AA...A1 Differential Air Pressure Switch
Installation Instructions

DUNGS®
Combustion Controls

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 combustable gases.

Switch
SPDT

Switch action
Pressure, vacuum or differential pressure switch.

Contact Rating
5 A resistive, 2.5 A inductive @120 Vac
1A @ 12-48Vdc.

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 setting 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

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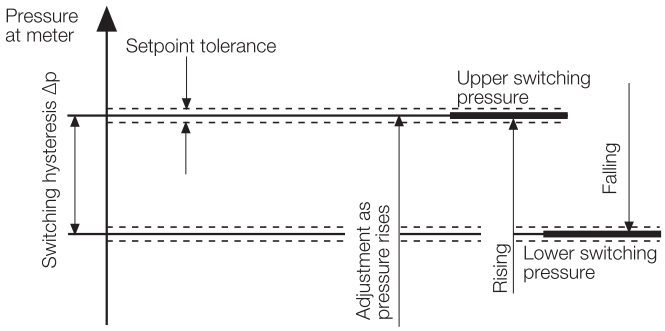
OPERATION

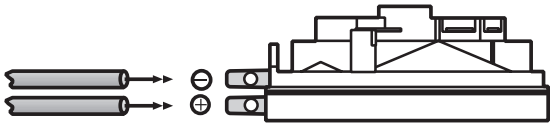
Definition of switching hysteresis Δp
The pressure difference between the upper and lower switching pressures.

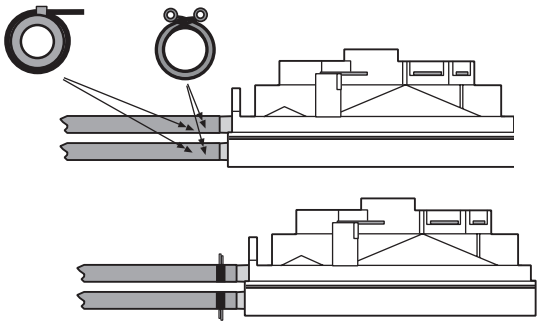


Installation position
Standard installation position is **vertical** upright diaphragm. When installed **horizontally**, the pressure switch switches at a pressure higher by approx. 0.2 in. W.C. When installed **upside down**, the pressure switch switches at a pressure lower by approx. 0.2 in. W.C. When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

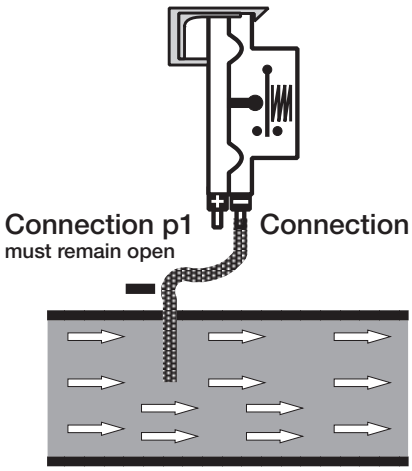
PRESSURE CONNECTIONS

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.



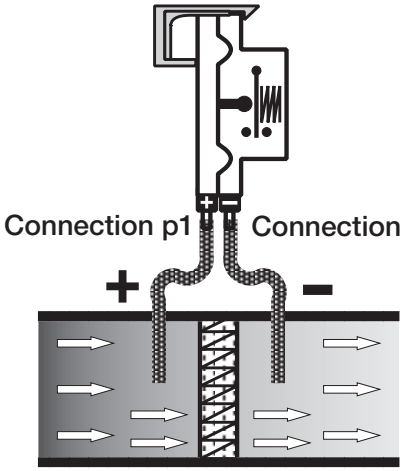


APPLICATION AND CONNECTION EXAMPLES

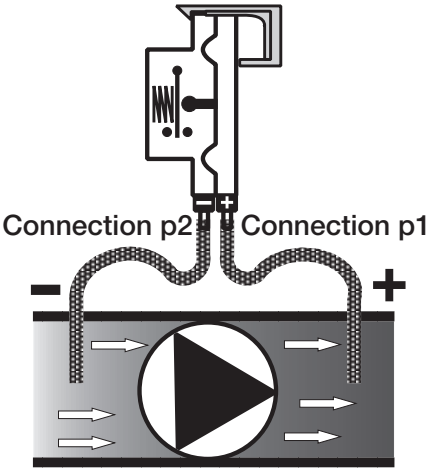


System vacuum monitor
AA...A1 is connected to the air duct with the p2 (-) connection. p1 (+) is not connected with the air duct.
Do not seal the p1 (+) connection; it must be open to the atmosphere.

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



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.

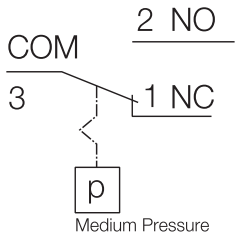
WIRING

- 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 abilty 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 or 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 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 or 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 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