

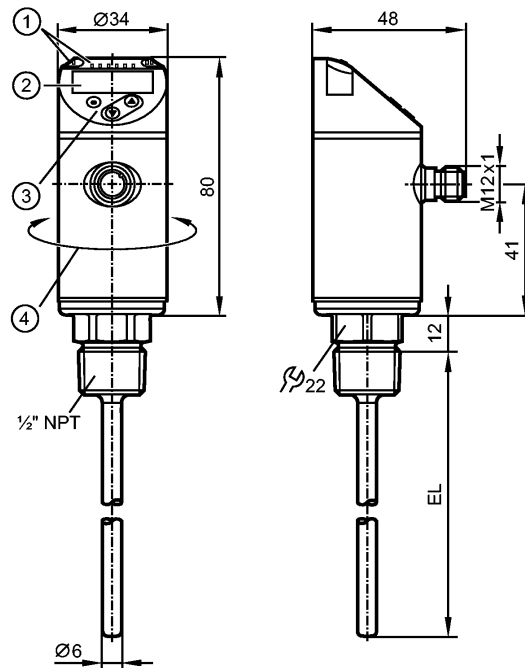


# TN2333

TN-100KLBN12-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: 100 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]	250

### 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
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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	
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

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)



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MTTF	[Years]	207
UL approval number		K015

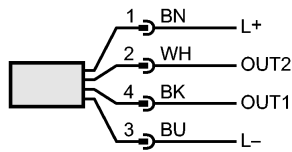
Mechanical data		
Process connection		1/2" NPT
Materials (wetted parts)		stainless steel (316L / 1.4404)
Installation length EL	[mm]	100
Housing materials		stainless steel (316L / 1.4404); PBT+PC-GF 30; PBT-GF 20; PC
Weight	[kg]	0.304

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

Electrical connection	
Connection	M12 connector; gold-plated contacts

### 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.

Pack quantity	[piece]	1
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