

MTC12K

CABLE THERMOCOUPLES

Temperature sensors of the MTC12K series are cable temperature sensors that can be mounted under a screw, under a strap or in a hole in the object to be measured. They represent an economically feasible solution at the cost of certain compromises in sensor characteristics. All basic sensor parameters are determined by the type of cable used.

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.

General Information (Table 12K.1)

	Insulation class acc. ČSN EN 60529	IP50 (connector), IP00 (stripped ends) IP5X (measuring part in length L)
①	Cable thermocouple	
	Cable insulation	GHGHV (glass fiber braid / glass fiber braid / stainless steel wire braid)
	Number x cross-section of wires	2 x 0,22 mm ² , stranded
	Cable diameter	~ 3,0 mm
	Min. bending radius	15 x outer cable diameter
②	Measuring end	
③	Stripped ends	
④	Connector	

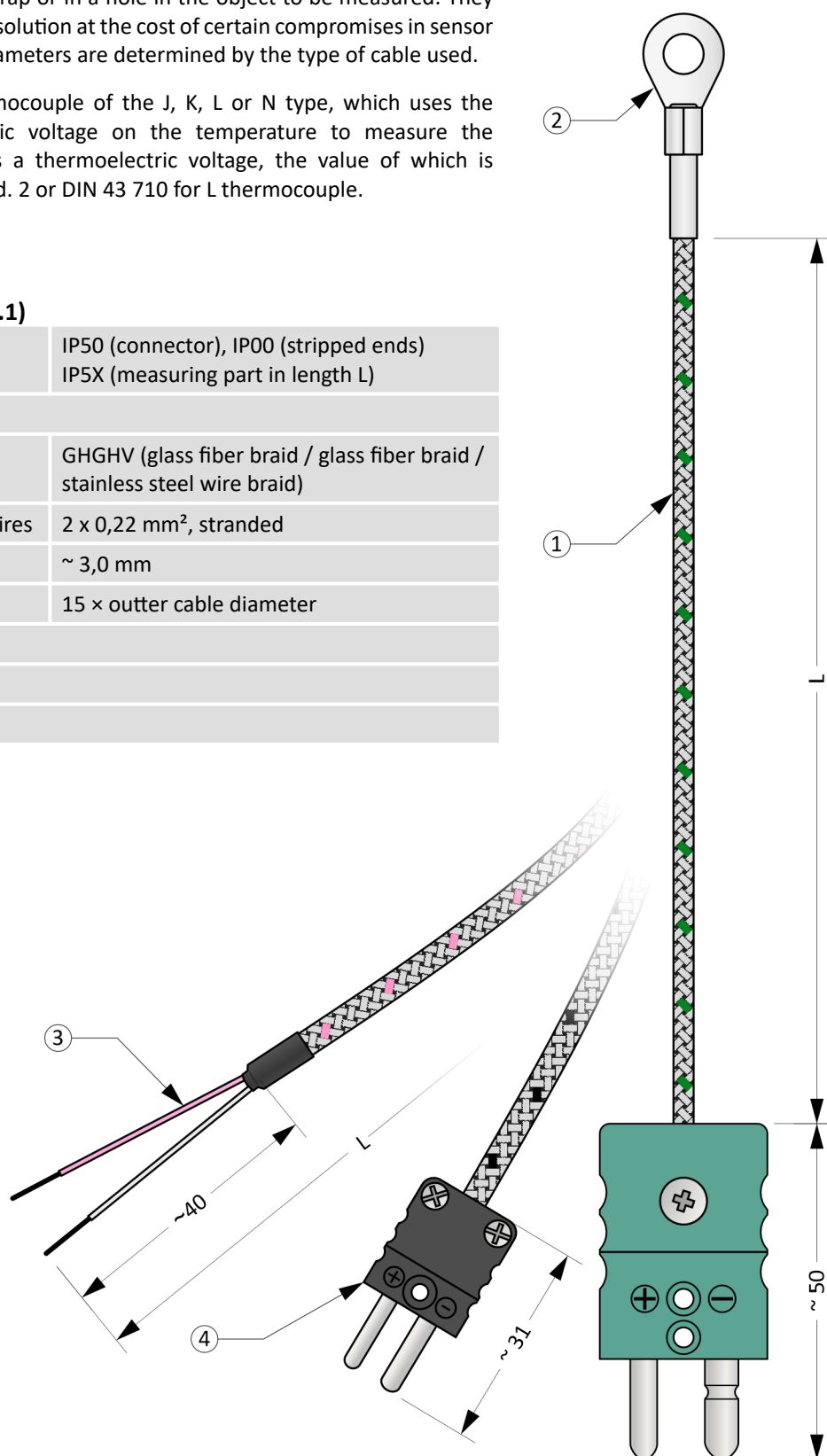


Figure 12K.1: MTC12K

Optional Parameters Including the Creation of an Order Code (Table 12K.2)

Pos.	Code	MTC12K - ① ② - ③ - ④
①	Thermocouple type	
	1	1 x „J“, accuracy class 2 acc. ČSN EN 60584-1 ed. 2
	0	1 x „K“, accuracy class 2 acc. ČSN EN 60584-1 ed. 2
	2	1 x „L“, acc. DIN 43 710
	3	1 x „N“, accuracy class 2 acc. ČSN EN 60584-1 ed. 2
②	Thermocouple measuring end design	
	0	Type A6 (see figure 12K.3), material CuZnSn, hole diameter D = ~ 6,4 mm (for screw M6)
	4	Type A5 (see figure 12K.2), material CuZnSn, hole diameter D = ~ 5,3 mm (for screw M5)
	5	Type A4 (see figure 12K.2), material CuZnSn, hole diameter D = ~ 4,3 mm (for screw M4)
	1	Type B6 (see figure 12K.4), material stainless steel, hole diameter D = ~ 6,2 mm (for screw M6)
	7	Type B5 (see figure 12K.4), material stainless steel, hole diameter D = ~ 5,2 mm (for screw M5)
	8	Type B4 (see figure 12K.4), material stainless steel, hole diameter D = ~ 4,2 mm (for screw M4)
	2	Type C (see figure 12K.5), material stainless steel
	3	Type D (see figure 12K.6), material brass, for fastening with tape
③	Sensor length L [cm]	
	xxx	Selectable range from 50 cm to 450 cm (in 1 cm increments)
	xxx	Selectable range from 460 cm to 3 500 cm (in 10 cm increments)
④	Design of the cold junction	
	0	Stripped ends, length 40 mm
	1	Standard connector, MTCK-S type, plug
	2	Standard connector, MTCK-S type, plug + socket
	3	Miniature connector, MTCK-M type, plug
	4	Miniature connector, MTCK-M type, plug + socket
	5	Ceramic standard connector, MTCK-CS type, plug
	6	Ceramic standard connector, MTCK-CS type, plug + socket
	7	Ceramic miniature connector, MTCK-CM type, plug
	8	Ceramic miniature connector, MTCK-CM type, plug + socket

Order code example: MTC12K-00-500-0

... Thermocouple type 1 x „K“, accuracy class 2 acc. ČSN EN 60584-1 ed. 2
 ... Type A6 (see figure 12K.3), material CuZnSn, hole dia. D = ~ 6,4 mm (for screw M6)
 ... Sensor length L = 500 cm
 ... Stripped ends

Approximate weight of the product: MTC12K-00-500-0 ... 0,2 kg

Recommended Maximum Temperatures of Sensor Parts (Table 12K.3)

Sensor part	Continuous operation	Short-term operation
Thermocouple - measuring end, cable	-40 ... 600 °C	-
Connectors MTCK-S, MTCK-M	< 220 °C	-
Connectors MTCK-CS, MTCK-CM	< 600 °C	-

Measuring end design

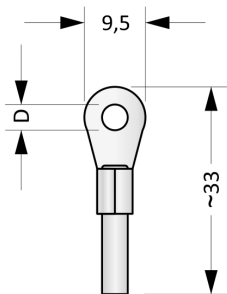


Figure 12K.2: Type A4 and A5

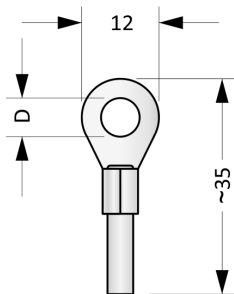


Figure 12K.3: Type A6

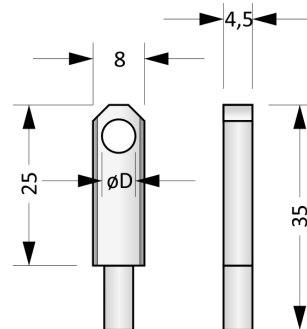


Figure 12K.4: Type B4, B5, B6

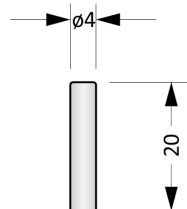


Figure 12K.5: Type C

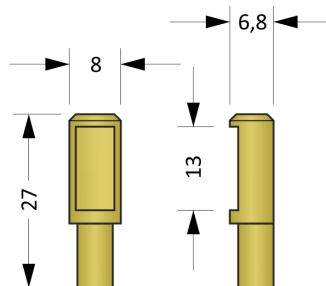


Figure 12K.6: Type D

Length Tolerances (Table 12K.4)

Length L	Tolerance L
$50 \leq L \leq 250$ cm	± 1 cm
$250 < L \leq 500$ cm	$\pm 1,5$ cm
$500 < L \leq 3500$ cm	$\pm 0,5 \% z L$

Installation And Operating Instructions

The measuring end of the sensor is used for mechanical fixing. Sensors with an cable eye (type A and B versions) are mounted under the screw. Type D sensors are fastened with a tightening strap.

The electrical connection of the sensor is shown in Figures 12K.6 and 12K.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.

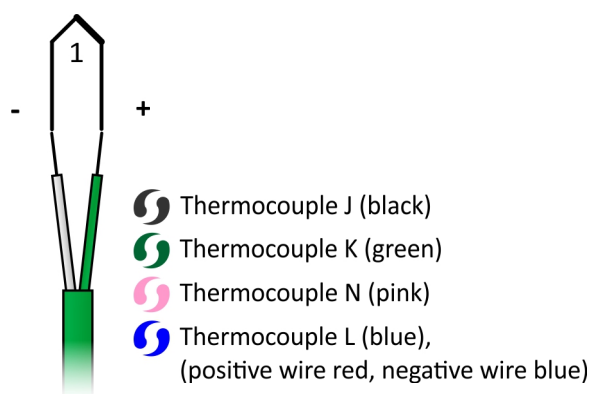


Figure 12K.6: Single thermocouple wiring diagram

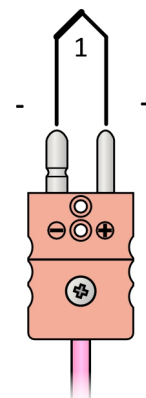


Figure 12K.7: Connector wiring diagram