

Overview and Identification

BAPI's loop-powered 4 to 20mA temperature transmitters in the BAPI-Box Crossover enclosure feature a 1KΩ Platinum RTD (385 curve) and are available in a wide selection of temperature ranges or custom ranges. They can be ordered with a special high accuracy RTD matched transmitters which match the sensor to the transmitter for improved accuracy.

The BAPI-Box Crossover enclosure has a hinged cover for easy termination and comes with an IP10 rating (or IP44 rating with a pierceable knockout plug installed in the open port).

This instruction sheet is specific to units with the BAPI-Box Crossover Enclosure. For all other units, please refer to instruction sheet "22199_ins_T1K_T100_XMTR.pdf" which is available on the BAPI website or by contacting BAPI.

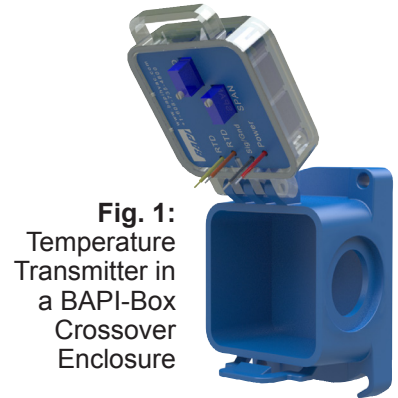


Fig. 1: Temperature Transmitter in a BAPI-Box Crossover Enclosure

Mounting

Mount the enclosure to the surface using BAPI recommended #8 screws through a minimum of two opposing mounting tabs. A 1/8" inch pilot screw hole makes mounting easier through the tabs. Use the enclosure tabs to mark the pilot hole locations.

The BAPI-Box Crossover enclosure has a hinged cover for easy termination and comes with an IP10 rating (or IP44 rating with a pierceable knockout plug installed in the open port).

Notes:

Use caulk or Teflon tape for your conduit entries to maintain the appropriate IP or NEMA rating for your application. Conduit entry for outdoor or wet applications should be from the bottom of the enclosure.

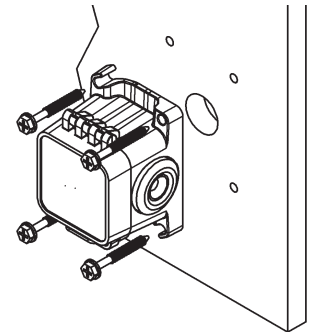


Fig. 2: Transmitter Unit Mounting (Shown with knockout plug in open port.)

Wiring & Termination

BAPI recommends using twisted pair of at least 22AWG and sealant filled connectors for all wire connections. Larger gauge wire may be required for long runs. All wiring must comply with the National Electric Code (NEC) and local codes. Do NOT run this device's wiring in the same conduit as high or low voltage AC power wiring. BAPI's tests show that inaccurate signal levels are possible when AC power wiring is present in the same conduit as the sensor wires.

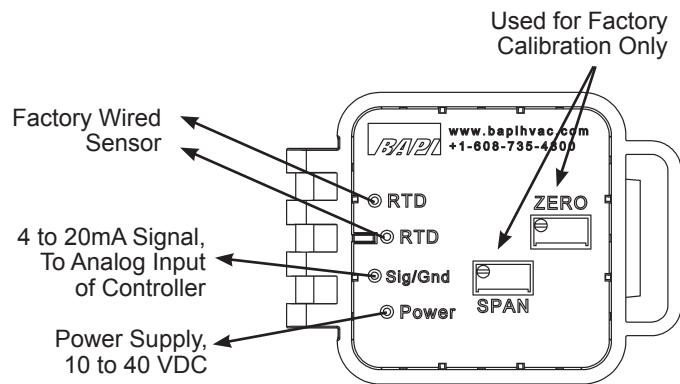


Fig. 3: Transmitter with Flying Leads

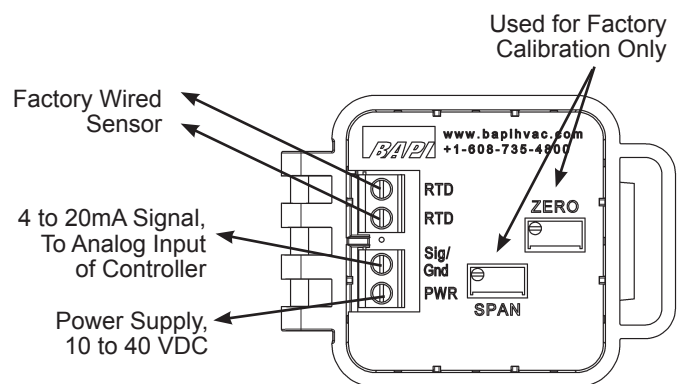


Fig. 4: Transmitter with Terminals

Note: Green LED on cover face will light when power is applied.

Specifications subject to change without notice.



Diagnostics

Possible Problems:

Green power LED is not on.

The reading is incorrect in the controller.

Possible Solutions:

- Measure the power supply voltage by placing a multi-meter across the transmitter's "Power" and "Sig/Gnd" leads or terminals. Make sure that the power is 10 to 40 VDC.
- Make sure that the "Power" and "Signal/Gnd" wires are not open or shorted together and are terminated correctly to the controller.
- Determine if the input is set up correctly in the BAS and controller's software.
- Compare the transmitted current to the actual temperature measurement at the sensor location. Measure the physical temperature at the temperature sensor's location using an accurate temperature standard. Measure the transmitter current by placing an ammeter in series with the controller input. The current should read according to the "4 to 20mA Temperature Equation" shown at right. If the measured resistance is different from the temperature table by more than 5% call BAPI technical support.

4 to 20mA Temperature Equation

$$T = \frac{T_{Low} + (A - 4) \times (T_{Span})}{16}$$

- T = Temperature at sensor
- T_{Low} = Low temperature of span
- T_{High} = High temperature of span
- T_{Span} = T_{High} - T_{Low}
- A = Signal reading in mA

Specifications

RTD Transmitter

- Power Required: 10 to 40VDC
- Output: 4 to 20mA, 850Ω@24VDC
- Output Wiring: 2 wire loop
- Output Limits: <1mA (short), <22.35mA (open)
- Span: Min. 30°F (17°C),
Max 1,000°F, (555°C)
- Zero: Min. -148°F (-100°C),
Max 900°F (482°C)
- Zero & Span Adjust:.... 10% of span
- Accuracy: ±0.065% of span
- Linearity: ±0.125% of span
- Power Output Shift: ... ±0.009% of span
- RTD Sensor: 2 wire Platinum (Pt), 385 curve
- Transmitter Ambient:.... -4 to 158°F (-20 to 70°C)
0 to 95% RH, Non-condensing)

RTD Sensor: Resistance Temp Device (Bare Sensor)

- Platinum (Pt): 1KΩ @0°C, 385 curve
- Pt Accuracy (Std): 0.12% @Ref, or ±0.55°F, (±0.3°C)
- Pt Accuracy (High): 0.06% @Ref, or ±0.277°F,
(±0.15°C), [A]option
- Pt Stability: ±0.25°F, (±0.14°C)
- Pt Self Heating: 0.4 °C/mW @0°C
- Pt Probe Range: -40° to 221°F, (-40 to 105°C)

Environmental Operating Range:

- 4 to 158°F (-20°C to 70°C)
- 0 to 95% RH, Non-condensing

Lead Wire: 22AWG stranded

Mounting: Extension tabs (ears), 3/16" holes

BAPI-Box Crossover Enclosure Ratings:

- IP10, NEMA 1
- IP44 with knockout plug installed in the open port

BAPI-Box Crossover Enclosure Material:

- UV-resistant polycarbonate & Nylon, UL94V-0

Agency:

- RoHS
- PT= DIN43760, IEC Pub 751-1983,
JIS C1604-1989

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