



SENSOR TYPE AND TEMPERATURE RANGE

TI-2

Sensor type		Max temperature	Defined up to	Positive conductor	Negative conductor	Jacket
Pt100	Pt100	600°C	850°C			
Fe-CuNi	J	750°C	1200°C	Black	White	Black
Cu-CuNi	T	350°C	400°C	Brown	White	Brown
NiCr-Ni	K	1200°C	1370°C	Green	White	Green
NiCr-CuNi	E	900°C	1000°C	Purple	White	Purple
NiCrSi-NiSi	N	1200°C	1300°C	Pink	White	Pink
Pt10Rh-Pt	S	1600°C	1540°C	Orange	White	Orange
Pt13Rh-Pt	R	1600°C	1760°C	Orange	White	Orange
Pt30Rh-Pt6Rh	B	1700°C	1820°C	Grey	White	Grey

CHOOSING THE TEMPERATURE SENSOR

The table offers guidelines for choosing an adequate sensor based on the temperature range.

NORM RELATED TOLERANCE LEVELS FOR PLATINUM RESISTANCE THERMOMETERS

Class A: $\pm (0,15 + 0,002T)$ (actual) °C

Class B: $\pm (0,3 + 0,005T)$ (actual) °C

1/2 class B at 0°C: Class B: $\pm (0,15 + 0,02T)$ (actual) °C

1/3 class B at 0°C: Class B: $\pm (0,1 + 0,005T)$ (actual) °C

1/6 class B at 0°C: Class B: $\pm (0,05 + 0,005T)$ (actual) °C

TOLERANCE LEVELS FOR THERMO COUPLE THERMOMETERS in acc. with IEC 584 – 2

THERMO COUPLE	TEMPERATURE RANGE	TOLERANCE ¹⁾
CLASS 1		
Cu-CuNi, type T	-40 to 350°C	$\pm 0,5^\circ\text{C}$ or $\pm 0,004T$ (actual)°C
NiCr-Cu-Ni, type E	-40 to 800°C	$\pm 1,5^\circ\text{C}$ or $\pm 0,004T$ (actual)°C
Fe-CuNi, type J	-40 to 750°C	$\pm 1,5^\circ\text{C}$ or $\pm 0,004T$ (actual)°C
NiCr-Ni, type K	-40 to 1000°C	$\pm 1,5^\circ\text{C}$ or $\pm 0,004T$ (actual)°C
Nicrosil-Nisil, type N	-40 to 1000°C	$\pm 1,5^\circ\text{C}$ or $\pm 0,004T$ (actual)°C
Pt10%Rh-Pt, type S	0 to 1100°C (1100°C to 1600°C)	$\pm 1,0^\circ\text{C}[\pm 1,0^\circ\text{C} + (T \text{ (actual)} - 1100^\circ\text{C})]$ °C
Pt13%Rh-Pt, type R	0 to 1100°C (1100°C to 1600°C)	$\pm 1,0^\circ\text{C}[\pm 1,0^\circ\text{C} + (T \text{ (actual)} - 1100^\circ\text{C})]$ °C
CLASS 2		
Cu-CuNi, type T	-40 to 350°C	$\pm 1^\circ\text{C}$ or $\pm 0,0075T$ (actual)°C
NiCr-Cu-Ni, type E	-40 to 800°C	$\pm 2,5^\circ\text{C}$ or $\pm 0,0075T$ (actual)°C
Fe-CuNi, type J	-40 to 750°C	$\pm 2,5^\circ\text{C}$ or $\pm 0,0075T$ (actual)°C
NiCr-Ni, type K	-40 to 1000°C	$\pm 2,5^\circ\text{C}$ or $\pm 0,0075T$ (actual)°C
Nicrosil-Nisil, type N	-40 to 1000°C	$\pm 2,5^\circ\text{C}$ or $\pm 0,0075T$ (actual)°C
Pt10%Rh-Pt, type S	0 to 1100°C (1100°C to 1600°C)	$\pm 1,25^\circ\text{C}$ or $\pm 0,0025T$ (actual)°C
Pt13%Rh-Pt, type R	0 to 1600°C	$\pm 1,5^\circ\text{C}$ or $\pm 0,0025T$ (actual)°C
Pt30%Rh-Pt6%Rh, type B	600°C to 1700°C	$\pm 1,5^\circ\text{C}$ or $\pm 0,0025T$ (actual)°C

¹⁾ The highest value is applicable. E.g. for type K class 2, tolerance in the range of -40 to +333°C $\pm 2,5^\circ\text{C}$ and above $\pm 0,0075T$ (actual) °C (actual value).