

### 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 AC power wiring of NEC class 1 or NEC class 2, NEC class 3 or with wiring used to supply highly inductive loads such as motors, contactors and relays.

BAPI's tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same conduit as the signal lines.



BAPI recommends wiring the product with power disconnected. Proper supply voltage, polarity, and wiring connections are important to a successful installation. Not observing these recommendations may damage the product and will void the warranty.

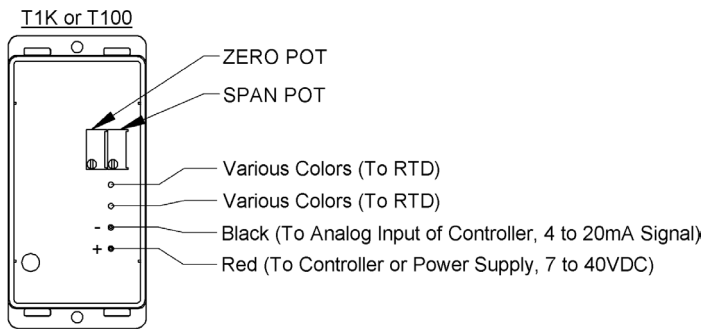


Fig. 1: Typical 4 to 20mA RTD Transmitter w/ Flying Leads

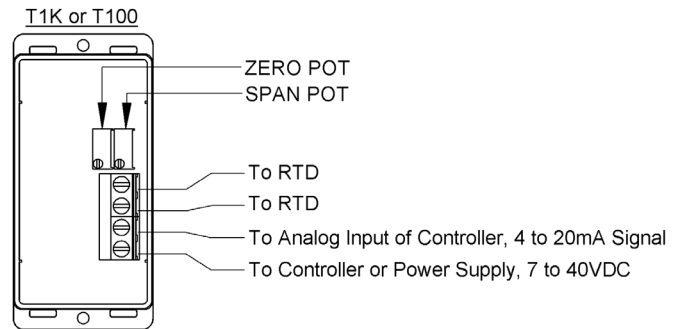


Fig. 2: Typical 4 to 20mA RTD Transmitter w/ Terminals

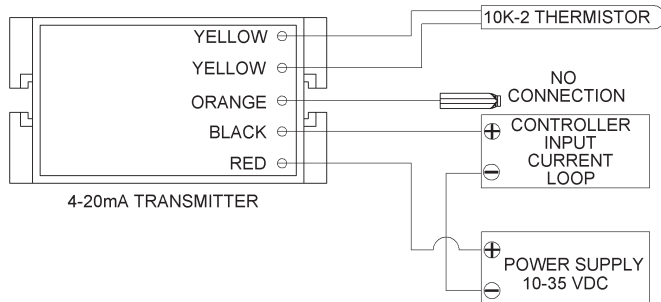


Fig. 3: Typical 4 to 20mA Thermistor Transmitter

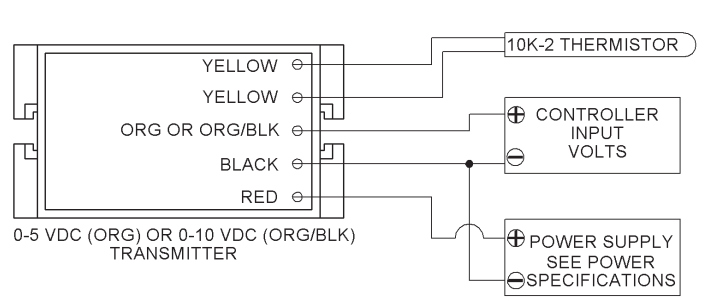


Fig. 4: Typical Thermistor Voltage Transmitter

### Junction Box (JB) Mounting

The Junction Box mount is intended for indoor mounting in equipment rooms, plenums or occupied spaces. Fig. 6 shows a typical Junction Box mounting in an air duct. BAPI recommends using #8 sheet metal screws that need 1/8" pilot holes to attach the sensor to the duct.

After placing the sensing element in the duct, secure the mounting flange to the duct; center the plastic fitting holding the probe in the mounting hole. Make sure that the foam seals the hole; do not over tighten the screws.

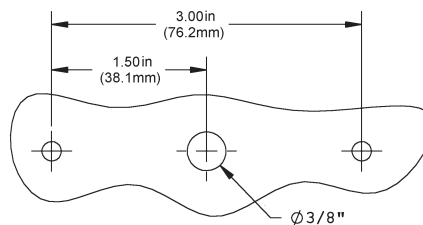


Fig. 5: Junction Box Duct Mounting Holes

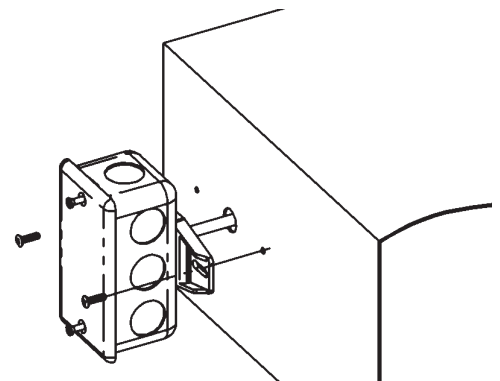


Fig. 6: Junction Box Duct Installation

Specifications subject to change without notice.

### BAPI-Box (BB) Mounting

The BAPI-Box Enclosure is watertight and carries an IP66 rating (similar to a NEMA 4X rating) when the included screws are fastened on the latch. The BAPI-Box is made of high impact, UV-resistant polycarbonate and features a hinged cover with multiple knockouts. It is available for the full line of BAPI temperature sensors.

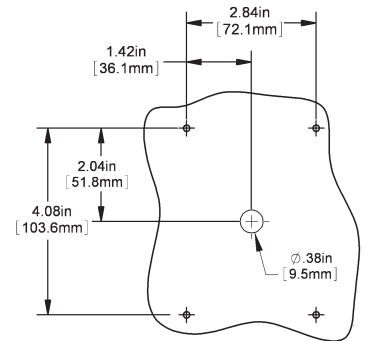
#### Duct Mounting

Mount the unit to its mounting surface with four #10 screws through the holes in the mounting feet. #10 sheet metal screws require 5/32" (4mm) pilot holes. For concrete or cinder block, drill four 5/32" (4mm) holes, 1-3/4" (45mm) deep. Make sure that all screws are started in their holes before tightening evenly. If unit has a foam gasket, only squeeze to about 1/2 of its original thickness. Be sure to seal conduit connector threads and holes in mounting surface to maintain the integrity of the box.

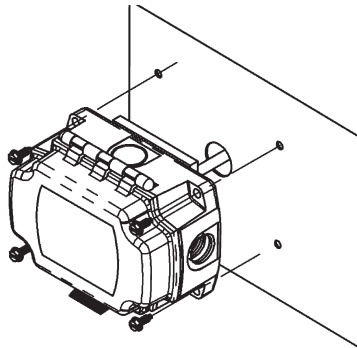
#### Outside Mounting

The sensor must be mounted in the shade away from building windows, doors or vents. The ideal shaded location in the Northern hemisphere is on the North side of the building. In the Southern hemisphere the South side of the building is ideal. The probe should point down and the unit should be mounted between 4 feet above the ground/roof and one foot minimum below the eave.

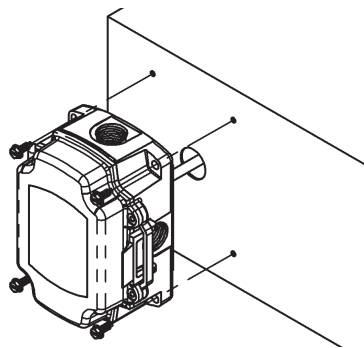
Drill the mounting holes and mount as shown in the Fig. 9. Snug the mounting screws to compress the foam backing to about 50% of its original thickness to make a good seal to the wall surface. Route the wires into the box and terminate with sealant filled connectors. Best practice is to caulk the wiring hole after the wiring is installed. Close the cover of the BAPI-Box and secure with provided cover screws.



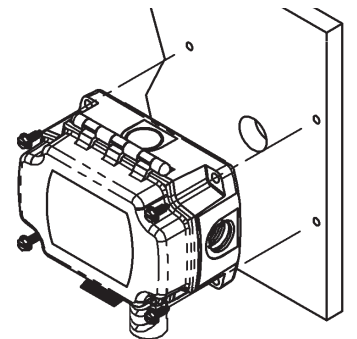
**Fig 6:** BAPI-Box enclosure mounting holes, rotate 90° for horizontal mount



**Fig 7:** BAPI-Box Duct Horizontal Installation



**Fig 8:** BAPI-Box Duct Vertical Installation



**Fig 9:** BAPI-Box Outdoor Air Installation

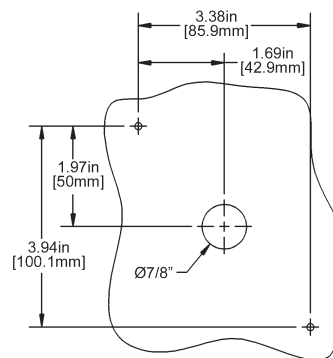
### Weatherproof (WP) Enclosure Mounting

The weatherproof enclosure is intended for outdoor or equipment room mounting. Use the mounting tabs provided to mount the enclosure as shown in figures 10-13. **DO NOT** drill screw holes through the back wall of the box. This destroys the integrity of the box and may void the warranty.

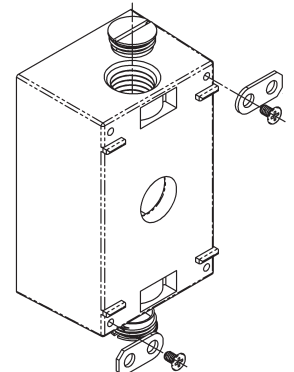
#### Duct Mounting

BAPI recommends using #8 sheet metal screws that need 1/8" pilot holes to attach the sensor to the duct. After placing the sensing element in the duct, secure the mounting tabs to the duct; center the plastic fitting holding the probe in the mounting hole. Be

*Continued on next page...*



**Fig. 10:** Weatherproof Enclosure mounting holes



**Fig. 11:** Weatherproof Enclosure Mounting Tabs

### Weatherproof (WP) Enclosure Mounting continued...

sure that the foam seals the hole; do not over tighten the screws. Place the foam gasket between the cover and the box before securing the cover in place with the screws provided. To keep water out of the box, be sure to coat the threads of the box plugs or conduit connectors with caulk before screwing them into the enclosure.

#### Outside Mounting

The sensor must be mounted in the shade away from building windows, doors or vents. The ideal shaded location in the Northern hemisphere is on the North side of the building. In the Southern hemisphere the South side of the building is ideal. The probe should point down and the unit should be mounted between 4 feet above the ground/roof and one foot minimum below the eave.

Drill the mounting holes and mount as shown in the Fig. 13. Snug the mounting screws to compress the foam backing to about 50% of its original thickness to make a good seal to the wall surface. Route the wires into the box and terminate with sealant filled connectors. Best practice is to caulk the wiring hole after the wiring is installed. Close the cover of the enclosure and secure with provided cover screws.

Note: Air temperature units are shown. Temperature and humidity units are available in doublegang weatherproof enclosures only.

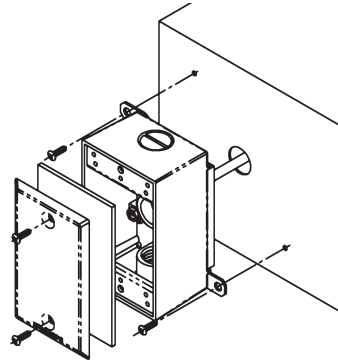


Fig. 12: Weatherproof Enclosure Duct Installation

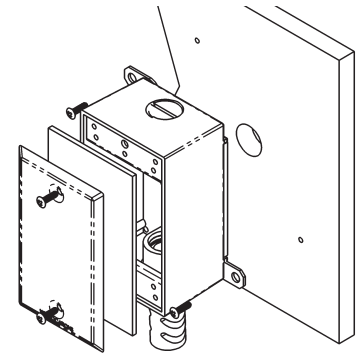


Fig. 13: Weatherproof Enclosure Outside Installation

### Weather Tight (EU) Enclosure Mounting

The Weather Tight (EU) Enclosure is available in ABS plastic for indoor applications and UV-light stabilized plastic for outdoor applications.

#### Duct Mounting

Figure 15 shows a typical Weather Tight enclosure mounting in an air duct. BAPI recommends using #8 sheet metal screws that need 1/8-inch pilot holes. After placing the sensing element in the duct, secure the mounting feet to the duct; center the plastic fitting holding the probe in the mounting hole. Do not over tighten the screws but be sure that the foam insulation makes an airtight seal.

Tighten the lid to two clicks when you are finished making terminations.

#### Outside Mounting

The sensor must be mounted in the shade away from building windows, doors or vents. The ideal shaded location in the Northern hemisphere is on the North side of the building. In the Southern hemisphere the South side of the building is ideal. The probe should point down and the unit should be mounted between 4 feet above the ground/roof and one foot minimum below the eave.

Drill the mounting holes and mount as shown in the Fig. 9. Snug the mounting screws to compress the foam backing to about 50% of its original thickness to make a good seal to the wall surface. Route the wires into the box and terminate with sealant filled connectors. Best practice is to caulk the wiring hole after the wiring is installed. Tighten the lid to two clicks when you are finished making terminations.

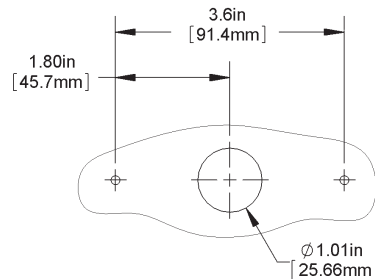


Fig. 14: Weather Tight Enclosure Mounting Holes

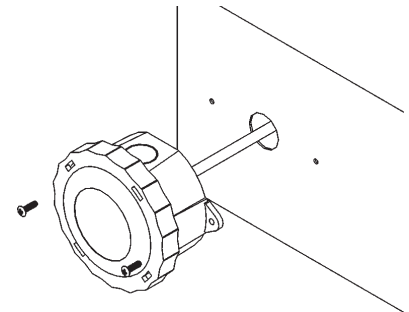


Fig. 15: Weather Tight Enclosure Duct Installation

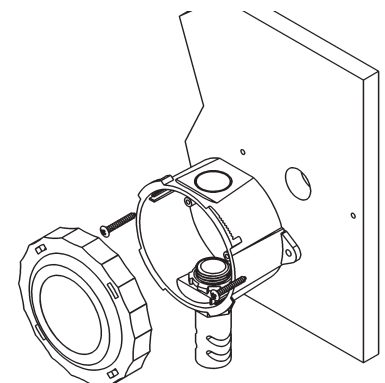
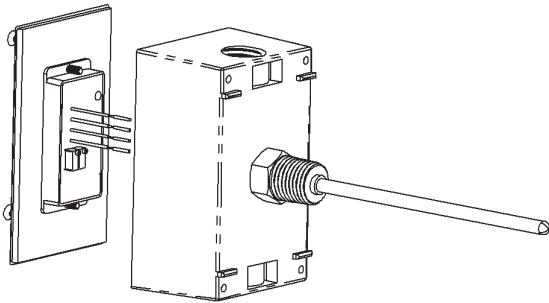


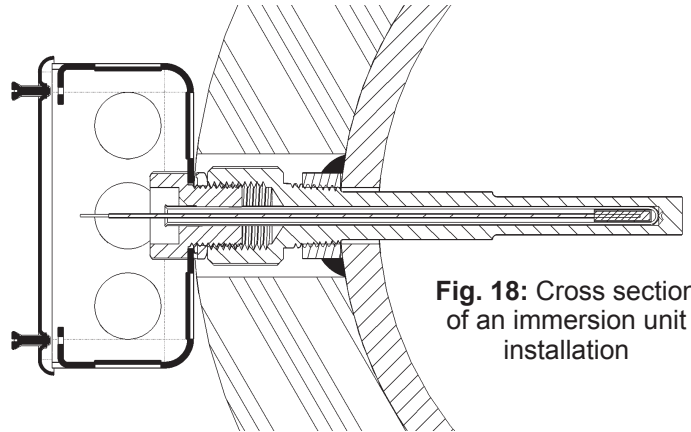
Fig. 16: Weather Tight Enclosure Outside Installation

**Immersion Sensor Mounting**

Place the thermowell into the pipe nipple using Teflon tape and/or pipe dope. Tighten securely but do not over torque. Insert the immersion sensor into the thermowell with the plastic fitting screwing into the opening on the thermowell. Tighten the immersion sensor snugly by hand without too much torque. Make sure that the tip of the immersion sensor is in contact with the bottom of the thermowell. The unit is designed so that the temperature probe moves slightly into the enclosure as the sensor hits the bottom of the well. Fig. 18 shows a Junction Box installation, but Weatherproof, Weather Tight or BAPI-Box enclosures may be used as well.



**Fig. 17:** Transmitter mounted to the cover of a Weatherproof Enclosure with an immersion probe

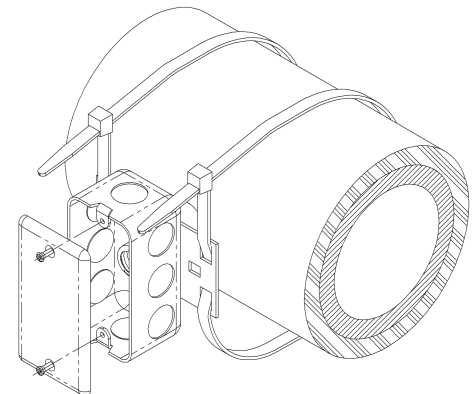


**Fig. 18:** Cross section of an immersion unit installation

**Strap Sensor Mounting****Spring-Loaded Straps**

The Spring-Loaded Strap Sensor is used when a large section of insulation cannot be removed from a pipe. It accommodates insulation of up to 2" thick and is sized for pipe diameters of 5 to 12.5", including the insulation.

Cut a 1-1/4" diameter hole in the insulation and remove the insulation from the hole down to the bare pipe. Be sure to remove all insulation and debris from the hole. Place the copper pad on the end of the spring-mounted foam into the hole and make sure it has good physical contact with the pipe. Tighten the straps until the strap-mounting bracket contacts the insulation.



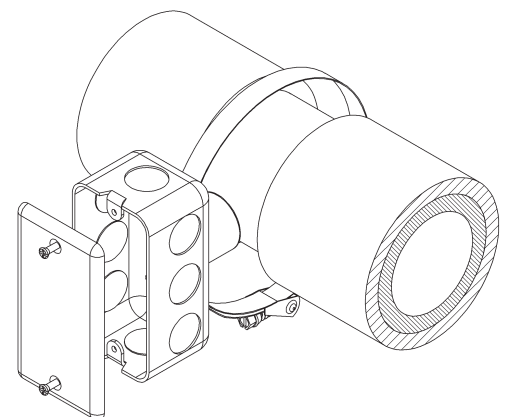
**Fig. 19:** Spring-Loaded Strap installation

**Clamp-On Straps**

Place the Clamp-On Strap Sensor on bare pipe, or a section of pipe with the insulation removed. The clamp-on strap sensor is sized for bare pipes of 2 to 4.5" in diameter.

Make sure that the copper pad on the foam is in good physical contact with the pipe. Snug the straps so that the assembly does not rotate around the pipe when moderate pressure is applied to the Junction Box. Do not over tighten. You may place pipe insulation over the whole assembly. Add another pipe clamp if needed.

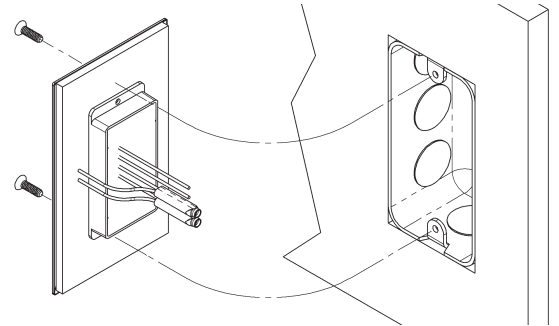
Fig. 20 shows a Junction Box installation, but a BAPI-Box enclosure may be used as well.



**Fig. 20:** Clamp-On Strap installation

### Wall Plate Mounting

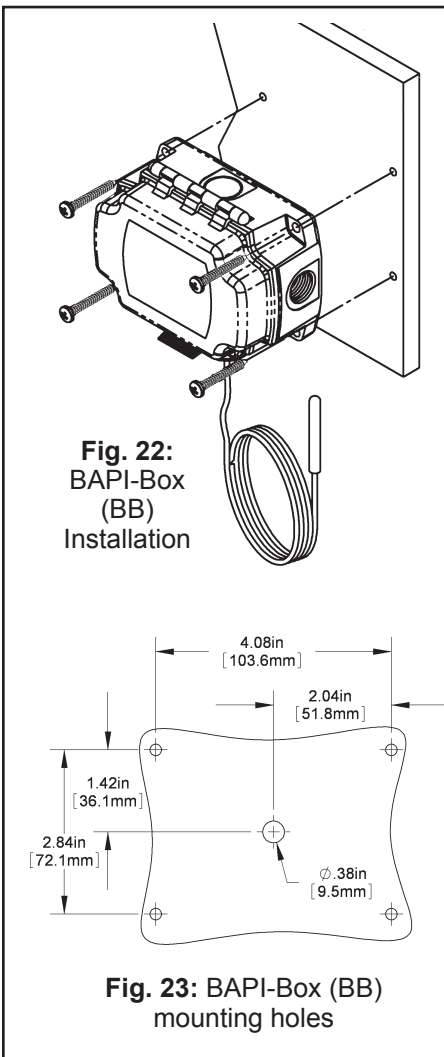
The Stainless Steel Wall Plate is intended for indoor mounting to a 2x4" Junction Box. Install a Junction Box as shown in the Fig. 21. Terminate your wiring cables to the red and black wires, preferably with sealant filled connectors. Secure the Wall Plate to the Junction Box with the screws provided making sure that the foam gasket on the back of the plate seals to the wall without wrinkling the foam. The plate should not contact the wall.



**Fig. 21:** Wall Plate Transmitter Installation

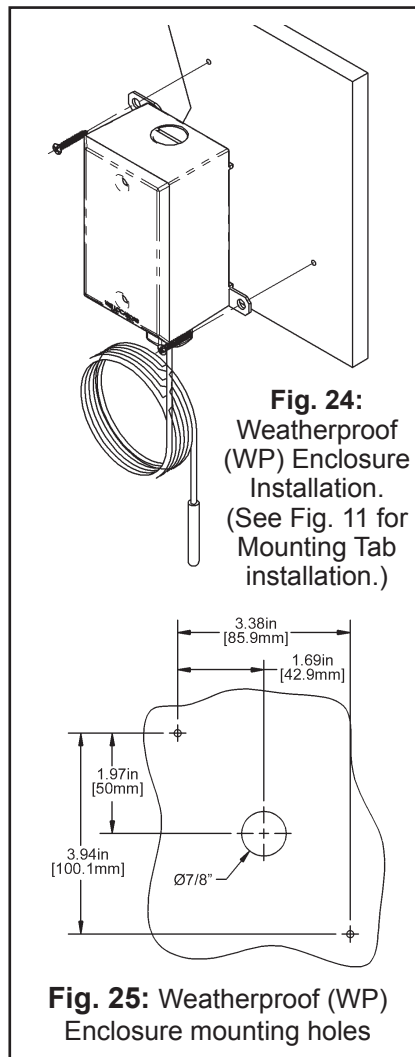
### Remote Probe Mounting

Mount Remote Probes as shown in the figures below with the wire connector down. Route the temperature probe to the spot where you wish to measure the temperature. Best practice is to tie down the wire every two feet. Make sure to caulk the upper screw-in plug on the Weatherproof enclosure. Center mounting hole shown is only used if you are wiring through the mounting surface.



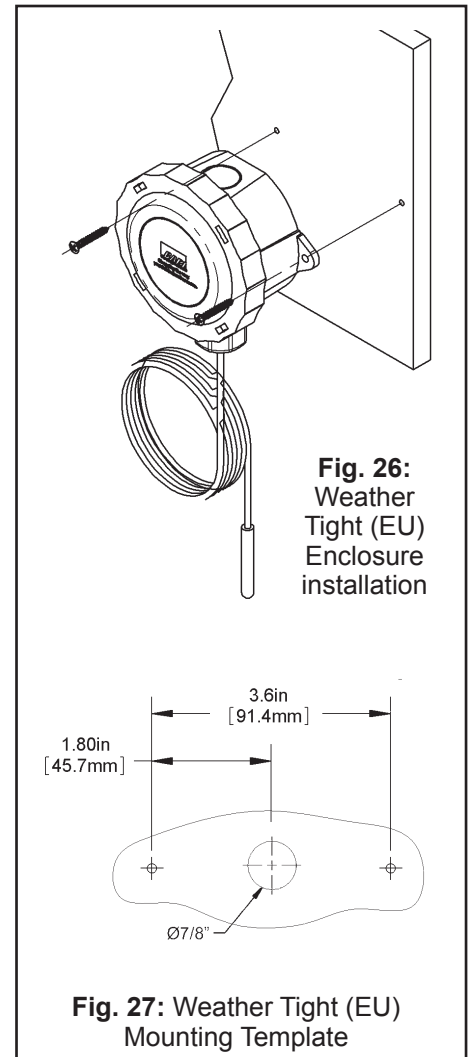
**Fig. 22:**  
BAPI-Box  
(BB)  
Installation

**Fig. 23:** BAPI-Box (BB)  
mounting holes



**Fig. 24:**  
Weatherproof  
(WP) Enclosure  
Installation.  
(See Fig. 11 for  
Mounting Tab  
installation.)

**Fig. 25:** Weatherproof (WP)  
Enclosure mounting holes



**Fig. 26:**  
Weather  
Tight (EU)  
Enclosure  
installation

**Fig. 27:** Weather Tight (EU)  
Mounting Template

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