

mitsubishi
GENERAL PURPOSE
INVERTER

Instruction Manual

IMPULSE VOLTAGE
SUPPRESSION FILTER
FR-ASF

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Thank you for purchasing the impulse voltage suppression filter (FR-ASF) for the Mitsubishi general purpose inverter.

This Instruction Manual explains the methods of handling the filter, including connections, etc., and lists precautions for use.

FR-ASF

This option is a product that restrains the surge voltage generated in the motor terminal voltage when running a 400V class motor with an inverter.

1. Acceptance Inspection

Inspect the following parts when unpacking the unit.

- (1) Inspect the rated nameplate on the top of the filter, and confirm that the model is as ordered.
 - (2) Confirm that the unit was not damaged during transportation.
- If any unclear points or damage is found, please contact your dealer or nearest sales office.

MITSUBISHI	FILTER
MODEL	FR-ASF-H 3.7 K
SERIAL	
MITSUBISHI ELECTRIC CORPORATION	
MADE IN JAPAN	BKO-CA1149H 02

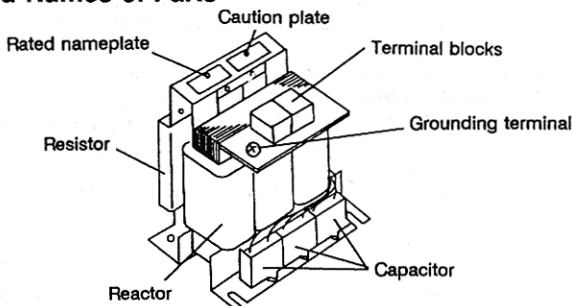
Details of rated nameplate

Details of No.
 FR-ASF-H 3.7 K

← Filter model
 ← Manufacturing No.

Symbol	Applicable motor capacity
1.5	The capacities indicate "kW".
3.7	
7.5	

2. Appearance and Names of Parts



3. Precautions for Installation

3.1 Transportation

Handle the filter with care during transportation so that it is not damaged. If the wires are held, they may break causing unit damage.

3.2 Installation place

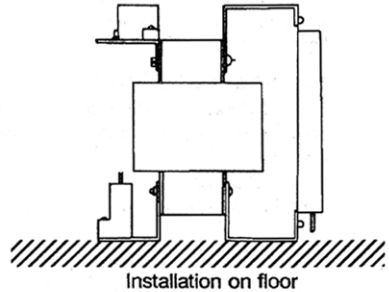
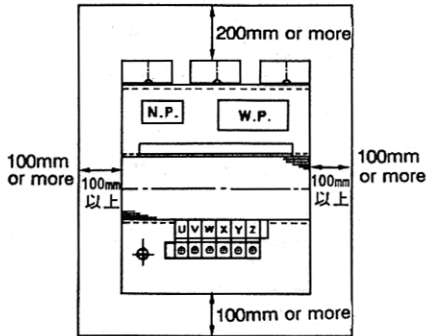
- Make sure that other wiring does not contact the filter.
- Avoid installing the unit in places subject to direct sunlight, high temperatures and high humidity. Avoid places where oil mist, flammable gas, cotton lint or dust exist. Install the unit in a clean place, or store it in a sealed panel.
- Install the unit in a place not subject to vibration.

⚠ CAUTION

- This unit will become extremely hot when on. The resistor surface temperature may exceed 100°C, so install the unit in a place where heat radiation performance is good.
- Never install the unit near combustible matter such as wood or paper as fires may start.
- Do not install the unit in a place where the worker's body or hands may come in contact with the unit easily, as they may be burned. Install a well-ventilated protection cover (punching metal, etc.) if the worker may come in close contact.

3.3 Installation direction and space

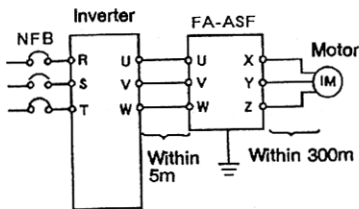
- Install the unit securely with screws or bolts so that it will not be loose.
- The surge filter will generate heat, so secure an ample peripheral space so that heat will not build up.
(Refer to following drawings.)
- Installation on the floor is recommended for the heavier models.



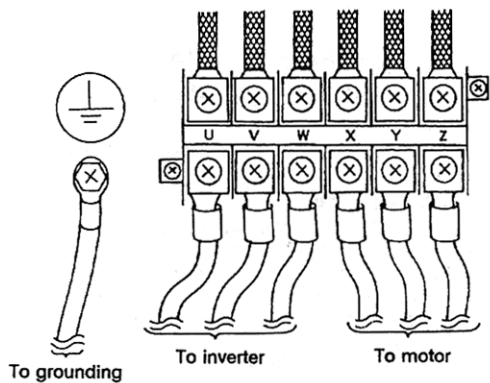
4. Precautions for Wiring

- Connect the wires from the inverter's output terminals (U, V, W) to the filter's input terminals (U, V, W), and the wire from the motor's terminals to the filter's output terminals (X, Y, Z). The resistor will overheat if wired incorrectly, and may break. Take special care when wiring.
- The length of the wires from the inverter's output terminals to the filter's input terminals must be within 5m.
- The length of the wires from the motor's terminals must be within 300m.
- Use a crimp terminal with sleeve for the wire terminals.
- Refer to the Inverter Instruction Manual for the recommended wire size.

• Connection diagram



• Terminal block layout



5. Precautions for Use

5.1 Changing inverter setting value

Change the inverter parameter setting values when using the filter in the following cases. (Refer to the inverter Instruction Manual or catalog for how to change the settings.)

- (1) When start-up torque is insufficient
Increase the manual torque boost (Pr.0) setting value.
Also set the automatic torque boost (Pr.38).
- (2) To set the flux vector control (FR-A200)
Change the settings in the following order:
 - ① Set Pr.77 to 801.
 - ② Set Pr.85 to 30.
 - ③ Set Pr.88 to 120.
 - ④ Set Pr.77 to 0 or 1. (Return to original value.)

5.2 Others

- When using the filter, the max. torque will be slightly less than when not using the filter.

CAUTION

- The resistor and reactor will generate heat so when the power is on and after the power has been turned off, touching the unit may cause burns. Exercise special care to not directly touch the resistor or reactor.

6. Specifications

(1) General specifications

Model FR-ASF-H : : : : : K		1.5			3.7		7.5	
Applicable motor capacity (kW)		0.4	0.75	1.5	2.2	3.7	5.5	7.5
Input power conditions	Rated input current (A)	4.0			9.0		17.0	
	Overload current rating	60 sec. at 150%, 0.5 sec. at 200%						
	Rated input AC voltage	3-phase 380V ~ 460V, 50Hz/60Hz						
	Max. AC voltage fluctuation	3-phase 506V, 50Hz/60Hz						
	Max. frequency	400Hz						
	PWM frequency tolerable range	0.5kHz ~ 14.5kHz						

(2) Applicable inverters

This filter can be used for the Mitsubishi 400V class inverter.

(3) Working environment

Ambient temperature: $-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$

Ambient humidity : 90%RH or less (with no dew condensation)

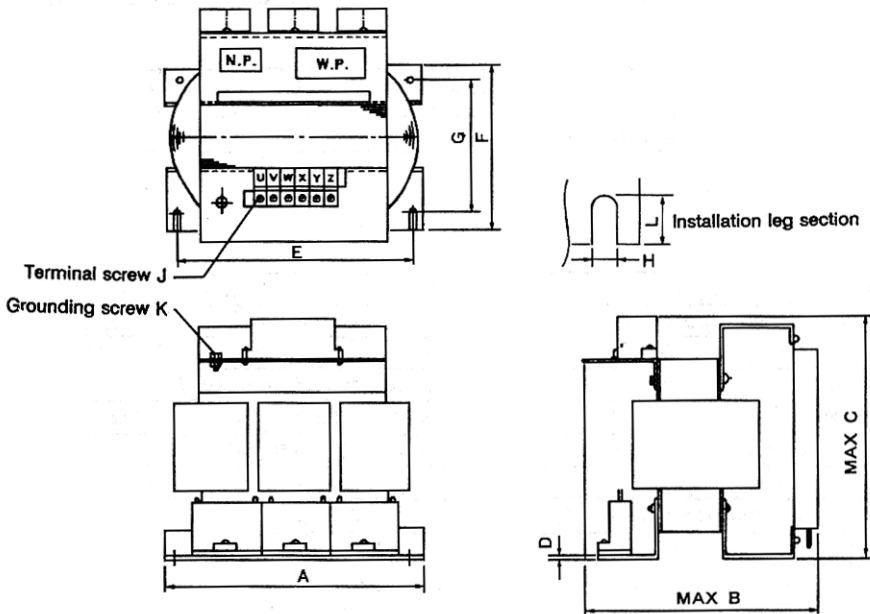
Vibration : 0.6G or less

Ambient atmosphere : With no dust, corrosive gases, oil mist or flammable gases

7. Dimensional Outline Drawings

Model	Dimension (mm)											Approx. weight (kg)
	A	B	C	D	E	F	G	H × L	Terminal screw J	Grounding screw K	Fixing screw	
FR-ASF-H1.5K	220	169	195	2.3	200	119	95	6 × 15	M4	M4	M5	8.0
FR-ASF-H3.7K	220	190	200	3.2	200	140	115	6 × 16	M4	M4	M5	11.0
FR-ASF-H7.5K	280	215	250	3.2	255	176	130	6 × 17	M6	M4	M6	20.0

(1) FR-ASF-H1.5K/H3.7K/H7.5K



History of Revisions

* The Instruction Manual No. is noted on the lower left of this manual's rear cover.

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