



Compact Inverter

FRENIC-Mini

Three-phase 400 V series: FRN0002 to 0011C2E-4E

Single-phase 200 V series: FRN0001 to 0012C2E-7E

CAUTION

Thank you for purchasing our FRENIC-Mini series of inverters.

- This manual is a supplement to the FRENIC-Mini Instruction Manual (INR-SI47-1729-E, INR-SI47-1745-E). It describes the FRENIC-C2E (Inverter types FRN0002 to 0011C2E-4E and FRN0001 to 0012C2E-7E). For other descriptions, refer to the original manual.
- Improper handling might result in incorrect operation, a short life, or even a failure of this product as well as the motor.
- Deliver this manual to the end user of this product. Keep this manual in a safe place until this product is discarded.
- For instructions on how to use an optional device, refer to the instruction and installation manuals for that optional device.

Chapter 2 MOUNTING AND WIRING OF THE INVERTER

2.3.2 Terminal arrangement and screw specifications

(1) Arrangement of the main circuit terminals

Table 2.3 Main Circuit Terminals

Power supply voltage	Nominal applied motor (kW)	Inverter type	Terminal screw size	Tightening torque (N·m)	Refer to:
Three-phase 400 V	0.4	FRN0002C2E-4E	M4	1.8	Figure B
	0.75	FRN0004C2E-4E			
	1.5	FRN0005C2E-4E			
	2.2	FRN0007C2E-4E			
	4.0	FRN0011C2E-4E			
Single-phase 200 V	0.1	FRN0001C2E-7E	M3.5	1.2	Figure C
	0.2	FRN0002C2E-7E			
	0.4	FRN0004C2E-7E			
	0.75	FRN0006C2E-7E			
	1.5	FRN0010C2E-7E	M4	1.8	Figure D
	2.2	FRN0012C2E-7E			

2.3.3 Recommended wire sizes

Table 2.6 lists the recommended wire sizes. The recommended wire sizes for the main circuit terminals at an ambient temperature of 50°C are indicated for two types of wire: HIV single wire (for the maximum allowable temperature 75°C) (before a slash (/)) and IV single wire (for 60°C) (after a slash (/)).

Table 2.6 Recommended Wire Sizes

Power supply voltage	Nominal applied motor (kW)	Inverter type	*1 Recommended wire size (mm ²)					
			Main circuit					Control circuit
			Main circuit power input [L1/R, L2/S, L3/T] [L1/L, L2/N] Grounding [⊕G]		Inverter output [U, V, W]	DCR [P1, P (+)]	Braking resistor [P (+), DB]	
			w/ DCR	*2 w/o DCR				
Three-phase 400 V	0.4	FRN0002C2E-4E	2.0 / 2.0 (2.5)	2.0 / 2.0 (2.5)	2.0 / 2.0 (2.5)	2.0 / 2.0 (2.5)	2.0 / 2.0 (2.5)	0.5
	0.75	FRN0004C2E-4E						
	1.5	FRN0005C2E-4E						
	2.2	FRN0007C2E-4E						
	4.0	FRN0011C2E-4E						
Single-phase 200 V	0.1	FRN0001C2E-7E	2.0 / 2.0 (2.5)	2.0 / 2.0 (2.5)	2.0 / 2.0 (2.5)	2.0 / 2.0 (2.5)	-	
	0.2	FRN0002C2E-7E						
	0.4	FRN0004C2E-7E						
	0.75	FRN0006C2E-7E						
	1.5	FRN0010C2E-7E					2.0 / 3.5 (4.0)	
	2.2	FRN0012C2E-7E					2.0 / 3.5 (4.0)	3.5 / 5.5 (6.0)

*1 Use crimp terminals covered with an insulated sheath or insulating tube. Recommended wire sizes are for HIV/IV (PVC in the EU).

*2 Wire sizes are calculated on the basis of input RMS current under the condition that the power supply capacity and impedance are 500 kVA and 5%, respectively.

*3 Insert the DC reactor (DCR) in either of the primary power input lines. Refer to Chapter 10 for more details.

Chapter 5 FUNCTION CODES

5.1 Function Code Tables

In the ROM version 0800 or later, the factory default of function code H27 (Thermistor for motor, Level) is changed from 0.16 to 1.6.

Table A Fuji Standard Motor Parameters

Power supply voltage	Applicable motor rating (kW)	Inverter type	Fuji's standard torque boost (%)	Nominal rated current of Fuji standard motor (A)	Nominal rated capacity of Fuji standard motor (kW)
			Function codes F09/A05	Function codes F11/A07/E34/E37	Function codes P02/A16
Three-phase 400 V	0.4	FRN0002C2E-4E	7.1	1.15	0.40
	0.75	FRN0004C2E-4E	6.8	1.80	0.75
	1.5	FRN0005C2E-4E	6.8	3.10	1.50
	2.2	FRN0007C2E-4E	6.8	4.60	2.20
	4.0	FRN0011C2E-4E	5.5	7.50	3.70
Single-phase 200 V	0.1	FRN0001C2E-7E	8.4	0.73	0.10
	0.2	FRN0002C2E-7E	8.4	1.38	0.20
	0.4	FRN0004C2E-7E	7.1	2.36	0.40
	0.75	FRN0006C2E-7E	6.8	3.58	0.75
	1.5	FRN0010C2E-7E	6.8	5.77	1.50
	2.2	FRN0012C2E-7E	6.8	8.80	2.20

5.2 Details of Function Codes

F50, F51 Electronic Thermal Overload Protection for Braking Resistor (Discharging capability and Allowable average loss)

■ External Braking Resistors

Standard models

Power supply voltage	Inverter type	Braking resistor		Resistance (Ω)	Continuous braking (100% braking torque)		Intermittent braking (Period: 100 s or less)	
		Type	Qty.		Discharging capacity (kW)	Braking time (s)	Allowable average loss (kW)	Duty (%ED)
Three-phase 400 V	FRN0002C2E-4E	DB0.75-4	1	200	9	45	0.044	22
	FRN0004C2E-4E				17		0.068	18
	FRN0005C2E-4E	DB2.2-4		160	34	30	0.075	10
	FRN0007C2E-4E				33		0.077	7
	FRN0011C2E-4E	DB3.7-4		130	37	20	0.093	5
Single-phase 200 V	FRN0004C2E-7E	DB0.75-2	1	100	9	45	0.044	22
	FRN0006C2E-7E				17		0.068	18
	FRN0010C2E-7E	DB2.2-2		40	34	30	0.075	10
	FRN0012C2E-7E				33		0.077	7

10% ED models

Power supply voltage	Inverter type	Braking resistor		Resistance (Ω)	Continuous braking (100% braking torque)		Intermittent braking (Period: 100 s or less)	
		Type	Qty.		Discharging capacity (kW)	Braking time (s)	Allowable average loss (kW)	Duty (%ED)
Three-phase 400 V	FRN0002C2E-4E	DB0.75-4C	1	200	50	250	0.075	37
	FRN0004C2E-4E					133		20
	FRN0005C2E-4E	DB2.2-4C		160	55	73	0.110	14
	FRN0007C2E-4E					50		10
	FRN0011C2E-4E	DB3.7-4C		130	140	75	0.185	
Single-phase 200 V	FRN0004C2E-7E	DB0.75-2C	1	100	50	250	0.075	37
	FRN0006C2E-7E					133		20
	FRN0010C2E-7E	DB2.2-2C		40	55	73	0.110	14
	FRN0012C2E-7E					50		10

Chapter 8 SPECIFICATIONS

8.2 Semi-Standard Models

8.2.1 EMC filter built-in type

■ Three-phase 400 V class series

Item	Specifications				
Power supply voltage	Three-phase 400 V				
Type (FRN___C2E-4E)	0002	0004	0005	0007	0011
Applicable motor rating (kW) *1	0.4	0.75	1.5	2.2	4.0
Weight (kg)	1.5	1.6	3.0	3.1	3.2

*1 Fuji 4-pole standard motors

Specifications other than above are the same as those given in Section 8.1 "Standard Models."

■ Single-phase 200 V class series

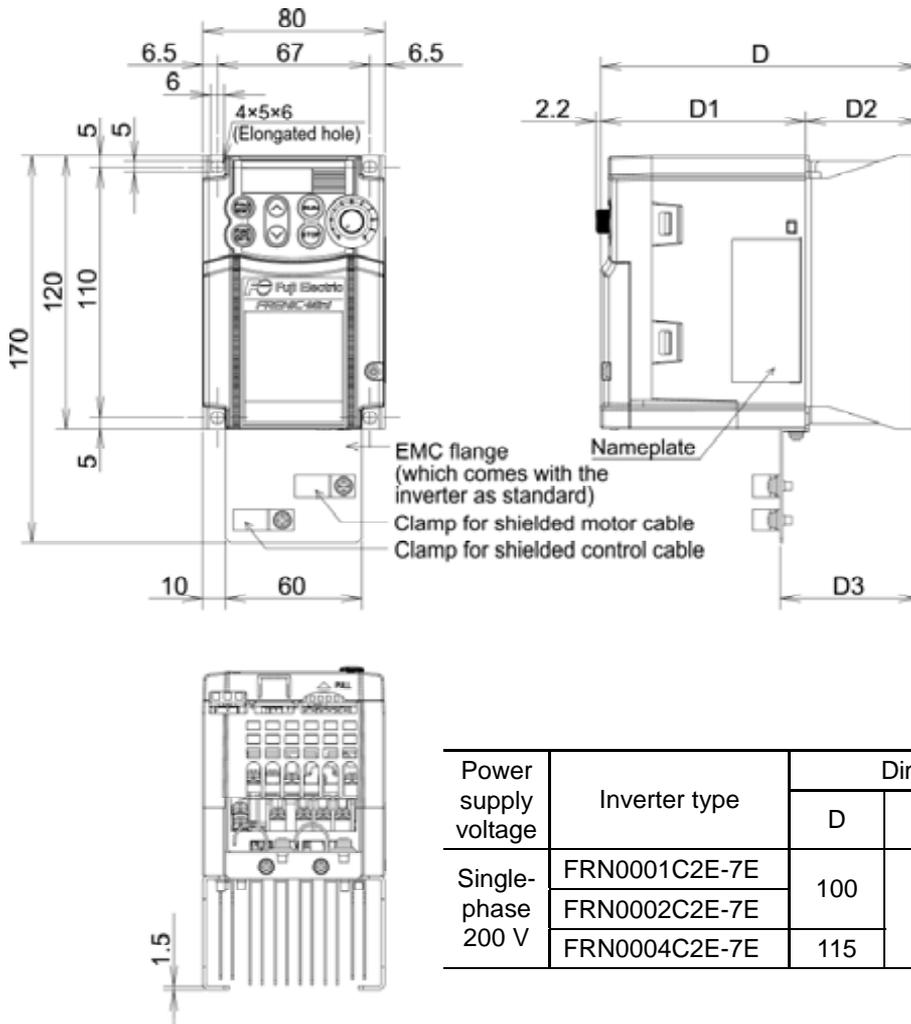
Item	Specifications					
Power supply voltage	Single-phase 200 V					
Type (FRN___C2E-7E)	0001	0002	0004	0006	0010	0012
Applicable motor rating (kW) *1	0.1	0.2	0.4	0.75	1.5	2.2
Weight (kg)	0.7	0.7	0.8	1.2	3.0	3.0

*1 Fuji 4-pole standard motors

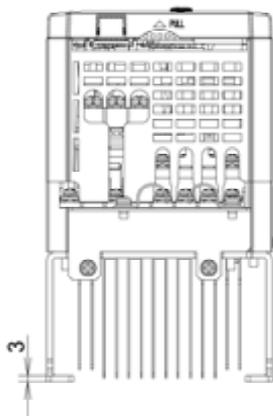
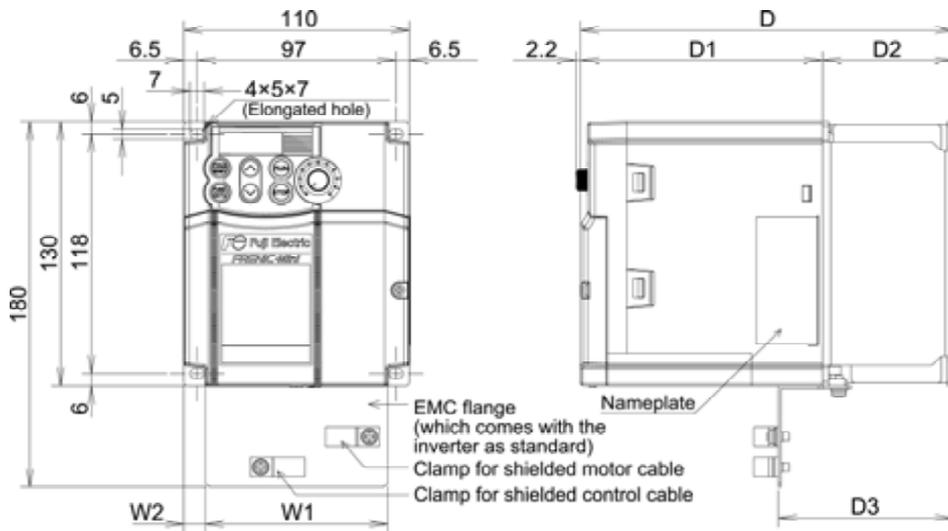
Specifications other than above are the same as those given in Section 8.1 "Standard Models."

8.4 External Dimensions

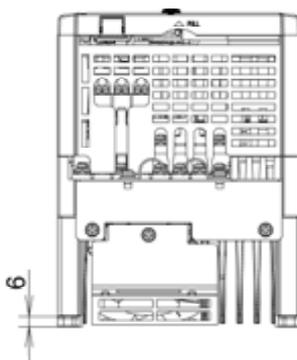
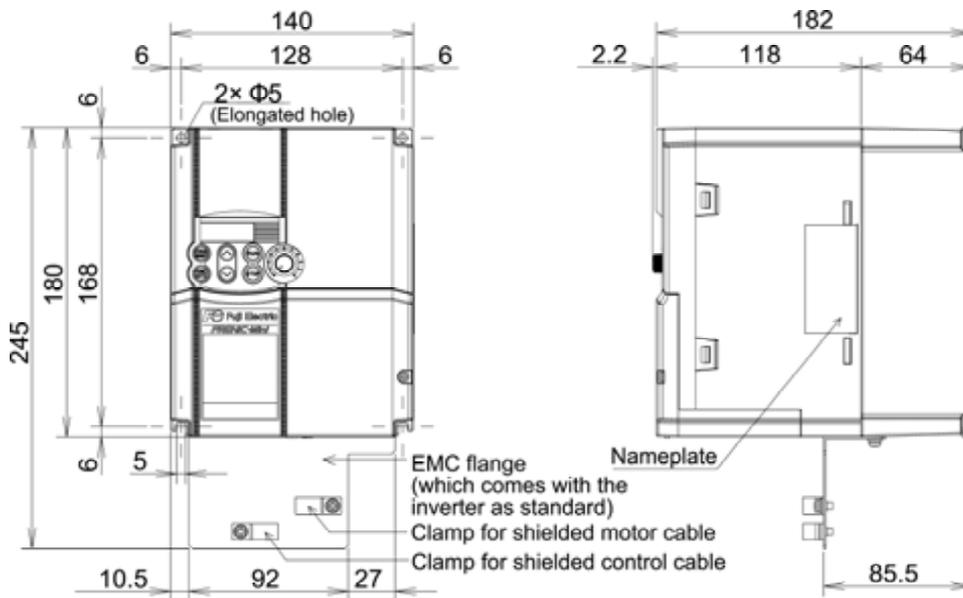
8.4.2 Semi-standard models (EMC filter built-in type)



Power supply voltage	Inverter type	Dimensions (mm)			
		D	D1	D2	D3
Single-phase 200 V	FRN0001C2E-7E	100	90	10	21.2
	FRN0002C2E-7E			25	
	FRN0004C2E-7E	115		36.2	



Power supply voltage	Inverter type	Dimensions (mm)					
		W1	W2	D	D1	D2	D3
Three-phase 400 V	FRN0002C2E-4E	89	10.5	158	118	40	61.5
	FRN0004C2E-4E			182		64	85.5
Single-phase 200 V	FRN0006C2E-7E	60	13.0	139	99	40	55.2



Power supply voltage	Inverter type
Three-phase 400 V	FRN0005C2E-4E
	FRN0007C2E-4E
	FRN0011C2E-4E
Single-phase 200 V	FRN0010C2E-7E
	FRN0012C2E-7E

Chapter 9 LIST OF PERIPHERAL EQUIPMENT AND OPTIONS

	Name of peripheral equipment	Function and application																																																
Main peripheral equipment	Molded case circuit breaker (MCCB) Residual-current-operated protective device (RCD) /Earth leakage circuit breaker (ELCB)* * with overcurrent protection	<p>MCCBs are designed to protect the power circuits between the power control board and inverter's main terminals (L1/R, L2/S and L3/T for three-phase power, L1/L and L2/N for single-phase power) from overload or short-circuit which in turn prevents secondary disasters caused by the inverter malfunctioning.</p> <p>RCDs/ELCBs function in the same way as MCCBs. Use the MCCBs and RCDs/ELCBs that satisfy the recommended rated current listed below.</p> <table border="1" data-bbox="417 495 1366 1021"> <thead> <tr> <th rowspan="2">Power supply voltage</th> <th rowspan="2">Applicable motor rating (kW)</th> <th rowspan="2">Inverter type</th> <th colspan="2">Recommended rated current (A) of MCCB and RCD/ELCB</th> </tr> <tr> <th>w/ DC reactor</th> <th>w/o DC reactor</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Three-phase 400 V</td> <td>0.4</td> <td>FRN0002C2E-4E</td> <td rowspan="4">5</td> <td>5</td> </tr> <tr> <td>0.75</td> <td>FRN0004C2E-4E</td> <td>10</td> </tr> <tr> <td>1.5</td> <td>FRN0005C2E-4E</td> <td>15</td> </tr> <tr> <td>2.2</td> <td>FRN0007C2E-4E</td> <td>20</td> </tr> <tr> <td>4.0</td> <td>FRN0011C2E-4E</td> <td>10</td> <td>20</td> </tr> <tr> <td rowspan="6">Single-phase 200 V</td> <td>0.1</td> <td>FRN0001C2E-7E</td> <td rowspan="3">5</td> <td>5</td> </tr> <tr> <td>0.2</td> <td>FRN0002C2E-7E</td> <td>10</td> </tr> <tr> <td>0.4</td> <td>FRN0004C2E-7E</td> <td>15</td> </tr> <tr> <td>0.75</td> <td>FRN0006C2E-7E</td> <td>20</td> <td>15</td> </tr> <tr> <td>1.5</td> <td>FRN0010C2E-7E</td> <td>20</td> <td>20</td> </tr> <tr> <td>2.2</td> <td>FRN0012C2E-7E</td> <td>20</td> <td>30</td> </tr> </tbody> </table> <div data-bbox="409 1041 1366 1305" style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;"> WARNING</p> <p>When connecting the inverter to the power supply, add a recommended molded case circuit breaker (MCCB) or a residual-current-operated protective device (RCD)/earth leakage circuit breaker (ELCB)* in the path of power supply. Do not use the devices with the rated current out of the recommended range. *With overcurrent protection</p> <p>Fire could occur.</p> </div> <p>Select the MCCB or RCD/ELCB with appropriate rated current and breaking capacity according to the power supply capacity.</p>	Power supply voltage	Applicable motor rating (kW)	Inverter type	Recommended rated current (A) of MCCB and RCD/ELCB		w/ DC reactor	w/o DC reactor	Three-phase 400 V	0.4	FRN0002C2E-4E	5	5	0.75	FRN0004C2E-4E	10	1.5	FRN0005C2E-4E	15	2.2	FRN0007C2E-4E	20	4.0	FRN0011C2E-4E	10	20	Single-phase 200 V	0.1	FRN0001C2E-7E	5	5	0.2	FRN0002C2E-7E	10	0.4	FRN0004C2E-7E	15	0.75	FRN0006C2E-7E	20	15	1.5	FRN0010C2E-7E	20	20	2.2	FRN0012C2E-7E	20	30
	Power supply voltage	Applicable motor rating (kW)				Inverter type	Recommended rated current (A) of MCCB and RCD/ELCB																																											
			w/ DC reactor	w/o DC reactor																																														
	Three-phase 400 V	0.4	FRN0002C2E-4E	5	5																																													
		0.75	FRN0004C2E-4E		10																																													
		1.5	FRN0005C2E-4E		15																																													
		2.2	FRN0007C2E-4E		20																																													
		4.0	FRN0011C2E-4E	10	20																																													
	Single-phase 200 V	0.1	FRN0001C2E-7E	5	5																																													
		0.2	FRN0002C2E-7E		10																																													
0.4		FRN0004C2E-7E	15																																															
0.75		FRN0006C2E-7E	20	15																																														
1.5		FRN0010C2E-7E	20	20																																														
2.2		FRN0012C2E-7E	20	30																																														

Chapter 10 APPLICATION OF DC REACTORS (DCRs)

Table 10.1 List of DC Reactors (DCRs)

Power supply voltage	Nominal applied motor (kW)	Applicable inverter type	DCR type
Three-phase 400 V	0.4	FRN0002C2E-4E	DCR4-0.4
	0.75	FRN0004C2E-4E	DCR4-0.75
	1.5	FRN0005C2E-4E	DCR4-1.5
	2.2	FRN0007C2E-4E	DCR4-2.2
	4.0	FRN0011C2E-4E	DCR4-3.7
Single-phase 200 V	0.1	FRN0001C2E-7E	DCR2-0.2
	0.2	FRN0002C2E-7E	DCR2-0.4
	0.4	FRN0004C2E-7E	DCR2-0.75
	0.75	FRN0006C2E-7E	DCR2-1.5
	1.5	FRN0010C2E-7E	DCR2-2.2
	2.2	FRN0012C2E-7E	DCR2-3.7

Chapter 11 COMPLIANCE WITH STANDARDS

11.1 Compliance with European Standards

The CE marking on Fuji products indicates that they comply with the essential requirements of the Electromagnetic Compatibility (EMC) Directive 2004/108/EC issued by the Council of the European Communities and Low Voltage Directive 2006/95/EC.

Inverters that bear a CE marking are compliant with the Low Voltage Directive.

The products comply with the following standards:

Low Voltage Directive	EN61800-5-1: 2007
EMC Directives	EN61800-3: 2004 +A1: 2012
	Immunity: Second environment (Industrial)
	Emission: Category C2 (Applicable to the EMC filter built-in type)

CAUTION

The FRENIC-Mini series of inverters are categorized as a "restricted sales distribution class" of the EN61800-3. When you use these products with any home appliances or office equipment, you may need to take appropriate countermeasures to reduce or eliminate any noise emitted from these products.

11.2 Compliance with EMC Standards

11.2.2 Recommended installation procedure

To make the machinery or equipment fully compliant with the EMC Directive, have certified technicians wire the motor and inverter in strict accordance with the procedure described below.

■ In the case of EMC filter built-in type of inverters

- (1) Mount the EMC grounding flange (that comes with the inverter) to the inverter with screws in order to ground the wire shield(s). (See Figure 11.1.)

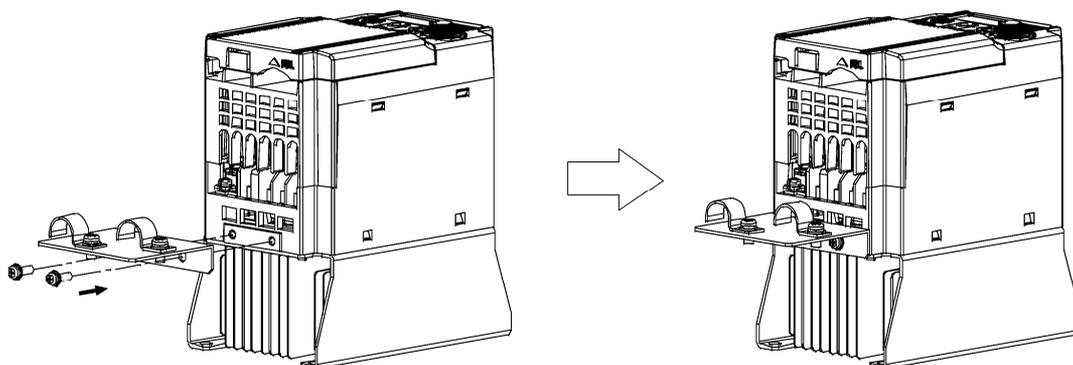


Figure 11.1 Attaching the EMC Grounding Flange

- (2) Use shielded wires for the motor cable and route it as short as possible. Firmly clamp the wire shield to the flange to ground it. Further, connect the wire shield electrically to the grounding terminal of motor. (See Figure 11.2.)

- (3) Use shielded wires for the control signals of the inverter to input to/output from the control terminals. Firmly clamp the control wire shields to the EMC grounding flange (in the same way as the motor cables).

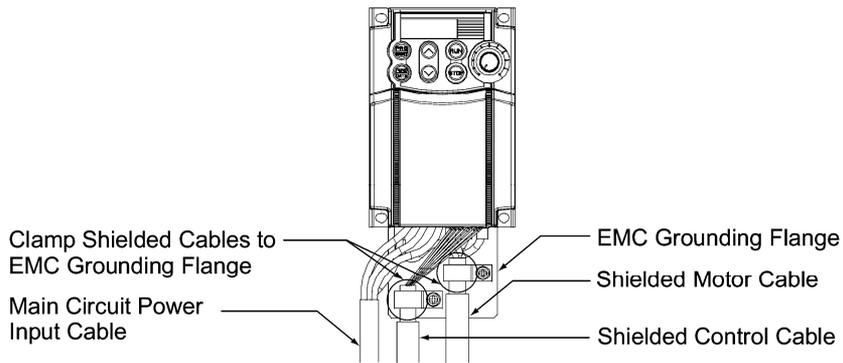


Figure 11.2 Connecting Shielded Cables

- (4) If noise from the inverter exceeds the permissible level, enclose the inverter and its peripherals within a metal panel as shown in Figure 11.3.

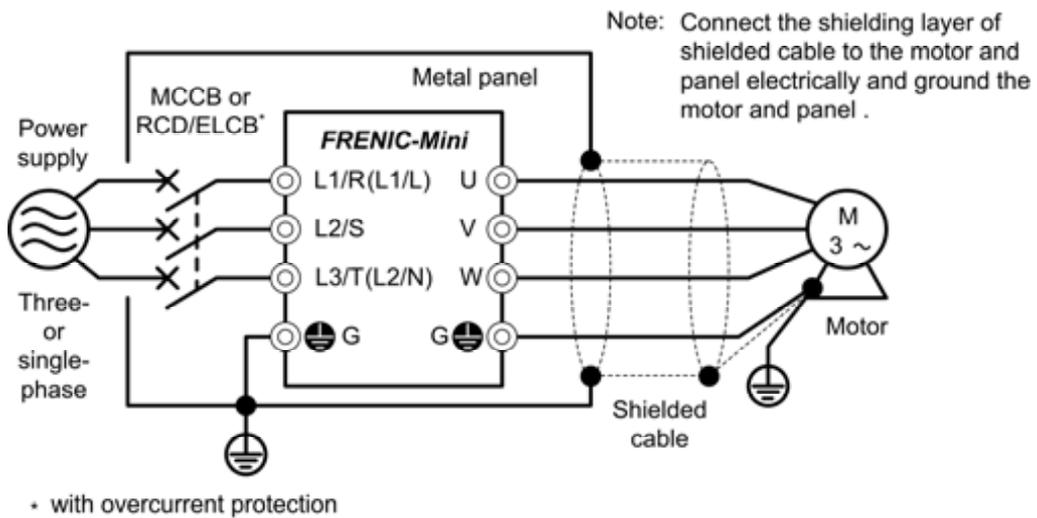


Figure 11.3 Installing the Inverter into a Metal Panel

11.2.3 Leakage current of EMC-compliant filter

Table 11.1 Leakage Current of EMC-compliant Filter

Inverter type	Leakage current (mA) *1), *2)	
	Normal	Worst
FRN0002C2E-4E	5.4	33.0
FRN0004C2E-4E		
FRN0005C2E-4E	3.8	25.0
FRN0007C2E-4E		
FRN0011C2E-4E		
FRN0001C2E-7E	8.3	8.3
FRN0002C2E-7E		
FRN0004C2E-7E		
FRN0006C2E-7E		
FRN0010C2E-7E	4.1	8.2
FRN0012C2E-7E		

*1) The values are calculated assuming the power supplies of three-phase 240 V (50 Hz), three-phase 400 V (50 Hz), and single-phase 230 V (50 Hz).

*2) The worst condition includes a phase loss in the supply line.

11.3 Harmonic Component Regulation in the EU

11.3.2 Compliance with the harmonic component regulation

Table 11.2 Compliance with Harmonic Component Regulation

Power supply voltage	Inverter type	w/o DC reactor	w/ DC reactor	Applicable DC reactor type
Three-phase 400 V	FRN0002C2E-4E	—	√	DCR4-0.4
	FRN0004C2E-4E	—	√	DCR4-0.75
Single-phase 200 V	FRN0001C2E-7E	—	√	DCR2-0.2
	FRN0002C2E-7E	—	√	DCR2-0.4
	FRN0004C2E-7E	—	√	DCR2-0.75
	FRN0006C2E-7E	—	—	DCR2-1.5

Note) When supplying three-phase 200 VAC power stepped down from a three-phase 400 VAC power line using a transformer, the level of harmonic flow from the 400 VAC line will be regulated.

11.4 Compliance with the Low Voltage Directive in the EU

General-purpose inverters are regulated by the Low Voltage Directive in the EU. Fuji Electric has obtained the proper certification for the Low Voltage Directive from the official inspection agency. Fuji Electric states that all our inverters with CE marking are compliant with the Low Voltage Directive.

Conformity to the Low Voltage Directive in the EU

If installed according to the guidelines given below, inverters marked with CE are considered as compliant with the Low Voltage Directive 2006/95/EC.

⚠ CAUTION

12. Use wires listed in IEC60364-5-52.

Power supply voltage	Applicable motor rating (kW)	Inverter type	Rated current (A) of MCCB or RCD/ELCB		Recommended wire size (mm ²)					
					*1		*2		*2 Inverter output [U, V, W]	*2 DCR [P1, P (+)] Braking resistor [P (+), DB]
			w/ DCR	w/o DCR	w/ DCR	w/o DCR	*3	*3		
Three-phase 400 V	0.4	FRN0002C2E-4E	5	5	2.5	2.5	2.5	2.5	0.5	
	0.75	FRN0004C2E-4E								
	1.5	FRN0005C2E-4E	10	10						
	2.2	FRN0007C2E-4E		15						
	4.0	FRN0011C2E-4E		20						
Single-phase 200 V	0.1	FRN0001C2E-7E	5	5	2.5	2.5	2.5	2.5	0.5	
	0.2	FRN0002C2E-7E								
	0.4	FRN0004C2E-7E								10
	0.75	FRN0006C2E-7E	10	15						
	1.5	FRN0010C2E-7E	15	20						4
	2.2	FRN0012C2E-7E	20	30						4

MCCB: Molded case circuit breaker
RCD: Residual-current-operated protective device
ELCB: Earth leakage circuit breaker

*1 The frame size and model of the MCCB or RCD/ELCB (with overcurrent protection) will vary, depending on the power transformer capacity. Refer to the related technical documentation for details.

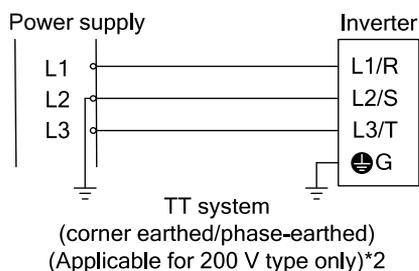
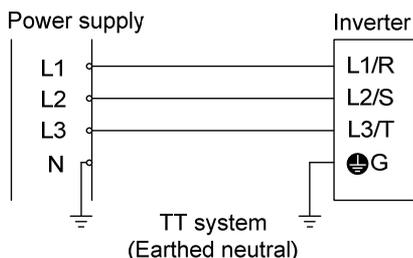
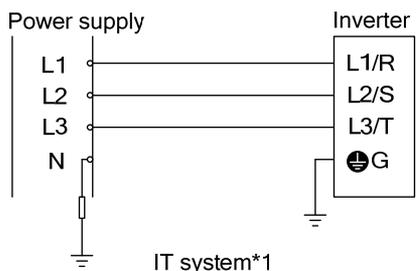
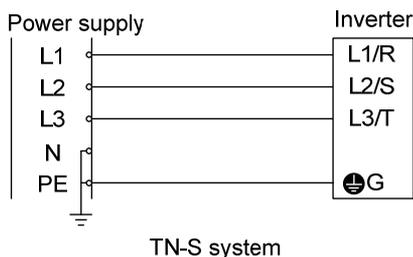
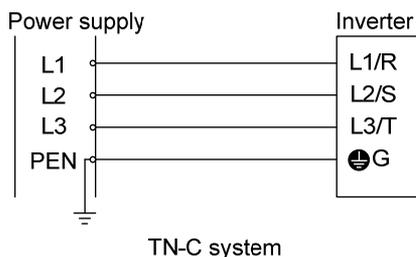
*2 The recommended wire size for main circuits is for the 70°C 600V PVC wires used at an ambient temperature of 40°C.

*3 In the case of no DC reactor, the wire sizes are determined on the basis of the effective input current calculated under the condition that the power supply capacity and impedance are 500 kVA and 5%, respectively.

Conformity to the Low Voltage Directive in the EU (Continued)



13. Use this inverter at the following power supply system.



*1 Use this inverter at the following IT system.

Non-earthed (isolated from earth) IT system	Can be used.
IT system which earthed neutral by an impedance	In this case the insulation between the control interface and the main circuit of the inverter is basic insulation. Thus do not connect SELV circuit from external controller directly (make connection using a supplementary insulation.) Use an earth fault detector able to disconnect the power within 5 s after the earth fault occurs.
Corner earthed / Phase-earthed IT system by an impedance	Can not be used.

*2 Cannot apply to Corner earthed / Phase-earthed TT system of 400 V type

11.5 Compliance with UL Standards and Canadian Standards (cUL certification)

11.5.1 General

Originally, the UL standards were established by Underwriters Laboratories, Inc. as private criteria for inspections/investigations pertaining to fire/accident insurance in the USA. Later, these standards were authorized as the official standards to protect operators, service personnel and the general populace from fires and other accidents in the USA.

cUL certification means that UL has given certification for products to clear CSA Standards. cUL certified products are equivalent to those compliant with CSA Standards.

11.5.2 Considerations when using FRENIC-Mini in systems to be certified by UL and cUL

To use the FRENIC-Mini series of inverters as a part of UL Standards or CSA Standards (cUL certified) certified product, refer to the guidelines given below.

Conformity to UL standards and Canadian standards (cUL certification)

If installed according to the guidelines given below, inverters marked with UL/cUL are considered as compliant with the UL and CSA (cUL certified) standards.

CAUTION

Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes.

1. Solid state motor overload protection (motor protection by electronic thermal overload relay) is provided in each model.
Adjust function codes F10 to F12 and H89 to set the protection level.
2. Connect the power supply satisfying the characteristics shown in the table below as an input power supply of the inverter. (Short circuit rating)
3. Use 75°C Cu wire only.
4. Use Class 1 wire only for control circuits.

Short circuit rating

When protected by class J fuses, suitable for use on a circuit capable of delivering not more than B rms symmetrical amperes, A volts maximum.

Power supply voltage	Inverter type	Power supply max. voltage A (Volts)	Power supply current B (Amperes)
Three-phase 400V	FRN0002C2E-4E	480 VAC	100,000 A or less
	FRN0004C2E-4E		
	FRN0005C2E-4E		
	FRN0007C2E-4E		
	FRN0011C2E-4E		
Single-phase 200V	FRN0001C2E-7E	240 VAC	100,000 A or less
	FRN0002C2E-7E		
	FRN0004C2E-7E		
	FRN0006C2E-7E		
	FRN0010C2E-7E		
	FRN0012C2E-7E		

Conformity to UL standards and Canadian standards (cUL certification) (Continued)

⚠ CAUTION

5. Install UL certified fuses rated 600Vac between the power supply and the inverter, referring to the table below.

Power supply voltage	Inverter type	Required torque lb-in (N·m)			Wire size AWG or kcmil (mm ²)			Class J fuse current (A)
		Main terminal	Control circuit		Main terminal ^{*3}	Control circuit		
			^{*1} TERM1	^{*2} TERM2-1 TERM2-2		^{*1} TERM1	^{*2} TERM2-1 TERM2-2	
Three-phase 400V	FRN0002C2E-4E	15.9 (1.8)	3.5 (0.4)	1.7 (0.2)	14	20 (0.5)	3	
	FRN0004C2E-4E						6	
	FRN0005C2E-4E						10	
	FRN0007C2E-4E						15	
	FRN0011C2E-4E				14 [12]		20	
Single-phase 200V	FRN0001C2E-7E	10.6 (1.2)	3.5 (0.4)	1.7 (0.2)	14	20 (0.5)	6	
	FRN0002C2E-7E						6	
	FRN0004C2E-7E						10	
	FRN0006C2E-7E						15	
	FRN0010C2E-7E	15.9 (1.8)			14 [12]		30	
	FRN0012C2E-7E	10 [10]			40			

*1 Denotes the relay contact terminals for [30A], [30B] and [30C].

*2 Denotes control terminals except [30A], [30B] and [30C].

*3 Values in [] mean the size (AWG) of grounding wires if exist.

6. To comply with CSA for 200 VAC input models, transient surge suppression shall be installed on the line side of this equipment and shall be rated 240 V (phase to ground), 240 V (phase to phase), suitable for overvoltage category 3, and shall provide protection for a rated impulse withstand voltage peak of 4 kV.

To comply with CSA for 400 VAC input models, transient surge suppression shall be installed on the line side of this equipment and shall be rated 278 V (phase to ground), 480 V (phase to phase), suitable for overvoltage category 3, and shall provide protection for a rated impulse withstand voltage peak of 4 kV.

7. All models rated 380-480 V input voltage ratings shall be connected to TN-C system power source, i.e. 3-phase, 4-wire, wye (480Y/277V), so that the phase-to-ground rated system voltage is limited to 300 V maximum.

8. Maximum surrounding air temperature rating of 50°C.

Compact Inverter
FRENIC-Mini

Instruction Manual
Supplement for EMC Filter Built-in Type (0.1kW to 4.0kW)

First Edition, March 2014

Fuji Electric Co., Ltd.

The purpose of this instruction manual is to provide accurate information in handling, setting up and operating of the FRENIC-Mini series of inverters. Please feel free to send your comments regarding any errors or omissions you may have found, or any suggestions you may have for generally improving the manual.

In no event will Fuji Electric Co., Ltd. be liable for any direct or indirect damages resulting from the application of the information in this manual.