

OEM AIR PRESSURE SENSING SWITCH
WITH FIXED SET POINT (0.05"WC $\pm$ 0.02"WC)

MODEL DFS-221



APPLICATION

Model DFS-221 is an air flow proving switch designed for duct heater, oven, and other HVAC or Energy Management applications where an open-mounted, nonadjustable switch is needed. It is especially suitable for surface-mounting in areas where internal access is limited. It can be used to sense positive, negative, or differential air pressure.

DESCRIPTION & OPERATION

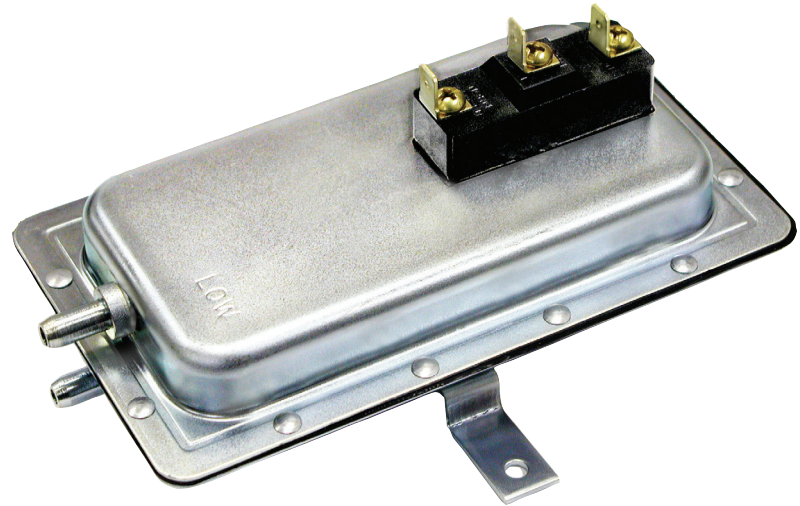
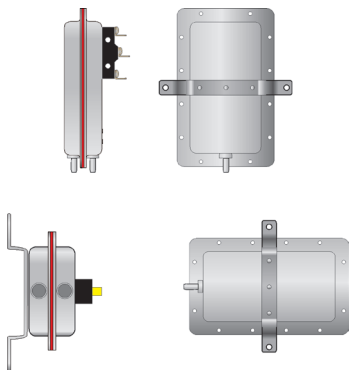
The plated housing contains a diaphragm and a snap-acting SPDT switch. The **DFS-221** is equipped with two convenient slip-on sample line connectors located on either side of the diaphragm; the connectors accept 1/4" ID flexible tubing. The electrical connection consists of 1/4" quick-connect spade terminals.

The SPDT snap-action switch operates on pressure rise of 0.05" wc, + 0.035" /-0.005" wc. For additional application and technical information, please contact the sales office.

ELECTRICAL CONNECTIONS (FIGURES 3 & 4)

Before pressure is applied to the diaphragm, the switch contacts are in the normally closed (NC) position. Control and alarm functions are wired as shown in Figure 4.

(Figure 1)



MOUNTING (FIGURE 1)

Select a mounting location that is free from vibration. The **DFS-221** must be mounted with the diaphragm in any vertical plane in order to maintain the 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 on the zinc-plated strap bracket. The mounting holes are 3-7/8" apart.

AIR SAMPLING CONNECTION (FIGURE 2)

The **DFS-221** is equipped with two 1/4" slip-on sample line connectors, situated on either side of the diaphragm as shown in Figure 2. They are suitable for flexible 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 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.

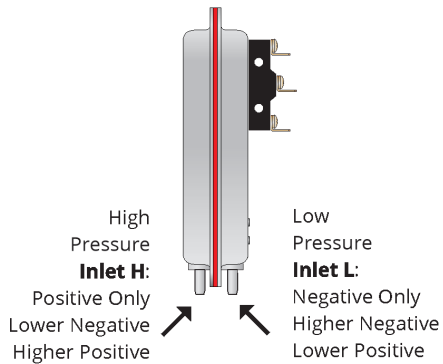
NEGATIVE PRESSURE ONLY: Connect the sample line to inlet L; inlet H remains open to the atmosphere.

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

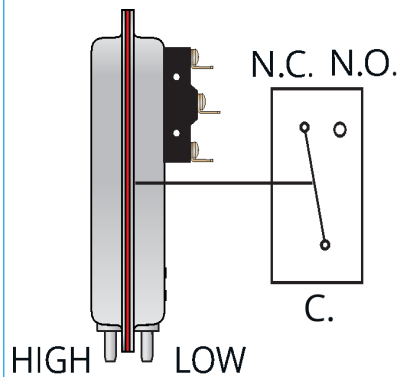
TWO POSITIVE SAMPLES: Connect the higher positive sample to inlet H. Connect the lower positive sample to inlet L.

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

(Figure 2)

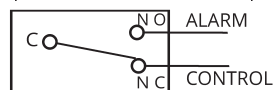


(Figure 3)

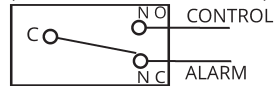


(Figure 4)

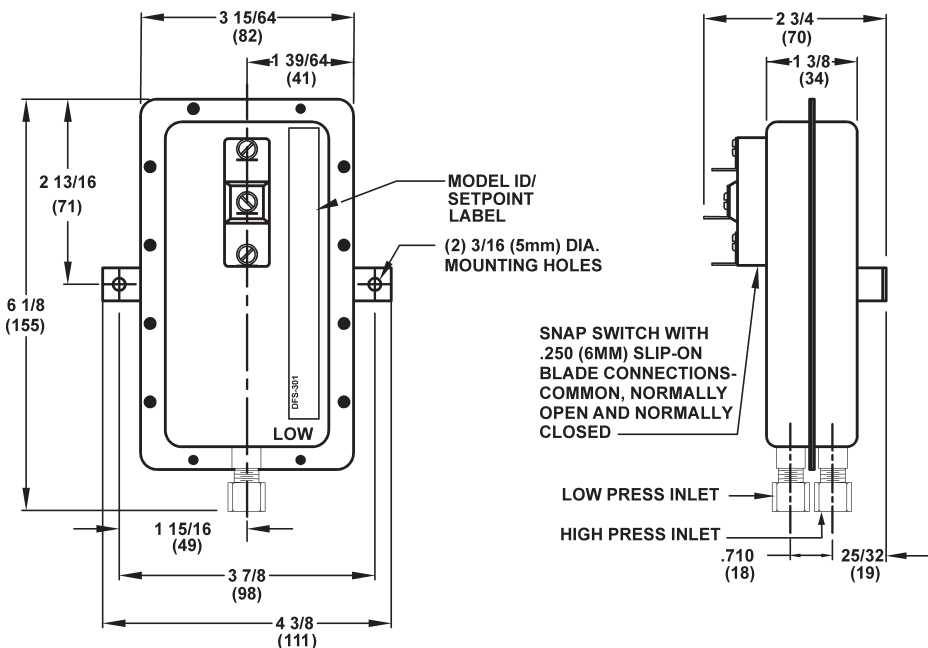
To prove excessive air flow or pressure:



To prove insufficient air flow or pressure:



Dimensions in Inches (Millimeters)



SPECIFICATIONS MODEL DFS-221 AIR PRESSURE SENSING SWITCH WITH FIXED SET POINT



Mounting Position:

Mount with the diaphragm in any vertical plane to obtain specified operating set point.

Set Point:

Fixed; operates on pressure rise at $0.05 + 0.02"/-0.00"$ wc ($1.27 + 0.508/-0.0$ mm wc)

Approximate Switching Differential

$0.02 \pm 0.01"$ wc (0.5082 ± 0.254 mm wc)

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 °C 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 V ac, 15 amps non-inductive to 277 V ac, 60 Hz

Contact Arrangement: SPDT

Electrical Connections:

Male, 1/4" 90° quick-connect spade terminals

Sample Line Connectors:

Two 1/4" slip-on connectors

Sample Line Connections:

Connectors accept 1/4" ID flexible tubing.

Approvals: UL, FM, CSA, CE

Shipping Weight: 1.2 lbs

Available Accessories:

- Adapters for slip-on flexible tubing: Valox, female threaded / male duo-barb, suitable for 3/16" or 1/4" ID tubing. Consult factory for additional types.
- PVG-1 Pressure-Vacuum Generator: compact constant air source
- Model 6650 Digital Manometer: portable low air measurement device
- Sample line probes
- Orifice plugs (pulsation dampers)

