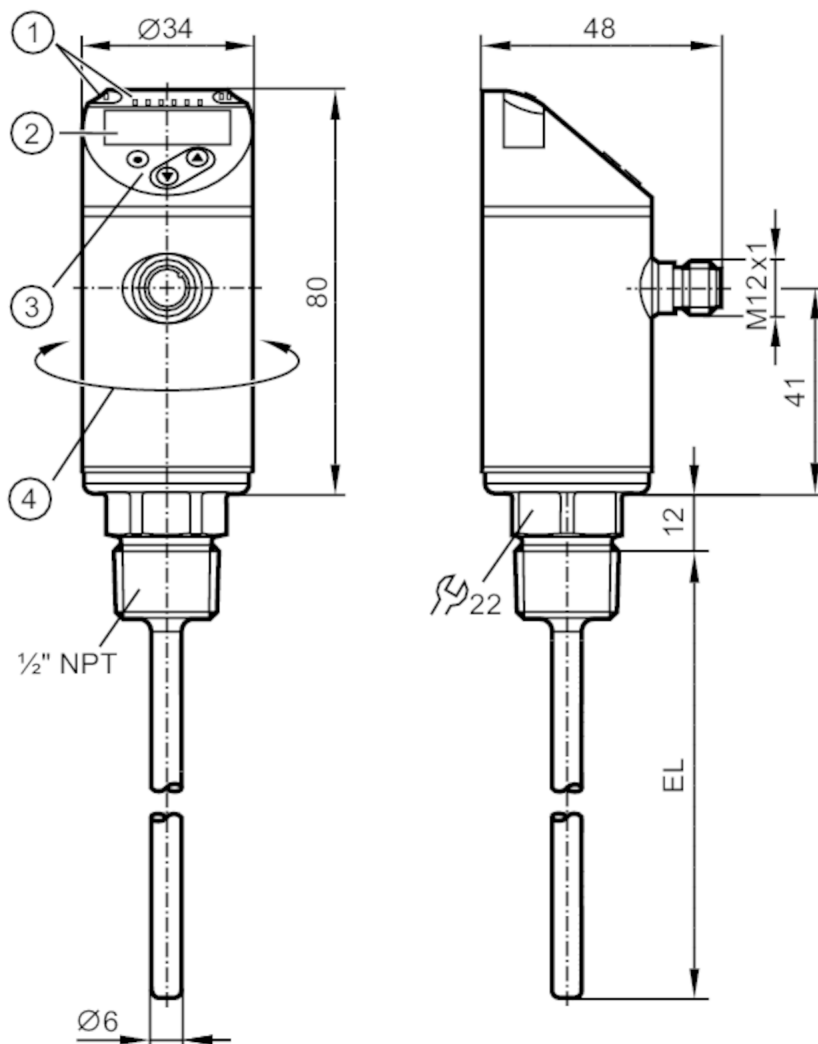




Temperature sensor with display

TN-150KLBN12-MFRKG/US/



- 1 LEDs Display unit / switching status
- 2 alphanumeric display 4-digit red/green
- 3 programming buttons
- 4 upper part of the housing can be rotated 345°



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1	
Measuring range	-50...150 °C	-58...302 °F
Communication interface	IO-Link	
Process connection	threaded connection 1/2" NPT	
Installation length EL [mm]	150	

Application

Special feature	Gold-plated contacts	
Measuring element	1 x Pt 1000; (to DIN EN 60751, class A)	
Media	liquids and gases	
Pressure rating [bar]	250	



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Electrical data		
Operating voltage	[V]	18...32 DC; ("supply class 2" to cULus)
Current consumption	[mA]	< 50
Protection class		III
Reverse polarity protection		yes
Power-on delay time	[s]	1
Integrated watchdog		yes
Inputs / outputs		
Number of inputs and outputs		Number of digital outputs: 2; Number of analogue outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analogue signal; IO-Link; (configurable)
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / normally closed; (parameterisable)
Max. voltage drop switching output DC	[V]	2.5
Permanent current rating of switching output DC	[mA]	250
Number of analogue outputs		1
Analogue current output	[mA]	4...20
Max. load	[Ω]	500
Analogue voltage output	[V]	0...10
Min. load resistance	[Ω]	2000
Short-circuit protection		yes
Type of short-circuit protection		pulsed
Overload protection		yes
Measuring/setting range		
Measuring range	-50...150 °C	-58...302 °F
Factory setting		0...300 °F
Set point SP	-49.8...150 °C	-57.6...302 °F
Reset point rP	-50...149.8 °C	-58...301.6 °F
Analogue start point	-50...145 °C	-58...293 °F
Analogue end point	-45...150 °C	-49...302 °F
In steps of	0.1 °C	0.1 °F
Resolution		
Resolution of switching output	[K]	0.1
Resolution of analogue output	[K]	current output: MS / 4096; voltage output: MS / 3561
Resolution of display	[K]	0.1
Accuracy / deviations		
Switch point accuracy	[K]	± 0,3 + (± 0,1 % MS)
Precision analogue output	[K]	± 0,3 + (± 0,1 % MS)
Display accuracy	[K]	± 0,3 + (± 0,1 % MS)



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Temperature coefficient	[X22]	0,1; (in case of deviation from the reference condition $25 \pm 5 \text{ }^{\circ}\text{C}$)
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Response times

Dynamic response T05 / T09	[s]	1 / 3; (to DIN EN 60751)
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Software / programming

Parameter setting options	hysteresis / window; normally open / normally closed; switching logic; switch-on/switch-off delay; Damping; Display unit; current/voltage output
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Interfaces

Communication interface	IO-Link
Transmission type	COM2 (38,4 kBaud)
IO-Link revision	1.1

Operating conditions

Ambient temperature	[$^{\circ}\text{C}$]	-25...80
Storage temperature	[$^{\circ}\text{C}$]	-40...100
Protection		IP 67

Tests / approvals

EMC	DIN EN 61000-6-2	
	DIN EN 61000-6-3	
Shock resistance	DIN IEC 68-2-27	50 g (11 ms)
Vibration resistance	DIN EN 60068-2-6	20 g (10...2000 Hz)
MTTF	[ANN]	207
UL approval	UL Approval no.	K015

Mechanical data

Weight	[g]	304.5
Materials	stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC	
Materials (wetted parts)	stainless steel (1.4404 / 316L)	
Process connection	threaded connection 1/2" NPT	
Installation length EL	[mm]	150

Displays / operating elements

Display	Display unit	2 x LED, green
	switching status	2 x LED, yellow
	measured values	alphanumeric display, red/green 4-digit

Remarks

Remarks	MS = set measuring span
	The values for accuracy apply to flowing water.
Pack quantity	1 pcs.

Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated



TN2343



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Connection



OUT1: switching output / IO-Link
OUT2: switching output / analogue output
colours to DIN EN 60947-5-2
Core colours :

BK = black
BN = brown
BU = blue
WH = white