



Cleveland Controls
Division of UniControl Inc.

Model
FS-751

AIR PRESSURE SENSING SWITCH WITH FIXED SET POINT

APPLICATION

Model **FS-751** is an air flow proving switch designed for duct heater, oven, and other HVAC or Energy Management applications where an enclosure-protected, nonadjustable switch is required. **FS-751** is especially suitable for surface-mounting in areas where internal access is limited, and it is advisable to provide protection against accidental contact with the switch terminals. It can be used to sense positive, negative, or differential air pressure. The sample line connections located on each side of the diaphragm accept 0.25" OD rigid tubing via the integral compression ferrule and nut.

GENERAL DESCRIPTION & OPERATION

The plated housing contains a diaphragm and a nonadjustable snap-acting SPDT switch. The SPDT snap action switch operates on pressure rise of 0.05"w.c., + 0.02" w.c.

MOUNTING (FIGURE 1)

Select a mounting location that is free from vibration. The **FS-751** must be mounted with the diaphragm in any vertical plane in order to maintain the specified operating set point. Avoid mounting with the sample line connectors pointing upward. Surface mount via the two 1/8" diameter holes on the zinc-plated strap bracket. The mounting holes are 3-7/8" apart.



AIR SAMPLING CONNECTION (FIGURE 2)

Model **FS-751** is designed to accept firm-wall sample lines of 1/4" OD tubing by means of ferrule and nut compression connections. An optional 1/4" 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 air-stream as possible.

Refer to **Figure 2** to identify the high pressure inlet (H) and the low pressure inlet (L). 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**.

ELECTRICAL CONNECTIONS (FIGURES 2 & 3)

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



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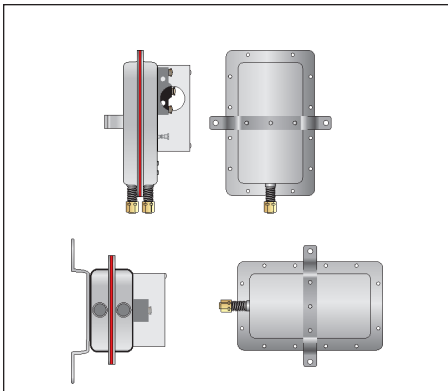


Figure 1: Mount with the diaphragm in any vertical plane.

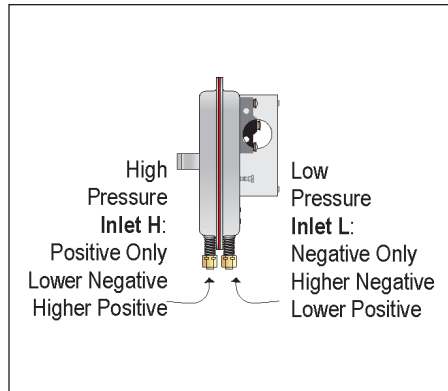


Figure 2: The sample line connections for typical applications.

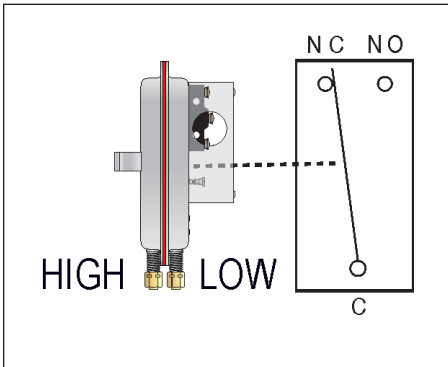


Figure 3: Before pressure is applied to the diaphragm, the switch contacts are in the normally closed (NC) position.

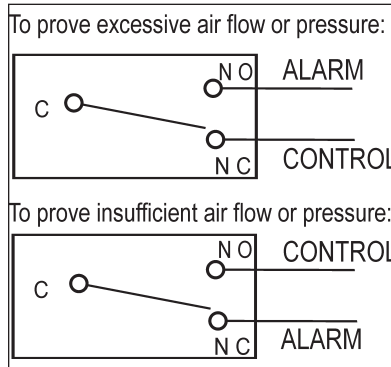
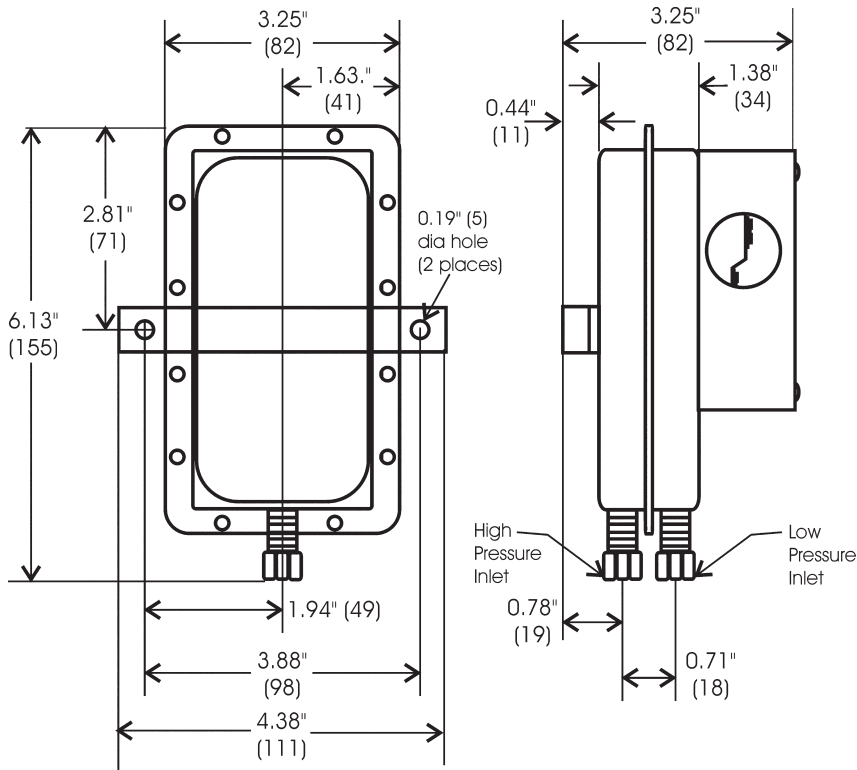


Figure 4: Before pressure is applied to the diaphragm, the switch contacts are in the normally closed (NC) position.



Dimensions

SPECIFICATIONS

MODEL FS-751 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 to operate on pressure rise at 0.05 ± 0.02 "w.c. (1.27 ± 0.508 mm)

Switching Differential (Approximate):

0.02 ± 0.01 "w.c. (0.508 ± 0.254 mm w.c.)

Measured Media:

Air, or combustion byproducts that will not degrade silicone.

Maximum Pressure:

$\frac{1}{2}$ psi (0.03 bar)

Operating Temperature Range:

-40 °F to 180 °F
(-40.0 °C to 82.2 °C)

Life:

100,000 cycles minimum at $\frac{1}{2}$ psi maximum pressure each cycle and at maximum rated electrical load.

Electrical Rating:

300 VA pilot duty at 115 to 277 VAC; 15 amp noninductive to 277 VAC, 60 Hz.

Contact Arrangement: SPDT

Electrical Connections:

Screw-type terminals with cup washers.

Sample Line Connector:

Ferrule and nut compression connectors accept 0.25" OD rigid tubing

Shipping Weight: 1.2 lbs

Approvals: UL, CSA.