

Temperature sensor type TP23, Construction type 2, Plug-in sensor for protection tube with straight cable outlet



Measuring element/Measuring principle	Pt100
Temperature range (measuring tip)	Measuring tip: 0...200 °C Cable outlet: -20 °C...220 °C Connection cable: on request
Protection class	Sensor tube IP68
Mounting	Protection tube
Material	Sensor tube: Brass Adapter: Brass
Length	Immersion depth 55mm



Temperature sensor TP23

Application range

Temperature sensors of the TP23 series are especially designed for use in Shipbuilding industry, mechanical engineering for temperature measurement in traction motors, gear boxes, wheelset bearings and compressor- and air conditioning systems.

Measuring principle

Temperature sensors of the TP23 series operate according to the measurement principle / with the measuring element Pt100.

Functioning of platinum measuring elements

With this measurement principle the temperature-sensitive resistance value of the measuring element is acquired. For platinum measuring elements the electrical resistance increases with increasing temperature and decreases with decreasing temperature (temperature linear). Advantages of platinum measuring elements:

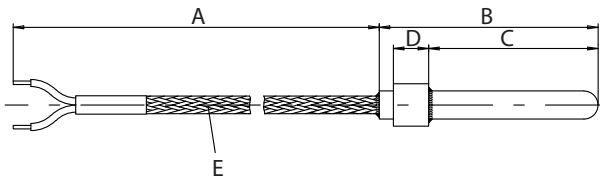
- accurate and reproducible thermoelectric characteristics
- nearly linear temperature characteristic
- easy to replace (no calibration necessary, corresponding to international standards, e. g. IEC 751 / DIN EN 60751)
- measurement is faster and more precise than with thermocouples

Specific features

- Compact, robust design
- Easy installation via protection tube
- Connection with fixed cable, straight cable outlet
- Temperature linear transmission behaviour
- As 2-wire or 4-wire type available
- Suitable measuring transducers, limit value switches and analogue indicators available
- Sensor as Pt100 or as NTC available

Dimensions, connections and drawings

Dimensions temperature sensor

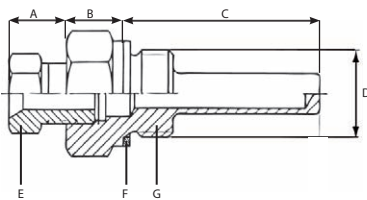


Explanation to the illustration

- A: Length 2300 mm
- B: Length 62 mm
- C: Length 48 mm
- D: Length 10 mm
- E: Teflon cable with steel wire mesh, 2 x 0.75²

Protection tubes are used for temperature measurement in fluids. If protection tubes are used, temperature sensors can be replaced during operation.

Dimensions protection tube MX1 (brass)

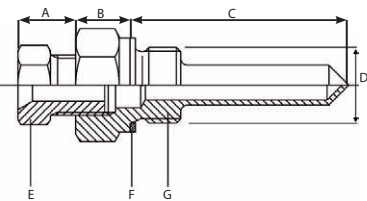


Explanation to the illustration

- A: Length 16 mm
- B: Length 16 mm
- C: Length 55 mm
- D: Diameter see next table
- E: Screw connection
- F: Sealing ring
- G: Protection tube

Max. insertion depths T=120 mm
Material protection tube: CuZn39Pb3

Dimensions protection tube MX6 (stainless steel)



Explanation to the illustration

- A: Length 16 mm
- B: Length 15 mm
- C: Length 55 mm
- D: Diameter see next table
- E: Screw connection
- F: Sealing ring
- G: Protection tube

Material protection tube: 1.4305
Threaded tube acc. ISO 228/1-G1/2A, tolerance class A
Metric fine thread DIN 13 T5, 6 und 7

Protection tube thread types

Thread	Brass order no.	Stainless steel order no.
R1/2"	MX1-R12	MX6-R12
MX18 x 1.5	MX1-M18	MX6-M18
MX20 x 1.5	MX1-M20	MX6-M20

Technical Data

Signal acquisition	
Measuring element/Measuring principle	Pt100
Temperature range (measuring tip)	Mesasuring tip: 0...200 °C Cable outlet: -20 °C...220 °C Connection cable: on request
Accuracy / Tolerance class	DIN EN 60571: class B (other classes on request)
Transmission behaviour	Temperature linear
Response time	In water t 0.5 = 12 s / t 0.9 = 42 s; In oil: t 0.5 = 33 s / t 0.9 = 105 s

Environmental influences	
Storage temperature	-40...+105 °C
Protection class	Sensor tube IP68
Vibration resistance	DIN89011: Characteristic curve 2
Shock resistance	On request
Insulation voltage	500 V/AC, 50 Hz @ 1 min
Isolation resistance	>10MΩ @ 500V/DC
Fire protection class	On request
Approvals / Standards	None

Mechanical quantities	
Material	Measuring tip: N. a. Sensor tube: Brass Adapter: Brass
Mounting	Protection tube
Length	Immersion depth 55mm
Installation position	Any
Weight	Depending on connector: approx. 100 g with 2 m cable

Other	
Approvals	CE; DNV

Technical data of protection tube MX1 and MX6

	MX1	MX6
Weight	Approx. 100 g	Approx. 125 g
Material	Brass (CU Zn 39 Pb3)	Stainless steel (1.4305)
Maximum flow velocity	5 m/s (water)	5 m/s (water)
Maximum operating pressure	10 bar	40 bar (Cu sealsing ring necessary from 15 bar or higher)

Type code

Type code structure		
TP23	-2500	Example: TP23-2500
		Length of connection cable
Type code		
Length of connection cable	-500	0,5 m
	- ___	Without index 2,3 m
	-2500	2,5 m
	-6000	6 m
	-7500	7,5 m
	-8000	8,0 m
	- ___	Other cable lengths on request
TP23	-2500	Example: TP23-2500

Order no. for protection tubes

Thread	Brass order no.	Stainless steel order no.
R1/2"	MX1-R12	MX6-R12
MX18 x 1.5	MX1-M18	MX6-M18
MX20 x 1.5	MX1-M20	MX6-M20

Preferred types

Features marked with a * symbol at the end of the line (see previous table) are preferred features. If you select a preferred feature for each placeholder, the device is specified as preferred type. Preferred types are available quickly from stock. Other types will be delivered according to scheduled appointments.

Special types

If our standard types do not correspond with your expectation, we are pleased to develop a special solution together with you.