## Identification and Overview

Standard Range ZPM - Zone Pressure Sensor in a BBox Enclosure

The ZPM is designed for quick and easy field installation. The outputs, ranges, units, directionality, 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" for the selected range. The appropriate LED will flash when out of range.

Part #: N1-ZPM-SR-ST-D-BB-A
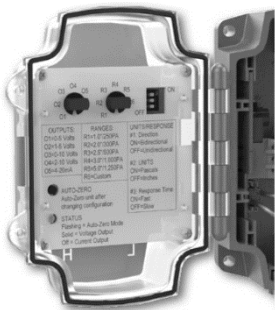
Ranges and outputs can be set easily without powering the unit. Just open the hinged cover.

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

System Accuracy:
±0.25% FS at 72°F (22°C) for All Units
Standard Range Unit: ±0.025" WC (±6.22 Pa)

Stability: ±0.25% FS per year

Overpressure: Proof 300" WC (74 kPa)

Media: Clean, dry, non-corrosive gases

Compensated Temperature Range: 32 to 122°F (0 to 50°C)

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

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

Humidity: 0 to 95% RH, non-condensing

Wiring:
2 wires (4 to 20mA Current loop)
3 wires (AC or DC powered, VDC output)

Port Size: 1/4" barb

Enclosure Material:
UV-resistant Polycarbonate, UL94, V-0

Enclosure Rating: IP66, NEMA 4

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

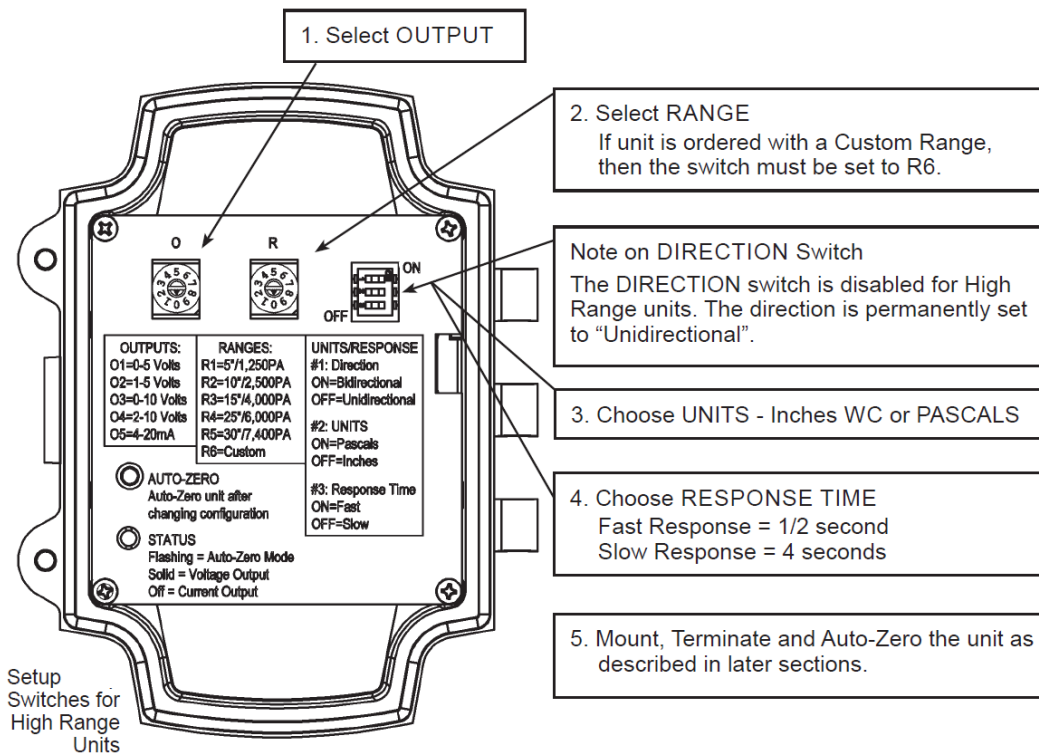*Specifications subject to change without notice.*

Specifications subject to change without notice.
1150 Roberts Boulevard, Kennesaw, Georgia 30144
770-429-3000   Fax 770-429-3001 | www.automatedlogic.com

Page **1** of 8

Field Selectable Ranges and Outputs

STANDARD RANGE UNITS

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

LOW RANGE UNITS

Inches WC	Pascals
0 to 0.10	0 to 30
0 to 0.25	0 to 50
0 to 0.50	0 to 100
0 to 0.75	0 to 175
0 to 1.00	0 to 250
-0.10 to 0.10	-30 to 30
-0.25 to 0.25	-50 to 50
-0.50 to 0.50	-100 to 100
-0.75 to 0.75	-175 to 175
-1.00 to 1.00	-250 to 250

HIGH RANGE UNITS

Inches WC	Pascals
0 to 5	0 to 1,250
0 to 10	0 to 2,500
0 to 15	0 to 4,000
0 to 25	0 to 6,000
0 to 30	0 to 7,400

OUTPUTS AVAILABLE

4 to 20 mA
0 to 5 V
0 to 10 V
2 to 10 V
1 to 5 V

Specifications subject to change without notice.
1150 Roberts Boulevard, Kennesaw, Georgia 30144
770-429-3000   Fax 770-429-3001 | www.automatedlogic.com

Page **2** of **8**

#47138 – 9/7/23

Switch Setup - Outputs, Ranges, Units/Response

Always follow the Auto-Zero procedure after changing settings.

1. Select OUTPUT

2. Select RANGE
   If unit is ordered with a Custom Range, then the switch must be set to R6.

Note on DIRECTION Switch
The DIRECTION switch is disabled for High Range units. The direction is permanently set to "Unidirectional".

3. Choose UNITS - Inches WC or PASCALS

4. Choose RESPONSE TIME
   Fast Response = 1/2 second
   Slow Response = 4 seconds

5. Mount, Terminate and Auto-Zero the unit as described in later sections.

OUTPUTS:
O1=0-5 Volts
O2=1-5 Volts
O3=0-10 Volts
O4=2-10 Volts
O5=4-20mA

RANGES:
R1=5"/1,250PA
R2=10"/2,500PA
R3=15"/4,000PA
R4=25"/6,000PA
R5=30"/7,400PA
R6=Custom

UNITS/RESPONSE
#1: Direction
ON=Bidirectional
OFF=Unidirectional

#2: UNITS
ON=Pascals
OFF=Inches

#3: Response Time
ON=Fast
OFF=Slow

AUTO-ZERO
Auto-Zero unit after changing configuration

STATUS
Flashing = Auto-Zero Mode
Solid = Voltage Output
Off = Current Output

Setup Switches for High Range Units

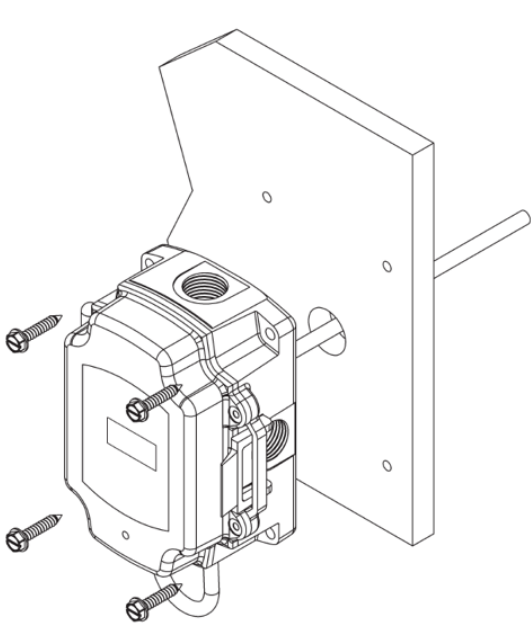## Mounting

1. Attach the unit to its mounting surface with the four self-tapping #10x3/4" sheet metal screws through the holes in the mounting feet. 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 page 3 for an actual size mounting template for the unit.
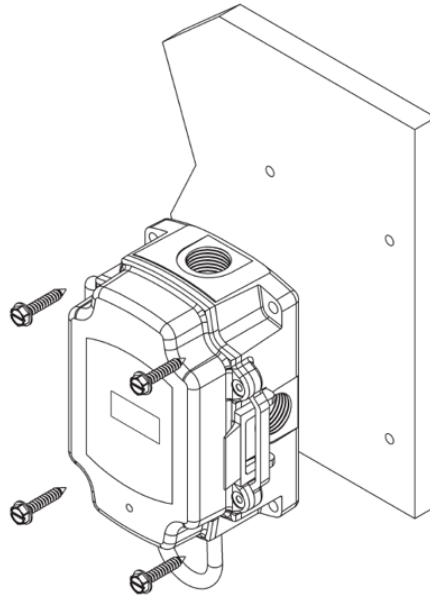
   The two cover latch screws must be installed to achieve an IP66 rating.

2. After Auto-Zeroing, remove the deadhead tubing and push the system tubing onto the port nipple without creating any kinks or holes.
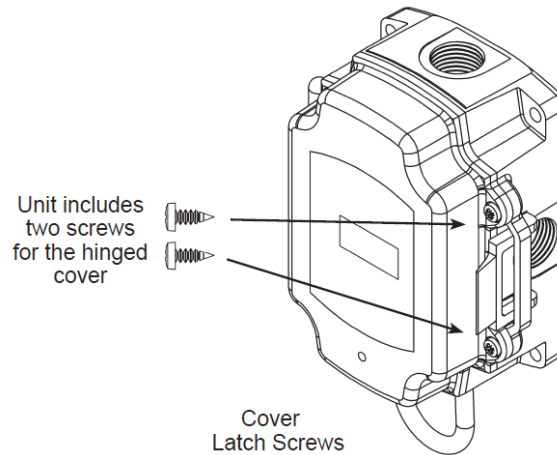
   If a hole must be cut into the plastic plugs in the ½" NPSM threaded ports of the Box enclosure, it's recommended to use a Clean-Cut Tool. Not using this tool could cause damage to the electronics of the sensor.
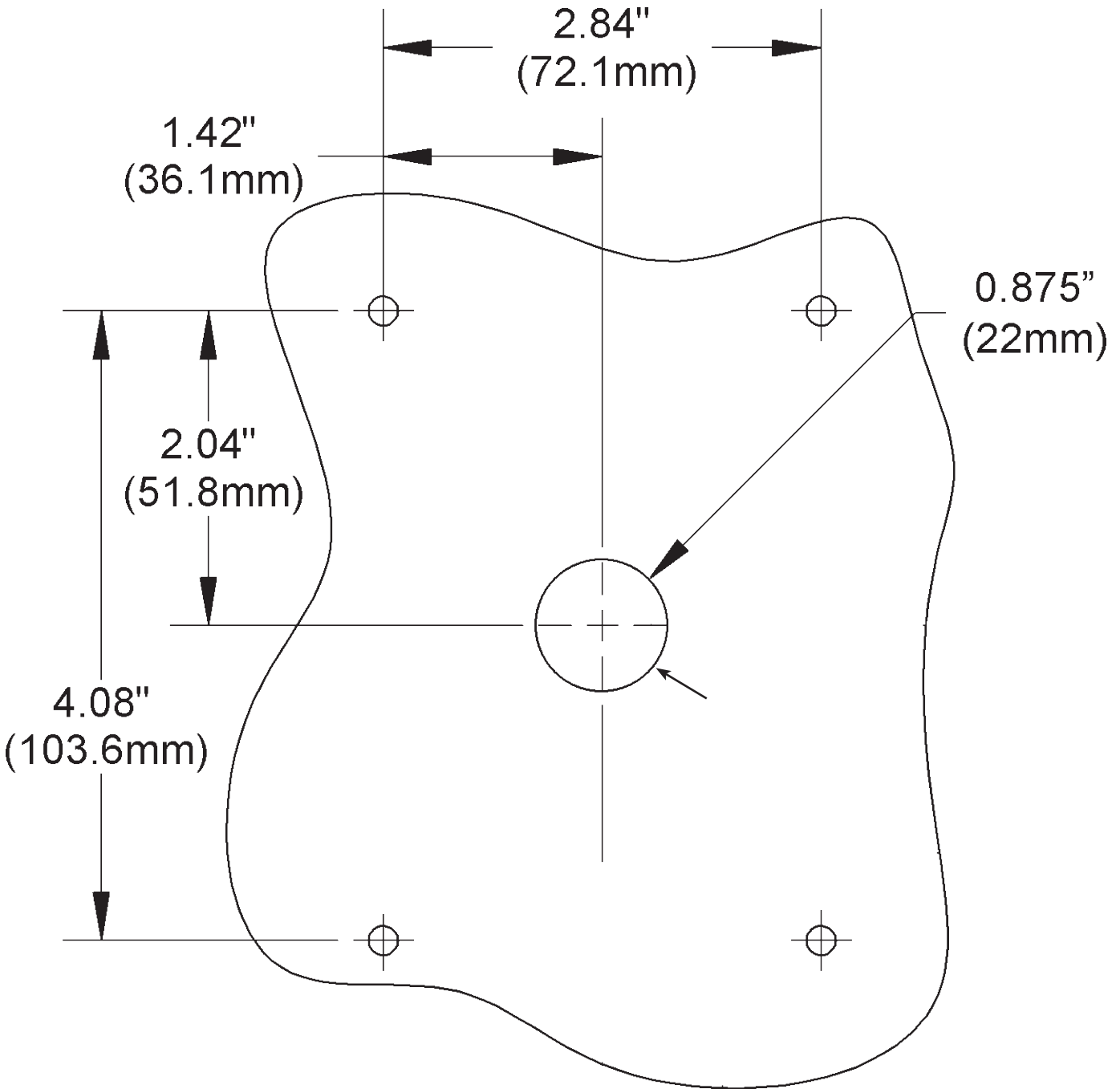
Specifications subject to change without notice.
1150 Roberts Boulevard, Kennesaw, Georgia 30144
770-429-3000   Fax 770-429-3001 | www.automatedlogic.com

Page **3** of 8

#47138 – 9/7/23

BBox Mounting
(for units with Attached Tube option)

BBox Mounting
(for units without Attached Tube option)

Unit includes
two screws
for the hinged
cover

Cover
Latch Screws

Specifications subject to change without notice.
1150 Roberts Boulevard, Kennesaw, Georgia 30144
770-429-3000   Fax 770-429-3001 | www.automatedlogic.com
Page **4** of **8**

#47138 – 9/7/23

Mounting Template – Actual Size

Specifications subject to change without notice.
1150 Roberts Boulevard, Kennesaw, Georgia 30144
770-429-3000   Fax 770-429-3001 | www.automatedlogic.com   Page **5** of **8**

Output Termination

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
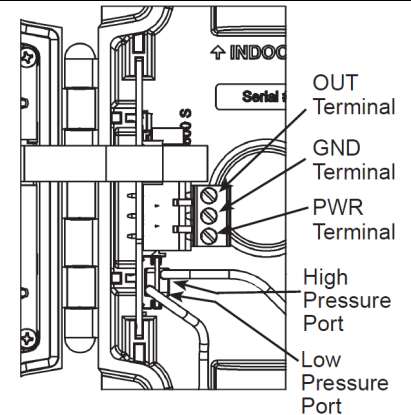
Figure 1: ZPM Wiring Terminals

Auto-Zero Procedure and Status LED Operation

Auto-Zero for Standard Units

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.
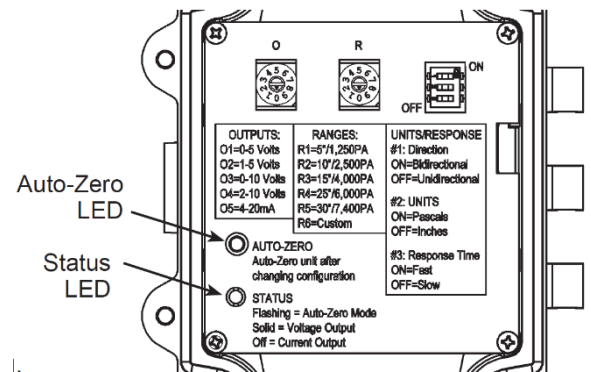
4. Remove deadhead tubing and reattach system tubing.

Figure 2: Auto-Zero and Status LEDs

Auto-Zero for Units with Attached Tube

1. Power must be on.

2. Disconnect system tubing from the Low Pressure brass fitting and attach the supplied 6" deadhead tubing to the brass fitting.

3. Disconnect the short clear tubing from the 90° black Attached Tube fitting with your fingers. A pliers may cut the tubing.

4. Connect the clear tubing to the supplied straight black fitting on the 6" tubing. Do not kink the tubing.

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 tubing and system tubing. Confirm that the clear tubing is pressed all the way onto the fitting and that it is not kinked.
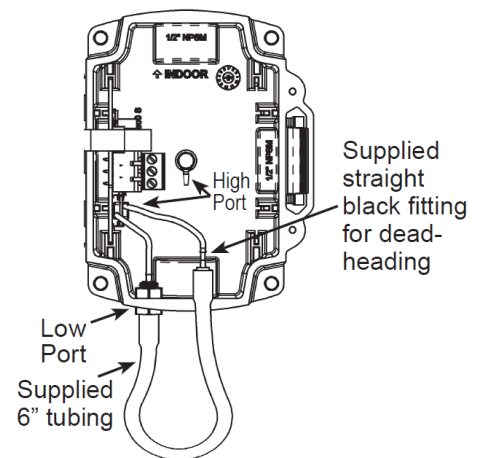

Figure 3: Deadheading ports on units with attached tube (-AT)

Specifications subject to change without notice.
1150 Roberts Boulevard, Kennesaw, Georgia 30144
770-429-3000   Fax 770-429-3001 | www.automatedlogic.com

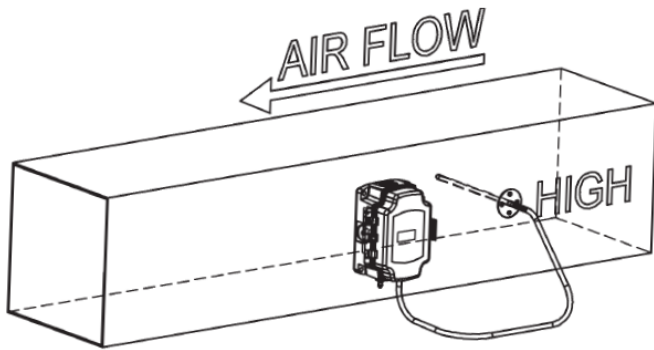Page **6** of 8

Typical Applications

Figure 4: Duct Static Pressure Monitoring (ZPM Pressure Sensor mounted on the duct with a Static Pressure Probe in the duct.)
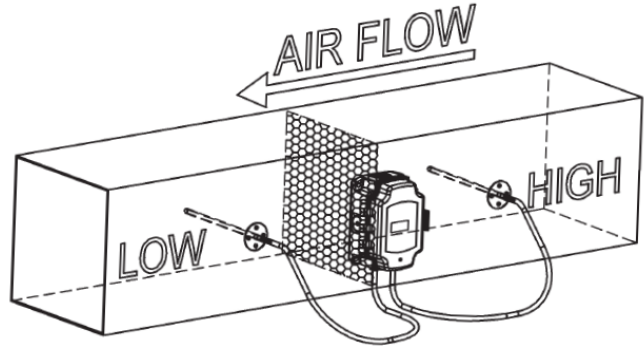

Figure 5: Air Filter Pressure Drop Monitoring (ZPM Pressure Sensor mounted on the duct with a Static Pressure Probe on either side of the filter in a duct.)

💡 **Tip**	Form a drip loop in the tubing to prevent condensation from reaching the unit.

Diagnostics

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 is performing an auto-zero. Wait 20 seconds and check again.
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 subject to change without notice.
1150 Roberts Boulevard, Kennesaw, Georgia 30144
770-429-3000   Fax 770-429-3001 | www.automatedlogic.com   Page **7** of **8**

#47138 – 9/7/23

Appendix – Symbols Key

⚠️ **Warning**	Potential for death, serious injury, or permanent damage to a system.

⚠️ **Caution**	Potential for injury, damage to a system, or system failure.

💡 **Tip**	Useful information not related to injury or system damage.

Specifications subject to change without notice.
1150 Roberts Boulevard, Kennesaw, Georgia 30144
770-429-3000   Fax 770-429-3001 | www.automatedlogic.com   Page **8** of **8**