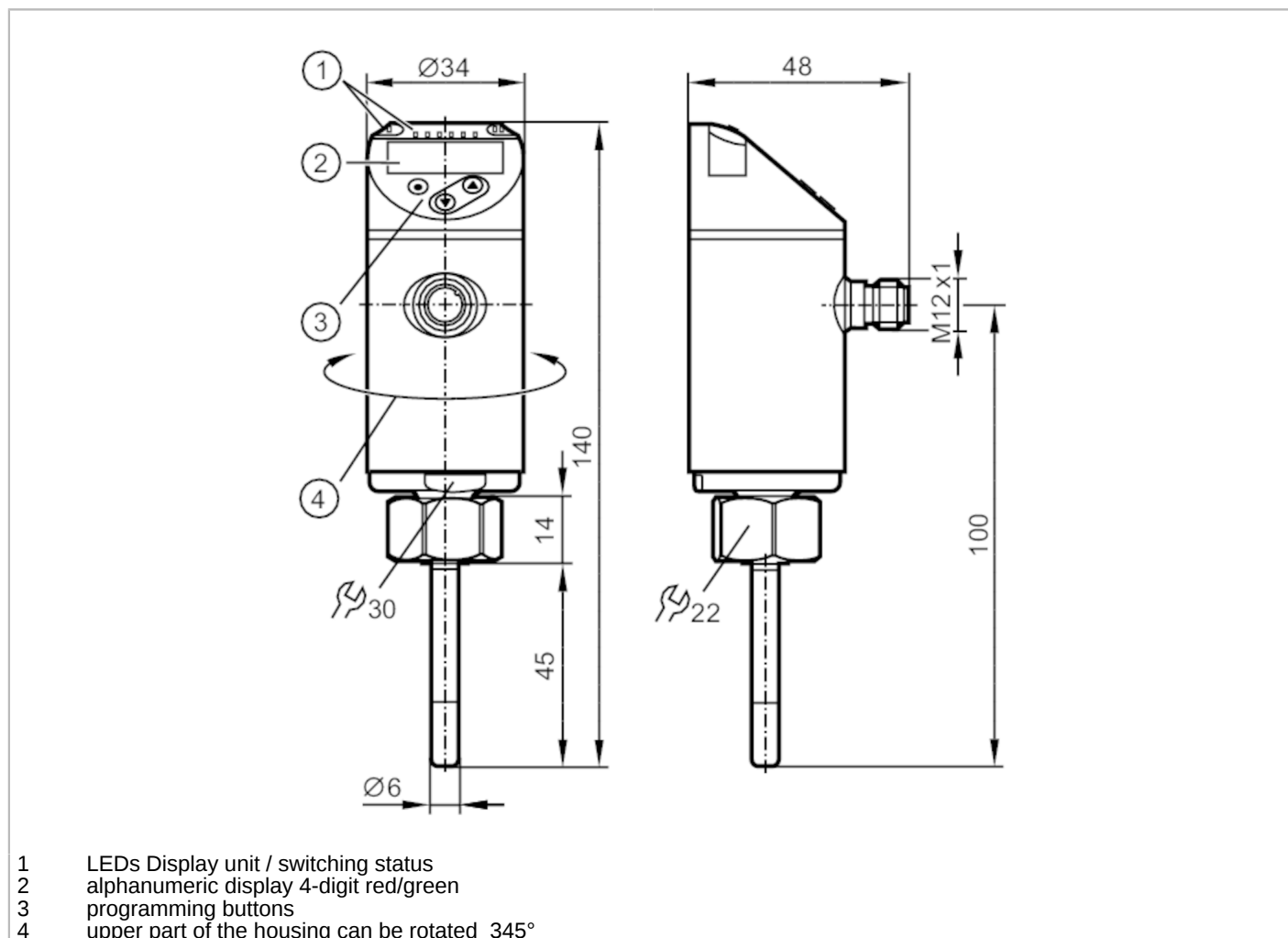


TN2511



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
Communication interface	IO-Link	
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	300 bar	30 MPa
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	

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Power-on delay time	[s]	1
Integrated watchdog		yes

Inputs / outputs

Number of inputs and outputs	Number of digital outputs: 1; Number of analogue outputs: 1	
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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)
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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	
Profiles	Smart Sensor - SSP 0	Generic Profiled Sensor
	Function	Device identification
	Function	Process data variable
	Function	Device diagnosis
Min. process cycle time	[ms]	2.3
Supported DeviceIDs	Type of operation	DeviceID
	default	582
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		cylindrical
Dimensions	[mm]	Ø 34 / L = 140
Materials		stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC
Materials (wetted parts)		stainless steel (316L/1.4404); O-ring: FKM 80 Shore A
Process connection		threaded connection M18 x 1,5 internal thread
Probe diameter	[mm]	6
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.	

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Temperature sensor with display

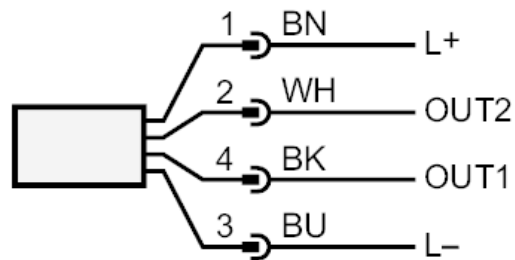
TN-045K CBD18-MFPKG/US/

Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



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