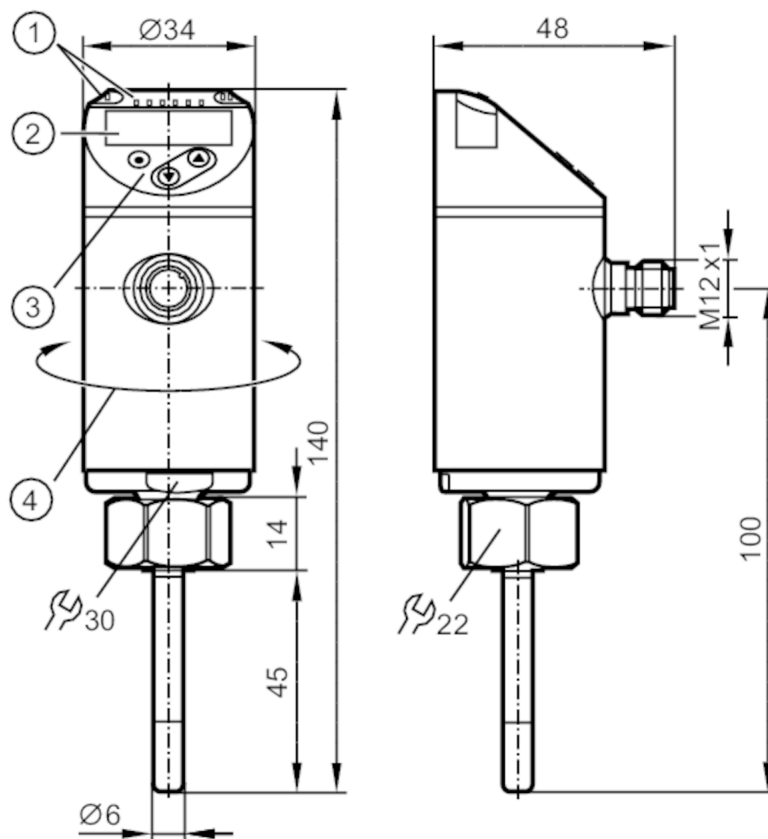


## Temperature sensor with display

TN-045KCB18-QFPKG/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: 2                  |              |
| 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                                     |  |



## Temperature sensor with display

TN-045KCB18-QFPKG/US/

|                                                 |                      |                                                                                                                                  |
|-------------------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Power-on delay time                             | [s]                  | 1                                                                                                                                |
| Integrated watchdog                             |                      | yes                                                                                                                              |
| <b>Inputs / outputs</b>                         |                      |                                                                                                                                  |
| Number of inputs and outputs                    |                      | Number of digital outputs: 2                                                                                                     |
| <b>Outputs</b>                                  |                      |                                                                                                                                  |
| Total number of outputs                         |                      | 2                                                                                                                                |
| Output signal                                   |                      | switching signal; IO-Link; (configurable)                                                                                        |
| Electrical design                               |                      | PNP/NPN                                                                                                                          |
| Number of digital outputs                       |                      | 2                                                                                                                                |
| 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                                                                                                                              |
| Short-circuit protection                        |                      | yes                                                                                                                              |
| Type of short-circuit protection                |                      | pulsed                                                                                                                           |
| Overload protection                             |                      | yes                                                                                                                              |
| <b>Measuring/setting range</b>                  |                      |                                                                                                                                  |
| Probe length L                                  | [mm]                 | 45                                                                                                                               |
| Measuring range                                 |                      | -50...150 °C      -58...302 °F                                                                                                   |
| Set point SP                                    |                      | -49.8...150 °C      -57.6...302 °F                                                                                               |
| Reset point rP                                  |                      | -50...149.8 °C      -58...301.6 °F                                                                                               |
| In steps of                                     |                      | 0.1 °C      0.1 °F                                                                                                               |
| <b>Resolution</b>                               |                      |                                                                                                                                  |
| Resolution of switching output                  | [K]                  | 0.1                                                                                                                              |
| Resolution of display                           | [K]                  | 0.1                                                                                                                              |
| <b>Accuracy / deviations</b>                    |                      |                                                                                                                                  |
| Switch point accuracy                           | [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)                                                               |
| <b>Response times</b>                           |                      |                                                                                                                                  |
| Dynamic response T05 / T09                      | [s]                  | 1 / 3; (to DIN EN 60751)                                                                                                         |
| <b>Software / programming</b>                   |                      |                                                                                                                                  |
| Parameter setting options                       |                      | hysteresis / window; normally open / normally closed; switch-on/ switch-off delay; Damping; Display unit; current/voltage output |
| <b>Interfaces</b>                               |                      |                                                                                                                                  |
| 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                                                                                                                 |

# TN7511



## Temperature sensor with display

TN-045KCB18-QFPKG/US/

|                         |                          |                 |
|-------------------------|--------------------------|-----------------|
| Min. process cycle time | [ms]                     | 2.3             |
| Supported DeviceIDs     | <b>Type of operation</b> | <b>DeviceID</b> |
|                         | default                  | 583             |

| 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]          | 254                 |
| UL approval          | UL approval no.  | K014                |

| Mechanical data          |      |                                                          |
|--------------------------|------|----------------------------------------------------------|
| Weight                   | [g]  | 204                                                      |
| 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.       |  |
|               | operating voltage "supply class 2" according to cULus |  |
| Pack quantity | 1 pcs.                                                |  |

### Electrical connection

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



# TN7511



## Temperature sensor with display

TN-045KCB18-QFPKG/US/

### Connection



OUT1: switching output / IO-Link

OUT2: switching output

colours to DIN EN 60947-5-2

Core colours :

BK = black  
BN = brown  
BU = blue  
WH = white