



ADJUSTABLE SET POINT AIR PRESSURE SENSING SWITCH WITH MANUAL RESET

APPLICATION

The **Model AFS-460** is a general purpose proving switch with a **manual reset** feature that requires operator intervention whenever it actuates. It can be used to sense positive, negative, or differential air pressure in HVAC and Energy Management applications that require operator interface.

GENERAL DESCRIPTION & OPERATION

The plated housing contains a diaphragm, a calibration spring and a snap-acting SPST-NC switch with a manual reset button.

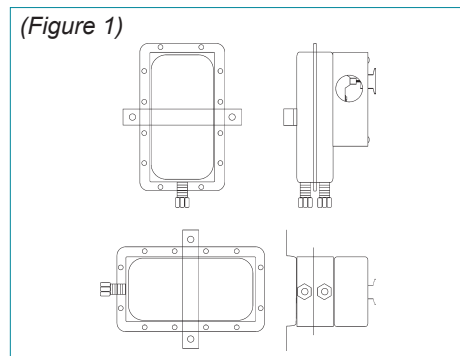
The sample line connections located on each side of the diaphragm accept $\frac{1}{4}$ " OD rigid or semi-rigid tubing via the integral compression ferrule and nut.

An enclosure cover protects the operator from accidental contact with the live switch terminal screws and the set point adjusting screw. The enclosure cover has a $\frac{1}{8}$ " opening provided to accept a $\frac{1}{2}$ " conduit connection.



MOUNTING (SEE FIGURE 1)

Select a mounting location which is free from vibration. The **AFS-460** must be mounted with the diaphragm in any vertical plane in order to obtain the lowest specified operating set point. Avoid mounting with the sample line connections in the "up" position. Surface mount via the two $\frac{3}{16}$ " diameter holes in the integral mounting bracket. The mounting holes are $3\text{-}\frac{7}{8}$ " apart.



AIR SAMPLING CONNECTION (SEE FIGURE 2)

The sample line connections located on each side of the diaphragm accept $\frac{1}{4}$ " OD rigid or semi-rigid tubing via the integral compression ferrule and nut. However, an optional adapter (P/N 18311) is available for slipping on $\frac{1}{4}$ " ID flexible tubing. For sample lines up to 10 feet, $\frac{1}{4}$ " OD tubing is acceptable. For lines up to 20 feet, use $\frac{1}{4}$ " ID tubing. For lines up to 60 feet, use $\frac{1}{2}$ " ID tubing.

Locate the sampling probe a minimum of $1\text{-}\frac{1}{2}$ 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 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.

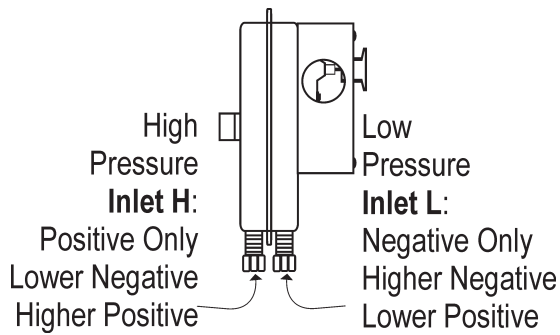
TWO NEGATIVE SAMPLES: Connect the higher negative sample to inlet **L**. Connect the lower negative sample to inlet **H**.

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

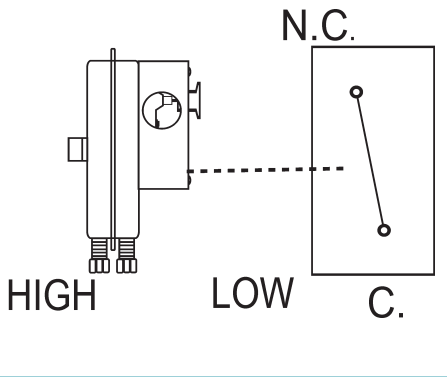
ONE POSITIVE AND ONE NEGATIVE SAMPLE: Connect the positive sample to inlet **H**. Connect the negative sample to inlet **L**.



(Figure 2)



(Figure 3)

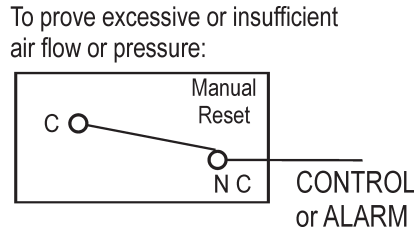


ELECTRICAL CONNECTIONS (SEE FIGURE 3)

Before pressure is applied to the diaphragm, the switch contacts will be in the normally closed (NC) position as shown in Figure 3.

The snap switch has screw top terminals with cup washers. Wire alarm or control application as shown in Figure 4.

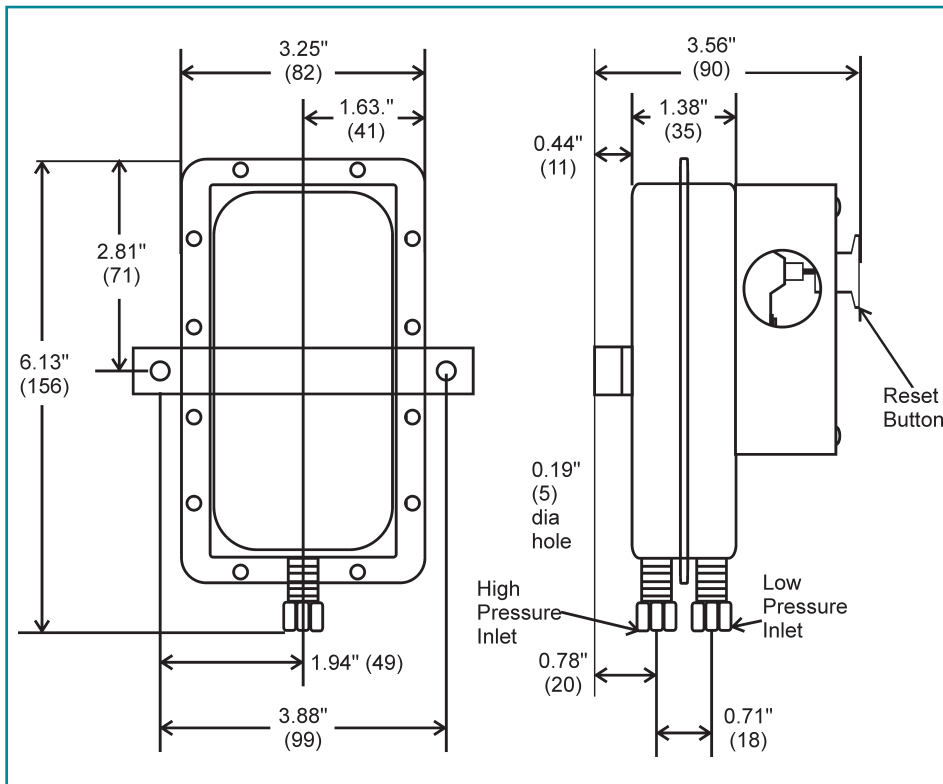
(Figure 4)



FIELD ADJUSTMENT

The adjustment range of an AFS-460 Air Switch is 0.4" ± 0.06" 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 four 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 1.16" 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.



SPECIFICATIONS

MODEL AFS-460 AIR PRESSURE SENSING SWITCH WITH MANUAL RESET FEATURE

Mounting Position:

In order to meet lowest operating specifications, mount with the diaphragm in any vertical plane.

Set Point Range:

0.40 ± 0.06" w.c. to 12.0" w.c.

Field Adjustable

"Operate Range":

0.46" w.c. to 12.0" w.c.

Measured Media:

Air

Maximum Pressure:

½ psi (0.03 bar)

Life:

Exceeds UL-recognized mechanical endurance test of 6,000 cycles minimum at 0.5 psi maximum pressure each cycle and at maximum rated electrical load

Electrical Rating @ 60 Hz.:

15A @ 125, 250, or 277 VAC.

½ A @ 125 VDC, ¼ A @ 250 VDC.

¼ hp @ 125 VAC; ½ hp @ 250 VDC.

Contact Arrangement:

SPST-NC (manual reset)

Electrical Connections:

8-32 screw-top terminals with cup washers

Conduit Connection:

⅞" diameter opening accepts ½" conduit

Sample Line Connectors:

Male, externally threaded ⅞" 24 UNS 2A thread, complete with nut and self-aligning ferrule

Sample Line Connections:

Connectors accept ¼" OD rigid or semi-rigid tubing

Approval and Recognition:

UL, CSA, CE

Shipping Weight:

1.2 lbs.

Accessories:

- P/N 18311 Slip-on ¼" OD Tubing Adapter, suitable for slipping on flexible plastic tubing
- Sample line probes
- Orifice plugs (pulsation dampers)