

Digital Over-current Relay with Ammeter

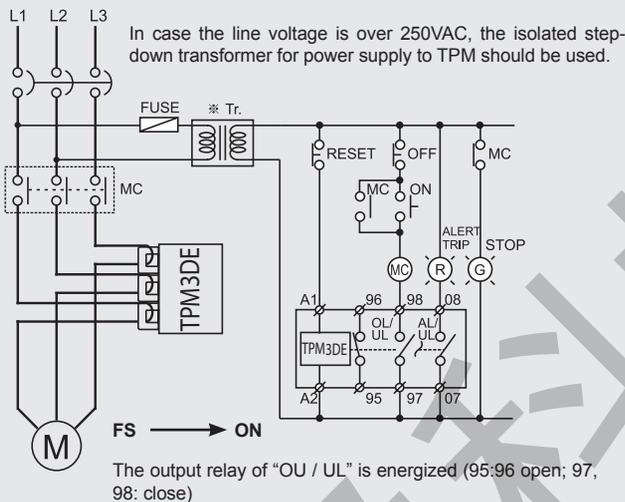
TPM-3DE

Description

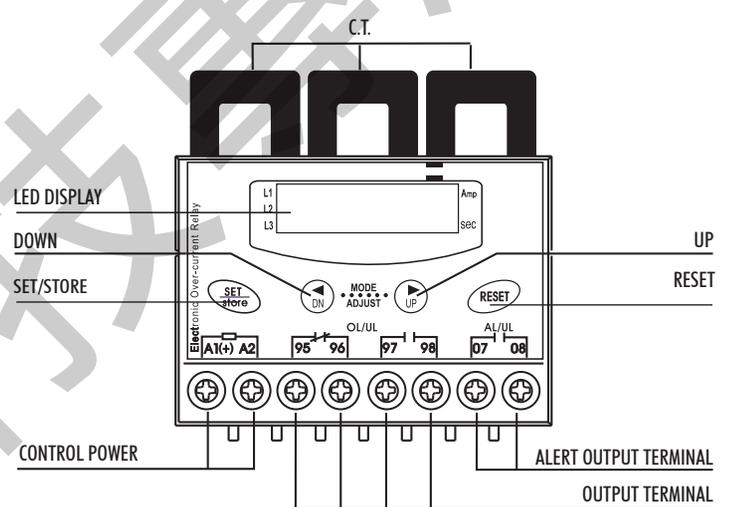
- MCU(Micro Controller Unit) based.
- Ampere meter function . Load current of 3 phases are displayed in sequence and display time of each phase current is 5 sec.
- Overcurrent protection range:
  - 0.5~60A(wide range type) : displays line current under 100A.
  - 11...960 A: with external CT.
- Undercurrent protection range. 0.5A~less than "oc" setting value /OFF(- -).
- Time-Current characteristics.
  - 0.5...10 A: Definite/Inverse, selectable.
  - More or equal than 11A: definite(if inverse required, use with external CT).
- Easy troubleshooting by 7 segment LED.
- Trip output of UL : This output is normally shared with OC, but in case "ALU" mode is selected into "U", then "AL" Output (07-| | -08) is transferred into "UL" output.
- Trip cause memory : Last 3 trip, stored regardless power failure.
- Reset : manual(instantaneous)/electrical(remote).
- Fail safe(self-diagnostics) : The output relay of "OL" is energized when control power applied.
- Applicable to Inverter(20~400Hz).



Typical Application Diagram



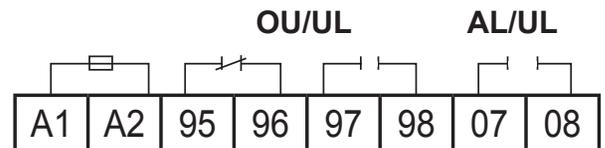
Frontal configuration



Function and Indication of Alert

Progr. "Alto"	En marcha	Normal	Mayor que la alerta programada (%)	Disparo
"F" parpadeo	██████████			
"H" mantener	██████████	██████████	██████████	██████████
"A" aux.	██████████	██████████	██████████	██████████

E/S7 Terminals Configuration



Function feature

Protected Item	Operation Delay
Overcurrent	0,5 / 1~30 sec (Definite Time Type) 1~30 class (Inverse time type)
Undercurrent	1~30 sec (Definite Time Type)
Phase Loss	Within 3 sec.
Phase Reversal	0,1 sec.
Unbalance	Within 8 sec.
Locked Rotor	Trip after preset 'dt'
Stall	1...10 sec.

How to setup

1) Current:

- **Definite time** – Set the rated motor current in "OC" mode. For protection of connected machinery with motor, it is recommended to set the 10~115% of running current after motor current is stabilized.
- **Inverse time** – 100% of rated motor current or 110~125% actual motor current is recommended.

2) D-Time: Set the expected run-up time of motor in "dt" mode.

3) O-Time :

- **Definite Time** – Set the desired trip delay time in "ot" mode.
- **Inverse Time** – Set the trip delay time according to Time-Current characteristics.

## How to set

Mode		Search a mode to be adjusted by depressing UP/DN mode switch.
Set		Selected mode and setting value start flickering which means to be ready to accept setting as depressing once a Set/store button.
Adjust		Select a required setting value and/or characters by depressing continuously UP/DN mode switch until reaching what want to do.
Store		Store a selected value and/or characters by depressing once Set/store button. Instantaneously the flickering is stopped.
Reset		After completing above procedure, make a reset to be ready to operate. If not made reset, it will be reset automatically after an elapse of 30 sec.
Current rotation by Manual		Instead of automatic rotation, manual display rotation is possible as depressing once SET/ Store button during an operation. If manual is selected, the information of phase current L1 is displayed firstly and next information is displayed continuously like a manner of: L1→L2→L3→GF→L1→....
How to check trip cause		<ul style="list-style-type: none"> <li>• Enter into "trip" mode by depressing once Set/store button, then last trip cause is showed.</li> <li>• Each phase current is displayed in order whenever depress UP/DN button in every once.</li> <li>• The 2nd trip cause is showed after displaying 3 phase current of last trip.</li> <li>• The 3rd trip can be checked by same manner.</li> </ul>

## Size

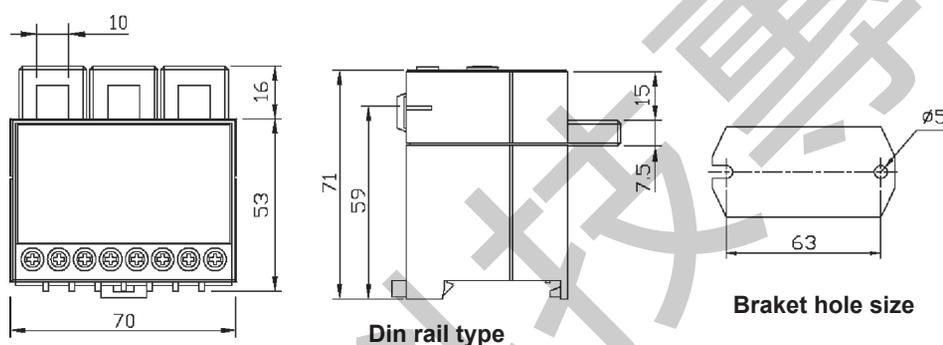


Table 1

Current setting range (A.)	Number of conductors through CT	External CT Ratio	Setting of CT Ratio	Remark
0.5...60A	1	-	OFF	Wide Range
0.25...3.0A	2	-	2t	
0.1...1.2A	5	-	5t	
1...12A	1	10:5	10	
1.5...18A	1	15:5	15	
2.0...24A	1	20:5	20	
2.5...30A	1	25:5	25	
3.0...36A	1	30:5	30	
4.0...48A	1	40:5	40	
5...60A	1	50:5	50	
6...72A	1	60:5	60	
7.5...90A	1	75:5	75	
10...120A	1	100:5	100	
12...144A	1	120:5	120	
15...180A	1	150:5	150	
20...240A	1	200:5	200	
25...300A	1	250:5	250	
30...360A	1	300:5	300	
40...480A	1	400:5	400	
50...600A	1	500:5	500	
60...720A	1	600:5	600	
75...900A	1	750:5	750	
80...960A	1	800:5	800	

Table 2. OC adjustable time features

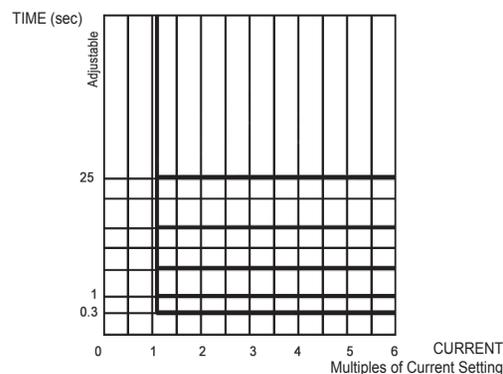


Table 3. OC inverse time features 0.5...10A / combined with external transformer

