DNS3-201

DNS/VNS

Pressure switches and vacuum switches with stainless steel sensors (1.4571)

Pressure switches of the DNS series are suitable for monitoring and controlling pressures in chemical plants, process engineering and any situation where the pressure of aggressive liquids and gases must be monitored.

All components of the sensor system are made of high-quality stainless steel (1.4571) and welded using the latest methods without filler metals. The pressure sensor is gasket-free plasma-welded.

SIL 2 according IEC 61508-2

SIL2 FUNCTIONAL SAFETY

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 diecast aluminium GD Al Si 12.

Protection class
IP 54, in vertical position.

Pressure sensor materials
Pressure bellows and all parts in contact with medium. X 6 Cr Ni Mo Ti 17122 Material no. 1.4571

Mounting position
Vertically upright and horizontal.

Max. ambient temperature at switching device
–25…+70 °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 gaugeconnection) or on a flat surface with two 4 mm Ø screws.

Switching pressure
Adjustable from outside with screwdriver.

Switching differential
For values see Product Summary.

Contact arrangement
Single-pole changeover switch.

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

Plastic coating
The diecast aluminium housing in GD Al Si is chromated and stove-enamelled with resistant plastic. Corrosion tests with 3% saline solution and 30 temperature changes from +10 to +80°C showed no surface changes after 20 days.

Product Summary

Type	Setting range	Switching differential (mean values)	Max. permissible pressure	Dimen-sioned drawing
Switching differential not adjustable				page 25 + 26
VNS301-201	-250…+100 mbar	45 mbar	3 bar	
VNS111-201	-1*…+0.1 bar	50 mbar	6 bar	
DNS025-201	0.04…0.25 bar	30 mbar	6 bar	1 + 15
DNS06-201	0.1…0.6 bar	40 mbar	6 bar	
DNS1-201	0.2…1.6 bar	60 mbar	6 bar	
DNS3-201	0.2…2.5 bar	0.1 bar	16 bar	
DNS6-201	0.5…6 bar	0.15 bar	16 bar	1 + 18
DNS10-201	1…10 bar	0.3 bar	16 bar	
DNS16-201	3…16 bar	0.5 bar	25 bar	1 + 16
Switching differential adjustable				
VNS301–203	–250…+100 mbar	70 –300 mbar	3 bar	
VNS111–203	–1*…+0.1 bar	90 –550 mbar	6 bar	
DNS025–203	0.04…0.25 bar	60 –300 mbar	6 bar	1 + 15
DNS06–203	0.1…0.6 bar	80 –400 mbar	6 bar	
DNS1–203	0.2…1.6 bar	100 –600 mbar	6 bar	
DNS3–203	0.2…2.5 bar	0.15– 1.5 bar	16 bar	1 + 18
DNS6–203	0.5…6 bar	0.25– 2.0 bar	16 bar	
DNS10–203	1…10 bar	0.45– 2.5 bar	16 bar	1 + 16
DNS16–203	3…16 bar	0.8– 3.5 bar	25 bar	

* 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 **DNS** and **VNS** 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 27, 1. Calibration at lower switching point).

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see page 66

CE

Protection Class:
IP 54

DNS6-351

DNS/VNS

Pressure and vacuum switches with stainless steel sensors (1.4571)

Chemical version (switching housing with surface protection)
Pressure switches of the DNS series are suitable for monitoring and controlling pressures in chemical plants, process engineering and any situation where the pressure of aggressive liquids and gases must be monitored. All components of the sensor system are made from high-quality stainless steel (1.4571) and welded using the latest methods without filler metals. The pressure sensor is gasket free plasma welded.

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 (300) made of seawater-resistant diecast aluminium GD Al Si 12

Protection class IP 65, in vertical position

Pressure sensor materials Pressure bellows and all parts in contact with medium X 6 Cr Ni Mo Ti 17122 Material no. 1.4571

Mounting position Vertically upright and horizontal

Max. ambient temperature at switching device –25 to +70 °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 upper limit at the switching device is ensured by suitable measures (e.g. siphon).

Plastic coating The diecast aluminium housing in GD Al Si is chromated and stove-enamelled with resistant plastic. Corrosion tests with 3% saline solution and 30 temperature changes from +10 to +80°C showed no surface changes after 20 days

Contact arrangement Single-pole changeover switch

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

Type	Setting range	Switching differential (mean value)	Max. permissible pressure	Dimensioned drawing
Hysteresis not adjustable				page 25+26
VNS301-351	-250…+100 mbar	45 mbar	3 bar	2 + 15
VNS111-351	-1*…+0,1 bar	50 mbar	6 bar	
DNS025-351	0,04…0,25 bar	30 mbar	6 bar	
DNS06-351	0,1…0,6 bar	40 mbar	6 bar	
DNS1-351	0,2…1,6 bar	60 mbar	6 bar	
DNS3-351	0,2…2,5 bar	0,1 bar	16 bar	2 + 18
DNS6-351	0,5…6 bar	0,15 bar	16 bar	
DNS10-351	1…10 bar	0,3 bar	16 bar	2 + 16
DNS16-351	3…16 bar	0,5 bar	25 bar	

* 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 **DNS** and **VNS** 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 27, 1. Calibration at lower switching point).

DNS/VNS
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