



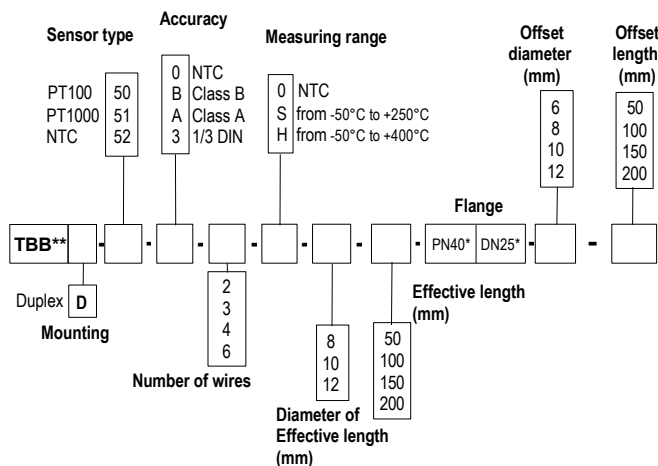
**RTD sensor with standard head, with resistive element and mounting flange**

**TBB 50 / TBBD 50**

- Temperature sensor with stainless steel contact tip and mounting flange.
- 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 types PT25, PT50, PT500, PT200 or NI, please contact us.

**Part numbers**

To order, just add the codes to complete the part number.

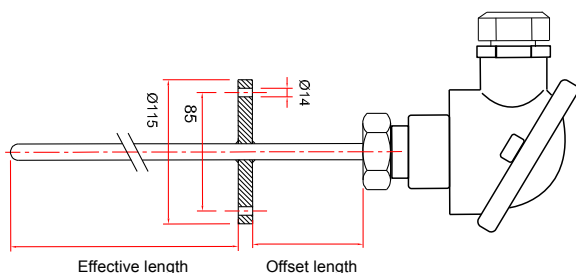


\* Other dimension on request  
\*\* Other head on request

**Example : TBB-50-B-3-S-8-100-PN40DN25-8-50.**

**Model :** PT 100 temperature probe, class B, 3 wires mounted on contact tip with an effective length of 100 mm and 8 mm Ø and with an offset length of 50 mm and 8 mm Ø. Mounting flange type PN40 DN25. **Measuring range from -50°C to 250°C.**

**Probe dimensions**



**Technical features**

**Working temperature**.....from -80°C to +400°C (PT100 and PT1000)  
(according to reference) from -20°C to +120°C (NTC)

**Accuracy**.....PT100 or PT1000 : see "Tolerances" table  
NTC : see "Tolerances" table

**Sensor type**.....PT100 or PT1000 : Class B, Class A  
1/3 DIN as per DIN IEC751  
NTC : resistance at 25°C, R<sub>25</sub> = 10KΩ  
Nominal Beta B25/85 value = 3,695K ±1%

**Mounting of wires**.....**single pair 2, 3 or 4 wires**  
For T>250°C do not use 4 wires in 6mm Ø.  
**multipair 4 or 6 wires**  
For T>250°C use sheath from 8 mm.



**Storage temperature**.....from -20°C to +80°C

**Contact tip**.....316 L stainless steel, no welding, from ¾ to 4/4 hard

**Compression fitting**.....316 L stainless steel flange welded on contact tip  
PN and DN to be specified according to application  
PN 40 DN 25 standard.

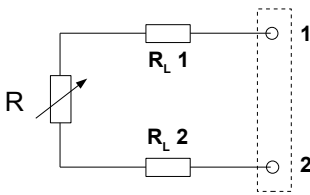
**Electrical connection**.....with or without terminal block  
4/20mA 0/10V transmitter as option

**Connection head**.....Aluminium alloy  
Cable gland : M20 x 1,5  
IP65 protection

**Adjustable mountings**.....replaceable element

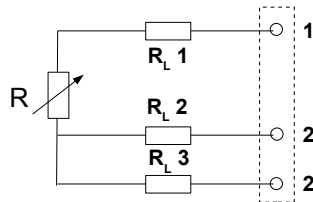
## Useful information on thermometry with platinum resistor PT100, PT1000 or NTC .

### • 2-wire connection



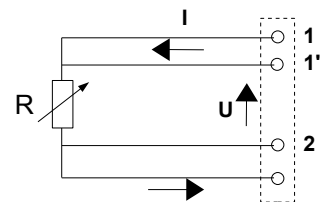
This is the simplest way, but line resistors (RL1 and RL2) are connected to the sensor in a series circuit. The addition of RL1 + RL2, leads to an off-set between measured temperature and real temperature. This connection must be avoided.

### • 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.

## Tolerance\* of PT100 and PT1000 probes.

Norms as per IEC 751 (1993), BS 1904 (1984) and DIN 43760 (1980).

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

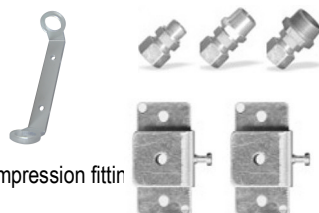
## Tolerances\* of NTC probes

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 data sheet)

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



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



### Händlerkontakt:



MDUA GmbH & Co. KG · Mess- und Datentechnik für Umweltschutz und Arbeitssicherheit  
 Otto-Hahn-Str. 43 · 48161 Münster · Tel.: 02534 / 9775806 · Fax: 02534 / 9775807 · mail@mdua.de · www.mdua.de