



Model
EXT-AFS-460-137

**AIR PRESSURE SENSING SWITCH KIT
WITH MANUAL RESET, ADJUSTABLE SET POINT & DPDT OPTION (24 VAC)**

Kit Contents

- 1 EXT-AFS-460-137 Adjustable Manual Reset Air Switch with 24 Vac Electronic DPDT Module
- 2 Mounting screws, P/N 27577-037: Slotted hex screw, #6 x $\frac{3}{8}$ "
- 2 Inlet Tubing Adapters, P/N 28698-001: Valox, female threaded / male duo barb, suitable for $\frac{3}{16}$ " or $\frac{1}{4}$ " ID tubing
- 1 Instruction Sheet



APPLICATION

The **Model EXT-AFS-460-137** is a general purpose proving switch with DPDT contacts for 24 VAC applications, and a manual reset feature that requires operator intervention whenever it actuates. It can be used to sense positive, negative, or differential air pressure in HVAC and Energy Management applications.

GENERAL DESCRIPTION & OPERATION

The plated housing contains a diaphragm, a calibration spring, a snap-acting SPST-NC switch with manual reset button, and a DPDT relay installed on the snap switch at the factory. The DPDT feature consists of a relay-pack circuit board assembly containing a power connection terminal block and a DPDT slave relay with two form-C 8-amp contacts connected to two terminal blocks.

The sample line connections located on each side of the diaphragm accept .25" 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 a 0.5" conduit connection. The manual reset button is located on the top surface of the enclosure cover.

MOUNTING (FIGURE 1)

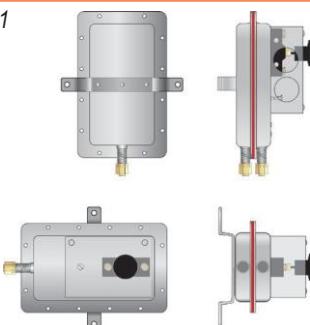
Select a mounting location that is free from vibration. The switch must be mounted with the diaphragm in any vertical plane in order to obtain the lowest specified operating set point. Do not mount with the sample line connections in the "up" position. Using the two slotted hex screws included with the switch, surface mount via the two $\frac{3}{16}$ " diameter holes in the integral mounting bracket. The mounting holes are 3- $\frac{7}{8}$ " apart.

AIR SAMPLING

CONNECTION (FIGURE 2)

The **EXT-AFS-460-137** is designed to accept firm-wall sample lines of $\frac{1}{4}$ " OD tubing by means of ferrule and nut compression connections. Adapters (P/N 28698-001) are provided to permit the option of slipping on $\frac{3}{16}$ " ID or $\frac{1}{4}$ " ID flexible tubing. For sample lines of up to 10 feet, $\frac{1}{4}$ " OD tubing is acceptable. For lines up to 20 feet, use $\frac{1}{4}$ " ID tubing. Select one of the five following application options, and connect the sample lines as recommended.

Figure 1



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 (FIGURE 3)

Before pressure is applied to the diaphragm, the snap switch contacts will be in the normally closed (NC) position. As differential pressure rises above the field adjustable set point, the snap switch opens, de-energizing the coil on the slave relay, which activates the DPDT contacts. An LED indicates that the snap switch exceeds differential set point. It remains lit until the manual reset push button is depressed.

FIELD ADJUSTMENT

The **EXT-AFS-460-137** Manual Reset Air Switch has an adjustment range of $0.40 \pm .06$ " wc to 12.0" wc. Adjust the set point as follows:

Turn the adjusting screw counterclockwise until motion has stopped. Next, turn the adjusting screw 4 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 1.16" wc.

Please note: To properly calibrate an air switch, a digital manometer and air pressure source should be used to confirm the actual set point.

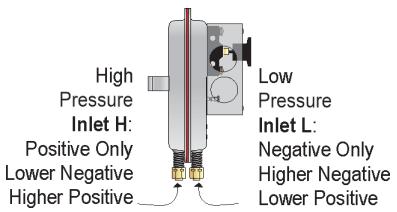


Figure 2: Sample Line Connections

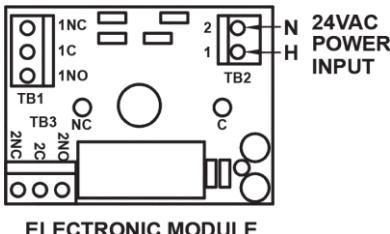
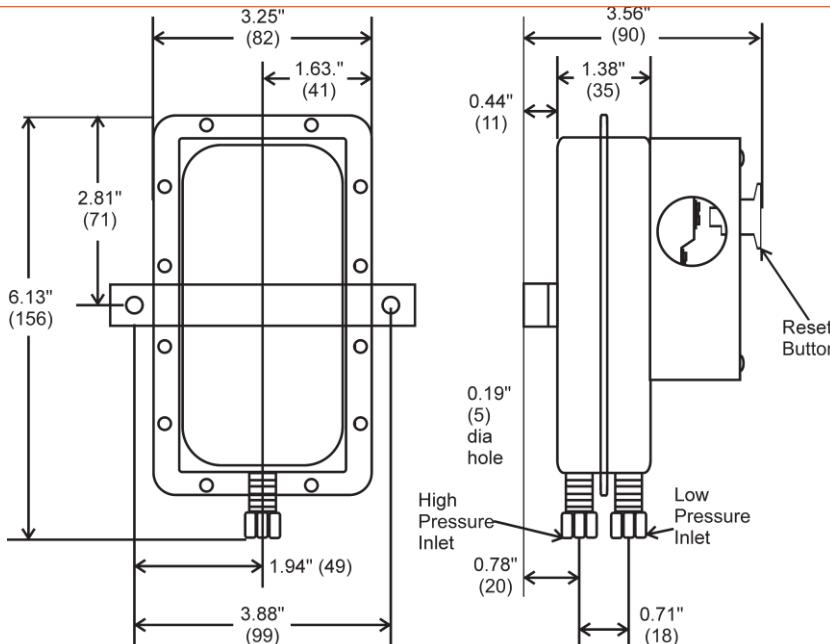
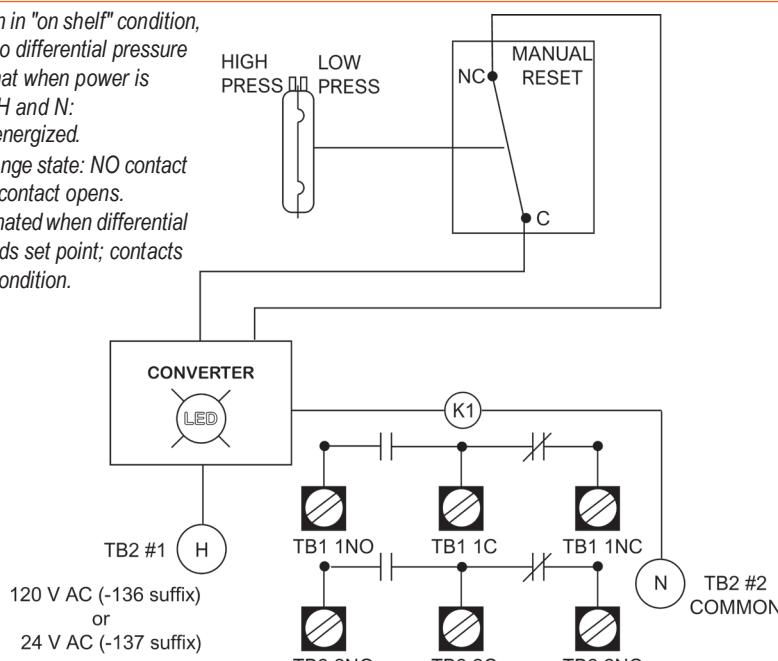


Figure 3: Electronic DPDT Module for 24 Vac applications.

Figure 4: Shown in "on shelf" condition, no power and no differential pressure applied. Note that when power is applied across H and N:

- 1) Relay K1 is energized.
- 2) Contacts change state: NO contact closes and NC contact opens.
- 3) LED is illuminated when differential pressure exceeds set point; contacts revert to shelf condition.



Specifications

Model EXT-AFS-460-137
Air Pressure Sensing Switch
with Manual Reset Feature
and Electronic DPDT Feature
for 24 Vac Applications

Sample Media:

Air

Mounting Position:

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

Set Point Range:

$0.40 \pm .06$ " wc to 12.0" wc

Maximum Pressure:

0.5 psi (0.03 bar)

Operating Temperature Range:

-40 °F to 180 °F (-40 °C to 82 °C)

Life:

Exceeds UL-recognized mechanical endurance test of 6,000 cycles minimum at 0.5 psi maximum pressure each cycle and at maximum rated electrical load

Electrical Rating:

P.C. Board (Electronic Module):

0.5 VA @ 24 Vac, 50/60 Hz.
8 Amp @ 250 Vac, 8 Amp @ 30 Vdc

Contact Arrangement:

Sensing Switch: SPST-NC

P.C. Board (Electronic Module):
DPDT, 2 form-C rated 8 Amp @ 250 Vac

Electrical Connections:

Screw connector, clamp-type terminal blocks suitable for 12-26 AWG

Conduit Connection:

$\frac{1}{8}$ " diameter opening accepts $\frac{1}{2}$ " conduit

Sample Line Connectors:

Male, externally threaded $\frac{1}{16}$ " 24 UNS 2A thread, complete with nut & self-aligning ferrule

Sample Line Connections:

Connectors accept $\frac{1}{4}$ " OD rigid or semi-rigid tubing. Adapters provided for slip-on flexible tubing: Valox, female threaded / male duo-barb, suitable for $\frac{3}{16}$ " or $\frac{1}{4}$ " ID tubing

Agency Approvals or Recognition:

Sensing Switch: UL File MH6213; CSA File LR18754. Timer module: approved as an accessory by UL, CUL, CSA Approval.

Shipping Weight:

1.2 lbs.