Standard Range ZPM - Zone Pressure Sensor

Installation & Operations

38592_ins_ZPM_SR

rev. 03/03/2026

Identification and Overview

BAPI's ZPM is designed for quick and easy field installation. The outputs, ranges, units, directionality, and response time are all easily set in the field without powering the unit.

The optional LCD display helps with troubleshooting because it displays the actual pressure regardless of the selected pressure range. Three LEDs on the face of the unit indicate when the pressure is "Out of Range Low", "In Range" or "Out of Range High".

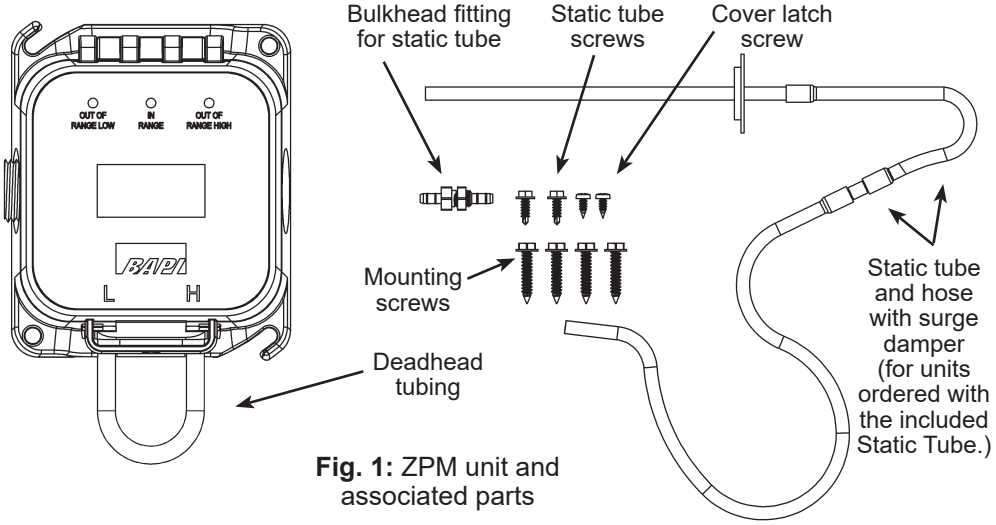


Fig. 1: ZPM unit and associated parts

Switch Setup - Outputs, Ranges, Units/Response

NOTE! Always follow the Auto-Zero procedure after changing settings.

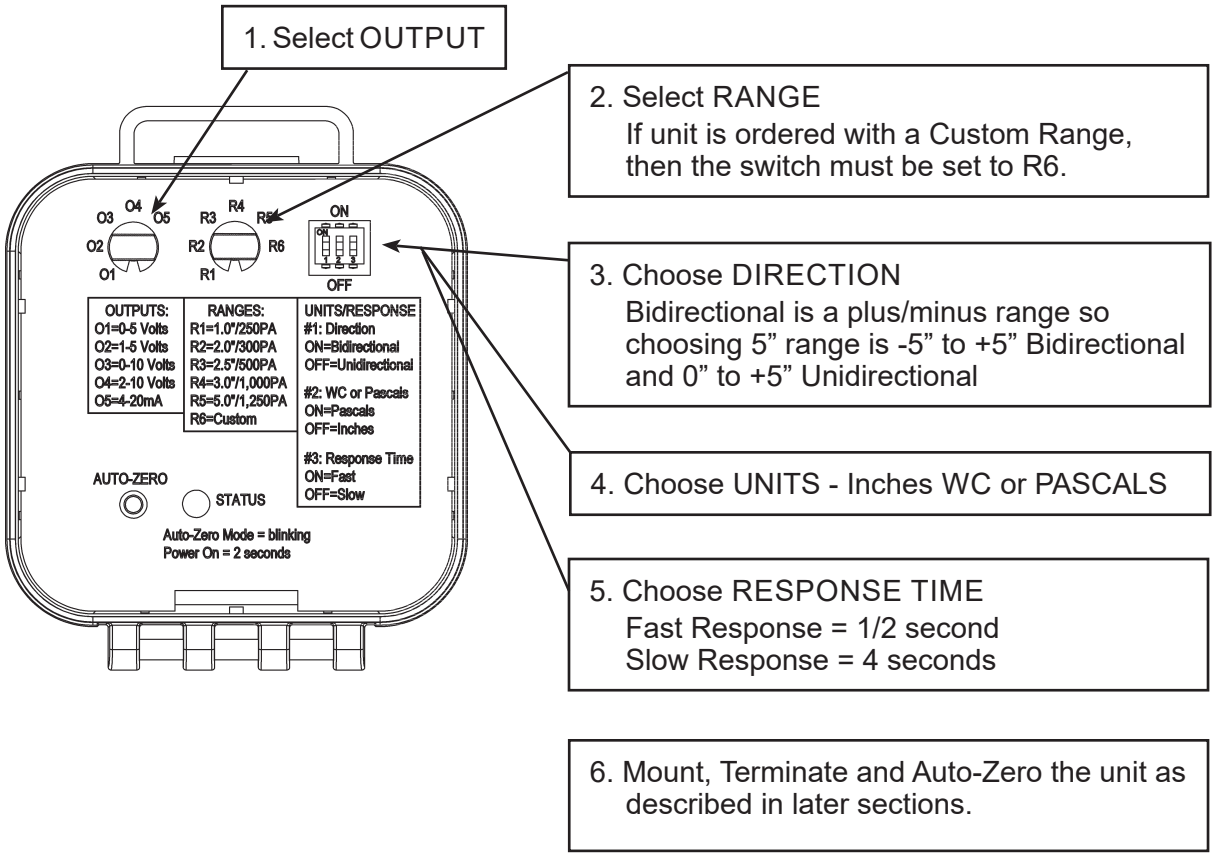


Fig 2: Setup Switches for Standard Range Units

Mounting

Attach the unit to its mounting surface with four self-tapping #10x3/4" sheet metal screws through the holes in the mounting feet. BAPI recommends creating 5/32" pilot holes for the #10x3/4" self-tapping mounting screws. The preferred mounting orientation is with the pressure ports facing down to prevent condensation from entering the pressure transducer. Do not mount to a vibrating surface as vibration may cause issues with the accuracy of the sensing element. See below for an actual size mounting template for the unit.

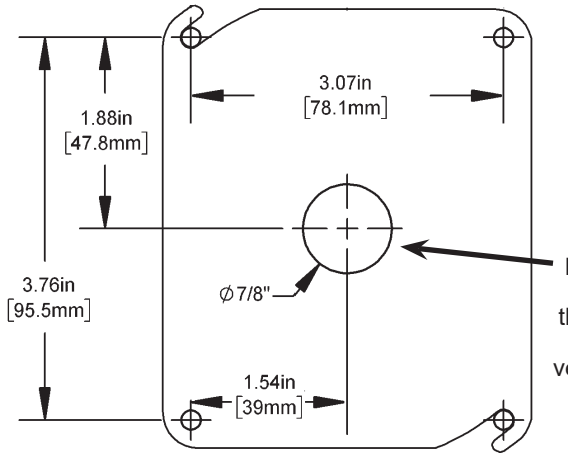


Fig. 3: Mounting Holes

Center hole is only needed for the Attached Tube (-AT) version of the ZPM unit

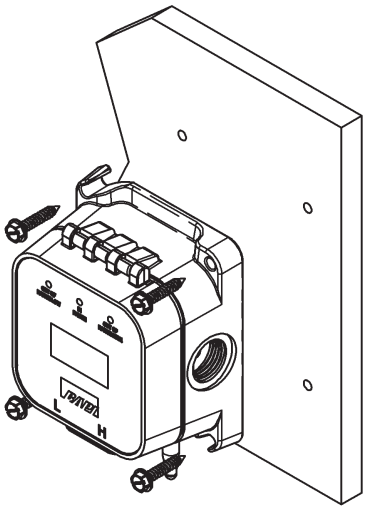


Fig. 4: ZPM Mounting (for units without Attached Tube option)

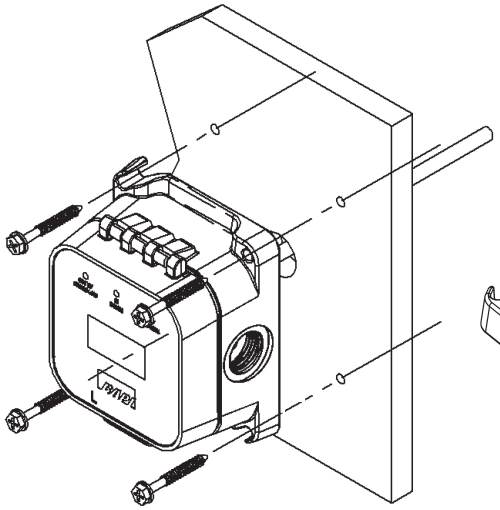
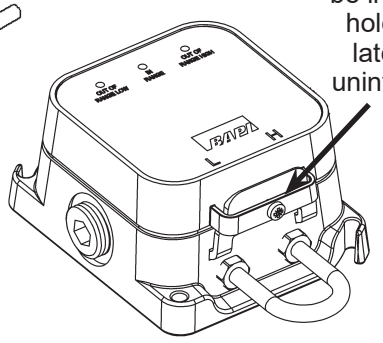


Fig. 5: ZPM Mounting (for units with Attached Tube option)



A locking screw can be inserted into the hole in the cover latch to prevent unintentional cover openings.

Fig. 6: Cover Latch Screw

Output Termination

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 void the warranty.

To ensure that all wires are properly terminated, twist the stripped ends of each wire together before inserting into the terminals. Gently tug on the wire after inserting into the terminal to verify a good connection.

Table 1: ZPM Termination

Output Signal	PWR Terminal	GND Terminal	OUT Terminal
4 to 20 mA	7 to 40 VDC	4 to 20 mA Signal To Controller Analog Input	Not Used
0 to 5 or 1 to 5 VDC	7 to 40 VDC or 18 to 32 VAC	To Controller Ground	VDC Signal To Controller Analog Input
0 to 10 or 2 to 10 VDC	13 to 40 VDC or 18 to 32 VAC	To Controller Ground	VDC Signal To Controller Analog Input

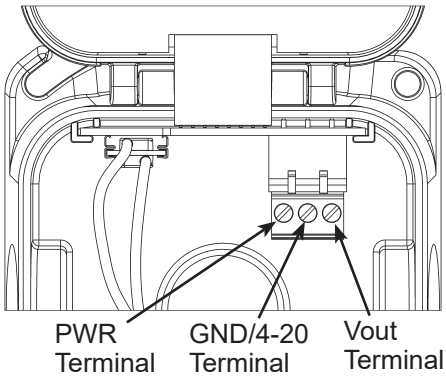


Fig. 7: ZPM Wiring Terminals

Initial Start-Up

Before using the sensor, please wait 24 hours (unpowered with no pressure applied) to allow the sensor to acclimate to its respective environment. After the 24 hour acclimation period has been completed, the device should be powered and deadheaded for 60 minutes to reach it's normal internal operation temperature. Then, the auto-zero process can begin.

Auto-Zero Procedure

AUTO-ZERO FOR STANDARD UNITS (Fig. 8)

Auto-Zeroing must be done after the initial setup, changing mounting orientation or changing any settings. For most applications, perform an auto-zero whenever it appears that the sensor has drifted. For critical applications, the unit should be zeroed 2-3 times a year.

1. Power must be on.
2. Detach system tubing and deadhead ports using the supplied tubing or other short length of tubing. Do not kink tubing.
3. Press and hold the Auto-Zero button for 1-2 seconds. The Status LED will stop flashing when completed.
4. Remove deadhead tubing and reattach system tubing.

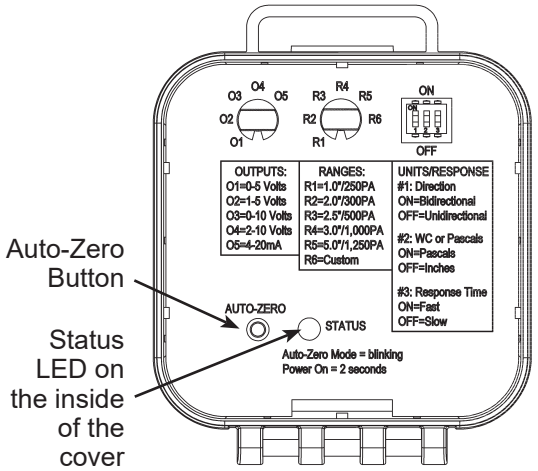


Fig 8: Auto-Zero and Status LEDs

AUTO-ZERO FOR ATTACHED TUBE UNITS (Fig. 9)

1. Power must be on.
2. Disconnect the system tubing from the Low Port brass fitting and attach the supplied 6" deadhead tubing to the brass fitting.
3. Disconnect the clear internal tubing from the Center High Port fitting with your fingers (Fig. 9). A pliers may cut the tubing.
4. Connect the clear internal tubing to the supplied straight black fitting, and connect the 6" deadhead tubing to the other side of the fitting (Fig. 9).
5. Press and hold the Auto-Zero button for 1-2 seconds. The Status LED will stop flashing when completed.
6. Disconnect the deadhead tubing and reattach the clear internal tubing and system tubing. Confirm that the clear tubing is pressed all of the way onto the fitting and that it is not kinked.

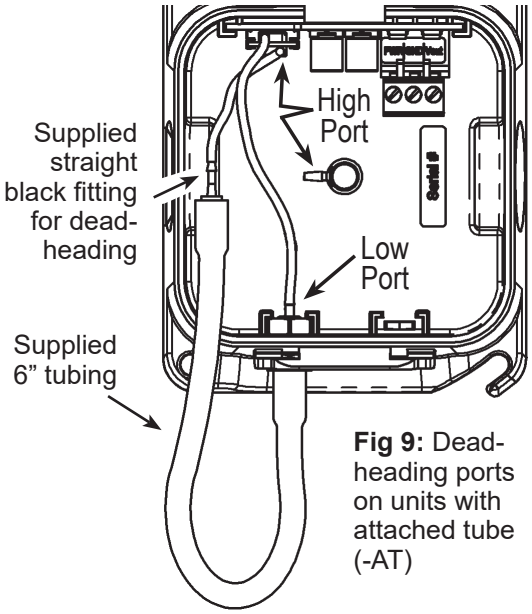


Fig 9: Dead-heading ports on units with attached tube (-AT)

Status LED Operation

LED Off: No power is applied or the unit is in 4 to 20 mA Mode

LED Solid (On): LED is on when power is applied and a VDC output is selected. When 4 to 20 mA output is selected, the light is on for 2 seconds at power up then goes off.

LED Flashing: Auto-Zero. The LED will flash for about 20 seconds.

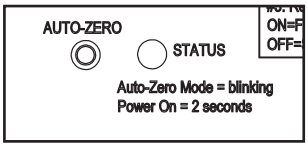


Fig 10: Status LED

Standard Range ZPM - Zone Pressure Sensor

Installation & Operations

Typical Applications

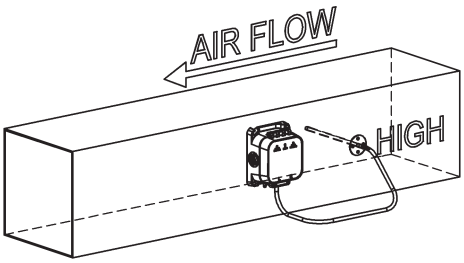


Fig. 11: Duct Static Pressure Monitoring
(ZPM Pressure Sensor mounted on the duct with a Static Pressure Probe in the duct.)

NOTE: Best practice is to form a drip loop in the tubing to prevent condensation from reaching the ZPM.

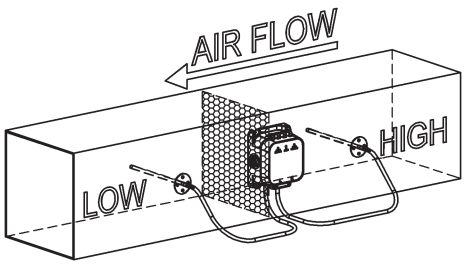


Fig. 12: Air Filter Pressure Drop Monitoring
(ZPM Pressure Sensor mounted on the duct with a Static Pressure Probe on either side of the filter in a duct.)

Troubleshooting

POSSIBLE PROBLEMS:	POSSIBLE SOLUTIONS:
Status LED does not light	- Check power connections for proper power - Sensor is set to 4 to 20mA output
Status LED is flashing	- The unit may be performing an auto-zero. Wait 10 sec. and check again.
Display alternates between a number and “Err”	- The measurement is out of selected range.
Output stuck (high or low)	- Remove pressure from ports and perform auto-zero procedure
Output not tracking pressure properly	- Check rotary switch for proper pressure range selection - Check rotary switch for proper output range selection

Specifications

Power:
7 to 40 VDC (4 to 20 mA Output)
7 to 40 VDC or 18 to 32 VAC (0 to 5 or 1 to 5 VDC Output)
13 to 40 VDC or 18 to 32 VAC (0 to 10 or 2 to 10 VDC Output)

Power Consumption:
20 mA max, DC only at 4 to 20 mA Output
5.2 mA max DC at 0 to 5 or 0 to 10 VDC Output
0.12 VA max AC at 0 to 5 or 0 to 10 VDC Output

Load Resistance:
4 to 20 mA Output 850 Ω Maximum @ 24 VDC
0 to 5 or 0 to 10 VDC Output 6KΩ Minimum

Accuracy: ±0.25% FS at 77°F (25°C) or ±0.025” WC (±6.22 Pa)

Total Error Band*: ±0.5% FS or ±0.05” WC (±12.44 Pa)

Temp Hysteresis & Stability (for 1000 hours):
±0.25% at 77°F (25°C)

Overpressure: Proof 300” WC (74 kPa)

Media: Clean, dry, non-corrosive gases

Wiring: 3 wires (2 wires for 4 to 20mA output)

Environmental Operating Range: -4 to 140°F (-20 to 60°C)

Storage Temp: -40 to 185°F (-40 to 85°C)

Humidity: 0 to 95% RH, non-condensing

Port Size: 1/4” barb (6.3mm)

Enclosure Material & Rating:
UV-resistant Polycarb., UL94 V-0, IP44, NEMA 2

Enclosure Dimensions: L x W x H
4.51 x 3.63 x 2.22” (115 x 92 x 57mm)

Agency:
CE EN 61326-1:2013 EMC (Industrial Electromagnetic Environment), RoHS

Selectable Standard Ranges

Inches WC	Pascals
0 to 1.00	0 to 250
0 to 2.00	0 to 300
0 to 2.50	0 to 500
0 to 3.00	0 to 1,000
0 to 5.00	0 to 1,250
-1.00 to 1.00	-250 to 250
-2.00 to 2.00	-300 to 300
-2.50 to 2.50	-500 to 500
-3.00 to 3.00	-1,000 to 1,000
-5.00 to 5.00	-1,250 to 1,250

*Total Error Band is the accuracy within the compensated temperature range of 32 to 122°F (0 to 50°C). The Total Error Band covers non-linearity, hysteresis and thermal effect on span. This is only valid after the initial startup and auto-zero process has been performed.

Specifications subject to change without notice.

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