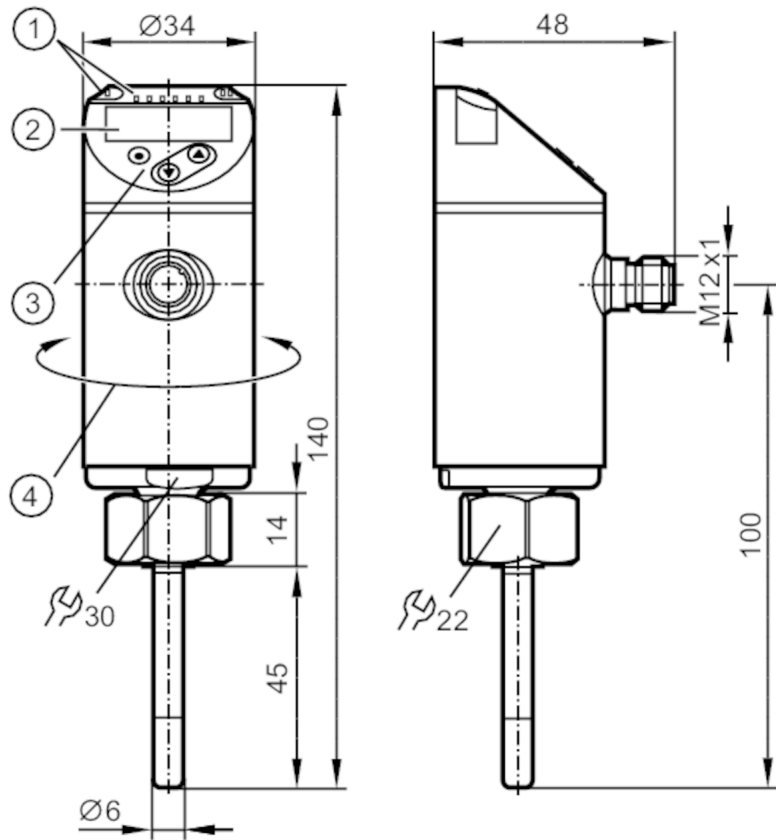


# TN2511



## Temperature sensor with display

TN-045K CBD18-MFPKG/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: 1; Number of analog outputs: 1	
Measuring range	-50...150 °C	-58...302 °F
Process connection	threaded connection M18 x 1,5 Internal thread	
Installation length EL [mm]	45	

### Application

System	gold-plated contacts	
Measuring element	1 x Pt 1000; (to DIN EN 60751, class A)	
Media	liquids and gases	
Pressure rating [bar]	300	
Minimum installation depth [mm]	12	

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Electrical data		
Operating voltage	[V]	18...32 DC; (cULus - Class 2 source required)
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: 1; Number of analog outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; IO-Link; (configurable)
Electrical design		PNP/NPN
Number of digital outputs		1
Output function		normally open / closed; (configurable)
Max. voltage drop switching output DC	[V]	2.5
Permanent current rating of switching output DC	[mA]	250
Number of analog outputs		1
Analog current output	[mA]	4...20
Max. load	[Ω]	500
Analog voltage output	[V]	0...10
Min. load resistance	[Ω]	2000
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
Overload protection		yes
Measuring/setting range		
Probe length L	[mm]	45
Measuring range		-50...150 °C      -58...302 °F
Factory setting		-40...150 °C / -40...302 °F
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		-50...145 °C      -58...293 °F
Analog 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 analog output	[K]	current output: MS / 4096; voltage output: MS / 3561
Resolution of display	[K]	0.1

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Accuracy / deviations		
Switch point accuracy [K]		$\pm 0,3 + (\pm 0,1 \% \text{ MS})$
Precision analog output [K]		$\pm 0,3 + (\pm 0,1 \% \text{ MS})$
Display accuracy [K]		$\pm 0,3 + (\pm 0,1 \% \text{ MS})$
Temperature coefficient [% of the span / 10 K]		0,1; (In case of deviation from the reference condition $25 \pm 5 \text{ }^\circ\text{C}$ )
Reaction times		
Dynamic response T05 / T09 [s]		1 / 3; (according to DIN EN 60751)
Software / programming		
Parameter setting options		hysteresis / window; normally open / closed; switching logic; switch-on/switch-off delay; Damping; Display unit
Interfaces		
Communication interface		IO-Link
Transmission type		COM2 (38,4 kBaud)
IO-Link revision		1.1
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]		470
UL approval	UL approval number	K013
Mechanical data		
Weight [g]		207
Housing		Compact type for adapter
Material		stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC
Materials (wetted parts)		stainless steel (1.4404 / 316L); O-ring: FKM 80 Shore A
Process connection		threaded connection M18 x 1,5 Internal thread
Installation length EL [mm]		45
Displays / operating elements		
Display	Display unit	2 x LED, green
	Switching status	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; Contacts: gold-plated

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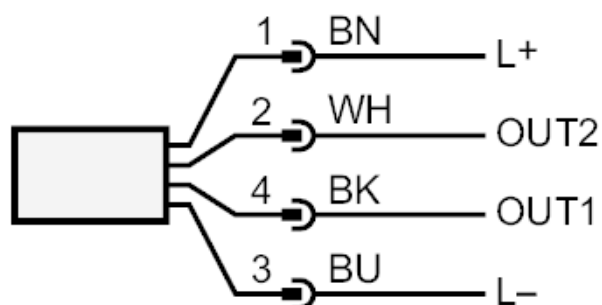


## Temperature sensor with display

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### Connection



OUT1: Switching output / IO-Link

OUT2: analog output

Colors to DIN EN 60947-5-2

Core colors :

BK = black

BN = brown

BU = blue

WH = white