

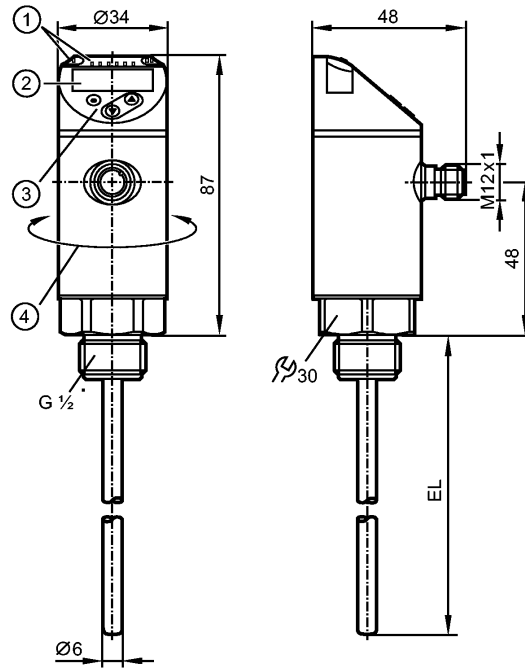


# TN2435

TN-100KLBM12-MFRKG/US/ IV



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: 100 mm

2 outputs

OUT1 = switching output

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]: 250

### 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  
OUT1 = switching output  
OUT2 = switching output or analog output



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Temperature sensors

|                          |  |  |
|--------------------------|--|--|
| 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 drift ( / 10 K) | 0.1 % MS             |  |

| 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) |



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Temperature sensors

|                    |         |      |
|--------------------|---------|------|
| 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                 |
| Installation length EL   | [mm] | 100  |
| Housing materials        |      | stainless steel (316L / 1.4404); PBT+PC-GF 30; PBT-GF 20; PC |

### Displays / operating elements

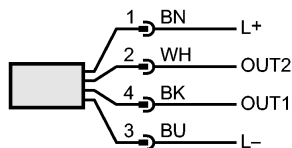
|         |   |
|---------|---|
| Display | Display unit    2 x LED green<br>Switching status 2 x LED yellow<br>4-digit alphanumeric display / alternating indication<br>Measured values of red and green |
|---------|---|

### 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<br>**) voltage output<br>***) according to DIN EN 60751<br>MS = set measuring span<br>The values for accuracy apply to flowing water. |
|---------|---|

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