SIEMENS

Symaro

Differential pressure switch

QBM9903-..

For air and neutral gases

- For ventilation and air conditioning systems
- Monitors air filter, air flows, fan belts
- Monitors air pressure in clean rooms, kitchens, etc.
- Easy to mount
- >1 mio. switching cycles
- Long-term stability

Application

In ventilation and air conditioning plants to:

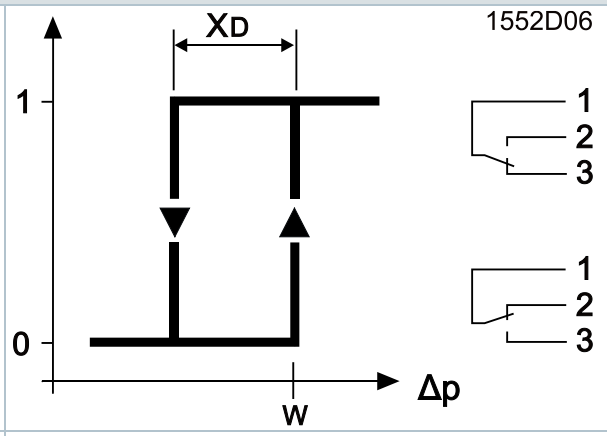
- Monitor differential, positive and negative pressure.
- Monitor air filters and air flows.
- Detect torn fan belts.

The differential pressure switches can be used in clean rooms, kitchens, etc.

Functions

Function diagram

Switching state

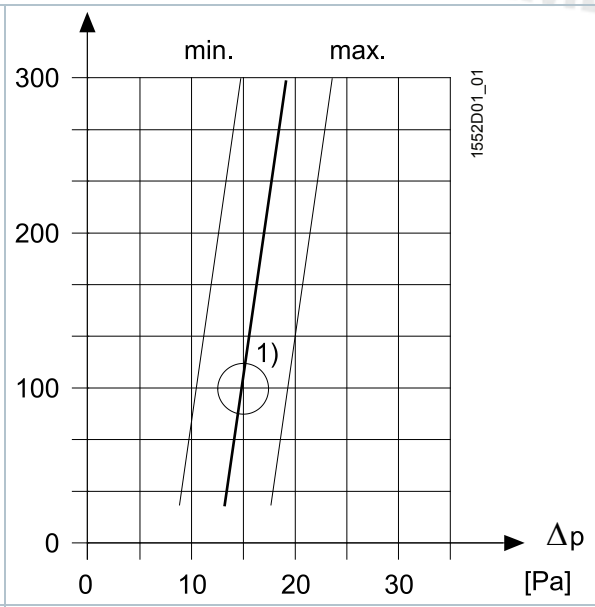


X_D = Switching difference
D_p = Pressure difference
W = Switching point high

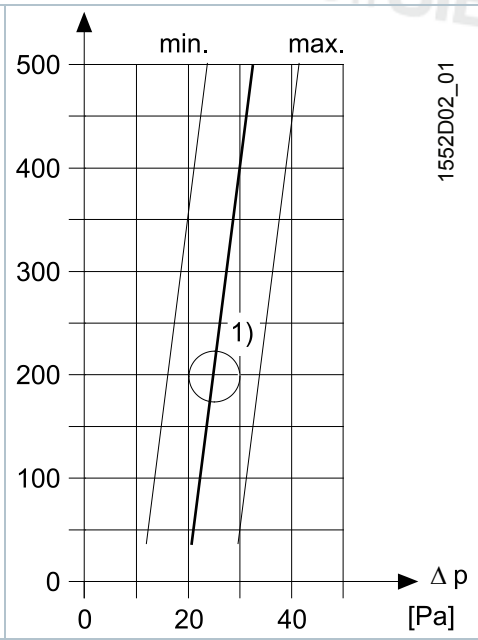
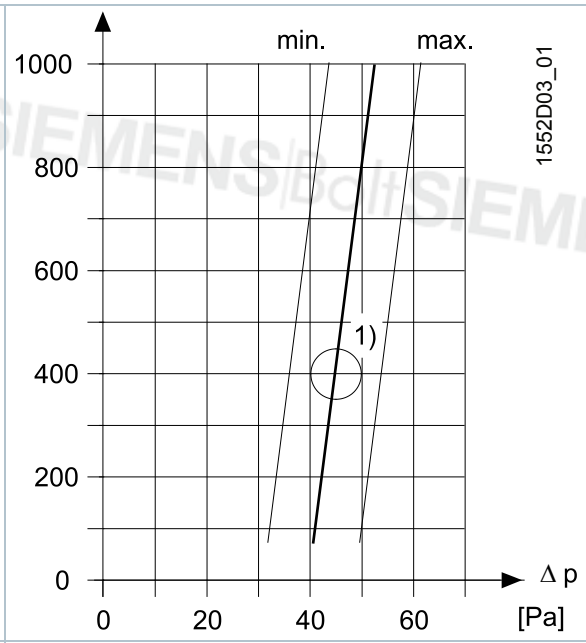
Switching points

QBM9903-3

Switching points high [Pa]



Switching difference [Pa]

Switching points	
QBM9903-5	
Switching points high [Pa]	
	Switching difference [Pa]
QBM9903-10	
Switching points high [Pa]	
	Switching difference [Pa]

Technical design

The differential pressure switches QBM9903-.. consist of three parts:

- Housing and cover
- Trapezoidal bead diaphragm
- 1 sheet steel mounting bracket

The connection set supplied includes:

- 2 sensor tubes, straight
- 4 attachment screws
- Plastic tubing, 2 m long, dia. 5/8 mm

Technical design

The differential pressure between the two pressure connections actuates the spring-loaded diaphragm. The trapezoidal bead diaphragm ensures the long-term stable switching points.

Type summary

Type	Stock number	Pressure range	
QBM9903-3	S55720-S430	30…300 Pa	0,3…3 mbar
QBM9903-5	S55720-S431	50…500 Pa	0.5…5 mbar
QBM9903-10	S55720-S432	100…1000 Pa	1…10 mbar

Ordering

When ordering, please specify the quantity, name, type designation, and stock number.

The minimum order quantity is 100 items or a multiple thereof.

Example: **100 differential pressure switches QBM9903-3 S55720-S430**

The accessories comprising a connection set are added.

Notes

Safety

⚠ CAUTION

National safety regulations

Failure to comply with national safety regulations may result in personal injury and property damage.

- Observe national provisions and comply with the appropriate safety regulations.

Mounting

The mounting instructions are included with the differential pressure switch.

The differential pressure switch is intended for mounting in air ducts or on walls.

Vertical orientation is recommended, but any orientation is possible in principle.

Horizontal orientation changes the switching point of the differential pressure switch (see "Commissioning [→ 5]").

The pressure connection tubes can be any length. Tubing longer than 2 m increases the response time.

Mount the differential pressure switch above the duct pressure connection points.. To prevent condensation, route the tubing at a gradual incline from the sensor tubes to the differential pressure switch.

Installation

⚠ WARNING

No internal line protection for supply lines to external consumers

Risk of fire and injury due to short-circuits!

- Adapt the line diameters as per local regulations to the rated value of the installed fuse.

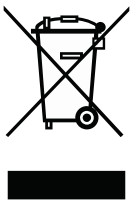
Commissioning

Set the desired switching point using the switching point setting knob [5] (see "Dimensions [→ 8]") under the cover.

Factory calibration occurs in vertical orientation. For horizontal orientation, note the change of switching point, i.e. adjust the switching point as follows:

- Cover facing upward: Switching point is 11 Pa higher than scale.
- Cover facing downward: Switching point is 11 Pa lower than scale.

Disposal



The device is considered an electronic device for disposal in accordance with the European Guidelines and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Technical data

⚠ WARNING

No internal fusing available

Risk of damage

- External fusing is required for the device in all cases!

Electrical interface		
Switching system	EPU, multi-layer contact	
Contact rating	AC/DC 24 V, ≥0.01 A	
	AC 250 V	Max. 5 A res. Max. 3 A ind., cos φ > 0.6 (0.8 A at 6-fold starting current, cos φ > 0.6)
Voltage against earth	Max. AC 250 V	
External supply line fusing	• Max. T 10 A non-renewable fuse or • Max. C 13 A circuit breaker Tripping characteristic B, C, D as per EN 60898	
Switching differential	Factory set	
Reset	Automatic	
Service life	> 1,000,000 switching cycles	

Function data		
Measuring range	See "Type summary [→ 4]"	
Max. unilateral overload	-30…75 °C	7500 Pa
	-30…85 °C	5000 Pa
Permissible media	Air, non-corrosive gases	
Reproducibility for range	30…300 Pa	<±2.5 Pa
	50…500 Pa	<±5 Pa
	100…1000 Pa	<±5 Pa
Setting accuracy	≤±15 %	

Degree of protection and class	
Protection class	II as per EN 60730-1
Degree of protection of housing	IP54 as per EN 60529

Materials	
Housing	PC, fiber-glass reinforced
Cover	PC
Diaphragm	Silicone LSR, emission-free
Mounting bracket	Steel-sheet
Sensor tubes	ABS
Plastic tube	PVC, soft

Mounting and connection	
Mounting position	Any, see "Mounting [→ 4]"
Electrical connection	3-pin screw terminals
Cable entry	Cable gland Pg 11
Pressure connections	Male, dia. 6.2 mm

Ambient conditions	
Temperature ranges: • Operation • Storage	 • –30... +85 °C • –40... +85 °C
Ambient humidity	<90 % r.h., non-condensing

Standards, directives and approvals	
Product standard	EN 60730-2-6 Particular requirements for automatic electrical pressure sensing controls including mechanical requirements
EU conformity (CE)	CA1T1552xx *)
EAC compliance	Eurasian compliance
Environmental compatibility	The product environmental declaration CA1E1552 *) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

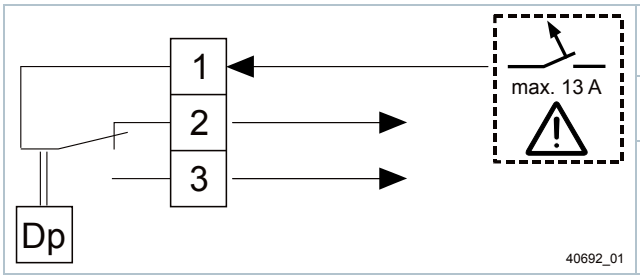
*) Documents can be downloaded at http://siemens.com/bt/download.

Fire classes	
	As per UL94
Pressure housing / Housing	V-0
Cover	HB
Plastic tube	V-2
Sensor tubes	HB

Weight	
Device (1 item)	116 g
Connection set 1 item)	54 g
Weight (with packaging) (100 items)	18.5 kg

Connection diagrams

Connection diagram

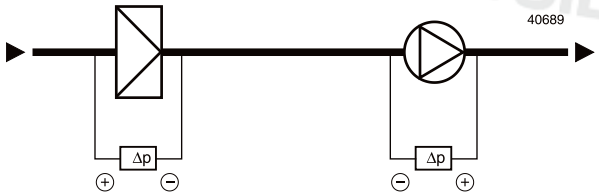


1 = Phase

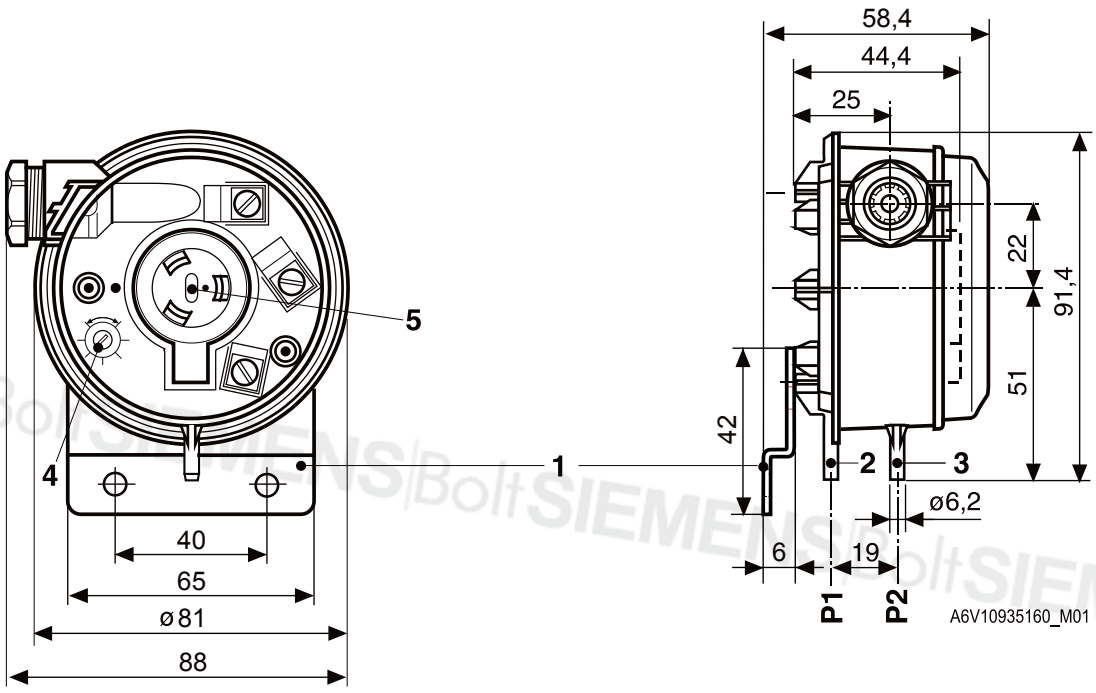
2 = Switch position 1-2: Lower pressure

3 = Switch position 1-3: Higher pressure

Application examples

Filter monitoring	Flow monitoring
	
+ = Pressure, upstream of filter – = Pressure, downstream of filter	+ = Pressure downstream of fan - = Pressure upstream of fan intake side or open to atmospheric pressure. Position in intake center for radial fan.

Dimensions



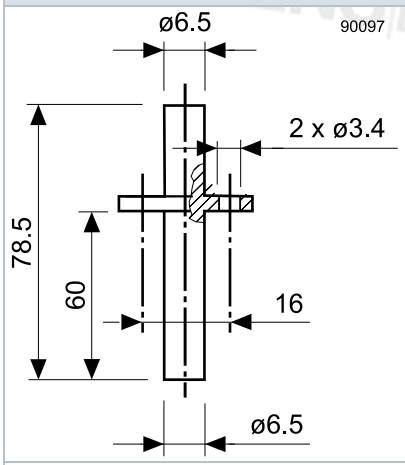
1 Mounting bracket

2 P1 connection, higher pressure

3 P2 connection, lower pressure

4 Switching differential screw (factory-sealed)

5 Adjusting knob for switching point

Sensor tube

2 sensor tubes (plastic) and 2 m tubing supplied

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