Panel Mount

KMRT

Three-phase Motor Reversing Module

CE

DESCRIPTION

KMRT, the motor reversing module, is specially designed for the control of three-phase motor with the built-in input logic interlock circuit and turn-on delay circuit, which can prevent the TRIAC being damaged due to misoperation or the TRIAC can not be turned off in time during the reversing process, and guarantee the safety of the power supply system and the motor and its power module. Meanwhile, the module also integrates the RC snubber circuit and the varistor protection circuit to improve its operation reliability.

The module offers 5 output current ratings 10A, 20A, 25A, 40A and 50A, with output voltage range 48~530VAC, meanwhile a dichromatic LED for indicating the operating status is equipped. It is widely used for the three-phase motor control in the heavy chemical industry and the electric actuating mechanism control, of which the typical applications are the blender control, the steam valve control, the flow control and the air door control etc.

FEATURES

- Photoelectric isolation
- Built-in logic interlock circuit
- LED status indicator
- SCR output
- Dielectric strength 4000V
- High EMC design
- Built-in RC snubber circuit

INSTALLATION

1. Please make sure that the heatsink surface is clean and smooth.
2. Please Coat the module metal base with some thermal grease or a thermal pad, and firmly press the module against the heatsink to ensure the full adherence, and then screw the module to the heatsink.
3. Please wire the screw terminals and tighten the screws properly. The recommended screw mounting torque is 0.98~1.73N·m.

PRECAUTIONS

1. The surge current value shown on this datasheet is the non-repetitive peak value of the surge current of the module. Normally 1/2 of the non-repetitive peak value of the surge current is considered as standard value. If the actual surge current flowing through the module exceeds the standard value, a semiconductor fuse is required to connect to the output terminal in series in order to prevent any damage caused to the module. Meanwhile, the I^2t value of the semiconductor fuse must be smaller than the nominal maximum I^2t value of the module.
2. The module belongs to the products which use the weak electricity to control the force electricity. When using the module, please switch on the three-phase power supply first and then the control signal, otherwise the output port of the module will probably generate the high reverse charging voltage and damage the product.
3. When using the module, the minimum switching time for reversing time given by the user must be over 30ms.
4. Please pay special attention to the actual load current and the ambient temperature when doing the type selection. And the module requires proper heat sinking for heat dissipation in full load. When the ambient temperature is high, the load current must be derated. Please refer to the curve of Max. Load Current vs. Ambient Temperature for derating.
5. Tighten the module screw terminals properly. If the screws are loose, the module would be damaged by heat generated from connection. The recommended screw mounting torque range is 0.98~1.37 N·m. Excessive screw mounting torque may damage the module's internal components.
6. It is recommended to use the matched heatsink made by Keysolu. If the user needs to use the home-made heatsinks, please ensure that the temperature of the module base must not exceed 85°C.
7. All the electronic components inside the module have become solid with epoxy encapsulation. And excessive screw mounting torque may damage the module's internal components. The recommended screw mounting torque range for the module baseplate is 0.98~1.37 N·m.
8. Please do not use the module exceeding the limitation which is specified on this datasheet.

SELECTION GUIDE

KMRT /	D-	48	P	25	-2	(XXX)
Type	Control voltage	Load voltage	Switching mode	Load current	Control type	Customer special code
	D: 12~32VDC	38: 380VAC 48: 480VAC	P: Random	10: 10A 20: 20A 25: 25A 40: 40A 50: 50A	2: Three-phase two control 3: Three-phase three control	

INPUT SPECIFICATIONS (Ta = 25°C)

Control voltage range	10 ~ 32VDC
Must turn-on voltage	10VDC
Must turn-off voltage	3VDC
Max. input current	25mA
Max. reverse protection voltage	-32VDC

OUTPUT SPECIFICATIONS (Ta = 25°C)

Load current	38□10: 10A
	38□20: 20A
	38□25: 25A
	38□40: 40A
	48P25: 25A
	48P50: 50A
Load voltage range	□□-38 type: 48 ~ 440VAC
	□□-48 type: 48 ~ 530VAC
Max. transient voltage	□□-38 type: 800Vpk
	□□-48 type: 1200Vpk
Max. on-state voltage drop	2.1Vr.m.s.
Min. load current	100mA
Max. off-state leakage current	10mA
Min. off-state dv/dt	□□-38 type: 200V/μs
	□□-48 type: 500V/μs
Turn-on delay time (included in the module, please refer to the time sequence diagram t3)	80ms (Typ.)
Max. turn-off time	1/2 Cycle + 1ms
Operating frequency range	47 ~ 63Hz
Max. surge current (10ms)	38□10: 100A
	38□20: 200A
	38□25: 250A
	38□40: 400A
	48P25: 250A
	48P50: 500A
Max. I^2t value	38□10: 50A^2s
	38□20: 200A^2s
	38□25: 312A^2s
	38□40: 800A^2s
	48P25: 312A^2s
	48P50: 1250A^2s

GENERAL SPECIFICATIONS (Ta = 25°C)

Dielectric strength (input/output)	4000VAC, 50Hz/60Hz, 1min
Insulation resistance	1000MΩ (500VDC)
Max. capacitance (input/output)	10pF
Operating temperature	-30 ~ 80℃
Storage temperature	-30 ~ 100℃
Ambient humidity	45% ~ 85% RH

GENERAL SPECIFICATIONS (Ta = 25°C)

Termination	Screw
Installation method	Panel mount
Unit weight	Approx. 335g
Operation status indication	Forward: Green
	Reverse: Red
EMC burst immunity	Test according to GB/T17626.4 (IEC61000-4-4) Grade 4 (4000V, 5kHz)

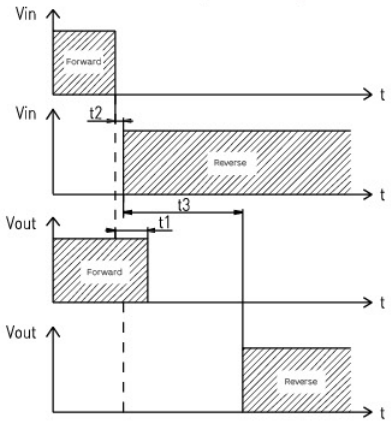
APPLICATION SPECIFICATIONS (Ta = 25°C)

Module load current	10A	20A	25A	40A	50A
Motor power	0.75kW	1.1kW	1.5kW	3kW	4kW
Heatsink type	HF92B-150A			HF92B-150C	

OUTLINE DIMENSIONS & WIRING DIAGRAM

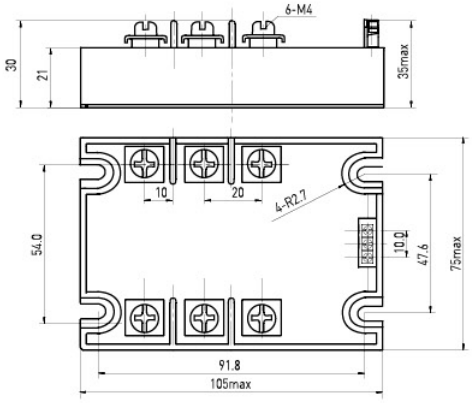
Unit: mm

Time Sequence Diagram

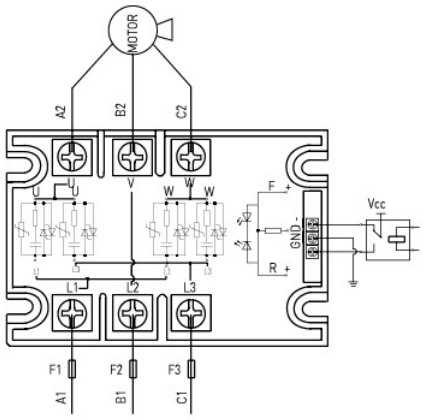


Remark:
t1: Turn-off time
t2: Switching time (given by the user's program)
t3: Turn-on delay time

Outline Dimensions

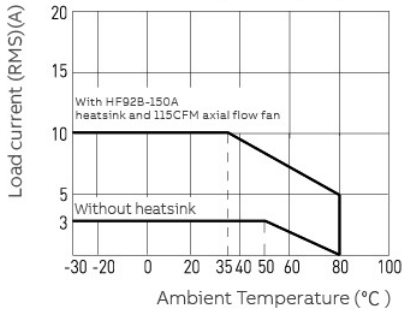


Wiring Diagram

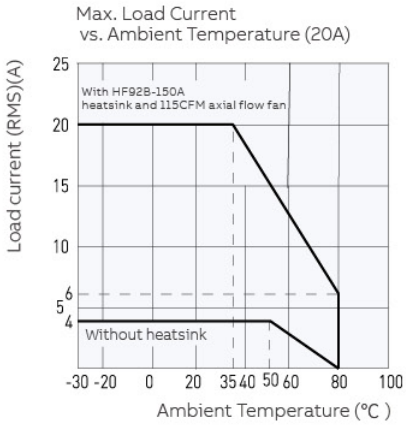


CHARACTERISTIC CURVES

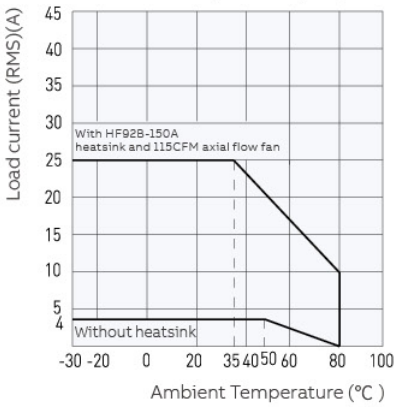
Max. Load Current
vs. Ambient Temperature (10A)



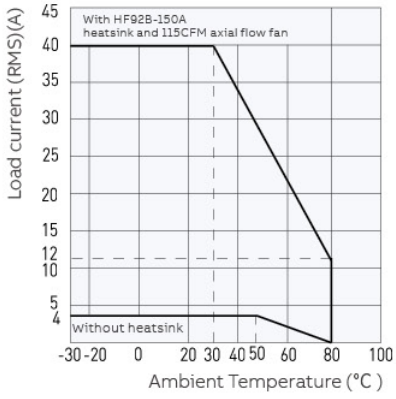
Max. Load Current
vs. Ambient Temperature (20A)



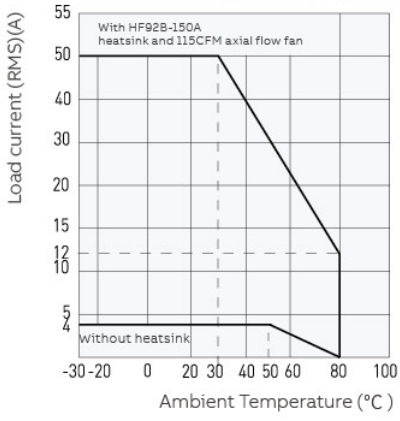
Max. Load Current
vs. Ambient Temperature (25A)



Max. Load Current
vs. Ambient Temperature (40A)



Max. Load Current
vs. Ambient Temperature(50A)



Max. Permissible Non-repetitive
Peak Surge Current vs. Continuance Time