TT273 RTD Temperature Transmitter

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Temperature Transmitter

Overview

Model TT273 is a 2-wire temperature transmitter for 2 or 3-lead 100 Ω platinum RTDs. The transmitter converts the RTD temperature into a linearized 4 to 20 mA DC current signal. Because this current signal is immune to leadwire and electrical noise, the TT273 lets you obtain accurate temperature readings from RTDs thousands of feet away. An ordinary twisted pair of wires carries both the temperature signal and power for the transmitter's electronics.

An LED conveniently indicates the status of the control loop. The brightness is directly proportional to the loop current. A very bright LED indicates an open RTD; a dark LED signals a shorted RTD or loss of current loop power.

- 4 to 20 mA current signal
- Fits standard 35 mm DIN rail
- Field-calibrate to your temperature range
- Optional match calibration to Minco RTDs for improved accuracy.
- Optional Input/Output isolation to 600 VRMS

Specifications

Output: 4 to 20 mA DC over specified range.

Calibration accuracy: ±0.2% of span.

Linearity: ±0.2% of span, reference to actual sensor temperature.

Adjustments:
Zero: -50 to 150°C (-58 to 302°F).
Span: 50 to 600°C (90 to 1080°F).

Ambient temperature:
Operating: -40 to 85°C (-40 to 185°F).
Storage: -55 to 100°C (-67 to 212°F).

Ambient temperature effects:
±0.018% of span/°C (±0.01% of span/°F).

Warmup drift: ±0.1% of span max., assuming V_{supply} = 24 VDC and R_{loop} = 250 Ω.
Stable within 15 minutes.

Input/output isolation (optional): 600 VRMS, 1 minute.

Supply voltage:
Non-Isolated: 10 to 45 volts DC with no load.
Isolated: 13 to 45 volts DC with no load.
Reverse polarity protected.

Voltage effect: ±0.001% of span per volt.

Lead wire compensation: (3-wire RTD)
±0.05% of span per Ω, up to 25 Ω in each leg.

Maximum load resistance: The maximum allowable resistance of the signal-carrying loop is given by this formula:

Non-Isolated: $$R_{loop\ max} = \frac{V_{supply} - 10}{0.020\ \text{amps}}$$

Isolated: $$R_{loop\ max} = \frac{V_{supply} - 13}{0.020\ \text{amps}}$$

Maximum output current: 28 mA.

Connections: Terminal block accepts wires from AWG 22 to AWG 14.

Physical: Polycarbonate, DIN rail enclosure.

Weight: 4.2 oz. (119 g).

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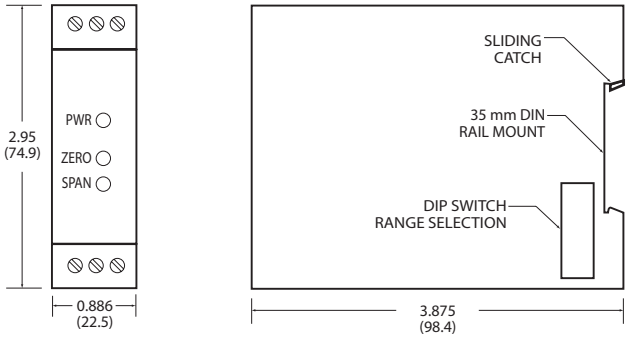
RTD input types

2 or 3-wire 100 Ω platinum RTD.

Element	Code
Platinum 392, 100 Ω at 0°C	PA
Platinum 391, 100 Ω at 0°C	PB
Platinum 385, 100 Ω at 0°C	PD, PE

Dimensions in inches (mm)



Specification options

TT273	Model number
PD	RTD element code from table
1	Output: 4 to 20 mA DC
N	Input/Output: N = Non-isolated I = Isolated
(-25/50)	Factory preset temp. range: (4 mA/20 mA temperature) Range is user adjustable. Refer to the Zero and Span specifications.
C	Temperature scale: F = Fahrenheit C = Celsius
TT273PD1N(-25/50)C = Sample part number	

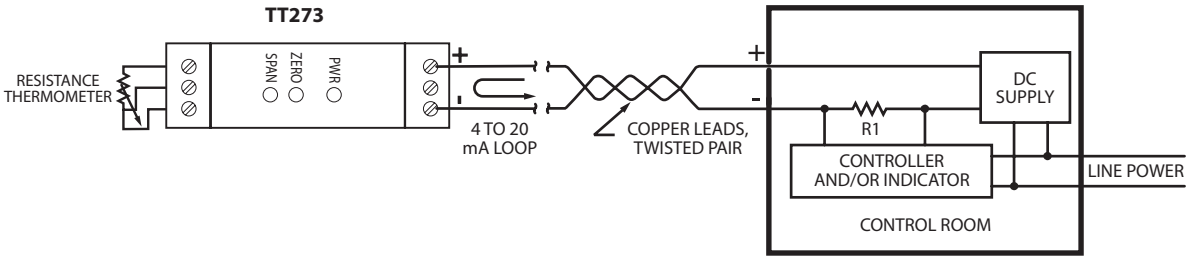
Special high-accuracy specification

To order a Temptran with special calibration, replace the standard model (eg. TT273) with the special calibration model (eg. TT773).

Standard model	Special calibration
TT273	TT773

Specifications for special calibration units are identical to their standard counterparts.

Wiring diagram



Specifications subject to change.

Worldwide Headquarters
7300 Commerce Lane
Minneapolis, MN 55432 USA
Tel: 1.763.571.3121
Fax: 1.763.571.0927
sales@minco.com
www.minco.com

European Headquarters
Usine et Service
Commercial, Z.I.
09310 Aston, France
Tel: (33) 5 61 03 24 01
Fax: (33) 5 61 03 24 09

Asia Pacific Headquarters
20 Science Park Road
#02-31 Teletech Park
Singapore Science Park II
Singapore 117674
Tel: (65) 6511 3388
Fax: (65) 6511 3399

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