



Temperature sensors Resistance thermometer

TBS-1KSN42506FE



Model Name > TBS-1KSN42506FE
Part No. > -*



* When ordering for the first time, please use the information in "Model Name" instead of "Part No."

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 NPN 1 x 0 V ... 10 V
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:	$\leq \pm 0.8 \text{ % of span}$
Display accuracy:	$\leq \pm 0.8 \text{ % of span} \pm 1 \text{ digit}$
Accuracy of analog output:	$\leq \pm 0.5 \text{ % of span}$
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

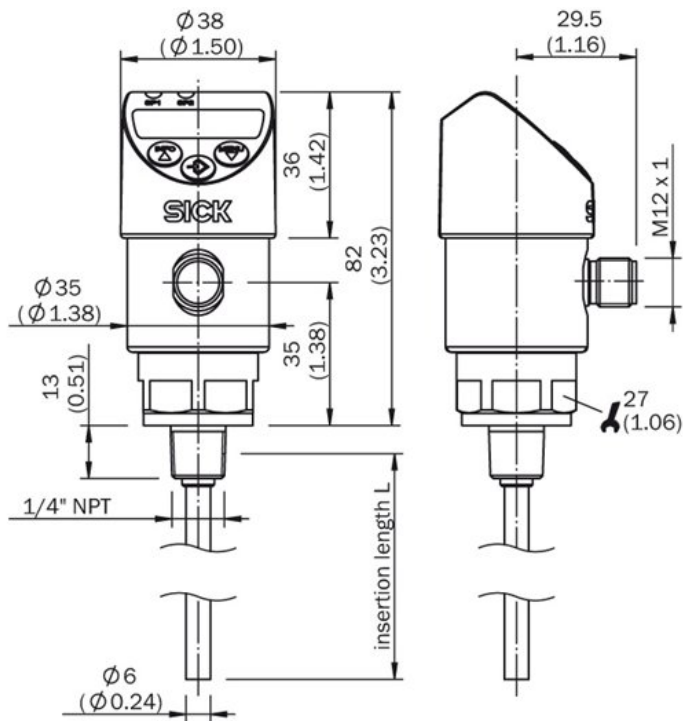
Process connection:	Thread 1/4" NPT
Insertion length/diameter of probe:	250 mm/6 mm
Housing material:	Lower body: stainless steel 1.4301 (AISI 304) Plastic head: PC + ABS Input keypad: TPE-E Display window: PC
Wetted parts:	Stainless steel 1.4571 (AISI 316Ti)
Supply voltage:	15 V DC ... 35 V DC
CE-conformity:	2004/108/EC, EN 61326-1 emission (group 1, class B) and interference immunity (industrial application)
Maximum power consumption:	70 mA
Seal:	FPM/FKM
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) $> 10 \text{ k}\Omega$ (output signal 0 V ... 10 V)
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.

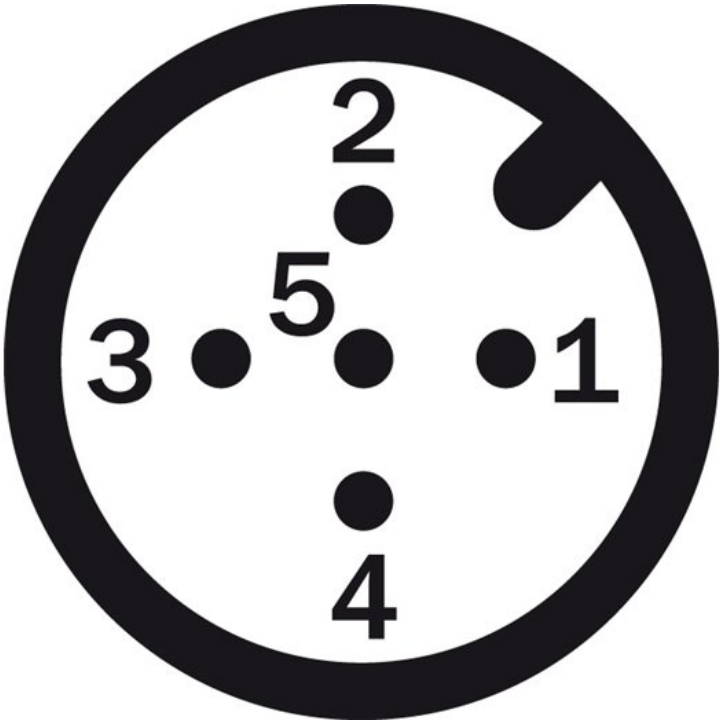
Ambient data

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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