ThermoPro™ 2-Wire Loop-Powered Indicating Temperature Transmitters

ThermoPro

Specifications

Ranges and Resolution
See table below for ranges. Consult factory for other temperature ranges
Resolution, 0.1° for ranges below 199.9°, 1° for 200° and above

Accuracy (linearity, hysteresis, repeatability)
IEC-751 Class B 100 Ω RTD: ±0.3°C at 0°C, ±1.1°C at 150°C
Consult factory for other probe types or configurations

Display (update rate, type, size)
3 readings per second nominal display update rate, 3½ digit LCD, ½" digit height

Controls
Non-interactive zero and span, ±10% range
Test calibration level; 0-100% range

Loop Supply Voltage
Any DC supply/loop resistance that maintains 8 to 32 VDC at gauge terminals
Reverse polarity protected
3 ft long, 2-conductor 22 AWG cable
Order optional **9046-24-008** loop power supply to power 4-20 mA loop

Loop Output Characteristics
4-20 mA output
See chart on back for loop voltage characteristics
If gauge terminal voltage falls below approx. 7.8 VDC erratic operation may occur

Test Function
Front panel TEST button, when held sets loop current and display to test calibration level, independent of temperature input, to allow testing of system operation.

Mechanical Specifications

Housing Size
3.5" W x 3" H x 2" D (not including probe or cable strain relief)
Add approximately 1" to depth for strain relief and wire clearance

Weight (approximate)
Transmitter: Approx. 12 ounces
Shipping weight: Approx. 1 pound

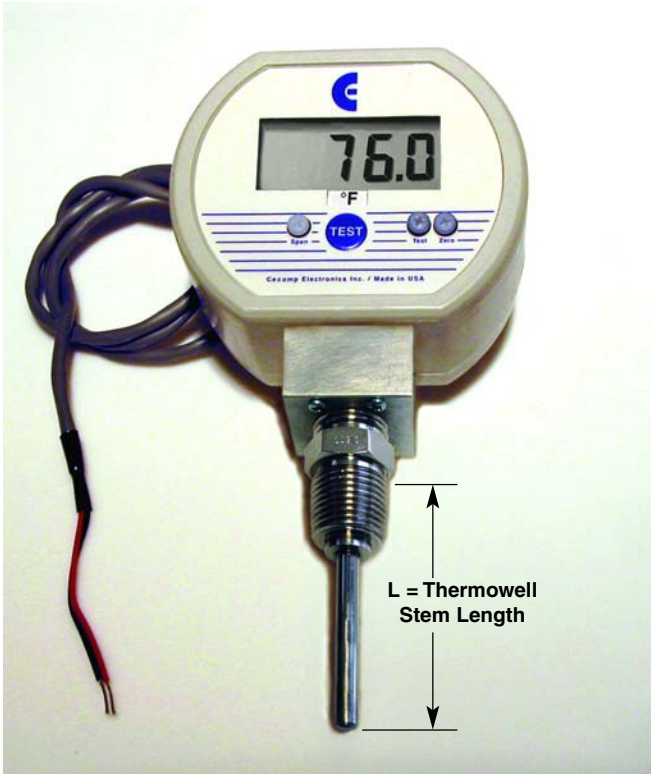
Material and Color
ABS/Polycarbonate Housing. Gasketed rear cover, NEMA 4X
Light gray body, light gray/blue front

Connection and Probe Material
½" NPT male, 316 stainless steel. Consult factory other connections

Environmental Specifications

Storage Temperature –40 to 203°F (–40 to 95°C)
Operating Temperature –4 to 185°F (–20 to 85°C)

- *Precision Temperature Element*
- *NEMA 4X Housing*
- *Analog 4-20 mA Output*
- *316 Stainless Steel Probe*
- *1/2" NPT Fitting for Standard Thermowells*

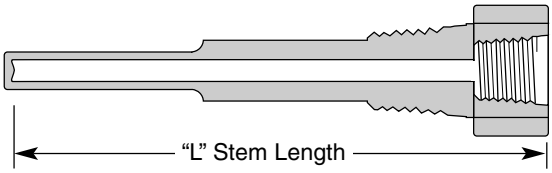


ThermoPro with Standard RTD Probe

Range	2.5"L x 1/2 NPT	4"L x 1/2 NPT	6"L x 1/2 NPT	9"L x 1/2 NPT	12"L x 1/2 NPT
0 to 100.0°F	F4LT2-100F	F4LT4-100F	F4LT6-100F	F4LT9-100F	F4LT12-100F
0 to 199.9°F	F4LT2-200F	F4LT4-200F	F4LT6-200F	F4LT9-200F	F4LT12-200F
0 to 300°F	F4LT2-300F	F4LT4-300F	F4LT6-300F	F4LT9-300F	F4LT12-300F
0 to 100.0°C	F4LT2-100C	F4LT4-100C	F4LT6-100C	F4LT9-100C	F4LT12-100C
0 to 150.0°C	F4LT2-150C	F4LT4-150C	F4LT6-150C	F4LT9-150C	F4LT12-150C

ThermoPro with Spring-Loaded RTD Probe. MUST be used with a Thermowell. Refer to Thermowell Stem Length Dimension.

Range	2.5"L x 1/2 NPT	4"L x 1/2 NPT	6"L x 1/2 NPT	9"L x 1/2 NPT	12"L x 1/2 NPT
0 to 100.0°F	F4LT2S-100F	F4LT4S-100F	F4LT6S-100F	F4LT9S-100F	F4LT12S-100F
0 to 199.9°F	F4LT2S-200F	F4LT4S-200F	F4LT6S-200F	F4LT9S-200F	F4LT12S-200F
0 to 300°F	F4LT2S-300F	F4LT4S-300F	F4LT6S-300F	F4LT9S-300F	F4LT12S-300F
0 to 100.0°C	F4LT2S-100C	F4LT4S-100C	F4LT6S-100C	F4LT9S-100C	F4LT12S-100C
0 to 150.0°C	F4LT2S-150C	F4LT4S-150C	F4LT6S-150C	F4LT9S-150C	F4LT12S-150C



NOTE: Some thermowell manufacturers refer to stem length as dimension "A" or "S". It is NOT the same as thermowell insertion length.

© Absolute Process Instruments, Inc. 11/04

MOD-TRONIC INSTRUMENTS LIMITED
1 Delta Park Blvd, #12 Brampton, ON L6T 5G1
Tel 905-457-6322 or 1-800-794-5883
Fax 905-457-4716 or 1-800-830-7122
sales@mod-tronic.com www.mod-tronic.com

ThermoPro

Falcon 2-Wire Loop-Powered Indicating Temperature Transmitter

Description

The ***ThermoPro*** series is an industrial temperature indicator with a digital temperature display and 4-20 mA retransmission in a rugged NEMA 4X housing. The 2-wire connection allows the ***ThermoPro*** to be used as a temperature display powered by a low-voltage DC source, or as a loop-powered 4-20 mA transmitter. All operating power is supplied by the 4-20 mA current loop.

The 316 stainless steel temperature probe with a 1/2" NPT fitting is available in either a fixed-length or a spring loaded design to fit standard industrial thermowells. A high accuracy 0.00385 alpha curve RTD element with a three-wire transitionless design is available. The temperature probe is replaceable.

The RTD temperature reading is linearized for both the digital display and the analog 4-20 mA output. Standard ranges are offered in both °F and °C. Contact factory for special ranges or probe versions.

The ***ThermoPro*** series NEMA 4X housing, when properly installed, is suitable for indoor or outdoor non-hazardous locations and provides a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, hose-directed water, corrosion and ice formation.

The ***ThermoPro*** series features a TEST pushbutton which, when depressed, switches the display and output loop to a preset user-selectable level. This test mode will allow setup and testing of the current loop by switching to this test level whenever desired without having to alter the system temperature.

Installation and Precautions

Install or remove using wrench on probe hex fitting only. Do not attempt to tighten by turning housing or any other part of the gauge.

The spring-loaded design is intended for use only with a thermowell. Use a thermowell appropriate for the process. A thermowell is required for pipelines with flowing material or pressurized applications. Consult thermowell manufacturer for proper thermowell selection with regard to material compatibility, pressure and flow rates.

The non-spring-loaded design can be used in non-pressurized applications or applications with no flow. Due to the hardness of 316 stainless steel, it is recommended that a thread sealant be used to ensure leak-free operation.

Electrical Connection

Connection to the ***ThermoPro*** is made with the 2-wire cable at the gauge rear. Connect the loop (+) supply to the RED lead and the loop (–) supply to the BLACK lead. Reversing the connections will not harm the transmitter but it will not operate with incorrect polarity.

Loop Voltage

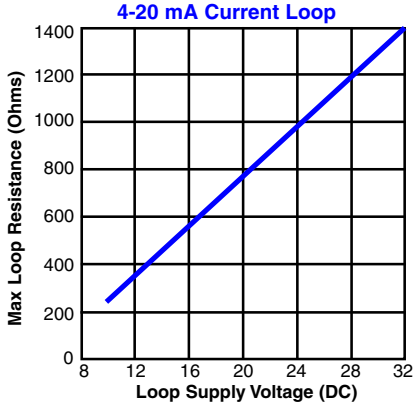
Select a loop power supply voltage and total loop resistance so that when the loop current is 20 mA, the transmitter will have at least 8 VDC at its terminals. For correct operation and to avoid erratic or erroneous readings, the terminal voltage must not fall below 8 VDC. Too large a loop resistance will cause the output to "limit" or saturate before reaching its full 20 mA output.

The **minimum** loop supply voltage may be calculated from the formula:

V_{min} = 8V + (20mA x Total loop resistance)

If the terminal voltage falls below about 7.8 VDC erratic operation may occur. This is an indication that the loop supply/resistance may not allow adequate headroom for reliable operation. This should never occur in normal use. If it does, examine the loop supply/resistance.

Voltage Compliance for 4-20 mA Current Loop



Operation

The ***ThermoPro*** series is designed for continuous operation. Warm-up time is negligible. The display will show the temperature and the loop current will be proportional to the system temperature.

4 mA = Zero or low end
20 mA = Span, full-scale or high end.

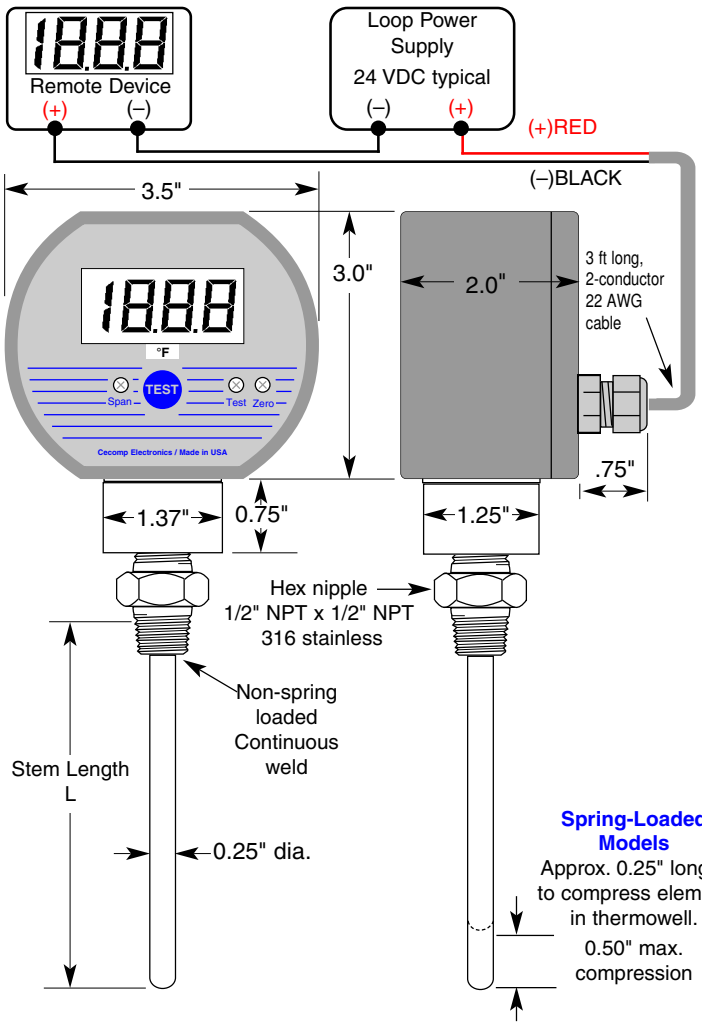
TEST Button

When the front-panel TEST button is held depressed, the display and loop current are switched, independent of the temperature, to a test level determined by the setting of the Test adjustment. To set the test output level, press and hold the front-panel TEST button and adjust the Test level to set the display and loop current. When the button is released, normal operation is resumed.

Calibration

The ***ThermoPro*** is factory set to your specifications and there is generally no need to alter calibration settings. If recalibration is necessary, refer to the instructions that came with the unit, consult factory, or refer to *www.cecomp.com* for calibration information.

Zero and Span calibration should only be attempted if the user has access to a temperature reference of known accuracy. The quality of the calibration is only as good as the accuracy of the calibration equipment and ideally should be at least four times the gauge accuracy.



Temperature

Cecomp maintains a constant effort to upgrade and improve its products. Specifications are subject to change without notice. Consult factory for your specific requirements.