

# AMS8100/AMS8100LR

## Installation and Operation Instructions

AMS Series Transducers



### APPLICATION

Ruskin's AMS series are the most versatile pressure transducers on the market with selectable pressure ranges and selectable voltage or current output to satisfy the most demanding air measurement applications. Switch selectable fast or slow response time provides the ability to smooth out velocity pressure measurements that are the result of less than ideal installation locations and turbulent air flows.

The LCD display shows the actual velocity pressure independent of the output pressure range selected. This makes it extremely easy for the installing technician to know what pressure range to use for each application. With the maximum air flow passing through the air measurement station just look at the displayed value and select the lowest range that includes the pressure. It's that easy! By selecting the correct pressure range, the electrical output can be scaled for the greatest measurement resolution and corresponding air flow control.

At a glance troubleshooting can save hours of work. The three LEDs on the face of the AMS series low-pressure transducer, above the display, indicate when the velocity pressure being measured is "Out of Range Low" (or negative), "Out of Range High" or operating as expected when the "In Range" LED is illuminated.

### PRODUCT IDENTIFICATION

AMS Series Transducer with Display

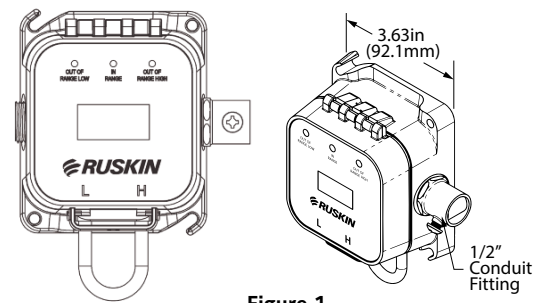
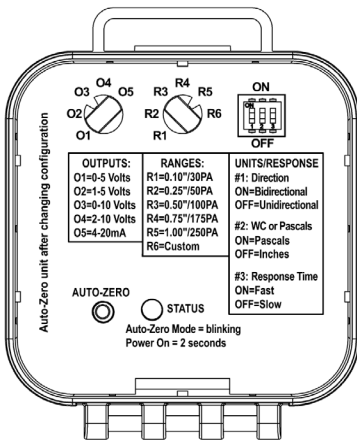


Figure 1

### SWITCH SETUP - OUTPUTS, RANGES, UNITS/RESPONSE



Model AMS8100LR

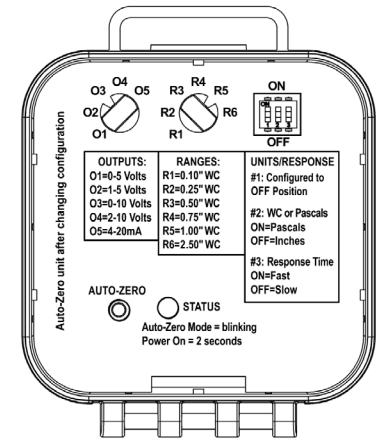
#### Field Selectable Pressure Ranges (inches water column)

##### AMS8100LR:

0-0.10", 0-0.25", 0-0.50", 0-0.75", 0-1.00".

##### AMS8100:

0-0.10", 0-0.25", 0-0.50", 0-0.75", 0-1.00", 0-2.50"



Model AMS8100

Figure 2: Setup Switches for AMS8100LR & AMS8100

Do not have power applied to unit when changing settings. After changing settings, apply power and Auto-Zero the unit in its orientation of operation.

1. Select desired **OUTPUT** range (O1 through O5)
2. Select desired **PRESSURE** range (R1 through R6)
3. Choose **UNITS/RESPONSE** options:
  1. Direction - this is a plus/minus range, so choosing the 0.75"/175PA range (R4) equates to -0.75"/-175PA to +0.75"/+175PA Bi-directional and 0" to +0.75" Unidirectional.
  2. Choose UNITS - WC or Pascals
  3. Response Time - Fast Response = 1/2 second; Slow Response = 4 seconds
4. Mount, Terminate, and Auto-Zero the unit as described in the following sections. Attach the deadhead tubing to the ports during Auto-Zeroing

## MOUNTING

Attach the unit to its mounting surface with 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. Remove the deadhead tubing and push the system tubing onto the port nipple without creating any kinks or holes.

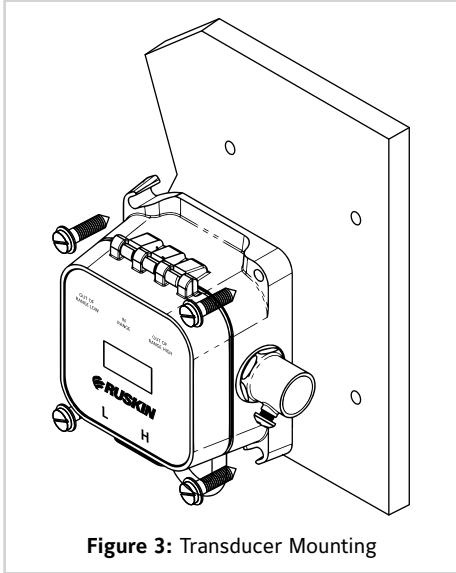


Figure 3: Transducer Mounting

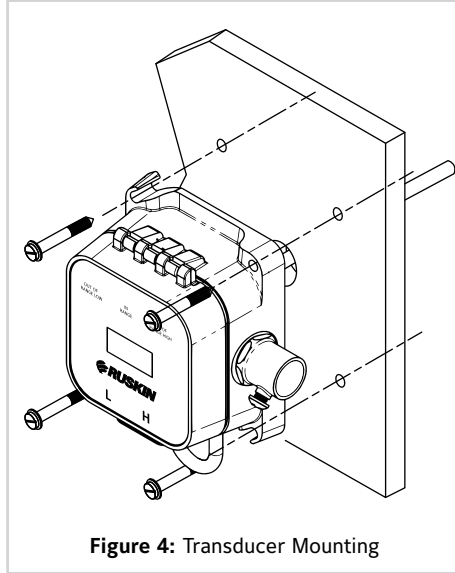
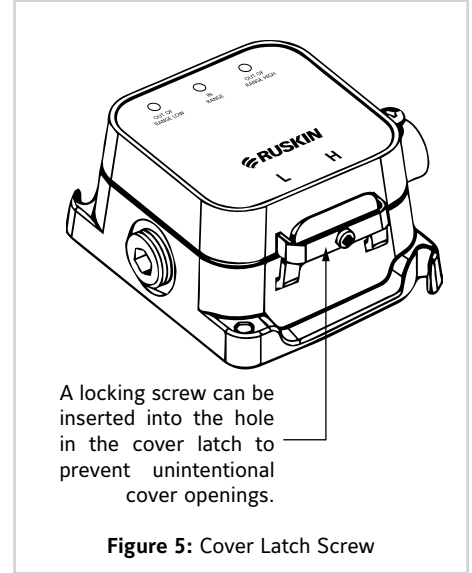


Figure 4: Transducer Mounting



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

Figure 5: Cover Latch Screw

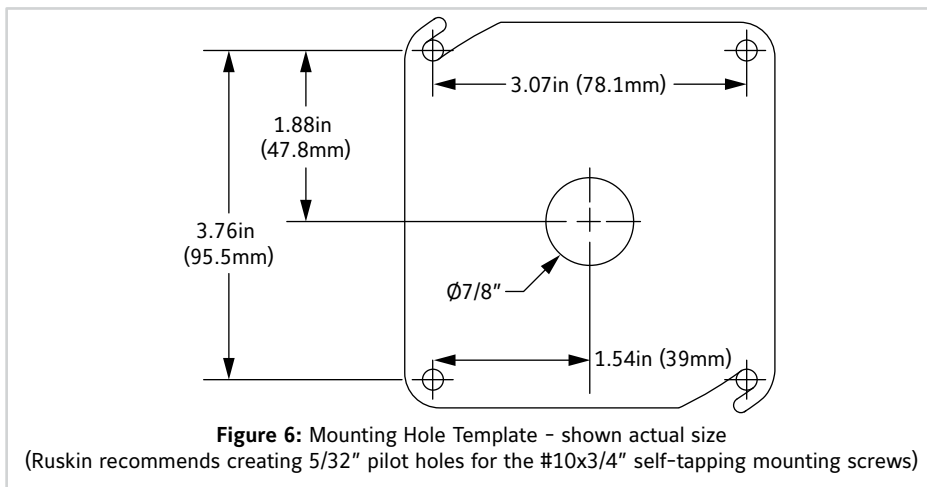


Figure 6: Mounting Hole Template - shown actual size  
(Ruskin recommends creating 5/32" pilot holes for the #10x3/4" self-tapping mounting screws)

## OUTPUT TERMINATION



Ruskin 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: Transducer Termination

Output Signal	PWR Terminal	GND/4-20 Terminal	Vout Terminal
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
4 to 20 mA	7 to 40 VDC	4 to 20 mA Signal to Controller Analog Input	Not Used

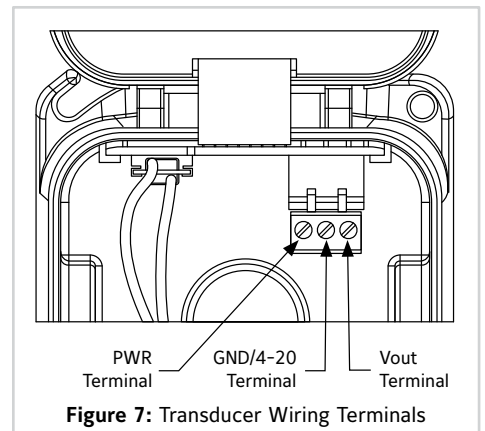


Figure 7: Transducer Wiring Terminals

## AUTO-ZERO OPERATION

Auto-Zeroing must be done after the initial setup and after any settings are changed.

1. Make sure power is applied
2. Deadhead ports
3. Press the Auto-Zero button for 2 seconds (LED blinks)
4. Remove deadhead tube after LED stops blinking
5. Attach system tubing to corresponding high and low pressure ports

NOTE: Velocity Pressure = Total Pressure - Static Pressure

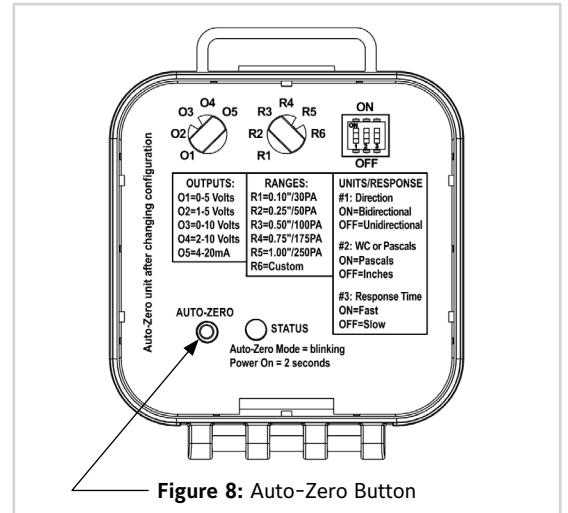


Figure 8: Auto-Zero Button

## STATUS LED OPERATION

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

**LED On:** LED is on when power is applied and voltage 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 Blinking Fast:** Auto-Zero or Error Mode.

**LED Blinking Slow:** The pressure measurement is above or below the selected pressure range. NOTE: When the reading is above or below the selected pressure range, the LCD on the face of the unit will alternate between showing the actual reading and showing "err".

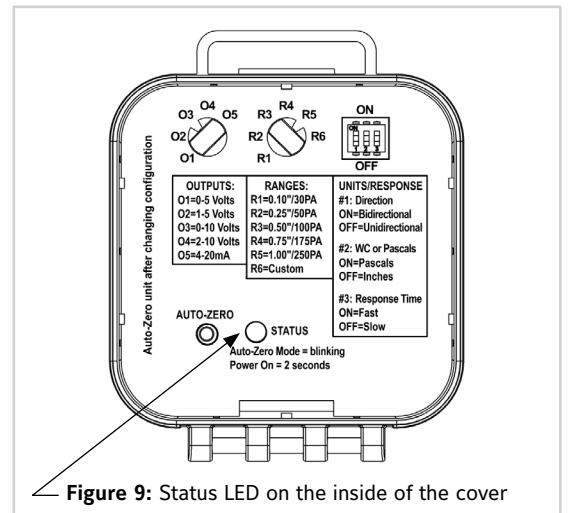


Figure 9: Status LED on the inside of the cover

## TYPICAL APPLICATIONS

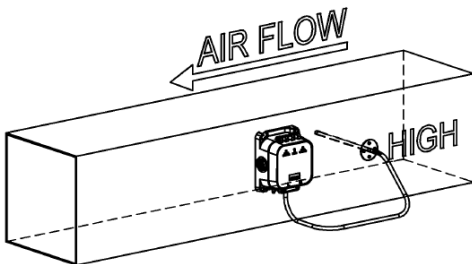


Figure 10: Duct Static Pressure Monitoring  
(Pressure Sensor mounted on the duct with a Static Pressure Probe in the duct.)

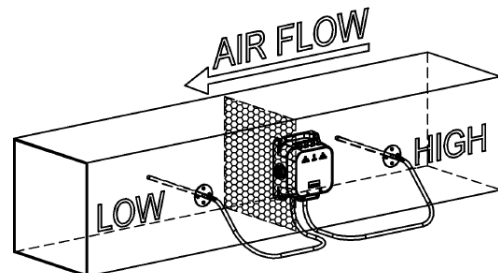


Figure 11: Air filter Pressure Drop Monitoring  
(Pressure Sensor mounted on the duct with a Static Pressure Probe on either side of the filter in a duct.)

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

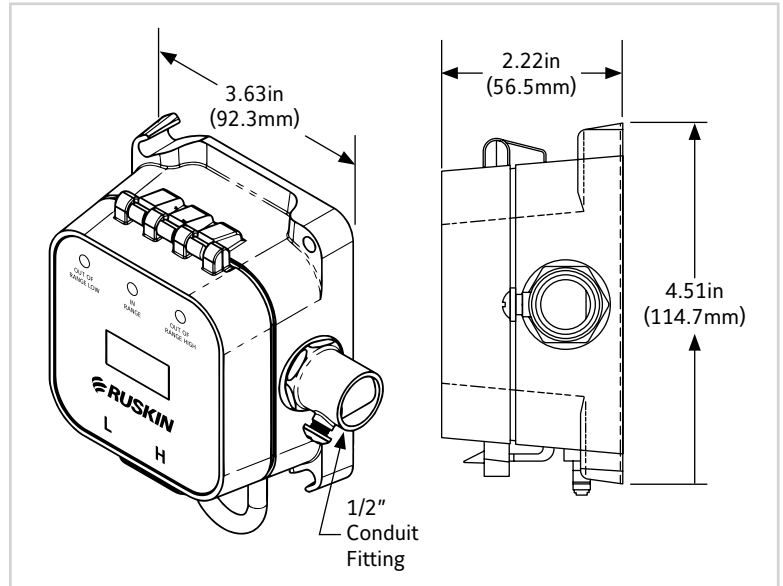
## TROUBLESHOOTING

Possible Problems	Possible Solutions
LED does not light.	Check power connections for proper power.
LED is blinking fast (1/2 second on, 1/2 second off).	The unit may be performing an auto-zero. Wait 10 seconds and check again. Sensor is in an Error Mode. Cycle power.
Display is alternating 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 or 18 to 32 VAC for 0 to 5 or 1 to 5 V Output  
 13 to 40 VDC or 18 to 32 VAC for 0 to 10 or 2 to 10 V Output  
 7 to 40 VDC for 4 to 20 mA Output  
 Port Size: 1/4" tubing (1/8" to 3/16" I.D.)



### **i** LINKS TO IMPORTANT DOCUMENTS

#### Document Title

Limited Warranty Document



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