



**Adjustable Set Point Air Pressure Sensing Switch  
with Switch Side Mounting Plate**

**APPLICATION**

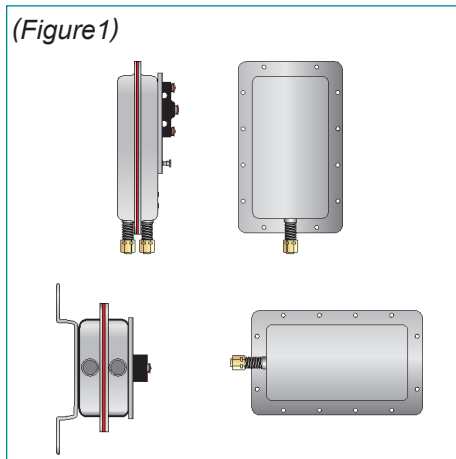
The model **AFS-227-161 Air Pressure Sensing Switch** is a general purpose proving switch designed for HVAC and Energy Management applications. **AFS-227-161** can be used to sense positive, negative, or differential air pressure.

**DESCRIPTION & OPERATION**

The plated housing contains a diaphragm and a calibration spring. A snap-acting SPDT switch, accessible on top of the switch pan has three (3) screw top terminals with cup washers for the electrical connection. The sample connectors, located on each side of the diaphragm, accept 1/4" OD metallic tubing via the integral compression ferrule and nut fittings.

**MOUNTING ( FIG. 1 )**

Select a mounting location that is free from vibration. The **AFS-227-161** must be mounted with the diaphragm in a vertical plane in order to obtain the lowest specified operating set point. Do not mount with the sample line connections pointing upward. Mount the AFS-227-161 through a panel wall using the four 8-32 x .375 studs on the integral mounting plate. The studs are 2-1/2"



(Figure 1)



apart center-to-center. Secure the studs with fasteners such as nuts and lock washers (#8-32).

**AIR SAMPLING CONNECTION (FIG.2)**

The **AFS-227-161** is designed to accept firm-wall sample lines of 1/4"OD tubing (such as copper, aluminum or plastic) by means of ferrule and nut compression connections. For lines up to 10 feet in length, 1/4" OD tubing is acceptable. For lines up to 20 feet, use 1/4" ID tubing. For lines up to 60 feet, use 1/2" ID tubing. A 1/4"OD adapter, suitable for slip-on flexible tubing, is available: order part number 18311. 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 airstream as possible. Refer to **Figure 2** to identify the high pressure inlet (H) and the low pressure inlet (L). Select from the five application options listed below, and connect the sample lines as follows:

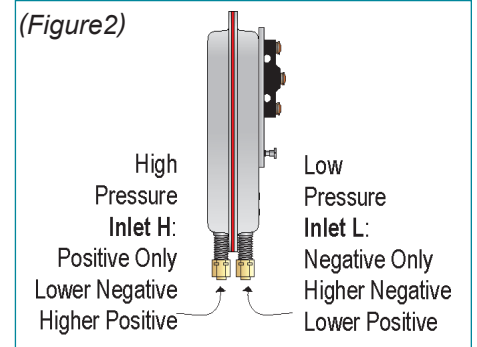
**POSITIVE PRESSURE ONLY:** Connect the sample line to inlet H; inlet L remains open to the atmosphere.

**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.



(Figure 2)

## ELECTRICAL CONNECTIONS (FIG.3)

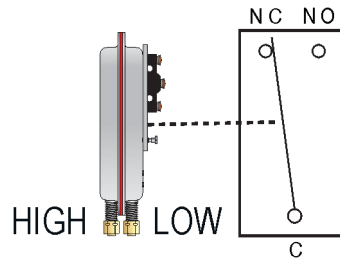
Before pressure is applied to the diaphragm, the switch contacts will be in the normally closed (NC) position. The snap switch has three screw terminals with cup washers. Wire alarm and control applications as shown in **Fig.4**.

## FIELD ADJUSTMENT

The adjustment range of an **AFS-227-161 Air Switch** is  $0.05 \pm 0.02$ " w.c. to 12.0" w.c. To adjust the set point, turn the adjusting screw counterclockwise until motion has stopped. Next, turn the adjusting screw 4 complete turns in a clockwise direction to engage the spring. From this point, the next ten turns will be used for the actual calibration. **Each full turn represents approximately 1.2" w.c.**

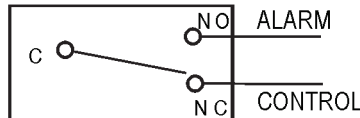
**Please note:** To properly calibrate an air switch, a digital manometer or other measuring device should be used to confirm the actual set point.

(Figure3)

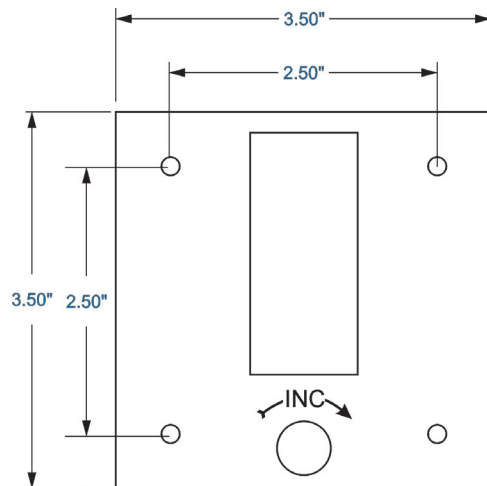
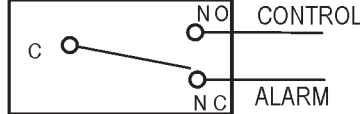


(Figure 4)

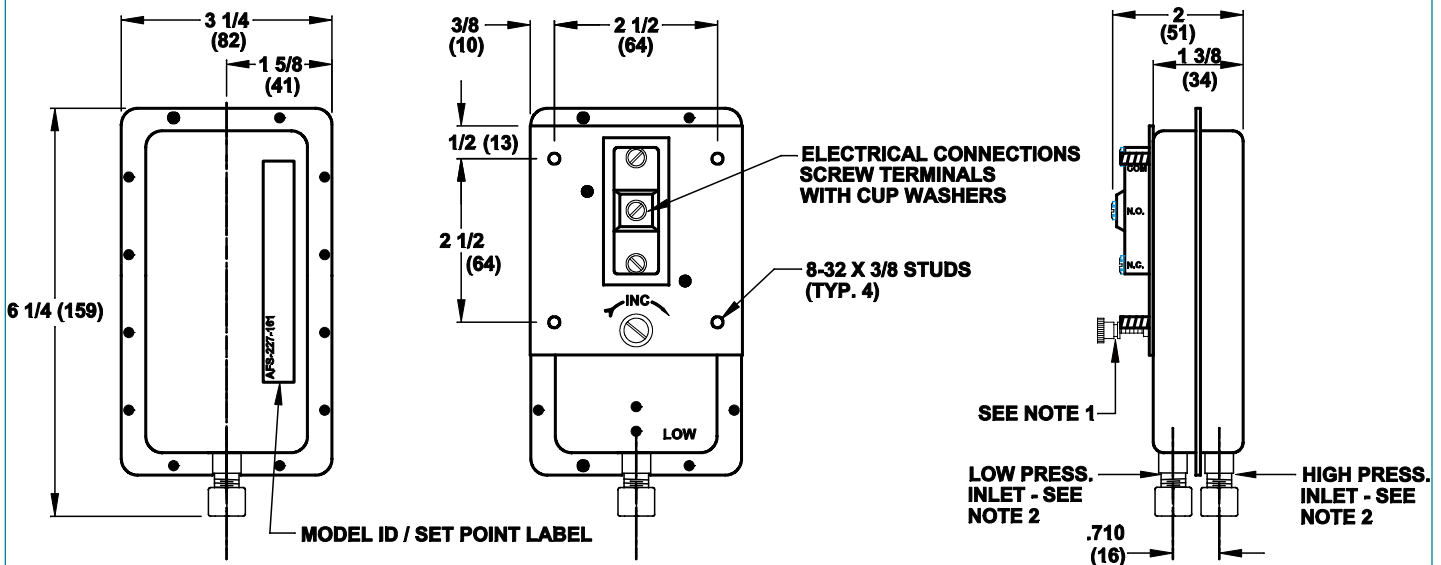
To prove excessive air flow or pressure:



To prove insufficient air flow or pressure:



Dimensions, Mounting Plate



Dimensions, inches (mm)

## Specifications Model AFS-227-161

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

**Set Point Range:**  $0.05 \pm 0.02$ " w.c. to 12.0" w.c.

**Field Adjustable "Operate Range":** 0.07" w.c. to 12.0" w.c.

**Field Adjustable "Release Range":** 0.04" w.c. to 11.2" w.c.

**Approximate Switching Differential:**

Progressive, increasing from  $0.02 \pm 0.01$ " w.c. at minimum set point to approximately 0.8" w.c. at maximum set point.

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

**Maximum Pressure:** 1/2 psi (0.03 bar)

**Operating Temperature Range:**

-40 °F to 180 °F (-40 to 82 °C)

**Life:** 100,000 cycles minimum at 1/2 psi maximum pressure each cycle and at maximum rated electrical load.

**Electrical Rating:**

300 VA pilot duty at 115 to 277 VAC,

15 amps noninductive to 277 VAC,

**Contact Arrangement:** SPDT

**Electrical Connections:** 6-32 Screw terminals with cup washers.

**Sample Line Connectors:** Male,

externally threaded 7/16" 24 UNS 2A thread, complete with nuts and self-aligning ferrules.

**Sample Line Connections:** Connectors accept 1/4" OD rigid or semi-rigid tubing.

**Approvals:** UL, FM, CE, CSA

**Shipping Weight:** 1.2 lbs.