

Level- and temperature sensor

Nivotemp NT M-XP

In hydraulics and lubrication technology the fill level of oil tanks needs to be monitored continuously. Here, modern factory automation requires compatible signals. Despite central system control, visualising the current level on the actual tanks is often desired. The Nivotemp M series was designed to integrate small oil tanks and little space available for add-on units and monitoring equipment in sophisticated system monitors. It combines small installation dimensions with a high functional density and easy operation.

NT M-XP

G3/4 connection thread

Combined, continuous liquid level and oil temperature monitoring

LED display swivels 270°

Menu structure based on VDMA standard sheet 24574 ff.

Up to 6 programmable switching outputs assignable as level or temperature signal

Alternatively with IO-Link and 1 x programmable switching output

Alternatively with one analog output each for level and temperature plus 2 or up to 6 freely programmable switching outputs

Characteristics of switching outputs configurable as window or hysteresis

Switching output configurable as frequency output (1-100 Hz)

Min/max memory, logbook function

M12 plug base

Proven and tested highly dynamic float system

Various immersion tube lengths



Technical Data NT M-XP

Basic unit

Version	MS
Operating pressure	max. 1 bar
Operating temperature	-20 °C to +80 °C
Float	SK 171
Min. fluid density	0.80 kg/dm ³
Lengths (all versions)	200, 280, 370, 500, 650, 820 mm (other lengths available upon request)

Material/Version

Float	PU
Immersion tube	Brass
Flange (G3/4)	Brass
Weight at L=280 mm	approx. 390 g
Each 150 mm add	approx. 20 g
Degree of protection	IP65

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 Resolution 10 mm	Pt100 Cl. B, DIN EN 60751 Tolerance ± 0.8 °C
Display units	%, cm, L, i, Gal	°C / °F

Optional switching outputs

	1D1S	2S	4S	6S
Plug (base)	1 x M12 – 4-pin	1 x M12 – 4-pin	2 x M12 – 4-pin	1 x M12 – 8-pin
Switching outputs	IO-Link and 1 x freely programmable with level or temperature assignment options	2 x freely programmable with assignment options, e.g. 1 x level / 1 x temperature*	4 x freely programmable with assignment options, e.g. 2 x level / 2 x temperature*	6 x freely programmable with assignment options, e.g. 4 x level / 2 x temperature*
Alarm memory	with 1 x assignable to alarm logbook	with 1 x assignable to alarm logbook	with 1 x assignable to alarm logbook	with 1 x assignable to alarm logbook
max. switching current**	0.5 A per output	0.5 A per output	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	max. 1 A total	max. 1 A total

*also programmable as frequency output

**Output 1 max. 0.2 A.

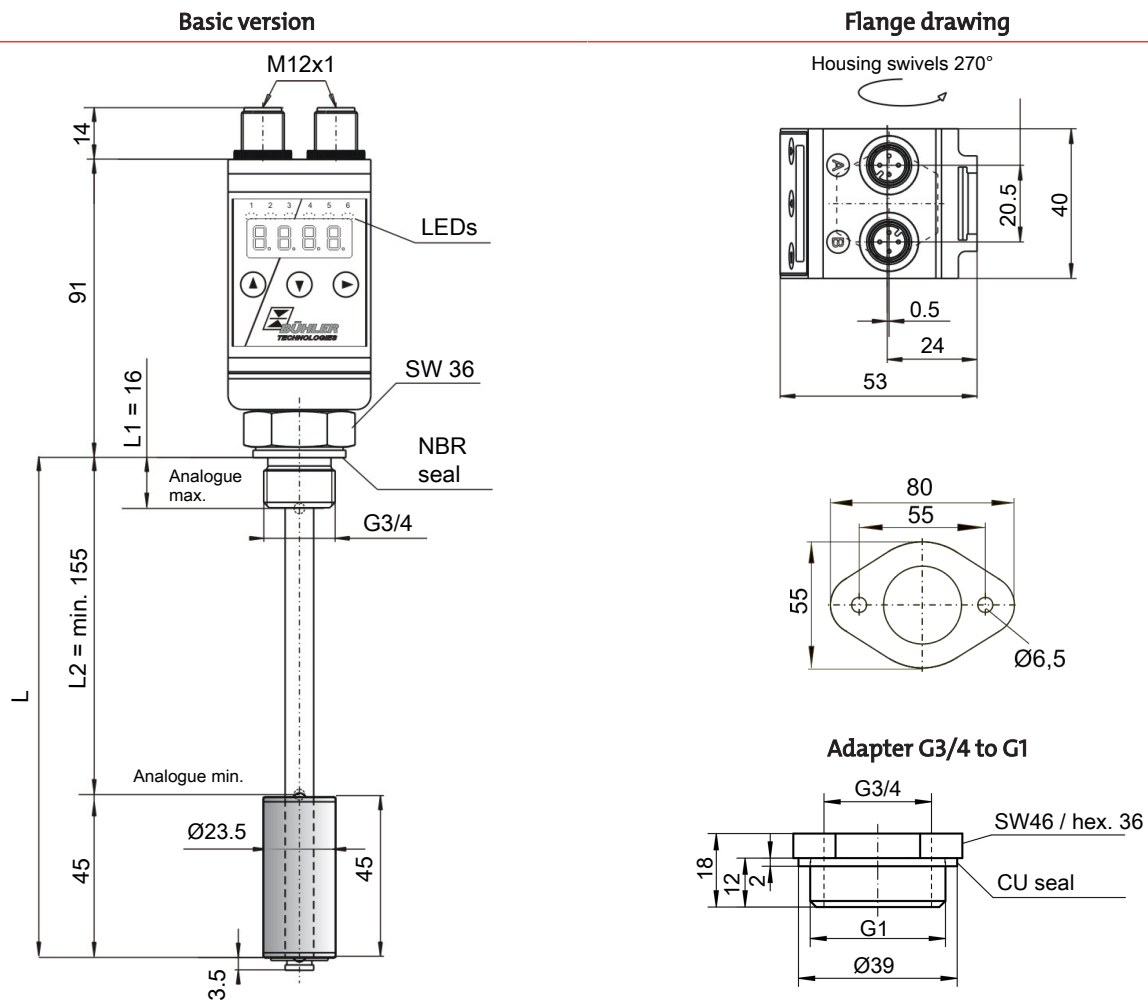
	2S-KN-KT	4S-KN-KT	6S-KN-KT
Plug (base)	2 x M12 – 4-pin	1 x M12 – 8-pin	2 x M12 – 4-pin / 8-pin
Switching outputs	2 x freely programmable with arbitrary assignment	4 x freely programmable with arbitrary assignment	6 x freely programmable with arbitrary assignment
Alarm memory	with 1 x assignable to alarm logbook	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	0.5 A per output continuous short-circuit protected
Contact load	max. 1 A total	max. 1 A total	max. 1 A total
Analogue outputs	1 x level 1 x temperature	1 x level 1 x temperature	1 x level 1 x temperature
Programmable as	1 x 4 – 20 mA, 2- 10 V DC, 0-10 V DC, 0-5 V DC	1 x 4 – 20 mA, 2- 10 V DC, 0-10 V DC, 0-5 V DC	1 x 4 – 20 mA, 2- 10 V DC, 0-10 V DC, 0-5 V DC
Max. burden Ω as current output	$(U_B - 8V) / 0.02 A$	$(U_B - 8V) / 0.02 A$	$(U_B - 8V) / 0.02 A$
Min. input load as voltage output	10 k Ω	10 k Ω	10 k Ω

*also programmable as frequency output

**Output 1 max. 0.2 A.

Other output cards available upon request.

Dimensions NT M-XP



Ordering Instructions NT M-XP

Model key

NT M-XP-□□□□□□□□	
Type designation with display, control unit	Option OV Oval flange G1 adapter to G1"
Version MS Brass	Output card
Plug connection M12 ¹⁾ - 4-pin 2M12 - 4-pin M12 ²⁾ - 8-pin 2M12 ³⁾ - 1 x 4-pin, 1 x 8-pin	1D1S 1 x IO-Link 1 x PNP switching output
Length (max. 1400 mm) 200 280 370 500 650 800	2S 2 x PNP switching output
	4S 4 x PNP switching output
	6S 6 x PNP switching output
	2S-KN-KT 2 x PNP switching output 1 x analogue level output 1 x analogue temperature output
	4S-KN-KT 4 x PNP switching output 1 x analogue level output 1 x analogue temperature output
	6S-KN-KT 6 x PNP switching output 1 x analogue level output 1 x analogue temperature output

¹⁾ Version 2S and 1D1S only
²⁾ Version 4S-KN-KT and 6S only
³⁾ Version 6S-KN-KT only

Accessories

Item no. 4-pin	Item no. 8-pin	Description
9144 05 0010	9144 05 0048	Connecting cable M12x1, 1.5 m, angular coupling and straight plug
9144 05 0046	9144 05 0049	Connecting cable M12x1, 3.0 m, angular coupling and straight plug
9144 05 0047	9144 05 0033	Connecting cable M12x1, 5.0 m, angular coupling and strands

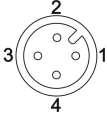
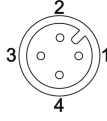
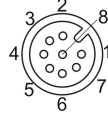
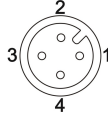
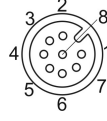
Ordering example

You require: Level and temperature measurement, 2xM12 connector, length L=650 mm with 2 programmable PNP switching points and analogue output for level and temperature.

Order: NT M-XP- MS-2M12 / 650-2S-KN-KT

Standard pin assignment NT M-XP

Version	1D1S	2S	4S		6S
Plug	1x M12 4-pin		2x M12 4-pin		1x M12 8-pin
Connection schematic			Plug A 	Plug B 	
Pin					
1	+24 V DC	+24 V DC	+24 V DC	+24 V DC	+24 V DC
2	S2 (PNP)	S2 (PNP)	S2 (PNP)	S4 (PNP)	S2 (PNP)
3	GND	GND	GND	GND	GND
4	C/Q (IO-Link)	S1 (PNP)	S1 (PNP)	S3 (PNP)	S1 (PNP)
5					S3 (PNP)
6					S4 (PNP)
7					S5 (PNP)
8					S6 (PNP)

Version	2S-KN-KT		4S-KN-KT	6S-KN-KT	
Plug	2x M12 4-pin		1x M12 8-pin	2x M12 4-pin/8-pin	
Connection schematic	 <p>Plug A</p>	 <p>Plug B</p>		 <p>Plug A</p>	 <p>Plug B</p>
Pin					
1	+24 V DC	+24 V DC	+24 V DC	+24 V DC	+24 V DC
2	Temp (analogue)	S2 (PNP)	S2 (PNP)	Temp (analogue)	S2 (PNP)
3	GND	GND	GND	GND	GND
4	Level (analogue)	S1 (PNP)	S1 (PNP)	Level (analogue)	S1 (PNP)
5			S3 (PNP)		S3 (PNP)
6			S4 (PNP)		S4 (PNP)
7			Level (analogue)		S5 (PNP)
8			Temp (analogue)		S6 (PNP)