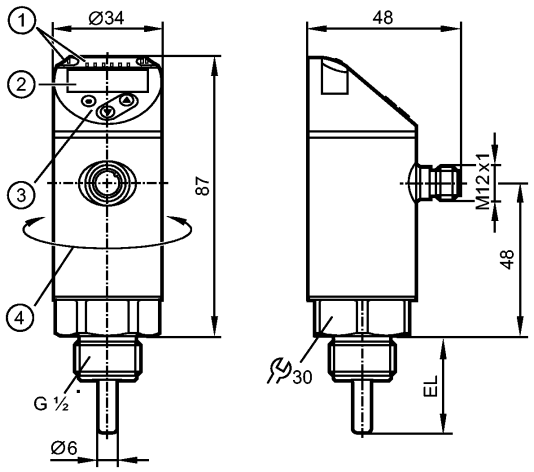
# TN2405

TN-030KLBM12-MFRKG/US/

**Temperature sensors**




1: LEDs (display unit / switching status)
2: 4-digit alphanumeric display / alternating indication of red and green
3: Programming buttons
4: Upper part of the housing can be rotated by 345°

| | | |
|---|---|---|
| **Product characteristics** | | |
| Electronic temperature sensor | | |
| Process connection: G 1/2 | | |
| Installation length EL: 30 mm | | |
| 2 outputs<br>OUT1 = switching output<br>OUT2 = switching output or analog output | | |
| 4-digit alphanumeric display | | |
| Measuring range: -50...150 °C / -58...302 °F | | |
| Measuring element: 1 x Pt 1000, to DIN EN 60751, class A | | |
| Factory setting: -50...150 °C | | |
| **Application** | | |
| Application | | liquids and gases |
| Pressure rating | [bar] | 300 |
| **Electrical data** | | |
| Electrical design | | DC PNP/NPN |
| Operating voltage | [V] | 18...32 DC; cULus - Class 2 source required |
| Current consumption | [mA] | < 50 |
| Protection class | | III |
| Reverse polarity protection | | yes |
| **Outputs** | | |
| Output | | 2 outputs<br>OUT1 = switching output<br>OUT2 = switching output or analog output |
| Output function | | 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V) |
| Current rating | [mA] | 250 |
| Voltage drop | [V] | < 2.5 |
| Short-circuit protection | | yes (non-latching) |
| Overload protection | | yes |

| | | | |
|---|---|---|---|
| Max. load | [Ω] | 4...20 mA: 500 | |
| Min. load | [Ω] | 0...10 V: 2000 | |
| **Measuring / setting range** | | | |
| Measuring range | | -50...150 °C | -58...302 °F |
| Factory setting | | -50...150 °C | |
| Setting range | | | |
| Set point, SP | | -49.8...150 °C | -57.6...302 °F |
| Reset point, rP | | -50...149.8 °C | -58...301.6 °F |
| Analog start point, ASP | | -50...145 °C | -58...293 °F |
| Analog end point, AEP | | -45...150 °C | -49...302 °F |
| in steps of | | 0.1 °C | 0.1 °F |
| Resolution | | | |
| Switching output | [K] | 0.1 | |
| Analog output | [K] | MS / 4096 *) \| MS / 3561 **) | |
| Display | [K] | 0.1 | |
| **Accuracy / deviations** | | | |
| Switch point accuracy | [K] | ± 0.3 + (± 0.1 % MS) | |
| Analog output | [K] | ± 0.3 + (± 0.1 % MS) | |
| Display | [K] | ± 0.3 + (± 0.1 % MS) | |
| Temperature coefficients (in % of the span per 10 K) | | 0.1 | |
| **Reaction times** | | | |
| Power-on delay time | [s] | 1 | |
| Dynamic response | T05 / T09 [s] | 1 / 3 ***) | |
| Integrated watchdog | | yes | |
| **Software / programming** | | | |
| Programming options | | hysteresis / window function; NO / NC; output polarity; on delay, off delay; damping; display unit; current / voltage output | |
| **Interfaces** | | | |
| IO-Link Device | | | |
| Transfer type | | COM2 (38.4 kBaud) | |
| IO-Link revision | | 1.1 | |
| **Environment** | | | |
| Ambient temperature | [°C] | -25...80 | |
| Storage temperature | [°C] | -40...100 | |
| Protection | | IP 67 | |
| **Tests / approvals** | | | |
| EMC | | DIN EN 61000-6-2<br>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] | 207 | |
| UL approval number | | K015 | |
| **Mechanical data** | | | |
| Process connection | | G 1/2 | |
| Materials (wetted parts) | | stainless steel (316L / 1.4404); O-ring: FKM | |

# TN2405

TN-030KLBM12-MFRKG/US/

**Temperature sensors**

| | | |
|---|---|---|
| Installation length EL | [mm] | 30 |
| Housing materials | | stainless steel (316L / 1.4404); PBT+PC-GF 30; PBT-GF 20; PC |

## Displays / operating elements

Display

Display unit 2 x LED green
Switching status 2 x LED yellow
4-digit alphanumeric display / alternating indication
Measured values of red and green

## Electrical connection

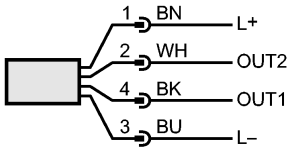
Connection: M12 connector; gold-plated contacts

**Wiring**

Core colors

| | |
|---|---|
| BK | black |
| BN | brown |
| BU | blue |
| WH | white |




OUT1: switching output or IO-Link
OUT2: switching output or 4...20 mA / 0...10 V
Colours to DIN EN 60947-5-2

## Remarks

Remarks

*) current output
**) voltage output
***) according to DIN EN 60751
MS = set measuring span
The values for accuracy apply to flowing water.

| | | |
|---|---|---|
| Pack quantity | [piece] | 1 |