400-012-6969

Control Drive Sensor M&E Info.

HCFA 禾川股份

HCFA

Innovation Integrity Service

E380/E220 Series

Standard Vector Control Inverter

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HCFA ATC

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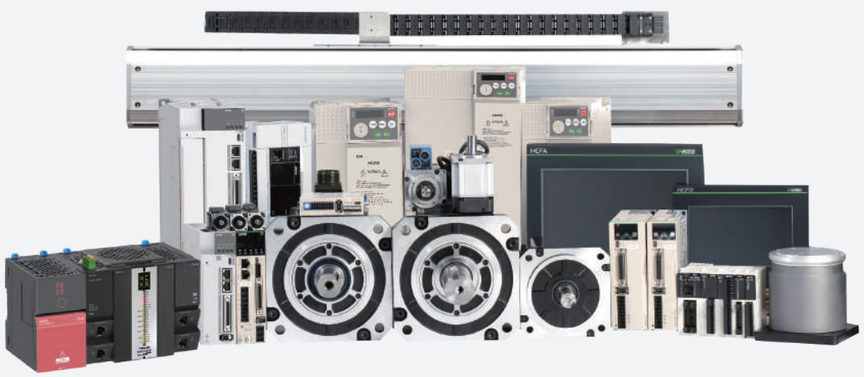
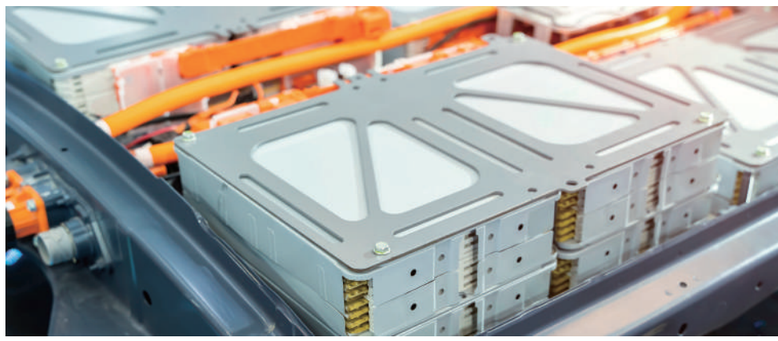
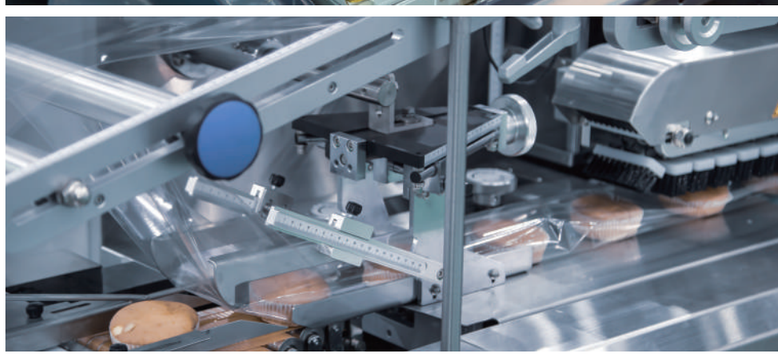
To be the most valuable industrial automation core components and solutions provider







HCFA

禾川股份

R&D Centers
4
Set up nationally

Sales Offices
40+
Sales elites gathering

Global Distributors
400+
Products sold worldwide

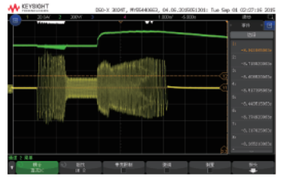
New design
General-purpose control board, keyboard panel and extension card

Powerful function
Excellent overvoltage suppression capability, Fast acceleration/ deceleration, Over-current protect function

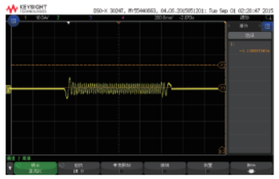
Exquisite appearance
Space reduced by 40%, improve the space utilization

Stable performance
Main components' life expectancy greatly increased, Circuit board 100% coating

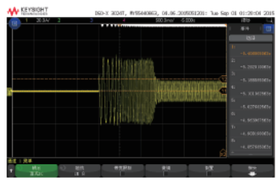
Performance specifications



Excellent overvoltage suppression capability
0. 5s deceleration time. In the absence of external brake resistor, the current and voltage can be controlled more stably and no overvoltage error occurs during the deceleration.



Fast acceleration/deceleration
Excellent current control technology to realize the superior load capacity. The inverter can operate repeatedly at 0.1s acceleration/deceleration without failure.

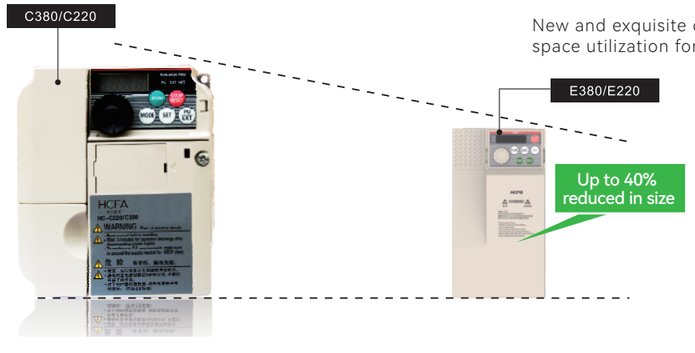


Over-current protect function
The current is controlled stably with acceleration/ deceleration 0.1s start in VF mode. The excellent Over-current protect function can satisfy most applications.

Superior low-frequency torque performance
Output 150% torque at 0. 5Hz in VF mode; Output 160% torque at 0.25Hz in SVC mode; Output 180% torque at 0. 25Hz in FVC mode.

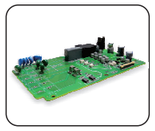
Hardware features

Flexible use of space



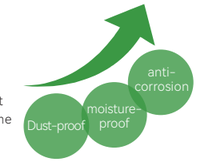
New and exquisite design, size 40% reduced to improve the space utilization for customer.

More reliable
Extend main parts' life, 100%PCB coating.



Conformal coating
Greatly improve the capability of insulation, moisture-proof, leakage prevention, dustproof, anti-corrosion, anti-aging, anti-mildew etc.

Independent heat dissipation channel
Effectively prevent environmental impact on products and extend products' lifetime greatly.



Compact and integrated design
Whole series share common parts for control panel, key board and extension card, reduce the inventory and cut down the cost greatly.

Optimize drive board design
Optimize the drive board layout, thermal design, EMC design, and 100% routing ability.

Technical specifications

Items		Specifications	
Power input	Rated voltage	Single-phase 220V：Constant voltage fluctuation ±10%, transient fluctuation -15%~+10% Three-phase 220V：Constant voltage fluctuation ±10%, transient fluctuation -15%~+10% Three-phase 380V：Constant voltage fluctuation ±10%, transient fluctuation -15%~+10% That is 323~437V；Voltage imbalance <3%, the distortion rate in accordance with IEC61800-2.	
	Rated input current	Refer to 2-1	
	Rated frequency	50Hz/60Hz, fluctuation range ±5%	
Power output	Applicable motor	Refer to 2-1	
	Rated capacity	Refer to 2-1	
	Rated current	Refer to 2-1	
	Output voltage	Three-phase, 0V to the rated voltage, error less than ±3%	
Basic functions	Max. frequency	0Hz~500Hz, 0Hz~3000Hz, can be customized according to customer needs	
	Carrier frequency	1. 0kHz~16. 0kHz, can be adjusted automatically	
	Input frequency resolution	0.01Hz (Digital setting)	
	Control mode	Speed control (SVC), torque control (SVC), speed control (FVC), torque control (FVC), V/F control	
	Startup torque	0.25Hz/150% (SVC)	0Hz/180% (FVC)
	Speed range	1:100 (SVC)	1:1000 (FVC)
	Speed stability accuracy	±0.5% (SVC)	±0.02% (FVC)
	Torque control accuracy	±5% (FVC) ★	
	Overload capacity	G models: 60s for 150% rated current, 1s for 200% rated current	
	Torque boost	Automatic boost; Customized boost 0.1 % to 30.0 %	
	Acceleration/deceleration curve	Straight-line or S-curve. Four kinds of acceleration/deceleration time, range : 0. 0s~6500. 0s	
	DC injection braking	DC injection braking frequency: 0Hz to max. frequency, DC injection braking active time: 0.0s to 60.0s. Current level of DC injection braking: 0% to 100%	
	Jog running	Frequency range of jog running: 0.00Hz~P00.08, Acceleration/Deceleration time of jog running:0.0s to 6500.0s	
	Onboard multiple preset speeds	The inverter can realize up to 16 speeds by using simple PLC function or by using digital input signals	
	Onboard PID	The inverter can realize proportional-integral-derivative (PID) function in the closed-loop control	
	Automatic voltage regulation (AVR)	The system maintains a constant output voltage automatically when the grid voltage	
	Overcurrent stall control	The inverter can limit the output current automatically when the load changes in V/F operation	
	Overcurrent fast prevention	The function helps to avoid frequent overcurrent faults to guarantee the inverter operates normally	
	Overvoltage stall control	The system limits the energy feedback automatically during operation to prevent frequent or excessive trips when frequency changes	
	Oscillation suppression	Optimize the V/F oscillation suppression to keep the stable operation	

Technical specifications

	Items	Specifications
Individualized functions	Power dip ride-through	Load feedback energy compensates for any voltage reduction, allowing the inverter to continue to operate for a short time during power dips
	Timing control	Timing control: Time setting range 0.0min~6500.0min
	Dual-motor switchover	The inverter have two groups of motor parameters and can control up to two motors
	Multiple fieldbus supported	Multiple fieldbus: Modbus-RTU、CANopen
	Motor overheat protection	Optional I/O extension card★, analog input , AI3 can accept motor temperature sensor input (PT100/PT1000)★
	Multiple encoder types supported	Support incremental encoders
RUN	Command source	Different methods of switching, such as Operating panel, Terminal I/O control, Serial communication
	Main frequency reference setting channel	Supports up to 10 frequency reference setting channels and allows different methods of switching: Digital setting, Analog voltage reference, Analog current reference, Pulse reference, Communication reference
	Auxiliary frequency reference setting channel	Supports 9 auxiliary frequency sources, and allows fine tuning of the auxiliary frequency and main& auxiliary calculation
	Input terminals	Standard: 7 digital input (DI) terminals, one of which supports up to 100kHz high-speed pulse input. 3 analog input (AI) terminals: AI1: Support 0 to10V voltage input AI2: Support 0 to 10V voltage input or 0 to 20mA current input AI3: Support -10 to 10V voltage input Extension capacity★: Can be customized according to customer needs
	Output terminals	Standard: 2 analog output terminal, support 0 to 10V voltage output or 0(or 4) to 20mA current output 2 digital output terminal, one of which supports high-speed pulse output terminal for a square-wave signal output in the frequency 0 to 100kHz 1 relay output terminal Extension capacity★: Can be customized according to customer needs
Display and operating panel	LED display	Display and operating panel
	LCD display	Can be selected according to user needs
	Parameter copy	The parameters can be quickly copied through the LCD operation panel
	Key locking and function selection	Keys on the LCD control panel can be locked or partially locked electronically to prevent accidental operation. The range of some functions can be limited to a permitted range to prevent incorrect settings
	Protection function	Short-circuit protection, Input/output phase loss protection, Overcurrent protection, Overvoltage protection, Undervoltage protection, Overheat protection, Overload protection
	Optional accessories	LCD operation panel, brake components, I/O extension card★, CANopen communication card, incremental encoder PG card
Environment	Installation location	Install the inverter indoors and protected from direct sunlight, dust, corrosive or combustible gases, oil smoke, vapour, ingress from water or any other liquid, and salt
	Altitude	Below 1000 m (If the altitude exceeds 1000 m, de-rate the inverter)
	Operation temperature	-10°C~＋40 °C (If the ambient temperature is 40°C to 50 °C, de-rate the inverter)
	Humidity	Less than 95%RH, non-condensing
	Vibration	Less than 5.9m/s² (0.6g)
	Storage temperature	-20°C~+60°C
	Protection level	IP20
	Cooling method	Forced air cooling

Naming rules

E380 - 1.5 G 3 B E - 00

Models

Symbol	Specifications
G	General-purpose

Number of power phases

Symbol	Specifications
3	Three-phase

Brake unit

Symbol	Specifications
B	Built-in
N	Not built-in

Keyboard

Symbol	Specifications
C	LCD
E	LED

Customized by manufacturer

Series name

E380	380V
E220	220V

Power

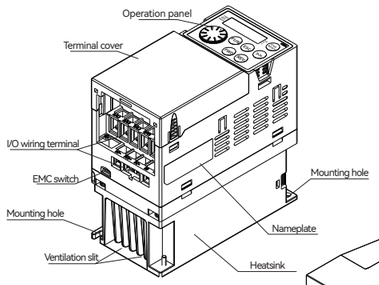
Symbol	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18	22	30	37
Power	0.75kW	1.5kW	2.2kW	3.7kW	5.5kW	7.5kW	11kW	15kW	18kW	22kW	30kW	37kW

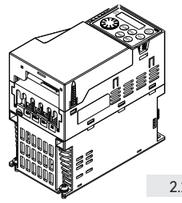
Product specifications table 2-1

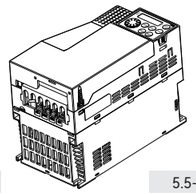
Classifications		Model name	Power capacity kVA	Input current A	Output current A	Applicable motor	
						kW	HP
E220V	Single-phase power 220V(-15%~+10%), 50/60Hz	E220-0.75G3BE-00	1.5	8.2	4	0.75	1
		E220-1.5G3BE-00	3	14	7	1.5	2
		E220-2.2G3BE-00	4	23	9.6	2.2	3
	Three-phase power 220V(-15%~+10%), 50/60Hz	E220-0.75G3BE-00	3	5	4	0.75	1
		E220-1.5G3BE-00	4	8	7	1.5	2
		E220-2.2G3BE-00	6	10.5	9.6	2.2	3
		E220-3.7G3BE-00	8.9	14.6	13	3.7	5
E380V	Three-phase power 380V(-15%~+10%), 50/60Hz	E380-0.75G3BE-00	1.5	3.4	2.1	0.75	1
		E380-1.5G3BE-00	3	5	3.7	1.5	2
		E380-2.2G3BE-00	4	5.8	5	2.2	3
		E380-3.7G3BE-00	5.9	10.5	9	3.7	5
		E380-5.5G3BE-00	8.9	14.6	13	5.5	7.5
		E380-7.5G3BE-00	11	20.5	17	7.5	10
		E380-11G3BE-00	17	26	25	11	15
		E380-15G3BE-00	21	35	32	15	20
		E380-18.5G3BE-00	24	38.5	37	18.5	25
		E380-22G3BE-00	30	46.5	45	22	30
		E380-30G3NE-00	40	62	60	30	40
		E380-37G3NE-00	50	76	75	37	50
		E380-30G3BE-00	40	62	60	30	40
		E380-37G3BE-00	50	76	75	37	50

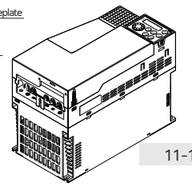
Main structures diagram

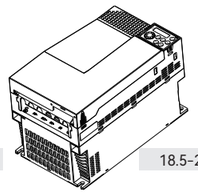
For models of 1.5kw or less




2.2-3.7kW


5.5-7.5kW


11-15kW

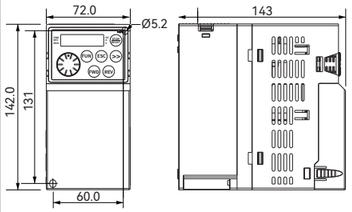

18.5-22kW


30-37kW

External dimensions

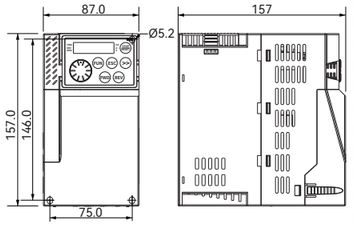
0.75~1.5kW

Models:
E220-0.75G3BE-00 E220-1.5G3BE-00
E380-0.75G3BE-00 E380-1.5G3BE-00



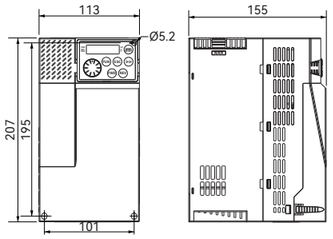
2.2~3.7kW

Models:
E220-2.2G3BE-00 E220-3.7G3BE-00
E380-2.2G3BE-00 E380-3.7G3BE-00



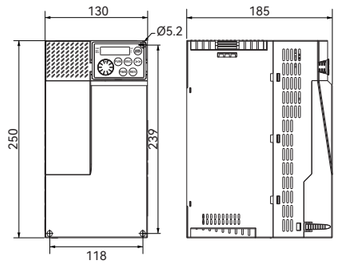
5.5~7.5kW

Models:
E380-5.5G3BE-00 E380-7.5G3BE-00



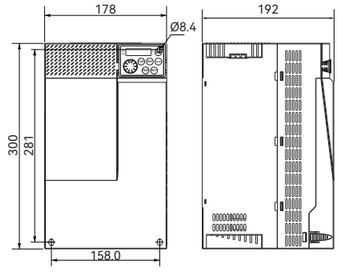
11~15kW

Models:
E380-11G3BE-00 E380-15G3BE-00



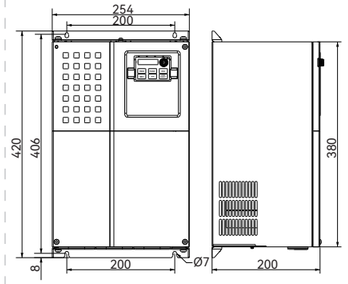
18.5~22kW

Models:
E380-18.5G3BE-00 E380-22G3BE-00



30~37kW

Models:
E380-30G3BE-00 E380-37G3BE-00
E380-30G3NE-00 E380-37G3NE-00

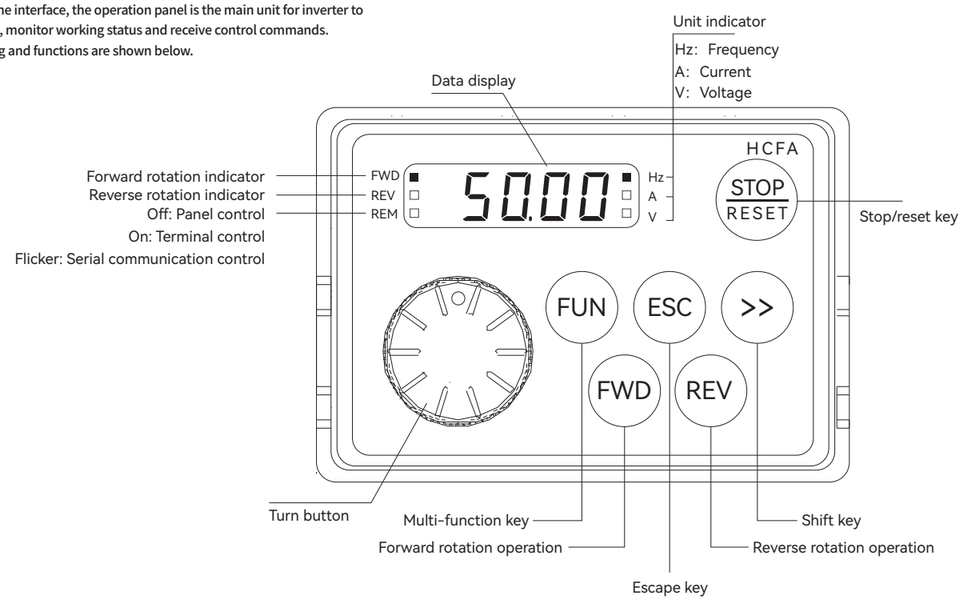


Product installation size

Classifications		Model name	Mounting hole mm		External dimensions mm			Mounting hole mm	Weight kg
			W1	H1	H	W	D		
E220V	Single-phase 220V, 50/60Hz	E220-0.75G3BE-00	60	131	142 (wall-mounting)	72	143	5.2	2
		E220-1.5G3BE-00							
		E220-2.2G3BE-00	75	146	157 (wall-mounting)	87	153	5.2	3
	Three-phase 220V, 50/60Hz	E220-0.75G3BE-00	60	131	142 (wall-mounting)	72	143	5.2	2
		E220-1.5G3BE-00	75	146	157 (wall-mounting)	87	153	5.2	3
		E220-2.2G3BE-00							
		E220-3.7G3BE-00							
E380V	Three-phase 380V, 50/60Hz	E380-0.75G3BE-00	60	131	142 (wall-mounting)	72	143	5.2	2
		E380-1.5G3BE-00							
		E380-2.2G3BE-00	75	146	157 (wall-mounting)	87	153	5.2	3
		E380-3.7G3BE-00							
		E380-5.5G3BE-00	101	195	207 (wall-mounting)	113	155	5.2	5
		E380-7.5G3BE-00							
		E380-11G3BE-00	118	239	250 (wall-mounting)	130	185	5.5	8
		E380-15G3BE-00							
		E380-18.5G3BE-00	158	281	300 (wall-mounting)	178	192	8.4	10
		E380-22G3BE-00							
		E380-30G3NE-00	195	335	350 (wall-mounting)	225	192	6	15
		E380-37G3NE-00							
		E380-30G3BE-00							
		E380-37G3BE-00							

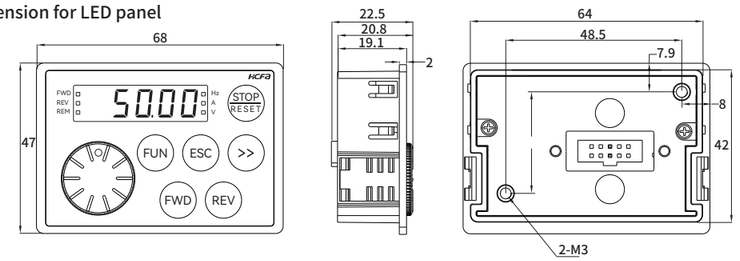
Operation panel introduction

As a human-machine interface, the operation panel is the main unit for inverter to modify parameters, monitor working status and receive control commands.
The outline drawing and functions are shown below.

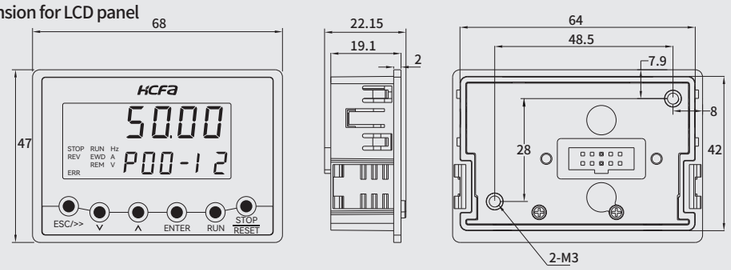


External dimension for operation panel

External dimension for LED panel

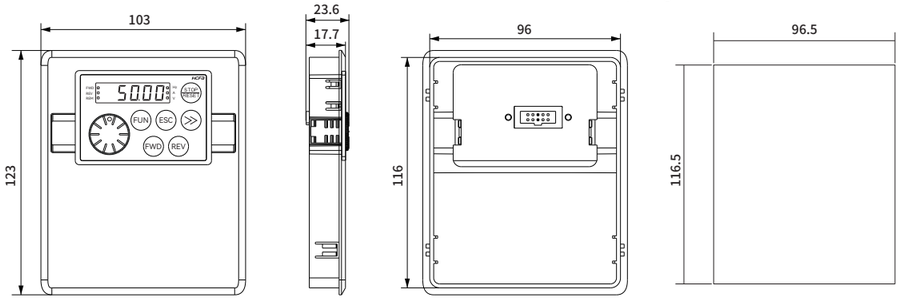


External dimension for LCD panel



Cutout dimension for external keyboard and tray

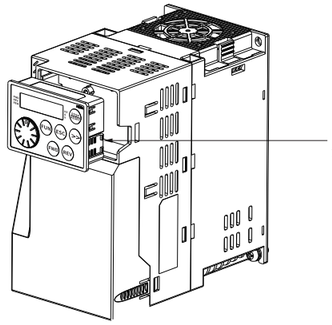
The cutout dimensions for installation is shown as right Figure when no external tray.
The best thickness for opening sheet is 1.2mm.



Tray dimensions

Tray cutout dimensions (thickness 1.0 – 1.2mm)

Remove and reinstall the operation panel



Press inwards on both sides to release the panel

Remove the operation panel: Put the middle finger to the slot at the upper side of operation panel and press inwards on both sides to release the operation panel.

Reinstall the operation panel: Locate the mounting hook of operation panel to the mounting slot, and press on the upper side with middle finger until the side latches are in place.

⚠Warning

- The machine is equipped with LED panel and support external extension. Note whenpurchasing and the external extension cable can be provided
- LCD panel is optional and can be extended externally

Selection guide of braking unit

Resistance selection

The motor and load's regenerative energy is almost completely consumed on the braking resistor when braking.
According to the formula U*U/R=BR:
U refers to the braking voltage at system stable braking.
Different systems select different braking voltages. The 380 VAC system usually selects 700 V braking voltage.
The 220 VAC system usually selects 380 V braking voltage BR refers to the braking power

Single-phase 220V 50/60HZ				
E220-0.75G3BE-00	150W	⩾80Ω	Built-in brake	No special description
E220-1.5G3BE-00	150W	⩾50Ω		
E220-2.2G3BE-00	250W	⩾50Ω		

Three-phase 220V 50/60HZ				
E220-0.75G3BE-00	150W	⩾80Ω	Built-in brake	No special description
E220-1.5G3BE-00	150W	⩾50Ω		
E220-2.2G3BE-00	250W	⩾50Ω		
E220-3.7G3BE-00	300W	⩾30Ω		

Selection of power of braking resistor

In theory, the power of the braking resistor is consistent with the braking power.
But in consideration that the de-rating is 70%, you can calculate the power of the braking resistor according to the formula 0. 7*Pr=BR*D.
Pr refers to the power of resistor
D refers to the braking frequency (percentage of the regenerative process to the whole working process)
Elevator---20%~30%
Winding and unwinding----20%~30%
Centrifuge---50%~60%
Occasional braking load---5%
General application---10%

Three-phase 380V 50/60HZ				
E380-0.75G3BE-00	150W	⩾150Ω	Built-in brake	No special description
E380-1.5G3BE-00	150W	⩾150Ω		
E380-2.2G3BE-00	250W	⩾100Ω		
E380-3.7G3BE-00	300W	⩾80Ω		
E380-5.5G3BE-00	400W	⩾40Ω		
E380-7.5G3BE-00	500W	⩾30Ω		
E380-11G3BE-00	800W	⩾25Ω		
E380-15G3BE-00	1000W	⩾25Ω		
E380-18.5G3BE-00	1300W	⩾20Ω		
E380-22G3BE-00	1500W	⩾20Ω		
E380-30G3NE-00	2500W	⩾16Ω	External braking unit	No special description
E380-37G3NE-00	3700W	⩾16Ω		
E380-30G3BE-00	2500W	⩾16Ω	Built-in brake	No special description
E380-37G3BE-00	3700W	⩾16Ω		

⚠Warning

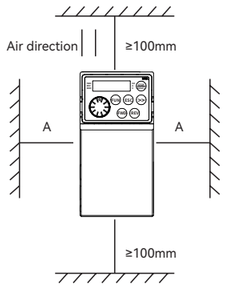
※The Table above provides data for reference. You can select different resistance and power based on actual needs. However, the resistance must not be lower than the recommended value. The power may be higher than the recommended value.
※The braking resistor model is dependent on the generation power of the motor in the actual system and is also related to the system inertia, deceleration time and potential energy load.
※For systems with high inertia, and/or rapid deceleration times, or frequent braking sequences, the braking resistor with higher power and lower resistance value should be selected.

Inverter installation

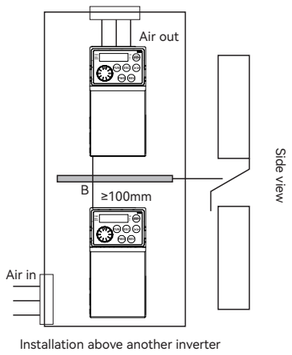
Install the inverter indoors, with good ventilation, and generally vertically. The installation clearance that need to be reserved is shown as below.

Mounting direction and clearance

Single-inverter installation



Installation above another inverter



Installation environment

- The ambient temperature should be around -10℃~40℃. Whentemperature exceeds 40℃, the external forced cooling or de-rating is required.
- Install the inverter on the surface of an incombustible object, and ensure that there is sufficient space around for heat dissipation.
- Free from the direct sun.
- Free from the location with high humidity and condensation, humidity less than 95%
- Free from the vibration(less than 5. 9m/s² (0. 6g)
- Free from oil dirt, dust and metal powder
- Free from corrosive, explosive and combustible gas.

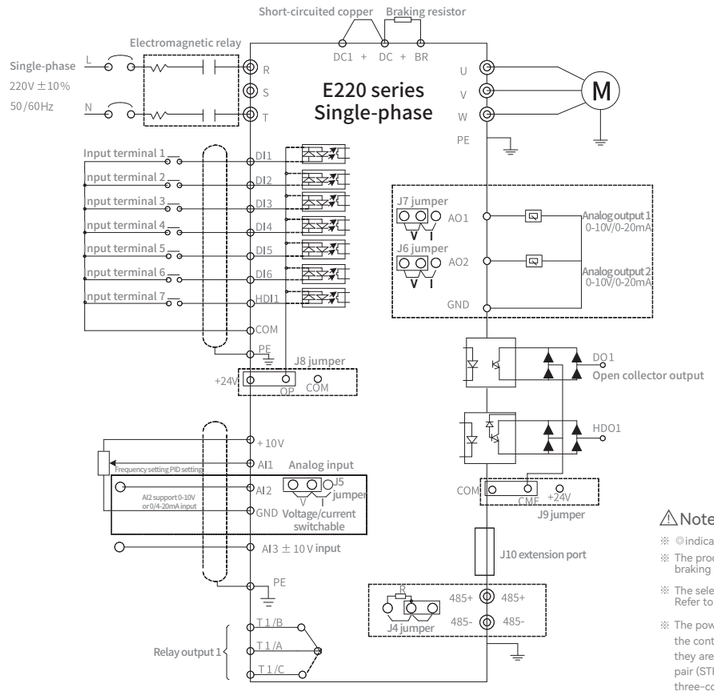
Precautions for installation

- When single inverter installed: Do not consider the clearance A when power is less than 15kW. Clearance A should be greater than 50mm if power exceed 15kW.
- When installed on another inverter: If inverter needs to be installed above another one, install an insulation guide plate.

Power class	When installed on another inverter	
	B	A
⩽15kW	⩾100mm	⩾50mm
18.5kW—30kW	⩾200mm	
⩾37kW	⩾300mm	

Standard wiring

Standard wiring for single-phase 220V inverter



⚠Notes

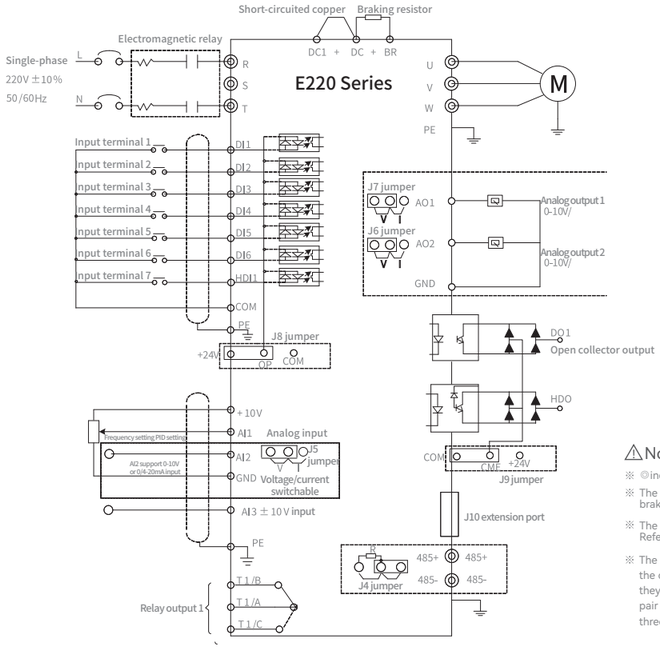
※ ◎indicates the main circuit terminal, ○ indicates control circuit terminal;

※ The product model name with "B" indicates the standard model is built-in braking unit;

※ The selection of braking resistor is determined by user's actual needs. Refer to Table 2-4 for the selection of braking unit;

※ The power cables must be laid far away from control cables. If the control cable must run across the power cable, make sure they are arranged at an angle of close to 90°. Shielded twisted pair (STP) cable is recommended for analog signal lines and three-core shielded cable is for power cables.

Standard wiring for three-phase 220V inverter



⚠Notes

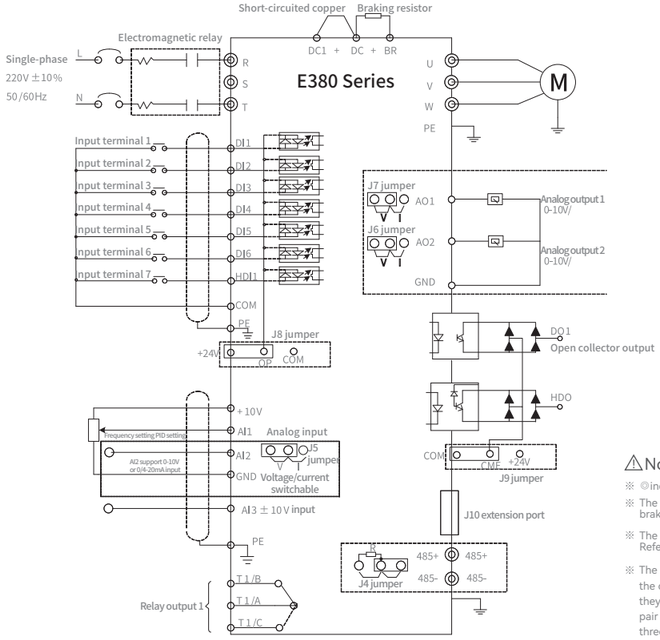
※ ◎indicates the main circuit terminal, ○ indicates control circuit terminal;

※ The product model name with "B" indicates the standard model is built-in braking unit;

※ The selection of braking resistor is determined by user's actual needs. Refer to Table 2-4 for the selection of braking unit;

※ The power cables must be laid far away from control cables. If the control cable must run across the power cable, make sure they are arranged at an angle of close to 90°. Shielded twisted pair (STP) cable is recommended for analog signal lines and three-core shielded cable is for power cables.

Standard wiring for three-phase 380V inverter



⚠Notes

※ ◎indicates the main circuit terminal, ○ indicates control circuit terminal;

※ The product model name with "B" indicates the standard model is built-in braking unit;

※ The selection of braking resistor is determined by user's actual needs. Refer to Table 2-4 for the selection of braking unit;

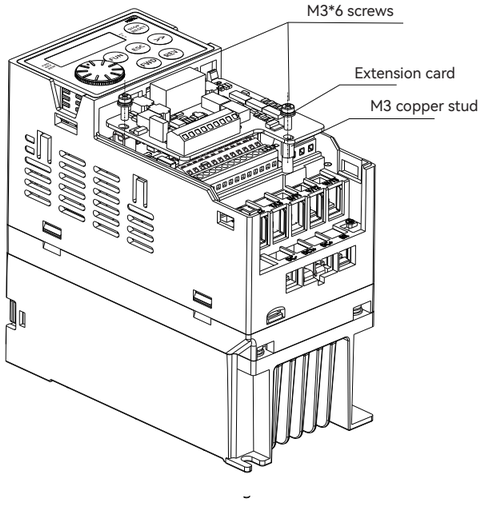
※ The power cables must be laid far away from control cables. If the control cable must run across the power cable, make sure they are arranged at an angle of close to 90°. Shielded twisted pair (STP) cable is recommended for analog signal lines and three-core shielded cable is for power cables.

Selection Guide

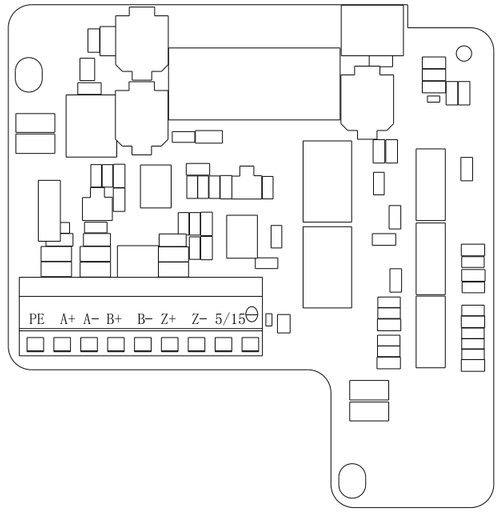
Model name	Power	Input voltage	Input terminal	Function description
E220-0.75G3BE-00	0.75kW	Three-phase 220V (-15%~+10%) 50/60Hz [Models of 2.2kW or less support single phase operation]	Standard: 7 digital input terminals, one terminal support at most 100kHz high-speed pulse input, 3 analog input terminals; AI1 supports 0V~10V voltage input; AI2 supports 0V~10V voltage input or 0/4mA~20mA current input; AI3 supports -10V~+10V voltage input; Extension abilities★: Can be customized according to customer needs	1) Control mode: No PG vector speed control, No PG vector torque control★, PG vector speed control★, PG vector torque control★, V/F control 2) Timing control function: 0.0–6500.0 minutes 3) Instantaneous power-failure: Load feedback energy compensates for any voltage reduction, allowing the drive to continue to operate for a short time during power dips 4) Multi-motor switchover: The drive have two groups of motor parameters and can control up to two motors. 5) Motor overheat protection: The optional I/O extension card ★enables AI3 to receive the motor temperature sensor input (PT100, PT1000) ★ so as to realize motor overheat protection 6) Overload capacity: G models : 60s for 150% rated current, 1s for 200% rated current 7) Torque boost: Automatic boost; manual boost 0.1 % to 30.0 % 8) Acceleration/deceleration curve: Straight-line or S-curve. Four kinds of acceleration /deceleration time, range : 0. 0s~6500. 0s 9) DC braking: DC braking frequency: 0Hz to max. frequency, DC injection braking active time: 0.0s to 60.0s. Current level of DC injection braking: 0% to 100% 10) Simple PLC, multi-stage operation: It implements up to 16 speeds via the simple PLC function or combination of DI terminal states 11) Onboard PID: It realizes process-controlled closed loop control system easily. 12) Overcurrent suppression: The system limits the output current automatically when the load changes in V/F operation. 13) Rapid current limit: The function helps to avoid frequent overcurrent faults to guarantee the inverter operate normally.. 14) Overvoltage stall control: The system limits the energy feedback automatically during operation to prevent frequent or excessive trips when frequency changes. 15) Oscillation suppression: Optimize the V/F oscillation suppression to keep the stable operation
E220-1.5G3BE-00	1.5kW			
E220-2.2G3BE-00	2.2kW			
E220-3.7G3BE-00	3.7kW			
E380-0.75G3BE-00	0.75kW	Three-phase 380V (-15%~+10%) 50/60HZ		
E380-1.5G3BE-00	1.5kW			
E380-2.2G3BE-00	2.2kW			
E380-3.7G3BE-00	3.7kW			
E380-5.5G3BE-00	5.5kW			
E380-7.5G3BE-00	7.5kW			
E380-11G3BE-00	11kW			
E380-15G3BE-00	15kW			
E380-18.5G3BE-00	18.5kW			
E380-22G3BE-00	22kW			
E380-30G3BE-00	30kW			
E380-37G3BE-00	37kW			
E380-30G3NE-00	30kW			
E380-37G3NE-00	37kW			

PG card appearance and installation

Installation drawing



PG card



PG card installation

Model name	Power
E380-PG2	Differential input
E380-PG3	Open collector, push-pull input

Model name	Description	Notes
E380-PG2	Encoder signal input terminal	Refer to Pin definition of encoder signal input terminal
E380-PG3	Encoder power supply selection jumper, 5V or 15V output can be selected	Factory default: 5V

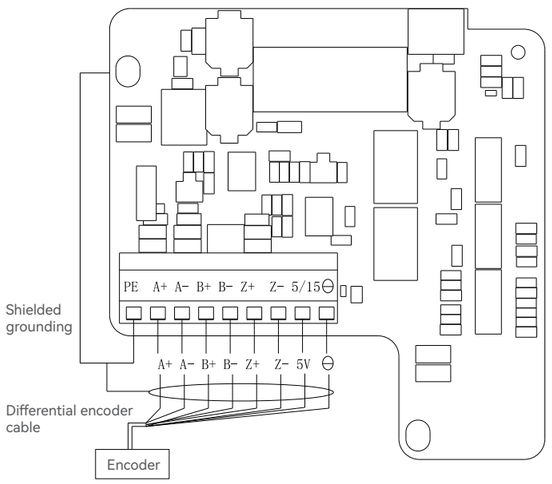
Specifications

Items	Specifications
Encoder power supply	5V/200mA, 15V/200mA
Encoder interface type	Support differential and open collector
AWG	For specific wire gauge of 16~26AWG, please refer to the manual
Terminal pitch	3.5mm
Terminal screw	Slotted
Terminal type	Oblique terminal block

Pins definition

Items	Specifications				
Pins No.	1	2	3	4	
Terminal name	A+	A-	B+	B-	
Description	Encoder output A signal positive	Encoder outputA signal negative	Encoder output B signal positive	Encoder output A signal positive	
Pins No.	5	6	7	8	9
Terminal name	Z+	Z-	5/15	⊖	PE
Description	Encoder output Z signal positive	Encoder output Z signal negative	Encoder 5V/15V powersupply	Encoder power supply grounding	Shielded terminal

Differential input wiring diagram



Differential input wiring diagram

Step 1: Connect the output signal of the encoder to the A+/A-, B+/B-, Z+/Z- of the input terminal of the PG card respectively, and connect the power of the encoder to the terminal 5/15;

Step 2: Set the encoder power supply mode to 5V;

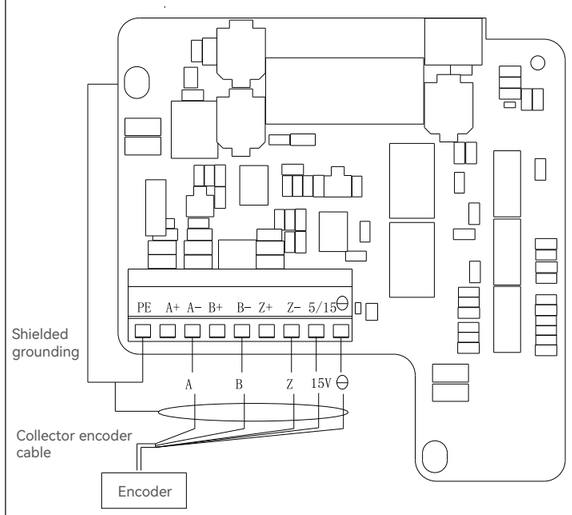
Step 3: Connect the shielding layer of the encoder cable to the PE terminal of the PG card.

⚠Caution

Since the encoder power supply of this PG has two power supply modes: 5V and 15V (selected by jumper J7), it is necessary to check whether it jumps to the 5V output terminal correctly before power on, otherwise the encode will be damaged because the power supply voltage is too high.

For differential encoders, it is recommended to use twisted-pair shielded cables, and strictly follow the differential wiring standards.

Collector input wiring diagram



Collector input wiring diagram

Step 1: Connect the output signal A/B/Z of the encoder to the input terminal A-/B-/Z- of the PG card respectively, and connect the power of the encoder to the terminal 5/15;

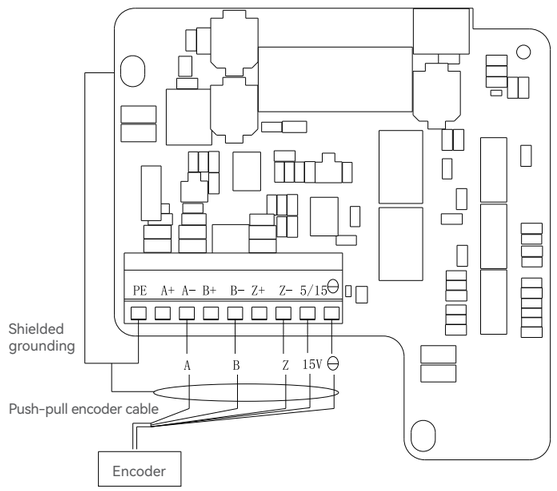
Step 2: Select the power supply mode of the PG card encoder according to the power supply voltage of the encoder (5V or 15V is selected by jumper J7)

Step 3: Connect the shielding layer of the encoder cable to the PE terminal of the PG card.

⚠Caution

Due to the electrical characteristics of the collector, the signal rises slowly. The signal transmission distance of this type of encoder is usually within 50m. Therefore, it is recommended not to use the encoder of the encoder for applications where the collector output type when the cable length is greater than 50m, and use the differential output type instead;

Push-pull input wiring diagram



Push-pull input wiring diagram

Step 1: If it is a push-pull differential output encoder, please connect the encoder output A-/B-/Z-phase to the A-/B-/Z- of the PG card input terminal respectively, and no connection for the encoder output A+/B+/Z+ phase: If it is a push-pull single-ended signal output, please connect the encoder signal A-/B-/Z-phase to the A-/B-/Z- of the PG card input terminal respectively; then connect the encoder's power to 5V /15V, COM terminal;

Step 2: Select the power supply mode of the PG card encoder according to the power supply voltage of the encoder (5V or 15V, select by jumper J7);

Step 3: Connect the shielding layer of the encoder cable to the PE terminal of the PG card.

⚠Caution

For encoders of push-pull differential output type, the A+/B+/Z+ signal of the push-pull output cannot be connected to the A+/B+/Z+ terminal of the PG card and must be left disconnected, otherwise the PG card will be damaged.

Relationship between encoder cable length and cables

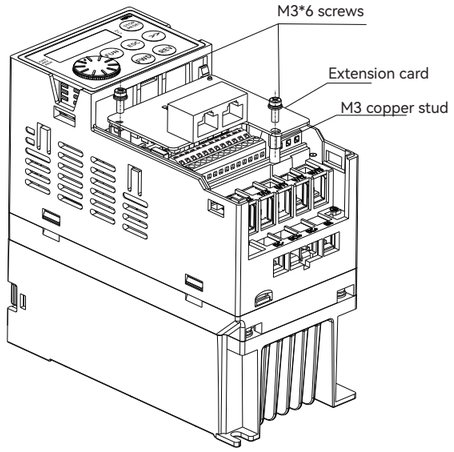
The longer the encoder cable, the greater the cable resistance, so the encoder power supply and encoder signal voltage drop across the cable resistance will be greater.
For long-distance applications, if the wire gauge selection is unreasonable, the encoder and PG will not work normally due to the signal attenuation caused by the cable resistance.
Please refer to the table below to select the appropriate wire gauge based on the length of the on-site cable (wire gauge: the standard for distinguishing wire diameters, here use AWG).

Cable length (unit: m)	AWG	Cable length (unit: m)	AWG
10	⩽26	60	⩽22
20		70	⩽21
30	⩽24	80	
40		90	⩽20
50	⩽22	100	

EMC directives

1. For installing and debugging, separate the signal line (such as the encoder cable) and the power cable into different trunking. It is strictly forbidden to bundle the encoder cable and the power cable together, otherwise it may cause encoder interference;
2. The servo motor shell must be connected to the ground terminal (PE terminal) of the inverter, and the ground wire on the side of the motor shel must be well connected; otherwise, a good grounding effect will not be achieved
3. For some large equipment, the inverter is far away from the servo motor, and the motor cable is very long (>10m). The cable inductance will affect the grounding effect and the grounding effect will be worse. At this time, the encoder shield cannot be connected to the inverter grounding terminal (PE terminal).

E380-CAN1 extension card installation instructions

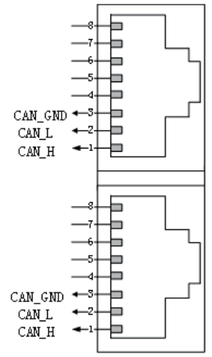


E380-CAN1 network connection

Communication network interface definition

The network port of this product uses the standard RJ45 interface 8-pin network port.

Pins	Definition
1	CAN_H
2	CAN_L
3	CAN_GND
4	N/A
5	N/A
6	N/A
7	N/A
8	N/A

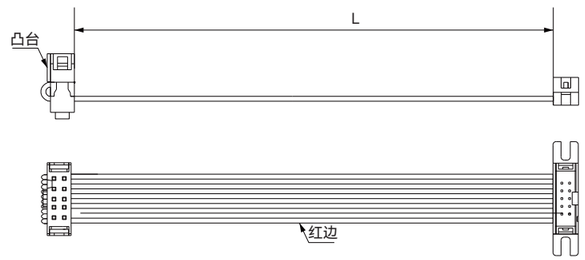


Terminal resistance setting

In order to facilitate the on-site use, the E380-CAN1 card is equipped with terminal resistors, which can be set by the jumper .
When the jumper cap is close to the OFF end, it means the terminal resistance (120Ω) is not connected, and when the jumper cap is close to the ON end, it means the terminal resistance (120Ω) is connected.

Terminal resistance jumper

Extension cable for E380(E220) series operation panel



Model name	Specifications
CAB-E380FQV001-1M	operation panel extension cable
CAB-E380FQV001-3M	operation panel extension cable
CAB-E380FQV001-5M	operation panel extension cable
CAB-E380FQV001-10M	operation panel extension cable
CAB-E380FQV001-20M	operation panel extension cable
CAB-E380FQV001-50M	operation panel extension cable