



## Capacity Sensor VSA 24-SM/-SH

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- SM... monitors the dynamic pressure in external return filters. It slowly rises as the filter element becomes depleted. When the residual capacity is only approx. 25%, the yellow LEDs are continuously lit and a switching output is activated. If the element is depleted, red LEDs light up and an additional switching output is activated. Upon customer request, an additional alarm can be generated after the adjustment of all parameters, if the system is being started without a filter element.

The signals 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-SM/-SH****Mechanical data**

|                          |                  |
|--------------------------|------------------|
| max. operating pressure: | 10 bar           |
| Operating temperature:   | -20 °C to +85 °C |

|               |                  |                  |
|---------------|------------------|------------------|
| <b>Models</b> | <b>VSA 24-SM</b> | <b>VSA 24-SH</b> |
|---------------|------------------|------------------|

|                  |         |      |
|------------------|---------|------|
| Screw-in thread: | M30x1.5 | G1/2 |
|------------------|---------|------|

|                            |       |       |
|----------------------------|-------|-------|
| for filter housing models: | Mahle | Hydac |
|----------------------------|-------|-------|

**Material**

|                |        |        |
|----------------|--------|--------|
| Screw-in unit: | 1.4305 | 1.4305 |
|----------------|--------|--------|

|        |        |     |
|--------|--------|-----|
| Seals: | CU/NBR | NBR |
|--------|--------|-----|

|      |                                     |
|------|-------------------------------------|
| Top: | Anodised aluminium/PC (transparent) |
|------|-------------------------------------|

|               |       |
|---------------|-------|
| <b>Weight</b> | 200 g |
|---------------|-------|

**Electrical data**

|                  |               |
|------------------|---------------|
| Plug connection: | M12x1 (5-pin) |
|------------------|---------------|

|                    |              |
|--------------------|--------------|
| Operating voltage: | 24 VDC ± 10% |
|--------------------|--------------|

|              |          |
|--------------|----------|
| Power input: | < 100 mA |
|--------------|----------|

|            |                      |
|------------|----------------------|
| IP rating: | IP67 (with plug top) |
|------------|----------------------|

|       |  |
|-------|--|
| Alarm |  |
|-------|--|

|          |                          |
|----------|--------------------------|
| Display: | visual (LEDs) / electric |
|----------|--------------------------|

|           |                                   |
|-----------|-----------------------------------|
| Approval: | 30 °C and up (medium temperature) |
|-----------|-----------------------------------|

|                    |   |
|--------------------|---|
| Switching outputs: | 2 |
|--------------------|---|

|                        |                        |
|------------------------|------------------------|
| Output 1 (NO contact): | Alarm at 75% (2.2 bar) |
|------------------------|------------------------|

|                        |                            |
|------------------------|----------------------------|
| Output 2 (NC contact): | Shut-off at 100% (2.9 bar) |
|------------------------|----------------------------|

**Operating Notes**

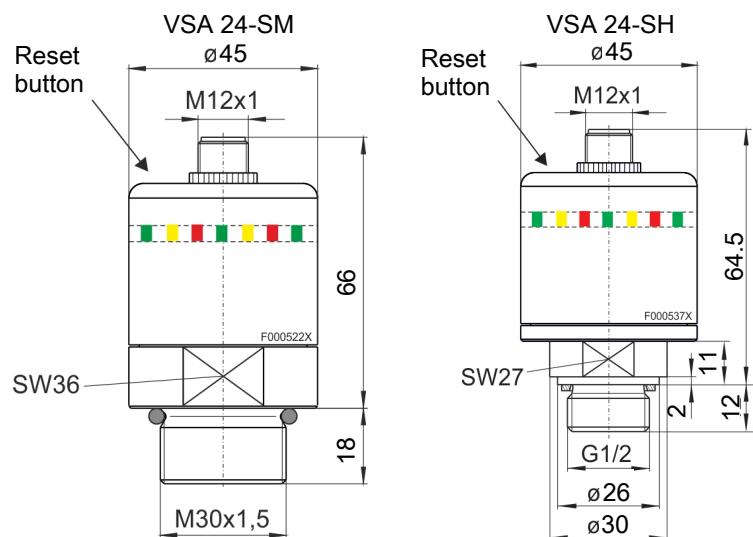
The capacity sensor has an LED illuminated halo visible from all sides. In addition to the standard status messages, these LED's are also used for other alerts:

| LED        | Status                     | Description   |
|------------|----------------------------|---|
| Green LED  | steady                     | Connected to power, unit ready for use                          |
| Yellow LED | steady                     | Switching output 1 closed (alarm at 2.2 bar)                    |
| Red LED    | steady                     | Switching output 2 open (alarm at 2.9 bar)                      |
| Green LED  | blinks about 2x per second | Temperature < 30 °C (switching outputs not activated)           |
| Yellow LED | blinks about 2x per second | Pressure- or temperature sensor failure/switching output 2 open |
| Yellow LED | off                        |   |

Once the switching outputs have been activated due to excess pressure, they will only be deactivated by switching off the capacity sensor/system, pressing the Reset button or when the oil temperature drops below 20 °C.

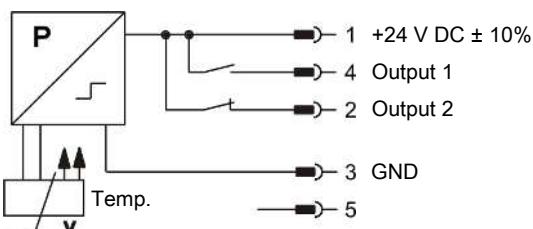
To trigger a switching process the pressure must continuously exceed the respective limit ( $\Delta p$  2.2 or  $\Delta p$  2.9 bar) for at least 4 seconds. This prevents brief pressure peaks triggering an alarm.

## Dimensions



The reset button must be pressed after every filter change.

## Pin Assignment



Output 1 = Alert at 2.2 bar (NO contact with rising pressure)  
 Output 2 = shut-off at 2.9 bar (NC contact with rising pressure)

## Ordering Instructions

| Item no.: | Type                              |
|-----------|-----------------------------------|
| 13 10 099 | Capacity Sensor VSA 24-SM-2.2/2.9 |
| 13 10 199 | Capacity Sensor VSA 24-SH-2.2/2.9 |

## Accessories

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