

Power Electronics & Control

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TR-7577-Rx / TR-7577-Cx Transformer Protection Relay

Temperature Scanner for Resin Cast / Dry Type Transformers

Standard Features:

- ❖ Single scanner unit to measure six different temperatures of windings & one for core.
- ❖ Three output relays for Alarm (High), Trip (V.High), Fan / Fault (configurable on site).
- ❖ Auto fan exerciser
- ❖ Memorizes max. temperature even after power fail conditions.
- ❖ TR-7577-Rx, comes with 2 nos. of 4-20mA analog outputs (duplicated) for remote indication, while TR-7577-Cx comes with one 4-20mA analog output for remote indication and one isolated RS-485 output for computer communication with MODBUS RTU slave protocol.

The model TR-7577-Rx / TR-7577-Cx is designed for safe operation of medium voltage cast resin / dry type transformer. It is suitable for control room as well as marshalling box installations and is built for long and trouble-free operation under extreme conditions of service associated with transformer.

Three numbers of user settable set-points for windings can be used to control the cooling fan (if selected), to warn the user of high temperature and to shut down the transformer in case of excessive heating. Six nos. of Pt-100 RTD sensors allow the user to monitor the temperatures of six windings located suitably in transformer and one Pt-100 RTD sensor allow the user to monitor core temperature. A separate set of three user settable set-points for core, in addition of winding temperature set points, can also be used to operate fan, Alarm (High), and Trip (V. High) relays.

TR-7577-Rx / TR-7577-Cx is programmed to note and store maximum temperature of the windings. Facility extends to recall this information and to clear it for fresh recording.

TR-7577-Rx has two 4-20mA analog output signal (duplicated). These can be configured to represent the temperature of any of the six channels or the temperature of the hottest channel.

TR-7577-Cx is provided with one 4-20mA analog output signal. This can be configured to represent the temperature of any of the six channels or the temperature of the hottest channel. In addition of 4-20mA output signal, TR-7577-Cx is also provided with facility for computer communication using RS-485 with MODBUS RTU slave protocol.

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Technical Specifications

Inputs	: 7 nos. of RTD (Pt-100, IEC-60751) sensors (6 for windings & 1 for core)
No. of Set-points	: Three (Alarm, Trip & Fan On)
Temperature indication range:	-20 to 250 °C
Set point range	: 20 to 220 °C
Accuracy	: ±1 °C
Dead Band (relay differential)	: Fan & Trip : 8 °C, Alarm : 5 °C (Factory set)
Display Speed	: 4 seconds (Factory set)
Display	: 1 Seven Segment 1/2" Red LED displays for displaying channel no. 3 Seven Segment 1/2" Red LED displays for displaying Temperature

Mechanical

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, with acrylic viewing window (IP-52)

Electrical

Supply Voltage	: 90 - 270 VAC/DC (Optionally 20 - 50 VAC/DC)
Outputs	: - Three relay contacts (N/O contact) - Fault / Fan, Alarm & Trip - 4-20mA analog outputs (two in TR-7577-Rx & one in TR-7577-Cx) (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 in model TR-7577-Cx.
Contact Racting	: For resistive load, 5A @ 230VAC & 0.5A @ 125VDC For inductive load, 5A @ 230VAC (cosΦ = 0.4) & 0.3A @ 125VDC (L/R=7msec).
Relay operations	: Fault : Will energize after few seconds of power-on and de-energinze on de- tecting fault condition. Fault relay will remain on in normal conditions. Fan : Will energize if any channel's tmperature reaches fan set point . This relay will also turn on as per fan exerciser set timings, if this function is enabled and Fan relay is selected. Alarm : Will energize if any channel's temperatrure reaches alarm set point. Trip : Will energize if any channel's temperature reaches trip set point.
Terminals	: Screwed Caged suitable for 2.5 sq. mm 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 KV rms at 50/60 Hz. for 1 min., applied between all relay & supply terminals shorted together & earth.
Power consumption	: Max. 15VA

Environmental

Operating conditions	: Amb. Temp. : -20 °C to 70 °C, R.H. : 95% Max non-condensing.
Storage Temp.	: -20 °C to 85 °C ±
Test conditions	: Amb. Temp. : 27 °C 5 °C, R.H. : 20 - 80% non-condensing.
Vibration	: 10-150 Hz, 0.004" displacement

Terminal Details

