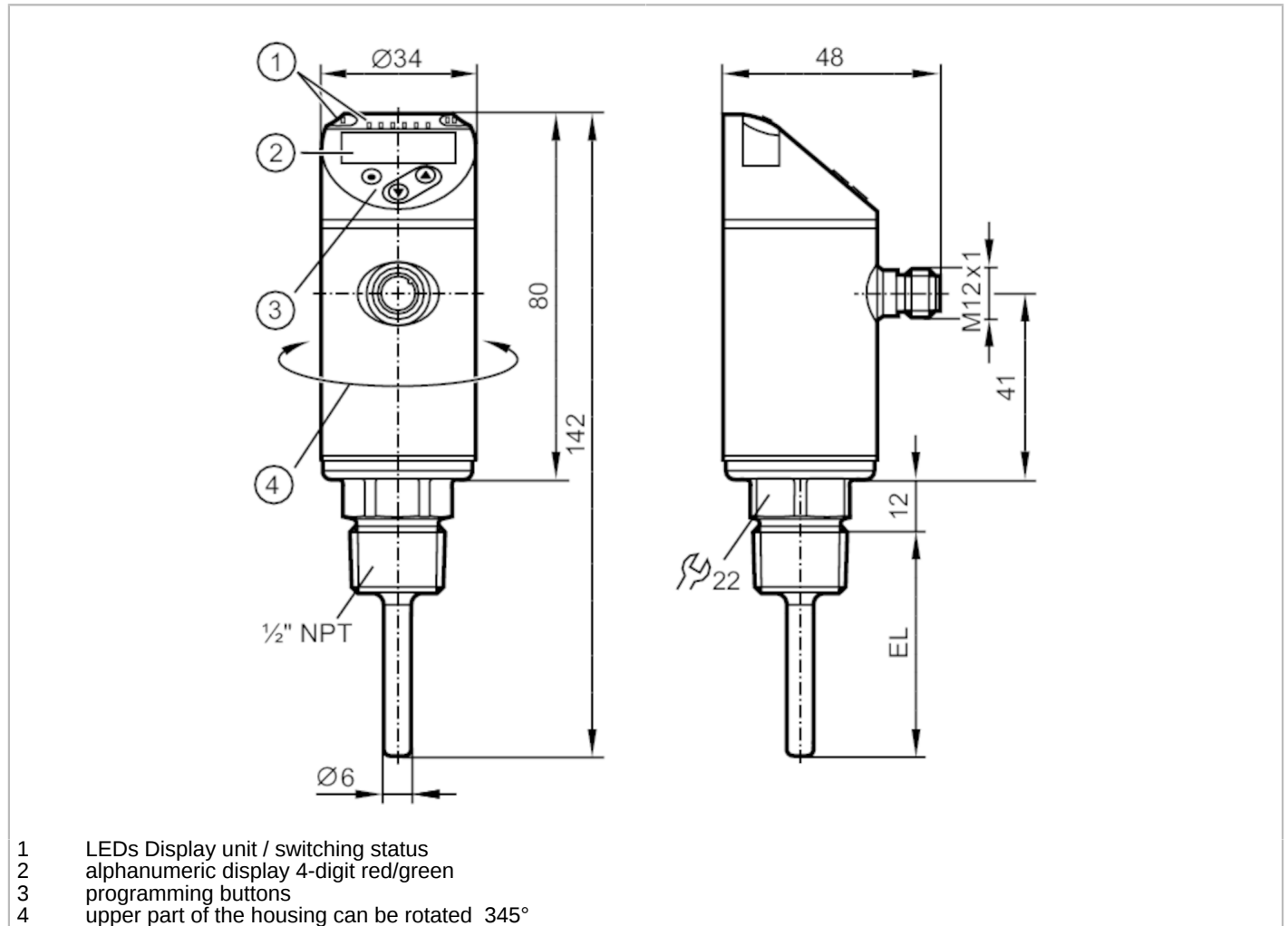


TN2313



Temperature sensor with display

TN-050KLBN12-MFRKG/US/



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 external thread	
Installation length EL [mm]	50	

Application

Special feature	Gold-plated contacts	
Measuring element	1 x Pt 1000; (to DIN EN 60751, class A)	
Media	liquids and gases	
Pressure rating	300 bar	30 MPa

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	



Temperature sensor with display

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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		
Probe length L [mm]	34.4	
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)	
Temperature coefficient [% of the span / 10 K]	0,1; (in case of deviation from the reference condition 25 ± 5 °C)	
Response times		
Dynamic response T05 / T09 [s]	1 / 3; (to DIN EN 60751)	



Temperature sensor with display

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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	
Interfaces		
Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	
IO-Link revision	1.1	
Profiles	Smart Sensor - SSP 0	Generic Profiled Sensor
	Function	Device identification
	Function	Process data variable
	Function	Device diagnosis
Min. process cycle time [ms]	2.3	
Supported DeviceIDs	Type of operation	DeviceID
	default	707
Operating conditions		
Ambient temperature [°C]	-25...80	
Storage temperature [°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 [years]	207	
UL approval	UL approval no.	K015
Mechanical data		
Weight [g]	226.5	
Housing	cylindrical	
Dimensions [mm]	Ø 34 / L = 142	
Materials	stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC	
Materials (wetted parts)	stainless steel (316L/1.4404)	
Process connection	threaded connection 1/2" NPT external thread	
Probe diameter [mm]	6	
Installation length EL [mm]	50	
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.	

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Temperature sensor with display

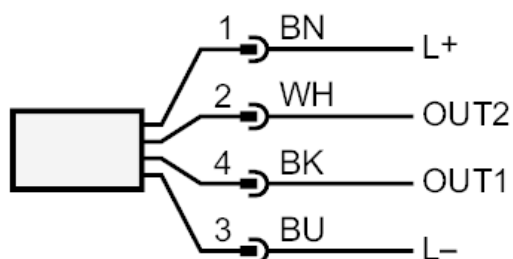
TN-050KLBN12-MFRKG/US/

Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



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