

Panel Mount

KMRS

Single-phase Motor Reversing Module



DESCRIPTION

KMRS, the single-phase motor reversing module, is specially designed for the control of single-phase motor with built-in input logic interlock circuit and turn-on delay circuit, which can prevent the damage caused to the TRIAC 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 to improve its operation reliability.

The module offers four different output current ratings 10A, 15A, 25A and 40A with output voltage range 48~440 VAC, meanwhile a dichromatic LED used for indicating the operating status is equipped. It is widely used for the single-phase motor control in the heavy chemical industry and the electric actuating mechanism control (the typical applications e.g. security inspection baggage conveyors, air doors, etc.).

FEATURES

- ◆ Photoelectric isolation
- ◆ LED status indicator
- ◆ Dielectric strength 4000V
- ◆ Random turn-on
- ◆ Built-in RC snubber circuit
- ◆ Built-in logic interlock circuit
- ◆ Used for single-phase motor reversing

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. If the load connected to the module will produce high surge current, please assure that the module is able to resist the surge current value.
2. 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.
3. Please ensure that the module can withstand the transient voltage in case the output load (e.g. motors) may generate the high shock voltage.
4. The transient voltage value shown on this datasheet is the non-repetitive peak value of the transient voltage. If the transient voltage applied to the output terminal of the module exceeds the nominal value, a varistor is required to connect to the output terminal in parallel in order to prevent any damage

caused to the module. And the recommended varistor voltage is 750V.

5. 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.

6. Tighten the module screw terminals properly. If the screws are loose, the module would be damaged by heat generated from connection. Also excessive screw mounting torque may damage the module's internal components. Please refer to the recommended screw mounting torque as follows: the M4 screw mounting torque range is 0.98~1.37N·m, and the M3 screw mounting torque range is 0.58~0.98N·m.

7. 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.

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

SELECTION GUIDE

KMRS /	D-	38	P	15
Type	Control voltage	Load voltage	Switching mode	Load current
	D: 12~32VDC	38: 380VAC	P: Random	10: 10A 15: 15A 25: 25A 40: 40A

INPUT SPECIFICATIONS (Ta = 25°C)

Control voltage range	12 ~ 32VDC
Must turn-on voltage	9.6VDC
Must turn-off voltage	3VDC
Max. input current	15mA
Max. reverse protection voltage	-32VDC

OUTPUT SPECIFICATIONS (Ta = 25°C)

Max. load current	38P10: 10A
	38P15: 15A
	38P25: 25A
	38P40: 40A
Load voltage range	48 ~ 440VAC
Max. transient voltage	800Vpk
Max. on-state voltage drop	1.7Vr.m.s.
Min. load current	100mA
Max. off-state leakage current	5mA
Min. off-state dv/dt	200V/μs
Turn-on delay time (integrated in module, see time sequence diagram t3)	60ms (Min)
Max. turn-off time (see time sequence diagram t1)	1/2 Cycle + 1ms
Frequency range	47 ~ 63Hz
Max. surgar current(10ms)	38P10: 100 Apk
	38P15: 150 Apk
	38P25: 250 Apk
	38P40: 400 Apk
Max. I ² t for fusing (10ms,A ² s)	38P10: 50
	38P15: 112
	38P25: 312
	38P40: 800

GENERAL SPECIFICATIONS (Ta = 25°C)

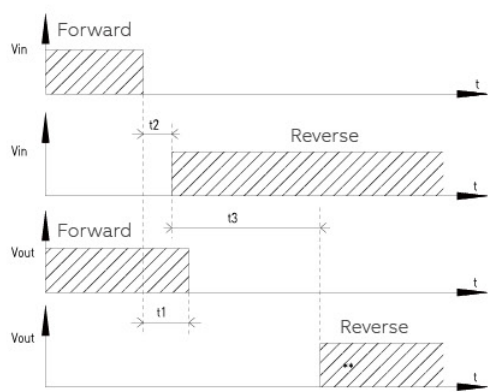
Dielectric strength (input/output)	4000VAC, 50Hz/60Hz, 1min
Insulation resistance	1000MΩ (500VDC)
Max. capacitance (input/output)	10pF
Operating temperature	-30 ~ 80°C
Storage temperature	-30 ~ 100°C
Ambient humidity	45% ~ 85% RH
Terminal	Screw
Installation method	Panel mount
Unit weight	Approx. 335g
Operating status indication	Forward: Green
	Reverse: Red

APPLICATION SPECIFICATIONS (Ta = 25°C)				
Module load current	10A	15A	25A	40A
Moter power	200W	400W	750W	1000W
Heatsink party number	HF92B-150A			HF92B-150C
Fan air flow	115CFM			

TIME SEQUENCE DIAGRAM, OUTLINE DIMENSIONS, WIRING DIAGRAM

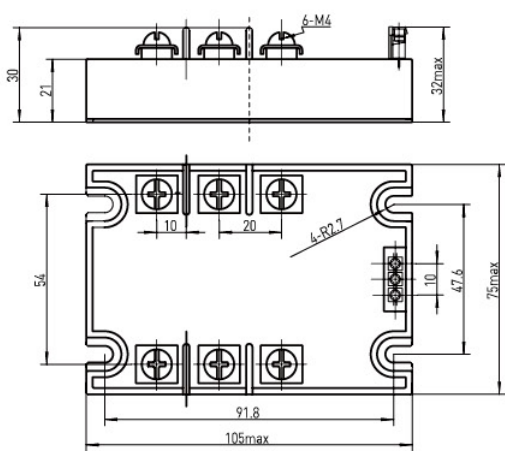
Unit: mm

Time Sequence Diagram

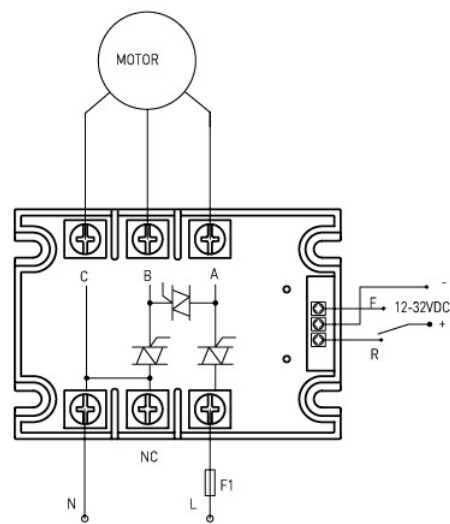


- Notes:
- t1: turn-off time
 - t2: switching time
 - t3: Turn-on delay time

Outline Dimensions



Wiring Diagram



CHARACTERISTIC CURVES

