

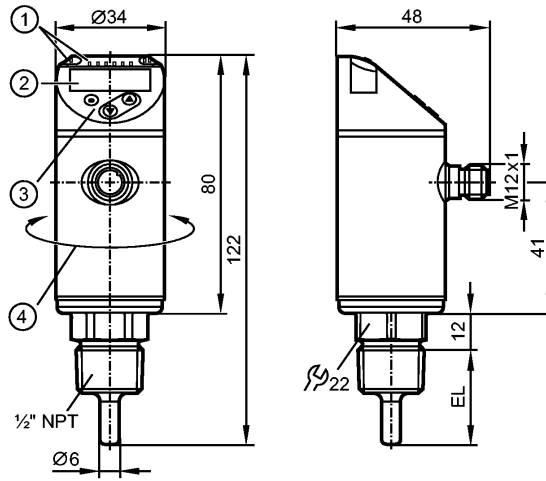


TN2303

TN-030KLBN12-MFRKG/US/



Temperature sensors



- 1: LEDs (display unit / switching status)
- 2: 4-digit alphanumeric display / alternating indication of red and green
- 3: Programming buttons
- 4: Upper part of the housing can be rotated by 345°



Product characteristics

Electronic temperature sensor

Process connection: 1/2" NPT

Installation length EL: 30 mm

2 outputs

OUT1 = switching output

OUT2 = switching output or analog output

4-digit alphanumeric display

Measuring range: -50...150 °C / -58...302 °F

Measuring element: 1 x Pt 1000, to DIN EN 60751, class A

Factory setting: 0...300 °F

Application

Application: liquids and gases

Pressure rating [bar]: 300

Electrical data

Electrical design: DC PNP/NPN

Operating voltage [V]: 18...32 DC; cULus - Class 2 source required

Current consumption [mA]: < 50

Protection class: III

Reverse polarity protection: yes

Outputs

Output: 2 outputs
OUT1 = switching output
OUT2 = switching output or analog output

Output function: 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V)

Current rating [mA]: 250

Voltage drop [V]: < 2.5



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Temperature sensors

Short-circuit protection		yes (non-latching)
Overload protection		yes
Max. load	[Ω]	4...20 mA: 500
Min. load	[Ω]	0...10 V: 2000

Measuring / setting range

Measuring range		-50...150 °C	-58...302 °F
Factory setting		0...300 °F	
Setting range			
Set point, SP		-49.8...150 °C	-57.6...302 °F
Reset point, rP		-50...149.8 °C	-58...301.6 °F
Analog start point, ASP		-50...145 °C	-58...293 °F
Analog end point, AEP		-45...150 °C	-49...302 °F
in steps of		0.1 °C	0.1 °F
Resolution			
Switching output	[K]	0.1	
Analog output	[K]	MS / 4096 *) MS / 3561 **)	
Display	[K]	0.1	

Accuracy / deviations

Switch point accuracy	[K]	± 0.3 + (± 0.1 % MS)	
Analog output	[K]	± 0.3 + (± 0.1 % MS)	
Display	[K]	± 0.3 + (± 0.1 % MS)	
Temperature drift (/ 10 K)		0.1 % MS	

Reaction times

Power-on delay time	[s]	1	
Dynamic response	T05 / T09 [s]	1 / 3 ***)	
Integrated watchdog		yes	

Software / programming

Programming options	hysteresis / window function; NO / NC; output polarity; on delay, off delay; damping; display unit; current / voltage output		
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Interfaces

IO-Link Device		
Transfer type		COM2 (38.4 kBaud)
IO-Link revision		1.1

Environment

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 number		K015	

Mechanical data



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Temperature sensors

Process connection	1/2" NPT
Materials (wetted parts)	stainless steel (316L / 1.4404)
Installation length EL [mm]	30
Housing materials	stainless steel (316L / 1.4404); PBT+PC-GF 30; PBT-GF 20; PC
Weight [kg]	0.219

Displays / operating elements

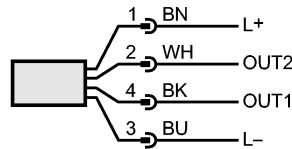
Display	Display unit 2 x LED green Switching status 2 x LED yellow 4-digit alphanumeric display / alternating indication Measured values of red and green
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Electrical connection

Connection	M12 connector; gold-plated contacts
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Wiring

- Core colors
- BK black
 - BN brown
 - BU blue
 - WH white



OUT1: switching output or IO-Link
 OUT2: switching output or 4...20 mA / 0...10 V
 Colours to DIN EN 60947-5-2

Remarks

Remarks	*) current output **) voltage output ***) according to DIN EN 60751 MS = set measuring span The values for accuracy apply to flowing water.
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Pack quantity [piece]	1
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