

AA...A1 Differential Air Pressure Switch Installation Instructions



SPECIFICATIONS

AA...A1 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 micro-switch. The pressure switch operates without any auxiliary power.

Gases

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

Switch

SPDT

Switch action

Pressure, vacuum or differential pressure switch.

Contact Rating

5 A resistive, 2.5 A inductive @120 Vac

Electrical Connection

1/4 x 1/32" (6.3 x 0.8 mm) flat male terminals

Enclosure

NEMA Type 1 / NEMA Type 12 with appropriate cover

Maximum Operating Pressure

1.5 PSI (103 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

- Read these instructions carefully.
- Failure to follow them and/or improper installation may cause explosion, property damage and injuries.
- Installation must be done with the supervision of a licensed burner technician.
- Check the ratings in the specifications to make sure that it is 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.
- The system must be installed, used, and maintained to meet all applicable national and local code requirements such as but not limited to 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.

MODELS DESIGNATIONS AND RANGES

Type	Version	Description	Order No.	Factory set- ting range in. W.C.	Switching hysteresis in. W.C.
AA-A1-0-...	AA-A1-0-2	No cover	216-788A	0.16 - 1.2	≤ 0.14
	AA-A1-0-3	No cover	216-752A	0.4 - 4	≤ 0.20
	AA-A1-0-4	No cover	216-867A	1 - 20	≤ 0.40
AA-A1-3-...	AA-A1-3-2	Includes NEMA Type 12 cover and 1/2 NPT conduit connection	216-788CA	0.16 - 1.2	≤ 0.14
	AA-A1-3-3	Includes NEMA Type 12 cover and 1/2 NPT conduit connection	216-752CA	0.4 - 4	≤ 0.20
	AA-A1-3-4	Includes NEMA Type 12 cover and 1/2 NPT conduit connection	216-867CA	1 - 20	≤ 0.40

Karl Dungs, Inc

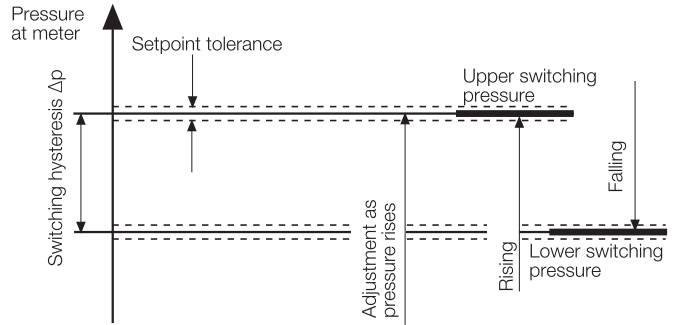
524 Apollo Drive, Suite 10 Lino Lakes, MN 55014 U.S.A.

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.



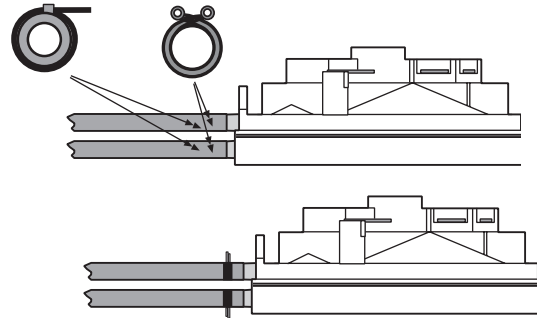
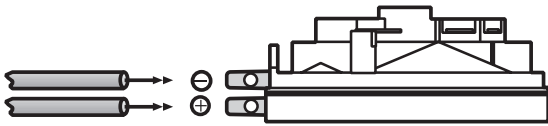
Installation position

Standard installation position is **vertical** upright diaphragm. When installed **horizontally**, the pressure switch switches 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.

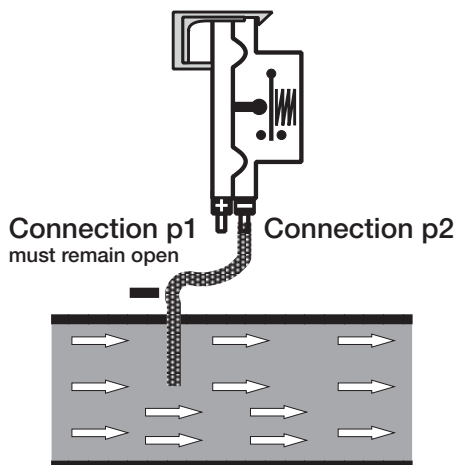
PRESSURE CONNECTIONS

AA...A1 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.



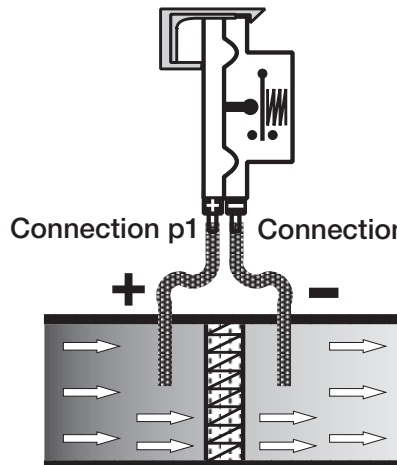
APPLICATION AND CONNECTION EXAMPLES



System vacuum monitor

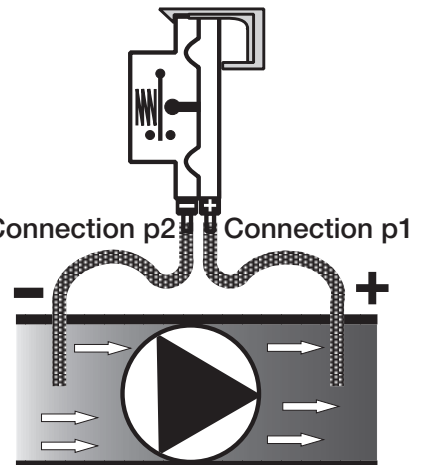
AA...A1 is connected to the air duct with the p2 (-) connection. p1 (+) is not connected with the air duct.

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(+).

WIRING

- If applicable, remove the clear cover from the switch.
- Use 14 or 16 AWG wire rated for at least 75°C
- Connect the wiring to the appropriate 1/4 x 1/32" (6.3 x 0.8 mm) flat male terminals



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



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

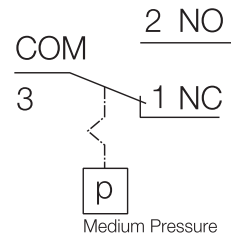
AA...A1 switching function

As pressure rises:

1 NC opens, 2 NO closes

As pressure falls:

1 NC closes, 2 NO opens



OPERATION AND ADJUSTMENT

Adjusting the Set Point

- Do NOT attempt to adjust the factory setting of the switch. Breaking the seal affects the switches ability to act as a differential switch.

Automatic Reset

The NC contact of the AA...A1 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

Accessory for pressure switch	Order No.
Mounting plate (flat plastic)	230-301
NEMA Type 1 Cover	217-045
NEMA Type 12 cover with 1/2 NPT conduit connection	225-816