

# RESISTANCE THERMOMETER

Measuring insert: Interchangeable

Type: RT-B

Sheet No.  
1-4 V2.1

5452-E010321V3.1

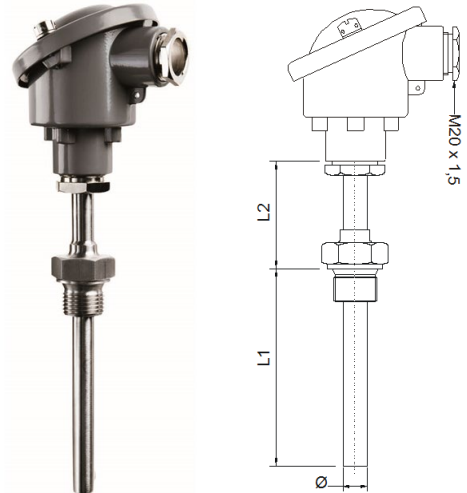


### Application:

- Measurement of temperatures in closed pipelines and containers with gaseous or liquid media, e.g. air, steam, gas, water or oil.
- Field of application: up to 600°C, max. 50bar and media velocities of up to 25 m/sec
- Typically applied in:
  - Processing plants
  - Power plants
  - District heating, energy distribution

### Properties:

- Pt100 or Pt1000 resistance thermometer in accordance with IEC 60751
- Mechanical and thermal stress in accordance with DIN 43772
- Process attachment: Welded
- Measuring insert: Interchangeable, short reaction time
- Outer protective sheath: Stainless acid-proof steel
- Modular construction and standard length minimizes the number of spare parts
- Can be delivered with head mounted transmitter
- Marine approved by: DNV-GL, LR, NK, RINA, ABS and BV
- Approved by: GOST, TRCU on request.



### MECHANICAL SPECIFICATIONS

**Protective sheath:** -----  
EN 1.4571 (AISI 316Ti) max. 850°C  
Other on request

**Sensor diameter Ø [mm]:** -----  
Ø8 / Ø9 / Ø11 / Ø15  
Other on request

**Extension length L2 [mm]:** -----  
None (30 mm) / 50 / 100 / 150  
Other on request

**Immersion length L1 [mm]:** -----  
50 / 100 / 150 / 200 / 250 / 300  
Other on request

**Process attachment:** -----  
1/4" BSP welded coupling (max. Ø9mm)  
**1/2" BSP welded coupling**  
1/2" NPT welded coupling  
3/4" BSP welded coupling  
1" BSP welded coupling (min. Ø11mm)  
Other on request

**Protection head:** -----  
**B** (aluminium (Al), enamelled, low cap, IP62)  
BH (Al, enamelled, high cap, IP62)  
BSB (Al, tilting lid w/screw, low cap, IP65)  
BSBH (Al, tilting lid w/screw, high cap, IP65)  
BSBH-W (Al, tilting lid, high cap, digital display (excl. tr.), IP65)  
CE (Al, enamelled, screw cap, IP68)  
BSP (plastic, black, screw cap, IP54)  
BRF (stainless steel, screw cap, M20x1,5, IP67)  
BRF-EEX (stainless steel, screw cap, M20x1,5, IP67)  
B-SRF (sanitary, stainless steel, screw cap, M20x1,5, IP67)  
Other on request

**Cable gland (pre-mounted):** -----  
None (standard – cable entry M20x1.5)  
Plastic  
Nickle plated brass  
Stainless acid-proof steel

**Please specify cable diameter:** -----

### ELECTRICAL SPECIFICATIONS

**---Plug (pre-mounted In Head):**  
M12 (for M20)  
Harting (specify type)  
Other on request  
None

**---Cable (pre-mounted in Head):**  
SS (Silicone-Silicone) max. 180°C  
SBS (Silicone-Inner Braided-Silicone) max. 180°C  
TBT (Teflon-Inner Braided-Teflon) max. 250°C  
None

**---Cable length [m]:**

**---Sensor element:**  
1xPt100  
2xPt100  
1xPt1000 (only cl. B 1/1 and cl. A)  
2xPt1000 (only cl. B 1/1 and cl. A)

**---Number of conductors:**  
2-wire (recommended only for Pt1000)  
3-wire  
4-wire

**---Media temperature max:**  
+180°C  
+250°C  
+400°C  
+600°C (only cl. B 1/1 Pt100 and Pt1000)

**---Tolerance in acc. with IEC 60751:**  
Type A DIN (i.e.±(0,15+0,002xTactual) °C)  
Type B 1/1 DIN (i.e.±(0,3+0,005xTactual) °C)  
Type B 1/3 DIN (i.e.±(0,1+0,0017xTactual) °C)  
Type B 1/6 DIN (i.e.±(0,05+0,00083xTactual) °C)  
Type B 1/10 DIN (i.e.±(0,03+0,0005xTactual) °C)

Link for further information: [Pt100 Tolerance](#)

**RESISTANCE THERMOMETER**  
Measuring insert: Interchangeable

**Type: RT-B**

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**Calibration:**

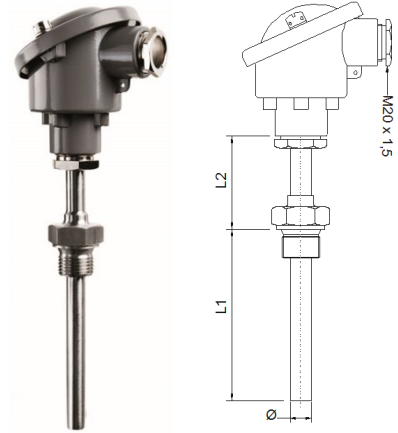
Temperature calibration are used to certify and verify the sensor to have the correct accuracy. We can do either: "In house" or "Accredited" calibration. Accredited is certified by 3.e part. Normally you do a calibration in 3 points.

**Enhanced performance services:**

Cold applications (below -50°C) will influence the material and the measurement. CRYO treatment is needed to ensure a correct and working sensor down to -196°C.  
A sensor will always drift over time, especially when there are high temperature fluctuations.  
With "Ageing treatment" we stabilize the sensor to ensure a minimum drift over time. The benefits are long term stability, more correct measurement and easier planning of calibration periods.

**Documentation:**

Remember to order the correct documentation when ordering the sensor.



**SIGNAL PROCESSING**

Ceramic socket mounted in terminal head. -----

Prepared for transmitter w/o ceramic socket. -----  
w/long leads

Programmable head mounted transmitter-----

Measuring range min/max: -200/+850°C  
Output: 2-wire, 4-20 mA  
Min. span: 25°C  
Ambient temperature min/max: -40/+85°C

- [5333A Uninsulated for RTD](#)
- [5333D EEX Uninsulated for RTD](#)
- [5332A Uninsulated for RTD](#)
- [5332D EEX Uninsulated for RTD](#)
- [5331A Galvanic Isolated RTD / TC](#)
- [5331D EEX Galvanic Isolated RTD / TC](#)
- [5335A Hart 5 Protocol Standard](#)
- [5335D Hart 5 Protocol CSA, FM, ATEX, IECEx](#)
- [5337A Hart 5 & 7 Protocol](#)
- [5337D Hart 5 & 7 Protocol CSA, FM, ATEX, IECEx](#)



Transmitter Type:			
4 mA =	C°	20 mA =	C°

Link to further information:

- [Transmitter Overview](#)
- [Programmable rail mounted transmitter](#)



**CALIBRATION**

----**Calibration:**

In house (Span -33°C - +700°C)

Accredited – in laboratory (-196°C - +1200°C)

1.	Point	°C
2.	Point	°C
3.	Point	°C

More point on request

**Enhanced performance services**

-----**Cryo treatment.**

For temperature sensor under -50°C

-----**Ageing:**

For long term stability.  
Secure minimum drift of sensor accuracy

-----**Documentation**

Certificate: 3.1 Material  
Certificate of origin  
Certificate of conformity  
Certificate of GOST

-----**Marine Certificate**

Certificate of DNV.GL  
Certificate of BV  
Certificate of Rina  
Certificate of ClassNK  
Certificate of LR  
Certificate of ABS

Other on request

## THERMOCOUPLE THERMOMETER

Measuring insert: Interchangeable

Type: TC-B

Sheet No.  
3-3 V2  
5352-E010321V3.1

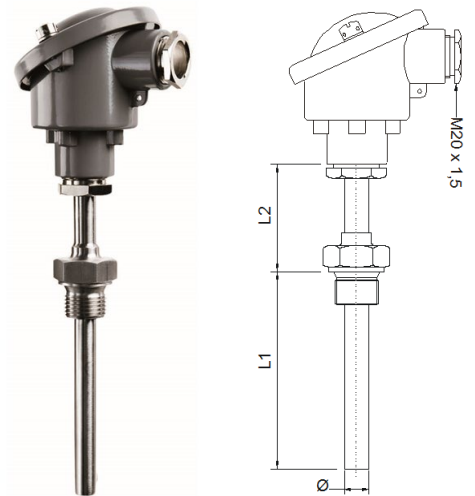


### Application:

- For measuring temperatures in closed pipelines and containers with gaseous or liquid media, e.g. air, steam, gas, water or oil.
- Field of application: up to 1250°C (depending on thermocouple)
- Usually applied in: tile works, refuse disposal plants, processing plants, power plants, district heating, energy distribution

### Properties:

- Thermocouple thermometer type K, J, E, N, T in acc. with DIN IEC 60584-1
- Constructed in accordance with DIN 50446
- Measuring insert: Interchangeable
- Outer protective tube: Heat-proof steel or stainless acid-proof steel
- Modular construction and standard length minimizes the number of spare parts.
- Can be delivered with head mounted transmitter
- Marine approved by: DNV.GL, LR, NK, RINA, ABS, and BV
- Approved by: GOST, TCRU on request.



### MECHANICAL SPECIFICATIONS

**Protective sheath:** -----  
EN 1.4571 (AISI 316Ti) max. 850°C  
Other on request

**Sensor diameter Ø [mm]:** -----  
Ø8 / Ø9 / Ø11 / Ø15  
Other on request

**Extension length L2 [mm]:** -----  
50 / 100 / 150  
Other on request

**Immersion length L1 [mm]:** -----  
50 / 100 / 150 / 200 / 250 / 300  
Other on request

**Process attachment:** -----  
¼" BSP welded coupling  
½" BSP welded coupling  
¾" BSP welded coupling  
Other on request

**Protection head:** -----  
B (aluminium (Al), enamelled, low cap, IP62)  
BH (Al, enamelled, high cap, IP62)  
BSB (Al, tilting lid w/screw, low cap, IP65)  
BSBH (Al, tilting lid w/screw, high cap, IP65)  
BSBH-W (Al, tilting lid w/screw, high cap, digital display (excl. tr.), IP65)  
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Other on request

**Cable gland (pre-mounted in Head):** -----  
None (standard – cable entry M20x1.5)  
Plastic  
Nickle plated brass  
Stainless acid-proof steel

**Please specify cable diameter:** -----

### ELECTRICAL SPECIFICATIONS

**---Plug (pre-mounted in Head):**  
M12 (for M20)  
Harting (specify type)  
Other on request  
None

**---Cable (pre-mounted in Head):**  
PP (Plastic-Plastic)  
SS (Silicone-Silicone) max. 180°C  
SBS (Silicone-Inner Braided-Silicone)  
TBT (Teflon-Inner Braided-Teflon)  
None

**---Cable length [m]:**

**---Sensor Type:**  
Type K (NiCr-Ni) max. +1150°C  
Type J (Fe-CuNi) max. +700°C  
Type N (NiCrSi-Ni) max. +1250°C  
Type E (NiCr-CuNi) max. +800°C  
Type T (Cu-CuNi) max. +300°C  
Other on request

**---Number of thermocouples:**  
1xTC  
2xTC  
Other on request

**---Media temperature max:**  
+600°C  
+800°C  
+1250°C

**---Tolerance in acc. with DIN 50446:**  
Class 1 for K,J,N,E (i.e. ±1,5°C or ±(0,0040xT)  
Class 2 for K,J,N,E (i.e. ±2,5°C or ±(0,0075xT)  
Class 1 for T (i.e. ±0,5°C or ±(0,0040xT)  
Class 2 for T (i.e. ±1,5°C or ±(0,0075xT)

Link for further information: [TC Tolerance](#)

**THERMOCOUPLE THERMOMETER**  
**Measuring insert: Interchangeable**

**Type: TC-B**

Sheet No.  
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**Calibration:**

Temperature calibration are used to verify and certify the sensor to have the correct accuracy. We can do either: "In house" or "Accredited" calibration. Accredited is certified by 3.e part. Normally we do a calibration in 3 points.

**Enhanced performance services:**

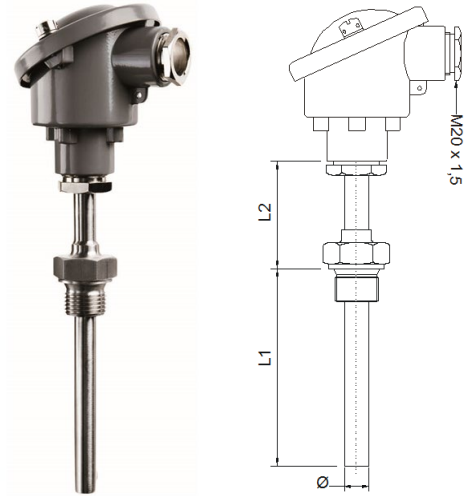
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**Documentation:**

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Transmitter Type:			
4 mA =	C°	20 mA =	C°

Link to further information:

- [Transmitter Overview](#)
- [Programmable rail mounted transmitter](#)



**CALIBRATION**

**---Calibration:**

In house (Span)  
 Accredited – in laboratory

4.	Point	°C
5.	Point	°C
6.	Point	°C

**Enhanced performance services**

**-----Cryo treatment.**

For temperature sensor under -50°C

**-----Ageing:**

For long term stability.

**-----Documentation**

Certificate: 3.1 Material  
 Certificate of origin  
 Certificate of conformity  
 Certificate of GOST

**-----Marine Certificate**

Certificate of DNV.GL  
 Certificate of BV  
 Certificate of Rina  
 Certificate of ClassNK  
 Certificate of LR  
 Certificate of ABS

Other on request