



# AP5027-30/AP5208-30/AP5210-30 Airflow Differential Pressure Switches

## INSTALLATION INSTRUCTIONS

### GENERAL

The AP5027-30, AP5208-30 and AP5210-30 Airflow Differential Pressure Switches are used to sense positive, negative or differential air pressure in HVAC systems. They provide high or low limit with alarm or high limit shutdown with manual reset.

Models are available with compression or barb fittings. Automatic reset models have single-pole-double-throw (spdt) contacts, while manual reset models have single-pole-single-throw (spst) normally closed (NC) contacts.

The electrical switch, which has an adjustable setpoint, is enclosed in a metal box with cover.

All of the switches are UL and CSA listed and FM approved.

### SPECIFICATIONS

#### Models:

AP5027-30 Spdt switch; automatic reset, compression fittings.

AP5208-30 Spst switch; automatic reset, barb fittings.

AP5210-30 Spst switch; manual reset, compression fittings.

#### Electrical Ratings:

AP5027-30 and AP5208-30:

278 VA Pilot duty, 24 Vac.

300 VA Pilot duty, 120 to 277 Vac.

15A non-inductive to 277 Vac maximum.

10 mA at 5 Vdc (gold-flash contacts).

AP5210-30:

20A resistive, 125 to 277 Vac.

3/4 hp, 125 Vac.

1-1/2 hp, 250 Vac.

6000 cycles.

#### Pressure Ratings:

Maximum Operating Differential: 0.5 psi, 13.85 in. wc, 3.44 kPa.

#### Setpoint:

AP5027-30, AP5208-30: Adjustable 0.05 to 12 in. wc (0.012 to 2.98 kPa).

AP5210-30: Adjustable 0.30 to 12 in. wc (0.0108 to 2.98 kPa).

Differential Switching: Nonadjustable.

AP5027-30, AP5208-30:  $0.02 \pm 0.01$  in. wc ( $0.72 \pm 0.36$  kPa) at minimum setpoint to approximately 0.80 in. wc (0.029 kPa) at maximum setpoint. Normally open contacts close on a pressure rise above setpoint and normally closed contacts open on a pressure rise above setpoint.

AP5210-30: 50% of setpoint at minimum setting to 2.5 in. wc at maximum setpoint. Contact opens on pressure rise above setpoint and remains open until pressure drops below setpoint plus differential and reset button is fully depressed.

#### Air Connections:

Compression fittings for 1/4 in. (6 mm) O.D rigid or semi-rigid tubing.

Barb fittings for 1/4 in. (6 mm) O.D. polyethylene tubing.

**Electrical Connections:** Screw terminals with cup washers. (Knockout for 1/2 in. [13 mm] conduit.)

**Operating Temperature Rating:** -40°F to +190°F (-40°C to +88°C).

**Dimensions:** 5-1/2 in. (144 mm) high, 6 in. (152 mm) wide, 3-1/8 in. (78 mm) deep. See Fig. 1.

**Mounting:** Mount with the diaphragm vertical and pressure connector down.

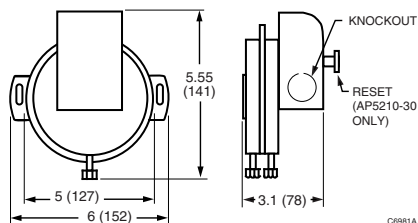


Fig. 1. Airflow Differential Pressure Switch, approximate dimensions in in. (mm).



# INSTALLATION

## When Installing This Product...

1. Read these instructions carefully. Failure to follow them could result in equipment damage or cause a hazardous condition.
2. Check ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. The installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation using these instructions.

## **⚠️ WARNING**

**Electrical Shock Hazard.**  
**Can cause serious injury or death.**  
 Line voltage is present in some connections.  
 Disconnect power supply before beginning installation.

## Mounting

Two 13/64 in. (5 mm) slotted mounting holes are provided on the foot-style bracket for convenient surface mounting. Use the holes as a template to mark the location of the mounting holes.

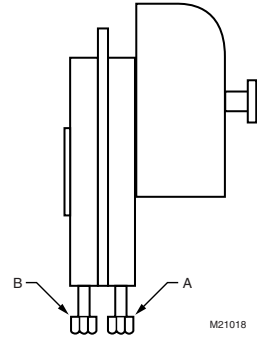
### **IMPORTANT**

*To maintain the specified operating setpoint at minimum range, the air proving switch must be mounted with the diaphragm in the vertical position.*

## Pressure Line Connections

There are five possible pressure line connection combinations. Choose the connection combination suitable for your application as listed below. See Fig. 2 for connector identification.

1. Positive Pressure Only: Connect the sample line to connector **B**. Connector **A** remains open to atmosphere.
2. Negative Pressure Only: Connect the sample line to connector **A**. Connector **B** remains open to atmosphere.
3. Two Negative Samples: Connect the highest negative sample to connector **A**; the lowest negative sample to connector **B**.

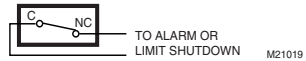


**Fig. 2. Pressure line connectors on Airflow Differential Pressure Switches.**

4. Two Positive Samples: Connect the highest positive sample to connector **B**, the lowest positive sample to connector **A**.
5. One Positive and One Negative Sample: Connect the positive sample to connector **B**, the negative sample to connector **A**.

## Wiring

1. Connect the wires from the alarm or high limit shutdown to the two #8-32 screw terminals in the switch.
2. Connect the earth ground wire to the #6-32 earth grounding screw on the airflow switch.
3. Before pressure is applied to the diaphragm, the electrical switch contacts will be in a normally closed position (AP5210-30) as shown in Fig. 3.



**Fig. 3. Normally closed airflow pressure switch.**

## Field Adjustments

From the lowest point, several turns of the adjustment knob are necessary to engage the adjustment spring. No change will occur until the spring is engaged. For higher setpoints, continue turning the adjustment knob in a clockwise direction.

**NOTE:** At higher operating pressures, there is a slight increase in switching differential.



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