Type number key

VFD 007 E 43 A

- **A** — Version number
  A=standard
  P=Cold Plate (Frame A only)
  T=Brake chopper (Frame A only)
- **43** — Input voltage
  11=115VAC 21=230VAC 1ϕ
  23=230VAC 3ϕ 43=400VAC
- **E** — VFD-E series
- **007** — Power
  007=0.75kW 022=2.2kW
  055=5.5kW 110=11kW etc
- **VFD** — Delta **V**ariable **F**requency **D**rive

Option Keypad KPE-LE02

230V single phase 0.2 ~ 2.2kW

Type number VFD□□□□□□		002E21A	004E21A	007E21A	015E21A	022E21A
Rated power	kW	0.2	0.4	0.75	1.5	2.2
Rated output current	A RMS	1.6	2.5	4.2	7.5	11
Current limit	%	150% 60s				
Rated output capacity	kVA	0.6	1	1.6	2.9	4.2
Rated input current (1-phase/3-phase)	A RMS	4.9/1.9	6.5/2.7	9.7/5.1	15.7/9	24/15
Mains fuse (for UL: Bussmann)		JJN-10	JJN-15	JJN-20	JJN-30	JJN-50
Dimensions HxWxD	mm	142x72x152			174x100x152	
Size ****		A			B	
Weight	kg	1.1			1.2	
Section of power cables	mm^2	2 ~ 3			0.8 ~ 8	
Cooling		Convection			Fan	
Carrier frequency	kHz	1 ~ 15				
EMC-Filter		Built-in option				
DC-Choke		No				
DC-Bus connection		Yes				
Brake chopper		No			Yes	
Recommended brake resistor	Ω/W	250/200 **		150/200 **	85/300	60/450
Minimum brake resistor value	Ω	200 **	100 **	80 **	40	

** With external BUE20015 brake chopper
**** See dimensional drawing on Page 7.

400V 0.4 ~ 2.2kW

Type number	VFD□□□□□□□	004E43A	007E43A	015E43A	022E43A
Rated power	kW	0.4	0.75	1.5	2.2
Rated output current	A RMS	1.5	2.5	4.2	5.5
Current limit	%	150% 60s			
Rated output capacity	kVA	1.2	2	3.3	4.4
Rated input current	A RMS	1.9	3.2	4.3	7.1
Mains fuse (for UL: Bussmann)		JJS-6		JJS-10	JJS-15
Dimensions HxWxD	mm	142x72x152			174x100x152
Size ****		A			B
Weight	kg	1.1		1.9	
Section of power cables	mm^2	2 ~ 3		0.8 ~ 8	
Cooling		Convection		Fan	
Carrier frequency	kHz	1 ~ 15			
EMC-Filter		Built-in option			
DC-Choke		No			
DC-Bus connection		Yes			
Brake chopper		No			Yes
Recommended brake resistor	Ω/W	400/300 **		300/400 **	200/600
Minimum brake resistor value	Ω	400 **	200 **	160 **	140

** With external BUE40015 brake chopper

**** See dimensional drawing on Page 7.

400V 3.7 ~ 11kW

Type number	VFD□□□□□□□	037E43A	055E43A	075E43A	110E43A
Rated power	kW	3.7	5.5	7.5	11
Rated output current	A RMS	8.5	13	18	24
Current limit	%	150% 60s			
Rated output capacity	kVA	6.5	9.9	13.7	18.3
Rated input current	A RMS	11.2	14	19	25
Mains fuse (for UL: Bussmann)		JJS-20	JJS-30	JJS-40	JJS-50
Dimensions HxWxD	mm	174x100x152	260x130x169.2		
Size ****		B	C		
Weight	kg	1.9	3.5		4.2
Section of power cables, stranded (with ring)	mm^2	0.8 ~ 8	1 ~ 8		
Cooling		Fan			
Carrier frequency	kHz	1 ~ 15			
EMC-Filter		Built-in option			
DC-Choke		No			
DC-Bus connection		Yes			
Brake chopper		Yes			
Recommended brake resistor	Ω/W	140/750	96/1100	69/1500	53/2000
Minimum brake resistor value	Ω	96		69	53

**** See dimensional drawing on Page 7.

400V 15 ~ 22kW

Type number	VFD□□□□□□□	150E43A	185E43A	220E43A
Rated power	kW	15	18.5	22
Rated output current	A RMS	32	38	45
Current limit	%	150% 60s		
Rated output capacity	kVA	24	29	34
Rated input current	A RMS	35	41	49
Mains fuse (for UL: Bussmann)		JJN-70	JJN-80	JJN-100
Dimensions HxWxD	mm	310x190x200		
Size ****		D		
Weight	kg	7.5		
Section of power cables	mm^2	2 ~ 21		
Cooling		Fan		
Carrier frequency	kHz	1 ~ 15		
EMC-Filter		Built-in option		
DC-Choke		No		
DC-Bus connection		Yes		
Brake chopper		Yes		
Recommended brake resistor	Ω/W	31/4800		
Minimum brake resistor value	Ω	31		

**** See dimensional drawing on Page 7.

230V single phase 0.2 ~ 0.75kW Cold Plate

Type number	VFD□□□□□□□	002E21P	004E21P	007E21P
Rated power	kW	0.2	0.4	0.75
Rated output current	A RMS	1.6	2.5	4.2
Current limit	%	150% 60s		
Rated output capacity	kVA	0.6	1	1.6
Rated input current (1-phase/3-phase)	A RMS	4.9/1.9	6.5/2.7	9.7/5.1
Mains fuse (for UL: Bussmann)		JJN-10	JJN-15	JJN-20
Dimensions HxWxD	mm	155x72x111.5		
Size ****		EP1		
Weight	kg	1.1		
Section of power cables	mm^2	2 ~ 3		
Cooling		Cold Plate		
Carrier frequency	kHz	1 ~ 15		
EMC-Filter		Built-in option		
DC-Choke		No		
DC-Bus connection		Yes		
Brake chopper		No		
Recommended brake resistor	Ω/W	250/200 **		150/200 **
Minimum brake resistor value	Ω	200 **	100 **	80 **

** With external BUE20015 brake chopper.
**** See dimensional drawing on Page 6.

400V 0.4 ~ 0.75kW Cold Plate

Type number	VFD□□□□□□□	004E43P	007E43P	015E43P
Rated power	kW	0.4	0.75	1.5
Rated output current	A RMS	1.5	2.5	4.2
Current limit	%	150% 60s		
Rated output capacity	kVA	1.2	2	3.3
Rated input current	A RMS	1.9	3.2	4.3
Mains fuse (for UL: Bussmann)		JJS-6		JJS-10
Dimensions HxWxD	mm	155x72x111.5		
Size ****		EP1		
Weight	kg	1.1		
Section of power cables	mm^2	2 ~ 3		
Cooling		Cold plate		
Carrier frequency	kHz	1 ~ 15		
EMC-Filter		Built-in option		
DC-Choke		No		
DC-Bus connection		Yes		
Brake chopper		No		
Recommended brake resistor	Ω/W	400/300 **		300/400 **
Minimum brake resistor value	Ω	400 **	200 **	160 **

** With external BUE40015 brake chopper.
**** See dimensional drawing on Page 6.

230V single phase 0.2 ~ 0.75kW Brake chopper built-in

Type number	VFD□□□□□□□	002E21T	004E21T	007E21T
Rated power	kW	0.2	0.4	0.75
Rated output current	A RMS	1.6	2.5	4.2
Current limit	%	150% 60s		
Rated output capacity	kVA	0.6	1	1.6
Rated input current (1-phase/3-phase) *	A RMS	4.9/1.9	6.5/2.7	9.7/5.1
Mains fuse (for UL: Bussmann)		JJN-10	JJN-15	JJN-20
Dimensions HxWxD	mm	142x72x152		
Size ****		A		
Weight	kg	1.1		
Section of power cables	mm^2	2 ~ 3		
Cooling		Convection		
Carrier frequency	kHz	1 ~ 15		
EMC-Filter		Built-in option		
DC-Choke		No		
DC-Bus connection		No		
Brake chopper		Yes		
Recommended brake resistor	Ω/W	250/200		150/200
Minimum brake resistor value	Ω	200	100	80

* Single-phase drives can also be connected to 230V 3-phase.
**** See dimensional drawing on Page 6.

400V 0.4 ~ 1.5kW Brake chopper built-in

Type number	VFD□□□□□□□	004E43T	007E43T	015E43T
Rated power	kW	0.4	0.75	1.5
Rated output current	A RMS	1.5	2.5	4.2
Current limit	%	150% 60s		
Rated output capacity	kVA	1.2	2	3.3
Rated input current	A RMS	1.9	3.2	4.3
Mains fuse (for UL: Bussmann)		JJS-6		JJS-10
Dimensions HxWxD	mm	142x72x152		
Size ****		A		
Weight	kg	1.1		1.9
Section of power cables	mm^2	2 ~ 3		0.8 ~ 8
Cooling		Convection		Fan
Carrier frequency	kHz	1 ~ 15		
EMC-Filter		Built-in option		
DC-Choke		No		
DC-Bus connection		No		
Brake chopper		Yes		
Recommended brake resistor	Ω/W	400/300		300/400
Minimum brake resistor value	Ω	400	200	160

**** See dimensional drawing on Page 6.

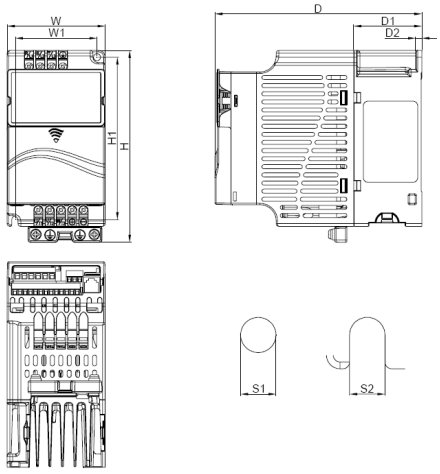
Common data VFD-E

Mains voltage range	V	200V: 180 ~ 264 400V: 342 ~ 528
Mains frequency	Hz	47 ~ 63
Output frequency range	Hz	0 ~ 600
Output voltage range	V	0 ~ Mains
Operating temperature	℃	-10 ~ +50 *
Storage temperature	℃	-20 ~ +60
Atmospheric pressure	kPa	86 ~ 106
Relative humidity	%	≤90 (non condensing)
Vibration		<20Hz: 1g / 20~50Hz: 0.6g
Degree of protection		IP20
Pollution degree		2
Altitude	m	≤1000
Keypad		Option (detachable)
Max. Signal cable section	mm^2	0.2 ~ 1 **
Digital inputs	6x MIx	SINK or SOURCE: Via jumper Range: 24VDC Scan time: 2~40ms Pull-up (internal): 4kΩ (5.5mA)
Analogue inputs		Accuracy: 10 bits
	1x AVI	Range: 0~10VDC Impedance: 47kΩ
	1x ACI (AVI2***)	Range: 4~20mA or 0~10VDC Impedance: 250Ω 47kΩ
Digital outputs	1x MOx	Optocoupler OC: 48VDC/50mA
Analogue outputs	1x AFM	Accuracy: 8 bits Range: 0~10VDC/2mA Impedance: 470Ω
Relays	1x	Change-over NO: R_A~R_C: Resistive 5A/240VAC-24VDC Inductive 1.5A/240VAC-24VDC NC: R_B~R_C: Resistive 3A/240VAC-24VDC Inductive 0.5A/240VAC-24VDC
Signal supply	1x	+24VDC/20mA
Potentiometer supply	1x	+10VDC/3mA
Trip memory		Last 5 errors
Acc/Dec Times	s	0.01 ~ 600s
Serial communication	1x RJ45	Modbus RS485 Baudrate: 4800 ~ 38400 Address: 1 ~ 254 Mode ASCII: 7N2/7E1/7O1/7N1/7E2/7O2 Modbus RTU: 8N2/8E1/8O1/8N1/8E2/8O2

* Side-by-side mounting –10 ~ +40°C
** For standard relay 0.2 ~ $3mm^2$
*** Select via switch ACI/AVI

Sizes and dimensions in mm [inches]

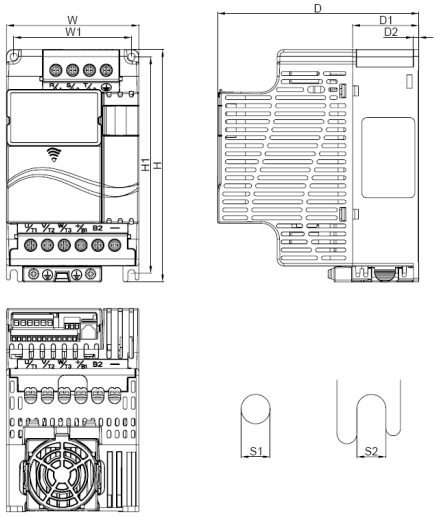
Size A



Unit: mm [inch

W	W1	H	H1	D	D1	D2	S1	S2
72.0 [2.83]	60.0 [2.36]	142.0 [5.59]	120.0 [4.72]	152.0 [5.98]	50.0 [1.97]	4.5 [0.18]	5.2 [0.20]	5.2 [0.20]

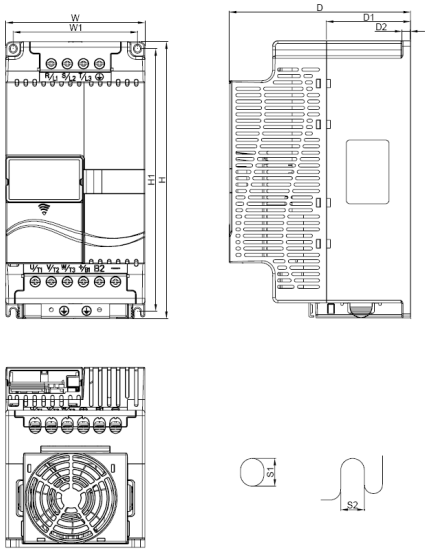
Size B



Unit: mm [inch]

W	W1	H	H1	D	D1	D2	S1	S2
100.0 [3.94]	89.0 [3.50]	174.0 [6.86]	162.0 [6.38]	152.0 [5.98]	50.0 [1.97]	4.0 [0.16]	5.5 [0.22]	5.5 [0.22]

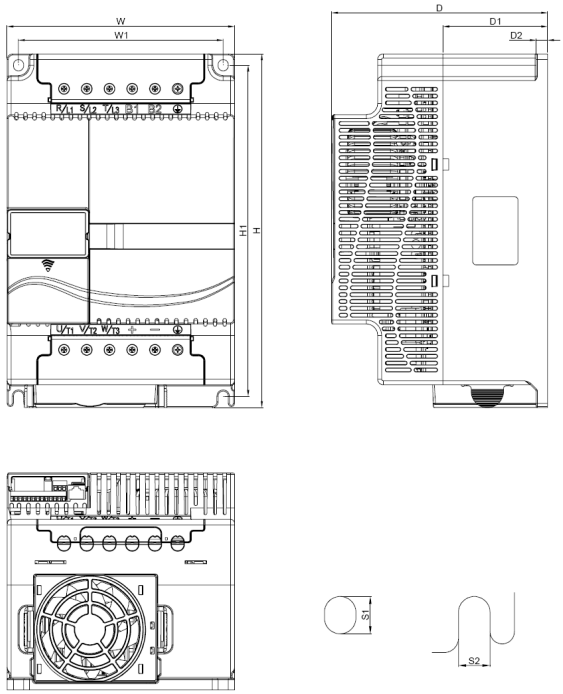
Size C



Unit: mm [inch

W	W1	H	H1	D	D1	D2	S1	S2
130.0 [5.12]	116.0 [4.57]	260.0 [10.24]	246.5 [9.70]	169.2 [6.66]	78.5 [3.09]	8.0 [0.31]	6.5 [0.26]	5.5 [0.22]

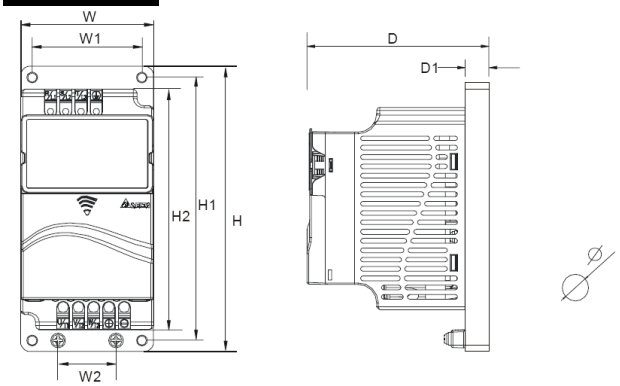
Size D



Unit: mm [inch]

W	W1	H	H1	D	D1	D2	S1	S2
200.0 [7.87]	180.0 [7.09]	310.0 [12.20]	290.0 [11.42]	190.0 [7.48]	92.0 [3.62]	10.0 [0.39]	10.0 [0.39]	9.0 [0.35]

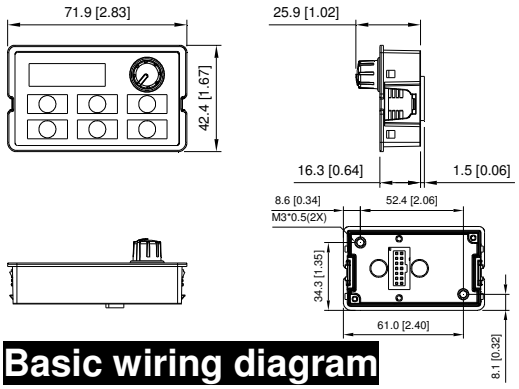
Size EP1



Unit: mm [inch]

W	W1	W2	H	H1	H2	D	D1	Ø
72.0 [2.83]	56.0 [2.20]	30.0 [1.18]	155.0 [6.10]	143.0 [5.63]	130.0 [5.12]	111.5 [4.39]	9.5 [0.37]	5.3 [0.21]

Keypad option

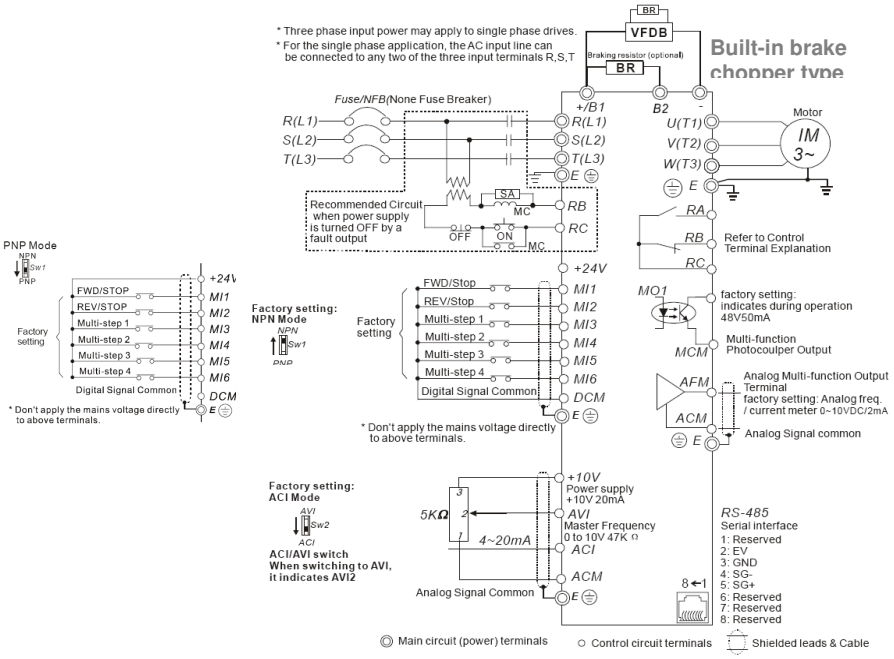


Power terminals (general)

Terminal symbol	Terminal function
R/L1, S/L2, T/L3	Mains input *
U/T1, V/T2, W/T3	Motor output
+2(/B1) ~ B2	Brake resistor (external option)
+2(/B1) ~ -	Brake unit (BUE series) (external option)
⏚	Ground

* Use R/L1 and S/L2 terminals for single phase connection.

Basic wiring diagram



Options

Filters Built-in option: 2nd Environment, C3, motor cable ≤15m, carrier frequency ≤8kHz
Frame A 230V 1-phase: 1st Environment, C2, motor cable ≤1m
carrier frequency ≤8kHz

Braking Brake resistors and Brake units.

Keypad&Cables PU06 Copy Keypad and Extension cables for cabinet door mounting.

Mounting DIN-rail and Earthing plate.

I/O cards Digital I/O card with 3 Inputs and 3 Outputs
Relay cards: 2 relays with NO/NC contacts or 3 relays with NO contacts
Analogue I/O: 2 Inputs (12 bit) and 2 Outputs (12 bit)

Encoder cards EME-PG01 (Ext. power supply required) for closed-loop speed control.

Communication USB card CME-USB01, Communication converters, Splitters, Cables.

Fieldbus Option cards: Devicenet, Profibus, LonWorks, CANopen.

Software To read, save, copy, change parameters, download VFDSoft.
For PLC programming download WPL2.12.
Both can be downloaded from www.delta.com.tw [Products] [Industrial Automation] [Drive].
Select any drive series and go to Download.

Programming

Group 00-xx **User Parameters**
Drive ID, Software version, Password, Control Mode, User-defined display, etc.

Group 01-xx **Basic Parameters**
V/f-curve, Acc/Dec times, Jogging, S-curve, etc.

Group 02-xx **Operation Method Parameters**
Source of frequency/operation, Carrier frequency, 2-3 Wire operation, Motor direction inhibit, Stop method, etc.

Group 03-xx **Output Function Parameters**
Function and setting of analogue and digital outputs and relay, Count values, Fan control, Brake control, etc.

Group 04-xx **Input Function Parameters**
Function and setting of analogue and digital inputs, Index function, Debounce time, Digital input status, etc.

Group 05-xx **Multi-step Speed and PLC-Parameters**
15 Speed steps with time duration for PLC function, Frequency cycling.

Group 06-xx **Protection Parameters**
Protection settings, Fault memory, etc.

Group 07-xx **Motor Parameters**
Setting of motor parameters, Auto-tuning, PTC-function.

Group 08-xx **Special Parameters**
DC-Braking, 3 Skip frequencies, Speed search, AVR, Auto energy saving, Auto reset, Braking level, etc.

Group 09-xx **Communication Parameters**
Protocol, Address, Transmission speed, etc.

Group 10-xx **PID Control Parameters**
PID settings, Sleep and Wake-up, etc.

Group 11-xx **Digital I/O Parameters for Option Cards**
Digital inputs, Digital outputs, Relays.

Group 12-xx **Analogue I/O Parameters for Option Cards**
Analogue inputs, Analogue outputs.

Group 13-xx **Encoder Parameters for Option Encoder Card**
Input, Pulse number, Feedback error treatment, PID values, Filter, etc.

PLC-mode **PLC functionality via Editor on PC: Disable, Run, Edit, Read/Write in VFD-E**
45 Commands (28 basic, 17 application)
6 Input and 2 Output contacts
32 points
500 steps

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