Level switch
Nivotemp NT-EL, NT-ELD

BÜHLER TECHNOLOGIES

FluidControl

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. To minimise production costs and the space required on containers, it makes sense to use one monitor for both e.g. the fill level and oil temperature. The Nivotemp series meets virtually all requirements arising in this area of application.

NT-EL

- Tank connections G1/2, M20x1.5, 7/8-14UNF
- M12 plug connection
- Level and/or temperature control
- Small, compact design
- Proven, highly dynamic float system

NT-ELD

- Tank connections G1/2, M20x1.5, 7/8-14UNF
- Fixed fill level monitor switching outputs
- LED display swivels 270°
- Standardised VDMA-based menu structure
- Two programmable temperature switching output
- Alternatively, one continuous temperature output signal plus one freely programmable switching output
- Switching output configurable as window or hysteresis
- Switching output configurable as frequency output (1-100 Hz)
- Min./Max. value memory, logbook

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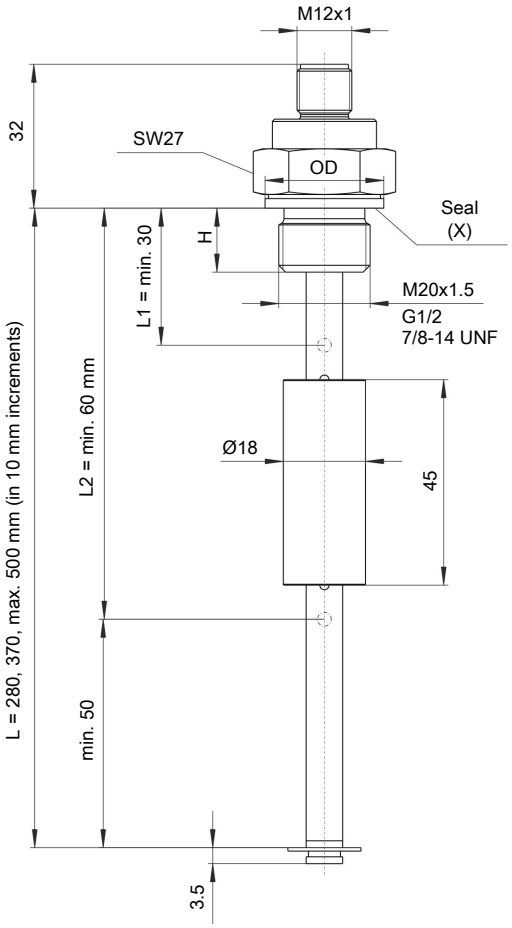
NT-EL Technical Data

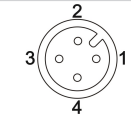
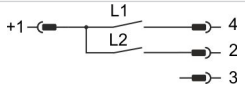
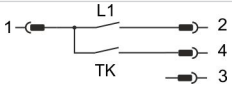
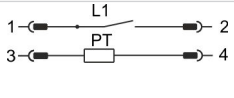
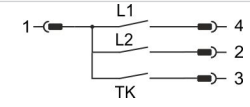
Version	MS
Operating pressure:	max. 1 bar
Operating temperature:	-20 °C to +80 °C
Float:	SK 171
Min. fluid density:	0.80 kg/dm³
Lengths (all versions):	280, 370, 500 mm (standard) variable to max. 500 mm
Weight at L = 500 mm:	approx.180 g
Material	
Float:	PU
Immersion tube:	Brass
G1/2 connection, M20 x 1,5,7/8-14UNF:	Aluminium
Level switching output	**K40**
Number max.:	2 not adjustable
Function:	NO / NC*
Max. voltage:	30 V DC
Max. switching current:	0.5 A
Max. contact load:	5 VA
Min. contact spacing:	30 mm (in 10 mm increments)
**NO= falling NC contact / NC = falling NO contact*	
Optional temperature	
Temperature contact:	**TEL xx**
Max. voltage:	30 V DC
Max. switching current:	1 A
Max. contact load:	10 VA
Function:	NC
Switching point °C:	50 / 60 / 70 / 80
Switching point tolerance:	± 5 K
Max. hysteresis:	20 K ± 5 K
Other temperatures and switching function available upon request	
Temperature sensor	
Pt100	DIN EN 60 751 (Tolerance ± 0.8 °C)

Dimensions



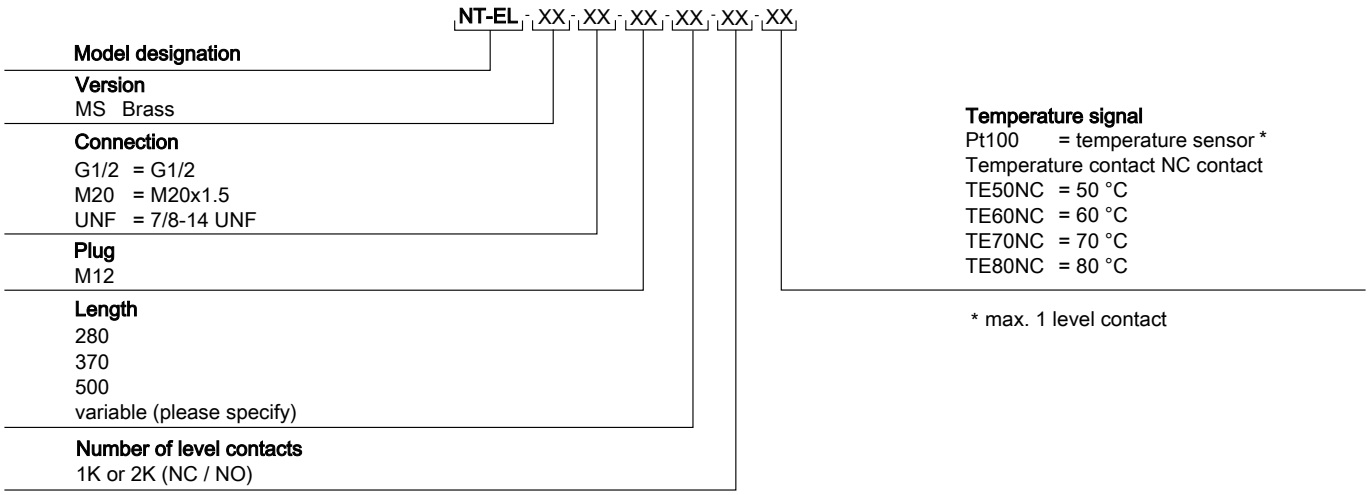
	M20 x1.5	G1/2	7/8-14UNF
OD	26	26.6	26
H	14	14	12.7
X	Eolastic seal	Eolastic seal	O-ring

NT-EL default pin assignment

M12x1	Level contact(s) only	Only level contact K40 and temperature contact (TK)	Level contact K40 and temperature sensor (PT)	Level contacts K40 and temperature contact (TK) with special connection
				

Ordering instructions NT-EL

Model key



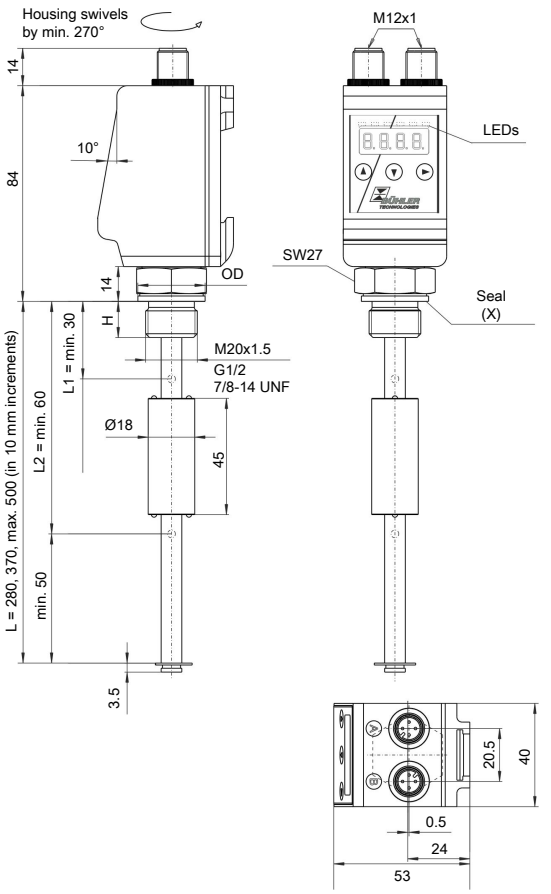
Ordering example

You require:	Level switch with connector M20x1.5, length L= 370 mm, 2 level contacts, L1 = 280 mm NC / L2 = 340 mm NO
Order	NT-EL-MS-M20-M12/370-2K-280NC/340NO

Technical Data NT-ELD

Version	MS
Operating pressure:	max. 1 bar
Operating temperature:	-20 °C to +80 °C
Float:	SK 171
Min. fluid density:	0.80 kg/dm³
Lengths (all versions):	280, 370, 500 mm (standard) variable to max. 500 mm
Weight at L = 500 mm:	approx. 300 g
Material	
Float:	PU
Immersion tube:	Brass
G1/2 connection, M20 x 1,5,7/8-14UNF:	Anodised aluminium
Level switching output K40	
Number max.:	2 not adjustable
Function:	NO / NC*
Max. voltage:	30 V DC
Max. switching current:	0.5 A
Max. contact load:	5 VA
Min. contact spacing:	30 mm (in 10 mm increments)
**NO= falling NC contact / NC = falling NO contact*	
Temperature 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)
Ambient temperature:	-20 °C to +70°C
Temperature display units:	°C / °F
Display range:	-20 °C to +120 °C
Alarm setting range:	0 °C to 100 °C
Display accuracy:	± 1 % FS
Measuring principle:	Pt 100 Class B, DIN EN 60751

Dimensions



	M20 x1.5	G1/2	7/8-14UNF
OD	26	26.9	26
H	14	14	12.7
X	EOlastic seal	EOlastic-seal	O-ring

NT-ELD temperature outputs

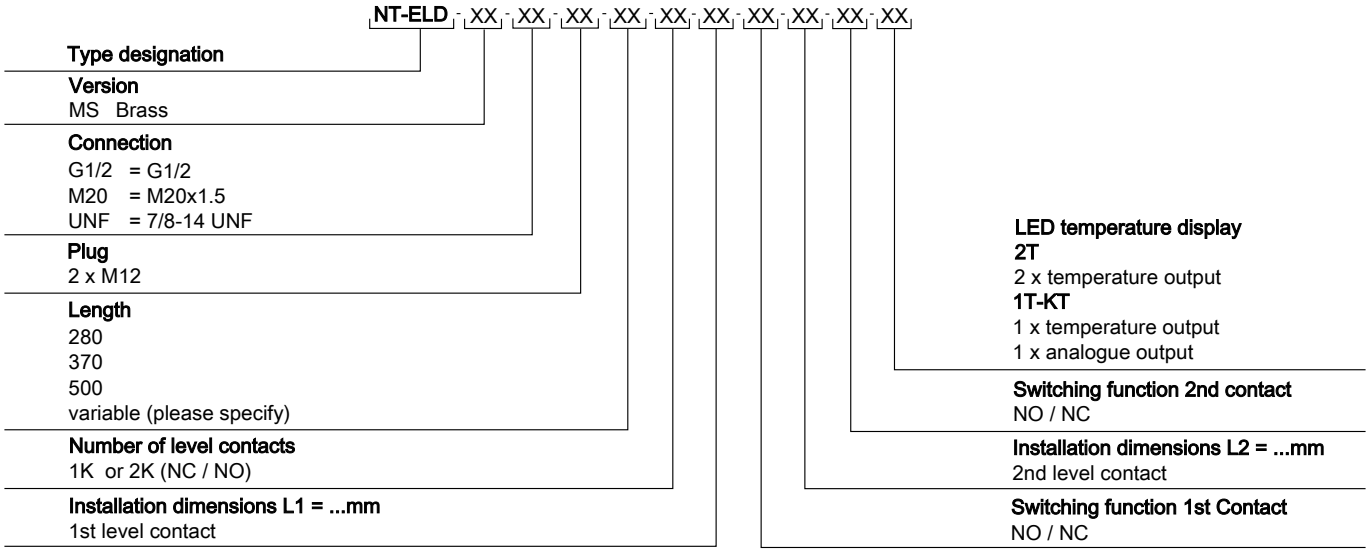
Choose from the following switching outputs:

Version	2T	1T-KT
Plug (base):	2 x M12 – 4-pin	2 x M12 – 4-pin
Switching outputs:	2 x freely programmable	1 x freely programmable
Alarm memory:	1 switching output assignable to alarm logbook	1 switching output 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
1 switching output configurable as frequency output:	0 – 100 Hz	

Version	2T	1T-KT
Analogue output:		1 x 4 – 20 mA, 2-10 V DC, 0-10 V DC or 0-5 V DC
Max. burden Ω as current output:		= (U_B -8 V) / 0.02 A
Min. input load min. as voltage output:		10 kΩ

**Output 1 max. 0.2 A.

Ordering instructions NT-ELD

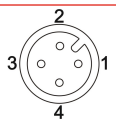
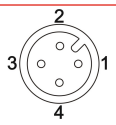
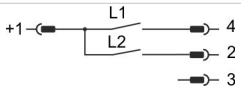
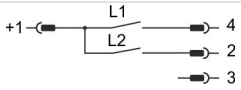


Ordering example

You require: Level switch with G1/2 connection, brass, length L= 500 mm, 2 level contacts, 1st contact 100 mm NC, 2nd contact 450 mm NO, temperature analysis with display and 2 programmable outputs.

Order: NT-ELD-MS-G1/2-2M12/500-2K-100NC-450NO-2T

NT-ELD standard pin assignment

	Plug A level M12 (base)		Plug B temperature M12 (base)
Connection schematic:			
Number of poles:	4-pin		4-pin
DIN EN:	61076-2-101		61076-2-101
Max. voltage:	30 V DC		30 V DC
2T		**PIN**	
2 x temperature output		1 2 3 4	+24 V S2 (PNP) GND S1 (PNP)
1T-KT		**PIN**	
1 x Temperature output 1 x Analogue output		1 2 3 4	+24 V Analogue GND S1 (PNP)