



## Differential pressure sensor VSA 24-DM/-DH/-DP

Filtration is an important component of condition monitoring in hydraulic and lubrication systems. Predictive filter maintenance, however, is only possible if monitoring the remaining life of the filter elements is indicated in a way so replacements do not cause unplanned downtimes.

The VSA 24 series uses smart visual and electric signals whilst simultaneously suppressing viscosity-related effects for particularly efficient filter capacity use.

The VSA 24 DM... monitors the pressure difference in in-line filters and technically corresponds to a microprocessor-controlled pressure switch with 2 switching outputs for advance warning (filter element nearly depleted) and cut-out (filter element full). At the advance warning stage the yellow LED's will also light up, and on cut-out the red LED's.

These remain on until the reset button has been pressed. The unit is self-monitoring. If a malfunction occurs, the red LED's will blink and the advance warning signal will appear without triggering the yellow LED's.

Two switching outputs

Signal suppression during the cold start phase and for temporary pressure peaks

Visual/electric indicator

Self-monitoring

LED illuminated halo visible from every angle

Status and error message display

M12 plug connection

Reset function



## Technical Data

### Technical Data VSA 24-DM/-DH/-DP

#### Mechanical data

max. operating pressure:	400 bar
Operating temperature:	-20 °C to 85 °C

Models	VSA 24-DM	VSA 24-DH	VSA 24-DP
Screw-in thread:	M20x1.5	G1/2	3/4 16-UNF-3A
for filter housing models:	Mahle	Hydac	Pall

#### Material

Screw-in unit:	1.4305	1.4305	1.4305
Seals:	CU/NBR	NBR	NBR
Top:	Anodised aluminium/PC (transparent)		

<b>Weight</b>	220 g
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#### Electrical data

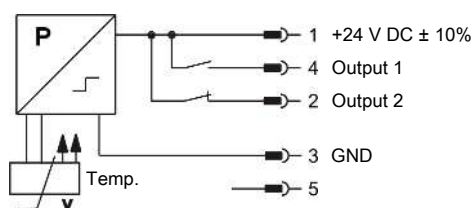
Plug connection:	M12x1 (5-pin)
Operating voltage:	24 VDC $\pm$ 10%
Power input:	< 100 mA
IP rating:	IP67 (with plug top)
Alarm	
Display:	visual (LED's)/electric
Approval:	30 °C and up (medium temperature)
Switching outputs:	2
Output 1 (NO contact):	Alarm at 75% ( $\Delta p$ 2.0 or $\Delta p$ 4.1 bar $\pm$ 10%)
Output 2 (NC contact):	Cut-out at 100% ( $\Delta p$ 2.8 or $\Delta p$ 5.5 bar $\pm$ 10%)
Max. switching current	1 A at 24 VDC

## Operating Notes

The contamination indicator has an LED illuminated halo visible from all sides. In addition to the standard status messages, these LED's are also used for other alerts:

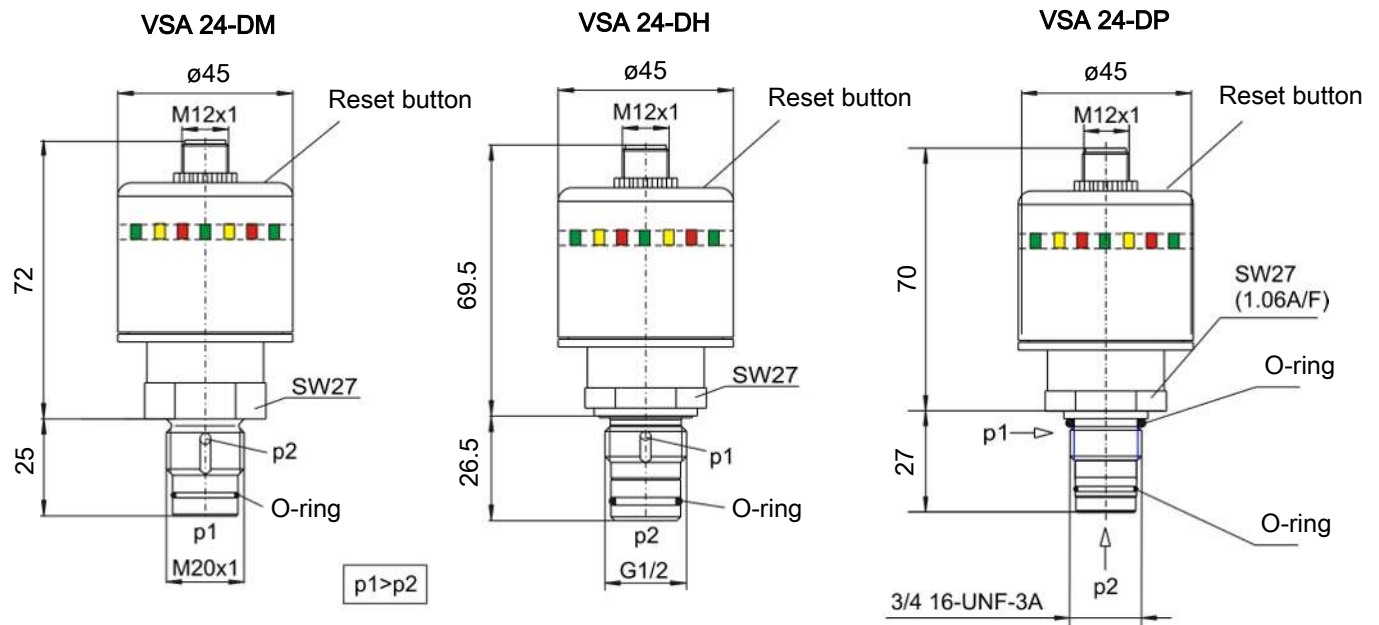
LED	Status	Description
Green LED	steady	Connected to power, unit ready for use
Yellow LED	steady	Switching output 1 closed (alarm at $\Delta p$ 2.0 or $\Delta p$ 4.1 bar $\pm$ 10 %)
Red LED	steady	Switching output 2 open (alarm at $\Delta p$ 2.8 or $\Delta p$ 5.5 bar $\pm$ 10 %)
Green LED	blinks about 2x per second	Temperature < 30 °C (switching outputs not activated)
(■ ■ ■ ■ ■)		
Red LED	blinks about 2x per second	Pressure- or temperature sensor failure/switching output 2 open
(■ ■ ■ ■ ■)		
Yellow LED	off	

## Pin Assignment



Output 1 = Advance warning at approx. 75 % (approx.  $\Delta p$  2.0 or  $\Delta p$  4.1 bar)  
NO contact with rising pressure  
Output 2 = Cut-out at 100 % (approx.  $\Delta p$  2.8 or  $\Delta p$  5.5 bar)  
NC contact with rising pressure

## Dimensions



The reset button must be pressed after every filter change.

## Ordering Instructions

Item no.:	Type
13 20 099	Differential pressure gauge VSA 24-DM-2.0/2.8
13 20 199	Differential pressure gauge VSA 24-DH-2.0/2.8
13 20 499	Differential pressure gauge VSA 24-DP-2.0/2.8
13 20 299	Differential pressure gauge VSA 24-DM-4.1/5.5
13 20 399	Differential pressure gauge VSA 24-DH-4.1/5.5
13 20 599	Differential pressure gauge VSA 24-DP-4.1/5.5

## Accessories

Item no.:	Type
914 405 0018	Connecting cable M12x1 (5-pin), length 3.0 m, angular coupling and strands