

E800-SCE

INVERTER SAFETY GUIDELINE

FR-E820-0008(0.1K) to 0900(22K)SCE

FR-E840-0016(0.4K) to 0440(22K)SCE

FR-E820S-0008(0.1K) to 0110(2.2K)SCE

FR-E810W-0008(0.1K) to 0050(0.75K)SCE

For more inform

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Thank you for choosing Mitsubishi Electric inverter. This Inverter Safety Guideline provides handling information and precautions for use of this product. Do not use this product until you have full knowledge of the product mechanism, safety information and instructions Please forward this Safety Guideline to the end user.

Removal of the wiring cover (FR-E820-0050(0.75K) or lower, FR-E820S-0030(0.4K) or lower, FR-E810W-0030(0.4K) or

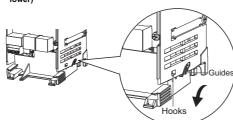
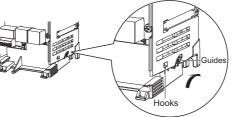
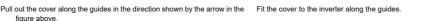


figure above

(a)

Reinstallation of the wiring cover (FR-E820-0050(0.75K) or lower, FR-E820S-0030(0.4K) or lower, FR-E810W-0030(0.4K) or lower)





Hook



Fit the cover to the inverter along the guides, and push the hook into the socket



800

IB-0600921ENG-F(2305)MEE s subject to change wit

MITSUBISHI ELECTRIC CORPORATION

Manual name	Manual number	Model code	Details
FR-E800 Instruction Manual (Connection)	IB-0600865ENG	1A2-P89	Manuals describing installation, wiring, specifications, outline dimensions, standards, and how to connect options.
FR-E800 Instruction Manual (Function)	IB-0600868ENG	1A2-P91	Manual describing details of the functions.
FR-E800 Instruction Manual (Communication)	IB-0600871ENG	1A2-P93	Manual describing details of the communications.
FR-E800 Instruction Manual (Maintenance)	IB-0600874ENG	1A2-P95	Manual describing how to identify causes of faults and warnings.
FR-E800-SCE Instruction Manual (Functional Safety)	BCN-A23488-004	-	Manual describing details of the safety communication parameters.
FR Configurator2 Instruction Manual	IB-0600516ENG	-	Manual describing details of the software used to set inverter parameters using a personal computer.
PLC Function Programming Manual	IB-0600492ENG	-	Manual describing details of the PLC function.

	Safety Information
	all, operate, maintain or inspect this product until you have read through this Safety Guideline and supplementary documents luipment correctly. Do not use the product until you have full knowledge of the product mechanism, safety information and
	, maintenance and inspection must be performed by qualified personnel. Here, qualified personnel means a person who meets itions:
 A person who posse be available at your I A person who can according to the person who can according	sses a certification in regard with electric appliance handling, or person took a proper engineering training. Such training may ocal Mitsubishi Electric office. Contact your local sales office for schedules and locations. ccess operating manuals for the protective devices (for example, light curtain) connected to the safety control system, or a these manuals thoroughly and familiarized themselves with the protective devices.
In this Safety Guidelir	e, the safety instruction levels are classified into "WARNING" and "CAUTION".
	Incorrect handling may cause hazardous conditions, resulting in death or severe injury.
	Incorrect handling may cause hazardous conditions, resulting in medium or slight injury, or may cause only material damage.
Note that even the levels as they are criti	ACAUTION level may lead to a serious consequence depending on conditions. Be sure to follow the instructions of both cal to personnel safety.
ead this Guideline befo	re use In addition, scan the 2D code below to download the FR-E800 Instruction Manual (Connection) and read "Safety Instructions".

The PDF manual can also be downloaded from the Mitsubishi Electric FA Global Website



INVERTER INSTALLATION AND PRECAUTIONS 1

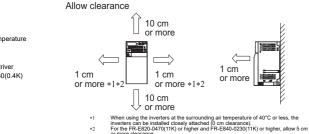
When installing the inverter on the enclosure surface, remove the front

cover and wiring cover to fix the inverter. · Install the inverter on a strong surface securely with screws

Leave enough clearances and take cooling measures.

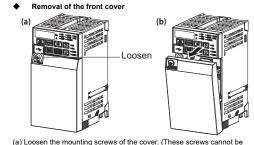
Avoid places where the inverter is subjected to direct sunlight, high temperature and high humidity. Install the inverter on a nonflammable wall surface. When tightening screws into the upper mounting holes, tilt the screwdriver seven to ten degrees (FR-E820-0050(0.75K) or lower, FR-E820S-0030(0.4K) or lower, FR-E810W-0030(0.4K) or lower).

Screwdriver length: 135 mm or longer



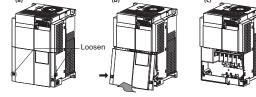
2 INSTALLATION AND WIRING

Removal and reinstallation of covers 2.1



emoved.) (b) Pull out the cover using its lower side as a support. With the cover removed, the control circuit terminals can be wired and the plug-in option can be installed.

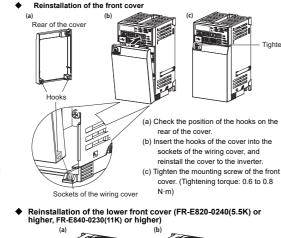
Removal of the lower front cover (FR-E820-0240(5.5K) or higher, FR-E840-0230(11K) or higher)

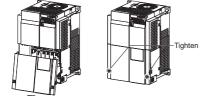


(a) Loosen the screws on the lower front cover. (These screws cannot be

lower front cover, pull out the cover using its upper side as a support. (c) With the lower front cover removed, wiring of the main circuit terminals

and control circuit terminals can be performed



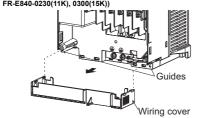


(a) Install the lower front cover by inserting the upper hooks into the sockets on the inverter. (b) While holding the areas around the installation hooks on the sides of the (b) Tighten the screws on the lower part of the lower front cover.

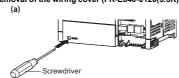


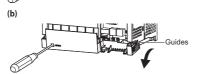
cover approx. 3 mm. (b) Pull out the cover along the guides in the direction shown by the arrow in the figure above.

Removal of the wiring cover (FR-E820-0240(5.5K) to 0600(15K), FR-E840-0230(11K), 0300(15K))



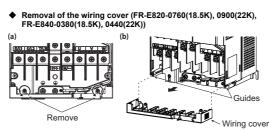
Pull out the cover along the guides in the direction shown by the arrow in the Fit the cover to the inverter along the guide figure above





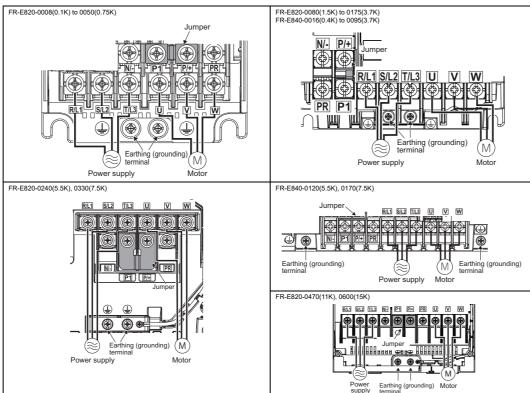
(a) Insert a tool such as a flathead screwdriver into the half-hole above the "PUSH" mark on the wiring cover to push the stopper behind the wiring cover approx. 3 mm.

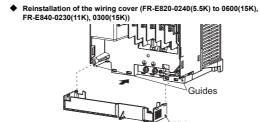
(b) Pull out the cover along the guides in the direction shown by the arrow in the figure above.



(a) Remove the mounting screws of the wiring cover. (b) Pull out the cover along the guides in the direction shown by the arrow in the (b) Tighten the mounting screws of the wiring cover (tightening torque: 0.6 to figure above

2.2 Main circuit terminal layout and wiring to power supply and motor Three-phase 200/400 V class

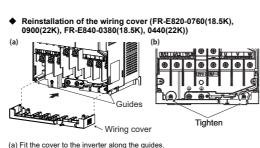




Wiring cover



Fit the cover to the inverter along the guides



0.8 N·m)

2.3

820-0008(0.1K) 080(1.5K)

240(5.5K

)-0330(7.5K

)-0470(11K)

20(5.5K 70(7.5K

00(15K)

R-E820S-0008(0.1)

R-E820S-0050(0.75

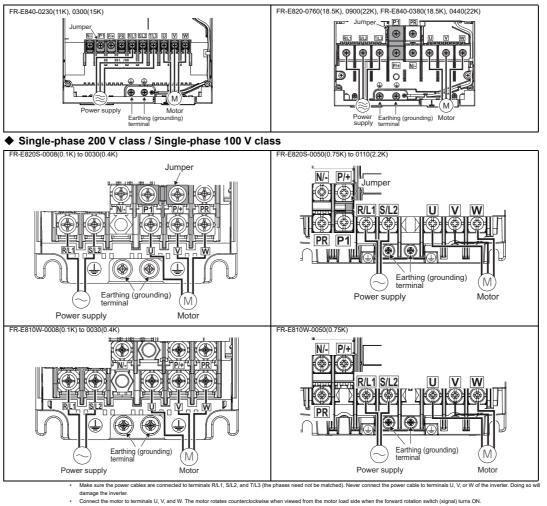
R-E820S-0080(1.5k

FR-E820S-0110(2.2k

FR-E810W-0050(0.7

10W-0008(0.1

Cable type



Recommended cables and wiring length

Select cables of recommended gauge size to ensure that the voltage drop will be 2% or less. If the wiring distance is long between the inverter and motor, the voltage drop in the main circuit will cause the motor torque to decrease especially at a low speed. The following table shows the recommended cable size for cables that are 20 m in length at the ND rating. When using the inverter with the LD rating, refer to the FR-E800 Instruction Manual (Connection)

					Cable gauge										
Inverter	Terminal		Crimp	terminal	HIV c	ables, etc	. (mm ²) *1	AW	G *2	PVC cables, etc. (mm ²) *3					
lel	screw size *4	torque N∙m	R/L1, S/L2, T/L3 *5	U, V, W	R/L1, S/L2, T/L3 *5	U, V, W	Earthing (grounding) cable	R/L1, S/L2, T/L3 *5	U, V, W	R/L1, S/L2, T/L3 *5	U, V, W	Earthing (grounding cable			
) to 0050(0.75K)	M3.5	1.2	2-3.5	2-3.5	2	2	2	14	14	2.5	2.5	2.5			
), 0110(2.2K)	M4	1.5	2-4	2-4	2	2	2	14	14	2.5	2.5	2.5			
)	M4	1.5	5.5-4	5.5-4	3.5	3.5	3.5	12	12	4	4	4			
)	M5	2.5	5.5-5	5.5-5	5.5	5.5	5.5	10	10	6	6	6			
)	M5	2.5	14-5	8-5	14	8	5.5	6	8	16	10	6			
	M5	2.5	14-5	14-5	14	14	8	6	6	16	16	16			
	M6(M5)	4.4	22-6	22-6	22	22	14	4	4	25	25	16			
<)	M8(M6)	7.8	38-8	22-8	38	22	14	2	4	35	25	25			
	M8(M6)	7.8	38-8	38-8	38	38	22	2	2	35	35	25			
) to 0095(3.7K)	M4	1.5	2-4	2-4	2	2	2	14	14	2.5	2.5	2.5			
)	M4	1.5	5.5-4	2-4	3.5	2	3.5	12	14	4	2.5	4			
)	M4	1.5	5.5-4	5.5-4	3.5	3.5	3.5	12	12	4	4	4			
	M4	1.5	5.5-4	5.5-4	5.5	5.5	5.5	10	10	6	6	10			
	M5	2.5	8-5	8-5	8	8	5.5	8	8	10	10	10			
<)	M6	4.4	14-6	8-6	14	8	8	6	8	16	10	16			
	M6	4.4	14-6	14-6	14	14	14	6	6	16	16	16			
K) to 0030(0.4K)	M3.5	1.2	2-3.5	2-3.5	2	2	2	14	14	2.5	2.5	2.5			
5K)	M4	1.5	2-4	2-4	2	2	2	14	14	2.5	2.5	2.5			
K)	M4	1.5	2-4	2-4	2	2	2	14	14	2.5	2.5	2.5			
K)	M4	1.5	5.5-4	2-4	3.5	2	2	12	14	4	2.5	2.5			
K) to 0030(0.4K)	M3.5	1.2	2-3.5	2-3.5	2	2	2	14	14	2.5	2.5	2.5			
′5K)	M4	1.5	5.5-4	2-4	3.5	2	2	14	14	2.5	2.5	2.5			

ssumes a surrounding air temperature of 40°C or lower and the wiring distance of 20 m of s for UL and cUL*.) arature of 70°C. It assumes a surrounding air temperature of 40°C or lower and the wiring distance of 20 m or shorer (selection example mainly for use in Lurope): The score size for terminals R1L S12_T13_U V, W, PR, P/+, N/-, and P1, and the earthing (grounding) terminal is shown. For the single-phase 200 V power input models, the screw size for terminals R1L, S12_U, V, W, PR, P/+, W, and P1, and the earthing (grounding) terminal is shown. For the single-phase 100 V power input models, the screw size for terminals R1L, S12_U, V, V terminals R1L, S12_U, V, W, PR, P/+, W, and P1, and the earthing (grounding) terminal is shown. For the single-phase 100 V power input models, the screw size for terminals R1L, S12_U, V, V, When using a single-phase nouries (S12_S12_U) = the screw size for the single-phase 2000(S13) (S12_E2000(S13) (S12_E2000(S12) (S12_E2

The line voltage drop can be calculated by the following formula:

Line voltage drop [V] = $\sqrt{3}$ × wire resistance [mΩ/m] × wiring distance [m] × current [A] / 1000

Use a larger diameter cable when the wiring distance is long or when the voltage drop (torque reduction) in the low speed range needs to be reduced.

Total wiring length Connect one or more motors within the total wiring length (sum of the wiring lengths of the motor and the inverter) shown in the following table.

Pr.72 setting (carrier frequency)	Voltage class	0.1K	0.2K	0.4K	0.75K	1.5K	2.2K	3.7K or higher	
1 (1 kHz) or lower	100 V, 200 V	50 m (200 m)	50 m (200 m)	75 m (300 m)	100 m (500 m)				
	400 V	—	—	50 m (200 m)	50 m (200 m)	75 m (300 m)	100 m (500 m)	100 m (500 m)	
2 (2 kHz) or higher	100 V, 200 V	10 m (30 m)	25 m (100 m)	50 m (200 m)	75 m (300 m)	100 m (500 m)	100 m (500 m)	100 m (500 m)	
, , , , , , , , , , , , , , , , , , ,	400 V	-	_	10 m (30 m)	25 m (100 m)	50 m (200 m)	75 m (300 m)	100 m (500 m)	

When driving a 400 V class motor by the inverter, surge voltages attributable to the wiring constants may occur at the motor terminals, deteriorating the insulation of the motor. In this case, use a "400 V class inverter-driven insulation-enhanced motor" and set Pr.72 PWM frequency selection according to the wiring length: "14.5 kHz or less" when the wiring length is 50 m or shorter, "8 kHz or less" when the wiring length is from 50 m to 100 m, or "2 kHz or less" when the wiring length is longer than 100

Terminal P1 is not available for the single-phase 100 V power input models. cross P1 and P/+. Single-phase 100 V pow A brake transistor is not built-in to FR-E820-0008(0.1K), FR-E820-0015(0.2K), FR-E820S-0008(0.1K), and FR-E820S-0016(0 FR-E810W-0008(0.1K), and FR-E810W-0016/ ා Main circuit terminal ontrol circuit termi Single-phase power input DC reacto MCCB MC Brake resistor (FR-ABR, MRS, MYS type (FR-HEL) - (Option) (R) ed to FR-E8 R-E820-0015(0.2K), FR-E820S-0008(0.1K 0016(0.2K), FR-E Jumpe Moto Earth (Ground) Main circuit Relav output *7 В Pr. 192 A,B,C termina ay output ault output) A Safety communication function selection 24 VDC power supply SC1 SY1 Safety input terminal commo Safety output (channel 1) Safety input (channel 1) Safety input (channel 2) SX2 SY2 SC2 afety output (channel 2) 24 VDC power supply afety output common (channel 2 Frequency setting signals (Analog) Ethernet onnector over (Pr.73, Pr.267). Set the voltage/current inpu switch in the "V" position to select voltage input and "I' 1/2W1kΩ USB mini B select voltage input ar to select current input. The initial setting varies depending on the specification. 4 4 to 20mADC (0 to 5VDC 0 to 10VDC) * 3 It is recommended to use 2W1kΩ when the frequency setting signal is changed frequently. 2 V 4 connector for Option connector plug-in option connection

2.4

Terminal connection diagram

Details on the main circuit terminals and the control circuit terminals 2.5

Ту	ре	Terminal symbol	Common	Terminal name	Terminal function description					
		R/L1, S/L2, T/L3*1	_	AC power input	Connected to the commercial power supply.					
		U, V, W	-	Inverter output	Connected to a three-phase squirrel cage motor or a PM motor.					
-	III.	P/+, PR	-	Brake resistor connection	Connect an optional brake transistor (MRS, MYS, FR-ABR) between terminal P FR-E820-0008(0.1K), FR-E820-0015(0.2K), FR-E820S-0008(0.1K), and FR-E8 0008(0.1K), and FR-E810W-0016(0.2K).)					
Moio cicoli		P/+, N/-	-	Brake unit connection	Connect the brake unit (FR-BU2, FR-BU, or BU) or the multifunction regeneratio regeneration mode) to these terminals.					
V.	ž	P/+, P1*2	-	DC reactor connection	Remove the jumper across terminals P/+ and P1, and connect a DC reactor. (A connected to the single-phase 100 V power input models.) When a DC reactor across terminals P/+ and P1 should not be removed.					
			-	Earth (ground)	For earthing (grounding) the inverter chassis. Be sure to earth (ground) the inve	erter.				
		10	5	Power supply for a frequency setting potentiometer	Used as the power supply for an external frequency setting (speed setting) potentiometer.	5 ±0.5 VDC, Permissible load current: 10 mA				
Input signal	sy setting	2	5	Frequency setting (voltage)	Inputting 0 to 5 VDC (or 0 to 10 VDC) provides the maximum output frequency at 5 V (or 10 V) and makes input and output proportional. Use Pr.73 to switch among input 0 to 5 VDC (initial setting), 0 to 10 VDC, and 0 to 20 mA. * The initial setting varies depending on the specification. Set the voltage/current input switch to the "I" position to select current input (0 to 20 mA).	For voltage input,				
Indui	Frequency setting	4 5 Frequency setting (current) The initial Use Pr.26 0 to 10 VD			Inputting 4 to 20 mADC (or 0 to 5 VDC, 0 to 10 VDC) provides the maximum output frequency at 20 mA and makes input and output proportional. This input signal is valid only when the AU signal is ON (terminal 2 input is invalid). To use terminal 4 (current input at initial setting), assign "4" to Pr178 to Pr189 (Input termical function selection) before turning ON the AU signal. * The initial setting varies depending on the specification. Use Pr.267 to switch among input 4 to 20 mA (initial setting), 0 to 5 VDC, and 0 to 10 VDC. Set the voltage/current input switch in the "V" position to select voltage input (0 to 5 V / 0 to 10 V).	Maximum permissible voltage: 20 VDC For current input, Input resistance: 245 ±5 0 Permissible maximum current: 30 mA				
Output signal	Relay	A, B, C	_	Relay output (fault output)	1 changeover contact output indicates that the inverter protective function has activated and the outputs are stopped. Fault: discontinuity across B and C (continuity across A and C), Normal: continuity across B and C (discontinuity across A and C)	Contact capacity: 240 VAC 2A (power factor = 0.4) or 30 VDC 1 A				
		SX1	PC	Safety input (channel 1)		Input resistance: 4.7 kΩ voltage when contacts a open: 21 to 26 VDC, current when contacts a short-circuited: 4 to 6 mADC				
Safety input/output signal	Contact input	SX2	PC	Safety input (channel 2)	Terminal functions can be selected using Pr.S051 SX1/SX2 terminal function selection. For details, refer to the FR-E800-SCE Instruction Manual (Functional Safety).					
nput	lor	SY1	SC1	Safety output (channel 1)		Permissible load: 24 VDC				
Safety ir	Open collector	SY2	SC2	Safety output (channel 2)	Terminal functions can be selected using Pr.S055 SY1/SY2 terminal function selection. For details, refer to the FR-E800-SCE Instruction Manual (Functional Safety).	(27 VDC at maximum), 0.1 A (The voltage drop is 3.4 V at maximum while the signal is ON.)				
			-	24 VDC power supply common						
		SD	-	External transistor common (source (positive common))	Common output terminal for 24 VDC 0.1A power supply (terminal PC). Isolated	from terminal 5.				
- Colora		PC	-	Safety input terminal common	Common terminal for terminals SX1 and SX2.	Power supply voltage range: 22 to 26.5 VDC				
Common tormino		PC	SD	24 VDC power supply	Can be used as a 24 VDC 0.1 A power supply.	Permissible load current: 100 mA				
ç	3	5	-	Frequency setting common	Common terminal for the frequency setting signal (terminal 2 or 4). Do not earth (ground).					
		SC1	-	Safety output common (channel 1)	Common terminal for terminals SY1 and SY2. For details, refer to the FR-E800-	SCE Instruction Manual				
		SC2		Safety output common (channel 2)	(Functional Safety).					
Communication		_	_	Ethernet connector (2 ports)*3	Communication can be made via Ethernet. • Category: 100BASE-TX/10BASE-T· Transmission method: Baseband • Data transmission speed: 100 Mbps (100BASE-TX) / 10 Mbps (10BASE-T) • Maximum segment length: 100 m between the hub and the inverter· Interface. • Number of cascade connection stages: Up to 2 (100BASE-TX) / up to 4 (10BA • Number of interfaces available: 2· IP version: IPv4	SE-T)				
2	0	_	_	USB connector*4	By connecting an inverter to the personal computer through USB, FR Configura the inverter and monitoring the operation. • Interface: conforms to USB 1.1 • Transmission speed: 12 Mbps • Connector: USB mini B connector (receptacle mini B type)	tor2 can be used for setting				

Terminal T/L3 is not available for the single-phase power input models. Terminal P1 is not available for the single-phase 100 V power input mor Do not connect the parameter unit. The inverter may be damaged. USB bus power connection is available. The maximum SCCR is 500 m

2.6 Control circuit terminal layout

HE OFU ONCHOUND A ONLY OF ANN SX1 SX2 I 10 2 AB

	Wiring method Use crimp terminals and stripped wire for the control circuit wiring. If only a single wire is used, the wire can be stripped and used without a ferrule. Connect the end of wires (crimp terminal or stranded wire) to the terminal block.									
PC SD SY1SC1 5 4 SY2SC2	Crimp terminals commercially available (as of October 2020.) Phoenix Contact Co., Ltd. Ferrule part No.									
C	Wire gauge (mm ²)	With insulation sleeve	Without insulation sleeve	For UL wire*1	Crimping tool model No.					
C	0.3	AI 0,34-10TQ	-	-						
	0.5	AI 0,5-10WH	-	AI 0,5-10WH-GB						
	0.75	AI 0,75-10GY	A 0,75-10	AI 0,75-10GY-GB	CRIMPFOX 6					
	1	AI 1-10RD	A 1-10	AI 1-10RD/1000GB	CRIMFFUX 0					
	1.25, 1.5	AI 1, 5-10BK	A 1,5-10	AI 1,5-10BK/1000GB*2						
	0.75 (for 2 wires)	AI-TWIN 2×0,75-10GY	-	-						
	*1	insulation.		npatible with the MTW wire which 2.	h has a thick wire					

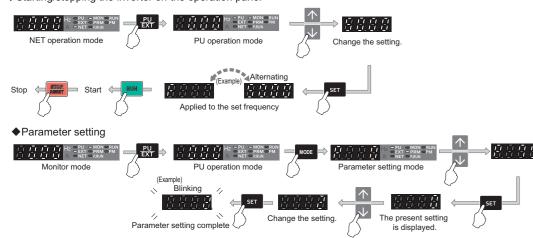
3 BASIC OPERATION

The operation panel cannot be removed from the inverter.

3.1 Components of the operation panel

	Name	Description
	PU/EXT key	Switches between the PU operation mode, the PUJOG operation mode, and the External operation mode.
	MODE key	Switches the operation panel to a different mode.
$\square \square $	SET key	Used to confirm each selection. Switches the monitor screen in the monitor mode.
PU MODE SET A NS	RUN key	Start command The direction of motor rotation depends on the Pr.40 setting.
	STOP/RESET key	Used to stop operation commands. Used to reset the inverter when the protective function is activated.
	UP/DOWN key	Used to change the setting of frequency or parameter.

♦ Starting/stopping the inverter on the operation panel



4 PARAMETERS

For details, refer to the FR-E800 Instruction Manual (Function). The PDF manual can also be downloaded from the Mitsubishi Electric FA Global Website.



6 SPECIFICATIONS

6.1 Inverter installation environment

Item	Description					
Surrounding air temperature*1	-20°C to +60°C (The rated current must be reduced at a temperature above 50°C. To meet the UL/EN standards, use the product at temperatures from -20°C to 50°C.)	Enclosure				
Ambient humidity	Ambient humidity 95% RH or less (non-condensing) (With circuit board coating (IEC 60721-3-3:1994 3C2 compatible)) 90% RH or less (non-condensing) (Without circuit board coating)					
Storage temperature	rage temperature -40°C to +70°C					
Atmosphere	Atmosphere Indoors (free from corrosive gas, flammable gas, oil mist, dust and dirt)					
Altitude/vibration Maximum 3000 m, 5.9 m/s ² or less (For installation at an altitude above 1000 m, consider a 3% reduction in the rated current per 500 m increase in altitude.)						
*1 Surrounding air temperature is a temperature measured at a measurement position in an enclosure Ambient temperature is a temperature outside an enclosure						

6.2 Inverter rating Three-phase 200 V class

0008 0015 0030 0050 0080 0110 0175 0240 0330 0470 0600 0760 Model FR-E820-[] 0.1K 0.2K 0.4K 0.75K 1.5K 2.2K 3.7K 5.5K 7.5K 11K 15K 18.5K 2 0.2 0.4 0.75 1.1 2.2 3.0 5.5 7.5 11.0 15.0 18.5 22.0 30 0.1 0.2 0.4 0.75 1.5 2.2 3.7 5.5 7.5 11.0 15.0 18.5 22.0 30 LD 0.2 0.4 Applicable motor capacity (kW)*1 ND 0.1 LD 0.5 0.8 1.4 2.4 3.8 4.8 7.8 12.0 15.9 22.3 27.5 35.1 4 Rated capacity (kVA)*2 3.2 LD 0.8 1.5 3.0 5.0 8.0 11.0 17.5 24.0 33.0 47.0 68.0 11.1 ND 0.8 1.5 3.0 5.0 8.0 11.0 17.5 24.0 33.0 47.0 60.0 76.0 90 ND 0.8 1.5 3.0 5.0 8.0 11.0 17.5 24.0 33.0 47.0 60.0 76.0 90 ND 0.8 1.4 (2.5) (4.1) (7.0) (10.0) (16.5) (23.0) (31.0) (44.0) (57.0) 77.0 90 Rated current (A)*7 LD 120% 60 s, 150% 3 s (inverse-time characteristics) at surrounding air temperature of 50°C Overload current rating*3 LD 120% 60 s, 100% 3 s (inverse-time characteristics) at surrounding air temperature of 50°C Output Voltage*4 Three-phase 200 to 240 V Brake transistor Not installed Built-in egenerative Maximum brake torque (ND reference)*5 braking 100% 50% 20% Rated input AC (DC) voltage/ Three-phase 200 to 240 V 50/60 Hz (283 to 339 VDC *9) Permissible AC (DC) voltage 170 to 264 V, 50/60 Hz (240 to 373 VDC *9) fluctuation Permissible frequency fluctuation ±59 Permissible frequency fluct: 15% Power supply capacity (k/A)*6 Mithout preduct LD 1.9 3.0 5.1 8.2 12.5 16.1 25.5 37.1 48.6 74.3 90.5 112.9 139.5 Power supply capacity (k/A)*6 Without preduct LD 1.9 3.0 5.1 8.2 12.5 16.1 25.5 37.1 48.6 74.3 90.5 112.9 139.5 With Dr cactor DD 1.4 2.3 4.5 7.0 10.7 15.0 23.1 30.5 41.0 63.6 79.9 90.0 114.3 With Dr cactor LD 1.3 2.0 3.5 6.0 9.6 12.0 20.0 30.0 40.0 56.0 69.0 81.0 Power supply capacity (k/A)*6 Without Dr cactor LD 0.7 1.1 1.9 3.1 4.8 6.2 9.7 15.0 19.0 25.0 31.0 36.0 44.0 <th Protective structure (IEC 60529) Open type (IP20) Cooling system Natural Forced air Approx. mass (kg) 0.5 0.5 0.7 1.0 1.4 1.8 3.3 3.3 5.4 5.6 11.0 11.0

		 If conditions are different from above, select 	t appropriato u	according to EN CO	1204				
	◆ Three-phase 400 V class 0016 0026 0040 0095 0120 0170 0230 0300 0380 0440	 Use a tinned (plating should not include zinc as a product compliant with the Low Voltage 	c) crimping terminal	to connect the ear		tening the screw, be careful	not to damage the t	threads. For use	The following table shows examples when the inverter rating is 125% of the ND rating, when the cable is the THHW cable with continuous maximum permissible temperature of 75°C, when the surrounding air temperature is 40°C or less, and when the wiring length is 20 m or shorter.
thod terminals and stripped wire for the control circuit wiring. If only a single wire is used, the wire pped and used without a ferrule. a end of wires (crimo termined or stranded wire) to the termined block	Model FR-E840-[] 0.4K 0.75K 1.5K 2.2K 3.7K 5.5K 7.5K 11K 15K 18.5K 22K LD 0.75 1.5 2.2 3.0 5.5 7.5 11.0 15.0 18.5 22.0 30.0	 Use PVC cables for I/O wiring. Use the molded case circuit breaker and mm If an earth leakage circuit breaker is require Use the inverter under the conditions of over 	ed, use a type-B ear	rth leakage circuit l	breaker (AC/DC detection co	ompatible).			Applicable inverter model *2 Tightening torque (N·m) Crimp terminal Cable gauge AWG
e end of wires (crimp terminal or stranded wire) to the terminal block. minals commercially available (as of October 2020.)	Applicable motor capacity (kW)*1 ND 0.4 0.75 1.5 2.2 3.7 5.5 7.5 11.0 18.5 22.0	 To use the inverter under the conditions of p Attach the fan cover to the fan with the fan cover to the fan cover to the fan with the fan cover to the fan cover	pollution degree 3, i cover fixing screws	install it in the encl enclosed with the	osure of IP54 or higher.				R/L1, S/L2 U, V, W R/L1, S/L2 U, V, W FR-E820S-0008(0.1K) to 0030(0.4K) M3.5 1.2 2.3.5 2.3.5 14 14
Ferrule part No. Crimping	Rated capacity (kVA)*2 LD 1.6 2.7 4.2 5.3 8.5 13.3 17.5 26.7 31.2 34.3 45.7 ND 1.2 2.0 3.0 4.6 7.2 9.1 13.0 17.5 22.9 29.0 33.5	FR-E820-0080(1.5K) to 03 FR-E840-0040(1.5K) to 01 FR-E820S-0080(1.5K) or h	170(7.5K)	Fan cover fixing screws	FR-E820-0470(11K) or high FR-E840-0230(11K) or high	her Fan	cover screws		FR-E820S-0050(0.75K) M4 1.5 2.4 2.4 14 14 FR-E820S-0016(1.5K) M4 1.5 5.5-4 2.4 10 14
auge With insulation Without toil model 2 ¹) sleeve sleeve For UL wire*1 No.	LD 2.1 3.5 5.5 6.9 11.1 17.5 23.0 35.0 41.0 45.0 60.0 Rated current (A)*7 1.8 0.6 4.7 6.9 10.4 (14.9) (19.6) (29.8) (34.9) (38.3) (51.0)	114-202-0000(1.5K)011	ingner P	Fan cover	4	fixing Fan cover	-		FR-E820S-0110(2.2K) M4 1.5 8-NK4 2-4 8 14 FR-E810W-0008(0.1K), 0015(0.2K) M3.5 1.2 2-3.5 2-3.5 14 14
AI 0,34-10TQ — —	ND 1.6 2.6 4.0 9.5 12.0 17.0 23.0 30.0 38.0 44.0 Output LD 120% 60 s, 150% 3 s (inverse-time characteristics) at surrounding air temperature of 50°C			Fan		Fan			FR-E810W-0030(0.4K) M3.5 1.2 5.5-S3 2-3.5 12 14 FR-E810W-0050(0.75K) M4 1.5 5.5-4 2-4 10 14
AI 0,5-10WH — AI 0,5-10WH-GB AI 0,75-10GY A 0,75-10 AI 0,75-10GY-GB CRIMPFOX 6	Overload current rating*3 ND 150% 60 s, 200% 3 s (inverse-time characteristics) at surrounding air temperature of 50°C								*2 For the single-phase 200 V power input models, the screw size for terminals RL1, SIL2, U, V, W, PR, P/+, N-, and P1, and the earthing (grounding) terminal is shown. For the single-phase 100 V power input models, the screw size for terminals RL1, SIL2, U, V, W, PR, P/+, and N-, and the earthing (grounding) terminal is shown.
Al 1-10RD A 1-10 Al 1-10RD/1000GB Al 1, 5-10BK A 1,5-10 Al 1,5-10BK/1000GB*2	Voltage*4 Three-phase 380 to 480 V Brake transistor Built-in								 Short circuit ratings 100 V class: Suitable for use in a circuit capable of delivering not more than 65 kA rms symmetrical amperes, 120 V maximum. 200 V class: Suitable for use in a circuit capable of delivering not more than 100 kA rms symmetrical amperes, 240 V maximum.
2 wires) AI-TWIN 2×0,75-10GY	Regenerative braking Maximum brake torque (ND 100% 50% 20%								 400 V class: Suitable for use in a circuit capable of delivering not more than 100 kA rms symmetrical amperes, 480 Y / 277 V maximum. Motor overload protection
insulation. *2 Applicable for terminals A1, B1, C1, A2, B2, C2.	Rated input AC (DC) voltage/ Three-phase 380 to 480 V 50/60 Hz (537 to 679VDC *9)	 If the cover is not fixed, the inverter protective When using the relay output terminals A, B, 			a power supply classified as	overvoltage category II spe	cified in IEC 60664.		The following explains the details of the motor overload protection. When using the electronic thermal relay function as motor overload protection, set the rated motor current in Pr.9 Electronic thermal O/L relay .
	Permissible AC (DC) voltage 323 to 528 V/ 50/60 Hz (457 to 740//DC *9)	• Fuse selection for branch circuit protecti To select fuses for branch circuit protection, refer		ion in 7.2 Instruc	tions for UL and cUL.				Pr.9 = 50% setting of inverter rating*1*2 /
nel	fluctuation active bit of the test of								$ \underbrace{ $
	Power Rated input DC reactor ND 2.7 4.4 6.7 9.5 14.1 17.8 24.7 32.1 41.0 50.8 57.3	 Motor overload protection For details, refer to Motor overload protection in 	in 7.2 Instructions	for UL and cUL.					$ \begin{array}{c} \hline 0 \\ \hline 0 $
me Description ev Switches between the PU operation mode, the PUJOG operation mode, and the	Supply current (Å)*8 With DC reactor LD 2.1 3.5 5.5 6.9 11.0 18.0 23.0 35.0 41.0 45.0 60.0 reactor ND 1.6 2.6 4.0 6.0 9.5 12.0 17.0 23.0 30.0 38.0 44.0	EU RoHS Directive We have declared that our inverters are complian	it to the EU RoHS	Directive and af	ffix the CE marking on the	inverters.			2 0 0 12 0 0.5Hz 2 0 0 12 0 0.5Hz 3 0 0.5Hz 4 0 0.5Hz 4 0 0.5Hz 5 0 0.5Hz 6 0 0.5Hz 6 0 0.5Hz 6 0 0.5Hz 6 0 0.5Hz 7 0 0.5Hz 7 0 0.5Hz 8 0 0.5Hz 8 0 0.5Hz 9 0 0.
y Switches the operation panel to a different mode.	Power supply Without DC reactor LD 2.5 4.5 6.8 8.2 12.4 19.0 25.0 36.0 42.0 45.0 58.0 LD D.2 1.3 3.4 5.1 7.2 10.8 14.0 19.0 25.0 32.0 39.0 44.0	For other information, refer to the FR-E800 Instruct			Ū.				240 relay function for motor protection is turned off (When Pr.9 setting is 0(A)) Electric constant-torque motor is set, this characteristic curve applies to operation at 6 Hz or higher. The internal accumulated heat value of the electronic thermal O/L relay is reset to the initial value by the inverter's power reset or reset signal input. Avoid
Used to confirm each selection. Switches the monitor screen in the monitor mode. Start command	capacity (kVA)*6 With DC LD 1.6 2.7 4.2 5.3 8.5 13.0 18.0 27.0 31.0 34.0 46.0	7.2 Instructions for U	l and cll						
The direction of motor rotation depends on the Pr.40 setting. Used to stop operation commands.	reactor ND 1.2 2.0 3.0 4.6 7.2 9.1 13.0 18.0 23.0 29.0 34.0 Protective structure (IEC 60529) Open type (IP20) <	(Standard to comply with: UL 61800-5-1, CSA C2		-					Image: Second
SET key Used to reset the inverter when the protective function is activated. Ney Used to change the setting of frequency or parameter.	Cooling system Natural Forced air Approx. mass (kg) 1.2 1.4 1.8 1.8 2.4 4.8 4.9 11.0 11.0	 Product handling information / Inform WARNING- Operation of this product requires de 				Safety Guideline and the	nstruction Manua	(Connection)	60 60 60 60 60 60 60 60 60 60 60 60 60 6
	◆ Single-phase 200 V class	intended for use with this product. Please forward Global Website. To order manuals, please contact	I relevant manuals	s to the end user.					52.5% 100% When the difference between the inverter and motor capacities is large and the set value is small, the protective characteristics of the electronic thermal relay
÷) ////////////////////////////////////	Model FR-E820S-[] 0008 0015 0030 0050 0080 0110 0.1K 0.2K 0.4K 0.75K 1.5K 2.2K	-AVERTISSEMENT-			notion forum in a	cont dogunation of the total	otivo da - 1	ot lo Marrie	Inverter output current (%) function will be deteriorated. Use an external thermal relay in such cases. (% to the rated output current) The cooling effect of the motor drops during low-speed operation. Use a motor with built-in thermal protector.
	Applicable motor capacity (kW)*1 ND 0.1 0.2 0.4 0.75 1.5 2.2 Rated capacity (kVA)*2 ND 0.3 0.6 1.2 2.0 3.2 4.4	L'utilisation de ce produit nécessite des instruction d'instructions (Connexion) destiné à être utilisé au être téléchargés au format PDF sur Mitsubishi Ele	vec ce produit. Ve	euillez transmettre	e les manuels corresponda	ants à l'utilisateur final. Le	es manuels peuve	ent également	 A dedicated motor cannot be protected by the electronic thermal relay. Use an external thermal relay.
de Change the setting.	Rated current (A)*7 ND 0.8 (0.8) 1.6 (1.4) 3.0 (2.5) 5.0 4.1) 8.0 (7.0) 11.0 (10.0)	Branch circuit protection		_			-		 Motor over temperature sensing is not provided by the drive. The electronic thermal networy retention function is not provided by the drive. The electronic thermal relay function is not a sneed sensing function.
Iternating	Overload current rating*3 ND 150% 60 s, 200% 3 s (inverse-time characteristics) at surrounding air temperature of 50°C Output Veltage14 Three sheep 200 to 300 to	For installation in the United States, branch circuit For installation in Canada, branch circuit protectio							The electronic thermal relay function is not a speed sensing function. SERIAL number check
	Brake transistor Not installed Built-in	Short circuit protection of the inverter cannot be u Integral solid state short circuit protection does no			. Branch circuit protection	must be provided in acco	rdance with the N	National	The SERIAL number can be checked on the inverter rating plate or package. Rating plate example
	Regenerative braking Maximum brake torque (ND 100% 50% 20%	Electrical Code and any applicable local codes. Precautions for opening the branch-c	ircuit protective	dovico / Práca	itions nour ouvrir le disr	ositif de protection du	circuit de dériva	tion	Kang para shampe
	Rated input AC voltage/frequency Single-phase 200 to 240 V, 50/60 Hz	-WARNING- If the fuse melts down or the breaker down or the trip before replacing the fuse or resett	trips on the input si	ide of this product,	, check for wiring faults (such	n as short circuits). Identify a			Inverter model
de Parameter setting mode	Permissible AC voltage fluctuation 170 to 264 V, 50/60 Hz Permissible frequency fluctuation ±5%	-AVERTISSEMENT- Si le fusible fond ou si le disjoncteur se déclenche					ifier et éliminer la ca	ause de la fonte	Input rating INPUT :XXXXX Output rating 0UTPUT :XXXXX
	Power Rated input DC reactor ND 2.3 4.1 7.9 11.2 17.9 25.0	ou du déclenchement avant de remplacer le fusibl • Fuse selection			clenché (ou avant de remettre	e sous tension l'onduleur).			SERIAL SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Change the setting.	supply current (A)*8 With DC reactor 1.4 2.6 5.2 8.7 13.9 19.1	Fuses are selected based on IEC/EN/UL 61800-5 For installation in the United States, the semicond local codes. For installation in Canada, the semico	uctor fuses shown i	in the following tab					Country of origin
is displayed.	Power supply capacity ND 0.4 0.8 1.5 2.5 4.5 5.5	local codes. Always install the following semicond Inverter model Cat. No	ductor fuses for bran		on. Inverter model	Cat. No	Manufacturer	Rating	The last two digits of the production year is indicated as the Year, and the Month is indicated by 1 to 9, X (October), Y (November), or Z (December).
5 LIST OF FAULT DISPLAYS	(kVA)*6 With DC reactor 0.3 0.6 1.1 1.9 3.0 4.2	FR-E820-0008(0.1K), 170M1408, 170M1308 0015(0.2K) or 170M1358	Bussmann	700 V, 10 A	FR-E840-0120(5.5K)	170M1414	Bussmann	700 V, 50 A	7.4 EU ErP Directive (Ecodesign Directive)
For details, refer to the FR-E800 Instruction Manual (Maintenance). The PDF manual can also be downloaded from the Mitsubishi Electric FA Global	Protective structure (IEC 60529) Open type (IP20) Cooling system Natural Forced air	FR-E820-0030(0.4K) 170M1409, 170M1309 or 170M1359	Bussmann	700 V, 16 A	FR-E840-0170(7.5K)	170M1416	Bussmann	700 V, 80 A	The following table shows the power loss data according to Ecodesign Directive. The regulation covers 3-phase variable speed drives from 0.12 kW ≤ Pn ≤ 1 000 kW. (LD rated / ND rated)
Website. For more information on the product	Approx. mass (kg) 0.5 0.5 0.8 1.3 1.4 1.9 ◆ Single-phase 100 V class	FR-E820-0050(0.75K) 170M1411, 170M1311 or 170M1361 FR F020 0000/1 5K) 170M1413, 170M1313	Bussmann	700 V, 20 A	FR-E840-0230(11K)	170M1419, 170M1319 or 170M1469 170M1419, 170M1319	Bussmann	700 V, 160 A	Rated Apparent Stand by load point load
	Model FR-E810W-[] 0008 0015 0030 0050 0.1K 0.2K 0.4K 0.75K	FR-E820-0080(1.5K) 0r 170W1313 or 170W1313 FR-E820-0110(2.2K) 170W1314 170W1413, 170W1314	Bussmann	700 V, 32 A 700 V, 50 A	FR-E840-0300(15K) FR-E840-0380(18.5K)	or 170M1419, 170M1319 or 170M1469 170M1420, 170M1320	Bussmann	700 V, 160 A	Model name Apparent Oy 1 (90;100) 2 (50;100) 3 (0;100) 4 (90;50) 5 (50;50) 6 (0;50) 7 (50;25) 8 (0;25) class power loss (%) (%) (%) (%) (%) (%) 6 (0;50) 7 (50;25) 8 (0;25) class
	Applicable motor capacity (kW)*1 ND 0.1 0.2 0.4 0.75	ED E220 017E(2.7K) 170M1304	Bussmann Bussmann	700 V, 50 A 700 V, 80 A	FR-E840-0440(22K)	or 170M1370 170M1421, 170M1321	Bussmann	700 V, 200 A 700 V, 250 A	FR-E820-0015(0.2K) 0.8 / 0.6 5.1 3.1 / 3.2 3.1 / 3.2 3.1 / 3.3 2.6 / 2.8 2.6 / 2.8 2.5 / 2.7 2.5 / 2.8 IE2 FR-E820-0030(0.4K) 1.4 / 1.2 5.1 2.9 / 2.9 3.0 / 2.9 2.3 / 2.3 2.3 / 2.3 2.4 / 2.4 2.3 / 2.3 IE2
	Rated capacity (kVA)*2 ND 0.3 0.6 1.2 2.0 Rated current (A)*7 ND 0.8 1.5 3.0 5.0 (0.8) (1.4) (2.5) (4.1)	FR-E820-0175(S.FK) or 170M1366 FR-E820-0240(5.5K) 170M1418, 170M1318 or 170M1368	Bussmann	700 V, 100 A	FR-E820S-0008(0.1K)	or 170M1471 170M1408	Bussmann	700 V, 10 A	FR-E820-0050(0.75K) 2.4/2 5.1 2.7/2.6 2.7/2.6 2.7/2.7 1.8/1.8 1.8/1.8 1.5/1.5 1.5/1.5 IE2 FR-E820-0080(1.5K) 3.8/3.2 9.2 2.7/2.6 2.7/2.6 2.7/2.7 1.8/1.8 1.8/1.8 1.5/1.5 1.5/1.5 IE2
	Overload current rating*3 ND 150% 60 s, 200% 3 s (inverse-time characteristics) at surrounding air temperature of 50°C.	FR-E820-0330(7.5K) 170M1419, 170M1319 or 170M1369	Bussmann	700 V, 160 A	FR-E820S-0015(0.2K)	170M1409	Bussmann	700 V, 16 A	FR-E820-0110(2.2K) 4.8/4.4 9.2 2.5/2.5 2.5/2.5 2.5/2.5 1.7/1.7 1.7/1.7 1.4/1.4 1.4/1.4 IE2 FR-E820-0175(3.7K) 7.8/7 10.2 2.5/2.5 2.5/2.5 1.7/1.7 1.7/1.7 1.7/1.7 1.4/1.4 IE2
	Output Imperative of solution Voltage*10*11 Three-phase 200 to 240 V Brake transistor Not installed Built-in	FR-E820-0470(11K) 170M1420, 170M1320 or 170M1370	Bussmann	700 V, 200 A	FR-E820S-0030(0.4K)	170M1411	Bussmann	700 V, 25 A	FR-E820-0240(55K) 12/9.6 16.9 2.4/2.3 2.4/2.3 1.3/1.3 1.3/1.3 1.3/1.3 1.0/1.0 1.0/1.0 IE2 FR-E820-0330(7.5K) 15.9/13.1 16.9 2.4/2.3 2.4/2.3 1.3/1.3 1.3/1.3 1.3/1.3 0.9/0.9 0.9/0.9 IE2
	Regenerative braking torque 150% 100%	FR-E820-0600(15K) 170M1421, 170M1321 or 170M1471	Bussmann	700 V, 250 A	FR-E820S-0050(0.75K)	170M1413	Bussmann	700 V, 40 A	FR-E820-0470(11K) 22.3/18.7 28.9 2.2/2.2 2.2/2.2 1.2/1.2 1.2/1.2 1.2/1.2 0.9/0.9 0.9/0.9 IE2 FR-E820-0600(15K) 27.5/2.39 28.9 2.3/2.2 2.3/2.2 1.2/1.2 1.2/1.2 1.2/1.2 0.9/0.9 0.9/0.9 IE2
Description	(ND reference)*5 Rated input AC voltage/frequency Single-phase 100 to 120 V 50/60 Hz	FR-E820-0760(18.5K) 170M1422, 170M1322 or 170M1472 FR FR20, 0000/20/() 170M1422, 170M1322	Bussmann	700 V, 315 A	FR-E820S-0080(1.5K)	170M1415	Bussmann	700 V, 63 A	FR-E820-0760(18.5K) 35.1 / 30.3 23.0 2.3 / 2.3 2.3 / 2.2 1.2 / 1.2 1.2 / 1.2 1.2 / 1.2 0.9 / 0.9 0.9 / 0.9 IE2
re above 50°C. To meet the UL/EN standards, use rd coating (IEC 60721-3-3:1994 3C2 compatible))	Power Permissible AC voltage fluctuation 90 to 132 V, 50/60 Hz supply Permissible frequency fluctuation ±5%	rR-E020-0900(22K) or 170M1472	Bussmann	700 V, 315 A	FR-E820S-0110(2.2K)	170M1417 170M1409, 170M1309	Bussmann	700 V, 100 A	FR-E820-0900(22K) 45.8/35.9 23.0 2.5/2.3 2.5/2.3 1.3/1.2 1.3/1.2 1.3/1.2 0.9/0.9 0.9/0.9 IE2 FR-E840-0016(0.4K) 1.6/1.2 5.7 2.2/2.2 2.1/2.2 2.2/2.2 1.8/1.9 1.8/1.9 1.8/1.9 1.8/1.9 IE2
$\begin{array}{c} \text{recound} (\text{IEC 60721-3-3: 1994 3C2 compatible})) \\ \text{soard coating} \\ soard c$	Rated input current (A) *8 ND 3.7 6.8 12.4 19.6 Protective structure (IEC 60529) Open type (IP20) Upen type (IP20) Upen type (IP20)	FR-E840-0016(0.4K) 170M1408 FR-E840-0026(0.75K), 0040(1.5K) 170M1409	Bussmann Bussmann	700 V, 10 A 700 V, 16 A	FR-E810W-0008(0.1K) FR-E810W-0015(0.2K)	or 170M1359 170M1410, 170M1310 or 170M1360	Bussmann Bussmann	700V, 16A 700V, 20A	FR-E840-0026(0.75K) 2.7/2 5.7 2.2/2.0 2.1/2.0 2.2/2.0 1.4/1.5 1.4/1.4 1.4/1.5 1.2/1.2 1.2/1.2 IE2 FR-E840-0040(1.5K) 4.2/3 9.7 2.1/2.0 2.1/2.0 1.4/1.4 1.4/1.4 1.4/1.4 1.2/1.2 1.2/1.2 IE2
Measurement x 5 cm position	Cooling system Natural Approx. mass (kg) 0.5 0.6 0.8 1.4	FR-E840-0060(2.2K) 170M1312	Bussmann	700 V, 32 A	FR-E810W-0030(0.4K)	or 170M1360 170M1413, 170M1313 or 170M1363	Bussmann	700V, 40A	FR-E840-0060(2.2K) 5.3 / 4.6 9.8 1.8 / 1.8 1.8 / 1.8 1.3 / 1.3 1.3 / 1.3 1.3 / 1.3 1.1 / 1.1 1.1 / 1.1 IE2 FR-E840-0095(3.7K) 8.5 / 7.2 9.8 1.7 / 1.7 1.7 / 1.7 1.2 / 1.2 1.2 / 1.2 1.0 / 1.1 1.0 / 1.1 IE2
il mist, dust and dirt)	 The applicable motor capacity indicated is the maximum capacity applicable for use of the Mitsubish Electric 4-pole standard efficiency motor. To drive a Mitsubish Electric high-performance energy-saving motor, use the 200 V class (75 Kinverter for a 1.1 kW motor, or 200400 V class 2.2K inverter for a 3. kW motor. The rated output capacity assumes that the output voltage is 230 V for three-phase 200 /100 V class and 440 V for three-phase 400 V class. The percentage of the overload current taing is the ratio of the overload current. For repeated duty, allow time for the inverter and motor to return to or below the 	FR-E840-0095(3.7K) 170M1413	Bussmann	700 V, 40 A	FR-E810W-0050(0.75K)	170M1415, 170M1315 or 170M1365	Bussmann	700V, 63A	FR-E840-0120(5.5K) 13.3 / 9.1 14.5 1.7 / 1.6 1.6 / 1.6 1.7 / 1.6 0.9 / 0.9 0.9 / 0.9 0.9 / 0.9 0.7 / 0.7 0.7 / 0.7 IE2 FR-E840-0170(7.5K) 17.5 / 13 14.5 1.7 / 1.6 1.7 / 1.6 0.9 / 0.9 0.9 / 0.9 0.9 / 0.9 0.7 / 0.7 0.7 / 0.7 IE2
at an altitude above 1000 m, consider a 3% reduction in the rated current per 500 m increase	temperatures under 100% load. In a single-phase 200 V class inverter with the automatic restart after the instantaneous power failure (Pr.57) and the power failure 100% load. In a single-phase 200 V class inverter with the automatic restart after the instantaneous power failure (Pr.57) and the power failure 100% or higher. 4 The maximum output voltage does not exceed the power supply voltage. The maximum output voltage can be changed within the setting range. The maximum point of the voltage waveform at the output side of the inverter is approximately the power supply voltage unlifeling by $\sqrt{2}$.	Capacitor discharge time / Temps de CAUTION - Risk of Electric Shock -	-						FR-E840-0230(11K) 26.7/17.5 26.5 1.7/1.6 1.7/1.6 0.9/0.9 0.9/0.9 0.9/0.9 0.7/0.7 0.7/0.7 IE2 FR-E840-0300(15K) 31.2/22.9 26.5 1.7/1.6 1.7/1.6 0.9/0.9 0.9/0.9 0.9/0.9 0.7/0.7 0.7/0.7 IE2
ossition in an enclosure. Ambient temperature is a temperature outside an enclosure.	+5 The amount of braking torque is the average short-term torque (which varies depending on motor loss) that is generated when a motor decelerates in the shortest time by itself from 60 Hz. It is not continuous regenerative torque. The average deceleration torque becomes lower when a motor decelerates from a frequency, their there the set or equipped with a built in brake resistor. Use an option brake resistor for an operation with large regenerative power (Not available for FR-E820-0008(0.1K), FR-E820-0015(0.2K), FR-E820-0008(0.1K), FR-E820-0015(0.2K), FR-	Before wiring or inspection, check that the LED di longer after power OFF, and check that there are r power OFF, and it is dangerous.							FR-E840-0380(18.5K) 34.3 / 29 26.5 1.6 / 1.2 1.6 / 1.2 0.9 / 0.7 0.9 / 0.7 0.7 / 0.5 0.7 / 0.5 IE2 FR-E840-0440(22K) 45.7 / 33.5 26.5 1.3 / 1.2 1.3 / 1.2 1.3 / 1.2 0.7 / 0.7 0.7 / 0.7 0.5 / 0.5 0.5 / 0.5 IE2
	 The power supply capacity varies with the value of the input power impedance (including those of the input reactor and cables). The value in parentheses is the rated output current when the low accustic noise operation is performed with the surrounding air temperature exceeding 40°C while 2 kHz or higher value is selected in Pr.12 PWM frequency selection. The rated input current is the value at a rated output current. The input power impedances (including those of the input reactor and cables) affect the value. Connect the DC power supply to the inverte terminals P+ and N/c. Connect the positive terminal of the power supply to terminal to terminal to terminal to terminal N/c. 	ATTENTION - Risque de choc électrique -							8 WARRANTY
0050 0080 0110 0175 0240 0330 0470 0600 0760 0900 0.75K 1.5K 2.2K 3.7K 5.5K 7.5K 11K 15K 18.5K 22K	 Connect the UC power supply in the inverter terminate Pri-and Nuc. Contrect the possible terminat on the power supply is the inverter terminate Pri-and Nuc. Connect the UC power supply in the inverter terminate Pri-and Nuc. Contrect the possible terminat on the regearcher terminate in the regearcher voltaged Provering Vihmen spore supply in the count create the regearcher voltaged energy is used. Counted the power supply resistant to the regenerative voltaged Provering ON produces up to four times as large current as the inverter rated current. Prepare a DC power supply resistant to the inverter limit circuit is provided in the FR-EB00 series inverter. 	Avant le câblage ou l'inspection, vérifier que le tén mise hors tension et vérifier l'absence de tension pendant un certain temps après la mise hors tens	résiduelle à l'aide	e d'un multimètre	numérique ou similaire. L	e condensateur est charg	jé avec une haute		Exclusion of loss in opportunity and secondary loss from warranty liability
1.1 2.2 3.0 5.5 7.5 11.0 15.0 18.5 22.0 30.0 0.75 1.5 2.2 3.7 5.5 7.5 11.0 15.0 18.5 22.0 30.0	The power capacity depends on the output impedance of the power supply. Select a power capacity around the AC power supply capacity. The Single-shase 100 V power input models, the maximum output voltage is briete the amount of the power supply voltage. For the single-shase 100 V power input models, output voltage decreases by applying motor load, and output current increases compared to the three-phase power input models. The load must be reduced so that output current count current does not exceed the rade motor current.	 Wiring to the power supply and the m 	-	ingereux. Precau	luons pour ouvrir le dispos	au de protection du circu	t de derivation		Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to: (1) Damages caused by any cause found not to be the responsibility of Mitsubishi.
2.4 3.8 4.8 7.8 12.0 15.9 22.3 27.5 35.1 45.8 2.0 3.2 4.4 7.0 9.6 13.1 18.7 23.9 30.3 35.9	7 APPENDIX	Refer to the National Electrical Code (Article 310) Electrical Code (Article 430). For wiring the input (Figure 1) (regarding the allow R/L1, S/L2, T/L3) ar	nd output (U, V, W)) terminals of the inverter, use				 (2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products. (3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.
6.0 9.6 12.0 19.6 30.0 40.0 56.0 69.0 88.0 115.0 (5.1) (8.2) (10.2) (16.7) (25.5) (34.0) (47.6) (58.7) (74.8) (97.8)	For information on other applicable standards not found in this document, refer to the FR-E800 Instruction Manual (Connection).	crimp terminals. Crimp the terminals with the crimp	Pring LOOI LECOMMER	naca by the termin	a manulauurer.				(4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.
5.0 8.0 11.0 17.5 24.0 33.0 47.0 60.0 76.0 90.0 (4.1) (7.0) (10.0) (16.5) (23.0) (31.0) (44.0) (57.0) (72.0) (86.0)	 7.1 Instructions for compliance with the EU Directives The authorized representative in the EU 	The following table shows examples when the inv temperature of 75° C, when the surrounding air temperature of the surrounding are temperature.	verter rating is 125 mperature is 40°C	5% of the LD ration C or less, and wh	ng, when the cable is the ten the wiring length is 20	THHW cable with continu m or shorter.	ous maximum per	rmissible	
-time characteristics) at surrounding air temperature of 50°C -time characteristics) at surrounding air temperature of 50°C	The authorized representative in the EU is shown below. Name: Mitsubishi Electric Europe B.V. Address: Mitsubishi-Electric-Plazt 1, 40882 Ratingen, Germany	Applicable inverter model	Terminal screw	v size Tightening (N·r	3 ····	terminal	Cable gauge AWG		
	EMC Directive	FR-E820-0008(0.1K) to 0050(0.75K)	-1 M3.5	1.2	R/L1, S/L2, T/ 2-3.5	/L3 U, V, W R/L1, 2-3.5 14	S/L2, T/L3 U,	, V , W	
50% 20%	We declare that this inverter conforms with the EMC Directive and affix the CE marking on the inverter. EMC Directive: 2014/30/EU Standard: IEC 61800-3:2017 (Category "C3" / Second environment)	FR-E820-0080(1.5K) FR-E820-0110(2.2K)	M4 M4	1.5 1.5	3.5-4 5.5-4	2-4 12 2-4 10	14 14		
60 Hz (283 to 339 VDC *9)	This inverter is not intended to be used on a low-voltage public network which supplies domestic premises. When using the inverter in a residential area, take appropriate measures and ensure the conformity of the inverter used in the residential area.	FR-E820-0175(3.7K) FR-E820-0240(5.5K)	M4 M5	1.5 2.5	8-NK4 8-5	5.5-4 8 8-5 8	10 8		
00 H2 (263 10 359 VDC '9)	 Radio frequency interference is expected if used on such a network. The installer shall provide a guide for installation and use, including recommended mitigation devices. 	FR-E820-0330(7.5K) FR-E820-0470(11K)	M5 M5	2.5 2.5	14-5 38-S5	8-5 6 22-5 3	8	\square	
	 Notes Set the EMC Directive compliant EMC filter to the inverter. Insert line noise filters and ferrite cores to the power and control cables as required. 	FR-E820-0600(15K) FR-E820-0760(18.5K)	M6(M5) M8(M6)	4.4 7.8	38-S6 60-8	38-S6 2 38-8 1/0	3		
8.2 12.5 16.1 25.5 37.1 48.6 74.3 90.5 112.9 139.5 7.0 10.7 15.0 23.1 30.5 41.0 63.6 79.9 99.0 114.3	 Connect the inverter to an earthed power supply. Install the motor, EU Directive compliant EMC filter, and controller cable found in the EMC Installation Guidelines (BCN-A21041-204) according to the instructions. (Contact your sales representative for the manual.) 	FR-E820-0900(22K) FR-E840-0016(0.4K) to 0060(2.2K)	M8(M6) M4	7.8 1.5	60-8 2-4	60-8 1/0×2 2-4 14	1/0 14		
8.0 9.6 12.0 20.0 30.0 40.0 56.0 69.0 88.0 115.0 5.0 8.0 11.0 17.5 24.0 33.0 47.0 60.0 76.0 90.0	 To make full use of the EMC Directive compliant noise filter, motor cable lengths should not exceed 20 m. Ensure that the finalized system which includes an inverter complies with the EMC Directive. 	FR-E840-0095(3.7K) FR-E840-0120(5.5K), 0170(7.5K)	M4 M4	1.5 1.5	5.5-4 8-NK4	2-4 10 5.5-4 8	14 10		
3.1 4.8 6.2 9.7 15.0 19.0 29.0 35.0 43.0 54.0 2.7 4.1 5.7 8.8 12.0 16.0 25.0 31.0 38.0 44.0	Low Voltage Directive	FR-E840-0230(11K) FR-E840-0300(15K)	M4 M5	1.5 2.5	14-4 22-S5	8-4 6 14-5 4	8		
2.3 3.7 4.6 7.5 11.0 15.0 21.0 26.0 34.0 44.0	We have self-confirmed our inverters as products compliant to the Low Voltage Directive and affix the CE marking on the inverters. Unable Low Voltage Directive: 2014/35/EU Standard: EN 6180-5-1:2007	FR-E840-0380(18.5K) FR-E840-0440(22K)	M6 M6	4.4 4.4	22-6 38-6	14-6 4 22-6 3	6		
1.9 3.0 4.2 6.7 9.1 13.0 18.0 23.0 29.0 34.0		*1 The screw size for terminals R/L1, S/L transient execution for B/L1, S/L2, L1, V M	L2, T/L3, U, V, W, PR, P/	/+, N/-, and P1, and the	earthing (grounding) terminal is sho	own. For single-phase power input,	the terminal screw size i	indicates the size of	

 Outline of instructions
 Do not use an earth leakage circuit breaker as an electric shock protector without connecting the equipment to the earth. Connect the equipment to the earth (ground) securely.

Wre the earth terminal independently. (Do not connect two or more cables to one terminal.) Use the cable whose size is indicated in Section 2.3 at the surrounding air temperature up to 40°C.

The screw size for terminals RL1. SL2. TL3. U. V, W, PR, P/+, N-, and P1, and the earthing (grounding) terminal is shown. For single-phase power input, the terminal screw size indicates the size of terminal screw for RL1. SL2. U, V, W, PR, P/+, N², P1 and a screw for earthing (grounding). The screw size for the earthing (grounding) terminal on FR-E820-0600(15K) to FR-E820-0900(22K) is indicated in anontheses.