AIRFLOW PRESSURE SENSING SWITCH
WITH DPDT CONTACTS FOR 24 V AC APPLICATIONS
(ADJUSTABLE SET POINT 0.05" WC TO 12.0" WC)

MODEL AFS-222-112-137

APPLICATION

Model AFS-222-112-137 is a general purpose proving switch designed for 24 V ac Energy Management and HVAC applications where a switch with DPDT contacts is needed. It can be used to sense positive, negative, or differential air pressure.

DESCRIPTION & OPERATION

The plated housing contains a silicone diaphragm, a calibration spring and a snap-acting SPDT switch with a DPDT relay installed on the snap switch at the factory. The DPDT feature consists of a relay-pack circuit board assembly containing a power connection terminal block and a DPDT slave relay with two form-C 8-amp contacts connected to two terminal blocks.

The barbed sample line connections located on each side of the diaphragm accept flexible tubing.

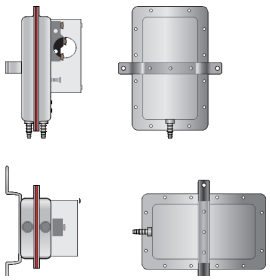
An enclosure cover guards against accidental contact with the live switch terminal screws, the set point adjusting screw and the electronic DPDT configuration printed circuit board assembly. The enclosure cover accepts a ½" conduit connection.

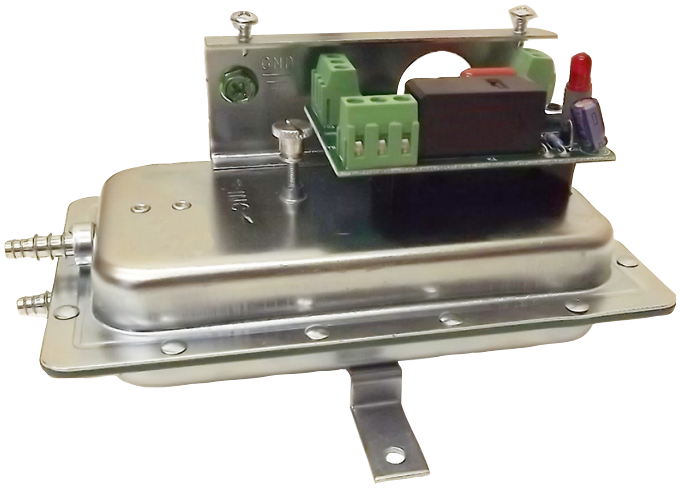
MOUNTING (FIGURE 1)

Select a mounting location that is free from vibration. Mount with the diaphragm in any vertical plane in order to obtain the lowest specified operating set point.

Do not mount with the sample line connections in the "up" position. Surface mount via the two 3⁄16" diameter holes in the integral mounting bracket. The mounting holes are 3-⅞" apart.

(Figure 1)





AIR SAMPLING CONNECTION (FIGURE 2)

The AFS-222-112-137 is designed to accept flexible tubing by means of barbed ¼" slip-on connections. For sample lines of up to 10 feet, ¼" OD tubing is acceptable. For lines up to 20 feet, use ¼" ID tubing.

Locate the sampling probe a minimum of 1.5 duct diameters downstream from the air source. Install the sampling probe as close to the center of the air stream as possible. Refer to Figure 2 to identify thehigh pressure inlet (H) and the low pressure inlet (L). Select one of the following five application options, and connect the sample lines as recommended.

POSITIVE PRESSURE ONLY:
Connect the sample line to inlet H; inlet L remains open to the atmosphere.

NEGATIVE PRESSURE ONLY:
Connect the sample line to inlet L; inlet H remains open to the atmosphere.

TWO NEGATIVE SAMPLES:
Connect the higher negative sample to inlet L. Connect the lower negative sample to inlet H.

TWO POSITIVE SAMPLES:
Connect the higher positive sample to inlet H. Connect the lower positive sample to inlet L.

ONE POSITIVE & ONE NEGATIVE SAMPLE: Connect the positive sample to inlet H. Connect the negative sample to inlet L.

ELECTRICAL CONNECTIONS (FIGURE 3)

Before pressure is applied to the diaphragm, the snap switch contacts will be in the normally closed (NC) position. As differential pressure moves away from the field adjustable set point, the snap switch opens, de-energizing the coil on the slave relay, which activates the DPDT contacts. An LED lights, indicating that the snap switch exceeds differential set point. The LED remains lit until the differential pressure returns to set point.

FIELD ADJUSTMENT

AFS-222-112-137 has an adjustment range of 0.05 +0.035" wc / -0.005" wc to 12.0" wc. To adjust the set point, turn the adjusting screw counterclockwise until motion has stopped. Next, turn the adjusting screw 4 complete turns clockwise to engage the spring. From this point, the next ten turns are used for the actual calibration. Each full turn represents approximately 1.2" wc.

Please note: To properly calibrate an air switch, use a digital manometer or other measuring device to confirm the actual set point.

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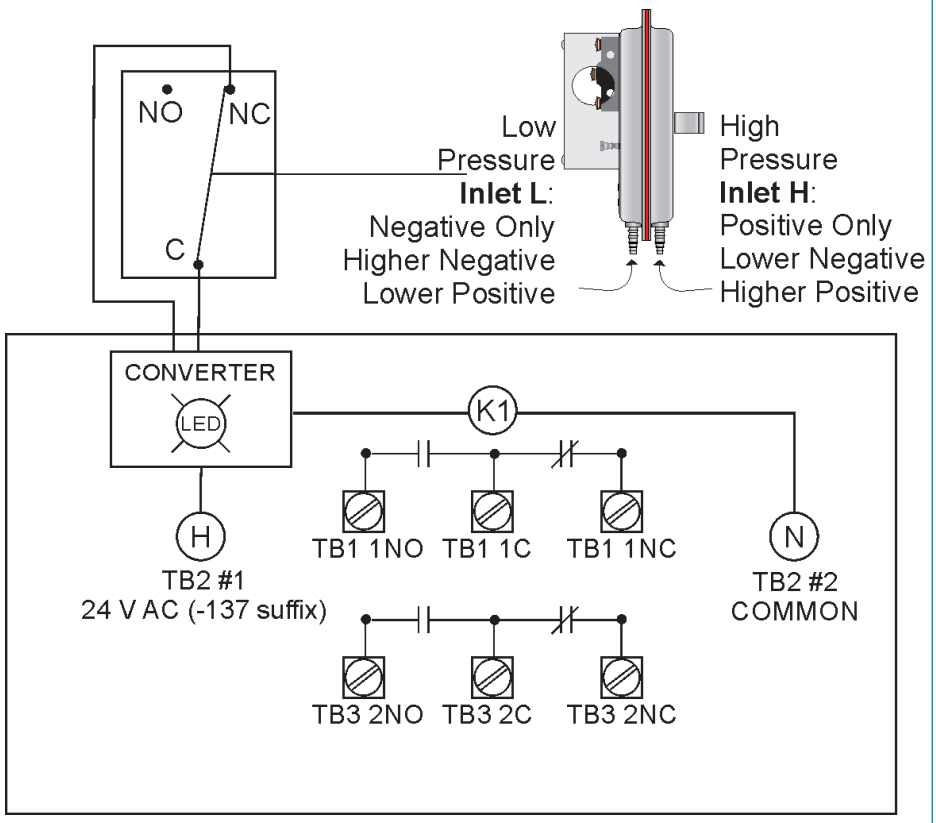
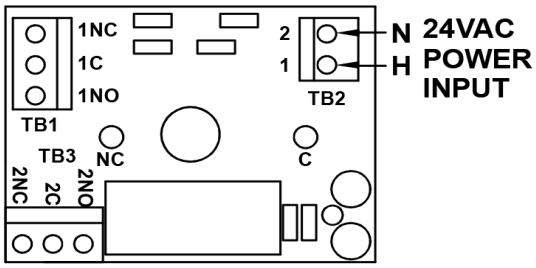
(Figure 2)

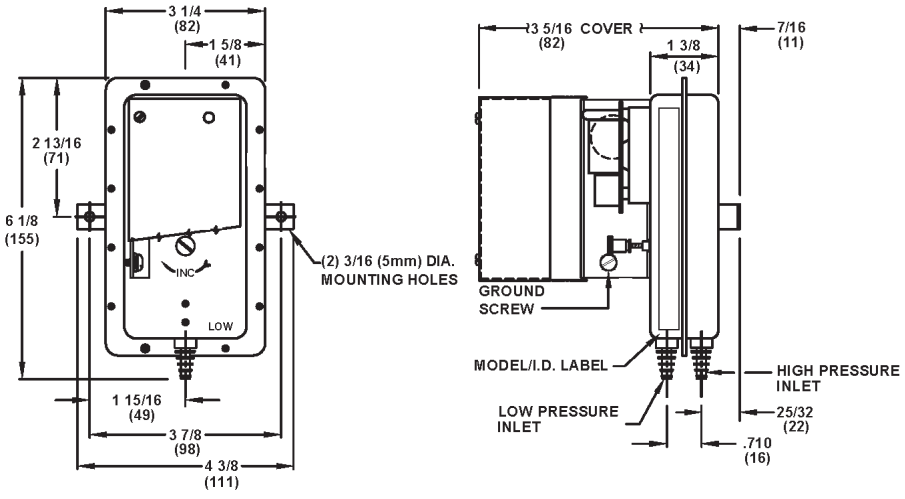


(Figure 3)



ELECTRONIC MODULE

Nominal Dimensions in Inches (Millimeters)



SPECIFICATIONS
MODEL AFS-222-112-137

Mounting Position:
Mount with the diaphragm in any vertical plane.

Set Point Range:
0.05 + 0.035/-0.005" wc to 12.0"wc

Field Adjustable "Operate Range":
0.07" wc to 12.0" wc

Field Adjustable "Release Range":
0.04" wc to 11.2" wc

Approximate Switching Differential:
Progressive, increasing from 0.02 ± 0.01"wc at minimum set point to approximately 0.8 " wc at maximum set point.

Measured Media:
Air, or combustion by-products that will not degrade silicone

Maximum Pressure: ½ psi (0.03 bar)

Operating Temperature Range:
-40 °F to 180 °F (-40 °C to 82 °C)

Life:
100,000 cycles minimum at ½ psi maximum pressure each cycle and at maximum rated electrical load

Electrical Rating: 0.5 VA @ 24 V AC, 50/60 Hz.

Contact Arrangement:
DPDT, 2 form-C rated 8 Amps @ 250 V ac

Electrical Connections: Terminal blocks

Conduit Opening:
⅞" diameter opening accepts ½" conduit.

Sample Line Connectors:
Two barbed ¼" connectors accept flexible tubing.

Approvals (Switch):
UL, FM, CE, CSA.

Approvals (Electronic Module):
UL, CSA approved as accessory.

Shipping Weight:
1.2 lbs.

Accessories (purchase separately):

- **Sample Line Probes**
- **Orifice Plugs (Pulsation Dampers)**

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