

TFK03

Compact Resistance Temperature Sensor (Pt100) with Circular Connector M12x1

- very small design because of M12x1 connector
- integrated transmitter optional
- resistance and current output
- wetted parts made of stainless steel 1.4571
- measuring range from -50 °C to +200 °C
- short response time
- easy to service
- max. pressure: 100 bar



Description:

A temperature-dependent electrical resistance is integrated in a stainless steel protective tube. This changes its ohmic resistance depending on the temperature of the medium.

In the version with built-in transmitter, this value is converted into a 4...20 mA current signal and provided at the terminals of the circular plug. In the version without transmitter, the pure resistance value can be tapped at the connector. To achieve short response times, there is a version with a rejuvenated immersion shaft.

The circular connector M12x1 offers a very high degree of protection (IP68) and, thanks to its compact design, very flexible installation options.

Typical applications:

The resistance thermometers are very well suited for use in general machine, apparatus, plant, container and pipeline construction, as well as in the chemical and process engineering and food industries, where they are preferably used for detecting the temperature in liquid and gaseous media. Their compact design makes them particularly suitable for installation in places with limited space.

Technical Data:

| | |
|----------------------------|--|
| Sensor: | Pt100 acc. to DIN IEC 751, class A |
| Measuring ranges: | -50...+150 °C w/o neck tube -50...+200 °C with neck tube -50...+400 °C special form on request |
| Thermowell: | Diameter: 6 or 8 mm Material: stainless steel 1.4571 |
| Housing: | stainless steel 1.4435 |
| Process connection: | fix screw connection or movable compression fitting. Others (e.g. Clamp) on request |
| Surface roughness: | ≤ 0,8 µm (optional ≤ 0,4 µm electropolished) |
| Max. pressure: | PN 25 (PN 40 on request) |
| Electr. connection: | circular connector M12x1 |
| Protection class: | IP68, IP69K acc. to EN 60529/ IEC 529 |

Transmitter:

| | |
|------------------------------|-------------------------|
| Power supply: | 10...30 V _{DC} |
| Output: | 4...20 mA, 2-wire |
| Min. turn down ratio: | 20 Kelvin |
| Max. turn down ratio: | 800 Kelvin |
| Accuracy: | 0,3 % of full scale |

Temperature Information:

| Max. ambient-temperature | Max. Process temperature | |
|--------------------------|--------------------------|----------------|
| | w/o neck tube | with neck tube |
| ≤ 25°C | ≤ 150°C | ≤ 200°C |
| ≤ 40°C | ≤ 135°C | ≤ 180°C |
| ≤ 60°C | ≤ 120°C | ≤ 160°C |
| ≤ 85°C | ≤ 100°C | ≤ 133°C |

Weight [kg]

| Thread | Pt100 output | | Analogue output | |
|--------|-------------------|----------------|-------------------|----------------|
| | Without neck tube | With neck tube | Without neck tube | With neck tube |
| G1/4B | 0,045 | 0,056 | 0,06 | 0,071 |
| G3/8B | 0,055 | 0,066 | 0,07 | 0,081 |
| G1/2B | 0,065 | 0,076 | 0,08 | 0,091 |
| ½ NPT | 0,065 | 0,076 | 0,08 | 0,091 |

Dimension table:

| Thread | L2 [mm] | L3 [mm] | H [mm] | SW |
|--------|---------|---------|--------|----|
| G1/4B | 12 | - | 15 | 19 |
| G3/8B | 12 | - | 15 | 27 |
| G1/2B | 14 | - | 15 | 27 |
| ½ NPT | 19 | 8,1 | 24,7 | 27 |

Order Code:

Order number: TFK03. 1P2. 6. 08F. 0050. 150. 0

Compact resistance temperature sensor, M12x1

Sensor:

1P2 = 1 x Pt100, 2-wire
1P3 = 1 x Pt100, 3-wire
1P4 = 1 x Pt100, 4-wire
2P2 = 2 x Pt100, 2-wire
A04 = 4-20 mA
please specify measuring range preferably 0..50 °C, 0..100 °C, 0...120 °C

Diameter of immersion shaft:

6 = 6 mm
8 = 8 mm

Process connection:

0 = without screw conn., only immersion shaft (compression fitting see accessories)
08F = G 1/4 A fix
10F = G 3/8 A fix
15F = G 1/2 A fix
2NF = 1/2" NPT fix

other connections on request

Installation length L:*

0025 = 25 mm (only with fix screw connection)
0050 = 50 mm (only with fix screw connection)
0075 = 75 mm (only with fix screw connection)
0100 = 100 mm *
0160 = 160 mm *
0200 = 200 mm *
0250 = 250 mm *
0500 = 500 mm *
xxxx = please specify in plain text

Temperature range:

150 = -50...+150 °C without neck tube
200 = -50...+200 °C with neck tube
400 = -50...+400 °C special version on request

Options:

0 = without
VR = rejuvenated immersion shaft to 3 mm diameter for faster response times. Only for versions with fixed screw connection and thermowell diameter 6 mm.
E = electropolished ≤ 0,4 µm surface roughness

* with fix screw connection: measured from sealing edge of screw connection
with removable connection: entire shaft length

Accessories:

Order number: SVQ. V.08. 06
Compression fitting (installation length min. 100 mm)

Process connection:

V.08 = G 1/4 male
V.10 = G 3/8 male
V.15 = G 1/2 male
V.08N = 1/4" NPT
V.15N = 1/2" NPT

Diameter of immersion shaft:

06 = 6 mm
08 = 8 mm

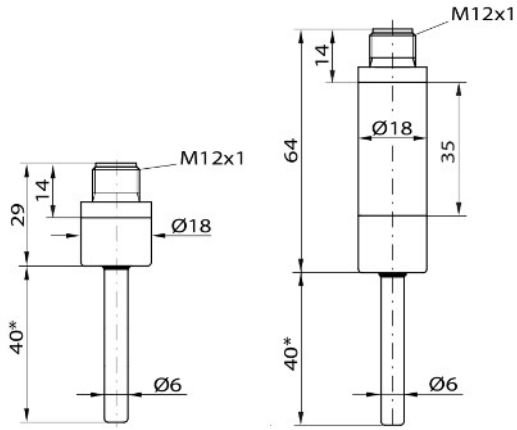
SM12 plug M12x1 with PVC-cable (see separated data sheet)



Dimensions:

Devices with Pt100 output:

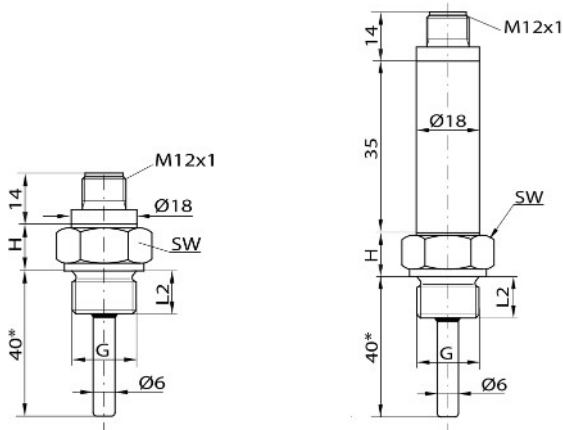
Without thread:



without neck tube

with neck tube

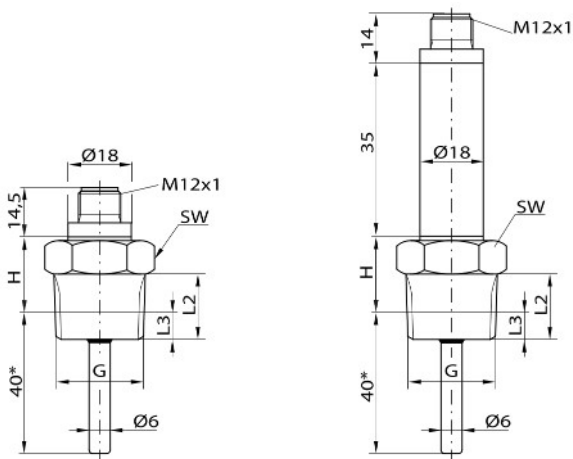
G-Thread connection:



without neck tube

with neck tube

NPT-Thread connection:

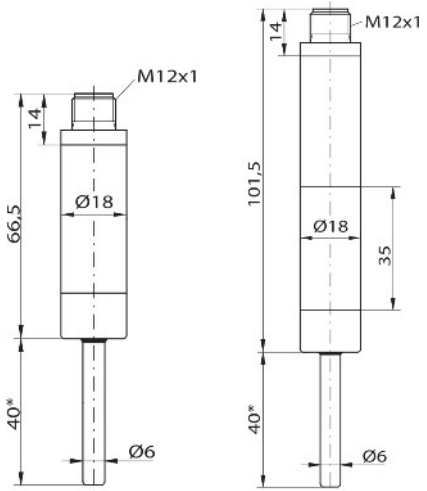


without neck tube

with neck tube

Devices with analogue output (4...20 mA)

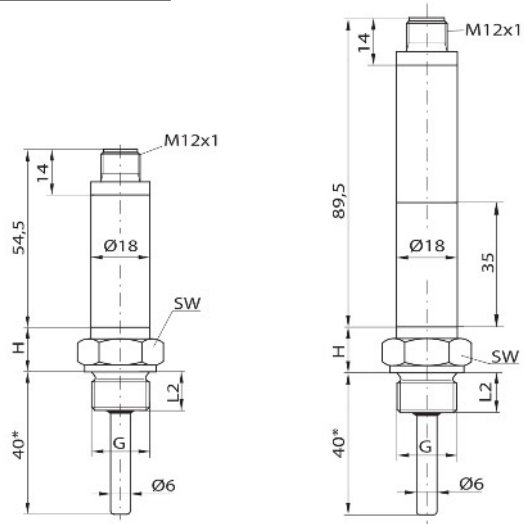
Without thread:



without neck tube

with neck tube

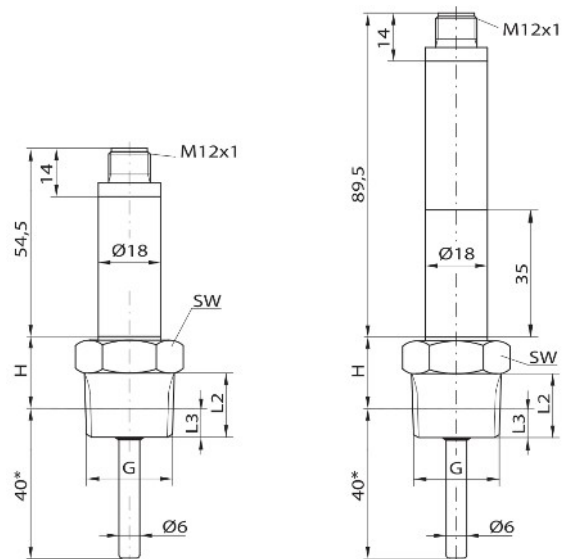
G-Thread connection:



without neck tube

with neck tube

NPT-Thread connection:



without neck tube

with neck tube