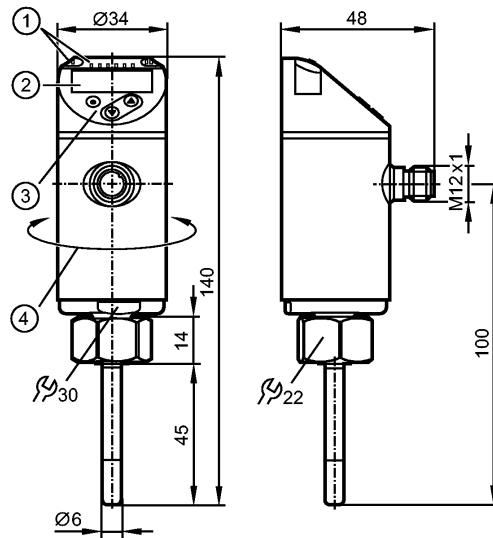


TN2511

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
Connector
Process connection: internal thread M18 x 1.5 for adapter
Installation length EL: 45 mm
Switching output, analogue 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; "supply class 2" to cULus.
Current consumption [mA]	< 50
Protection class	III
Reverse polarity protection	yes

Outputs

Output	Switching output, analogue output 4...20 mA or 0...10 V
Output function	1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V, scalable)
Current rating [mA]	250
Voltage drop [V]	< 2.5

TN2511

TN-045KCBD18-MFPKG/US/

Temperature sensors

Short-circuit protection		pulsed
Overload protection		yes
Analogue 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
Analogue start point, ASP		-50...145 °C	-58...293 °F
Analogue end point, AEP		-45...150 °C	-49...302 °F
in steps of		0.1 °C	0.1 °F
Resolution			
Switching output	[K]	0.1	
Analogue output	[K]	MS / 4096 *) MS / 3561 **)	
Display	[K]	0.1	

Accuracy / deviations

Switch point accuracy	[K]	± 0.3 + (± 0.1 % MS)
Analogue 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
---------------------	--

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

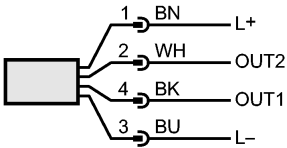
Tests / approvals

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

TN2511

TN-045KCBD18-MFPKG/US/

Temperature sensors

Mechanical data	
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
Electrical connection	
Connection	M12 connector; Gold-plated contacts
Wiring Core colours BK black BN brown BU blue WH white	 <p>OUT1: switching output or IO-Link OUT2: Analogue output Colours to DIN EN 60947-5-2</p>
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
Pack quantity [piece]	1