PCB Mount

Panel Mount

DIN Rail Mount

Motor Reversing Module

Intelligent SSR

SSR Accessories

Panel Mount

KMRT-H

Three-phase Motor Reversing Module

CE

DESCRIPTION

KMRT-H, the functional motor reversing module, is specially designed for the control of three-phase AC asynchronous motor with the built-in input logic interlock circuit and the built-in turn-on delay circuit and the switching time over 80ms, which can prevent the damage to the module caused by the delayed turn-off of the SCR due to misoperation; KMRT-H has the built-in functions as follows: the power phase absence protection function, the power phase absence feedback indication function and the automatic phase correction function (the power phase absence feedback indication function and the automatic phase correction function are optional therein).

When the three-phase power supply has the phase absence problem, the module will be turned off without any output voltage, and the motor will stop working, meanwhile the module can generate the isolated passive feedback signal and can illume the malfunction indicator lamp on the module.

When the phase sequence of the three phase power supply changes, the module can correct the power phase sequence automatically and ensure that the positive and negative rotation keeps the same direction.

This module has two output current ratings 25A and 50A, with the 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

◆ SCR output for heavy industrial loads

◆ Built-in RC snubber circuit and varistor protection circuit

◆ Wide input voltage range 10.8~32VDC

◆ Random turn-on, high EMC design

◆ Photoelectric isolation, dielectric strength 3750Vrms

◆ Built-in turn-on delay circuit

◆ Built-in logic interlock circuit

◆ Power phase absence feedback indication

◆ Automatic phase correction

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.

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 I²t value of the semiconductor fuse must be smaller than the nominal maximum I²t value of the module.

2. In order to avoid the contact chatter generated in the circuit breaker and its adverse effects on the module's normal operation during the power-on process of the three-phase AC power supply, the control signals F and R must be given out after the module is electrified for 1.8s. If the control signals are given out within 1.8s after the strong current electrified, the module will be off-state and alarm that the PF+ and PF- are on-state.

3. The module has the built-in turn-on delay circuit, and the on-state time of the forward or the reverse control signal given by the user must be over 80ms, otherwise the module will fail to operate.

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. 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.

6. Tighten the module screw terminals properly. If the screws are loose, the module would be damaged by heat generated from connection. Please refer to the recommended screw mounting torque as follows: the output screw mounting torque range is 0.98~1.37 N·m, and the input screw mounting torque range is 0.3~1.5N·m.

7. The heat produced by the module during the working process must be dissipated via the metal base of the module. Please coat the module metal base with some thermal grease, and then firmly press the module against the heatsink to ensure the full adherence. Besides, the recommended screw mounting torque range for the module baseplate is 0.98~1.37 N·m. Excessive screw mounting torque may damage the module's internal components

8. Please do not use the module exceeding the limitation which is specified on this datasheet.

SELECTION GUIDE

KMRT-H/	D-	48	P	25	-S	3	-FK	S	(XXX)
Type	Control voltage	Load voltage	Switching mode	Load current	Automatic phase correction	Control type	Phase absence indication	Termination	Customer special code
	D: 10.8~32VDC	48: 480VAC	P: Random	25: 25A 50: 50A	Nil: Not included S: Included	2: Three-phase two control 3: Three-phase three control	Nil: Not included FK: Included	Nil: Screw S: Spring	

INPUT SPECIFICATIONS (Ta = 25°C)

Control voltage range	10.8 ~ 32VDC
Must turn-on voltage	10.8VDC
Must turn-off voltage	4VDC
Max. input current	25mA
Min. reverse switching interval (viz. the turn-on delay of built-in hardware)	80ms (typical value)

OUTPUT SPECIFICATIONS (Ta = 25°C)

Load current	48P25: 25A
	48P50: 50A
Load voltage range	48 ~ 530VAC
Max. transient voltage	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	800V/µs
Max. turn-off time	20ms
Max. surge current	48P25: 250 Apk
	48P50: 500 Apk
Max. I²t (10ms)	48P25: 312 A²S
	48P50: 1250 A²S

GENERAL SPECIFICATIONS (Ta = 25°C)

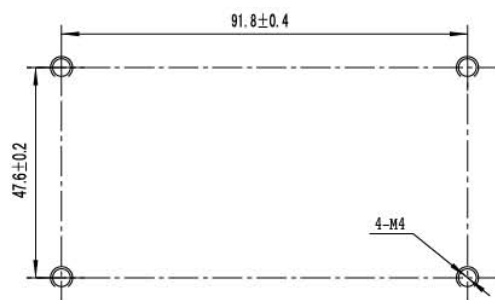|	
Dielectric strength	3750VAC, 50~60Hz
Insulation Resistance	1000MΩ (500VDC)
Operating temperature	-30 ~ 80℃
Storage temperature	-30 ~ 100℃
Ambient humidity	45% ~ 85% RH
Vibration resistance	10 ~ 55Hz, 1.5mm, DA
Termination	Screw
Installation method	Panel mount
Unit weight	Approx. 400g
Operation status indication	F: Forward
	R: Reverse
	ERR: Error
EMC burst immunity	Test according to GB/T17626.4 (IEC61000-4-4) Grade 4 (4KV, 5kHz)
EMC surge impact immunity	Test according to GB/T17626.5 (IEC61000-4-5) Grade 3 (2kv)

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APPLICATION SPECIFICATIONS (Ta = 25°C)

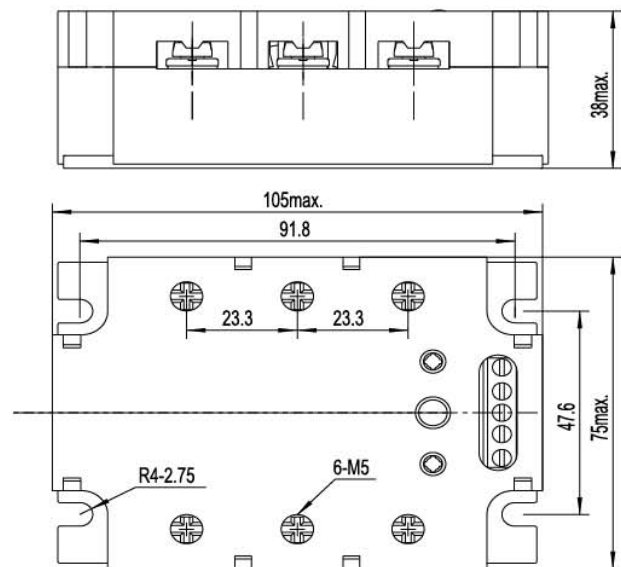| Module load current	25A	50A
Motor power	1.5kW	4kW
Heatsink type	HF92B-150A	HF92B-150C

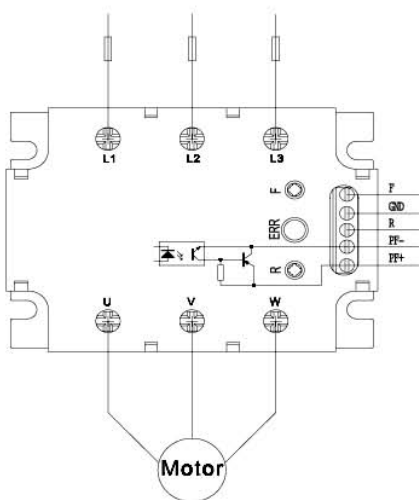## OUTLINE DIMENSIONS & WIRING DIAGRAM

Unit: mm

Mounting Holes

Outline Dimensions

Wiring Diagram

CHARACTERISTIC CURVES

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

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

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