TT190, TT205 Thermocouple Transmitters

TT190 Thermocouple Transmitter

TT205
Thermocouple Transmitter

Overview

Model TT190 interfaces with thermocouples for use in process control and other industrial applications. It has a built-in LED indicator to help troubleshoot signal loops. A dark LED signals loss of current loop power or an open thermocouple.

Model TT205 offers superior performance in an economical and small package.

• TT190: "Hockey puck" style industrial transmitter

• TT205: Miniature economy version

• 4 to 20 mA current signal

• Thermocouple input

• Factory Mutual (FM) approved intrinsically safe, nonincendive for hazardous locations

• Fits DIN "B" style connection heads

Specifications

Output: 4 to 20 mA over specified range.

Accuracy: ±0.2% of span.

Linearity: Voltage linear.
The output signal of the TT221 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.

Warmup drift: ±0.2% of span max., with $V_{supply} = 24$ VDC and $R_{loop} = 250$ Ω.
Stable within 15 minutes.

Supply voltage:
TT190: 10 to 35 VDC
TT205: 8.5 to 35 VDC
Voltage effect ±0.001% of span per volt.
Reverse polarity protected.

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

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

Example: With supply voltage 24 VDC, maximum loop resistance is 700 Ω.

Minimum output current: 1.5 mA.

Maximum output current: 28 mA.

Burnout: Downscale burnout standard; upscale optional.

Hazardous atmospheres: Both models may be used with Minco explosionproof connection heads. Model TT190 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; $C_i = 0$ μF and $L_i = 0$ mH.

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

Physical: Polycarbonate case, epoxy potted for moisture resistance.

Weight:
TT190: 2.0 oz. (57 g).
TT205: 1.8 oz. (52 g).

Specifications subject to change

TT190

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

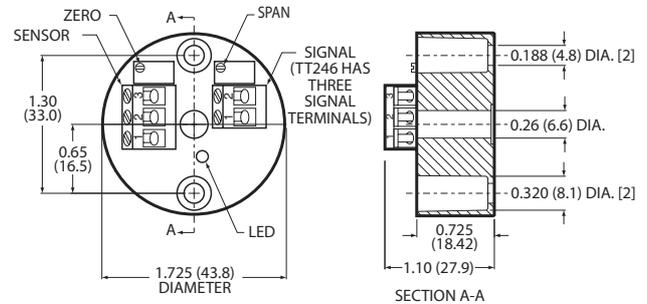**Ambient temperature effects:** ±0.018% of span per °C.

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.

Minimum span: 100°C (180°F).

TT205

Ambient temperature:
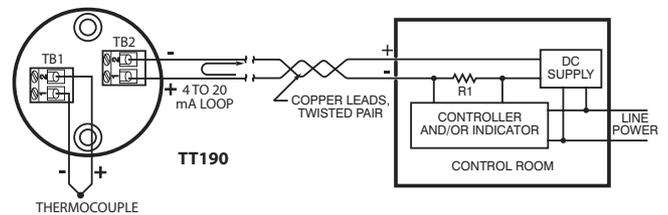Operating: -10 to 60°C (14 to 140°F).
Storage: -55 to 100°C (-67 to 212°F).

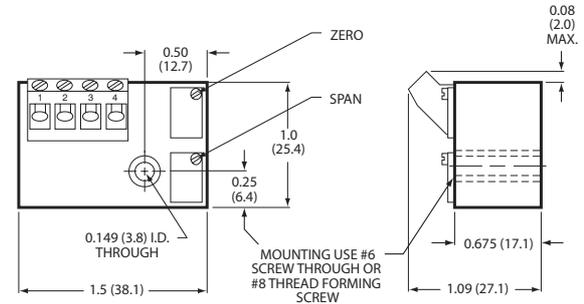**Ambient temperature effects:** ±0.036% of span per °C.

Cold junction compensation drift: ±0.05°C per °C.

Minimum span: 150°C (270°F).

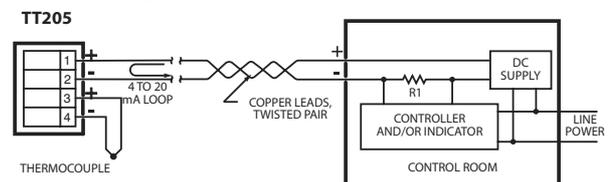## Specification and order options

TT190	Model Number:
	    TT190: Round
	    TT205: Rectangular

J	TC junction type:
	    E = Chromel-Constantan
	    J = Iron-Constantan
	    K = Chromel-Alumel
	    T = Copper-Constantan

U	U = Ungrounded junction (required)
1	Output: 4 to 20 mA DC
AN	Temperature range code starting on page 5-20 [Ex: AN = -17.8 to 148.9°C (0 to 300°F)]
TT190JU1AN = Sample part number	

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

TT190 Dimensions in inches (mm)

Wiring Diagram

TT205 Dimensions in inches (mm)

Wiring Diagram