



## AIR PRESSURE SENSING SWITCH WITH FIXED SET POINT

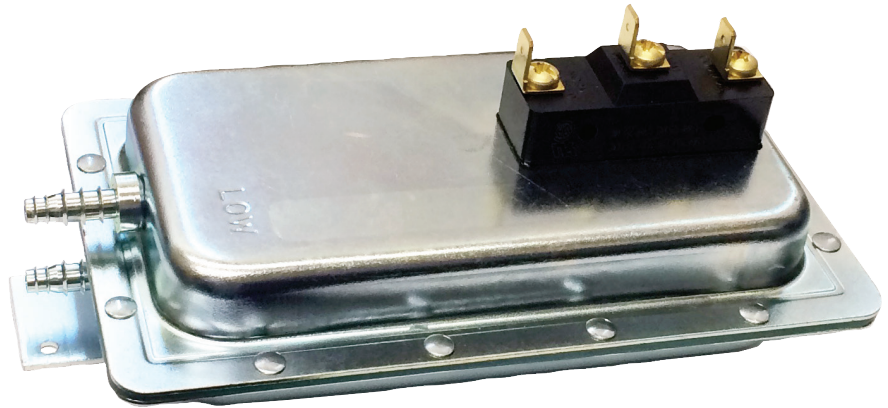
### APPLICATION

Model DFS-448-112 Air Pressure Sensing Switch is a 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. Model DFS-448-112 can be used to sense positive, negative, or differential air pressure.

### GENERAL DESCRIPTION & OPERATION

The plated housing contains a diaphragm and a snap-acting SPDT switch. The DFS-448-112 is equipped with convenient dual-barbed sample line connectors located on each side of the diaphragm. The dual-barbed connectors accept  $\frac{3}{16}$ " or  $\frac{1}{4}$ " ID flexible tubing.

The electrical connection consists of  $\frac{1}{4}$ " 90° quick connect spade terminals. The SPDT snap action switch operates on pressure rise of  $0.05 \pm 0.02$ " wc. For additional application and technical information, please contact the sales office.



### MOUNTING (FIGURE 1)

Select a mounting location that is free from vibration. The DFS-448-112 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  $\frac{1}{8}$ " diameter holes on the zinc-plated flat strap bracket. The mounting holes are  $6\text{-}\frac{3}{16}$ " apart.

### AIR SAMPLING CONNECTION (FIGURE 2)

The DFS-448-112 has two dual-barbed sample line connections suitable for  $\frac{3}{16}$ " or  $\frac{1}{4}$ " ID flexible tubing; they are situated on either side of the diaphragm as shown in Figure 2. Install the sampling probe as close to the center of the airstream as possible. Locate the sampling probe a minimum of 1.5 duct diameters downstream from the air source.

Refer to Figure 2 to identify the high pres-

sure inlet (H) and the low pressure inlet (L). Select one of the five application options listed below, and connect the sample lines as recommended.

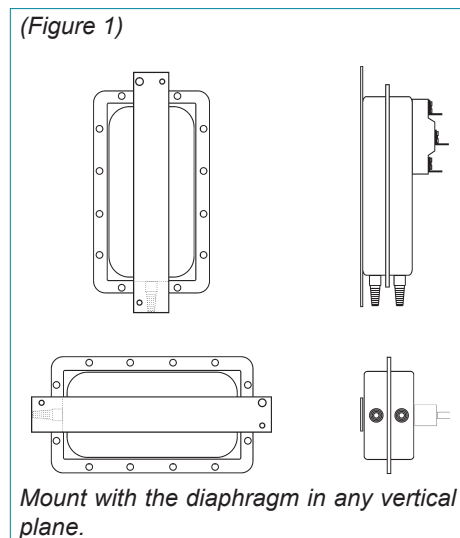
**POSITIVE PRESSURE ONLY:** Connect the sample line to inlet H; inlet L remains open to the atmosphere.

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

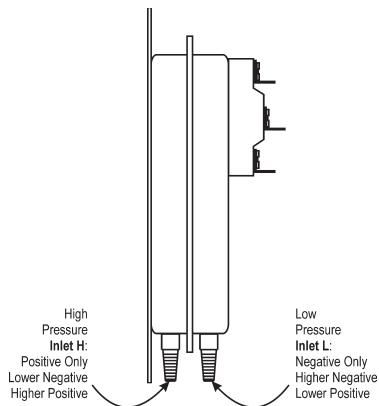
**TWO NEGATIVE SAMPLES:** Connect the higher negative sample to inlet L. Connect the lower negative sample to inlet H.

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

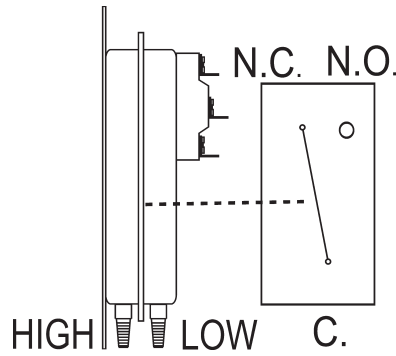
**ONE POSITIVE AND ONE NEGATIVE SAMPLE:** Connect the positive sample to inlet H. Connect the negative sample to inlet L.



(Figure 2)



(Figure 3)

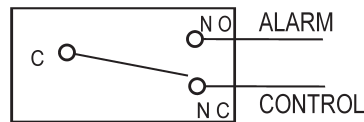


## ELECTRICAL CONNECTIONS (FIGURES 3 & 4)

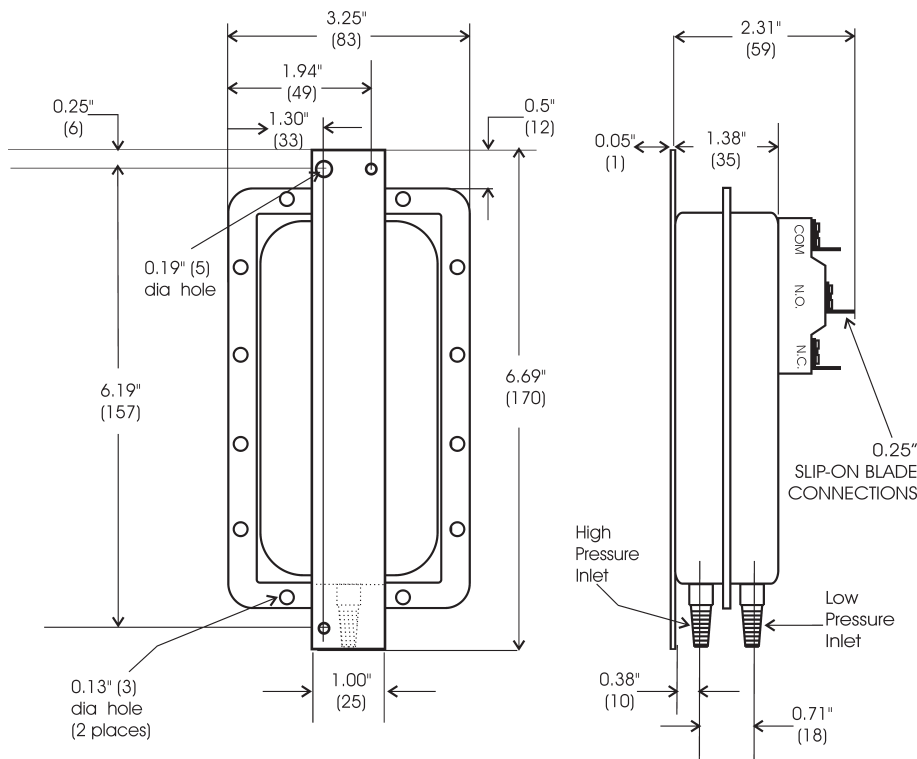
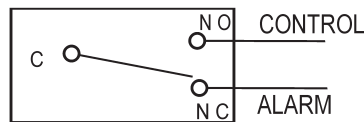
Before pressure is applied to the diaphragm, the switch contacts will be in the normally closed (NC) position. Control and alarm functions are wired as shown in **Figure 4**.

(Figure 4)

To prove excessive air flow or pressure:



To prove insufficient air flow or pressure:



Nominal Dimensions in Inches (Millimeters)

## SPECIFICATIONS

### CLEVELAND CONTROLS MODEL DFS-448-112 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  $0.05 \pm 0.02$  " wc ( $1.27 \pm 0.51$  mm).

#### Approximate Switching Differential:

$0.02 \pm 0.01$  " wc ( $0.51 \pm 0.25$  mm)

#### Measured Media:

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

#### Maximum Pressure:

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

#### Operating Temperature Range:

$-40$  °F to  $180$  °F ( $-40$  °C to  $82$  °C).

#### Life:

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

#### Electrical Rating:

300 VA pilot duty at 115 to 277 VAC,

15 amps noninductive to 277 VAC, 60 Hz.

Contact Arrangement: SPDT.

#### Electrical Connections:

Male  $\frac{1}{4}$ " 90° quick-connect spade terminals.

#### Sample Line Connectors:

Two dual-barbed slip-on connectors accept  $\frac{3}{16}$ " or  $\frac{1}{4}$ " ID flexible tubing.

Approvals: UL, FM, CSA.

Shipping Weight: 1.2 lbs.

#### Accessories

- Sample line probes.
- Orifice plugs (pulsation dampers).