



VCM301

## VCM/VNM

### Negative pressure switches (vacuum switches)

FEMA negative pressure switches detect the pressure difference relative to atmospheric pressure. All data relating to the switching pressure ranges and thus also the scale divisions on the switching devices are to be understood

as the difference in pressure between the relevant atmospheric pressure and the set switching pressure. The "zero" reference point on the scale of the unit corresponds to the relevant atmospheric pressure.

#### SIL 2 according IEC 61508-2



#### Technical data

##### Pressure connection

External thread G 1/2 (pressure gauge connection) according to DIN 16 288 and internal thread G 1/4 according to ISO 228 Part 1.

##### Switching device

Robust housing (200) made of seawater resistant die cast aluminium GD Al Si 12.

##### Protection class

IP 54, in vertical position.

##### Pressure sensor materials

VNM111 and VNM301: Metal bellows: 1.4571  
Sensor housing: 1.4104  
VCM095, 101 and 301: Metal bellows of CuZn  
Sensor housing of CuZn  
VCM4156: Perbunan diaphragm sensor housing: 1.4301

##### Mounting position

Vertically upright and horizontal.  
VCM4156 vertically upright.

##### Ambient temp. at switching device

-25...+70 °C

##### Exemption

VCM4156 -15...+60 °C

##### Max. medium temperature

The maximum medium temperature at the pressure sensor must not exceed the permitted ambient temperature at the switching device. Temperatures may reach 85°C for short periods. Higher medium temperatures are possible provided the above limit values for the switching device are ensured by suitable measures (e.g. siphon).

##### Mounting

Directly on the pressure line (pressure gauge connection) or on a flat surface with two 4 mm Ø screws.

##### Switching pressure

Adjustable from outside with screw driver.

##### Switching differential

Not adjustable with VCM types. Adjustable with VCMV type. For values see Product Summary.

##### Contact arrangement

Single pole change over switch.

Switching capacity	250 VAC		250 VDC	24 VDC
	(ohm)	(ind)	(ohm)	(ohm)
Normal	8 A	5 A	0.3 A	8 A

#### Product summary

Type	Setting range (differential pressure)	Switching differential (mean values)	Max. permissible pressure	Dimensioned drawing
<b>Switching differential not adjustable</b>				<b>page 21 + 22</b>
VCM4156	-15...+6 mbar	2 mbar	1 bar	1 + 11
VCM301	-250...+100 mbar	25 mbar	1.5 bar	1 + 13
VNM301	-250...+100 mbar	45 mbar	3 bar	1 + 15
VCM101	-1*...+0.1 bar	45 mbar	3 bar	1 + 14
VCM095	-0.9...+0.5 bar	50 mbar	3 bar	1 + 14
VNM111	-1*...+0.1 bar	50 mbar	6 bar	1 + 15
<b>Switching differential adjustable</b>				
VCMV301	-250...+100 mbar	30 – 200 mbar	1,5 bar	1 + 13
VCMV101	-1*...+0.1 bar	80 – 350 mbar	3 bar	1 + 14
VCMV095	-0.9...+0.5 bar	90 – 400 mbar	3 bar	1 + 14
VNMV301	-250...+100 bar	70 – 450 mbar	3 bar	1 + 15
VNMV111	-1*...+0.1 bar	90 – 650 mbar	6 bar	1 + 15

\* At very high vacuums, close to the theoretical maximum of -1 bar, the switch may not be usable in view of the special conditions of vacuum engineering. However, the pressure switch itself will not be damaged at maximum vacuum.

For additional functions refer to page 26 – 28.

For smaller pressure ranges see also HCD and DPS data sheets, page 68 and 69.

#### Calibration

The **VCM** and **VNM** series are calibrated for falling pressure. This means that the adjustable switching pressure on the scale corresponds to the switching point at falling pressure. The reset point is higher by the amount of the switching differential. (See also page 23, 1. Calibration at lower switching point).

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