



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	
	(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	Dimen- sioned drawing
Switching differential not adjustable				page 25 + 26
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
Switching differential adjustable				
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.

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.

More information about FEMA pressure switches you can find at tri-matic.ch/fr/produits/pressostats.html



Ex-VNM111

Ex-VCM/Ex-VNM

II 2G Ex d e IIC T6 Gb

II 1/2D Ex ta/tb IIIC T80 °C Da/Db

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 (700) made of seawater resistant die cast aluminium GD Al Si 12.

Protection class

IP 65

Pressure sensor materials

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

Mounting position

Vertically upright.

Ambient temp. at switching device

-20...+60 °C

Max. medium temperature

The maximum medium temperature at the pressure sensor must not exceed the permitted ambient temperature at the switching device. 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.

Contact arrangement

Single pole change over switch.

Switching capacity	250 VAC		250 VDC		24 VDC	
	(ohm)	(ind)	(ohm)	(ohm)	(ohm)	(ohm)
Ex-d	3 A	2 A	0.03 A		3 A	

Product Summary

Type	Setting range	Switching differential (mean values)	Max. permissible pressure	Dimensioned drawing
Switching differential not adjustable				page 25 + 26
Ex-VCM4156	-15...+6 mbar	2 mbar	1 bar	4 + 11
Ex-VCM301	-250...+100 mbar	25 mbar	1.5 bar	4 + 13
Ex-VNM301	-250...+100 mbar	45 mbar	3 bar	4 + 15
Ex-VCM095	-0.9...+0.5 bar	50 mbar	3 bar	4 + 14
Ex-VNM111	-1*...+0.1 bar	50 mbar	6 bar	4 + 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.

Calibration

The **Ex-VCM** and **Ex-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.

More information about FEMA pressure switches you can find at tri-matic.ch/fr/produits/pressostats.html