

Power Electronics & Control

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WTI



TR-7555

Transformer Protection Relays

WTI for Oil Cooled Transformers

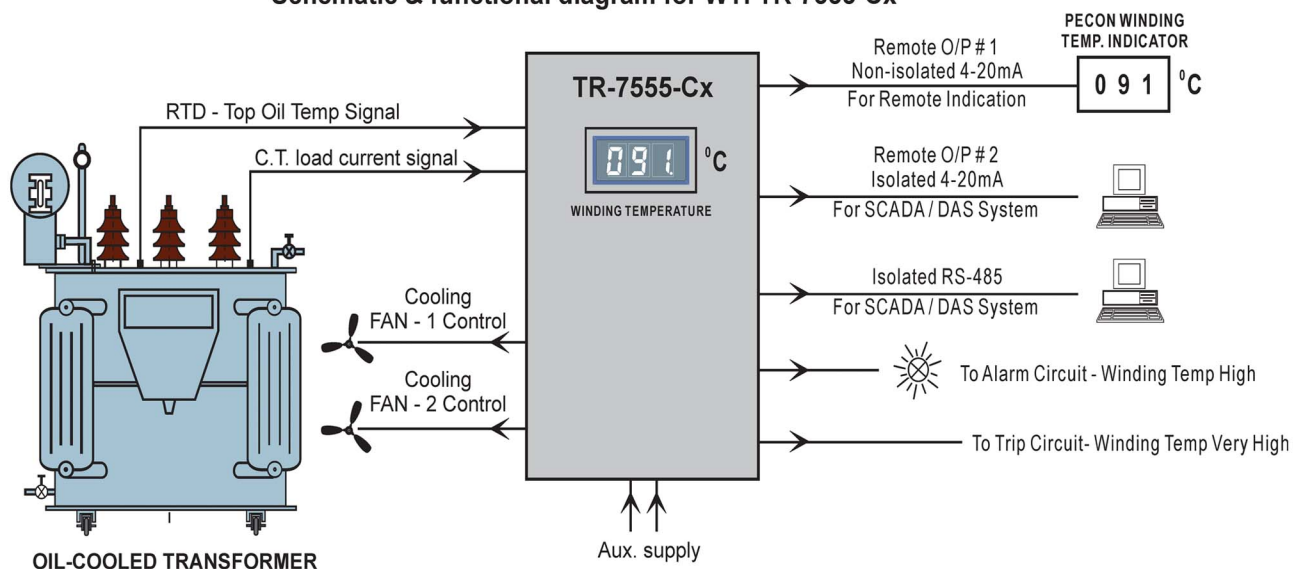
- ❖ Auto Fan Exerciser & Anticipatory Fan Control.
- ❖ Fully user programmable.
- ❖ Bright digital display suitable for outdoor conditions.
- ❖ Memorizes max. temperature (recordings available even after power fail conditions).
- ❖ RS-485 communication with MODBUS RTU Slave protocol (in models TR-7555-Cx & TR-7555-DCx).

WTI TR-7555 is designed for safe operation of oil cooled power transformers. It is suitable for control room as well as marshalling box installation and is built for long and trouble-free operation under extreme conditions of service associated with transformer installation.

There are four set points provided to control and operate cooling fans and to give alarm & trip signals in case of excessive winding temperature of the transformer. RTD sensor and load current C.T. are used to calculate the winding temperature. TR-7555 is programmed to note and store maximum winding temperature of the transformer & this can be checked by the user. This maximum temperature is stored permanently till user resets it for fresh recordings. Auto Fan Exerciser feature helps in preventing jamming of fans in case of no operation for long periods of time.

Anticipatory Fan control is a very special feature incorporated in TR-7555, which operates the cooling fans before the fan operate set points are reached. This helps in better thermal management & thereby ensuring longer transformer life.

Schematic & functional diagram for WTI TR-7555-Cx



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Technical Specifications

Sensors: For Top oil temperature: RTD Pt-100 (IEC-60751) three wire
 For winding temp simulation: C.T.
 (C.T. can be of 1 to 5 Amp. secondary current rating & with min. 5VA capacity)

Programming / Settable parameters:

C.T. parameterization.
 dt (top oil to winding hot spot temp. gradient) : 1 to 50 °C settable
 Thermal Time Constant: 1 to 60 minutes settable

Setpoints : 4 nos. one each for Winding Alarm, Winding Trip, Fan1 on and Fan2 on

Temperature indication range: Winding: -40 to 200 °C (Resolution 1 °C)

Accuracy (Test Conditions : Amb. Temp. : 27 °C ± 10 °C, R.H. : 20 - 80% non-condensing):

Winding temperature: ± 2 °C (Excluding C.T. accuracy)

Maximum temp. recording : in steps of 2 °C (Only, temperature above 60 °C is recorded)

Remote outputs: ± 1 °C (with respect to local indication)

Mechanical

Overall Dimensions: 215 (H) x 265 (W) x 130 (D) mm

Mounting: Wall mounting by 3 nos. M6 Screws

Weight: 3.0 kg approx. (unpacked)

Enclosure: IP-65, Aluminium cast with polycarbonate viewing window

Electrical

Outputs: - Five nos. of 1 C/O contacts for fan control, alarm & trip as indicated in terminal diagram below.

Contact Ratings: For resistive load, 10A @ 230VAC & 0.5A @ 125VDC

For inductive load, 10A @ 230VAC (cosΦ = 0.4) & 0.3A @ 125VDC (L/R=7msec).

- Two analog outputs : Remote O/P # 1 (non-isolated 4-20mA) for remote WTI indication.

Remote O/P # 2 (Isolated 4-20mA) for SCADA / DAS.

(Correspondence to 0 to 200 °C, max. load 300 ohms, linearity ± 0.5%)

- RS-485 output (1KVDC isolated) provided additionally on TR-7555-Cx / TR-7555-DCx

Supply Voltage: 85-270VAC/DC (Optionally 20-50VAC/DC), AC 40-400 Hz, Max. 15VA

Terminals: Screwed Caged suitable for one 2.5 mm² wire.

Insulation: 100 M ohms or more at 500 VDC between Earth and terminals.

2 KVAC at 50 Hz for one minute, between all terminals shorted together and earth.

Environmental

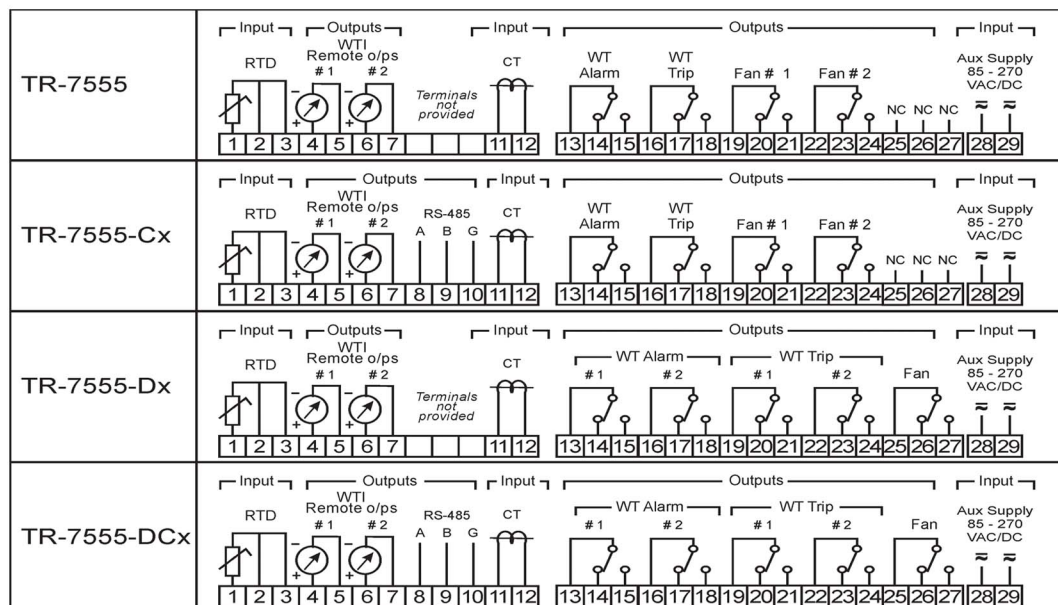
Operating Conditions : Amb. Temp.: - 20 °C to 70 °C R.H.: 95% Max non-condensing.

Storage Temp. : - 20 °C to 85 °C.

Vibration : 10-150 Hz, 0.004" displacement

Shock : 15g, Half sine, in 3 orthogonal planes

Terminal details of TR-7555 variants



Due to continual development & change in technology, specifications are subject to change.