

# SERIES AFS



## DESCRIPTION & OPERATION

Series AFS is a diverse family of general purpose air pressure sensing switches designed for HVAC, energy management, commercial, process, light industrial, and other applications where an adjustable set point is required. They can be configured to sense positive, negative, or differential air pressure. Set points as low as 0.03" or 0.05" wc, and as high as 2.0 or 12.0" wc are available.

Every AFS model includes one option from each the standard feature categories below. The most common variations are described in the General Specifications on page 2.

- Mounting bracket style
- Sample line connector style
- Open-mount or enclosed switch terminals in various styles
- Factory-set and sealed, or field-adjustable set points

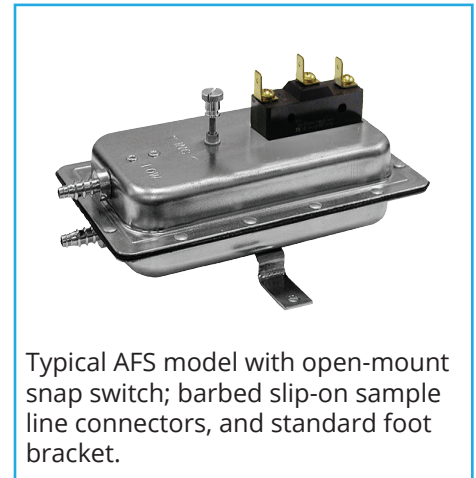
Optional features can be designed to customer specification. In addition, numerous standard options are available, including the following:

- Enclosure cover for terminals and adjustment screw, with one or two conduit connection openings.
- Gold contacts
- Manual reset
- Remote alarm light
- Programmable time delay
- Electronic dual set point
- Salt spray protection
- Pilot light operation indication
- Surge suppressor
- Set point indication

We readily design and configure OEM specialty switches. In addition, we offer a complete range of accessories and ancillary equipment for use with this product line.



Typical AFS model with conduit enclosure covering snap switch; nut & ferrule compression fittings, and standard foot bracket.



Typical AFS model with open-mount snap switch; barbed slip-on sample line connectors, and standard foot bracket.

AFS switches are shipped bulk-packed, individually in chip board boxes, or in convenient contractor kits that include installation and application hardware. Additional packaging options include bar codes, labeling and customized product literature.

### MOUNTING (SEE FIG. 1)

Mount AFS switches in a vibration-free location with the diaphragm positioned in a vertical plane in order to obtain the lowest specified operating set point.\* A wide variety of mounting brackets, standard and custom, can be supplied. \*See TB 101404-01.

### AIR SAMPLING CONNECTION (FIG. 2)

Sample line connections are located on either side of the diaphragm. Refer to Figure 2 to identify the high pressure inlet (H) and the low pressure inlet (L). Specific models accept firm-wall sample lines or slip-on flexible tubing. The type of connector is selected to suit the application.

A wide variety of adapters ensure suitable and secure sample line connections. Standard sample line connector styles include:

- $\frac{7}{16}$ -24 UNS external thread for compression nut and ferrule.
- $\frac{1}{8}$ -27 NPT internal thread for pipe connection.

- $\frac{1}{4}$ " smooth slip on for flexible plastic tubing.
- Dual-barbed slip on, suitable for  $\frac{3}{16}$ " or  $\frac{1}{4}$ " ID flexible plastic tubing.
- 1 - 14 UNS external thread combined with  $\frac{1}{4}$  - 18 NPT internal thread.

We offer a complete line of static and impact probes for insertion into the air stream.

### ELECTRICAL CONNECTIONS (FIGS. 3-4)

The plated housing contains a diaphragm, a calibration spring and a snap-acting switch. Automatic reset models have SPDT switches, and manual reset models have SPST switches.

The optional enclosure cover protects against contact with the live switch terminals and the set point adjusting screw. It accepts one or two  $\frac{1}{2}$ " conduit connections.

Electrical specifications for standard contact, gold contact and manual reset options, are shown in the specification section of this bulletin. The standard electrical connection styles are:

- 6-32 UNC x (.219) Binding Head Terminal Screw and Cup Washer
- Quick-Connect Spade Terminals,  $\frac{1}{4}$ " x 0.032 or  $\frac{3}{16}$ " x 0.032



## GENERAL SPECIFICATIONS SERIES AFS AIR SWITCHES

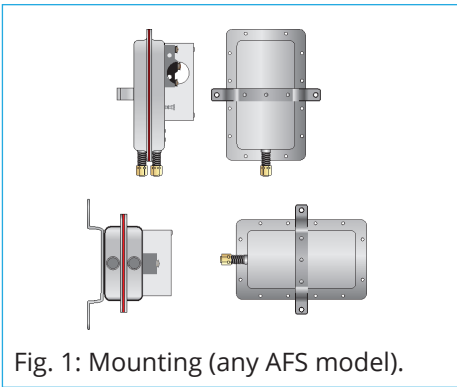


Fig. 1: Mounting (any AFS model).

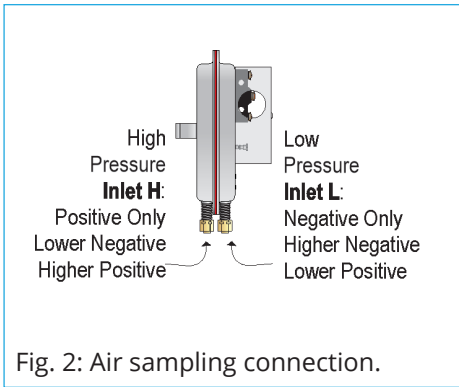


Fig. 2: Air sampling connection.

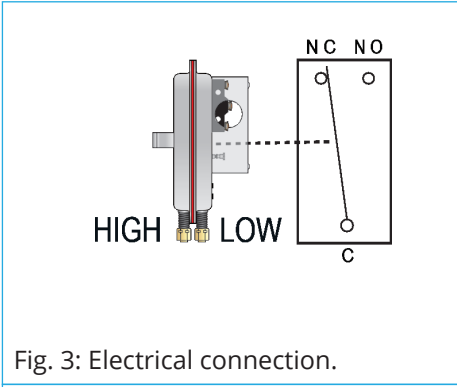


Fig. 3: Electrical connection.

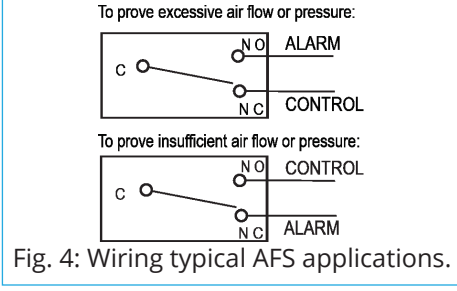


Fig. 4: Wiring typical AFS applications.

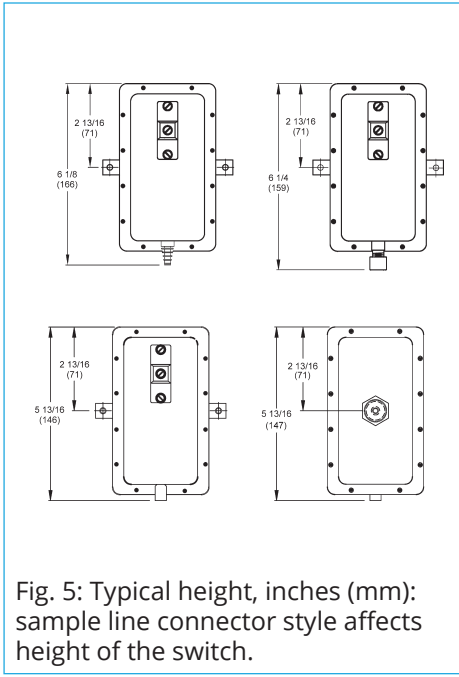


Fig. 5: Typical height, inches (mm): sample line connector style affects height of the switch.

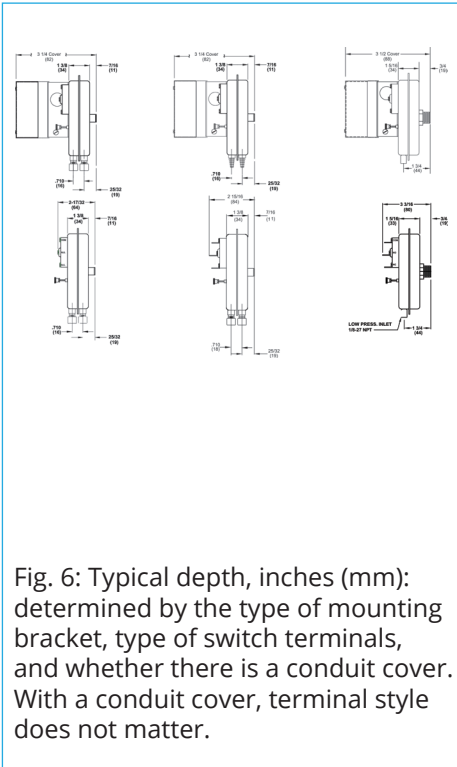


Fig. 6: Typical depth, inches (mm): determined by the type of mounting bracket, type of switch terminals, and whether there is a conduit cover. With a conduit cover, terminal style does not matter.

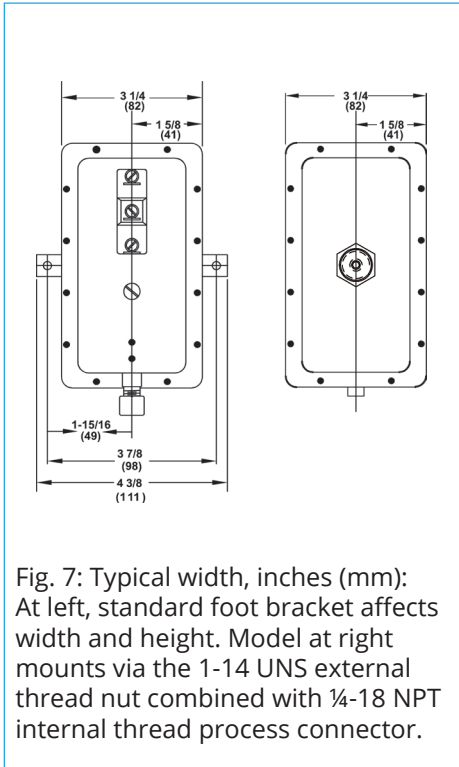


Fig. 7: Typical width, inches (mm): At left, standard foot bracket affects width and height. Model at right mounts via the 1-14 UNS external thread nut combined with 1/4-18 NPT internal thread process connector.

**Mounting Position:** diaphragm in any vertical plane to obtain the lowest specified set point.

**Set Point Options:**

- Custom, factory-set and sealed
- Field-adjustable, between 0.03±0.02"wc and 12.0"wc

**Approximate Switching Differential:**

Progressive, increasing from 0.02 ± 0.01"wc at minimum set point to approximately 0.8" wc at maximum set point.

**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:**

Standard: 300 VA pilot duty at 115 to 277 V ac, 15 Amps non-inductive to 277 V ac, 60Hz.

Gold Contacts: 300 VA pilot duty at 115 to 277 V ac, 15 Amps non-inductive to 277 V ac, 60 Hz. 10 mA at 5 V dc (applies to dry circuit applications).

**Manual Reset:**

15A @ 125, 250, or 277 V ac

1/2 A @ 125 V dc, 1/4 A @ 250 V dc.

1/4 hp @ 125 V ac; 1/2 hp @ 250 V dc

**Contact Arrangement:**

Automatic reset: SPDT

Manual reset: SPNC

**Electrical Connection Options (standard):**

6-32 UNC x (.219) Binding Head Comb. Terminal Screw and Cup Washer

Quick-Connect Spade Terminals, 1/4" x 0.032 or 3/16" x 0.032

**Conduit Opening (models with enclosure cover):**

One or two openings, 7/8" diameter, accept 1/2" conduit.

**Sample Line Connector Options:**

- Male, externally threaded 7/16" 24 UNS 2A thread compression fitting, with nut and self-aligning ferrule accepts rigid and semi-rigid tubing.
- 3/16" or 1/4" OD dual-barbed connectors accept flexible plastic tubing
- 1/4" OD straight slip on connectors accept flexible plastic tubing.
- 27 NPT 1/8" - 27 NPT internal thread for pipe connection.
- 1 - 14 UNS external thread combined with 1/4" - 18 NPT internal thread accepts rigid and semi-rigid tubing.

**Approvals:** UL/UR, FM, CSA as specified.

**Shipping Weight:** 1.2 lbs.

**Accessories:**

- P/N 18311 Slip-on 1/4" OD Tubing Adapter, suitable for slipping on flexible plastic tubing.
- Sample line probes.
- Orifice plugs (pulsation dampers).

**Please note:**

General specifications may not apply to every model: please check with Sales Dept. before placing order.