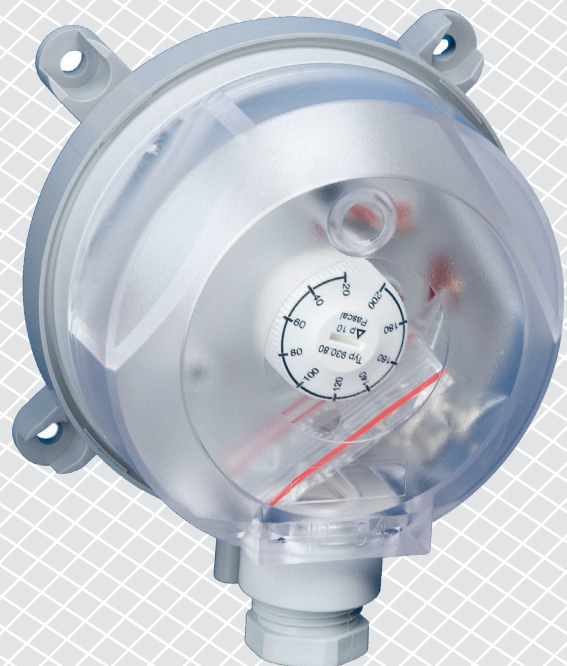


# PSW | DIFFERENTIAL PRESSURE SWITCH

## Mounting and operating instructions



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## SAFETY AND PRECAUTIONS

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Read all the information in this manual, in the datasheet and in the Modbus Register Map before working with the product. For personal and equipment safety and for optimum product performance, make sure you fully understand the content before installing, using or servicing this product.



For safety and licensing (CE) reasons, unauthorised conversions and / or modifications of the product are inadmissible.



The product should not be exposed to abnormal conditions, such as extreme temperatures, direct sunlight or vibrations. Long-term exposure to chemical vapours in high concentration can affect the product performance. Make sure the work environment is as dry as possible and avoid condensation.



All installations must comply with local health and safety regulations and local electrical standards and approved codes. This product should only be installed by an engineer or a technician with expert knowledge of the product and safety precautions.



Avoid contact with energised electrical parts. Always disconnect the power supply before connecting, servicing or repairing the product.



Always check that you are connecting the correct power supply to the product and use wires of the correct characteristics and cross-section. Make sure all screws and nuts are properly tightened and fuses (if any) are in place.



Consideration should be given to recycling the equipment and packaging. These should be disposed of in accordance with local and national laws and regulations.



If there are questions that are not answered, contact your technical support or consult a professional.

## PRODUCT DESCRIPTION

The PSW series are highly sensitive, adjustable differential pressure switches suitable for monitoring overpressure, vacuum and differential pressure of air or other non-combustible, non-aggressive gases. The switching pressure setpoint can be adjusted manually by turning the scaled calibrated knob or by using a screwdriver on that same knob.

## ARTICLE CODES

|                        | Article codes |          |
|------------------------|---------------|----------|
|                        | PSW-200       | PSW-500  |
| Range, Pa              | 20–200        | 50–500   |
| Range, mBar            | 0,2–2,0       | 0,5–5,0  |
| $\Delta P$ , Pa (mBar) | 10 (0,1)      | 20 (0,2) |

## INTENDED AREA OF USE

- Air filter and fan monitoring
- Overheating protection for fan heaters
- Controlling air and fire-protection dampers
- Monitoring industrial cooling-air circuits
- Monitoring air flows
- Monitoring flows in ventilation ducts
- Frost protection for heat exchangers
- Medium: air or other non-combustible, non-aggressive gases only

## TECHNICAL DATA

- Max. operating pressure: 10 kPa for all pressure ranges
- Mechanical life cycles: 10.000.000 operations
- Contacts rating: max. 1,5 A (0,4) / 250 VAC (VDE 0630)
- Specifications according to EN 1854:
  - ▶ Deviation:  $\leq \pm 15\%$ , min.  $\pm 10$  Pa.
  - ▶ Drift:  $\leq \pm 15\%$
- Diaphragm: Silicone, free of gas emissions
- Protection standard: IP54 with cover, IP00 without cover (according to EN 60529)
- Ambient conditions:
  - ▶ Temperature: -20–85 °C
  - ▶ Rel. humidity: < 95 % rH (non-condensing)
  - ▶ Storage temperature: -40°C to +85°C

## STANDARDS

- Low Voltage Directive 2006/95/EU CE
  - ▶ EN 60730-2-6:2008 Automatic electrical controls for household and similar use - Part 2-6: Particular requirements for automatic electrical pressure sensing controls including mechanical requirements

- WEEE directive 2012/19/EU - Waste of electrical and electronic equipment
- RoHs Directive 2011/65/EU - Restriction of use of certain hazardous substances in electrical and electronic equipment
- Gas Appliance Directive 2016/426/EU
- ATEX Directive 2014/34/EU

## WIRING AND CONNECTIONS

| PSET connections         |                                     |                             |                          |
|--------------------------|-------------------------------------|-----------------------------|--------------------------|
| Application              | Low pressure monitoring             | Filter monitoring           | Fan monitoring           |
| Higher pressure - P1 (+) | Not connected                       | Connected before the filter | Connected after the fan  |
| Lower pressure - P2 (-)  | Connected to the inside of the duct | Connected after the filter  | Connected before the fan |

| Electrical connections |                         |
|------------------------|-------------------------|
| 1                      | Normally closed contact |
| 2                      | Normally open contact   |
| 3                      | Common contact          |

**NOTE**

*Use screened wires*

## MOUNTING INSTRUCTIONS IN STEPS

Before you start mounting the unit, read carefully **“Safety and Precautions”**. Choose an appropriate mounting location.

**ATTENTION**

*Switching pressure specifications apply to vertical installation which is also the recommended position with the pressure-pipe connections pointing downwards.*

*If the switch is installed horizontally with connection terminals facing up, the switching values are approximately 20 Pa higher.*

**Follow these steps:**

1. Unscrew the cover to open the unit.
2. Position the pressure switch in an appropriate location adhering to the mounting dimensions and position (**Fig. 1** and **Fig. 2.1-3**).

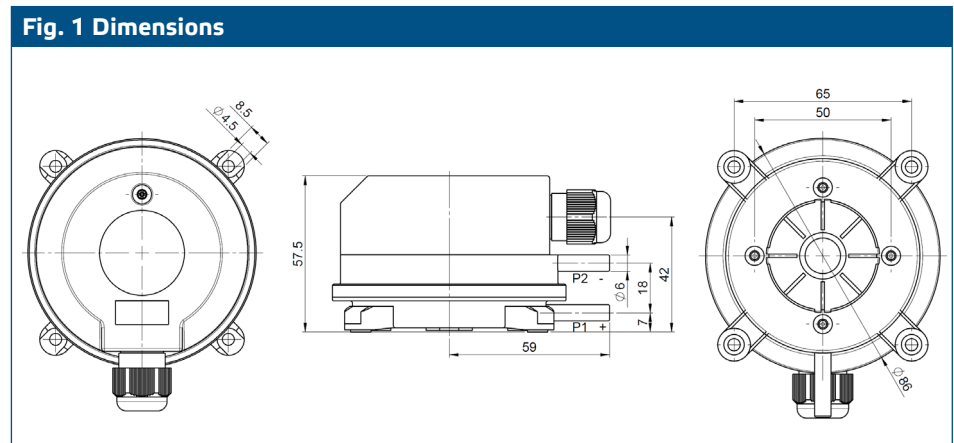


Fig. 2.1 Low pressure monitoring

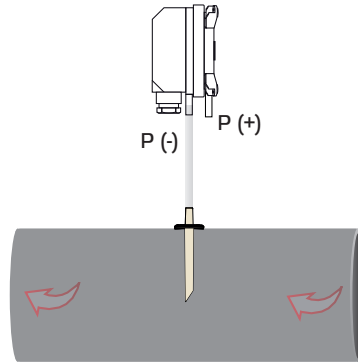


Fig. 2.2 Filter monitoring

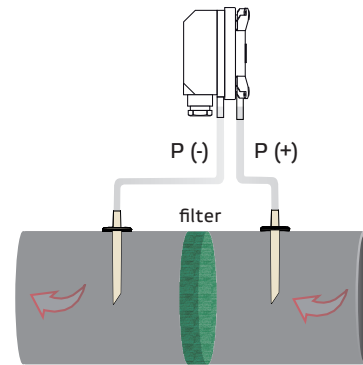
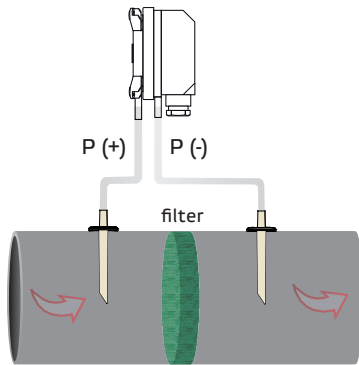
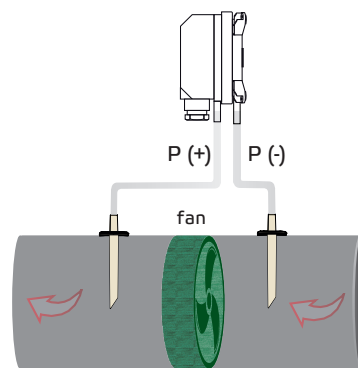
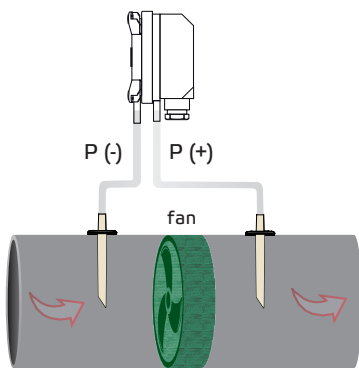


Fig. 2.3 Fan monitoring

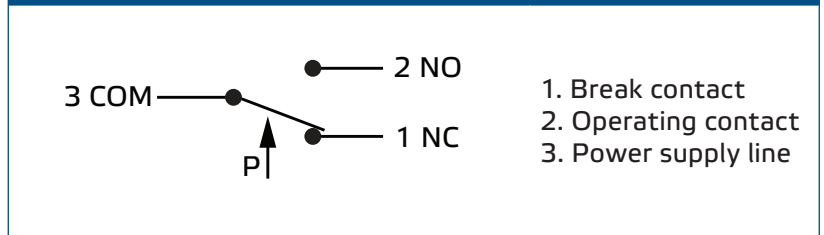


 **NOTE**

When choosing an installation location consider the ease of access for installation, connection and operation. Avoid exposure to direct sunlight or rain. The IP protection class of the equipment must comply with the ambient conditions. To prevent dangerous temperature increases on the surface of the equipment, dust deposits must be avoided.

3. Connect the nozzles to the duct. Depending on the application, the PSET must be connected differently:
  - 3.1 Low pressure monitoring (Fig. 2.1)
  - 3.2 Filter monitoring (Fig. 2.2)
  - 3.3 Fan monitoring (Fig. 2.3)
4. Insert the cables through the cable gland and do the wiring according to the wiring diagram (see Fig. 3).

**Fig. 3 Wiring**



5. Put the cover back in place and tighten the screw.
6. Switch on the mains supply. Once the power supply is applied, the equipment is ready for immediate operation.

## OPERATING INSTRUCTIONS

Before voltage is applied to the equipment the following checks must be performed:

- Check that screws are firmly seated in
  - ▶ Connecting terminals, protective earth conductor terminals and potential equalisation terminals
  - ▶ Housing cover
- Check
  - ▶ The torque of the cable lead-in
  - ▶ The tightness of the seal provided by the cable lead-in
- Check whether the equipment is ready for operation
  - ▶ Adjust the switch according to the intended use
  - ▶ All interfaces such as inputs and outputs for control purposes must be connected and ready for operation

### Settings

- Define all application-specific parameters.
- Adjustment of the pressure ranges:
  - ▶ With the scaled adjustment knob
  - ▶ With a screwdriver on the scaled adjustment knob

## TRANSPORT AND STORAGE

Avoid shocks and extreme conditions and stock in original packing.

## WARRANTY AND RESTRICTIONS

The warranty against manufacturing flaws is valid for two years starting from the date of delivery. Any alterations or adjustments to the product absolve the manufacturer of all liability. The manufacturer disclaims all liability for typographical or other errors in this document.

## MAINTENANCE

In normal conditions this product is maintenance-free. If soiled, clean with a dry or damp cloth. In case of heavy pollution, clean with a non-aggressive product. In these circumstances the unit should be disconnected from the supply. Pay attention that no fluids enter the unit. Only reconnect it to the supply when it is completely dry.