THERMOMETRICS CORPORATION
PRECISION TEMPERATURE SENSORS

Your source for temperature measurement and supplies

Temperature Sensors for Aerospace, Marine
Petro-Chemical, Food Processing, & Utilities
www.thermometricscorp.com
1-866-RTDNTCS (1-866-783-6827)
SBA 8A & ISO-9001-2000

18714 Parthenia St. Northridge, CA 91324 (818) 886-3755 Fax (818) 772-7690

T2000

RTD Temperature Transmitters

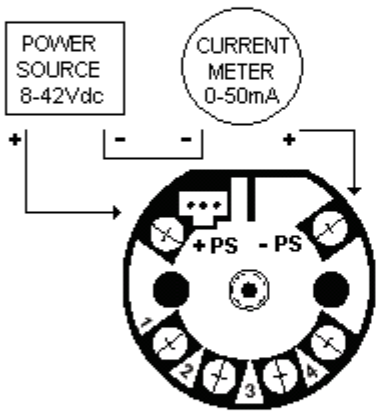
June 2000

Sets Up in a Minute, Stable for Years

The very affordable T2000 RTD Temperature Transmitter delivers long-term stability in a array of basic temperature sensing applications.

The transmitter is available from the factory pre-programmed to your temperature range or PC-programmable in a minute or less, with optional software.

The T2000 accepts a wide range of RTD inputs. It provides a linear, non-isolated 4-20mA output ready for direct interface with a monitoring / control system.

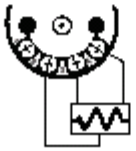


Hookup Diagrams

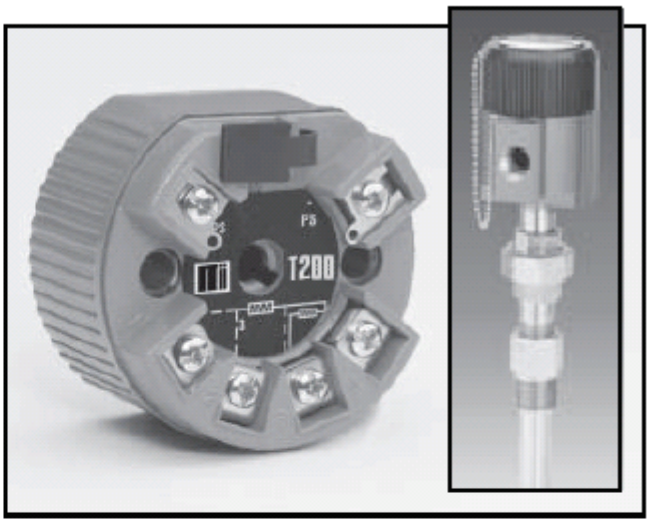
2-WIRE RTD OR DECADE RESISTANCE BOX

3-WIRE RTD OR DECADE RESISTANCE BOX

4-WIRE RTD OR DECADE RESISTANCE BOX



POTENTIOMETER INPUT



The **T2000** is offered in a standard head-mount housing, in field-ready connection heads, and with a DIN rail mounting option. Complete sensor and thermowell assemblies are also available.

Features

- Handles 2-, 3-, and 4-wire RTD (Pt100, Pt1000, Ni120, and Cu10) and 0-2200 ohm inputs.
- 4-20mA output is linear with temperature.
- Sets up in a minute or less with single window Intelligent PC Configuration Software.
- High accuracy of up to ±0.21°C (±0.38°F).
- Long-term stability of up to 5 years!
- 2-wire (loop-powered).
- Total Sensor Diagnostics show which RTD wire has failed, and drives the output upscale or downscale.
- Selectable output damping (0-5 seconds).
- RFI / EMI resistant.
- NEMA 4X, IP66 connection heads for rugged field environments. DIN rail mounting is also available.
- Easy-to-order, affordable assemblies with transmitter, connection head, sensor, thermowell, and fittings.
- Full 3-year warranty.

Certifications

CE Conformant - EMC Directive 89/336 / EEC EN 50081-2, 1993 and EN 50082-2, 1995

HEAD QUARTERS / SALES OFFICE
18714 Parthenia St. Northridge,CA 91324
(818) 886-3755 Fax (818) 772-7690
sales @ thermometricscorp.com

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EASTERN SALES OFFICE
Dave King, Orwell, Vermont
(802) 236-5893 Fax (802) 948-2858
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T2000

RTD Temperature Transmitters

June 2000

Specifications

Performance

Input Accuracy:
Platinum RTD, ±0.20°C (±0.36°F)
Nickel RTD, ±0.16°C (±0.29°F)
Copper RTD, ±1.20°C (±2.16°F)
Ohms, ±0.4.

Output Accuracy:
±0.05% of span.

NOTE: Overall accuracy is determined by combining input & output accuracy. It includes the combined effects of linearity, hysteresis, repeatability, & adjustment resolution. It does not include ambient temperature effect.

Stability (max. span):
1 year = ±0.12%
3 years = ±0.21%
5 years = ±0.27%

Measurement Cycle:
Output updates at least 8 times per second.

Output Response Time:
256msec typical, 300msec maximum, for the output to change from 10% to 90% for an input step change of 0% to 100%.

Ripple:
10mV peak-to peak measured across a 250ohm load resistor at frequencies up to 120Hz.

Over-Voltage Protection:
Input, 4Vdc peak, max;
Output, 48Vdc, max.

Digital Input Filter:
User-selectable, 50/60Hz.

Power Supply and Load Effects:
Negligible within specified power limits.

Load Capability:
670 ohms @ 24V

$$\Omega = \frac{(\text{Supply Voltage} - 8V)}{0.024A}$$

Burnout Protection:
User-programmable,
Upscale to 24mA;
Downscale to 3.3mA.

Output Current Limiting:
25mA maximum.

RTD Lead Wire Resistance Maximum:
RTD resistance + 2 times the lead wire resistance must be less than 2000 ohms; Recommended <35 ohms per wire for three wire inputs; <5 ohms per wire for 10 ohm Cu inputs.

RTD & Ohms Excitation:
250µA, ±10%.

Damping:
0-5 seconds (user selectable).

Ambient Temperature Operating & Storage Range:
-40°C to +85°C (-40°F to +185°F)

Relative Humidity:
0-95%, non-condensing.

Ambient Temperature Effect:
±0.03% of span /°C

RFI/EMI Immunity:
CE compliant when tested according to IEC 1000-4-3-1995.

Noise Rejection:
Common mode: 100dB @ 50/60Hz;
Normal Mode: 70dB typical at 200mV peak-to-peak @ 50/60Hz.

Set Up:
All settings are made using Thermometrics Intelligent PC Configuration Software, & then stored in non-volatile memory.

Weight:
HPP: 101 g (3.6 oz)
HPP in LH1: 428 g (15.1 oz)
HPP in CH6: 173 g (6.1 oz)

Input	Type	α*	Ω	Conformance Range	Maximum Range	Minimum Span
RTD 2-Wire 3-Wire 4-Wire	Platinum	0.003850	100, 200 300, 400, 500	-200 to 850°C -328 to1562°F	-240 to 960°C -400 to1760°F	10°C 18°F
			1000	-200 to 300°C -328 to 572°F	-240 to 300°C -400 to 572°F	
		0.003902	100, 200 400, 500	-100 to 650°C -148 to1202°F	-150 to 720°C -238 to1328°F	
			1000	-100 to 300°C -148 to 572°F	-150 to 300°C -238 to 572°F	
		0.003916	100	-200 to 510°C -328 to 950°F	-240 to 580°C -400 to1076°F	
	Nickel	0.006720	120	- 80 to 320°C -112 to 608°F	-100 to 360°C -148 to 680°F	10°C 18°F
	Copper	0.004270	9.035	- 50 to 250°C - 58 to 482°F	-203 to 300°C -333 to 572°F	100°C 180°F
Ω	Resistance Potentiometer	N/A	0 to 2000Ω	0 to 2000Ω	0 to 2000Ω	30Ω

Configuration Accessories

PC Programming Kit includes;

Configuration Software (3.5" floppy disk; Windows 95, 98 and NT 4.0 compatible).

PC- to-Transmitter Configuration Cable.

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