

# Mineral Insulated Thermocouple model BM with free ends

## MIT Measuring Insert with free ends

### In general

Reckmann GmbH temperature sensors (R58®) are used exclusively for measuring process temperatures in solid, liquid or gaseous media. The measuring insert with free ends (fig.1) is prepared for mounting a transmitter instead of the connection socket.

#### Range of application:

Fitted as standard in thermocouples according to DIN EN 50446.  
Form BM / BK or for non-critical measurements with connection head.

For installation-specific data, see installation instructions for MIT.  
Type code 1R9-G1.

### Technical datas

- **Measuring insert** (fig. 1) with 50 mm free ends according to or similar to DIN 43735
- **Sensor** depending on temperature range and application:  
with 1 or 2 thermocouples according to IEC / EN 60584-1.  
Recommended operating temperature at measuring tip depending on thermocouple type and diameter -50 °C to:  
Type J: Ø 3.0 mm up to 520 °C, Ø 4.5 up to 620 °C, 6.0 and 8.0 mm up to 720 °C.  
Type K: Ø 3.0 mm up to 1070 °C, Ø 4.5; 6.0 and 8.0 mm up to 1100 °C.  
Type N: Ø 3,0 mm up to 1070 °C, Ø 4,5; 6,0 and 8,0 mm up to 1100 °C.  
Type E: Ø 3,0 mm up to 650 °C, Ø 4,5 up to 730 °C, 6,0 and 8,0 mm up to 820 °C.  
Type T: Ø 3.0 mm up to 315 °C, Ø 4.5 / 6.0 and 8.0 mm up to 350 °C.
- **Sheath material** design according to or similar to IEC / EN 61515.  
Preferred material 2.4816.  
Preferred diameter 3, 6 or 8 mm.
- **Optional:** Class 3 requirements (-200 °C to 40 °C) on request. For requirements of class 1 and class 3 only possible with specially selected sheath material, high expense and not with type T. Translated with www.DeepL.com/Translator (free version).

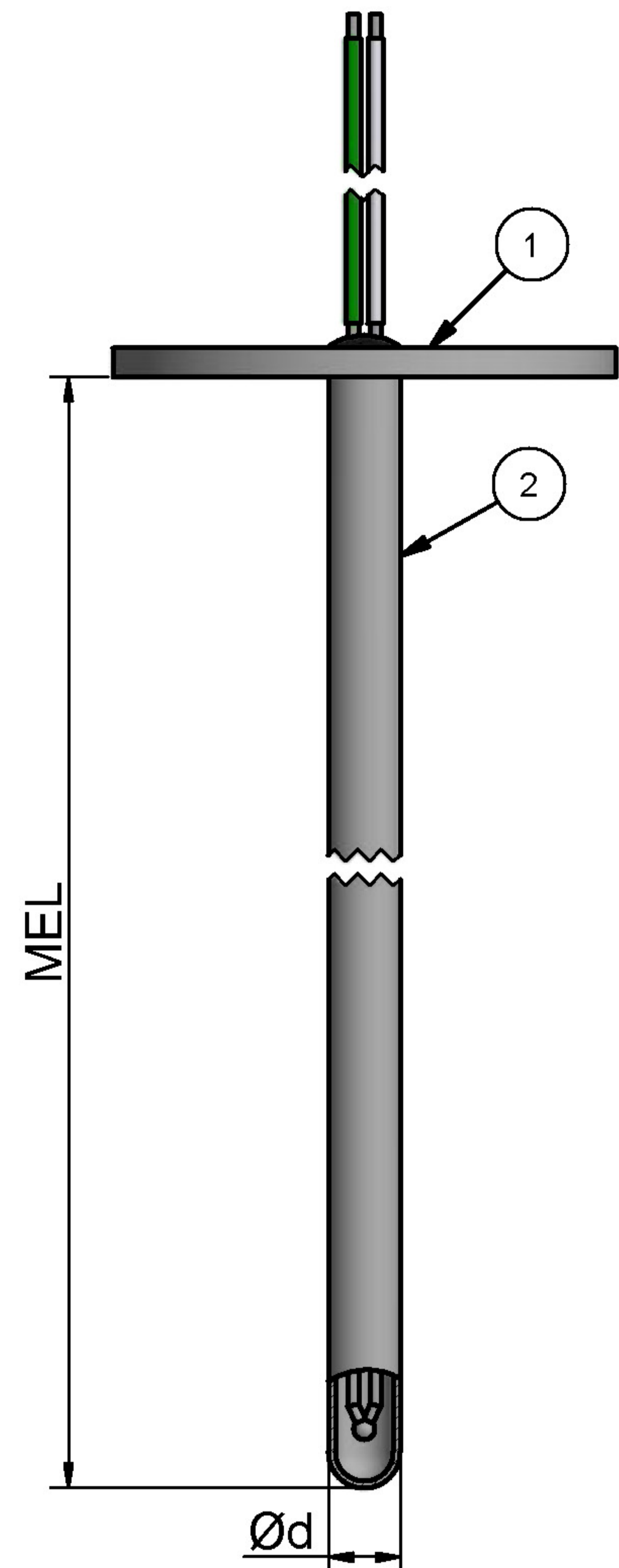


fig. 1

# Deviations according to the sensor type

## Thermocouples

table 1

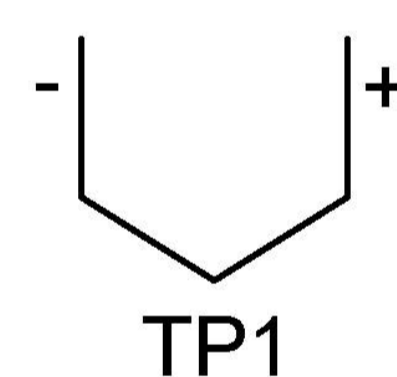
Thermocouple type	Permitted deviations <sup>1)</sup> (±°C) and the validity for the temperature		
	class 1	class 2	class 3 <sup>2)</sup>
<b>for Type T</b>	0,5 °C or 0,004 x  t	1 °C or 0,0075 x  t	1 °C or 0,015 x  t
<b>Type T</b>	-40 °C up to +350 °C	-40 °C up to +350 °C	-200 °C up to +40 °C
<b>for Typ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

1) = The specified limit deviation is either the deviation in °C or as a function of temperature (°Celsius of ACTUAL-90) as in the above table. The larger value applies.  
2) = The normally available thermocouple material complies with the limiting deviations according to table 1 for temperatures above -40 °C. These materials do not necessarily comply with the limit deviations of class 3 at low temperatures. If thermocouples of types T, E, K and N are required that comply with the limit deviations of class 3 as well as class 1 or 2, this must be explicitly specified by the user, as a special selection of the available material is usually necessary.

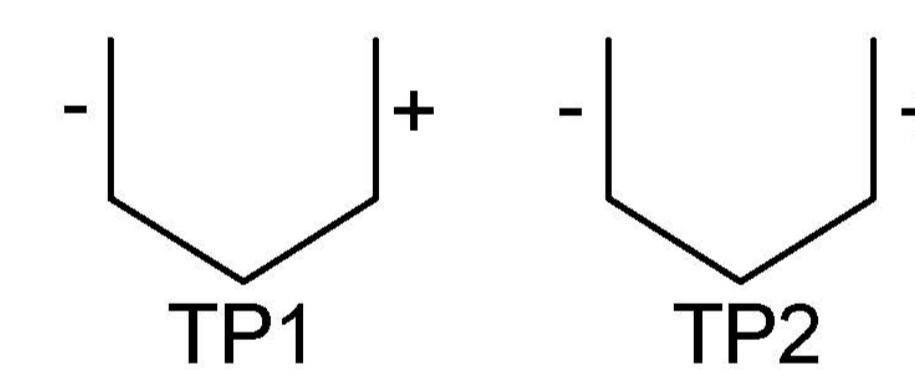
Source: Technical dates from IEC / EN 60584-1:2014-07 chapter 5

## Electrical connection diagrams

Colour code according to IEC / EN 60584-3



1 thermocouple  
connection see data sheet transmitter



2 thermocouples  
connection see data sheet transmitter