

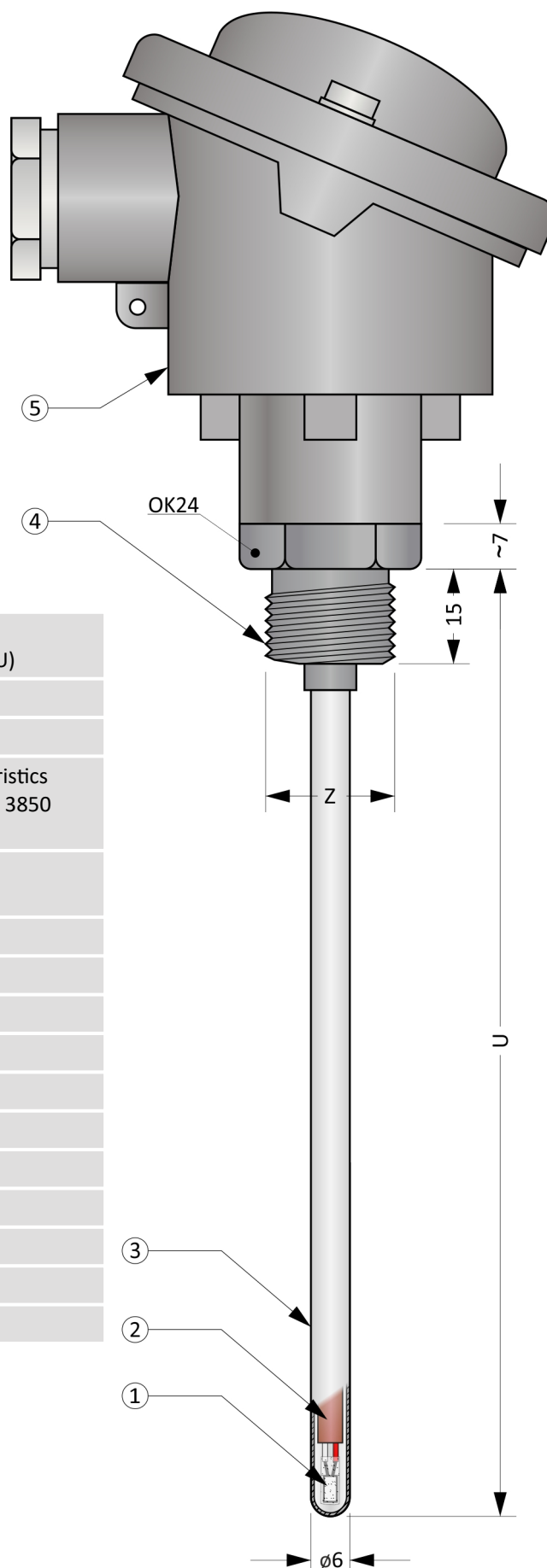
# MTR12HS

## CABLE RESISTANCE TEMPERATURE SENSORS

MTR12HS series consists of cable temperature sensors with a protective tube and a head designed to be screwed into the screw.

They represent an economical solution for applications not requiring high temperature and mechanical durability.

The measuring element is a resistor whose resistance is temperature dependent according to the characteristic specified in ČSN EN 60751.



### General Information (Table 12HS.1)

|   |                                    |                                                                                           |
|---|------------------------------------|-------------------------------------------------------------------------------------------|
|   | Insulation class acc. ČSN EN 60529 | IP54 (head)<br>IP68 (measuring part in length U)                                          |
|   | Max. overpressure                  | 3 bar                                                                                     |
| ① | <b>Sensor</b>                      |                                                                                           |
|   | RTD type                           | Thin film resistor with characteristics according to ČSN EN 60751, $\alpha = 3850$ ppm/°C |
|   | RTD measuring current              | 1 mA                                                                                      |
|   | Sensitive length                   | 10 mm                                                                                     |
| ② | <b>Cable</b>                       |                                                                                           |
| ③ | <b>Protection tube (stem)</b>      |                                                                                           |
|   | Material                           | Stainless steel                                                                           |
|   | Outer diameter                     | D = 6 mm                                                                                  |
| ④ | <b>Threaded fitting</b>            |                                                                                           |
|   | Material                           | Stainless steel                                                                           |
| ⑤ | <b>Head</b>                        |                                                                                           |
|   | Type                               | B                                                                                         |
|   | Material                           | Aluminium alloy                                                                           |
|   | Cable gland                        | M16 x 1,5                                                                                 |

Figure 12HS.1: MTR12HS

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

| Pos. | Code                                                          | MTR012HS - ① ② - ③ - ④ ⑤ ⑥                                               |
|------|---------------------------------------------------------------|--------------------------------------------------------------------------|
| ①    | <b>RTD type</b>                                               |                                                                          |
|      | 0                                                             | 1 x Pt100, four-wire connection (4W)                                     |
|      | 1                                                             | 1 x Pt500, four-wire connection (4W)                                     |
|      | 2                                                             | 1 x Pt1000, four-wire connection (4W)                                    |
|      | 3                                                             | 2 x Pt100, dvou vodičové zapojení (2x3W)                                 |
|      | 4                                                             | 2 x Pt500, dvou vodičové zapojení (2x3W)                                 |
|      | 5                                                             | 2 x Pt1000, dvou vodičové zapojení (2x3W)                                |
| ②    | <b>Working range and accuracy class according to EN 60751</b> |                                                                          |
|      | 0                                                             | Working range -60 ... +200 °C, accuracy class B in range -50 ... +200 °C |
|      | 1                                                             | Working range -60 ... +200 °C, accuracy class A in range -30 ... +200 °C |
| ③    | <b>Immersion depth U [mm]</b>                                 |                                                                          |
|      | xxx                                                           | Selectable range from 50 to 450 mm (in 5 mm increments)                  |
| ④    | <b>Type of thread Z</b>                                       |                                                                          |
|      | 0                                                             | Thread Z = G½", OK24                                                     |
|      | 1                                                             | Thread Z = M20 x 1,5, OK24                                               |
| ⑤    | <b>Head</b>                                                   |                                                                          |
|      | 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                                                      |
| ⑥    | <b>Transmitter (only for sensor with 1xRTD)</b>               |                                                                          |
|      | 0                                                             | bez převodníku                                                           |
|      | 9                                                             | INOR APAQ C130 RTD                                                       |
|      | 3                                                             | INOR miniPAQ - HLP                                                       |
|      | 7                                                             | INOR IPAQ C330                                                           |
|      | 8                                                             | INOR IPAQ C530                                                           |
|      | 5                                                             | INOR IPAQ C520                                                           |
|      | A                                                             | With another transmitter (e.g. supplied by the customer)                 |

Order code example: MTR012HS-00-200-000

... 1 x Pt100, four-wire connection

... Working range -60 ... +200 °C, accuracy class B in range -50 ... +200 °C

... Immersion depth U = 200 mm

... Thread Z = G½"

... Head B

... Without transmitter

Approximate weight of the product: MTR012HS-00-200-00 ... 0,2 kg

## Length tolerance N (Table 12HS.3)

| Length tolerance N |
|--------------------|
| ± 2 mm             |

## Diameter tolerances (Table 12HS.4)

| Diameter tolerance D |
|----------------------|
| $\pm 0,1 \text{ mm}$ |

## Recommended Maximum Temperatures of Sensor Parts (Table 12HS.5)

| Sensor part         | Continuous operation                     | Short-term operation |
|---------------------|------------------------------------------|----------------------|
| Head                | $< 100 \text{ }^{\circ}\text{C}$         | ---                  |
| Measuring end, stem | $-60 \dots 200 \text{ }^{\circ}\text{C}$ | ---                  |

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

### Heads

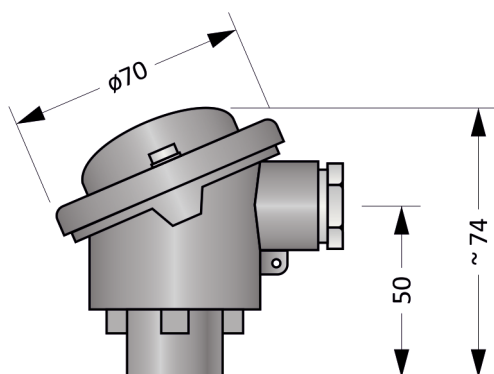


Figure 12HS.2: Head B

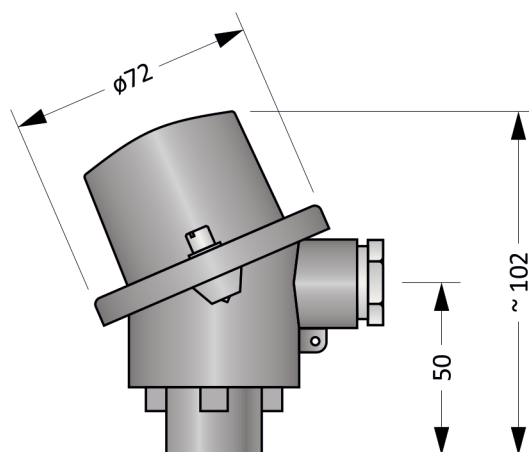


Figure 12HS.3: Head BH

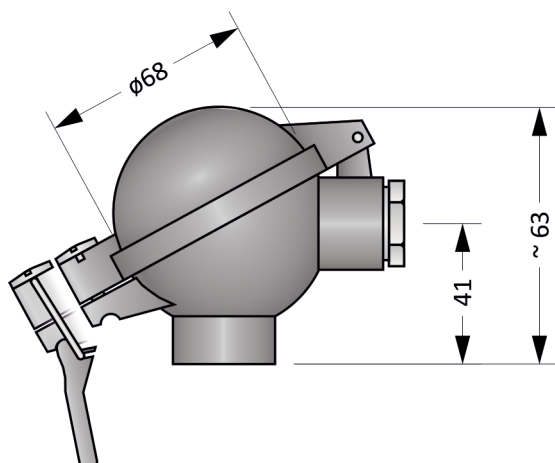


Figure 12HS.4: Head BUZ

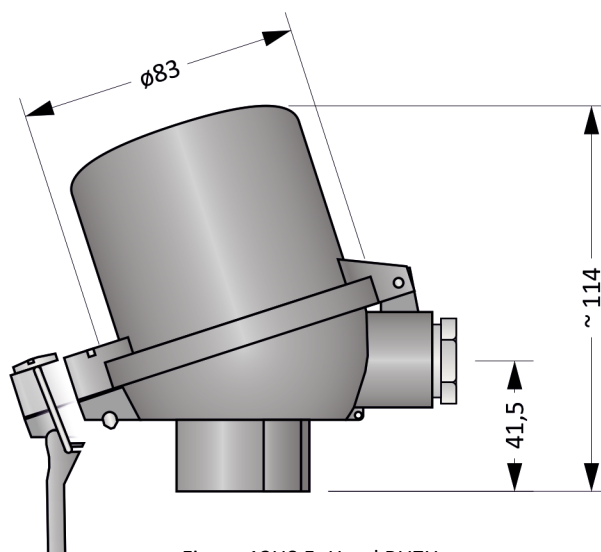


Figure 12HS.5: Head BUZH

### Head Mounted Transmitters (Table 12HS.5)

The transmitter is installed in the head and replaces the terminal block. When using a head with a raised lid (version BH, BUZH), the terminal block is preserved and the transmitter is placed in the lid.

| Type               | Input                                                  | Output                                   | Settings                                                            | Notes                                            |
|--------------------|--------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------|
| INOR APAQ C130 RTD | RTD                                                    | 4 ... 20 mA                              | INOR CONNECT (NFC)                                                  |                                                  |
| INOR miniPAQ - HLP | Thermocouple - B, C, E, J, K, L, N, R, S, T, U<br>RTD  | 4 ... 20 mA                              | PC WIN ConSoft (ICON USB adaptor)                                   |                                                  |
| INOR IPAQ C330     | Thermocouple - B, C, D, E, J, K, N, R, S, T<br>RTD, mV | 4 ... 20 mA, galvanically isolated       | PC WIN ConSoft (ICON USB adaptor)<br>INOR CONNECT (NFC, Bluetooth®) |                                                  |
| INOR IPAQ C530     | Thermocouple - B, C, D, E, J, K, N, R, S, T<br>RTD, mV | 4 ... 20 mA, HART, galvanically isolated | INOR CONNECT (NFC, Bluetooth®)<br>PC WIN ConSoft (ICON USB adaptor) |                                                  |
| INOR IPAQ C520     | Thermocouple - B, C, D, E, J, K, N, R, S, T<br>RTD, mV | 4 ... 20 mA, HART, galvanically isolated | PC WIN ConSoft (ICON USB adaptor)                                   | 2 Inputs (redundance)<br>SIL 2 certificate, ATEX |

Notes: Detailed information about the transmitters can be found in the respective data sheets.

### Installation And Operating Instructions

For mounting the sensor, a fitting is used, which is screwed into the weld-on piece. The stem cannot be bent. 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 sensor with the transmitter is shown in Figure 12HS.9.

The electrical wiring of the sensor is shown in the Figures 12HS.7 a 12HS.8. The output signal is thermoelectric voltage. The dependence of temperature on thermoelectric voltage is given by the standard ČSN EN 60584-1 ed. 2.

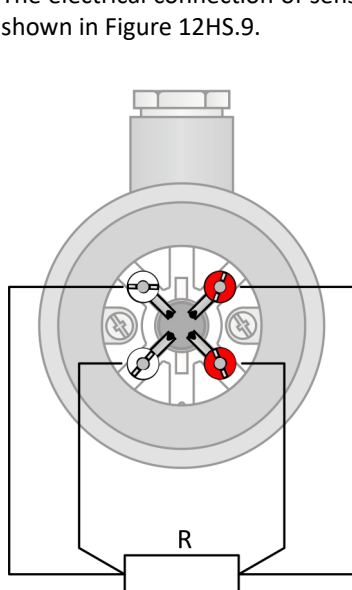


Figure 12HS.7: Four-wire RTD wiring diagram

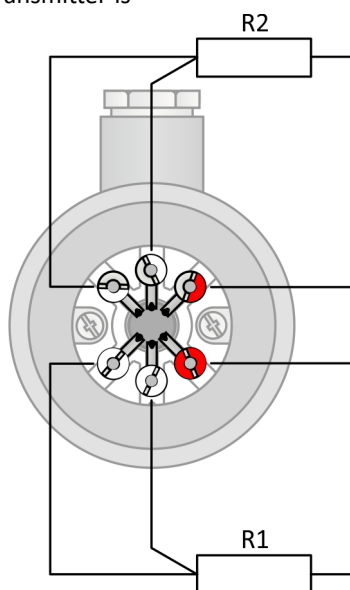


Figure 12HS.8: Three-wire 2 x RTD wiring diagram

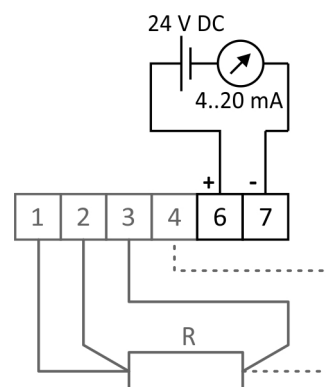


Figure 12HS.9: Transmitter wiring diagram