

# TN2531

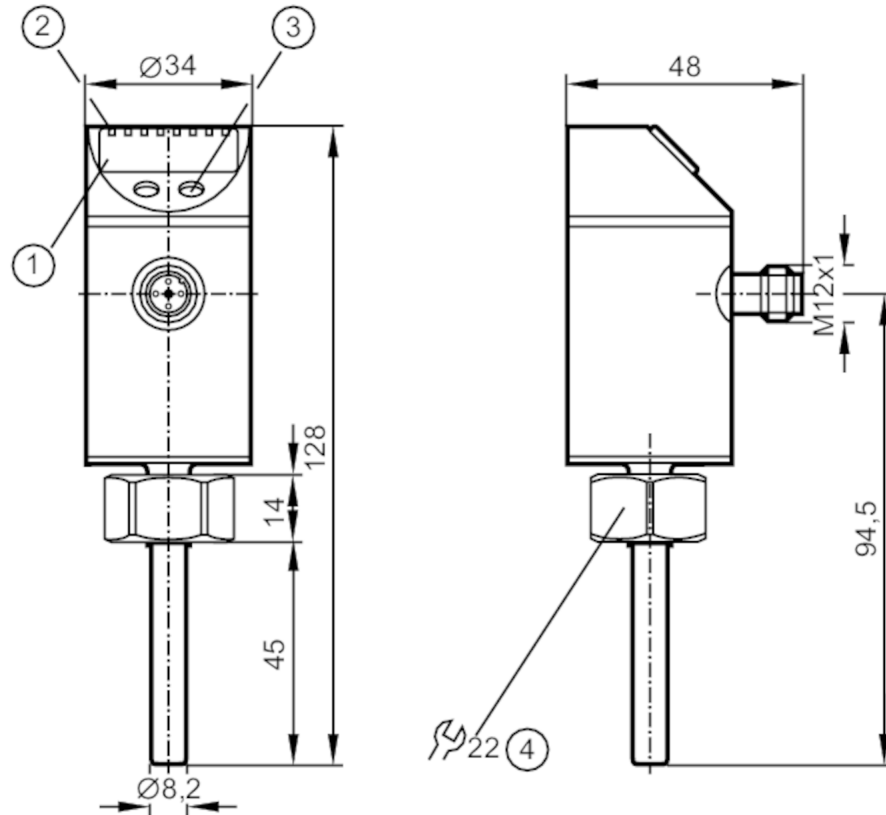


## Temperature sensor with display

TN-013KCBD10-MFRKG/US/ IV

discontinued article

replaced by: TN2511; discontinued article – Discontinuation date: 31.12.2017



- 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
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 [bar]	300
Minimum installation depth [mm]	12

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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
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 <sub>b</sub> - 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

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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)
Max. measuring/display cycle	[ms]	200
Software / programming		
Adjustment of the switch point		programming button
Interfaces		
Communication interface		IO-Link
Transmission type		COM2 (38,4 kBaud)
IO-Link revision		1.0
Operating conditions		
Ambient temperature	[°C]	-25...70
Storage temperature	[°C]	-40...100
Protection		IP 67
Tests / approvals		
EMC	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
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		compact type for adapter
Materials		stainless steel (1.4301 / 304); PBT; PC; EPDM/X; FKM
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, 4-digit
	programming	alphanumeric display, 4-digit
Remarks		
Remarks		The values for accuracy apply to flowing water.
Notes		discontinued article
Pack quantity		1 pcs.

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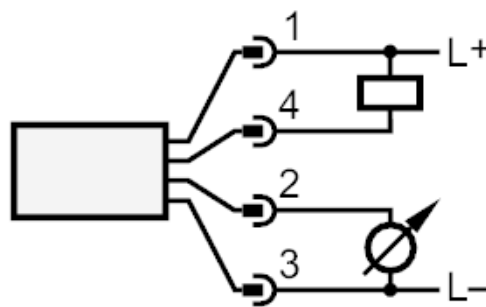
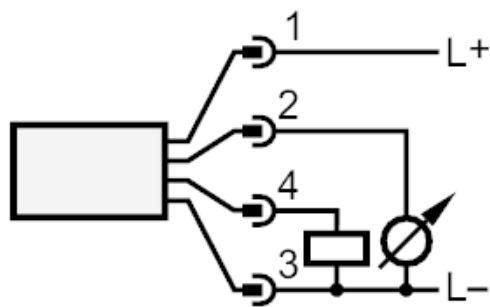
TN-013K CBD10-MFRKG/US/ IV

### Electrical connection

Connector: 1 x M12; Contacts: gold-plated



### Connection



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