

AA...A2 Differential Air Pressure Switch Installation Instructions



SPECIFICATIONS

AA...A2 SPDT differential pressure switch in pressure and vacuum ranges. The differential pressure acts via the diaphragm against the force of the setting spring on the microswitch. The pressure switch operates without any auxiliary power.

Gases

Air and non-aggressive gases only. **Not** suitable for natural gas, propane, butane or other combustible gases.

Switch Type

SPDT

Switch Action

Pressure, vacuum or differential pressure switch.

Contact Rating

5 A resistive, 3 A inductive @120 Vac
1A max. @ 24 Vdc

Electrical Connection

Screw terminals via 1/2" NPT conduit connection

Enclosure Rating

NEMA Type 4

Maximum Operating Pressure

7 PSI (500 mbar)

Ambient / Medium Temperature

-40 °F to +140 °F (-40 °C to +60 °C)

Materials in contact with Gas

Housing:	Polycarbonate
Switch:	Polycarbonate
Diaphragm:	NBR-based rubber
Switching contact:	Silver (Ag)

Approvals

UL Listed: File No.MH16628
 CSA: Certificate: 201527
 FM Approved: Report J.1.0D6A1.AF
 Commonwealth of Massachusetts Approved Product
 Approval code G3-0106-191



ATTENTION

- | | |
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| <ul style="list-style-type: none"> • Read these instructions carefully. • Failure to follow them and/or improper installation may cause explosion, property damage and injuries. • The system must meet all applicable national and local code requirements such as but not limited to the following fuel gas codes: NFPA 54, IFGC (International Fuel Gas Code), or CSA B149.1 (for Canada) or the following equipment codes and standards: NFPA 86, NFPA 86, ANSI Z83.4/CSA 3.7, ANSI Z83.18/CSA 4.9, ANSI Z21.13, CSD-1, UL 795, CSA B149.1, or CSA B149.3. • Installation must be done with the supervision of a licensed burner technician. | <ul style="list-style-type: none"> • Check the ratings in the specifications to make sure that they are suitable for your application. • Never perform work if gas pressure or power is applied, or in the presence of an open flame. • Ensure that the switch is not subjected to vibration during operation. • Once installed, perform a complete checkout including leak testing. • Label all wires prior to disconnection when servicing. Wiring errors can cause improper and dangerous operation. • Verify proper operation after servicing. |
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MODELS DESIGNATIONS AND RANGES

Type	Version	Description	Order No.	Setting range in. W.C
AA-A2-4-...	AA-A2-4-2	Hose connection	217-060A	0.16 - 1.2
	AA-A2-4-3	Hose connection	217-061A	0.4 - 4
	AA-A2-4-5	Hose connection	217-062A	2 - 20
AA-A2-6-..	AA-A2-4-6	Hose connection	217-063A	12 - 60
	AA-A2-6-2	Threaded connection	217-329A	0.16 - 1.2
	AA-A2-6-3	Threaded connection	217-330A	0.4 - 4
	AA-A2-6-5	Threaded connection	217-331A	2 - 20
	AA-A2-6-6	Threaded connection	217-332A	12 - 60

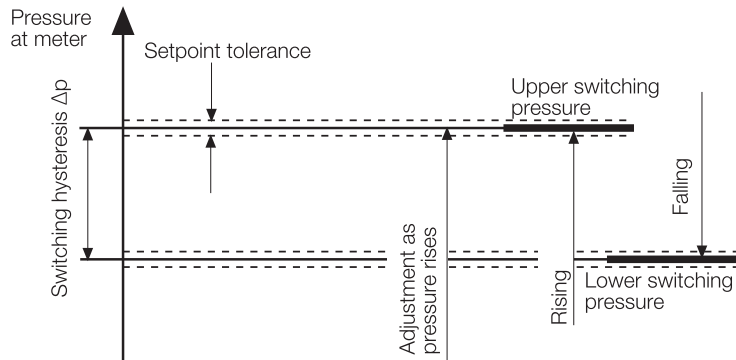
Karl Dungs, Inc.

524 Apollo Drive, Suite 10 Lino Lakes, MN 55014 U.S.A.

Phone: (651) 792-8912 Fax: (651) 792-8919 E-mail: info@karldungsusa.com

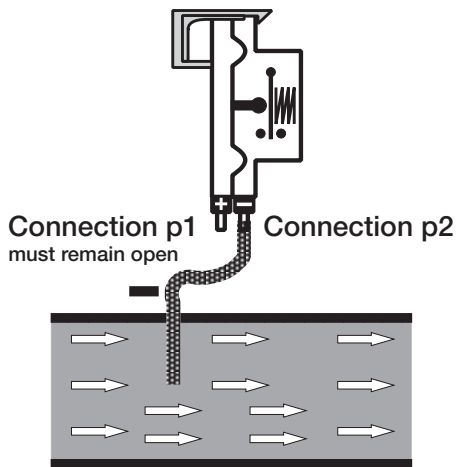
OPERATION

Definition of switching hysteresis Δp
 The pressure difference between the upper and lower switching pressures.



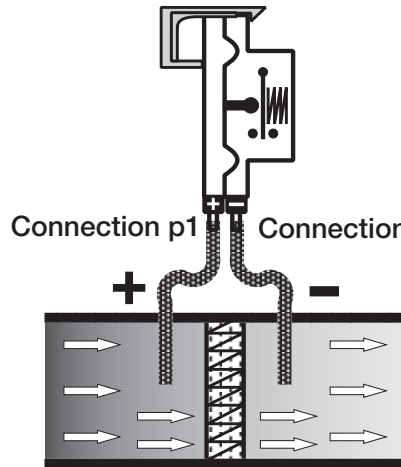
Installation position: Standard installation position is **vertical** diaphragm. When installed **horizontally**, the pressure switch trips at a pressure higher by approx. 0.2 in. W.C. When installed **upside down**, the pressure switch switches at a pressure lower by approx. 0.2 in. W.C. When installed in **other positions**, the pressure switch switches at pressure deviating from the set reference value by max. ± 0.2 in. W.C.

APPLICATION AND CONNECTION EXAMPLES



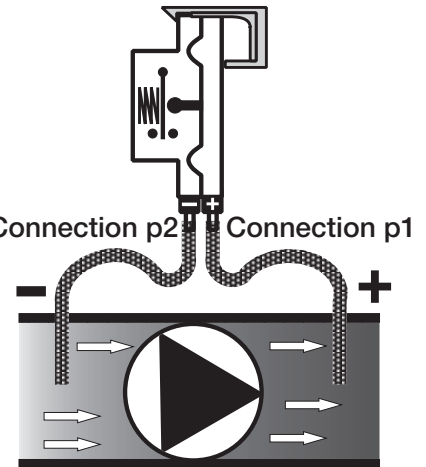
System vacuum monitor

AA...A1 is connected to the air duct with the p2 (-) connection. p1 (+) is not connected with the air duct. Do not seal the p1 (+) connection; it must be open to the atmosphere.



Filter monitoring

To monitor a filter, the AA...A1 can be connected as shown above.



Blower monitoring

For blower monitoring, connect connection p1 (+) to the air duct on the downstream side of the blower and connection p2 (-) to the air duct upstream of the blower.

Caution: Prevent dirt from entering into the device through connection p1(+).

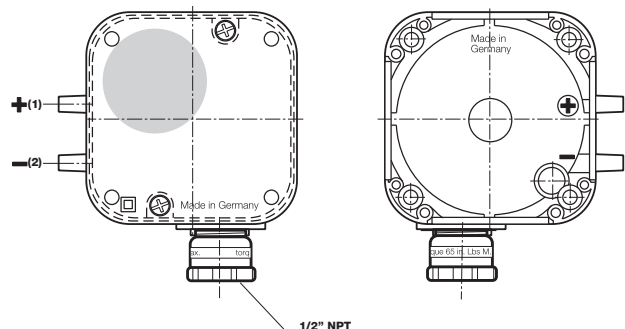
PRESSURE CONNECTIONS AND MOUNTING AA..A2-4

AA...A2-4 Hose Connection

- (1) Pressure connection (+)
- (2) Pressure connection (-)

AA...A2-4 Mounting Procedure

- Use suitable hoses for the medium.
- Use a maximum 5/32" ID. hose
- Secure the hoses with a cable tie or a cable clip.



PRESSURE CONNECTIONS AND MOUNTING AA..A2-6

AA...A2-6 Threaded Connection

- (1) Pressure connection (+)
- (2) Pressure connection (-)
- (3) Test nipple p (+)

AA...A2-6 Mounting Procedure

- Apply good quality pipe sealant to the male threads only.
- Use 13/16" Wrench to secure the switch to the pipe.

DO NOT Exceed 45 lb-in of Torque on 1/8"

Connections

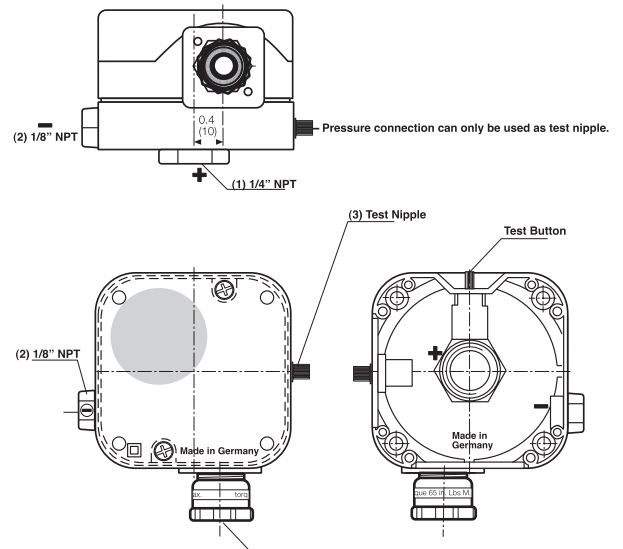
DO NOT Exceed 60 lb-in of Torque on 1/4"

Connections

- After installation is complete, perform a leak test.

Test button (for AA-A2-6 series only)

When the test button is pressed the **1/4" NPT** pressure connection is interrupted and the pressure below the diaphragm is relieved. The pressure switch changes the contact position from NO to NC. When the test button is released, the pressure is built up again and the switch changes to its original position.



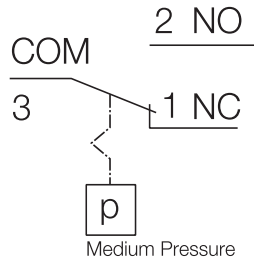
WIRING

- Remove the clear cover from the switch.
- Use 14 or 16 AWG wire rated for at least 75°C
- Route the wires through the conduit connector
- Connect the wiring to the appropriate screw terminals.
- Replace the clear cover from the switch.

AA...A2 switching function

As pressure rises above setpoint:
1 NC opens, 2 NO closes

As pressure falls below setpoint:
1 NC closes, 2 NO opens



CAUTION: All wiring must comply with local electrical codes, ordinances and regulations.

CAUTION: Do not exceed the switch ratings given in the specifications and on the switch.

ADJUSTMENT AND OPERATION



Adjusting the Set Point

- Remove the clear cover from the switch.
- Adjust the switch to the desired set point by turning the dial. The white arrow on the dial indicates the set point.



- After adjusting the set point, verify that the pressure switch operates as intended by using an accurate pressure gauge connected upstream of the switch.
- Replace the clear cover.

Automatic Reset and Operation

The NC contact of the AA...A2 breaks when pressure rises above the set point. It makes automatically when pressure falls below set point.

MAINTENANCE

Annually check the switch for proper operation

Set Point Calibration

- Connect a meter capable of reading +/- 0 ohms to the NC and COM contacts.
- Measure the resistance across the NC and COM contacts. If the resistance is more than 1 ohm, the switch should be replaced, since this indicates that the switch contacts are starting to either corrode or carbonizing.
- Apply appressure to the + air pressure connection, and confirm that the NC contact breaks when pressure rises above the set point and that the NO contact makes. the NC contact will make automatically when pressure falls below the set point pressure.
- Connect a meter capable of reading +/- 0 ohms to the NO and COM contacts.
- Measure the resistance across the NO and COM contacts. If the resistance is more than 1 ohm, the switch should be replaced, since this indicates that the switch contacts are starting to either corrode or carbonizing.

ACCESSORIES AND REPLACEMENT PARTS

Accessories for pressure switch	Order No.
Klima-Set (Duct mounting kit)	217-897
Replacement cover	228-732
Mounting plaste (plastic)	230-301 (recommended mounting bracket)
Mounting bracket (plastic)	230-273 (optional mounting bracket)
120 VAC light mounting set (orange)	231-772
120 VAC light only	244-156 (for switches with kit 231-772 already installed)
24 VDC/VAC light mounting set (orange)	231-774
120 VAC light (green)	248-240 (for switches with kit 231-772 already installed)
Replacement conduit adapter	231-944
DIN connector	210-318