

QUALITROL® 130 & Thermal Plate

Winding temperature simulation systems



Simplify simulation of transformer winding temperatures

- Flexible options offer simulation solutions for any application
- Designed for use with QUALITROL temperature indicators and monitors
- Rugged design and corrosion resistant materials provide long, trouble-free life

Product Summary

Description Simulates winding temperature by using a proportional current transformer output to power a heating element contained in the well (pocket). Winding temperature is simulated by adding the rise due to the heater output to oil (liquid) temperature. All systems have at least one well for installation of a temperature indicator and/or measurement device (sold separately). Thermal plate is available with up to 3 wells and the 130 series is available with 1 well and up to 2 RTD's.

Application For simulation of transformer winding temperature and/or measurement of oil (liquid) temperature. QUALITROL 130 can be used with a remote temperature sensing device and produces measurements directly with RTDs for remote indication and/or SCADA systems.



QUALITROL®
Defining Reliability

QUALITROL® 130 & thermal plate winding temperature simulation systems

Simplify simulation of transformer winding temperatures

- Wells (pockets) and temperature probes with integrated heating elements provide an accurate simulation of the winding or hot spot temperature of the transformer based on transformer load, oil temperature, and heat rise constant from the transformer heat run
- Wells and temperature probes can be specified without integrated heating elements to provide accurate transformer oil temperature (Thermal Plate only)
- 130 features a well with an integrated heating element and RTDs to produce a simulated winding temperature directly or by inserting other temperature measurement devices

Flexible options offer simulation solutions for any application

- Winding temperature simulation systems can be specified to work with either 1, 2 or 5 Amp CT inputs for transformer load sensing
- 130 features quick and flexible set up of the winding temperature rise factor with a jumper selectable resistance network across the CT input terminals
- Thermal Plates offer up to three wells to more efficiently install complex oil and/or winding temperature monitoring
- Many auto balancing transformers, matching units, and trim resistors are available for other special CT and winding rise requirements
- TRA-001 transformer can be used for CT currents up to 10 amps

Designed for use with QUALITROL temperature indicators and monitors

- 130 features RTD outputs for remote temperature indication where it is most convenient
- Choose between one or two RTDs within the same 130, in either 100 Ohm (platinum) or 10 Ohm (copper) output
- 130 can be combined with PT100 converter to produce 4-20 mA output for transmitting signals over long distances
- Both systems are designed to provide local and/or remote indication by accepting most QUALITROL probes, capillaries, or RTD based temperature sensing devices

Rugged design and corrosion resistant materials provide long, trouble-free life

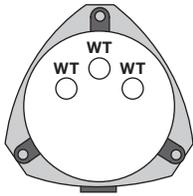
- QUALITROL Thermal Plates feature heating elements made of an etched nickel alloy grid which is resistant to burning-out, while being consistent and stable
- Brass wells and die-cast aluminum cases with thermosetting powder coat finish provide excellent protection from the elements



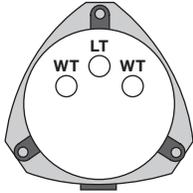
Don't see what you need?

QUALITROL regularly creates models with special customer requirements. Contact your local sales representative or QUALITROL Application Engineer to review your special requirements.

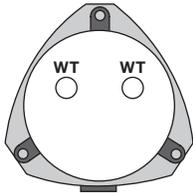
Configurations for QUALITROL thermal plate



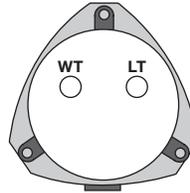
Model 3WT
3 wells with heaters for 3 winding temperature indicators



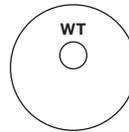
Model 2WTL
2 wells with heaters for 2 winding temperature indicators, 1 well for 1 liquid temperature indicator



Model 2WT
2 wells with heater for 2 winding temperature indicators

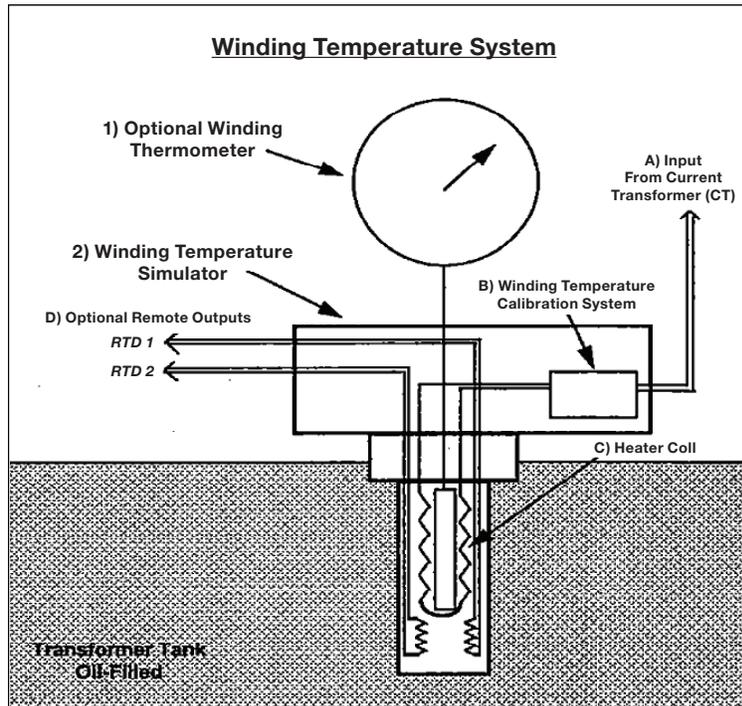


Model 1WTL
1 well with heater for 1 winding temperature indicator, 1 well for 1 liquid temperature indicator



Model WT
1 well with heater for 1 winding temperature indicator

Typical configuration for QUALITROL 130





Options and accessories

104-321 Series thermometers



- Employs a universal probe with adjustable length and various sleeves to adapt to different diameter and length wells
- Includes interchangeable dials for winding and oil indication
- Long capillary tube allows gauge to be located at eye level and still reach top oil locations
- Three Form 'C' contacts provided for cooling, alarm and/or trip functions

103 series RTD



- 103 series RTD's are available with either Pt100 (platinum 100 Ω) or Cu10 (copper 10 Ω) for use with QUALITROL Thermal Plate products
- Provides a temperature sensing range of -60 to 200 $^{\circ}$ C
- The 103-050 series of RTD's are specifically designed for use in three-well thermal plate applications

Trim resistors



- Adjustable Resistor Assemblies allow easy calibration of the Thermal Plate's heating element to your CT circuit
- 8/32" studs and insulating shock mounts for quick installation into a control cabinet

TRA-001-1 auto-balancing transformer



- The TRA-001 auto-balancing transformer adjusts the input from the current transformer to the acceptable range needed for the heating element to simulate winding temperature
- Accepts CT currents up to 10A and has many current taps to achieve the desired current level
- Compact 4.88" (124 mm) x 4.5" (114 mm) footprint with four bolt slots for easy installation into transformer enclosures



130 SERIES TECHNICAL SPECIFICATIONS

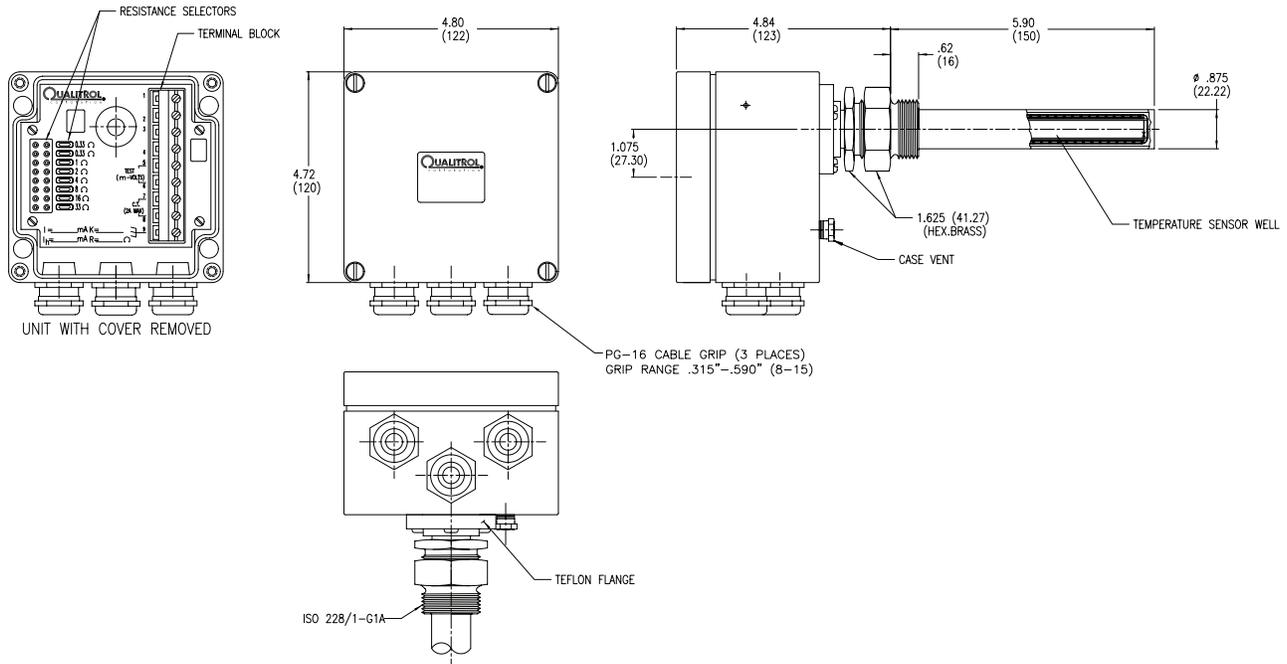
Mechanical	Mounting	Top or side mount
	Number of wells	1
	Tank connection	G 1.00" fits transformer well per DIN 42554
Materials	Probe	Brass
	Probe Connection	Brass
	Case	Die-cast aluminum with ANSI #70 light gray coating
Environmental	Std. operating temperatures	-40 to 158°F. (-40 to +70°C)
	Oil temperature range	-40 to 275°F. (-40 to +135°C)
	Weatherproof	DIN 40050 IP54 compliant (NEMA 3R)
	Ambient humidity	0 - 95% non-condensing
Electrical	Electrical connection type	Screw terminals
	Number of RTDs	1 or 2 (platinum [100 ohms] or copper [10 ohms])
	Output type	Optional RTD output (Pt100 or Cu10)
	CT current	1 amps nominal (2 amps MAXIMUM under overload)
	Calibration range	Winding temperature rise adjustable from 0 to 38°C, at 30°C oil temperature, 2°C increments
	Dielectric strength	2000 VAC for one minute

THERMAL PLATE TECHNICAL SPECIFICATIONS

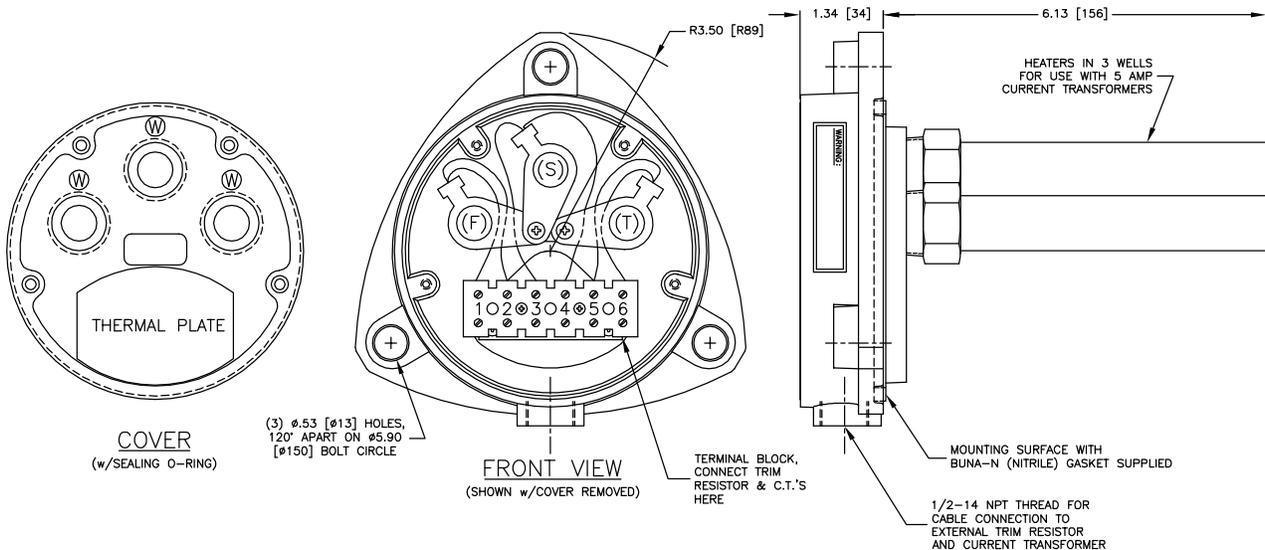
Mechanical	Mounting	Side mount (flange)
	Number of wells	1, 2 or 3
	Diameter of plate	4" (102 mm) [single well], 6.5" (165 mm) [three wells]
	Mounting hole diameter	2" (51 mm) [single well], 4" (102 mm) [three wells]
	Probe connections	O-ring, 7/8-14 UNF-2B
Materials	Probe	Stainless steel
	Probe Connection	Brass
	Heating element	Nickel alloy
	Case	Die-cast aluminum with ANSI #70 light gray coating
Electrical	Electrical connection type	Screw terminals
	CT current	5 amps
	Resistance of heater (and leads within thermal plate)	0.164 ohms



130 Series



Thermal plate (3 winding temperature model shown)



About QUALITROL®

QUALITROL Company LLC manufactures substation and transformer monitoring and protection devices used by electric utilities and manufacturing companies. It is the global leader in sales and installations of transformer asset protection equipment, fault recorders and fault locators. Established in 1945, QUALITROL Company produces thousands of different types of products on demand, each customized to customers' unique requirements.

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