

MINCO
TT269
3-wire Temperature Transmitter

Installation and Operating Instructions

Description

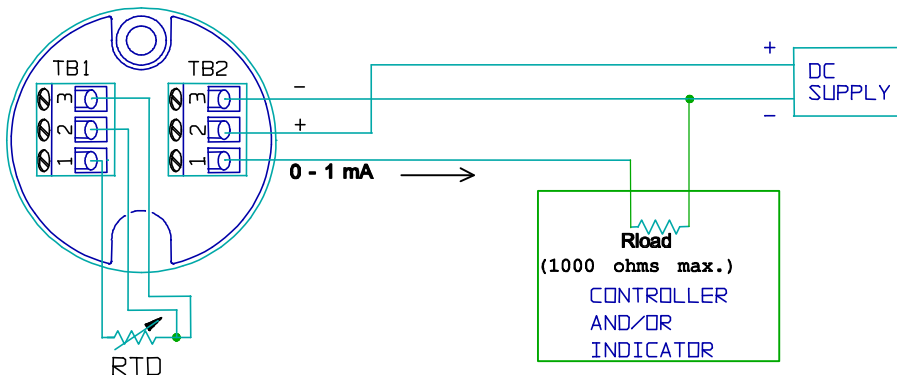
Model TT269 is a 3-wire temperature transmitter for RTD (resistance temperature detector) thermometers. The Temptran™ converts the RTD's signal into a 0 to 1 mA current. The current changes according to the range marked on the Temptran: 0 mA at the lowest temperature of the range, rising to 1 mA at the top of the range.

Installation

Locate the Temptran near the RTD, in an area where the ambient temperature stays between -40 and 85 °C (-40 and 185 °F). Mount with #8 machine screws using the two mounting holes provided in the Temptran case.

Connect the Temptran as shown below, observing the +/- polarity of the power supply connections. Maximum DC supply voltage = 35 VDC. The maximum load resistance for the 0 to 1 mA output is 1000 Ω . The RTD connections for the Temptran in the wiring diagram below must be connected as shown or the transmitter will not function properly.

Wiring Diagram



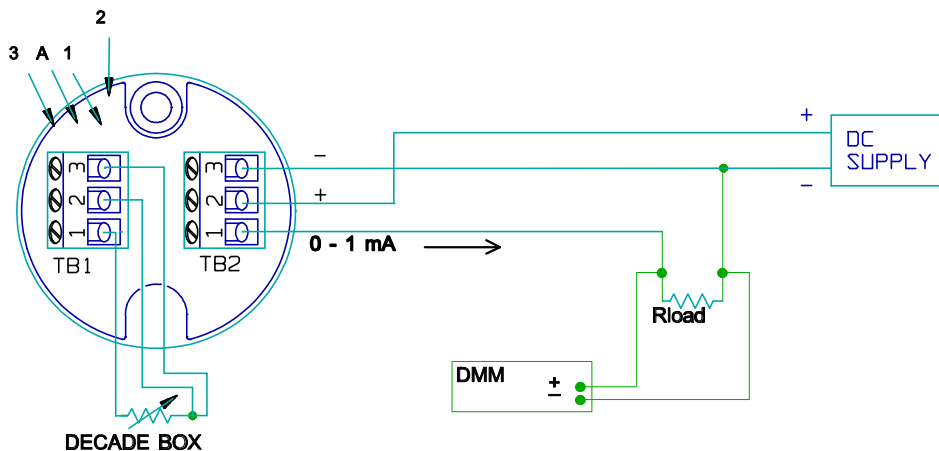
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Calibration

NOTE: Because the transmitter cannot output a negative current, the calibration of the zero cannot be performed at 0 °C (0 mA). The zero calibration should be performed at 6 °C (.05 mA) to ensure proper calibration of the transmitter. If the transmitter is calibrated at 0 °C, the output of the transmitter may not be linear.

1. Select the desired temperature range by soldering the two designated pins together.
For 0 to 120 °C Solder jumper 1 to A
For 0 to 160 °C Solder jumper 2 to A
For 0 to 180 °C Solder jumper 3 to A
2. Connect a power supply of 24 VDC, a 1000 Ω load resistor (decade box), and a digital multimeter (4-1/2 digit minimum) as shown below. The load resistor should have an accuracy of 1000 Ω +/- .1 Ω . If unsure of the decade box's accuracy, measure using the DMM. Other load resistances can be used as long as the maximum of 1000 Ω is not exceeded. The required calibration voltage measured on the DMM is dependent on the value of Rload according to the following formula: $V(\text{DMM}) = R_{\text{load}} \times \text{Current}$ (Ohm's Law)



3. Connect a resistance decade box with a resolution of at least .01 ohms to the input of the transmitter. If unsure or concerned about the decade box's accuracy, measure the zero and span resistance settings using a known-accurate ohmmeter and record decade box settings before connecting decade box to the transmitter.
4. Set decade box resistance to simulate 6 °C (102.34 Ω).
5. Adjust ZERO potentiometer until the meter reads .05 volts (.05 volts x 1000 Ω = .05 mA).
6. Set decade box resistance to simulate the desired span temperature.
For 120 °C $R = 146.061 \Omega$
For 160 °C $R = 161.043 \Omega$
For 180 °C $R = 168.478 \Omega$
7. Adjust SPAN potentiometer until the meter reads 1 volt (1 volt x 1000 Ω = 1 mA).
8. Repeat steps 4 - 7 until no further adjustment is necessary. The zero and span pots are non-interacting so further adjustment should be minimal.

Specifications