



Automation for a Changing World

Delta Sensorless Vector Control Compact Drive VFD-EL-W Series



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 **DELTA**
Smarter. Greener. Together.

Sensorless Vector Control Compact Drive VFD-EL-W Series

*Simple Speed Control
Horizontal Movement
Fixed Load Applications*



Frame A1

Frame A2

Frame B

| Safety and Reliability



150 % / 60 secs overload capability



Energy-saving



CE certification

| Easy Maintenance



Natural cooling (Frame A1):
no maintenance required



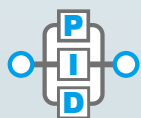
Fan cooling (Frame A2, Frame B):
easy fan installation, reliable design,
fast dust removal



| Complete Functions



Single / multi-pump control:
constant pressure mode & alternative operation



Built-in PID feedback control



Protection: overload, over voltage / over current stall prevention

Applications

Edge Banding Machine

- Communication isolation reduces the interference of HMI
- One drive for two motors in parallel
- Optimized accel. / decel. improve system efficiency
- Small size, lightweight, easy maintenance and installation



Logistics Conveyor

- Built-in RS-485 COM port for high-speed communication
- Fast and stable tension control
- Small and compact design to save installation space



Material Handling Machine

- Multiple speed adjustment modes for different applications
- AVR function to ensure the stability and reliability
- Speed tracking function for continuing operation after power resumes from an instantaneous power failure



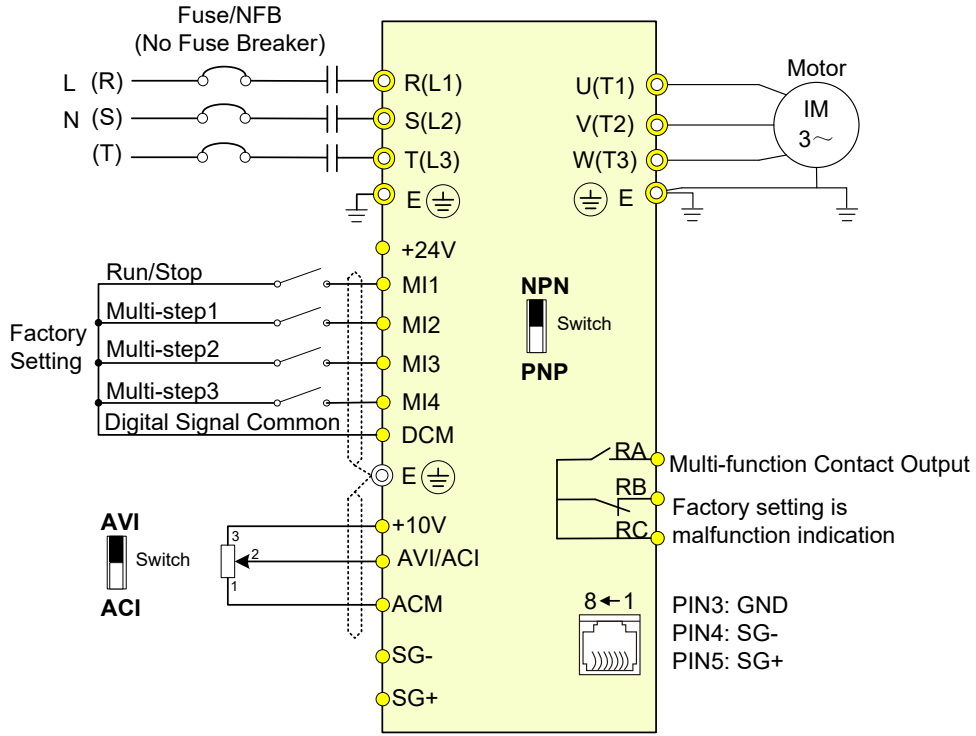
Constant Pressure Pump

- Build-in PID control; no need for external PID device to save system cost
- Built-in automatic inspection and restoration functions in case of water outage; no external PLC needed
- Leakage detection function
- Multi-pump control: alternates pump operation in cycle (One drive supports max. 4 pumps)



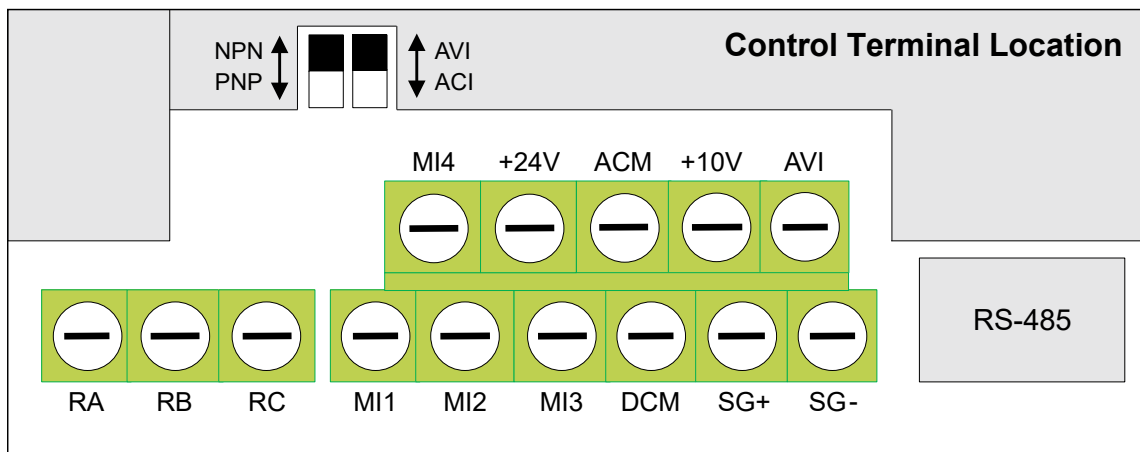
Wiring

230V/460V Models

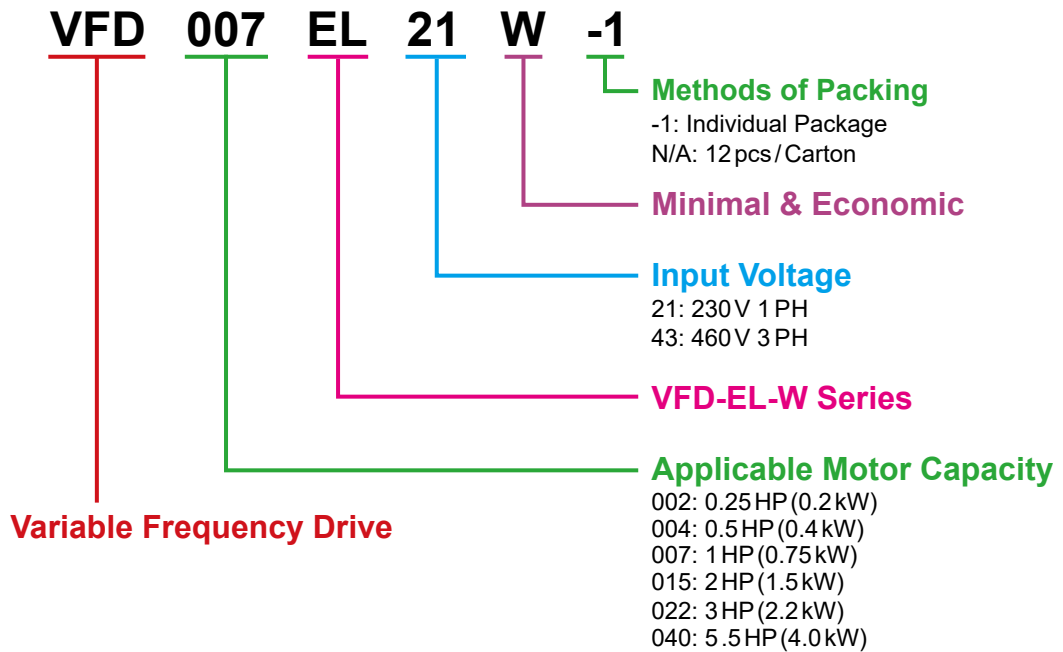


● Main Circuit (power) Terminals
 ● Control Circuit Terminals
 Shielded Leads & Cable
NOTE Terminal SG+, SG- are joined to PIN5, PIN4 of RJ45 Connector

Control Terminals

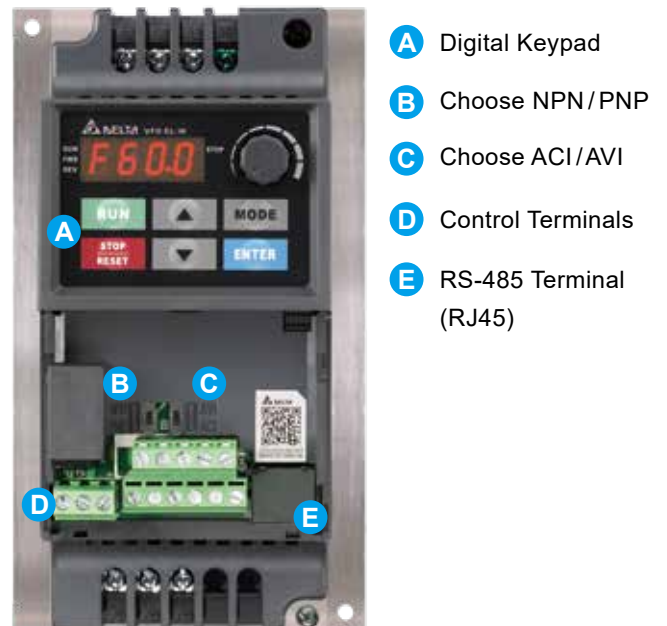


Model Explanation



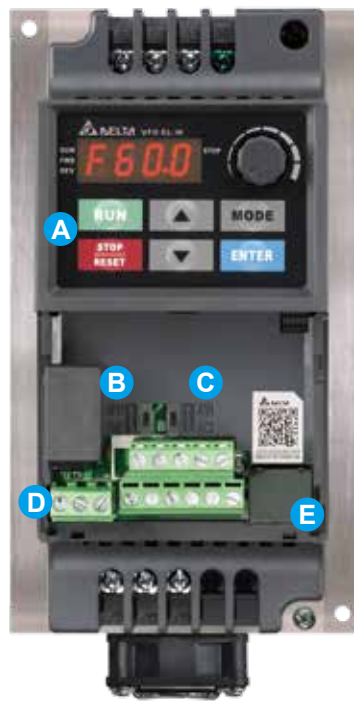
Frames and Appearances

■ Frame A1



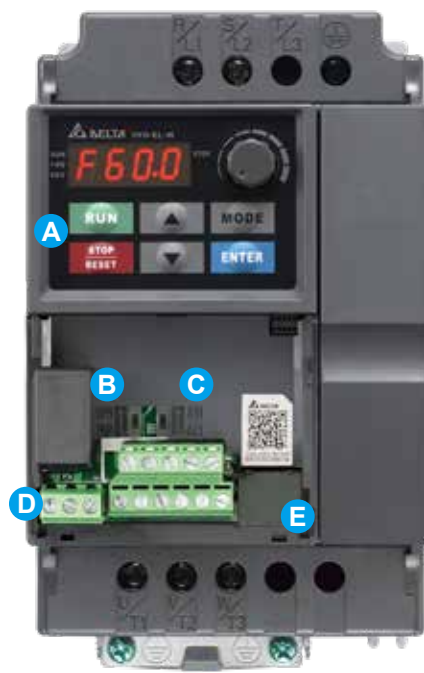
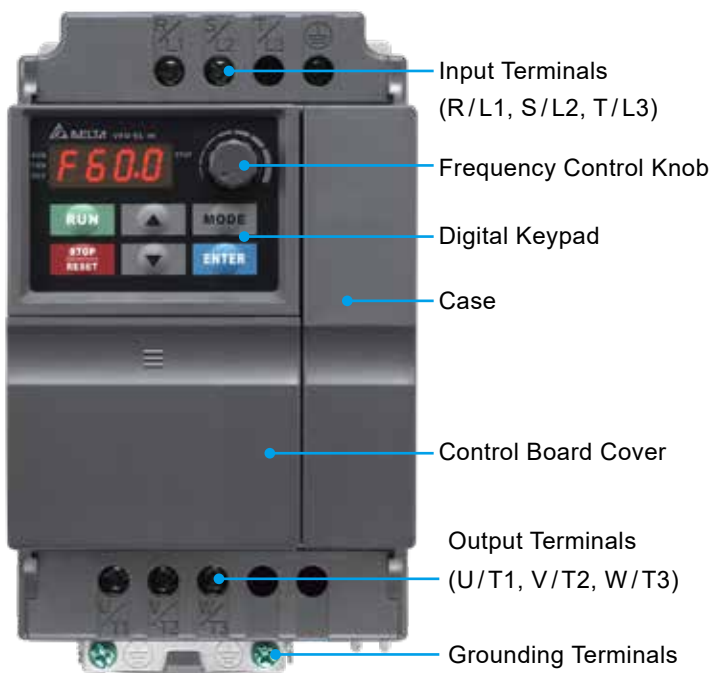
Frames and Appearances

■ Frame A2



- A** Digital Keypad
- B** Choose NPN/PNP
- C** Choose ACI/AVI
- D** Control Terminals
- E** RS-485 Terminal (RJ45)

■ Frame B



- A** Digital Keypad
- B** Choose NPN/PNP
- C** Choose AVI/ACI
- D** Control Terminals
- E** RS-485 Terminal (RJ45)


Specifications

Product Specifications

230V						
Frame	A1			B		
VFD □□□ EL21W (-1)	002	004	007	015	022	
Max. Applicable Motor Output (kW)	0.2	0.4	0.75	1.5	2.2	
Max. Applicable Motor Output (Hp)	0.25	0.5	1.0	2.0	3.0	
Output Rating	Rated Output Capacity (kVA)	0.6	1.0	1.6	2.9	4.2
	Rated Output Current (A)	1.6	2.5	4.2	7.5	11.0
	Maximum Output Voltage (V)	3-Phase Proportional to Input Voltage				
	Output Frequency (Hz)	0.1 ~ 400				
	Carrier Frequency (kHz)	2 ~ 12(Default: 8)				
Input Rating	Rated Input Current (A)	4.9	6.5	9.3	15.7	24.0
	Rated Voltage / Frequency	Single Phase, AC 200V ~ 240V, 50/60Hz				
	Voltage Tolerance	±10% (180V ~ 264V)				
	Frequency Tolerance	±5% (47Hz ~ 63Hz)				
Weight (kg)	1.0	1.0	1.0	1.4	1.4	
Cooling Method	Natural Cooling			Fan Cooling		
Brake Unit	N/A					
DC Choke	N/A					
EMI Filter	N/A					

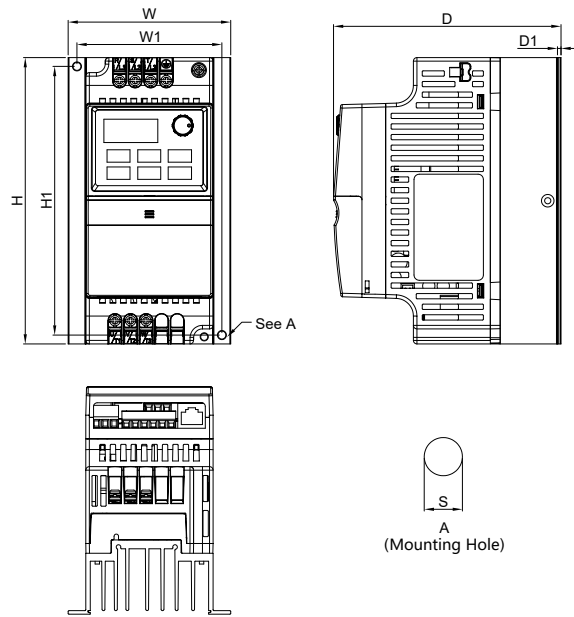
460V						
Frame	A1		A2	B		
VFD □□□ EL43W (-1)	004	007	015	022	040	
Max. Applicable Motor Output (kW)	0.4	0.75	1.5	2.2	4.0	
Max. Applicable Motor Output (Hp)	0.5	1.0	2.0	3.0	5.5	
Output Rating	Rated Output Capacity (kVA)	1.2	2.0	3.3	4.4	7.4
	Rated Output Current (A)	1.5	2.5	4.2	5.5	9.0
	Maximum Output Voltage (V)	3-Phase Proportional to Input Voltage				
	Output Frequency (Hz)	0.1 ~ 400				
	Carrier Frequency (kHz)	2 ~ 12(Default: 8)				
Input Rating	Rated Input Current (A)	1.8	3.2	4.3	7.1	10.0
	Rated Voltage / Frequency	3-Phase, AC 380V ~ 480V, 50/60Hz				
	Voltage Tolerance	±10% (342V ~ 528V)				
	Frequency Tolerance	±5% (47Hz ~ 63Hz)				
Weight (kg)	1.0	1.0	1.0	1.4	1.4	
Cooling Method	Natural Cooling			Fan Cooling		
Brake Unit	N/A					
DC Choke	N/A					
EMI Filter	N/A					

General Specifications

Control Characteristics	Control System		SPWM (Sinusoidal Pulse Width Modulation) control (V/F control)
	Frequency Setting Resolution		0.01 Hz
	Output Frequency Resolution		0.01 Hz
	Torque Characteristics		Including the auto-torque, auto-slip compensation; starting torque can be 150 % at 5 Hz
	Overload Endurance		150 % of rated current for 1 minute
	Skip Frequency		Three zones, setting range 0.1 ~ 400 Hz
	Accel./Decel. Time		0.1 to 600 secs (2 independent setting for accel./decel. time)
	Stall Prevention Level		Setting 20 to 250 % of rated current
	DC Brake		Operating frequency 0.1~400 Hz, Output 0 ~ 100 % rated current Start time 0~60 secs, stop time 0~60 secs
V/F Pattern		Adjustable V/F pattern	
Operating Characteristics	Frequency Setting	Keypad	Setting by ▲ ▼
		External Signal	Potentiometer: 5kΩ/0.5W, 0 to +10 VDC, 4 to 20 mA Multi-function input MI2 ~ MI4 (8 steps: Including the main speed, jog, up/down); RS-485 serial interface
	Operating Setting Signal	Keypad	Setting by RUN and STOP
		External Signal	RUN/STOP by MI1 (default) or 2-wire/3-wire control (MI1, MI2, MI3), jog operation, RS-485 serial interface (Modbus)
	Multi-function Input Signal		8-speed switch (including the main speed): ban commands for acceleration/deceleration, 2-speed switch for accel./decel., counter, jogging (inching), external base block, driver reset, NPN/PNP inputs, AVI/ACI analog inputs Switch to a speed as the default.
Multi-function Output Signal (only Relays)		AC drive operating, frequency attained, zero speed, counter, over-torque inspection, external base block, operating modes, anomaly alarm, overheating alarm, emergency stop	
Protection Functions		Over voltage, over current, under voltage, anomalies, overload, overheating, multiple motors, electronic thermal relays, PTC overheating protection	
Operation Functions		Built-in voltage regulators, accel./decel. S-curve, over-voltage/over-current stall prevention, 5 anomalous logs, reverse ban, restart for instantaneous power outage, DC brake, automatic torque/slip compensation and motor parameter adjustment, carrier frequency setting, output frequency limits, parameter reset, PID control, external counter, Modbus protocol, reset and restart for anomalies, energy-saving, fan control (for models with fans), 1 st /2 nd frequency sources and combination, NPN/PNP inputs	
Display Keypad (optional)		6 function keys, 4-digit 7-segment LED, 4 status LEDs, adjustable frequency, self-defined units, parameter settings and lock function, anomaly alarms, Run/Stop/Reset buttons	
Environmental Conditions	Enclosure Rating		IP20
	Pollution Degree		2
	Installation Location		Altitude 1,000 m or lower, keeping from corrosive gases, liquids and dust
	Operating Temperature		-10°C to 50°C (VFD007EL21W(-1) (requires fan accessories)
	Storage/Transportation Temperature		-20°C to 60°C
	Ambient Humidity		Below 90 % RH (non-condensing)
Vibration		1.0 mm, peak to peak 2~13.2 Hz; 0.7~1.0 G, 13.2~55 Hz; 1.0 G, 55~512 Hz; compliant with IEC 60068-2-6	
Certification		 CE, RoHS, GB 12668.3	

Dimensions

■ Frame A1



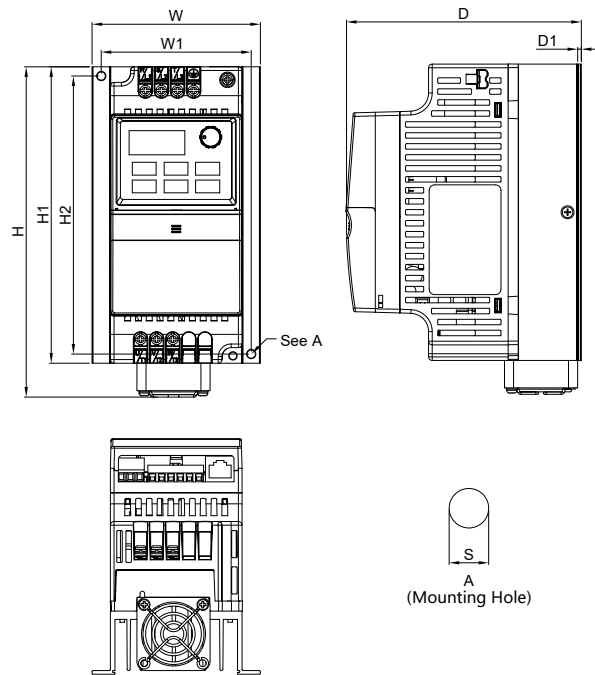
Model

VFD002EL21W(-1)
 VFD004EL21W(-1)
 VFD004EL43W(-1)
 VFD007EL21W(-1)
 VFD007EL43W(-1)

Unit: mm [inch]

Frame		W	W1	H	H1	D	D1	S
A1	mm	92.0	82.0	162.0	152	128.7	2.00	5.4
	inch	3.62	3.23	6.38	5.98	5.07	0.08	0.21

■ Frame A2



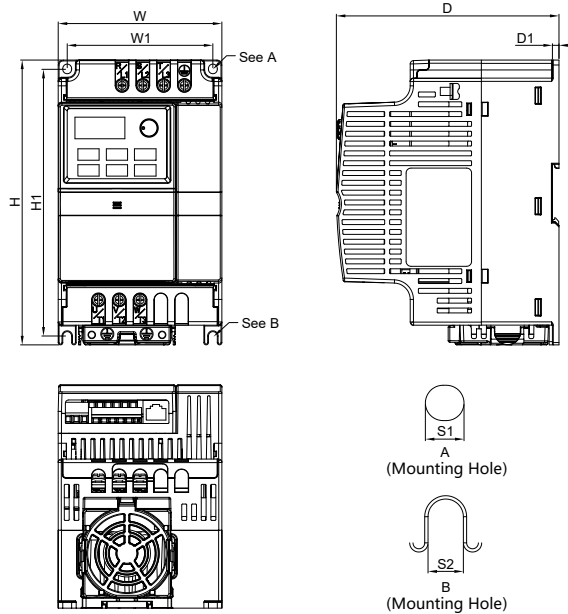
Model

VFD015EL43W(-1)

Unit: mm [inch]

Frame		W	W1	H	H1	H2	D	D1	S
A2	mm	92.0	82.0	180.5	162.0	152	128.7	2.00	5.4
	inch	3.62	3.23	7.11	6.38	5.98	5.07	0.08	0.21

■ Frame B



Model

- 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

Accessories



■ Keypad
VFD-PU06



■ Keypad
VFD-PU08



■ Reactor
RF220X00A

Ordering Information

Frame	Cooling Method	Operating Temperature	Power Range	Models
Frame A1	Natural Cooling	-10°C ~ 50°C	230 V: 0.2~0.75 kW 460 V: 0.4~0.75 kW	VFD002EL21W(-1) VFD004EL21W(-1) VFD004EL43W(-1) VFD007EL21W(-1)* VFD007EL43W(-1)
Frame A2	Fan Cooling		460 V: 1.5 kW	VFD015EL43W(-1)
Frame B			230 V: 1.5 ~ 2.2 kW 460 V: 2.2 ~ 4.0 kW	VFD015EL21W(-1) VFD022EL21W(-1) VFD022EL43W(-1) VFD040EL43W(-1)

NOTE VFDxxxELxxW-1 and VFDxxxELxxW share the same electrical specifications.

*VFD007EL21W(-1) requires fans to ensure the operating temperature up to 50°C.



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