

ELECTRONIC OVERLOAD RELAY

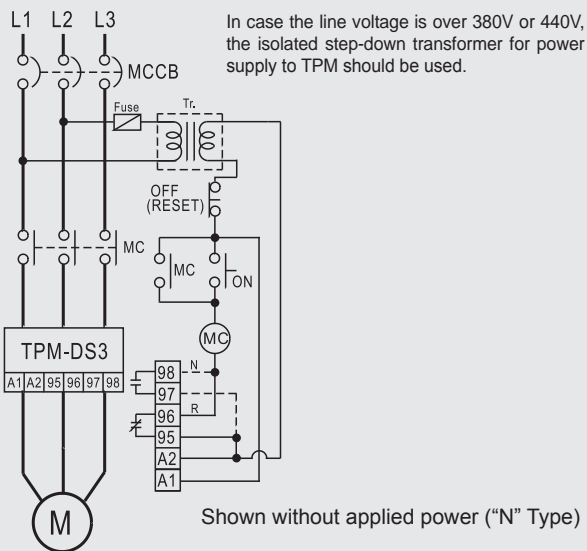
TPM-DS3

Main features

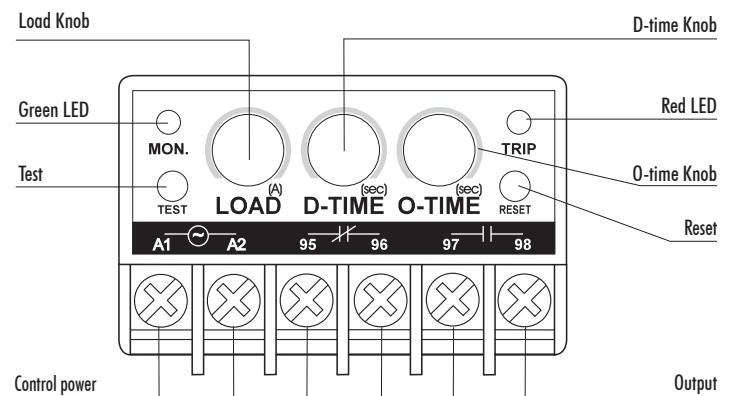
- MCU (Microprocessor Unit) based.
- Compact design
- Overcurrent / Phase Loss / Phase Reversal / Locked Rotor Protection
- Wide current adjustment range up to 1 : 10
- Independently adjustable starting & Trip delay
- Visual adjustment aid(LED)
- Identify cause of trip (2 LED signals)
- Manual / Electrical reset.



Wiring diagram



Frontal configuration



Easy Troubleshooting

Motor Status		LED Output / Pulse Signal		
		Green LED	Rojo LED	
Stop (Power input)		On	Off	
Starting		Flash	Flash	
Normal running		On	Off	
Overloading		On	Flash	
Trip	Over-current	Off	On	
	Locked rotor	Off	Flash	
	Phase loss	L1	Off	Flash
		L2	Off	Flash
L3		Off	Flash	
Phase reversal			2LEDs flash alternatively	

Installation

After completion of wiring, set the values as following instruction :

- 1) Set starting period to known motor run up time or to the maximum if not known with D-TIME knob.
- 2) Set trip delay to desired trip delay time with O-TIME knob.
- 3) Start the motor and notice run-up time. Then, slowly turn the LOAD knob CCW, until red LED flashes, where the 100% of the actual load current is indicated. Set the knob

to desired trip current. 110-125% setting of running current is recommended.

- 4) Readjust D-TIME knob setting to normal motor run-up time.
- 5) Periodic testing with TEST button is recommended to ensure the full protection and regularly as a preventive maintenance. (When the motor stops)

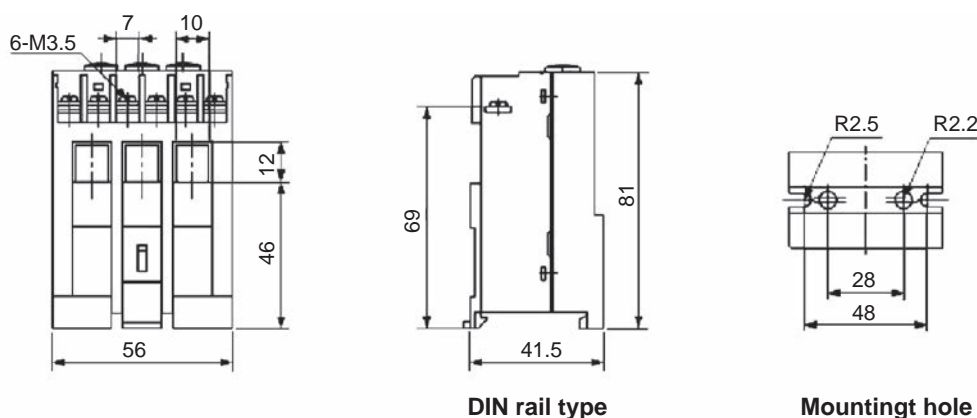
Protection

Protective Item	Operating Characteristics	Trip Delay Time
Overcurrent	Trip if $I > I_s$ (I : Actual Current, I_s : Current Setting)	Preset O-TIME delay
Phase Loss		Within 4 sec
Phase Reversal	Trip Instantaneously if Phase Reversal is detected	0.1 sec.
Locked Rotor	In case of actual current more than 300% of current setting	Trip just after Preset D-Time Delay

LED Indication

Visual Adjustment Aid Ammeter + Setting Accuracy	With the visual aid of LED, flashing where the current value of adjustment dial (LOAD) is 100% of actual load current, actual load current can be evaluated without the aid of ammeter.
Trip Cause Indication	2 LEDs make signals and let the operators monitor motor running. If tripping is occurred, the operator can identify cause of tripping and troubleshoot easily.
* The run-up current of motor (starting current) does not cause relay trip because overcurrent protection of TPM is not applied by D-Time during motor run-up time	

Size



Technical features

Model	TPM-DS3		
Current setting	05 → 1-5 A		
	30 (Standard Type Models) → 5-30 A		
	60 → 5-60 A		
	Over 60 A, 05 Type fitted with external CT.		
Time Setting	Starting Delay (D-TIME)	1-50 sec, Adjustable	
	Operating Delay (O-TIME)	0.2-10 sec, Adjustable	
Reset	Manual Reset	Manual (instantaneous) reset by depressing RESET button	
	Electrical (Remote) Reset	Electrical (instantaneous) reset by interrupting power supply	
Time Characteristics	Definite		
Trip Indication	2 LEDs		
Tolerance	Current	±5%	
	Time	±10%	
Ambient Temperature	Operation	-20° +60° C	
	Storage	-30° +80° C	
Ambient Humidity	30...85% RH without Condensation (Non-condensing)		
Control Voltage	Voltage	220	180-260 VAC
		440	320-480 VAC
	Frequency	50-60 Hz	
Output Contacts	Contacts	• 2-SPDT 5 A / 250 VAC (1 a, 1 b)	
	Condition	N Type	Normally Energized
		R Type	Normally De-energized
Insulation	Between Casing & Circuits	Over 10 MOhms (500 VDC megger)	
Dielectric Strength	Between Casing & Circuits	2 kV, 50/60 Hz, 1 min.	
	Between Contacts	1 kV, 50/60 Hz, 1 min.	
	Between Circuits	2 kV, 50/60 Hz, 1 min.	
Power Consumption	1 W		
Mounting	35 mm DIN rail		
Approximate average weight	05 → 110 g. (230 V) / 160 g. (400 V)		
	30 → 140 g. (230 V) / 160 g. (400 V)		
	60 → 160 g. (400 V)		



Ordering information

- 1.- TPM: Motor Electronic Protector.
- 2.- Model: DS3
- 3.- Current Range:
 - Type 05: 0,5 - 5/6 A.
 - Type 30: 3,0 - 30/35 A.
 - Type 60: 5,0 - 60/70 A.
- 4.- N: Normally Energized (closed when power applied).
- 5.- Control Power:
 - 220: 180 - 260 Vac 50/60 Hz.
 - 440: 320 - 480 Vac 50/60 Hz.
- 6.- Terminal type is optional

TPM - DS3 - 05 - N

①

②

③

④

