

MTC16S

THERMOCOUPLE ASSEMBLY WITH METAL TUBE AND MEASURING INSERT

Temperature sensors of the MTC16S series are designed for applications with operating temperatures up to 1100°C where extremely high robustness is not required. The sensor is equipped with the threaded fitting.

The measuring element is a thermocouple of the J, K, L or N type, which uses the dependence of the thermoelectric voltage on the temperature to measure the temperature. The output signal is a thermoelectric voltage, the value of which is according to the ČSN EN 60584-1 ed. 2 or DIN 43 710 for L thermocouple.

The sensor consists of an assembly and a replaceable measuring insert. The assembly consists of a head, a protective metal tube and a threaded fitting. The head is equipped with a cable gland for connecting the compensation cable.

General Information (Table 16S.1)

	Insulation class acc. ČSN EN 60529	IP54 (head) IP68 (measuring part in length N)
	Max. medium overpressure	16 bar
	Base metal thermocouple measuring insert	
①	Design	Mineral insulated metal-sheathed thermocouple according to the ČSN EN 61515 ed.2
	Diameter	3 mm
	Protection tube	
②	Outer / inner diameter	8 / 6 mm
	Threaded fitting	
③	Material	Stainless steel 1.4541
	Head	
④	Material	Aluminium alloy
	Cable bushing	M20 x 1,5

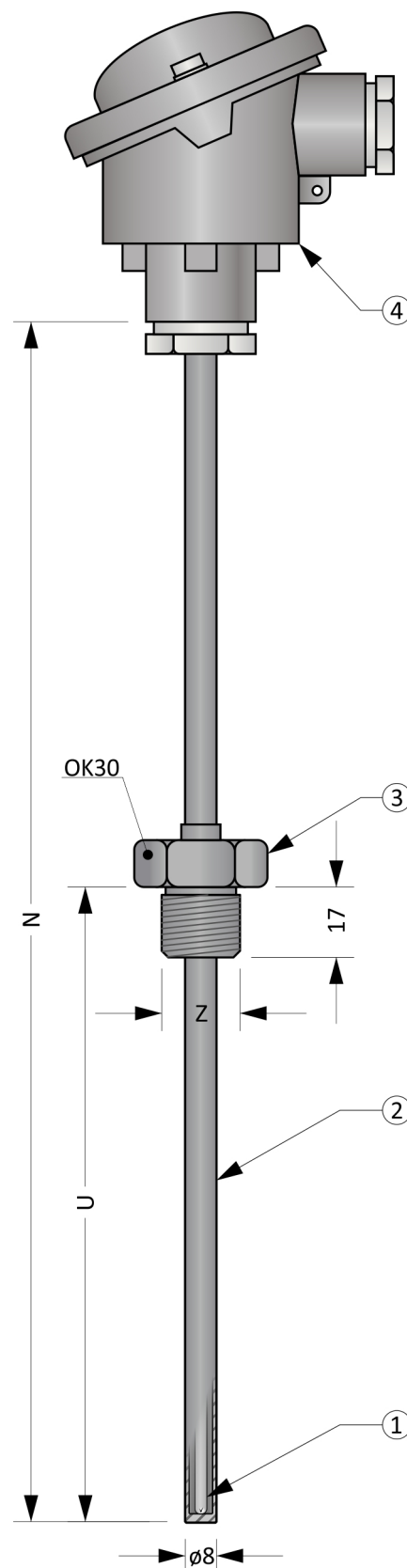


Figure 16.1: MTC16

Optional Parameters Including the Creation of an Order Code (Table 16S.2)

Pos.	Code	MTC16S - ① ② ③ - ④ - ⑤ - ⑥
①	Type of measuring insert with a diameter of 3.0 mm (thermocouples acc. ČSN EN 60584-1 ed. 2)	
	0	1 x „K“, thermocouple isolated from the sheath, sheath material 2.4816
	1	1 x „J“, thermocouple isolated from the sheath, sheath material 1.4541
	2	2 x „K“, thermocouple isolated from the sheath, sheath material 2.4816
	3	2 x „J“, thermocouple isolated from the sheath, sheath material 1.4541
	4	1 x „L“, thermocouple isolated from the sheath, sheath material 1.4541 (acc. DIN 43 710)
	5	1 x „N“, thermocouple isolated from the sheath, sheath material 2.4816
	6	2 x „N“, thermocouple isolated from the sheath, sheath material 2.4816
②	Accuracy class acc. ČSN EN 60584-1 ed. 2	
	0	Accuracy class 2 (Type L without accuracy class acc. DIN 43 710)
	1	Accuracy class 1 — For J, K, N thermocouples only.
③	Threaded fittings	
	0	Welded threaded fitting Z = M20 x 1,5
	1	Welded threaded fitting Z = G½"
④	Nominal length N [mm] and tube material	
	Axxx	Material 1.4541, selectable range from 50 mm to 2000 mm (in 10 mm increments)
	Bxxx	Material 1.4841, selectable range from 50 mm to 2000 mm (in 10 mm increments)
⑤	Immersion depth U [mm]	
	xxx	Selectable range from 20 mm to (N-80) mm (in 10 mm increments)
⑥	Head type	
	0	B
	1	BH
	2	BUZ with screws with leaden seal holes
	3	BUZ with snap lock
	4	BUZH with screws with leaden seal holes
	5	BUZH with snap lock

Order code example: MTC16S-010-A500-100-0

... 1 x „K“, thermocouple isolated from the sheath, sheath material 2.4816
 ... Accuracy class 1 acc. ČSN EN 60584-1 ed. 2
 ... Process thread M20 x 1,5
 ... Nominal length N = 500 mm, material 1.4541
 ... Immersion depth U = 100 mm
 ... Head B

Approximate weight of the product: MTC16S-010-A500-100-0 ... 1,2 kg

Recommended Maximum Temperatures of Sensor Parts (Table 16S.4)

Sensor part	Continuous operation	Short-term operation
Head	< 100 °C	-
Threaded fitting	< 800 °C	-
Protection tube, material 1.4541	< 800 °C	-
Protection tube, material 1.4841	< 1100 °C	-
„J“, sheath dia. 3,0 mm	< 470 °C	< 520 °C
„K“, sheath dia. 3,0 mm	< 980 °C	< 1050 °C
„N“, sheath dia. 3,0 mm	< 980 °C	< 1050 °C
„L“, sheath dia. 3,0 mm	< 480 °C	< 530 °C

Notes: Operating temperatures are related to temperature measurement in a chemically inert environment. The values are determined empirically.

Length Tolerances (Table 16S.3)

Nominal length N	Length tolerance N	Length tolerance U
$N \leq 1000$ mm	± 2 mm	± 2 mm
$1000 < N$ mm	± 3 mm	± 2 mm

Head types

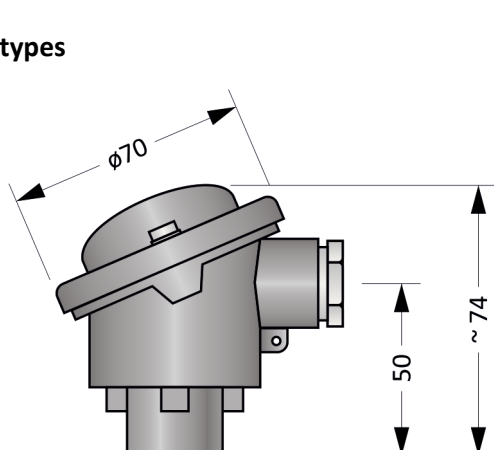


Figure 16S.2: Head B

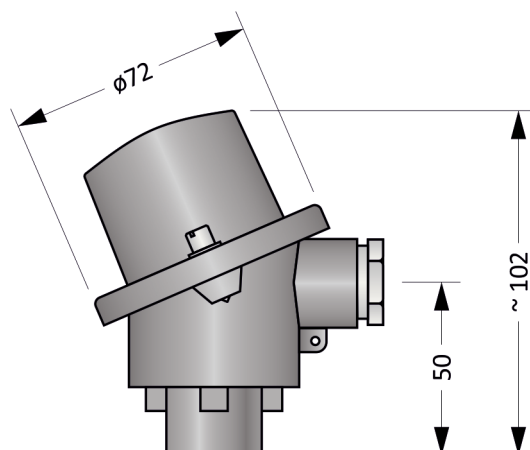


Figure 16S.3: Head BH

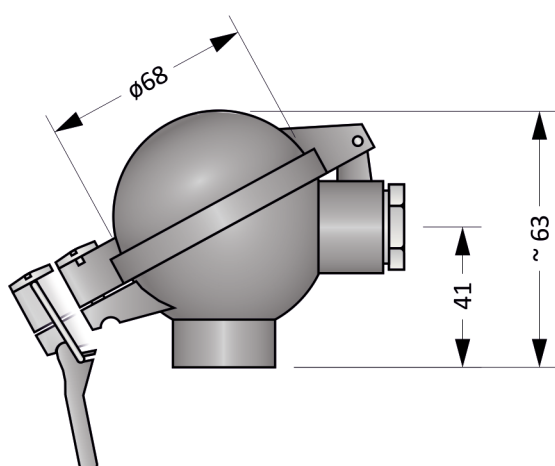


Figure 16S.4: Head BUZ

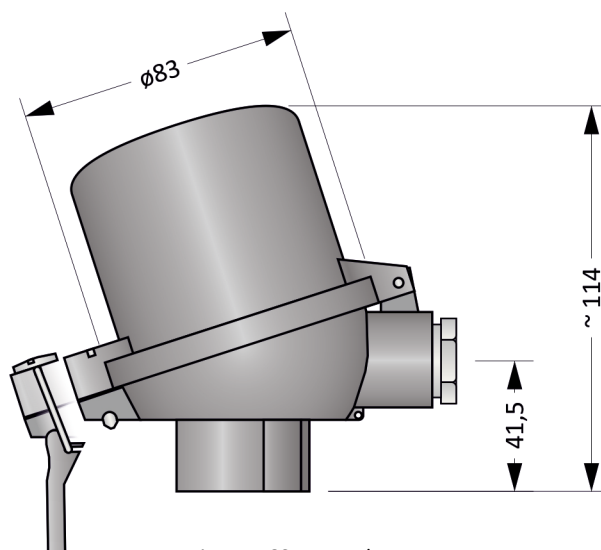


Figure 16S.5: Head BUZH

Installation And Operating Instructions

The sensor tube or threaded fitting is used for mechanical mounting. Other parts cannot be used. The longest lifetime of the sensor can be achieved by mounting it vertically.

To ensure IP54 protection of the head, it is necessary to install the sensor in a vertical position with the head in the upper position.

The electrical connection of the sensor is shown in Figures 16S.6 and 16S.7. The output signal is a thermoelectric voltage, the value of which is according to the ČSN EN 60584-1 ed. 2 or DIN 43 710 for L thermocouple.

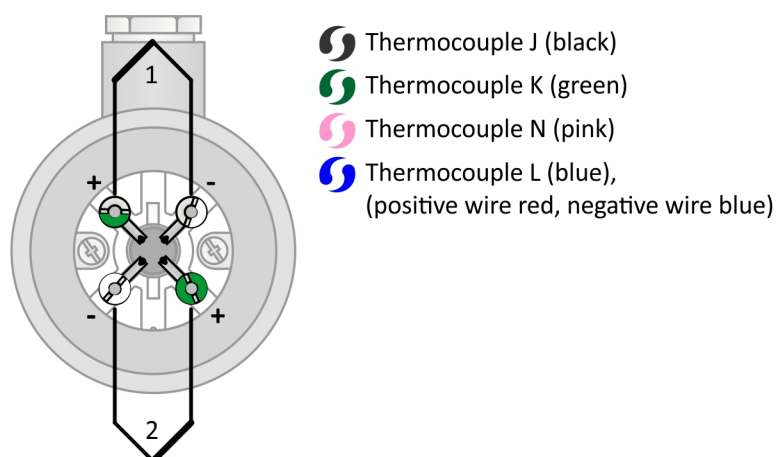


Figure 16S.7: Double thermocouple wiring diagram

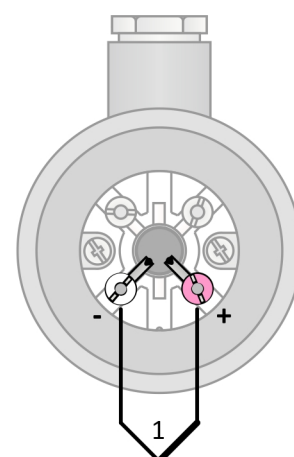


Figure 16S.8: Single thermocouple wiring diagram