	21	22	23	24	25

Enable
Enhanced Recipe Address:

1
1
(Groups, Fields) Search

RCPNOname index

1:ENRCP1 (5X5)
2:ENRCP2 (5X5)

	RCPNO Name	1 Unsigned Decimal 1 Word	2 Unsigned Decimal 1 Word	3 Unsigned Decimal 1 Word	4 Unsigned Decimal 1 Word	5 Unsigned Decimal 1 Word
Title						
1	IABG	100	101	102	103	104
2	IMSBU	105	106	107	108	109
3	MCSBD	110	111	112	113	114
4	ASDBD	115	116	117	118	119
5	CNCBD	120	121	122	123	124

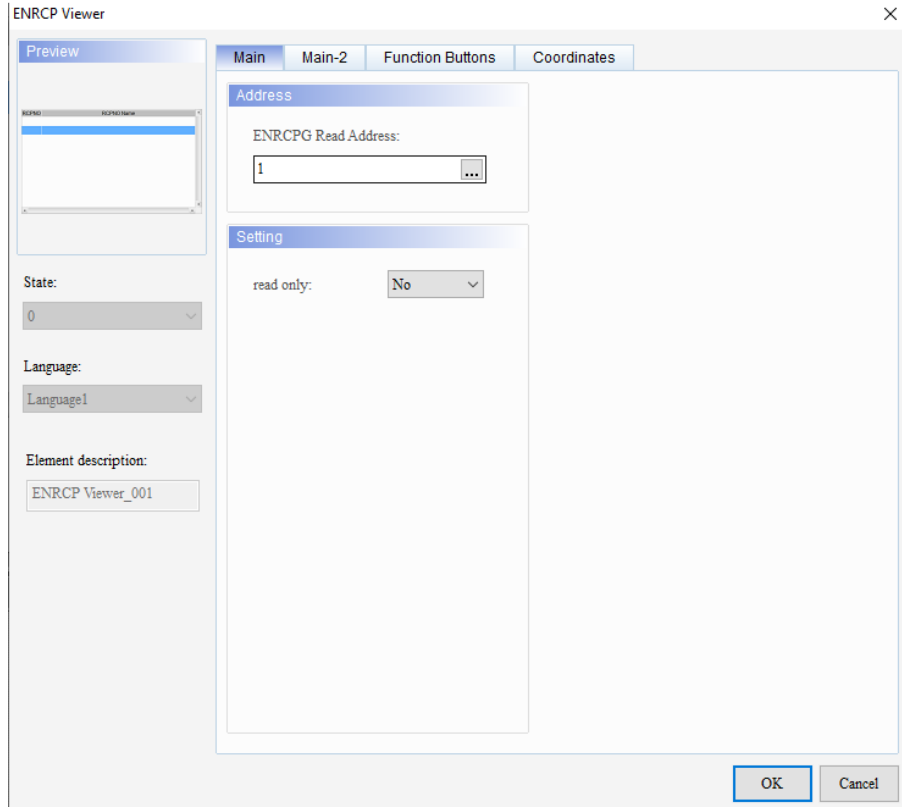
Set enhanced recipes and create elements

19

Set enhanced recipes and create elements

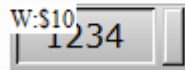
ENRCP Viewer

Step 2-1: create an ENRCP Viewer element with the ENRCPG Read Address set as \$10 and the read only as No.



Step 2-2: create a Numeric Entry element with the Write Address set as \$10.

Recipe Read Address



ENRCP Viewer

- After creating and setting the elements, download the project to the HMI.
- Enter "1" to \$10 and you can check the recipe parameters of the first enhanced recipe group with the ENRCP Viewer.

RCPNO	RCPNO Name					
1	DELTA	1	2	3	4	5
2	HMI	6	7	8	9	10
3	PLC	11	12	13	14	15
4	Servo	16	17	18	19	20
5	Inverter	21	22	23	24	25

Recipe Read Address

Execution results

- You can also click the ENRCP Viewer element to modify the recipe parameters. Note that if the read only function on the Main page is set to Yes, you cannot modify the parameters.

RCPNO	RCPNO Name					
1	DELTA	1	2	3	4	5
2	HMI	6	7	8	9	10
3	PLC	11	12	13	14	15
4	Servo	16	17	18	19	20
5	Inverter	21	22	23	24	25

Recipe Read Address

ENRCP20

0 ~ 65535

1	2	3	DEL
4	5	6	< >
7	8	9	CLR
+/-	0	.	ENT

When you double-click the ENRCP Viewer, the property page is shown as follows.

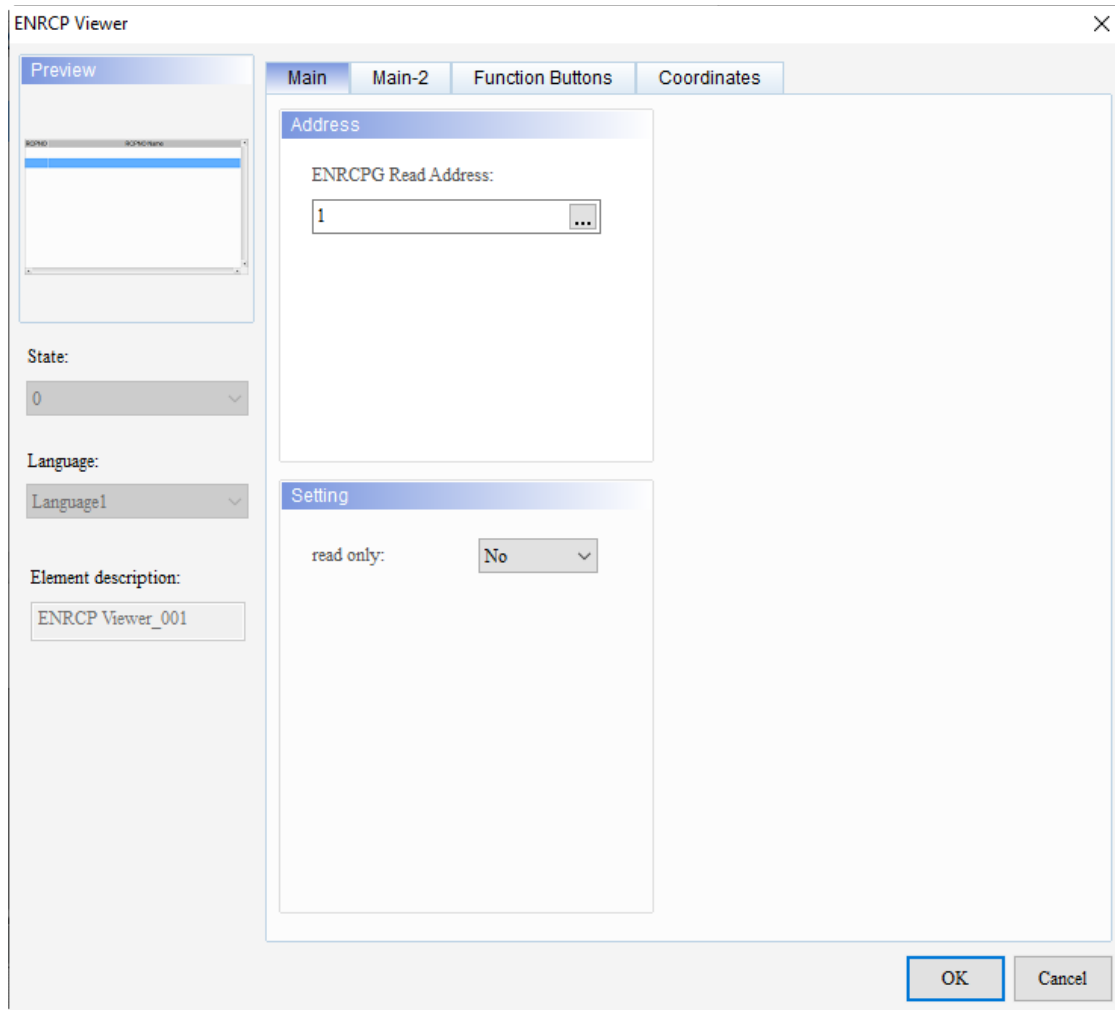


Figure 19.7.1 ENRCP Viewer example

Table 19.7.2 Function page of the ENRCP Viewer element

ENRCP Viewer	
Function page	Description
Main	Set the ENRCPG Read Address. Set the read only.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Function Buttons	Select the check boxes for Scroll up one page and Scroll down one page . Press Set As Default Description . Set the width and height of the buttons.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

19

■ Main

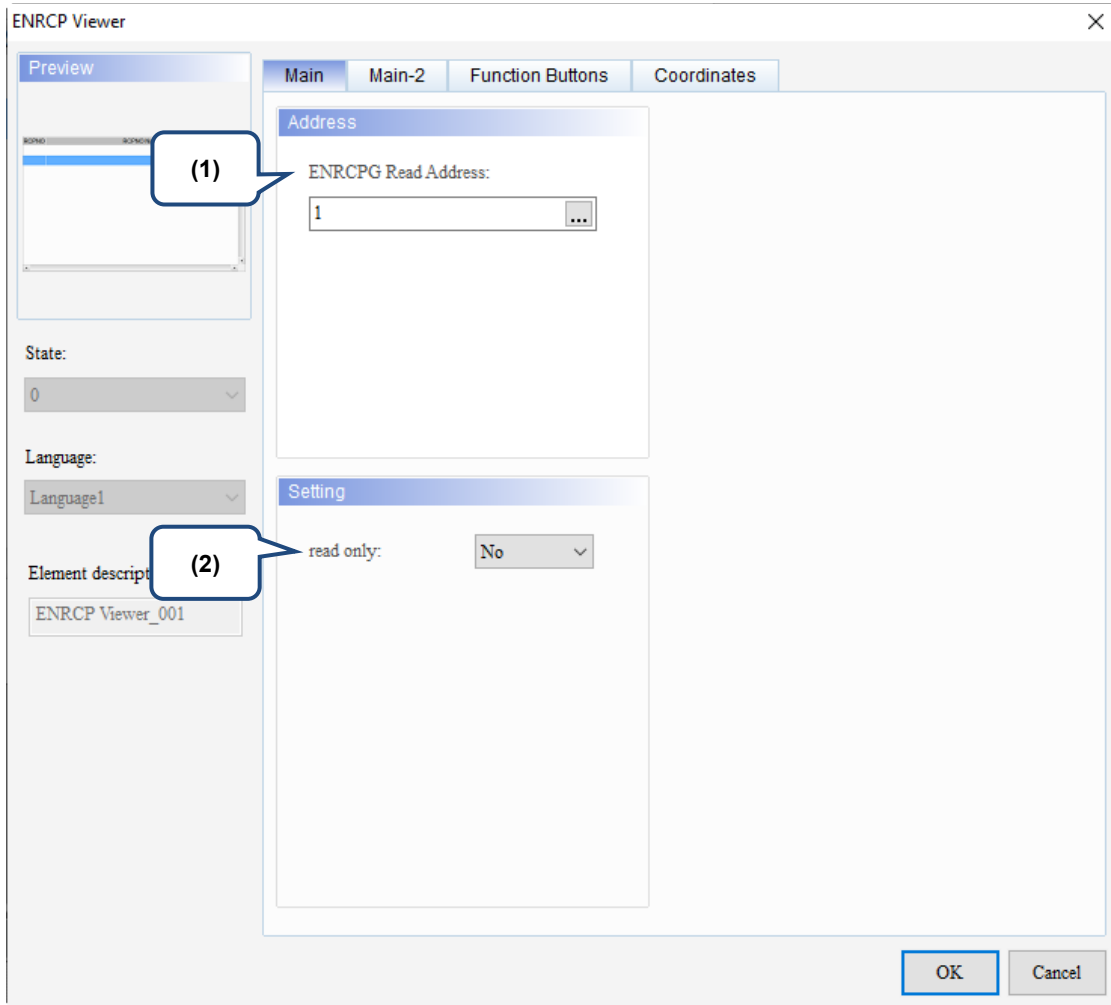
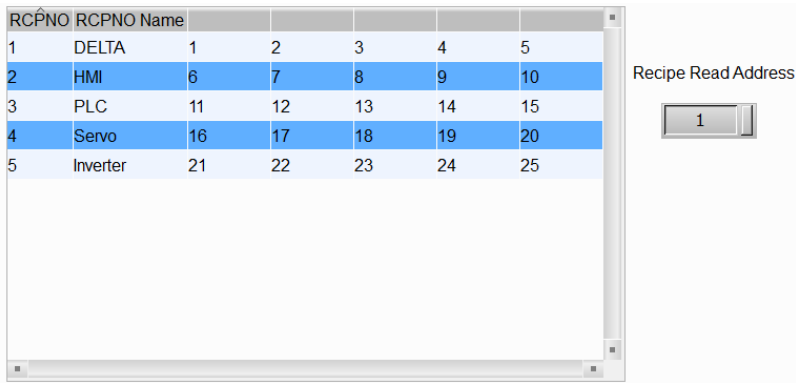
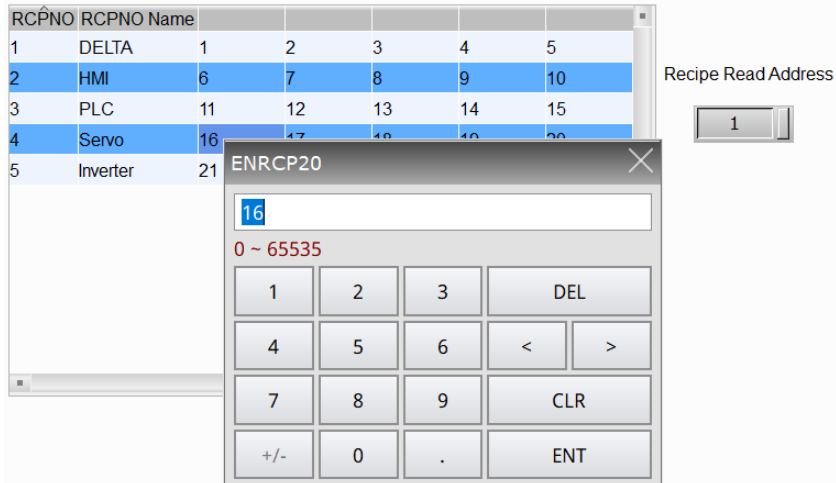
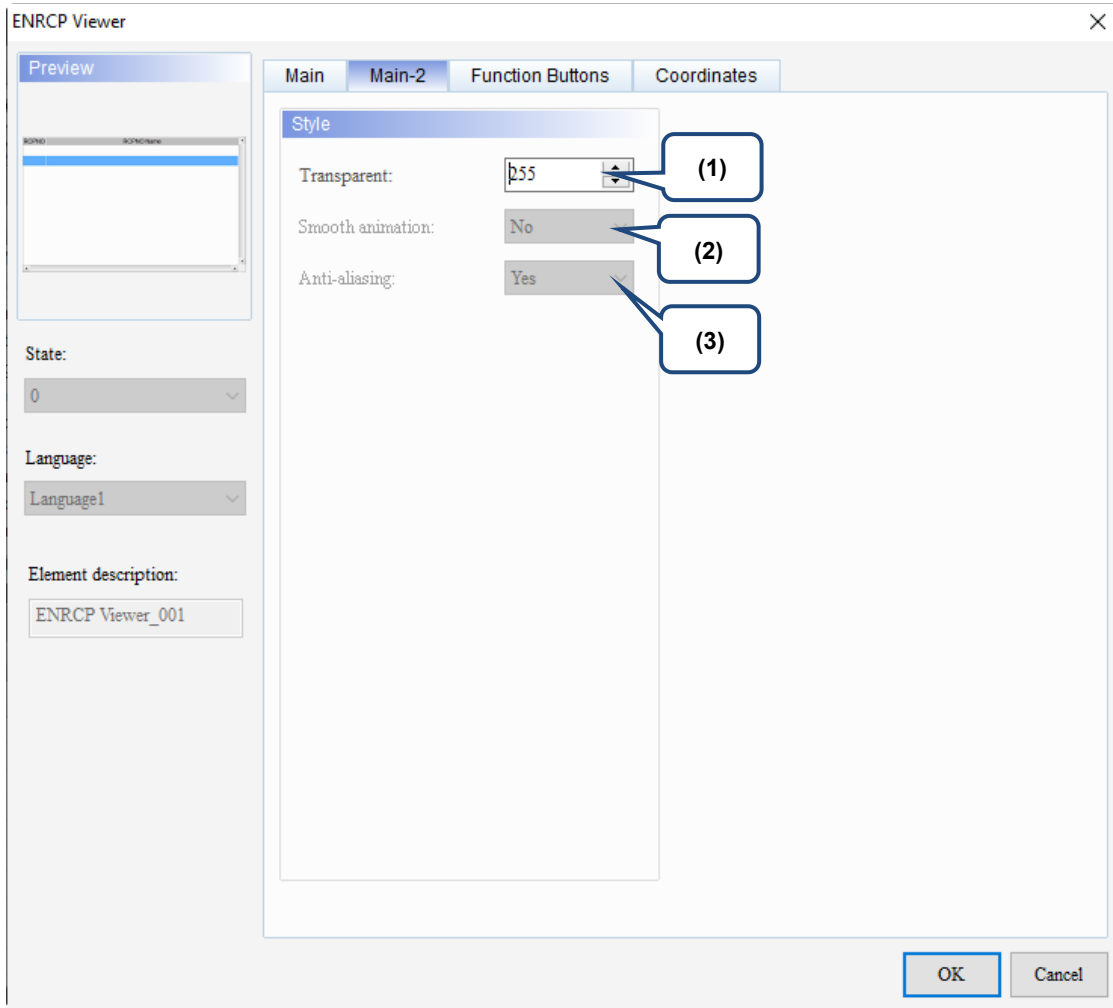


Figure 19.7.2 Main property page for the ENRCP Viewer element

19

No.	Property	Function description																																										
(1)	ENRCPG Read Address	<p>You can read the enhanced recipe group with this address. When the ENRCPG Read Address is 1, you can read the first group of the enhanced recipe. When the ENRCPG Read Address is 2, you can read the second group of the enhanced recipe. The same is true for other groups.</p>  <table border="1"> <thead> <tr> <th>RCPNO</th> <th>RCPNO Name</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>DELTA</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>2</td> <td>HMI</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> </tr> <tr> <td>3</td> <td>PLC</td> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> </tr> <tr> <td>4</td> <td>Servo</td> <td>16</td> <td>17</td> <td>18</td> <td>19</td> <td>20</td> </tr> <tr> <td>5</td> <td>Inverter</td> <td>21</td> <td>22</td> <td>23</td> <td>24</td> <td>25</td> </tr> </tbody> </table>	RCPNO	RCPNO Name	1	2	3	4	5	1	DELTA	1	2	3	4	5	2	HMI	6	7	8	9	10	3	PLC	11	12	13	14	15	4	Servo	16	17	18	19	20	5	Inverter	21	22	23	24	25
RCPNO	RCPNO Name	1	2	3	4	5																																						
1	DELTA	1	2	3	4	5																																						
2	HMI	6	7	8	9	10																																						
3	PLC	11	12	13	14	15																																						
4	Servo	16	17	18	19	20																																						
5	Inverter	21	22	23	24	25																																						
(2)	read only	<ul style="list-style-type: none"> Sets whether the content of the enhanced recipe can be edited. The default is No, indicating the recipe parameters can be modified.  <table border="1"> <thead> <tr> <th>RCPNO</th> <th>RCPNO Name</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>DELTA</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>2</td> <td>HMI</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> </tr> <tr> <td>3</td> <td>PLC</td> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> </tr> <tr> <td>4</td> <td>Servo</td> <td>16</td> <td>17</td> <td>18</td> <td>19</td> <td>20</td> </tr> <tr> <td>5</td> <td>Inverter</td> <td>21</td> <td>22</td> <td>23</td> <td>24</td> <td>25</td> </tr> </tbody> </table> <p>ENRCP20</p> <p>16</p> <p>0 ~ 65535</p> <p>1 2 3 DEL</p> <p>4 5 6 < ></p> <p>7 8 9 CLR</p> <p>+/- 0 . ENT</p> <ul style="list-style-type: none"> When the read only function is set to Yes, clicking the recipe parameters is invalid. 	RCPNO	RCPNO Name	1	2	3	4	5	1	DELTA	1	2	3	4	5	2	HMI	6	7	8	9	10	3	PLC	11	12	13	14	15	4	Servo	16	17	18	19	20	5	Inverter	21	22	23	24	25
RCPNO	RCPNO Name	1	2	3	4	5																																						
1	DELTA	1	2	3	4	5																																						
2	HMI	6	7	8	9	10																																						
3	PLC	11	12	13	14	15																																						
4	Servo	16	17	18	19	20																																						
5	Inverter	21	22	23	24	25																																						

■ Main-2



19

Figure 19.7.3 Main-2 property page for the ENRCP Viewer element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

19

■ Function Buttons

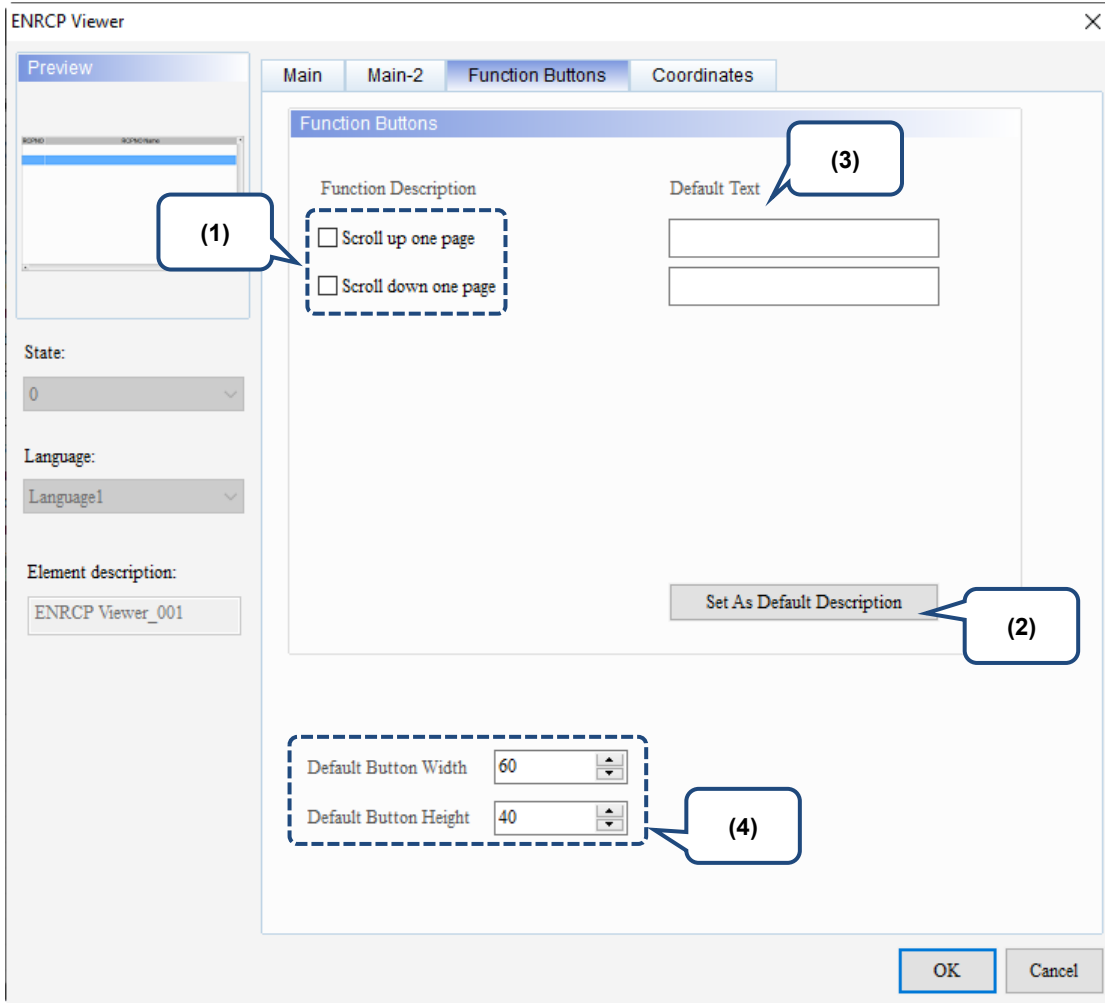
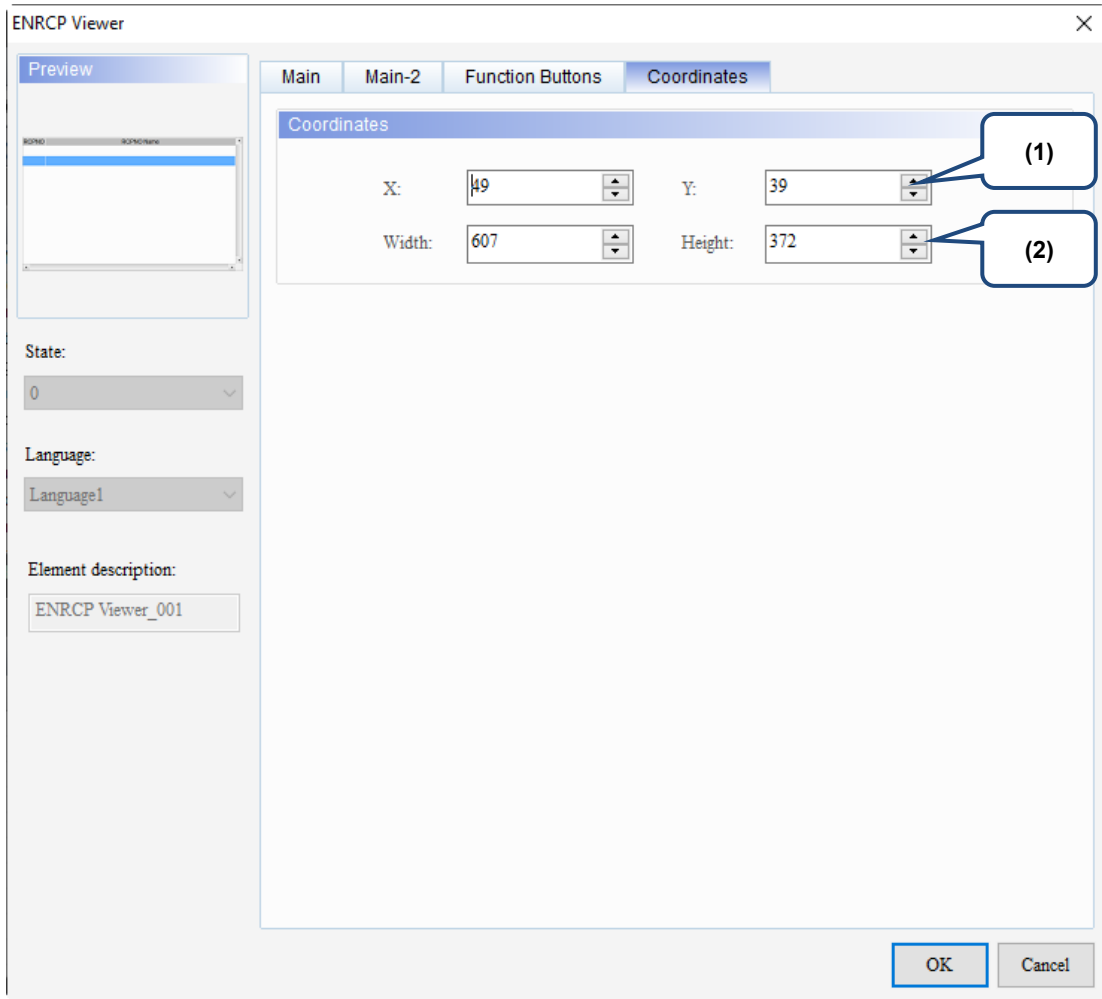


Figure 19.7.4 Function Buttons property page for the ENRCP Viewer element

No.	Property	Function description
(1)	Function Buttons	These are function buttons for the ENRCP Viewer element, including Scroll up one page and Scroll down one page.
(2)	Set As Default Description	Press this button to insert the default strings to the Default Text fields.
(3)	Default Text	Press Set As Default Description to insert the default strings to the fields. You can also enter user-defined strings.
(4)	Default Button Width and Height	You can adjust the width and height of the function buttons.

■ Coordinates



19

Figure 19.7.5 Coordinates property page for the ENRCP Viewer element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

19.8 FTP file list

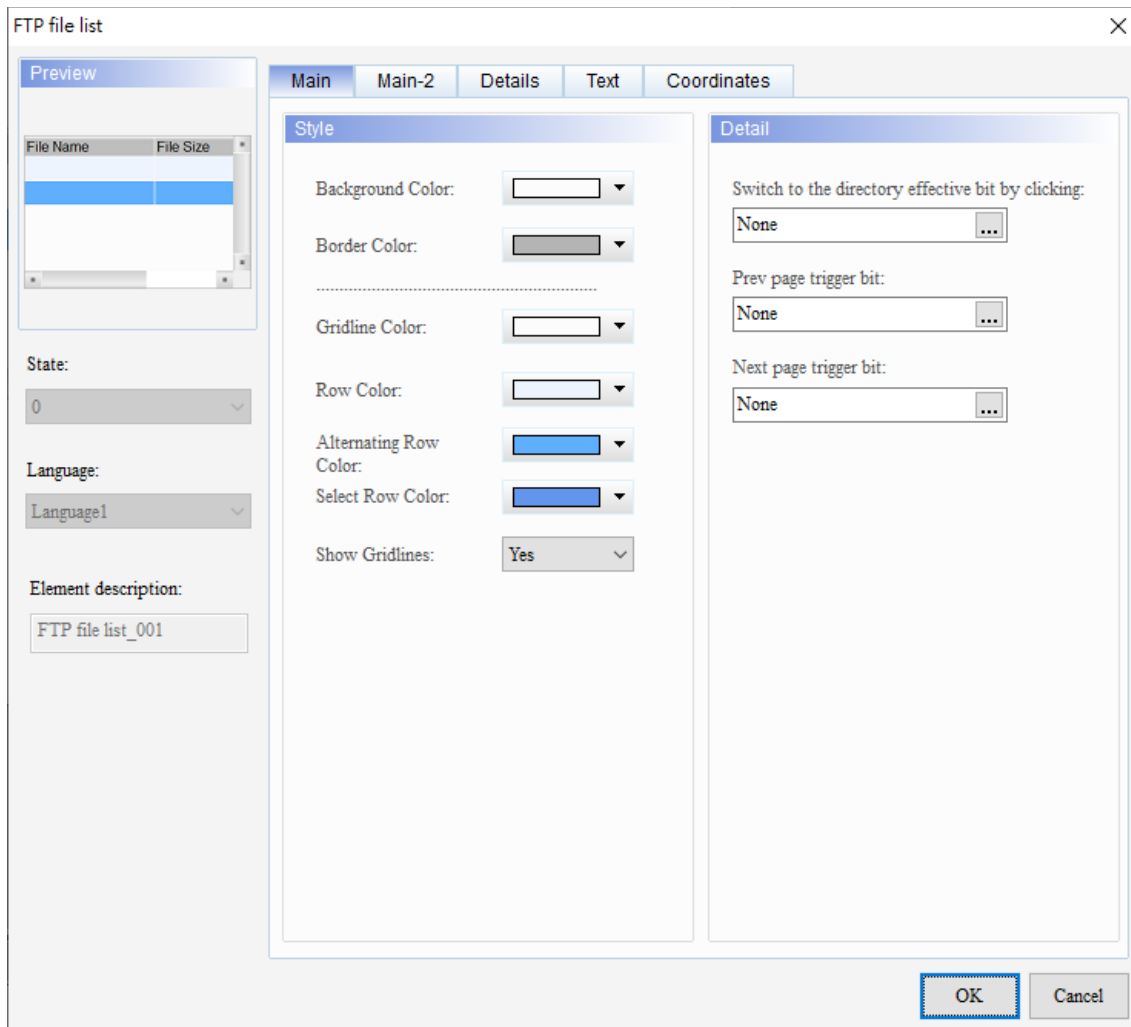
This function supports file transfer on the DOP-107H models only (FTP client). With this function, you can transfer files between the DOP-107H series HMI and the FTP server.

Besides, functions of the login / logout mechanism, file upload, file deletion, file download, file management, file renaming, and directory (folder) management are provided.

The FTP file list element must be used with the FTP File Setting functions in [Options] > [Configuration] > [Network Settings] > [FTP].

19

When you double-click the FTP file list, the property page is shown as follows.



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Figure 19.8.1 Properties of FTP file list

Table 19.8.1 Function page of the FTP file list element

FTP file list	
Function page	Description
Main	Set the Background Color, Border Color, Gridline Color, Row Color, Alternating Row Color, Select Row Color, and Show Gridlines options. Set the Switch to the directory effective bit by clicking, Prev page trigger bit, and Next page trigger bit.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Details	Select the check boxes for File Size , File Timestamp , and File Name , and set the Column order. Set the Title Text Alignment, Title Background, and Title Text Color.
Text	Set the font, size, and color of the texts.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

19

■ Main

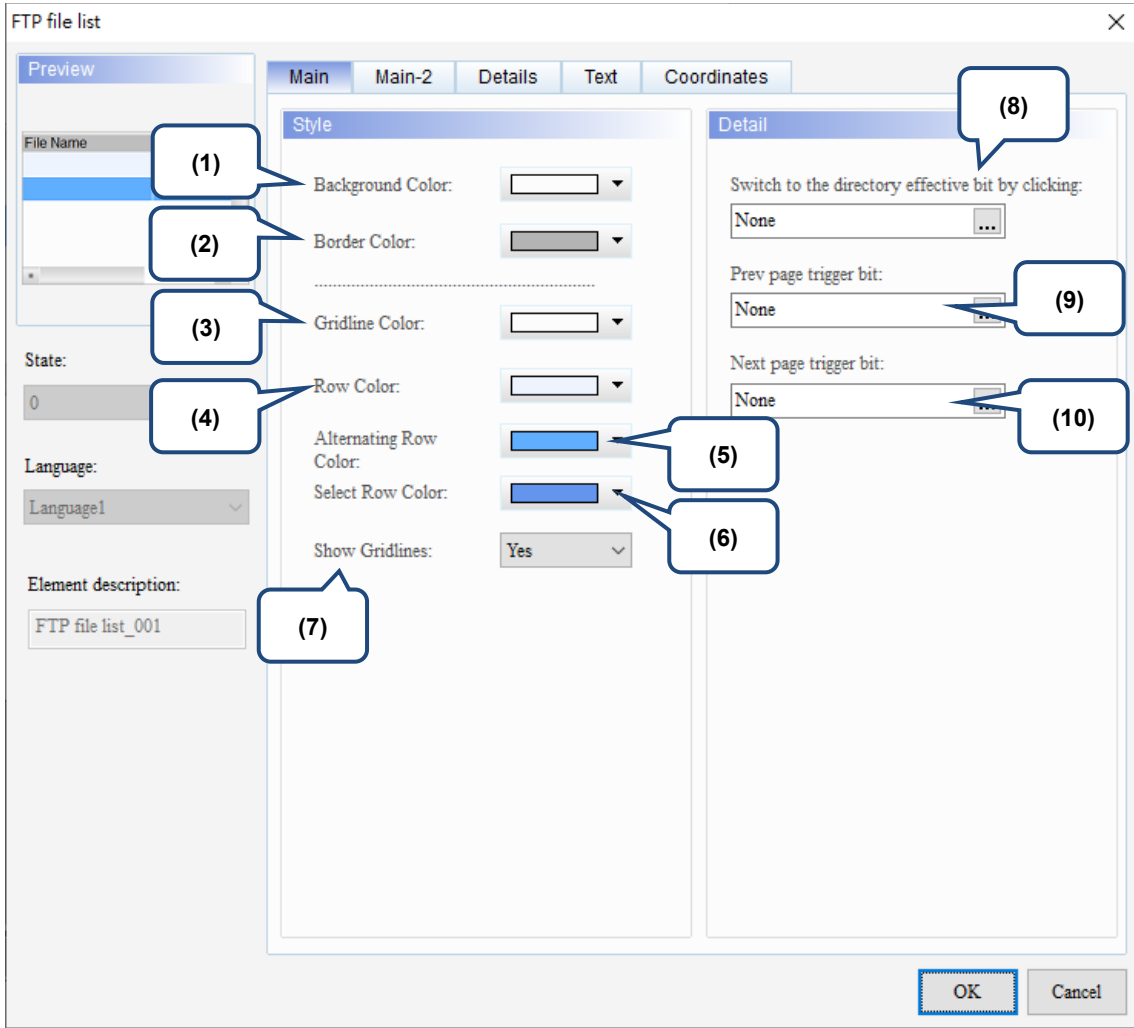
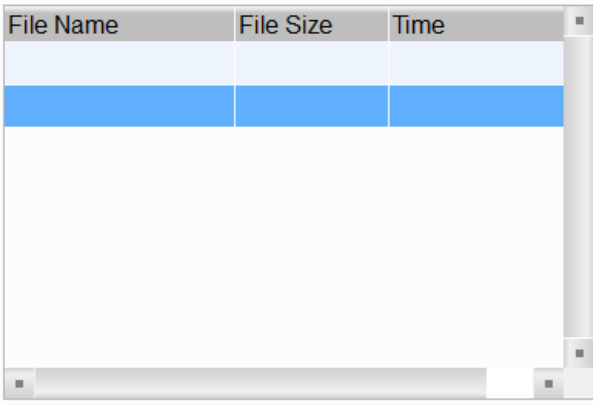

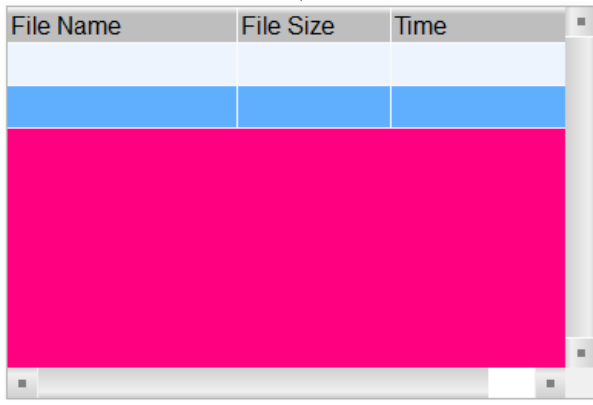
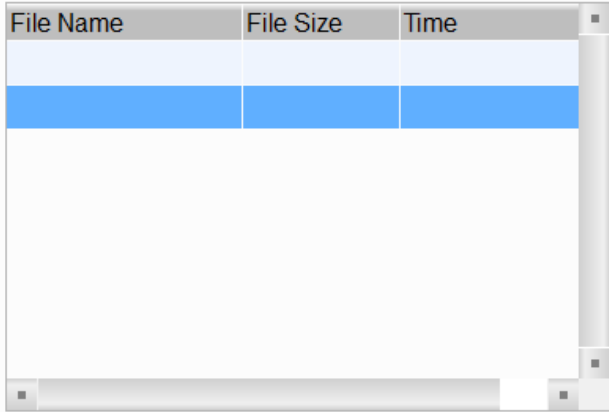
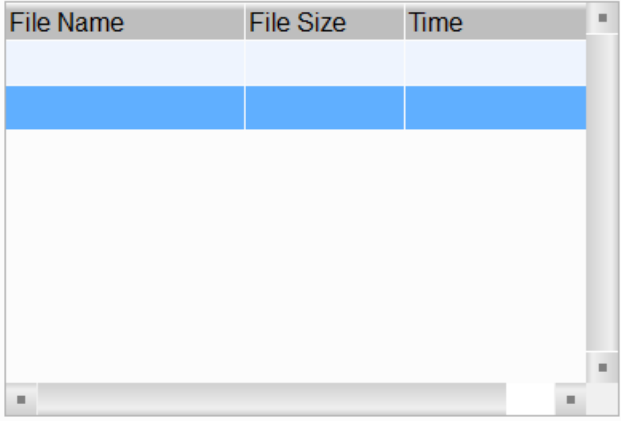
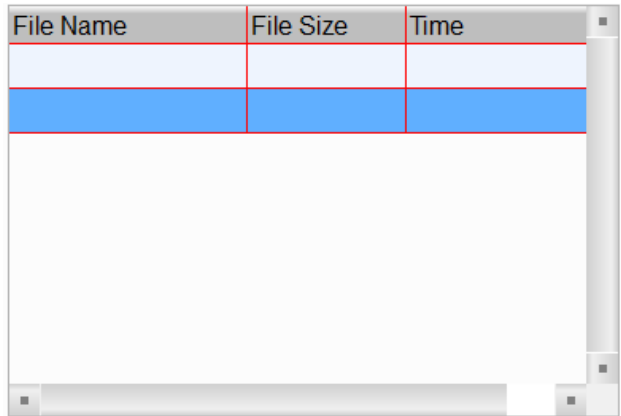


Figure 19.8.2 Main property page for the FTP file list element


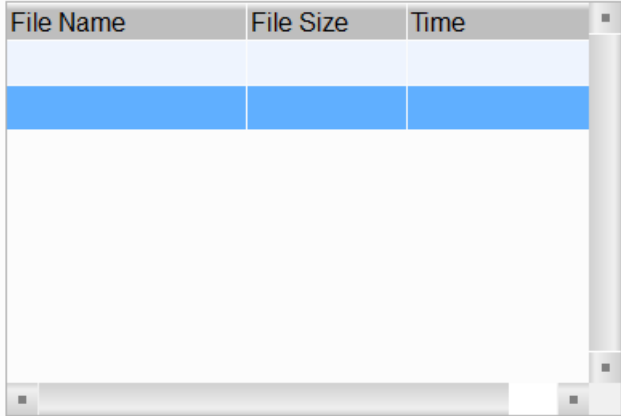
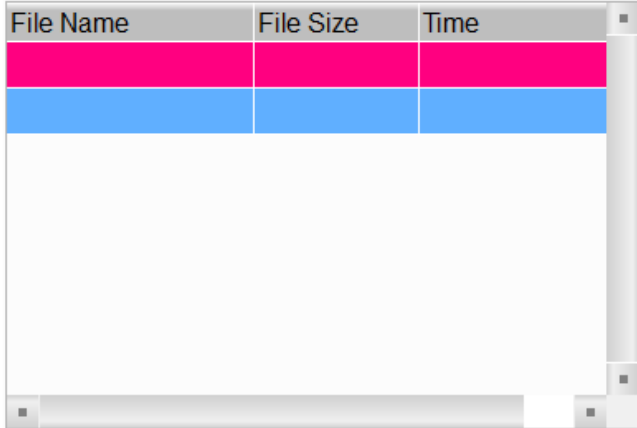

No.	Property	Function description
(1)	Background Color	<p>Set the background color of the element. The default is white.</p>  <p>Background Color </p> 

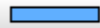
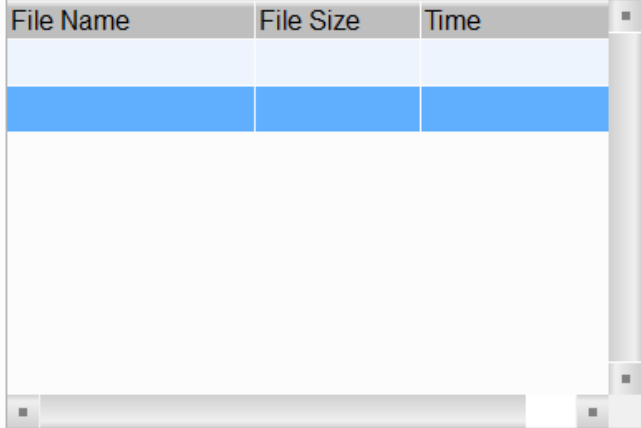

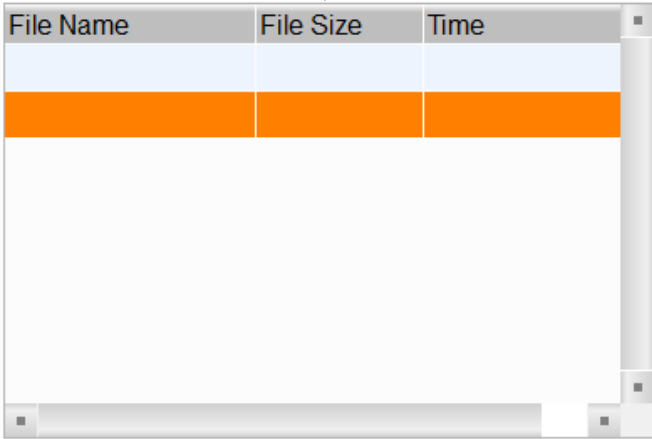
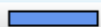
19

No.	Property	Function description
(2)	Border Color	<p>Set the border color of the element. The default is gray.</p>  <p>The image shows a table with three columns: 'File Name', 'File Size', and 'Time'. The table has a gray border. An arrow points from this table to a 'Border Color' property control, which is a color picker showing a red color. Below the control, the same table is shown, but with a red border.</p>

No.	Property	Function description
(3)	Gridline Color	<ul style="list-style-type: none">■ The Gridline Color setting is available only when you select Yes for Show Gridlines.■ Set the gridline color of the element. The default is white.  <p>The screenshot shows a table with three columns: File Name, File Size, and Time. The table has a white background and white gridlines. The first two rows are highlighted in blue. An arrow points from this screenshot to the right, where a 'Gridline Color' dropdown menu is shown with a red color swatch selected.</p>  <p>The screenshot shows the same table as above, but with red gridlines. The first two rows are highlighted in blue. This screenshot is positioned below the 'Gridline Color' dropdown menu, with an arrow pointing from the dropdown to the table.</p>

19

No.	Property	Function description
(4)	Row Color	<p>Set the color for each row. The default is  .</p>  <p>↓</p>  <p>Row Color </p>

No.	Property	Function description
(5)	Alternating Row Color	<p>Set the color for the alternating row. The default is  .</p>  <p style="text-align: center;">↓</p> <p>Alternating Row Color  .</p> 
(6)	Select Row Color	<ul style="list-style-type: none"> ■ The color of the data row you select in the FTP file list. ■ Set the color of the selected row. The default is  .
(7)	Show Gridlines	<ul style="list-style-type: none"> ■ The default is Yes. ■ When you select No, the Gridline Color setting is not available.
(8)	Switch to the directory effective bit by clicking	When this bit is On, you can double-click the directory to go inside the folder.
(9)	Prev page trigger bit	When this bit is On, the element display switches to the previous page and this bit is automatically cleared once the action is complete.
(10)	Next page trigger bit	When this bit is On, the element display switches to the next page and this bit is automatically cleared once the action is complete.

■ Main-2

19

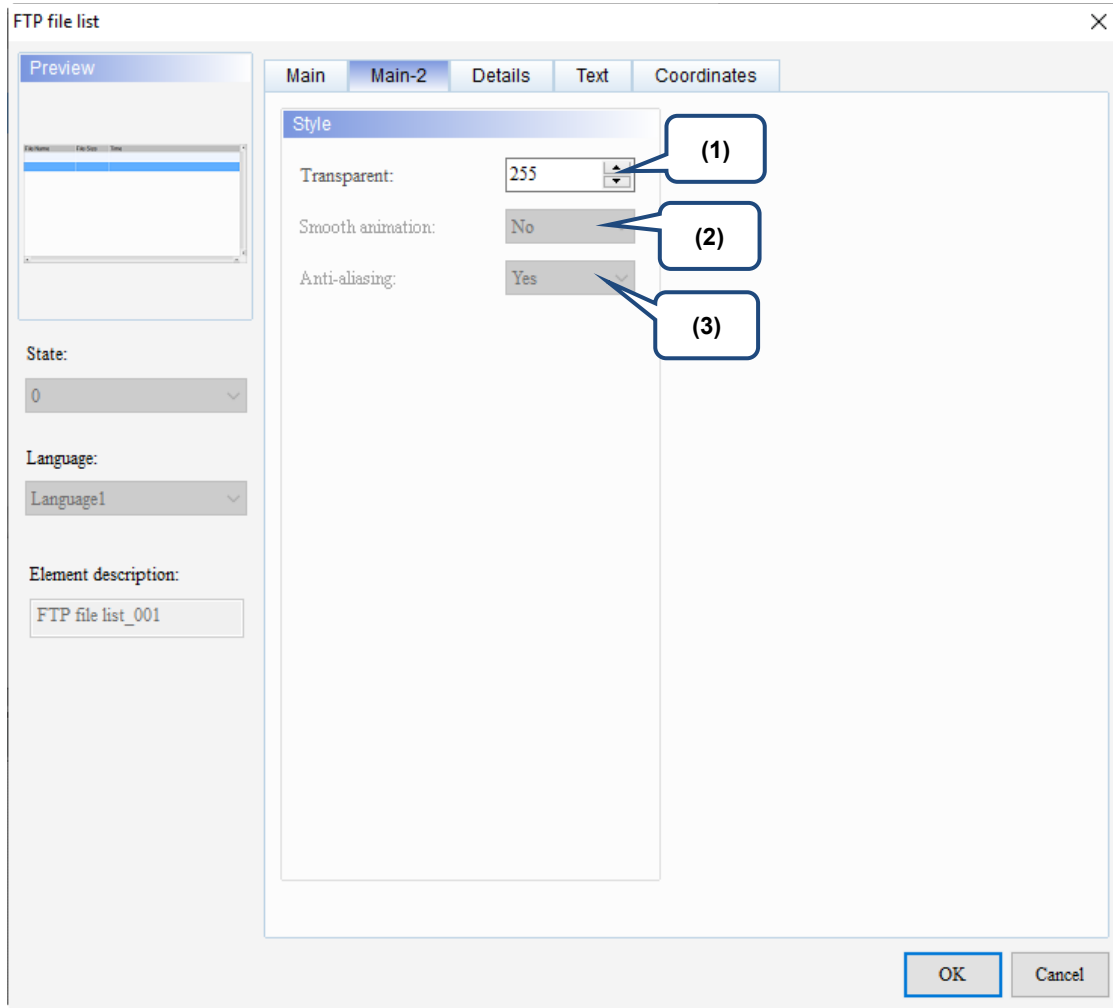
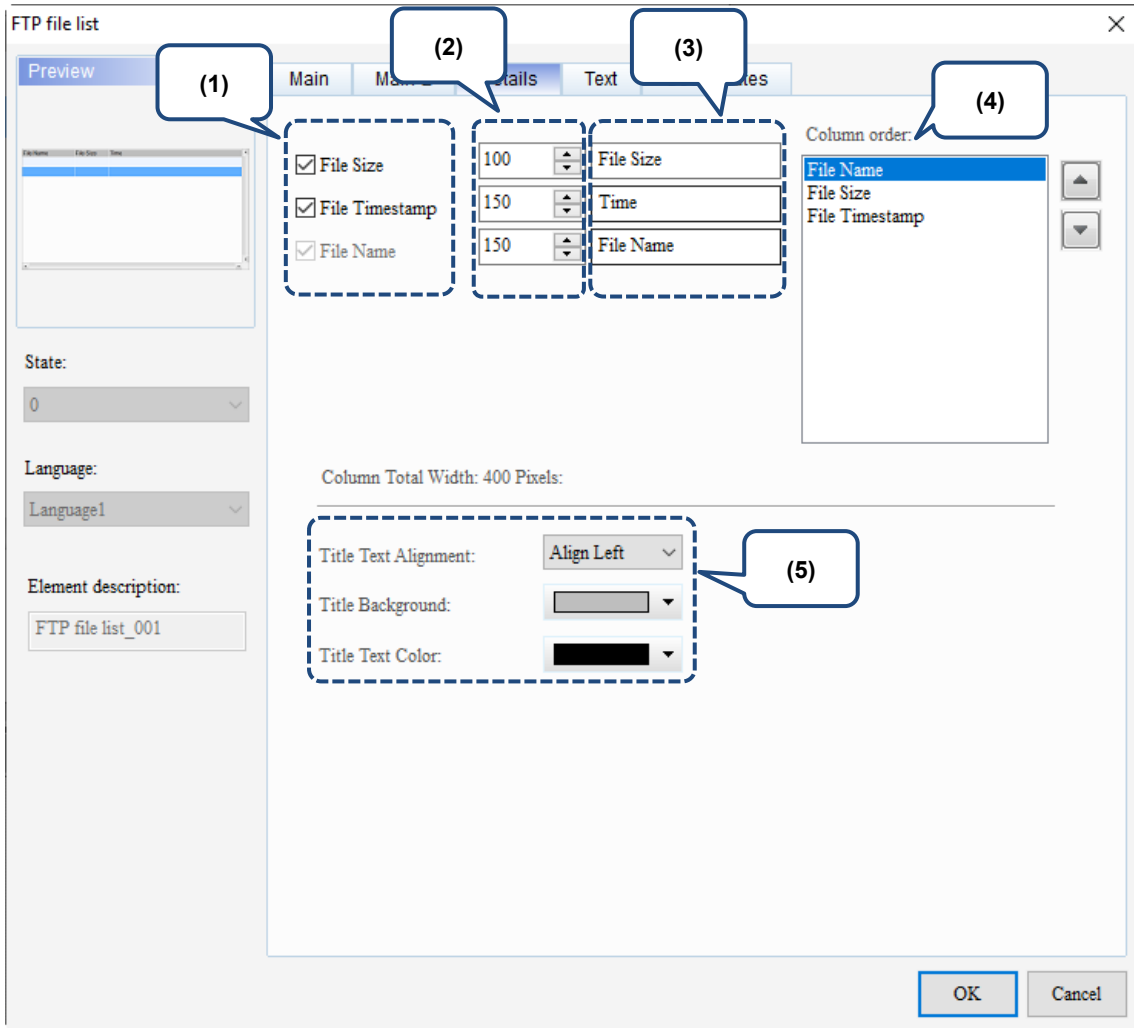


Figure 19.8.3 Main-2 property page for the FTP file list element



No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Details



19

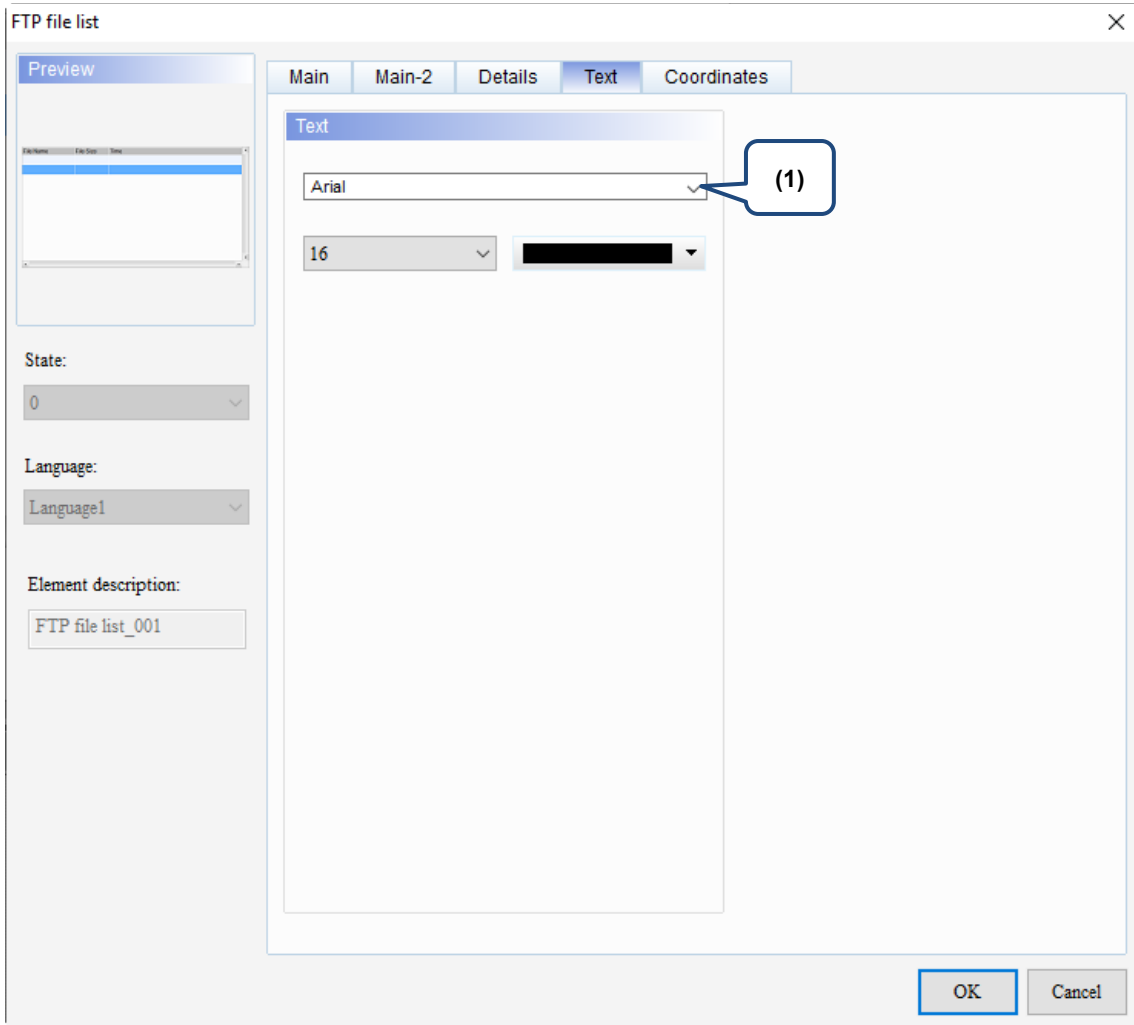
Figure 19.8.4 Details property page for the FTP file list element

No.	Property	Function description
(1)	Column display	Select the columns you want to display on the element.
(2)	Column width	You can adjust the width for each column.
(3)	Column title	You can define the titles for each column.
(4)	Column order	After selecting the columns you want to display, you can use  and  to adjust the column displaying order.

19

No.	Property	Function description							
(5)	Title	Title Text Alignment	Set the column title to align left, center, or right. <table border="1"> <tr> <td>Align Left</td> <td> </td> </tr> <tr> <td>Center</td> <td> </td> </tr> <tr> <td>Align Right</td> <td> </td> </tr> </table>	Align Left		Center		Align Right	
			Align Left						
			Center						
		Align Right							
		Title Background	Set the background color of the column title. <table border="1"> <tr> <td>Default</td> <td> </td> </tr> <tr> <td>After</td> <td> </td> </tr> </table>	Default		After			
			Default						
		After							
		Title Text Color	Set the text color of the column title. <table border="1"> <tr> <td>Default</td> <td> </td> </tr> <tr> <td>After</td> <td> </td> </tr> </table>	Default		After			
			Default						
After									

■ Text



19

Figure 19.8.5 Text property page for the FTP file list element

No.	Property	Function description
(1)	Text property	Set the text properties, including the font, size, and color.

19

Coordinates

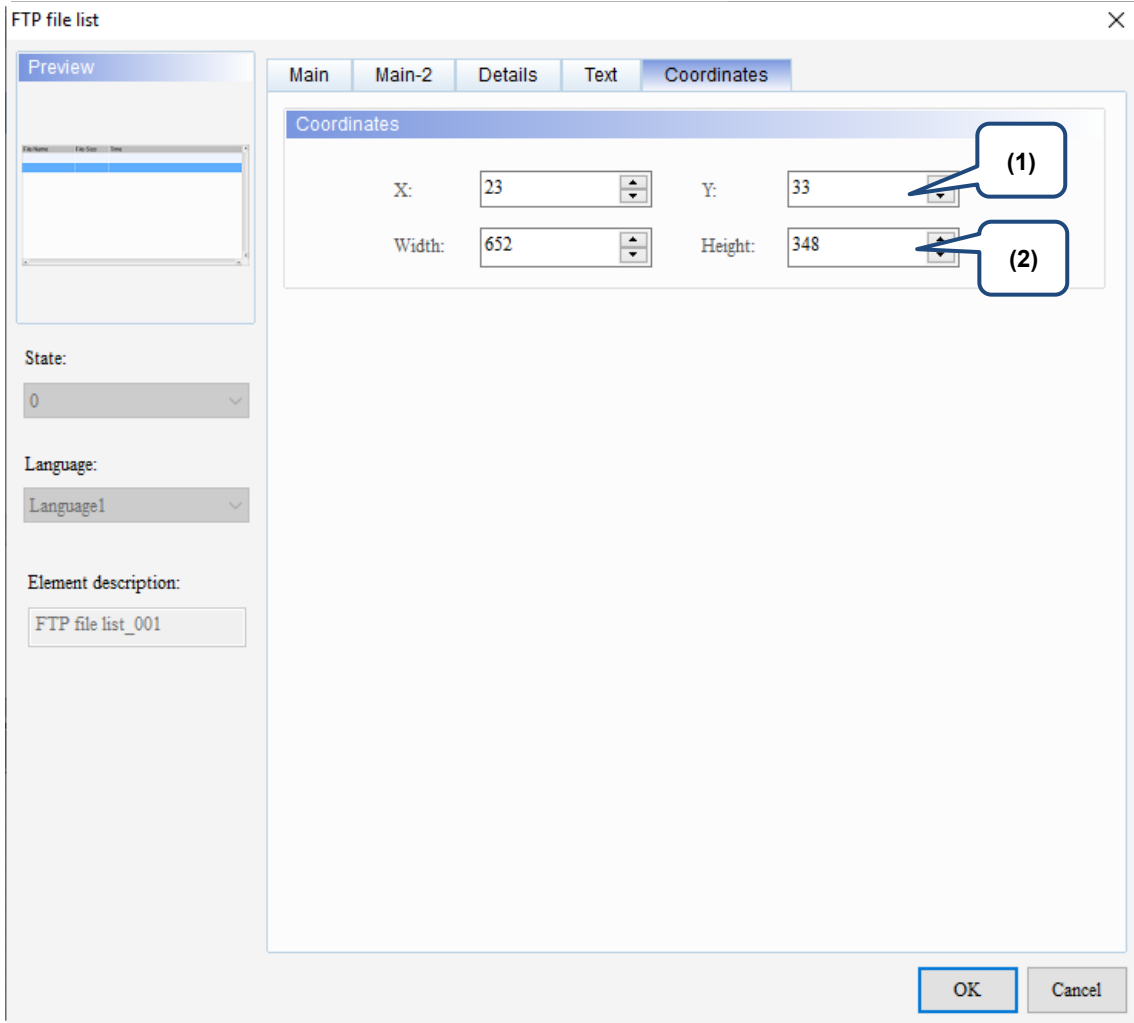


Figure 19.8.6 Coordinates property page for the FTP file list element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

19.9 FTP File Setting

This function supports file transfer on the DOP-107H models only (FTP client). With this function, you can transfer files between the DOP-107H series HMI and the FTP server. Besides, functions of the login / logout mechanism, file upload, file deletion, file download, file management, file renaming, and directory (folder) management are provided.

The FTP File Setting functions must be used with the FTP file list element.

Table 19.9.1 FTP File Setting

FTP File Setting

Configuration

- [-] Main
 - Non-volatile
 - Security Level and Password
 - Global Keypad Settings
 - Others
- [-] Control Status Block
 - Control Block
 - Status Area
- [-] Real Time Clock
- [-] Print
- [-] Default
 - Boot Logo
 - Boot Delay Screen
 - Custom scroll button
- [-] Network Settings
 - Remote Desktop and Data Collectio
 - SMTP
 - FTP
- [-] Multi-language
 - Multi-language Settings
- [-] Industry application
 - Electronic record

FTP

FTP Host FTP File Setting

Enable FTP file transfer

IP addr. (4 Words)	\$M100	Login account addr.	\$M120
Port addr.	\$M110	Max. length of	16 Word
Login trigger addr.	\$300.0	Login password addr.	\$M140
Logout trigger addr.	\$300.1	Max. length of	16 Word

Trigger addr. is set to a continuous addr.

Address Name	Address	Unit	Max. Length Of Name
Change working DIR trigger addr.	\$200.0	Bit	-----
Check duplicate DIR/File trigge	\$200.1	Bit	-----
Create DIR trigger addr.	\$200.2	Bit	-----
Change DIR/File trigger addr.	\$200.3	Bit	-----
Delete DIR/File trigger addr.	\$200.4	Bit	-----
Get DIR/File name trigger addr.	\$200.5	Bit	-----
Download DIR/File trigger addr.	\$200.6	Bit	-----
FileSlot operate saving trigger ad	\$200.7	Bit	-----
FileSlot operate rename trigger i	\$200.8	Bit	-----
FileSlot operate delete trigger ai	\$200.9	Bit	-----
FileSlot operate save as trigger a	\$200.10	Bit	-----
FileSlot operate new trigger add	\$200.11	Bit	-----
Working DIR name addr.	\$500	Word	128

OK Cancel

19


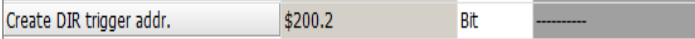
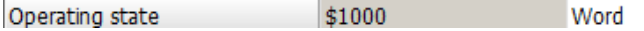

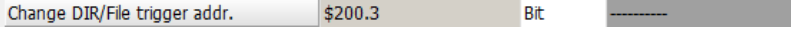
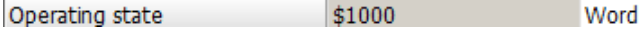
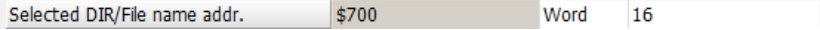

FTP File Setting

These functions are explained with the following example.

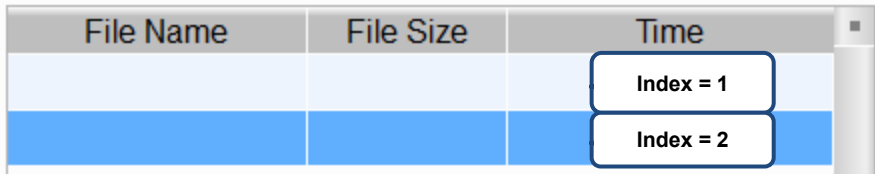


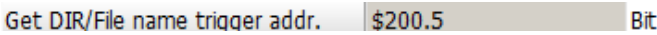

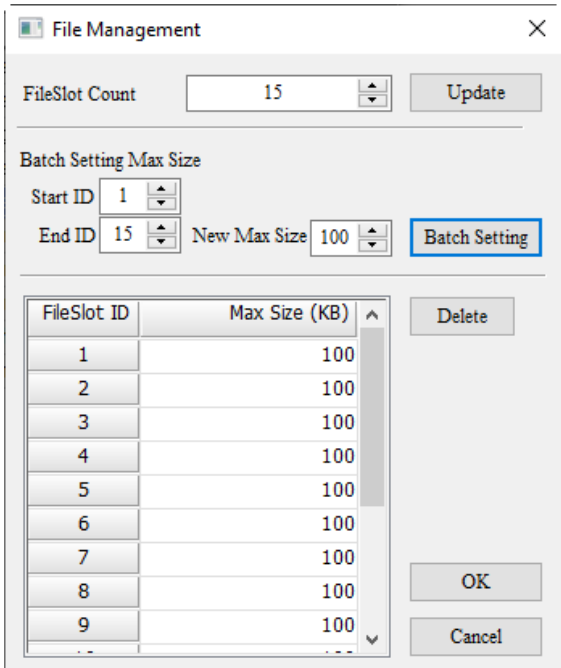
Address Name	Address	Unit	Max. Length Of Name
Change working DIR trigger add	\$200.0	Bit	-----
Check duplicate DIR/File trigge	\$200.1	Bit	-----
Create DIR trigger addr.	\$200.2	Bit	-----
Change DIR/File trigger addr.	\$200.3	Bit	-----
Delete DIR/File trigger addr.	\$200.4	Bit	-----
Get DIR/File name trigger addr.	\$200.5	Bit	-----
Download DIR/File trigger addr.	\$200.6	Bit	-----
FileSlot operate saving trigger ac	\$200.7	Bit	-----
FileSlot operate rename trigger	\$200.8	Bit	-----
FileSlot operate delete trigger ai	\$200.9	Bit	-----
FileSlot operate save as trigger a	\$200.10	Bit	-----
FileSlot operate new trigger add	\$200.11	Bit	-----
Working DIR name addr.	\$500	Word	128

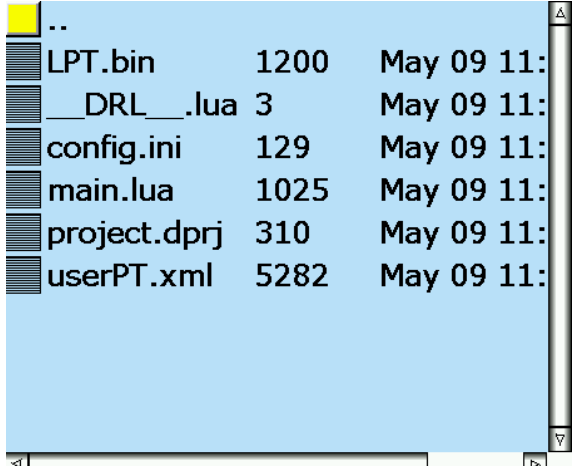
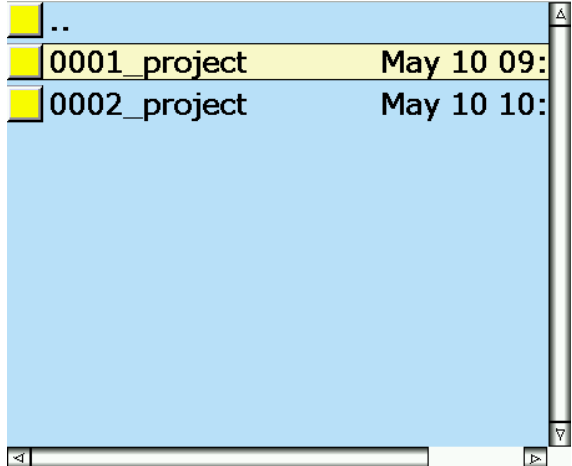
Property	Description	
Enable FTP file transfer	Select the check box for Enable FTP file transfer to enable the FTP client function.	
Host login	IP addr.	Set the IP address of the FTP server to connect.
	Port addr.	Set the port of the FTP server to connect. The default is 21.
	Login trigger addr.	The value is in bit. Triggering this bit to On to log in.
	Logout trigger addr.	The value is in bit. Triggering this bit to On to log out.
	Login account addr.	Set the start address of the account. The maximum length of the account is up to 16 words.
	Max. length of	
	Login password addr.	Set the start address of the password. The maximum length of the password is up to 16 words.
	Max. length of	

FTP File Setting																																											
Property	Description																																										
Switch working directory	<p>Change working DIR trigger addr. When this bit is On, the working directory is switched. This bit is automatically cleared once the action is complete.</p> <p>Example</p> <p>Step 1: set the string in Working DIR name addr. (\$500) to "/lua".</p> <p><input checked="" type="checkbox"/> Trigger addr. is set to a continuous addr.</p> <table border="1"> <thead> <tr> <th>Address Name</th> <th>Address</th> <th>Unit</th> <th>Max. Length Of Name</th> </tr> </thead> <tbody> <tr> <td>FileSlot operate rename trigger addr.</td> <td>\$200.8</td> <td>Bit</td> <td>-----</td> </tr> <tr> <td>FileSlot operate delete trigger addr.</td> <td>\$200.9</td> <td>Bit</td> <td>-----</td> </tr> <tr> <td>FileSlot operate save as trigger addr.</td> <td>\$200.10</td> <td>Bit</td> <td>-----</td> </tr> <tr> <td>FileSlot operate new trigger addr.</td> <td>\$200.11</td> <td>Bit</td> <td>-----</td> </tr> <tr> <td>Working DIR name addr.</td> <td>\$500</td> <td>Word</td> <td>128</td> </tr> <tr> <td>Selected DIR/File name addr.</td> <td>\$700</td> <td>Word</td> <td>16</td> </tr> </tbody> </table> <p>Step 2: set Change working DIR trigger addr. (\$200.0) to On.</p> <p><input checked="" type="checkbox"/> Trigger addr. is set to a continuous addr.</p> <table border="1"> <thead> <tr> <th>Address Name</th> <th>Address</th> <th>Unit</th> <th>Max. Length Of Name</th> </tr> </thead> <tbody> <tr> <td>Change working DIR trigger addr.</td> <td>\$200.0</td> <td>Bit</td> <td>-----</td> </tr> </tbody> </table> <p>Step 3: the FTP file list element switches to the lua directory. If the directory does not exist, the content of Operating state becomes 0x0022.</p> <table border="1"> <thead> <tr> <th>Operating state</th> <th>\$1000</th> <th>Word</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>Step 4: once the action of changing the working directory is complete, this bit is automatically set to Off.</p>	Address Name	Address	Unit	Max. Length Of Name	FileSlot operate rename trigger addr.	\$200.8	Bit	-----	FileSlot operate delete trigger addr.	\$200.9	Bit	-----	FileSlot operate save as trigger addr.	\$200.10	Bit	-----	FileSlot operate new trigger addr.	\$200.11	Bit	-----	Working DIR name addr.	\$500	Word	128	Selected DIR/File name addr.	\$700	Word	16	Address Name	Address	Unit	Max. Length Of Name	Change working DIR trigger addr.	\$200.0	Bit	-----	Operating state	\$1000	Word			
	Address Name	Address	Unit	Max. Length Of Name																																							
FileSlot operate rename trigger addr.	\$200.8	Bit	-----																																								
FileSlot operate delete trigger addr.	\$200.9	Bit	-----																																								
FileSlot operate save as trigger addr.	\$200.10	Bit	-----																																								
FileSlot operate new trigger addr.	\$200.11	Bit	-----																																								
Working DIR name addr.	\$500	Word	128																																								
Selected DIR/File name addr.	\$700	Word	16																																								
Address Name	Address	Unit	Max. Length Of Name																																								
Change working DIR trigger addr.	\$200.0	Bit	-----																																								
Operating state	\$1000	Word																																									
Check duplicate directories / files	<p>Check duplicate DIR/File trigger addr. When this bit is On, the HMI checks for the duplicate directories or files. This bit is automatically cleared once the action is complete.</p> <p>Example</p> <p>Step 1: set the string in Change/Create/Check name addr. (\$750) to "lua".</p> <table border="1"> <thead> <tr> <th>Change/Create/Check name addr.</th> <th>\$750</th> <th>Word</th> <th>16</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>Step 2: set Check duplicate DIR/File trigger addr. (\$200.1) to On.</p> <table border="1"> <thead> <tr> <th>Check duplicate DIR/File trigger</th> <th>\$200.1</th> <th>Bit</th> <th>-----</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>Step 3: if the lua directory already exists, the content of Check duplicated DIR/File result (\$900) becomes 1; if the directory does not exist, the content of Check duplicated DIR/File result (\$900) becomes 0.</p> <table border="1"> <thead> <tr> <th>Check duplicated DIR/File result</th> <th>\$900</th> <th>Word</th> <th>-----</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>Step 4: once the action of checking the duplicate directories is complete, this bit is automatically set to Off.</p>	Change/Create/Check name addr.	\$750	Word	16					Check duplicate DIR/File trigger	\$200.1	Bit	-----					Check duplicated DIR/File result	\$900	Word	-----																						
Change/Create/Check name addr.	\$750	Word	16																																								
Check duplicate DIR/File trigger	\$200.1	Bit	-----																																								
Check duplicated DIR/File result	\$900	Word	-----																																								

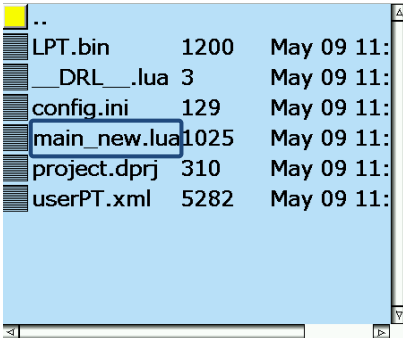
FTP File Setting	
Property	Description
Create DIR trigger addr.	When this bit is On, the directory is created. This bit is automatically cleared once the action is complete.
Example Step 1: set the string in Change/Create/Check name addr. (\$750) to "TestHMI".  Step 2: set Create DIR trigger addr. (\$200.2) to On.  Step 3: the TestHMI directory is created in the FTP server and the FTP file list element is updated. If the TestHMI directory already exists, the content of Operating state becomes 0x0042.  Step 4: once the action of creating the directory is complete, this bit is automatically set to Off.	
Change DIR/File trigger addr.	When this bit is On, the name of the directory or file is changed. This bit is automatically cleared once the action is complete.
Example Step 1: use the FTP file list element and click the TestHMI directory which is to be changed. Step 2: set the string in Change/Create/Check name addr. (\$750) to "ChangeHMI".  Step 3: set Change DIR/File trigger addr. (\$200.3) to On.  Step 4: the name of the TestHMI directory is changed to ChangeHMI, and the HMI updates the FTP file list element simultaneously. If the ChangeHMI directory already exists, the content of Operating state (\$1000) becomes 0x0052.  Step 5: once the action of changing the directory name is complete, this bit is automatically set to Off. Note: the preceding example illustrates the operation on directories. The trigger address is also available for the operation on files.	
Delete DIR/File trigger addr.	When this bit is On, the name of the directory or file is deleted. This bit is automatically cleared once the action is complete.
Example Step 1: set the string in Selected DIR/File name addr. (\$700) to "ChangeHMI".  Step 2: set Delete DIR/File trigger addr. (\$200.4) to On.  Step 3: the ChangeHMI directory in the FTP server is deleted and the HMI updates the FTP file list element simultaneously. Step 4: once the action of deleting the directory is complete, this bit is automatically cleared to Off. Note: the preceding example illustrates the operation on directories. The trigger address is also available for the operation on files.	

Create / delete / change directories or files

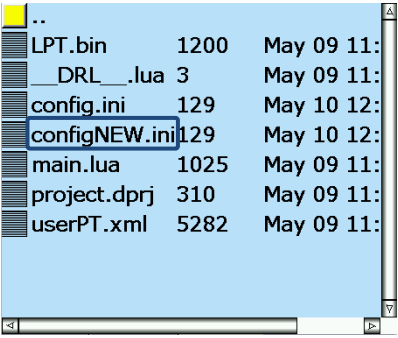
FTP File Setting	
Property	Description
Get DIR/File name trigger addr.	When this bit is On, the name of the directory or file is obtained. This bit is automatically cleared once the action is complete.
Obtain the directory / file name	<p>Example</p> <p>Step 1: the FTP file list element is as follows.</p>  <p>Step 2: set Index of DIR/File name addr. (\$921) to 2.</p>  <p>If the index value is 0, the content of Operating state becomes 0x0027.</p>  <p>Step 3: set Get DIR/File name trigger addr. (\$200.5) to On.</p>  <p>Step 4: the directory name when the index value of the FTP server is 2 is obtained, and the content of Get DIR/File name result (\$770) is "lua".</p>  <p>Note 1: the preceding example illustrates the operation on directories. The trigger address is also available for the operation on files.</p> <p>Note 2: refer to the index value of the FTP server. The displaying order of the FTP file list element on the HMI may not be identical to the order in the FTP server.</p>
	Download DIR/File trigger addr.	When this bit is On, the HMI starts to download the file from the FTP server. This bit is automatically cleared once the action is complete.
Download the directory / file	<p>Before using this function, you need to go to [Option] > [FileSlot File Management] to set the related settings.</p> 

FTP File Setting	
Property	Description
	<p>Example</p> <p>Step 1: when the FTP server file is stored in the /lua/0001_project directory as shown in the following figure.</p>  <p>Switch to the /lua directory and select the 0001_project directory as shown in the following figure.</p>  <p>Step 2: set Download DIR/File trigger addr. (\$200.6) to On.</p> <p style="text-align: center;"> <input type="text" value="Download DIR/File trigger addr. \$200.6"/> <input type="button" value="Bit"/> </p> <p>Step 3: the HMI downloads the file from the FTP server to the FileSlot storage space set in Selected FileSlot addr. (\$920). If there are multiple files in the directory, the Selected FileSlot addr. (\$920) refers to the FileSlot start address.</p> <p style="text-align: center;"> <input type="text" value="Selected FileSlot addr. \$920"/> <input type="button" value="Word"/> </p> <p>After the download is complete, the value of Number of downloads (\$910) becomes 6.</p> <p style="text-align: center;"> <input type="text" value="Number of downloads \$910"/> <input type="button" value="Word"/> </p> <p>Step 4: after the download is complete, the file is stored in the FileSlot storage space. To edit the file, you need to use the Text List element. To read the name of the file, you need to use the FileSlotGetName macro command.</p> <p>Note 1: the preceding example illustrates the operation on directories. The trigger address is also available for the operation on files.</p> <p>Note 2: if the name of the downloaded file is known, the HMI can access the ID of the file in the FileSlot with the FileSlotGetID macro command.</p>

Download the directory / file

FTP File Setting																													
Property	Description																												
FileSlot operate saving trigger addr.	<p>When this bit is On, the HMI uploads the selected FileSlot file to the FTP server. This bit is automatically cleared once the action is complete.</p> <p>Before using this function, you need to set the FileSlot function and execute the Download DIR/File function. Example Step 1: set Selected FileSlot addr. (\$920) to 4.</p> <p style="text-align: center;">Selected FileSlot addr. \$920 Word</p> <p>Step 2: set FileSlot operate saving trigger addr. (\$200.7) to On.</p> <p style="text-align: center;">FileSlot operate saving trigger addr. \$200.7 Bit</p> <p>Step 3: the HMI uploads the file (main.lua) which FileSlotID is 4 to the FTP server.</p>																												
FileSlot operate rename trigger addr.	<p>When this bit is On, the HMI changes the name of the selected FileSlot file and uploads it to the FTP server. This bit is automatically cleared once the action is complete.</p> <p>Before using this function, you need to set the FileSlot function and execute the Download DIR/File function. Example Step 1: set Selected FileSlot addr. (\$920) to 4.</p> <p style="text-align: center;">Selected FileSlot addr. \$920 Word</p> <p>Step 2: set the string in Change/Create/Check name addr. (\$750) to "main_new.lua".</p> <p style="text-align: center;">Change/Create/Check name addr. \$750 Word 16</p> <p>Step 3: set FileSlot operate rename trigger addr. (\$200.8) to On.</p> <p style="text-align: center;">FileSlot operate rename trigger addr. \$200.8 Bit</p> <p>Step 4: the HMI changes the file name from "main.lua" to "main_new.lua", and changes the name in the FileSlot and updates the FTP file list simultaneously.</p>  <p>The screenshot shows a file list with the following entries:</p> <table border="1"> <tr><td>..</td><td></td><td></td><td></td></tr> <tr><td>LPT.bin</td><td>1200</td><td>May 09 11:</td><td></td></tr> <tr><td>__DRL__.lua</td><td>3</td><td>May 09 11:</td><td></td></tr> <tr><td>config.ini</td><td>129</td><td>May 09 11:</td><td></td></tr> <tr><td>main_new.lua</td><td>1025</td><td>May 09 11:</td><td></td></tr> <tr><td>project.dprj</td><td>310</td><td>May 09 11:</td><td></td></tr> <tr><td>userPT.xml</td><td>5282</td><td>May 09 11:</td><td></td></tr> </table>	..				LPT.bin	1200	May 09 11:		__DRL__.lua	3	May 09 11:		config.ini	129	May 09 11:		main_new.lua	1025	May 09 11:		project.dprj	310	May 09 11:		userPT.xml	5282	May 09 11:	
..																													
LPT.bin	1200	May 09 11:																											
__DRL__.lua	3	May 09 11:																											
config.ini	129	May 09 11:																											
main_new.lua	1025	May 09 11:																											
project.dprj	310	May 09 11:																											
userPT.xml	5282	May 09 11:																											
FileSlot operate delete trigger addr.	<p>When this bit is On, the HMI deletes the selected FileSlot file from the FTP server. This bit is automatically cleared once the action is complete.</p> <p>Before using this function, you need to set the FileSlot function and execute the Download DIR/File function. Example Step 1: set Selected FileSlot addr. (\$920) to 1.</p> <p style="text-align: center;">Selected FileSlot addr. \$920 Word</p> <p>Step 2: set FileSlot operate delete trigger addr. (\$200.9) to On.</p> <p style="text-align: center;">FileSlot operate delete trigger addr. \$200.9 Bit</p> <p>Step 3: the HMI deletes the file "LPT.bin" from the FTP server and updates the FTP file list simultaneously.</p>																												

FileSlot operation

FTP File Setting	
Property	Description
FileSlot operate save as trigger addr.	<p>When this bit is On, the HMI saves the selected FileSlot file in the FTP server. This bit is automatically cleared once the action is complete.</p> <p>Before using this function, you need to set the FileSlot function and execute the Download DIR/File function. Example Step 1: set Selected FileSlot addr. (\$920) to 3.</p> <p style="text-align: center;">Selected FileSlot addr. <input type="text" value="\$920"/> Word</p> <p>Step 2: set the string in Change/Create/Check name addr. (\$750) to "configNEW.ini".</p> <p style="text-align: center;">Change/Create/Check name addr. <input type="text" value="\$750"/> Word 16</p> <p>Step 3: set FileSlot operate save as trigger addr. (\$200.10) to On.</p> <p style="text-align: center;">FileSlot operate save as trigger <input type="text" value="\$200.10"/> Bit</p> <p>Step 4: the HMI saves the file to the FTP server. The file named "configNEW.ini" is added to the FTP server and the FTP file list is updated simultaneously.</p> 
	FileSlot operation

FTP File Setting		
Operations of setting the names and addresses for directories and files	Set the name of the working directory to be switched	Set the name and maximum name length of the working directory to be switched.
	Maximum name length	This function must be used with the Change working DIR trigger addr. Refer to its example for descriptions.
	Set the name of the selected directory / file	Set the name and maximum name length of the directory or file to be deleted.
	Maximum name length	This function must be used with the Delete DIR/File trigger addr. Refer to its example for descriptions.
	Set the name of the directory / file to be changed / added / checked	Set the name and maximum name length of the directory or file to be changed / added / checked. This function must be used with the Check duplicate DIR/File trigger addr. or Create DIR trigger addr. Refer to the corresponding example for descriptions.
	Maximum name length	
	Set the selected FileSlot	The input data type is Word. Use this function to set the selected FileSlot. This function must be used with the Download DIR/File trigger addr. Refer to its example for descriptions.
Set the index to obtain directory / file name	The input data type is Word. Set the index to obtain the directory / file name. This function must be used with the Get DIR/File name trigger addr. Refer to its example for descriptions.	
Execution result settings	Operation status	When the action set in the FTP transmission is complete, the operation status changes as well. If the operation succeeded, 0 is displayed; if the operation failed, an error code is displayed.
	Result of checking for duplicate directories / files	Returns the result of Check duplicated DIR/File trigger addr.
	Number of downloaded file	Returns the number of downloaded files. This function must be used with Download DIR/File trigger addr.
	Result of obtaining directory / file name	Returns the result of Get DIR/File name trigger addr.

19

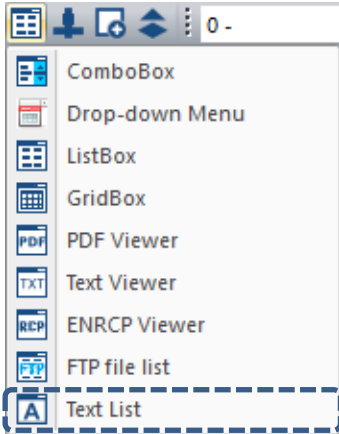
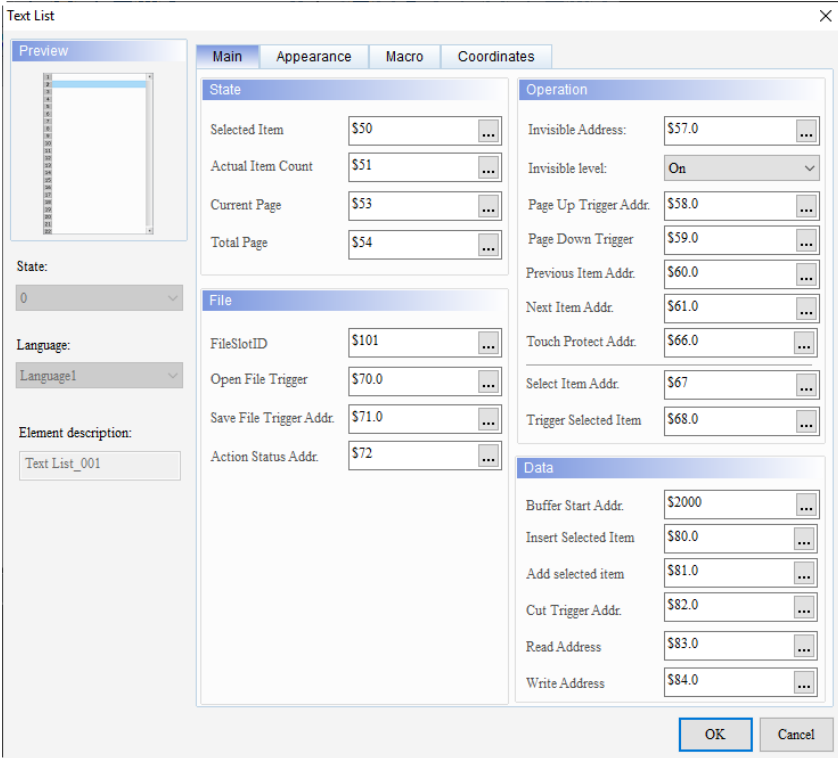
19.10 Text List

If there is a need for editing text files on the HMI, the Text List element supports reading and saving files, and file editing with the basic functions of Copy, Paste, Cut, and Insert. You can edit any text with the Text List element along with the Character Entry element and the buffer configuration.

Note: this function is available only on the DOP-107H handheld HMIs.

Refer to Table 19.10.1 for the Text List example.

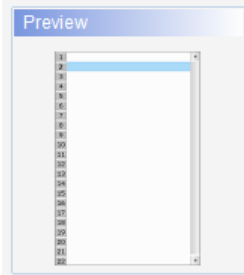
Table 19.10.1 Text List example

Text List	
<p>Step 1: in the editing screen, go to [List] > [Text List] and create a Text List element on the screen.</p>	
<p>Step 2: on the Main property page, set the corresponding state addresses, including FileSlotID address, Select Item Addr., and trigger addresses of other editing actions.</p>	<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); padding-right: 10px;"> Create Text List element </div> <div style="flex-grow: 1;">  </div> </div>

Text List

Step 3: on the Appearance property page, set and adjust the appearance of the element.

Text List



State:
0

Main Appearance Macro Coordinates

Style

Font size: 12

Background Color: [Color Picker]

Select Color: [Color Picker]

Show Line No.: Yes

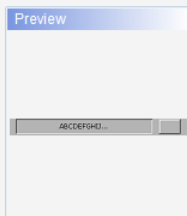
Row Height: 20

Create a Character Entry element on the screen and set its Write Address as the Buffer Start Addr. (\$2000) of the Text List element. Then, you can enter user-defined data with the Character Entry element.

W:\$2000

BCDEFGHIJKLMNOPQRSTUVWXYZ

Character Entry



State:
0

Language:
Language1

Main Main-2 Text Details Macro Coordinates

Memory

Write Address: \$2000

Read Address: None

Write Offset Address: None

Read Offset Address: None

Detail

System Keypad

Custom Keypad

String Length: 25

Create Numeric Entry and Maintained button elements corresponding to the settings in the Main property page of the Text List element for editing the Text List element.

State

Selected Item: \$50 W:\$50 34

Actual Item Count: \$51 W:\$51 34

Current Page: \$53 W:\$53 34

Total Page: \$54 W:\$54 34

Operation

Invisible Address: \$57.0 W:\$57.0

Invisible level: On

Page Up Trigger Addr.: \$58.0 W:\$58.0

Page Down Trigger: \$59.0 W:\$59.0

Previous Item Addr.: \$60.0 W:\$60.0

Next Item Addr.: \$61.0 W:\$61.0

Touch Protect Addr.: \$66.0 W:\$66.0

Select Item Addr.: \$67 W:\$67 34

Trigger Selected Item: \$68.0 W:\$68.0

File

FileSlotID: \$101 W:\$101.4

Open File Trigger: \$70.0 W:\$70.0

Save File Trigger Addr.: \$71.0 W:\$71.0

Action Status Addr.: \$72 W:\$72 34

Data

Buffer Start Addr.: \$2000

Insert Selected Item: \$80.0 W:\$80.0

Add selected item: \$81.0 W:\$81.0

Cut Trigger Addr.: \$82.0 W:\$82.0

Read Address: \$83.0 W:\$83.0

Write Address: \$84.0 W:\$84.0

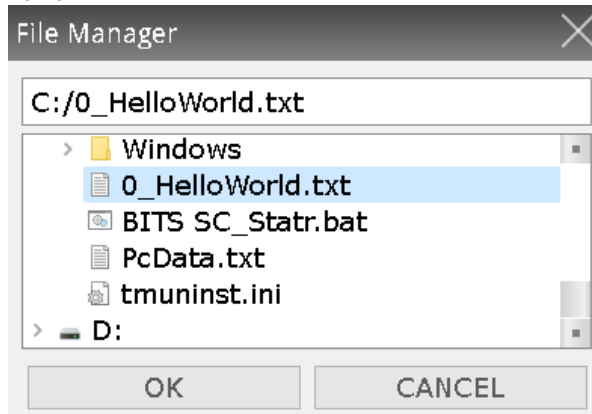
Import FileSlot
Export FileSlot

Text List

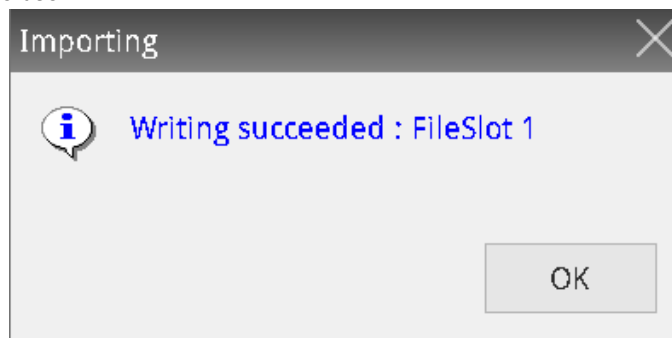
- After creating the elements, compile the elements and download the screen to the HMI.
- A blank file is created by default.

- Set FileSlotID to 1 and execute **Import FileSlot** to select the file to import as shown in the following figure.

Execution results



- After the file is successfully imported, the software displays the following message to notify the user.



Text List

- Then, trigger the Open File Trigger address, and the Text List element loads the imported file 0_HelloWord.txt.

Code	State	File														
1 -- defines a factorial function	Selected Item \$30 1	FileSlotID \$101 1														
2 function fact (n)	Actual Item Count \$51 13	Open File Trigger \$70.0														
3 if n == 0 then	Current Page \$53 1	Save File Trigger Addr. \$71.0														
4 return 1	Total Page \$54 1	Action Status Addr. \$72 0														
5 else	<table border="1"> <thead> <tr> <th>Operation</th> <th>Data</th> </tr> </thead> <tbody> <tr> <td>Invisible Address: \$57.0</td> <td>Buffer Start Addr. \$2000</td> </tr> <tr> <td>Invisible level: On</td> <td>Insert Selected Item \$80.0</td> </tr> <tr> <td>Page Up Trigger Addr. \$58.0</td> <td>Add selected item \$81.0</td> </tr> <tr> <td>Page Down Trigger \$59.0</td> <td>Cut Trigger Addr. \$82.0</td> </tr> <tr> <td>Previous Item Addr. \$60.0</td> <td>Read Address \$83.0</td> </tr> <tr> <td>Next Item Addr. \$61.0</td> <td>Write Address \$84.0</td> </tr> </tbody> </table>		Operation	Data	Invisible Address: \$57.0	Buffer Start Addr. \$2000	Invisible level: On	Insert Selected Item \$80.0	Page Up Trigger Addr. \$58.0	Add selected item \$81.0	Page Down Trigger \$59.0	Cut Trigger Addr. \$82.0	Previous Item Addr. \$60.0	Read Address \$83.0	Next Item Addr. \$61.0	Write Address \$84.0
Operation	Data															
Invisible Address: \$57.0	Buffer Start Addr. \$2000															
Invisible level: On	Insert Selected Item \$80.0															
Page Up Trigger Addr. \$58.0	Add selected item \$81.0															
Page Down Trigger \$59.0	Cut Trigger Addr. \$82.0															
Previous Item Addr. \$60.0	Read Address \$83.0															
Next Item Addr. \$61.0	Write Address \$84.0															
6 return n * fact(n-1)	Select Item Addr. \$67 0	Import FileSlot														
7 end	Trigger Selected Item \$68.0	Export FileSlot														
8 end																
9																
10 print("enter a number:")																
11 -- read a number																
12 a = io.read("*number")																
13 print(fact(a))																

19

- When the number of data rows exceeds the display range, the Text List element displays the data on different pages and shows a vertical scroll bar on the right.

Execution results

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	-- defines a factorial function
11	function fact (n)
12	if n == 0 then
13	return 1
14	else
15	return n * fact(n-1)
16	end
17	end
18	
19	print("enter a number:")
20	-- read a number
21	a = io.read("*number")

19

Text List

- Press **Page Up Trigger Addr.**, **Page Down Trigger**, **Previous Item Addr.**, or **Next Item Addr.** to trigger the action of selecting the previous item or the next item, or going to the previous page or the next page.

```

3
4
5
6
7
8
9
10 -- defines a factorial function
11 function fact (n)
12   if n == 0 then
13     return 1
14   else
15     return n * fact(n-1)
16   end
17 end
18
19 print("enter a number:")
20 -- read a number
21 a = io.read("*number")
22 print(fact(a))
    
```

State		File	
Selected Item	\$50 5	FileSlotID	\$101 1
Actual Item Count	\$51 22	Open File Trigger	\$70.0
Current Page	\$53 1	Save File Trigger Addr.	\$71.0
Total Page	\$54 2	Action Status Addr.	\$72 0
Operation		Data	
Invisible Address:	\$57.0	Buffer Start Addr.	\$2000
Invisible level:	On	Insert Selected Item	\$80.0
Page Up Trigger Addr.	\$58.0	Add selected item	\$81.0
Page Down Trigger	\$59.0	Cut Trigger Addr.	\$82.0
Previous Item Addr.	\$60.0	Read Address	\$83.0
Next Item Addr.	\$61.0	Write Address	\$84.0
Touch Protect Addr.	\$66.0	<input type="button" value="Import FileSlot"/> <input type="button" value="Export FileSlot"/>	
Select Item Addr.	\$67 0		
Trigger Selected Item	\$68.0		

Execution results

- Enter user-defined data in the Character Entry element and then press **Insert Selected Item**, **Add selected item**, or **Write Address** to trigger the action of inserting before or after the selected line, or pasting.

```

2
3
4
5 TEST123
6
7
8
9
10 -- defines a factorial function
11 function fact (n)
12   if n == 0 then
13     return 1
14   else
15     return n * fact(n-1)
16   end
17 end
18
19 print("enter a number:")
20 -- read a number
21 a = io.read("*number")
22 print(fact(a))
    
```

State		File	
Selected Item	\$50 5	FileSlotID	\$101 1
Actual Item Count	\$51 22	Open File Trigger	\$70.0
Current Page	\$53 1	Save File Trigger Addr.	\$71.0
Total Page	\$54 2	Action Status Addr.	\$72 0
Operation		Data	
Invisible Address:	\$57.0	Buffer Start Addr.	\$2000
Invisible level:	On	Insert Selected Item	\$80.0
Page Up Trigger Addr.	\$58.0	Add selected item	\$81.0
Page Down Trigger	\$59.0	Cut Trigger Addr.	\$82.0
Previous Item Addr.	\$60.0	Read Address	\$83.0
Next Item Addr.	\$61.0	Write Address	\$84.0
Touch Protect Addr.	\$66.0	<input type="button" value="Import FileSlot"/> <input type="button" value="Export FileSlot"/>	
Select Item Addr.	\$67 0		
Trigger Selected Item	\$68.0		

Text List

- Select the row to be deleted or copied and press **Cut Trigger Addr.** or **Read Address** to trigger the action of moving or copying the content to the buffer.

Execution results

TEST123		State	File
1		Selected Item \$50 5	FileSlotID \$101 1
2		Actual Item Count \$51 20	Open File Trigger \$70.0
3		Current Page \$53 1	Save File Trigger Addr. \$71.0
4		Total Page \$54 1	Action Status Addr. \$72 0
5		Operation	
6		Invisible Address: \$57.0	Data
7		Invisible level: On	Buffer Start Addr. \$2000
8	-- defines a factorial function	Page Up Trigger Addr. \$58.0	Insert Selected Item \$80.0
9	function fact (n)	Page Down Trigger \$59.0	Add selected item \$81.0
10	if n == 0 then	Previous Item Addr. \$60.0	Cut Trigger Addr. \$82.0
11	return 1	Next Item Addr. \$61.0	Read Address \$83.0
12	else	Touch Protect Addr. \$66.0	Write Address \$84.0
13	return n * fact(n-1)	Select Item Addr. \$67 0	Import FileSlot
14	end	Trigger Selected Item \$68.0	Export FileSlot
15	end		
16			
17	print("enter a number:")		
18	-- read a number		
19	a = io.read("*number")		
20	print(fact(a))		

- Set FileSlotID as 1 and press **Save File Trigger Addr.**, and then the element saves the current file content to the 0_HelloWord.txt file.

TEST123		State	File
1		Selected Item \$50 5	FileSlotID \$101 1
2		Actual Item Count \$51 20	Open File Trigger \$70.0
3		Current Page \$53 1	Save File Trigger Addr. \$71.0
4		Total Page \$54 1	Action Status Addr. \$72 0
5		Operation	
6		Invisible Address: \$57.0	Data
7		Invisible level: On	Buffer Start Addr. \$2000
8	-- defines a factorial function	Page Up Trigger Addr. \$58.0	Insert Selected Item \$80.0
9	function fact (n)	Page Down Trigger \$59.0	Add selected item \$81.0
10	if n == 0 then	Previous Item Addr. \$60.0	Cut Trigger Addr. \$82.0
11	return 1	Next Item Addr. \$61.0	Read Address \$83.0
12	else	Touch Protect Addr. \$66.0	Write Address \$84.0
13	return n * fact(n-1)	Select Item Addr. \$67 0	Import FileSlot
14	end	Trigger Selected Item \$68.0	Export FileSlot
15	end		
16			
17	print("enter a number:")		
18	-- read a number		
19	a = io.read("*number")		
20	print(fact(a))		

When you double-click the Text List, the property page is shown as follows.

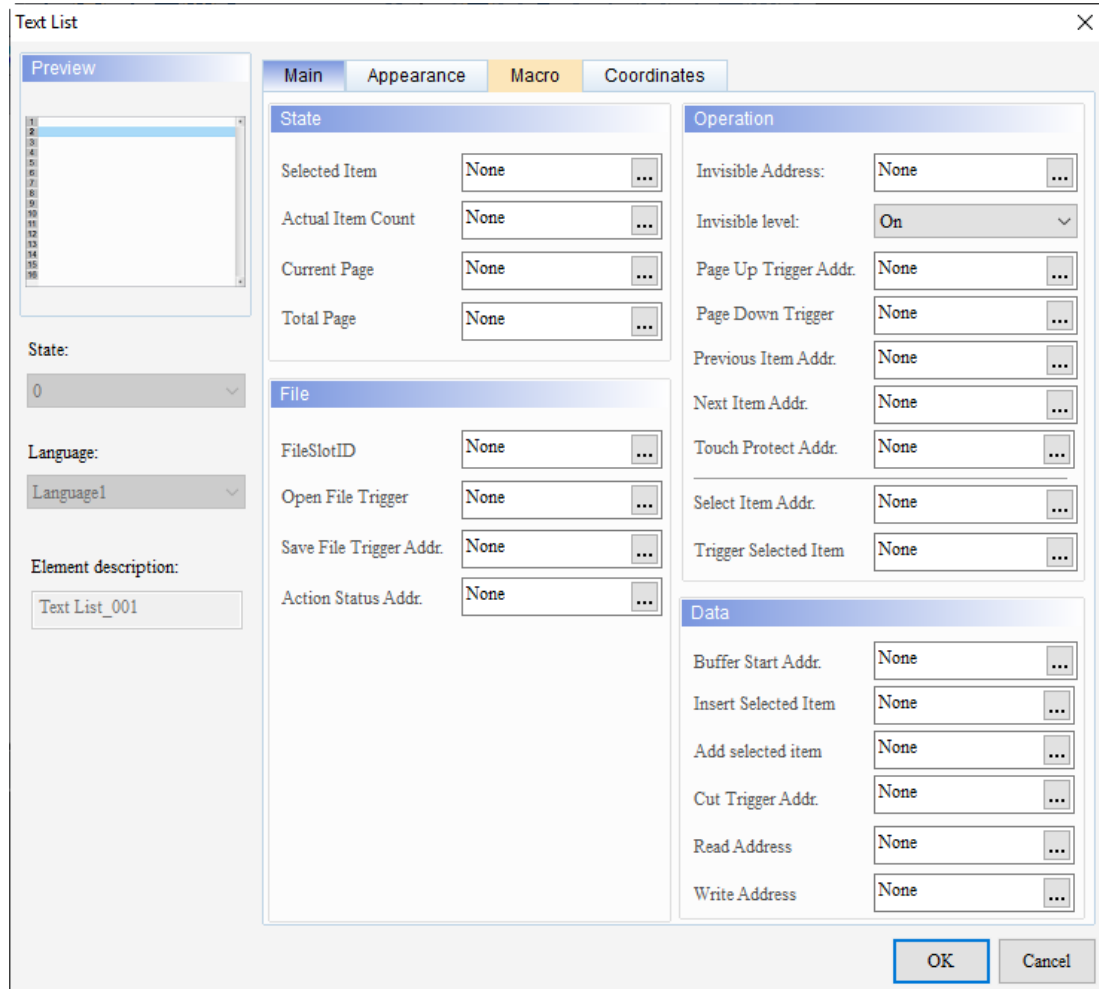
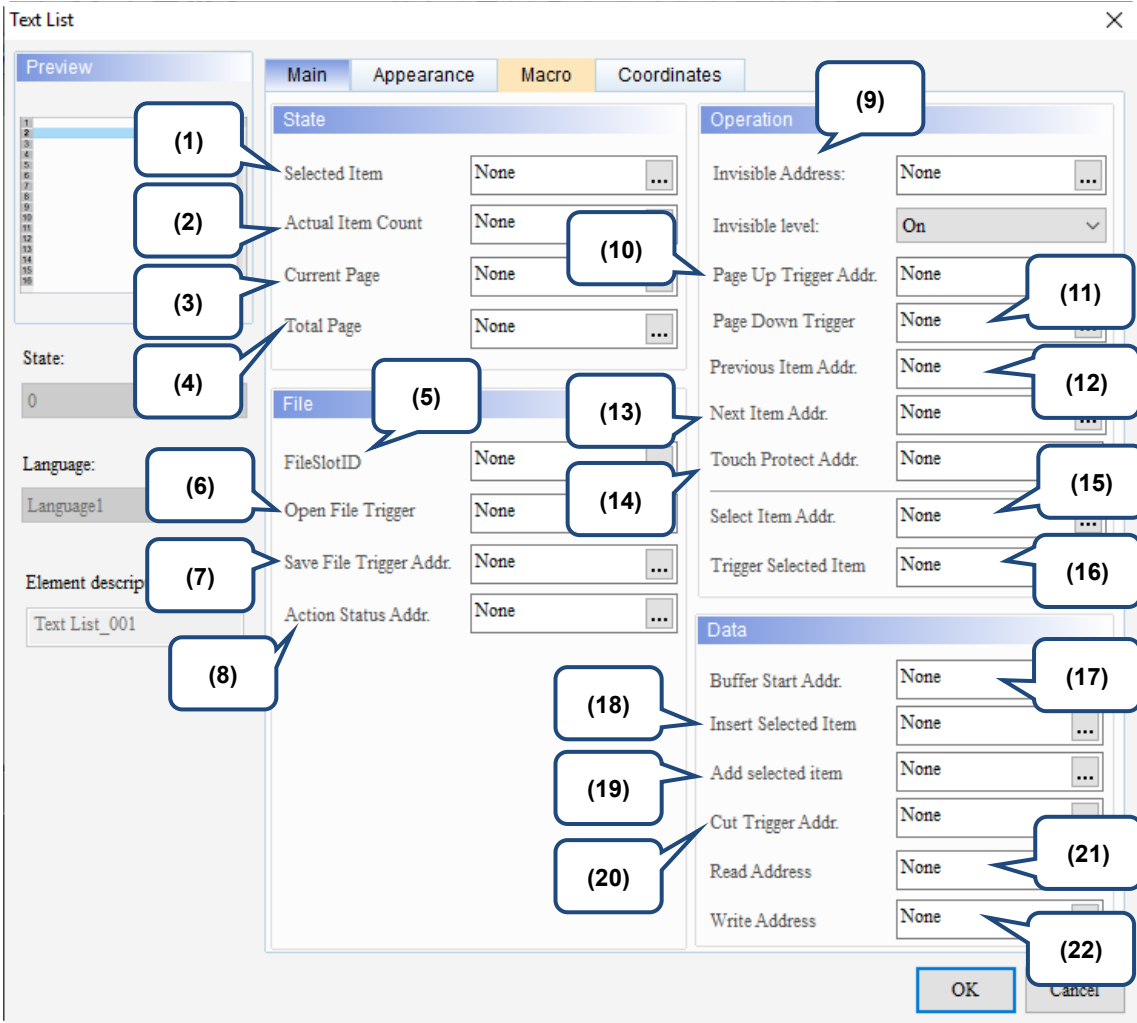


Figure 19.10.1 Properties of Text List

Table 19.10.2 Function page of the Text List element

Text List	
Function page	Description
Main	Set the Selected Item, Actual Item Count, Current Page, and Total Page. Set the FileSlotID, Open File Trigger, Save File Trigger Addr., and Action Status Addr. Set the Invisible Address, Page Up Trigger Addr., Page Down Trigger, Previous Item Addr., Next Item Addr., Touch Protect Addr., Select Item Addr., and Trigger Selected Item. Set the Buffer Start Addr., Insert Selected Item, Add selected item, Cut Trigger Addr., Read Address, and Write Address.
Appearance	Set the Font size, Background Color, Select Color, Show Line No., and Row Height.
Macro	Set the After Execute Macro.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

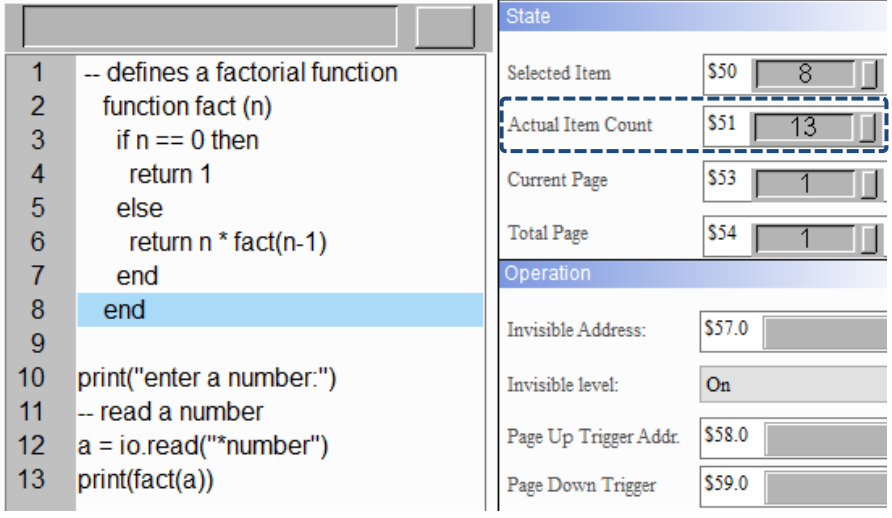
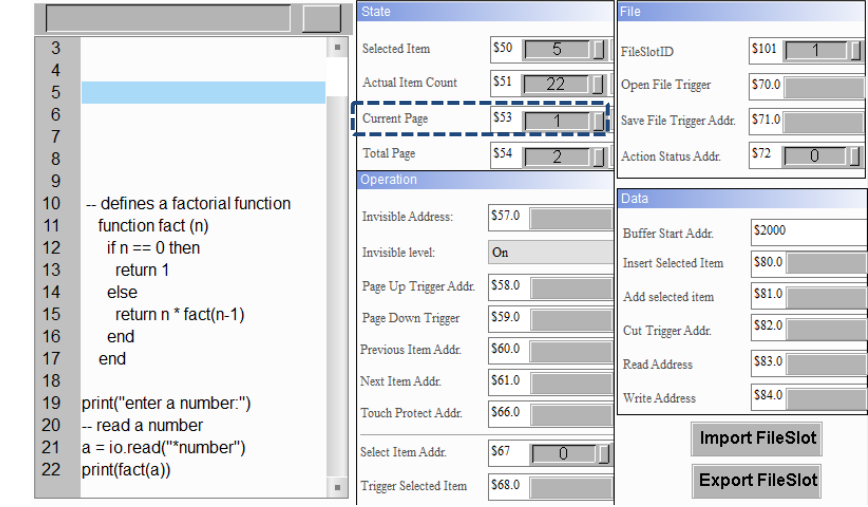


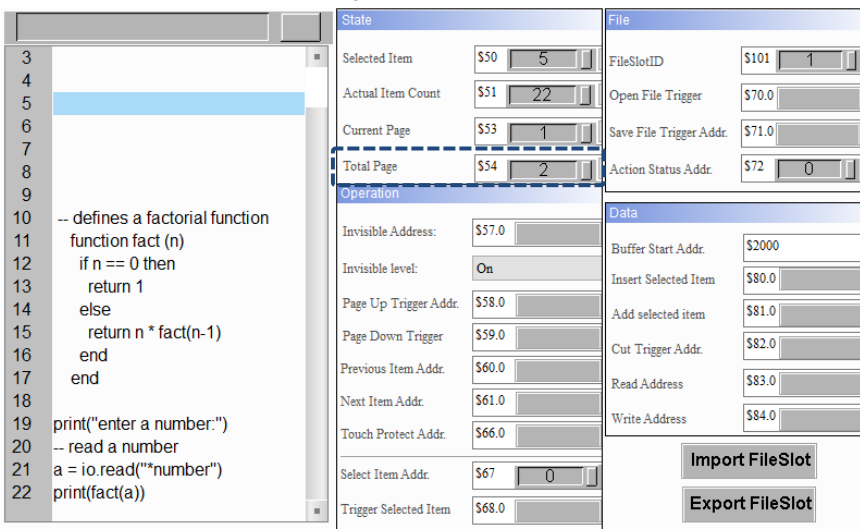
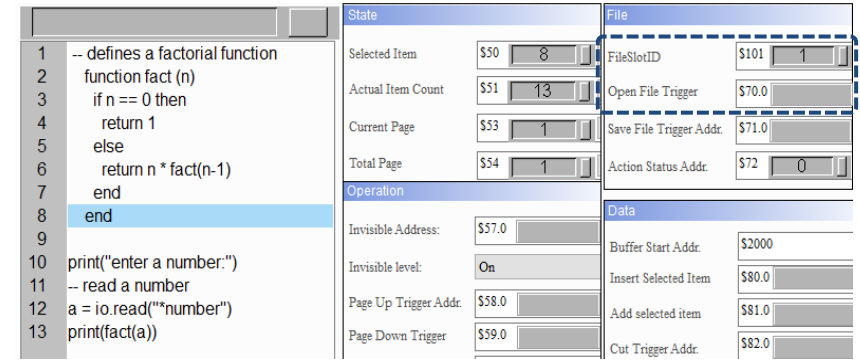
19

Figure 19.10.2 Main property page for the Text List element

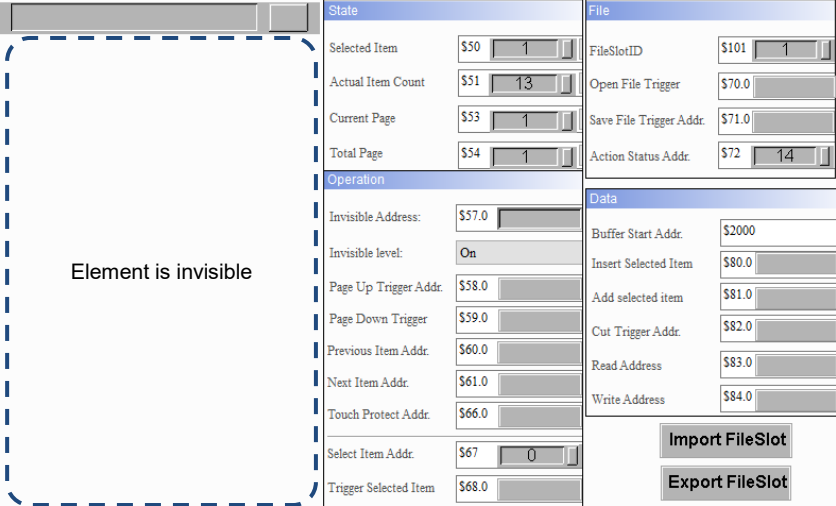
No.	Property	Function description
(1)	Selected Item	<ul style="list-style-type: none"> When the 8th row is selected, the value of the Selected Item is 8. <pre> 1 -- defines a factorial function 2 function fact (n) 3 if n == 0 then 4 return 1 5 else 6 return n * fact(n-1) 7 end 8 end 9 10 print("enter a number:") 11 -- read a number 12 a = io.read("**number") 13 print(fact(a)) </pre> <ul style="list-style-type: none"> You can select the controller address (Word) or the internal register address (Word).

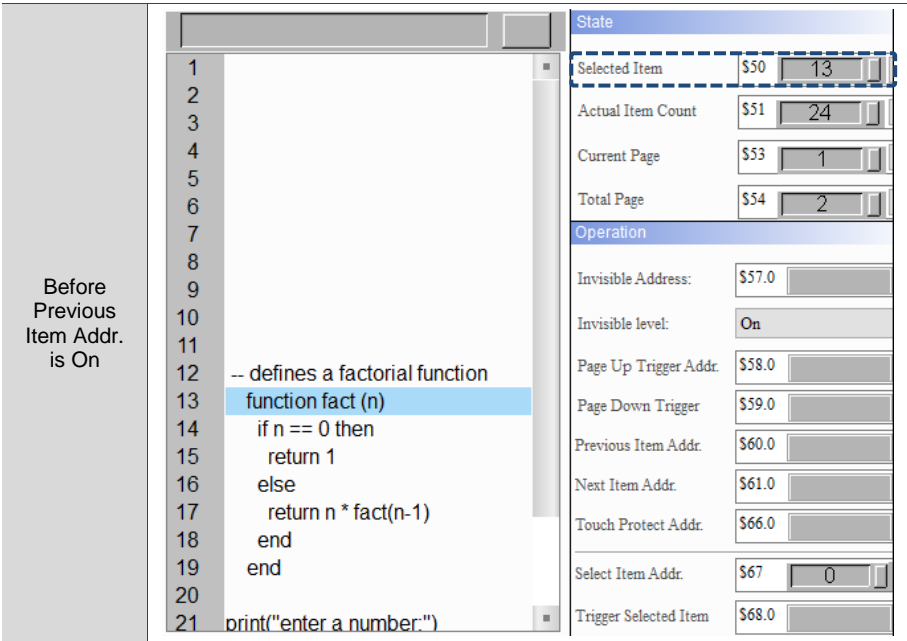
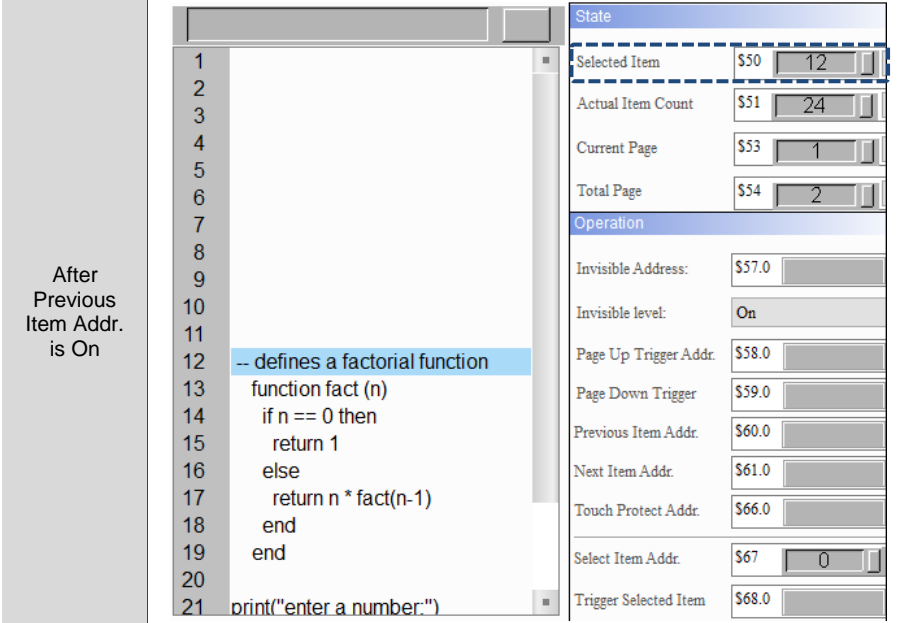
19

No.	Property	Function description
(2)	Actual Item Count	<ul style="list-style-type: none"> Displays the total number of data rows.  <pre> 1 -- defines a factorial function 2 function fact (n) 3 if n == 0 then 4 return 1 5 else 6 return n * fact(n-1) 7 end 8 end 9 10 print("enter a number:") 11 -- read a number 12 a = io.read("*number") 13 print(fact(a)) </pre> <p>You can select the controller address (Word) or the internal register address (Word).</p>
(3)	Current Page	<ul style="list-style-type: none"> Shows the currently displayed page. When the total number of data rows exceeds the display range of the element, the data is displayed on different pages.  <pre> 3 4 5 6 7 8 9 10 -- defines a factorial function 11 function fact (n) 12 if n == 0 then 13 return 1 14 else 15 return n * fact(n-1) 16 end 17 end 18 19 print("enter a number:") 20 -- read a number 21 a = io.read("*number") 22 print(fact(a)) </pre> <p>You can select the controller address (Word) or the internal register address (Word).</p>

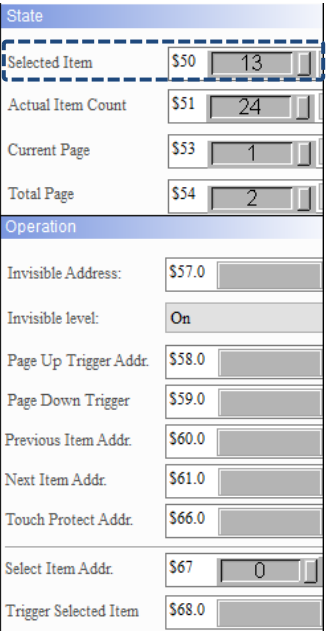
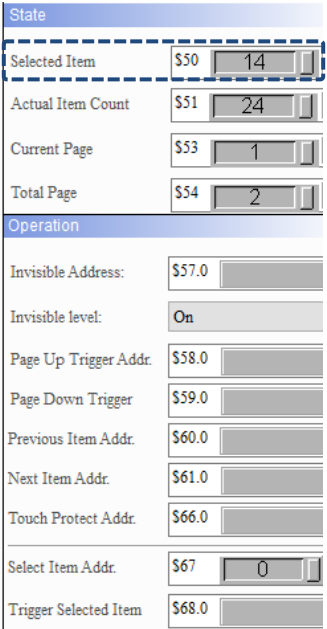
No.	Property	Function description
(4)	Total Page	<ul style="list-style-type: none"> Shows the total number of pages.  <ul style="list-style-type: none"> You can select the controller address (Word) or the internal register address (Word).
(5)	FileSlotID	<ul style="list-style-type: none"> Specify the ID of the file under [DOPSoft] > [FileSlot File Manager] with FileSlotID then trigger Open File Trigger to On, and the element opens the file corresponding to the specified FileSlotID.
(6)	Open File Trigger	<ul style="list-style-type: none"> When Save File Trigger Addr. is triggered to On, the element saves the current content to the file corresponding to the specified FileSlotID.
(7)	Save File Trigger Addr.	<ul style="list-style-type: none"> You can select the controller address (Word) or the internal register address (Word) for FileSlotID.  <ul style="list-style-type: none"> You can select the controller address (Bit) or the internal register address (Bit) for Open File Trigger. When Save File Trigger Addr. is On, the content is saved to the file of the specified FileSlotID. If the file path does not exist, a file is created to save the content. This bit is automatically cleared once the action is complete. You can select the controller address (Bit) or the internal register address (Bit) for Save File Trigger Addr.

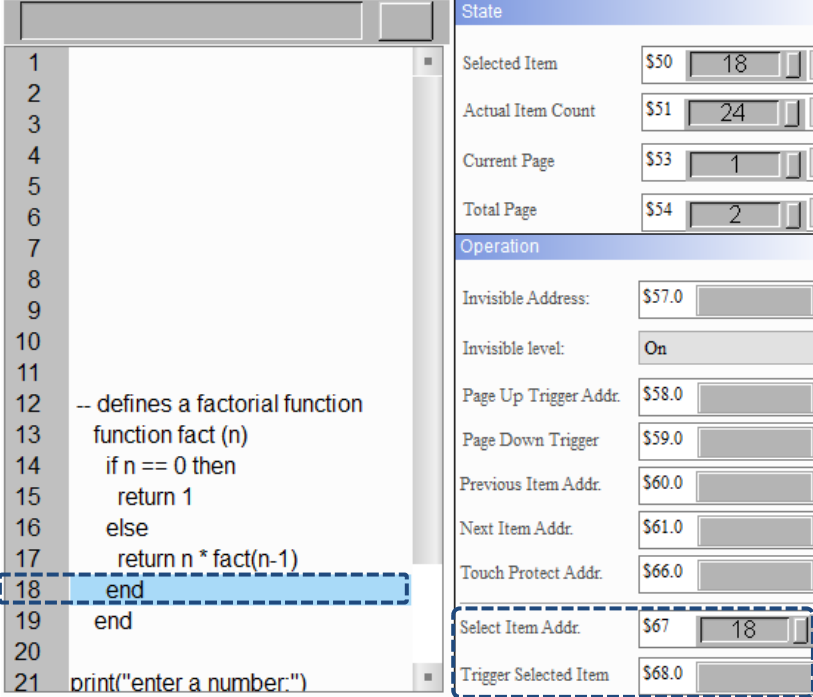
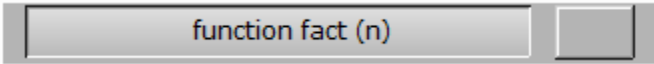
19

No.	Property	Function description																				
(8)	Action Status Addr.	<ul style="list-style-type: none"> You can select the controller address (Word) or the internal register address (Word). You can access the current state of the Text List with the state values. <table border="1"> <thead> <tr> <th>State value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Zero state</td> </tr> <tr> <td>1</td> <td>Row number does not exist</td> </tr> <tr> <td>3</td> <td>File does not exist</td> </tr> <tr> <td>5</td> <td>Failed to open file</td> </tr> <tr> <td>6</td> <td>Failed to write file</td> </tr> <tr> <td>7</td> <td>Triggered Open File Trigger or Save File Trigger Addr. without specifying FileSlotID</td> </tr> <tr> <td>13</td> <td>Element is touch-protected</td> </tr> <tr> <td>14</td> <td>Element is invisible</td> </tr> <tr> <td>16</td> <td>Exceeded the maximum file size (Maximum: 20 MB)</td> </tr> </tbody> </table>	State value	Description	0	Zero state	1	Row number does not exist	3	File does not exist	5	Failed to open file	6	Failed to write file	7	Triggered Open File Trigger or Save File Trigger Addr. without specifying FileSlotID	13	Element is touch-protected	14	Element is invisible	16	Exceeded the maximum file size (Maximum: 20 MB)
State value	Description																					
0	Zero state																					
1	Row number does not exist																					
3	File does not exist																					
5	Failed to open file																					
6	Failed to write file																					
7	Triggered Open File Trigger or Save File Trigger Addr. without specifying FileSlotID																					
13	Element is touch-protected																					
14	Element is invisible																					
16	Exceeded the maximum file size (Maximum: 20 MB)																					
(9)	Invisible Address	<ul style="list-style-type: none"> When the Invisible Address is On, the Text List is invisible, and Action Status Addr. is set to 14.  <p>The screenshot shows a control panel with a dashed blue box around the text 'Element is invisible'. To the right, there are several configuration sections: <ul style="list-style-type: none"> State: Selected Item (\$50, 1), Actual Item Count (\$51, 13), Current Page (\$53, 1), Total Page (\$54, 1). File: FileSlotID (\$101, 1), Open File Trigger (\$70.0), Save File Trigger Addr. (\$71.0), Action Status Addr. (\$72, 14). Operation: Invisible Address (\$57.0), Invisible level: On, Page Up Trigger Addr. (\$58.0), Page Down Trigger (\$59.0), Previous Item Addr. (\$60.0), Next Item Addr. (\$61.0), Touch Protect Addr. (\$66.0), Select Item Addr. (\$67, 0), Trigger Selected Item (\$68.0). Data: Buffer Start Addr. (\$2000), Insert Selected Item (\$80.0), Add selected item (\$81.0), Cut Trigger Addr. (\$82.0), Read Address (\$83.0), Write Address (\$84.0). At the bottom right, there are buttons for 'Import FileSlot' and 'Export FileSlot'. </p> <ul style="list-style-type: none"> You can select the controller address (Bit) or the internal register address (Bit). 																				
(10)	Page Up Trigger Addr.	<ul style="list-style-type: none"> When Page Up Trigger Addr. is On, the element switches to the previous page. This bit is automatically cleared once the action is complete. You can select the controller address (Bit) or the internal register address (Bit). 																				
(11)	Page Down Trigger	<ul style="list-style-type: none"> When Page Down Trigger is On, the element switches to the next page. This bit is automatically cleared once the action is complete. You can select the controller address (Bit) or the internal register address (Bit). 																				

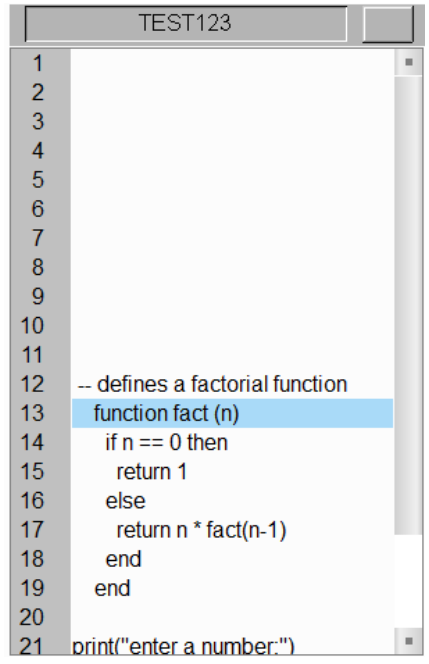
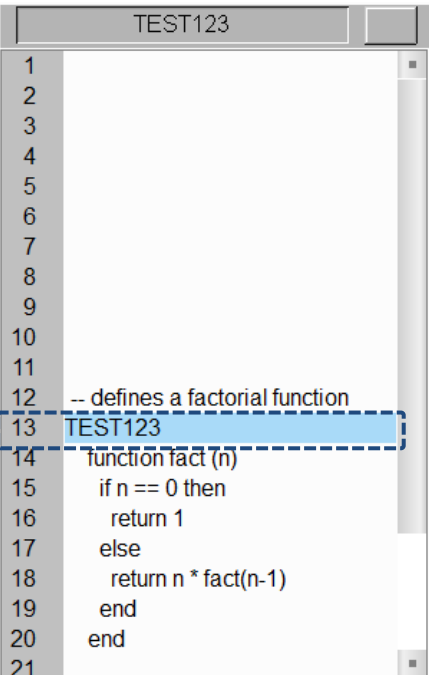
No.	Property	Function description
(12)	Previous Item Addr.	<ul style="list-style-type: none"> When Previous Item Addr. is On, the selected item switches to the previous one. This bit is automatically cleared once the action is complete. <p>Example: When Previous Item Addr. is not triggered to On, the Selected Item shows 13. When Previous Item Addr. is triggered to On, the Selected Item shows 12.</p> 
	After Previous Item Addr. is On	<ul style="list-style-type: none"> You can select the controller address (Bit) or the internal register address (Bit). 

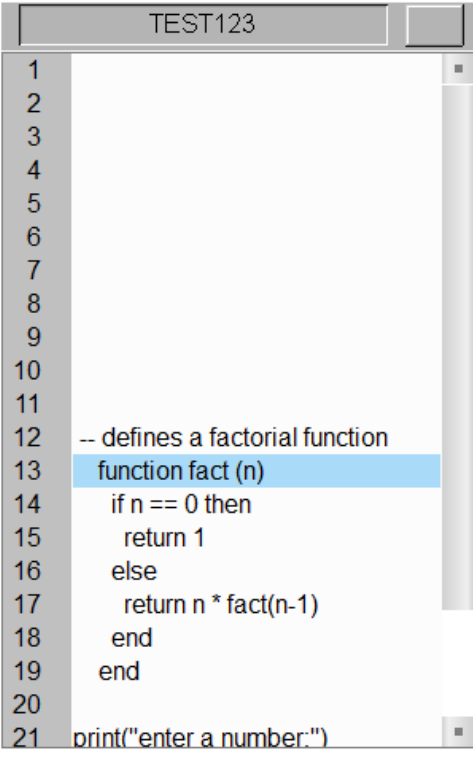
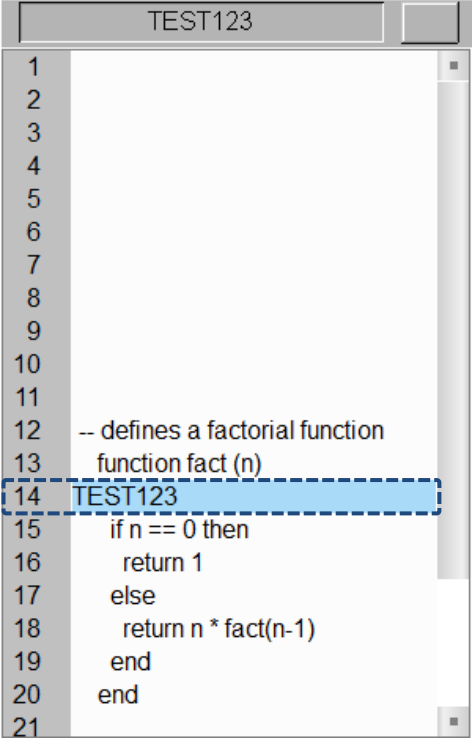
19

No.	Property	Function description
(13)	Next Item Addr.	<ul style="list-style-type: none"> When Next Item Addr. is On, the selected item switches to the next one. This bit is automatically cleared once the action is complete. <p>Example: When Next Item Addr. is not triggered to On, the Selected Item shows 13. When Next Item Addr. is triggered to On, the Selected Item shows 14.</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>Before Next Item Addr. is On</p> <pre> 1 2 3 4 5 6 7 8 9 10 11 12 -- defines a factorial function 13 function fact (n) 14 if n == 0 then 15 return 1 16 else 17 return n * fact(n-1) 18 end 19 end 20 21 print("enter a number:") </pre> </div> <div style="width: 65%;">  <p>The screenshot shows a control panel with a 'State' section containing 'Selected Item' (value 13), 'Actual Item Count' (24), 'Current Page' (1), and 'Total Page' (2). The 'Operation' section includes various address fields like 'Invisible Address', 'Page Up Trigger Addr.', etc.</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 30%;"> <p>After Next Item Addr. is On</p> <pre> 1 2 3 4 5 6 7 8 9 10 11 12 -- defines a factorial function 13 function fact (n) 14 if n == 0 then 15 return 1 16 else 17 return n * fact(n-1) 18 end 19 end 20 21 print("enter a number:") </pre> </div> <div style="width: 65%;">  <p>The screenshot is identical to the one above, but the 'Selected Item' field now displays the value 14.</p> </div> </div> <ul style="list-style-type: none"> You can select the controller address (Bit) or the internal register address (Bit).
(14)	Touch Protect Addr.	<ul style="list-style-type: none"> When Touch Protect Addr. is On, the Text List element is disabled and any other operations are unavailable, and Action Status Addr. is set to 13. You can select the controller address (Bit) or the internal register address (Bit).

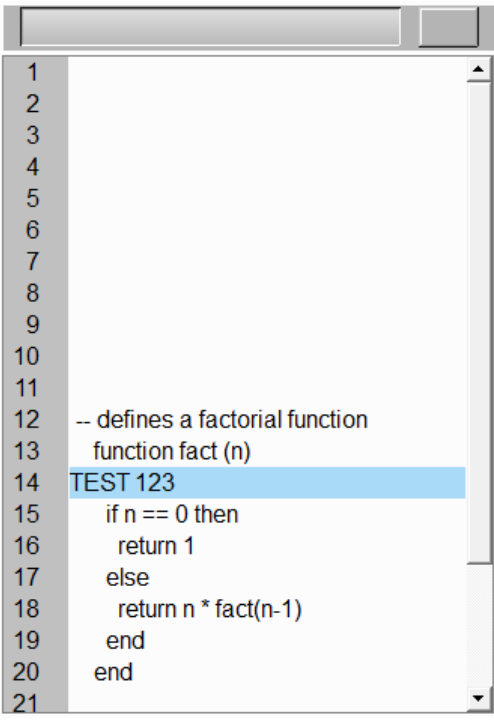
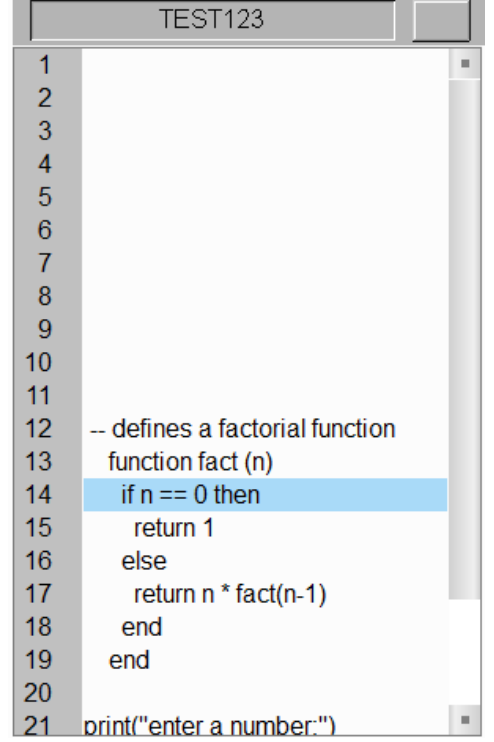
No.	Property	Function description
(15)	Select Item Addr.	<ul style="list-style-type: none"> Specify the item to select with Select Item Addr. When the Trigger Selected Item bit is On, the specified item is selected. This bit is automatically cleared once the action is complete.
(16)	Trigger Selected Item	 <ul style="list-style-type: none"> You can select the controller address (Word) or the internal register address (Word) for Select Item Addr. You can select the controller address (Bit) or the internal register address (Bit) for Trigger Selected Item.
(17)	Buffer Start Addr.	<ul style="list-style-type: none"> The address takes up 64 words (128 bytes) at most by default. If the address is set to none, the function of entering user-defined data with the Character Entry element is not supported.  <ul style="list-style-type: none"> You can select the controller address (Word) or the internal register address (Word).

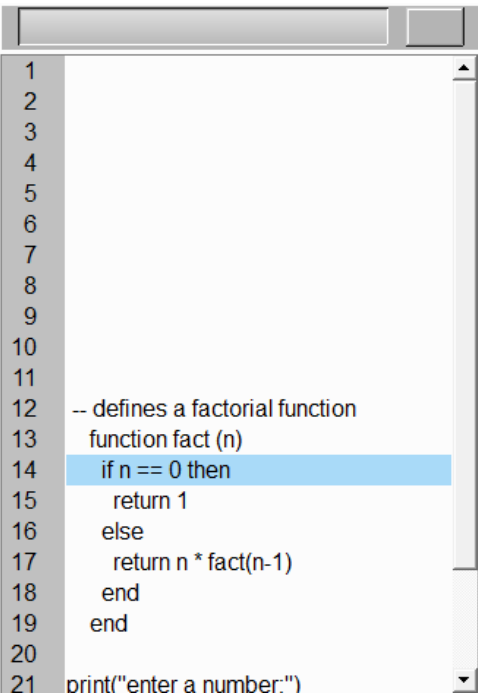
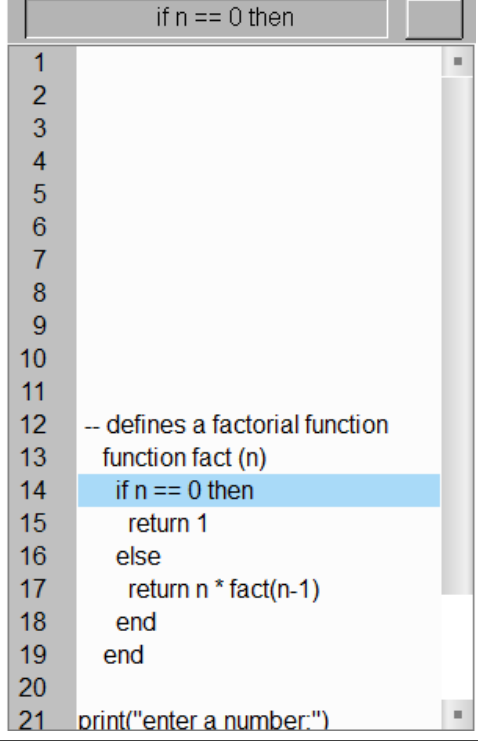
19

No.	Property	Function description
(18)	Insert Selected Item	<ul style="list-style-type: none"> When Insert Selected Item is set to On, the previously copied or deleted item is inserted before the currently selected item. This bit is automatically cleared once the action is complete. <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: #e0e0e0; padding: 5px;"> <p style="text-align: center;">Before Insert Selected Item is On</p> </div> <div style="width: 65%;">  </div> </div> <hr/> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: #e0e0e0; padding: 5px;"> <p style="text-align: center;">After Insert Selected Item is On</p> </div> <div style="width: 65%;">  </div> </div> <ul style="list-style-type: none"> You can select the controller address (Bit) or the internal register address (Bit).

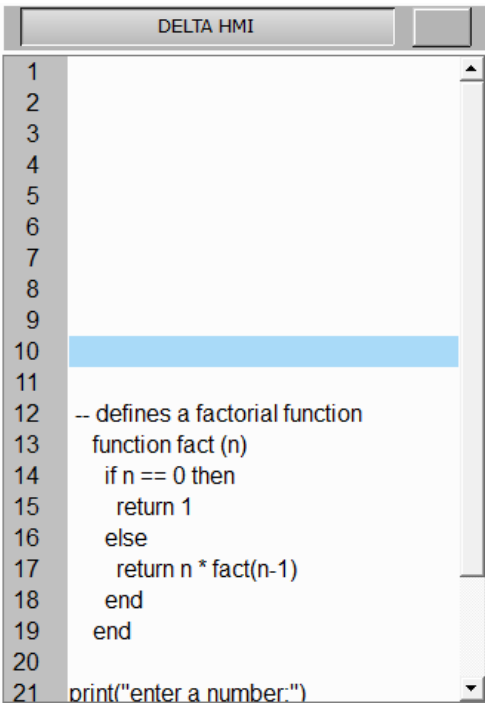
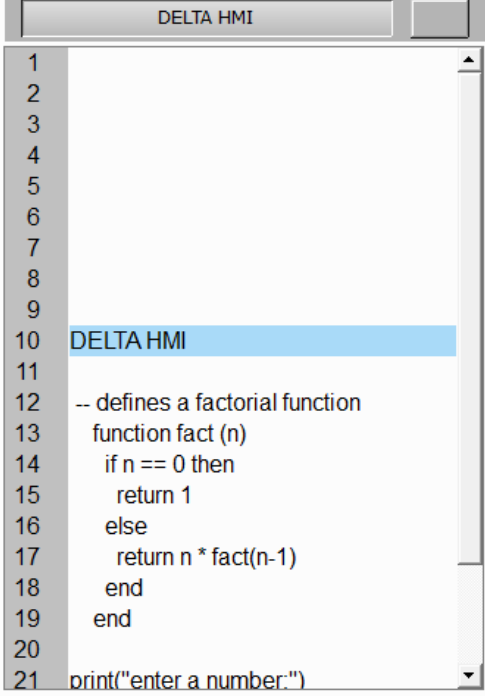
No.	Property	Function description
(19)	Add selected item	<ul style="list-style-type: none"> When Add selected item is set to On, the previously copied or deleted item is inserted after the currently selected item. This bit is automatically cleared once the action is complete. <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: #cccccc; padding: 5px; text-align: center;">Before Add selected item is On</div> <div style="width: 65%;">  </div> </div>
	Add selected item	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: #cccccc; padding: 5px; text-align: center;">After Add selected item is On</div> <div style="width: 65%;">  </div> </div> <ul style="list-style-type: none"> You can select the controller address (Bit) or the internal register address (Bit).

19

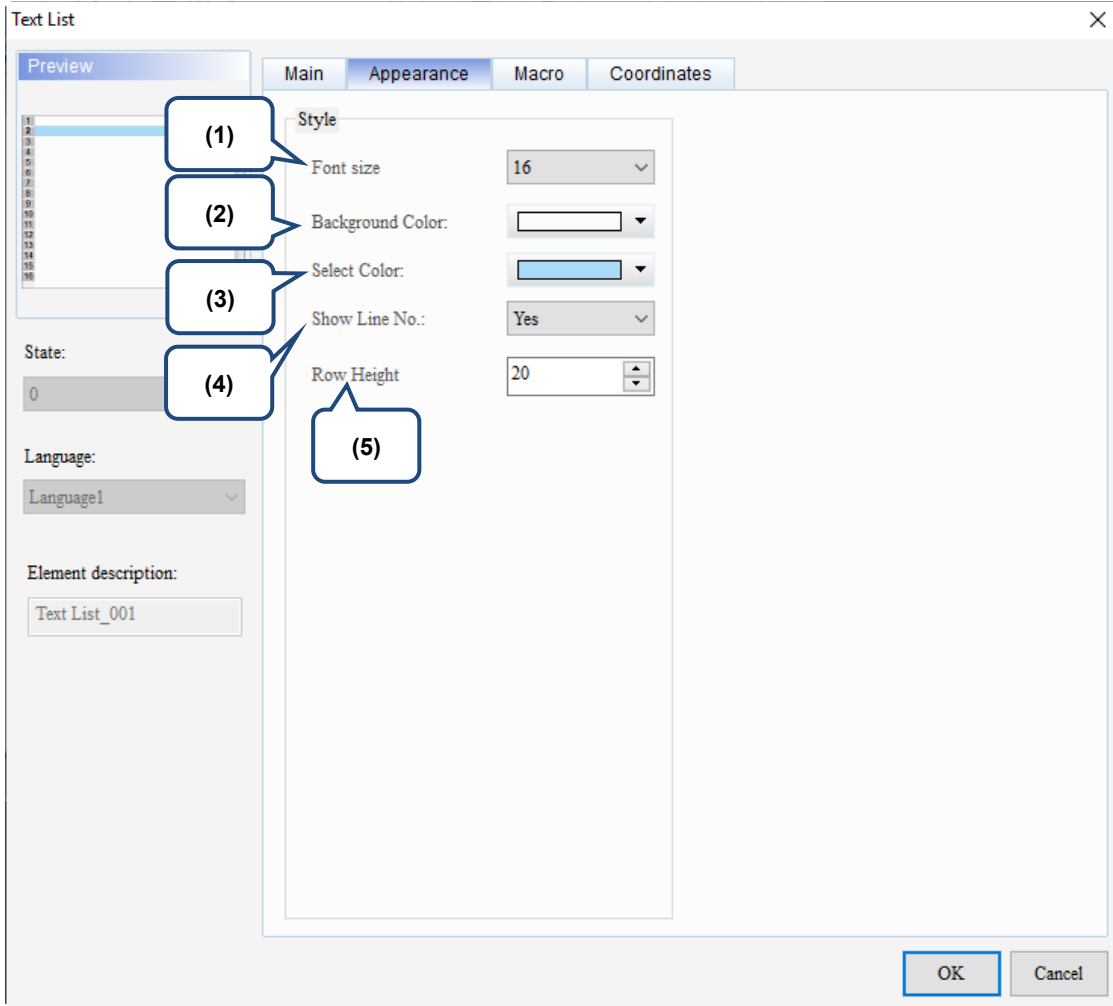
No.	Property	Function description
(20)	Cut Trigger Addr.	<p>■ When Cut Trigger Addr. is On, the currently selected content is deleted and moved to the buffer. This bit is automatically cleared once the action is complete.</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: #cccccc; padding: 5px; text-align: center;"> Before Cut Trigger Addr. is On </div> <div style="width: 65%;">  </div> </div>
	Cut Trigger Addr.	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%; background-color: #cccccc; padding: 5px; text-align: center;"> After Cut Trigger Addr. is On </div> <div style="width: 65%;">  </div> </div> <p>■ You can select the controller address (Bit) or the internal register address (Bit).</p>

No.	Property	Function description
(21)		<ul style="list-style-type: none"> When Read Address is set to On, the currently selected data is copied. This bit is automatically cleared once the action is complete. 
	Read Address	 <ul style="list-style-type: none"> You can select the controller address (Bit) or the internal register address (Bit).

19

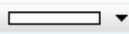

No.	Property	Function description
(22)	Write Address	<ul style="list-style-type: none"> When Write Address is set to On, the previously copied or deleted item is pasted to the currently selected row. This bit is automatically cleared once the action is complete. <div style="display: flex; border-bottom: 1px solid black;"> <div style="width: 30%; padding: 5px; border-right: 1px solid black;"> <p style="text-align: center;">Before Write Address is On</p> </div> <div style="width: 70%; padding: 5px;">  </div> </div> <div style="display: flex; border-top: 1px solid black;"> <div style="width: 30%; padding: 5px; border-right: 1px solid black;"> <p style="text-align: center;">After Write Address is On</p> </div> <div style="width: 70%; padding: 5px;">  </div> </div> <ul style="list-style-type: none"> You can select the controller address (Bit) or the internal register address (Bit).

■ Appearance

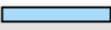


19

Figure 19.10.3 Appearance property page for the Text List element

No.	Property	Function description
(1)	Font size	Sets the font size of the Text List element.
(2)	Background Color	Sets the background color of the Text List element. The default is  . 

19

No.	Property	Function description
(3)	Select Color	<p>Sets the color of the selected item for the Text List element. The default is .</p> <pre> 1 -- defines a factorial function 2 function fact (n) 3 if n == 0 then 4 return 1 5 else 6 return n * fact(n-1) 7 end 8 end 9 10 print("enter a number:") 11 -- read a number 12 a = io.read("*number") 13 print(fact(a)) </pre>
(4)	Show Line No.	<p>The default is Yes for displaying the row numbers.</p> <pre> 1 -- defines a factorial function 2 function fact (n) 3 if n == 0 then 4 return 1 5 else 6 return n * fact(n-1) 7 end 8 end 9 10 print("enter a number:") 11 -- read a number 12 a = io.read("*number") 13 print(fact(a)) </pre>
(5)	Row Height	Sets the height of each row. The default is 20 and the maximum is 256.

■ Macro

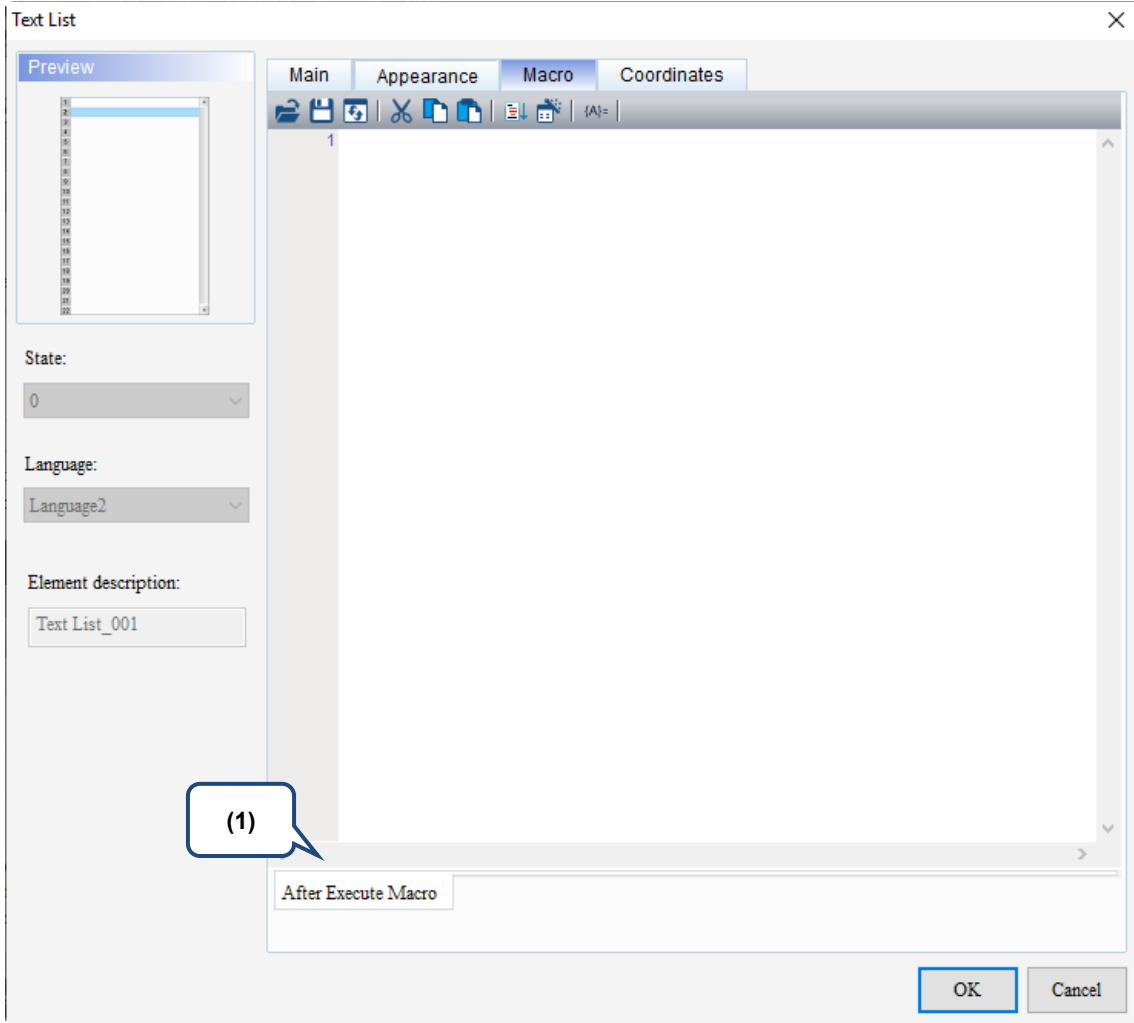
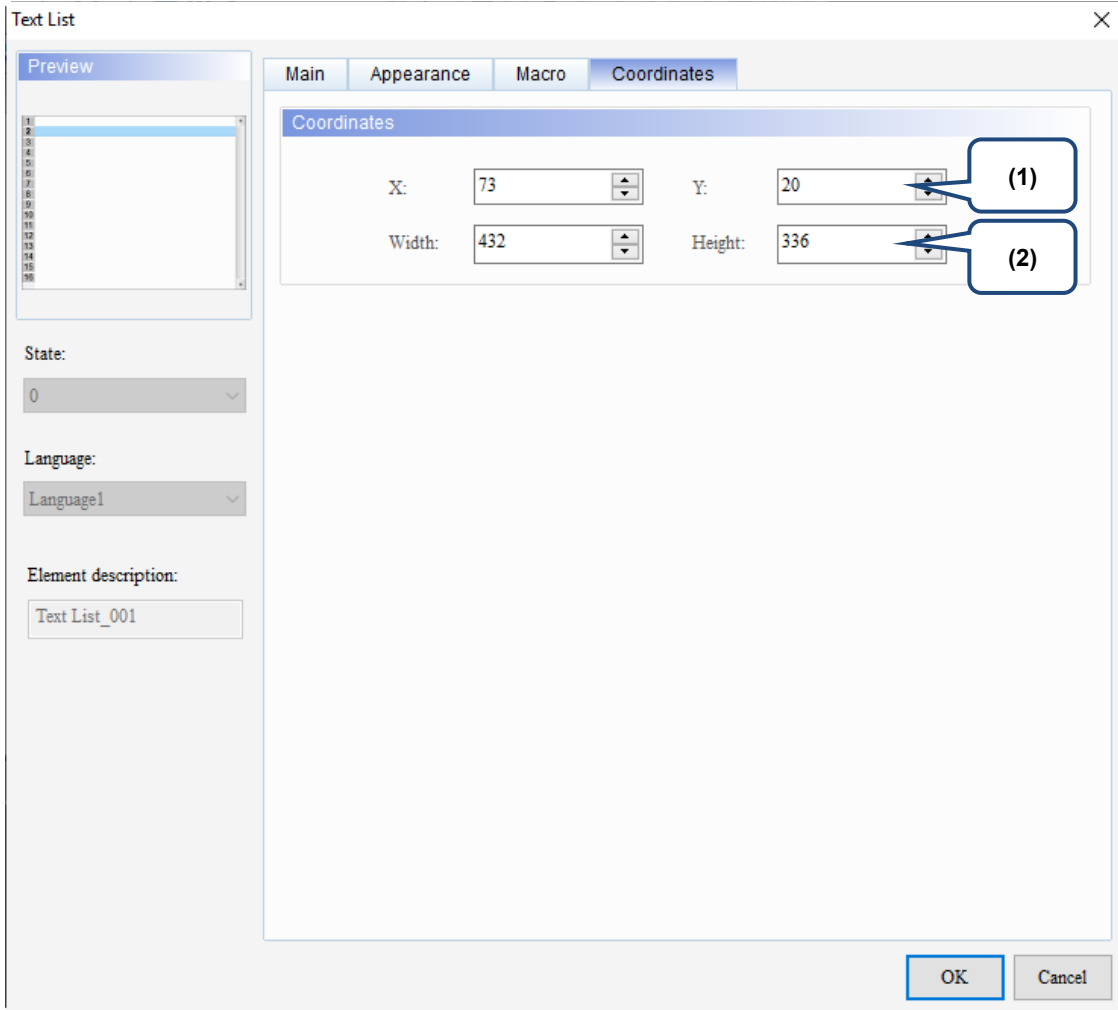


Figure 19.10.4 Macro property page for the Text List element

19

No.	Property	Function description
(1)	After Execute Macro	<p>When you press the button element, the HMI will first execute the action of the button and then execute the macro commands. However, if the state of the button is not changed with the button touch (using external controller commands or other macros instead), the HMI will not execute the macro commands.</p>
	<p>Flowchart of After Execute Macro:</p> <pre> graph TD A["Maintained Button 0"] -- "Trigger to On / Enter the value" --> B["Maintained Button 50"] B -- "Button is On and the value is written" --> C["After Execute Macro"] C -- "Trigger to Off / Enter the value" --> D["Maintained Button 90"] D -- "Button is Off and the value is written" --> E["After Execute Macro"] E -- "Next trigger" --> A </pre>	

■ Coordinates



19

Figure 19.10.5 Coordinates property page for the Text List element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

(This page is intentionally left blank.)

19

This chapter provides the usage and setting details for the Frame elements.

20.1	Embedded Subscreen	20-2
20.2	Camera display	20-9
20.3	VGA display.....	20-20
20.4	Video Play.....	20-25
20.5	Event trigger	20-40

20

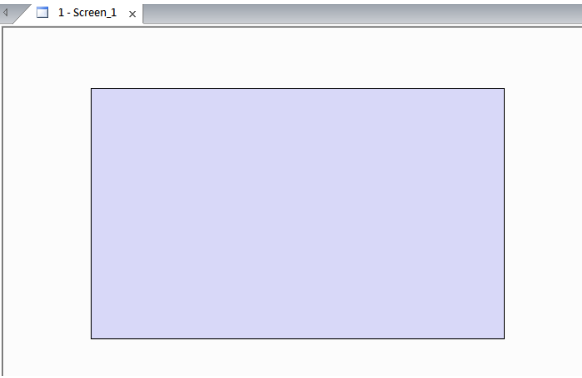
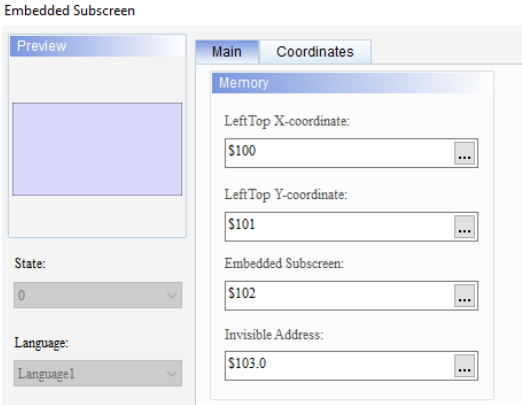
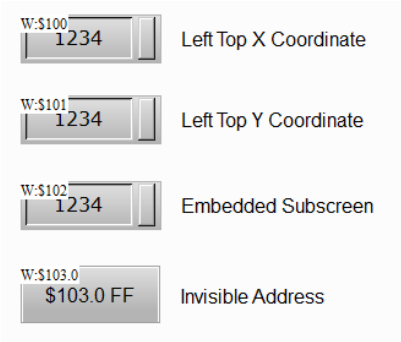
20.1 Embedded Subscreen

You can use this function to embed the subscreen into the main screen and switch between different subscreens to display on the main screen.

Note:

1. Embedded Subscreen elements cannot be placed on subscreens.
2. The size of the subscreen can be different from the Embedded Subscreen. It remains the same size before being embedded.
3. When the Screen Lock function is enabled for the embedded subscreen, this function is automatically disabled after the subscreen is embedded.

Table 20.1.1 Embedded Subscreen example

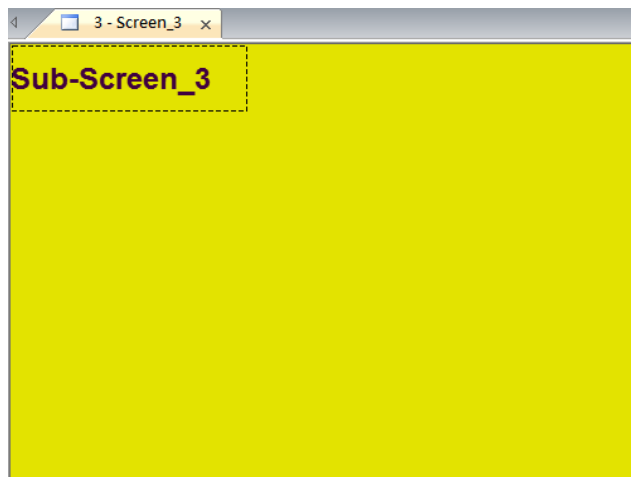
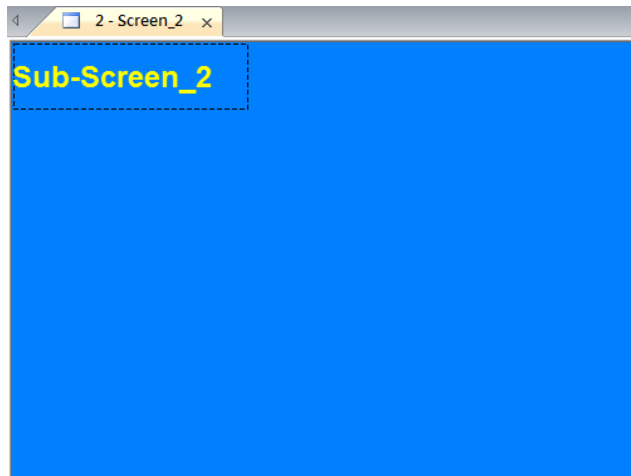
Embedded Subscreen example	
<p>Create Embedded Subscreen element</p>	<p>Select [Frame] > [Embedded SubScreen] from the Element Tool in the editing window and create it on Screen 1.</p> 
<p>Set memory address</p>	<p>Set the memory addresses for the Embedded Subscreen element.</p> 
<p>Create Numeric Entry and Maintained button elements</p>	<p>Create three Numeric Entry elements (\$100, \$101, and \$102) and one Maintained button element (\$103.0).</p> 

Embedded Subscreen example

Create Subscreen 2 and Subscreen 3.

Language Name	Caption
Language1	

Create subscreen



Embedded Subscreen example

- After the screens are downloaded to the HMI, the subscreens are not loaded on the HMI screen.



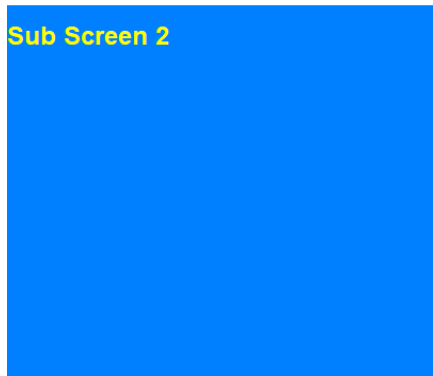
0 Left Top X Coordinate

0 Left Top Y Coordinate

0 Embedded Subscreen

\$103.0 FF Invisible Address

- Change the number of the subscreen \$102 to 2 and Subscreen 2 is embedded to the screen.



Sub Screen 2

0 Left Top X Coordinate

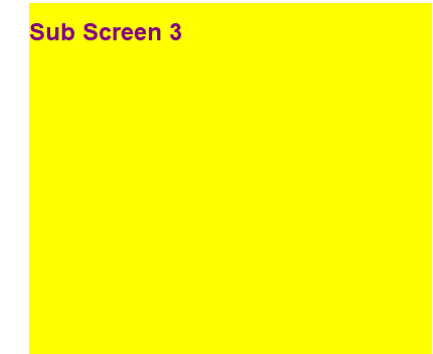
0 Left Top Y Coordinate

2 Embedded Subscreen

\$103.0 FF Invisible Address

Execution results

- Change the number of the subscreen \$102 to 3 and Subscreen 3 is embedded to the screen.



Sub Screen 3

0 Left Top X Coordinate

0 Left Top Y Coordinate

3 Embedded Subscreen

\$103.0 FF Invisible Address

- Change the element's position: set \$100 to 50 and \$101 to 50, and then the subscreen moves to the set coordinate position.



Sub Screen 3

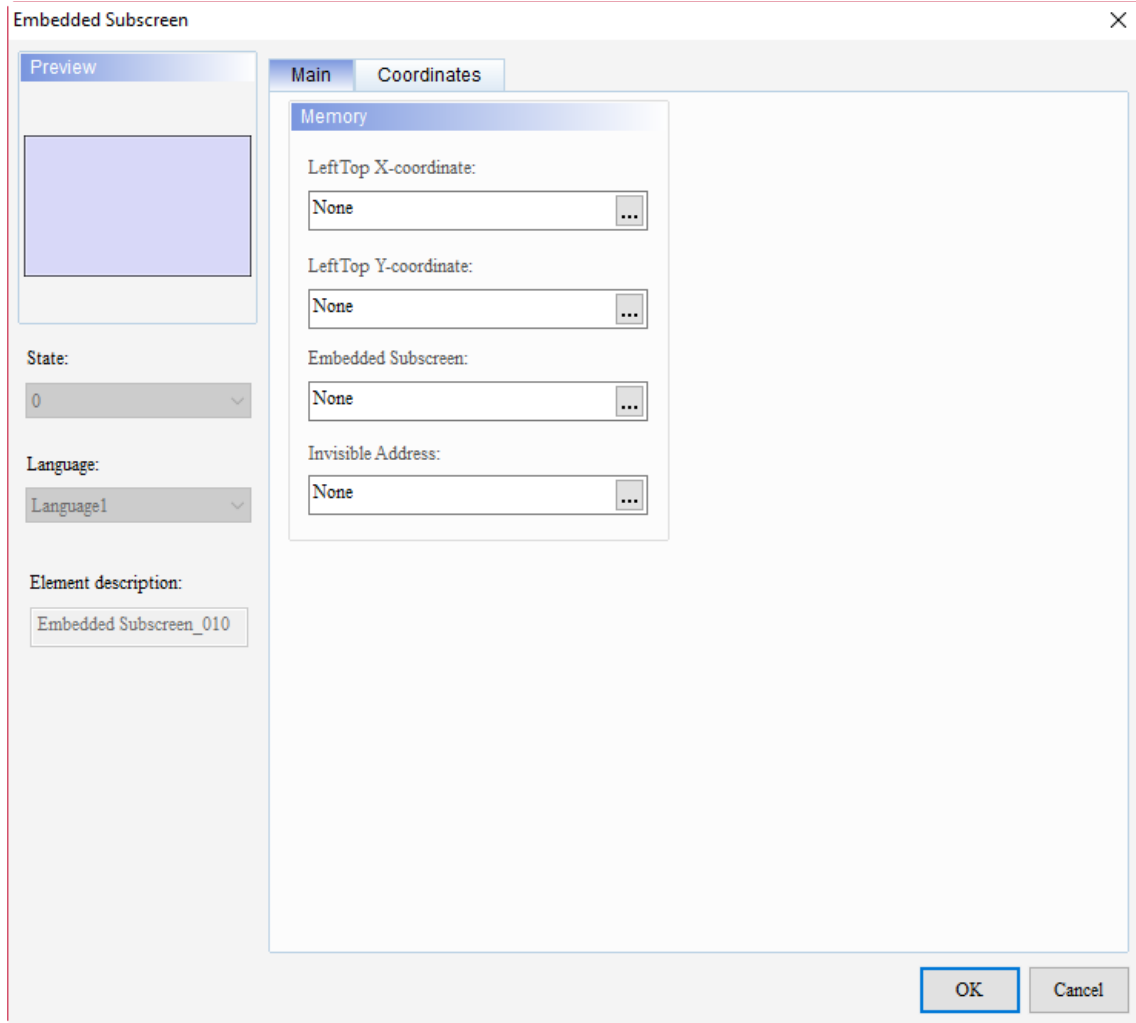
50 Left Top X Coordinate

50 Left Top Y Coordinate

3 Embedded Subscreen

\$103.0 FF Invisible Address

When you double-click the Embedded Subscreen, the property page is shown as follows.



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Figure 20.1.1 Properties of Embedded Subscreen

Table 20.1.2 Function page of the Embedded Subscreen element

Embedded Subscreen	
Function page	Description
Main	Set the LeftTop X-coordinate, LeftTop Y-coordinate, Embedded Subscreen, and Invisible Address.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

20

■ Main

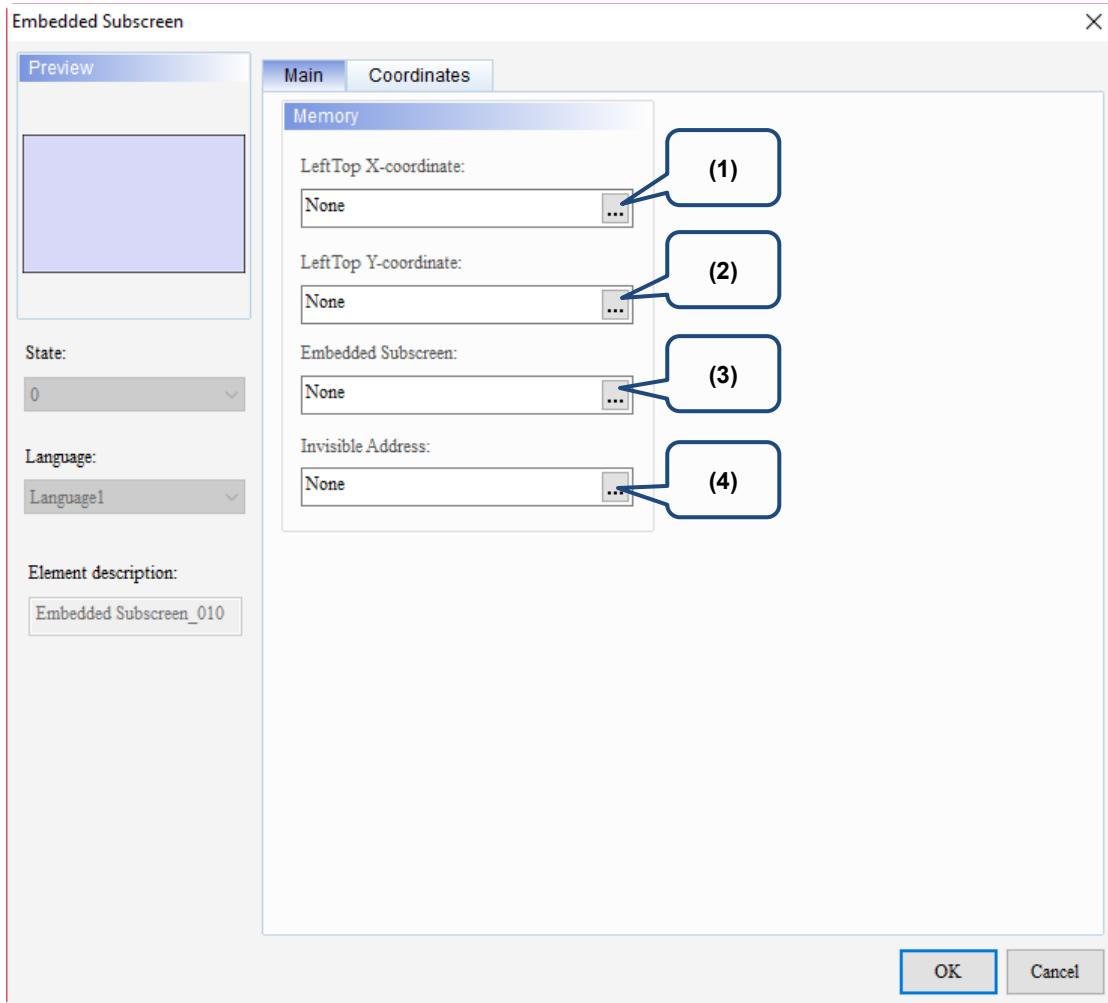
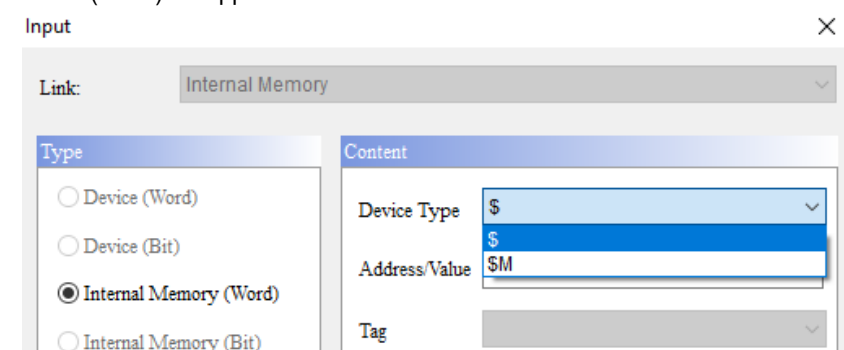
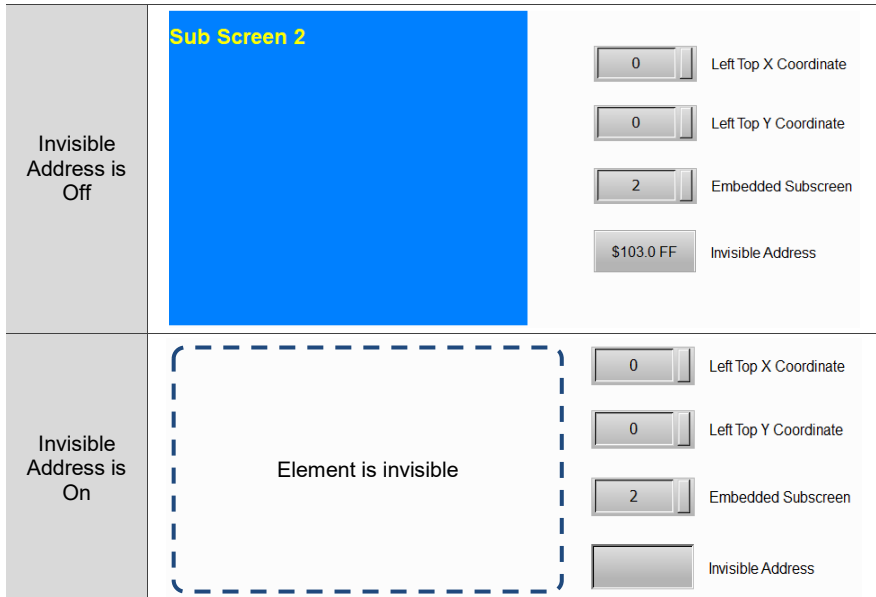
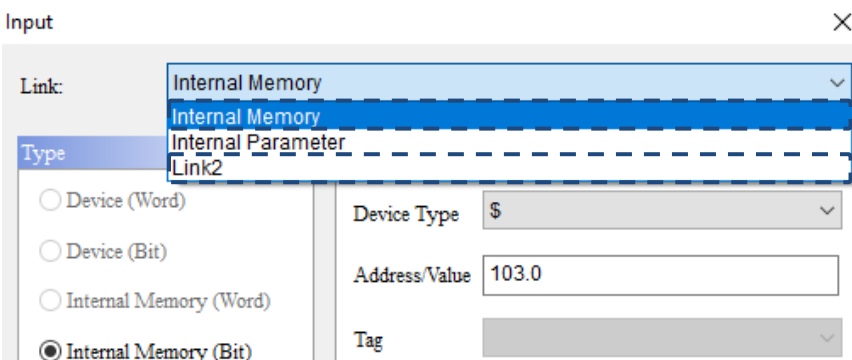


Figure 20.1.2 Main property page for the Embedded Subscreen element

No.	Property	Function description
(1)	LeftTop X-coordinate	<p>Set the element's X-axis position on the screen. Only internal memory address (Word) is supported.</p>
(2)	LeftTop Y-coordinate	<p>Set the element's Y-axis position on the screen. Only internal memory address (Word) is supported.</p>

No.	Property	Function description
(3)	Embedded Subscreen	<p>Set the displaying subscreen number of the element. Only internal memory address (Word) is supported.</p> 
(4)	Invisible Address	<p>■ When the Invisible Address is set to On, the Embedded Subscreen element is invisible and you cannot execute its set functions.</p>  <p>■ The controller address (Bit) and the internal register address (Bit) are supported.</p> 

Coordinates

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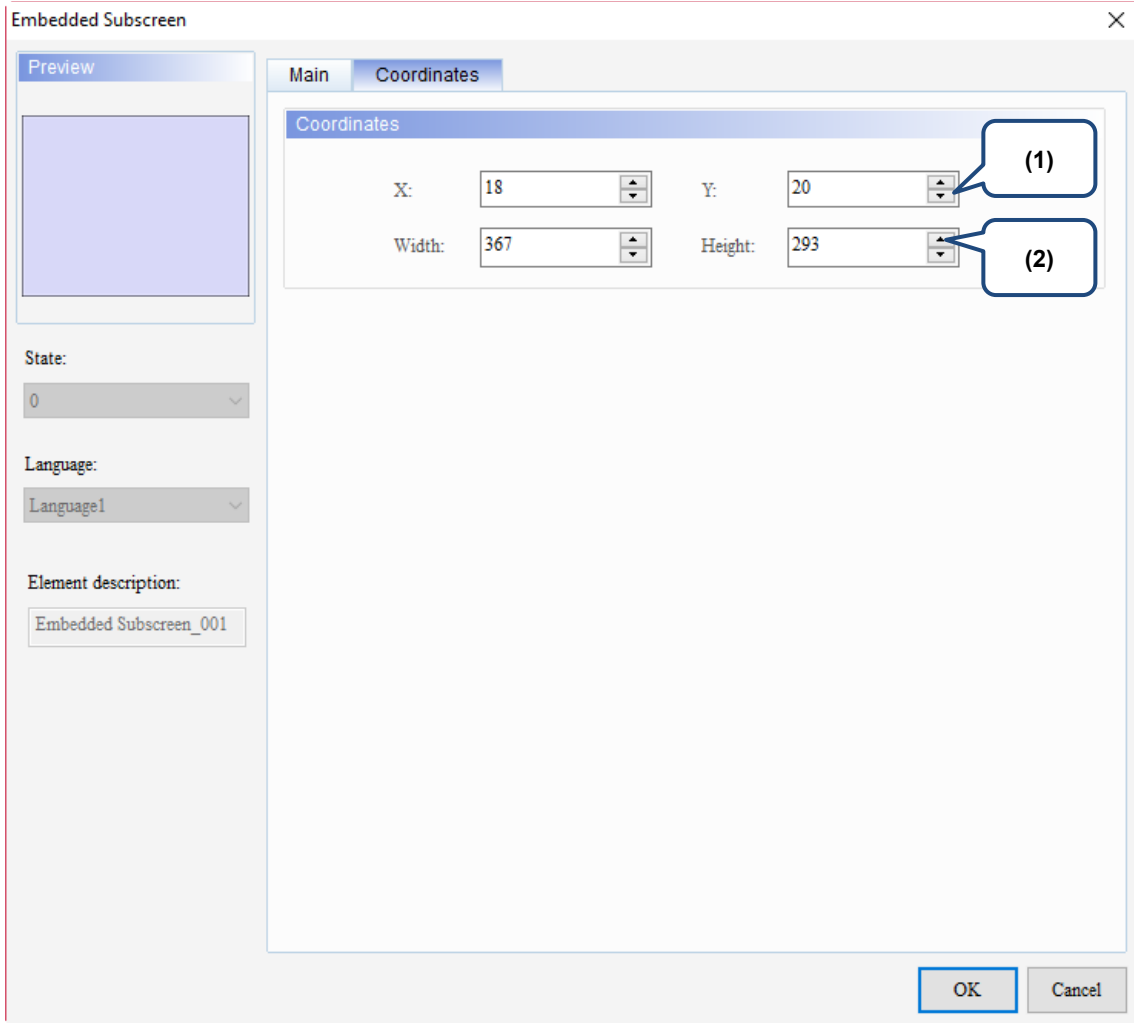


Figure 20.1.3 Coordinates property page for the Embedded Subscreen element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	You can also set the width and height of the elements.

20.2 Camera display

The DOP-100 series HMI models come in two screen sizes: 12-inch and 15-inch. There are four models available, including DOP-112MX, DOP-112WX, DOP-115MX, and DOP-115WX.

M indicates a multimedia model, W indicates a narrow-framed model, and X indicates the model has an XGA TFT display.

The multimedia type models support functions such as Analog Camera, IP Camera, VGA display, Video Play, and Event trigger.

The following will introduce the models with multimedia functions. If you are using the DOP-112MX and DOP-115MX models, refer to the following descriptions for setting and operating these functions. If you are using the DOP-112WX and DOP-115WX models, the functions supported by the multimedia type models are not available.

The Camera display element supports two camera types, Analog Camera and IP Camera.

Analog Camera

An analog camera only supports CVBS signals in PAL or NTSC format. The input format of CVBS signal is different from that of AHD, TVI, and CVI signals. The analog camera connector is a BNC connector.

PAL is short for Phase Alternating Line. Generally, PAL uses a bandwidth of 8 MHz and the color signal transmission can tolerate a larger phase error.

NTSC is short for National Television System Committee and is the earliest developed television system. Generally, NTSC uses a bandwidth of 6 MHz and covers the widest range of colors.

CVBS is short for Composite Video Baseband Signal, which is commonly known as the visual signal of the AV connector. CVBS is the original video signal format that hasn't been processed. A CVBS signal cable includes luminance (Y), chrominance (C), horizontal synchronization (Hsync), and vertical synchronization (Vsync).

IP Camera

IP camera combines traditional cameras and network technologies. It is a digital device based on network transmission and is equipped with a network output interface through which it can use the Ethernet for remote network connection. The IP Camera supported by the HMI only provides Real Time Streaming Protocol (RTSP). RTSP is an application layer protocol in the TCP/IP protocol system, which is designed for entertainment and communication systems to control streaming media servers.

Refer to the following tables for the Analog Camera and IP Camera examples.

Table 20.2.1 Analog Camera example


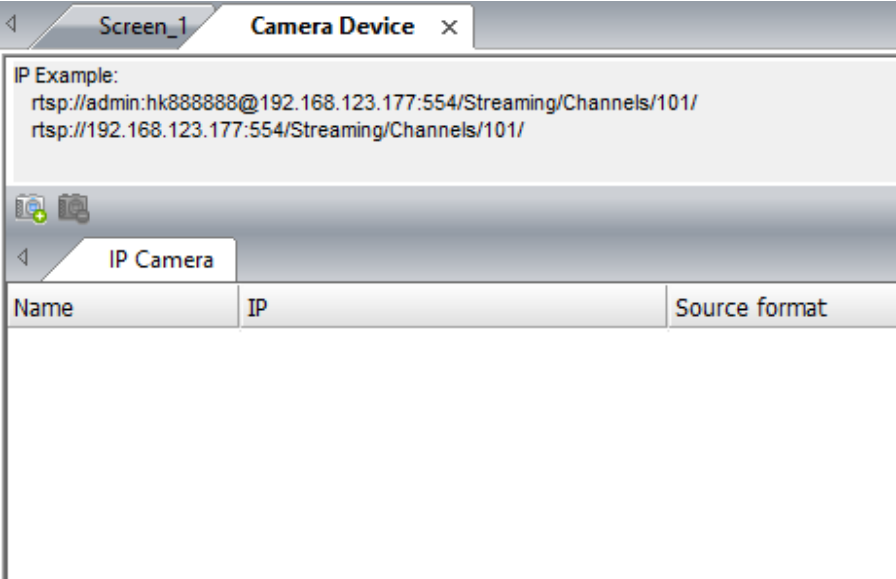

Analog Camera							
Camera display element	Create a Camera display element and set its parameters.						
	Camera display element						
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Camera type</td> <td>ANALOG CAMERA</td> </tr> <tr> <td>Camera Name</td> <td>CH1</td> </tr> <tr> <td>Show size</td> <td>640x360</td> </tr> </table>	Camera type	ANALOG CAMERA	Camera Name	CH1	Show size	640x360
	Camera type	ANALOG CAMERA					
Camera Name	CH1						
Show size	640x360						
Analog Camera Display							
Execution results	<ul style="list-style-type: none"> ■ After creating the elements, compile and download the elements to the HMI. ■ When the download is complete, you can see the video recorded by the Analog Camera (CH1) displayed on the Camera display element. 						
							

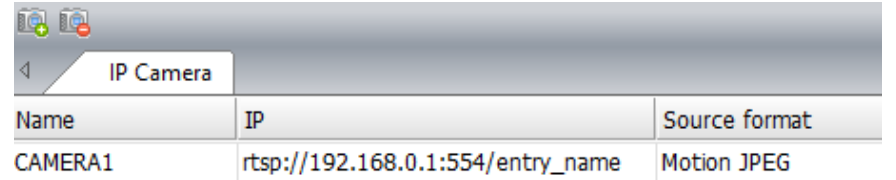
Table 20.2.2 IP Camera example

IP Camera

- Before using the IP Camera, first set the IP Camera device by going to [Options] > [Camera Device]. The setting screen of the Camera Device is as follows.

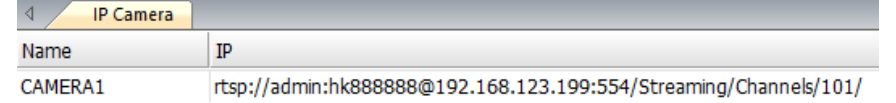


Name	IP	Source format
- Click  to add a camera. The default IP is rtsp://192.168.0.1:554/entry_name.



Name	IP	Source format
CAMERA1	rtsp://192.168.0.1:554/entry_name	Motion JPEG
- At the top of the screen is an IP Example, which is the account name, password, IP address, port, and entry name used by the HIKVISION camera.

rtsp://admin:hk888888@192.168.123.177:554/Streaming/Channels/101/	
Account	admin
Password	hk888888
IP Address	192.168.123.177
Port	554
Entry name	Streaming/Channels/101/ Streaming/Channels/102/
- Refer to the IP Example to modify the corresponding IP address for the IP camera.



Name	IP
CAMERA1	rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/101/
- After setting the IP, select the Source format. In this example, the format is set to H.264.

IP	Source format
rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/101/	H.264

Camera settings

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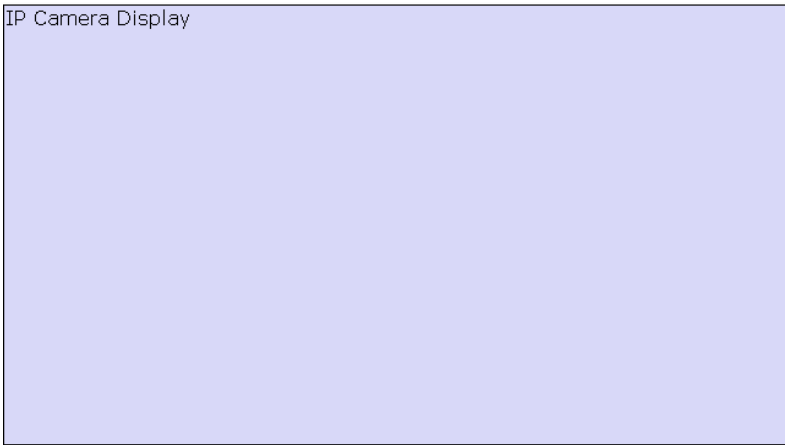
IP Camera

Camera display element

Create a Camera display element and set its parameters.


Camera display element	
Camera type	IP CAMERA
Camera Name	CAMERA1
Show size	640x360

IP Camera Display



Execution results

- After creating the elements, compile and download the elements to the HMI.
- When the download is complete, you can see the video recorded by the IP Camera displayed on the Camera display element.



When you double-click the Camera display element, the property page is shown as follows.

(Note: since the Camera display element is shared by the Analog Camera and IP Camera, you can refer to the following settings for the Analog Camera when using the IP Camera.)

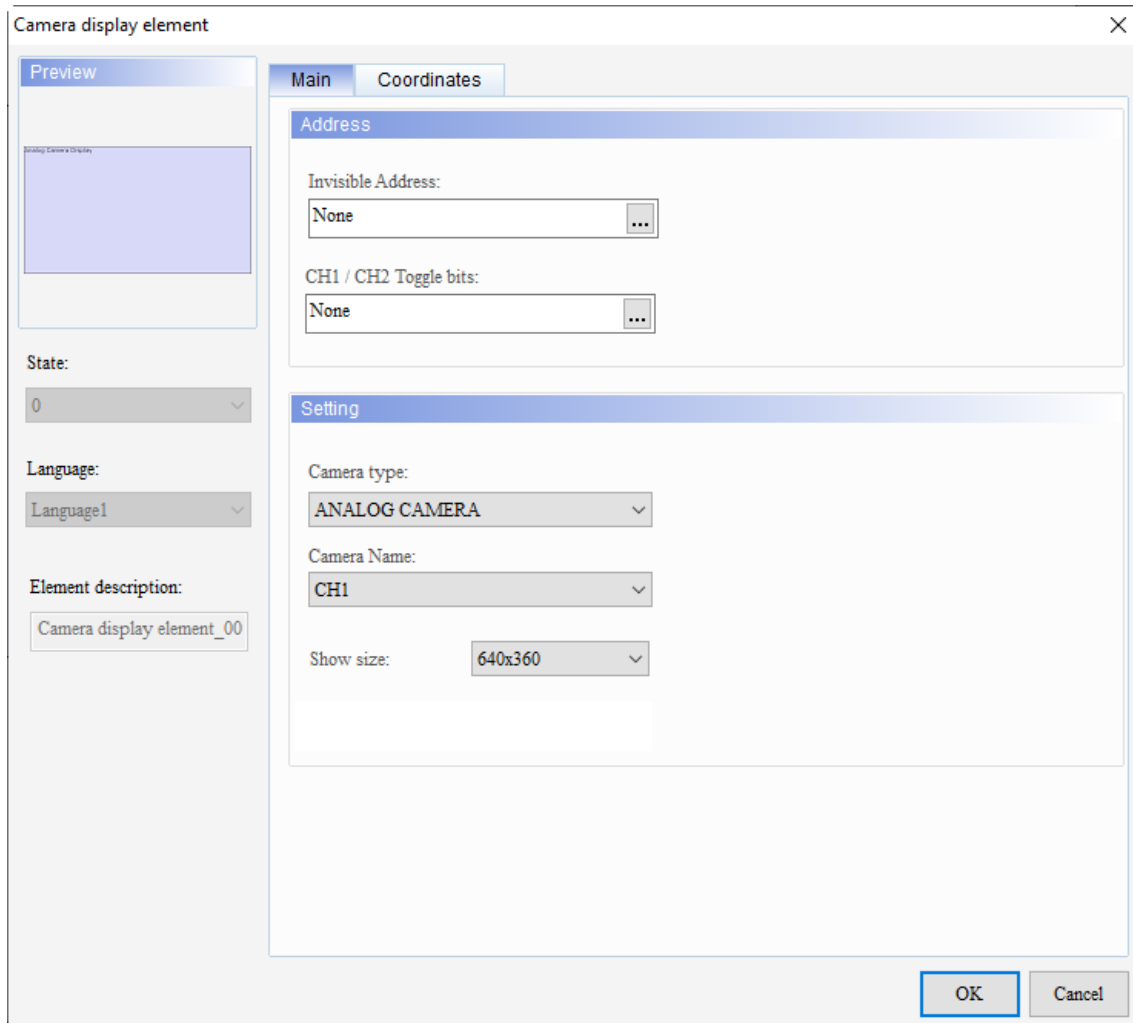


Figure 20.2.1 Properties of Camera display element

Table 20.2.3 Function page of Camera display element

Camera display element	
Function page	Description
Preview	Camera display elements do not support multiple state values and multi-language data display.
Main	Set the Invisible Address and CH1 / CH2 Toggle bits. Set the Camera type, Camera Name, and Show size options.
Coordinates	Set the X and Y coordinates.

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■ Main

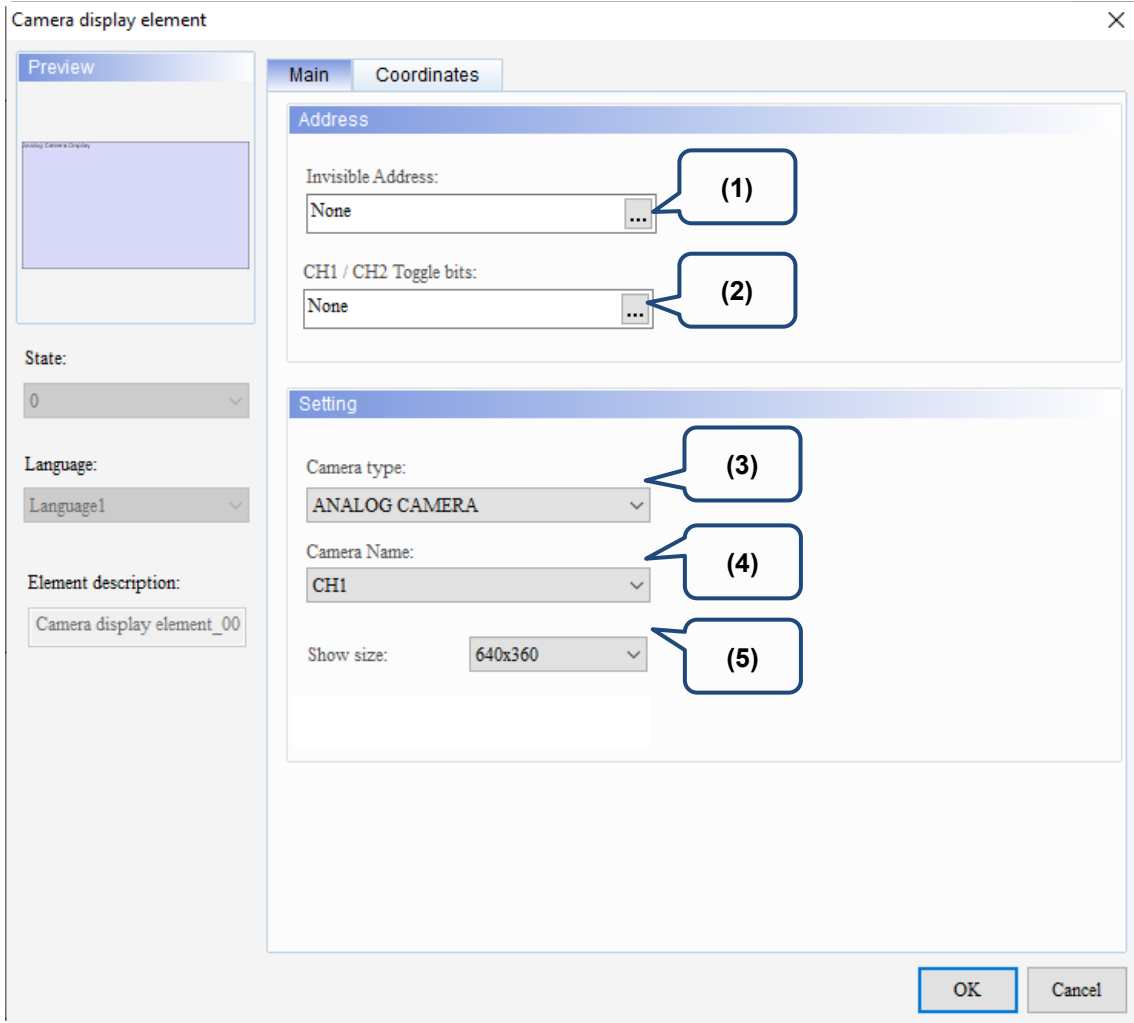
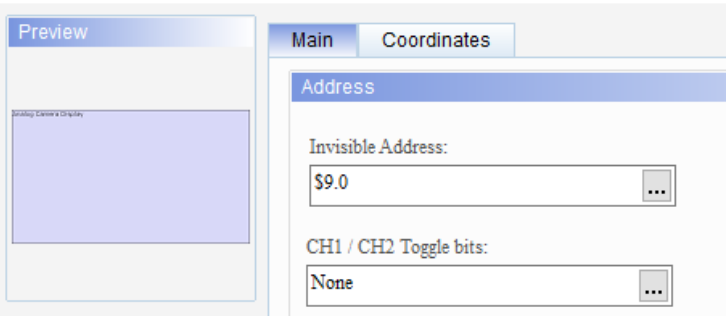

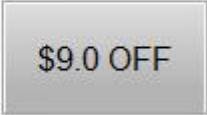
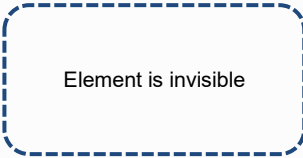
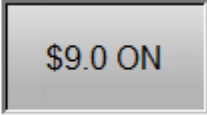

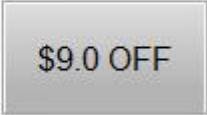
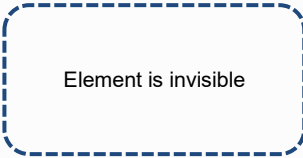
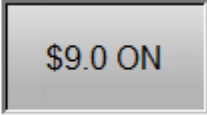

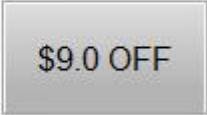
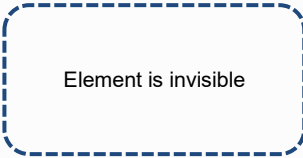
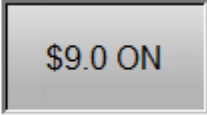
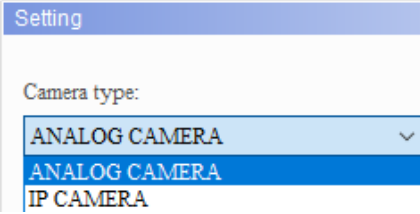
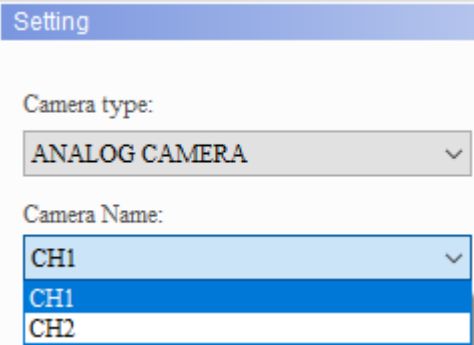
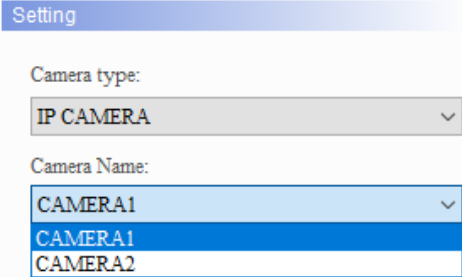
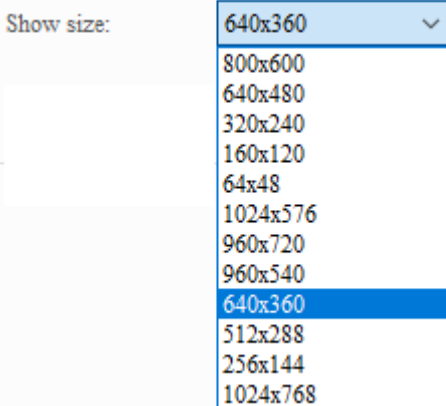


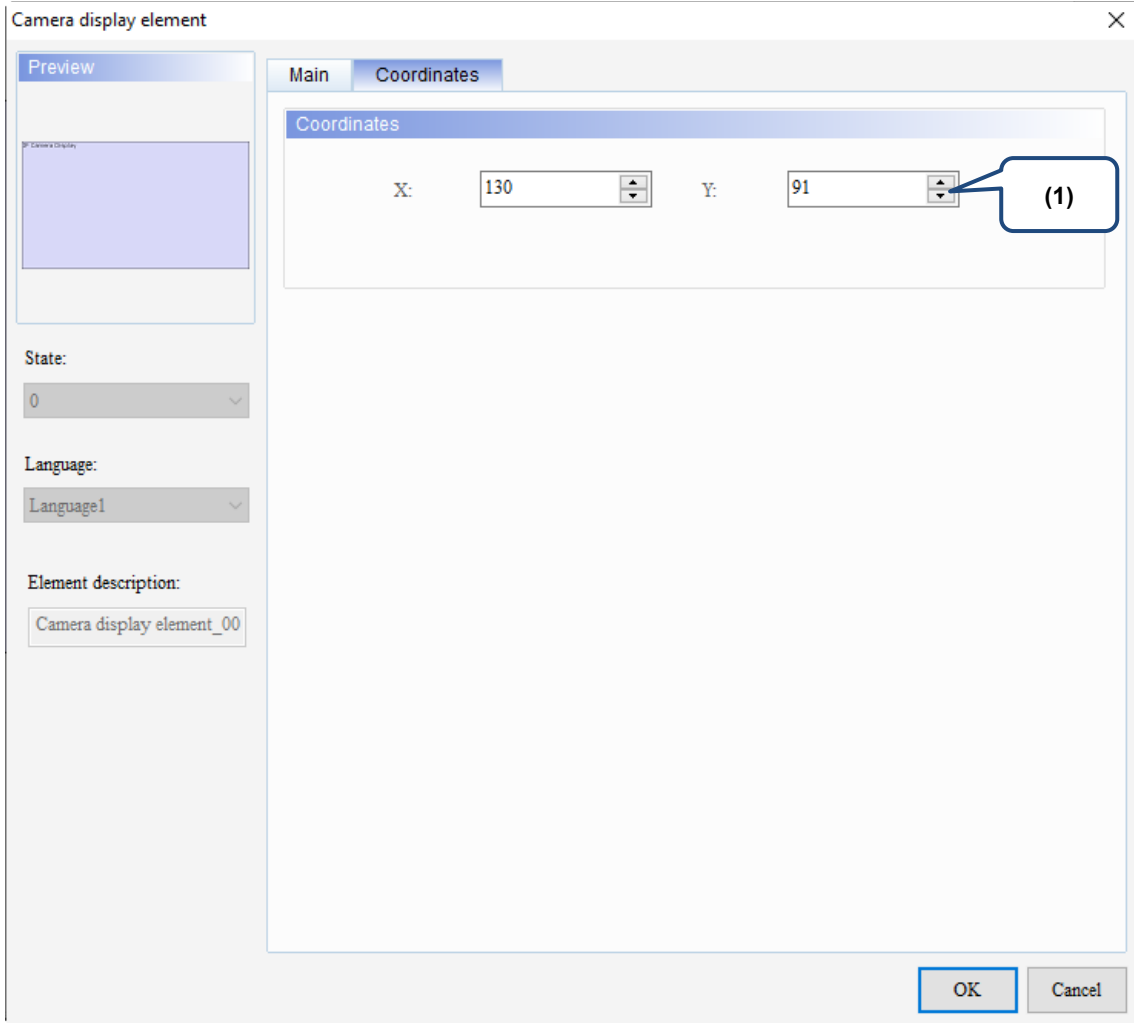
Figure 20.2.2. Main property page for the Camera display element

No.	Property	Function description						
(1)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p> <p>Camera display element</p>  <table border="1"> <tr> <td>Invisible Address is Off</td> <td>  </td> <td>  </td> </tr> <tr> <td>Invisible Address is On</td> <td>  </td> <td>  </td> </tr> </table>	Invisible Address is Off			Invisible Address is On		
Invisible Address is Off								
Invisible Address is On								
(2)	CH1 / CH2 Toggle bits	<ul style="list-style-type: none"> ■ Use the toggle bit to switch between the CH1 and CH2 channels of the Analog Camera. ■ As soon as the toggle bit is triggered to On, CH1 is switched to CH2 immediately, or vice versa. 						
(3)	Camera type	<p>Select ANALOG CAMERA or IP CAMERA.</p> 						
(4)	Camera Name	<ul style="list-style-type: none"> ■ The options vary depending on the selected Camera type. ■ If you select ANALOG CAMERA for the Camera type, the options for Camera Name are CH1 and CH2. Connect a corresponding BNC connector to the CH1 or CH2 port on the back of the HMI. 						

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No.	Property	Function description
(4)	Camera Name	<ul style="list-style-type: none"> If you select IP CAMERA for the Camera type, the options for the Camera Name are CAMERA1 and CAMERA2. Use a webcam and set the network segment of its IP address the same as that of the HMI. 
(5)	Show size	<p>Set the display resolution of the element.</p> 

■ Coordinates



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Figure 20.2.3. Coordinates property page for the Camera display element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.

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The following introduces the properties of Camera Device.

Go to [Options] > [Camera Device] to enter the setting screen.

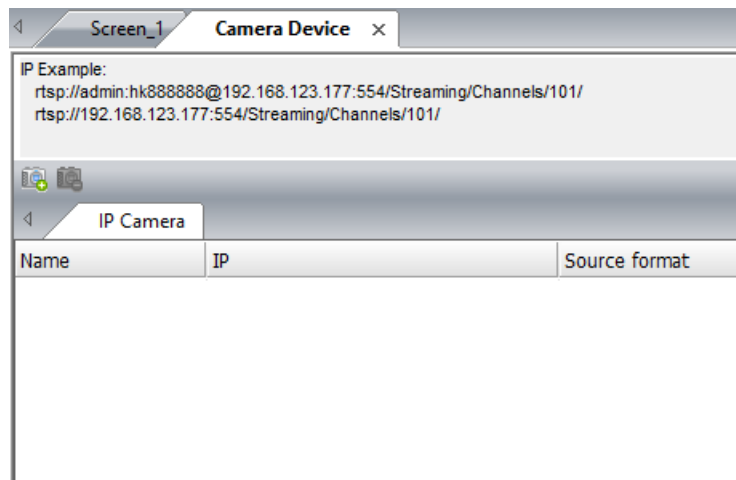
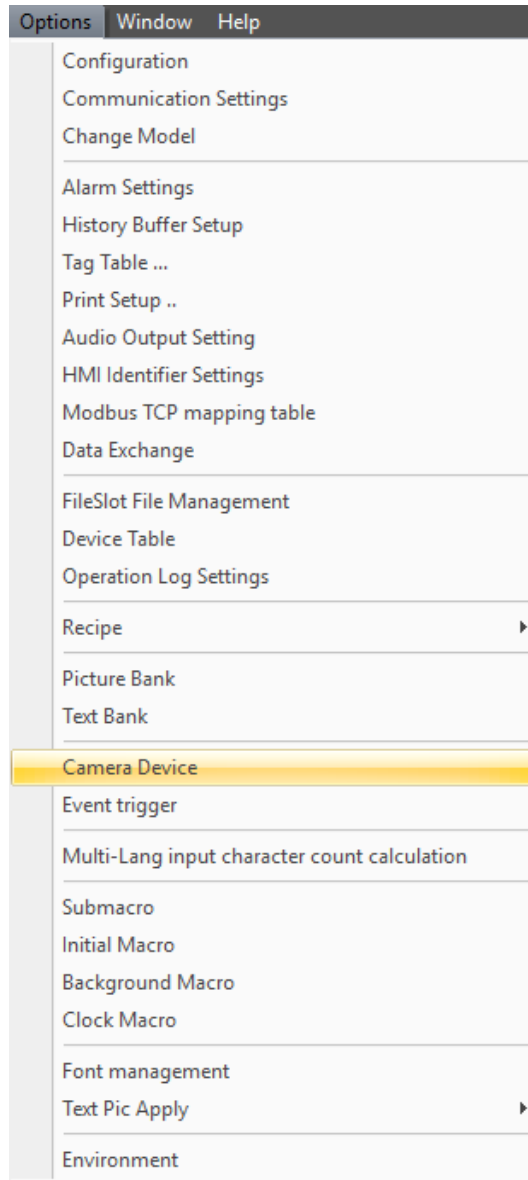

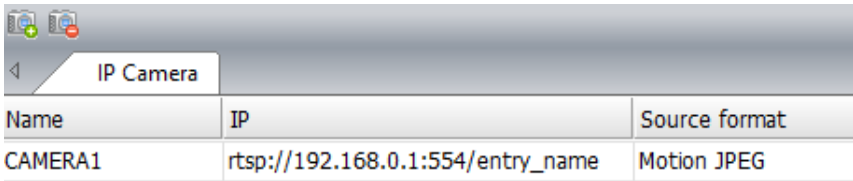
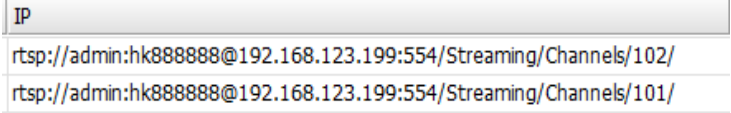
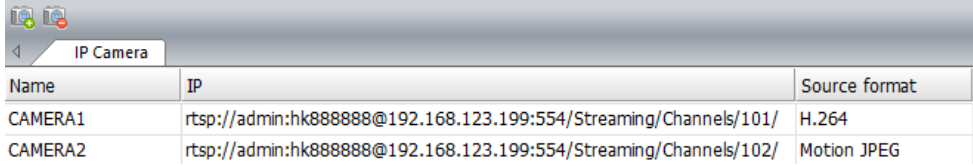




Figure 20.2.4 Camera Device

	<p>Click  to add a camera.</p>  <table border="1"> <thead> <tr> <th>Name</th> <th>IP</th> <th>Source format</th> </tr> </thead> <tbody> <tr> <td>CAMERA1</td> <td>rtsp://192.168.0.1:554/entry_name</td> <td>Motion JPEG</td> </tr> </tbody> </table>	Name	IP	Source format	CAMERA1	rtsp://192.168.0.1:554/entry_name	Motion JPEG							
Name	IP	Source format												
CAMERA1	rtsp://192.168.0.1:554/entry_name	Motion JPEG												
Name	You can name the camera.													
IP	<p>The format of the IP address is fixed. Modify the content according to the network camera settings. The IP address can be divided into several parts as follows.</p> <table border="1"> <tr> <td>Account</td> <td>Enter the account according to the settings of the network camera.</td> </tr> <tr> <td>Password</td> <td>Enter the password according to the settings of the network camera.</td> </tr> <tr> <td>IP address</td> <td>Enter the IP address according to the settings of the network camera.</td> </tr> <tr> <td>Port</td> <td>The default is 554.</td> </tr> </table> <p>Entry name</p> <ul style="list-style-type: none"> The entry name varies from different brands. Enter [Brand name rtsp address] in the input field of the search engine such as "HIKVISION rtsp address". The search results are as follows. <ul style="list-style-type: none"> <u>Main Stream</u> rtsp://192.168.1.100:554/Streaming/Channels/101/ rtsp://admin:examplepass123!@192.168.1.100:554/Streaming/Channels/101/ <u>Sub Stream</u> rtsp://192.168.1.100:554/Streaming/Channels/102/ rtsp://admin:examplepass123!@192.168.1.100:554/Streaming/Channels/102 101 indicates the mainstream and 102 indicates the substream of HIKVISION. Thus, the contents of the IP field are as follows.  <table border="1"> <tr> <td>IP</td> <td>rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/102/</td> </tr> <tr> <td>IP</td> <td>rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/101/</td> </tr> </table>	Account	Enter the account according to the settings of the network camera.	Password	Enter the password according to the settings of the network camera.	IP address	Enter the IP address according to the settings of the network camera.	Port	The default is 554.	IP	rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/102/	IP	rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/101/	
Account	Enter the account according to the settings of the network camera.													
Password	Enter the password according to the settings of the network camera.													
IP address	Enter the IP address according to the settings of the network camera.													
Port	The default is 554.													
IP	rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/102/													
IP	rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/101/													
Source format	<ul style="list-style-type: none"> Select the corresponding source format according to the settings of the network camera. Take the brand HIKVISION for example. You can go to the IP address http://192.168.123.199/doc/page/login.asp?_1534130000127 and enter the account and password to log in. <table border="1"> <tr> <td>Account</td> <td>admin</td> </tr> <tr> <td>Password</td> <td>hk888888</td> </tr> </table> Go to [Configuration] > [Video/Audio] to check the Video Encoding. For HIKVISION, the mainstream supports the coding formats H.264 and H.265, and the substream supports the coding formats H.264, H.265, and Motion JPEG. Since the HMI supports only Motion JPEG and H.264, if you select the mainstream (101), the source format of the HMI should be set to H.264. If you select the substream (102), the source format of the HMI should be set to Motion JPEG. The HMI settings are as follows.  <table border="1"> <thead> <tr> <th>Name</th> <th>IP</th> <th>Source format</th> </tr> </thead> <tbody> <tr> <td>CAMERA1</td> <td>rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/101/</td> <td>H.264</td> </tr> <tr> <td>CAMERA2</td> <td>rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/102/</td> <td>Motion JPEG</td> </tr> </tbody> </table>	Account	admin	Password	hk888888	Name	IP	Source format	CAMERA1	rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/101/	H.264	CAMERA2	rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/102/	Motion JPEG
Account	admin													
Password	hk888888													
Name	IP	Source format												
CAMERA1	rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/101/	H.264												
CAMERA2	rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/102/	Motion JPEG												
Delete a camera	<p>Execute  to delete the camera settings.</p>													


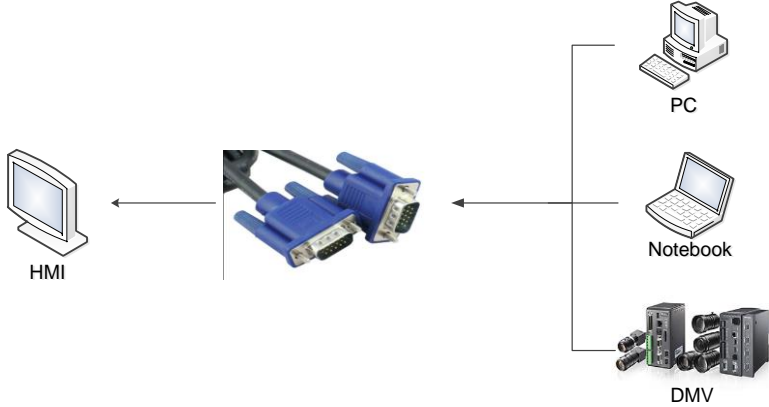

Add a camera 

Delete a camera 

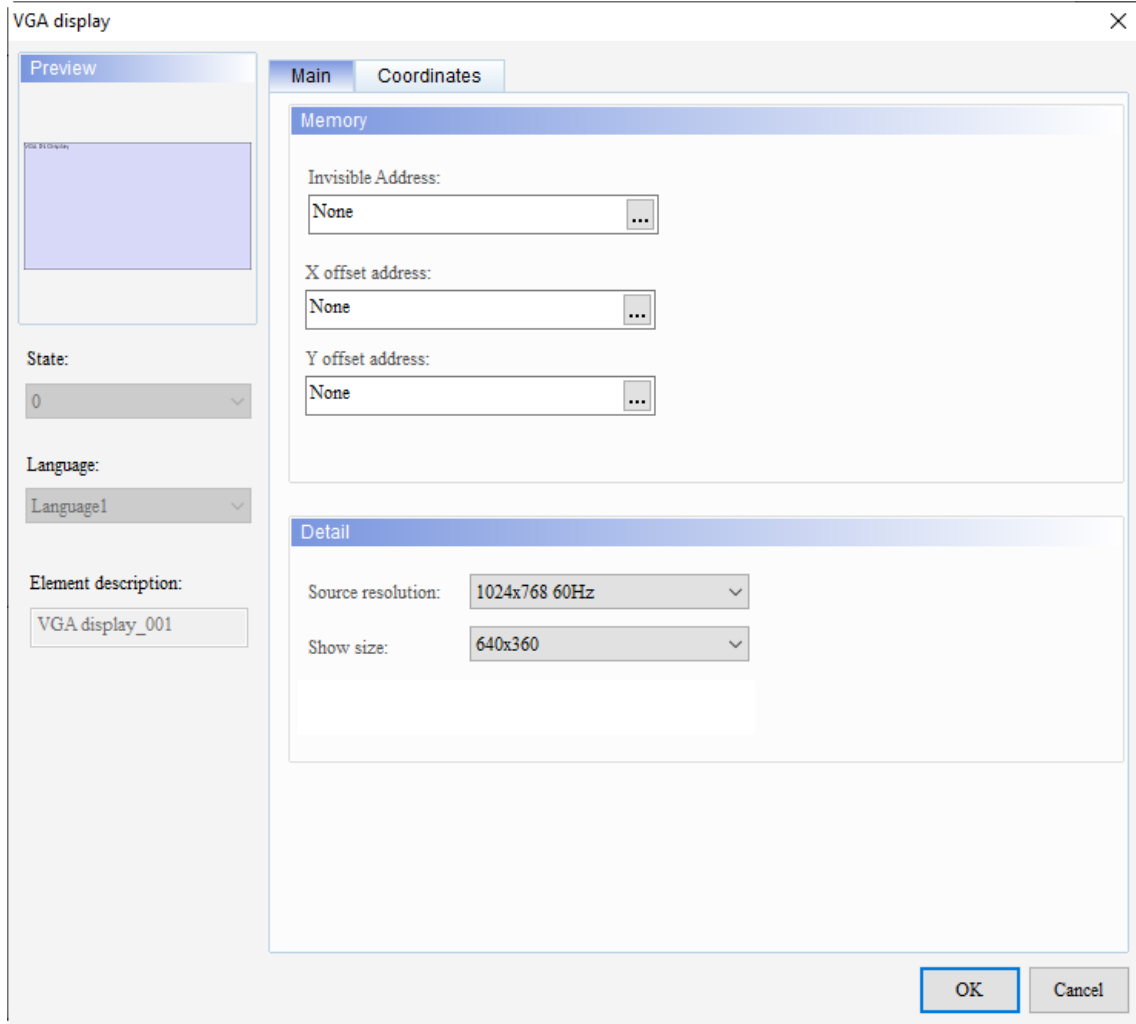
20.3 VGA display

The HMI provides a VGA port to connect to an external device for displaying its screen images on the HMI. The external device can be a DMV (Delta Machine Vision) or the VGA output connector of a PC or notebook. The following provides an example of how to use the VGA display element.

Table 20.3.1 VGA display element example

VGA display element							
VGA display element	<p>Create a VGA display element and set its parameters.</p> <table border="1"> <thead> <tr> <th colspan="2">VGA display element</th> </tr> </thead> <tbody> <tr> <td>Source resolution</td> <td>1024x768 60 Hz</td> </tr> <tr> <td>Show size</td> <td>640x360</td> </tr> </tbody> </table> 	VGA display element		Source resolution	1024x768 60 Hz	Show size	640x360
	VGA display element						
Source resolution	1024x768 60 Hz						
Show size	640x360						
Wiring method	<p>Use a VGA cable to connect the HMI to the output device, such as a PC, notebook, or DMV.</p> 						
Execution results	<ul style="list-style-type: none"> ■ After creating the elements, compile and download the elements to the HMI. ■ When the download is complete, the VGA display element displays the screen image of the output device. 						

When you double-click the VGA display element, the property setting page is as follows.



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Figure 20.3.1 Properties of VGA display

Table 20.3.2 Function page of VGA display

VGA display element	
Function page	Description
Preview	VGA display elements do not support multiple state values and multi-language data display.
Main	Set the Invisible Address, X offset address, and Y offset address. Set the Source resolution and Show size options.
Coordinates	Set the X and Y coordinates.

20

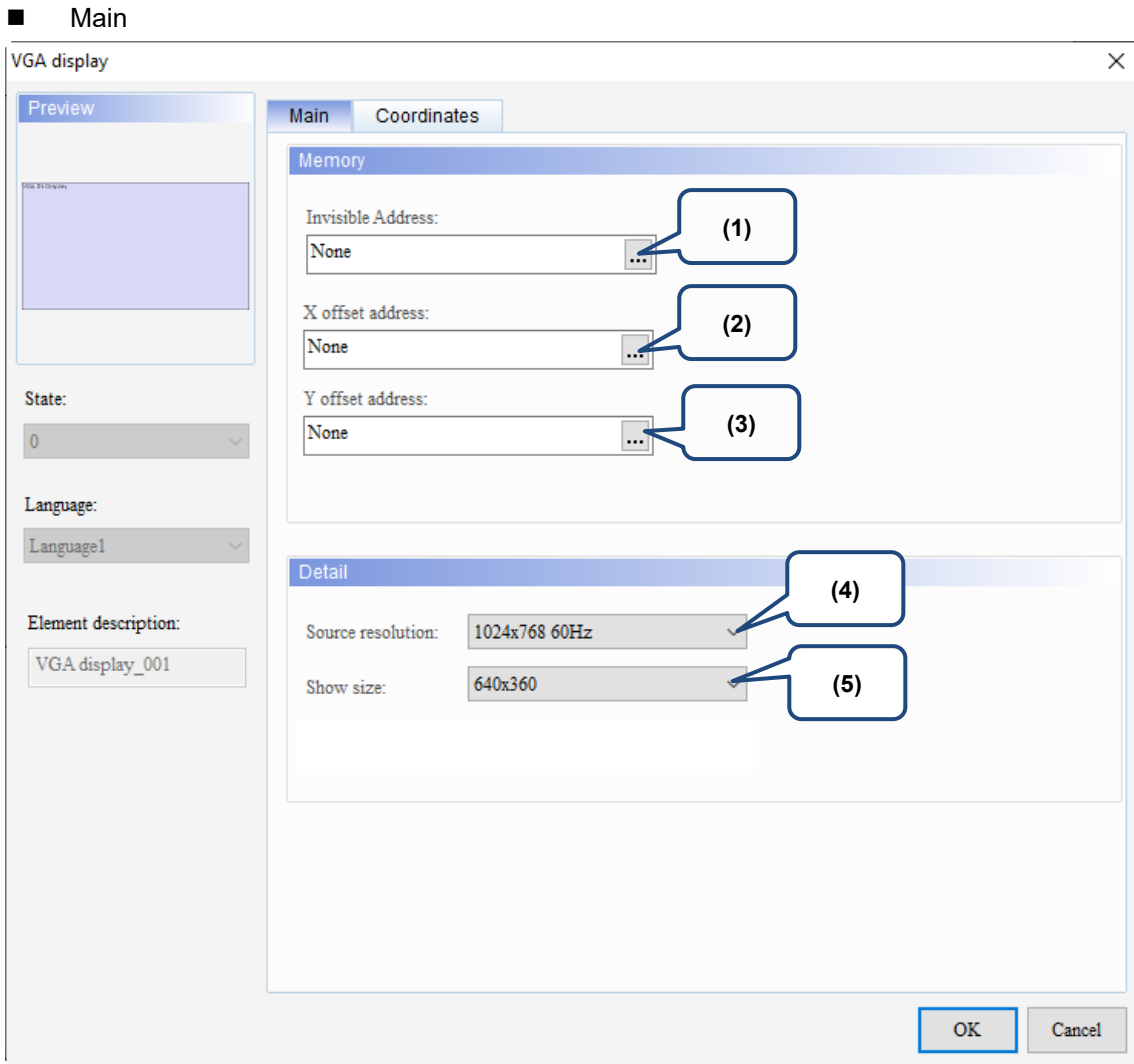
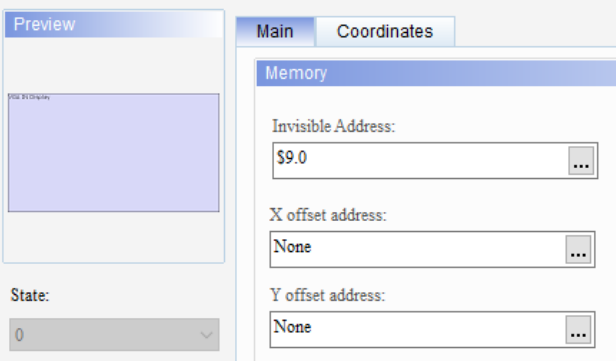


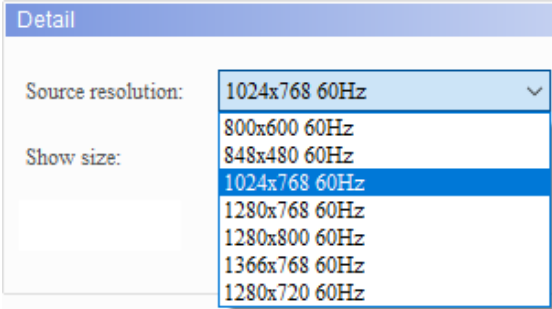
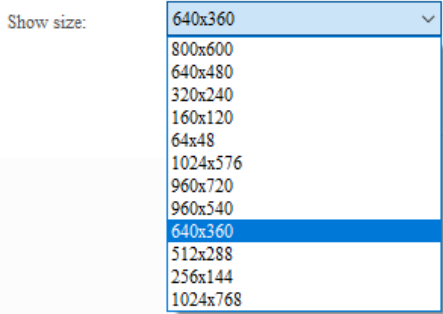


Figure 20.3.2. Main property page for the VGA display element

No.	Property	Function description	
(1)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p> <p>VGA display</p> 	
		<p>Invisible Address is Off</p>	
		<p>Invisible Address is On</p>	
(2)	X offset address	You can fine adjust and display the whole image transmitted from the input source with the two addresses.	
(3)	Y offset address		
(4)	Source resolution	Set the resolution according to the resolution of the VGA output device.	
			
(5)	Show size	Set the display resolution of the element.	
			

20

■ Coordinates

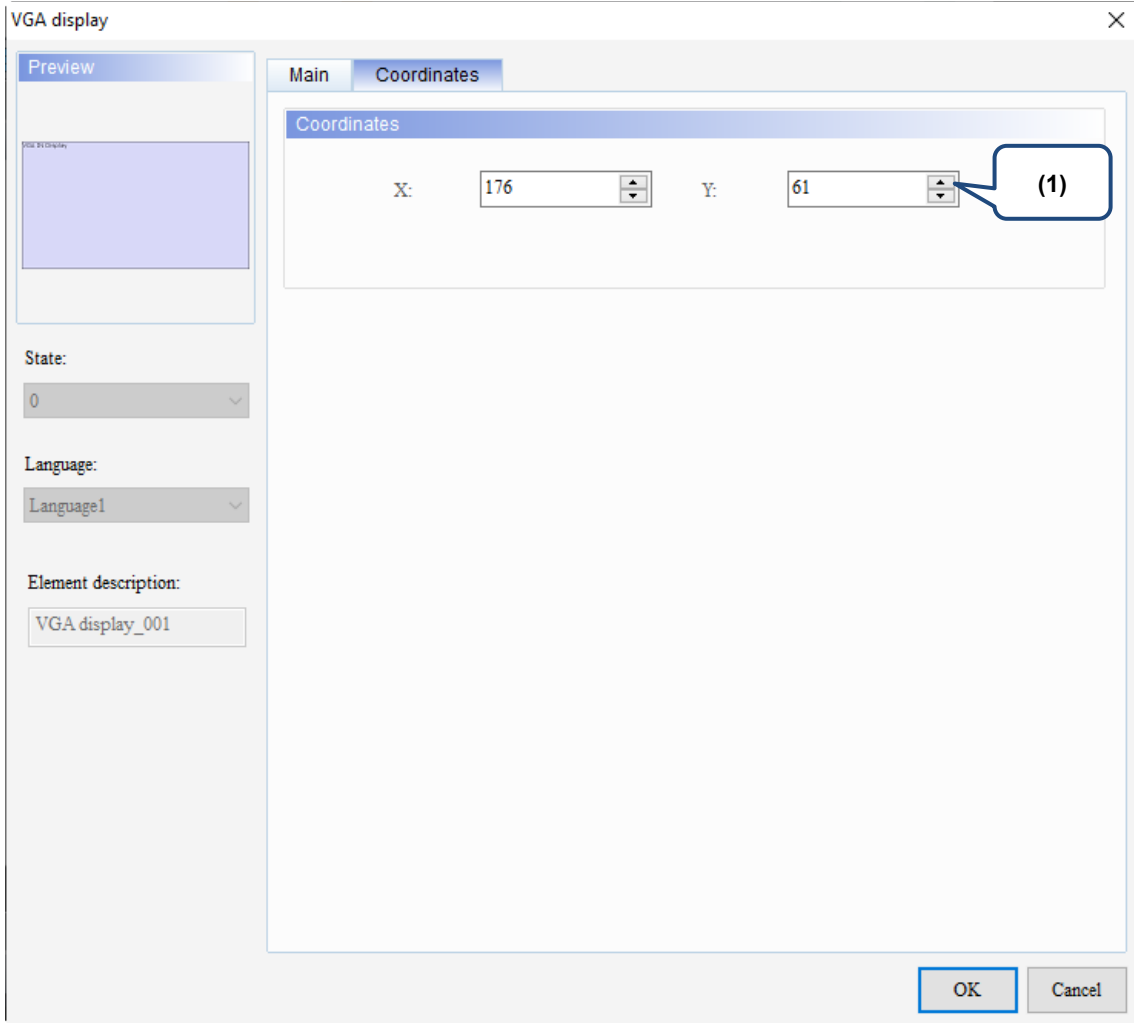


Figure 20.3.3 Coordinates property page for the VGA display element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.

20.4 Video Play

You can use the Video Play element to view videos that are recorded with the Analog Camera or IP Camera and are stored in the HMI, or mpeg4 videos stored in the USB Disk or SD Card. If the videos stored in the USB Disk or SD Card are not recorded with the Analog Camera or IP Camera, the videos must be in the mpeg4 format which supports H.264 video coding for viewing on the HMI.

The following provides examples using the Video Play element to view videos recorded with the cameras and the mpeg4 videos stored in the USB Disk or SD Card.

Table 20.4.1 Video Play element example (videos recorded with cameras)

20

Video Play element																											
	<p style="text-align: center;">Create a Video Play element and set its parameters.</p>																										
	<p style="text-align: center;">Video Play element</p> <p>Select the check boxes for Play, Pause, Stop, Delete, Export to USB, and Export to SD, and click the Set As Default Description button.</p> <div style="border: 1px solid #ccc; padding: 5px;"> <p style="font-size: small; margin: 0;">Video Play</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="font-size: x-small; margin: 0;">Preview</p> <ul style="list-style-type: none"> Dir: 0 <ul style="list-style-type: none"> File: 0 File: 1 Dir: 1 <ul style="list-style-type: none"> File: 0 File: 1 <p style="font-size: x-small; margin: 5px 0;">State: 0</p> <p style="font-size: x-small; margin: 5px 0;">Language: Language1</p> <p style="font-size: x-small; margin: 5px 0;">Element description: Video Play_001</p> </div> <div style="width: 50%;"> <p style="font-size: x-small; margin: 0;">Main Main-2 Function Buttons</p> <p style="font-size: x-small; margin: 0;">Function Buttons</p> <table style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th style="width: 50%;">Function Description</th> <th style="width: 50%;">Default Description</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> Display</td><td><input type="text"/></td></tr> <tr><td><input type="checkbox"/> Scroll up an interval</td><td><input type="text"/></td></tr> <tr><td><input type="checkbox"/> Scroll down an interval</td><td><input type="text"/></td></tr> <tr><td><input type="checkbox"/> Scroll up one page</td><td><input type="text"/></td></tr> <tr><td><input type="checkbox"/> Scroll down one page</td><td><input type="text"/></td></tr> <tr><td><input checked="" type="checkbox"/> Play</td><td><input type="text" value="Play"/></td></tr> <tr><td><input checked="" type="checkbox"/> Pause</td><td><input type="text" value="Pause"/></td></tr> <tr><td><input checked="" type="checkbox"/> Stop</td><td><input type="text" value="Stop"/></td></tr> <tr><td><input checked="" type="checkbox"/> Delete</td><td><input type="text" value="Delete"/></td></tr> <tr><td><input checked="" type="checkbox"/> Export to USB</td><td><input type="text" value="Export to USB"/></td></tr> <tr><td><input checked="" type="checkbox"/> Export to SD</td><td><input type="text" value="Export to SD"/></td></tr> <tr><td colspan="2" style="text-align: right;"><input type="button" value="Set As Default Description"/></td></tr> </tbody> </table> </div> </div> </div>	Function Description	Default Description	<input type="checkbox"/> Display	<input type="text"/>	<input type="checkbox"/> Scroll up an interval	<input type="text"/>	<input type="checkbox"/> Scroll down an interval	<input type="text"/>	<input type="checkbox"/> Scroll up one page	<input type="text"/>	<input type="checkbox"/> Scroll down one page	<input type="text"/>	<input checked="" type="checkbox"/> Play	<input type="text" value="Play"/>	<input checked="" type="checkbox"/> Pause	<input type="text" value="Pause"/>	<input checked="" type="checkbox"/> Stop	<input type="text" value="Stop"/>	<input checked="" type="checkbox"/> Delete	<input type="text" value="Delete"/>	<input checked="" type="checkbox"/> Export to USB	<input type="text" value="Export to USB"/>	<input checked="" type="checkbox"/> Export to SD	<input type="text" value="Export to SD"/>	<input type="button" value="Set As Default Description"/>	
Function Description	Default Description																										
<input type="checkbox"/> Display	<input type="text"/>																										
<input type="checkbox"/> Scroll up an interval	<input type="text"/>																										
<input type="checkbox"/> Scroll down an interval	<input type="text"/>																										
<input type="checkbox"/> Scroll up one page	<input type="text"/>																										
<input type="checkbox"/> Scroll down one page	<input type="text"/>																										
<input checked="" type="checkbox"/> Play	<input type="text" value="Play"/>																										
<input checked="" type="checkbox"/> Pause	<input type="text" value="Pause"/>																										
<input checked="" type="checkbox"/> Stop	<input type="text" value="Stop"/>																										
<input checked="" type="checkbox"/> Delete	<input type="text" value="Delete"/>																										
<input checked="" type="checkbox"/> Export to USB	<input type="text" value="Export to USB"/>																										
<input checked="" type="checkbox"/> Export to SD	<input type="text" value="Export to SD"/>																										
<input type="button" value="Set As Default Description"/>																											
	<p style="text-align: center;">Set Yes for loop playback (Loop).</p> <div style="border: 1px solid #ccc; padding: 5px;"> <p style="font-size: small; margin: 0;">Video Play</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="font-size: x-small; margin: 0;">Preview</p> <div style="border: 1px solid #ccc; height: 50px; width: 100%;"></div> <p style="font-size: x-small; margin: 5px 0;">State: 0</p> <p style="font-size: x-small; margin: 5px 0;">Language: Language1</p> </div> <div style="width: 50%;"> <p style="font-size: x-small; margin: 0;">Main</p> <p style="font-size: x-small; margin: 0;">Detail</p> <p style="font-size: x-small; margin: 5px 0;">File read address: None</p> <p style="font-size: x-small; margin: 5px 0;">String Length: 10</p> <p style="font-size: x-small; margin: 5px 0;">The current string length will read 40 bytes</p> <p style="font-size: x-small; margin: 5px 0;">Save in: USB Disk</p> <hr style="border: 0; border-top: 1px dashed #ccc; margin: 5px 0;"/> <p style="font-size: x-small; margin: 5px 0;">Start playing: None</p> <p style="font-size: x-small; margin: 5px 0;">Stop playing: None</p> <p style="font-size: x-small; margin: 5px 0;">Loop: Yes</p> </div> </div> </div>																										
<p>Video Play element</p>	<p style="text-align: center;">After the setting is complete, the element is as follows.</p> <div style="border: 1px solid #ccc; padding: 5px;"> <div style="display: flex;"> <div style="width: 45%; border-right: 1px solid #ccc; padding-right: 5px;"> <ul style="list-style-type: none"> Dir: 0 <ul style="list-style-type: none"> File: 0 File: 1 Dir: 1 <ul style="list-style-type: none"> File: 0 File: 1 </div> <div style="width: 55%;"></div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px; font-size: x-small;"> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f0f0f0;">Play</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f0f0f0;">Pause</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f0f0f0;">Stop</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f0f0f0;">Delete</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f0f0f0;">Export to USB</div> <div style="border: 1px solid #ccc; padding: 2px 10px; background-color: #f0f0f0;">Export to SD</div> </div> </div>																										

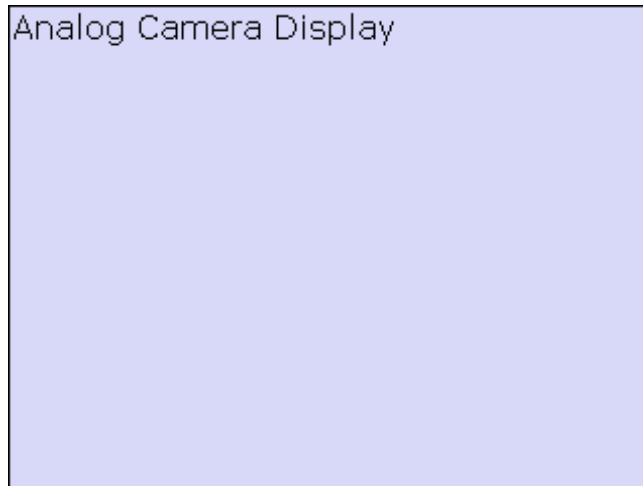
Video Play element

- Create a Camera display element with the parameters set as follows.
Camera display element

Camera display element

The screenshot shows a software configuration window for a 'Camera display element'. It is divided into several sections:

- Preview:** A window titled 'Preview' showing a placeholder for the camera feed.
- Main:** A tabbed interface with 'Main' and 'Coordinates' tabs. Under 'Main', there are two dropdown menus:
 - Invisible Address:** Set to 'None'.
 - CH1 / CH2 Toggle bits:** Set to 'None'.
- Setting:** A section with three dropdown menus:
 - Camera type:** Set to 'ANALOG CAMERA'.
 - Camera Name:** Set to 'CH1'.
 - Show size:** Set to '640x360'.
- State:** A dropdown menu set to '0'.
- Language:** A dropdown menu set to 'Language1'.
- Element description:** A text box containing 'Camera display element_01'.



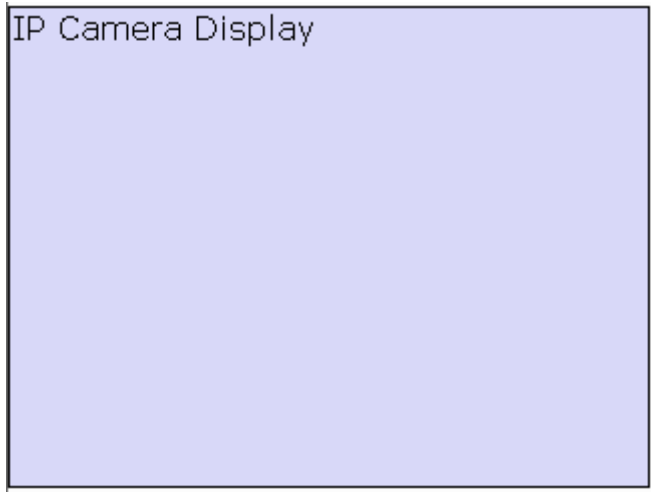
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Video Play element

Camera display element

- Create a Camera display element with the parameters set as follows.

Camera display element



Camera Device

Go to [Options] > [Camera Device] to set the IP for the IP Camera.

IP Camera		
Name	IP	Source format
CAMERA1	rtsp://admin:hk888888@192.168.123.199:554/Streaming/Channels/101/	H.264

Video Play element

- Go to [Options] > [Event trigger] to set the trigger source to archive the recorded videos. For details of each parameter, refer to the introduction of the Event trigger function in Section 20.5.
- Add two trigger events with the parameters set as follows.

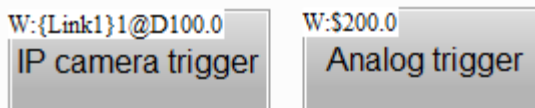
Event trigger

- After the setting is complete, the table is as follows.

No.	Condition	Action
1	BIT-{Link1}1@D100.0	Start recording-IP CAMERA-CAMERA1
2	BIT-\$200.0	Start recording-ANALOG CAMERA-CH1

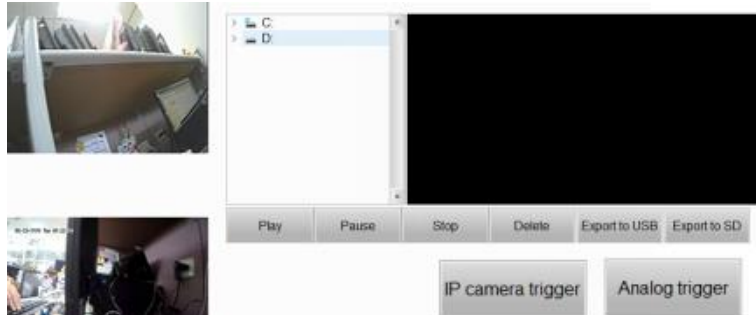
Momentary button

Create two Momentary button elements with the Write Addresses as D100.0 and \$200.0 respectively.



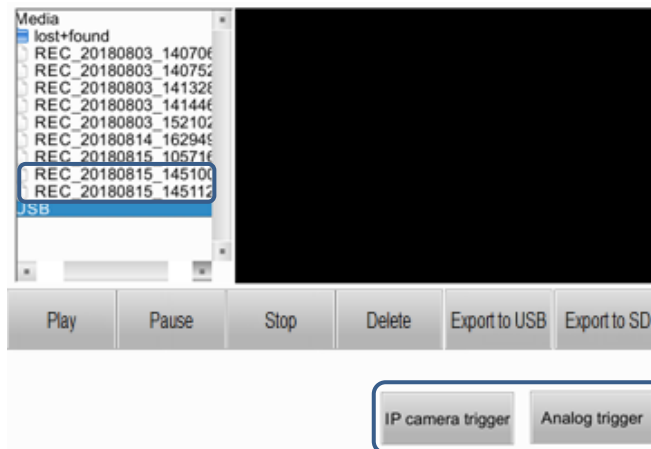
Video Play element

- After creating the elements, compile and download the elements to the HMI.
- When the download is complete, you can see the output videos on the Analog Camera and IP Camera display elements.

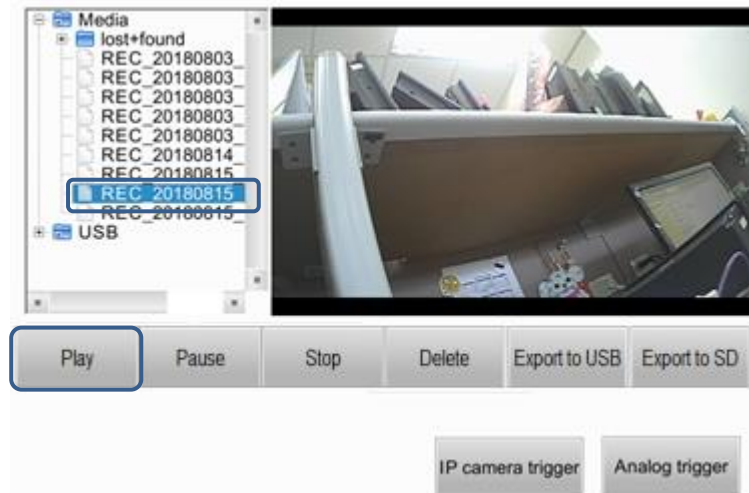


- After triggering the **IP camera trigger** (D100.0) and **Analog trigger** (\$200.0) buttons, you can see there are two new video archives under the Media path.

Execution results

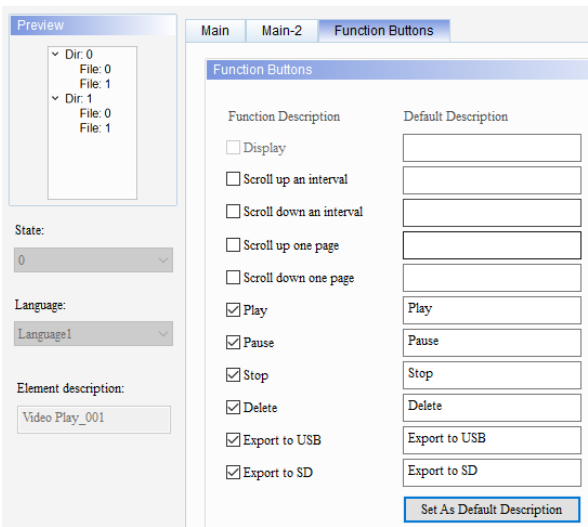
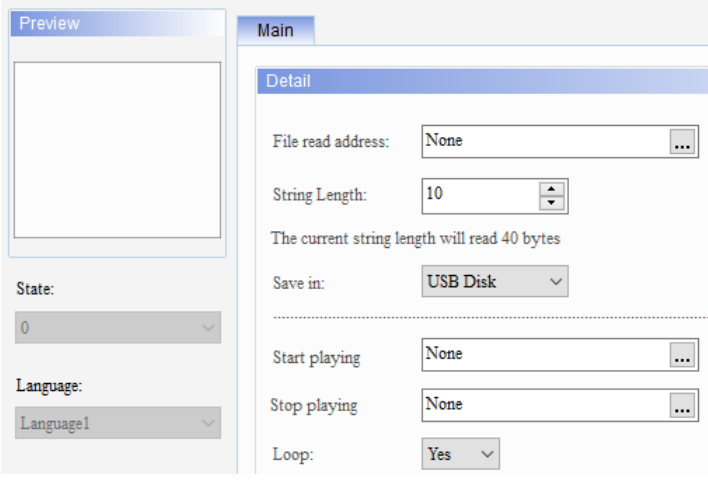


- Select a video file and click the **Play** button to play the recorded video.



The following example demonstrates how to play mpeg4 videos saved in the USB Disk or SD Card.

Table 20.4.2 Video Play element example (mpeg 4 videos saved in the USB Disk or SD Card)

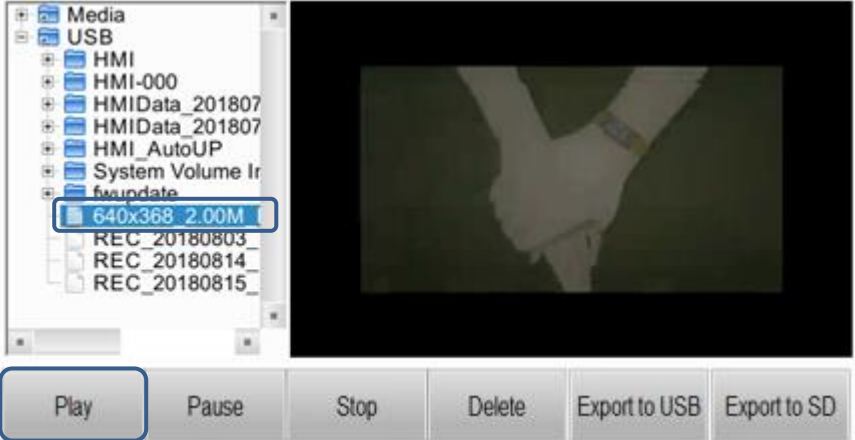
Video Play element			
File list on the left	<p>Create a Video Play element and set its parameters.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #cccccc; margin: 0;">Video Play element</p> <p>Select the check boxes for Play, Pause, Stop, Delete, Export to USB, and Export to SD, and click the Set As Default Description button.</p>  </div>		
Video Play element	<p>Set Yes for loop playback (Loop).</p> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;">  </div> <p>After the setting is complete, the element is as follows.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <ul style="list-style-type: none"> Dir: 0 <ul style="list-style-type: none"> File: 0 File: 1 Dir: 1 <ul style="list-style-type: none"> File: 0 File: 1 </td> <td style="width: 50%;"></td> </tr> </table> </div> <div style="display: flex; justify-content: space-around; align-items: center; border: 1px solid #ccc; padding: 5px;"> Play Pause Stop Delete Export to USB Export to SD </div>	<ul style="list-style-type: none"> Dir: 0 <ul style="list-style-type: none"> File: 0 File: 1 Dir: 1 <ul style="list-style-type: none"> File: 0 File: 1 	
<ul style="list-style-type: none"> Dir: 0 <ul style="list-style-type: none"> File: 0 File: 1 Dir: 1 <ul style="list-style-type: none"> File: 0 File: 1 			

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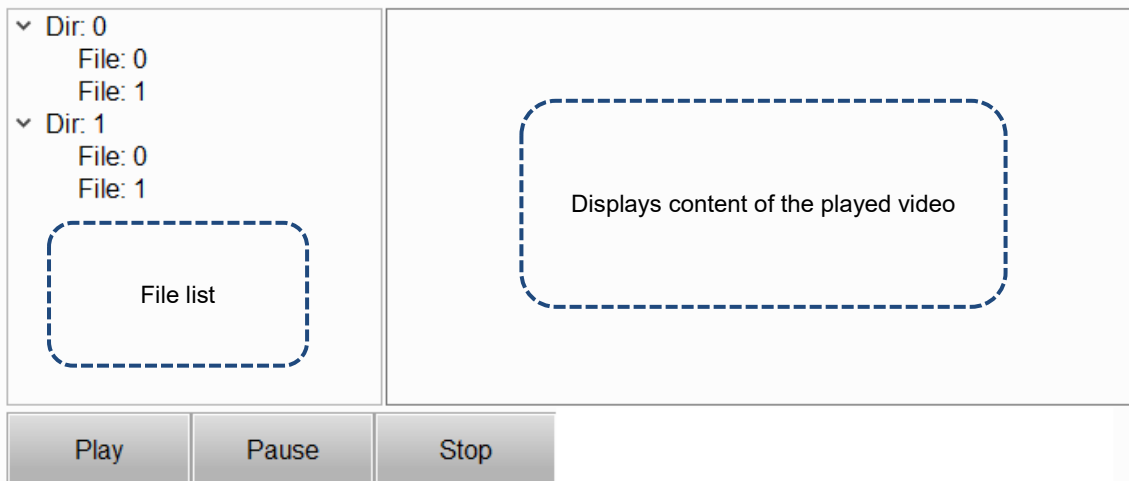
Execution results

Video Play element

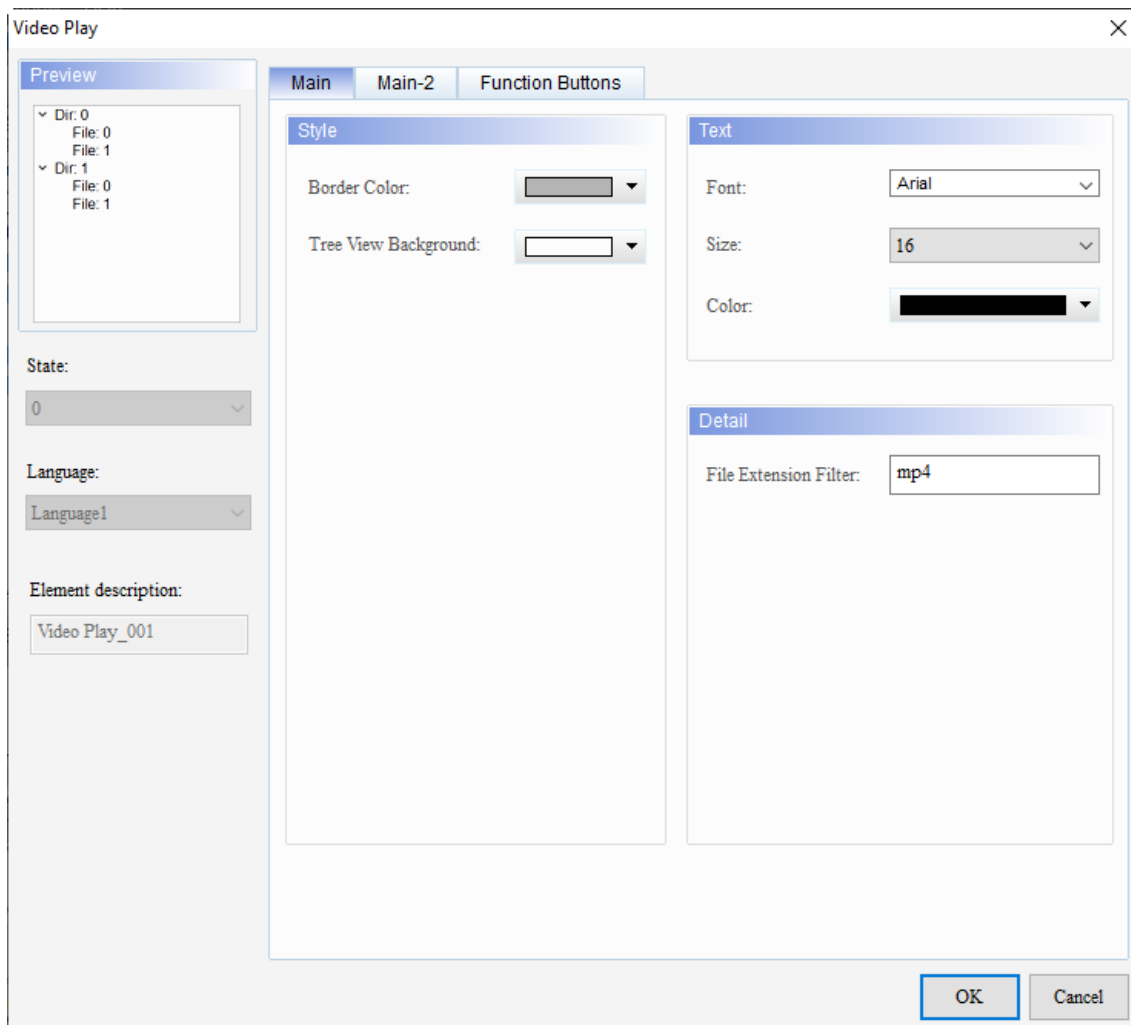
- After creating the elements, compile and download the elements to the HMI.
- First, load an H.264 coded mpeg4 video to the PC.
- Then, select the video file and click the **Play** button to play the video.



The Video Play element can be divided into the file list on the left and the display window on the right.



When you double-click the file list on the left of the Video Play element, the property page is shown as follows.



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Figure 20.4.1 Properties of Video Play (file list on the left)

Table 20.4.3 Function page of Video Play (file list on the left)

Video Play element (file list on the left)	
Function page	Description
Preview	Video Play elements do not support multiple state values and multi-language data display.
Main	Set the Border Color and Tree View Background. Set the text font, size, and color. Set the File Extension Filter.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Function Buttons	Select the check boxes for Scroll up an interval , Scroll down an interval , Scroll up one page , Scroll down one page , Play , Pause , Stop , Delete , Export to USB , and Export to SD , and click the Set As Default Description button. Set the width and height of the buttons.

20

■ Main

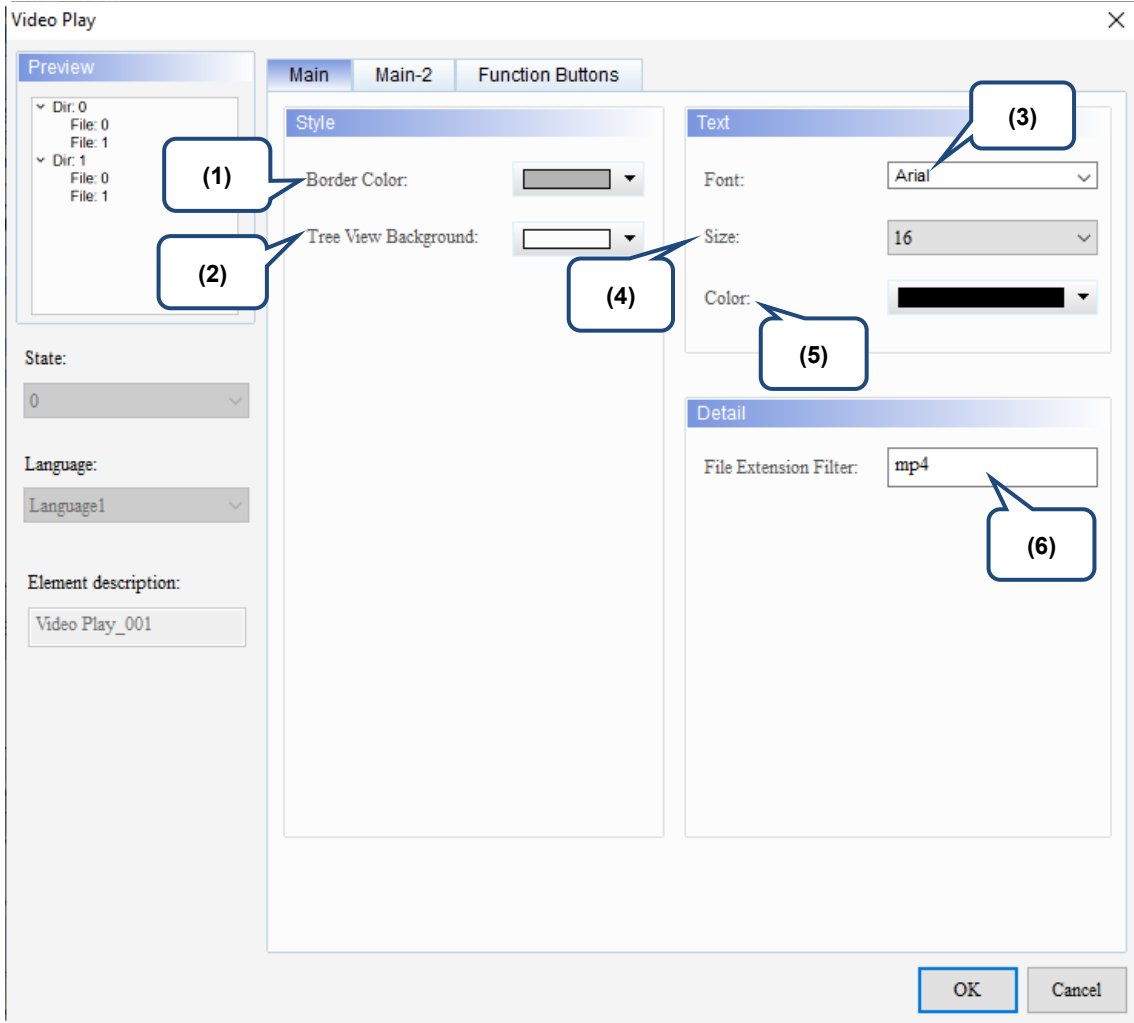
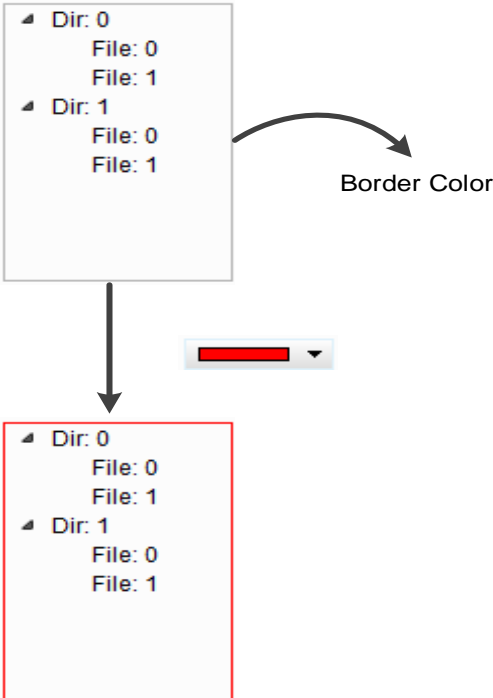
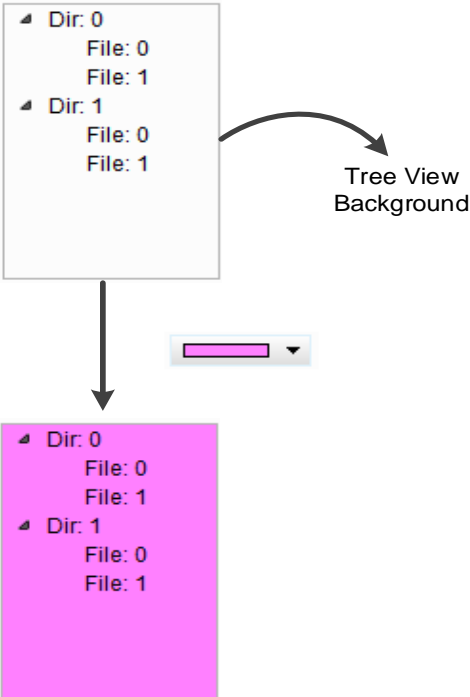


Figure 20.4.2 Main property page for the Video Play element (file list on the left)

No.	Property	Function description
(1)	Border Color	<p>Set the border color of the file list on the left.</p> 
(2)	Tree View Background	<p>Set the Tree View Background color of the file list on the left.</p> 
(3)	Font	Set the text font for the file list on the left.
(4)	Size	Set the text size for the file list on the left.
(5)	Color	Set the text color for the file list on the left.
(6)	File Extension Filter	Set the file extension to be displayed in the file list on the left. The default is mp4, meaning only the files with the mp4 file extension will be displayed in the root directory of the external drive. If you enter an asterisk symbol "*" to the File Extension Filter field, all files in the root directory will be displayed.

■ Main-2

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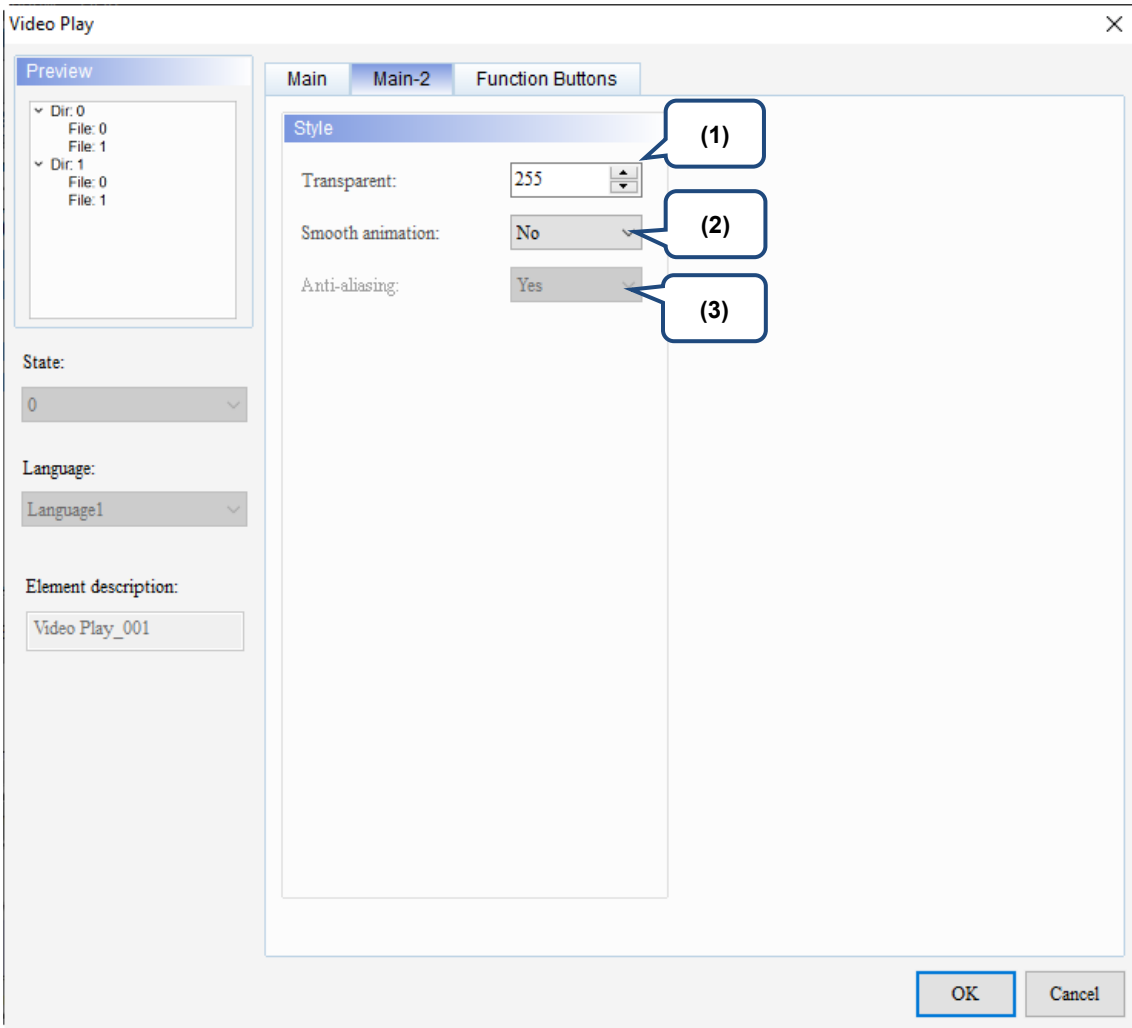
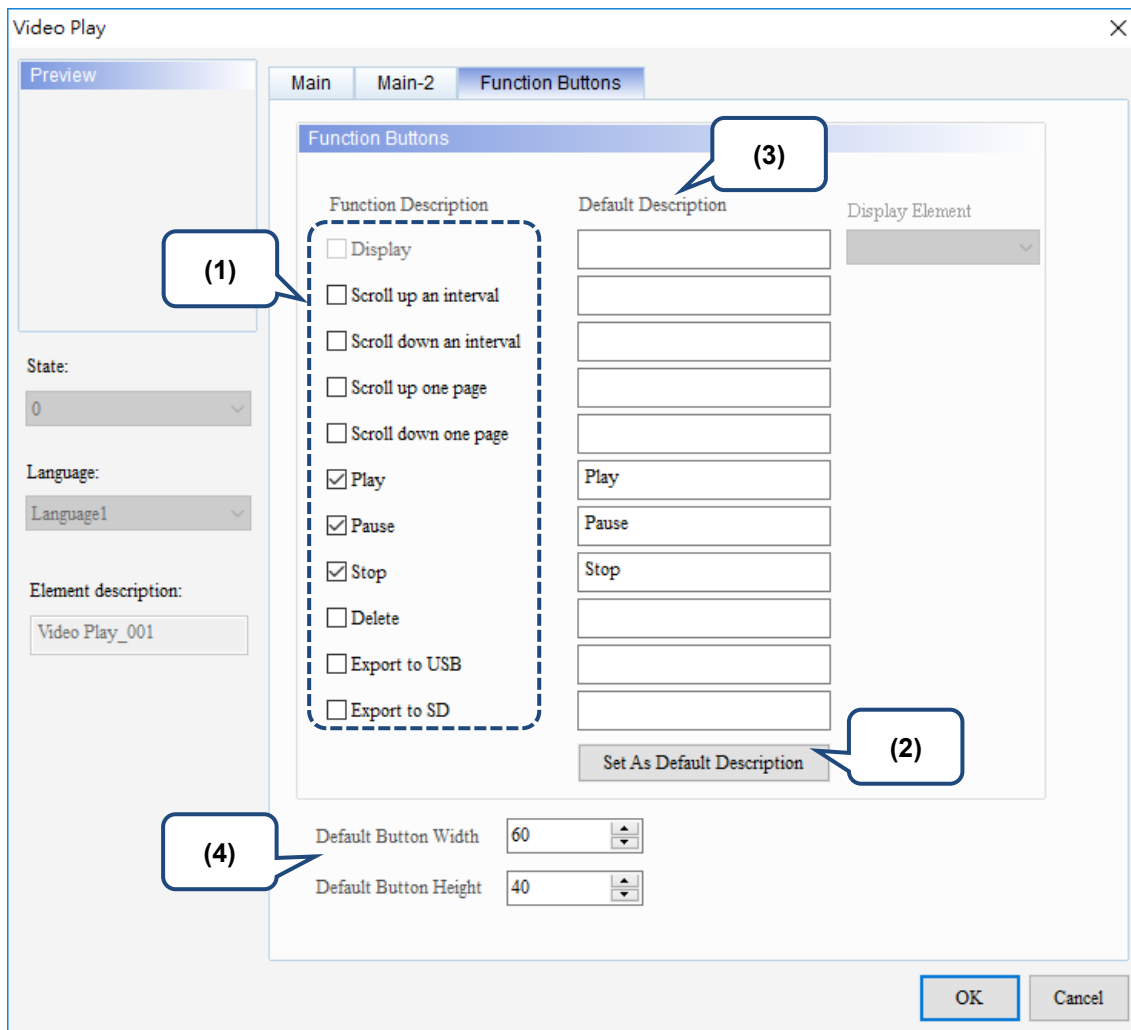


Figure 20.4.3 Main-2 property page for the Video Play element (file list on the left)

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is available for this element. When you activate the Smooth animation function, there is a sliding effect when the file list expands or retracts.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Function Buttons



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Figure 20.4.4 Function button property page for the Video Play element (file list on the left)

No.	Property	Function description
(1)	Function Buttons	<ul style="list-style-type: none"> Function buttons for the file list on the left are provided. Scroll up an interval, Scroll down an interval, Scroll up one page, and Scroll down one page are used to scroll the file list and determine how many lines to scroll each time. Play, Pause, Stop, and Delete are video control buttons. When you select the check box for Export to USB or Export to SD, the buttons are used to export the video file stored in the HMI to the USB disk or SD card.
(2)	Set As Default Description	Press this button to insert the default strings to the Default Description fields.
(3)	Default Description	Press Set As Default Description to insert the default strings to the fields. You can also enter user-defined strings.
(4)	Default Button Width and Height	You can adjust the width and height of the function buttons.

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When you double-click the display content on the right, the property page is shown as follows.

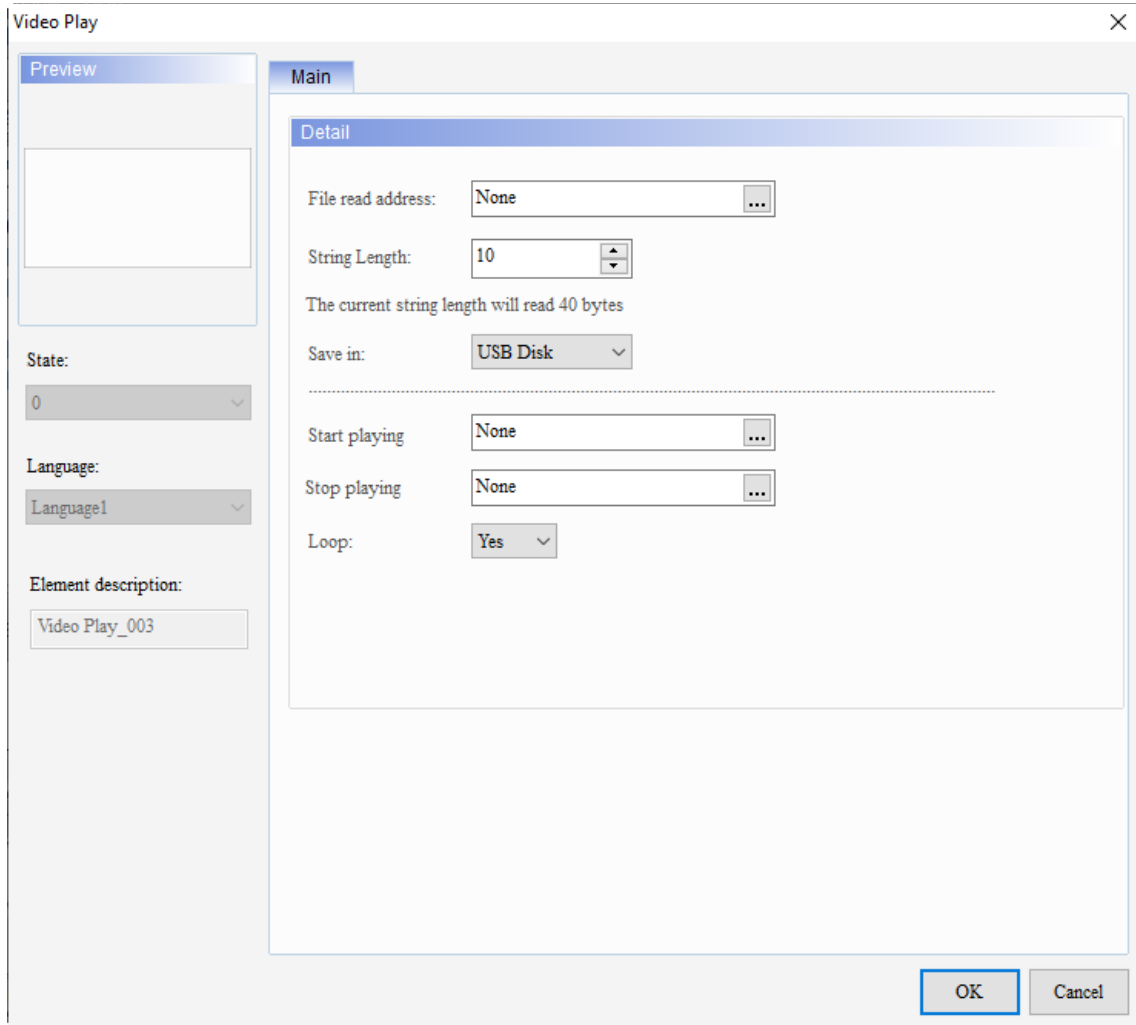


Figure 20.4.5 Properties of Video Play (display content on the right)

Table 20.4.4 Function page of Video Play (display content on the right)

Video Play element (display content on the right)	
Function page	Description
Main	Set the File read address, String Length, and Save in. Set Start playing, Stop playing, and Loop.

■ Main

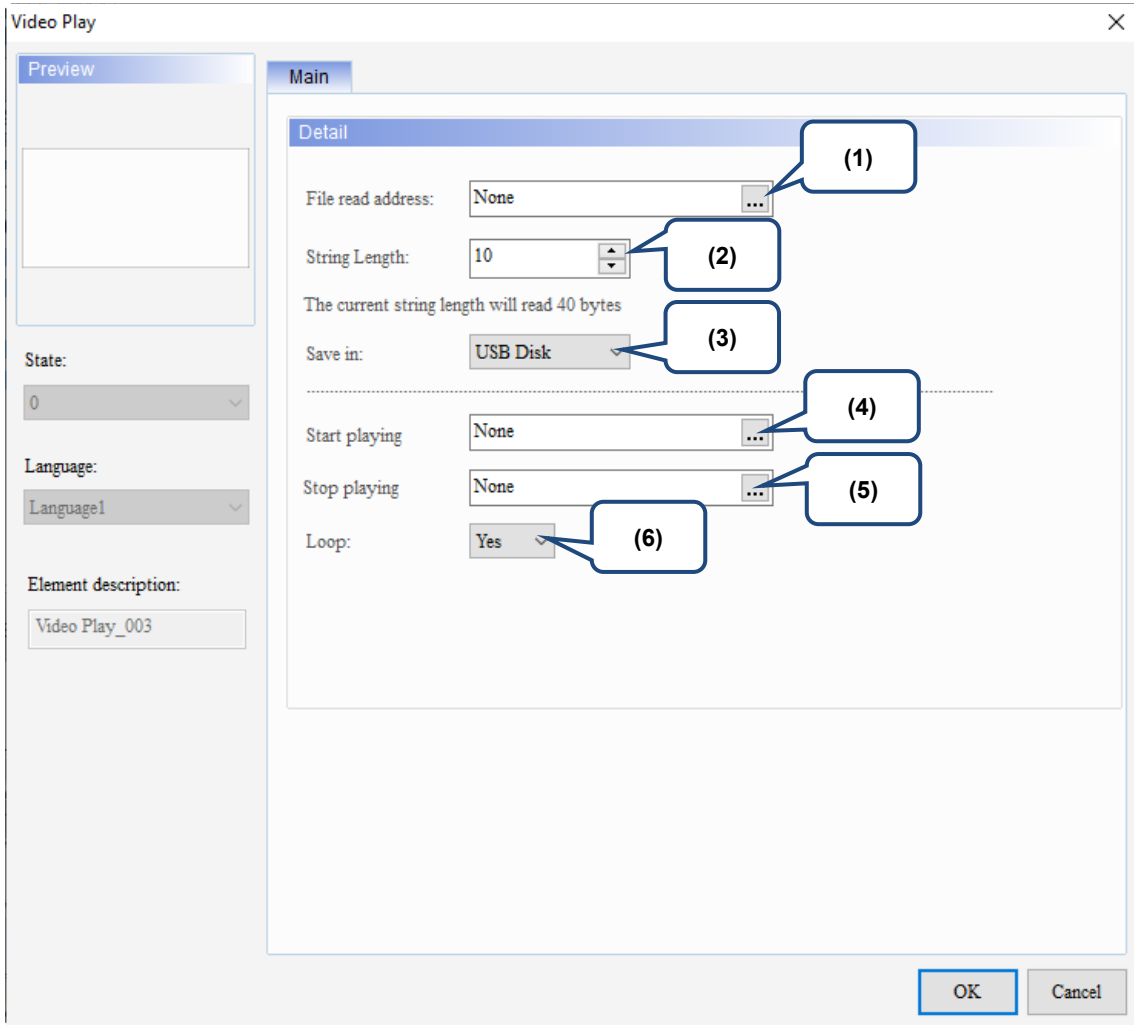


Figure 20.4.6 Main property page for the Video Play element (display content on the right)

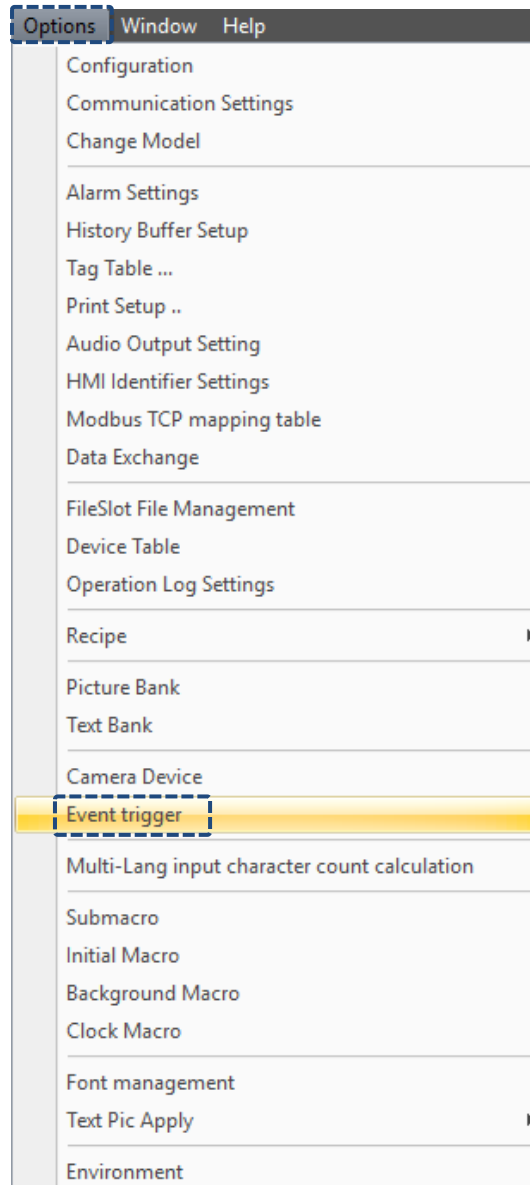
No.	Property	Function description
(1)	File read address	You can directly read the file in the USB Disk or SD Card.
(2)	String Length	Set the length of the file name to be read.
(3)	Save in	The available options are USB Disk, SD, and MEDIA.
(4)	Start playing	Set the bit for starting playing the video.
(5)	Stop playing	Set the bit for stopping playing the video.
(6)	Loop	The default is Yes, so the video plays back continuously.


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20.5 Event trigger

The Event trigger function is mainly used with the Camera display element. After the conditions set for the Event trigger function are met, the content captured by the camera at that time can be archived into an mpeg4 file.

Go to [Options] > [Event trigger] to set the triggering event.



Press  to add a new triggering event.

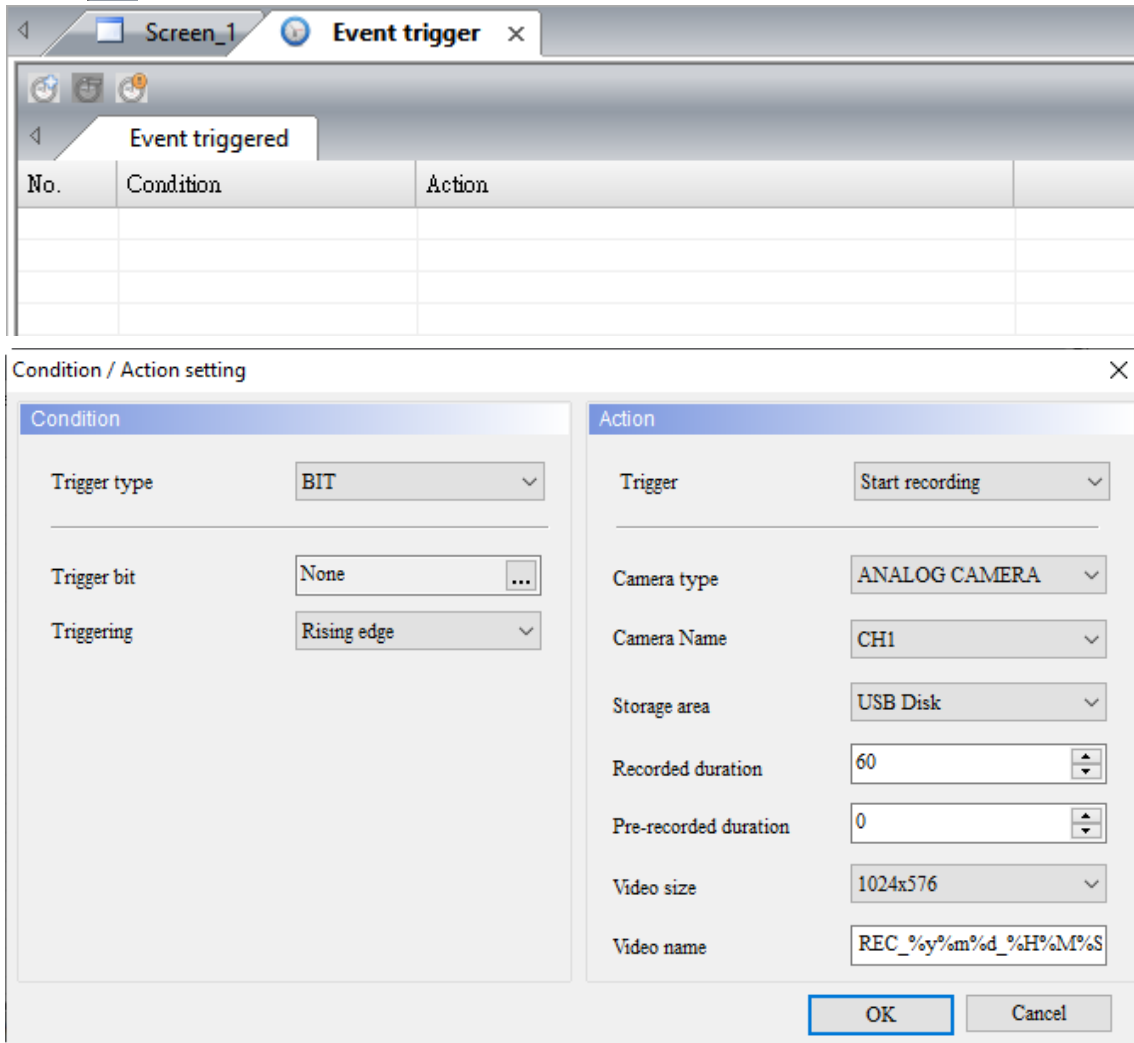
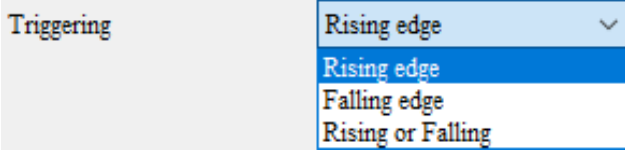
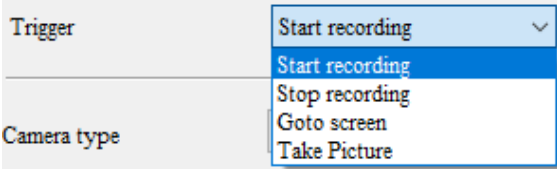
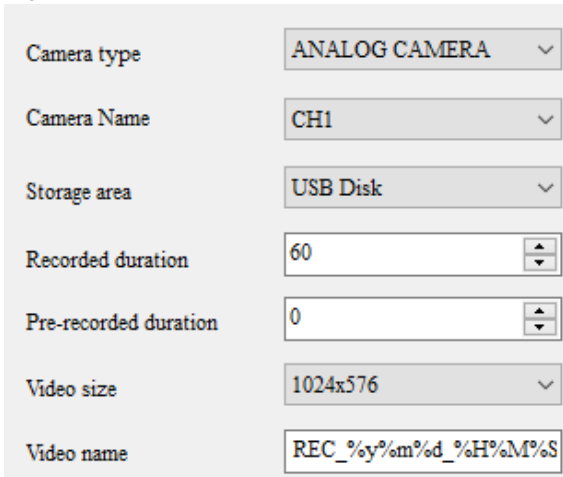
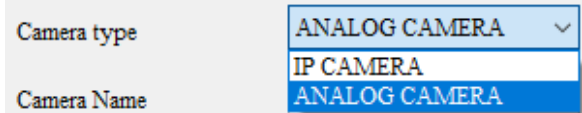
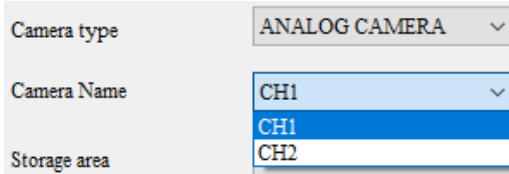
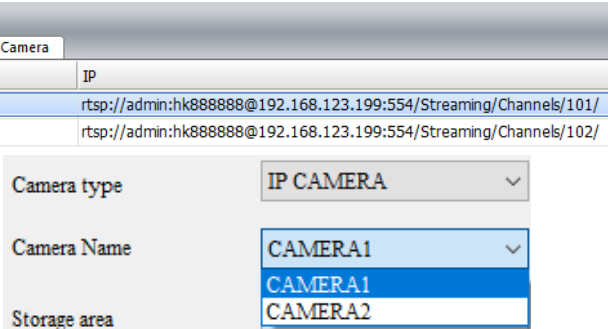
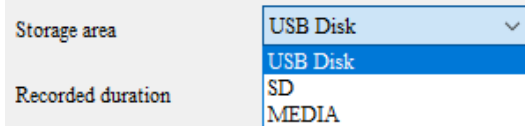
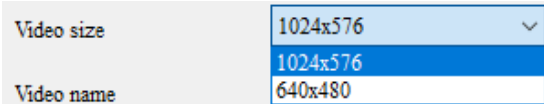


Figure 20.5.1 Event trigger

Table 20.5.1 Event trigger function description

Condition	
Trigger type	Currently only bit triggering is available.
Trigger bit	Set the address of the Trigger bit, which can be an external PLC memory address or an internal memory address.
Triggering	<ul style="list-style-type: none"> Trigger conditions include Rising edge, Falling edge, and Rising or Falling.  <ul style="list-style-type: none"> Rising edge means the bit switches from On to Off. Falling edge means the bit switches from Off to On.
Action	
Trigger actions include Start recording, Stop recording, Goto screen, and Take Picture.	
	
Start recording	<p>Select Start recording and the interface is as follows:</p> 
Camera type	<p>Select ANALOG CAMERA or IP CAMERA.</p> 

Action	
Start recording	<p>Camera Name</p> <ul style="list-style-type: none"> The options for Camera Name vary depending on the selected Camera type. If you select ANALOG CAMERA for the Camera type, the options for the Camera Name are CH1 and CH2.  <ul style="list-style-type: none"> If you select IP CAMERA for the Camera type, the Camera Name is the name set for the IP Camera. Go to [Options] > [Camera Device] to set the names for the IP Camera as CAMERA1 and CAMERA2. 
	<p>Storage area</p> <ul style="list-style-type: none"> The options for Storage area include USB Disk, SD, and MEDIA.  <ul style="list-style-type: none"> MEDIA is a storage area in the HMI. If you select MEDIA to store the videos, only 2G of recorded videos can be stored in the HMI. If you select USB Disk or SD to store the videos, the storage capacity is determined by the selected USB Disk or SD Card. The supported format is FAT32.
	<p>Recorded duration</p> <p>When the trigger bit condition is met, the camera records for the set duration (unit: seconds).</p>
	<p>Video size</p> <ul style="list-style-type: none"> The options for Video size include 1024x576 and 640x480.  <ul style="list-style-type: none"> If you select 640x480 and set the Recorded duration to 120 seconds, the file size will be 30MB.
<p>Video name</p> <ul style="list-style-type: none"> The default of the video file name is REC_%y%m%d_%H%M%S. %Y: year; %m: month; %d: day; %H: hour; %M: minute; %S: second. You can name the file according to your requirements. 	

20

Action

Stop recording

- Select Stop recording and the interface is as follows:

The screenshot shows a dialog box titled "Condition / Action setting" with two main sections: "Condition" and "Action".

Condition	Action
Trigger type: BIT	Trigger: Stop recording
Trigger bit: None	Camera type: IP CAMERA
Triggering: Rising edge	Camera Name: CAMERA1
	Storage area: USB Disk
	Recorded duration: 60
	Pre-recorded duration: 0
	Video size: 1024x576
	Video name: REC_%y%m%d_%H%M%S

Buttons: OK, Cancel

- Select the type and name of the camera to stop recording.

Goto screen

- Select Goto screen and the interface is as follows:

The screenshot shows a dialog box titled "Change the" with a text input field containing "Screen_1" and a button with three dots "...".

- If you select Goto screen, the displaying screen switches to the screen of the specified screen number as soon as the trigger bit condition is met.

Take Picture

- Select Take Picture and the interface is as follows:

The screenshot shows a dialog box titled "Condition / Action setting" with two main sections: "Condition" and "Action".

Condition	Action
Trigger type: BIT	Trigger: Take Picture
Trigger bit: None	Camera type: IP CAMERA
Triggering: Rising edge	Camera Name: CAMERA1
	Storage area: USB Disk
	Recorded duration: 60
	Pre-recorded duration: 0
	Video size: 1024x576
	Video name: REC_%y%m%d_%H%M%S

Buttons: OK, Cancel

- The functions of Take Picture are the same as those of Start recording except for the functions of Recorded duration and Pre-recorded duration.

Basic Shape

21

This chapter provides the usage and setting details for the Basic Shape elements.



21.1 Rhombus	21-3
21.2 Right Triangle.....	21-9
21.3 Pentagon	21-16
21.4 Pie Chart.....	21-22
21.5 Arc	21-28
21.6 Hexagon	21-34
21.7 Star Shape	21-40
21.8 Triangle	21-46
21.9 Hollow Circle.....	21-53
21.10 Stop Circle.....	21-59
21.11 1/4 Arc	21-65

DOPSoft provides you with the function to draw basic shapes. The following describes the properties of each Basic Shape element.

21

Basic Shape element classification:













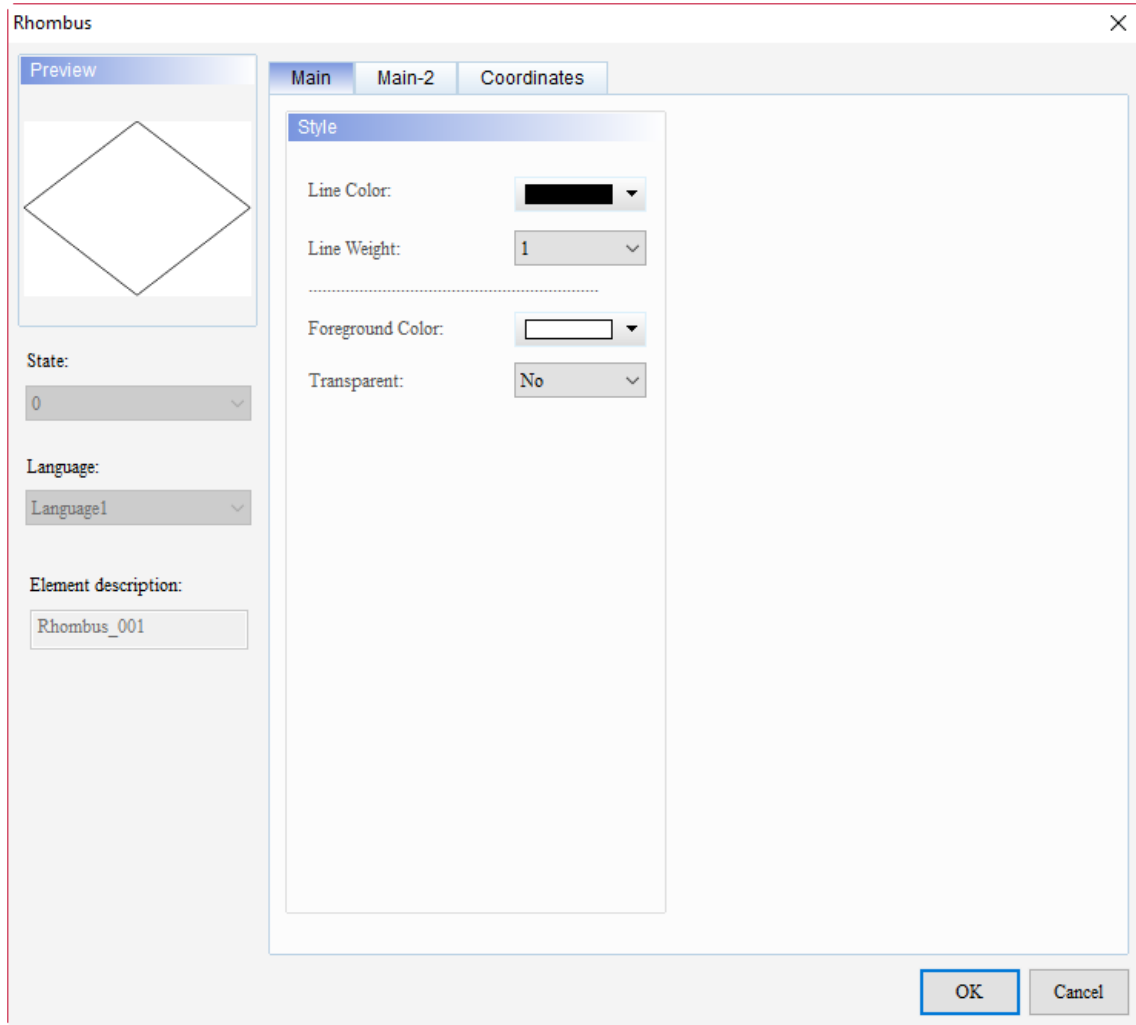
Basic Shape 		Rhombus
		Right Triangle
		Pentagon
		Pie Chart
		Arc
		Hexagon
		Star Shape
		Triangle
		Hollow Circle
		Stop Circle
		1/4 Arc

Table 21.1 Basic Shape element classification table

21.1 Rhombus

When you double-click the Rhombus element, the property page is shown as follows.



21

Figure 21.21.1 Properties of Rhombus

Table 21.1.1 Function page of Rhombus

Rhombus	
Function page	Description
Main	Set the Line Color, Line Weight, Foreground Color, and Transparent.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

21

■ Main

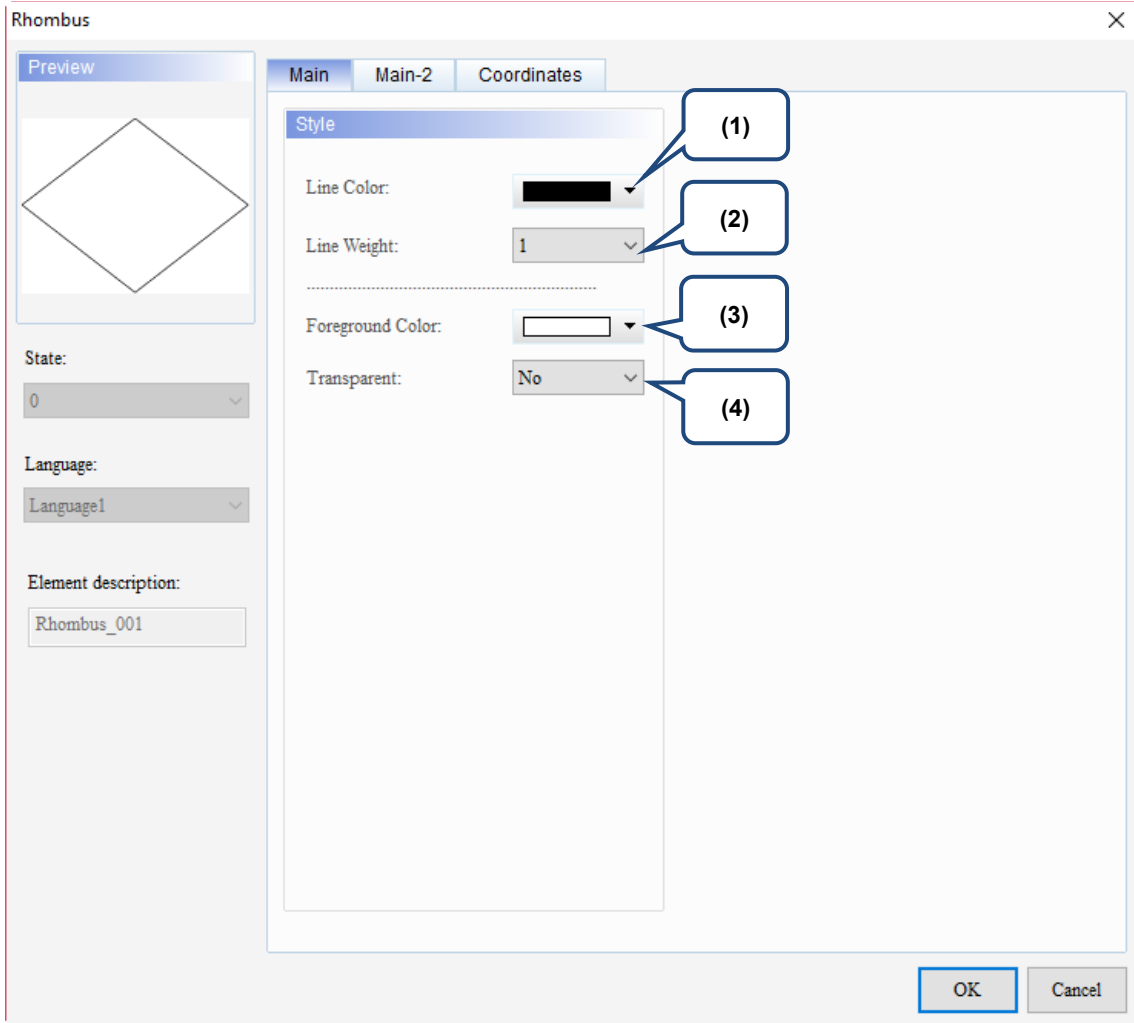
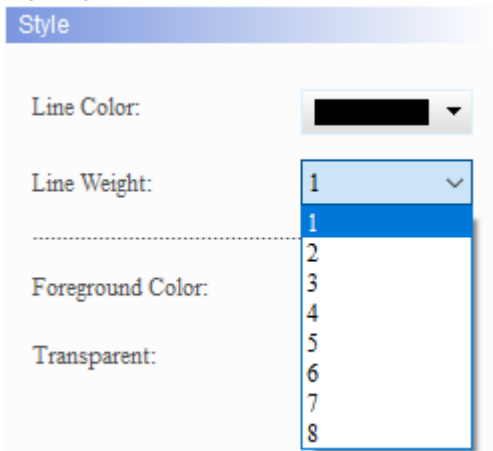
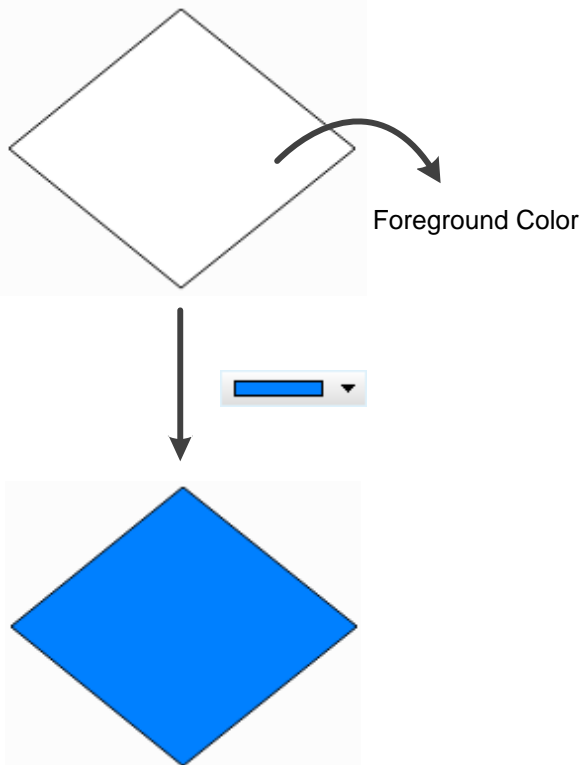
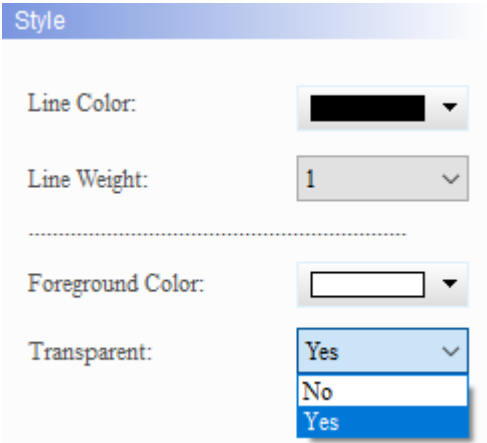
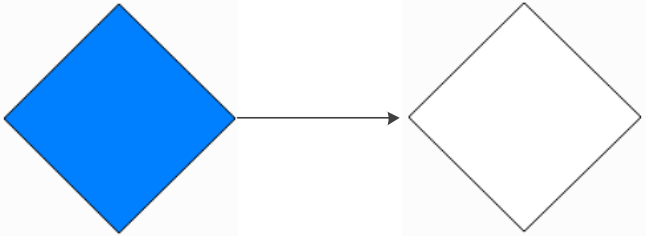
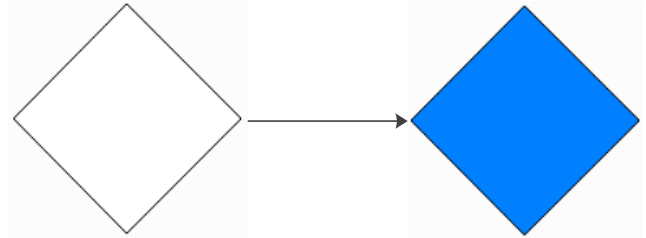
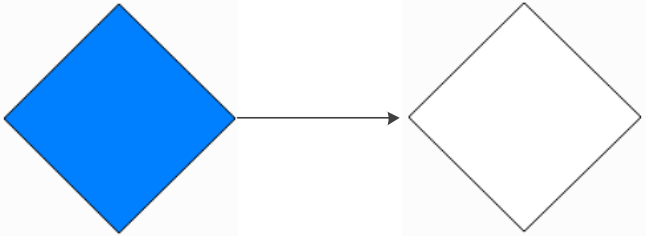
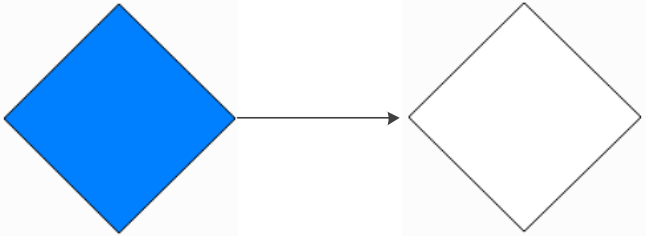
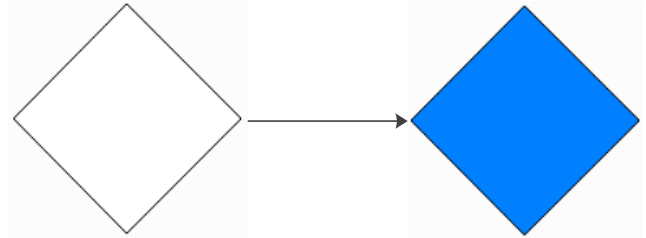


Figure 21.1.2 Main property page for the Rhombus element

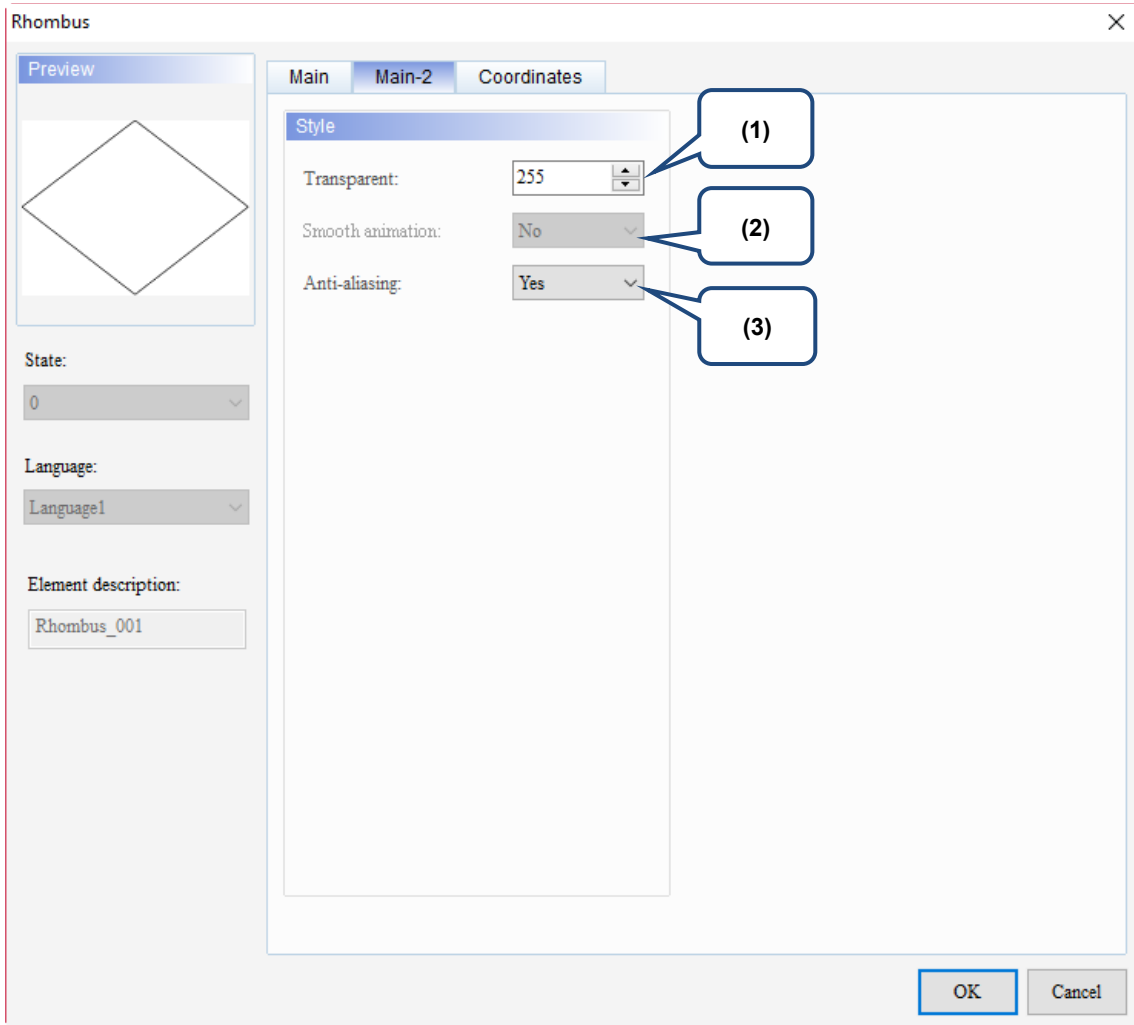
No.	Property	Function description
(1)	Line Color	<p>You can set the line color for the element.</p>

No.	Property	Function description
(2)	Line Weight	<p>The line width setting ranges from 1 to 8.</p>  <p>The screenshot shows a 'Style' dialog box with the following options: 'Line Color' (set to black), 'Line Weight' (set to 1), 'Foreground Color', and 'Transparent'. The 'Line Weight' dropdown menu is open, showing options from 1 to 8.</p>
(3)	Foreground Color	<p>Set the foreground color of the element.</p>  <p>The diagram illustrates the process of setting the foreground color. It shows a diamond shape with a black outline. An arrow points from the outline to a color selection box. Another arrow points from the color selection box to the text 'Foreground Color'. Below this, a solid blue diamond is shown, indicating the result of the color change.</p>

21

No.	Property	Function description		
(4)	Transparent	<ul style="list-style-type: none"> You can select Yes or No for this function.  <ul style="list-style-type: none"> If you select Yes, the foreground color of the Rhombus element is transparent and only the border color is displayed; if you select No, the foreground color of the element is displayed. 		
		<table border="1"> <tr> <td>Transparent is Yes</td> <td>  </td> </tr> <tr> <td>Transparent is No</td> <td>  </td> </tr> </table>	Transparent is Yes	
Transparent is Yes				
Transparent is No				

■ Main-2



21

Figure 21.1.3 Main-2 property page for the Rhombus element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td style="background-color: #cccccc;">Yes</td> <td></td> </tr> <tr> <td style="background-color: #cccccc;">No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Coordinates

21

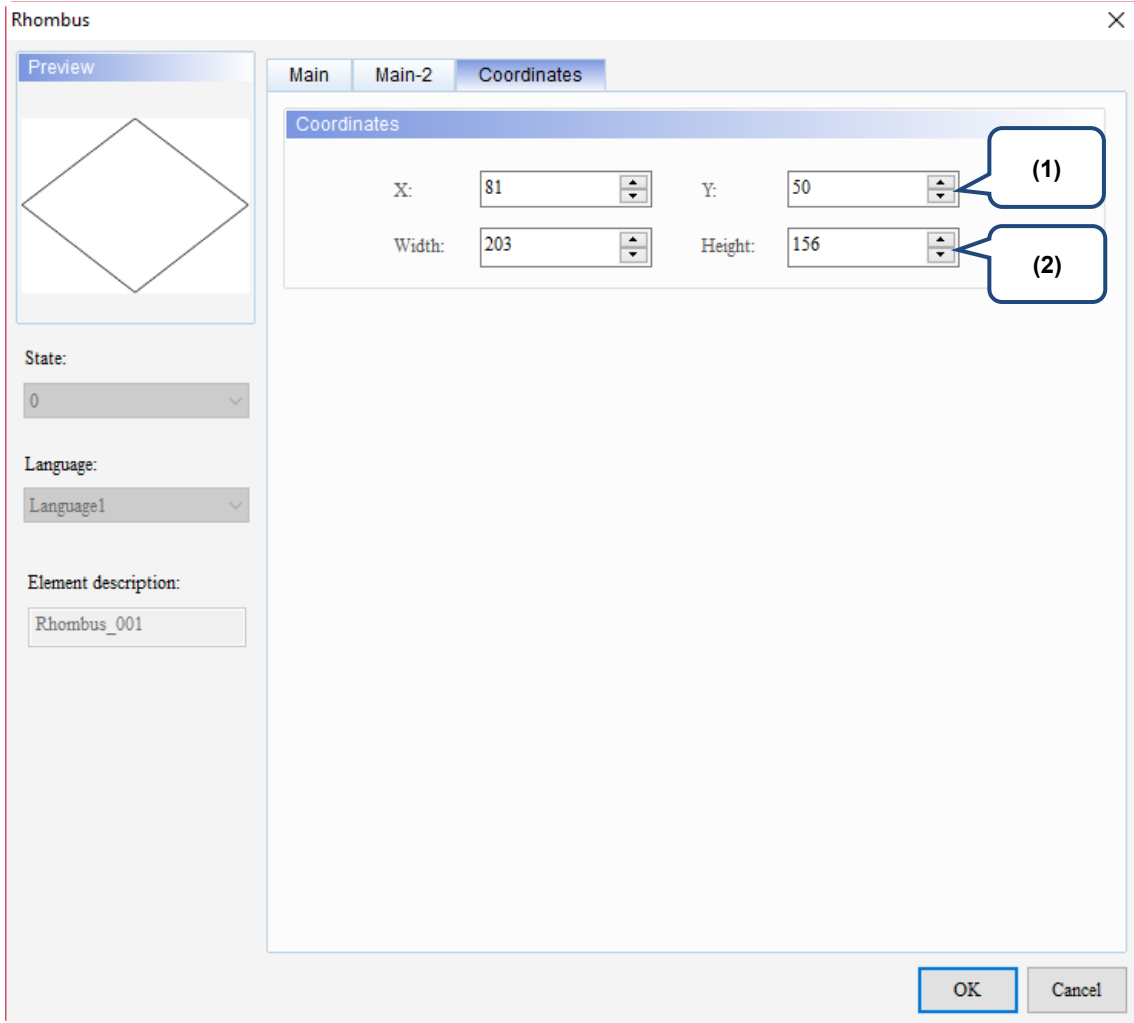


Figure 21.1.4 Coordinates property page for the Rhombus element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

21.2 Right Triangle

When you double-click the Right Triangle element, the property page is shown as follows.

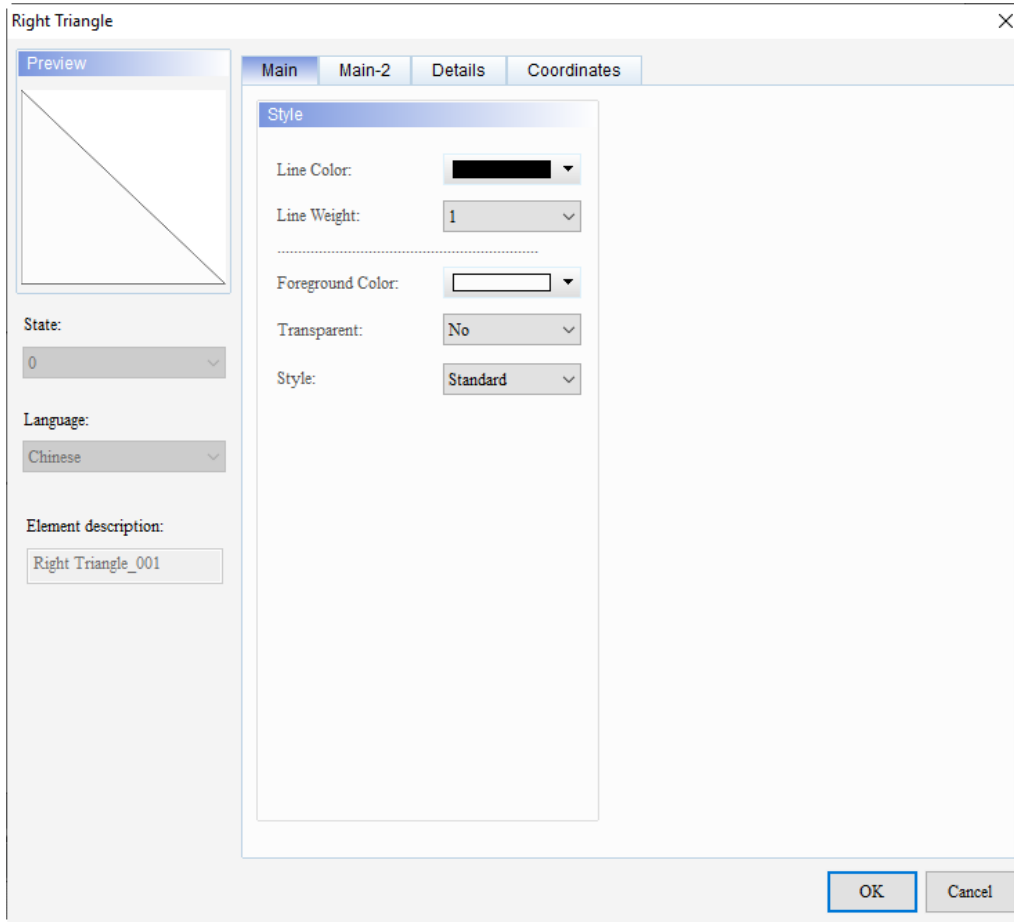


Figure 21.2.1 Properties of Right Triangle

Table 21.2.1 Function page of Right Triangle

Right Triangle	
Function page	Description
Main	Set the Line Color, Line Weight, Foreground Color, Transparent, and Style.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Details	Set the Invisible Address.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

21

■ Main

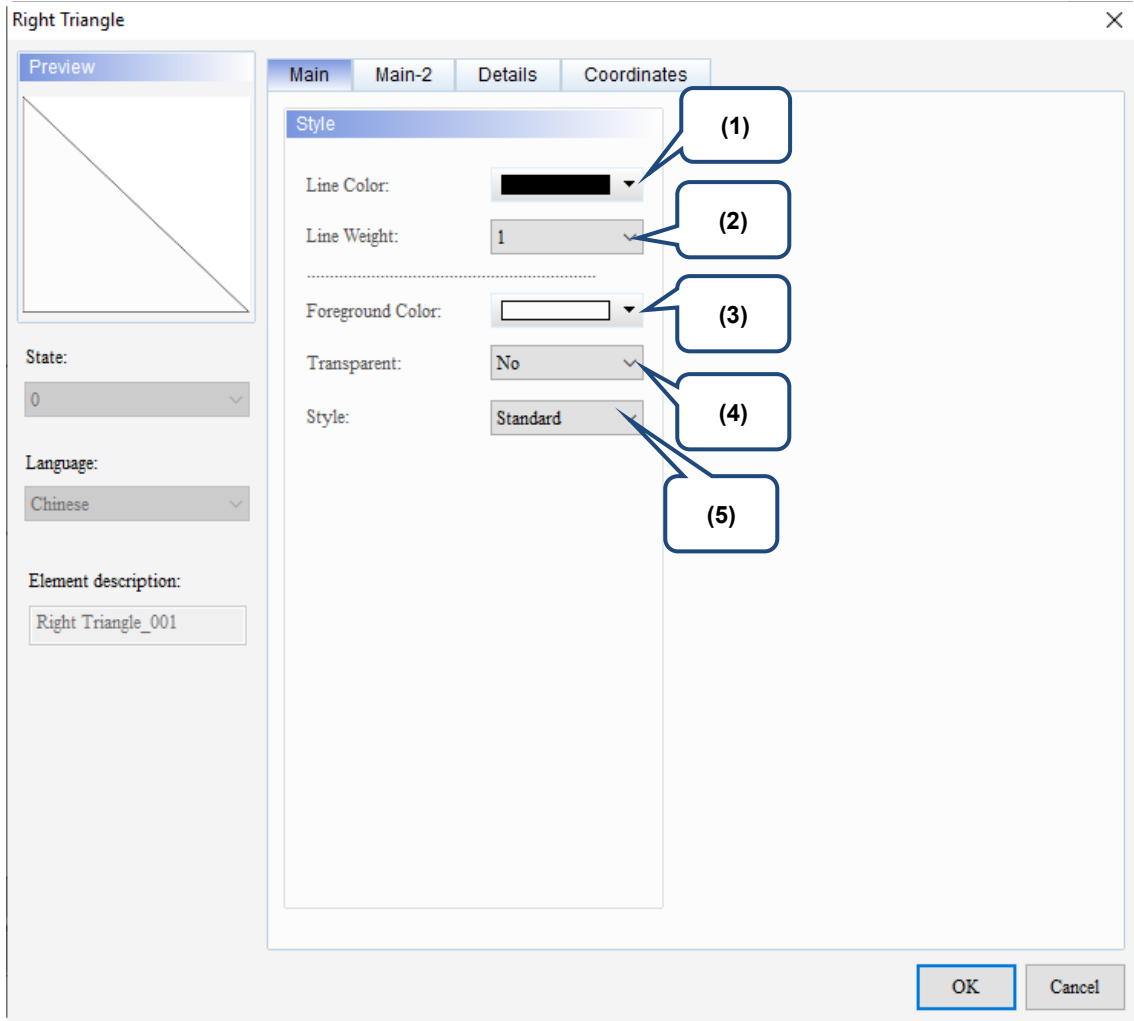
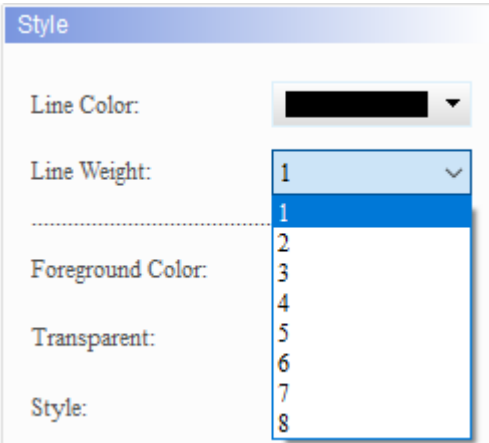
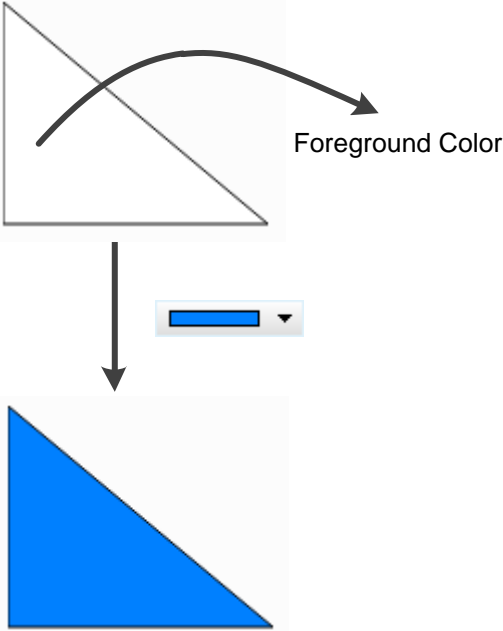
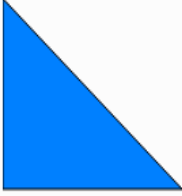

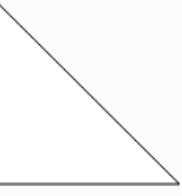

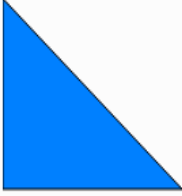

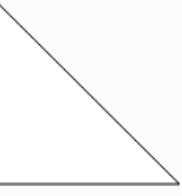

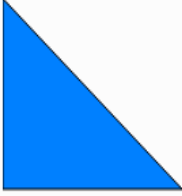

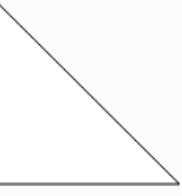

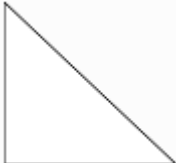
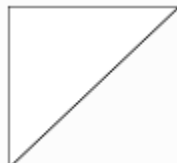
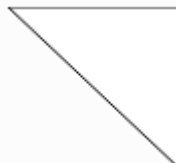

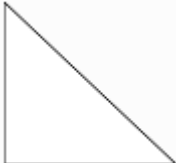
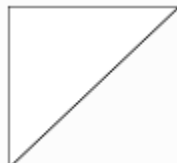
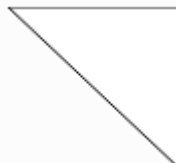

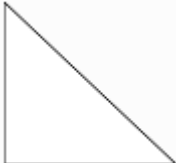
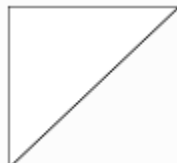
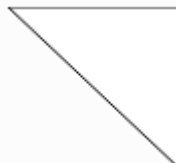



Figure 21.2.2 Main property page for the Right Triangle element

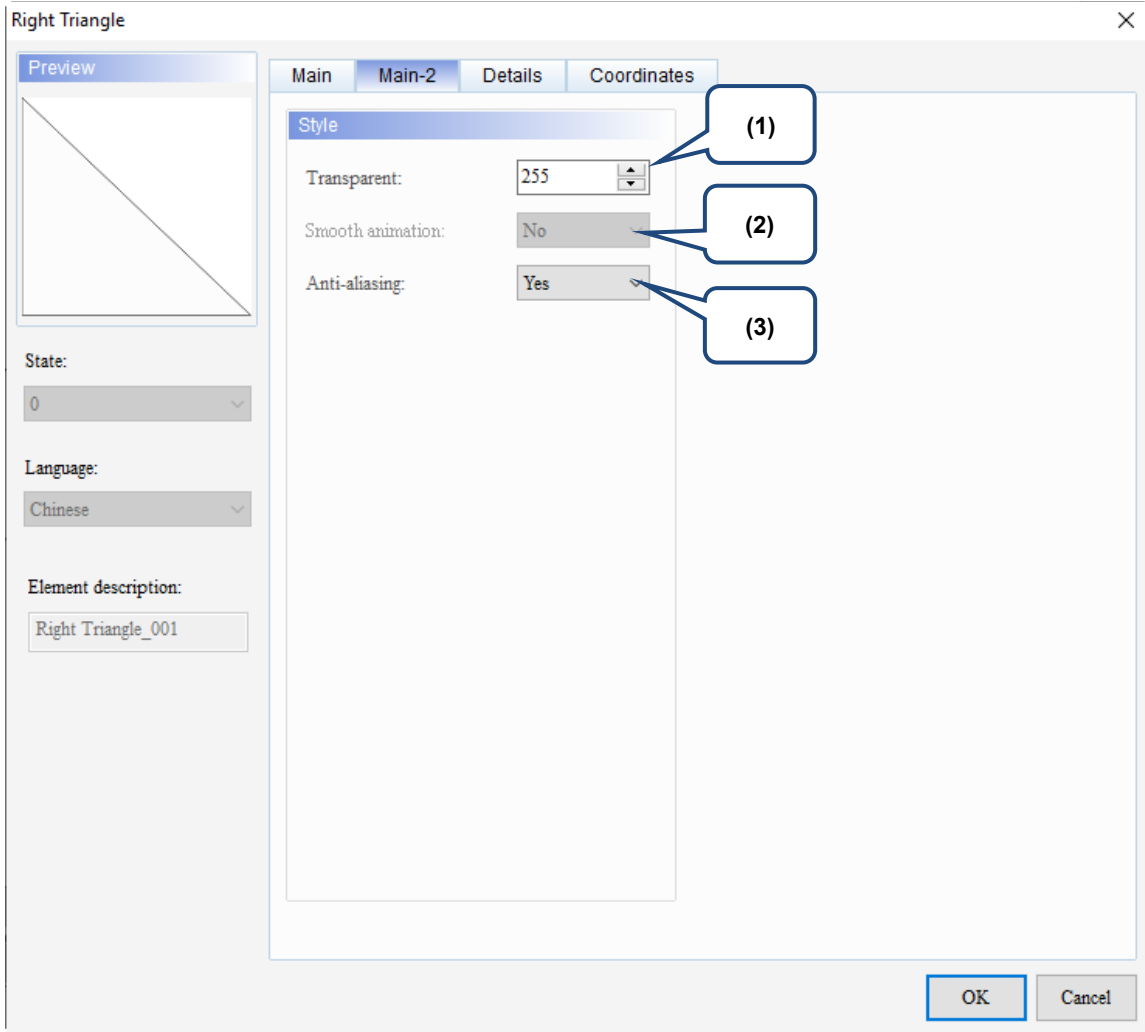
No.	Property	Function description
(1)	Line Color	<p>You can set the line color for the element.</p> <p>The 'Color' dialog box includes a grid of 'Basic colors(B)', a 'Color Solid(O)' preview, and input fields for Hue (E), Sat (S), Lum (L), Red (R), Green (G), and Blue (U). It also has radio buttons for 'Decimal' and 'Hexadecimal' with the value '891'.</p>

No.	Property	Function description
(2)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 
(3)	Foreground Color	<p>Set the foreground color of the element.</p> 

21

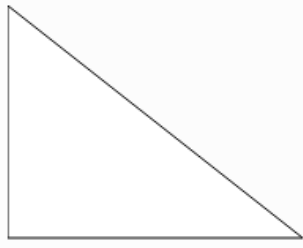
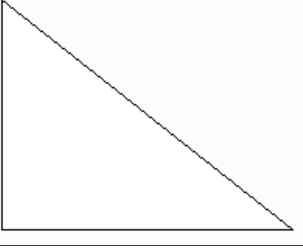
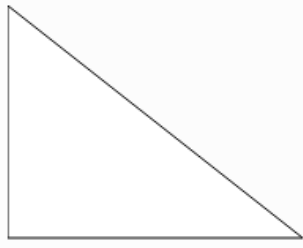
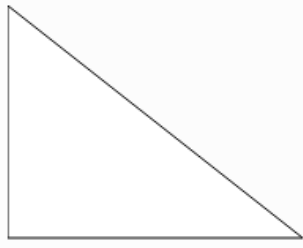
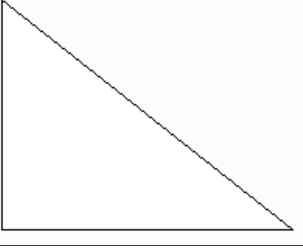
No.	Property	Function description								
(4)	Transparent	<p>■ You can select Yes or No for this function.</p> <div style="border: 1px solid gray; padding: 5px;"> <p>Style</p> <p>Line Color: ▾</p> <p>Line Weight: 1 ▾</p> <p>-----</p> <p>Foreground Color: ▾</p> <p>Transparent: No ▾</p> <p>Style: No Yes</p> </div> <p>■ If you select Yes, the foreground color of the Right Triangle element is transparent and only the border color is displayed; if you select No, the foreground color of the element is displayed.</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Transparent is Yes</td> <td></td> <td>→</td> <td></td> </tr> <tr> <td>Transparent is No</td> <td></td> <td>→</td> <td></td> </tr> </table>	Transparent is Yes		→		Transparent is No		→	
Transparent is Yes		→								
Transparent is No		→								
(5)	Style	<p>The available element styles are Standard, Rotation 90, Rotation 180, and Rotation 270.</p> <div style="border: 1px solid gray; padding: 5px;"> <p>Style</p> <p>Line Color: ▾</p> <p>Line Weight: 1 ▾</p> <p>-----</p> <p>Foreground Color: ▾</p> <p>Transparent: No ▾</p> <p>Style: Standard Standard Rotation 90 Rotation 180 Rotation 270</p> </div> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Standard</th> <th>Rotation 90</th> <th>Rotation 180</th> <th>Rotation 270</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Standard	Rotation 90	Rotation 180	Rotation 270				
Standard	Rotation 90	Rotation 180	Rotation 270							
										

■ Main-2



21

Figure 21.2.3 Main-2 property page for the Right Triangle element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td style="background-color: #cccccc;">Yes</td> <td></td> </tr> <tr> <td style="background-color: #cccccc;">No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

21

■ Details

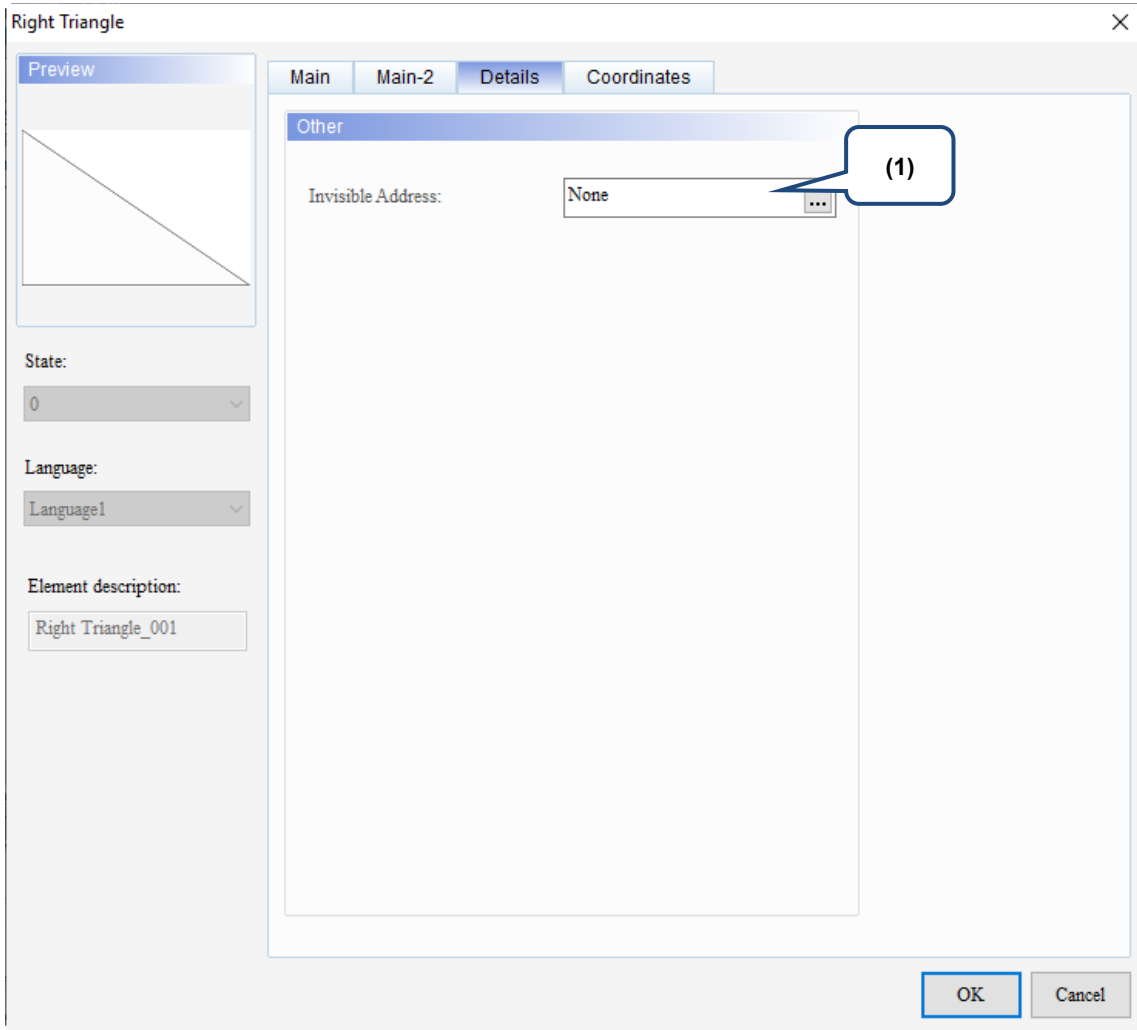
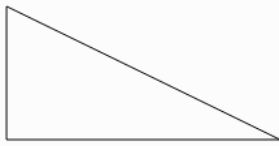
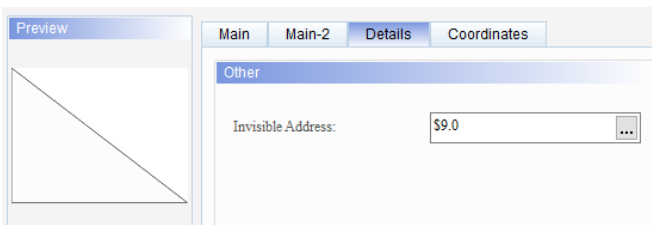
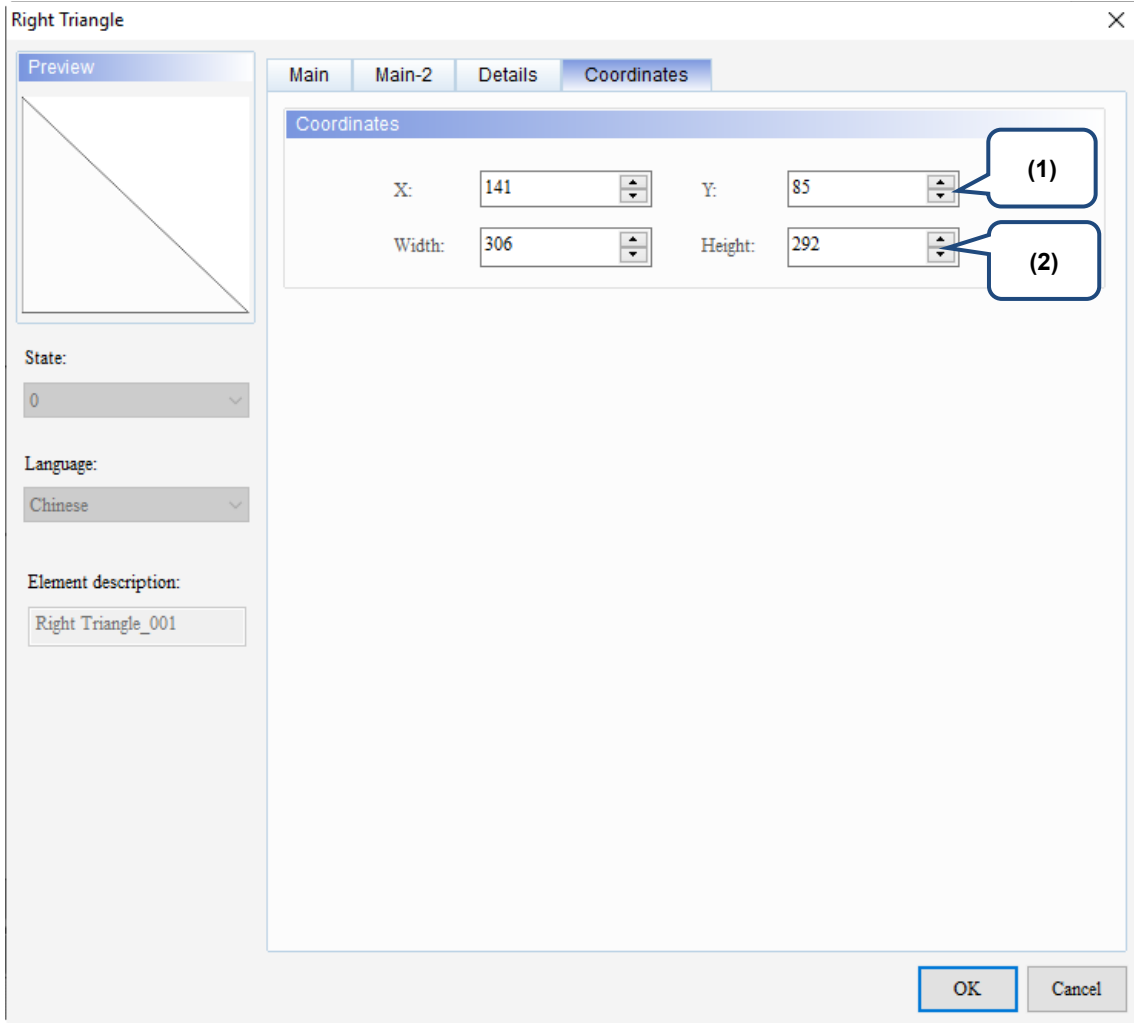


Figure 21.2.4 Details property page for the Right Triangle element

No.	Property	Function description
(1)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;">Invisible Address is Off</div> <div style="width: 40%; text-align: center;">  </div> <div style="width: 25%; text-align: center;"> <input type="button" value="\$9.0 OFF"/> </div> </div> <hr/> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;">Invisible Address is On</div> <div style="width: 40%; text-align: center;"> <div style="border: 2px dashed blue; padding: 5px; display: inline-block;">Element is invisible</div> </div> <div style="width: 25%; text-align: center;"> <input type="button" value="\$9.0 ON"/> </div> </div> <div style="margin-top: 10px;"> <p style="font-size: small;">Right Triangle</p>  </div>

■ Coordinates



21

Figure 21.2.5 Coordinates property page for the Right Triangle element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

21.3 Pentagon

When you double-click the Pentagon element, the property page is shown as follows.

21

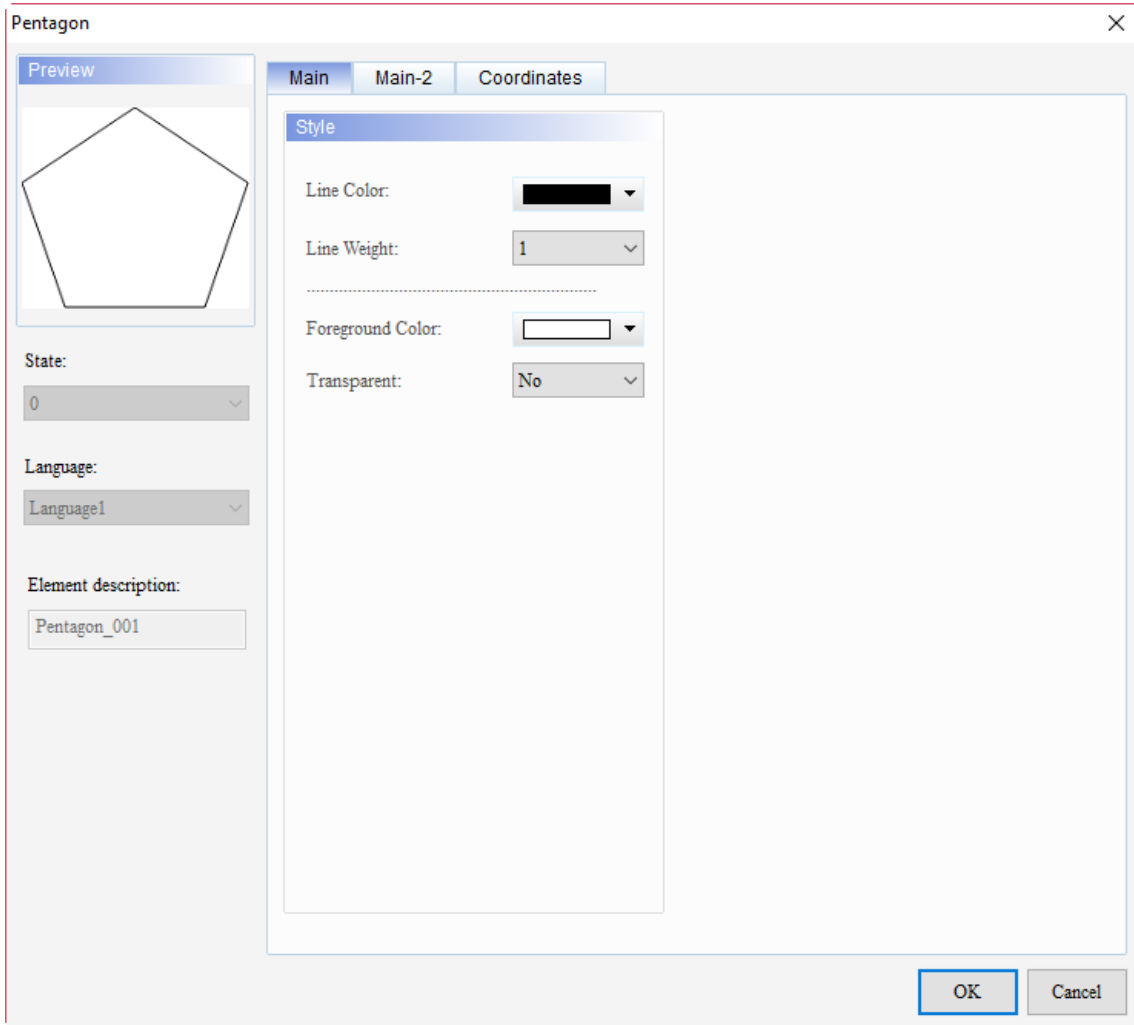
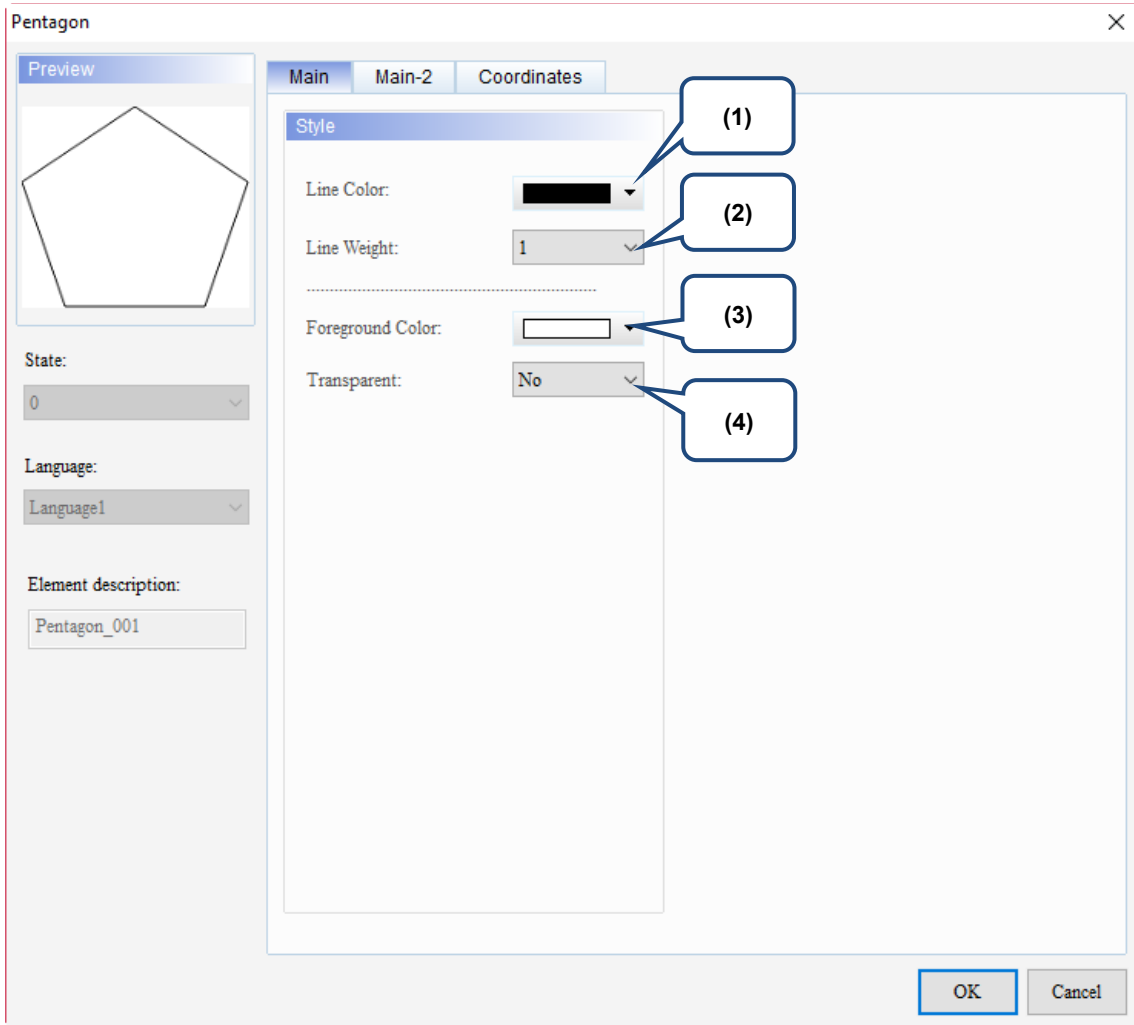


Figure 21.3.1 Properties of Pentagon

Table 21.3.1 Function page of Pentagon

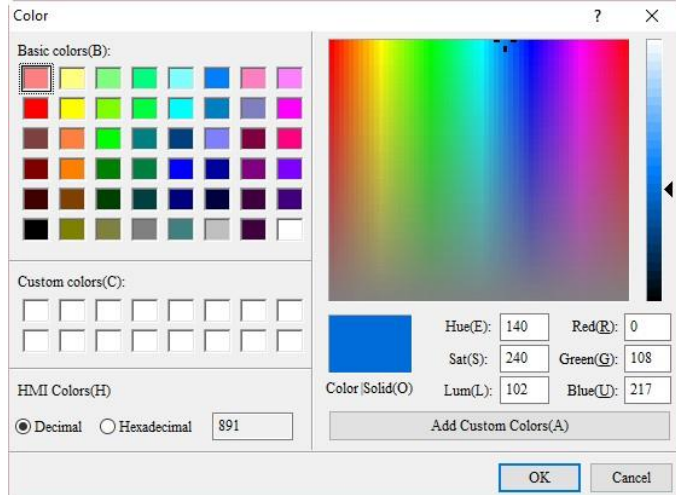
Pentagon	
Function page	Description
Main	Set the Line Color, Line Weight, Foreground Color, and Transparent.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

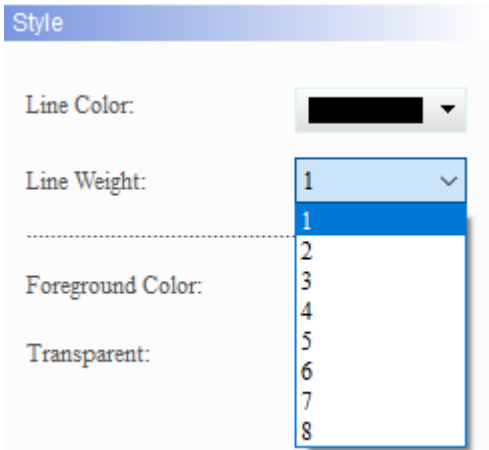
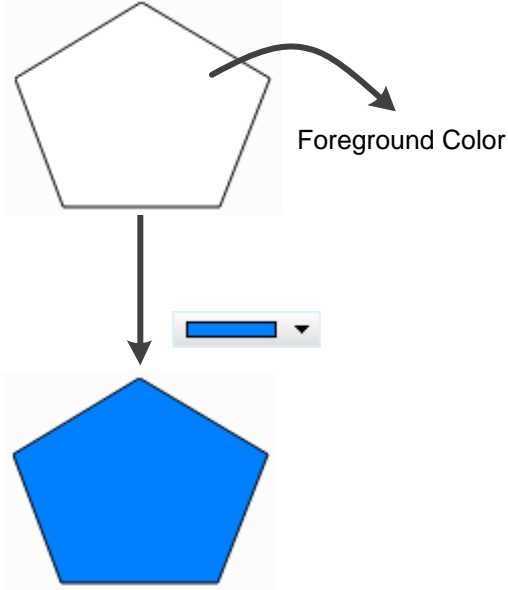


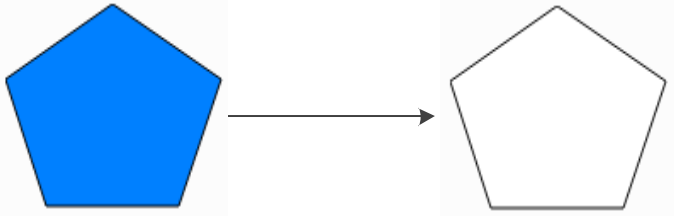
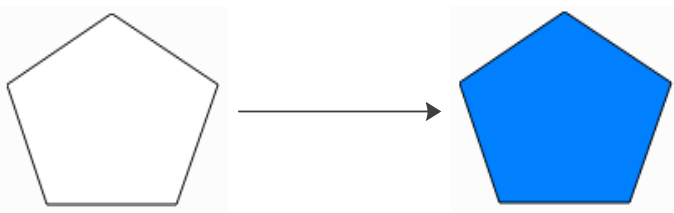
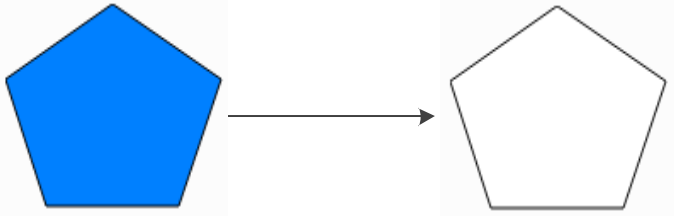
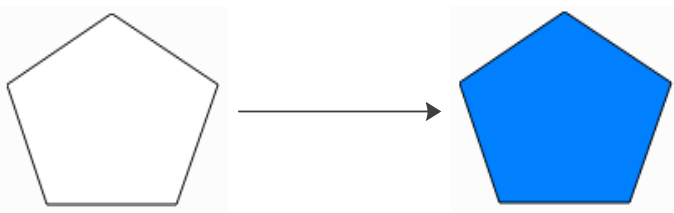
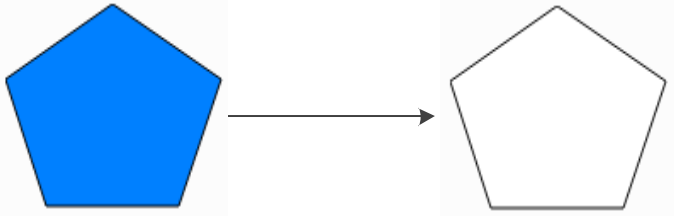
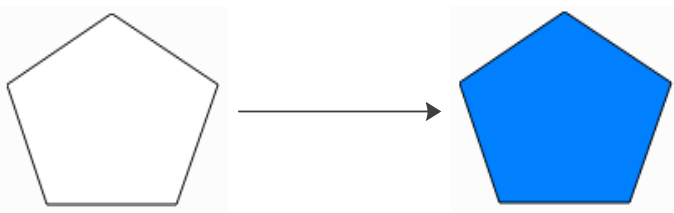
21

Figure 21.3.2 Main property page for the Pentagon element

No.	Property	Function description
(1)	Line Color	<p>You can set the line color for the element.</p> 

21

No.	Property	Function description
(2)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 
(3)	Foreground Color	<p>Set the foreground color of the element.</p> 

No.	Property	Function description				
(4)	Transparent	<p>■ You can select Yes or No for this function.</p> <div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p>Style</p> <p>Line Color: ▾</p> <p>Line Weight: 1 ▾</p> <p>-----</p> <p>Foreground Color: ▾</p> <p>Transparent: No ▾</p> <div style="border: 1px solid gray; width: 50px; margin-left: 5px;"> <p>No</p> <p>No</p> <p>Yes</p> </div> </div> <p>■ If you select Yes, the foreground color of the Pentagon element is transparent and only the border color is displayed; if you select No, the foreground color of the element is displayed.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center; vertical-align: middle;">Transparent is Yes</td> <td style="text-align: center;">  </td> </tr> <tr> <td style="width: 20%; text-align: center; vertical-align: middle;">Transparent is No</td> <td style="text-align: center;">  </td> </tr> </table>	Transparent is Yes		Transparent is No	
Transparent is Yes						
Transparent is No						

21

■ Main-2

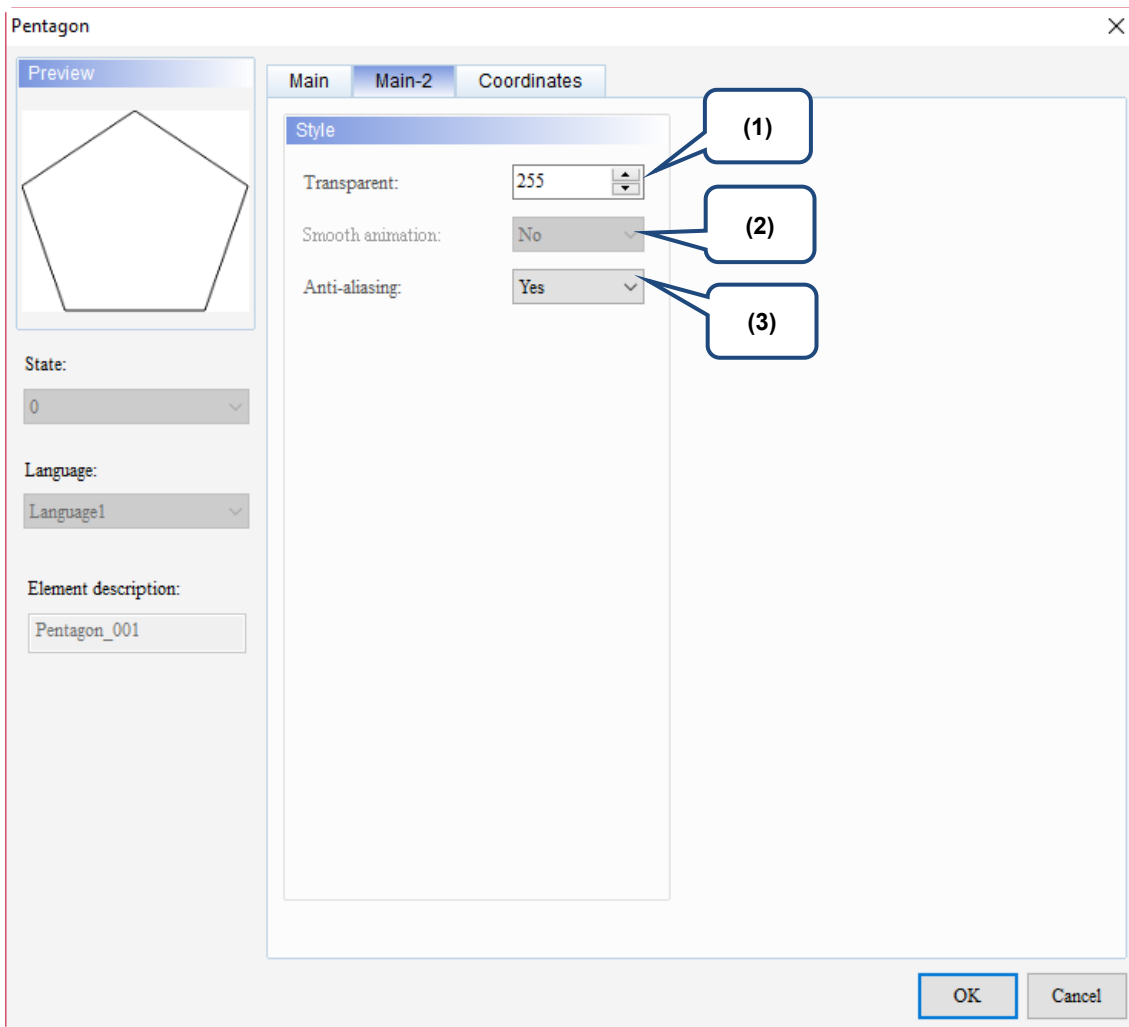
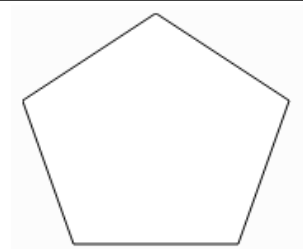
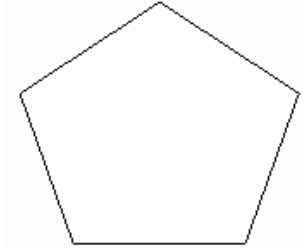
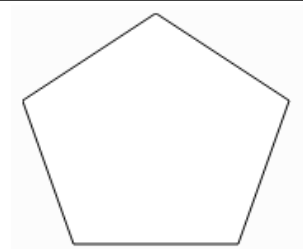
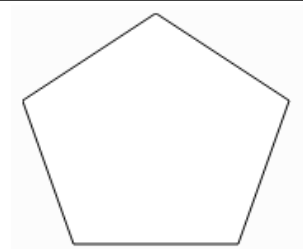
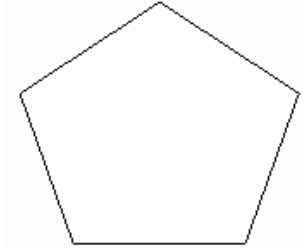
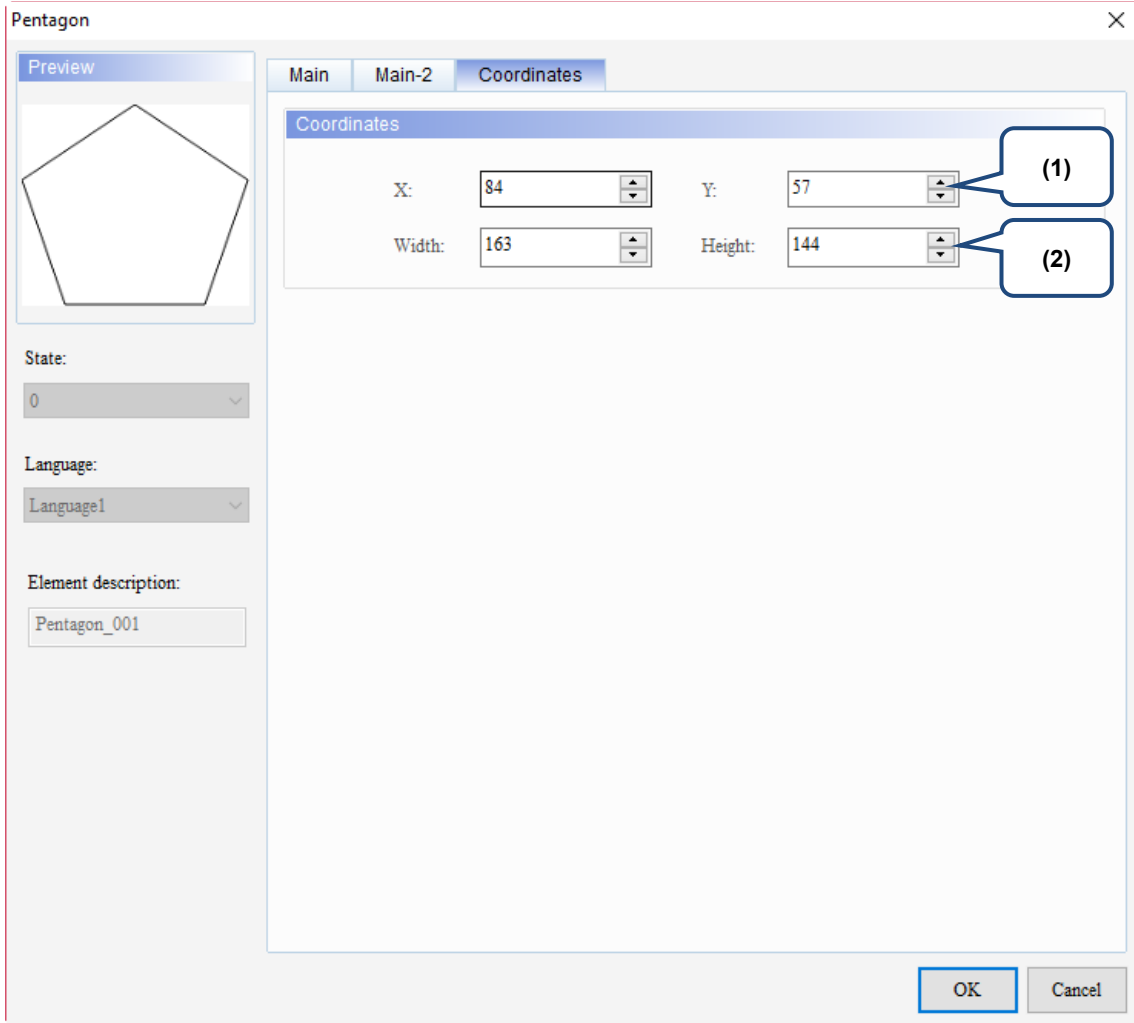


Figure 21.3.3 Main-2 property page for the Pentagon element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td style="background-color: #cccccc;">Yes</td> <td></td> </tr> <tr> <td style="background-color: #cccccc;">No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Coordinates



21

Figure 21.3.4 Coordinates property page for the Pentagon element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

21.4 Pie Chart

When you double-click the Pie Chart element, the property page is shown as follows.

21

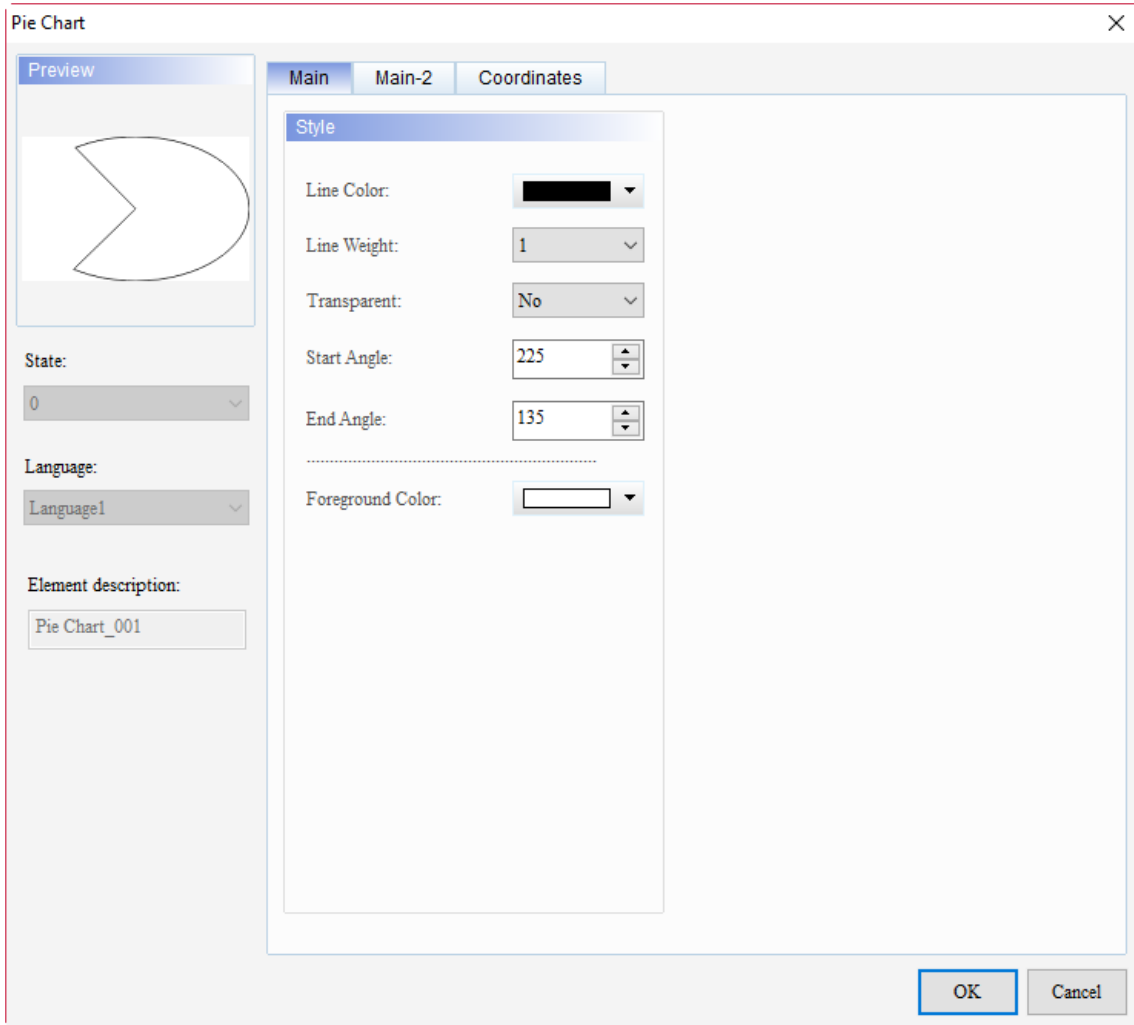
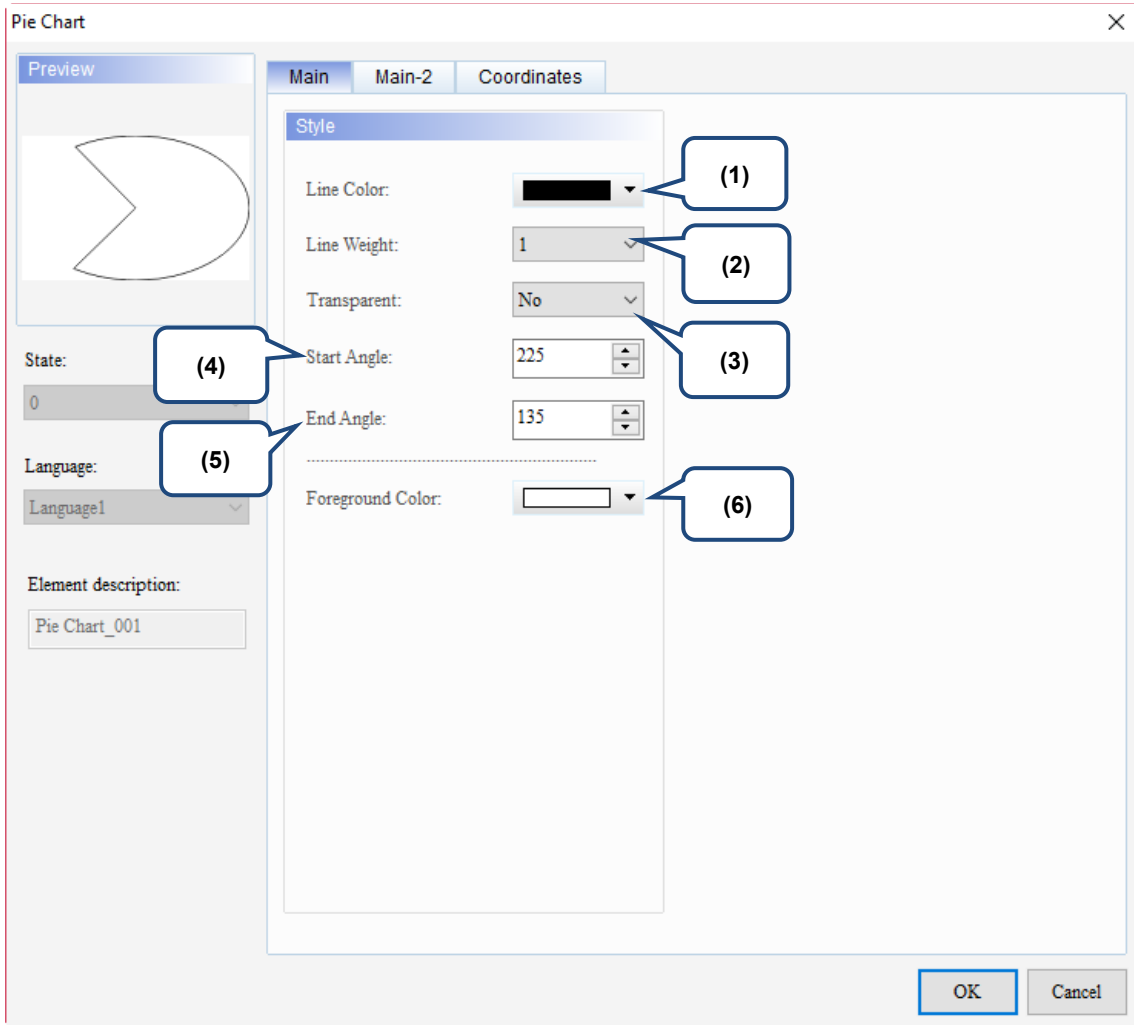


Figure 21.4.1 Properties of Pie Chart

Table 21.4.1 Function page of Pie Chart

Pie Chart	
Function page	Description
Main	Set the Line Color, Line Weight, Transparent, Start Angle, End Angle, and Foreground Color.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

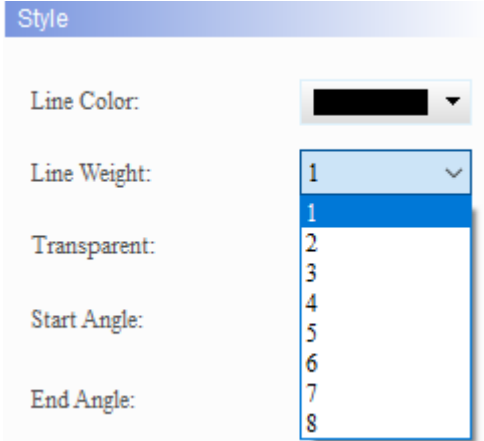
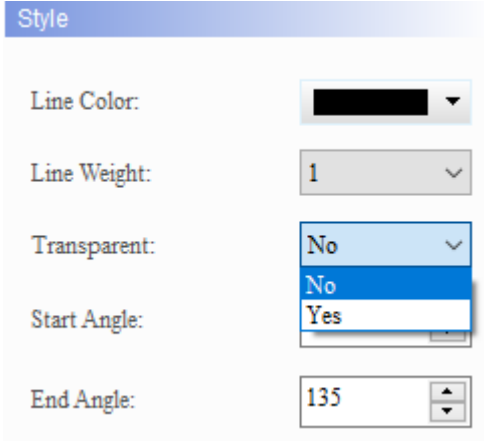
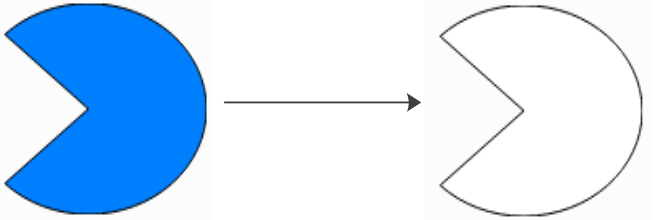
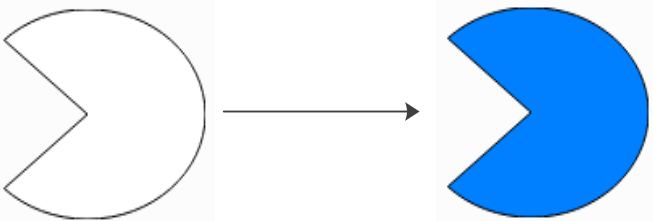
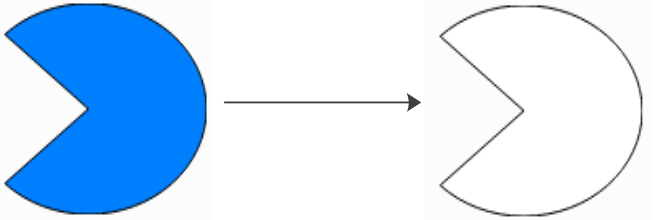
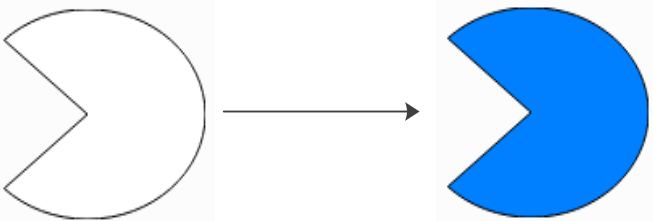
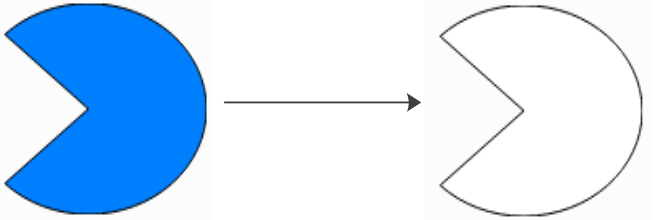
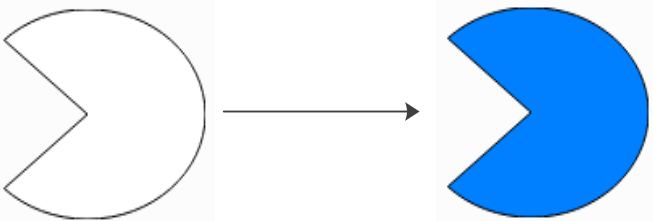


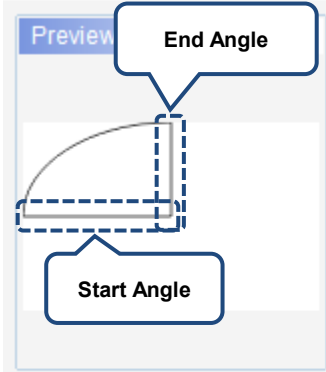
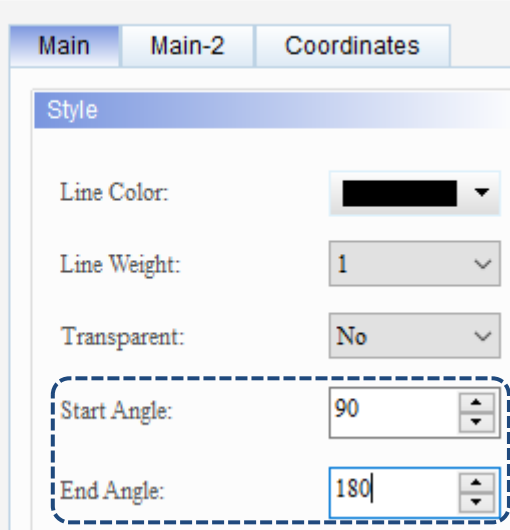
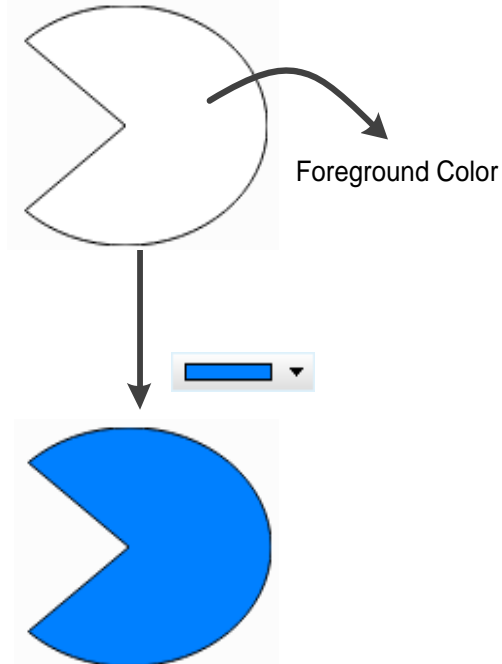
21

Figure 21.4.2 Main property page for the Pie Chart element

No.	Property	Function description
(1)	Line Color	<p>You can set the line color for the element.</p>

21

No.	Property	Function description				
(2)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 				
(3)	Transparent	<ul style="list-style-type: none"> You can select Yes or No for this function.  <ul style="list-style-type: none"> If you select Yes, the foreground color of the Pie Chart element is transparent and only the border color is displayed; if you select No, the foreground color of the element is displayed. <table border="1"> <tr> <td>Transparent is Yes</td> <td>  </td> </tr> <tr> <td>Transparent is No</td> <td>  </td> </tr> </table>	Transparent is Yes		Transparent is No	
Transparent is Yes						
Transparent is No						

No.	Property	Function description
(4)	Start Angle	<p>You can set the opening angle for the Pie Chart with the Start Angle and End Angle settings.</p> <p>Pie Chart</p> 
(5)	End Angle	
(6)	Foreground Color	<p>Set the foreground color of the element.</p> 

21

■ Main-2

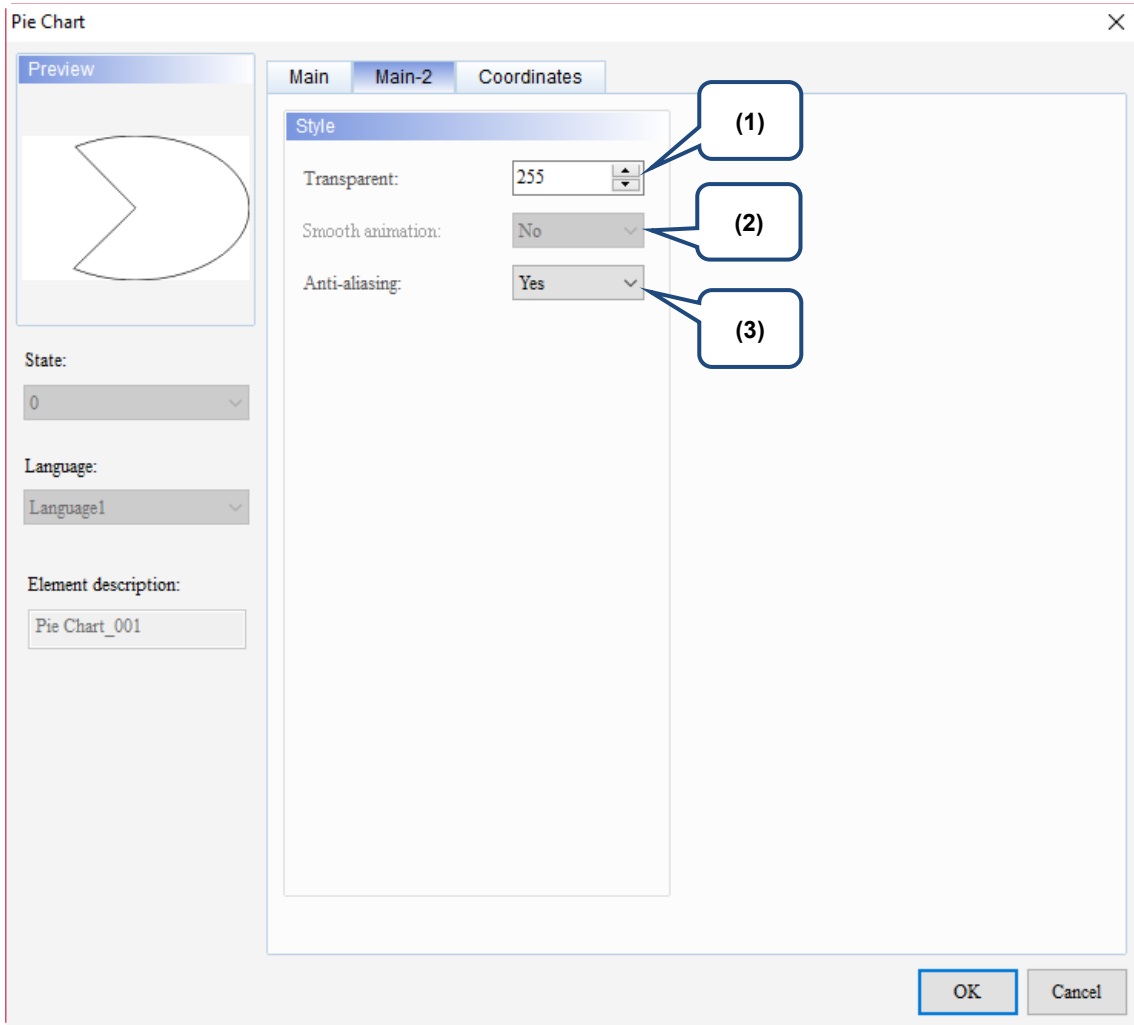
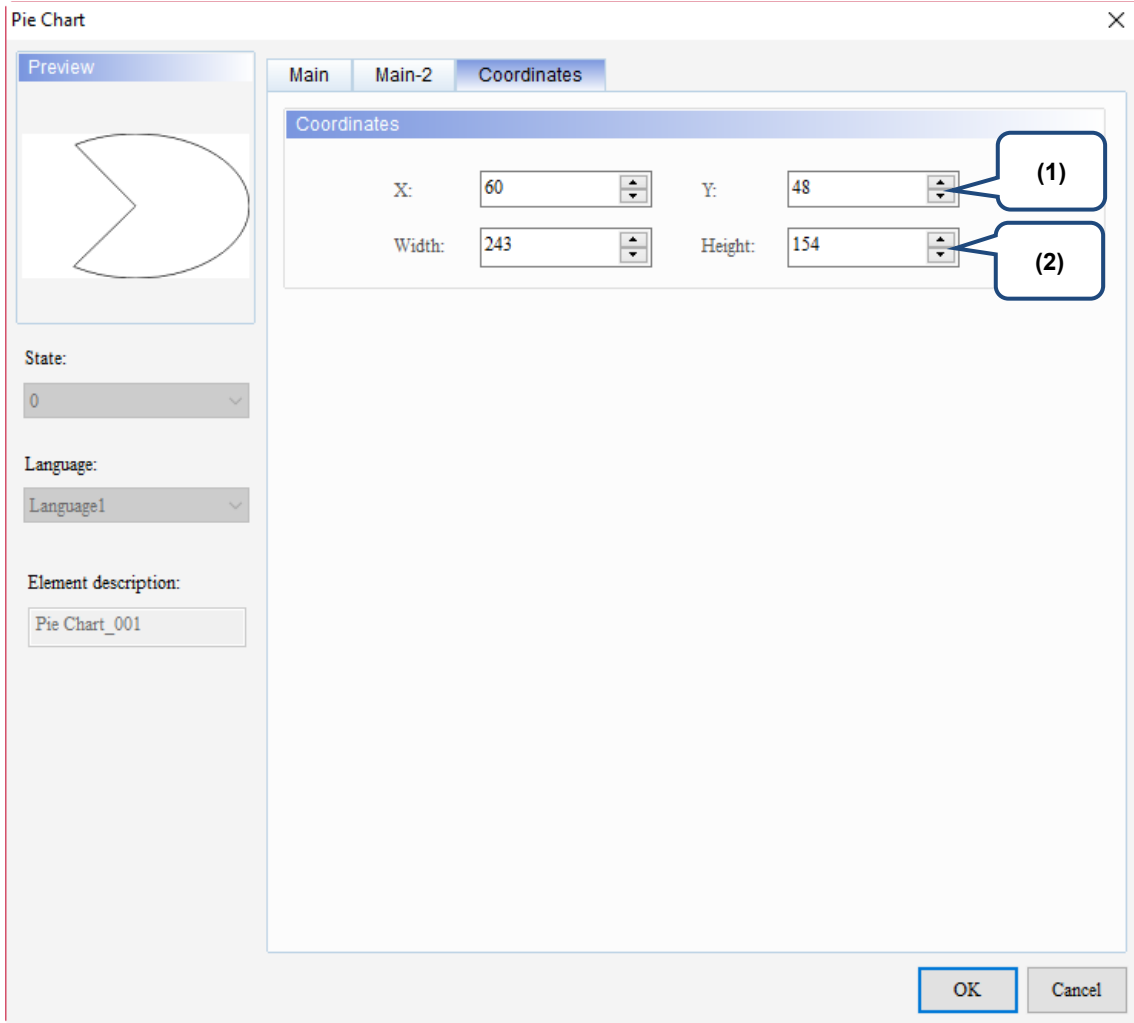


Figure 21.4.3 Main-2 property page for the Pie Chart element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td style="background-color: #cccccc;">Yes</td> <td></td> </tr> <tr> <td style="background-color: #cccccc;">No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Coordinates



21

Figure 21.4.4 Coordinates property page for the Pie Chart element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

21.5 Arc

When you double-click the Arc element, the property page is shown as follows.

21

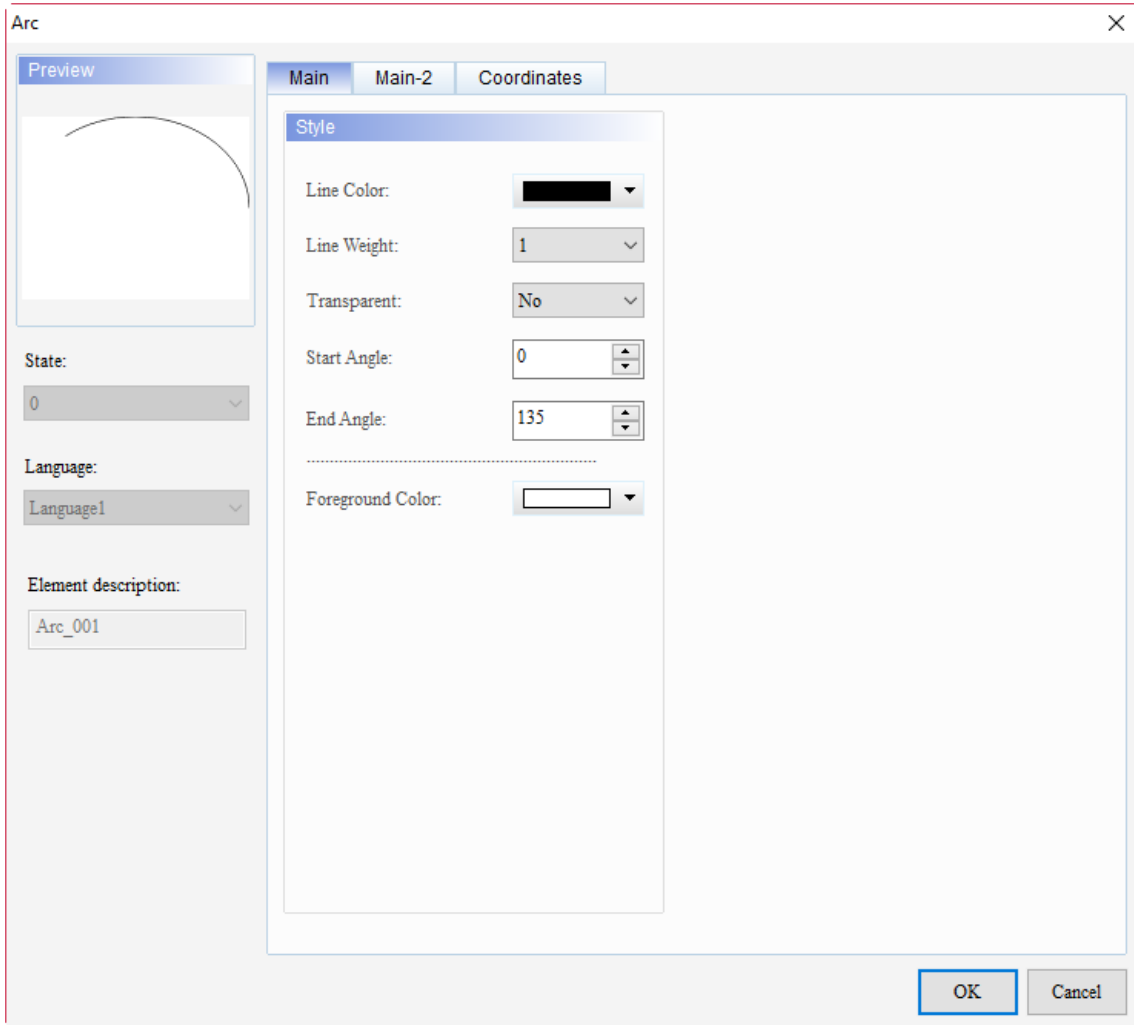
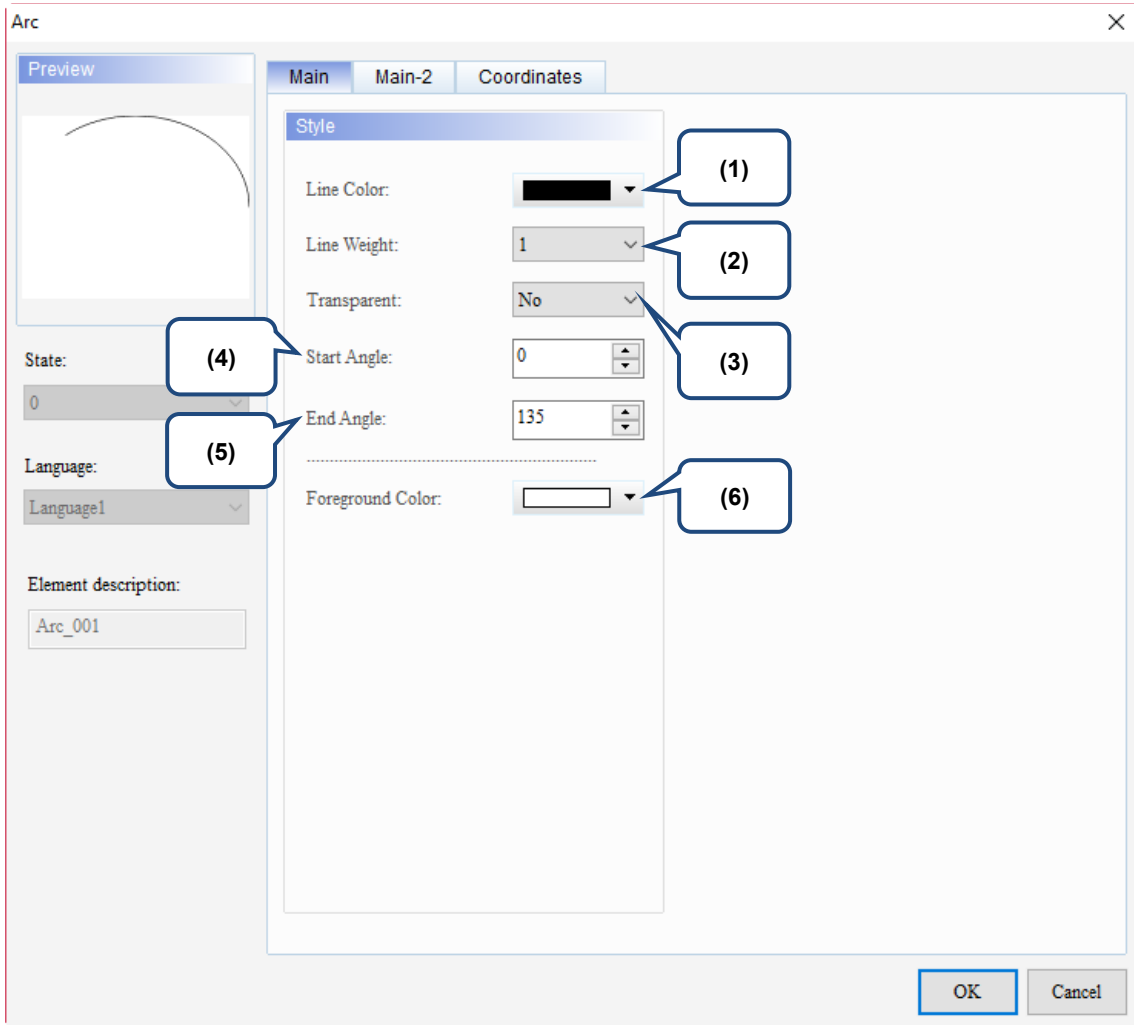


Figure 21.5.1 Properties of Arc

Table 21.5.1 Function page of Arc

Arc	
Function page	Description
Main	Set the Line Color, Line Weight, Transparent, Start Angle, End Angle, and Foreground Color.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

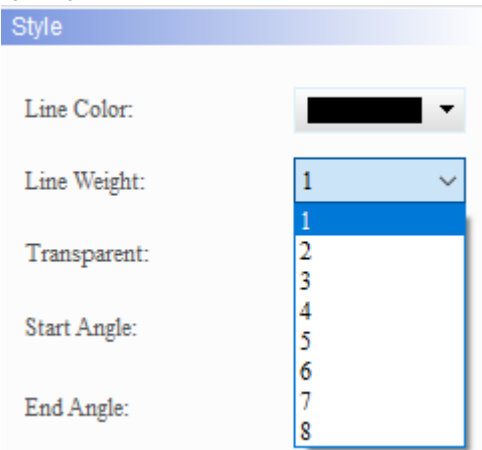
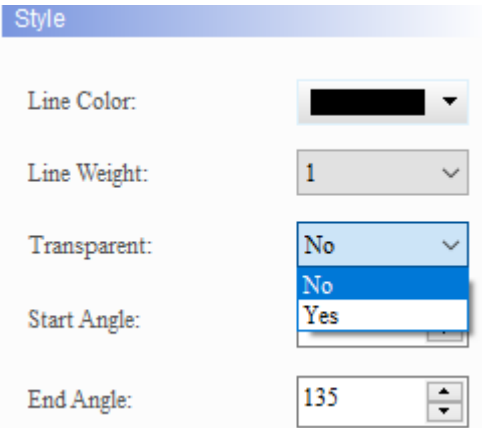
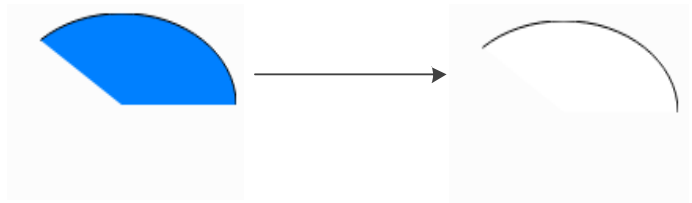
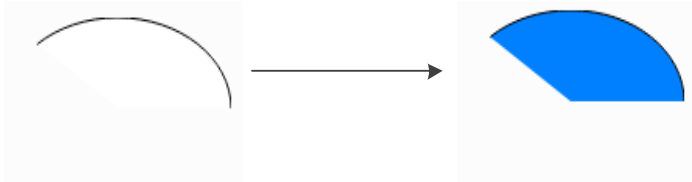
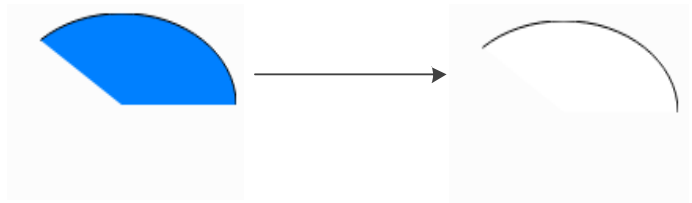
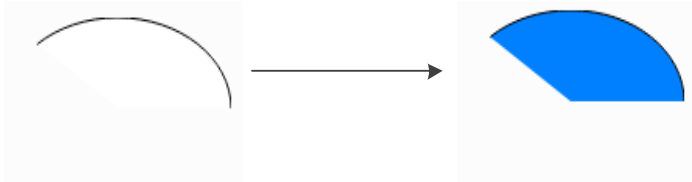
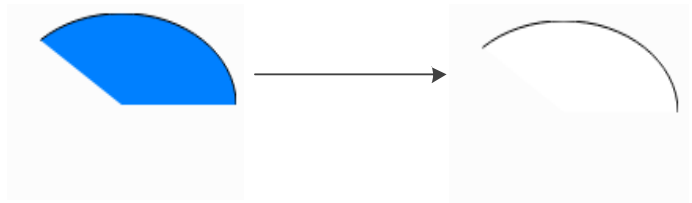
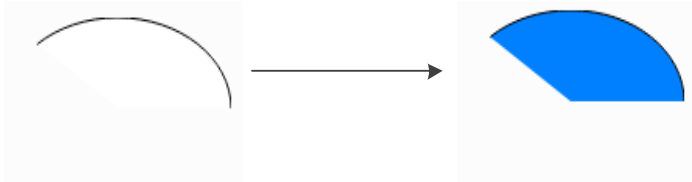


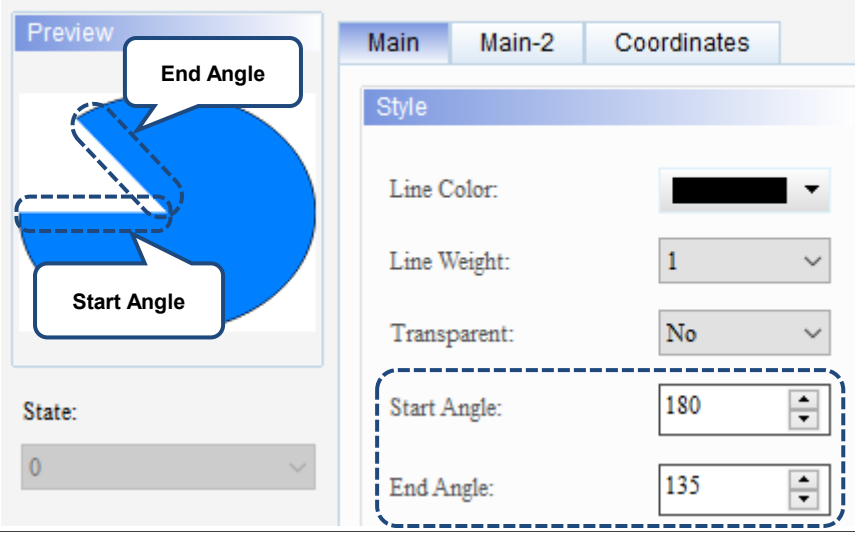
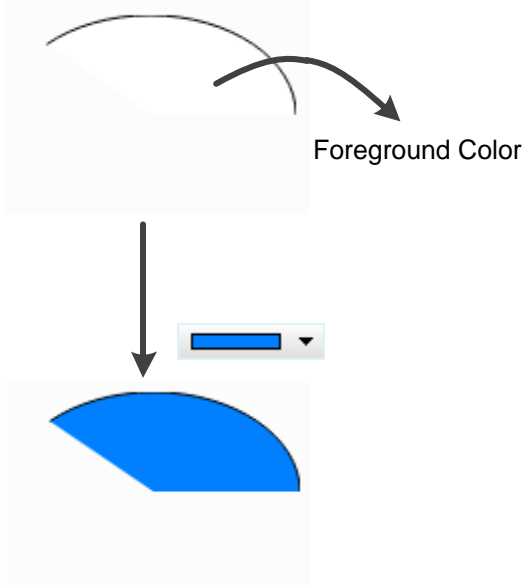
21

Figure 21.5.2 Main property page for the Arc element

No.	Property	Function description
(1)	Line Color	<p>You can set the line color for the element.</p> <p>The 'Color' dialog box includes a 'Basic colors(B)' grid, a 'Custom colors(C)' grid, and 'HMI Colors(H)' options. It also features a color wheel and a vertical color bar. On the right, there are input fields for 'Hue(E): 140', 'Red(R): 0', 'Sat(S): 240', 'Green(G): 108', 'Lum(L): 102', and 'Blue(L): 217'. There is an 'Add Custom Colors(A)' button and 'OK'/'Cancel' buttons at the bottom.</p>

21

No.	Property	Function description				
(2)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 				
(3)	Transparent	<p>■ You can select Yes or No for this function.</p>  <p>■ If you select Yes, the foreground color of the Arc element is transparent and only the border color is displayed; if you select No, the foreground color of the element is displayed.</p> <table border="1"> <tr> <td>Transparent is Yes</td> <td>  </td> </tr> <tr> <td>Transparent is No</td> <td>  </td> </tr> </table>	Transparent is Yes		Transparent is No	
Transparent is Yes						
Transparent is No						

No.	Property	Function description
(4)	Start Angle	<p>You can set the opening angle for the Arc with the Start Angle and End Angle settings.</p> <p>Arc</p> 
(5)	End Angle	<p>Set the foreground color of the element.</p> 
(6)	Foreground Color	

21

■ Main-2

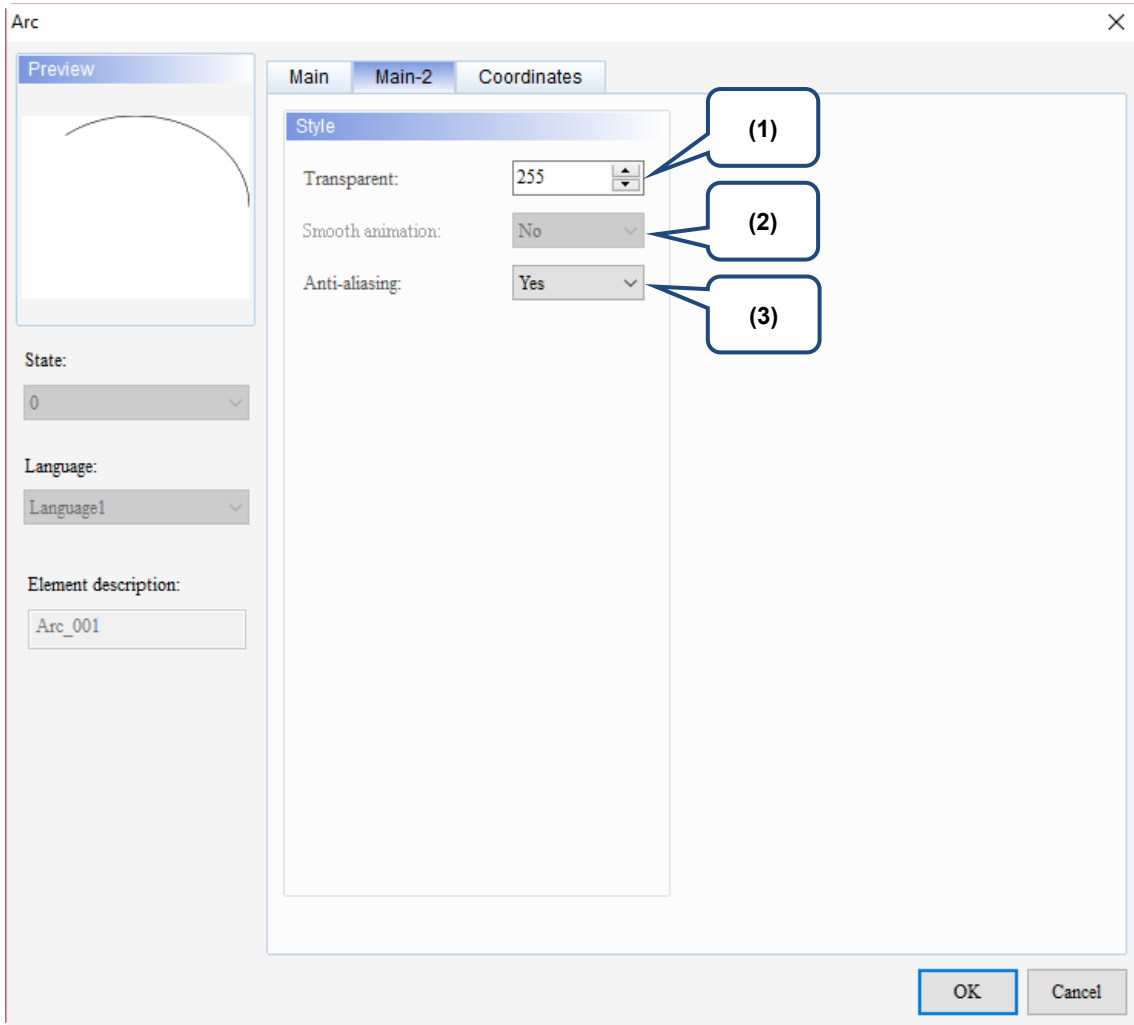
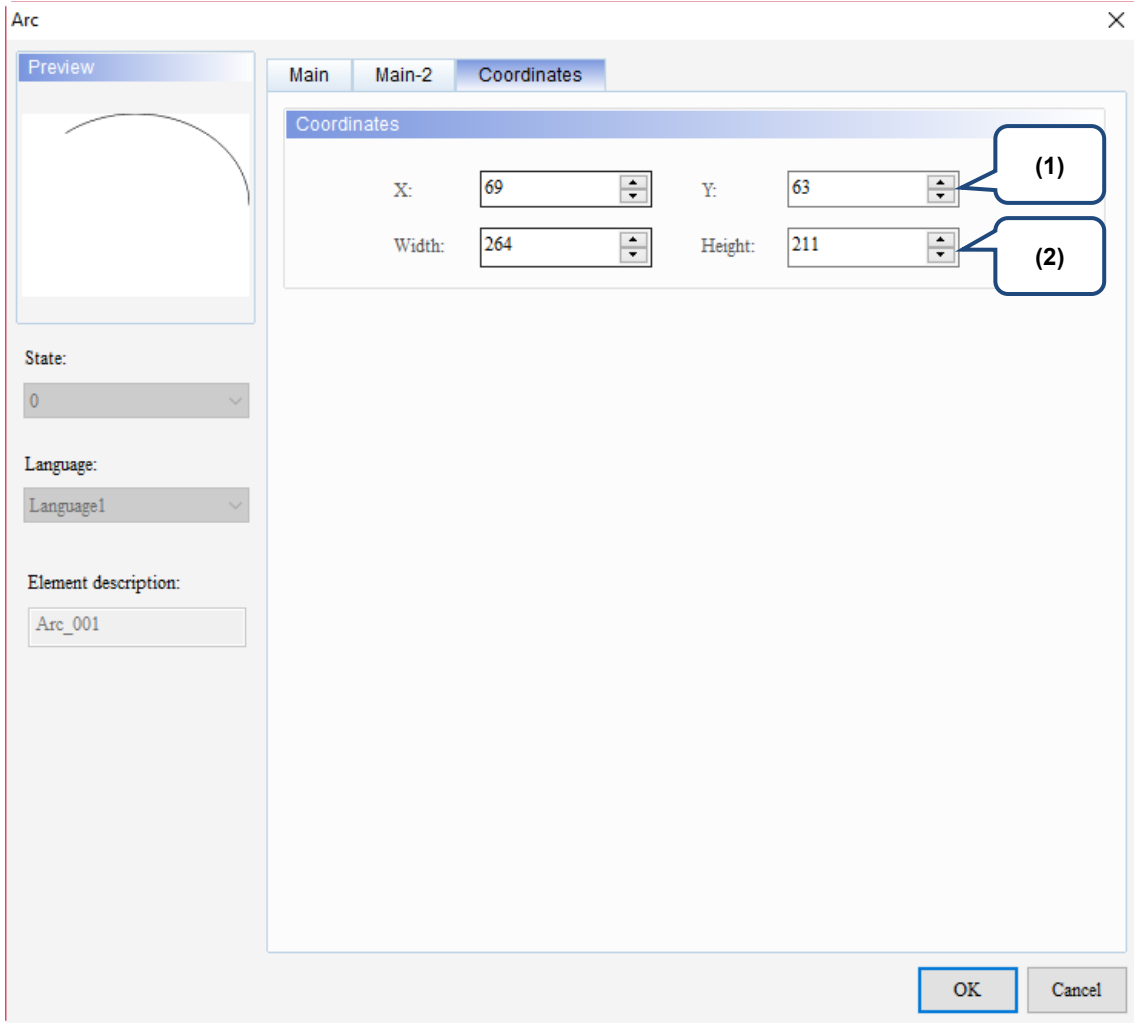


Figure 21.5.3 Main-2 property page for the Arc element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td>Yes</td> <td></td> </tr> <tr> <td>No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Coordinates



21

Figure 21.5.4 Coordinates property page for the Arc element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

21.6 Hexagon

When you double-click the Hexagon element, the property page is shown as follows.

21

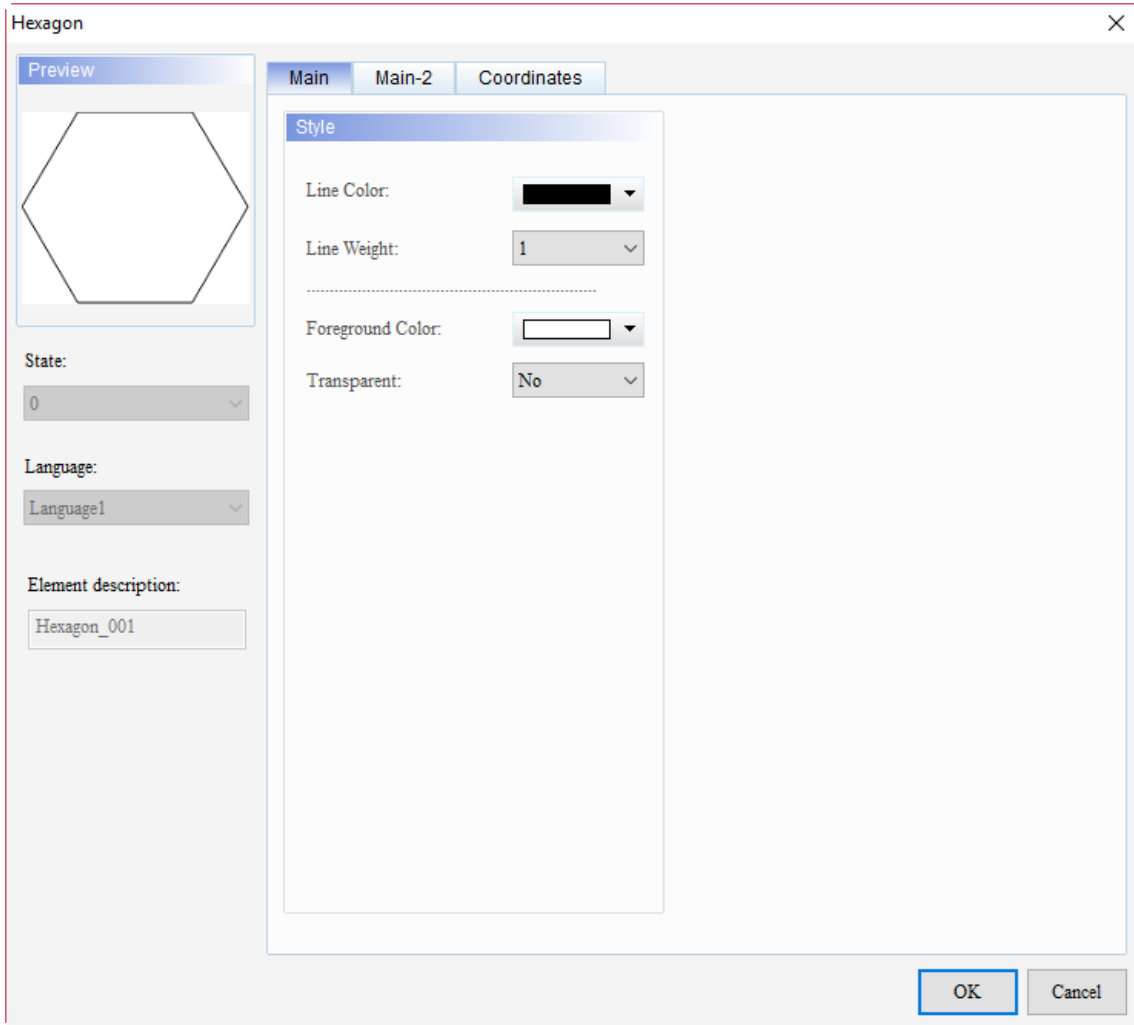
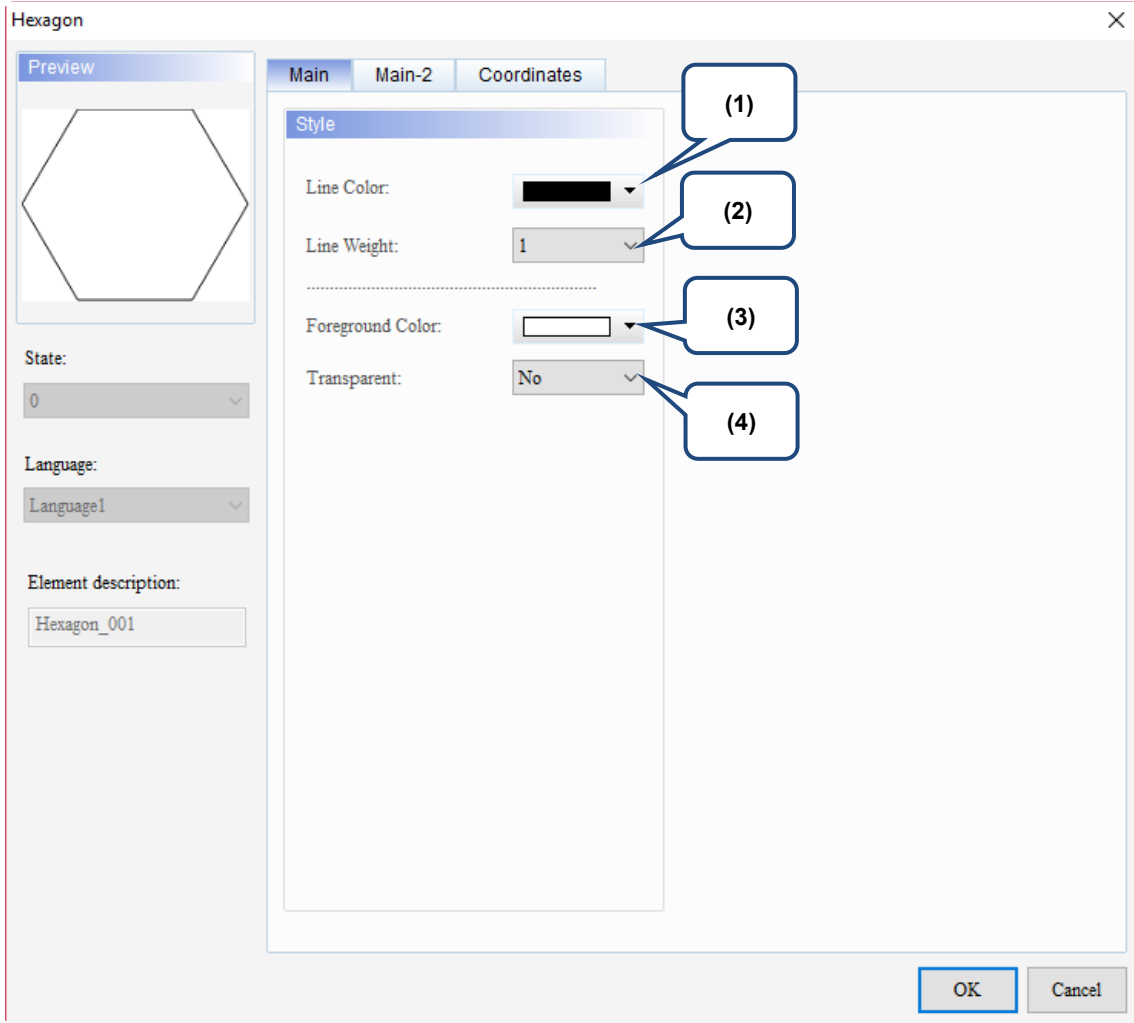


Figure 21.6.1 Properties of Hexagon

Table 21.6.1 Function page of Hexagon

Hexagon	
Function page	Description
Main	Set the Line Color, Line Weight, Foreground Color, and Transparent.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

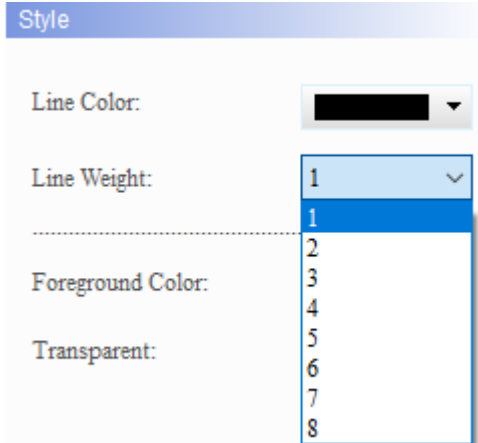
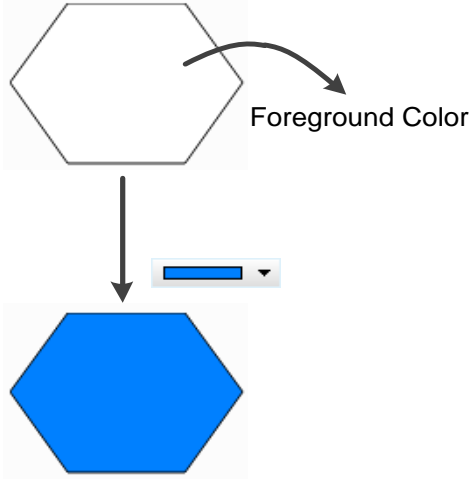


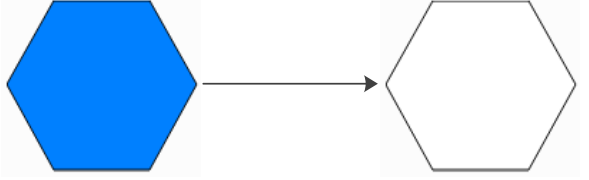
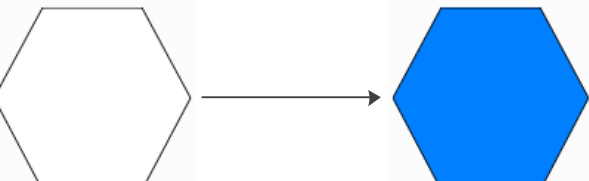
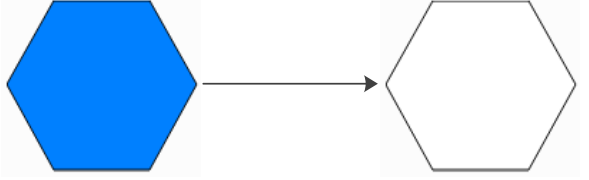
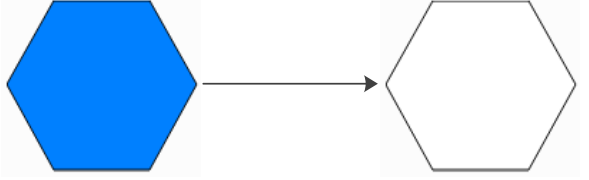
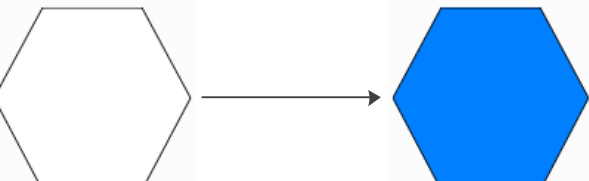
21

Figure 21.6.2 Main property page for the Hexagon element

No.	Property	Function description
(1)	Line Color	<p>You can set the line color for the element.</p>

21

No.	Property	Function description
(2)	Line Weight	<p>The line width setting ranges from 1 to 8.</p>  <p>Style</p> <p>Line Color: <input type="color" value="black"/></p> <p>Line Weight: <input type="text" value="1"/> (dropdown menu open with options 1-8)</p> <p>Foreground Color: <input type="color" value="white"/></p> <p>Transparent: <input type="checkbox"/></p>
(3)	Foreground Color	<p>Set the foreground color of the element.</p>  <p>Foreground Color</p>

No.	Property	Function description		
(4)	Transparent	<p>■ You can select Yes or No for this function.</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <p>Style</p> <p>Line Color: <input type="color" value="black"/></p> <p>Line Weight: <input type="text" value="1"/></p> <p>.....</p> <p>Foreground Color: <input type="color"/></p> <p>Transparent: <input type="button" value="No"/> <input checked="" type="button" value="No"/> <input type="button" value="Yes"/></p> </div> <p>■ If you select Yes, the foreground color of the Hexagon element is transparent and only the border color is displayed; if you select No, the foreground color of the element is displayed.</p>		
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 5px;">Transparent is Yes</td> <td style="text-align: center; padding: 5px;">  </td> </tr> <tr> <td style="padding: 5px;">Transparent is No</td> <td style="text-align: center; padding: 5px;">  </td> </tr> </table>	Transparent is Yes	
Transparent is Yes				
Transparent is No				

21

■ Main-2

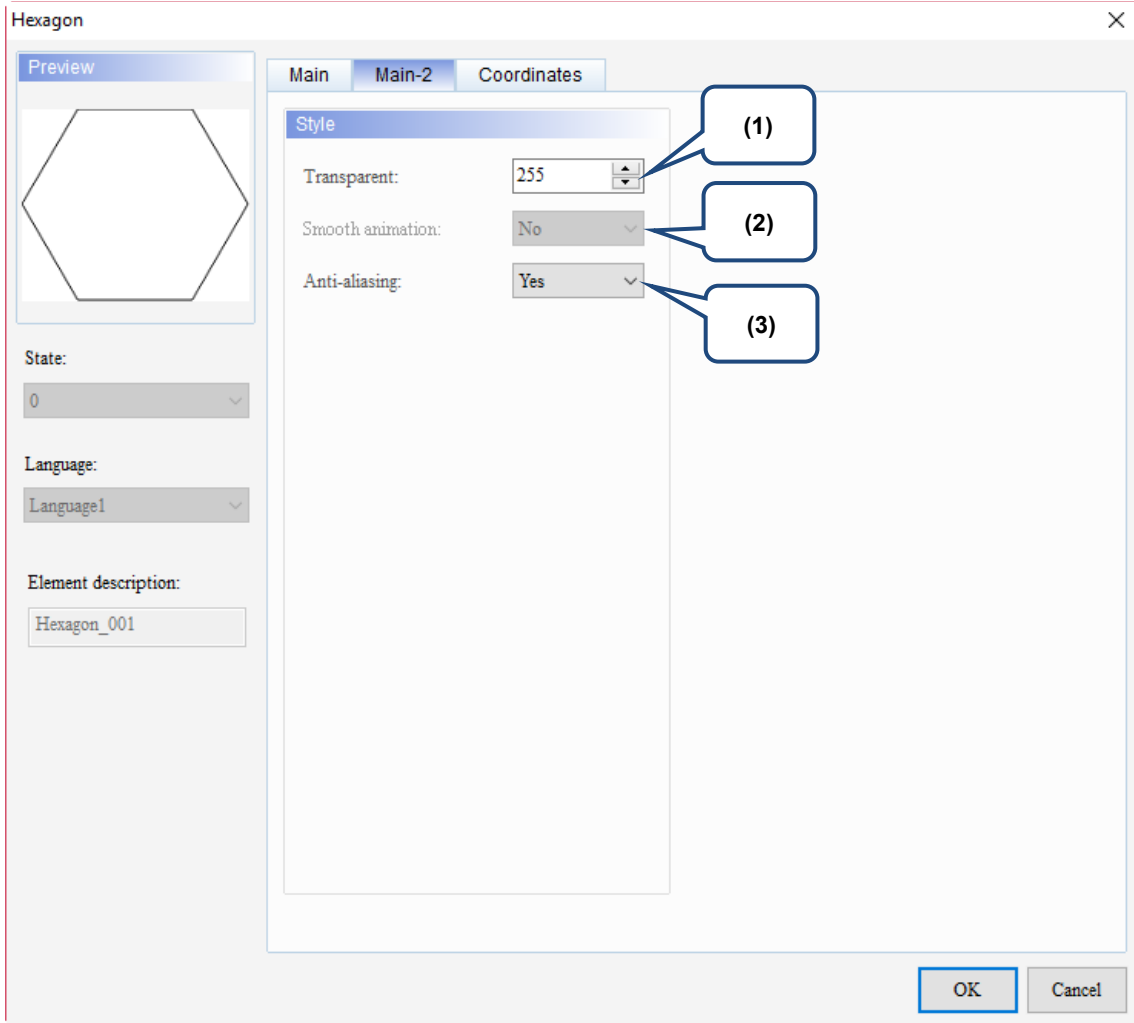
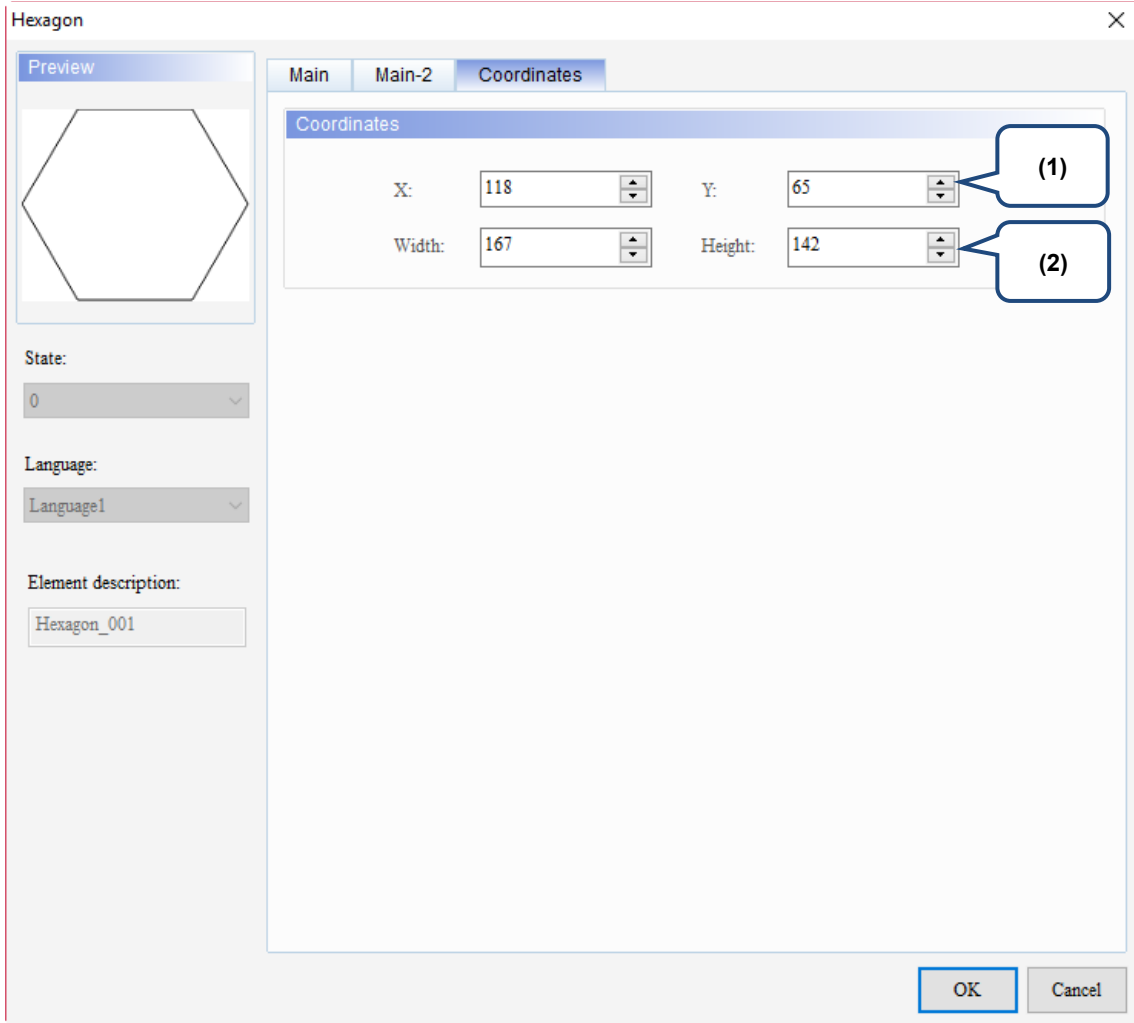


Figure 21.6.3 Main-2 property page for the Hexagon element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td style="background-color: #cccccc;">Yes</td> <td></td> </tr> <tr> <td style="background-color: #cccccc;">No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Coordinates



21

Figure 21.6.4 Coordinates property page for the Hexagon element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

21.7 Star Shape

When you double-click the Star Shape element, the property page is shown as follows.

21

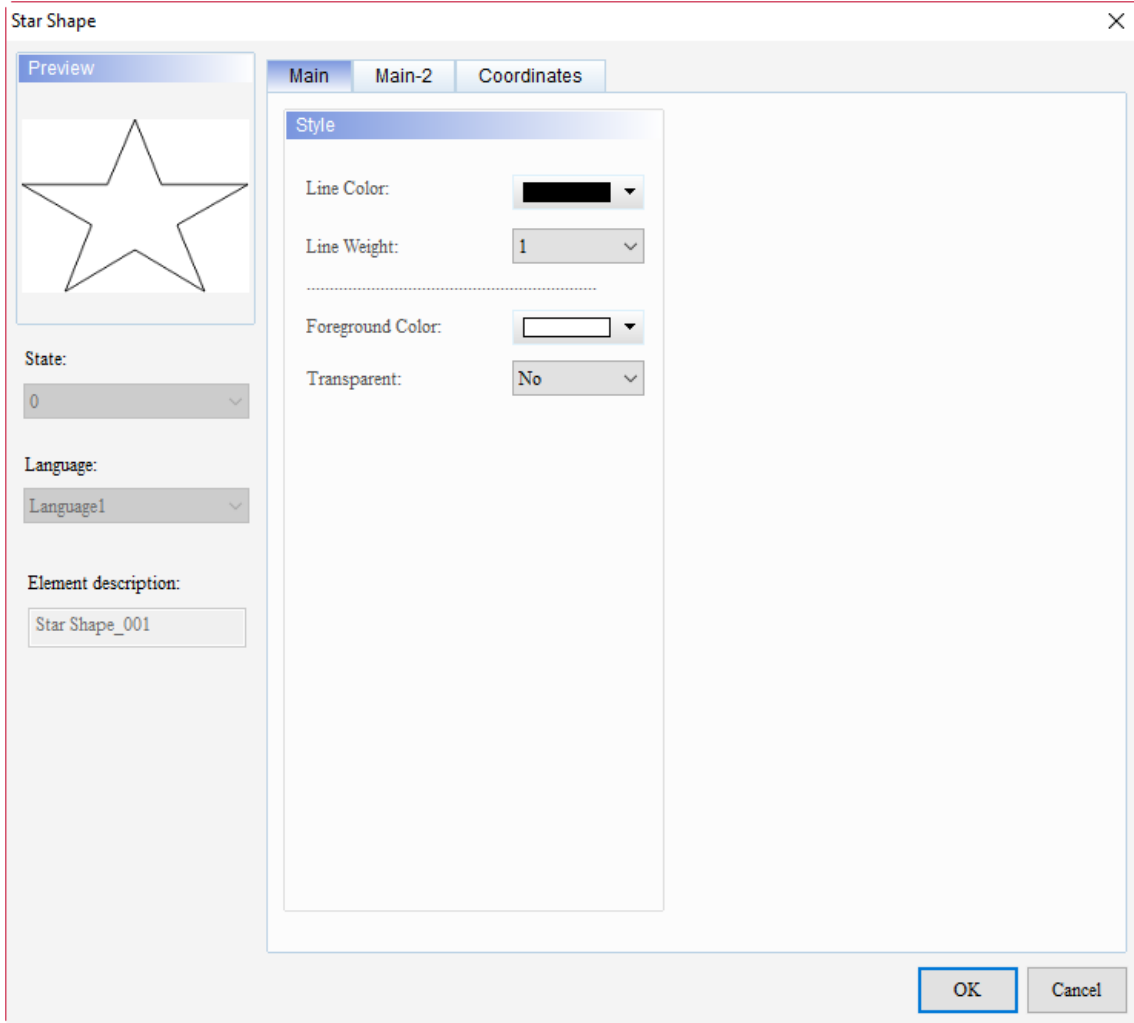
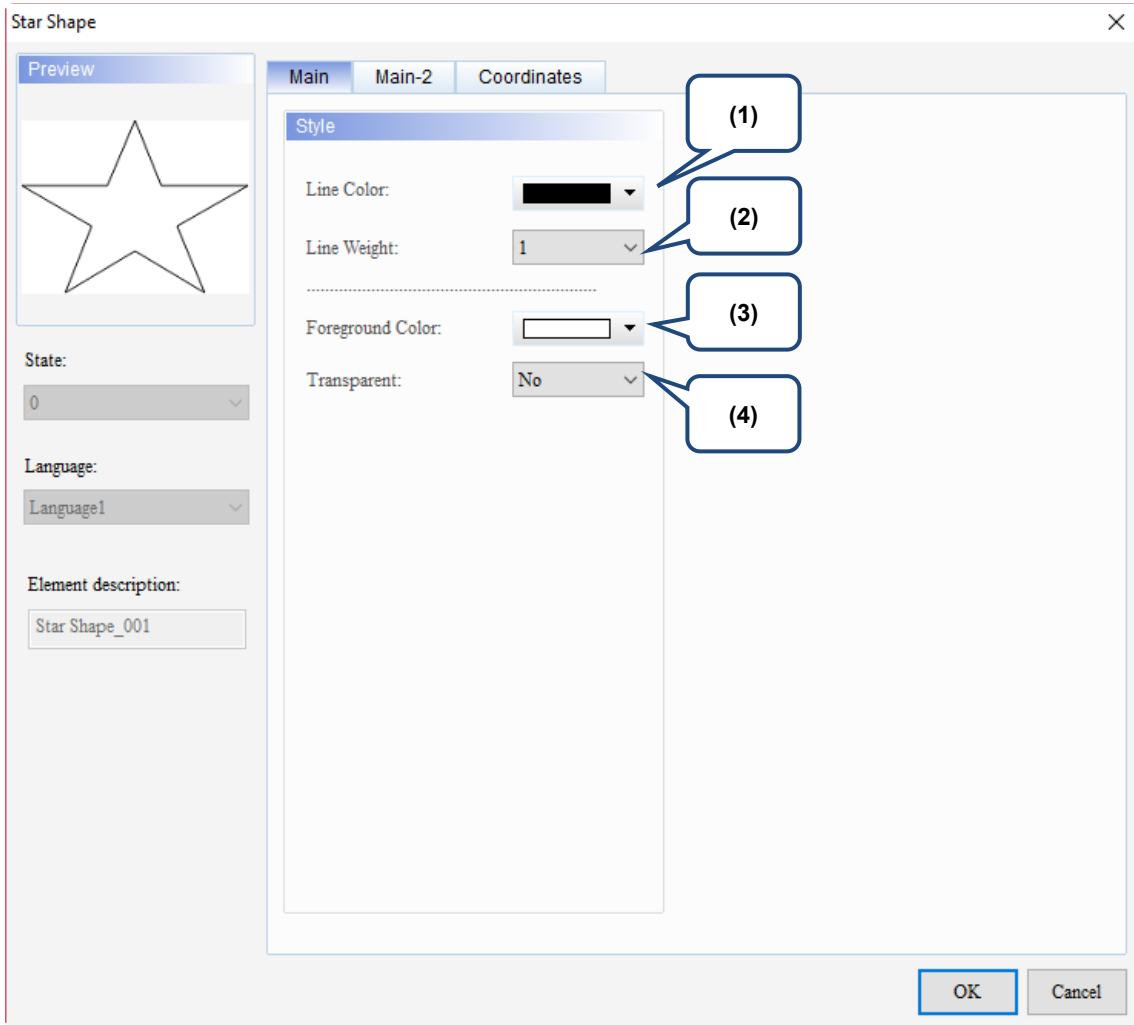


Figure 21.7.1 Properties of Star Shape

Table 21.7.1 Function page of Star Shape

Star Shape	
Function page	Description
Main	Set the Line Color, Line Weight, Foreground Color, and Transparent.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

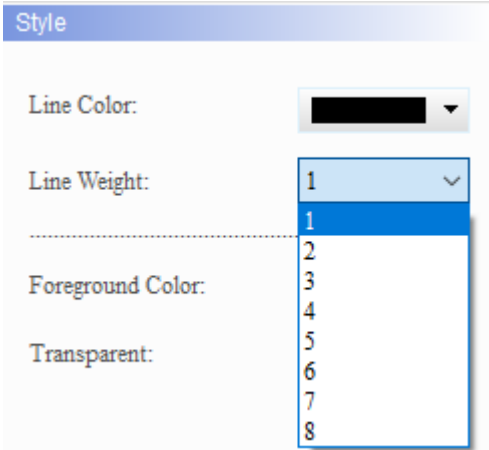
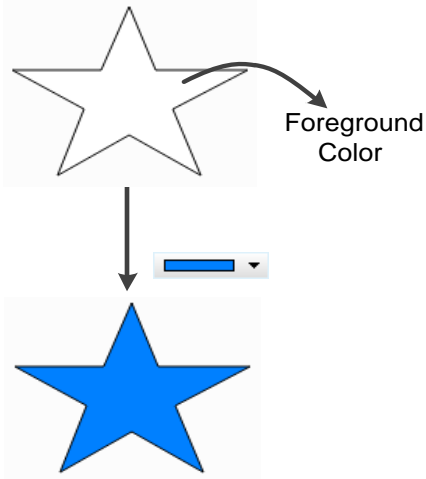














21

Figure 21.7.2 Main property page for the Star Shape element

No.	Property	Function description
(1)	Line Color	<p>You can set the line color for the element.</p>

21

No.	Property	Function description
(2)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 
(3)	Foreground Color	<p>Set the foreground color of the element.</p> 

No.	Property	Function description				
(4)	Transparent	<p>■ You can select Yes or No for this function.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Style</p> <p>Line Color: ▼</p> <p>Line Weight: 1 ▼</p> <p>.....</p> <p>Foreground Color: ▼</p> <p>Transparent: No ▼ No Yes</p> </div> <p>■ If you select Yes, the foreground color of the Star Shape element is transparent and only the border color is displayed; if you select No, the foreground color of the element is displayed.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center; vertical-align: middle;">Transparent is Yes</td> <td style="text-align: center;">  →  </td> </tr> <tr> <td style="text-align: center; vertical-align: middle;">Transparent is No</td> <td style="text-align: center;">  →  </td> </tr> </table>	Transparent is Yes	 → 	Transparent is No	 → 
Transparent is Yes	 → 					
Transparent is No	 → 					

21

■ Main-2

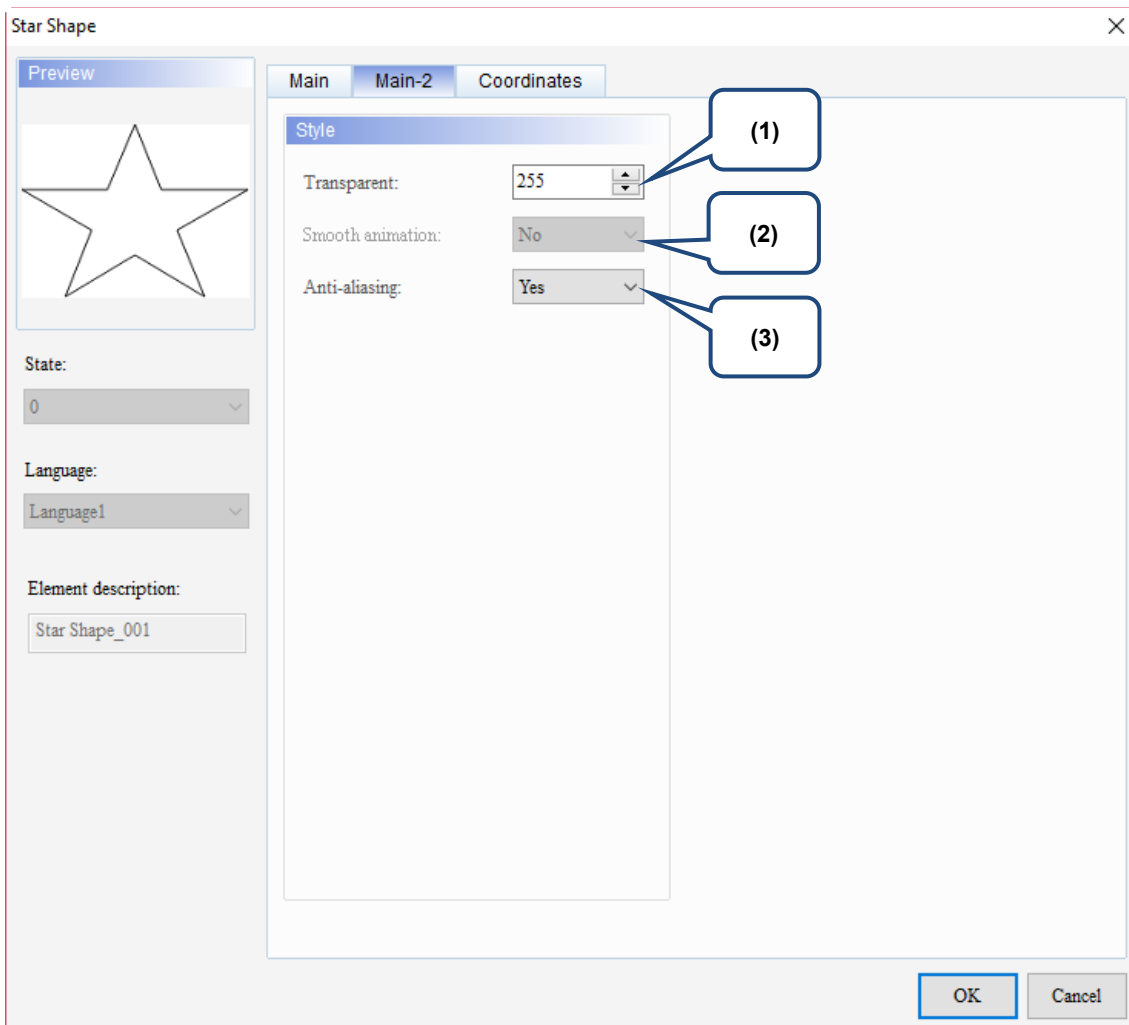
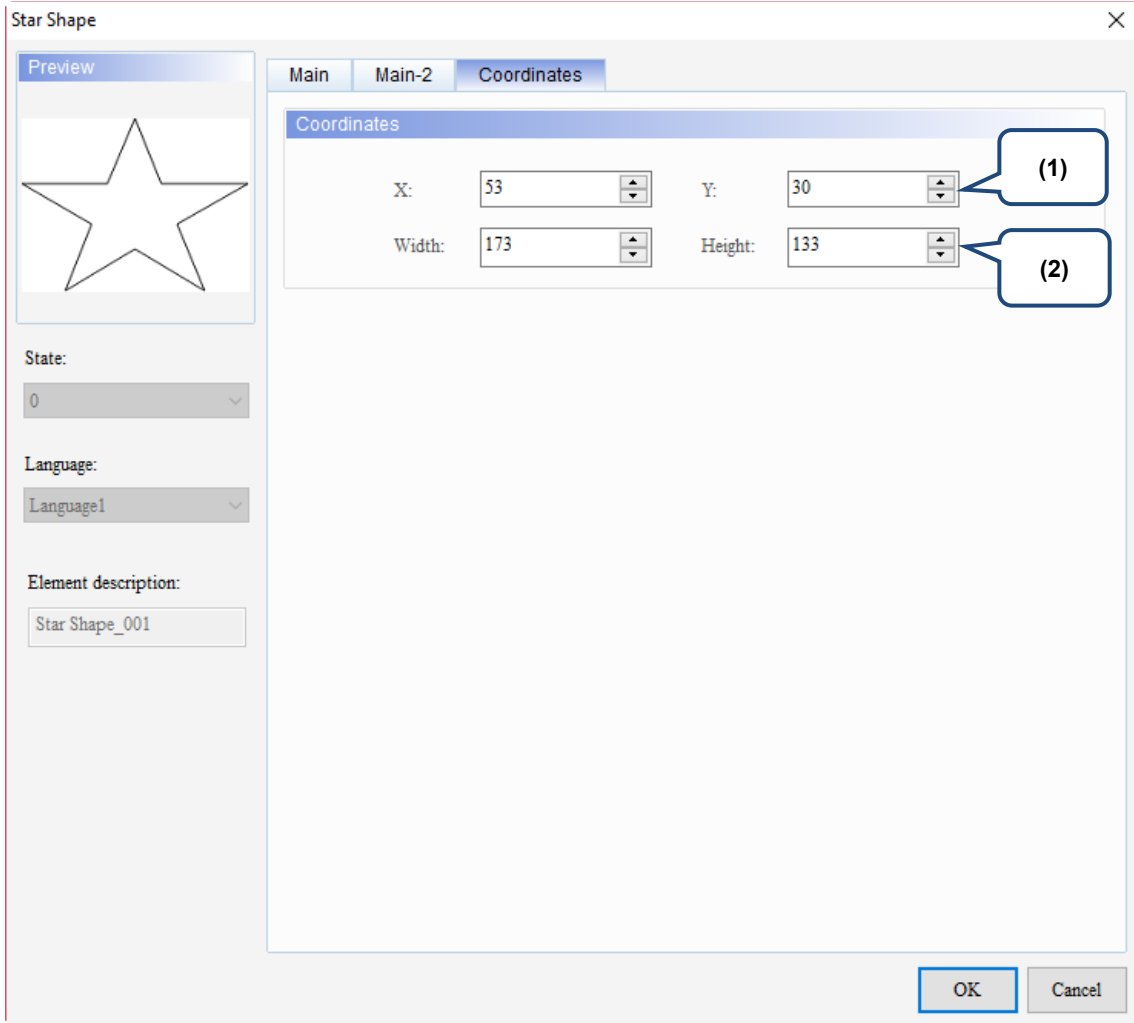


Figure 21.7.3 Main-2 property page for the Star Shape element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td style="background-color: #cccccc;">Yes</td> <td></td> </tr> <tr> <td style="background-color: #cccccc;">No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Coordinates



21

Figure 21.7.4 Coordinates property page for the Star Shape element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

21.8 Triangle

When you double-click the Triangle element, the property page is shown as follows.

21

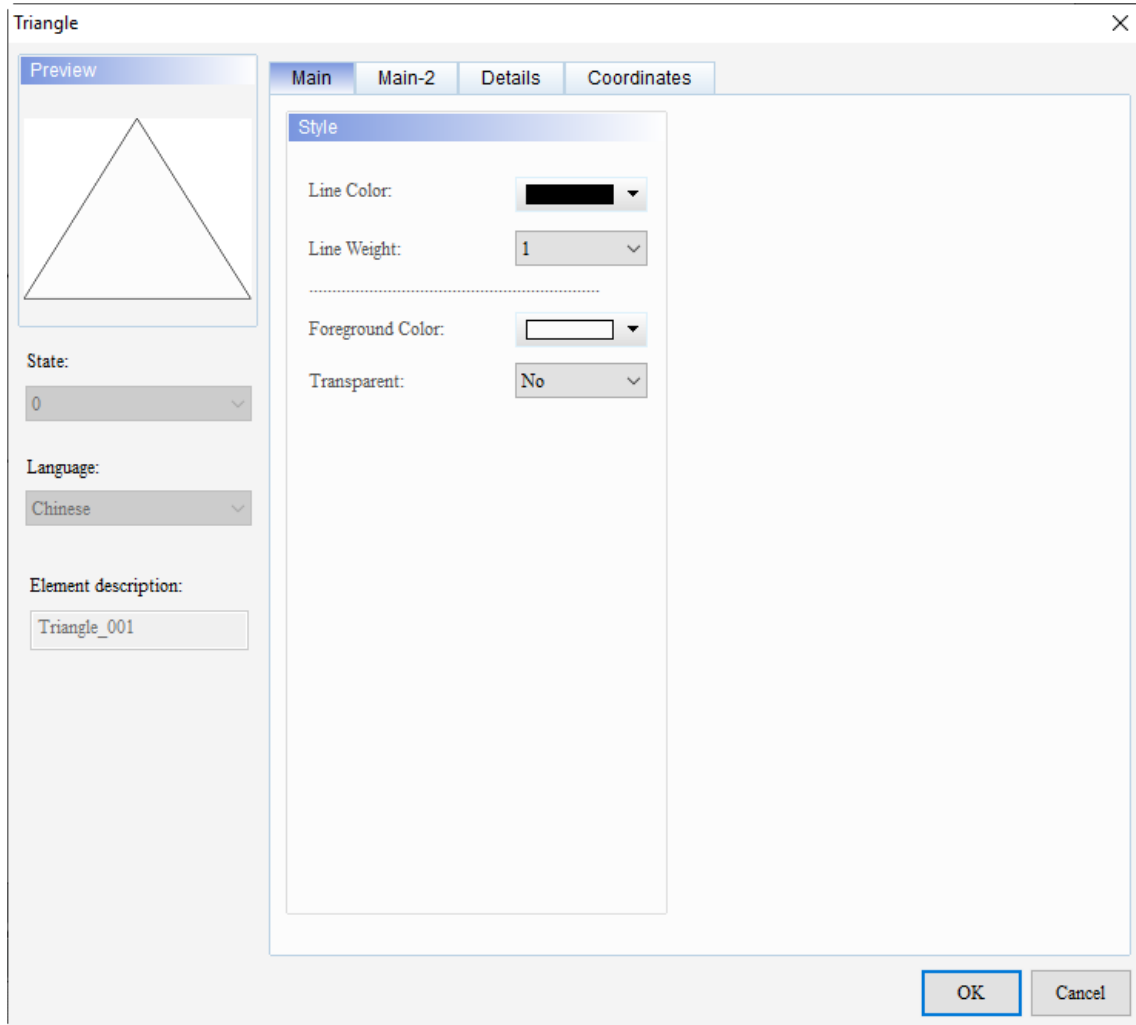
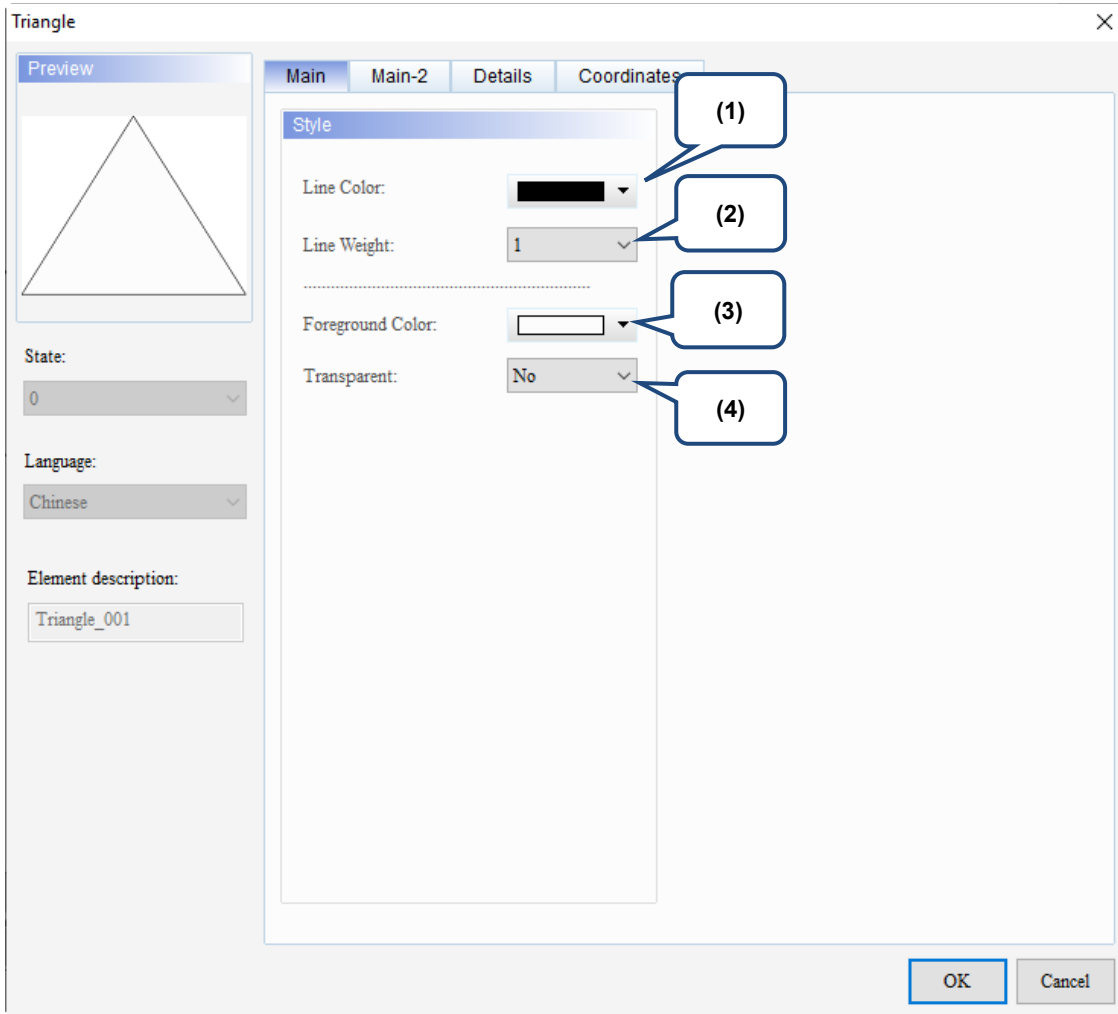


Figure 21.8.1 Properties of Triangle

Table 21.8.1 Function page of Triangle

Triangle	
Function page	Description
Main	Set the Line Color, Line Weight, Foreground Color, and Transparent.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Details	Set the Invisible Address.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

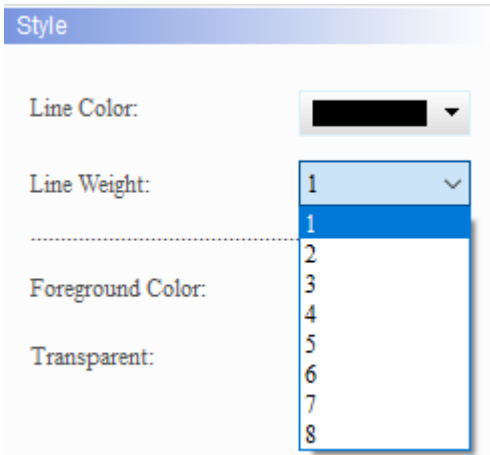
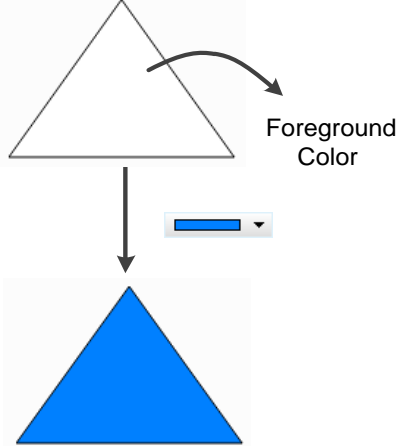


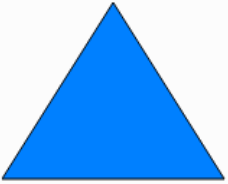
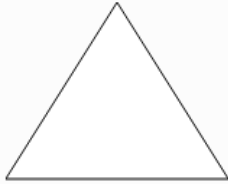
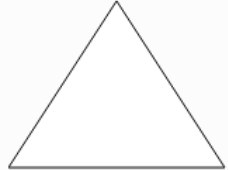
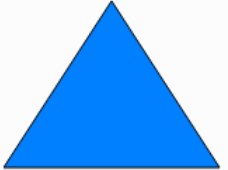
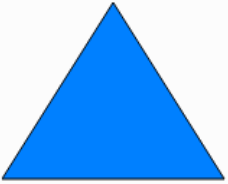
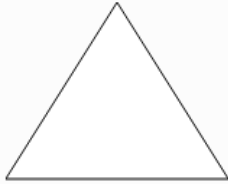
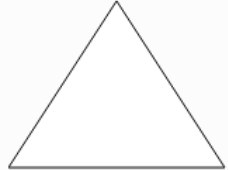
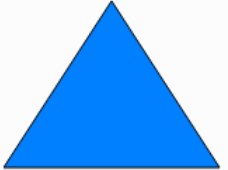
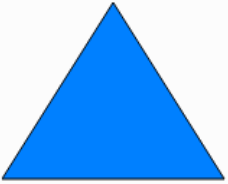
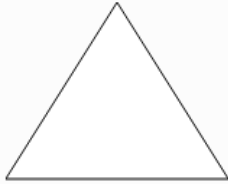
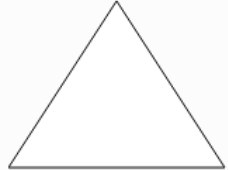
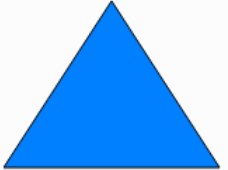
21

Figure 21.8.2 Main property page for the Triangle element

No.	Property	Function description
(1)	Line Color	<p>You can set the line color for the element.</p>

21

No.	Property	Function description
(2)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 
(3)	Foreground Color	<p>Set the foreground color of the element.</p> 

No.	Property	Function description				
(4)	Transparent	<p>■ You can select Yes or No for this function.</p> <div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p>Style</p> <p>Line Color: ▼</p> <p>Line Weight: 1 ▼</p> <p>.....</p> <p>Foreground Color: ▼</p> <p>Transparent: No ▼</p> <div style="border: 1px solid gray; background-color: white; padding: 2px; margin-top: 2px;"> <p>No</p> <p style="background-color: #0070C0; color: white;">No</p> <p>Yes</p> </div> </div> <p>■ If you select Yes, the foreground color of the Triangle element is transparent and only the border color is displayed; if you select No, the foreground color of the element is displayed.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; text-align: center; vertical-align: middle;">Transparent is Yes</td> <td style="text-align: center;">  →  </td> </tr> <tr> <td style="text-align: center; vertical-align: middle;">Transparent is No</td> <td style="text-align: center;">  →  </td> </tr> </table>	Transparent is Yes	 → 	Transparent is No	 → 
Transparent is Yes	 → 					
Transparent is No	 → 					

21

■ Main-2

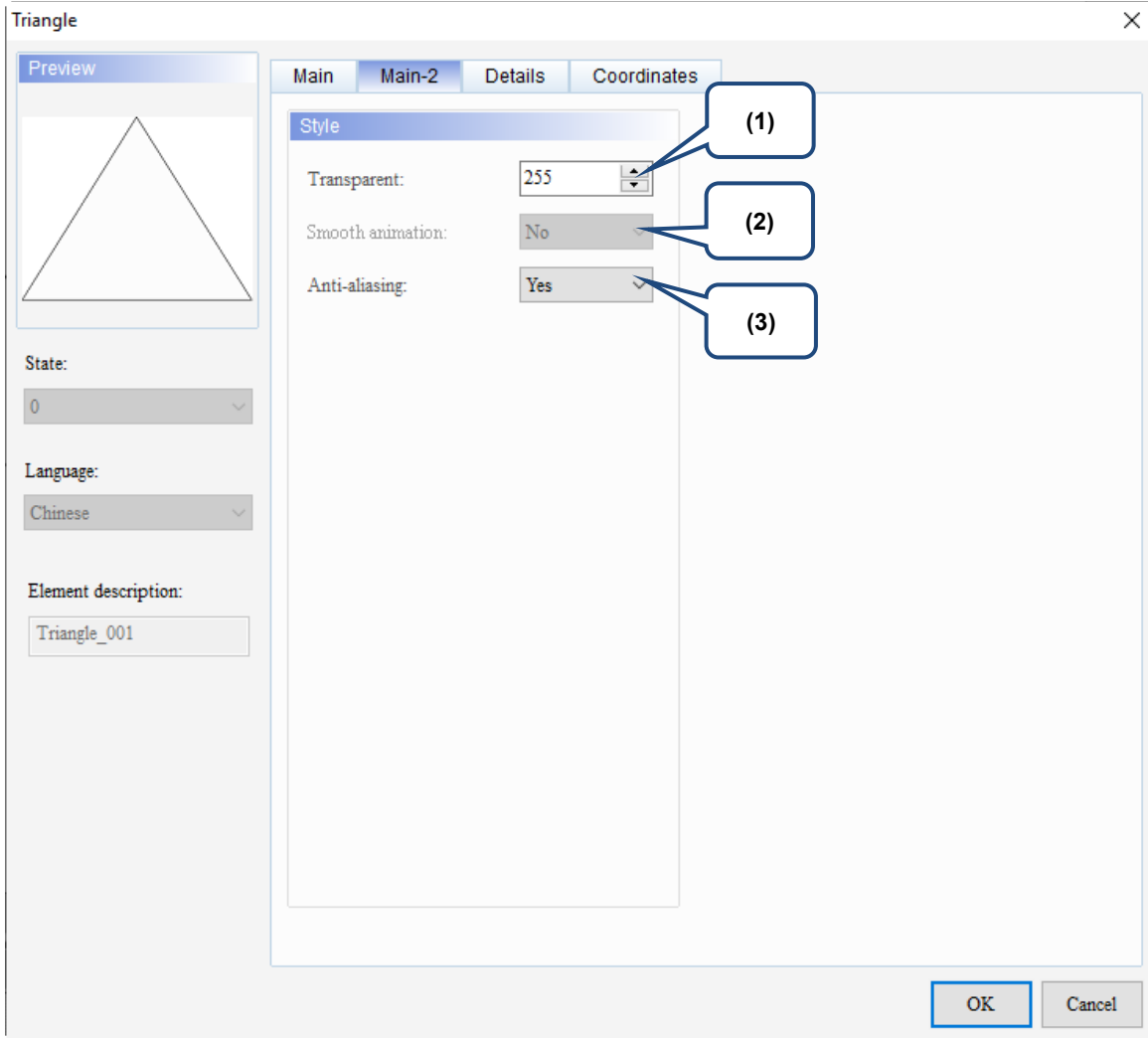
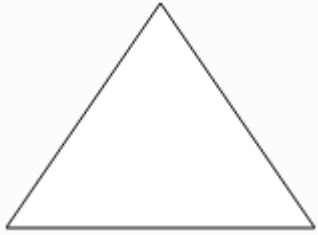
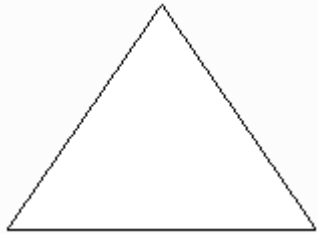
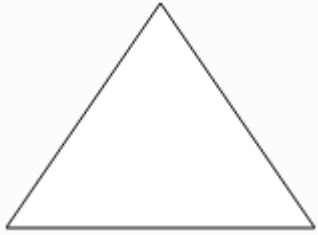
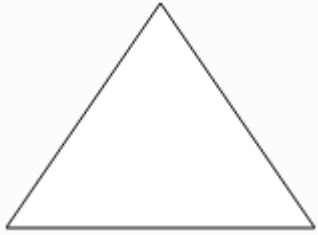
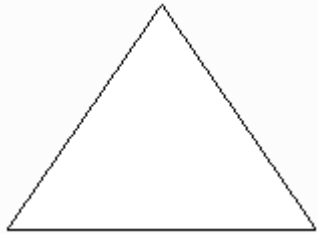
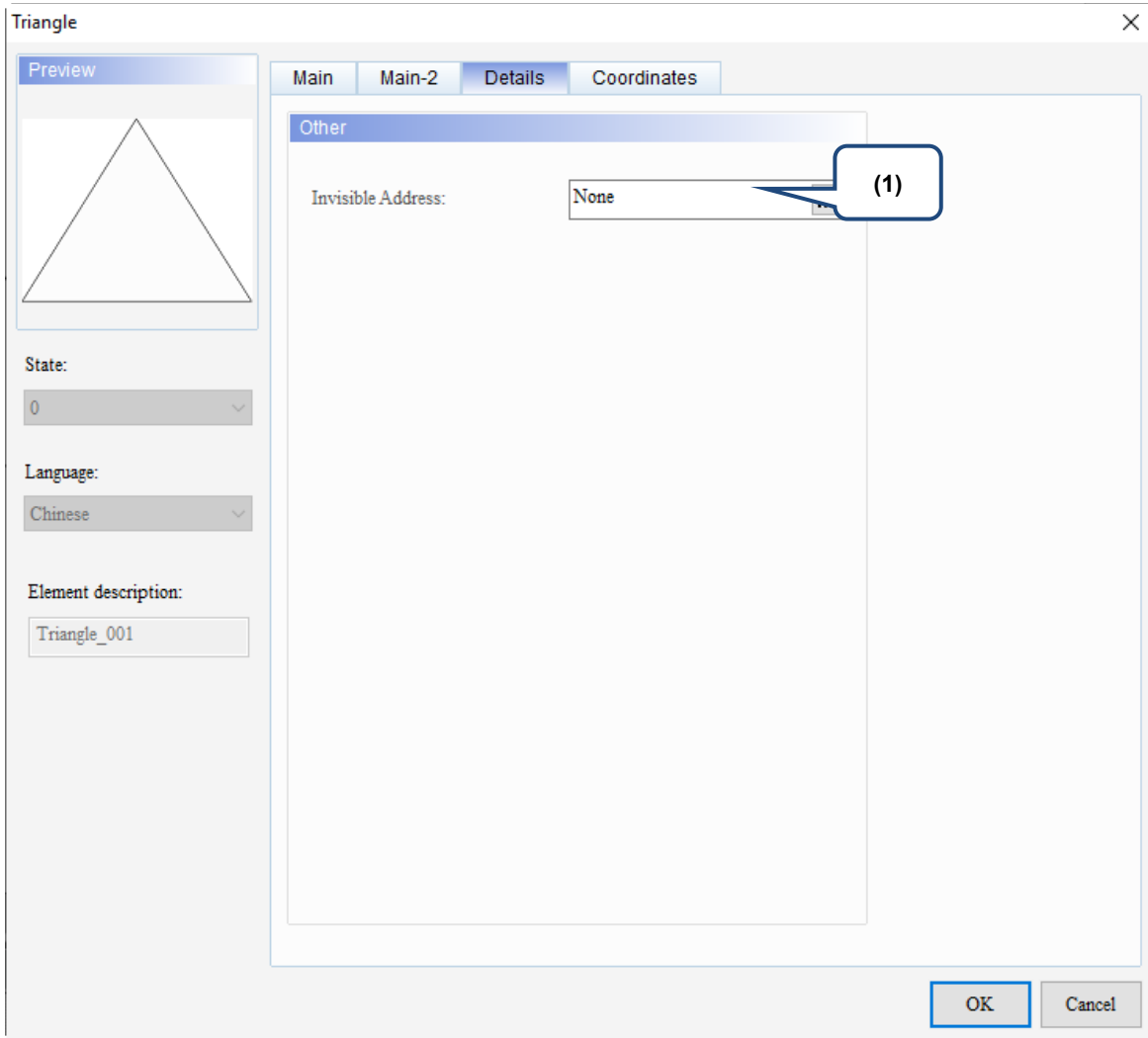


Figure 21.8.3 Main-2 property page for the Triangle element

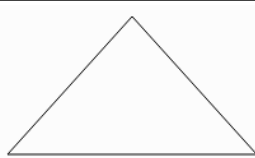
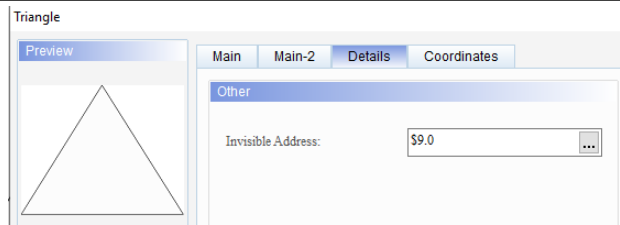
No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td style="text-align: center;">Yes</td> <td></td> </tr> <tr> <td style="text-align: center;">No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Details



21

Figure 21.8.4 Details property page for the Triangle element

No.	Property	Function description
(1)	Invisible Address	<p>When the Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="background-color: #cccccc; padding: 5px;">Invisible Address is Off</div> <div style="text-align: center;">  </div> <div style="background-color: #cccccc; padding: 5px;">\$9.0 OFF</div> </div>
		<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="background-color: #cccccc; padding: 5px;">Invisible Address is On</div> <div style="text-align: center;"> <div style="border: 2px dashed blue; padding: 10px; display: inline-block;">Element is invisible</div> </div> <div style="background-color: #cccccc; padding: 5px;">\$9.0 ON</div> </div>
		

21

Coordinates

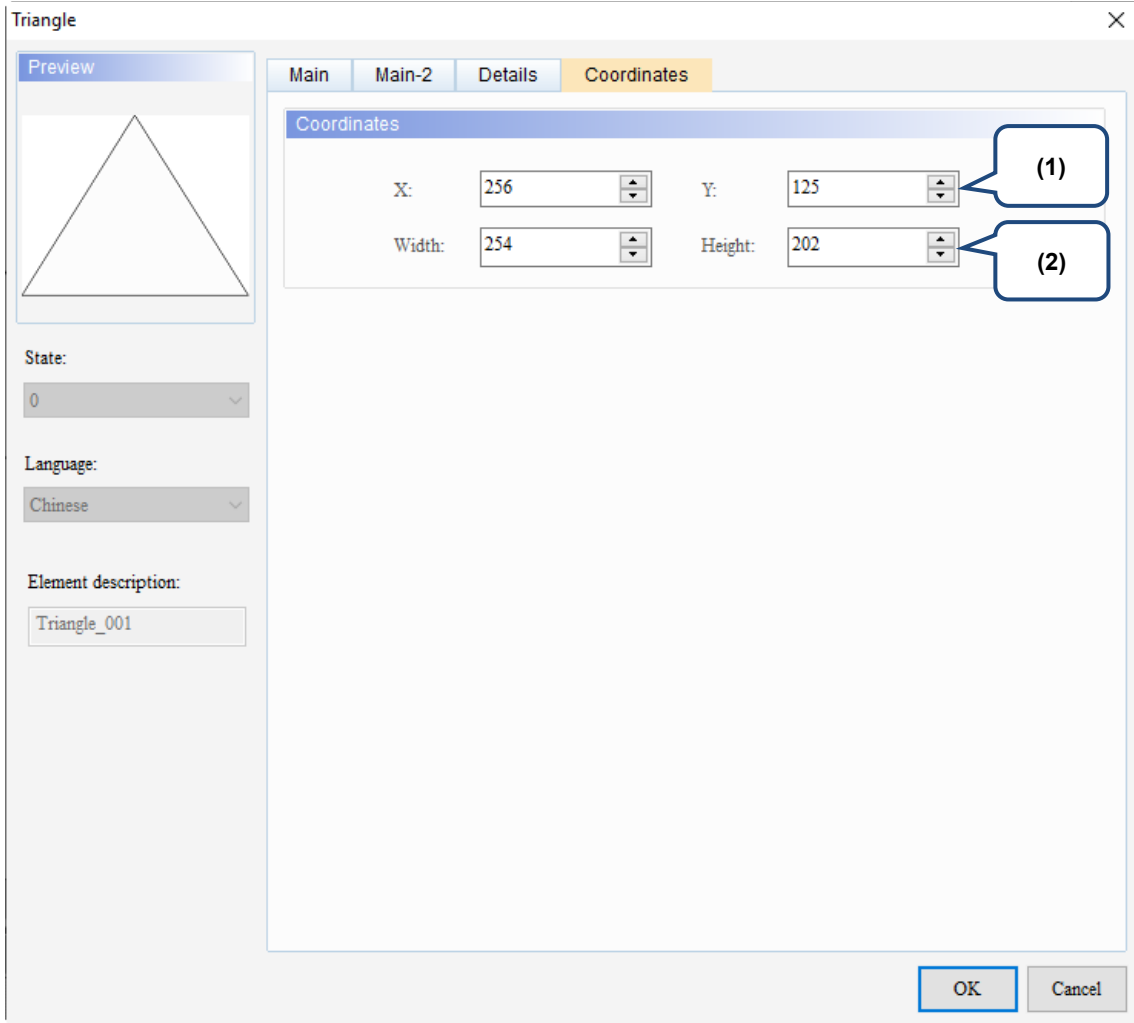
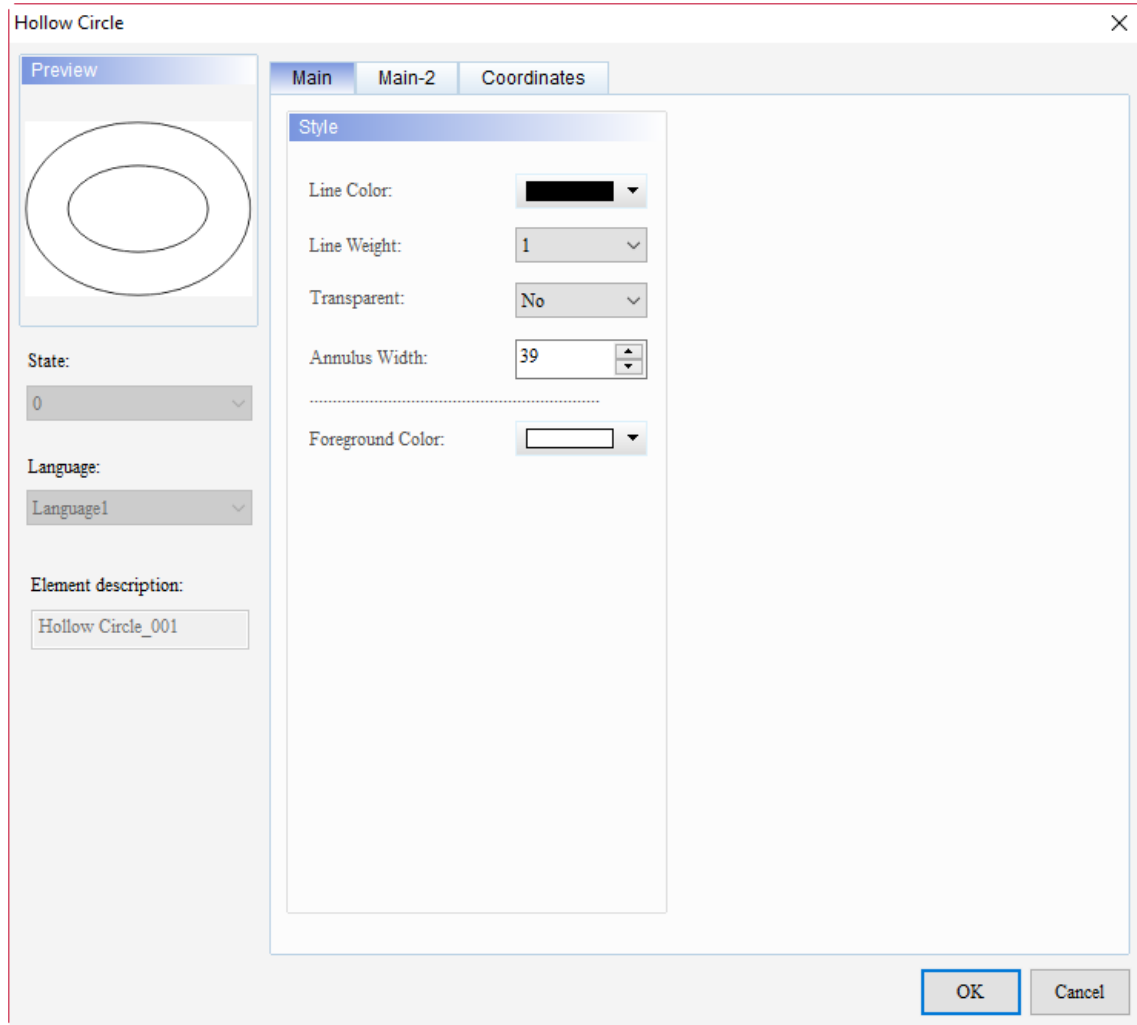


Figure 21.8.5 Coordinates property page for the Triangle element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

21.9 Hollow Circle

When you double-click the Hollow Circle element, the property page is shown as follows.



21

Figure 21.9.1 Properties of Hollow Circle

Table 21.9.1 Function page of Hollow Circle

Hollow Circle	
Function page	Description
Main	Set the Line Color, Line Weight, Transparent, Annulus Width, and Foreground Color.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

21

■ Main

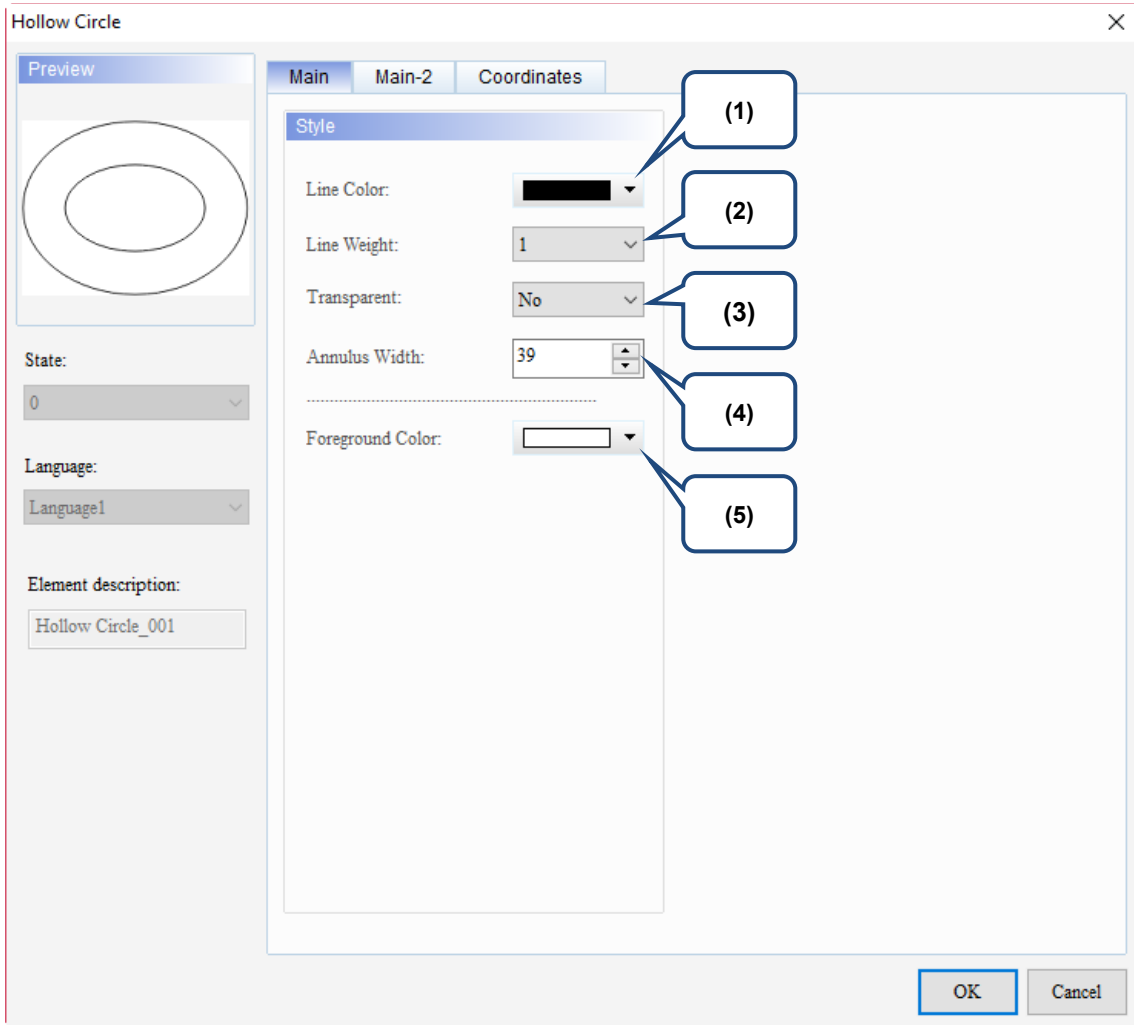
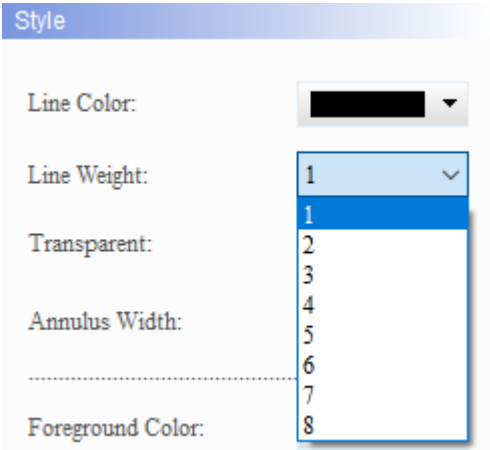
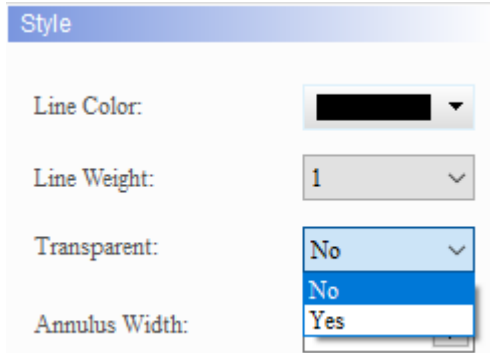
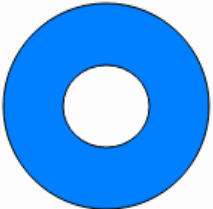
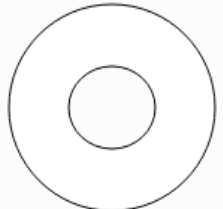
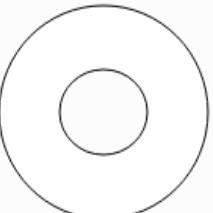
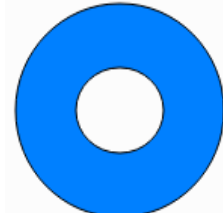
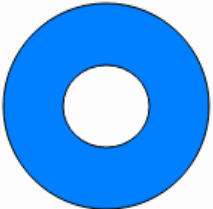
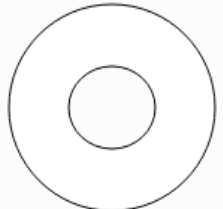
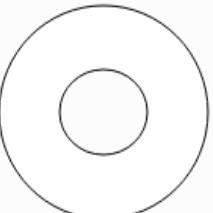
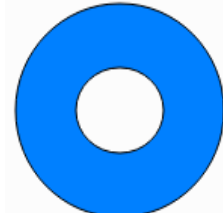
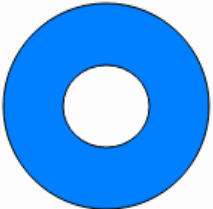
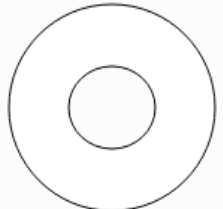
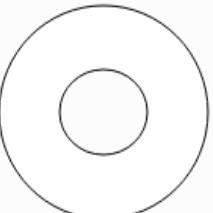
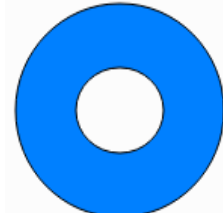
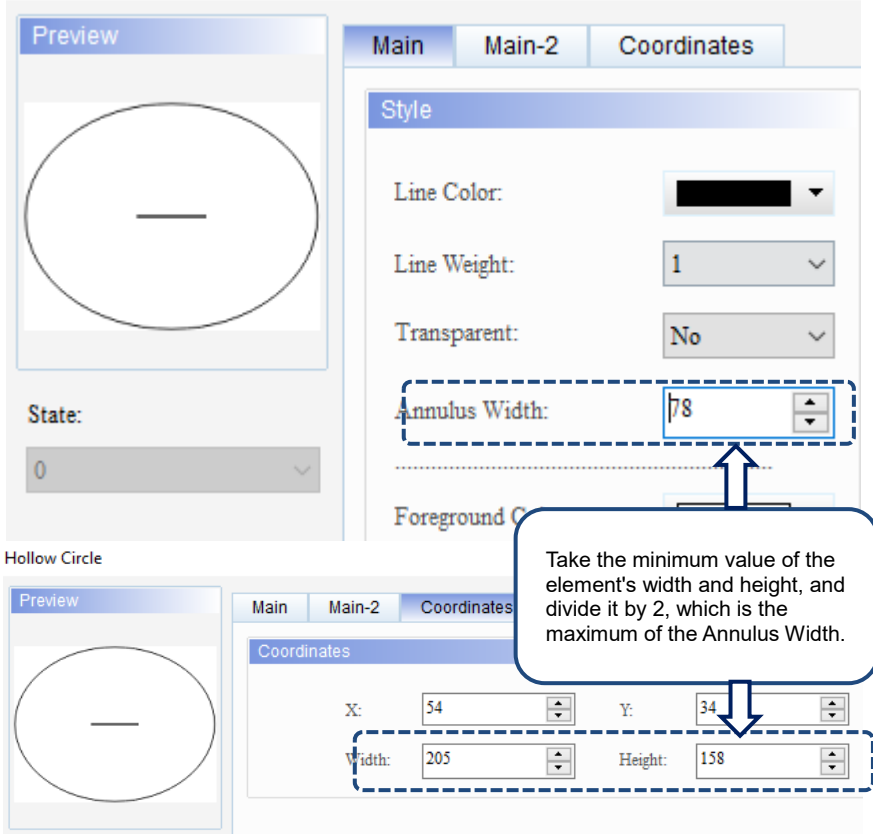
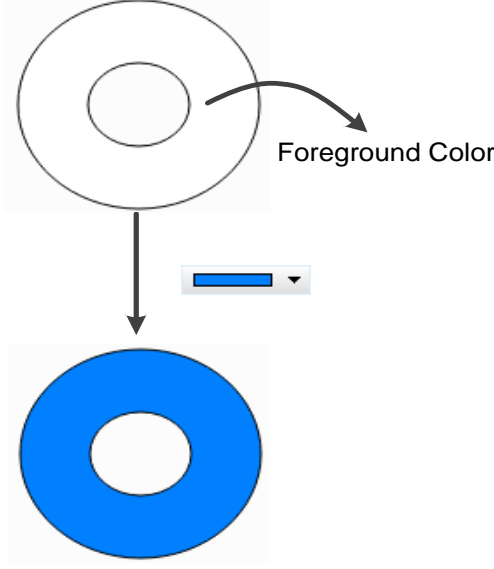


Figure 21.9.2 Main property page for the Hollow Circle element

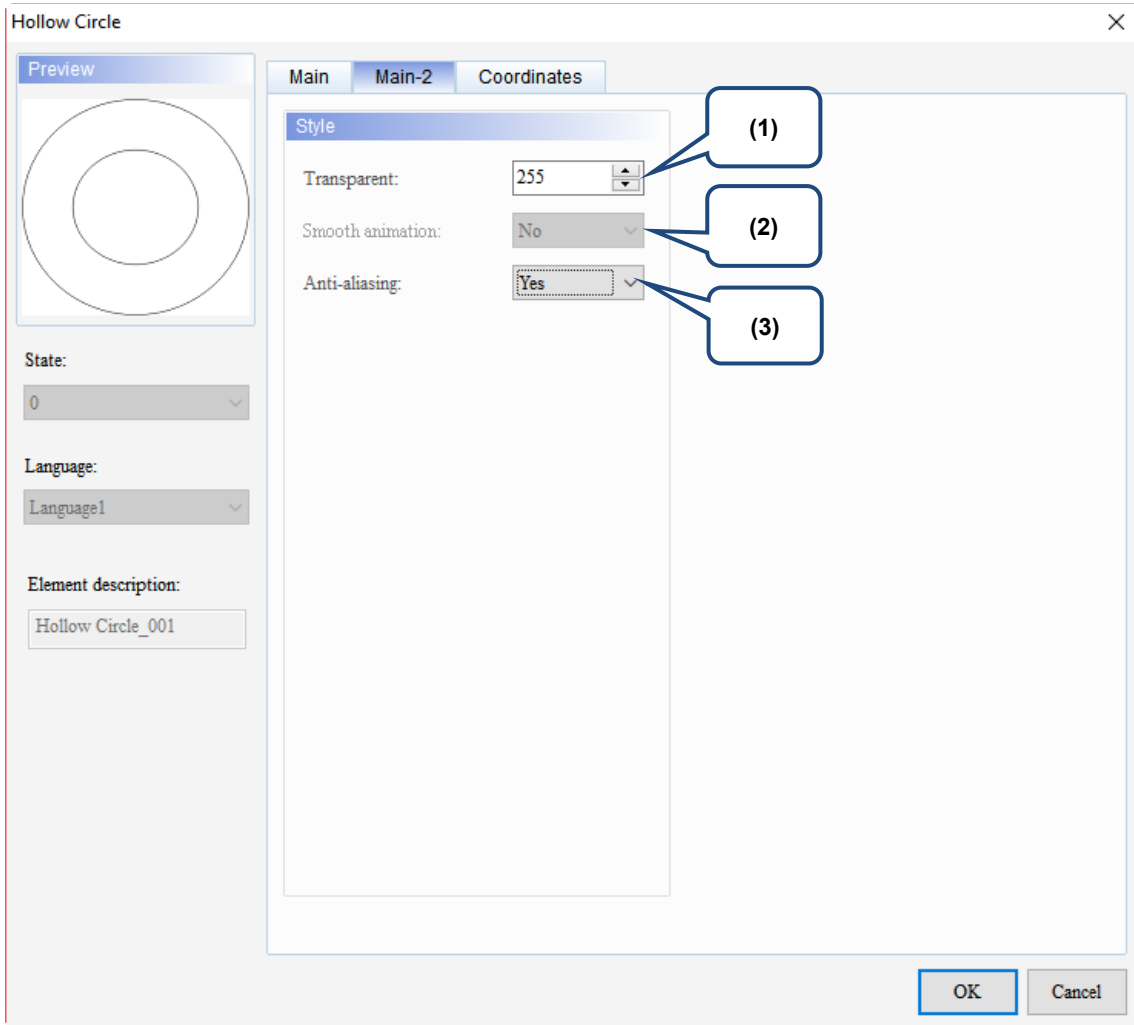
No.	Property	Function description
(1)	Line Color	<p>You can set the line color for the element.</p>

No.	Property	Function description								
(2)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 								
(3)	Transparent	<ul style="list-style-type: none"> You can select Yes or No for this function.  <ul style="list-style-type: none"> If you select Yes, the foreground color of the Hollow Circle element is transparent and only the border color is displayed; if you select No, the foreground color of the element is displayed. <table border="1"> <tr> <td>Transparent is Yes</td> <td></td> <td>→</td> <td></td> </tr> <tr> <td>Transparent is No</td> <td></td> <td>→</td> <td></td> </tr> </table>	Transparent is Yes		→		Transparent is No		→	
Transparent is Yes		→								
Transparent is No		→								

21

No.	Property	Function description
(4)	Annulus Width	<p>The maximum of the Annulus Width is determined by taking the minimum value of the element's width and height, and dividing it by 2.</p> <p>Hollow Circle</p>  <p>Hollow Circle</p> <p>Take the minimum value of the element's width and height, and divide it by 2, which is the maximum of the Annulus Width.</p>
(5)	Foreground Color	<p>Set the foreground color of the element.</p>  <p>Foreground Color</p>

■ Main-2



21

Figure 21.9.3 Main-2 property page for the Hollow Circle element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td style="background-color: #cccccc;">Yes</td> <td></td> </tr> <tr> <td style="background-color: #cccccc;">No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

21

Coordinates

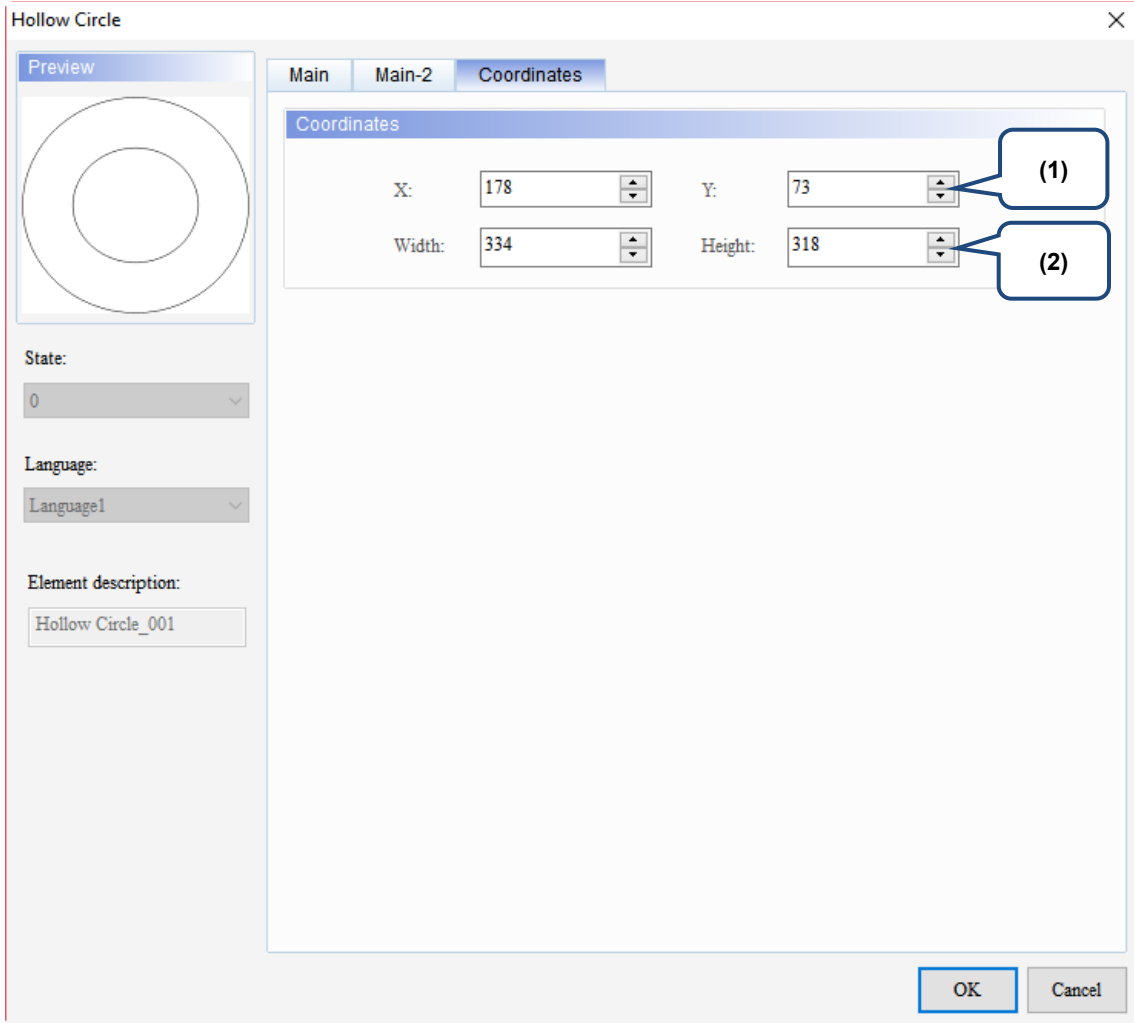
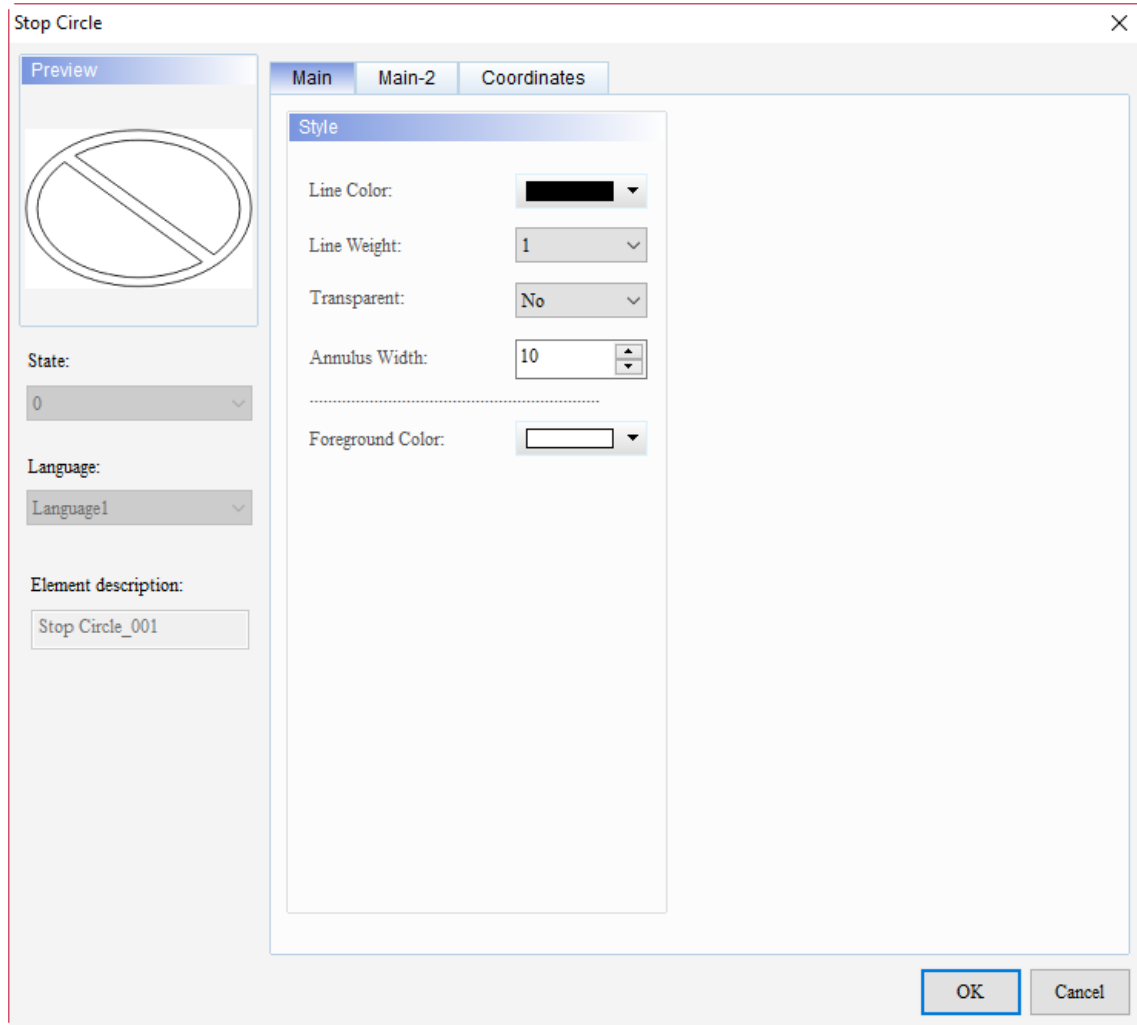


Figure 21.9.4 Coordinates property page for the Hollow Circle element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

21.10 Stop Circle

When you double-click the Stop Circle element, the property page is shown as follows.



21

Figure 21.10.1 Properties of Stop Circle

Table 21.10.1 Function page of Stop Circle

Stop Circle	
Function page	Description
Main	Set the Line Color, Line Weight, Transparent, Annulus Width, and Foreground Color.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

21

■ Main

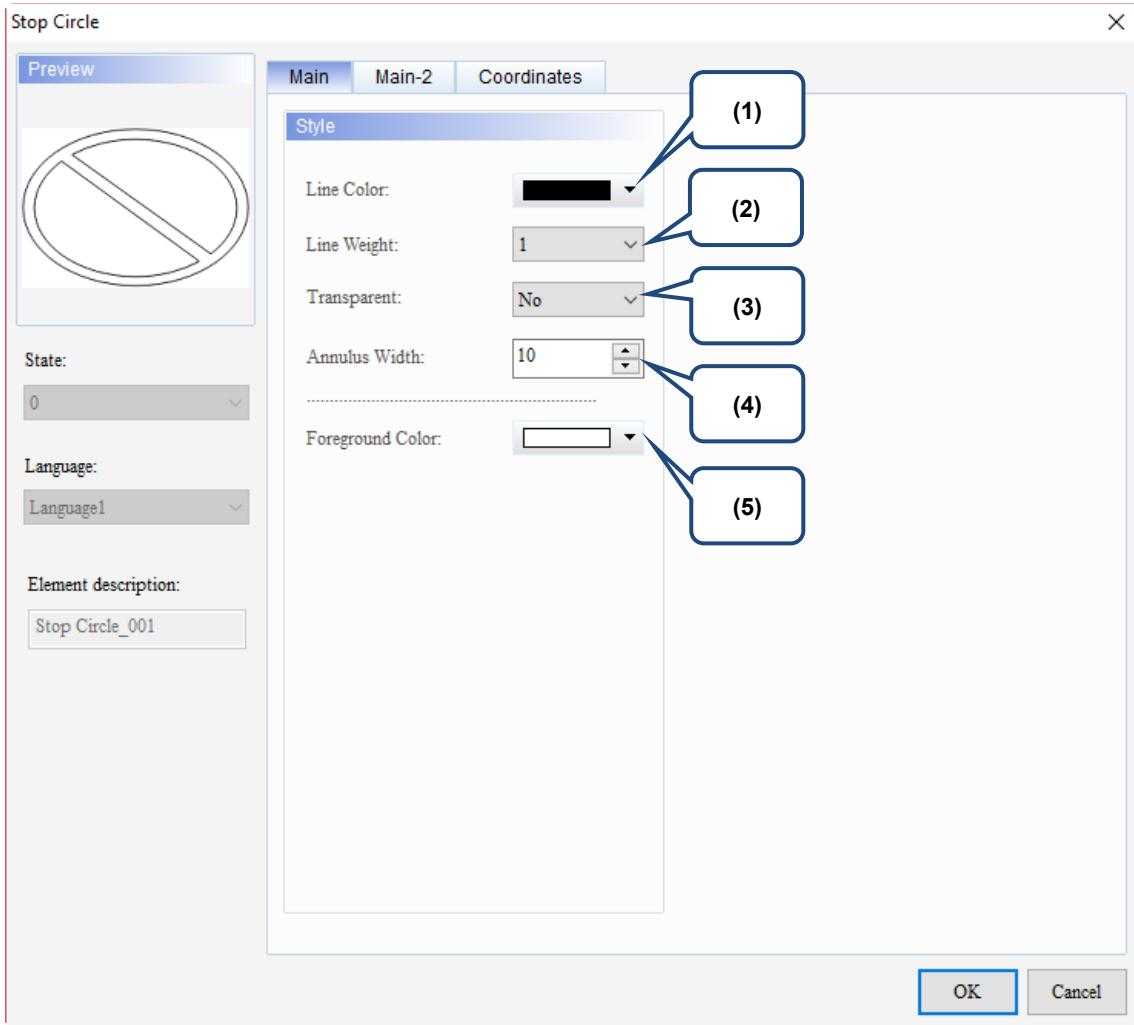
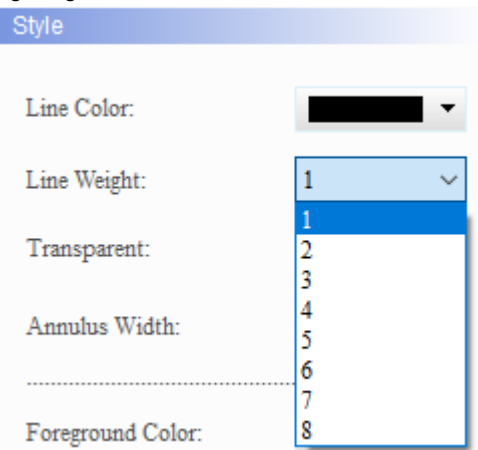
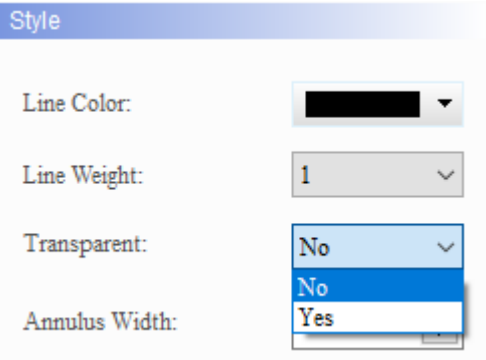
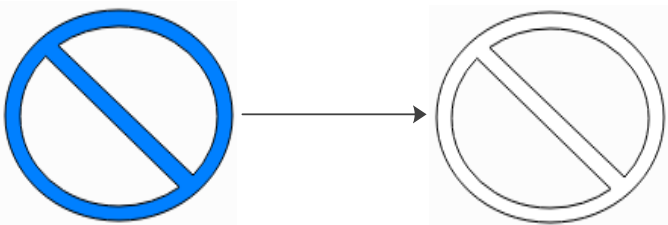
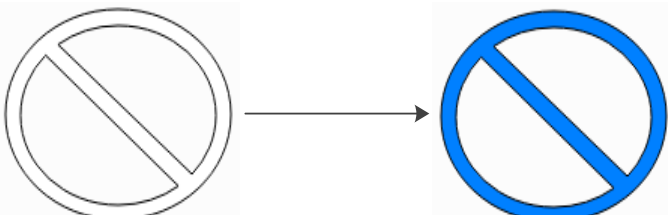
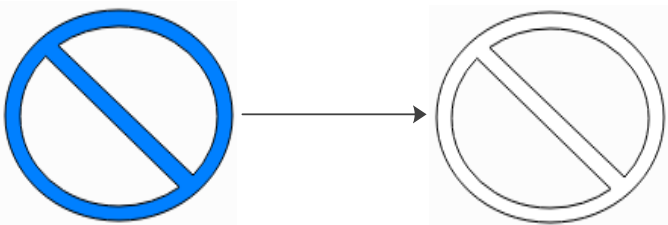
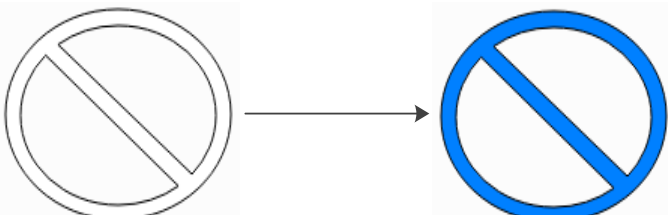
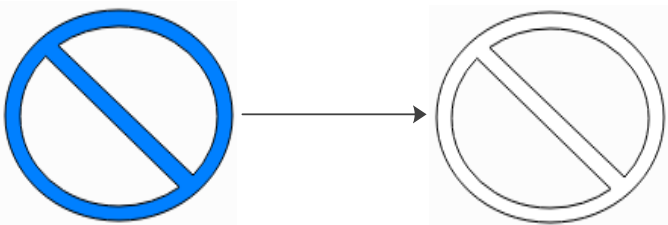
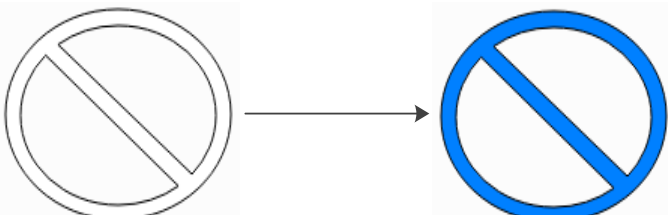
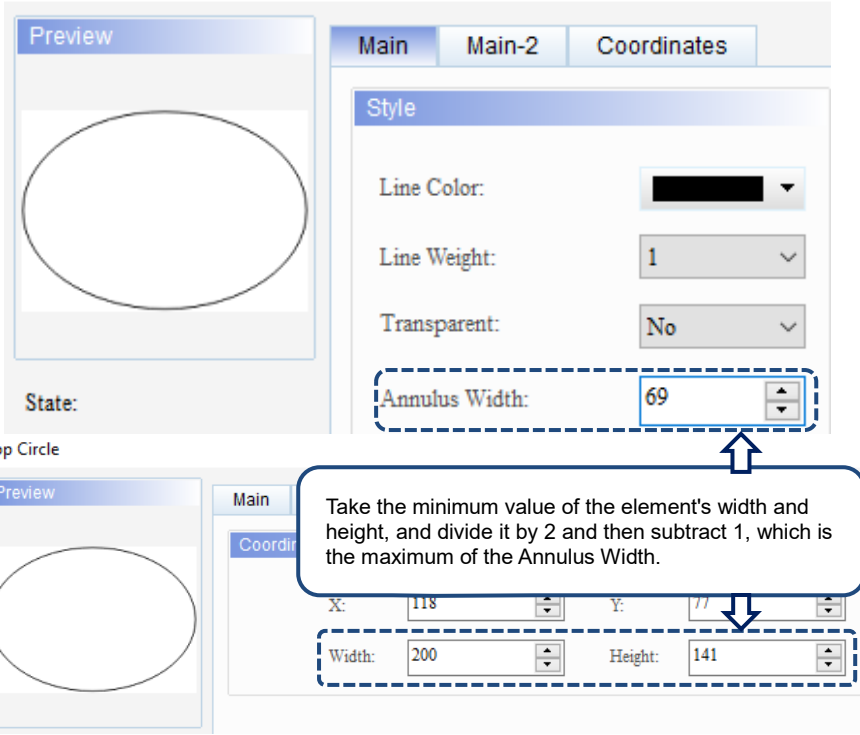
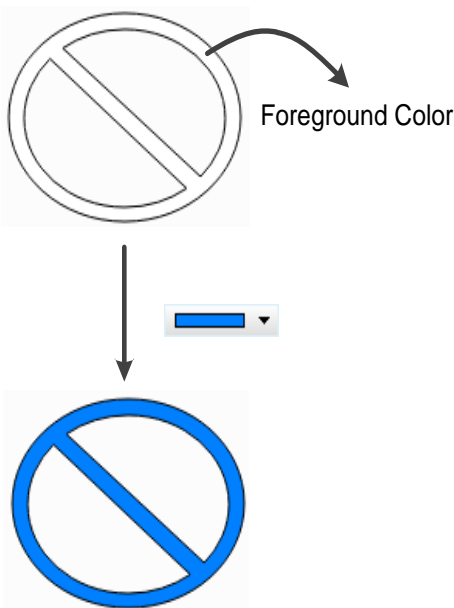


Figure 21.10.2 Main property page for the Stop Circle element

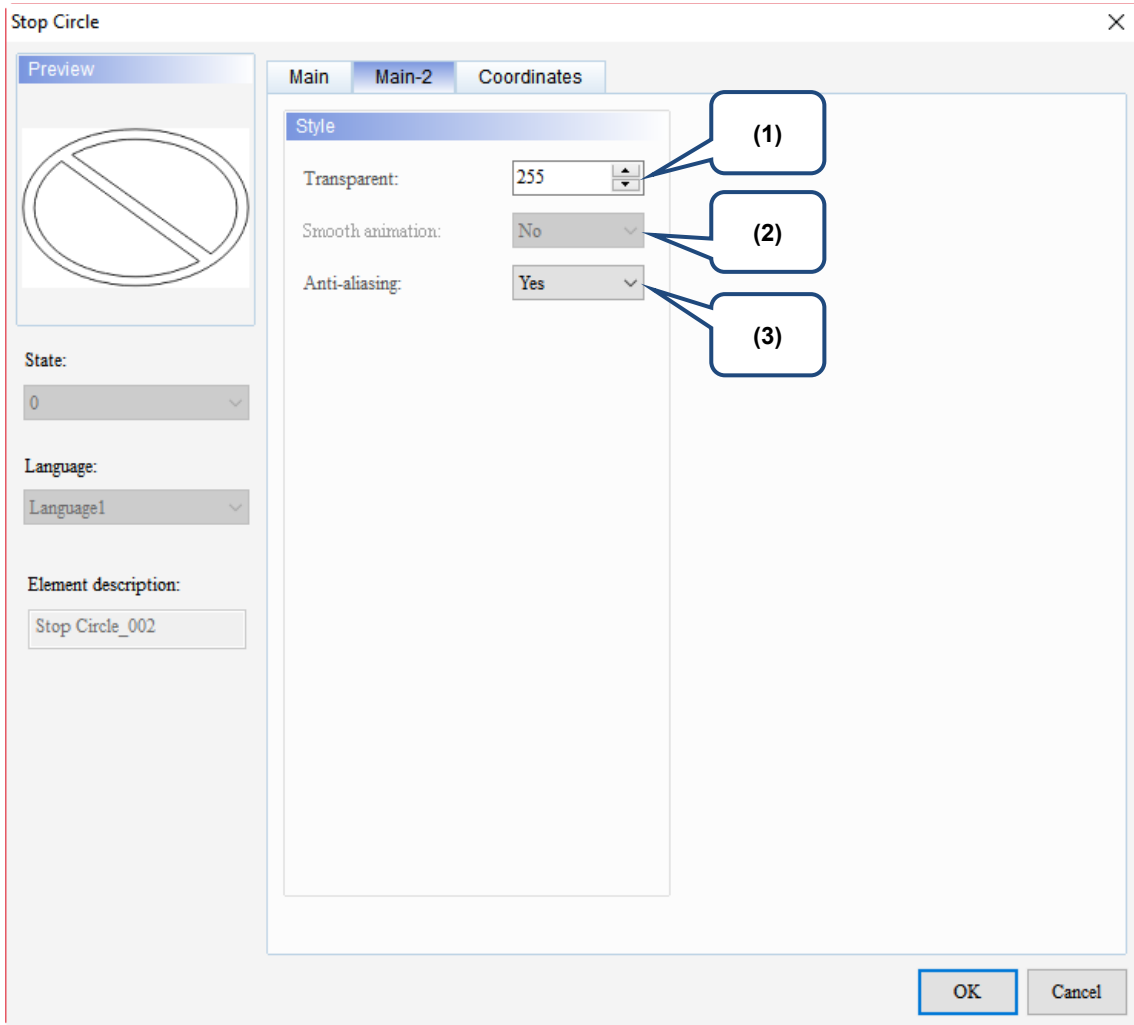
No.	Property	Function description
(1)	Line Color	<p>You can set the line color for the element.</p>

No.	Property	Function description				
(2)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 				
(3)	Transparent	<ul style="list-style-type: none"> You can select Yes or No for this function.  <ul style="list-style-type: none"> If you select Yes, the foreground color of the Stop Circle element is transparent and only the border color is displayed; if you select No, the foreground color of the element is displayed. <table border="1"> <tr> <td>Transparent is Yes</td> <td>  </td> </tr> <tr> <td>Transparent is No</td> <td>  </td> </tr> </table>	Transparent is Yes		Transparent is No	
Transparent is Yes						
Transparent is No						

21

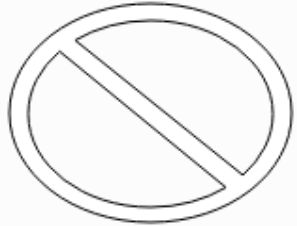
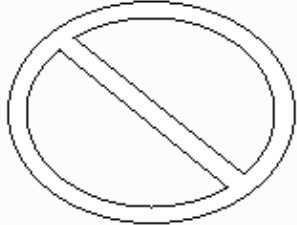
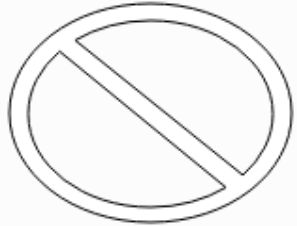
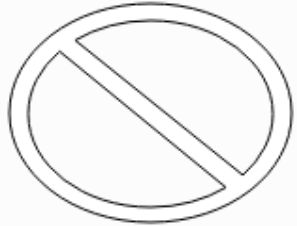
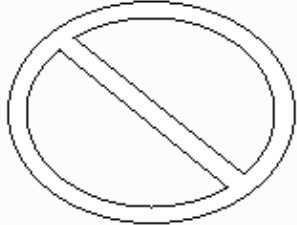
No.	Property	Function description
(4)	Annulus Width	<p>The maximum of the Annulus Width is determined by taking the minimum value of the element's width and height, and dividing it by 2 and then subtracting 1. The reason for subtracting 1 is that the Annulus Width minimum value of the Stop Circle is 1, not 0.</p> <p>Stop Circle</p> 
(5)	Foreground Color	<p>Set the foreground color of the element.</p> 

■ Main-2



21

Figure 21.10.3 Main-2 property page for the Stop Circle element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td>Yes</td> <td></td> </tr> <tr> <td>No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Coordinates

21

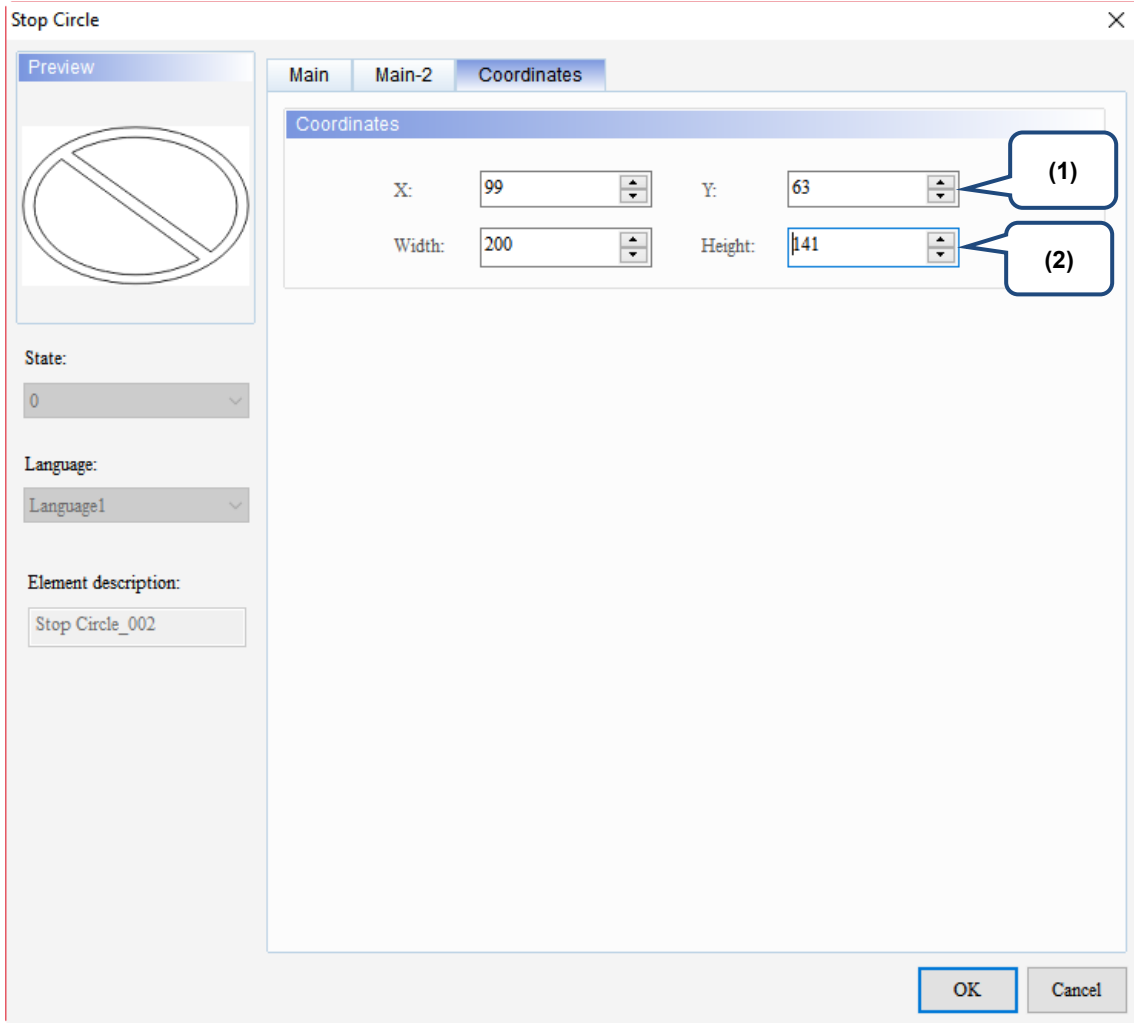
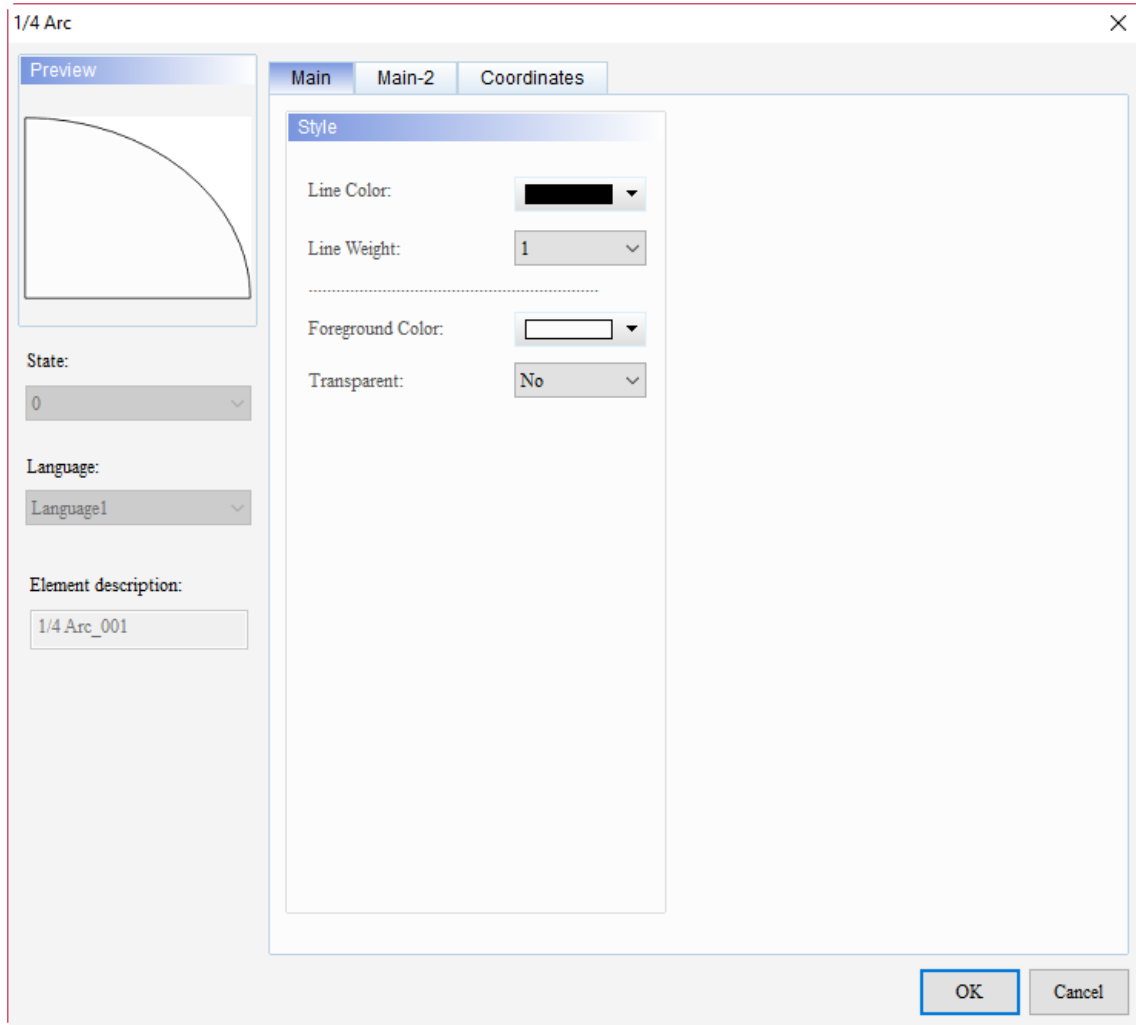


Figure 21.10.4 Coordinates property page for the Stop Circle element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

21.11 1/4 Arc

When you double-click the 1/4 Arc element, the property page is shown as follows.



21

Figure 21.11.1 Properties of 1/4 Arc

Table 21.11.1 Function page of 1/4 Arc

1/4 Arc	
Function page	Description
Main	Set the Line Color, Line Weight, Foreground Color, and Transparent.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

21

■ Main

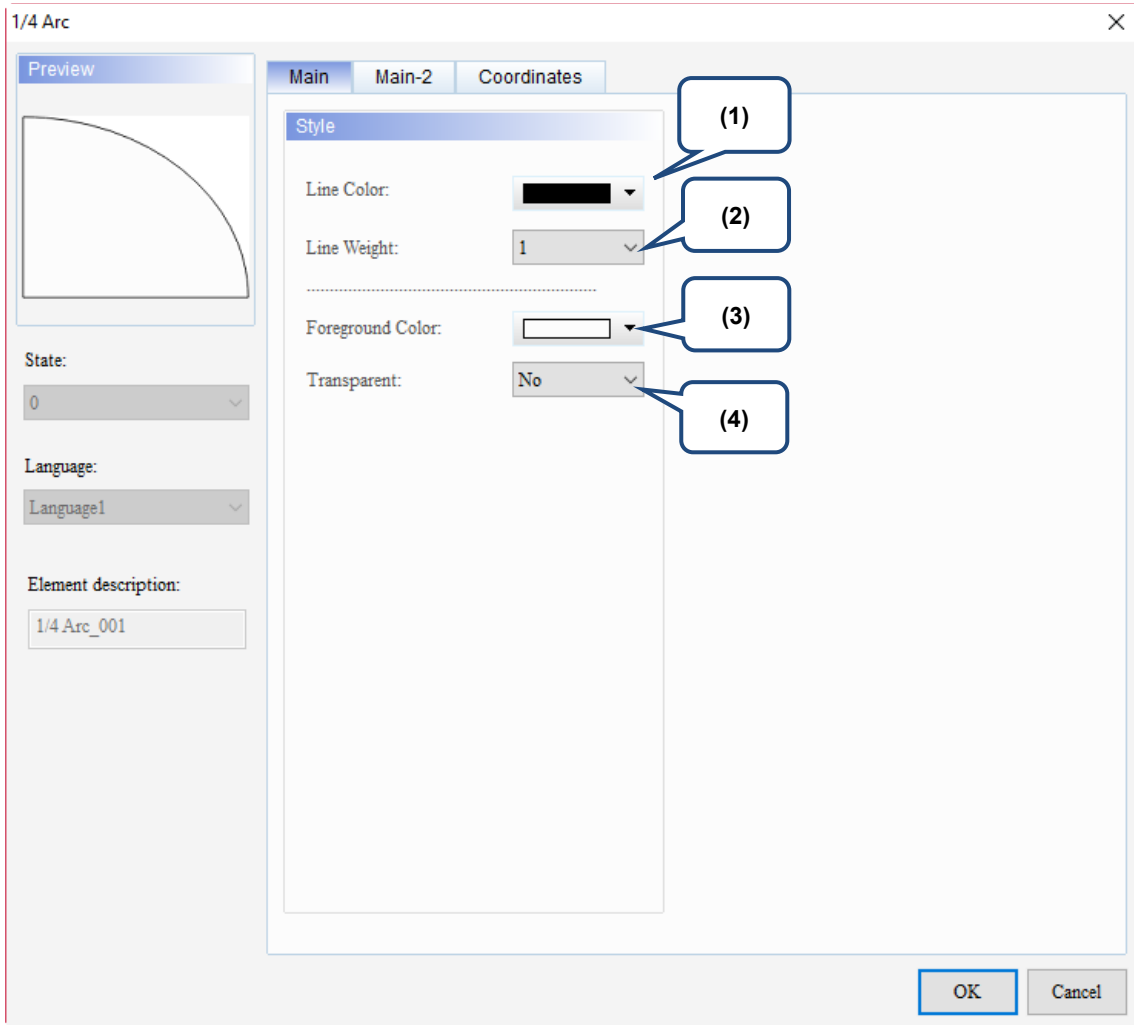
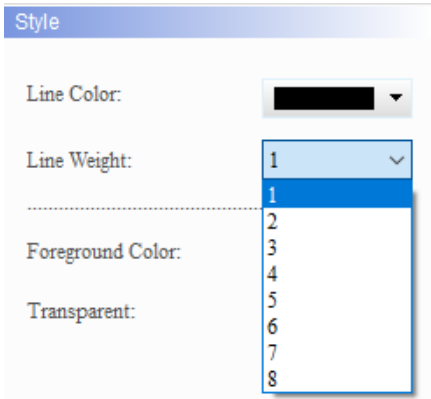
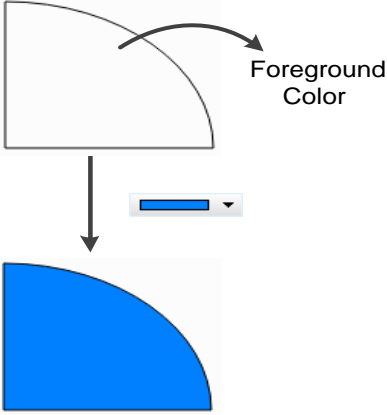
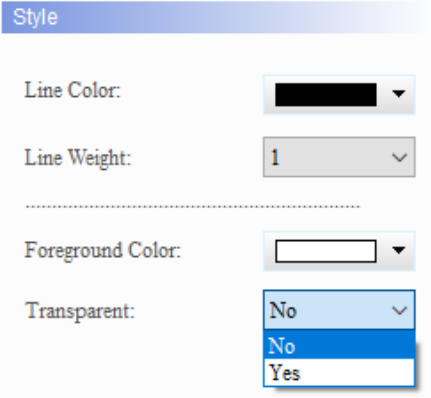








Figure 21.11.2 Main property page for the 1/4 Arc element

No.	Property	Function description
(1)	Line Color	<p>You can set the line color for the element.</p>

No.	Property	Function description				
(2)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 				
(3)	Foreground Color	<p>Set the foreground color of the element.</p> 				
(4)	Transparent	<ul style="list-style-type: none"> You can select Yes or No for this function.  <ul style="list-style-type: none"> If you select Yes, the foreground color of the 1/4 Arc element is transparent and only the border color of the arc part is displayed; if you select No, the foreground color of the entire element is displayed. <table border="1"> <tr> <td>Transparent is Yes</td> <td>  </td> </tr> <tr> <td>Transparent is No</td> <td>  </td> </tr> </table>	Transparent is Yes		Transparent is No	
Transparent is Yes						
Transparent is No						

21

■ Main-2

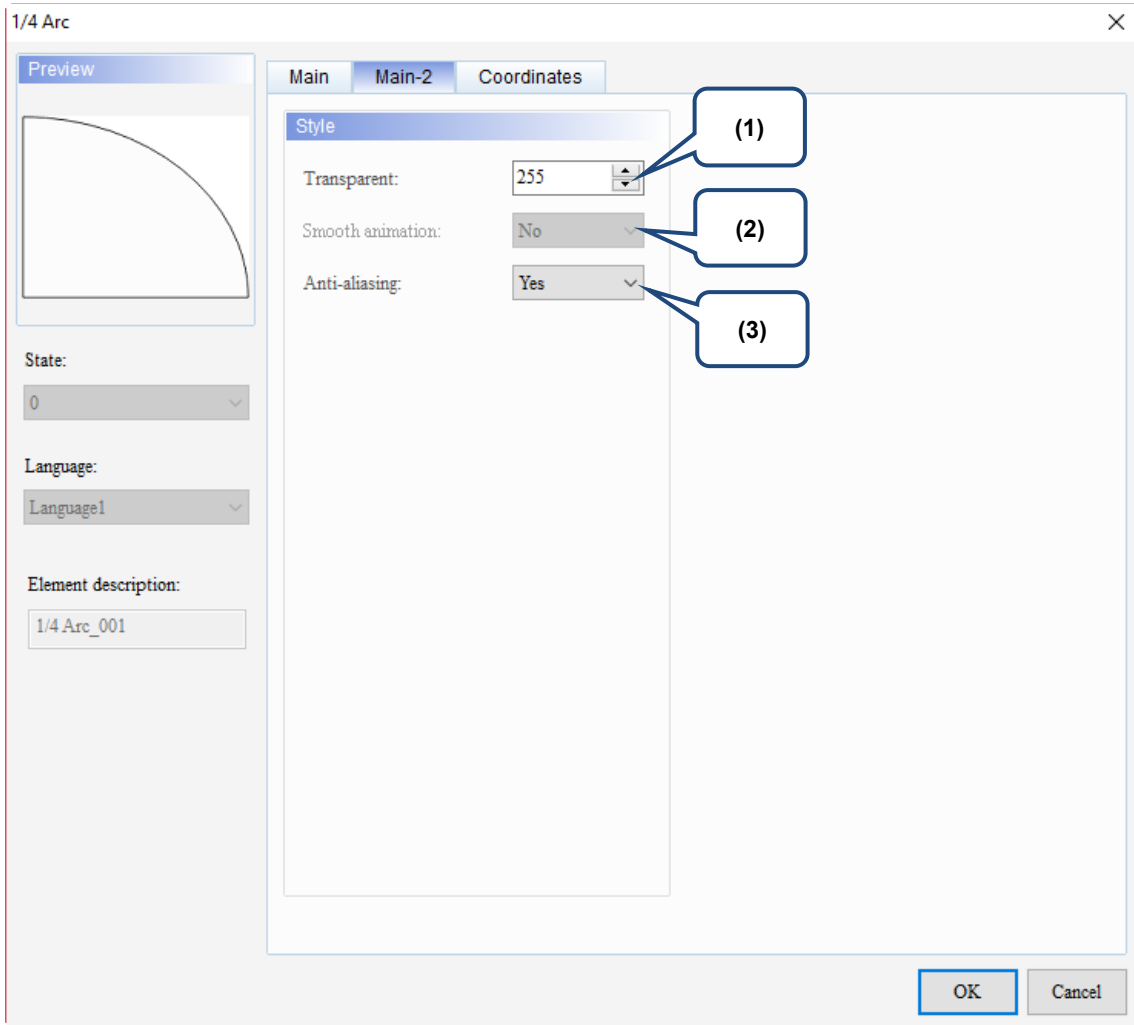
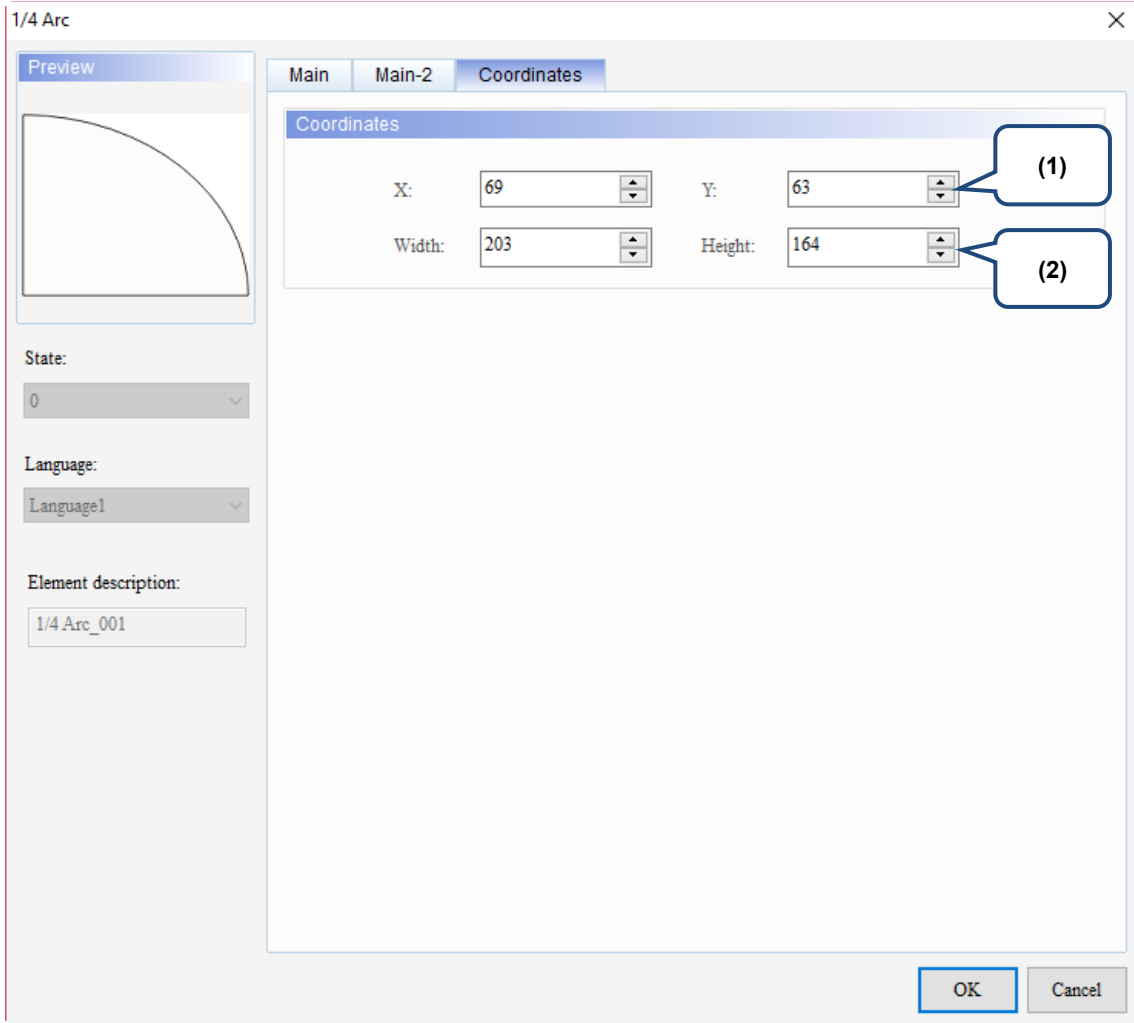


Figure 21.11.3 Main-2 property page for the 1/4 Arc element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td>Yes</td> <td></td> </tr> <tr> <td>No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Coordinates



21


Figure 21.11.4 Coordinates property page for the 1/4 Arc element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

(This page is intentionally left blank.)

21

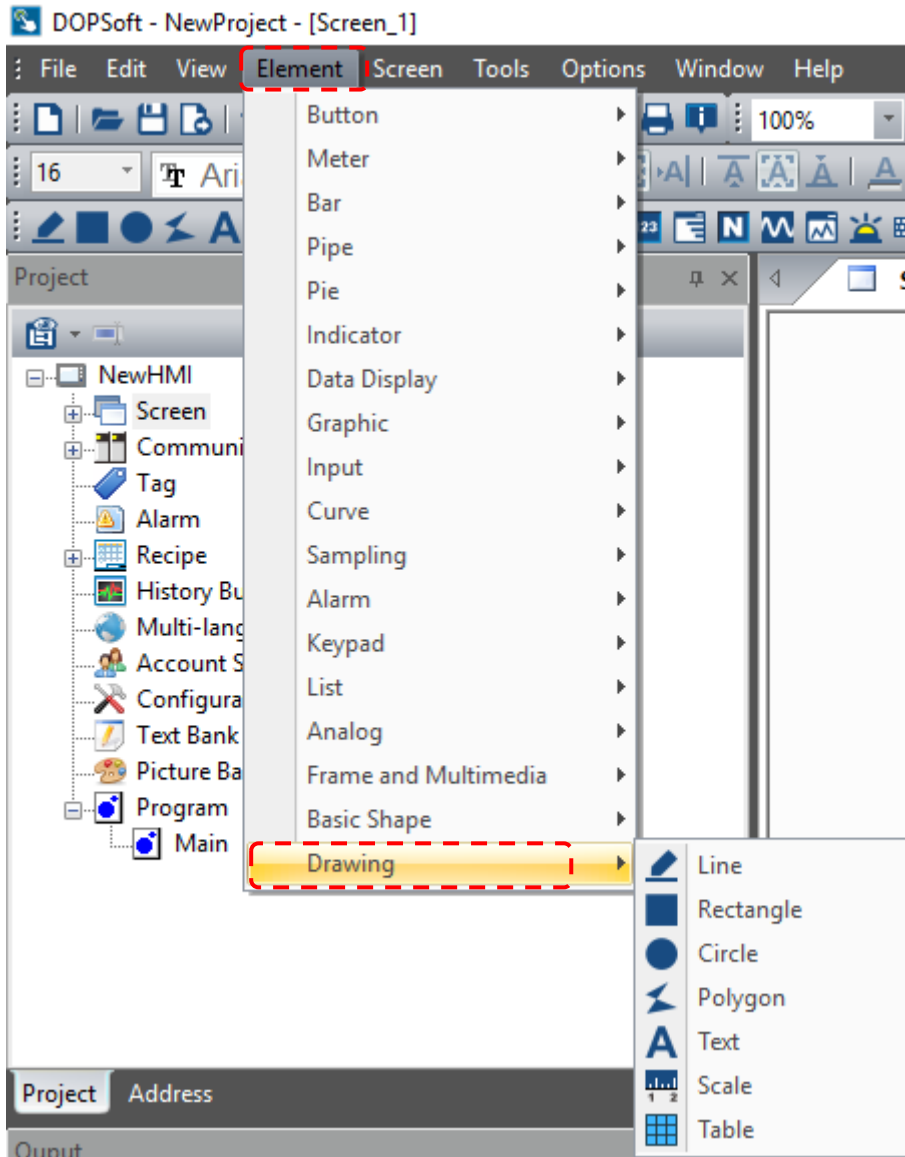
This chapter provides the usage and setting details for the Drawing elements.



22.1	Line	22-3
22.2	Rectangle	22-10
22.3	Circle	22-24
22.4	Polygon	22-33
22.5	Text	22-39
22.6	Scale	22-49
22.7	Table	22-57

To create a Drawing element, go to [Element] > [Drawing] and click on the desired element, or click on the toolbar on the far left side of the window screen and select the Drawing element.

22



22.1 Line

When using the Line element, press and hold the mouse button to decide on the starting point of the line. Drag the mouse to the desired length and release the mouse button to create a straight line. When you click on this line, a rectangle shaped range appears to help you easily adjust the size of this line. You can also change the width and color of this line.

In addition, you can use the set Read Address to control the moving position, color, blinking, and other functions of the line.

When you double-click the Line, the property page is shown as follows.

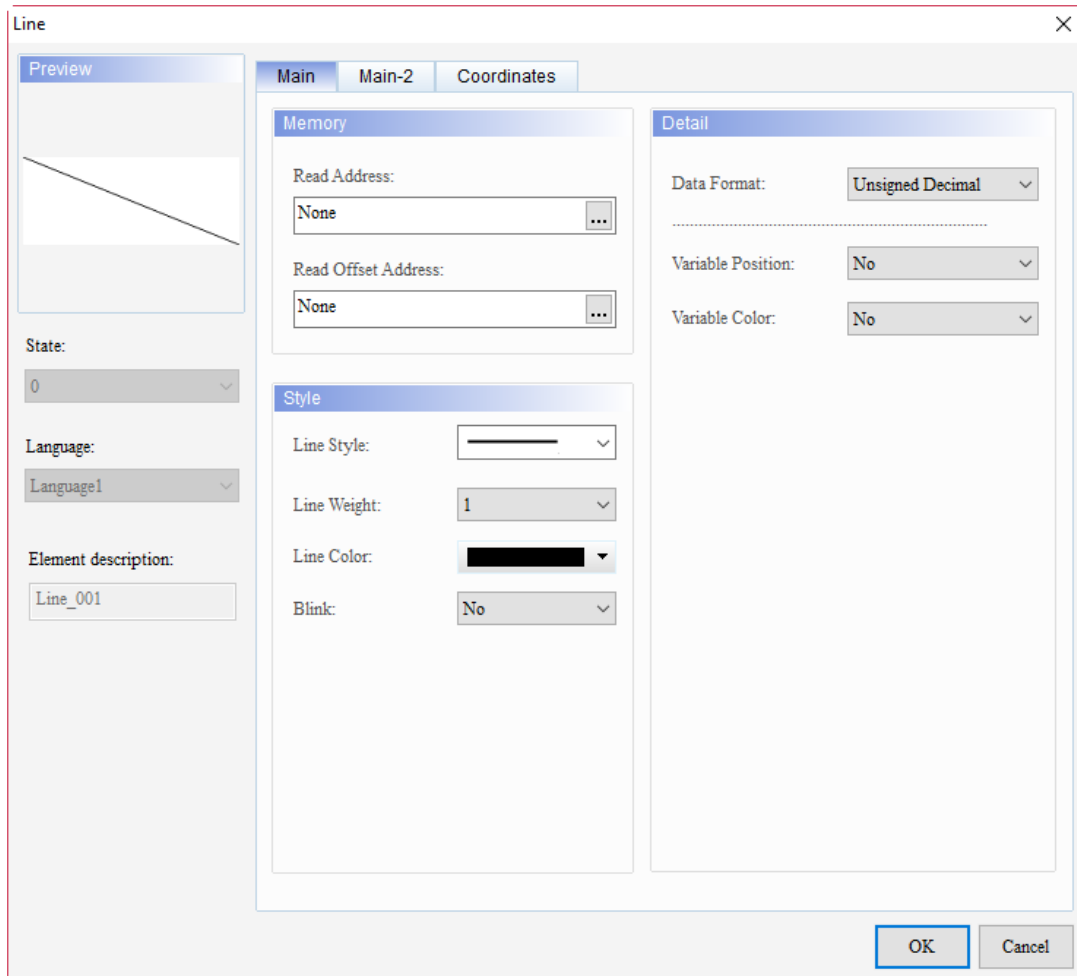


Figure 22.1.1 Properties of Line

Table 22.1.1 Function page of the Line element

Line	
Function page	Description
Preview	The Line element does not support multiple state values and multi-language display.
Main	Set the Read Address, Read Offset Address, Line Style, Line Weight, Line Color, and Blink. Set the Data Format, Variable Position, and Variable Color.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width and height of the elements.

22

■ Main

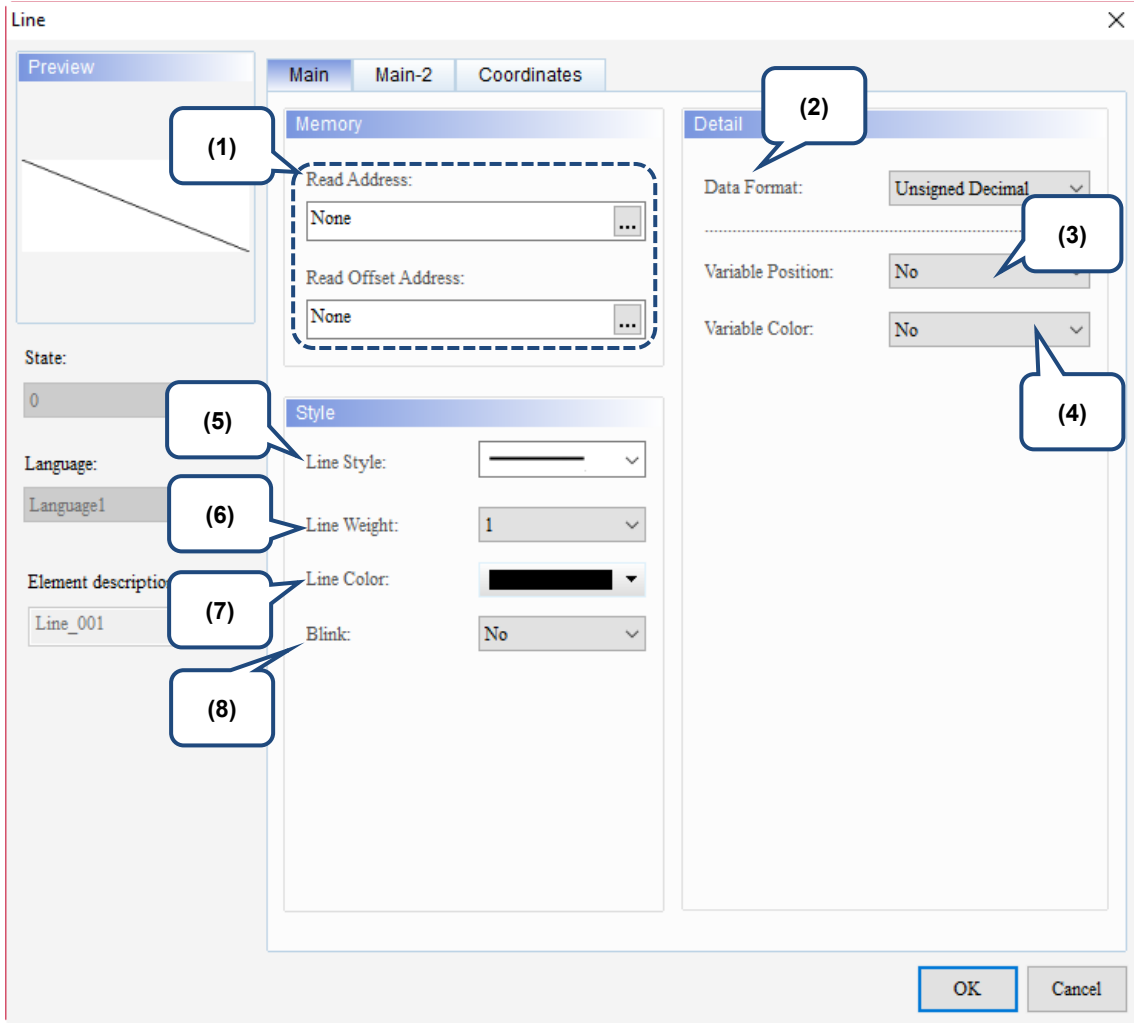
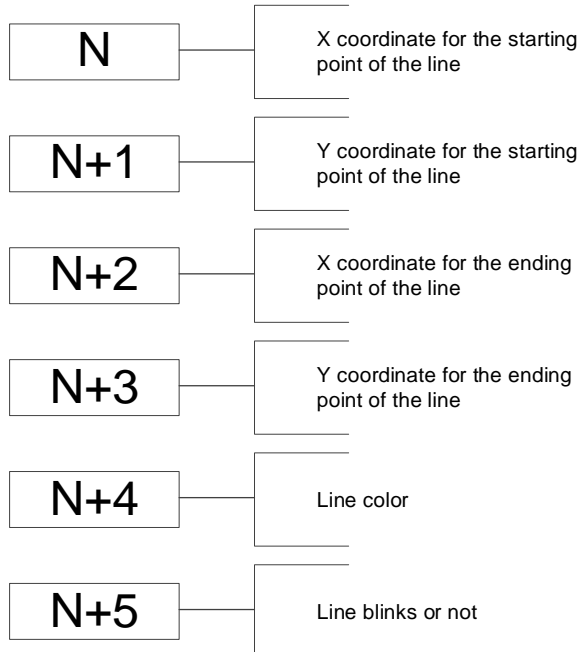
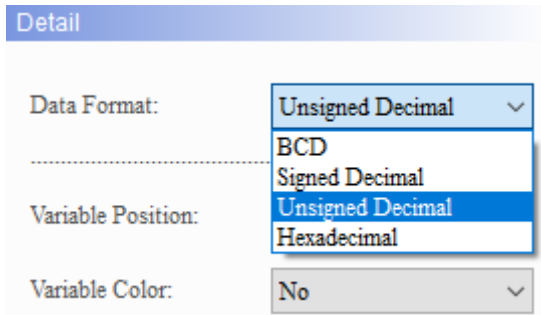
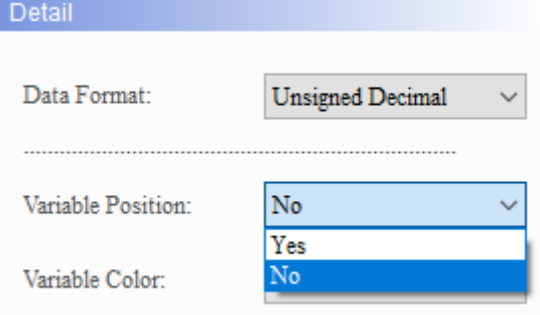
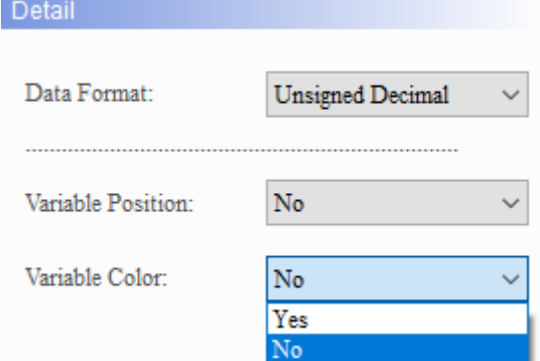
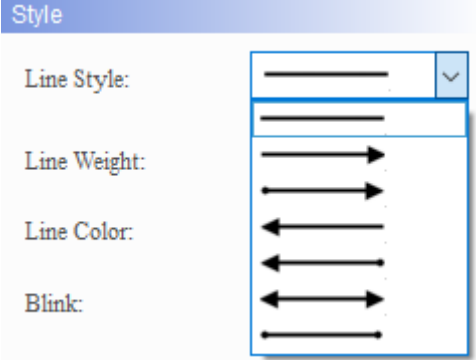
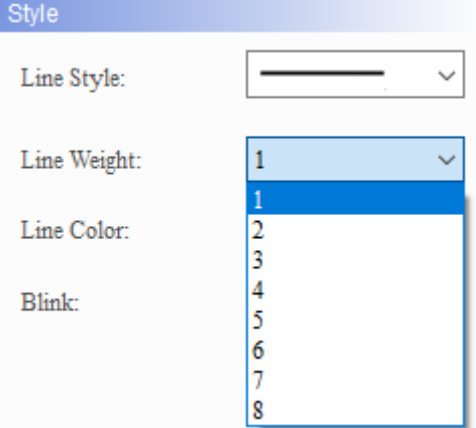
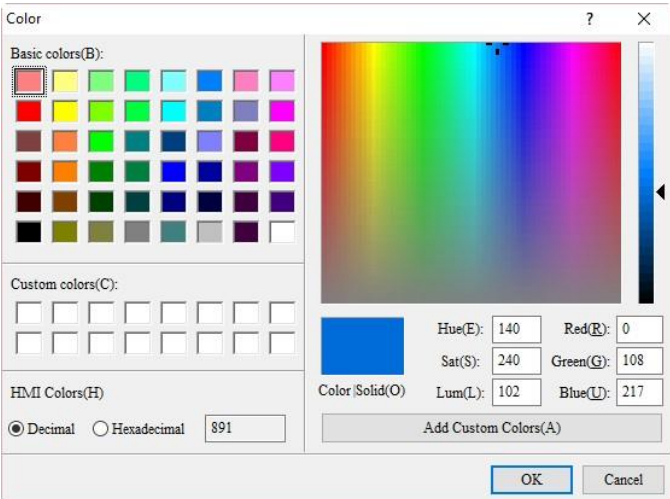
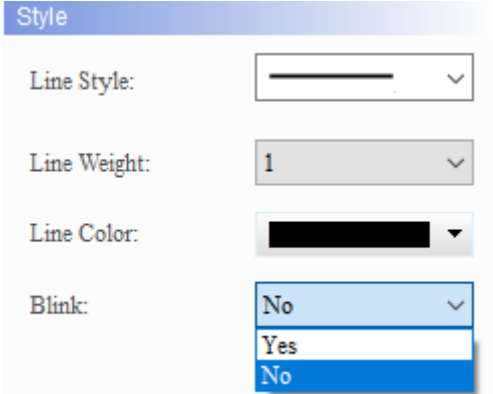


Figure 22.1.2 Main property page for the Line element

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> ■ Available options are internal memory and controller register address. ■ When Variable Position is set to Yes, the value of the Read Address is regarded as the X coordinate for the starting point of the dynamic Line. ■ When Variable Position is set to Yes, the value of [Read Address+1] is regarded as the Y coordinate for the starting point of the dynamic Line. ■ When Variable Position is set to Yes, the value of [Read Address+2] is regarded as the X coordinate for the ending point of the dynamic Line. ■ When Variable Position is set to Yes, the value of [Read Address+3] is regarded as the Y coordinate for the ending point of the dynamic Line. ■ When Variable Color is set to Yes, the value of [Read Address+4] is regarded as the color for the dynamic Line. Its value ranges from 0 to 65535. ■ When Blink is set to Yes, the value of [Read Address+5] determines whether the dynamic Line blinks or not. When its value is greater than 1, the dynamic Line element is displayed as blinking; when the value is 0, it does not blink. <div style="display: flex; justify-content: space-around; margin: 10px 0;"> <div style="border: 1px solid black; padding: 2px 5px; display: inline-block;">V</div> Variable Position <div style="border: 1px solid black; padding: 2px 5px; display: inline-block;">V</div> Variable Color <div style="border: 1px solid black; padding: 2px 5px; display: inline-block;">V</div> Blink </div> <div style="margin-top: 20px;">  <p>The diagram shows a vertical sequence of six boxes labeled N, N+1, N+2, N+3, N+4, and N+5. Lines connect these boxes to descriptive text on the right:</p> <ul style="list-style-type: none"> N: X coordinate for the starting point of the line N+1: Y coordinate for the starting point of the line N+2: X coordinate for the ending point of the line N+3: Y coordinate for the ending point of the line N+4: Line color N+5: Line blinks or not </div> <ul style="list-style-type: none"> ■ Select Link Name or Device Type. Refer to Chapter 5 Buttons for details.
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(2)	Data Format	<p>There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal.</p>  <p>The screenshot shows a 'Detail' window with a dropdown menu for 'Data Format'. The menu is open, showing four options: 'Unsigned Decimal' (selected), 'BCD', 'Signed Decimal', and 'Hexadecimal'. Below it, 'Variable Position' is set to 'Unsigned Decimal' and 'Variable Color' is set to 'No'.</p>

22

No.	Property	Function description
(3)	Variable Position	<p>You can select Yes or No for Variable Position. When you select Yes, the position of the dynamic Line can be changed; when you select No, the dynamic Line element cannot be moved.</p> 
(4)	Variable Color	<p>You can select Yes or No for Variable Color. When you select Yes, the color of the dynamic Line can be changed; when you select No, the color of the dynamic Line cannot be changed. Its value ranges from 0 to 65535.</p> 
(5)	Line Style	<p>The following seven types of line styles are available for selection.</p> 
(6)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 

No.	Property	Function description
(7)	Line Color	<p>You can set the line color for the element.</p> 
(8)	Blink	<p>You can select Yes or No for Blink. When you select Yes, the dynamic Line can be displayed as blinking. When the value of the corresponding Read Address is greater than 1, the dynamic Line is displayed as blinking; when the value is 0, it does not blink. When you select No, the dynamic Line does not blink.</p> 

22

■ Main-2

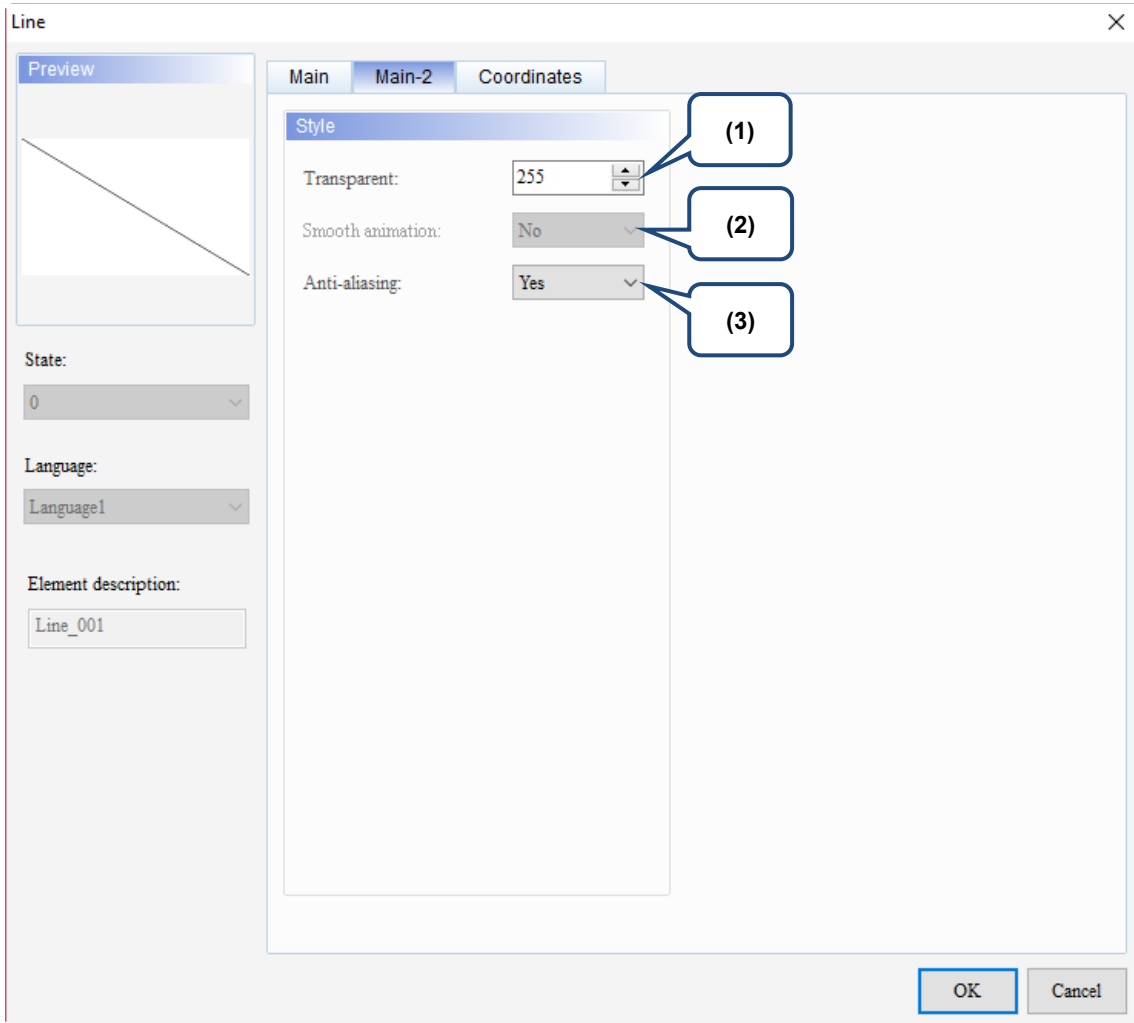
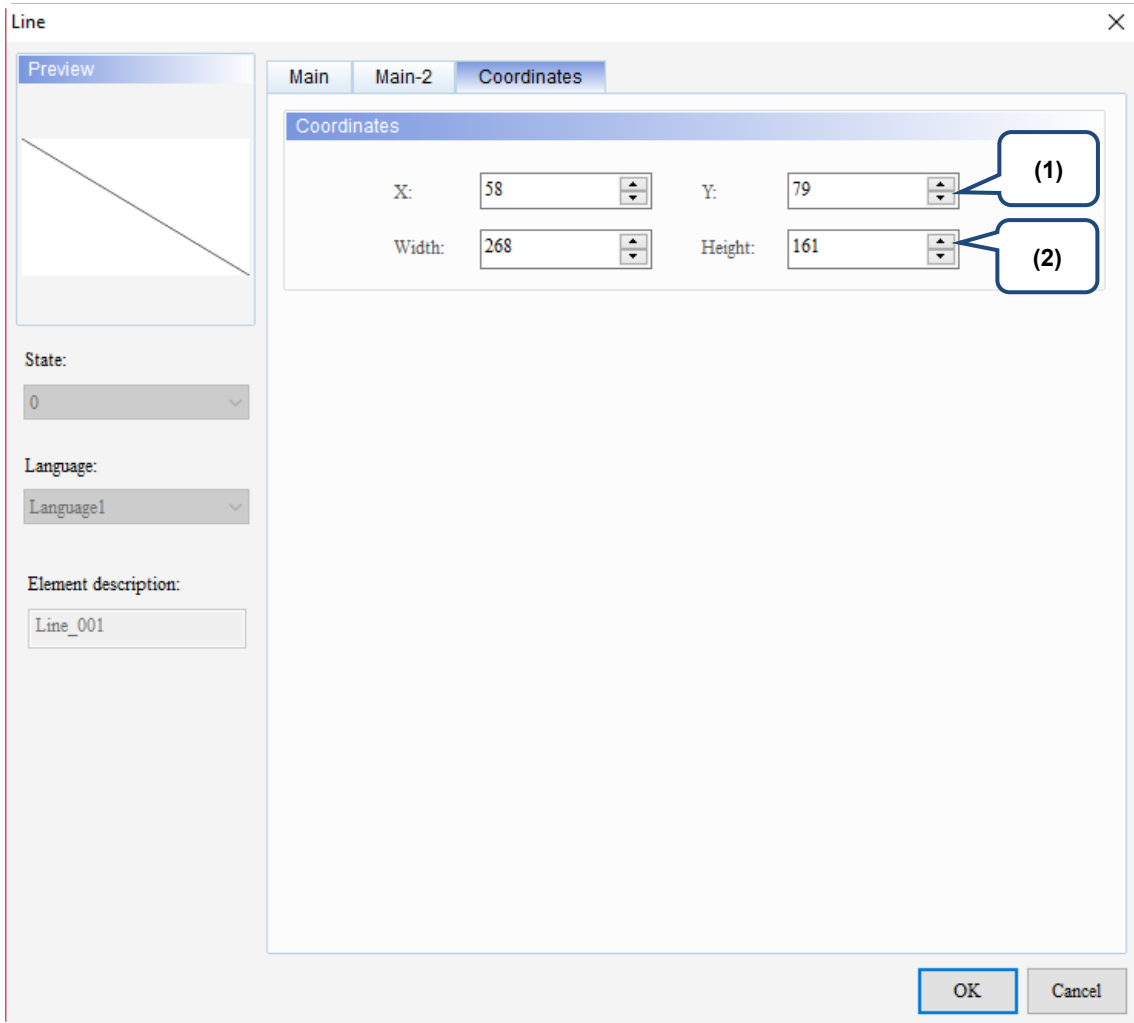


Figure 22.1.3 Main-2 property page for the Line element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td style="background-color: #cccccc;">Yes</td> <td></td> </tr> <tr> <td style="background-color: #cccccc;">No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Coordinates



22

Figure 22.1.4 Coordinates property page for the Line element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

22

22.2 Rectangle

Apart from drawing rectangular graphs, the Rectangle element allows you to import graphs from the Picture Bank. The Invisible Address function is also provided by this element for covering the entire editing screen with a Rectangle element, and after you triggered this Invisible Address, the editing screen under the Rectangle element is displayed. In addition, you can use the set Read Address to control the moving position, color, size, and blinking of the rectangle.

When you double-click the Rectangle, the property page is shown as follows.

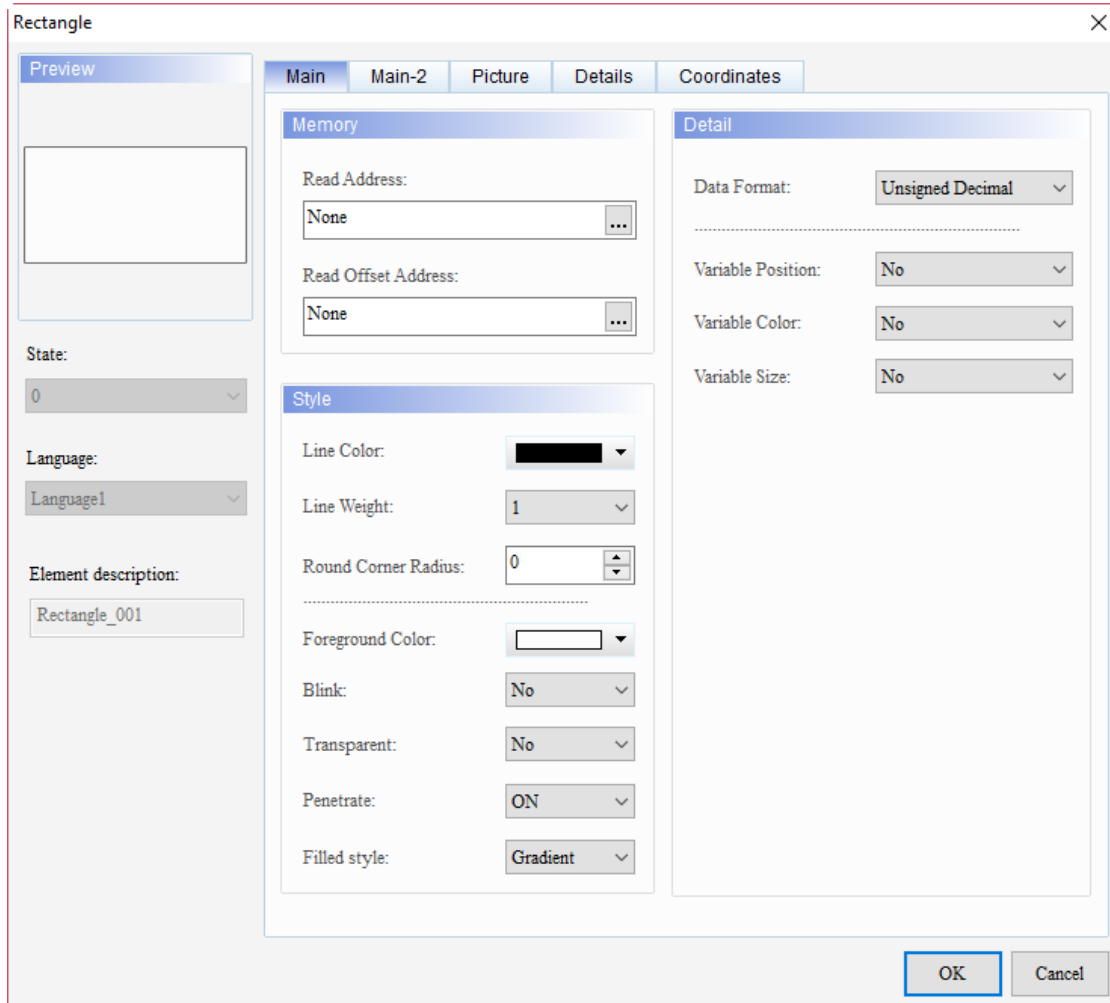
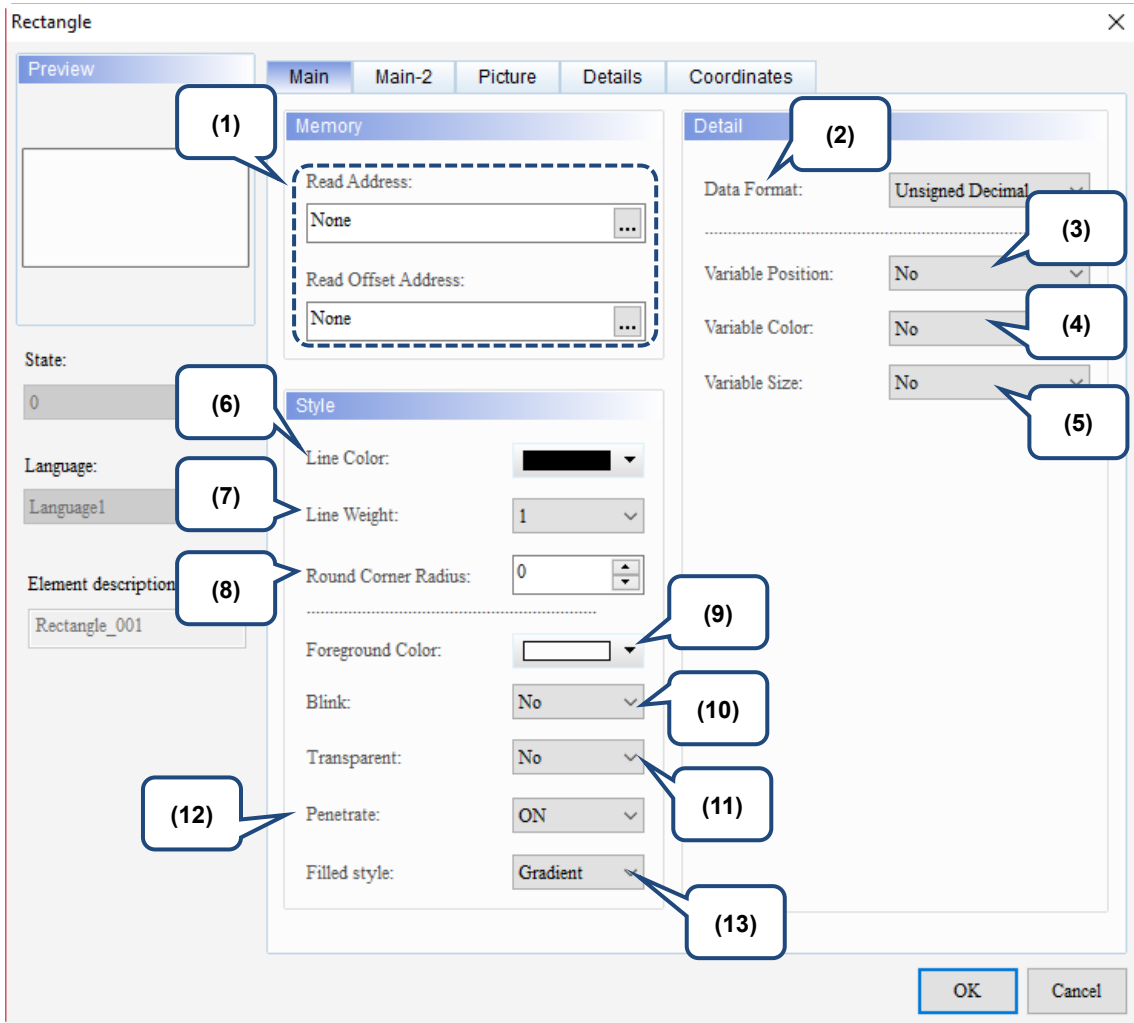


Figure 22.2.1 Properties of Rectangle

Table 22.2.1 Function page of the Rectangle element

Rectangle	
Function page	Description
Preview	The Rectangle element does not support multiple state values and multi-language display.
Main	Set the Read Address, Read Offset Address, Line Color, Line Weight, Round Corner Radius, Foreground Color, Blink, Transparent, Penetrate, and Filled style. Set the Data Format, Variable Position, Variable Color, and Variable Size.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Picture	Set the Picture Bank Name, Alignment, Stretch Mode, and Transparent Color.
Details	Set the Invisible Address.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

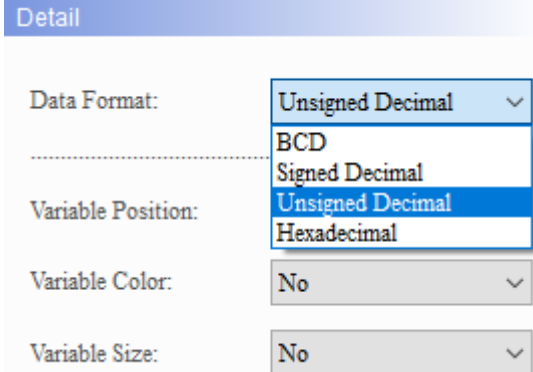
■ Main

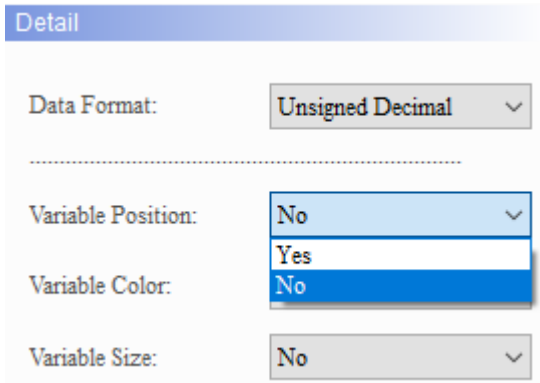
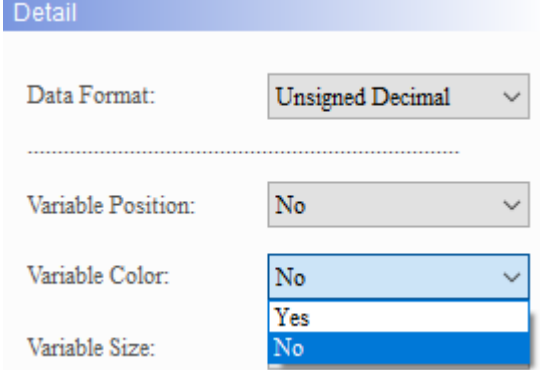
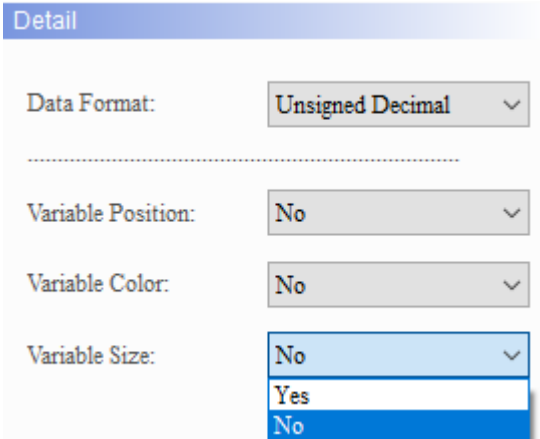


22

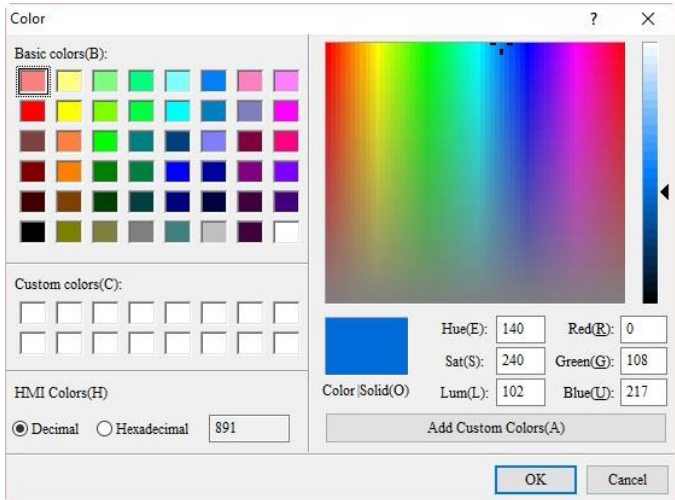
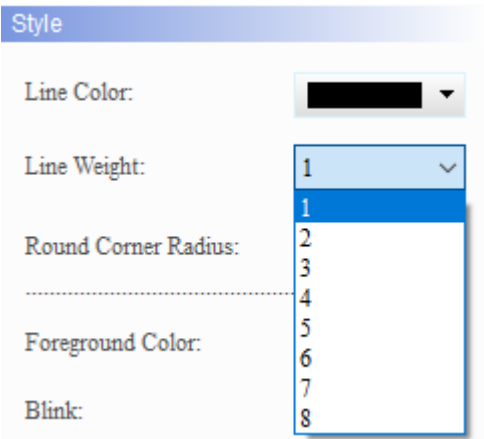
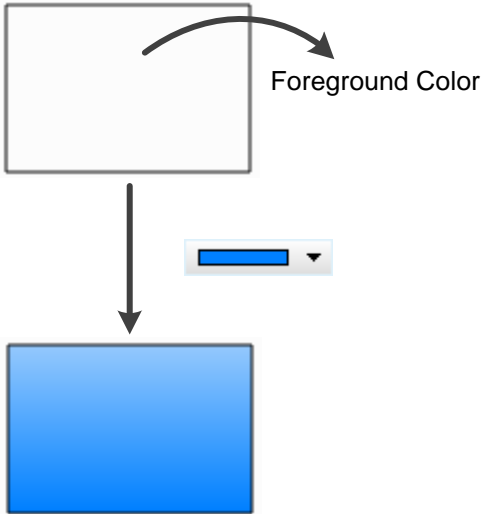
Figure 22.2.2 Main property page for the Rectangle element

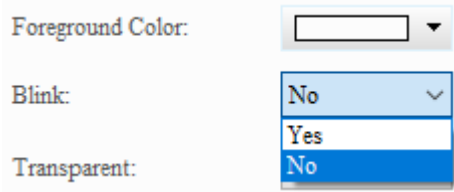
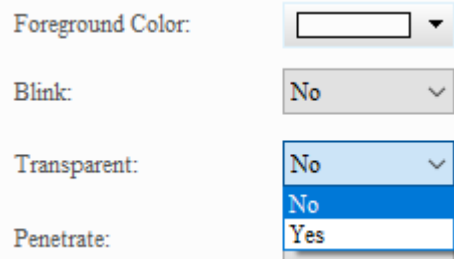
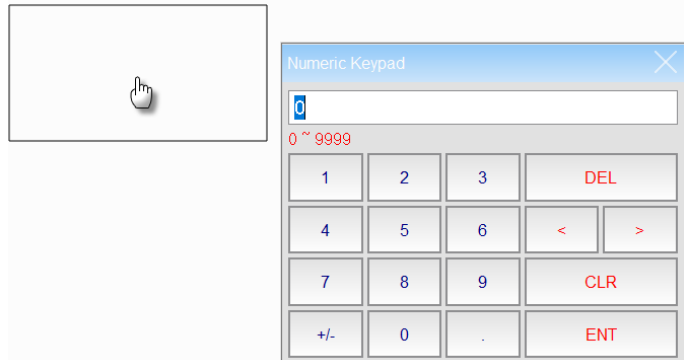
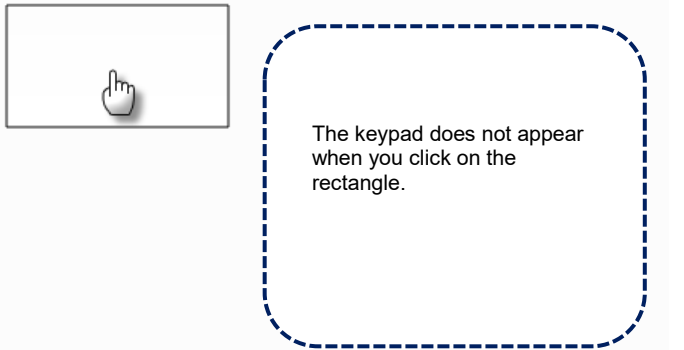
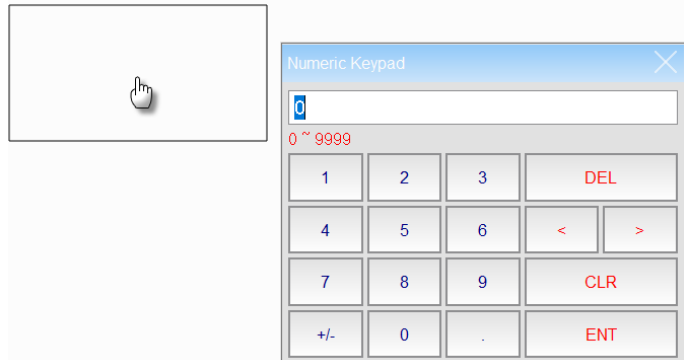
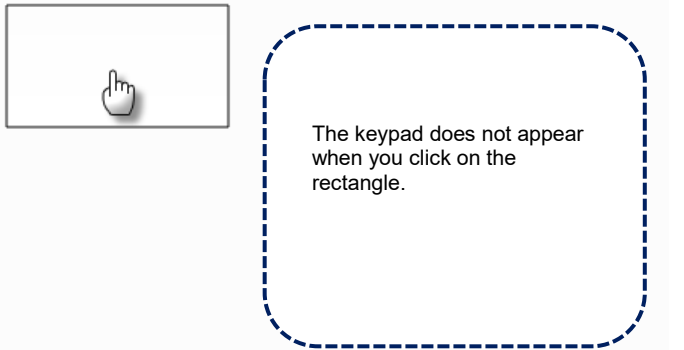
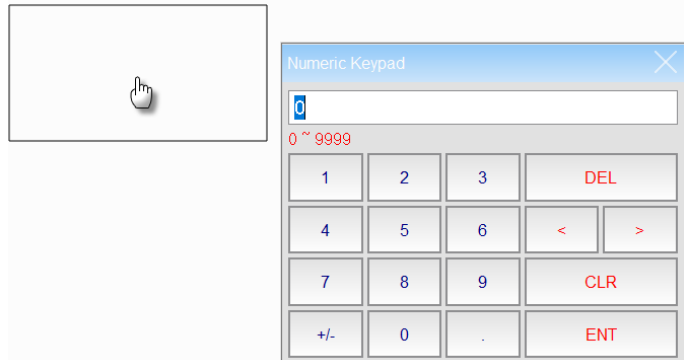
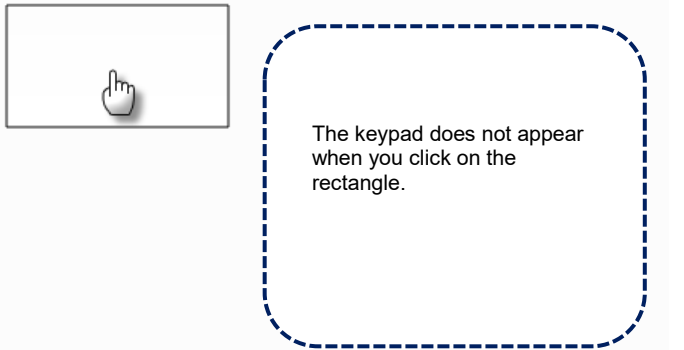
22

No.	Property	Function description																								
(1)	Read Address	<ul style="list-style-type: none"> ■ Available options are internal memory and controller register address. ■ When Variable Position is set to Yes, the value of the Read Address is regarded as the X coordinate of the horizontal axis for the upper left corner of the dynamic Rectangle. ■ When Variable Position is set to Yes, the value of [Read Address+1] is regarded as the Y coordinate of the vertical axis for the upper left corner of the dynamic Rectangle. ■ When Variable Size is set to Yes, the value of [Read Address+2] is regarded as the width for the dynamic Rectangle. ■ When Variable Size is set to Yes, the value of [Read Address+3] is regarded as the height for the dynamic Rectangle. ■ When Variable Color is set to Yes, the value of [Read Address+4] is regarded as the color for the dynamic Rectangle. Its value ranges from 0 to 65535. ■ When Blink is set to Yes, the value of [Read Address+5] determines whether the dynamic Rectangle blinks or not. When its value is greater than 1, the dynamic Rectangle element is displayed as blinking; when the value is 0, it does not blink. ■ Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. ■ When Variable Position is set to No, the corresponding memory addresses are automatically filled in. <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <input checked="" type="checkbox"/> Variable Position <input checked="" type="checkbox"/> Variable Color <input checked="" type="checkbox"/> Variable Size <input checked="" type="checkbox"/> Blink </div> <div style="text-align: center;"> <input type="checkbox"/> Variable Position <input checked="" type="checkbox"/> Variable Color <input checked="" type="checkbox"/> Variable Size <input checked="" type="checkbox"/> Blink </div> </div> <div style="margin-top: 10px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 50px; text-align: center; padding: 5px;">N</td> <td style="border: 1px solid black; padding: 5px;">X coordinate of the horizontal axis for the upper left corner of the Rectangle</td> <td style="border: 1px solid black; width: 50px; text-align: center; padding: 5px;">N</td> <td style="border: 1px solid black; padding: 5px;">X coordinate of the horizontal axis for the lower right corner of the Rectangle</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; padding: 5px;">N+1</td> <td style="border: 1px solid black; padding: 5px;">Y coordinate of the vertical axis for the upper left corner of the Rectangle</td> <td style="border: 1px solid black; text-align: center; padding: 5px;">N+1</td> <td style="border: 1px solid black; padding: 5px;">Y coordinate of the vertical axis for the lower right corner of the Rectangle</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; padding: 5px;">N+2</td> <td style="border: 1px solid black; padding: 5px;">X coordinate of the horizontal axis for the lower right corner of the Rectangle</td> <td style="border: 1px solid black; text-align: center; padding: 5px;">N+2</td> <td style="border: 1px solid black; padding: 5px;">Foreground Color of the Rectangle</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; padding: 5px;">N+3</td> <td style="border: 1px solid black; padding: 5px;">Y coordinate of the vertical axis for the lower right corner of the Rectangle</td> <td style="border: 1px solid black; text-align: center; padding: 5px;">N+3</td> <td style="border: 1px solid black; padding: 5px;">Rectangle blinks or not</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; padding: 5px;">N+4</td> <td style="border: 1px solid black; padding: 5px;">Rectangle color</td> <td></td> <td></td> </tr> <tr> <td style="border: 1px solid black; text-align: center; padding: 5px;">N+5</td> <td style="border: 1px solid black; padding: 5px;">Rectangle blinks or not</td> <td></td> <td></td> </tr> </table> </div>	N	X coordinate of the horizontal axis for the upper left corner of the Rectangle	N	X coordinate of the horizontal axis for the lower right corner of the Rectangle	N+1	Y coordinate of the vertical axis for the upper left corner of the Rectangle	N+1	Y coordinate of the vertical axis for the lower right corner of the Rectangle	N+2	X coordinate of the horizontal axis for the lower right corner of the Rectangle	N+2	Foreground Color of the Rectangle	N+3	Y coordinate of the vertical axis for the lower right corner of the Rectangle	N+3	Rectangle blinks or not	N+4	Rectangle color			N+5	Rectangle blinks or not		
N	X coordinate of the horizontal axis for the upper left corner of the Rectangle	N	X coordinate of the horizontal axis for the lower right corner of the Rectangle																							
N+1	Y coordinate of the vertical axis for the upper left corner of the Rectangle	N+1	Y coordinate of the vertical axis for the lower right corner of the Rectangle																							
N+2	X coordinate of the horizontal axis for the lower right corner of the Rectangle	N+2	Foreground Color of the Rectangle																							
N+3	Y coordinate of the vertical axis for the lower right corner of the Rectangle	N+3	Rectangle blinks or not																							
N+4	Rectangle color																									
N+5	Rectangle blinks or not																									
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.																								
(2)	Data Format	<p>There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal.</p> 																								



No.	Property	Function description
(3)	Variable Position	<p>You can select Yes or No for Variable Position. When you select Yes, the position of the dynamic Rectangle can be changed; when you select No, though the dynamic Rectangle element cannot be moved, the size of the Rectangle element can still be changed.</p> 
(4)	Variable Color	<p>You can select Yes or No for Variable Color. When you select Yes, the color of the dynamic Rectangle can be changed; when you select No, the color of the dynamic Rectangle cannot be changed. Its value ranges from 0 to 65535.</p> 
(5)	Variable Size	<p>You can select Yes or No for Variable Size. When you select Yes, you can change the size of the dynamic Rectangle element by changing its coordinates at the lower right corner; when you select No, the size of the Rectangle element cannot be changed.</p> 

22

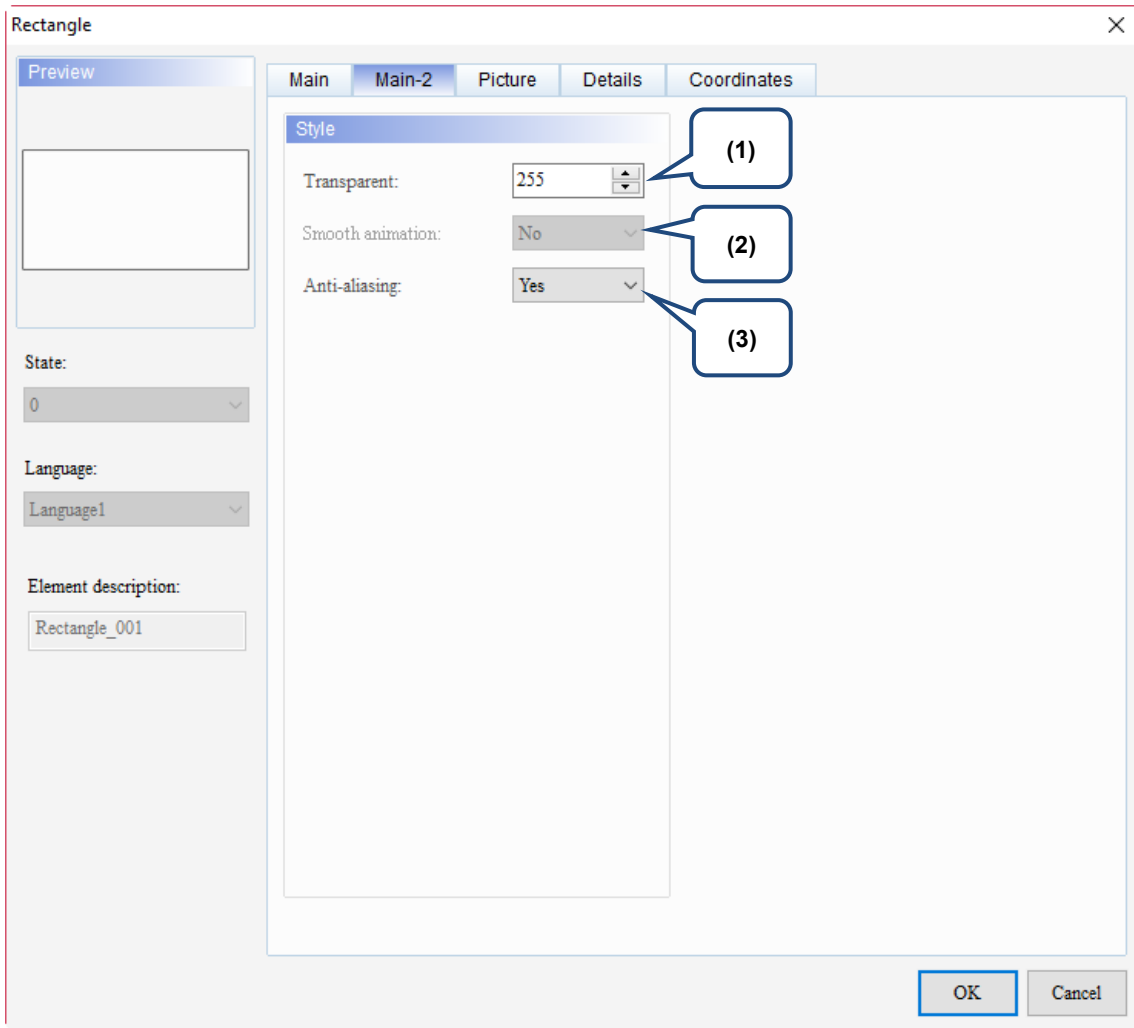
No.	Property	Function description
(6)	Line Color	<p>You can set the line color for the element.</p> 
(7)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 
(8)	Round Corner Radius	<p>The size of this radius is determined by the width and height of the Rectangle element. Take the smaller value among width/2 and height/2 of the Rectangle element. This is the maximum value that can be set for the radius.</p>
(9)	Foreground Color	<p>Set the Foreground Color of the element.</p> 

No.	Property	Function description				
(10)	Blink	<p>You can select Yes or No for Blink. When you select Yes, the dynamic Rectangle can be displayed as blinking. When the value of the corresponding Read Address is greater than 1, the dynamic Rectangle is displayed as blinking; when the value is 0, it does not blink. When you select No, the dynamic Rectangle does not blink.</p> 				
(11)	Transparent	<p>You can select Yes or No for Transparent. When you select Yes, the dynamic Rectangle element displays only the rectangle border line with the middle shown in transparent color; when you select No, the foreground color of the element is displayed.</p> 				
(12)	Penetrate	<ul style="list-style-type: none"> When an element overlaps with the Rectangle, this function allows you to click on that element. Refer to the following example. Create a Numeric Entry element and then create a Rectangle element that overlaps on top of the Numeric Entry element. <table border="1"> <tr> <td> <p>Penetrate is ON</p> </td> <td> <p>You can click on the Numeric Entry element under the rectangle.</p>  </td> </tr> <tr> <td> <p>Penetrate is OFF</p> </td> <td> <p>You cannot click on the Numeric Entry element under the rectangle.</p>  <p>The keypad does not appear when you click on the rectangle.</p> </td> </tr> </table>	<p>Penetrate is ON</p>	<p>You can click on the Numeric Entry element under the rectangle.</p> 	<p>Penetrate is OFF</p>	<p>You cannot click on the Numeric Entry element under the rectangle.</p>  <p>The keypad does not appear when you click on the rectangle.</p>
<p>Penetrate is ON</p>	<p>You can click on the Numeric Entry element under the rectangle.</p> 					
<p>Penetrate is OFF</p>	<p>You cannot click on the Numeric Entry element under the rectangle.</p>  <p>The keypad does not appear when you click on the rectangle.</p>					

22

No.	Property	Function description	
(13)	Filled style	The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.	
		Gradient	
		Fixed (Solid)	

■ Main-2



22

Figure 22.2.3 Main-2 property page for the Rectangle element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">Yes</td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;">No</td> <td style="text-align: center;"></td> </tr> </table>	Yes	
Yes				
No				

22

■ Picture

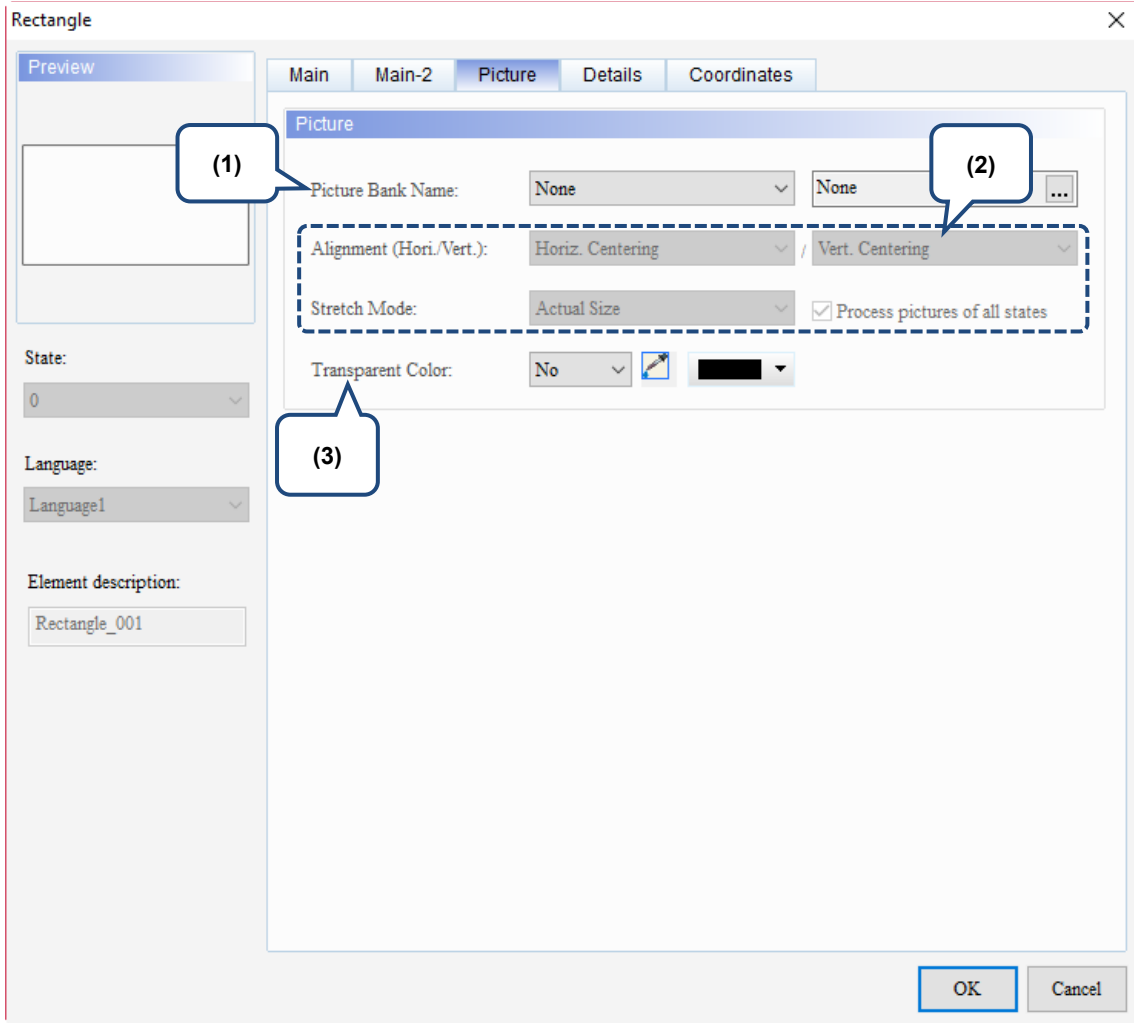
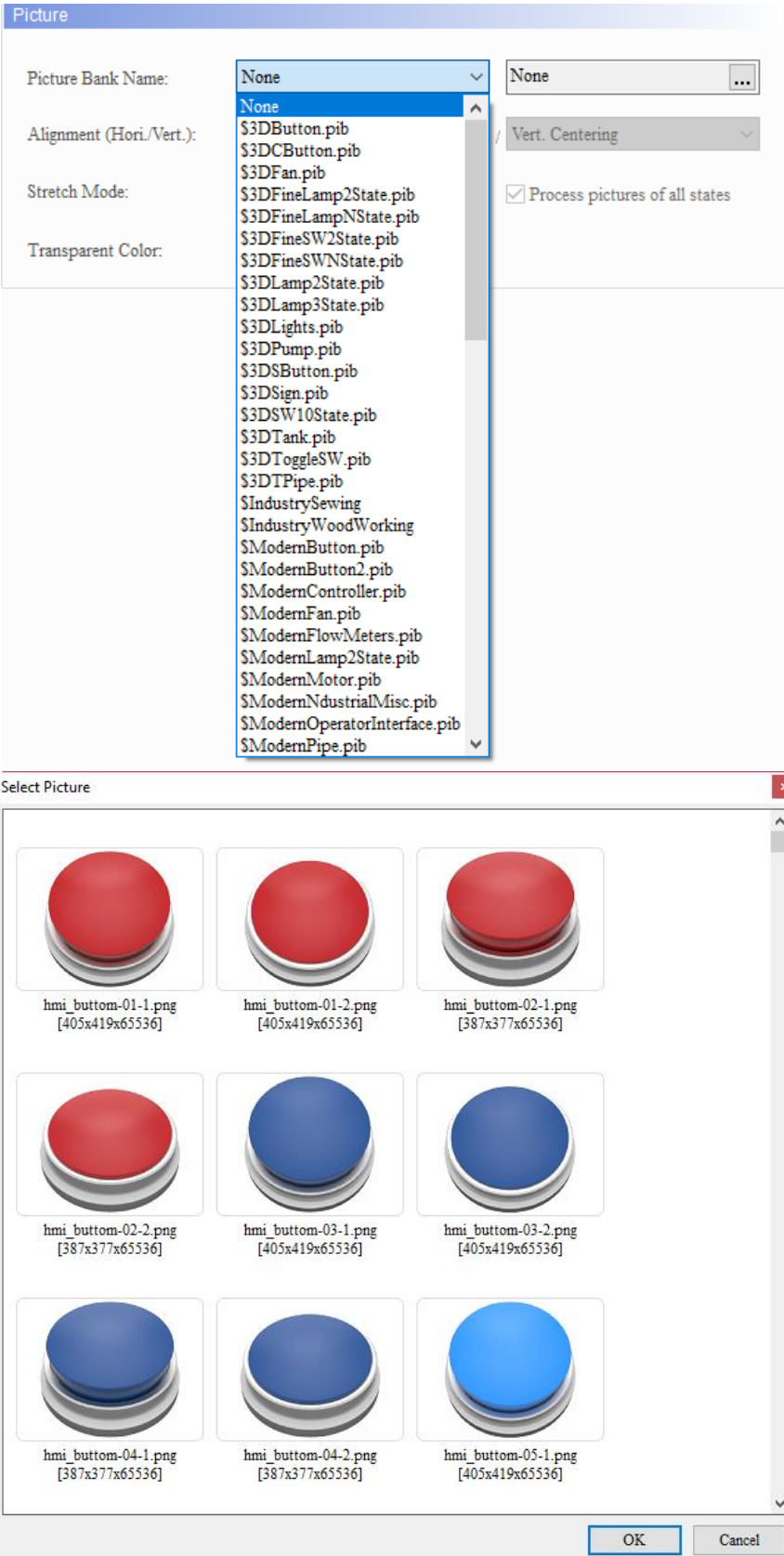
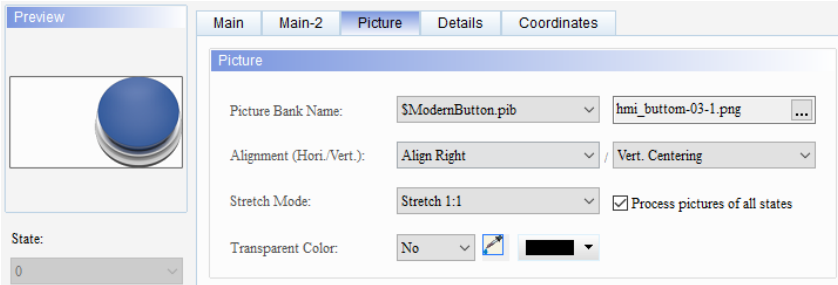













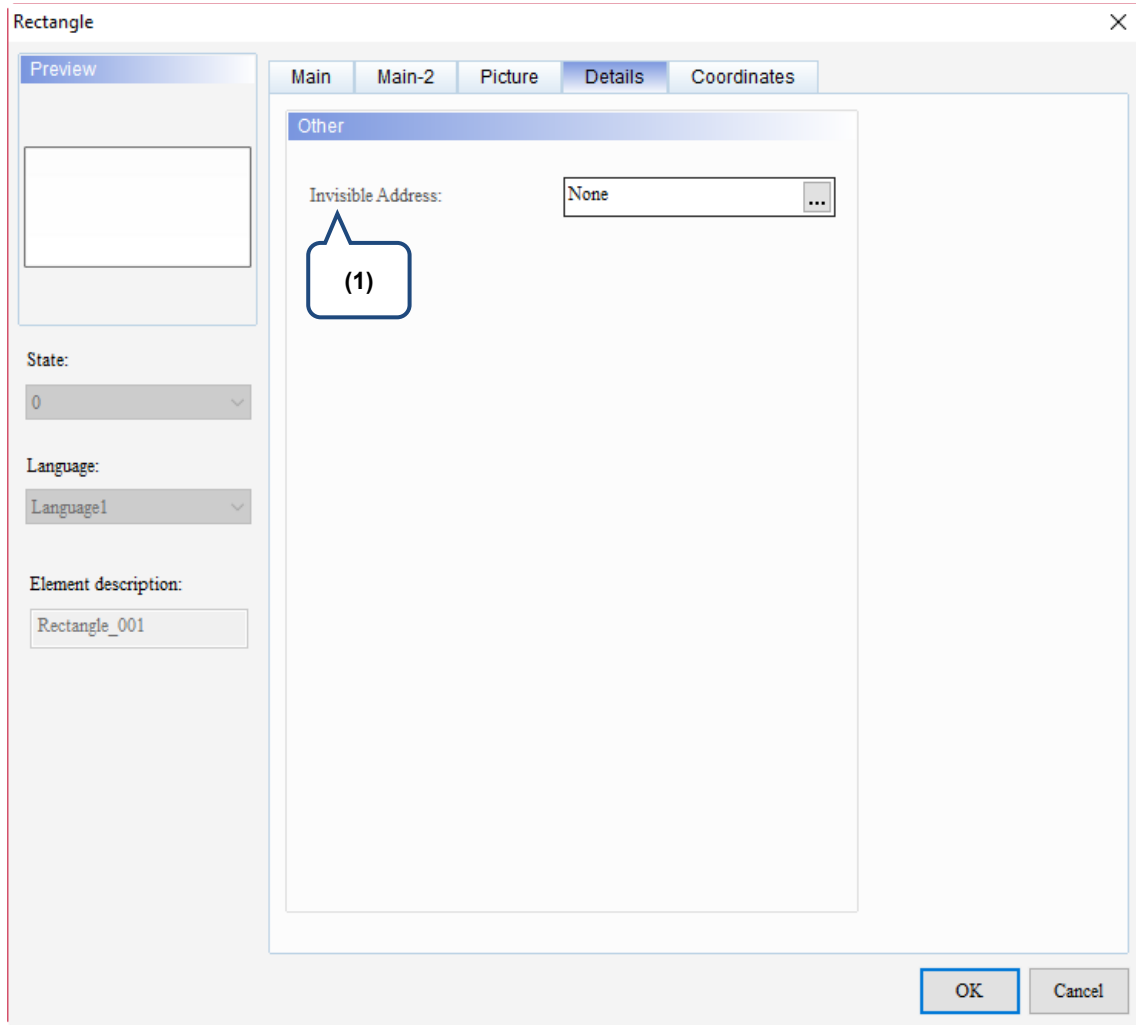
Figure 22.2.4 Picture property page for the Rectangle element

No.	Property	Function description
(1)	Picture Bank Name	<p>The Picture Bank Name default is None. To set the picture display, use the drop-down list box to select the picture bank provided by the software and then select the picture you need.</p>  <p>The 'Picture' dialog box contains the following fields:</p> <ul style="list-style-type: none"> Picture Bank Name: A dropdown menu currently showing 'None'. Alignment (Hori./Vert.): A dropdown menu showing 'Vert. Centering'. Stretch Mode: A dropdown menu. Transparent Color: A dropdown menu. A checkbox labeled 'Process pictures of all states' which is checked. <p>The 'Select Picture' dialog box displays a grid of 12 button images with the following filenames and dimensions:</p> <ul style="list-style-type: none"> hmi_button-01-1.png [405x419x65536] hmi_button-01-2.png [405x419x65536] hmi_button-02-1.png [387x377x65536] hmi_button-02-2.png [387x377x65536] hmi_button-03-1.png [405x419x65536] hmi_button-03-2.png [405x419x65536] hmi_button-04-1.png [387x377x65536] hmi_button-04-2.png [387x377x65536] hmi_button-05-1.png [405x419x65536]

22

No.	Property	Function description								
(2)	Alignment	<ul style="list-style-type: none"> You can use the Alignment options to set how pictures are aligned. 								
	Stretch Mode	<ul style="list-style-type: none"> The Stretch Mode options include Stretch All, Stretch 1:1, and Actual Size. <table border="1"> <thead> <tr> <th>Stretch All</th> <th>Stretch 1:1</th> <th>Actual Size</th> </tr> </thead> <tbody> <tr> <td>If you select Stretch All, the picture fills the full element display area.</td> <td>If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.</td> <td>If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> Assuming that the elements have multiple states and some pictures do not fill the full element display area, if you select the Process pictures of all states check box, you can use this function to process all pictures instead of setting them one by one, which saves the editing time. <p style="text-align: center;"><input checked="" type="checkbox"/> Process pictures of all states</p>	Stretch All	Stretch 1:1	Actual Size	If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.		
Stretch All	Stretch 1:1	Actual Size								
If you select Stretch All, the picture fills the full element display area.	If you select Stretch 1:1, the picture displays in 1:1 size based on the element width and length.	If you select Actual Size, regardless of the element size, the picture displays in its actual size in the element display area.								
										
(3)	Transparent Color	<p>Specify a color in the picture and turn this color into transparent.  is for selecting the transparent color. If you select the white part in the calendar, the software changes the white part into transparent, which becomes identical to the element foreground color.</p> <div style="text-align: center;"> <p>Foreground Color: </p>  </div>								


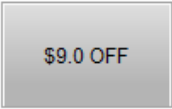
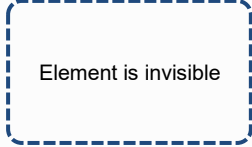
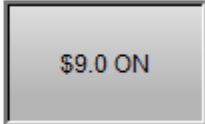

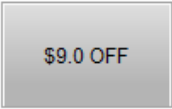
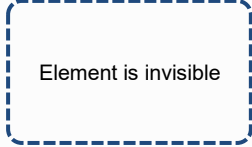
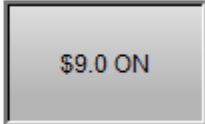

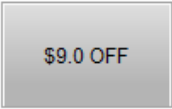
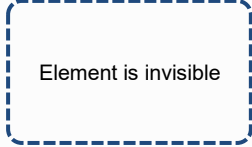
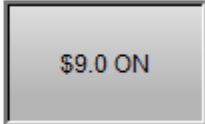
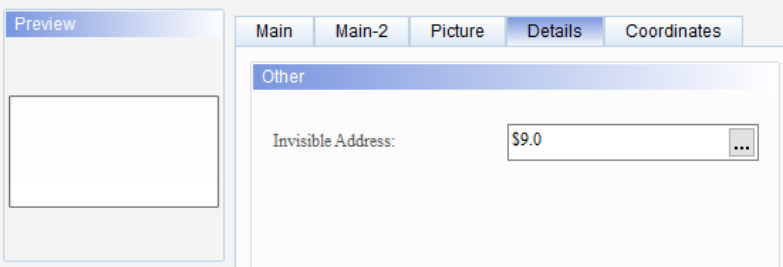
■ Details



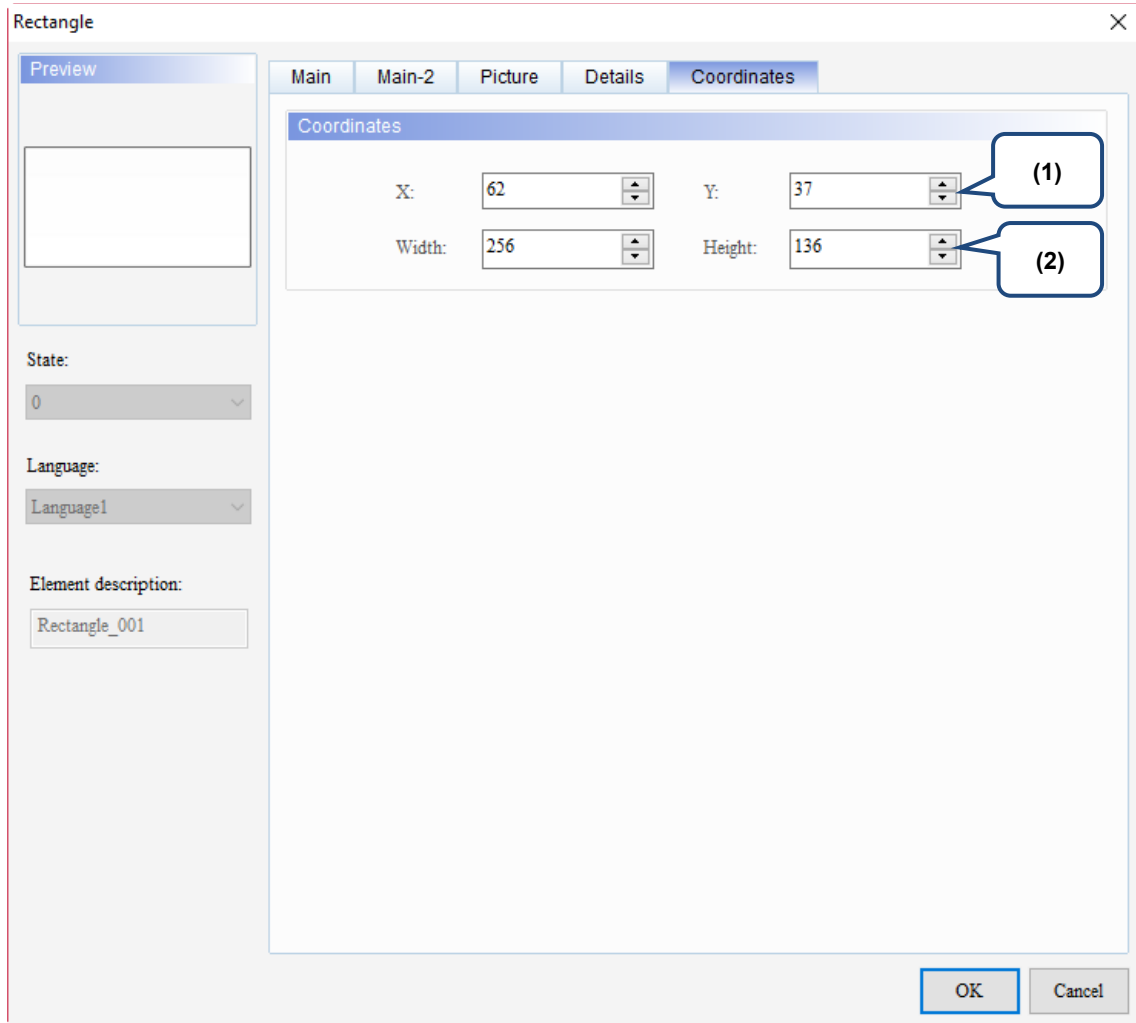
22

Figure 22.2.5 Details property page for the Rectangle element

22

No.	Property	Function description						
(1)	Invisible Address	<p>When Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p> <table border="1"> <tr> <td>Invisible Address is Off</td> <td>  </td> <td>  </td> </tr> <tr> <td>Invisible Address is On</td> <td>  </td> <td>  </td> </tr> </table>	Invisible Address is Off			Invisible Address is On		
		Invisible Address is Off						
Invisible Address is On								
<p>Rectangle</p> 								

■ Coordinates



22

Figure 22.2.6 Coordinates property page for the Rectangle element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

22

22.3 Circle

Press and drag the mouse to form a circle. If the length is equal to the width, the created graph becomes a circle; if not equal, it becomes an oval. You can also use the set Read Address to control the moving position, color, size, and blinking of the circle.

When you double-click the Circle, the property page is shown as follows.

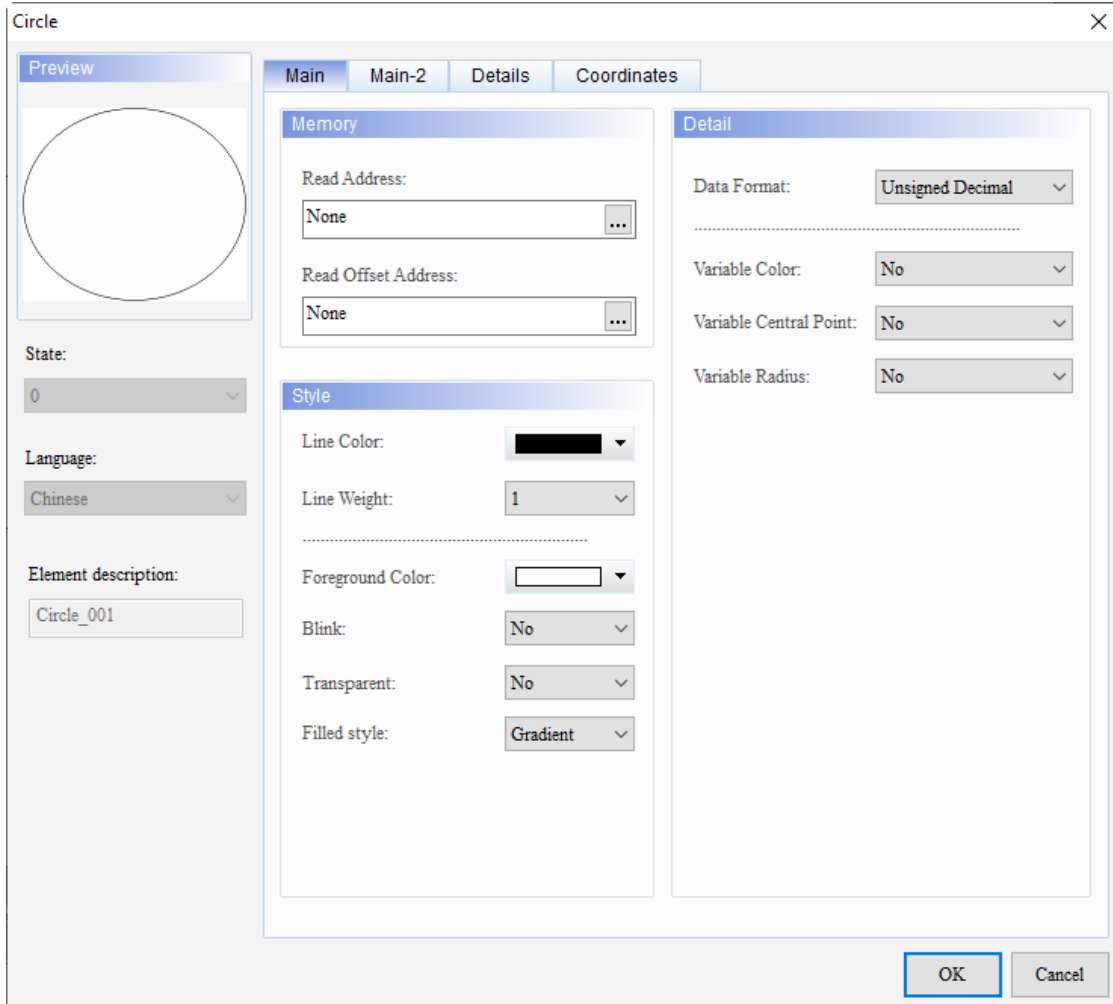
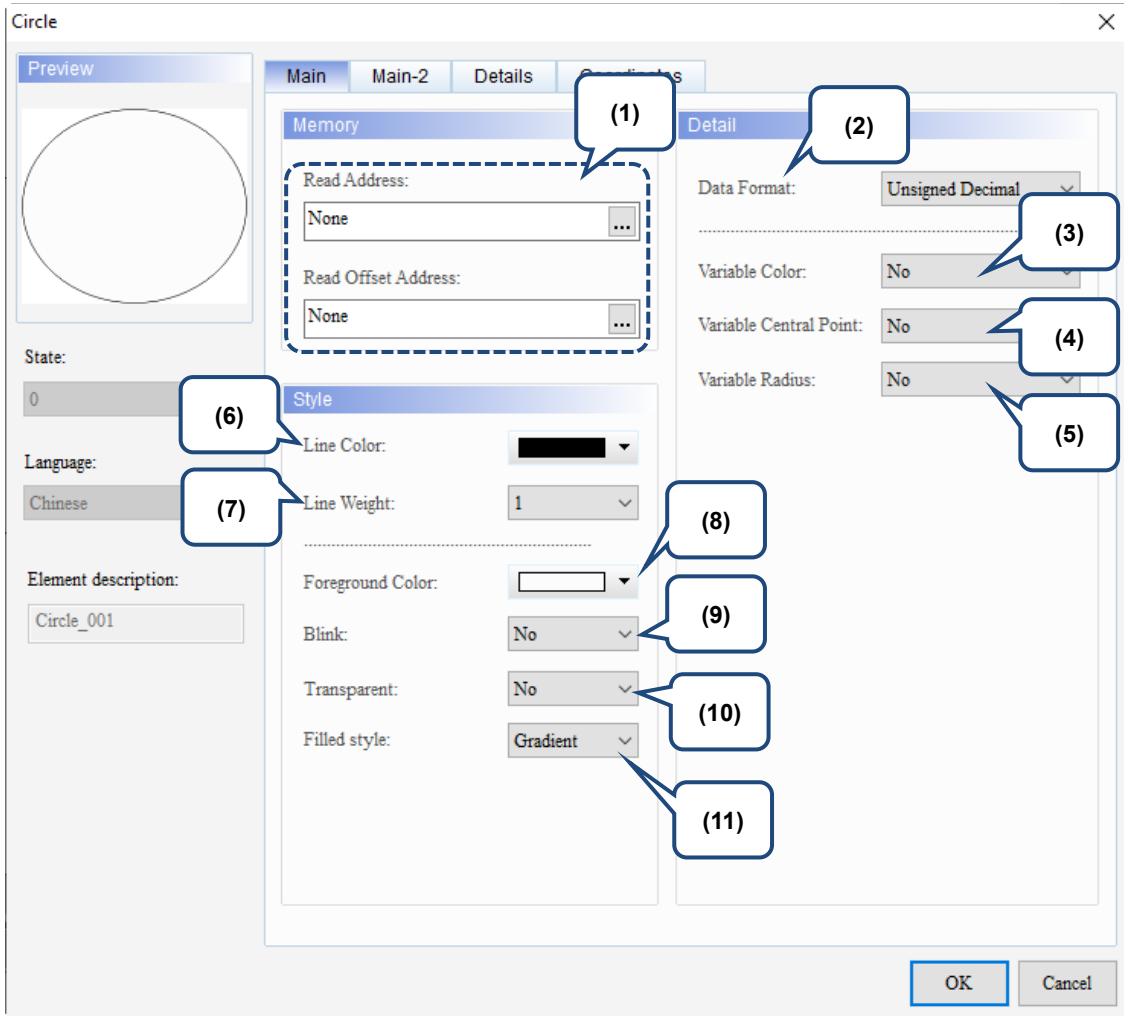


Figure 22.3.1 Properties of Circle

Table 22.3.1 Function page of the Circle element

Circle	
Function page	Description
Preview	The Circle element does not support multiple state values and multi-language display.
Main	Set the Read Address, Read Offset Address, Line Color, Line Weight, Foreground Color, Blink, Transparent, and Filled style. Set the Data Format, Variable Color, Variable Central Point, and Variable Radius.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Details	Set the Invisible Address.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

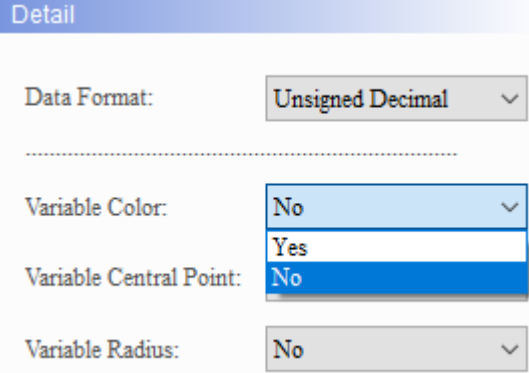
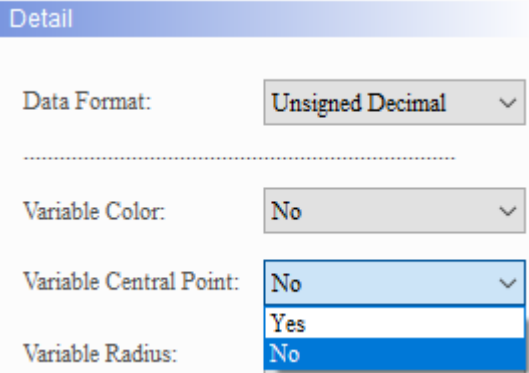
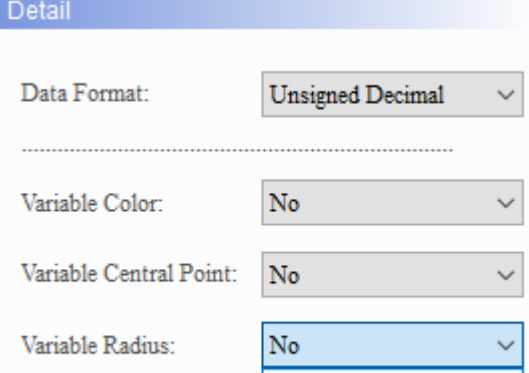


22

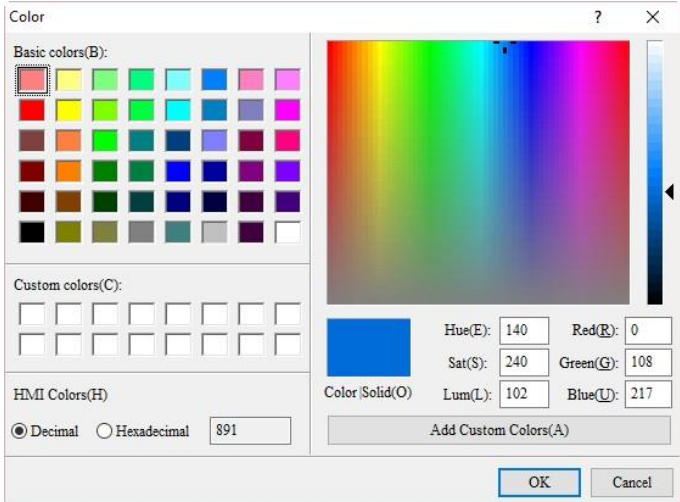
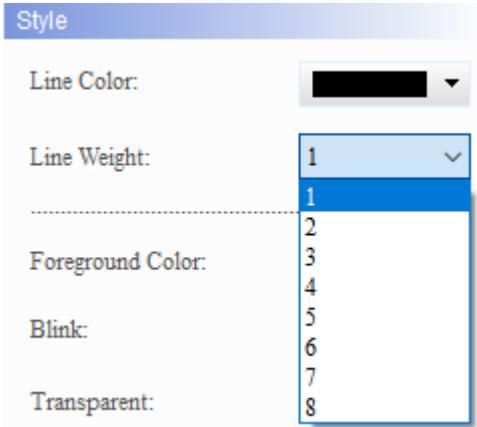
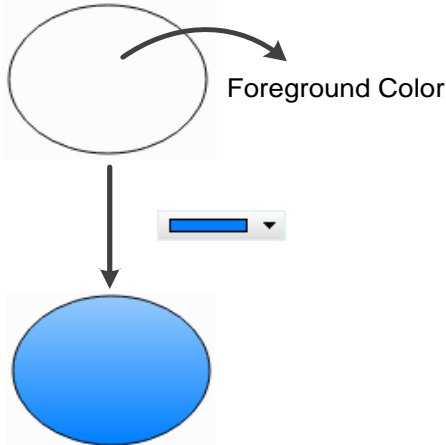
Figure 22.3.2 Main property page for the Circle element

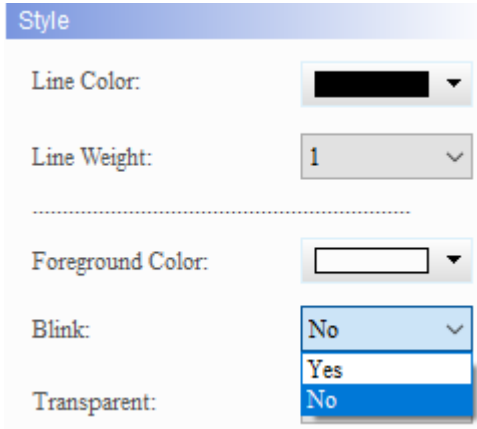
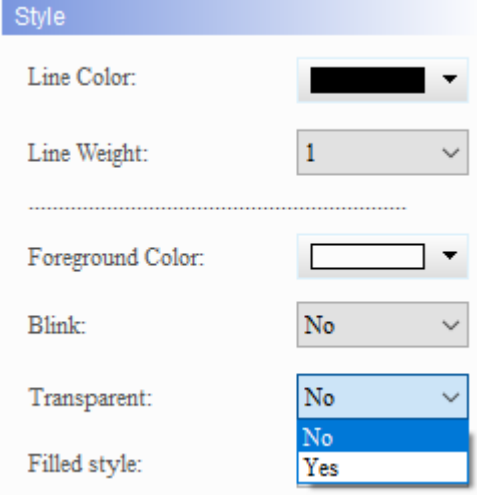
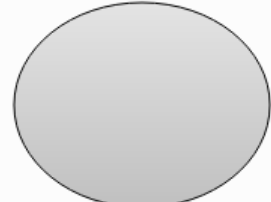
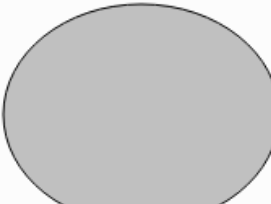
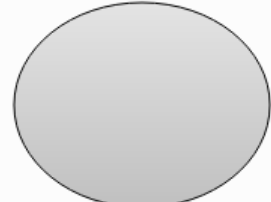
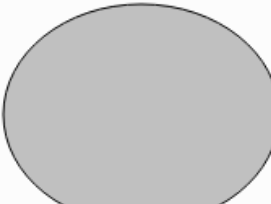
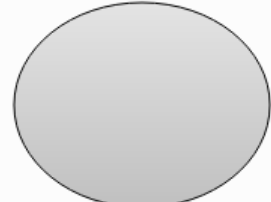
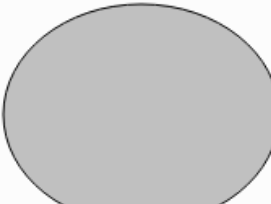
22

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> ■ Available options are internal memory and controller register address. ■ When Variable Central Point is set to Yes, the value of the Read Address is regarded as the X coordinate of the horizontal axis for the center point of the circle. ■ When Variable Central Point is set to Yes, the value of [Read Address+1] is regarded as the Y coordinate of the vertical axis for the center point of the circle. ■ When Variable Radius is set to Yes, the value of [Read Address+2] is regarded as the extension of the horizontal axis for the center point of the circle which is the width. ■ When Variable Radius is set to Yes, the value of [Read Address+3] is regarded as the extension of the vertical axis for the center point of the circle which is the height. ■ When Variable Color is set to Yes, the value of [Read Address+4] is regarded as the color for the Circle. Its value ranges from 0 to 65535. ■ When Blink is set to Yes, the value of [Read Address+5] determines whether the Circle blinks or not. When its value is greater than 1, the Circle element is displayed as blinking; when the value is 0, it does not blink. ■ Select Link Name or Device Type. Refer to Chapter 5 Buttons for details. ■ When Variable Central Point is set to No, the corresponding memory addresses are automatically filled in. <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <input checked="" type="checkbox"/> Variable Central Point <input checked="" type="checkbox"/> Variable Radius </div> <div style="text-align: center;"> <input checked="" type="checkbox"/> Variable Color <input checked="" type="checkbox"/> Blink </div> <div style="text-align: center;"> <input type="checkbox"/> Variable Central Point <input checked="" type="checkbox"/> Variable Radius </div> <div style="text-align: center;"> <input checked="" type="checkbox"/> Variable Color <input checked="" type="checkbox"/> Blink </div> </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">N</div> <p style="font-size: 8px; margin: 2px 0;">X coordinate of the horizontal axis for the center point of the circle</p> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">N+1</div> <p style="font-size: 8px; margin: 2px 0;">Y coordinate of the vertical axis for the center point of the circle</p> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">N+2</div> <p style="font-size: 8px; margin: 2px 0;">Extension of the horizontal axis for the center point of the circle which is the width</p> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">N+3</div> <p style="font-size: 8px; margin: 2px 0;">Extension of the vertical axis for the center point of the circle which is the height</p> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">N+4</div> <p style="font-size: 8px; margin: 2px 0;">Circle color</p> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">N+5</div> <p style="font-size: 8px; margin: 2px 0;">Circle blinks or not</p> </div> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">N</div> <p style="font-size: 8px; margin: 2px 0;">Radius of the horizontal axis for the circle</p> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">N+1</div> <p style="font-size: 8px; margin: 2px 0;">Radius of the vertical axis for the circle</p> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">N+2</div> <p style="font-size: 8px; margin: 2px 0;">Foreground Color of the circle</p> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">N+3</div> <p style="font-size: 8px; margin: 2px 0;">Circle blinks or not</p> </div>

No.	Property	Function description
(3)	Variable Color	<p>You can select Yes or No for Variable Color. When you select Yes, the color of the Circle can be changed; when you select No, the color of the Circle cannot be changed. Its value ranges from 0 to 65535.</p> 
(4)	Variable Central Point	<p>You can select Yes or No for Variable Central Point. When you select Yes, the position of the center point of the circle can be changed; when you select No, though the Circle element cannot be moved, you can extend the size of the Circle element.</p> 
(5)	Variable Radius	<p>You can select Yes or No for Variable Radius. When you select Yes, the size of the Circle element can be extended; when you select No, the size of the Circle element cannot be extended.</p> 

22

No.	Property	Function description
(6)	Line Color	<p>You can set the line color for the element.</p> 
(7)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 
(8)	Foreground Color	<p>Set the foreground color of the element.</p> 

No.	Property	Function description				
(9)	Blink	<p>You can select Yes or No for Blink. When you select Yes, the Circle can be displayed as blinking. When the value of the corresponding Read Address is greater than 1, the Circle element is displayed as blinking; when the value is 0, it does not blink.</p> 				
(10)	Transparent	<p>You can select Yes or No for Transparent. When you select Yes, the Circle element displays only the circle border line with the middle shown in transparent color; when you select No, the foreground color of the element is displayed.</p> 				
(11)	Filled style	<p>The default fill style for the elements on the DOP-100 series models is Gradient. When you open the DOP-B project on a DOP-100 series model, the elements are displayed in solid color, which is the same as opening the project on a DOP-B series model.</p> <table border="1"> <tr> <td>Gradient</td> <td></td> </tr> <tr> <td>Fixed (Solid)</td> <td></td> </tr> </table>	Gradient		Fixed (Solid)	
Gradient						
Fixed (Solid)						

22

■ Main-2

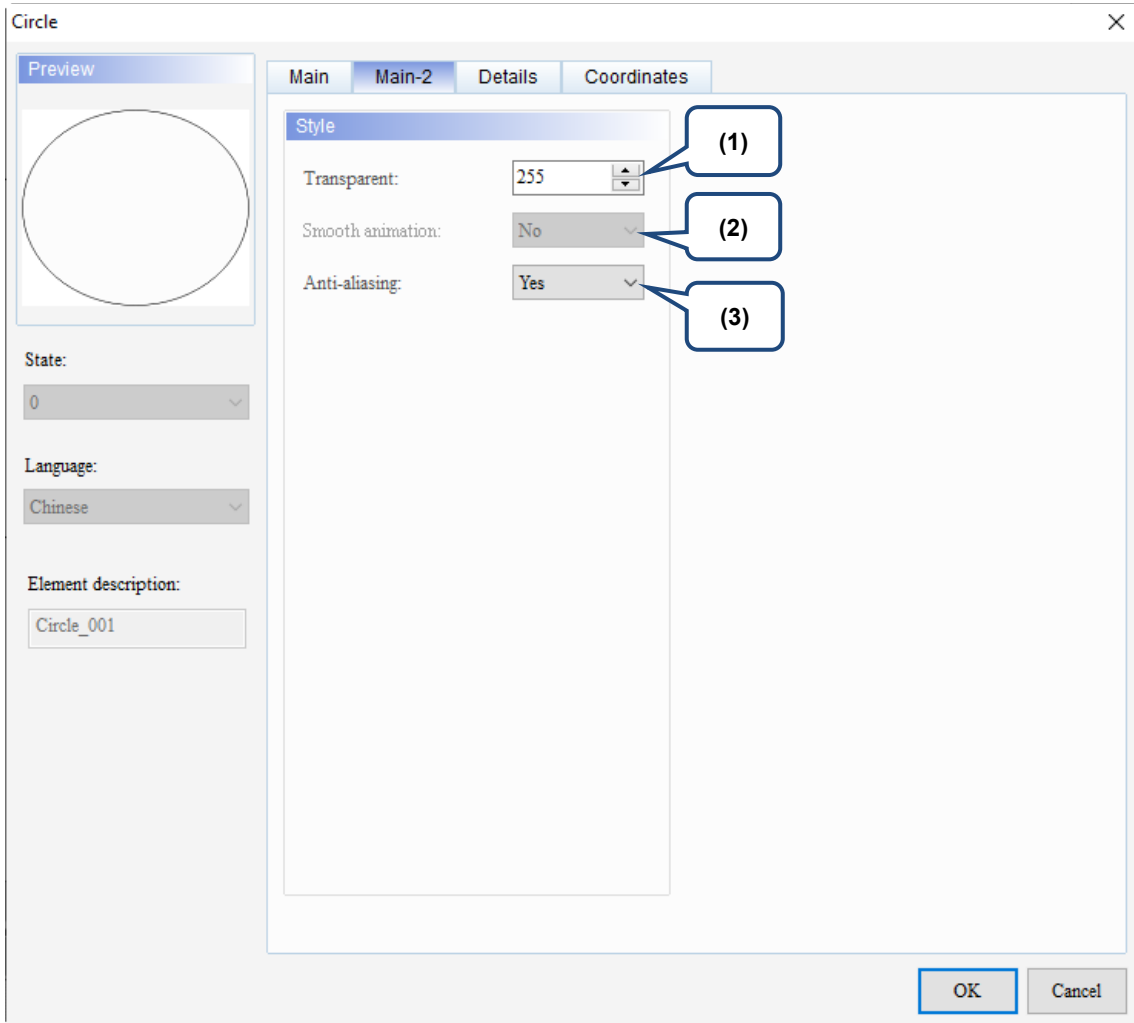
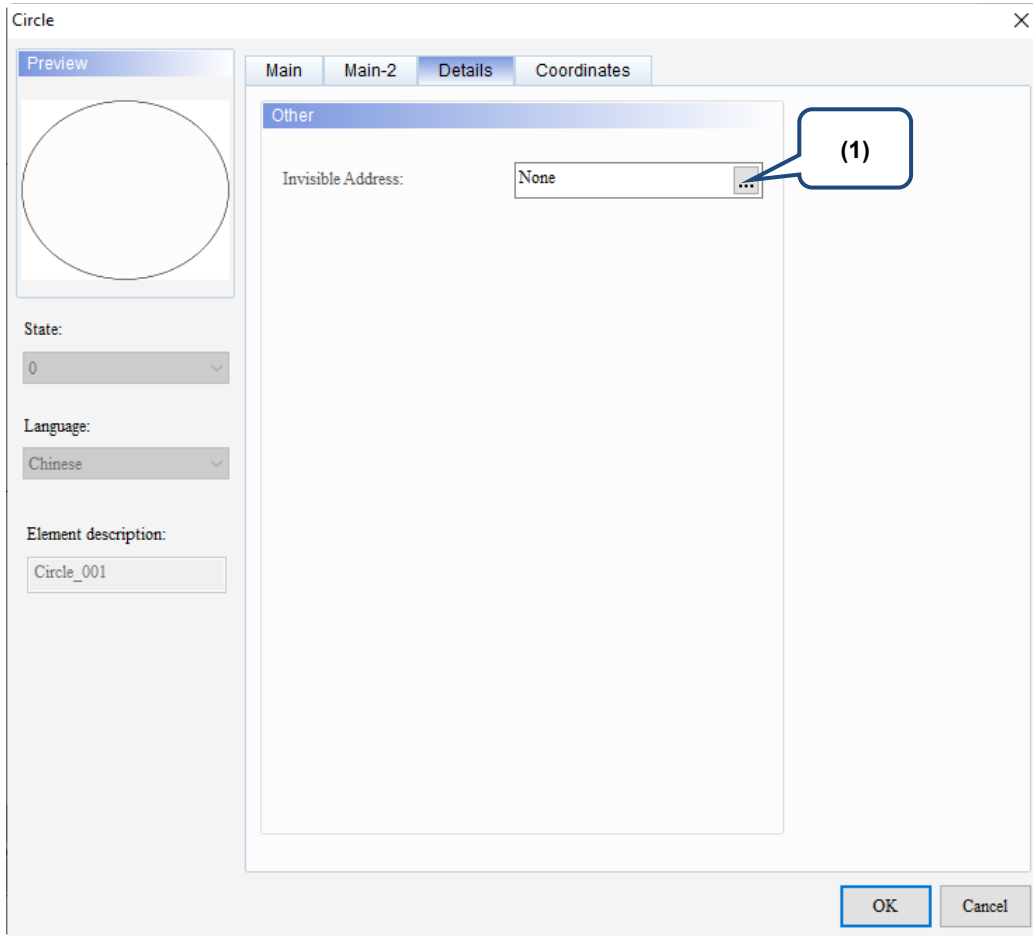


Figure 22.3.3 Main-2 property page for the Circle element

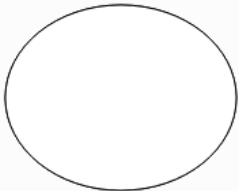
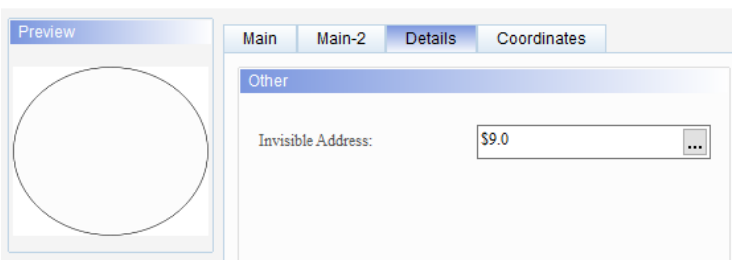
No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td>Yes</td> <td></td> </tr> <tr> <td>No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Details



22

Figure 22.3.4 Details property page for the Circle element

No.	Property	Function description
(1)	Invisible Address	<p>When Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid gray; padding: 5px;">Invisible Address is Off</div> <div style="text-align: center;">  </div> <div style="border: 1px solid gray; padding: 5px;">\$9.0 OFF</div> </div>
		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid gray; padding: 5px;">Invisible Address is On</div> <div style="text-align: center;"> <div style="border: 2px dashed blue; padding: 5px; display: inline-block;">Element is invisible</div> </div> <div style="border: 1px solid gray; padding: 5px;">\$9.0 ON</div> </div>
<p>Circle</p> 		

22

Coordinates

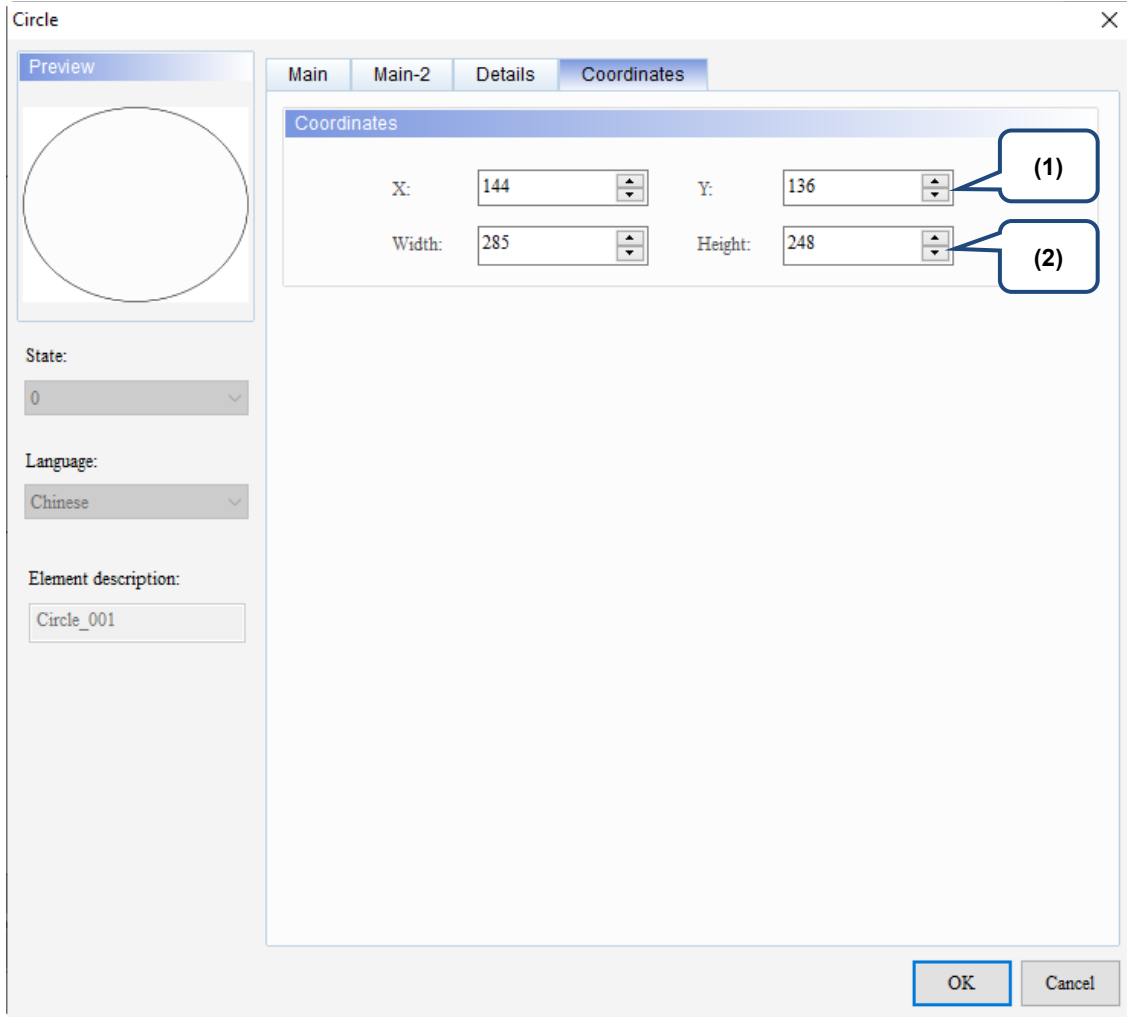


Figure 22.3.5 Coordinates property page for the Circle element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

22.4 Polygon

You can press the left mouse key to set each point for the polygon. When all the points are set, press the right mouse key to form a polygon.

When you double-click the Polygon, the property page is shown as follows.

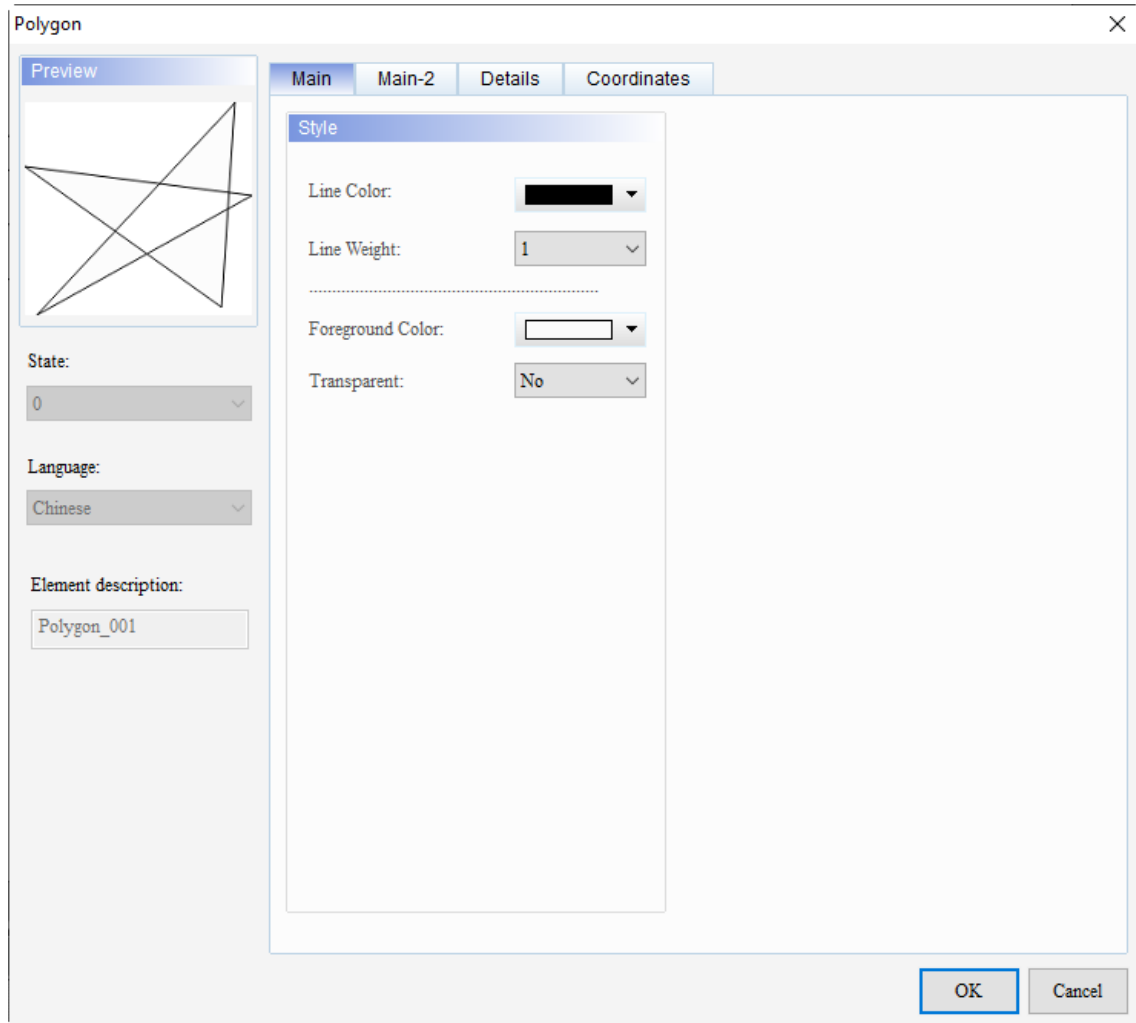


Figure 22.4.1 Properties of Polygon

Table 22.4.1 Function page of the Polygon element

Polygon	
Function page	Description
Preview	The Polygon element does not support multiple state values and multi-language display.
Main	Set the Line Color, Line Weight, Foreground Color, and Transparent.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Details	Set the Invisible Address.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

22

■ Main

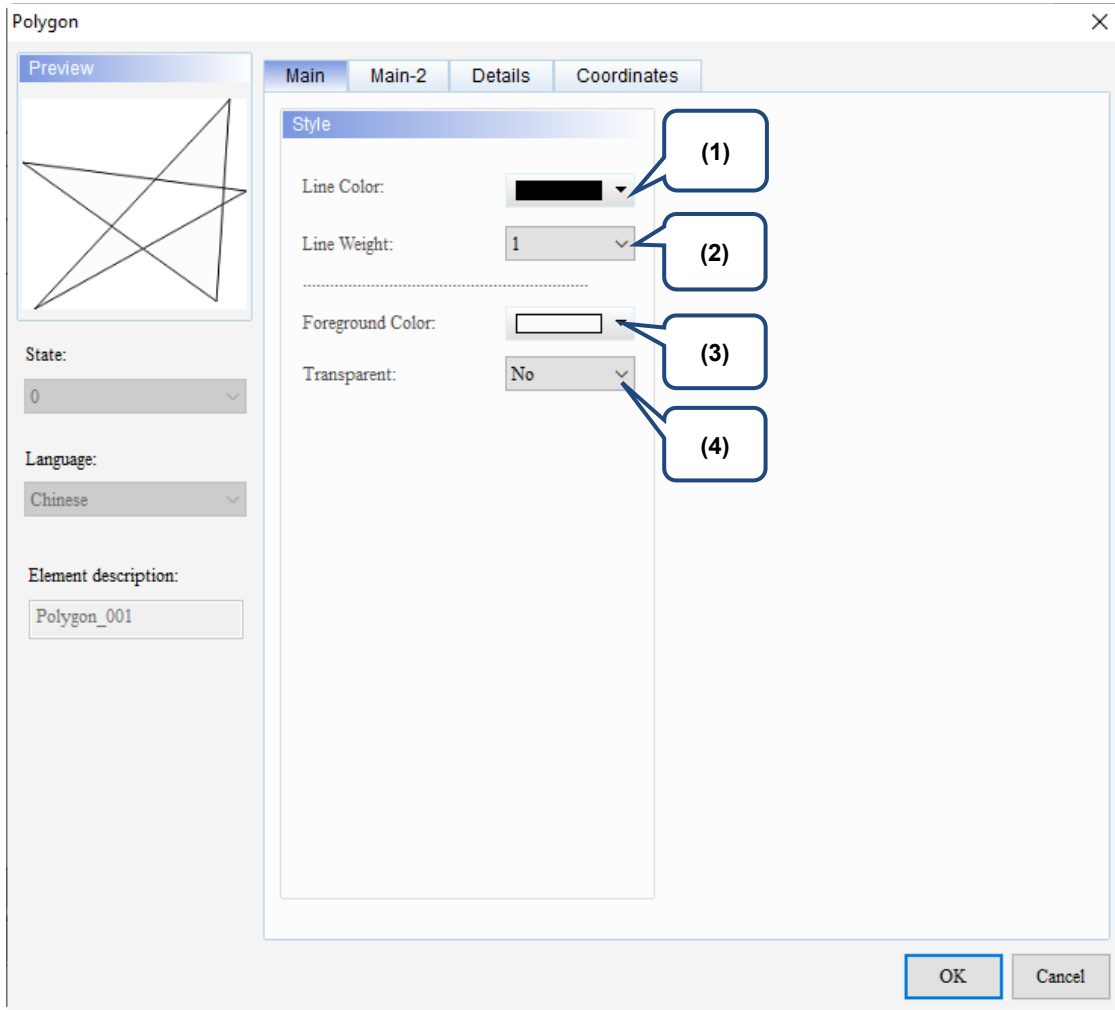
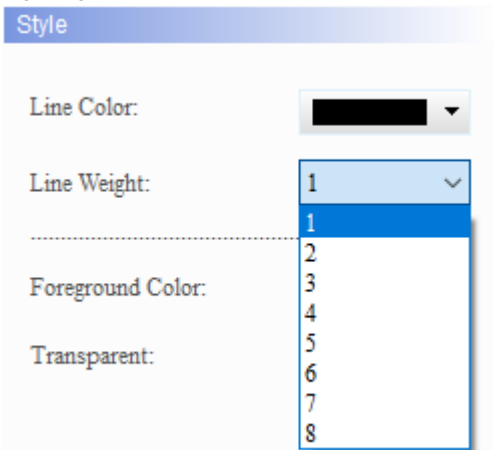
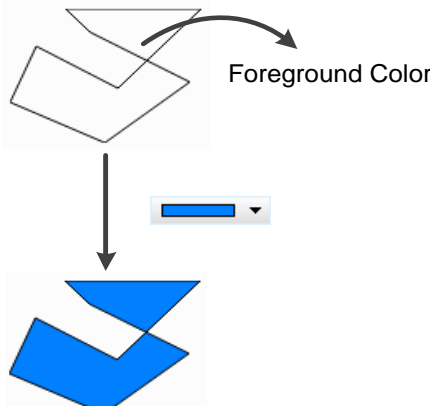
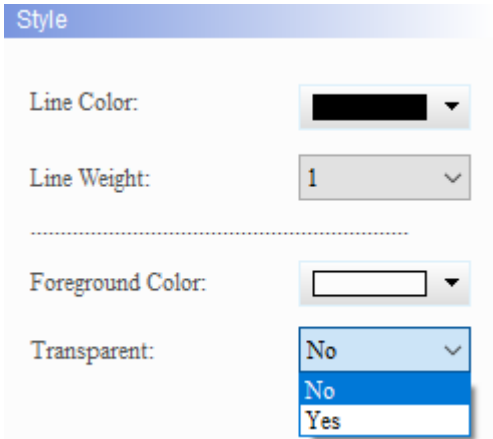








Figure 22.4.2 Main property page for the Polygon element

No.	Property	Function description
(1)	Line Color	<p>You can set the line color for the element.</p>

No.	Property	Function description				
(2)	Line Weight	<p>The line width setting ranges from 1 to 8.</p> 				
(3)	Foreground Color	<p>Set the foreground color of the element.</p> 				
(4)	Transparent	<p>You can select Yes or No for Transparent. When you select Yes, the foreground color of the Polygon is transparent and only the border color is displayed; when you select No, the foreground color of the element is displayed.</p>  <table border="1"> <tbody> <tr> <td>Transparent is Yes</td> <td>  </td> </tr> <tr> <td>Transparent is No</td> <td>  </td> </tr> </tbody> </table>	Transparent is Yes		Transparent is No	
Transparent is Yes						
Transparent is No						

22

■ Main-2

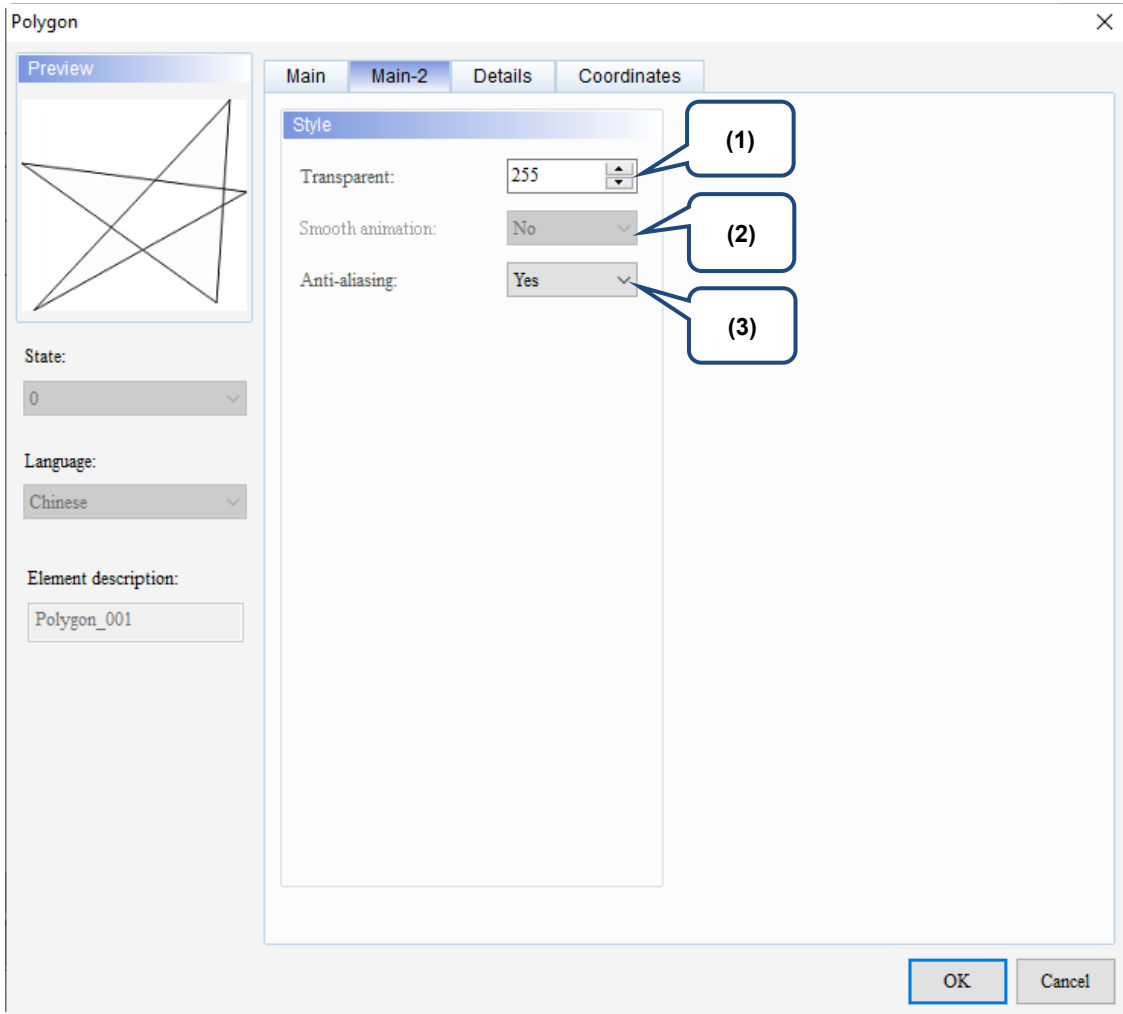


Figure 22.4.3 Main-2 property page for the Polygon element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td style="background-color: #cccccc;">Yes</td> <td></td> </tr> <tr> <td style="background-color: #cccccc;">No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Details

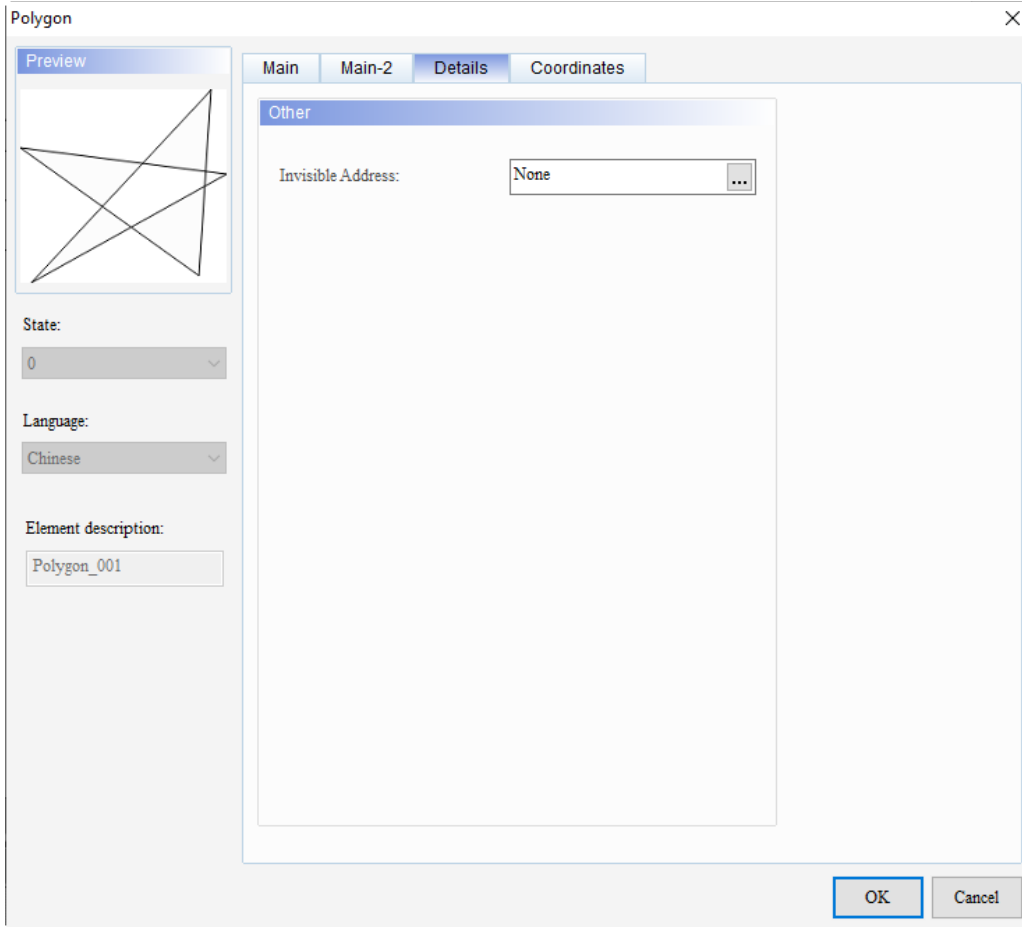
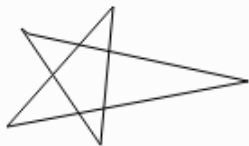
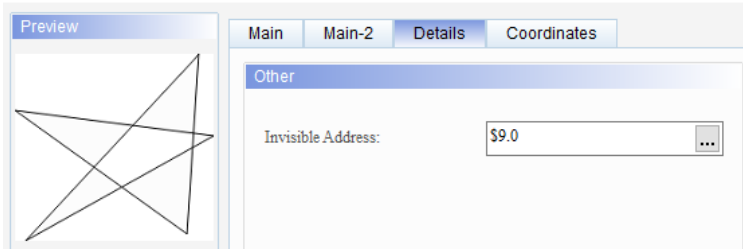


Figure 22.4.4 Details property page for the Polygon element

No.	Property	Function Description
(1)	Invisible Address	<p>When Invisible Address is set to On, the element is invisible and you cannot execute its set functions.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid gray; padding: 5px;">Invisible Address is Off</div> <div style="text-align: center;">  </div> <div style="border: 1px solid gray; padding: 5px;">\$9.0 OFF</div> </div>
		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid gray; padding: 5px;">Invisible Address is On</div> <div style="text-align: center;"> <div style="border: 2px dashed blue; padding: 10px; display: inline-block;">Element is invisible</div> </div> <div style="border: 1px solid gray; padding: 5px;">\$9.0 ON</div> </div>
<p>Polygon</p> 		

22

Coordinates

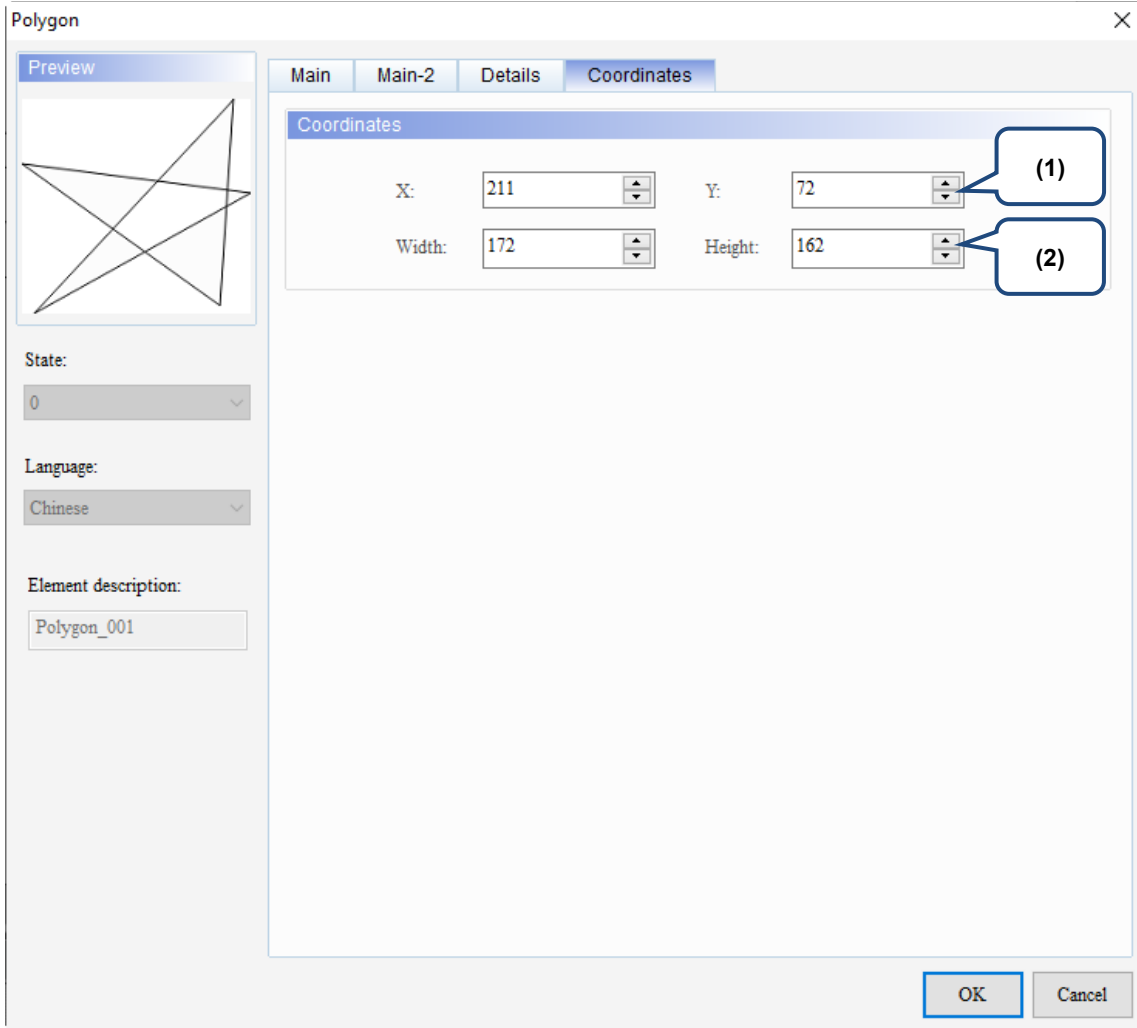


Figure 22.4.5 Coordinates property page for the Polygon element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

22.5 Text

You can use the Text element to enter the text for display.

When you double-click the Text, the property page is shown as follows.

22

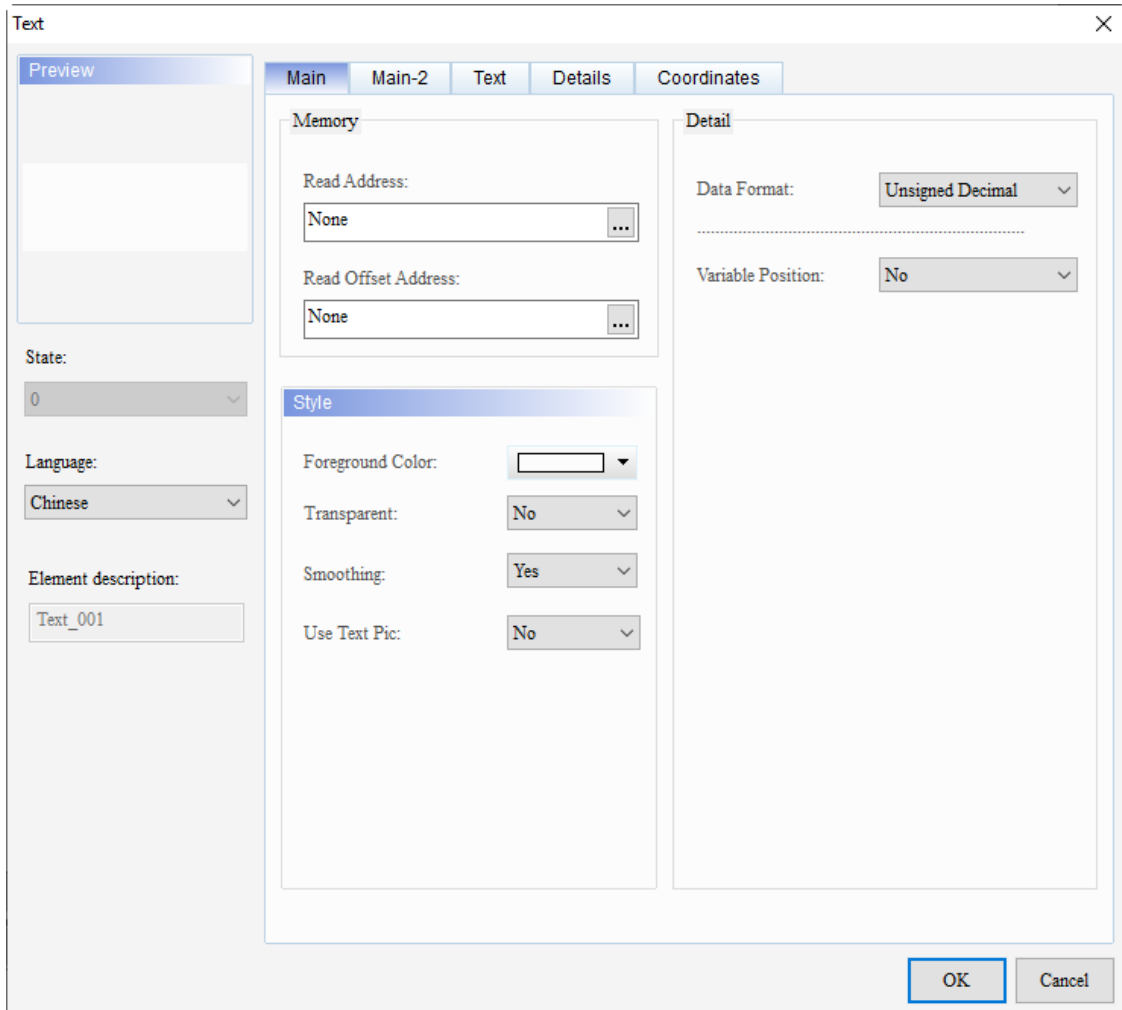


Figure 22.5.1 Properties of Text

Table 22.5.1 Function page of the Text element

Text	
Function page	Description
Preview	The Text element does not support multiple state values, but the multi-language display can be edited.
Main	Set the Read Address, Read Offset Address, Foreground Color, Transparent, Smoothing, and Use Text Pic function. Set the Data Format and Variable Position.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the text content, font, size, color, format, zoom, and alignment options.
Details	Set the Invisible Address.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

■ Main

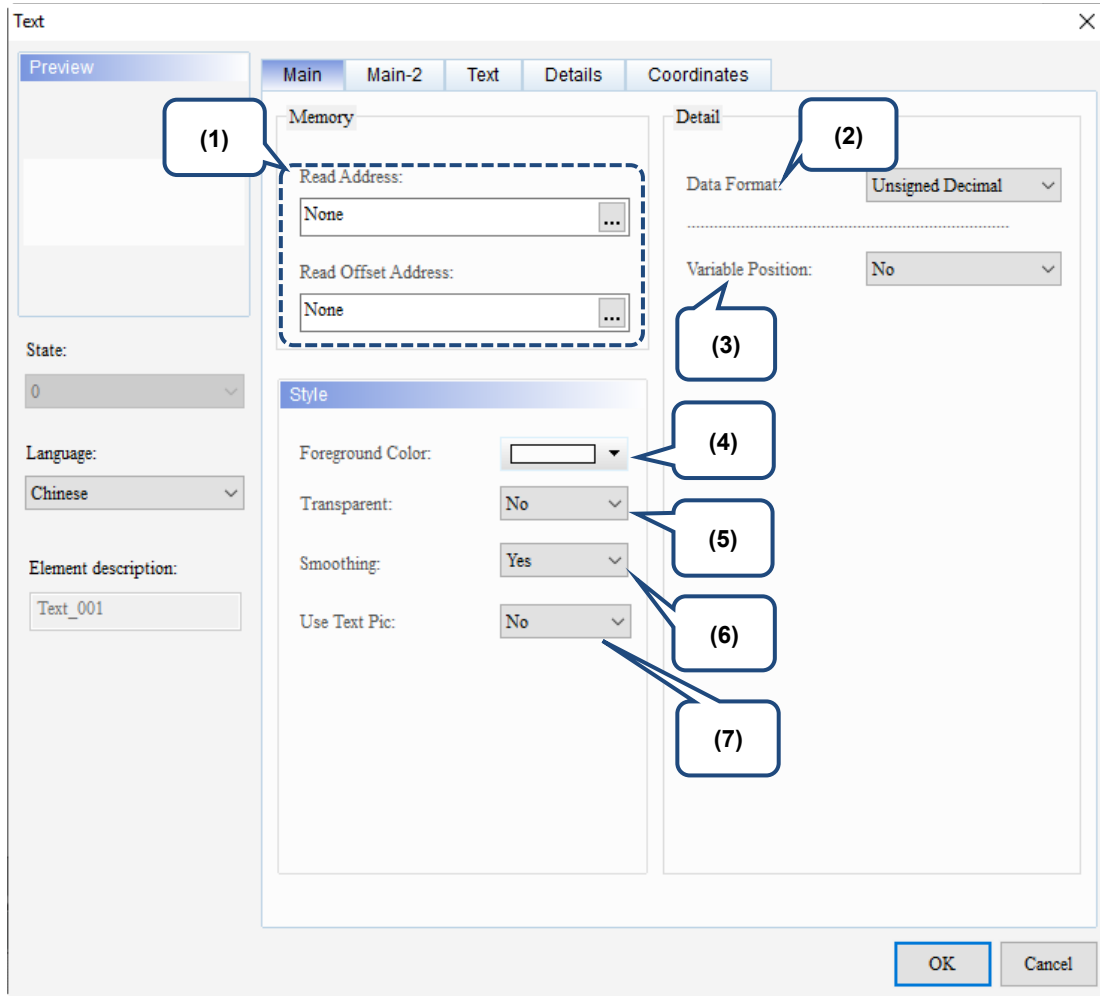
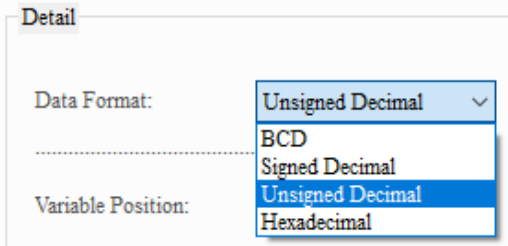
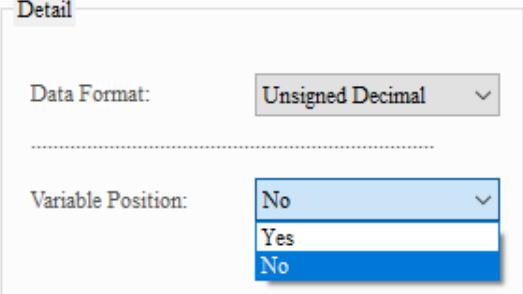
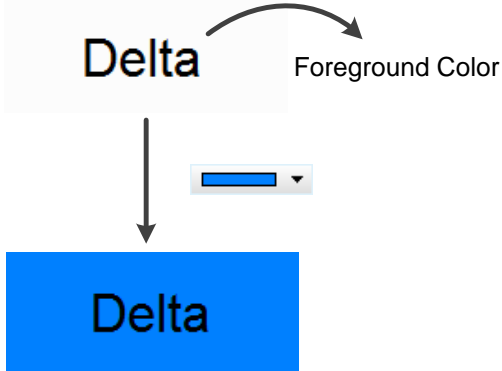
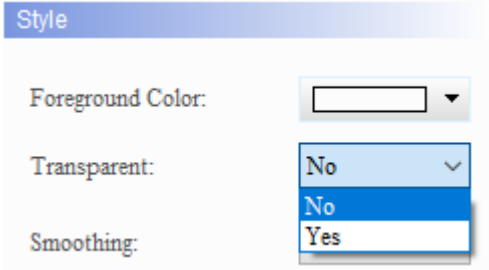
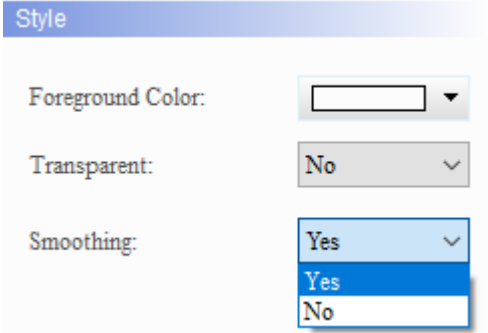




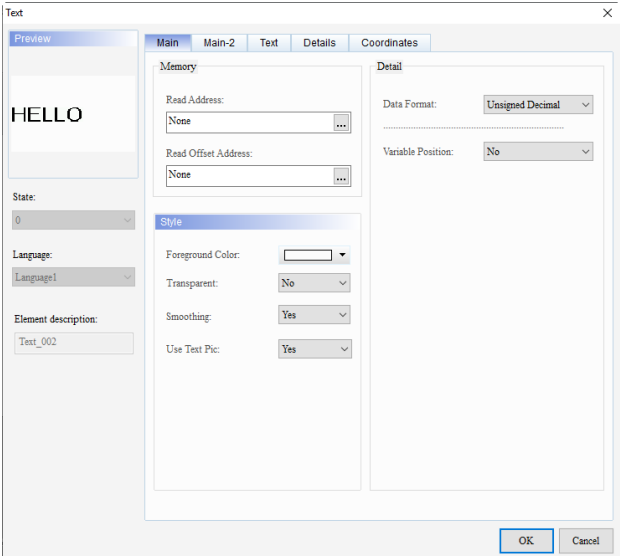
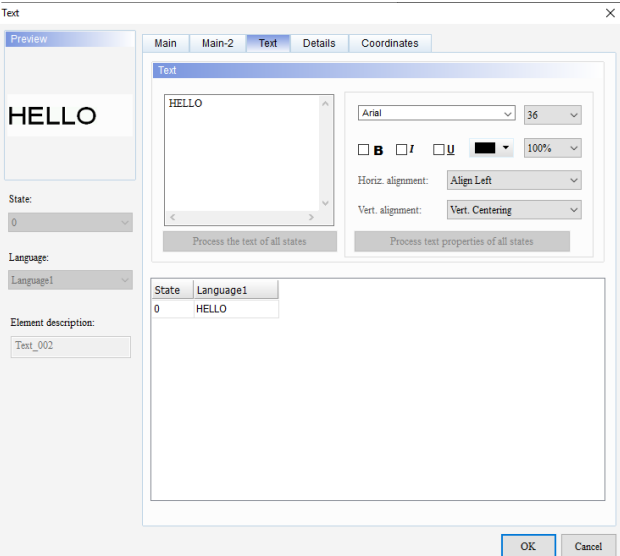
Figure 22.5.2 Main property page for the Text element

No.	Property	Function description
(1)	Read Address	<ul style="list-style-type: none"> You can select the internal memory or the controller register address. When Variable Position is set to Yes, the value of the Read Address is regarded as the X coordinate for the horizontal axis of the Text. When Variable Position is set to Yes, the value of [Read Address+1] is regarded as the Y coordinate for the vertical axis of the Text.
	Read Offset Address	Refer to Appendix D for instructions on writing and reading the offset address.
(2)	Data Format	<p>There are four types of Data Format: BCD, Signed Decimal, Unsigned Decimal, and Hexadecimal.</p> 

No.	Property	Function description								
(3)	Variable Position	<p>You can select Yes or No for Variable Position. When you select Yes, the position of the Text can be changed; when you select No, the position of the Text cannot be changed.</p> 								
(4)	Foreground Color	<p>Set the foreground color of the element.</p> 								
(5)	Transparent	<p>You can select Yes or No for Transparent. When you select Yes, the foreground color of the Text is transparent with only the text color displayed; when you select No, the foreground color of the element is displayed.</p>  <table border="1"> <tr> <td>Transparent is Yes</td> <td></td> <td>→</td> <td></td> </tr> <tr> <td>Transparent is No</td> <td></td> <td>→</td> <td></td> </tr> </table>	Transparent is Yes		→		Transparent is No		→	
Transparent is Yes		→								
Transparent is No		→								

22

No.	Property	Function description	
(6)	Smoothing	<p>You can select Yes or No for Smoothing. When you select Yes, the font is displayed without jagged edges and is smoother; when you select No, the font is displayed with jagged edges and is not smooth.</p> 	
		Smoothing is Yes	
		Smoothing is No	

No.	Property	Function description		
(7)	Use Text Pic	<p>Unlike the DOP-B series models using pictures to present all texts, the DOP-100 series models present directly with the texts. Therefore, if the language you use for the element is not yet supported by the PC, it is possible to cause missing characters and garbled texts when the element is displayed on the HMI. To have the text display effect be the same as that on the DOP-B projects, the Use Text Pic function is added for the Text, Button, and General Message Display elements. Refer to the following examples.</p> <p style="text-align: center;">Use Text Pic</p> <ul style="list-style-type: none"> <p>Create a Text element and go to the [Main] tab to set the Use Text Pic function.</p>  <p>Note: if you use DOPSoft 4.00.06 version to open a DOP-B project, the Use Text Pic function is enabled (Yes) by default. If you add a DOP-100 project, then the Use Text Pic function is disabled (No) by default. <ul style="list-style-type: none"> <p>Go to the [Text] tab, and type the text and set its font.</p>  </p>		
		<p>Execution result</p> <ul style="list-style-type: none"> After creating the element, download it to the HMI. The following table shows the results of using and not using the Use Text Pic function. <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Use Text Pic is Yes</th> <th>Use Text Pic is No</th> </tr> </thead> <tbody> <tr> <td style="font-size: 2em; font-weight: bold;">HELLO</td> <td style="font-size: 2em; font-weight: bold;">HELLO</td> </tr> </tbody> </table>	Use Text Pic is Yes	Use Text Pic is No
Use Text Pic is Yes	Use Text Pic is No			
HELLO	HELLO			

■ Main-2

22

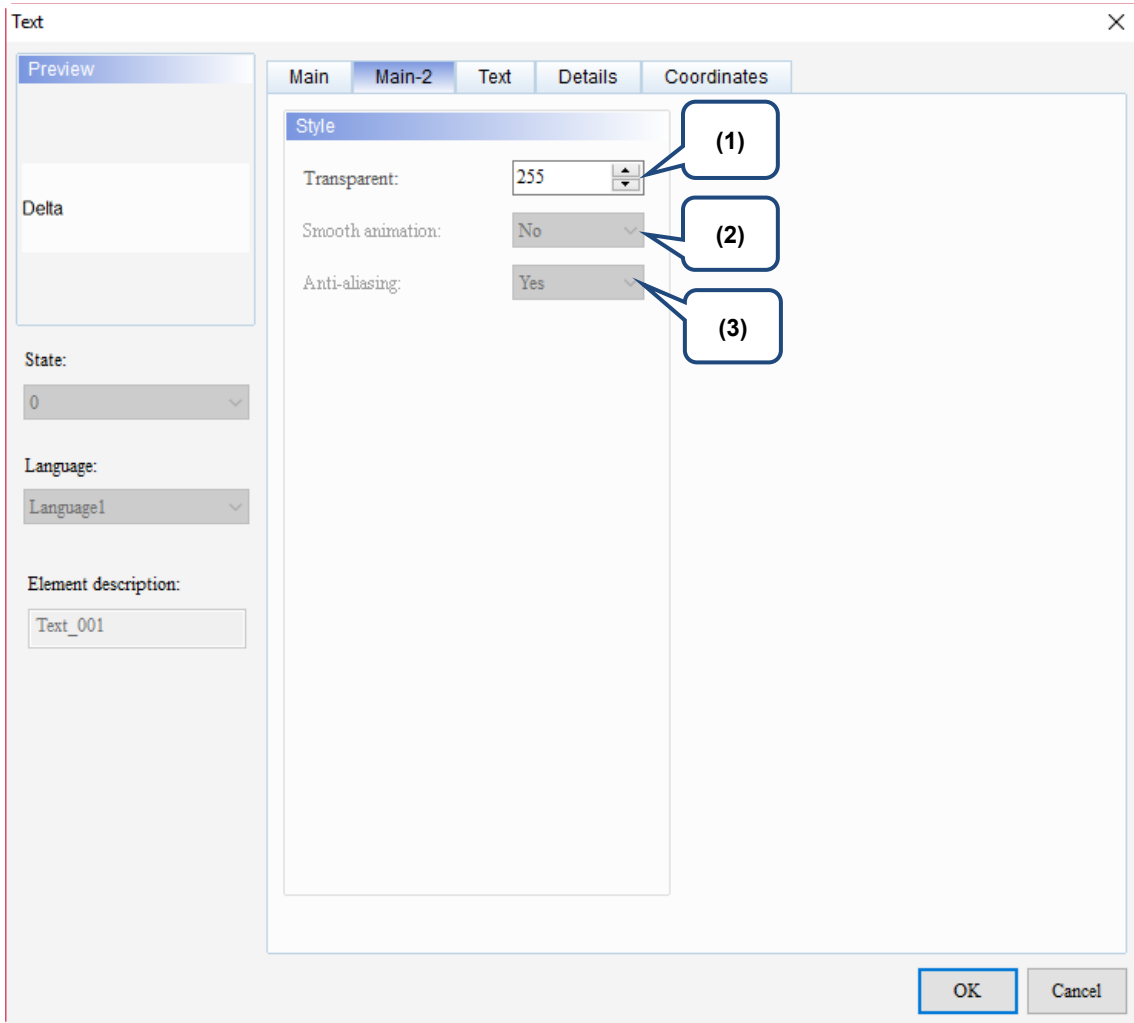


Figure 22.5.3 Main-2 property page for the Text element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text

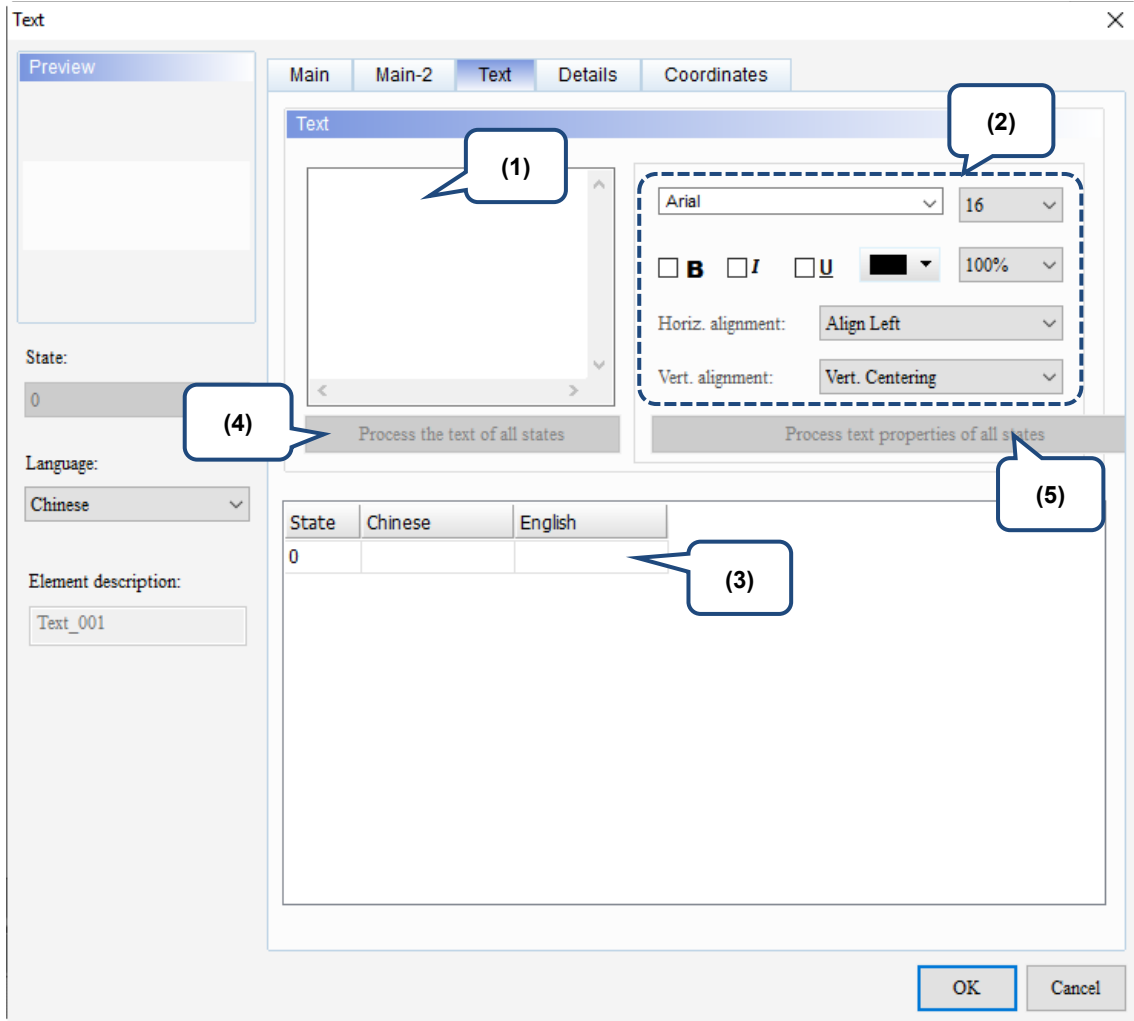
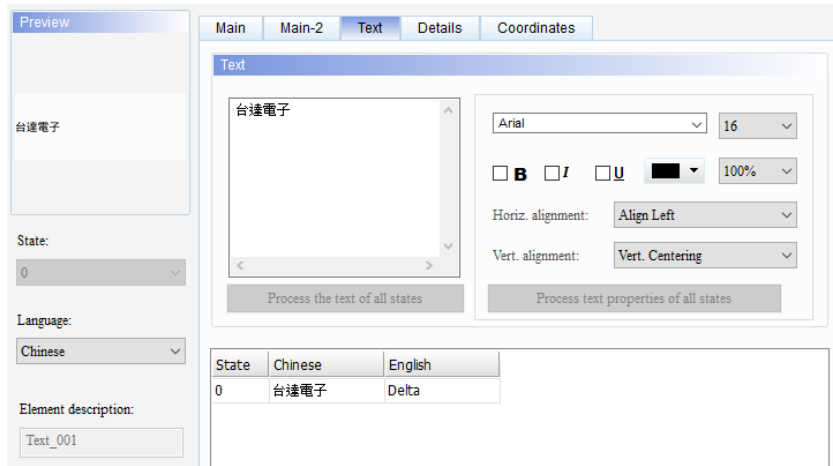


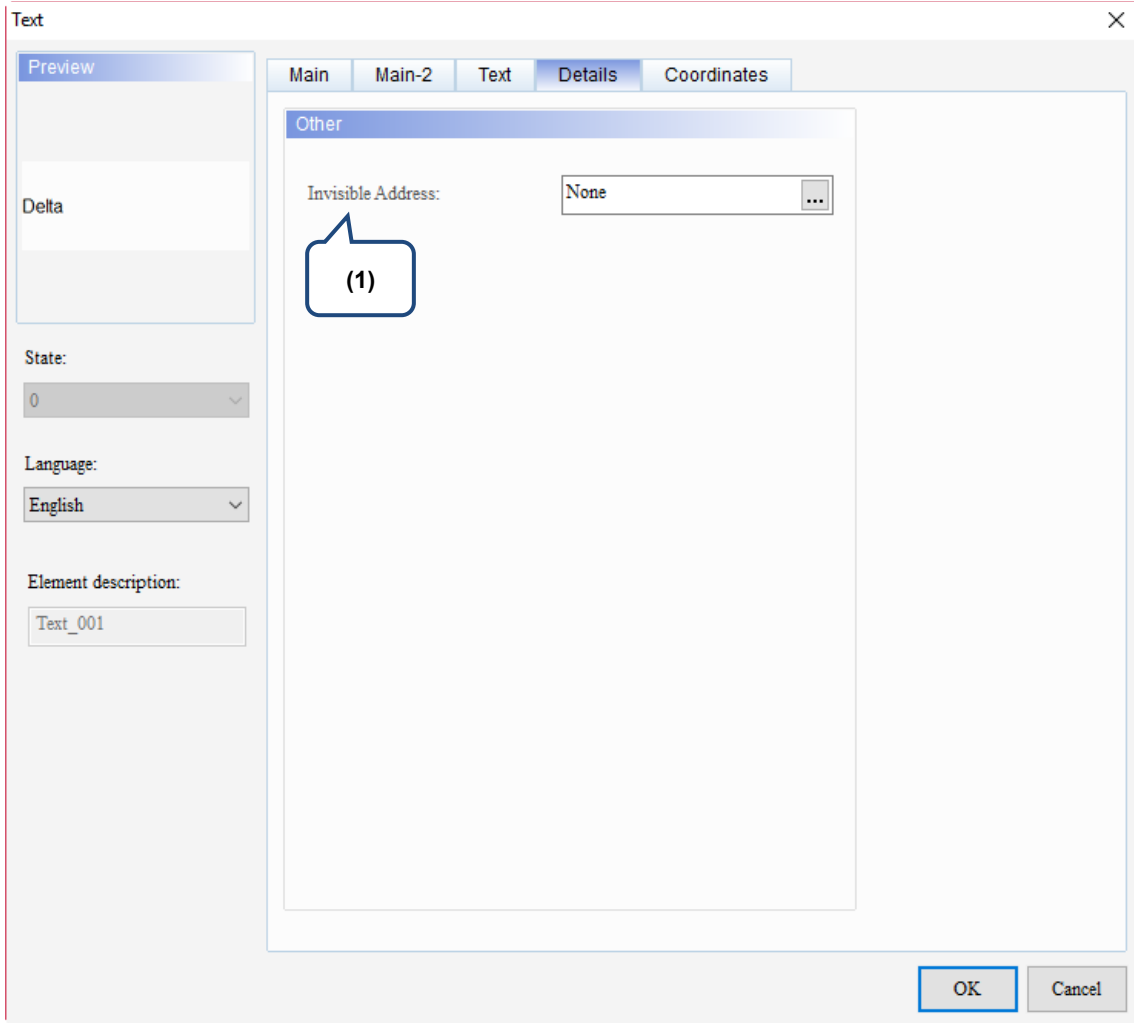
Figure 22.5.4 Text property page for the Text element

No.	Property	Function description
(1)	Text	<p>■ You can enter the text to display in this box.</p>  <p>■ As long as the element allows text input, you can click the element and press the space key to start editing the text.</p>
(2)	Text property	<p>Set the text properties, including the font, size, color, zoom, alignment, and bold / italic / underline for the text. You can refer to the Preview section in the preceding figure for the Text property setting results.</p>

22

No.	Property	Function description
(3)	Edit multi-language text	If you have added multi-language text, the Text page allows you to edit the multi-language data.
(4)	Process the text of all states	This element does not support multi-state functions.
(5)	Process text properties of all states	This element does not support multi-state functions.

■ Details



22

Figure 22.5.5 Details property page for the Text element

No.	Property	Function description				
(1)	Invisible Address	When Invisible Address is set to On, the element is invisible and you cannot execute its set functions.				
		<table border="1"> <tr> <td>Invisible Address is Off</td> <td> </td> </tr> <tr> <td>Invisible Address is On</td> <td> </td> </tr> </table>	Invisible Address is Off		Invisible Address is On	
		Invisible Address is Off				
Invisible Address is On						

Coordinates

22

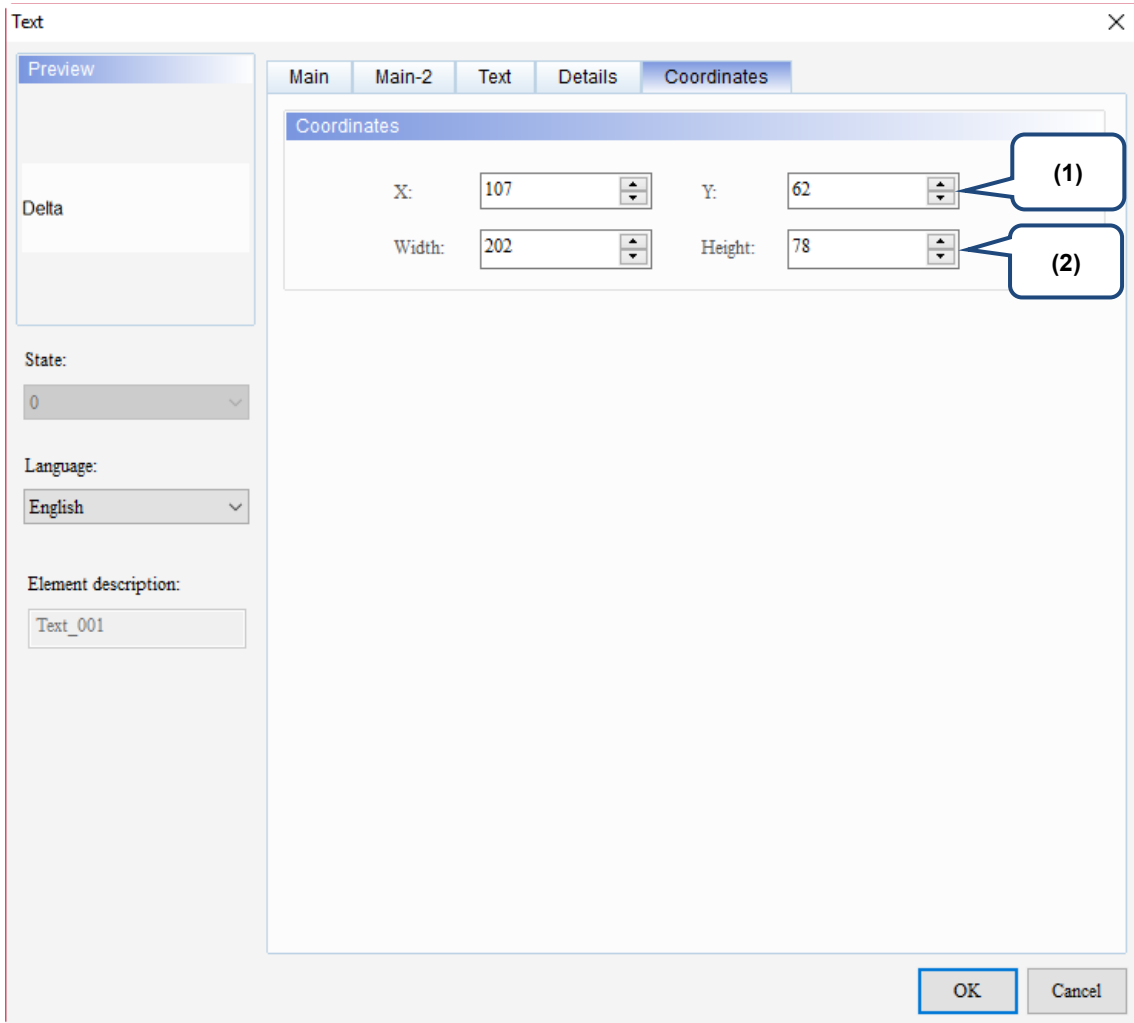


Figure 22.5.6 Coordinates property page for the Text element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

22.6 Scale

You can use the Scale element to indicate the curve value for the History Trend Graph. In the Scale element property page, you can set the Scale Mark Number and Subscale Mark Number, as well as Data Type, Data Format, Maximum, and Minimum to be displayed. You can also decide whether to display the marked value or only to display the scale.

When you double-click the Scale, the property page is shown as follows.

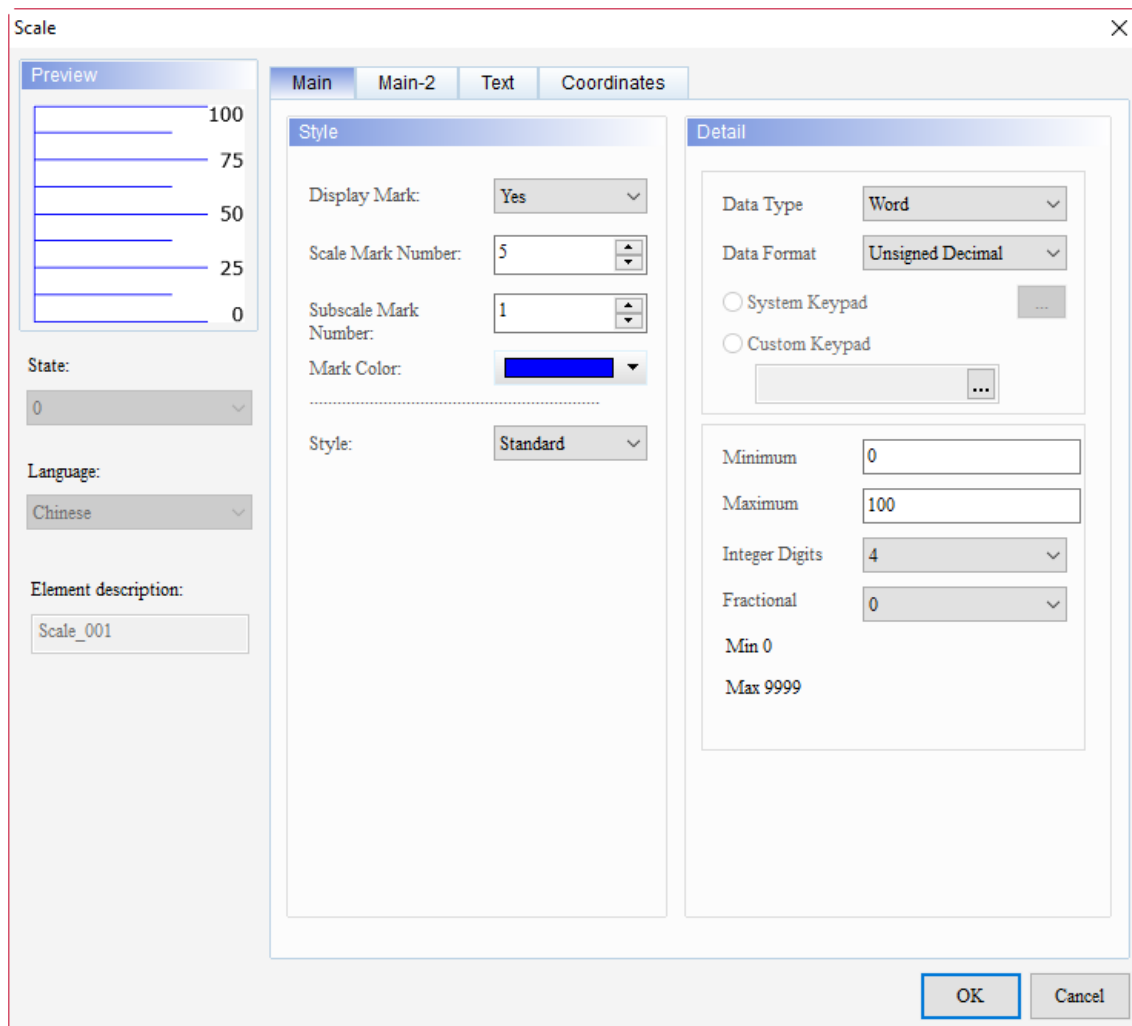


Figure 22.6.1 Properties of Scale

Table 22.6.1 Function page of the Scale element

Scale	
Function page	Description
Preview	The Scale element does not support multiple state values and multi-language display.
Main	Set the Display Mark, Scale Mark Number, Subscale Mark Number, Mark Color, and Style. Set the Data Type, Data Format, Minimum, Maximum, Integer Digits, and Fractional (Digits).
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Text	Set the font, size, and color of the text to display.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

22

■ Main

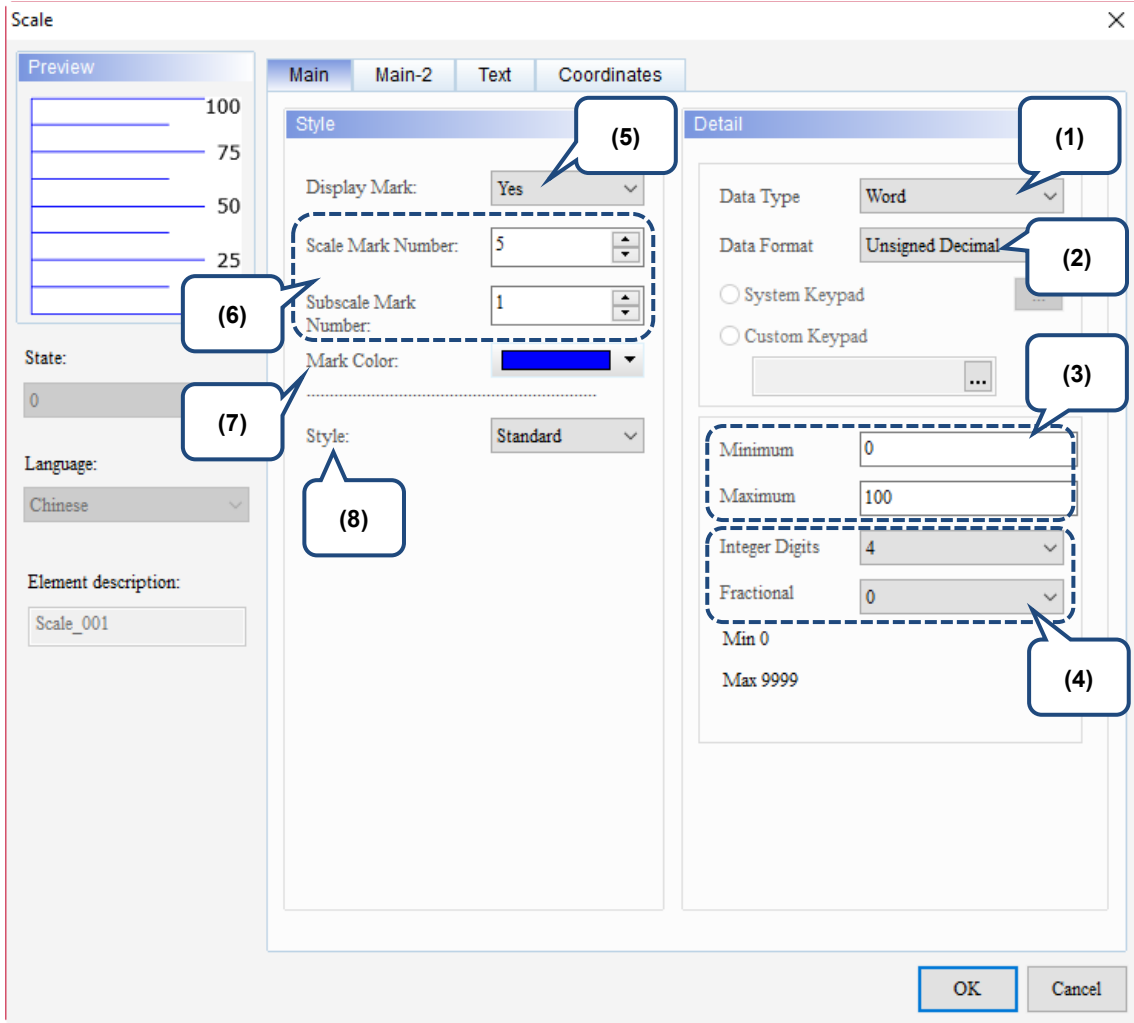
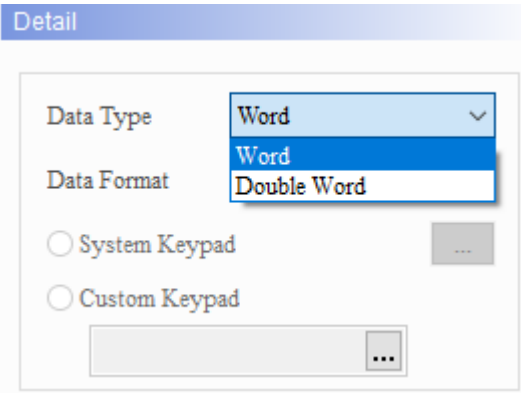
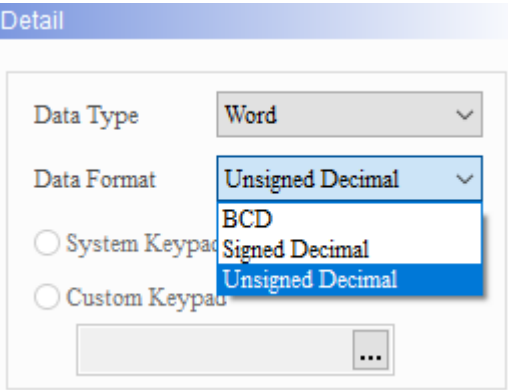
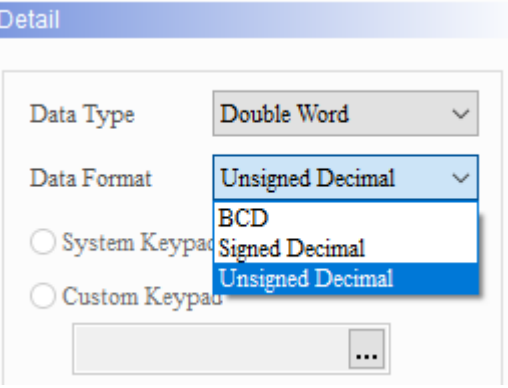
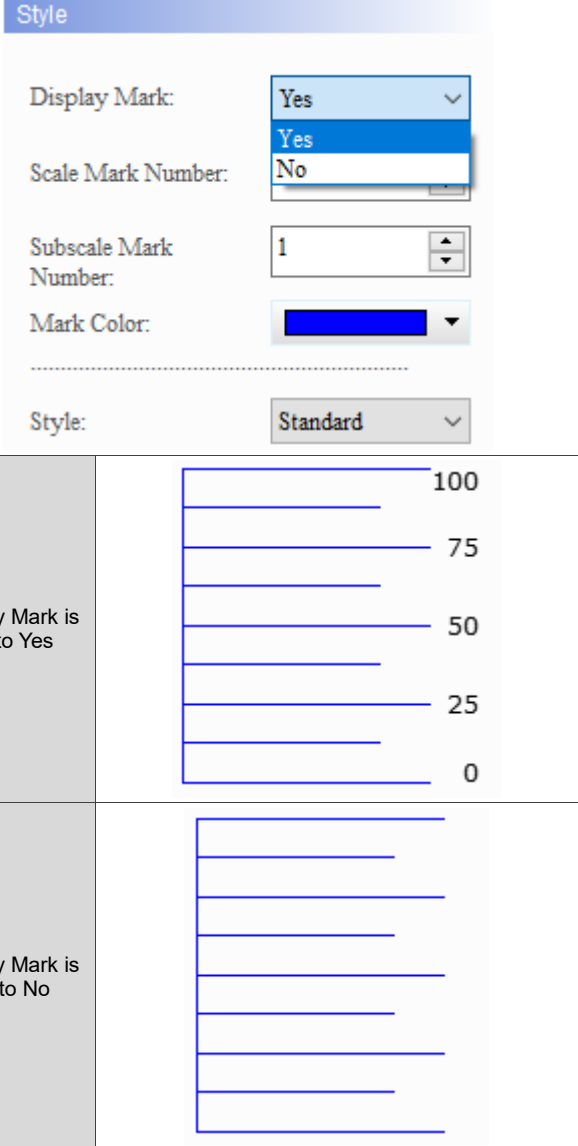
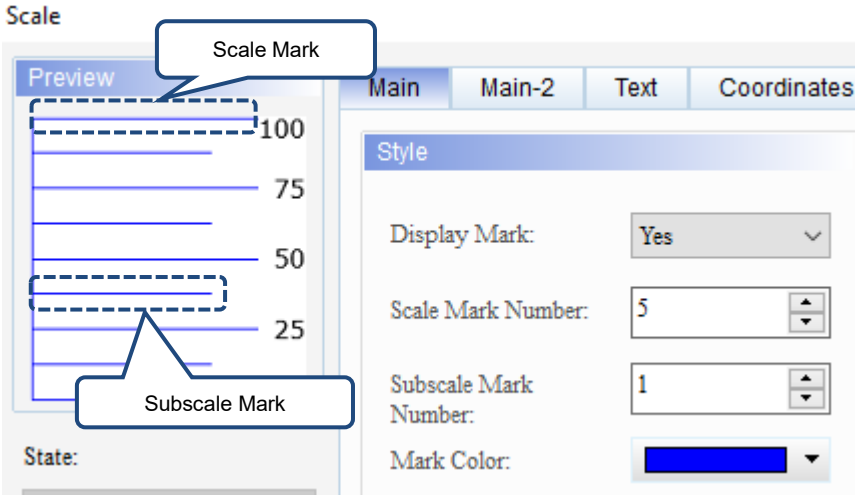


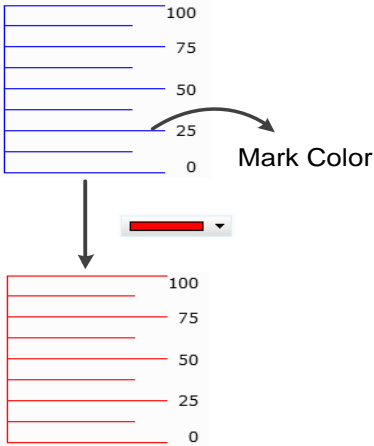
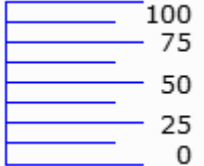
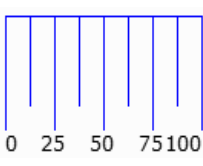
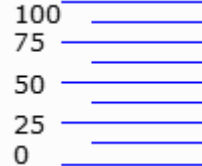
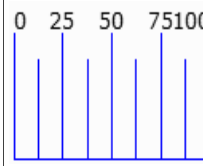
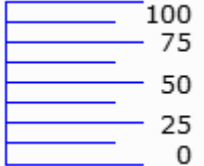
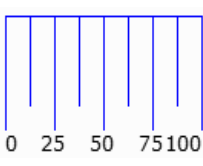
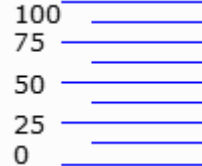
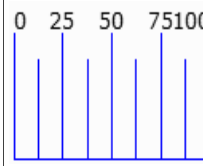
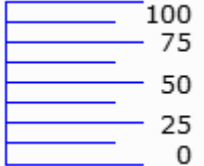
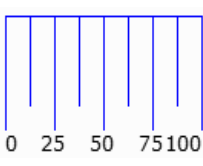
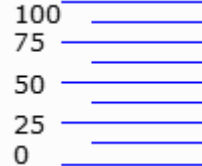
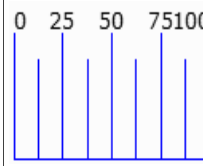
Figure 22.6.2 Main property page for the Scale element

No.	Property	Function description
(1)	Data Type	<p>There are two data types available, Word and Double Word.</p> 

No.	Property	Function description																															
(2)	Data Format	<ul style="list-style-type: none"> When the Data Type is Word, the supported data formats are as follows:  When the Data Type is Double Word, the supported data formats are as follows:  																															
(3)	Minimum / Maximum value	<p>The allowable ranges for the Minimum and Maximum values vary based on the selected Data Type, Integer Digits, and Fractional (Digits). The following table is based on the example with no Fractional (Digits) set.</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Data Format</th> <th>Allowable range</th> <th>Integer Digits</th> <th>Fractional (Digits)</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Word</td> <td>BCD</td> <td>0 to 9999</td> <td>4</td> <td>0</td> </tr> <tr> <td>Signed Decimal</td> <td>-3278 to +32767</td> <td>5</td> <td>0</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 65535</td> <td>5</td> <td>0</td> </tr> <tr> <td rowspan="3">Double Word</td> <td>BCD</td> <td>0 to 99999999</td> <td>8</td> <td>0</td> </tr> <tr> <td>Signed Decimal</td> <td>-2147483648 to +2147483647</td> <td>10</td> <td>0</td> </tr> <tr> <td>Unsigned Decimal</td> <td>0 to 4294697295</td> <td>10</td> <td>0</td> </tr> </tbody> </table>	Data Type	Data Format	Allowable range	Integer Digits	Fractional (Digits)	Word	BCD	0 to 9999	4	0	Signed Decimal	-3278 to +32767	5	0	Unsigned Decimal	0 to 65535	5	0	Double Word	BCD	0 to 99999999	8	0	Signed Decimal	-2147483648 to +2147483647	10	0	Unsigned Decimal	0 to 4294697295	10	0
Data Type	Data Format	Allowable range	Integer Digits	Fractional (Digits)																													
Word	BCD	0 to 9999	4	0																													
	Signed Decimal	-3278 to +32767	5	0																													
	Unsigned Decimal	0 to 65535	5	0																													
Double Word	BCD	0 to 99999999	8	0																													
	Signed Decimal	-2147483648 to +2147483647	10	0																													
	Unsigned Decimal	0 to 4294697295	10	0																													
(4)	Integer Digits / Fractional (Digits)	You can set the number of displayed integer and fractional digits.																															

22

No.	Property	Function description
(5)	Display Mark	<p>You can select Yes or No for Display Mark. When you select Yes, the value on the Scale is displayed; when you select No, the value on the Scale is not displayed and only the scale is displayed.</p> 
(6)	<p>Scale Mark Number</p> <hr/> <p>Subscale Mark Number</p>	<p>You can set the number of marks to display for scale mark and subscale mark with the maximum of up to 99.</p> 

No.	Property	Function description								
(7)	Mark Color	<p>You can customize the color displayed for the scale.</p> 								
(8)	Style	<ul style="list-style-type: none"> ■ The available element styles are Standard, Rotation 90, Rotation 180, and Rotation 270. ■ You can change the appearance of the element with this setting. <table border="1"> <thead> <tr> <th>Standard</th> <th>Rotation 90</th> <th>Rotation 180</th> <th>Rotation 270</th> </tr> </thead> <tbody> <tr> <td>  </td> <td>  </td> <td>  </td> <td>  </td> </tr> </tbody> </table>	Standard	Rotation 90	Rotation 180	Rotation 270				
Standard	Rotation 90	Rotation 180	Rotation 270							
										

■ Main-2

22

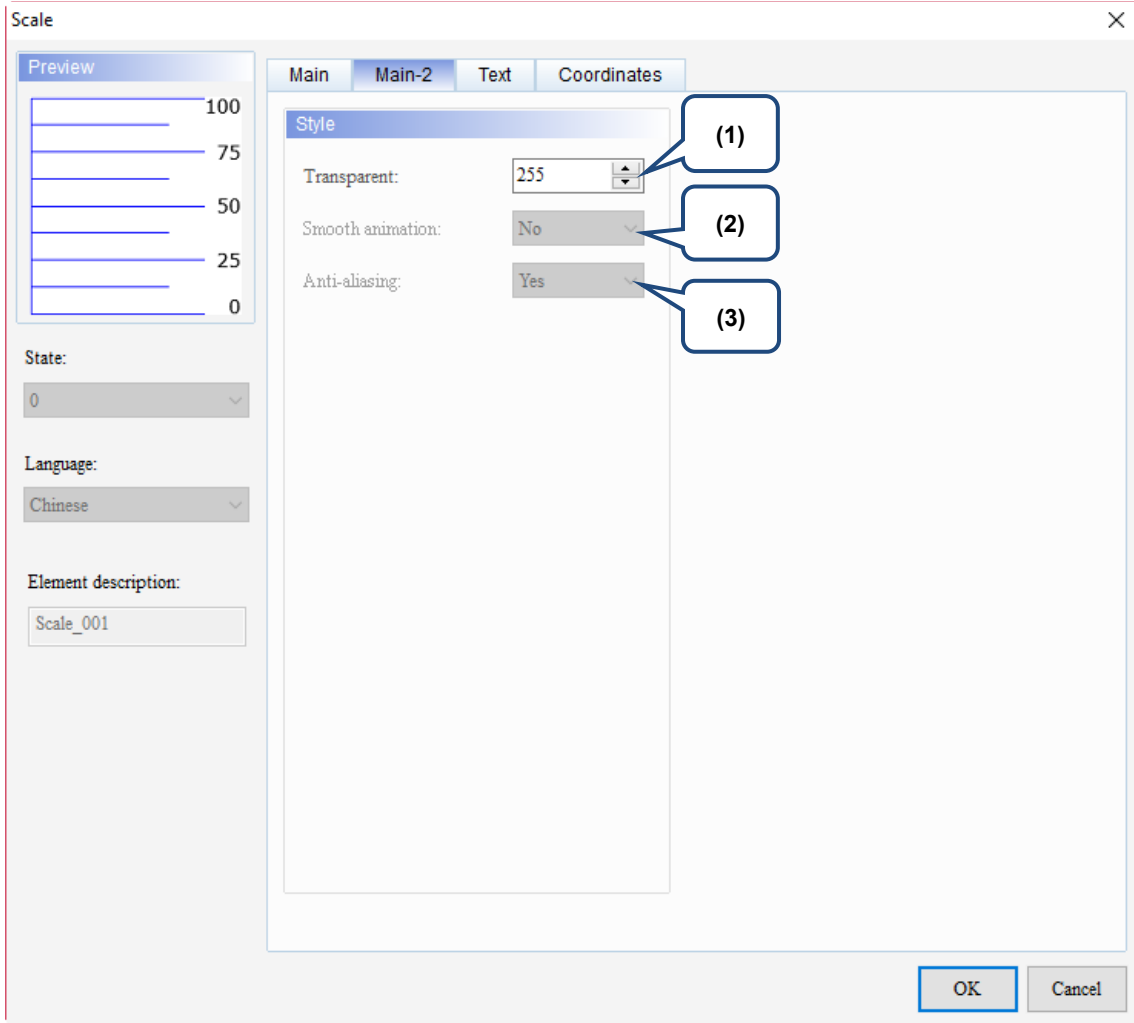
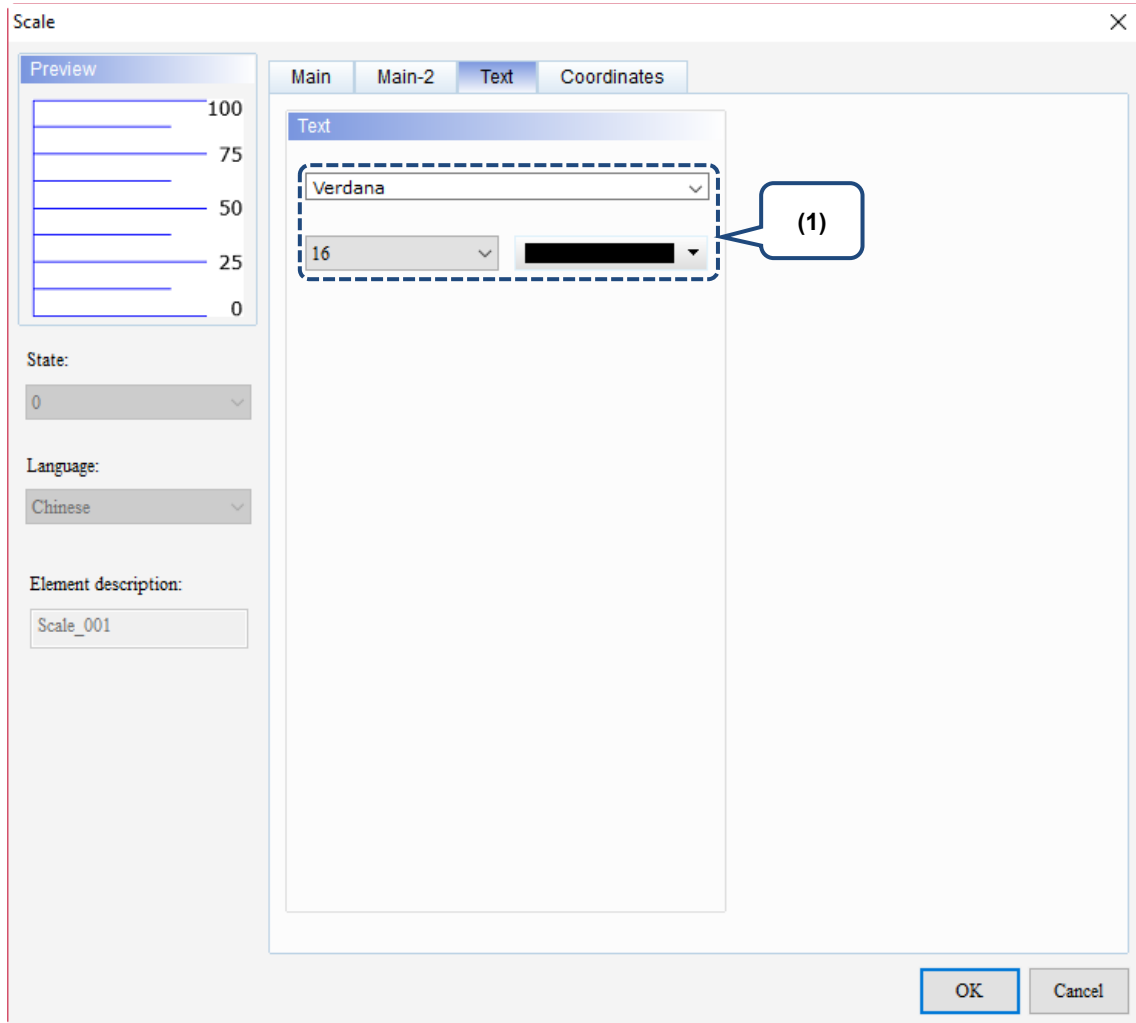


Figure 22.6.3 Main-2 property page for the Scale element

No.	Property	Function description
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.
(2)	Smooth animation	The Smooth animation function is not available for this element.
(3)	Anti-aliasing	The Anti-aliasing function is not available for this element.

■ Text



22

Figure 22.6.4 Text property page for the Scale element

No.	Property	Function description
(1)	Text property	Set the text properties, including font, size, and color.

22

Coordinates

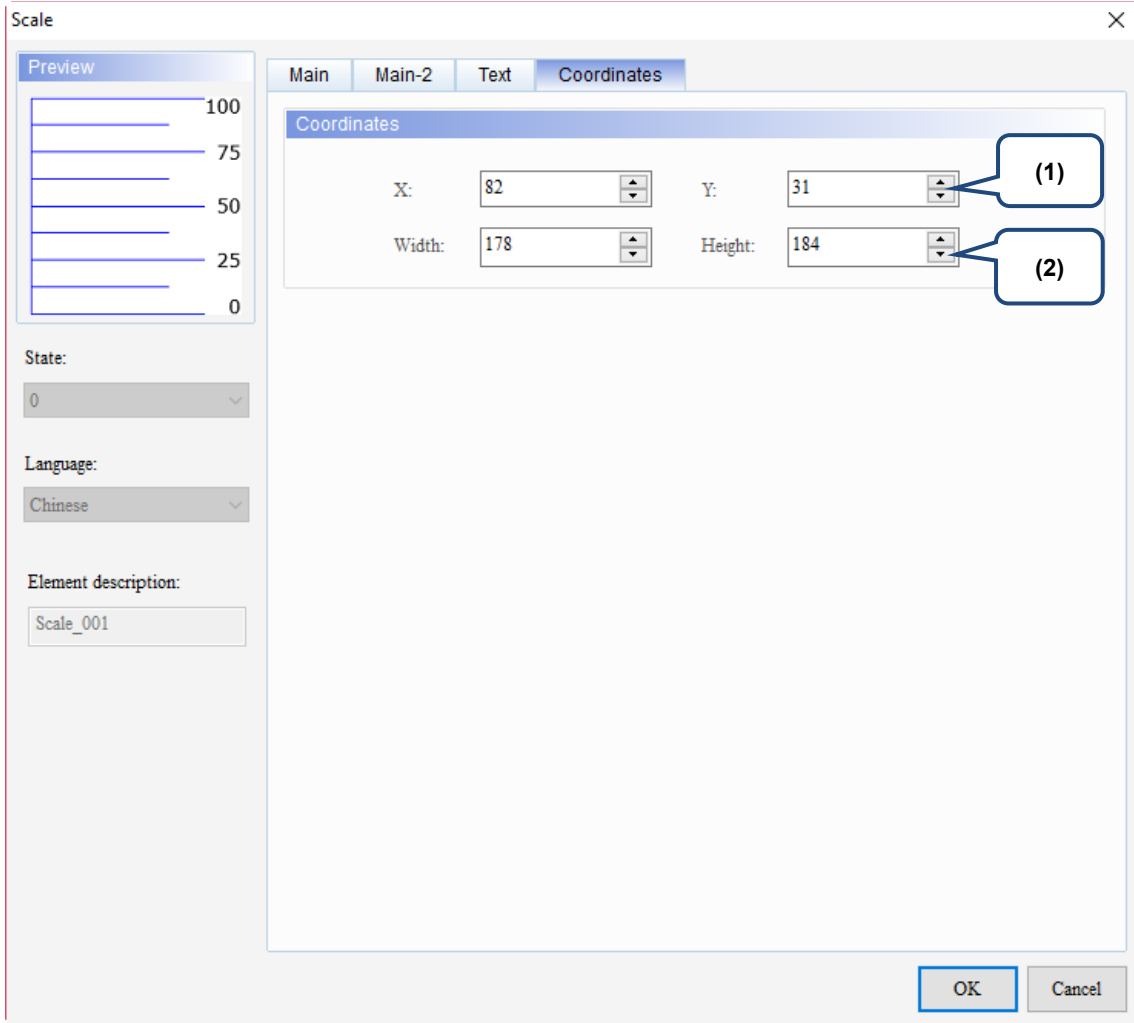


Figure 22.6.5 Coordinates property page for the Scale element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

22.7 Table

The Table element offers the same functions as those in the Windows Office editing programs, enabling users to add rows and columns. You can also set the colors for the rows and columns which adds more variety to the appearance of the tables.

When you double-click the Table, the property page is shown as follows.

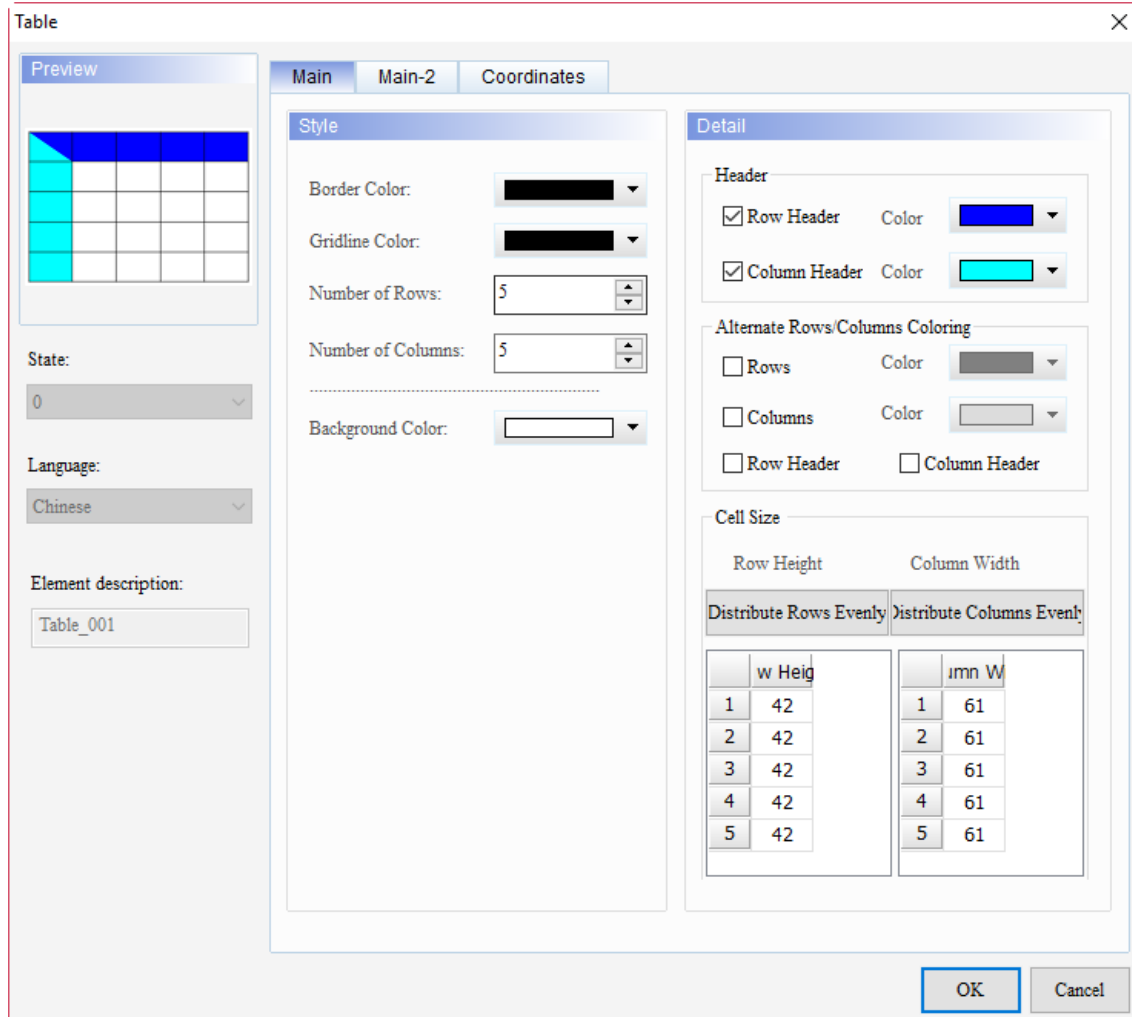


Figure 22.7.1 Properties of Table

Table 22.7.1 Function page of the Table element

Table	
Function page	Description
Preview	The Table element does not support multiple state values and multi-language display.
Main	Set the Border Color, Gridline Color, Number of Rows, Number of Columns, and Background Color. Set the Row Header, Column Header, (Alternate) Rows / Columns, and (Alternate) Row Header / Column Header. Set to Distribute Rows Evenly and Distribute Columns Evenly.
Main-2	Set the Transparent, Smooth animation, and Anti-aliasing functions.
Coordinates	Set the X and Y coordinates, width, and height of the elements.

22

■ Main

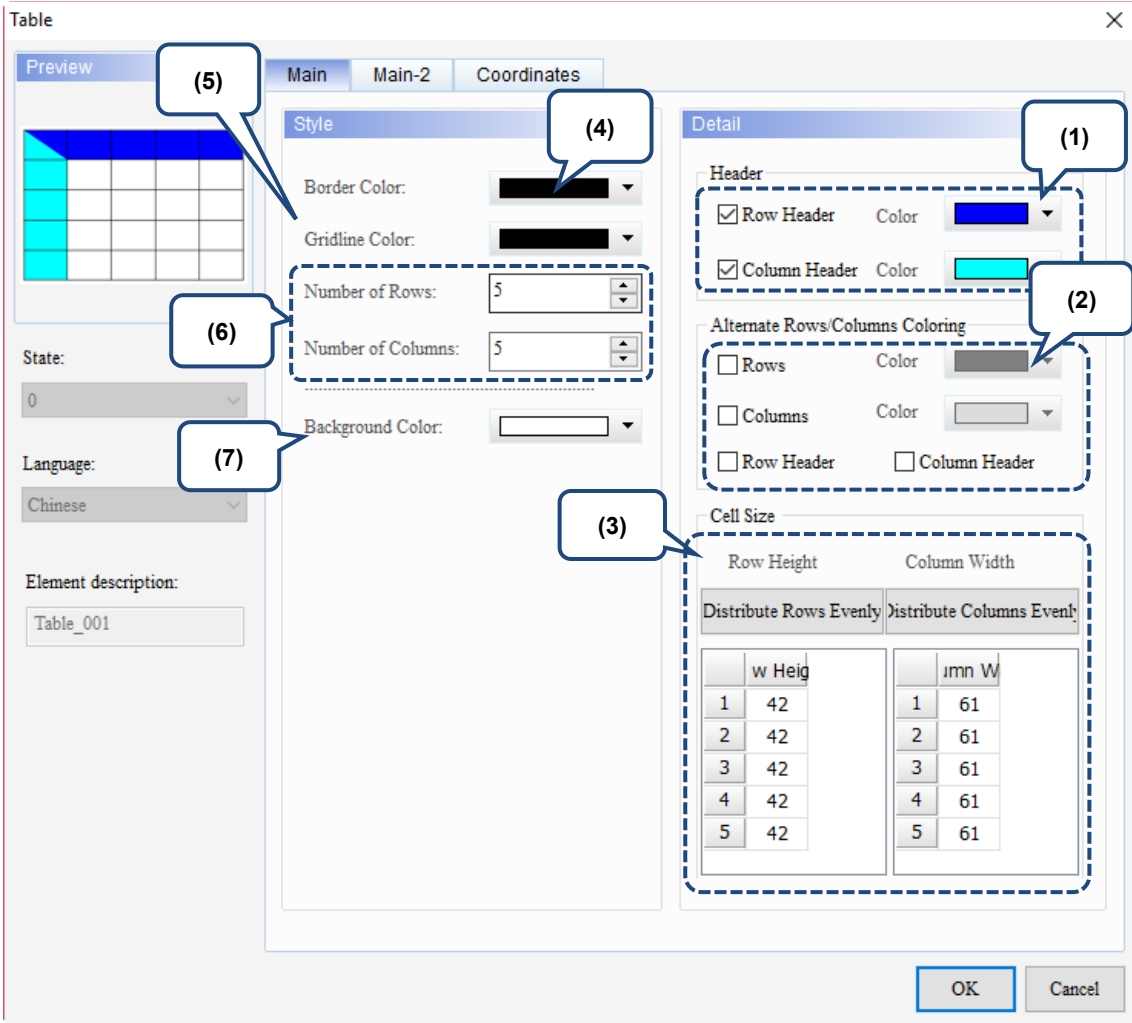
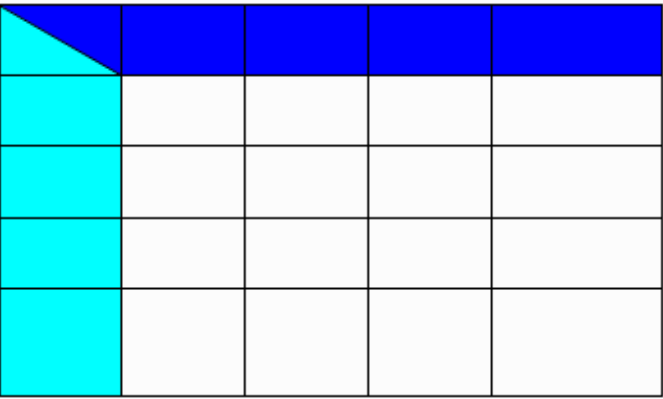
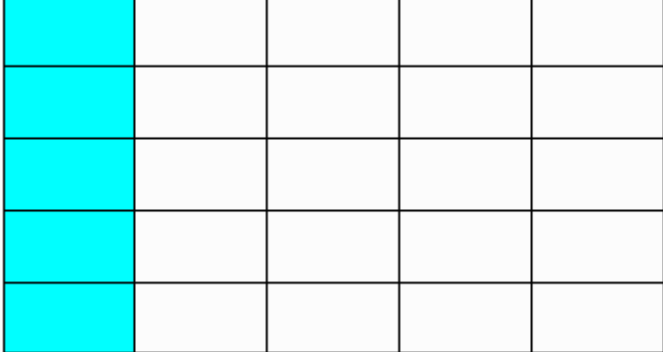
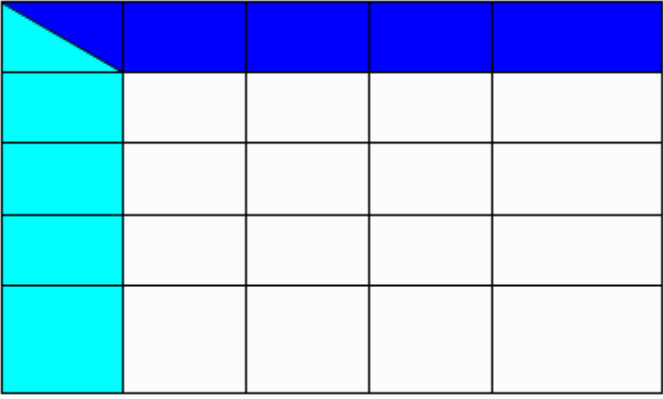
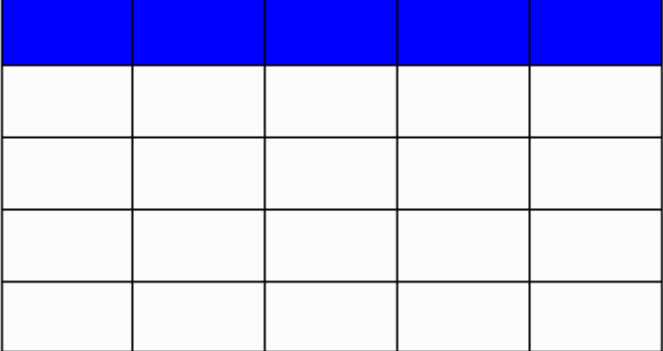


Figure 22.7.2 Main property page for the Table element

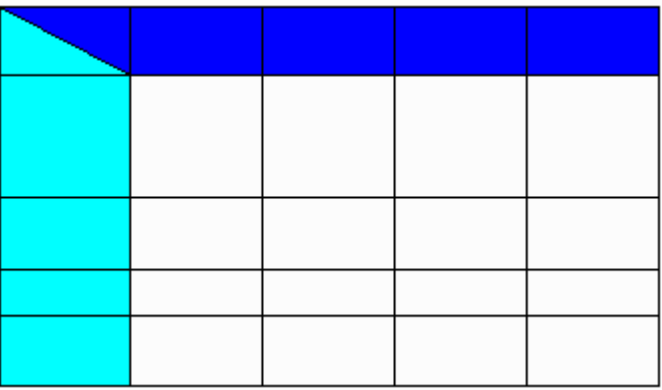
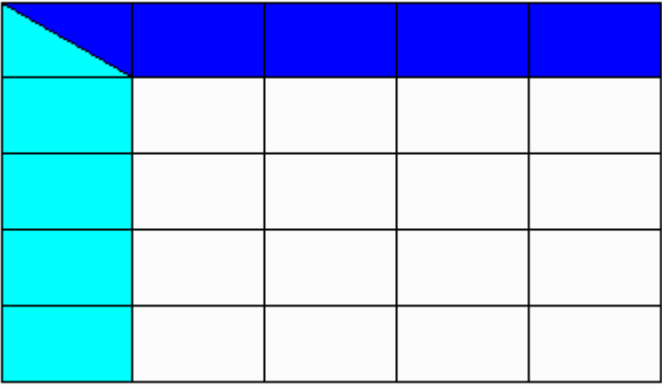
No.	Property	Function description	
(1)	Row Header	<p>You can set to display the Row Header for the first row of the Table and set the displaying color for the Row Header.</p> <div style="display: flex; align-items: center;"> <div style="background-color: #cccccc; padding: 5px; margin-right: 10px;">Check</div>  </div>	
		<div style="display: flex; align-items: center;"> <div style="background-color: #cccccc; padding: 5px; margin-right: 10px;">Uncheck</div>  </div>	
		Column Header	<p>You can set to display the Column Header for the first column of the Table and set the displaying color for the Column Header.</p> <div style="display: flex; align-items: center;"> <div style="background-color: #cccccc; padding: 5px; margin-right: 10px;">Check</div>  </div>
			<div style="display: flex; align-items: center;"> <div style="background-color: #cccccc; padding: 5px; margin-right: 10px;">Uncheck</div>  </div>

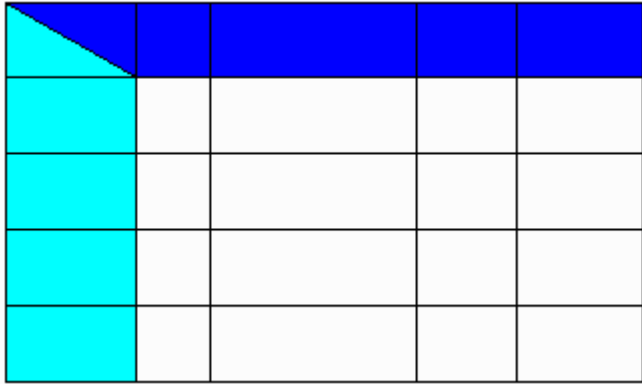
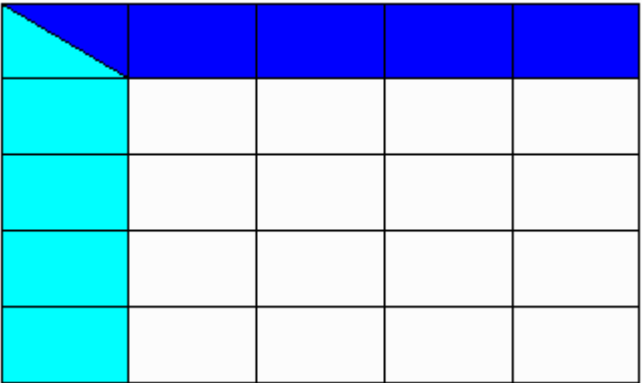
22

No.	Property	Function description	
(2)	(Alternate) Rows	You can set the displaying color for the (Alternate) Rows and set to use the (Alternate) Rows format.	
		Check	
		Uncheck	
		You can set the displaying color for the (Alternate) Columns and set to use the (Alternate) Columns format.	
	(Alternate) Columns	Check	
		Uncheck	

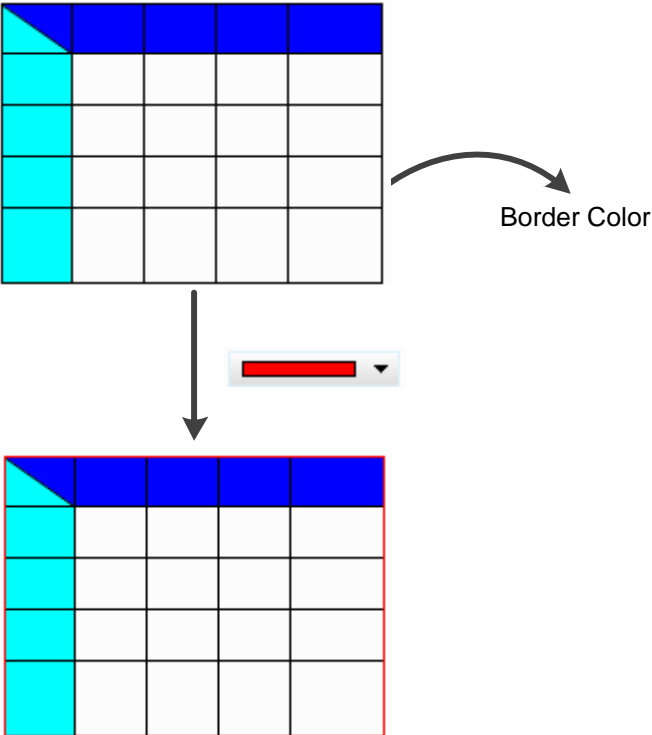
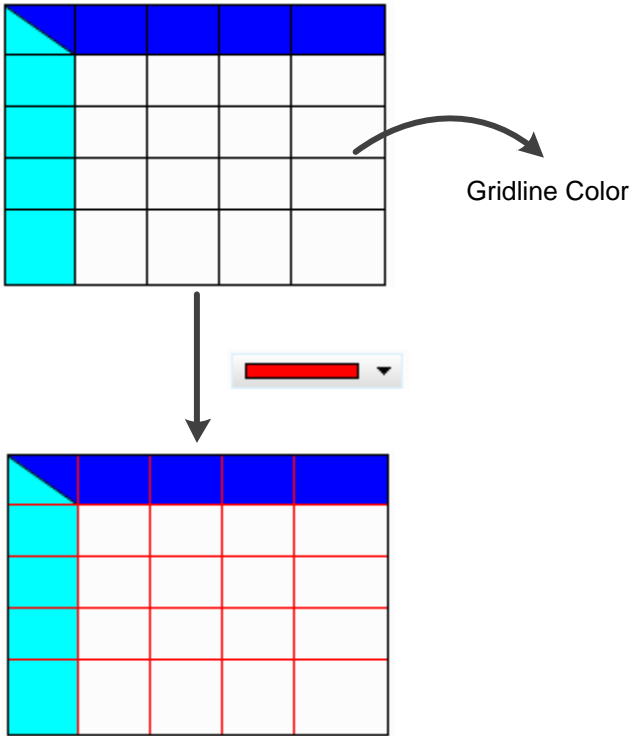
No.	Property	Function description	
(2)	(Alternate) Row Header	<p>To use (Alternate) Row Header, you need to check (Alternate) Rows to enable the (Alternate) Row Header function.</p>	
		<p>Check</p>	
		<p>Uncheck</p>	
		<p>To use (Alternate) Column Header, you need to check (Alternate) Columns to enable the (Alternate) Column Header function.</p>	
(2)	(Alternate) Column Header	<p>To use (Alternate) Column Header, you need to check (Alternate) Columns to enable the (Alternate) Column Header function.</p>	
		<p>Check</p>	
		<p>Uncheck</p>	

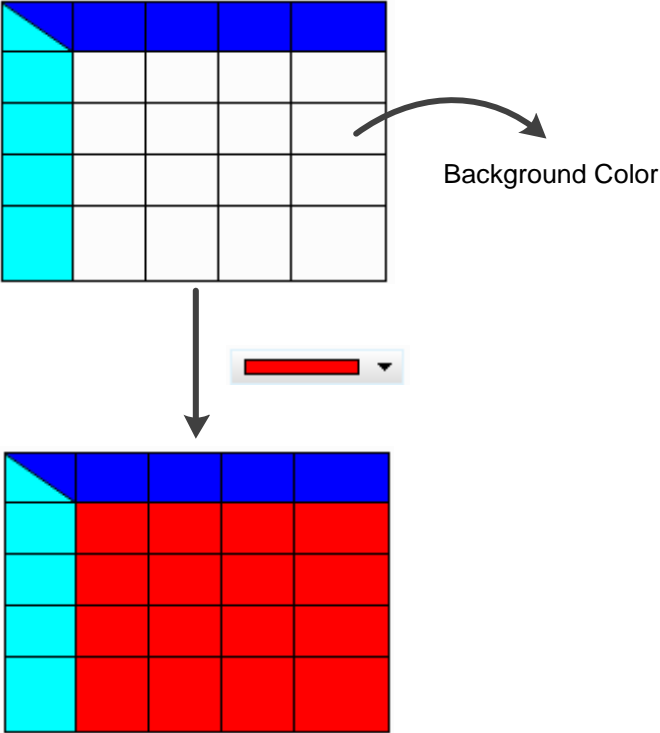
22

No.	Property	Function description
(3)	Distribute Rows Evenly	<ul style="list-style-type: none"> ■ The Distribute Rows Evenly option adjusts uneven height between the rows in a table. <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border-right: 1px solid black; padding-right: 5px; text-align: center; width: 60px;">Before</div> <div style="margin-left: 10px;">  </div> </div> <div style="display: flex; align-items: center;"> <div style="border-right: 1px solid black; padding-right: 5px; text-align: center; width: 60px;">After</div> <div style="margin-left: 10px;">  </div> </div> <ul style="list-style-type: none"> ■ You can set the height for the row with the sum of the height not exceeding the element height. ■ If the set row height is greater than the element height, the software displays the following message. <div style="border: 1px solid red; padding: 10px; margin-top: 10px; width: fit-content;"> <div style="display: flex; justify-content: space-between; border-bottom: 1px solid red; padding-bottom: 5px;"> DOPSoft × </div> <p style="text-align: center; margin: 10px 0;">Total row height exceeds the element size.</p> <div style="text-align: right; border-top: 1px solid red; padding-top: 5px;"> <input type="button" value="OK"/> </div> </div>

No.	Property	Function description
	Distribute Columns Evenly	<ul style="list-style-type: none"> ■ The Distribute Columns Evenly option adjusts uneven width between the columns in a table. <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid gray; padding: 5px; margin-right: 10px; text-align: center;">Before</div>  </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid gray; padding: 5px; margin-right: 10px; text-align: center;">After</div>  </div> <ul style="list-style-type: none"> ■ You can set the width for the column with the sum of the width not exceeding the element width. ■ If the set column width is greater than the element width, the software displays the following message. <div style="border: 1px solid red; padding: 10px; margin-top: 10px; width: fit-content;"> <div style="display: flex; justify-content: space-between; border-bottom: 1px solid gray; padding-bottom: 5px;"> DOPSoft × </div> <p style="text-align: center; margin: 10px 0;">Total column width exceeds the element size.</p> <div style="text-align: right; border-top: 1px solid gray; padding-top: 5px;"> <input type="button" value="OK"/> </div> </div>

22

No.	Property	Function description
(4)	Border Color	<p>Set the Border Color for the table.</p> 
(5)	Gridline Color	<p>Set the Gridline Color for the table.</p> 
(6)	Number of Rows Number of Columns	Up to 99 rows and columns can be added for the Number of Rows and Columns.

No.	Property	Function description
(7)	Background Color	<p>You can customize the displaying color for the element background.</p>  <p>The diagram illustrates the process of customizing the background color of a grid element. It starts with a 5x5 grid where the first column is cyan and the first row is blue. An arrow labeled 'Background Color' points to the grid. Below the grid is a color selection tool with a red bar and a dropdown arrow. A vertical arrow points from the tool to a second grid where the right four columns are now red.</p>

22

■ Main-2

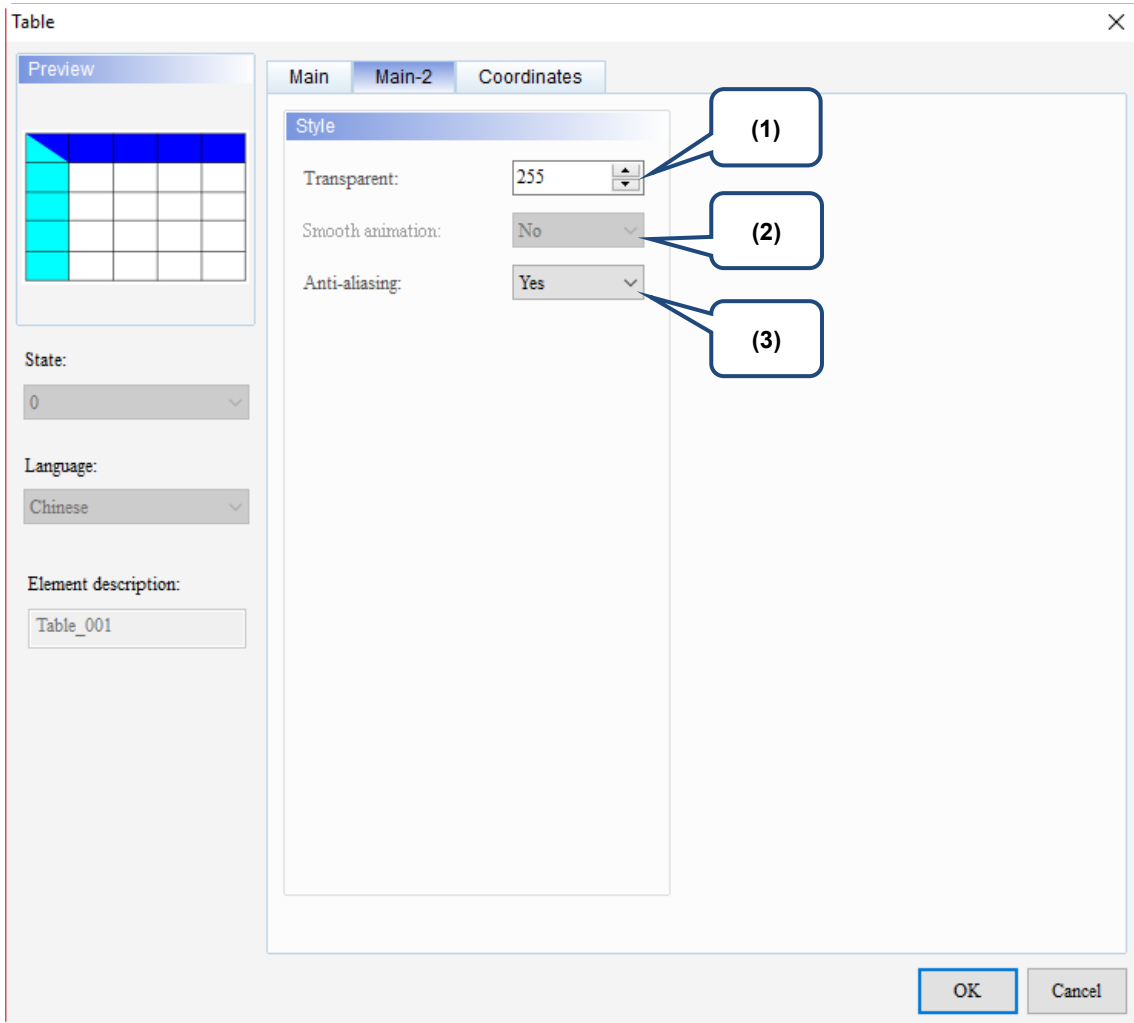
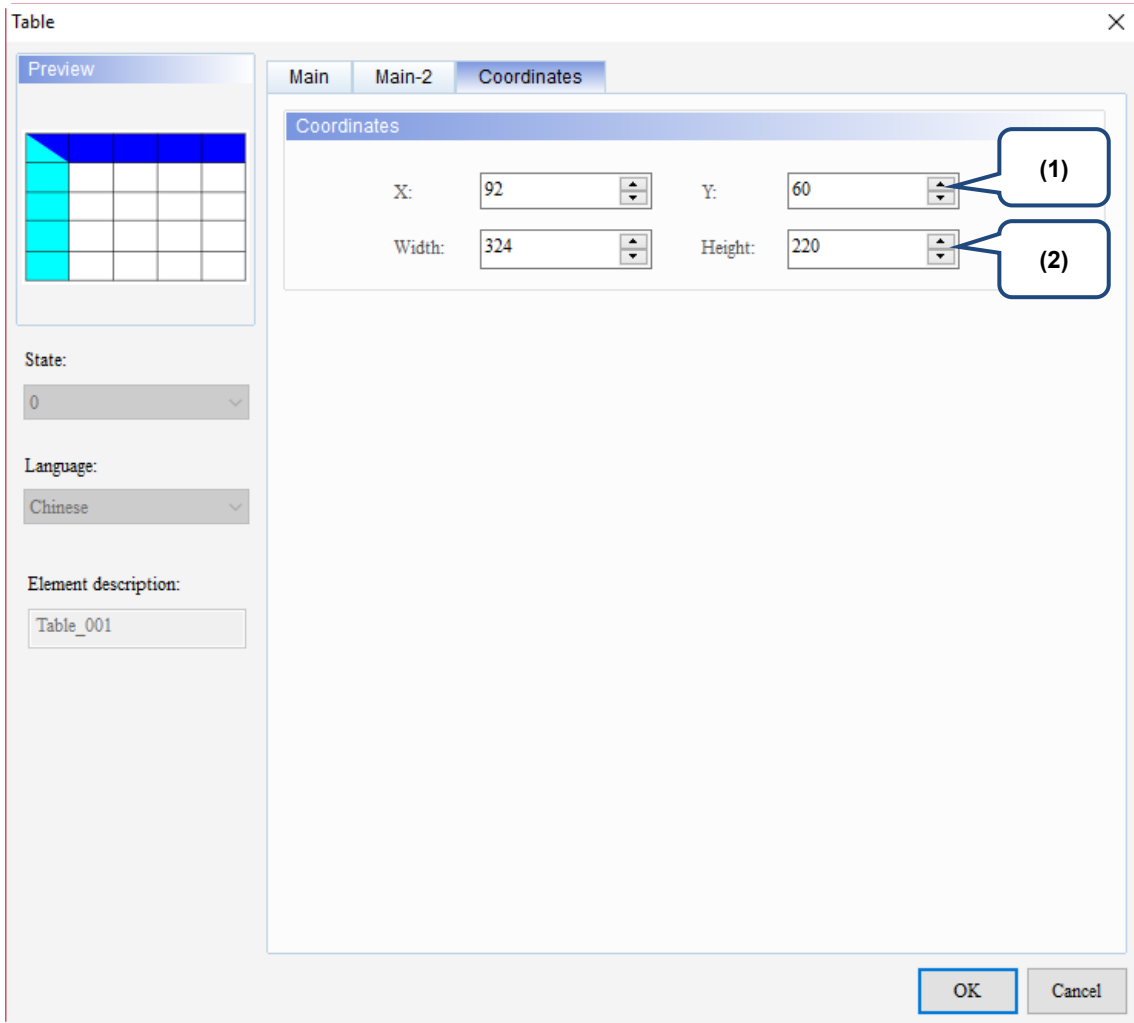


Figure 22.7.3 Main-2 property page for the Table element

No.	Property	Function description		
(1)	Transparent	You can set the transparency value within the range of 50 to 255. The default is 255. The smaller the value, the higher the transparency of the element.		
(2)	Smooth animation	The Smooth animation function is not available for this element.		
(3)	Anti-aliasing	The Anti-aliasing function is available for this element and the default is Yes.		
		<table border="1"> <tr> <td>Yes</td> <td></td> </tr> <tr> <td>No</td> <td></td> </tr> </table>	Yes	
Yes				
No				

■ Coordinates



22

Figure 22.7.4 Coordinates property page for the Table element

No.	Property	Function description
(1)	X value and Y value	Set the upper left X coordinate and Y coordinate of the elements.
(2)	Width and Height	Set the width and height of the elements.

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22

Recipe

23

This chapter explains the memory address occupied by recipes and the way to set up recipes in detail.

23.1	16-bit Recipe.....	23-3
23.2	32-bit Recipe.....	23-20
23.3	Indirect recipe index register (*RCP)	23-38
23.4	Enhanced recipe	23-41
23.5	Enhanced indirect recipe index register (*ENRCP)	23-61

23

A recipe is comprised of a number of parameters. When different products are used for different industrial applications, these products have their corresponding parameters. You can change the type of the products and use the corresponding recipe parameters. You can also set and save the recipe parameters. The created recipe tables can be uploaded from the HMI to the PLC or downloaded from the PLC to the HMI. The recipe function enables you to store a large number of numeric parameters in the HMI memory area. For example, the baking time varies from different types of bread, and these time variables can be controlled by the HMI recipe function. The purpose is to reduce the load of the controller, so that the register of the controller can be conserved for other operations.

Classification of recipe setup elements for the HMI:

Recipe setup	16-bit Recipe
	32-bit Recipe
	Enhanced Recipe

23.1 16-bit Recipe

Select the **Enable** check box and set the 16-bit Recipe Address, and then the dedicated register appears for you to create the 16-bit Recipe data.

The 16-bit Recipe has its own registers, which are RCP and RCPNO.

RCP	Recipe register
RCPNO	Recipe number register

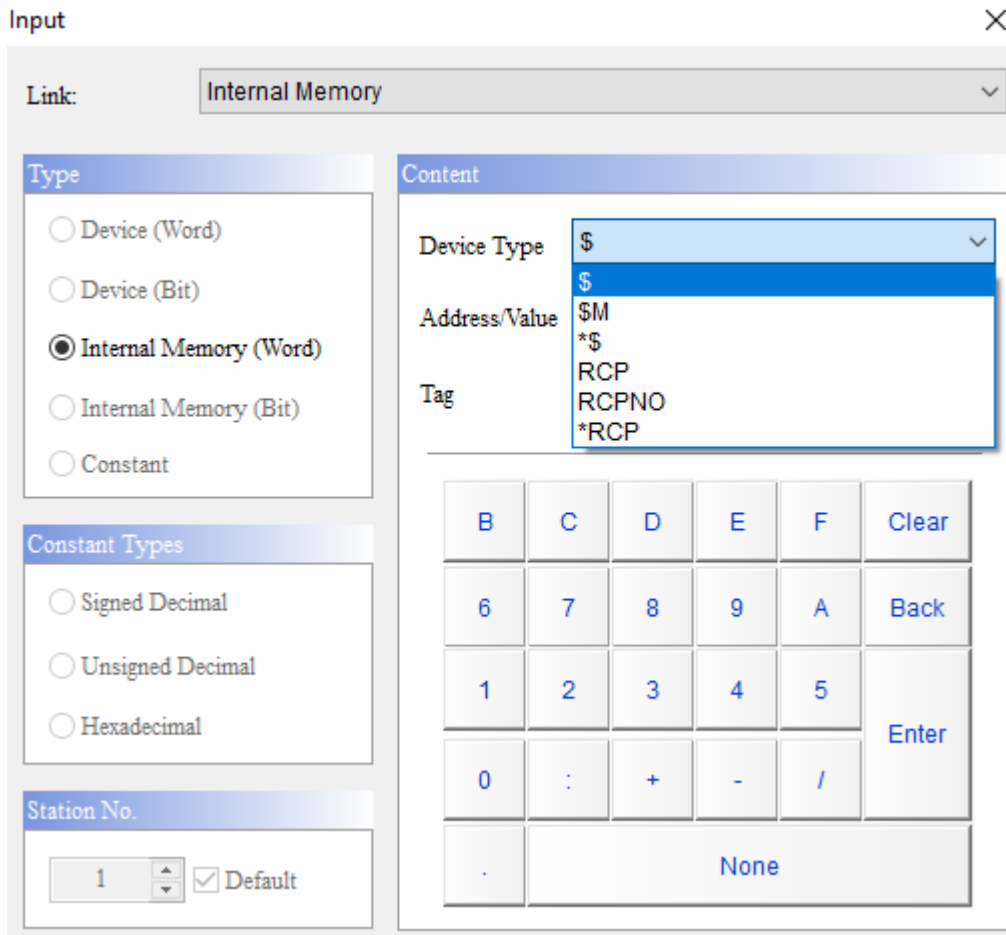
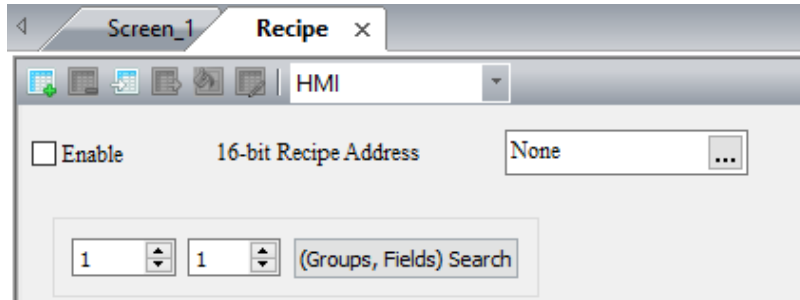


Figure 23.1.1 16-bit Recipe register

When the 16-bit Recipe is used, the size of each recipe register is 16 bits (16 bits = 1 word). Assuming that the length is L and the group is G, the actual recipe count is L*G words.

23

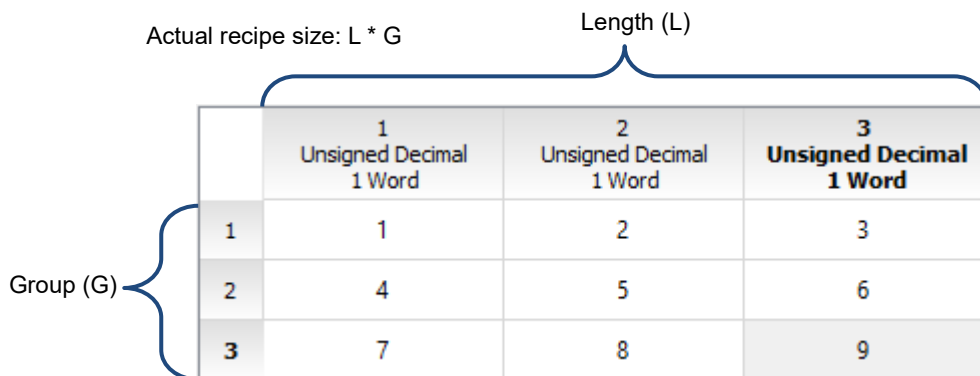


Figure 23.1.2 16-bit Recipe register size

■ Recipe number register (RCPNO)

The recipe number register is used to specify the number for the 16-bit Recipe. Reading / writing of the recipe means to read / write a set of recipes according to the recipe number recorded in the recipe number register. When you select the first set of recipes, RCPNO = 1; when you select the fourth set of recipes, RCPNO = 4.

Note: the recipe number register does not feature the non-volatile function, so the data in the register cannot be maintained when the HMI is powered off.

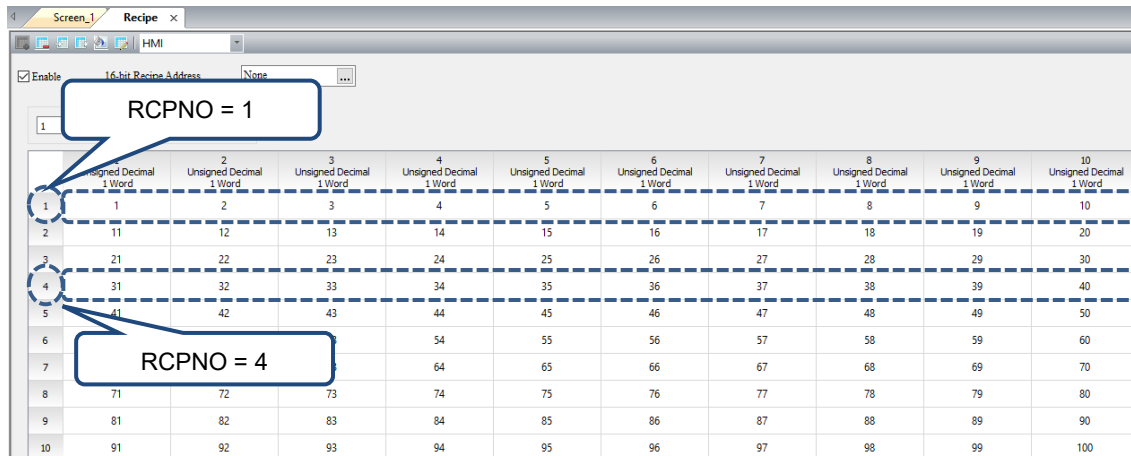


Figure 23.1.3 Recipe number editing screen

■ Recipe register (RCP)

A recipe buffer is featured in the HMI and is configured at the front of the recipe register. This buffer is used to store the selected set of recipes, and the length of the recipe buffer equals the length of the selected set of recipes, that is, the recipe buffer also occupies L recipe registers. Thus, the number of the recipe registers that a recipe table occupies is $L * (G+1)$, where G+1 stands for the number of the registers with an additional buffer. With the recipe buffer, you only need to switch between the recipe numbers to check the currently specified recipe parameters. When the selected recipe number (RCPNO) is 1, the first set of recipes is displayed in the recipe buffer (i.e. RCPNO = 1 in the following figure).

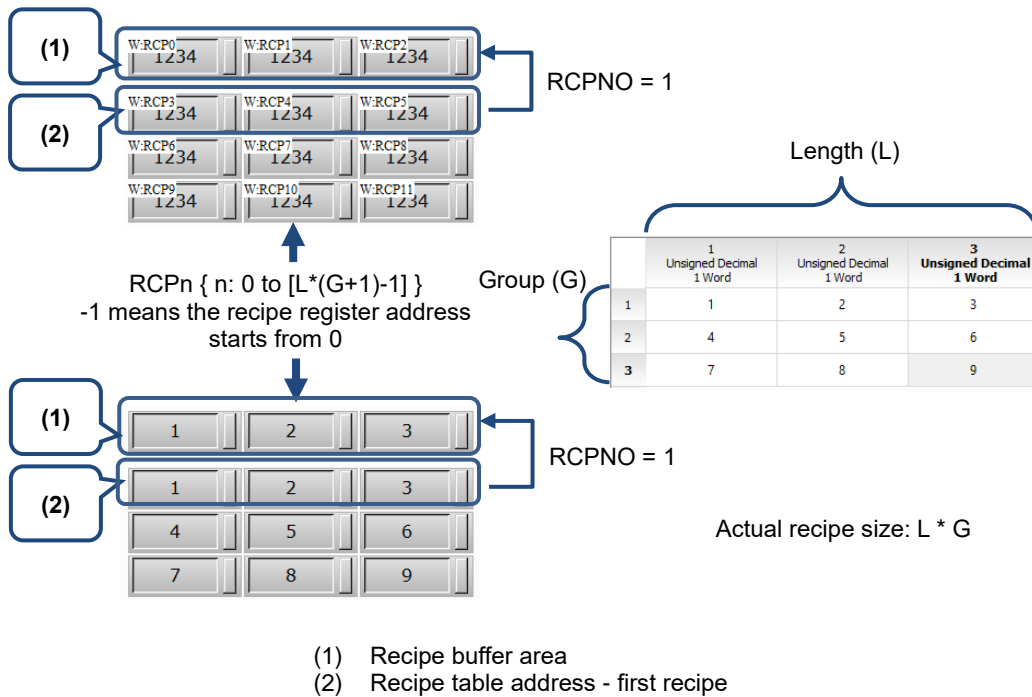


Figure 23.1.4 16-bit Recipe buffer configuration

Accessing range of the recipe register:

Table 23.1.1 Recipe register

Accessing type	Device type	Accessing range
Word	RCPn	RCP0 to RCP65535
Bit	RCPn	RCP0.0 to RCP65535.15

Note: n = Word (0 to 65535)

23

The address accessing range provided by RCP is limited according to the recipe size that you created. Assuming that the recipe size is length 3*group 3, then the RCP address ranges from RCP0 to RCP11. When the RCP12 address is created, the software displays the warning message shown as follows.

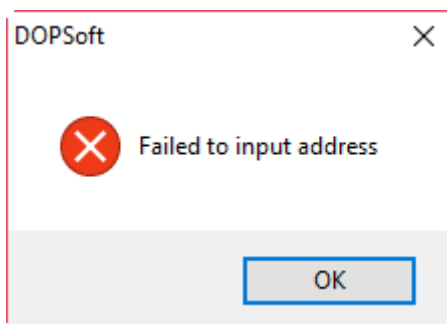


Figure 23.1.5 Recipe register configuration error

- 16-bit Recipe size limit
1. If the non-volatile memory area is set in the USB Disk or SD Card, the editable size of a 16-bit Recipe is $(L * G) = 4194304$. You can go to [View] > [Memory List] to check the size and capacity for the 16-bit Recipe.

Item	Cost-Bytes
History	0 (0K)
Alarm	0 (0K)
Total Used	0 (0K)
Available	437675622 (427417K)
Free	437675622 (427417K)
1 - Screen_1	0.00 % Used
Macro	0 (0K)
Curve	0 (0K)
Image	644 (0K)
Text	0 (0K)
Background Image	0 (0K)
Total Used	644 (0K)
Available	437675622 (427417K)
Free	437674978 (427416K)
Screen Saver	Pass
Sub Screen	Pass
External Storage	
Alarm	0 (0K)
History	0 (0K)
Recipe16	0 (0K)
Recipe 32	0 (0K)
Enhanced Recipe	0 (0K)
Total Used	0 (0K)

Figure 23.1.6 16-bit Recipe external storage

- 2. If the non-volatile memory area is set to the HMI, the editable size of a 16-bit Recipe is $(L \cdot G) = 65536$ words or 64K. Hence, when the edited 16-bit Recipe exceeds 64K, a warning message appears on the Recipe Settings window to remind you that the current recipe size has exceeded the allowable limit.

23

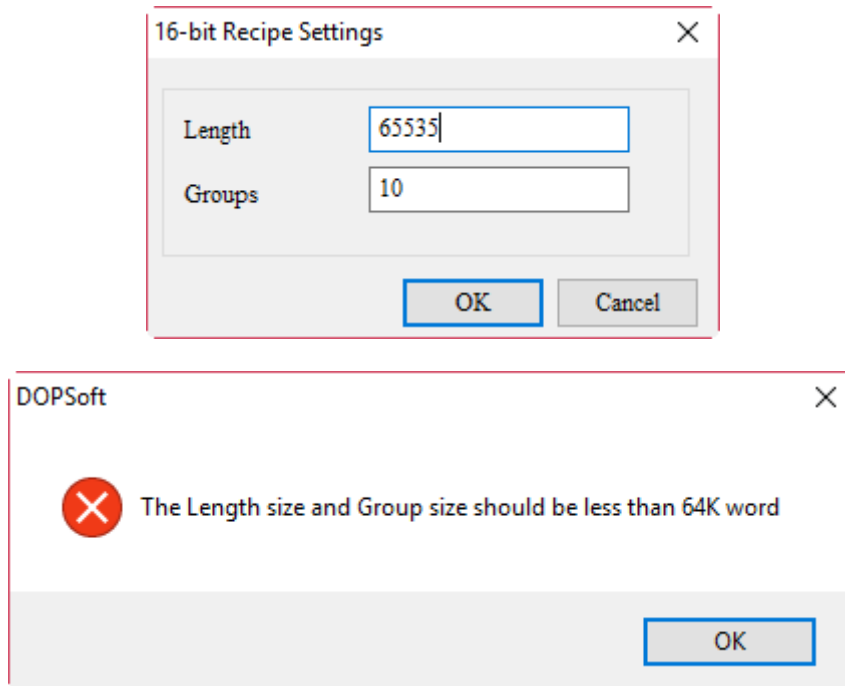


Figure 23.1.7 16-bit Recipe internal storage

23

Go to [Options] > [Recipe] to create the 16-bit Recipe data. By setting the recipe, you can batch write a large amount of data to the PLC or batch read the data from the PLC to the HMI with the Recipe Control flag of the Control Block. The recipe can be used for controlling the industrial production process, enhancing convenience in processing a large amount of data.

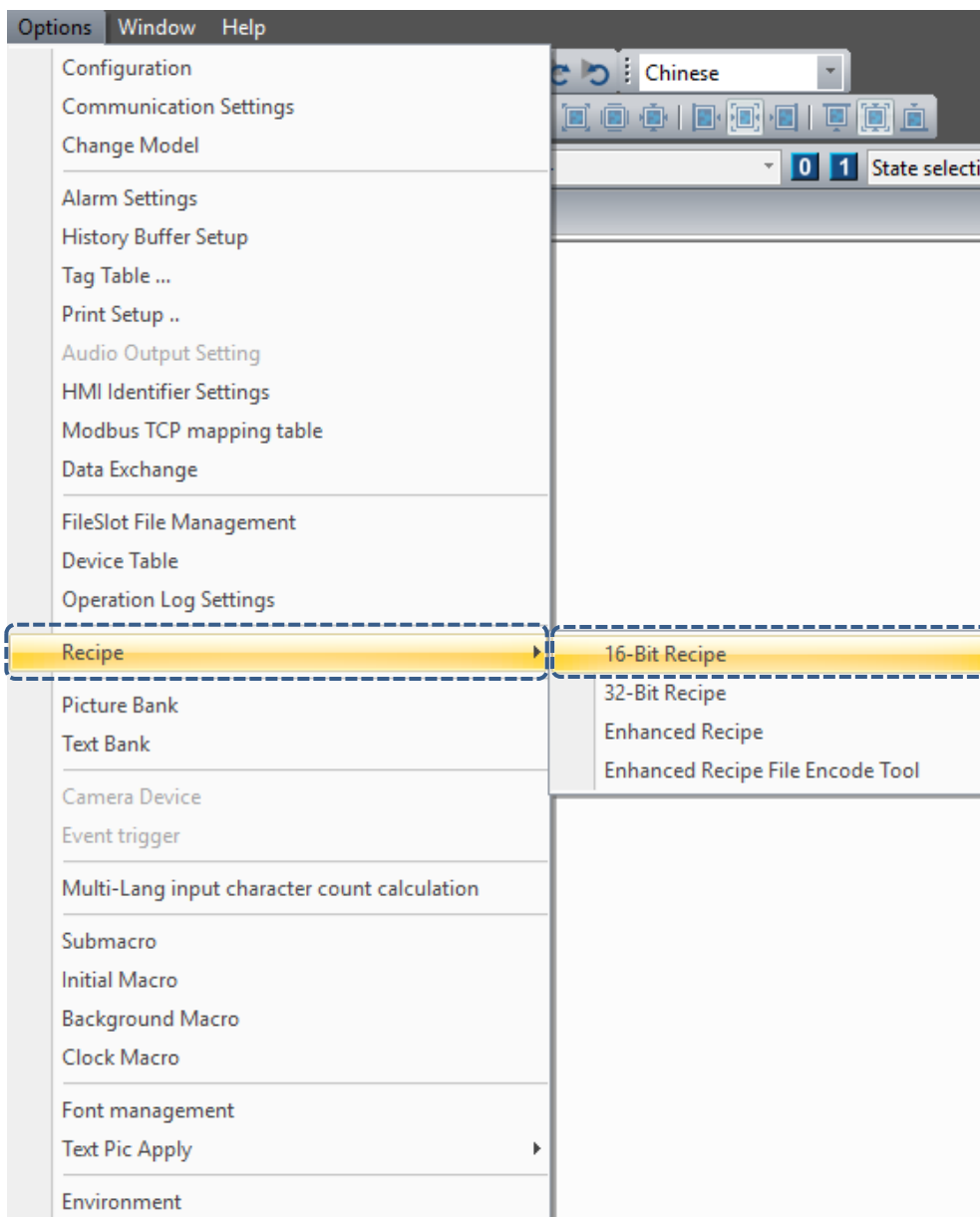


Figure 23.1.8 16-bit Recipe

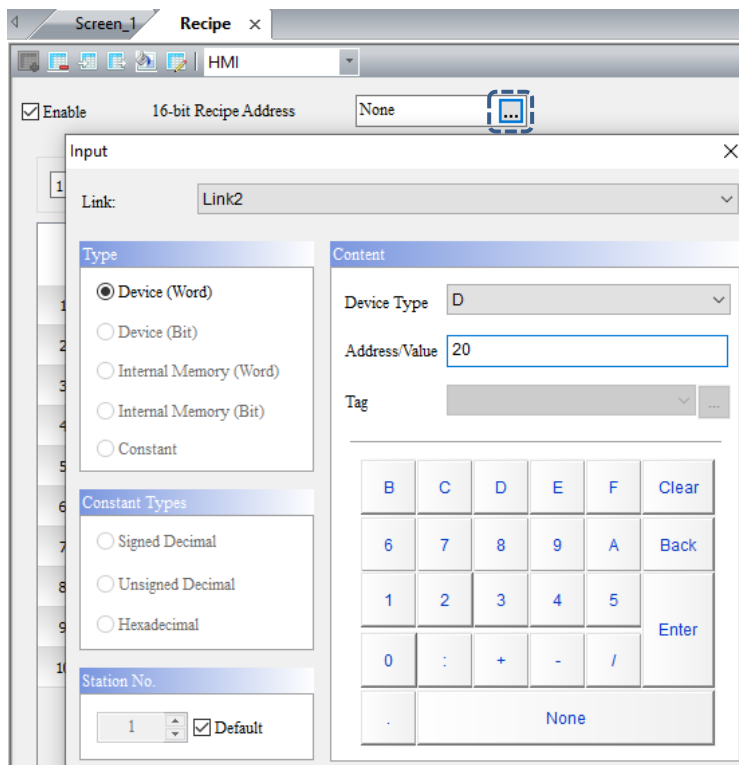
Refer to the 16-bit Recipe example in Table 23.1.2 as follows.

Table 23.1.2 16-bit Recipe example


16-bit Recipe

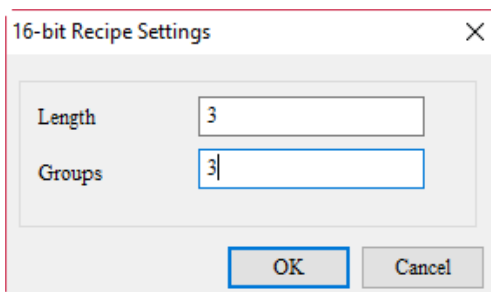
Step 1: go to [Options] > [Recipe] > [16-Bit Recipe].

1. Select the **Enable** check box.
2. Set the external address to D20.

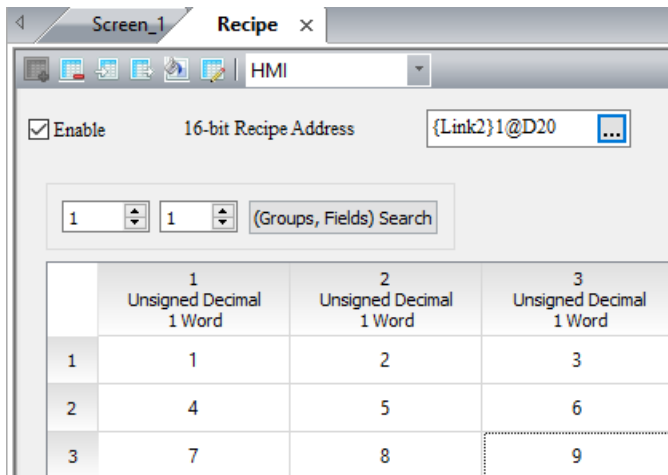


Set 16-bit Recipe

3. Click  to set the Length and Groups to 3.



4. Click **OK** and a table with the set Length and Groups appears. Fill in the values to be displayed.



23

Create RCPNO Numeric Entry element

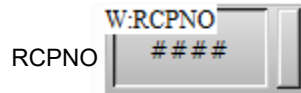
16-bit Recipe

- Create a Numeric Entry element and set the Write Address to the Internal Memory. Select RCPNO for the Device Type. This element is used to select the recipe number.

The screenshot shows the 'Input' configuration window with the following settings:

- Link:** Internal Memory
- Type:**
 - Device (Word)
 - Device (Bit)
 - Internal Memory (Word)
 - Internal Memory (Bit)
 - Constant
- Constant Types:**
 - Signed Decimal
 - Unsigned Decimal
 - Hexadecimal
- Station No.:** 1 Default
- Content:**
 - Device Type:** RCPNO
 - Address/Value:** [Empty text box]
 - Tag:** [Empty dropdown menu]
- Keypad:** A numeric keypad with buttons for B, C, D, E, F, Clear, 6, 7, 8, 9, A, Back, 1, 2, 3, 4, 5, Enter, 0, :, +, -, /, and a 'None' button.

- The following is an example of the created element:



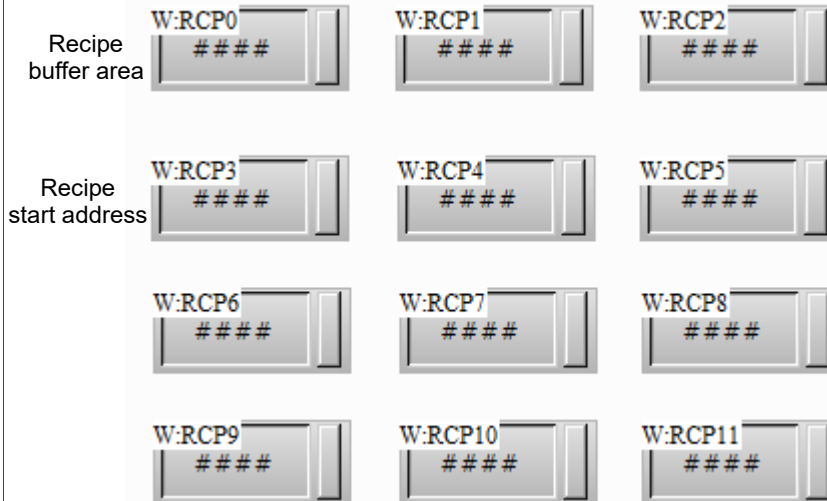
16-bit Recipe

The steps are as follows:

1. Input the size of the recipe (Length (L) x Group (G) = 3 x 3) into the formula $L * (G+1)$ to get the actual configured RCP = RCP0 to RCP11.
2. Create 12 Numeric Entry elements and set their Read Addresses as RCP0 to RCP11 of the Internal Memory.

Create RCP
Numeric
Entry
elements

3. The following is an example of the created elements:



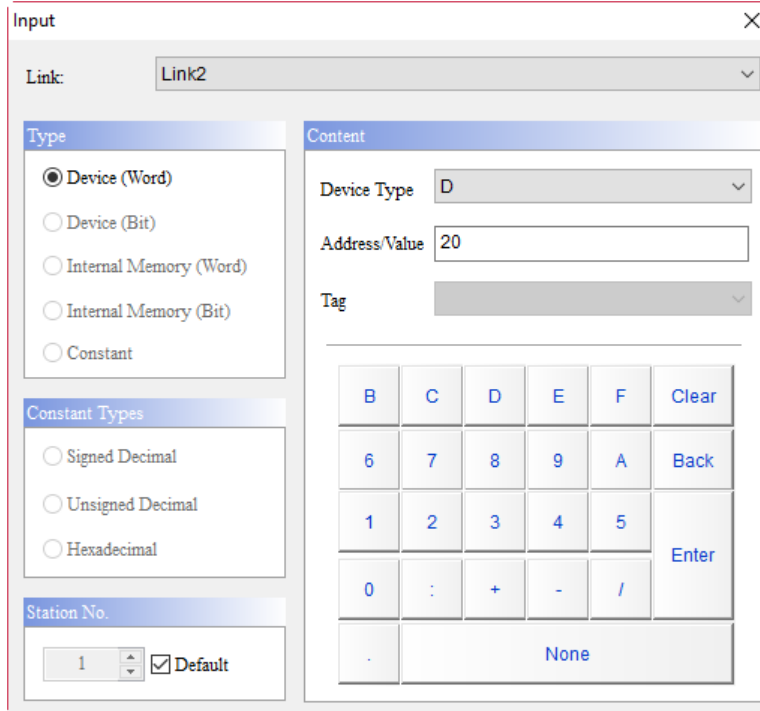
Note: RCP0 to RCP2 are the recipe buffers and the actual recipe data RCPs are RCP3 to RCP11. For more information, refer to Figure 23.1.4 16-bit Recipe buffer configuration.

23

Create Numeric Entry elements for the Recipe Read Address

16-bit Recipe

- Create three Numeric Entry elements, which are D20, D21, and D22, to display changes made to the data when the PLC recipes are read or written.
- Set the Read Address to D20 for the Numeric Entry element, which is shown as follows:



- The following is an example of the created elements:

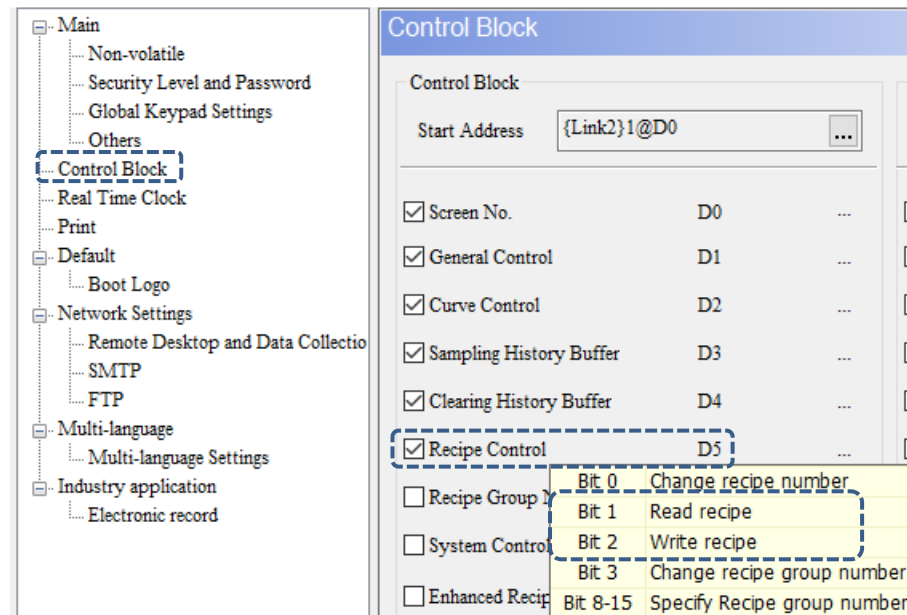


Go to [Options] > [Configuration] > [Control Block], and select the **Recipe Control** flag check box. Then, set the Start Address for the Control Block to define the recipe control address.

Once the setting is complete, click **OK** to exit the Configuration window.

Set Recipe Control flag in Control Block

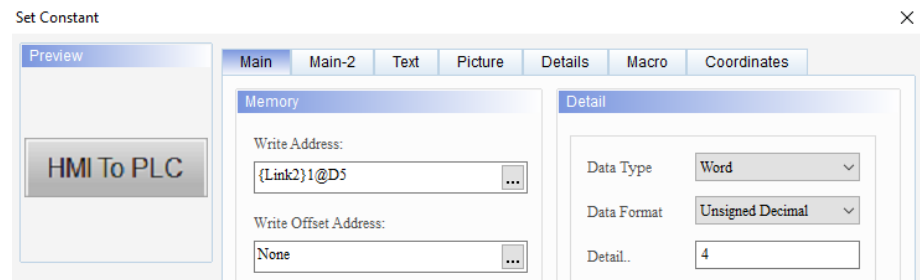
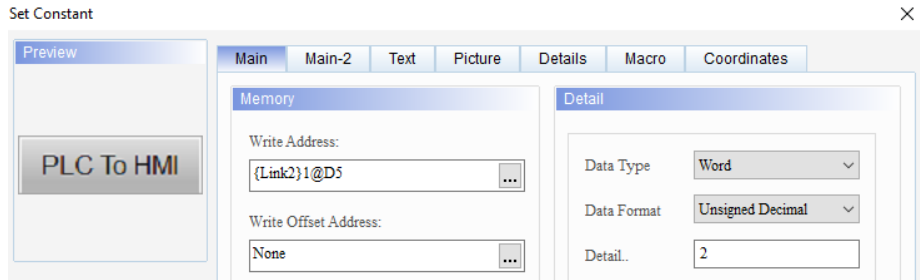
Configuration



16-bit Recipe

Create two Set Constant buttons. Set the Write Addresses to D5 and the setting values (Detail.) to 2 and 4 corresponding to Bit 1 and Bit 2 of the Recipe Control flag D5 respectively for reading and writing the recipe.

Create Set Constant elements

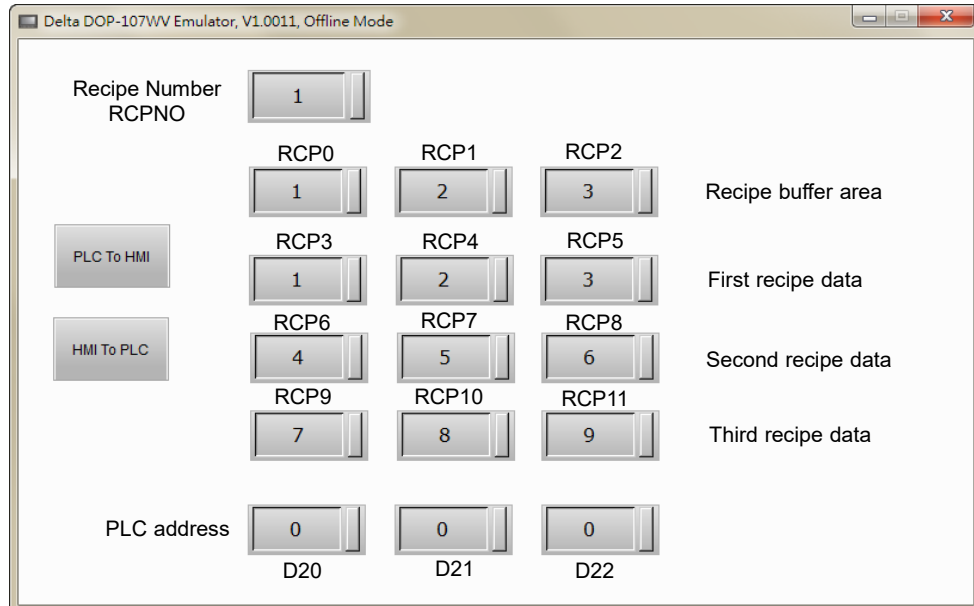


- After creating all the elements, execute the Compile and Download Screen and Recipe buttons to download data to the HMI.



- Select the recipe number. The recipe data is displayed in RCP0 to RCP11 according to the set recipe, with RCP0 to RCP2 as the recipe buffers. The starting address for the first set of the actual recipe data is RCP3.

Execution results

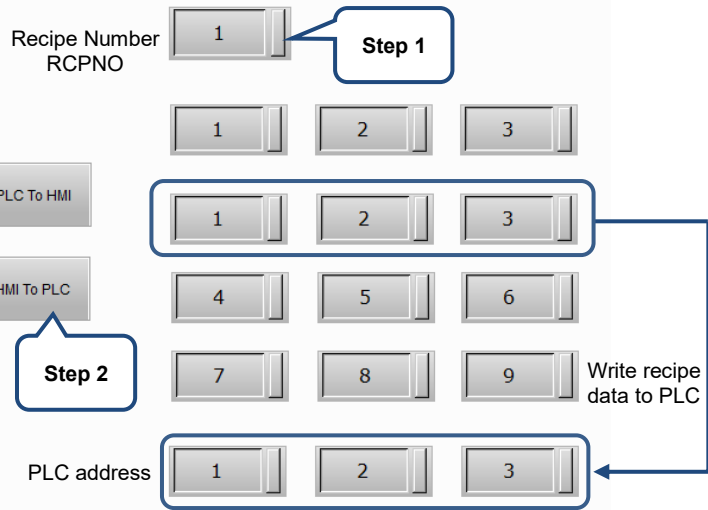


- Trigger the Write Recipe (HMI To PLC) button, and the recipe data of the selected set of recipe (RCPNO = 1) is written to the PLC. Trigger the Read Recipe (PLC To HMI) button, and the recipe data written to the PLC is read back to the HMI. And the recipe data read back is then written to the selected set of recipe (RCPNO =2).

23

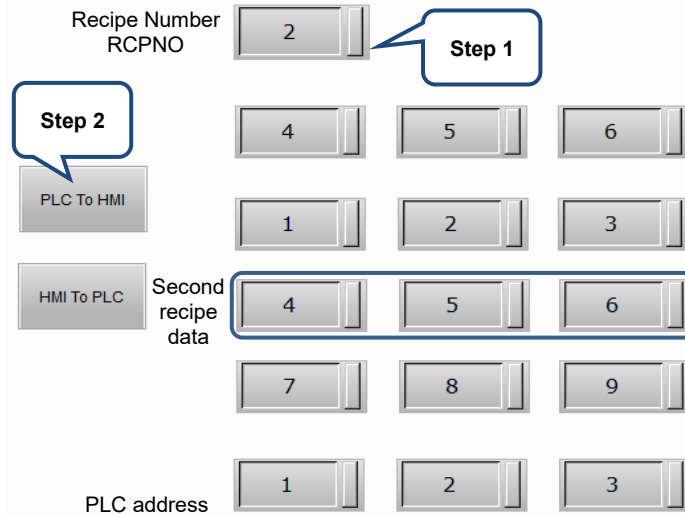
16-bit Recipe

Write recipe
(HMI to PLC)

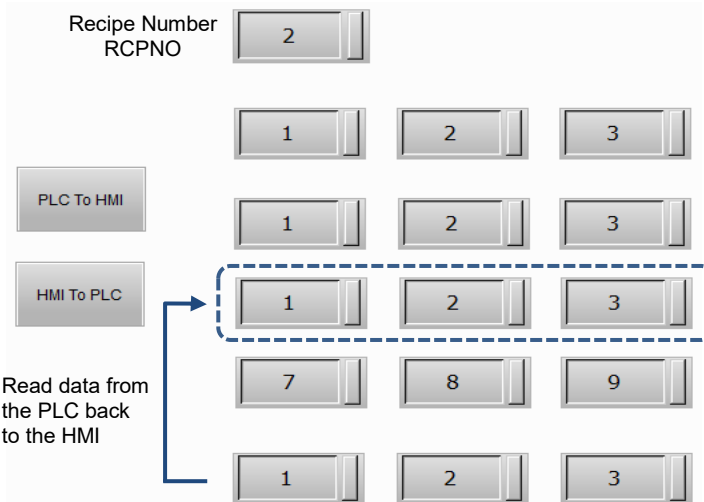


Execution results

Read recipe
(PLC to HMI)

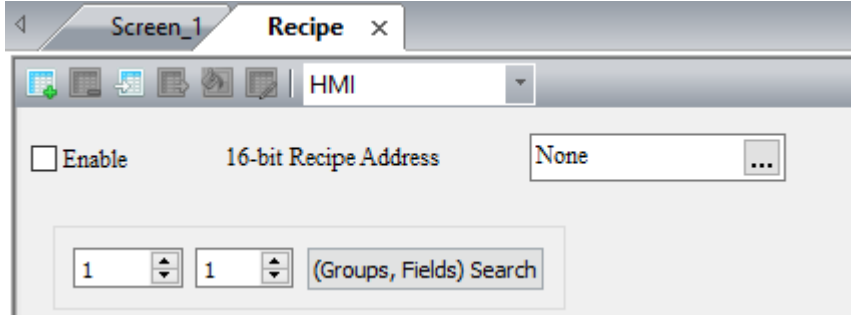
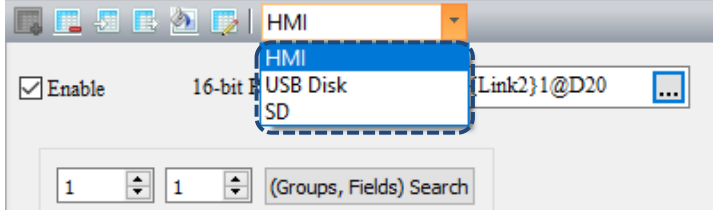
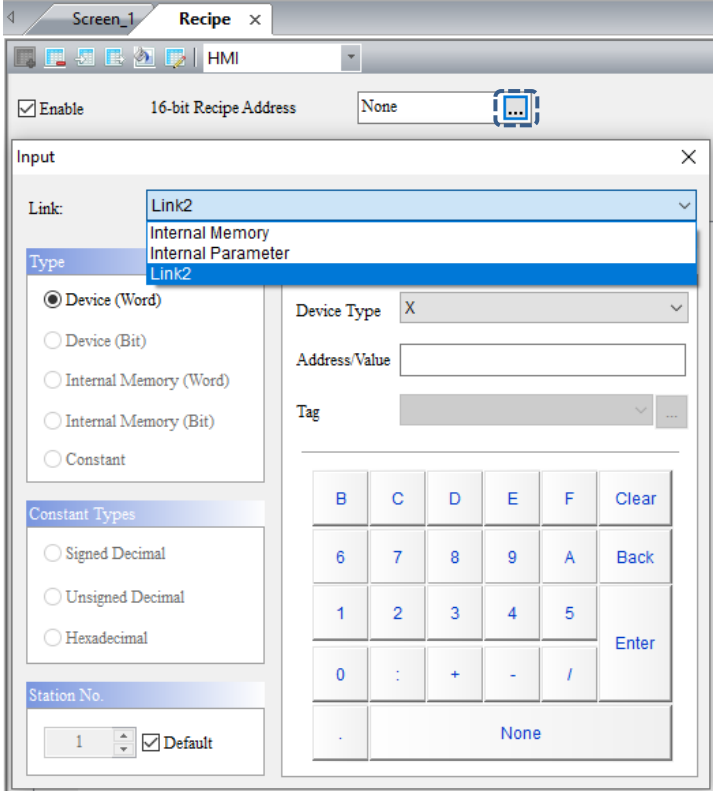


- After Step 2 is carried out, the data of the second set of recipe is changed to 1, 2, and 3 because the PLC data is read back to the HMI.




The following section introduces the property settings for the 16-bit Recipe.


Table 23.1.3 Properties of the 16-bit Recipe setting

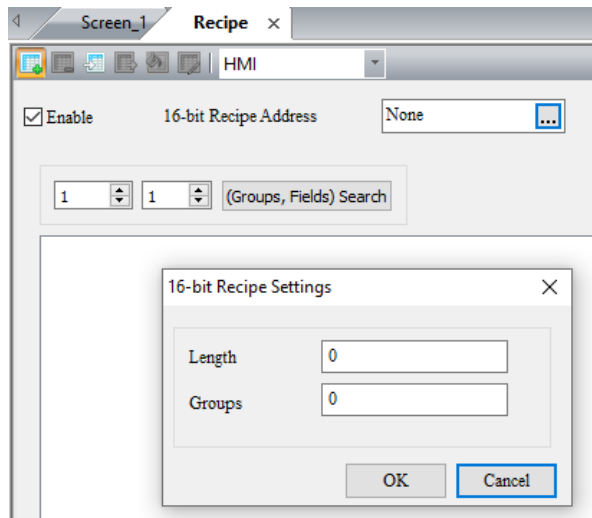
Properties of the 16-bit Recipe setting	
	23
	
Enable	<ul style="list-style-type: none"> ■ Select the Enable check box to use the recipe register address. ■ If Enable is not selected, setting the 16-bit Recipe does not take effect.
Non-volatile	<ul style="list-style-type: none"> ■ The non-volatile memories include HMI, USB Disk, and SD Card. <div style="text-align: center;">  </div> <ul style="list-style-type: none"> ■ If you set to save in the HMI, the data is saved in the HMI ROM when the power is off.
Recipe read address	<ul style="list-style-type: none"> ■ You can select the internal memory or the controller register address. ■ Select Link Name or Device Type. Refer to Chapter 5 for details. <div style="text-align: center;">  </div>

23

Properties of the 16-bit Recipe setting

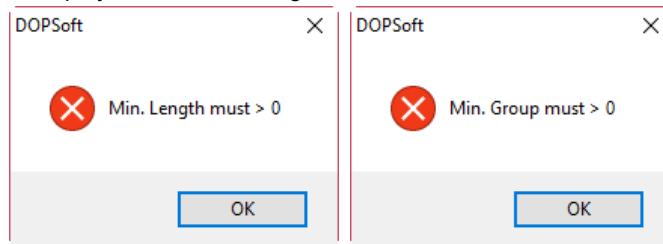
Add recipe 

Click  and set the Length and Groups.



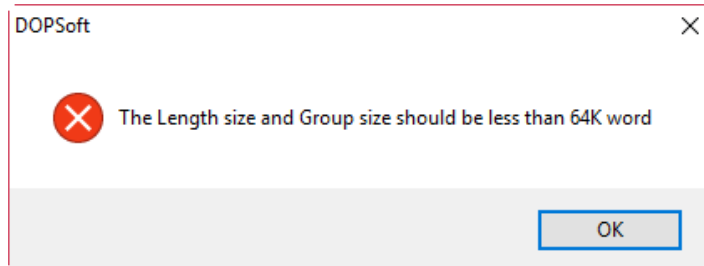
Length / Groups

- After entering the Length and Groups values for the recipe, press **OK** to create the recipe.
- The Length and Groups cannot be 0. If you input 0 in Length or Groups, the software displays an error message.

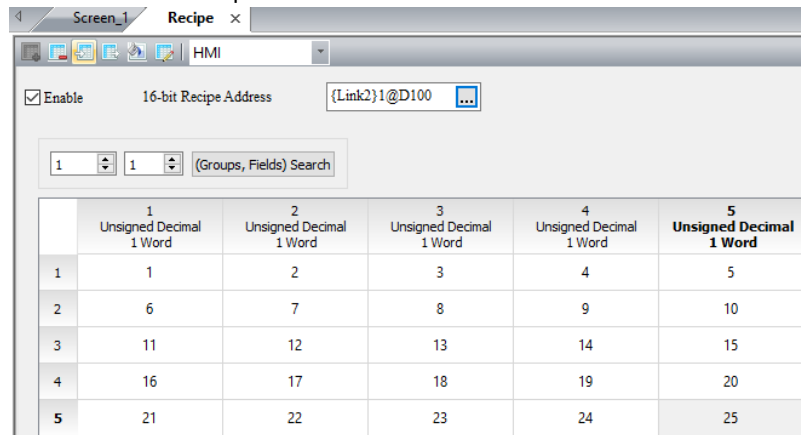


Recipe content

- Enter the Length and Groups to form a table of Length (L) x Groups (G) in the blank area. For example, with 4 for the Length and 3 for the Groups, the table is 4 x 3.
Note: limited by the internal memory size of the HMI, the recipe size cannot exceed 64K (Length x Groups cannot be greater than 65536). If the recipe size exceeds 64K, the software displays the following warning message:

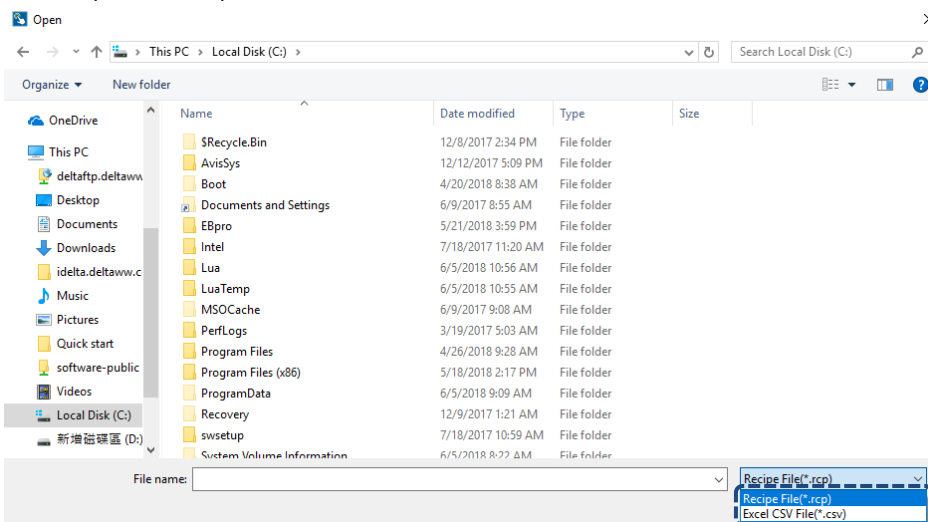


- You can fill in the recipe data in this table.



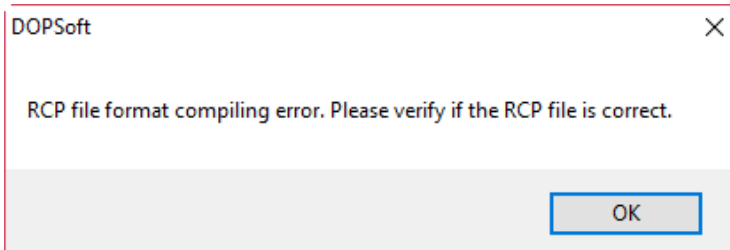
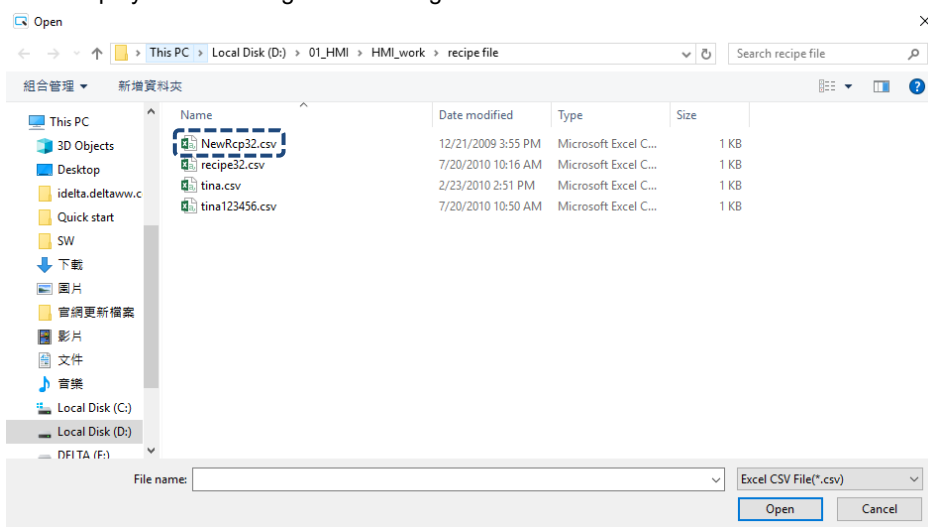
Properties of the 16-bit Recipe setting

- The import recipe function supports CSV and RCP file formats for you to select and import the recipe.



- The opened and imported recipe file provides the current recipe data content only, and the recipe address does not support loading the originally set address. If you use the 16-bit Recipe to open a RCP or CSV file of the 32-bit Recipe, the software displays the following error message once the file is loaded.

Import recipe



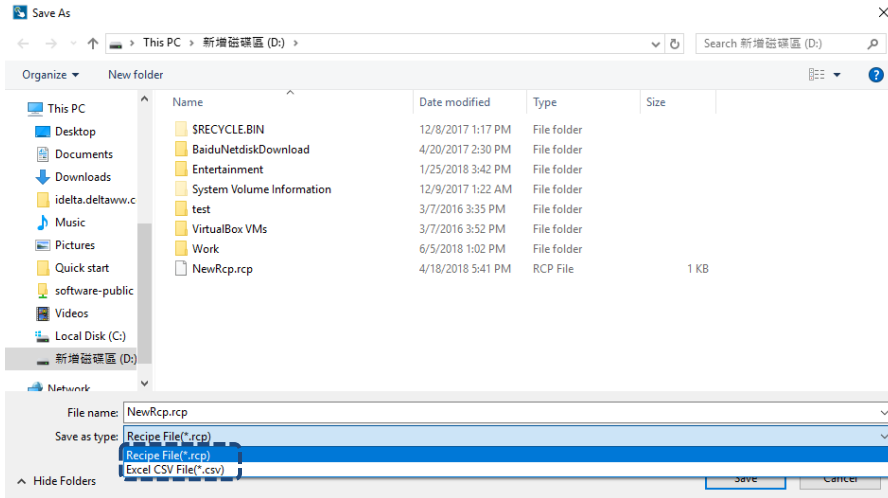
23

Export recipe



Properties of the 16-bit Recipe setting

- The export recipe function saves the current 16-bit Recipe. The supported file formats are the same as those of the import recipe function, which are CSV and RCP files.



- The saved recipe data does not support saving the set recipe address.


Clear configuration



Clear the recipe content that has the value entered.

	1 Unsigned Decimal 1 Word	2 Unsigned Decimal 1 Word	3 Unsigned Decimal 1 Word	4 Unsigned Decimal 1 Word	5 Unsigned Decimal 1 Word
Before	1	2	3	4	5
2	6	7	8	9	10
3	11	12	13	14	15
4	16	17	18	19	20
5	21	22	23	24	25
After	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0

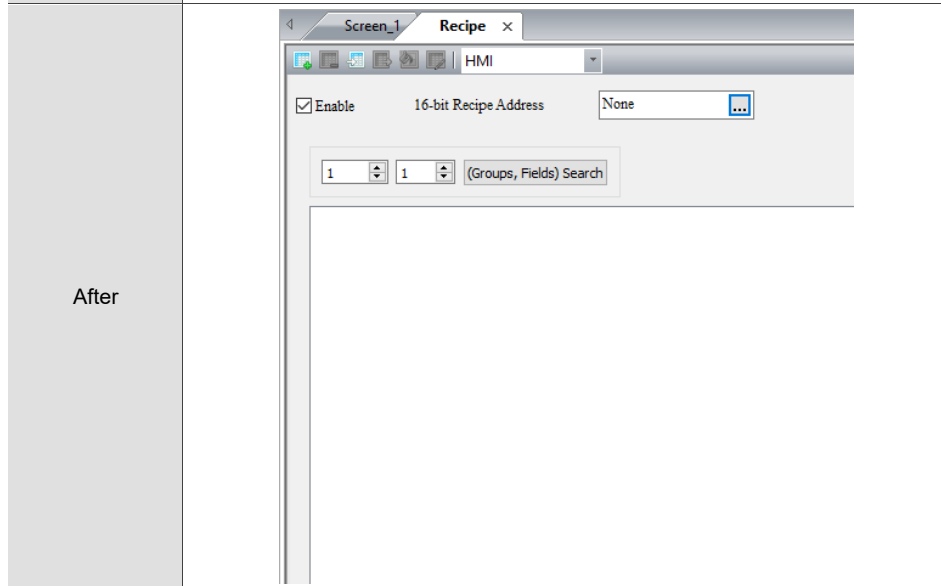
Properties of the 16-bit Recipe setting

- Click  to delete the entire recipe. You will have to create a new recipe if necessary.
- The delete function also sets the 16-bit Recipe Address to None.

Delete recipe

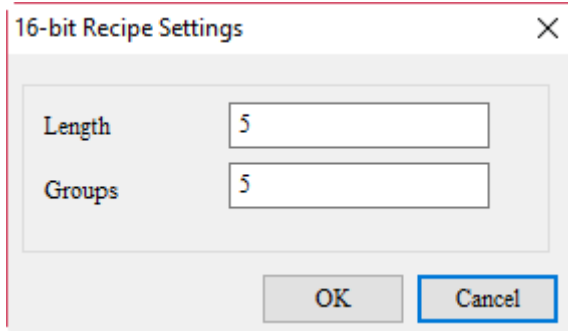

Before

	1 Unsigned Decimal 1 Word	2 Unsigned Decimal 1 Word	3 Unsigned Decimal 1 Word	4 Unsigned Decimal 1 Word	5 Unsigned Decimal 1 Word
1	1	2	3	4	5
2	6	7	8	9	10
3	11	12	13	14	15
4	16	17	18	19	20
5	21	22	23	24	25



Change the settings of the Length and Groups for the recipe.

Recipe Settings

23

23.2 32-bit Recipe

The data type that the 32-bit Recipe supports is Double Word. The data formats include Signed Decimal, Unsigned Decimal, and Floating. The size of each recipe register is 32 bits (2 Words or 1 Double Word, DW). Different from the 16-bit Recipes, the 32-bit Recipe features an additional recipe grouping option. When reading or writing the recipe, you have to specify both the recipe number and recipe group before reading / writing one of the recipe sets.

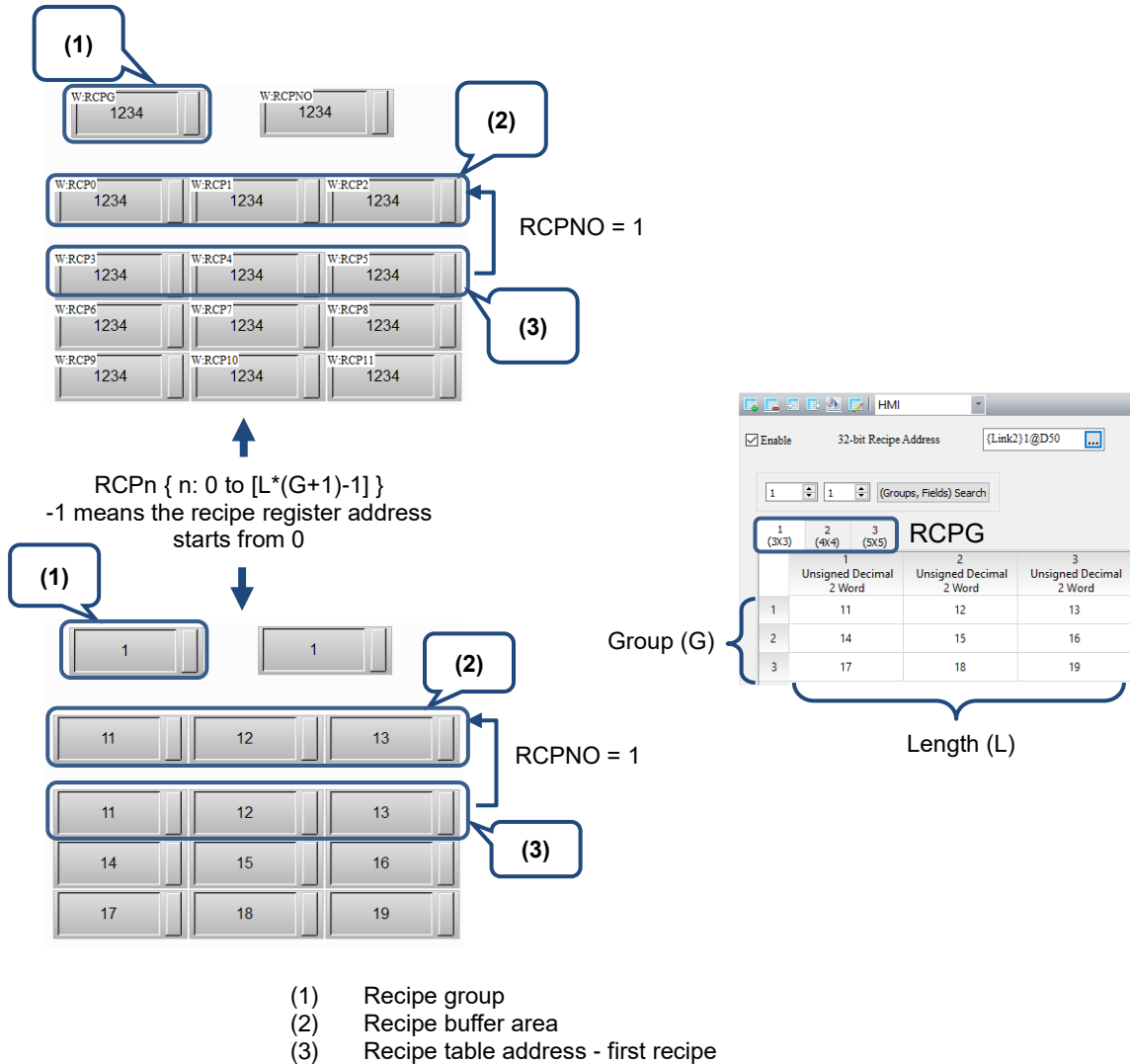


Figure 23.2.1 32-bit Recipe buffer configuration

The 32-bit Recipe has its own registers, which are RCP, RCPNO, and RCPG.

RCP	Recipe register
RCPNO	Recipe number register
RCPG	Recipe group register

RCP and RCPNO are registers that are jointly used with the 16-bit Recipe, as already introduced in the section on the 16-bit Recipe. The following section introduces the features of the RCPG and RCPNO registers for the 32-bit Recipe.

■ Recipe group register (RCPG)

The recipe group register is used to specify the group for the 32-bit Recipe. You can create up to 255 groups of 32-bit Recipe data.

The Recipe Group 0 (RCPG 0) is assigned for use by the 16-bit Recipe. Calling the 32-bit Recipe data requires use of the Recipe Groups 1 to 255 (RCPG 1 to 255).

For a 32-bit Recipe, when you select the first set of recipe in the first recipe group, RCPG = 1 and RCPNO = 1; when you select the fourth set of recipe in the third recipe group, RCPG = 3 and RCPNO = 4.

Note: the recipe group register does not feature the non-volatile function, so the data in the register cannot be maintained when the HMI is powered off.

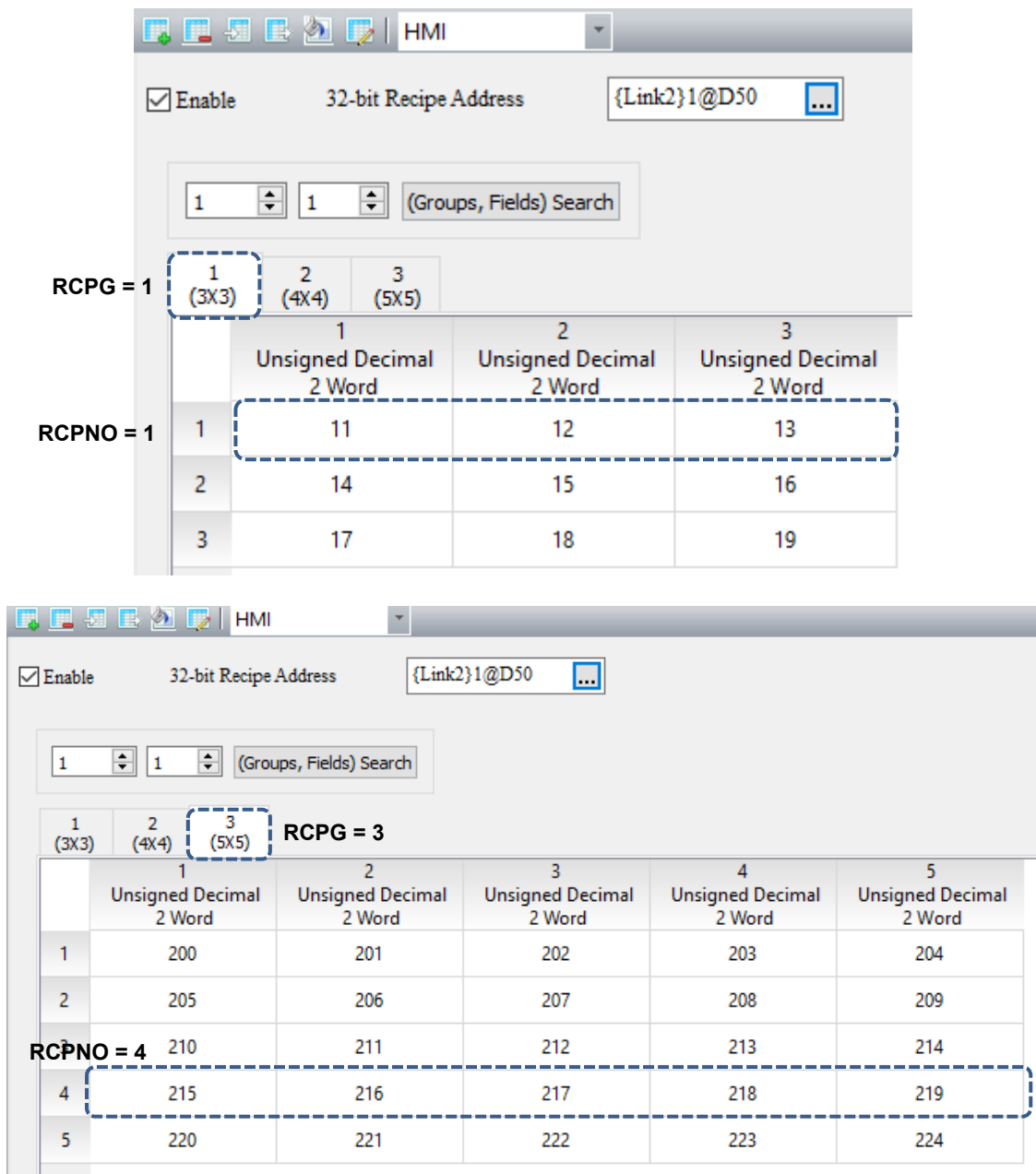


Figure 23.2.2 32-bit Recipe group editing screen

23

■ Recipe number register (RCPNO)

RCPNO is used to specify the number for the 32-bit Recipe. Reading / writing of the recipe means to read / write a set of recipes according to the recipe number recorded in the recipe number register. When you select the first set of recipes, RCPNO = 1; when you select the fourth set of recipes, RCPNO = 4.

Note: the recipe number register does not feature the non-volatile function, so the data in the register cannot be maintained when the HMI is powered off.

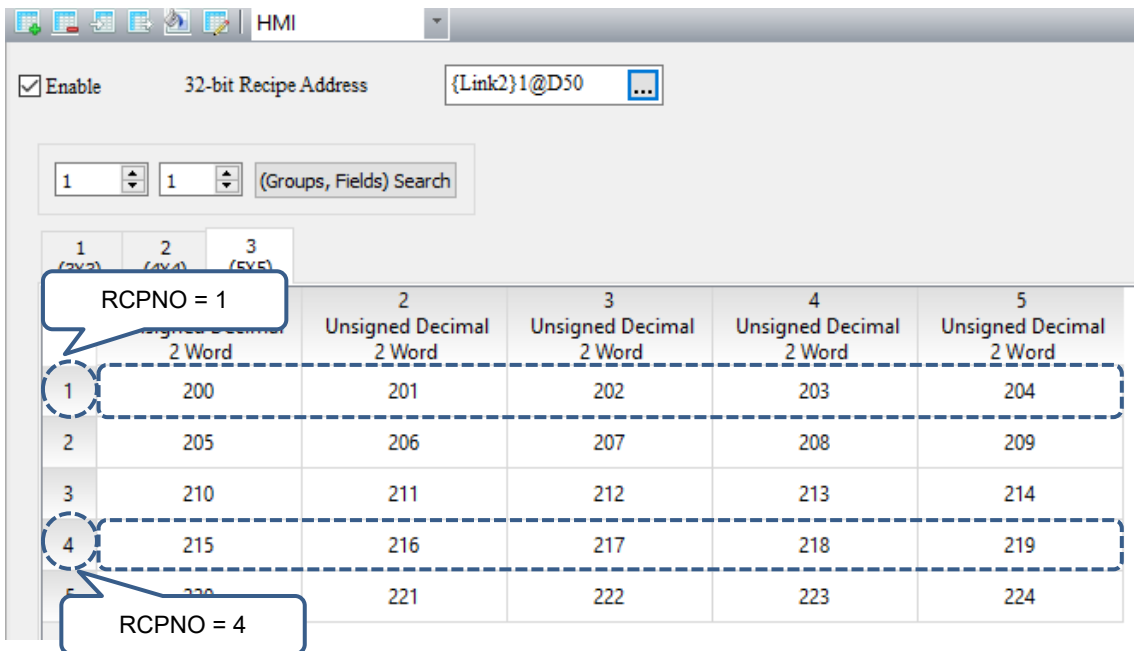


Figure 23.2.3 Recipe Number editing screen

■ 32-bit Recipe size limit

If the non-volatile memory area is set in the USB Disk or SD Card, the size of the 32-bit Recipe file cannot exceed 50 MB. Different from the 16-bit Recipe, the editable size of the 32-bit Recipe is dependent upon the specification of the flash memory of different HMI models when the non-volatile memory area is set in the HMI.

You can go to [View] > [Memory List] to check the editable recipe size, as shown in Figure 23.2.4.

Item	Cost-Bytes
ROM	0.62 % Used
Total Used	535121 (522K)
Available	85983232 (83968K)
Free	85448111 (83445K)
Detail	
Controller	34651 (33K)
Printer	0 (0K)
Screen Data	33895 (33K)
Recipe 32	43 (0K)
Enhanced Recipe	0 (0K)
Input Method Editors	0 (0K)
Fonts	466532 (455K)
Non-Volatile Area	0.00 % Used
SDRAM	N/A
External Storage	


Item	Cost-Bytes
ROM	0.62 % Used
Total Used	535121 (522K)
Available	85983232 (83968K)
Free	85448111 (83445K)
Detail	
Controller	34651 (33K)
Printer	0 (0K)
Screen Data	33895 (33K)
Recipe 32	43 (0K)
Enhanced Recipe	0 (0K)
Input Method Editors	0 (0K)
Fonts	466532 (455K)
Non-Volatile Area	0.00 % Used
SDRAM	N/A
External Storage	
Alarm	0 (0K)
History	0 (0K)
Recipe16	0 (0K)
Recipe 32	0 (0K)
Enhanced Recipe	0 (0K)
Total Used	0 (0K)

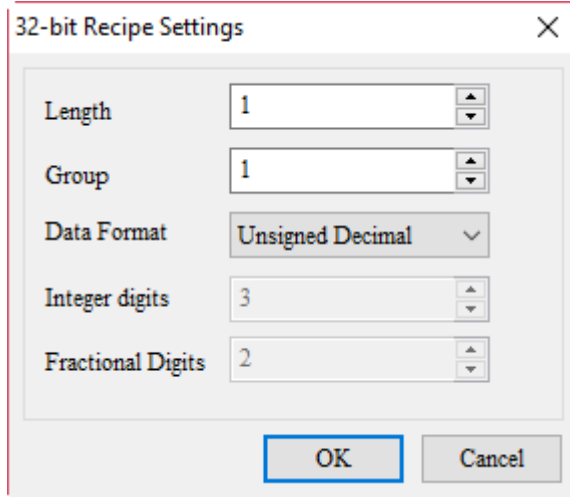
Figure 23.2.4 32-bit Recipe memory list

Refer to the 32-bit Recipe example in Table 23.2.1 as follows.

Table 23.2.1 32-bit Recipe example

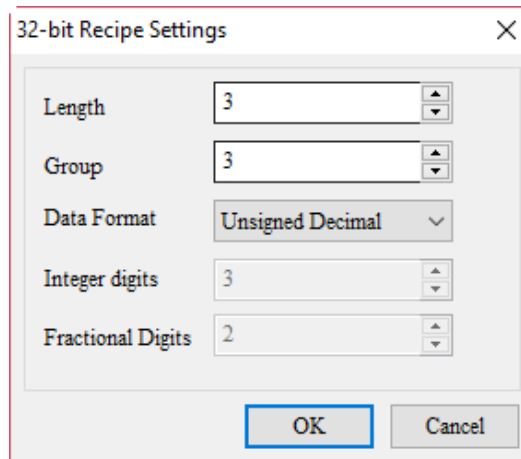
32-bit Recipe

- Step 1: go to [Options] > [Recipe] > [32-Bit Recipe].
1. Select the **Enable** check box.
 2. Set the Recipe Address to D50.
- Step 2: click  to enter the 32-bit Recipe Settings.



Set both the Length and Group to 3 for the first set of Recipe. Set the Data Format to Unsigned Decimal.

Set 32-bit Recipe



HMI

Enable 32-bit Recipe Address

1 1 (Groups, Fields) Search

1
(3X3)

	1 Unsigned Decimal 2 Word	2 Unsigned Decimal 2 Word	3 Unsigned Decimal 2 Word
1	11	12	13
2	14	15	16
3	17	18	19

32-bit Recipe

Step 3: repeat Step 2. Set both the Length and Group to 3 to create the recipe data shown as follows:

	1 (3X3)	2 (3X3)	3 (3X3)
	Unsigned Decimal 2 Word	Unsigned Decimal 2 Word	Unsigned Decimal 2 Word
1	11	22	33
2	44	55	66
3	77	88	99

Set 32-bit Recipe

Step 4: repeat Step 2. Set both the Length and Group to 3 to create the recipe data shown as follows:

	1 (3X3)	2 (3X3)	3 (3X3)
	Unsigned Decimal 2 Word	Unsigned Decimal 2 Word	Unsigned Decimal 2 Word
1	111	222	333
2	444	555	666
3	777	888	999

- Create a Numeric Entry element and set the Write Address to Internal Memory. Select RCPG for the Device Type. This element is used to select the Recipe Group.

Create RCPG Numeric Entry element

- The following is an example of the created element:



23

32-bit Recipe

Create RCPNO Numeric Entry element

- Create a Numeric Entry element and set the Write Address to Internal Memory. Select RCPNO for the Device Type. This element is used to select the Recipe Number.

- The following is an example of the created element:



Create RCP Numeric Entry elements

- Step 1: before creating the Numeric Entry elements to display the 32-bit Recipe register, you can use the recipe register formula $[L*(G+1)-1]$ to calculate the number that the n in RCPn represents. Substitute the set size of the recipe (Length (L) x Group (G) = 3 x 3) into the formula to find the RCPn = RCP0 to RCP11.
- Step 2: create 12 Numeric Display elements and set their Write Addresses as RCP0 to RCP11 of the Internal Memory.

32-bit Recipe

Create RCP
Numeric
Entry
elements

The following is an example of the created elements:

Recipe buffer area	W:RCP0 ####	W:RCP1 ####	W:RCP2 ####
Recipe table address	W:RCP3 ####	W:RCP4 ####	W:RCP5 ####
	W:RCP6 ####	W:RCP7 ####	W:RCP8 ####
	W:RCP9 ####	W:RCP10 ####	W:RCP11 ####

Note: RCP0 to RCP2 are the recipe buffers and the actual recipe data RCPs are RCP3 to RCP11. For more information, refer to Figure 23.2.1 32-bit Recipe buffer configuration.

Create
Numeric
Entry
elements for
the Recipe
Read
Address

- Create three Numeric Entry elements by referring to the address set for the 32-bit Recipe to display changes to the data when the PLC recipe is read or written. The 32-bit Recipe uses the Double Word format, so the Recipe Address entered needs to start from D50 and increment by 2 addresses to D52 and D54.
- Set the Read Address to D50 for the Numeric Entry element, which is shown as follows:

Input X

Link: Link2

<p>Type</p> <p><input checked="" type="radio"/> Device (Word)</p> <p><input type="radio"/> Device (Bit)</p> <p><input type="radio"/> Internal Memory (Word)</p> <p><input type="radio"/> Internal Memory (Bit)</p> <p><input type="radio"/> Constant</p>	<p>Content</p> <p>Device Type D</p> <p>Address/Value 50</p> <p>Tag </p>																													
<p>Constant Types</p> <p><input type="radio"/> Signed Decimal</p> <p><input type="radio"/> Unsigned Decimal</p> <p><input type="radio"/> Hexadecimal</p>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>Clear</td> </tr> <tr> <td>6</td><td>7</td><td>8</td><td>9</td><td>A</td><td>Back</td> </tr> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td rowspan="2">Enter</td> </tr> <tr> <td>0</td><td>.</td><td>+</td><td>-</td><td>/</td> </tr> <tr> <td colspan="6" style="text-align: center;">None</td> </tr> </table>	B	C	D	E	F	Clear	6	7	8	9	A	Back	1	2	3	4	5	Enter	0	.	+	-	/	None					
B	C	D	E	F	Clear																									
6	7	8	9	A	Back																									
1	2	3	4	5	Enter																									
0	.	+	-	/																										
None																														
<p>Station No.</p> <p>1 <input checked="" type="checkbox"/> Default</p>																														

- The following is an example of the created elements:

PLC address	W:{Link2}1@D50 ####	W:{Link2}1@D52 ####	W:{Link2}1@D54 ####
-------------	------------------------	------------------------	------------------------

23-27

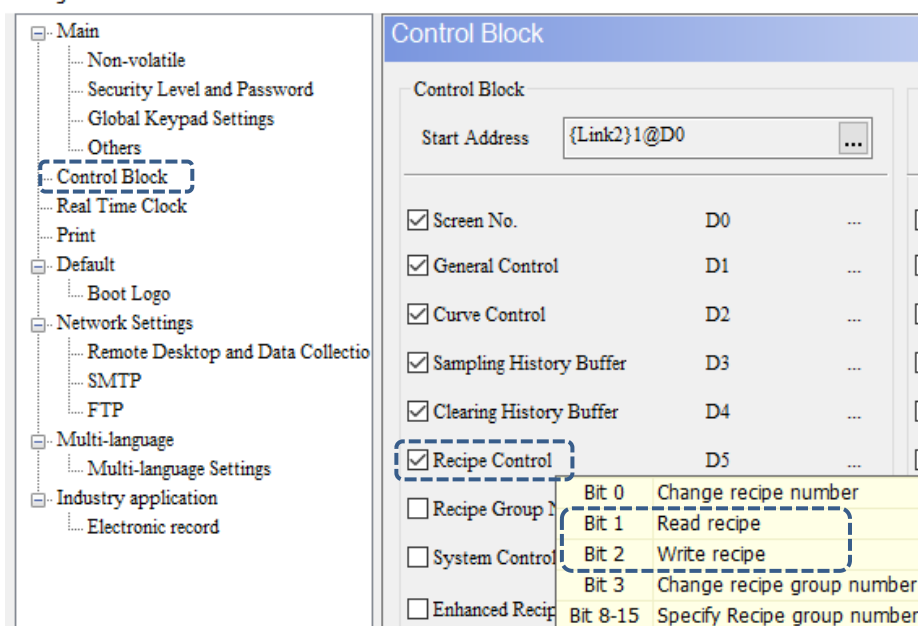
23

32-bit Recipe

Set Recipe Control flag in Control Block

Go to [Options] > [Configuration] > [Control Block], and select the **Recipe Control** flag check box. Then, set the Start Address for the Control Block to define the recipe control address. Once the setting is complete, click **OK** to exit the Configuration window.

Configuration



Control Block

Start Address: {Link2}1@D0

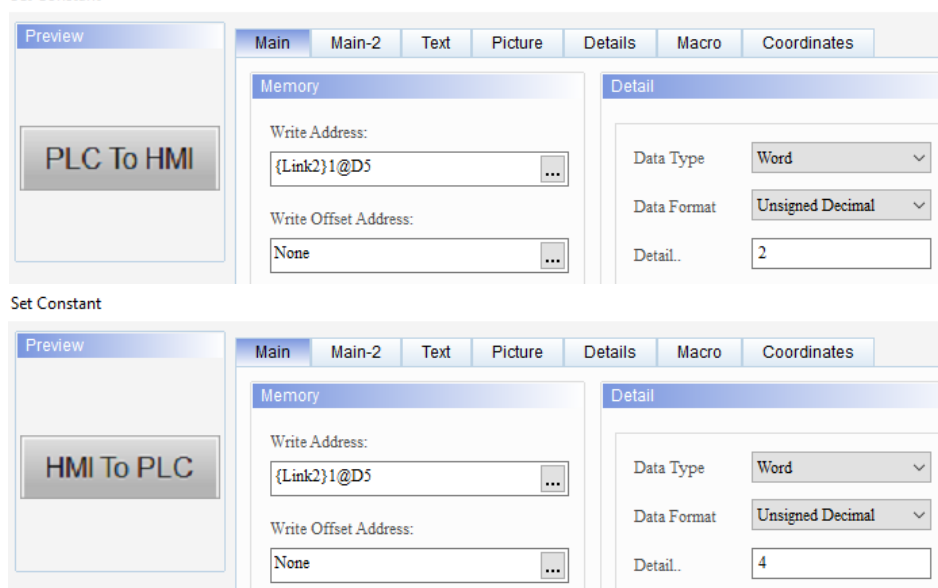
<input checked="" type="checkbox"/>	Screen No.	D0	...
<input checked="" type="checkbox"/>	General Control	D1	...
<input checked="" type="checkbox"/>	Curve Control	D2	...
<input checked="" type="checkbox"/>	Sampling History Buffer	D3	...
<input checked="" type="checkbox"/>	Clearing History Buffer	D4	...
<input checked="" type="checkbox"/>	Recipe Control	D5	...
<input type="checkbox"/>	Recipe Group 1		
<input type="checkbox"/>	System Control		
<input type="checkbox"/>	Enhanced Recipe		

Bit 0 Change recipe number
 Bit 1 Read recipe
 Bit 2 Write recipe
 Bit 3 Change recipe group number
 Bit 8-15 Specify Recipe group number

Create Set Constant button element

Create two Set Constant buttons. Set the Write Addresses to D5 and the setting values (Detail.) to 2 and 4 corresponding to Bit 1 and Bit 2 of the Recipe Control flag D5 respectively for reading and writing the recipe.

Set Constant



Set Constant

PLC To HMI

Write Address: {Link2}1@D5

Write Offset Address: None

Data Type: Word

Data Format: Unsigned Decimal

Detail.: 2

Set Constant

HMI To PLC

Write Address: {Link2}1@D5

Write Offset Address: None

Data Type: Word

Data Format: Unsigned Decimal

Detail.: 4

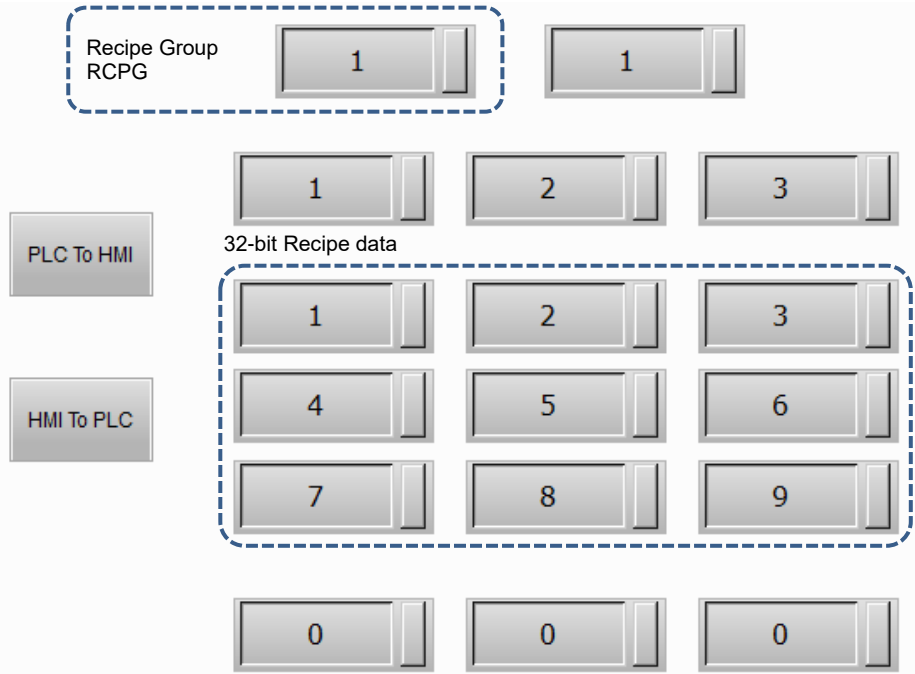
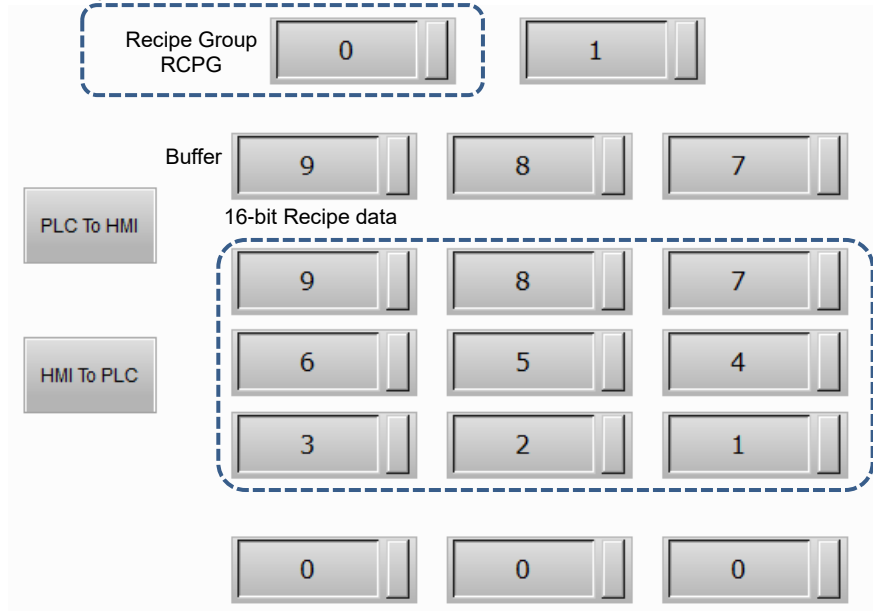
32-bit Recipe

- After creating all the elements, execute the Compile and Download Screen and Recipe buttons to download data to the HMI.



- The default for the Recipe Group (RCPG) is 0 after it is loaded to the HMI, meaning that the 16-bit Recipe data is displayed. You need to set the Recipe Group to 1 to display the 32-bit Recipe data.

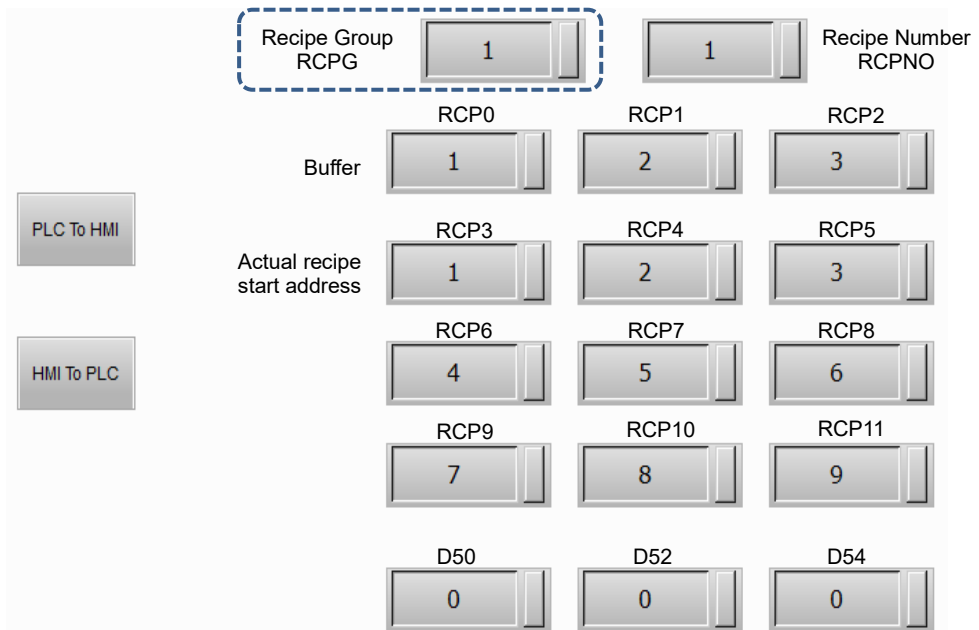
Execution results



23

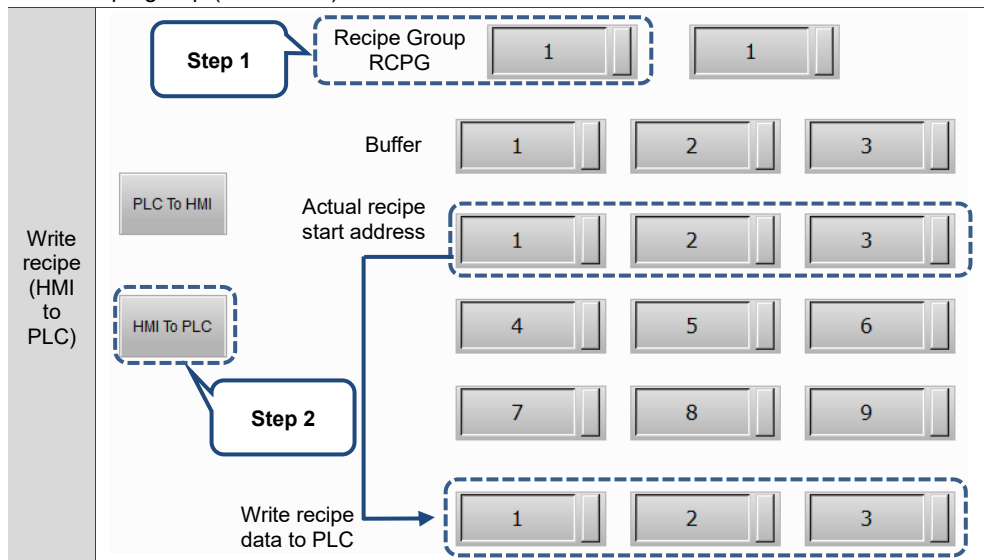
32-bit Recipe

- The recipe data is displayed in RCP0 to RCP11 according to the selected recipe group. RCP0 to RCP2 are the recipe buffers and the starting address for the first set of the actual recipe data is RCP3.

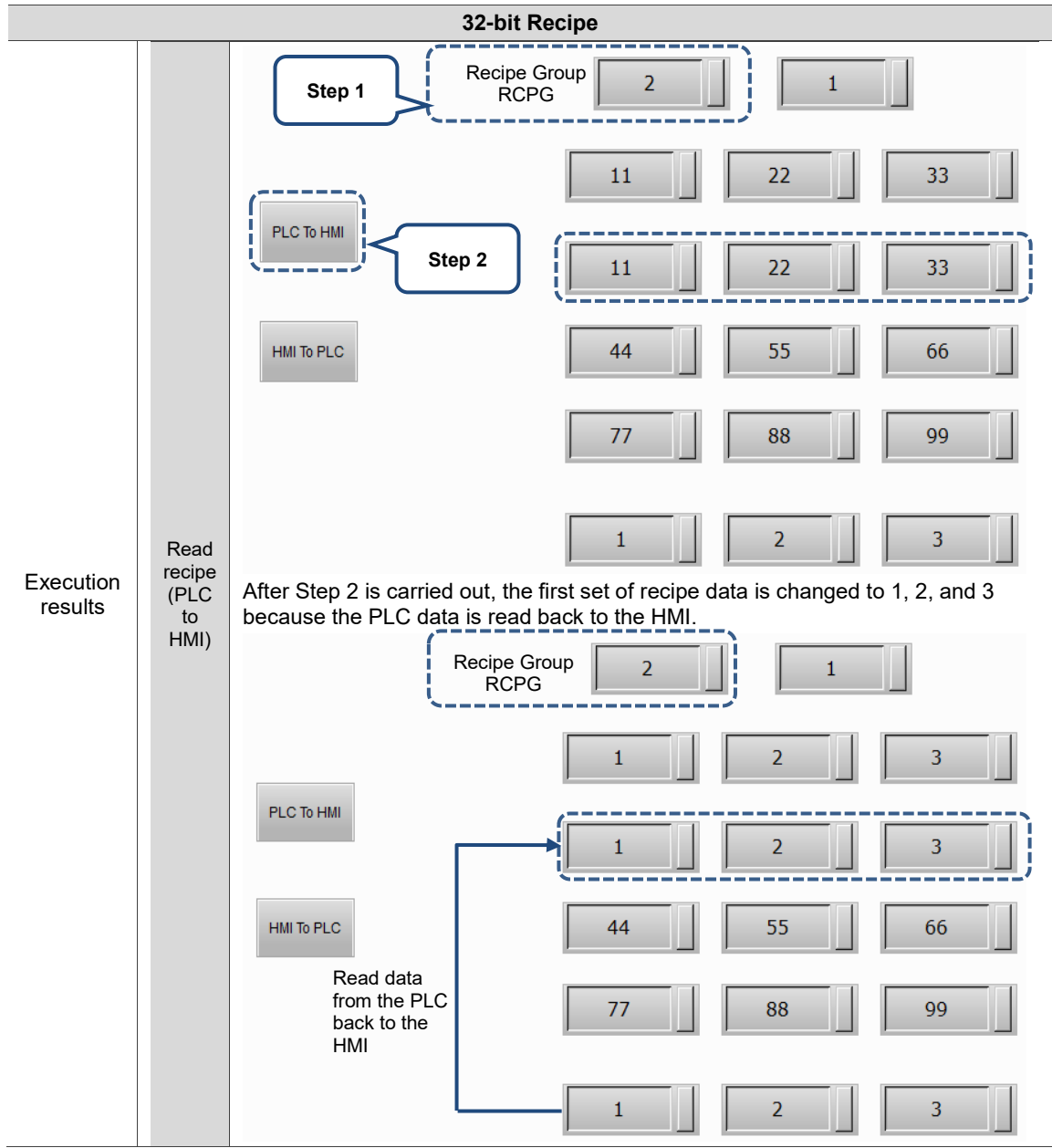


Execution results

- Trigger the Write Recipe (HMI To PLC) button, and the recipe data of the selected recipe group (RCPG = 1) is written to the PLC. Trigger the Read Recipe (PLC To HMI) button, and the recipe data written to the PLC is read back to the HMI. And the recipe data read back is then written to the selected recipe group (RCPG = 2).



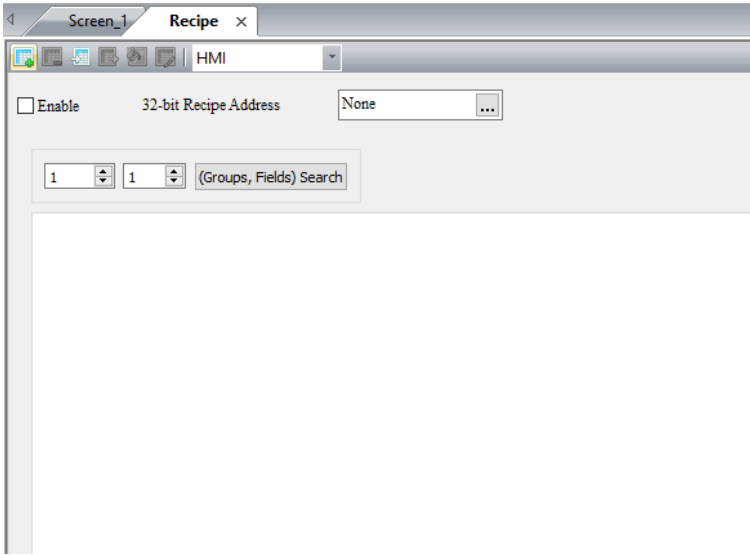
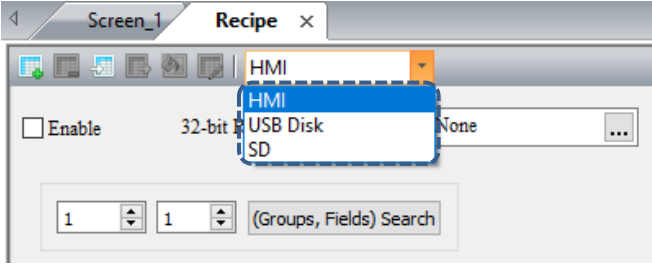
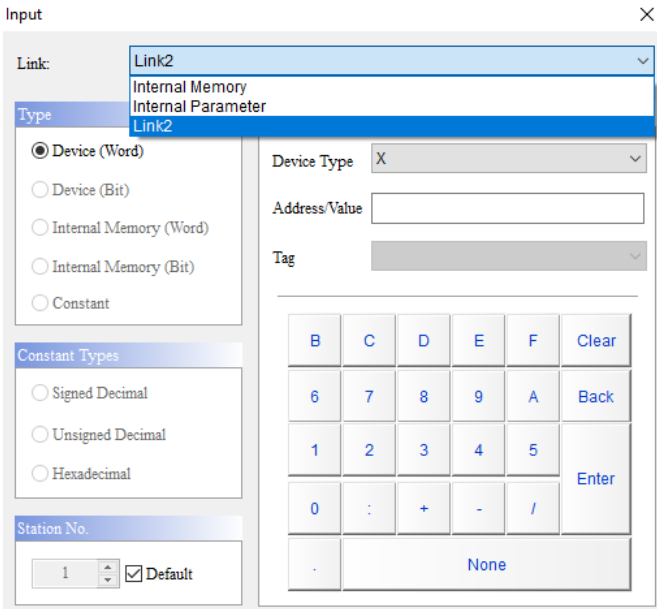
Write recipe (HMI to PLC)




The following section introduces the property settings for the 32-bit Recipe.

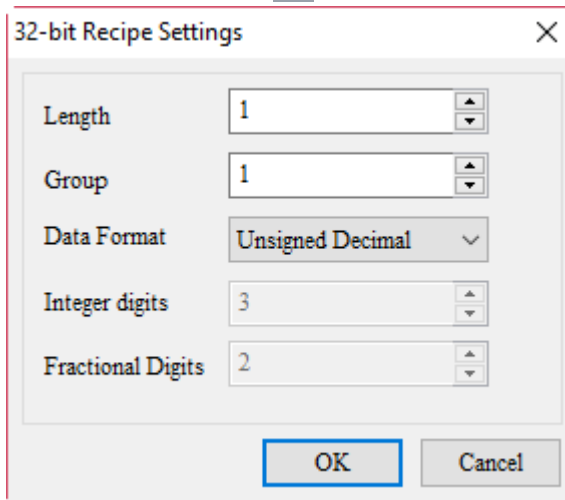
Table 23.2.2 Properties of the 32-bit Recipe setting


23

Properties of the 32-bit Recipe setting	
	<ul style="list-style-type: none"> ■ Select the Enable check box to use the 32-bit Recipe. ■ If Enable is not selected, setting the 32-bit Recipe does not take effect.
<p>Non-volatile</p> 	<ul style="list-style-type: none"> ■ The non-volatile memories include HMI, USB Disk, and SD Card. ■ If you set to save in the HMI, the data is saved in the HMI ROM when the power is off.
<p>Address</p> 	<ul style="list-style-type: none"> ■ You can select the internal memory or the controller register address. ■ Select Link Name or Device Type. Refer to Chapter 5 for details. ■ Regardless of the number of recipe sets, the 32-bit Recipes share the same memory address.

Properties of the 32-bit Recipe setting

- In the 32-bit Recipe window, click  to add a 32-bit Recipe data.



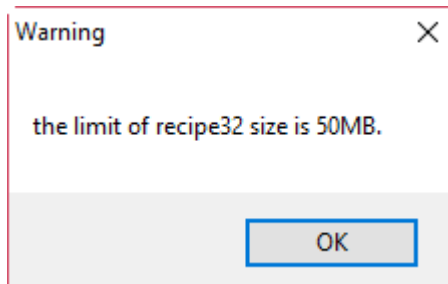
- You can add up to 255 groups of 32-bit Recipe data with the  button.

Add recipe

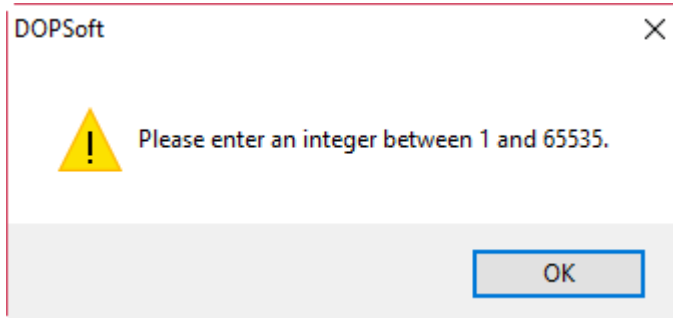


Length /
Group

- The Length and Group respectively represent the recipe length and group that you entered. The size of Length x Group cannot exceed 50 MB.



- The Length and Group cannot be 0. If you input 0 in Length or Group, the software displays an error message.



23

Properties of the 32-bit Recipe setting

Data formats include Signed Decimal, Unsigned Decimal, and Floating.

Data Format

32-bit Recipe Settings

Length: 3

Group: 3

Data Format: Unsigned Decimal

Integer digits:

Fractional Digits: 2

OK Cancel

Integer digits

- You can only set the Integer and Fractional Digits when the Data Format is Floating.

Add recipe 

32-bit Recipe Settings

Length: 3

Group: 3

Data Format: Floating

Integer digits: 3

Fractional Digits: 2

OK Cancel

Fractional Digits

- When the Data Format is Floating, the Integer and Fractional Digits support only 7 digits in total. When this limit is exceeded, the software displays a warning message.

DOPSoft

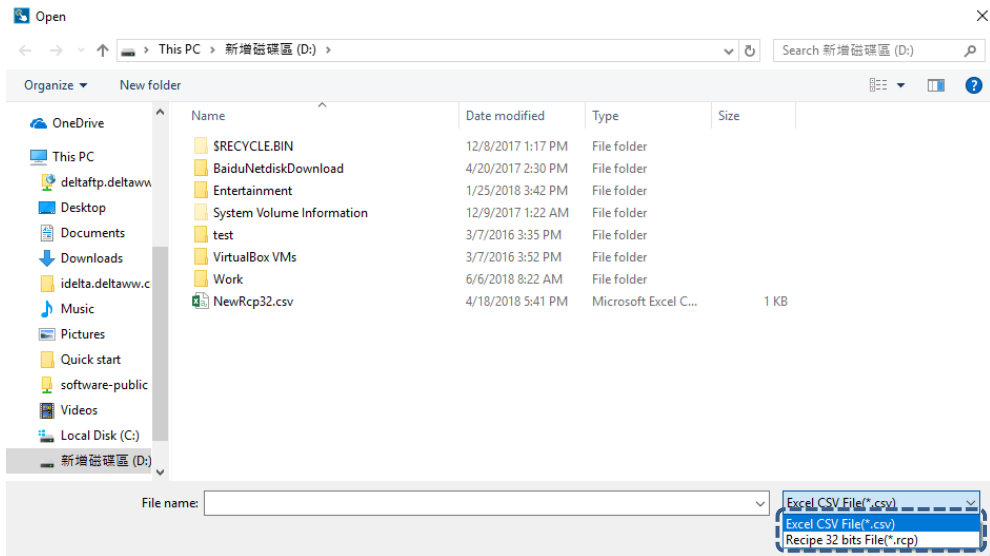
Integer Position or Fractional Position is incorrect.

OK

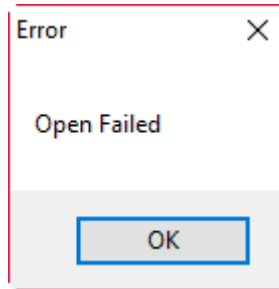
Properties of the 32-bit Recipe setting

- The import recipe function supports CSV and RCP file formats for you to select and import the recipe.

Import recipe

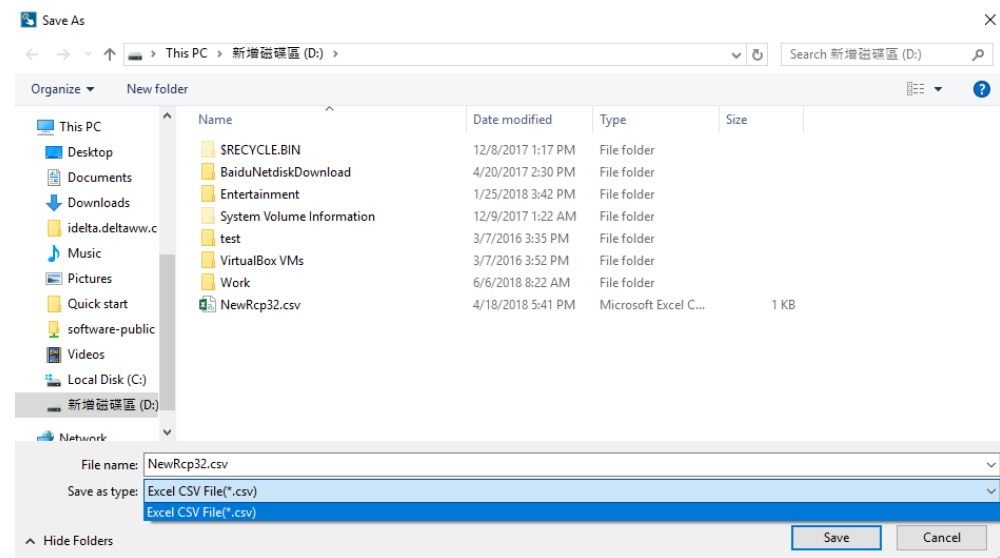


- The opened and imported recipe file provides the current recipe data content only, and the recipe address does not support loading the originally set address. If you use the 32-bit Recipe to open a RCP or CSV file of the 16-bit Recipe, the loaded recipe data cannot be displayed normally and the software displays the following error message.



- The export recipe function saves the current 32-bit Recipe. The supported file format is CSV file.

Export recipe



- The saved recipe data does not support saving the set recipe address.

23

Delete recipe



Properties of the 32-bit Recipe setting

The delete recipe function deletes the 32-bit Recipe data. This function deletes the entire recipe, so you will have to create a new recipe if necessary.

Before

	1 Unsigned Decimal 2 Word	2 Unsigned Decimal 2 Word	3 Unsigned Decimal 2 Word	4 Unsigned Decimal 2 Word	5 Unsigned Decimal 2 Word
1	1	2	3	4	5
2	6	7	8	9	10
3	11	12	13	14	15
4	16	17	18	19	20
5	21	22	23	24	25

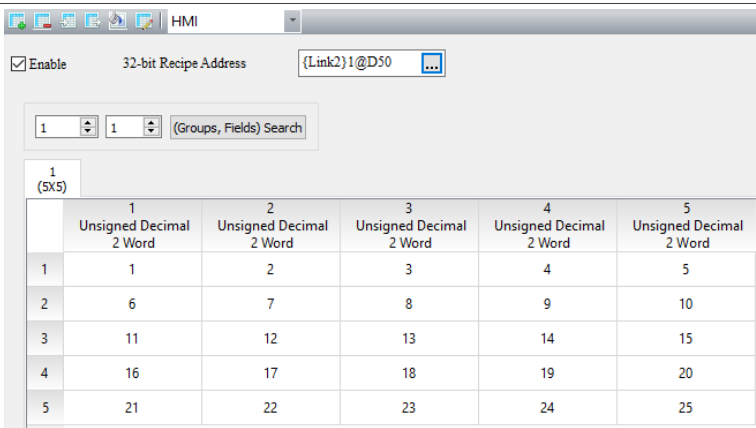
After

Properties of the 32-bit Recipe setting

Clear the recipe content that has the value entered.

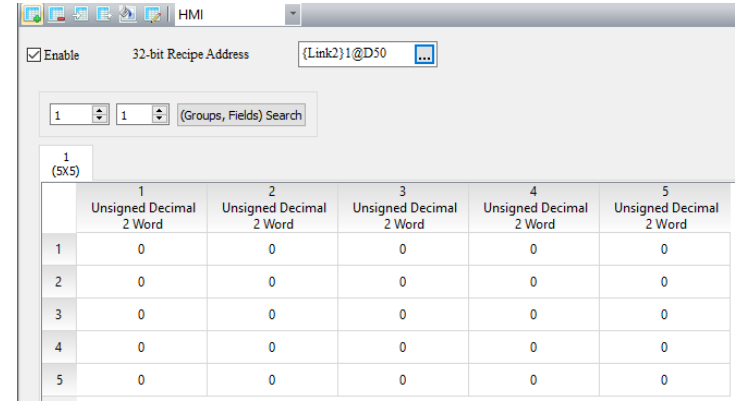
Clear configuration 

Before



	1 Unsigned Decimal 2 Word	2 Unsigned Decimal 2 Word	3 Unsigned Decimal 2 Word	4 Unsigned Decimal 2 Word	5 Unsigned Decimal 2 Word
1	1	2	3	4	5
2	6	7	8	9	10
3	11	12	13	14	15
4	16	17	18	19	20
5	21	22	23	24	25

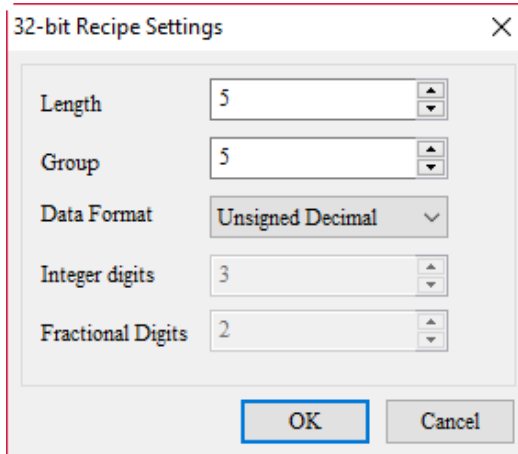
After



	1 Unsigned Decimal 2 Word	2 Unsigned Decimal 2 Word	3 Unsigned Decimal 2 Word	4 Unsigned Decimal 2 Word	5 Unsigned Decimal 2 Word
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0

To use the Recipe Settings function, you must first create recipe data in the 32-bit Recipe. You can use this function to change the Length, Group, and Data Format of the recipe.

Recipe Settings 



32-bit Recipe Settings

Length: 5

Group: 5

Data Format: Unsigned Decimal

Integer digits: 3

Fractional Digits: 2

OK Cancel

23

23.3 Indirect recipe index register (*RCP)

Indirect recipe index register can be used by both 16-bit and 32-bit Recipes. Indirect recipe index register (*RCPn) acquires the value from RCPn first. It takes this value as the new address and then accesses the value from this new address. For example, RCP1 = 3, RCP3 = 99, so *RCP1 = 99 (see Figure 23.3.1).

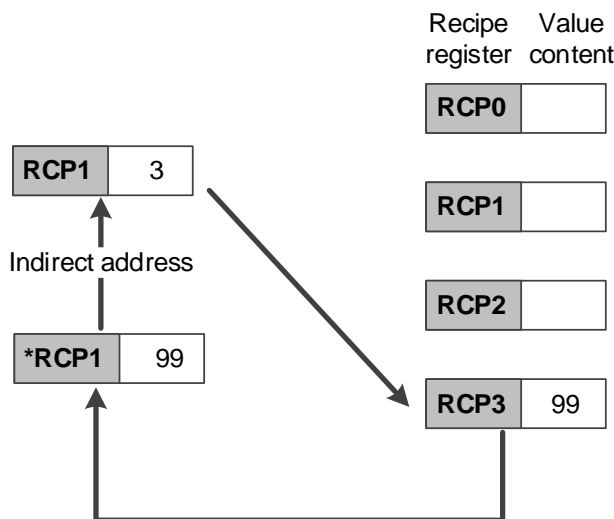


Figure 23.3.1 Indirect recipe index

The accessing range of the indirect recipe index register is as follows:

Accessing type	Device type	Accessing range
Word	*RCPn	RCP0 to RCP65535

Note: n = Word (0 to 65535)

The address accessing range provided by *RCP is limited according to the recipe size you created. Assuming that the recipe size is Length 3 * Group 3, then the RCP address ranges from *RCP0 to *RCP11. When *RCP12 is created, the software displays the following warning message.

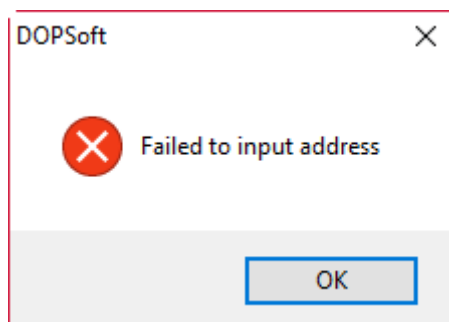


Figure 23.3.2 Indirect recipe index register configuration error

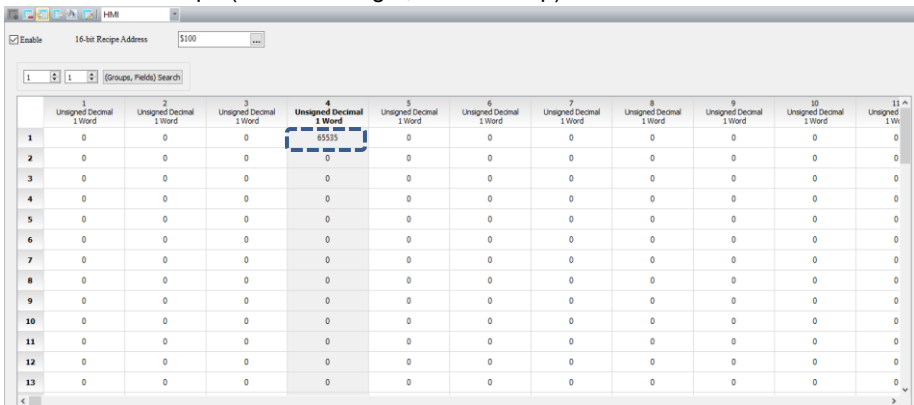
The following section introduces the example for the indirect recipe index.

Table 23.3.1 Example of indirect recipe index register

Indirect recipe index register

Create a 16-bit Recipe (1024 for Length, 64 for Group) and set RCP3 to 65535.

Set 16-bit Recipe



	1 Unsigned Decimal 1 Word	2 Unsigned Decimal 1 Word	3 Unsigned Decimal 1 Word	4 Unsigned Decimal 1 Word	5 Unsigned Decimal 1 Word	6 Unsigned Decimal 1 Word	7 Unsigned Decimal 1 Word	8 Unsigned Decimal 1 Word	9 Unsigned Decimal 1 Word	10 Unsigned Decimal 1 Word	11 Unsigned Decimal 1 Word	12 Unsigned Decimal 1 Word	13 Unsigned Decimal 1 Word
1	0	0	0	65535	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0

- Create a Numeric Entry element and select *RCP for the Device Type. Then enter 3 for Address/Value.

Input ✕

Link: Internal Memory

Type

Device (Word)

Device (Bit)

Internal Memory (Word)

Internal Memory (Bit)

Content

Device Type: *RCP

Address/Value: 3

Tag:

- Create four Numeric Entry elements and select RCP for the Device Type. Then enter 0 to 3 for Address/Value respectively.

Input ✕

Link: Internal Memory

Type

Device (Word)

Device (Bit)

Internal Memory (Word)

Internal Memory (Bit)

Content

Device Type: RCP

Address/Value: 0

Tag:

- Create a Numeric Entry element and select RCP for the Device Type. Then enter 65535 for Address/Value.

Input ✕

Link: Internal Memory

Type

Device (Word)

Device (Bit)

Internal Memory (Word)

Internal Memory (Bit)

Content

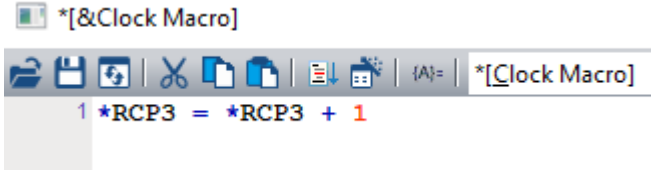
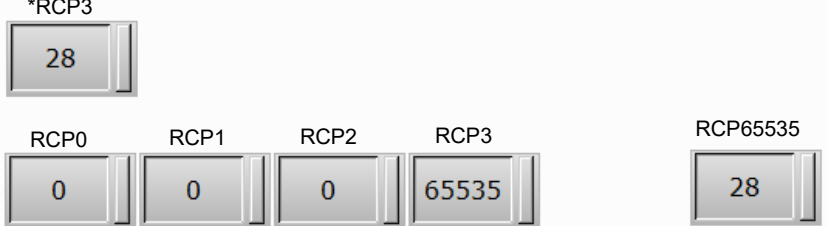
Device Type: RCP

Address/Value: 65535

Tag:

Create Numeric Entry elements

23

Indirect recipe index register	
Create Clock macro command	<p>Create the Clock macro command $*RCP3 = *RCP3 + 1$.</p> 
Execution results	<p>After compiling the screen, download it to the HMI. Then you can see the values of $*RCP3$ and RCP65535 increase simultaneously.</p> 

23.4 Enhanced recipe

During the production process, recording information with character format is sometimes needed for ease of identification. Thus, DOPSoft provides the enhanced recipe which is able to record contents with combinations of characters (string) and numbers. Its supporting data type is Word or Double Word and its data format options include BCD, Signed Decimal, Unsigned Decimal, Hexadecimal, Floating, and Char. Among these data formats, the Char format supports Unicode input and the read length of up to 32 Words (= 64 bits).

The use of its Control Block setting is the same as that of the 16-bit / 32-bit Recipe with the exception of using a different Control Block address. When reading or writing the recipe, you have to specify both the recipe number and recipe group before reading / writing one of the recipe sets.

DOPSoft provides an enhanced recipe that incorporated the Multi-language Input element to name the recipe group, which does not require you to memorize the content and other information for the first recipe group as the previous ENRCPG register address does. With the added ENRCPGNAME register address, you can enter the recipe name to call the recipe, which is more user-friendly. Also, ENRCPGNAME names the group in Unicode, so you can enter different languages. Therefore, you need to use the Multi-language Input element with the ENRCPGNAME register.

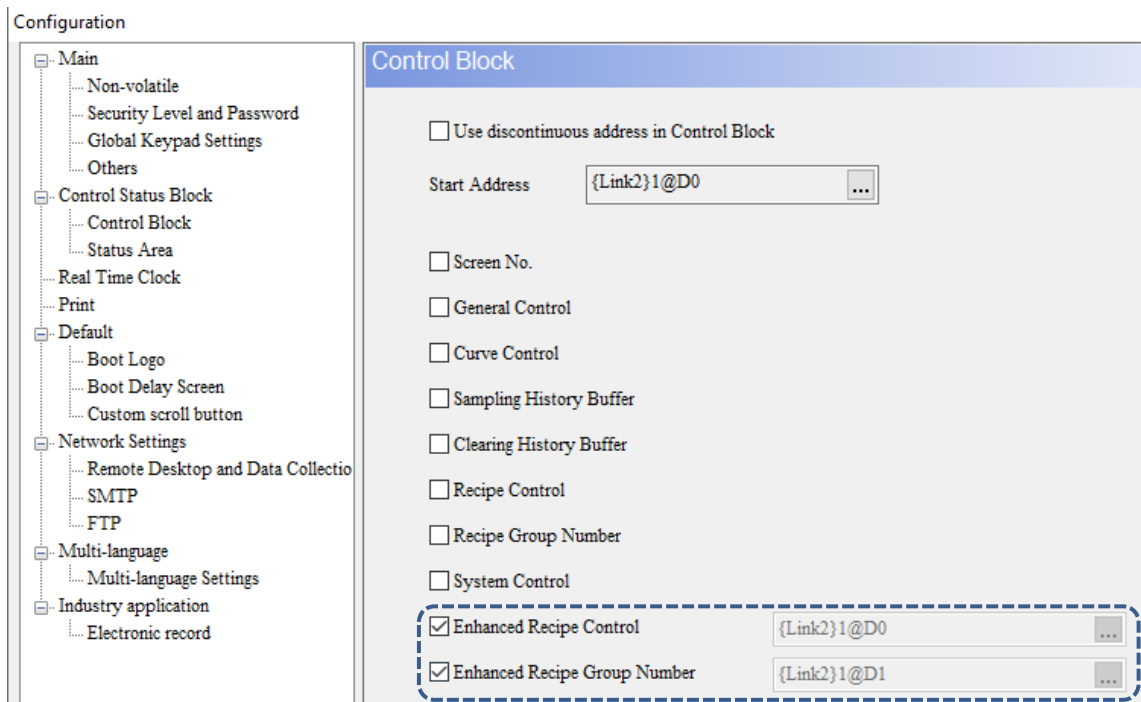


Figure 23.4.1 Using enhanced recipe address in the Control Block

23

The enhanced recipe has its own registers, which are ENRCP, ENRCPNO, ENRCPG, ENRCPGNAME, and *ENRCP.

ENRCP	Enhanced recipe register
ENRCPNO	Enhanced recipe number register
ENRCPG	Enhanced recipe group register
ENRCPGNAME	Enhanced recipe group register
*ENRCP	Enhanced indirect recipe index register

The following section introduces the features of each register mentioned previously.

■ Enhanced recipe number register (ENRCPNO)

ENRCPNO is used to specify the number for the enhanced recipe. Reading / writing of the recipe means to read / write a set of recipes according to the recipe number recorded in the recipe number register. When you select the first set of recipes, ENRCPNO = 1; when you select the fourth set of recipes, ENRCPNO = 4.

Note: the recipe number register does not feature the non-volatile function, so the data in the register cannot be maintained when the HMI is powered off.

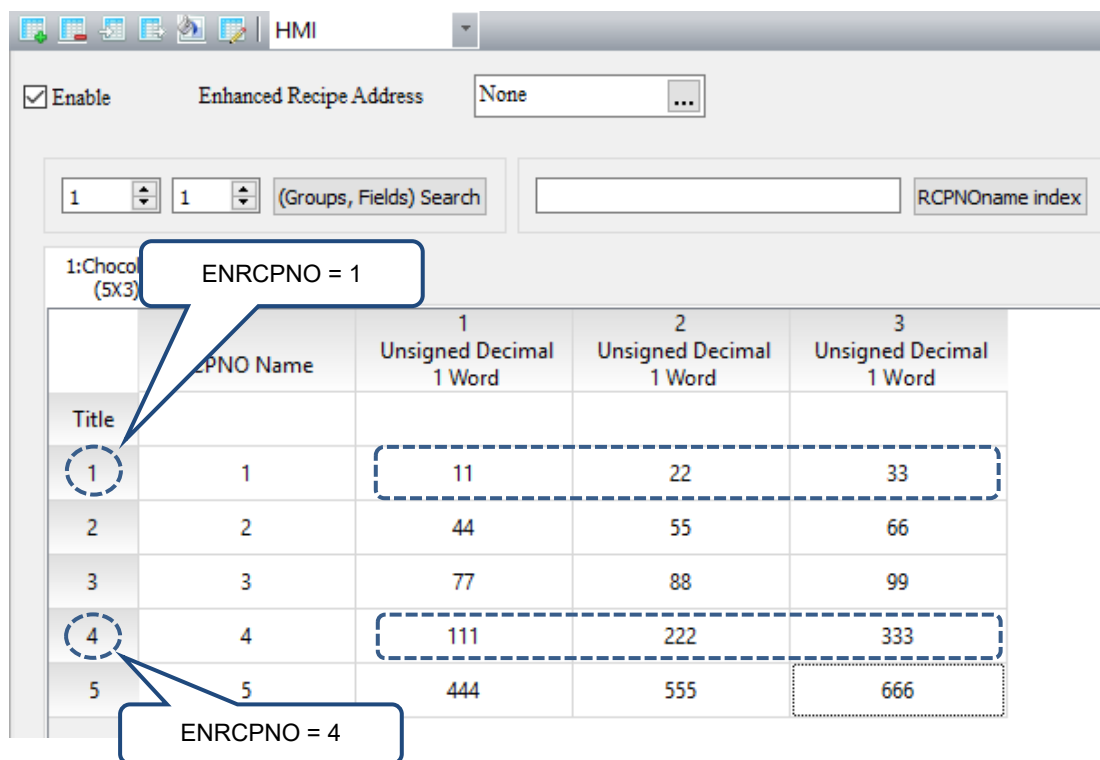


Figure 23.4.2 Enhanced recipe number editing screen

■ Enhanced recipe register (ENRCP)

A recipe buffer is featured in the HMI and is configured at the front of the recipe register. This buffer is used to store the selected set of recipes, and the number of fields for the recipe buffer equals the number of fields for the selected set of recipes, that is, the recipe buffer also occupies L recipe registers. Thus, the number of the recipe registers that a recipe table occupies is $L * (G+1)$, where $G+1$ stands for the number of the registers with an additional buffer. With the recipe buffer, you only need to switch between the recipe numbers to check the currently specified recipe parameters. When the selected enhanced recipe number (ENRCPNO) is 1, the first set of enhanced recipe is displayed in the enhanced recipe buffer (i.e. ENRCPNO = 1 in the following figure).

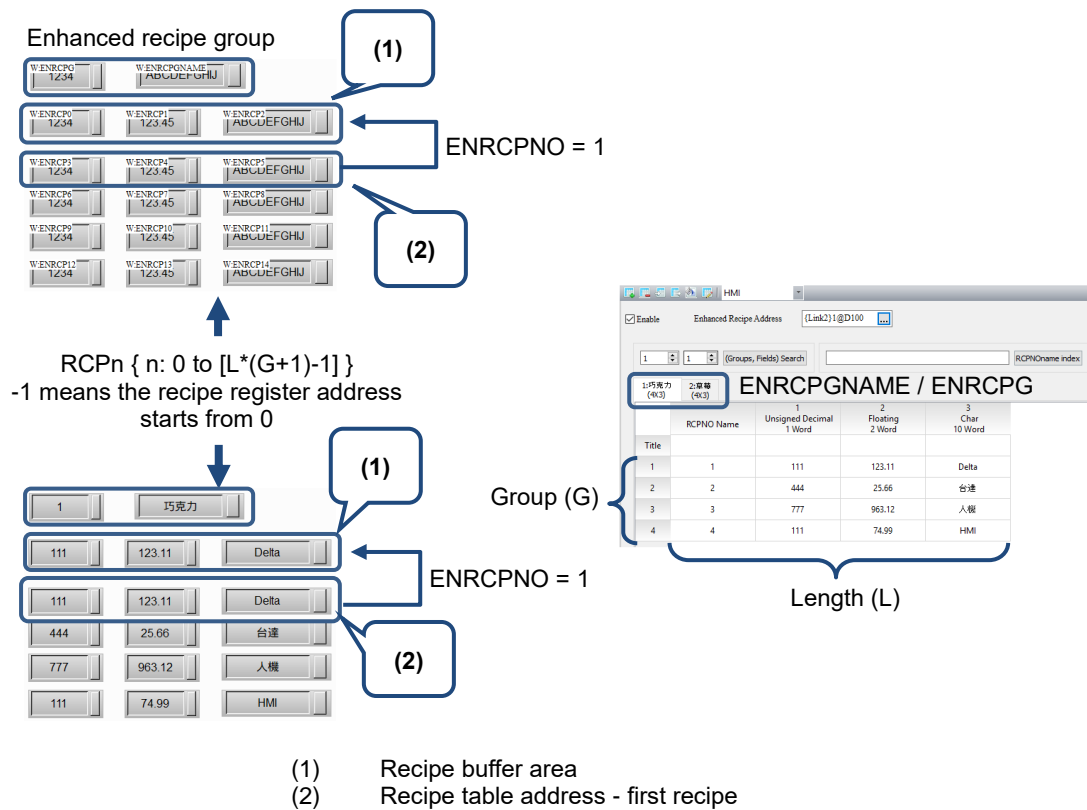


Figure 23.4.3 Enhanced recipe buffer configuration

23

■ Enhanced recipe group register (ENRCPG / ENRCPGNAME)

Enhanced recipe group register is used to specify the group for the enhanced recipe. You can create up to 255 groups of enhanced recipe data. Calling the enhanced recipe data requires the use of the Recipe Groups 1 to 255 (RCPG 1 to 255). If the enhanced recipe is activated, the default value of the recipe group is 1.

For an enhanced recipe, if you select the first set of recipe in the first group, ENRCPG = 1 (ENRCPGNAME = Chocolate) and ENRCPNO = 1; if you select the third set of recipe in the second group, ENRCPG = 2 (ENRCPGNAME = Strawberry) and ENRCPNO = 3.

The function of the ENRCPGNAME register is identical to that of the ENRCPG register. The main difference is that with ENRCPGNAME, the recipe content is acquired by entering the recipe name; with ENRCPG, the content is acquired by entering a value between 1 and 255.

Note: the recipe group register does not feature the non-volatile function, so the data in the register cannot be maintained when the HMI is powered off.

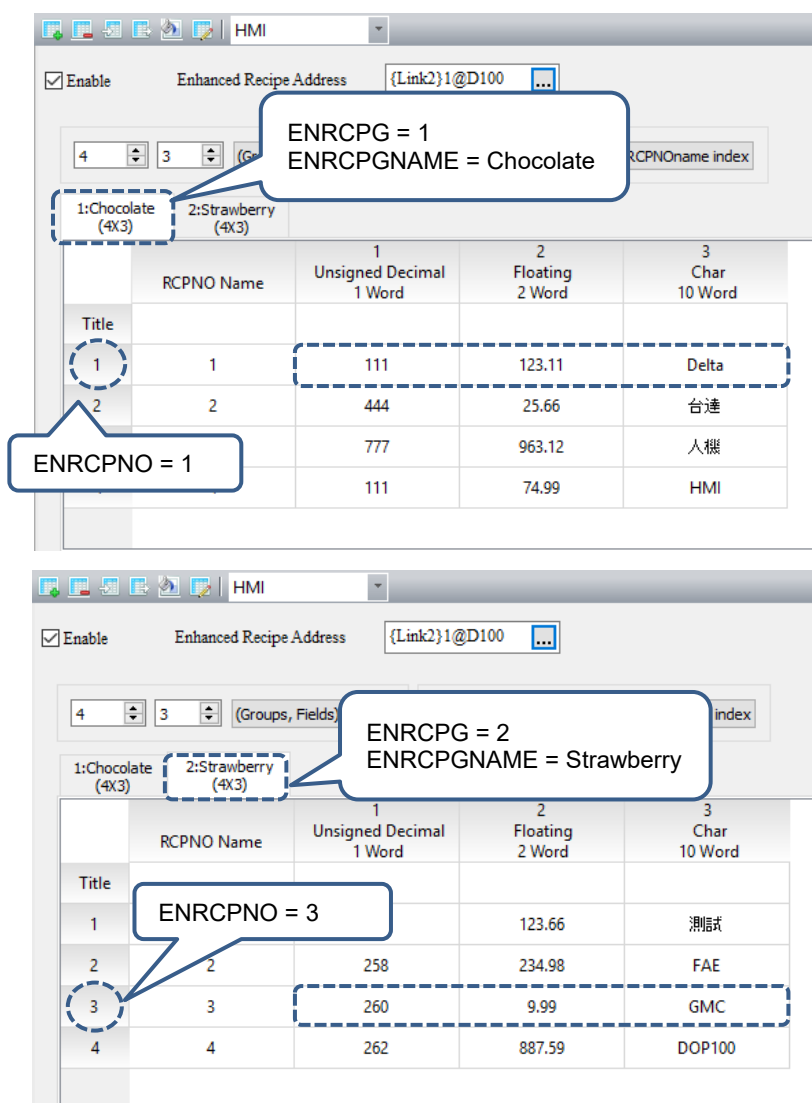


Figure 23.4.4 Recipe Group editing screen


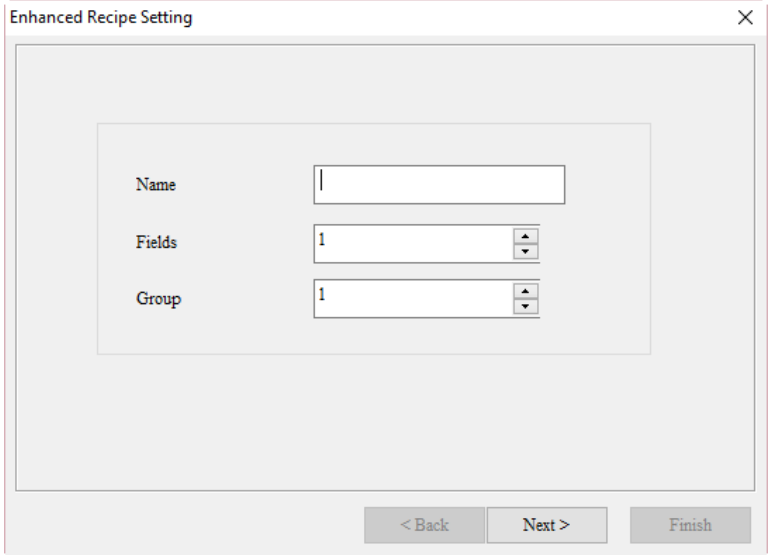
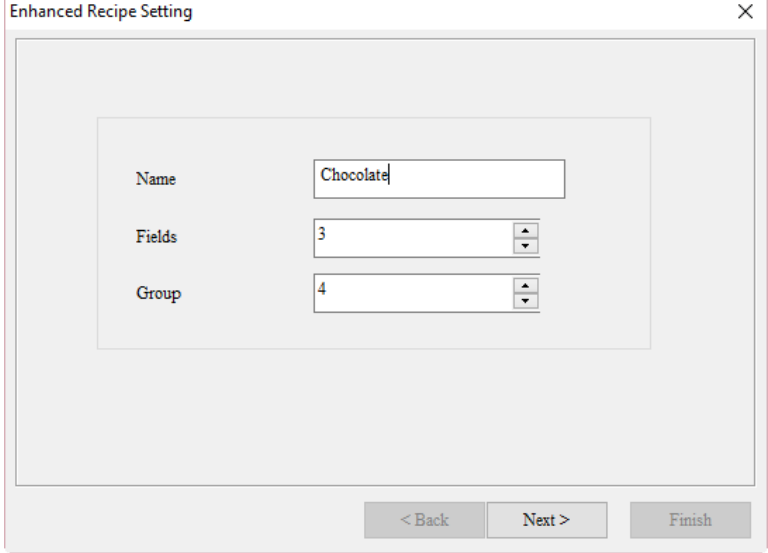
■ Enhanced recipe size limit

If the non-volatile memory area is set in the USB Disk or SD Card, the size of the enhanced recipe file cannot exceed Fields 256 x Groups 10000.

If the non-volatile area is set in the HMI, the editable size of the enhanced recipe is dependent upon the specification of the flash memory of different HMI models.

Refer to Table 23.4.1 shown as follows for the example of the enhanced recipe.

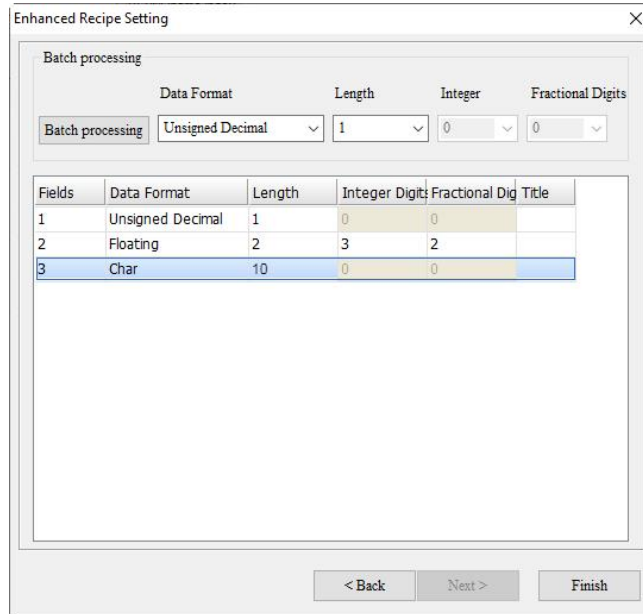
Table 23.4.1 Enhanced recipe example

Enhanced recipe	
Set enhanced recipes	<p>Step 1: go to [Options] > [Recipe] > [Enhanced Recipe].</p> <ol style="list-style-type: none">1. Select the Enable check box.2. Set the Recipe Address to D100. <p>Step 2: click  to enter the Enhanced Recipe Settings.</p>  <p>1. Set the Name as Chocolate, Fields as 3, and Group as 4 for the first recipe.</p> 

23

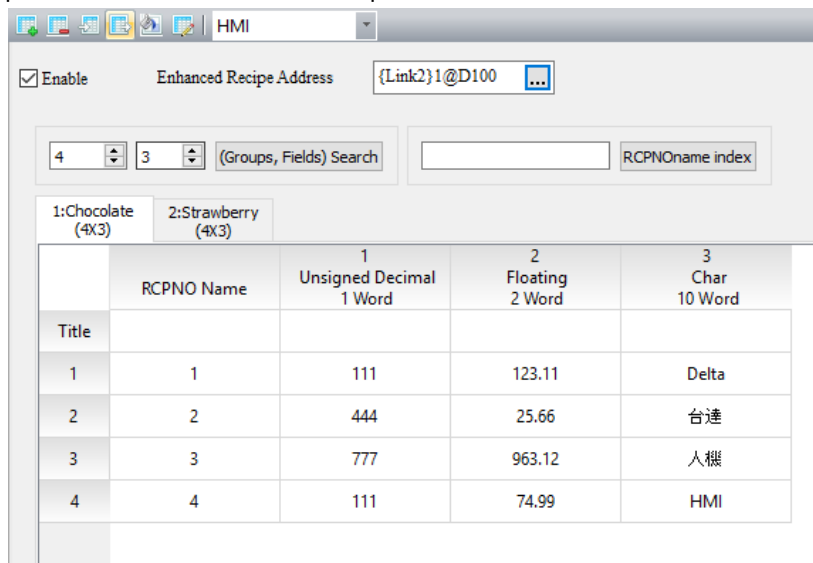
Enhanced recipe

- Set the Data Format as follows.
 Field 1: Unsigned Decimal. Set the Length as 1.
 Field 2: Floating. Set the Length as 2, Integer Digits as 3, and Fractional Digits as 2.
 Field 3: Char. Set the Length as 10.

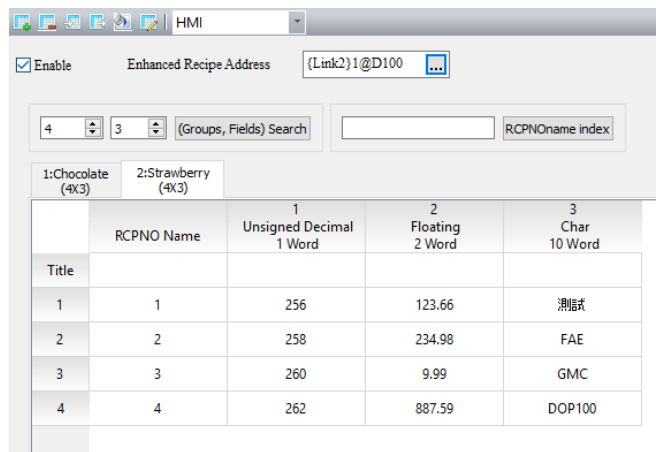


Step 3: click **Finish** and enter the recipe data as follows:

Set enhanced recipes

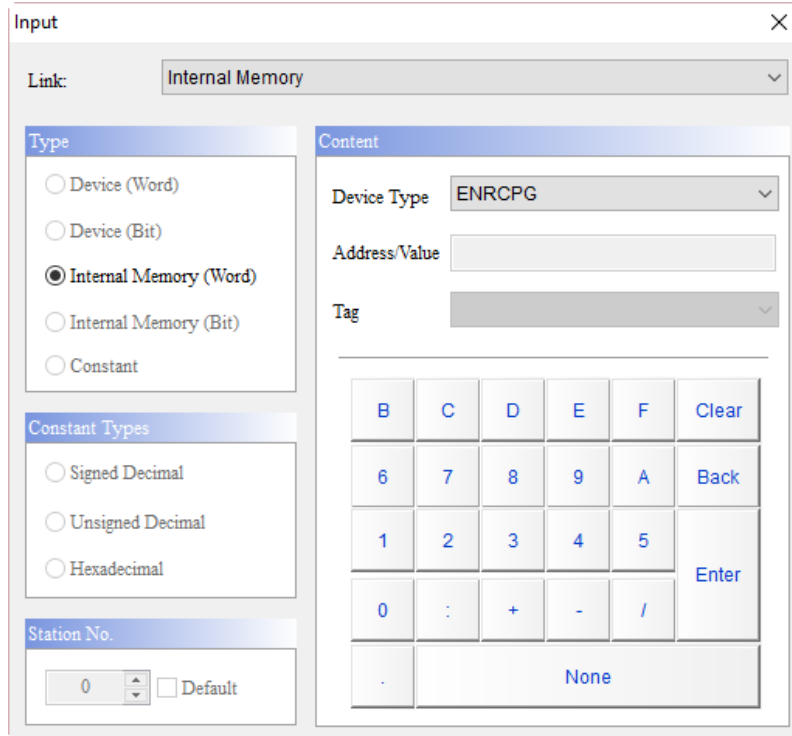


Step 4: repeat Steps 1 and 2 with the Fields set to 3 and Group set to 4. The recipe data is shown as follows:



Enhanced recipe

Step 1: create a Numeric Entry element and set the Write Address to Internal Memory. Select ENRCPG for the Device Type. This element is used to select the enhanced recipe group.

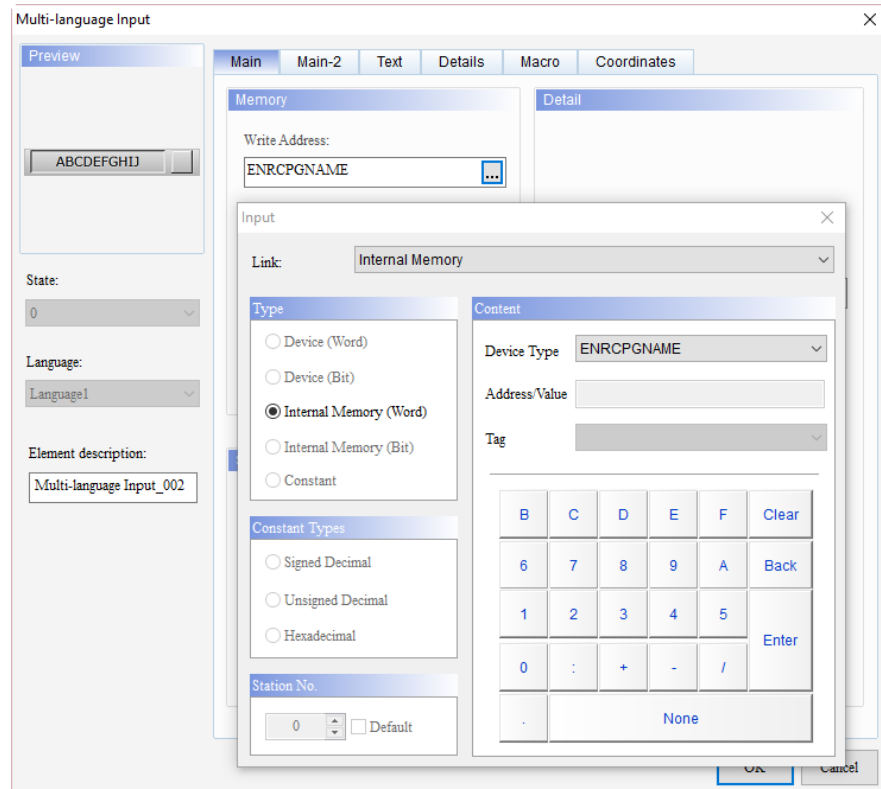


Create Numeric Entry elements for ENRCPG and ENRCPNO and Multi-language Input element for ENRCPGNAME

The following is an example of the created element:



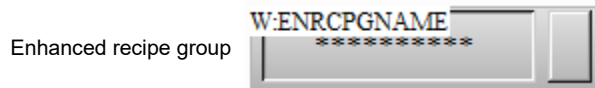
Step 2: create a Multi-language Input element. Set the String Length to 10 and Write Address to Internal Memory, and select ENRCPGNAME for the Device Type. This element is used to select the enhanced recipe group by entering the recipe name.



23

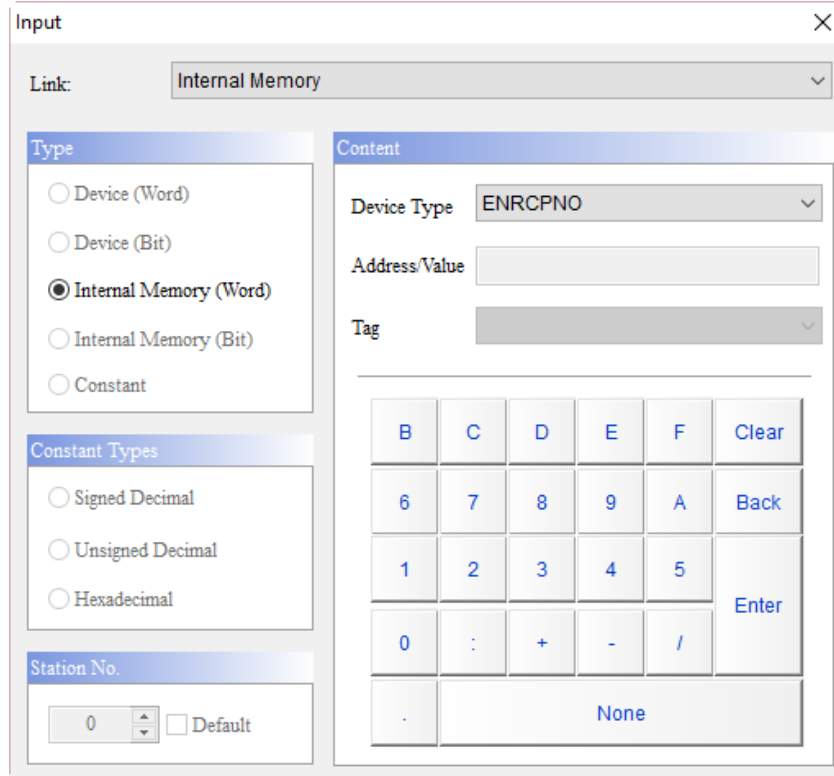
Enhanced recipe

The following is an example of the created element:



Step 3: create a Numeric Entry element and set the Write Address to Internal Memory. Select ENRCPNO for the Device Type. This element is used to select the enhanced recipe number.

Create Numeric Entry elements for ENRCPG and ENRCPNO and Multi-language Input element for ENRCPGNAME



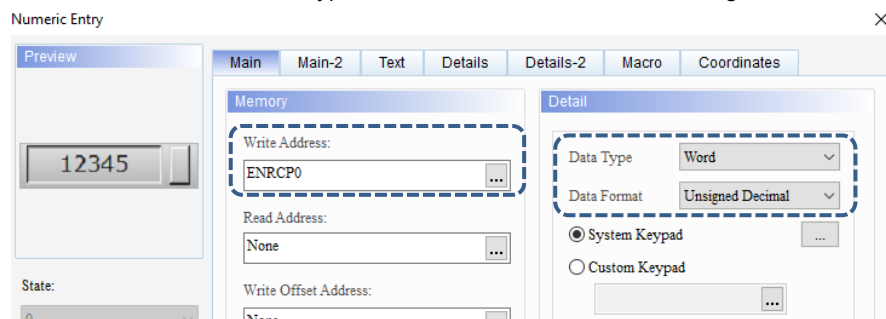
The following is an example of the created element:



Before the Numeric Entry Element is created to display the enhanced recipe register, you can use the recipe register formula $[L*(G+1)-1]$ to calculate the number n in ENRCPn represents. Substitute the size of the recipe (Length (L) x Group (G) = 3 x 3) into the formula to find the ENRCPn = ENRCP0 to ENRCP11.

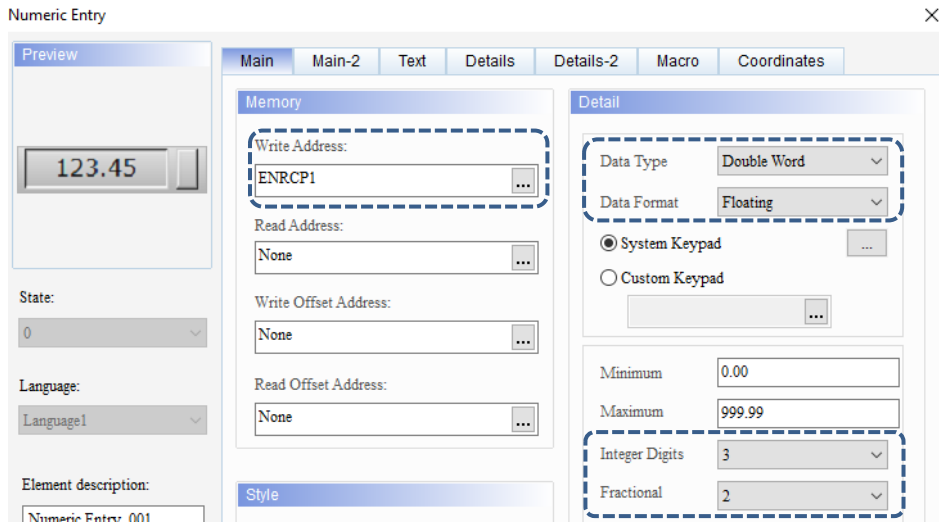
Step 1: create a Numeric Entry element and set the Write Address to ENRCP0 of the Internal Memory. Set the way of expression according to Field 1 of the recipe table with the Data Type as Word and Data Format as Unsigned Decimal.

Create Numeric Entry elements for ENRCP



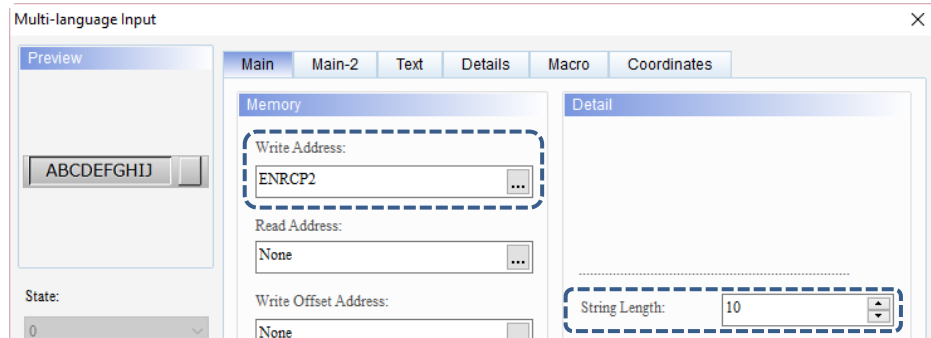
Enhanced recipe

Step 2: create a Numeric Entry element and set the Write Address to ENRCP1 of the Internal Memory. Set the way of expression according to Field 2 of the recipe table with the Data Type as Double Word and Data Format as Floating. Then, set the Integer Digits to 3 and Fractional (Digits) to 2.



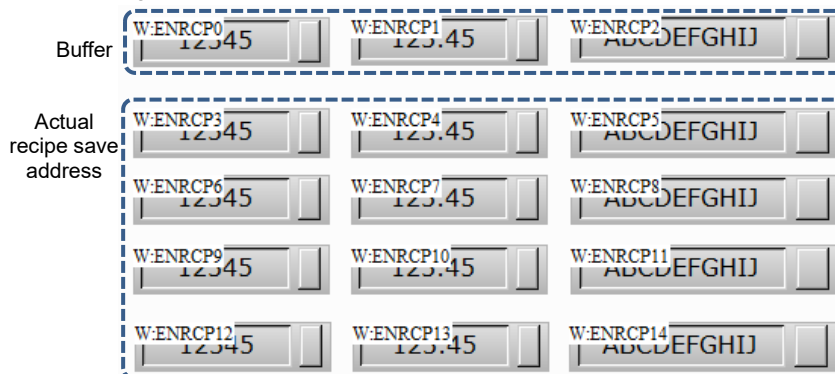
Step 3: create a Multi-language Input element and set the Write Address to ENRCP2 of the Internal Memory. Set the way of expression according to Field 3 of the recipe table and set the String Length to 10 (the length of 1 word can store 2 bits).

Create Numeric Entry elements for ENRCP



Repeat Steps 1 to 3 to create the Display elements for ENRCP3 to ENRCP11 and set the Data Format.

The following is an example of the created elements:

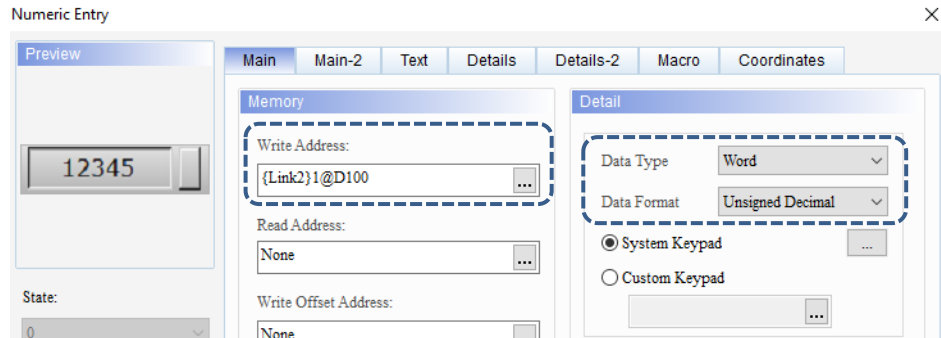


Note: ENRCP0 to ENRCP2 are the recipe buffers and the actual recipe data ENRCPs are ENRCP3 to ENRCP11. For more information, refer to Figure 23.4.3 Enhanced recipe buffer configuration.

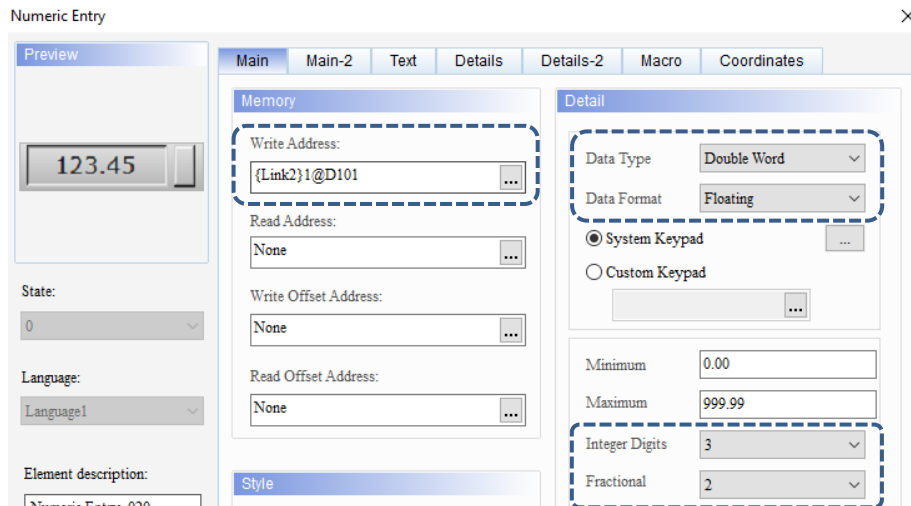
23

Enhanced recipe

Step 1: create a Numeric Entry element by referring to the address set for the enhanced recipe to display the data change when the PLC recipe is read or written. Each field length of the enhanced recipe is not fixed, so you need to set the PLC address to be entered based on the recipe table. For example, the first field of this recipe table is in Unsigned Decimal format and its read length is 1. Thus, the Read Address is set to D100, Data Type is Word, and Data Format is Unsigned Decimal.

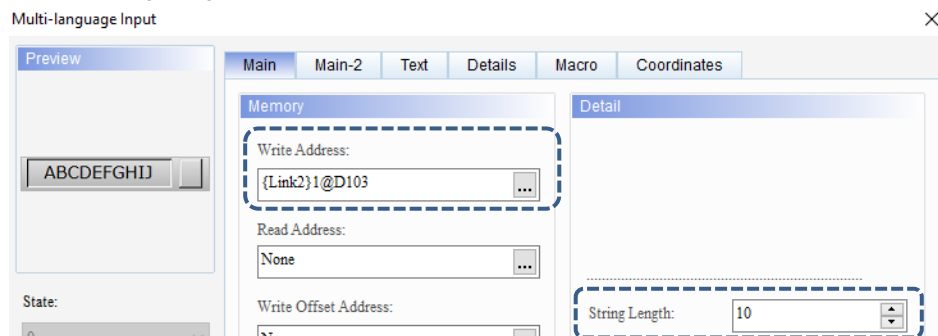


Step 2: create a Numeric Entry element and set the Write Address to D101, Data Type as Double Word, and Data Format as Floating. Then, set the Integer Digits to 3 and Fractional (Digits) to 2.

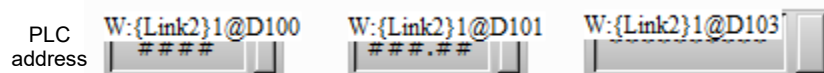


Create Numeric Entry elements for the Enhanced Recipe Address

Step 3: create a Multi-language Input element and set the Write Address to D103 and String Length to 10.



The following is an example of the created elements.



Enhanced recipe

Go to [Options] > [Configuration] > [Control Block], and select the **Enhanced Recipe Control** flag check box. Then, set the Start Address for the Control Block to define the recipe control address. Once the setting is complete, click **OK** to exit the Configuration window.

Set Recipe Control flag in Control Block

Configuration

- Main
 - Non-volatile
 - Security Level and Password
 - Global Keypad Settings
 - Others
 - Control Block
 - Real Time Clock
 - Print
- Default
 - Boot Logo
- Network Settings
 - Remote Desktop and Data Collectio
 - SMTP
 - FTP
- Multi-language
 - Multi-language Settings
- Industry application
 - Electronic record

Control Block

Control Block

Start Address: {Link2}1@D0

<input checked="" type="checkbox"/>	Screen No.	D0	...
<input checked="" type="checkbox"/>	General Control	D1	...
<input checked="" type="checkbox"/>	Curve Control	D2	...
<input checked="" type="checkbox"/>	Sampling History Buffer	D3	...
<input checked="" type="checkbox"/>	Clearing History Buffer	D4	...
<input checked="" type="checkbox"/>	Recipe Control	D5	...
<input checked="" type="checkbox"/>	Recipe Group Number	D6	...
<input checked="" type="checkbox"/>	System Control	D7	...
<input checked="" type="checkbox"/>	Enhanced Recipe Control	D8	...

Enhanced Recipe Control details:

Bit 0	Change enhanced recipe num
Bit 1	Enhanced Recipe Read
Bit 2	Enhanced Recipe Write
Bit 3	Change enhanced recipe grou
Bit 8-15	Specify group number of enh

Create 2 Set Constant buttons with the Write Addresses as D8 and the setting values (Detail.) as 2 and 4 respectively, which correspond to Bit 1 and Bit 2 of the Enhanced Recipe Control flag D8 for reading and writing the recipe.

Create Set Constant button elements

Set Constant

Preview: PLC To HMI

Main | Main-2 | Text | Picture | Details | Macro | Coordinates

Memory

Write Address: {Link2}1@D8

Write Offset Address: None

Detail

Data Type: Word

Data Format: Unsigned Decimal

Detail.: 2

Set Constant

Preview: HMI To PLC

Main | Main-2 | Text | Picture | Details | Macro | Coordinates

Memory

Write Address: {Link2}1@D8

Write Offset Address: None

Detail

Data Type: Word

Data Format: Unsigned Decimal

Detail.: 4

23

Enhanced recipe

- After creating all the elements, execute the Compile and Download Screen and Recipe buttons to download data to the HMI.



- When the enhanced recipe group is loaded into the HMI, the default value is 1. To display different groups, you can select a different enhanced recipe group according to the requirement.
- The recipe data is displayed in ENRCP0 to ENRCP11 according to the selected recipe group. ENRCP0 to ENRCP2 are the recipe buffer data and the starting address for the first set of recipe data is ENRCP3.

ENRCPNO	<input type="text" value="1"/>	ENRCPG	<input type="text" value="1"/>	ENRCPGNAME	<input type="text" value="Chocolate"/>
Buffer	<input type="text" value="111"/>	<input type="text" value="123.11"/>	<input type="text" value="Delta"/>		
Actual recipe address	<input type="text" value="111"/>	<input type="text" value="123.11"/>	<input type="text" value="Delta"/>		
	<input type="text" value="444"/>	<input type="text" value="25.66"/>	<input type="text" value="台達"/>		
	<input type="text" value="777"/>	<input type="text" value="963.12"/>	<input type="text" value="人機"/>		
	<input type="text" value="111"/>	<input type="text" value="74.99"/>	<input type="text" value="HMI"/>		
	<input type="text" value="0"/>	<input type="text" value="0.00"/>	<input type="text"/>	PLC Address	

Execution results

- Trigger the Write Recipe (HMI To PLC) button, and the recipe data of the enhanced recipe group (ENRCPG =1 and ENRCPGNAME = Chocolate) is written to the PLC. Trigger the Read Recipe (PLC To HMI) button, and the recipe data written to the PLC is read back to the HMI. And the recipe data read back is then written to the selected enhanced recipe group (ENRCPG = 2 and ENRCPGNAME = Strawberry).

Enhanced recipe number	<input type="text" value="1"/>	Enhanced recipe group	<input type="text" value="1"/>	Enhanced recipe group name	<input type="text" value="Chocolate"/>
Recipe address	<input type="text" value="111"/>	<input type="text" value="123.11"/>	<input type="text" value="Delta"/>		
PLC address	<input type="text" value="111"/>	<input type="text" value="123.11"/>	<input type="text" value="Delta"/>		
	<input type="text" value="444"/>	<input type="text" value="25.66"/>	<input type="text" value="台達"/>		
	<input type="text" value="777"/>	<input type="text" value="963.12"/>	<input type="text" value="人機"/>		
	<input type="text" value="1111"/>	<input type="text" value="74.99"/>	<input type="text" value="HMI"/>		

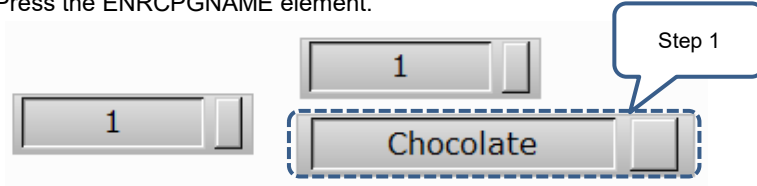
Write recipe data to PLC


Step 1

Write recipe (HMI to PLC)

Enhanced recipe

- Press the ENRCPGNAME element.

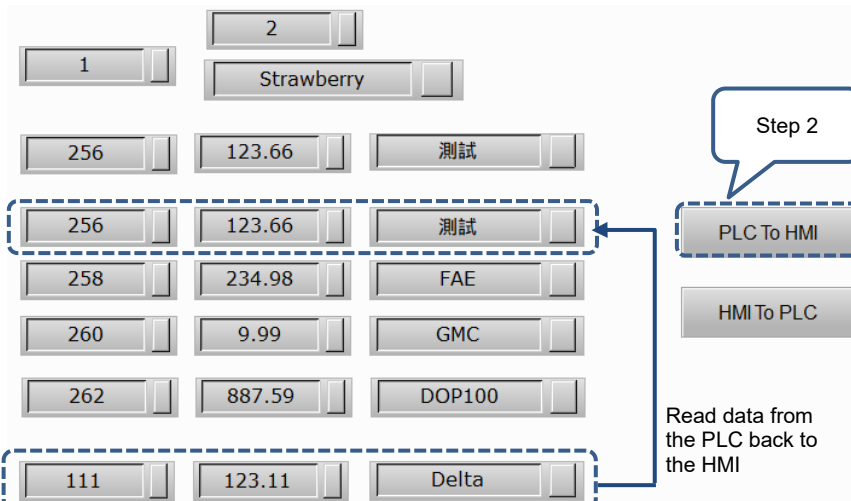


- Enter "Strawberry", and then press .

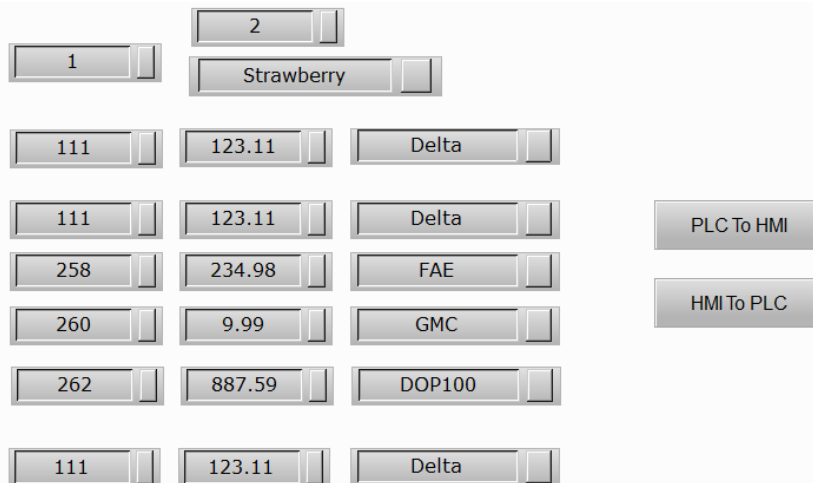


Execution results

Read recipe (PLC to HMI)



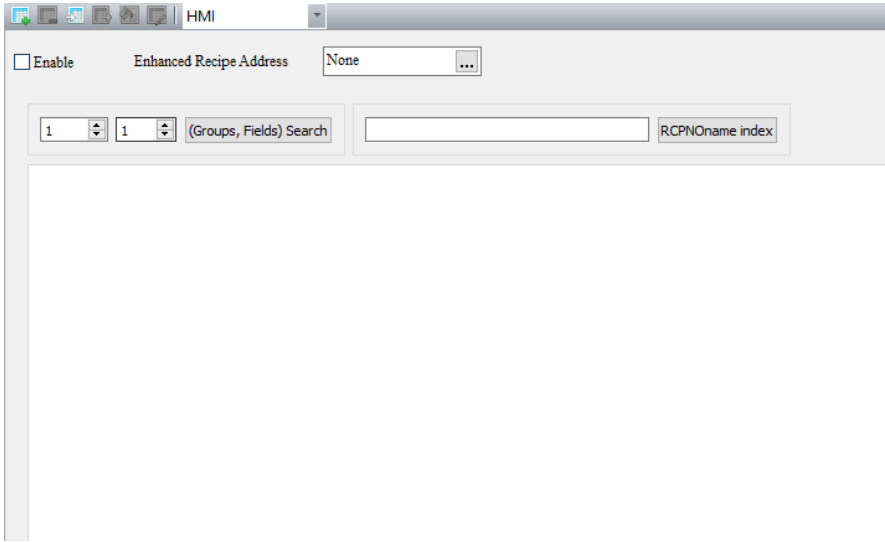
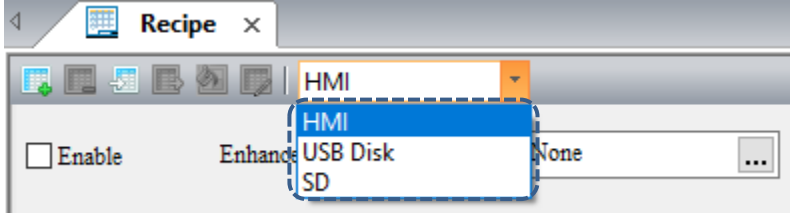
- After Step 2 is executed, the result is shown as follows.



The following section introduces the property settings for the enhanced recipe.

Table 23.4.2 Properties of the Enhanced Recipe setting

23

Properties of the Enhanced Recipe setting	
	
Enable	<ul style="list-style-type: none"> ■ Select the Enable check box to use the enhanced recipe. ■ If Enable is not selected, setting the enhanced recipe does not take effect.
Non-volatile	<ul style="list-style-type: none"> ■ The non-volatile memories include HMI, USB Disk, and SD Card.  <ul style="list-style-type: none"> ■ If you set to save in the HMI, the data is saved in the HMI ROM when the power is off.


Properties of the Enhanced Recipe setting


- You can select the internal memory and the controller register address.
- Select Link Name or Device Type. Refer to Chapter 5 for details.
- Regardless of the number of recipe sets, the enhanced recipes share the same memory address.

Address

Add recipe



- Go to the Enhanced Recipe window. Click  to add the enhanced recipe data.

- You can add up to 255 groups of enhanced recipe data with the  button.

23

Properties of the Enhanced Recipe setting

- You can name the enhanced recipe group and the use of Unicode characters is supported.
- With the Multi-language Input element, you can enter the name of the enhanced recipe to call the recipe.
- The following example shows the first recipe group name in **Japanese**, the second recipe group name in **Chinese**, and the third recipe group name in **English**.

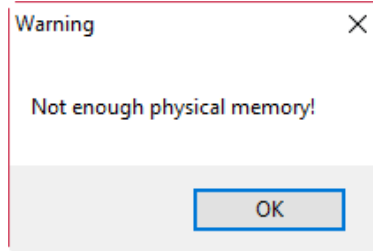
	RCPNO Name	1 Unsigned Decimal 1 Word	2 Unsigned Decimal 1 Word	3 Unsigned Decimal 1 Word
Title				
1	1	0	0	0
2	2	0	0	0
3	3	0	0	0
4	4	0	0	0

Name

Add recipe

Fields / Group

- The Fields and Group represent the recipe length and group that you entered respectively. It is suggested the numbers in Fields x Group should not exceed 350 x 65535.



- The numbers in Fields and Group cannot be 0. If any of the value is 0, the system automatically sets the value to the minimum which is 1.

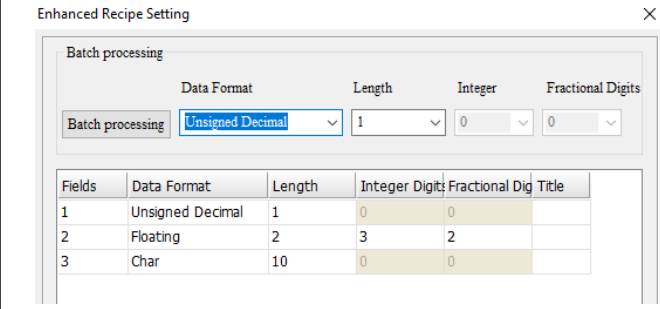
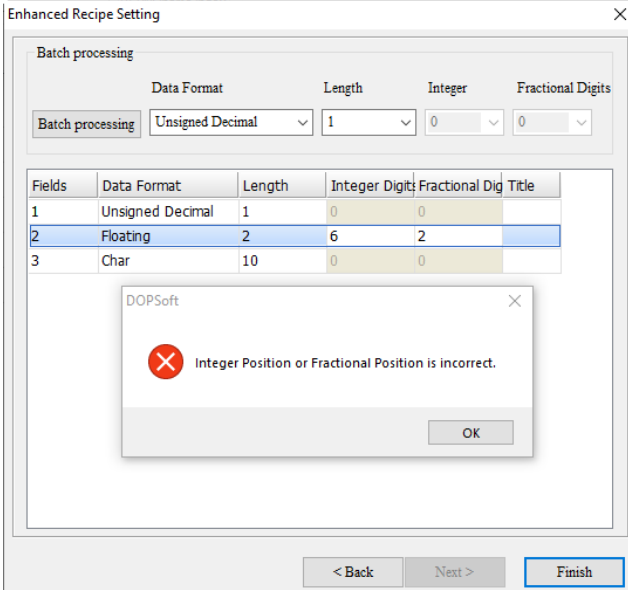
Data formats include BCD, Signed Decimal, Unsigned Decimal, Hexadecimal, Floating, and Char.

Fields	Data Format	Integer Digits	Fractional Digits	Title
1	Unsigned	0	0	
2	Unsigned	0	0	
3	Unsigned Decimal	1	0	

Data Format

Note: if you select Char as the data format, do not use the same character for the input value and delimiter. Otherwise, it may cause data error and failure to import the data.

Properties of the Enhanced Recipe setting

Length	<ul style="list-style-type: none"> Limit of the read length varies according to different data formats. 		
	Data Format	Length	Note
	BCD	1 or 2	1: Word 2: Double Word
	Signed Decimal	1 or 2	
	Unsigned Decimal	1 or 2	
	Hexadecimal	1 or 2	
	Floating	2	2: Double Word
Char	1 to 32	Supports up to 32 Words (64 bits)	
<ul style="list-style-type: none"> If you select Char as the data format, the system automatically fills in the blank string if there is any remaining space after you entered the characters. 			
Floating	<ul style="list-style-type: none"> You can only set the integer and fractional digits when the data format is Floating. 		
			
Integer Digits / Fractional Digits	<ul style="list-style-type: none"> When the data format is Floating, the integer and fractional digits support only 7 digits in total. When this limit is exceeded, the software displays a warning message to inform you of the error. 		
			

Add recipe

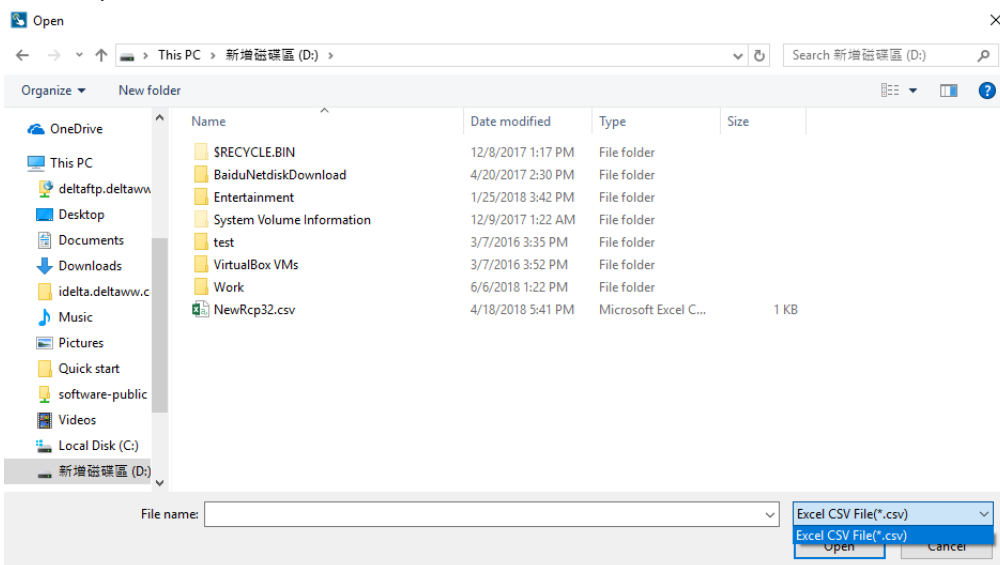


23

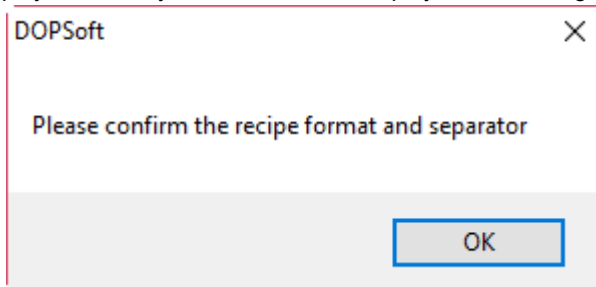
Properties of the Enhanced Recipe setting

- The import recipe function only supports CSV file format for you to select and import the recipe.

Import recipe

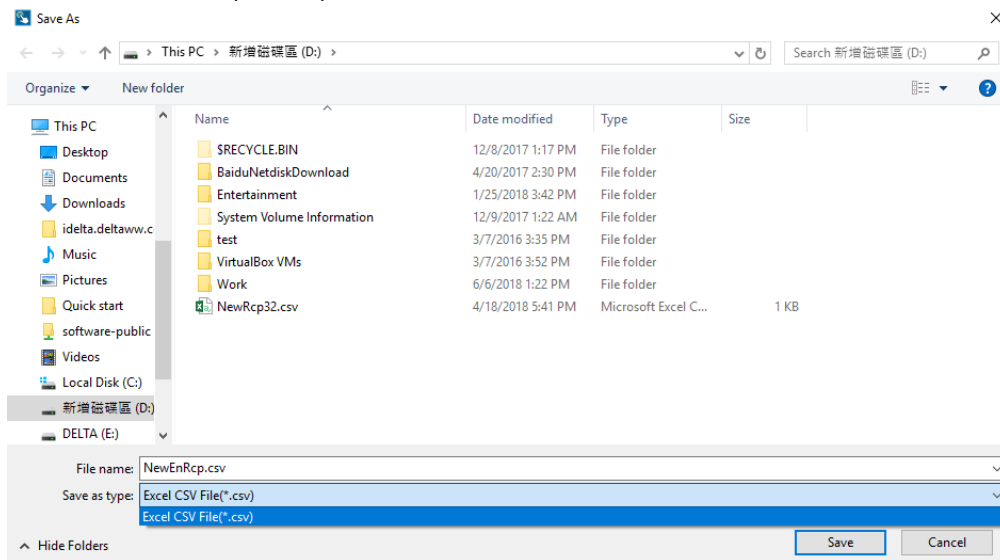


- The opened and imported recipe file provides the current recipe data content only, and the recipe address does not support loading the originally set address. If you use the enhanced recipe to open a CSV file of the 16- or 32-bit Recipe, the loaded recipe data cannot be displayed normally and the software displays the following error message.




The export recipe function saves the current enhanced recipes. The supported file format is the same as that of the import recipe function, which is CSV file.

Export recipe

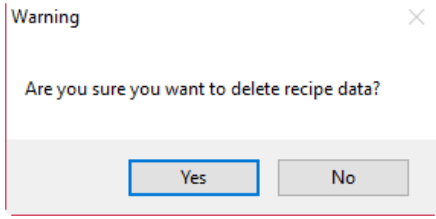


Properties of the Enhanced Recipe setting

Delete recipe




The delete recipe function deletes the enhanced recipe data. When this function is executed, the software displays the following warning message for confirming if you want to delete the data.

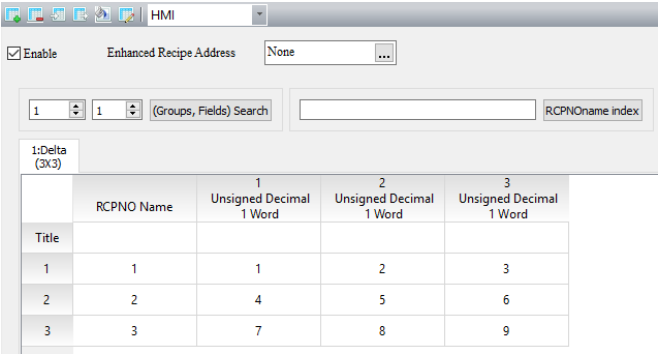


Clear the recipe content that has the value entered.

Clear configuration

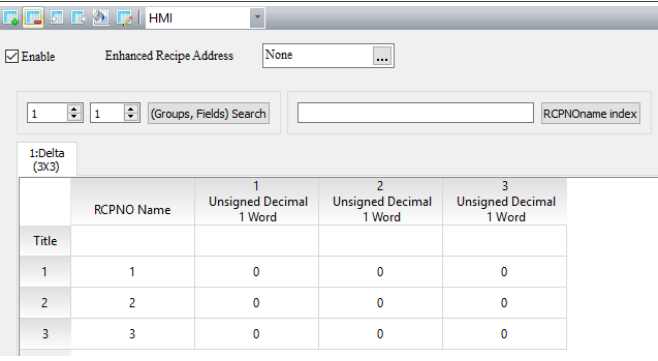


Before



	RCPNO Name	1 Unsigned Decimal 1 Word	2 Unsigned Decimal 1 Word	3 Unsigned Decimal 1 Word
Title				
1	1	1	2	3
2	2	4	5	6
3	3	7	8	9


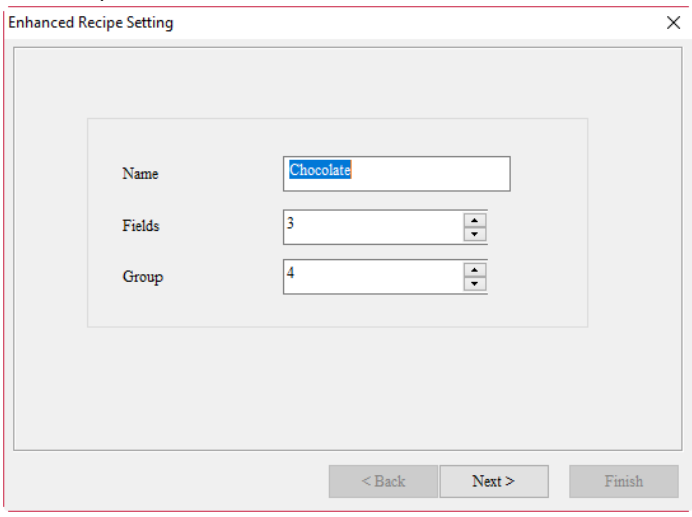
After



	RCPNO Name	1 Unsigned Decimal 1 Word	2 Unsigned Decimal 1 Word	3 Unsigned Decimal 1 Word
Title				
1	1	0	0	0
2	2	0	0	0
3	3	0	0	0

To use the Enhanced Recipe Setting function, there must be recipe data in the enhanced recipe. You can use this function to change the Name, Fields, Group, and data format of the recipe.

Enhanced Recipe Setting

23

Properties of the Enhanced Recipe setting

- You can enter the group and field to be searched then click the **(Groups, Fields) Search** button, and the searching result is selected.

1 1 (Groups, Fields) Search

- For example, when you enter 3 and 3 for the group and field respectively and click the **(Groups, Fields) Search** button, the specified position is selected.

3 3 (Groups, Fields) Search RCPNOname index

1:Delta (7x4)

	RCPNO Name	1 Unsigned Decimal 1 Word	2 Unsigned Decimal 1 Word	3 Unsigned Decimal 1 Word	4 Unsigned Decimal 1 Word
Title					
1	1	0	0	0	0
2	2	0	0	0	0
3	3	0	0	3	0
4	4	0	0	0	0
5	5	0	0	0	0
6	6	0	0	0	0
7	7	0	0	0	0

Groups /
Fields Search

- You can enter the RCPNO name to be searched then click the **RCPNOname index** button, and the searching result is selected.

RCPNOname index

- For example, if you enter 10 and click the **RCPNOname index** button, the specified position is selected.

Enable Enhanced Recipe Address None

3 3 (Groups, Fields) Search 10 RCPNOname index

1:Delta (11x4)

	RCPNO Name	1 Unsigned Decimal 1 Word	2 Unsigned Decimal 1 Word	3 Unsigned Decimal 1 Word	4 Unsigned Decimal 1 Word
Title					
1	1	0	0	0	0
2	2	0	0	0	0
3	3	0	0	0	0
4	4	0	0	0	0
5	5	0	0	0	0
6	6	0	0	0	0
7	7	0	0	0	0
8	8	0	0	0	0
9	9	0	0	0	0
10	10	0	0	0	0
11	11	0	0	0	0

RCPNOname
index

23.5 Enhanced indirect recipe index register (*ENRCP)

The enhanced indirect recipe index register is used specifically for the enhanced recipe. Enhanced indirect recipe index register (*ENRCPn) acquires the value from ENRCPn first, and then it takes this value as the new address and accesses the value from this new address. For example, if ENRCP1 = 3 and ENRCP3 = 99, then *ENRCP1 = 99 (see Figure 23.5.1).

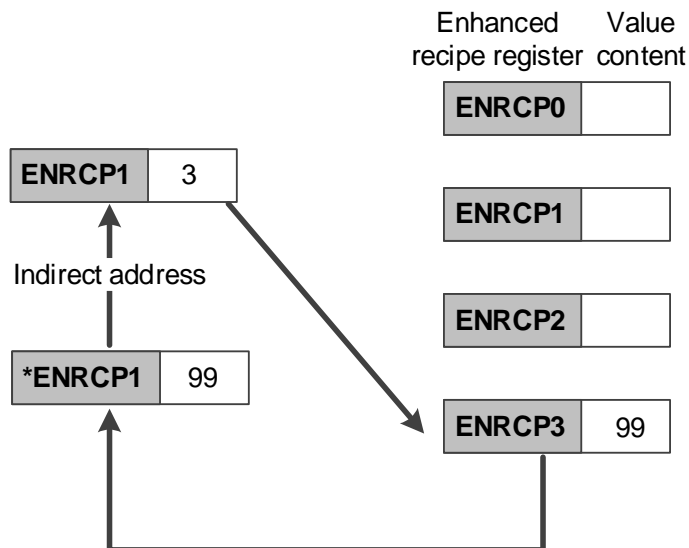


Figure 23.5.1 Enhanced indirect recipe index

The accessing range of the enhanced indirect recipe index register is as follows:

Accessing type	Device type	Accessing range
Word	*ENRCPn	ENRCP0 to ENRCP65535

Note: n = Word (0 to 65535)

The address accessing range provided by *ENRCP is limited according to the recipe size you created. Assuming that the recipe size is Length 3 * Group 3, then the ENRCP address ranges from *ENRCP0 to *ENRCP11. When *ENRCP12 is created, the software displays the warning message shown as follows.

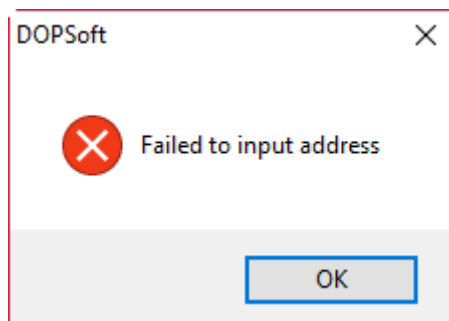
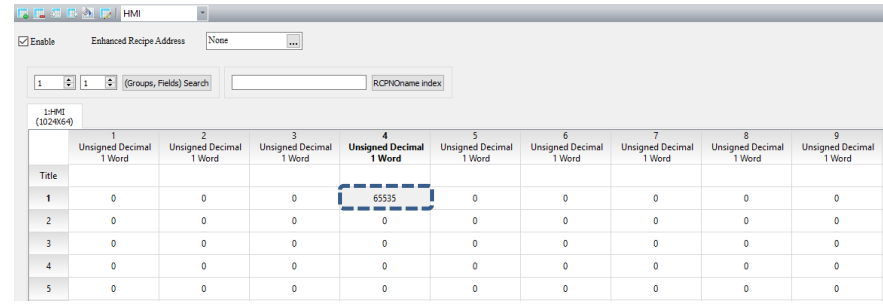
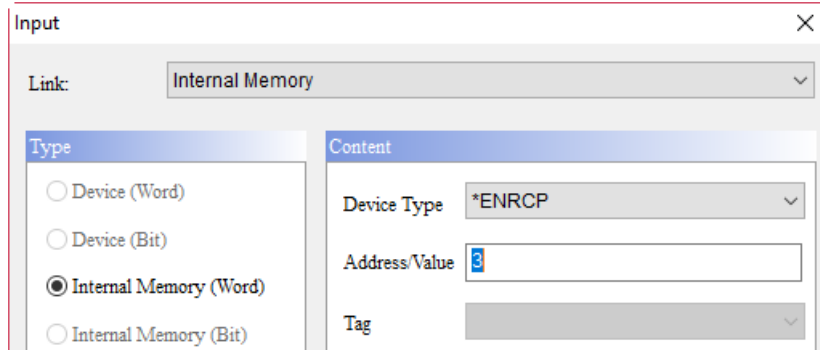
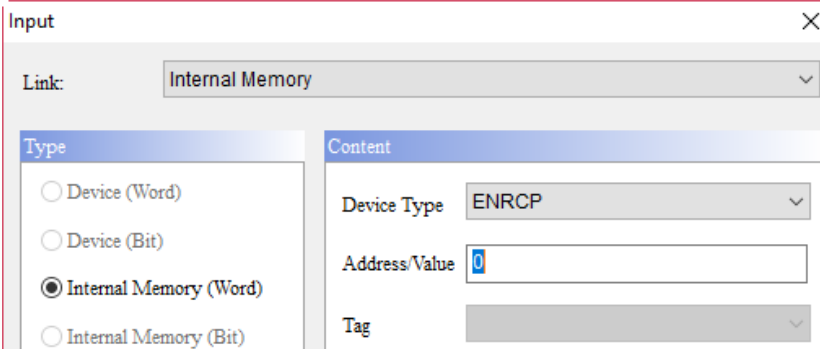
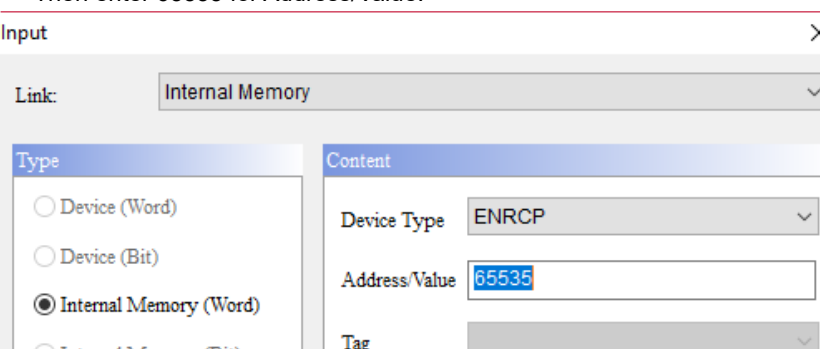


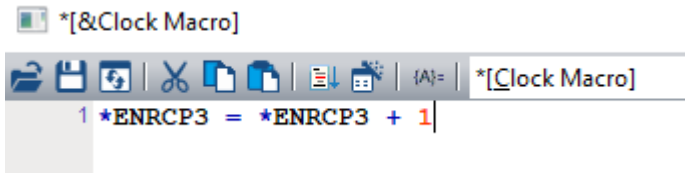
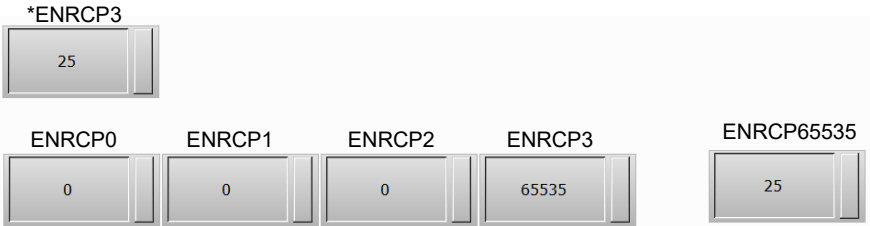
Figure 23.5.2 Enhanced indirect recipe index register configuration error

The following section introduces the example for the enhanced indirect recipe index register.

Table 23.5.1 Example of enhanced indirect recipe index register

23

Enhanced indirect recipe index register																																																																															
Set enhanced recipe	<p>Create an enhanced recipe (64 for Fields, 1024 for Group) and set ENRCP3 to 65535.</p>  <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 5%;"></th> <th style="width: 10%;">1 Unsigned Decimal 1 Word</th> <th style="width: 10%;">2 Unsigned Decimal 1 Word</th> <th style="width: 10%;">3 Unsigned Decimal 1 Word</th> <th style="width: 10%;">4 Unsigned Decimal 1 Word</th> <th style="width: 10%;">5 Unsigned Decimal 1 Word</th> <th style="width: 10%;">6 Unsigned Decimal 1 Word</th> <th style="width: 10%;">7 Unsigned Decimal 1 Word</th> <th style="width: 10%;">8 Unsigned Decimal 1 Word</th> <th style="width: 10%;">9 Unsigned Decimal 1 Word</th> </tr> </thead> <tbody> <tr> <td>Title</td> <td></td><td></td><td></td><td style="border: 2px dashed blue;">65535</td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>1</td> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> <tr> <td>2</td> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> <tr> <td>3</td> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> <tr> <td>4</td> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> <tr> <td>5</td> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </tbody> </table>										1 Unsigned Decimal 1 Word	2 Unsigned Decimal 1 Word	3 Unsigned Decimal 1 Word	4 Unsigned Decimal 1 Word	5 Unsigned Decimal 1 Word	6 Unsigned Decimal 1 Word	7 Unsigned Decimal 1 Word	8 Unsigned Decimal 1 Word	9 Unsigned Decimal 1 Word	Title				65535						1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
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Create Numeric Entry elements	<ul style="list-style-type: none"> ■ Create a Numeric Entry element and select *ENRCP for the Device Type. Then enter 3 for Address/Value. <div style="border: 1px solid red; padding: 5px; margin-top: 5px;">  </div> ■ Create four Numeric Entry elements and select ENRCP for the Device Type. Then enter 0 - 3 for Address/Value respectively. <div style="border: 1px solid red; padding: 5px; margin-top: 5px;">  </div> ■ Create a Numeric Entry element and select ENRCP for the Device Type. Then enter 65535 for Address/Value. <div style="border: 1px solid red; padding: 5px; margin-top: 5px;">  </div> 																																																																														

Enhanced indirect recipe index register	
Create Clock macro command	<p>Create the Clock macro command $*ENRCP3 = *ENRCP3 + 1$.</p>  <p>The screenshot shows a software editor window with a toolbar at the top. The main text area contains the macro command <code>*ENRCP3 = *ENRCP3 + 1</code>. The cursor is positioned at the end of the line. The toolbar includes icons for file operations (save, open, print), editing (undo, redo, cut, copy, paste), and a search function.</p>
Execution results	<p>After compiling the screen, download it to the HMI. Then you can see the values of $*ENRCP3$ and ENRCP65535 increase simultaneously.</p>  <p>The screenshot displays the execution results on an HMI screen. It shows several digital displays for different registers:</p> <ul style="list-style-type: none">$*ENRCP3$: 25ENRCP0: 0ENRCP1: 0ENRCP2: 0ENRCP3: 65535ENRCP65535: 25

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23

This chapter mainly describes the types and commands of macro provided by the HMI and the setting details of the macro commands.

24.1	Types of macro	24-3
24.1.1	On Macro / Off Macro	24-4
24.1.2	Before Execute Macro	24-5
24.1.3	After Execute Macro	24-6
24.1.4	Screen Open Macro	24-7
24.1.5	Screen Close Macro	24-8
24.1.6	Screen Cycle Macro	24-9
24.1.7	Screen cycle macro manager	24-12
24.1.8	Submacro	24-13
24.1.9	Initial Macro	24-22
24.1.10	Background Macro	24-24
24.1.11	Clock Macro	24-26
24.2	Macro edit window	24-29
24.3	Macro commands	24-35
24.3.1	Arithmetic	24-41
24.3.2	Logical Operation	24-62
24.3.3	Data transfer	24-71
24.3.4	Data Conversion	24-81
24.3.5	Comparison	24-98
24.3.6	Flow Control	24-145
24.3.7	Bit Setting	24-151
24.3.8	Communication	24-155
24.3.9	Drawing	24-188
24.3.10	File Access	24-195
24.3.11	Others	24-207
24.4	Macro error codes	24-252

DOPSoft provides a variety of macro commands for you to perform various operations, such as Arithmetic, Logical Operation, Data transfer, Data Conversion, Comparison, FlowControl, Bit Setting, Communication, Drawing.

24

Arithmetic	>
Logical Operation	>
Data transfer	>
Data Conversion	>
Comparison	>
FlowControl	>
Bit Setting	>
Communication	>
Drawing	>
File Access	>
Others	>

Figure 24.1.1 Types of Macro

24.1 Types of macro

Macros consist of independent commands processing programs written by the user. 512 lines of commands can be edited in each type of macro. The main features of each type of macros are shown in the following table.

Table 24.1.2 Features of macro

Type of macro	Features of macro
On Macro	<ul style="list-style-type: none"> ■ When the On Macro is triggered, it is executed only once. ■ It is available only for Set to On, Set to Off, Maintained, and Momentary buttons.
Off Macro	<ul style="list-style-type: none"> ■ When the Off Macro is triggered, it is executed only once. ■ It is available only for Set to On, Set to Off, Maintained, and Momentary buttons.
Before Execute Macro	<ul style="list-style-type: none"> ■ When you press the button element, the HMI first executes the macro commands and then executes the button actions. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands. ■ It is available in all button and input elements.
After Execute Macro	<ul style="list-style-type: none"> ■ When you press the button element, the HMI first executes the button actions and then executes the macro commands. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands. ■ It is available in all button and input elements.
Screen Open Macro	Execute the macro when the screen is opened.
Screen Close Macro	Execute the macro one time when the screen is closed.
Screen Cycle Macro	Execute the macro continuously on the screen. If you have set the Screen Open Macro, the system first executes the Screen Open Macro and then executes Screen Cycle Macro.
Submacro	<ul style="list-style-type: none"> ■ There are 512 submacros and 512 lines of commands can be written in each submacro. ■ Submacros are similar to subroutines in programming languages where you can write highly repetitive actions or functions. In addition, you can call the submacros when needed.
Initial Macro	Initial macro is the first one to be executed after the start of the HMI and it is executed only once.
Background Macro	The Background Macro is a program that is executed repeatedly during the HMI operation. The Background Macro is executed in the manner of one line or several lines at a time (instead of finishing with one execution). When the last line is executed, this macro starts all over again.
Clock Macro	The Clock Macro is executed repeatedly during the HMI operation. It batch runs programs all at once rather than running one line or several lines at a time.

24

24.1.1 On Macro / Off Macro

On Macro / Off Macro are functions available only when Set to On, Set to Off, Maintained, and Momentary buttons are created.

When you switch the state to On by pressing the button, the HMI executes the On Macro commands. When you switch the state to Off by pressing the button, the HMI executes the Off Macro commands. However, the On Macro / Off Macro commands will not be executed if the button states are not changed with the button touch (using external controller commands or other macros instead).

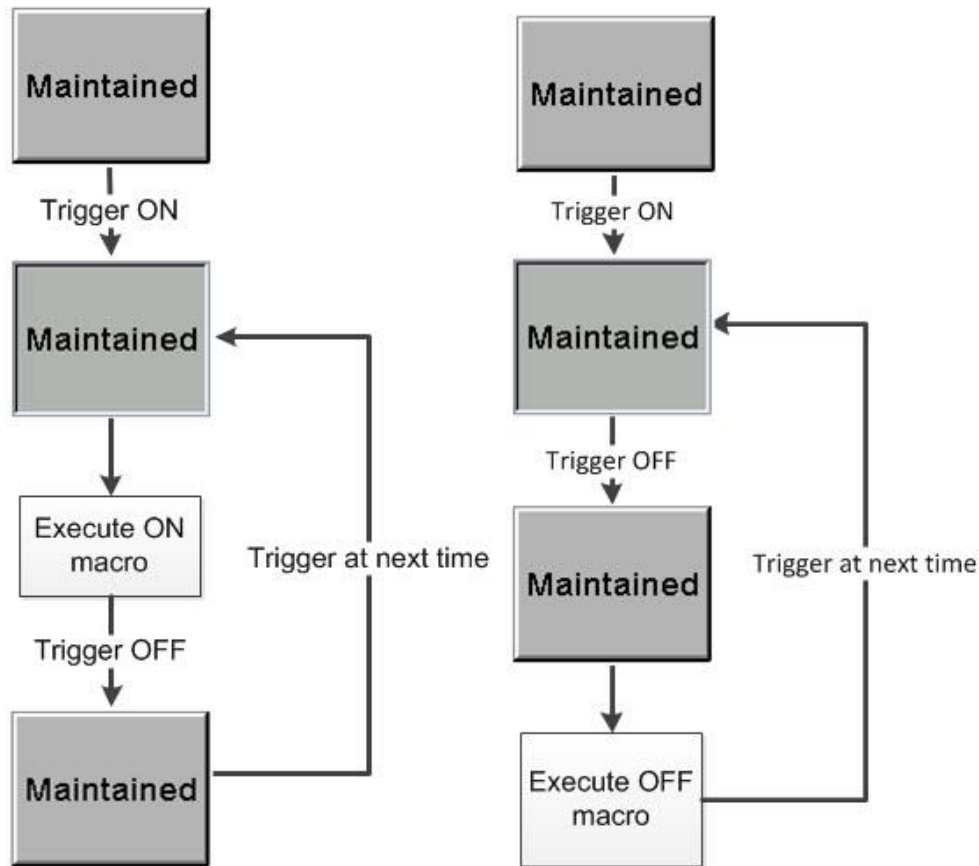


Figure 24.1.1.1 Flowchart of On / Off Macros

24.1.2 Before Execute Macro

The Before Execute Macro can only be used when the created elements are button and entry elements.

When you press the button element, the HMI first executes the macro commands and then executes the button actions. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.

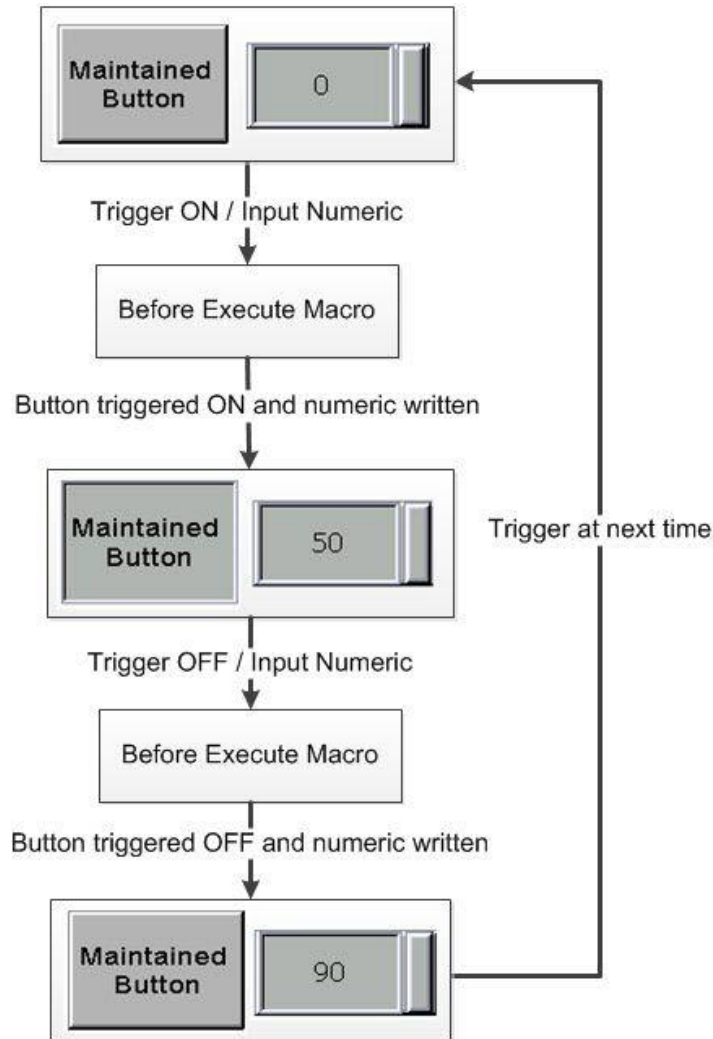


Figure 24.1.2.1 Flowchart of Before Execute Macro

24

24.1.3 After Execute Macro

The After Execute Macro can only be used when the created elements are button and entry elements.

When you press the button element, the HMI first executes the button actions and then executes the macro commands. If the button states are not changed with the button touch (using external controller commands or other macros instead), the HMI does not execute the macro commands.

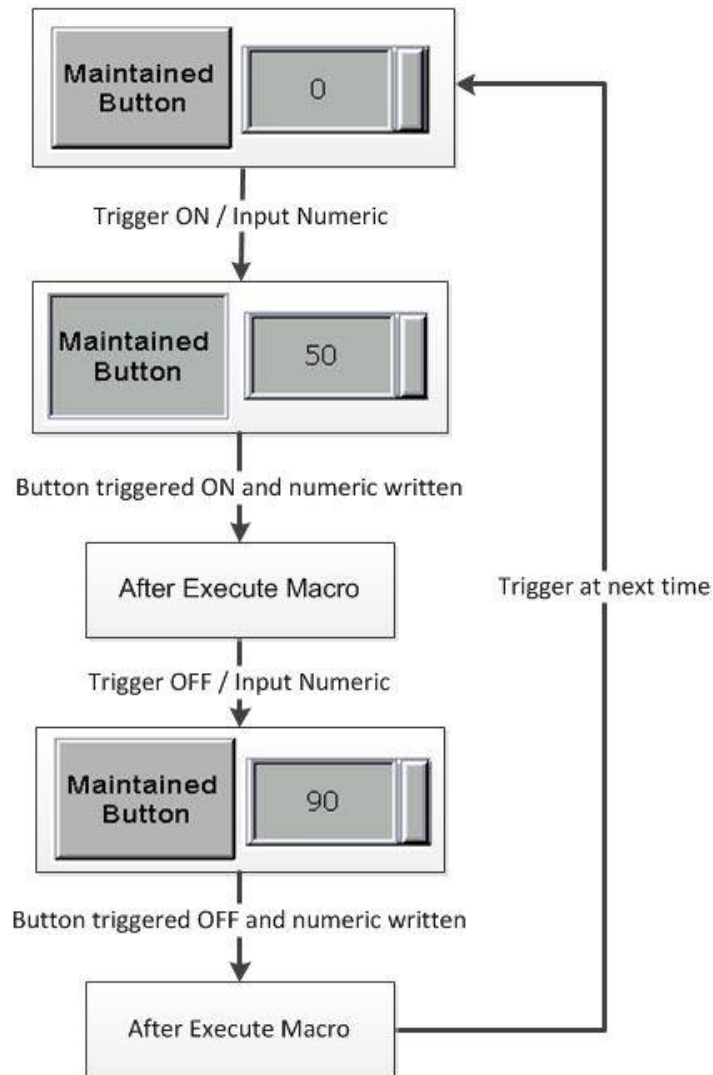


Figure 24.1.3.1 Flowchart of After Execute Macro

24.1.4 Screen Open Macro

Go to [Screen] > [Screen Open Macro] to edit the Screen Open Macro.

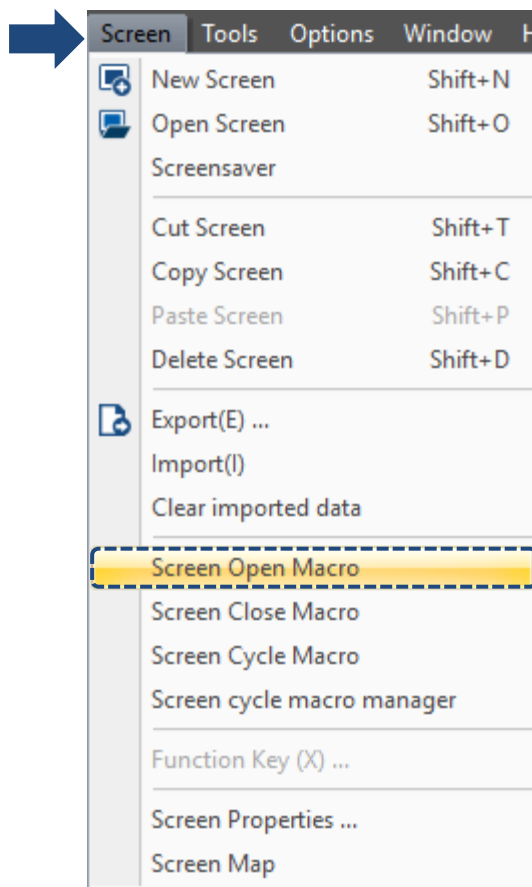


Figure 24.1.4.1 Screen Open Macro

Every screen created by DOPSoft contains a Screen Open Macro, which will be executed when you open the current screen or switch to another screen. Other actions of the screen will not be executed until the execution of the Screen Open Macro is finished.

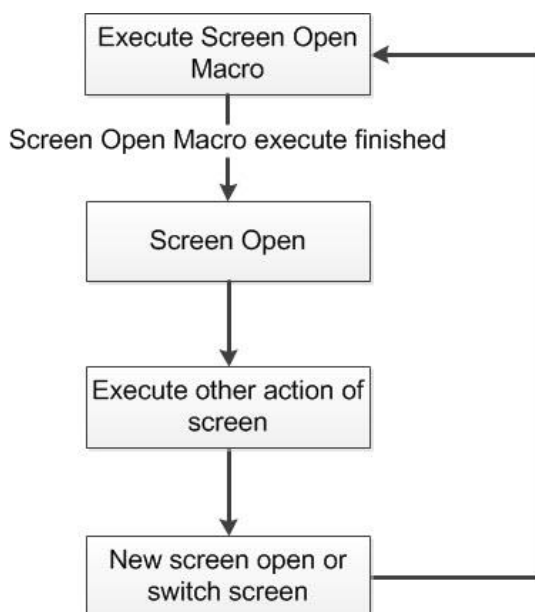


Figure 24.1.4.2 Flowchart of Screen Open Macro

24.1.5 Screen Close Macro

Go to [Screen] > [Screen Close Macro] to edit the Screen Close Macro.

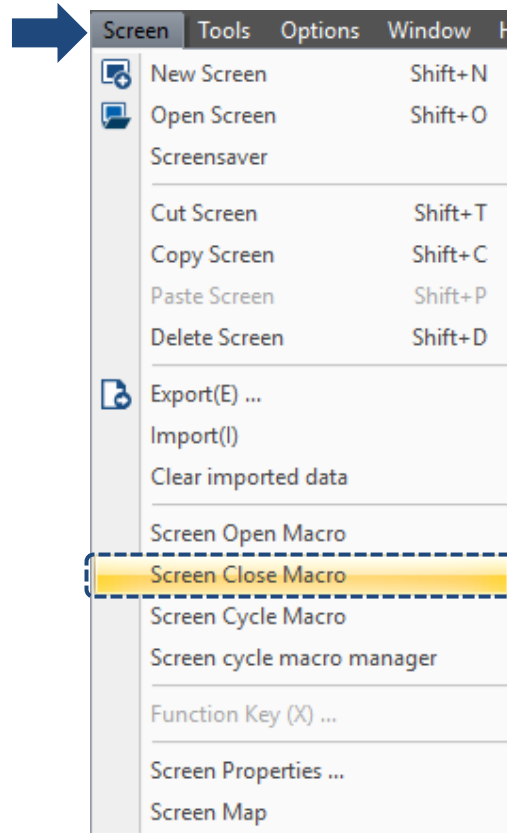


Figure 24.1.5.1 Screen Close Macro

Every screen created by DOPSoft contains a Screen Close Macro, which will be executed when you close the current screen or switch to another screen. Actions of the new screen will not be executed until the execution of the Screen Close Macro is finished.

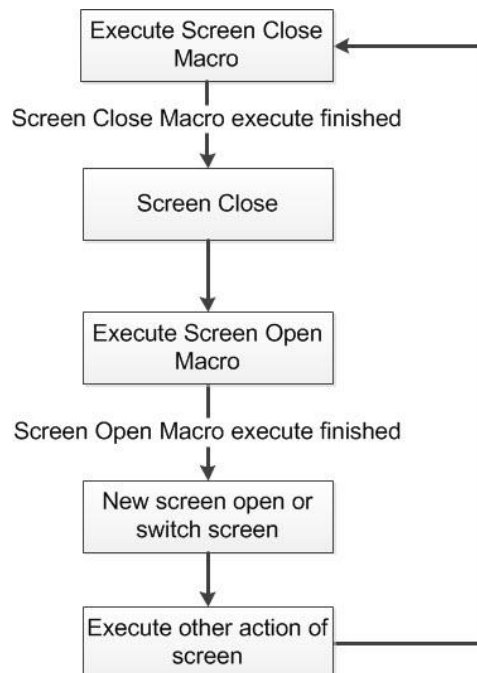


Figure 24.1.5.2 Flowchart of Screen Close Macro

24.1.6 Screen Cycle Macro

Go to [Screen] > [Screen Cycle Macro] to edit the Screen Cycle Macro.

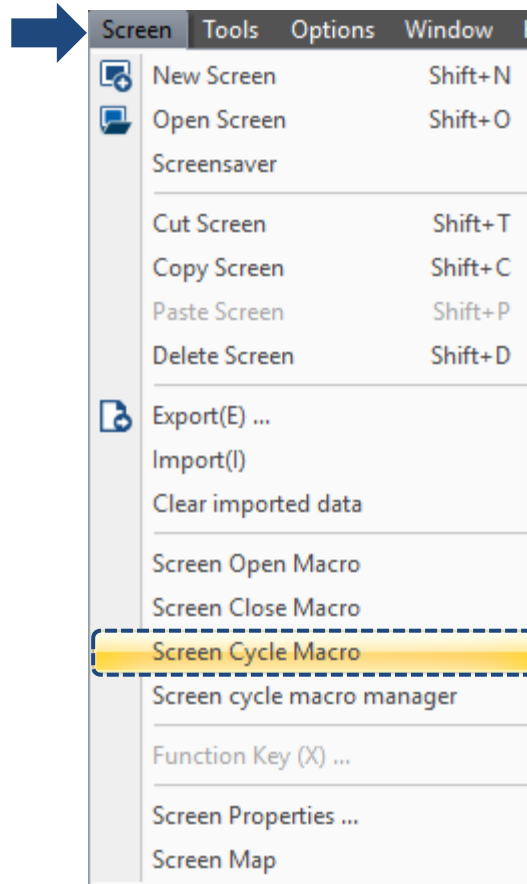


Figure 24.1.6.1 Screen Cycle Macro

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Every screen created by DOPSoft contains a Screen Cycle Macro, which will be executed according to the set Cycle Macro delay time after the execution of Screen Open Macro is finished. You can double-click on the screen to go to the Screen Property page for setting the Macro Cycle Delay. It represents the delay time before the re-execution of each Screen Cycle Macro. The default is 100 ms.

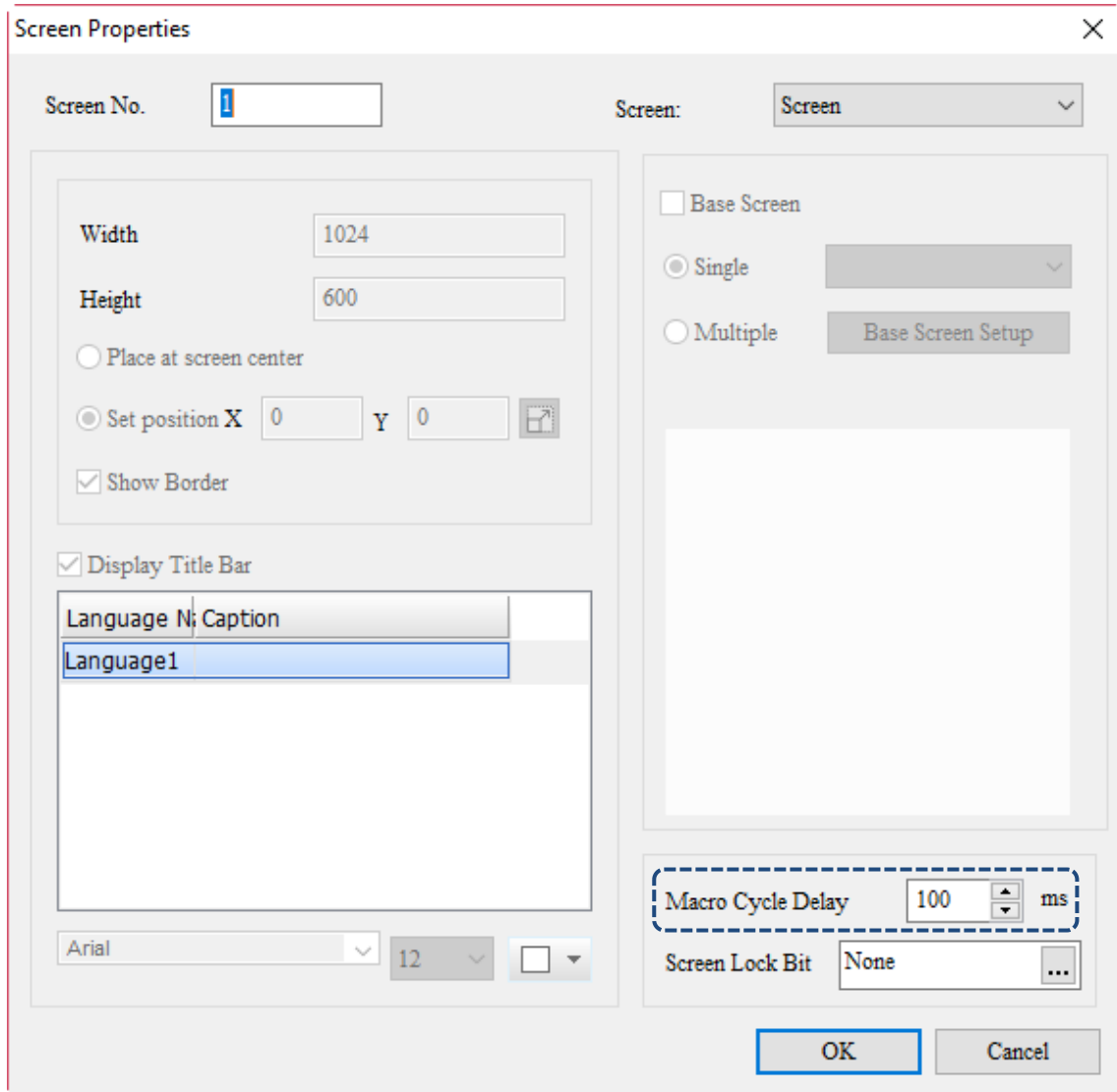


Figure 24.1.6.2 Setting of Macro Cycle Delay

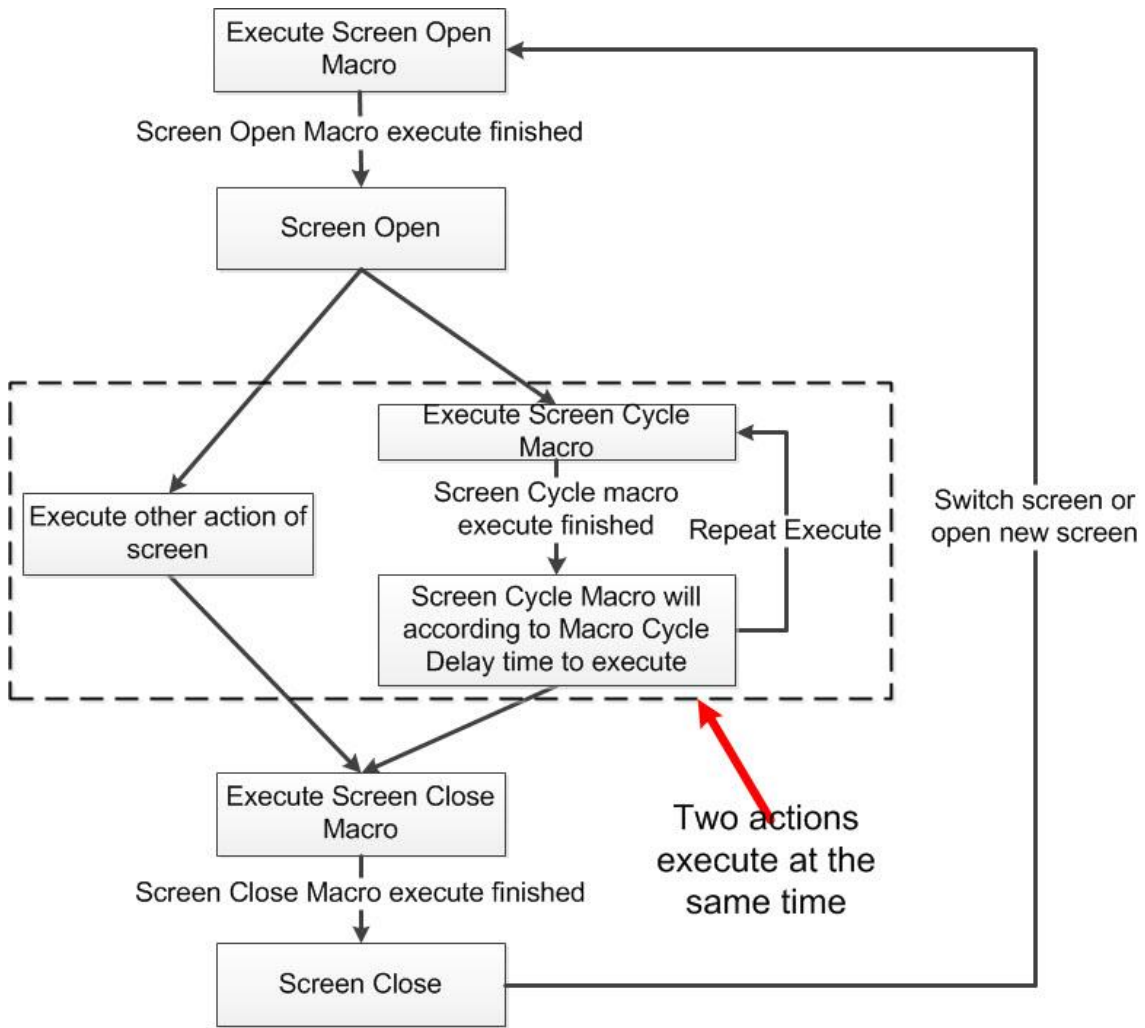


Figure 24.1.6.3 Flowchart of Screen Cycle Macro

24.1.7 Screen cycle macro manager

The Screen cycle macro manager helps you quickly open the cycle macro of each screen when you edit the screen cycle macro. When you are programming for the HMI and it is not yet connected to the PLC, you can disable the execution of screen cycle macro.

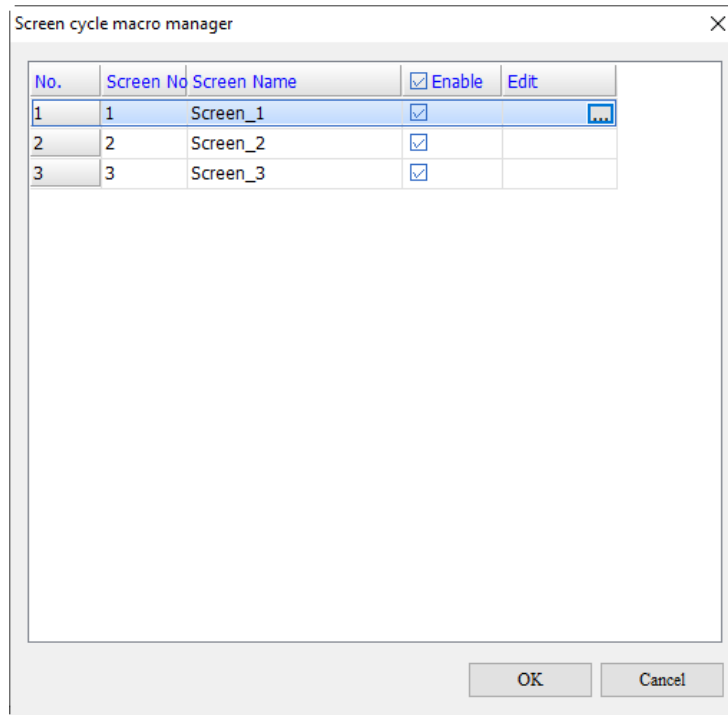


Figure 24.1.7.1 Screen Cycle macro manager

24.1.8 Submacro

Go to [Options] > [Submacro] to set the Submacro.

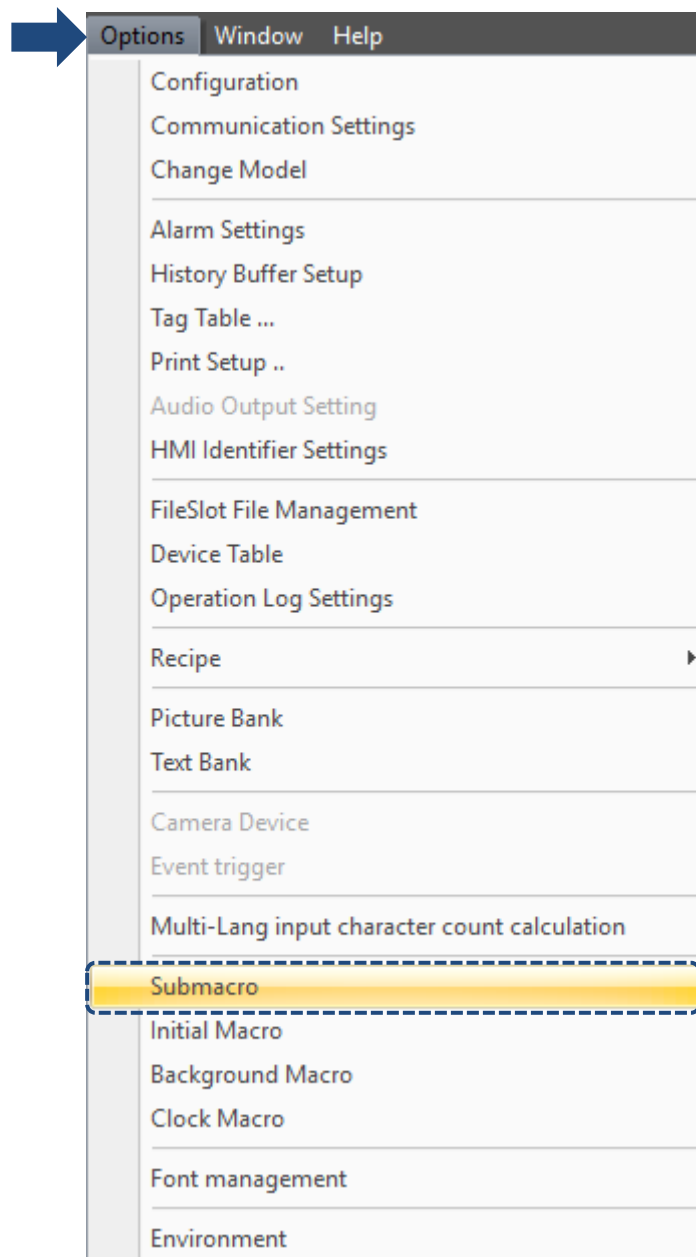


Figure 24.1.8.1 Submacro

24

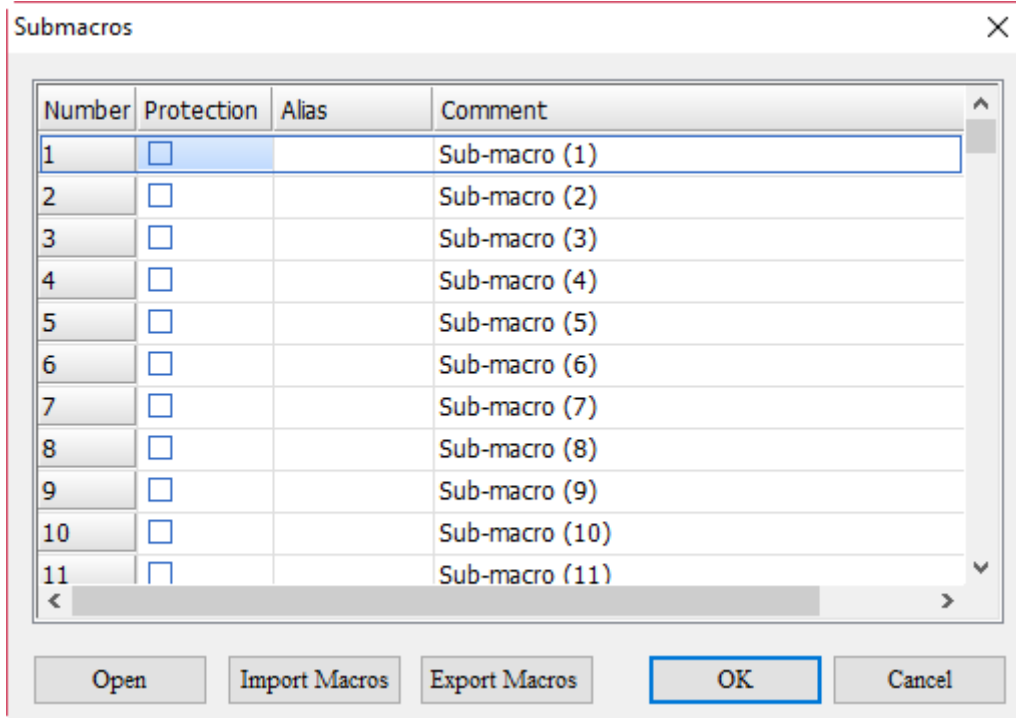


Figure 24.1.8.2 Submacro setting window

The Submacro provides 512 submacro programs with the numbers of 1 - 512 respectively. Submacros are similar to subroutines in programming languages where you can write highly repetitive actions or functions. In addition, you can call the submacros when needed, which saves the time for writing the macros and makes it easier for maintenance.

Note: the actions of calling submacros in the Submacro should not exceed six layers.

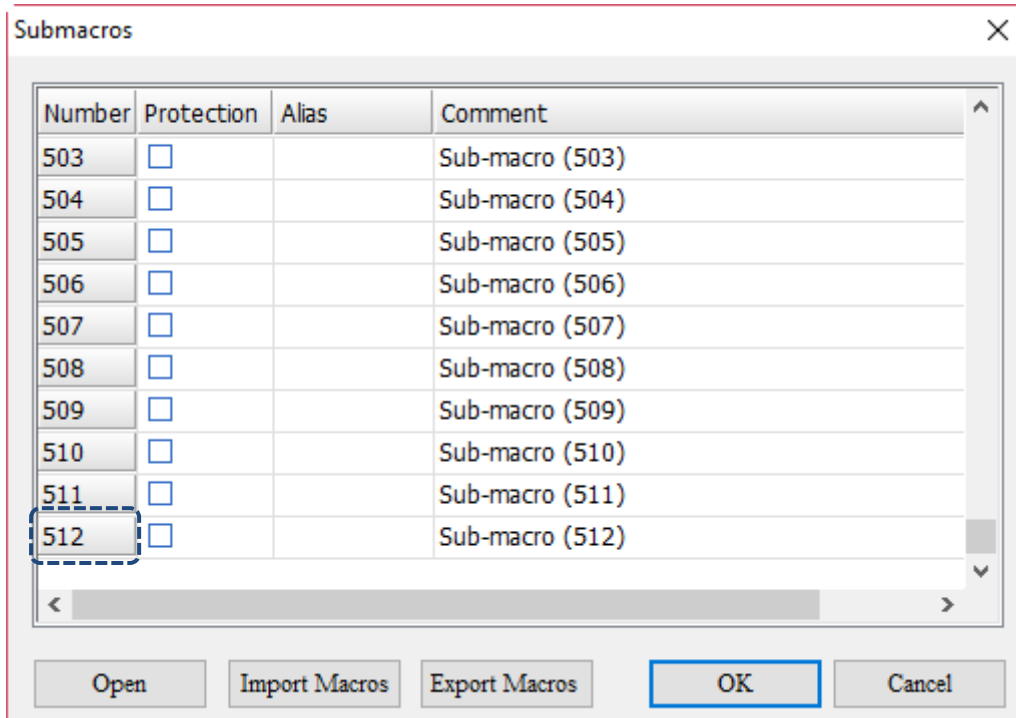
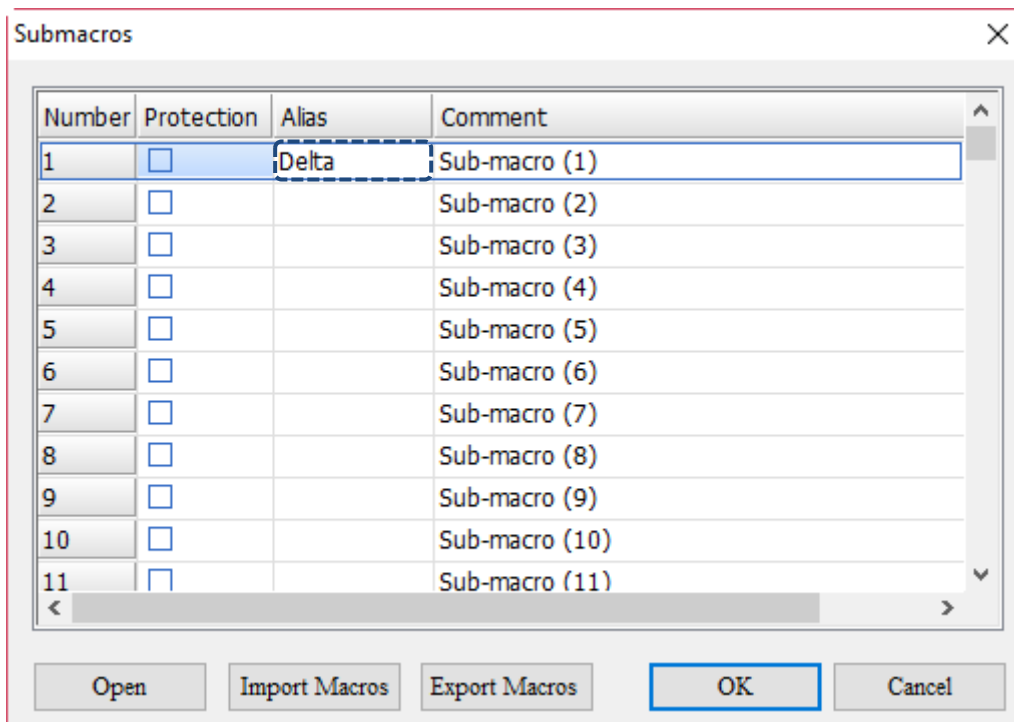


Figure 24.1.8.3 Submacro Screen I

To call a submacro, you can call its number directly or name it in the Alias column and call its alias. Submacro names support character and Chinese input for up to 64 characters.



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Figure 24.1.8.4 Submacro Screen II

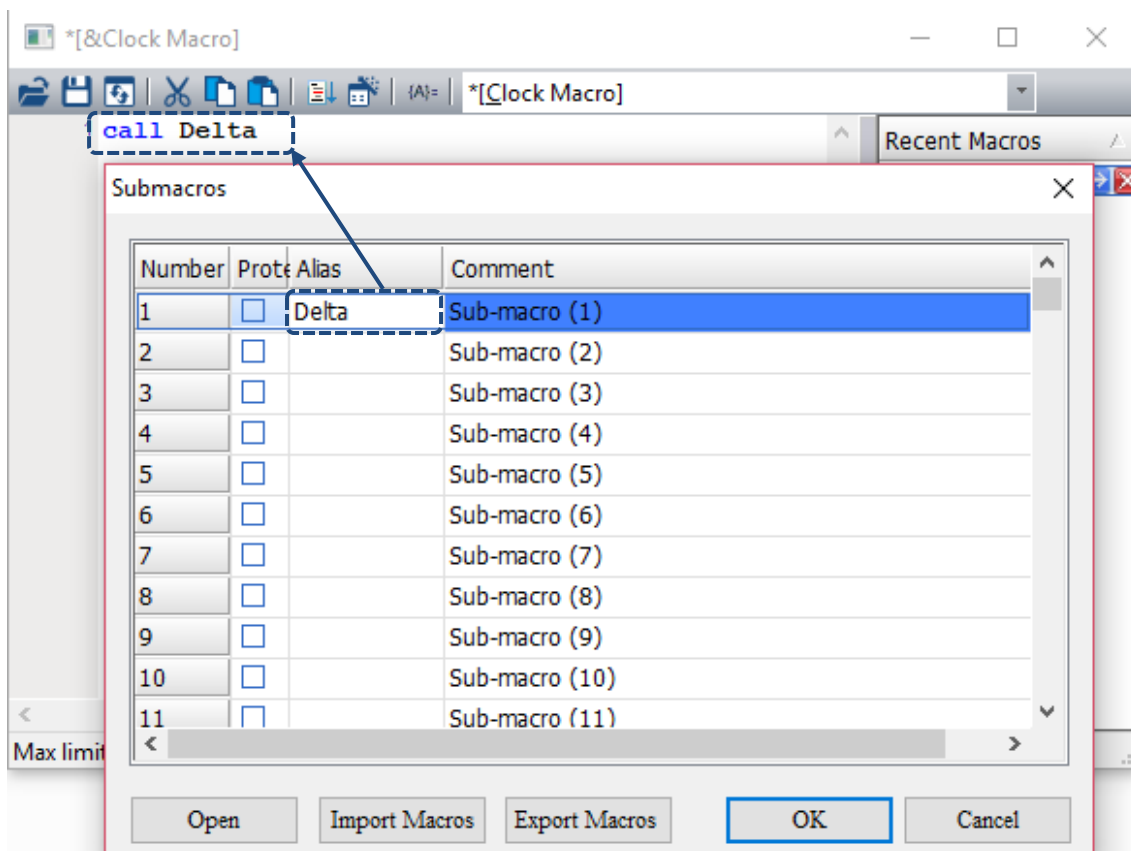


Figure 24.1.8.5 Submacro Screen III

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Macro contents written in the Screen Cycle Macro.

```
* Screen_1 [Screen Cycle Macro]
1 $5555 = 10
2 call Delta
```

Macro contents written in the Submacro.

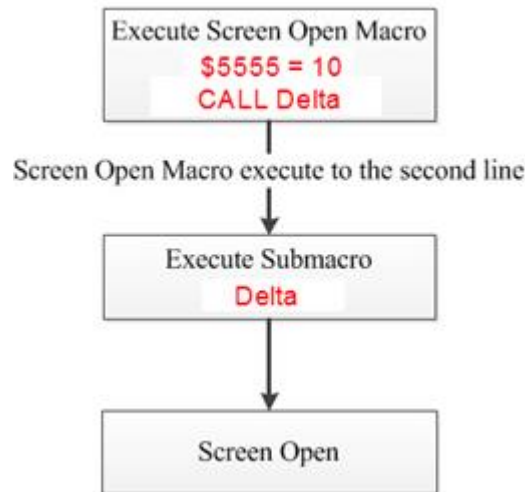
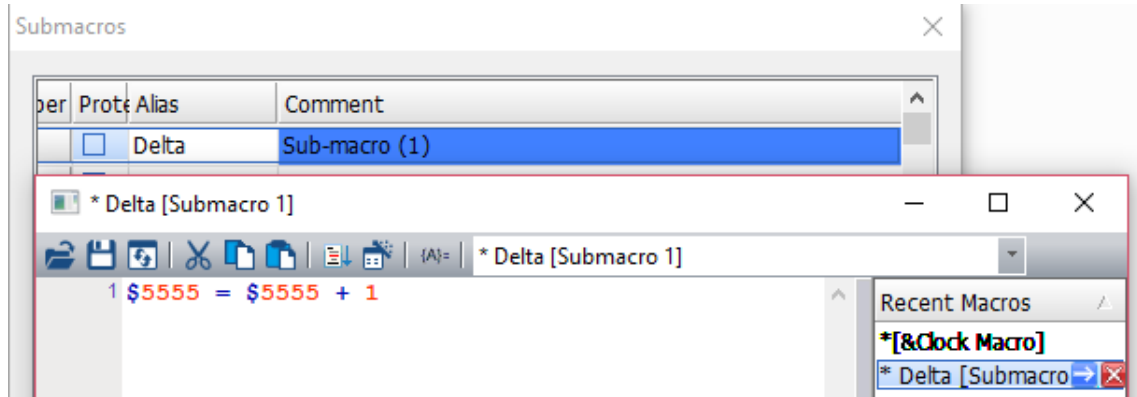


Figure 24.1.8.6 Flowchart of Submacro

Submacro also provides the function of password protection, which can encrypt each submacro.

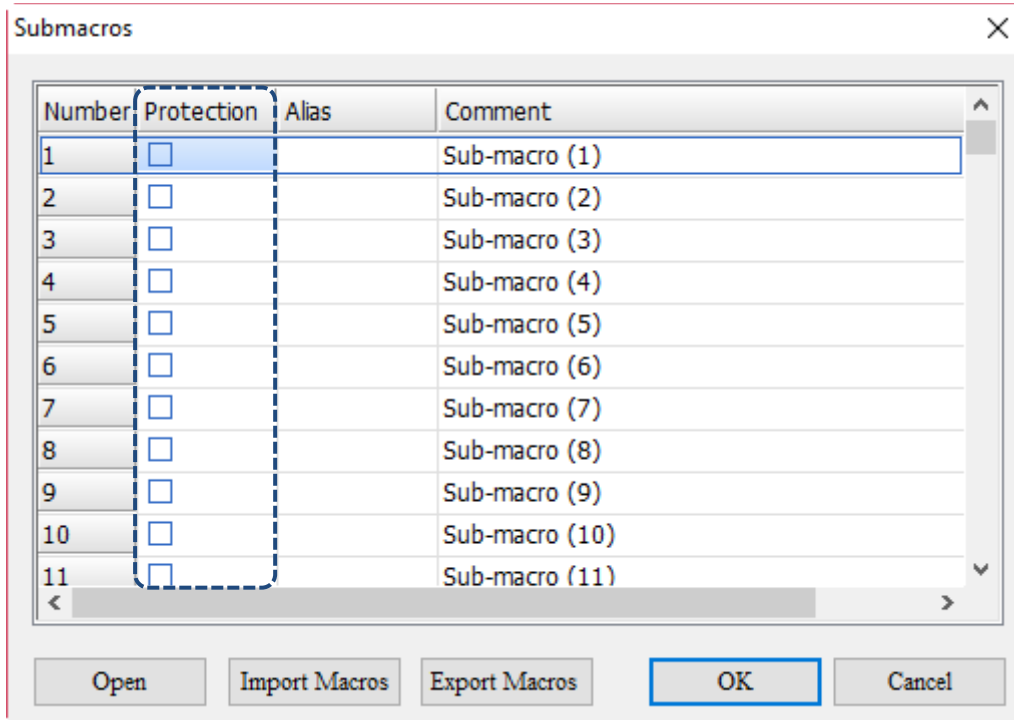


Figure 24.1.8.7 Protection function of Submacro

When the check box of **Protection** is selected, you are immediately asked to input a set of password.

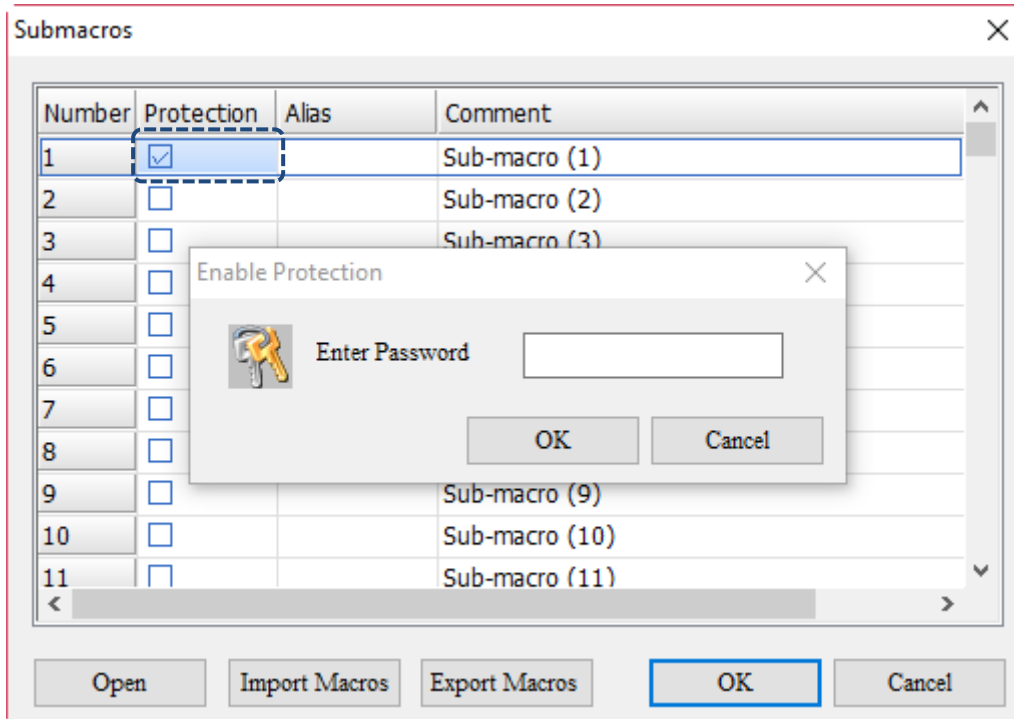
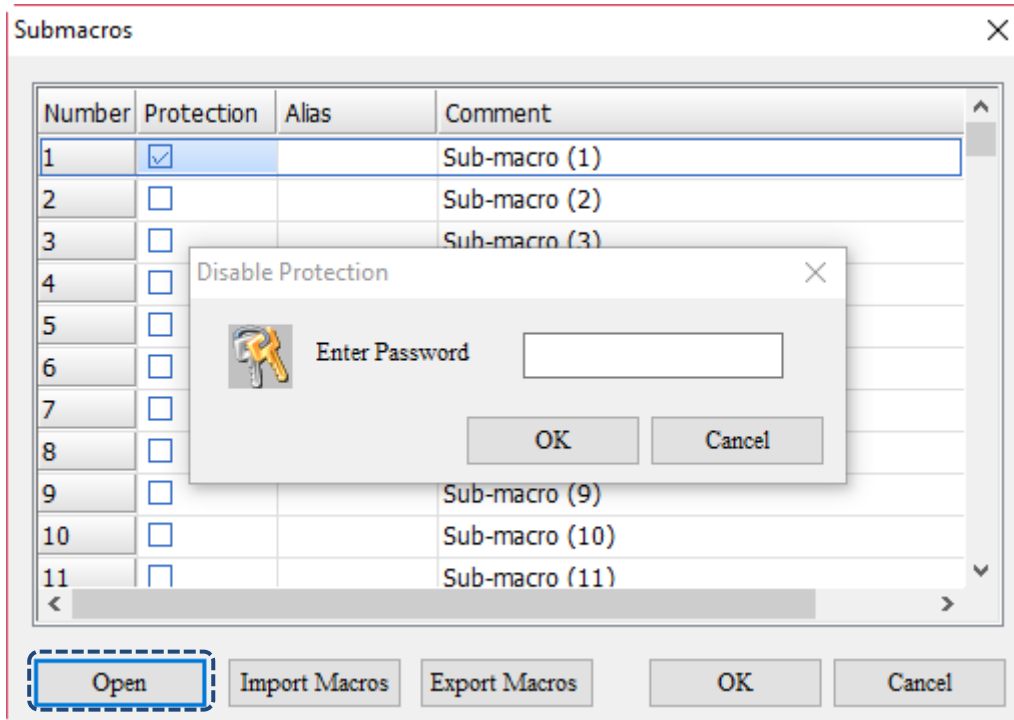


Figure 24.1.8.8 Submacro encryption

24

After Submacro Number 1 is encrypted, you must enter the password to enter Submacro Number 1 and edit the macro commands.



When the check box of Protection is cleared, you are also required to enter the password set for Submacro Number 1 to disable the protection function.

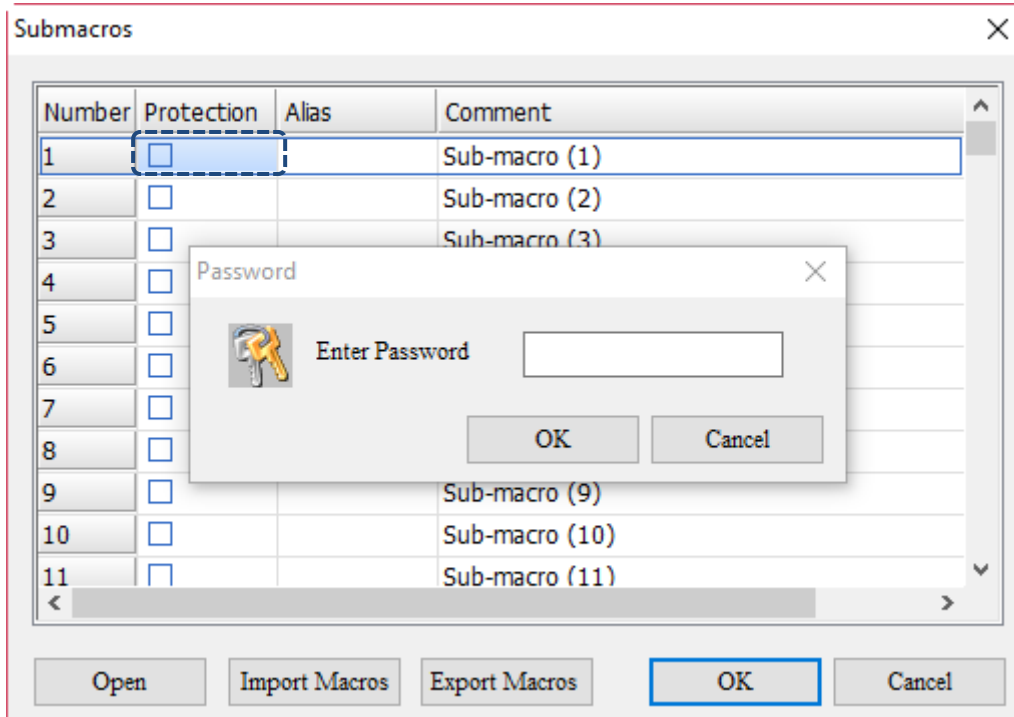
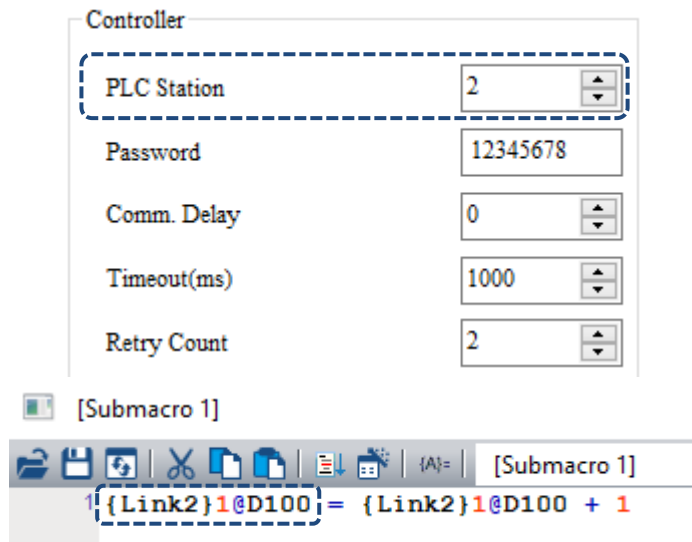


Figure 24.1.8.9 Disable Submacro encryption

When submacros are password-protected, the functions affected are as follows:

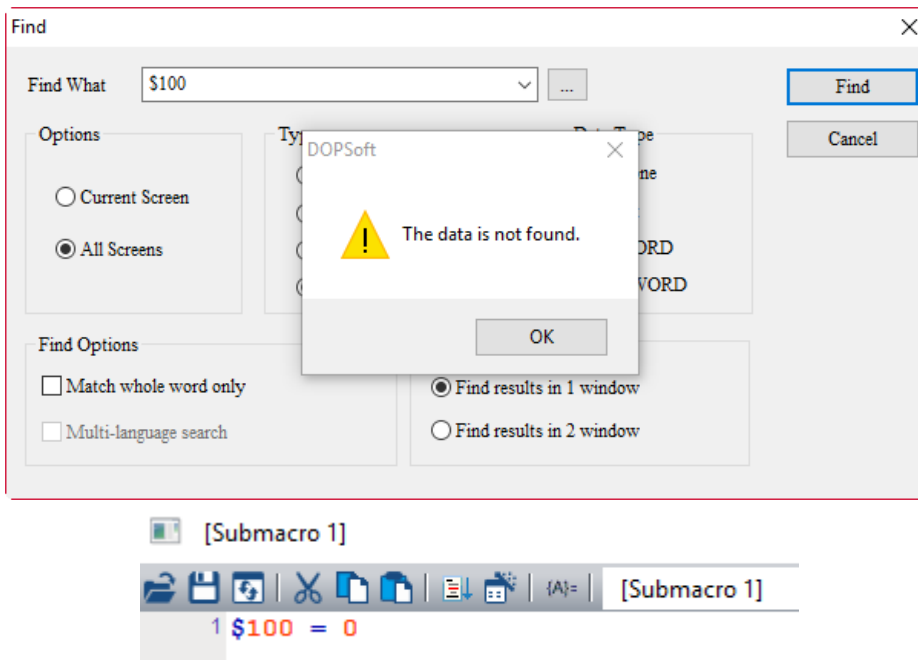
- If there is a communication station number in a protected submacro, the function of changing station number will be invalid.
- If the station number in the protected submacro is 1, change the PLC Station to 2 and then enter the protected submacro. You will find that the station number must be 1 and will not be changed.

(1)



If \$100 is set inside the protected submacro, \$100 is not found when the find address function is executed.

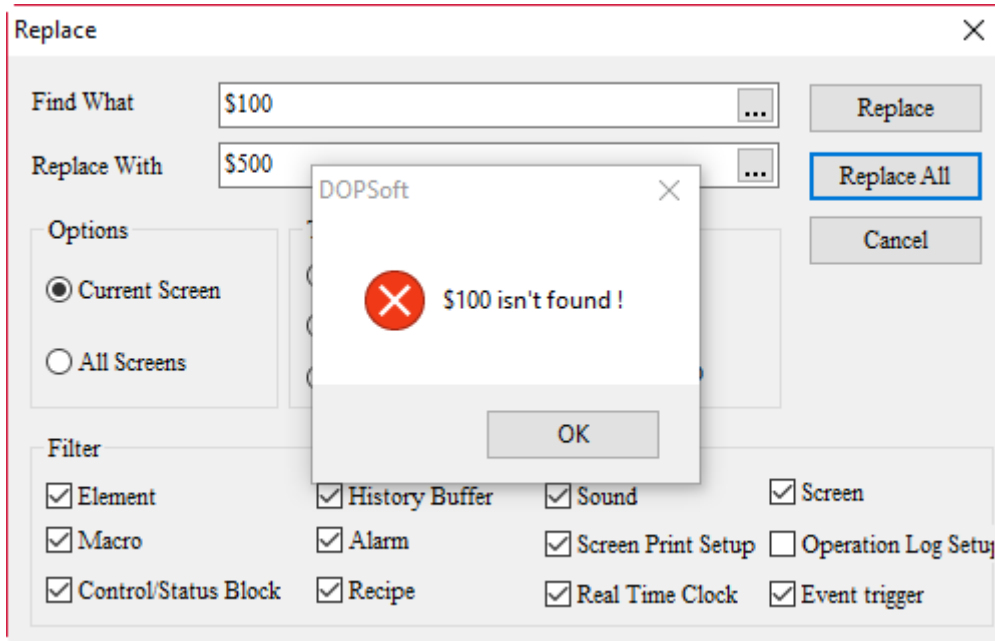
(2)



24

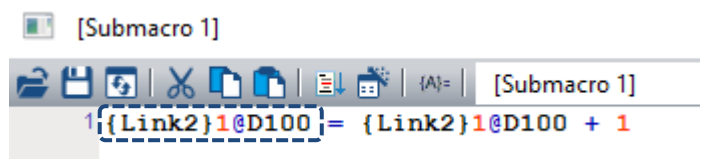
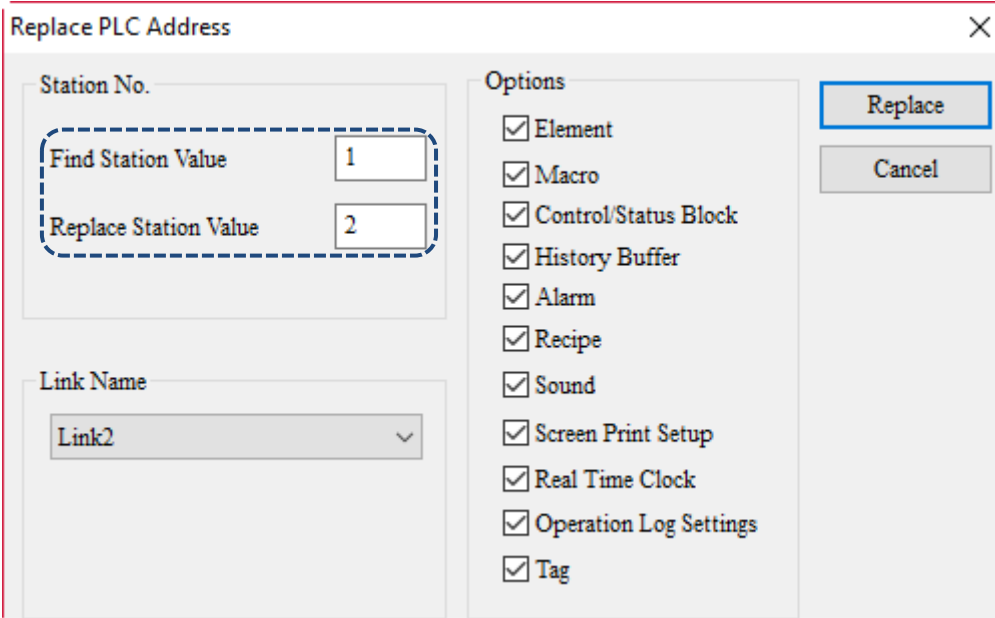
If \$100 is set inside the protected submacro, \$100 cannot be replaced by \$500 when the replace address function is executed.

(3)



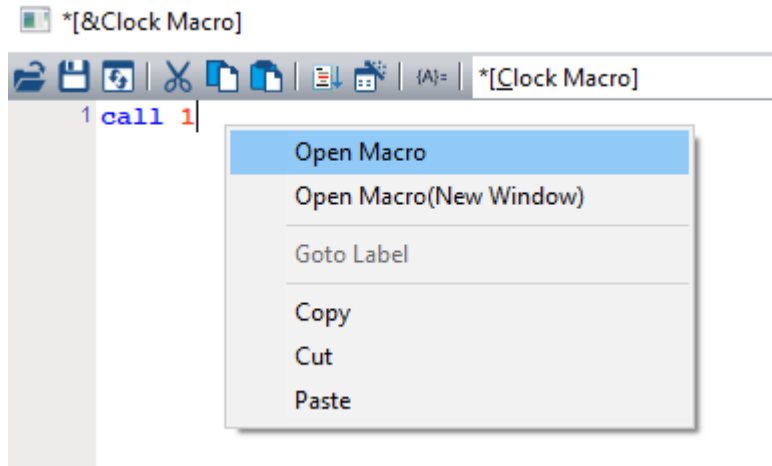
If the Station Value in the protected submacro is 1, it cannot be replaced by 2 when the replace station number (Replace PLC Address) function is executed.

(4)



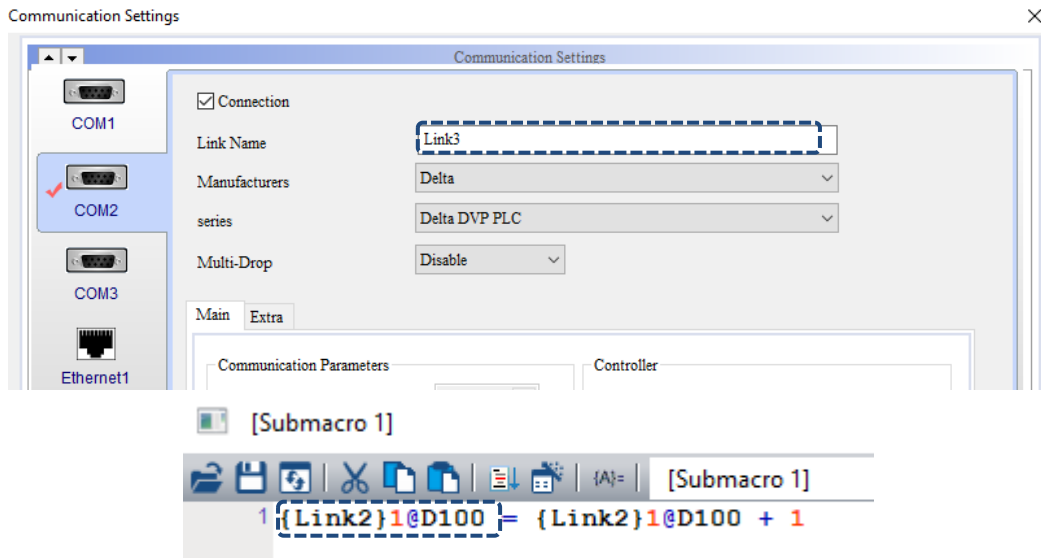
When there is a call command in the macro, right-click and select the Open Macro option. You will be asked to enter the password if the submacro is password-protected.

(5)



Change the Link Name to Link3, and Link2 cannot be changed to Link3 in the protected submacro.

(6)



24.1.9 Initial Macro

Go to [Options] > [Initial Macro] to set the Initial Macro.

24

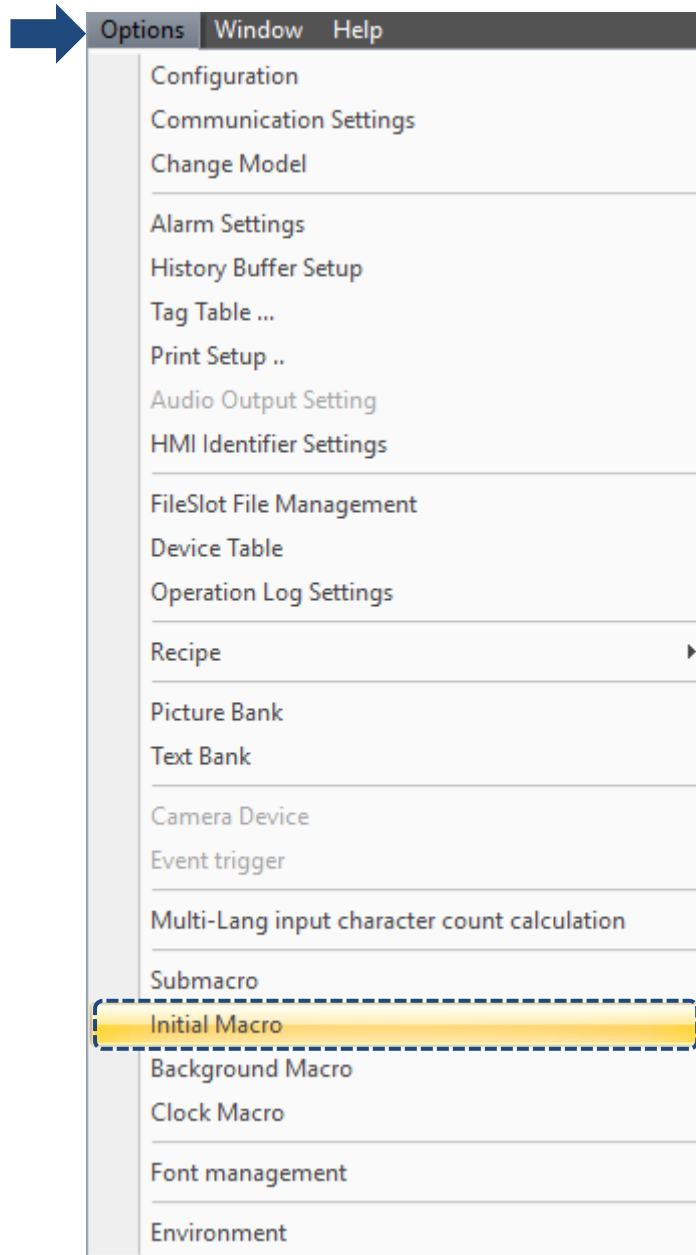


Figure 24.1.9.1 Initial Macro

Initial Macro is the first macro to be executed when the HMI starts up, so you can write the initial settings required for the whole HMI program in the Initial Macro.

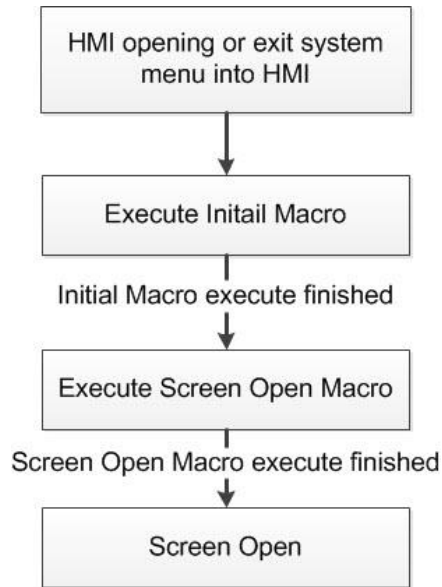


Figure 24.1.9.2 Flowchart of Initial Macro

24.1.10 Background Macro

Go to [Options] > [Background Macro] to set the Background Macro.

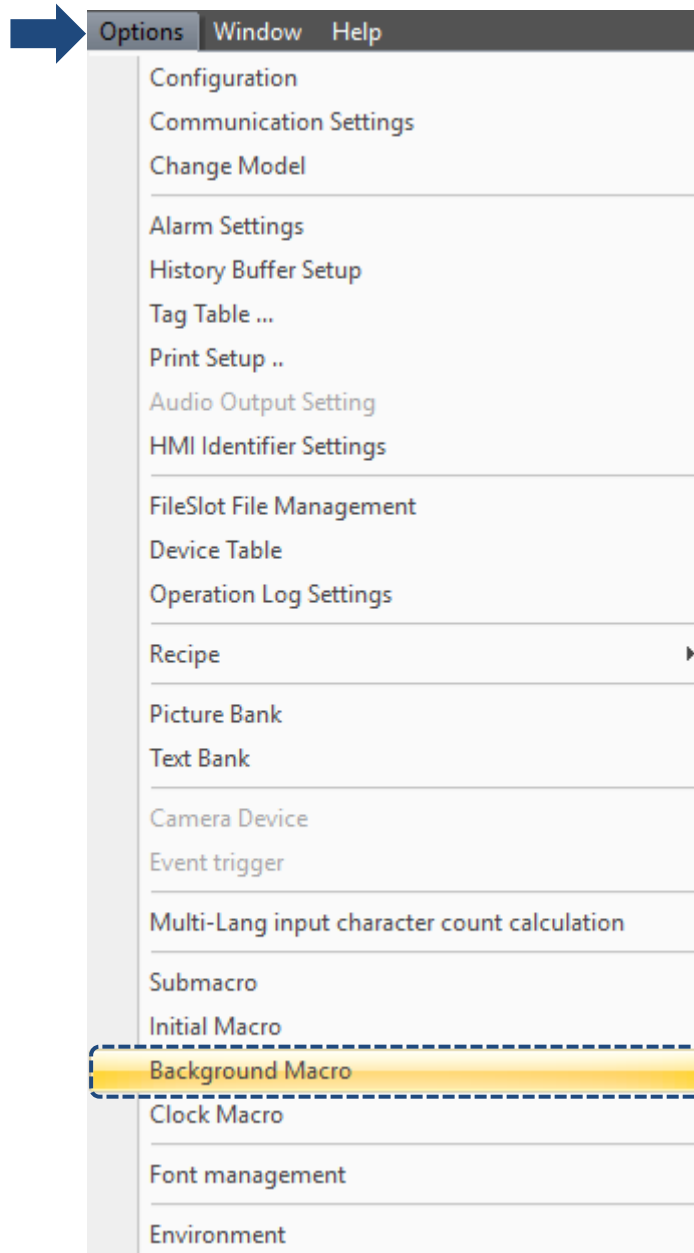


Figure 24.1.10.1 Background Macro

The Background Macro is a program that is executed repeatedly during the HMI operation. The Background Macro is executed in the manner of one line or several lines at a time (instead of finishing with one execution). When the last line is executed, this macro starts all over again. To define the number of lines for each Background Macro execution, go to [Options] > [Configuration] to set the Background macro update cycle with a maximum of 512 lines.

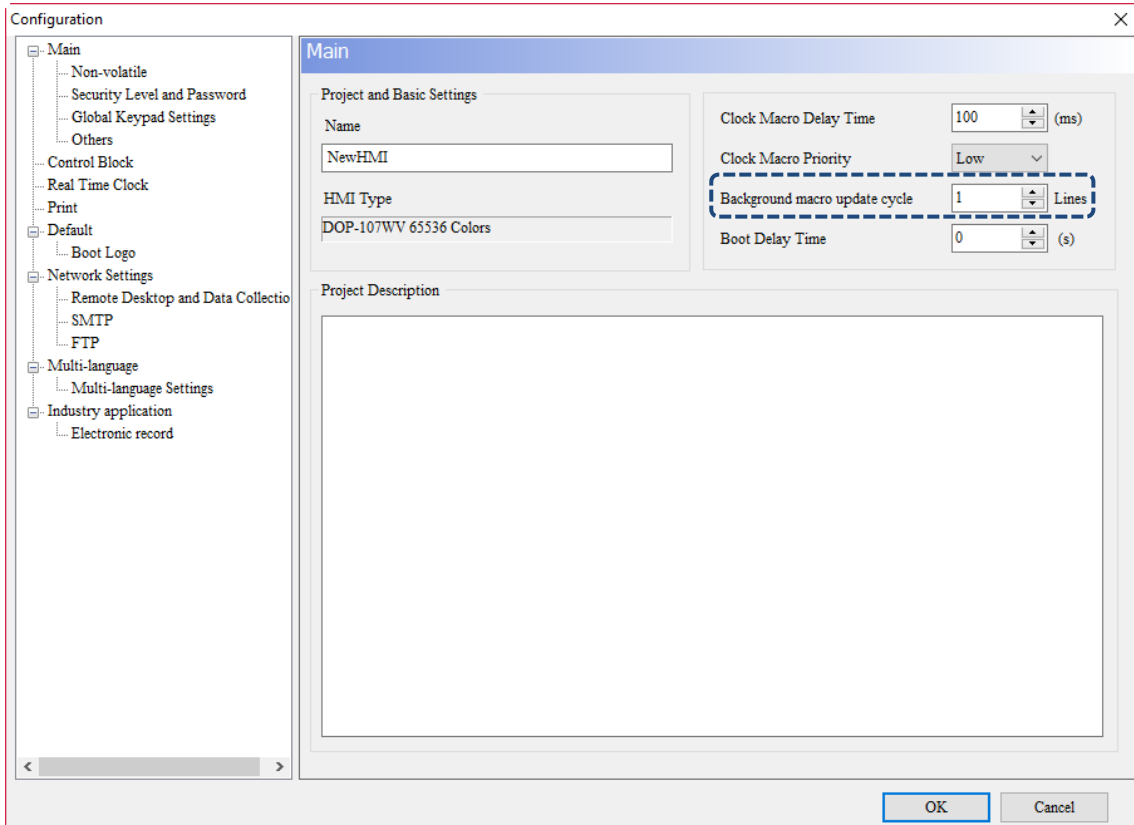


Figure 24.1.10.2 Background macro update cycle

Suppose that 10 elements are created on the HMI screen, input 6 lines of macro commands into the Background Macro and set the Background macro update cycle to 3 lines, then the execution process of Background Macro is shown as follows:

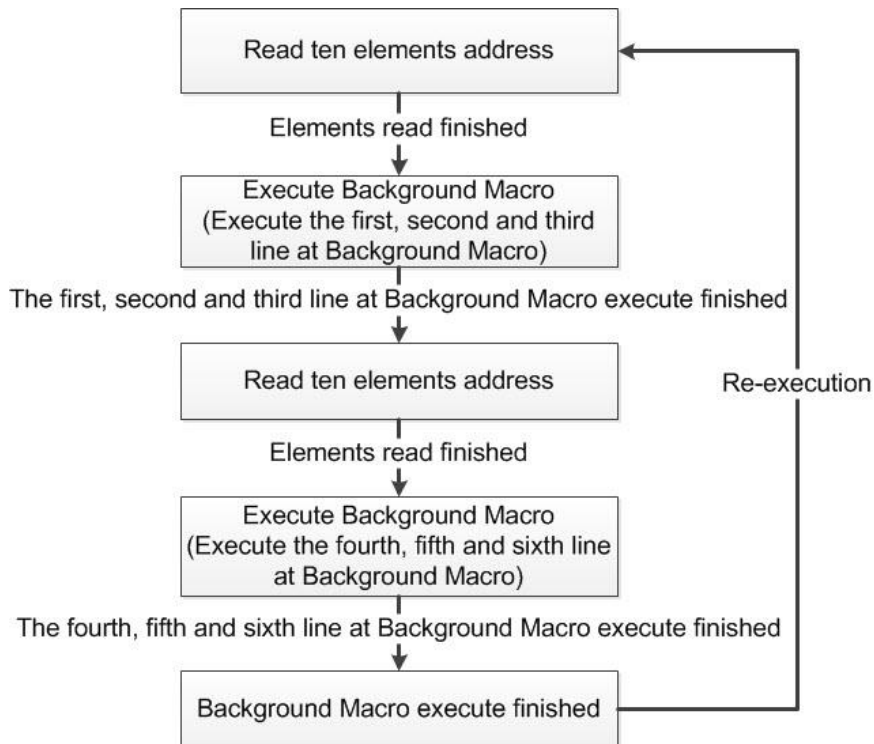


Figure 24.1.10.3 Flowchart of Background Macro

24.1.11 Clock Macro

Go to [Options] > [Clock Macro] to set the Clock Macro.

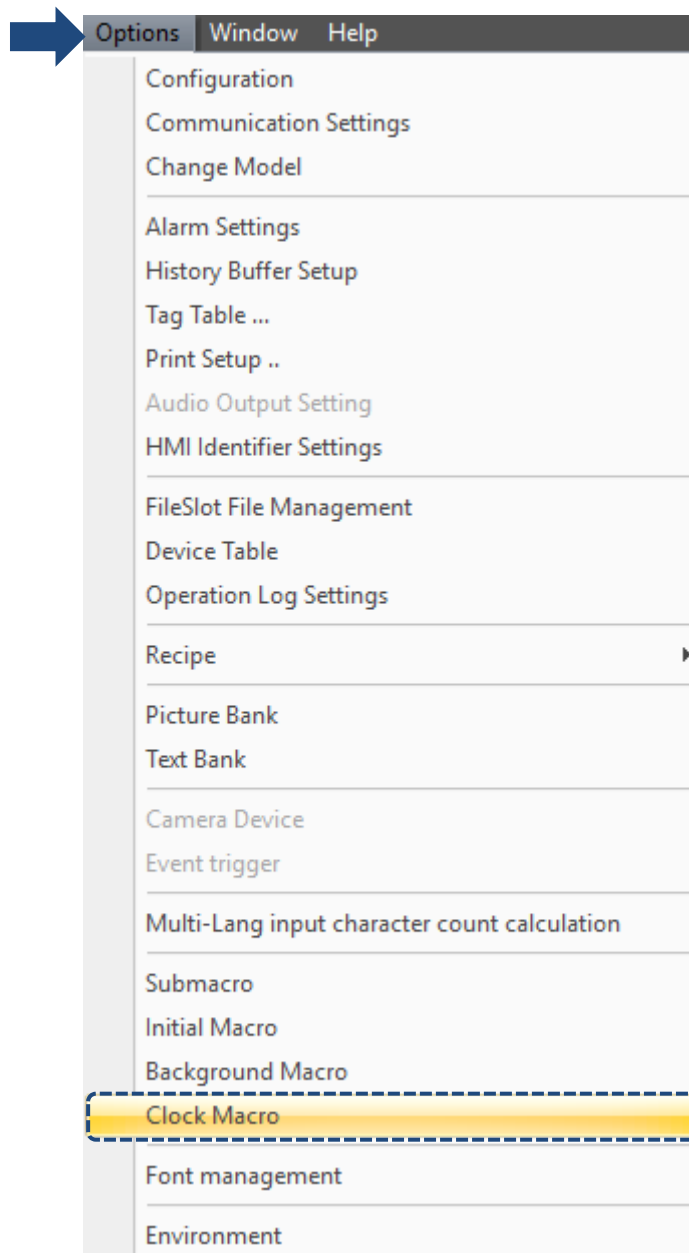


Figure 24.1.11.1 Clock Macro

Clock Macro will be executed repeatedly in the process of the HMI operation. Unlike Background Macro, Clock Macro executes its commands all at once rather than one line or several lines at a time. Similar to Screen Cycle macro, the Clock Macro is executed repeatedly according to the set macro delay time. You can go to [Options] > [Configuration] to set the Clock Macro Delay Time. At the end of each Clock Macro execution, it will resume its execution according to the set delay time. The default is 100 ms and the maximum is 65535 ms.

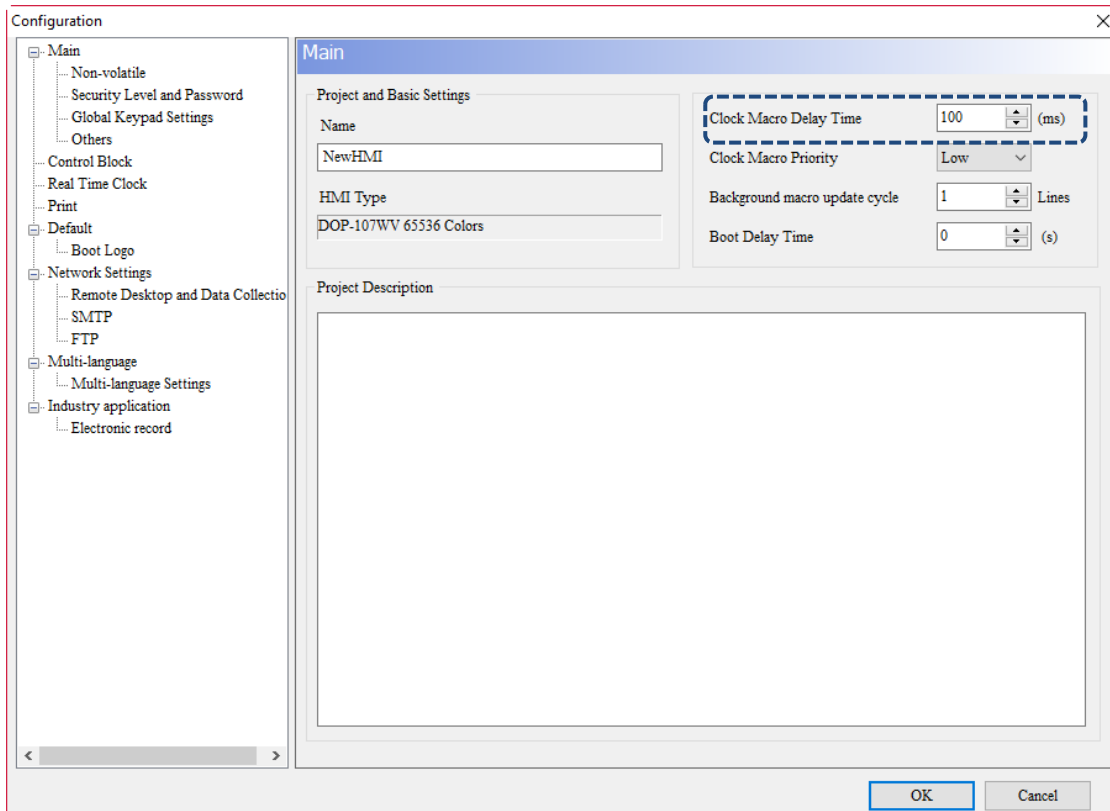


Figure 24.1.11.2 Clock Macro Delay Time

Clock Macro also provides you with the function to prioritize the execution of the Clock Macro, which provides the selections of Low, Medium, and High. Set the Clock Macro Priority, and when the priority is higher, it ensures the Clock Macro Delay Time is more accurate.

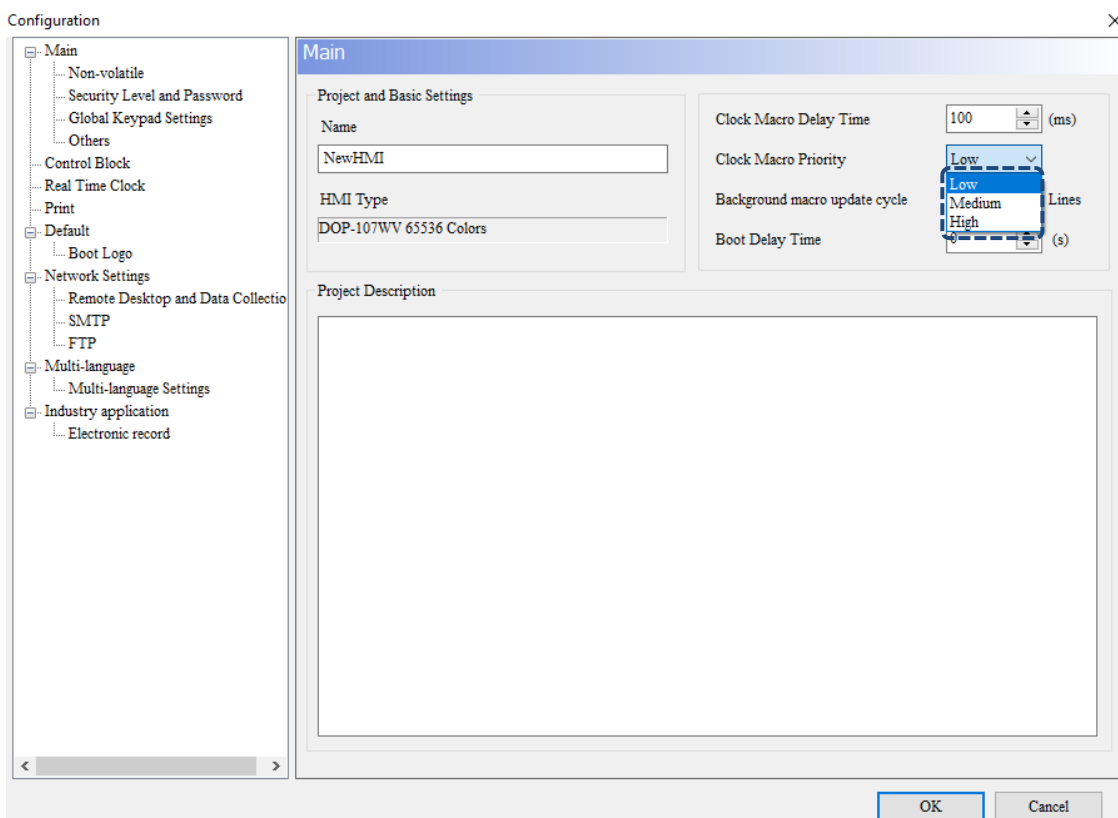


Figure 24.1.11.3 Clock Macro Priority

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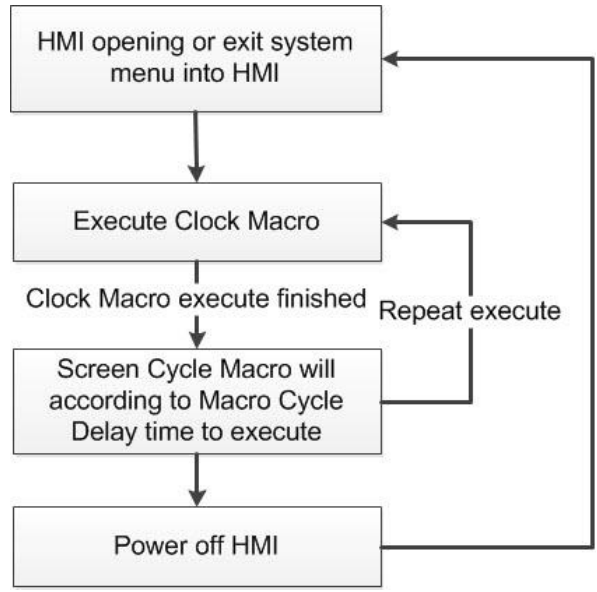


Figure 24.1.11.4 Flowchart of Clock Macro

24.2 Macro edit window

Go to the macro screen to be edited to start editing the macros. The maximum lines for each type of macros is 512 lines and the maximum words is 640 bytes or 640 words. The right side of the macro edit window can only record a maximum of 10 recently-opened macros. If there are more than 10 records, the first macro will be closed and a new macro will be added. If the first macro record is updated before being closed, the system will prompt you to save the first macro before adding the new macro.

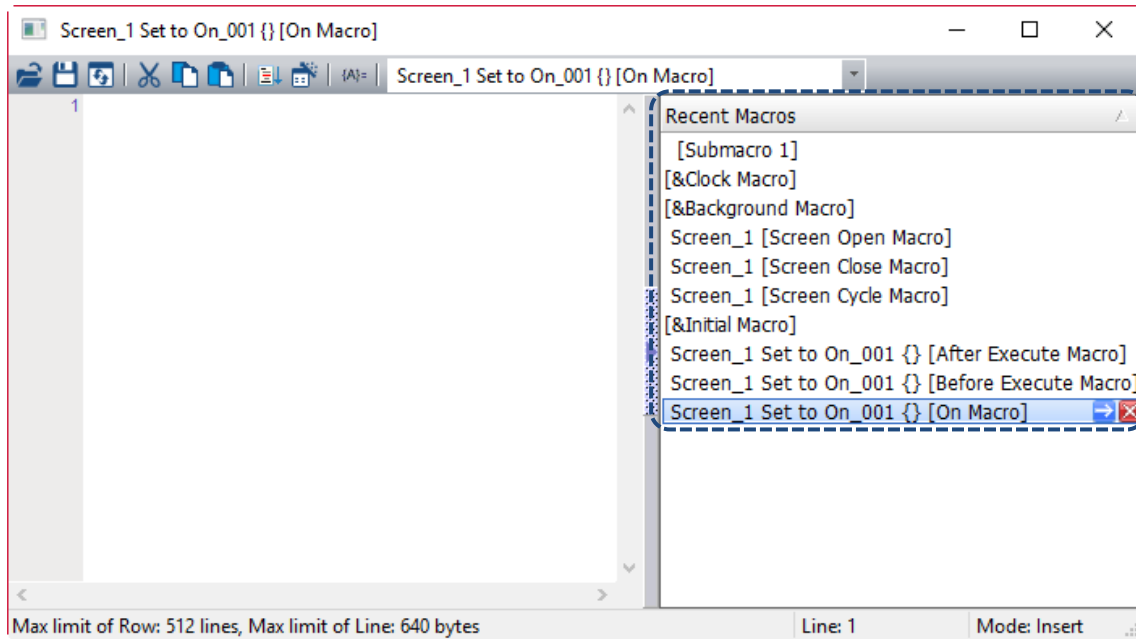


Figure 24.2.1 Macro edit window

Each macro has a toolbar to assist you in planning and editing macro commands.

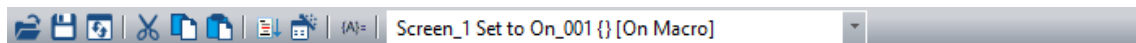

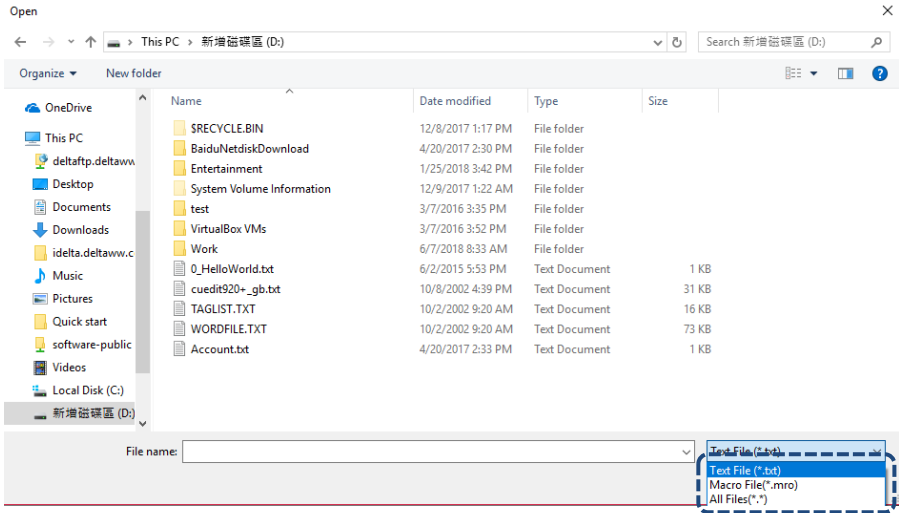

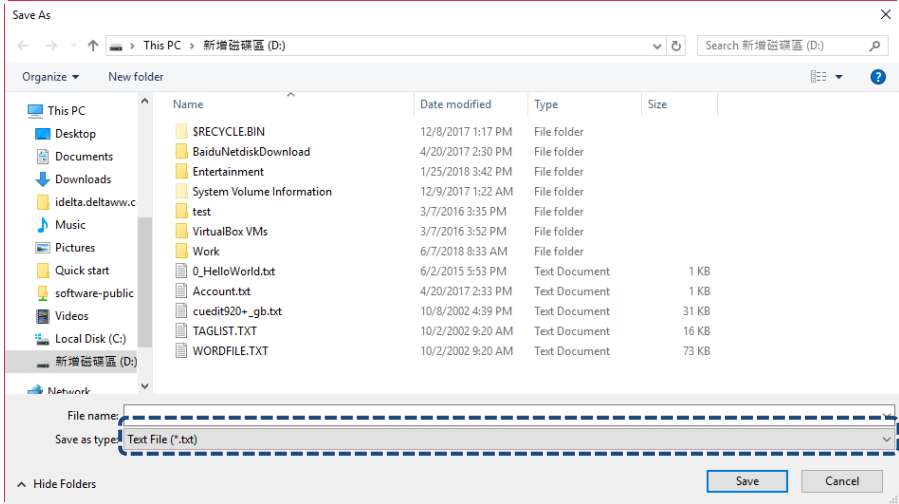









Figure 24.2.2 Macro toolbar

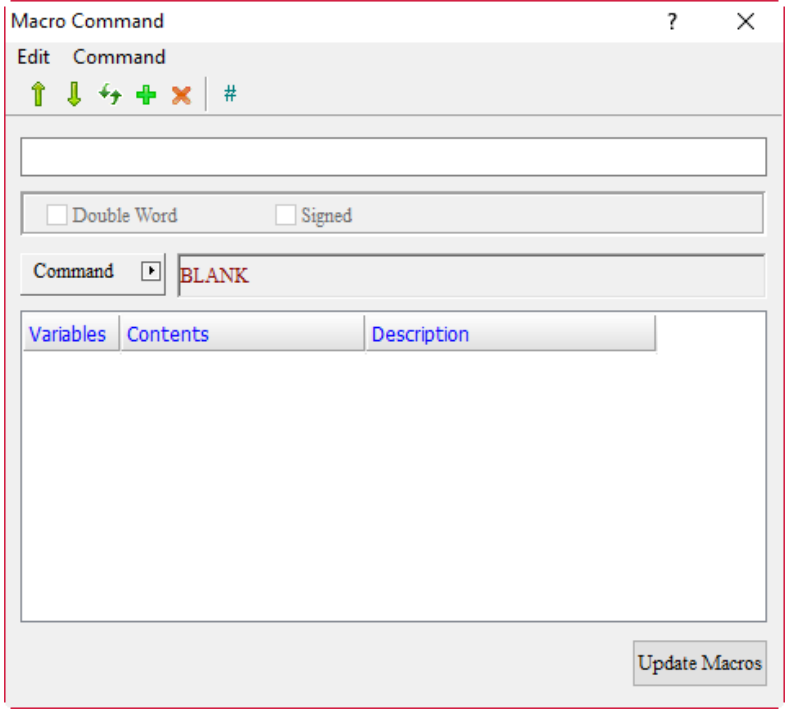




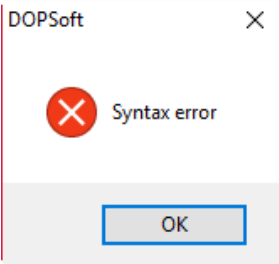
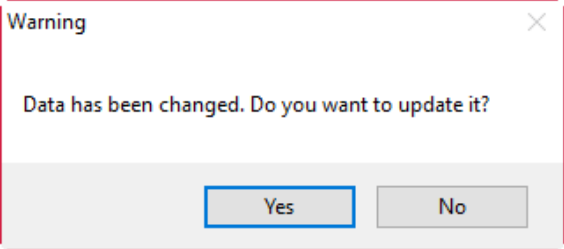
The functions in the macro toolbar are shown in the following table.



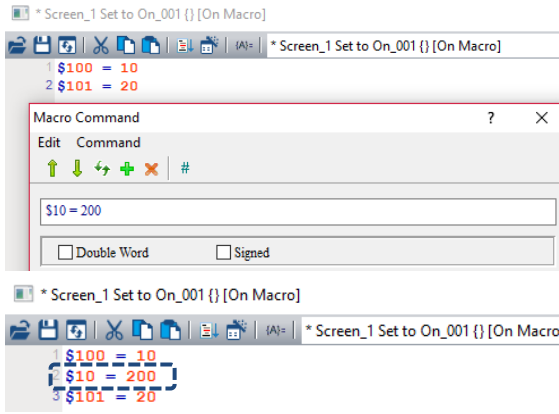



Figure 24.2.1 Description of macro toolbar functions



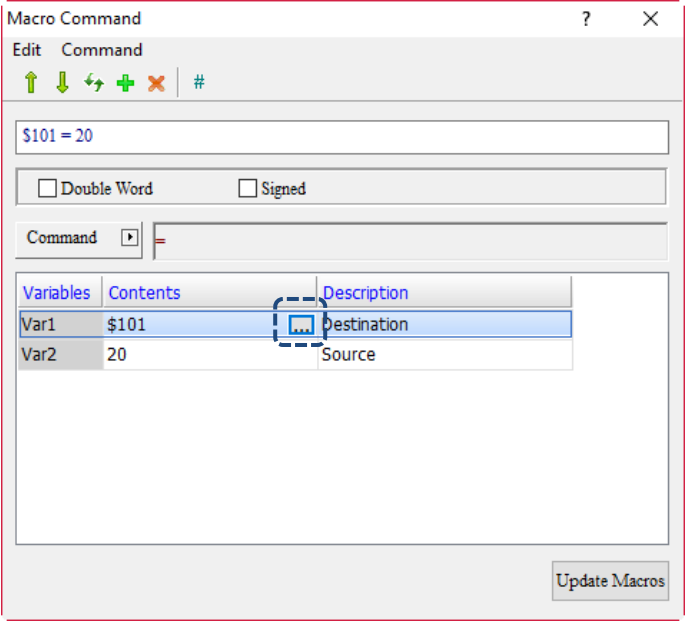

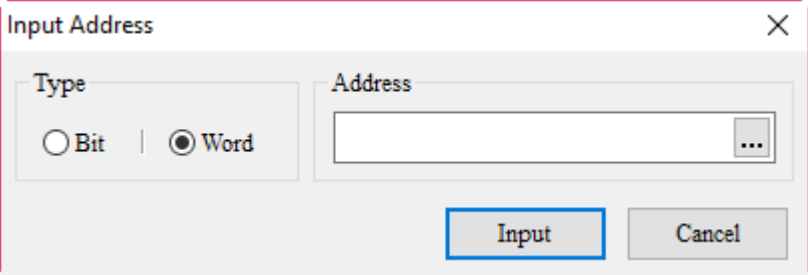
24

Macro toolbar functions		
Icon	Function	Content
	Open	<p>The Open function is equivalent to the action of import. The software provides two formats: txt and mro. You can import edited macros to reduce the time for repeated editing.</p> 
	Save	<p>The Save function is equivalent to the action of export. The software only provides the txt format for saving. You can save the edited macros for backup or for use of other screens.</p> 

Macro toolbar functions		
Icon	Function	Content
	Update	<ul style="list-style-type: none"> The Update function is to update the modified macro contents and check the macro syntax as well. If you close the macro edit window without executing  , the software will inform you that the macro has been changed. <div style="border: 1px solid red; padding: 5px; margin: 10px 0;"> <p>The macro has been changed. ×</p> <p>Update the edited macro contents.</p> <p style="text-align: center;"> <input type="button" value="Yes"/> <input type="button" value="No"/> <input type="button" value="Cancel"/> </p> </div> If  is executed, the current syntax will be checked. If there are syntax errors, the software will show the following message. <div style="border: 1px solid red; padding: 5px; margin: 10px 0;"> <p>DOPSoft ×</p> <p>Failed to check macro syntax. : Line 1</p> <p style="text-align: center;"><input type="button" value="OK"/></p> </div>
	Cut	Operations of Cut, Copy, and Paste are the same as those of Office. You can also execute Cut, Copy, and Paste with the keyboard shortcuts (cut: Ctrl + X; copy: Ctrl + C; paste: Ctrl + V).
	Copy	
	Paste	
	Syntax check	<p>The function of Syntax check is used to make sure that macro commands are correct. An error message will pop up if there is any syntax error.</p> <div style="border: 1px solid red; padding: 5px; margin: 10px 0;"> <p>DOPSoft ×</p> <p>Failed to check macro syntax. : Line 1</p> <p style="text-align: center;"><input type="button" value="OK"/></p> </div> <p>Note: the Syntax check function is not equivalent to macro compilation. You need to execute the compile function to compile macros.</p>

Macro toolbar functions		
Icon	Function	Content
		<p>The Macro Wizard function provides convenient and easy input of macro commands, which are less error-prone than manually entering macro commands.</p> 
	Macro Wizard	<ul style="list-style-type: none"> <p>Up</p>  <ul style="list-style-type: none"> You can move the cursor up or down. You can select to move to which line by using the Up and Down functions. <p>Down</p>  <p>Update</p>  <ul style="list-style-type: none"> Execute the Update button and check whether the syntax of macro command is correct. If there are syntax errors, an error message will pop up.  If you change data and close the Macro Wizard window without updating it, the software will also display a message asking if you want to update the data as it has been changed. 
	Edit	

Macro toolbar functions		
Icon	Function	Content
	Macro Wizard	<p>Edit</p> <div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;"> <p>Insert</p>  </div> <div> <ul style="list-style-type: none"> ■ Insert (add) a line of macro command. The new macro command will be inserted above the macro command of which the cursor has selected and the original one will be moved down.  </div> </div>
		<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;"> <p>Delete</p>  </div> <div> <ul style="list-style-type: none"> Delete the macro command of which the cursor has selected. If there are other macro commands following the deleted one, they will be moved up automatically. If the cursor has selected a line without a macro command, the delete action is invalid. </div> </div>
		<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;"> <p>Comment</p>  </div> <div> <ul style="list-style-type: none"> The function of Comment is to help you manage macros, improve readability, and simply maintenance. You can simply type the symbol "#" in the macro edit screen, or use the [Edit] > [Comment] on the Macro Wizard or click , and then write comments or macro programs. The comments written will not be executed in macros. </div> </div>
	Command	<ul style="list-style-type: none"> ■ Command includes all functions of macro commands which are shown as follows: <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <ul style="list-style-type: none"> Arithmetic > Logical Operation > Data transfer > Data Conversion > Comparison > FlowControl > Bit Setting > Communication > Drawing > File Access > Others > </div> ■ For a detailed description of macro command functions, refer to Section 24.3 Macro commands.

Macro toolbar functions										
Icon	Function	Content								
		<p>Macro commands provide 32 bits and signed number operations. If you select the check box of Signed, the command is operated with signed number; if you do not select this check box, the command is operated with unsigned number.</p> <p>If you select the Double Word, the command is operated with 32 bits; if you do not select this check box, the command is operated with 16 bits.</p> <table border="1"> <tr> <td>Unsigned</td> <td>Unsigned number</td> </tr> <tr> <td>Signed</td> <td>Signed number</td> </tr> <tr> <td>Word</td> <td>16-bit data</td> </tr> <tr> <td>DW (Double Word)</td> <td>32-bit data</td> </tr> </table> <p>Note: if the macro command is set to Double Word, two registers are occupied for each memory address in the command.</p>	Unsigned	Unsigned number	Signed	Signed number	Word	16-bit data	DW (Double Word)	32-bit data
Unsigned	Unsigned number									
Signed	Signed number									
Word	16-bit data									
DW (Double Word)	32-bit data									
		<p>The Command function is the same as the Command function in the Macro Wizard window, which is used to select macro commands. Refer to Section 24.3 Macro commands for more details.</p>								
	Macro Wizard	<p>You can directly click  to set parameters if the variables are required in macro commands.</p> 								
	Input Address	<p>You can input the PLC memory address to be used in the macro through the Input Address function to prevent inputting the wrong address.</p> 								

24.3 Macro commands

Macro commands include Arithmetic, Logical Operation, Data transfer, Data Conversion, Comparison, FlowControl, Bit Setting, Communication, Drawing, File Access, and Others.

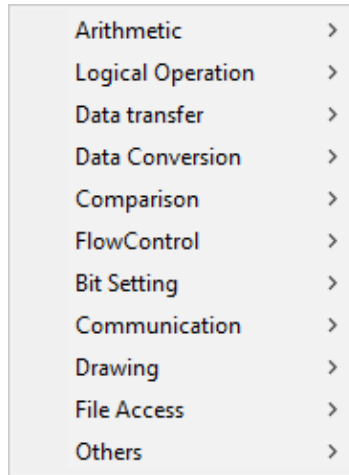


Figure 24.3.1 Types of macro commands

A list of macro commands are shown in the following table.

Macro type	Command	Expression	Description
Arithmetic	+	Var1 = Var2 + Var3	Addition
	-	Var1 = Var2 - Var3	Subtraction
	*	Var1 = Var2 * Var3	Multiplication
	/	Var1 = Var2 / Var3	Division
	%	Var1 = Var2 % Var3	Remainder
	+-* /	Var1 = Var2	Arithmetic
	MUL64	Var1 = MUL64(Var2, Var3) (Signed DW)	64-bit multiplication
	ADDSUMW	Var1 = ADDSUMW(Var2, Var3)	Accumulative
	FADD	Var1 = FADD(Var2, Var3) (Signed DW)	Floating-point number addition
	FSUB	Var1 = FSUB(Var2, Var3) (Signed DW)	Floating-point number subtraction
	FMUL	Var1 = FMUL(Var2, Var3) (Signed DW)	Floating-point number multiplication
	FDIV	Var1 = FDIV(Var2, Var3) (Signed DW)	Floating-point number division
	FMOD	Var1 = FMOD(Var2, Var3) (Signed DW)	Floating-point number remainder
	SIN	Var1 = SIN(Var2) (Signed DW)	Sine function
	COS	Var1 = COS(Var2) (Signed DW)	Cosine function
	TAN	Var1 = TAN(Var2) (Signed DW)	Tangent function
	COT	Var1 = COT(Var2) (Signed DW)	Cotangent function
SEC	Var1 = SEC(Var2) (Signed DW)	Secant function	
CSC	Var1 = CSC(Var2) (Signed DW)	Cosecant function	

24

Macro type	Command	Expression	Description
Logical Operation	|	Var1 = Var2 | Var3	OR logical operation
	&&	Var1 = Var2 && Var3	AND logical operation
	^	Var1 = Var2 ^ Var3	XOR logical operation
	NOT	Var1 = NOT Var2	NOT logical operation
	<<	Var1 = Var2 << Var3	SHL (left shift) logical operation
	>>	Var1 = Var2 >> Var3	SHR (right shift) logical operation
Data transfer	MOV	Var1 = Var2	Data specified operand
	BMOV	BMOV(Var1, Var2, Var3)	Copy block
	ArrayCopy	Var1 = ArrayCopy(Var2, Var3, Var4, Var5, Var6)	Copy array
	FILL	FILL(Var1, Var2, Var3)	Fill block
	FILLASC	FILLASC(Var1, " ")	Convert text to ASCII values
	STRCAT	Var1 = STRCAT(Var2, Var3, Var4)	Connection string
	FMOV	Var1 = FMOV(Var2) (Signed DW)	Specify floating-point number data
Data Conversion	BCD	Var1 = BCD(Var2)	Convert decimal values to BCD values
	BIN	Var1 = BIN(Var2)	Convert BCD values to decimal values
	TODWORD	Var1 = TODWORD(Var2)	Convert values from Word to Double Word
	TOWORD	Var1 = TOWORD(Var2, Var3)	Convert values from Byte to Word
	TOBYTE	Var1 = TOBYTE(Var2, Var3)	Convert values from Word to Byte
	SWAP	SWAP(Var1, Var2, Var3)	Swap high and low bytes of Word
	XCHG	XCHG(Var1, Var2, Var3)	Exchange value data
	MAX	Var1 = MAX(Var2, Var3)	Get maximum
	MIN	Var1 = MIN(Var2, Var3)	Get minimum
	TOHEX	Var1 = TOHEX(Var2)	Convert 4 ASCII characters to Word hexadecimal integers
	TOASC	Var1 = TOASC(Var2)	Convert a hexadecimal integer of Word to 4 Word ASCII characters
	FCNV	Var1 = FCNV(Var2) (Signed DW)	Convert an integer to a floating-point number
	ICNV	Var1 = ICNV(Var2) (Signed DW)	Convert a floating-point number to an integer
	SPRINTF	Var1 = SPRINTF(Var2, "%u", Var4)	Format string

Macro type	Command	Expression		Description
Comparison	IF ... THEN GOTO	IF ==	IF Var1 == Var2 THEN GOTO LABEL Var3	If... ,then execute according to the specified label name
		IF !=	IF Var1 != Var2 THEN GOTO LABEL Var3	
		IF >	IF Var1 > Var2 THEN GOTO LABEL Var3	
		IF >=	IF Var1 >= Var2 THEN GOTO LABEL Var3	
		IF <	IF Var1 < Var2 THEN GOTO LABEL Var3	
		IF <=	IF Var1 <= Var2 THEN GOTO LABEL Var3	
		IF AND == 0	IF (Var1 && Var2) == 0 THEN GOTO LABEL Var3	
		IF AND != 0	IF (Var1 && Var2) != 0 THEN GOTO LABEL Var3	
		IF == ON	IF Var1 == ON THEN GOTO LABEL Var2	
		IF == OFF	IF Var1 == OFF THEN GOTO LABEL Var2	
		IFB == ON	IFB Var1 == ON THEN GOTO LABEL Var2	
		IFB == OFF	IFB Var1 == OFF THEN GOTO LABEL Var2	
		IF ... THEN CALL	IF == CALL	
	IF != CALL		IF Var1 != Var2 THEN CALL Var3	
	IF > CALL		IF Var1 > Var2 THEN CALL Var3	
	IF >= CALL		IF Var1 >= Var2 THEN CALL Var3	
	IF < CALL		IF Var1 < Var2 THEN CALL Var3	
	IF <= CALL		IF Var1 <= Var2 THEN CALL Var3	
	IF AND == 0 CALL		IF (Var1 && Var2) == 0 THEN CALL Var3	
	IF AND != 0 CALL		IF (Var1 && Var2) != 0 THEN CALL Var3	
	IF == ON CALL		IF Var1 == ON THEN CALL Var2	
	IF == OFF CALL		IF Var1 == OFF THEN CALL Var2	

24

Macro type	Command	Expression		Description
Comparison	IF...	IF ==	IF Var1 == Var2	Logical comparison
		IF !=	IF Var1 != Var2	
		IF >	IF Var1 > Var2	
		IF >=	IF Var1 >= Var2	
		IF <	IF Var1 < Var2	
		IF <=	IF Var1 <= Var2	
		IF AND == 0	IF (Var1 && Var2) == 0	
		IF AND != 0	IF (Var1 && Var2) != 0	
		IF == ON	IF Var1 == ON	
		IF == OFF	IF Var1 == OFF	
	ELSEIF...	ELSEIF ==	ELSEIF Var1 == Var2	Logical comparison
		ELSEIF !=	ELSEIF Var1 != Var2	
		ELSEIF >	ELSEIF Var1 > Var2	
		ELSEIF >=	ELSEIF Var1 >= Var2	
		ELSEIF <	ELSEIF Var1 < Var2	
		ELSEIF <=	ELSEIF Var1 <= Var2	
		ELSEIF AND == 0	ELSEIF (Var1 && Var2) == 0	
		ELSEIF AND != 0	ELSEIF (Var1 && Var2) != 0	
		ELSEIF == ON	ELSEIF Var1 == ON	
		ELSEIF == OFF	ELSEIF Var1 == OFF	
	ELSE	ELSE	Logical comparison	
	ENDIF	ENDIF	Logical comparison	
	FCMP	Var1 = FCMP(Var2, Var3) (Signed DW)	Comparison of floating-point value	
FlowControl	GOTO	GOTO LABEL Var1	Go to a label unconditionally (LABEL)	
	LABEL	LABEL Var1	Label	
	CALL	CALL Var1	Call submacro	
	RET	RET	Exit submacro	
	FOR	FOR Var1	Program loop	
	NEXT	NEXT		
	END	END	End macro program	
Bit Setting	BITON	BITON Var1	Set the bit to On	
	BITOFF	BITOFF Var1	Set the bit to Off	
	BITNOT	BITOFF Var1	Inverse bit (ON→OFF, OFF→ON)	
	GETB	Var1 = GETB Var2	Get bit value	

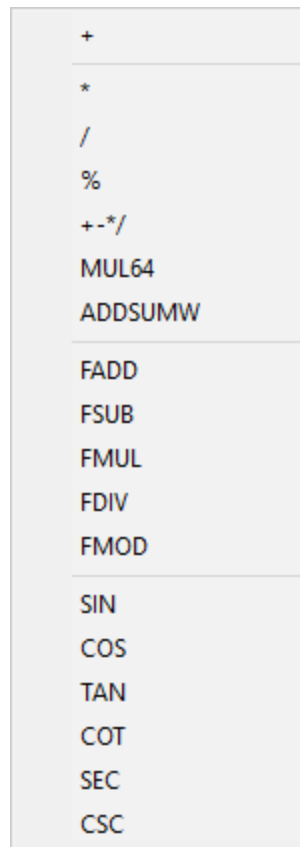
Macro type	Command	Expression	Description
Communication	INITCOM	Var1 = INITCOM(Var2, Var3, Var4, Var5, Var6, Var7, Var8)	COM PORT initialization
	ADDSUM	Var1 = ADDSUM(Var2, Var3)	Calculate CHECKSUM by addition
	XORSUM	Var1 = XORSUM(Var2, Var3)	Calculate CHECKSUM by XOR
	PUTCHARS	Var1 = PUTCHARS(Var2, Var3, Var4)	Export characters via the communication port
	GETCHARS	Var1 = GETCHARS(Var2, Var3, Var4)	Get characters via the communication port
	SELECTCOM	SELECTCOM(Var1)	Select COM Port
	CLEARCOMBUFFER	CLEARCOMBUFFER(Var1, Var2)	Clear buffer of Com Port
	CHRCHKSUM	Var1 = CHRCHKSUM("Var2", Var3, Var4)	Calculate the length and checksum of string
	LOCKCOM	Var1 = LOCKCOM(Var2, Var3)	Lock COM Port
	UNLOCKCOM	UNLOCKCOM(Var1)	Unlock COM Port
	STATION CHK	Var1 = STATIONCHK(Var2, Var3)	Check COM Port communication state
	STATIONON	STATIONON(Var1, Var2)	Station On
	STATIONOFF	STATIONOFF(Var1, Var2)	Station Off
	IPON	Var1 = IPON(Var2, Var3, Var4, Var5, Var6)	Enable IP address
	IPOFF	Var1 = IPOFF(Var2, Var3, Var4, Var5, Var6)	Disable IP address
IPCHANGE	Var1 = IPCHANGE(Var2, Var3, Var4, Var5, Var6, Var7)	Change the IP address of the connecting controller and the communication port	
Drawing	RECTANGLE	RECTANGLE(Var1)	Rectangle
	LINE	LINE(Var1)	Line
	POINT	POINT(Var1)	Point
	CIRCLE	CIRCLE(Var1)	Circle
File Access	FileSlotRead	Var1 = FileSlotRead(Var2, Var3, Var4, Var5)	Read file
	FileSlotWrite	Var1 = FileSlotWrite(Var2, Var3, Var4, Var5)	Write file
	FileSlotRemove	Var1 = FileSlotRemove(Var2)	Remove file
	FileSlotGetLength	Var1 = FileSlotGetLength(Var2, Var3)	Read length of file
	FileSlotExport	Var1 = FileSlotEXPORT(Var2, Var3, Var4, Var5)	Export file
	FileSlotImport	Var1 = FileSlotIMPORT(Var2, Var3, Var4, Var5)	Import file

24

Macro type	Command	Expression	Description
Others	Time Tick	Var1 = TIMETICK	Get the time from the start of the system up to now
	GETLASTERROR	Var1 = GETLASTERROR	Get the error value of the previous command
	Comment	#	Comment
	Delay	Delay(Var1)	Delay
	GETSYSTEMTIME	Var1 = GETSYSTEMTIME	Get system time
	SETSYSTEMTIME	SETSYSTEMTIME(Var1)	Set system time
	GETHISTORY	Var1 = GETHISTORY(Var2, Var3, Var4, Var5, Var6)	Get history data
	EXPORT	EXPORT(Var1)	Export list
	EXRCP16	Var1 = EXRCP16(Var2, Var3)	Export 16-bit Recipe
	IMRCP16	Var1 = IMRCP16(Var2, Var3)	Import 16-bit Recipe
	EXRCP32	Var1 = EXRCP32(Var2, Var3)	Export 32-bit Recipe
	IMRCP32	Var1 = IMRCP32(Var2, Var3)	Import 32-bit Recipe
	EXENRCP	Var1 = EXENRCP(Var2, Var3)	Export enhanced recipe
	IMENRCP	Var1 = IMENRCP(Var2, Var3)	Import enhanced recipe
	EXHISTORY	Var1 = EXHISTORY(Var2, Var3, Var4)	Export history data
	EXALARM	Var1 = EXALARM(Var2, Var3)	Export alarm data
	DISKFORMAT	Var1 = DISKFORMAT(Var2)	Format disk
	BMPCAPTURE	Var1 = BMPCAPTURE(Var2)	Screen capture
	PLCDOWNLOAD	Var1 = PLCDOWNLOAD(Var2, Var3, Var4, Var5, Var6)	Download DVP or ISP file to PLC via the HMI
	OPENSREEN	OPENSREEN(Var1)	Open screen
	CLOSESUBSCREEN	CLOSESUBSCREEN(Var1)	Close subscreen
GetCircleCenter	Var1 = GetCircleCenter(Var2, Var3)	Calculate the coordinates of the center of a circle	
VAR	VAR Var1	Variable	

24.3.1 Arithmetic

Arithmetic includes integer and floating-point operations. The macro commands are detailed as follows.



+
*
/
%
+-* /
MUL64
ADDSUMW
FADD
FSUB
FMUL
FDIV
FMOD
SIN
COS
TAN
COT
SEC
CSC

Figure 24.3.1.1 Arithmetic

24

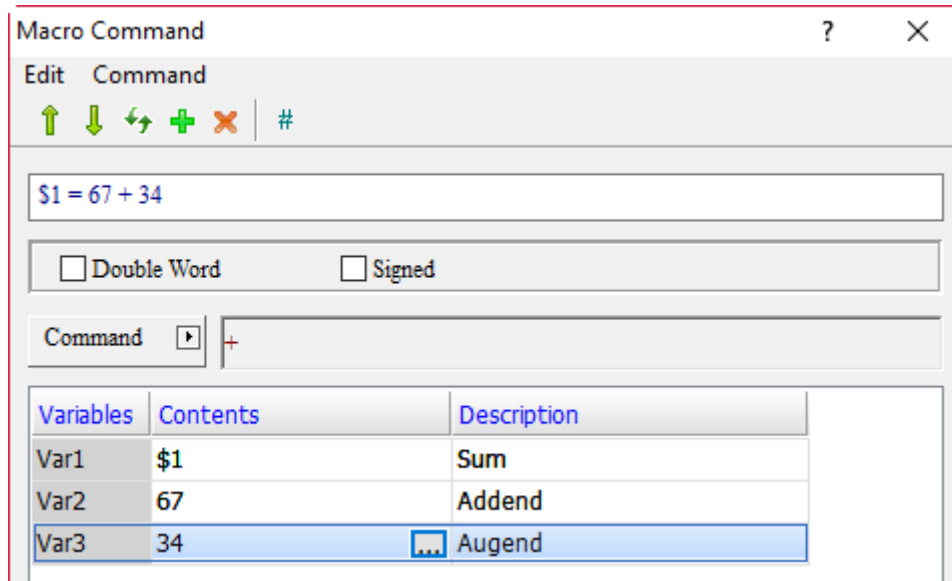
- + (addition)

Expression	Meaning of variable		Note
Var1 = Var2 + Var3 (W) Var1 = Var2 + Var3 (DW) Var1 = Var2 + Var3 (Signed W) Var1 = Var2 + Var3 (Signed DW)	Var1	Sum	W: Word DW: Double Word Signed: signed number
	Var2	Addend	
	Var3	Augend	
	Description of action		
Add Var2 and Var3, and put the result in Var1.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- When the command is `$1 = 67 + 34`, the addition operation is executed and the result of `67 + 34` is put in `$1`, so `$1 = 101`.

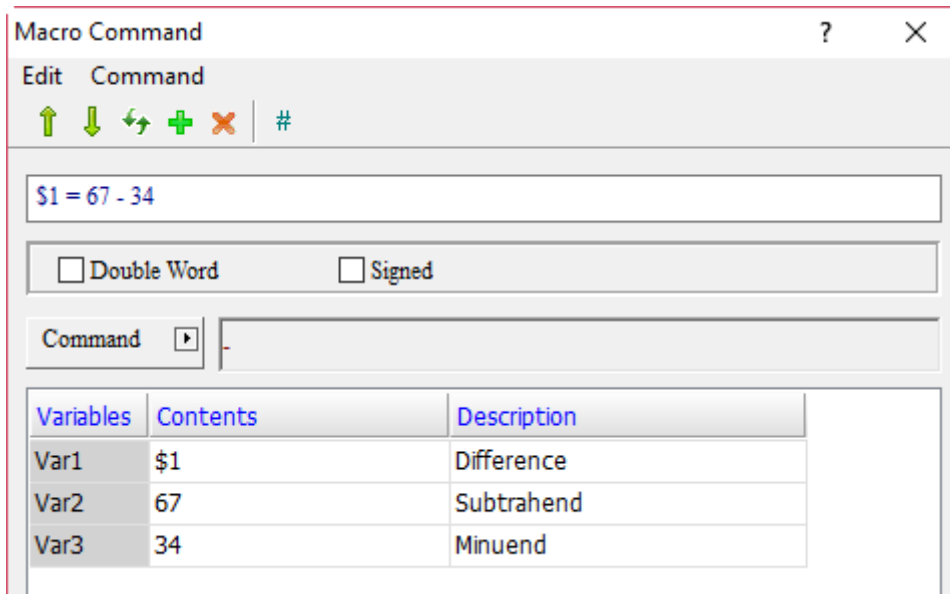
- - (subtraction)

Expression	Meaning of variable		Note
Var1 = Var2 - Var3 (W) Var1 = Var2 - Var3 (DW) Var1 = Var2 - Var3 (Signed W) Var1 = Var2 - Var3 (Signed DW)	Var1	Difference	W: Word DW: Double Word Signed: signed number
	Var2	Subtrahend	
	Var3	Minuend	
	Description of action		
	Subtract Var2 from Var3, and put the result in Var1.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- When the command is `$1 = 67 - 34`, the subtraction operation is executed and the result of `67 - 34` is put in `$1`, so `$1 = 33`.

24

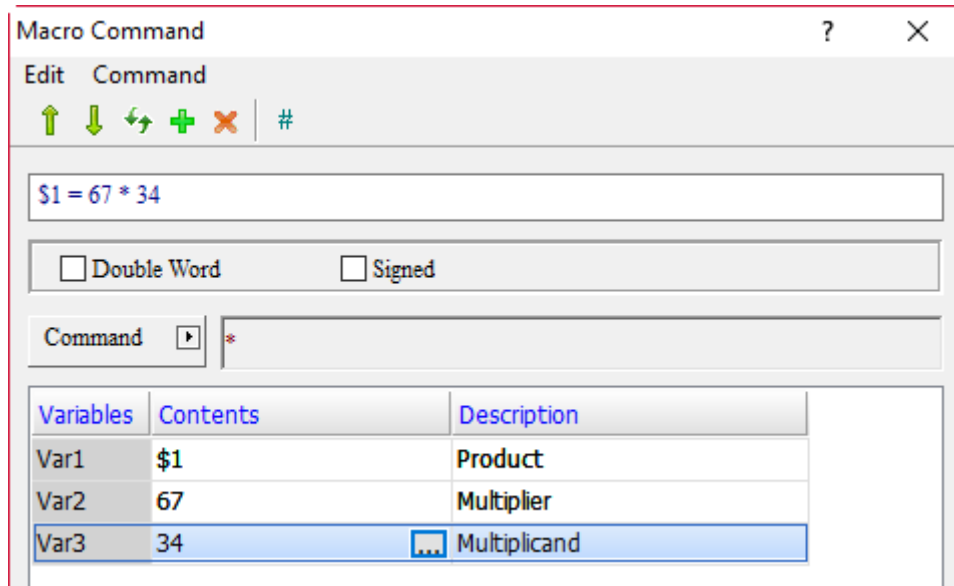
■ * (multiplication)

Expression	Meaning of variable		Note
Var1 = Var2 * Var3 (W) Var1 = Var2 * Var3 (DW) Var1 = Var2 * Var3 (Signed W) Var1 = Var2 * Var3 (Signed DW)	Var1	Product	W: Word DW: Double Word Signed: signed number
	Var2	Multiplier	
	Var3	Multiplicand	
	Description of action		
Multiply Var2 by Var3, and put the result in Var1.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- When the command is `$1 = 67 * 34`, the multiplication operation is executed and the result of `67 * 34` is put in \$1, so `$1 = 2278`.

■ / (division)

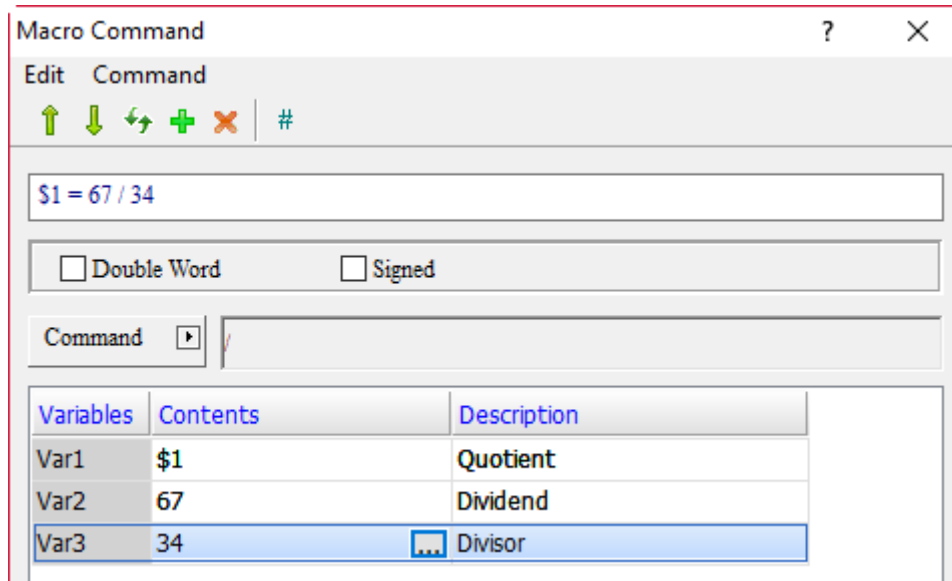
Expression	Meaning of variable		Note
Var1 = Var2 / Var3 (W) Var1 = Var2 / Var3 (DW) Var1 = Var2 / Var3 (Signed W) Var1 = Var2 / Var3 (Signed DW)	Var1	Quotient	W: Word DW: Double Word Signed: signed number
	Var2	Dividend	
	Var3	Divisor	
	Description of action		
	Divide Var2 by Var3 and put the result in Var1.		

Note: Var3 cannot be 0

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- When the command is `$1 = 67 / 34`, the division operation is executed and the result of `67 / 34` is put in `$1`, so `$1 = 1`.

24

■ % (remainder)

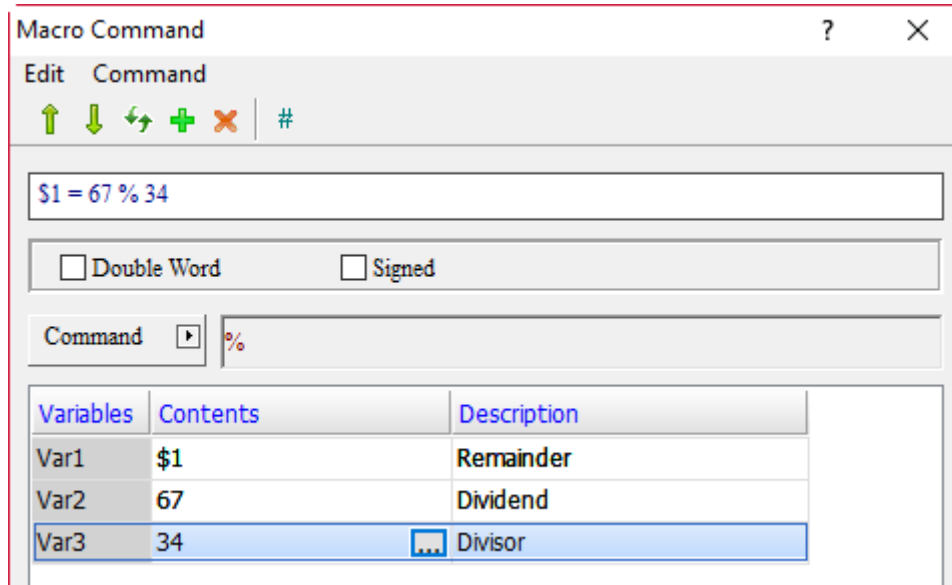
Expression	Meaning of variable		Note
Var1 = Var2 % Var3 (W) Var1 = Var2 % Var3 (DW) Var1 = Var2 % Var3 (Signed W) Var1 = Var2 % Var3 (Signed DW)	Var1	Remainder	W: Word DW: Double Word Signed: signed number
	Var2	Dividend	
	Var3	Divisor	
	Description of action		
	Divide Var2 by Var3 and put the remainder in Var1.		

Note: Var3 cannot be 0

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- When the command is `$1 = 67 % 34`, the remainder operation is executed and the result of `67 % 34` is put in \$1, so `$1 = 33`.

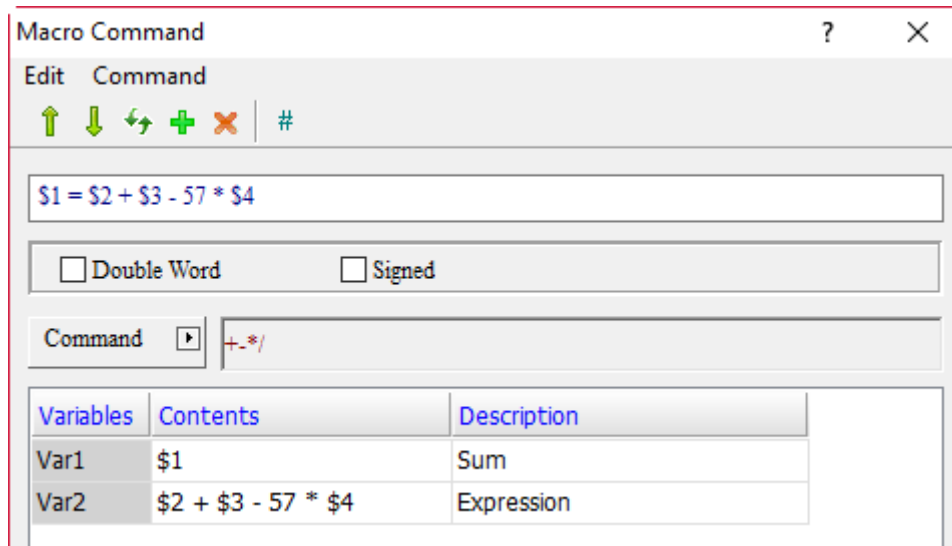
■ +-* / (arithmetic)

Expression	Meaning of variable		Note
Var1 = Var2 (W) Var1 = Var2 (DW) Var1 = Var2 (Signed W) Var1 = Var2 (Signed DW)	Var1	Sum	W: Word DW: Double Word Signed: signed number
	Var2	Expression	
	Description of action		
	Put the result of Var2 expression in Var1.		

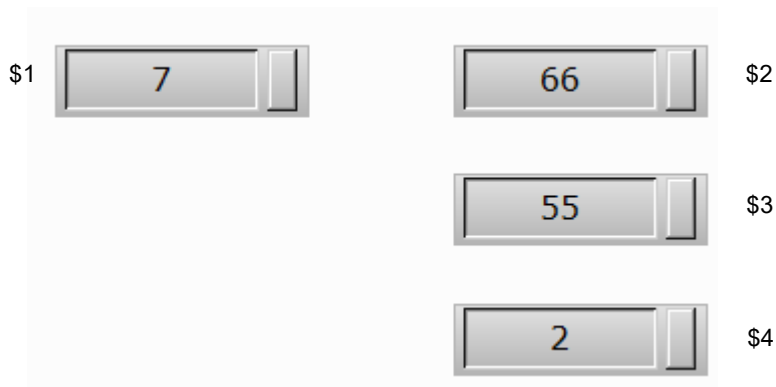
Variable	Type			
	Internal memory	PLC register	Constant	String
Var1	v	v		
Var2				v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- When the command is $\$1 = \$2 + \$3 - 57 * \4 , the arithmetic operations will be executed, and the result of $\$2 + \3 subtracting $57 * \$4$ will be put in $\$1$. Take the following figure as an example. Input 66, 55, and 2 into $\$2$, $\$3$, and $\$4$ respectively, and the result in $\$1$ will be 7.



24

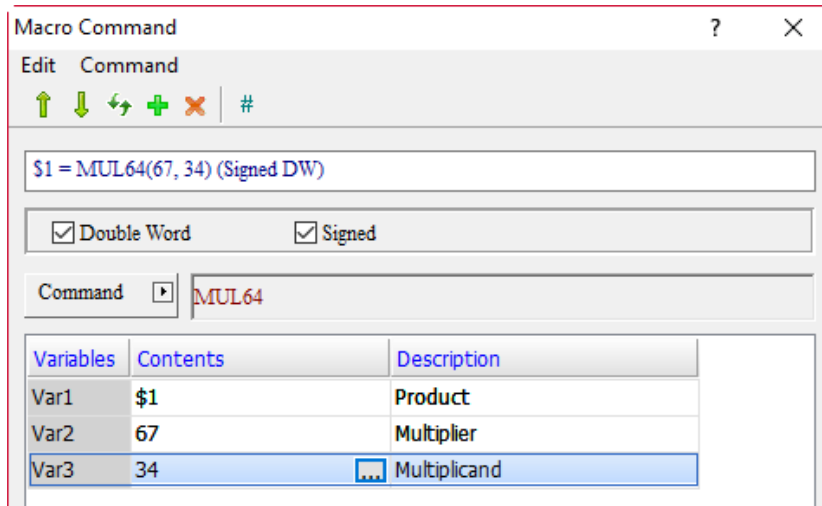
■ MUL64 (64-bit multiplication)

Expression	Meaning of variable		Note
Var1 = MUL64(Var2, Var3) (W) Var1 = MUL64(Var2, Var3) (DW) Var1 = MUL64(Var2, Var3) (Signed W) Var1 = MUL64(Var2, Var3) (Signed DW)	Var1	Product	W: Word DW: Double Word Signed: signed number
	Var2	Multiplier	
	Var3	Multiplicand	
	Description of action		
Multiple Var3 by Var2, and put the result in Var1.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



Example

- If the check box of **Double Word** is selected, set the Data Type of the elements to Double Word so as to save the correct value.

Numeric Entry >

Preview: 1234

State: 0

Language: Language1

Element description: Numeric Entry_001

Memory

Write Address: \$1

Read Address: None

Write Offset Address: None

Read Offset Address: None

Style

Style: Raised

Detail

Data Type: Double Word

Data Format: Signed Decimal

System Keypad

Custom Keypad

Minimum: -2147483648

Maximum: 2147483647

Integer Digits: 10

Fractional: 0

Min -2147483648

Max 2147483647

- When the command is \$1 = MUL64(67, 34), the MUL64 bit multiplication is executed and the result of 67 multiplied by 34 is put in \$1, so \$1 = 2278.

24

■ ADDSUMW (accumulation)

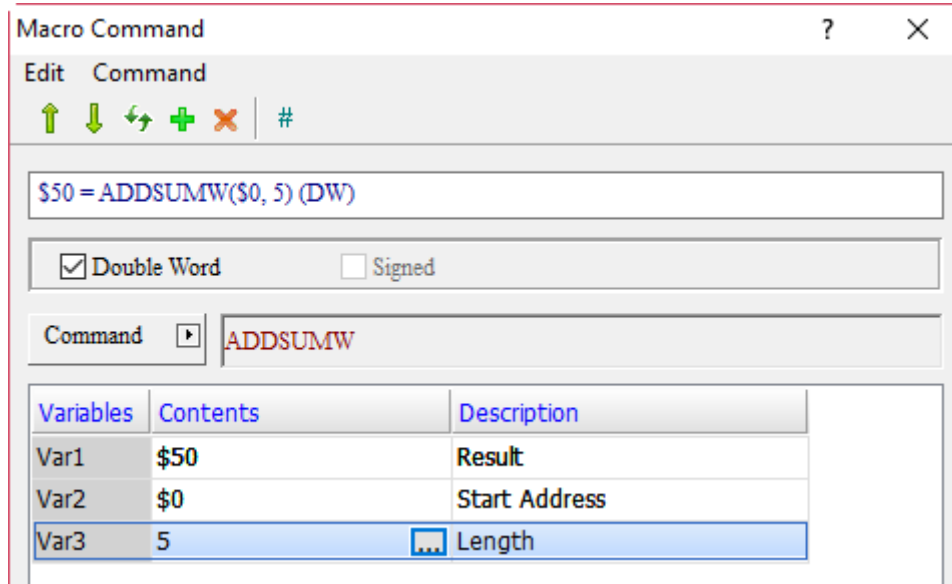
Expression	Meaning of variable		Note
Var1 = ADDSUMW(Var2, Var3) (W) Var1 = ADDSUMW(Var2, Var3) (DW)	Var1	Result	W: Word DW: Double Word
	Var2	Start address	
	Var3	Length	
	Description of action Add up Var3 length addresses continuously from Var2 start address, and put the result in Var1.		

Note: if Double Word is selected, the Start Address increments by 2 to Length; if Word is selected, it increments by 1.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 and Var2 are the internal memory addresses, Var3 is a constant, and the check box of **Double Word** is selected.
- Memory address increments by 2 addresses from \$0 to 5 lengths: \$0, \$2, \$4, \$6, \$8.



- Enter \$0 = 1, \$2 = 2, \$4 = 3, \$6 = 4, and \$8 = 5, and put the accumulated value in \$50, so \$50 = 15.

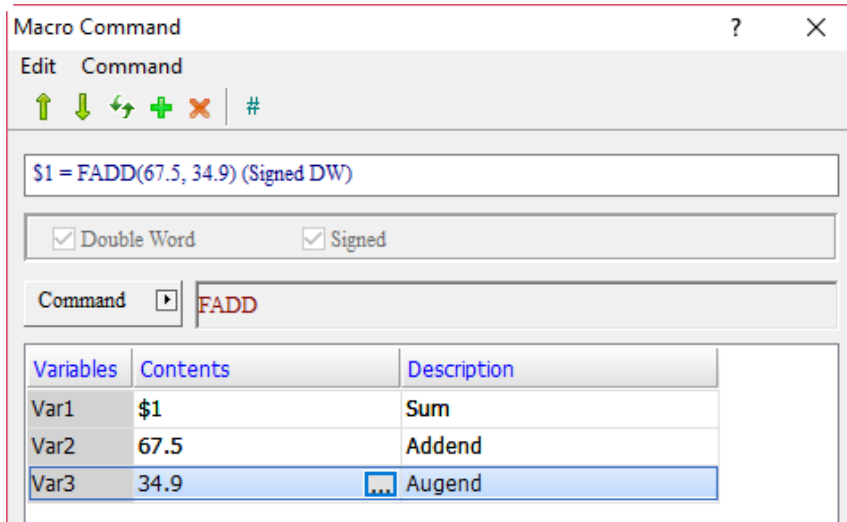
■ FADD (floating-point number addition)

Expression	Meaning of variable		Note
Var1 = FADD(Var2, Var3) (Signed DW)	Var1	Sum	DW: Double Word Signed: signed number
	Var2	Addend	
	Var3	Augend	
	Description of action		
Add Var2 and Var3, and put the result in Var1.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- When the command is \$1 = FADD(67.5, 34.9), the floating-point number addition operation is executed and the result of 67.5 plus 34.9 is put in \$1, so \$1 = 102.4.

24

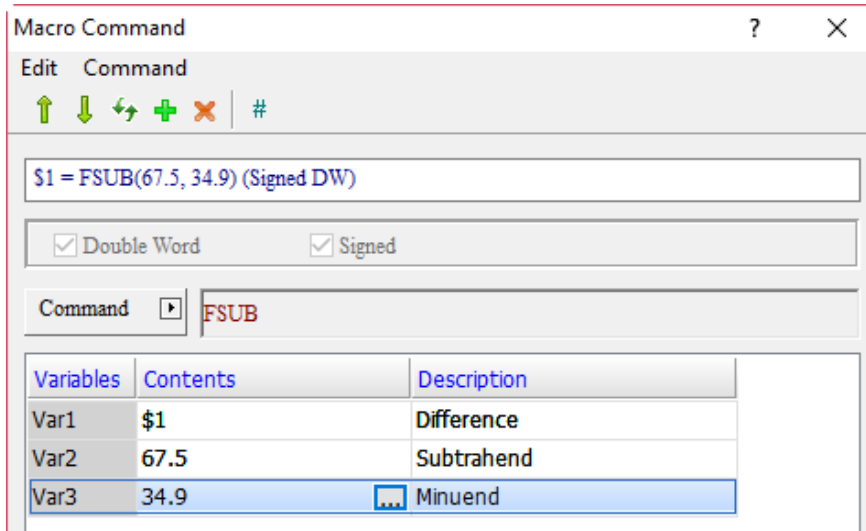
■ FSUB (floating-point number subtraction)

Expression	Meaning of variable		Note
Var1 = FSUB(Var2, Var3) (Signed DW)	Var1	Difference	DW: Double Word Signed: signed number
	Var2	Subtrahend	
	Var3	Minuend	
	Description of action		
Subtract Var2 from Var3, and put the result in Var 1.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- When the command is `$1 = FSUB(67.5, 34.9)`, the floating-point number subtraction operation is executed and the result of 67.5 minus 34.9 is put in \$1, so `$1 = 32.6`.

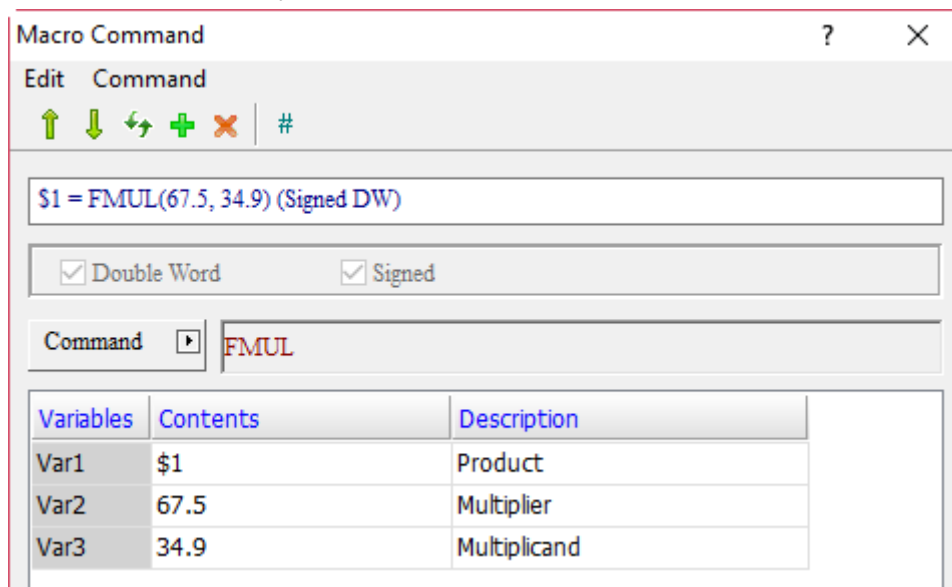
■ FMUL (floating-point number multiplication)

Expression	Meaning of variable		Note
Var1 = FMUL(Var2, Var3) (Signed DW)	Var1	Product	DW: Double Word Signed: signed number
	Var2	Multiplier	
	Var3	Multiplicand	
	Description of action		
Multiply Var 3 by Var 2, and put the result in Var 1.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- When the command is \$1 = FMUL(67.5, 34.9), the floating-point number multiplication is executed and the result of 67.5 multiplied by 34.9 is put in \$1, so \$1 = 2355.75.

24

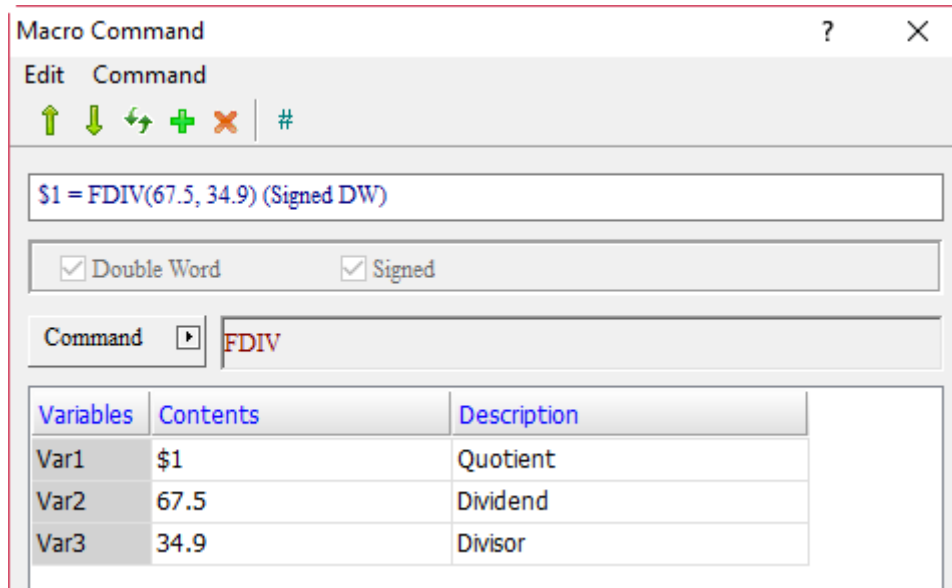
■ FDIV (floating-point number division)

Expression	Meaning of variable		Note
Var1 = FDIV(Var2, Var3) (Signed DW)	Var1	Quotient	DW: Double Word Signed: signed number
	Var2	Dividend	
	Var3	Divisor	
	Description of action		
Divide Var 2 by Var 3, and put the result in Var 1.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- When the command is \$1 = FDIV(67.5, 34.9), the floating-point number division operation is executed and the result of 67.5 divided by 34.9 is put in \$1, so \$1 = 1.934.

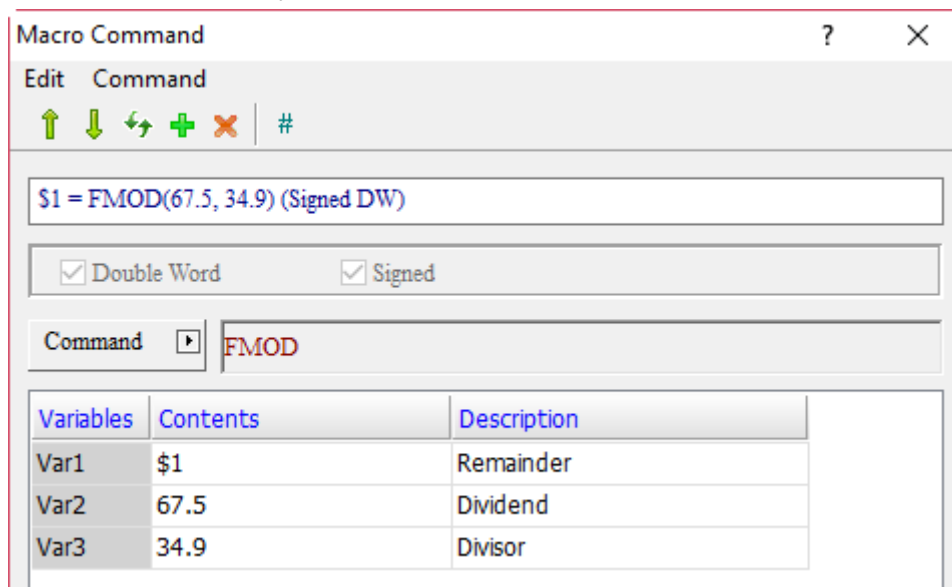
■ FMOD (floating-point number remainder)

Expression	Meaning of variable		Note
Var1 = FMOD(Var2, Var3) (Signed DW)	Var1	Remainder	DW: Double Word Signed: signed number
	Var2	Dividend	
	Var3	Divisor	
	Description of action		
Divide Var2 by Var3 and put the remainder in Var1.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- When the command is `$1 = FMOD(67.5, 34.9)`, the floating-point number remainder operation is executed and the remainder of 67.5 divided by 34.9 is put in \$1, so `$1 = 32.6`.

24

■ SIN (sine function)

Expression	Meaning of variable		Note
Var1 = SIN(Var2) (Signed DW)	Var1	Sine	DW: Double Word Signed: signed number
	Var2	Angle	
	Description of action		
		Sine operation is executed for the value input in Var2, and the result is put in Var1.	

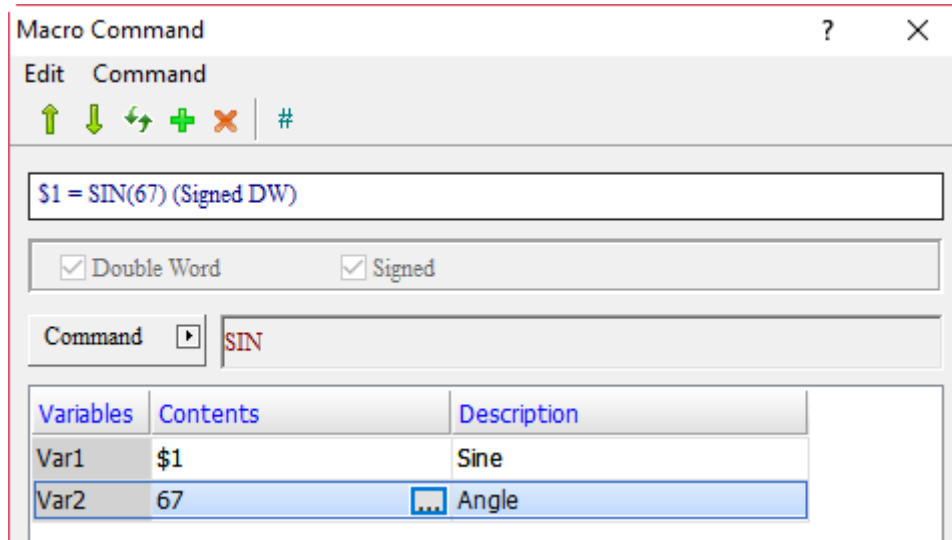
Note:

1. The Data Format for Var1 must be Floating.
2. The Data Format for Var2 must be Signed Decimal and no decimal digits can be set.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v

Example

- Var1 is the internal memory address and Var2 is a constant.



- When the command is \$1 = SIN(67), the input angle of 67 is used for sine operation and the result is put in \$1, so \$1 = 0.921.

■ COS (cosine function)

Expression	Meaning of variable		Comment
Var1 = COS(Var2) (Signed DW)	Var1	Cosine	DW: Double Word Signed: signed number
	Var2	Angle	
	Description of action		
	Cosine operation is executed for the value input in Var2, and the result is put in Var1.		

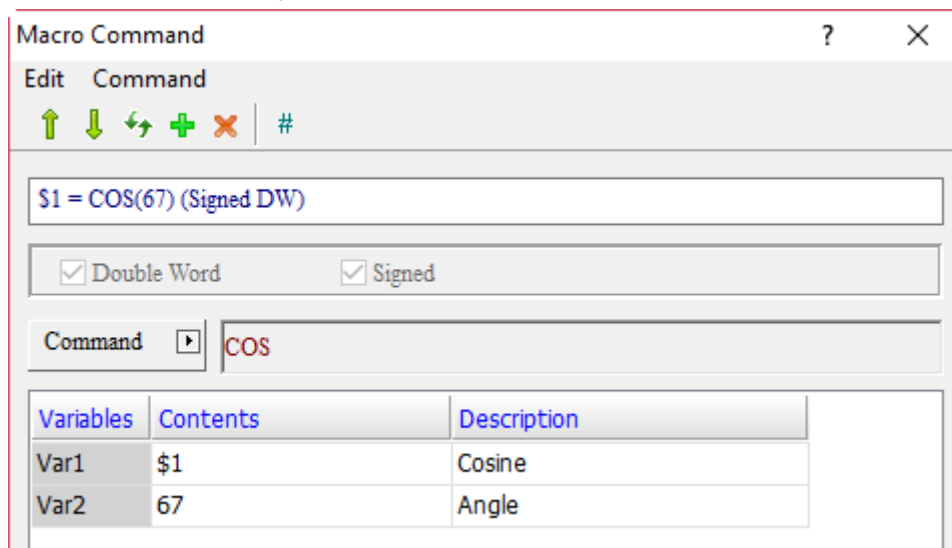
Note:

1. The Data Format for Var1 must be Floating.
2. The Data Format for Var2 must be Signed Decimal, and no decimal digits can be set.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v

Example

- Var1 is the internal memory address and Var2 is a constant.



- When the command is \$1 = COS(67), the input angle of 67 is used for cosine operation and the result is put in \$1, so \$1 = 0.391.

24

■ TAN (tangent function)

Expression	Meaning of variable		Note
Var1 = TAN(Var2) (Signed DW)	Var1	Tangent	DW: Double Word Signed: signed number
	Var2	Angle	
	Description of action		
		Tangent operation is executed for the value input in Var2, and the result is put in Var1.	

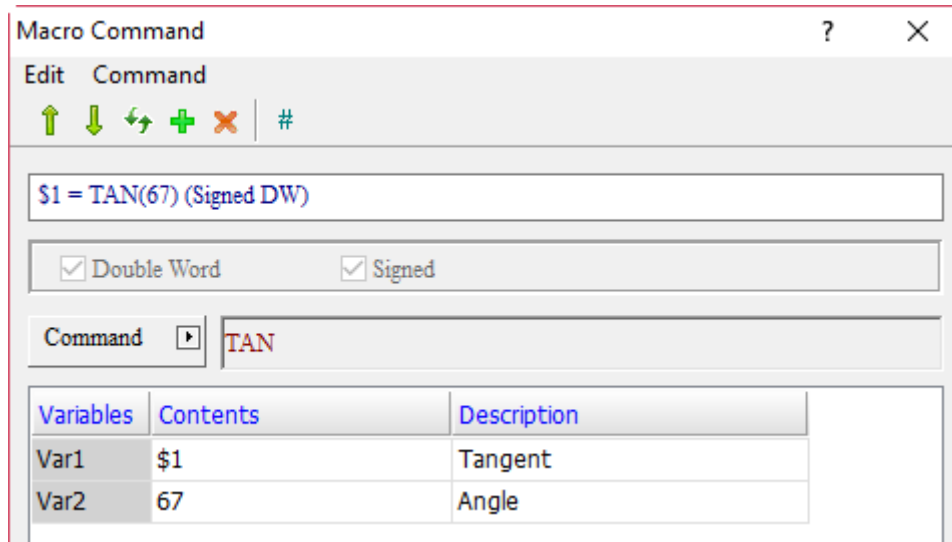
Note:

1. The Data Format for Var1 must be Floating.
2. The Data Format for Var2 must be Signed Decimal, and no decimal digits can be set.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v

Example

- Var1 is the internal memory address and Var2 is a constant.



- When the command is `$1 = TAN(67)`, the input angle of 67 is used for tangent operation and the result is put in \$1, so `$1 = 2.356`.

■ COT (cotangent function)

Expression	Meaning of variable		Note
Var1 = COT(Var2) (Signed DW)	Var1	Cotangent	DW: Double Word Signed: signed number
	Var2	Angle	
	Description of action		
	Cotangent operation is executed for the value input in Var2. and the result is put in Var1.		

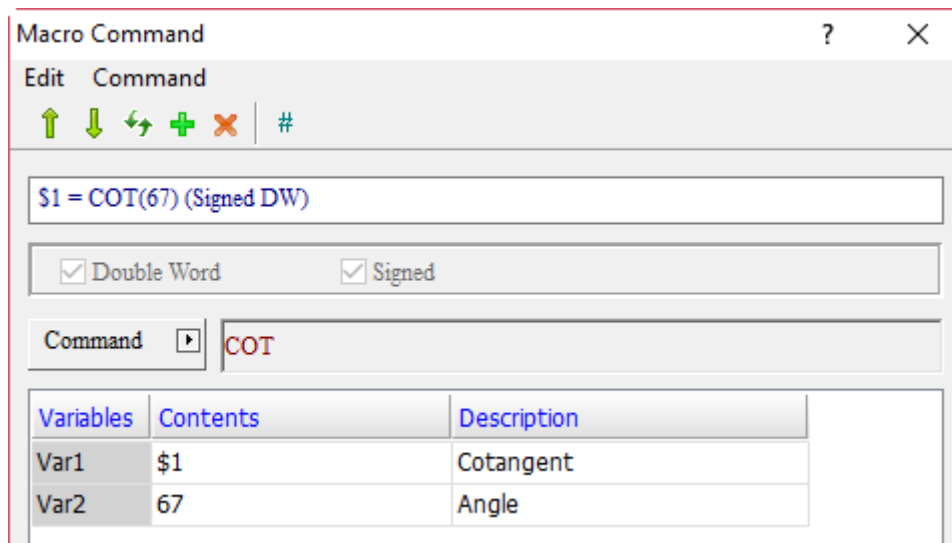
Note:

1. The Data Format for Var1 must be Floating.
2. The Data Format for Var2 must be Signed Decimal, and no decimal digits can be set.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v

Example

- Var1 is the internal memory address and Var2 is a constant.



- When the command is `$1 = COT(67)`, the input angle of 67 is used for cotangent operation and the result is put in \$1, so $\$1 = 0.424$.

24

■ SEC (secant function)

Expression	Meaning of variable		Note
Var1 = SEC(Var2) (Signed DW)	Var1	Secant	DW: Double Word Signed: signed number
	Var2	Angle	
	Description of action		
	Secant operation is executed for the value input in Var2, and the result is put in Var1.		

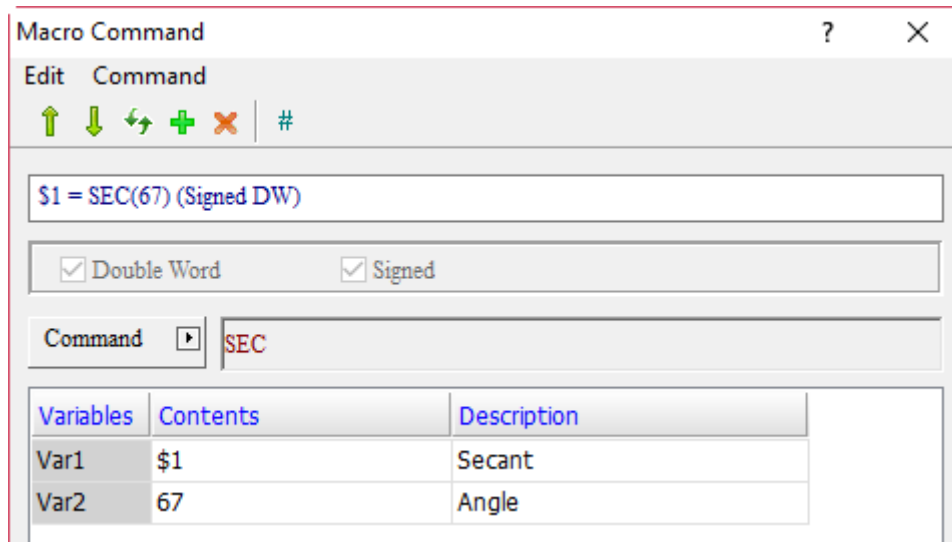
Note:

1. The Data Format for Var1 must be Floating.
2. The Data Format for Var2 must be Signed Decimal, and no decimal digits can be set.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v

Example

- Var1 is the internal memory address and Var2 is a constant.



- When the command is \$1 = SEC(67), the input angle of 67 is used for secant operation and the result is put in \$1, so \$1 = 2.559.

■ CSC (cosecant function)

Expression	Meaning of variable		Note
Var1 = CSC(Var2) (Signed DW)	Var1	Cosecant	DW: Double Word Signed: signed number
	Var2	Angle	
	Description of action		
	Cosecant operation is executed for the value input in Var2, and the result is put in Var1.		

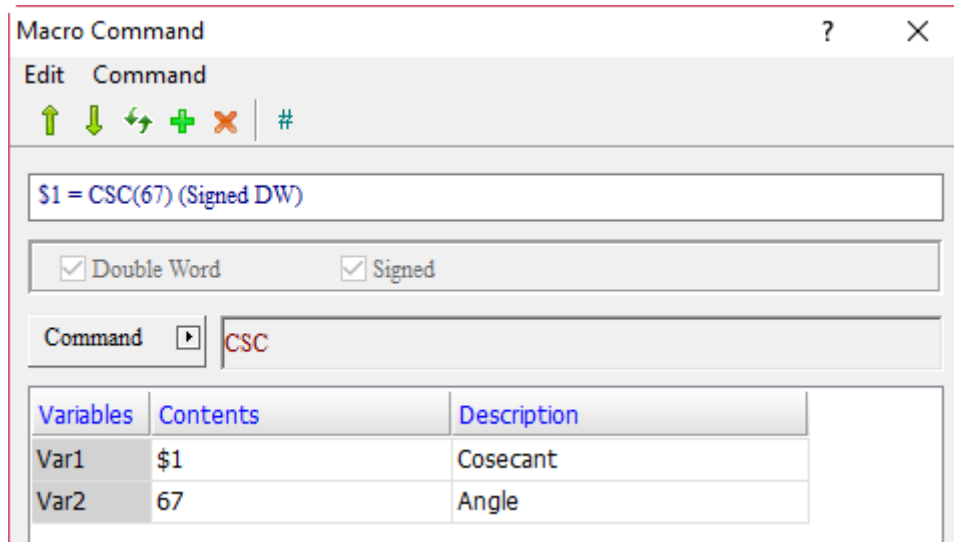
Note:

1. The Data Format for Var1 must be Floating.
2. The Data Format for Var2 must be Signed Decimal, and no decimal digits can be set.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v

Example

- Var1 is the internal memory address and Var2 is a constant.



- When the command is \$1 = CSC(67), the input angle of 67 is used for cosecant operation and the result is put in \$1, so \$1 = 1.086.

24.3.2 Logical Operation

Logic Operation contains six operators which convert numerical values to binary 0 and 1 representations, and then conduct |, &&, ^, NOT, <<, and >> operations. The macro commands are detailed as follows.

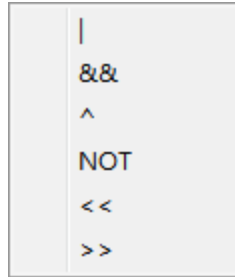


Figure 24.3.2.1 Logical Operation

■ | (OR logical operation)

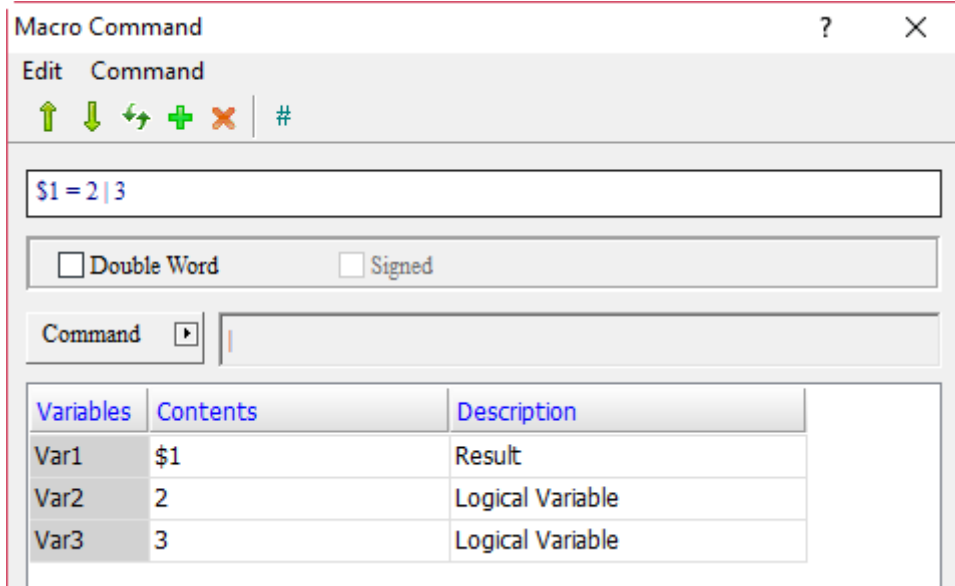
OR logical operation feature	
Expression	Result
0 | 0	0
0 | 1	1
1 | 0	1
1 | 1	1

Expression	Meaning of variable		Note
Var1 = Var2 | Var3 (W) Var1 = Var2 | Var3 (DW)	Var1	Result	W: Word DW: Double Word
	Var2	Logical Variable	
	Var3	Logical Variable	
	Description of action		
Execute OR operation on Var2 and Var3, and put the result in Var1.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- After converting the values of Var2 and Var3 into binary representations (2 = 0010 and 3 = 0011), execute OR logical operation on 0010 and 0011, and the result is 0011 which is also 3.

	Binary representation	Value content
	0010	2
| (OR operation)	0011	3
	0011	3

■ && (AND logical operation)

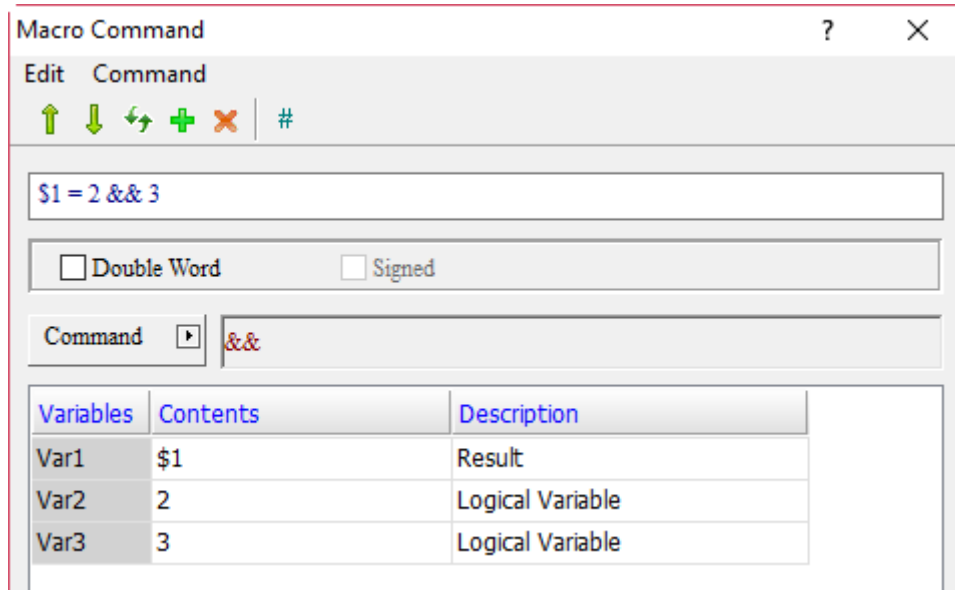
AND logical operation feature	
Expression	Result
0 && 0	0
0 && 1	0
1 && 0	0
1 && 1	1

Expression	Meaning of variable		Note
Var1 = Var2 && Var3 (W) Var1 = Var2 && Var3 (DW)	Var1	Result	W: Word DW: Double Word
	Var2	Logical Variable	
	Var3	Logical Variable	
	Description of action		
Execute AND operation on Var2 and Var3, and put the result in Var1.			

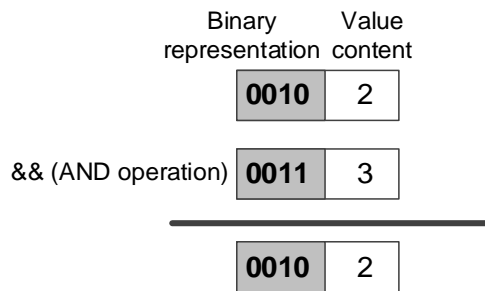
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- After converting the values of Var2 and Var3 into binary representations (2 = 0010 and 3 = 0011), execute AND logical operation on 0010 and 0010, and the result is 0010 which is also 2.



24

- ^ (XOR logical operation)

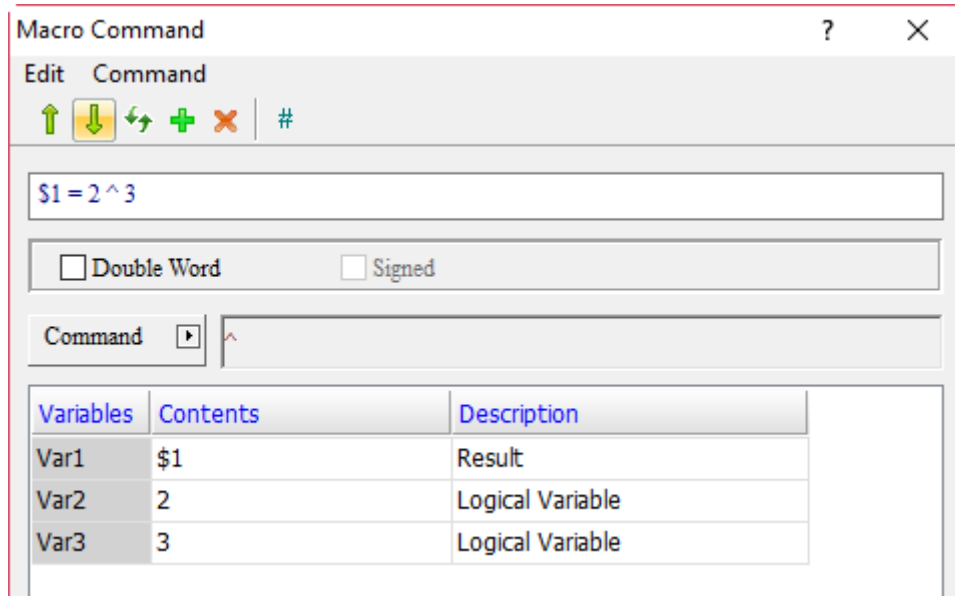
XOR logical operation feature	
Expression	Result
0 ^ 0	0
0 ^ 1	1
1 ^ 0	1
1 ^ 1	0

Expression	Meaning of variable		Note
Var1 = Var2 ^ Var3 (W) Var1 = Var2 ^ Var3 (DW)	Var1	Result	W: Word DW: Double Word
	Var2	Logical Variable	
	Var3	Logical Variable	
	Description of action		
Execute XOR operation on Var2 and Var3, and put the result in Var1.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- After converting the values of Var2 and Var3 into binary representations (2 = 0010 and 3 = 0011), execute XOR logical operation on 0010 and 0011, and the result is 0001 which is also 1.

	Binary representation	Value content
	0010	2
^ (XOR operation)	0011	3

	0001	1

- NOT (NOT logical operation)

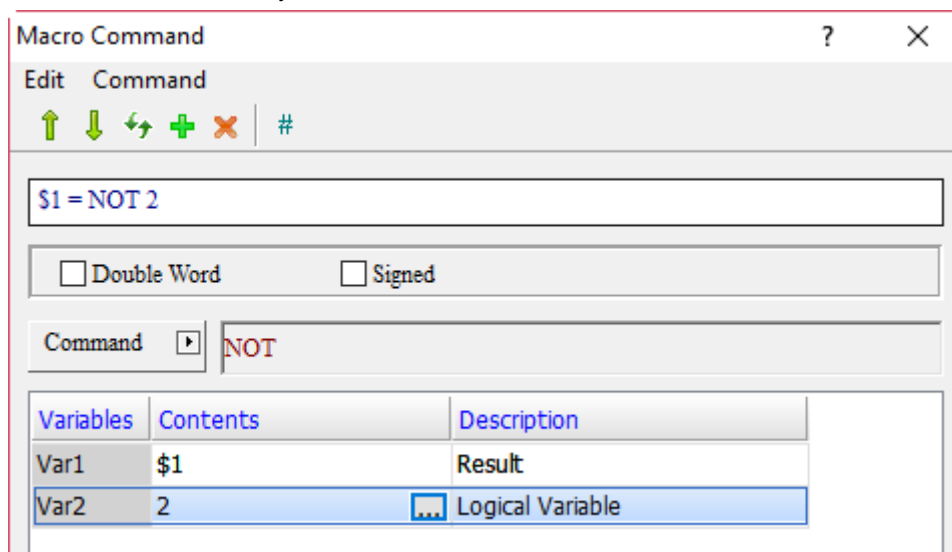
NOT logical operation feature	
Expression	Result
NOT 0	1
NOT 1	0

Expression	Meaning of variable		Note
Var1 = NOT Var2 (W) Var1 = NOT Var2 (DW) Var1 = NOT Var2 (Signed W) Var1 = NOT Var2 (Signed DW)	Var1	Result	W: Word DW: Double Word Signed: signed number
	Var2	Logical Variable	
	Description of action		
	Execute NOT operation on Var2, and put the result in Var1.		

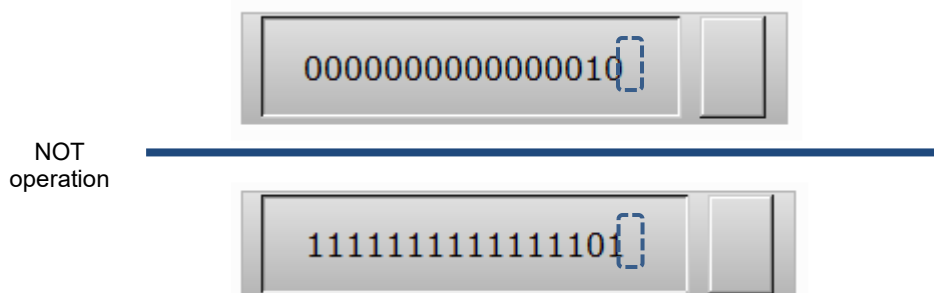
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v

Example

- Var1 is the internal memory address and Var2 is a constant.



- After converting the value of Var2 into binary representation (2 = 000000000000010), execute NOT 2 logical operation on 000000000000010, and the result is 111111111111101.



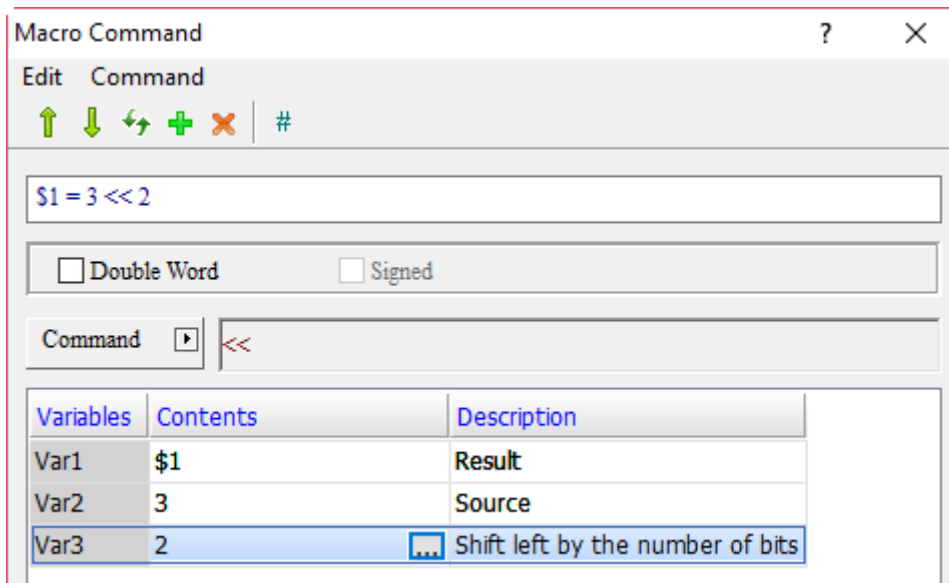
- << (SHL left shift logical operation)

Expression	Meaning of variable		Note
Var1 = Var2 << Var3 (W) Var1 = Var2 << Var3 (DW)	Var1	Result	W: Word DW: Double Word
	Var2	Source	
	Var3	Shift left by the number of bits	
	Description of action		
Move the number of bits of Source Var2 to the left by Var3, and put the result in Var1.			

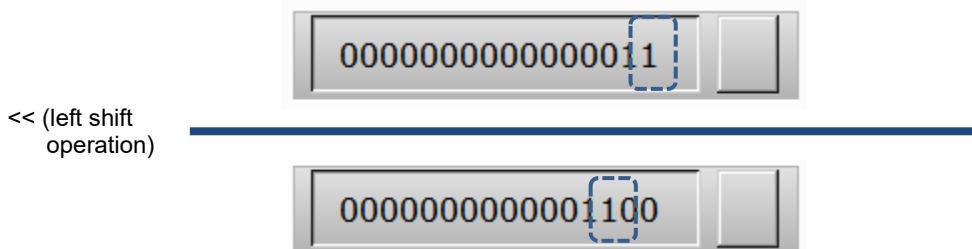
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- After converting the value of Var2 into binary representation (3 = 0000000000000011), execute the logical operation of << left shift by 2 bits on 0000000000000011, and the result is 0000000000001100.



24

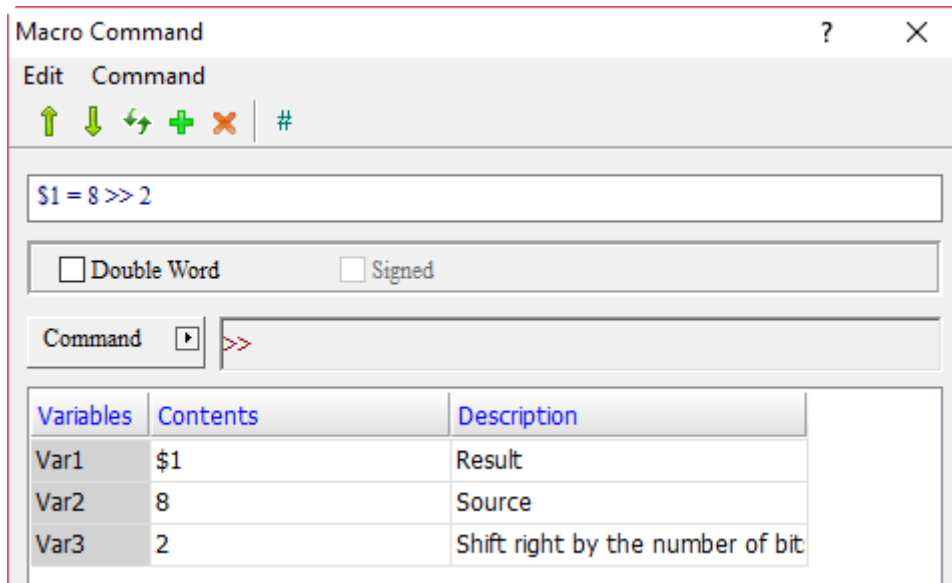
- >> (SHR right shift logical operation)

Expression	Meaning of variable		Note
Var1 = Var2 >> Var3 (W) Var1 = Var2 >> Var3 (DW)	Var1	Result	W: Word DW: Double Word
	Var2	Source	
	Var3	Shift right by the number of bits	
	Description of action		
Move the number of bits of Source Var2 to the right by Var3, and put the result in Var1.			

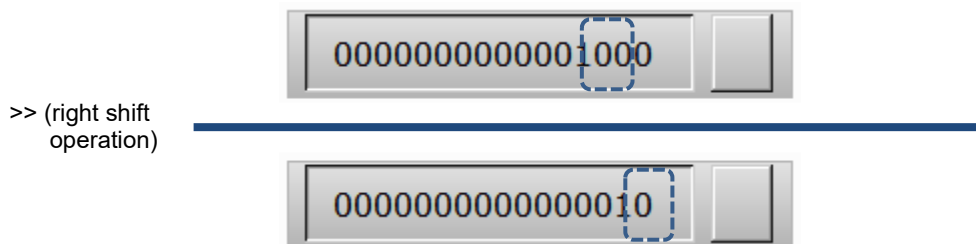
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- After converting the value of Var2 into binary representation (8 = 000000000001000), execute the logical operation of >> right shift by 2 bits on 000000000001000, and the result is 000000000000010.



24.3.3 Data transfer

Data transfer includes the following transfer commands, which are detailed as follows.

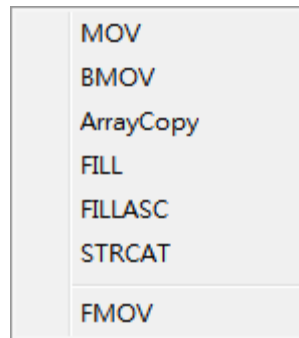


Figure 24.3.3.1 Data transfer

■ MOV (data specified operand)

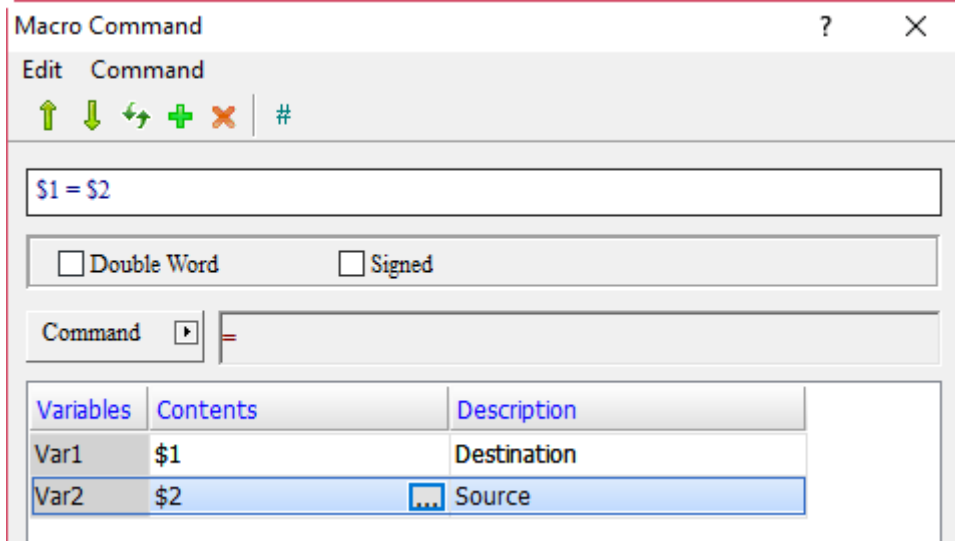
Expression	Content		Note
Var1 = Var2 (W) Var1 = Var2 (DW) Var1 = Var2 (Signed W) Var1 = Var2 (Signed DW)	Var1	Destination	W: Word DW: Double Word Signed: signed number
	Var2	Source	
	Description of action		
	Copy the source of Var2 to the Var1 destination, and Var2's source will not be changed due to the data specify command.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v

24

Example

- Var1 and Var2 are internal memory addresses.



- When the command \$1 = \$2 is executed, the input value of \$2 will be moved to \$1. If the input value of \$2 is 34, \$1 is 34.



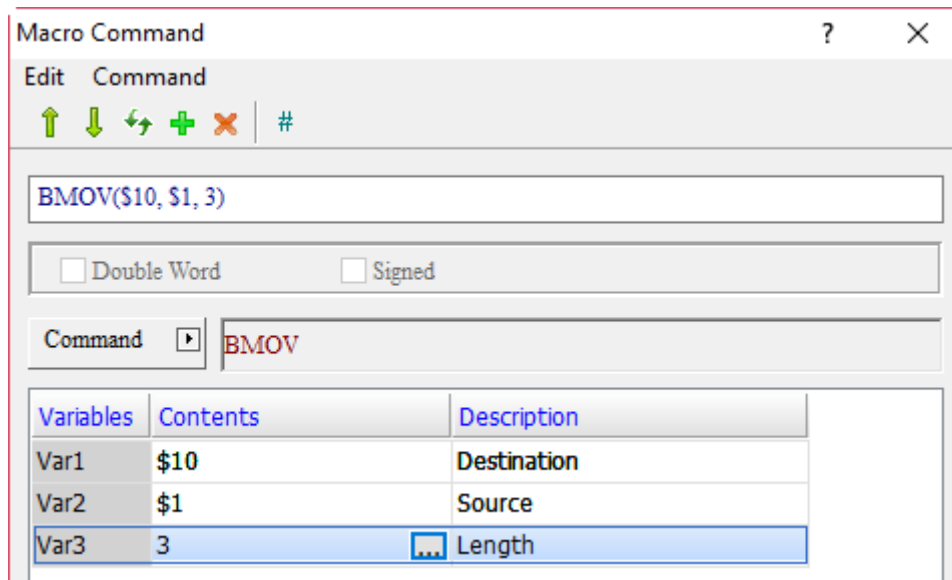
■ BMOV (copy block)

Expression	Meaning of variable		Note
BMOV(Var1, Var2, Var3) (W)	Var1	Destination	W: Word
	Var2	Source	
	Var3	Length (Word)	
	Description of action		
		Copy Var3 data lengths from Var2 source to Var1 destination.	

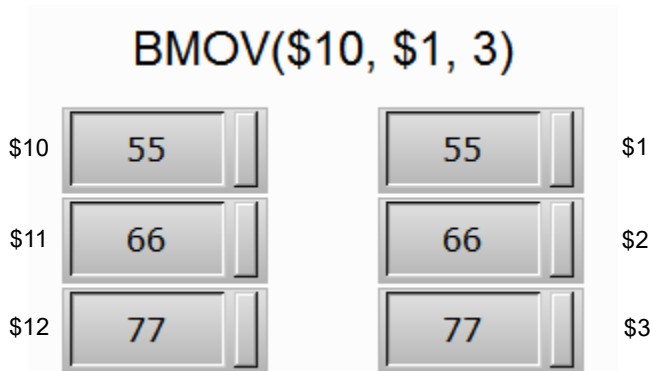
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	
Var3	v		v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- Get the data of the three addresses starting from \$1 and move the data to \$10, so the values input in \$1, \$2, and \$3 are transferred to \$10, \$11, and \$12 respectively.



24

■ ArrayCopy (copy array)

Expression	Meaning of variable		Note	
Var1 = ArrayCopy(Var2, Var3, Var4, Var5, Var6)	Var1	Return value		
		Failed	0	
		Succeeded	1	
	Var2	Destination		
	Var3	Destination offset		
	Var4	Source		
	Var5	Source offset		
	Var6	Length (Word)		
	Description of action			
	Copy a continuous address data to another address.			

Variable	Type			
	Internal memory	PLC register	String	Constant
Var1	v			
Var2	v	v		
Var3	v	v		v
Var4	v	v		
Var5	v	v		v
Var6	v	v		v

Example

- Var1, Var2, and Var4 are internal memory addresses, and Var3 and Var5 are constants.

Macro Command ? X

Edit Command

↑ ↓ ↔ + × #

`$99 = ArrayCopy($2, 3, $20, 4, 2)`

Double Word Signed

Command ▾ `ArrayCopy`

Variables	Contents	Description
Var1	\$99	Return value: 0: failed; 1: succe
Var2	\$2	Destination
Var3	3	Destination offset
Var4	\$20	Source
Var5	4	Source offset
Var6	2	Length(WORD)

Update Macros

Address	\$0	\$1	\$2	\$3	\$4	\$5	\$6	\$7	...	...	\$20	\$21	\$22	\$23	\$24	\$25	\$26	...
Offset			+0	+1	+2	+3					+0	+1	+2	+3	+4			...

Copy the offset (4, address is \$24) specified by the source address (\$20) to the offset (3, address is \$5) specified by the destination address (\$2) and move 2 Words in length according to the start address determined by the offset, as shown in the following figure.

1 `$99 = ArrayCopy($2, 3, $20, 4, 2)`

\$2	\$3	\$4	\$5	\$6
0	0	0	66	33

\$20	\$21	\$22	\$23	\$24	\$25
0	0	0	0	66	33

24

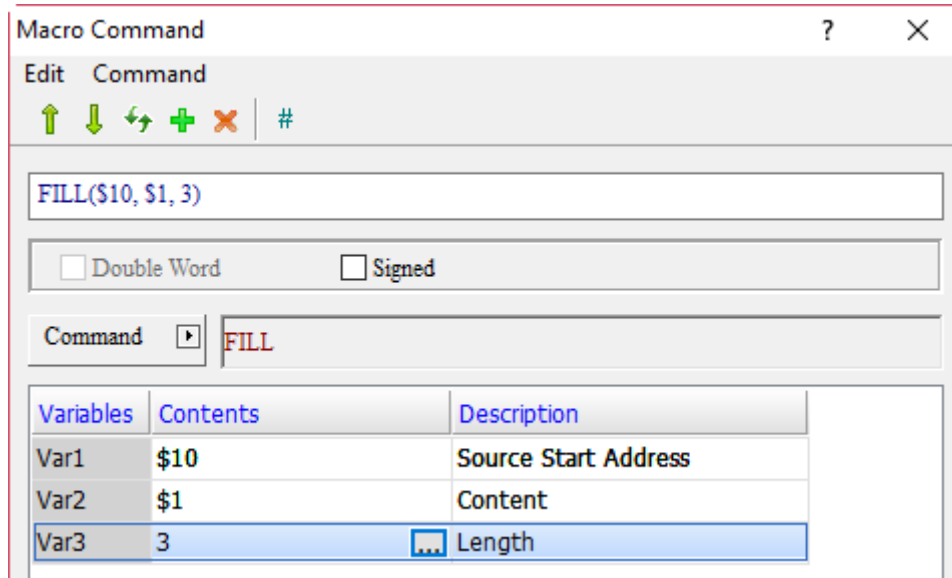
■ FILL (fill block)

Expression	Meaning of variable		Note
FILL(Var1, Var2, Var3) (W) FILL(Var1, Var2, Var3) (Signed W)	Var1	Destination Start Address	W: Word
	Var2	Source	
	Var3	Length	
	Description of action		
Store values of Var2 to the Var1 start address in sequence. The total length is Var3.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v

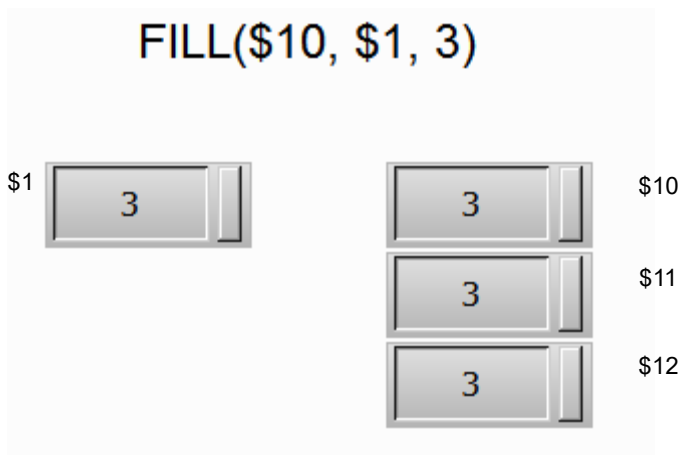
Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



Example

- Save the input value of \$1 for 3 data lengths in sequence to \$10, \$11, and \$12.



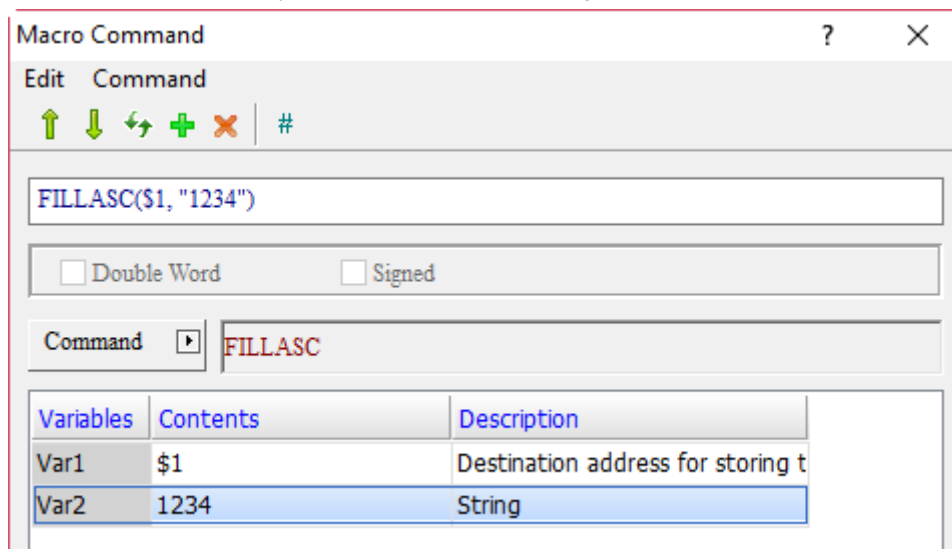
- FILLASC (convert text to ASCII values)

Expression	Meaning of variable		Note
FILLASC(Var1, "Var2") (W)	Var1	Destination address for storing string	W: Word
	Var2	String	
	Description of action		
		Convert each character of Var2 string into an ASCII value, and put it in Var1 address.	

Variable	Type			
	Internal memory	PLC register	Constant	String
Var1	v	v		
Var2				v

Example

- Var1 is the internal memory address and Var2 is a string.



Example

- The results after operation are \$1 = 3231H and \$2 = 3433H.

FILLASC(\$1, "1234")



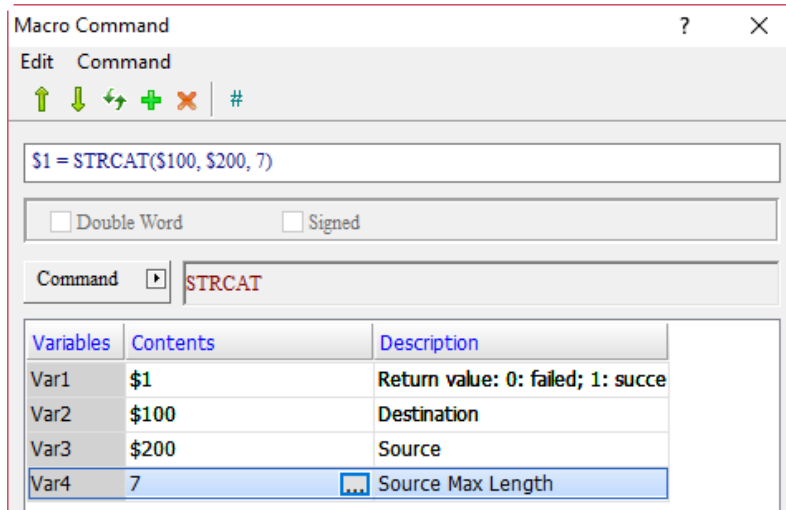
- STRCAT (connection string)

Expression	Meaning of variable		Note	
Var1 = STRCAT(Var2, Var3, Var4)	Var1	Return value		
		Failed	0	
		Succeeded	1	
	Var2	Destination		
	Var3	Source		
	Var4	Maximum length of the destination string (unit: Char)		
	Description of action			
Connect the source address string to the destination address string.				

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		
Var3	v		
Var4	v		v

Example

- Var1 is the internal memory address, Var2 and Var3 are strings, and Var4 is a constant.



Example

- Create a Numeric Entry element with the address as \$1 and create Character Entry elements of \$100 and \$200.
- After execution, enter the following values.

\$100

\$200

- The results after operation are \$100 = ABCDEFG and \$1 = 1.

\$1 = STRCAT(\$100, \$200, 7)

\$1 \$100

\$200

- A length of 7 indicates a maximum length of 7 characters in \$100. If the connection string is more than 7 characters, only 7 characters will be displayed.

\$1 = STRCAT(\$100, \$200, 7)

\$1 \$100

\$200

- If the total length is less than 7 characters, it will be added to 7 characters for display.

\$1 = STRCAT(\$100, \$200, 7)

\$1 \$100

\$200

24

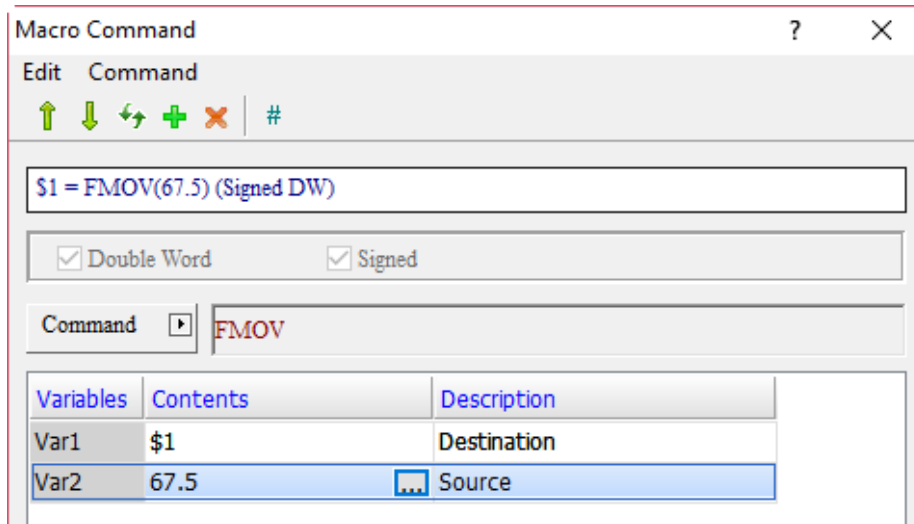
- FMOV (specify floating-point number data)

Expression	Meaning of variable		Note
Var1 = FMOV(Var2) (Signed DW)	Var1	Destination	DW: Double Word Signed: signed number
	Var2	Source	
	Description of action		
		Copy the floating-point number data of Var2 to Var1. The source data of Var2 will not be changed by the floating-point number data command.	

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v

Example

- Var1 is the internal memory address and Var2 is a constant.



- Store the floating-point number data of 67.5 to \$1, so \$1 = 67.5.

24.3.4 Data Conversion

Data Conversion includes conversion of Data Format, Maximum and Minimum, and value data swap commands, which are explained in detail as follows.

BCD	XCHG
BIN	MAX
TODWORD	MIN
TOWORD	TOHEX
TOBYTE	TOASC
SWAP	FCNV
	ICNV
	SPRINTF

Figure 24.3.4.1 Data Conversion

- BCD (convert decimal values to BCD values)

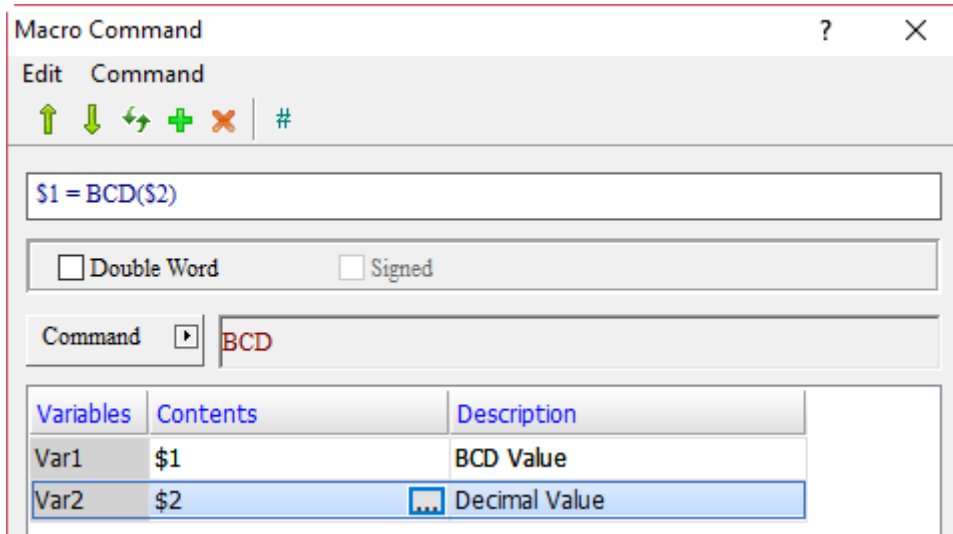
Expression	Meaning of variable		Note
Var1 = BCD(Var2) (W) Var1 = BCD(Var2) (DW)	Var1	BCD Value	W: Word DW: Double Word
	Var2	Decimal Value	
	Description of action		
	Convert the decimal value in Var2 to the BCD format value, and put it in Var1.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		

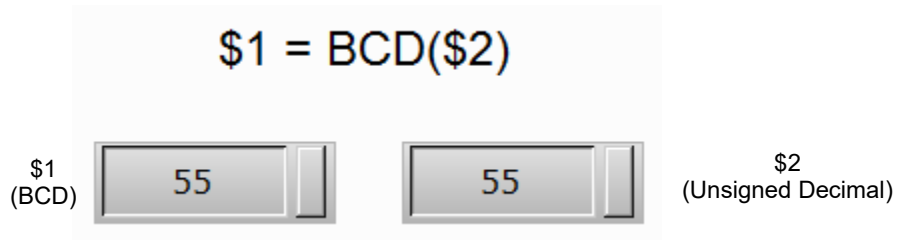
24

Example

- Var1 and Var2 are internal memory addresses.



- Convert the decimal value of \$2 to BCD and store it in \$1.



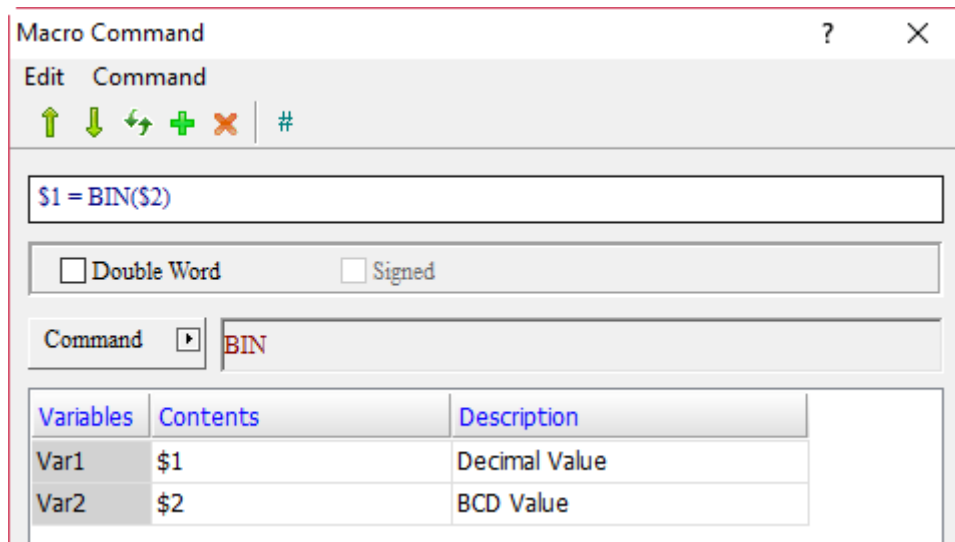
- BIN (convert BCD values to decimal values)

Expression	Meaning of variable		Note
Var1 = BIN(Var2) (W) Var1 = BIN(Var2) (DW)	Var1	Decimal Value	W: Word DW: Double Word
	Var2	BCD Value	
	Description of action		
	Convert the BCD format value in Var2 to a decimal value and put it in Var1.		

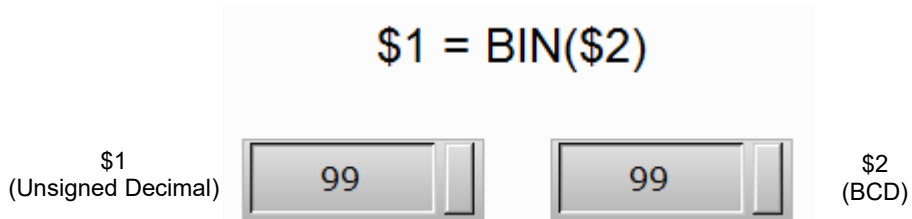
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		

Example

- Var1 and Var2 are internal memory addresses.



- Convert the BCD value format of \$2 to decimal value format and save it in \$1.



24

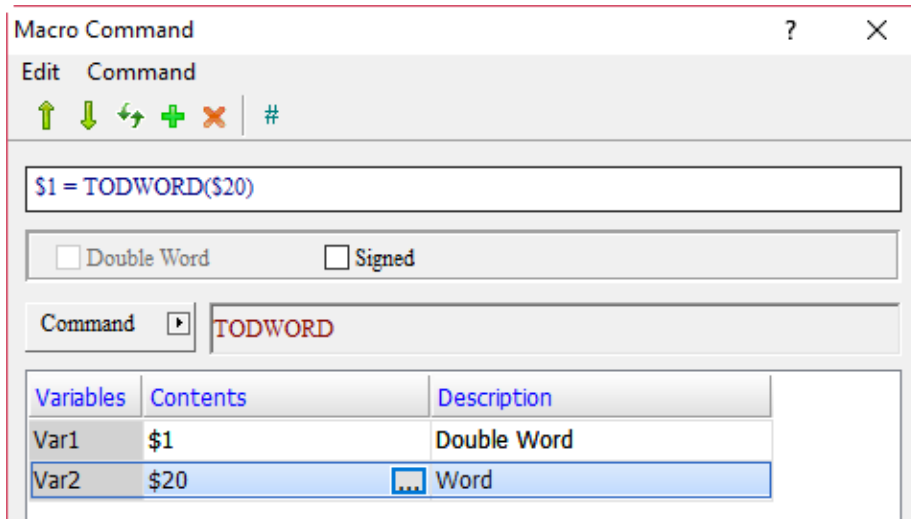
- TODWORD (convert values from Word to Double Word)

Expression	Meaning of variable		Note
Var1 = TODWORD(Var2) (W) Var1 = TODWORD(Var2) (Signed W)	Var1	Double Word	W: Word Signed: signed number
	Var2	Word	
	Description of action		
	Convert the Word format value in Var2 to the Double Word value and put it in Var1.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		

Example

- Var1 and Var2 are internal memory addresses.



- Convert the Word value of \$20 to Double Word value and store it in \$1. Because the value has been converted to Double Word format, it actually occupies two addresses, \$1 and \$2.

■ TOWORD (convert values from Byte to Word)

Expression	Meaning of variable		Note
Var1 = TOWORD(Var2, Var3) (W)	Var1	Word value	W: Word
	Var2	Source Start Address	
	Var3	Length	
	Description of action		
Starting from Var2 start address, convert a continuous Var3 bytes to Word value and save the result in Var1. Add 0 for the high byte of each Var1.			

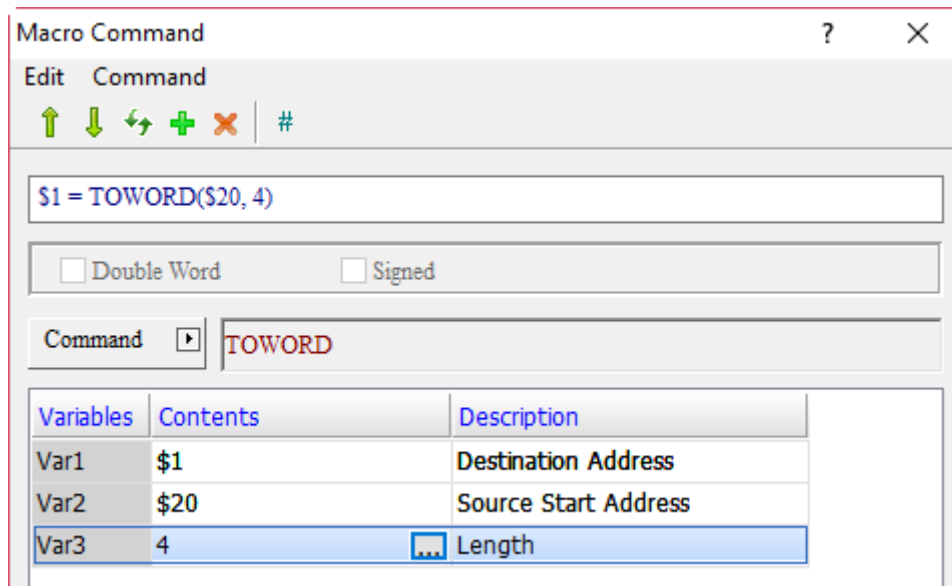
Note:

1. Since the unit of Var2 is Word, each Word of Var2 can be converted into 2 Words.
2. After data conversion, the high and low bytes of Word will be swapped.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		
Var3	v		v

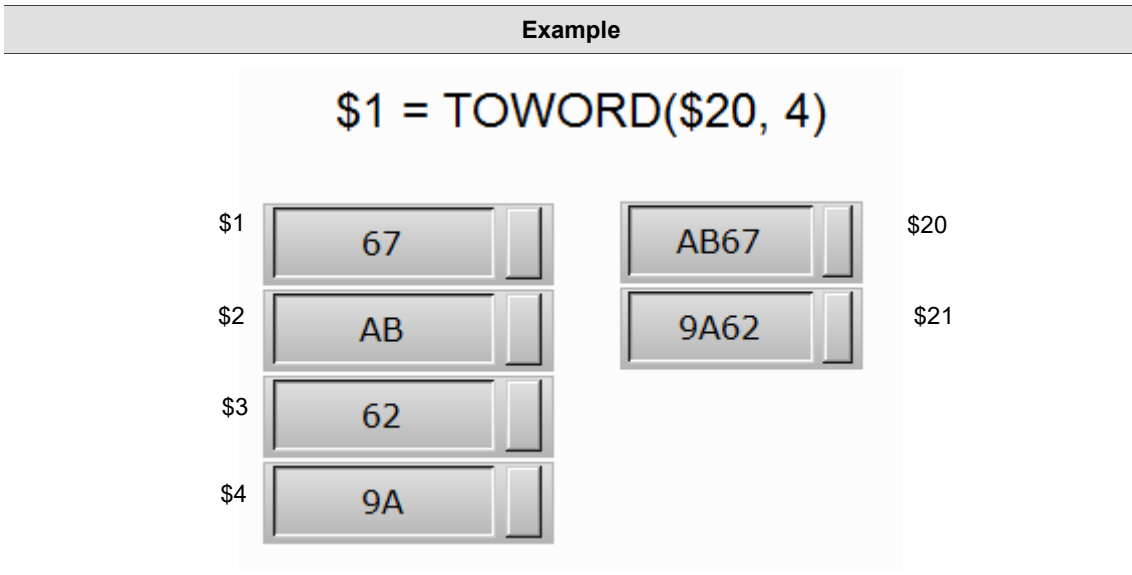
Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- Convert a continuous 4 bytes from \$20 to Word value and put it in \$1.
- The Data Format of \$1 and \$20 is set to Hex.
- Suppose \$20 = AB67H and \$21 = 9A62H, read 4 bytes of data in \$20 with the TOWORD command and put them in \$1, \$2, \$3, and \$4. Accordingly, the data obtained are \$1 = 67H, \$2 = ABH, \$3 = 62H, and \$4 = 9AH.

24



■ **TOBYTE** (convert values from Word to Byte)

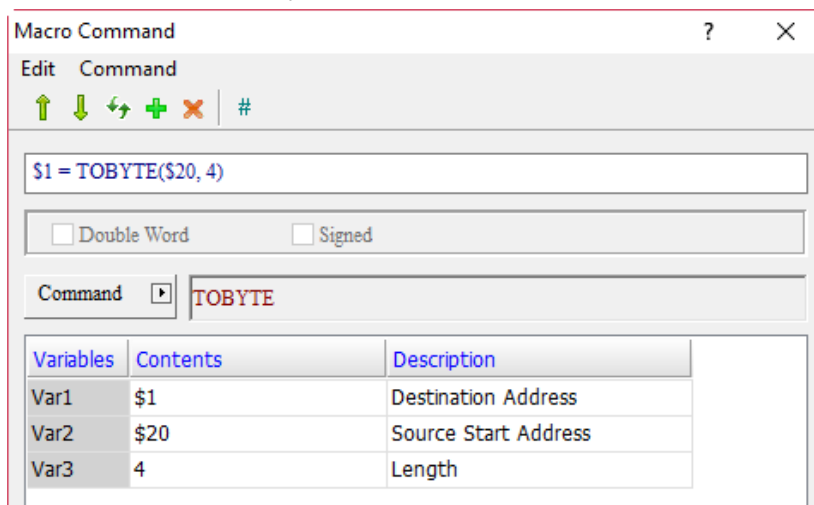
Expression	Meaning of variable		Note
Var1 = TOBYTE(Var2, Var3) (W)	Var1	BYTE Value	W: Word
	Var2	Source Start Address	
	Var3	Length	
	Description of action		
	Starting from the low byte of Var2, convert a continuous Var3 Words to byte values and ignore the high byte of Var2. The result is saved in Var1.		

Note: after data conversion, the high and low bytes of Word will be swapped.

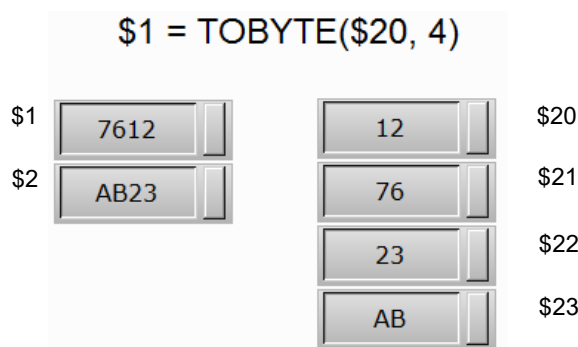
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		
Var3	v		v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- Convert a continuous 4 Words from \$20 to byte value and put it in \$1.
- The Data Format of \$1 and \$20 is set to Hex.
- Suppose \$20 = 12H, \$21 = 76H, \$22 = 23H, and \$23 = ABH, read 4 Words of data in \$20 with the TOBYTE command and put them in \$1 and \$2. Accordingly, the data obtained are \$1 = 7612H and \$2 = AB23H.



- SWAP (swap high and low bytes of Word)

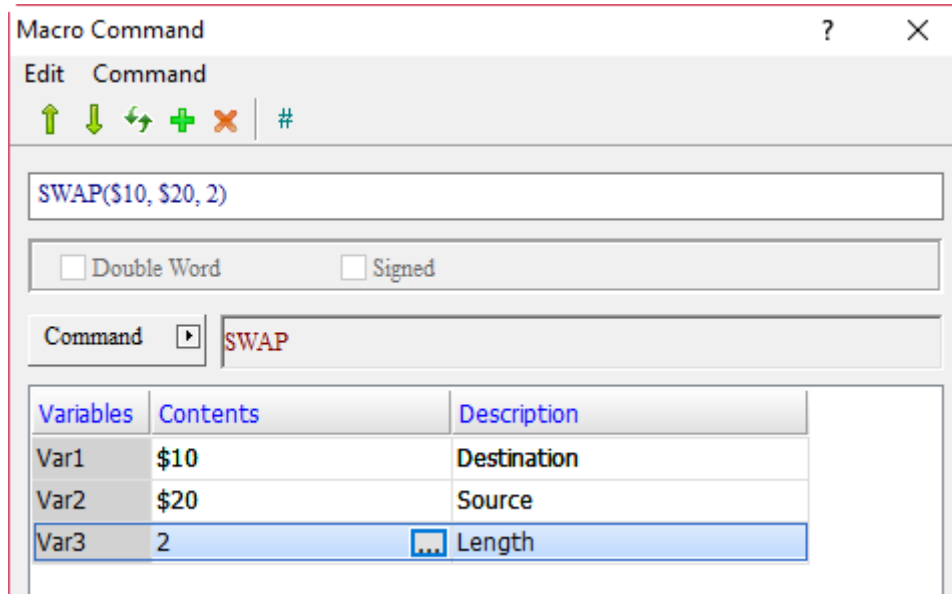
Expression	Meaning of variable		Note
SWAP(Var1, Var2, Var3) (W)	Var1	Destination Start Address	W: Word
	Var2	Source Start Address	
	Var3	Length	
	Description of action		
Convert Var3 lengths from Var2 start address and swap high and low bytes of Var2 Word data to Var1.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		
Var3	v		v

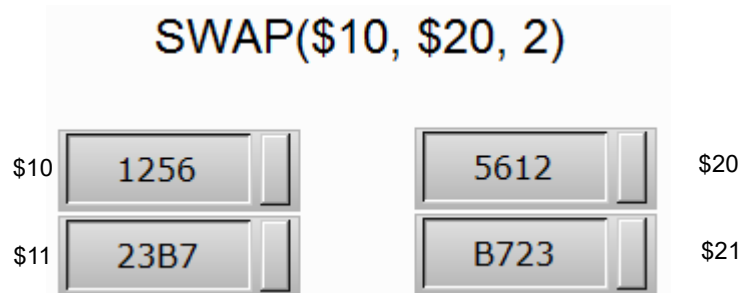
24

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- Swap high and low bytes of the value in \$20, and put them in \$10. Exchange 2 data lengths of values.
- The Data Format of \$10 and \$20 is set to Hex.
- Suppose \$20 = 5612H and \$21 = B723H, swap high and low bytes of the data in \$20 with the SWAP command and put them in \$10 and \$11. Accordingly, the data obtained are \$10 = 1256H and \$11 = 23B7H.



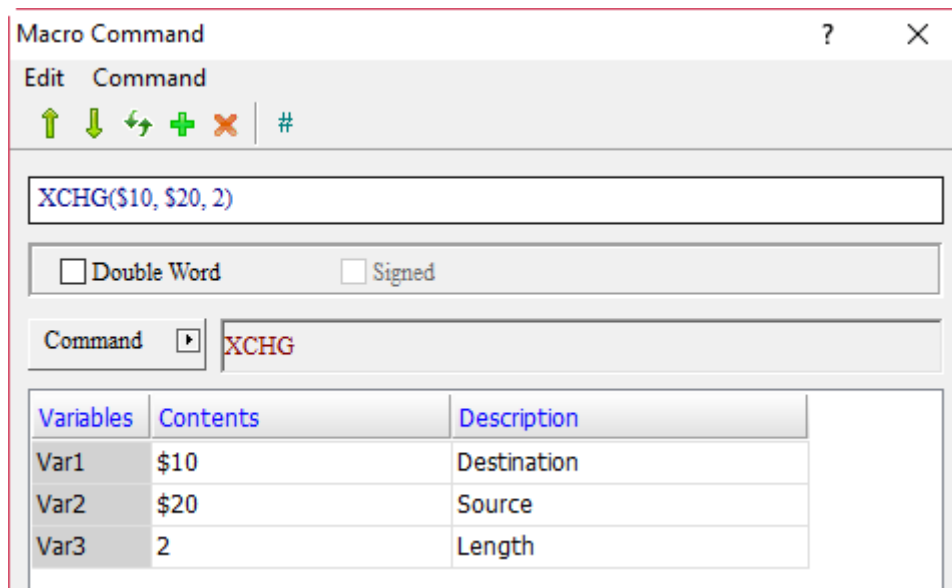
■ XCHG (exchange value data)

Expression	Meaning of variable		Note
XCHG(Var1, Var2, Var3) (W) XCHG(Var1, Var2, Var3) (DW)	Var1	Destination Start Address	W: Word DW: Double Word
	Var2	Source Start Address	
	Var3	Length	
	Description of action		
Exchange Var2 start address data to Var1 destination start address according to Var3 lengths.			

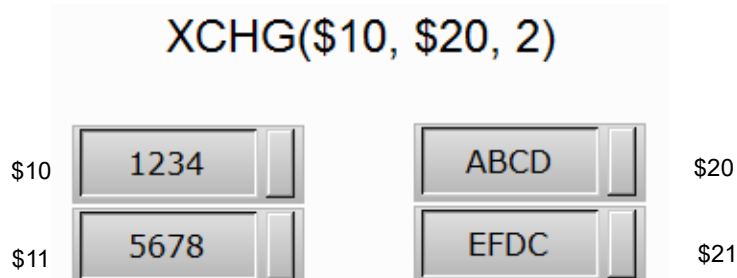
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		
Var3	v		v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- Exchange 2 data lengths of values in \$20 and \$10.
- The Data Formats of \$10 and \$27 is set to Hex.
- Suppose \$20 = 1234H, \$21 = 5678H, \$10 = ABCDH, and \$11 = EFDCH, exchange the data in \$20 and \$21 with the data in \$10 and \$11 with the SCHG command. Accordingly, the data obtained are \$20 = ABCDH, \$21 = EFDCH, \$10 = 1234H, and \$11 = 5678H.



24

■ MAX (get maximum)

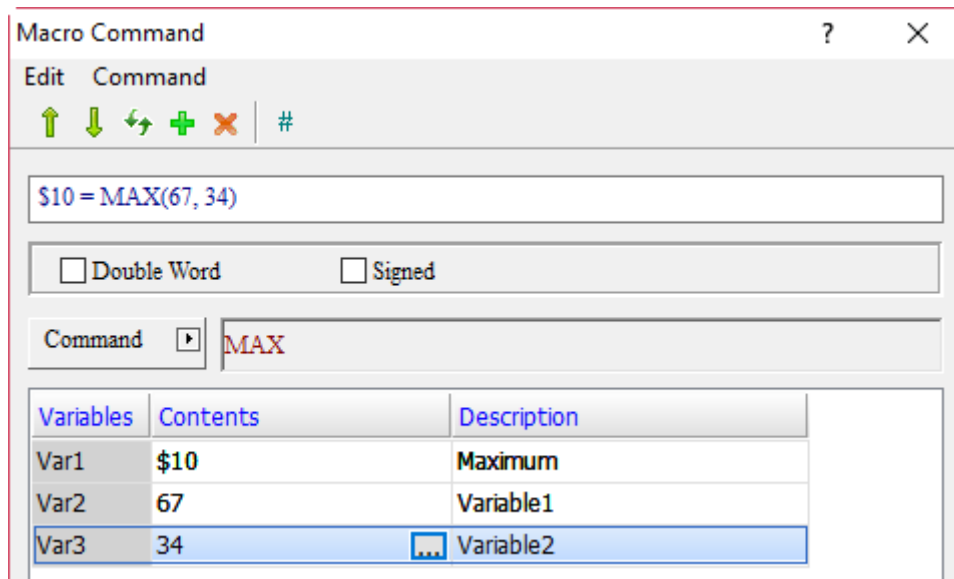
Expression	Meaning of variable		Note
		Var1		Maximum
	Var2	Variable1	W: Word DW: Double Word
	Var3	Variable2	
	Description of action		
	Take the maximum value of Var2 and Var3, and put it in Var1.		

Var1 = MAX(Var2, Var3) (W)
 Var1 = MAX(Var2, Var3) (DW)
 Var1 = MAX(Var2, Var3) (Signed W)
 Var1 = MAX(Var2, Var3) (Signed DW)

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v
Var3	v		v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- Put the maximum value of 67 and 34 in \$1, so \$1 = 67.

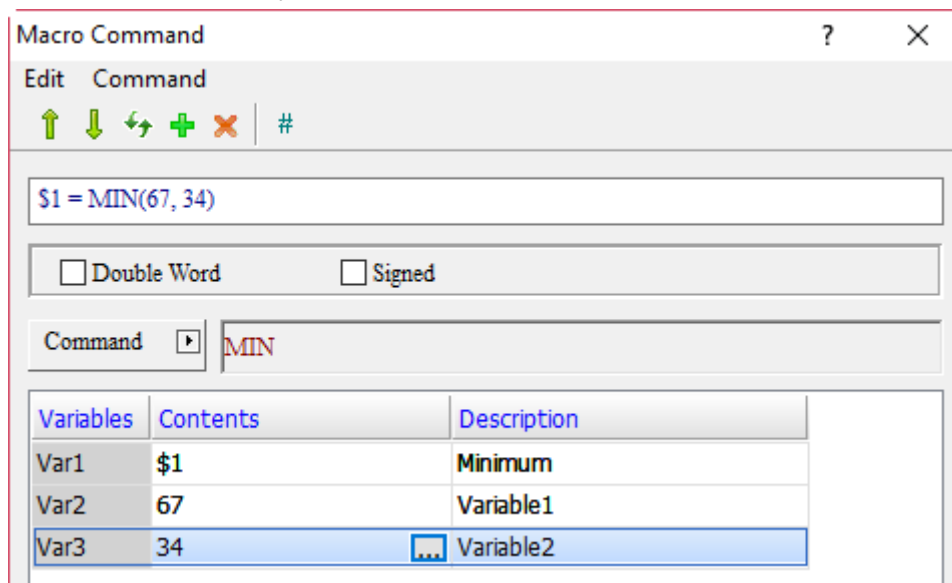
■ MIN (get minimum)

Expression	Meaning of variable		Note
Var1 = MIN(Var2, Var3) (W) Var1 = MIN(Var2, Var3) (DW) Var1 = MIN(Var2, Var3) (Signed W) Var1 = MIN(Var2, Var3) (Signed DW)	Var1	Minimum	W: Word DW: Double Word
	Var2	Variable1	
	Var3	Variable2	
	Description of action		
Take the minimum value of Var2 and Var3 and put it in Var1.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v
Var3	v		v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- Put the minimum value of 67 and 34 in \$1, so \$1 = 34.

24

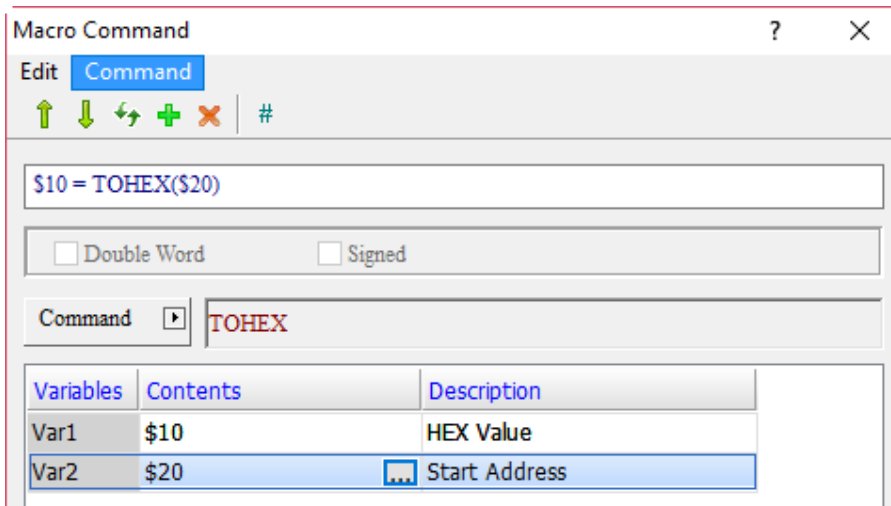
- TOHEX (convert 4 ASCII characters to HEX)

Expression	Meaning of variable		Note
Var1 = TOHEX(Var2) (W)	Var1	HEX Value	W: Word
	Var2	ASCII Start Address	
	Description of action		
		Convert 4 ASCII characters of WORD to HEX from Var2 and put it in Var1.	

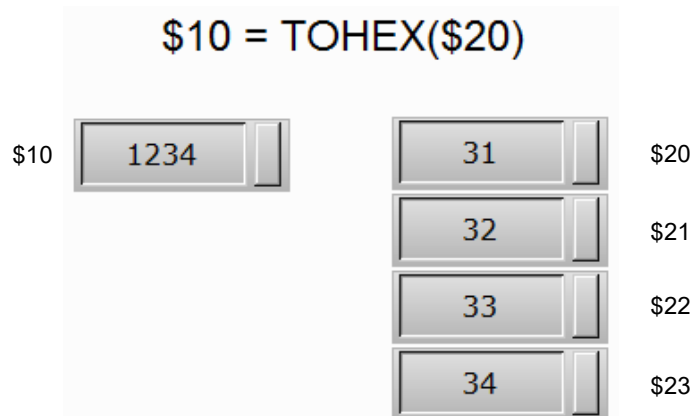
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		

Example

- Var1 and Var2 are internal memory addresses.



- Convert 4 consecutive ASCII characters of Word from the address of \$20 to HEX value and put it in \$10.
- The Data Format of \$10 and \$20 is set to Hex.
- Suppose \$20 = 31H, \$21 = 32H, \$22 = 33H, and \$23 = 34H, convert ASCII characters in \$20, \$21, \$22, and \$23 to HEX with the TOHEX command and put it in \$10. Accordingly, the data obtained is \$10 = 1234H.



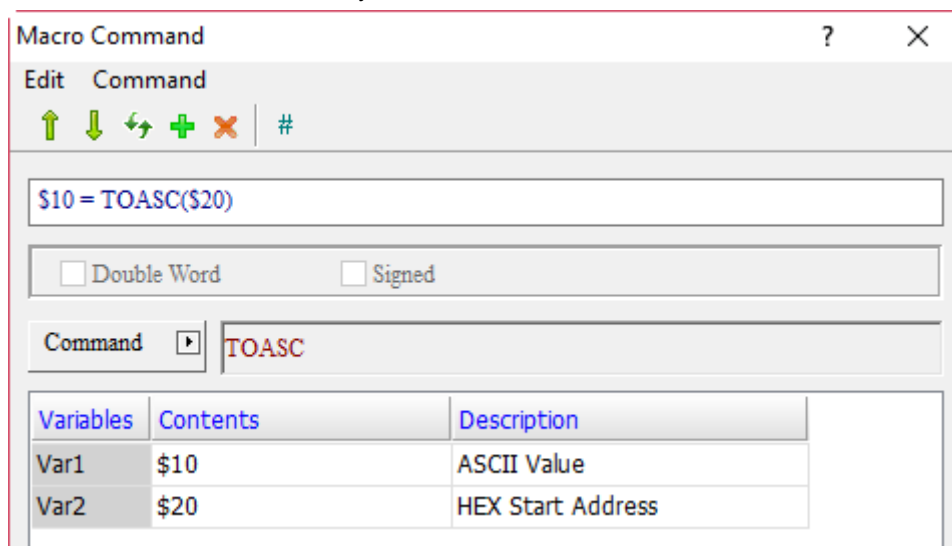
- TOASC (convert HEX to 4 ASCII characters of Word)

Expression	Meaning of variable		Note
Var1 = TOASC(Var2) (W)	Var1	ASCII Value	W: Word
	Var2	HEX Start Address	
	Description of action		
		Convert HEX from the address of Var2 to 4 ASCII characters of WORD and put them in Var1.	

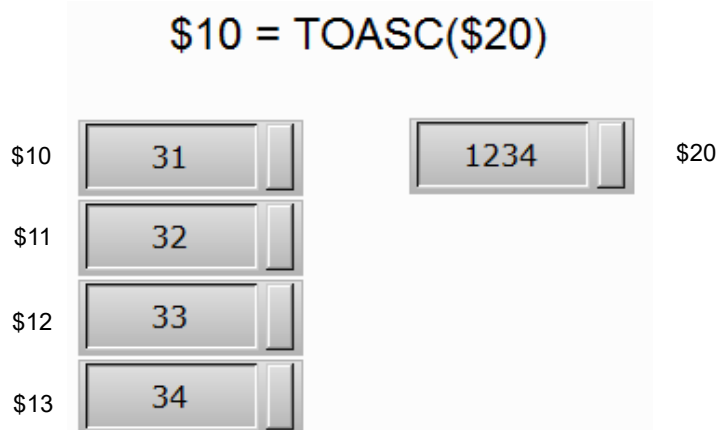
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		

Example

- Var1 and Var2 are internal memory addresses.



- Convert HEX value of \$20 into 4 consecutive ASCII characters of Word and put them in \$10.
- The Data Format of \$10 and \$20 is set to Hex.
- Suppose \$20 = 1234H, convert HEX in \$20 into ASCII characters with the TOASC command and put them in \$10, \$11, \$12, and \$13. Accordingly, the data obtained are \$10 = 31H, \$11 = 32H, \$12 = 33H, and \$13 = 34H.



24

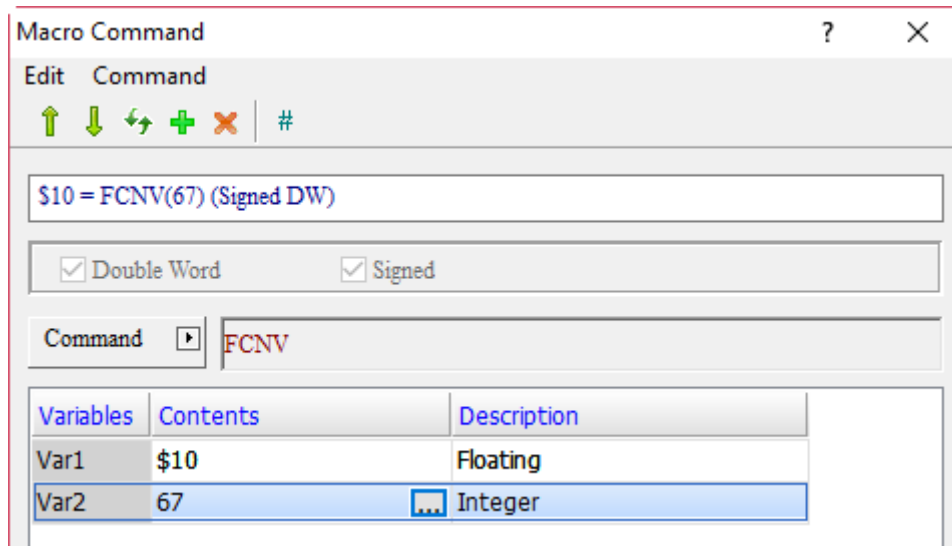
- FCNV (convert integer to floating-point number)

Expression	Meaning of variable		Note
Var1 = FCNV(Var2) (Signed DW)	Var1	Floating	DW: Double Word Signed: signed number
	Var2	Integer	
	Description of action		
		Convert the integer in Var2 to floating-point number and put it in Var1.	

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v

Example

- Var1 and Var2 are internal memory addresses.



- Convert the integer value of 67 to a floating-point value and put it in \$10.
- The Data Format set for \$10 is Floating and the Data Type is Double Word.
- The result after the HMI operation is \$10 = 67.0.

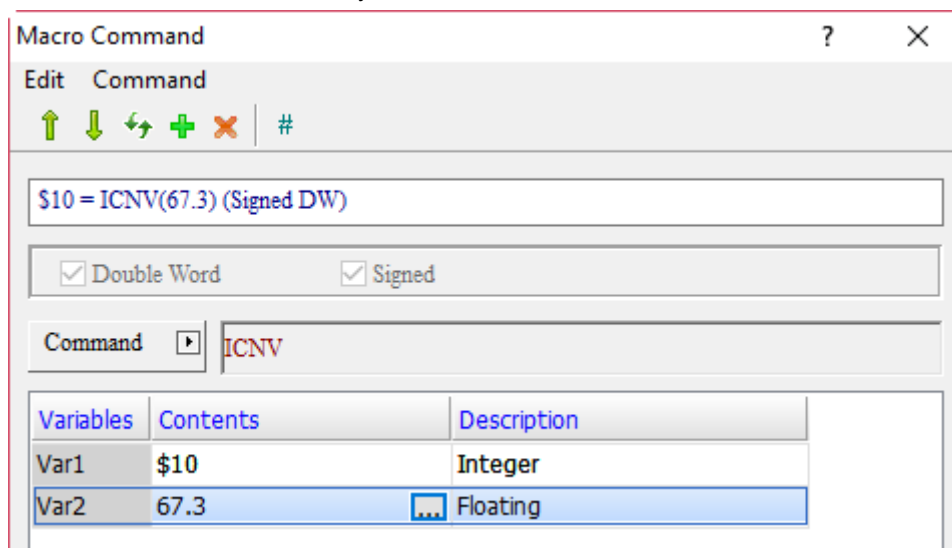
- ICNV (convert floating-point number to integer)

Expression	Meaning of variable		Note
Var1 = ICNV(Var2) (Signed DW)	Var1	Integer	DW; Double Word Signed: signed number
	Var2	Floating	
	Description of action		
		Convert the floating-point number in Var2 to integer and put it in Var1.	

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v

Example

- Var1 and Var2 are internal memory addresses.



- Convert the floating-point value of 67.3 into an integer value and put it in \$10.
- The Data Format set for \$10 is Unsigned Decimal, and the Data Type is Word.
- The result after the HMI operation is \$10 = 67.

24

■ SPRINTF (format string)

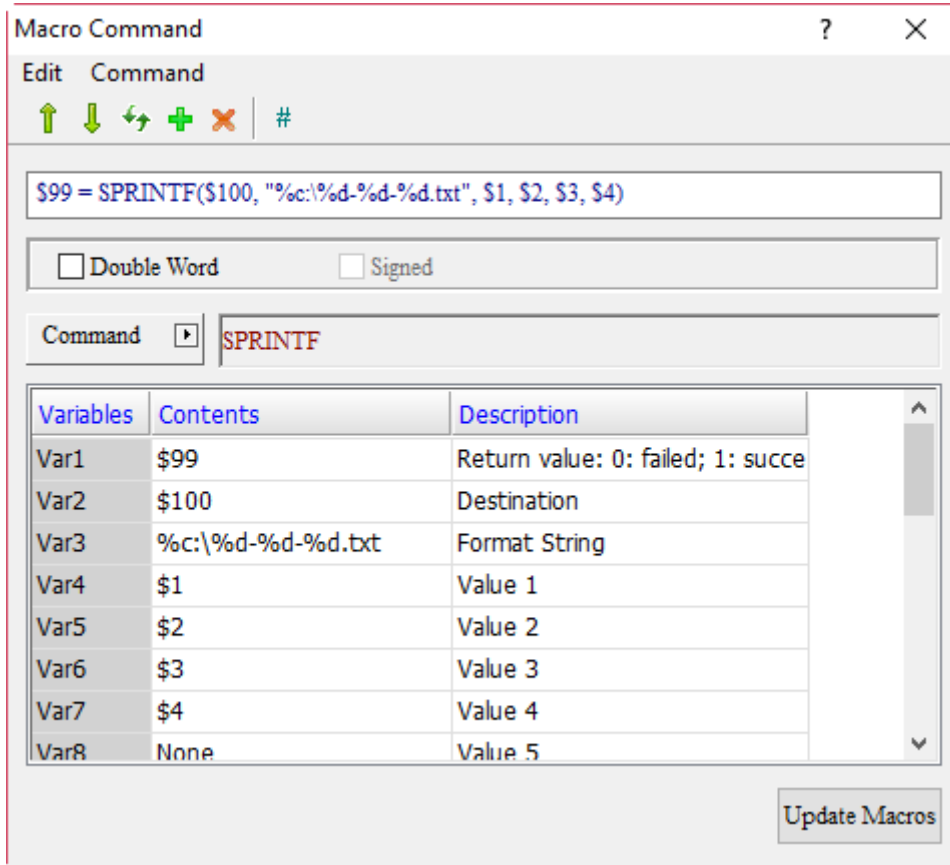
Expression	Meaning of variable		Note	
Var1 = SPRINTF(Var2, "%u", Var4) (DW) Var1 = SPRINTF (Var2, "%u", Var4, ..., Var23) (DW) (Note 2)	Var1	Return value		DW: Double Word
		Failed	0	
		Succeeded	1	
	Var2	Enter destination address of string		
	Var3	Format description string (Note 1)		
	Var4	Value 1		
		
	Var23	Value 20		
	Description of action			
		Connect the values according to Var2 "format description string" and fill in the destination address.		

Note:

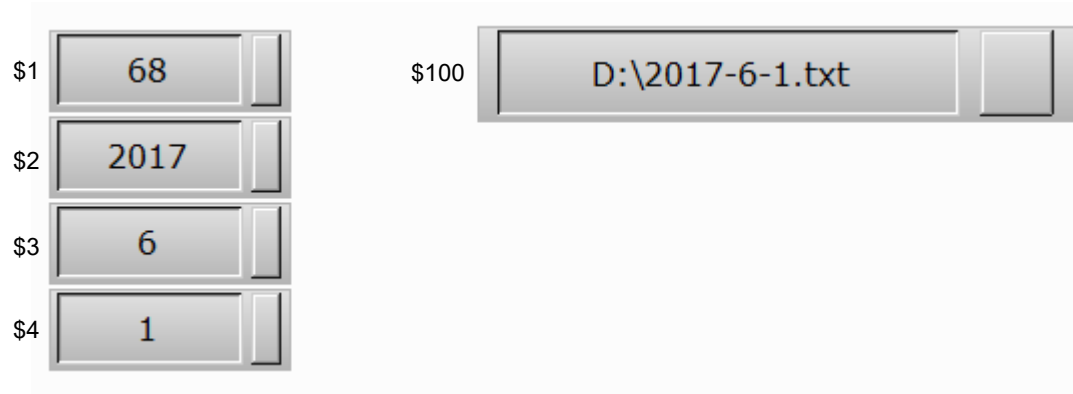
- The supporting string formats are as follows:
 %d: signed integer
 %u: unsigned integer
 %c: ASCII character
 %x: hexadecimal value
- Support up to 20 numeric variables.
- The number of the parameters of variable conversion in the string contents should be consistent with the number of values.

Variable	Type			
	Internal memory	PLC register	String	Constant
Var1	v			
Var2	v	v		
Var3			v	
Var4	v	v		v
...
Var23	v	v		v

Example



- Create a Character Entry element, set the address as \$100, and set the length as 20.
- Create Numeric Entry elements of \$1, \$2, \$3, and \$4.
- After downloading the screen to the HMI, enter \$1 = 68 (representing D in ASCII code), \$2 = 2017, \$3 = 6, and \$4 = 1 on the HMI. The results are as follows.



24

24.3.5 Comparison

Comparison contains IF... THEN GOTO, IF... THEN CALL, IF..., ELSEIF... and other comparison commands, as detailed as follows.

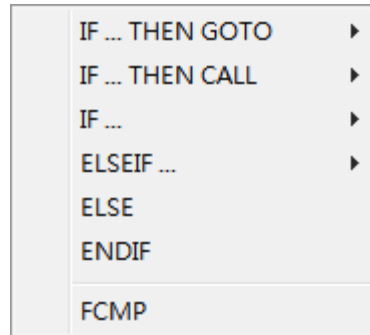


Figure 24.3.5.1 Comparison

- The nested structure of IF... supports up to 7 layers.

```

1 IF $10 == 10
2 IF $20 == $20
3 IF $30 == $30
4 IF $40 == $40
5 IF $50 == $50
6 IF $60 == $60
7 IF $70 == $70
8 ENDIF
9 ENDIF
10 ENDIF
11 ENDIF
12 ENDIF
13 ENDIF
14 ENDIF

```

- IF... THEN GOTO (if..., then execute according to the specified label name)

IF =	IF AND = 0
IF !=	IF AND != 0
IF >	IF = ON
IF >=	IF = OFF
IF <	IFB = ON
IF <=	IFB = OFF

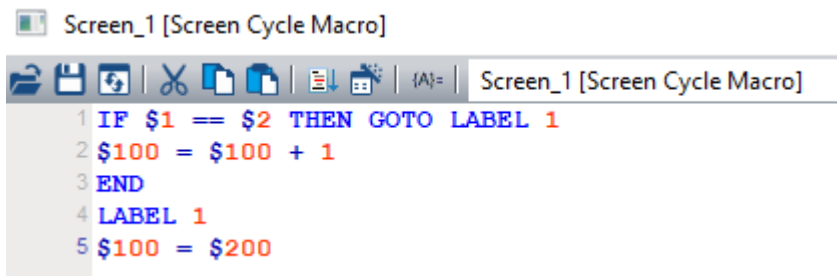
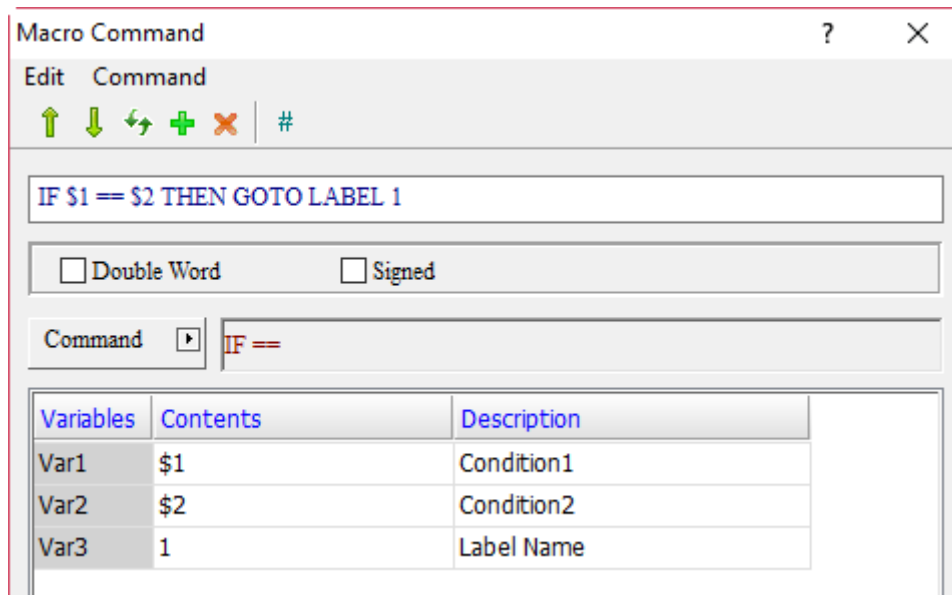
The following will introduce the 12 commands of the IF... THEN GOTO macro.

(1) IF ==			
Expression	Meaning of variable		Note
IF Var1 == Var2 THEN GOTO LABEL Var3 (W) IF Var1 == Var2 THEN GOTO LABEL Var3 (DW) IF Var1 == Var2 THEN GOTO LABEL Var3 (Signed W) IF Var1 == Var2 THEN GOTO LABEL Var3 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
	If Condition1 equals Condition2, then GOTO executes LABEL Var3.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- If the value of \$1 equals \$2, execute LABEL1 (\$100 = \$200); if \$1 does not equal \$2, then execute \$100 = \$100 + 1.

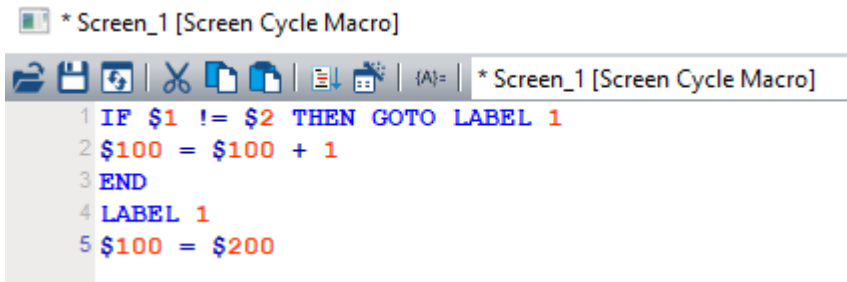
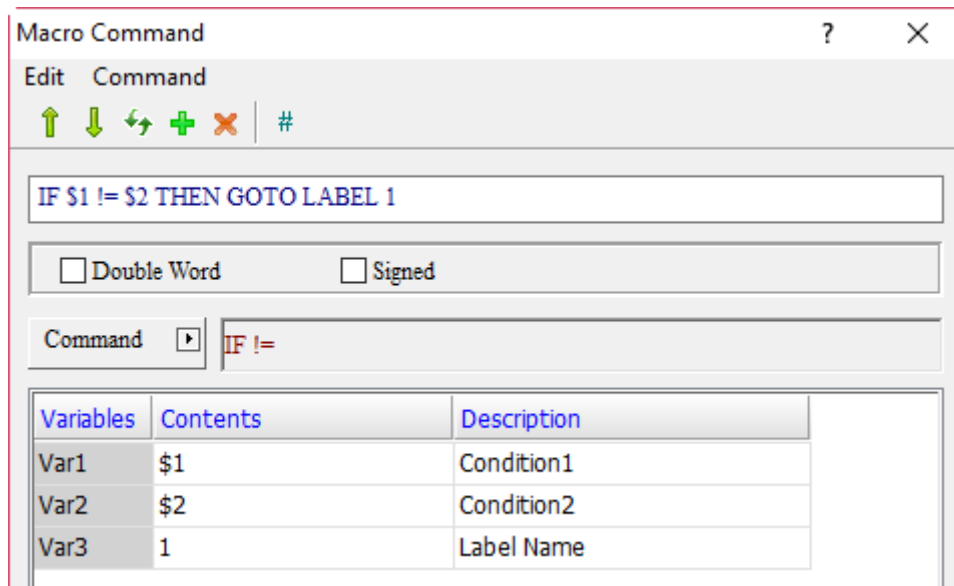
24

(2) IF !=			
Expression	Meaning of variable		Note
IF Var1 != Var2 THEN GOTO LABEL Var3 (W) IF Var1 != Var2 THEN GOTO LABEL Var3 (DW) IF Var1 != Var2 THEN GOTO LABEL Var3 (Signed W) IF Var1 != Var2 THEN GOTO LABEL Var3 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
	If Condition1 does not equal Condition2, then GOTO executes LABEL Var3.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



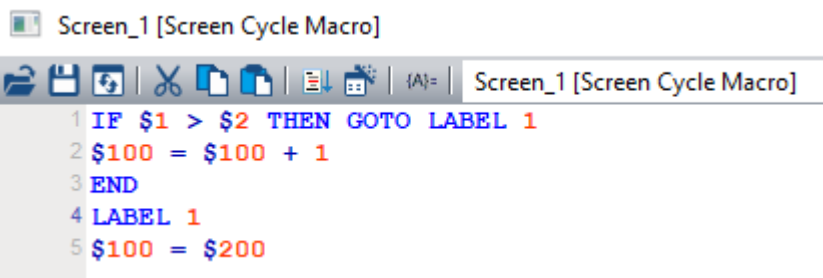
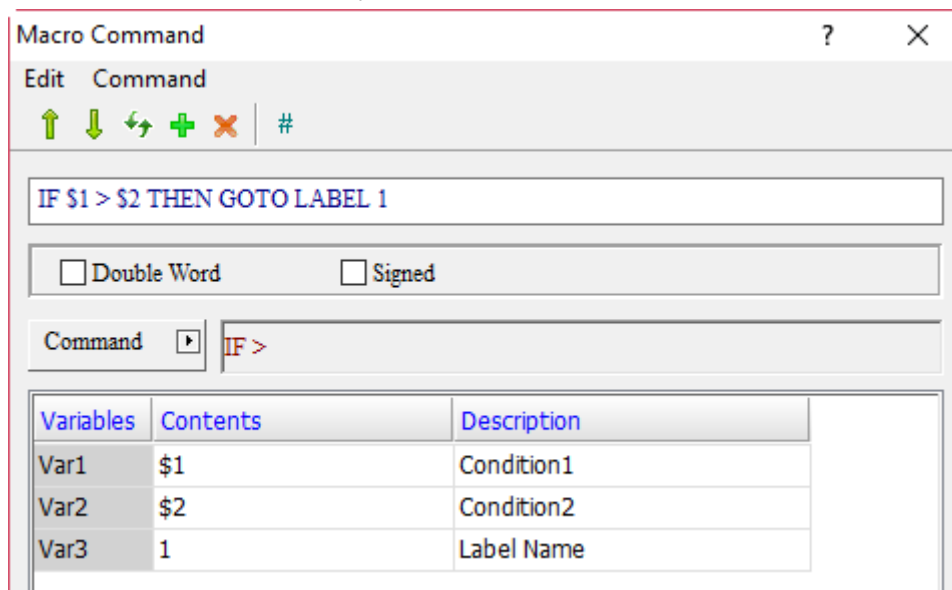
- If the value of \$1 does not equal \$2, execute LABEL1 (\$100 = \$200); if \$1 equals \$2, then execute \$100 = \$100 + 1.

(3) IF >			
Expression	Meaning of variable		Note
IF Var1 > Var2 THEN GOTO LABEL Var3 (W) IF Var1 > Var2 THEN GOTO LABEL Var3 (DW) IF Var1 > Var2 THEN GOTO LABEL Var3 (Signed W) IF Var1 > Var2 THEN GOTO LABEL Var3 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Var3	Label index name	
	Description of action		
		If Condition1 is greater than Condition2, then GOTO executes LABEL Var3.	

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- If the value of \$1 is greater than \$2, execute LABEL1 (\$100 = \$200); if \$1 is less than or equal to \$2, then execute \$100 = \$100 + 1.

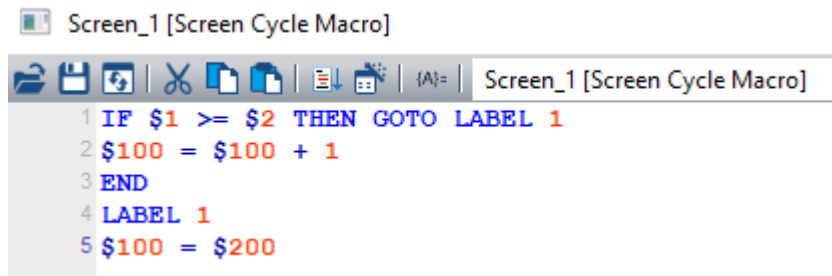
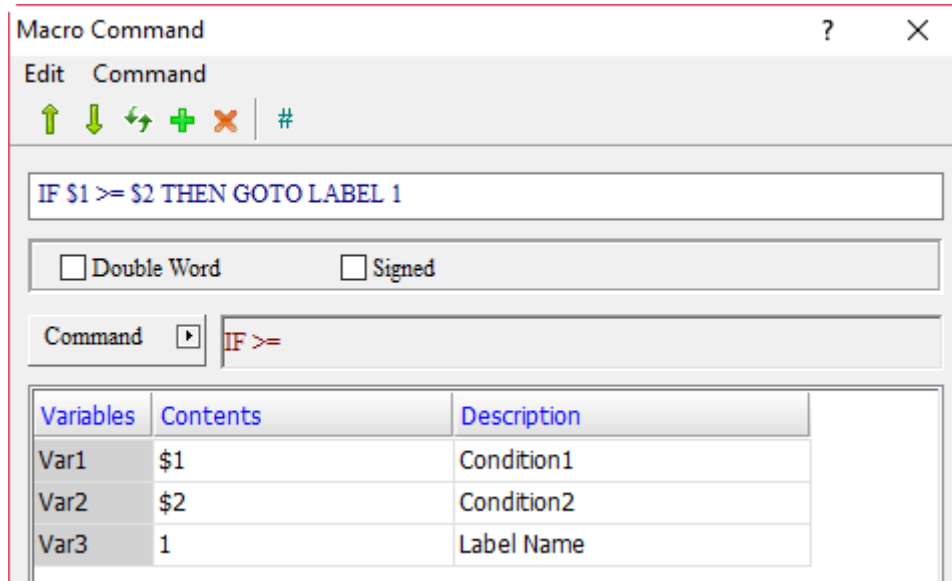
24

(4) IF >=			
Expression	Meaning of variable		Note
IF Var1 >= Var2 THEN GOTO LABEL Var3 (W) IF Var1 >= Var2 THEN GOTO LABEL Var3 (DW) IF Var1 >= Var2 THEN GOTO LABEL Var3 (Signed W) IF Var1 >= Var2 THEN GOTO LABEL Var3 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
		If Condition1 is greater than or equal to Condition 2, then GOTO executes LABEL Var3.	

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



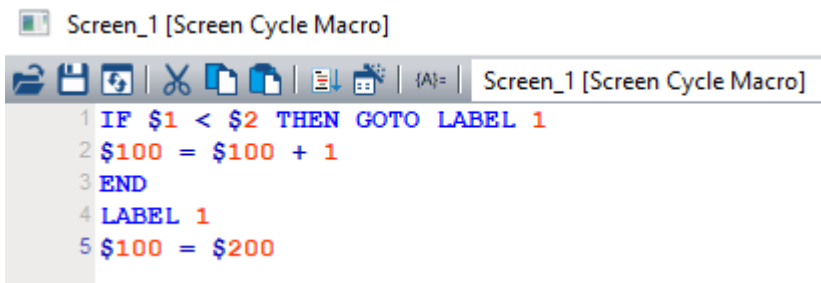
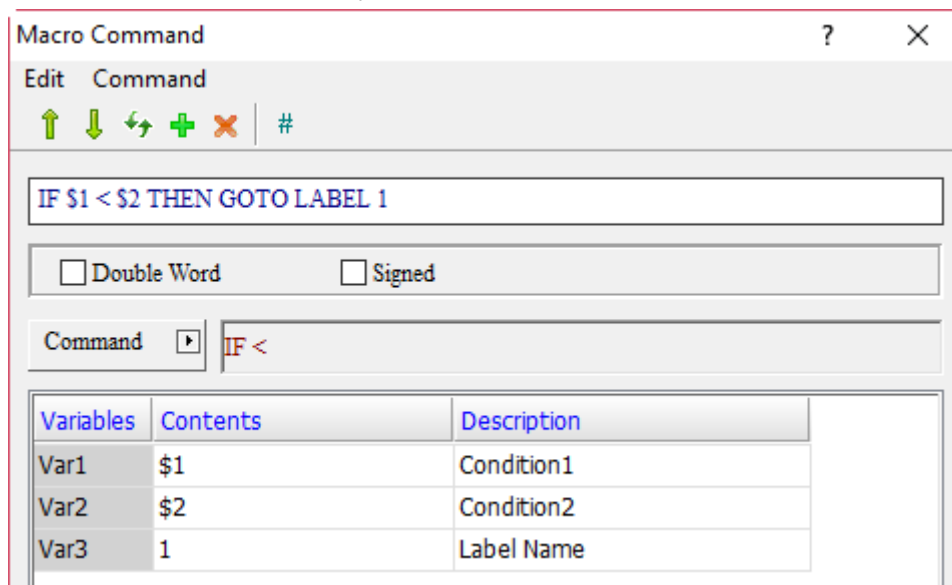
- If the value of \$1 is greater than or equal to \$2, execute LABEL1 (\$100 = \$200); if \$1 is less than \$2, then execute \$100 = \$100 + 1.

(5) IF <			
Expression	Meaning of variable		Note
IF Var1 < Var2 THEN GOTO LABEL Var3 (W) IF Var1 < Var2 THEN GOTO LABEL Var3 (DW) IF Var1 < Var2 THEN GOTO LABEL Var3 (Signed W) IF Var1 < Var2 THEN GOTO LABEL Var3 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
		If Condition1 is less than Condition2, then GOTO executes LABEL Var3.	

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- If the value of \$1 is less than \$2, execute LABEL1 (\$100 = \$200); If \$1 is greater than or equal to \$2, execute \$100 = \$100 + 1.

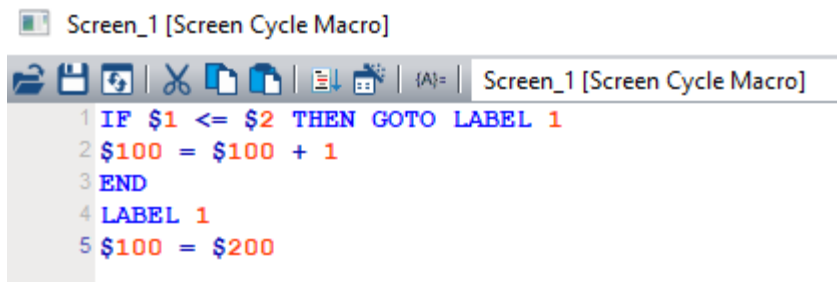
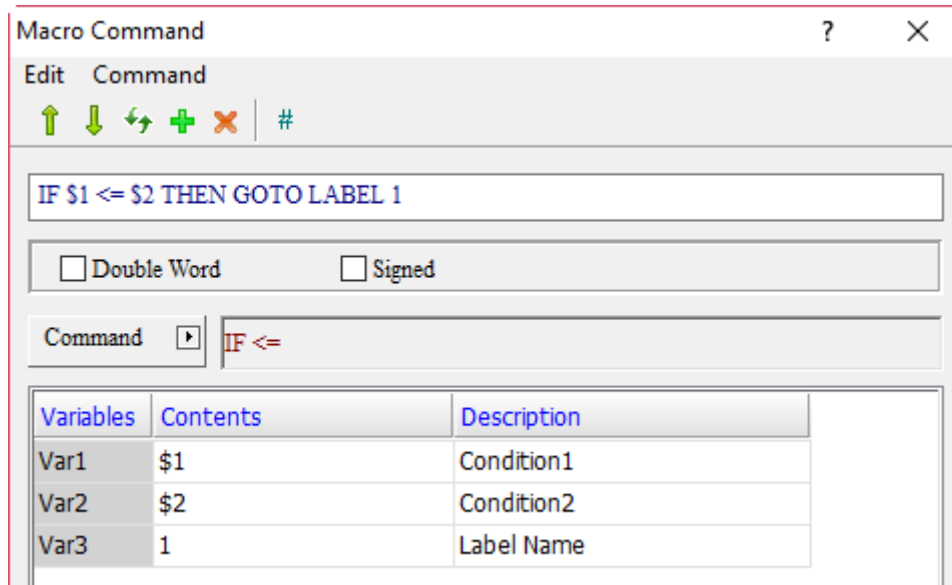
24

(6) IF <=			
Expression	Meaning of variable		Note
IF Var1 <= Var2 THEN GOTO LABEL Var3 (W) IF Var1 <= Var2 THEN GOTO LABEL Var3 (DW) IF Var1 <= Var2 THEN GOTO LABEL Var3 (Signed W) IF Var1 <= Var2 THEN GOTO LABEL Var3 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
	If Condition1 is less than or equal to Condition2, then GOTO executes LABEL Var3.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- If the value of \$1 is less than or equal to \$2, execute LABEL1 (\$100 = \$200); if \$1 is greater than \$2, then execute \$100 = \$100 + 1.

(7) IF AND == 0			
Expression	Meaning of variable		Note
IF (Var1 && Var2) == 0 THEN GOTO LABEL Var3 (W) IF (Var1 && Var2) == 0 THEN GOTO LABEL Var3 (DW)	Var1	Condition1	W: Word DW: Double Word
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
		If the result of AND operation on Condition1 and Condition2 is 0, then GOTO executes LABEL Var3.	

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.

- If the result of AND operation on \$1 and \$2 is 0, execute LABEL1 (\$100 = \$200); if the result of AND operation on \$1 and \$2 is not 0, then execute \$100 = \$100 + 1.

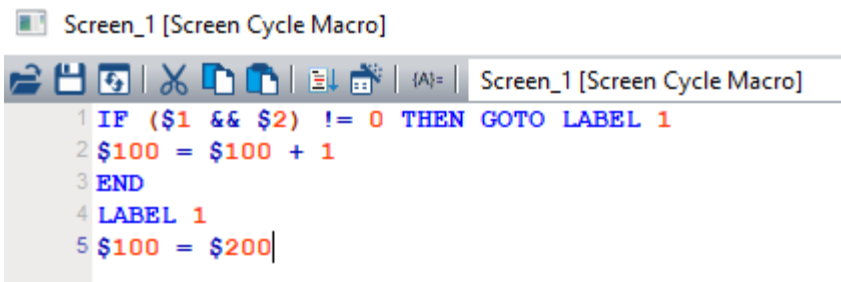
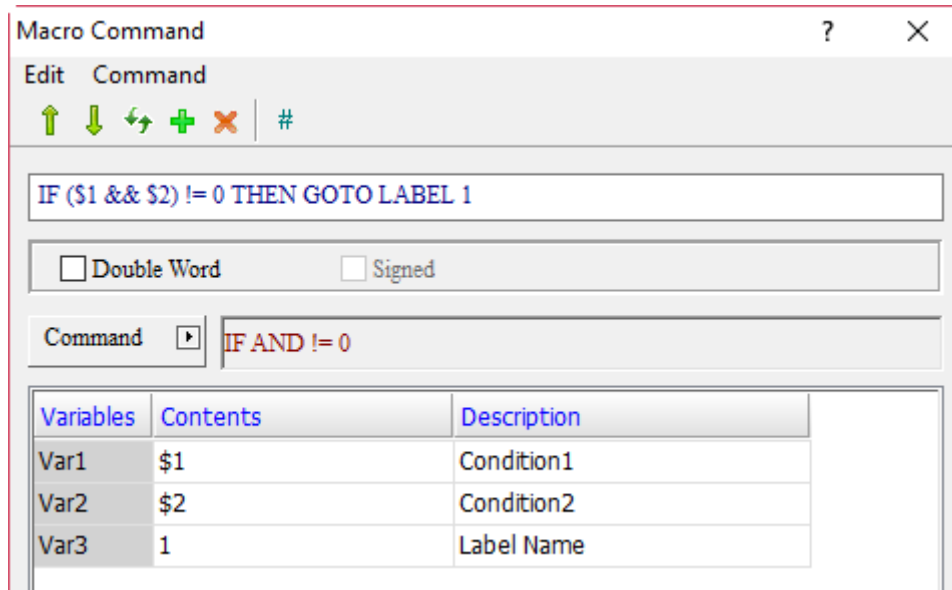
24

(8) IF AND != 0			
Expression	Meaning of variable		Note
IF (Var1 && Var2) != 0 THEN GOTO LABEL Var3 (W) IF (Var1 && Var2) != 0 THEN GOTO LABEL Var3 (DW)	Var1	Condition1	W: Word DW: Double Word
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
If the result after AND operation on Condition1 and Condition2 is not 0, then GOTO executes LABEL Var3.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



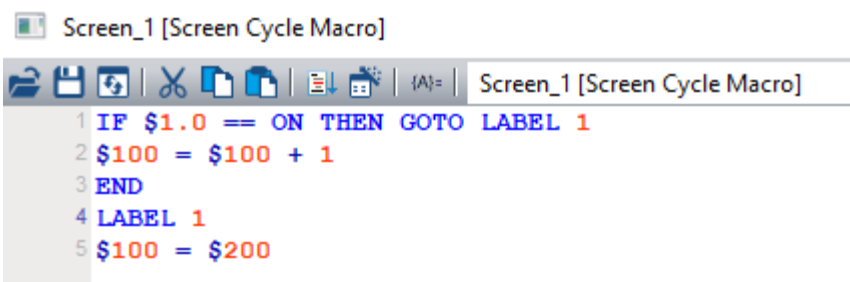
- If the result of AND operation on \$1 and \$2 is not 0, execute LABEL1 (\$100 = \$200); if the result of AND operation on \$1 and \$2 is 0, then execute \$100 = \$100 + 1.

(9) IF == ON			
Expression	Meaning of variable		Note
IF Var1 == ON THEN GOTO LABEL Var2 (W)	Var1	Condition1	W: Word
	Var2	Label Name	
	Description of action		
	If Condition1 is ON, then GOTO executes LABEL Var2.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)		
Var2			v

Example

- Var1 is the internal memory address and Var2 is a constant.



- If \$1.0 is ON, execute LABEL1 (\$100 = \$200); if \$1.0 is not ON, then execute \$100 = \$100 + 1.

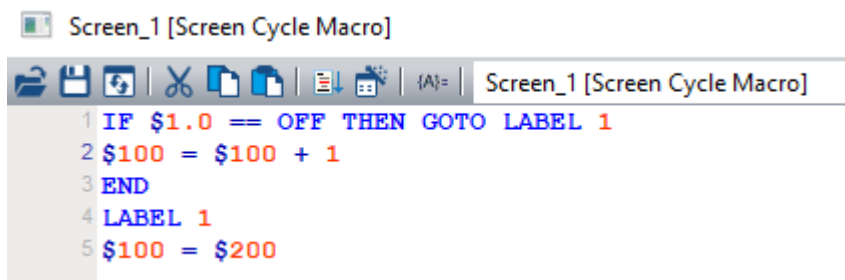
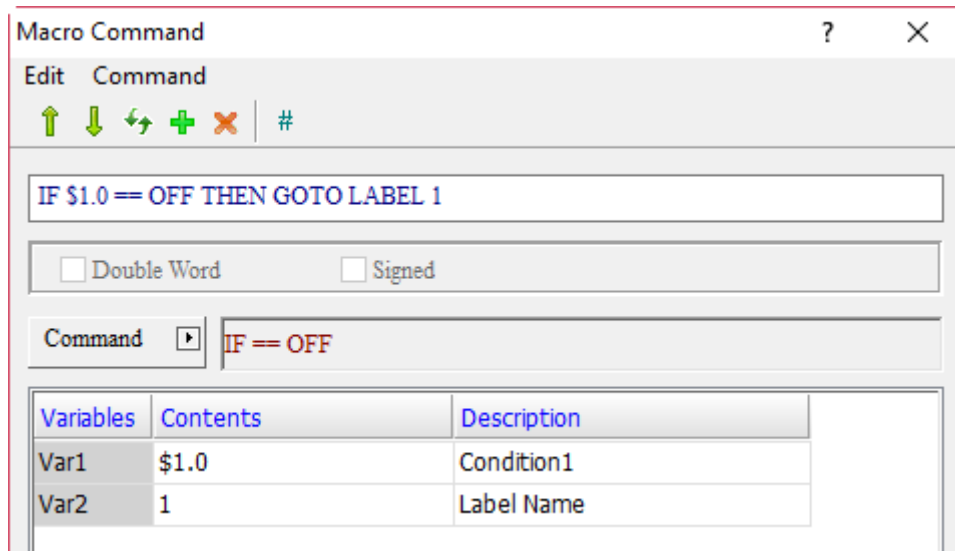
24

(10) IF == OFF			
Expression	Meaning of variable		Note
IF Var1 == OFF THEN GOTO LABEL Var2 (W)	Var1	Condition1	W: Word
	Var2	Label Name	
	Description of action		
	If Condition1 is OFF, then GOTO executes LABEL Var2.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)		
Var2			v

Example

- Var1 is the internal memory address and Var2 is a constant.



- If \$1.0 is OFF, execute LABEL1 (\$100 = \$200); if \$1.0 is not OFF, then execute \$100 = \$100 + 1.

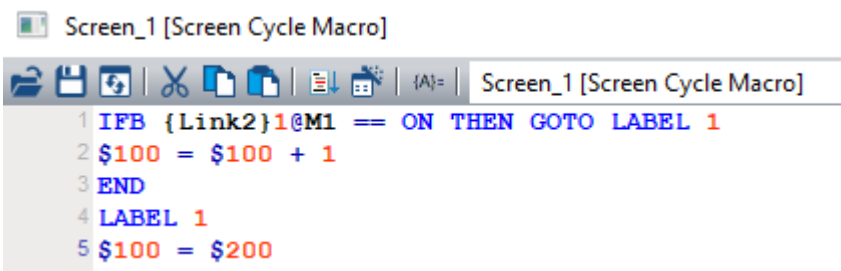
(11) IFB == ON			
Expression	Meaning of variable		Note
IFB Var1 == ON THEN GOTO LABEL Var2 (W)	Var1	Condition1	W: Word
	Var2	Label Name	
	Description of action		
	If Condition1 is ON, then GOTO executes LABEL Var2.		

Note: for the IFB == ON command, its Bit address of Var1 can support the setting of external PLC register.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)	v (can only be Bit)	
Var2			v

Example

- Var1 is the address of PLC register and Var2 is a constant.



- If M1 is ON, execute LABEL1 (\$100 = \$200); if M1 is not ON, then execute \$100 = \$100 + 1.

24

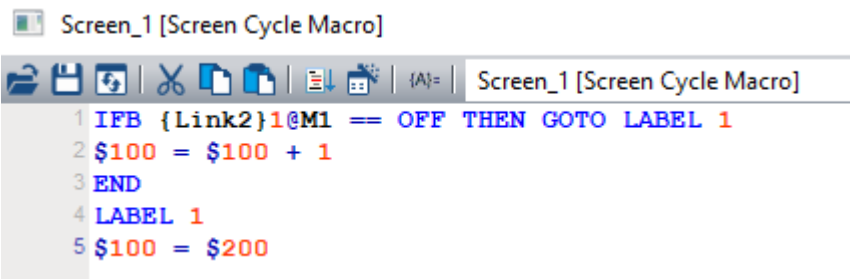
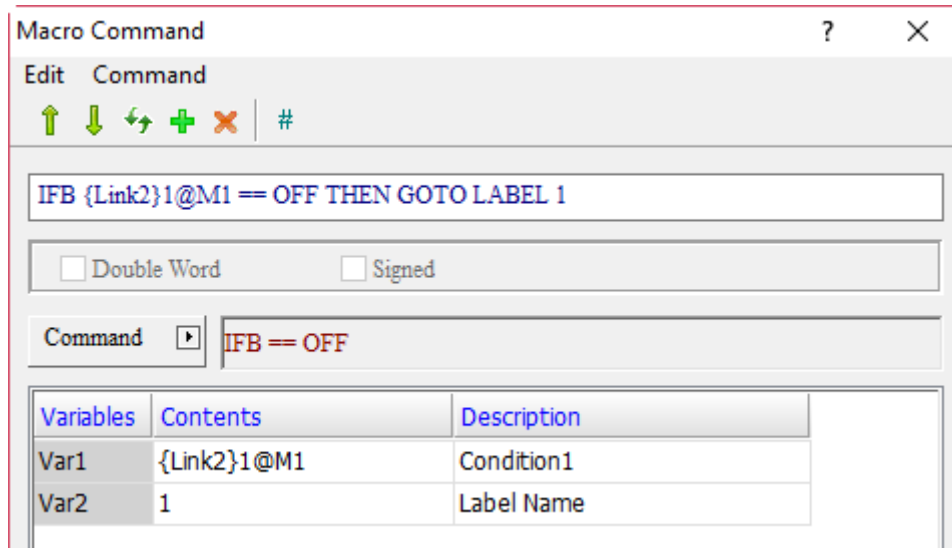
(12) IFB == OFF			
Expression	Meaning of variable		Note
IFB Var1 == OFF THEN GOTO LABEL Var2 (W)	Var1	Condition1	W: Word
	Var2	Label Name	
	Description of action		
	If Condition 1 is OFF, then GOTO executes LABEL Var2.		

Note: for the IFB == OFF command, its Bit address of Var1 can support the setting of external PLC register.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)	v (can only be Bit)	
Var2			v

Example

- Var1 is the address of PLC register and Var2 is a constant.



- If M1 is OFF, execute LABEL1 (\$100 = \$200); if M1 is not OFF, then execute \$100 = \$100 + 1.

■ IF... THEN CALL (If...call submacro)

```

IF == CALL
IF != CALL
IF > CALL
IF >= CALL
IF < CALL
IF <= CALL
IF AND == 0 CALL
IF AND != 0 CALL
IF == ON CALL
IF == OFF CALL
    
```

The following will introduce the 10 commands of the IF... THEN CALL macro.

(1) IF ==			
Expression	Meaning of variable		Note
IF Var1 == Var2 THEN CALL Var3 (W) IF Var1 == Var2 THEN CALL Var3 (DW) IF Var1 == Var2 THEN CALL Var3 (Signed W) IF Var1 == Var2 THEN CALL Var3 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
	If Condition1 equals Condition2, then call Submacro Var3.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.

Variables	Contents	Description
Var1	\$1	Condition1
Var2	\$2	Condition2
Var3	1	Call Submacro

```

1 $100 = $200
2 END
    
```

```

1 IF $1 == $2 THEN CALL 1
2 $100 = $100 + 1
3 END
    
```

- If the value of \$1 equals \$2, call Submacro 1 (\$100 = \$200); if \$1 does not equal \$2, then execute \$100 = \$100 + 1.

(2) IF !=			
Expression	Meaning of variable		Note
IF Var1 != Var2 THEN CALL Var3 (W) IF Var1 != Var2 THEN CALL Var3 (DW) IF Var1 != Var2 THEN CALL Var3 (Signed W) IF Var1 != Var2 THEN CALL Var3 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
	If Condition1 does not equal Condition2, call Submacro Var3.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.

Variables	Contents	Description
Var1	\$1	Condition1
Var2	\$2	Condition2
Var3	1	Call Submacro

```
1 $100 = $200
2 END
```

```
1 IF $1 != $2 THEN CALL 1
2 $100 = $100 + 1
3 END
```

- If the value of \$1 does not equal \$2, call Submacro 1 (\$100 = \$200); if \$1 equals \$2, then execute \$100 = \$100 + 1.

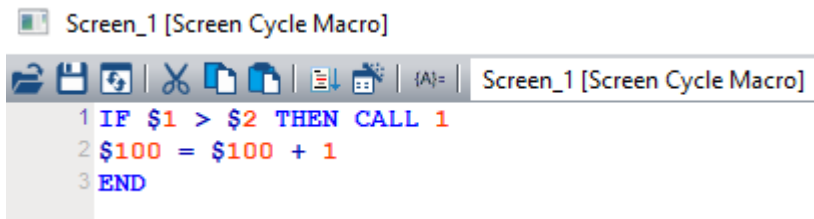
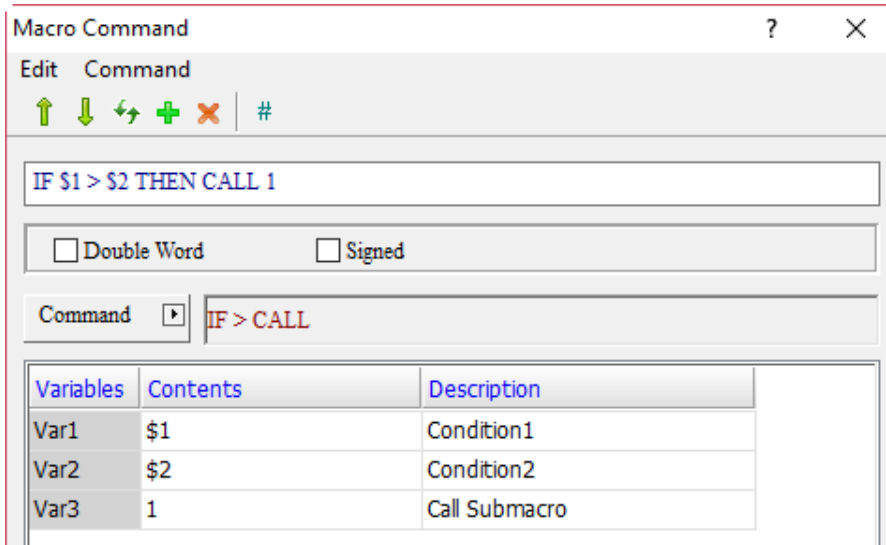
24

(3) IF >			
Expression	Meaning of variable		Note
IF Var1 > Var2 THEN CALL Var3 (W)	Var1	Condition 1	W: Word DW: Double Word Signed: signed number
IF Var1 > Var2 THEN CALL Var3 (DW)	Var2	Condition2	
IF Var1 > Var2 THEN CALL Var3 (Signed W)	Var3	Label Name	
IF Var1 > Var2 THEN CALL Var3 (Signed DW)	Description of action		
	If Condition1 is greater than Condition2, call Submacro Var3.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



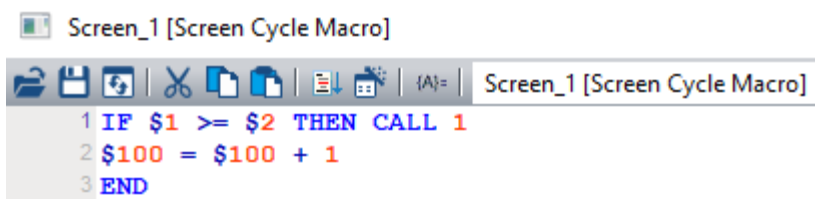
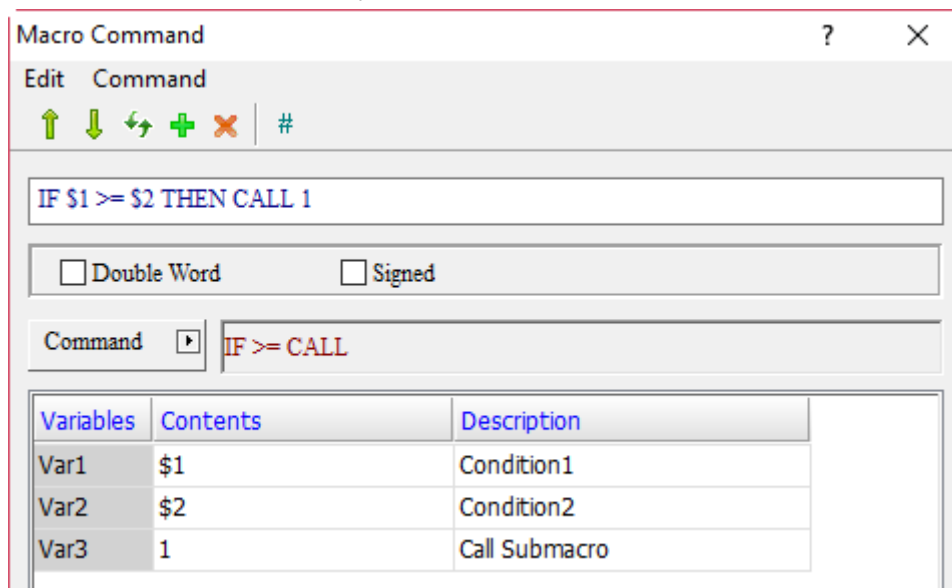
- If the value of \$1 is greater than \$2, call Submacro 1 (\$100 = \$200); if \$1 is less than or equal to \$2, then execute \$100 = \$100 + 1.

(4) IF >=			
Expression	Meaning of variable		Note
IF Var1 >= Var2 THEN CALL Var3 (W) IF Var1 >= Var2 THEN CALL Var3 (DW) IF Var1 >= Var2 THEN CALL Var3 (Signed W) IF Var1 >= Var2 THEN CALL Var3 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
	If Condition1 is greater than or equal to Condition2, call Submacro Var3.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- If the value of \$1 is greater than or equal to \$2, call Submacro 1 (\$100 = \$200); if \$1 is less than \$2, then execute \$100 = \$100 + 1.

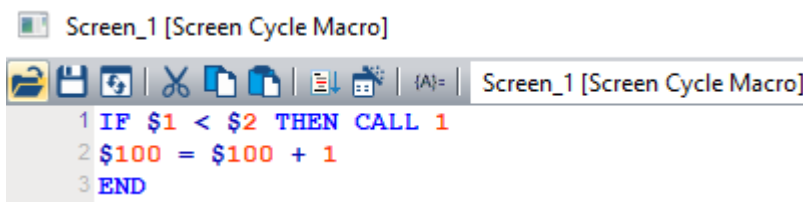
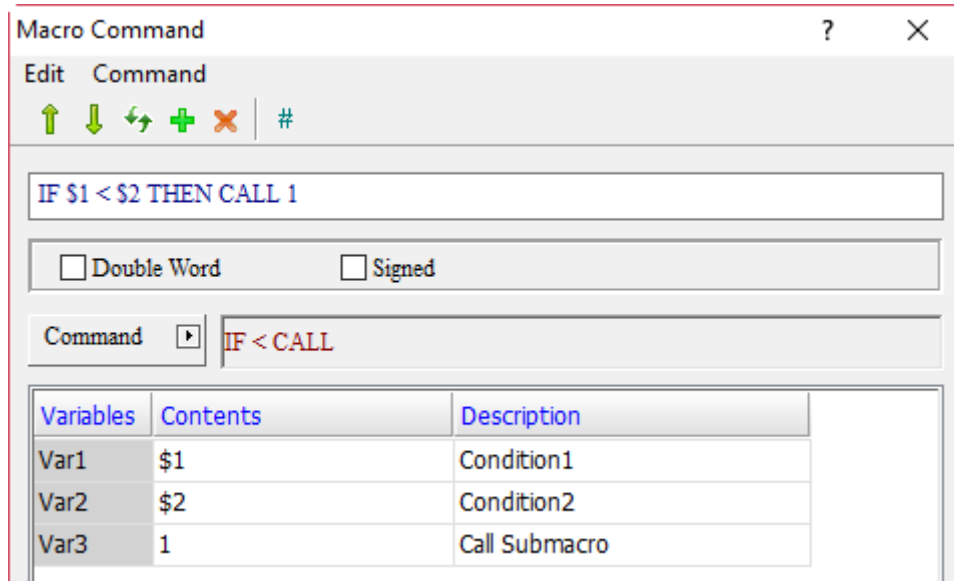
24

(5) IF <			
Expression	Meaning of variable		Note
IF Var1 < Var2 THEN CALL Var3 (W)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
IF Var1 < Var2 THEN CALL Var3 (DW)	Var2	Condition2	
IF Var1 < Var2 THEN CALL Var3 (Signed W)	Var3	Label Name	
IF Var1 < Var2 THEN CALL Var3 (Signed DW)	Description of action		
	If Condition1 is less than Condition2, call Submacro Var3.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



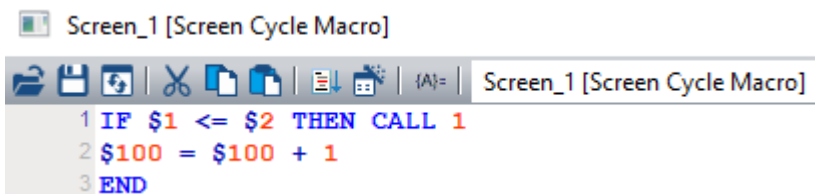
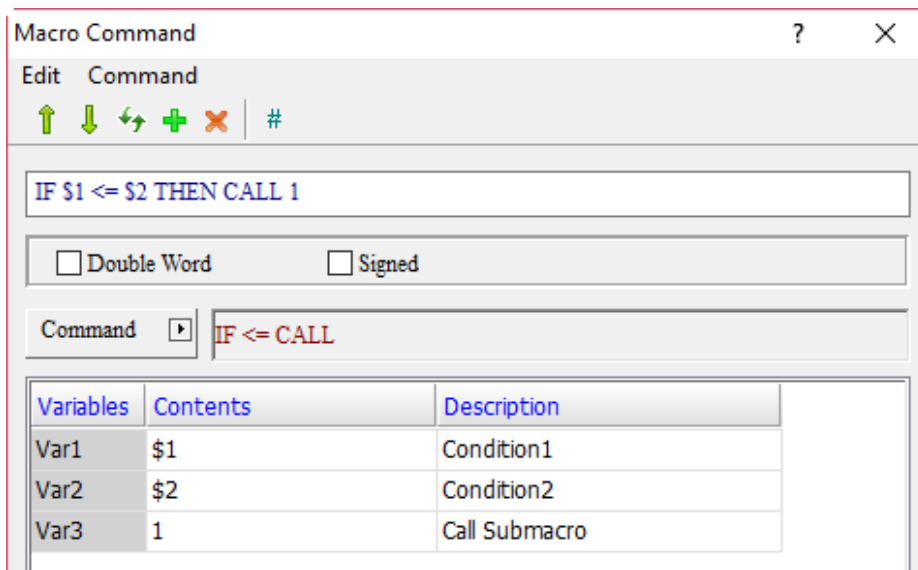
- If the value of \$1 is less than \$2, call Submacro 1 (\$100 = \$200); if \$1 is greater than or equal to \$2, then execute \$100 = \$100 + 1.

(6) IF <=			
Expression	Meaning of variable		Note
IF Var1 <= Var2 THEN CALL Var3 (W) IF Var1 <= Var2 THEN CALL Var3 (DW) IF Var1 <= Var2 THEN CALL Var3 (Signed W) IF Var1 <= Var2 THEN CALL Var3 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
	If Condition1 is less than or equal to Condition2, call Submacro Var3.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- If the value of \$1 is less than or equal to \$2, call Submacro 1 (\$100 = \$200); if \$1 is greater than \$2, then execute \$100 = \$100 + 1.

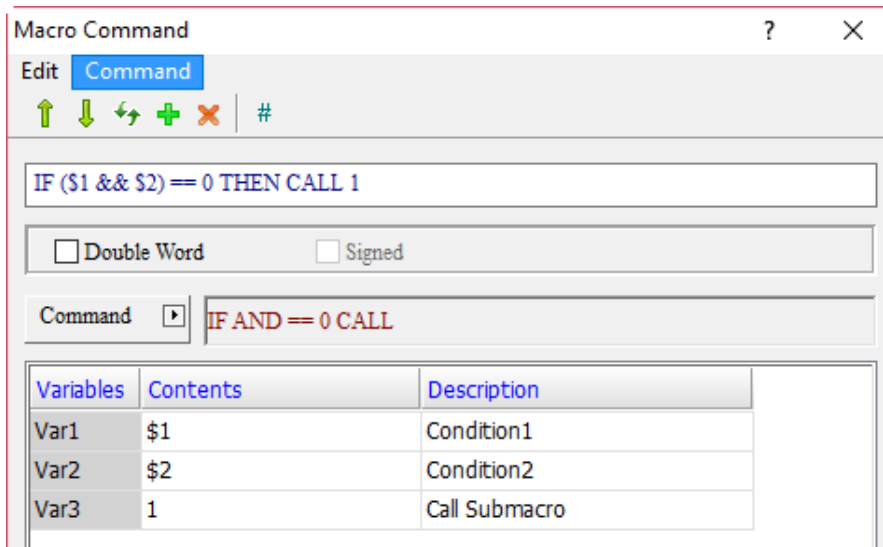
24

(7) IF AND == 0			
Expression	Meaning of variable		Note
IF (Var1 && Var2) == 0 THEN CALL Var3 (W) IF (Var1 && Var2) == 0 THEN CALL Var3 (DW)	Var1	Condition1	W: Word DW: Double Word
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
	If the result of the AND operation on Condition1 and Condition2 is 0, call Submacro Var3.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



Macro Command

Edit Command

IF (\$1 && \$2) == 0 THEN CALL 1

Double Word Signed

Command: IF AND == 0 CALL

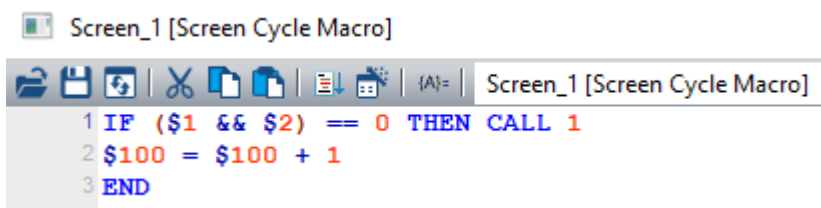
Variables	Contents	Description
Var1	\$1	Condition1
Var2	\$2	Condition2
Var3	1	Call Submacro



[Submacro 1]

1 \$100 = \$200

2 END



Screen_1 [Screen Cycle Macro]

1 IF (\$1 && \$2) == 0 THEN CALL 1

2 \$100 = \$100 + 1

3 END

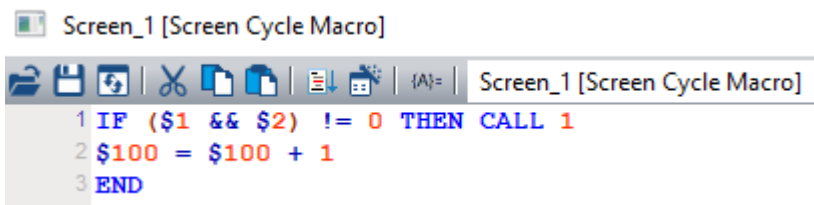
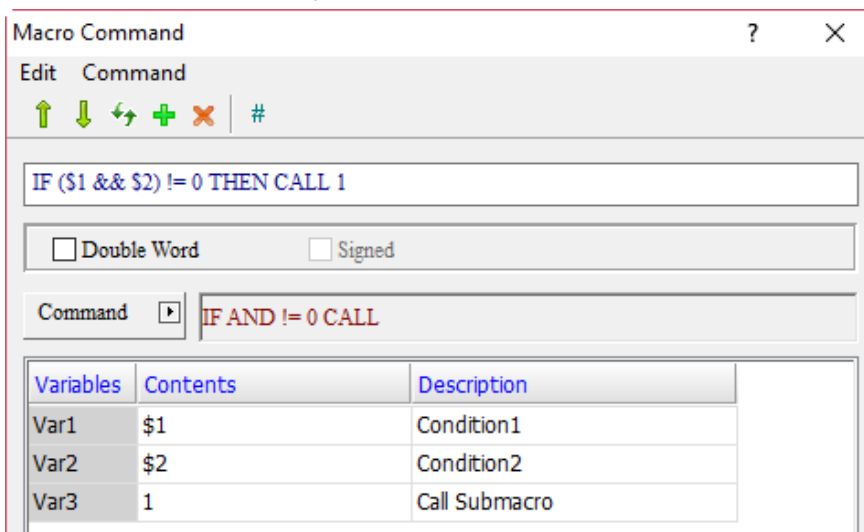
- If the result of the AND operation on \$1 and \$2 is 0, call Submacro 1 (\$100 = \$200); if the result of the AND operation on \$1 and \$2 is not 0, then execute \$100 = \$100 + 1.

(8) IF AND != 0			
Expression	Meaning of variable		Note
IF (Var1 && Var2) != 0 THEN CALL Var3 (W) IF (Var1 && Var2) != 0 THEN CALL Var3 (DW)	Var1	Condition1	W: Word DW: Double Word
	Var2	Condition2	
	Var3	Label Name	
	Description of action		
		If the result of the AND operation on Condition1 and Condition2 is not 0, call Submacro Var3.	

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- If the result of the AND operation on \$1 and \$2 is not 0, call Submacro 1 (\$100 = \$200); if the result of the AND operation on \$1 and \$2 is 0, then execute \$100 = \$100 + 1.

24

(9) IF == ON			
Expression	Meaning of variable		Note
IF Var1 == ON THEN CALL Var2 (W)	Var1	Condition1	W: Word
	Var2	Label Name	
	Description of action		
	If Condition1 is ON, call Submacro Var2.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)		
Var2			v

Example

- Var1 is the internal memory address and Var2 is a constant.

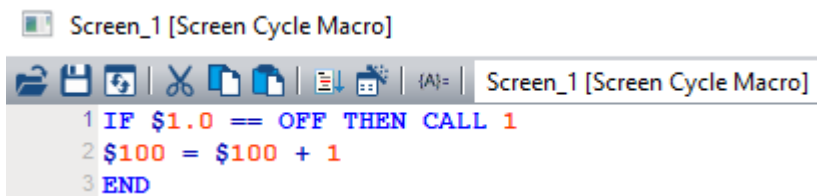
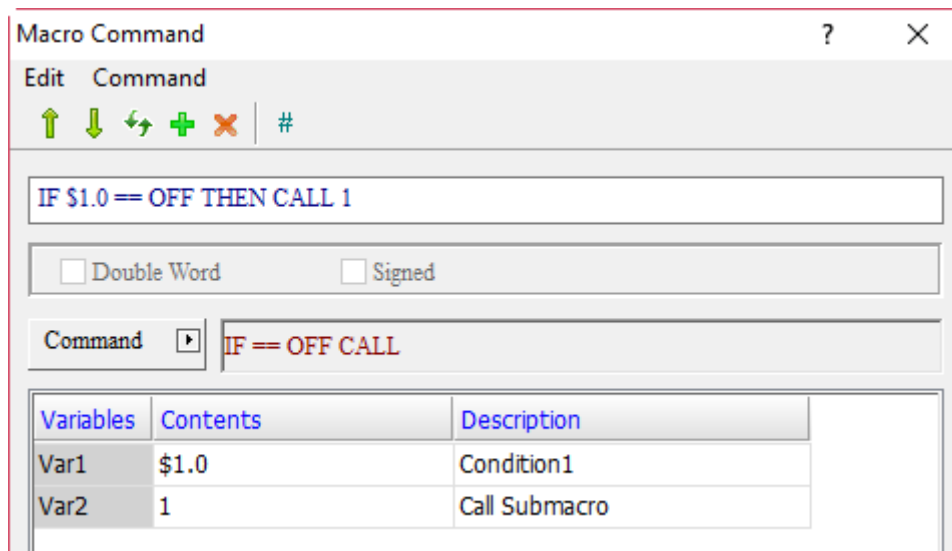
- If \$1.0 is ON, call Submacro 1 (\$100 = \$200); if \$1.0 is not ON, then execute \$100 = \$100 + 1.

(10) IF == OFF			
Expression	Meaning of variable		Note
IF Var1 == OFF THEN CALL Var2 (W)	Var1	Condition1	W: Word
	Var2	Label Name	
	Description of action		
	If Condition1 is OFF, call Submacro Var2.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)		
Var2			v

Example

- Var1 is the internal memory address and Var2 is a constant.



- If \$1.0 is OFF, call Submacro 1 (\$100 = \$200); if \$1.0 is not OFF, then execute \$100 = \$100 + 1.

■ IF... (If...)

```

IF ==
IF !=
IF >
IF >=
IF <
IF <=
IF AND == 0
IF AND != 0
IF = ON
IF = OFF
    
```

The following will introduce the 10 commands of the IF... macro.

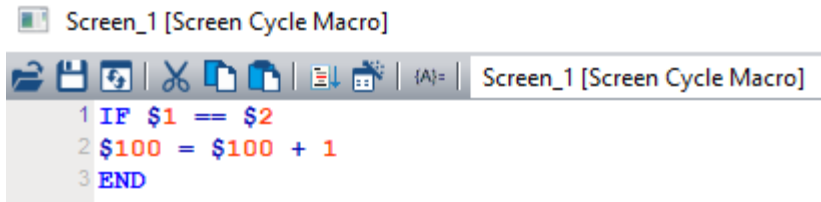
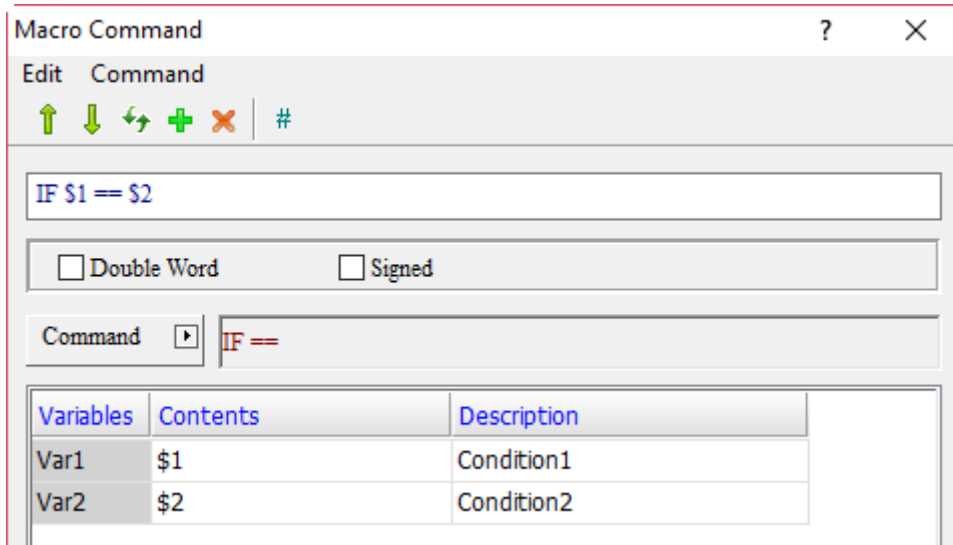
(1) IF ==			
Expression	Meaning of variable		Note
IF Var1 == Var2 (W) IF Var1 == Var2 (DW) IF Var1 == Var2 (Signed W) IF Var1 == Var2 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Description of action		
	If Condition1 equals Condition2, execute...		

Note: the IF macro command must be used with ENDIF, otherwise an error message will pop up while compiling.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- If the value of \$1 equals \$2, execute \$100 = \$100 + 1; if \$1 is greater than or less than \$2, then \$100 = \$100 + 1 will not be executed.

24

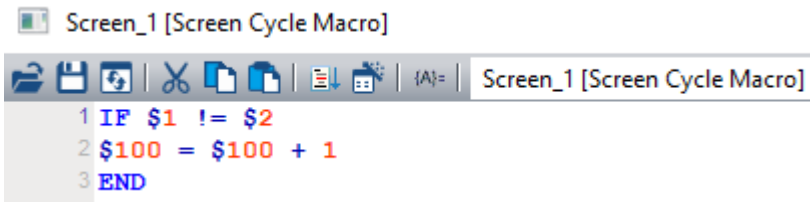
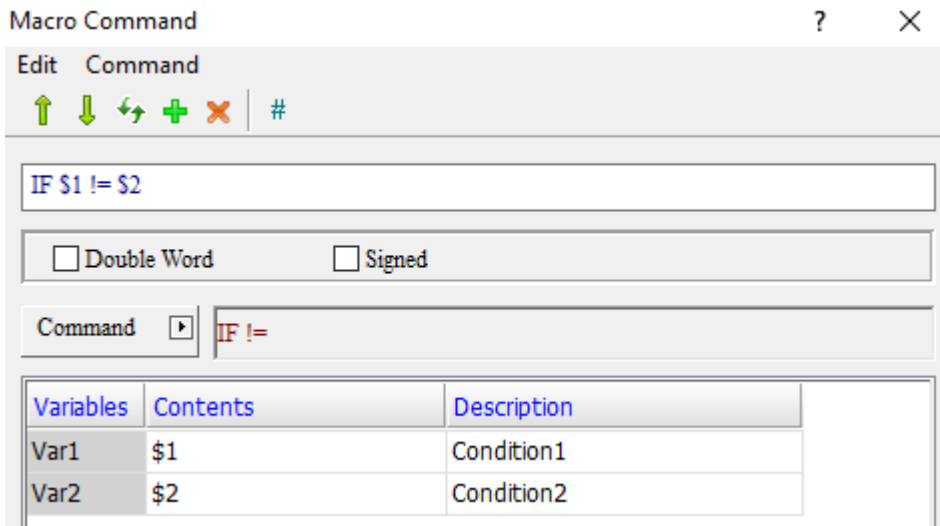
(2) IF !=			
Expression	Meaning of variable		Note
IF Var1 != Var2 (W) IF Var1 != Var2 (DW) IF Var1 != Var2 (Signed W) IF Var1 != Var2 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Description of action		
	If Condition1 does not equal Condition2, execute...		

Note: the IF macro command must be used with ENDIF, otherwise an error message will pop up while compiling.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- If the value of \$1 does not equal \$2, execute \$100 = \$100 + 1; if \$1 is greater than or less than \$2, then \$100 = \$100 + 1 will not be executed.

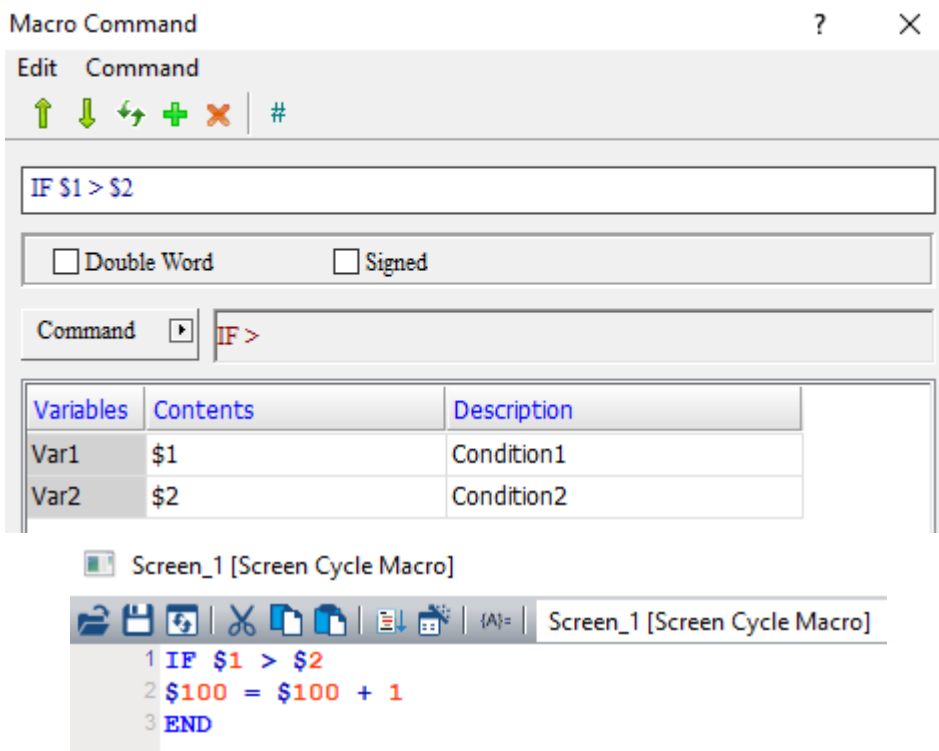
(3) IF >			
Expression	Meaning of variable		Note
IF Var1 > Var2 (W) IF Var1 > Var2 (DW) IF Var1 > Var2 (Signed W) IF Var1 > Var2 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Description of action		
	If Condition1 is greater than Condition2, execute...		

Note: the IF macro command must be used with ENDIF, otherwise an error message will pop up while compiling.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- If the value of \$1 is greater than \$2, execute \$100 = \$100 + 1; if \$1 is less than or equal to \$2, then \$100 = \$100 + 1 will not be executed.

24

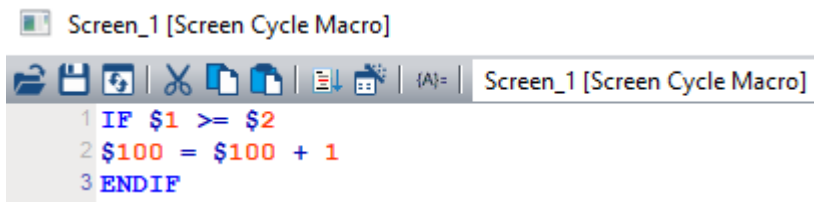
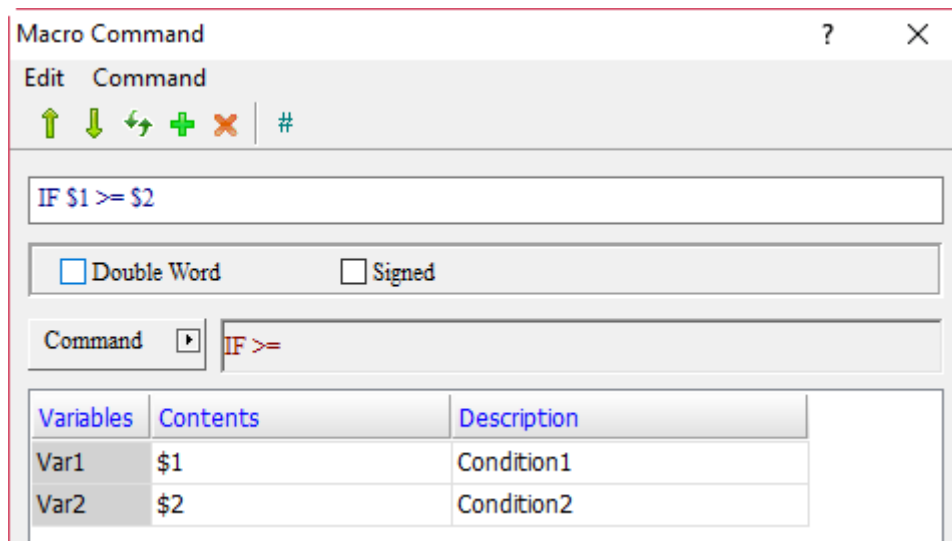
(4) IF >=			
Expression	Meaning of variable		Note
IF Var1 >= Var2 (W) IF Var1 >= Var2 (DW) IF Var1 >= Var2 (Signed W) IF Var1 >= Var2 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Description of action		
	If Condition1 is greater than or equal to Condition2, execute...		

Note: the IF macro command must be used with ENDIF, otherwise an error message will pop up while compiling.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- If the value of \$1 is greater than or equal to \$2, execute \$100 = \$100 + 1; if \$1 is less than \$2, then \$100 = \$100 + 1 will not be executed.

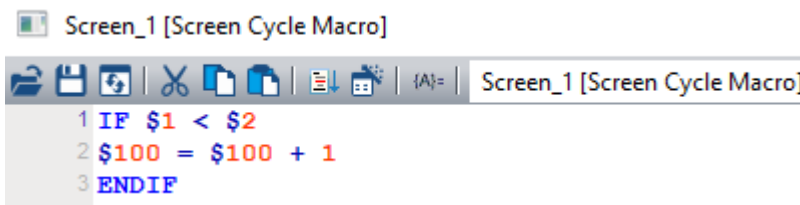
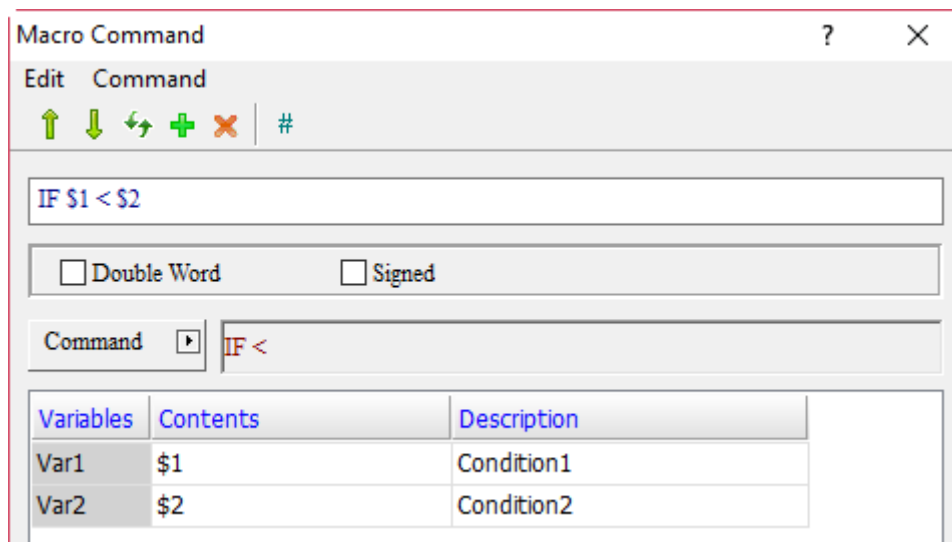
(5) IF <			
Expression	Meaning of variable		Note
IF Var1 < Var2 (W) IF Var1 < Var2 (DW) IF Var1 < Var2 (Signed W) IF Var1 < Var2 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Description of action		
	If Condition1 is less than Condition2, execute...		

Note: the IF macro command must be used with ENDIF, otherwise an error message will pop up while compiling.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- If the value of \$1 is less than \$2, execute \$100 = \$100 + 1; if \$1 is greater than or equal to \$2, then \$100 = \$100 + 1 will not be executed.

24

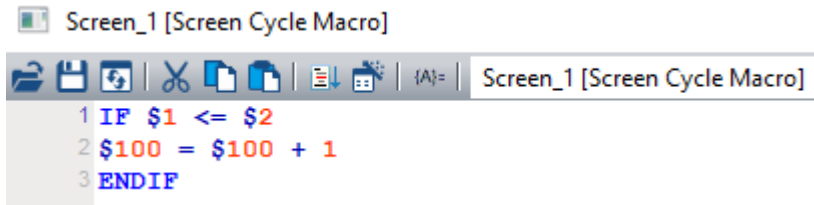
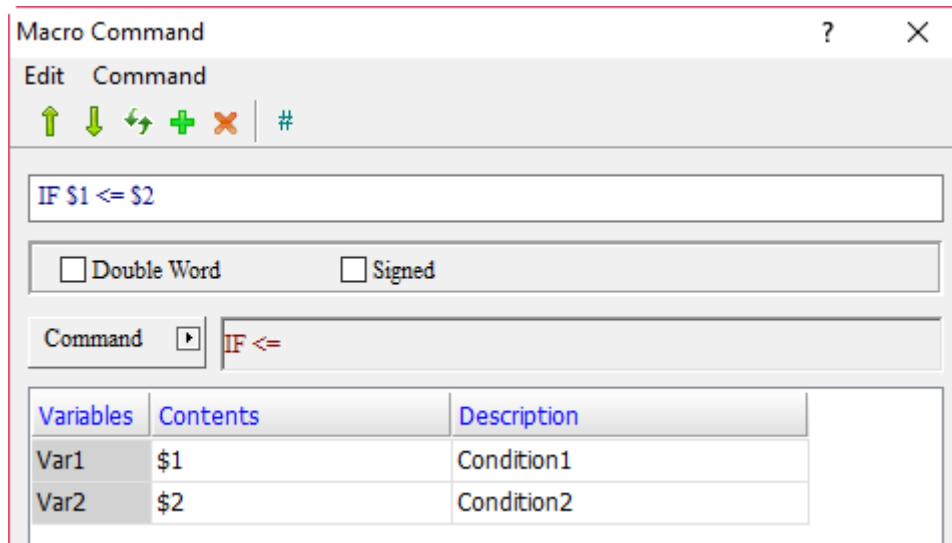
(6) IF <=			
Expression	Meaning of variable		Note
IF Var1 <= Var2 (W) IF Var1 <= Var2 (DW) IF Var1 <= Var2 (Signed W) IF Var1 <= Var2 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Description of action		
	If Condition1 is less than or equal to Condition2, execute...		

Note: the IF macro command must be used with ENDIF, otherwise an error message will pop up while compiling.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v
Var3			v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



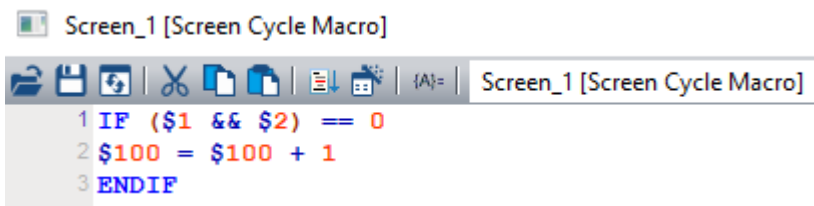
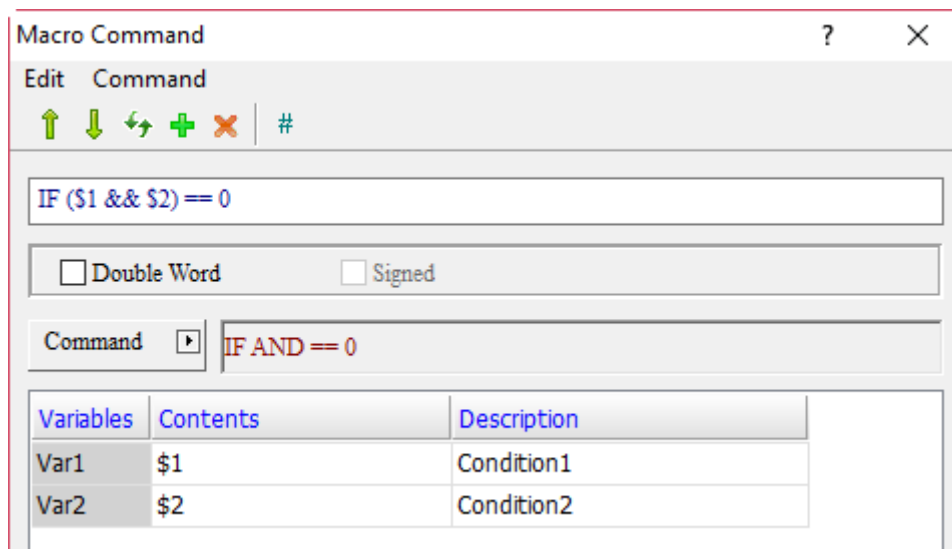
- If the value of \$1 is less than or equal to \$2, execute \$100 = \$100 + 1; if \$1 is greater than \$2, then \$100 = \$100 + 1 will not be executed.

(7) IF AND == 0			
Expression	Meaning of variable		Note
IF (Var1 && Var2) == 0 (W) IF (Var1 && Var2) == 0 (W)	Var1	Condition1	W: Word DW: Double Word
	Var2	Condition2	
	Description of action		
	If the result of the AND operation on Condition1 and Condition2 is 0, execute...		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v

Example

- Var1 and Var2 are internal memory addresses.



- If the result of the AND operation on \$1 and \$2 is 0, execute \$100 = \$100 + 1; if the result of the AND operation on \$1 and \$2 is not 0, then \$100 = \$100 + 1 will not be executed.

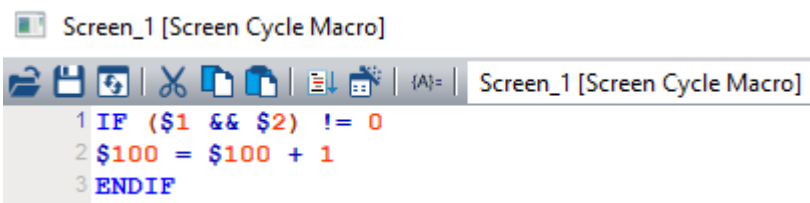
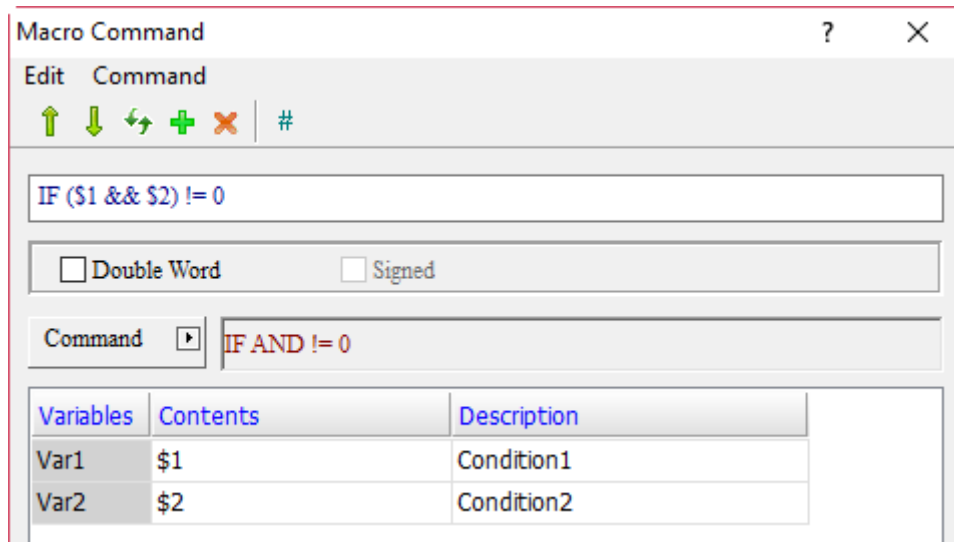
24

(8) IF AND != 0			
Expression	Meaning of variable		Note
IF (Var1 && Var2) != 0 (W) IF (Var1 && Var2) != 0 (DW)	Var1	Condition1	W: Word DW: Double Word
	Var2	Condition2	
	Description of action		
	If the result of the AND operation on Condition1 and Condition2 is not 0, execute...		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v

Example

- Var1 and Var2 are internal memory addresses.



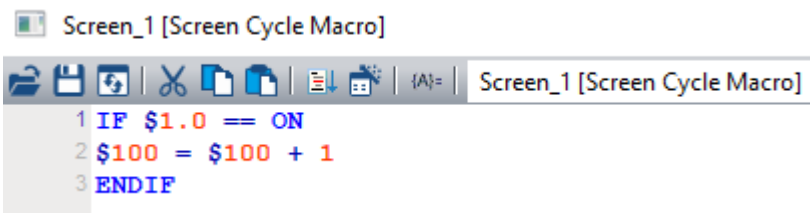
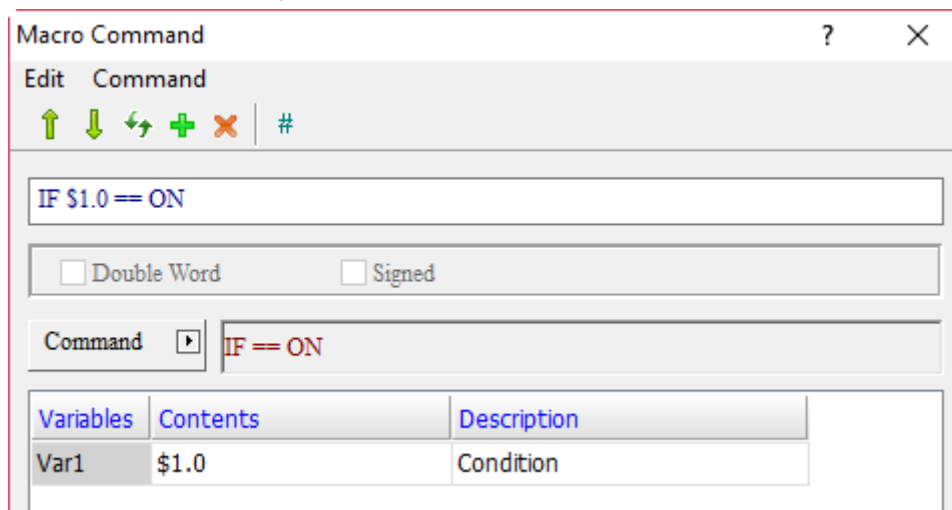
- If the result of the AND operation on \$1 and \$2 is not 0, execute \$100 = \$100 + 1; if the result of the AND operation on \$1 and \$2 is 0, then \$100 = \$100 + 1 will not be executed.

(9) IF == ON			
Expression	Meaning of variable		Note
IF Var1 == ON (W)	Var1	Condition1	W: Word
	Description of action		
	If Condition1 is ON, execute...		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)		

Example

- Var1 is the internal memory address.



- If \$1.0 is ON, execute \$100 = \$100 + 1; if \$1.0 is not ON, then \$100 = \$100 + 1 will not be executed.

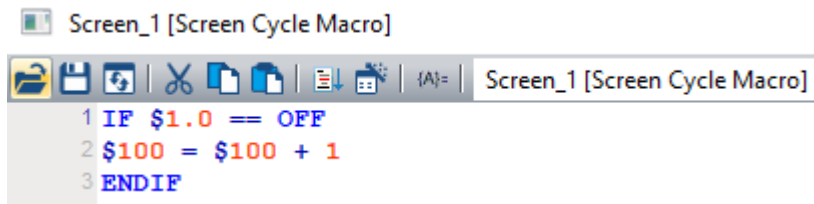
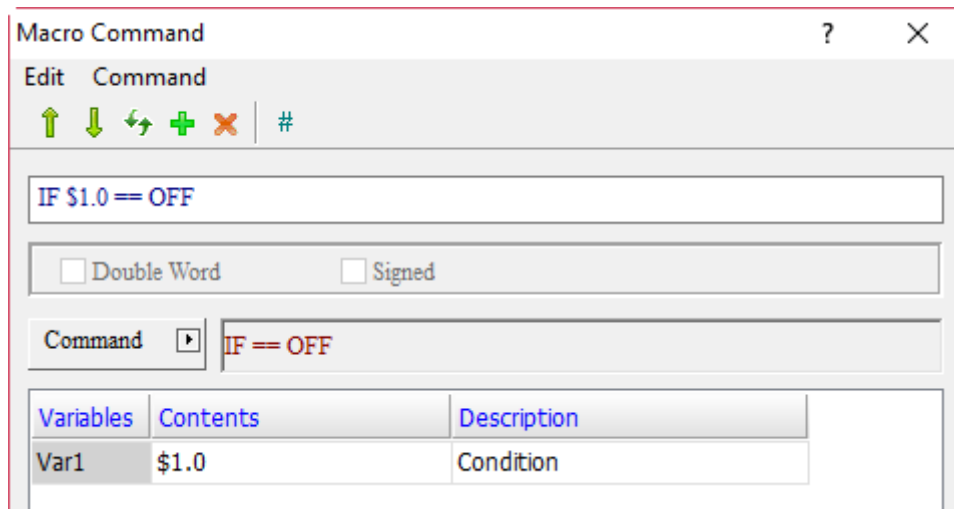
24

(10) IF == OFF			
Expression	Meaning of variable		Note
IF Var1 == OFF (W)	Var1	Condition1	W: Word
	Description of action		
	If Condition1 is OFF, execute...		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)		

Example

- Var1 is the internal memory address.



- If \$1.0 is OFF, execute \$100 = \$100 + 1; if \$1.0 is not OFF, then \$100 = \$100 + 1 will not be executed.

■ ELSEIF... (else if...)

- ELSEIF ==
- ELSEIF !=
- ELSEIF >
- ELSEIF >=
- ELSEIF <
- ELSEIF <=
- ELSEIF AND == 0
- ELSEIF AND != 0
- ELSEIF == ON
- ELSEIF == OFF

The following will introduce the 10 commands of ELSEIF... macro.

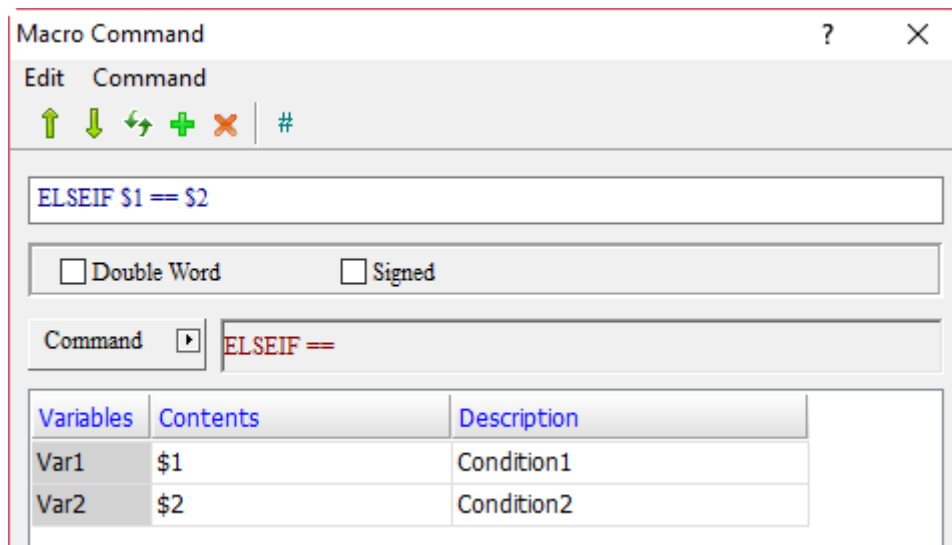
(1) ELSEIF ==			
Expression	Meaning of variable		Note
ELSEIF Var1 == Var2 (W) ELSEIF Var1 == Var2 (DW) ELSEIF Var1 == Var2 (Signed W) ELSEIF Var1 == Var2 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Description of action		
	Else if Condition1 equals Condition2, execute...		

Note: the ELSEIF macro command must be used with IF...ENDIF, otherwise an error message will pop up while compiling.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v

Example

- Var1 and Var2 are internal memory addresses.



Example

```

Screen_1 [Screen Cycle Macro]
IF $1 != $2
$200 = $200 + 1
ELSEIF $1 == $2
$100 = $100 + 1
ENDIF
    
```

- If the value of \$1 does not equal \$2, execute \$200 = \$200 + 1; else if \$1 equals \$2, then execute \$100 = \$100 + 1.

(2) ELSEIF !=

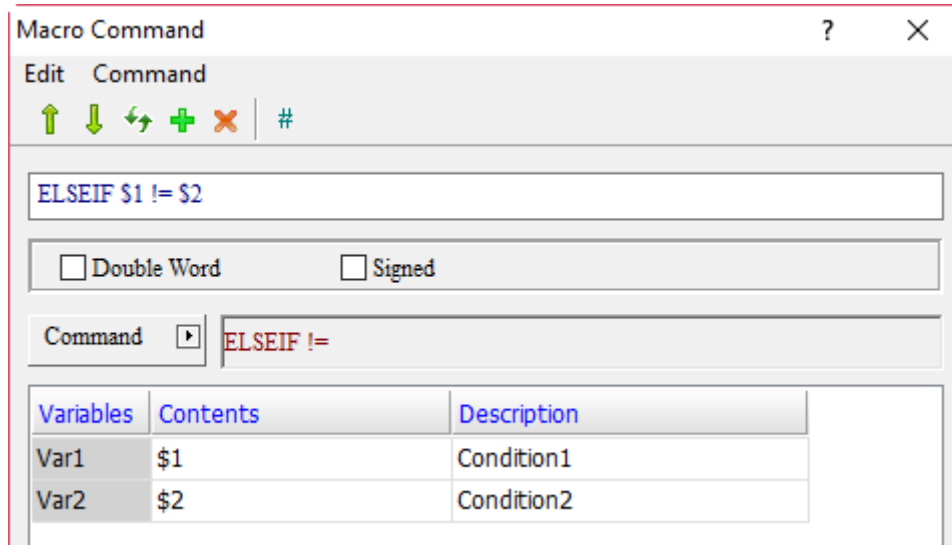
Expression	Meaning of variable		Note
ELSEIF Var1 != Var2 (W) ELSEIF Var1 != Var2 (DW) ELSEIF Var1 != Var2 (Signed W) ELSEIF Var1 != Var2 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Description of action		
	Else if Condition1 does not equal Condition2, execute...		

Note: the ELSEIF macro command must be used with IF...ENDIF, otherwise an error message will pop up while compiling.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v

Example

- Var1 and Var2 are internal memory addresses.



Example

```

Screen_1 [Screen Cycle Macro]
1 IF $1 == $2
2   $200 = $200 + 1
3 ELSEIF $1 != $2
4   $100 = $100 + 1
5 ENDIF
    
```

- If the value of \$1 equals \$2, execute \$200 = \$200 + 1; else if \$1 does not equal \$2, then execute \$100 = \$100 + 1.

(3) ELSEIF >

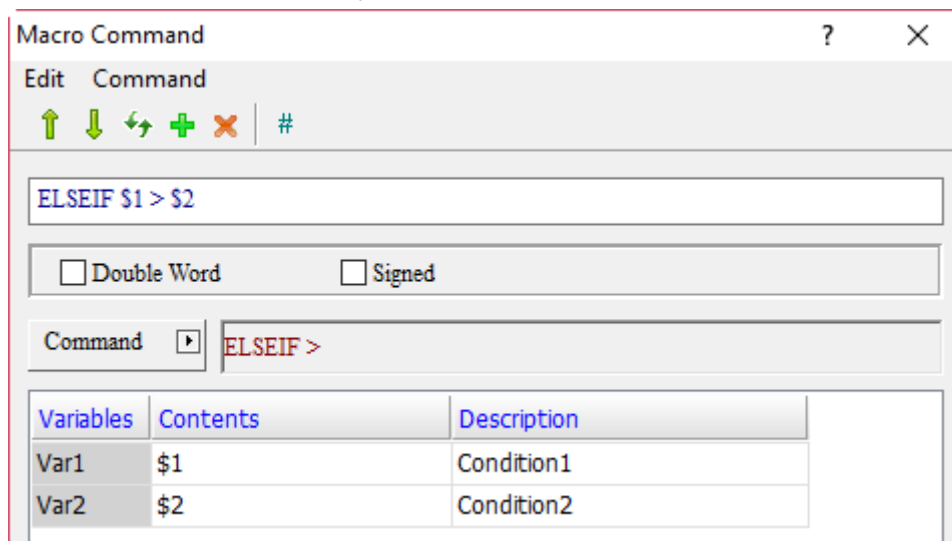
Expression	Meaning of variable		Note
ELSEIF Var1 > Var2 (W)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
ELSEIF Var1 > Var2 (DW)	Var2	Condition2	
ELSEIF Var1 > Var2 (Signed W)	Description of action		
ELSEIF Var1 > Var2 (Signed DW)	Else if Condition1 is greater than Condition2, execute...		

Note: the ELSEIF macro command must be used with IF...ENDIF, otherwise an error message will pop up while compiling.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v

Example

- Var1 and Var2 are internal memory addresses.



Example

```

Screen_1 [Screen Cycle Macro]
1 IF $1 = $2
2   $200 = $200 + 1
3 ELSEIF $1 > $2
4   $100 = $100 + 1
5 ENDIF
    
```

- If the value of \$1 equals \$2, execute \$200 = \$200 + 1; else if \$1 is greater than \$2, then execute \$100 = \$100 + 1.

(4) ELSEIF >=

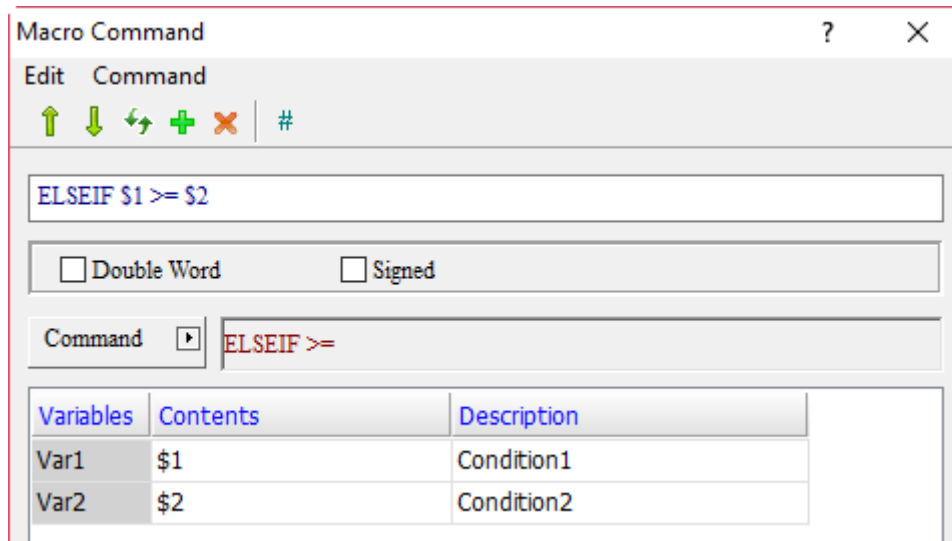
Expression	Meaning of variable		Note
ELSEIF Var1 >= Var2 (W) ELSEIF Var1 >= Var2 (DW) ELSEIF Var1 >= Var2 (Signed W) ELSEIF Var1 >= Var2 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Description of action		
	Else if Condition1 is greater than or equal to Condition2, execute...		

Note: the ELSEIF macro command must be used with IF...ENDIF, otherwise an error message will pop up while compiling.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v

Example

- Var1 and Var2 are internal memory addresses.



Example

```

Screen_1 [Screen Cycle Macro]
IF $1 < $2
$200 = $200 + 1
ELSEIF $1 >= $2
$100 = $100 + 1
ENDIF
    
```

- If the value of \$1 is less than \$2, execute \$200 = \$200 + 1; else if \$1 is greater than or equal to \$2, then execute \$100 = \$100 + 1.

(5) ELSEIF <

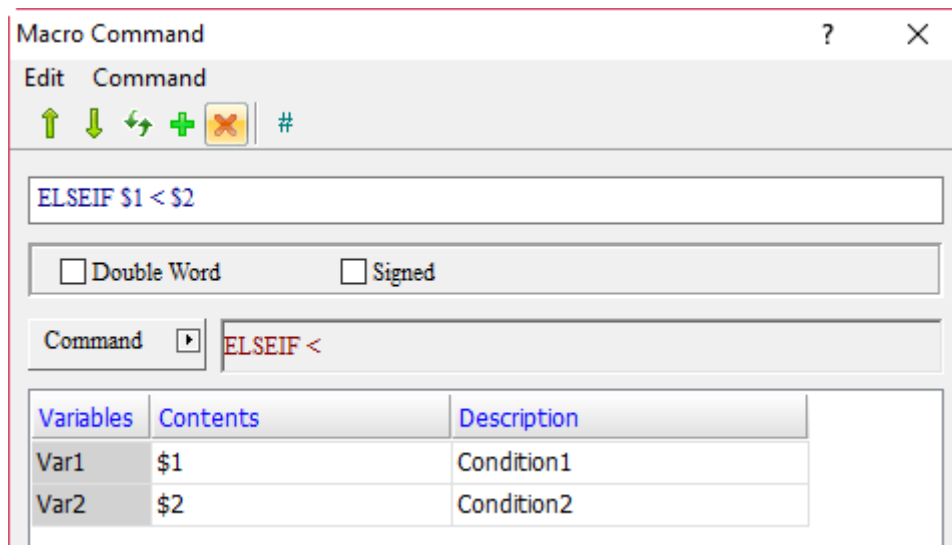
Expression	Meaning of variable		Note
ELSEIF Var1 < Var2 (W) ELSEIF Var1 < Var2 (DW) ELSEIF Var1 < Var2 (Signed W) ELSEIF Var1 < Var2 (Signed DW)	Var 1	Condition 1	W: Word DW: Double Word Signed: signed number
	Var 2	Condition 2	
	Description of action		
	Else if Condition1 is less than Condition2, execute...		

Note: the ELSEIF macro command must be used with IF...ENDIF, otherwise an error message will pop up while compiling.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v

Example

- Var1 and Var2 are internal memory addresses.



Example

```

Screen_1 [Screen Cycle Macro]
IF $1 >= $2
$200 = $200 + 1
ELSEIF $1 < $2
$100 = $100 + 1
ENDIF
    
```

- If the value of \$1 is greater than or equal to \$2, execute \$200 = \$200 + 1; else if \$1 is less than \$2, then execute \$100 = \$100 + 1.

(6) ELSEIF <=

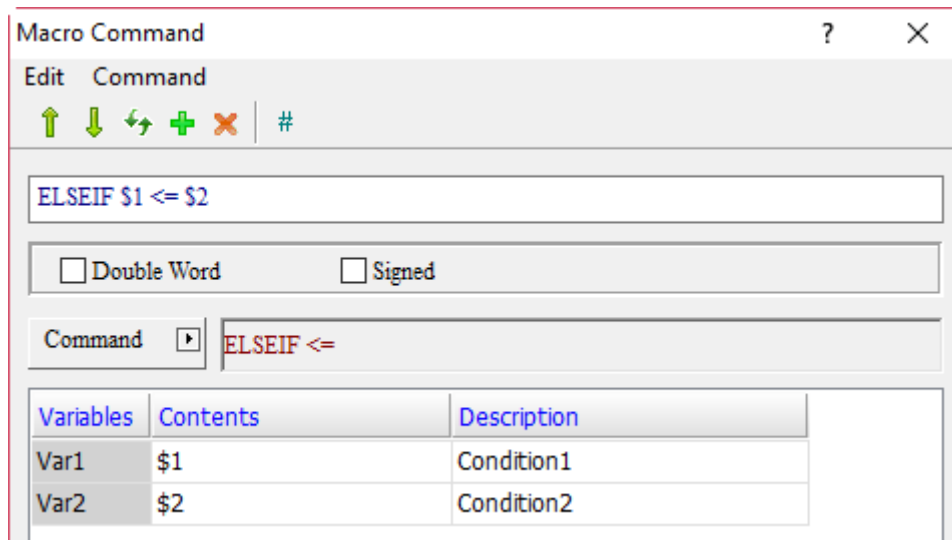
Expression	Meaning of variable		Note
ELSEIF Var1 <= Var2 (W) ELSEIF Var1 <= Var2 (DW) ELSEIF Var1 <= Var2 (Signed W) ELSEIF Var1 <= Var2 (Signed DW)	Var1	Condition1	W: Word DW: Double Word Signed: signed number
	Var2	Condition2	
	Description of action		
	Else if Condition1 is less than or equal to Condition2, execute...		

Note: the ELSEIF macro command must be used with IF...ENDIF, otherwise an error message will pop up while compiling.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	⊙		⊙
Var2	⊙		⊙

Example

- Var1 and Var2 are internal memory addresses.



Example

```

Screen_1 [Screen Cycle Macro]
IF $1 > $2
$200 = $200 + 1
ELSEIF $1 <= $2
$100 = $100 + 1
ENDIF
    
```

- If the value of \$1 is greater than \$2, execute \$200 = \$200 + 1; else if \$1 is less than or equal to \$2, then execute \$100 = \$100 + 1.

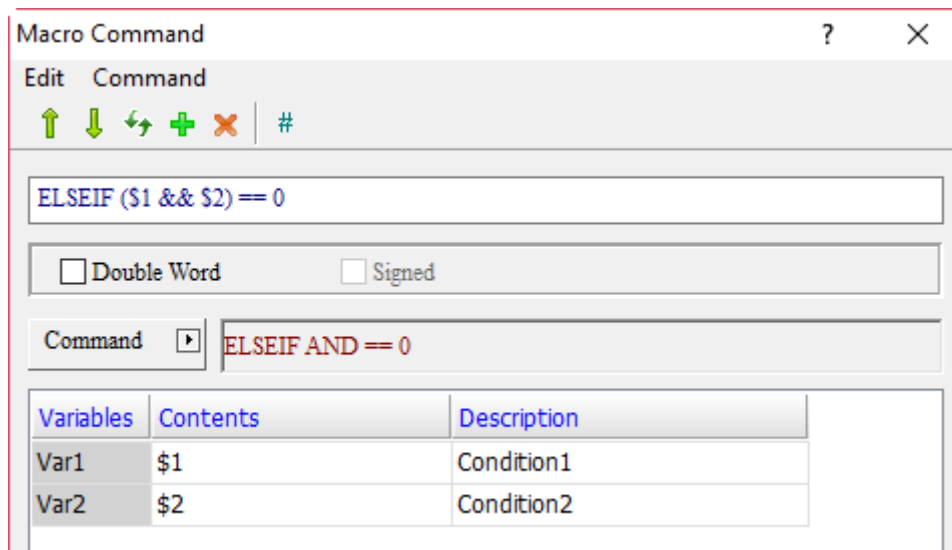
(7) ELSEIF AND == 0

Expression	Meaning of variable		Note
ELSEIF (Var1 && Var2) == 0 (W) ELSEIF (Var1 && Var2) == 0 (DW)	Var1	Condition1	W: Word DW: Double Word
	Var2	Condition2	
	Description of action		
	Else if the result of the AND operation on Condition1 and Condition2 is 0, execute...		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v

Example

- Var1 and Var2 are internal memory addresses.



Example

```

Screen_1 [Screen Cycle Macro]
1 IF ($1 && $2) != 0
2 $200 = $200 + 1
3 ELSEIF ($1 && $2) == 0
4 $100 = $100 + 1
5 ENDIF
    
```

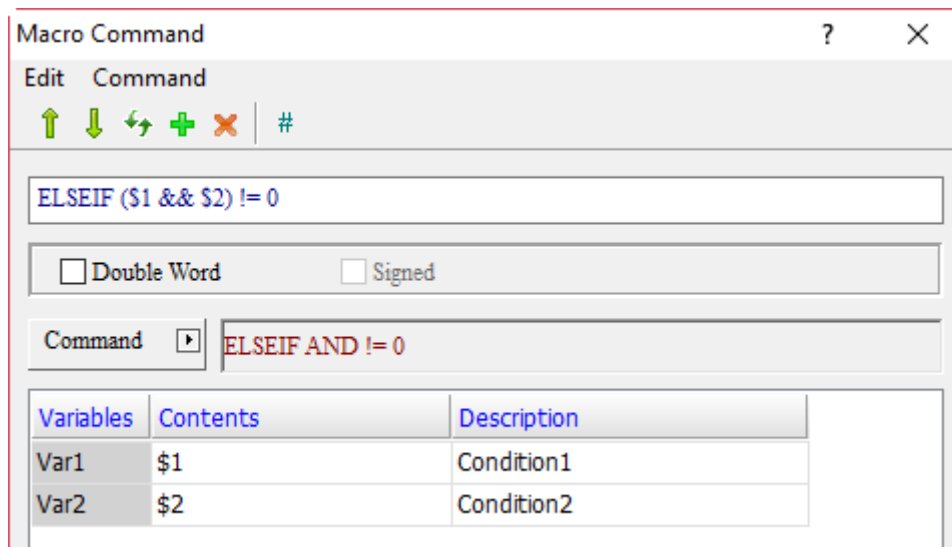
- If the result of the AND operation on \$1 and \$2 is not 0, execute \$200 = \$200 + 1; else if the result of the AND operation on \$1 and \$2 is 0, then execute \$100 = \$100 + 1.

(8) ELSEIF AND != 0			
Expression	Meaning of variable		Note
ELSEIF (Var1 && Var2) != 0 (W) ELSEIF (Var1 && Var2) != 0 (DW)	Var1	Condition1	W: Word DW: Double Word
	Var2	Condition2	
	Description of action Else if the result of the AND operation on Condition1 and Condition2 is not 0, execute...		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v

Example

- Var1 and Var2 are internal memory addresses.



Example

```

1 IF ($1 && $2) == 0
2 $200 = $200 + 1
3 ELSEIF ($1 && $2) != 0
4 $100 = $100 + 1
5 ENDIF
    
```

- If the result of the AND operation on \$1 and \$2 is 0, execute \$200 = \$200 + 1; else if the result of the AND operation on \$1 and \$2 is not 0, then execute \$100 = \$100 + 1.

(9) ELSEIF ==ON

Expression	Meaning of variable		Note
ELSEIF Var1 == ON (W)	Var1	Condition1	W: Word
	Description of action		
	Else if Condition1 is ON, execute...		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)		

Example

- Var1 is the internal memory address.

Variables	Contents	Description
Var1	\$1.0	Condition

```

1 IF $1.0 == OFF
2 $200 = $200 + 1
3 ELSEIF $1.0 == ON
4 $100 = $100 + 1
5 ENDIF
    
```

- If \$1.0 is OFF, execute \$200 = \$200 + 1; else if \$1.0 is ON, then execute \$100 = \$100 + 1.

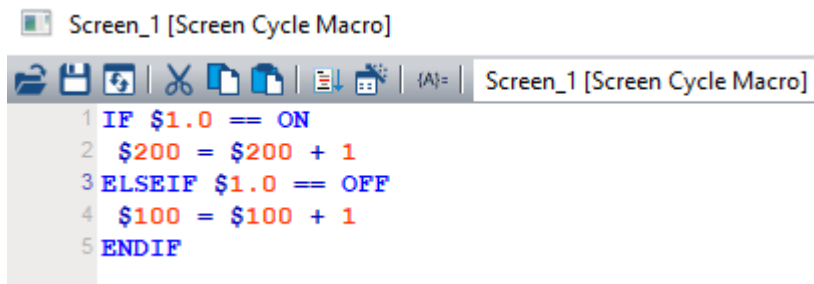
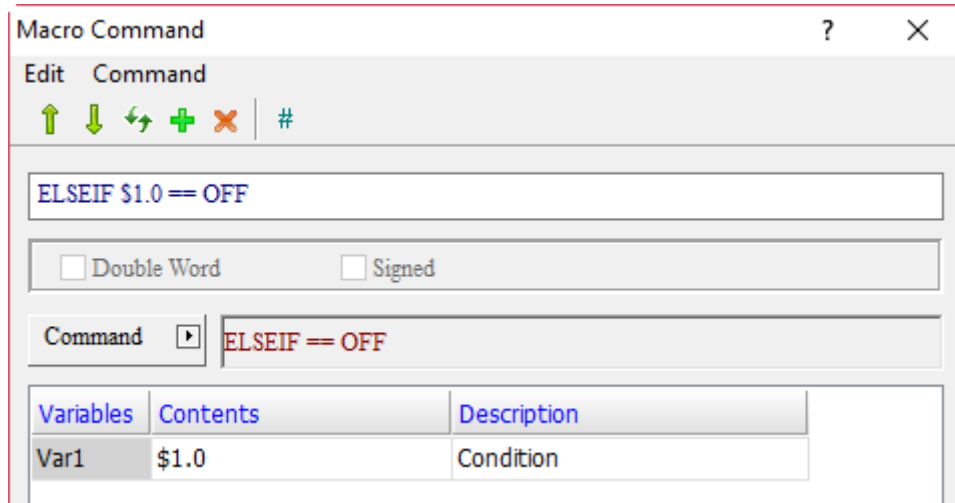
24

(10) ELSEIF == OFF			
Expression	Meaning of variable		Note
ELSEIF Var1 == OFF (W)	Var1	Condition1	W: Word
	Description of action		
	Else if Condition1 is OFF, execute...		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	V (can only be Bit)		

Example

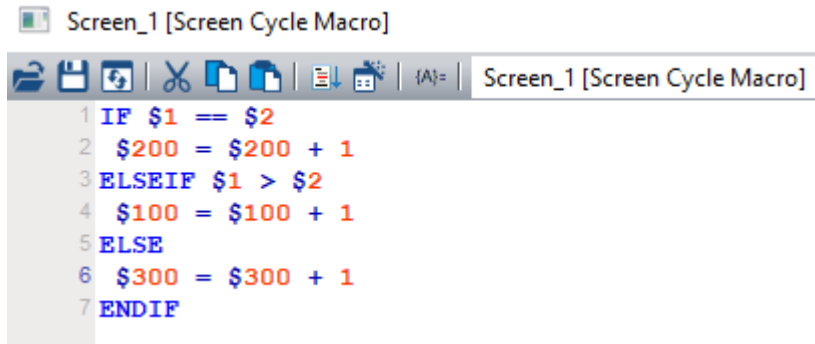
- Var1 is the internal memory address.



- If \$1.0 is ON, execute \$200 = \$200 + 1; else if \$1.0 is OFF, then execute \$100 = \$100 + 1.

- ELSE

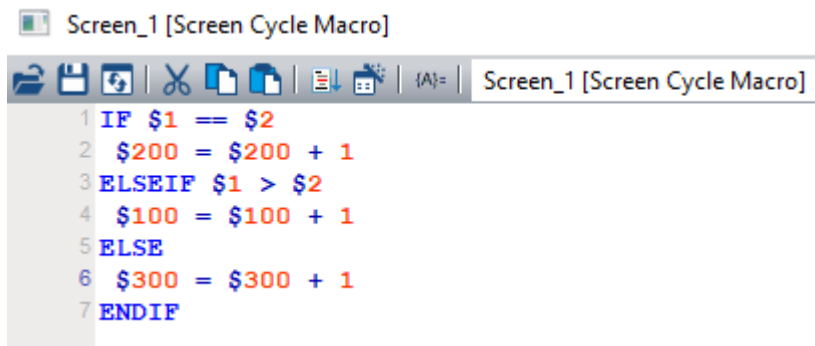
The ELSE command is mainly used to execute other programs when conditions of IF... or ELSEIF are not met. ELSE must be used together with IF... and ENDIF, otherwise the software will prompt a syntax error message while compiling.



```
Screen_1 [Screen Cycle Macro]
1 IF $1 == $2
2   $200 = $200 + 1
3 ELSEIF $1 > $2
4   $100 = $100 + 1
5 ELSE
6   $300 = $300 + 1
7 ENDIF
```

- ENDIF

ENDIF is mainly used together with IF..., ELSE, and ELSEIF... commands.



```
Screen_1 [Screen Cycle Macro]
1 IF $1 == $2
2   $200 = $200 + 1
3 ELSEIF $1 > $2
4   $100 = $100 + 1
5 ELSE
6   $300 = $300 + 1
7 ENDIF
```

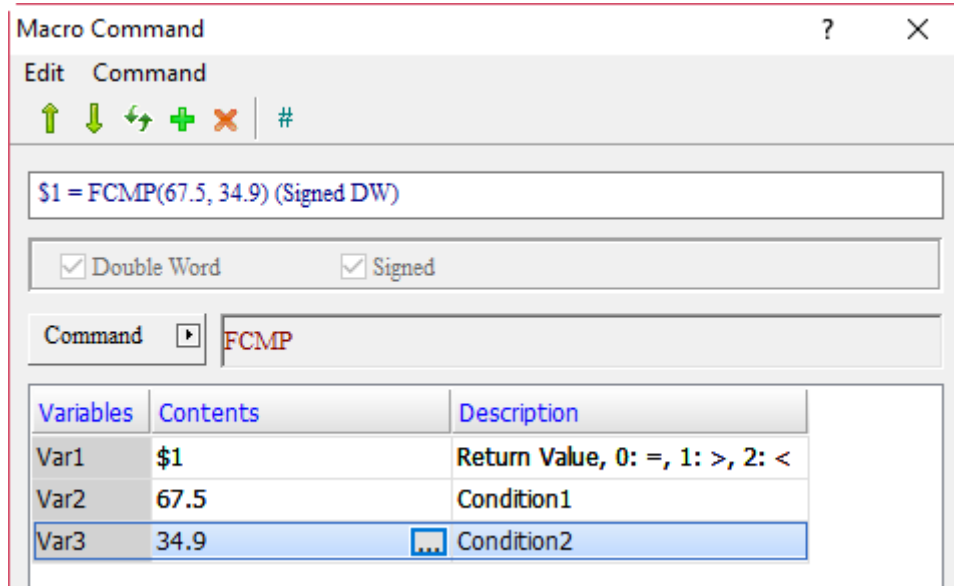

24

■ FCMP (comparison of floating-point value)

Expression	Meaning of variable		Note	
Var1 = FCMP(Var2, Var3) (Signed DW)	Var1	Return value of comparison result	DW: Double Word Signed: signed number	
		=		0
		>		1
		<		2
	Var2	Condition1		
	Var3	Condition2		
Description of action				
Compare Var2 and Var3, and put the result in Var1.				

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.



- Compare the floating-point values of 67.5 and 34.9. 67.5 > 34.9, and the return value is 1, so \$1 = 1.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v
Var3	v		v

24.3.6 Flow Control

FlowControl includes commands such as GOTO, LABEL, CALL, RET, FOR, NEXT, END, etc., which you can use to control the execution process while writing macro programs. The details will be provided as follows.

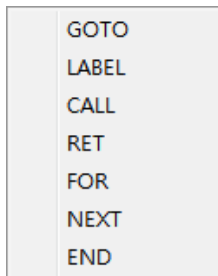


Figure 24.3.6.1 FlowControl

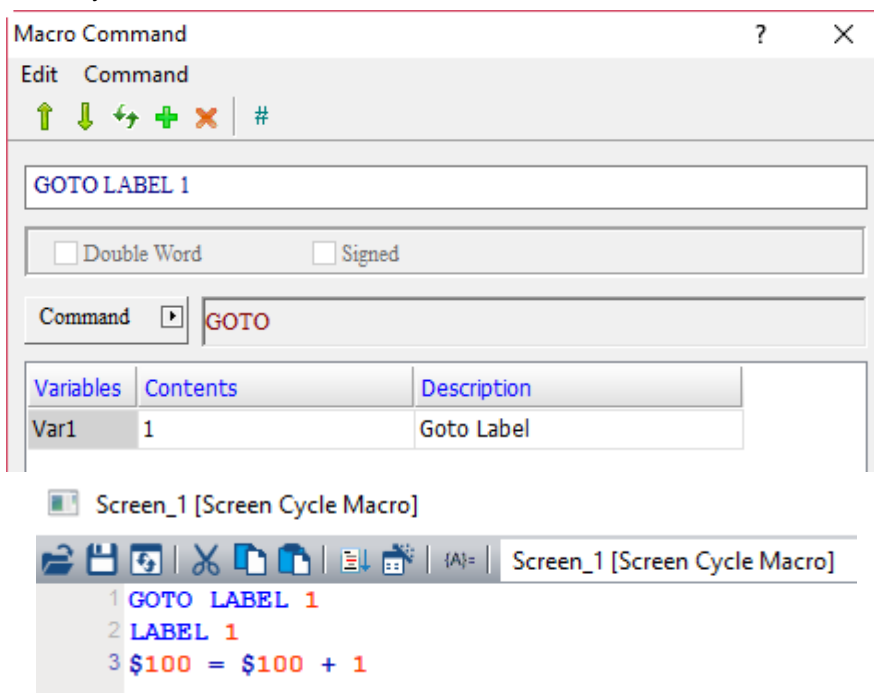
- GOTO LABEL (unconditionally execute a label name)

Expression	Meaning of variable		Note
GOTO LABEL Var1 (W)	Var1	Goto Label	W: Word
	Description of action		
	Directly execute the specified label name.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1			v

Example

- Var1 can only be a constant.



- Execute LABEL 1 directly. The command of LABEL 1 is \$100 = \$100 + 1.

■ LABEL (label name)

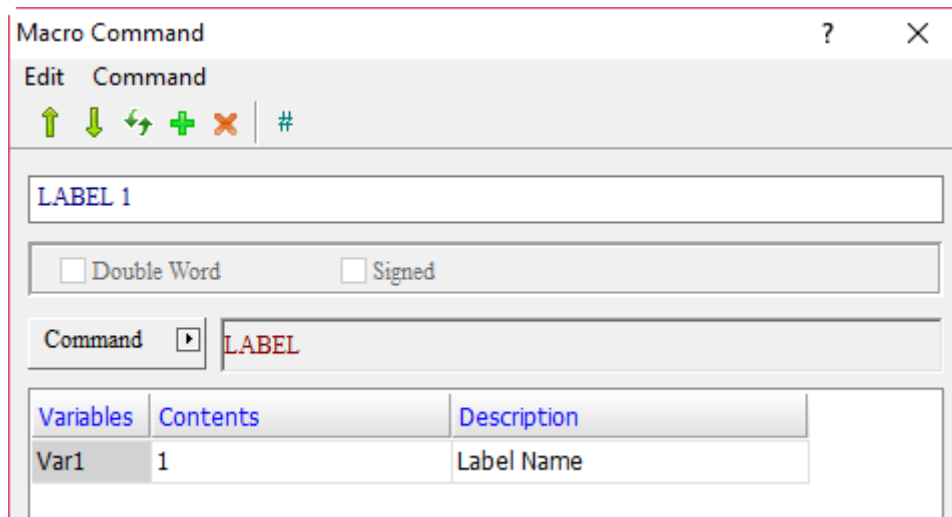
Expression	Meaning of variable		Note
LABEL Var1 (W)	Var 1	Label name	W: Word
	Description of action		
	Specify the label name.		

Note: the same label name shall not be used in the same macro.

Variable	Type		
	Internal memory	PLC register	Constant
Var1			v

Example

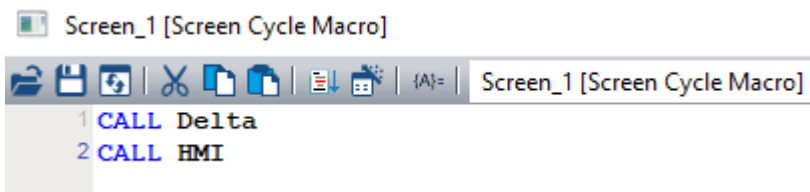
Var1 can only be a constant.



■ CALL (call submacro)

Expression	Meaning of variable		Note
CALL Var1 (W)	Var1	Submacro number (1 - 512)	W: Word
	Description of action		
	Specify the names of submacros.		

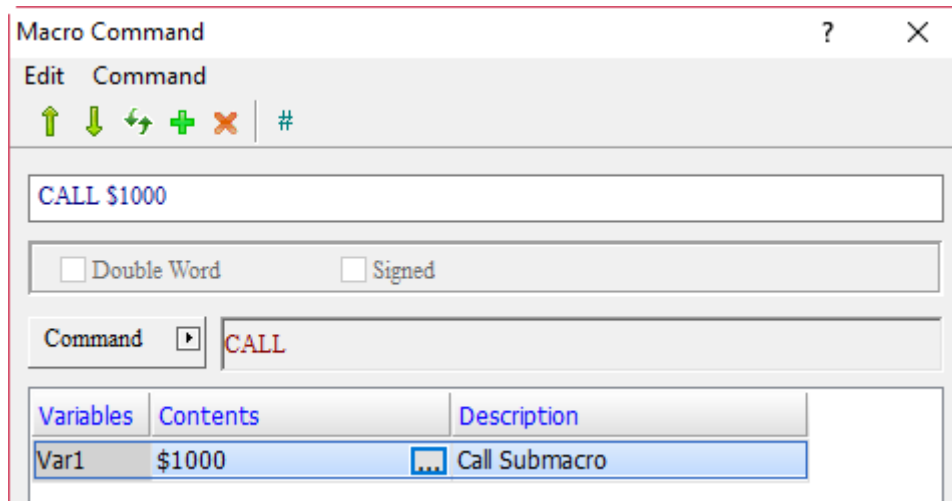
Note: Var1 can support the input of Chinese and English names. If you want to input Chinese and English names, please enter its macro alias manually. The Macro Wizard only supports the input of submacro numbers.



Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v

Example

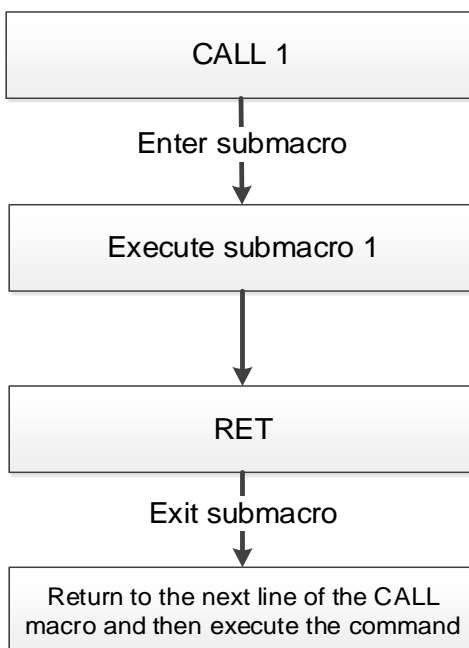
- Var1 is the internal memory address.



- You can execute the submacro commands by entering submacro numbers via the internal memory address \$1000 (Numeric Entry element).

- RET (exit submacro)

Expression	Description of action	Note
RET	Exit submacro and return to the next line of the CALL submacro and then execute the command.	RET should be added at the end of the submacro, and must be used together with the CALL command.

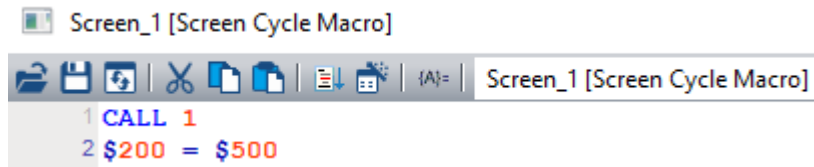


Example

- The RET command must be written at the end of the submacro.



- Return and execute the next line of the CALL macro command after exiting the submacro.



- FOR, NEXT (program loop)

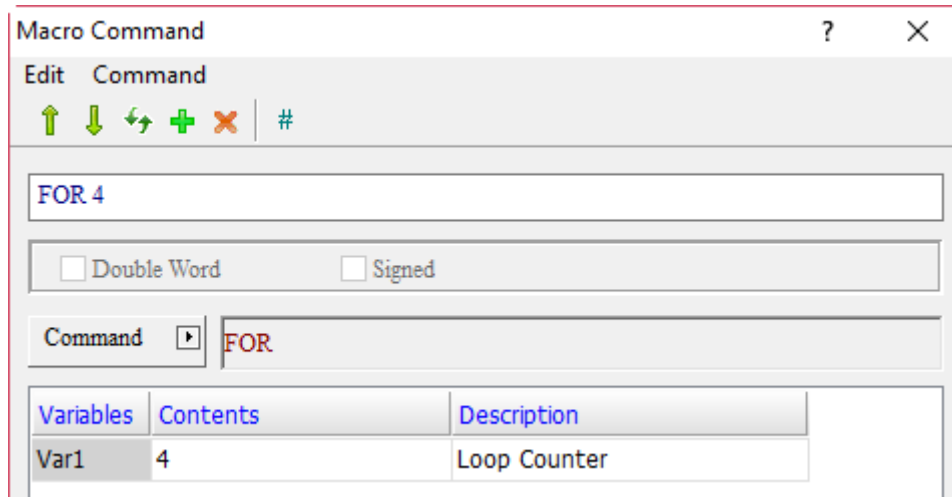
Expression	Meaning of variable	Note
FOR Var1 (W)	Var1	W: Word
	Loop Counter	
	Description of action Execute the statement for Var1 times continuously.	
Expression	Description of action	Note
NEXT	It must be used together with the FOR command.	

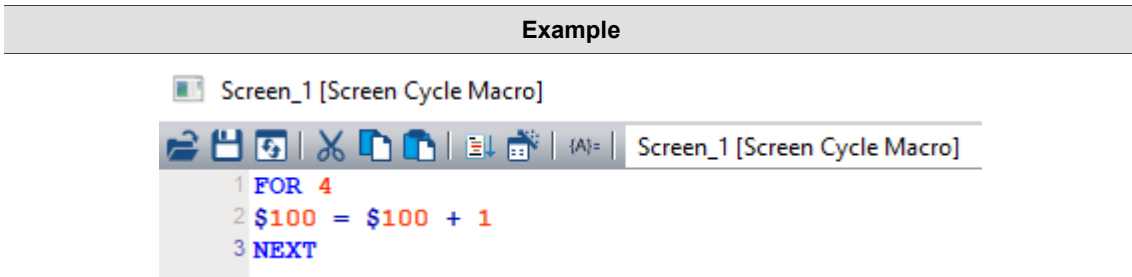
Note: the multilayer loops can be used to support up to 10 layers.

Memory usage			
Variable	Internal memory	PLC register	Constant
Var1	v		v

Example

- Var1 is a constant.

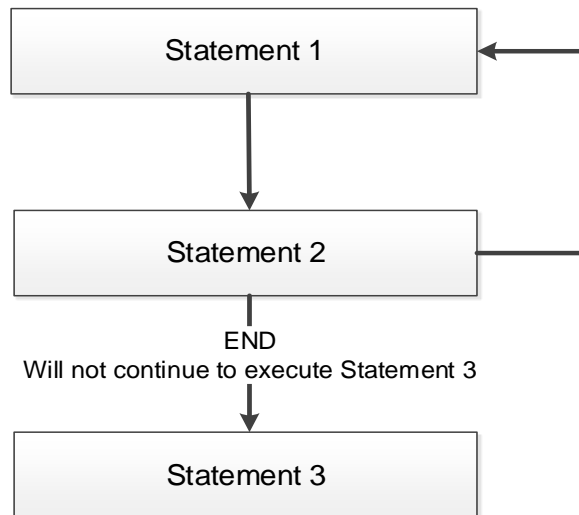




- FOR 4 means that the \$100 = \$100 + 1 comand is executed for four times, so the result obtained is 4.

- END (end macro programs)

Expression	Description of action	Note
END	End macro programs.	Adding END to the submacro means the program will not return to the original macro command to continue executing the next line.



Example

- The commands after END are not executed.

```

Screen_1 [Screen Cycle Macro]
1 $300 = $300 + 1
2 $301 = $300 % 10
3
4 IF $350 == 3
5   $312 = 2
6   $313 = 0
7 ELSEIF $350 == 2
8   $312 = 0
9   $313 = 2
10 ENDIF
11 END ← Commands after END are not executed
12
13 IF $301 == 0
14   IF $311 == 2
15     $310 = $310 - 5
16   ENDIF
17   IF $312 == 2
18     $320 = $320 + 5
19   ENDIF
20   IF $313 == 2
21     $330 = $330 + 5
22   ENDIF
23   IF $345 == 1
24     $340 = $340 + 10
25     $342 = $342 - 10
26   ELSEIF $345 == 2
27     $340 = $340 - 10
28     $342 = $342 + 10
29   ENDIF
30 ENDIF

```

- When the END command is written to the end of a submacro, it means the program will not return to execute the previous macro command.

```

[Submacro 1]
1 $100 = $200
2 END

Screen_1 [Screen Cycle Macro]
1 CALL 1
2 $200 = $500 ← This line of command is not executed

```

24.3.7 Bit Setting

Bit Setting includes BITON, BITOFF, BITNOT, GETB and other instructions, which allow you to set the On / Off state of bit, inverse bit, and get the value represented by the bit. The details are provided as follows.

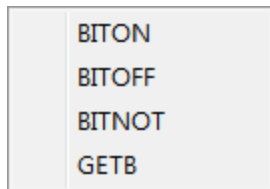


Figure 24.3.7.1 Bit Setting

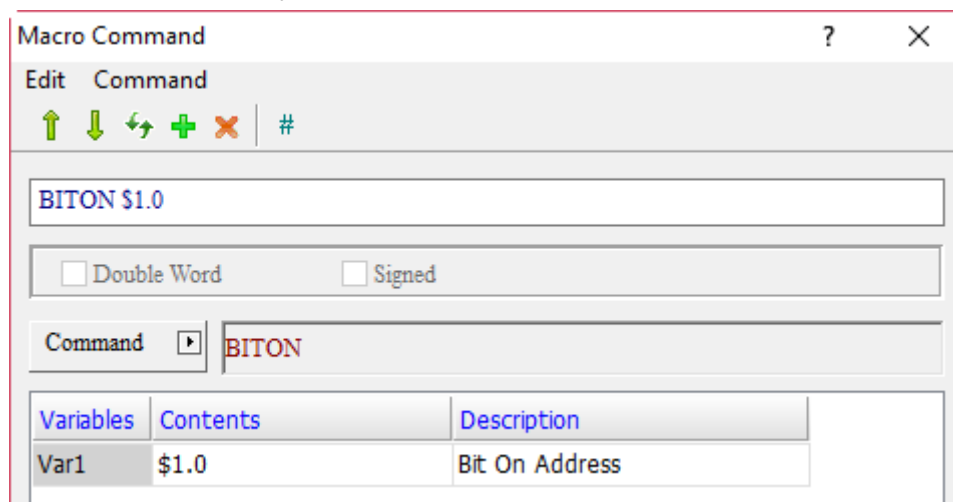
■ BITON (set bit as On)

Expression	Meaning of variable	Note	
BITON Var1 (W)	Var1	W: Word	
	Description of action		
	Set Var1 to ON.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)	v (can only be Bit)	

Example

■ Var1 is the internal memory address.



■ Create a Maintained button and set the Write Address to \$1.0. When BITON \$1.0 is executed, the result is as follows.



24

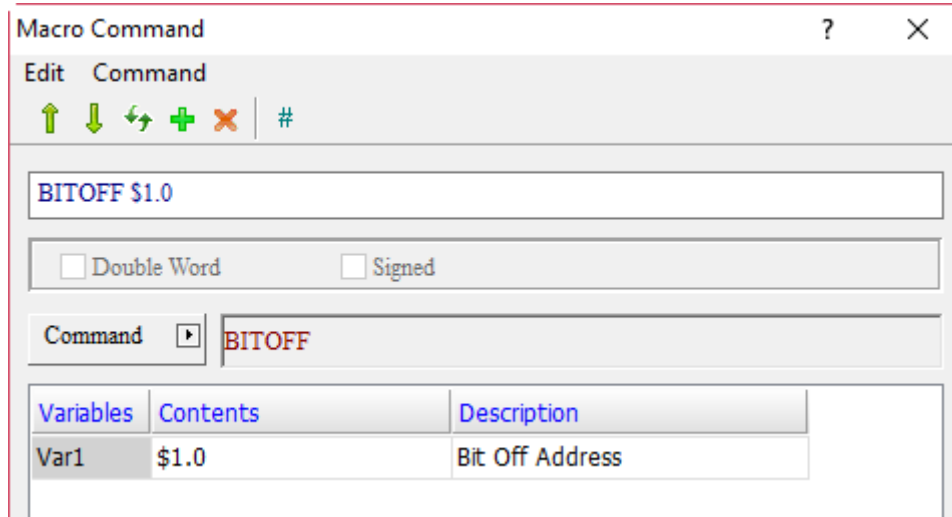
- BITON (set bit as Off)

Expression	Meaning of variable		Note
BITOFF Var1 (W)	Var1	Bit setting	W: Word
	Description of action		
	Set Var1 to Off.		

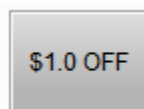
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)	v (can only be Bit)	

Example

- Var1 is the internal memory address.



- Create a Maintained button and set the Write Address to \$1.0. When BITOFF \$1.0 is executed, the result is as follows.



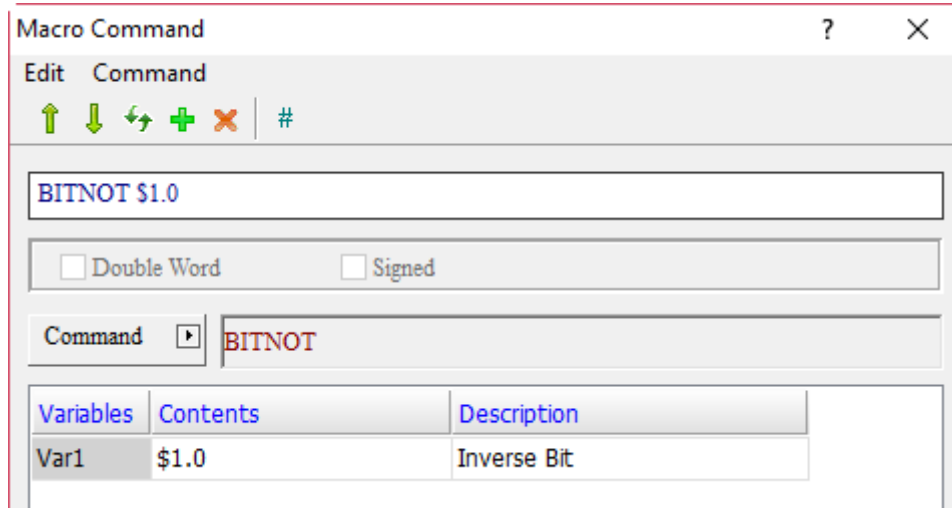
- BITNOT (inverse bit, ON→OFF,OFF→ON)

Expression	Meaning of variable		Note
BITNOT Var1 (W)	Var1	Bit setting	W: Word
	Description of action		
	Set Var1 bit from On to Off and from Off to On.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)	v (can only be Bit)	

Example

- Var1 is the internal memory address.



- Create a Maintained button and set the Write Address to \$1.0. When BITNOT \$1.0 is executed, the actions of the Maintained button will be continuously switched from On to Off and from Off to On.

24

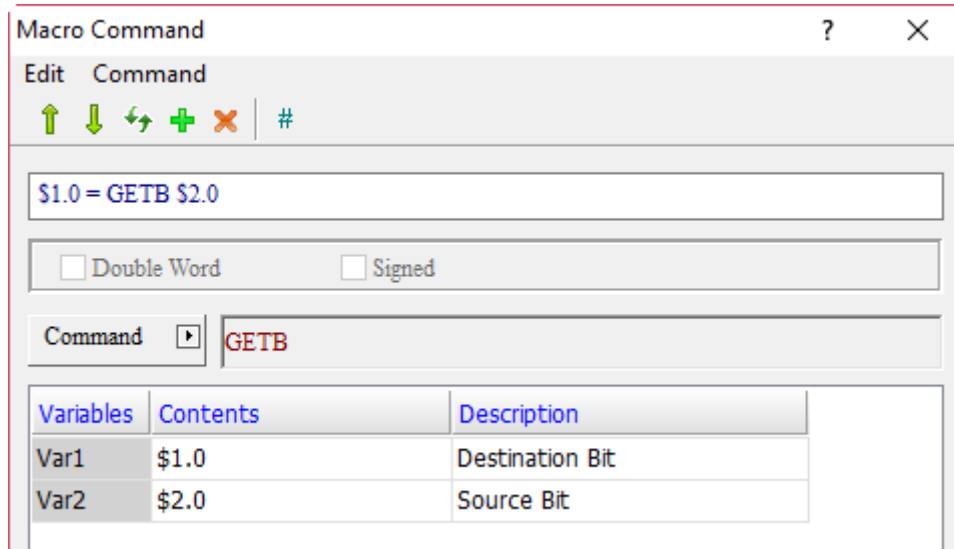
■ GETB (get bit value)

Expression	Meaning of variable		Note
(Var1) = GETB (Var2) (W)	Var1	Bit setting	W: Word
	Description of action		
	Put the Var2 bit value in Var1.		

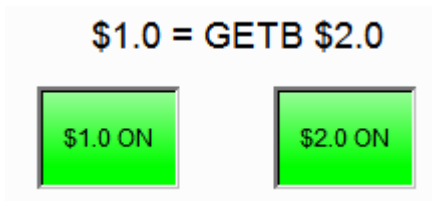
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v (can only be Bit)	v (can only be Bit)	
Var2	v (can only be Bit)	v (can only be Bit)	

Example

- Var1 and Var2 are internal memory addresses.

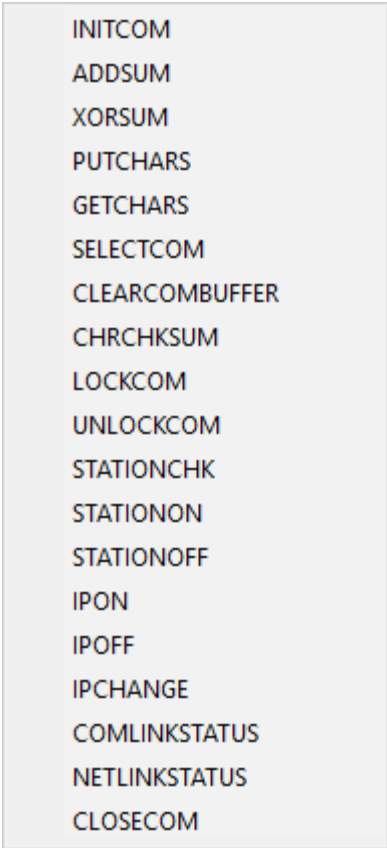


- Set \$1.0 and \$2.0 as Set to On button elements. When executing \$1.0 = GETB \$2.0, press the \$2.0 button, then \$1.0 will be triggered to ON.



24.3.8 Communication

The Communication macro command provides several macros related to COM Port and network IP control, as detailed as follows.



- INITCOM
- ADDSUM
- XORSUM
- PUTCHARS
- GETCHARS
- SELECTCOM
- CLEARCOMBUFFER
- CHRCHKSUM
- LOCKCOM
- UNLOCKCOM
- STATIONCHK
- STATIONON
- STATIONOFF
- IPON
- IPOFF
- IPCHANGE
- COMLINKSTATUS
- NETLINKSTATUS
- CLOSECOM

24

Figure 24.3.8.1 Communication

24

■ INITCOM (COM Port initialization)

Expression	Meaning of variable		Note	
Var1 = INITCOM(Var2, Var3, Var4, Var5, Var6, Var7, Var8) (W)	Var1	Return value		W: Word
		Failed	0	
		Succeeded	1	
	Var2	COM Port		
	Var3	Interface		
	Var4	Data Bits		
	Var5	Parity Bits		
	Var6	Stop Bits		
	Var7	Baud Rate		
	Var8	Flow Control		
	Description of action			
The initialization of COM Port is used to open the communication port, set the communication protocol (Var2 - Var8), and put the return value of the initialization result in Var1.				

Note: the INITCOM command can only be issued once. If it is used again, the command is invalid.

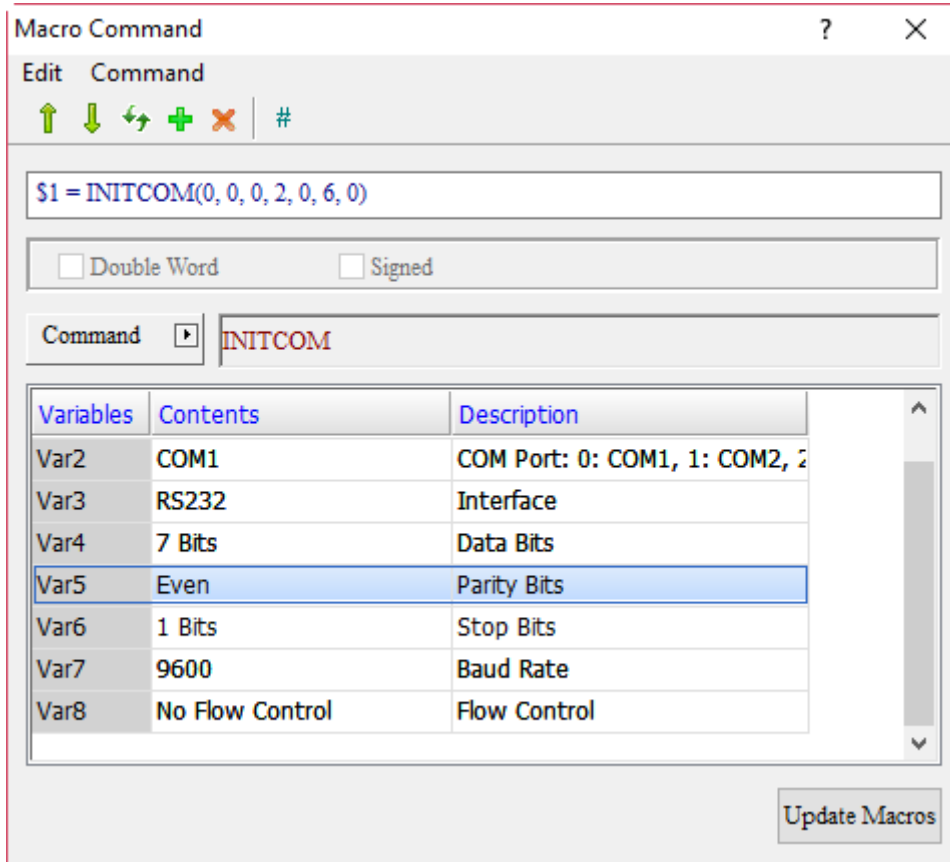
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		

Parameter setting			
Variable	Option	Option content	Corresponding code
Var2	COM Port	COM1	0
		COM2	1
		COM3	2
Var3	Interface	RS232	0
		RS422	1
		RS485	2
Var4	Data Bits	7 Bits	0
		8 Bits	1
Var5	Parity Bits	None	0
		Old	1
		Even	2
Var6	Stop Bits	1 Bits	0
		2 Bits	1
Var7	Baud Rate	300	0
		600	1
		900	2
		1200	3
		2400	4
		4800	5
		9600	6
		14400	7
		19200	8
		28800	9
		38400	10
		57600	11
115200	12		
Var8	Flow Control	No Flow Control	0
		CTS RTS Flow Control	1
		DTR DSR Flow Control	2
		Xon Xoff Flow Control	3

Notes for Flow Control		
No Flow Control		Flow Control is not set.
Flow Control		While using serial port to transmit data, real-time compression, debugging, and other transmission processing technologies greatly increase the speed and accuracy of communication, but also make the speed of data transmission between the computer and the HMI greater than the real data transfer speed. In order to ensure the security and integrity of data in transmission, the transfer flow must be controlled.
Flow Control	CTS / RTS Flow Control	Flow control for the hardware, which is achieved by the electrical pulse wave generated by the hardware flowing to internal modem or to external modem through a connecting cable.
	DSR / DTR Flow Control	Flow control for the hardware, which is achieved by a cable directly connecting the computer and the HMI.
	Xon / Xoff Flow Control	Flow control for the software, which is only used in 2400 bps modem. It is achieved by adding the control code generated by software to the data in transmission.

Example

- Var1 is the internal memory address.



- After executing the INITCOM command, 0 or 1 will be returned to \$1 for failure or success, respectively.

■ ADDSUM (get CHECKSUM through addition)

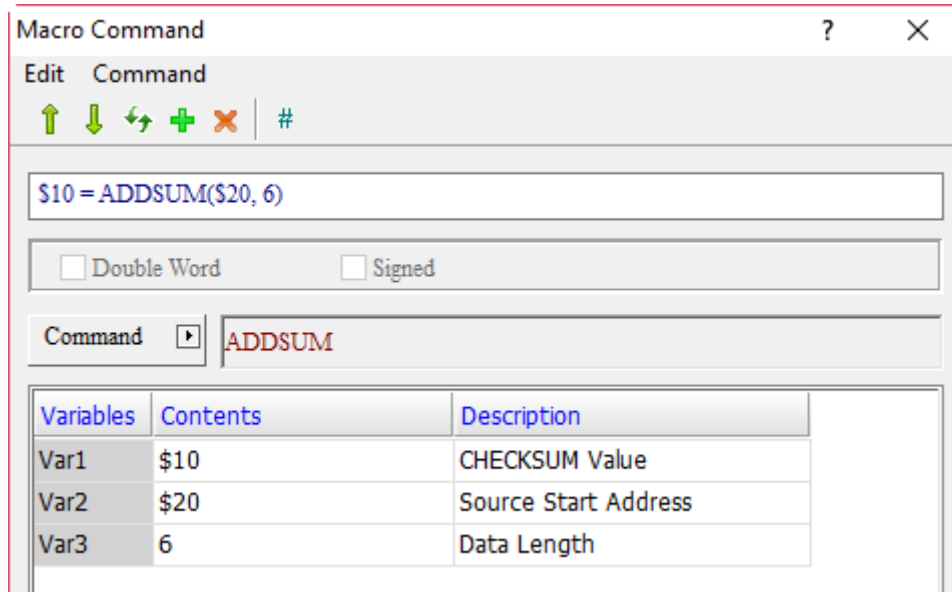
Expression	Meaning of variable		Note
Var1 = ADDSUM(Var2, Var3) (W)	Var1	CHECKSUM Value	W: Word
	Var2	Source Start Address	
	Var3	Data Length	
	Description of action		
		Get CHECKSUM through addition. Var1 is the CHECKSUM value after calculation, Var2 is the start address of the data to be calculated, and Var3 is the length of the data.	

Note: the value of CHECKSUM calculated by ADDSUM is based on Byte. If the length of data is 6, it has to be divided by 2, so the actual length is 3.

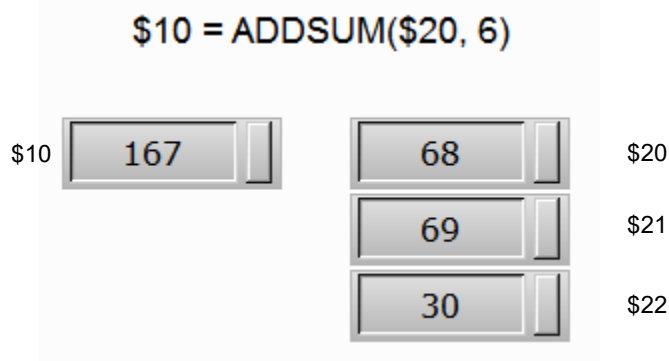
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		
Var3	v		v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- Conduct addition operation for 3 (6 / 2 = 3) consecutive data length from the start address of \$20 and put the value result in \$10. The expression is \$20 + \$21 + \$22 = \$10.



- XORSUM (get CHECKSUM through XOR)

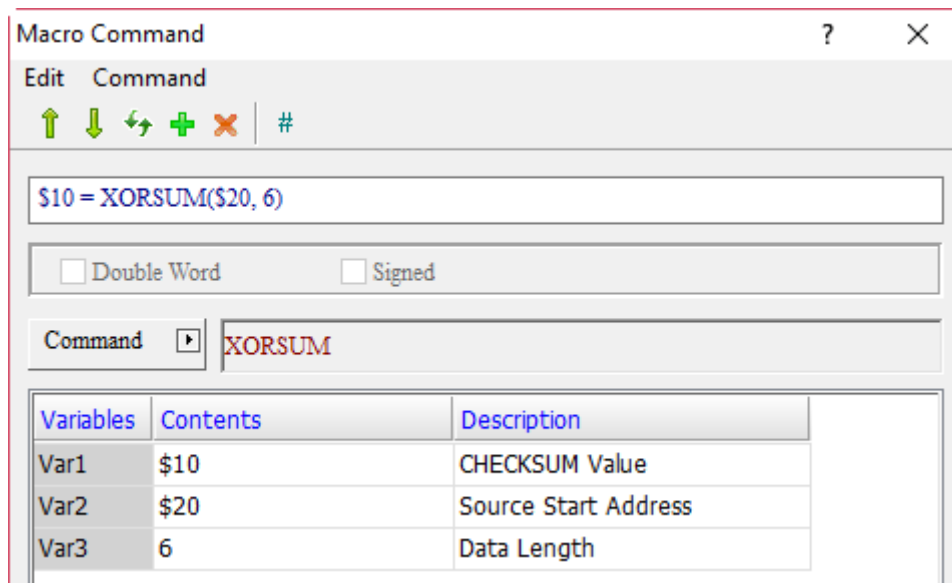
Expression	Meaning of variable	Note
Var1 = XORSUM(Var2, Var3) (W)	Var1	CHECKSUM Value
	Var2	Source Start Address
	Var3	Data Length
	Description of action	
	Get CHECKSUM through addition. Var1 is the CHECKSUM value after calculation, Var2 is the start address of the data to be calculated, and Var3 is the length of the data.	

Note: the value of CHECKSUM calculated by XORSUM is based on Byte. If the length of data is 6, it has to be divided by 2, so the actual length is 3.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		
Var3	v		v

Example

- Var1 and Var2 are internal memory addresses, and Var3 is a constant.



- Conduct XOR operation for 3 (6 / 2 = 3) consecutive data length from the start address of \$20 and put the value result in \$10.

- PUTCHARS (output characters via the communication port)

Expression	Meaning of variable		Note	
Var1 = PUTCHARS(Var2, Var3, Var4) (W)	Var1	Return value		W: Word
		Failed	0	
		Succeeded	1	
	Var2	Source Start Address		
	Var3	Data Length		
	Var4	Communication Time		
Description of action				
By the selected communication port, output characters of Var3 data length to Var2 start address within the required Var4 communication time, and put the return value in Var1.				

Note:

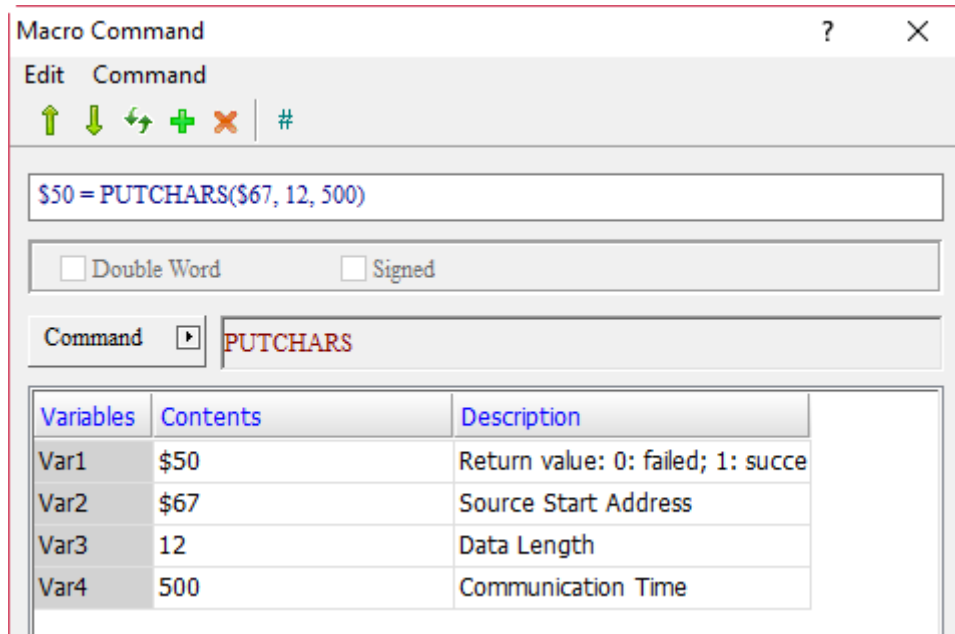
- The PUTCHARS command must be used together with INITCOM and SELECTCOM.
- The unit of Var3 is Byte.
- The unit of Var4 is ms, which means to complete the macro execution within a specific time and end the execution when the time is up, so as to avoid delaying the execution of macros afterwards.

24

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		
Var3	v		v
Var4	v		v

Example

- Var1 and Var2 are internal memory addresses, and Var3 and Var4 are constants.



Macro Command

Edit Command

↑ ↓ ↔ + × #

`$50 = PUTCHARS($67, 12, 500)`

Double Word Signed

Command: PUTCHARS

Variables	Contents	Description
Var1	\$50	Return value: 0: failed; 1: succe
Var2	\$67	Source Start Address
Var3	12	Data Length
Var4	500	Communication Time

```

Screen_1 Maintained_001 {} [After Execute Macro]
1 $1 = INITCOM(0, 0, 0, 2, 0, 6, 0)
2 SELECTCOM(0)
3 FILLASC($67, ":FFE0020")
4 $71 = 0D30H
5 $72 = 000AH
6 $50 = PUTCHARS($67, 12, 500)
    
```

- In the case of \$50 = PUTCHARS(\$67, 12, 500), its action is to send 12 bytes (6 words) data and write them to \$67. If 12 bytes cannot be sent within 500 ms, the program will exit the macro command when the time is up and write 0 to \$50; if 12 bytes are sent successfully, it will exit this command immediately and write 1 to \$50.

■ GETCHARS (get characters via the COM Port)

Expression	Meaning of variable		Note	
Var1 = GETCHARS(Var2, Var3, Var4) (W)	Var1	Return value		W: Word
		Failed	0	
		Succeeded	1	
	Var2	Source Start Address		
	Var3	Data Length		
	Var4	Communication Time		
	Description of action			
By the selected communication port, obtain characters of Var3 data length to Var2 start address within the required Var4 communication time, and put the return value in Var1.				

Note:

1. The GETCHARS command must be used together with INITCOM and SELECTCOM.
2. The unit of Var3 is Byte.
3. The unit of Var4 is ms, which means to complete the macro execution within a specific time and end the execution when the time is up, so as to avoid delaying the execution of macros afterwards.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		
Var3	v		v
Var4	v		v

Example

- Var1 and Var2 are internal memory addresses, and Var3 and Var4 are constants.

Variables	Contents	Description
Var1	\$51	Return value: 0: failed; 1: succe
Var2	\$100	Source Start Address
Var3	12	Data Length
Var4	500	Communication Time

```
Screen_1 Maintained_001 {} [After Execute Macro]
1 $1 = INITCOM(0, 0, 0, 2, 0, 6, 0)
2 SELECTCOM(0)
3 FILLASC($67, ":FFE0020")
4 $71 = 0D30H
5 $72 = 000AH
6 $50 = PUTCHARS($67, 12, 500)
7 $51 = GETCHARS($100, 12, 500)
```

- In the case of \$51 = GETCHARS(\$100, 12, 500), its action is to collect 12 bytes (6 words) data and write them to \$100. If 12 bytes cannot be collected within 500 ms, the program will exit the macro command when the time is up and write 0 to \$51; if 12 bytes are collected successfully, it will exit this command immediately and write 1 to \$51.

- SELECTCOM (select COM Port)

Expression	Meaning of variable		Note
SELECTCOM(Var1) (W)	Var 1	COM1	0
		COM2	1
		COM3	2
Description of action			W: Word
Select the communication port.			

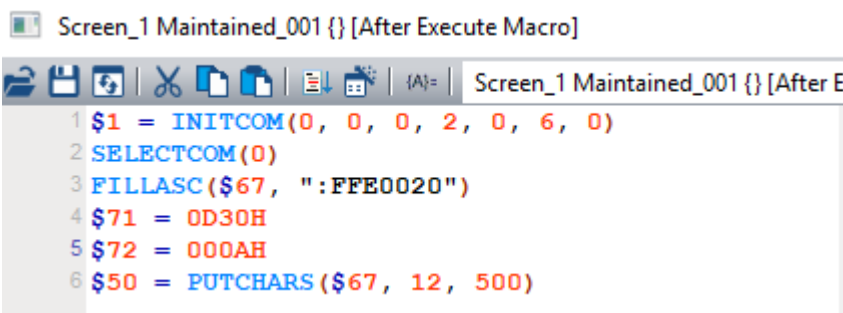
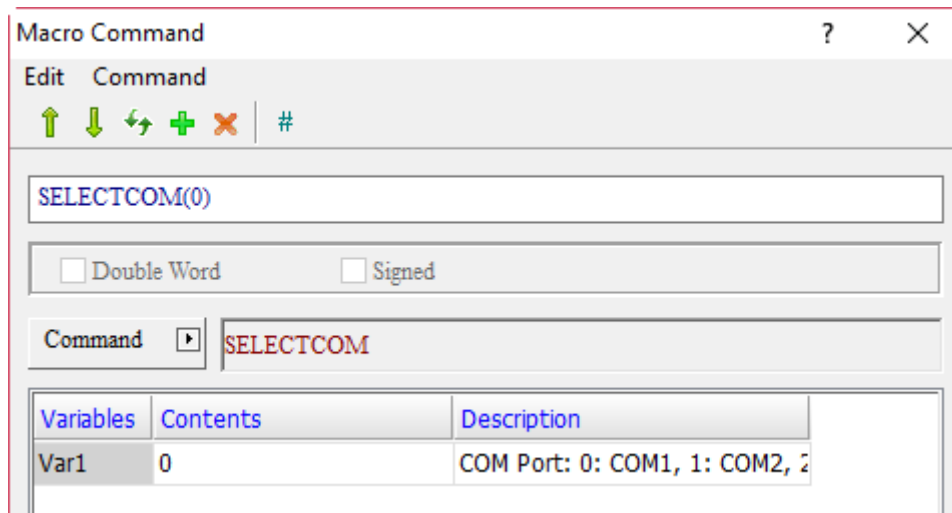
Note:

- The SELECTCOM command must be used together with INITCOM.
- The specified COM Port cannot be the same as the one used by the system. The selected COM Port will process relevant communication commands, so the SELECTCOM command in different macros will not support or interfere with each other.

Variable	Type		
	Internal memory	PLC register	Constant
Var1			v

Example

Var1 can only be a constant.



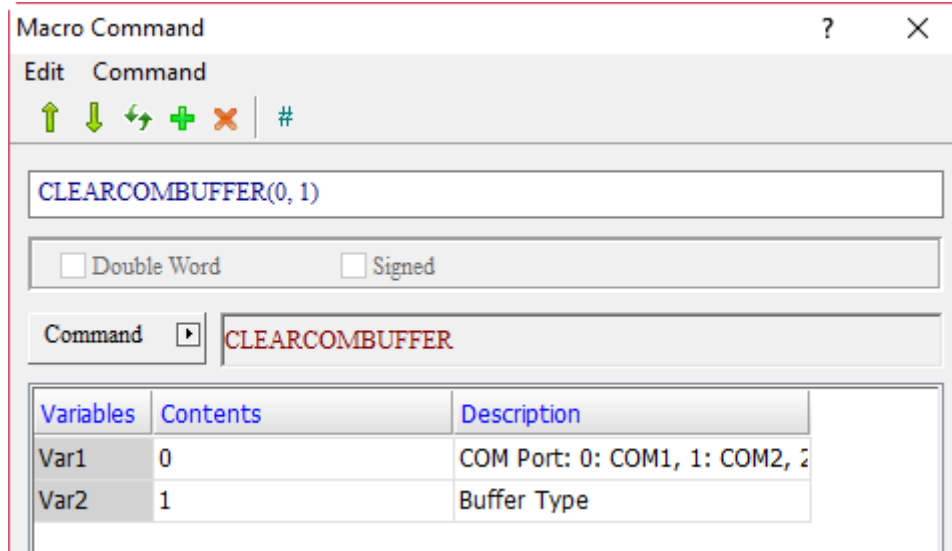
■ CLEARCOMBUFFER (clear buffer of COM Port)

Expression	Meaning of variable		Note	
CLEARCOMBUFFER(Var1, Var2) (W)	Var1	COM1	0	W: Word
		COM2	1	
		COM3	2	
	Var2	Receive Buffer	0	
		Transmit Buffer	1	
Description of action				
Clear buffer of Var1 COM Port.				

Variable	Type		
	Internal memory	PLC register	Constant
Var1			v
Var2			v

Example

- Var1 and Var2 can only be constants.



- CHRCHKSUM (calculate the length and CHECKSUM value of the string)

Expression	Meaning of variable			Note	
Var1 = CHRCHKSUM("Var2", Var3, Var4) (W)	Var1	String Length		W: Word	
	Var2	Input String			
	Var3	Memory address for storing strings			
	Var4	Select the display format for CHECKSUM result	1 BYTE		1
			2 BYTES (WORD)		2
	Description of action				
Calculate string length and CHECKSUM value, and put them in Var1.					

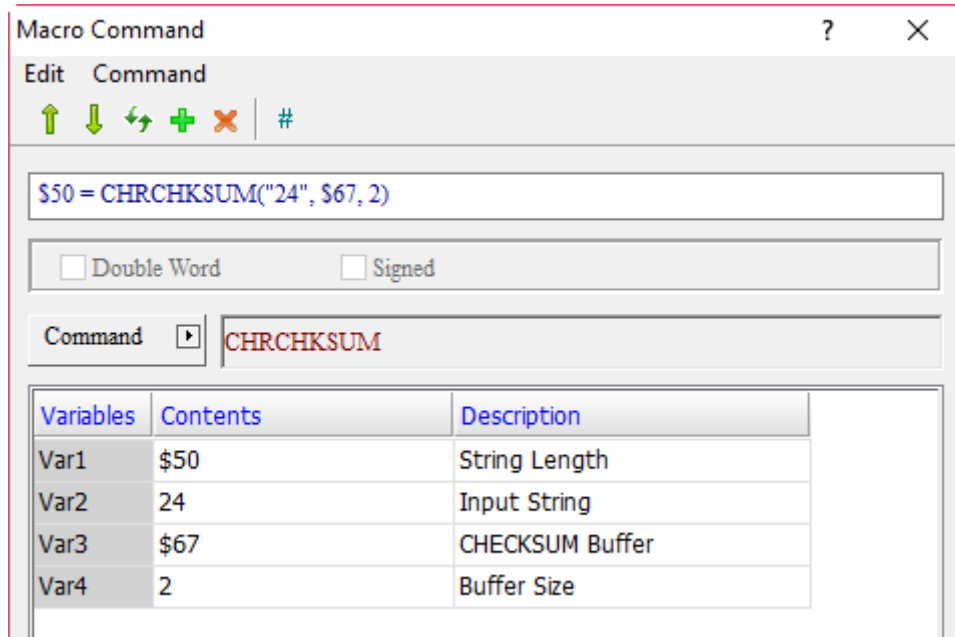
Note:

- The string length of Var1 varies according to the format set by Var4.
- If the input string is "345", Var4 is set as 2, the result value of the string length of Var1 is 5. On the contrary, if Var4 is set as 1, the result value is 4. (Unit based on Byte.)

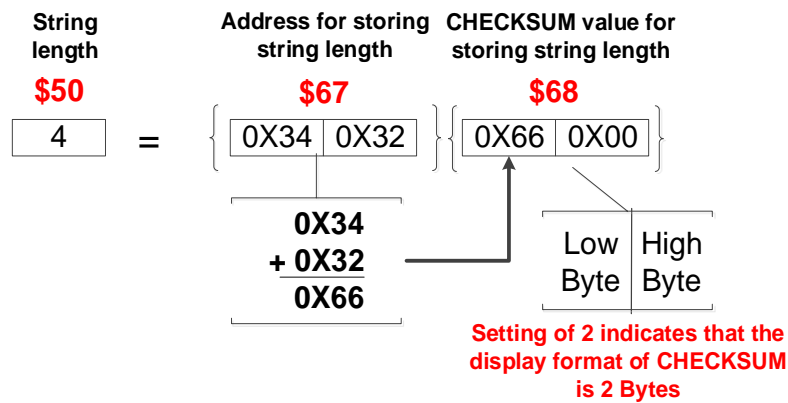
Variable	Type			
	Internal memory	PLC register	String	Constant
Var1	v			
Var2			v	
Var3	v			
Var4				v (can only input 1 and 2)

Example

■ Example 1



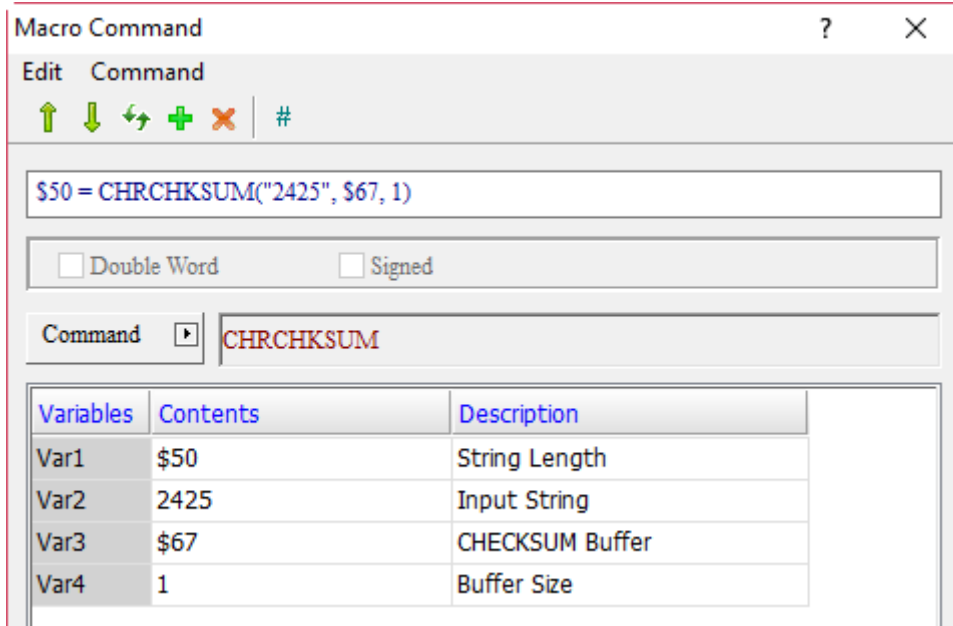
\$50 = CHRCHKSUM ("24" , \$67, 2)



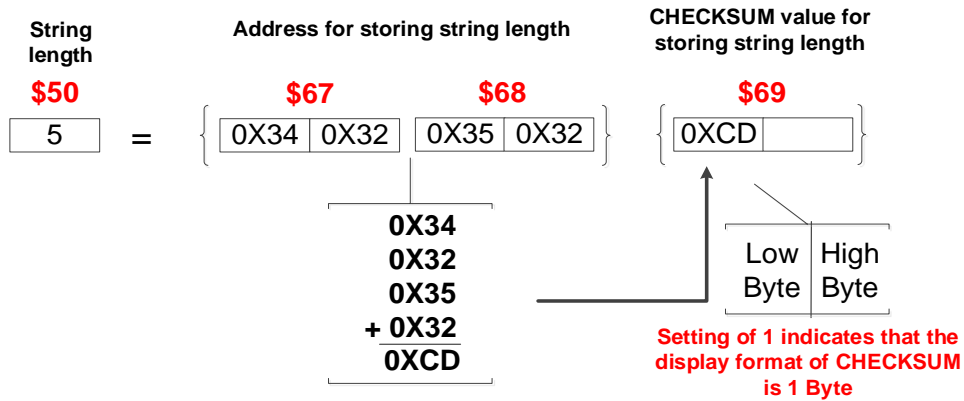
24

Example

■ Example 2



\$50 = CHRCHKSUM ("2425" , \$67, 1)



■ LOCKCOM / UNLOCKCOM (lock COM Port / unlock COM Port)

Expression	Meaning of variable			Note
Var1 = LOCKCOM(Var2, Var3) (W)	Var1	Return value		W: Word
		Failed	0	
		Succeeded	1	
	Var2	COM1	0	
		COM2	1	
		COM3	2	
	Var3	Time Out		
Description of action				
Lock COM port.				
UNLOCKCOM(Var1) (W)	Var1	COM1	0	
		COM2	1	
		COM3	2	
	Description of action			
	Unlock COM port.			

Note:

1. If the LOCKCOM command is set to infinite waiting (i.e. Var3 = 0), it means LOCKCOM will be executed twice in the same macro which will cause the HMI unable to respond.
2. If there are communication commands in more than one macro at the same time, it may cause interference of the communication data. To prevent this problem, LOCKCOM and UNLOCKCOM can be added before and after the communication commands. This can avoid communication interruption and execution of other communication actions in the same period of time to ensure the integrity of communication contents.
3. Please use LOCKCOM and UNLOCKCOM together, otherwise the HMI cannot execute the download action.
4. The unit of Var3 Time Out value is ms.

Variable	LOCKCOM command type		
	Internal memory	PLC register	Constant
Var1	v		
Var2			v
Var3			v

Variable	UNLOCKCOM command type		
	Internal memory	PLC register	Constant
Var1			v

The following are examples of the proper, improper, and incorrect usages of the LOCKCOM / UNLOCKCOM macro commands.

LOCKCOM / UNLOCKCOM example (proper use)

Background Macro	Element On Macro	Screen Cycle Macro
<pre>\$50 = LOCKCOM(0,500) \$51 = PUTCHARS(\$67, 3, 300) UNLOCKCOM(0)</pre>	<pre>\$50 = LOCKCOM(0,500) \$51 = GETCHARS(\$67, 3, 300) UNLOCKCOM(0)</pre>	<pre>\$50 = LOCKCOM(0,500) \$51 = PUTCHARS(\$67, 3, 300) UNLOCKCOM(0)</pre>

Suppose that communication commands are currently executed in three macros, when the Background macro executes LOCKCOM(0, 500) first, then COM 1 is locked. As a result, LOCKCOM(0, 500) in Element On Macro and Screen Cycle Macro will stop, which will not be executed until Background macro executes UNLOCKCOM(0) to unlock COM 1. This action can avoid data interference or receiving error.

LOCKCOM / UNLOCKCOM example (improper use)

Element On Macro	Screen Cycle Macro
<pre>\$51 = GETCHARS(\$67, 3, 300)</pre>	<pre>\$50 = LOCKCOM(0,500) \$51 = PUTCHARS(\$67, 3, 300) UNLOCKCOM(0)</pre>

Suppose that communication commands are currently executed in two macros, when Screen Cycle Macro executes LOCKCOM(0, 500) first, COM 1 is locked. However, because Element On Macro is not locked by LOCKCOM, the GETCHARS command can still be executed, meaning it does not need to wait until the Screen Cycle Macro executes the UNLOCKCOM command. This will result in data interference and errors, so please avoid the above usage.

LOCKCOM / UNLOCKCOM example (Incorrect use)

Background Macro	Element On Macro
<pre>\$50 = LOCKCOM(0, 500) \$51 = PUTCHARS(\$67, 3, 300)</pre>	<pre>UNLOCKCOM(0)</pre>

Suppose you lock COM Port in the Background macro and transmits data through COM Port, but you cannot unlock COM Port in Element On Macro. This means that the two commands of locking COM Port and unlocking COM Port cannot be written separately.

Example

- Var1 is the internal memory address, and Var2 and Var3 can only be constants.

Macro Command

Edit Command

↑ ↓ ↺ + × #

`$50 = LOCKCOM(0, 500)`

Double Word Signed

Command ▶ `LOCKCOM`

Variables	Contents	Description
Var1	\$50	Return value: 0: failed; 1: succe
Var2	0	COM Port: 0: COM1, 1: COM2, 2
Var3	500	Time Out

- Var1 can only be a constant.

Macro Command

Edit Command

↑ ↓ ↺ + × #

`UNLOCKCOM(0)`

Double Word Signed

Command ▶ `UNLOCKCOM`

Variables	Contents	Description
Var1	0	COM Port: 0: COM1, 1: COM2, 2

Screen_1 [Screen Cycle Macro]

Screen_1 [Screen Cycle Macro]

- `$50 = LOCKCOM(0, 500)`
- `$51 = PUTCHARS($67, 12, 500)`
- `$52 = GETCHARS($100, 12, 500)`
- `UNLOCKCOM(0)`

24

- STATIONCHK (check COM connection status)

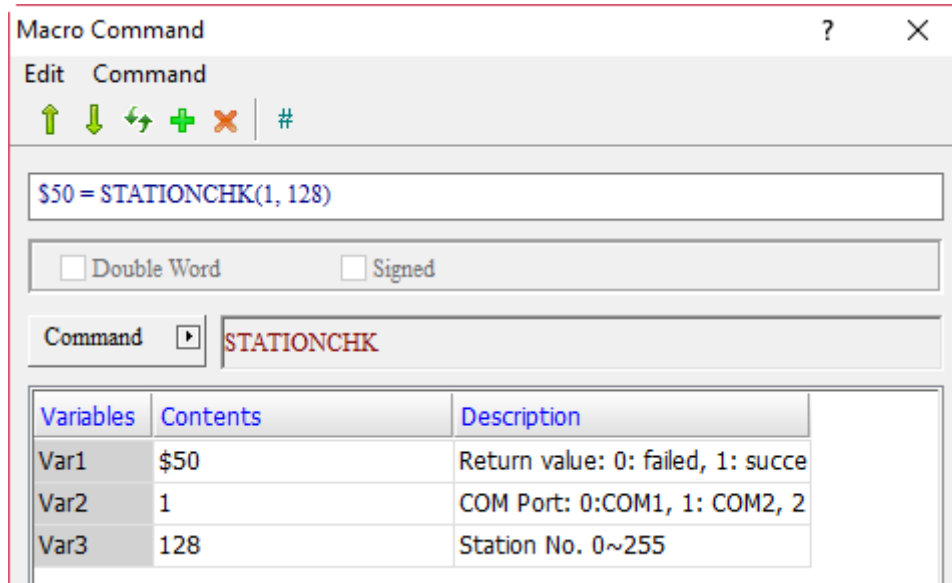
Expression	Meaning of variable		Note	
Var1 = STATIONCHK(Var2, Var3) (W)	Var1	Return value		W: Word
		Failed	0	
	Succeeded	1		
	Var2	COM1	0	
		COM2	1	
		COM3	2	
	Var 3	Station No.		
Description of action				
Check COM connection status.				

Note: this command reads internal memory parameters without increasing the HMI communication.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v
Var3	v		v

Example

- Var1 is the internal memory address, and Var2 and Var3 are constants.

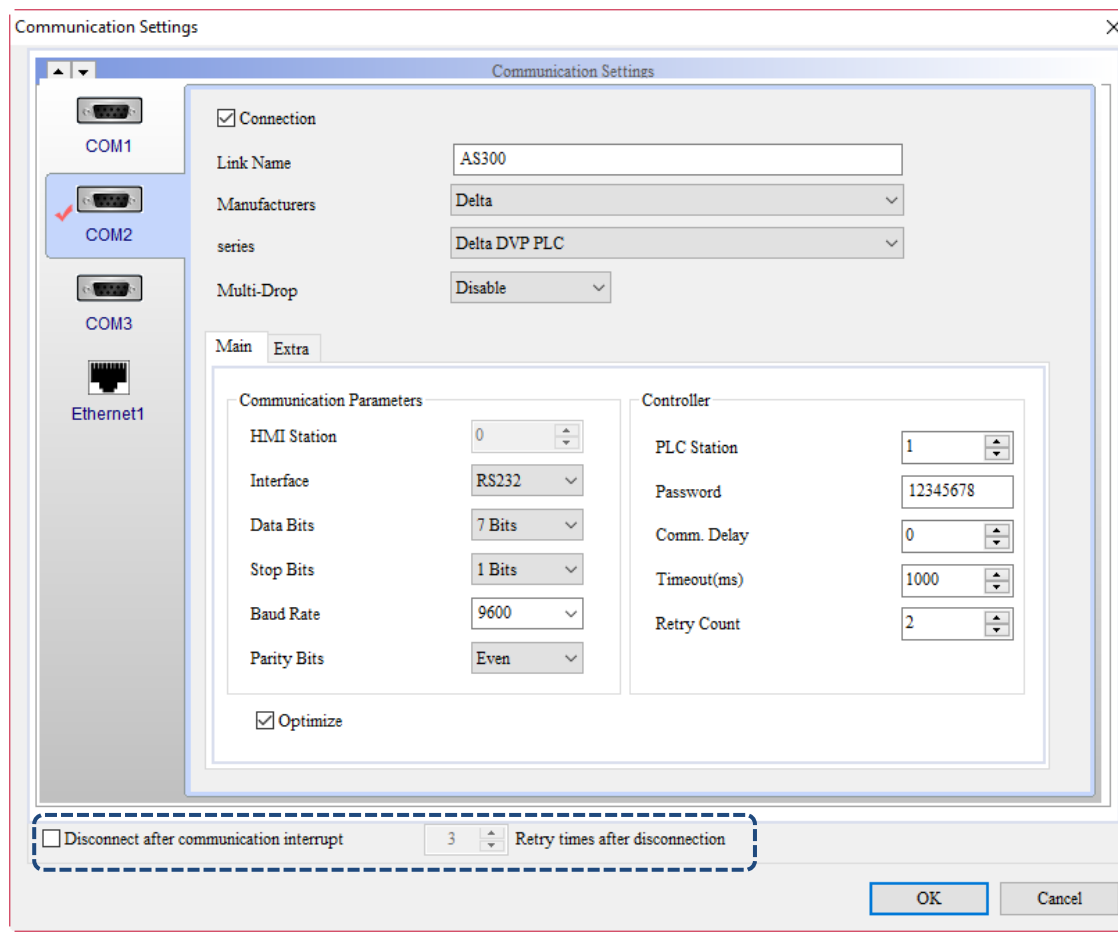


- After executing this macro, if the communication between the HMI COM2 and the PLC of Station No. 128 is normal, the return value is \$50 = 1; if the communication is abnormal, the return value is \$50 = 0.

■ STATIONON (station On)

Expression	Meaning of variable		Note
STATIONON(Var1, Var2) (W)	Var1	COM1	0
		COM2	1
		COM3	2
	Var2	Station No.	
	Description of action			W: Word
Enable Station No. Var2 of COM Var1 and the HMI can communicate with the station controller.			

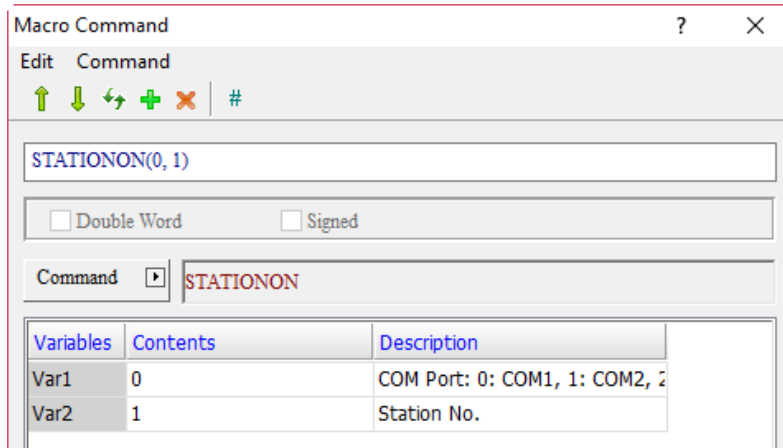
Note: the STATIONON macro and the [Disconnect after communication interrupt] of [Options] > [Communication Settings] cannot be used at the same time.



Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v

Example

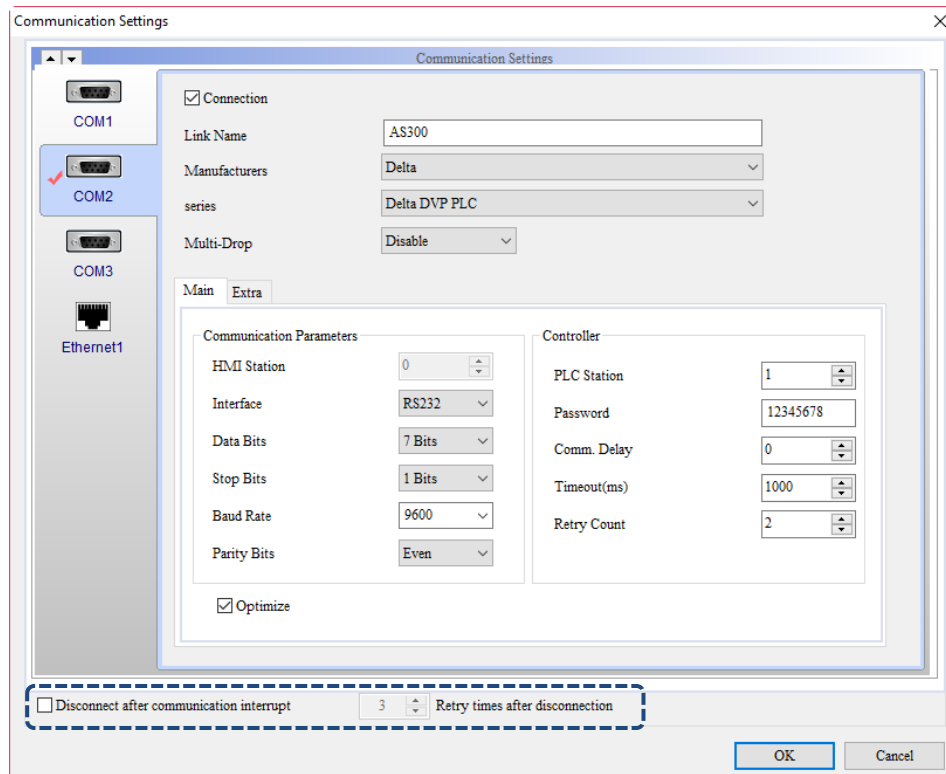
- Var1 and Var2 are constants. Enable Station No. 1 on COM 1.



- STATIONON (station OFF)

Expression	Meaning of variable		Note
STATIONOFF(Var1, Var2) (W)	Var1	COM1	0
		COM2	1
		COM3	2
	Var2	Station No.		W: Word
Description of action			
Disable Station No. Var2 of COM Var1, and the HMI cannot communicate with the station controller.			

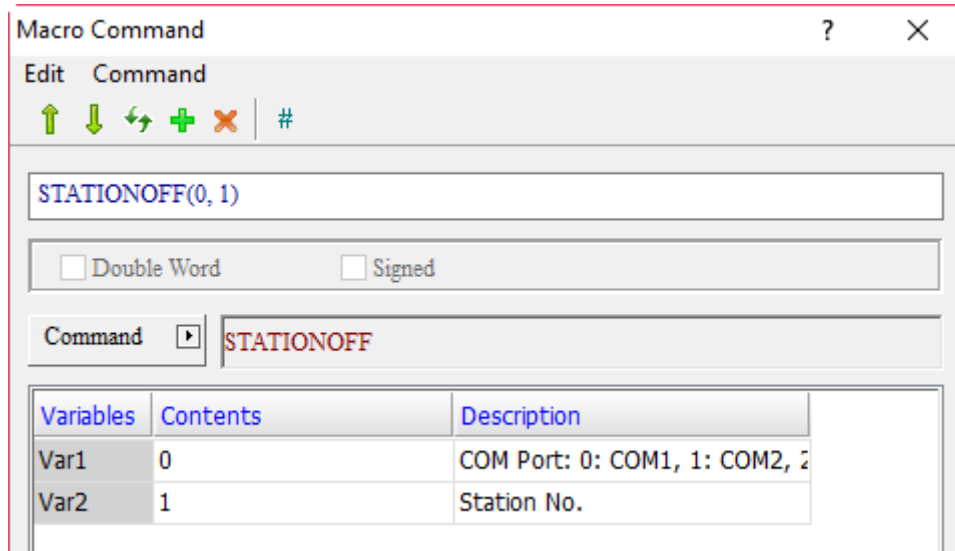
Note: the STATIONOFF macro and the [Disconnect after communication interrupt] of [Options] > [Communication Settings] cannot be used at the same time.



Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v
Var2	v		v

Example

- Var1 and Var2 are constants. Disable Station No. 1 on COM 1.



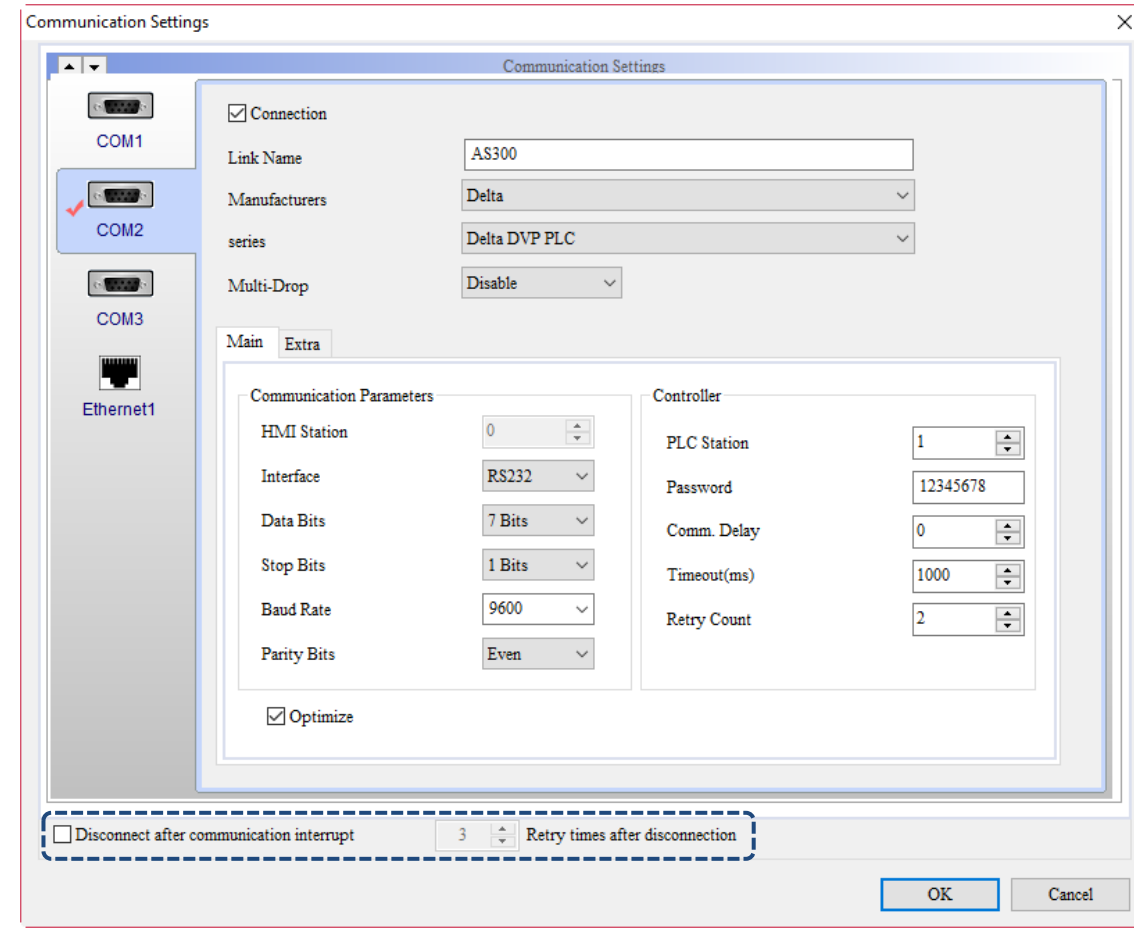
24

■ IPON (activate IP address)

Expression	Meaning of variable		Note	
Var1 = IPON(Var2, Var3, Var4, Var5, Var6)	Var1	Return value		W: Word
		Failed	0	
	Succeeded	1		
	Var2	IP1		
	Var3	IP2		
	Var4	IP3		
	Var5	IP4		
	Var6	Port		
Description of action				
Activate IP Var2, Var3, Var4, Var5, and Port Var6, and the HMI can communicate with the station controller.				

Note:

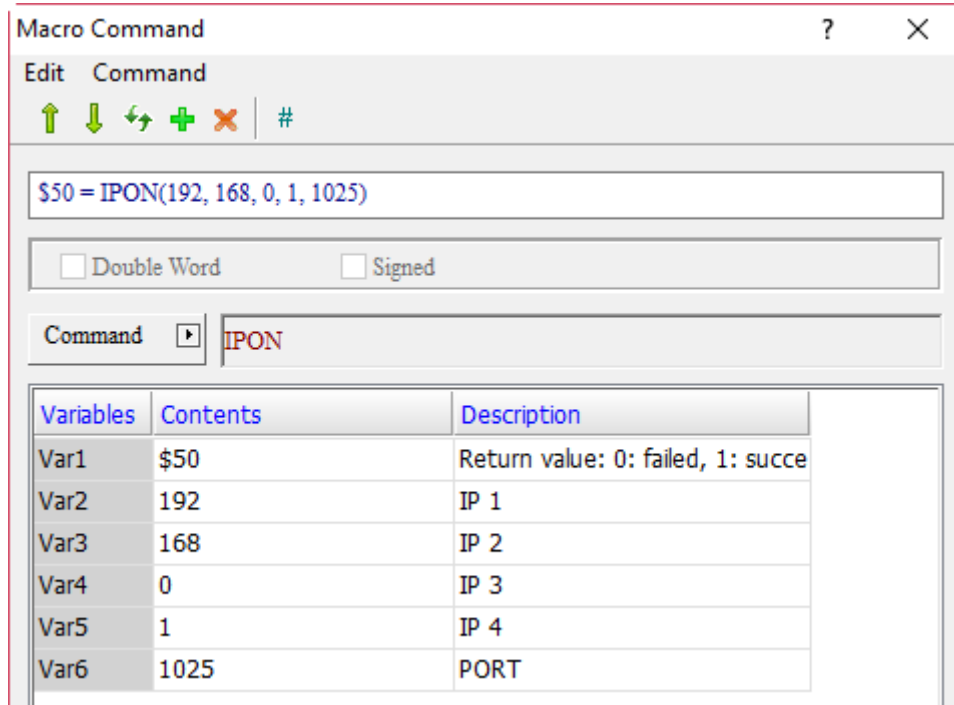
- Using Var6 is not necessary. All ports under this IP will be activated when it is not in use.
- The IPON macro and the [Disconnect after communication interrupt] of [Options] > [Communication Settings] cannot be used at the same time.



Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v	v	v
Var3	v	v	v
Var4	v	v	v
Var5	v	v	v
Var6	v	v	v

Example

- Var1 is the internal memory address, and Var2 to Var6 are constants. Activate IP 192.168.0.1 Port: 1025.



- If you are not using Var6, enter `$50 = IPON(192, 168, 0, 1)`, and all ports of IP 192.168.0.1 will be activated after the macro operation.

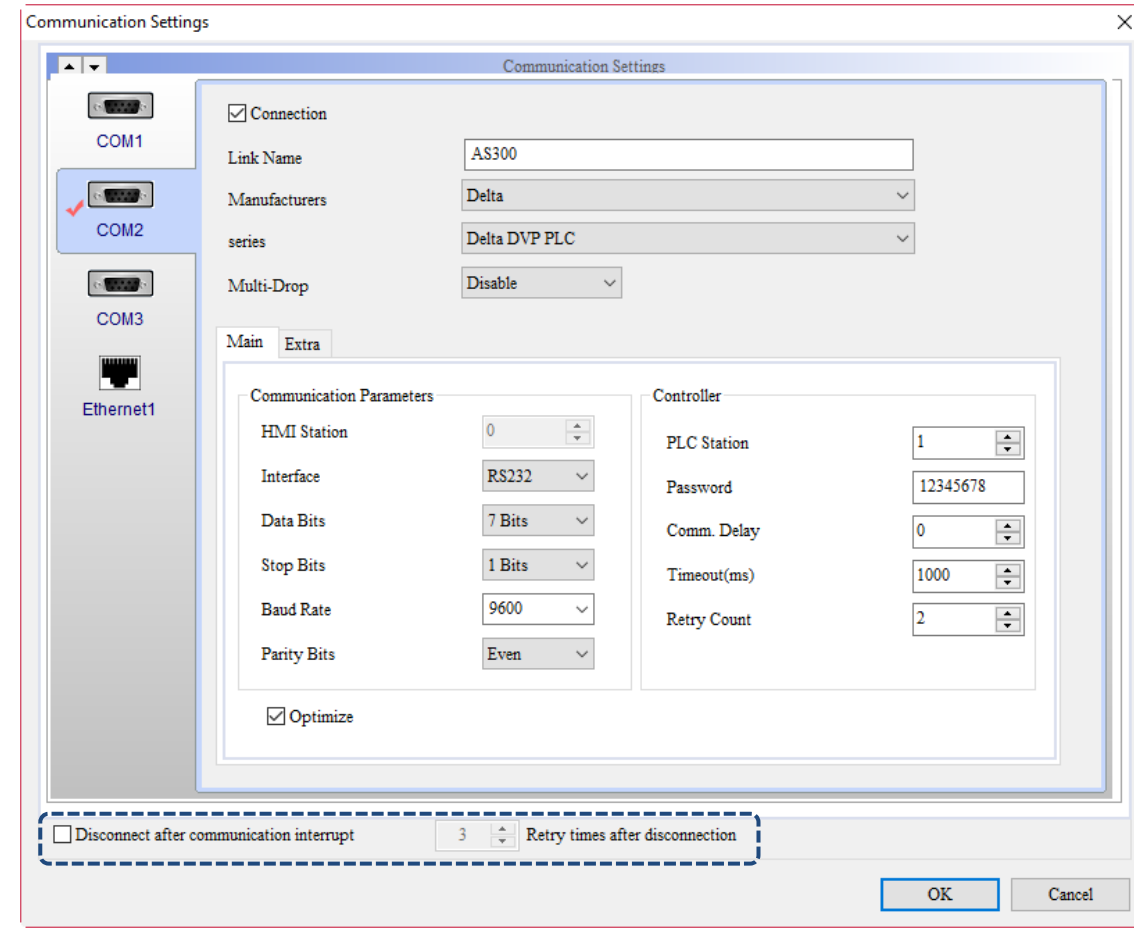
24

■ IPOFF (disable IP address)

Expression	Meaning of variable		Note	
Var1 = IPOFF(Var2, Var3, Var4, Var5, Var6) (W)	Var1	Return value		W: Word
		Failed	0	
	Succeeded	1		
	Var2	IP1		
	Var3	IP2		
	Var4	IP3		
	Var5	IP4		
	Var6	Port		
Description of action				
Disable IP Var2, Var3, Var4, Var5, and Port Var6, and the HMI cannot communicate with the station controller.				

Note:

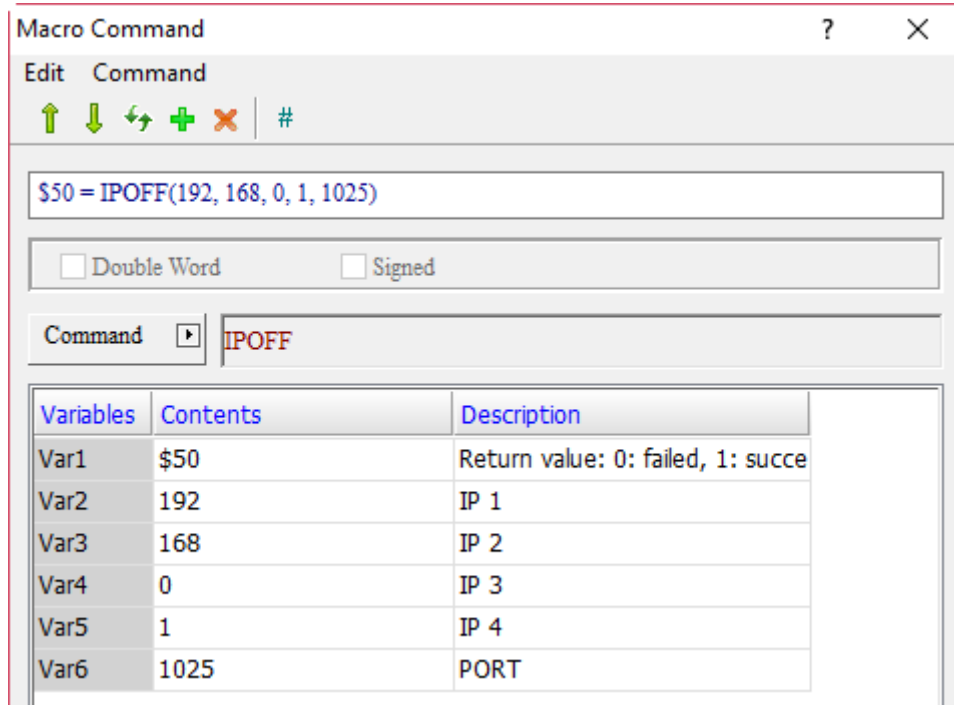
- Using Var6 is not necessary. All ports under this IP will be disabled when it is not in use.
- The IPOFF macro and the [Disconnect after communication interrupt] of [Options] > [Communication Settings] cannot be used at the same time.



Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v	v	v
Var3	v	v	v
Var4	v	v	v
Var5	v	v	v
Var6	v	v	v

Example

- Var1 is the internal memory address, and Var2 to Var6 are constants. Disable IP 192.168.0.1 Port: 1025.



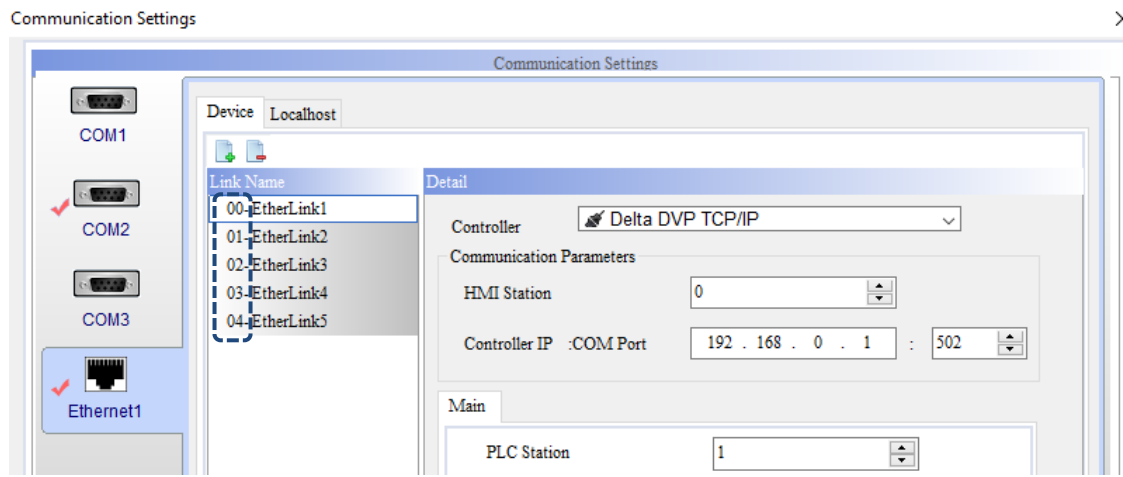
- If you are not using Var6, enter \$50 = IPON(192, 168, 0, 1), and all ports in IP 192.168.0.1 will be disabled after the macro operation.

24

- IPCHANGE (change the connection IP and communication port of the connection controller)

Expression	Meaning of variable		Note	
Var1 = IPCHANGE(Var2, Var3, Var4, Var5, Var6, Var7) (W)	Var1	Return value		W: Word
		Failed	0	
	Succeeded	1		
	Var2	Link No		
	Var3	IP1		
	Var4	IP2		
	Var5	IP3		
	Var6	IP4		
Var7	Port			
Description of action				
Change the IP setting of PLC connection, Var3, Var4, Var5, Var6, and Port Var7, and the HMI can dynamically change the information of Link for the HMI to reconnect with another PLC.				

Note: Link No. starts from 0.



Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v	v	v
Var3	v	v	v
Var4	v	v	v
Var5	v	v	v
Var6	v	v	v
Var7	v		

Example

- Var1 is the internal memory address, and Var2 to Var7 are constants.

Variables	Contents	Description
Var1	\$50	Return value: 0: failed, 1: succe
Var2	0	Link No
Var3	192	IP 1
Var4	168	IP 2
Var5	123	IP 3
Var6	250	IP 4
Var7	502	PORT

- Change the IP of PLC connection to 192.168.123.250 Port: 502.

24

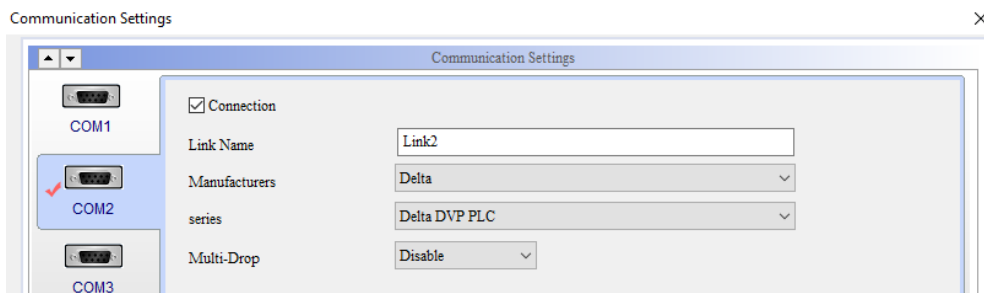
■ COMLINKSTATUS (Communication port connection status)

Expression	Meaning of variable		Note
Var1 = COMLINKSTATUS(Var2)	Var1	Communication error code. Return 0 when the communication is normal.	
	Var2	COM1	0
		COM2	1
		COM3	2
Description of action			
Return the error code of COM Var2 to Var1			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v

Example

Step 1: in the Communication Settings, set the controller series to Delta DVP PLC.

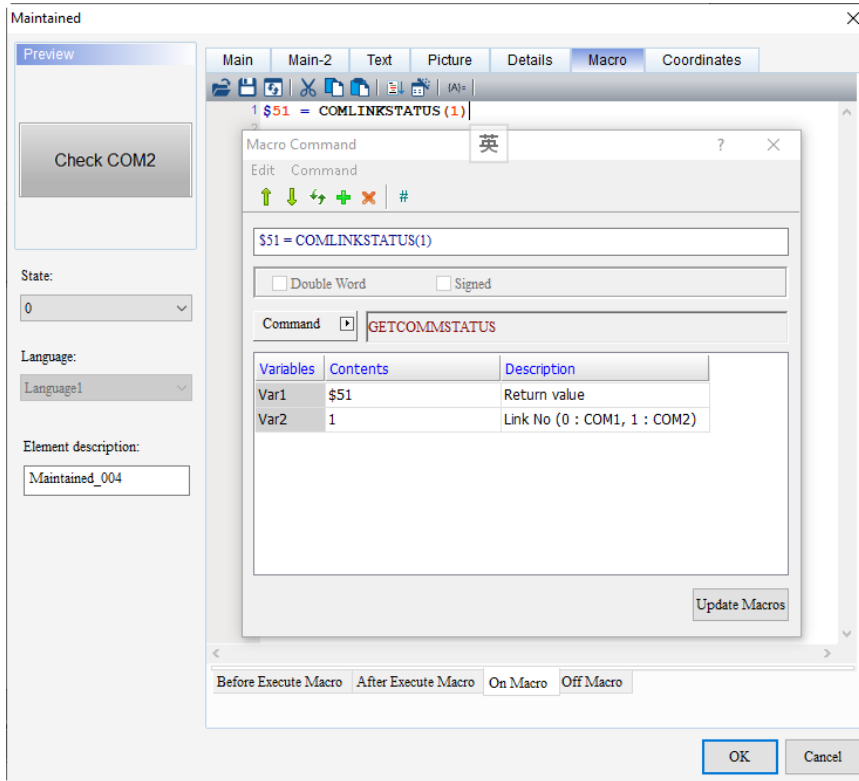


Step 2: create two Numeric Entry elements on the HMI screen with the addresses as \$51 and {Link2}1@D0 and the data formats as Hexadecimal.



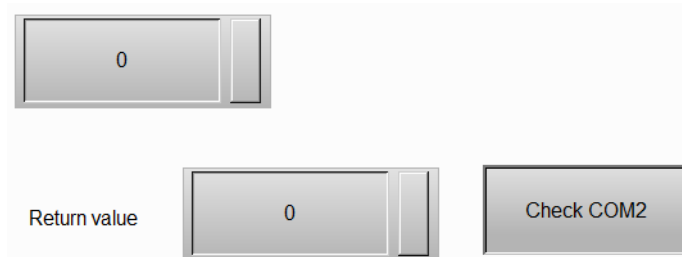
Example

Step 3: create a Maintained button, set the address to \$100.1, and add the On Macro to detect the communication status of COM2.

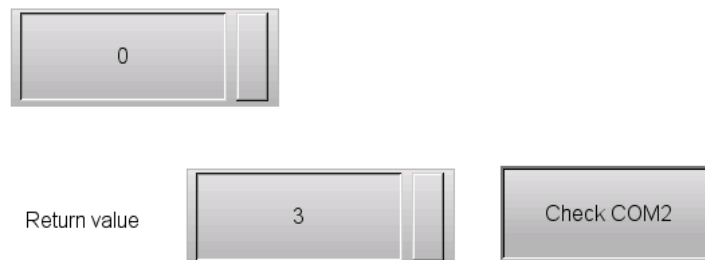


24

Step 4: download the project to the HMI. Under normal communication, the return value is 0 when you execute the Maintained button.



Step 5: remove the communication cable. When the HMI displays "Communication error 3" and you execute the Maintained button, the return value is 3.

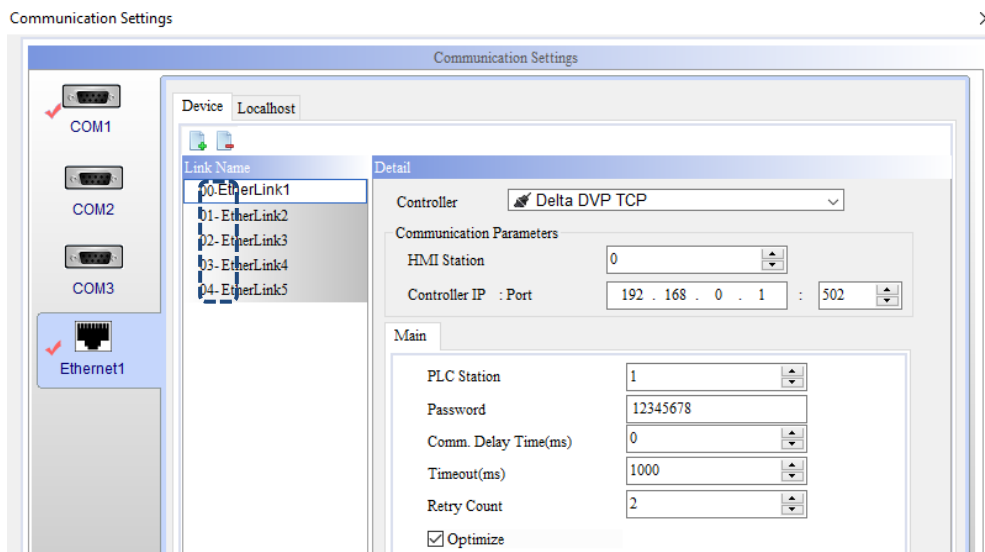


24

■ NETLINKSTATUS (Network connection status)

Expression	Meaning of variable		Note
Var1 = NETLINKSTATUS(Var2)	Var1	Return value	
		Communication error code. When the return value is 0, it means the communication is normal.	
	Var2	Link No	
	Description of action		
Return the error code of Var2 of the current Link No. to Var 1.			

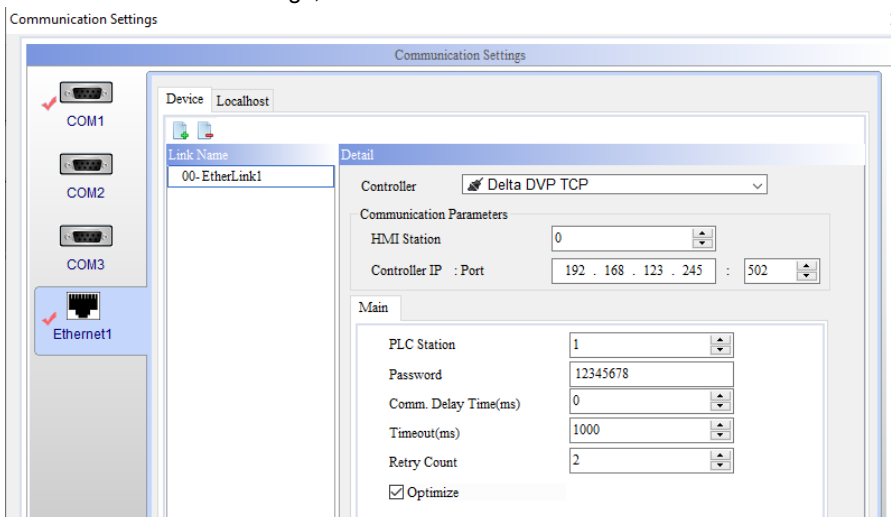
Note: the Link No. starts from 0.



Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v

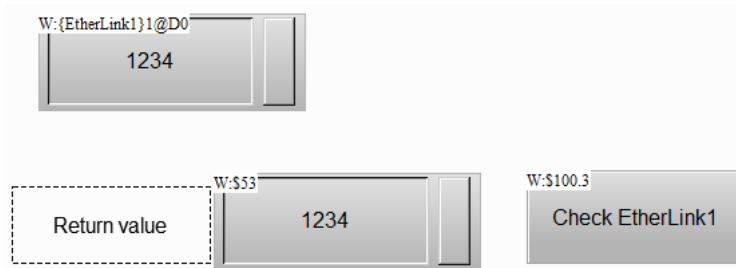
Example

Step 1: in the Communication Settings, set the Controller to Delta DVP TCP/IP.

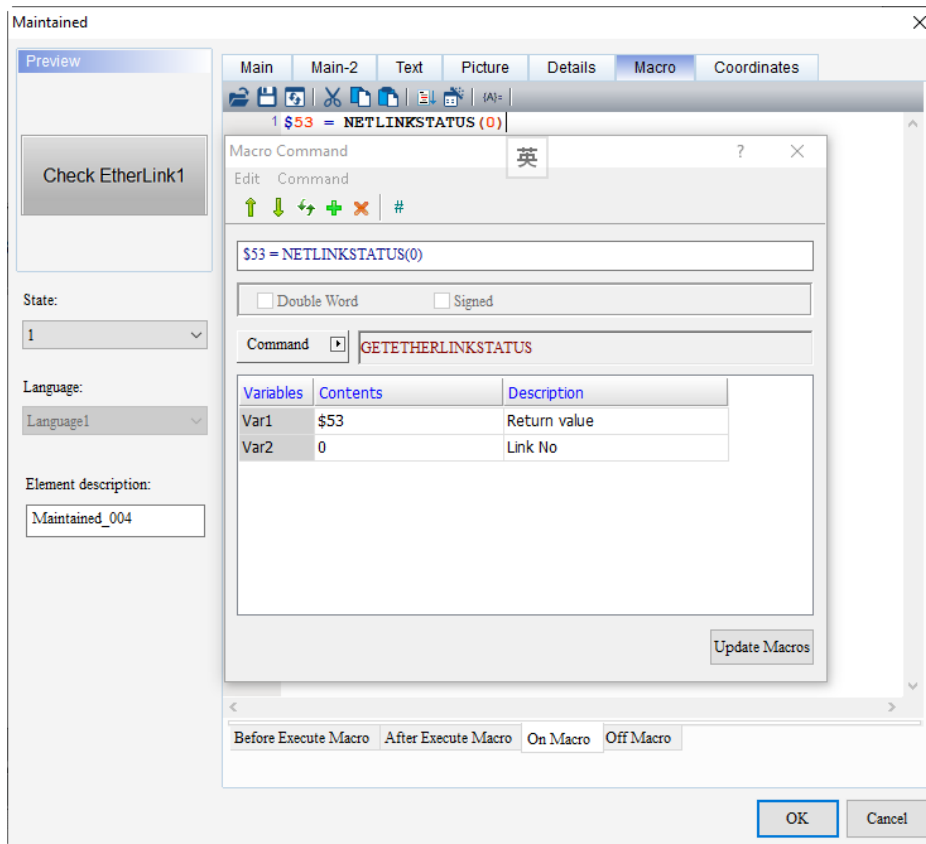


Example

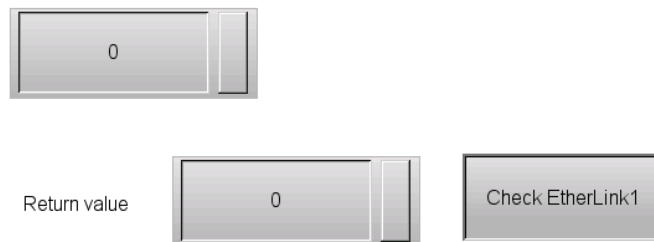
Step 2: create two Numeric Entry elements on the HMI screen with the addresses as \$53 and {EtherLink1}1@D0 and the data formats as Hexadecimal.



Step 3: create a Maintained button, set the address to \$100.3, and add the On Macro to detect the communication status of Link No.0.



Step 4: download the project to the HMI. Under normal communication, the return value is 0 when you execute the Maintained button.



Example

Step 5: remove the network cable. When the HMI displays “TCP reading error 22” and you execute the Maintained button, the return value is 22.

■ CLOSECOM (Disable the communication port)

Expression	Meaning of variable		Note	
Var1 = CLOSECOM(Var2)	Var1	Return value		
		Failed	0	
	Succeeded	1		
	Var2	COM 1	0	
		COM 2	1	
		COM 3	2	
Description of action				
Disable the communication port and return the value indicating success or failure to Var1.				

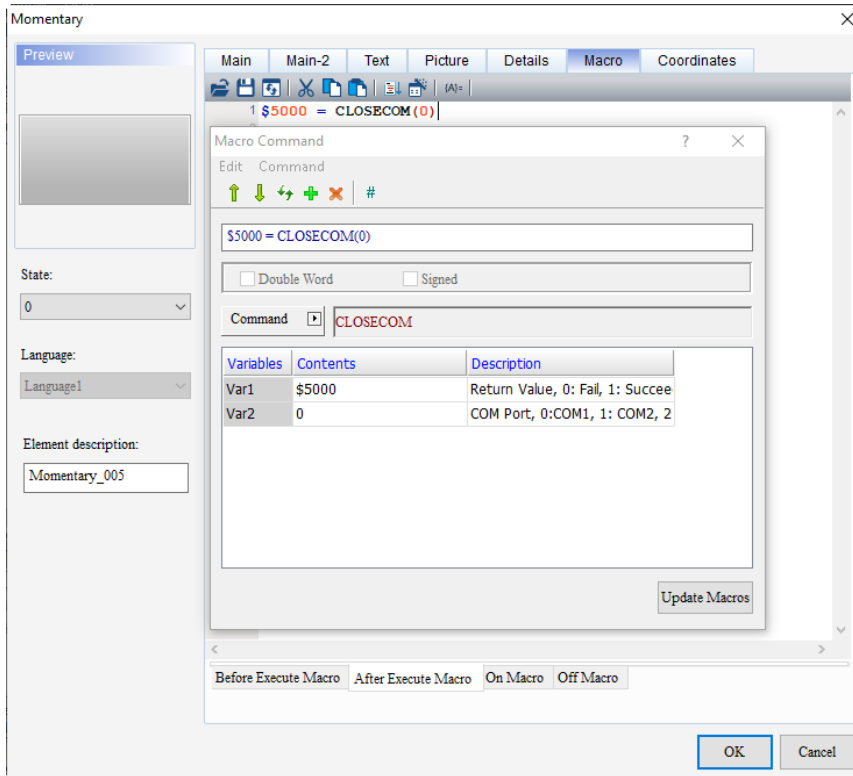
Note:

1. The CLOSECOM command must be used with INITCOM.
2. The communication port you specify must be different from the port used for the system. All communication commands are processed based on the selected communication ports, so there are no interference or reference between the specified communication port commands used in different macros.
3. If you need to change to another communication, each time you complete the INITCOM communication, execute the CLOSECOM macro to disable the current COM communication. Next, execute the INITCOM macro for the communication parameters to be used next time.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	v
Var2	v	v	v

Example

- Var1 and Var2 can be external memory, internal memory, or constants.



24

Screen_1 Momentary_005 {} [After Execute Macro]

```
1 $1 = INITCOM(0,0,0,2,0,6,0)
2 SELECTCOM(0)
3 FILLASC($67, ":FFE0020")
4 $71 = 0D30H
5 $72 = 000AH
6 $50 = PUTCHARS($67,12,500)
7 $2 = CLOSECOM(0)
```

24.3.9 Drawing

Drawing includes commands such as RECTANGLE, LINE, POINT, CIRCLE, etc., which allow you to draw figures. The commands are described in detail as follows.

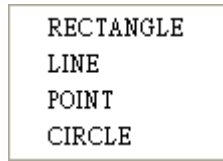


Figure 24.3.9.1 Drawing

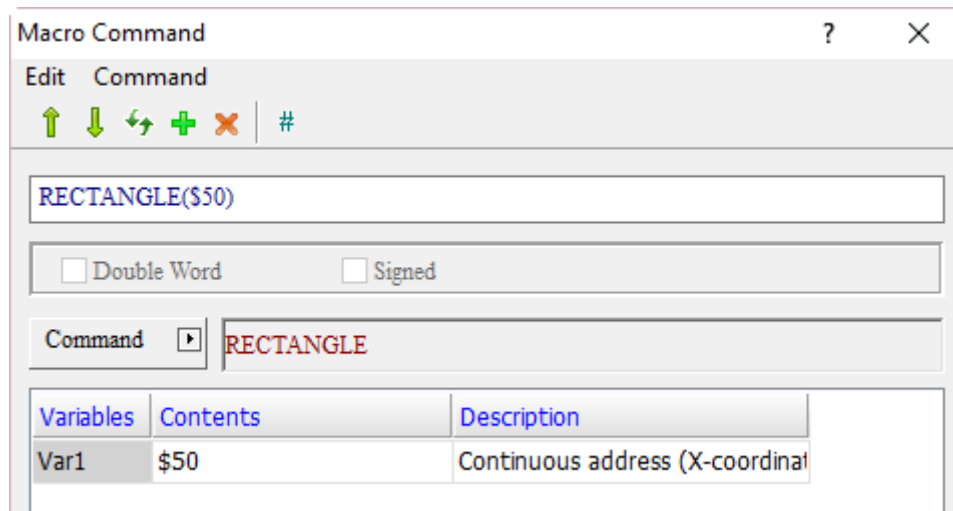
■ RECTANGLE (rectangle)

Expression	Meaning of variable		Note
RECTANGLE(Var1)(W)	Var1	Upper-left X-coordinate	W: Word
	Var1+ 1	Upper-left Y-coordinate	
	Var1+ 2	Rectangle width	
	Var1+ 3	Rectangle height	
	Var1+ 4	Rectangle color	
	Description of action		
Draw a rectangle with continuous addresses.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		

Example

- Var1 is the internal memory address.



Example

```
Screen_1 [Screen Cycle Macro]
1 RECTANGLE ($50)
2 $50 = 100
3 $51 = 200
4 $52 = 300
5 $53 = 300
6 $54 = 2416
```

24

RECTANGLE(\$50)



100	\$50
200	\$51
300	\$52
300	\$53
2416	\$54

24

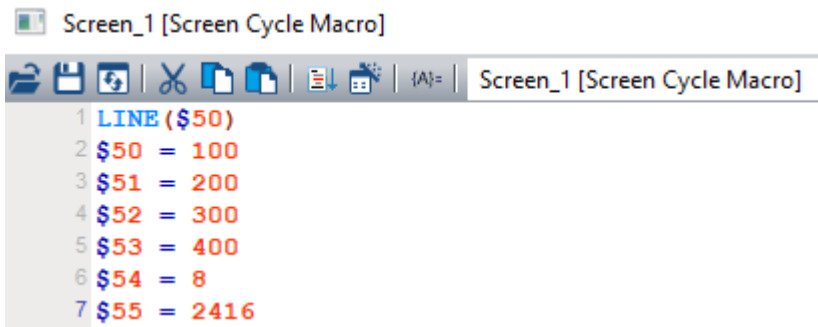
■ LINE (line)

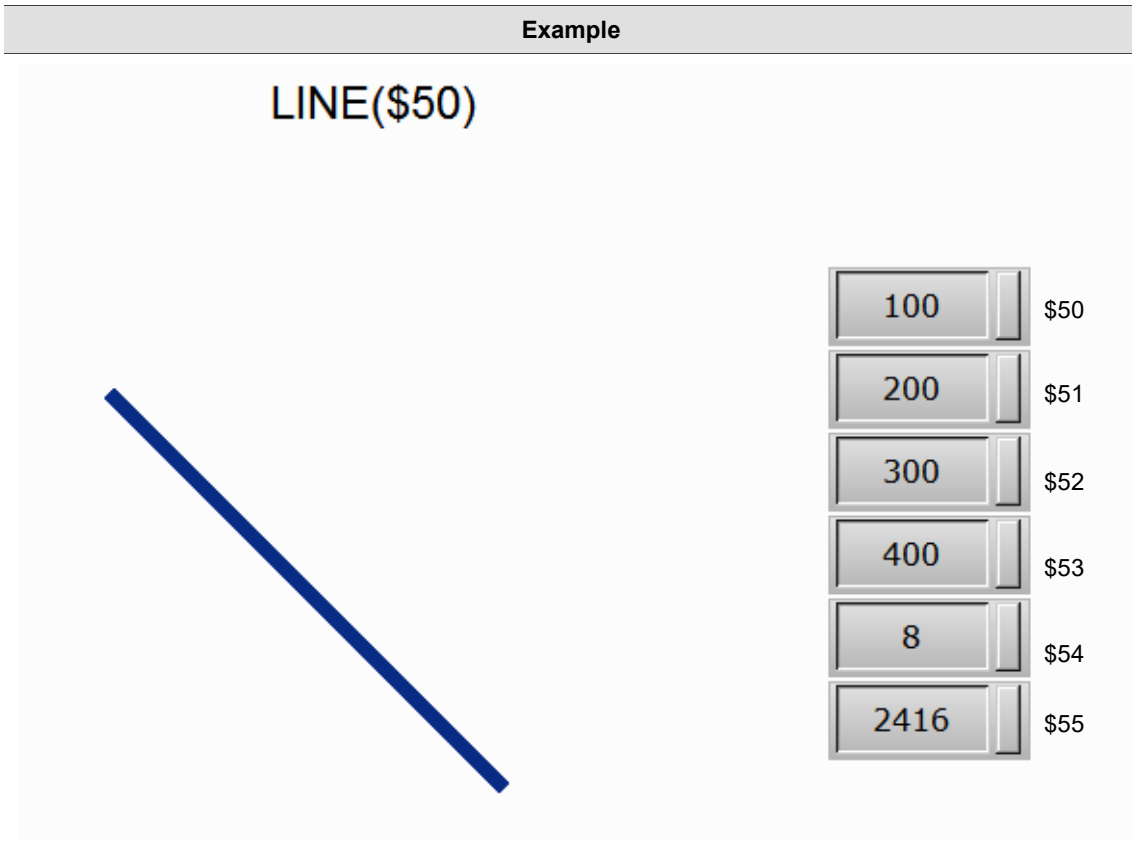
Expression	Meaning of variable		Note
LINE(Var1) (W)	Var1	X-coordinate of starting point	W: Word
	Var1+ 1	Y-coordinate of starting point	
	Var1+ 2	X-coordinate of end point	
	Var1+ 3	Y-coordinate of end point	
	Var1+ 4	Line width	
	Var1 + 5	Line color	
	Description of action		
Draw a line with continuous addresses.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		

Example

- Var1 is the internal memory address.





■ POINT (point)

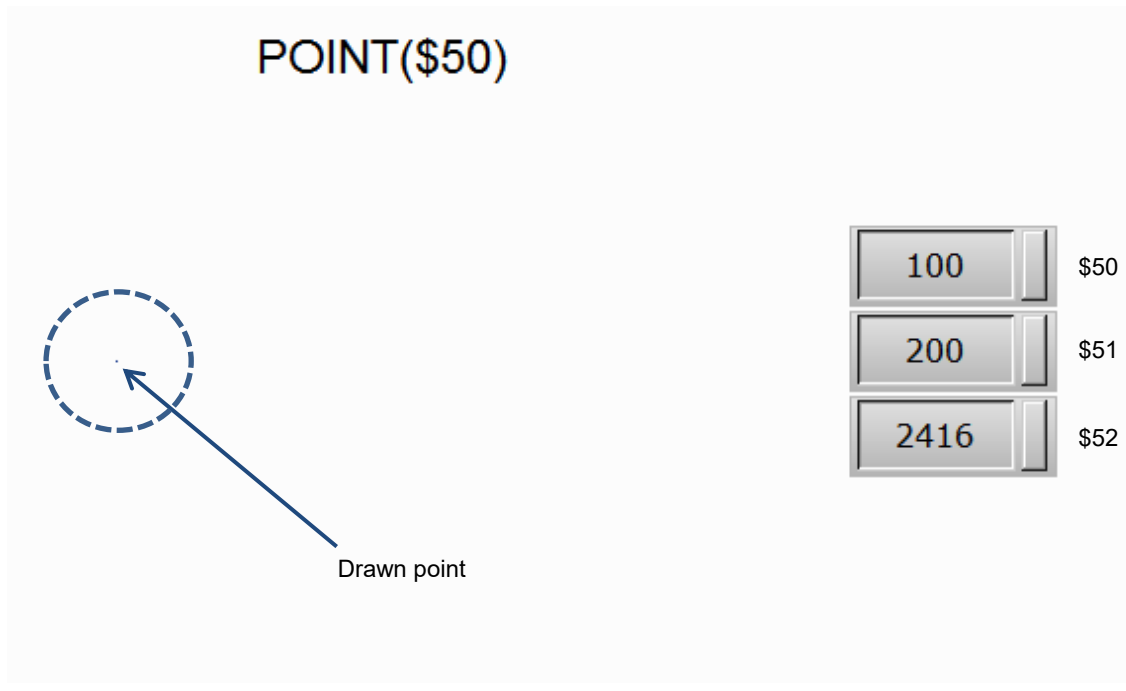
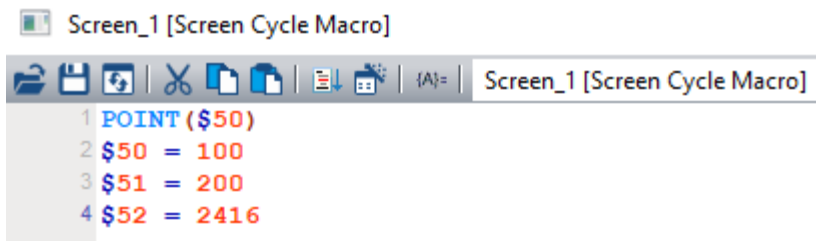
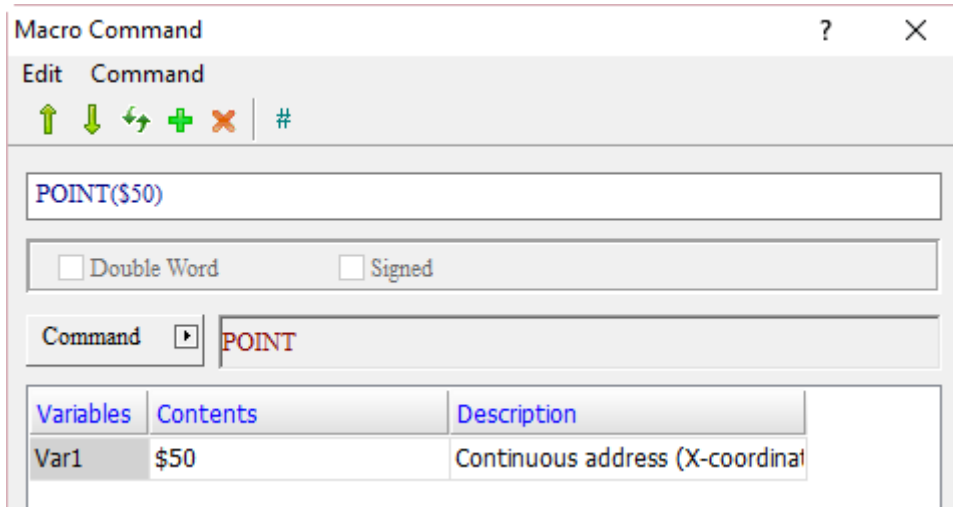
Expression	Meaning of variable		Note
POINT(Var1) (W)	Var1	X-coordinate	W: Word
	Var1+ 1	Ycoordinate	
	Var1+ 2	Point color	
	Description of action		
			Draw a point with continuous addresses.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		

24

Example

- Var1 is the internal memory address.



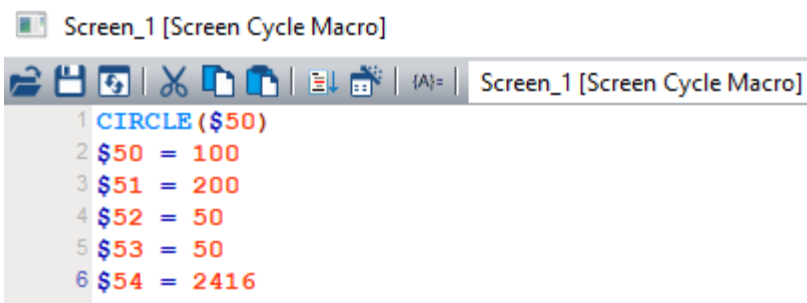
■ CIRCLE (circle)

Expression	Meaning of variable		Note
CIRCLE(Var1) (W)	Var1	X-coordinate at the center of a circle	W: Word
	Var1+ 1	Y-coordinate at the center of a circle	
	Var1+ 2	Circle length	
	Var1+ 3	Circle width	
	Var1+ 4	Circle color	
	Description of action		
Draw a circle with continuous addresses.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		

Example

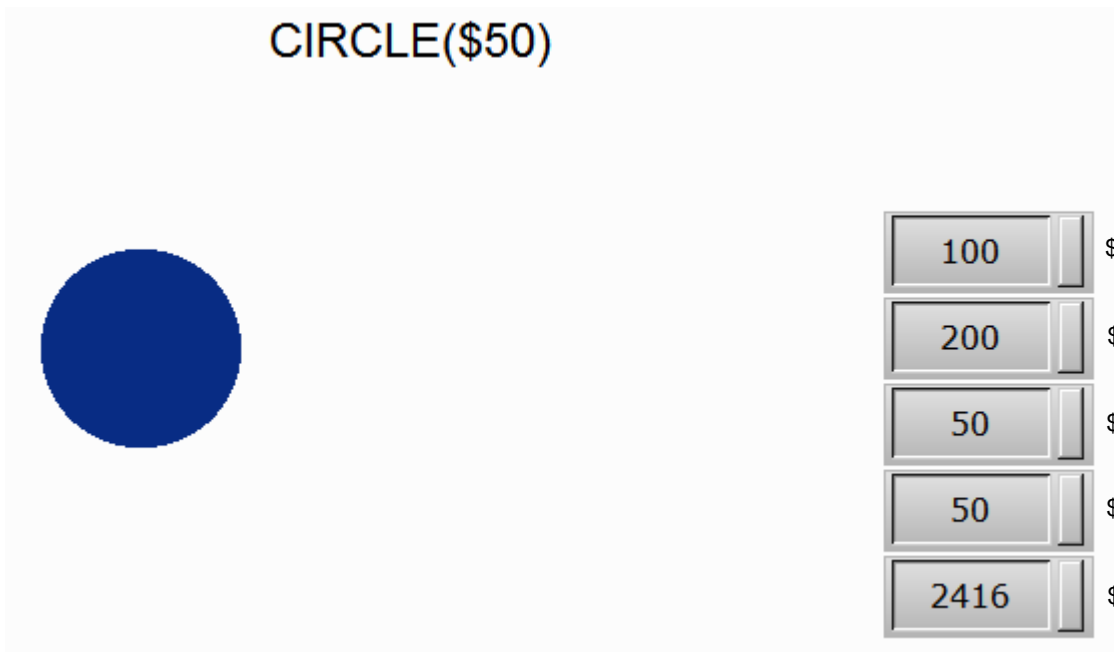
- Var1 is the internal memory address.



24

Example

CIRCLE(\$50)



The image shows a blue circle on the left side of a light gray panel. To the right of the circle is a vertical stack of five sliders. Each slider has a numerical value and a dollar sign to its right. The values are 100, 200, 50, 50, and 2416, corresponding to dollar amounts \$50, \$51, \$52, \$53, and \$54 respectively.

100	\$50
200	\$51
50	\$52
50	\$53
2416	\$54

24.3.10 File Access

File Access includes FileSlotRead, FileSlotWrite, FileSlotRemove, FileSlotGetLength, FileSlotExport, FileSlotImport and other FileSlot related commands. The commands are described in detail as follows.

- FileSlotRead
- FileSlotWrite
- FileSlotRemove
- FileSlotGetLength
- FileSlotExport
- FileSlotImport
- FileSlotGetName
- FileSlotSetName
- FileSlotGetID

24.3.10.1 File Access

■ FileSlotRead (read the file)

Expression	Meaning of variable		Note	
Var1 = FileSlotRead (Var2, Var3, Var4, Var5) (W)	Var1	Return value		W: Word
		Failed	0	
		Succeeded	1	
	Var2	FileSlot ID		
	Var3	Destination		
	Var4	FileSlot content start address (DW)		
	Var5	Word data length		
	Description of action			
Read FileSlot contents of Var2 for Var5 Word data starting from Var4 to Var3 destination address and return the results to Var1.				

Note: if the specified FileSlot file does not exist yet, use the FileSlotWrite command to create the file.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v	v	v
Var3	v	v	
Var4	v	v	v
Var5	v	v	v

24

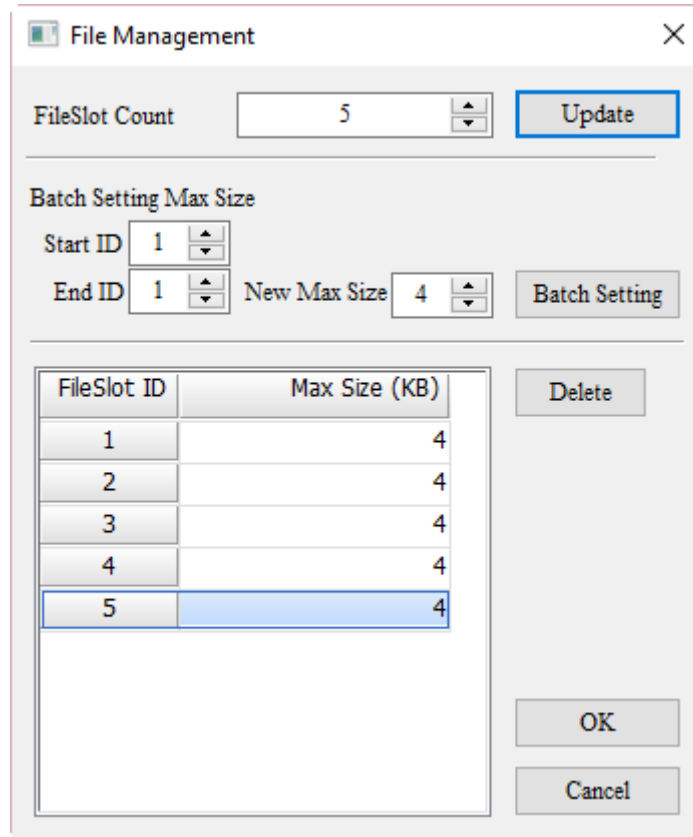
■ FileSlotWrite (write the file)

Expression	Meaning of variable		Note	
Var1 = FileSlotWrite (Var2, Var3, Var4, Var5) (W)	Var1	Return value		W: Word
		Failed	0	
	Succeeded	1		
	Var2	FileSlot ID		
	Var3	Source		
	Var4	FileSlot content start address (DW)		
	Var5	Word data length		
	Description of action			
Read Var5 Word data starting from Var3, write in Var2 FileSlot from Var4 start address, and return the results to Var1.				

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v	v	v
Var3	v	v	
Var4	v	v	v
Var5	v	v	v

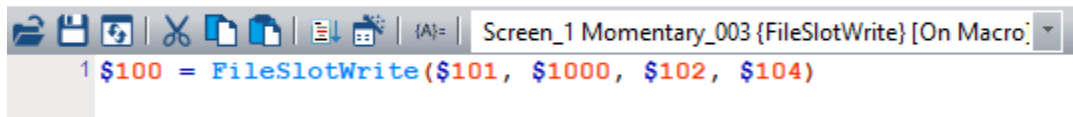
Example

- You must use FileSlotWrite to create a file before using FileSlotRead to read the data. The procedures are introduced as follows.
1. Go to [Options] > [File Management] to set FileSlot.

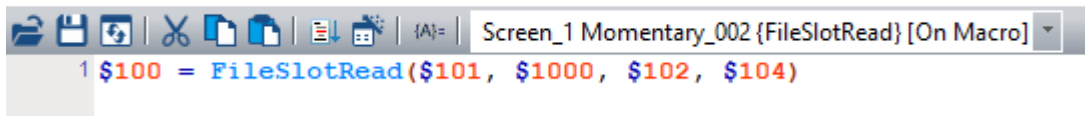


2. Create two Momentary buttons and write the On Macros.

Screen_1 Momentary_003 {FileSlotWrite} [On Macro]



Screen_1 Momentary_002 {FileSlotRead} [On Macro]



Example

- After compiling the screen and downloading it to the HMI, edit the data of 10 Words with \$1000 as the start address. Set \$101 as 1, \$102 as 0, and \$104 as 10. By triggering FileSlotWrite, the data of \$1,000 - \$1009 will be written to the FileSlot ID 1 starting from the 0th address.

FileSlotRead

FileSlotWrite

FileSlotRemove

FileSlotGetLength

FileSlotEXPORT

FileSlotIMPORT

Return(\$100) 1

FileSlot ID(\$101) 1

Start Add(\$102) 0

Data Len(\$104) 10

Return Len(\$106) 0

Device(\$108) 0 2:USB, 3:SD

FileName Len(\$110) 0

FileName(\$120)

Data Area(\$1000)

1	2	3	4	5	6	7
8	9	10	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

Export

Import

- Reset the data of \$1000 - \$1009 to zero, and then set \$104 as 8. By triggering FileSlotRead, the data of 8 Words starting from the 0th address of the FileSlot ID 1 will be written to \$1000 to \$1007.

FileSlotRead

FileSlotWrite

FileSlotRemove

FileSlotGetLength

FileSlotEXPORT

FileSlotIMPORT

Return(\$100) 1

FileSlot ID(\$101) 1

Start Add(\$102) 0

Data Len(\$104) 8

Return Len(\$106) 0

Device(\$108) 0 2:USB, 3:SD

FileName Len(\$110) 0

FileName(\$120)

Data Area(\$1000)

1	2	3	4	5	6	7
8	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

Export

Import

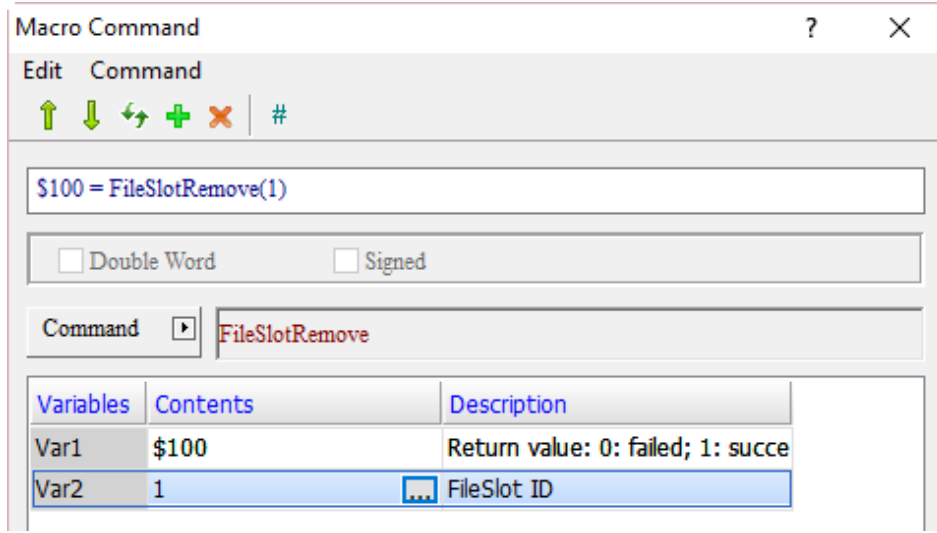
- FileSlotRemove (remove the file)

Expression	Meaning of variable		Note	
Var1 = FileSlotRemove (Var2) (W)	Var1	Return value		W: Word
		Failed	0	
	Succeeded	1		
	Var2	FileSlot ID		
	Description of action			
Remove the FileSlot of Var2 and return the result to Var1.				

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v	v	v

Example

- Var1 is the internal memory address and Var2 is a constant. Remove FileSlot ID 1 (Var2) and put the return value in \$100 (Var1).



24

- FileSlotGetLength (read the file length)

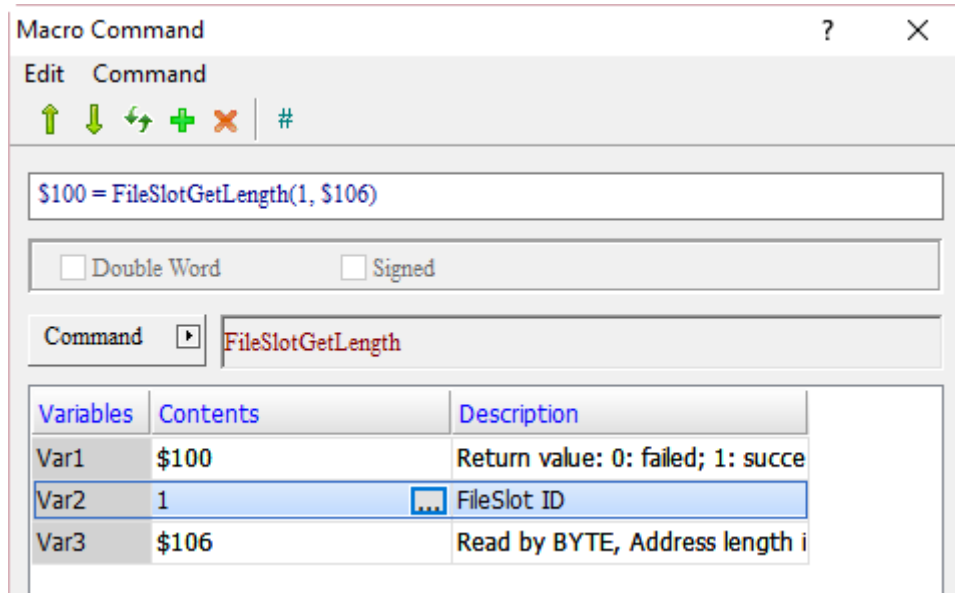
Expression	Meaning of variable		Note	
Var1 = FileSlotGetLength (Var2, Var3) (W)	Var1	Return value		W: Word
		Failed	0	
		Succeeded	1	
	Var2	FileSlot ID		
	Var3	FileSlot length return value(DW)		
	Description of action			
Store the length of the Var2 FileSlot to Var3 and return the result to Var1.				

Note: unit of read length is Byte.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v	v	v
Var3	v	v	

Example

- Var1 and Var3 are internal memory addresses, and Var2 is a constant. Get the length of FileSlot ID 1 (Var2) and save it to \$106, and put the return value in \$100 (Var1). If the FileSlot length is 10 words, the value returned to \$106 is 20 (Byte).



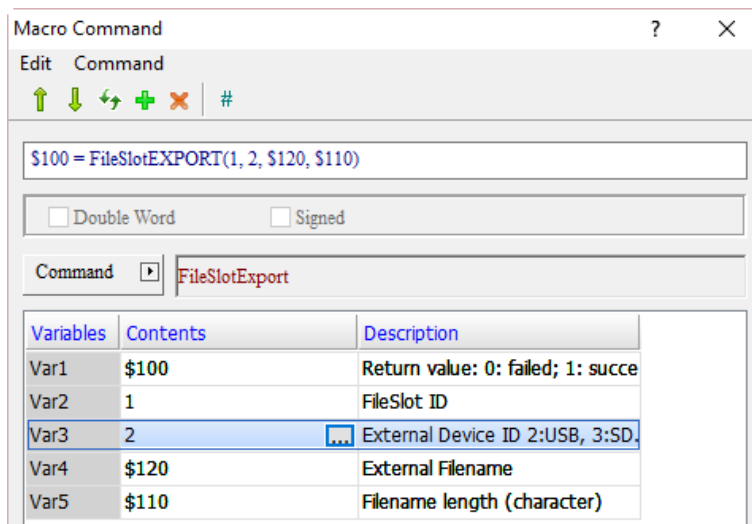
■ FileSlotExport (export the file)

Expression	Meaning of variable			Note	
Var1 = FileSlotExport (Var2, Var3, Var4, Var5) (W)	Var1	Return value		W: Word	
		Failed	0		
		Succeeded	1		
	Var2	FileSlot ID			
	Var3	File export device	USB Disk		2
			SD Card		3
	Var4	Name of the file exported			
	Var5	Name length of the file exported			
Description of action					
Export the Var2 FileSlot to the external storage device Var3, name the file as Var4, and return the result to Var1.					

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v	v	v
Var3	v	v	v
Var4	v	v	
Var5	v	v	v

Example

- Var1, Var4, and Var5 are internal memory addresses, and Var2 and Var3 are constants. Export FileSlot ID 1 (Var2) to USB Disk (Var3), which name length of the file is 2 (Var5) and file name is Slot (Var4), and put the return value in \$100 (Var1).



24

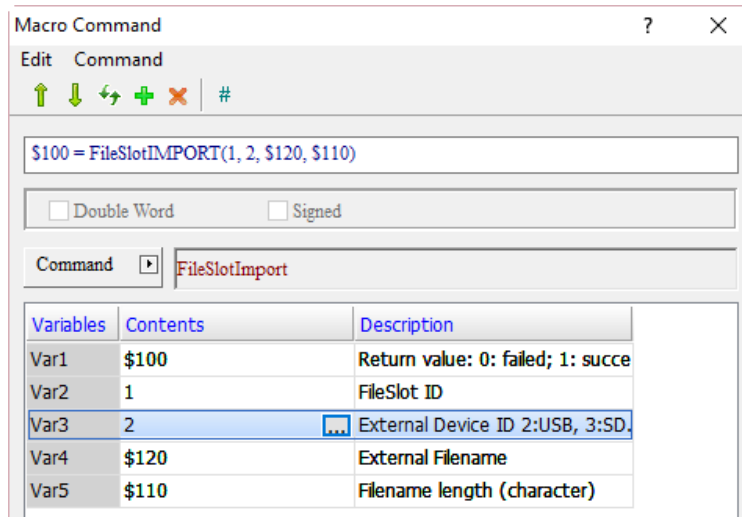
■ FileSlotImport (import the file)

Expression	Meaning of variable			Note	
Var1 = FileSlotImport (Var2, Var3, Var4, Var5) (W)	Var1	Return value		W: Word	
		Failed	0		
	Succeeded	1			
	Var2	FileSlot ID			
	Var3	Device to export the file	USB Disk		2
			SD Card		3
	Var4	Name of the file imported			
	Var5	Length of the filename to be imported			
Description of action					
Import the file named Var4 in the external storage device Var3 to the Var2 FileSlot and send the return value to Var1.					

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v	v	v
Var3	v	v	v
Var4	v	v	
Var5	v	v	v

Example

- Var1, Var4, and Var5 are internal memory addresses, and Var2 and Var3 are constants. Import the file named Slot (Var4) with the length of 2 (Var5) in USB Disk (Var3) to the FileSlot ID 1 (Var2), and put the return value in \$100 (Var1).



■ FileSlotGetName (get the filename)

Expression	Meaning of variable		Note	
Var1 = FileSlotGetName(Var2, Var3, Var4)	Var1	Return value		
		Failed	0	
		Succeeded	1	
	Var2	FileSlot ID		
	Var3	Filename		
	Var4	Length of the filename (read in units of Byte)		
Description of action				
Store the filename of Var2 (FileSlot ID) referencing the length specified by Var4 and return the result to Var1.				

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v	v	v
Var3	v	v	
Var4	v	v	v

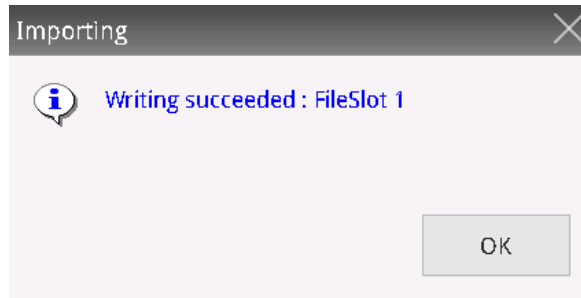
Example

■ Import the FileSlot file, and then get the the filename through the imported FileSlot ID.

The screenshot displays a software interface for configuring macros. On the left, a vertical list of FileSlot actions includes: FileSlotRead, FileSlotWrite, FileSlotRemove, FileSlotGetLength, FileSlotEXPORT, FileSlotIMPORT, FileSlotGetName, FileSlotSetName, and FileSlotGetID. To the right, three actions are configured with numeric values: FileSlotRead (Return(\$100) = 1), FileSlotWrite (FileSlot ID(\$101) = 1), and FileSlotRemove (Start Add(\$102) = 0). An 'Export' button is visible above an 'Import' button, which is highlighted with a dashed blue border. A 'File Manager' window is open, showing a directory structure with 'USB' selected and '1QAZ' highlighted. Below the File Manager is a numeric keypad with buttons for digits 0-9, 6, and 7. At the bottom left, there are buttons for 'Chinese' and 'English' language selection.

Example

- When the import is successful, the following message appears.



- Execute the FileSlotGetName command, and you can get the filename of the file you just imported.

FileSlotRead	Return(\$100)	<input type="text" value="1"/>	
FileSlotWrite	FileSlot ID(\$101)	<input type="text" value="1"/>	
FileSlotRemove	Start Add(\$102)	<input type="text" value="0"/>	
FileSlotGetLength	Data Len(\$104)	<input type="text" value="10"/>	
FileSlotEXPORT	Return Len(\$106)	<input type="text" value="0"/>	
FileSlotIMPORT	Device(\$108)	<input type="text" value="2"/>	2:USB, 3:SD
FileSlotGetName	FileName Len(\$110)	<input type="text" value="10"/>	
FileSlotSetName	FileName(\$120)	<input type="text" value="1QAZ"/>	
	Data Area(\$1000)		

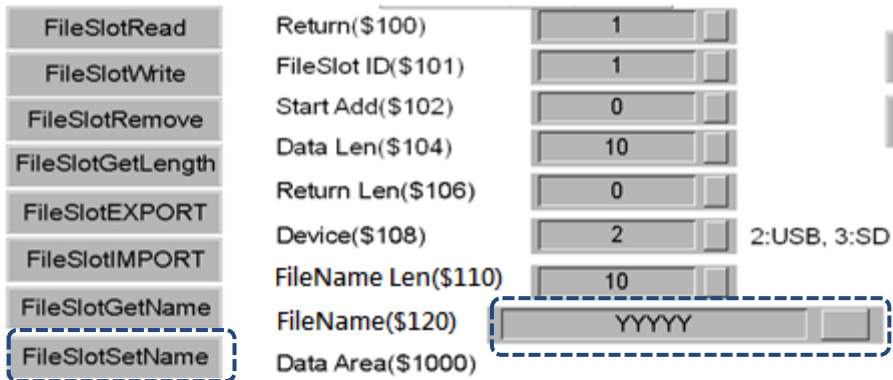
■ FileSlotSetName (set the filename)

Expression	Meaning of variable		Note	
Var1 = FileSlotSetName(Var2, Var3, Var4)	Var1	Return value		
		Failed	0	
		Succeeded	1	
	Var2	FileSlot ID		
	Var3	Filename		
	Var4	Length of the filename (read in units of Byte)		
	Description of action			
Set the filename of Var2 (FileSlot ID) to Var3 referencing the length specified by Var4, and then return the result to Var1.				

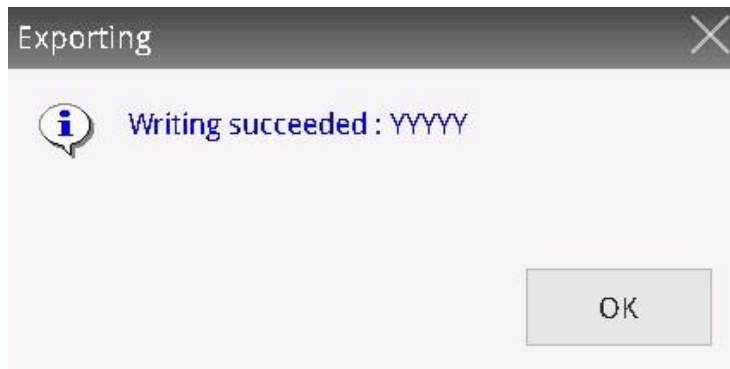
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v	v	v
Var3	v	v	
Var4	v	v	v

Example

- This command modifies the name of the imported FileSlot file.



- After you modified the filename, export the file to the USB Disk or SD Card.



24

■ FileSlotGetID (get the file ID)

Expression	Meaning of variable		Note	
Var1 = FileSlotGetID (Var2, Var3, Var 4) (W)	Var1	Return value		
		Failed	0	
		Succeeded	1	
	Var2	Filename		
	Var3	Length of the filename (read in units of Byte)		
	Var4	FileSlot ID		
	Description of action			
Refer to the length of the filename specified by Var3, store the FileSlot ID of the filename specified by Var2 to Var4, and return the result to Var1.				

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v	v	v
Var3	v	v	v
Var4	v	v	

Example

- Use the filename of the FileSlot file to get the corresponding FileSlot ID.

24.3.11 Others

Others include Time Tick, GETLASTERROR, Comment, Delay, GETSYSTEMTIME, SETSYSTEMTIME, GETHISTORY, EXPORT, EXRCP, IMRCP, EXENRCP, IMENRCP, EXHISTORY, EXALARM, EXALARMGROUP, DISKFORMAT, BMPCAPTURE, PLCDOWNLOAD, OPENSUBSCREEN, CLOSESUBSCREEN, GetCircleCenter, VAR, and other commands.

The commands are described in detail as follows.

Time Tick
GETLASTERROR
Comment
Delay
GETSYSTEMTIME
SETSYSTEMTIME
GETHISTORY
EXPORT
EXRCP16
IMRCP16
EXRCP32
IMRCP32
EXENRCP
IMENRCP
EXHISTORY
EXALARM
EXALARMGROUP
DISKFORMAT
BMPCAPTURE
PLCDOWNLOAD
OPENSUBSCREEN
CLOSESUBSCREEN
GetCircleCenter
VAR

Figure 24.3.11.1 Others

24

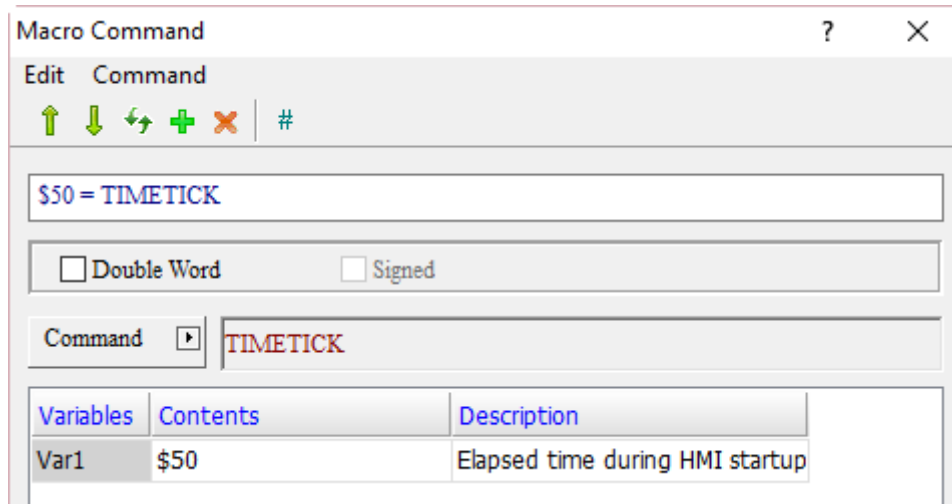
- Time Tick (get the time from the start of the system up to now)

Expression	Meaning of variable		Note
Var1 = TIMETICK (W) Var1 = TIMETICK (DW)	Var1	Elapsed time during HMI startup	W: Word DW: Double Word
	Description of action		
	Get the time from the start of the system up to now and put it in Var1 (unit: ms).		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		

Example

- Var1 is the internal memory address. Put elapsed time during the HMI startup in \$50.



- GETLASTERROR (get error value of previous command)

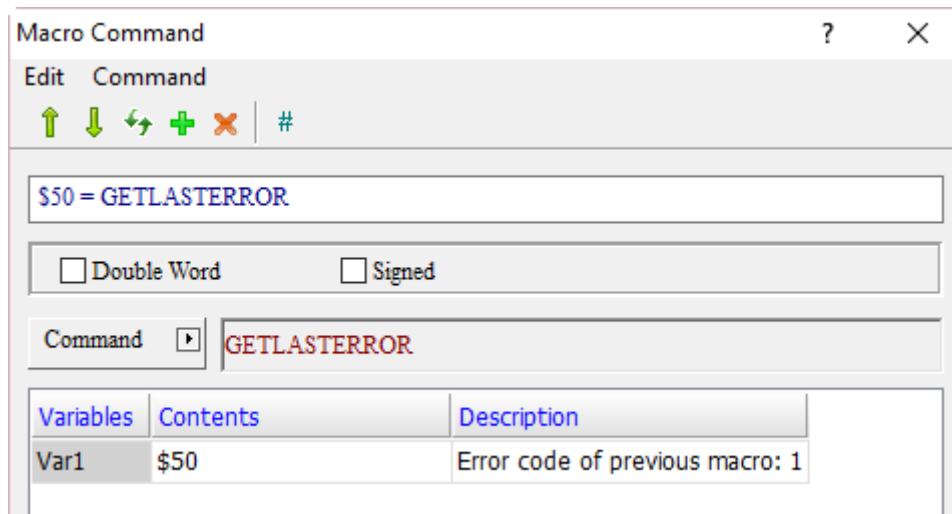
Expression	Meaning of variable		Note
Var1 = GETLASTERROR (W) Var1 = GETLASTERROR (DW) Var1 = GETLASTERROR (Signed W) Var1 = GETLASTERROR (Signed DW)	Var1	Error code of previous macro	W: Word DW: Double Word Signed: signed number
		1: Succeeded	
		Negative value: error (See Section 24.4 Macro error codes for the meaning of negative value.)	
	Description of action		
	Get the error value of the previous macro command and put the result in Var1.		

Note: this command must follow a macro command with an error in order to obtain its error value.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		

Example

- Var1 is the internal memory address. Get the result of the error value of the previous macro command and put it in \$50.



24

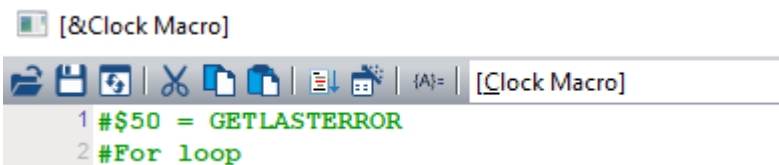
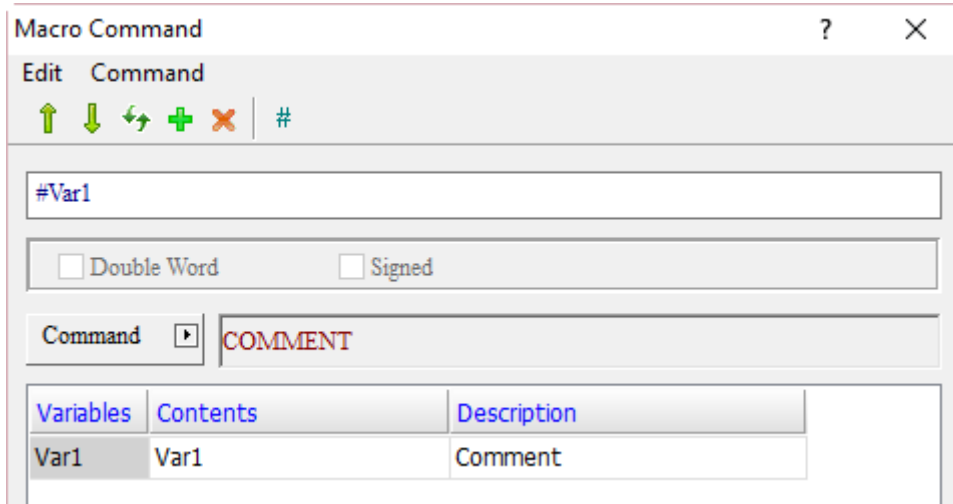
■ COMMENT (comments)

Expression	Meaning of variable		Note
#Var1 (W)	Var1	Contents of command	W: Word
	Description of action		
	Comment Var1.		

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		

Example

Add # before the command to make a comment on the command. # can also be used for describing the purpose of a macro.



■ Delay (delay)

Expression	Meaning of variable		Note
Delay(Var1) (W)	Var1	Delay time	W: Word
	Description of action		
	Delay the time of Var1 before executing commands of the next line. The unit is ms.		

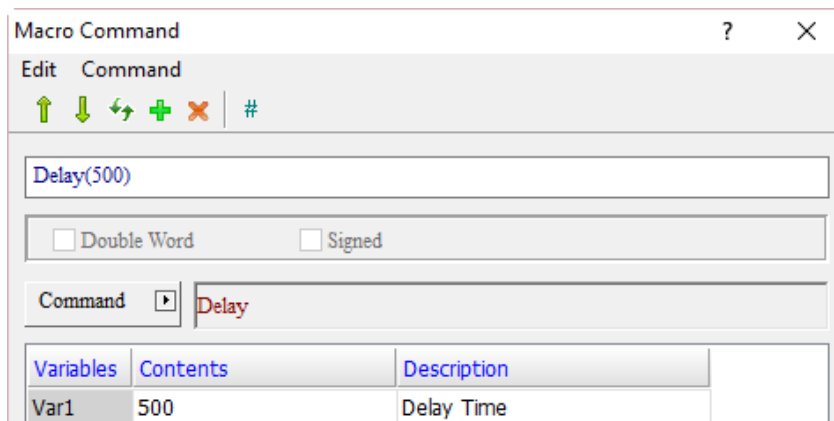
Note:

1. Due to the multitasking of the HMI, a system delay may occur by default. If you set this Delay command, the delay time may increase because of the busy operations of the system, and the command will not be executed in advance.
2. Excessive Delay setting will result in slow response of the HMI.
3. When the Delay command is executed, the HMI will suspend all actions until the Delay time is over.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v

Example

- Var1 is a constant and set the Delay time to 500 ms.



■ GETSYSTEMTIME (get system time)

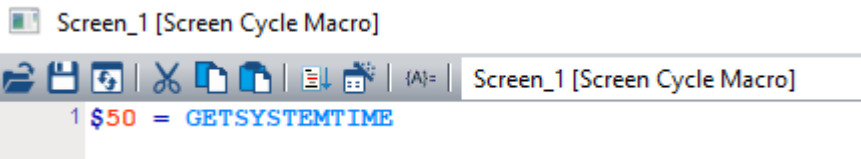
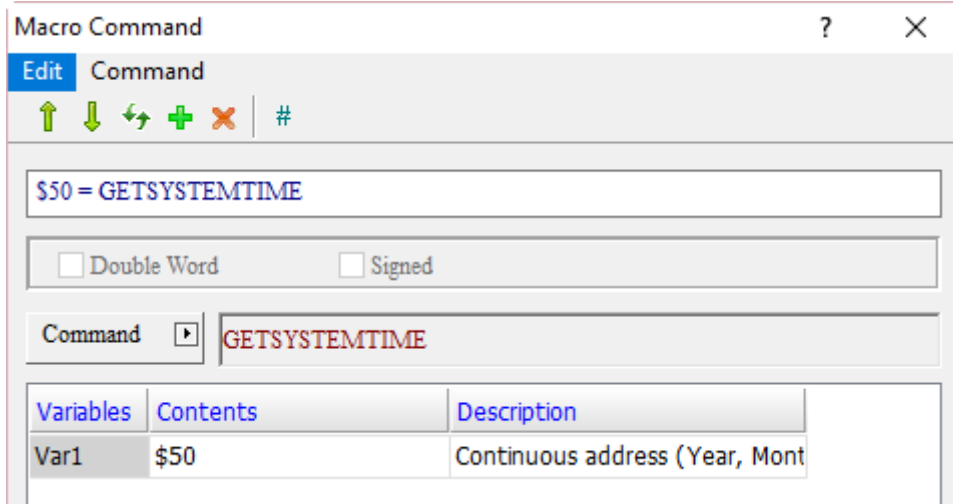
Expression	Meaning of variable		Note
Var1 = GETSYSTEMTIME (W)	Var1	Year	W: Word
	Var1 + 1	Month	
	Var1 + 2	Day	
	Var1 + 3	Week	
	Var1 + 4	Hour	
	Var1 + 5	Minute	
	Var1 + 6	Second	
	Description of action		
Get the system time from Var1 to Var7 for 7 consecutive Words address.			

24

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		

Example

- Var1 is the internal memory address. Put the current system time in \$50 to \$56.



Year	2017	\$50
Month	6	\$51
Day	8	\$52
Week	4	\$53
Hour	16	\$54
Minute	36	\$55
Second	54	\$56

■ SETSYSTEMTIME (set system time)

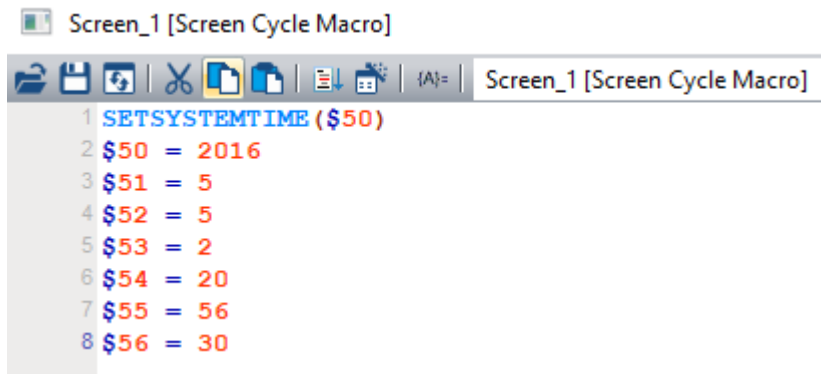
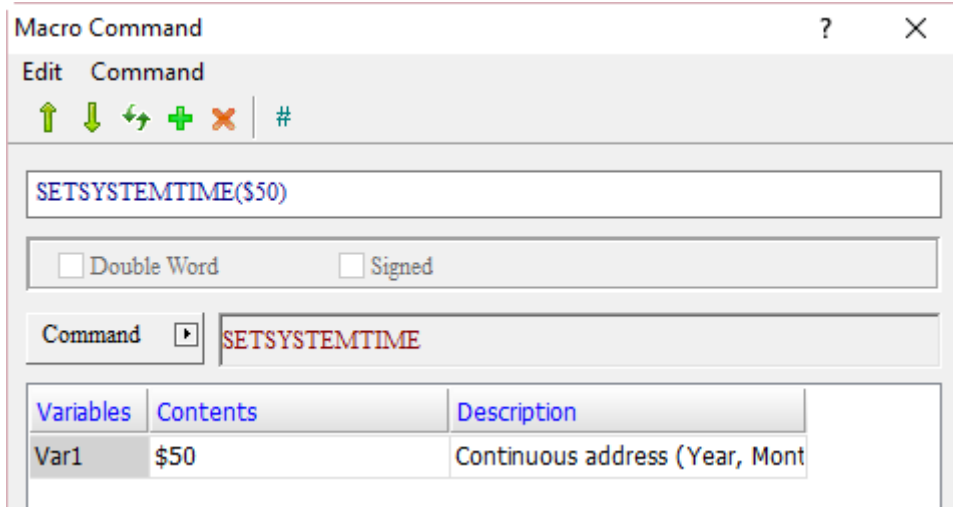
Expression	Meaning of variable		Note
Var1 = SETSYSTEMTIME (W)	Var1	Year	W: Word
	Var1 + 1	Month	
	Var1 + 2	Day	
	Var1 + 3	Week	
	Var1 + 4	Hour	
	Var1 + 5	Minute	
	Var1 + 6	Second	
	Description of action		
Set the system time from Var1 to Var7 for 7 consecutive Words address.			

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		

24

Example

- Var1 is the internal memory address. Set the current system time and put it in \$50 to \$56.



Year	2016	\$50
Month	5	\$51
Day	5	\$52
Week	2	\$53
Hour	20	\$54
Minute	56	\$55
Second	30	\$56

■ GETHISTORY (get history data)

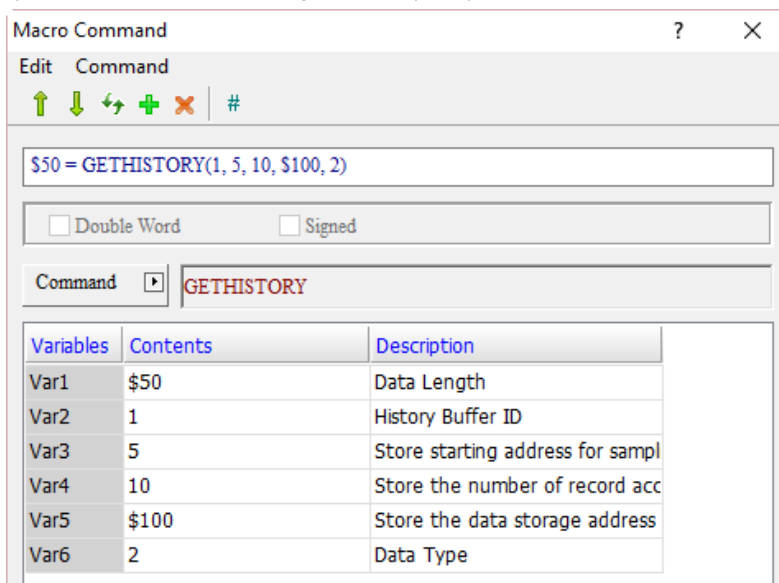
Expression	Meaning of variable			Note	
Var1 = GETHISTORY(Var2, Var3, Var4, Var5, Var6) (W)	Var1	Store Data Length		W: Word	
	Var2	History Buffer ID			
	Var3	Read starting address for sampling			
	Var4	Read the number of record accessing point			
	Var5	Data storage address			
	Var6	Data Type	Data		0
			Time		1
Data and time			2		
Description of action					
Get history data.					

Note: Double Word is recommended to be used for Var1, Var3, and Var4. If the continuous address of Word is used, data may be overwritten and the result may be affected.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		v
Var3	v		v
Var4	v		v
Var5	v	v	
Var6	v		v

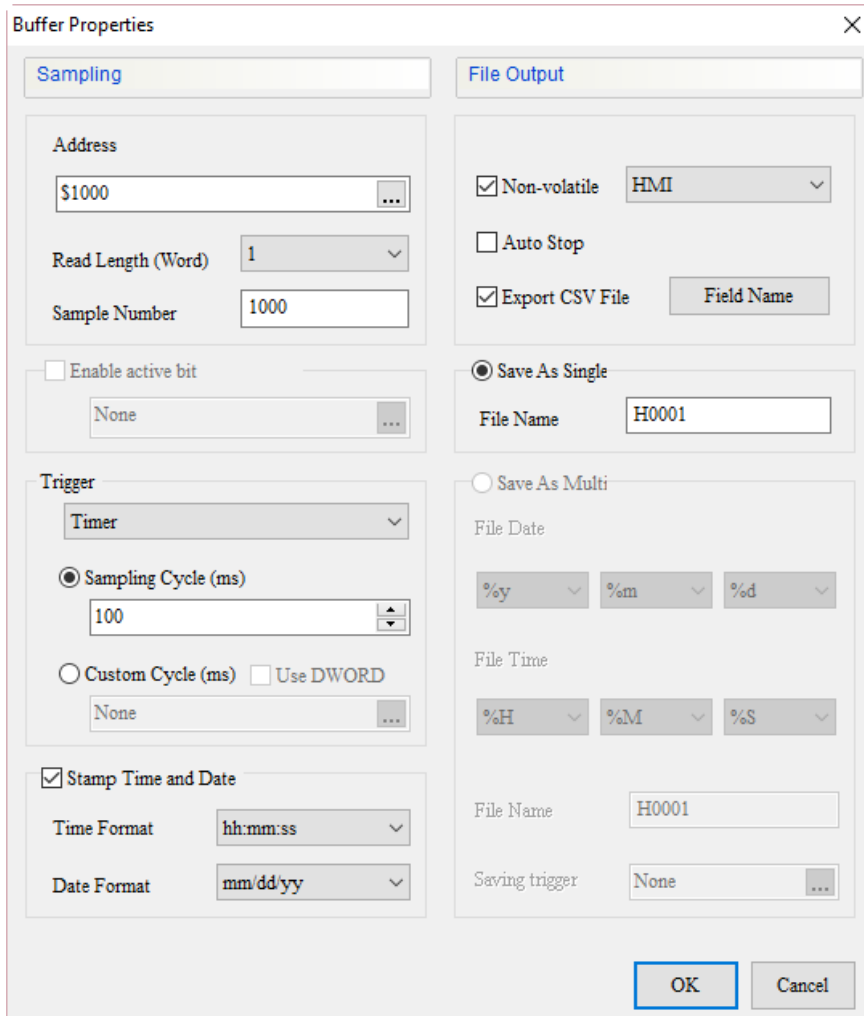
Example

- Var1 and Var5 are internal memory addresses, and Var2, Var3, Var4, and Var6 are constants. Set the History Buffer ID as 1 (Var2), sample from the fifth data (Var2) to the tenth data (Var3), put the data type (including time and data) set as 2 (Var6) in the continuous address (Var5) of \$100, and finally put the obtained data length in \$50 (Var1).

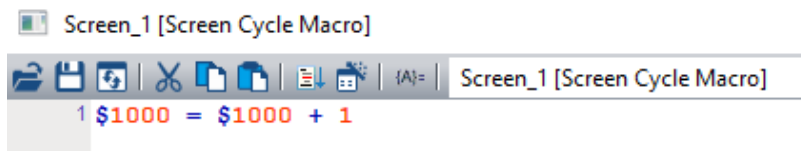


Example

- Set the Read Address \$1000 as the history buffer sampling data address.

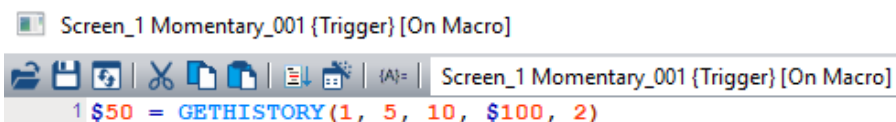
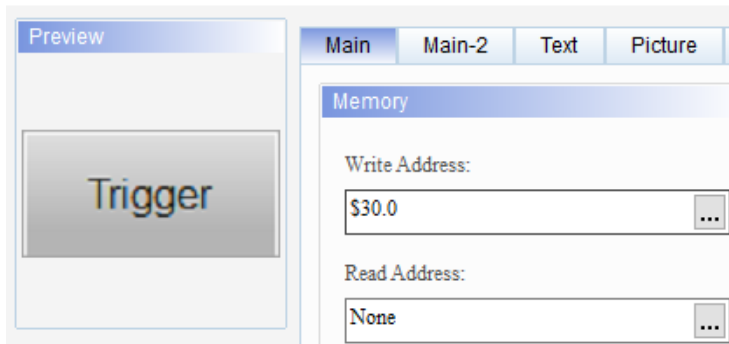


- Edit the Screen Cycle Macro to add up the history data of \$1000.



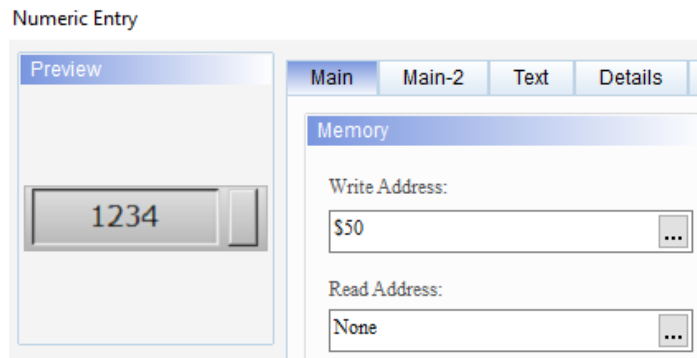
- Create a Momentary button, edit the On Macro, and set the GETHISTORY command as follows.

Momentary



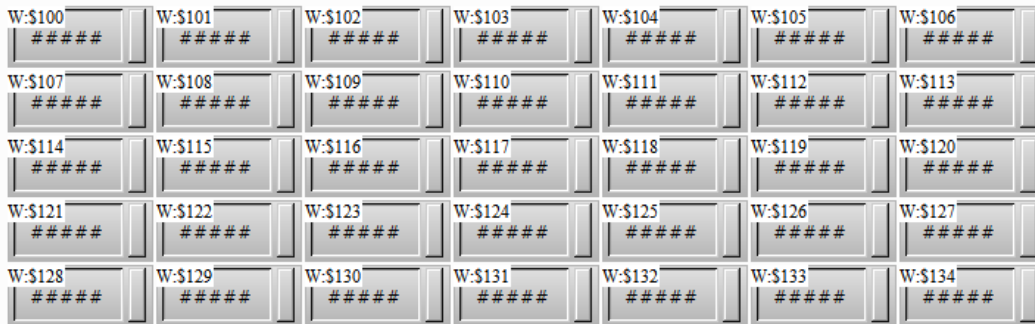
Example

- Create a Numeric Entry element and set the Write Address as \$50.



24

- Create Numeric Entry elements of \$100 to \$134, as shown as follows.



24

Example

- Create a Historical Trend Graph and enable it.

Historical Trend Graph

Preview

State: 0

Language: Language1

Element description: Historical Trend Graph_00:

Main Main-2 Details Function Buttons Coordinates

Style

Number of Curves: 1

Filling Curve: No

Horiz. Grid Number: 1

Gridline Color: [White]

Border Color: [Grey]

Background Color: [Blue]

Detail

History Buffer Setup

Buffer ID: 1

Global range

Scale Settings

Length: 1

Data Format: Unsigned Decimal

Integer Digits: 5

Fractional: 0

Min 0

Max 65535

Minimum/Maximum: 0 / 65535

Display High Value

80 [Color Swatch]

Display Low Value

20 [Color Swatch]

OK Cancel

Historical Trend Graph

Preview

Main Main-2 Details Function Buttons Coordinates

Detail

History Buffer Setup

Buffer ID: 1

Curve	Enable	Length	Start Position	Data Format	Integer D	Fractor
1	1	1	0	Unsigned Decimal	5	0

Example

- After compiling the screen, the execution result is as follows:

The screenshot shows a control panel with a data table, a 'Trigger' button, and a 'History data' window. The data table has 5 rows and 7 columns. The first six columns contain the values 2017, 6, 8, 17, 27, and 52. The seventh column contains values 439, 441, 442, 444, and 446. A 'Trigger' button is located below the table. To its right is a numeric input field with the value 10 and a label \$50. The 'History data' window shows a timestamp 17:31:05 06/08/2017. Callouts indicate 'Time' for the timestamp and 'History data' for the window.

2017	6	8	17	27	52	439
2017	6	8	17	27	52	441
2017	6	8	17	27	52	442
2017	6	8	17	27	52	444
2017	6	8	17	27	52	446

Trigger \$50
10

17:31:05 06/08/2017

History data

- EXPORT (export data)

Expression	Meaning of variable			Note	
EXPORT(Var1) (W)	Var1	Data export device	SD Card	0	W: Word
			USB Disk	1	
			Printer	2	
Description of action					
Export and print historical and alarm data to external storage device Var1.					

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		v

Example

- Var1 is a constant. Export data to the USB Disk.

The screenshot shows the 'Macro Command' dialog box. It has a title bar with a question mark and a close button. Below the title bar is an 'Edit Command' section with icons for undo, redo, insert, delete, and comment. The main area contains a text field with 'EXPORT(1)', two checkboxes for 'Double Word' and 'Signed', and a 'Command' dropdown menu set to 'EXPORT'. At the bottom is a table with columns 'Variables', 'Contents', and 'Description'.

Variables	Contents	Description
Var1	1	External Storage: 0:SD card, 1:l

24

■ EXRCP16 / EXRCP32 (export 16-bit Recipe / export 32-bit Recipe)

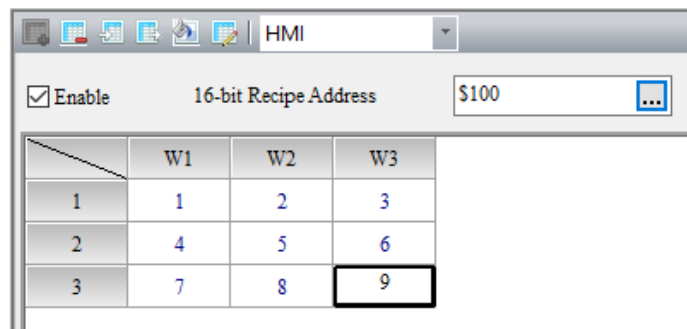
Expression	Meaning of variable			Note	
Var1 = EXRCP16(Var2, Var3) (W) Var1 = EXRCP32(Var2, Var3) (W)	Var1	Return value		W: Word	
		Failed	0		
		Succeeded	1		
	Var2	File name of the exported 16-bit Recipe / 32-bit Recipe			
	Var3	Recipe export storage device	USB Disk		2
			SD Card		3
Description of action					
Export the 16-bit Recipe / 32-bit Recipe and store in Var3, and return the result to Var1.					

Note: the exported 16-bit and 32-bit Recipe files will be stored in the root directory of the external storage device.

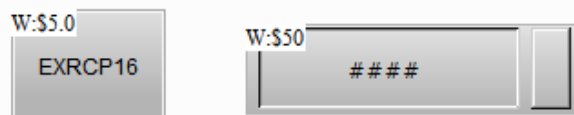
Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	
Var3	v	v	v

Example

- The following example shows the export command of 16-bit Recipe, which is the same as that of 32-bit Recipe.
 - Export the 16-bit Recipe data to the USB Disk, and the file name is Delta. The steps are as follows:
1. Go to [Options] > [Recipe] and set the recipe data.



2. Create a Momentary button (\$5.0) and a Numeric Entry element (\$50).



3. Go to the Momentary button and write the On Macro as follows. Put the "Delta" string in \$200 and store the data in the USB Disk by exporting 16-bit Recipe, and the file name is Delta.

Example

```

Screen_1 Momentary_001 {EXRCP16} [On Macro]
1 FILLASC($200, "Delta")
2 $50 = EXRCP16($200, 2)
    
```

- After compiling the screen and downloading the recipe data to the HMI, trigger the \$5.0 button and \$50 shows 1, representing successful action, and then the HMI export the 16-bit Recipe data to the USB Disk.



	A	B	C
1	RCP16-1.0		
2			
3	3	3	
4	1	2	3
5	4	5	6
6	7	8	9

■ IMRCP16 / IMRCP32 (import 16-bit Recipe / Import 32-bit Recipe)

Expression	Meaning of variable			Note	
Var1 = IMRCP16(Var2, Var3) (W) Var1 = IMRCP32(Var2, Var3) (W)	Var1	Return value		W: Word	
		Failed	0		
		Succeeded	1		
	Var2	File name of the imported 16-bit Recipe / 32-bit Recipe			
	Var3	Recipe import storage device	USB Disk		2
			SD Card		3
Description of action					
Import the 16-bit Recipe / 32-bit Recipe from Var3 to the HMI, and return the result to Var1.					

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	
Var3	v	v	v

Example

- The following example shows the import command of 16-bit Recipe, which is the same as that of 32-bit Recipe.
 - Import 16-bit Recipe data from the USB Disk to the HMI, and the file name is HMI. The steps are as follows:
1. Refer to the following figure, use Excel to make a recipe file called HMI.csv and store it to the USB Disk.

	A	B	C	
1	RCP16-1.0			
2				
3		3	3	
4		11	12	13
5		14	15	16
6		17	18	19

2. Create a Momentary button (\$5.0), a Numeric Entry element (\$50), and recipe addresses RCP0 to RCP11. This is the default recipe content of the software.

3. Go to the Momentary button and write the On Macro as follows. Put the "HMI" string in \$200 and import 16-bit Recipe data from the USB Disk.

```
Screen_1 Momentary_001 {IMRCP16} [On Macro]
1 FILLASC($200, "HMI")
2 $50 = IMRCP16($200, 2)
```

4. After compiling the screen and downloading the recipe data to the HMI, trigger the \$5.0 button and \$50 shows 1, representing successful action, and then the 16-bit Recipe data is imported to the HMI. The recipe data of the HMI is then changed to the HMI recipe file.

■ EXENRCP (export enhanced recipe)

Expression	Meaning of variable			Note	
Var1 = EXENRCP(Var2, Var3) (W)	Var1	Return value		W: Word	
		Failed	0		
		Succeeded	1		
	Var2	File name of the exported enhanced recipe			
	Var3	Recipe export storage device	USB Disk		2
			SD Card		3
Description of action					
Export the enhanced recipe and store it in Var3, and return the result to Var1.					

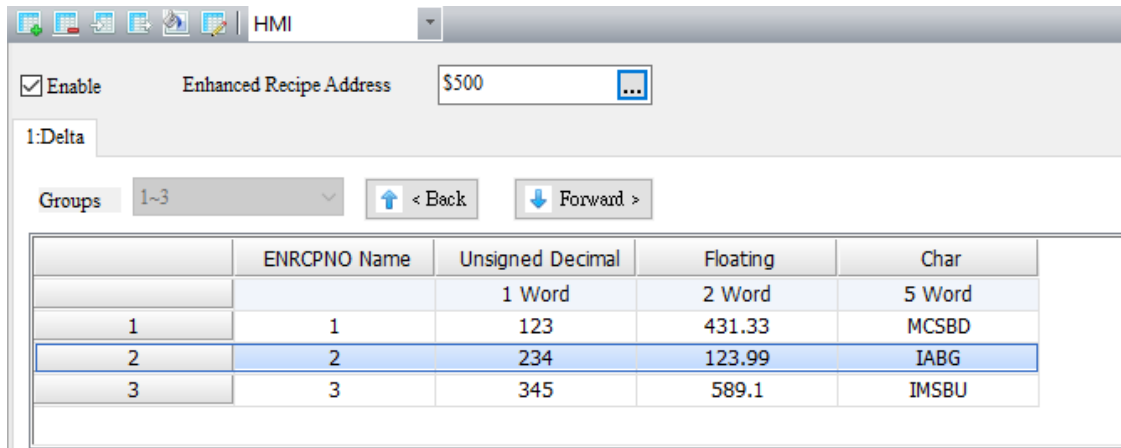
Note: the exported enhanced recipe file will be stored in the root directory of the external storage device.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	
Var3	v	v	v

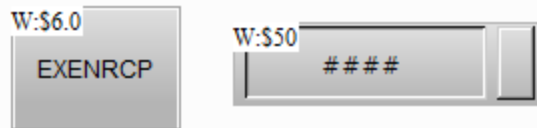
Example

- Export the enhanced recipe data to the USB Disk, and the file name is ABC. The steps are as follows:

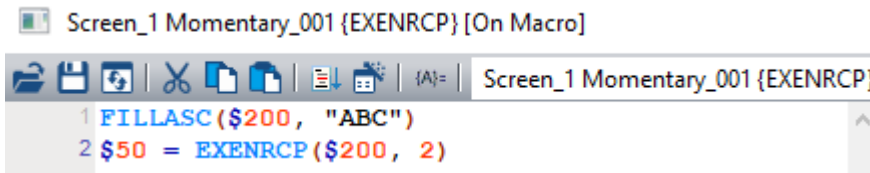
1. Go to [Options] > [Enhanced recipe] and set the recipe data.



2. Create a Momentary button (\$6.0) and a Numeric Entry element (\$50).



3. Go to the Momentary button to write the On Macro as follows. Put the "ABC" string in \$200 and store the data in the USB Disk by exporting the enhanced recipe, and the file name is ABC.



4. After compiling the screen and downloading the recipe data to the HMI, trigger the \$5.0 button and \$50 shows 1, representing successful action, and then the HMI export the enhanced recipe data to the USB Disk.



	A	B	C	D
1	ENRCP-2.0			
2	Delta	3	3	
3	2	1	0	0
4	5	2	3	2
5	8	5	0	0
6	123	431.33	MCSBD	
7	234	123.99	IABG	
8	345	589.1	IMSBU	

Example

- For each Data Format and the corresponding defined value, refer to the following table.

Data Format	DOPSoft defined value
BCD	0
Signed Decimal	1
Unsign Decimal	2
Hexdecimal	3
Binary	4
Floating	5
Char	8

- Each cell of the exported CSV file is explained as follows:

Excel cell	Definition	Content
A-1	Version	ENRCP-2.0
A-2	Enhanced recipe group name	Delta
B-2	Column number	3
C-2	Group number	3
A-3	Data Format of Column 1	2 (Unsigned Decimal)
B-3	Data Length of Column 1	1 (Word)
C-3	Integer Digits of Column 1	0
D-3	Fractional (Digits) of Column 1	0
A-4	Data Format of Column 2	5 (Floating)
B-4	Data Length of Column 2	2 (Word)
C-4	Integer Digits of Column 2	3
D-4	Fractional (Digits) of Column 2	2
A-5	Data Format of Column 3	8 (Char)
B-5	Data Length of Column 3	5 (Word)
C-5	Integer Digits of Column 3	0
D-5	Fractional (Digits) of Column 3	0

24

■ IMENRCP (import enhanced recipe)

Expression	Meaning of variable			Note	
Var1 = IMENRCP(Var2, Var3) (W)	Var1	Return value		W: Word	
		Failed	0		
	Succeeded	1			
	Var2	File name of the imported enhanced recipe			
	Var3	Recipe import storage device	USB Disk		2
			SD Card		3
Description of action					
Import the enhanced recipe from Var3 to the HMI and return the result to Var1.					

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	
Var3	v	v	v

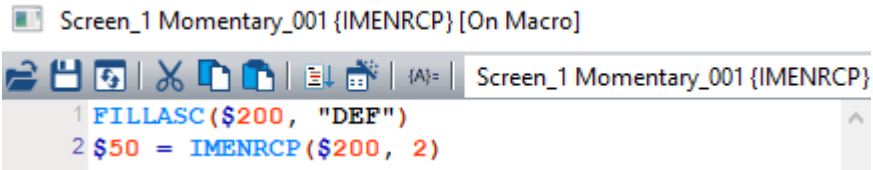
Example

- Import the enhanced recipe from the USB Disk to the HMI, and the file name is DEF. The steps are as follows:
 1. Refer to the following figure, use Excel to make a recipe file called DEF.csv and store it to the USB Disk.

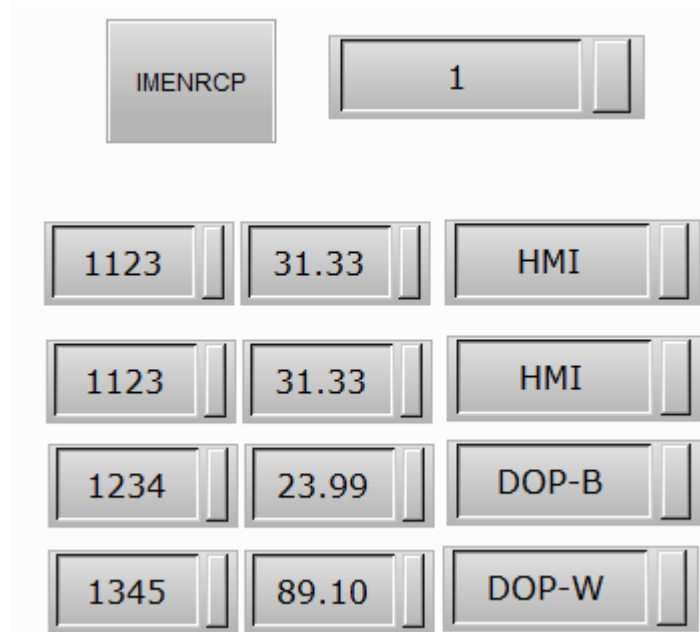
2. Create a Momentary button (\$6.0), a Numeric Entry element (\$50), and recipe addresses RCP0 to RCP11.

Example

- 3. Go to the Momentary button to write the On Macro as follows. Put the "DEF" string in \$100 and import the enhanced recipe from the USB Disk.



- 4. After compiling the screen and downloading the recipe data to the HMI, trigger the \$5.0 button and \$50 shows 1, representing the successful action, and then the enhanced recipe data is imported to the HMI. The recipe data of the HMI is then changed to the DEF recipe file.



24

■ EXHISTORY (export history data)

Expression	Meaning of variable			Note	
Var1 = EXHISTORY(Var2, Var3, Var4)	Var1	Return value			
		Failed	0		
		Succeeded	1		
	Var2	History Buffer ID			
	Var3	Exported file name			
	Var4	External storage device	USB Disk		2
			SD Card		3
	Description of action				
Export history data to an external storage device.					

Note:

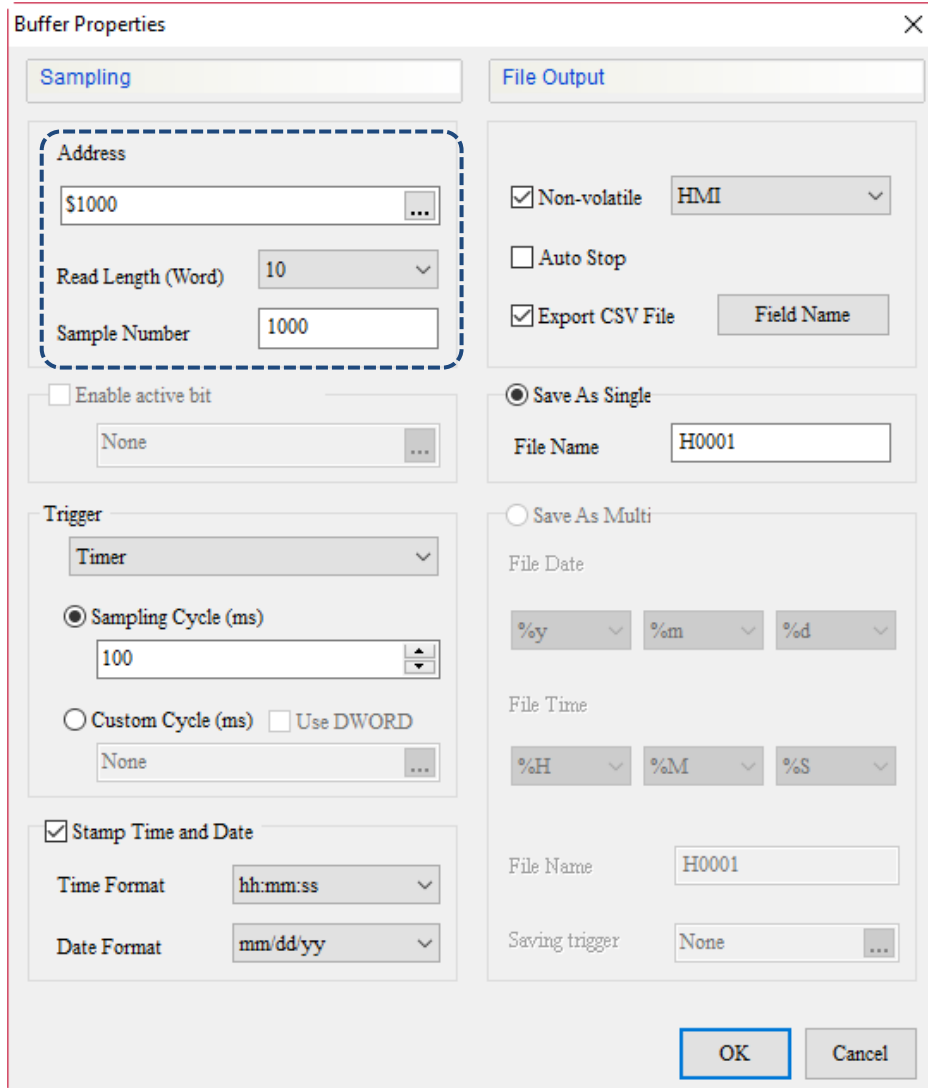
1. You must select the check box for **Export CSV File** in the Buffer Properties setting. If not, execution of this macro will only export the .dat file.
2. When you input 0 to the History Buffer ID, it means to export all history buffers. If 3 history buffers are opened, 3 files will be exported after execution. The file names are "Export file name 1.csv", "Export file name 2.csv," and "Export file name 3.csv" respectively. When you input a non-0 number, it represents that the specified ID of history buffer will be exported. After execution, one file will be exported with the name of "Export file name.csv"
3. File extension ".csv" will be added automatically after exporting. The file name cannot contain characters such as \, /, :, *, ?, ", <, >, and |. x00 indicates the end of the file name string.

Variable	Type			
	Internal memory	PLC register	String	Constant
Var1	v	v		
Var2	v	v		v
Var3	v	v		
Var4	v	v		v

Example

Step 1: set three history buffers as follows:

1. For History data buffer 1, set the Address to \$1000, Read Length (Word) to 10, and select the check box of **Export CSV File**.



Example

- 2. For History data buffer 2, set the Address to \$1100, Read Length (Word) to 5, and select the check box of **Export CSV File**.

The screenshot shows the 'Buffer Properties' dialog box with two tabs: 'Sampling' and 'File Output'. The 'Sampling' tab is active and contains the following settings:

- Address:** \$1100 (highlighted with a dashed blue box)
- Read Length (Word):** 5
- Sample Number:** 1000
- Enable active bit:** (None)
- Trigger:** Timer
- Sampling Cycle (ms):** 100 (Selected)
- Custom Cycle (ms):** Use DWORD (None)
- Stamp Time and Date:** (Time Format: hh:mm:ss, Date Format: mm/dd/yy)

The 'File Output' tab is also visible and contains the following settings:

- Non-volatile:** (HMI)
- Auto Stop:**
- Export CSV File:** (Field Name)
- Save As Single:** (File Name: H0002)
- Save As Multi:** (File Date: %y %m %d, File Time: %H %M %S, File Name: H0002, Saving trigger: None)

Buttons for 'OK' and 'Cancel' are located at the bottom right of the dialog.

Example

- 3. For History data buffer 3, set the Address to \$1200, Read Length (Word) to 1, and select the check box of **Export CSV File**.

Buffer Properties

Sampling

Address: \$1200

Read Length (Word): 1

Sample Number: 1000

Enable active bit

None

Trigger

Timer

Sampling Cycle (ms): 100

Custom Cycle (ms) Use DWORD

None

Stamp Time and Date

Time Format: hh:mm:ss

Date Format: mm/dd/yy

File Output

Non-volatile: HMI

Auto Stop

Export CSV File: Field Name

Save As Single

File Name: H0003

Save As Multi

File Date: %y %m %d

File Time: %H %M %S

File Name: H0003

Saving trigger: None

OK Cancel

Example

Step 2: add up history data in the Clock Macro.

Step 3: create a Character Entry element on the screen with the address as \$580 and string length as 5.

File name

Step 4: create 3 Numeric Entry elements on the screen with the addresses of \$500, \$591, and \$501.

Return value

Buffer ID

External storage device

Step 5: create a Maintained button element on the screen with the address of \$100.0, and add the On Macro.

Example

Macro commands description:

Line 1: clear \$510 - \$539.

Line 2: convert the unit of \$580 (file name string) from byte to word.

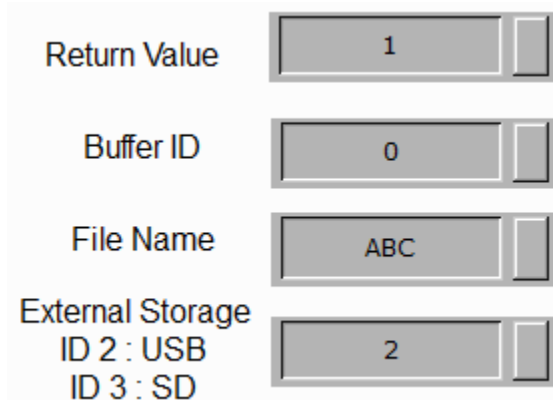
Line 3: move the system time to \$200 - \$206 (year, month, day, week, hour, minute, second).

Line 4: add "_year, month, day" and "_History" to "three characters of device name" to form a continuous string and assign it to the \$510 start address.

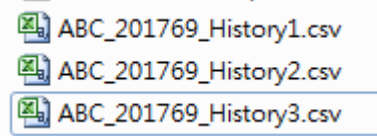
Line 6: export the history data to the specified external device and file name.

Step 6: download the editing screen to the HMI and insert the USB Disk into the HMI.

Step 7: enter the device name as "ABC" on the screen, and select "2" to use the USB Disk for the external storage device. Set the buffer ID as 0 (export all) and press the **EXHISTORY** button. The return value becomes 1 after the action.



Step 8: after the USB Disk is removed, the files exported to the USB Disk are as follows:



■ EXALARM (export alarm data)

Expression	Meaning of variable			Note
Var1 = EXALARM(Var2, Var3)	Var1	Return value		
		Failed	0	
		Succeeded	1	
	Var2	Exported file name		
	Var3	External storage device	USB Disk	2
			SD Card	3
	Description of action			
	Export alarm data to external storage devices.			

Note:

- You must select the check box of **Export CSV File** in the alarm settings.
- File extension ".csv" will be added automatically after exporting. The file name cannot contain characters such as \, /, :, *, ?, ", <, >, and |. x00 indicates the end of the file name string.

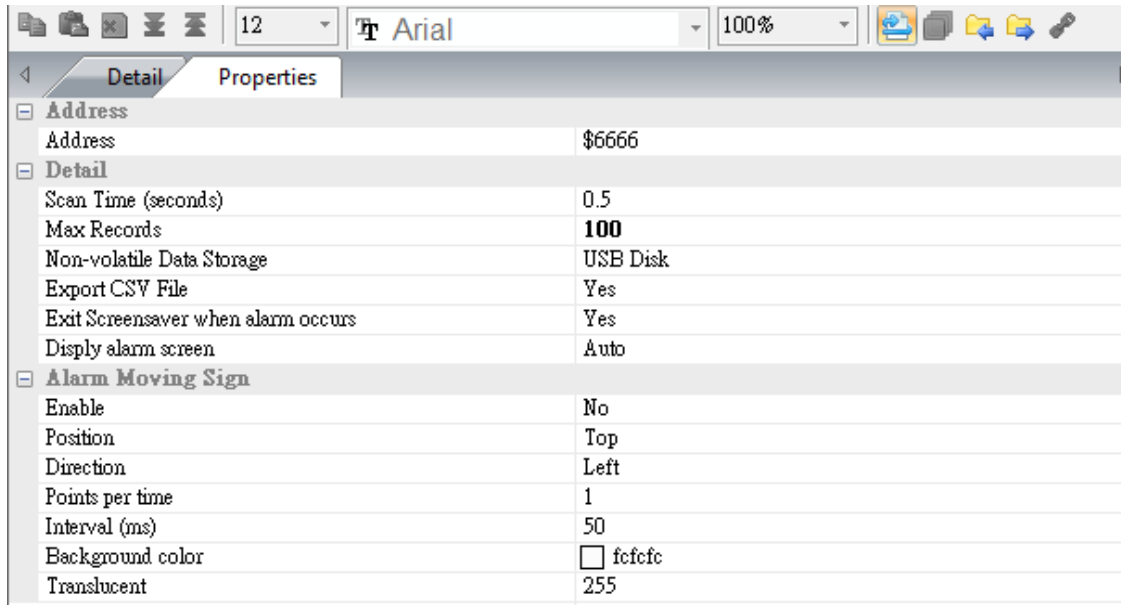
24

Variable	Type			
	Internal memory	PLC register	String	Constant
Var1	v	v		
Var2	v	v		
Var3	v	v		v

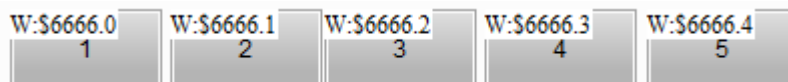
Example

■ The steps are as follows:

1. The alarm settings are as follows. Set the Address as \$6666 and set the Export CSV File to Yes.



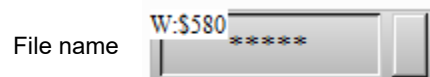
2. Create Maintained elements that trigger alarm bits on the screen to trigger alarms. Set the addresses as \$6666.0, \$6666.1, \$6666.2, \$6666.3, and \$6666.4 in sequence.



3. Create an Alarm History Table element on the screen to display the current history alarm.

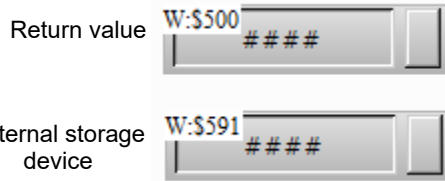
No	Trigger	Message	Recovery	Frequency
1	hh:mm:ss mm/dd/yy	####	hh:mm:ss mm/dd/yy	#

4. Create a Character Entry element on the screen with the address as \$580 and string length of 5.

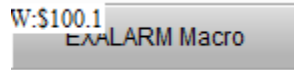


Example

5. Create 2 Numeric Entry elements on the screen with the addresses as \$500 and \$591.



6. Create a Maintained button element on the screen with the address as \$100.1, and add the On Macro.



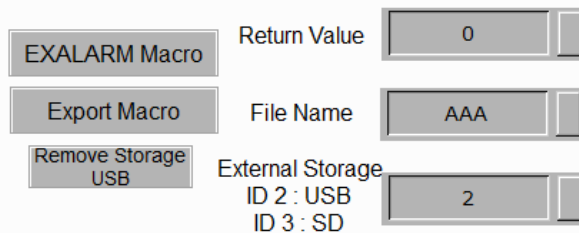
```
Screen_3 Maintained_005 {EXALARM Macro} [On Macro]
1 FILL($510, 0, 30)
2 $570 = TOWORD($580, 5)
3 $200 = GETSYSTEMTIME
4 $50 = SPRINTF($510, "%c%c%c_%d%d_Alarm", $570, $571, $572, $573, $200, $201, $202)
5
6 $500 = EXALARM($510, $591)
```

The macro commands are described as follows:

- Line 1: clear \$510 - \$539.
- Line 2: convert the unit of \$580 (device name string) from byte to word.
- Line 3: move the system time to \$200 - \$206 (year, month, day, week, hour, minute, second).
- Line 4: add "_year, month, day" and "_Alarm" to "three characters of device name" to form a continuous string and assign to the \$510 start address.
- Line 6: export the history alarm to the specified external device and file name.

7. Download the editing screen to the HMI and insert the USB Disk into the HMI.
8. Trigger the alarm and enter the device name as "AAA" on the screen, and select "2" to use the USB Disk for the external storage device.

No	Message	Trigger	Recovery	Ack
0001	Alarm 1	15:11:37 06/13/2018		
0002	Alarm 2	15:11:37 06/13/2018		
0003	Alarm 3	15:11:38 06/13/2018		
0004	Alarm 4	15:11:39 06/13/2018		
0005	Alarm 5	15:11:39 06/13/2018		



Example

9. Press the **EXALARM Macro** button and the return value becomes 1 after the action.

No	Message	Trigger	Recovery	Ack
0001	Alarm 1	15:11:37 06/13/2018		
0002	Alarm 2	15:11:37 06/13/2018		
0003	Alarm 3	15:11:38 06/13/2018		
0004	Alarm 4	15:11:39 06/13/2018		
0005	Alarm 5	15:11:39 06/13/2018		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

512 1024 2048

Return Value

 File Name

 External Storage ID 2 : USB ID 3 : SD

10. After the USB Disk is removed, the file exported to the USB Disk is as follows:



■ **EXALARMGROUP** (export group data specified by alarm)

Expression	Meaning of variable			Note	
Var1 = EXALARMGROUP(Var2, Var3,Var4)	Var1	Return value			
		Failed	0		
		Succeeded	1		
	Var2	Alarm group number			
	Var3	Exported file name			
	Var4	External storage device	USB Disk	2	
			SD Card	3	
Description of action					
Export the alarm data to the external storage device in accordance with the specified group.					

Note:

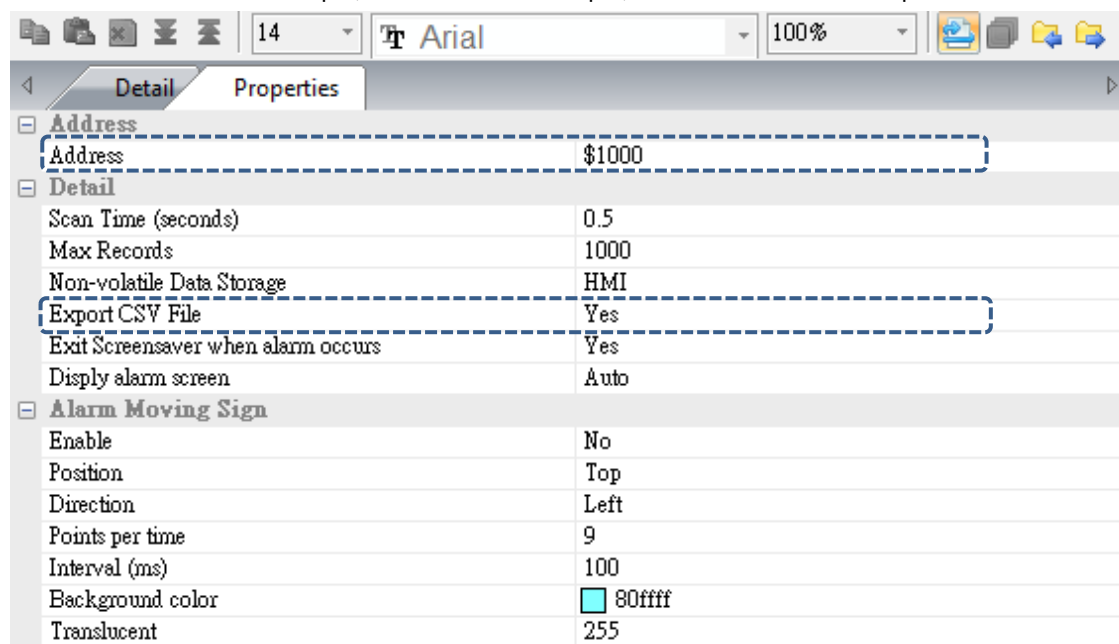
- You must select check box of **Export CSV File** in the alarm settings.
- File extension of "- group number" and ".csv " will be added automatically after exporting. The file name cannot contain characters such as \, /, :, *, ?, ", <, >, and |. x00 indicates the end of the file name string.

Variable	Type			
	Internal memory	PLC register	String	Constant
Var1	v	v		
Var2	v	v		v
Var3	v	v		
Var4	v	v		v

Example

The steps are as follows:

- The alarm settings are as follows. Set the Address to \$1000 and set the Export CSV File to Yes. Set Alarms 1 - 3 as Group 1, Alarms 4 - 6 as Group 2, and Alarms 7 - 9 as Group 3.



No.	Message Content	Category	Trigger Condition
1*	Alarm 1	1	On
2*	Alarm 2	1	On
3*	Alarm 3	1	On
4*	Alarm 4	2	On
5*	Alarm 5	2	On
6*	Alarm 6	2	On
7*	Alarm 7	3	On
8*	Alarm 8	3	On
9*	Alarm 9	3	On
10*	Alarm 10	0	On
11*	Alarm 11	0	On
12*	Alarm 12	0	On
13*	Alarm 13	0	On
14*	Alarm 14	0	On
15*	Alarm 15	0	On

Example

2. Create Maintained elements that trigger alarm bits on the screen to trigger alarms. Set the Write addresses as \$1000.0, \$1000.1, \$1000.2 to \$1000.9 in sequence.



3. Create an Alarm History Table element on the screen to display the current history alarm and set the group number as variable and the read address as \$302.

No	Trigger	Message	Recovery	Gr
1	hh:mm:ss m...	###	hh:mm:ss m...	

Alarm History Table ✕

Preview
Main
Main-2
Details
Details-2
Function Buttons
Coordinates

State:

Language:

Element description:

Event

Action Control Addr.

Sort

Use header controls to sort

Sorting Control Addr.

Sorting Order Address

Filter

Filter control address

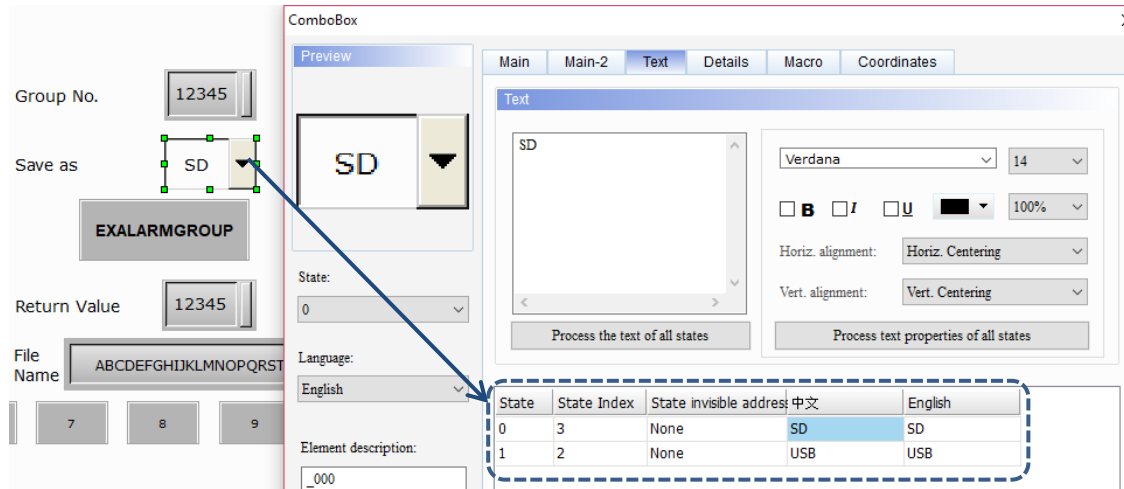
Alarm counter display

Alarm category start addr.

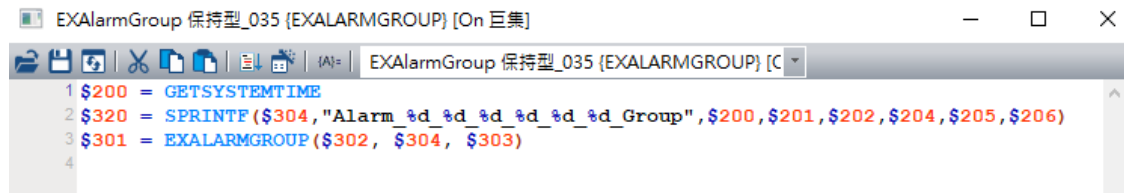
Alarm category end addr.

Example

4. Create a Character Display element on the screen with the address as \$304 and the string length as 20; create 2 Numeric Entry elements with the addresses as \$302 and \$301; create a ComboBox with the address as \$303. The total number of State is 2, the State Index of State 1 is 3, the text is SD, the State Index of State 2 is 2, and the text is USB.



5. Create a Maintained button element on the screen with the address as \$300.0, and add the On Macro.



The macro commands are described as follows:

- Line 1: record the system time to \$200 - \$206 (year, month, day, week, hour, minute, second).
- Line 2: add "_year, month, day, hour, minute, second" and "_Group" to "Alarm" to form a continuous string and assign to the \$304 start address as file name.
- Line 3: export history alarm to the specified external device according to the specified group number and file name.

6. Download the editing screen to the HMI and insert the USB Disk into the HMI.
7. Trigger Alarm 1 to Alarm 10, enter group number "1" on the screen, and select USB for the external storage device.

Example

No	Trigger	Message	Recovery
0001	11:00:17 06/14/2018	Alarm 1	
0002	11:00:18 06/14/2018	Alarm 2	
0003	11:00:18 06/14/2018	Alarm 3	
0004	11:00:19 06/14/2018	Alarm 4	
0005	11:00:20 06/14/2018	Alarm 5	
0006	11:00:20 06/14/2018	Alarm 6	
0007	11:00:20 06/14/2018	Alarm 7	
0008	11:00:21 06/14/2018	Alarm 8	
0009	11:00:22 06/14/2018	Alarm 9	
0010	11:00:24 06/14/2018	Alarm 10	

Group No.

Save as

EXALARMGROUP

Return Value

File Name

1

2

3

4

5

6

7

8

9

10

8. Press the **EXALARMGROUP** button and the file name will be displayed, and the return value will become 1 after the action.

No	Trigger	Message	Recovery
0001	11:00:17 06/14/2018	Alarm 1	
0002	11:00:18 06/14/2018	Alarm 2	
0003	11:00:18 06/14/2018	Alarm 3	
0004	11:00:19 06/14/2018	Alarm 4	
0005	11:00:20 06/14/2018	Alarm 5	
0006	11:00:20 06/14/2018	Alarm 6	
0007	11:00:20 06/14/2018	Alarm 7	
0008	11:00:21 06/14/2018	Alarm 8	
0009	11:00:22 06/14/2018	Alarm 9	
0010	11:00:24 06/14/2018	Alarm 10	

Group No.

Save as

EXALARMGROUP

Return Value

File Name

1

2

3

4

5

6

7

8

9

10

9. Then, set group numbers as 2 and 3 as in Step 8, and press the button **EXALARMGROUP** respectively.

10. After the USB Disk is removed, the files exported to the USB Disk are as follows:

Alarm_2018_6_14_11_18_33_Group-1.csv	6/14/2018 11:18 AM	Microsoft Excel Comma Separated Values File	2 KB
Alarm_2018_6_14_11_18_46_Group-2.csv	6/14/2018 11:18 AM	Microsoft Excel Comma Separated Values File	2 KB
Alarm_2018_6_14_11_18_55_Group-3.csv	6/14/2018 11:18 AM	Microsoft Excel Comma Separated Values File	2 KB

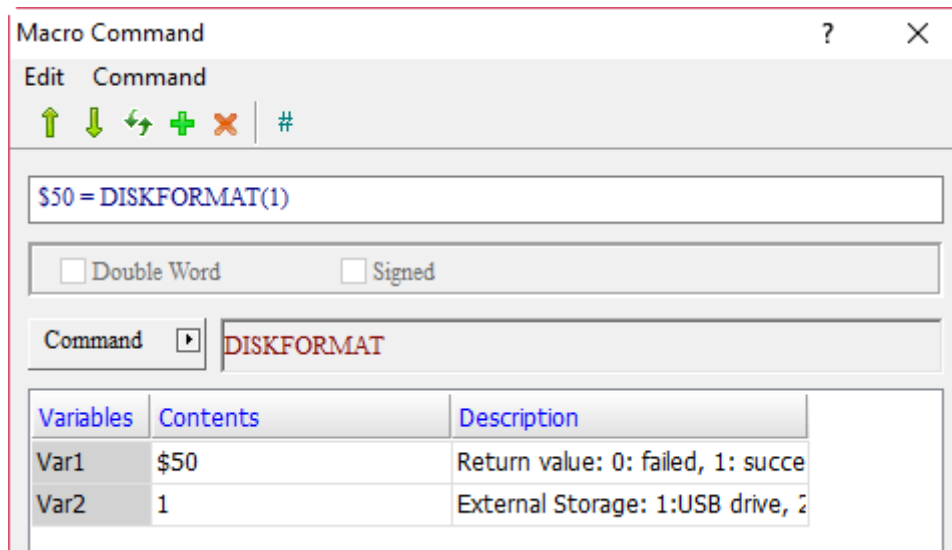
■ DISKFORMAT (disk format)

Expression	Meaning of variable			Note	
Var1 = DISKFORMAT(Var2) (W)	Var1	Return value		W: Word	
		Failed	0		
	Succeeded	1			
	Var2	External storage device	USB Disk		1
			SD Card		2
Description of action					
Select Var2 device to be formatted and return the result value to Var1.					

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v

Example

- Var1 is the internal memory address and Var2 is a constant. Format the USB Disk and put the return value in \$50.



24

■ **BMPCAPTURE** (screen capture)

Expression	Meaning of variable			Note	
Var1 = BMPCAPTURE(Var2) (W)	Var1	Return value		W: Word	
		Failed	0		
	Succeeded	1			
	Var2	External storage device	USB Disk		1
			SD Card		2
Description of action					
Store the captured screen file in the Var2 device and return the result value to Var1.					

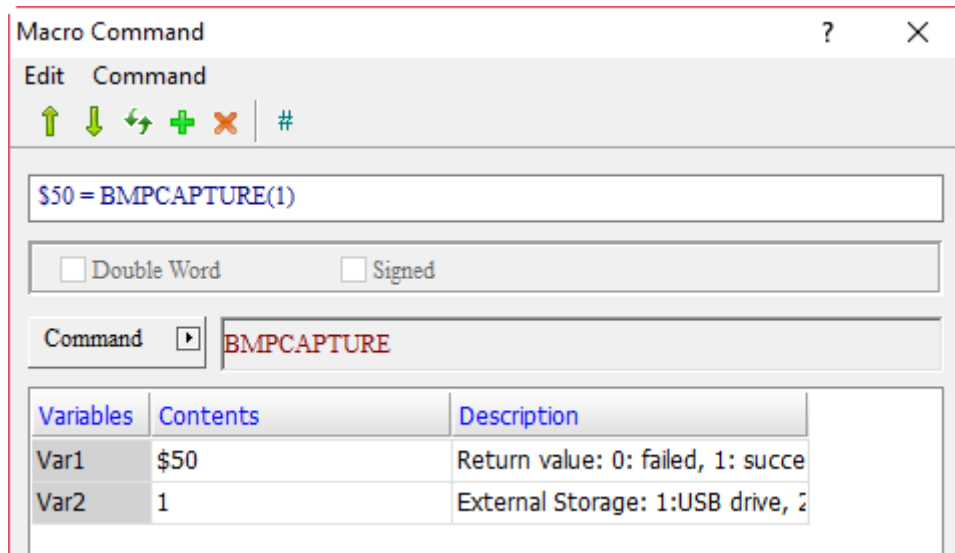
Note:

1. All formats of the exported files are .BMP.
2. The exported path is the folder with the current date in the root directory of the external storage device, and the current screen file is saved in hour, minute and second.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v

Example

- Var1 is the internal memory address and Var2 is a constant. Save the captured screen to the USB Disk and put the return value in \$50.



■ PLCDOWNLOAD (PLC file download)

Expression	Meaning of variable				Note
Var1 = PLCDOWNLOAD(Var2, Var3, Var4, Var5, Var6) (W)	Var1	Return value			W: Word
		Failed	0		
	Succeeded	1			
	Var2	COM Port	COM1	0	
			COM2	1	
			COM3	2	
	Var3	PLC station number			
	Var4	DELTA PLC file name (i.e. delta.dvp, delta.isp)			
	Var5	External storage device	USB Disk	1	
			SD Card	2	
Var6	PLC password				
Description of action					
Download PLC file to PLC.					

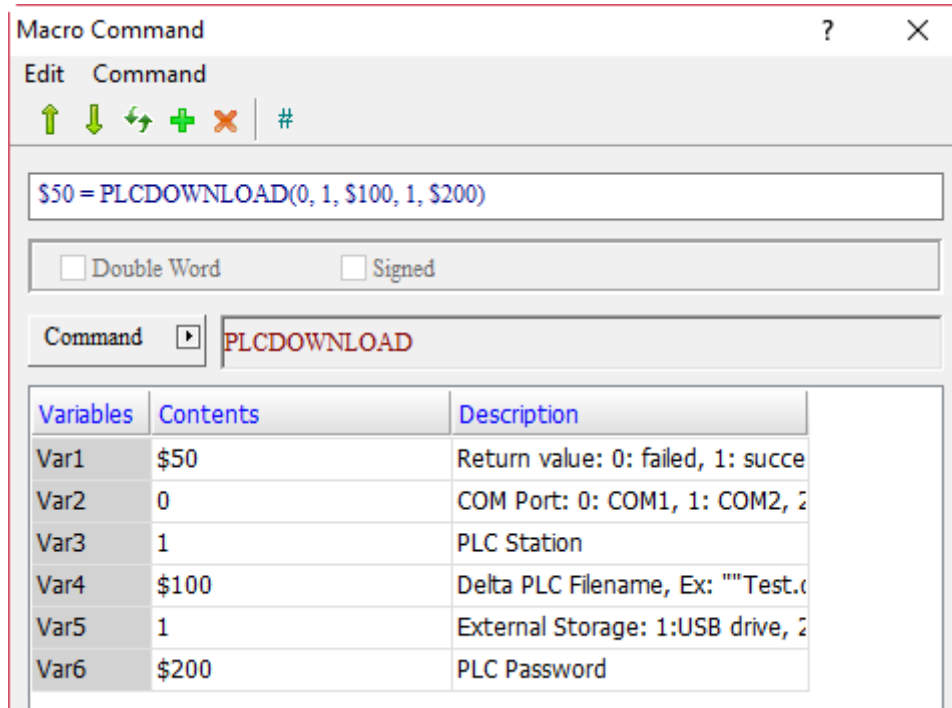
Note:

1. Only support Delta PLC.
2. Support .dvp and .isp file formats.
3. Please use Character Entry elements for Var6 password.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	
Var2	v	v	v
Var3	v	v	v
Var4	v	v	
Var5	v	v	v
Var6	v	v	

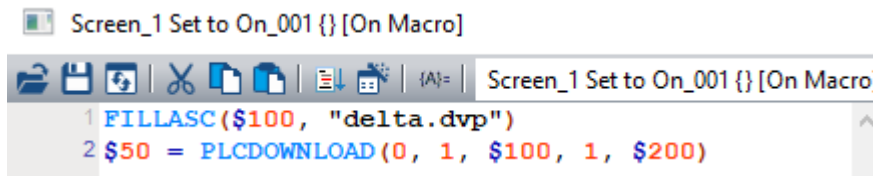
Example

- Store the DVP or ISP file to be downloaded to the USB Disk or SD Card and put the return value in \$50.



Variables	Contents	Description
Var1	\$50	Return value: 0: failed, 1: succe
Var2	0	COM Port: 0: COM1, 1: COM2, 2
Var3	1	PLC Station
Var4	\$100	Delta PLC Filename, Ex: ""Test.c
Var5	1	External Storage: 1:USB drive, 2
Var6	\$200	PLC Password

- Var4 is the PLC file name. First, the name string of the file to be downloaded must be put in a register address with the FILLASC command provided by the software. Then fill in the register address \$100 with Var4 of PLCDOWNLOAD.



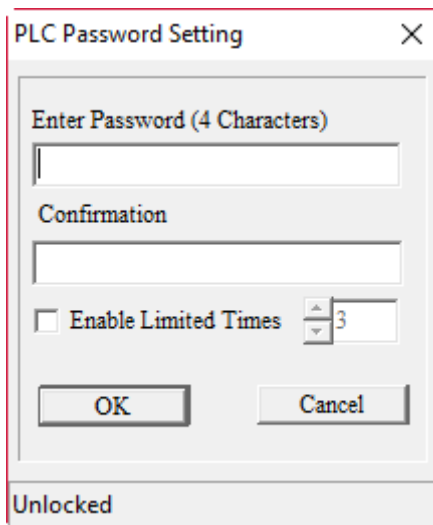
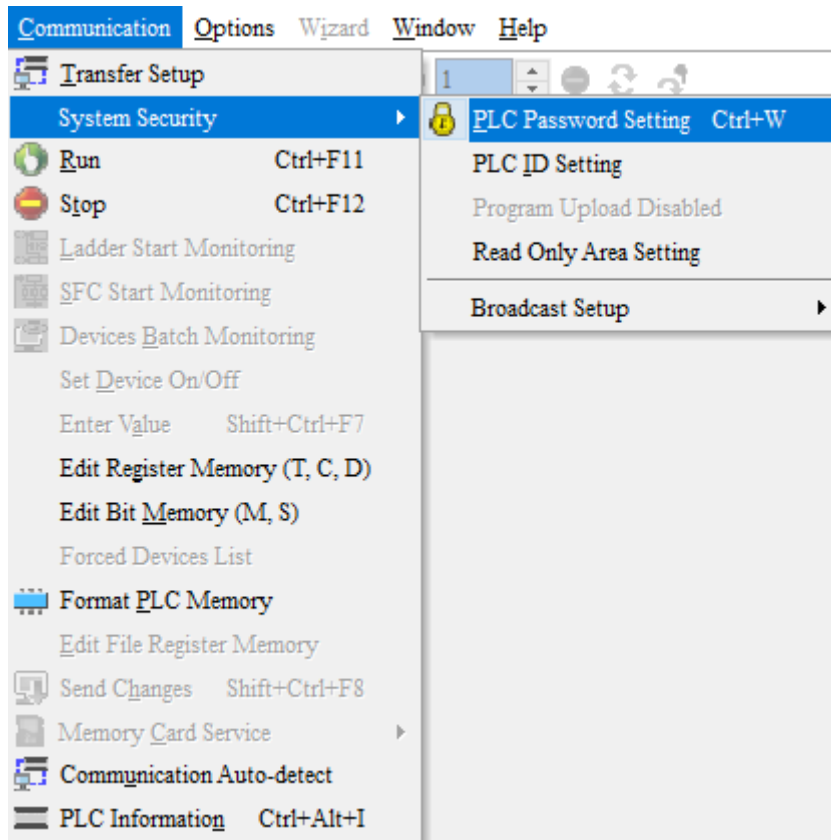
```

1 FILLASC($100, "delta.dvp")
2 $50 = PLCDOWNLOAD(0, 1, $100, 1, $200)
    
```

- The PLC password of Var6 must be set by going to [System Security] > [Password Setting] of the WPL and ISP software. After the setting is finished, enter the password with the Character Entry element of the HMI, then the PLC files can be downloaded to the PLC.

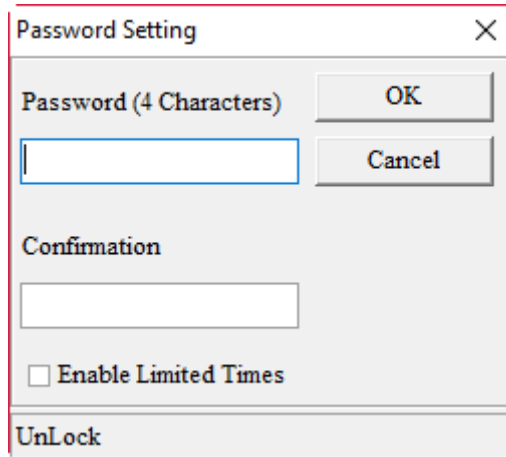
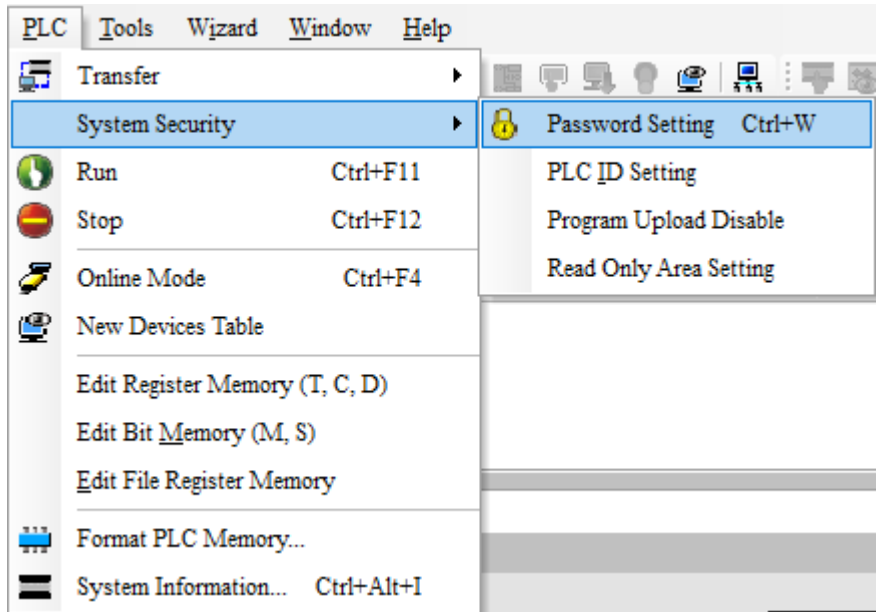
Example

- WPL password setting.



Example

- ISP password setting.



■ OPENSREEN

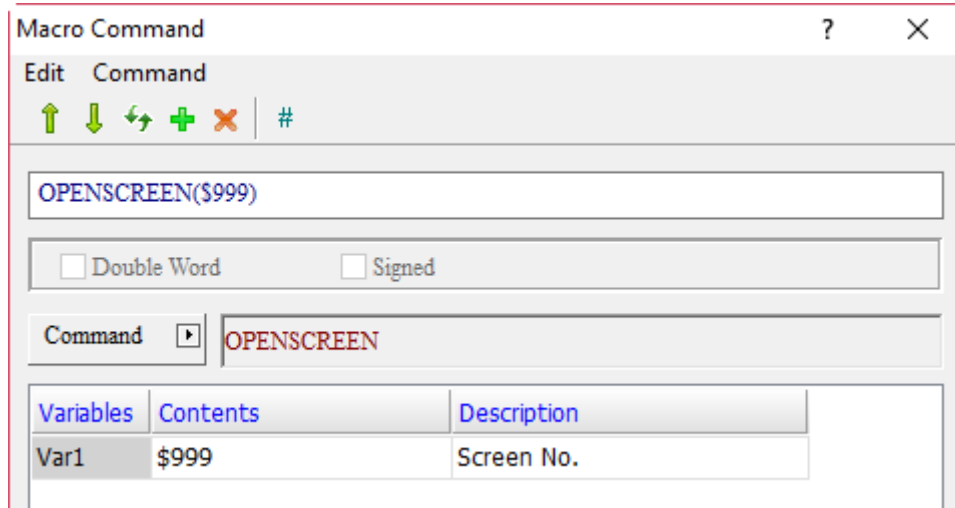
Expression	Meaning of variable		Note
OPENSREEN(Var1) (W)	Var1	Screen number	W: Word
	Description of action		
	Open the screen number specified by Var1.		

Note: this macro does not support Screen Cycle Macro, Screen Open Macro, and Screen Close Macro.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	v

Example

- Var1 is the internal memory address. When \$999 = 2, the macro switches the screen to Screen 2.



24

■ CLOSESUBSCREEN

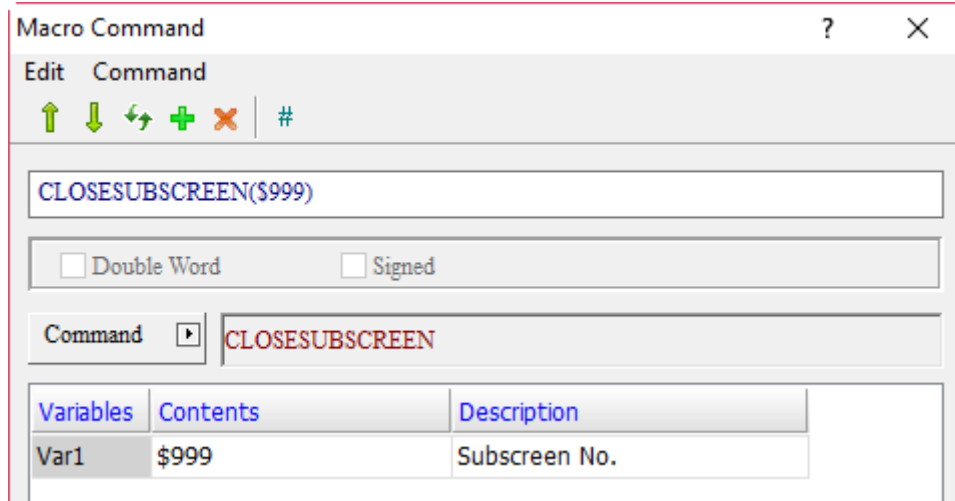
Expression	Meaning of variable		Note
CLOSESUBSCREEN(Var1) (W)	Var1	Subscreen number	W: Word
	Description of action		
	Close the subscreen number specified by Var1.		

Note: this macro does not support Screen Cycle Macro, Screen Open Macro, and Screen Close Macro.

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v	v	v

Example

- Var1 is the internal memory address. When \$999 = 2, the macro closes Subscreen No. 2.



■ GetCircleCenter (calculate coordinates of the center of a circle)

Expression	Meaning of variable		Note	
Var1 = GetCircleCenter (Var2, "Var3)	Var1	Return value		DW: Double Word
		Failed	0	
		Succeeded	1	
	Var2	Input coordinates of the 3 points (Note 1)		
	Var3	Center coordinates after calculation (Note 2)		
	Description of action			
Enter the calculated coordinates of 3 points to calculate the center coordinates. (Note 3)				

Note:

1. Input coordinates of the 3 points:

Set the 3 points as P1(x1, y1), P2(x2, y2), and P3(x3, y3), and the length of each point is Signed DW.

If Var2 is \$100:

Save LOW WORD of x1 in \$100, HIGH WORD in \$101

Save LOW WORD of y1 in \$102, HIGH WORD in \$103

Save LOW WORD of x2 in \$104, HIGH WORD in \$105

Save LOW WORD of y2 in \$106, HIGH WORD in \$107

Save LOW WORD of x3 in \$108, HIGH WORD in \$109

Save LOW WORD of y3 in \$110, HIGH WORD in \$111

2. Center coordinates after calculation:

Set the center coordinates as P4(x4, y4), and the length of each point is Signed DW.

If Var 3 is \$200:

Save LOW WORD of x4 in \$200, HIGH WORD in \$201

Save LOW WORD of y4 in \$202, HIGH WORD in \$203

3. Formulas:

$$x = \Delta x / \Delta$$

$$y = \Delta y / \Delta$$

$$\text{where } \Delta = 2(xa - xb) * (yc - yb) - 2(ya - yb) * (xc - xb)$$

$$\Delta x = (yc - yb) * (xa^2 + ya^2 - xb^2 - yb^2) - (ya - yb) * (xc^2 + yc^2 - xb^2 - yb^2)$$

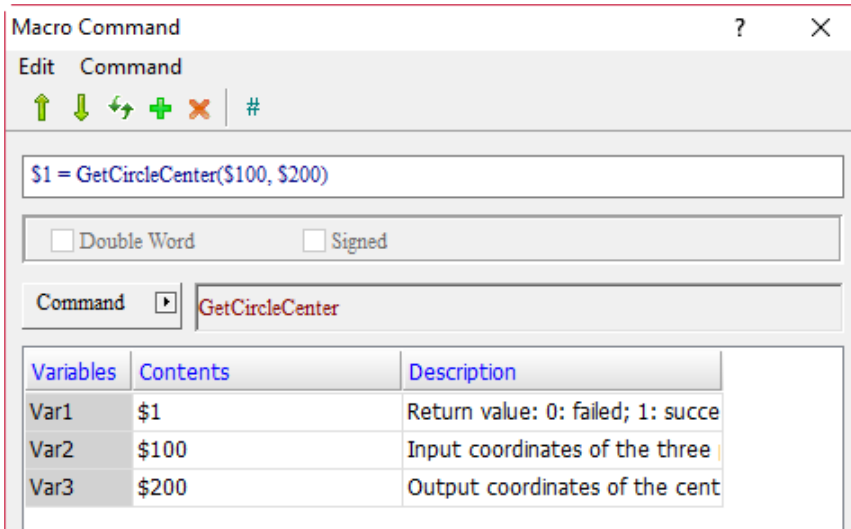
$$\Delta y = (xa - xb) * (xc^2 + yc^2 - xb^2 - yb^2) - (xc - xb) * (xa^2 + ya^2 - xb^2 - yb^2)$$

Variable	Type		
	Internal memory	PLC register	Constant
Var1	v		
Var2	v		
Var3	v		

Example

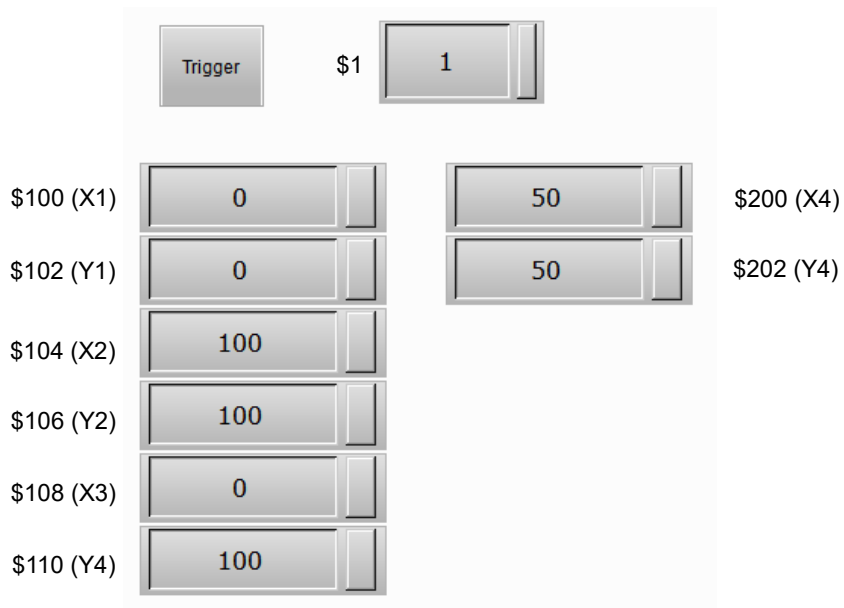
■ **Example**

\$1 = GetCircleCenter(\$100, \$200)



The steps are as follows:

1. Create a Numeric Display element as \$1 and the Data Type is Word.
 2. Create Numeric Entry elements of \$100, \$102, \$104, \$106, \$108, and \$110, and the Data Type is Double Word.
Enter the following values:
 \$100 = 0
 \$102 = 0
 \$104 = 100
 \$106 = 100
 \$108 = 0
 \$110 = 100
 3. Create Numeric Display elements of \$200 and \$202, and the Data Type is Double Word.
- After executing the macro, the screen is as follows:



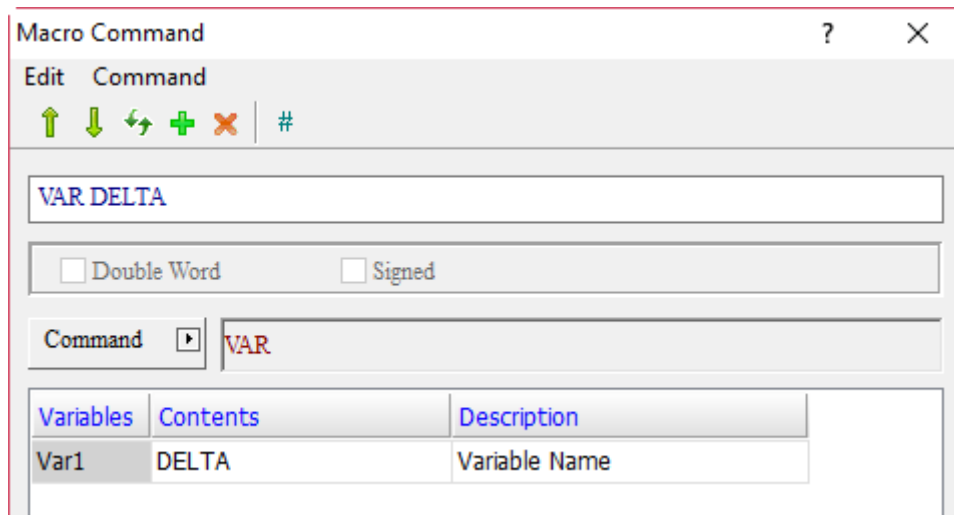
■ VAR

Expression	Meaning of variable		Note
VAR Var1 (W)	Var1	Variable Name	W: Word
	Description of action		
	Specify a name as a global variable.		

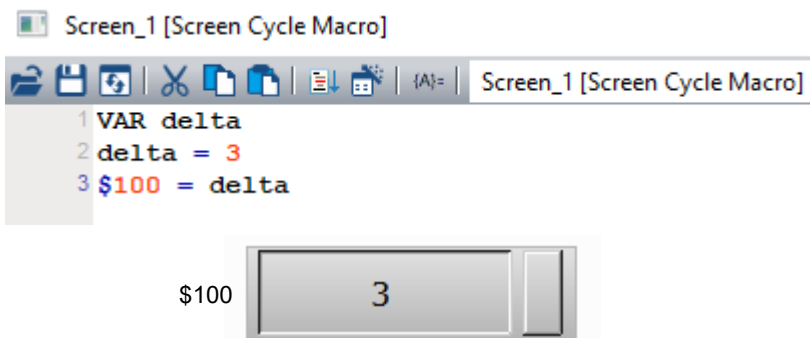
Variable	Type			
	Internal memory	PLC register	String	Constant
Var1			v	

Example

- Var1 is a word string. Declare DELTA as a variable.



- Set the value of the variable “delta” as 3, then move the value to \$100, and execute \$100 = 3.



24

24.4 Macro error codes

Error codes will be listed in the output field for easier troubleshooting while compiling the macros. If you miss out a command, the software will also prompt error messages to notify syntax errors.

■ Error message during editing

Code	Code name	Cause of error
-91	Local variable is not allowed	Using local variables is not allowed when parameters of continuous addresses are used in the macro. Example: parameter 1 of FILL.
-92	Elementary arithmetic error	The variable format is incorrect when the codes of elementary arithmetic are edited.
-93	Submacro does not exist	This error message indicates that the submacro you are calling does not exist. For example, when you write a line of CALL 5, which means the submacro 5 is to be called, but you did not edit the submacro 5 (could be an input error or you forgot to edit the corresponding submacro), this message serves as a reminder to prevent unpredictable errors.
-94	Number of labels exceeds the maximum	The number of labels exceeds the maximum of 65536.
-95	Flow control setting error	A non-existing flow control setting is used.
-96	Calling a null address	Memory configuration failure causes the macro to use memory address 0 to process the data.
-97	IF exceeds the maximum	The maximum layer of the nested IF statement is 6.
-98	Lack of ENDIF	When the IF statement is used, you must put the ENDIF at the end, so the macro nested within and outside the IF statement can be identified.
-99	IF ELSE execution error	This warning is sent when the IF ELSE statement is edited with its code not matching the IF ELSE logic.
-100	LABEL cannot be found	This error message indicates that the LABEL requested by GOTO cannot be found.
-101	Recursion occurred	This error message indicates the occurrence of recursion which mostly occurs in submacros. The reason is that if a submacro calls itself, whether directly or indirectly, it is the occurrence of recursion. Technically, submacros cannot be recursively edited, but if this is unavoidable, use GOTO or For (infinite loop) instead.
-102	More than 10 nested FOR are used	This error message indicates that more than 10 nested FOR commands have been used. The purpose is to prevent excessive use of nested FOR and insufficient memories. You can use GOTO or IF when necessary.
-103	Non-existing submacro is called	The submacro called is not within the range of 1 – 512 (i.e. CALL 0 or CALL 513).
-104	The number of NEXT is less than the number of FOR	This error message indicates that the number of NEXT operand does not match the number of FOR operand. Because FOR and NEXT need to be used in pairs, if a NEXT is missing, an error will occur while the program is running.
-105	The number of FOR is less than the number of NEXT	This error message indicates that the number of NEXT operand does not match the number of FOR operand. Because FOR and NEXT need to be used in pairs, if there is one extra NEXT, an error will occur while the program is running.

Code	Code name	Cause of error
-106	Repeated LABEL	This error message indicates that a LABEL is set repeatedly in the same macro. This means GOTO will generate two different results. In order to avoid unpredictable mistakes, this editing error message will pop up to remind you.
-107	There is RET in macro	This error message indicates that the use of RET in a macro. Since RET is designed for the submacro to return to the next command called, which means the program is not finished. END should be used to end a program if it is necessary to mark the end of a macro.
-109	Incorrect address format in macro	This error message indicates that the input address format in the macro is incorrect.
-110	Recipe address input error	This error message indicates that the input recipe address in the macro is incorrect. The recipe address does not exist.
-111	Recipe address input error	This error message indicates that the input recipe address in the macro is incorrect. The recipe address exceeds the range.
-112	Incorrect COM setting in macro	This error message indicates that the COM setting in the macro is incorrect; the COM port does not allow flow control.
-113	Incorrect COM setting in macro	This error message indicates that the COM setting in the macro is incorrect; the COM port is occupied.
-114	Incorrect COM setting in macro	This error message indicates that the COM setting in the macro is incorrect. You must set both COM2 and COM3 to RS485. Otherwise, set COM2 to RS232 and COM3 to RS422.
-115	Macro command error	This error message indicates that the command in the macro is incorrect or the called submacro is incorrect.
-117	Disk formatting error	This error message indicates that the device code in the macro is incorrect. It is possible that the parameter is set to an unsupported device (such as an SD card).
-118	Unsupported device is used in macro	This error message indicates that the macro has used the command not supported by the device.
-119	Repeat variable statement	This error message indicates that the macro includes repeat variable statements.

■ Macro error messages in the HMI

The GETLASTERROR macro command can be used to read an error message on the HMI, but if a new correct command is executed before the error message is read, the error message will be changed. The execution of a macro will not change the error messages of other macros.

Code	Code name	Cause of error
-1	Program End	The program has ended.
-2	Encoding error	This macro command does not exist.
-3	Lock error	Unable to lock the specified COM Port.
-10	GOTO error	There is a GOTO error in the macro.
-11	Stack overflow	This error message indicates that you have called too many submacros, so the stacks are not enough for use since many different macros are executing at the same time. This is a protection to avoid memory insufficiency.
-12	Empty submacro	This is a call submacro error. Since the command of CALL can call the submacro ID represented by the value in the internal memory of CALL, if you enter the value of this memory address while there is no corresponding submacro to call, this error message occurs.
-13	Data read error	Data read error may be an error of the internal memory data, but it mostly represents data read error of the controller.
-14	Data write error	Data write error may be an error of the internal memory data, but it mostly represents data write error of the controller.
-15	Divisor is 0	The divisor is 0 during the division or remainder operation.
-16	Data process error with BCD format	An error occurred while executing the BCD macro command.
-17	Data process error while converting ASCII to HEX	An error occurred while executing the TOHEX macro.
-18	NEXT OFFSET processing error	The macro data error results in errors while executing the NEXT macro command.
-19	Character command error	An error occurred while executing FILLASC.
-20	Data process error with BIN format	An error occurred while executing the BIN command.
-21	Submacro data error	The macro data error results in errors while calling submacros.
-22	FOR loop has OFFSET error	The macro data error results in errors while executing the FOR macro command.
-23	INITIAL ERROR	An error occurred while executing the INICOM macro command.
-24	Memory allocation error	The HMI memory is insufficient to execute macros.
-25	COM Port error	An error occurred in COM Port resulting in execution failure of the COM Port related communication macros.
-26	Print Port error	Print Port selection error when printing.
-27	Read value error	An error occurred when macros read parameter data that are out of range.
-28	IF ELSE ENDIF error	An error occurred while executing the IF ELSE ENDIF macro command.
-29	Pen width setting error	An error occurred while setting the pen width for the drawing macro.

Code	Code name	Cause of error
-30	History data error	An error occurred while executing the GETHISTORY macro.
-31	Export option error	An error occurred while executing the EXPORT macro.
-32	Disk reading error	An error occurred in the external or internal disk resulting in execution error in the associated macros (EXPORT, DISKFORMAT...).
-33	Print error	An error occurred while the macro is executing printing.
-34	Stack overflow in IF ELSE ENDIF	An error occurred due to stack overflow when the IF ELSE ENDIF macro command is executing.
-35	Password error	Password confirmation is required when executing the macro, and the password entered is incorrect.
-36	Password lock error	Password confirmation is required when executing the macro, and you have reached the password attempt limit.
-37	ID code identification error	ID password confirmation is required when executing the macro, and the ID password entered is incorrect.
-38	Syntax error	Syntax error occurred after downloading the PLC program.
-39	Connection failure / no response	The connection fails or does not respond when the PLC program is downloaded.
-66	History ID error	History buffer ID error.
-67	Identified string error	Unrecognizable RL program string.
-69	Identified encoding error	An error occurs when analyzing the RL program.
-70	Variable 1 error	The first variable in the macro command is incorrect.
-71	Variable 2 error	The second variable in the macro command is incorrect.
-72	Variable 3 error	The third variable in the macro command is incorrect.
-73	Field language reading error	Unable to read the RL program or G-code.
-74	Field language writing error	Unable to write the RL program or G-code.
-75	Field language execution error	Unable to execute the RL program or G-code.
-76	Subprogram ID error	Incorrect Subprogram ID of the RL program.
-77	Subprogram size error	Incorrect subprogram size of the RL program.
-78	Exceed the maximum number of program lines	Number of lines of the RL program exceeds the maximum allowable number.
-79	G code compilation error	G code compilation error.
-80	Exceeding the range when converting Double to INT	The value in the data type of Double exceeds the range for the value in int type.
-82	Local variable configuration error	For example, Var1 and Var2 of the BMOV command cannot use the local variables.
-83	Restricted macro command	The current execution is not allowed because there is a restricted macro command. For example, executing the OpenScreen macro in the Screen Cycle macro.
-85	Temporary memory space error	The specified file space is too small.

■ PLC related file error description, including file formats of DVP and ISP

Code	Code name	Cause of error
-40	This file name is not supported	The file name to be opened by the macro execution is not supported.
-41	This version is not supported	The file version to be opened by the macro execution is not supported.
-42	File open error	There is an action to open file when the macro is executed, and the action failed.
-43	File Handle error	Handle error in the file opened by the macro execution.
-44	File read error	The file opened by the macro execution cannot be read properly.
-45	File Seek error	The content of the file opened by the macro execution cannot be moved properly.
-46	File write error	The file opened by the macro execution cannot be written properly.
-47	File removal error	There is an action to remove file when the macro is executed, and the action failed.
-48	File Rename error	There is an action to rename the file when the macro is executed, and the action failed.
-49	File length error	A file length error is found when the macro is executed.
-50	File data error	A file data error is found when the macro is executed.

■ File Slot file error description

Code	Code name	Cause of error
-51	File Slot macro ID error	The ID for the macro execution to open does not exist.
-52	File Slot macro handle error	Handle error in the file opened by the macro execution.
-53	File Slot macro read error	The file opened by the macro execution cannot be read properly.
-54	File Slot macro seek error	The file opened by the macro execution cannot be moved properly.
-55	File Slot macro write error	The file opened by the macro execution cannot be written properly.
-56	File Slot macro removal error	There is an action to remove file when the macro is executed, and the action failed.
-57	File Slot macro length error	A file length error is found when the macro is executed.
-58	File Slot macro export error	The destination device assigned for the file export is incorrect when the macro is executed.
-59	File Slot export error	The macro execution fails to export the file.
-61	File Slot import error	The macro execution fails to import the file.
-62	The file corresponding to the File Slot does not exist	The FileSlot file read or exported by the macro execution does not exist.
-63	Failed to read the file from external disk	The external file to be imported by the macro execution does not exist.
-64	Failed to copy the file	The macro execution fails to copy the file when performing file import or export.
-84	Failed to read the File Slot filename	The macro execution fails to read the FileSlot filename.
-86	Failed to set the File Slot filename	The macro execution fails to set the FileSlot filename.
-87	Failed to search for the File Slot ID	The macro execution fails to search for the selected FileSlot ID.

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24

Multi-language

25

This chapter illustrates how to use the multi-language function.



25.1	Multi-language setup.....	25-2
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25

25.1 Multi-language setup

The Multi-language function supports up to 32 languages. The Multi-language setup example is described as follows.

Go to [Options] > [Configuration] > [Multi-language] to set the Multi-language parameters.

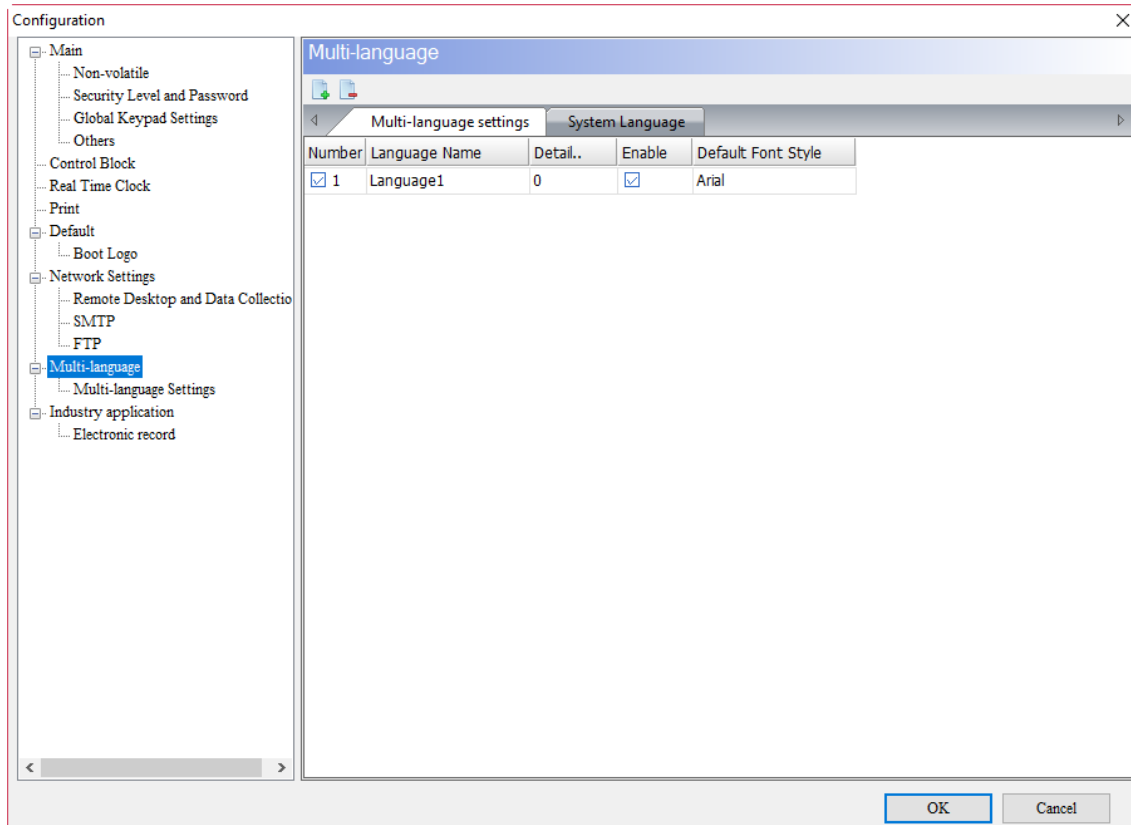

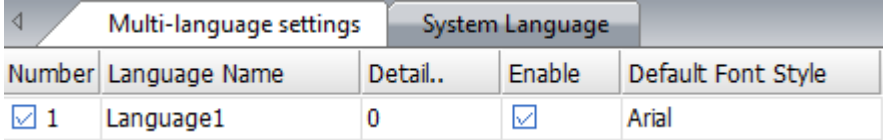

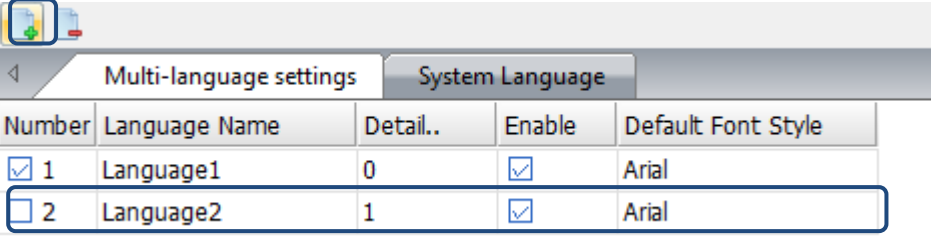


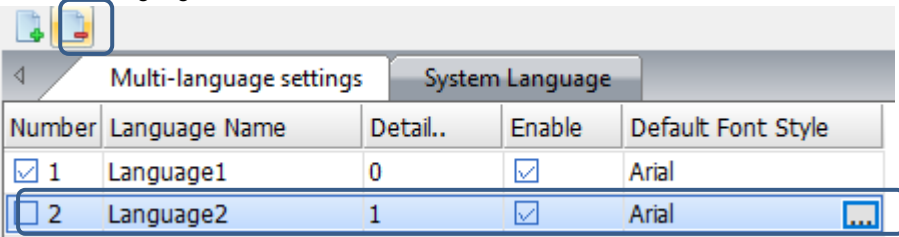
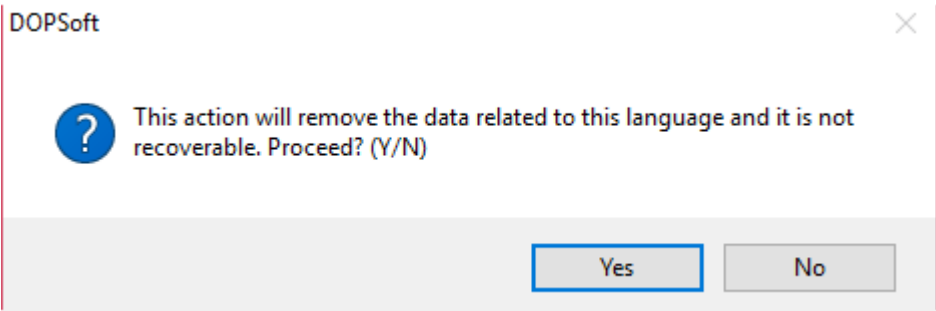


Figure 25.1.1 Multi-language setup interface

Table 25.1.1 Multi-language setup

Multi-language setup	
<p>Add</p> 	<ul style="list-style-type: none"> Multi-language settings allow you to add, modify, and delete the language settings. [Language 1] is the default setting, which you can change its Language Name and Detail as desired.  <ul style="list-style-type: none"> You can click  to add a new language, as shown in the following figure. 
<p>Delete</p> 	<ul style="list-style-type: none"> To delete a language, select the language to be deleted and click  to delete the selected language.  <ul style="list-style-type: none"> When you execute the delete function, a window appears and asks you to confirm the deletion. 

25

Multi-language Setup

Language Name	<p>You can set the Language Name based on the name of the language or your preference.</p>																							
Modify	Detail	<ul style="list-style-type: none"> The Detail column is used to switch between languages. <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th colspan="2" style="background-color: #e0e0e0;">Multi-language settings</th> <th colspan="3" style="background-color: #e0e0e0;">System Language</th> </tr> <tr> <th>Number</th> <th>Language Name</th> <th>Detail..</th> <th>Enable</th> <th>Default Font Style</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> 1</td> <td>Language1</td> <td>0</td> <td><input checked="" type="checkbox"/></td> <td>Arial</td> </tr> <tr style="background-color: #e0e0ff;"> <td><input type="checkbox"/> 2</td> <td>Language2</td> <td>1</td> <td><input checked="" type="checkbox"/></td> <td>Arial</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The software switches the language to the corresponding setting using the System Control in the Control Block. The [Language Change] in the Button element also switches the language to the corresponding language based on the Detail settings. <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Configuration</p> <ul style="list-style-type: none"> [-] Main <ul style="list-style-type: none"> ... Non-volatile ... Security Level and Password ... Global Keypad Settings ... Others [-] Control Block [-] Real Time Clock [-] Print [-] Default <ul style="list-style-type: none"> ... Boot Logo [-] Network Settings <ul style="list-style-type: none"> ... Remote Desktop and Data Collectio ... SMTP ... FTP [-] Multi-language <ul style="list-style-type: none"> ... Multi-language Settings [-] Industry application <ul style="list-style-type: none"> ... Electronic record </div> <div style="width: 45%;"> <p>Control Block</p> <p>Control Block</p> <p>Start Address: <input type="text" value="{Link2}1@D0"/></p> <p><input type="checkbox"/> Screen No. ...</p> <p><input type="checkbox"/> General Control ...</p> <p><input type="checkbox"/> Curve Control ...</p> <p><input type="checkbox"/> Sampling History Buffer ...</p> <p><input type="checkbox"/> Clearing History Buffer ...</p> <p><input type="checkbox"/> Recipe Control ...</p> <p><input type="checkbox"/> Recipe Group Number ...</p> <p><input checked="" type="checkbox"/> System Control D0</p> <p><input type="checkbox"/> Enhanced Recipe ...</p> <p><input type="checkbox"/> Enhanced Recipe ...</p> </div> </div>			Multi-language settings		System Language			Number	Language Name	Detail..	Enable	Default Font Style	<input checked="" type="checkbox"/> 1	Language1	0	<input checked="" type="checkbox"/>	Arial	<input type="checkbox"/> 2	Language2	1	<input checked="" type="checkbox"/>	Arial
Multi-language settings		System Language																						
Number	Language Name	Detail..	Enable	Default Font Style																				
<input checked="" type="checkbox"/> 1	Language1	0	<input checked="" type="checkbox"/>	Arial																				
<input type="checkbox"/> 2	Language2	1	<input checked="" type="checkbox"/>	Arial																				
Enable	<ul style="list-style-type: none"> You can determine whether to enable the added languages. As shown in the following figure, you can enable the added No. 2 language. <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th colspan="2" style="background-color: #e0e0e0;">Multi-language settings</th> <th colspan="3" style="background-color: #e0e0e0;">System Language</th> </tr> <tr> <th>Number</th> <th>Language Name</th> <th>Detail..</th> <th>Enable</th> <th>Default Font Style</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> 1</td> <td>Language1</td> <td>0</td> <td><input checked="" type="checkbox"/></td> <td>Arial</td> </tr> <tr style="background-color: #e0e0ff;"> <td><input type="checkbox"/> 2</td> <td>Language2</td> <td>1</td> <td><input checked="" type="checkbox"/></td> <td>Arial</td> </tr> </tbody> </table> <ul style="list-style-type: none"> If you attempt to cancel the selection of the check box of Enable for Language 1, a warning message appears to inform you that this language cannot be disabled. <div style="border: 1px solid red; padding: 10px; margin-top: 10px;"> <p style="text-align: center;">DOPSoft</p> <p style="text-align: center; color: red; font-size: 24px;">✖</p> <p style="text-align: center; color: red; font-weight: bold;">The language can not be disabled.</p> <p style="text-align: center; margin-top: 10px;">OK</p> </div>				Multi-language settings		System Language			Number	Language Name	Detail..	Enable	Default Font Style	<input checked="" type="checkbox"/> 1	Language1	0	<input checked="" type="checkbox"/>	Arial	<input type="checkbox"/> 2	Language2	1	<input checked="" type="checkbox"/>	Arial
Multi-language settings		System Language																						
Number	Language Name	Detail..	Enable	Default Font Style																				
<input checked="" type="checkbox"/> 1	Language1	0	<input checked="" type="checkbox"/>	Arial																				
<input type="checkbox"/> 2	Language2	1	<input checked="" type="checkbox"/>	Arial																				

Multi-language Setup

Default Font Style

- Default Font Style provides you with the option to apply the font name and size based on the language selected.

Default Font Style ×

Font Name: Apply to all

Font Size: Apply to all

- When you choose to apply either the Font Name or Font Size, the font setting only applies to the newly created elements after you make a change to the font setting.
- When you choose to apply both Font Name and Font Size, the font setting applies to both newly- and already-created elements.

Note: the Font Name and Font Size settings are applied to the elements that users can input text by themselves.

Table 25.1.2 Multi-language example

Multi-language																
Step 1	<p>Go to [Options] > [Configuration] > [Multi-language] to add a language named “English”, and change the name of the existing Language 1 to “Chinese”.</p> <table border="1"> <thead> <tr> <th>Number</th> <th>Language Name</th> <th>Detail..</th> <th>Enable</th> <th>Default Font Style</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> 1</td> <td>Chinese</td> <td>0</td> <td><input checked="" type="checkbox"/></td> <td>Arial</td> </tr> <tr> <td><input type="checkbox"/> 2</td> <td>English</td> <td>1</td> <td><input checked="" type="checkbox"/></td> <td>Arial</td> </tr> </tbody> </table>	Number	Language Name	Detail..	Enable	Default Font Style	<input checked="" type="checkbox"/> 1	Chinese	0	<input checked="" type="checkbox"/>	Arial	<input type="checkbox"/> 2	English	1	<input checked="" type="checkbox"/>	Arial
Number	Language Name	Detail..	Enable	Default Font Style												
<input checked="" type="checkbox"/> 1	Chinese	0	<input checked="" type="checkbox"/>	Arial												
<input type="checkbox"/> 2	English	1	<input checked="" type="checkbox"/>	Arial												
Step 2	<p>Go to [Options] > [Configuration] > [Control Block] to select the check box of System Control.</p>															
Step 3	<p>■ Create an Increment button with the Write Address as \$13, and set the other required parameters.</p>															

Multi-language

- Enter the Chinese and English texts to be displayed in the Text page as shown as follows.

Step 3

State	Chinese	English
0	ROC	English

- Write the following instructions in the After Execute Macro of the Increment button.

```








Screen_1 Increment_001 {ROC} [After Execute Macro]
1 IF $13 > 1
2 $13 = 0
3 ENDIF
4 {Link2}1@D0 = $13
    
```

Create a Text element. Enter the Chinese and English texts for the element to display in the Text page as shown as follows.

Step 4

State	Chinese	English
0	台達電子	DELTA


25

Multi-language					
Step 5	<p>Compile the elements and download the screen to the HMI.</p>  <p>The screenshot shows a window titled "Screen_1" with a button labeled "ROC" and the text "台達電子" (Delta Electronics) to its right.</p>				
Step 6	<p>After downloading the screen to the HMI, click the ROC button to switch the language to English and the text changes to DELTA.</p> <table border="1"><tbody><tr><td>Before switching</td><td></td></tr><tr><td>After switching</td><td></td></tr></tbody></table>	Before switching		After switching	
Before switching					
After switching					

Print Setup

26

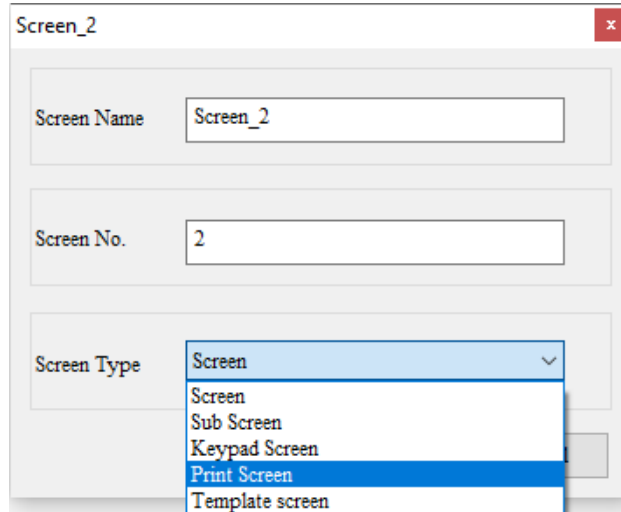
This chapter mainly explains the Print function.



26.1	Screen Print Setup	26-3
26.2	ePrinter	26-10
26.2.1	PrnServer	26-11
26.2.2	HMI link settings	26-14
26.3	Error code of printer	26-18
26.4	Template printing	26-19

26

To output a screen, you must create a Print Screen before using the Print function.



After creating the Print Screen, go to [Options] > [Configuration] > [Print] and select the printer to be used.

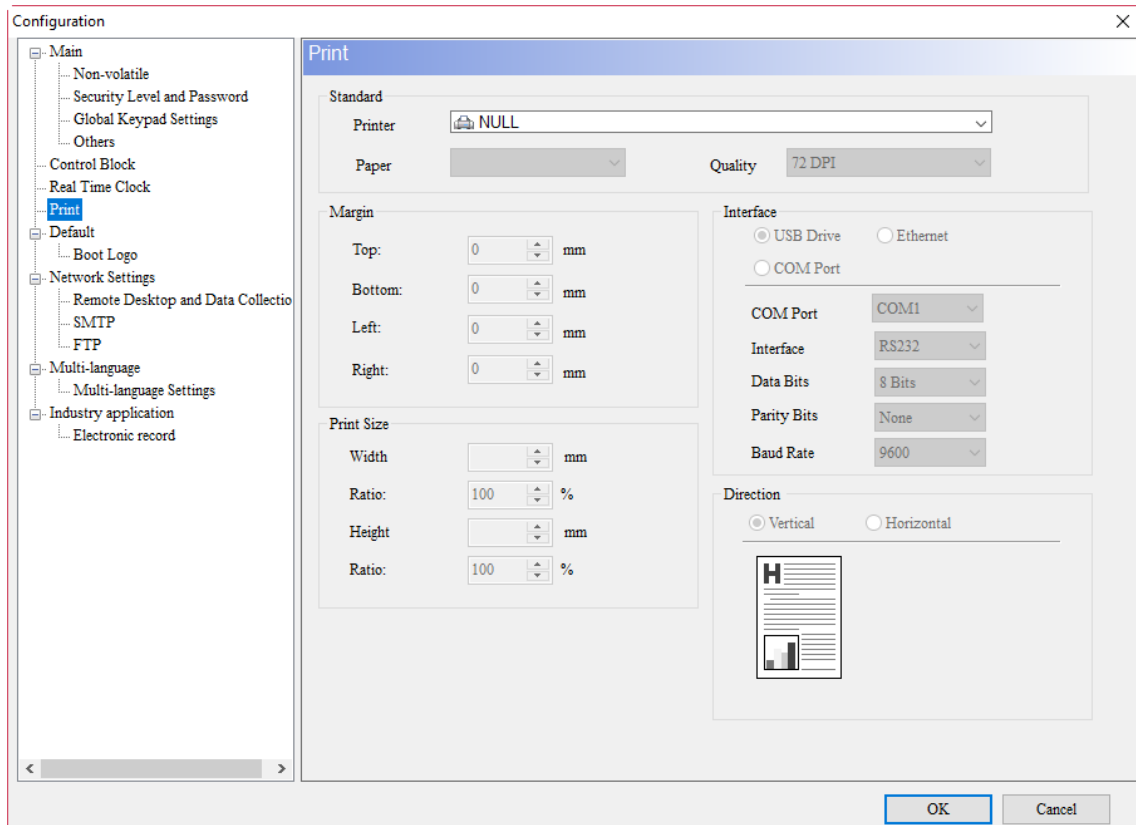


Figure 26.1 Printer setting screen

26.1 Screen Print Setup

The Screen Print Setup function enables the user to print multiple pages, set the print layout, and print history data.

Pay attention to the following before executing the Screen Print Setup:

- The screen specified by the Goto Screen cannot be set as the print screen.
- Cannot change to the print screen via Goto Screen.
- The print screen cannot be the default screen.
- The print screen cannot be the base screen.
- The print screen cannot be the subscreen.
- The print screen cannot be the screensaver screen.

In the Screen Print Setup window, two options are available, [Print All] and [Custom Print]. [Print All] means that all the screens that you dragged to the Print Output Screen on the right side for printing will be printed out. History data can also be printed out using the Print Output Screen. You can select the screen to be printed, set the printing sequence, or delete the screen that does not need to be printed.

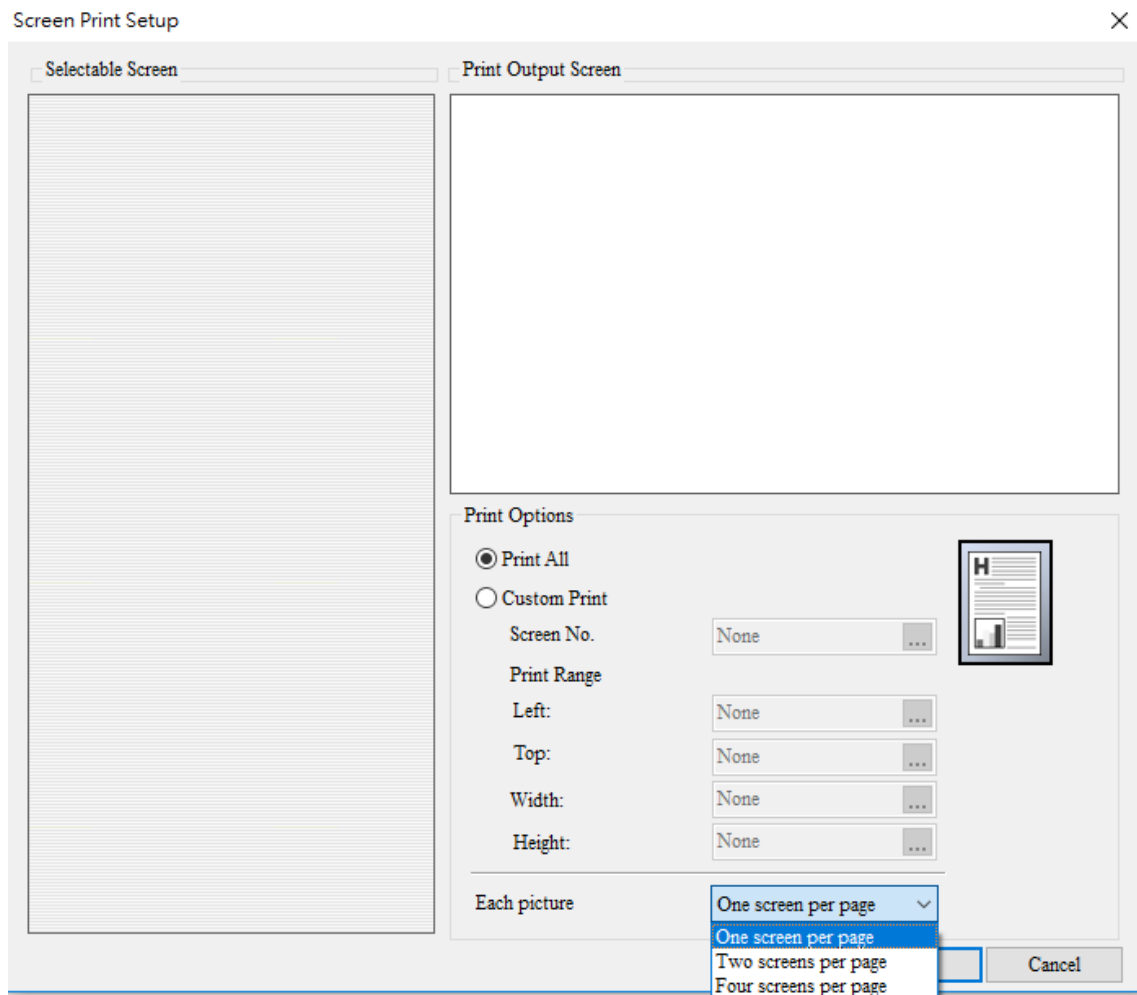


Figure 26.1.1 Screen Print Setup window

26

Users can set the screens they want to print out using [Custom Print]. Therefore, users can set the Screen No., the height and width of the print range, and the X coordinate (Left) and Y coordinate (Top) of the starting point of the print range. This function can be used with the Printer flag in the Control Block and the Print Output button.

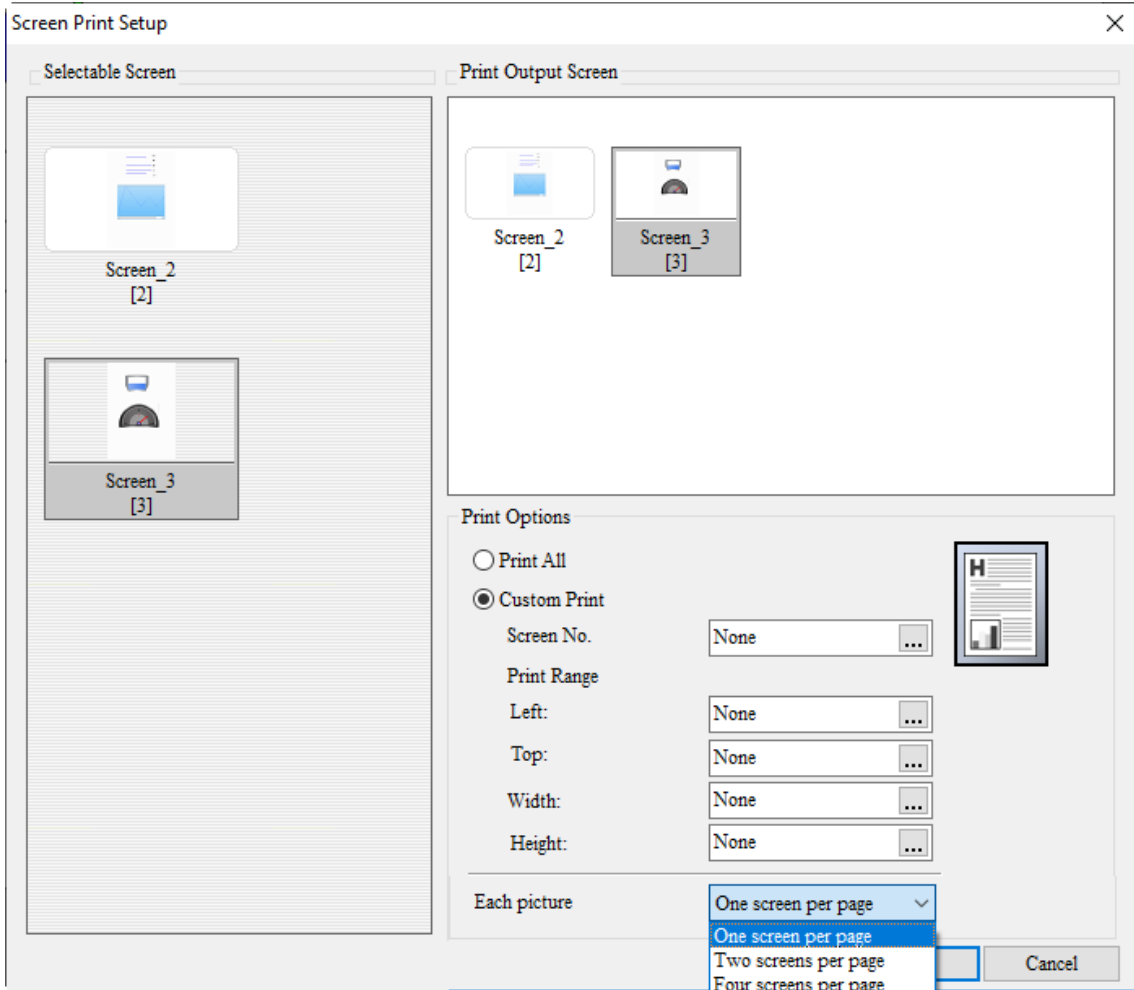
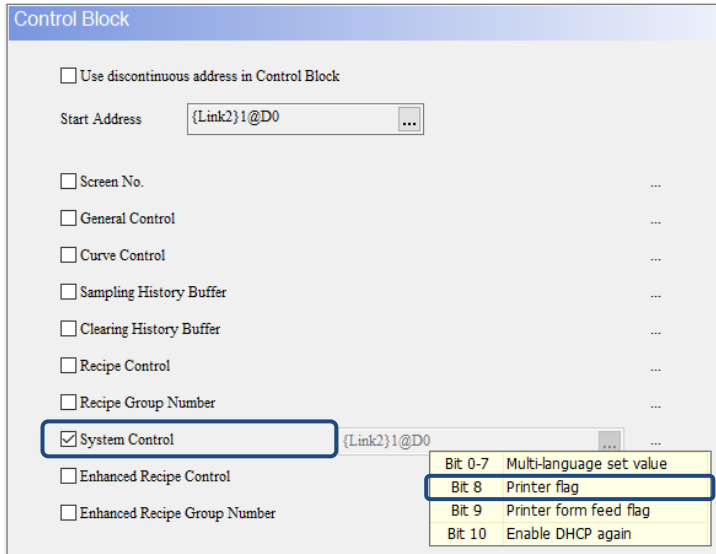


Figure 26.1.2 Custom Print

Table 26.1.1 Set Custom Print

Screen No.	<p>Screen No. refers to the number of the screen to be printed. Users can set the read address of the screen to print respectively; when the entered value is 0, all screens in Screen Print Setup will be printed. This screen number can also be used with the Printer flag in the Control Block.</p> 
Left	Set the X coordinate of the starting point of the print range.
Top	Set the Y coordinate of the starting point of the print range.
Width	Set the width of the print range.
Height	Set the height of the print range.

You can set the number of screens to print out on each page with the Each picture function.

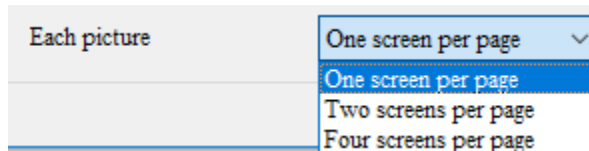





Table 26.1.2 Set the screen(s) to output per page

One screen per page	
Two screens per page	
Four screens per page	

With all functions and properties for Screen Print Setup introduced, the following section provides an example for Screen Print Setup.

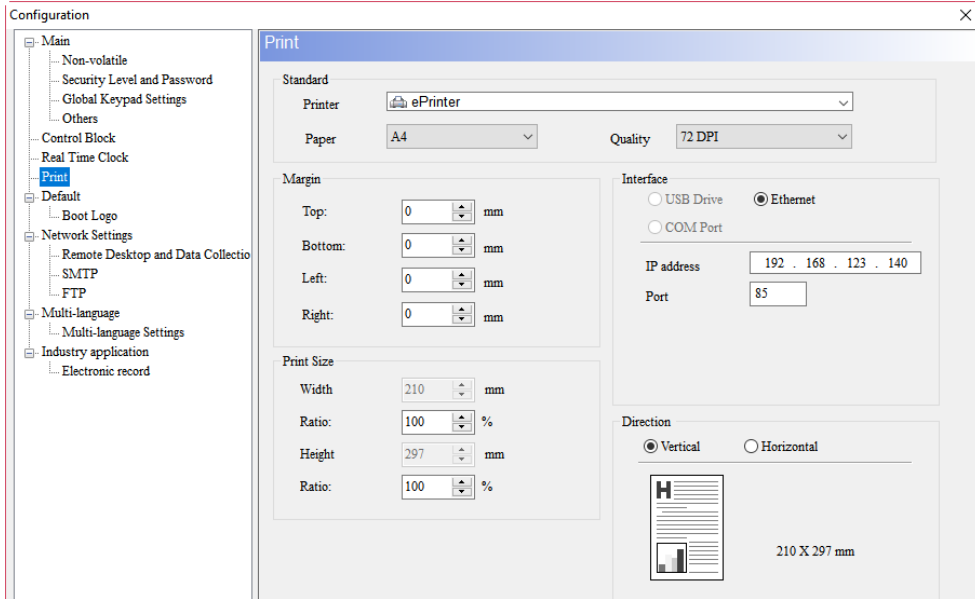
Table 26.1.3 Screen Print Setup Example

26

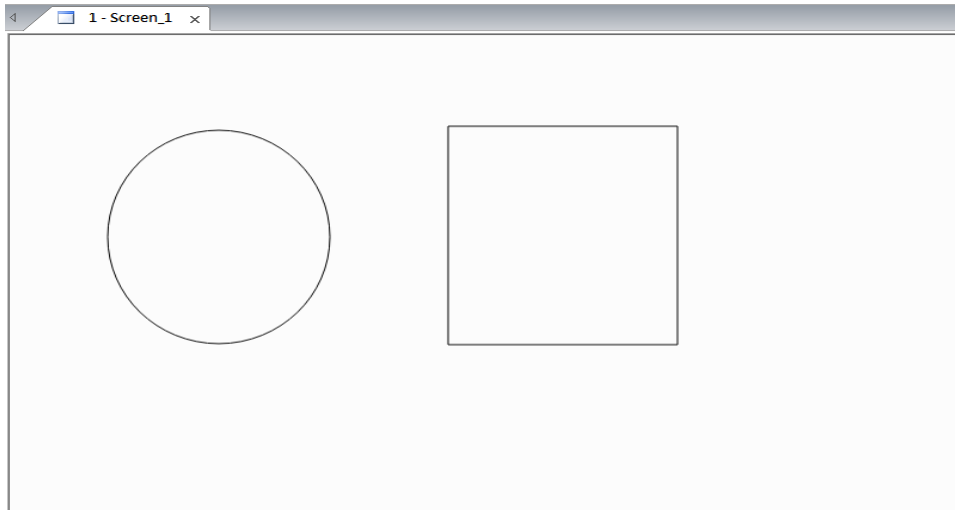
Screen Print Setup

- Create a new project. Select ePrinter as the Printer, set the IP address to the IP address of the PC and the Port as 85, and add 3 new screens.

Step 1

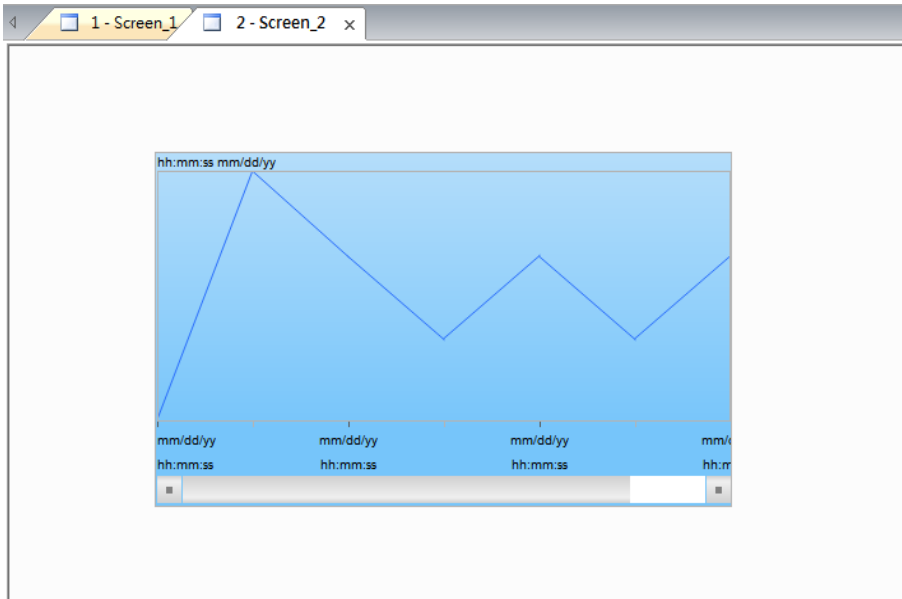


- Create Circle and Rectangle elements on Screen_1.

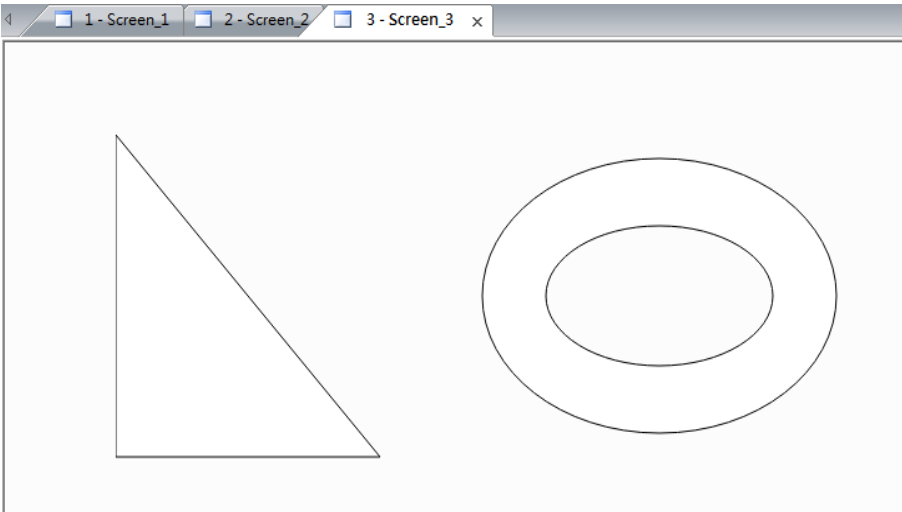


Screen Print Setup

- Create a Historical Trend Graph on Screen_2 as follows.



- Create Right Triangle and Hollow Circle elements on Screen_3 as follows.

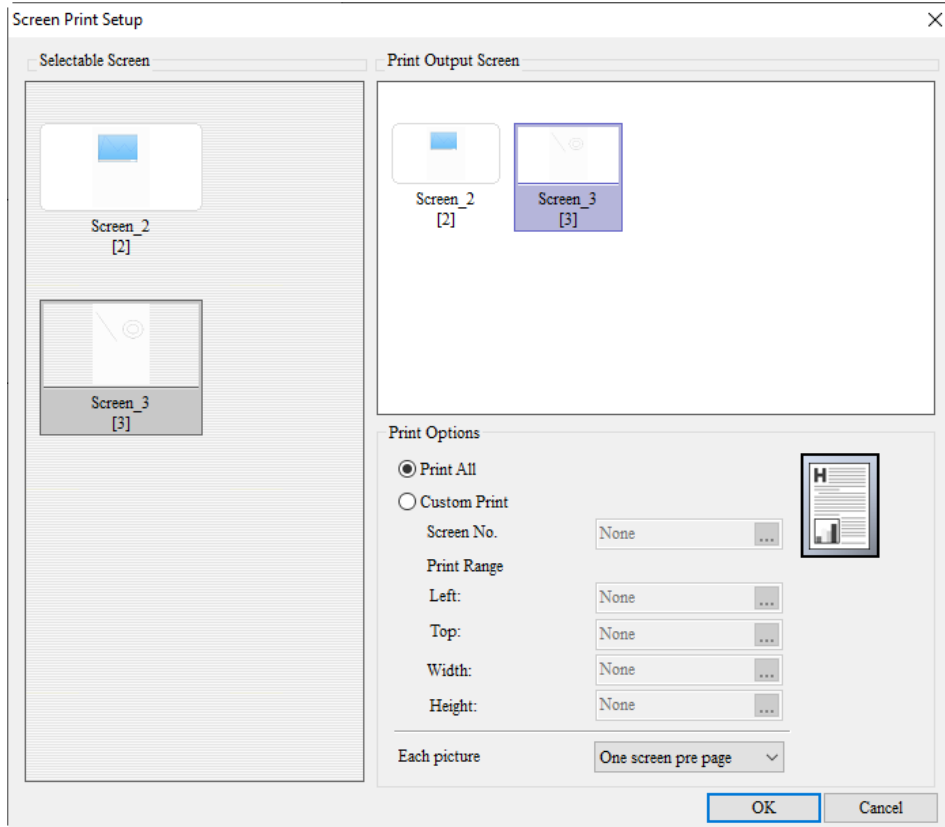


26

Screen Print Setup

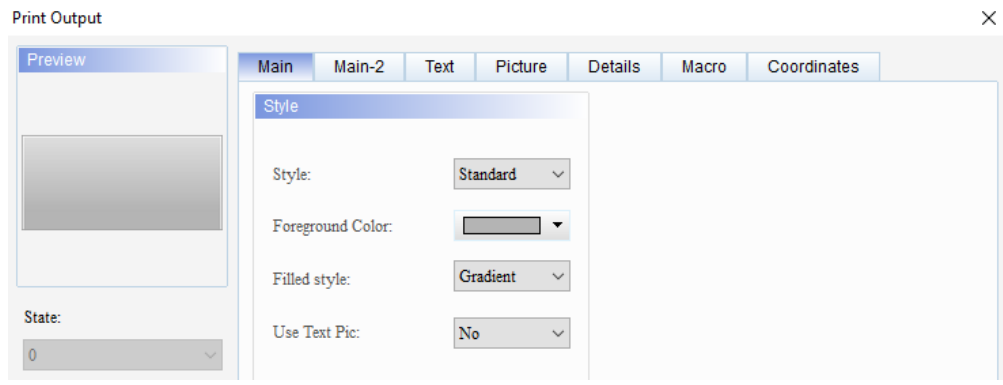
Go to [Options] > [Print Setup ..] and then drag Screen_2 and Screen_3 to the Print Output Screen section on the right side. Click **OK** to exit the Screen Print Setup window.

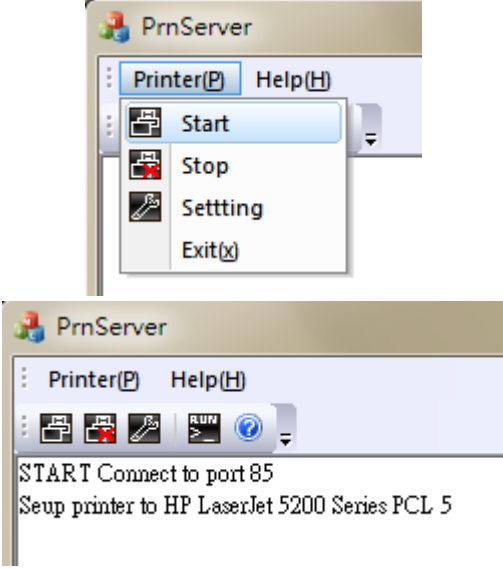
Step 2



Create a Print Output button.

Step 3



Screen Print Setup	
Step 4	<ul style="list-style-type: none"> ■ Configure the IP address of the HMI and the ePrinter to be under the same network segment. Then, compile and download the screen to the HMI. ■ Start PrnServer and select Start. 
Step 5	<p>Once the PrnServer is connected to port 85, click the Print Output button to print out the screens set in the Screen Print Setup. It takes more time for the HMI to process the print data if there are multiple screens or the history data element to be printed contains a large amount of sampling data.</p>

26

26.2 ePrinter

ePrinter enables users to print directly via network without the need to connect the HMI to a physical printer, which saves space for the hardware equipment and makes the printing convenient. Refer to the following diagram for the structure of the ePrinter network.

Under the ePrinter structure, the PC acts as a medium. You can open PnnServer on the PC and then configure the IP address for the PLC through the HMI. Then, trigger the Print Output button element with the HMI to transfer the print file via the network to any printer connected to the PC.

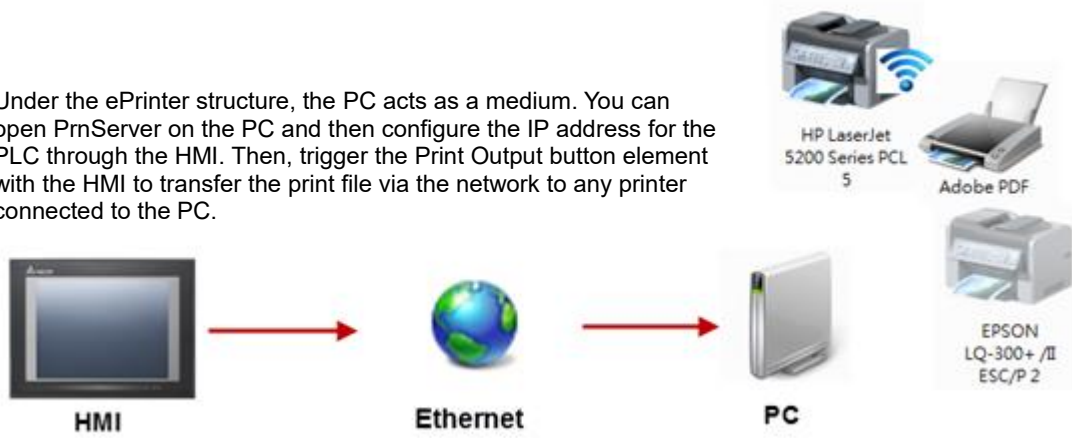


Figure 26.2.1 ePrinter structure

The introduction of the ePrinter functions is divided into two parts: one is introduction to PnnServer, and the other is explanation on how to set up the connection between the HMI and ePrinter to carry out network printing.

26.2.1 PrnServer

The PrnServer is an executable file. You can run PrnServer to print out the files via the network.

Path of the PrnServer executable file placed on the PC: C:\Program Files (x86)\Delta Industrial Automation\DOPSoft 4.00.08\PrnServer.exe.

Upon opening, the screen is as follows:

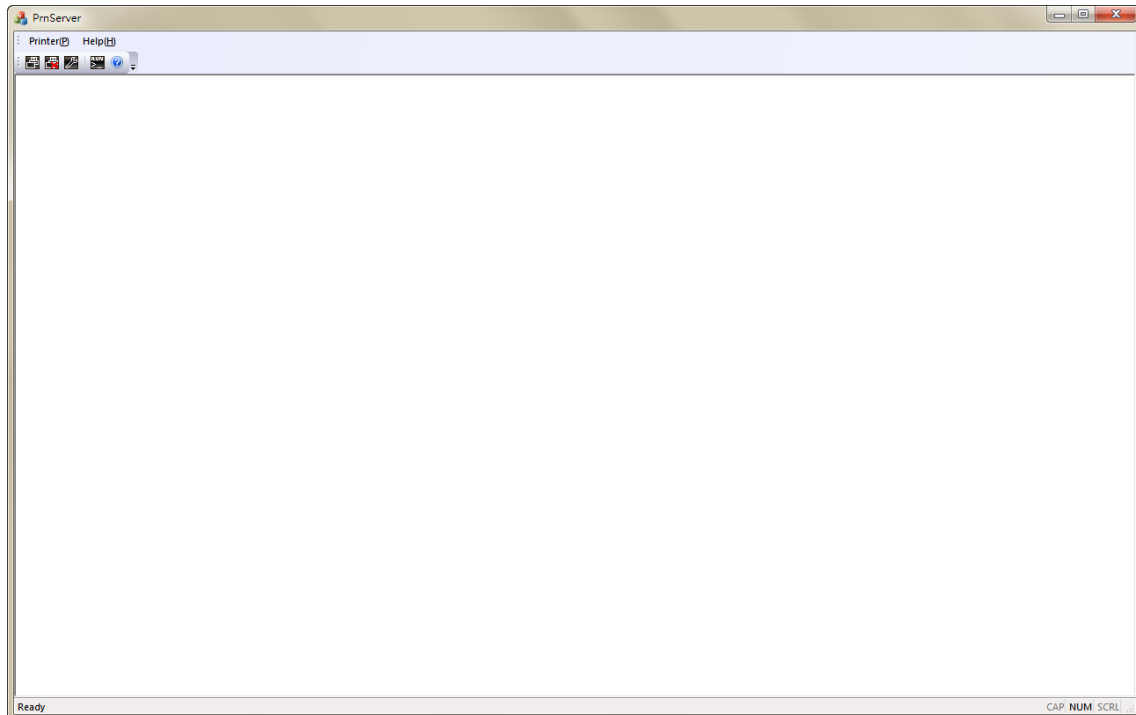


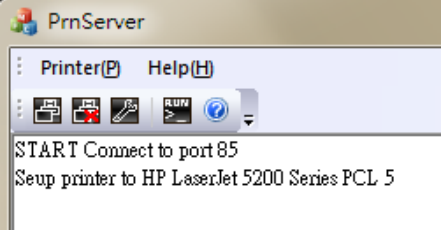


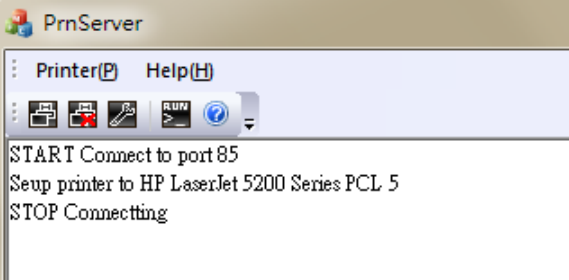

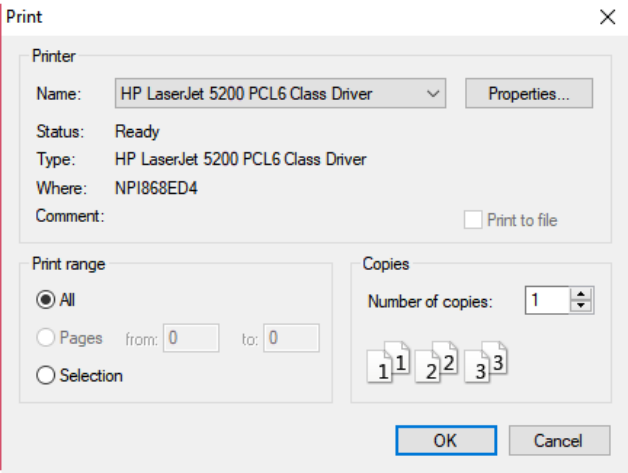
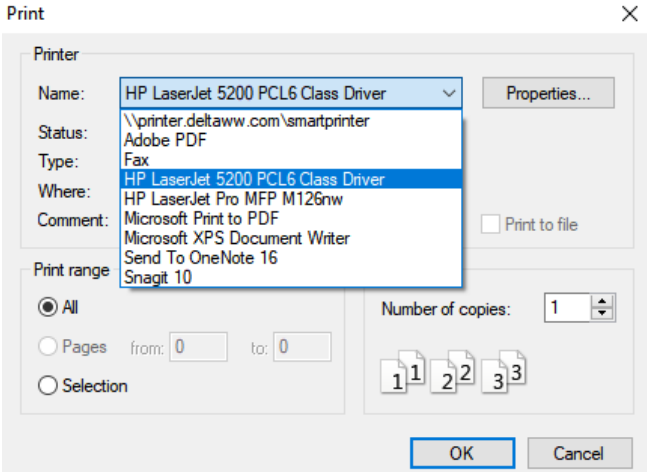
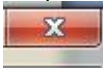
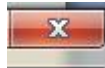
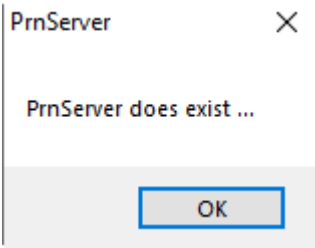

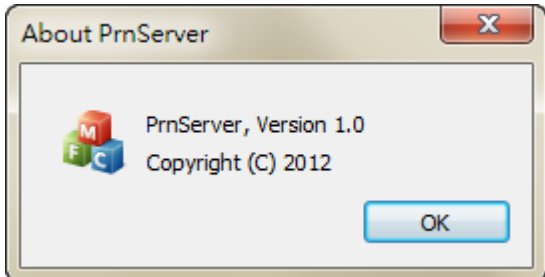


Figure 26.2.1.1 PrnServer screen

Table 26.2.1.1 PrnServer function description

	<p>Connect</p> 	<ul style="list-style-type: none"> Before using the HMI to carry out the printing, you need to click on  to start connecting the HMI to the printer. The default connecting port for the printer connected is 85. It will automatically connect to the default printer for the PC. 
	<p>Disconnect</p> 	<p>After clicking , PrnServer will display the following message.</p> 
<p>Printer</p> <p>Settings</p> 		<ul style="list-style-type: none"> Displays printer-related settings.  <ul style="list-style-type: none"> You can change the printers to be connected here. 

Printer	Exit	<ul style="list-style-type: none">■ Go to [Printer] and click Exit to end PrnServer.■ Ensure to exit when you do not need to use the network printing function anymore. Closing the PrnServer window by clicking  will not terminate the connection. If you click on  to close the PrnServer window and try to run PrnServer again, the following message will be displayed.  <p>The screenshot shows a dialog box titled "PrnServer" with a close button (X) in the top right corner. The text inside the dialog box reads "PrnServer does exist ...". At the bottom of the dialog box is an "OK" button.</p>
Description	About 	<p>Displays the current version of PrnServer.</p>  <p>The screenshot shows a dialog box titled "About PrnServer" with a close button (X) in the top right corner. On the left side, there is a logo consisting of three colored cubes (M, F, C). To the right of the logo, the text reads "PrnServer, Version 1.0" and "Copyright (C) 2012". At the bottom right of the dialog box is an "OK" button.</p>

26

26.2.2 HMI link settings

This section describes how to set up the ePrinter function on the HMI screen and trigger the printing with the HMI. Refer to the following steps:

1. Create a new project. Select the 107WV model and set ePrinter as the Printer (as shown in Figure 26.2.2.1). Then click on **Next**.

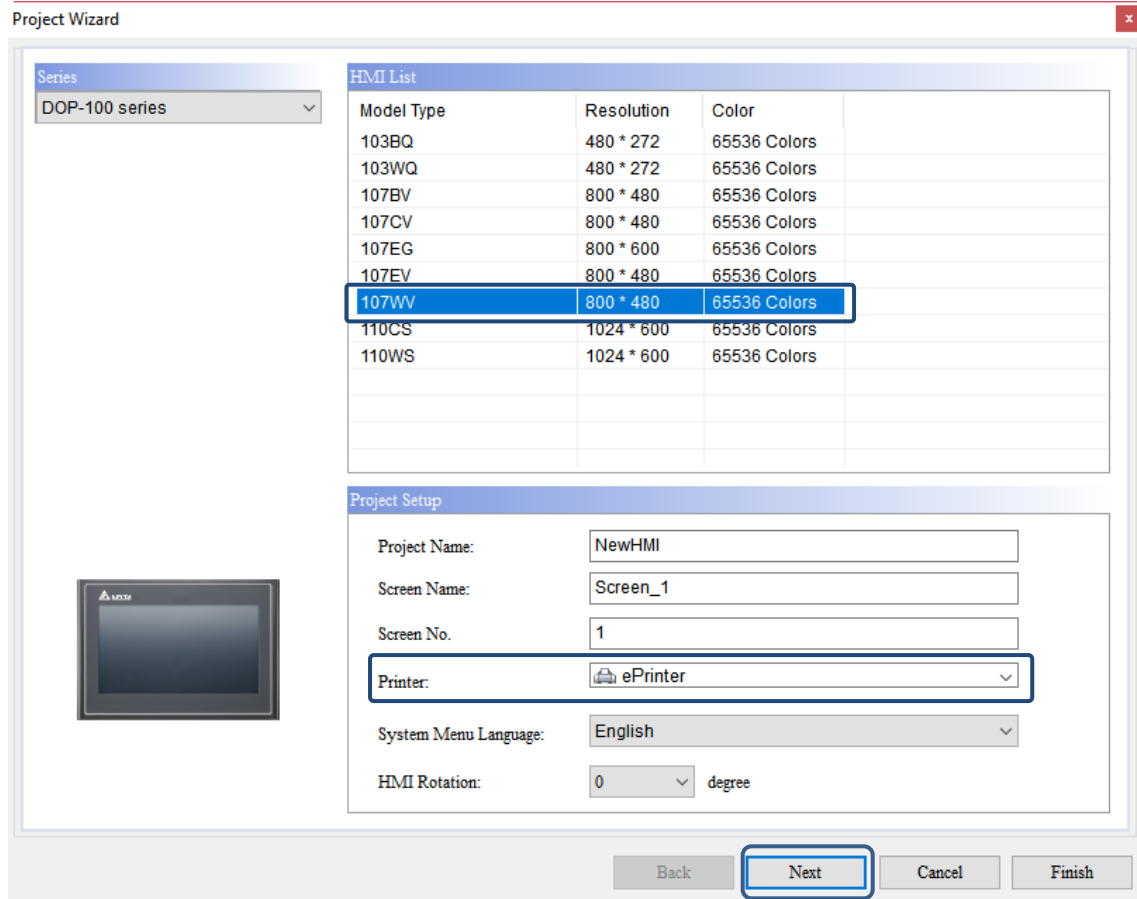


Figure 26.2.2.1 HMI screen setting (1)

2. Complete the communication and network settings.

26

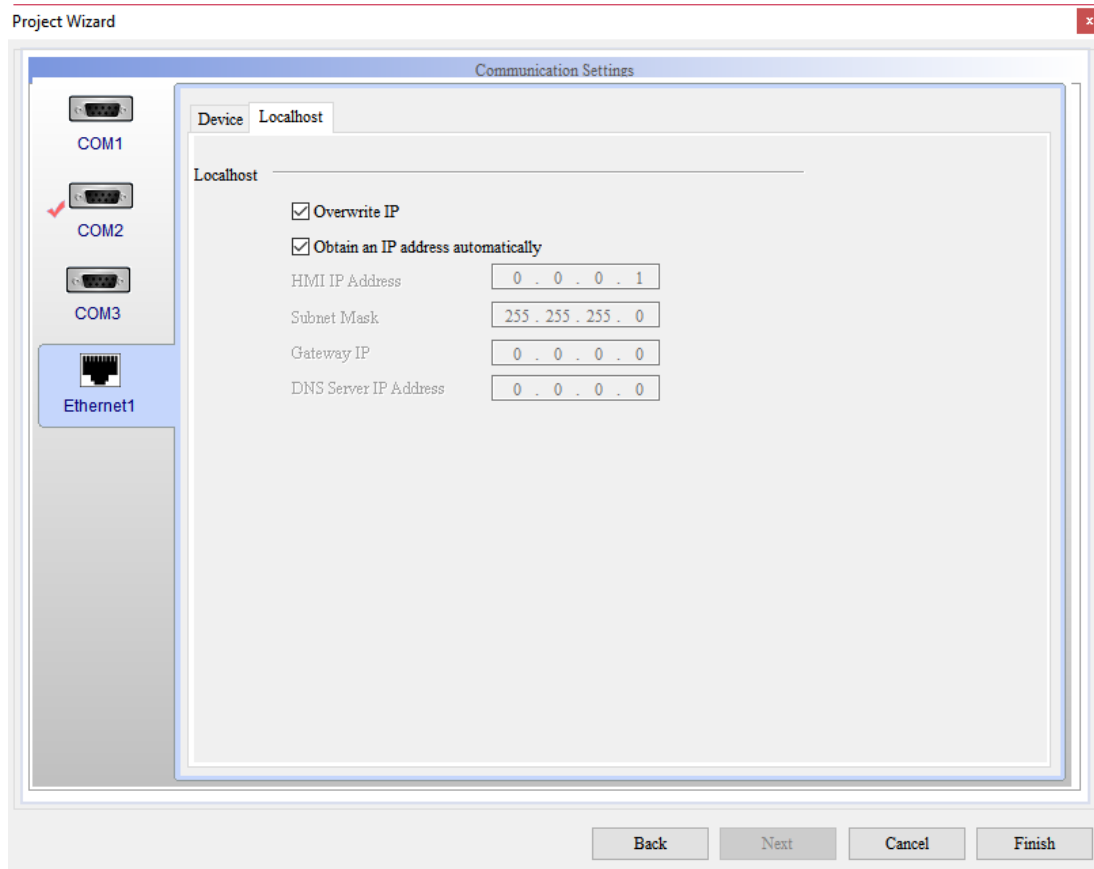
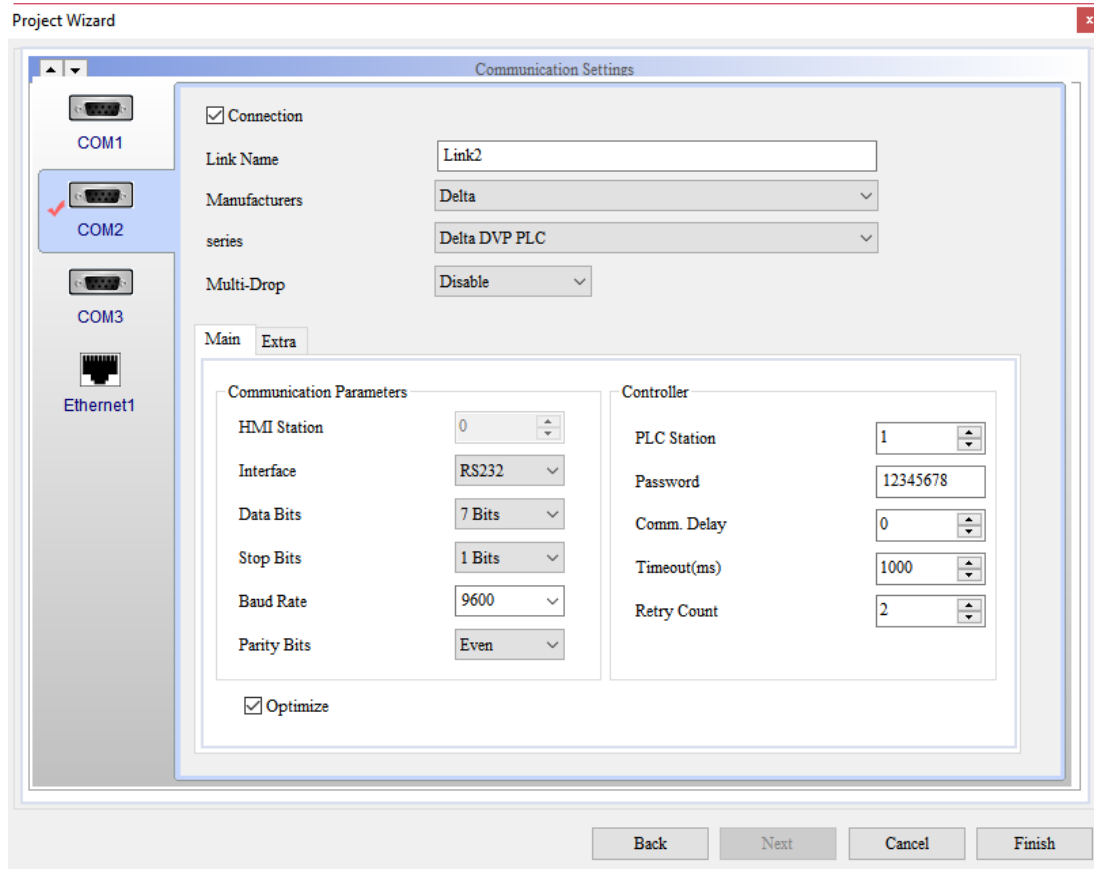


Figure 26.2.2.2 HMI screen setting (2)

26

3. Set up the Print settings. Go to [Options] > [Configuration] > [Print], and select Ethernet as the Interface and fill in the IP address and Port number.

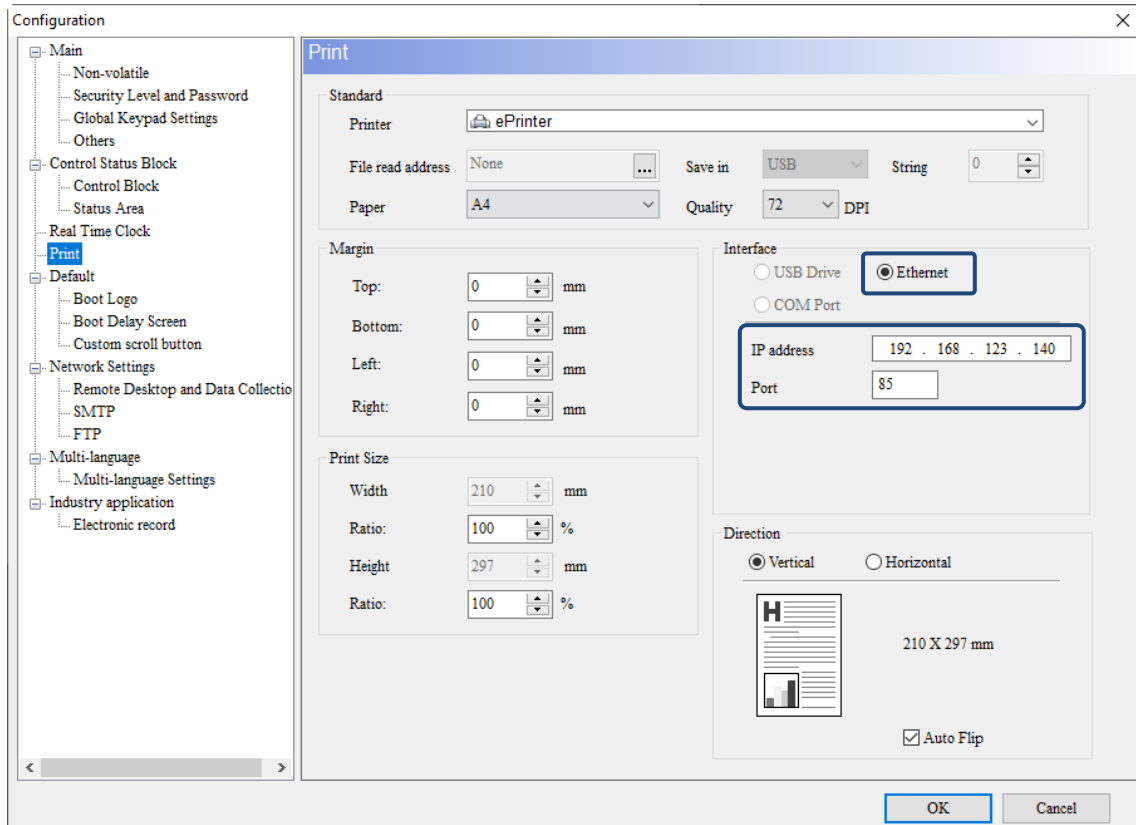


Figure 26.2.2.3 HMI screen setting (3)

4. IP address: the IP address filled in is the IP address of the PC on which you opened the PrnServer. You can issue the ipconfig command in the command mode to look up the IP address of the PC. The IP Address is 192.168.123.140 in this example.

Note: this IP address needs to be under the same network segment as the IP address of the HMI screen.

Command Prompt

```

Windows IP Configuration

Wireless LAN adapter Local Area Connection* 2:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 7:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::1852:6eab:c0f8:531f%10
    IPv4 Address. . . . . : 192.168.123.140
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :
  
```

Figure 26.2.2.4 Look up for the IP address of the PC

5. Port: the default connecting port for the printer is port 85, which is also the printer port to be connected to when you start the PrnServer connection.

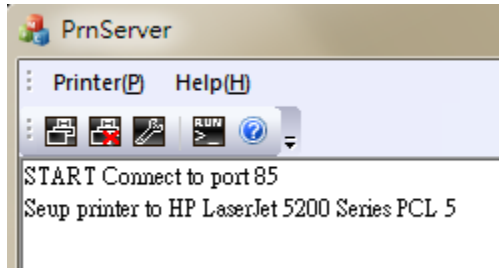


Figure 26.2.2.5 ePrinter connecting port

6. Create Rectangle and Circle elements and a Print Output button in the DOPSoft editing screen.

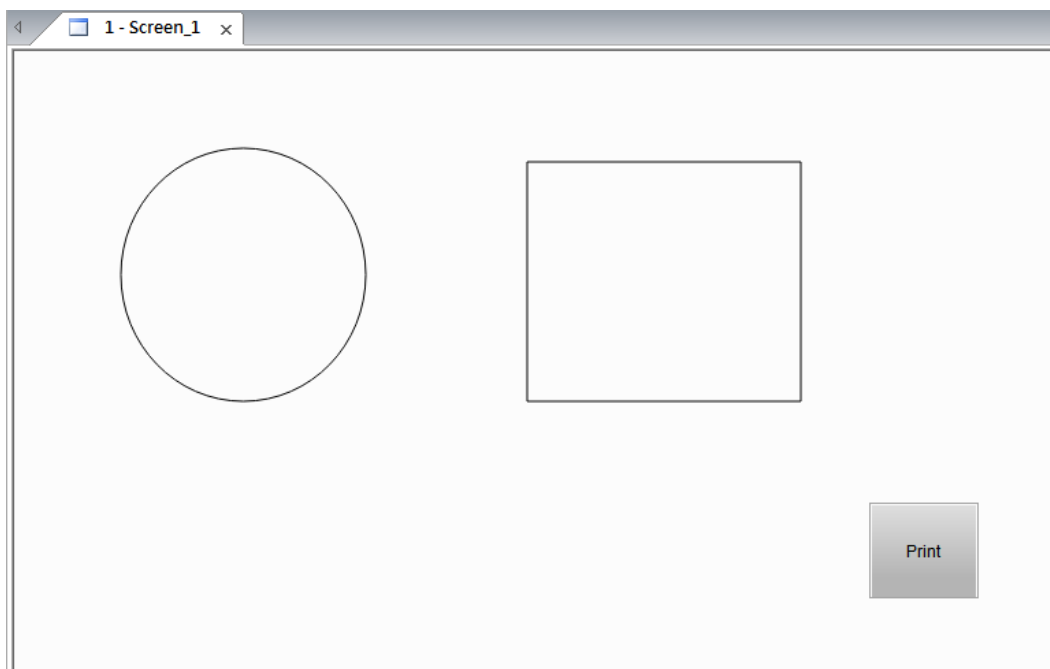


Figure 26.2.2.6 Create Rectangle and Circle elements

7. Compile and download the screen data to the HMI.
8. Before executing the Print Output (Print) element, start and run the PrnServer.

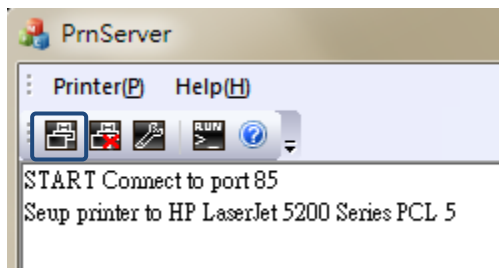


Figure 26.2.2.7 Run PrnServer

9. Then trigger the **Print** button on the HMI to complete printing.

26.3 Error code of printer

If an error occurs when the printing function is executed, you can refer to the error code displayed by the printer to figure out and troubleshoot the error.

26

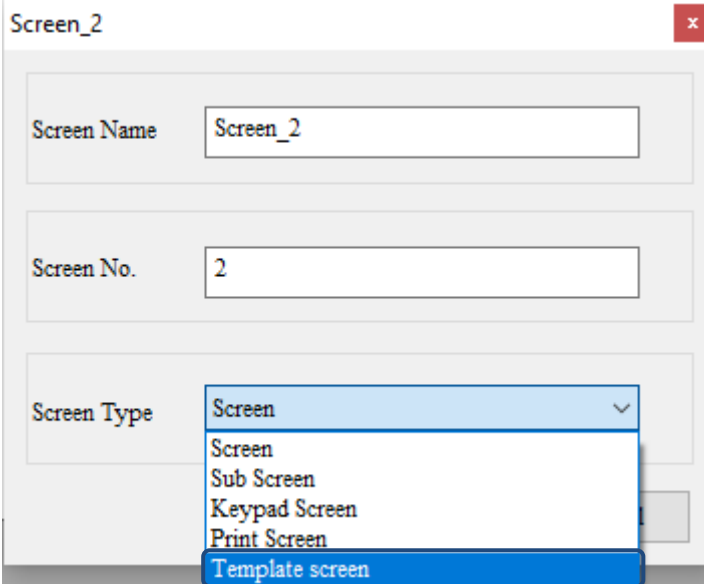
Code	Code definition	Cause	Troubleshooting
-2	ERROR_PRINT_PORT Printer port error	USB, parallel port, COM selection error.	Check if the set transmission port is correct.
-3	ERROR_MEMORY_NULL Memory allocation error	HMI memory insufficient, unable to process print data.	Delete screens to be printed or replace the HMI with a model with larger memory capacity for the printing.
-4	ERROR_USB Unable to print because of an error with the printer	Unable to print because of printer malfunctioning, resulting in this error message.	The malfunctioning might be caused by the printer out of ink or paper jam. Print again after troubleshooting.
-5	ERROR_USB_NOT_SELECT Printer starting failed, unable to connect	The printer is connected, but the HMI cannot recognize the device.	Printer driver cannot connect with the HMI. Contact our customer service for help.
-6	ERROR_USB_PAPER Printer unable to print because it is out of paper	Printer responded with the error of no printing paper.	This issue can be solved by adding paper to the printer.
-7	ERROR_USB_NOT_CONNECT Failed to connect to the printer	The USB cable is not connected to the printer.	Check if the USB cable is connected to the printer correctly.
-8	ERROR_USB_OPEN Failed to open USB	Failed to open USB when starting to print.	Restart the HMI. If the printer is still unable to print, contact our customer service for help.
-9	ERROR_USB_CLOSE Failed to close USB	Failed to close USB when printing ended.	Restart the HMI. If the printer is still unable to print, contact our customer service for help.
-11	ERROR_NOT_OK Printer initialization not yet completed	Printer will initialize upon starting up. When printing at this moment, the printer will respond with this error message.	The initialization process may take a long time for some printers. Start printing after the initialization is complete.
-14	PRINTER ERROR Printer printing failed	CTS pin status error	Check if the CTS communication pin is correctly connected. If the printer is still unable to print, contact our customer service for help.

26.4 Template printing

The HMI provides a template printing function, allowing users to define the header and footer of the output PDF file. The PDF file contains history data, recipes, alarms, and Operation Log Table. The filename of the PDF file printed with the Template screen function is editable, and the PDF format file can prevent data from being tampered with and make it easy to save.

26

To define the header and footer of the output PDF file according to the needs, you must first add a Template screen.



Screen_2

Screen Name: Screen_2

Screen No.: 2

Screen Type: Screen (dropdown menu open, showing options: Screen, Sub Screen, Keypad Screen, Print Screen, Template screen)

Figure 26.4.1 Template screen

26

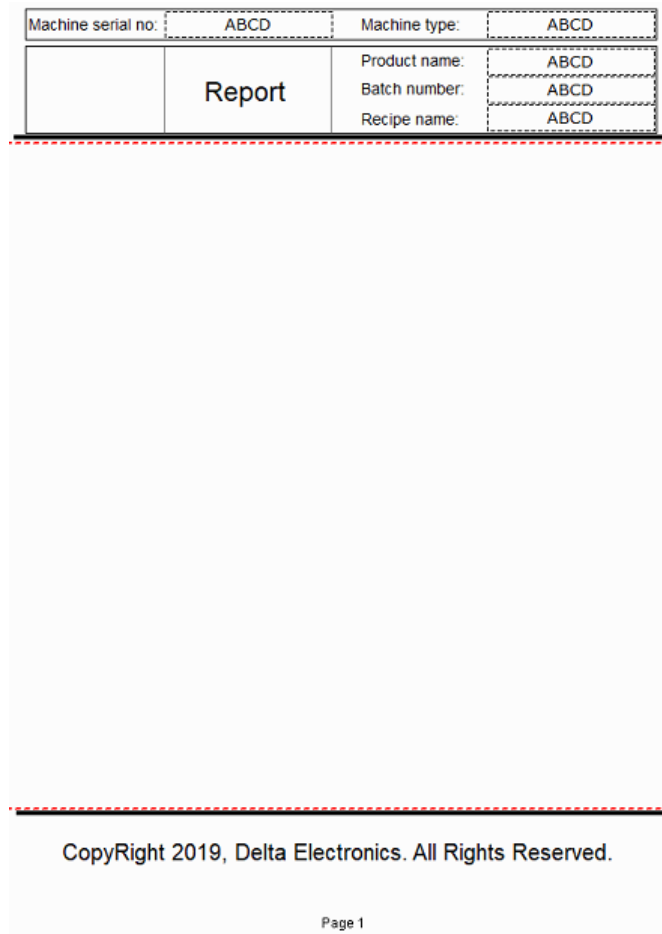


Figure 26.4.2 Edit the style of header and footer

Double-click the Template screen to set the position, text size, and font of the page number.

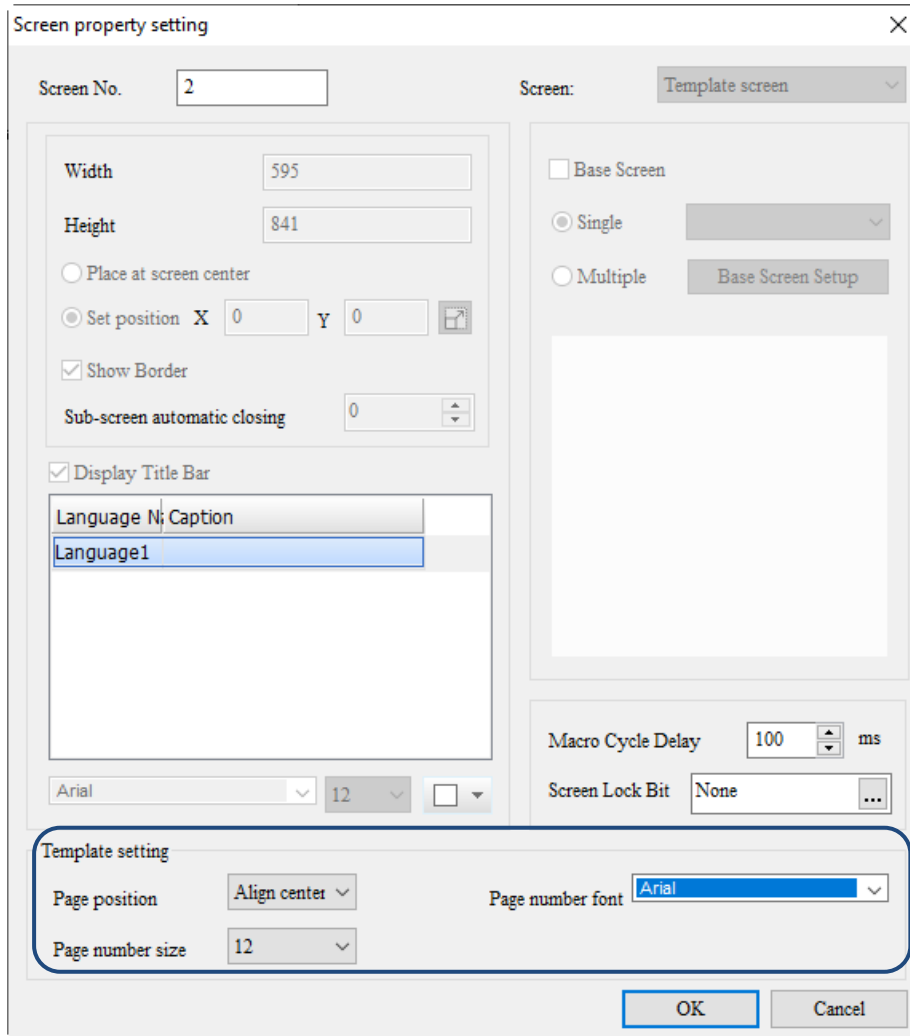


Figure 26.4.3 Screen property setting - page number style

Create a Report List button and click **Template setting** to edit the template.

26

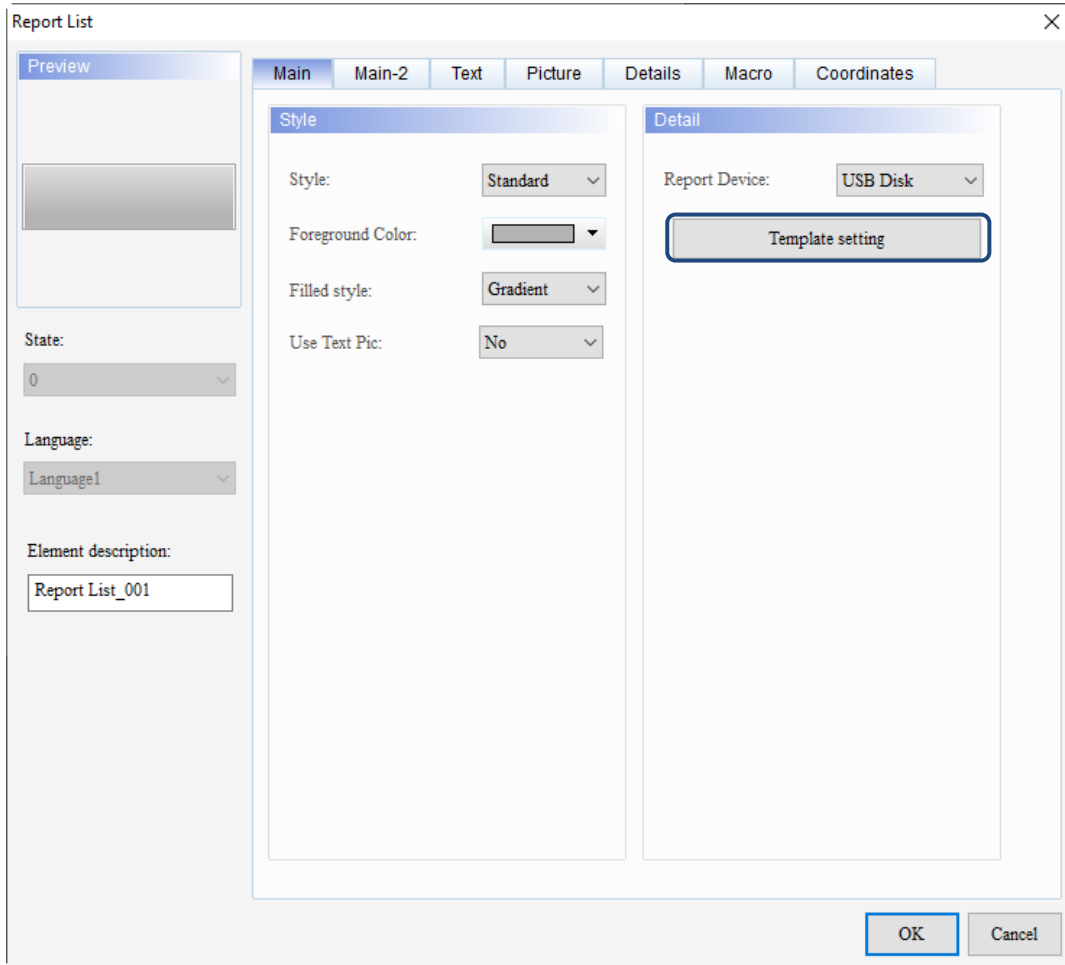


Figure 26.4.4 Report List - Template setting

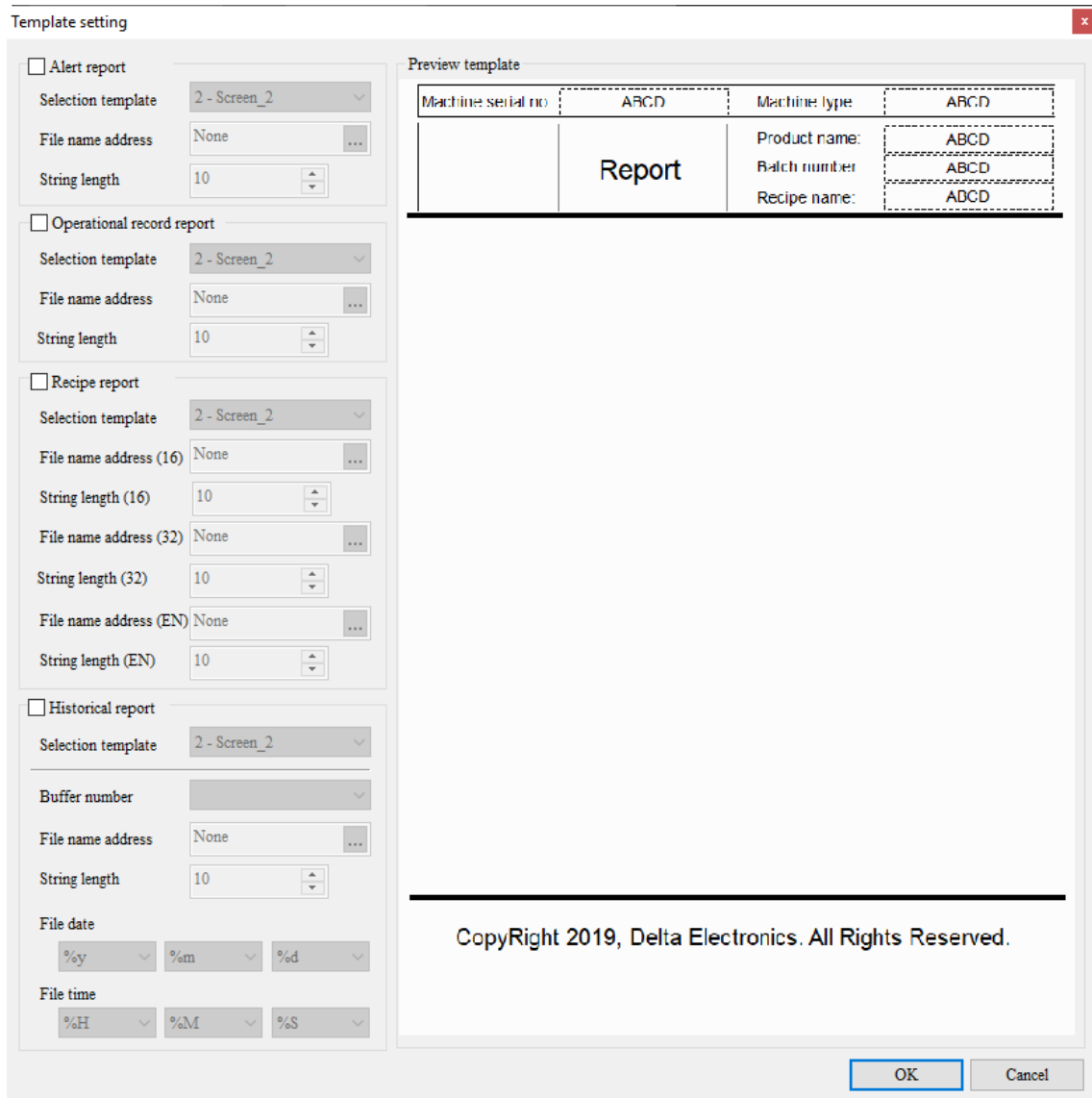
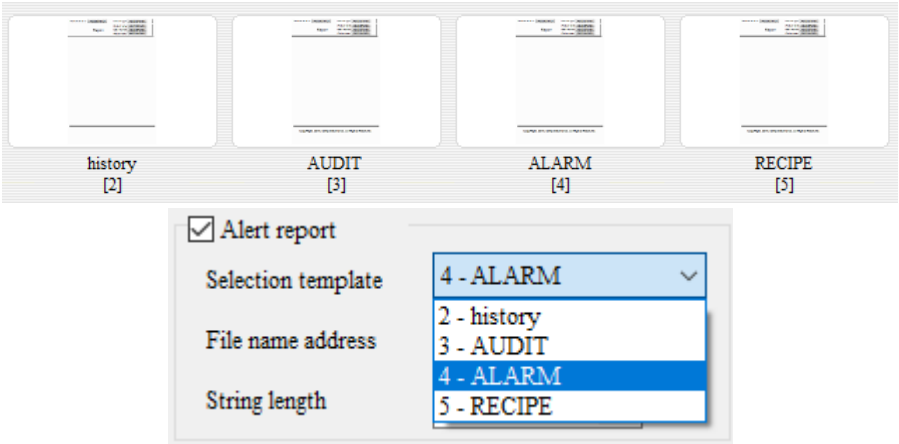
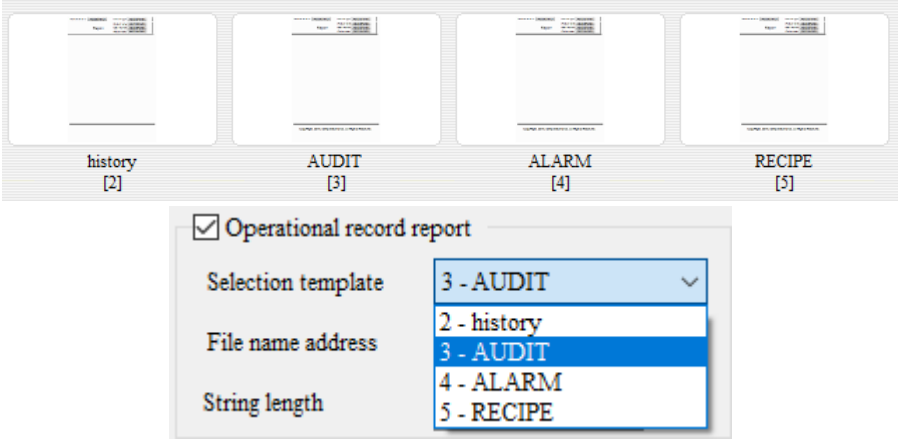
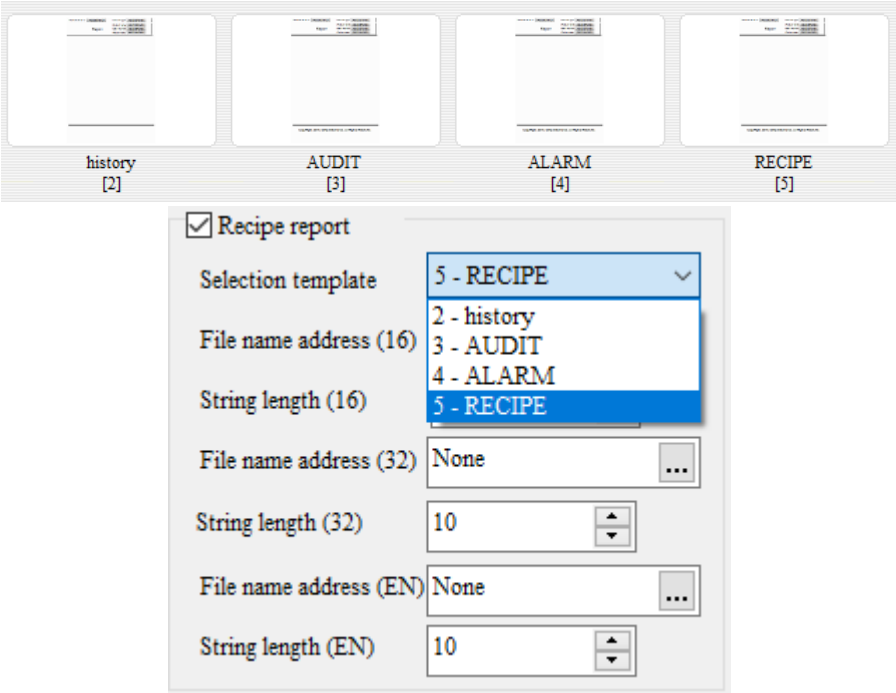


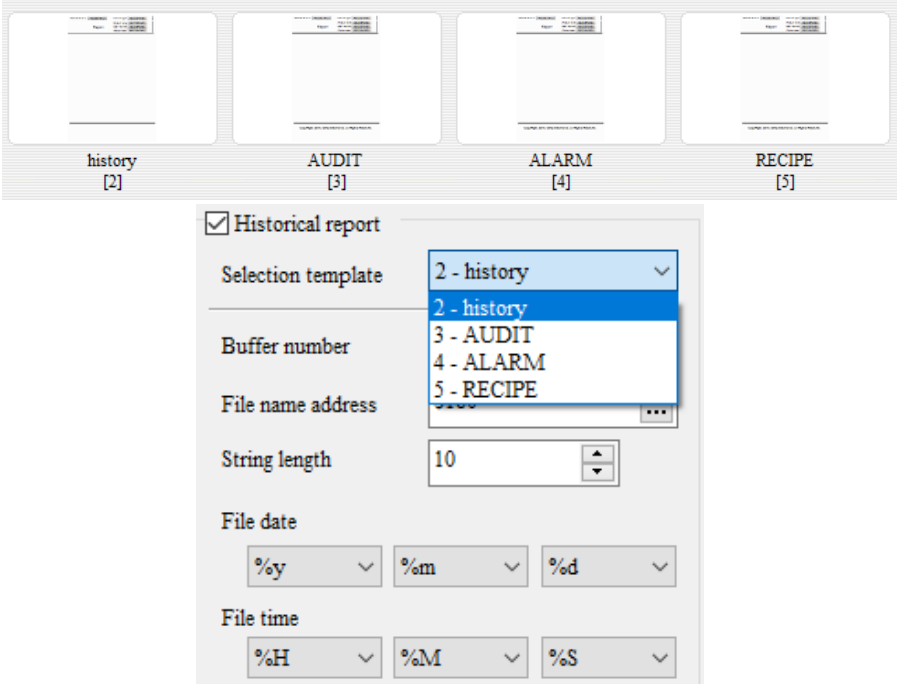
Figure 26.4.5 Template setting

Table 26.4.1 Template setting

Alert report	Selection template	<p>Create a Template screen in advance. Then, create a Report List element and click [Template setting] to select the Alert report, Operational record report, Recipe report, or Historical report for the template type. After creating the template, you can select the corresponding template.</p> 
	File name address	Define the name of the alarm file to be generated.
	String length	Set the string length of its file name.
Operational record report	Selection template	<p>Create a Template screen in advance. Then, create a Report List element and click [Template screen] to select the Alert report, Operational record report, Recipe report, or Historical report for the template screen. After creating the template, you can select the corresponding template.</p> 
	File name address	Define the name of the Operation Log Table file to be generated.
	String length	Set the string length of its file name.

Recipe report	Selection template	<p>Create a Template screen in advance. Then, create a Report List element and click [Template screen] to select the Alert report, Operational record report, Recipe report, or Historical report for the template type. After creating the template, you can select the corresponding template.</p> 
	File name address (16)	Define the name of the 16-bit recipe file to be generated.
	String length (16)	Set the string length of its file name.
	File name address (32)	Define the name of the 32-bit recipe file to be generated.
	String length (32)	Set the string length of its file name.
	File name address (EN)	Define the name of the enhanced recipe file to be generated.
	String length (EN)	Set the string length of its file name.

26

Historical report	Selection template	<p>Create a Template screen in advance. Then, create a Report List element and click [Template screen] to select the Alert report, Operational record report, Recipe report, or Historical report for the template type. After creating the template, you can select the corresponding template.</p> 
	Buffer number	Select the buffer data to be output. Select 0 to output all buffer data. Select 1 to output the data of the corresponding Buffer ID 1, and so on.
	File name address	Define the name of the history data file to be generated.
	String length	Set the string length of its file name.
	File date	Set the year, month, and day of the file. You can set them to None, which means that the date of the file will not be output.
	File time	Set the hour, minute, and second of the file. You can set them to None, which means that the time of the file will not be output.

The PDF file printed with the template printing function is stored in the folder \\HMI\HMI-000\@HMI0000.

The following are the output PDF files with user-defiend file names.

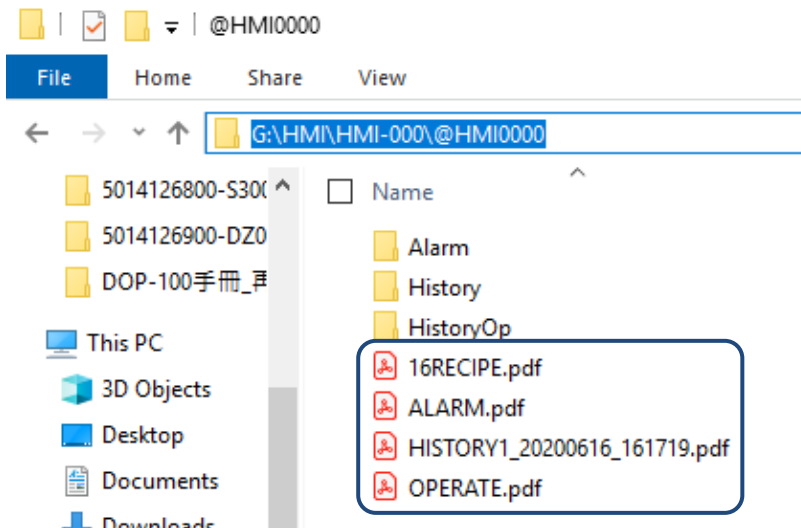



Figure 26.4.6 The output PDF files

Parameter Settings

27

This chapter provides the descriptions of the configuration parameters, communication parameters, model changing, and environment settings.



27.1	Configuration	27-2
27.2	Communication Settings.....	27-57
27.3	Change Model.....	27-69
27.4	Environment settings	27-70

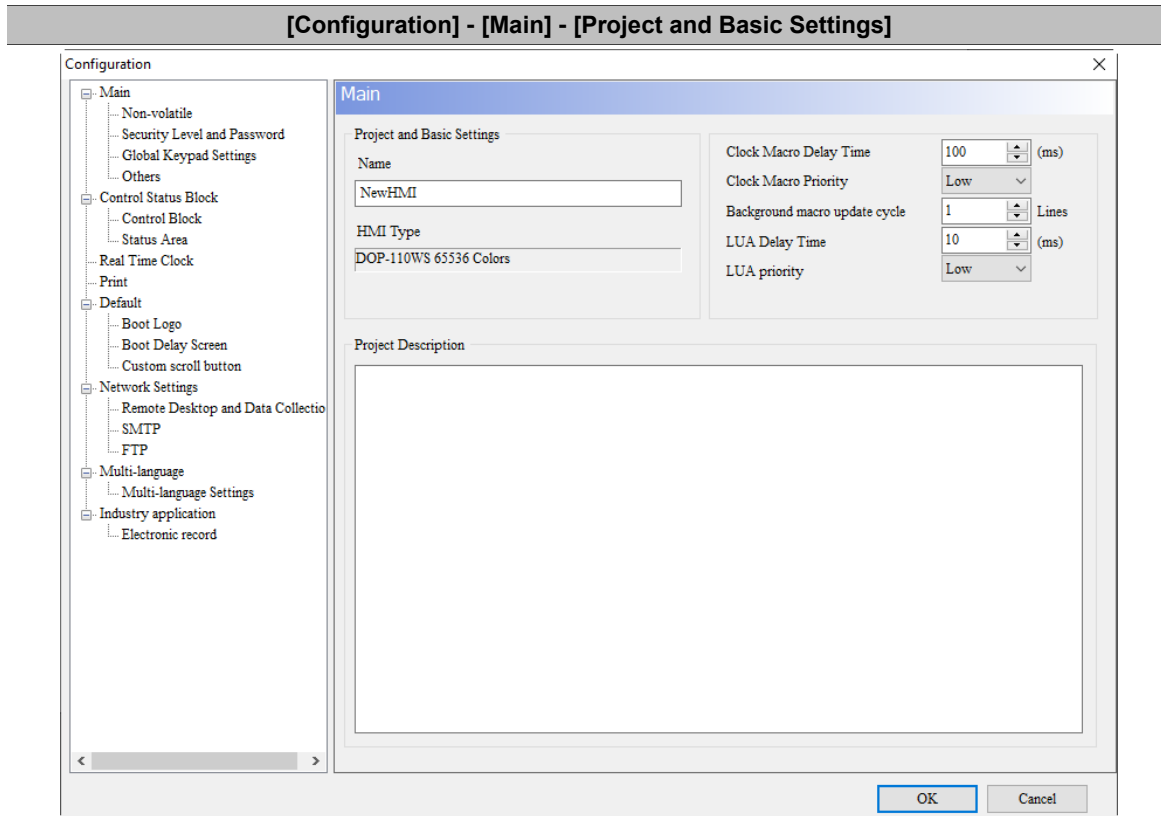
27

27.1 Configuration

Configuration includes eight parts: Main, Control Status Block, Real Time Clock, Print, Default, Network Settings, Multi-language, and Industry application.

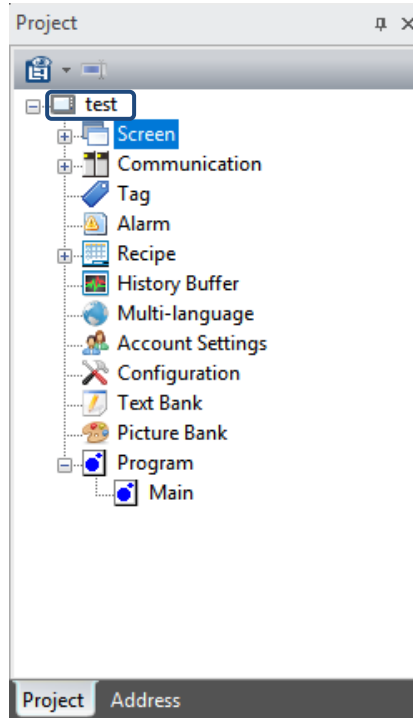
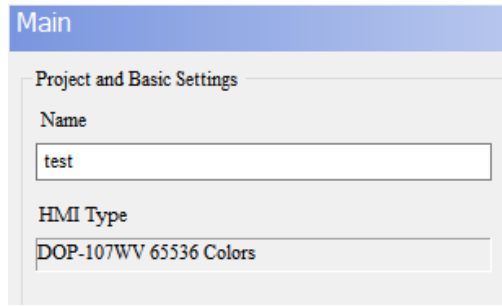
The settings of Main, Real Time Clock, Print, Default, Network Settings, Multi-language, and Industry application are described as follows. For detailed settings of Control Status Block, refer to Chapter 4 Control Block and Status Block. For Multi-language settings, refer to Chapter 25.

Table 27.1.1 Configuration - Project and Basic Settings



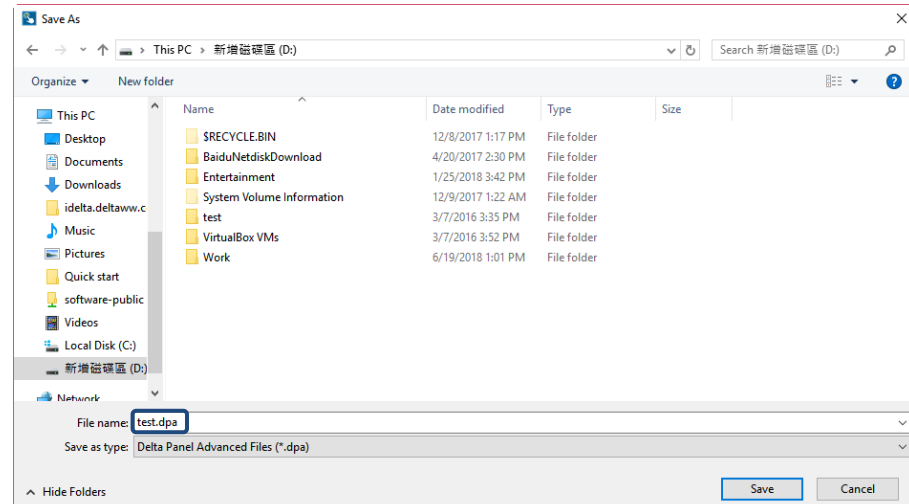
[Configuration] - [Main] - [Project and Basic Settings]

- You can change the name of the project and the new name will be displayed in the project tree on the left.



Name

- This name will be the default name of the file to be saved.



HMI Type	Displays the HMI model being edited.
Clock Macro Delay Time	Clock Macro Delay Time ranges from 50 to 65535 ms. This is the interval time between an execution of the Clock macro and the next one.
Clock Macro Priority	<ul style="list-style-type: none"> Clock Macro Priority can be divided into Low, Medium, and High. The higher the priority of the execution of the Clock macro, the more accurate the delay time of the Clock macro will be.

27



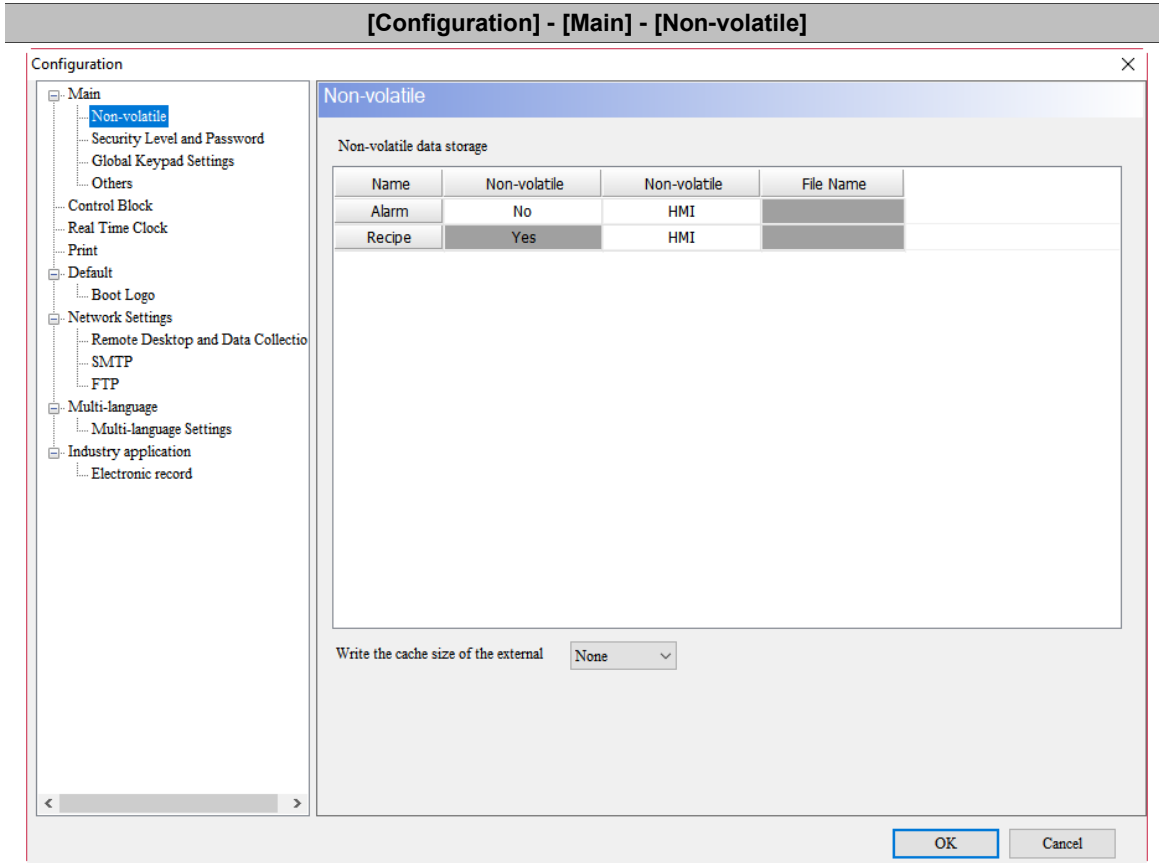
[Configuration] - [Main] - [Project and Basic Settings]	
Background macro update cycle	Sets the number of lines executed per cycle for the Background macro, which ranges from 1 to 512.
Project Description	<ul style="list-style-type: none">It can be used to describe the purpose and description of the HMI screen. After the software is executed, you can view the project description to better understand the purpose of the project when selecting this file. 

Table 27.1.2 Configuration - Non-volatile

[Configuration] - [Main] - [Non-volatile]



27

Non-volatile data storage

- Non-volatile data storage addresses can be categorized as three parts: Alarm, Recipe, and History Buffer.
- The storage location for the history data depends on whether the client has created a History Buffer.

Non-volatile data storage			
Name	Non-volatile	Storage Location	File Name
Alarm	No	HMI	
Recipe	Yes	HMI	
History Buffer ID-1	No	HMI	H0001

- If you need to use data of the three parts, you can choose the data storage location, which includes HMI, USB Disk, and SD Card.
- You can directly click on the Storage Location to set the location for saving the non-volatile data of Alarm, Recipe, and History buffer.

27

Write the cache size of the external

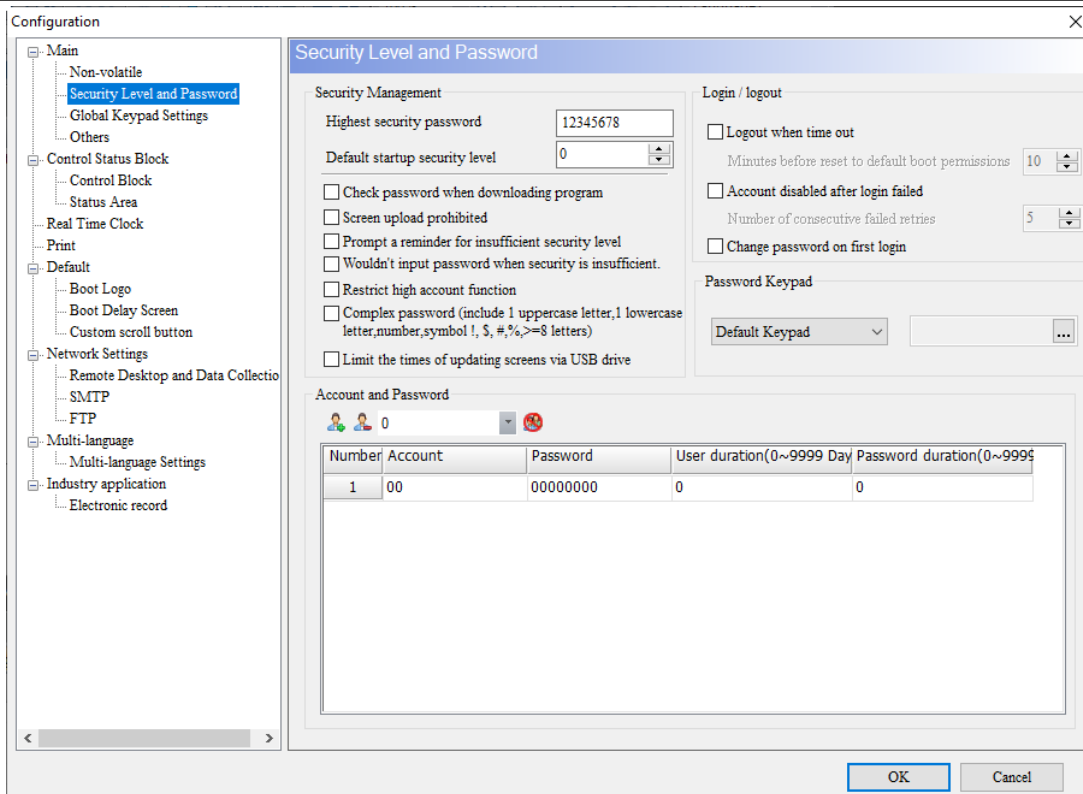
[Configuration] - [Main] - [Non-volatile]

- External storage devices include USB Disk and SD Card.
- The data written to an external storage device by the HMI is temporarily placed in the cache. The Write the cache size of the external function is to set the cache size. Data is not actually written to the external storage device until the cache size is reached. This can avoid damaging the external storage device due to continuous writing.
- If the size of data to be accessed is less than the buffer capacity or the HMI power is unexpectedly cut off, some of the data may be lost. To avoid data loss, force trigger Bit 5 of the General control register in the Control Block (External storage device cache write flag) periodically to write data to the external storage device, which ensures the data is saved.

Write the cache size of the external	None
	None
	Default
	64 KB
	32 KB
	16 KB
	8 KB
	2 KB
	1 KB
	512 B

Table 27.1.3 Configuration - Security Level and Password

[Configuration] - [Main] - [Security Level and Password]



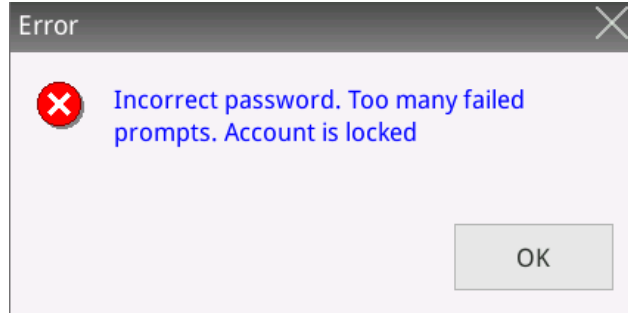
27

<p>Highest security password</p>	<p>Highest security password is the password of highest permission level of the HMI which is level 8. The default value for Highest security password is “12345678”. This password is used for screen and recipe data upload / download (select the Check password when downloading program check box first), password protection, system formatting, system file encryption and file copy (select the Limit the times of updating screens via USB drive check box first). The password is composed of the hexadecimal digits 0 - F.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">Security Management</p> <p>Highest security password <input type="text" value="12345678"/></p> <p>Default startup security level <input type="text" value="0"/></p> </div>
<p>Default startup security level</p>	<ul style="list-style-type: none"> ■ If you want to use the default startup security level, set it with the User Security Level property of each element. ■ The default startup security level is the permission level at HMI startup, which ranges from 0 - 7.
<p>Logout when time out</p> <p>Minutes before reset to default boot permissions</p>	<p>If you select the Logout when time out check box, when you do not operate the HMI for a period of time after logging in through the user permission, the HMI logs out and resets to the default startup security level.</p>

[Configuration] - [Main] - [Security Level and Password]

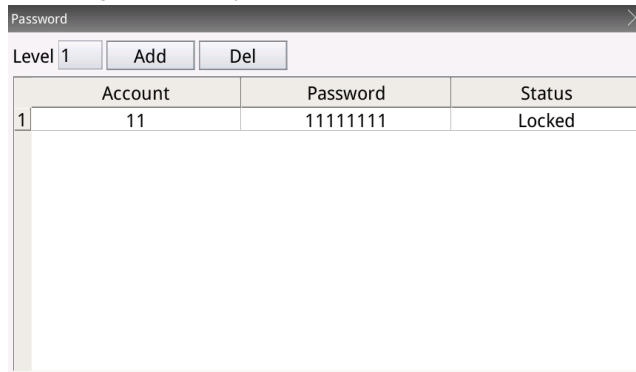
27

If you select this check box, when a user attempts to log into the HMI and reaches the set number of failed attempts, the HMI will lock the login account and disable it.

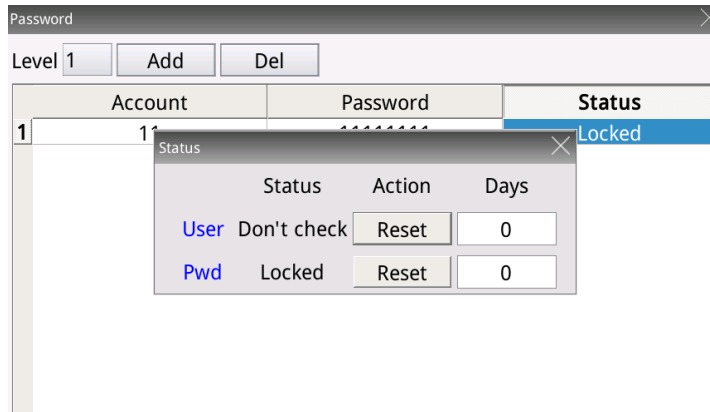


Account disabled after login failed

You can log into the highest security password level to unlock the disabled account.

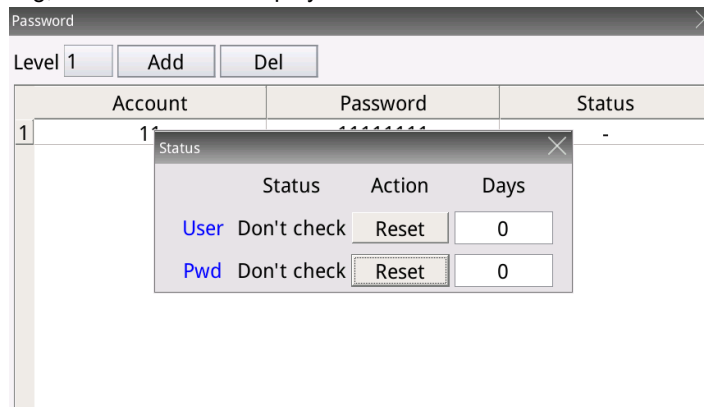


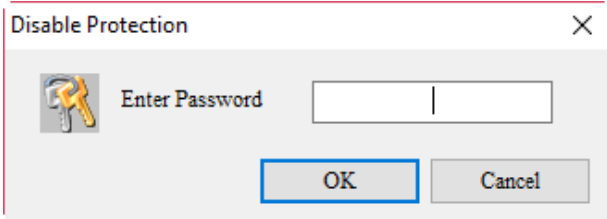
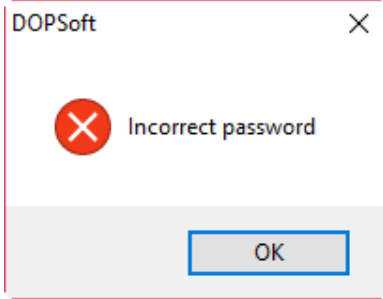
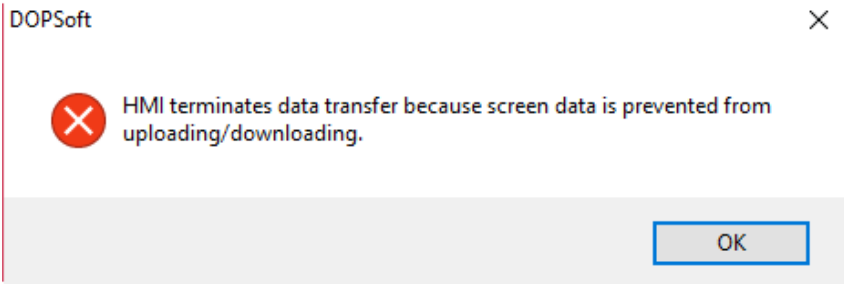

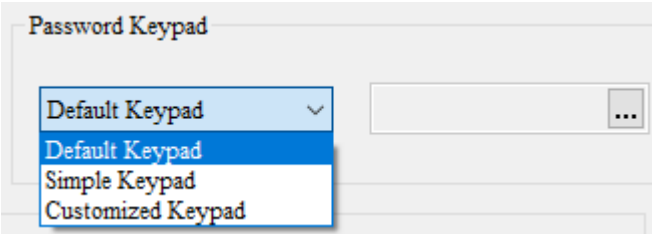
When clicking the "Locked" text, you will see that the password status shows "Locked". Press the **Reset** button to unlock the password.



Number of consecutive failed retries

After resetting, the status will be displayed as "Don't check".

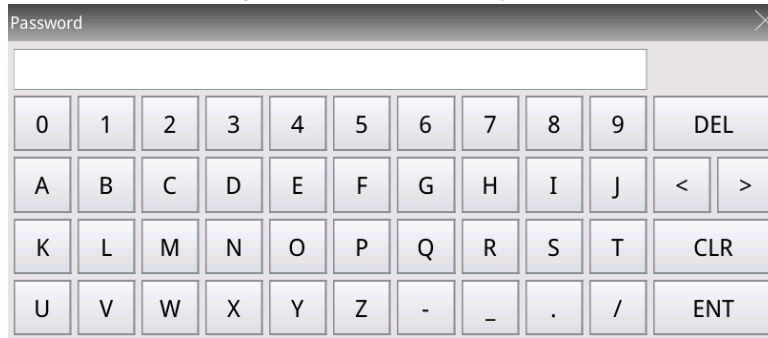


[Configuration] - [Main] - [Security Level and Password]	
<p>Check password when downloading program</p>	<ul style="list-style-type: none"> If you select this check box, you must first download this setting to the HMI. The next time you download the screen data and recipe to the HMI, the software requires you to enter the highest security password.  <ul style="list-style-type: none"> You can download the screens to the HMI only when the password is correct; if not, a warning window appears to inform you that the password entered is incorrect and you cannot download the screens. 
<p>Screen upload prohibited</p>	<p>When you try to upload all the data after downloading the screen to the HMI, DOPSoft will display the following message to inform you that screen data cannot be uploaded.</p> 
<p>Prompt a reminder for insufficient security level</p>	<p>Suppose that the user permission set for the element is higher than default security level and the user selects this check box, the element will display the  icon to remind the user for insufficient security level after downloaded to the HMI.</p>
<p>Wouldn't input password when security is insufficient</p>	<p>If this check box is selected, the password input keypad does not appear when the security level is insufficient.</p>
<p>Password Keypad</p>	<p>There are three types of password keypads, as shown in the following figure.</p> 

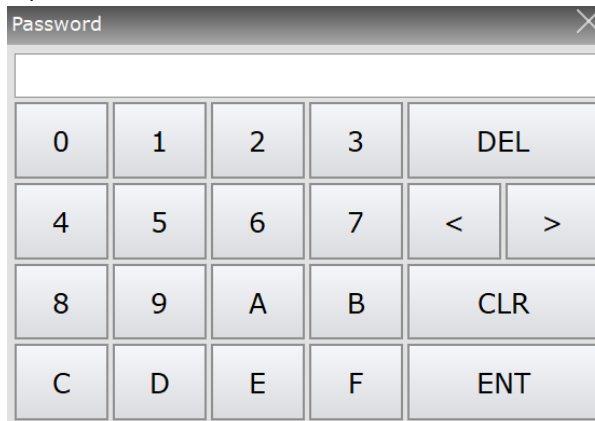
[Configuration] - [Main] - [Security Level and Password]

27

- The HMI default setting is to use the default keypad shown as follows.



- The simple keypad is used when the size of the HMI is small. If you have set the security password, it can be input through the simple keypad, which makes the interface operation easier.



Password Keypad


In comparison, the default keypad covers the screen and the buttons are smaller.



- Custom Keypad**

Before using a custom keypad, you must first create a Keypad Screen. For detailed operation instructions, refer to Section 28.8 Cust-Keypad.

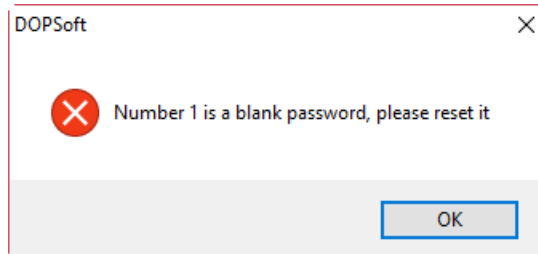
[Configuration] - [Main] - [Security Level and Password]

The Password Table setting is used to distinguish the HMI permission levels. There are 8 permission levels, from 0 to 7, and each level has a default password. The DOP-100 series models provide multiple accounts and passwords for multiple users to log in at the same time. If you don't want to log in with your account, just click  to switch to the user level permission login mode which only requires you to enter the password. This login mode is the same as that on the DOP-B models.

Level	Password
0	00000000
1	11111111
2	22222222
3	33333333
4	44444444
5	55555555
6	66666666
7	77777777

Note:

1. The password cannot be blank.

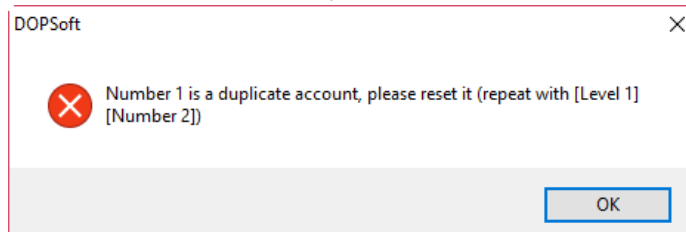


Account and Password

2. Passwords can be the same but account names cannot be the same for the same permission level.
3. Account names can be the same for different permission levels. For example, the account name of level 0 is 123, and the account name of level 1 can also be 123.
4. The length of the account and password is limited to 24 characters.
5. The account and password are case-insensitive; they are displayed in uppercase only.

Permission level 0	No protection function; anyone can operate the HMI.
Permission levels 1 - 7	You need to input the corresponding password or password of higher permission level for operation.
Permission level 8	The highest permission password. The permission level 8 is higher than levels 1 - 7, and the highest permission password is also used for protecting the saved project, password verification for download, and formatting system files.

- When you add an account which is the same as another account in the same permission level, the HMI will inform you that the account is duplicate.



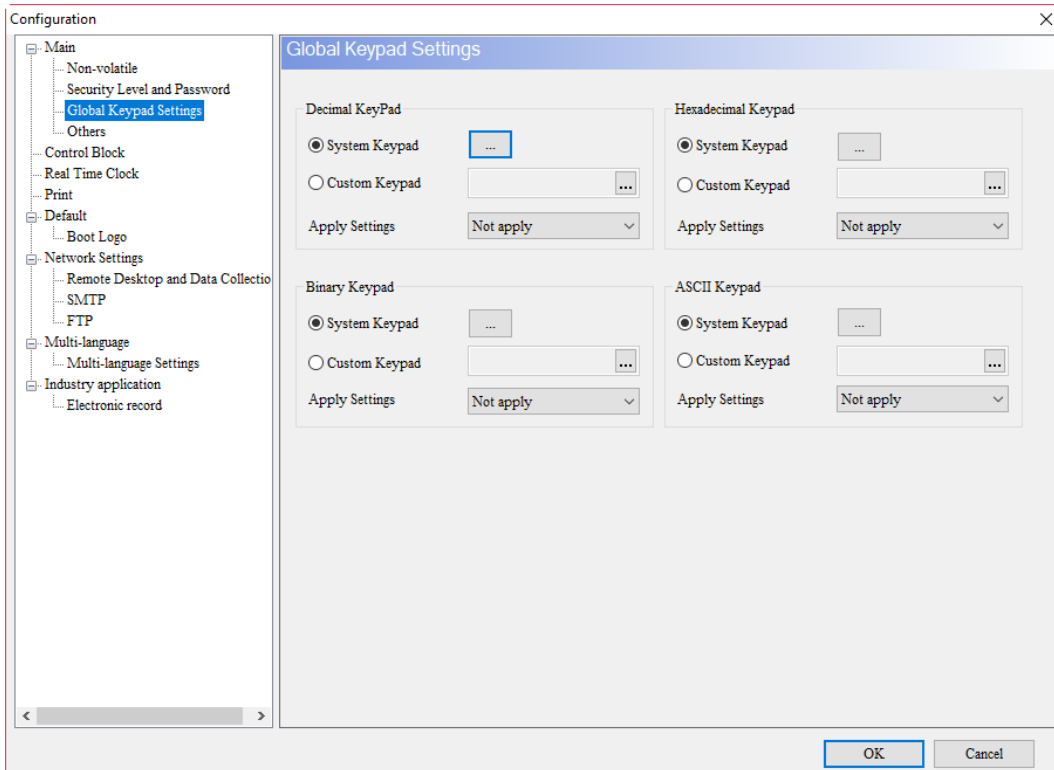
- You can also change the password and account through the button element "Password Table Setup" or by entering the system screen and go to [System Settings] > [Password].
- The account supports Unicode input and you can log in with the Multi-language Input elements for different user permissions.

Table 27.1.4 Configuration - Global Keypad Settings

[Configuration] - [Main] - [Global Keypad Settings]

27

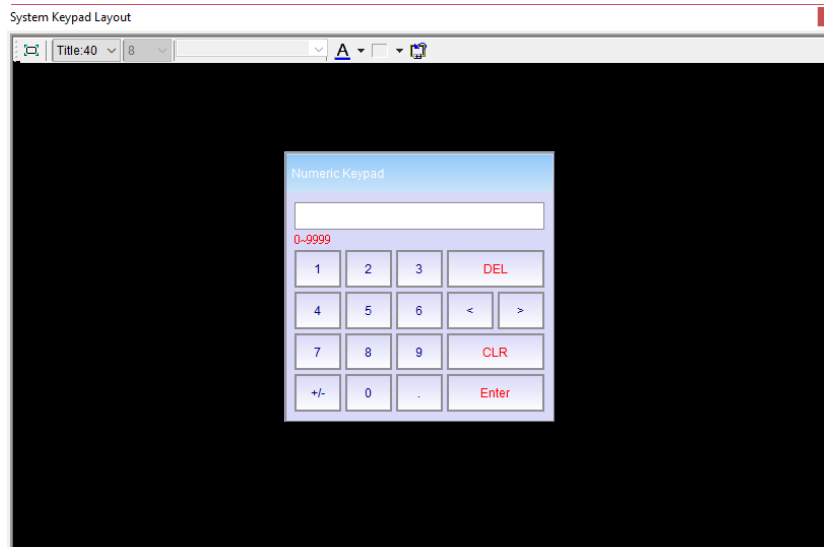
The Global Keypad Settings provide decimal, hexadecimal, binary, and ASCII keypads for users to choose. This function is applicable when there are multiple Numeric Entry or Character Entry elements in the editing screen. Set the decimal, hexadecimal, binary, or ASCII keypad through Global Keypad Settings and then apply the settings, and the system keypad can be updated into the user-defined format. Users do not need to worry that the settings cannot apply to the keypads of multiple Numeric Entry or Character Entry elements on the old screen. Global Keypad Settings provide the Apply to All function which can replace all the old keypad styles with the new one. As for a new element, we also provide the Apply to New function which can only apply the settings to the keypad newly created. Therefore, users can easily and quickly update the user-defined keypad format on the new or old ones.

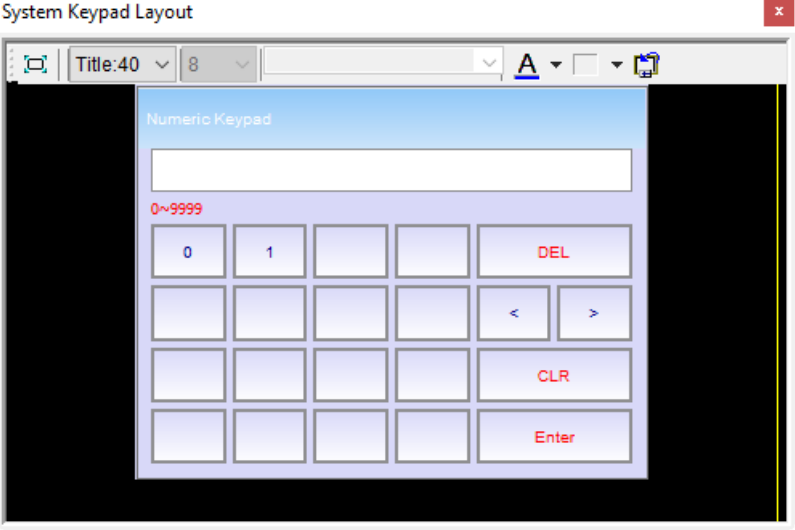
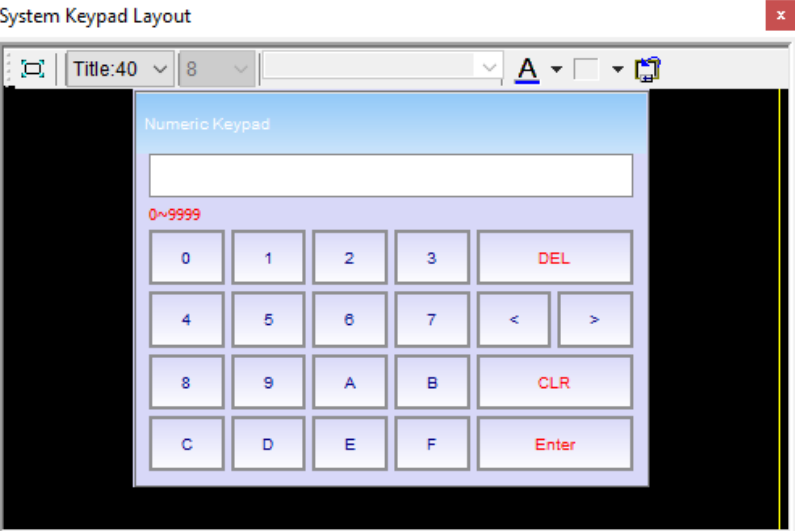


The decimal keypad style can be customized.

Decimal Keypad

System Keypad



[Configuration] - [Main] - [Global Keypad Settings]			
Decimal Keypad	Apply Settings	Not Apply	Even if the keypad style is customized, the old or new keypads will maintain the original system keypad style.
		Apply to All	Replace the old keypad styles altogether with the new style.
		Apply to New	Only apply the settings to the keypad newly created.
Binary Keypad	System Keypad	Binary keypad style can be customized.	
			
		Not Apply	Even if the keypad style is customized, the old or new keypads will maintain the original system keypad style.
		Apply to All	Replace the old keypad styles altogether with the new style.
	Apply to New	Only apply the settings to the keypad newly created.	
Hexadecimal Keypad	System Keypad	The hexadecimal keypad style can be customized.	
			
		Not Apply	Even if the keypad style is customized, the old or new keypads will maintain the original system keypad style.
		Apply to All	Replace the old keypad styles altogether with the new style.
	Apply to New	Only apply the settings to the keypad newly created.	

27

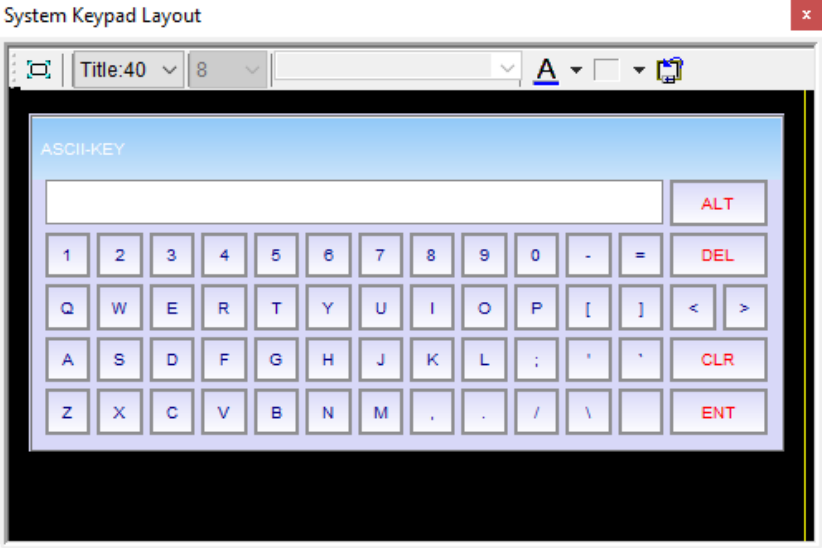
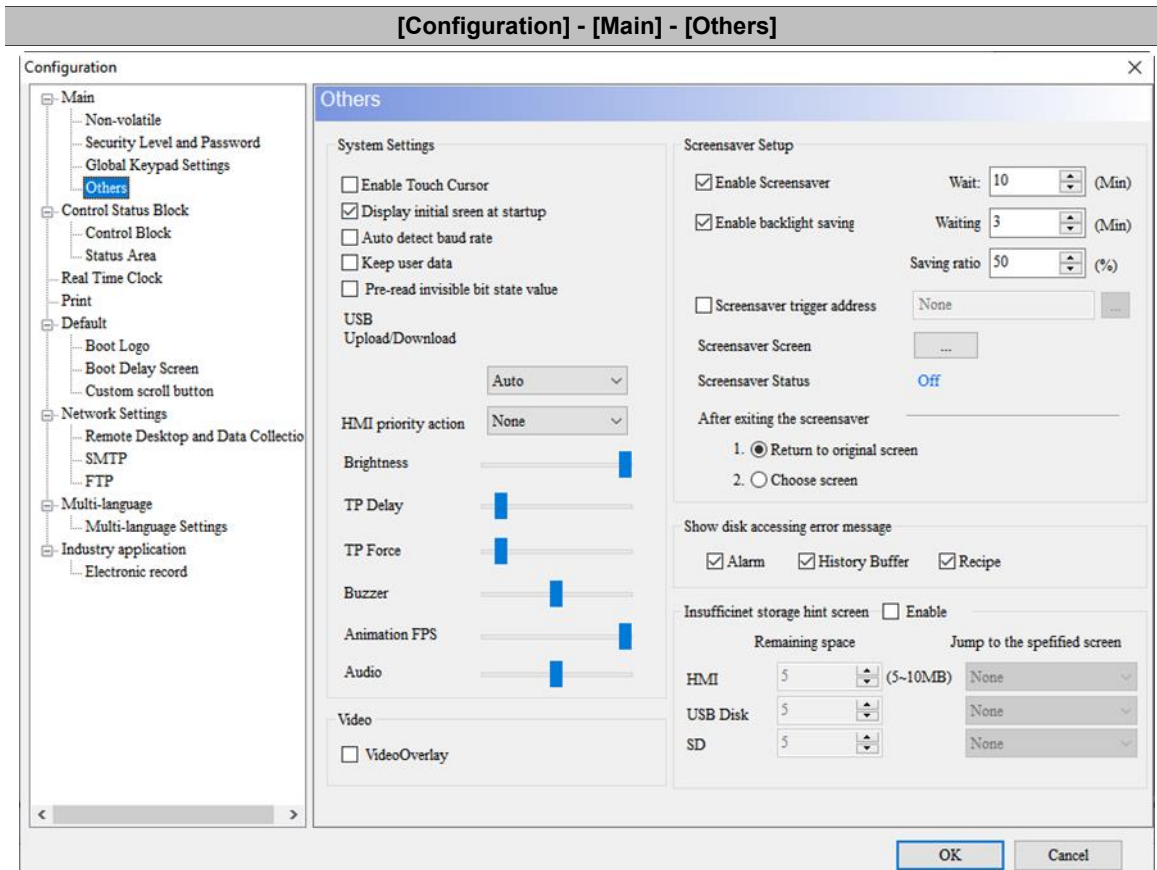

[Configuration] - [Main] - [Global Keypad Settings]			
Hexadecimal Keypad	Apply Settings	Not Apply	Even if the keypad style is customized, the old or new keypads will maintain the original system keypad style.
		Apply to All	Replace the old keypad styles altogether with the new style.
		Apply to New	Only apply the settings to the keypad newly created.
ASCII Keypad	System Keypad	The ASCII keypad can be customized.	
			
		Not Apply	Even if the keypad style is customized, the old or new keypads will maintain the original system keypad style.
		Apply to All	Replace the old keypad styles altogether with the new style.
	Apply Settings	Apply to New	Only apply the settings to the keypad newly created.

Table 27.1.5 Configuration - Others

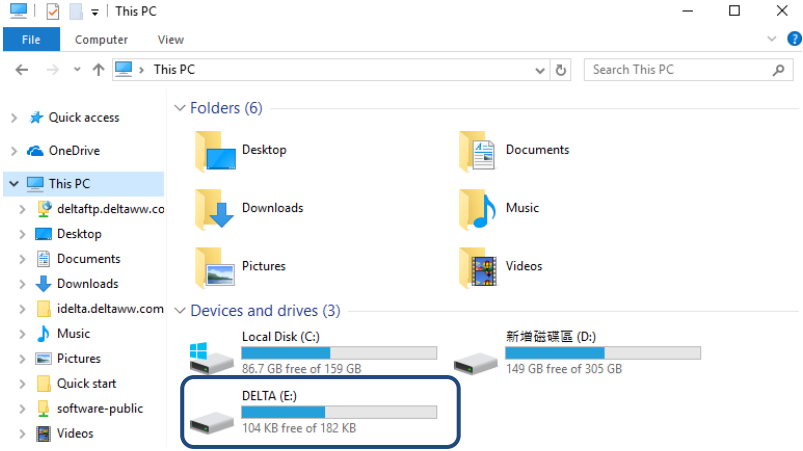
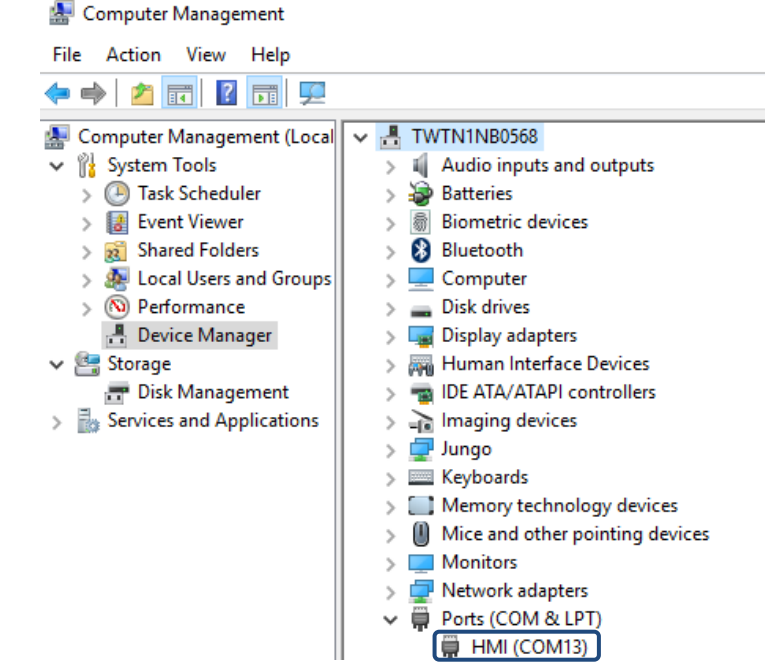
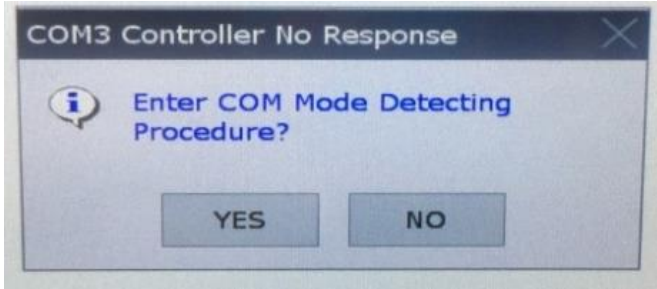
[Configuration] - [Main] - [Others]

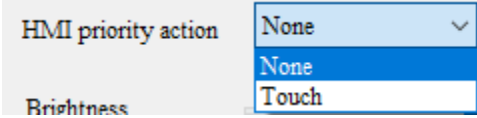


27

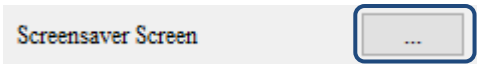
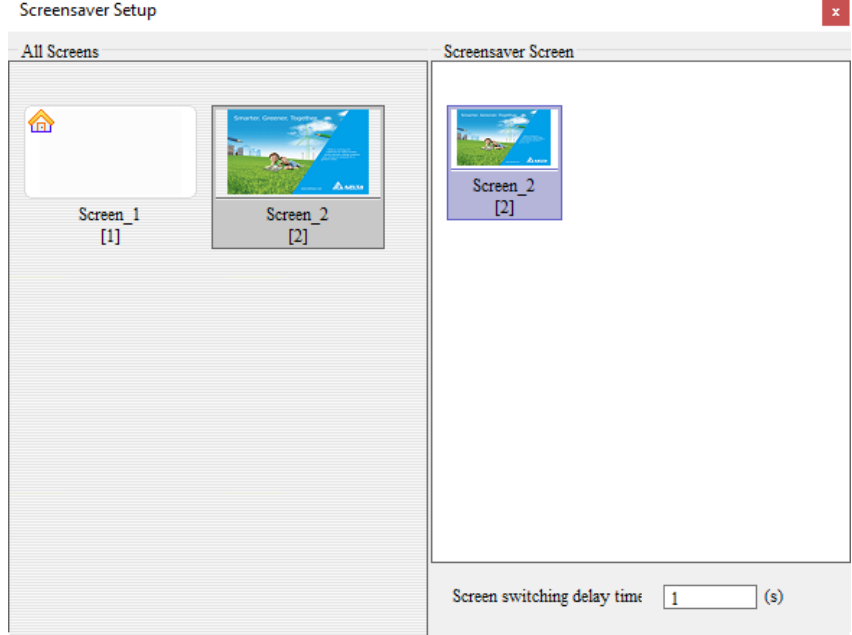
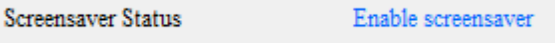
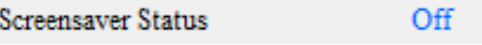
System Settings	
Enable Touch Cursor	<ul style="list-style-type: none"> ■ The HMI provides the same mouse cursor as the Windows system. When the HMI screen is touched, the icon of the mouse cursor appears on the screen. ■ The HMI supports wireless mouse with a Unifying receiver.
Display initial screen at startup	<p>When the Display initial screen at startup check box is selected, the initial screen will be displayed at each startup, as shown in the following figure. You can set whether to display the initial screen.</p> 
USB Upload/Download	<p>Auto</p> <ul style="list-style-type: none"> ■ In Auto mode, the USB Upload/Download setting refers to the USB Comm. Mode setting on the HMI. ■ If USB Upload/Download is set to Auto, the HMI will maintain the current mode of USB Upload/Download after the project is downloaded. If USB Upload/Download is set to Disk (USBCommMode 1), the HMI will upload and download the data with Disk mode after the project is downloaded; if USB Upload/Download is set to CDC (USBCommMode 2), the HMI will still upload and download the data with CDC mode after the project is downloaded.

27

[Configuration] - [Main] - [Others]	
System Settings	
Disk	<p>The Disk mode is the same as USBCommMode 1. You can find a removable storage device named "DELTA" in [This PC] after downloading the project to the HMI through the Disk mode.</p> 
USB Upload/Download mode	<p>The CDC mode is the same as USBCommMode 2. You can go to [This PC] and right-click on the mouse to go to [Contents] > [Device Manager] to check whether there is a device named "HMI" in [Ports] after downloading the project to the HMI.</p> 
Auto detect baud rate	<ul style="list-style-type: none"> When this function is enabled, the baud rate of the HMI is adjusted to be the same as that of the PLC automatically.  <ul style="list-style-type: none"> The condition for adjustment is the baud rate of the HMI is different from that of the PLC.

[Configuration] - [Main] - [Others]	
System Settings	
HMI priority action	<p>HMI priority action allows users to get a quicker response after pressing a button.</p> 
Brightness	You can adjust the backlight brightness.
TP Delay	Sets the delay time of HMI processing the touch and movement data. The farther to the right, the shorter the delay time, which means the speed is faster; the farther to the left, the longer the delay time, which means the speed is slower.
TP Force	Sets the sensitivity to the touch force on the HMI screen. The farther to the left, the more sensitively the HMI detects the force, which means it's easier to tap; the farther to the right, the less sensitively the HMI detects the force, which means you need to tap the screen harder.
Buzzer	<p>Adjusts the volume of the buzzer: the farther to the left, the lower the volume; the farther to the right, the louder the volume.</p> <p>Buzzer sound of the HMI includes the sounds when the button is triggered, the message appears, and an error occurs. Therefore, once the buzzer is adjusted to the far left, the HMI does not make any sound.</p>
Animation FPS	The default speed is set at the far right, which means the animated graphic update speed is the fastest. The farther to the left, the slower the update speed will be.
Audio	Adjusts the volume of multimedia audio. The farther to the left, the lower the volume; the farther to the right, the louder the volume.
Screensaver Setup	
Enable Screensaver	<ul style="list-style-type: none"> ■ The Screensaver Setup settings are enabled only when you select the Enable Screensaver check box. ■ After the screensaver is enabled, you can exit the screensaver mode simply by touching the screen again. ■ If this check box is selected, but there is no screensaver set in [Screen] > [Screensaver], the screensaver appears black. ■ If this check box is not selected, but you have edited the screensaver screen in [Screen] > [Screensaver], the screensaver will remain disabled.
Wait time	If the Enable Screensaver check box is selected, you can set the wait time for the HMI to enter the screensaver mode. The time range is 1 - 100 min., and the default value is 10 min.
Enable backlight saving	Once this function is enabled, the HMI screen adjusts the backlight brightness according to the set minutes and saving ratio.
Screensaver trigger address	After setting the trigger address, as long as the value of this address is not 0, you can directly activate and enter the screensaver mode without waiting for the set wait time.

27

[Configuration] - [Main] - [Others]	
Screensaver Setup	<ul style="list-style-type: none">After clicking the box shown as follows, you can directly link to the setting interface of the screensaver screen. 
Screensaver Screen	 <p>If the Enable Screensaver check box is selected, you can set the Screen switching delay time. It is the time interval when the screens are switched. The time range is 1 - 255 s and the default time is 1 second.</p>
Screensaver Status	<ul style="list-style-type: none">If there is a screen set for the screensaver, the status will display "Enable screensaver". If there is no screen set for the screensaver, the status will display "Off". 

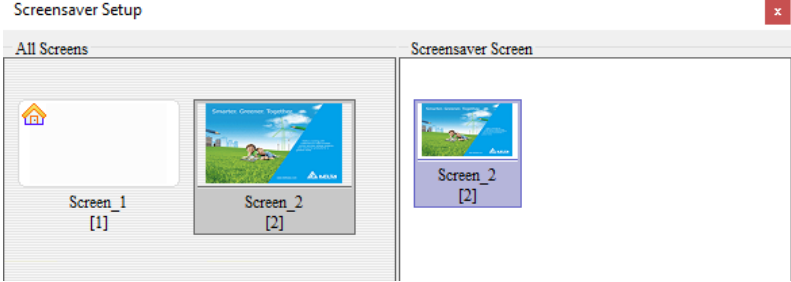
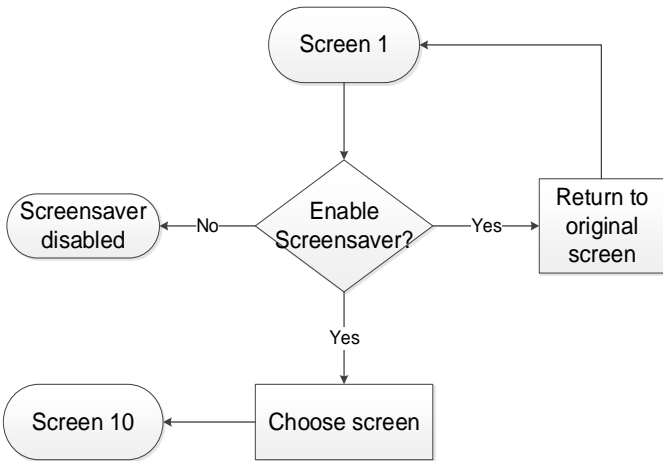
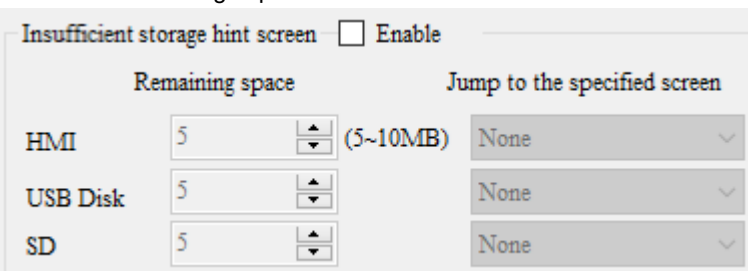
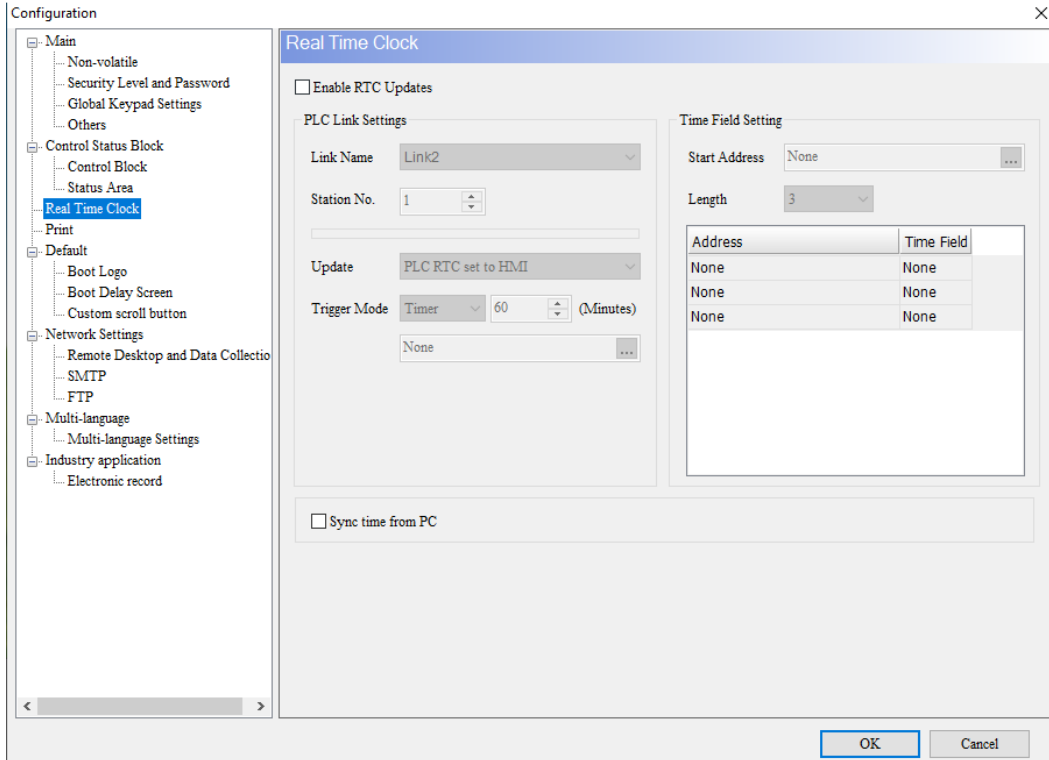
[Configuration] - [Main] - [Others]	
Screensaver Setup	
Return to original screen	<p>If the Enable Screensaver check box is selected, you can select the next screen to go to after exiting the screensaver. Return to original screen means that the HMI goes to the original screen after exiting the screensaver.</p>
After exiting the screensaver	<p>■ If the Enable Screensaver check box is selected, you can also select the screen to go to by specifying its number, so the HMI switches to the designated screen after it exits the screensaver.</p> <p>Note: if you select Choose screen, you must set a screen for the screensaver.</p>  <p>■ The flowchart of the screensaver is shown as follows:</p> 
Show disk accessing error message	<p>■ When the data of Alarm, History Buffer, and Recipe are set to be stored as non-volatile data in the USB Disk or SD Card, you can use this option to determine whether to display the warning message if DOPSoft fails to access the external storage.</p> <p>■ The disk access failure occurs when the History Buffer is set to be stored in the USB Disk as non-volatile data, but the HMI cannot detect the USB Disk and write the data to the USB Disk. Therefore, if this check box is not selected, when the HMI cannot detect the USB Disk and write the data, no error messages appear to inform the user.</p>
Insufficient storage hint screen	<p>■ When the space of the HMI, USB Disk, and SD card is insufficient, a warning screen will be displayed.</p> <p>■ You can set to jump to a specified screen which reminds you to back up your data when the minimum storage space is almost full.</p> 

Table 27.1.6 Configuration - Real Time Clock

[Configuration] - [Real Time Clock]

27

Some PLC controllers do not have a built-in real-time clock (RTC), so you cannot use them for operations related to time settings, such as the timer switch to turn on/off the machine on a daily basis and access control. If a PLC controller has a built-in RTC, the HMI provides the synchronization function to synchronize the HMI RTC time to the PLC or vice versa. To use the RTC update settings, you must first select the **Enable RTC Updates** check box. RTC update settings include PLC Link Settings and Time Field Setting.



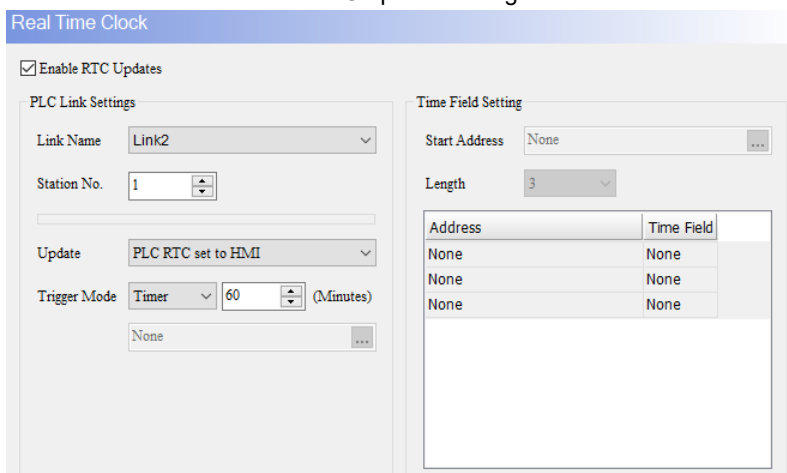
Note:

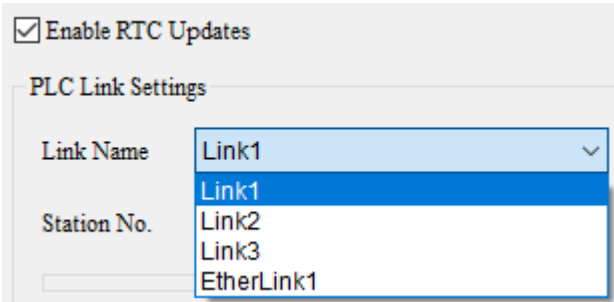
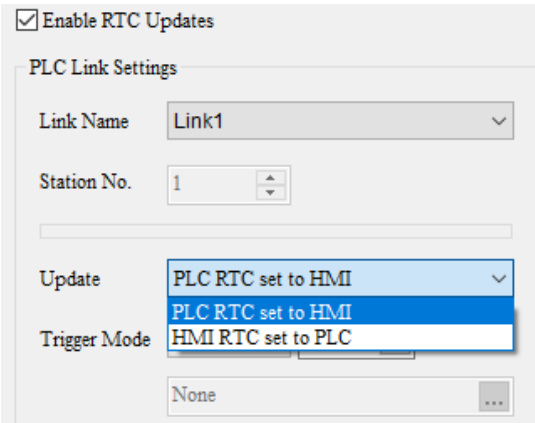
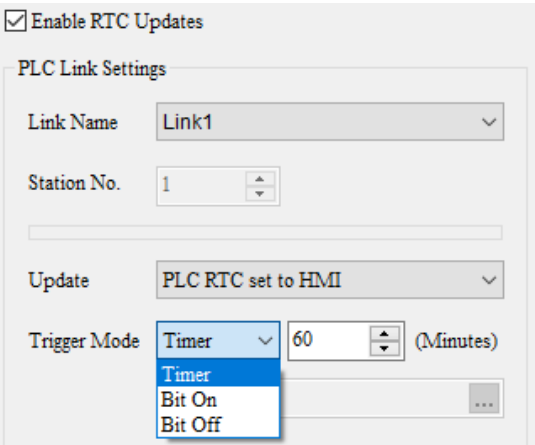
1. If you are using a Delta PLC, you do not need to set the Time Field Setting. The DOPSoft will gray out the setting fields and set them with the PLC's special RTC registers D1319 - D1313 automatically.
2. Some old Delta PLC models (ES/SS/EC) do not support the RTC update settings.

PLC Link Settings

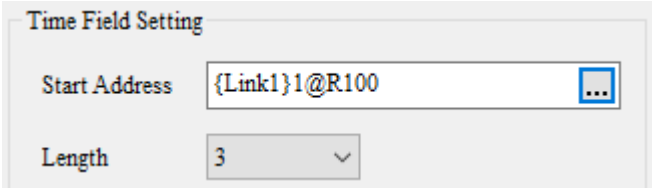
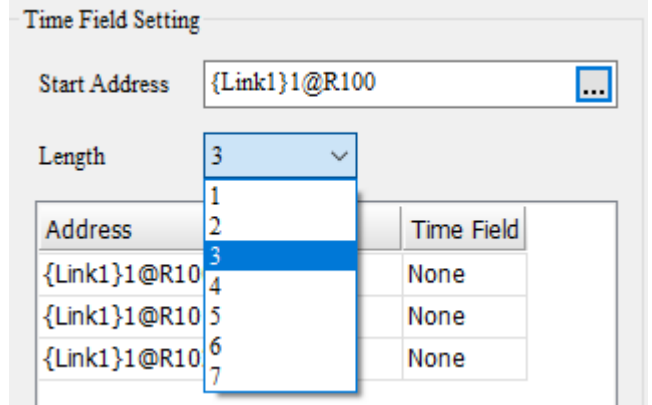
Select this check box to enable the RTC update settings.

Enable RTC Updates



[Configuration] - [Real Time Clock]	
PLC Link Settings	
Link Name	<p>You can select any of the link names, whether the controller connects to COM1/COM2/COM3 or Ethernet.</p> 
Station No.	<ul style="list-style-type: none"> You can set the PLC station number for the time update. If the selected controller does not support setting the station number, this setting is unavailable.
Update	<p>There are two modes for users to choose: HMI RTC set to PLC and PLC RTC set to HMI.</p> 
Trigger Mode	<ul style="list-style-type: none"> There are three modes of triggering: Timer, Bit On, and Bit Off.  <ul style="list-style-type: none"> If you choose the Timer mode, you can set how often the auto update is executed. The minimum time is 1 minute, the longest is 1440 minutes (1 day), and the system default is 60 minutes. If you select Bit On, the update setting is activated when the bit is on. If you select Bit Off, the update setting is activated when the bit is off. If you select Bit On or Bit Off, you need to set the trigger address additionally, which can be an internal memory address or a controller register address.

27

[Configuration] - [Real Time Clock]									
Time Field Setting									
Start Address	<ul style="list-style-type: none"> Set the controller register address for RTC time synchronization. 								
Length	<ul style="list-style-type: none"> If you are using Delta PLCs, setting the start address is not required. You can choose the length based on the number of time fields you want to synchronize. The minimum length is 1 and the maximum is 7.  <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>Address</th> <th>Time Field</th> </tr> </thead> <tbody> <tr> <td>{Link1}1@R10</td> <td>None</td> </tr> <tr> <td>{Link1}1@R10</td> <td>None</td> </tr> <tr> <td>{Link1}1@R10</td> <td>None</td> </tr> </tbody> </table>	Address	Time Field	{Link1}1@R10	None	{Link1}1@R10	None	{Link1}1@R10	None
Address	Time Field								
{Link1}1@R10	None								
{Link1}1@R10	None								
{Link1}1@R10	None								
Sync time from PC	<ul style="list-style-type: none"> If you are using Delta PLCs, setting the length is not required. <p>Select this check box to synchronize the time of the PC to the HMI.</p>								
Example									
RTC update steps	<p>Step 1: go to [Options] > [Configuration] > [Real Time Clock].</p> <p>Step 2: set the properties associated with RTC update.</p> <ol style="list-style-type: none"> Select the Enable RTC Updates check box. Select [Link3] for the Link Name (Mitsubishi-FX3U and FX3G CPU Port). Select [PLC RTC set to HMI] for the Update. Select [Bit On] for the Trigger Mode. Set the trigger address to \$11.0. Set the Start Address to {Link3}1@D8013. Set the Length to 6. Select Second for the Time Field corresponding to {Link3}1@D8013. Select Minute for the Time Field corresponding to {Link3}1@D8014. Select Hour for the Time Field corresponding to {Link3}1@D8015. Select Day for the Time Field corresponding to {Link3}1@D8016. Select Month for the Time Field corresponding to {Link3}1@D8017. Select Year for the Time Field corresponding to {Link3}1@D8018. <p>Step 3: after the settings are complete, click OK to exit the RTC update setting screen. Refer to the following figure.</p>								

[Configuration] - [Real Time Clock]

Example

- Since the Mitsubishi-FX3U controller does not require setting the station number, there is not need to set the station number for the RTC update settings.

RTC update steps

Real Time Clock

Enable RTC Updates

PLC Link Settings

Link Name:

Station No.:

Update:

Trigger Mode: (Minutes)

Time Field Setting

Start Address:

Length:

Address	Time Field
{Link3}0@D8013	Second
{Link3}0@D8014	Minute
{Link3}0@D8015	Hour
{Link3}0@D8016	Day
{Link3}0@D8017	Month
{Link3}0@D8018	Year

Connection

Link Name:

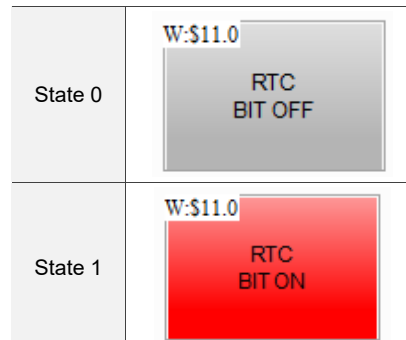
Manufacturers:

series:

Multi-Drop:

Create Maintained button

- Step 1: create a Maintained button and set its Write Address to \$11.0.
 Step 2: set the State 0 text of the Maintained button to "RTC BIT OFF", and set the State 1 text to "RTC BIT ON" with the foreground color as red, representing the state of being triggered On.



Create Numeric Entry elements

- Step 1: create 6 Numeric Entry elements, and set the addresses to {Link3}1@D8013 to {Link3}1@D8018 in sequence.
 Step 2: create another 6 Numeric Entry elements and set the internal system parameters as TIME_YEAR, TIME_MONTH, TIME_DAY, TIME_HOUR, TIME_MINUTE, and TIME_SECOND in sequence.

PLC addresses

Internal parameters

27

[Configuration] - [Real Time Clock]

Example

After creating the elements, compile and download the elements to the HMI. When the RTC Maintained button (BIT ON) is triggered, the system will set the HMI time as the PLC's RTC time, so the HMI internal system parameters TIME_YEAR, TIME_MONTH, TIME_DAY, TIME_HOUR, TIME_MINUTE, and TIME_SECOND will synchronize with the PLC's RTC.

Execution Results

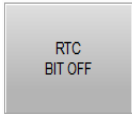

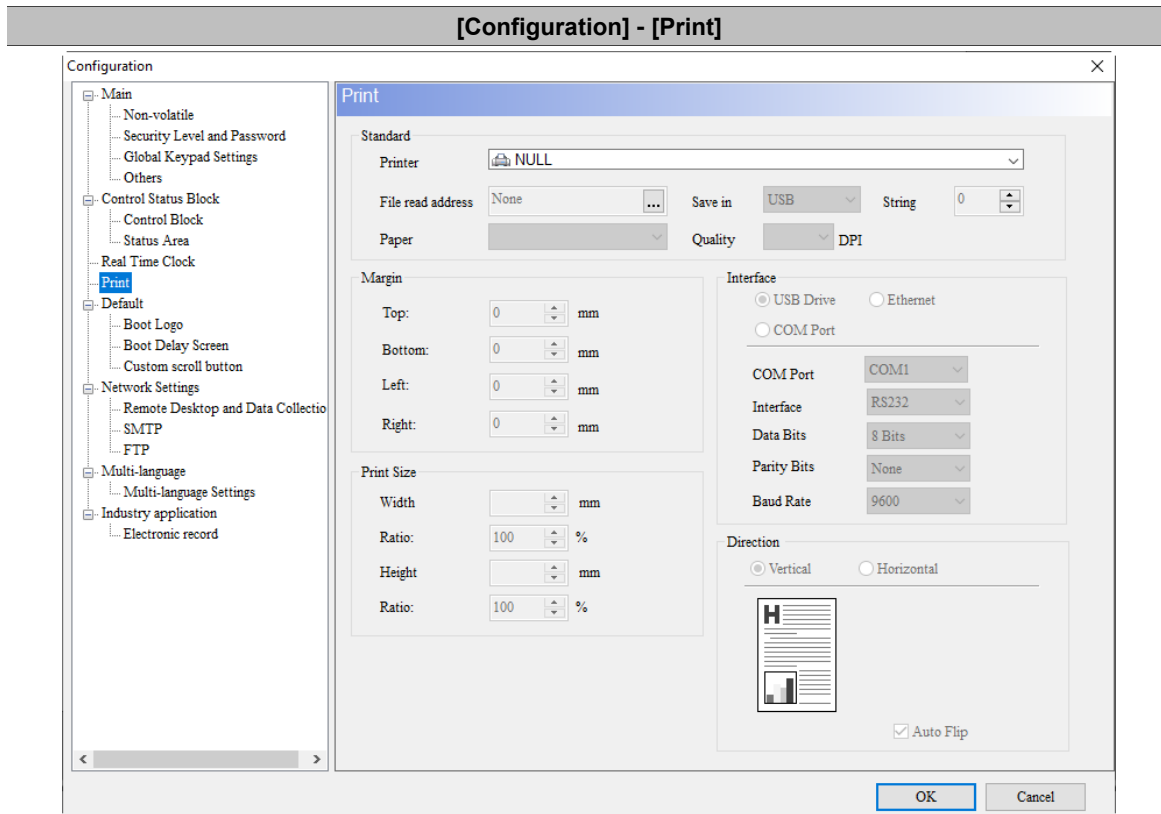
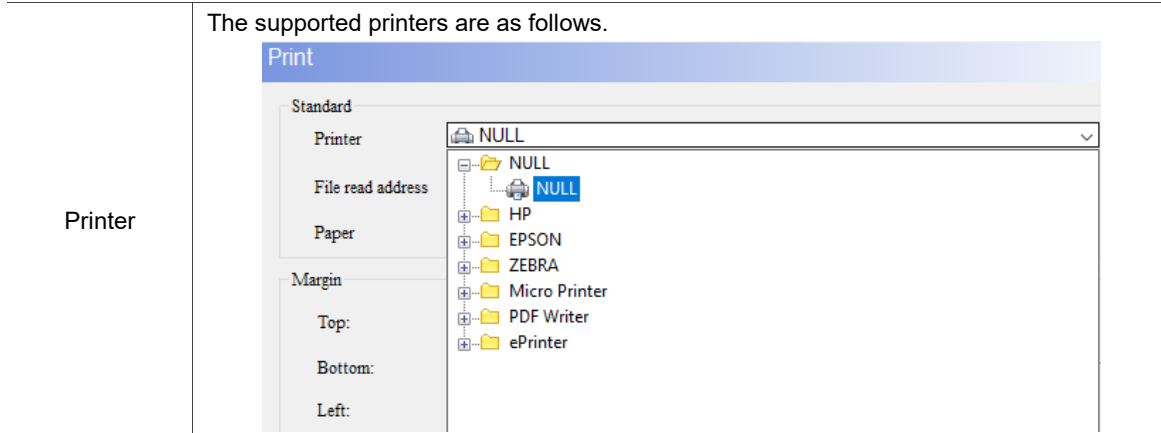
BIT OFF						
	D8013	D8014	D8015	D8016	D8017	D8018
	2013	10	30	15	4	20
HMI_Year HMI_Month HMI_Day HMI_Hour HMI_Minute HMI_Second						
	2017	6	16	16	55	33
BIT ON						
	D8013	D8014	D8015	D8016	D8017	D8018
	2013	10	30	15	4	20
HMI_Year HMI_Month HMI_Day HMI_Hour HMI_Minute HMI_Second						
	2013	10	30	15	4	20

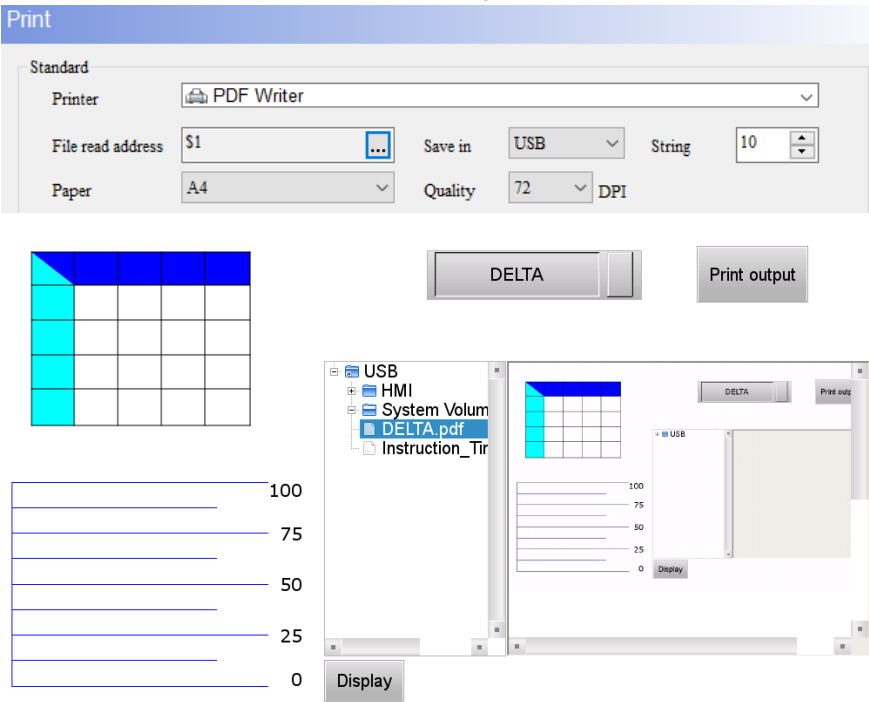
Table 27.1.7 Configuration - Print



27

The Print settings currently support the Screen Print Setup function. Refer to Chapter 26 for details of the printing functions.



[Configuration] - [Print]	
File read address	<ul style="list-style-type: none"> This setting only supports PDF Writer. When a printer other than PDF Writer is selected, this option is not available. The file name can be user-defined and exported as a PDF file to the storage device. The exported PDF file can be viewed through the PDF Viewer. 
Save in	<ul style="list-style-type: none"> This setting only supports PDF Writer. When a printer other than PDF Writer is selected, this option is not available. Specify the storage location of the PDF file, which includes HMI, USB, and SD.
String	<ul style="list-style-type: none"> This setting only supports PDF Writer. When a printer other than PDF Writer is selected, this option is not available. Set the string length required for the file name.
Paper	The paper size varies depending on the printer you choose. It generally includes A4, Letter, Report, Custom, and other settings.
Quality	<ul style="list-style-type: none"> Quality refers to the printing resolution. Currently the options of 72 and 203 DPI are available.
Margin	<ul style="list-style-type: none"> You can set the top, bottom, left, and right margins of the paper which is reserved for blank. The unit of the margin is mm, and the range is 0 - 550 mm.
Print Size	Print size can also be set as scaling of the width and height. The maximum scaling ratio is 400%, and the minimum is 10%. The default is 100%.

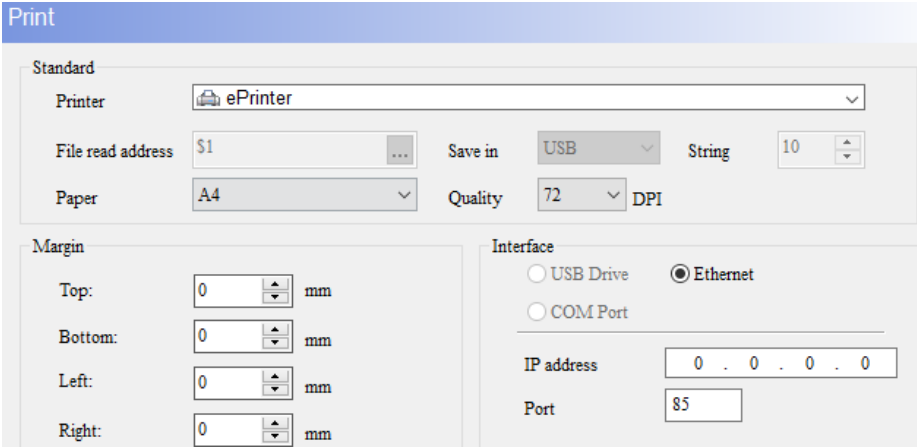
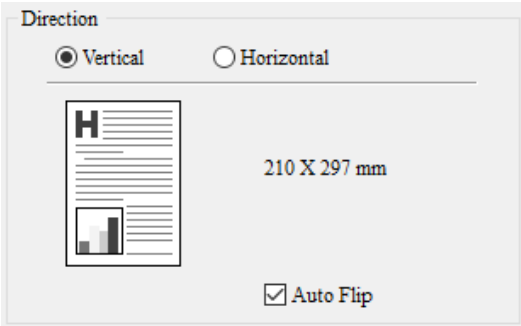
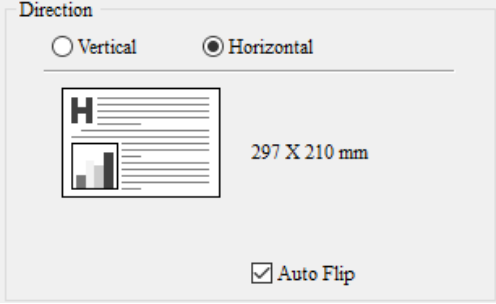
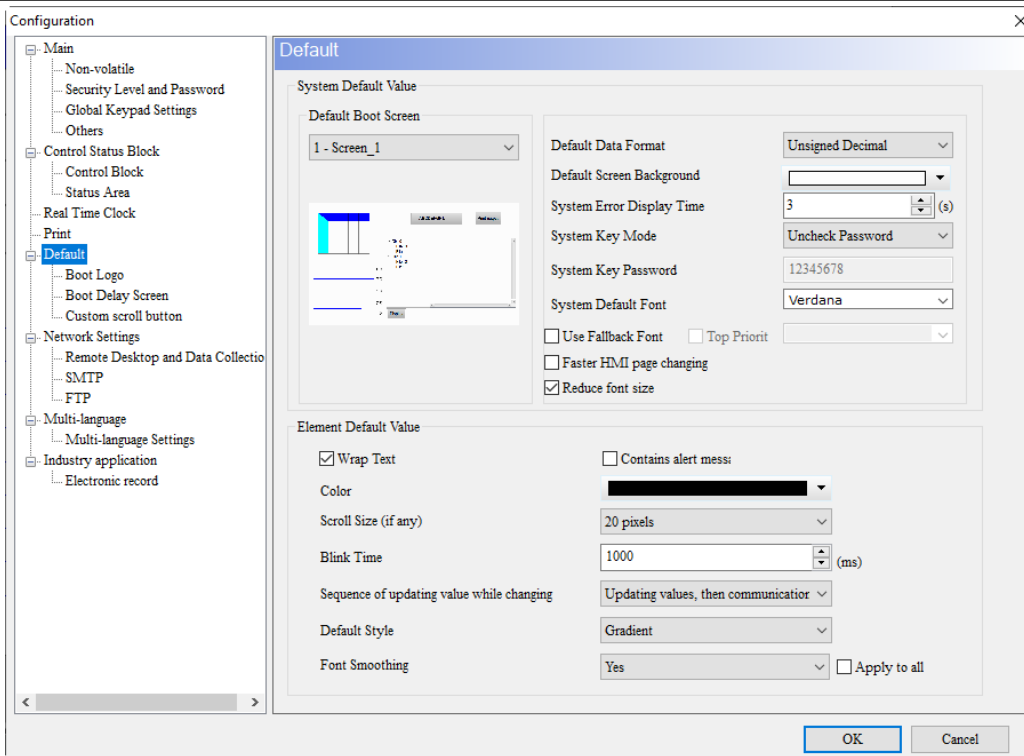
[Configuration] - [Print]	
Interface	<ul style="list-style-type: none"> Supports ePrinter printing. The transmission interface of this printer only includes Ethernet.  <ul style="list-style-type: none"> When you select ePrinter, you need to input the PC's IP address and the printer port of 85. USB printing is supported, but the USB interface settings are usually determined by the printer model, and no further settings are required.
Direction	<p>Direction includes vertical printing and horizontal printing.</p> <div style="display: flex; flex-direction: column;"> <div style="margin-bottom: 10px;"> <p>Vertical</p>  </div> <div> <p>Horizontal</p>  </div> </div>
Auto Flip	<p>Auto Flip means that the printer can automatically return the paper and print the next page. If this check box is selected, when a page is printed, the printer will automatically change to the next page to continue printing; if not selected, after a page is printed, the printer returns the paper and you must manually change to the next page.</p>

Table 27.1.8 Configuration - Default

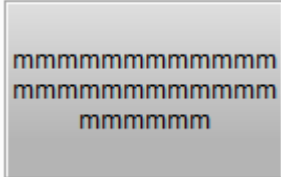
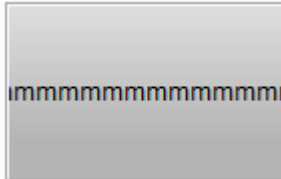
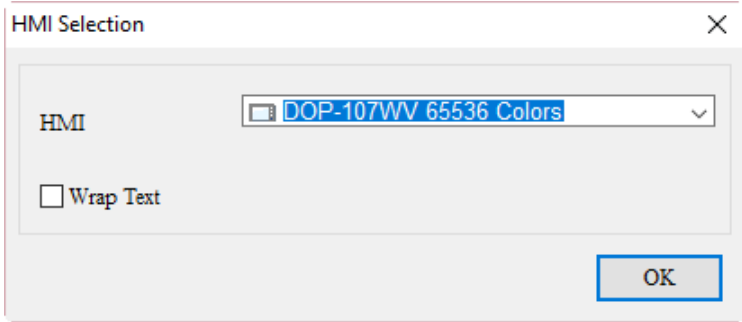
27

[Configuration] - [Default]

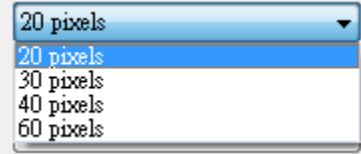
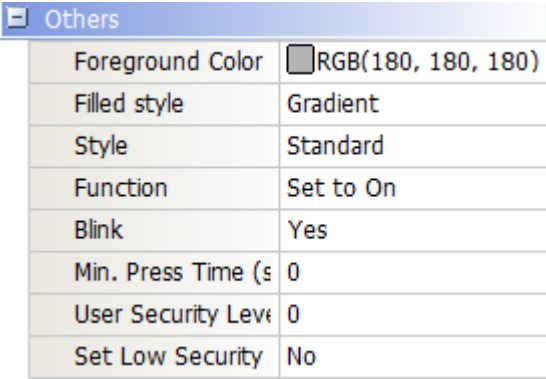
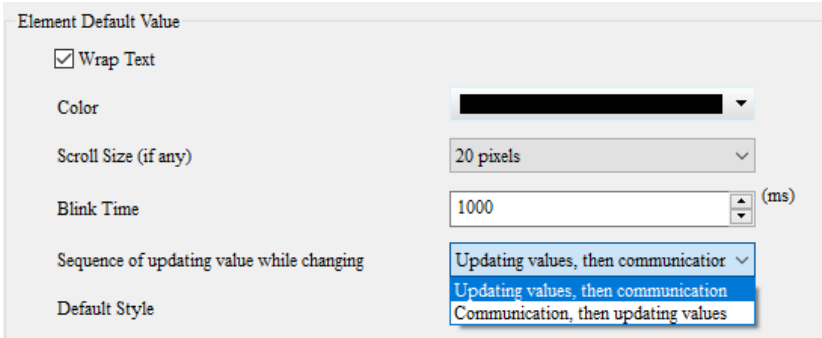


System Default Value

Default Boot Screen	The initial screen at HMI startup. Users can choose from other set screens as the initial screen, and the default one is Screen_1.						
Default Data Format	The default data format when an element is created. The default data format is Unsigned Decimal.						
Default Screen Background	The background color when a screen is edited. The default background color is white.						
System Error Display Time	The error message displaying time when an error occurs. The default is 3 seconds and the setting range is 0 - 5 seconds. Note: when the setting is 0 second, if any error occurs in the system, no message will be displayed.						
System Key Mode	System Key Mode sets the response of the HMI when you press the system key. The software provides three options: Disabled, Enable password check, and Uncheck Password. <div style="border: 1px solid gray; padding: 5px; margin: 5px 0;"> <p>System Key Mode: Uncheck Password</p> <p>System Key Password: 12345678</p> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Disabled</td> <td>When this function is set to Disabled, you cannot enter the HMI system screen when pressing the system key.</td> </tr> <tr> <td style="text-align: center;">Enable password check</td> <td>When this function is set to Enable password check, you will be asked to enter the System Key Password after pressing the system key.</td> </tr> <tr> <td style="text-align: center;">Uncheck Password</td> <td>When this function is set to Uncheck Password, you can enter the HMI system screen after pressing the system key without entering the System Key Password.</td> </tr> </table>	Disabled	When this function is set to Disabled, you cannot enter the HMI system screen when pressing the system key.	Enable password check	When this function is set to Enable password check, you will be asked to enter the System Key Password after pressing the system key.	Uncheck Password	When this function is set to Uncheck Password, you can enter the HMI system screen after pressing the system key without entering the System Key Password.
Disabled	When this function is set to Disabled, you cannot enter the HMI system screen when pressing the system key.						
Enable password check	When this function is set to Enable password check, you will be asked to enter the System Key Password after pressing the system key.						
Uncheck Password	When this function is set to Uncheck Password, you can enter the HMI system screen after pressing the system key without entering the System Key Password.						
System Key Password	System Key Password is the password required when the System Key Mode is set as Enable password check. You can change the System Key Password. The default System Key Password is 12345678.						
System Default Font	The system default font is Verdana. You can change the font. <div style="border: 1px solid gray; padding: 5px; margin: 5px 0;"> <p>System Default Font: Verdana</p> </div>						

[Configuration] - [Default]	
System Default Value	
Use Fallback Font	<ul style="list-style-type: none"> ■ Unlike the DOP-B series models using pictures to present the texts, the DOP-100 series models directly download the texts. Because of this, when the operating system does not support the font set on the elements, the HMI will not be able to display the text normally after the elements are downloaded. Therefore, the firmware will load a set of default font. If the default font still cannot solve the problem of missing characters on the HMI, the HMI will refer to the setting of this option. If the Use Fallback Font check box is selected, when the firmware's default font is unavailable, the backup font of the software will be enabled. ■ If the Top Priority check box is selected, it means that the backup font of the software will have higher priority over the default font of the firmware.
Faster HMI page changing	<ul style="list-style-type: none"> ■ Enabling this function will speed up the switching between pages, but it also occupies the memory space of the project screen. ■ This function is mainly used to speed up the switching between pages when the screen has a large number of graphics and static texts.
Element Default Value	
Wrap Text	<ul style="list-style-type: none"> ■ If you select the Wrap Text check box and enter the text in an element, the text automatically wraps itself so it appears on multiple lines in an element, as shown in the following figure. <div style="text-align: center;">  </div> <ul style="list-style-type: none"> ■ If this check box is not selected, the text extends beyond the element edge instead of wrapping itself automatically, as shown in the following figure. <div style="text-align: center;">  </div> <ul style="list-style-type: none"> ■ In addition, if you need to convert the .dop file (B series program) for the DOP-100 models to edit, the software also provides the Wrap Text option for you. <div style="text-align: center;">  </div>
Element Font/Size/Color	The default font, size, and color of the text when an element is created. The default font, size and color of the elements are Arial, 12, and black respectively.

27

[Configuration] - [Default]																			
Element Default Value																			
Scroll Size	<p>This is for elements with scrolls, such as the history data and alarms tables. The default scroll size is 20 pixels, and the range is 20 - 60 pixels.</p> 																		
Blink Time	<ul style="list-style-type: none"> This function is available only when an element has the property of Blink.  <table border="1"> <tr><td colspan="2">Others</td></tr> <tr><td>Foreground Color</td><td><input type="checkbox"/> RGB(180, 180, 180)</td></tr> <tr><td>Filled style</td><td>Gradient</td></tr> <tr><td>Style</td><td>Standard</td></tr> <tr><td>Function</td><td>Set to On</td></tr> <tr><td>Blink</td><td>Yes</td></tr> <tr><td>Min. Press Time (s)</td><td>0</td></tr> <tr><td>User Security Level</td><td>0</td></tr> <tr><td>Set Low Security</td><td>No</td></tr> </table> <ul style="list-style-type: none"> The Blink Time setting is valid only when the Blink is set to Yes. The default value is 1000 ms and the range is 500 - 5000 ms. 	Others		Foreground Color	<input type="checkbox"/> RGB(180, 180, 180)	Filled style	Gradient	Style	Standard	Function	Set to On	Blink	Yes	Min. Press Time (s)	0	User Security Level	0	Set Low Security	No
Others																			
Foreground Color	<input type="checkbox"/> RGB(180, 180, 180)																		
Filled style	Gradient																		
Style	Standard																		
Function	Set to On																		
Blink	Yes																		
Min. Press Time (s)	0																		
User Security Level	0																		
Set Low Security	No																		
Sequence of updating value while changing	<p>Sometimes the HMI displays the value after the communication completes due to multi-task execution. To avoid confusion, DOPSoft provides the options of when to display the value. The options are [Updating values, then communication] and [Communication, then updating values].</p>  <p>Element Default Value</p> <p><input checked="" type="checkbox"/> Wrap Text</p> <p>Color: ██████████</p> <p>Scroll Size (if any): 20 pixels</p> <p>Blink Time: 1000 (ms)</p> <p>Sequence of updating value while changing: Updating values, then communication</p> <p>Default Style: Updating values, then communication</p>																		

[Configuration] - [Default]																															
Element Default Value																															
<p>■ The elements supporting this function are as follows:</p> <table border="1"> <tr> <td rowspan="3">Entry element</td> <td>Numeric Entry</td> </tr> <tr> <td>Character Entry</td> </tr> <tr> <td>Barcode Input</td> </tr> <tr> <td rowspan="5">Button element</td> <td>Set to On button</td> </tr> <tr> <td>Set to Off button</td> </tr> <tr> <td>Momentary button</td> </tr> <tr> <td>Maintained button</td> </tr> <tr> <td>Multistate button</td> </tr> <tr> <td rowspan="3">Indicator element</td> <td>Multistate indicator</td> </tr> <tr> <td>Range indicator</td> </tr> <tr> <td>Simple indicator</td> </tr> <tr> <td>Meter element</td> <td>Meter(1) / Meter(2) / Meter(3) / Meter(4)</td> </tr> <tr> <td rowspan="4">Data Display element</td> <td>Numeric Display</td> </tr> <tr> <td>Character Display</td> </tr> <tr> <td>General Message Display</td> </tr> <tr> <td>Moving Sign Display</td> </tr> <tr> <td rowspan="2">Graph Display element</td> <td>State Graphic</td> </tr> <tr> <td>Animated Graphic</td> </tr> <tr> <td>Curve element</td> <td>Curve Input</td> </tr> <tr> <td>Pipe element</td> <td>Pipe(1) / Pipe(2)</td> </tr> <tr> <td>Analog element</td> <td>Slider</td> </tr> </table>		Entry element	Numeric Entry	Character Entry	Barcode Input	Button element	Set to On button	Set to Off button	Momentary button	Maintained button	Multistate button	Indicator element	Multistate indicator	Range indicator	Simple indicator	Meter element	Meter(1) / Meter(2) / Meter(3) / Meter(4)	Data Display element	Numeric Display	Character Display	General Message Display	Moving Sign Display	Graph Display element	State Graphic	Animated Graphic	Curve element	Curve Input	Pipe element	Pipe(1) / Pipe(2)	Analog element	Slider
Entry element	Numeric Entry																														
	Character Entry																														
	Barcode Input																														
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	Momentary button																														
	Maintained button																														
	Multistate button																														
Indicator element	Multistate indicator																														
	Range indicator																														
	Simple indicator																														
Meter element	Meter(1) / Meter(2) / Meter(3) / Meter(4)																														
Data Display element	Numeric Display																														
	Character Display																														
	General Message Display																														
	Moving Sign Display																														
Graph Display element	State Graphic																														
	Animated Graphic																														
Curve element	Curve Input																														
Pipe element	Pipe(1) / Pipe(2)																														
Analog element	Slider																														
<p>■ Here's the difference.</p> <p>If this option is selected, after the screen switches, the reading of values is normal without being affected by the communication.</p> <pre> graph TD A[Screen 1 D0 = 1] --> B[Switch to Screen 2 and set D0 to 123] B --> C[Screen 2 Numeric Entry element D0 displays "123"] C --> D[Obtain the updated value and then complete the communication] D --> E[The value of the Numeric Entry element D0 is "123"] </pre>																															
<p>Sequence of updating value while changing</p>	<p>Updating values, then communication</p>																														

27

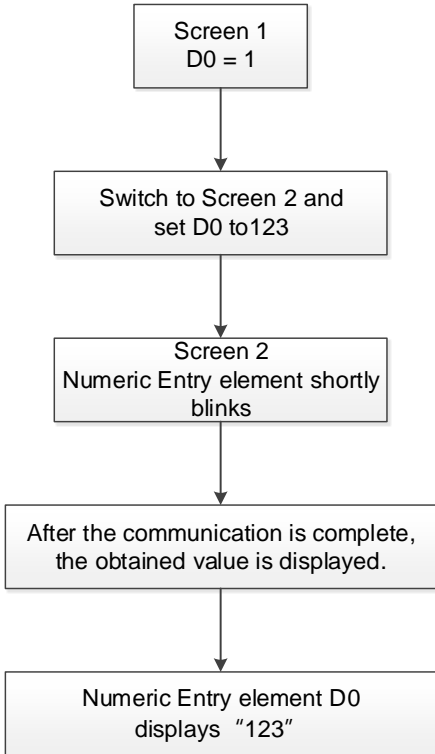
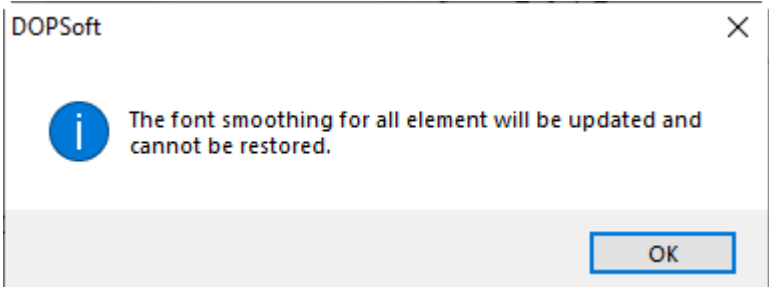
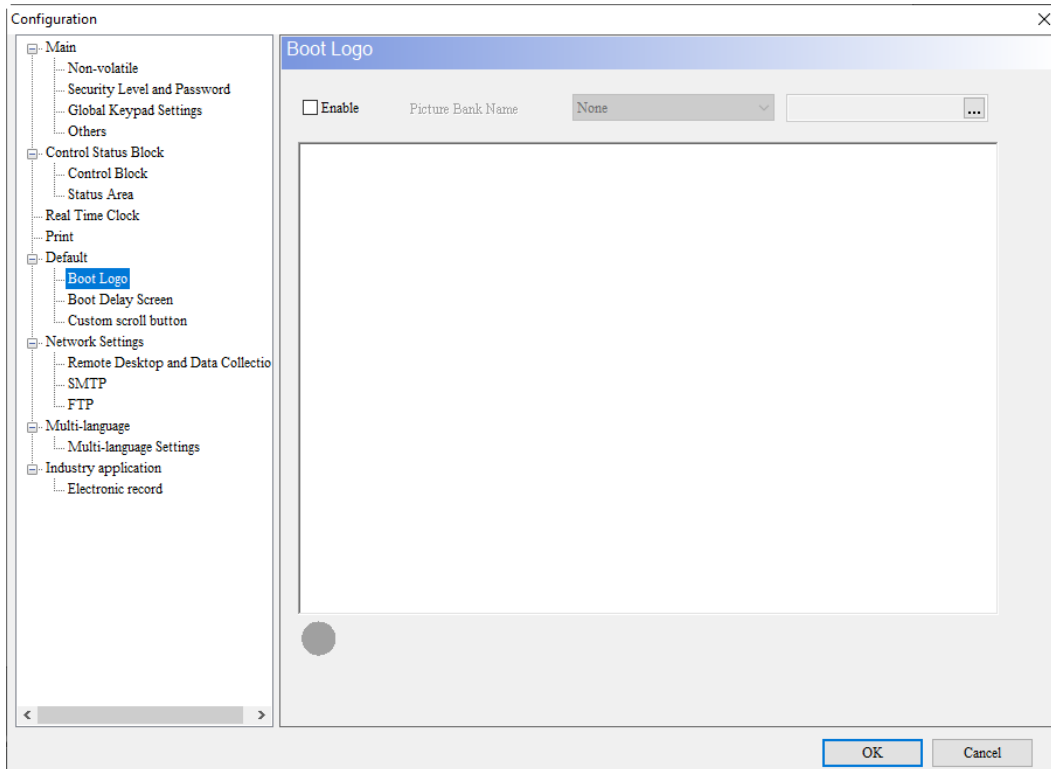
[Configuration] - [Default]		
Element Default Value		
Sequence of updating value while changing	Communication, then updating values	<p>The display of the Numeric Entry element lags due to screen switching.</p>  <pre> graph TD A[Screen 1 D0 = 1] --> B[Switch to Screen 2 and set D0 to 123] B --> C[Screen 2 Numeric Entry element shortly blinks] C --> D[After the communication is complete, the obtained value is displayed.] D --> E[Numeric Entry element D0 displays "123"] </pre>
Default Style	<ul style="list-style-type: none"> ■ Set the default fill style of the HMI, and the default is Gradient. ■ The settings of this interface are global. When the Default Style is set, the Filled style setting of all created elements refers to the property settings here. 	
Font Smoothing	<ul style="list-style-type: none"> ■ Set whether the text font of the HMI is smooth, and the default is Yes. ■ When this effect is enabled, the text is rendered as anti-aliased. ■ If the Apply to all check box is not selected, the setting will only apply to Text elements; if this check box is selected, the setting will be applied to all elements. The following message will be displayed to inform the user. 	

Table 27.1.9 Configuration - Boot Logo

[Configuration] - [Default] - [Boot Logo]



27

Enable


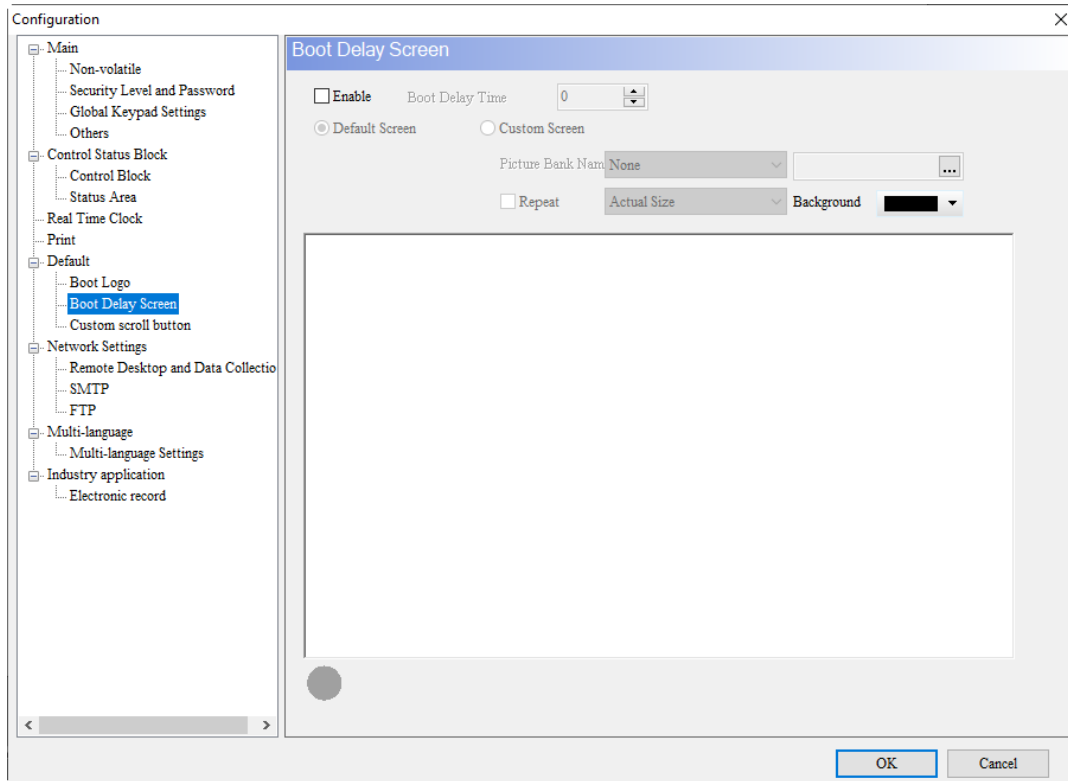
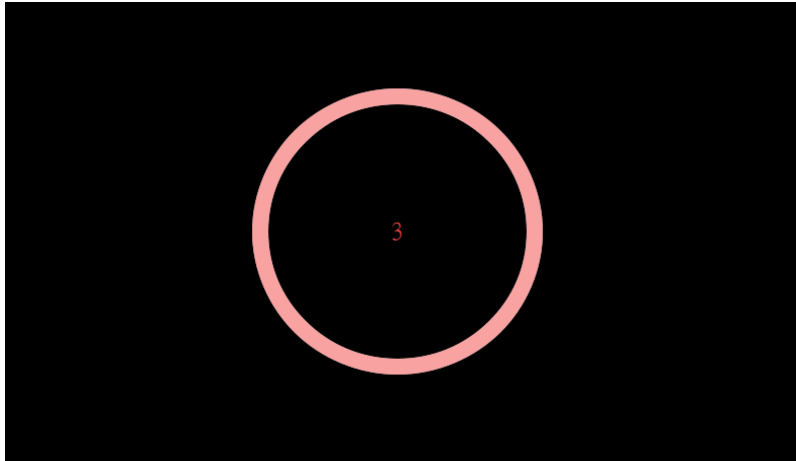
- After selecting the **Enable** check box, you may select the boot screen from the picture bank.
 - To use files not in the picture bank, you can import the image files into the picture bank.
 - If you select a GIF image file, the gray circle at the bottom appears as  , indicating that the GIF preview is available on the software.
 - When this function is enabled, you can replace the HMI boot screen from [Tools] > [Download Boot Screen]. Or you can execute Download All Data to download the boot screen.
- Note:
1. After downloading the boot screen, cycle power on the HMI.
 2. Supported image file formats include BMP, JPG, GIF, ICO, and PNG.
 3. The file size of the boot screen imported to the software should be less than 3 Mbyte after conversion.

Table 27.1.10 Configuration - Boot Delay Screen

[Configuration] - [Default] - [Boot Delay Screen]

27



Enable	After selecting this check box, you can set the Boot Delay time.
Boot Delay Time	Set the delay time before the controller starts within a range of 0 - 255 seconds.
Default Screen	<p>If the Boot Delay Time is set to be 3 seconds, and the Boot Delay Screen of the system default is being used, after the screen is downloaded to the HMI, the HMI counts down from 3 seconds to 0 before displaying the HMI screen, as shown in the following figure.</p> 

[Configuration] - [Default] - [Boot Delay Screen]

You can set the Boot Delay Screen with user-defined screens, and set whether to repeat the screen, whether the graphics should display in its actual size or fill the full element display area, and adjust the background color.

Custom
Screen

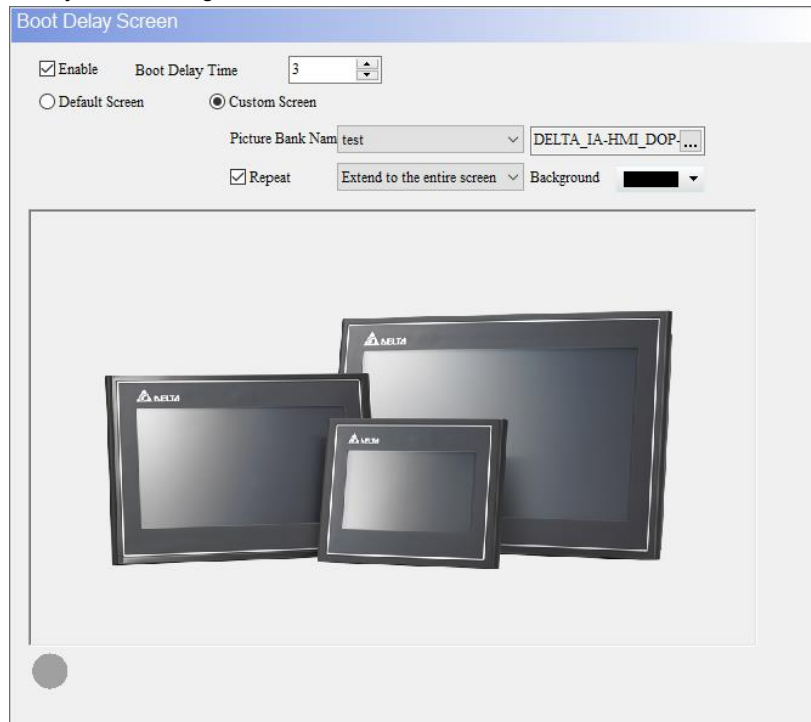
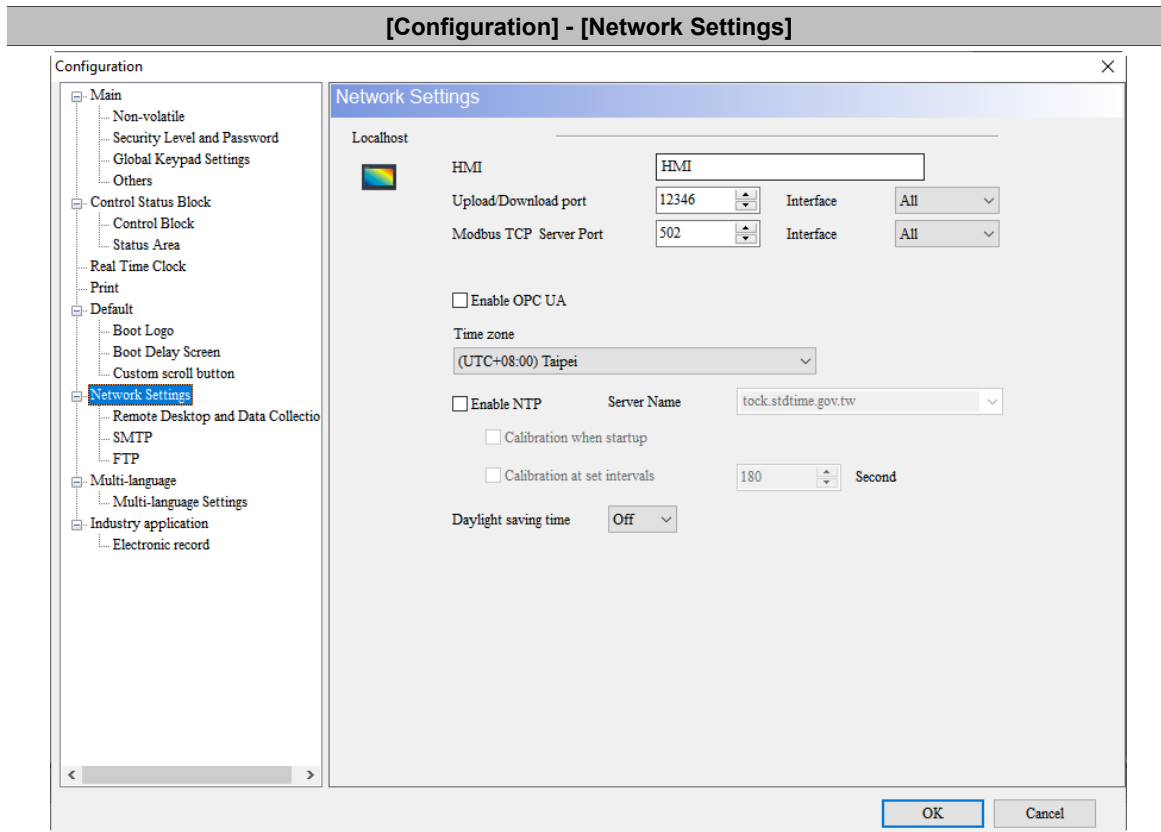
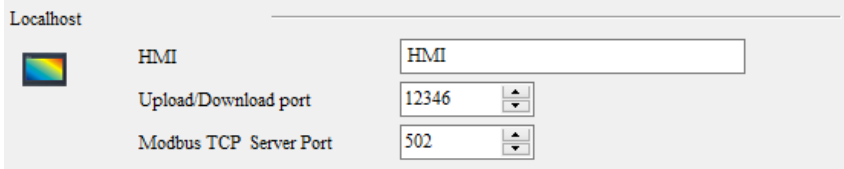



Table 27.1.11 Configuration - Network Settings

27



<p>HMI</p>	<p>You can set the HMI name for identification. If you use remote network monitoring or data sampling, you can easily identify which HMI is being monitored or accessed by the name.</p>
<p>Upload/Download port</p>	<ul style="list-style-type: none"> The communication port is a specified connection address that allows programs on different computers to communicate. There are 65,536 ports, and some specific ports are reserved for specific programs. The default Upload/Download port of the HMI is 12346.
<p>Modbus TCP Server Port</p>	<ul style="list-style-type: none"> The default communication port of Modbus TCP Server is 502. This port must be consistent with that of the Modbus TCP/IP controller.  <ul style="list-style-type: none"> You can also set the port numbers, but the settings for the Modbus TCP Server Port and the Modbus TCP/IP controller port must be the same. If the HMI is communicating with the Modbus software on the PC, change the port here instead of changing the port of the controller by going to [Options] > [Communication Settings] > [Ethernet1] > [Device].
<p>Enable OPCUA</p>	<ul style="list-style-type: none"> This function only supports DOP-112WX, DOP-112MX, DOP-115WX, and DOP-115MX models. When this check box is selected, the HMI is regarded as the server of OPC UA. You need to download the relevant client tool, such as the UAExpert software , at https://www.unified-automation.com/downloads/opc-ua-clients.html.
<p>Time zone</p>	<p>You can choose the time zone according to where the HMI is located.</p>

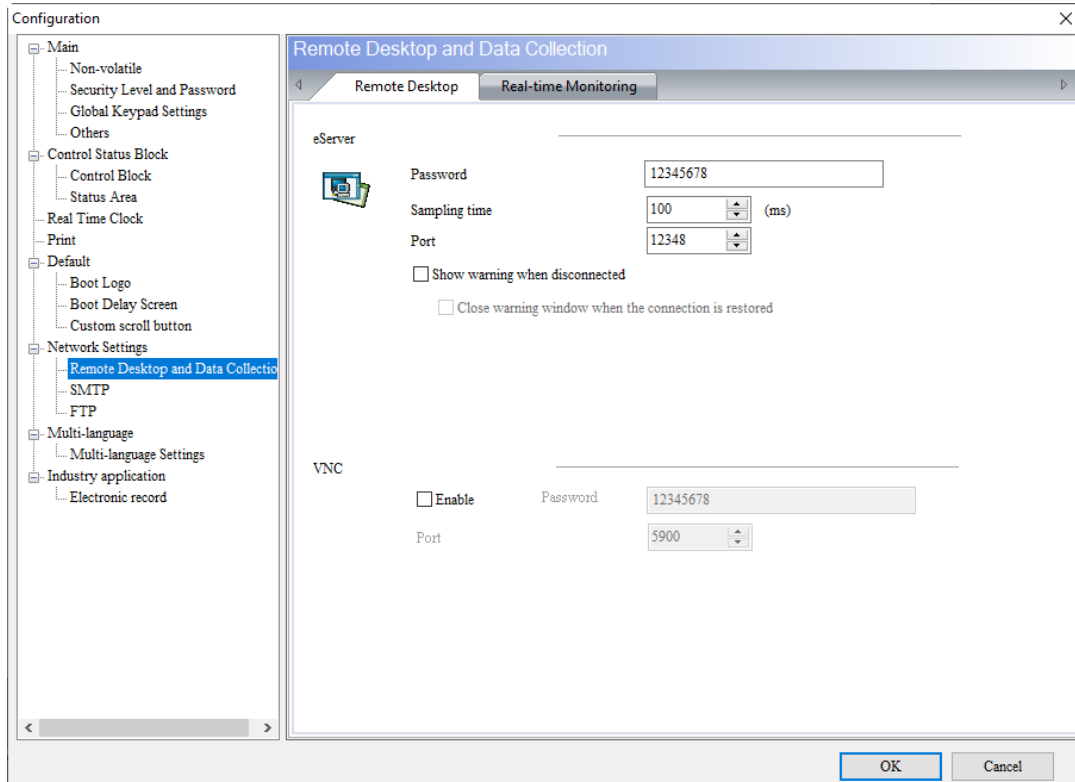
[Configuration] - [Network Settings]	
NTP	<p>Enable NTP</p> <ul style="list-style-type: none"> ■ When you select this check box, the HMI can correct its time according to the network time. ■ If you enable NTP, make sure the HMI network is smooth.
	<p>Server Name</p> <p>You can select the server provided by the software or enter a local NTP server name.</p>
	<p>Calibration when startup</p> <p>When you select this check box, the HMI corrects its time at startup.</p>
	<p>Calibration at set intervals</p> <ul style="list-style-type: none"> ■ After selecting this check box, you need to set the seconds. When the HMI enters the start screen, the time calibration starts after the time you set. ■ The default is 180 seconds (the minimum is 10 seconds and the maximum is 99999 seconds).
Daylight saving time	<ul style="list-style-type: none"> ■ By default, the Daylight saving time is Off. ■ If your country has implemented daylight saving time, you can enable this option. <div style="text-align: center; margin-top: 10px;"> Daylight saving time <div style="border: 1px solid #ccc; padding: 2px; display: inline-block;"> Off ▾ <ul style="list-style-type: none"> <li style="background-color: #0056b3; color: white; padding: 2px;">Off <li style="padding: 2px;">On </div> </div>

Table 27.1.12 Configuration - Remote Desktop and Data Collection

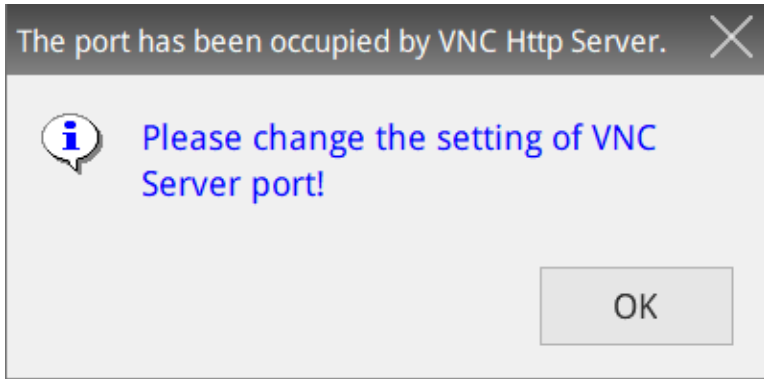
[Configuration] - [Network Settings] - [Remote Desktop and Data Collection]

Remote Desktop

27



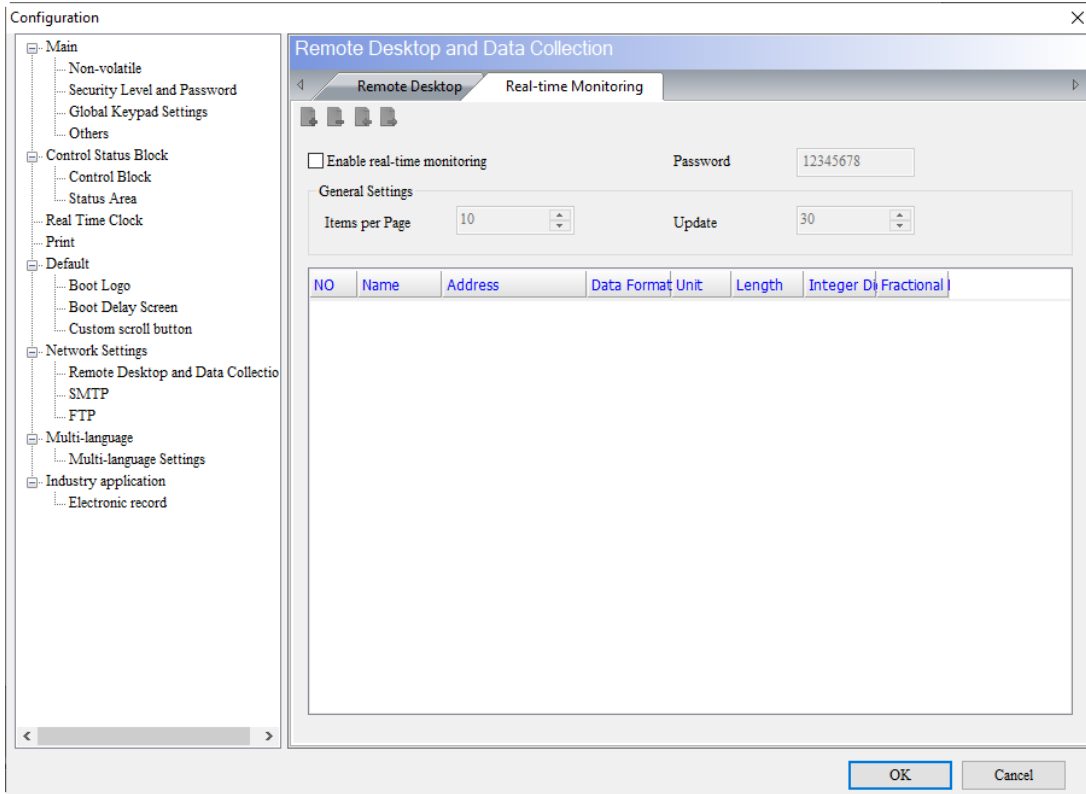
eServer	
<p>Password</p>	<ul style="list-style-type: none"> You can change the password as required. The default password is 12345678. After eServer and eRemote are executed, you need to enter the password to monitor or access the HMI project data.
<p>Sampling time</p>	<p>This is the frequency the eServer and eRemote execute sampling. The range is 100 - 5000 ms, and the default is 100 ms.</p>

[Configuration] - [Network Settings] - [Remote Desktop and Data Collection]	
eServer	
Port	The connection port of eServer and eRemote is set to 12348. This port is different from the HMI Upload/Download Port; the communication ports are different for different programs.
Show warning when disconnected	<ul style="list-style-type: none"> ■ Select this check box to enable this function. ■ When the HMI and eServer or eRemote are disconnected, the HMI will display the warning message of disconnection.
Close warning window when the connection is restored	<ul style="list-style-type: none"> ■ Select the Close warning window when the connection is restored check box to enable this function. ■ If this check box is selected, the warning window continues to appear until the connection of HMI and eServer or eRemote is restored. ■ If this check box is not selected, the warning window for disconnection will only appear once.
VNC	
<ul style="list-style-type: none"> ■ VNC (Virtual Network Computing) is a software that can remotely monitor and operate the HMI. This software sends the keyboard and mouse actions and real-time screens through the network. ■ To operate VNC through the web browser, the browser must support Java installation, otherwise the web page cannot be opened. ■ JAVA versions of 1.7.0_45 and below are recommended. 	
Enable	Select this check box to remotely monitor and operate the HMI by VNC.
Password	You can change the password as required. The default password is 12345678.
Port	<ul style="list-style-type: none"> ■ The default port is 5900. If you set the software connection port to 5902, you need to change the Port to 5902 as well when connecting with the VNC Viewer. ■ Do not set the software connection port to 5800. If the port is set to 5800, the following message will appear to remind you to change the connection port after you download the screen to the HMI. <div style="text-align: center; margin: 10px 0;">  </div> <ul style="list-style-type: none"> ■ With the VNC Viewer web operation, all you need to do is enter the HMI IP address in the browser, set the port to 5800, and then you can enable the connection. If the default 5900 is not available for the software connection, enter 5800 for the connection port when operating with the browser. For example, http://192.168.123.148:5800.

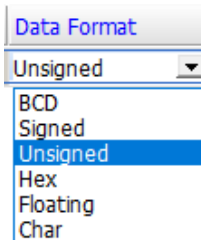
[Configuration] - [Network Settings] - [Remote Desktop and Data Collection]

Real-time Monitoring

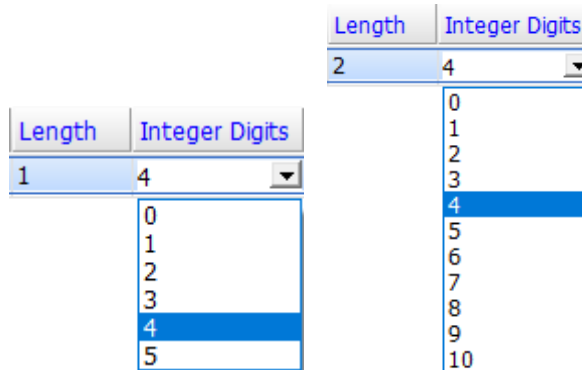
27



- Network Real-time Monitoring allows you to write values from the web page to the HMI; or when you write values to the HMI, you can monitor the values from the web page.
- The Real-time Monitoring interface provides multiple data formats. Supported data formats include BCD, Signed Decimal, Unsigned Decimal, Hex, Floating, and Char.



- You can set the Length of each data format to determine whether to read Word or Double Word. When the Length is 1, the integer can be set to up to 5 digits, meaning the data format is Word; when the Length is 2, the integer can be set to up to 10 digits, meaning the data format is Double Word.



- The input address can be in Word or Bit, which supports the internal memory address and the external PLC address.

[Configuration] - [Network Settings] - [Remote Desktop and Data Collection]

- To use Real-time Monitoring, select the **Enable real-time monitoring** check box and set the address in the software. Enter [http://\[HMI IP\]/RemoteMon/](http://[HMI IP]/RemoteMon/) on the browser. For example, <http://192.168.123.50/RemoteMon/>.

Then, you can see the following login screen. Enter the Network App password to log in. The letters R and M in the address should be capitalized, otherwise you cannot connect to the HMI through the web.



Delta HMI Remote Monitoring

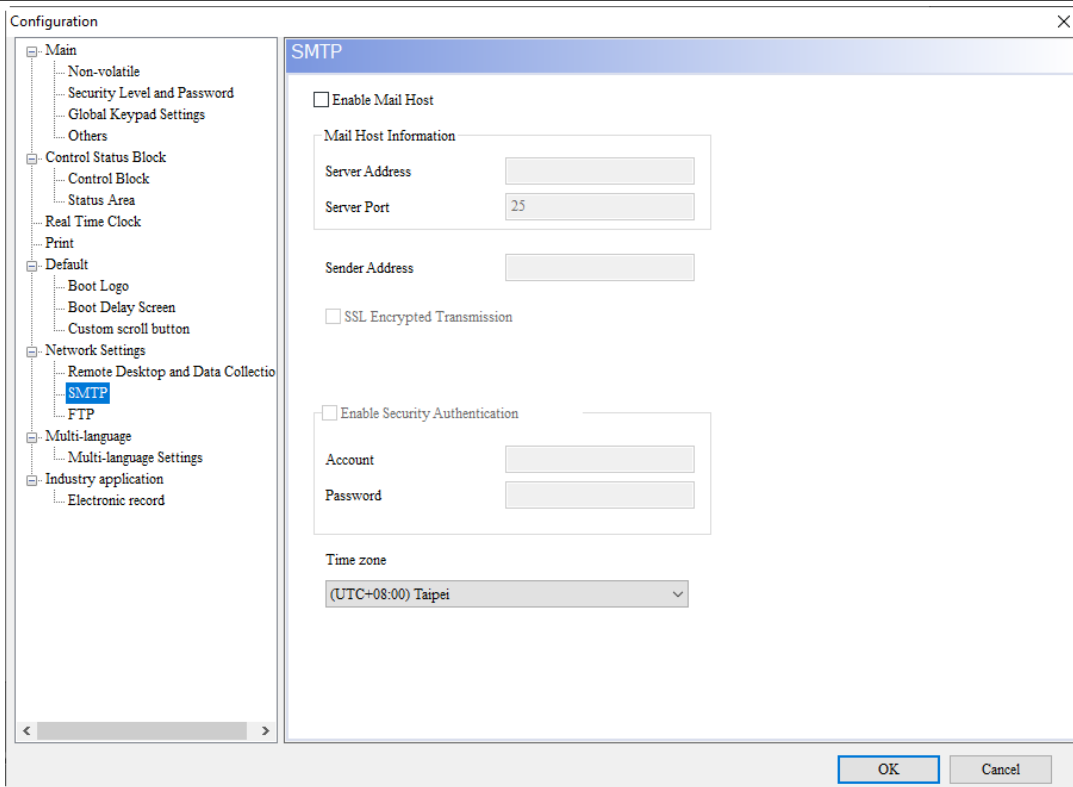
Password:


<p>Enable real-time monitoring</p>	<p>Select this check box and then you can add and delete monitoring addresses.</p>																																								
<p>Add monitoring address </p>	<ul style="list-style-type: none"> Click to add a new monitoring address. <table border="1"> <thead> <tr> <th>NO</th> <th>Name</th> <th>Address</th> <th>Data Format</th> <th>Unit</th> <th>Length</th> <th>Integer Digits</th> <th>Fractional</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td>None</td> <td>Unsigned</td> <td>Word</td> <td>2</td> <td>4</td> <td>0</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Users can name the address. The name length can be up to 30 characters. <table border="1"> <thead> <tr> <th>NO</th> <th>Name</th> <th>Address</th> <th>Data Format</th> <th>Unit</th> <th>Length</th> <th>Integer Digits</th> <th>Fractional</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Delta</td> <td>\$100</td> <td>Unsigned</td> <td>Word</td> <td>2</td> <td>10</td> <td>0</td> </tr> <tr> <td>2</td> <td>HMI</td> <td>{Link2}1@D100</td> <td>Unsigned</td> <td>Word</td> <td>1</td> <td>5</td> <td>0</td> </tr> </tbody> </table>	NO	Name	Address	Data Format	Unit	Length	Integer Digits	Fractional	1		None	Unsigned	Word	2	4	0	NO	Name	Address	Data Format	Unit	Length	Integer Digits	Fractional	1	Delta	\$100	Unsigned	Word	2	10	0	2	HMI	{Link2}1@D100	Unsigned	Word	1	5	0
NO	Name	Address	Data Format	Unit	Length	Integer Digits	Fractional																																		
1		None	Unsigned	Word	2	4	0																																		
NO	Name	Address	Data Format	Unit	Length	Integer Digits	Fractional																																		
1	Delta	\$100	Unsigned	Word	2	10	0																																		
2	HMI	{Link2}1@D100	Unsigned	Word	1	5	0																																		
<p>Delete monitoring address </p>	<p>Select the number of the monitoring address to be deleted, and then click to delete it.</p>																																								
<p>Import CSV content </p>	<p>After making changes to the exported CSV file content, click to import the monitoring address parameters.</p>																																								
<p>Export CSV content </p>	<p>Export the monitoring address content as a CSV file.</p> <table border="1"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> <th>G</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Define Nar</td> <td>Address</td> <td>Memory Fc</td> <td>Type</td> <td>Read Coun</td> <td>Integer</td> <td>Fraction</td> </tr> <tr> <td>2</td> <td>台達</td> <td>\$100</td> <td>Unsigned</td> <td>Word</td> <td>1</td> <td>5</td> <td>0</td> </tr> <tr> <td>3</td> <td>Delta</td> <td>{Link2}1@</td> <td>Unsigned</td> <td>Word</td> <td>1</td> <td>5</td> <td>0</td> </tr> </tbody> </table>		A	B	C	D	E	F	G	1	Define Nar	Address	Memory Fc	Type	Read Coun	Integer	Fraction	2	台達	\$100	Unsigned	Word	1	5	0	3	Delta	{Link2}1@	Unsigned	Word	1	5	0								
	A	B	C	D	E	F	G																																		
1	Define Nar	Address	Memory Fc	Type	Read Coun	Integer	Fraction																																		
2	台達	\$100	Unsigned	Word	1	5	0																																		
3	Delta	{Link2}1@	Unsigned	Word	1	5	0																																		
<p>Password</p>	<ul style="list-style-type: none"> The default password is 12345678. When you enter the connection address on the web page, it requires you to enter this password. 																																								
<p>Items per Page</p>	<ul style="list-style-type: none"> You can set the number of monitoring addresses to display per page. The default is 10 addresses (the minimum is 1 address and the maximum is 20 addresses). 																																								
<p>Update (s)</p>	<p>The update frequency of the screen after the values are changed. The default is 30 seconds (the minimum is 1 second and the maximum is 30 seconds).</p>																																								


Table 27.1.13 Configuration - SMTP

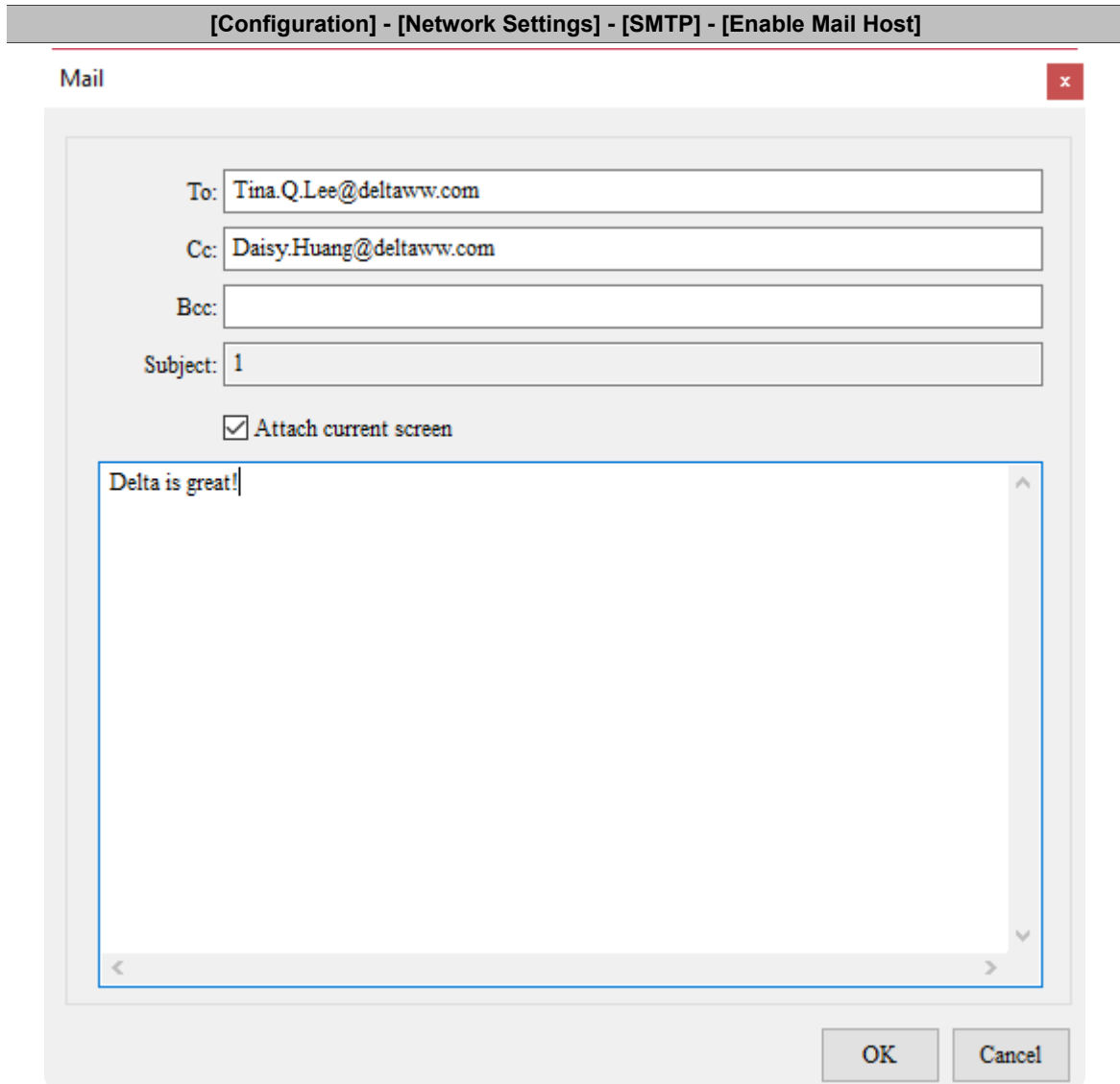
[Configuration] - [Network Settings] - [SMTP]

27



- SMTP is short for Simple Mail Transfer Protocol.
This server is for sending messages. SMTP is a set of rules for sending mails from a source address to a destination address, and it controls how the message is transferred.
- DOPSoft provides the SMTP function to notify you with an e-mail when an alarm occurs.
- After setting the SMTP parameters, you must also go to [Options] > [Alarm Settings] and click the  button in the Mail column to fill in the recipient email and other alarm information.

No.	Message Content	Category	Trigger Condition	Monitor Address	Text Color	Alarm Screen	Mail
1*	1	0	On	None	RGB(0, 0, 0)	None	



27

To enable SMTP, select the **Enable Mail Host** check box first, and then you can set the server address, server port, and security authentication of the account and password.

<p>Server Address</p>	<p>This address is the Mail Server IP created by the user. Set up the Mail Server environment or search for free mail server on the Internet before using SMTP.</p> <p><input type="checkbox"/> Enable Mail Host</p> <p>Mail Host Information</p> <p>Server Address <input type="text"/></p> <p>Server Port <input type="text" value="25"/></p>
<p>Server Port</p>	<p>The default server port is 25 which is the general SMTP communication port.</p>
<p>Sender Address</p>	<p>Enter the sender's email address.</p>

27

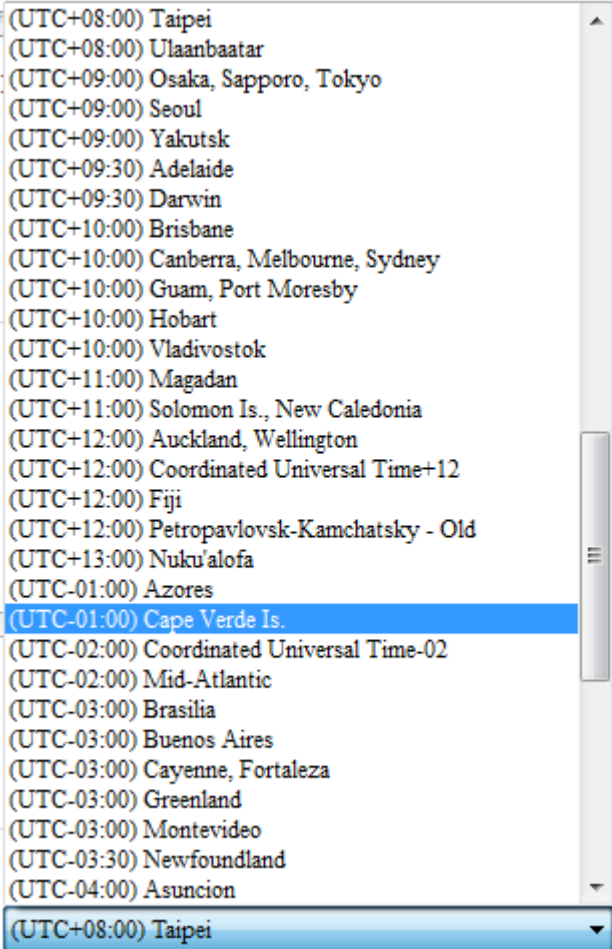
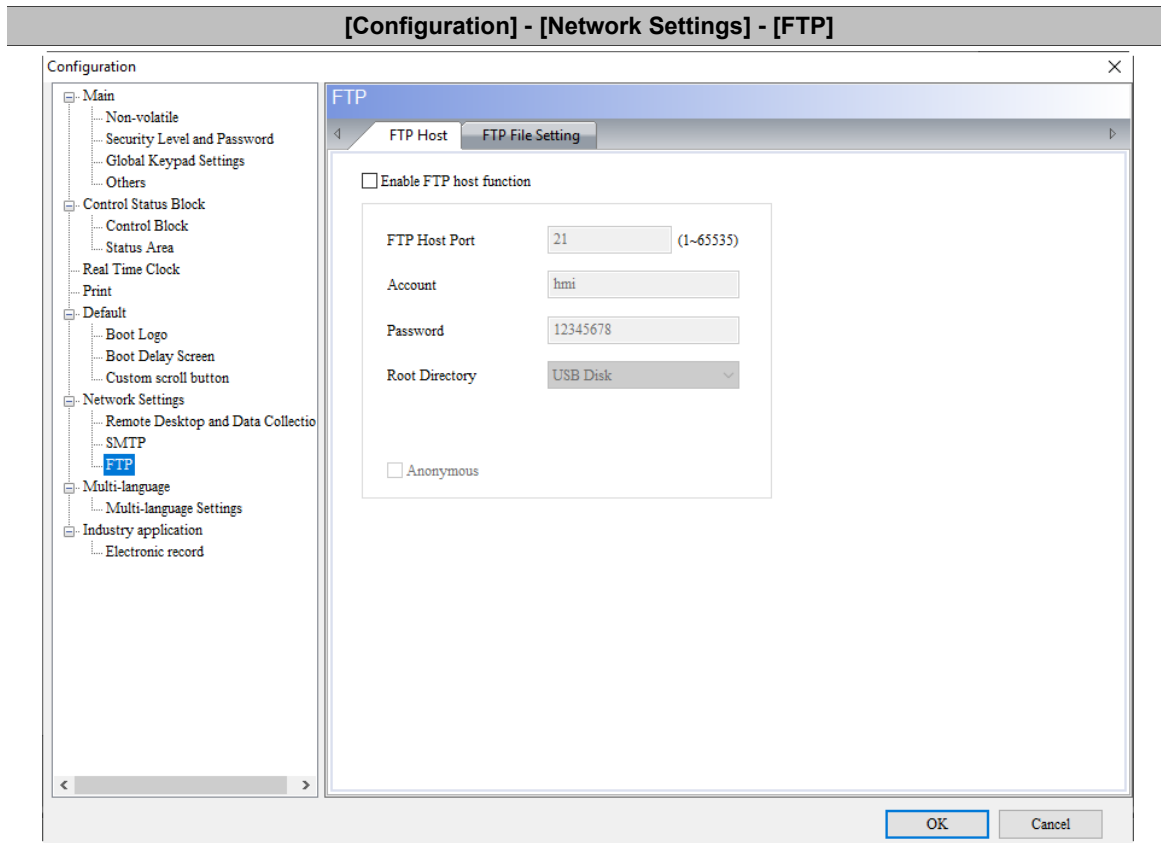
[Configuration] - [Network Settings] - [SMTP] - [Enable Mail Host]	
SSL Encrypted Transmission	<ul style="list-style-type: none"> ■ SSL is short for Secure Sockets Layer which provides secure transmission over the Internet. SSL was first proposed by Netscape with the goal of ensuring the confidentiality and integrity of the communication between two applications, as well as verifying the identity of the server. ■ To use SSL encryption, the e-mail program you use must also support this feature. ■ Gmail itself also requires SSL encryption. To send a message using Gmail, you need to make the following settings. <ol style="list-style-type: none"> 1. Sign in to your Gmail account, and then click Google account. 2. Select [Sign-in & security]. 3. Go to the bottom of the page and enable [Allow less secure apps]. ■ After finishing the preceding settings, you can use Gmail to receive alarm messages.
Enable Security Authentication	<ul style="list-style-type: none"> ■ Before enabling the security authentication function, you must select the Enable Mail Host check box first to set the account and password. ■ If you have set the authentication of the account and password when setting up the SMTP server, you need to select this check box.
Account	<ul style="list-style-type: none"> ■ The account and password are based on the account and password required by the SMTP server. When you set up the SMTP Mail Server, you must first enter a set of account and password if you selected the Enable Security Authentication check box. This set of account and password is used to check whether the recipient is a legitimate backend email user. This avoids unattended emails taking up spaces in the system and creating potential security issues. ■ Note that the format of the account will be different because of the different formats required by each SMTP Mail Server. Contact your MIS to inquire about the guidelines.
Password	
Time zone	<p>The HMI provides a time zone feature that allows you to select the local time zone so that the HMI does not have time differences between places and the time it sends the alarm message is also more precise.</p> 

Table 27.1.14 Configuration - FTP



27

- The FTP Server function allows you to download the alarms, history data, recipes, and operation logs saved in the USB Disk or SD Card through the Internet to read on the PC; you can also upload the files in the PC to the USB Disk or SD Card.

FTP rules	Description	
Supported HMI	Net-based HMI	
Supported connections	File transfer software	
	Windows Explorer	
	DOS Command Line	
Connection limit	Allows 3 FTP clients to connect at the same time	
	Automatically disconnects when the idle time is over 90 seconds	
Login method	Anonymous login	Unable to add directories
		Unable to upload files
		Unable to download files
		Unable to delete files
		Can change file names
	Account login	Can add directories
		Can upload files
		Can download files
		Can delete files
Can change file names		

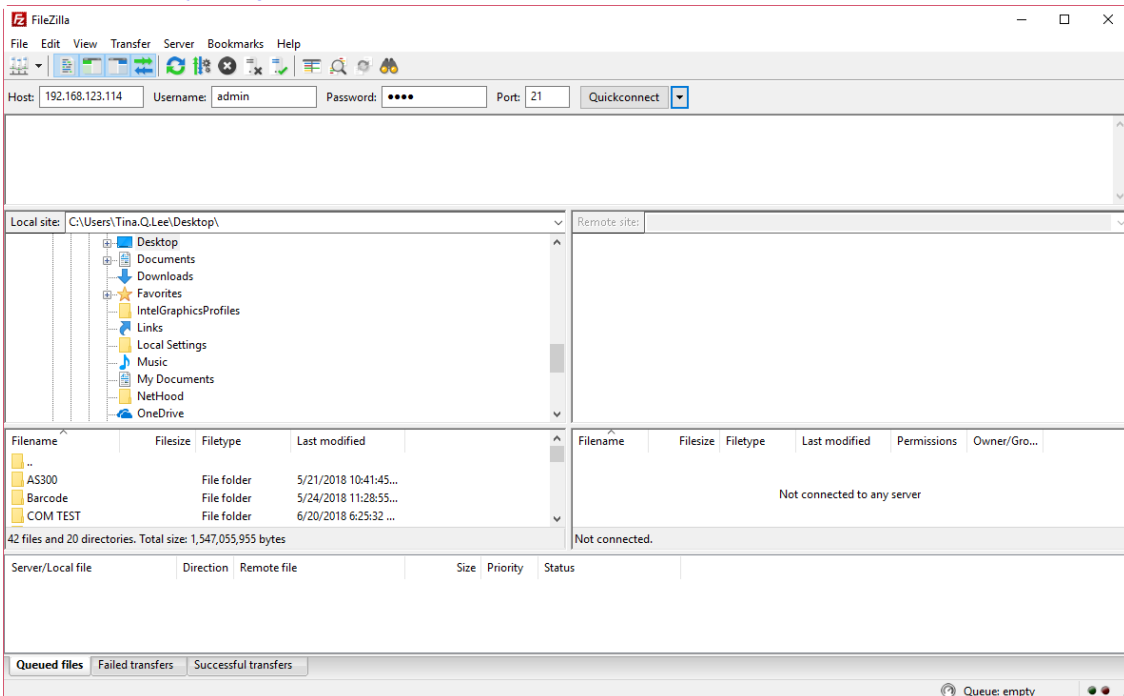
27

[Configuration] - [Network Settings] - [FTP]	
FTP rules	Description
File transfer rules	Unlimited traffic
	Supports resume download
	Unlimited transfer file size
	Maximum file name length is 260 bytes
	Can change file names
	Supports Chinese file names
	Encryption is not supported
	Supports active mode / passive mode connection
	When the FTP is transferring files, you can access the system directory

■ The FTP supports three connection methods. Refer to the following for more information.

1. File transfer software

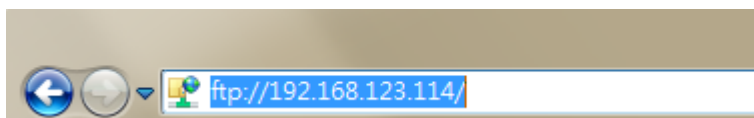
You need to use an FTP client software to upload or download files from the FTP Server provided by the HMI, or use the Windows Explorer or DOS Command line to connect to the FTP Server. The file transfer software in this example is FileZilla. This is a free software which you can download from: <https://filezilla-project.org/download.php>. Open FileZilla after installation.



Name	Action description
Host	Enter the HMI IP address. The IP address is 192.168.123.114 in this example.
Username	Enter the same username as the software setting, which is "admin".
Password	Enter the same password as the software setting, which is "1234".
Port	Enter the same port as the software setting, which is "21".
Quickconnect	Before executing this button, make sure the preceding settings are done.

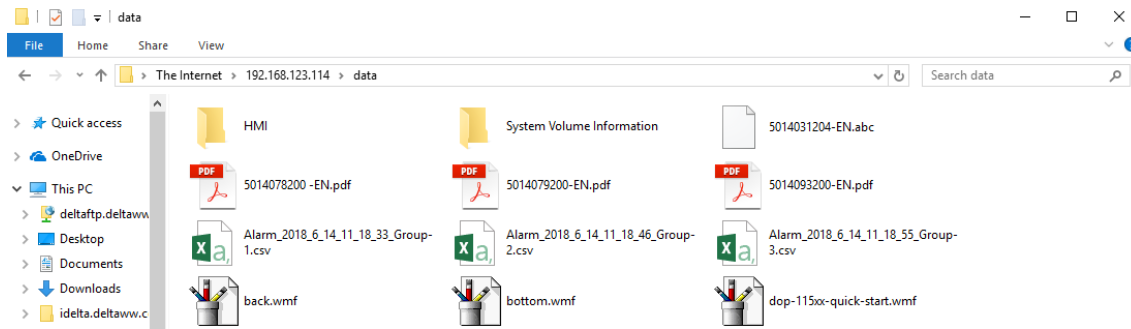
2. Windows Explorer

Open Windows Explorer, enter <ftp://192.168.123.114/>, and then enter the account and password to log in to the FTP.



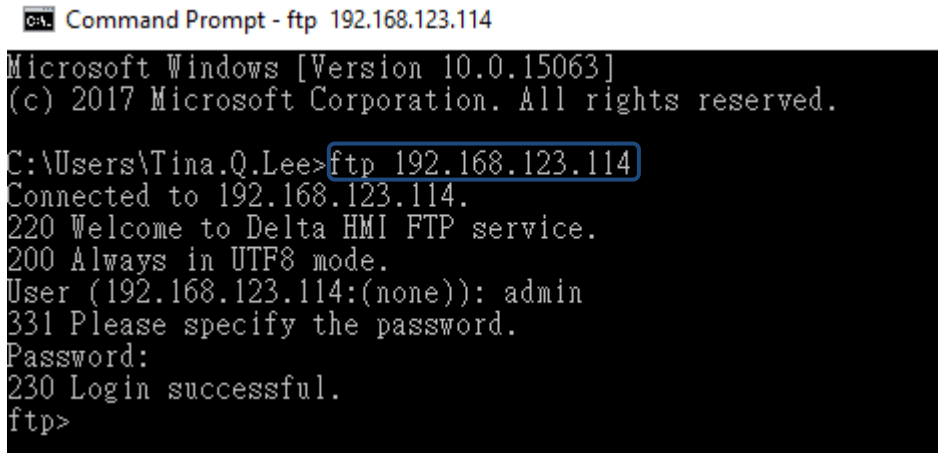
[Configuration] - [Network Settings] - [FTP]

Once you are logged in, you can see all the files in the USB Disk.

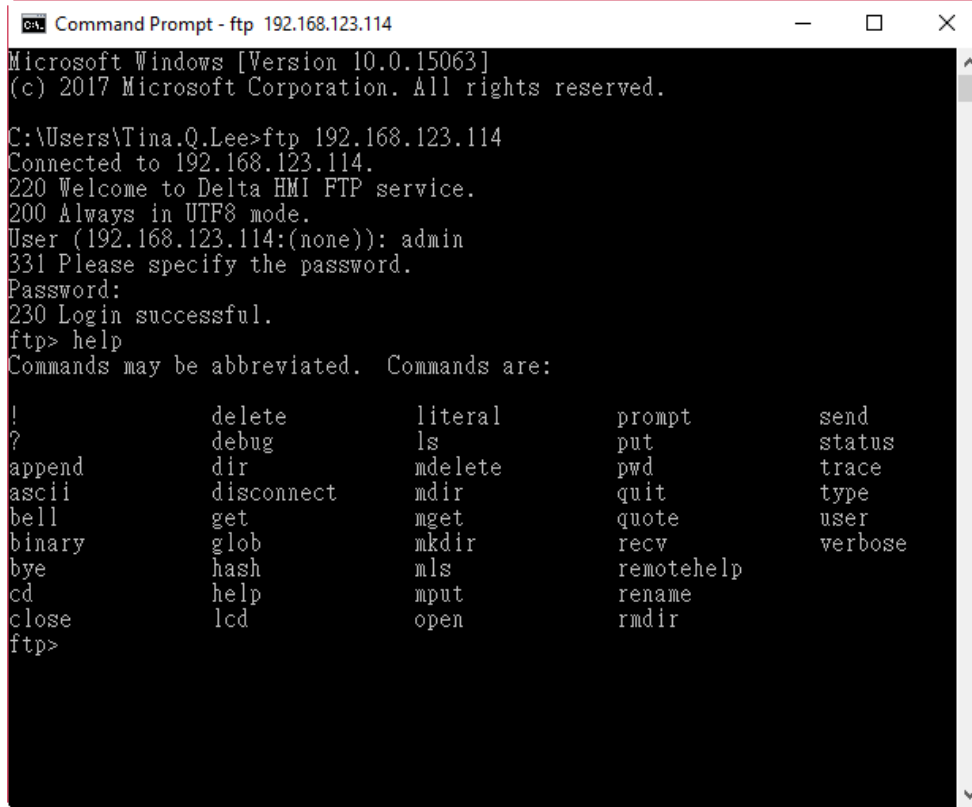


3. DOS Command Line

Enter [ftp 192.168.123.114](http://192.168.123.114) in the command prompt, and then enter the account (admin) and password (1234) to connect to the FTP.



In the ftp command, you can enter "help" to see the supported commands.



[Configuration] - [Network Settings] - [FTP]

Enter “dir” command to see the list of all the files currently in the USB Disk.

27

```

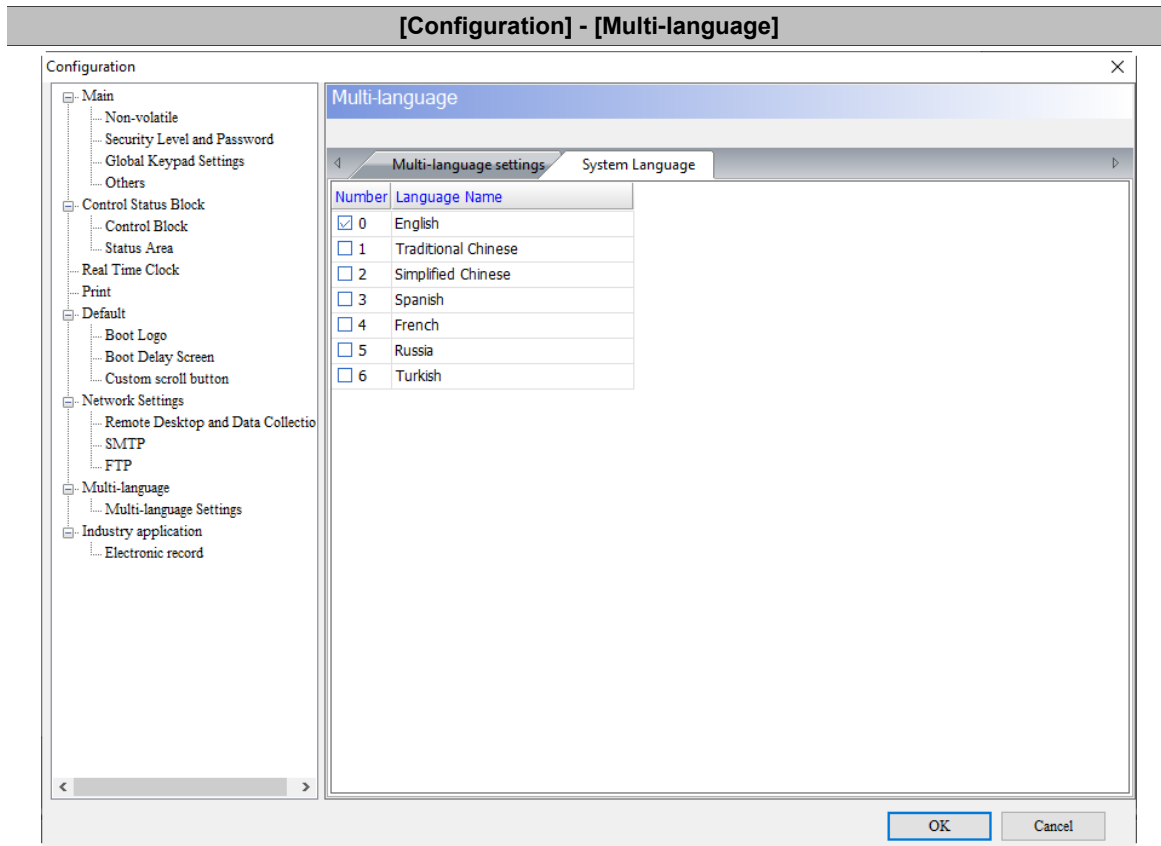
Command Prompt - ftp 192.168.123.114
ftp> help
Commands may be abbreviated.  Commands are:
!                delete          literal          prompt          send
?                debug           ls              put             status
append          dir             mdelete        pwd            trace
ascii           disconnect     mdir           quit           type
bell            get            mget           quote          user
binary          glob           mkdir          recv           verbose
bye             hash           mls            remotehelp
cd              help           mput           rename
close           lcd            open           rmdir
ftp> dir
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
-rwxrwxrwx  1 0      0      481517 Jan 09  2018 5014031204-EN.abc
-rwxrwxrwx  1 0      0      511544 May 28  2018 5014078200 -EN.pdf
-rwxrwxrwx  1 0      0      550702 Mar 15  2018 5014079200-EN.pdf
-rwxrwxrwx  1 0      0      317449 Apr 09  2018 5014093200-EN.pdf
-rwxrwxrwx  1 0      0          1728 Jun 14  2018 Alarm_2018_6_14_11_18_33_Group-1.csv
-rwxrwxrwx  1 0      0          1728 Jun 14  2018 Alarm_2018_6_14_11_18_46_Group-2.csv
-rwxrwxrwx  1 0      0          1728 Jun 14  2018 Alarm_2018_6_14_11_18_55_Group-3.csv
drwxrwxrwx  3 0      0          4096 May 23  2018 HMI
drwxrwxrwx  2 0      0          4096 May 23  2018 System Volume Information
-rwxrwxrwx  1 0      0      80922 May 31  2018 back.wmf
-rwxrwxrwx  1 0      0      29074 May 31  2018 bottom.wmf
-rwxrwxrwx  1 0      0     123314 May 31  2018 dop-115xx-quick-start.wmf
226 Directory send OK.
ftp: 947 bytes received in 0.03Seconds 33.82Kbytes/sec.
ftp>
    
```

If you want to download files from the USB Disk or SD Card, enter “get” command. If you want to upload files to the USB Disk or SD Card from the PC, enter “put” command.

The following introduces the property settings for the software interface.

Enable FTP host function	Select this check box to enable the FTP function.
FTP Host Port	The FTP Host Port default is 21.
Account	You can enter the account name you want to use.
Password	You can enter the password you want to use.
Root Directory	The root directory is the location where the HMI files are stored. The default is USB Disk. You can also select SD Card as the storage location.
Anonymous	<ul style="list-style-type: none"> ■ If this check box is selected, you can access the FTP without logging in with an account. ■ If you access the FTP anonymously, you cannot upload / download files, delete files, or add directories.

Table 27.1.15 Configuration - Multi-language



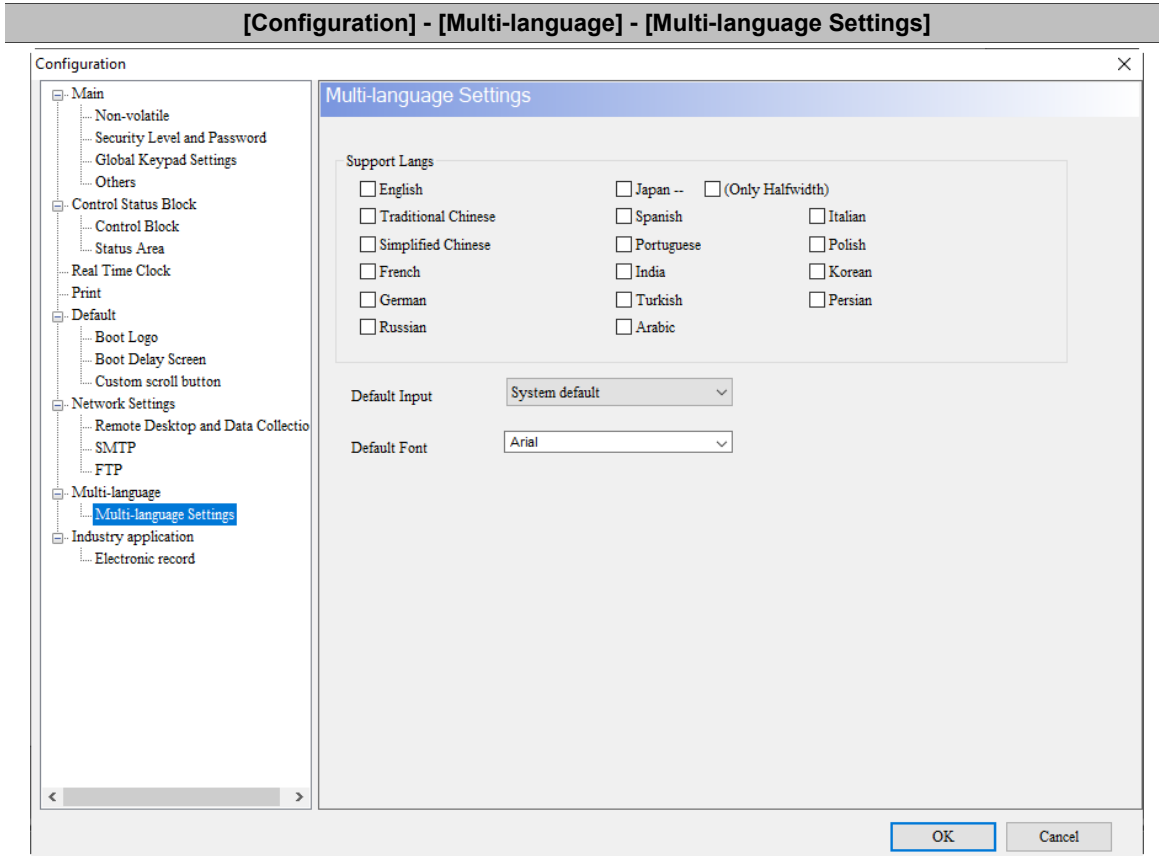
27

- The system language refers to the language of the system directory screen, the error message, and the warning message displayed on the HMI.
- You can set the system language to English, French, Russian, Simplified Chinese, Spanish, Traditional Chinese, and Turkish.

Table 27.1.16 Configuration - Multi-language Settings

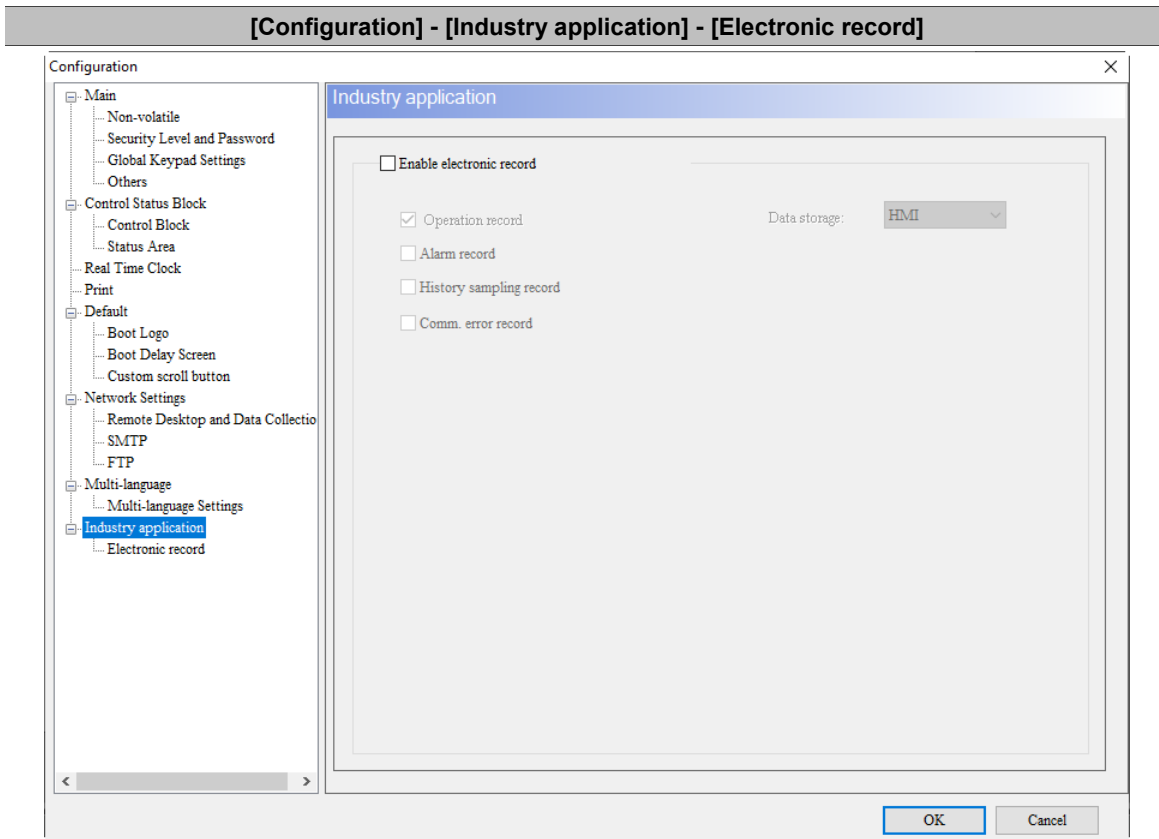
[Configuration] - [Multi-language] - [Multi-language Settings]

27



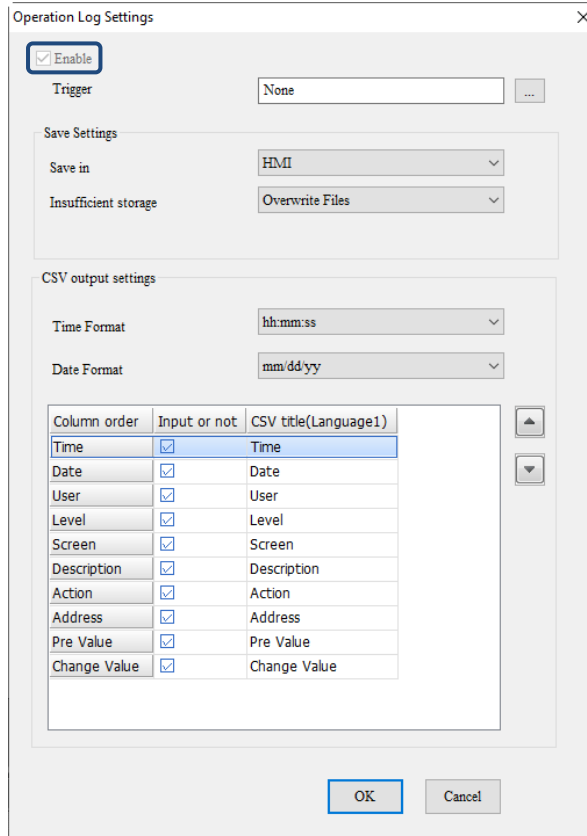
- The Multi-language Input function supports up to 16 languages and you can select the languages to edit the display texts.
- Go to [Options] > [Configuration] > [Multi-language Settings] to select the preferred languages. Then, you can use the Multi-language Input element to enter contents in multiple languages.
- Multi-language Input function does not support online and offline simulations.
- Refer to Chapter 13 for instructions on the Multi-language Input elements.

Table 27.1.17 Configuration - Industry application



27

- When the **Enable electronic record** check box is selected, the Operation Log function will be forcibly enabled.



27

Operation record

[Configuration] - [Industry application] - [Electronic record]

- It records all operations of the HMI, including value changes and user levels.
- Add Checksum and the header data to the Operation Log data.

No	Time	Date	User	Level	Screen	Description Action	Address	Pre Value	Change Va	Checksum
1	13:09:09	07/12/2017	3 inhk2xA		3 Screen_2	交替型_OCSet Val	\$60.00	0		1Mx7XkA
2	13:09:13	07/12/2017			3 Screen_2	換畫面_01Goto Scrn		2		1PE8P1g
3	13:09:14	07/12/2017			3 Screen_1	交替型_OCSet Val	\$100.00	1		0Yvt/eg
4	13:09:14	07/12/2017			3 Screen_1	交替型_OCSet Val	\$100.10	1		0TyqGVg
5	13:09:14	07/12/2017			3 Screen_1	交替型_OCSet Val	\$100.20	1		0Ga9n/w
6	13:09:15	07/12/2017			3 Screen_1	交替型_OCSet Val	\$100.30	1		04EC1WQ
7	13:09:15	07/12/2017			3 Screen_1	交替型_OCSet Val	\$100.40	1		02nL6w
8	13:09:16	07/12/2017			3 Screen_1	交替型_OCSet Val	\$100.40	0		1Pax4A
9	13:09:16	07/12/2017			3 Screen_1	交替型_OCSet Val	\$100.30	0		1SagoiA
10	13:09:16	07/12/2017			3 Screen_1	交替型_OCSet Val	\$100.20	0		1LUwZg
11	13:09:17	07/12/2017			3 Screen_1	交替型_OCSet Val	\$100.10	0		1CLVtg
12	13:09:17	07/12/2017			3 Screen_1	交替型_OCSet Val	\$100.00	0		1B88iBA
13	13:09:19	07/12/2017			3 Screen_1	換畫面_01Goto Scrn		1		2ocq3Jg
14	13:09:24	07/12/2017			3 Screen_2	交替型_OCSet Val	\$60.00	0		1vTTRMA
15	13:09:25	07/12/2017			3 Screen_2	換畫面_01Goto Scrn		2		1un5NqQ
16	13:09:27	07/12/2017			3 Screen_1	交替型_01Set Val	\$2,000.00	0		1cKKzaQ
17	13:10:10	07/12/2017			3 Screen_1	設定密碼Set Passwd				1Bwi8JA
18	13:11:10	07/12/2017			8	Auto Logout		8		3Y5DRbQ
19	13:25:02	07/12/2017			3 Screen_1	數值輸入_Set Val	\$1,000	560	580	1KqE34g
20	13:25:05	07/12/2017			3 Screen_1	數值輸入_Set Val	\$1,001	200	300	16BeUQ
21	13:25:08	07/12/2017			3 Screen_1	數值輸入_Set Val	\$1,002	106	900	1sgwOA
22	13:25:09	07/12/2017			3 Screen_1	交替型_01Set Val	\$2,000.00	0		1JKdhJg
23	13:25:10	07/12/2017			3 Screen_1	換畫面_01Goto Scrn		1		2Likq8A
24	13:25:14	07/12/2017			3 Screen_2	換畫面_01Goto Scrn		2		1Tt+2Q
25	13:25:21	07/12/2017			3 Screen_1	移除儲存Rm Extdisk			USB Disk	1tXELg

Alarm record

- If you select the **Alarm record** check box, the Export CSV File function will be forcibly set to "Yes".

- In response to Electronic Signature, the name of the alarm file will be created according to the year, month, day, hour, minute, and second when the file is exported.

Alarm_Date-2017-07-12_Time-10-59-05.csv

- Each alarm data is added to Checksum.

Group No.	Trigger Time	ACK Time	Recovery Time	Message	Checksum
0	2017/7/12 10:59:05			alarm 1	VSFF0g
0	2017/7/12 10:59:06			alarm 2	1jg8jJQ
0	2017/7/12 10:59:06			alarm 3	1ChJmRw
0	2017/7/12 10:59:07			alarm 4	1MmyEtg
0	2017/7/12 10:59:07			alarm 5	1OhOE0A

- The timing of generating this file will be based on the maximum number of records that can be stored according to the Alarm Settings.

[Configuration] - [Industry application] - [Electronic record]

- If you select the **History sampling record** check box, the non-volatile memory of history data will be forcibly set to USB Disk or SD Card, and the Export CSV File function will be forcibly set to Yes. The file storage method will also be forcibly set to Save As Multi.

27

History sampling record

- The file name of the history data saved with the Save As Multi function is created according to the year, month, day, hour, minute, and second when the data is saved. Checksum and the header data will be added.

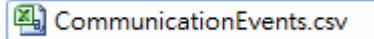
H0001_Date-2017-07-12_Time-10-59-22.csv

	A	B	C	D	E	F
1	HISTORY	6 mlfVg				
2						
3						
4						
5	Time	Date	Data 0	Data 1	Data 2	Checksum
6	10:58:53	07/12/2017	0	0	0	slM7WQ
7	10:58:53	07/12/2017	0	0	0	q0gKGA
8	10:58:53	07/12/2017	0	0	0	LNAW1w
9	10:58:53	07/12/2017	0	0	0	Ncsnlq
10	10:58:53	07/12/2017	0	0	0	GHqrLw
11	10:58:53	07/12/2017	0	0	0	AWGAbg
12	10:58:53	07/12/2017	0	0	0	KkzlrQ
13	10:58:54	07/12/2017	0	0	0	Fbq98A
14	10:58:54	07/12/2017	0	0	0	WvsrNw
15	10:58:54	07/12/2017	0	0	0	Q+Aadg
16	10:58:54	07/12/2017	0	0	0	aM1JtQ
17	10:58:54	07/12/2017	0	0	0	cdZ49A
18	10:58:54	07/12/2017	0	0	0	9k5kOw
19	10:58:54	07/12/2017	0	0	0	71VVeg
20	10:58:54	07/12/2017	0	0	0	LCIB3Q
21	10:58:54	07/12/2017	0	0	0	NtlwnA
22	10:58:54	07/12/2017	0	0	0	HhQjXw
23	10:58:55	07/12/2017	0	0	0	Tua/AQ
24	10:58:55	07/12/2017	0	0	0	Aacpxg
25	10:58:55	07/12/2017	0	0	0	GLwYhw
26	10:58:55	07/12/2017	0	0	0	M5FLRA
27	10:58:55	07/12/2017	0	0	0	Kop6BQ
28	10:58:55	07/12/2017	0	0	0	rRjmyg
29	10:58:55	07/12/2017	0	0	0	tAlXiw
30	10:58:55	07/12/2017	0	0	0	3XeLpw
31	10:58:55	07/12/2017	0	0	0	xGy65g
32	10:58:56	07/12/2017	0	0	0	NXseBA
33	10:58:56	07/12/2017	0	0	0	LGAyRQ
34	10:58:56	07/12/2017	0	0	0	YyG5gg

27

[Configuration] - [Industry application] - [Electronic record]

- If you select the **Comm. error record** check box, the HMI will automatically store the communication error data in the HMI, USB, or SD. The storage location is HMI\HMI-000\CommEventLog.



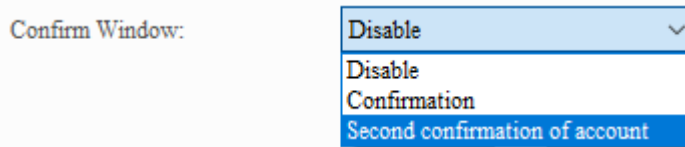
1	Communic	1	13	3	AtyYgg					
2	Date	Time	Protocol (P	Link	Error Type	Station	Address	Error Code	Checksum	
3	2016/5/11	08:41:15	0	1	TCP	1		22	661aHQ	
4	2016/5/11	08:41:18	2		COM Read	1	D1	3	u1Qnig	
5	2016/5/11	08:41:18	0	1	TCP	1		22	YHfAtw	
6	2016/5/11	08:41:23	2		COM Read	1	D1	3	/XbkSg	
7	2016/5/11	08:41:24	0	1	TCP	1		22	VlLL6w	
8	2016/5/11	08:41:29	2		COM Read	1	D1	3	vZP8UQ	
9	2016/5/11	08:41:30	0	1	TCP	1		22	fALDEA	
10	2016/5/11	08:41:35	2		COM Read	1	D1	3	ZDRaDA	
11	2016/5/11	08:41:36	0	1	TCP	1		22	UA/KxQ	
12	2016/5/11	08:41:41	2		COM Read	1	D1	3	wkDWlw	
13	2016/5/11	08:41:42	0	1	TCP	1		22	w7SmWw	
14	2016/5/11	08:41:48	2		COM Read	1	D1	3	o306mA	
15	2016/5/11	08:41:48	0	1	TCP	1		22	4u8Gzg	
16	2016/5/11	08:06:43	2		COM Read	1	D1	3	mT5wDw	
17	2016/5/11	08:06:46	0	1	TCP	1		22	DudfNw	
18	2016/5/11	08:06:49	2		COM Read	1	D1	3	siC6vQ	
19	2016/5/11	08:06:52	0	1	TCP	1		22	ZJAdtQ	
20	2016/5/11	08:06:55	2		COM Read	1	D1	3	O6TLkA	
21	2016/5/11	08:06:58	0	1	TCP	1		22	yf0/QA	
22	2016/5/11	08:07:01	2		COM Read	1	D1	3	j39ivg	
23	2016/5/11	08:07:04	0	1	TCP	1		22	Qvez5Q	
24	2016/5/11	08:07:07	2		COM Read	1	D1	3	AuGaEw	
25	2016/5/11	08:07:10	0	1	TCP	1		22	4Fl7bw	
26	2016/5/11	08:07:13	2		COM Read	1	D1	3	KTF8QA	
27	2016/5/11	08:07:15	0	1	TCP	1		22	BFcZRA	
28	2016/5/11	08:07:20	2		COM Read	1	D1	3	cTrIHw	
29	2016/5/11	08:07:21	0	1	TCP	1		22	69h5CQ	
30	2016/5/11	08:07:26	2		COM Read	1	D1	3	2pt6WQ	
31	2016/5/11	08:07:27	0	1	TCP	1		22	AG2Uqg	
32	2016/5/11	08:07:32	2		COM Read	1	D1	3	8UucCg	

Comm. error record

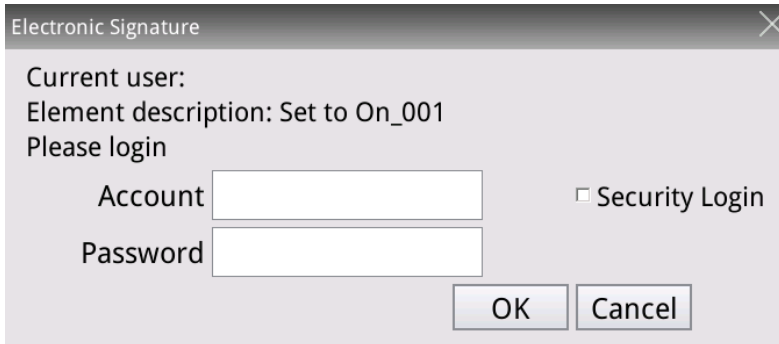
Data storage

Select the storage location of all stored data in the Electronic record, and the options include HMI, USB Disk, and SD.

- The difference between the logs mentioned earlier and normal logs is that the Electronic record function ensures the consistency of the data and guarantees that the data can be correctly output, saved, and viewed at any time. For this reason, all generated log data uses the checksum mechanism and is exported as a CSV file.
- Enabling the Electronic record function will also enable the Second confirmation of account function of the Confirm Window feature.

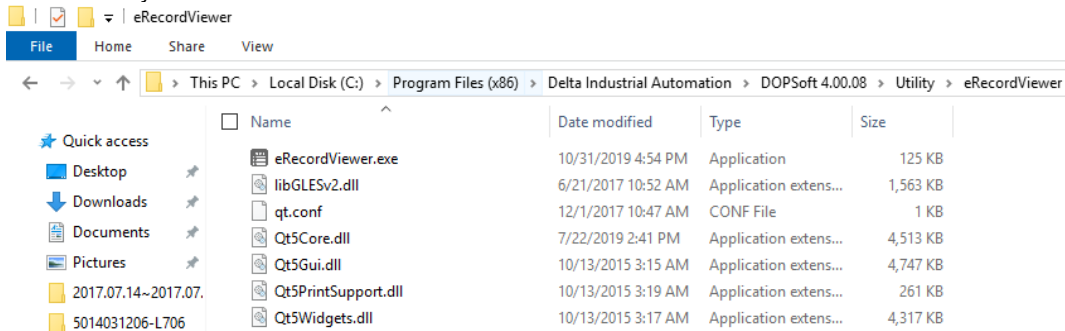


- If selecting the Second confirmation of account function, the user is required to enter the password twice.

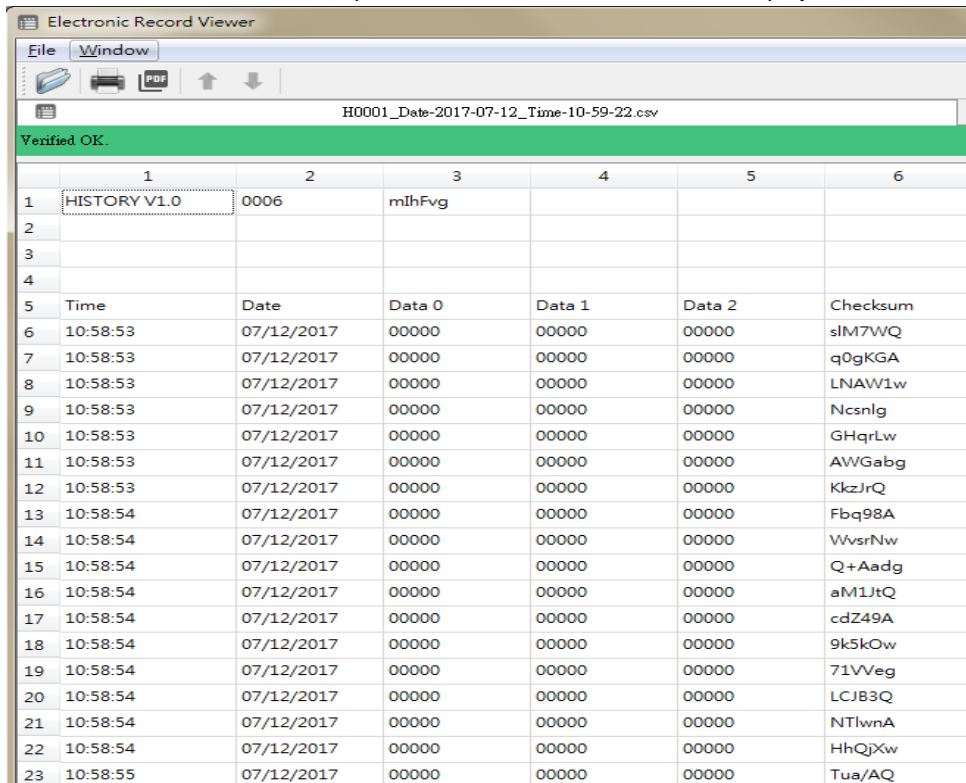




- The files generated by the Electronic Signature can be opened with Excel or with the eRecord Viewer, which is located at: C:\Program Files (x86)\Delta Industrial Automation\DOPSoft 4.00.08\Utility\RecordViewer



- If the loaded data has not been tampered with, the eRecord Viewer will display "Verified OK".



- When the data has been tampered with, for example, if the eRecord Viewer discovered that the Checksum of the data in the 8th row of the file does not match, it will display "Verified fail records: {1}." The number in brackets is the total number of data errors.

[Configuration] - [Industry application] - [Electronic record]

27

Electronic Record Viewer

H0001_Date-2017-07-12_Time-10-59-22.csv.txt

Verified fail records: {1}

	1	2	3	4	5	6
1	HISTORY V1.0	6	mhFvg			
2						
3						
4						
5	Time	Date	Data 0	Data 1	Data 2	Checksum
6	10:58:53	07/12/2017	0	0	0	siM7WQ
7	10:58:53	07/12/2017	0	0	0	q0gKGA
8	10:58:53	07/12/2017	5	0	0	LNAW1w
9	10:58:53	07/12/2017	0	0	0	Ncsnlg
10	10:58:53	07/12/2017	0	0	0	GHqrLw
11	10:58:53	07/12/2017	0	0	0	AWGAbg
12	10:58:53	07/12/2017	0	0	0	KkzJrQ
13	10:58:54	07/12/2017	0	0	0	Fbq98A
14	10:58:54	07/12/2017	0	0	0	VwsrNw
15	10:58:54	07/12/2017	0	0	0	Q+Aadg
16	10:58:54	07/12/2017	0	0	0	aM1JtQ
17	10:58:54	07/12/2017	0	0	0	cdZ49A
18	10:58:54	07/12/2017	0	0	0	9k5kOw
19	10:58:54	07/12/2017	0	0	0	71VVeG
20	10:58:54	07/12/2017	0	0	0	LCJB3Q
21	10:58:54	07/12/2017	0	0	0	NTlwnA
22	10:58:54	07/12/2017	0	0	0	HhQjXw
23	10:58:55	07/12/2017	0	0	0	Tua/AQ

- This tool can also save the data of Electronic record into PDF files and print the data.

	1	2	3	4	5	6	7	8	9
1	Communication Events	1	13	3	AtyYag				
2	Date	Time	Protocol (Port)	Link	Error Type	Station	Address	Error Code	Checksum
3	2016/05/11	08:41:15	0	1	TCP	1		22	661aHQ
4	2016/05/11	08:41:18	2		COM Read	1	D1	3	u1Qnig
5	2016/05/11	08:41:18	0	1	TCP	1		22	YHfAtw
6	2016/05/11	08:41:23	2		COM Read	1	D1	3	/YBkSg
7	2016/05/11	08:41:24	0	1	TCP	1		22	VllL6w
8	2016/05/11	08:41:29	2		COM Read	1	D1	3	vZP8UQ
9	2016/05/11	08:41:30	0	1	TCP	1		22	fALDEA
10	2016/05/11	08:41:35	2		COM Read	1	D1	3	ZDRaDA
11	2016/05/11	08:41:36	0	1	TCP	1		22	UAVKqQ
12	2016/05/11	08:41:41	2		COM Read	1	D1	3	wkDWlw
13	2016/05/11	08:41:42	0	1	TCP	1		22	w75mVw
14	2016/05/11	08:41:48	2		COM Read	1	D1	3	o306mA
15	2016/05/11	08:41:48	0	1	TCP	1		22	4u8Gzg
16	2016/05/11	08:06:43	2		COM Read	1	D1	3	mT5wDw
17	2016/05/11	08:06:46	0	1	TCP	1		22	DudfNw
18	2016/05/11	08:06:49	2		COM Read	1	D1	3	sLc6vQ
19	2016/05/11	08:06:52	0	1	TCP	1		22	ZJAdtQ
20	2016/05/11	08:06:55	2		COM Read	1	D1	3	O6TL3A
21	2016/05/11	08:06:58	0	1	TCP	1		22	yf0/QA
22	2016/05/11	08:07:01	2		COM Read	1	D1	3	j39ivg
23	2016/05/11	08:07:04	0	1	TCP	1		22	QvezSQ
24	2016/05/11	08:07:07	2		COM Read	1	D1	3	AuGaEw
25	2016/05/11	08:07:10	0	1	TCP	1		22	4FF7bw
26	2016/05/11	08:07:13	2		COM Read	1	D1	3	KTf8QA
27	2016/05/11	08:07:15	0	1	TCP	1		22	BfC2RA
28	2016/05/11	08:07:20	2		COM Read	1	D1	3	cTrfHw
29	2016/05/11	08:07:21	0	1	TCP	1		22	69h5CQ
30	2016/05/11	08:07:26	2		COM Read	1	D1	3	2pt6WQ

27.2 Communication Settings

Users can set the related communication parameters of COM1, COM2, COM3, and Ethernet through [Options] > [Communication Settings].

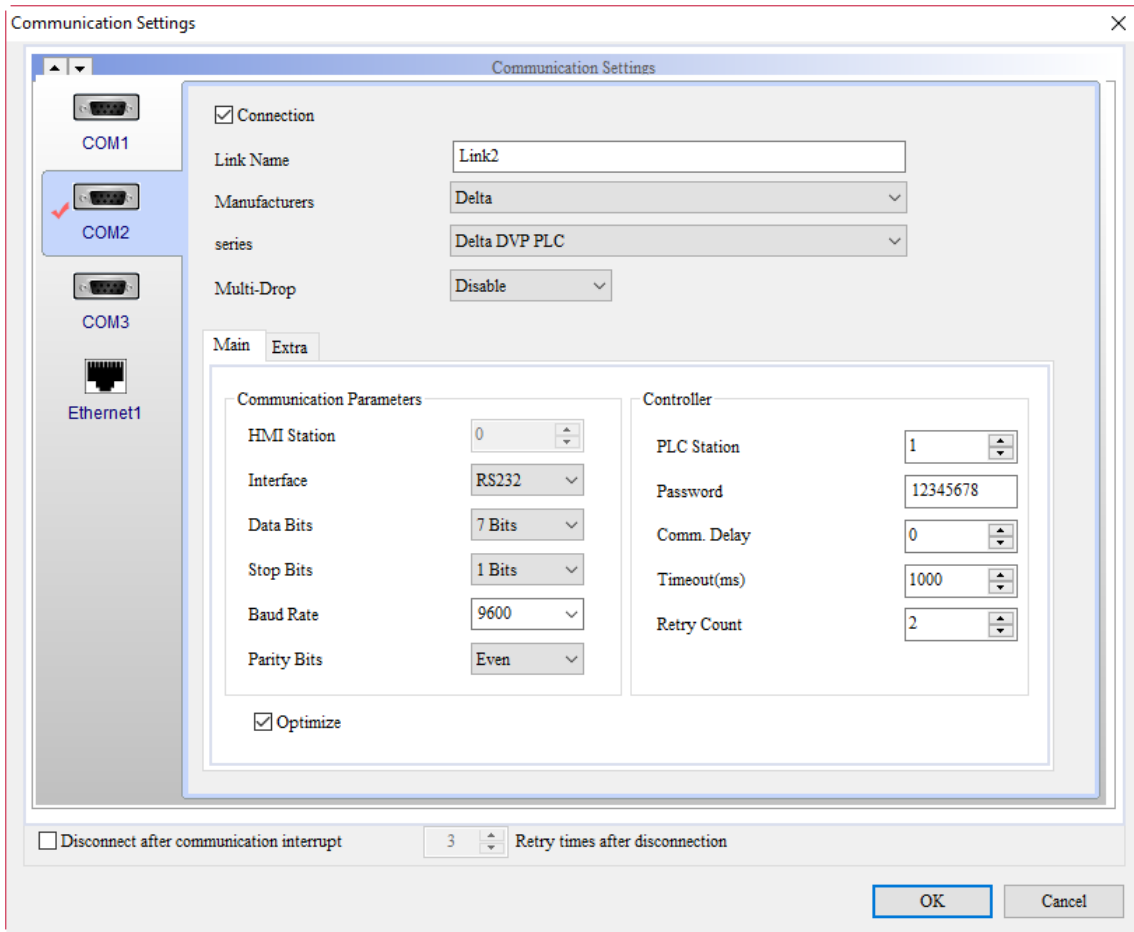
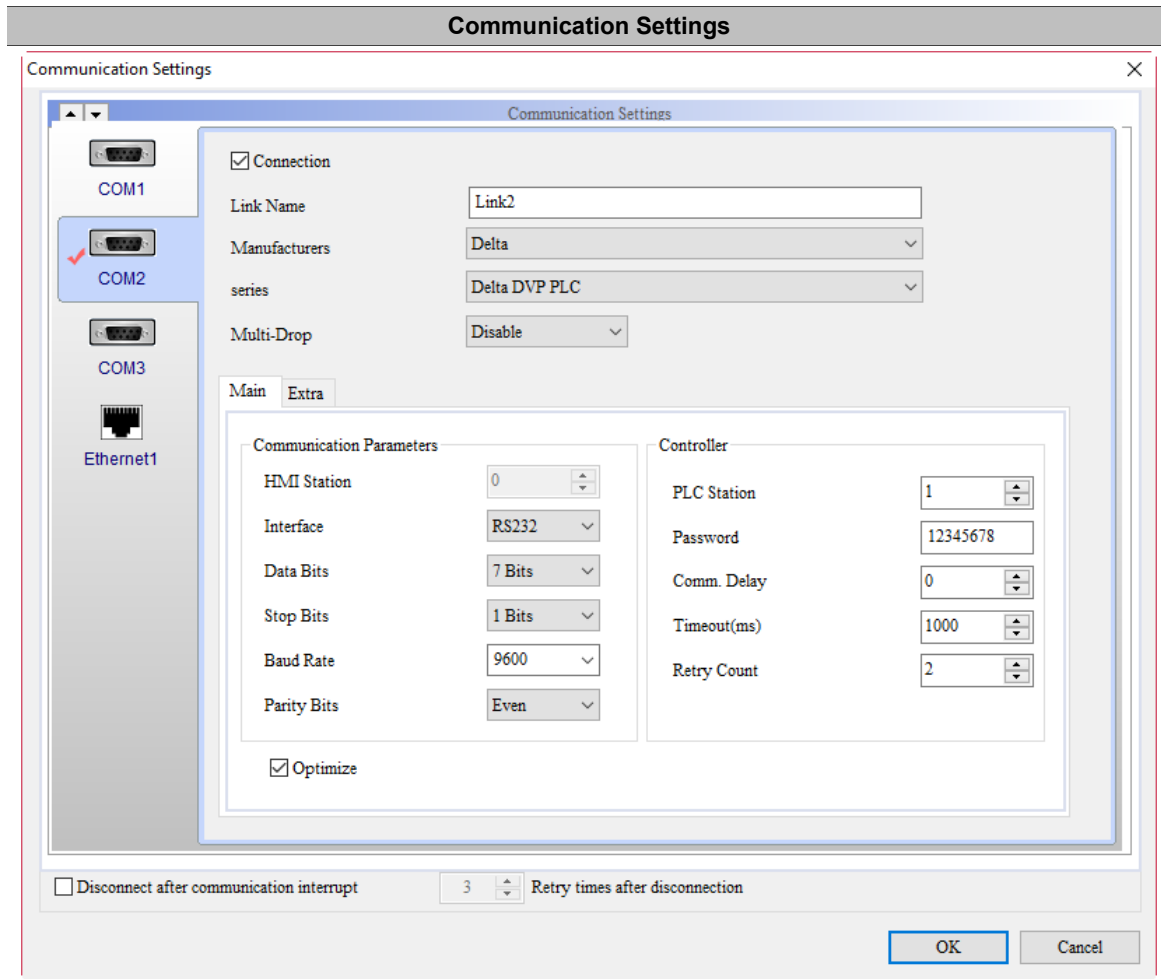


Figure 27.2.1 Communication Settings

The following describes the communication parameters of each COM port, controller settings, and Ethernet parameter settings.

Table 27.2.1 Communication Settings

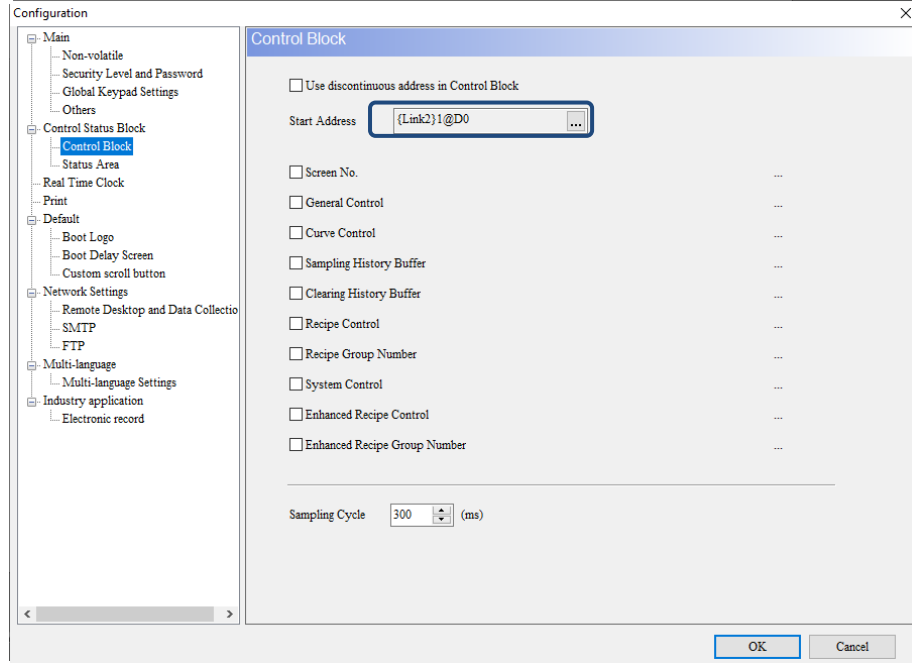
27



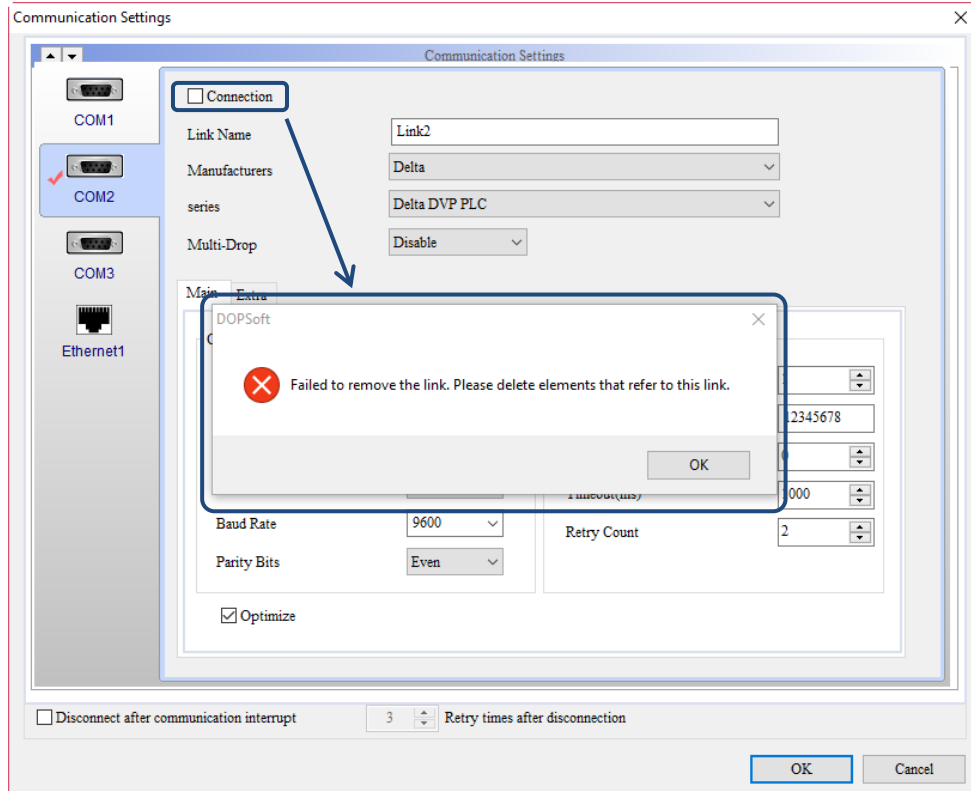
Communication parameters of COM1, COM2, and COM3 and controller settings are detailed as follows.

Connection	<ul style="list-style-type: none"> ■ Select the Connection check box to enable the selected COM port. You can select the COM port as required, such as COM1, COM2, and COM3. ■ After selecting the Connection check box, you can set the [Link Name] and select the [Controller] (namely PLC) to be used. Refer to the connection manual for the selection and use of the controller. ■ If you clear the Connection check box, the software will detect that the current Link2 has been used by the Control Block and Status Area, so it displays a warning message to remind users that the link cannot be removed because there are elements referring to Link2.
------------	--

Communication Settings



Connection




- Users can adopt the following methods to cancel this Link2 of COM2.
 - A. Add a new controller for COM3
 1. Add a new Link for COM3 and click **OK** to complete the setting.
 2. Next, clear the **Connection** check box for COM2 and a message of deletion failure appears. Click **OK** to enter the Address List to change the address of the Link. Select the Link Name (Link3) to be converted to, and then click **Change**.

27

Connection

Communication Parameter Settings

DOPSoft ✕

 Failed to remove the link. Please delete elements that refer to this link.

OK

Address List ✕

Changing Link
Link2 to Link3 Change

Word devices

Link2	Link3
X	DM-
Y	CM-
M	TM-
S	EM-
T	FM-
C	Z-
D	ZD-

Bit devices

Link2	Link3
X	CR-
Y	MR-
M	LR-
S	R-
T	CTC-
C	T-
D	C-

Address	Description
{Link2}1@D0	Control area
{Link2}1@D10	Status Block
Link2	RTC Start Address

According to the Word devices table, Link2 on the left is the controller register address to be canceled, and Link3 on the right is the controller register address to be changed to. You can change the address in accordance with the default order or specify the address to change.

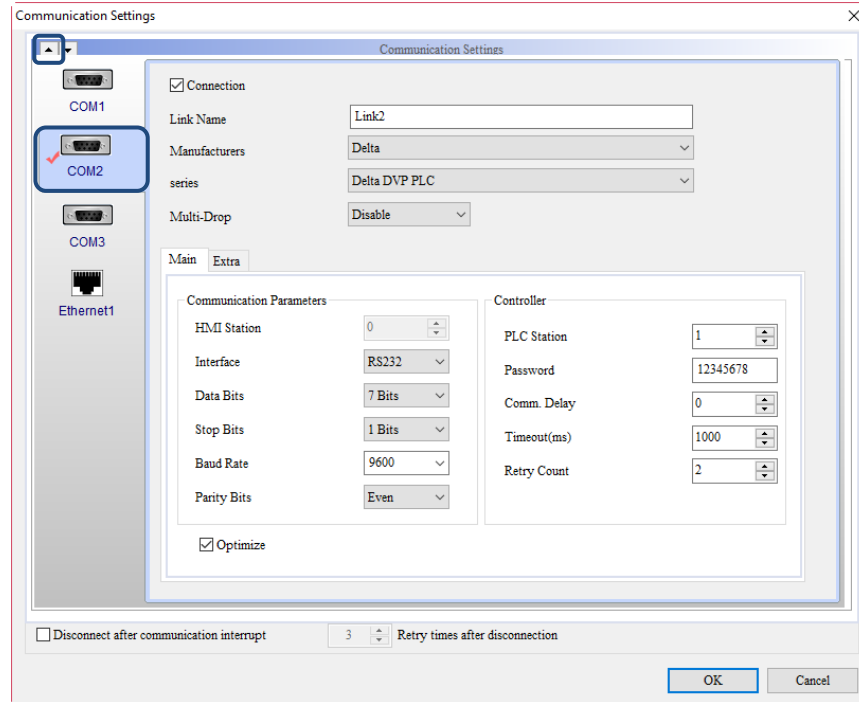
Communication Settings

B. Move Link2 to COM1 by using the up and down arrows at the upper left corner. Next, go to COM2 to check if the Link Name has been changed to Link1. The arrows allow you to directly move the Link to other communication ports.

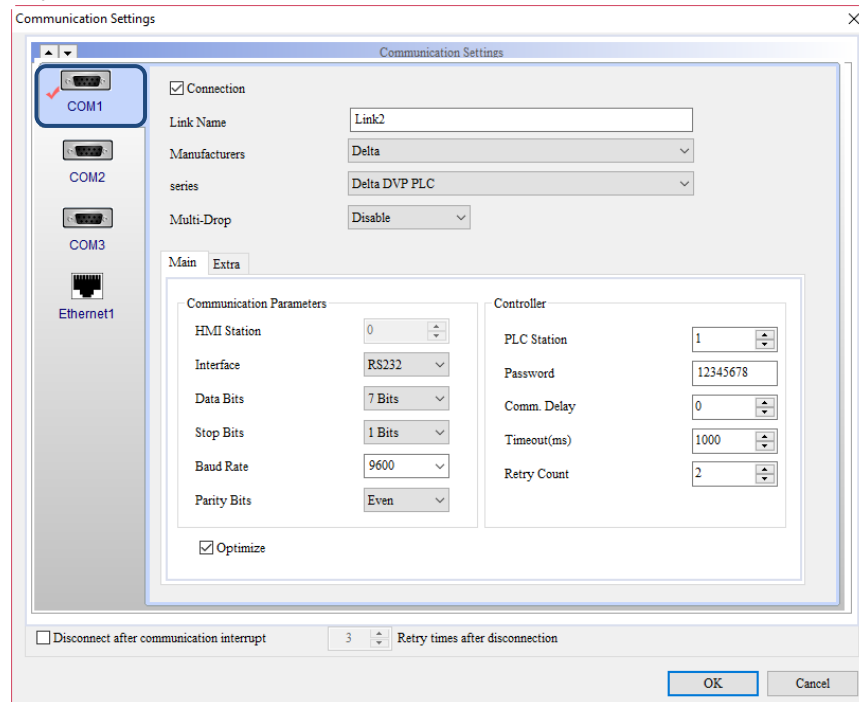
Refer to the following steps.

Step 1: go to COM2 and click the up arrow.

Connection



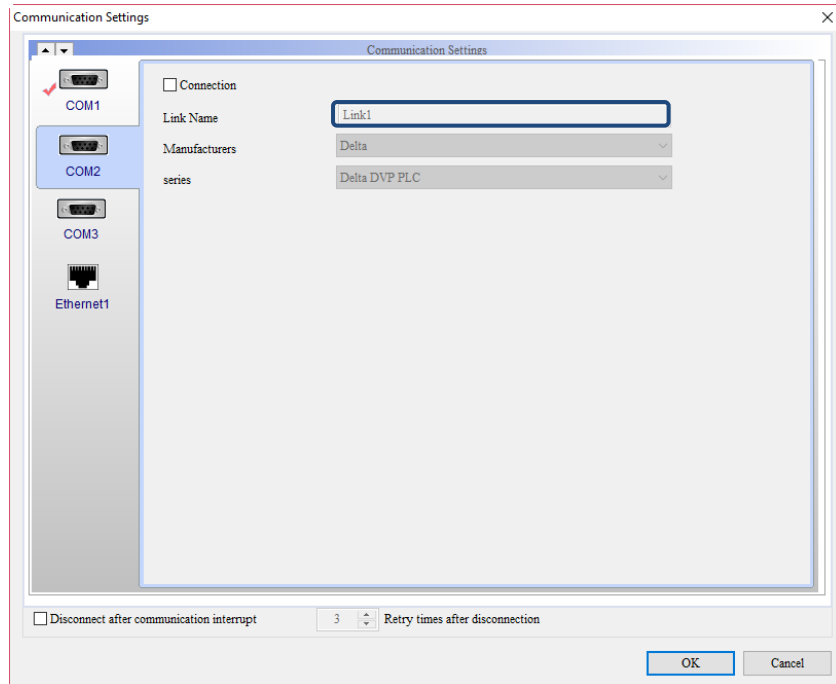
Step 2: you can see Link2 has been moved to COM1.



27

Communication Settings

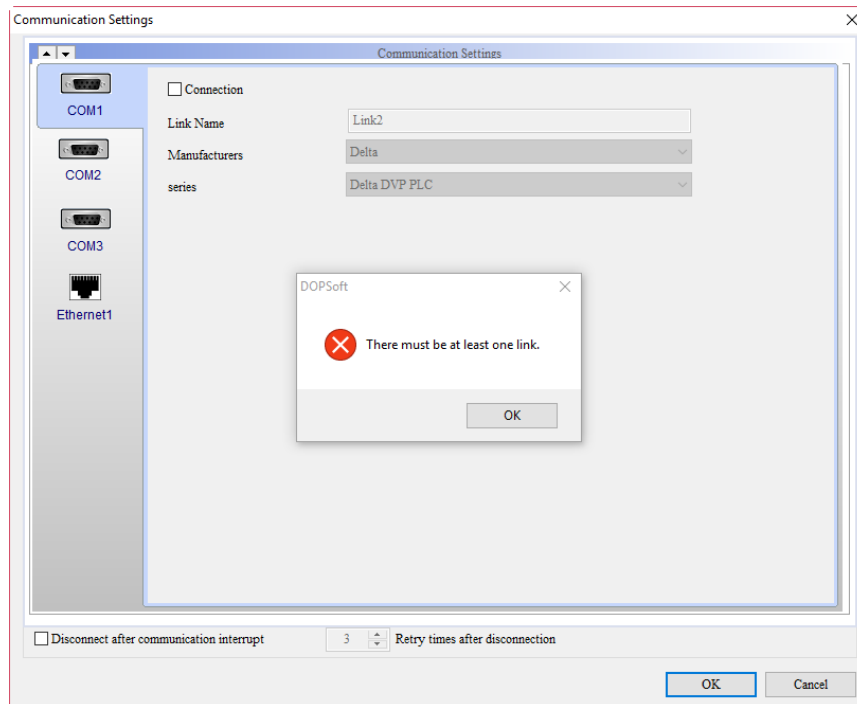
Step 3: go to COM2 to check the setting. The Link Name of COM2 has been changed to Link1.

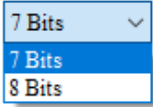
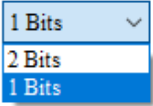
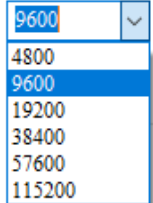
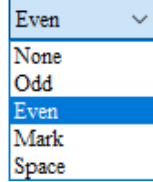


Note:

1. The default setting of COM1 is Link1, COM2 is Link2, and COM3 is Link3.
 2. When you use the arrow to move Link2 to COM1, and COM2 becomes Link1; similarly, when Link2 is moved to COM3, COM2 becomes Link3.
 3. Moving the link to another communication port does not change the Link Name, so the warning message does not appear. The up and down arrows work the same way as the up and down functions in the previous Screen Editor.
- When you cancel all the links, the software displays a warning message to ask you to set at least one link.

Connection



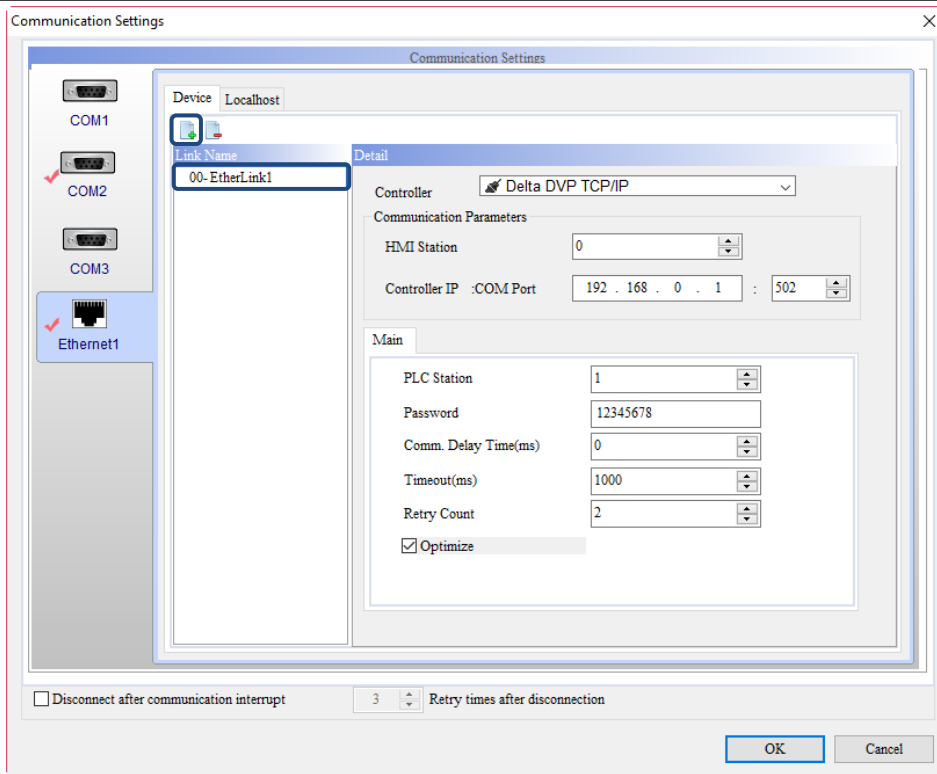
Communication Settings																		
Communication Parameters	HMI Station	Set the HMI station number. The range is 1 - 255 and the default station number is 0.																
	Interface	<ul style="list-style-type: none"> Communication interface is the transmission mode, which includes RS232, RS422, and RS485. When you select COM1, only RS232 is selectable for the communication interface; when you select COM2 and COM3, the selectable options are RS232, RS422, and RS485. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>COM1</th> <th>COM2</th> <th>COM3</th> </tr> </thead> <tbody> <tr> <td>RS232</td> <td style="text-align: center;">V</td> <td style="text-align: center;">V</td> <td style="text-align: center;">V</td> </tr> <tr> <td>RS422</td> <td></td> <td style="text-align: center;">V</td> <td style="text-align: center;">V</td> </tr> <tr> <td>RS485</td> <td></td> <td style="text-align: center;">V</td> <td style="text-align: center;">V</td> </tr> </tbody> </table>		COM1	COM2	COM3	RS232	V	V	V	RS422		V	V	RS485		V	V
		COM1	COM2	COM3														
	RS232	V	V	V														
	RS422		V	V														
	RS485		V	V														
Data Bits	<p>The available options for Data Bits are 7 Bits and 8 Bits. This is also the data type and the received packet length.</p> <p style="text-align: center;">Data Bits</p> 																	
Stop Bits	<p>The available options for Stop Bits are 1 Bit and 2 Bits. This is for notifying that the data receiving is complete.</p> <p style="text-align: center;">Stop Bits</p> 																	
Baud Rate	<p>The available options for Baud Rate are 4800, 9600, 19200, 38400, 57600, and 115200. Baud Rate refers to the data transmission speed in bps.</p> <p style="text-align: center;">Baud Rate</p> 																	
Parity Bits	<p>Parity Bits are for checking the errors when data is transmitted, which include None, Odd, Even, Mark, and Space.</p> <p style="text-align: center;">Parity Bits</p> 																	
Controller	PLC Station	<ul style="list-style-type: none"> The default PLC station number is the number automatically generated by the software after you select the controller to be used. You can also adjust the station number within the range of 0 - 255. 																
	Password	If the set PLC needs password verification, you must set the corresponding password in the software for communication. The default is 12345678.																
	Comm. Delay (ms)	<ul style="list-style-type: none"> It refers to the time interval after each communication. The range is 0 - 255 ms and the default is 0 ms. If the selected controller is Delta Controller ASCII or Delta Controller RTU, the default Comm. Delay will be changed to 5 ms. The reason for changing the time interval from 0 ms to 5 ms is that the DOP-100 series models transmit packets faster than the DOP-B series. If some controllers are slower, the update frequency of the HMI screen will become more lagging. 																

27


Communication Settings																
Controller	Timeout (ms)	After the communication starts, the communication is timed out without the PLC's response after the set time. The range is 10 - 2000 ms and the default is 1000 ms.														
	Retry Count	If the PLC does not respond after the communication starts, the HMI sends the communication command again. If the number of attempts reaches the set Retry Counts, the HMI displays a warning message of abnormal communication. The range is 0 - 15 times and the default is 2 times.														
Optimize	<ul style="list-style-type: none"> ■ Select the Optimize check box to optimize the process of reading the elements and thus speed up the communication. If this check box is cleared, this function is disabled and the speed for reading the elements becomes slower. ■ This check box is selected by default, so all element read addresses referring to this link will be optimized. 															
Disconnect after communication interrupt	<input type="checkbox"/> Disconnect after communication interrupt 3 Retry times after disconnection															
	<ul style="list-style-type: none"> ■ You must first select the Disconnect after communication interrupt check box to set the retry attempts. If this check box is selected, when the communication is interrupted and the set retry attempts are reached, the HMI stops trying to connect to the controller. The range is 0 - 255 times and the default is 3 times. ■ When the communication between the HMI and the controller stops because the set retry attempts are reached, you can use Bit 0 in the Control Block to enable / disable the communication. 															
<p>Configuration</p> <div style="display: flex;"> <div style="flex: 1;"> <ul style="list-style-type: none"> [-] Main <ul style="list-style-type: none"> [-] Non-volatile <ul style="list-style-type: none"> [-] Security Level and Password [-] Global Keypad Settings [-] Others [-] Control Status Block <ul style="list-style-type: none"> [-] Control Block [-] Status Area [-] Real Time Clock [-] Print [-] Default <ul style="list-style-type: none"> [-] Boot Logo [-] Boot Delay Screen [-] Custom scroll button [-] Network Settings <ul style="list-style-type: none"> [-] Remote Desktop and Data Collection [-] SMTP [-] FTP [-] Multi-language <ul style="list-style-type: none"> [-] Multi-language Settings [-] Industry application <ul style="list-style-type: none"> [-] Electronic record </div> <div style="flex: 2;"> <div style="border: 1px solid gray; padding: 5px;"> <p>Control Block</p> <p><input type="checkbox"/> Use discontinuous address in Control Block</p> <p>Start Address: <input style="width: 100px;" type="text" value="{Link2}1@D0"/></p> <p><input type="checkbox"/> Screen No. <input style="width: 100px;" type="text" value="..."/></p> <p><input checked="" type="checkbox"/> General Control <input style="width: 100px;" type="text" value="{Link2}1@D0"/></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Bit 0</td><td>Enable/disable communication</td></tr> <tr><td>Bit 1</td><td>Enable/disable backlight</td></tr> <tr><td>Bit 2</td><td>Enable/disable buzzer</td></tr> <tr><td>Bit 3</td><td>Clear alarm buffer</td></tr> <tr><td>Bit 4</td><td>Clear alarm counter</td></tr> <tr><td>Bit 5</td><td>Write to external storage imm</td></tr> <tr><td>Bit 6</td><td>Lock remote monitoring</td></tr> </table> <p><input type="checkbox"/> Curve Control</p> <p><input type="checkbox"/> Sampling History Buffer</p> <p><input type="checkbox"/> Clearing History Buffer</p> <p><input type="checkbox"/> Recipe Control</p> <p><input type="checkbox"/> Recipe Group Number</p> <p><input type="checkbox"/> System Control <input style="width: 100px;" type="text" value="..."/></p> <p><input type="checkbox"/> Enhanced Recipe Control <input style="width: 100px;" type="text" value="..."/></p> <p><input type="checkbox"/> Enhanced Recipe Group Number <input style="width: 100px;" type="text" value="..."/></p> </div> </div> </div>			Bit 0	Enable/disable communication	Bit 1	Enable/disable backlight	Bit 2	Enable/disable buzzer	Bit 3	Clear alarm buffer	Bit 4	Clear alarm counter	Bit 5	Write to external storage imm	Bit 6	Lock remote monitoring
Bit 0	Enable/disable communication															
Bit 1	Enable/disable backlight															
Bit 2	Enable/disable buzzer															
Bit 3	Clear alarm buffer															
Bit 4	Clear alarm counter															
Bit 5	Write to external storage imm															
Bit 6	Lock remote monitoring															

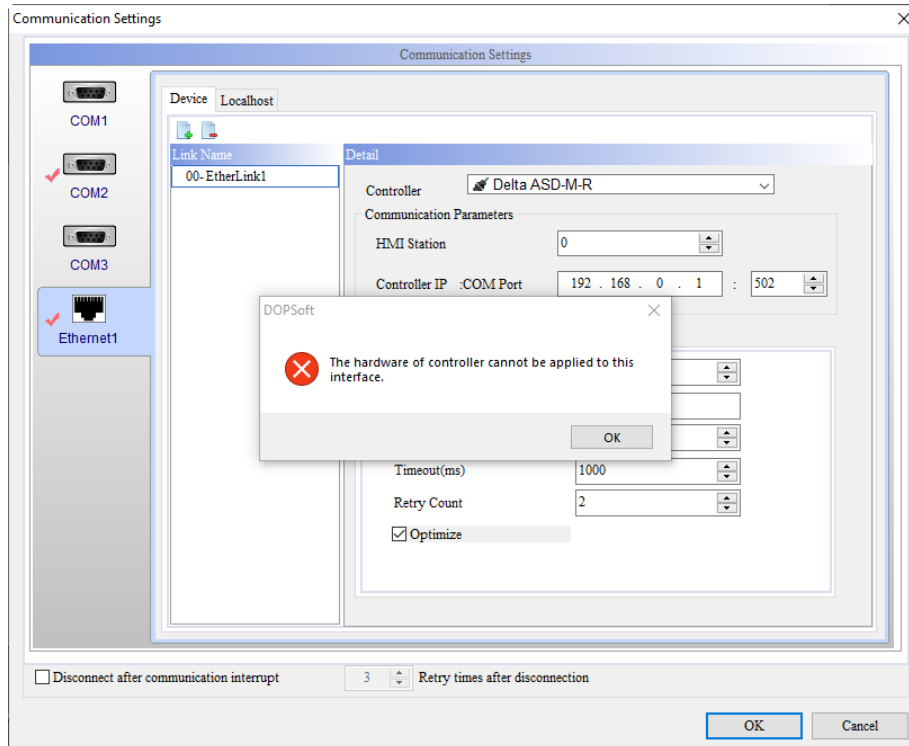
Communication Settings

The detailed operation settings for Ethernet are described as follows.



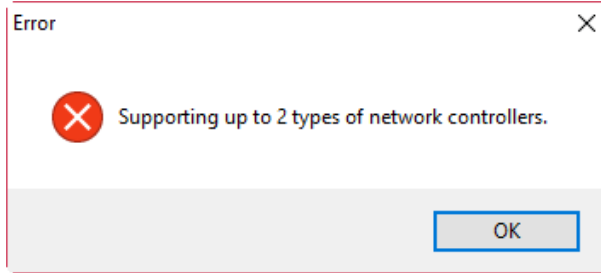
Device

- Click the icon  on the [Device] page to add an [EtherLink1] link device. You can change the Link Name of EtherLink1 on demand.
- Select the controller to be used after adding the link device. If you select a PLC that is not a network device, a warning message appears to inform you that the hardware of the controller cannot be applied to this interface.

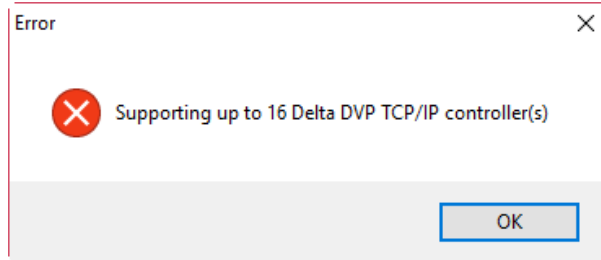


Communication Settings

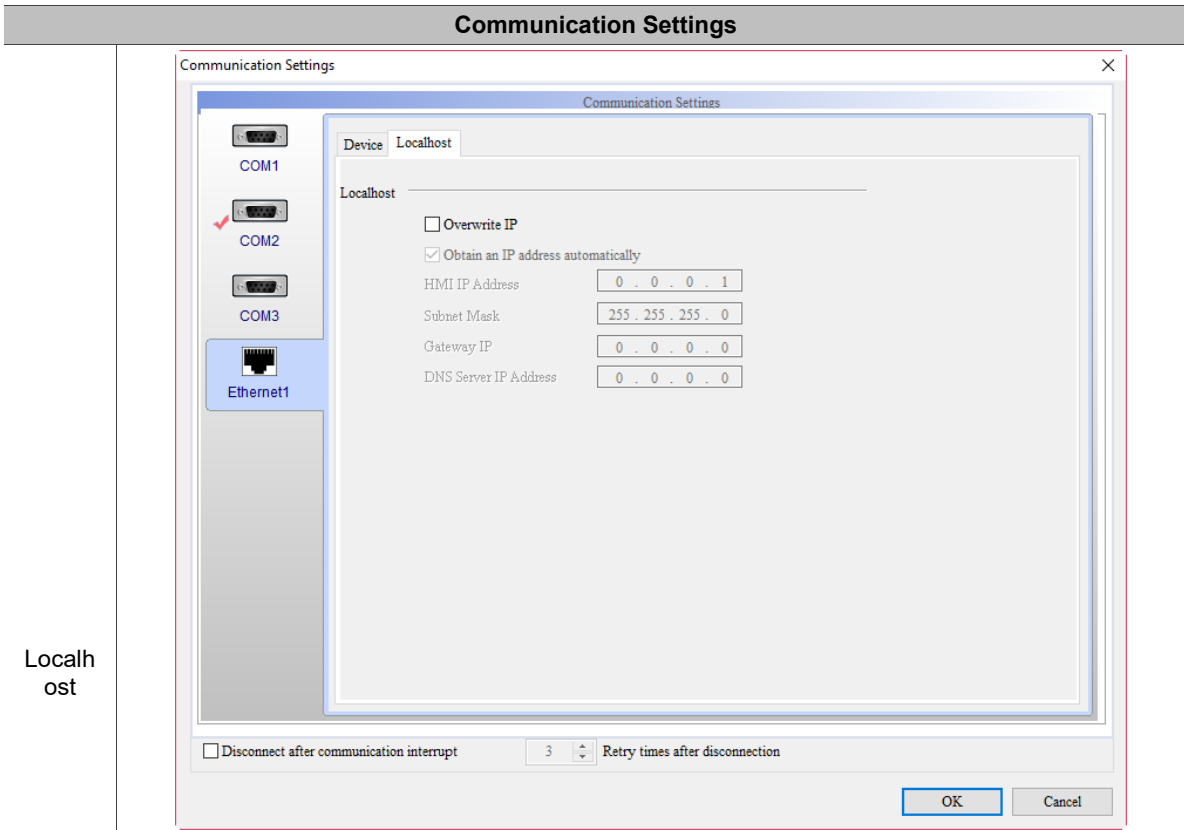
- After adding the new Internet link device, you can set two protocols only. For example, Delta DVP TCP/IP and S7 300 (ISO TCP). If you add the third Protocol, the following message is displayed.



- Each protocol can only have 16 links. If you add more than 16 links for a protocol, a warning message appears to remind you that the number of controllers exceeds the range.



Device	Communication Parameters	HMI Station	Set the HMI station number. The range is 1 - 255 and the default station number is 0.
		Controller IP	You can set the IP address of the PLC here. Set the address to be in the same network segment as the HMI IP to enable the communication between the PLC and HMI.
		COM Port	The COM Port varies depending on the controller you select. You can also set the COM Port corresponding to the PLC's port.
Device	Controller settings	PLC Station	<ul style="list-style-type: none"> The default PLC station number is the number automatically generated by the software after you select the controller to be used. You can also set the station number within the range of 0 - 255.
		Password	If the set PLC needs password verification, you must set the corresponding password in the software for communication. The default is 12345678.
		Comm. Delay Time (ms)	It refers to the time interval after each communication. The range is 0 - 255 ms and the default is 0 ms.
		Timeout (ms)	After the communication starts, the communication is timed out without the PLC's response after the set time. The range is 10 - 2000 ms and the default is 1000 ms.
		Retry Count	If the PLC does not respond after the communication starts, the HMI sends the communication command again. If the number of attempts reaches the set Retry Counts, a warning message of abnormal communication appears. The range is 0 - 15 times and the default is 2 times.
Device	Optimize	<ul style="list-style-type: none"> Select the Optimize check box to optimize the process of reading the elements and speed up the communication. If this check box is cleared, the function is disabled and the speed for reading the elements becomes slower. This check box is selected by default, so all element read addresses referring to this link will be optimized. 	



Localhost

Local host	Overwrite IP	<ul style="list-style-type: none"> ■ Localhost represents the localhost's IP address of the HMI. You can set the IP address or obtain an IP address automatically. ■ If this check box is not selected, the default IP address 0.0.0.0 is used. If you choose not to use the Overwrite IP option in the software, go to [System Setting] > [Network] to change the IP address. ■ Select this check box to change the IP address in the software. Therefore, users can set parameters such as the IP address and HMI name to be written.
	Obtain an IP address automatically	<ul style="list-style-type: none"> ■ To enable this function, you must select the Overwrite IP check box first. ■ When both of the options are selected, it means that HMI obtains the IP address through DHCP mode. Users can go to [System Setting] > [Network] of the system screen to check the current IP address.
	HMI IP Address	The HMI IP address must be set in the same network segment as the controller IP address.

27

Communication Settings															
Localhost	Localhost	Subnet Mask	<ul style="list-style-type: none"> The Subnet Mask is used to "segment the network" and "identify the destination address." Its format is the same as the IP address, which is also represented by four bytes separated by decimal points. <table border="1"> <thead> <tr> <th>IP class</th> <th>Network address</th> <th>Subnet mask</th> </tr> </thead> <tbody> <tr> <td>Class A</td> <td>1.x.x.x to 126.x.x.x</td> <td>255.0.0.0</td> </tr> <tr> <td>Class B</td> <td>128.0.x.x to 191.255.x.x</td> <td>255.255.0.0</td> </tr> <tr> <td>Class C</td> <td>192.0.0.x to 223.255.255.x</td> <td>255.255.255.0</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The Subnet Mask must be set when an IP address is set on each computer. For example, the first three bytes of the IP address are the Network ID for Class C in the preceding table. Therefore, the first 3 bytes of the Subnet Mask are all 255, while the last byte is the Host ID and the Subnet Mask is 0. 	IP class	Network address	Subnet mask	Class A	1.x.x.x to 126.x.x.x	255.0.0.0	Class B	128.0.x.x to 191.255.x.x	255.255.0.0	Class C	192.0.0.x to 223.255.255.x	255.255.255.0
		IP class	Network address	Subnet mask											
Class A	1.x.x.x to 126.x.x.x	255.0.0.0													
Class B	128.0.x.x to 191.255.x.x	255.255.0.0													
Class C	192.0.0.x to 223.255.255.x	255.255.255.0													
Gateway IP	<ul style="list-style-type: none"> The Gateway is mostly used to connect local area networks and large computer host systems. Generally, a gateway is required as long as there are two systems with different levels to be connected. The gateway is the exit of the local area network. All packets to be sent to the Internet are first sent to the gateway and are then transmitted to other hosts on the Internet and finally to the host at the destination. If you need to connect to an external network, you can set the gateway address according to the network rules. The default is 0.0.0.0. 														

27.3 Change Model

You can use the Change Model function to switch to the screen of the selected model.

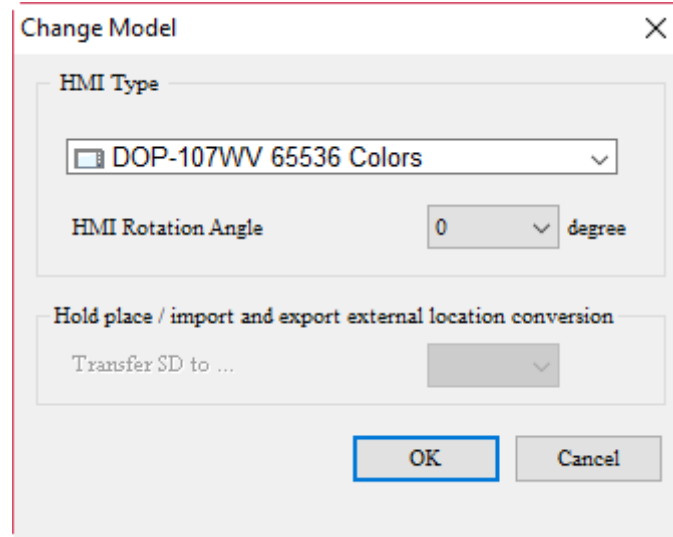


Figure 27.3.1 Change Model

If the model originally used (such as DOP-110WS) supports SD card devices and the element data is stored in the SD cards, when you choose to switch to another model, the option for the Hold place / import and export external location conversion will be displayed as USB Disk.

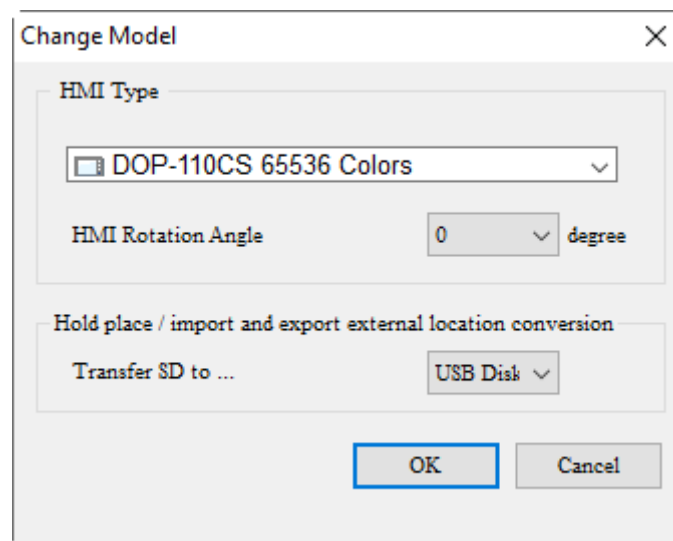


Figure 27.3.2 Non-volatile external storage device setting

The software enables you to open the HMI screens of the DOP-B, DOP-W, and DOP-H models and convert the screens into the compatible formats for the DOP-100 models to edit.

27

27.4 Environment settings

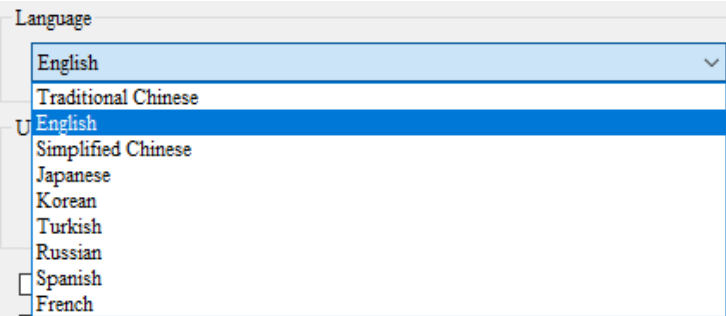
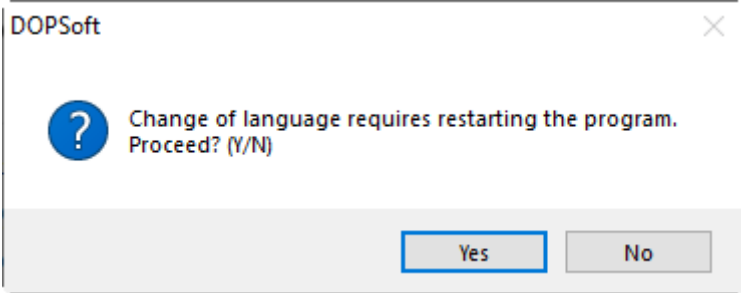
You can set the environment parameters related to the HMI system with the Environment settings, including the language of user interface and data transmission methods. The parameters in the Environment settings are described as follows.

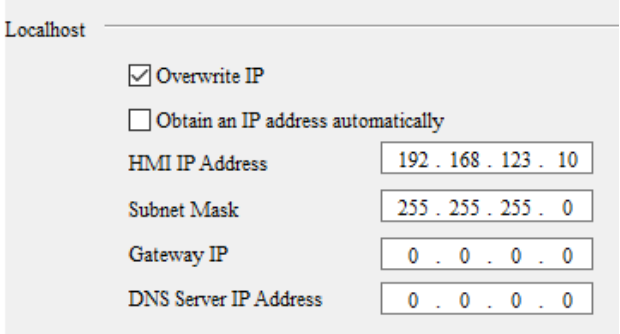

Table 27.4.1 Description of environment properties



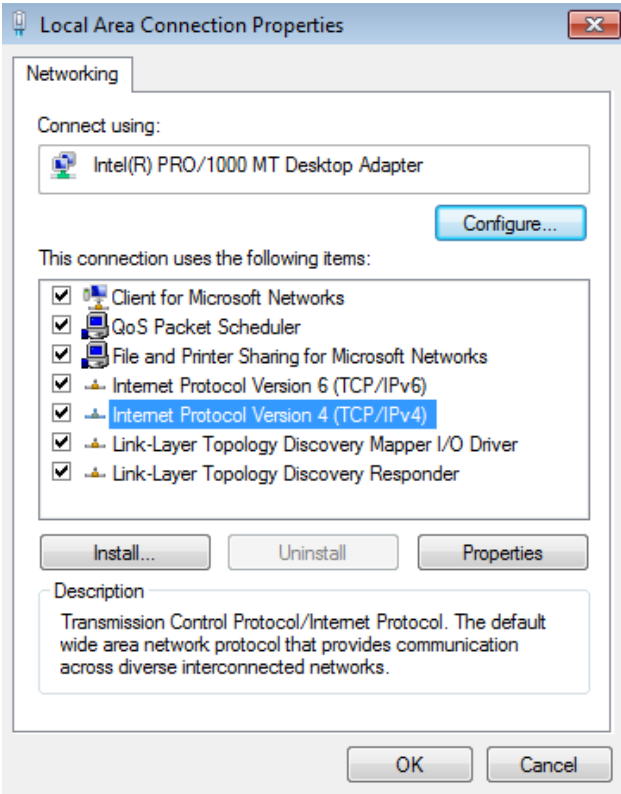
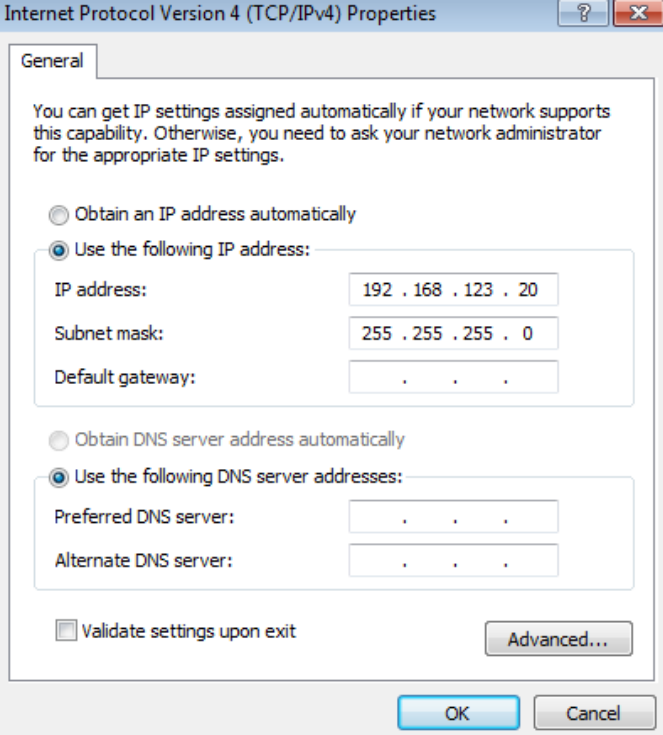
Environment	
Environment	
<div style="border: 1px solid #ccc; padding: 10px;"> <div style="display: flex; justify-content: space-between; align-items: center;"> Environment ✕ </div> <div style="margin-top: 10px;"> <p>Output Path</p> <div style="border: 1px solid #ccc; padding: 2px;"> C:\ProgramData\Delta Industrial Automation\HMI\DOPSoft 4.00.04\ScrEditApp\out ... </div> </div> <div style="margin-top: 10px;"> <p>Options</p> <div style="border: 1px solid #ccc; padding: 5px;"> <p>Language</p> <div style="border: 1px solid #ccc; padding: 2px;"> English ▾ </div> </div> <div style="margin-top: 10px;"> <p>Upload/Download</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="display: flex; gap: 10px;"> <input type="radio"/> USB <input checked="" type="radio"/> Ethernet </div> <div style="border: 1px solid #ccc; padding: 2px;"> COM1 ▾ </div> </div> <div style="margin-top: 10px;"> <p><input type="checkbox"/> AutoSave time interval 0 (M)</p> <p><input type="checkbox"/> Open previous file when starting ScrEditor</p> <p><input type="checkbox"/> Display drawing zone at center</p> <p><input checked="" type="checkbox"/> Include picture data when uploading</p> <p><input type="checkbox"/> Auto convert input address to tag name</p> <p><input type="checkbox"/> Auto reboot after firmware update</p> <p>Recipe CSV Separator , ▾</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> Reinstall HMI USB Driver Uninstall HMI USB Driver </div> <div style="text-align: right; margin-top: 10px;"> OK Cancel </div> </div> </div> </div> </div>	

In the Environment setting screen, you can view the output path, and set the system environment parameters for the Upload/Download settings and USB driver installation.

Output Path	It refers to the output path of a CIN file generated after screen compilation. Software functions such as the online / offline simulation and file upload / download will refer to the data in this path. So, do not change this path unless necessary, otherwise the program execution may fail or the software may not be able to find a file.
-------------	--

Environment		
Language		<ul style="list-style-type: none"> You can select the language for the user interface of the software. 9 languages are available, including Traditional Chinese, English, Simplified Chinese, Japanese, Korean, Turkish, Russian, Spanish, and French.  <ul style="list-style-type: none"> Select one of the languages, click OK, and the software displays a message to confirm if you want to restart the program for the settings to be effective. If you click Yes, the software will restart automatically. Then, you can find the language is changed. 
Upload/Download	USB	<ul style="list-style-type: none"> The default transmission interface for data upload / download between the software and HMI is USB. There are four types of USB transmission mode. The first one is the general upload / download type (Normal = USBCommMode 0), which requires you to install the driver manually. The second one is USB Disk type (Disk = USBCommMode 1), which allows you to upload / download HMI programs without installing the driver. The third one is USB CDC type (CDC = USBCommMode 2), and you need to install a driver additionally. The fourth one is AUTO type, which means that the software will perform upload / download tasks based on the current USB Up/Download mode setting in the HMI System Menu. USBCommMode 0 only supports Windows XP operating system. USBCommMode 1 and USBCommMode 2 support Windows 7 / Windows 10 operating systems.

Environment		
Upload/Download	Ethernet	<ul style="list-style-type: none"> ■ The Ethernet option allows you to perform HMI data upload / download tasks over the network. ■ If you use Ethernet to upload / download the data, you must set the IP addresses of both the HMI and the computer on the same network segment. You can set the HMI IP by selecting the Overwrite IP or Obtain an IP Address automatically check box.
		<p>Overwrite IP</p> <ul style="list-style-type: none"> ■ HMI <p>To set the IP address, you can go to [Options] > [Communication Settings] > [Ethernet1] > [Localhost], or enter the System screen and go to [System Setting] > [Network].</p> <p>The following figure shows the setting interface of the software:</p>  <p>The following figure shows the setting interface of the system:</p> 

Environment		
Upload/Download	Ethernet	Overwrite IP
<p>■ Computer In the Windows Start Menu, go to [Control Panel] > [Network and Sharing Center] () > [Local Area Connection] () > [Internet Protocol (TCP/IP)].</p>  <p>Click Properties to enter the TCP/IP settings page shown as follows.</p> 		

Upload/Download

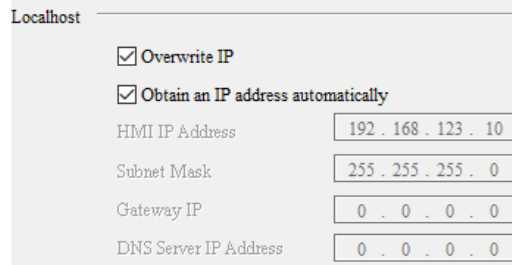
Ethernet

Obtain an IP address automatically

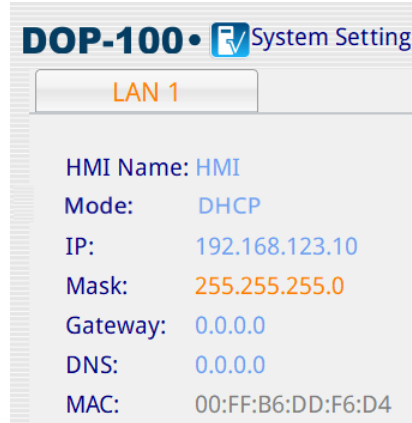
■ HMI:

When you select the **Obtain an IP address automatically** check box, you do not need to set the IP address; DHCP dynamically assigns the IP address to the HMI instead. You can also go to the System screen > [System Setting] > [Network] and set the Mode to DHCP.

The following figure shows the setting interface of the software:

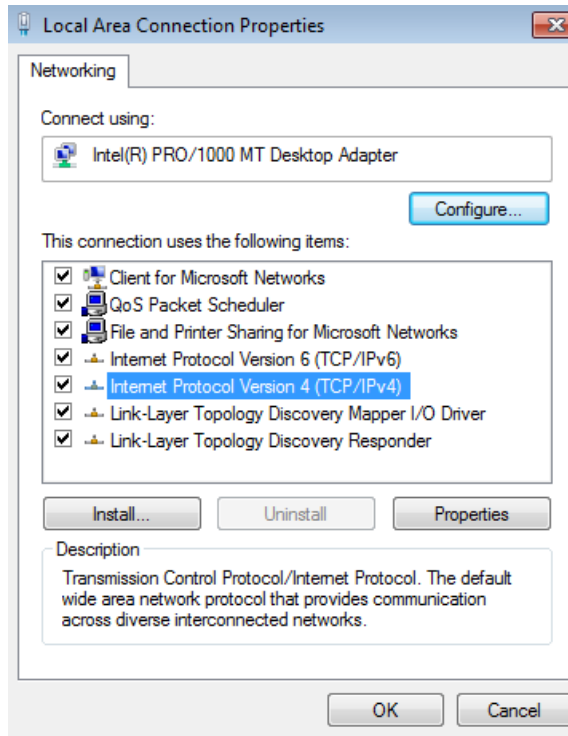


The following figure shows the setting interface of the system screen:



■ Computer:

In the Windows Start Menu, go to [Control Panel] > [Network and Sharing Center] (Network and Sharing Center) > [Local Area Connection] (Local Area Connection) > [Internet Protocol (TCP/IP)].



Environment

Click **Properties** to enter the TCP/IP settings page shown as follows.

? X

Internet Protocol Version 4 (TCP/IPv4) Properties

General **Alternate Configuration**

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

Obtain an IP address automatically

Use the following IP address:

IP address: . . .

Subnet mask: . . .

Default gateway: . . .

Obtain DNS server address automatically

Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

Validate settings upon exit Advanced...

OK Cancel

Obtain an IP address automatically

Upload/Download

Ethernet

After the IP addresses of the HMI and computer are set in the same network segment, the HMI data upload / download can be done through Ethernet. When users click to download or upload screen data, the software will automatically search for HMI with the same network segment. Click **OK** to download or upload data to HMI.

X

IP address

Static IP :


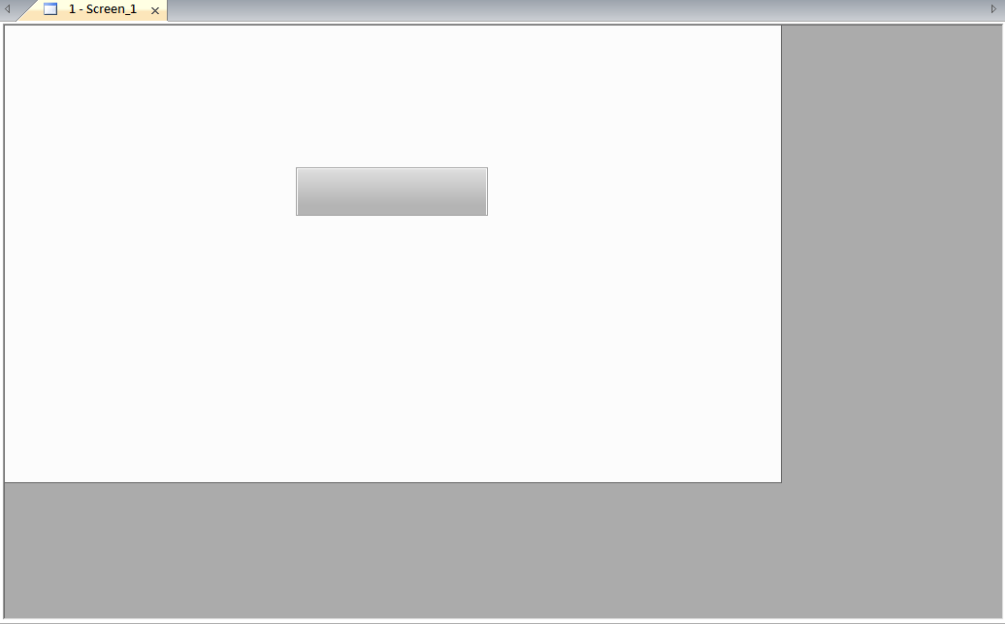
Auto Search Update

HMI	Model type	Source IP Address	Port
HMI	DOP-B07E415	192.168.123.65	12346
HMI	DOP-112MX	192.168.123.168	12346
HMI	DOP-B08E515	192.168.123.69	12346
W_Long Test	DOP-107WV	192.168.123.29	12346
HMI	DOP-110WS	192.168.123.120	12346
...

OK Cancel

27

Environment	
Upload/Download	<p style="text-align: center;">PC COM Port</p> <ul style="list-style-type: none"> ■ PC COM Port is for data upload / download between the PC and HMI. If you select PC COM Port to upload / download, you must first enter the HMI system screen and go to [Up/Download] > [Standard Mode] and choose COM1 or COM2. ■ Next, set the port number for the PC COM Port in the software. <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p style="text-align: center;">Upload/Download</p> <p style="text-align: center;"> <input type="radio"/> USB <input type="radio"/> Ethernet <input checked="" type="radio"/> PC COM Port COM7 </p> </div> <ul style="list-style-type: none"> ■ Right-click on [This PC] > [Manage] > [Ports (COM & LPT)] to see the COM Port number of the computer. <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p style="text-align: center;">Open</p> <p>Pin to Quick access</p> <p style="border: 2px solid #0070c0; padding: 2px;">Manage</p> <p>Pin to Start</p> <hr/> <p>Map network drive...</p> <p>Disconnect network drive...</p> <hr/> <p>Create shortcut</p> <p>Delete</p> <p>Rename</p> <hr/> <p>Properties</p> </div> <div style="margin-left: 20px;"> <p>▼ TWTN1NB0568</p> <ul style="list-style-type: none"> > Audio inputs and outputs > Batteries > Biometric devices > Bluetooth > Computer > Disk drives > Display adapters > Human Interface Devices > IDE ATA/ATAPI controllers > Imaging devices > Jungo > Keyboards > Memory technology devices > Mice and other pointing devices > Monitors > Network adapters ▼ Ports (COM & LPT) <ul style="list-style-type: none"> <li style="border: 2px solid #0070c0; padding: 2px;">Prolific USB-to-Serial Comm Port (COM7) </div>
AutoSave time interval	<p>You can set the time interval for the software to save the project automatically. If you set it to 0 min, it means this option is not selected (function disabled). If you select the check box, the default minimum is 3 min, and the maximum is 120 min.</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p><input type="checkbox"/> AutoSave time interval 0 (M)</p> </div>
Open previous file when starting ScrEditor	<p>If this check box is selected, the project being editing will be displayed on the screen the next time DOPSoft is executed.</p>

Environment	
Display drawing zone at center	<p>■ If this check box is selected, the editing screen is displayed in the center.</p>  <p>■ If it is not selected, the editing screen is at the upper left corner by default.</p> 
Include picture data when uploading	<p>If the edited project contains graphic data, but this check box is not selected, the graphic content will be empty after the screen data is uploaded to the HMI.</p>

27

Environment

- This function automatically converts the element memory address into a tag name according to the Tag Table.
- The setting steps for the Auto convert input address to tag name function are as follows:
Step 1: go to [Options] > [Tag Table] to edit the data.

No.	Name	Type	Address	Description
1	DELTA	WORD	\$100	

- Step 2: go to [Options] > [Environment], and select the **Auto convert input address to tag name** check box. Then, create a Numeric Entry element and set the Write Address to \$100.

Auto convert input address to tag name

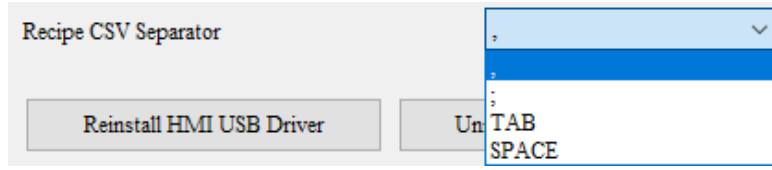
- Step 3: after you set the address, the memory address is automatically converted to the tag "DELTA."

Numeric Entry

Auto reboot after firmware update	When this check box is selected, the HMI automatically restarts once the firmware is updated without displaying the message "Update Firmware Succeed!!!"
Reinstall HMI USB Driver	<ul style="list-style-type: none"> ■ After [Reinstall HMI USB Driver] is executed, the system reinstalls the USB driver for the HMI. ■ After [Uninstall HMI USB Driver] is executed, the system uninstalls the USB driver for the HMI.
Uninstall HMI USB Driver	<ul style="list-style-type: none"> ■ These two options are used when you are unable to upload / download data through USB transmission. In this case, you can uninstall and then reinstall the HMI USB driver to ensure normal transmission between the HMI and the software. ■ This method is applicable in Normal and CDC USB transmission modes.

Environment

- Four separators are provided. You can set the displaying separator in the CSV files to be exported.



Recipe CSV Separator

	<pre>RCP16-1.0 4,4 11,12,13,14, 15,16,17,18, 19,20,21,22, 0,0,0,0,</pre>
,	<pre>RCP16-1.0 4;4 11;12;13;14; 15;16;17;18; 19;20;21;22; 0;0;0;0;</pre>
TAB	<pre>RCP16-1.0 4 4 11 12 13 14 15 16 17 18 19 20 21 22 0 0 0 0</pre>
SPACE	<pre>RCP16-1.0 4 4 11 12 13 14 15 16 17 18 19 20 21 22 0 0 0 0</pre>

- You can use WordPad to open the exported CSV file and check whether the separators in the file are correct.

(This page is intentionally left blank.)

27

Advanced Settings

28

This chapter provides the descriptions of the advanced settings.

28.1	Tag Table	28-2
28.2	HMI Identifier	28-13
28.3	FileSlot File Management	28-15
28.4	Device Data table	28-21
28.5	Picture Bank	28-26
28.6	Text Bank	28-30
28.7	Multi-Lang input character count calculation.....	28-34
28.8	Cust-Keypad.....	28-35
28.8.1	Create Keypad Screen	28-39
28.8.2	Delete Keypad Screen	28-45
28.8.2.1	The Keypad Screen is referred.....	28-47
28.8.2.2	The Keypad Screen is not referred.....	28-51
28.9	Sound Settings.....	28-52
28.10	Modbus TCP mapping table.....	28-63
28.11	Font management	28-68

28

28.1 Tag Table

The Tag Table is used to help users set tags for the memory addresses. For example, if you set DELTA for address \$100, when the next time you want to enter \$100, DELTA can be used to replace \$100, as shown in the following figure.

No.	Name	Type	Address	Description
1	DELTA	WORD	\$100	

Figure 28.1.1 Tag Table

You can select the tags with two ways. One is selecting the corresponding tag in the **Tag** list, as shown in the following figure.

Input

Link: Internal Memory

Type

- Device (Word)
- Device (Bit)
- Internal Memory (Word)
- Internal Memory (Bit)
- Constant

Constant Types

- Signed Decimal
- Unsigned Decimal
- Hexadecimal

Station No.

0 Default

Content

Device Type: \$

Address/Value: 100

Tag: DELTA

B	C	D	E	F	Clear
6	7	8	9	A	Back
1	2	3	4	5	Enter
0	:	+	-	/	
.	None				

Figure 28.1.2 Set tags

The other way is clicking the  icon beside the drop-down list to select the corresponding tag.

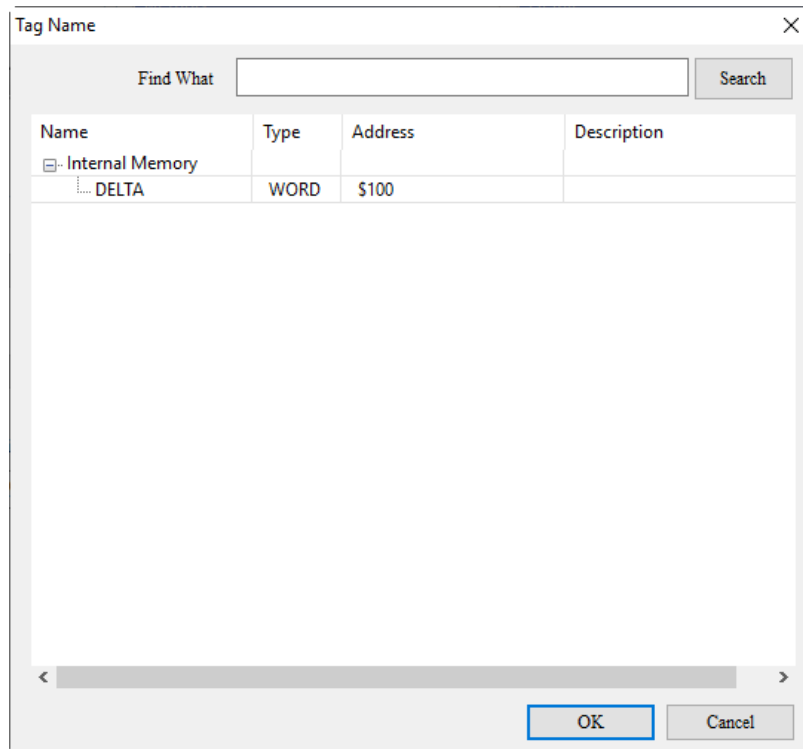


Figure 28.1.3 Set tags

The Tag Table allows you to import and make use of the Symbol Table edited by WPL and ISPSOft, which makes the programming easier. The following section introduces each item on the Tag Table.


28

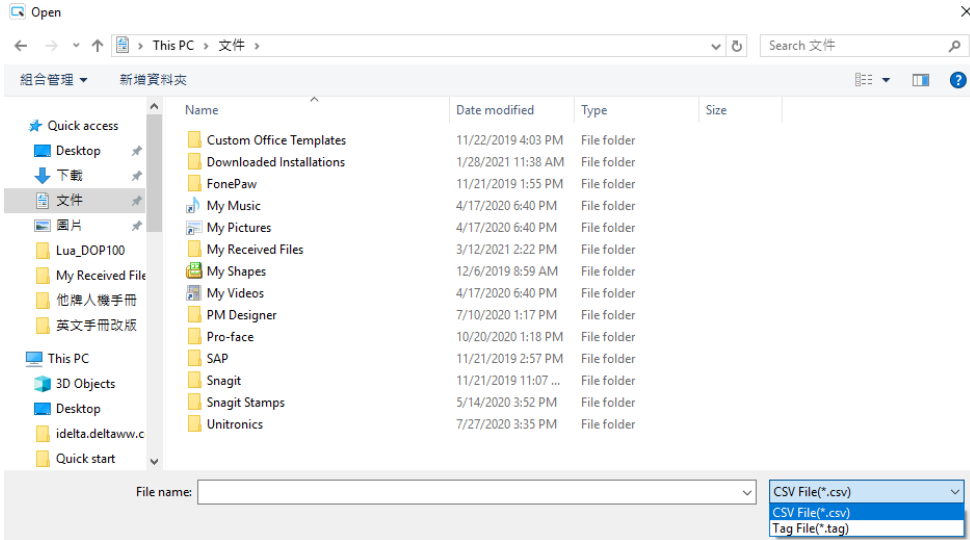
Table 28.1.1 Tag Table

Tag Table				
No.	Name	Type	Address	Description

You can open an already created tag or CSV file in the Tag Table. The CSV file includes the Symbol Table file exported by WPL and ISPSOft or the Tag Table exported by DOPSoft.

Import tag file





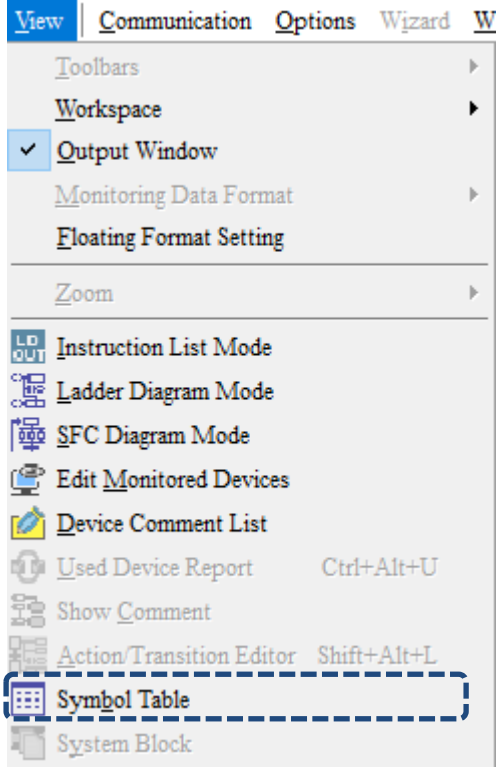
The screenshot shows a Windows File Explorer window titled 'Open' with the address bar set to 'This PC > 文件'. The main pane displays a list of folders including 'Custom Office Templates', 'Downloaded Installations', 'FonePaw', 'My Music', 'My Pictures', 'My Received Files', 'My Shapes', 'My Videos', 'PM Designer', 'Pro-face', 'SAP', 'Snagit', 'Snagit Stamps', and 'Unitronics'. At the bottom, the 'File name' field is empty, and the file type dropdown menu is open, showing options: 'CSV File (*.csv)', 'CSV File (*.csv)', and 'Tag File (*.tag)'. The 'Tag File (*.tag)' option is currently selected.

Tag Table

- Export a Symbol Table from the WPL software.

The steps are as follows:

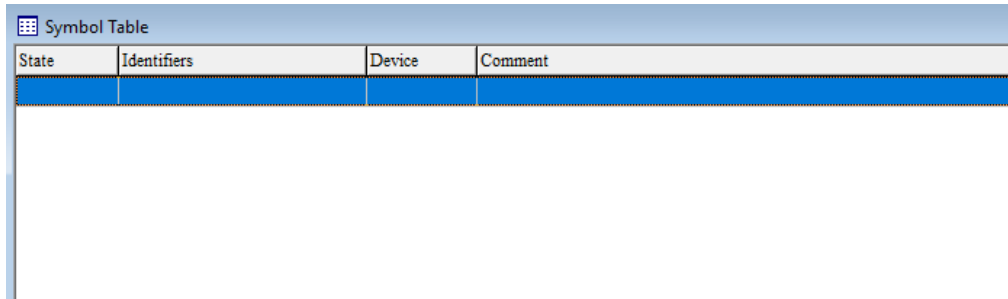
- Run the WPL software. Add a project and select [View] > [Symbol Table].



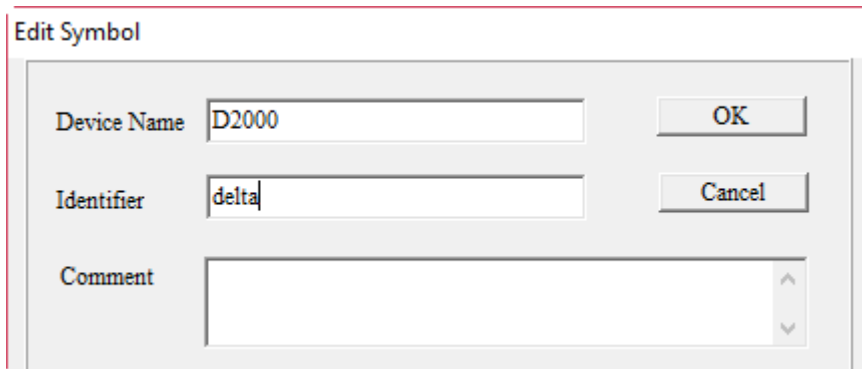
Import tag file



- After entering the table, double-click the left mouse button in the blank area.

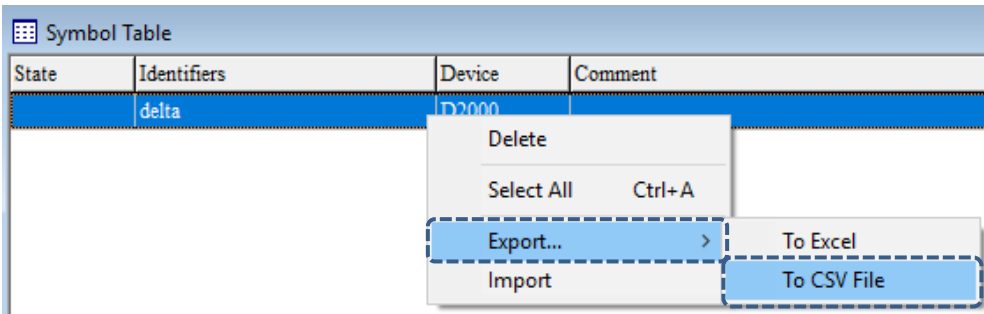


- Enter "D2000" for the Device Name and "delta" for the Identifier. Click **OK** to exit the Edit Symbol window.

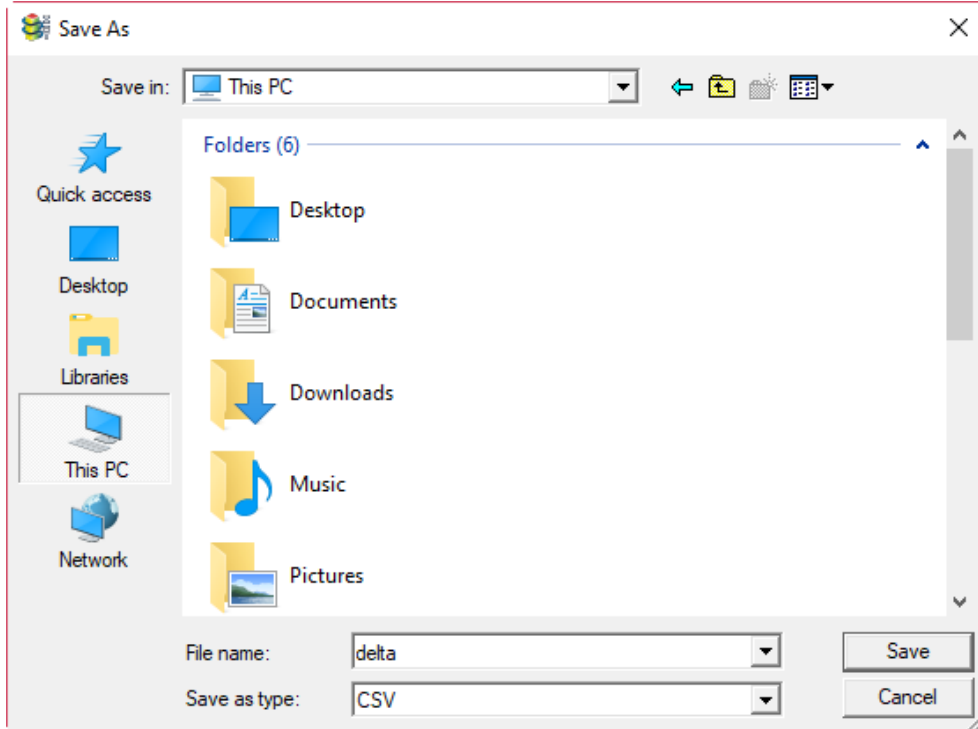


Tag Table


4. Right-click on the added symbol and export the symbol as a CSV file.

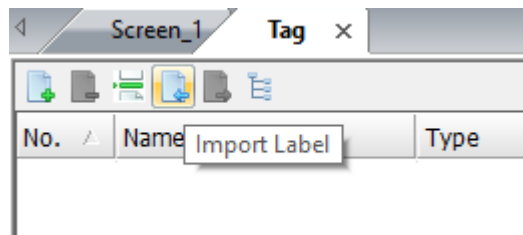


5. Name the exported CSV file as "delta.csv".

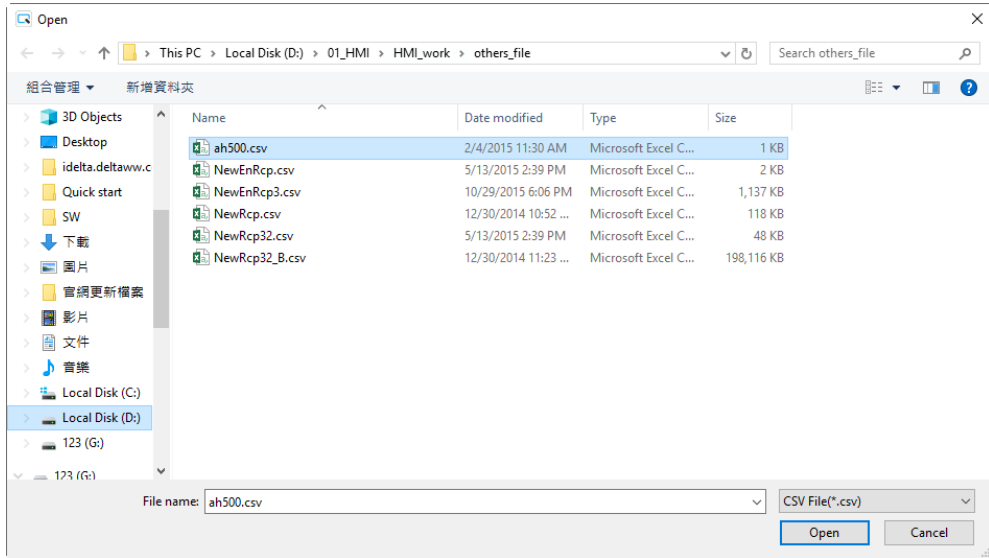


Import tag file

6. Run the DOPSoft software. Select [Options] > [Tag Table]. Click  and select the "delta.csv" file for importing.

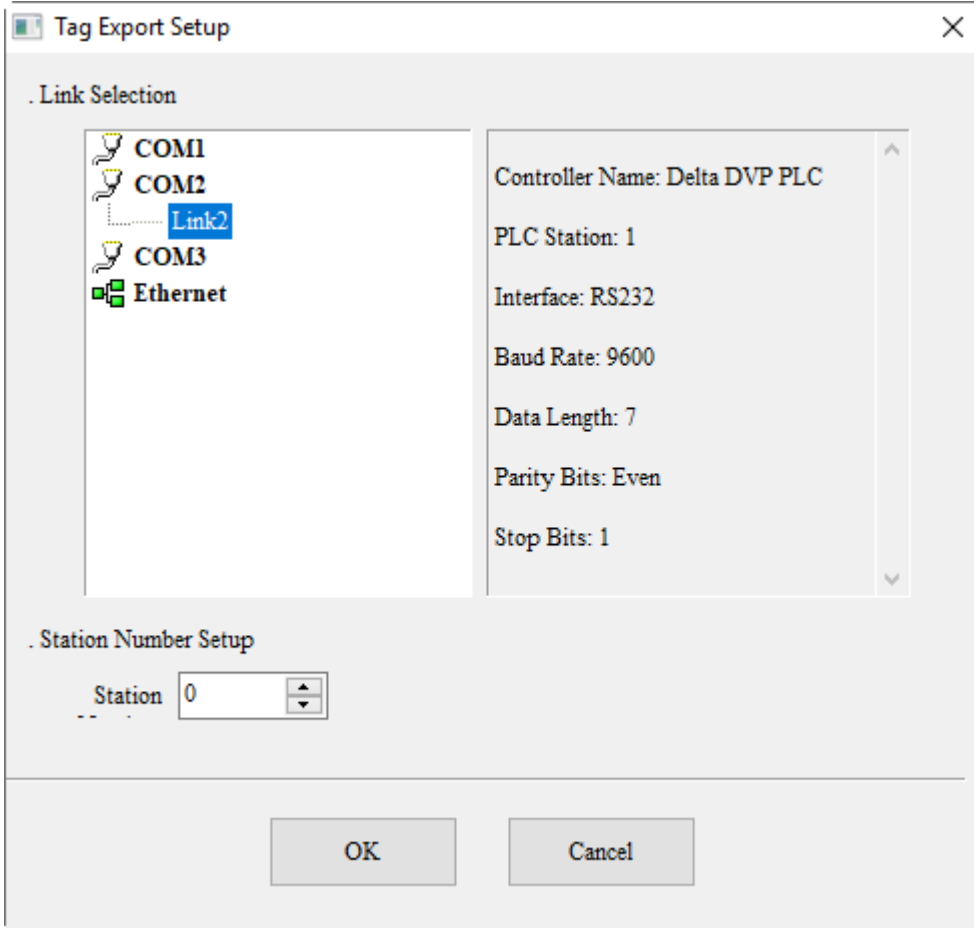


Tag Table



7. Select the COM Port to import to and set the Station number. Click **OK** once finishing the setup. The default station number is 0, but you can set the number as required.

Import tag file 



28

Tag Table

8. After you click **OK**, the Symbol Table of WPL is imported to DOPSoft.

No.	Name	Type	Address	Description
1	DELTA	WORD	{Link2}1@D2000	

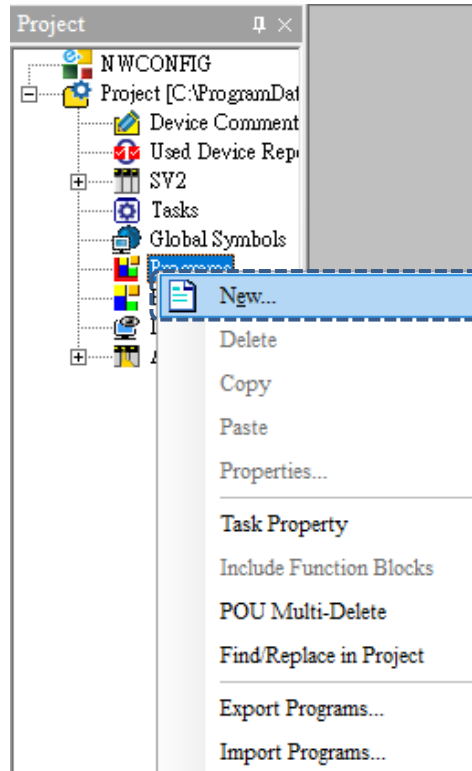
Note: the imported symbols are all recognized by DOPSoft as upper case letters. Thus, for the preceding example, the lower case symbols of "delta" edited in WPL are recognized as upper case symbols of "DELTA".

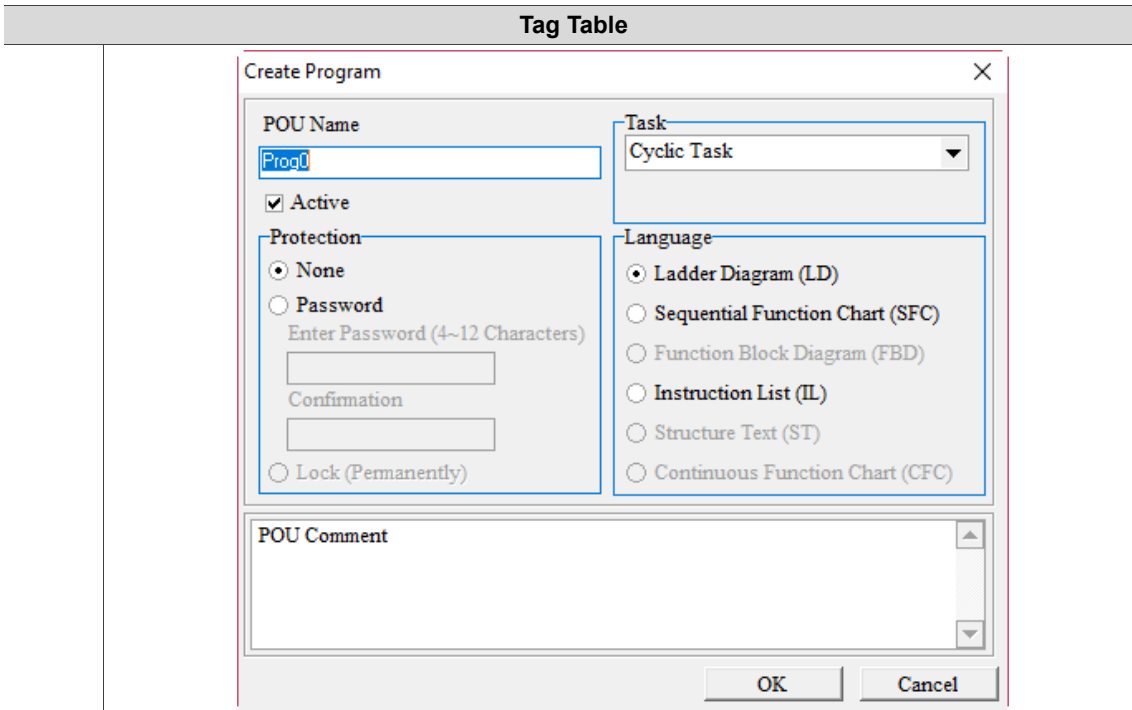
■ Export a Symbol Table using ISPSOft

The steps are as follows:

1. Run the ISPSOft software. Create a project. Right-click in the program to add a POU. Click **OK** to finish.

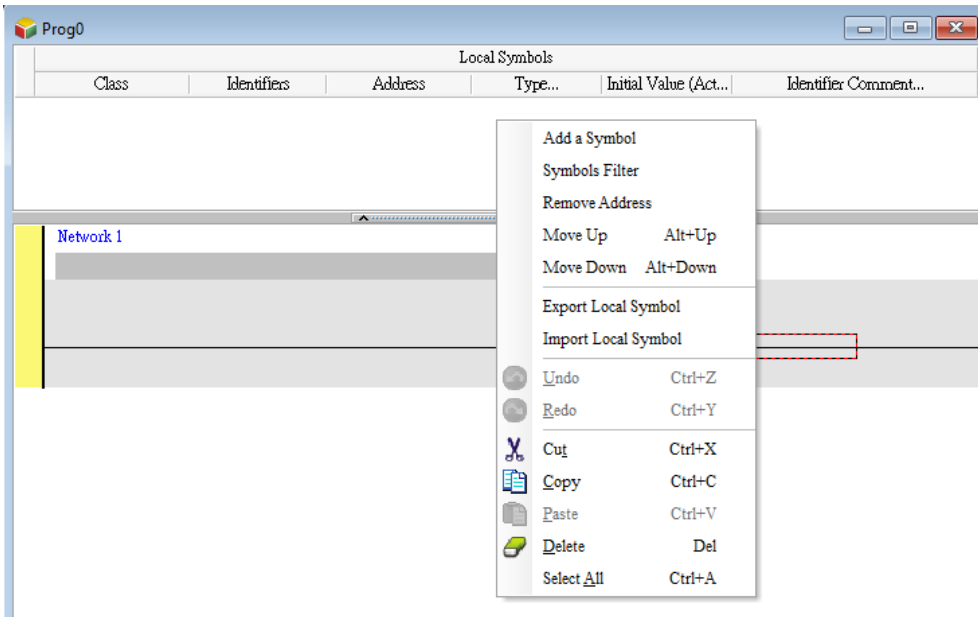
Import tag file



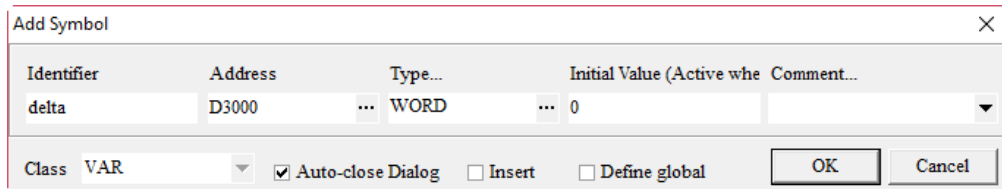


- After adding a POU, right-click on the blank area in the Local Symbols window, and select **Add a Symbol**.

Import tag file

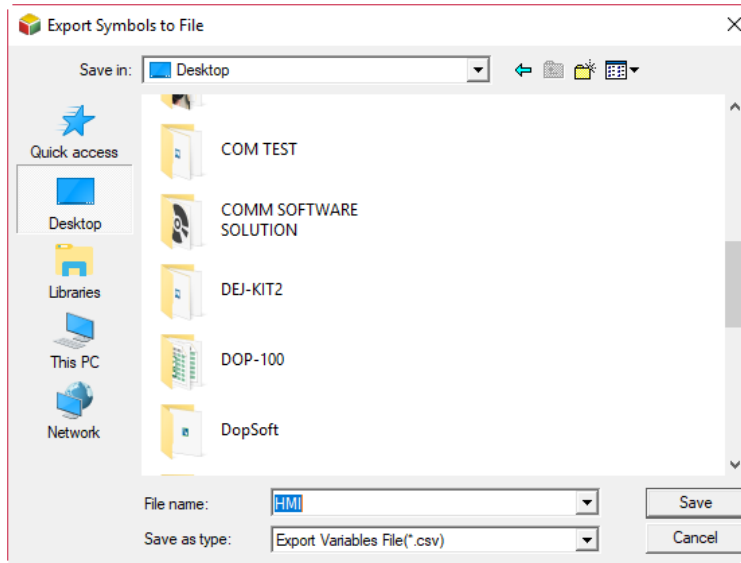
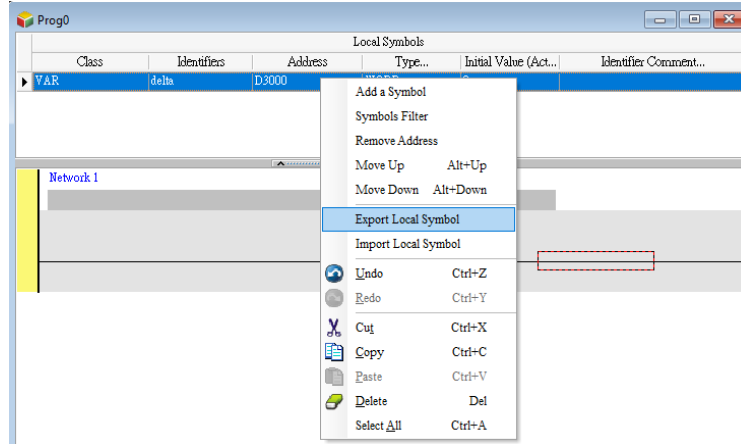


- Enter "delta" for the Identifier and "D3000" for the Address. Once done, click **OK** to exit the window.




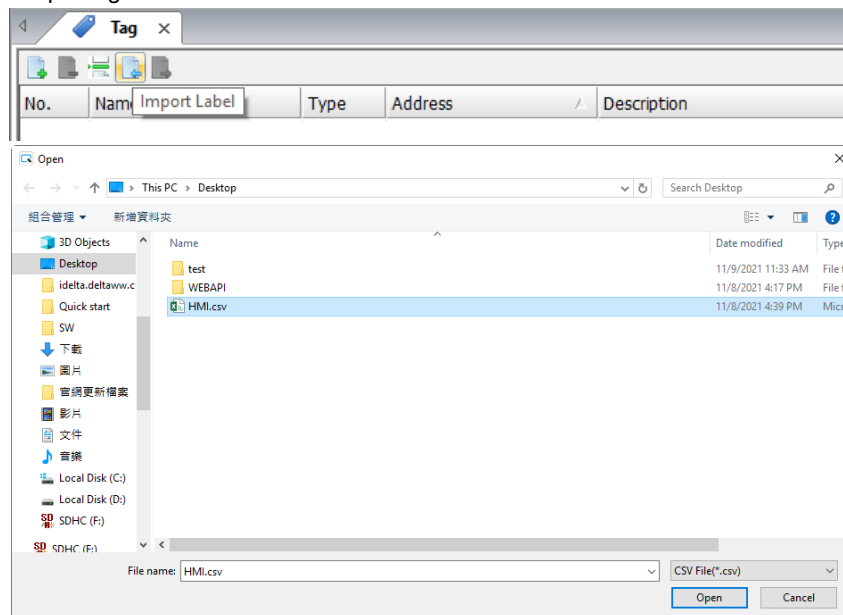
Tag Table

- Once you finish adding the symbol, go to the Local Symbols window. Right-click on the "delta" identifier to select **Export Local Symbol** and save it as an HMI.csv file.



Import tag file

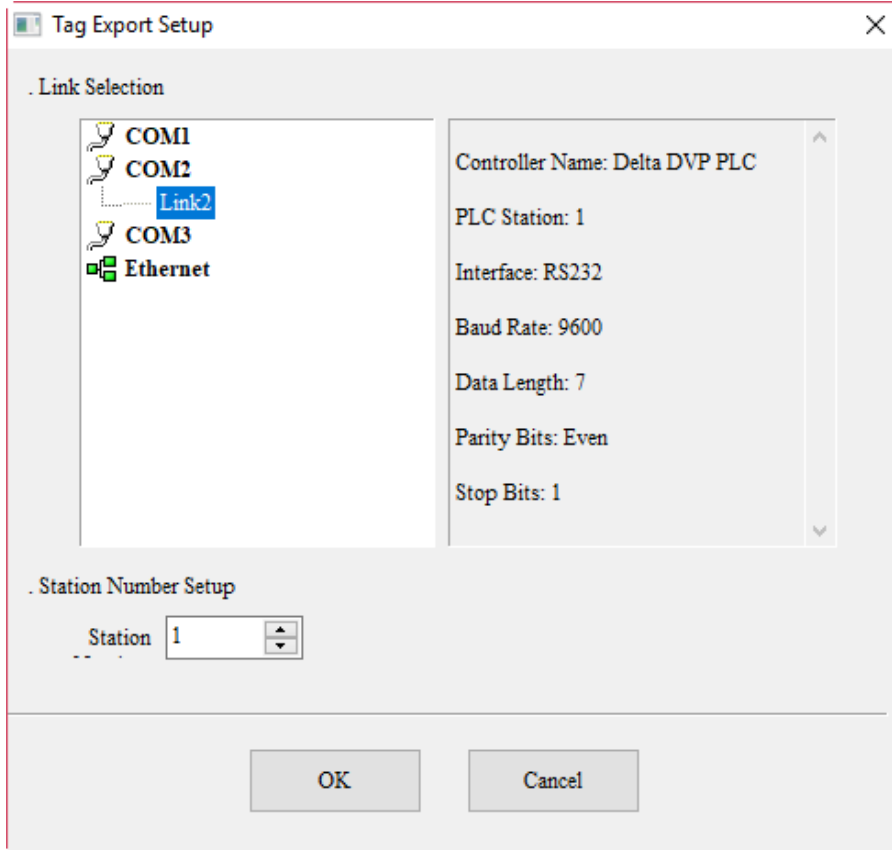
- Run DOPSoft and go to [Options] > [Tag Table]. Click  and select the "HMI.csv" file for importing.



Tag Table

- Select the COM Port to import to and set the Station number. Click **OK** once finishing the setup. The default station number is 0, but you can set the number as required.

Import Tag file



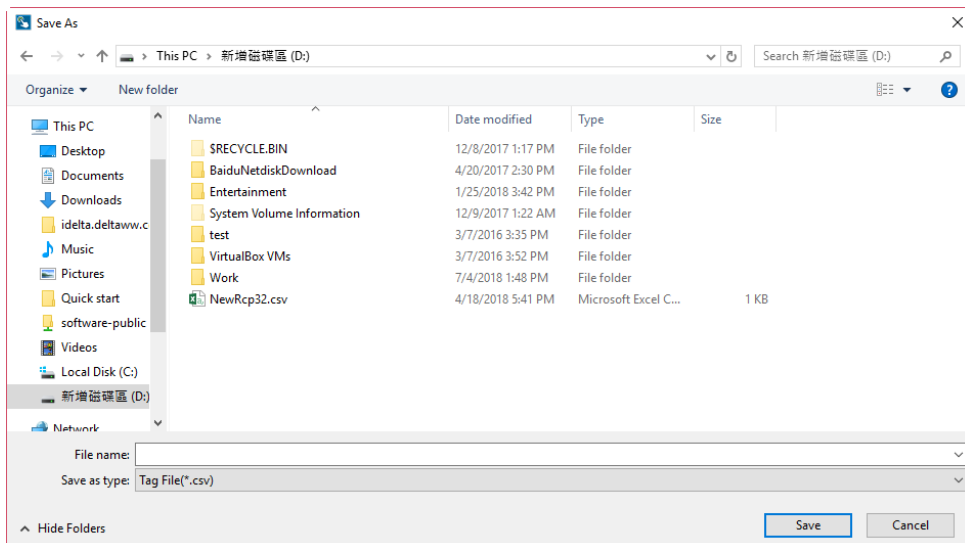
- After you click **OK**, the Symbol Table of ISPSOft is imported to DOPSoft.

No.	Name	Type	Address	Description
1	DELTA	WORD	{Link2}1@D3000	

Note: the imported symbols are all recognized by DOPSoft as upper case letters. Thus, for the preceding example, the lower case symbols of "delta" edited in ISPSOft are recognized as upper case symbols of "DELTA".

You can save the edited tag as a CSV file.

Export tag file



28

Tag Table

Add tag

You can add a new tag data entry by clicking the Add tag icon.

No.	Name	Type	Address	Description
1	DELTA	WORD	{Link2}1@D3000	
2		WORD		

Insert tag file

The new data entry is inserted before the row of the data entry you selected.

No.	Name	Type	Address	Description
1		WORD		
2	DELTA	WORD	{Link2}1@D3000	
3		WORD		

Delete tag

When you select a row of data entry and click the Delete tag icon, this selected data is deleted.

No.	Name	Type	Address	Description
1		WORD		
2	DELTA	WORD	{Link2}1@D3000	
3		WORD		

Exit the screen

If you add or insert a row of data entry without filling any data, and you exit this editing screen, the following warning message appears to warn you that the tag value is incorrect.

Sort by link name

- Sorts and displays the created links by link names.
- If there are three sets of tags created, the display without sorting is as follows.

No.	Name	Type	Address	Description
1	HMI	WORD	{Link2}1@M0	
2	DELTA	WORD	{Link2}1@D3000	
3	PLC	WORD	\$100	

- If you sort the tags by the link name, they are displayed with a tree view.

Name	Type	Address	Description
Internal Memory			
PLC	WORD	\$100	
Link2			
HMI	WORD	{Link2}1@M0	
DELTA	WORD	{Link2}1@D3000	

28.2 HMI Identifier

This section explains the HMI Identifier Settings provided in DOPSoft. When the HMI is set with an HMI Identifier and you open a screen not set with an identical HMI Identifier, an error message appears. This function ensures that the specific screens can only be downloaded to the specific HMIs. When this function is enabled and during HMI startup, the HMI checks whether the identifiers of both the screen file and HMI are matched. The HMI becomes operable only when the identifiers are matched. Thus, you can separately set the HMI Identifiers for the HMI and the screen file.

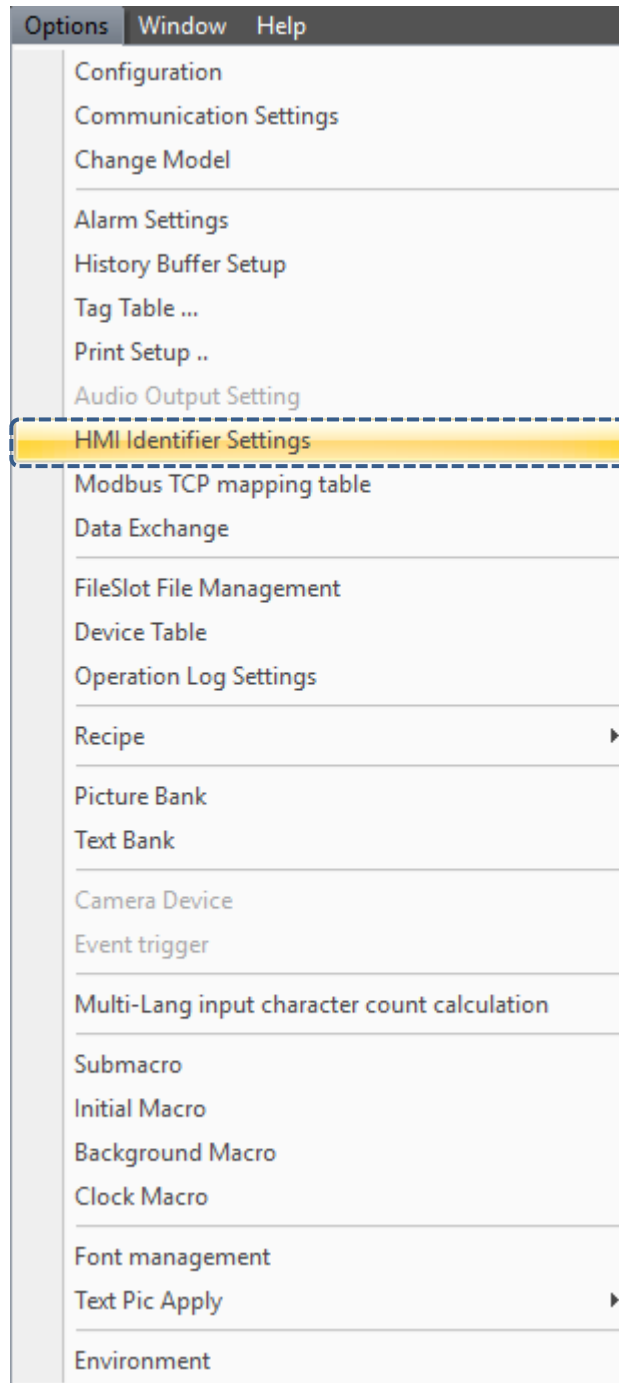
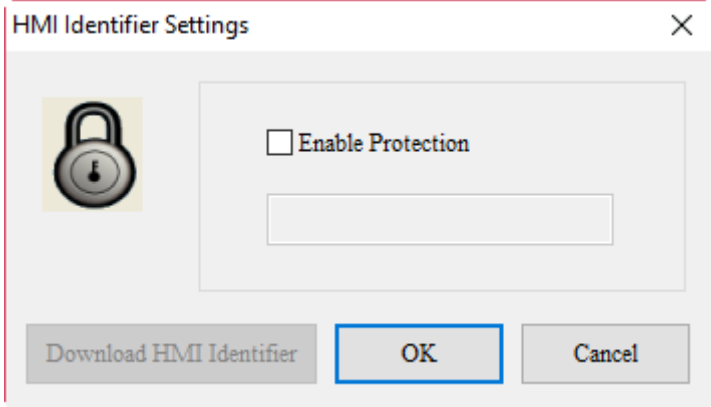


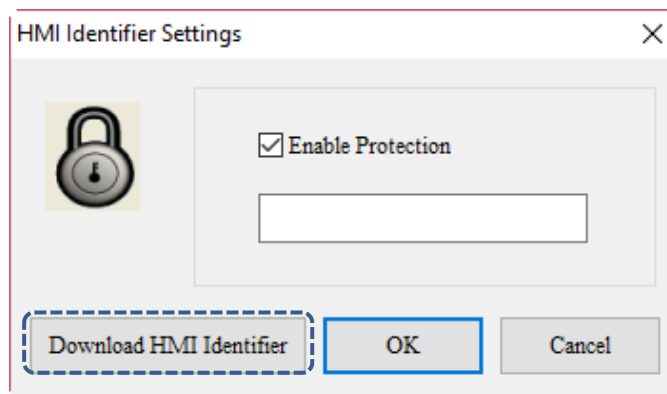
Figure 28.2.1 HMI Identifier Settings

Table 28.2.1 Properties of HMI Identifier Settings

Properties of HMI Identifier Settings	
	
Enable Protection	Select the check box to enable the HMI Identifier for protection. <div style="text-align: center;"><input type="checkbox"/> Enable Protection</div>
Password	The input format for passwords is HEX that supports numerals 0 - 9 and alphabets A - F. Other characters and symbols cannot be correctly entered to the password field.
Download HMI Identifier	<ul style="list-style-type: none"> ■ Executing this button only writes the identifier to the HMI. ■ Once you downloaded the identifiers, the HMI compares the identifiers for the screen file and HMI each time the HMI is turned on.

Note:

1. After you select the check box of **Enable Protection** and set its password, if you execute **Download All Data** without clicking **Download HMI Identifier**, only the identifier for the screen is downloaded.



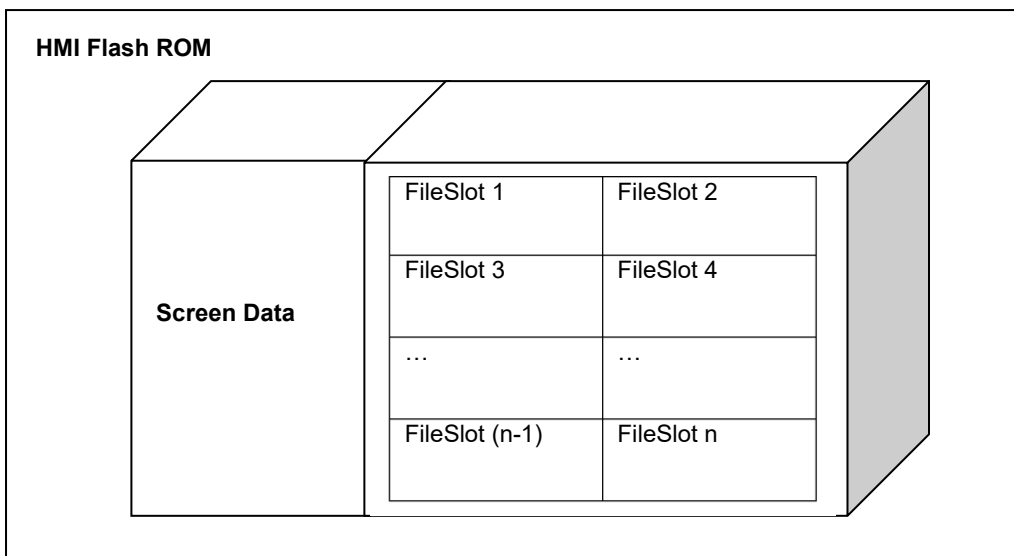
2. When there is an identifier for the HMI but no identifier for the screen, and you try to download the screen, the message “Check HMI Machine ID Fail 1” appears.
3. When there is an identifier for the screen but no identifier for the HMI, and you try to download the screen, the message “Check HMI Machine ID Fail 2” appears.
4. When the screen and HMI are set with different identifiers, and you try to download the screen, the message “Check HMI Machine ID Fail 3” appears.
5. If you forgot the set identifier, you can delete the identifier by going to [Tools] > [Reset HMI], but doing so will delete all the screen files in the HMI.

28.3 FileSlot File Management

In the FileSlot File Management setting window, you can configure for the size and content of each FileSlot. FileSlot files allow you to store and use the large amount of data in a flexible and convenient way. After creating a FileSlot, you can use the macro command FileSlotRead to read the file content to the register. You can also store the register data in these files. For example, when the pick-and-place arm programs for each product are different, you can store the program for each product in a different FileSlot and quickly switch to the program for the product by reading a different FileSlot.

Note:

1. After the FileSlot is downloaded to the HMI, a memory space required by the FileSlot is reserved in the HMI ROM.



2. Considering the efficiency of the HMI and data storage, when you download the screen with FileSlot configuration to the HMI, the HMI only reserves the memory space instead of directly generating the file. You need to use the file macro commands such as FileSlotWrite and ImportFileSlot to generate the file.
3. To delete the FileSlot file on the HMI, use Format HMI, Reset HMI, or the FileSlotRemove macro command.
4. If there is FileSlot file in the HMI and the data size you download is smaller than that already in the FileSlot file, some of the existing data in the FileSlot file will be cleared in the download screen. For example, if there are 5 sets of FileSlot data downloaded, but there are 10 sets of FileSlot data in the file, then the existing 6th to 10th data entries are cleared.
5. Except for the condition mentioned in Note No. 4, the number of the FileSlot data entries remains the same in the HMI. In other words, when you use the File Copy function of the HMI system to copy the screen files and the auto update files created with DOPSoft to the HMI that already has the FileSlot files, the number of data entries in the HMI remains unchanged.
6. As updating screens does not change the FileSlot file, we advise that you execute Format HMI or

28

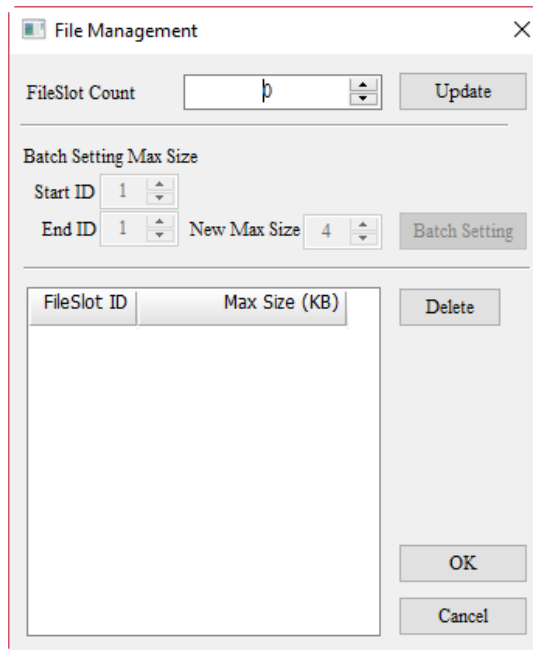
Reset HMI before re-planning the screens and FileSlot size.

- The File Copy function in the HMI system exports the FileSlot file. The exported file is stored in HMI-000\FILESLOT. Through this approach, you can import the FileSlot file to another HMI. If there is FileSlot file saved in the other HMI, the FileSlot file in that HMI will be overwritten.

The following section is the properties for File Management.

Table 28.3.1 Properties of File Management

File Management settings

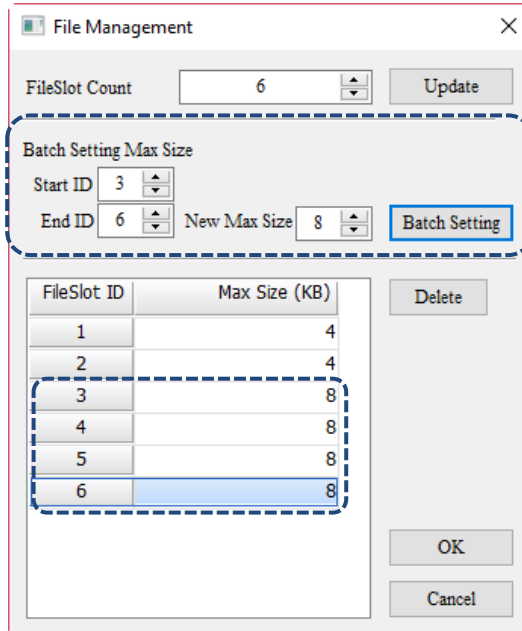


FileSlot Count	You can input the count of FileSlots you need. The maximum is 1024 FileSlots.
Update	<p>Input the total FileSlot count, and then click Update to plan for the set number of FileSlot. As shown in the following figure, if you set the total FileSlot count to 6, there will be 6 FileSlots planned.</p>

File Management settings

You can set the Max Size for the FileSlot in batch. Enter the Start ID, End ID, and New Max Size, and then click **Batch Setting** to set the New Max Size to the FileSlot with the assigned ID. As shown in the following figure, set the Start ID to 3, End ID to 6, and New Max Size to 8, so the Max Size for the FileSlot of ID3 - ID6 is changed to 8 and others remains the default value of 4.

Batch Setting
Max Size

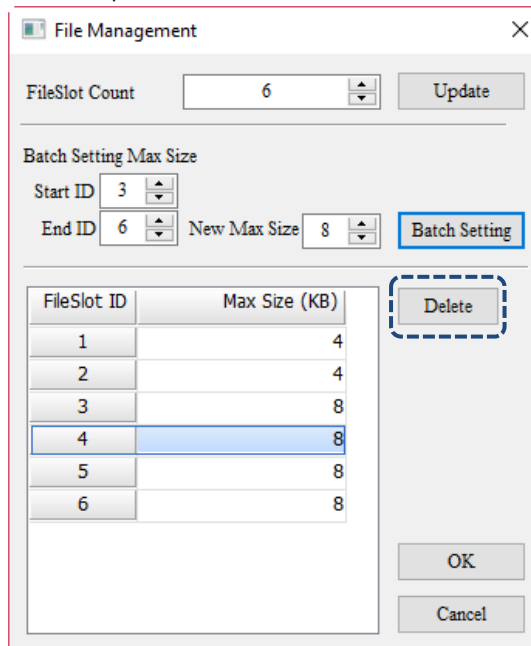


The **Delete** button deletes the FileSlots in the File Management window.

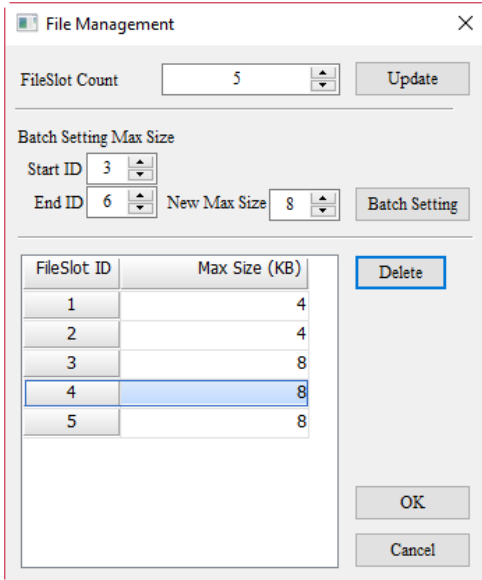
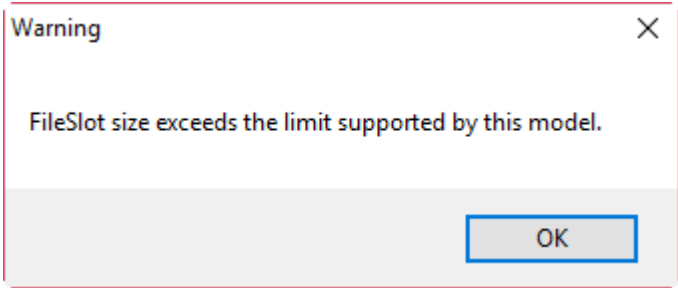

Delete

**Before
deletion**

Select one FileSlot and press **Delete**.

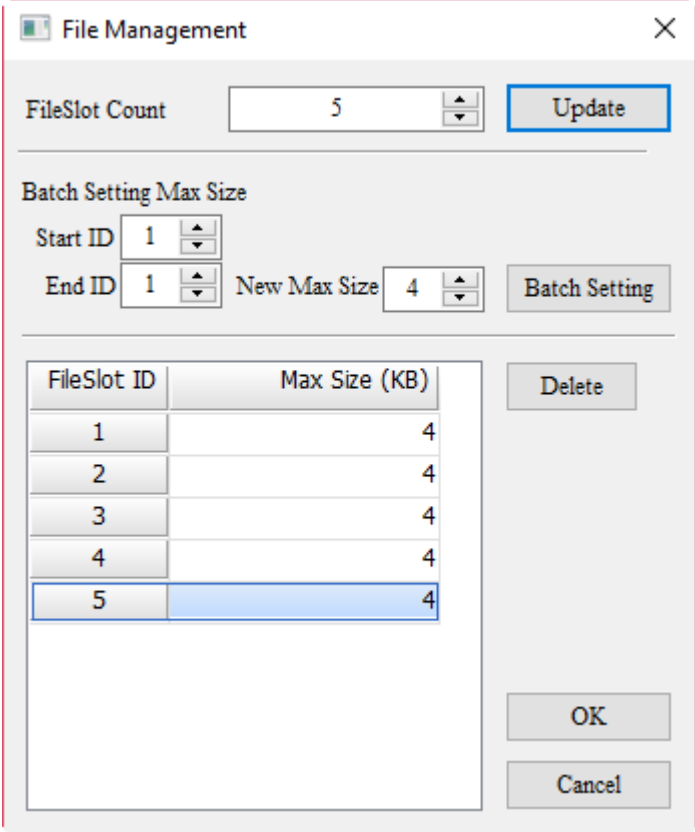
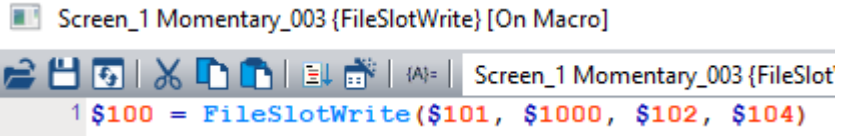
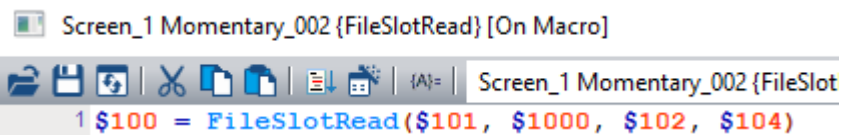


28

File Management settings		
Delete	After deletion	<p>After the deletion, the number of FileSlots turns from 6 to 5.</p> 
Max Size		You can set the Max Size for each FileSlot individually. The maximum value for Max Size is 102400 KB and the minimum value is 4 KB.
OK		<p>Once you finish setting the FileSlot File Management properties, click OK to save the changes you made and then exit the File Management window. If the total FileSlot file size is larger than the User Application space in the Flash ROM provided for the model, a warning message appears, as shown in the following figure. For the size of the User Application space in the Flash ROM of each model, refer to the instruction sheet of the model.</p> 
Cancel		When you click Cancel , no matter you have made any changes or not, the saving action is not executed, which works the same way as clicking  on the top right corner of the window.

The following section is the example of File Management.

Table 28.3.2 File Management example

File Management example	
Add FileSlot	<ul style="list-style-type: none"> ■ Go to [Options] > [FileSlot File Management]. ■ Set the FileSlot Count to 5. Click Update to display the set number of FileSlots. You can set the maximum file size for each FileSlot. When finishing the setting, click OK to exit the File Management window. <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;">  </div>
Create the button for executing macro command	<p>On the DOPSoft editing screen, create two Momentary buttons and set their Write Addresses to \$50.0 and \$50.1. For the On Macro, enter the FileSlotRead command, \$100 = FileSlotRead(\$101, \$1000, \$102, \$104) and the FileSlotWrite command, \$100 = FileSlotWrite(\$101, \$1000, \$102, \$104).</p> <div style="margin-bottom: 10px;">  </div> <div>  </div>

File Management example

Create Numeric Entry element

- On the screen, create the Numeric Entry elements that correspond to the macro command parameters, as shown in the following figure.

Return(\$100)	W:\$100	12345	<input type="text"/>
FileSlot ID(\$101)	W:\$101	12345	<input type="text"/>
Start Add(\$102)	W:\$102	1234567891	<input type="text"/>
Data Len(\$104)	W:\$104	12345	<input type="text"/>

- On the screen, create Numeric Entry elements (addresses of \$1000 - \$1048) for reading the content of the FileSlot file, as shown in the following figure.

Data Area(\$1000)

W:\$1000	W:\$1001	W:\$1002	W:\$1003	W:\$1004	W:\$1005	W:\$1006
W:\$1007	W:\$1008	W:\$1009	W:\$1010	W:\$1011	W:\$1012	W:\$1013
W:\$1014	W:\$1015	W:\$1016	W:\$1017	W:\$1018	W:\$1019	W:\$1020
W:\$1021	W:\$1022	W:\$1023	W:\$1024	W:\$1025	W:\$1026	W:\$1027
W:\$1028	W:\$1029	W:\$1030	W:\$1031	W:\$1032	W:\$1033	W:\$1034
W:\$1035	W:\$1036	W:\$1037	W:\$1038	W:\$1039	W:\$1040	W:\$1041
W:\$1042	W:\$1043	W:\$1044	W:\$1045	W:\$1046	W:\$1047	W:\$1048

Execution result

- When all the elements are created, compile the elements and download the screen to the HMI.
- Use the FileSlotWrite macro to write the data in the data area to the specified FileSlot file. The example in the following figure shows how to write the 10 Words in the data area to the FileSlot file with the ID as 1. After the data is written to the FileSlot, you can read the data back using FileSlotRead.

<input type="button" value="FileSlotRead"/>	Return(\$100)	<input type="text" value="1"/>	<input type="text"/>	<input type="button" value="Export"/>
<input type="button" value="FileSlotWrite"/>	FileSlot ID(\$101)	<input type="text" value="1"/>	<input type="text"/>	<input type="button" value="Import"/>
<input type="button" value="FileSlotRemove"/>	Start Add(\$102)	<input type="text" value="0"/>	<input type="text"/>	
<input type="button" value="FileSlotGetLength"/>	Data Len(\$104)	<input type="text" value="10"/>	<input type="text"/>	
<input type="button" value="FileSlotEXPORT"/>	Return Len(\$106)	<input type="text" value="0"/>	<input type="text"/>	
<input type="button" value="FileSlotIMPORT"/>	Device(\$108)	<input type="text" value="0"/>	2:USB, 3:SD	
<input type="button" value="Chinese"/>	FileName Len(\$110)	<input type="text" value="0"/>	<input type="text"/>	
<input type="button" value="English"/>	FileName(\$120)	<input type="text"/>		

Data Area(\$1000)

1	2	3	4	5	6	7
8	9	10	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

- Before using the FileSlotRead, make sure you have created the actual file with FileSlotWrite or FileSlotImport.

28.4 Device Data table

The Device Data table enables the HMI to import or export \$M non-volatile data, but it is not for you to download the data after editing with DOPSoft. When you select the check box for **Include device table**, you can update \$M data to the HMI when downloading all screen data, creating screen data files, or copying files, which makes the operation easier when multiple HMIs need to share the same set of \$M data.

The following is how it works. Read the \$M data from HMI A and use the upload function of the DOPSoft to upload and export the \$M data. Then, import the \$M data to HMI B, so HMI B can share the same \$M data.

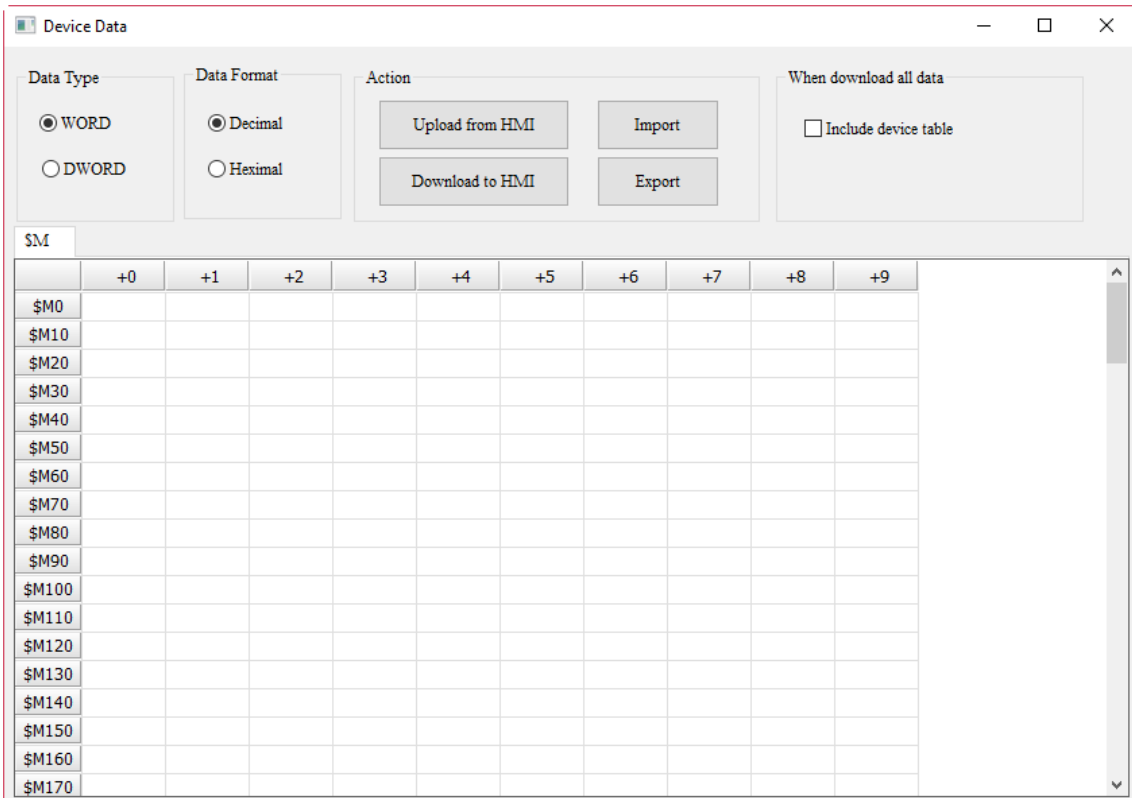
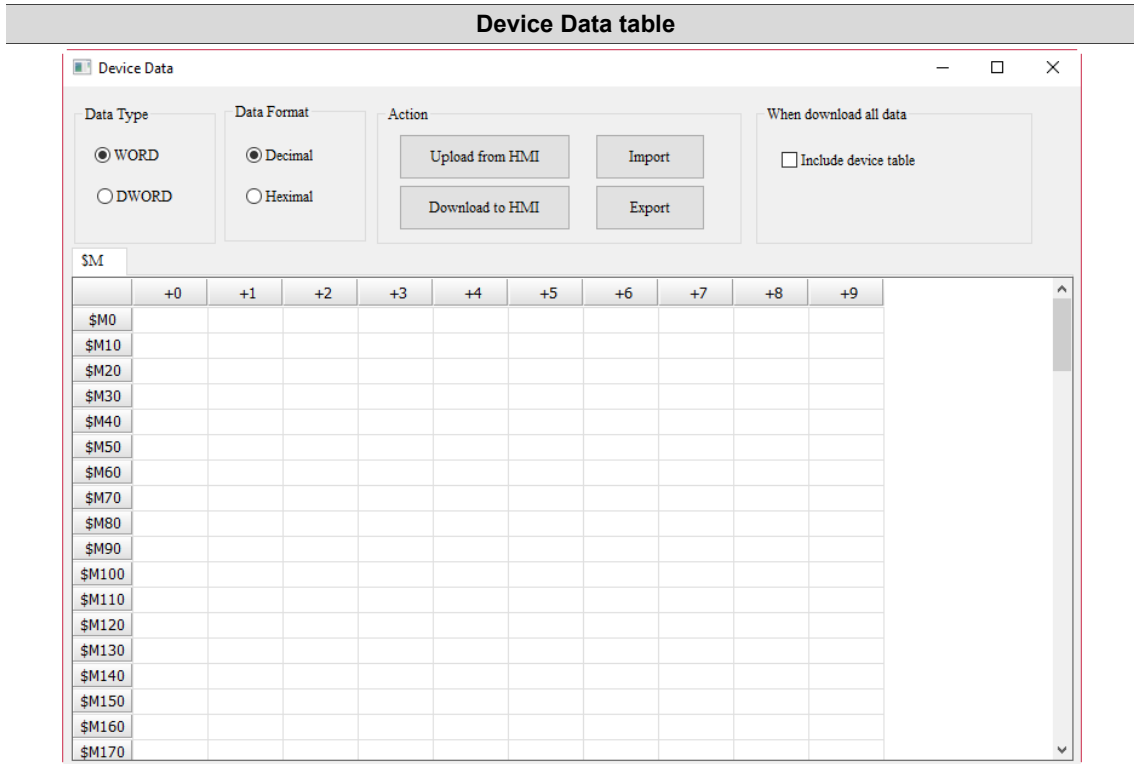


Figure 28.4.1 Device Data table

Table 28.4.1 Properties of Device Data table

28



The Device Data table displays \$M non-volatile data, with the range of \$M0 - \$M1023. You can set the Data Type or Data Format for display.

Data Type	WORD	The default Data Type displayed is WORD.
	DWORD	You can change the data type of the \$M data to DWORD.

\$M	+0	+1	+2	+3	+4	+5	+6	+7	+8
\$M0	-1412170091	-1223185453	953267991	1073756369	1176256512	-909228516	-1179661874	-1241466449	-1044793856
\$M10	618585578	68166878	319751184	-692055281	-1783703872	-1434675794	1572776572	484203966	-536994596
\$M20	1592452022	1979145962	1394046455	548492055	1120280753	8405702	-2031091584	-1048541456	1562820992
\$M30	-114537454	2146171180	-1073840149	-671170562	-839198722	2042351098	-1357874757	-302010608	388886015
\$M40	1363809024	319181130	55055110	-922156216	411224329	1653741698	-1806933358	2120979532	-67535253
\$M50	-713046136	518903167	-408019219	2002708398	-875333794	1421003731	305812658	1573655098	1631477196
\$M60	1164058704	333596002	1414009826	2010797128	863467482	1843278711	1576693214	1979080186	-571312650
\$M70	-25408130	1409875580	2027967496	-2077722400	744653864	336604258	25695248	159383944	-1610086016
\$M80	-549477955	2045239103	-183404057	-256117487	1437855931	-536980045	-1644765186	-976708106	81446344
\$M90	1312375808	-417575367	601417500	269034456	-1796337655	-52980498	-14156585	-1751187673	-1376938082
\$M100	-915865600	51561	0	0	0	0	0	612499456	1560814722
\$M110	0	0	0	0	0	0	0	884146176	-1075170125
\$M120	0	0	0	0	0	0	0	1219559424	-1894037327
\$M130	0	0	0	0	0	0	0	253558784	-1493758179
\$M140	0	0	0	0	0	0	0	393936896	-122218629
\$M150	0	0	0	0	0	0	0	1384054784	2121552511
\$M160	0	0	0	0	0	0	0	-1076297728	-26624039

Device Data table

The default Data Format displayed is Decimal.

Decimal

\$M	+0	+1	+2	+3	+4	+5	+6	+7	+8
\$M0	-363	-21549	-18665	14545	16384	17948	-13874	-18001	-18944
\$M10	-8726	9438	1040	4879	-10560	-27218	-21892	23998	7388
\$M20	-7242	24298	30199	21271	8369	17094	128	-30992	-16000
\$M30	19474	-1748	32747	-16386	-10242	-12806	31163	-20720	-4609
\$M40	4864	20810	4870	840	-14071	6274	25234	-27572	32363
\$M50	-14456	-10881	7917	-6226	30558	-13357	21682	4666	24012
\$M60	8272	17762	5090	21576	30682	13175	28126	24058	30198
\$M70	19838	-388	21512	30944	-31704	11362	5136	392	2432
\$M80	-24131	-8385	31207	-2799	-3909	21939	-8194	-25098	-14904
\$M90	17408	20025	-6372	9176	4105	-27410	-809	-217	-26722
\$M100	0	-13975	0	0	0	0	0	0	9346
\$M110	0	0	0	0	0	0	0	0	13491
\$M120	0	0	0	0	0	0	0	0	18609
\$M130	0	0	0	0	0	0	0	0	3869
\$M140	0	0	0	0	0	0	0	0	6011
\$M150	0	0	0	0	0	0	0	0	21119
\$M160	0	0	0	0	0	0	0	0	-16423

Data Format

You can change the data format of the \$M data to Hexadecimal.

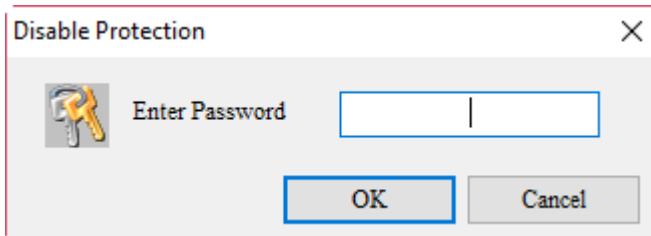
Hexadecimal

\$M	+0	+1	+2	+3	+4	+5	+6	+7	+8
\$M0	FE95	ABD3	B717	38D1	4000	461C	C9CE	B9AF	B600
\$M10	DDEA	24DE	410	130F	D6C0	95AE	AA7C	5DBE	1CDC
\$M20	E386	5EEA	75F7	5317	20B1	42C6	80	86F0	C180
\$M30	4C12	F92C	7FEB	8FFE	D7FE	CDFA	798B	AF10	EDFF
\$M40	1300	514A	1306	348	C909	1882	6292	944C	7E6B
\$M50	C788	D57F	1EED	E7AE	775E	CBD3	54B2	123A	5DCC
\$M60	2050	4562	13E2	5448	77DA	3377	60DE	5DFA	75F6
\$M70	4D7E	FE7C	5408	78E0	8428	2C62	1410	188	980
\$M80	A1BD	DF3F	79E7	F511	F0BB	55B3	DFFE	9DF6	C5C8
\$M90	4400	4E39	E71C	23D8	1009	94EE	FCD7	FF27	979E
\$M100	0	C969	0	0	0	0	0	0	2482
\$M110	0	0	0	0	0	0	0	0	3483
\$M120	0	0	0	0	0	0	0	0	48B1
\$M130	0	0	0	0	0	0	0	0	F1D
\$M140	0	0	0	0	0	0	0	0	177B
\$M150	0	0	0	0	0	0	0	0	527F
\$M160	0	0	0	0	0	0	0	0	BFD9

Action

Upload from HMI

- This action reads the current \$M data on the HMI and uploads it to this Device Data table for display.
- Before carrying out this action, you are required to enter the highest security password. The default is 12345678.



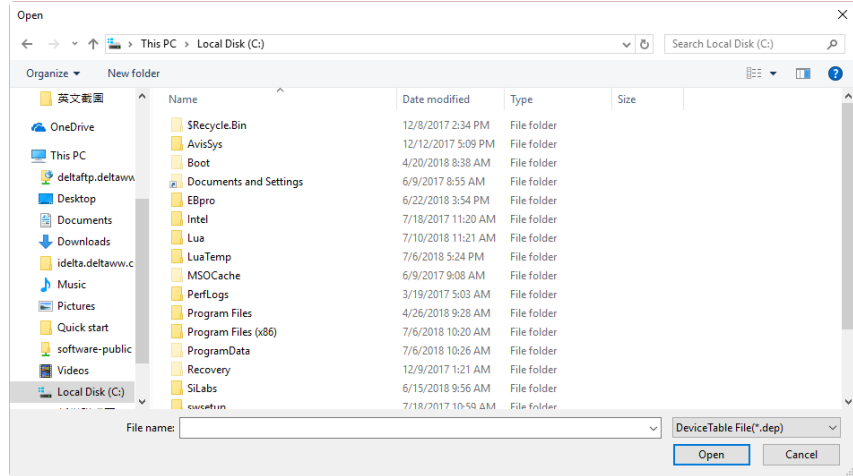
Download to HMI

- This action downloads the \$M data displayed on the Device Data table to the HMI.
- You can check if the data is correct by creating registers \$M0 - \$M1023 on the HMI.

Device Data table

Import

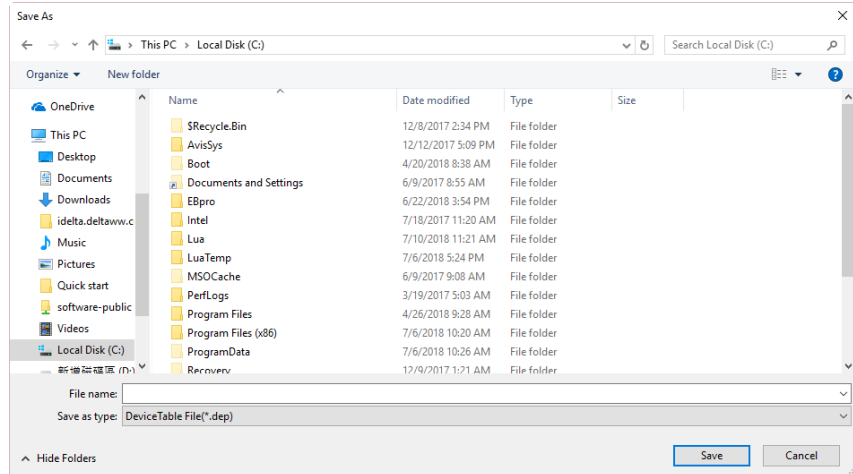
You can import the Device Data table stored on another HMI. The supported file format is .dep.



Action

Export

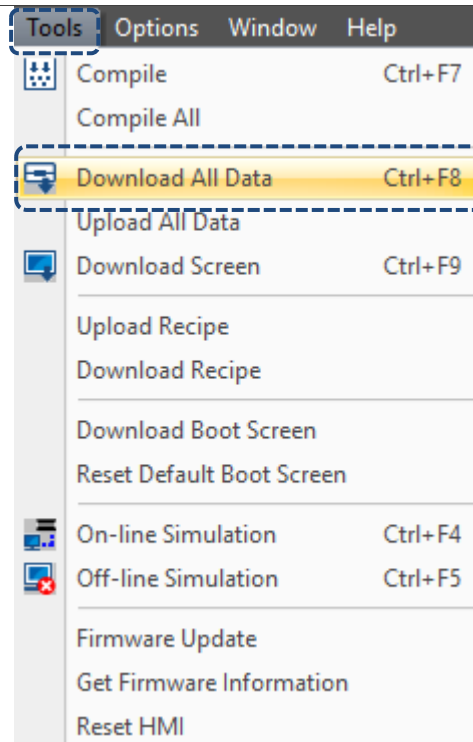
You can export the \$M data displayed on the current Device Data table. The file format saved is .dep.



- When you select the check box for **Include device table**, you can download the \$M non-volatile data to the HMI by executing Downloading All Data.

When download all data

<p>Action</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid gray; padding: 5px; width: 150px; text-align: center;">Upload from HMI</div> <div style="border: 1px solid gray; padding: 5px; width: 100px; text-align: center;">Import</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid gray; padding: 5px; width: 150px; text-align: center;">Download to HMI</div> <div style="border: 1px solid gray; padding: 5px; width: 100px; text-align: center;">Export</div> </div>	<p>When download all data</p> <div style="border: 1px dashed blue; padding: 5px; display: inline-block;"> <input checked="" type="checkbox"/> Include device table </div>
--	--



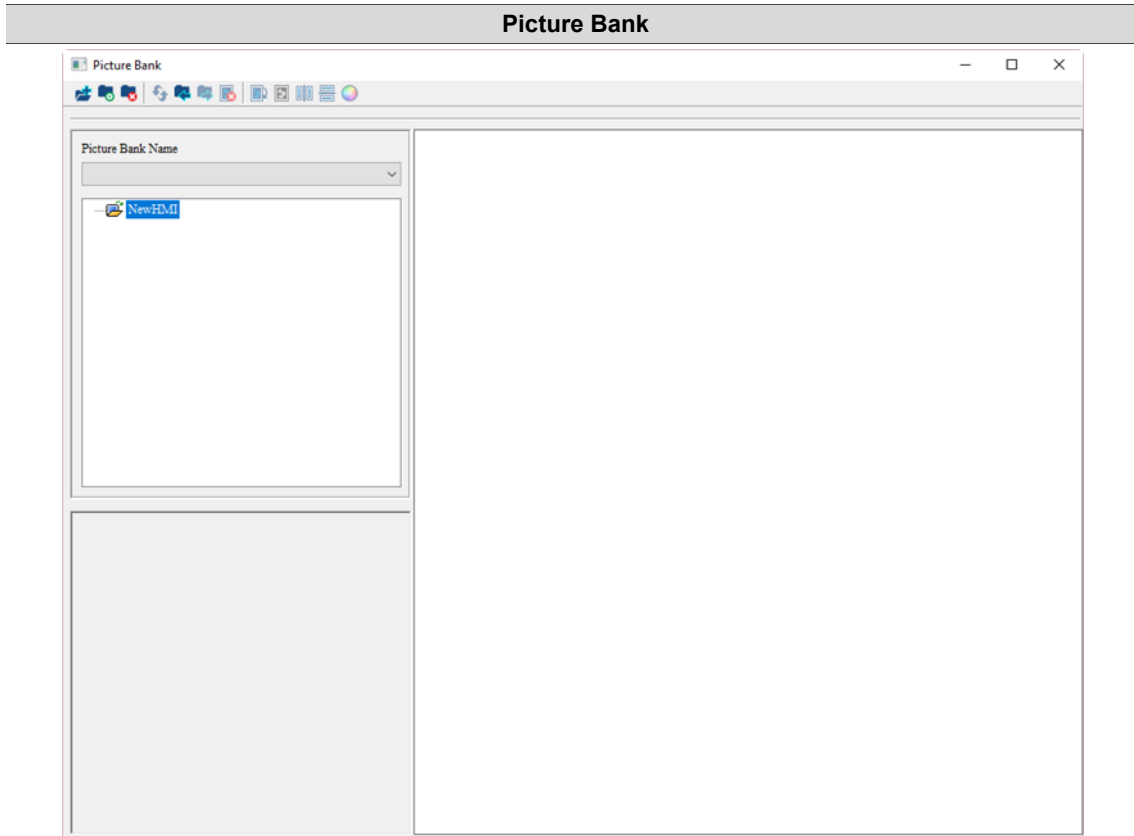
- When you select the check box for **Include device table**, it means you can sync the Device Data table to another HMI by using the Create Screen Data File function to copy the screen data file.



28

28.5 Picture Bank

The Picture Bank allows you to quickly apply the pictures to the elements. You can also import non-built-in pictures and perform simple editing on the pictures, such as color inversion, converting to 256 colors grayscale, horizontal mirroring, and vertical mirroring.

Table 28.5.1 Properties of Picture Bank

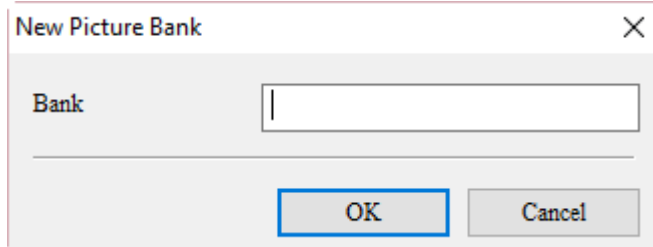



Picture Bank provides functions including [Add Picture Bank ], [Open / Install Picture Bank ], [Remove Picture Bank ], [Update Picture Bank Content ], [Import Picture Data ], [Export Picture Bank Content to File ], [Delete ], [Invert ], [Convert to 256 Colors Grayscale ], [Horizontal Mirror ], [Vertical Mirror ], and [Adjust Saturation .


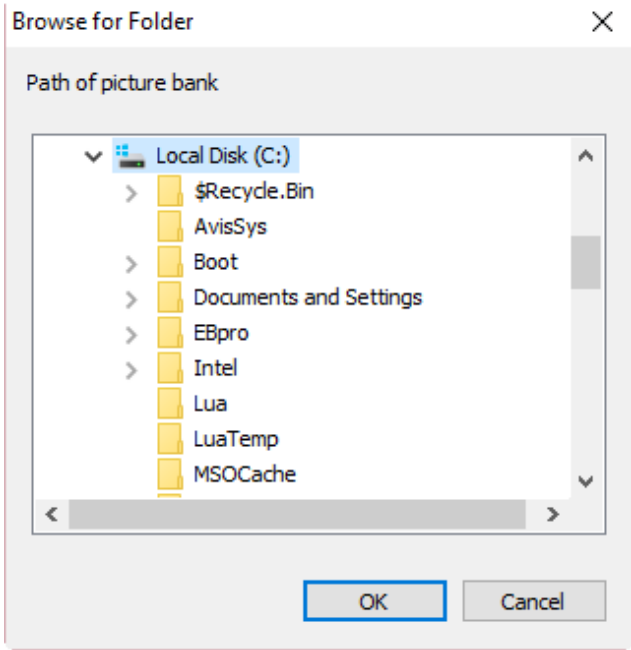


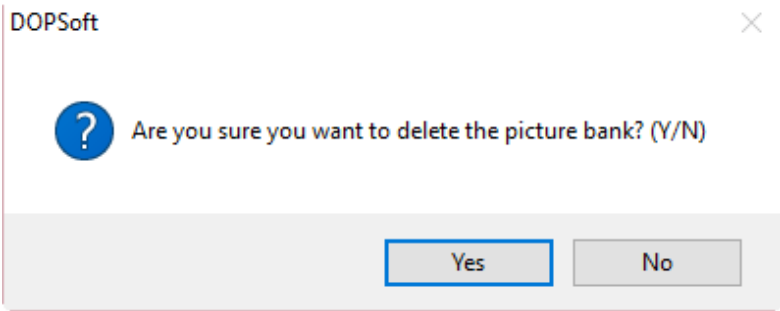


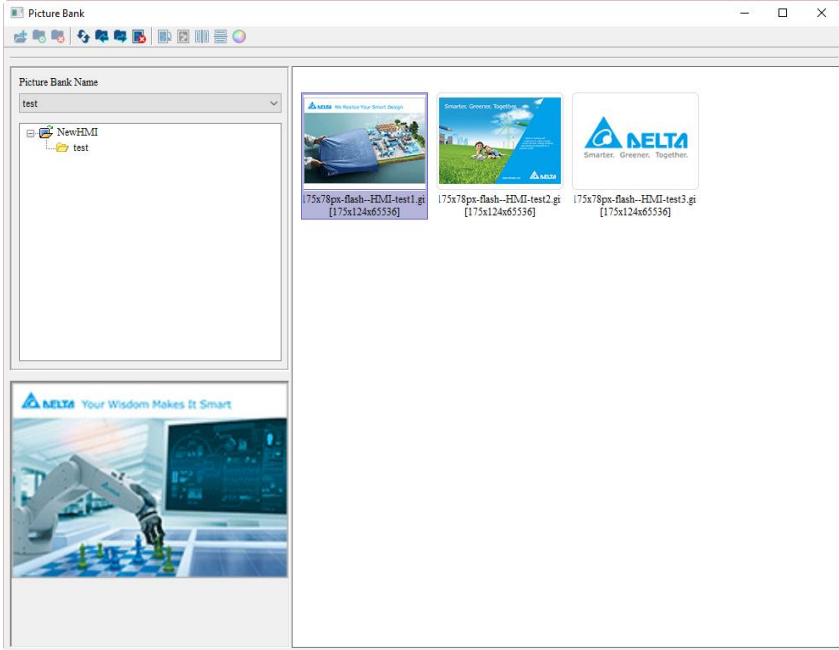
Add Picture Bank



- Click this button and the software asks you to enter the name for the picture bank.



- After adding the picture bank, click the icon of Import Picture Data  to import pictures to the picture bank.

Picture Bank	
<p>Open / Install Picture Bank</p> 	<p>This button allows you to install and use the picture bank created in another project. You must select the path to the location where the existing picture bank is stored.</p> 
<p>Remove Picture Bank</p> 	<p>After you click  , the software will ask if you want to remove the picture bank.</p> 
<p>Import Picture Data</p> 	<p>After adding the picture bank, you can click  to import pictures into the picture bank.</p> 

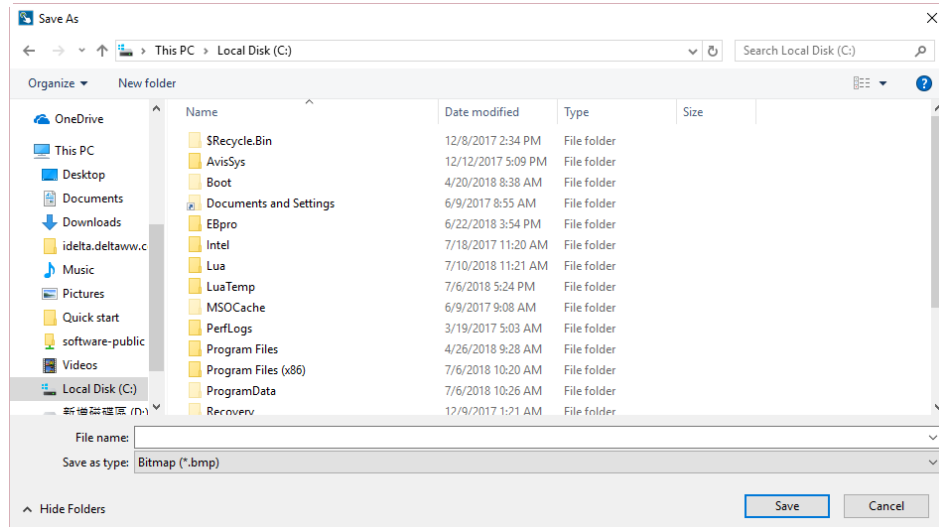
28

Export Picture Bank Content to File



Picture Bank

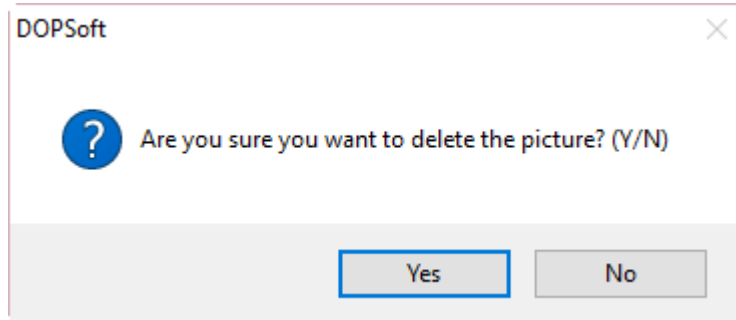
After importing the pictures, the content of the picture bank can also be exported. The exported file is saved in .bmp format.



Delete



This function is to delete the imported picture data and pictures. Before deleting, you will be asked whether to proceed with the deletion.































Invert



The Invert function switches colors for the original picture to have it displayed in negatives.



Picture Bank					
<p>Convert to 256 Colors Grayscale</p> 	<p>The Grayscale 256 option converts original colors of the picture to have it displayed in grayscale (256 levels).</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <th style="width: 50%;">Before</th> <th style="width: 50%;">After</th> </tr> <tr> <td></td> <td></td> </tr> </table>	Before	After		
Before	After				
					
<p>Horizontal Mirror</p> 	<p>Horizontal Mirror creates a left and right reversal mirror effect for the original picture.</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <th style="width: 50%;">Before</th> <th style="width: 50%;">After</th> </tr> <tr> <td></td> <td></td> </tr> </table>	Before	After		
Before	After				
					
<p>Vertical Mirror</p> 	<p>Vertical Mirror creates an upside down mirror effect for the original picture.</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <th style="width: 50%;">Before</th> <th style="width: 50%;">After</th> </tr> <tr> <td></td> <td></td> </tr> </table>	Before	After		
Before	After				
					
<p>Adjust Saturation</p> 	<ul style="list-style-type: none"> ■ Saturation is also known as chroma of the colors. It refers to the colorfulness of the colors or the amount of a single color within a specific color. The higher the amount, the higher the color saturation is for this color; whereas, the lower the amount, the lower the color saturation is for this color. ■ This function is to make the original pictures more vivid in color rendering. ■ The following example sets the saturation to 100. <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> <p>Detail</p> <p>Hue -100 <input type="range" value="0"/> 100 <input type="text" value="0"/></p> <p>Saturation -100 <input type="range" value="100"/> 100 <input type="text" value="100"/></p> </div> <table border="1" style="width: 100%; text-align: center;"> <tr> <th style="width: 50%;">Before adjusting saturation</th> <th style="width: 50%;">After adjusting saturation</th> </tr> <tr> <td></td> <td></td> </tr> </table>	Before adjusting saturation	After adjusting saturation		
Before adjusting saturation	After adjusting saturation				
					

28

28.6 Text Bank

You can edit some frequently used phrases and store them in the Text Bank. In this way, when you need to input the text to the element, you can directly import the previously edited string from the Text Bank without re-entering the string. After the text string is created in the Text Bank, if you click [Edit] > [Text Process], this function allows you to link with the Text Bank and import the already-created text directly to the selected element, as shown in the following figure.

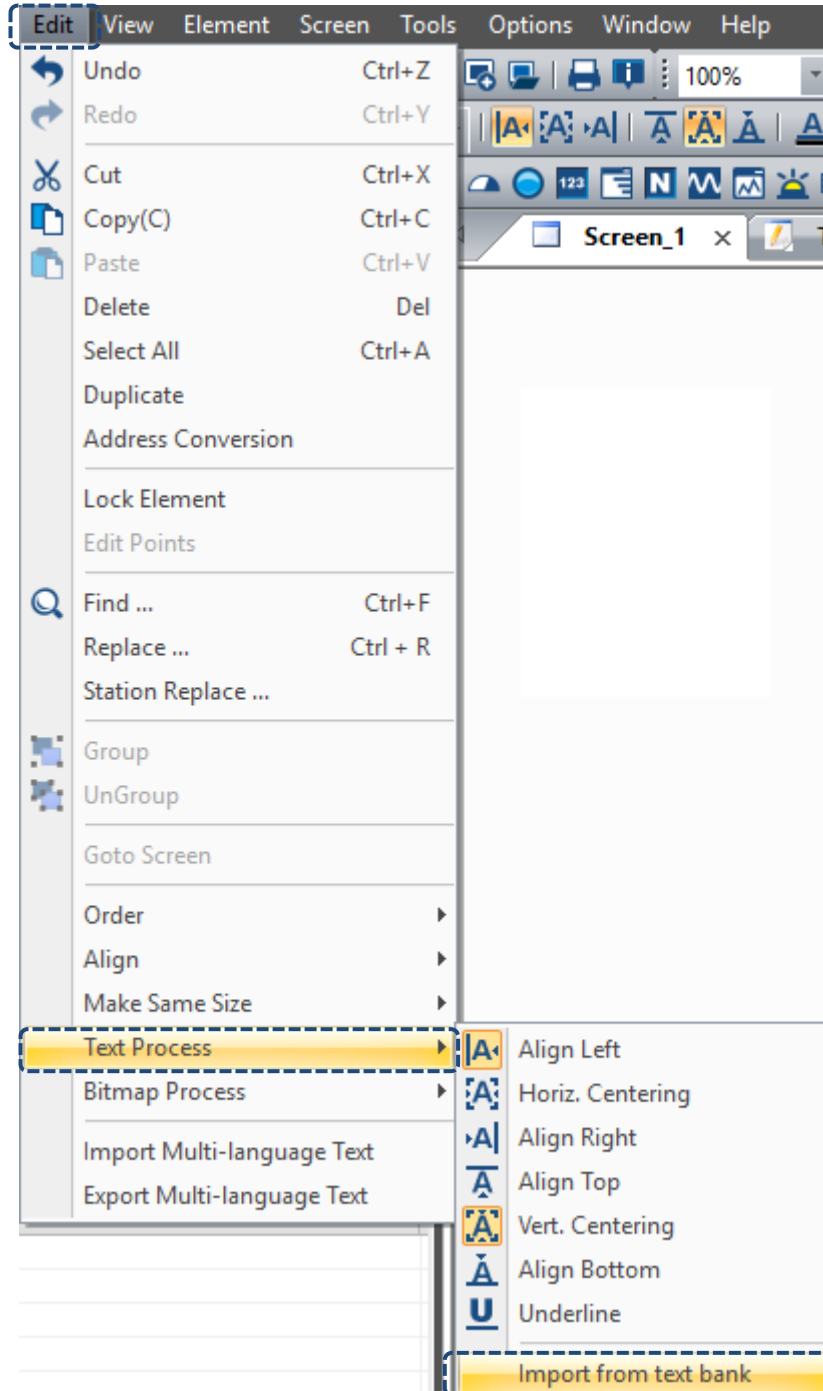


Figure 28.6.1 Import from text bank

If you have set multiple languages, you can also edit the texts in different languages in advance in the Text Bank.

Table 28.6.1 Multi-language Text Bank content





English		Chinese
No.	ENG	CH
1	Delta	台達電子


Table 28.6.2 Properties of Text Bank

Text Bank	
No.	Language1






28

Text Bank

- Functions of the Text Bank include Add a text bank , Delete selected text bank , Open text bank file , and Save .
- You can also change the font for the entered text in the text bank.

 Arial
- When you have set multiple languages, you can edit the multi-language contents in the text bank.

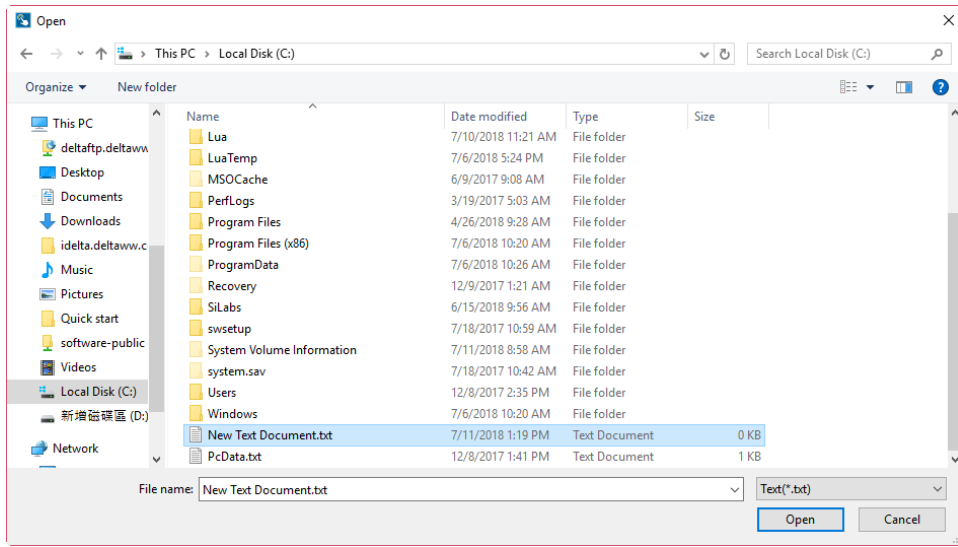
No.	Chinese	English	Japanese

<p>Add a text bank </p>	<p>Press  to add a data row for you to enter the message content.</p> <div style="border: 1px solid gray; padding: 5px; margin: 5px 0;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">No.</th> <th style="width: 90%;">Language1</th> </tr> </thead> <tbody> <tr> <td>1</td> <td> </td> </tr> </tbody> </table> </div>	No.	Language1	1									
No.	Language1												
1													
<p>Delete selected text bank </p>	<p>To delete a data row, click on the data to be deleted and press the delete button .</p> <div style="border: 1px solid gray; padding: 5px; margin: 5px 0;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">No.</th> <th style="width: 90%;">Delete Selected New Text Bank</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Delta</td> </tr> </tbody> </table> </div>	No.	Delete Selected New Text Bank	1	Delta								
No.	Delete Selected New Text Bank												
1	Delta												
<p>Open text bank file </p>	<ul style="list-style-type: none"> File formats of .tbk, .txt, and .xls are supported. <div style="border: 1px solid gray; padding: 5px; margin: 5px 0;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Text Bank(*.tbk)</td> <td style="text-align: right; padding: 2px;">v</td> </tr> <tr> <td style="padding: 2px;">Text Bank(*.tbk)</td> <td style="padding: 2px;"> </td> </tr> <tr> <td style="padding: 2px;">Text(*.txt)</td> <td style="padding: 2px;"> </td> </tr> <tr> <td style="padding: 2px;">Excel File(*.xls)</td> <td style="padding: 2px;"> </td> </tr> </table> </div> You can directly use this function to import data from the already-created text file (.txt) or excel file (*.xls). The following figure shows the created text file. <div style="border: 1px solid gray; padding: 5px; margin: 5px 0;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">New Text Document.txt - Notepad</td> </tr> <tr> <td style="padding: 2px;">File Edit Format View Help</td> </tr> <tr> <td style="padding: 2px;">HMI</td> </tr> <tr> <td style="padding: 2px;">IABG </td> </tr> </table> </div> 	Text Bank(*.tbk)	v	Text Bank(*.tbk)		Text(*.txt)		Excel File(*.xls)		New Text Document.txt - Notepad	File Edit Format View Help	HMI	IABG
Text Bank(*.tbk)	v												
Text Bank(*.tbk)													
Text(*.txt)													
Excel File(*.xls)													
New Text Document.txt - Notepad													
File Edit Format View Help													
HMI													
IABG													

Text Bank

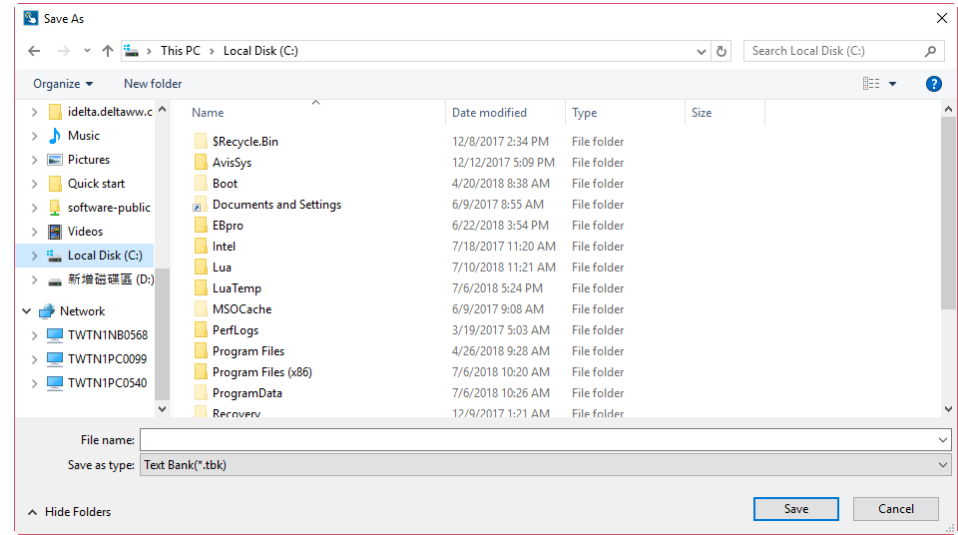
- Press **Open** and select the text file to be imported.

Open text bank file



- After the text file is opened, the text bank will import the data in the text file.
- For the **Save** option, you can export the content in the text bank and save it as a file.
- The supported file formats are .tbk and .xls.

Save



28

28.7 Multi-Lang input character count calculation

This feature allows you to know the exact total bytes of the input characters. The number of bytes for different languages varies, so there may be errors in calculating the length. Thus, this tool can let you calculate the correct number of bytes for Unicode characters.

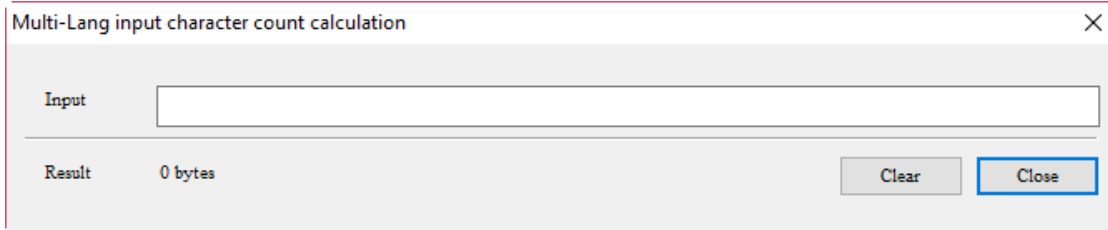


Figure 28.7.1 Multi-Lang input character count calculation tool

The following examples are the calculations of the byte numbers for the three languages.

Table 28.7.1 Multi-Lang input character count calculation result

Traditional Chinese	
English	
Japanese	

28.8 Cust-Keypad

To create a Cust-Keypad, drag the element from the Element Bank to the main screen (the Element Bank is at the right side of the screen editing window).

28

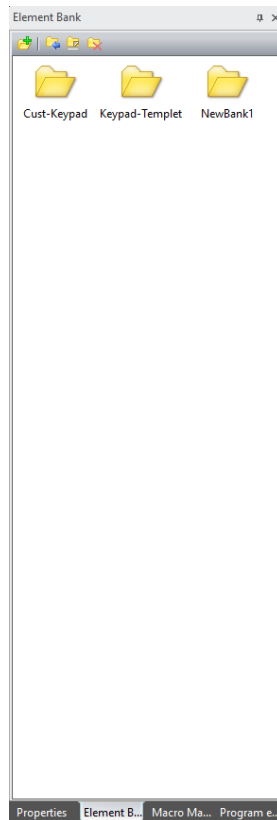
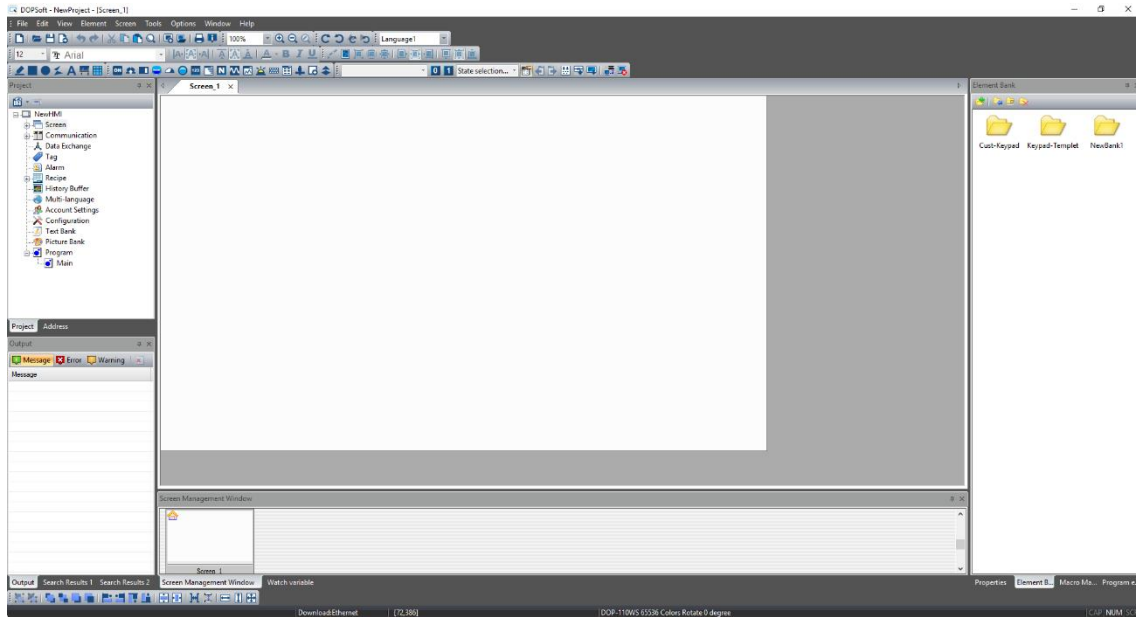


Figure 28.8.1 How to enter the Element Bank

28

Click [Element Bank] > [Keypad-Template], and you can see the total 16 keypad template styles provided by the software.

- KP (1): decimal keypad (two styles with two different sizes for each, large and small)
- KP (2): hexadecimal keypad (two styles with two different sizes for each, large and small)
- KP (3): ASCII keypad (two styles with two different sizes for each, large and small)
- EASCII (3): extended ASCII keypad (one style with two different sizes, large and small)
- KP_Swedish: Swedish keypad (one style with two different sizes, large and small)

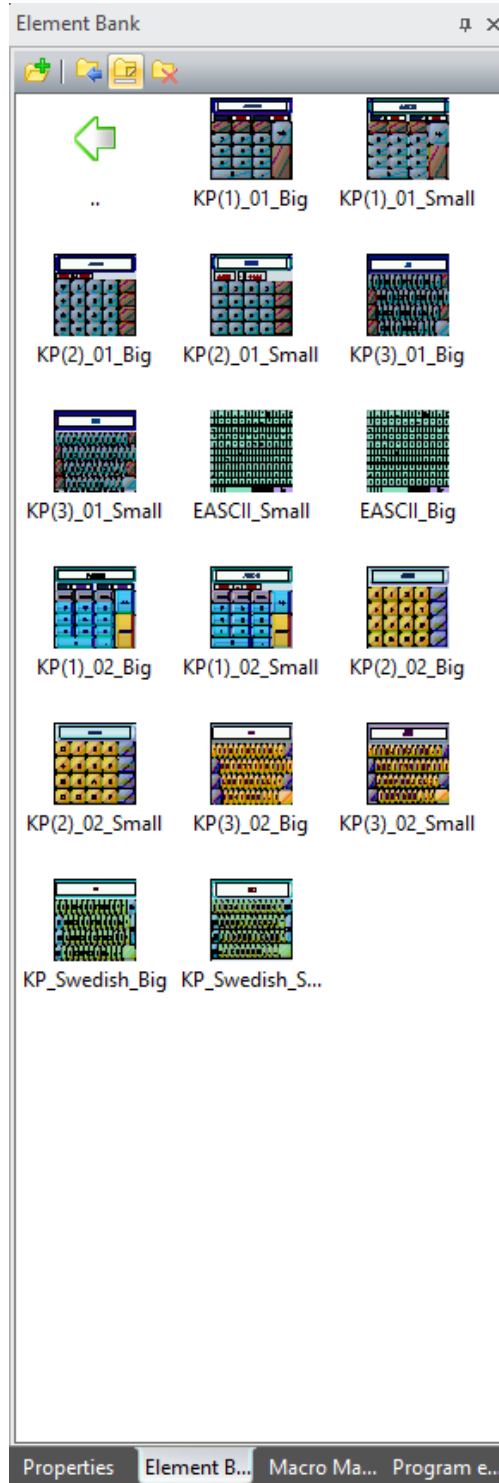


Figure 28.8.2 Element Bank - Keypad styles

Apart from the built-in keypad styles, the software provides Cust-keypad for you to design your own keypad styles and the elements for customization are available in [Cust-Keypad].

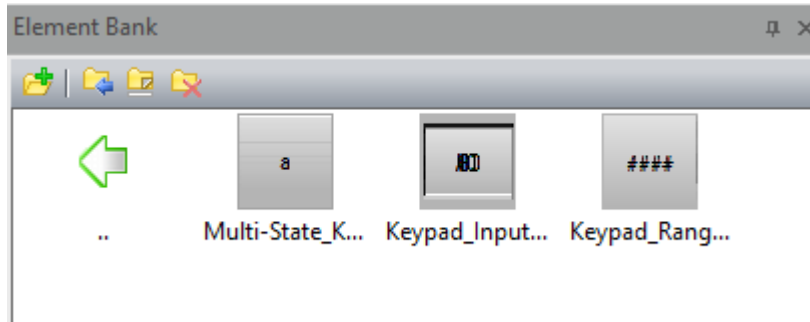
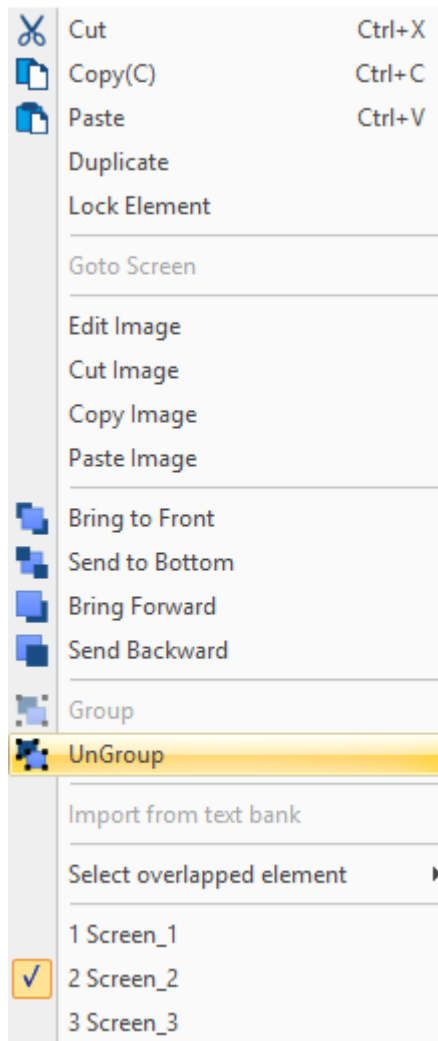


Figure 28.8.3 Cust-Keypad elements

With the customized elements, you can replace the original keypad provided by the software by simply ungrouping the keypad elements and adding the Cust-Keypad elements into the keypad, as shown in the following figure.



28



Figure 28.8.4 Replace the keypad with customized elements

28.8.1 Create Keypad Screen

Before creating the Cust-Keypad element of the Element Bank, you need to set the screen to Keypad Screen to make the options of the Custom Keypad selectable. If you create the Cust-Keypad element in the Screen or Subscreen, the software can compile the data normally. However, if you use the Custom Keypad function of the Global Keypad setting, Numeric Entry, Character Entry, Barcode Input elements, or Set Value button, the options for Screen and Subscreen are not available. In other words, the only screen option for the Custom Keypad function is Keypad Screen.

Ways to create the Keypad Screen:

- When creating the screen, select Keypad Screen for the Screen Type.

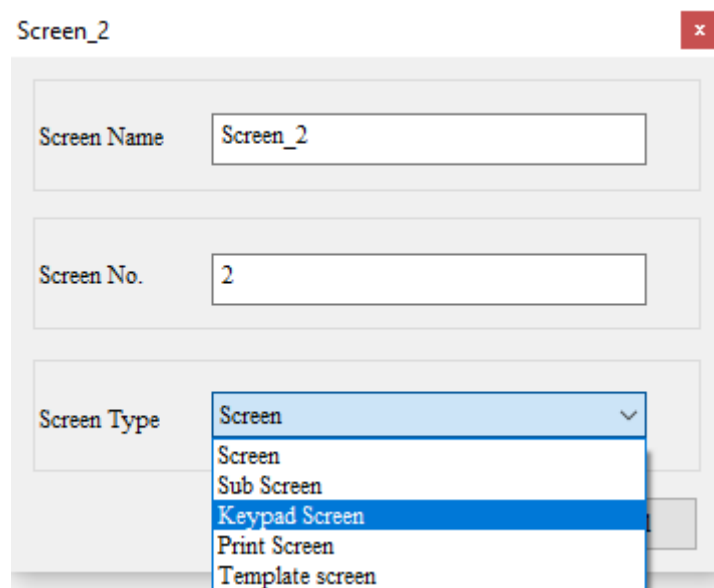


Figure 28.8.1.1 Create the screen

28

- Double-click the screen to enter the Screen property setting page and set the Screen to Keypad Screen.

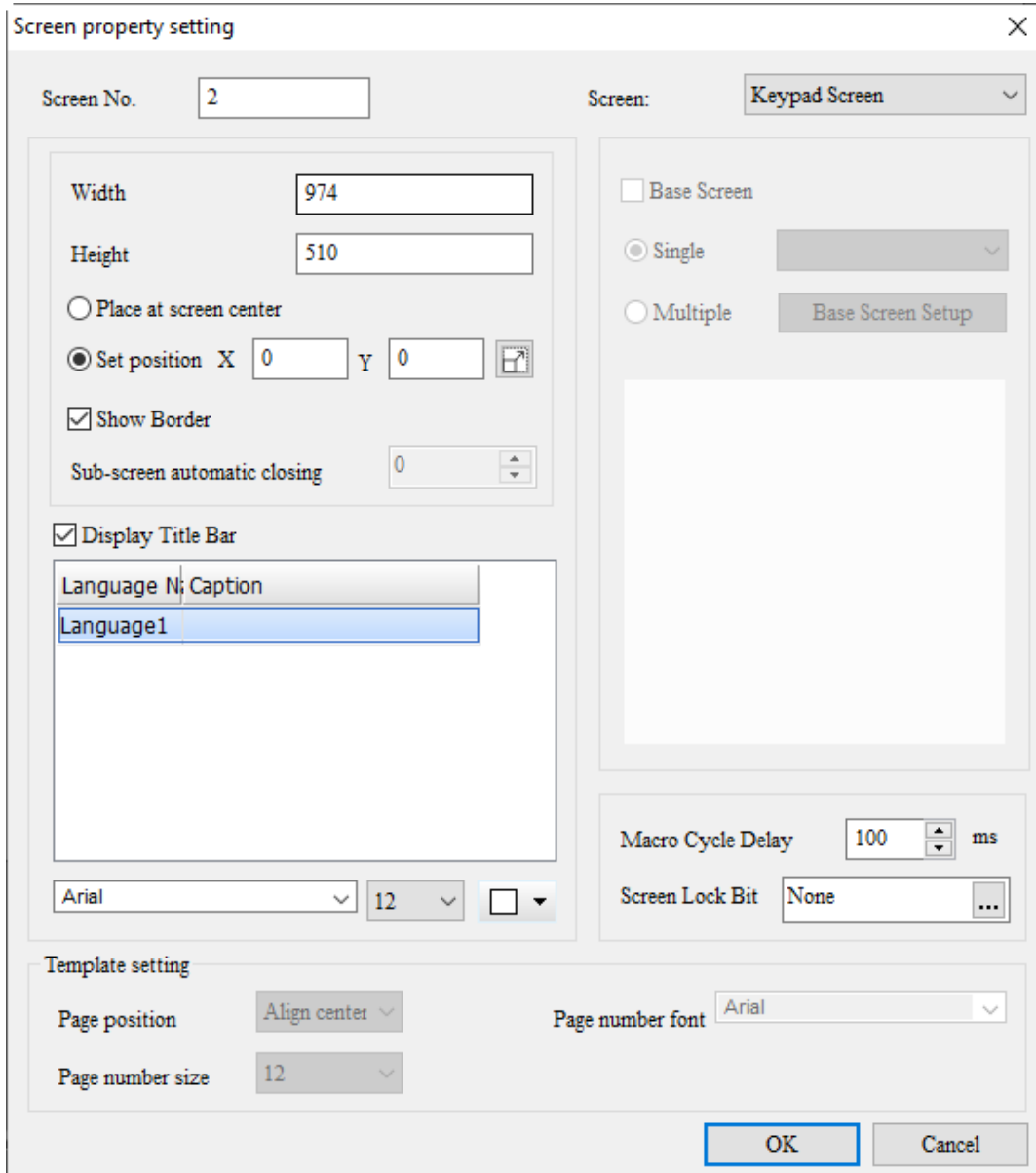


Figure 28.8.1.2 Screen property setting

You can use the Custom Keypad with the Global Keypad Setting. By simply setting the screen as Keypad Screen and creating the keypad style, you can apply this keypad style to all keypad elements. For details of Global Keypad Settings, refer to Table 27.1.4.

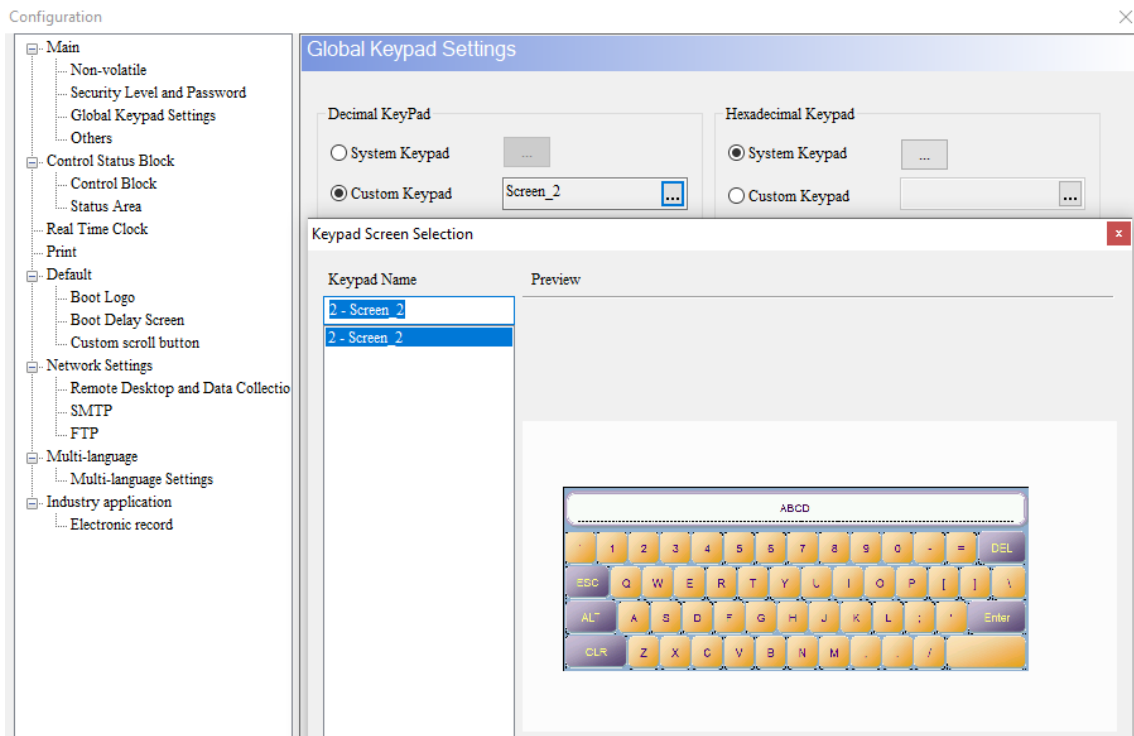


Figure 28.8.1.3 Custom Keypad



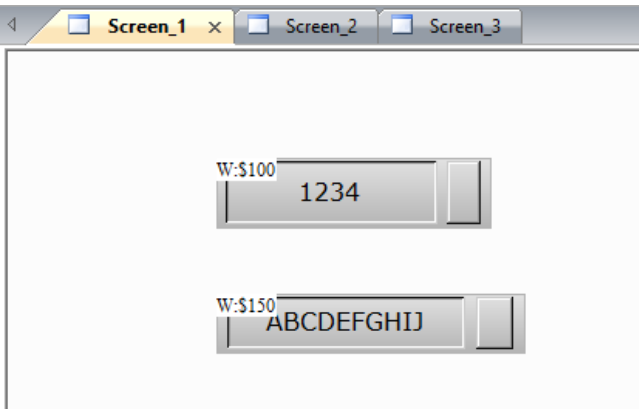
Note:

1. The Keypad Screen cannot be the default boot screen.
2. You can create multiple Keypad elements in the Keypad Screen.
3. You cannot restore the Keypad Screen you have deleted.
4. Off-line Simulation and On-line Simulation are supported.

The Cust-Keypad example is as follows. Refer to Table 28.8.1.1.

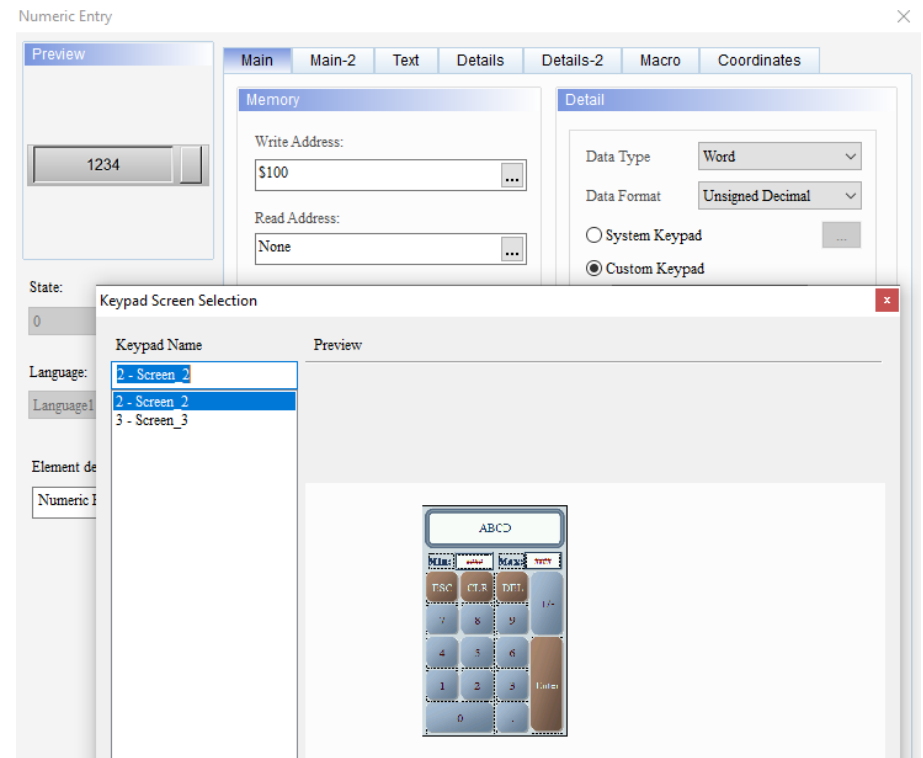
28

Table 28.8.1.1

Cust-Keypad	
<p>Step 1</p> <p>Set Keypad screen and create Keypad element</p>	<ul style="list-style-type: none"> ■ Create three screens. Set one of them as Screen and the other two as Keypad Screen. ■ Go to the Keypad-Template in the Element Bank and select KP(1)_01.Big keypad style for the first Keypad Screen.  <ul style="list-style-type: none"> ■ Go to the Keypad-Template in the Element Bank and select KP_Swedish.Big keypad style for the second Keypad Screen. 
<p>Step 2</p> <p>Set Screen and create Numeric Entry and Character Entry elements</p>	<ul style="list-style-type: none"> ■ Create a Numeric Entry element and a Character Entry element on the Screen. Set \$100 for the address of the Numeric Entry element and \$150 for the Character Entry element with the string length as 10. 

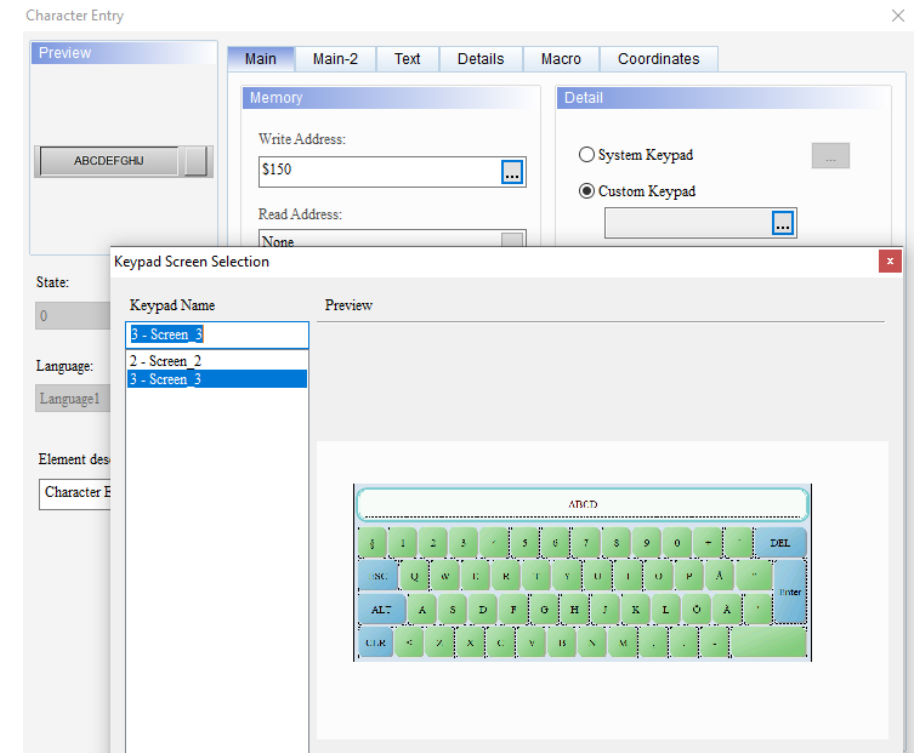
Cust-Keypad

- Select Custom Keypad for the Numeric Entry element of \$100 and set Screen_2 as the Keypad Screen.



Step 3 Custom Keypad

- Select Custom Keypad for the Character Entry element of \$150 and set Screen_3 as the Keypad Screen.



28

Step 4

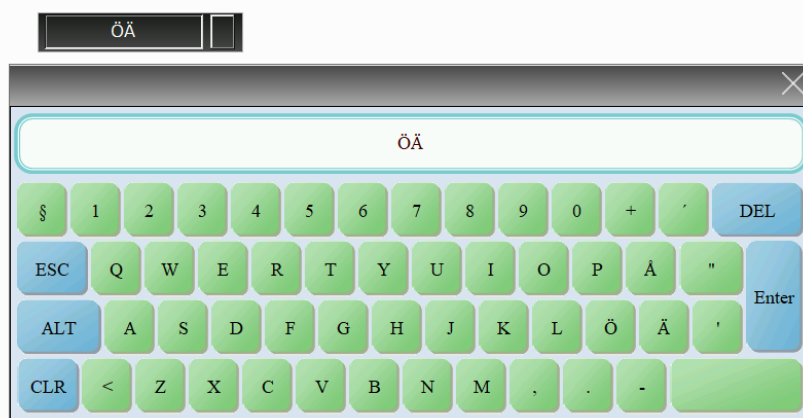
Execution results

Cust-Keypad

- After completing the above settings, compile the data and then download all data to the HMI.
- When the Numeric Entry element of \$100 is executed, the style of the pop-up keypad is Custom Keypad.



- When the Character Entry element of \$150 is executed, the input and display for EASCII characters/symbols are also supported.



28.8.2 Delete Keypad Screen

For the deletion of the Keypad Screen, the description is based on whether the screen is referred.

There are three ways to delete the Keypad Screen.

- Go to the toolbar, and select [Screen] > [Delete Screen].

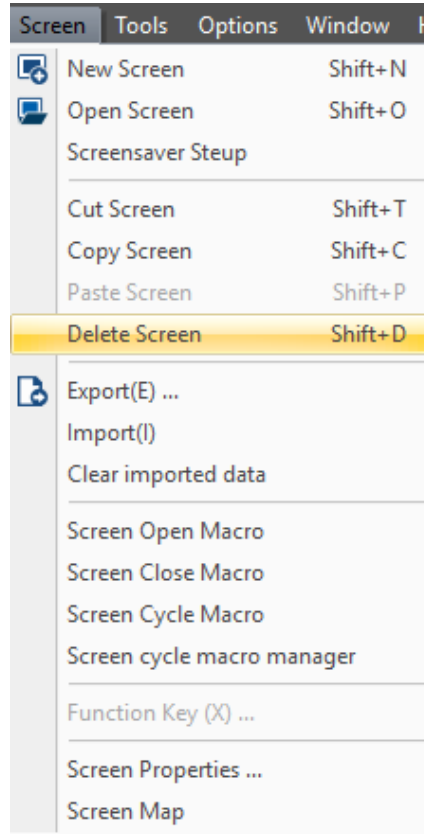


Figure 28.8.2.1 Custom Keypad - Delete Screen

- Go to the Screen Management window, right-click the mouse on the screen to be deleted, and click **Delete**.

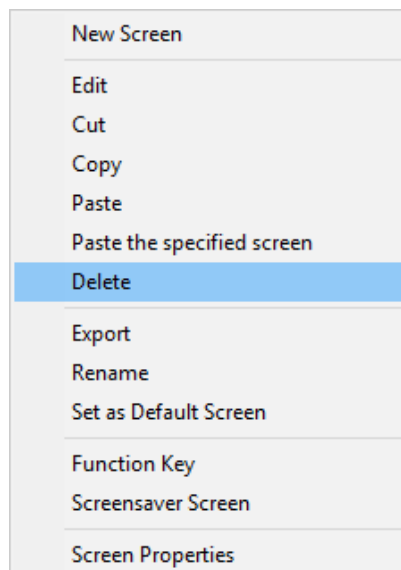


Figure 28.8.2.2 Delete the screen

28

- Change the screen to Screen or Subscreen and remove the Keypad Screen.

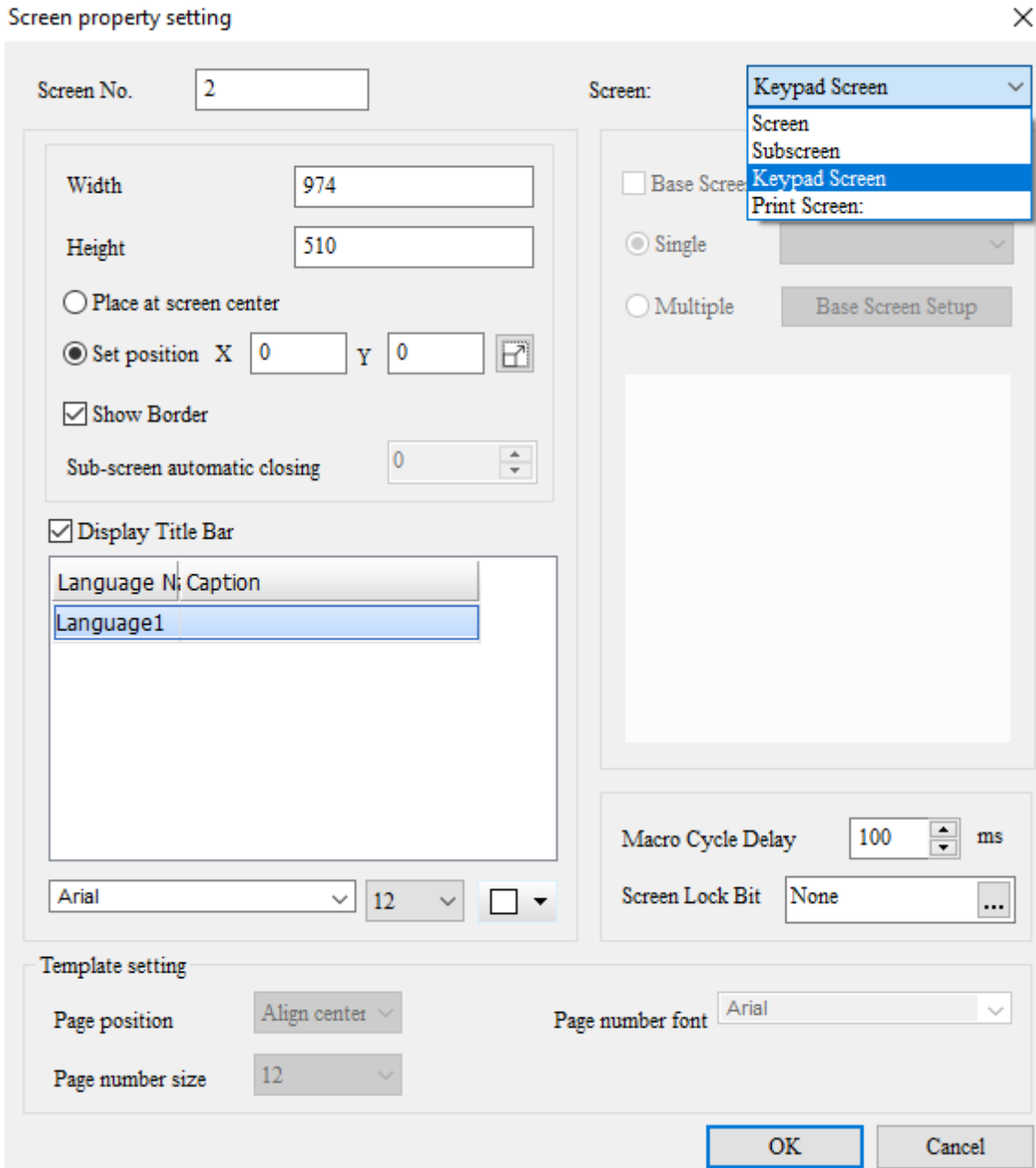


Figure 28.8.2.3 Delete the screen

28.8.2.1 The Keypad Screen is referred

When the created keypad screen is referred by the Custom Keypad of the Global Keypad Settings, Numeric Entry element, Character Entry element, Barcode Input element, or Set Value button, regardless the way you remove the keypad screen, the following window appears as a reminder.

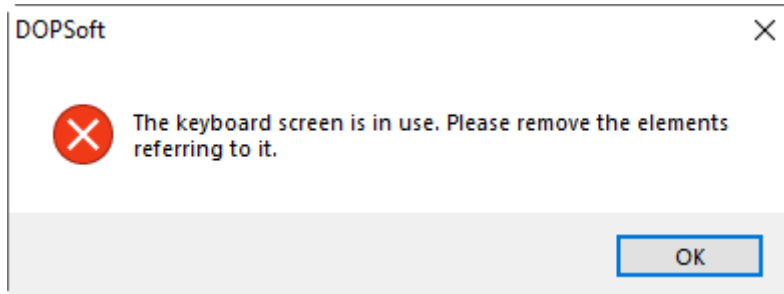


Figure 28.8.2.1.1 Keypad Screen is referred

Click **OK**, and the following keypad list appears for selection and conversion.

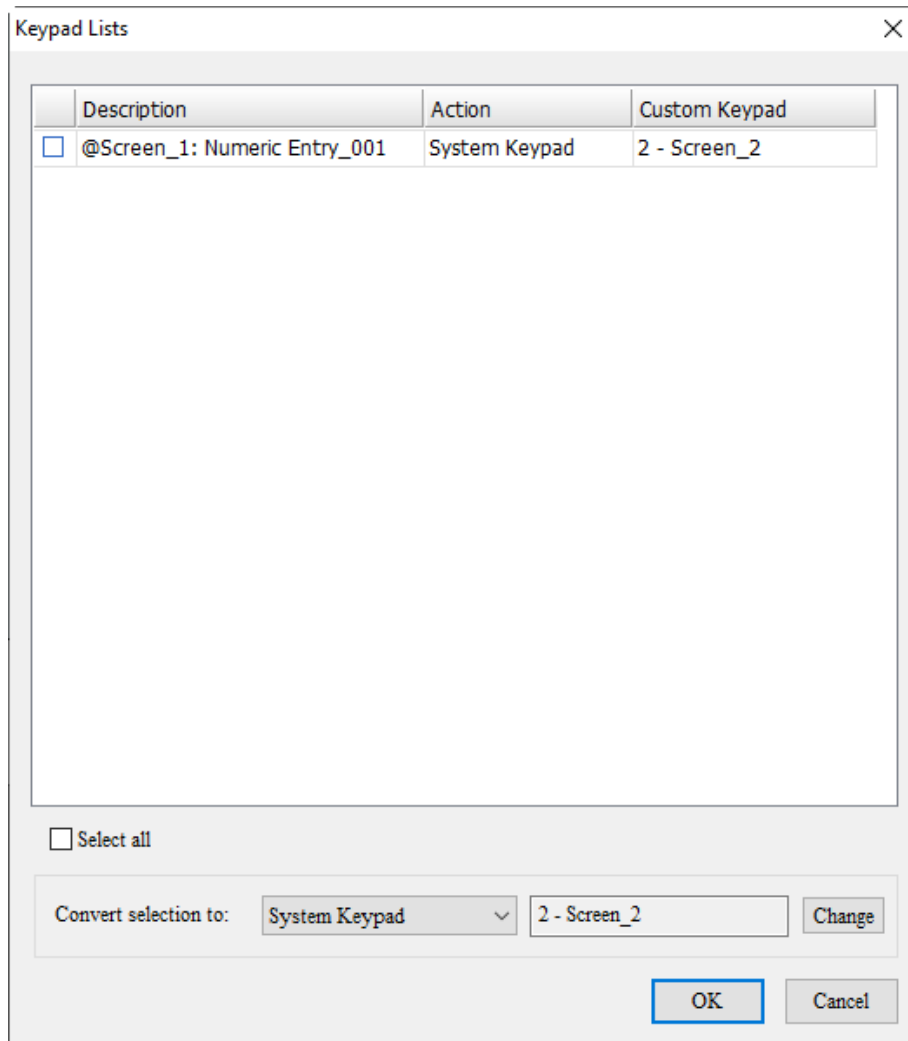


Figure 28.8.2.1.2 Keypad Lists

Refer to Table 28.8.2.1.1 for the Keypad Lists.

28

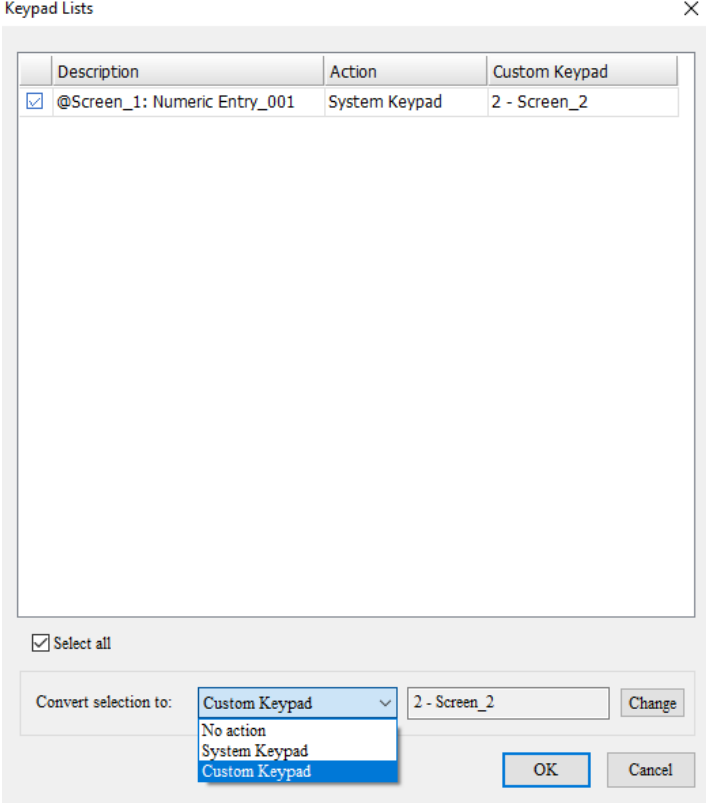
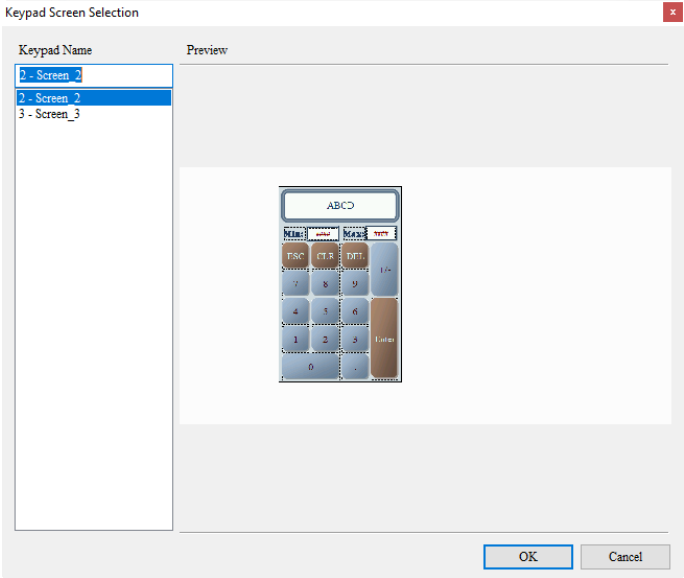
Table 28.8.2.1.1

Keypad Lists			
	Description	Action	Custom Keypad
<input type="checkbox"/>	@Screen_1: Numeric Entry_001	System Keypad	2 - Screen_2

Select all

Convert selection to:

<input type="checkbox"/>	<ul style="list-style-type: none"> You can select a specific element and have this element execute the action options of System Keypad, Custom Keypad, or No action.
Description	<ul style="list-style-type: none"> This is the description for the element or the Global Keypad. When the description you click is for an element, the corresponding screen appears for you to select the paired element.
Action	<ul style="list-style-type: none"> Use the keypad set for the element.
Custom Keypad	<ul style="list-style-type: none"> Displays the currently set Custom Keypad and the ID. This field setting is only applicable when you set Custom Keypad for the Action field.

Keypad Lists		
Select all	<ul style="list-style-type: none"> You can select all elements and have them perform the action specified in the Action field in batch, which are System Keypad, Custom Keypad, or No action. 	
Convert selection to	No action	<ul style="list-style-type: none"> It means not to change the current setting.
	System Keypad	<ul style="list-style-type: none"> It means changing to the System Keypad.
	Custom Keypad	<ul style="list-style-type: none"> It means changing to the Custom Keypad. When this option is selected, the screen for keypad selection appears. 
Change	<ul style="list-style-type: none"> The conversion result is determined by the element and action you select or the option for the conversion selection. If you do not click OK after the conversion, this conversion is not applied. 	
OK	<ul style="list-style-type: none"> After you click OK, the system applies the setting to the corresponding elements and global keypad. When you click X or Cancel to close the window, no setting is changed. 	

28

After the conversion, the HMI asks you whether you want to delete the screen. You can select **Yes** to delete the keypad screen. You also can select **No** to keep the keypad screen and simply cancel or transfer the link referred by the element.

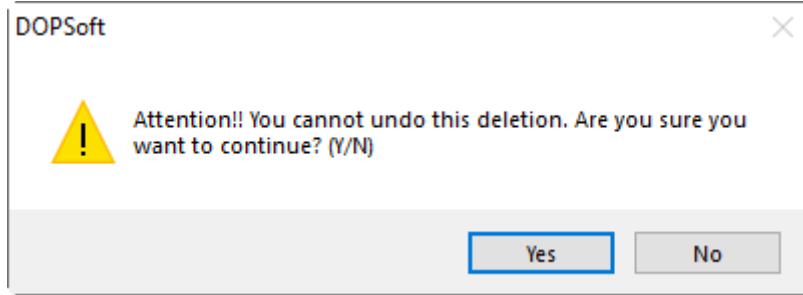


Figure 28.8.2.1.3 Confirmation for Delete Screen

28.8.2.2 The Keypad Screen is not referred

When the keypad screen you created is not referred by the Custom Keypad of the Global Keypad Settings, Numeric Entry element, Character Entry element, Barcode Input element, or Set Value button, and if you use the screen of the tool bar and click **Delete Screen** or execute the deletion by right-clicking the mouse in the [Screen Management Window], only the following window appears as a reminder.

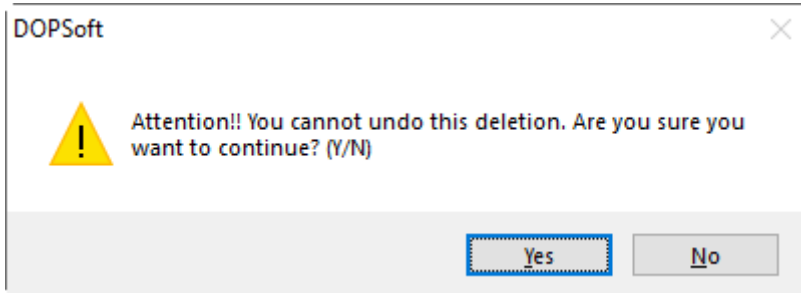


Figure 28.8.2.2.1 Confirmation for deleting the screen

Select **Yes** to delete the keypad Screen; select **No** to keep the keypad screen. If you use the Screen property setting to set this screen to Screen or Subscreen, there will be no warning messages, and your setting is directly applied.

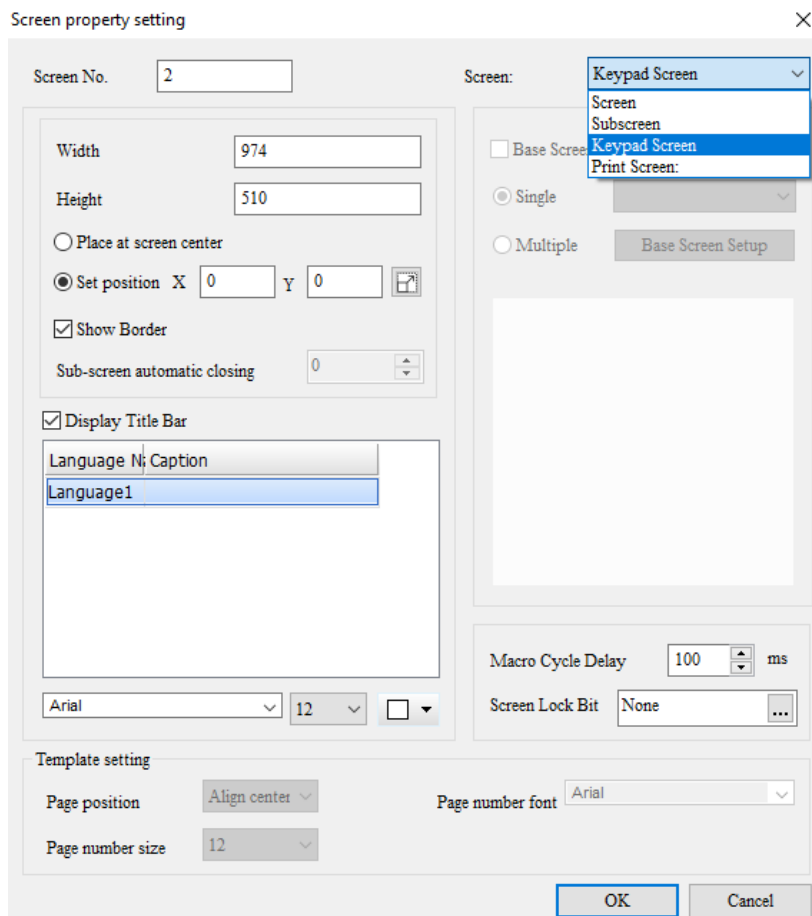


Figure 28.8.2.2.2 Change the screen type

28

28.9 Sound Settings

You can use the Sound Settings to inform the on-site operators whether an error occurs. The Sound Settings can trigger the bit address of the sound file to have the sound played and it can play different sounds according to the value assigned in the word register. The supported sound track formats are mp3 and wav. Models supporting the Sound Settings are DOP-107IV, DOP-107EG, DOP-108IG, DOP-110IG, DOP-110IS, DOP-112MX, DOP-112WX, DOP-115MX, and DOP-115WX. If you are editing the project for the model which does not support the sound settings, then this option is not available.

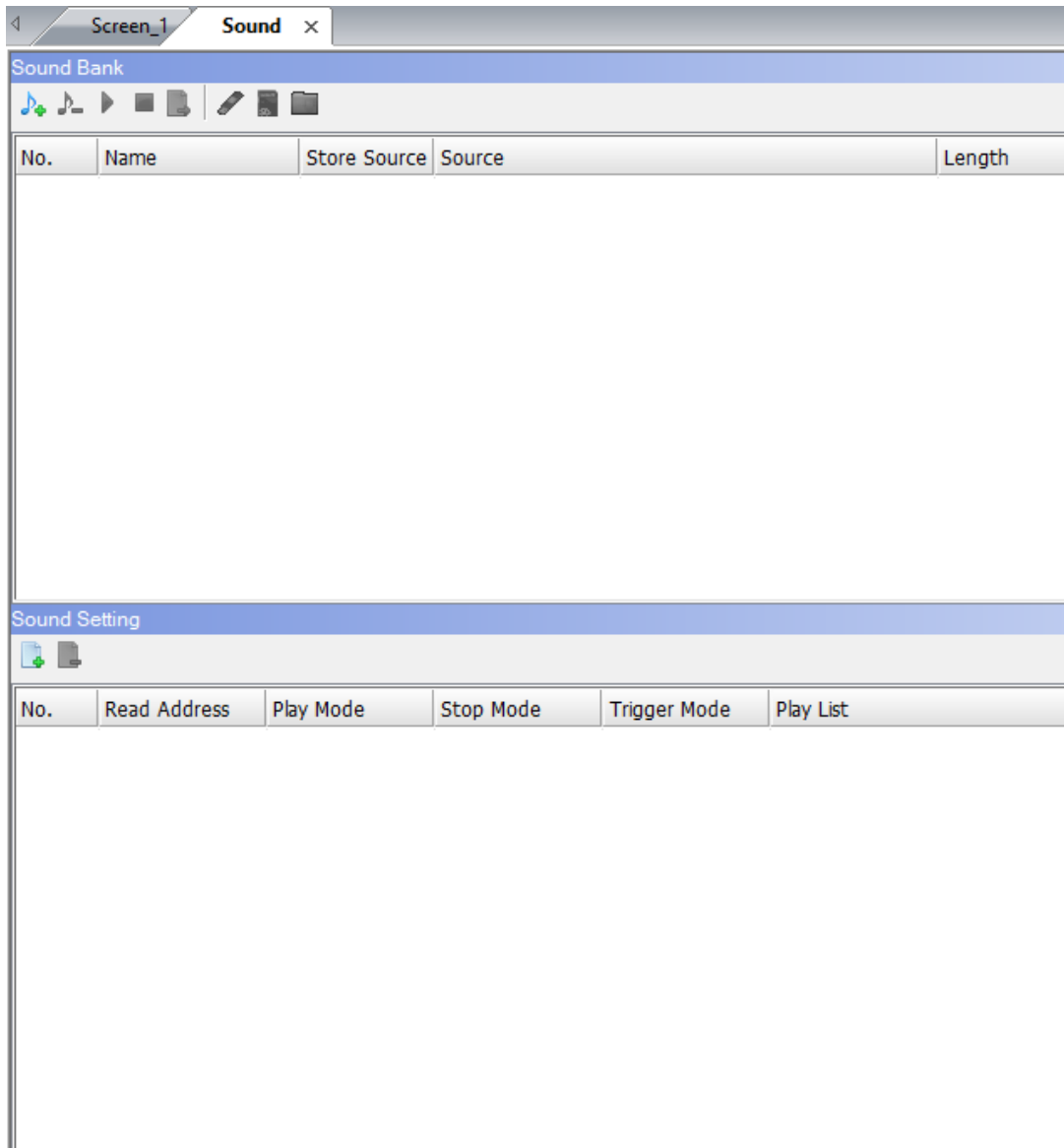


Figure 28.9.1 Sound Settings

The Sound Settings can be divided into two categories for description. The first is Sound Bank and the second is Sound Setting.

The Sound Bank is for adding, deleting, and exporting sound files, and specifying the saving location for the sound files.

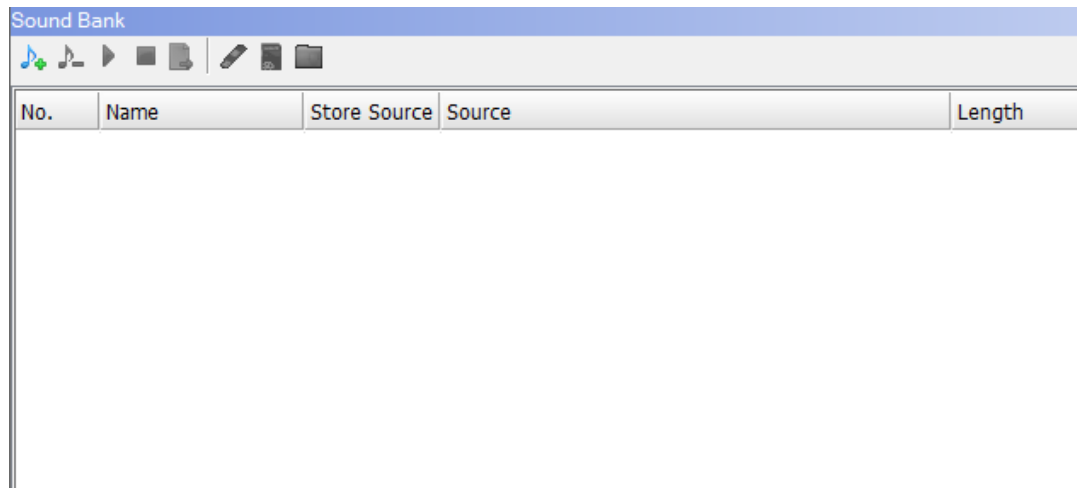


Figure 28.9.2 Sound Settings

The Sound Setting is for setting how the sound is played, stopped, and triggered.

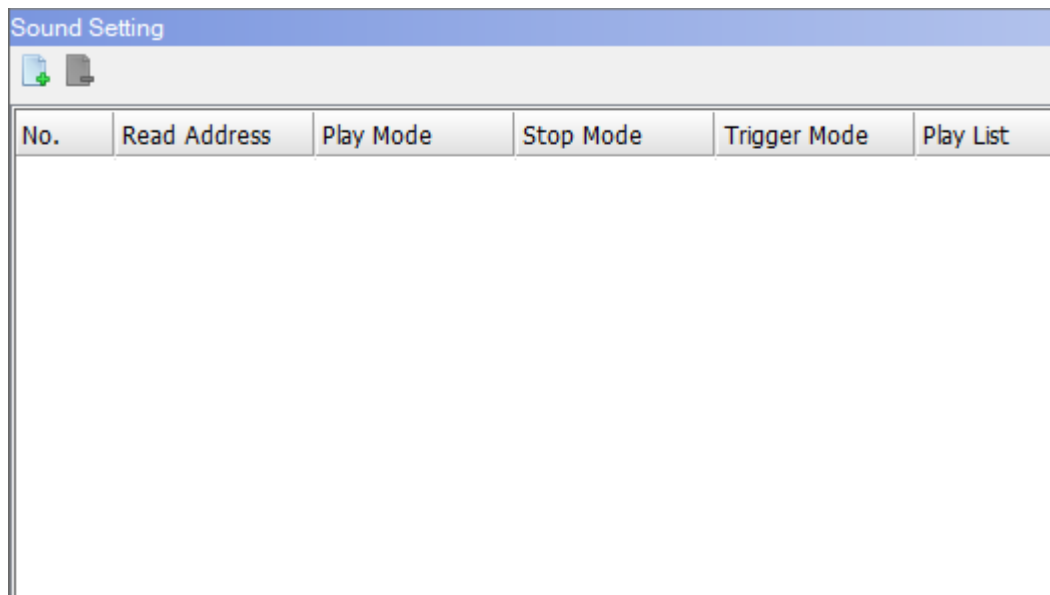


Figure 28.9.3 Sound Setting

Detailed descriptions for the Sound Bank and Sound Setting are as follows.

Table 28.9.1 Properties of sound file management


28

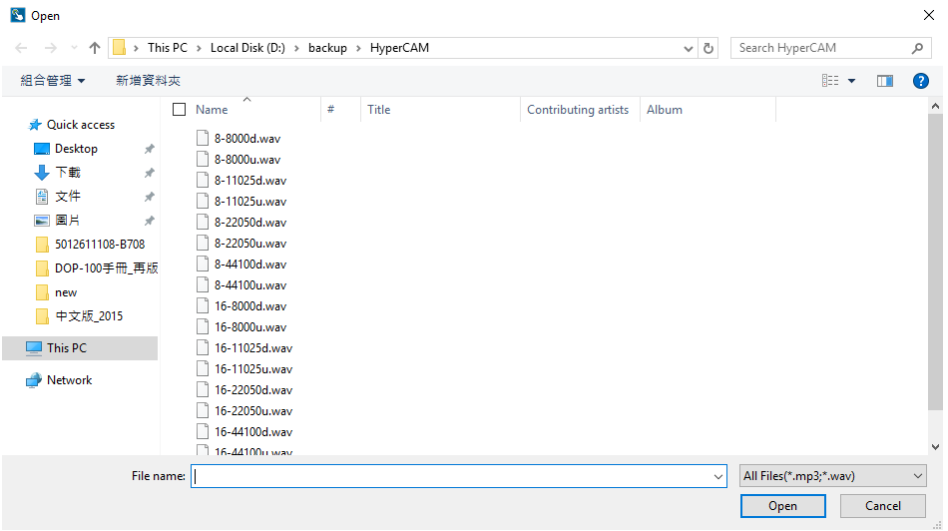
Sound Bank				
No.	Name	Store Source	Source	Length


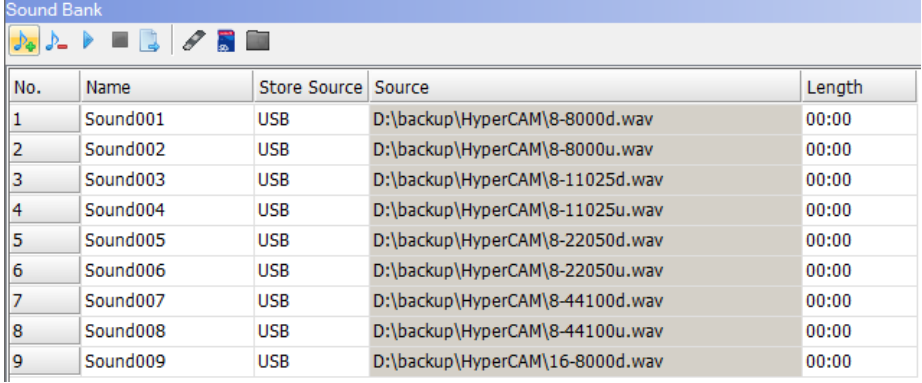
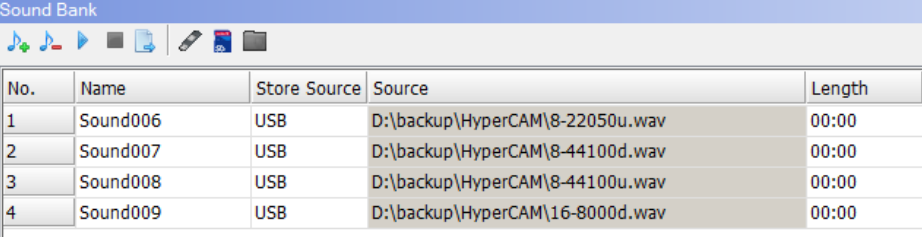


■ Descriptions of icons in the sound file tool bar

- Click the Add audio file icon, and you will be asked to select the audio file to be played.
- You can add up to 1000 audio files (0 - 999).

Add audio file





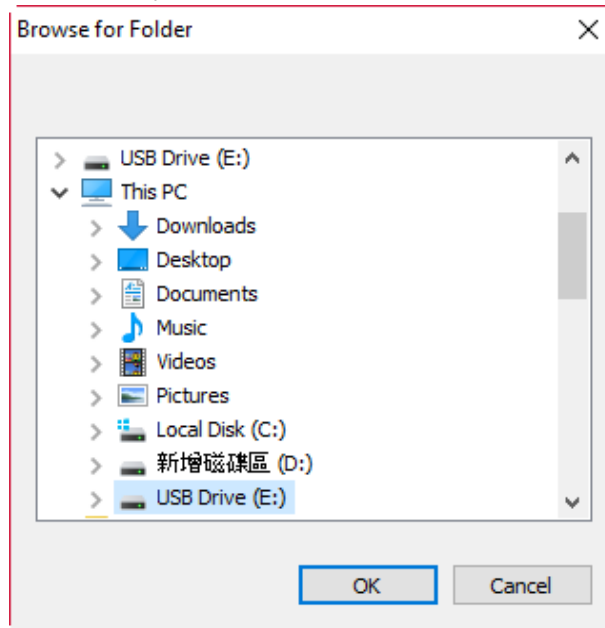
Sound Bank																																																																												
<ul style="list-style-type: none"> ■ Descriptions of icons in the sound file tool bar 																																																																												
<p>Delete audio file</p> 	<ul style="list-style-type: none"> ■ To delete one or multiple audio files after the files are added, you can directly click on one file or hold the SHIFT or Ctrl key and click on multiple files to be deleted, and then click the Delete audio file icon.  <table border="1"> <thead> <tr> <th>No.</th> <th>Name</th> <th>Store Source</th> <th>Source</th> <th>Length</th> </tr> </thead> <tbody> <tr><td>1</td><td>Sound001</td><td>USB</td><td>D:\backup\HyperCAM\8-8000d.wav</td><td>00:00</td></tr> <tr><td>2</td><td>Sound002</td><td>USB</td><td>D:\backup\HyperCAM\8-8000u.wav</td><td>00:00</td></tr> <tr><td>3</td><td>Sound003</td><td>USB</td><td>D:\backup\HyperCAM\8-11025d.wav</td><td>00:00</td></tr> <tr><td>4</td><td>Sound004</td><td>USB</td><td>D:\backup\HyperCAM\8-11025u.wav</td><td>00:00</td></tr> <tr><td>5</td><td>Sound005</td><td>USB</td><td>D:\backup\HyperCAM\8-22050d.wav</td><td>00:00</td></tr> <tr><td>6</td><td>Sound006</td><td>USB</td><td>D:\backup\HyperCAM\8-22050u.wav</td><td>00:00</td></tr> <tr><td>7</td><td>Sound007</td><td>USB</td><td>D:\backup\HyperCAM\8-44100d.wav</td><td>00:00</td></tr> <tr><td>8</td><td>Sound008</td><td>USB</td><td>D:\backup\HyperCAM\8-44100u.wav</td><td>00:00</td></tr> <tr><td>9</td><td>Sound009</td><td>USB</td><td>D:\backup\HyperCAM\16-8000d.wav</td><td>00:00</td></tr> </tbody> </table> <ul style="list-style-type: none"> ■ The list with the audio files deleted.  <table border="1"> <thead> <tr> <th>No.</th> <th>Name</th> <th>Store Source</th> <th>Source</th> <th>Length</th> </tr> </thead> <tbody> <tr><td>1</td><td>Sound006</td><td>USB</td><td>D:\backup\HyperCAM\8-22050u.wav</td><td>00:00</td></tr> <tr><td>2</td><td>Sound007</td><td>USB</td><td>D:\backup\HyperCAM\8-44100d.wav</td><td>00:00</td></tr> <tr><td>3</td><td>Sound008</td><td>USB</td><td>D:\backup\HyperCAM\8-44100u.wav</td><td>00:00</td></tr> <tr><td>4</td><td>Sound009</td><td>USB</td><td>D:\backup\HyperCAM\16-8000d.wav</td><td>00:00</td></tr> </tbody> </table>	No.	Name	Store Source	Source	Length	1	Sound001	USB	D:\backup\HyperCAM\8-8000d.wav	00:00	2	Sound002	USB	D:\backup\HyperCAM\8-8000u.wav	00:00	3	Sound003	USB	D:\backup\HyperCAM\8-11025d.wav	00:00	4	Sound004	USB	D:\backup\HyperCAM\8-11025u.wav	00:00	5	Sound005	USB	D:\backup\HyperCAM\8-22050d.wav	00:00	6	Sound006	USB	D:\backup\HyperCAM\8-22050u.wav	00:00	7	Sound007	USB	D:\backup\HyperCAM\8-44100d.wav	00:00	8	Sound008	USB	D:\backup\HyperCAM\8-44100u.wav	00:00	9	Sound009	USB	D:\backup\HyperCAM\16-8000d.wav	00:00	No.	Name	Store Source	Source	Length	1	Sound006	USB	D:\backup\HyperCAM\8-22050u.wav	00:00	2	Sound007	USB	D:\backup\HyperCAM\8-44100d.wav	00:00	3	Sound008	USB	D:\backup\HyperCAM\8-44100u.wav	00:00	4	Sound009	USB	D:\backup\HyperCAM\16-8000d.wav	00:00
	No.	Name	Store Source	Source	Length																																																																							
1	Sound001	USB	D:\backup\HyperCAM\8-8000d.wav	00:00																																																																								
2	Sound002	USB	D:\backup\HyperCAM\8-8000u.wav	00:00																																																																								
3	Sound003	USB	D:\backup\HyperCAM\8-11025d.wav	00:00																																																																								
4	Sound004	USB	D:\backup\HyperCAM\8-11025u.wav	00:00																																																																								
5	Sound005	USB	D:\backup\HyperCAM\8-22050d.wav	00:00																																																																								
6	Sound006	USB	D:\backup\HyperCAM\8-22050u.wav	00:00																																																																								
7	Sound007	USB	D:\backup\HyperCAM\8-44100d.wav	00:00																																																																								
8	Sound008	USB	D:\backup\HyperCAM\8-44100u.wav	00:00																																																																								
9	Sound009	USB	D:\backup\HyperCAM\16-8000d.wav	00:00																																																																								
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1	Sound006	USB	D:\backup\HyperCAM\8-22050u.wav	00:00																																																																								
2	Sound007	USB	D:\backup\HyperCAM\8-44100d.wav	00:00																																																																								
3	Sound008	USB	D:\backup\HyperCAM\8-44100u.wav	00:00																																																																								
4	Sound009	USB	D:\backup\HyperCAM\16-8000d.wav	00:00																																																																								
<p>Play</p> 	<p>You can play the audio files that have been added to the Sound File Settings.</p>																																																																											
<p>Stop</p> 	<p>You can use the stop button to stop playing the current audio file.</p>																																																																											

Sound Bank

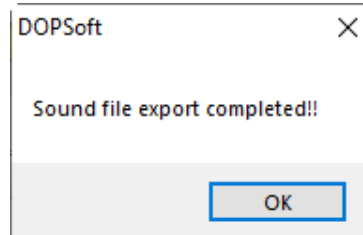
■ Descriptions of icons in the sound file tool bar

Export audio file


- When you export an audio file, the software will ask you to specify the device for saving the file. Note that you must select a root directory as the saving destination. In other words, do not save the audio files in any folders.



- After the export, the software informs you that the audio file has been successfully exported.



Save audio file to USB drive


- The function of saving audio files to the USB drive or SD card is for you to quickly change the storage device of multiple or some specific audio files. You can also select a single audio file and use these two buttons to change its storage device. For selecting multiple audio files, the methods are the same as that of selecting audio files for deletion. Refer to the selection methods previously mentioned.

- Before changing the storage device to SD card:

No.	Name	Store Source	Source	Length
1	Sound001	USB	D:\backup\MP3\Sound001.mp3	00:05
2	Sound002	USB	D:\backup\MP3\Sound002.mp3	00:00
3	Sound003	USB	D:\backup\MP3\Sound003.mp3	00:05
4	Sound004	USB	D:\backup\MP3\thunder_clap.wav	00:05

Save audio file to SD drive


- After changing the storage device to SD card:

No.	Name	Store Source	Source	Length
1	Sound001	SD	D:\backup\MP3\Sound001.mp3	00:05
2	Sound002	SD	D:\backup\MP3\Sound002.mp3	00:00
3	Sound003	SD	D:\backup\MP3\Sound003.mp3	00:05
4	Sound004	SD	D:\backup\MP3\thunder_clap.wav	00:05

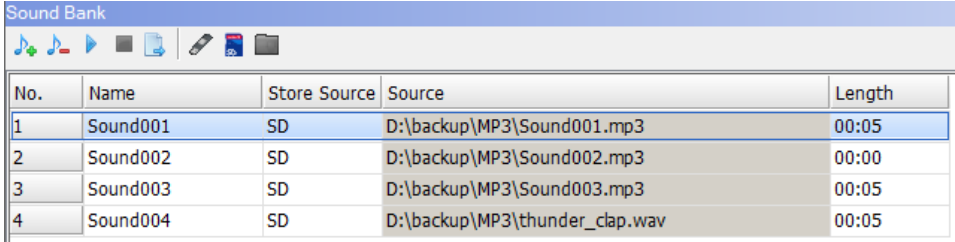
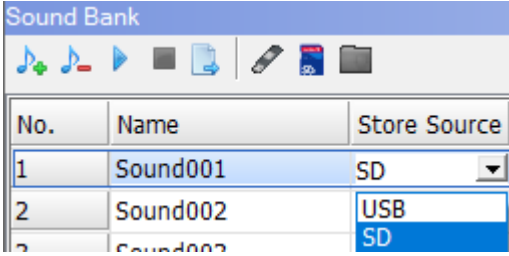
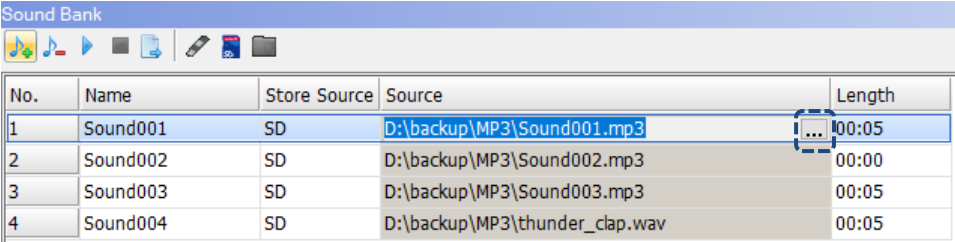
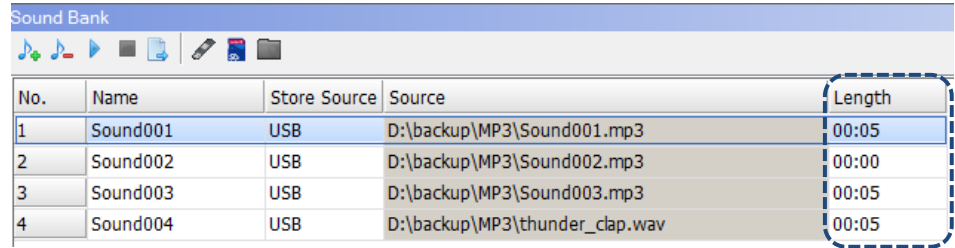
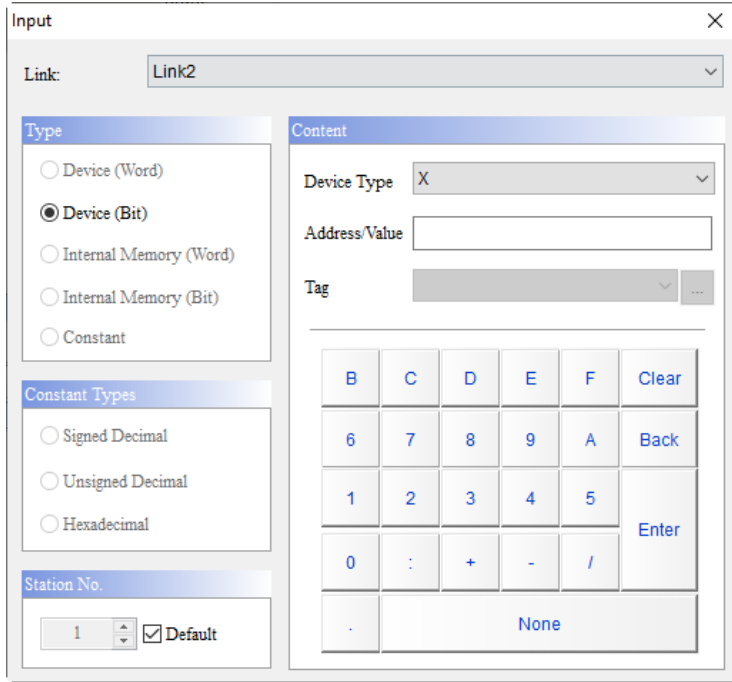
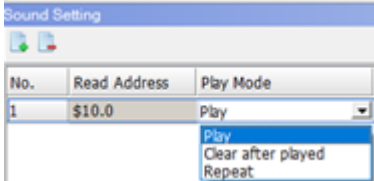
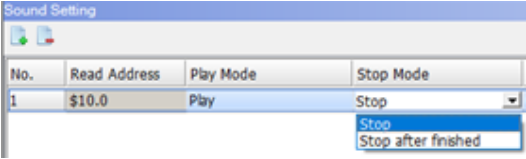
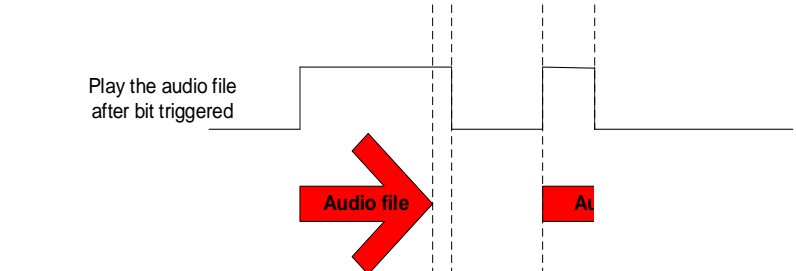
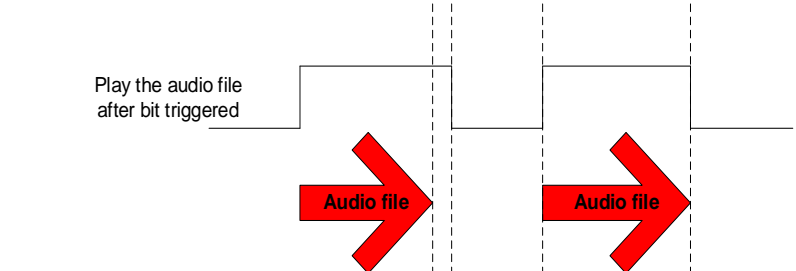
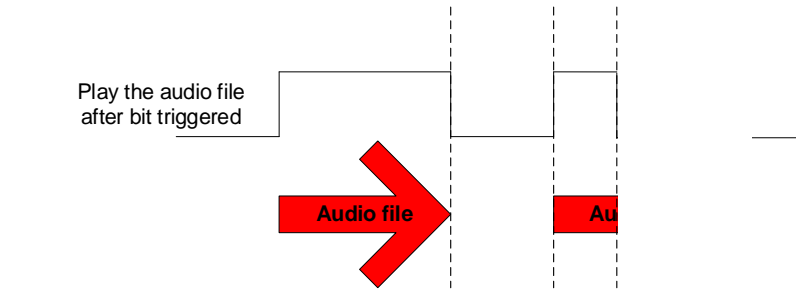
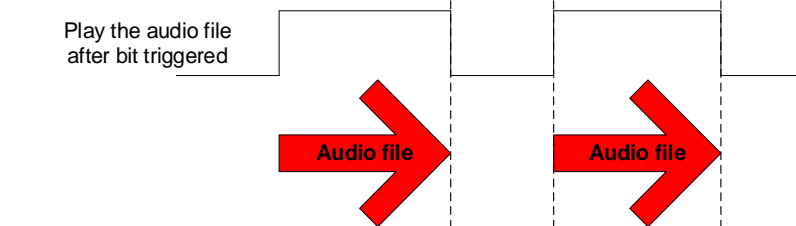
Sound Bank	
<ul style="list-style-type: none"> Descriptions of fields 	
No.	<ul style="list-style-type: none"> The No. field is the main reference for playing the audio file. When you set the reading method of the play list as Address, the software plays the audio file based on the setting address. 
Name	<ul style="list-style-type: none"> Filenames of the audio files added to the list are displayed as Sound. The filename of the first audio file starts with 001, which is Sound001, and followed by Sound002, Sound003, and so on.
Store Source	<ul style="list-style-type: none"> The options are USB drive and SD card. You can change the storage device as required. The default is USB drive. 
Source	<ul style="list-style-type: none"> This is the path of the added audio file. After the audio file is added, you can change the source audio file, which means replacing the sound track. 
Length	<ul style="list-style-type: none"> It displays the length of the audio file. 

Table 28.9.2 Descriptions of Sound Setting

Sound Setting					
Sound Setting					
No.	Read Address	Play Mode	Stop Mode	Trigger Mode	Play List

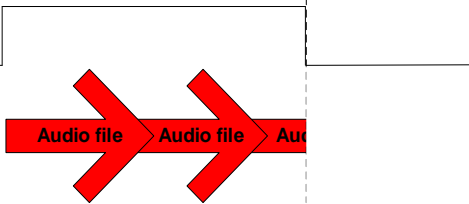
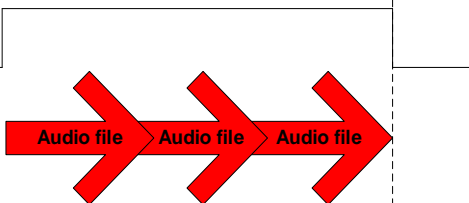
- The Sound Setting includes No., Read Address, Play Mode, Stop Mode, Trigger Mode, and Play List.

No.	<ul style="list-style-type: none"> ■ Allows maximum 512 data entries.
Read Address	<ul style="list-style-type: none"> ■ For the Read Address, you can only use bit triggering to trigger and play the audio file. 

Sound Setting		
Play Mode	Stop Mode	
<p>The control list includes Play, Clear after played, and Repeat.</p> 	<p>The control list includes Stop and Stop after finished.</p> 	
<ul style="list-style-type: none"> ■ Play Mode: Play ■ When the bit set for sound play is triggered, the HMI immediately plays the sound track. 		
Modes	<ul style="list-style-type: none"> ■ If you choose Stop as the Stop Mode, no matter the sound track is playing or not, the HMI immediately stops the soundtrack. 	
	<ul style="list-style-type: none"> ■ If you choose Stop after finished, then the sound track is played to the end and stopped. 	
	<ul style="list-style-type: none"> ■ Play Mode: Clear after played ■ The Clear after played option means clearing the bit after the sound track is played. ■ If you select the same address for triggering and playing two sound tracks, this bit is cleared after these two sound tracks finish playing. 	
		

Sound Setting

■ **Play Mode: Repeat**

Modes	Stop Mode: <u>Stop</u>	Play the audio files after bit triggered 
	Stop Mode: <u>Stop after finished</u>	Play the audio files after bit triggered 

■ The triggering options include setting the bit to ON or OFF. This is for you to set whether to use ON or Off state to trigger the play of the sound track.

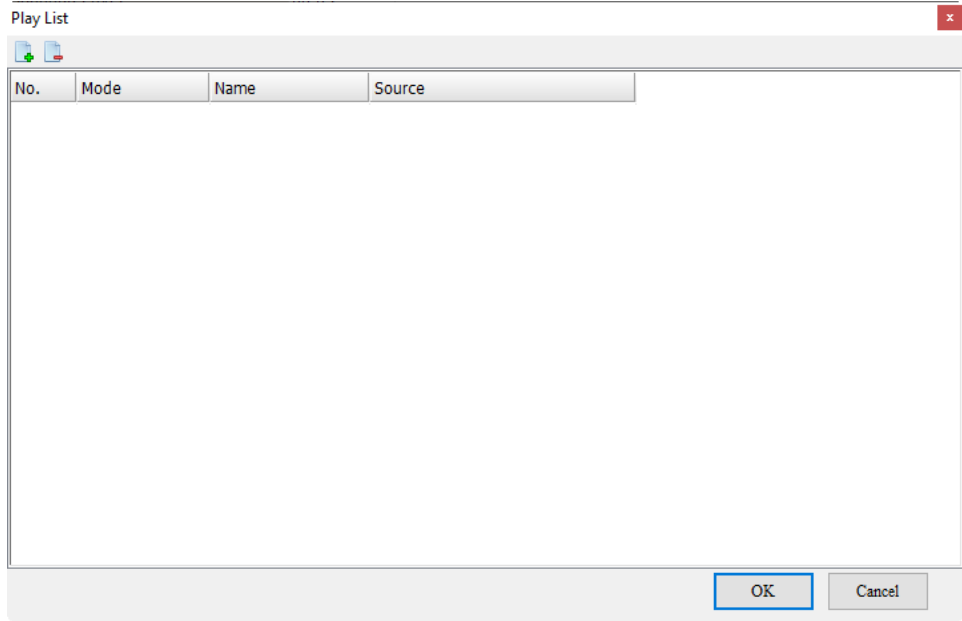
No.	Read Address	Play Mode	Stop Mode	Trigger Mode
1	\$100.0	Play	Stop	ON

OFF
 ON


Sound Setting

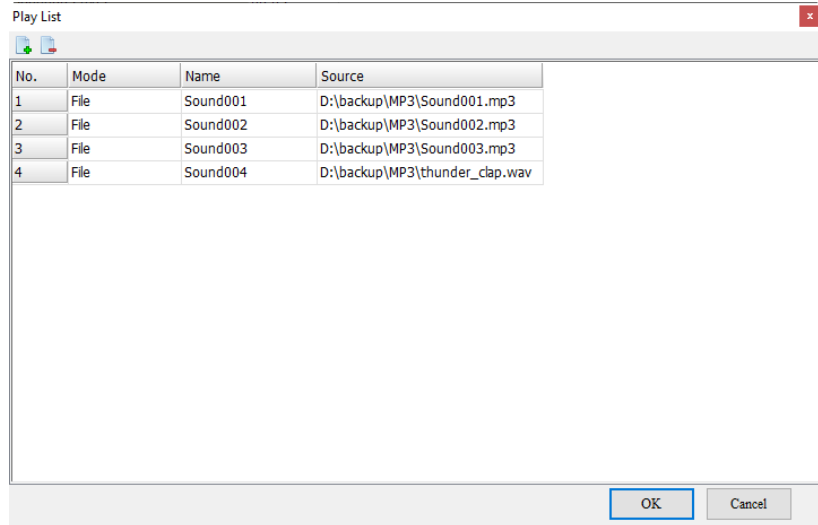
- The Play List includes functions of adding and removing playing items.
- Each trigger address set in the Play List supports maximum 100 sound files.
- The read mode (Mode) is determined by the added sound files.
- The read modes (Mode) include **File** and **Address**.

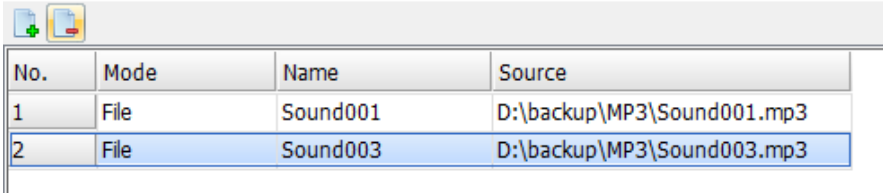
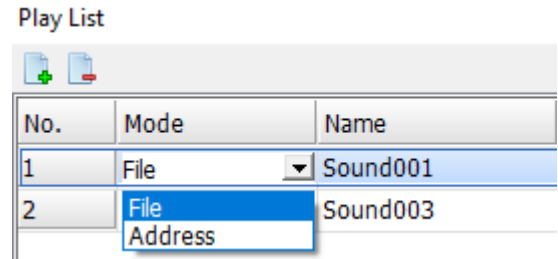
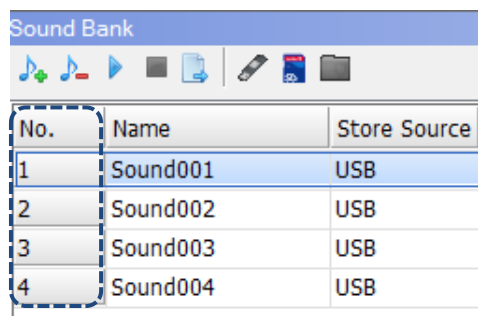
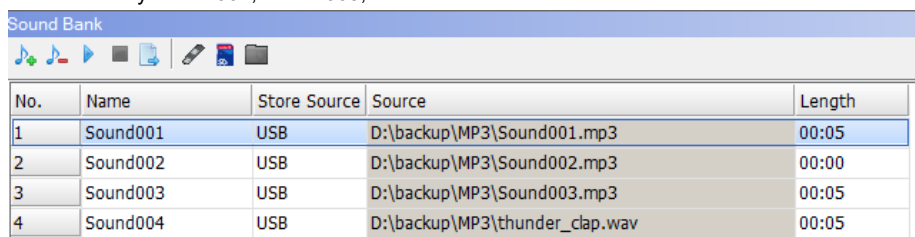
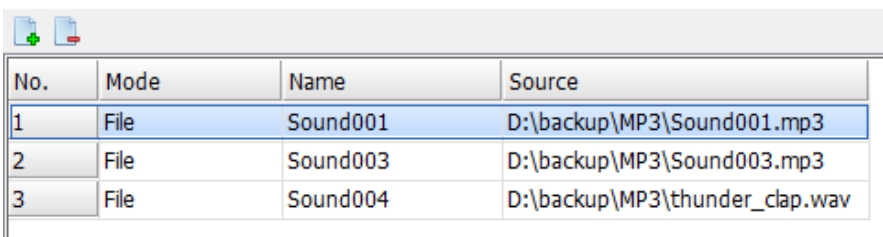
Play List



Add audio setting item

- After you click the Add the audio file icon , the software will ask you to select the audio files to be added to the Play List.



Sound Setting																										
Remove audio setting item	<ul style="list-style-type: none"> After the audio files are added to the Play List, you can remove the unnecessary audio files as required. <p>Play List</p>  <table border="1"> <thead> <tr> <th>No.</th> <th>Mode</th> <th>Name</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>File</td> <td>Sound001</td> <td>D:\backup\MP3\Sound001.mp3</td> </tr> <tr> <td>2</td> <td>File</td> <td>Sound003</td> <td>D:\backup\MP3\Sound003.mp3</td> </tr> </tbody> </table>	No.	Mode	Name	Source	1	File	Sound001	D:\backup\MP3\Sound001.mp3	2	File	Sound003	D:\backup\MP3\Sound003.mp3													
No.	Mode	Name	Source																							
1	File	Sound001	D:\backup\MP3\Sound001.mp3																							
2	File	Sound003	D:\backup\MP3\Sound003.mp3																							
Mode	<ul style="list-style-type: none"> The options for the read mode (Mode) include File and Address. <p>Play List</p>  <ul style="list-style-type: none"> File: you can directly select the audio file to be played from the Sound Bank and add it to the Play List. When the read bit address of the Sound Setting is triggered, the selected audio file is played. Address: you can specify a register address, and once the trigger condition is met, the HMI reads the input values of the register and plays the sound file according to the No. in the Sound File List from the Sound Bank. 																									
Play List	 <table border="1"> <thead> <tr> <th>No.</th> <th>Name</th> <th>Store Source</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Sound001</td> <td>USB</td> </tr> <tr> <td>2</td> <td>Sound002</td> <td>USB</td> </tr> <tr> <td>3</td> <td>Sound003</td> <td>USB</td> </tr> <tr> <td>4</td> <td>Sound004</td> <td>USB</td> </tr> </tbody> </table>	No.	Name	Store Source	1	Sound001	USB	2	Sound002	USB	3	Sound003	USB	4	Sound004	USB										
No.	Name	Store Source																								
1	Sound001	USB																								
2	Sound002	USB																								
3	Sound003	USB																								
4	Sound004	USB																								
Name	<ul style="list-style-type: none"> The filename starts with Sound plus 001 as the initial number, so the name is Sound001 and followed by Sound002, Sound003, and so on.  <table border="1"> <thead> <tr> <th>No.</th> <th>Name</th> <th>Store Source</th> <th>Source</th> <th>Length</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Sound001</td> <td>USB</td> <td>D:\backup\MP3\Sound001.mp3</td> <td>00:05</td> </tr> <tr> <td>2</td> <td>Sound002</td> <td>USB</td> <td>D:\backup\MP3\Sound002.mp3</td> <td>00:00</td> </tr> <tr> <td>3</td> <td>Sound003</td> <td>USB</td> <td>D:\backup\MP3\Sound003.mp3</td> <td>00:05</td> </tr> <tr> <td>4</td> <td>Sound004</td> <td>USB</td> <td>D:\backup\MP3\thunder_clap.wav</td> <td>00:05</td> </tr> </tbody> </table>	No.	Name	Store Source	Source	Length	1	Sound001	USB	D:\backup\MP3\Sound001.mp3	00:05	2	Sound002	USB	D:\backup\MP3\Sound002.mp3	00:00	3	Sound003	USB	D:\backup\MP3\Sound003.mp3	00:05	4	Sound004	USB	D:\backup\MP3\thunder_clap.wav	00:05
No.	Name	Store Source	Source	Length																						
1	Sound001	USB	D:\backup\MP3\Sound001.mp3	00:05																						
2	Sound002	USB	D:\backup\MP3\Sound002.mp3	00:00																						
3	Sound003	USB	D:\backup\MP3\Sound003.mp3	00:05																						
4	Sound004	USB	D:\backup\MP3\thunder_clap.wav	00:05																						
Source	<ul style="list-style-type: none"> In [Play List] > [Source], the path of the sound file is unchangeable. This Source field is only for sound file path display. If changing the path is required, go to [Sound Bank] > [Source]. <p>Play List</p>  <table border="1"> <thead> <tr> <th>No.</th> <th>Mode</th> <th>Name</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>File</td> <td>Sound001</td> <td>D:\backup\MP3\Sound001.mp3</td> </tr> <tr> <td>2</td> <td>File</td> <td>Sound003</td> <td>D:\backup\MP3\Sound003.mp3</td> </tr> <tr> <td>3</td> <td>File</td> <td>Sound004</td> <td>D:\backup\MP3\thunder_clap.wav</td> </tr> </tbody> </table>	No.	Mode	Name	Source	1	File	Sound001	D:\backup\MP3\Sound001.mp3	2	File	Sound003	D:\backup\MP3\Sound003.mp3	3	File	Sound004	D:\backup\MP3\thunder_clap.wav									
No.	Mode	Name	Source																							
1	File	Sound001	D:\backup\MP3\Sound001.mp3																							
2	File	Sound003	D:\backup\MP3\Sound003.mp3																							
3	File	Sound004	D:\backup\MP3\thunder_clap.wav																							

28.10 Modbus TCP mapping table

In the past, screen editing and address planning can be inflexible because ranges and addresses of the Modbus address table are very limited, as shown in the following table.

Modbus address	Modbus 6-digit address		HMI internal register definition	
W40001 – W41024	W4-00001 – W4-01024	→	\$0 – \$1023	Internal register
W42001 – W43024	W4-02001 – W4-03024	→	\$M0 – \$M1023	Non-volatile internal register
W44001	W4-04001	→	RCPNO	Recipe number register
W45001 ...	W4-05001 ...	→	RCP0 – RCPn	Recipe register
B00001 – B01024	B0-00001 – B0-01024	→	\$2000.0 – \$2063.15	Internal register (bit)
B01025 – B02048	B0-01025 – B0-02048	→	\$M200.0 – \$M263.15	Non-volatile internal register (bit)

The DOP-100 software provides users with a more flexible editing approach for the Modbus addresses. In addition to the expanded length of the Modbus and HMI memory addresses, you can define the initial address and the range of the read length.

Modbus TCP mapping table					
External connection function code Description:		Coils		Registers	
		0x01: read multiple Bit		0x03: read multiple Word	
		0x05: write a Bit		0x04: read multiple Word	
		0x0F: write multiple Bit		0x06: write a Word	
				0x10: write multiple Word	
No.	Data Type	Modbus Address	HMI Address	Length	Modbus Range
1	Coils	1	\$2000.0	1024	00001(0x0000) ~ 01024(0x03FF)
2	Coils	1025	\$M200.0	1024	01025(0x0400) ~ 02048(0x07FF)
3	Registers	1	\$0	1024	00001(0x0000) ~ 01024(0x03FF)
4	Registers	2001	\$M0	1024	02001(0x07D0) ~ 03024(0x0BCF)
5	-----				
6	-----				
7	-----				
8	-----				
9	-----				
10	-----				
11	-----				
12	-----				
13	-----				
14	-----				
15	-----				
16	-----				

Figure 28.10.1 Modbus TCP mapping table

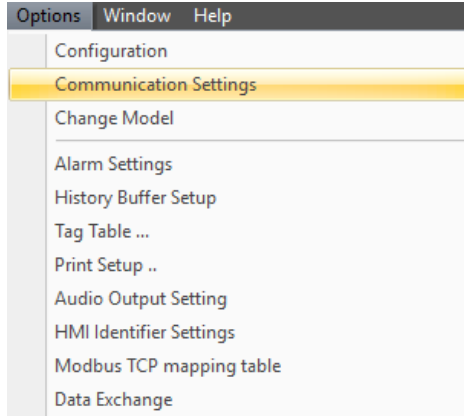
The Modbus TCP mapping table supports both internal and external addresses. You can set the HMI internal and the external memory addresses which the Modbus addresses are mapped to. Refer to the following example.

Table 28.10.1 Descriptions of Modbus TCP mapping table

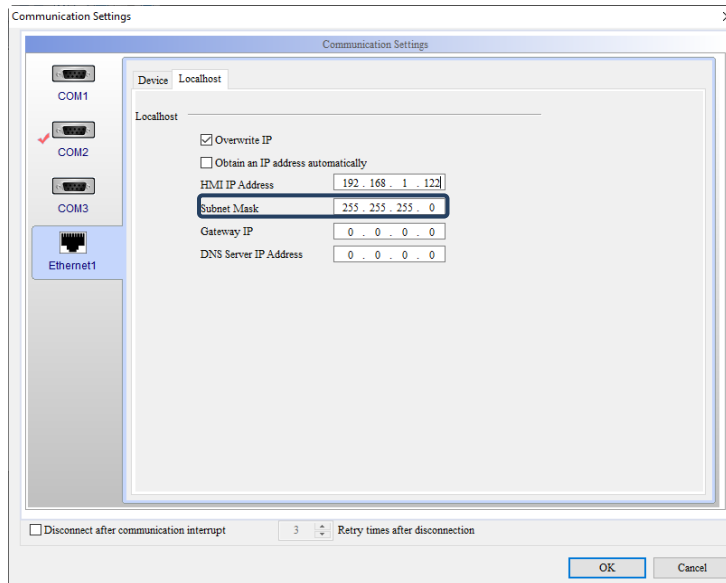
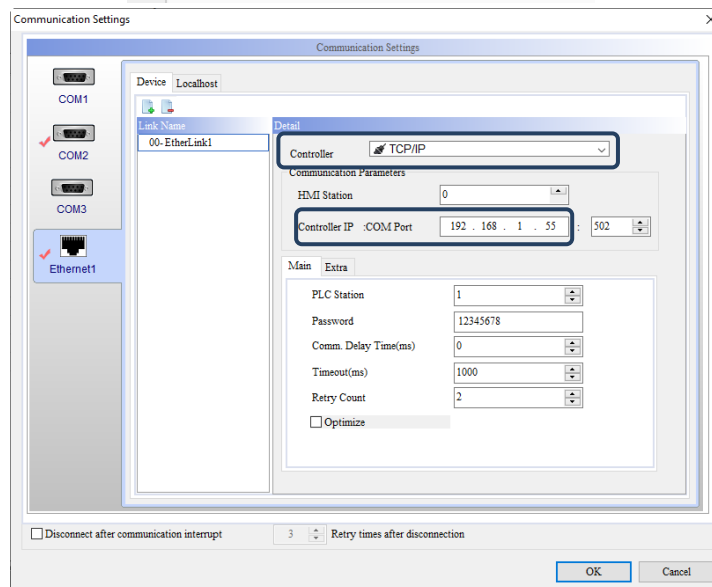
28

Modbus TCP mapping table

In this example, Modbus TCP is used to establish communication between two HMIs.
 Step 1: set the communication parameters for the first HMI.
 Go to [Options] > [Communication Settings] > [Ethernet1] and add a network connection by setting the Controller to TCP/IP, and set the communication parameters as follows.

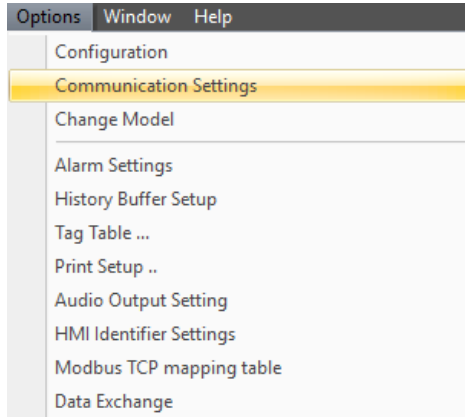


Communication Settings

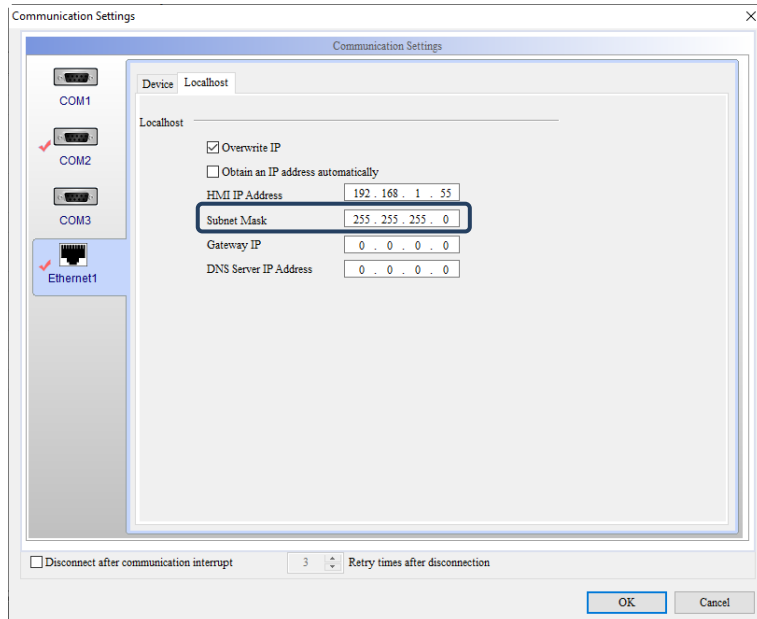
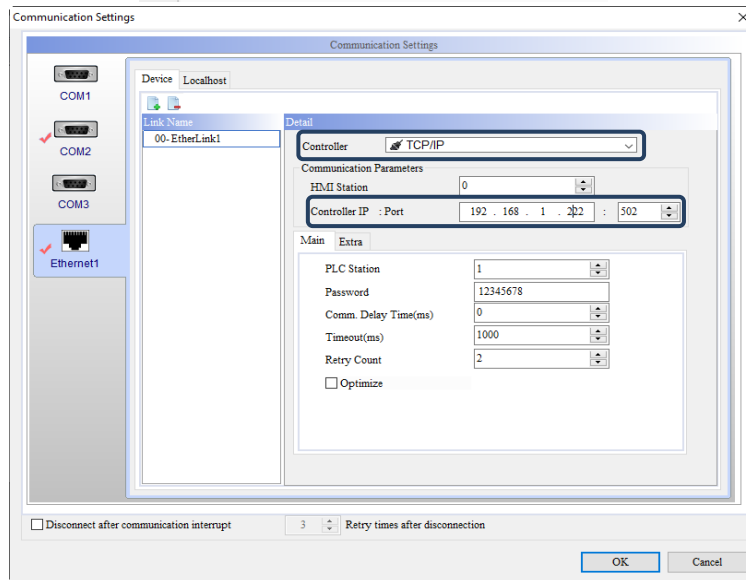


Modbus TCP mapping table

Step 2: set the communication parameters for the second HMI.
Go to [Options] > [Communication Settings] > [Ethernet1] and add a network connection by setting the Controller to TCP/IP, and set the communication parameters as follows.



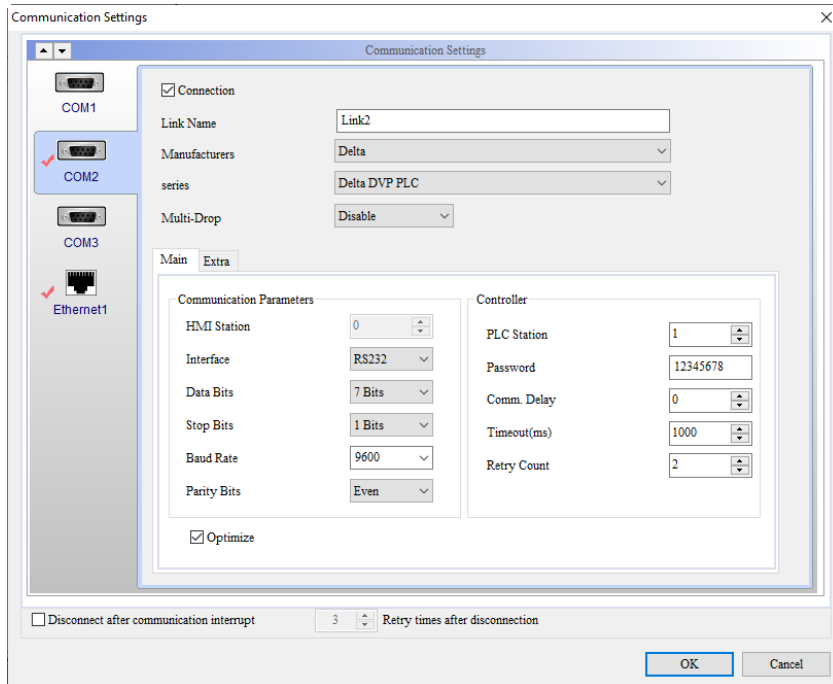
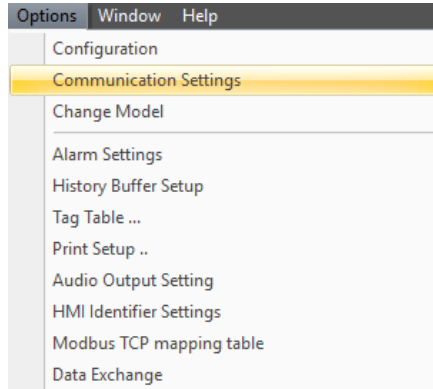
Communication Settings



Modbus TCP mapping table

Communication Settings

Step 3: on the second HMI, go to [Options] > [Communication Settings] > [COM2] to set the Delta DVP PLC communication parameters.



Set Modbus TCP mapping table parameters

■ Go to [Options] > [Modbus TCP mapping table] and set the Modbus address 2, {EtherLink1}1@RW-1, to map to the external memory address, {Link2}1@D0, with the mapping length as 1024 words.

Modbus TCP mapping table						
External connection function code Description:		Coils	Registers			
		0x01: read multiple Bit	0x03: read multiple Word			
		0x05: write a Bit	0x04: read multiple Word			
		0x0F: write multiple Bit	0x06: write a Word			
			0x10: write multiple Word			
No	Data Type	Modbus Address	HMI Address	Length	Modbus Range	
1	Coils	1	\$2000.0	1024	00001(0x0000) ~ 01024(0x03FF)	
2	Coils	1025	\$M200.0	1024	01025(0x0400) ~ 02048(0x07FF)	
3	Registers	1	{Link2}1@D0	1024	00001(0x0000) ~ 01024(0x03FF)	
4	Registers	2001	\$M0	1024	02001(0x07D0) ~ 03024(0x0BCF)	
5	-----					

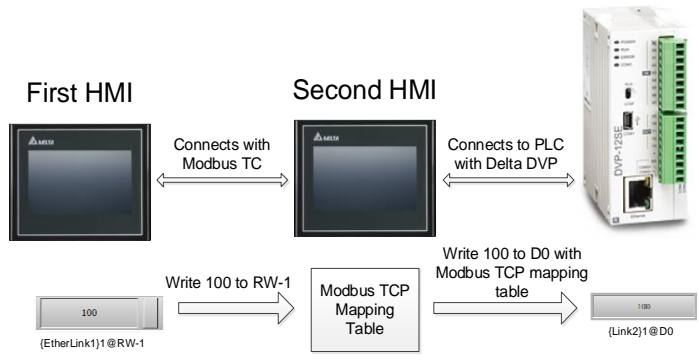
Create Numeric Entry and Numeric Display elements

- On the first HMI, create a Numeric Entry element and then set the Write Address as {EtherLink1}1@RW-1.
- On the second HMI, create a Numeric Display element and set the external address as {Link2}1@D0.

Modbus TCP mapping table

Execution results

- After creating and setting the elements, compile and download the project to the HMI.
- On the first HMI, write 100 to the Numeric Entry element which address is {EtherLink1}1@RW-1. Meanwhile, the second HMI uses the Modbus TCP mapping table to map the value 100 to the external memory address {Link2}1@D0.



28.11 Font management

28

The Font management function allows you to search for a specific font and batch replace the font.

With this function, you can quickly change the font when required, which improves the programming efficiency.

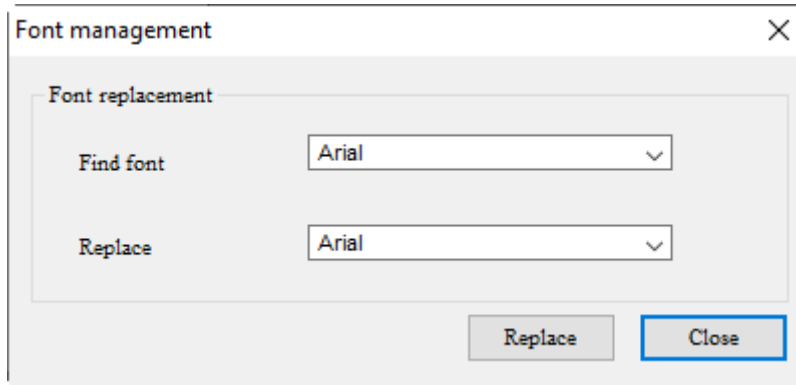


Figure 28.11.1 Font management

System Screen



This chapter describes the functions that the HMI system screen provides, including System Settings, Up/Download, System Info, and HMI Doctor.

A.1	System screen overview	A-3
A.2	System Setting	A-10
A.3	Up/Download	A-28
A.4	System Info	A-36
A.5	HMI Doctor	A-37

Both the HMI system screen and DOPSoft software provide users with the function of setting the system display language, including English, French, Russian, Simplified Chinese, Spanish, Traditional Chinese, and Turkish.

A

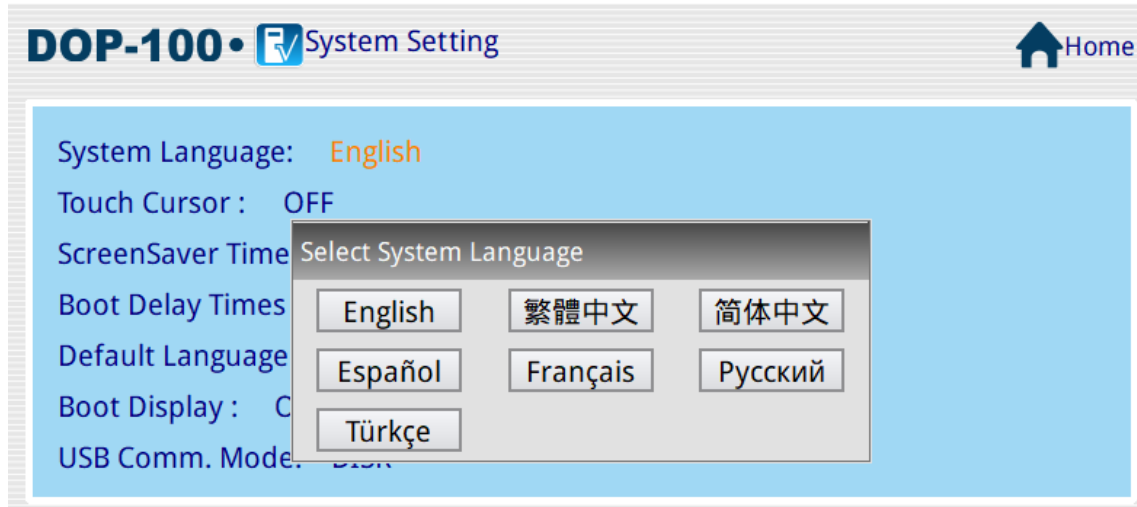


Figure A.1 System Menu - system language setup

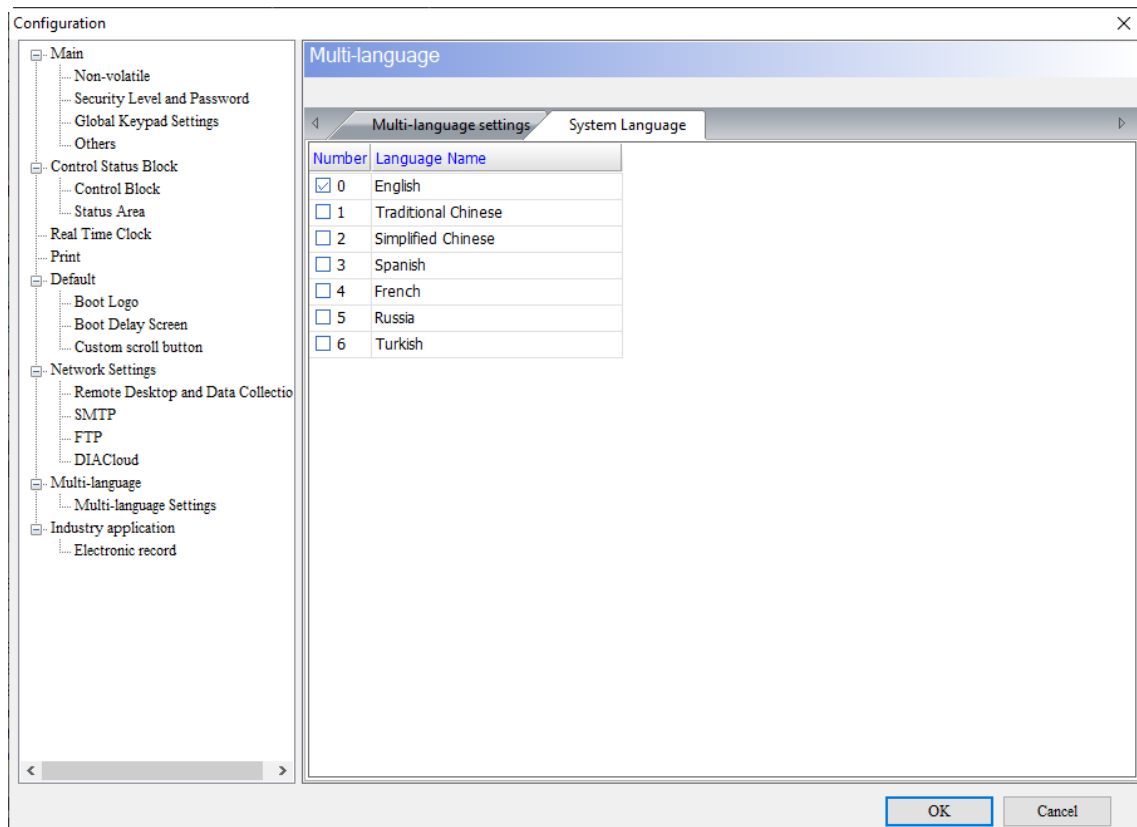


Figure A.2 DOPSoft - system language setup

A.1 System screen overview

- How to enter the system screen

After you press any blank space for more than 3 seconds, the system directory will be displayed on the left.

A

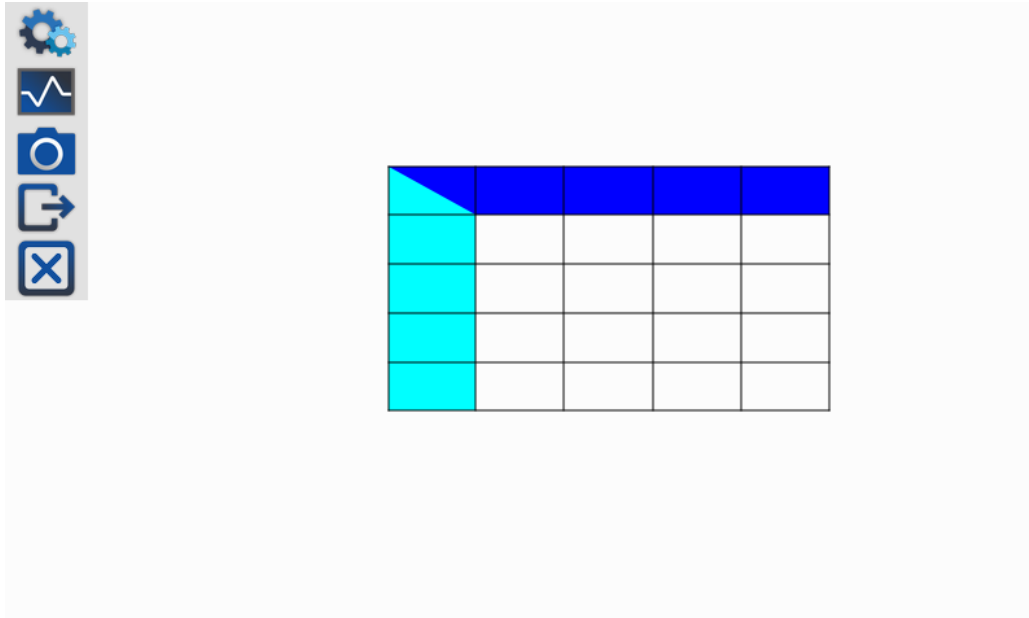



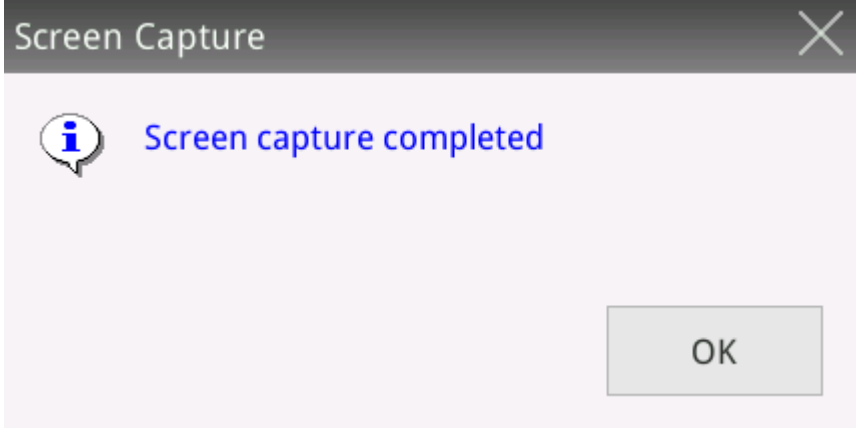


Figure A.1.1 System screen directory

Table A.1.1 System screen directory

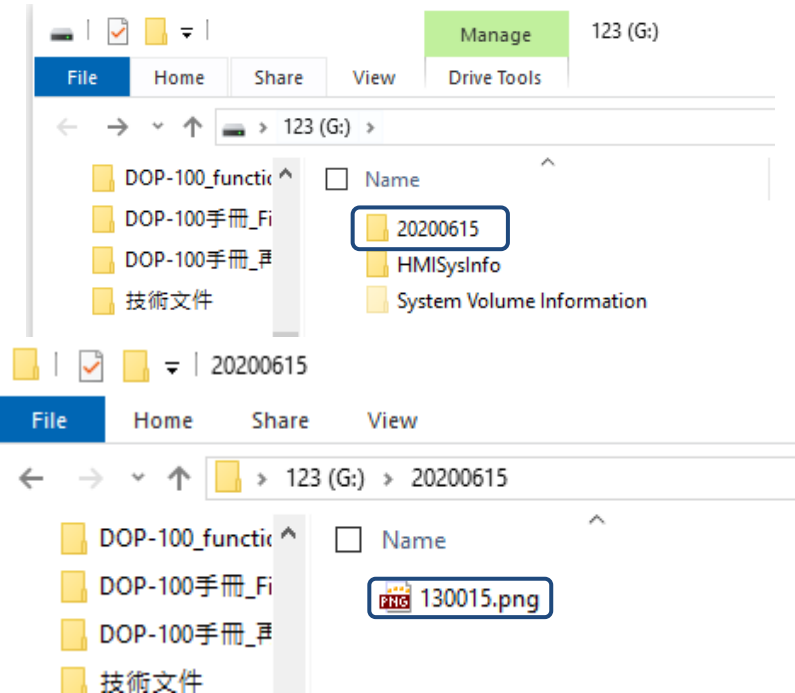
<p>System menu</p> 	<p>Execute this button to directly enter the system menu.</p>
<p>System monitor</p> 	<p>Display the system usage status.</p>
<p>Screen capture</p> 	<p>Capture the screen and save the screenshot in USB disk as a PNG file. After you execute this button, the following message will be displayed.</p> 

A

Screen capture



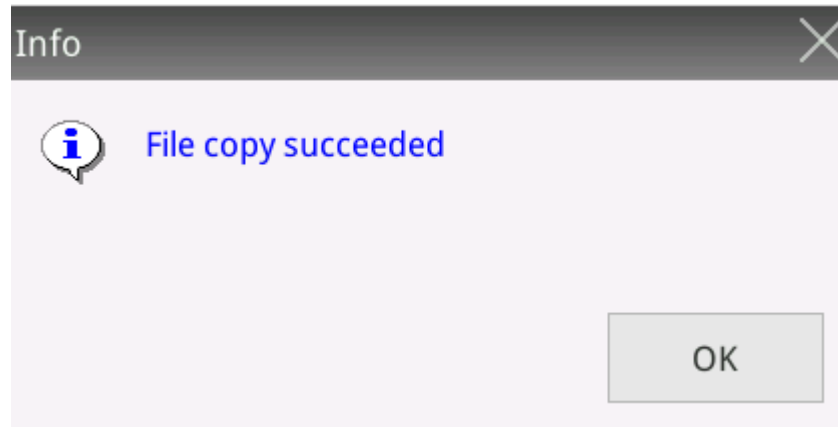
The exported file will be archived in the archive folder and named by date (yyyymmdd), and the file is named by time (hhmmss).



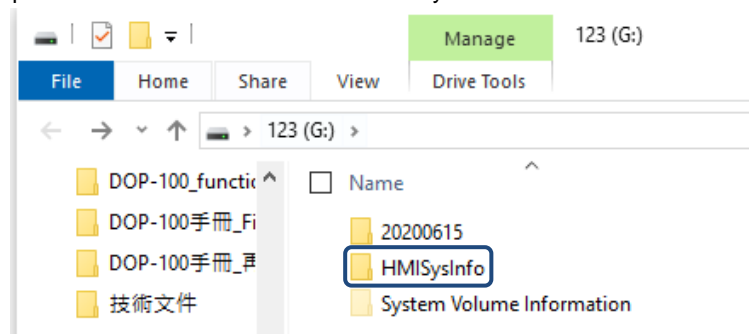
Export system data



System related data can be exported. After the export is complete, the following message will be displayed.



The exported files will be archived in the HMISysInfo folder.



Exit system directory



Execute this button to cancel the display of the system directory on the left and return to the HMI operation screen.

■ How to exit the system screen

Once in the system screen, press the button on the top right corner to exit the HMI system screen.

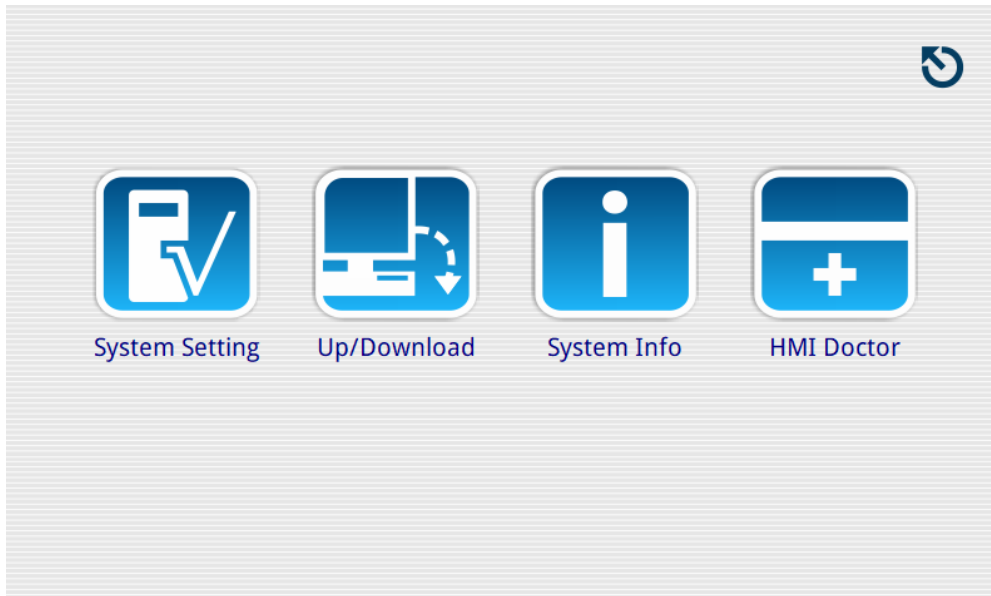


Figure A.1.2 Press the top right corner to exit the system screen

■ How to operate the system screen

You can press the icon on the screen to access the corresponding function options. The following section introduces each of the functions on the system screen.

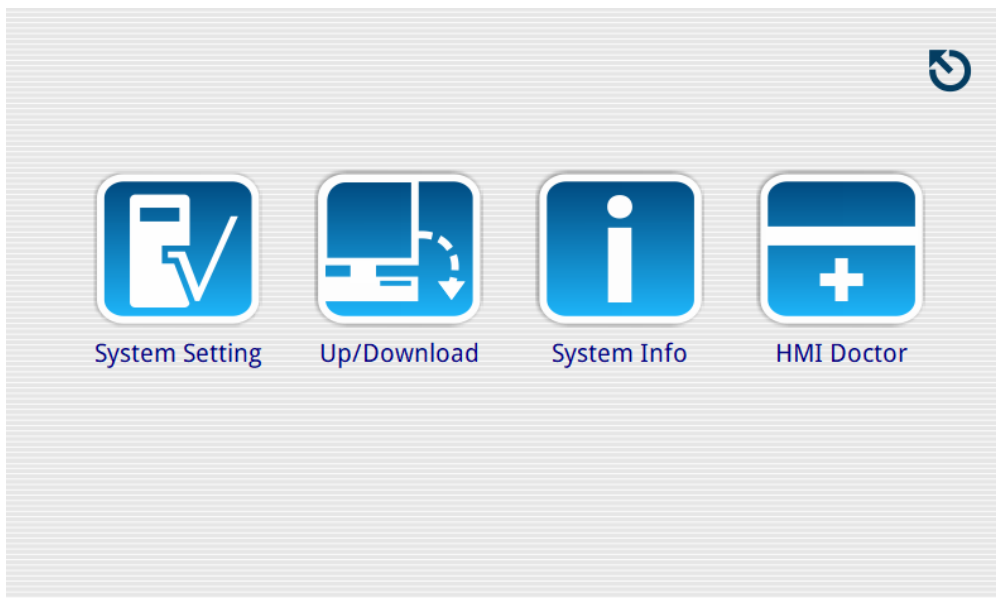









Figure A.1.3 System screen

Table A.1.2 System screen function list











A







System screen function list				
	Display 	Brightness 	Adjust the brightness.	
	Date/Time 	Date 	Set the system date.	
		Time 	Set the system time.	
	Touch Panel 	Delay 	Set the delay time for the touch panel.	
		Force 	Set the pressing force on the touch panel.	
		Calibration 	Calibrate the touch panel.	
	Network 	HMI Name	Display the name set for the HMI.	
		Mode	DHCP	Auto-acquire IP address.
			Static	Customize IP address.
			BOOTP	Auto-acquire IP address.
IP		Set the IP address.		
Mask		Set the network mask.		
Gateway		Set the gateway.		
DNS	Set the domain name.			
MAC	Display the MAC address for the HMI.			

System screen function list					
		VNC	Enable	Enable or disable VNC.	
			Password	Set the connection password.	
			Port	Set the VNC connecting port.	
		eServer	Enable	Enable or disable eServer.	
			Password	Set the connection password.	
		COM 1	Set the COM Mode, Baud Rate, Stop Bits, Data Bits, Parity Bits, Comm. Delay, Comm. Timeout, Comm. Retry Times, HMI Station, PLC Station, Multi-Link Mode, and Baud Rate Tuning for COM 1 - COM 3.		
		COM 2			
		COM 3			
		Buzzer		Adjust the HMI key tone and buzzer volume.	
		Set the Password Table for Levels 0 - 7. The highest security password is needed for setting up the Password Table.			
		System Language	Set the display language of the System Menu.		
		Touch Cursor	Set whether to display the touch cursor.		
		ScreenSaver Time	Set up the time after which the screensaver is enabled.		
Boot Delay Times		Set up the delay time for starting the device.			
Default Language		Select the ID number of the language to use.			
Boot Display		Set whether to display the boot screen at startup.			
USB Comm. Mode		Set the USB upload / download mode.			

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System screen function list			
<p>System Setting</p> 	<p>File Manager</p> 	<p>Format</p> 	<p>Formatting is available for HMI, USB Disk, and SD Card. The HMI project file is cleared after formatting.</p>
		<p>File Copy</p> 	<p>Copy the screen to the external storage device (USB Disk or SD Card).</p>
		<p>Firmware Update</p> 	<p>Update the HMI firmware from USB Disk or SD Card.</p>
<p>Up/Download</p> 	<p>Standard Mode</p> 	COM 1	<p>To upload / download through the COM Port, select COM 1 or COM 2 in the Standard Mode for up- and downloading the screen data.</p>
		COM 2	
	<p>Bypass Mode</p> 	<p>Mode 1 COM 1 > COM 2</p> <p>Mode 2 COM 2 > COM 1</p>	<p>The HMI is used as a bridge in the Bypass Mode to transmit data between PC and PLC.</p>
	<p>Transfer Mode</p> 	Upload	<p>Upload and download DVP files used in the PLC.</p>
		Download	
	<p>System Info</p> 	<p>Display HMI-related data, including firmware version, model, battery capacity, memory space, CPU rate, test data, current time, PLC driver in use, and connection to external storage.</p>	

System screen function list														
 <p>HMI Doctor</p>	<p>Network</p> 	<p>Network test.</p>												
	<p>Color</p> 	<table border="1"> <tr> <td>Red</td> <td>Red screen test.</td> </tr> <tr> <td>Green</td> <td>Green screen test.</td> </tr> <tr> <td>Blue</td> <td>Blue screen test.</td> </tr> <tr> <td>Black</td> <td>Black screen test.</td> </tr> <tr> <td>White</td> <td>White screen test.</td> </tr> <tr> <td>Color</td> <td>Color saturation test.</td> </tr> </table>	Red	Red screen test.	Green	Green screen test.	Blue	Blue screen test.	Black	Black screen test.	White	White screen test.	Color	Color saturation test.
	Red	Red screen test.												
	Green	Green screen test.												
	Blue	Blue screen test.												
	Black	Black screen test.												
	White	White screen test.												
Color	Color saturation test.													
<p>ADC</p> 	<p>ADC test.</p>													
<p>Buzz/LED</p> 	<p>Buzzer / LED test.</p>													
<p>Draw Line</p> 	<p>Line drawing test for the touch panel.</p>													

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A.2 System Setting

The System Setting operation is described as follows.

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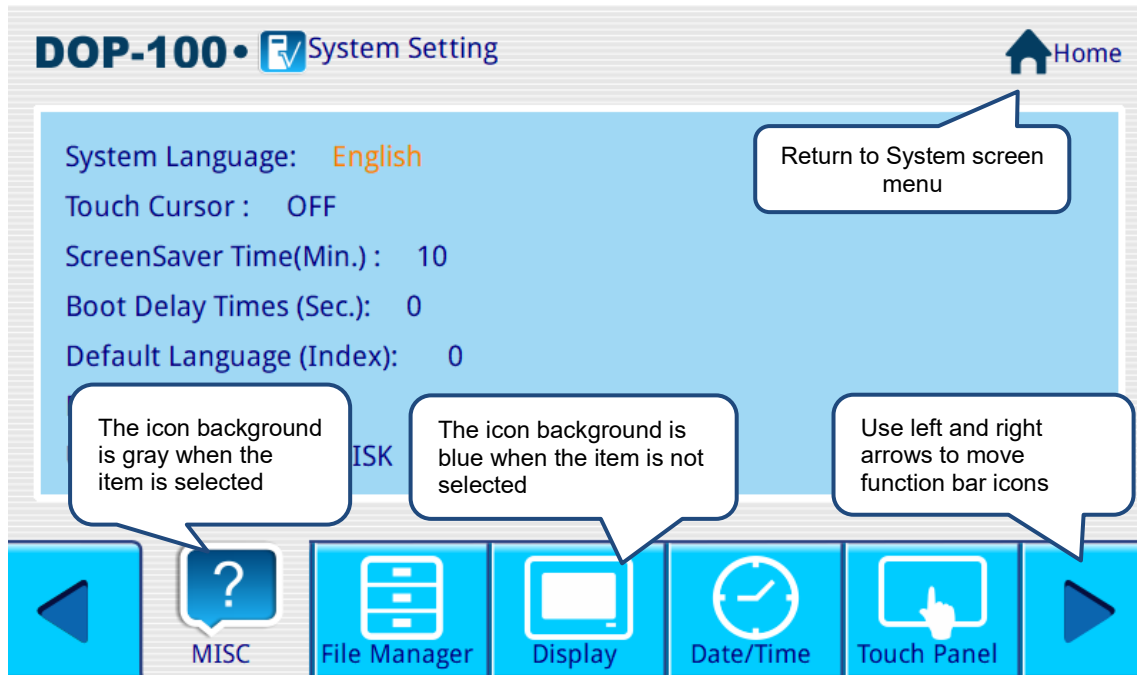
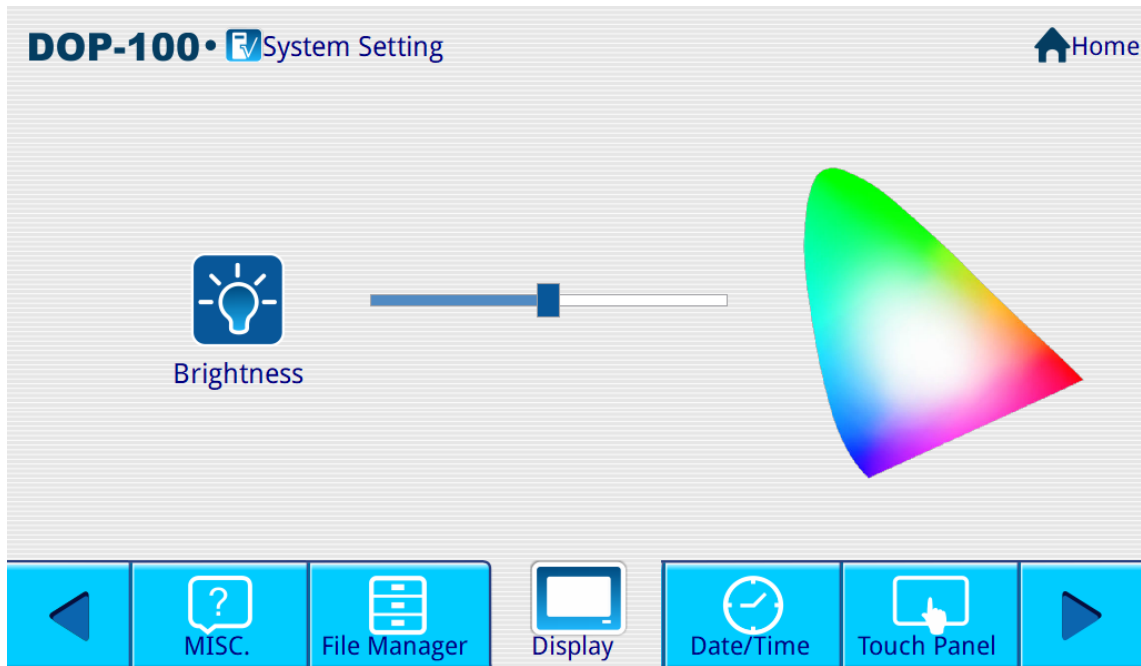


Figure A.2.1 System Setting operation description



■ Display



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Figure A.2.2 Display

Set the LCD display.

<p>Display</p> 	<p>Brightness</p> 	<p>You can adjust the brightness of the HMI screen.</p>
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■ Date/Time

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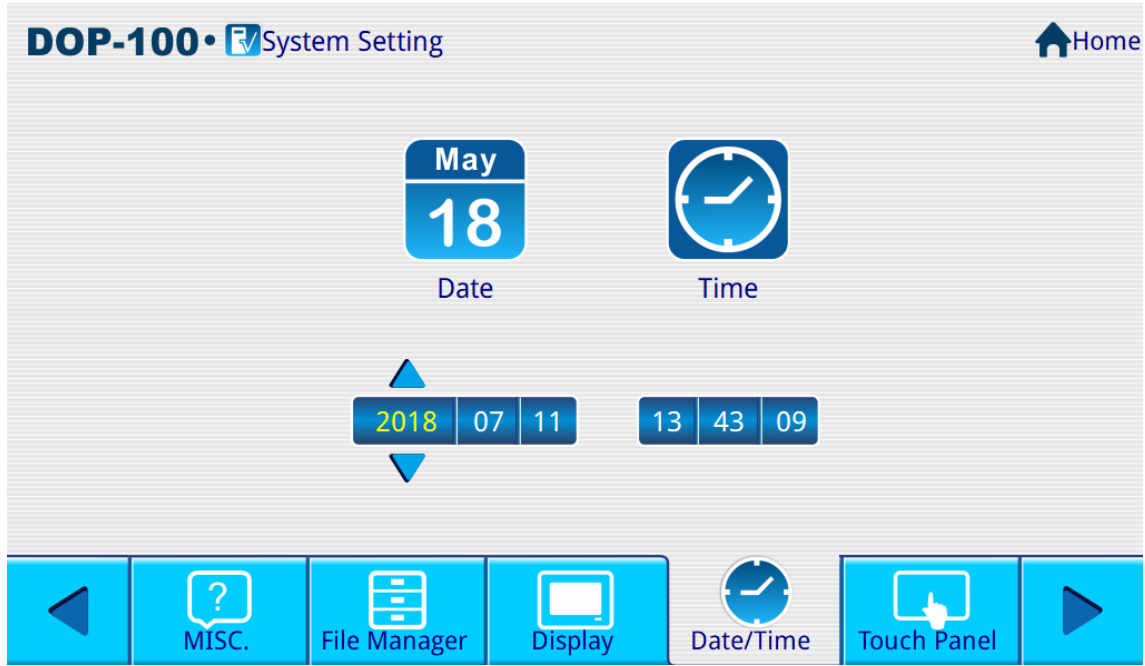



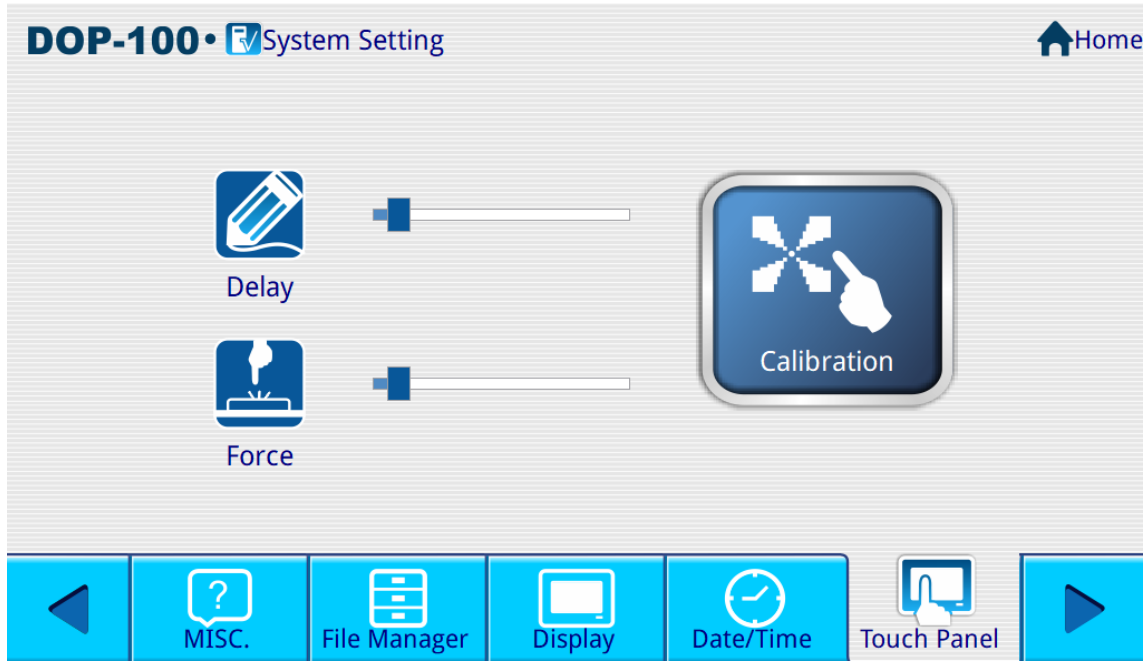


Figure A.2.3 Date/Time

Set the date and time (year, month, day, hour, minute, second) for the HMI system.

 <p>Date/Time</p>	<p>Date</p> 	<p>Set the HMI system date with the year, month, and day.</p>
	<p>Time</p> 	<p>Set the HMI system time with the hour, minute, and second.</p>





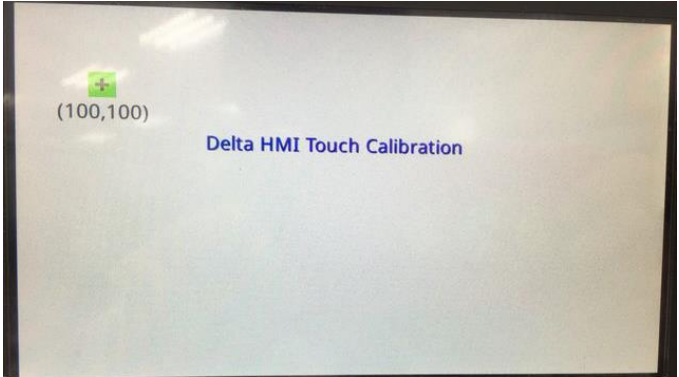
■ Touch Panel



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Figure A.2.4 Touch Panel

Set the delay time, pressing force, and calibration for the touch panel.

<p>Touch Panel</p> 	<p>Delay</p> 	<p>Set the delay time of HMI processing the touch and movement data. The farther to the right, the shorter the delay time, which means the speed is faster; the farther to the left, the longer the delay time, which means the speed is slower.</p>
	<p>Force</p> 	<p>Set the pressing force for the HMI touch panel. Move the slider left to reduce the force, meaning the HMI is more sensitive to forces, thereby requiring less force for the touch operation; move the slider right to increase the force, meaning the HMI is less sensitive to forces, thereby requiring more force for the touch operation.</p>
	<p>Calibration</p> 	<p>Follow the instructions and touch the center of the calibration icon to conduct five-point calibration for the HMI touch panel. A significant deviation may occur to the touch panel if you touch a point far away from the center point in the calibration area. It is suggested that you use a dedicated stylus for the calibration.</p> 

■ Network

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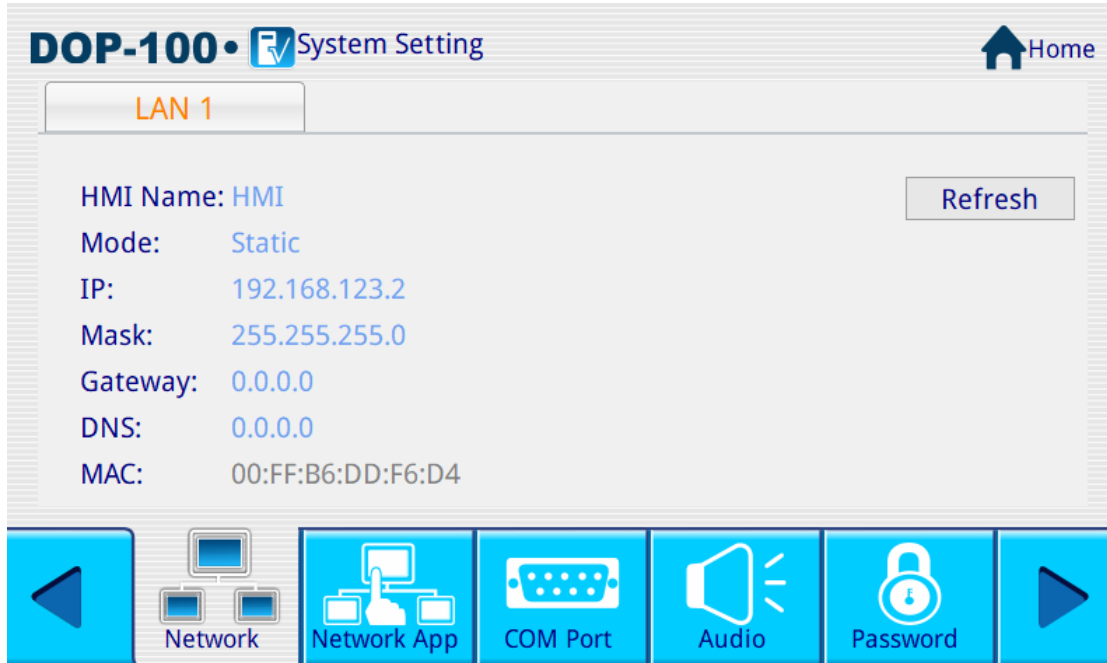


Figure A.2.5 Network

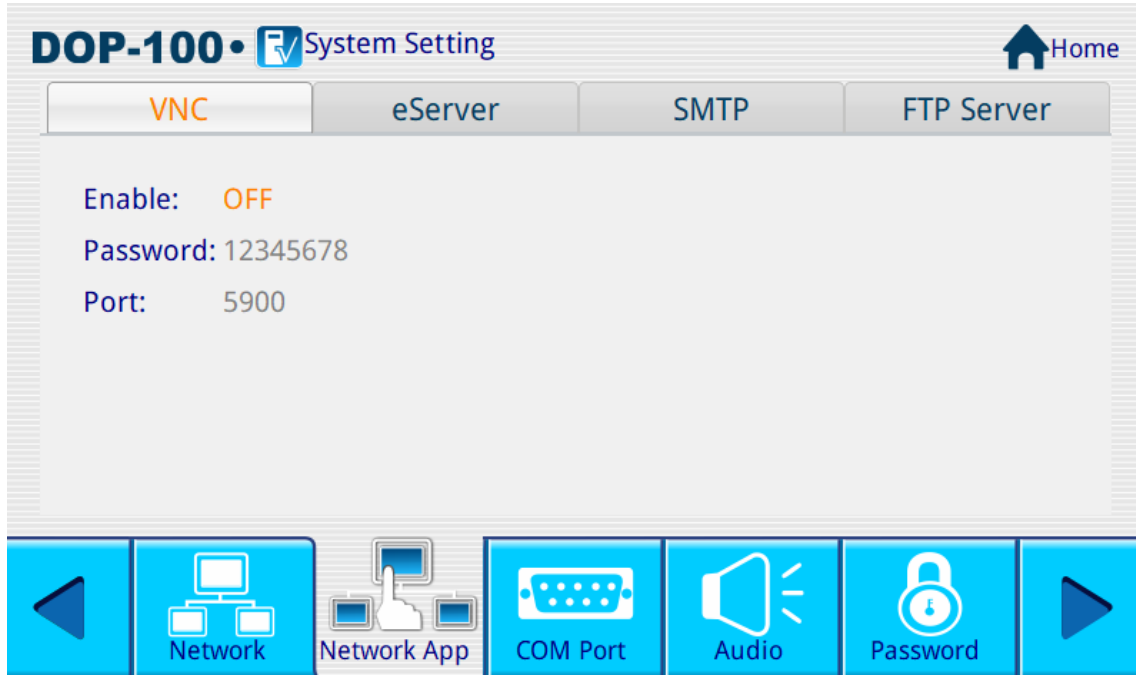
You can use this function to set the network IP access mode, IP, Mask, Gateway, and DNS.

You can go to [Options] > [Communication Settings] > [Ethernet1] > [Localhost] in the DOPSoft to change the following settings for the Network in System Setting.

Communication Settings

Network	HMI Name	Display the name set for the HMI. This is the default name set up by the HMI. To change the name, go to [Options] > [Configuration] > [Main].	
	Mode	DHCP	Auto-acquire IP address for the HMI.
Static		Manually set IP address for the HMI.	
BOOTP		Auto-acquire IP address for the HMI, but there is no lease period for this IP address.	
Mask	Set the network mask. When DHCP is OFF, the mask can be set manually.		
Gateway	Set the gateway. When DHCP is OFF, the gateway can be set manually.		
DNS	Set the domain name server. When DHCP is OFF, DNS can be set manually.		
MAC	Display the MAC address of the HMI. This setting cannot be changed.		


■ Network App



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Figure A.2.6 Network App

Set to enable the VNC and eServer functions.

	VNC	Enable	<ul style="list-style-type: none"> ■ The default is Off. ■ When this function is set to On, you can use VNC Viewer to remotely control the HMI.
		Password	<ul style="list-style-type: none"> ■ The default password is 12345678. ■ You can change the password.
		Port	<ul style="list-style-type: none"> ■ Set the connecting port password.
	eServer	Enable	<ul style="list-style-type: none"> ■ The default is Off. ■ When the eServer function is set to On, you can use it to collect the HMI data.
		Password	<ul style="list-style-type: none"> ■ The default password is 12345678. ■ You can change the password.

■ COM Port

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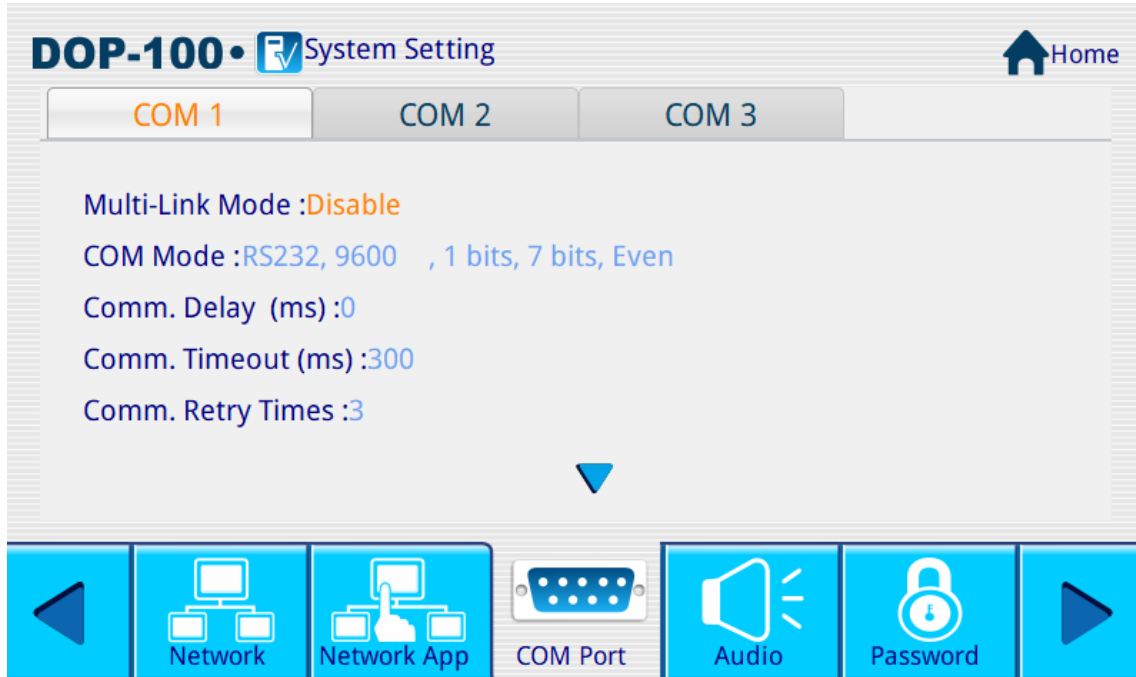

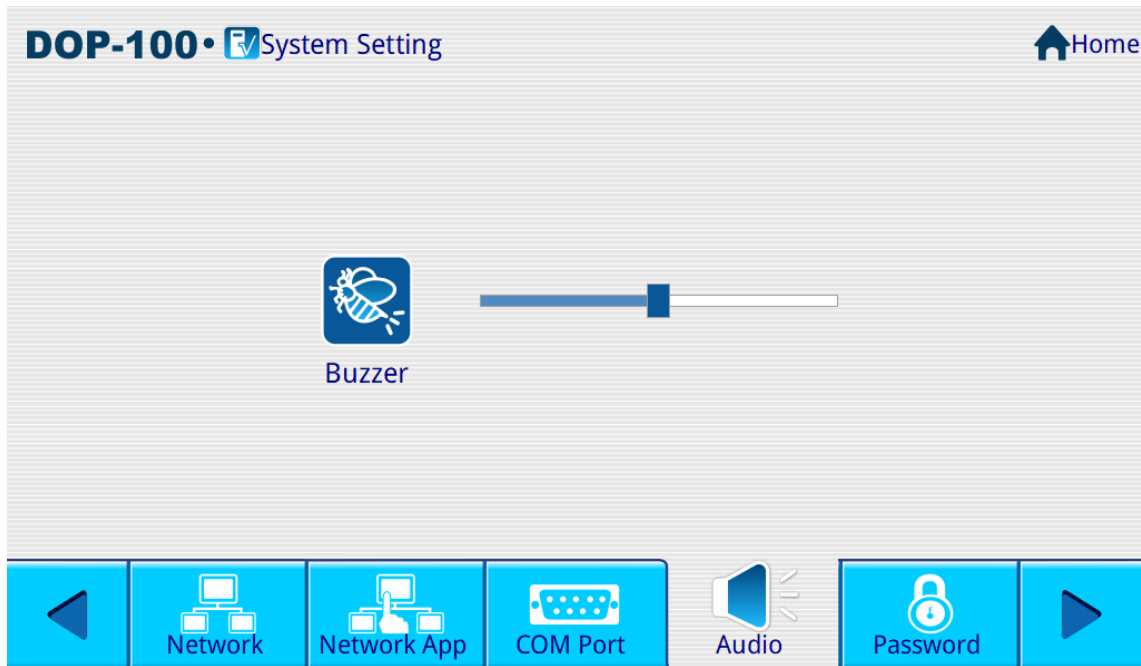


Figure A.2.7 COM Port

Set the COM 1, COM 2, and COM 3 parameters.

	COM 1	Set the COM Mode, Baud Rate, Stop Bits, Data Bits, Parity Bits, Comm. Delay, Comm. Timeout, Comm. Retry Times, HMI Station, PLC Station, Multi-Link Mode, and Baud Rate Tuning for COM 1 - COM 3.
	COM 2	
	COM 3	



■ Audio



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Figure A.2.8 Audio

Set the volume for the buzzer.

<p>Audio</p> 	<p>Buzzer</p> 	<p>Adjust the volume for the HMI buzzer. Move the slider left to decrease the volume; move the slider right to increase the volume.</p>
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■ Password

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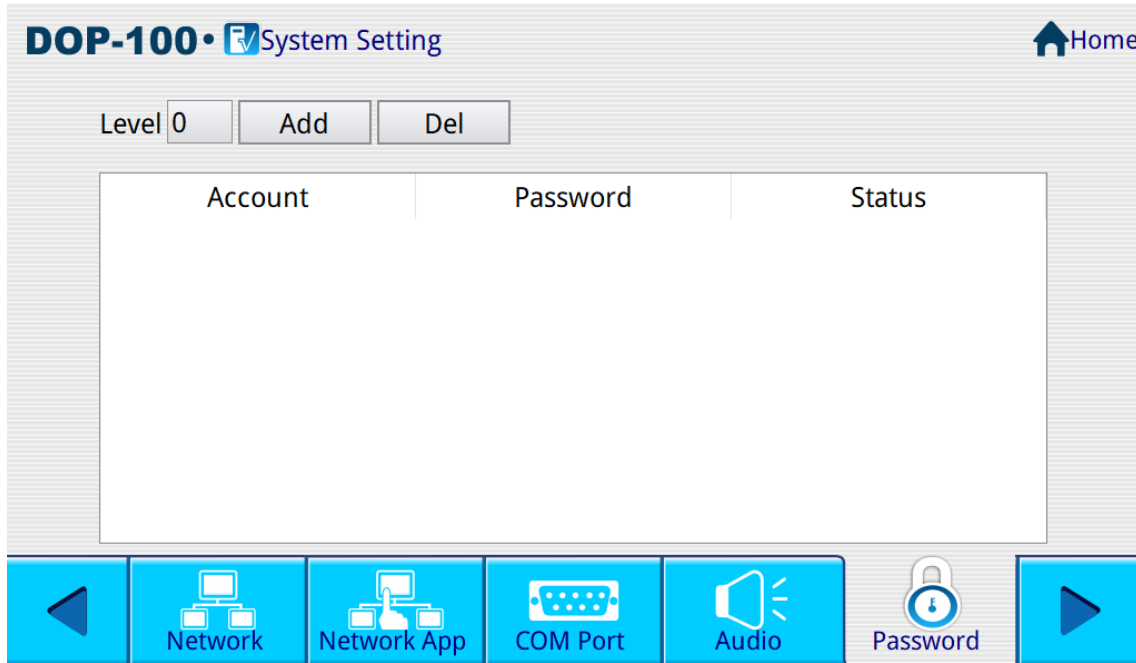
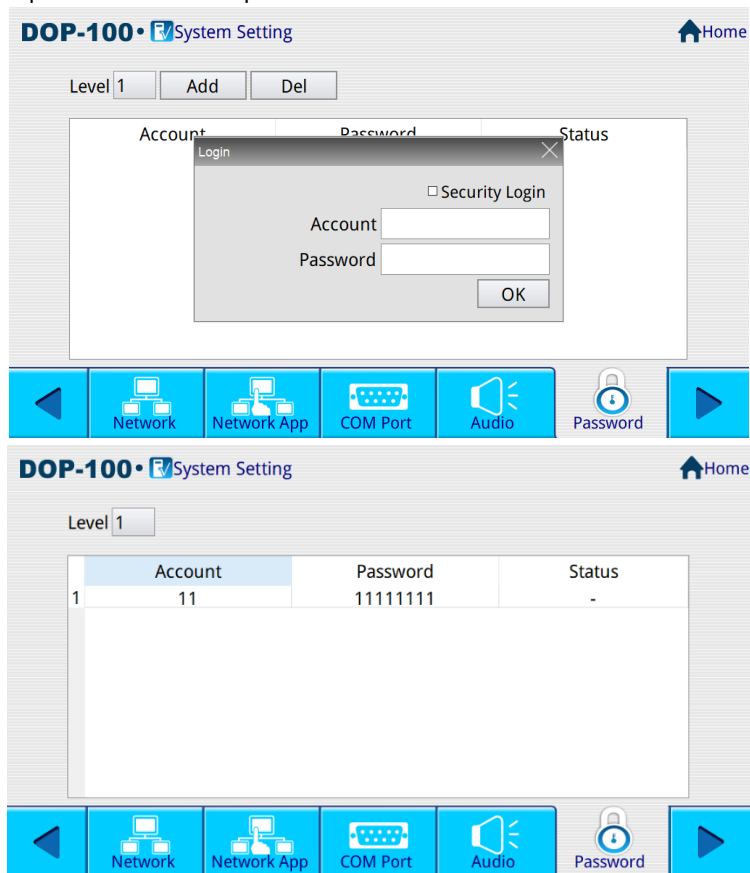


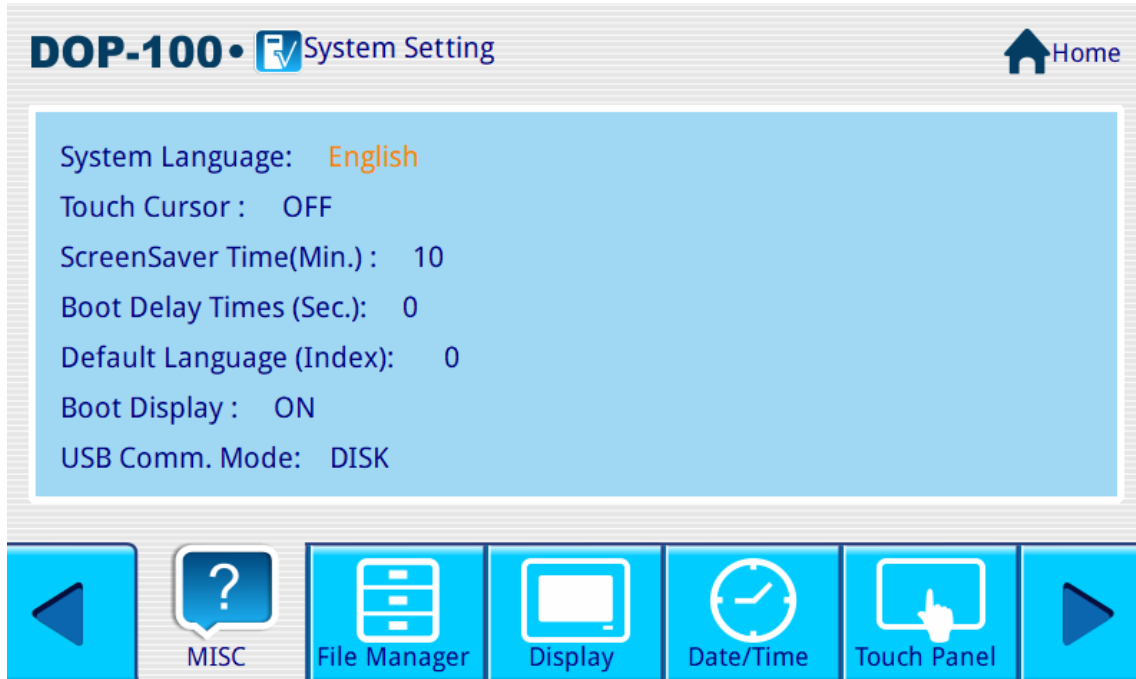
Figure A.2.9 Password

Set up the HMI Password Table for passwords of Levels 0 - 7.

Set the Password Table for Levels 0 - 7. Select the level to log in with, and then enter the account and password to set the password.




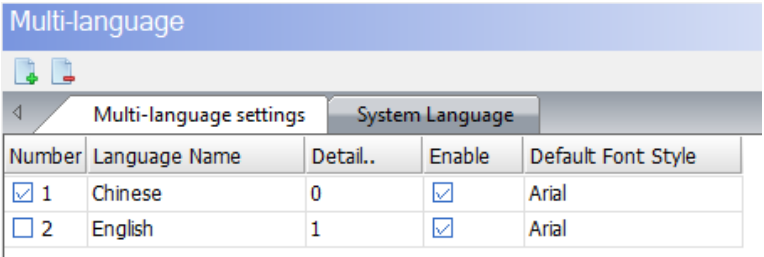
■ MISC




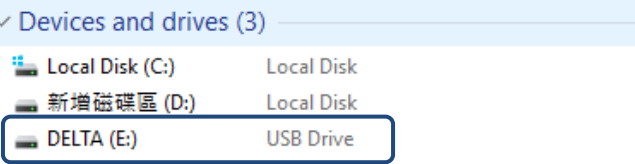
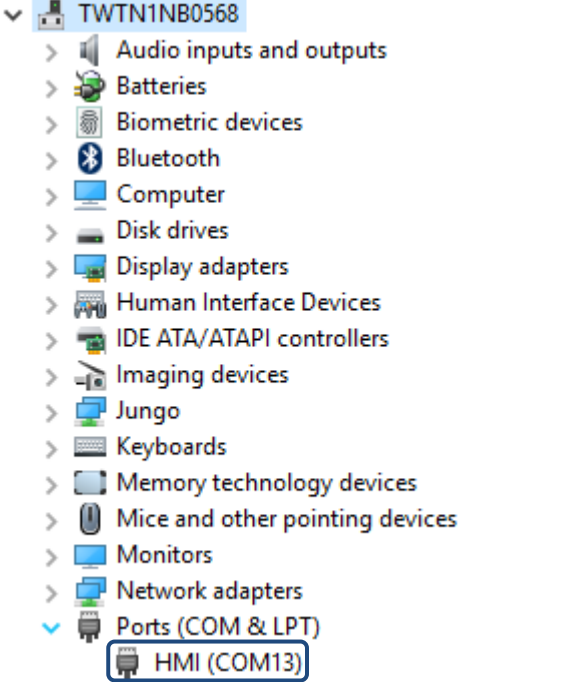
A

Figure A.2.10 MISC

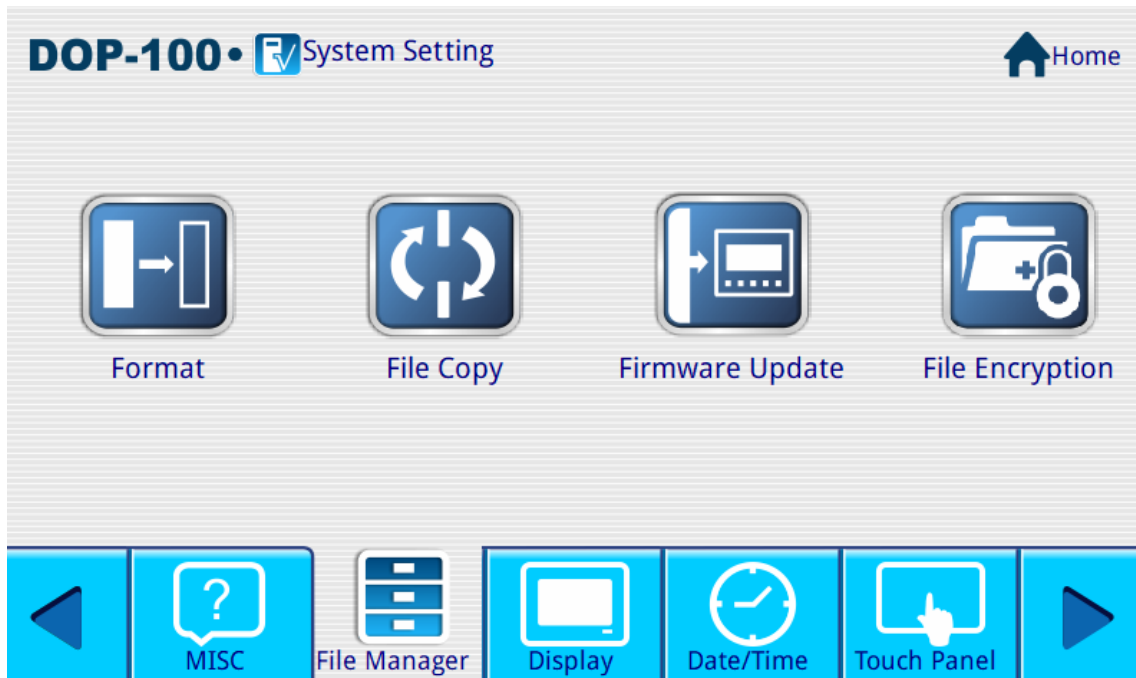
Set the MISC settings for the HMI as follows:

 <p>MISC</p>	System Language	Set the language of the interface for the System Menu. It supports English, French, Russian, Simplified Chinese, Spanish, Traditional Chinese, and Turkish.
	Touch Cursor	Set whether to display the touch cursor.
	ScreenSaver Time	Set up the time after which the screensaver is enabled.
	Boot Delay Times	Set up the delay time for starting the device.
	Default Language	<p>Select the ID number of the language to use.</p> 
	Boot Display	Set whether to display the boot screen at startup.

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<p>MISC</p> 	<p>USB Comm. Mode</p>	<p>DISK</p>	<p>Under this mode, you can find a removable storage device named "DELTA" in [This PC].</p> 
		<p>CDC</p>	<p>Under this mode, go to [This PC] > right click and select [Content] > [Device Manager] and see if the device named "HMI" is displayed under [Ports].</p> 





■ File Manager



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Figure A.2.11 File Manager

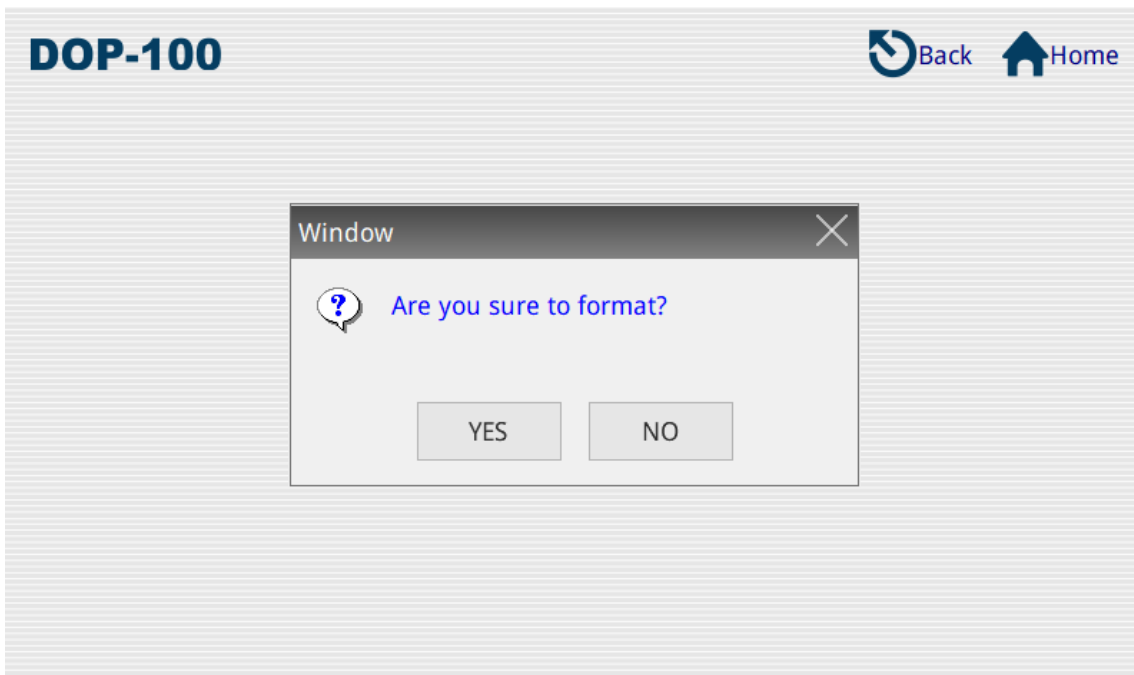
This setting is for formatting, copying files, and updating firmware.

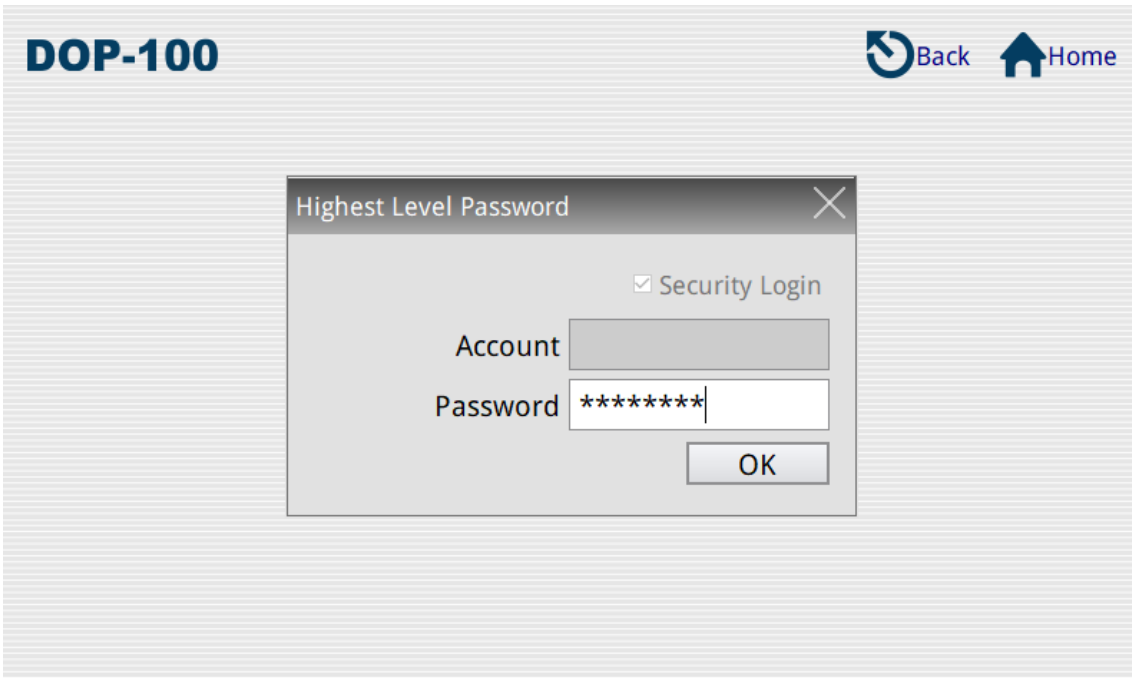
 File Manager	Format 	Formatting is available for HMI, USB Disk, and SD Card. The HMI project file is cleared after formatting.
	File Copy 	Copy the screen to external storage device (USB Disk or SD Card).
	Firmware Update 	Update the HMI firmware from USB Disk or SD Card.

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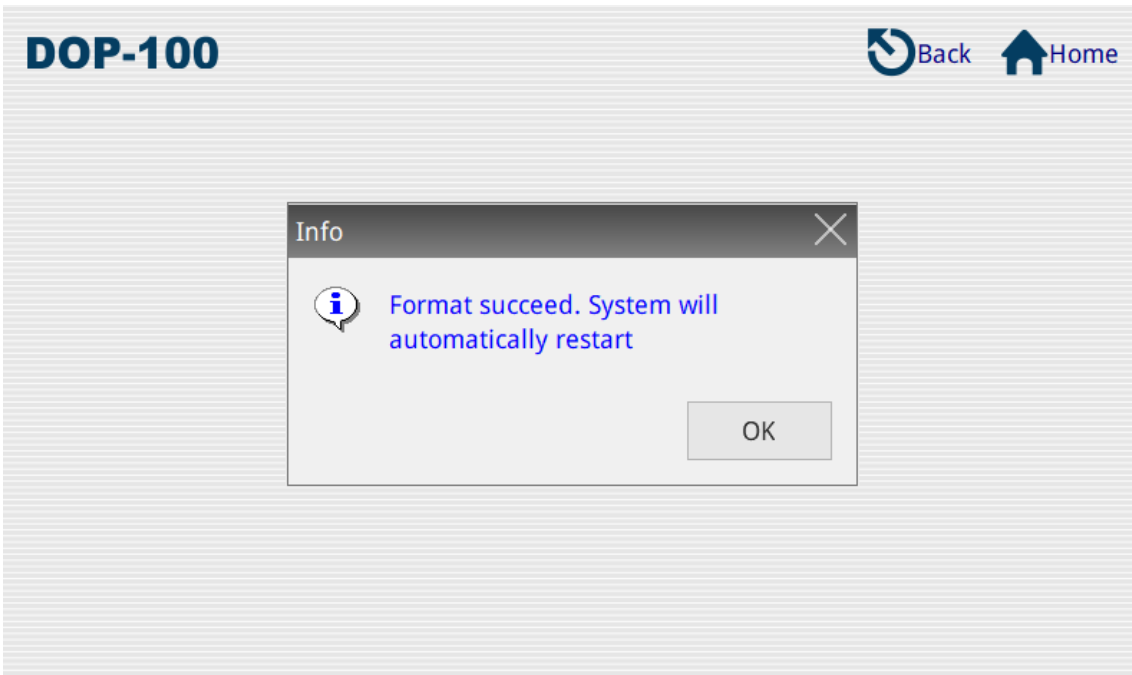
■ Format

You can format the HMI internal and external devices with this Format function, and the devices include HMI, USB Disk, and SD Card. You cannot select the USB and SD options if the USB Disk and SD Card are not inserted into the HMI. After selecting the device to be formatted, enter the highest security password (default is 12345678), and the selected device will be formatted once the password is verified. When the formatting is complete, the system displays a message to remind you that the HMI will be restarting.





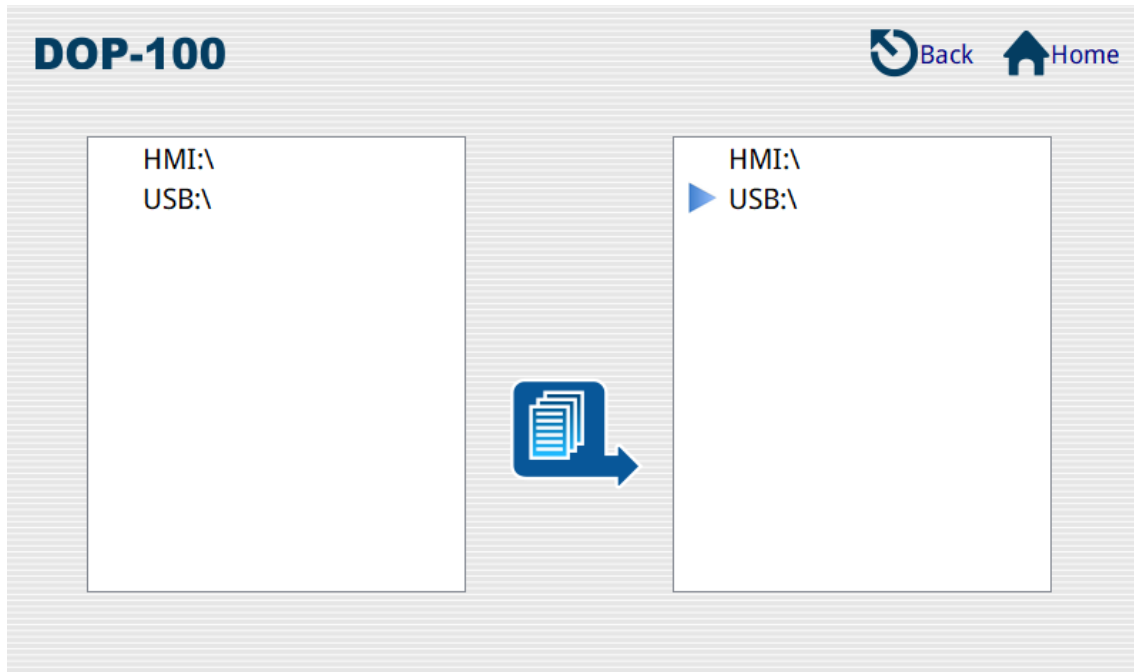
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■ File Copy

You can select files in the source directory to copy them to the destination directory.

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Note:

1. The HMI does not support direct copying between disks.
2. The HMI only supports the fixed directories HMI-000 to HMI-255.
3. If you select HMI as the destination directory, the original files will be removed before the files from the source directory are copied to the destination directory.
4. If you select **New...** as the destination directory, the HMI will look for a directory not used in HMI-000 to HMI-255 and create it as the destination directory.
5. If the screen file in the source directory is password protected, the HMI will display a dialog box for password input. Enter the highest security password for the screen file of the source directory to perform the copy function.

■ Firmware Update

This function enables the user to perform firmware update using an external storage device (USB Disk or SD Card).



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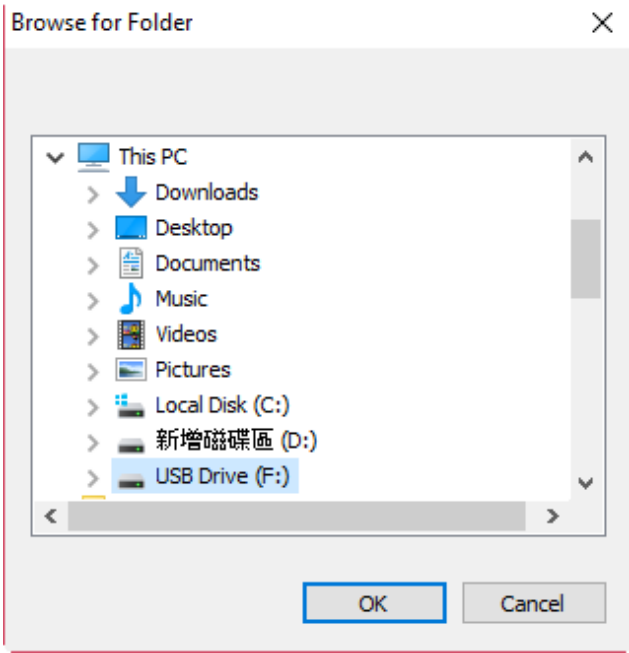
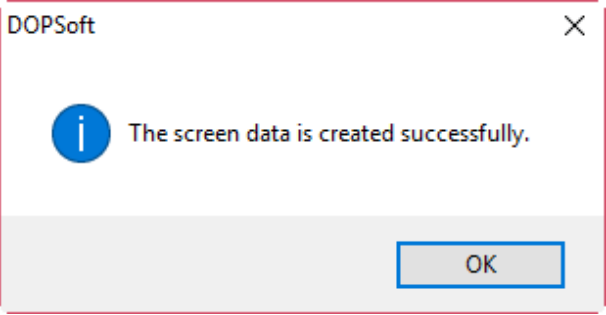
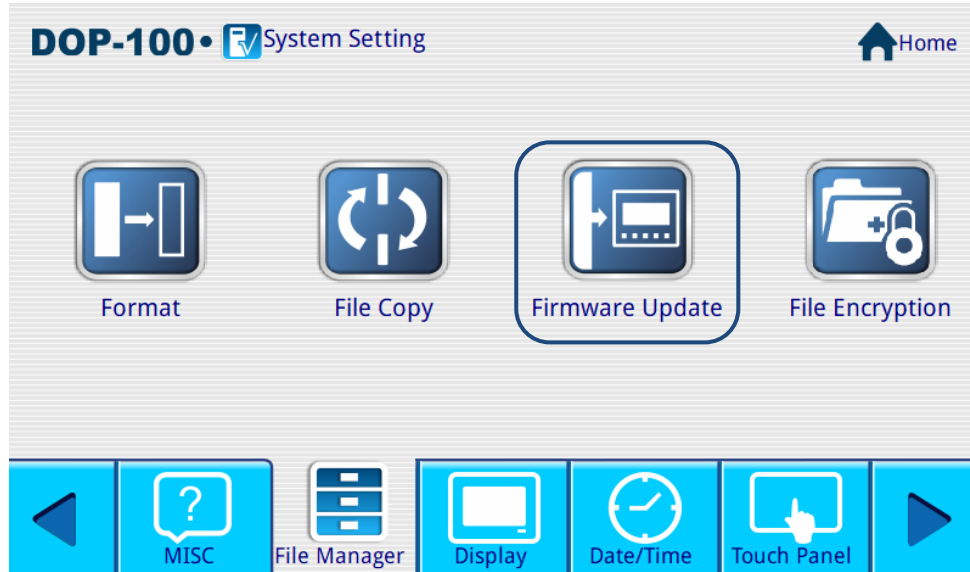
The following section presents an example for the firmware update.

Step 1

Select [File] > [Create Screen Data File].

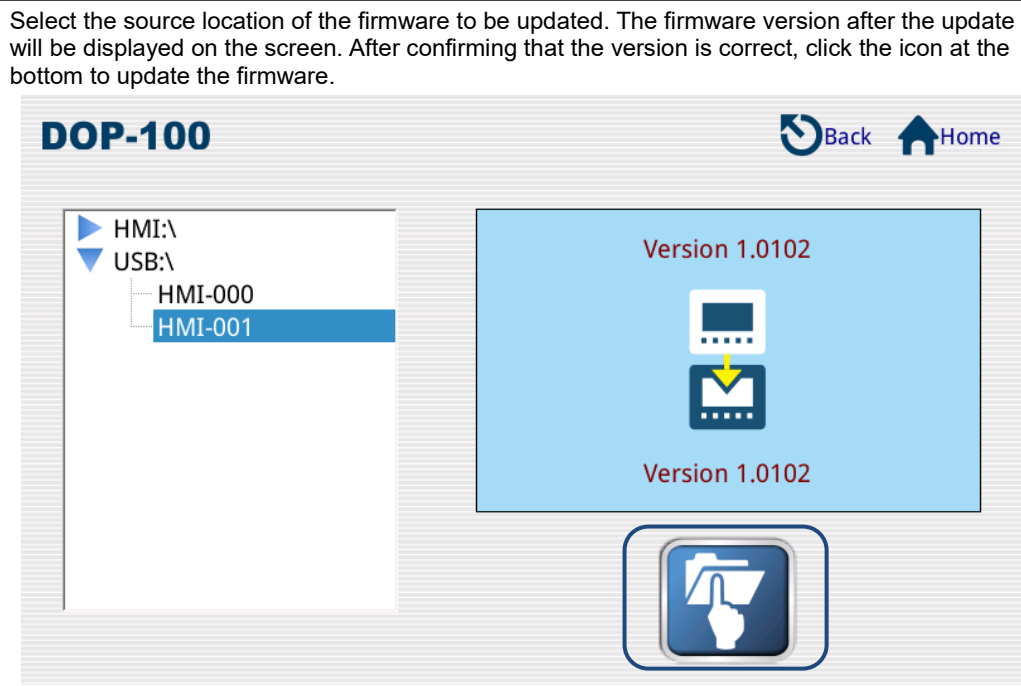
The screenshot shows a software application's File menu. The menu items are: New..., Open... (Ctrl+O), Close, Save (Ctrl+S), Save As..., Create Screen Data File ... (highlighted), Create Auto Update Data File, Open Screen Data File... (Ctrl+I), Creat Download Screen Exe. File..., Password Protect, Print(P) ... (Ctrl + P/Ctrl+P), Print Preview(V), Print settings (R), and Exit.

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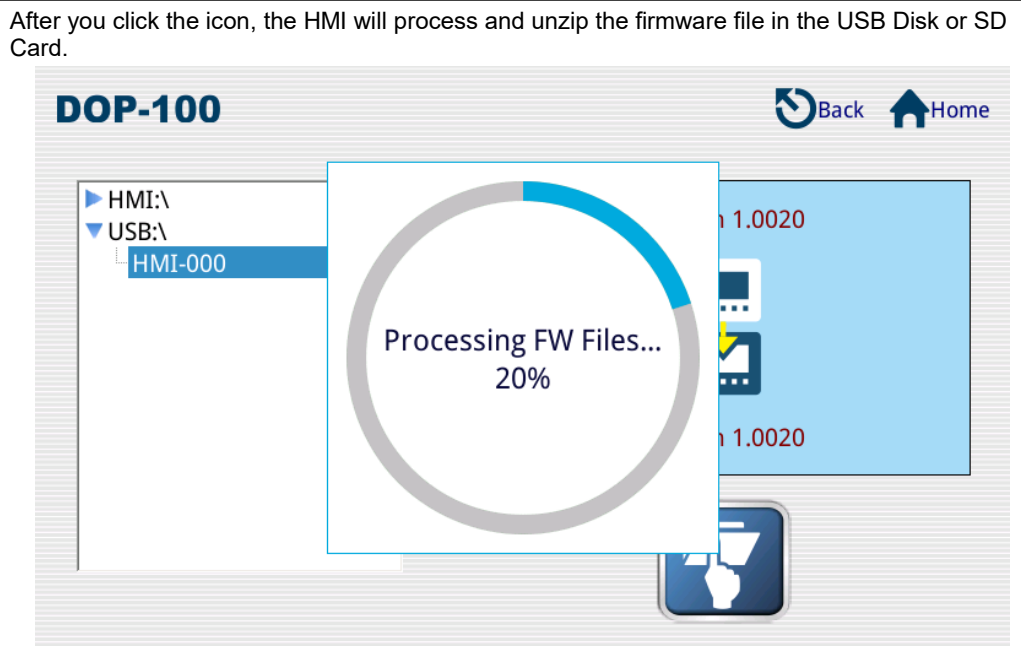
<p>Step 2</p>	<p>Select an external disk (USB Disk or SD Card) for creating the screen data and click OK.</p> 
<p>Step 3</p>	<p>When the screen data is created successfully, the following message appears.</p> 
<p>Step 4</p>	<p>Insert the external disk into the HMI.</p>
<p>Step 5</p>	<p>Enter the HMI system screen and select [System Setting] > [File Manager] → [Firmware Update].</p> 

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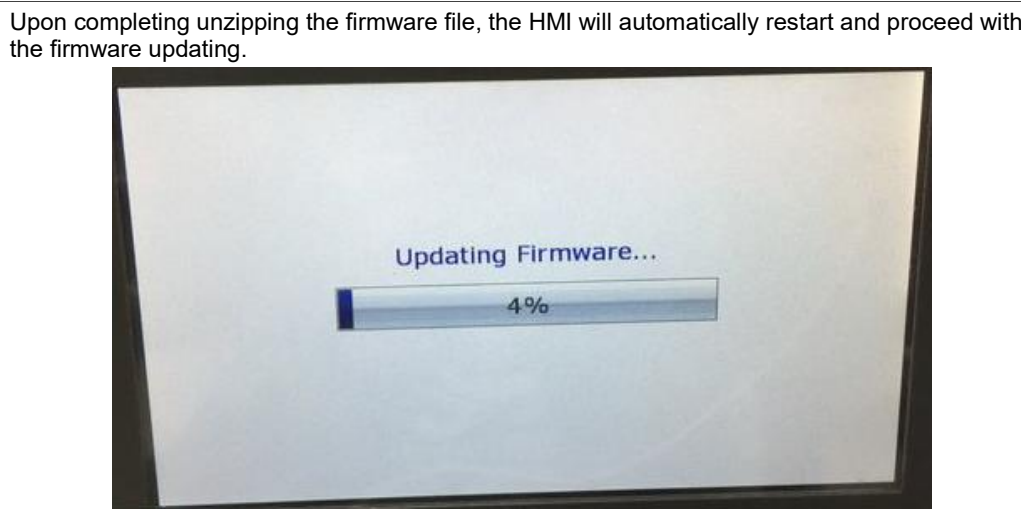
Step 6



Step 7

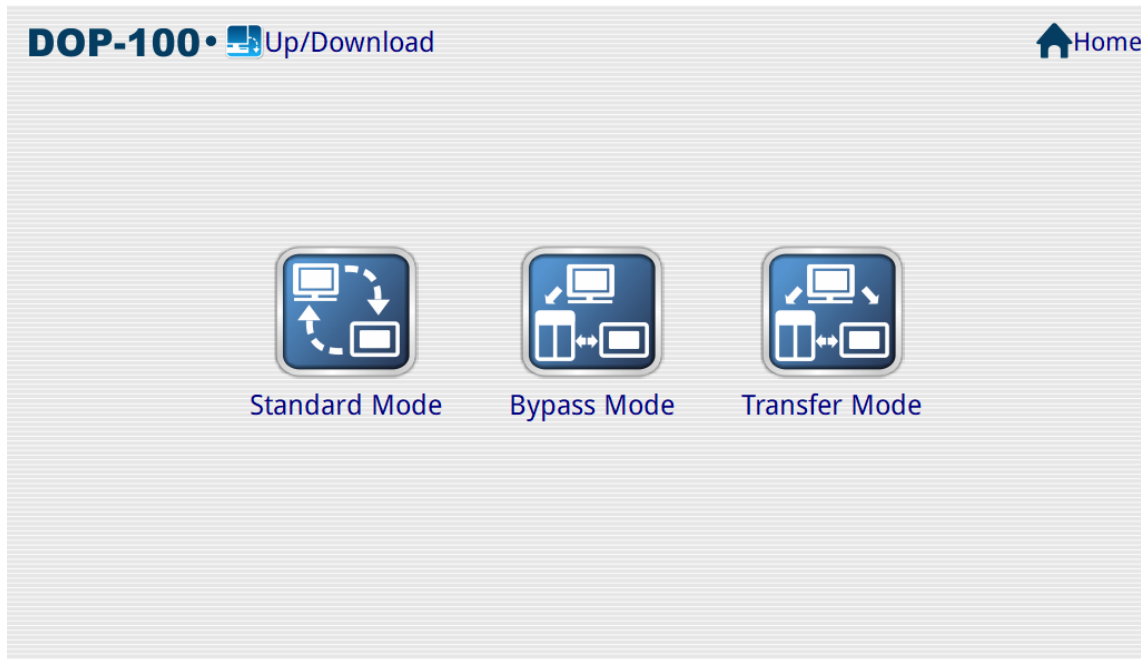


Step 8



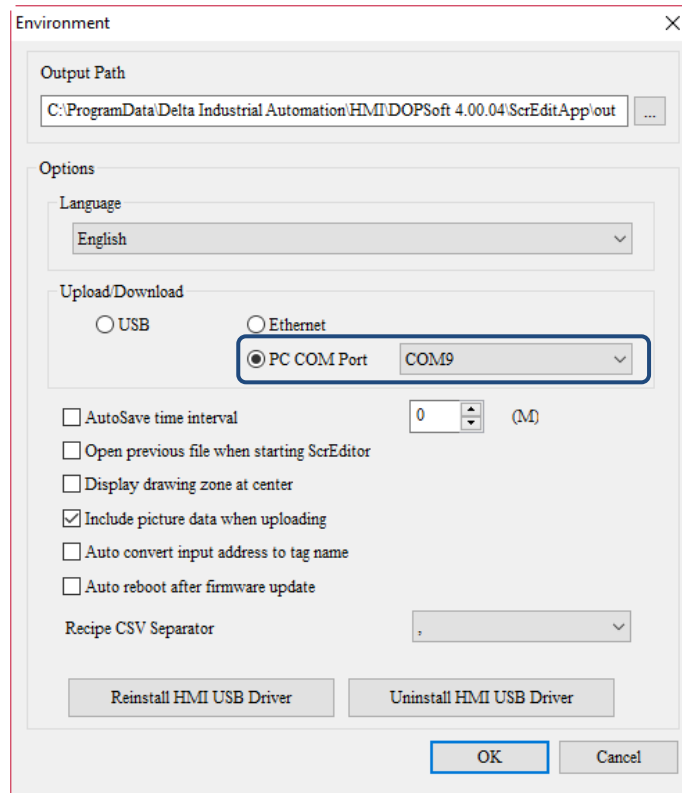
A.3 Up/Download

A

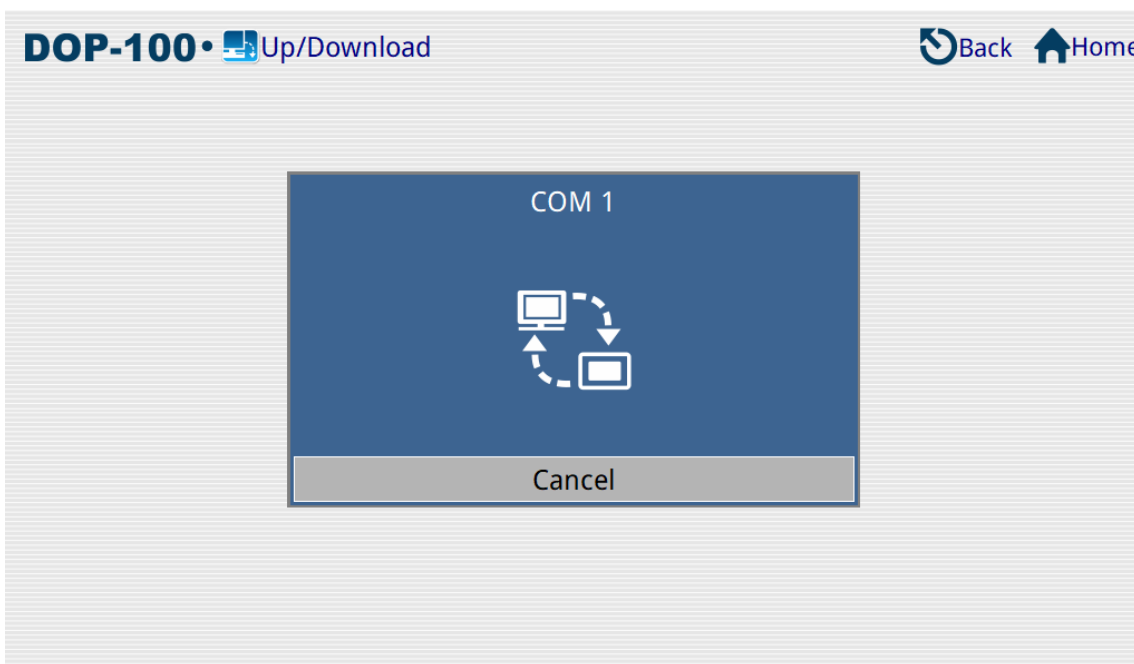
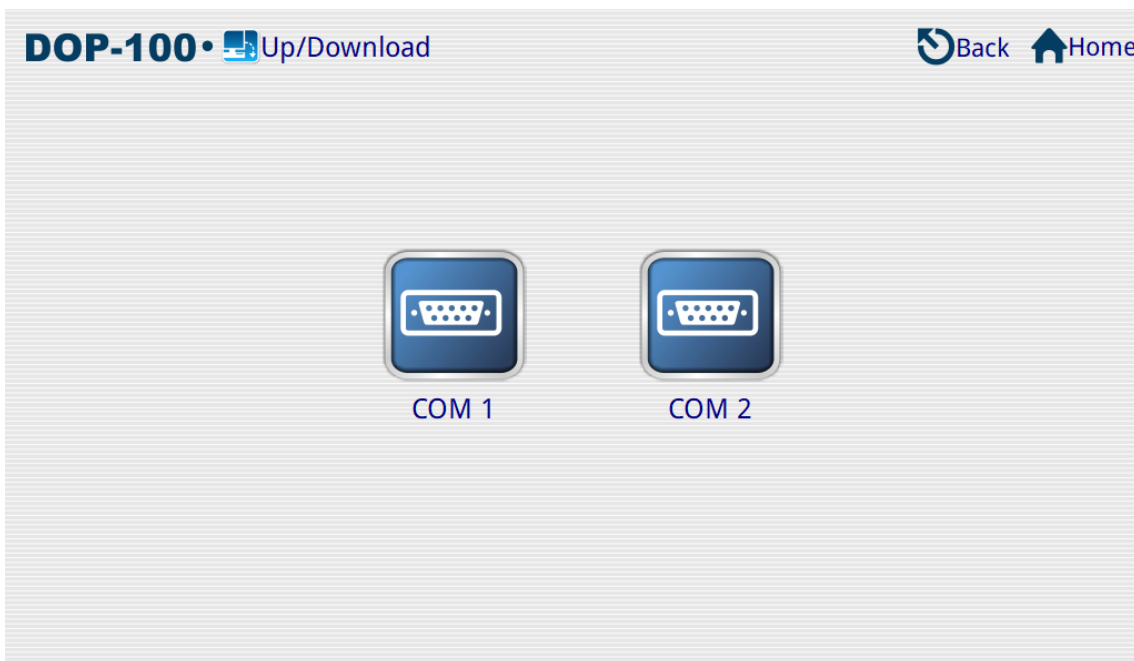



■ Standard Mode

Set the COM Port to communicate with the DOPSoft and wait for the DOPSoft to send the motion command and data packets for upload/download. When you use the PC COM Port provided by the software to download data by going to [Options] > [Environment], you need to go to the system screen to select [Up/Download] > [Standard Mode]. Select the COM 1 or COM 2 port and wait for the upload/download of the screen data and recipe data.



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<p>Standard Mode</p> 	COM 1	Upload/Download through COM 1. Set COM 1 to transmit and receive the command data and data packets for the up/downloading of DOPSoft.
	COM 2	Upload/Download through COM 2. Set COM 2 to transmit and receive the command data and data packets for the up/downloading of DOPSoft.

■ Bypass Mode

As an intermediary, the HMI will transmit the data received from the source port to the destination port.

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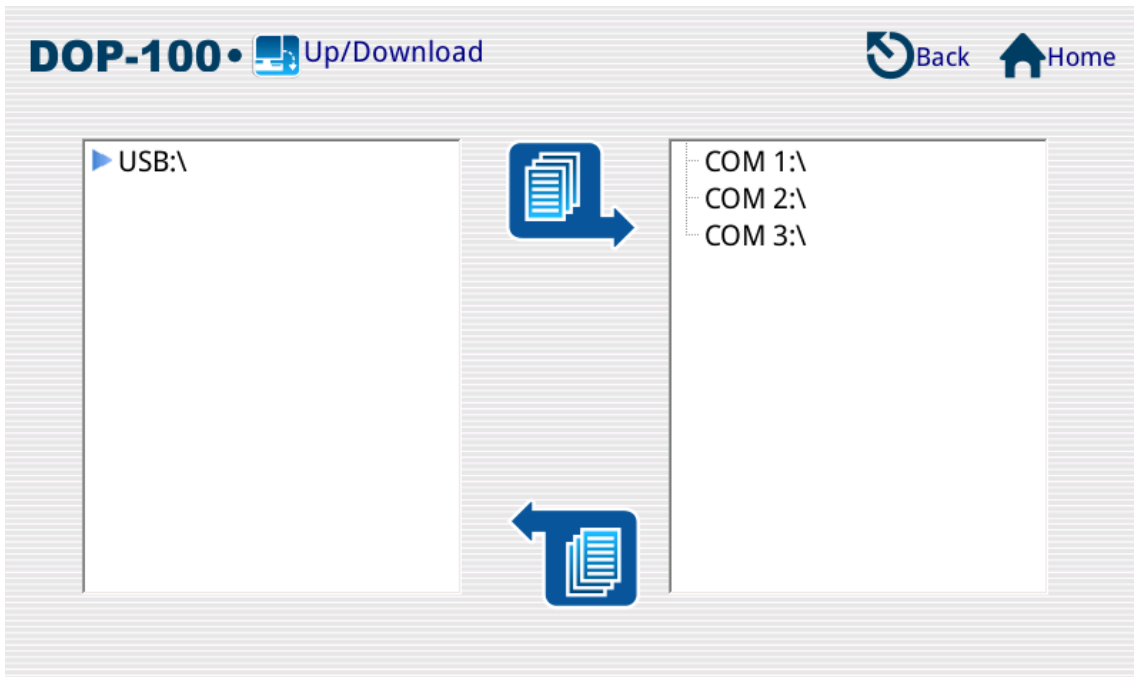


<p>Bypass Mode</p> 	<p>Mode 1 COM 1 > COM 2</p>	<p>With COM 1 as the source port and COM 2 as the destination port, the data that COM 1 received is transmitted using the COM 2 protocol.</p>
	<p>Mode 2 COM 2 > COM 1</p>	<p>With COM 2 as the source port and COM 1 as the destination port, the data that COM 2 received is transmitted using the COM 1 protocol.</p>

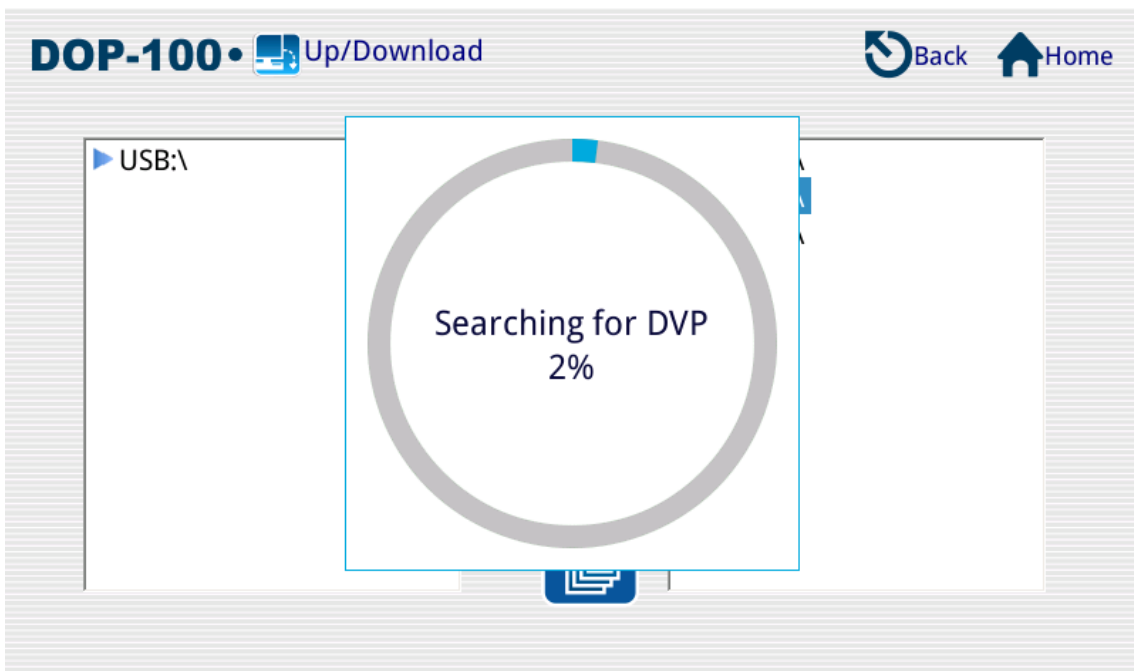
■ Transfer Mode

Transfer Mode is used for uploading / downloading the DVP and ISP files in the PLC used by the HMI.

A

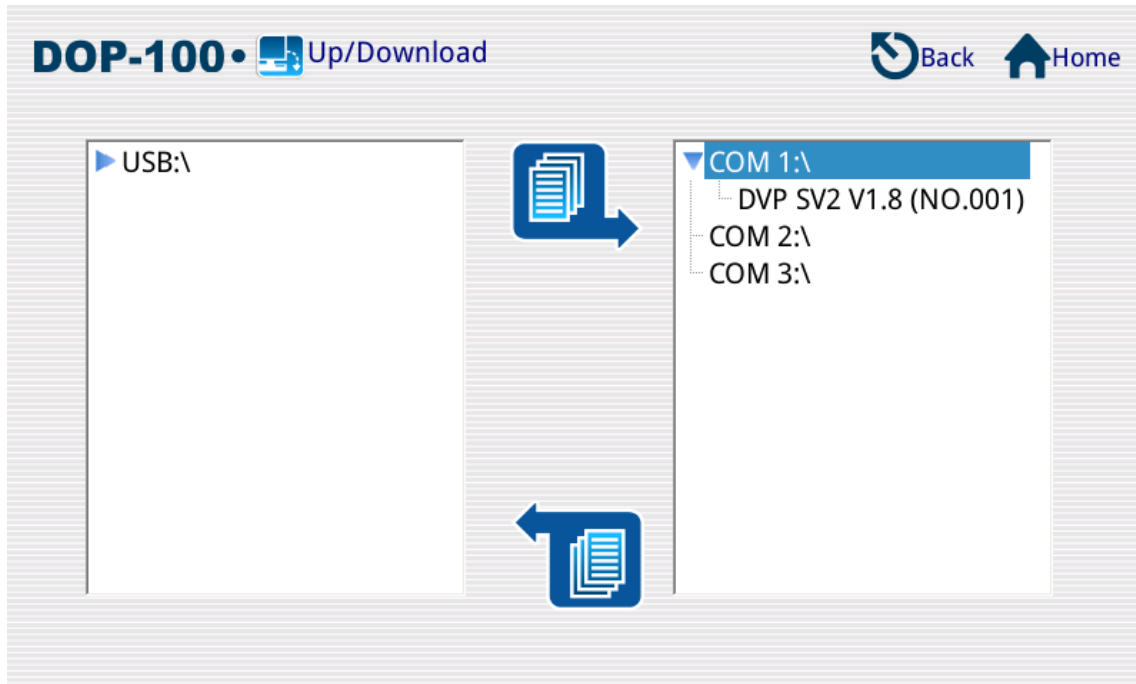



Select COM 2, and the HMI will automatically search for the PLC.



Once the search is complete, the DVP file found can be uploaded to the external storage device or downloaded from the external storage device to the PLC.

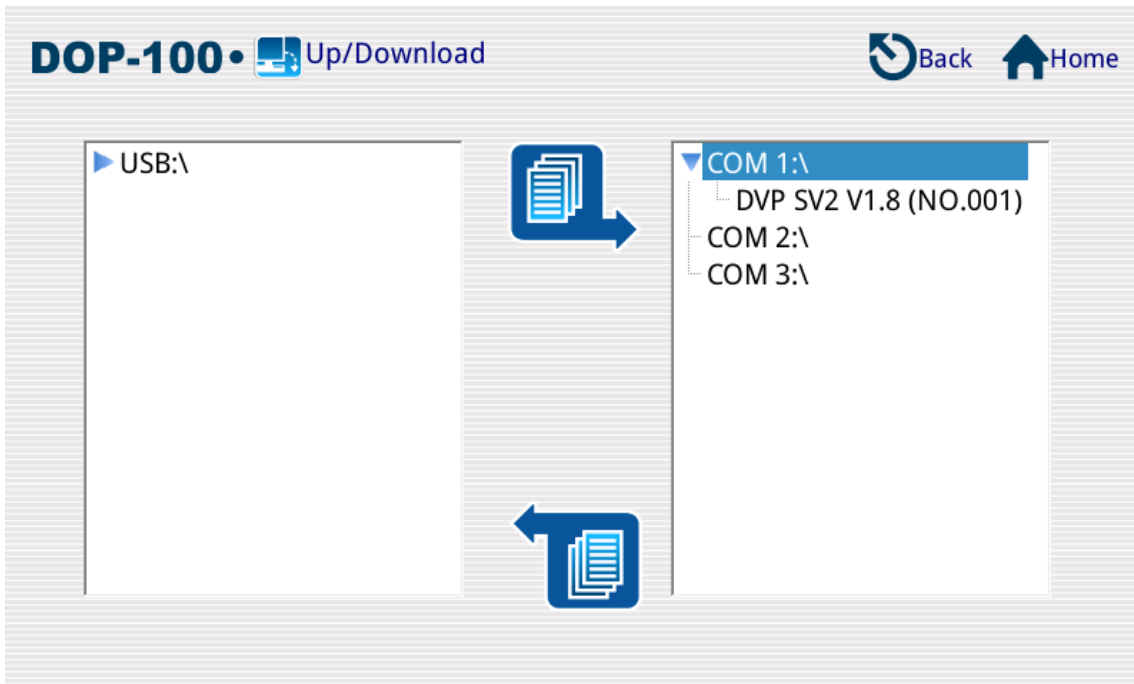
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<p>Transfer Mode</p> 	<p>Upload</p>	<p>Upload and download the DVP and ISP files used in the PLC. When you press COM 1 - COM 3, the software will automatically search for the currently connected PLC devices. Once the searching is done, the files found during the search can be uploaded to the storage device. To copy the DVP and ISP files from the storage device to the PLC, click the download button.</p>
<p>Download</p>		

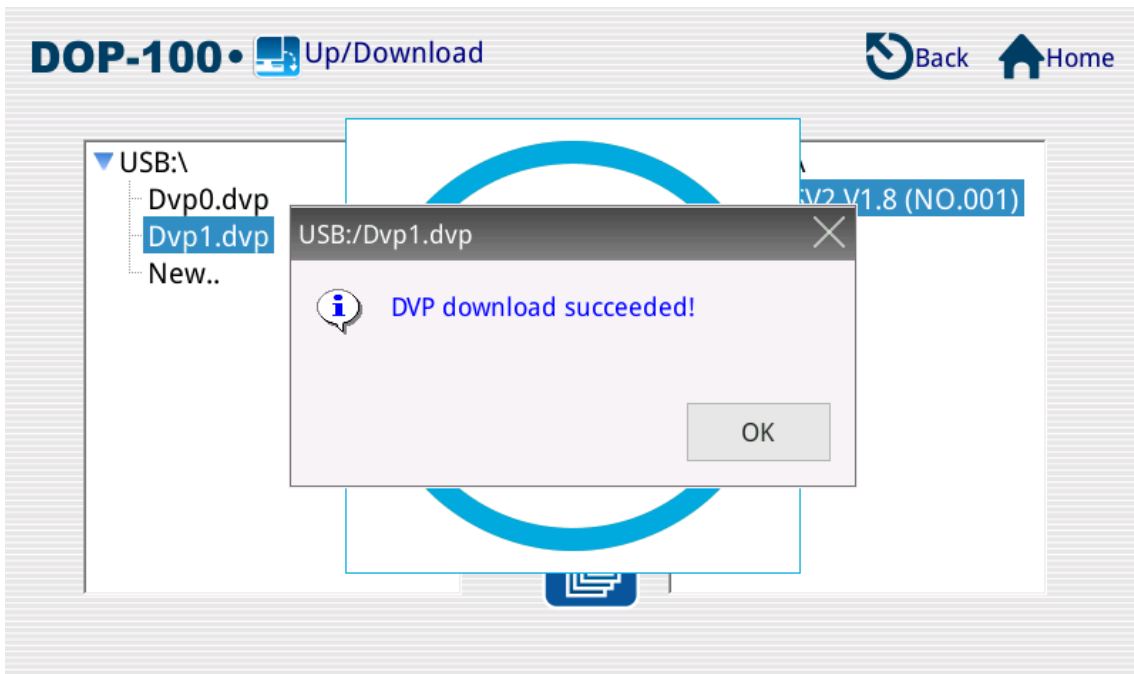
■ Download DVP file to PLC

Select the communication port that connects to the PLC. Then, the HMI will search for the files in the PLC.



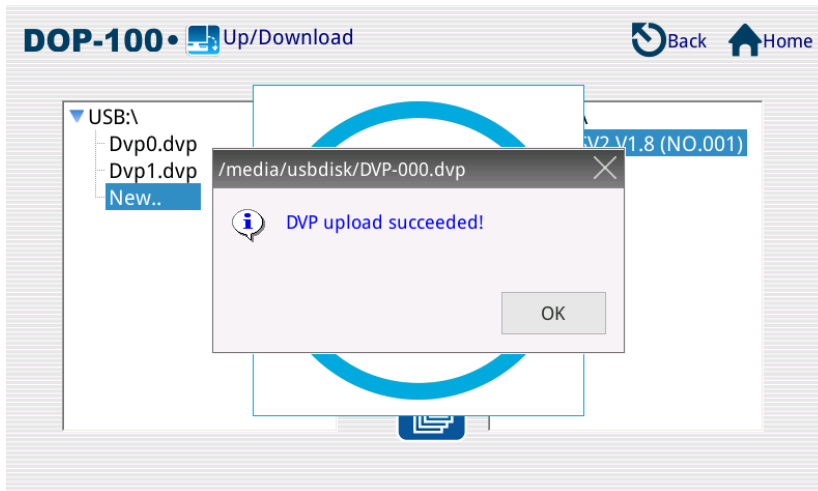
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Select the Dvp0.dvp file in the external storage device, and click the download button to download the file to the PLC.



■ Upload DVP file in the PLC to the external storage device (USB Disk)

Select the DVP file in the PLC and click the upload button to upload the file to the USB Disk.



Descriptions:

1. If a PLC file is to be uploaded as a new file, select "New.." from the window on the left and press the upload button.
2. The program uploaded by the HMI will be saved in .DVP format.
3. When PLC files are downloaded, the HMI will ask for the project password and PLC password*.
4. When a PLC file is downloaded, both the program and PLC need IDs, and their IDs need to be identical to be allowed for downloading. Or, when both of them have no IDs, the downloading is also allowed.
5. When a PLC file is downloaded, the HMI displays a dialog box to ask for the project password first and then the PLC password.
6. When a PLC file is uploaded, the HMI displays a dialog box to ask for the PLC ID first and then the PLC password.
7. When a PLC file is uploaded, the HMI will ask for the PLC ID and PLC password. If the PLC has a set PLC password, this PLC password will be placed in the program as the project password when the PLC file is uploaded. For example, assuming that the PLC password is set to 1234 and the project password is set to 5678, the password inquired by the HMI is the PLC password when the file is uploaded. The PLC password will be regarded as the project password for the program when the file is opened after uploaded. At this time, both the PLC password and the project password will be 1234.
8. When using a project edited by ISPSOFT, compile the project before downloading it to the PLC. Otherwise, the error message "IL code size is mismatch" will appear.
9. The Transfer Mode only supports .dvp and .isp file up/download. It does not support the upload or download of Subroutine/Ladder Graphic Code/SFC Graph/Device Name Comment/Row Comment/Non-volatile Data/Label Structure/Symbol Structure and so on.

Note: the PLC password is the password set in the WPL and ISP software by selecting [System Security Setting] > [Password Function].

See the following tables for the functions supported on each version:

PLC series	PLC Password	Limit on login attempts	Password for subroutines	PLC ID and program ID	Project password (set in the editing software)
ES / EC / EC3	V	V8.20 or above	V8.20 or above	V8.20 or above	WPLSoft V2.20 and ISPSOft V1.60 or above versions support the project password function
SS	V	X	X	X	
EX	V	V8.20 or above	V8.20 or above	V8.20 or above	
SA	V	X	X	X	
SX	V	V3.00 or above	V3.00 or above	V3.00 or above	
SC	V	X	X	X	
EH	V	X	X	X	
EH2	V	V1.40 or above	V1.40 or above	V1.40 or above	
SV	V	V1.40 or above	V1.40 or above	V1.40 or above	
ES2 / EX2	V	V	V	V	
SS2	V	V	V	V	
SA2	V	V	V	V	
SX2	V	V	V	V	
SE	V	V	V	V	
MC	V	V	V	V	
EH3	V	V	V	V	
SV2	V	V	V	V	

AH series	PLC Password	Limit on login attempts	Password for subroutines	PLC ID and program ID	Project password (set in the editing software)
AHCPU510-EN	V	V	V	V	ISPSOft supports the project password function
AHCPU510-RS2	V	V	V	V	
AHCPU520-EN	V	V	V	V	
AHCPU520-RS2	V	V	V	V	
AHCPU530-EN	V	V	V	V	
AHCPU530-RS2	V	V	V	V	

AS series	PLC Password	Limit on login attempts	Password for subroutines	PLC ID and program ID	Project password (set in the editing software)
AS218PX-A	V	V	X	V	ISPSOft supports the project password function
AS218RX-A	V	V	X	V	
AS218TX-A	V	V	X	V	
AS228P-A	V	V	X	V	
AS228R-A	V	V	X	V	
AS228T-A	V	V	X	V	
AS300N-A	V	V	X	V	
AS320P-B	V	V	X	V	
AS320T-B	V	V	X	V	
AS324MT-A	V	V	X	V	
AS332P-A	V	V	X	V	
AS332T-A	V	V	X	V	



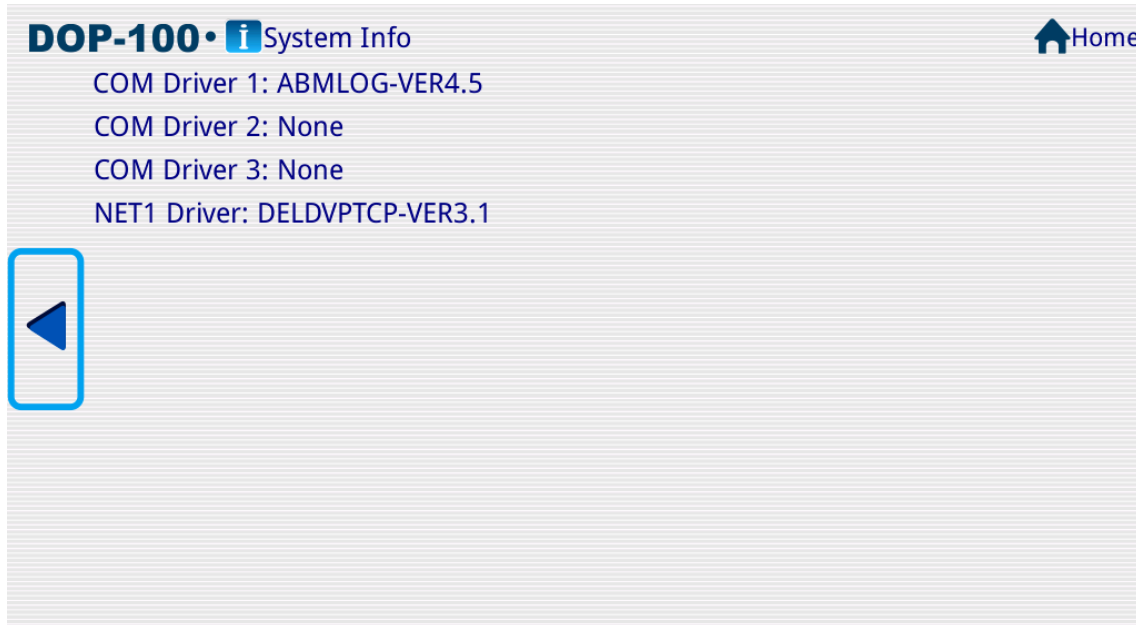
A.4 System Info

A

This function enables the user to view the HMI-related info including the firmware version, model, current battery capacity, size of internal Flash ROM, CPU clock, current system date and time, PLC device, and external storage device.



After switching the screen, you can see the PLC Driver information of the HMI.



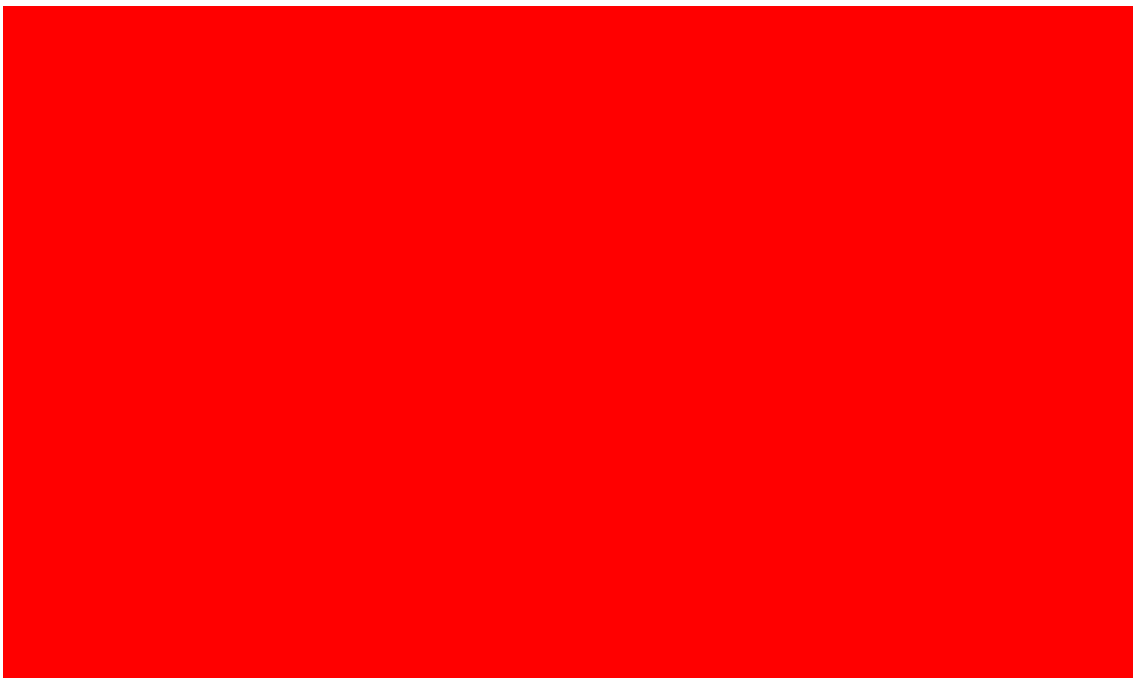
A.5 HMI Doctor

HMI Doctor is a simple application that enables the user to test the hardware interface. Functions currently available include Color (Red, Green, Blue, Black, and White), Draw Line, Buzz/LED, ADC, and Network.



■ Red screen test

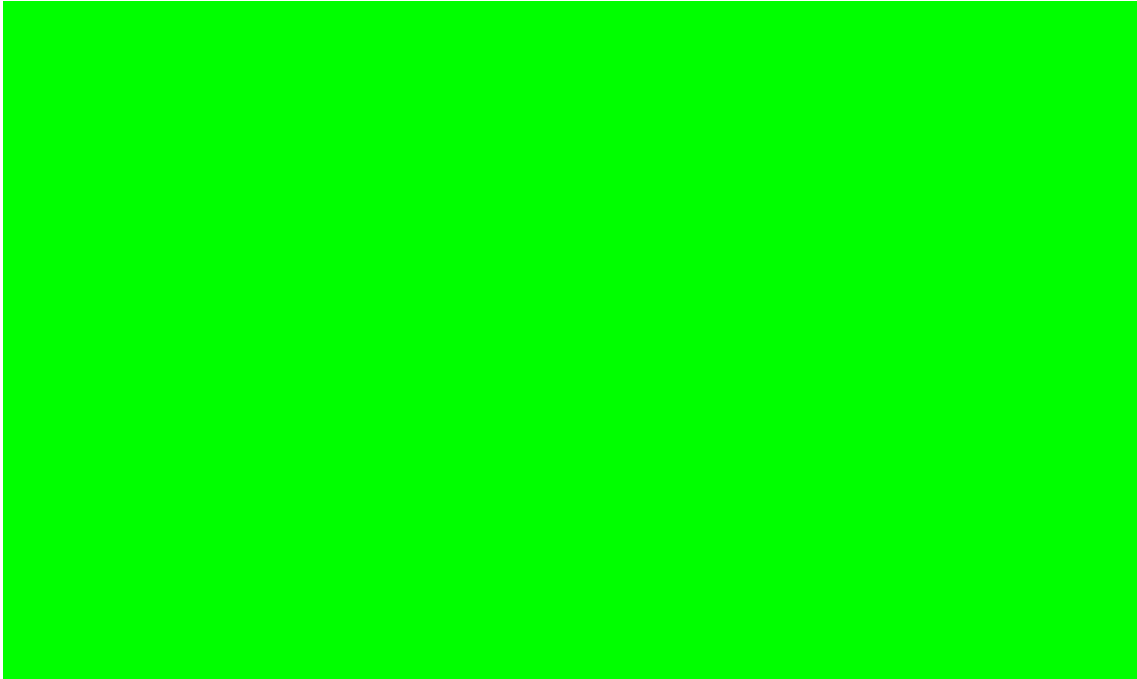
Check if there is any dark point or similar stain on the red screen of the LCD surface.



- Green screen test

Check if there is any dark point or similar stain on the green screen of the LCD surface.

A



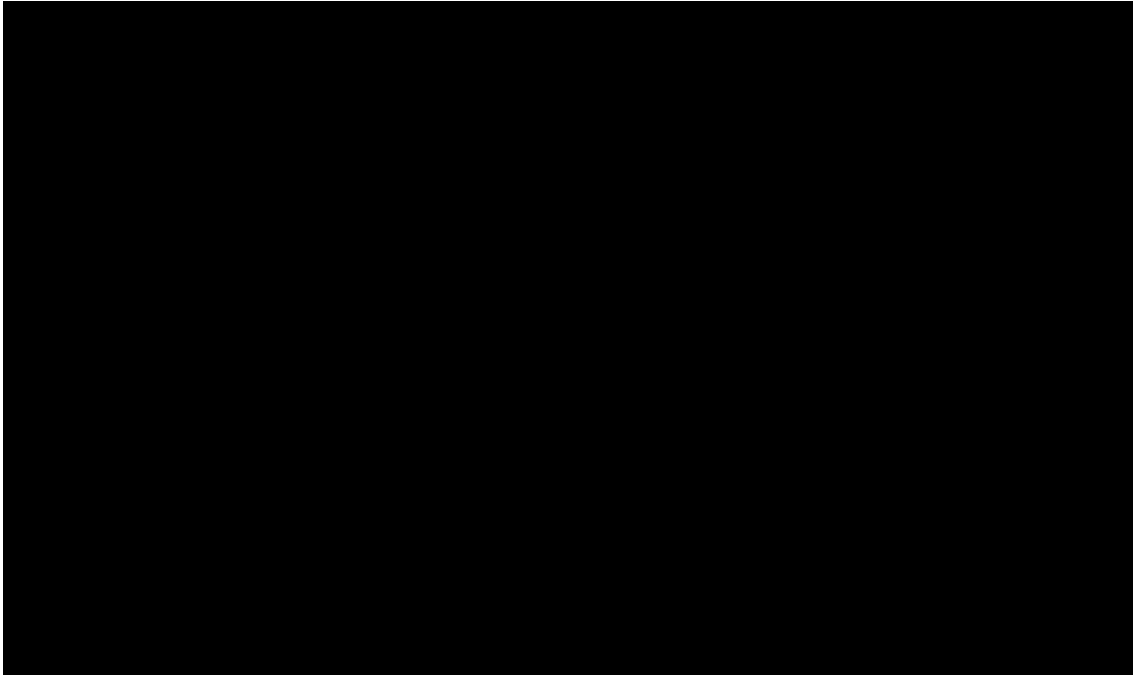
- Blue screen test

Check if there is any dark point or similar stain on the blue screen of the LCD surface.



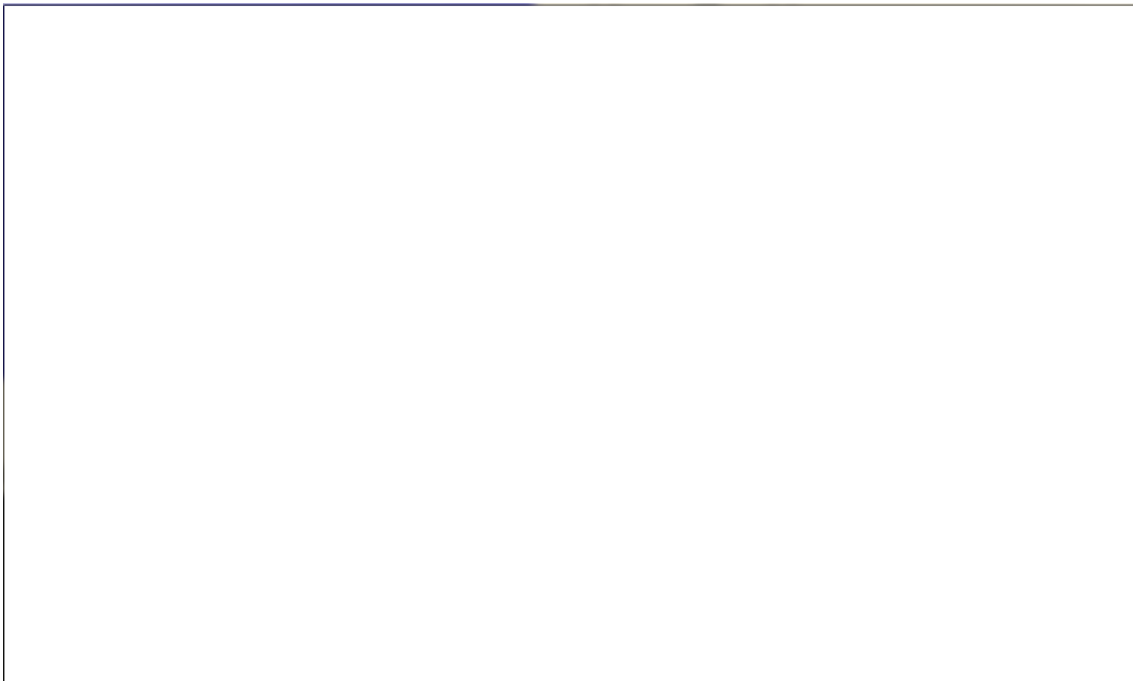
■ Black screen test

Check if there is any dark point or similar stain on the black screen of the LCD surface.



■ White screen test

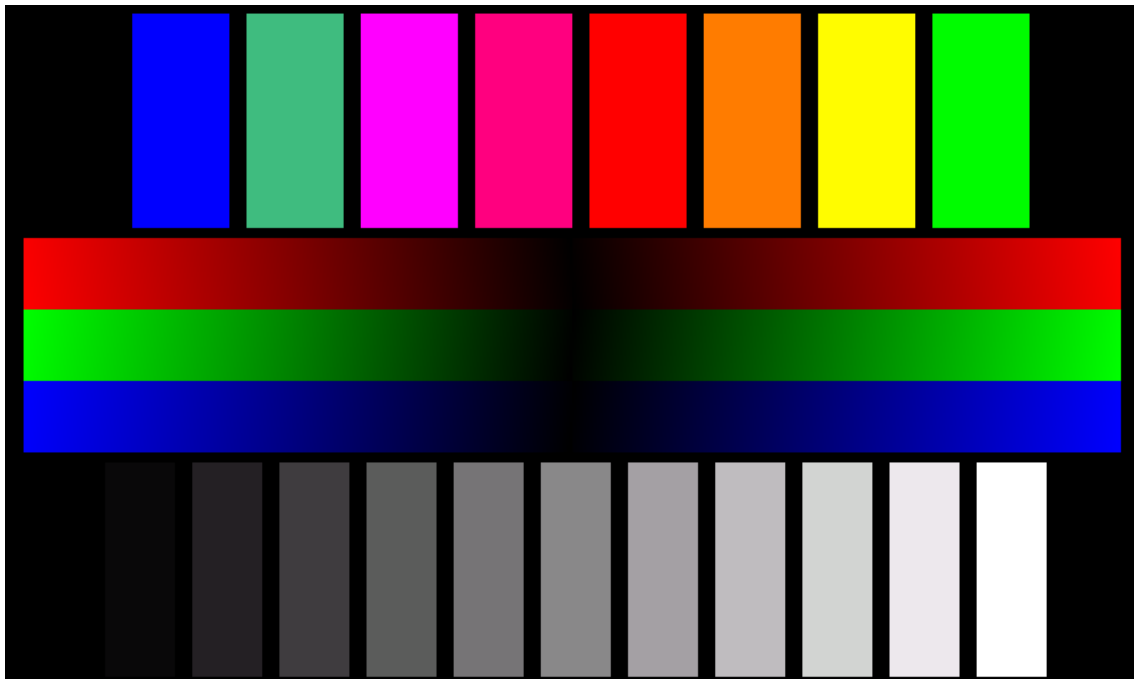
Check if there is any dark point or similar stain on the white screen of the LCD surface.



■ Color test

Check if the LCD color scale is displayed normally.

A



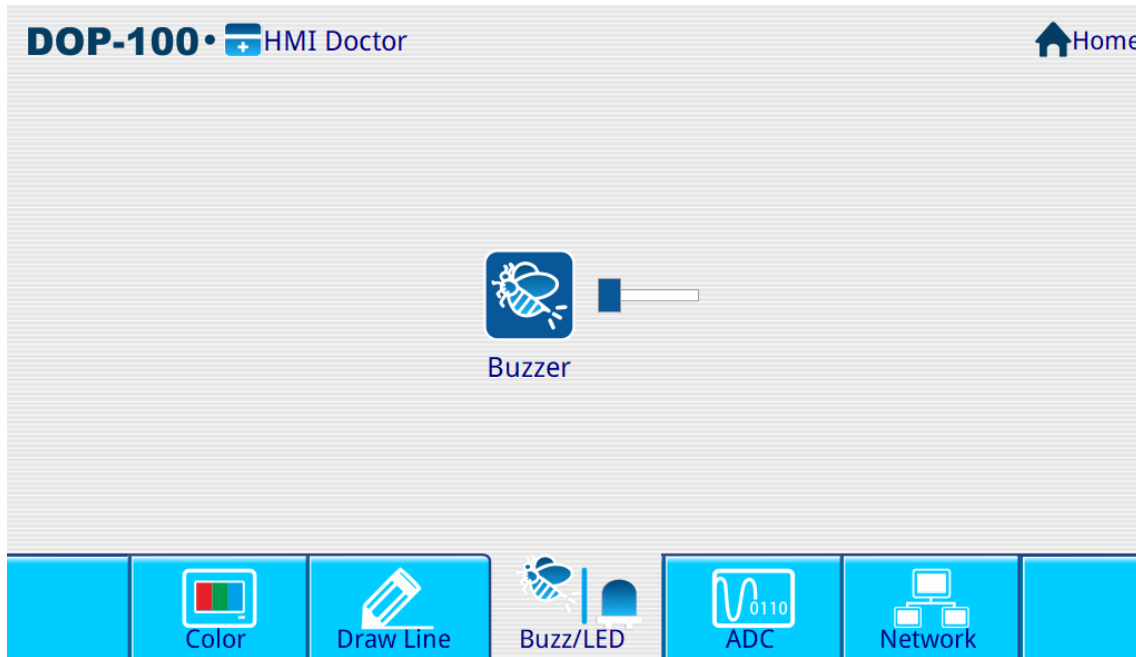
■ Draw Line

This function tests if there is deviation between the position where you draw the line and the actual position of the line displayed on the screen. If the deviation is significant, re-calibrate the touch panel.



■ Buzz/LED

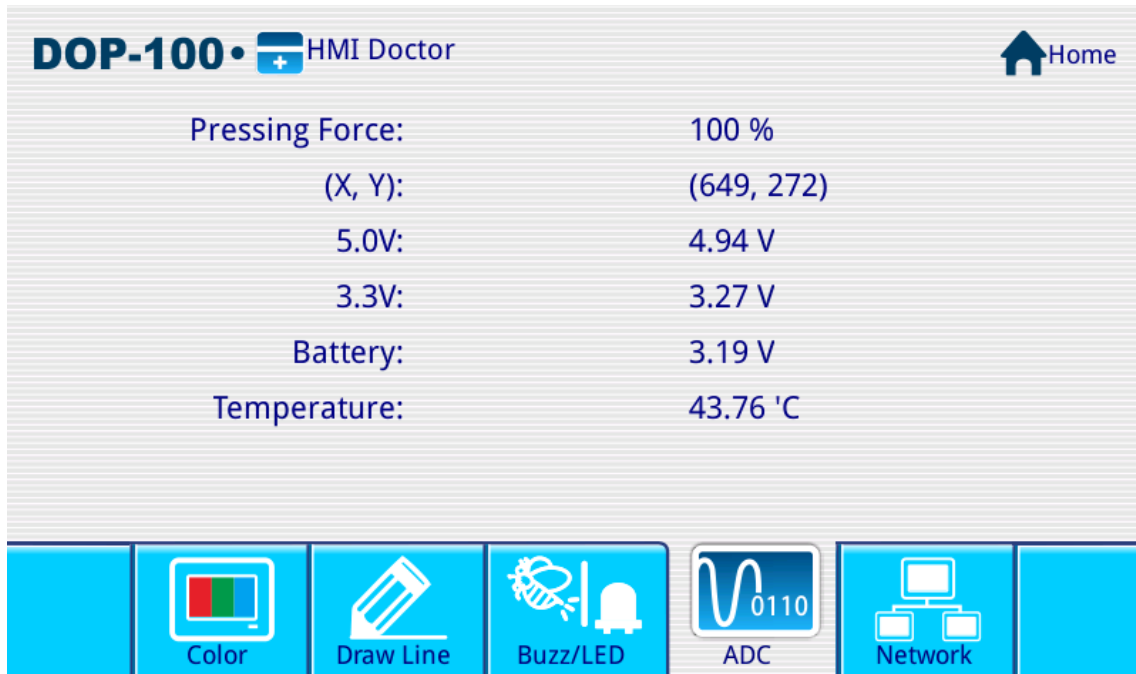
The Buzz/LED function tests if the buzzer would ring.



A

■ ADC test

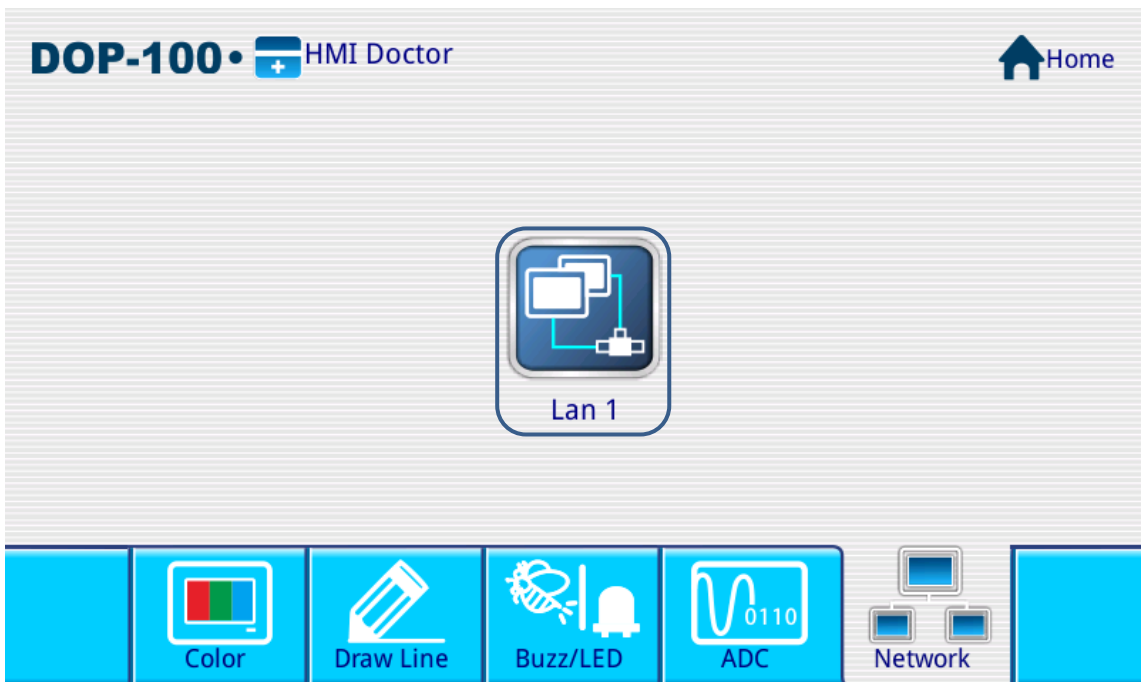
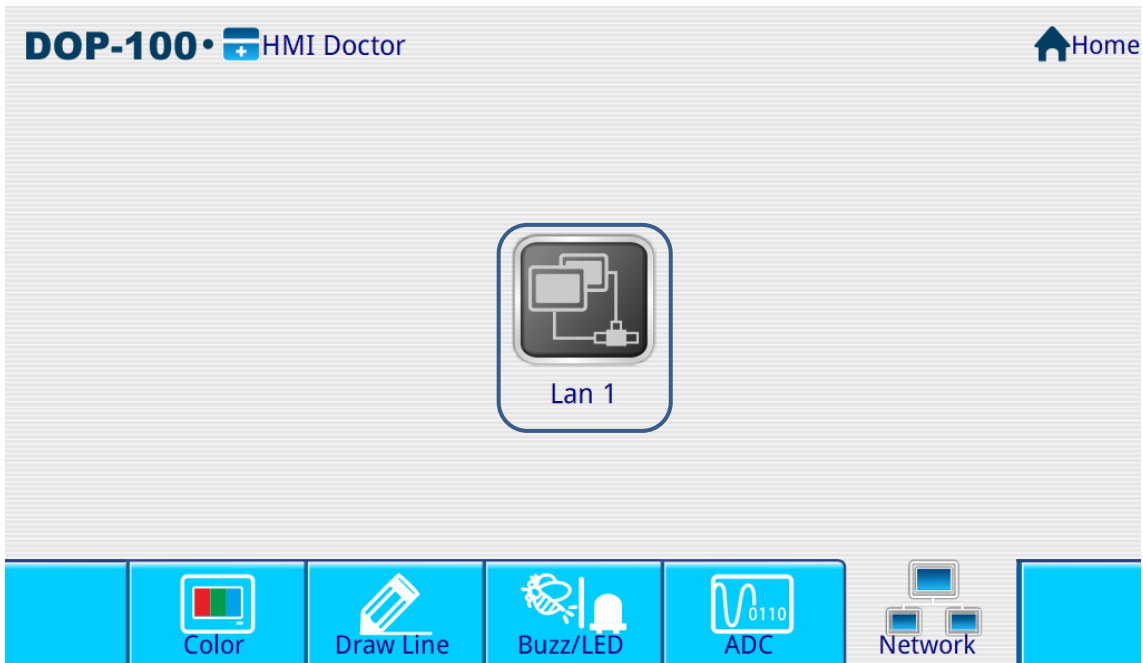
The ADC test function tests the Pressing Force, touch position (X and Y coordinates), system voltage, Battery, and Temperature.



■ Network test

This function tests to see if the network is successfully connected. At first, the Lan 1 icon displays in gray, and if the connection is successful, the icon will be displayed in color.

A



Multi-Drop

B

This appendix explains the multi-drop structure and limits, as well as the multi-drop setup steps.



B.1 Multi-drop exampleB-4

B

The multi-drop concept refers to the connection of multiple HMIs to one or more PLCs. When the host HMI is connected to a device, all client HMIs can create virtual connections via the network. Hence, you can operate a physical equipment using a single HMI in the multi-drop mode. Up to 12 links are available in the multi-drop structure, with every communication port added indicating a link for each of the 12 links. For example, if only one COM Port (using one PLC) is used, up to 12 HMIs can be connected. Assuming that each COM Port is connected to one PLC (using three PLCs), up to four HMIs can be connected. Refer to the following figure.

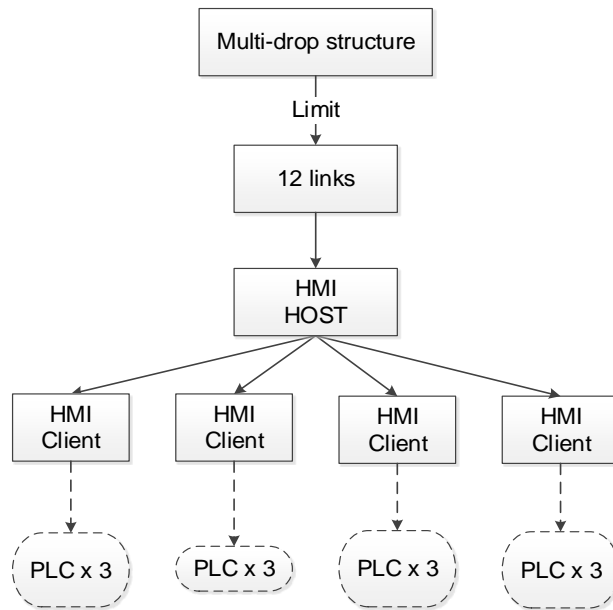


Figure B.1 Multi-drop structure I

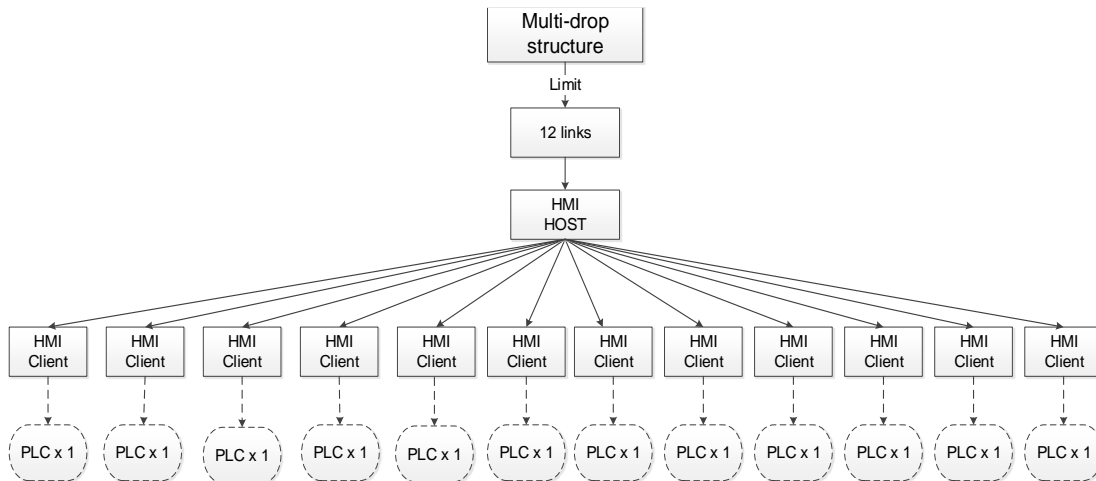
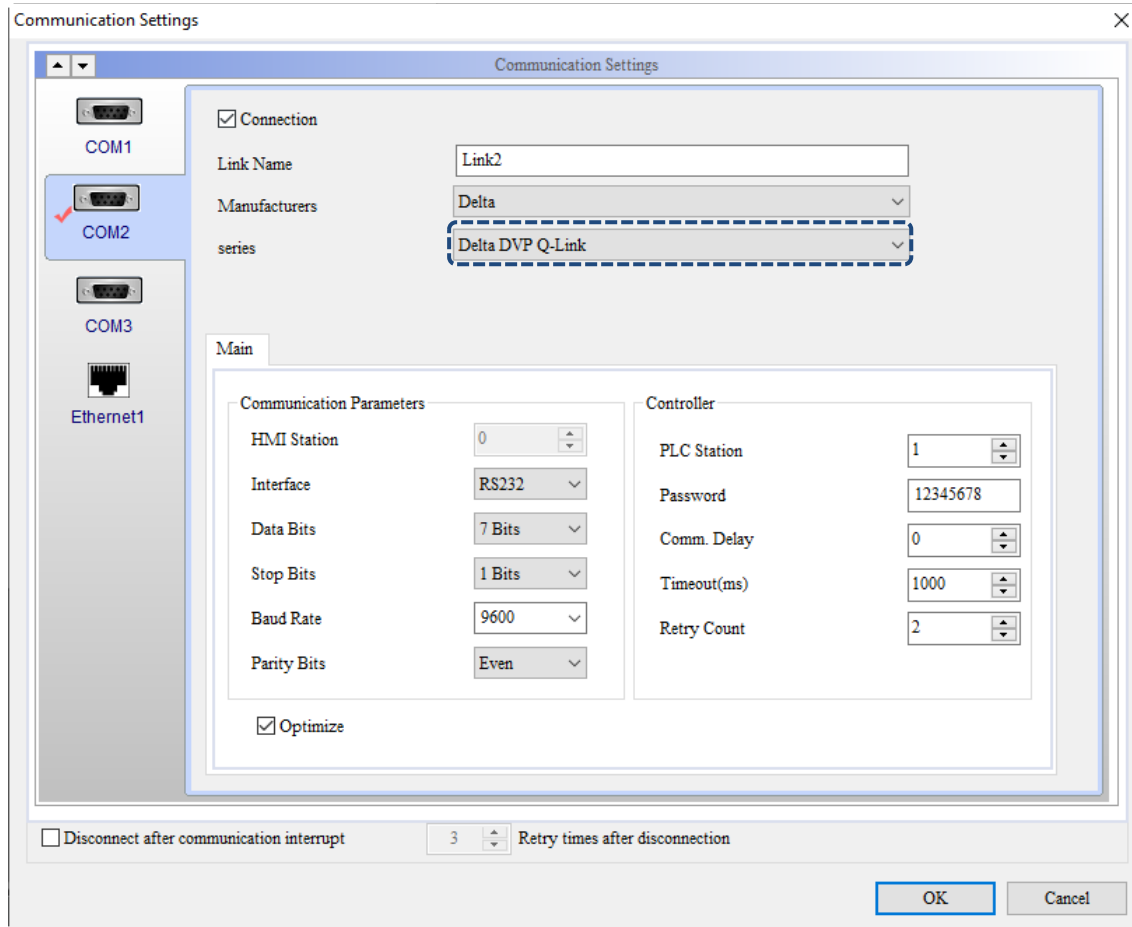


Figure B.2 Multi-drop structure II

The concept and limit of the multi-drop structure are described above, with the setup and operation of the multi-drop structure explained as follows.

The multi-drop mode is not supported when you select Delta DVP Q-Link as the controller.



B

Figure B.3 Multi-drop mode

B.1 Multi-drop example

The following example is taken in an environment using 3 HMIs to test the multi-drop mode. The HMI-HOST is the host, and the HMI-Client 1 and HMI-Client 2 are the clients.

The HMI-HOST is physically connected to a Delta DVP PLC. Refer to the following figure.

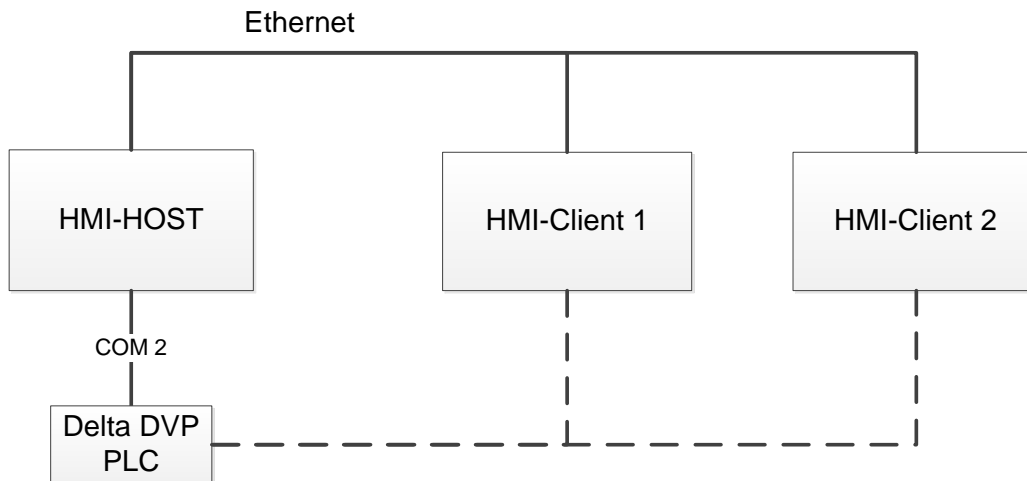


Figure B.1.1 Multi-drop environment

■ HMI-HOST setup

Create a project. Select the Delta DVP PLC as the controller and select Host for the Multi-Drop mode.

B

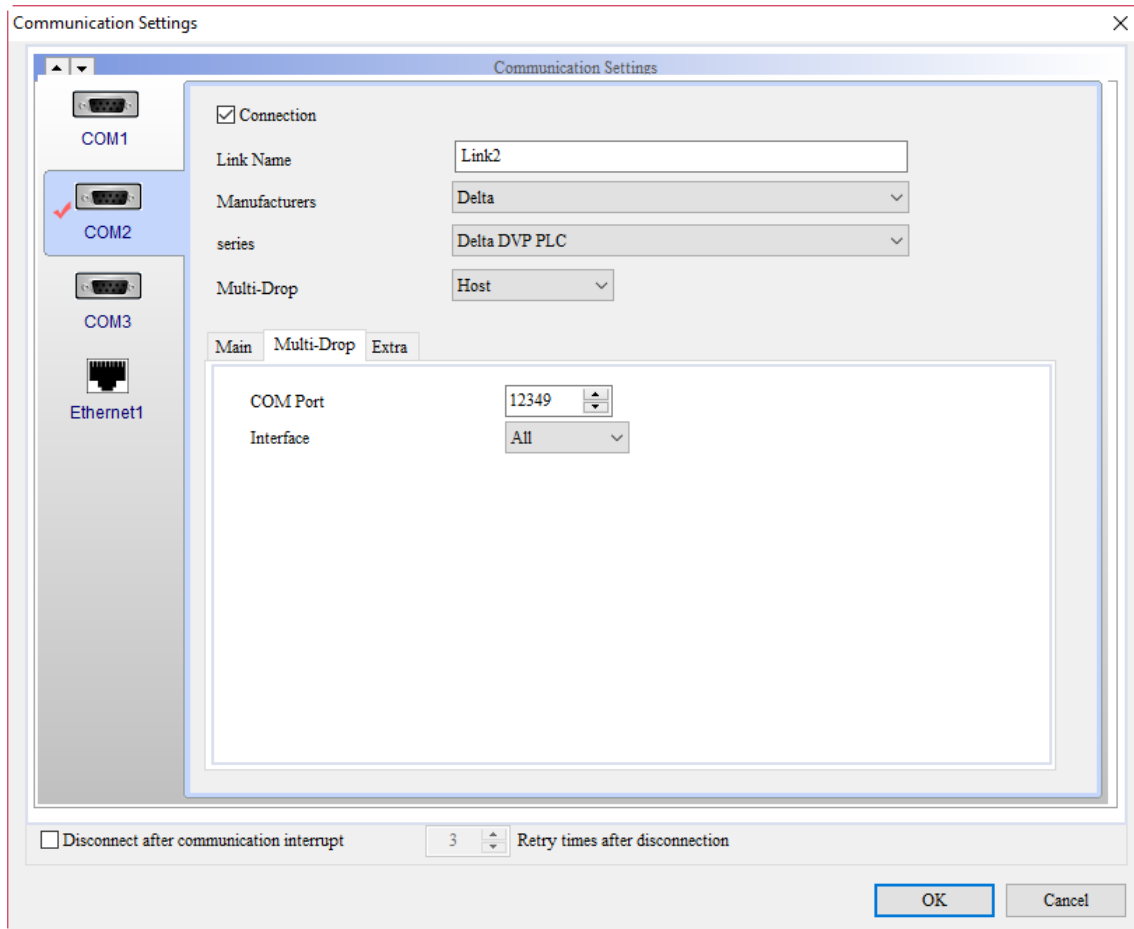


Figure B.1.2 Select Host for the Multi-Drop mode

Go to [Ethernet1] > [Localhost]. Select the check box of **Overwrite IP** and set the HMI IP Address to 172.16.190.100.

Go to [Options] > [Configuration] > [Network Settings] to set the name of the HMI as HMI-HOST.

B

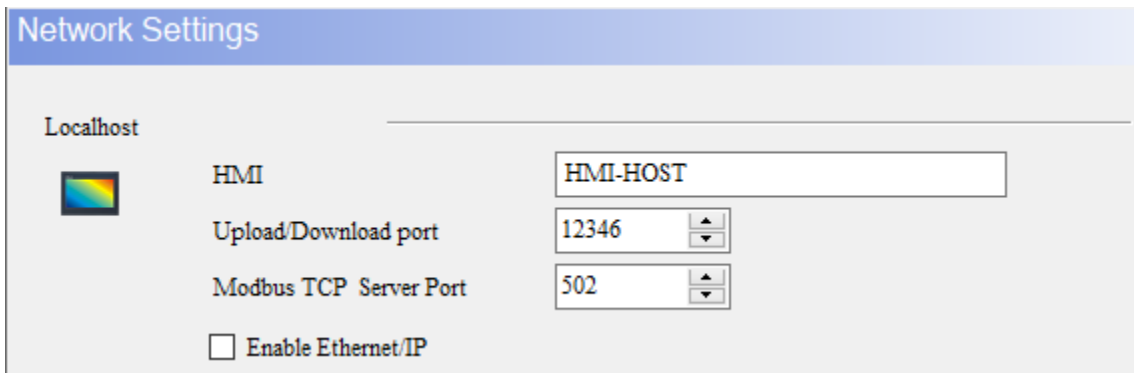
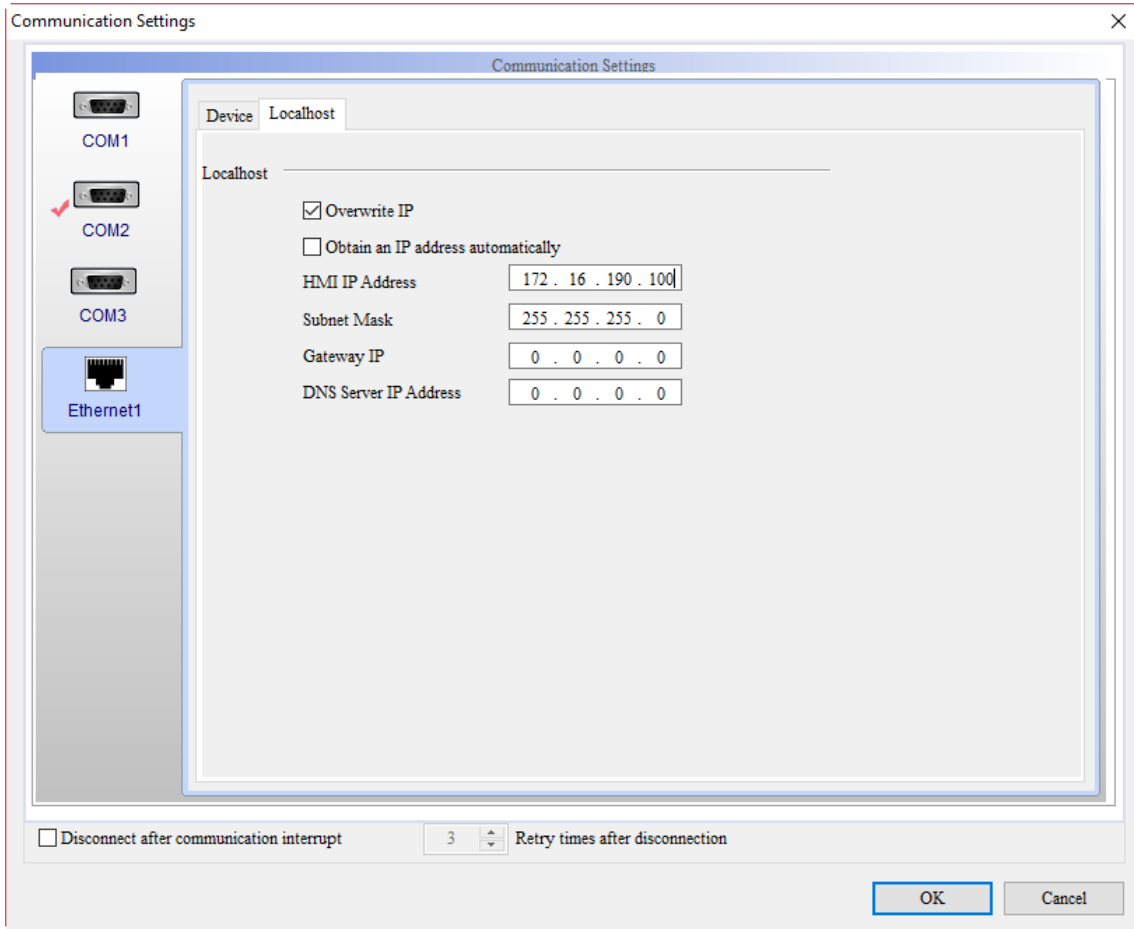
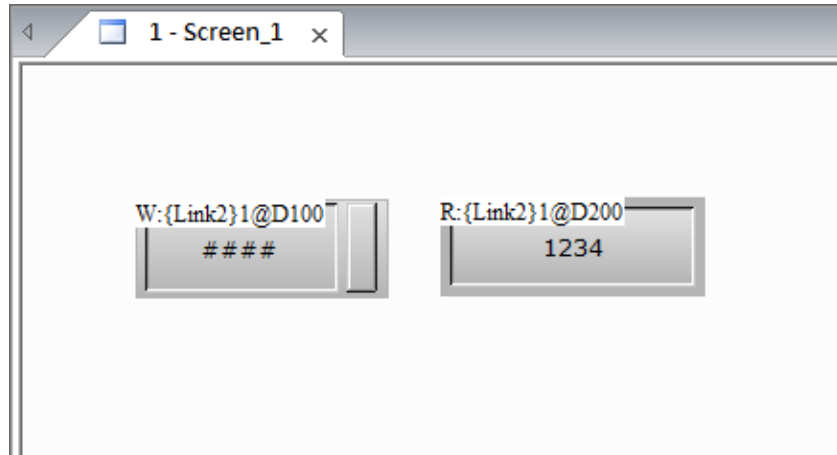


Figure B.1.3 HMI-HOST IP address setup

Create a Numeric Entry element on the editing screen and set its Write Address to D100.
 Create a Numeric Display element with its Read Address as D200.



B

Figure B.1.4 Create elements

After the editing is completed, compile the elements and download the screen to the HMI.

■ HMI-Client1 setup

Create a project. Set the Delta DVP PLC as the controller and select Client for the Multi-Drop mode.

Enter 172.16.190.100 in the IP Address field, which is the HMI-HOST IP address.

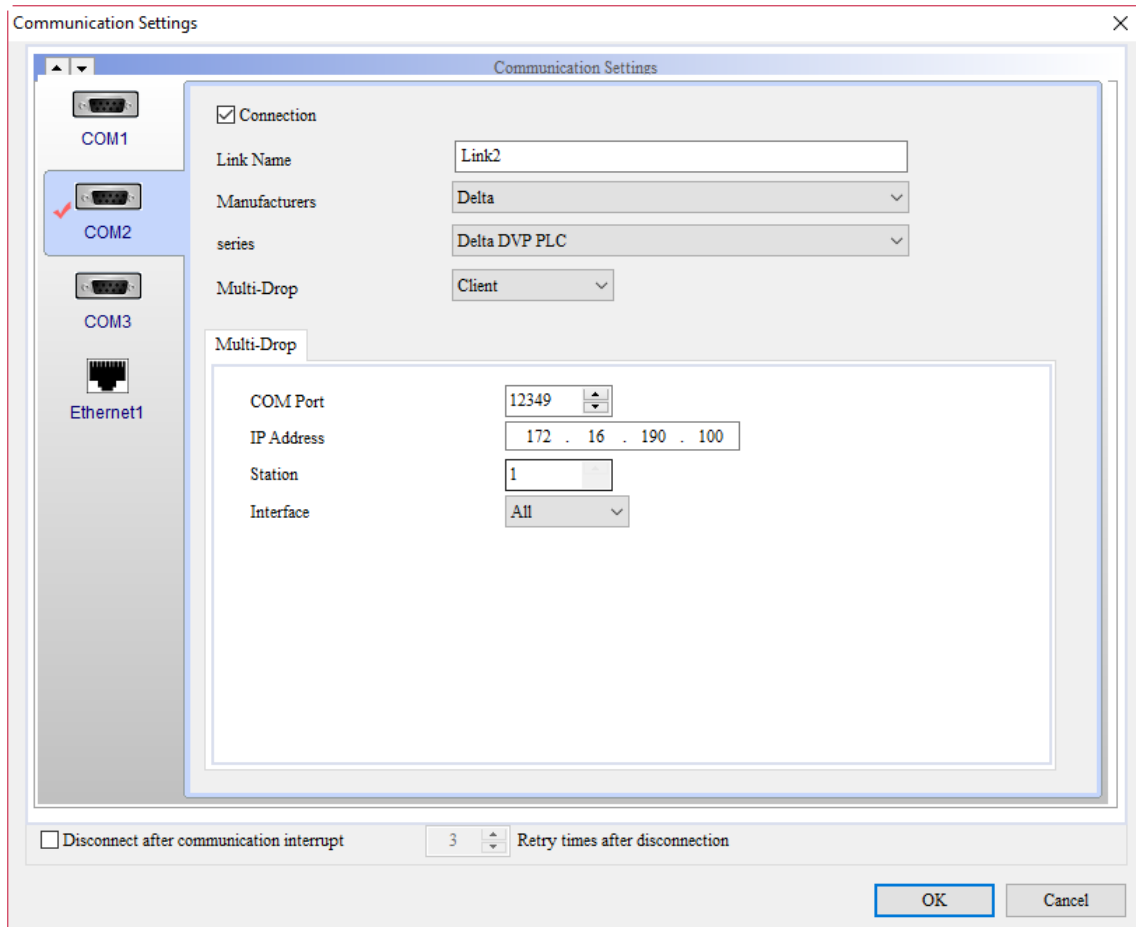


Figure B.1.5 Select Client for the Multi-Drop mode

Go to [Ethernet1] > [Localhost]. Select the check box of **Overwrite IP** and set the HMI IP Address to 172.16.190.101.

Go to [Options] > [Configuration] > [Network Settings] to set the name of the HMI as HMI-Client1.

B

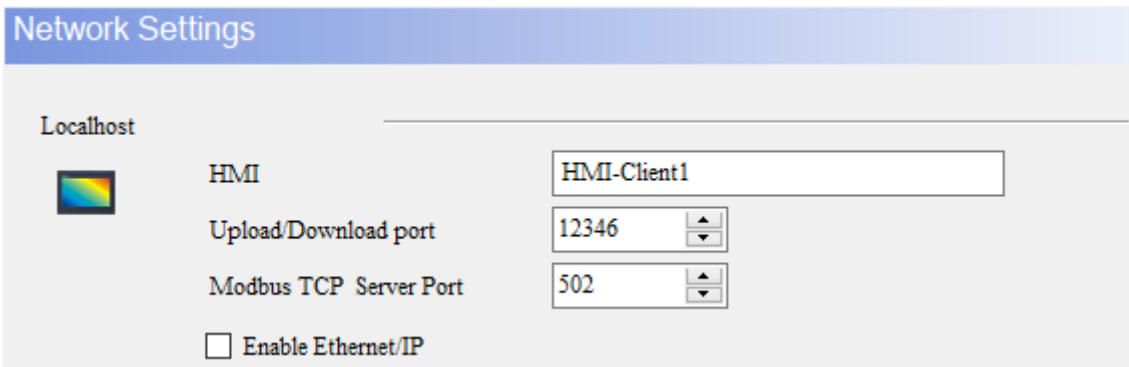
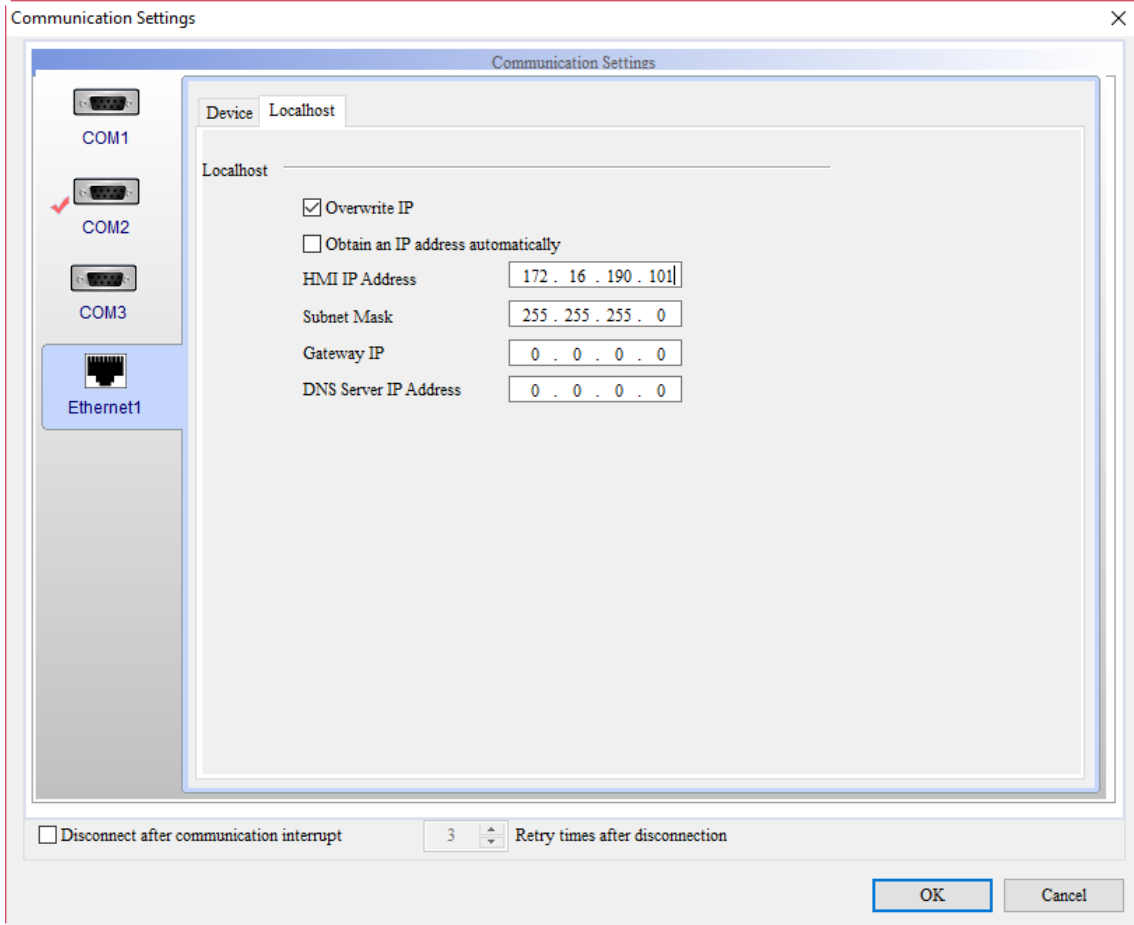
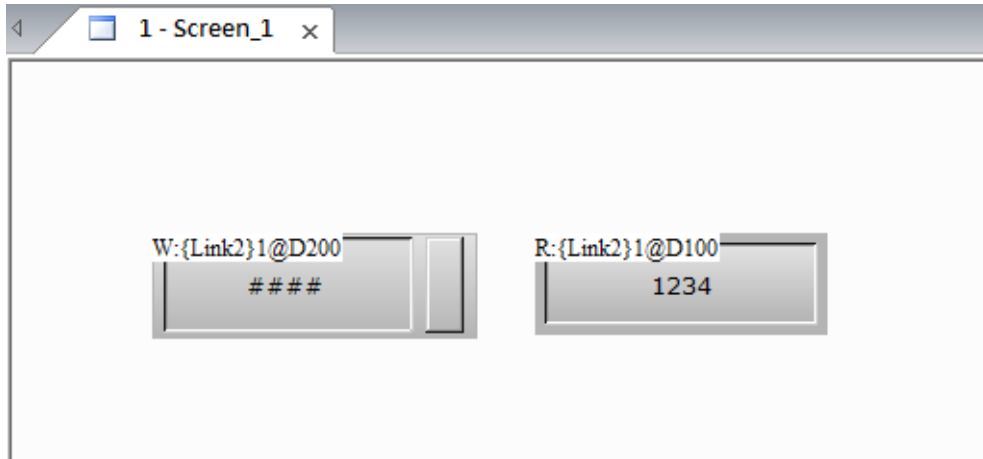


Figure B.1.6 HMI-Client1 IP address setup

Create a Numeric Entry element on the editing screen and set its Write Address to D200.
Create a Numeric Display element with its Read Address as D100.



B

Figure B.1.7 Create elements

After the editing is completed, compile the elements and download the screen to the HMI.

■ HMI-Client2 setup

Create a project. Set the Delta DVP PLC as the controller and select Client for the Multi-Drop mode.

Enter 172.16.190.100 in the IP Address field, which is the HMI-HOST IP address.

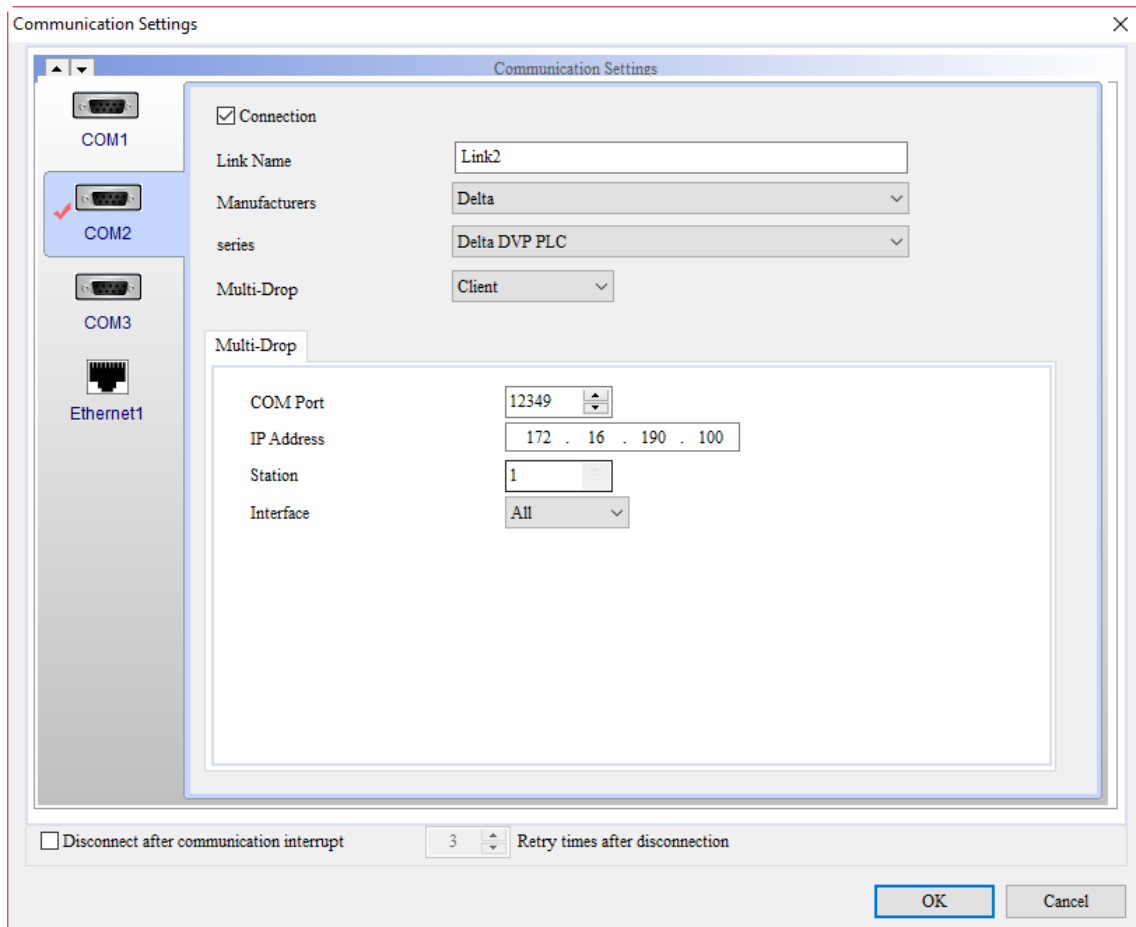


Figure B.1.8 Select Client for the Multi-Drop mode

Go to [Ethernet1] > [Localhost]. Select the check box of **Overwrite IP** and set the HMI IP Address to 172.16.190.102.

Go to [Options] > [Configuration] > [Network Settings] to set the name of the HMI as HMI-Client2.

B

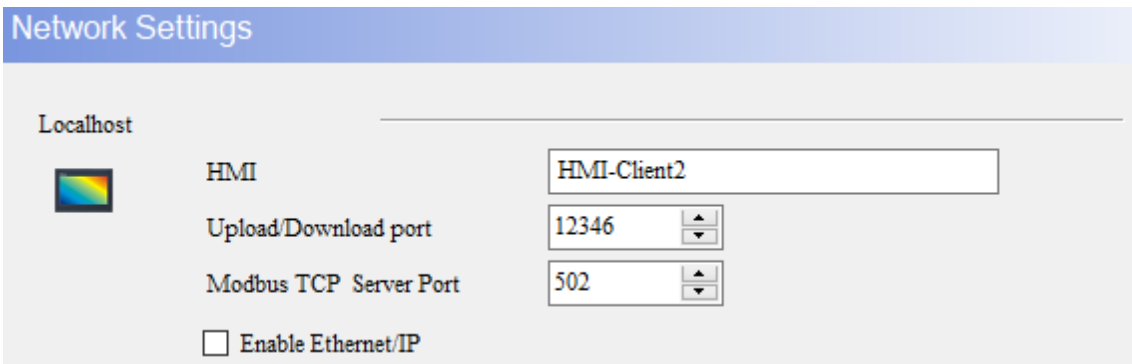
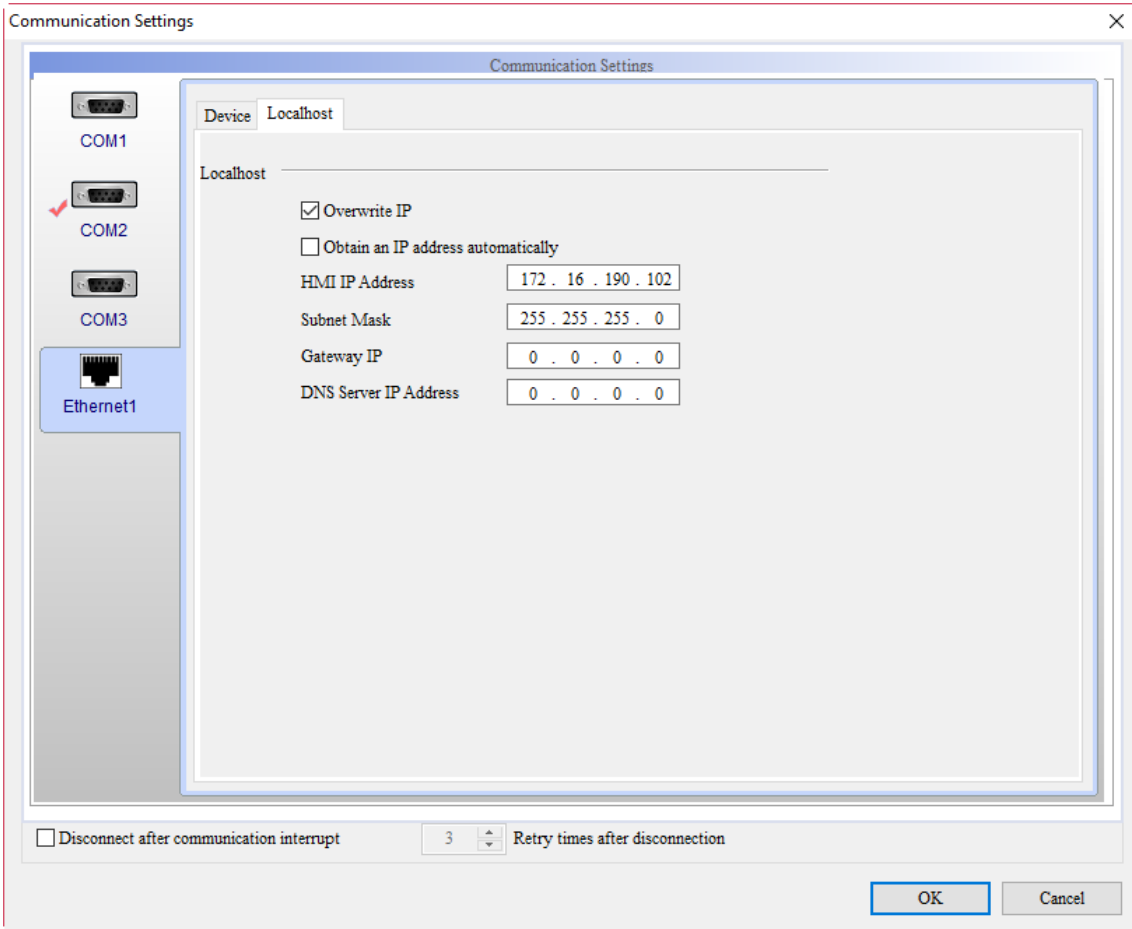
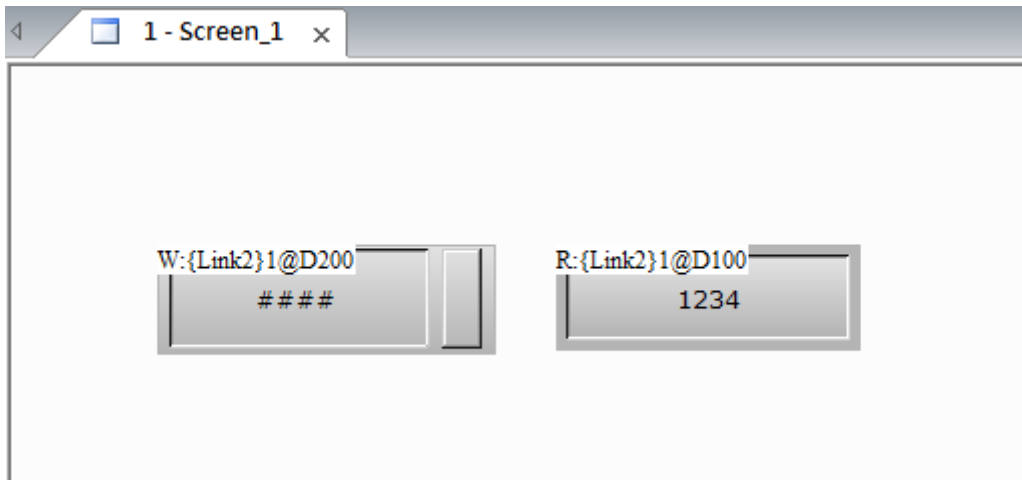


Figure B.1.9 HMI-Client2 IP address setup

Create a Numeric Entry element on the editing screen and set its Write Address to D200.
 Create a Numeric Display element with its Read Address as D100.



B

Figure B.1.10 Create elements

After the editing is completed, compile the elements and download the screen to the HMI.

After HMI-HOST, HMI-Client1, and HMI-Client2 are set up and downloaded to the HMI, you can use any HMI to operate the PLC. If you input 36 for D200 on the HMI-Client1, then both the D200 addresses of the HMI-HOST and HMI-Client 2 show 36. If you input 99 for D100 on the HMI-HOST, then both the D100 addresses of the HMI-Client 1 and HMI-Client 2 show 99.

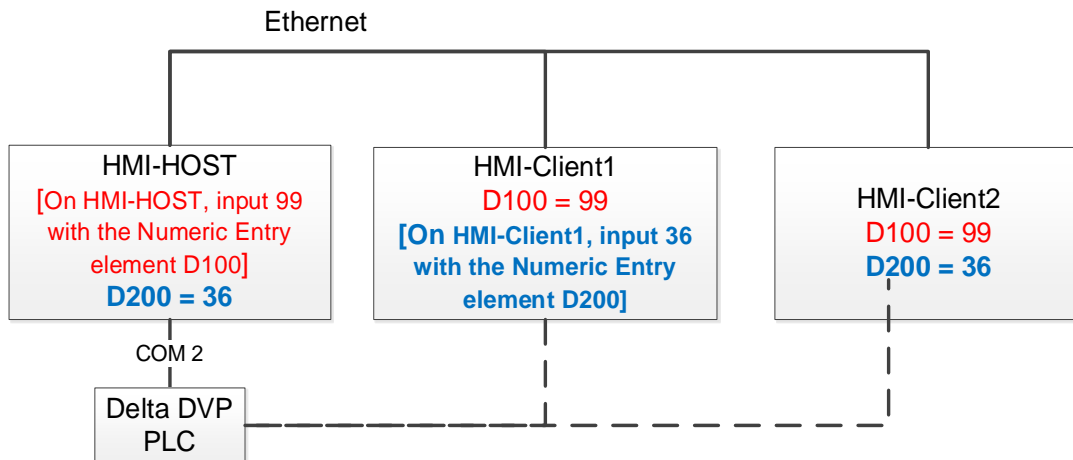


Figure B.1.11 Execution results

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B

Communication Error Messages



This appendix describes the meanings of the communication error messages and the ways to troubleshoot these errors when a communication error occurs for the HMI.



C.1 Communication error messages C-2

C.1 Communication error messages

C

This appendix describes the meanings of the communication error messages and the ways to troubleshoot these errors when a communication error occurs for the HMI. COMMUNICATION ERROR 3 displayed in the following screenshot is the code for the error.

For communication error messages for DOP-100 models, a message has been added to display which register cannot access data normally, as can be seen in the following screenshot, the D100 address cannot be accessed normally.



Figure C.1.1 Example of the HMI communication error message

Through these codes, you can view the messages displayed and determine the reason why the HMI cannot be connected. The following table lists the communication error codes and messages, as well as the corresponding meanings of these error codes.

Table C.1.1 Communication error codes

Code	Communication error messages	Cause	Troubleshooting
0x02	Unknown	Noise interference.	Improve the anti-noise interference equipment and shielding for the transmission cable.
0x03	NoResponse	Incorrect communication cable wiring, PLC station number, and communication parameters including baudrate, parity, data bits, stop bit, and etc.	Check if the setting on the left is incorrect.
0x05	ControllerChecksumError	Error identified by HMI from checking the PLC CheckSum.	Check if PLC CheckSum has been enabled (usually requires use of PLC software for the checking).
0x06	CommandError	Read and write PLC command is in error.	Check if the read and write address for the HMI exceeded the address available for use by the PLC, or if this address cannot be written.
0x07	AddressError	Read and write PLC address is in error.	Check if the read and write address for the HMI exceeded the address available for use by the PLC, or if this address cannot be written.
0x08	ValueError	Error in data written to the PLC.	Check the range of value accepted by the PLC.
0x09	Controller busy	PLC busy and unable to process the given command.	PLC is busy, please try again later.
0x0A	NoCTS	HMI CTS pin did not receive PLC RTS signal.	Check if CTS pin on HMI end and RTS pin on PLC end are connected, or if the PLC has sent out RTS signal.
0x0E	HMIStationNumberError	HMI station number error.	Check if the HMI station number exceeded the range of valid station numbers, or if it is duplicated with other station numbers.
0x0F	PLCStationNumberError	PLC station number error.	Check if the PLC station number exceeded the range of valid station numbers, or if it is duplicated with other station numbers.
0x10	UARTCommunicateFail	Communication error occurred at the bottom layer of HMI. COM port was not opened correctly, or task overload on HMI causing abnormal COM port operation.	Make sure if the COM port could be used normally, or simplify HMI task load, for example, delete ALARM or MACRO command.
0x1A	RTCSYNCErrror	PLC does not support this command.	Use the PLC that supports this command.
0x1B	Receive Error	Data format sent by PLC is in error.	Make sure the data format is correct.



MPI communication error codes are created for Siemens' controllers, such as S7-300 series (Direct MPI), S7-300 series (without PC Adaptor), and S7-200 series, when communication with the HMI fails.

C

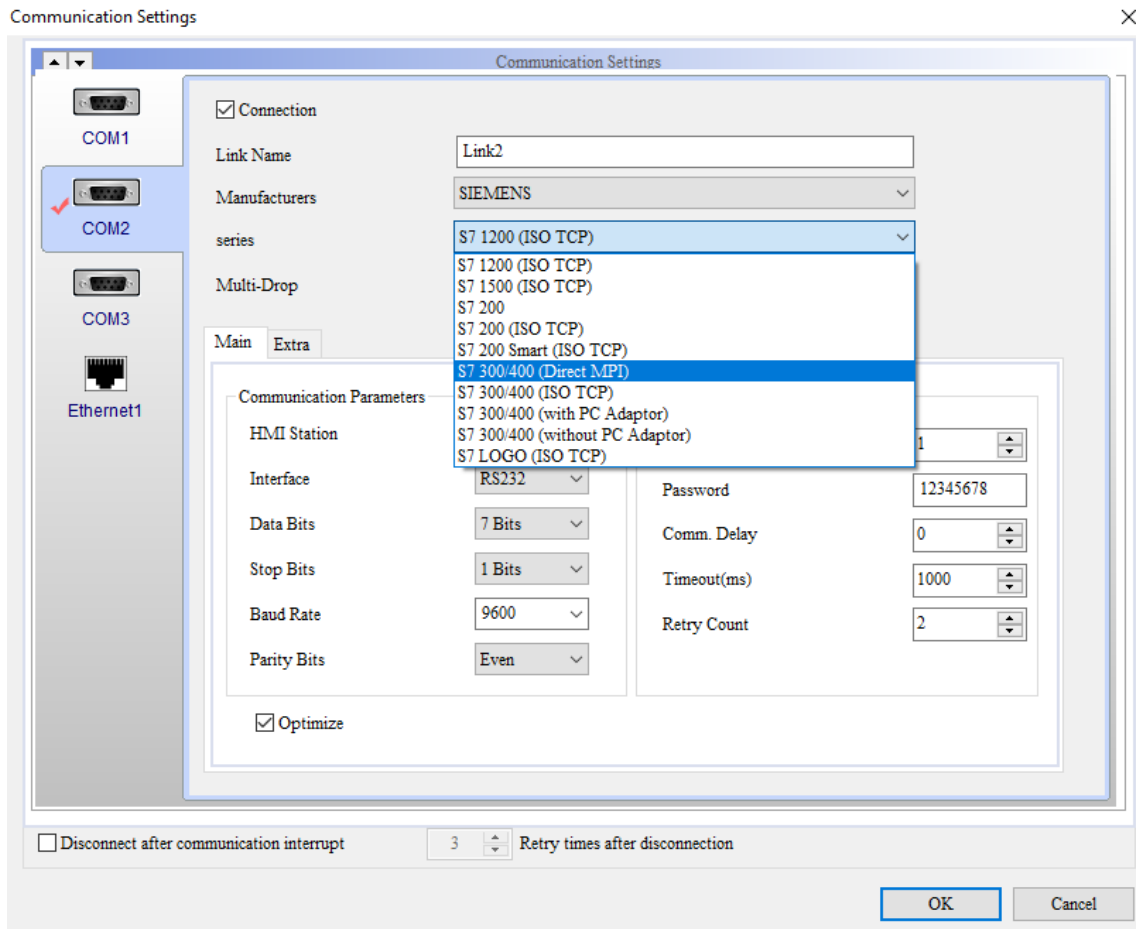


Figure C.1.2 Siemens controller

Table C.1.2 MPI communication error codes

Code	Communication error messages	Cause	Troubleshooting
0x11	MPI_IDLE (For S7 300 - without PC adaptor, S7 300 - Direct MPI, or S7-200)	This is a special error message for Siemens PLC. HMI cannot acquire packets under idle internet connection.	Check if there are too many connected modules causing insufficient bandwidth.
0x12	MPI_SN_COLLID (For S7 300 - without PC adaptor, S7 300 - Direct MPI, or S7-200)	This is a special error message for Siemens PLC. Station numbers are duplicated.	Make sure if there are modules with duplicated stations.
0x14	MPI_NO_SC (For S7 300 - without PC adaptor, S7 300 - Direct MPI, or S7-200)	This is a special error message for Siemens PLC. The number of connected stations is full, with no more connections available.	Check if the number of the connected modules exceeds the limit.
0x18	MPINoResponse (For S7 300 - without PC adaptor or S7 300 - Direct MPI)	This is a special error message for Siemens PLC. There is no response for the connection requested, as there is no resource allocated.	Check if the network cable is disconnected or if it has poor connection.
0x0B	NoResource (For S7 300 - without PC adaptor, S7 300 - Direct MPI, or S7-200)	This is a special error message for Siemens PLC. It is caused by task overload on the PLC.	This issue can be solved by simplifying the programs on the PLC to reduce task load.
0x0C	NoService (For S7 300 - without PC adaptor, S7 300 - Direct MPI, or S7-200)	This is a special error message for Siemens PLC. It is caused by task overload on the PLC.	This issue can be solved by simplifying the programs on the PLC to reduce task load.
0x3F	Read Error (For S7 300 - without PC adaptor, S7 300 - Direct MPI, or S7-200)	This is a special error message for Siemens PLC. The set PLC address exceeded the accessible range.	Set the PLC address within the accessible range.

C

If the connecting controller used for communication is Omron's C/CPM/CQM Series, please refer to the following Table C.1.3 for the applicable error code when an error occurred.

C

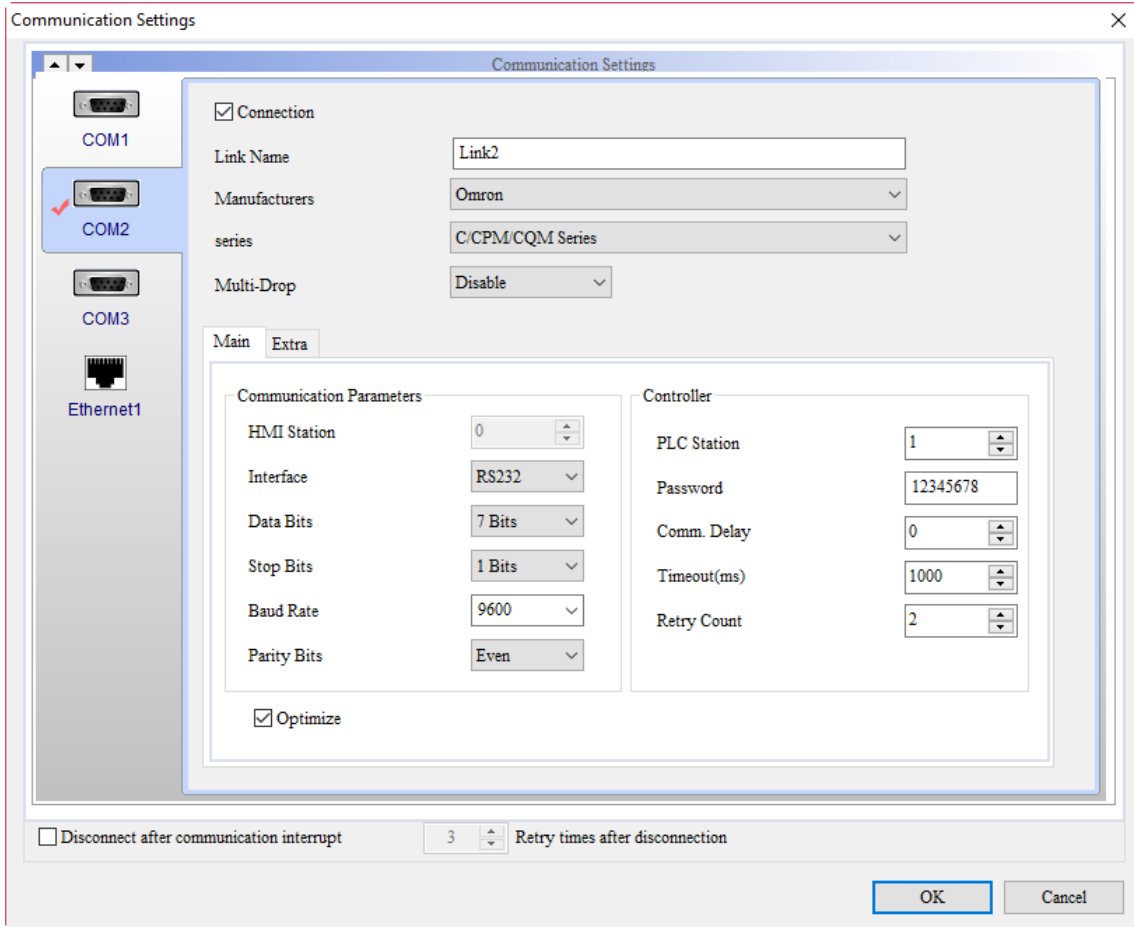


Figure C.1.3 Omron controller

Table C.1.3 Omron communication error code

Code	Communication error messages	Cause	Troubleshooting
0x1F	NOTExecutableInRunMode	It means the HMI is already connected with the PLC, but PLC is in Run mode, so it cannot accept "write data" command.	The PLC must be in Monitor mode to accept "write data" command. This error message will only appear once because when the HMI notices an error with the mode, it will automatically change the PLC mode to Monitor mode.

Write and Read Offset Addresses

D

This appendix describes the method for using the write and read offset addresses.

D.1	Write and read offset addresses	D-2
-----	---------------------------------------	-----

D.1 Write and read offset addresses

The offset address enables users to flexibly read and write the memory address without downloading the screen again when changing the address.

After setting the offset address:

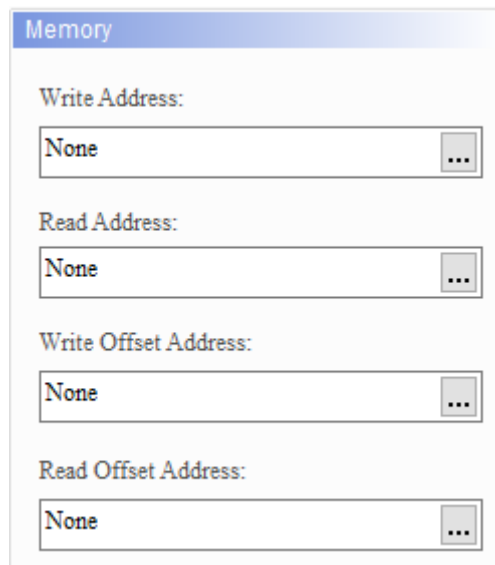
The actual write address of the element:

Write Address + Value in Write Offset Address × Element [Data Type].

The actual read address of the element:

Read Address + Value in Read Offset Address × Element [Data Type].

If you have set the Write Offset Address but not the Read Offset Address, the Read Offset Address will be regarded the same as the Write Offset Address.



The image shows a dialog box titled "Memory" with four input fields. Each field is labeled and contains the text "None" followed by a three-dot menu icon. The labels are: "Write Address:", "Read Address:", "Write Offset Address:", and "Read Offset Address:".

Figure D.1.1 Offset address setup

Note:

1. Values in offset addresses have to be unsigned within the range of 0 - 65535.
2. If the Data Type options are not available for the button element, the Data Type of this element is Bit. The Data Type for the Character Display and Character Entry elements is Word, not String Length.
3. All elements that can be set with a Write Address can also be set with a Write Offset Address. The same applies to elements set with a Read Address can also be set with a Read Offset Address. Refer to the following table for all the elements that can be set with write or read offset addresses.

D

Element		Offset address	
		Write	Read
Button	Set to On	v	v
	Set to Off	v	v
	Momentary	v	v
	Maintained	v	v
	Multistate	v	v
	Set Value	v	
	Set Constant	v	
	Increment	v	v
	Decrement	v	v
Meter (1)(2)(3)			v
Bar	Normal		v
	Differential		v
Pipe (1)(2)(6)(7)			v
Pie (1)(2)(3)(4)			v
Indicator	Multistate Indicator		v
	Range Indicator		v
	Simple Indicator		v
Data Display	Numeric Display		v
	Character Display		v
	General Message Display		v
	Moving Sign		v
Graph Display	State Graphic		v
	Animated Graphic		v
Input	Numeric Entry	v	v
	Character Entry	v	v
	Barcode Input	v	v
	Multi-language Input	v	v
Analog	Slider	v	v
List	ComboBox	v	v
	ListBox	v	v
Drawing	Line		v
	Rectangle		v
	Circle		v
	Text		v

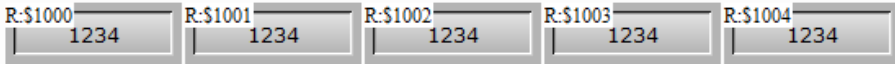
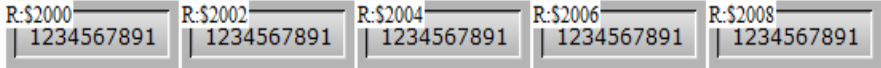
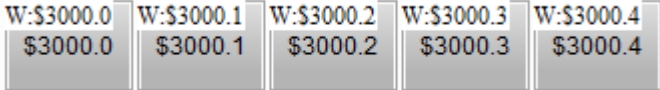
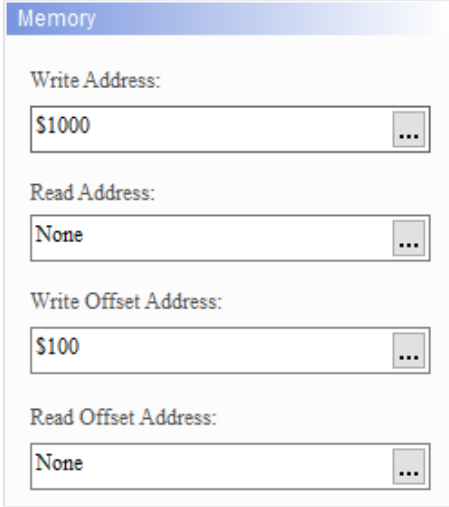
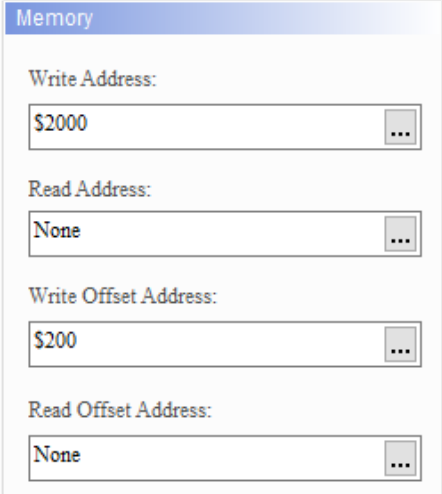
4. You can select the internal memory or controller register address as the Write / Read Address for the elements, but the controller register address which the Data Length is not Word is currently not supported. For example, C200 - C255 in Delta's DVP PLC are not supported because their Data Length is Double Word.

Variables	Type		
	Internal memory	PLC register	Constant
Write Offset Address	v	v	
Read Offset Address	v	v	

See the following examples of Offset Address.

Table D.1.1 Examples for applying offset address

D

Examples for applying offset address	
Create Numeric Entry elements	<p>Create three Numeric Entry elements and set the write addresses to \$100, \$200, and \$300, respectively.</p>
Create Numeric Display elements	<ul style="list-style-type: none"> Step 1: create five Numeric Display elements with the Data Type as Word and set the addresses from \$1000 to \$1004 in sequence.  <ul style="list-style-type: none"> Step 2: create five Numeric Display elements with the Data Type as Double Word and set the addresses from \$2000 to \$2004 in sequence. 
Create Maintained button elements	<p>Create five Maintained button elements and set the addresses from \$3000.0 to \$3000.4 in sequence.</p> 
Set offset addresses	<ul style="list-style-type: none"> Step 1: create one Numeric Entry element with the Data Type as Word and set the Write Address to \$1000 and Write Offset Address to \$100.  <ul style="list-style-type: none"> Step 2: create one Numeric Entry element with the Data Type as Double Word and set the Write Address to \$2000 and Write Offset Address to \$200. 

Examples for applying offset address

Set offset addresses

- Step 3: create one Maintained button element and set the Write Address to \$3000.0 and Write Offset Address to \$300.

Memory

Write Address:
 ...

Read Address:
 ...

Write Offset Address:
 ...

Read Offset Address:
 ...

D

After creating all the elements, please compile and download the elements to the HMI.

Download the screen to HMI

WORD

\$1000 Write Offset \$100

\$1000 \$1001 \$1002 \$1003 \$1004

DOUBLE WORD

\$2000 Write Offset \$200

\$2000 \$2002 \$2004 \$2006 \$2008

BIT

\$3000.0 Write Offset \$300

\$3000.0 \$3000.1 \$3000.2 \$3000.3 \$3000.4

D

Examples for applying offset address																	
Execution result when the Data Type is Word	<ul style="list-style-type: none"> When the Write Offset \$100 is 0, the actual write address of the Numeric Entry element in Word is \$1000. <div style="border: 1px solid gray; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">\$1000</td> <td style="text-align: center;">Write Offset \$100</td> <td style="text-align: right; color: blue;">WORD</td> </tr> <tr> <td style="text-align: center;"><input type="text" value="9999"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td></td> </tr> <tr> <td style="text-align: center;">\$1000</td> <td style="text-align: center;">\$1001</td> <td style="text-align: center;">\$1002</td> <td style="text-align: center;">\$1003</td> <td style="text-align: center;">\$1004</td> </tr> <tr> <td style="text-align: center;"><input type="text" value="9999"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> </tr> </table> </div>	\$1000	Write Offset \$100	WORD	<input type="text" value="9999"/>	<input type="text" value="0"/>		\$1000	\$1001	\$1002	\$1003	\$1004	<input type="text" value="9999"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
	\$1000	Write Offset \$100	WORD														
	<input type="text" value="9999"/>	<input type="text" value="0"/>															
\$1000	\$1001	\$1002	\$1003	\$1004													
<input type="text" value="9999"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>													
<ul style="list-style-type: none"> When the Write Offset \$100 is 1, the actual write address of the Numeric Entry element is 1 Word address after \$1000, which is \$1001. <div style="border: 1px solid gray; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">\$1000</td> <td style="text-align: center;">Write Offset \$100</td> <td style="text-align: right; color: blue;">WORD</td> </tr> <tr> <td style="text-align: center;"><input type="text" value="8888"/></td> <td style="text-align: center;"><input type="text" value="1"/></td> <td></td> </tr> <tr> <td style="text-align: center;">\$1000</td> <td style="text-align: center;">\$1001</td> <td style="text-align: center;">\$1002</td> <td style="text-align: center;">\$1003</td> <td style="text-align: center;">\$1004</td> </tr> <tr> <td style="text-align: center;"><input type="text" value="9999"/></td> <td style="text-align: center;"><input type="text" value="8888"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> </tr> </table> </div>	\$1000	Write Offset \$100	WORD	<input type="text" value="8888"/>	<input type="text" value="1"/>		\$1000	\$1001	\$1002	\$1003	\$1004	<input type="text" value="9999"/>	<input type="text" value="8888"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	
\$1000	Write Offset \$100	WORD															
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\$1000	\$1001	\$1002	\$1003	\$1004													
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<ul style="list-style-type: none"> When the Write Offset \$100 is 3, the actual write address of the Numeric Entry element is 3 Word addresses after \$1000, which is \$1003. <div style="border: 1px solid gray; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">\$1000</td> <td style="text-align: center;">Write Offset \$100</td> <td style="text-align: right; color: blue;">WORD</td> </tr> <tr> <td style="text-align: center;"><input type="text" value="6666"/></td> <td style="text-align: center;"><input type="text" value="3"/></td> <td></td> </tr> <tr> <td style="text-align: center;">\$1000</td> <td style="text-align: center;">\$1001</td> <td style="text-align: center;">\$1002</td> <td style="text-align: center;">\$1003</td> <td style="text-align: center;">\$1004</td> </tr> <tr> <td style="text-align: center;"><input type="text" value="9999"/></td> <td style="text-align: center;"><input type="text" value="8888"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td style="text-align: center;"><input type="text" value="6666"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> </tr> </table> </div>	\$1000	Write Offset \$100	WORD	<input type="text" value="6666"/>	<input type="text" value="3"/>		\$1000	\$1001	\$1002	\$1003	\$1004	<input type="text" value="9999"/>	<input type="text" value="8888"/>	<input type="text" value="0"/>	<input type="text" value="6666"/>	<input type="text" value="0"/>	
\$1000	Write Offset \$100	WORD															
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\$1000	\$1001	\$1002	\$1003	\$1004													
<input type="text" value="9999"/>	<input type="text" value="8888"/>	<input type="text" value="0"/>	<input type="text" value="6666"/>	<input type="text" value="0"/>													
Execution result when the Data Type is Double Word	<ul style="list-style-type: none"> When the Write Offset \$200 is 0, the actual write address of the Numeric Entry element in Double Word is \$2000. <div style="border: 1px solid gray; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">\$2000</td> <td style="text-align: center;">Write Offset \$200</td> <td style="text-align: right; color: blue;">DOUBLE WORD</td> </tr> <tr> <td style="text-align: center;"><input type="text" value="99999999"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td></td> </tr> <tr> <td style="text-align: center;">\$2000</td> <td style="text-align: center;">\$2002</td> <td style="text-align: center;">\$2004</td> <td style="text-align: center;">\$2006</td> <td style="text-align: center;">\$2008</td> </tr> <tr> <td style="text-align: center;"><input type="text" value="99999999"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> </tr> </table> </div>	\$2000	Write Offset \$200	DOUBLE WORD	<input type="text" value="99999999"/>	<input type="text" value="0"/>		\$2000	\$2002	\$2004	\$2006	\$2008	<input type="text" value="99999999"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
	\$2000	Write Offset \$200	DOUBLE WORD														
	<input type="text" value="99999999"/>	<input type="text" value="0"/>															
\$2000	\$2002	\$2004	\$2006	\$2008													
<input type="text" value="99999999"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>													
<ul style="list-style-type: none"> When the Write Offset \$200 is 1, the actual write address of the Numeric Entry element is 1 Double Word address after \$2000, which is \$2002. <div style="border: 1px solid gray; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">\$2000</td> <td style="text-align: center;">Write Offset \$200</td> <td style="text-align: right; color: blue;">DOUBLE WORD</td> </tr> <tr> <td style="text-align: center;"><input type="text" value="88888888"/></td> <td style="text-align: center;"><input type="text" value="1"/></td> <td></td> </tr> <tr> <td style="text-align: center;">\$2000</td> <td style="text-align: center;">\$2002</td> <td style="text-align: center;">\$2004</td> <td style="text-align: center;">\$2006</td> <td style="text-align: center;">\$2008</td> </tr> <tr> <td style="text-align: center;"><input type="text" value="99999999"/></td> <td style="text-align: center;"><input type="text" value="88888888"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> </tr> </table> </div>	\$2000	Write Offset \$200	DOUBLE WORD	<input type="text" value="88888888"/>	<input type="text" value="1"/>		\$2000	\$2002	\$2004	\$2006	\$2008	<input type="text" value="99999999"/>	<input type="text" value="88888888"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	
\$2000	Write Offset \$200	DOUBLE WORD															
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\$2000	\$2002	\$2004	\$2006	\$2008													
<input type="text" value="99999999"/>	<input type="text" value="88888888"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>													
<ul style="list-style-type: none"> When the Write Offset \$200 is 3, the actual write address of the Numeric Entry element is 3 Double Word addresses after \$2000, which is \$2006. <div style="border: 1px solid gray; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">\$2000</td> <td style="text-align: center;">Write Offset \$200</td> <td style="text-align: right; color: blue;">DOUBLE WORD</td> </tr> <tr> <td style="text-align: center;"><input type="text" value="66666666"/></td> <td style="text-align: center;"><input type="text" value="3"/></td> <td></td> </tr> <tr> <td style="text-align: center;">\$2000</td> <td style="text-align: center;">\$2002</td> <td style="text-align: center;">\$2004</td> <td style="text-align: center;">\$2006</td> <td style="text-align: center;">\$2008</td> </tr> <tr> <td style="text-align: center;"><input type="text" value="99999999"/></td> <td style="text-align: center;"><input type="text" value="88888888"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> <td style="text-align: center;"><input type="text" value="66666666"/></td> <td style="text-align: center;"><input type="text" value="0"/></td> </tr> </table> </div>	\$2000	Write Offset \$200	DOUBLE WORD	<input type="text" value="66666666"/>	<input type="text" value="3"/>		\$2000	\$2002	\$2004	\$2006	\$2008	<input type="text" value="99999999"/>	<input type="text" value="88888888"/>	<input type="text" value="0"/>	<input type="text" value="66666666"/>	<input type="text" value="0"/>	
\$2000	Write Offset \$200	DOUBLE WORD															
<input type="text" value="66666666"/>	<input type="text" value="3"/>																
\$2000	\$2002	\$2004	\$2006	\$2008													
<input type="text" value="99999999"/>	<input type="text" value="88888888"/>	<input type="text" value="0"/>	<input type="text" value="66666666"/>	<input type="text" value="0"/>													

Examples for applying offset address

■ When the Write Offset \$300 is 0, the actual write address of the Maintained button element is \$3000.0.

Write Offset \$300 BIT

\$3000.0

\$3000.0 \$3000.1 \$3000.2 \$3000.3 \$3000.4

■ When the Write Offset \$300 is 1, the actual write address of the Maintained button element is 1 Bit address after \$3000.0, which is \$3000.1.

Write Offset \$300 BIT

\$3000.0

\$3000.0 \$3000.1 \$3000.2 \$3000.3 \$3000.4

■ When the Write Offset \$300 is 3, the actual write address of the Maintained button element is 3 Bit addresses after \$3000.0, which is \$3000.3.

Write Offset \$300 BIT

\$3000.0

\$3000.0 \$3000.1 \$3000.2 \$3000.3 \$3000.4

Execution result when the Data Type is Bit

D

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D

Revision History

Release date	Version	Chapter	Revision contents
December, 2021	V2.0 (Second edition)	1.2	Modified the supported operating system.
		1.3	Modified the supported models.
		2.2	Modified the pictures in the Element Bank.
		2.2.1.1	Modified the supported language options for the System Menu Language.
		2.2.1.6	Added the password protection function for copying files when creating the screen data file.
		2.2.1.7	Added the password protection function for copying files when creating the update data file.
		2.2.2.2	Added the Address Conversion function.
		2.2.2.3	Added the Lock Element function.
		2.2.2.5	Added the Tab Order function.
		2.2.3.8	Removed the cross-reference address table section.
		2.2.4.3	Modified the interface diagram and descriptions for the Screensaver Setup.
		3.1	The internal memory supported by the DOP-112/115 models increased to 200,000 sets.
		3.4	Added the Internal Parameters: <ul style="list-style-type: none"> • NET_IP1 to NET_IP4, SUBMASK_IP1 to SUBMASK_IP4, and GWAY_IP1 to GWAY_IP4 • NET_STATUS1 and NET_STATUS2 • REMO_COUNT • ACCOUNT • PROGRAM_STATUS • PROGRAM_INFO • KEY_CHAR • SMTP_STATUS • SMTP_INFO

Release date	Version	Chapter	Revision contents
December, 2021	V2.0 (Second edition)	5.1	Set to On, Set to Off, Maintained, and Momentary buttons: added the options of Use Text Pic, Filled style, Interlock Display Mode, and Modifier + Hot Key.
		5.2	Multistate button: added the options of Use Text Pic, Filled style, Interlock Display Mode, and Modifier + Hot Key.
		5.3	Set Value button: added the options of Use Text Pic, Filled style, Interlock Display Mode, and Modifier + Hot Key.
		5.4	Set Constant button: added the options of Use Text Pic, Filled style, Interlock Display Mode, and Modifier + Hot Key.
		5.5	Increment / Decrement buttons: added the options of Use Text Pic, Filled style, Interlock Display Mode, and Modifier + Hot Key.
		5.6	Goto Screen button: added the options of Use Text Pic, Filled style, Interlock Display Mode, and Modifier + Hot Key.
		5.7.7	Added the Print Output element.
		5.7.8	Modified the storage device options for the Report List as USB Disk and SD card.
		5.7.14	Modified the FileSlot export interface.
		5.7.15	Added the options of Interlock Display Mode and Modifier + Hot Key.
		5.8	Multiple actions button: added the options of Use Text Pic, Filled style, Interlock Display Mode, and Modifier + Hot Key.
		6.1	Added the option of Variable minimum/maximum limits for the Meter elements.
		7.1	Normal bar: added the option of Filled style.
		7.2	Differential bar: added the option of Filled style.
		8.1	Pipe (1) / Pipe (2): added the option of Filled style.
10.1	Multistate Indicator: added the option of Filled style.		


Release date	Version	Chapter	Revision contents
December, 2021	V2.0 (Second edition)	10.2	Range Indicator: added the option of Filled style.
		11.1	Numeric Display: Added the option of Filled style. Added the allowable range descriptions for the Quad Word data display. Added the contents of Data Type and Data Format for Quad Word. Added the option of Word arrangement.
		11.2	Character Display: Added the option of Filled style. Added the option of Insufficient string length zero.
		11.3.1	Date Display: added the option of Filled style.
		11.3.2	Time Display: added the option of Filled style.
		11.3.3	Week Display: added the option of Filled style.
		11.4	General Message Display: added the options of Use Text Pic and Filled style.
		11.5	Moving Sign: added the options of Use Text Pic and Filled style.
		11.6	Added Section 11.6 QR code display.
		11.7	Added Section 11.7 Barcode.
		12.2	Modified the default of the Clear Picture option to Yes.
		13.1	Numeric Entry: Added the allowable range descriptions for the Quad Word data. Added the contents of Data Type and Data Format for Quad Word. Added the options of Filled style and Border Fill Style. Added the options of Interlock Display Mode and Word arrangement.
		13.2	Character Entry: added the options of Filled style and Border Fill Style. Added the options of Insufficient string length zero and Interlock Display Mode.

Release date	Version	Chapter	Revision contents
December, 2021	V2.0 (Second edition)	13.3	Barcode Input: added the options of Filled style, Border Fill Style, and Interlock Display Mode.
		13.4	Multi-language Input: added the options of Filled style, Border Fill Style, read only, and Encoding. Added the option of Interlock Display.
		13.5	Added Section 13.5 Multi-line text input.
		14.1	Trend Graph: added the option of setting the Minimum / Maximum as variables.
		14.2	X-Y Chart: added the options of Horiz. Minimum / Horiz. Maximum, setting the Vert. Minimum / Vert. Maximum as variables, Number of Groups, Enable Value Line, Set For Curve, Vert. Low Limit, and Vertical high limit.
		14.4	Curve Input: added the option of setting the Minimum / Maximum as variables.
		15.1	History Buffer: Added the +-↑↓ buttons in the CSV Fields settings. Added the option of Enable active bit in the History Buffer Setup. Added the option of Enable optimized alarm reading. Added the support of DWORD for the Custom Cycle option in Timer.
		15.2	Historical Trend Graph: Added the supported Number of Curves to 60 and the supported Read Length to 60 words for the Curve setting. Added the option of setting the Minimum / Maximum of Global range as variables. Added the Timeline scaling function. Added the Set the time display interval function button.

Release date	Version	Chapter	Revision contents
December, 2021	V2.0 (Second edition)	15.3	<p>Historical Data Table:</p> <p>Added the supported number of columns to 60 and the supported Read Length to 60 words.</p> <p>Added the options of Alignment and Field Width in Time/Date.</p> <p>Added the No. option in Show Title.</p> <p>Added the Show No. check box and the options of Color and Alignment.</p> <p>Added the Details-2 page.</p>
		15.4	<p>Historical Event Table: added the supported Read Length for the Data No. to 60 words.</p>
		15.5	<p>Historical Overview Table:</p> <p>Added the supported Number of Curves to 60 and the Read Length to maximum 60 words for the Curve setting.</p> <p>Added the option of setting the Minimum / Maximum of Global range as variables.</p> <p>Added the Timeline scaling function.</p> <p>Added the option of Set the time display interval function button.</p>
		15.6	<p>Operation Log Table: added the Save in HMI option in the Save Settings.</p>
		16.1	<p>Alarm Settings:</p> <p>Modified the supported range for the Alarm Category Settings from 1 - 255 to 0 - 4095.</p> <p>Added the option of Enable optimized alarm reading.</p> <p>Added the support of %f1 format and setting up to 8 monitoring addresses for Monitor Address.</p> <p>Modified the interface for Monitor Address.</p> <p>Added the Time to enter screen saver again option.</p> <p>Added the Show alarm number option.</p>

Release date	Version	Chapter	Revision contents
December, 2021	V2.0 (Second edition)	16.2	Alarm History Table: Added the Enable group number filtering option. Added the Allow to change the field width option. Added the option of Group for Column display. Added the function buttons of Scroll up an interval, Scroll down an interval, Scroll up one page, and Scroll down one page.
		16.3	Active Alarm List: Added the Enable group number filtering option. Added the Details page. Added the Allow to change the field width option. Added the option of Group for Column display. Added the Function Buttons page.
		16.4	Alarm Frequency Table: Added the Enable group number filtering option. Added the Details page. Added the Allow to change the field width option. Added the option of Group for Column display. Added the Function Buttons page.
		16.5	Alarm Moving Sign: Added the Alarm Group option. Added the Enable group number filtering option. Added the Details page.
		19.1	ComboBox: Added the State invisible Address option. Added the Interlock Display Mode option.
		19.2	Added Section 19.2 Drop-down Menu.
		19.3	ListBox: added the Interlock Display Mode option.

Release date	Version	Chapter	Revision contents
December, 2021	V2.0 (Second edition)	19.5	PDF Viewer: Added the File Extension Filter function. Added the Show File List option.
		19.6	Added Section 19.6 Text Viewer.
		19.7	Added Section 19.7 ENRCP Viewer.
		19.8	Added Section 19.8 FTP file list.
		19.9	Added Section 19.9 FTP File Setting.
		19.10	Added Section 19.10 Text List.
		20.2	Added Section 20.2 Camera display.
		20.3	Added Section 20.3 VGA display.
		20.4	Added Section 20.4 Video Play.
		20.5	Added Section 20.5 Event trigger.
		21.2	Right Triangle: added the Invisible Address option
		21.8	Triangle: added the Invisible Address option.
		22.2	Rectangle: added the Filled style option.
		22.3	Circle: Added the Filled style option. Added the Invisible Address option.
		22.4	Polygon: added the Invisible Address option.
		22.5	Text: added the Use Text Pic function.
		23.1	16-bit Recipe: Modified the interface. Added the Groups / Fields Search function.
		23.2	32-bit recipe: Modified the interface. Added the Groups / Fields Search function.
		23.4	Enhanced recipe: Modified the interface. Added the Groups / Fields Search function. Added the RCPNOname index function. Added the Title field.
		24.1.7	Added the Cycle macro manager window.
		24.3.8	Communication: Added the commands of COMLINKSTATUS, NETLINKSTATUS, and CLOSECOM.

Release date	Version	Chapter	Revision contents
December, 2021	V2.0 (Second edition)	24.3.10	File Access: Added the commands of FileSlotGetName, FileSlotSetName, and FileSlotGetID.
		24.4	Added the Macro error codes.
		26.1	Template printing: added the Print Screen option. Added the Each picture function for setting how many screens are included in one page in the Screen Print Setup.
		26.4	Added Section 26.4 Template printing.
		Table 27.1.1	The Boot Delay Screen function in the Main screen is moved to the Default Screen.
		Table 27.1.3	Security Level and Password: Added the options of Logout when time out, Account disabled after login failed, and Password Keypad. Added the quick password button  for you to use the user security level and the password used on the DOP-B series models to continue the login. Changed the interface of the Account and Password.
		Table 27.1.5	Others: Added the options for HMI action priority. Added the slide bars for Animation FPS (graphic update speed) and Audio. Added the options of Enable backlight saving, Screensaver trigger address, Screensaver Screen, and the display of Screensaver Status. Added the option of Insufficient storage hint screen.
		Table 27.1.6	Real Time Clock: added the function of synchronizing PC time to the HMI.
		Table 27.1.7	Print: added the setting options of File read address, Save in, and String.

Release date	Version	Chapter	Revision contents
December, 2021	V2.0 (Second edition)	Table 27.1.8	Default: Added the options of Use Fallback Font and Top Priority. Added the default Style options. Added the Font Smoothing and Apply to all options for the elements.
		Table 27.1.10	Added the Boot Delay Screen function.
		Table 27.1.11	Network Settings: Added the switch of daylight saving time. Added the option of Enable OPC UA.
		Table 27.1.15	Multi-language settings: added system languages French, Russian, and Turkish.
		Table 27.1.16	Multi-language Settings: added Japanese (only halfwidth). Added the Default Input option.
		Table 27.1.17	Added the Industry application option.
		27.3	Added more model options and non-volatile / import / export destinations for transition in the Change Model function.
		27.4	Added software interface languages: Japanese, Korean, Turkish, Russian, Spanish, and French.
		28.1	Modified the interface of the Tag Table.
		28.6	Modified the Text Bank interface and it now supports the .xls format.
		28.8	Added Section 28.8 Custom-Keypad.
		28.9	Added Section 28.9 Audio Output setting.
		28.10	Added Section 28.10 Modbus TCP mapping table.
28.11	Added Section 28.11 Font Management.		

Release date	Version	Chapter	Revision contents
December, 2021	V2.0 (Second edition)	Appendix A	Modified the way to enter the System Screen. Added the System Screen directory. Added the System Language options on the MISC page. Added the VNC port setting on the Network App page. Removed the Multi-Screen File function on the File Manager page. The AS models now support PLC file download.
May, 2018	V1.0 (First edition)	ALL	-