

Differential Pressure Sensor VSA 24-DM /-DH /-DP



The differential pressure sensor VSA 24-D... is a microprocessor controlled pressure switch with two alarm outputs for pre-alarm and shut-off.

Depending on the pressure loss in the filter head, the inner piston moves towards a spring. The position of the piston is registered by a pressure sensor placed in the upper part of the sensor. The measured values are converted to optical and electrical signals.

As soon as power is turned on, four green LEDs, installed under a transparent cover, start flashing and indicate that the system is active. A temperature sensor measures the temperature of the fluid continuously. After the oil has reached its operational temperature, the device swaps to operation mode, and the green LEDs light up continuously. While the filter capacity decreases during operation, the differential pressure rises slowly. If the dirt holding capacity of the filter is reduced to approx. 25%, the yellow LED lights up. If 100% of the capacity is reached, the red LED appears additionally. Simultaneously, the electrical alarm outputs are activated, signaling the state to the monitoring device.

Since there is no flow across the filter if the system is running idle, no pressure loss can be measured. Nevertheless, the LEDs and the alarm outputs are self-locking and stay active unless the power supply is interrupted or the reset button is pressed.

Furthermore, the device has a self-checking function. In case of malfunction, the red LEDs start blinking and signal output 2 is activated without switching on the yellow LEDs.

- **Two alarm outputs**
- **Signal suppression during cold start operating and short-term pressure peaks**
- **Optical / electrical indication**
- **Self-monitoring**
- **360° highly visible LED corona**
- **Indication of status and fault**
- **M12 connector**
- **Reset function**

Technical Data

Mechanical Data:

Max. operating pressure 400 bar
 Operating temperature -20 °C to +85 °C

Models	VSA 24-DM	VSA 24-DH	VSA 24-DP
Thread	M20x1.5	G1/2	3/4 16-UNF-3A
for filter case type	Mahle	Hydac	Pall

Material

screw-in casing	1.4305	1.4305	1.4305
Gaskets	CU / NBR	NBR	NBR
Top	Al-eloxiert / PC (transparent)		

Weight 220 g

Electrical Data:

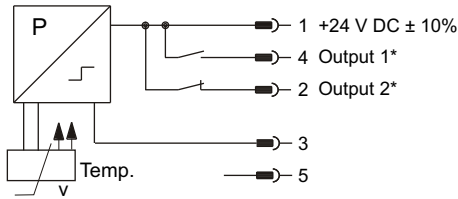
Connector	M12x1 (5-pol.)
Operating voltage	24 V DC \pm 10%
Current consumption	< 100 mA
Protection class	IP67 (with connector installed)
Alarm	
Display	optical (LED's) / electrical
Enable	\geq 30 °C (temp. of medium)
Signal outputs	2
Output 1 (NO)	Alarm at 75% (Δp 2.0 or Δp 4.1 bar \pm 10%)
Output 2 (NC)	Shut-off at 100% (Δp 2.8 or Δp 5.5 bar \pm 10%)
Max. switching current	1 A at 24 V DC

Function:

The capacity provides a display of LED's of different colours. The LED's visualise the operating states and faults.

green LED	continuously on	- sensor is ready for operation
yellow LED	continuously on	- output 1 is closed (alarm at $\Delta p = 2.0$ bar or $\Delta p = 4.1$ bar \pm 10%)
red LED	continuously on	- output 2 is open (alarm at $\Delta p = 2.8$ bar or $\Delta p = 5.5$ bar \pm 10%)
green LED (- ■ - ■ - ■ - ■ -)	flashing approx. 2x per second	- temperature < 30 °C; unit not yet ready for operation! (signal outputs are blocked)
red LED (- ■ - ■ - ■ - ■ -)	flashing approx. 2x per second	- defective pressure or temperature sensor (output 2 is open)
yellow LED	OFF	

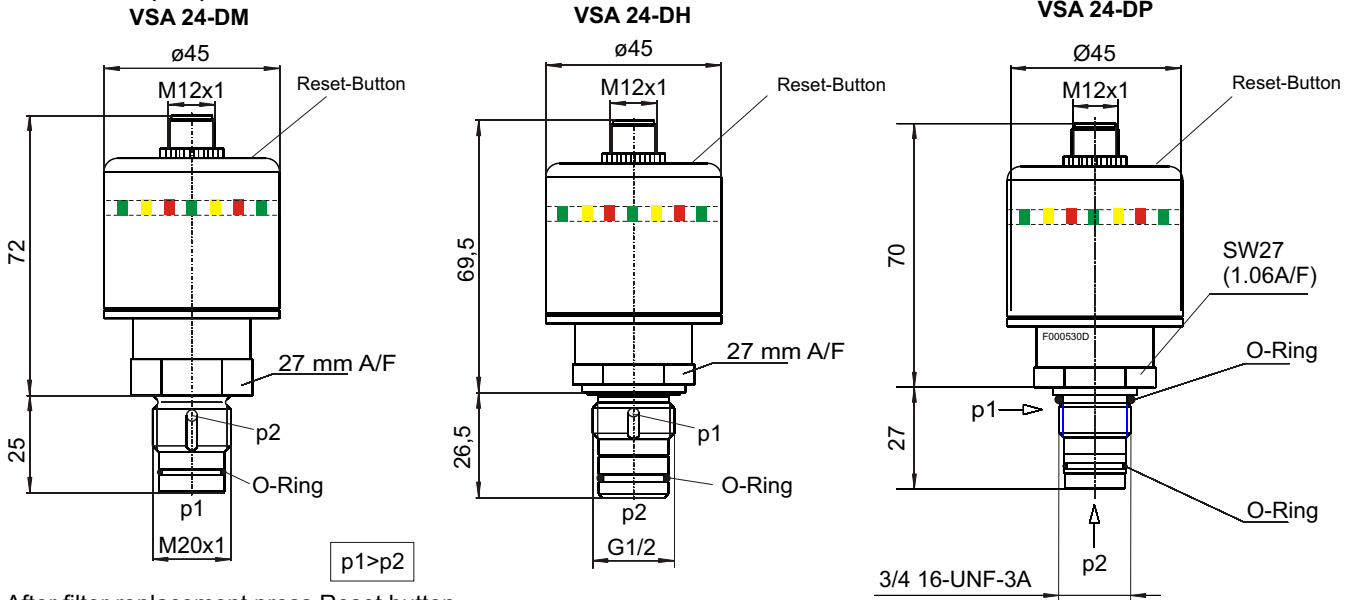
Wiring Diagram



Output 1 = activates at approx. 75%
 (approx. $\Delta p = 2.0$ or $\Delta p = 4.1$ bar)
 NO-contact at increasing pressure

Output 2 = Shut-off at 100%
 (approx. $\Delta p = 2.8$ or $\Delta p = 5.5$ bar)
 NC contact at rising temperature

Dimensions (mm)



After filter replacement press Reset button

Order Information

Part-No.	
13 20 099	Differential pressure sensor VSA 24-DM-2,0/2,8
13 20 199	Differential pressure sensor VSA 24-DH-2,0/2,8
13 20 499	Differential pressure sensor VSA 24-DP-2,0/2,8
13 20 299	Differential pressure sensor VSA 24-DM-4,1/5,5
13 20 399	Differential pressure sensor VSA 24-DH-4,1/5,5
13 20 599	Differential pressure sensor VSA 24-DP-4,1/5,5

Accessories

Part-No.	
9144050018	Connecting cable with plug M12x1 (5-pol.), 3.0 m, elbow plug and copper strands