



ADJUSTABLE SET POINT AIR PRESSURE SENSING SWITCH KIT

APPLICATION

Model RFS-4001-092 is a general purpose proving switch designed for HVAC and Energy Management applications. This switch can be used to sense positive, negative, or differential air pressure.

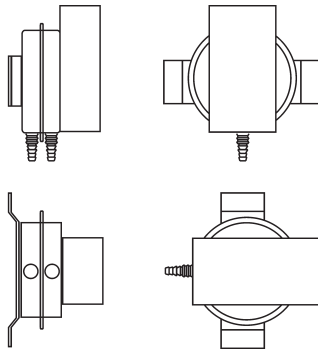
GENERAL DESCRIPTION & OPERATION

The plated housing contains a diaphragm, a calibration spring, a snap-acting switch and enclosure cover. The sample line connections located on each side of the diaphragm accept $\frac{3}{16}$ ", $\frac{1}{4}$ ", and $\frac{5}{16}$ " flexible tubing. The electrical connections are screw terminals with cup washers. An enclosure cover protects the operator from accidental contact with the electrical components. The enclosure cover has five knockouts for a $\frac{1}{2}$ " conduit connection.

MOUNTING (FIG. 1)

Select a mounting location that is free from vibration. The RFS-4001-092 Air Pressure Sensing Switch 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 connections in the "up" position. Surface-mount via the two round holes (0.14" dia.) or two of

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



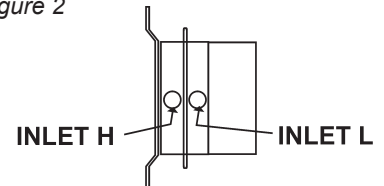
the four slots ($\frac{3}{16}$ " wide) on the zinc-plated strap bracket. The mounting holes and slots are $3\text{-}\frac{7}{8}$ " apart.

AIR SAMPLING CONNECTION (FIG. 2)

Model RFS-4001-092 switches are equipped with tri-barbed sample line connectors situated on either side of the diaphragm as shown in Figure 2. The tri-barbed connectors accept $\frac{3}{16}$ ", $\frac{1}{4}$ ", and $\frac{5}{16}$ " ID flexible tubing. For sample lines up to 10 feet in length, $\frac{3}{16}$ " ID tubing is acceptable. For lines up to 20 feet, use $\frac{1}{4}$ " ID tubing.

Locate the sampling probe a minimum of 1.5 duct diameters downstream from the air source. Insert the 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.

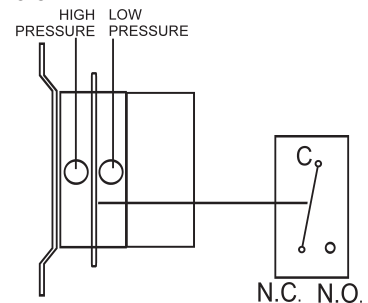
Figure 2



Positive Only
Lower Negative
Higher Positive

Negative Only
Higher Negative
Lower Positive

Figure 3



Cleveland Controls
DIVISION OF UNICONTROL INC.
1111 Brookpark Rd
Cleveland OH 44109

Tel: 216-398-0330

Fax: 216-398-8558

Email: sales HVAC@unicontrolinc.com

Web page: <http://www.clevelandcontrols.com>

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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**.

ELECTRICAL CONNECTIONS (FIGURES 3 & 4)

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 4**.

FIELD ADJUSTMENT

The adjustment range of an **RFS-4001-092** Air Switch is 0.15±0.02" wc to 2.0"wc.

To adjust the set point, turn the adjusting screw counterclockwise until motion has stopped. Next, turn the adjusting screw 5 complete turns clockwise to engage the spring.

From this point, the next eight turns will be used for the actual calibration. **Each full turn represents approximately 0.23" wc.**

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 RFS-4001-092

AIR PRESSURE SENSING SWITCH WITH ADJUSTABLE SET POINT RANGE

Mounting Position:

Mount with the diaphragm in any vertical plane

Standard Set Point Range:

0.15 ±0.02" wc to 2.0" wc.

Field Adjustable "Operate Range":

0.17" wc to 2.0" wc.

Field Adjustable "Release Range":

0.10" wc to 1.8" wc.

Approximate Switch Differential:

Progressive, increasing from 0.05±0.02" wc at minimum set point to approximately 0.2" wc at maximum set point

Measured Media:

Air or combustion by-products that will not degrade silicone

Maximum Pressure:

½ psi (0.03 bar)

Operating Temperature Range:

-40 to 180 °F (-40.0 to 82.2 °C)

Life:

100,000 cycles minimum at ½ 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 terminals with cup washers

Sample Line Connectors:

Tri-barb connectors for ¾", ¼", and ⅝" ID tubing

Approvals:

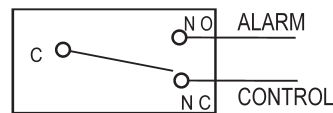
UL, CUL

Shipping Weight:

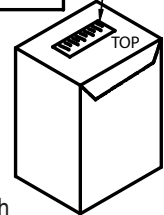
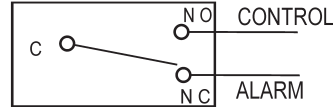
1 lb., approximately

Figure 4

To prove excessive air flow or pressure:

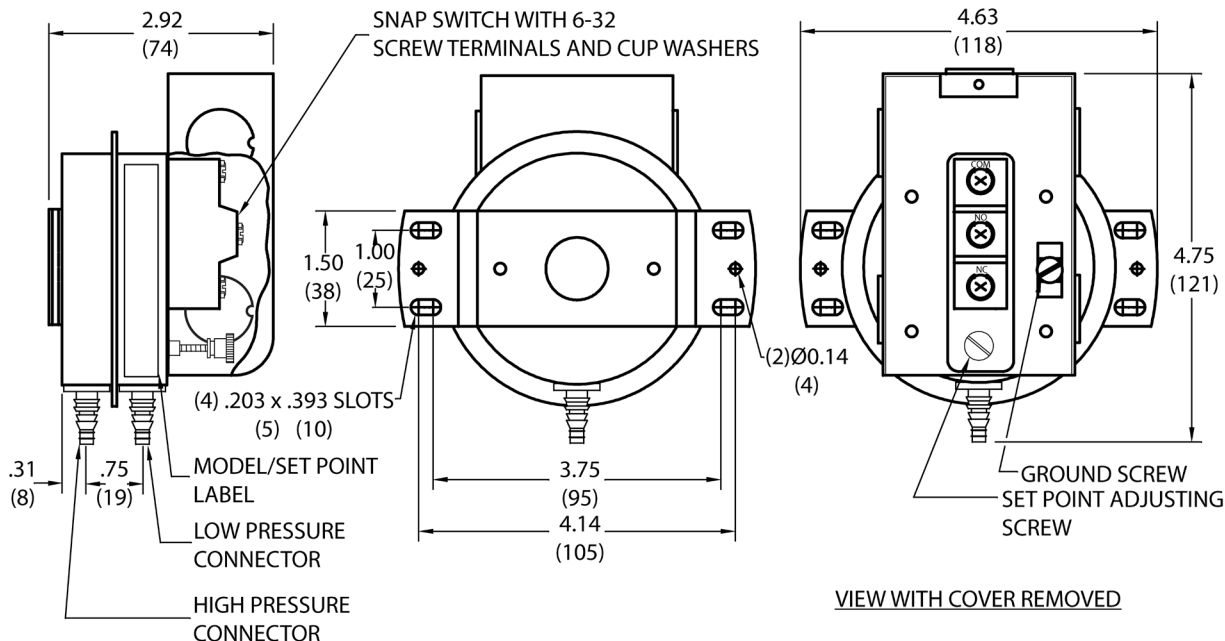


To prove insufficient air flow or pressure:



RFS 4001-092 Kit includes:

- Individual Carton with Bar Code Label
- Model RFS-4001-092 Switch
- Literature



Reference Dimensions in Inches (Millimeters)