

MODEL AFS-460-DSS



APPLICATION

Model AFS-460-DSS is a general purpose airflow proving switch designed for 120 V ac HVAC and Energy Management applications where dual manual reset switches with SPST contacts are needed. It can be used to sense positive, negative, or differential air pressure.

DESCRIPTION & OPERATION

The plated housing contains a diaphragm, a calibration spring, and 2 snap-acting switches with a single manual reset button.

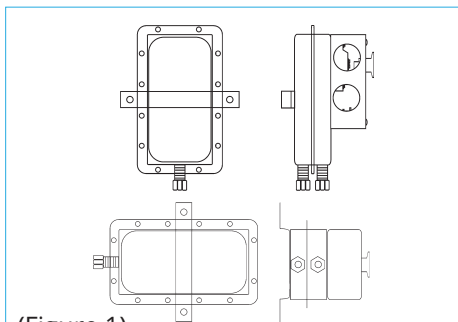
The sample connections located on each side of the diaphragm accept $\frac{1}{2}$ " (6.35 mm) OD tubing via the integral compression ferrule and nut.

An enclosure cover guards against accidental contact with the live switch terminal screws and the set point adjusting screw. The enclosure cover accepts two 0.5" (12.7 mm) conduit connections. The manual reset button is located on the top surface of the enclosure cover.

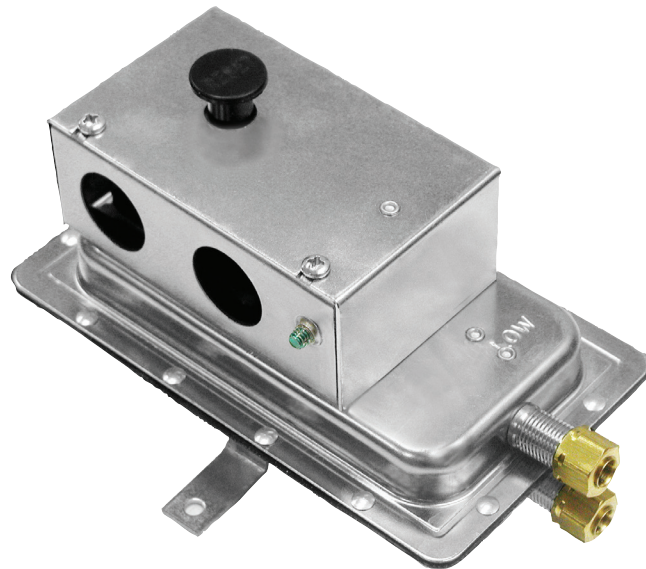
ELECTRICAL CONNECTIONS (SEE FIGURE 3)

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

The snap switches have screw top terminals with cup washers. Wire alarm and control applications as shown in **Figure 4**.



(Figure 1)



MOUNTING (SEE FIGURE 1)

Select a mounting location that is free from vibration. The **AFS-460-DSS** must be mounted 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 $\frac{3}{16}$ " (4.75 mm) diameter holes in the integral mounting bracket. The mounting holes are $3\frac{7}{8}$ " (98.4 mm) apart.

AIR SAMPLING CONNECTION (SEE FIGURE 2)

The **AFS-460-DSS** is designed to accept firm-wall sample lines of $\frac{1}{4}$ " (6.35 mm) OD tubing by means of ferrule and nut compression connections. An optional $\frac{1}{4}$ " (6.35 mm) adapter, suitable for slip-on flexible tubing is available. For sample lines up to 10 feet (3.05 metres), $\frac{1}{4}$ " (6.35 mm) OD tubing is acceptable. For lines up to 20 feet (6.1 metres), use $\frac{1}{4}$ " (6.35 mm) ID tubing. For lines up to 60 feet (18.3 metres), use $\frac{1}{2}$ " (12.7 mm) ID tubing.

Locate the sampling probe a minimum of 1.5 duct diameters down-

stream 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 five application options listed below, 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: Connect the positive sample to inlet H. Connect the negative sample to inlet L.

FIELD ADJUSTMENT OF THE LEAD & LAG SNAP SWITCHES (SEE FIGURE 4)

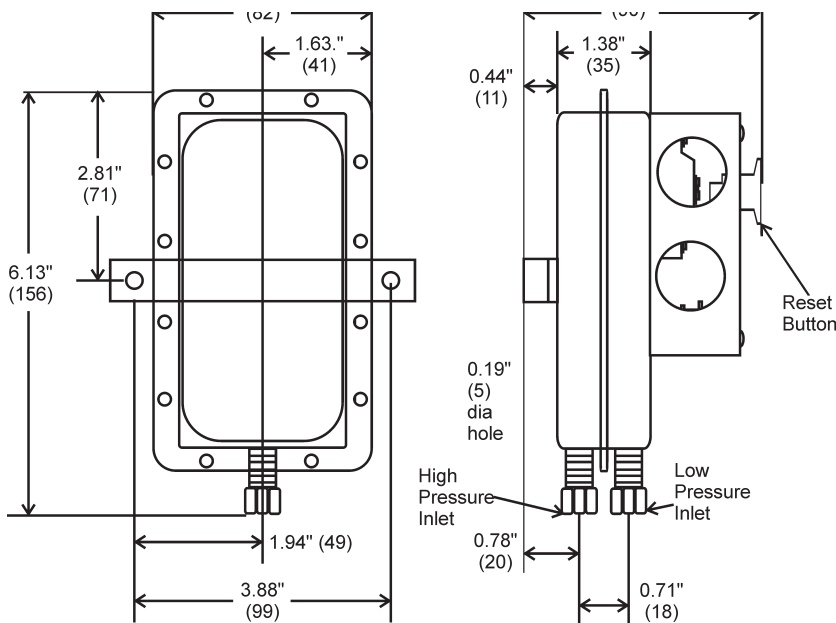
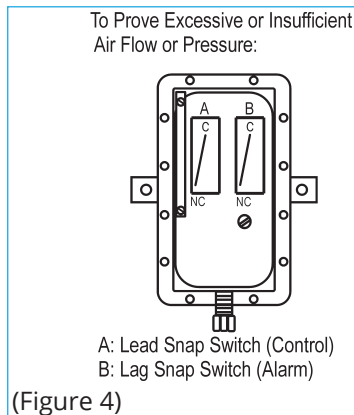
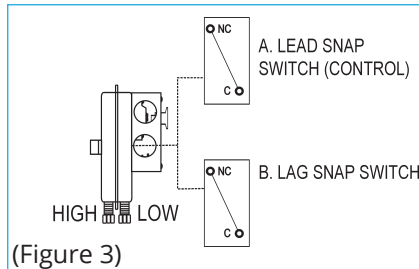
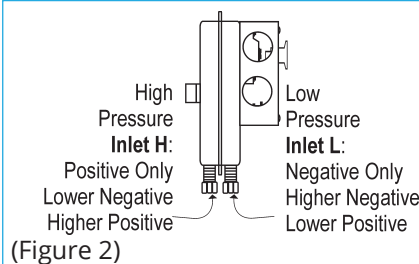
AFS-460-DSS has a **lead** snap switch and a **lag** snap switch.

Switch A, in Fig. 4 is the lead snap switch. It has an adjustment range of 1.25" wc to 12.0" wc (31.8 mm wc to 305 mm wc). The set point adjusting screw is used to adjust the set point of the lead snap switch.

Switch B in Fig. 4 is the lag switch. The lag snap switch operates after the lead snap switch at progressively increasing set point increments as indicated in Table 1, below.

Note: if **simultaneous** operation of Switch A and Switch B is required, do not use AFS-460-DSS: use Model AFS-460-136 or AFS-460-137 instead.

To adjust the set point of Switch A: Turn the adjusting screw counter-clockwise 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 1.0" w.c. (25.4 mm 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.



Nominal Dimensions in Inches (Millimeters)

SPECIFICATIONS MODEL AFS-460-DSS DUAL SPST-NC CONTACT SENSING SWITCH WITH MANUAL RESET



Mounting Position:

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

Set Point Range:

1.25 ± 0.06" wc to 12.0" wc (31.8mm ±1.52mm wc to 305 mm wc)

Field Adjustable "Operate Range":

1.31" wc to 12.0" wc

Measured Media:

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

Maximum Pressure: ½ psi (0.03 bar; 3.45 kPa)

Life:

Exceeds UL-recognized mechanical endurance test of 6,000 cycles minimum at 0.5 psi (0.03 bar, 3.45 kPa) maximum pressure each cycle and at maximum electrical load

Electrical Rating:

@ 60 Hz, 15 Amp 125, 250, or 277 V ac; ¼ hp 125 V ac; ½Hp 250 V ac; ½ amp 125 V dc; ¼ Amp 250 V dc; 0.5 VA @ 24 V ac, 50/60 Hz

Contact Arrangement:

2 SPST-NC (manual reset)

Electrical Connections:

Screw top terminals with cup washers

Conduit Openings:

Two 7/8" diameter openings accept ½" conduit

Sample Line Connectors:

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

Sample Line Connections:

Connectors accept ¼" (6.35mm) OD rigid or semi-rigid tubing

Approval and Recognition:

UL & CSA approved; CE pending

Shipping Weight: 1.2 lbs

Table 1

Lead Switch A Set Point	Lag Switch B Set Point
1.25" - 3.00" w.c. (31.8 - 76.2 mm w.c.)	up to 5% after Switch A
3.00" - 6.00" w.c. (76.2 - 152.4 mm w.c.)	up to 10% after Switch A
6.00" - 9.00" w.c. (152.4 - 229 mm w.c.)	up to 15% after Switch A
9.00 - 12.00" w.c. (229 - 305 mm w.c.)	up to 35% after Switch A

