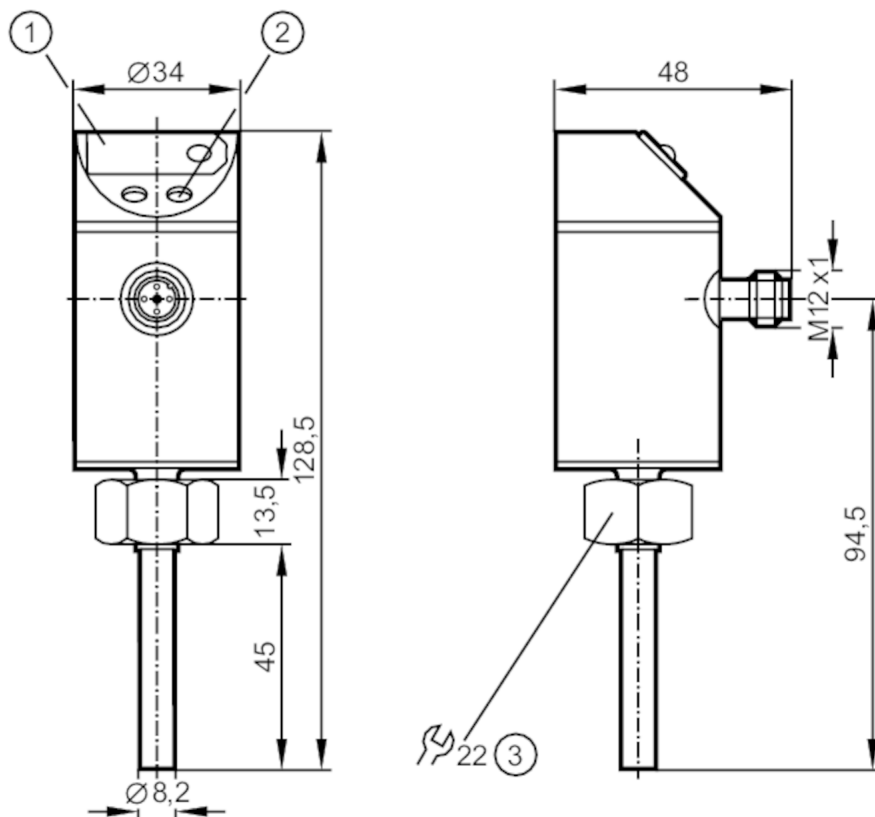


## Temperature sensor with display

TN-013KBBD10-MFPKG/US/ IV

Article no longer available - archive entry



- 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) |  |
| Application                     | detection of surface temperatures       |  |
| Media                           | liquids and gases                       |  |
| Pressure rating [bar]           | 30                                      |  |
| Minimum installation depth [mm] | 15                                      |  |

### Electrical data

|                                 |                 |  |
|---------------------------------|-----------------|--|
| Operating voltage [V]           | 20...30 DC      |  |
| Current consumption [mA]        | < 66            |  |
| Min. insulation resistance [MΩ] | 100; (500 V DC) |  |
| Protection class                | III             |  |



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|                             |     |
|-----------------------------|-----|
| 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 [ $\Omega$ ]                               | 500                                                |
| Analogue voltage output [V]                          | 0...10                                             |
| Min. load resistance [ $\Omega$ ]                    | 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]      | $\pm$ (Pt 1000 + 0,2 K)           |
| Precision analogue output [K]  | $\pm$ (Pt 1000 + 0,2 K + 0,4%)    |
| Display accuracy [K]           | $\pm$ (Pt 1000 + 0,2 K + ½ Digit) |
| 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                      |



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| 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 (304/1.4301); 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                                           |                                                                                                                                                           |                       |
| <div></div> |                                                                                                                                                           |                       |

# TN2930



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### Connection

