

11. Electromagnetic compatibility (EMC)

11-1 General

In accordance with the provisions described in the European Commission Guidelines Document on Council Directive 89/336/EEC, Fuji Electric Co., Ltd. has chosen to classify the FRENIC 5000G11S range of Inverters as "Complex Components".

Classification as a "Complex Components" allows a product to be treated as an "apparatus", and thus permits compliance with the essential requirements of the EMC Directive to be demonstrated to both an integrator of FRENIC Inverters and to his customer or the installer and the user.

FRENIC Inverters is supplied 'CE-marked', signifying compliance with EC Directive 89/336/EEC when fitted with specified filter units installed and earthed in accordance with this sheet.

This Specification requires the following performance criteria to be met.

EMC product standard **EN61800-3/1997 +A11/2000**

Immunity : **Second environment** (Industrial environment)

Emission : **First environment** (Domestic environment)

Distribution class of Emission

Unrestricted distribution	Restricted distribution
<u>Without OPC-G11S-***</u> FRN020G11S-4UX or less. FRN025P11S-4UX or less.	<u>Without OPC-G11S-***</u> FRN025G11S-4UX or more. FRN030P11S-4UX or more. FRN-G11S/P11S-2UX
	<u>With OPC-G11S-***</u> FRN-G11S-2UX/4UX all models with OPC-G11S-***. Card option : OPC-G11S-AIO, DIO, PG, PGA, PG2, SY, RY, PGDIO, PGRY, TL Bus option : OPC-G11S-PDP, DEV, MBP, IBS, COP
	WARNING This is a product of the restricted sales distribution class according to IEC61800-3. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Finally, it is customer's responsibility to check whether the equipment conforms to EMC directive.

11-2 Recommended Installation Instructions

It is necessary that to conformed to EMC Directive, these instructions must be followed.

Follow the usual safety procedures when working with electrical equipment. All electrical connections to the filter, Inverter and motor must be made by a qualified electrical technician.

- 1) Use the correct filter according to Table 11-1.
- 2) Install the Inverter and filter in the electrically shielded metal wiring cabinet.
- 3) The back panel of the wiring cabinet of board should be prepared for the mounting dimensions of the filter. Care should be taken to remove any paint etc. from the mounting holes and face area of the panel. This will ensure the best possible earthing of the filter.
- 4) Use the screened cable for the control , motor and other main wiring which are connected to the Inverter, and these screens should be securely earthed.
- 5) It is important that all wire lengths are kept as short as possible and that incoming mains and outgoing motor cables are kept well separated.

" To minimize the conducted radio disturbance in the power distribution system, the length of the motor-cable should be as short as possible. "

Table 11-1 RFI filters

Applied Inverter	Filter Type	Rated Current	Max. Rated Voltage	RFI filter		
				Dimensions LxWxH [inch (mm)]	Mount Dims Y x X [inch (mm)]	Note
FRNF50G11S-4UX FRN001G11S-4UX	FS5536-5-07 (EFL-0.75G11-4)	5A	3ph 480Vac	12.6(320) × 4.57(116) × 1.65(42)	11.5(293) × 3.54(90)	Fig. 11-1
FRN002G11S-4UX FRN003G11S-4UX FRN005G11S-4UX	FS5536-12-07 (EFL-4.0G11-4)	12A		12.6(320) × 6.10(155) × 1.77 (45)	11.5(293) × 4.13(105)	
FRN007G11S/P11S-4UX FRN010G11S/P11S-4UX	FS5536-35-07 (EFL-7.5G11-4)	35A		13.4(341) × 8.86(225) × 1.87(47.5)	12.2(311) × 6.57(167)	
FRN015G11S/P11S-4UX FRN020G11S/P11S-4UX	FS5536-50-07 (EFL-15G11-4)	50A		19.7(500) × 9.84(250) × 2.76(70)	17.7(449) × 7.28(185)	
FRN025G11S/P11S-4UX FRN030G11S/P11S-4UX	FS5536-72-07 (EFL-22G11-4)	72A		19.7(500) × 9.84(250) × 2.76(70)	17.7(449) × 7.28(185)	
FRN040G11S/P11S-4UX FRN040G11S/P11S-4UX	RF 3100-F11	100A	3ph 480Vac	17.1(435) × 7.87(200) × 5.12(130)	16.0(408) × 6.54(166)	Fig. 11-2
FRN050G11S/P11S-4UX FRN060G11S/P11S-4UX FRN075G11S/P11S-4UX FRN100G11S/P11S-4UX FRN125G11S/P11S-4UX	RF 3180-F11	180A		19.5(495) × 7.87(200) × 6.30(160)	18.4(468) × 6.54(166)	
FRN150G11S/P11S-4UX FRN200G11S/P11S-4UX	RF 3280-F11	280A		9.84(250) × 23.11(587) × 8.07(205)	22.1(560) × 3.35(85)	Fig. 11-3
FRN250G11S/P11S-4UX FRN300G11S/P11S-4UX FRN350G11S/P11S-4UX	RF 3400-F11	400A		9.84(250) × 23.11(587) × 8.07(205)	22.1(560) × 3.35(85)	
FRN400G11S/P11S-4UX FRN450G11S/P11S-4UX	RF 3880-F11	880A		27.1(688) × 14.33(364) × 7.09(180)	25.5(648) × 5.91(150)	Fig. 11-4

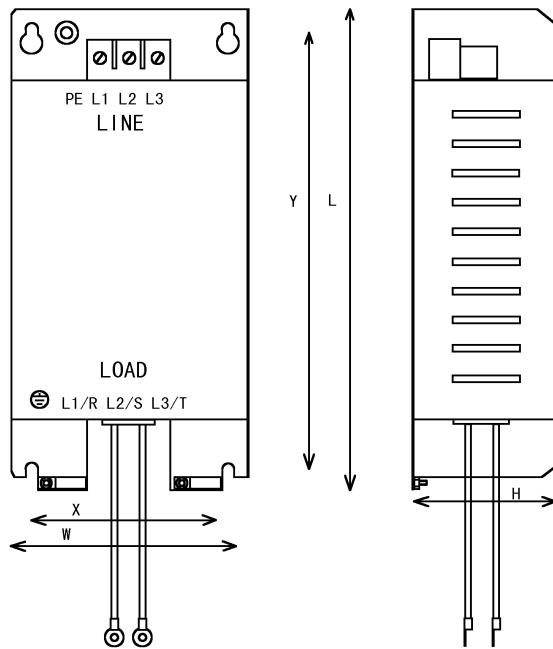
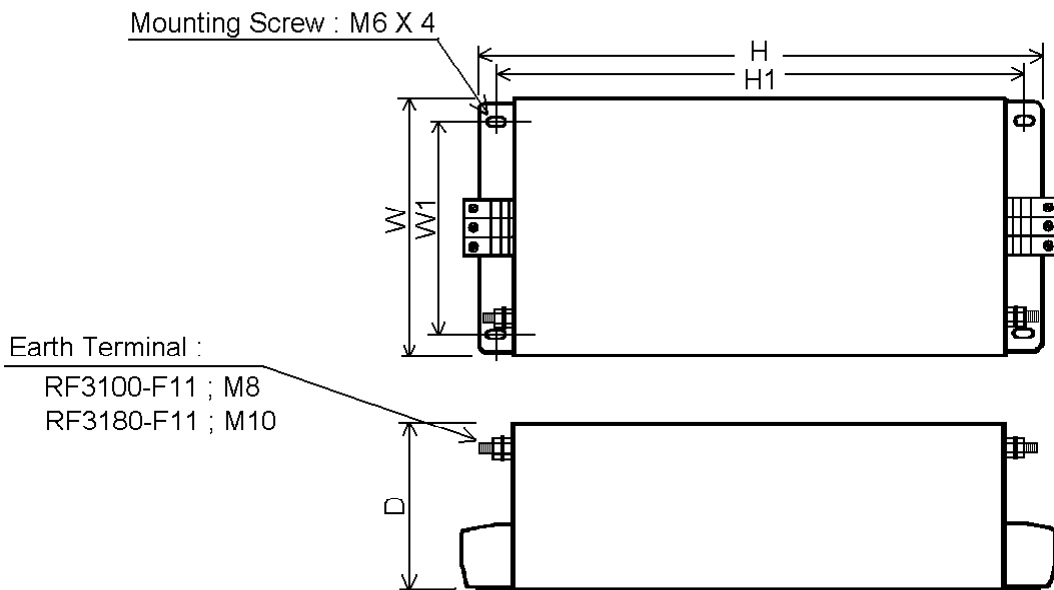


Fig.11-1



	Dimensions [inch(mm)]				
	W	W1	H	H1	D
RF3100-F11	7.87 (200)	6.54 (166)	17.1 (435)	16.1 (408)	5.12 (130)
RF3180-F11	7.87 (200)	6.54 (166)	19.5 (495)	18.4 (468)	6.30 (160)

Fig.11-2 Outline Dimensions (RF3100-F11, RF3180-F11)

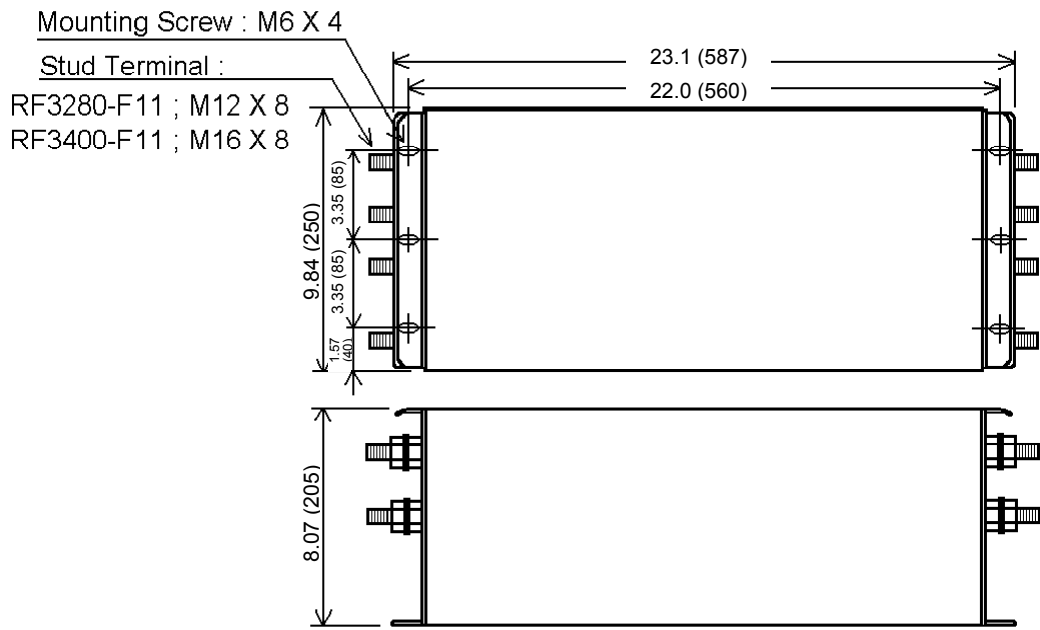


Fig.11-3 Outline Dimensions (RF3280-F11, RF3400-F11)

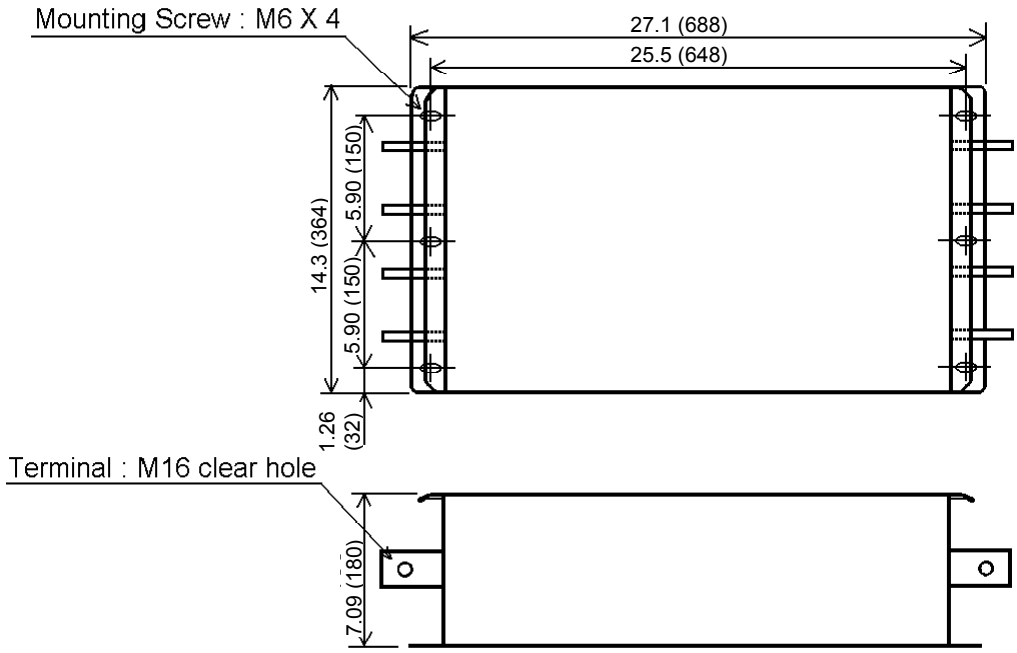


Fig.11-4 Outline Dimensions (RF3880-F11)

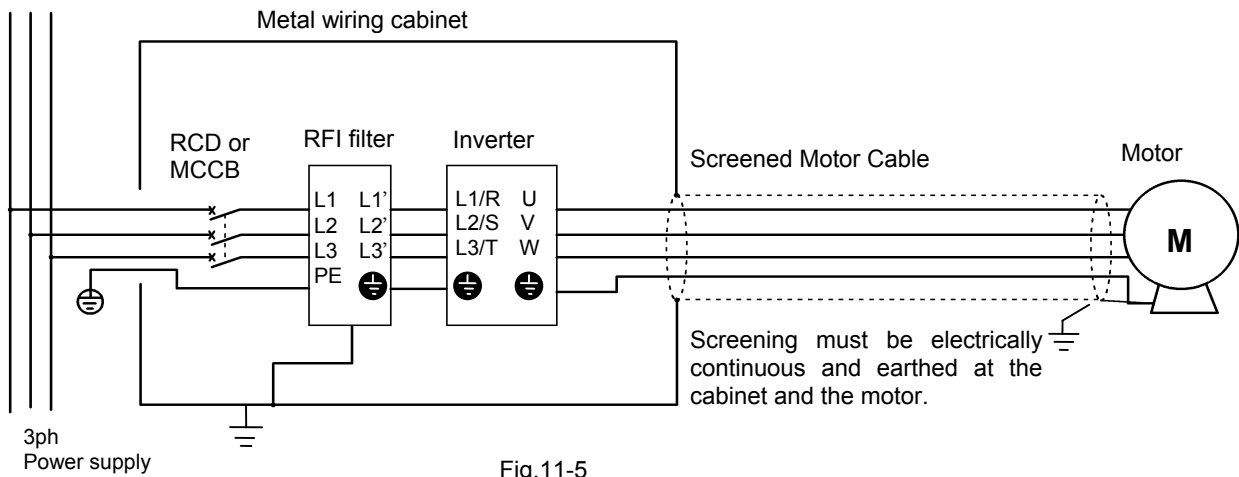


Fig.11-5

11-3 The harmonics restriction in Europe Union (EU)

Combinations of the inverter with DC-reactor in table 11-2 fulfill the harmonics requirements of the EN 61000-3-2(+A14), which are European EN standard.

However these inverters without DC-reactor don't fulfill them. If they shall be connected to the public low voltage power supply system, the supply authority must be asked for permission to connect.

Fuji Electric can provide this data sheets when you need the data for harmonics currents.

Table 11-2

Inverter model name	Applied DC-reactor model name	Power supply
FRNF50G11S-4UX	DCR4-0.4 or DCRE4-0.4	Three-phase 460V
FRN001G11S-4UX	DCR4-0.75 or DCRE4-0.75	

