BAPI 49799 Wireless Duct Temperature Sensor Instruction Manual

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BAPI 49799 Wireless Duct Temperature Sensor

Product Information

The Wireless Duct Temperature Sensor is a device designed for monitoring and transmitting temperature data from ducts. It is equipped with adjustable settings and onboard memory. The sensor can transmit data to a digital Gateway or a wireless-to-analog Receiver.

The sensor is compatible with BAPI's wireless devices and can be field adjusted to suit the installation requirements. All settings can be configured using the gateway or receiver. For more detailed information on adjusting the settings, refer to the gateway or receiver instructions available on the BAPI website.

Associated Receiver or Gateway

Receiver (Wireless-to-Analog): The wireless receiver receives data from one or more wireless sensors. It transfers the data to analog output modules and converts it into an analog voltage or resistance. The receiver supports up to 32 sensors and up to 127 different analog output modules.

Gateway: The wireless gateway receives data from one or more wireless sensors. It provides the data to the cloud via MQTT and sends a confirmation signal to each sensor upon successful reception of data. The gateway supports up to 32 sensors.

To establish communication between the sensors and the gateway or receiver, refer to BAPI's Wireless Quick Start Guide or the gateway/receiver instructions on the BAPI website.

Initial Activation

Battery Power Units: The unit comes with two pre-installed batteries. To activate the unit, follow these steps:

1. Open the cover to access the batteries.

2. Remove the battery tab insulators.
3. Press the Service button, and the Service LED should flash once to confirm power.

Wire Power Units: To activate the unit, follow these steps:

1. Open the cover to access the circuit board.
2. Apply 9 to 30 VDC or 24 VAC to the power terminals as shown.
3. Press the Service button, and the Service LED should flash once to confirm power.

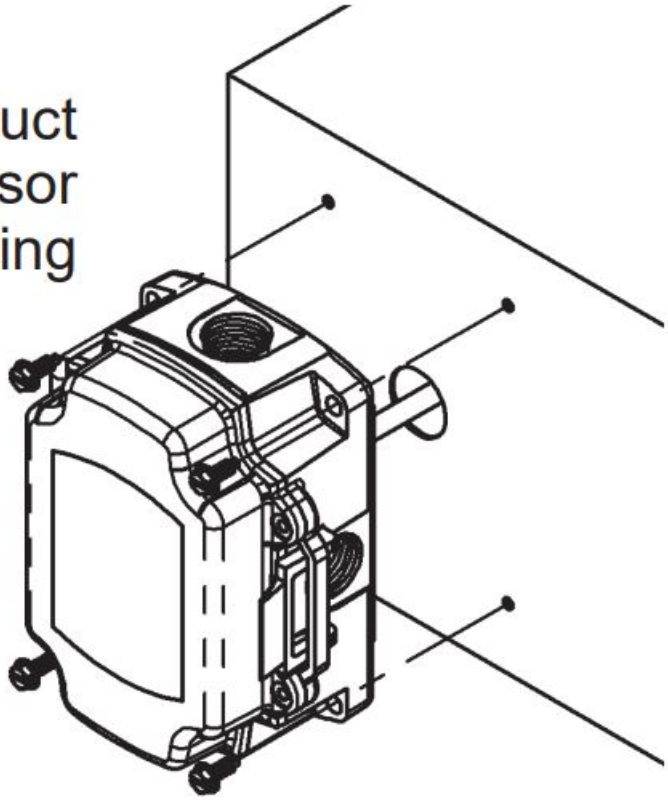
Mounting

To achieve the best temperature reading, follow these steps for mounting the sensor:

1. Place the sensor in the middle of the duct, away from temperature stratified air, coils, or humidifiers.
2. Drill the probe hole as shown in Fig 3. Use the enclosure tabs to mark the pilot hole locations and drill 1/8 (3.2mm) pilotholes.
3. Mount the enclosure to the duct using the provided mountingscrews.
4. Tighten the screws until the foam backing is depressed slightly to prevent air leakage.

Note: Do not drill into the enclosure, as it will violate the NEMA and IP rating.

Fig. 3: Duct Sensor Mounting



Product Usage Instructions

Operation

Power the unit as described in “Initial Activation” section. Follow the gateway or receiver instructions forpairing the unit and changing the adjustable settings. (The instructions are available on the BAPI website.)

1. Power the unit as described in the Initial Activation section.

2. Follow the gateway or receiver instructions for pairing the unit and changing adjustable settings. Refer to the instructions available on the BAPI website.

3. Pressing the Service button on the circuit board will force a transmission.

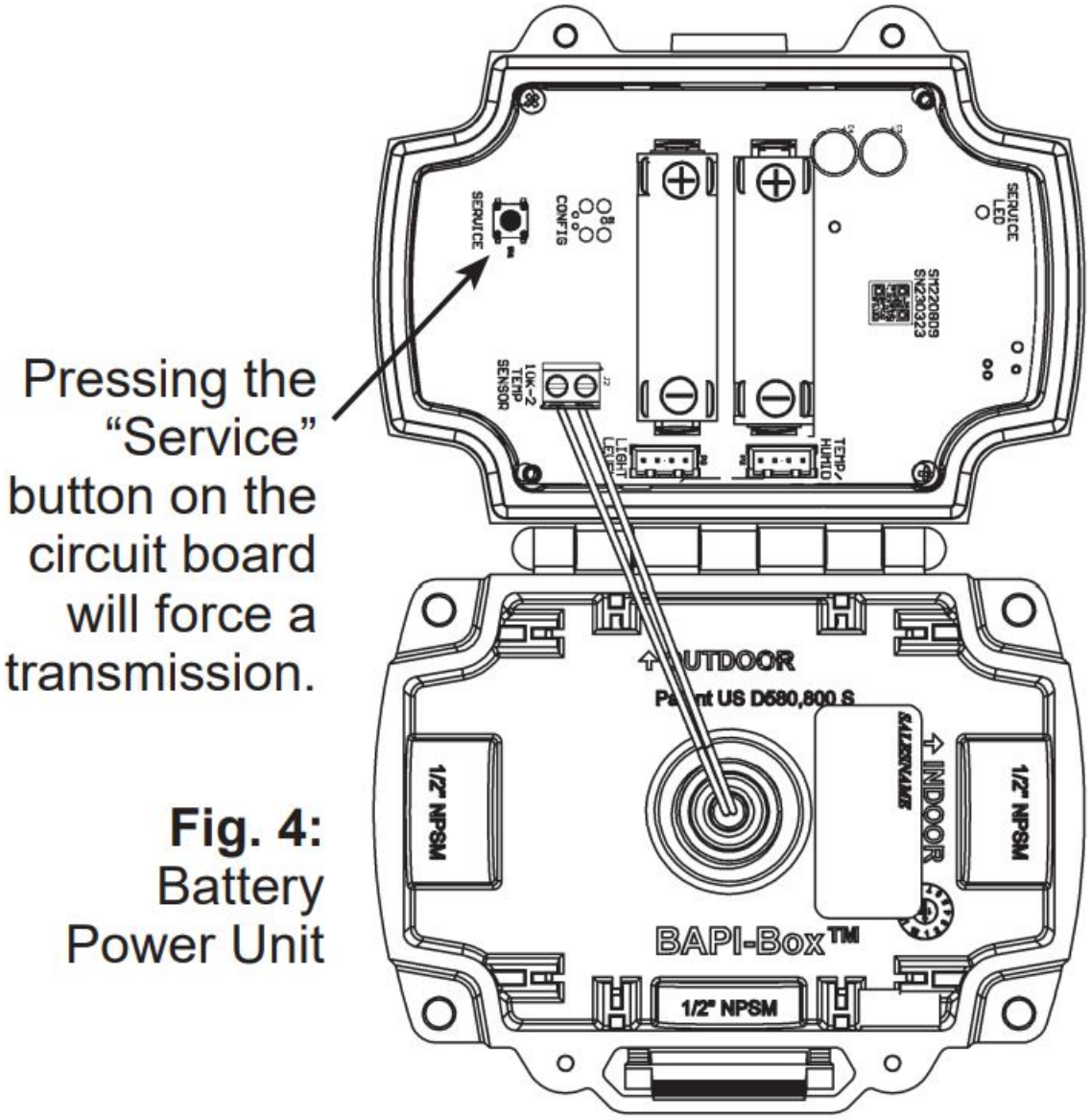


Fig. 4: Battery Power Unit

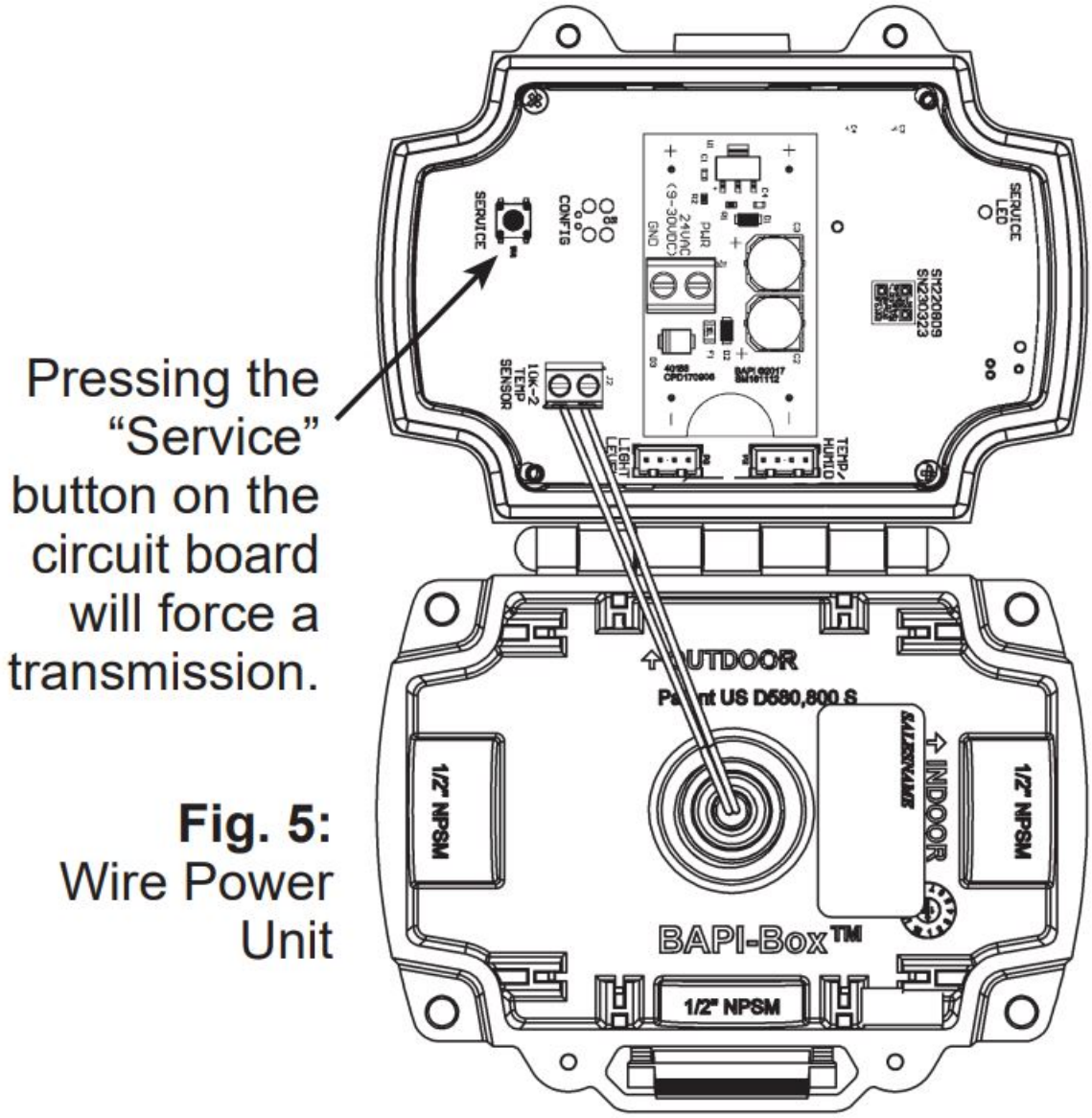


Fig. 5: Wire Power Unit

Overview and Identification

- User adjustable settings
- Onboard memory
- Transmits to a digital Gateway or a wireless-to-analog Receiver

BAPI's Duct Wireless Sensor measures the temperature and transmits the data via Bluetooth Low Energy to a receiver or gateway. This unit features a rugged IP66-rated BAPI-Box enclosure and ¼" (6.4mm) stainless steel probe with standard probe lengths from 4" to 18" (102 to 457mm).

Adjustable Settings

BAPI's wireless devices have several settings that can be can be field adjusted to suit the needs of the installation. All settings are configured by either the gateway or the receiver. (See the gateway or receiver instructions documents available on the BAPI website for more information on adjusting the settings.)

- Sample Rate/Interval – The time between when the sensor wakes up and takes a reading. The available values are 10 sec, 30 sec, 1 min, 3 min or 5 min with the gateway, or 30 sec, 1 min, 3 min or 5 min with the receiver.

- Transmit Rate/Interval – The time between when the sensor transmits the readings to the gateway or receiver. The available values are 30 sec, 1, 2, 3, 4, 5, 10, 15, 20 or 30 minutes, or 1, 6 or 12 hours with the gateway, or 1, 5, 10 or 30 minutes with the receiver.
- Delta Temperature – The change in temperature between sample intervals that will cause the sensor to override the transmit interval and transmit the changed temperature at the next sample interval. The available values are 0.1, 0.2, 0.3, 0.4, 0.5, 1, 2, 3, 4, 5 °F or °C with the gateway, and 1 or 3 °F or °C with the receiver.
- Temperature Min/Max – The maximum or minumum temperature that will cause the sensor to override the transmit interval and immediately transmit a reading to the gateway. (Only available when using a gateway.) Temperature Offset – Adjusts the temperature value being transmitted to match that of a calibrated reference device. The available values are ±0.1, 0.2, 0.5, 1, 2, 3, 4 or 5 °F or °C. (Only available when using a gateway.)

Associated Receiver or Gateway

RECEIVER (Wireless-to-Analog)
The wireless receiver from BAPI receives the data from one or more wireless sensors. The data is then transferred to the analog output modules and converted to an analog voltage or resistance. The receiver supports up to 32 sensors and up to 127 different analog output modules.

GATEWAY
The wireless gateway from BAPI receives the data from one or more wireless sensors. Thegateway then provides the data to the cloud via MQTT. The gateway also sends a confirmation signal to each sensor upon a successful reception of data. The gateway supports up to 32 sensors.

Please see BAPI's Wireless Quick Start Guide, or the gateway or receiver instructions documents available on the BAPI website to establish communication between the sensors and the gateway or receiver

Initial Activation

Battery Power Units

The unit comes with two pre-installed batteries. To activate the unit, open the cover to access the batteries. Findthe battery tabinsulators and pull them out. Press the Service button andthe Service LED should flash once to confirm power.

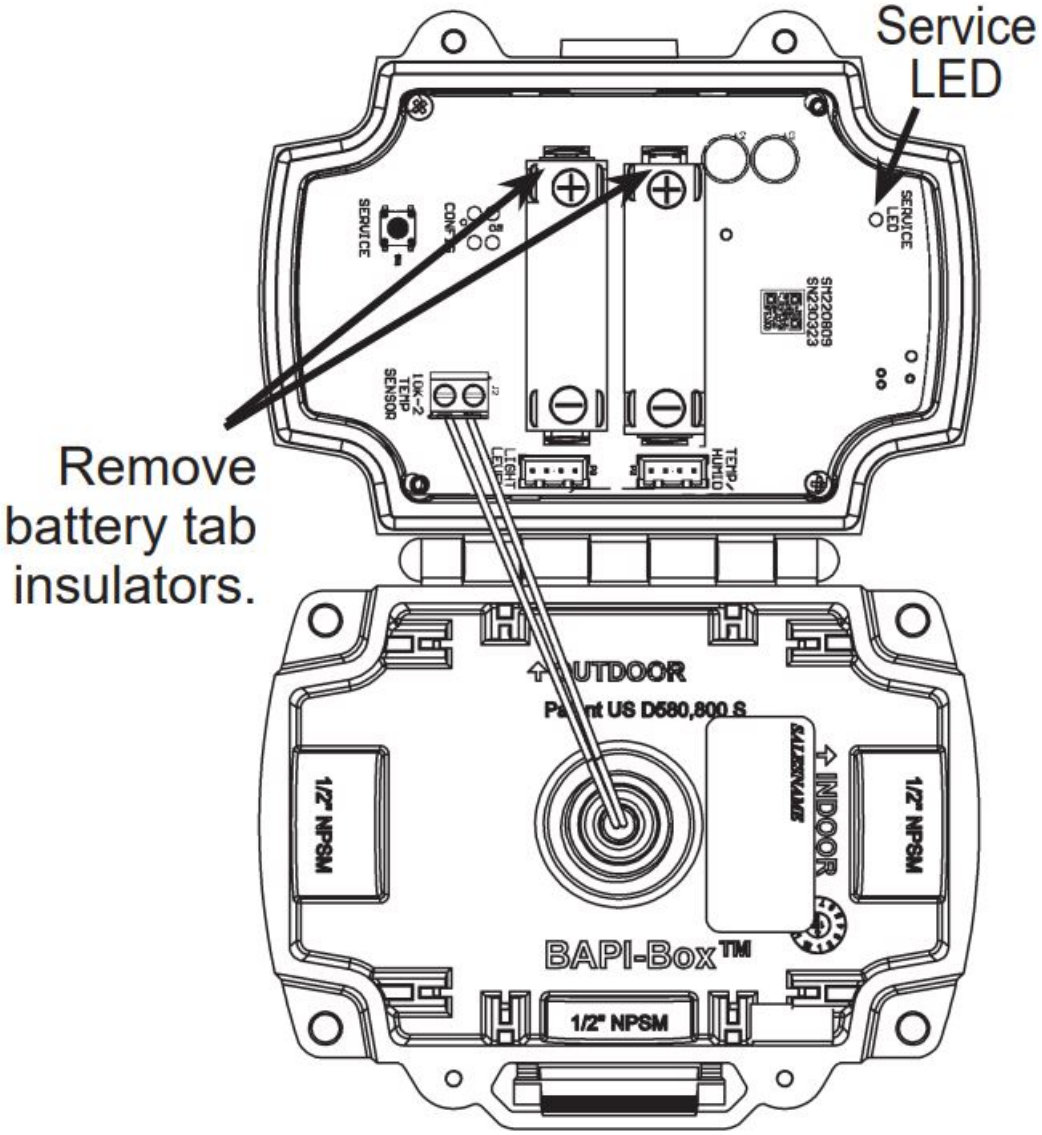


Fig. 1: Battery Power Unit

Wire Power Units

To activate the unit, open the cover to access the circuit board and apply the 9 to 30 VDC or 24 VAC to the power terminals as shown. Press the Service button and the Service LED should flash once to confirm power

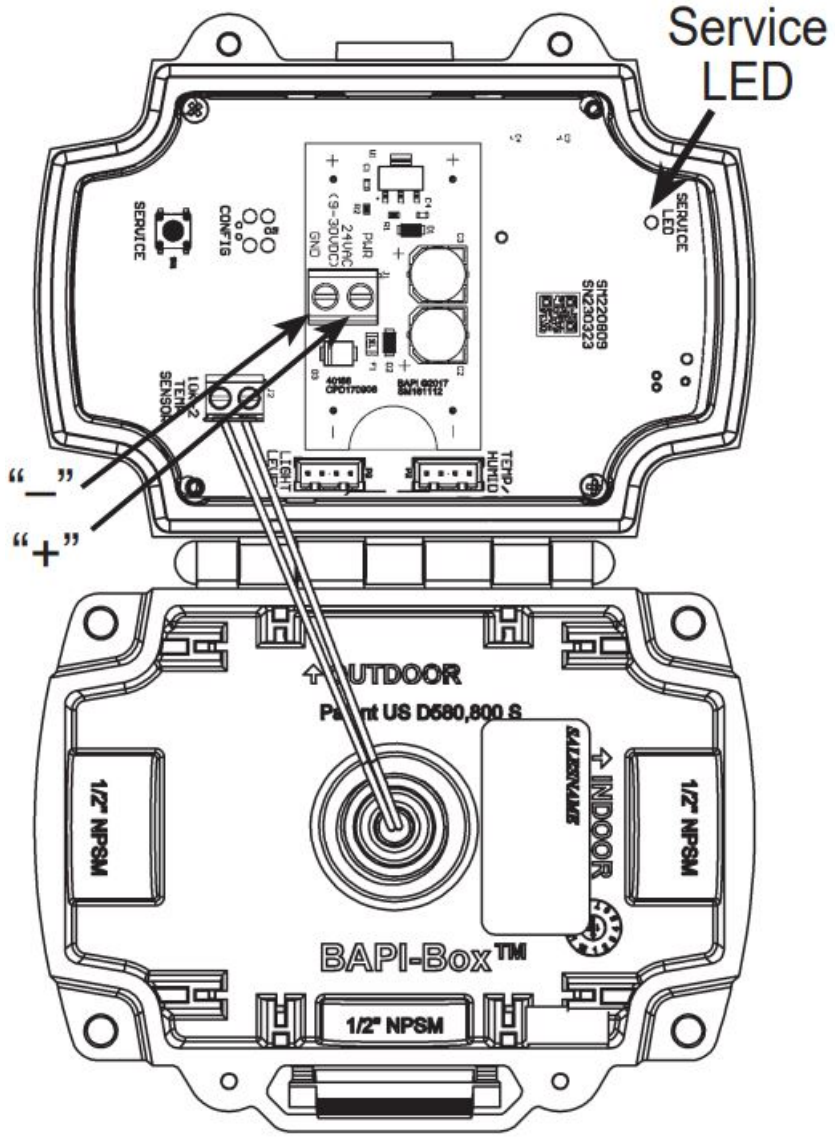


Fig. 2: Wire Power Unit

Wireless Sensor Reset

Sensors remain paired to the gateway or receiver and output modules when power is interrupted or the batteries are removed. To break the bonds between them, the sensors need to be reset. To do this, press and hold the “Service Button” on the sensor for about 30 seconds. During those 30 seconds, the green LED will be off for about 5 seconds, then flash slowly, then begin flashing rapidly. When the rapid flashing stops, the reset is complete. The sensor can now be paired to a new receiver or gateway. To re-pair to the same receiver or gateway, you must reset the receiver or gateway. Output modules that were previously paired to the sensor do not need to be re-paired

Onboard Memory

Sensor retains up to 16,000 readings should the communication become interrupted. The sensor only stores readings from missed transmissions and only when the sensor is paired to a gateway. Once communication is re-established with the gateway, the stored readings are transmitted and then erased from the sensor. The current reading and nine previous readings are sent at each transmit interval until the sensor is caught up.

Battery Replacement

Open the cover to access the batteries (Fig 6). Remove the batteries from their holders and discard in an

environmentally safe manner. Replace with new batteries in the correct orientation.

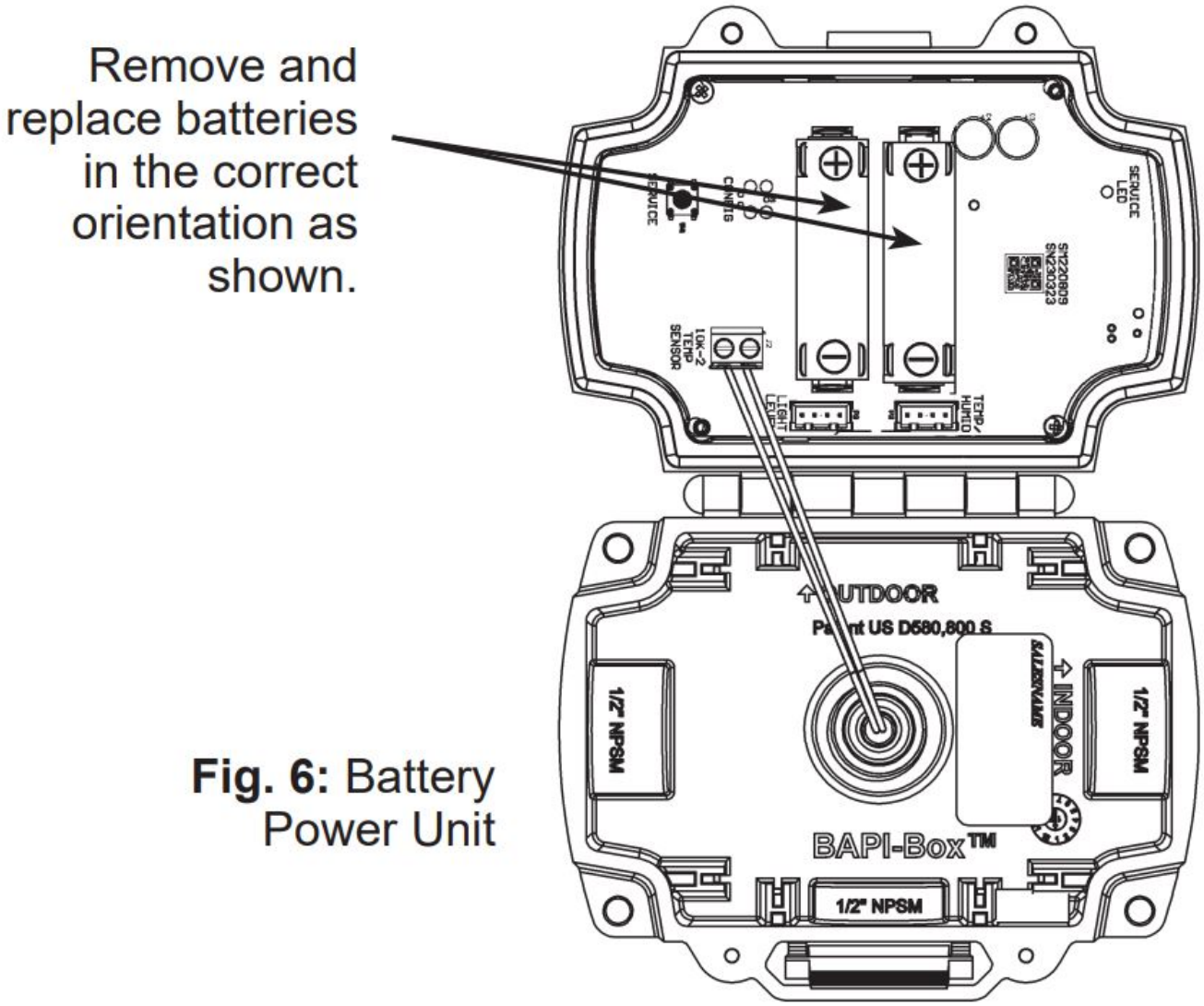


Fig. 6: Battery Power Unit

Battery Specifications:

- Two 3.6V Lithium batteries:
- (#14505, 14500 or equivalent)

Diagnostics

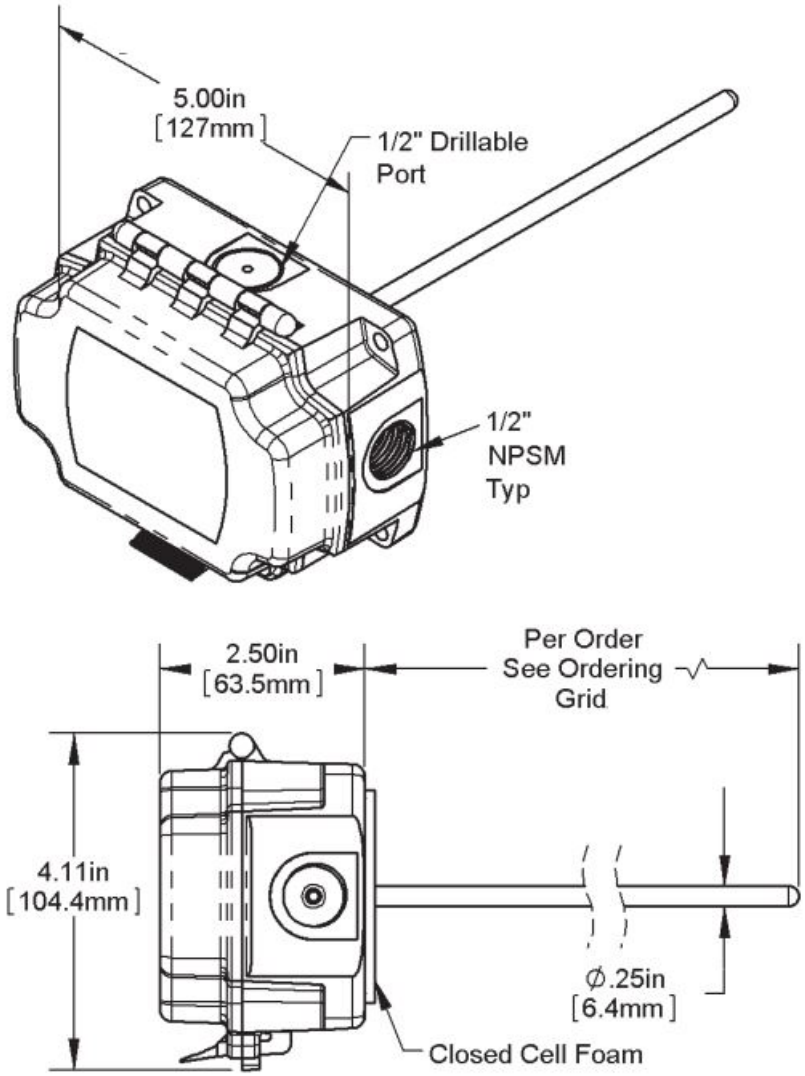
Possible Problems:
Sensor is not communicating with the gateway or receiver, or the transmitted values are incorrect.

Possible Solutions:

- Make sure the sensor is within range of the gateway or receiver.
- Verify that the green LED on the sensor circuit board flashes when the “Service” button is pressed, indicating a transmission. If it does not flash, replace the batteries.
- Verify that the sensor is properly paired to the gateway or receiver and analog output modules as described in the gateway or receiver instructions available on the BAPI website. Re-pair them if needed. If necessary, perform the “Wireless Sensor Reset” procedure as described on the pg 3.

Specifications

- Battery Power: Two included 3.6V 14505, 14500 or equivalent lithium batteries (Note: Standard AA batteries are not compatible)
- Wire Power: 9 to 30 VDC or 24 VAC, halfwave rectified
- Temperature Sensor Accuracy: ±1.0°F (0.55°C) from 32 to 158°F (0 to 70°C)
- Temperature Range: -4 to 221°F (-20 to 105°C)
- Transmission Distance: Varies by application*
- Environmental Operation Range:
    - Temp: -4 to 149°F (-20 to 65°C)
    - Humidity: 10 to 90%RH, non-condensing
    - Enclosure Rating, Material & Material Rating:
    - IP66, UV-Resistant Polycarbonate, UL94 V-0
    - Frequency: 2.4 GHz (Bluetooth Low Energy)
    - Receiver Sensitivity: -97 dBm
- User Adjustable Settings:
    - Delta T (Temp): 0.1°F/C to 5.0°F/C
    - Transmit Interval: 30 sec to 12 hour
    - Sample Interval: 10 sec to 5 min
    - Temp Offset: ±0.1°F/C to ±5.0°F/C
- Onboard Memory:
    - Sensor retains up to 16,000 readings should the communication become interrupted. If using a Gateway, the data is re-transmitted once communication isre-established. Agency: RoHS
      *In-building range is dependent on obstructions such as furniture and walls and the density of those materials. In wide open spaces, the distance may be greater; in dense spaces,the distance may be less.
      **Actual battery life is dependent on the sensor’s adjustable settings and environmental conditions.



Specifications subject to change without notice.

Calculated Battery Life**		
Transmit Interval	Sample Rate	Estimated Life (years)
30 sec	30 sec	1.04
1 min	1 min	1.95
3 min	1 min	3.46
5 min	5 min	4.63
10 min	5 min	7.02

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Documents / Resources

	**BAPI 49799 Wireless Duct Temperature Sensor** [pdf] Instruction Manual 49799 Wireless Duct Temperature Sensor, 49799, Wireless Duct Temperature Sensor, Duct Temperature Sensor, Temperature Sensor, Sensor