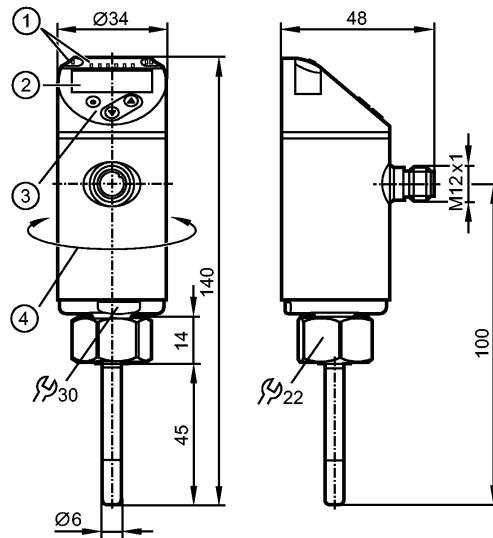


TN2511

TN-045K CBD18-MFPKG/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
Compact type for adapter
Quick disconnect
Process connection: internal thread M18 x 1.5 for adapter
Installation length EL: 45 mm
Switching output, analog output 4...20 mA or 0...10 V
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: -40...150 °C / -40...302 °F

Application

Application	liquids and gases
Pressure rating [bar]	300
Minimum installation depth [mm]	12

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	Switching output, analog output 4...20 mA or 0...10 V
Output function	1 x normally open / closed programmable + 1 x analog (4...20 mA / 0...10 V, scalable)
Current rating [mA]	250
Voltage drop [V]	< 2.5
Short-circuit protection	yes (non-latching)



TN2511

TN-045KCBD18-MFPKG/US/

Temperature sensors

Overload protection	yes	
Analog output	4...20 mA / 0...10 V	
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	-40...150 °C / -40...302 °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	
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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]	470	
UL approval number	K013	

Mechanical data

TN2511

TN-045KCBD18-MFPKG/US/

Temperature sensors

Process connection	internal thread M18 x 1.5 for adapter
Materials (wetted parts)	stainless steel (316L / 1.4404); O-ring: FKM 8 x 1.5 gr 80° Shore A
Probe length L [mm]	45
Installation length EL [mm]	45
Housing materials	stainless steel (316L / 1.4404); PBT+PC-GF 30; PBT-GF 20; PC
Weight [kg]	0.206

Displays / operating elements

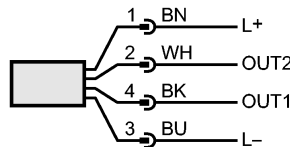
Display	Display unit 2 x LED green Switching status LED yellow 4-digit alphanumeric display / alternating indication Measured values of red and green
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Electrical connection

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: Analog output
 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. cULus - Class 2 source required
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Pack quantity [piece]	1
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