

Mineral insulated thermocouple model K / KM

MIT with standard(K) or mini(KM) compensation-connector

In general

The temperature sensors listed in this document are solely intended for the measurement of process temperatures in solid, liquid and gaseous media. This version with flexible sheath material allows to detect the temperature even in hard-to-reach places. The plug-in connection simplifies the replacement of the sensor.

Application area:

use in the entire production line for iron, steel or light metal production, industrial furnace construction, automotive industry, heat treatment, plant engineering and construction of manufacturing systems, waste incineration, recycling, cement and material industry.

**For installation please see our operating instructions for mineral insulated thermocouples(MIT).
stock number code 1R9-J0 or J1.**

Technical datas

- **Measuring unit** similar to DIN 43735 without terminal base, with compensation connector.
- **Sensor** depended on use:
with 1 or 2 thermocouples according to IEC / EN 60584-1.
- **Sheath material** type according to IEC / EN 61515.
Standard - material 2.4816 or 1.4541 depended on process temperature, preference diameter 0,5/ 1,0 /1,5 / 3 or 6 mm.
- **Process connection** with compression fitting, union nut or "compression connection pipe according or similar to DIN 32676.
- **Operating temperature MIT** (Abb. 1/5)
depended on the thermocouple type and diameter:
Type J: Ø 0,5 and 1,0 mm up to 260°C, Ø 1,5 and 2,0 mm up to 440°C, Ø 3,0 mm up to 520°C, Ø 4,5 up to 620°C, 6,0 mm up to 720°C.
Type K: Ø 0,25 mm up to 500°C, Ø 0,5 and 1,0 mm up to 700°C, Ø 1,5 and 2,0 mm up to 920°C, Ø 3,0 mm up to 1070°C, Ø 4,5; 6,0 mm up to 1100°C.
Type N: Ø 0,25 mm bis 500°C, Ø 0,5 and 1,0 mm bis 700°C, Ø 1,5 and 2,0 mm bis 920°C, Ø 3,0 mm bis 1070°C, Ø 4,5; 6,0 mm up to 1100°C.
Type E: Ø 0,5 and 1,0 mm up to 300°C, Ø 1,5 and 2,0 mm up to 510°C, Ø 3,0 mm up to 650°C, Ø 4,5 up to 730°C, 6,0 mm up to 820°C.
Type T: Ø 0,5 and 1,0 mm up to 260°C, Ø 1,5 and 2,0 mm up to 260°C, Ø 3,0 mm up to 315°C, Ø 4,5 / 6,0 mm up to 350°C.
- **Connector operating temperature:** dim. see page 2:
Compensation connector -40°C up to 200°C / high temperature- up to 350°C / Keramik- up to 650°C.

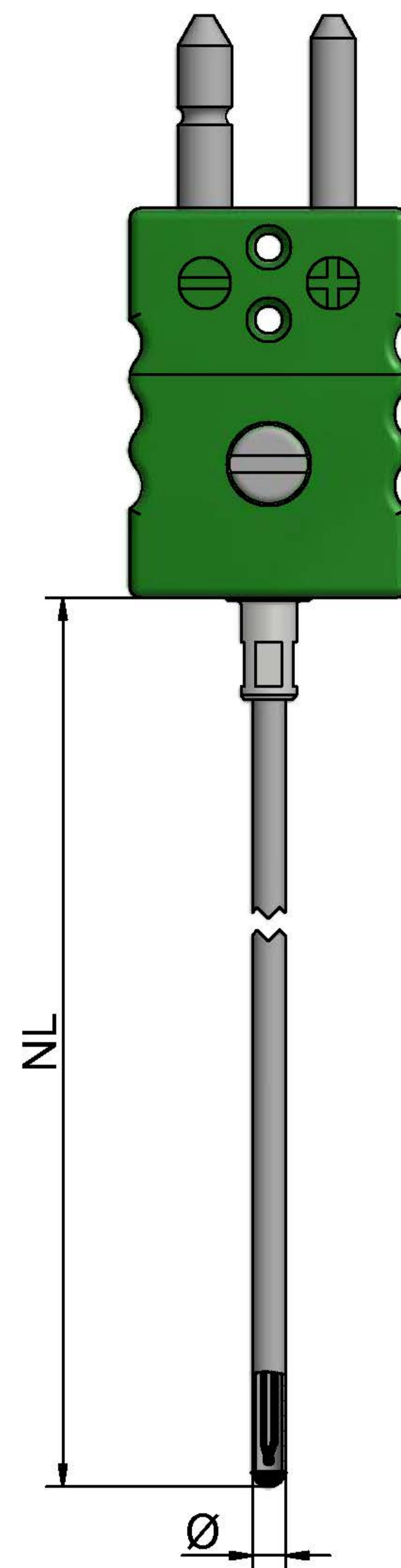


fig. 1

Deviations according to the sensor type

Thermocouples

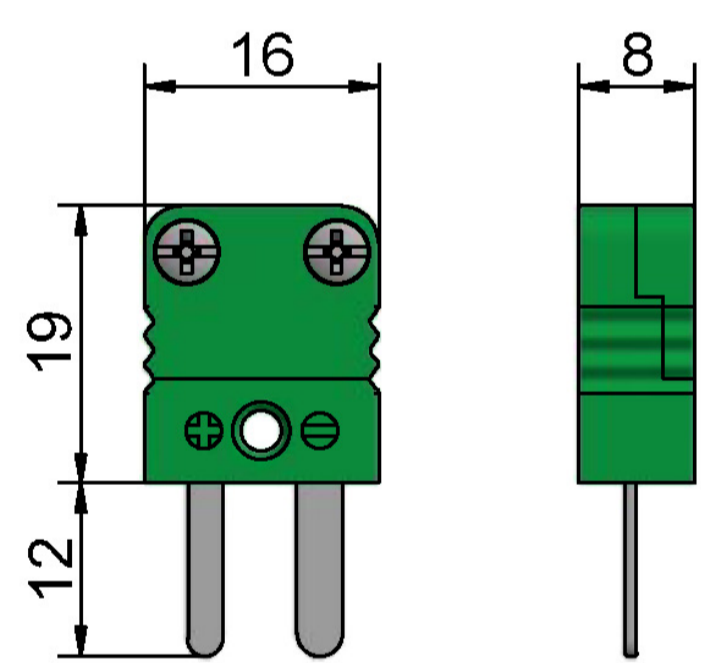
table 1

Thermocouple type	Permitted deviations ¹⁾ (±°C) and the validity for the temperature		
	class 1	class 2	class 3 ²⁾
by Type T	0,5 °C oder 0,004 x t	1 °C oder 0,0075 x t	1 °C oder 0,015 x t
Type T	-40 °C bis +350 °C	-40 °C bis +350 °C	-200 °C bis +40 °C
bei Typ E,J,K,N	1,5 °C oder 0,004 x t	2,5 °C oder 0,0075 x t	2,5 °C oder 0,015 x t
Type E	-40 °C bis +800 °C	-40 °C bis +900 °C	-200 °C bis +40 °C
Type J	-40 °C bis +750 °C	-40 °C bis +750 °C	/
Type K	-40 °C bis +1000 °C	-40 °C bis +1200 °C	-200 °C bis +40 °C
Type N	-40 °C bis +1000 °C	-40 °C bis +1200 °C	-200 °C bis +40 °C
by Typ R oder S	1 °C für t < 1100 °C [1 + 0,003 x (t - 1100)] für t > 1100 °C	1,5 °C oder 0,0025 x t	4 °C oder 0,005 x t
by Type B	/	0,01 x t	/
Type B	/	600 °C bis 1700 °C	600 °C bis 1700 °C

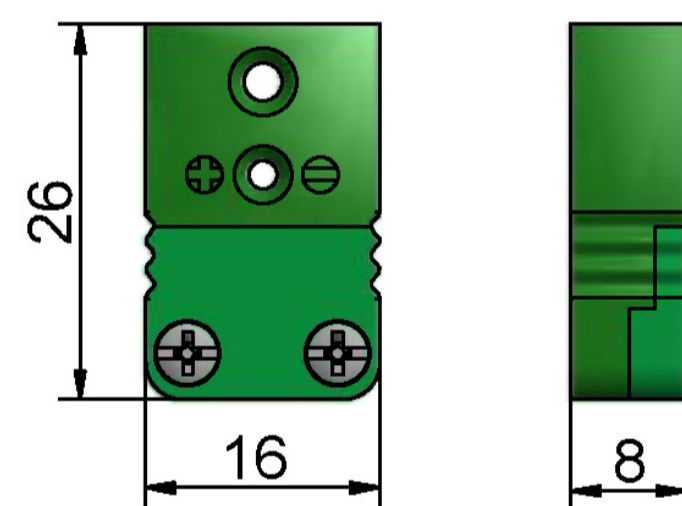
1) The deviation limit is either given as the difference in °C or as a function of temperature (°C from IST-90) according to the above mentioned table. For each the greater value is valid.
2) The normally available material for thermocouples keeps the limit deviation according to Table 1 for temperatures above -40°C. At low temperatures, these materials do not necessarily meet the class 3 limit deviations. If thermocouples of types T, E, K and N are required, which comply with both the class 3 and class 1 or 2 limit deviations, this must be specified by the user because therefore a special selection of the available material is usually necessary.

Source: Technical dates from IEC / EN 60584-1:2014-07 chapter 5

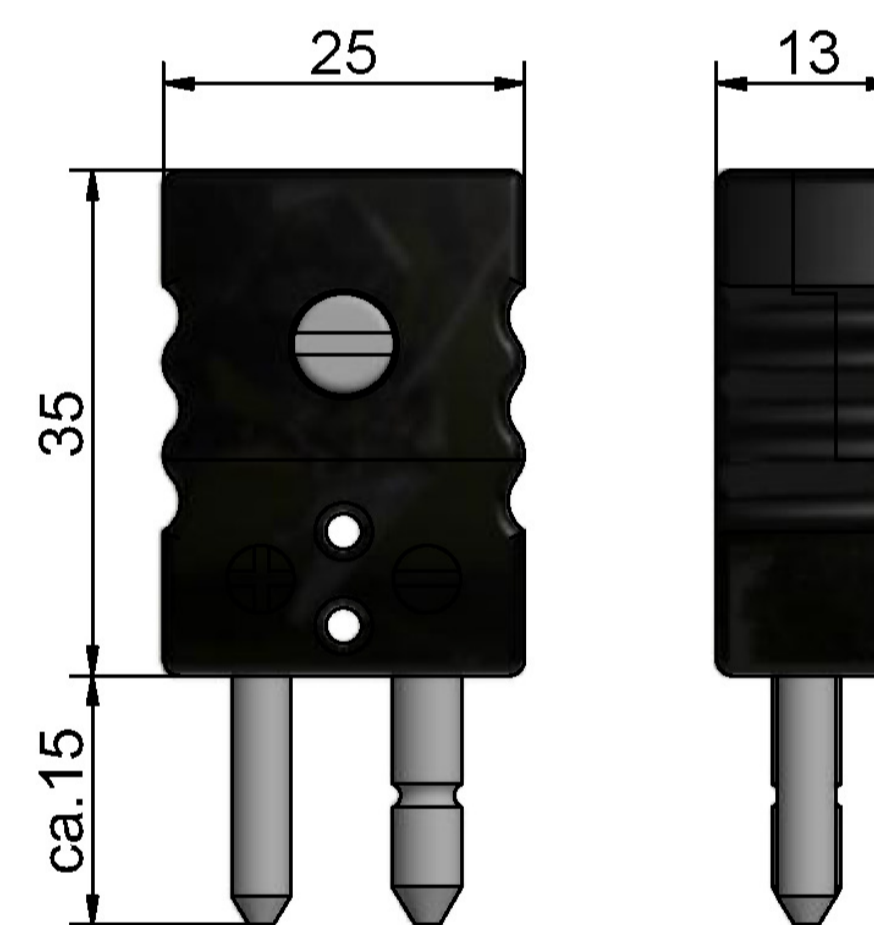
Optional connectors / circuit diagram



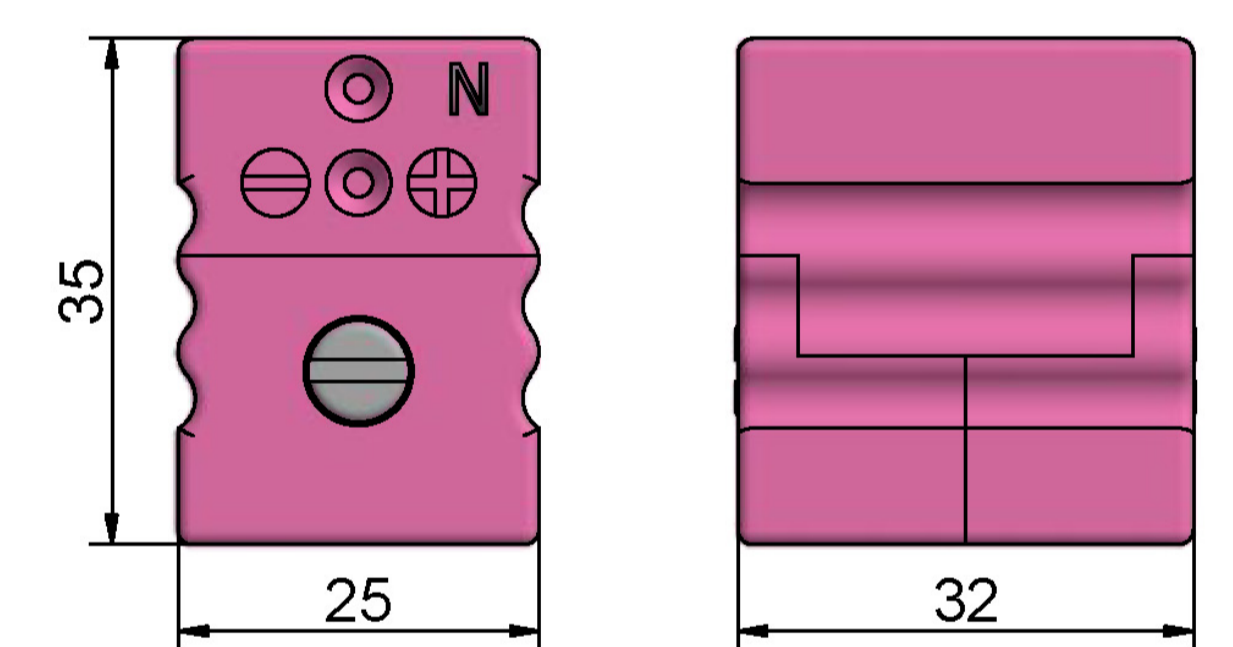
mini plug
size 0



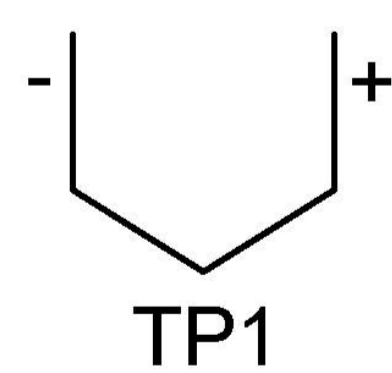
mini socket
size 1



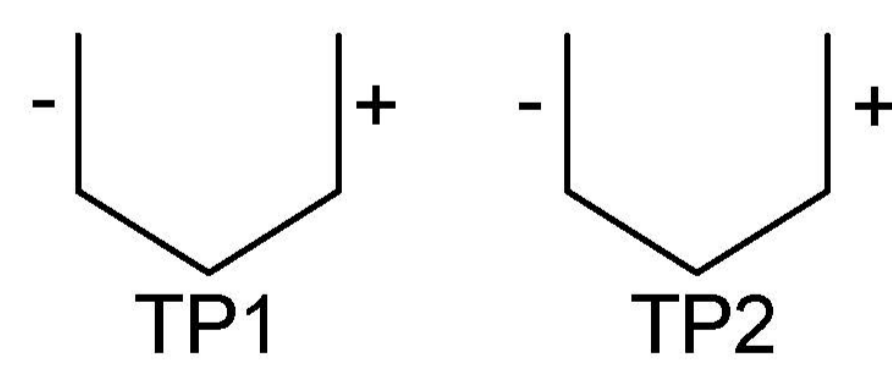
standard plug
size 2



std. double socket
size 3



circuit diagram
1 Thermocouple



circuit diagram
2 Thermocouple