



EL-W V2.00 Introduction



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Before promoting EL-W

EL-W market positioning

The **cheapest** VFD series

- Pros: Attack the competitor aggressively on pricing, short-term miracle drug.
- Cons: Cannibalize Delta market / pricing strategy, shrinking the overall revenue.

How to promote EL-W?

New OEM customers:

- Big volume.
- Approached, but could not get in because of the price issue in other VFD series.
- Re-approached with EL-W to overcome price issue.

Current OEM customers:

- Big volume.
- With potential price pressure currently.
- Don't promote aggressively to avoid possible cannibalization happened between different series

EL-W design principle: Minimal size & durable

- **Simple & flexible control method**
 - ✓ External terminal control
 - ✓ Standard Modbus communication (RS485) control
- **Excellent performance**
 - ✓ Overload capacity 150% of rated load for 1 min
 - ✓ CE certified
- **Multiple functions**
 - ✓ Multiple Pump control
 - ✓ PID Functions
- **Friendly and various packing options**
 - ✓ Individual or 12pcs per carton

Year	2019				2020			
Quarter	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
EL-W				 EL-W MP HW: V2.00		 0.2kW ~ 0.4W		



EL-W Hardware V2.00:

220V: Added ACI/AVI, VR, 4DI, PNP/NPN.

440V: Added 4DI, PNP/NPN.

Different ways of packing:

VFDxxxELxxW-1 individual packing

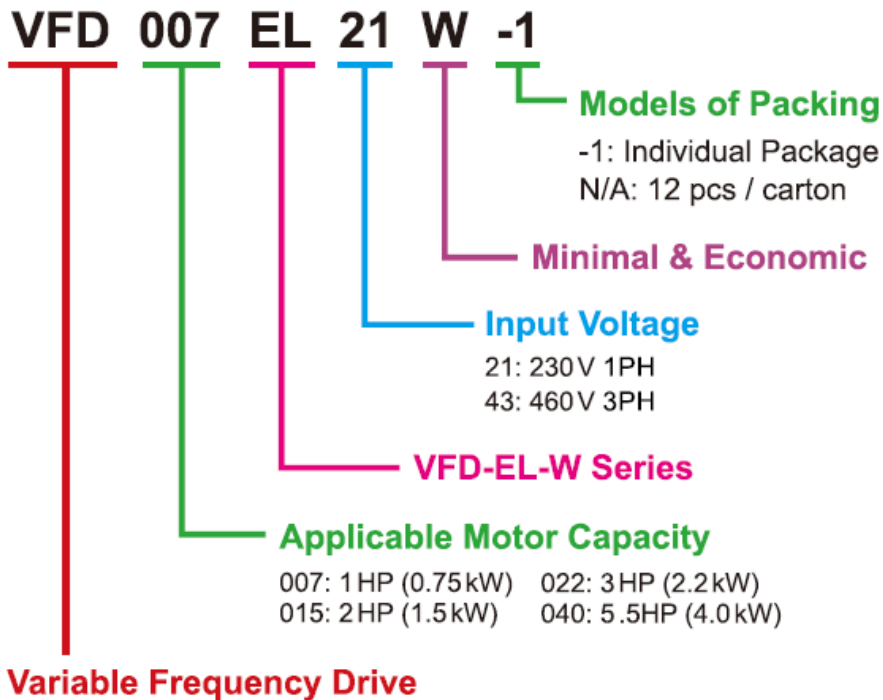
VFDxxxELxxW 12pcs/carton

EL-W Naming rule



Power rating

- 230V, single phase
0.75~2.2kW (1.0~3.0HP)
- 460V, 3 phase
0.75~4.0kW (1.0~5.5HP)



NOTE

Different ways of packing may with different price, please contact with Delta regional office for more information.

EL-W frame size/ power rating

Frame size		Cooling Method	Operating Temp.	Power Range	Model Name
Frame A1		Natural Cooling	-10°C~40°C	230V: 0.75kW	VFD007EL21W(-1)
			-10°C~50°C	460V: 0.75kW	VFD007EL43W(-1)
Frame A2		Fan Cooling		460V: 1.5kW	VFD015EL43W(-1)
Frame B					230V: 1.5 ~ 2.2kW 460V: 2.2 ~ 4.0kW



VFDxxxELxxW-1 and VFDxxxELxxW electrical specifications are exactly the same, only the way of packaging is different

Model		230V		
Frame		A1	B	
VFD □□□ EL21W(-1) / VFD □□□ EL43W(-1)		007	015	022
Max. Applicable Motor Output (kW)		0.75	1.5	2.2
Max. Applicable Motor Output (hp)		1.0	2.0	3.0
Output Rating	Rated Output Capacity (kVA)	1.6	2.9	4.2
	Rated Output Current (A)	4.2	7.5	11.0
	Max. Output Voltage (V)	3-Phase Proportional to Input Voltage		
	Output Frequency (Hz)	0.1 Hz ~ 400 Hz		
	Carrier Frequency (kHz)	2 kHz ~ 12 kHz (Default 8 kHz)		
Input Rating	Rated Input Current (A)	9.3	15.7	24.0
	Rated Voltage/Frequency	Single Phase, 200V ~ 240V, 50/60 Hz		
	Voltage Tolerance	±10% (180V~264V)		
	Frequency Tolerance	±5% (47 Hz ~ 63 Hz)		
Weight (kg)		1.0	1.4	1.4
Cooling Method		Natural Cooling	Fan Cooling	

460V			
A1	A2	B	
007	015	022	040
0.75	1.5	2.2	4.0
1.0	2.0	3.0	5.5
2.0	3.3	4.4	7.4
2.5	4.2	5.5	9.0
3-Phase Proportional to Input Voltage			
0.1 Hz ~ 400 Hz			
2 kHz ~ 12 kHz (Default 8 kHz)			
3.2	4.3	7.1	10.0
3-Phase, AC 380V ~ 480V, 50/60 Hz			
±10% (342V ~ 528V)			
±5% (47 Hz ~ 63 Hz)			
1.0	1.0	1.4	1.4
Natural Cooling	Fan Cooling		

	Functions	EL-W (V2.00)
Hardware	EMI Filter	X
	GFF	X
	AFM	X
	AVI/ACI	√
	Keypad VR	√
	NPN/PNP Mode	√
	Fan	Frame A1: Natural cool (Hsk is different with EL) Frame A2: Forced cool (Hsk is different with EL) Frame B : Forced cool (Hsk is same as EL)
	P/N Terminals	X
	MI Terminals	Total 4, can setting by parameters Mode1 : 1 Start terminal · 3 programmable terminals Mode2 : 2 Start terminal · 2 programmable terminals (same as EL)
	RS485	One RJ45 connect, two screw termials
Spec	Operational Temp.	-10°C~+40°C (apply to VFD007EL21W) -10°C~+50°C(except VFD007EL21W)
	Parallel installation	Frame A unsupported, Frame B supported
	Output Frequency Range	0-400Hz
	Multi-Speed	4 steps(with main frequency cmd)
Certification	CE/UL/C-tick	CE only
Others	Manual	Detail manual web download · concise manual on board

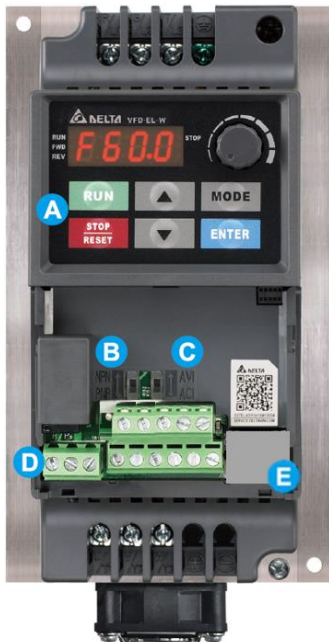


EL-W appearance and terminal

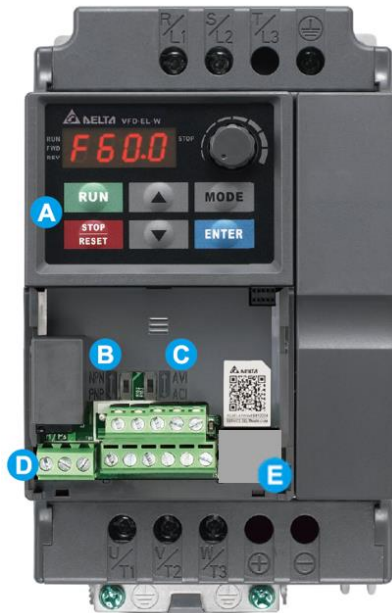
Frame A1



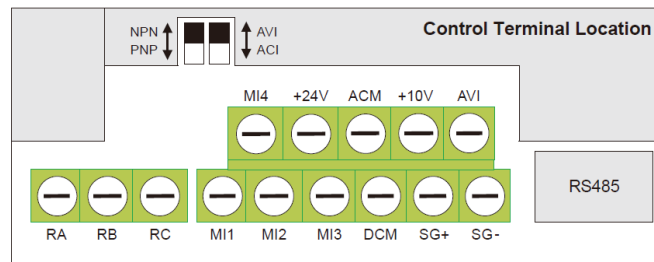
Frame A2



Frame B

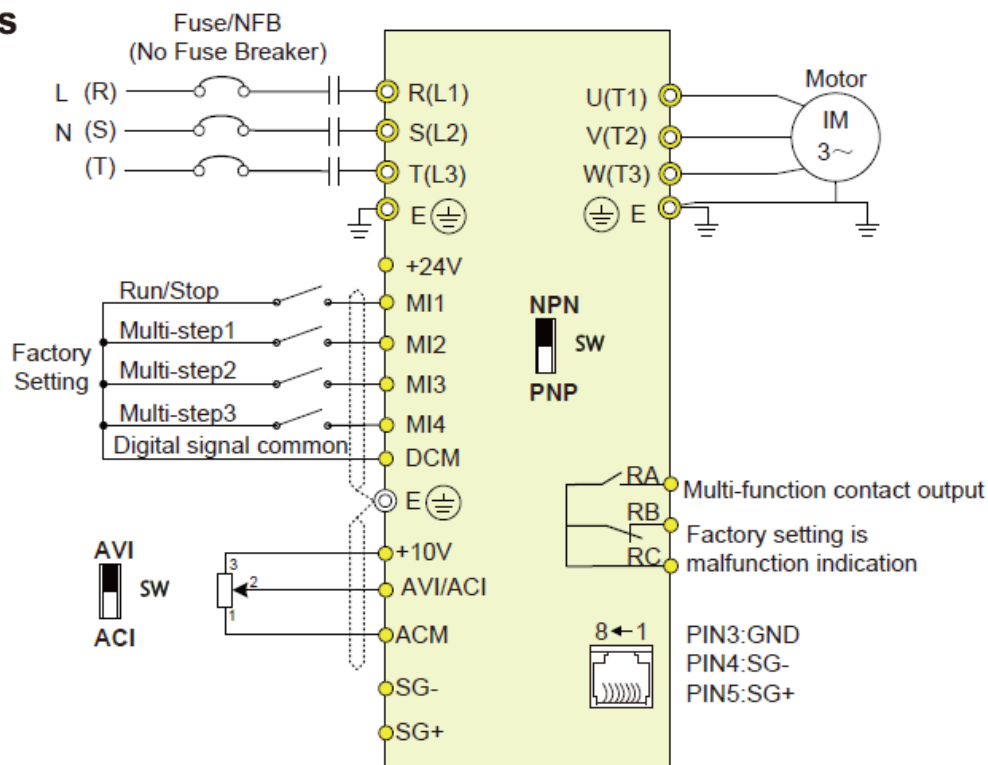


- A** Digital operator
- B** NPN/PNP Mode
- C** AVI/ACI Mode
- D** Control Terminals
- E** RS485 Connector(RJ45)



NOTE VFD007EL43W(Frame A1) without fan · VFD015EL43W(Frame A2) with fan.

230V/460V Models



 Main circuit (power) terminals
  Control circuit terminals
  Shielded leads & cable

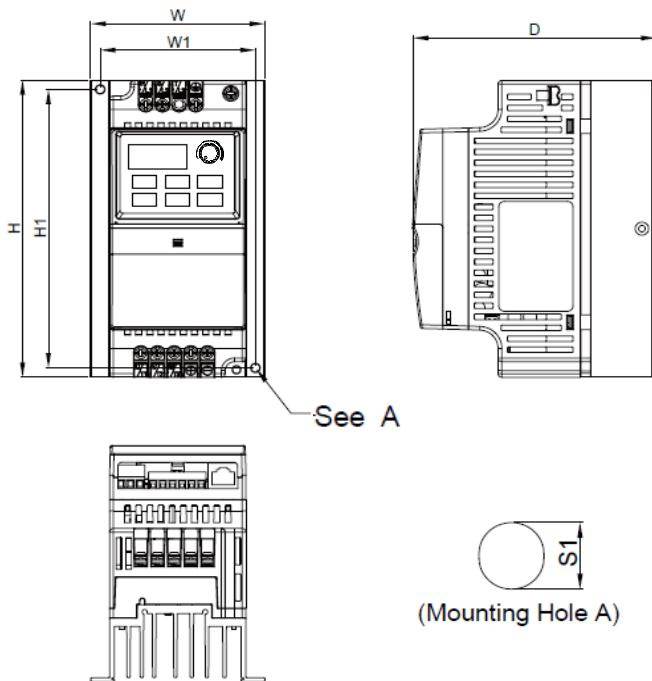
 **NOTE** Terminal SG+, SG- are joined to PIN5, PIN4 of RJ45 Connector

Frame A1

Suitable Models

VFD007EL21W (-1)

VFD007EL43W (-1)



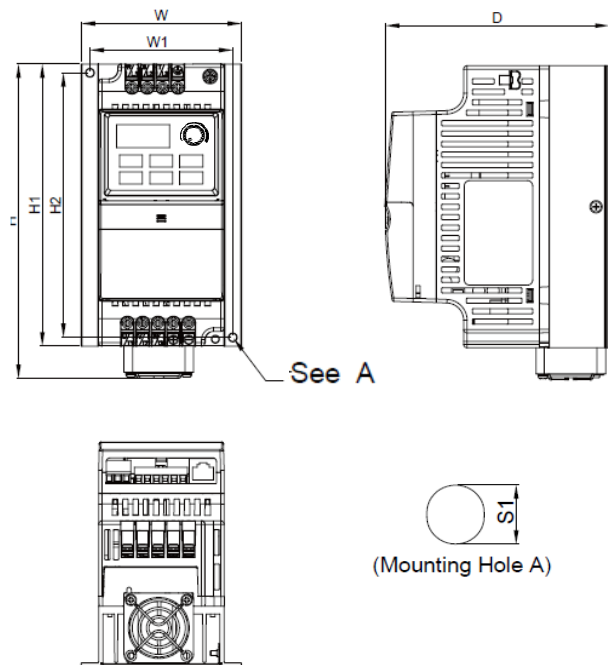
(Mounting Hole A)

unit : mm[inch]

Frame		W	W1	H	H1	D	S1
A1	mm	92.0	82.0	162.0	152	128.7	5.4
	inch	3.62	3.23	6.38	5.98	5.07	0.21

Frame A2

Suitable Models:
VFD015EL43W (-1)



unit: mm[inch]

Frame		W	W1	H	H1	H2	D	S1
A2	mm	92.0	82.0	180.5	162.0	152	128.7	5.4
	inch	3.62	3.23	7.11	6.38	5.98	5.07	0.21

Frame B

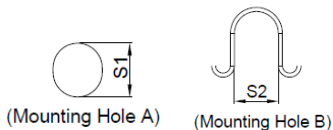
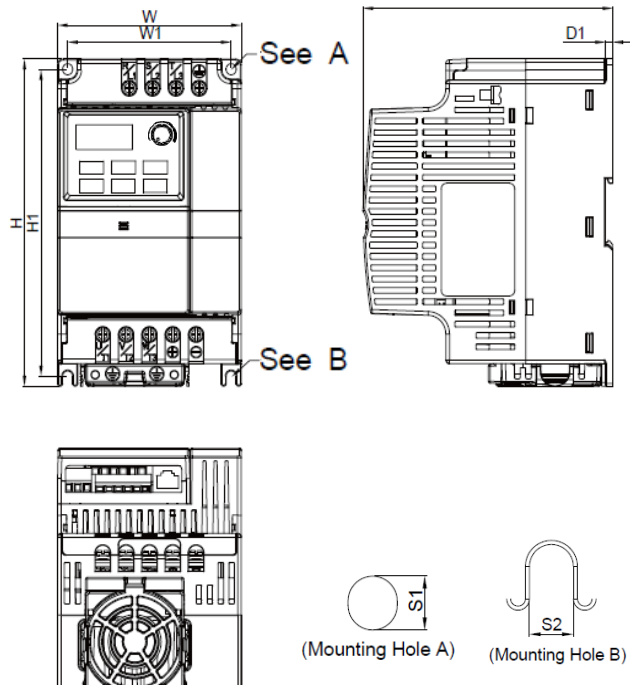
Suitable Models:

VFD015EL21W (-1)

VFD022EL21W (-1)

VFD022EL43W (-1)

VFD040EL43W (-1)

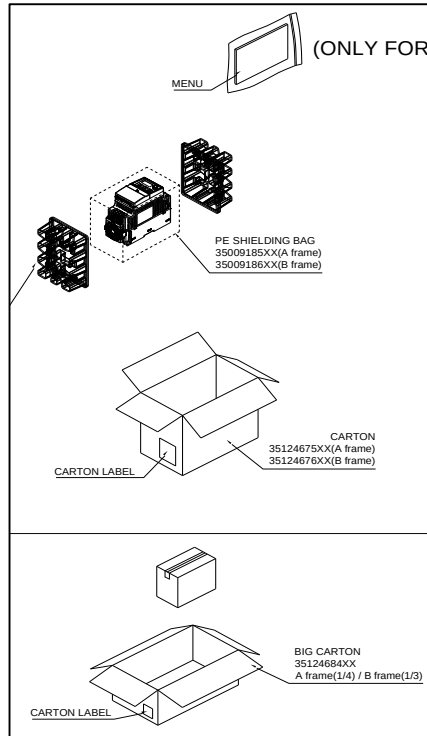


unit : mm[inch]

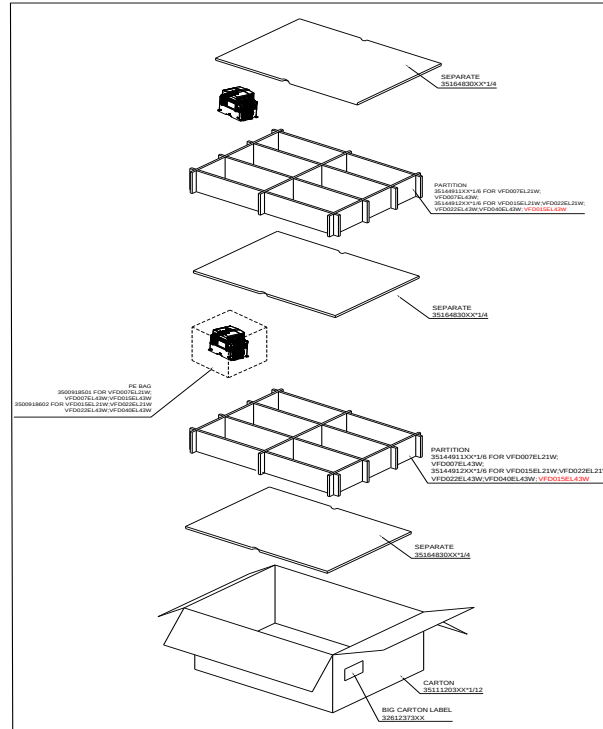
Frame		W	W1	H	H1	D	D1	S1	S2
B	mm	100.0	89.0	174.0	162.9	136.0	4.0	5.9	5.4
	inch	3.94	3.50	6.85	6.42	5.35	0.16	0.23	0.21

There are two kinds of packing method with different model names as follow:

VFDxxxELxxW-1 individual packing



VFDxxxELxxW 12pcs/carton



Front (Same as MS300 Keypad)



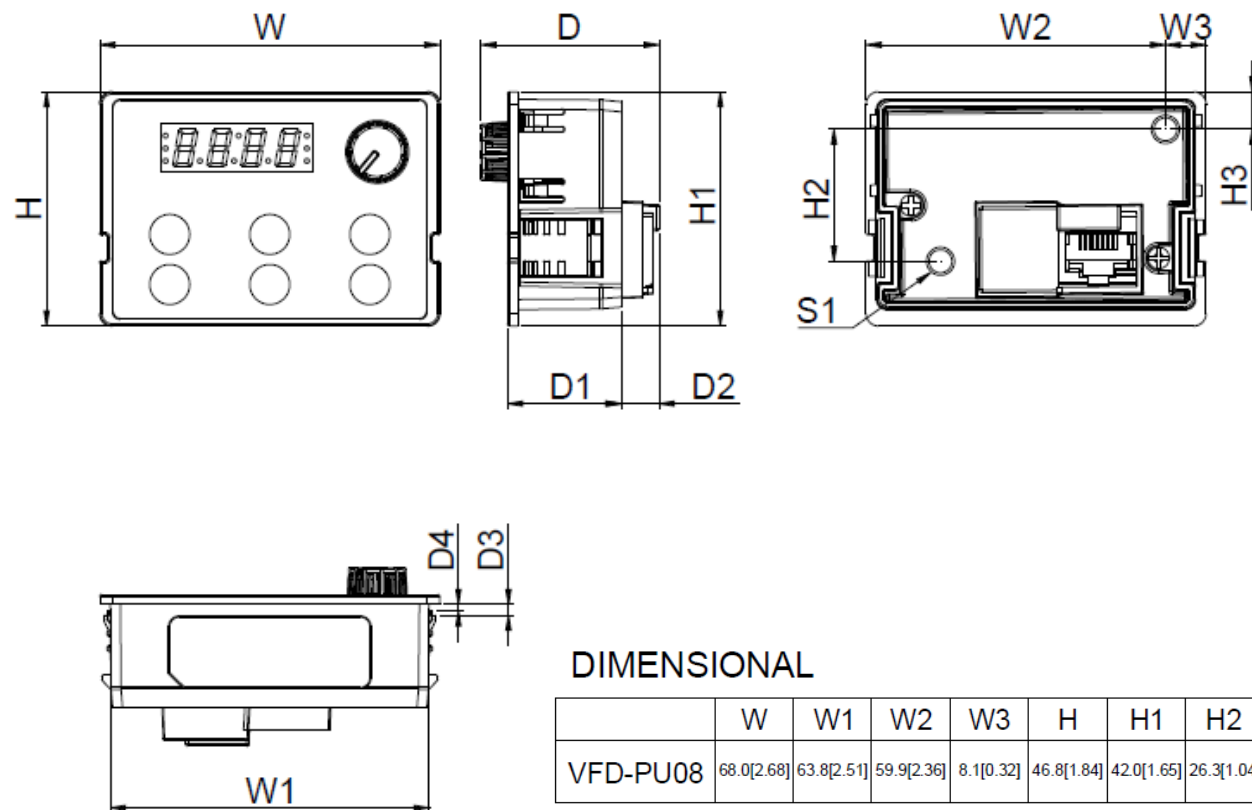
VFD-PU08 Detachable keypad spec

Item	Spec
Applicable model	EL-W 、 ME300(Firmware V0.41) EL-W 、 EL 、 ME300 (Firmware V1.00)
Communication	RS-485
Size (mm)	W: 68.0 D: 35.6 H: 46.8
Panel Installation	Same as KPMS-LE01
IP level	IP00
Connector	RJ45
Max length	5M
Display	4 digits · RUN/STOP/FWD/REV/VR
VR valve	Yes
Main function	RS-485 connection · Read and Write · status display · operation instruction °

Bottom (Same as MH300 Keypad)



VFD-PU08 Dimensions

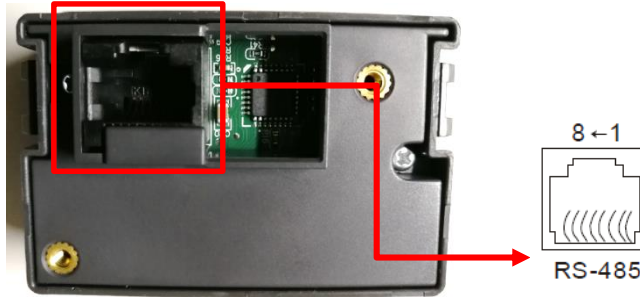


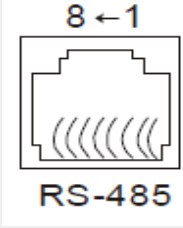
DIMENSIONAL

UNIT : mm[inch]

	W	W1	W2	W3	H	H1	H2	H3	D	D1	D2	D3	D4	S1
VFD-PU08	68.0[2.68]	63.8[2.51]	59.9[2.36]	8.1[0.32]	46.8[1.84]	42.0[1.65]	26.3[1.04]	7.5[0.30]	35.6[1.40]	22.7[0.89]	7.6[0.30]	2.2[0.09]	1.3[0.05]	M3*0.5 (2X)

VFD-PU08 PIN definition & Cable info.



Picture	Pin	Function
	1	-
	2	Vcc
	3	DGND
	4	SG-
	5	SG+
	6	DGND
	7	-
	8	Vcc



	Order Part No.	L	
		mm	inch
1	UC-CMC003-01A	300	11.8
2	UC-CMC005-01A	500	19.6
3	UC-CMC010-01A	1000	39
4	UC-CMC015-01A	1500	59
5	UC-CMC020-01A	2000	78.7
6	UC-CMC030-01A	3000	118.1
7	UC-CMC050-01A	5000	196.8



EL-W Target Audience / Focus Industries

Target Audience	Focus Industry	Application
<u>New OEM customers:</u> 1. Big volume. 2. Approached, but could not get in because of the price issue in other VFD series. 3. Re-approached with EL-W to overcome price issue. <u>Current OEM customers:</u> 1. Big volume. 2. With potential price pressure, don't promote initiative to avoid possible cannibalization happened between different series	● Banding Machine ● Conveyor ● Material Feeder ● Material Handling	● Simple Speed Control ● Horizontal Movement ● Fixed Load

Market Competitor

ME300 Market Competitor

Mitsubishi	D700
Danfoss	FC51
Siemens	V20
Yaskawa	J1000
Schneider	ATV12&310
Fuji	Mini
ABB	ACS150

...

EL-W Market Competitor

Inovance	MD200
INVT	GD10
Bosch	VFC3210
Shilin	SC3

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Simple Application:

- Simple Speed Control
- Horizontal Movement
- Fixed Load

Machines

- ✓ Banding Machine
- ✓ Conveyor
- ✓ Material Feeder
- ✓ Material Handling
- ✓ ...



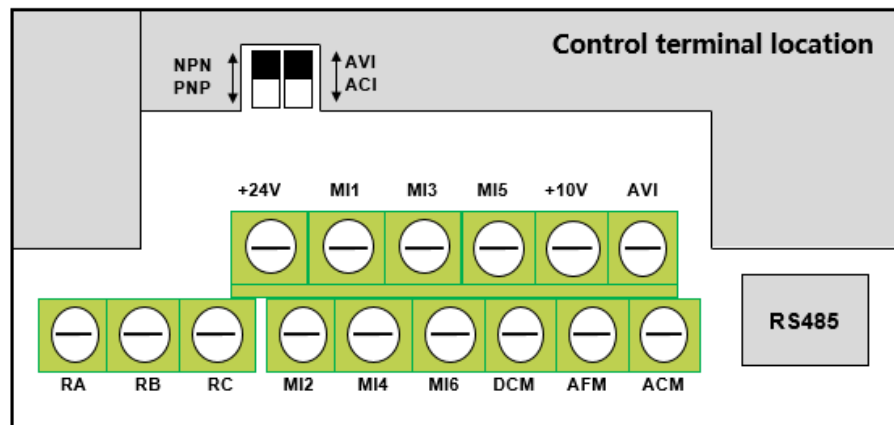


EL vs EL-W

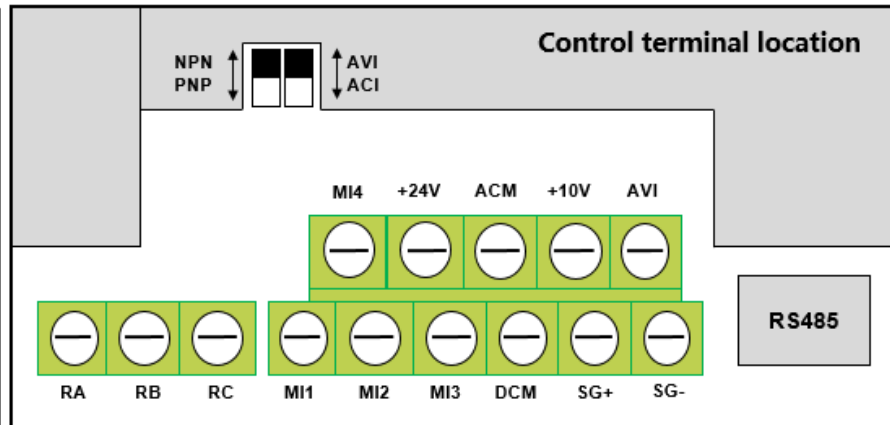
	Functions	EL	EL-W (V2.00)
Hardware	EMI Filter	√	×
	GFF	√	×
	AFM	√	×
	AVI/ACI	√	√
	Keypad VR	√	√
	NPN/PNP Mode	√	√
	Fan	√	Frame A1: Natural cool (Hsk is different with EL) Frame A2: Forced cool (Hsk is different with EL) Frame B : Forced cool (Hsk is same as EL)
	P/N Terminals	√	×
	MI Terminals	Total 6 Include 2 start terminals & 4 programmable terminals	Total 4, can setting by parameters Mode1 : 1 Start terminal · 3 programmable terminals Mode2 : 2 Start terminal · 2 programmable terminals (same as EL)
	RS485	RJ45	One RJ45 connect, two screw termials
Spec	Operational Temp.	-10°C~+50°C	-10°C~+40°C (apply to VFD007EL21W) -10°C~+50°C(except VFD007EL21W)
	Parallel installation	√	Frame A unsupported, Frame B supported
	Output Frequency Range	0-599Hz	0-400Hz
	Multi-Speed	16 steps(with main frequency cmd)	4 steps(with main frequency cmd)
Certification	CEULIC-tick	√	CE only
Others	Manual	With the shipment	Detail manual web download · concise manual on board



EL v.s. EL-W Terminals



EL Terminals



EL-W Terminals



EL v.s. EL-W Terminals

Terminal	EL	EL-W	Terminal	EL	EL-W
MI1	√	√	Ground(PE)	√	√
MI2	√	√	U/V/W	√	√
MI3	√	√	R/S/T input	√	√
MI4	√	√	P/N	√	X
MI5	√	X	Keypad/Button	√	√
MI6	√	X	VR valve	√	√
+24V	√	√	Digital display	√	√
+10V	√	√	Fault display	√	√
AVI	√	√	RS485(RJ45)	√	√
AFM	√	X	RA/RB/RC	√	√
ACM	√	√	NPN/PNP mode	√	√
DCM	√	√	AVI/ACI mode	√	√
SG+	X	√	Manual	With the shipment	Web download
SG-	X	√			



Difference between ME300 & VFD-EL/S/L/EL-W

Model Name	ME300	VFD-EL	VFD-S	VFD-L	VFD-EL-W
Motor	IM、PM	IM	IM	IM	IM
Control	V/F、SVC	V/F, SVC	V/F	V/F	V/F, SVC
Power Range	110V: 0.1~0.75kW 230V: 0.1~2.2kW 460V: 0.4~7.5kW	110V: 0.2~0.75kW 230V: 0.2~3.7kW 460V: 0.4~3.7kW	110V: 0.2~0.75kW 230V: 0.2~2.2kW 460V: 0.4~2.2kW	110V: 0.1~0.4kW 230V: 0.1~2.2kW	230V: 0.75~2.2kW 460V: 0.75~4.0kW
Output Frequency (Hz)	0.1~599Hz	0.1~599Hz	0.1~400Hz	0.1~400Hz	0.1~400Hz
Carry Frequency (kHz)	2~15 kHz	2~12 kHz	3~10 kHz	3~10 kHz	2~12 kHz
Built-in EMC Filter	Optional	O	X	X	X
Digital Input	MI1~MI5 (All programmable)	MI1~MI6 (4 programmable)	MI1~MI6 (5 programmable)	MI1~MI4 (All programmable)	MI1~MI4 (3 programmable)
Relay Output	RA/RB/RC	RA/RB/RC	RA/RB/RC	RA/RC	RA/RB/RC
Digital Output	1	x	1	x	x
Analog Input	1	1	1	1	1
Analog Output	1	1	1	x	x
Pulse in	1 (High speed pulse or PWM)	x	x	x	x
Certification	CE, UL, RoHS RCM, TUV, REACH, KC	CE, UL, C-TICK	CE, UL, C-TICK	CE, UL	CE

Company	Delta	Delta	Delta	Delta	Inovance	INVT	Yaskawa	Fuji	Danfoss	ABB	Schneider	Siemens	Shilin
Series													
	ME300	L	EL	EL-W(V2.00)	MD210	GD10	J1000	Mini	FC 51	ACS150	ATV12	V20	SC3
DI	5	4	6	4	5	5	5	5	5	5	4	4	4
NPN/PNP	V	V	V	V	V	X			V	V	V	V	V
AI	1	1	1	1	1	1	1	2	2	1	1	2	1
AVI/ACI	V	V	V	V	X	V			V	V	V	V	V
PI	1 (10kHz)	X	X	X	1 (20kHz)	X	X	X	X	1 (10kHz)	X	X	X
AO	1	X	1	X	1	1	1	1	1	X	1	1	X
DO	1	X	X	X	X	1	1	1	X	X	1	1	X
RO	1	1	1	1	1	1	1	1	1	1	1	1	1
Keypad	4-digits LED (Fix)	4-digits LED (Fix)	4-digits LED (Fix)	4-digits LED (Fix)		5-digits LED (Fix)	5-digits LED (Fix)	4-digits LED (Fix)	LCD (Remove)	LCD (Fix)	4-digits LED (Fix)	LED (Fix)	5-digits LED (Remove)
IP	IP20 NEMA 1	IP20	IP20	IP20	IP20	IP20	IP20 NEMA1	IP20 IP40	IP20 IP21 NEMA 1	IP20	IP20	IP20	IP20
EMC built in	C2(1Φ,230V) C3(3Φ,460V)			X	X	X	X	C2(1Φ,230V) C3(3Φ,460V > 7.5Hp)	CE: C2 RE: C3	C3	C1	C2(1Φ,230V) C3(3Φ,460V)	V
Safety	SIL2(Optional)	X	X	X	X	X	X	X	X	X	X	X	X
Certified	CE,UL,RCM,TU V,KC,REACH	CE, UL	CE, UL	CE	CE	CE			CE,UL,C- Tick,EAC		CE/UL/CSA/Ctick /NOM/GOST	CE/UL/RCM/KC	
Remark					0.4~2.2kW								