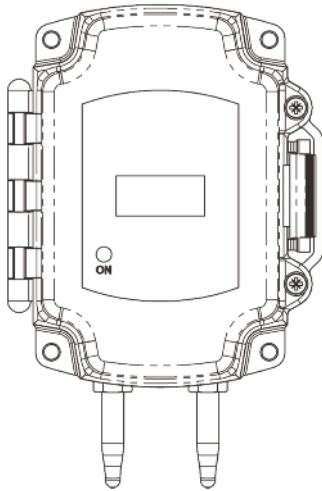
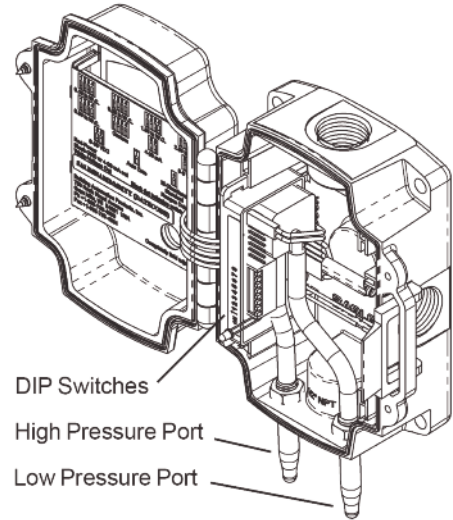


INSTALLATION AND OPERATION INSTRUCTIONS MODEL AMS810 TRANSDUCER

PRODUCT IDENTIFICATION



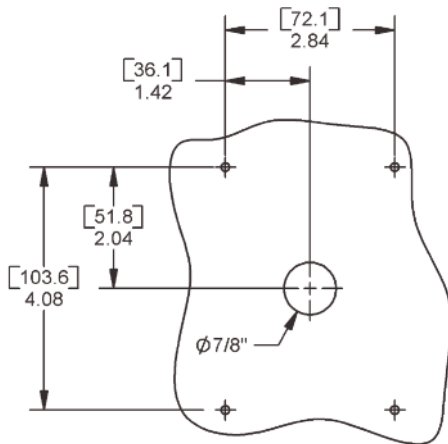
AMS810 with Display



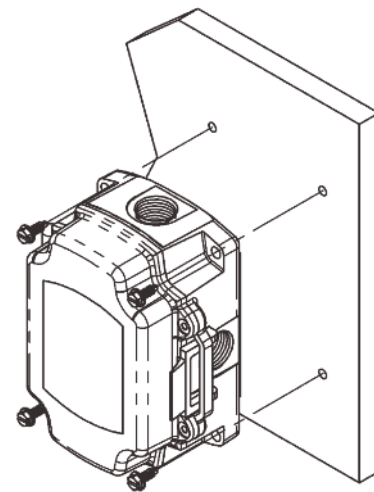
AMS810 Display Unit Open

MOUNTING

Mount the unit to its mounting surface with four #10 screws through the holes in the mounting feet. The preferred mounting orientation is with the pressure ports facing down.



Mounting Hole Pattern



Mounting Screws Location

TOOLS & MATERIAL LIST

SCREWDRIVER
DRILL WITH 5/32" BIT

#10 SCREWS
WIRE

SEALANT FILLED CONNECTORS

OUTPUT TERMINATION

Desired Output

4 to 20 mA
0 to 5 V or 0 to 10 V

4 to 20 mA is "two wire" operation, the red wire connects to a positive direct current voltage of 7 to 45 VDC, the black wire becomes the return of the 4 to 20 mA signal and the white wire, while unused, must be insulated from accidental contact with ground or any other potential. **For 4 to 20 mA signaling only direct current can be used to power the AMS810.**

0 to 5 V or 0 to 10 V is "three wire" operation, the red wire connects to either 7 to 45 VDC or 7 to 32 VAC (0-5 VDC output) or 13 to 45 VDC or 13 to 32 VAC (0-10 VDC output), the black wire is connect-

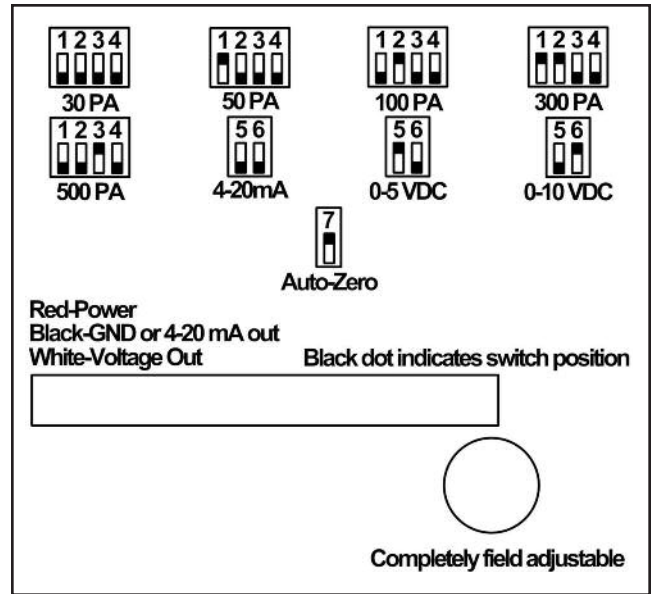
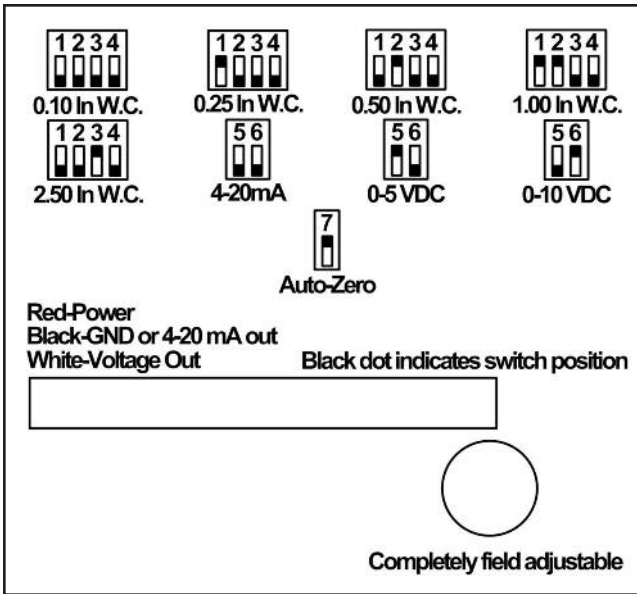
Wire connections

Red (V+); Black (Return [4 to 20 mA Signal]), White (Not used)
Red (V+); Black (Ground); White (Output Voltage)

ed to ground and the white wire is connected to an analog input of the controller. Ruskin insulates the white wire in the factory before shipping to you, please remove the connector and strip the insulation from the white wire for 0-5V or 0-10V operation.

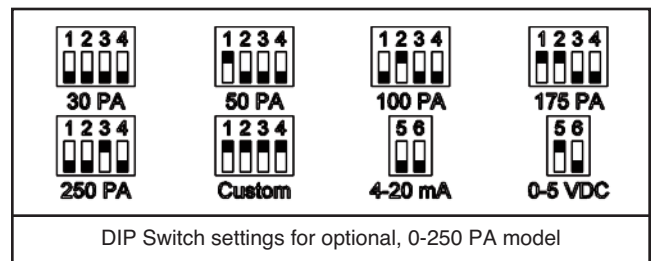
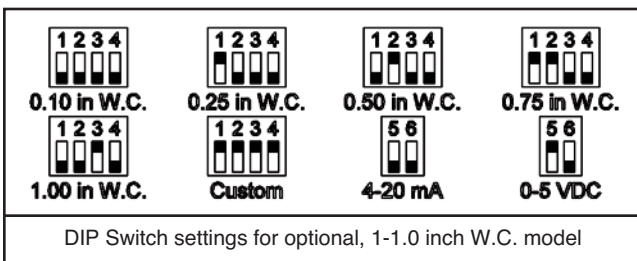
To ensure that all wires are properly terminated, twist the stripped ends of each circuit together before inserting into the splice terminals. Gently tug on the wire after terminating to make sure of a good connection. If the wire comes out of the termination repeat the splice procedure.

DIP SWITCH SETTINGS - INCHES, PASCALS



DIP Switch Settings, Inches W.C.

DIP Switch Settings, Pascals



PRESSURE RANGE SELECT

To adjust the pressure range, set dip switches 1-4 to the desired pressure range using the label found inside the cover of the unit.

Note: If any of the switches are placed in an undefined combination the LED will fast blink and the output will be forced to 4mA or zero volts.

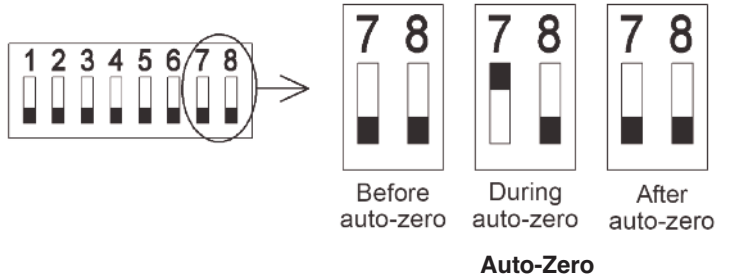
OUTPUT RANGE SELECT

To adjust the output range, set dip switches 5 & 6 to the desired output range using the label found inside the cover of the unit.

Note: If any of the switches are placed in an undefined combination the LED will fast blink and the output will be forced to 4mA or zero volts.

AUTO-ZERO SELECT

To auto zero the AMS810 remove the tubing from the pressure ports (to remove the normal pressure source). Make sure that the pressure ports are sheltered from any drafts, including the technician's breath. Ideally the two ports should be connected together with a short piece of tubing. Turning on switch 7 starts the auto-zero process. Switches 1 through 6 may be in any allowed configuration. The LED will blink at a fast rate and the output will be forced to zero (4mA or 0V) while the auto-zero is being performed. When the LED blinks at a slow rate, turn off switch 7 and reconnect the pressure source.



SWITCH 8

Switch 8 is reserved for factory use, leave in the off position.

TROUBLESHOOTING

PROBLEMS:

LED does not light

LED is blinking fast
(1/2 second on, 1/2 second off)

Output stuck (high or low)

Output not tracking pressure properly

POSSIBLE SOLUTIONS:

- Check power connections for proper power

- The unit may be performing an auto-zero. Wait 10 seconds and check again.

- The dip switches are in an unsupported configuration, check the dip switch settings, both pressure and output, and change them to ranges desired

- Remove pressure from ports and perform auto-zero procedure

- Check dip switches for proper pressure range selection

- Check dip switches for proper output range selection

LED OPERATION

LED off	No Power
LED Blinking 1/2 sec on, 1/2 sec off	Auto-zero or dip switch in undefined configuration
LED on	Normal operation
LED Blinking 1/2 sec on, 4 sec off	Auto-zero complete

SCALE FORMULAS

The AMS810 is factory configured for 0-1" W.G. with an output signal of 0-10 VDC. Each Air Measurement Station is shipped with a PAMS chart (Pressure Across Measurement Station) indicating the output signal proportional to CFM. Adjusting the dip switch to a different pressure range or analog output signal varies the formulas used to calculate CFM.

In order to convert the analog output signal from the pressure transducer to differential pressure use the multiplier in Table 1 for the combination selected. Then use the "Area x Ka" and "1/m" values from the PAMS chart to calculate CFM with the following formula:

$$PAMS = Scale Formula \times VDC$$

$$CFM = (Area \times Ka) \times (PAMS)^{(1/m)}$$

Voltage Range	Pressure Range					
	.10" W.G.	.25" W.G.	.5" W.G.	.75" W.G.	1.0" W.G.	2.5" W.G.
0-10 VDC	.01x(VDC)	.025x(VDC)	.05x(VDC)	.075x(VDC)	0.1x(VDC)	.25x(VDC)
0-5 VDC	.02x(VDC)	.05x(VDC)	.1x(VDC)	.15x(VDC)	.2x(VDC)	.5x(VDC)
4-20 mA	.0063x(mA) - .025	.0156x(mA) - .0625	.0312x(mA) - .125	.0468(mA) - .1875	.0625x(mA) - .25	.1563x(mA) - .625

Table 1: Scale Formulas



SOLD TO: RUSKIN CUSTOMER
 CONTROL NO: 123456
 TAG: AHU-1
 MODEL: AMS050

Actual Damper Size (inches)	Ka	3200
Damper Width 17 3/4	1/m	0.5
Damper Height 17 3/4	Area x Ka =	6127.3
Number Probes 4	Area =	1.9147813
Damper Sections 1		

$$CFM = (AREA * Ka) * PAMS^{(1/m)}$$

VOLTS	PAMS*	CFM	FPM
0.05	0.005	433	198
0.10	0.01	613	320
0.20	0.02	867	453
0.30	0.03	1,061	533
0.40	0.04	1,225	600
0.50	0.05	1,370	655
0.60	0.06	1,501	700
0.70	0.07	1,611	747
0.80	0.08	1,703	785
0.90	0.09	1,788	816
1.00	0.10	1,838	835
1.25	0.125	1,938	875
1.50	0.15	2,032	911
1.75	0.175	2,123	943
2.00	0.2	2,209	971
2.25	0.225	2,293	997
2.50	0.25	2,373	1,020
3.00	0.3	2,740	1,231
4.00	0.4	3,356	1,533
5.00	0.5	3,875	1,775
6.00	0.6	4,333	2,000
7.00	0.7	4,746	2,175
8.00	0.8	5,126	2,312
9.00	0.9	5,480	2,425
10.00	1	5,813	2,512
10.00	1	6,127	3,200

*PAMS = Pressure Across Measuring Station

NOTE: CFM corrected to 70°F. & 1000 FT elevation for other elevations add 2% per 1000 ft. increase and 1% per 10°F increase in temp.



3900 Dr. Greaves Rd.
 Kansas City, MO 64030
 (816) 761-7476
 FAX (816) 765-8955
 www.ruskin.com