

TT221 Isolated Thermocouple Transmitter

Overview

Model TT221 is a rugged thermocouple transmitter designed for process control and other applications. It provides electrical isolation to 600 VRMS between the input and output. You can use thermocouples with either grounded or ungrounded junctions.

The TT221 has a built-in LED indicator to help troubleshoot signal loops. A dark LED signals loss of loop power or an open thermocouple.

- 4 to 20 mA current signal
- Thermocouple input
- Input/output isolated to 600 VRMS
- Factory Mutual (FM) approved intrinsically safe, nonincendive for hazardous locations
- Ambient rated to 85°C (185°F)

Specifications

Output: 4 to 20 mA over specified range.

Accuracy: ±0.2% of span.

Linearity: Voltage linear.

The output signal of the TT190 and TT205 is voltage linear (not temperature linear) and is intended for use with instruments which compensate for the nonlinear signal output of the thermocouples sensor.

Adjustments: Zero and span, ±5% of span, non-interacting. Factory set.

Ambient temperature:

Operating: -40 to 85°C (-40 to 185°F).

Storage: -55 to 100°C (-67 to 212°F).

Ambient temperature effects: ±0.036% of span per °C.

Cold junction compensation drift:

±0.03°C per °C, -25 to 70°C.

±0.06°C per °C, -40 to -25°C and 70 to 85°C.

Warmup drift: ±0.2% of span max., with

$V_{supply} = 24$ VDC and $R_{loop} = 250 \Omega$.

Stable within 15 minutes.

Input/output isolation: 600 VRMS

Supply voltage: 13 to 45 VDC. Voltage effect ±0.001% of span per volt. Reverse polarity protected.



TT221 Isolated RTD Transmitter

Maximum load resistance: The maximum allowable resistance of the signal carrying loop is:

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

Example: With supply voltage 24 VDC, maximum loop resistance is 550 Ω .

Minimum span: 100°C (180°F).

Minimum output current: 2.5 mA.

Maximum output current: 28 mA.

Burnout: Downscale burnout standard; upscale optional.

Hazardous atmospheres:

Model TT221 may be used with Minco explosionproof connection heads. This model is Factory Mutual (FM) approved nonincendive for use in Class I, Division 2 areas and intrinsically safe for Class I, Division 1 areas (requires approved barrier).

Transmitter entity parameters:

$V_{max} = 35$ volts; $I_{max} = 150$ mA; $C_i = 0 \mu F$ and $L_i = 0$ mH.

Connections: Terminal block for wires AWG 22 to AWG 14.

Physical: Polycarbonate case, epoxy potted for moisture resistance.

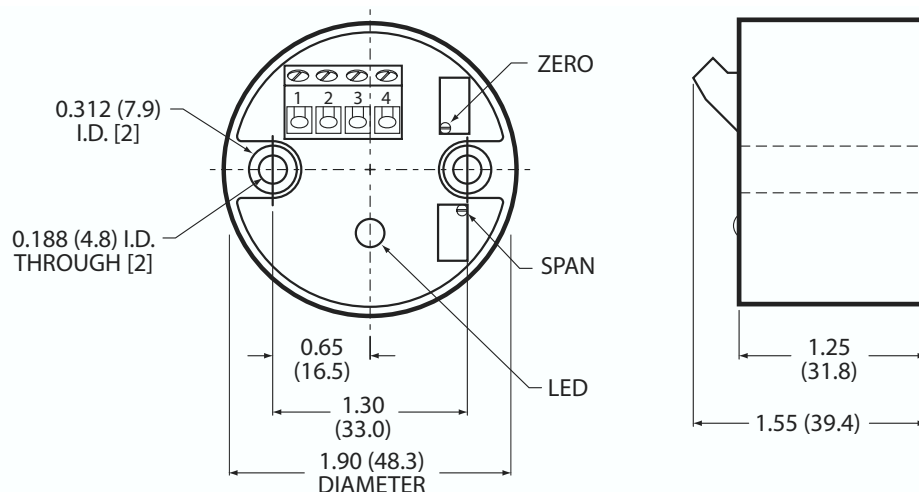
Weight: 3.0 oz. (85 g).

Specification and order options

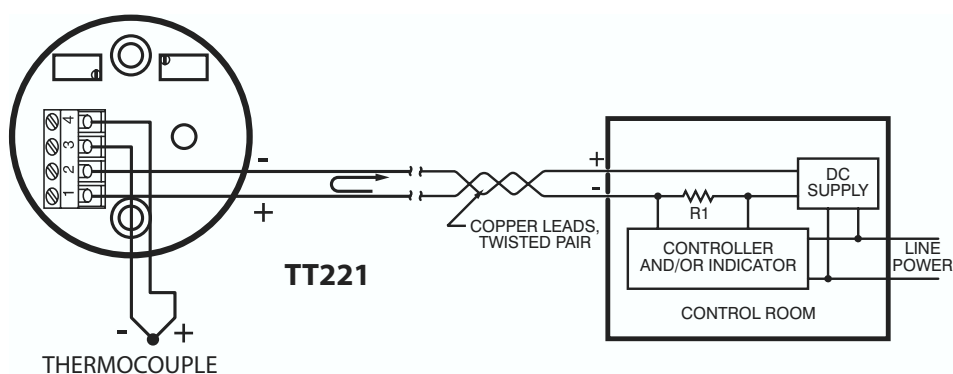
TT221	Model number
J	TC junction type: E = Chromel-Constantan J = Iron-Constantan K = Chromel-Alumel T = Copper-Constantan
1	Output: 4 to 20 mA DC
BW	Temperature range code starting on page 5-20 [Ex: BW = 0 to 250°C (32 to 482°F)]
TT221J1BW = Sample part number	

Specifications subject to change

Dimensions in inches (mm)



Wiring Diagram



Hazardous area requirements

Refer to Minco's Application Aid #19 entitled "Specifying Temperature Sensors for Hazardous Areas" for more information on how to classify a hazardous area, methods of protection, and the various standards and agencies (including FM, CSA, CENELEC and ATEX). Application Aid #19 is available at www.minco.com/sensoraid/.

Specify and order products at:
www.minco.com/sensors_config

Specifications subject to change

