

Bent RTD sensor with standard head and at resistive element with or without fitting

Type TBC 50 and TBCR 50

TBC 50 – TBCD 50 - TBCR 50 – TBCRD 50

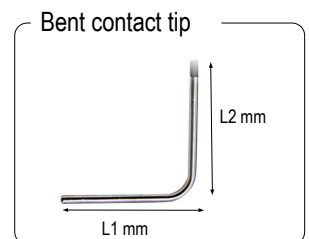


PROBE FEATURES

- Temperature sensor with bent stainless steel contact tip with or without fitting.
- Measuring range (according to reference) **From -80 °C to +400 °C** (PT100 and PT1000).
From -20 °C to +120 °C (NTC).
- Mounting of wires: **single pair** (2,3 or 4 wires).
multipair (4 or 6 wires).
- For other resistor type PT25, PT50, PT500, PT200 or NI, please contact us.

TRANSMITTER FEATURES

Working temperature (according to reference)	From -80 °C to +400 °C (PT100 and PT1000) From -20 °C to +120 °C (NTC)
Accuracy	PT100 or PT1000: see "Tolerances" table NTC: see "Tolerances" table
Type of sensor	PT100 or PT1000: Class B, Class A 1/3 DIN as per DIN IEC751 CTN: resistance at 25 °C, $R_{25} = 10K\Omega$, Nominal Beta B25/85 value = $3.695K \pm 1\%$
Storage temperature	From -20 °C to +80 °C
Contact tip	316 L stainless steel, no welding, 3/4 to 4/4 hard. 90° bent.
Compression fitting	316 L stainless steel Smooth mounting without fitting: do anything Mounting with fitting on L2 (See schema): 12 or 14 corresponding to 1/2"G and 1/4"G fittings. Mounting with fitting on L1 (See schema): 12L1 or 14L1 corresponding to 1/2"G and 1/4"G fittings.
Thread	1/4, 1/2, male Gas or NPT plug (other thread on request)
Electrical connection	With or without terminal block, 4/20mA 0/10V transmitter as option
Connection head	Aluminium alloy, cable gland: M20 x 1.5, IP65 protection
Adjustable mounting	See catalogue or data sheet of related mountings.



Mounting of wires: single pair 2, 3 or 4 wires
For $T > 250$ °C do not use 4 wires in a sheath of 6 mm \varnothing
multipair 4 or 6 wires
For $T > 250$ °C use sheath from 8 mm.



No 4 wires mounting for contact tip 4 mm \varnothing .

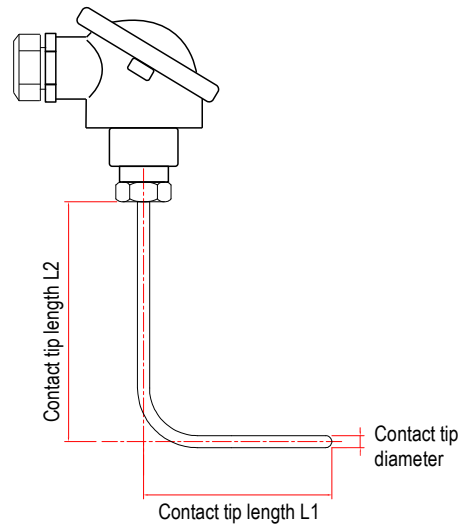
TBC 50

Stainless steel bent sensor
with or without multipair mounting

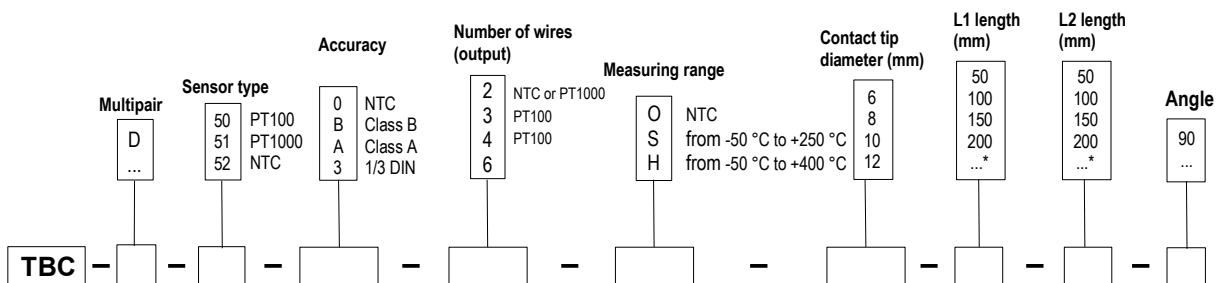


PROBE DIMENSIONS

L1 mini: to determine according to Ø
L2 mini: to determine according to Ø
Bending radius: 15 mm Ø 6 mm
24 mm Ø 8 and 10 mm



PART NUMBER



* Other dimension on request

Example: TBC-51-B-2-S-8-100-100-90

Model: PT1000 temperature sensor Class B, 2 wires, stainless steel contact tip 8 mm Ø bent at 90° and lengths L1 and L2 of 100 mm.

Measuring range from -50 to +250 °C.

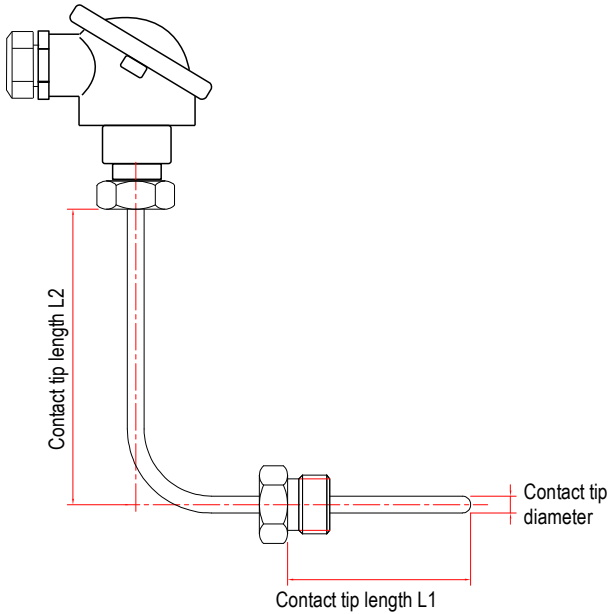
TBCR

Bent sensor with fitting
and with or without multipair mounting

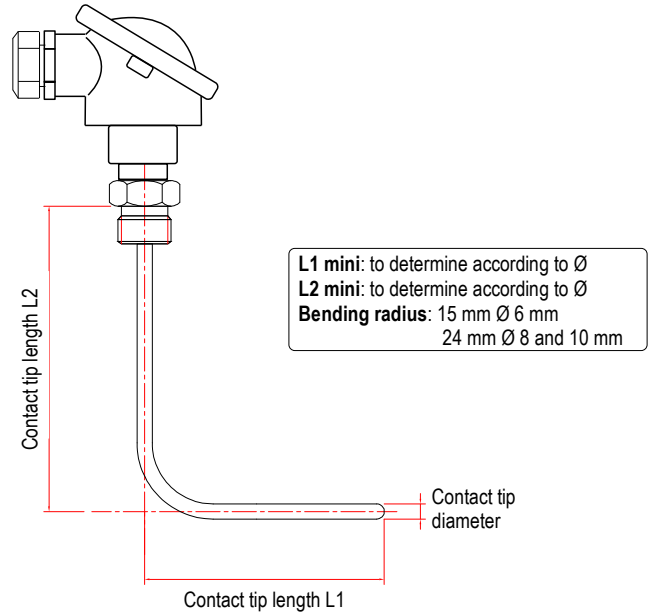


PROBE DIMENSIONS

• With fitting on L1



• With fitting on L2



PART NUMBER

Multipair	Sensor type	Accuracy	Number of wires (output)	Measuring range	Contact tip diameter (mm)	L1 length (mm)	L2 length (mm)	Fitting	Thread	Angle
D ...	50 PT100 51 PT1000 52 NTC	0 NTC B Class B A Class A 3 1/3 DIN	2 NTC or PT1000 3 PT100 4 PT100 6	O NTC S from -50 °C to +250 °C H from -50 °C to +400 °C	6 8 10 12	50 100 150 200 ...*	50 100 150 200 ...*	12 14 12L1 14L1	G NPT	90 ...

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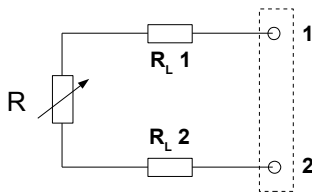
* Other dimension on request

Example: TBCR-51-B-2-S-8-100-100-12-G-90

Model: PT1000 temperature sensor Class B, 2 wires, stainless steel contact tip 8 mm Ø bent at 90° and lengths L1 and L2 of 100 mm. With ½" G fitting on L2.

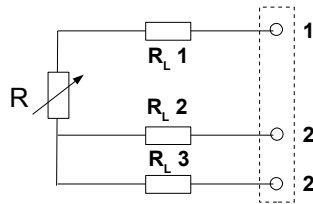
Measuring range from -50 to +250 °C.

• 2-wire connection



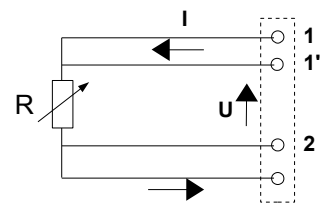
This is the simplest way, but line resistors (RL1 and RL2) are connected to the sensor in a series circuit. The addition of RL1 + RL2, leads to an off-set between measured temperature and real temperature. This connection must be avoided.

• 3-wire connection



This connection involves identical line resistors (RL1-RL2-RL3), RL2 + RL3 allow you to measure the line resistance that will be subtracted from the measured resistance between 1 and 22' terminals. This is the most common connection.

• 4-wire connection



Regulated current is going through 11' and 22' terminals and the measurement is made at the sensor terminals, so none of the line resistors are taken into account. This is the most accurate connection.

TOLERANCES* OF PT100 AND PT1000 PROBES

Norm as per IEC 751 (1993).

Temp °C	Tolerances					
	Class B		Class A		1/3 DIN	
	± °C	± Ohms	± °C	± Ohms	± °C	± Ohms
-100	0.8	0.32	0.35	0.14	0.27	0.11
-50	0.55	0.22	0.25	0.1	0.19	0.08
0	0.3	0.12	0.15	0.06	0.1	0.04
100	0.8	0.3	0.35	0.13	0.27	0.1
200	1.3	0.48	0.55	0.2	0.44	0.16
300	1.8	0.64	0.75	0.27	0.6	0.21
400	2.3	0.79	0.95	0.33	0.77	0.26

*Resistance values for PT1000 (Ω) must be multiplied by 10 for the same corresponding temperature value (°C). I.e: at 0 °C for Class B PT1000 ± 0.3 °C → ± 1.2 Ω

TOLERANCES* OF NTC PROBES

Measuring range °C	Tolerances °C
From -20 °C to 0 °C	± 0.5 °C
From 0 °C to +70 °C	± 0.2 °C
From +70 °C to +100 °C	± 0.5 °C

*all accuracies indicated in this technical data sheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

ACCESSORIES (SEE DATASHEET)

- Transmitter output 4/20 mA or 0/10 V
- Wall fixing support
- Stainless steel mounting brackets
- ¼" or ½" Gas screw nut
- Stainless steel compression fitting
- PTFE or stainless steel ferrule for compression fittings



- Sleeve to weld for food industry
- Stainless steel union fitting
- ½" Gas or NPT thread cuff
- Thermo-conducting silicone grease
- Calibration certificate
- Thermowell



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