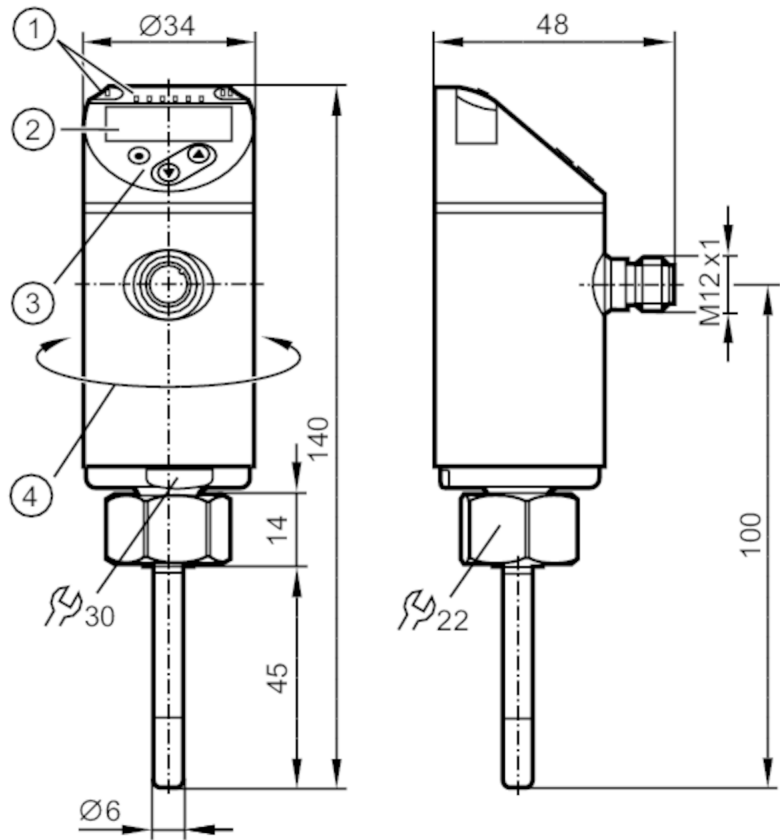


# TN2511



## 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 analogue 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

Special feature	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

### 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


TN-045KCB18-MFPKG/US/

Integrated watchdog	yes	
Inputs / outputs		
Number of inputs and outputs	Number of digital outputs: 1; 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	1	
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]	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
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

TN-045KCB18-MFPKG/US/

Software / programming		
Parameter setting options	hysteresis / window; normally open / normally 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 no.	K013
Mechanical data		
Weight	[g]	207
Housing	compact type for adapter	
Materials	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; coding: A; Contacts: gold-plated		
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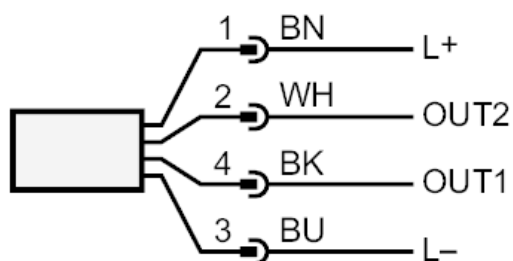
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## Temperature sensor with display

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### Connection



OUT1: switching output / IO-Link

OUT2: analogue output

colours to DIN EN 60947-5-2

Core colours :

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