

# Transformer Protection Relay (TPR-104)

For Cast Resin / Dry Type Transformers



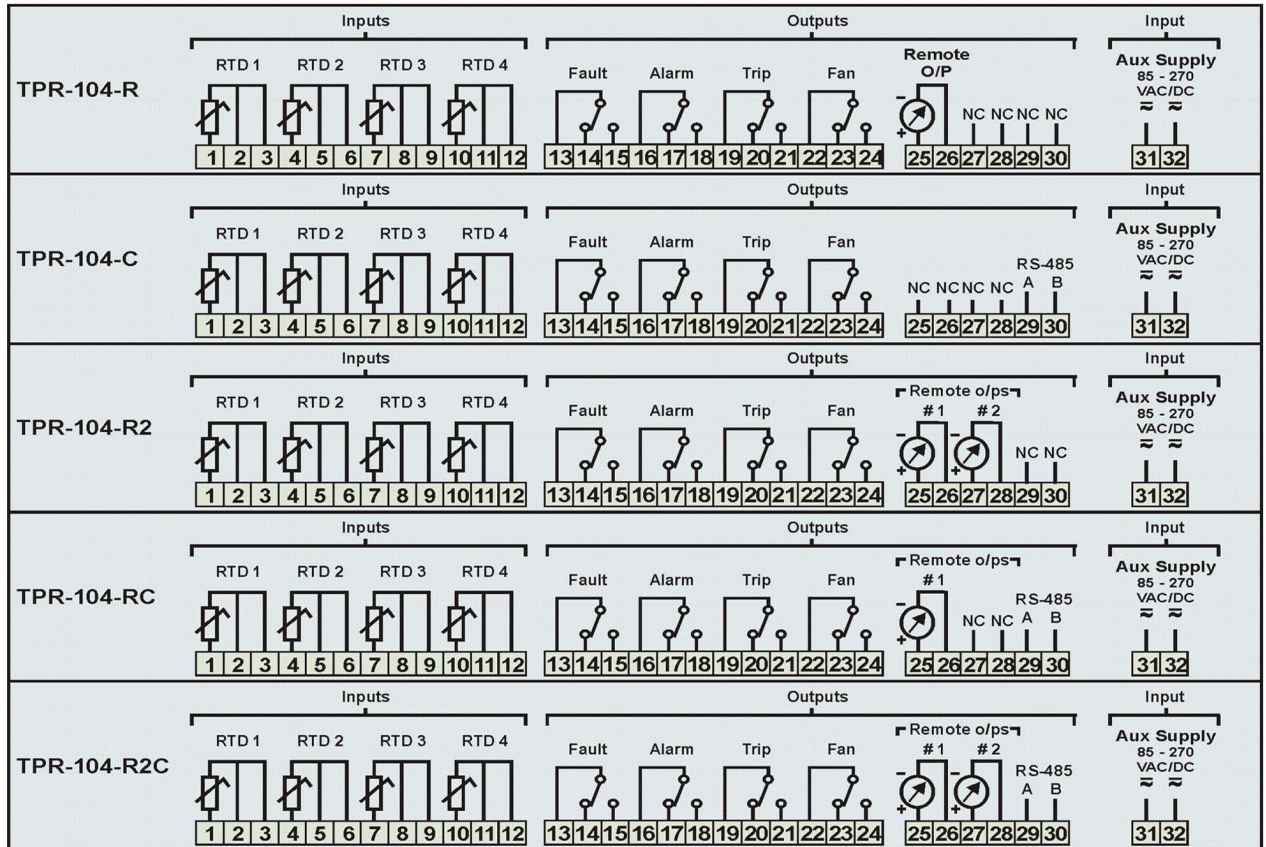
## Standard Features :

- IP-55 Enclosure against severe environment conditions.
- 85-440 VAC/DC power supply range performs better in phase imbalance condition.
- Temperature scanner for three windings and core .
- Four output relays (1 C/O) for Alarm, Trip, Fan and Fault.
- Fan Exerciser facility ensures operations of fan for long life with less maintenance.
- Maximum temperature storage capacity and reading can be recalled after power fails.
- Facility is provided to reset maximum temperature for fresh recordings.
- Fault indication is provided for Sensor open, short, over or under temperature conditions.

## TPR-104 Variants :

Models →	TPR-104-R	TPR-104-C	TPR-104-RC	TPR-104-R2	TPR-104-R2C
<b>4-20 mA Analog Outputs</b>	One	No	One	Two	Two
<b>RS-485 MODBUS Protocol</b>	No	Yes	Yes	No	Yes
<b>No. of Relay Outputs</b>	4 (1 C/O)	4 (1 C/O)	4 (1 C/O)	4 (1 C/O)	4 (1 C/O)

## Terminal Details :



Doc no.: EL21011901



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### Technical Specifications :

- Inputs : 4 nos. of RTD sensors (Pt-100, IEC-60751)
- No. of Set-points : Three (Alarm, Trip & Fan)
- Temperature indication range : -50 to 300 °C
- Set point range : 1 to 300 °C
- Accuracy : +/- 1 °C
- Dead Band (relay differential) : 8 °C for Alarm, 4 °C for Trip and 8 °C for Fan (Factory Set)
- Display Speed : 4 seconds (Factory Set)
- Display : 3 Seven Segment 1/2" displays for displaying Temperature  
1 Seven Segment 1/2" displays for displaying channel number

### Mechanical Specifications :

- Overall Dimensions : 215 (H) x 265 (W) x 130 (D) mm
- Mounting : Wall mounting by 3 nos. M6 Screws
- Weight : 3.5 kg approx. (*unpacked*)
- Enclosure : M.S. Sheet Box, powder coated

### Electrical Specifications :

- Supply Voltage : 85 - 440 VAC/DC (Optionally 20 - 50 VAC/DC)
- Outputs : - Four relay contacts (one C/O contact for – Fault, Fan, Alarm & Trip)  
- Analog 4-20mA output (corresponding to 0 to 200 °C, max. load 300 ohms, linearity 0.5% w.r.t. local indication)  
- RS-485 communication (1KVDC isoated) with MODBUS RTU slave protocol.
- Contact Racting : For resistive load, 5A @ 230VAC & 0.5A @ 125VDC  
For inductive load, 5A @ 230VAC ( $\cos\phi = 0.4$ ) & 0.3A @ 125VDC (L/R=7msec).
- Relay operations : Fault : Will energize after few seconds of power-on and de-energinze on detecting fault condition. Fault relay will remain on in normal conditions.  
Fan : Will energize if any channel's tmeperature exceeds fan set point .  
Alarm : Will energize if any channel's temperature exceeds Alarm set point.  
Trip : Will energize if any channel's temperature exceeds Trip set point.
- Terminals : Combicon screwed caged, suitable for 2.5 mm<sup>2</sup> solid conductors.
- Insulation : Insulation resistance shall be 100 Mohm or more when 500 VDC is applied between each terminal shorted together and earth.  
Controller will withstand 2.5 KV rms at 50/60 Hz. for 1 min., applied between all relays & supply terminals shorted together & earth.
- Power consumption : Max. 15VA

### Environmental Specifications :

- Operating Temperature : -20 to 70 °C
- Relative Humidity (RH) : max. 95% non-condensing
- Storage Temperature : -20 to 85 °C
- Vibration : 10-150 Hz, 0.004" displacement

