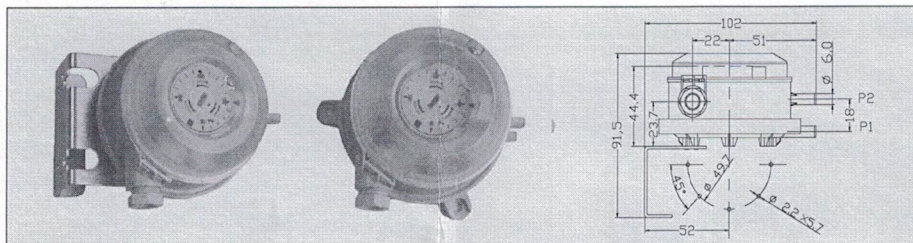


## 609 Adjustable Differential Pressure Switch



### Applications & Features

Monitoring overpressure, vacuum and differential pressure of the air and other non-combustible, non-aggressive gases

### Specifications

**Adjustable range:** 4 ranges, see models

**Pressure limit:** 7500Pa (-30~75°C)

**Working temperature:** -30~75°C

**Storage temperature:** -30~75°C

**Pressure connection:**  $\phi 6.0$ mm plastic tube, P1 high and P2 low pressure

**Service life:** over  $10^6$  switching cycles

**Electrical Contact:** SPDT, 2A/250VAC, 1A/30VDC

**Max. switching frequency:** 6 switching cycles/min

**Electrical connection:** screw terminals

**Repeatability:**  $\pm 2\%$

**Materials:** housing PC, cover PC, diaphragm silicone and contact silver

**Weight:** 140g with bracket, 90g without bracket

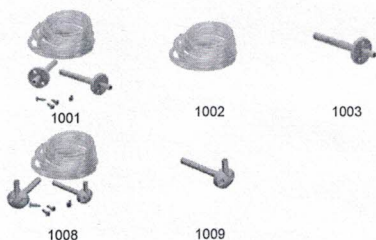
**Protection:** IP54

**Installation:** vertical, pressure ports P1 and P2 downward. This is the factory-calibrated position. If horizontally installation needed, the switching value should plus about 20pa (cover upward) and minus about 10pa (cover downward). See operation manual

**Approval:** CE

### Accessories(should be ordered separately)

Part No	Description
1001	Individual accessory package: clear PVC tube 2M, connectors(1003) 2PCS, screws 4PCS
1002	plastic pipe 2m
1003	1 pc pressure connection part, straight type
1008	Individual accessory package: clear PVC tube 2M, connectors(1009) 2PCS, screws 4PCS
1009	1 pc pressure connection part, L type



### Models

Model	609	X	X	X
Enclosure	With install ear	0		
	No ear, with bracket	1		
Adjustable range	20~300Pa		0	
	50~500Pa		1	
	100~1000Pa		2	
	0.5~2.5kPa		3	
Engineering unit	Pa			0
	mbar			7
	inch wc			8
	mm wc			9

### Dead Band

Part No.	Range	DB
609.X0X	20-300Pa	10 $\pm$ 5Pa
609.X1X	50-500Pa	20 $\pm$ 8Pa
609.X2X	100-1000Pa	50 $\pm$ 15Pa
609.X3X	0.5-2.5kPa	100 $\pm$ 30Pa

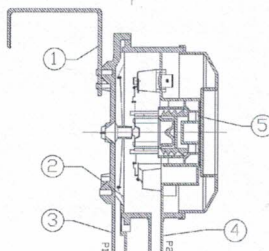
Re: the DB is factory set.

### Structure

1. Bracket for installation
2. Diaphragm
3. P1 high pressure or low vacuum
4. P2 low pressure or high vacuum
5. Scale dial (switching point setting)

#### Remarks:

it is for the one with bracket. Another style is with installation ear. The two styles are for different applications. Their internal structures and all specifications are the same.



Please read this manual carefully before installation. The upper cover could be opened for adjusting set point and electrical wiring. But the bottom cover cannot be opened. Otherwise, the switch will be damaged. All figures in this manual are for 609. 1XX(with bracket). 609.0XX(with ear installation) is similar.

## I. Install Switch Body

Please check if the switch body is leaking. If so, it is damaged and cannot be installed. The switch body should be installed on a vertical stable surface. And it should be near the pressure connection site as much as possible. It will decrease the distance for pressure connection and improve the performance.

### 1. Installing position:

Vertically installed with P1 & P2 downward as Fig. 1 is the best and recommended way. It can eliminate the possible condensing, and it is the factory calibrating position.

- Can be installed horizontally when the environment does not have any condensing. In this way, Fig. 2 is recommended. The cover is upward and the switch value should plus about 20pa.

- When it can only be installed as Fig. 3 (does not recommend), the switch value should minus about 10pa.

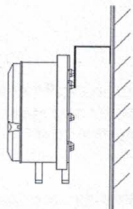


Fig. 1

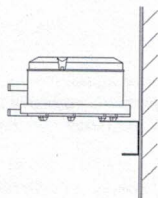


Fig. 2

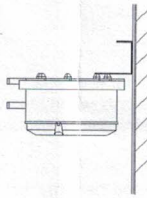


Fig. 3

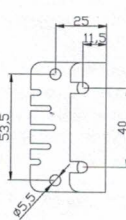
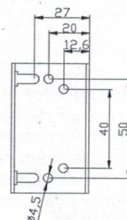


Fig. 4




### 2. Fasten with screws:

For the product with ear installation, fasten the 3 screws (max.  $\phi 4\text{mm}$ ) directly into the ear on the installation surface. Do not fasten the screws too much. Otherwise, the switch could be damaged.

For the product without installing ear, it must be installed with the "U" shape bracket shown as Fig. 4. This bracket is standard accessory and was connected with the switch body in factory. Simply fasten the 3 screws (max.  $\phi 5.4\text{mm}$ ) into any 3 holes of the bracket on the installation surface.

## II. Pressure Connect

 Do not let the tube to be tied as a knot, especially when the tube passes edges and corners. Otherwise, the switch cannot work.

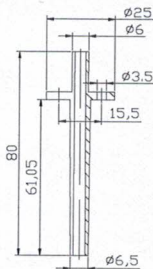


Fig. 5

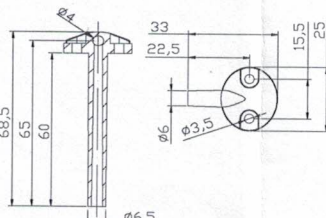


Fig. 6

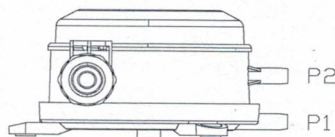


Fig. 7

1. Insert the 2 pressure connection parts as Fig. 5 or 6 with the long side (60mm) into the prepared holes. Each part should be installed with 2 screws. Be sure to seal the holes after installing to keep the holes airtight.

2. Connect the plastic tube. The standard accessory is 2m long with inner  $\phi 6\text{mm}$ . Cut the tube as short as possible to connect the ports P1 & P2 on the switch and the other side of accessory of 1003 or 1009 as Fig. 5 or 6. P1 is high port on the bottom of the switch and P2 is low port on the switch body as Fig. 7.

3. After connecting the tube, please check if the connection is tight. And it should be inspected on daily maintenance. The switch can not work correctly if it is leaking.



### III. Electrical Connect

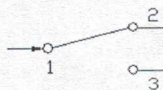


The operating technician should be trained and operate regularly.



Be sure to **DISCONNECT** the external power before electrical wiring. Otherwise, possible damage or even electric shock could happen.

1. The switch body as Fig. 8 is under the plastic cover.  
And the contact principle is:



- 1: Com  
2: Normal Close Contact  
3: Normal Open Contact

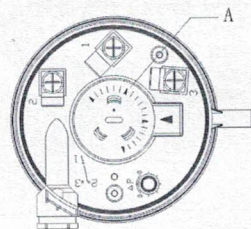


Fig. 8

#### 2. Pressure/Differential Pressure setting

The field adjustable scale indicates the set point. It means the contact will actuate when the applied (differential) pressure increases to this scale. It is accurate only when the switch is installed vertically with the P1 and P2 ports down as Fig. 1. When the applied (differential) pressure falls down below the set point, the contact will restore to the original status.

- open the upper cover.
- screw the printed scale dial (A in Fig. 8) to the required set point. It should be operated with a straight screw driver.
- wire the screw terminals 1, 2 or 3 as required.
- restore the cover closely.

### IV. Test

Be sure to start testing after the upper cover is closed. Use instruments if needed. Increase the applied (differential) pressure slowly. When it arrives the set point, the contact actuates. Then decrease the (differential) pressure slowly. When it is lower than the set point, the contact will restore to the original status. Please note the dead band characteristics for this product. If the actuations are correct, the installation and all pressure/electrical connections are finished correctly.



The max. working differential pressure is 7500Pa. If over pressured, the switch will be damaged.