Level- and temperature sensor
Nivovent NV 77-XP-MA-DC

- BMW Specification -

Fluidcontrol

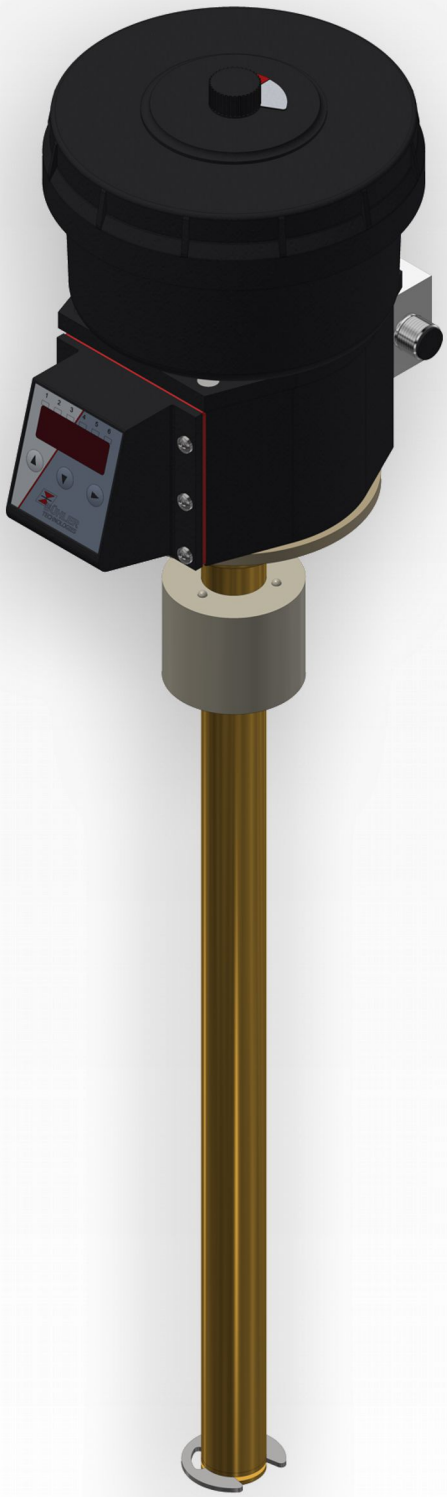
IO-Link

The Nivovent NV 77-XP-MA-DC is a compact combo consisting of vent filter, and level and temperature measurement and display. Available with two adjustable alarm outputs each for level and temperature or one analogue output.

The flange hole pattern standardised to DIN 24557, Part 2 allows for easy installation and using a small yet highly buoyant float.

The configuration of the backside of the Nivovent NV 77-XP-MA-DC is customised to the requirements of BMW. It features two M12 plug bases, a display and switching point presets. The versions are equipped for a future IO-Link interface.

Please note our other specific BMW versions.



Connecting flange as per DIN 24557 Part 2
Combined, continuous liquid level and oil temperature monitoring
Two adjustable alarm outputs each for level and temperature
Alternatively one analogue output each (can be set to current or voltage) for level and temperature plus two parametrisable alarm outputs
IO-Link interface built in
In normal mode the LED display shows the actual temperature, with status of the switching outputs
Standard menu structure based on VDMA standard sheet 24574 ff.
Proven and tested highly dynamic float system

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Technical Data

Basic Unit

Version	MS
Operating pressure	max. 1 bar
Operating temperature	-20 °C to +80 °C
Float	SK 604
Min. fluid density	0.80 kg/dm³

Material/Version	
Display housing	PA
Float	hard PU
Immersion tube	Brass
Flange (DIN 24557)	PA
Weight at L=280 mm Each 100 mm add	approx. 850 g approx. 30 g
IP rating	IP65

Vent filter	Filtration Group (Mahle) PI0125 (MA)
Filter element	SM-L (3 µm)
Additional equipment	Contamination indicator

Analysis Display Electronics		
Display	4 character 7 segment LED	
Operation	Via 3 keys	
Memory	Min. / Max. Data memory	
Starting current input	approx. 100 mA for 100 ms	
Current input during operation	approx. 50 mA (without current- and switching outputs)	
Supply voltage (U_B)	10 – 30 V DC (nominal voltage 24 V DC) / with IO-Link 18 – 30 V DC	
Ambient temperature	-20 °C to +70°C	
Display units	Level	Temperature
	%, cm, L, i, Gal	°C / °F
Display range	adjustable	-20 °C to +120 °C
Alarm setting range	e.g. 0 – 100 %	0 °C to 100 °C
Display accuracy	± 1 % from end value	± 1 % from end value

Input values	Level	Temperature
Principle of measurement	Reed-contact	Pt100 Cl. B, DIN EN 60751
	Resolution 5 mm	Tolerance ± 0.8 °C

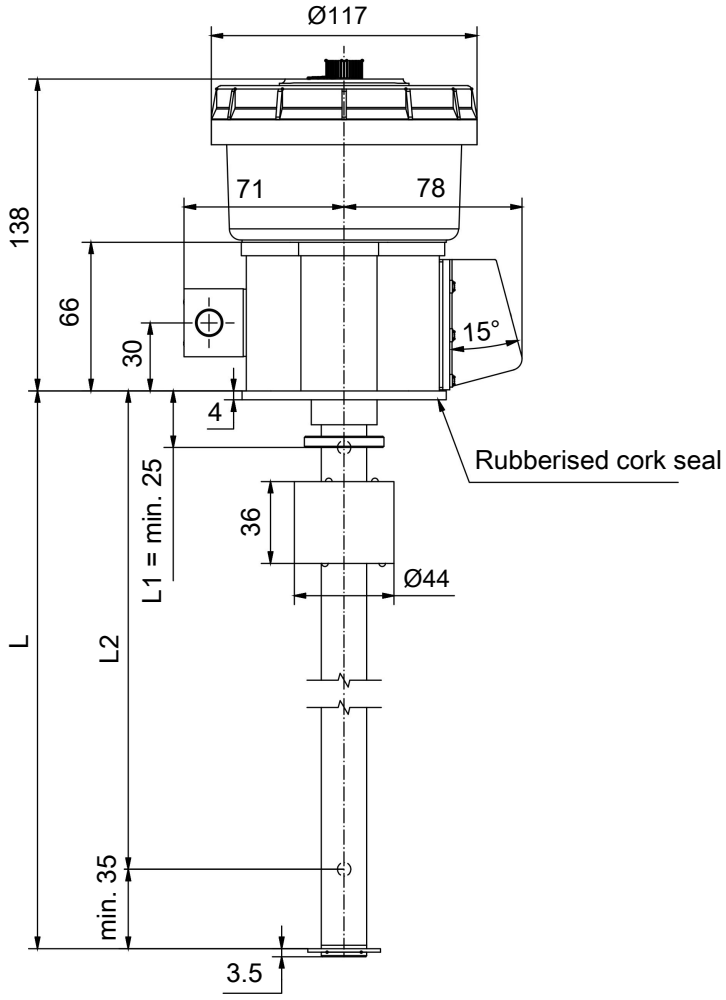
Optional switching outputs

	1D3S	1D1S-KN-KT
Plug (base)	2 x M12 – 4-pin	2 x M12 – 4-pin
Switching outputs (preset per Ordering Instructions)	4 parametrisable switching outputs Assignment 2 x level/2 x temperature preset or 1 x programmable with assignment options plus IO-Link	2 parametrisable switching outputs with arbitrary assignment Level/temperature or 1 x programmable with assignment options plus IO-Link
Alarm memory	with 1 x assignable to alarm logbook	with 1 x assignable to alarm logbook
max. switching current	0.5 A per output continuous short-circuit protected	0.5 A per output continuous short-circuit protected
Contact load	max. 1 A total	max. 1 A total
Analogue outputs		1x level and 1x temperature
Programmable as		4 - 20 mA, 2 - 10 VDC, 0 - 10 VDC, 0 - 5 VDC
Max. burden Ω as current output		(U_B – 8 V) / 0.02 A
Min. input load as voltage output		10 kΩ

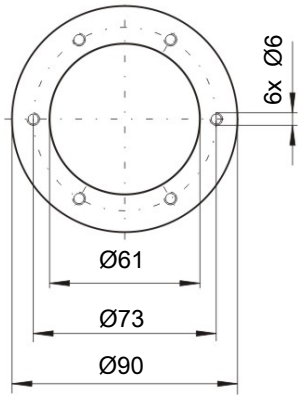
**Output 1 max. 0.2 A.

Dimensions

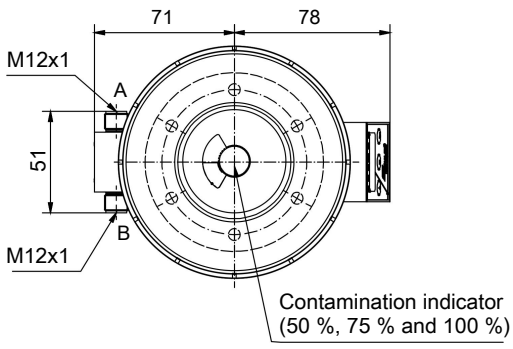
Basic version



Flange pattern as per DIN 24557 Part 2

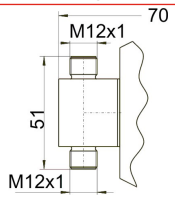


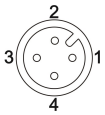
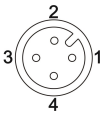
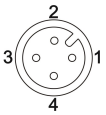
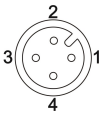
Top view



Standard pin assignment

Plug connection

	2 x M12 (EBS) (galvanically isolated)
Dimensions	
Number of pins	4-pin / 4-pin
DIN EN	61076-2-101
Voltage max.	30 VDC
Contact load max.	0.5 A per output
total max.	1 A

Version	1D3S		1D1S-KN-KT	
Plug	**2x M12 4-pin**		**2x M12 4-pin**	
Connection schematic	Plug A 	Plug B 	Plug A 	Plug B 
Pin				
1	+24 VDC	+24 VDC	+24 VDC	+24 VDC
2	S2 (PNP)	S4 (PNP)	S2 (PNP)	Level (analogue)
3	GND	GND	GND	GND
4	S1 (PNP) *	S3 (PNP)	S1 (PNP)	Temp. (analogue)

* When used as IO-Link, PIN 4 on plug A = C/Q (switching and communications line). Plug B is then not required and must be sealed with a plug to maintain the IP rating (IP65)!

Ordering Instructions

Item no.	Type	Length (L)	Preset Level outputs*	Preset Temperature outputs**
1077900126	NV 77-XP-MA-DC01/280-1D3S	280 mm	L1 = 150 mm NC (S1) L2 = 190 mm NO (S2)	T1 = 50 °C NC (S3) T2 = 60 °C NC (S4)
1077900127	NV 77-XP-MA-DC02/370-1D3S	370 mm	L1 = 150 mm NC (S1) L2 = 200 mm NO (S2)	T1 = 50 °C NC (S3) T2 = 60 °C NC (S4)
1077900128	NV 77-XP-MA-DC03/370-1D3S	370 mm	L1 = 200 mm NC (S1) L2 = 300 mm NO (S2)	T1 = 50 °C NC (S3) T2 = 60 °C NC (S4)
1077900129	NV 77-XP-MA-DC04/500-1D3S	500 mm	L1 = 200 mm NC (S1) L2 = 300 mm NO (S2)	T1 = 50 °C NC (S3) T2 = 60 °C NC (S4)
			* Hysteresis 10 mm	** Hysteresis 5 K

with analogue outputs

Item no.	Type	Length (L)	Level (analogue)	Temp. (analogue)
1077900130	NV 77-XP-MA-DC05/280-1D1S-KN-KT	280 mm	25 mm (20 mA) 245 mm-(4 mA)	0 °C = 4 mA 100 °C = 20 mA
1077900131	NV 77-XP-MA-DC06/370-1D1S-KN-KT	370 mm	25 mm (20 mA) 335 mm-(4 mA))	0 °C = 4 mA 100 °C = 20 mA
1077900132	NV 77-XP-MA-DC07/500-1D1S-KN-KT	500 mm	25 mm (20 mA) 465 mm-(4 mA)	0 °C = 4 mA 100 °C = 20 mA

*Function of level switching points NC = falling NO contact, NO = falling NC contact