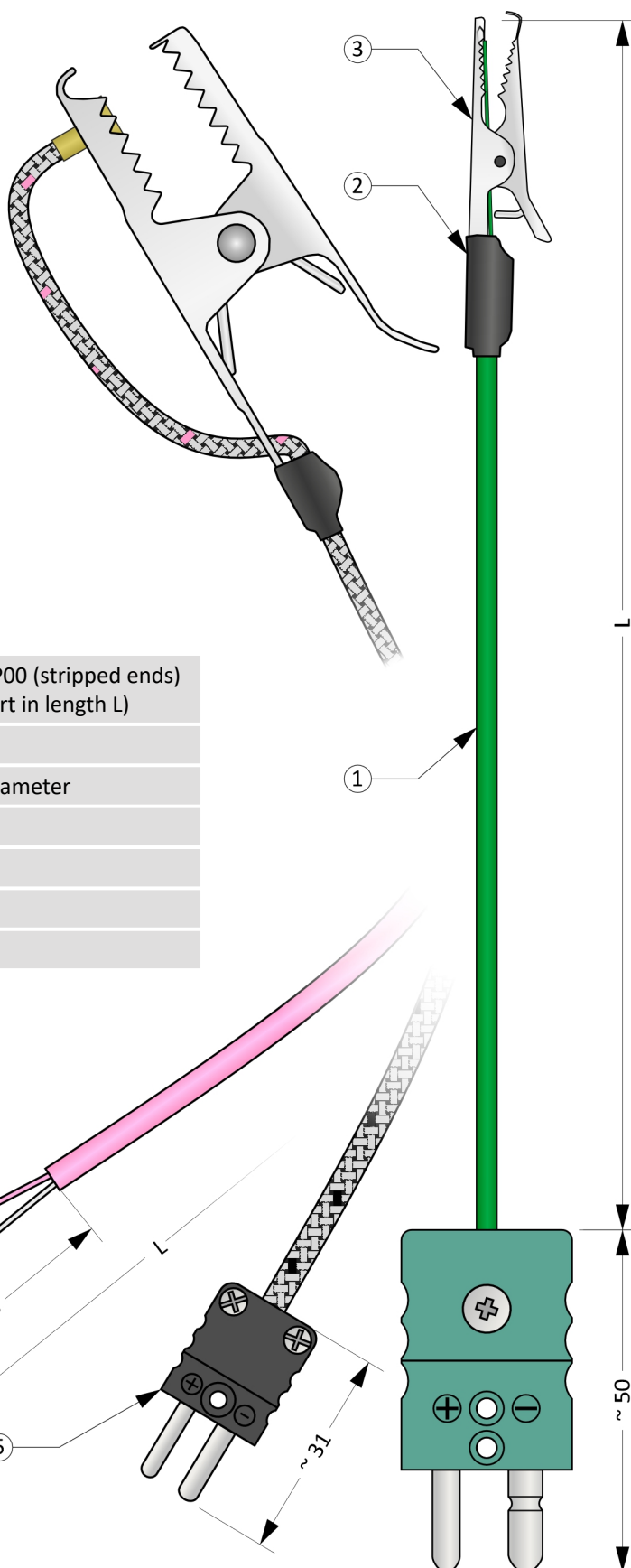


MTC12KR

CABLE THERMOCOUPLES

Temperature sensors of the MTC12KR series are cable temperature sensors that allow attachment to the measured object by means of a crocodile clip. All basic parameters of the sensor 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 12KR.1)

	Insulation class acc. ČSN EN 60529	IP50 (connector), IP00 (stripped ends) IP5X (measuring part in length L)
①	Cable thermocouple	
	Min. bending radius	15 × outer cable diameter
②	Shrink tubing	
③	Crocodile clip	
④	Stripped ends	
⑤	Connector	

Figure 12KR.1: MTC12KR

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

Pos.	Code	MTC12KR - ① ② - ③ - ④
①	Thermocouple type J, accuracy class 2 acc. ČSN EN 60584-1 ed. 2 - cable type	
	1	Cable TSL, 2 x 0,22 mm ² , stranded For type A crocodile clip only.
	6	Cable GLGL wrap, 2 x 0,2 mm, solid For type B crocodile clip only.
	7	Cable GLGL wrap, 2 x 0,5 mm, solid For type B crocodile clip only.
	9	Cable TCuT, 2 x 0,22 mm ² , stranded For type B crocodile clip only.
	Thermocouple type K, accuracy class 2 acc. ČSN EN 60584-1 ed. 2 - cable type	
	2	Cable TCuT, 2 x 0,22 mm ² , stranded For type A crocodile clip only.
	5	Cable GLGL wrap, 2 x 0,2 mm, solid For type B crocodile clip only.
	4	Cable GLGL wrap, 2 x 0,5 mm, solid For type B crocodile clip only.
	Thermocouple type L, acc. DIN 43710 - cable type	
	0	Cable TSL, 2 x 0,22 mm ² , stranded For type A crocodile clip only.
	Thermocouple type N, accuracy class 2 acc. ČSN EN 60584-1 ed. 2 - cable type	
	8	Cable TSL, 2 x 0,22 mm ² , stranded For type A crocodile clip only.
	3	Cable TCuT, 2 x 0,22 mm ² , stranded For type A crocodile clip only.
②	Thermocouple measuring end design	
	0	Crocodile clip type A (see figure 12KR.2), insulated thermocouple
	1	Crocodile clip type B (see figure 12KR.3), non-insulated thermocouple
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: MTC12KR-20-500-0

... Thermocouple type K, accuracy class 2, TCuT wrap 2 x 0,22 mm², stranded

... Crocodile clip type A (see figure 12KR.2), insulated thermocouple

... Sensor length L = 500 cm

... Stripped ends

Approximate weight of the product: MTC12KR-20-500-0 ... 0,2 kg

Measuring Junction Design

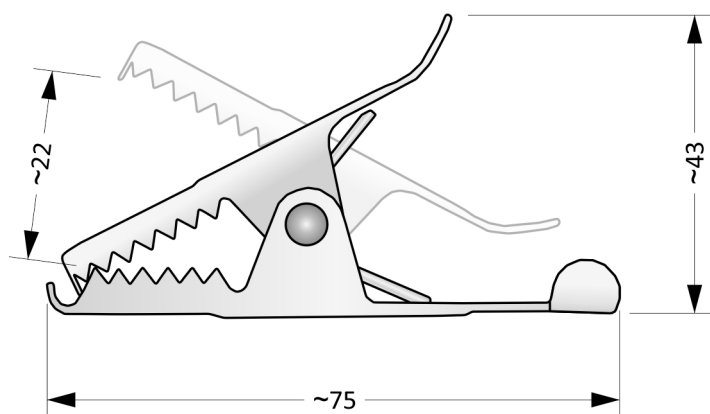


Figure 12KR.2: Type A

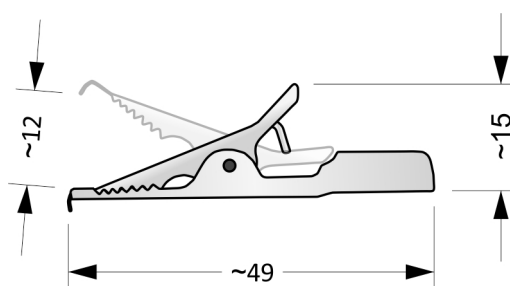


Figure 12KR.3: Type B

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

Sensor part	Type / insulation type	Continuous operation	Short-term operation
Measuring end (crocodile clip)	Type A	< 180 °C	-
	Type B	< 280 °C	-
Cable	TSL	-60 ... 180 °C	-
	TCuT	-200 ... 205 °C	-
	GLGL	-200 ... 400 °C	-
Connectors MTCK-S, MTCK-M		See cable insulation, max. 220 °C	-
Connectors MTCK-CS, MTCK-CM		See cable insulation	-

Length Tolerances (Table 12KR.4)

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

Cable Parameter (Table 12KR.5)

Insulation	Number x cross-section / dia. of wires	Outer dia. / size of cable	Pros and cons
TSL (teflon FEP / silicone)	2 x 0,22 mm ²	~ 3,7 mm	↗ Great flexibility, resistant to weak chemicals ↘ Low mechanical resistance
TCuT (teflon FEP / tinned copper wire braid / teflon FEP)	2 x 0,22 mm ²	~ 3,0 mm	↗ Great flexibility, resistant to weak chemicals, screening ↘ Low moisture resistance, low abrasion resistance
GLGL wrap (glass fiber braid / glass fiber braid)	2 x 0,2 mm 2 x 0,5 mm	~ 0,6 x 1,0 mm ~ 1,1 x 1,9 mm	↗ Good flexibility ↘ Low moisture resistance, low abrasion resistance

Installation And Operating Instructions

The jaws of the crocodile clip are used for mechanical fastening.

The electrical connection of the sensor is shown in Figures 12KR.4 and 12KR.5. 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.

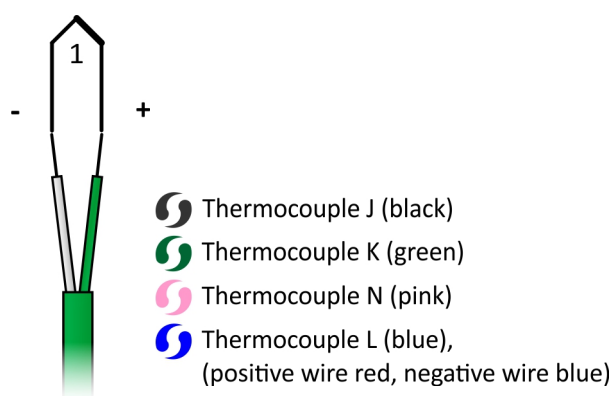


Figure 12KR.4: Single thermocouple wiring diagram

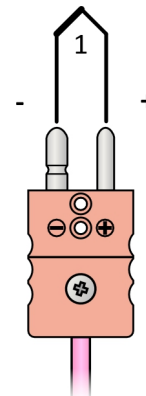


Figure 12KR.5: Connector wiring diagram