



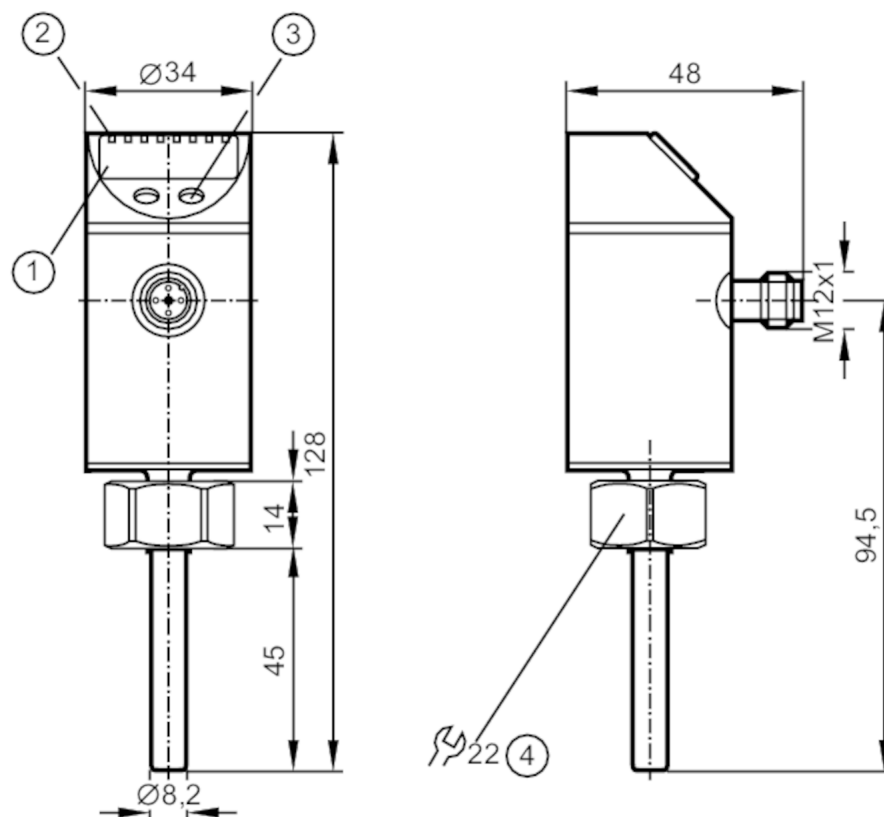
Temperature sensor with display

TN-013KCB10-MFRKG/US/ IV

phase-out article

Alternative articles: TN2511

When selecting an alternative article and accessories please note that technical data may differ!



- 1 alphanumeric display 4-digit
- 2 status LEDs
- 3 programming button
- 4 internal thread M18 x 1.5



Product characteristics

Number of inputs and outputs	Number of digital outputs: 1; Number of analogue outputs: 1	
Measuring range	-40...150 °C	-40...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 B)	
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	



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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 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	
Permanent current rating of switching output DC [mA]	250	
Number of analogue outputs	1	
Analogue current output [mA]	4...20	
Max. load [Ω]	(U _b - 10 V) x 50	
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	-40...150 °C	-40...302 °F
Set point SP	-39.5...150 °C	-39...302 °F
Reset point rP	-40...149.5 °C	-40...301 °F
Analogue start point	-40...145 °C	-40...293 °F
Analogue end point	-35...150 °C	-31...302 °F
In steps of	0.1 °C	0.1 °F
Resolution		
Resolution of switching output [K]	0.1	
Resolution of analogue output [K]	0.1	
Resolution of display [K]	0.1	
Accuracy / deviations		
Switch point accuracy [K]	± 0,3	
Precision analogue output [K]	± 0,3	
Display accuracy [K]	± 0,3	
Temperature drift per 10 K [K]	0.1	
Response times		
Dynamic response T05 / T09 [s]	1 / 3; (to DIN EN 60751)	

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Max. measuring/display cycle [ms]	200
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Software / programming

Adjustment of the switch point	programming button
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Interfaces

Communication interface	IO-Link				
Transmission type	COM2 (38,4 kBaud)				
IO-Link revision	1.0				
Min. process cycle time [ms]	2.3				
Supported DeviceIDs	<table><tr><th>Type of operation</th><th>DeviceID</th></tr><tr><td>default</td><td>87</td></tr></table>	Type of operation	DeviceID	default	87
Type of operation	DeviceID				
default	87				

Operating conditions

Ambient temperature [°C]	-25...70
Storage temperature [°C]	-40...100
Protection	IP 67

Tests / approvals

EMC	<table><tr><td>DIN EN 61000-4-2 ESD</td><td>4 kV CD / 8 kV AD</td></tr><tr><td>EN 61000-4-3 HF radiated</td><td>10 V/m</td></tr><tr><td>DIN EN 61000-4-4 Burst</td><td>2 kV</td></tr><tr><td>DIN EN 61000-4-5 Surge</td><td>1 kV</td></tr><tr><td>EN 61000-4-6 HF conducted</td><td>10 V</td></tr></table>	DIN EN 61000-4-2 ESD	4 kV CD / 8 kV AD	EN 61000-4-3 HF radiated	10 V/m	DIN EN 61000-4-4 Burst	2 kV	DIN EN 61000-4-5 Surge	1 kV	EN 61000-4-6 HF conducted	10 V
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DIN EN 61000-4-4 Burst	2 kV										
DIN EN 61000-4-5 Surge	1 kV										
EN 61000-4-6 HF conducted	10 V										
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]	209										

Mechanical data

Weight [g]	202.8
Housing	cylindrical
Dimensions [mm]	Ø 34 / L = 128
Materials	stainless steel (304/1.4301); PBT; PC; EPDM/X; FKM
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]	8.2
Installation length EL [mm]	45

Displays / operating elements

Display	<table><tr><td>Display unit</td><td>2 x LED, green</td></tr><tr><td>switching status</td><td>LED, yellow</td></tr><tr><td>measured values</td><td>alphanumeric display, 4-digit</td></tr><tr><td>programming</td><td>alphanumeric display, 4-digit</td></tr></table>	Display unit	2 x LED, green	switching status	LED, yellow	measured values	alphanumeric display, 4-digit	programming	alphanumeric display, 4-digit
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switching status	LED, yellow								
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Remarks

Remarks	The values for accuracy apply to flowing water.
Pack quantity	1 pcs.

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Electrical connection

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



Connection

