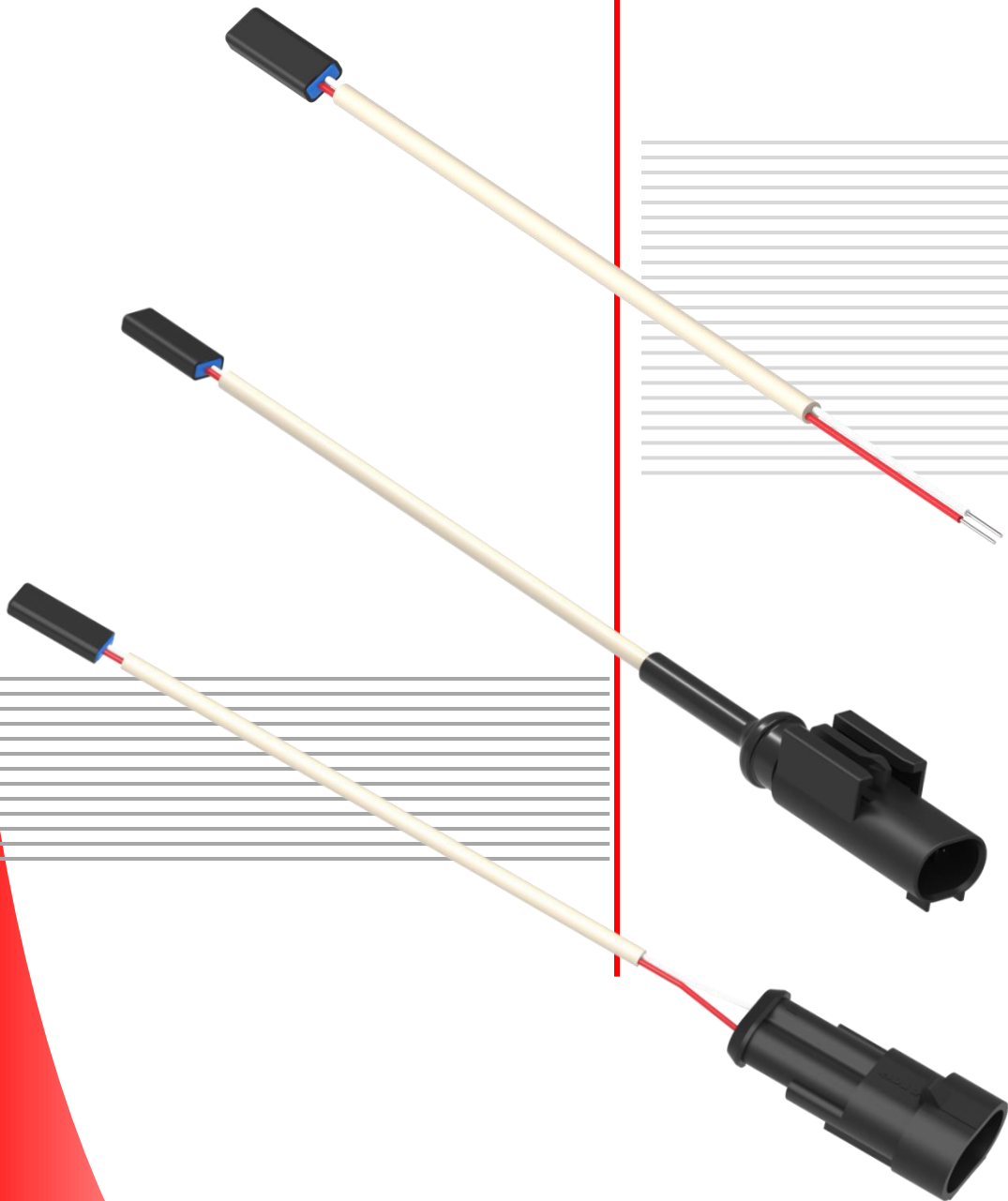


**PT1000**  
**Temperature Sensor**

**PT**  
**1000**



**MICROTHERM**



Microtherm International Cooperation

## Description

The PT1000 is a temperature sensitive resistor. The resistance increases with rising temperature which means it has a positive temperature coefficient. The nearly linear characteristic makes it a precise and high performance choice suitable for use in measurements and control systems.

## Typical Applications

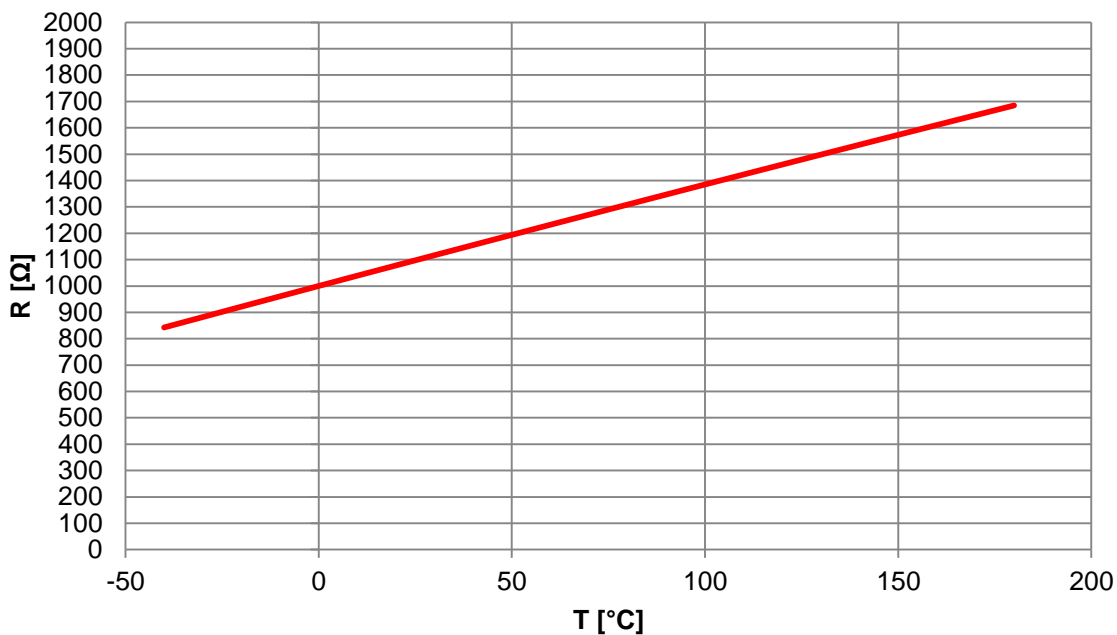
Analogue measurement of temperature in application areas such as:

- Automotive: Monitoring of temperature in electric motors, cooling water or oil
- High performance: Mechanical engineering solutions
- Industrial electronics: Continuous monitoring of operating temperature (motor)
- Heating and climatic technology: Water or air temperature

## Advantages

- High accuracy and reliability
  - Long-term stability
  - Temperature range -40 to 180 °C (190°C)
  - Small dimensions and weight
  - Fast response time
  - Linear characteristic
- 
-

## Technical data



### Deviation table for the class B

$$t \geq 0: R(t) = R_0 \times (1 + A \times t + B \times t^2)$$

$$\text{with } A = 3,9083 \times 10^{-3} \text{ } ^\circ\text{C}^{-1} ; \quad B = -5,775 \times 10^{-7} \text{ } ^\circ\text{C}^{-2}$$

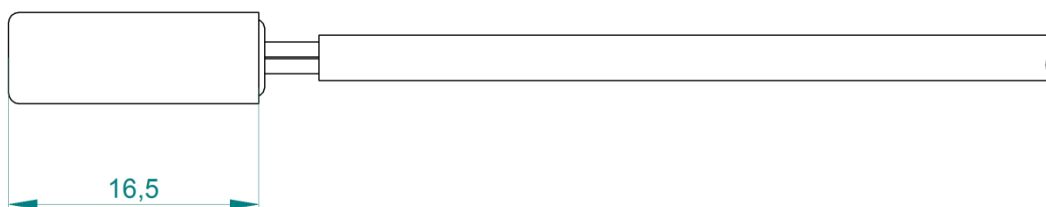
$$t < 0: R(t) = R_0 \times (1 + A \times t + B \times t^2 + C \times (t - 100^\circ\text{C}) \times t^3)$$

$$\text{with } A = 3,9083 \times 10^{-3} \text{ } ^\circ\text{C}^{-1} ; \quad B = -5,775 \times 10^{-7} \text{ } ^\circ\text{C}^{-2} ; \\ C = -4,183 \times 10^{-12} \text{ } ^\circ\text{C}^{-4}$$

$$\text{Class B: } \Delta t = \pm(0,3 + 0,005 \times |t|) \text{ } ^\circ\text{C}$$

## Technical data

Temperature [°C]	Resistance [Ω]	Tolerance class B	
		Resistance error [±Ω]	Temperature error [±K]
-40	842,71	1,98	0,50
-30	882,22	1,78	0,45
-20	921,60	1,57	0,40
-10	960,86	1,37	0,35
0	1000,00	1,17	0,30
10	1039,03	1,36	0,35
20	1077,94	1,55	0,40
30	1116,73	1,74	0,45
40	1155,41	1,93	0,50
50	1193,97	2,12	0,55
60	1232,42	2,30	0,60
70	1270,75	2,49	0,65
80	1308,97	2,67	0,70
90	1347,07	2,85	0,75
100	1385,06	3,03	0,80
110	1422,93	3,21	0,85
120	1460,68	3,39	0,90
130	1498,32	3,57	0,95
140	1535,84	3,75	1,00
150	1573,25	3,92	1,05
160	1610,54	4,10	1,10
170	1647,72	4,27	1,15
180	1684,78	4,44	1,20



# Technical data

## Components

Component	Description
<b>PT1000</b>	Not listed (no test standards resp. no plastic components used)
<b>Lead wire cable</b>	Teflon style insulated wires: <ul style="list-style-type: none"><li>- UL 11279</li><li>- UL 1213</li><li>- UL 10086</li><li>- UL 10870 for insulation and UL 20224 for outer jacket</li><li>- UL10641 for insulation and UL21665 for outer jacket</li></ul> Single conductors red/white; sheath Teflon white
<b>Plastic case</b>	PPS material Fortron 1140 L4 40%GF, black, UL94-V0
<b>Sealing</b>	Epoxy 2C Scotchcast 9AB / 3M (MIL-I-16923E, self-extinguishing)