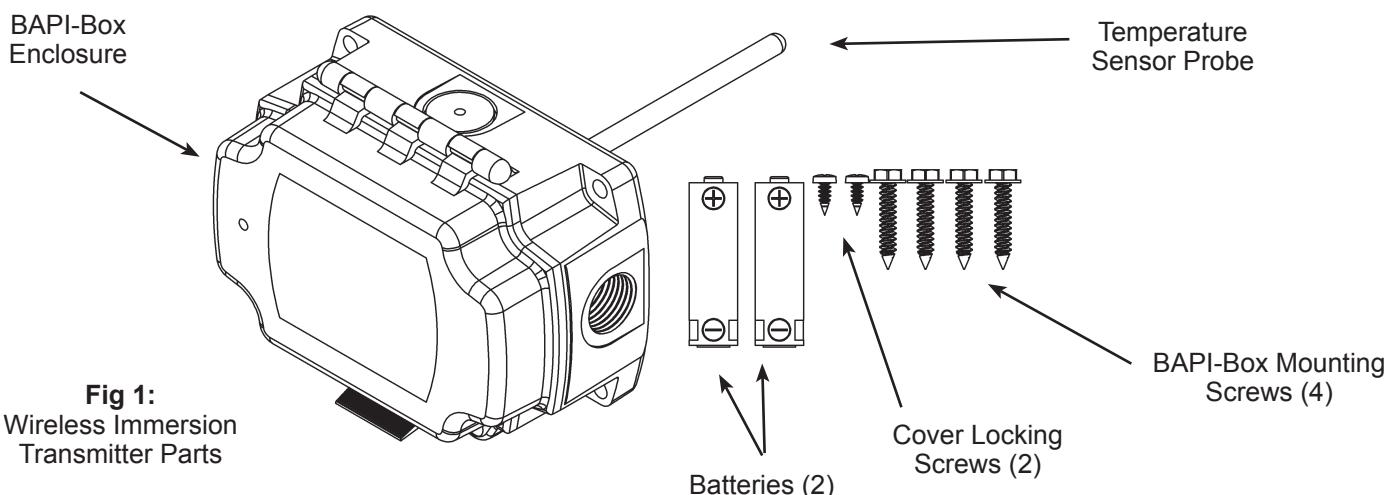


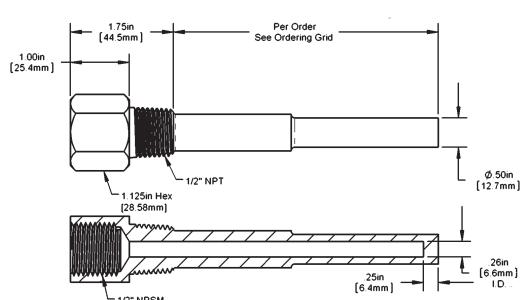
### Parts Received



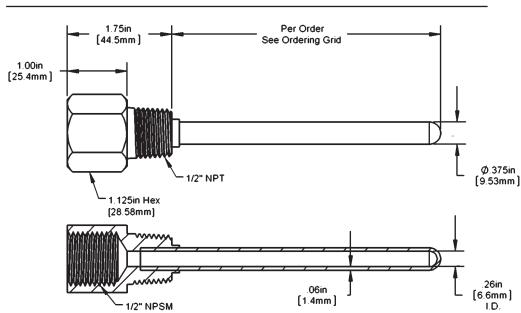
### Thermowells and Immersion Sensors

Immersion Unit Probes are designed to be inserted into a Thermowell. Standard Thermowells from BAPI include machined 304 and 316 stainless steel and brass, and two-part welded 304 stainless steel. The Thermowell chosen for an installation is governed mainly by the corrosion conditions the well will face. Occasionally, the material consideration is one of strength rather than corrosion. For example, a machined stainless steel well may be required for high pressure water service where otherwise a brass or two-part stainless steel well would be satisfactory from a corrosion standpoint. The two-part welded stainless steel thermowells are not intended for service in moving water. Do not mount the two-part thermowells close to the inlet or outlet pipe of the tank.

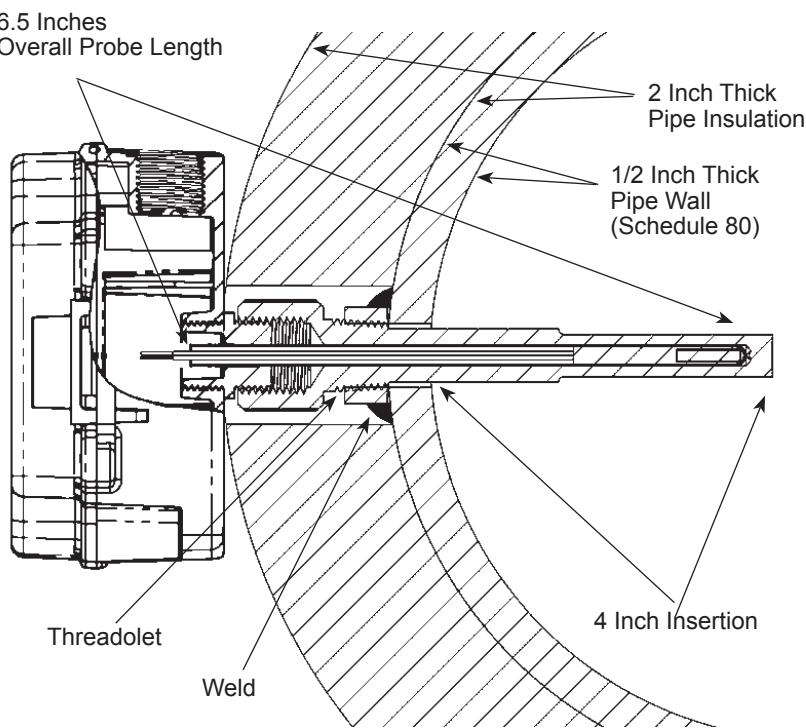
Fig 4 on page 1 shows a typical four-inch thermowell and four-inch immersion probe installed into an eight-inch pipe.



**Fig 2:** Machined Thermowell



**Fig 3:** Two-Part Welded Thermowell

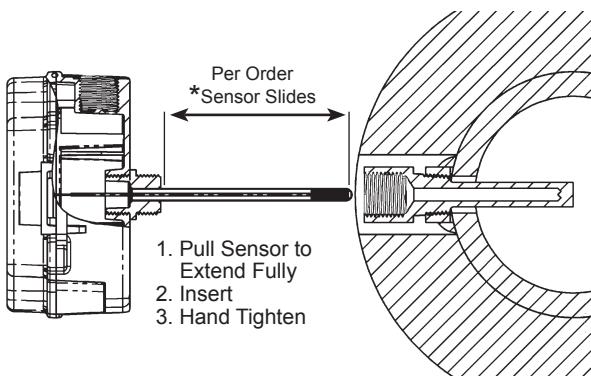
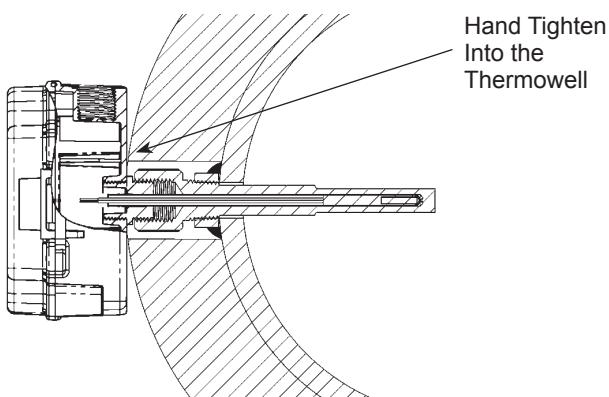


**Fig 4:** Typical Sensor and Thermowell Installation

Specifications subject to change without notice.

**Immersion Sensor Installation**

Immersion probes come with a plastic fitting that screws into the threads at the top of the thermowell. Pull the probe away from the plastic fitting until the probe is fully extended. Insert the immersion probe into the thermowell until the plastic fittings come into contact with the threads in the thermowell. Hand tighten the immersion sensor snugly into the thermowell without too much torque. The unit is designed so that the temperature probe slides back into the enclosure as the sensor contacts the bottom of the thermowell. Make sure that the tip of the immersion sensor probe is in good contact with the bottom of the thermowell by pushing on the flared end of the probe until the tip bottoms out in the thermowell.

**Fig 5:** BAPI-Box Crossover Unit Before Insertion**Fig 6:** BAPI-Box Crossover Unit Inserted

Note on Figs 5 & 6: As the immersion sensor is hand threaded into the thermowell, the flair end of the probe will be pushed back into the enclosure as the probe tip bottoms out in the thermowell. The probe can slide up to 1.6".

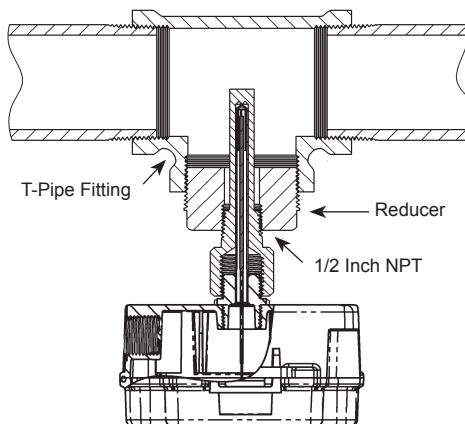
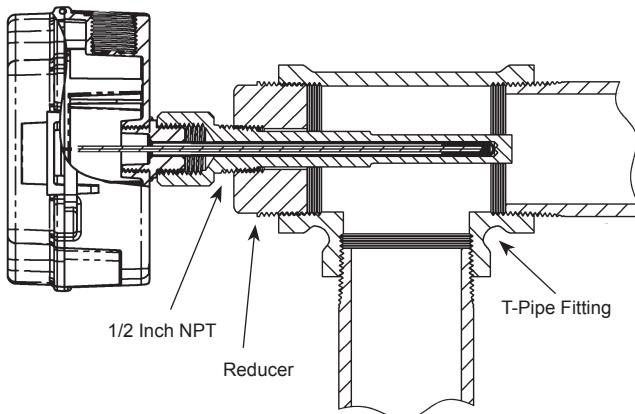
**Installation in Pipes Less than 3" in Diameter****T-Mount**

Figure 7 shows how a 2" Tee and a 1/2" to 2" bushing allows a 2" thermowell to measure the temperature of the contents of a 2" water pipe. Be sure to use a thread sealant on the outside threads of the thermowell.

**Corner Mount**

Figure 8 shows how a pipe Tee can be used in an elbow application. A 2" tee and a 1/2" to 2" bushing allows a 4" thermowell to measure the temperature of the contents of a 2" water pipe.

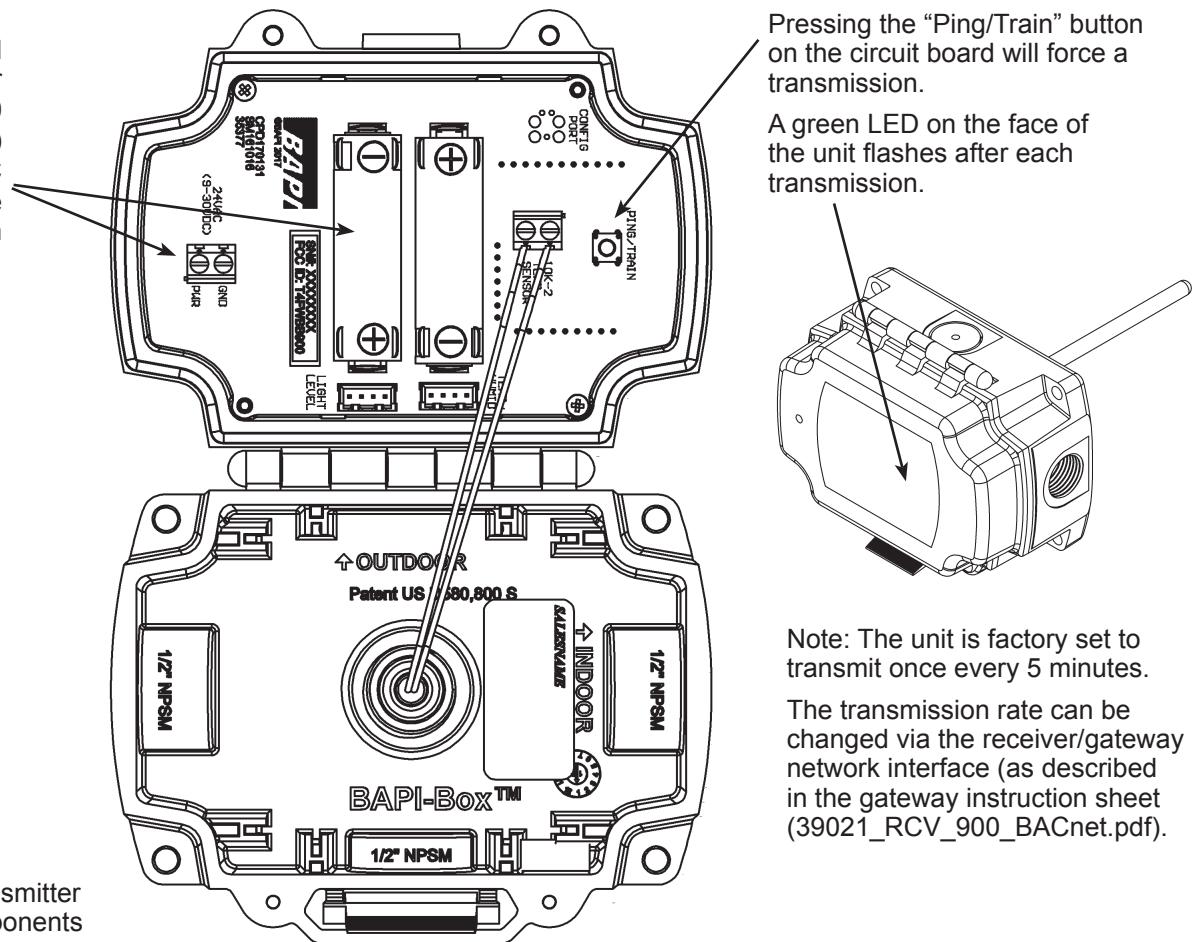
Note: Temperatures in pipes as small as 1-1/4" may be measured by this method. In small pipes, the diameter of the thermowell may become a significant obstruction, so be sure to check for proper flow rates after installation is complete.

**Fig 7:** Typical T-Mount**Fig 8:** Typical Corner Mount

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### Operation

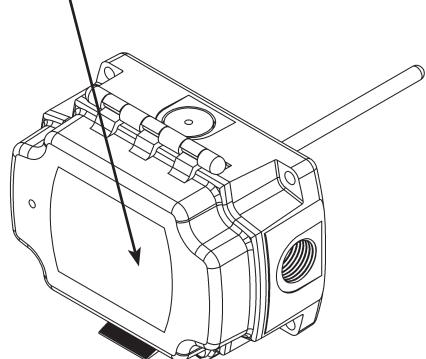
Install the provided batteries or power the unit with 9 to 30 VDC (50 mA max) or 15 to 28 VAC (50 mA max). The unit will then begin transmitting.



**Fig 9:**  
Wireless Transmitter  
Internal Components

Pressing the "Ping/Train" button on the circuit board will force a transmission.

A green LED on the face of the unit flashes after each transmission.

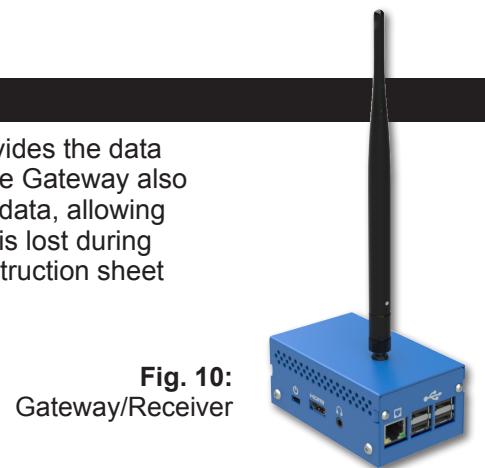


Note: The unit is factory set to transmit once every 5 minutes.

The transmission rate can be changed via the receiver/gateway network interface (as described in the gateway instruction sheet (39021\_RCV\_900\_BACnet.pdf)).

### Associated Gateway/Receiver

The Gateway receives the data from transmitters up to 275 feet away, and provides the data to the BAS via multiple communication options (TCP/IP, JSON, BACnet IP). The Gateway also sends a confirmation signal to each transmitter upon a successful reception of data, allowing the transmitter to release the data that it has stored in memory so that no data is lost during a signal interruption. Operation of the Gateway is described in the Gateway instruction sheet (39021\_RCV\_900\_BACnet.pdf)



**Fig. 10:**  
Gateway/Receiver

Specifications subject to change without notice.



# Wireless Immersion Temperature Transmitter, 900 MHz

## Installation & Operations

40228\_G2\_wireless\_immersion

rev. 02/07/18

### Wireless Sensor Reset

Pressing the “Ping/Training” button on a wireless sensor for 15 seconds will reset the sensor to the original factory default settings (which are accessed through the associated Gateway receiver). This reset procedure can be used to re-establish communication between the sensor and the Gateway if communication is lost due to mismatched addresses. The address of the sensor will be reset to the default: 42415049. This default address can then be entered for the Gateway (as described in the Gateway instructions document “39021\_RCV\_900\_BACnet.pdf”) to re-establish communication with the sensor. Once communication is established, the address of the Gateway and the sensor can be returned to the previous address to re-establish communication with the other sensors on the network (as described in the Gateway instructions document “39021\_RCV\_900\_BACnet.pdf”).

Besides resetting the wireless address, the reset procedure will also return the sensor to these default values:

- Channel = 1, 3
- Transmit power = 0 dBm
- Reported intervals = 300 seconds
- Sample Interval = 300 seconds
- AES key = not affected by the reset procedure
- Battery warning Voltage = 2.5
- All offsets = 0

### Diagnostics

#### Possible Problems:

Temperature reading is incorrect.

#### Possible Solutions:

Verify that the controller’s software is configured properly.

Make sure the transmitters are within range of the receiver/gateway.

Verify that the green LED visible on the face of the unit flashes when the “Ping/Train” button on the circuit board is pressed, indicating a transmission. If the LED does not flash, replace the batteries.

Verify proper power and termination of the receiver/gateway as shown in the receiver/gateway instructions (39021\_RCV\_900\_BACnet.pdf) available on the BAPI website.

Check that the receiver/gateway’s yellow LED to the left of the Ethernet cable jack is illuminated and that the green LED to the right is blinking indicating a good Ethernet network connection and network activity.

Sensor is not communicating with the Gateway

Perform the “Wireless Sensor Reset” procedure as described above and in the Gateway instructions document “39021\_RCV\_900\_BACnet.pdf” available on the BAPI website or by contacting BAPI.

### FCC Wireless Certification and Interference Statement

#### Wireless BAPI-Box Transmitter (WBB900) - FCC ID: T4FWBB900

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of the manufacturer could void the user’s authority to operate this equipment.

Specifications subject to change without notice.