

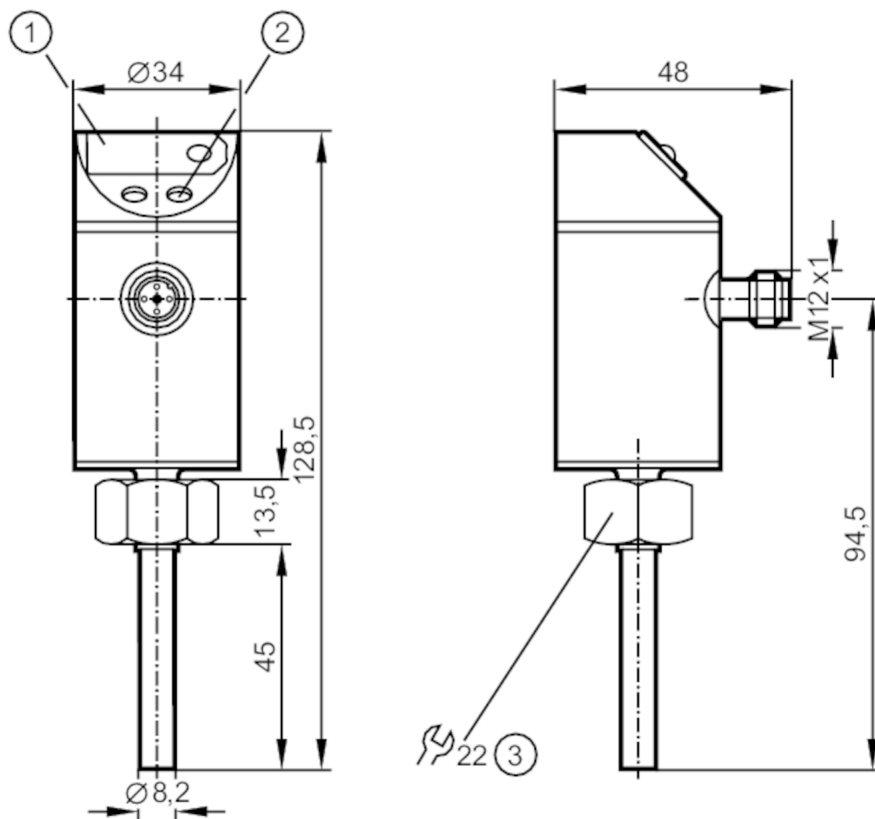
## Temperature sensor with display

TN-013KBBBD10-MFP

Article no longer available - archive entry

Alternative articles: TN2511

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



- 1 7-segment LED display
- 2 programming button
- 3 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...125 °C                                                | -40...257 °F |
| Process connection           | threaded connection M18 x 1,5 internal thread               |              |

### 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] | 15                                      |  |

### Electrical data

|                          |            |  |
|--------------------------|------------|--|
| Operating voltage [V]    | 20...30 DC |  |
| Current consumption [mA] | < 66       |  |



## Temperature sensor with display

TN-013KBBD10-MFP

|                             |      |                 |
|-----------------------------|------|-----------------|
| Min. insulation resistance  | [MΩ] | 100; (500 V DC) |
| Protection class            |      | III             |
| Reverse polarity protection |      | yes             |
| Power-on delay time         | [s]  | 1.5             |
| 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; (configurable)  |
| Electrical design                               |      | PNP                                                |
| 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]  | 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      | -40...125 °C   | -40...257 °F |
| Set point SP         | -39.5...125 °C | -39...257 °F |
| Reset point rP       | -40...124.5 °C | -40...256 °F |
| Analogue start point | -40...115 °C   | -40...239 °F |
| Analogue end point   | -30...125 °C   | -22...257 °F |
| In steps of          | 0.5 °C         | 1 °F         |

### Resolution

|                                |     |       |
|--------------------------------|-----|-------|
| Resolution of switching output | [K] | 0.5   |
| Resolution of analogue output  | [K] | 0.125 |
| Resolution of display          | [K] | 0.5   |

### Accuracy / deviations

|                            |     |                               |
|----------------------------|-----|-------------------------------|
| Switch point accuracy      | [K] | ± (Pt 1000 + 0,2 K)           |
| Precision analogue output  | [K] | ± (Pt 1000 + 0,2 K + 0,4%)    |
| Display accuracy           | [K] | ± (Pt 1000 + 0,2 K + ½ Digit) |
| Temperature drift per 10 K | [K] | 0.1                           |



## Temperature sensor with display

TN-013KBBD10-MFP

| 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                                                                                                                                        |
| Parameter setting options                            |                           | hysteresis / window; normally open / normally closed; min/max memory reset; Display unit; zero-point calibration; analogue output selectable and scalable |
| 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                                                                                                                                                      |
|                                                      | 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)                                                                                                                                       |
| Mechanical data                                      |                           |                                                                                                                                                           |
| Housing                                              |                           | compact type for adapter                                                                                                                                  |
| Materials                                            |                           | stainless steel (1.4301 / 304); PBT; PC; EPDM/X; FKM                                                                                                      |
| Materials (wetted parts)                             |                           | stainless steel (316L/1.4404)                                                                                                                             |
| Process connection                                   |                           | threaded connection M18 x 1,5 internal thread                                                                                                             |
| Displays / operating elements                        |                           |                                                                                                                                                           |
| Display                                              | switching status          | LED, red                                                                                                                                                  |
|                                                      | function display          | 7-segment LED display                                                                                                                                     |
|                                                      | measured values           | 7-segment LED display                                                                                                                                     |
| Remarks                                              |                           |                                                                                                                                                           |
| Remarks                                              |                           | The values for accuracy apply to flowing water.                                                                                                           |
| Pack quantity                                        |                           | 1 pcs.                                                                                                                                                    |
| Electrical connection                                |                           |                                                                                                                                                           |
| Connector: 1 x M12; coding: A; Contacts: gold-plated |                           |                                                                                                                                                           |
|                                                      |                           |                                                                                                                                                           |



# TN2530



## Temperature sensor with display

TN-013KBBD10-MFP

### Connection

