



Temperature sensors
Resistance thermometer

TBS-1DSG12506NE



Model Name > [TBS-1DSG12506NE](#)
Part No. > [6048680](#)



At a glance

- Large display
- Individually programmable transistor outputs PNP or NPN, optional analog output 4 mA ... 20 mA or 0 V ... 10 V
- Round connector M12 x 1
- Measuring ranges -20 °C ... +80 °C
- Pt1000 element, accuracy class A (IEC 60751)
- Various insertion lengths and connection threads
- Wetted parts made from corrosion-resistant stainless steel 1.4571
- Enclosure rating IP 65 and IP 67

Your benefits

- Quick and safe set-up through superior ease of use
- Compact dimensions and rotatable housing facilitate integration
- Very reliable: splash-proof housing, high-grade materials, rugged design, and field-proven technology
- Very good long-term stability, accuracy and linearity
- Quick response time
- Versatile configuration allows for optimal solutions for specific requirements



Features

| | |
|--|---|
| Measuring range: | -20 °C ... 80 °C |
| Sensor element: | Pt1000, 2-wire, class A according to IEC 60751 |
| Output signals: | 2 x PNP 1 x 4 mA ... 20 mA |
| Output type: | Transistor |
| Switching output function: | Normally open/normally closed, windows- and hysteresis function freely adjustable |
| Switching voltage: | Supply voltage [V DC] - 1 V DC |
| Maximum switching current: | 250 mA |
| Switching delay: | 0 s ... 50 s, programmable |
| Setting accuracy of switching outputs: | 0.1 °C |
| Temperature offset: | ± 3 °C |
| Messbereichskalierung: | Zero point: max. +25 % of span Full scale: max. -25 % of span |

| | |
|--------------------|---|
| Display: | 14-segment LED, blue, 4-digits, height 9 mm, display electronically turnable by 180 °, update: 200 ms |
| Rotatable housing: | Display against housing with electrical connection: 330 °, Housing against process connection: 320 ° |

Performance

| | |
|-------------------------------|--|
| Accuracy of sensor element: | $\leq \pm (0.15 \text{ °C} + 0.002 t)$ ¹⁾ |
| Accuracy of switching output: | $\leq \pm 0.8 \%$ of span |
| Display accuracy: | $\leq \pm 0.8 \%$ of span ± 1 digit |
| Accuracy of analog output: | $\leq \pm 0.5 \%$ of span |
| Response time t50: | $\leq 5 \text{ s}$ ²⁾ |
| Response time t90: | $\leq 10 \text{ s}$ ³⁾ |

¹⁾ |t| is the absolute value of the temperature in °C ^{2) 3)} Depending on sensor configuration, according to IEC 60751.

Mechanics/electronics

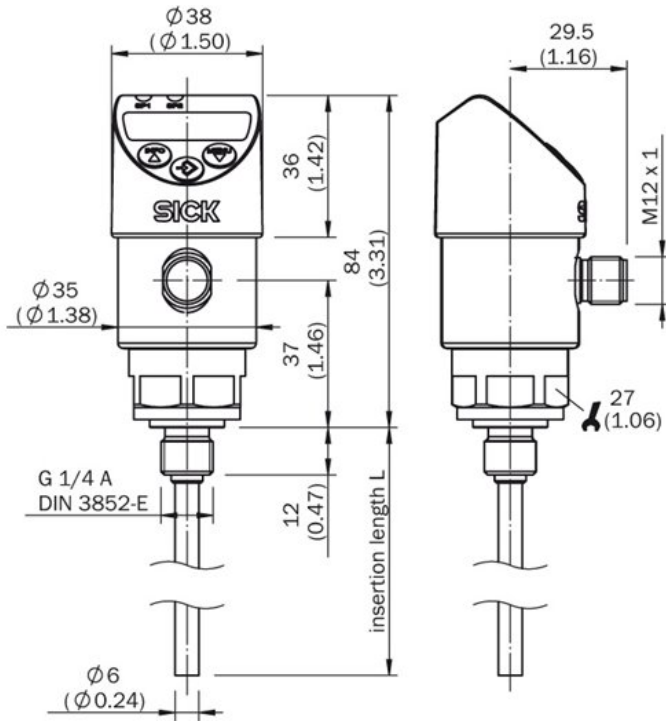
| | |
|-------------------------------------|--|
| Process connection: | Thread G 1/4 A according to DIN 3852-E |
| Insertion length/diameter of probe: | 250 mm/6 mm |
| Housing material: | Lower body: stainless steel 1.4301 (AISI 304) Plastic head: PC + ABS Input keypad: TPE-E Display window: PC |
| Wetted parts: | Stainless steel 1.4571 (AISI 316Ti) |
| Supply voltage: | 15 V DC ... 35 V DC |
| CE-conformity: | 2004/108/EC, EN 61326-1 emission (group 1, class B) and interference immunity (industrial application) |
| Maximum power consumption: | 70 mA |
| Seal: | NBR |
| Maximum process pressure: | 150 bar ¹⁾ |
| Enclosure rating: | IP 65, according to IEC 60529 ^{2) 3)} IP 67, according to IEC 60529 |
| Connection type: | Round connector M12 x 1, 5-pin |
| Maximum ohmic load RA: | $\leq 100 \text{ k}\Omega$ (Switching outputs) $< 0.5 \text{ k}\Omega$ (output signal 4 mA ... 20 mA) |
| Total current consumption: | 570 mA (incl. switching current) 320 mA |
| Protection class: | III |
| Isolation voltage: | 500 V DC |
| Overvoltage protection: | 40 V DC |
| Short-circuit protection: | Outputs QA, Q1, Q2 towards M |
| Reverse polarity protection: | L+ towards M |
| RoHS certificate: | ✓ |

¹⁾ At room temperature and when connected through thread. ^{2) 3)} The enclosure rating classes specified only apply while the thermometer is connected with female connectors that provide the corresponding enclosure rating.

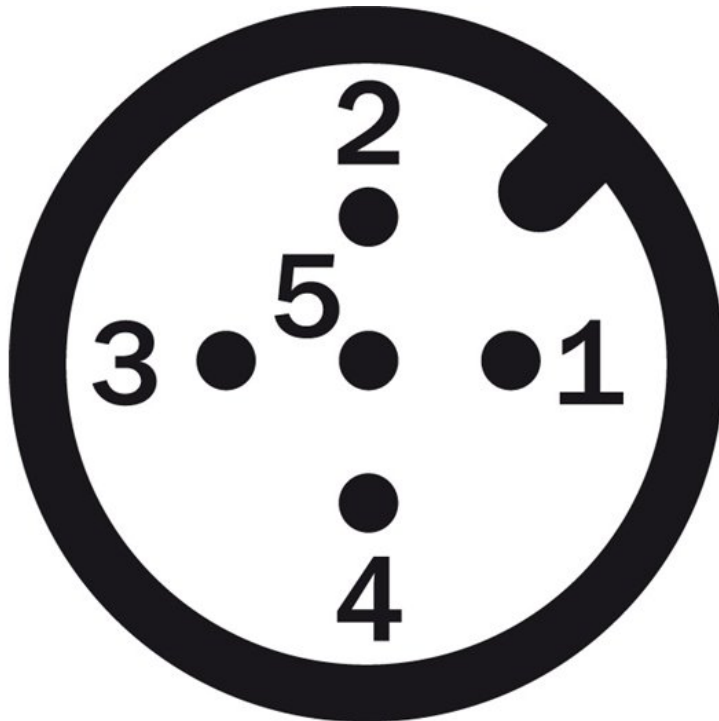
Ambient data

| | |
|------------------------------------|------------------|
| Ambient temperature: | -20 °C ... 80 °C |
| Storage and transport temperature: | -20 °C ... 80 °C |
| Relative humidity: | 45 % ... 75 % |

Dimensional drawing



Connection type



- |1| L+
- |2| Q2
- |3| M
- |4| Q1
- |5| QA

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