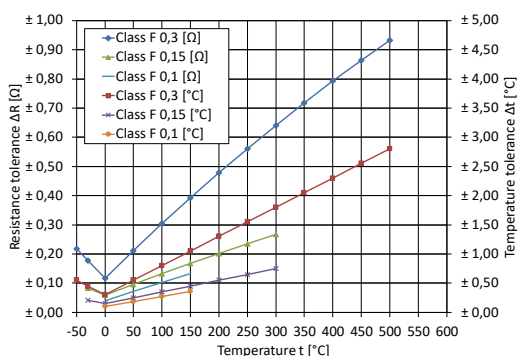


## Technical Data

Resistance at 0°C (R <sub>0</sub> )	100 Ω
Temperature coefficient (0°C up to +100°C)	3,85 · 10 <sup>-3</sup> °C <sup>-1</sup>
Tolerance classes according to DIN EN 60751	F 0,1 (0°C - +150°C) F 0,15 (-30°C - +300°C) F 0,3 (-50°C - +500°C)
Operating temperature range depending on lead material:	
AgPd5, Au-coated Ni-wire	-50 °C up to +400 °C
Pt-coated Ni-wire	-50 °C up to +500 °C (short-time up to +550°C)
Pt	-50 °C up to +600 °C
Measurement current (DC) at 25 °C	1 mA
Maximal permissible peak current (DC) at 25 °C	3 mA
Insulation resistance	> 10 MΩ
Self-heating at 0 °C	< 0,4 K / mW
Thermal response time	
Flowing water (v = 0,2 m/s)	T <sub>0,5</sub> = 0,07s, T <sub>0,9</sub> = 0,2s
Flowing air (v = 1 m/s)	T <sub>0,5</sub> = 4 s, T <sub>0,9</sub> = 10 s
Resistance values [Ω] at Temperature t	
t	Tolerance class
	F 0,1 [Ω]    F 0,15 [Ω]    F 0,3 [Ω]
0 °C	100 ± 0,4    100 ± 0,6    100 ± 1,2
+100°C	138,51 ± 1,0    138,51 ± 1,3    138,51 ± 3,0
R <sub>t</sub> measuring point	2 mm from wire end

Maximal Resistance Change at UCT 250 h	< 0,1 %
Specification	DIN EN 60751
Type	Film sensor
<b>Technology:</b> Advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivation layer)	
<b>Operating conditions:</b> Unprotected application only in dry environments without any contamination.	
<b>Conformity:</b> 2011/65/EU: Restriction of the use of Hazardous Substances Directive (RoHS)	
Dimensions [mm]	
	FMC2105 2x2,3x1,3    FMC2105 2x2,3x1,0
	Leads    AgPd5    NiAu    NiPt    Pt
H1 [mm]	1,3 ± 0,2    1 ± 0,2    l [mm]    15 ± 1    15 ± 1    10 ± 1    7 ± 1
H2 [mm]	0,65    0,4    d [mm]    0,25    0,2    0,2    0,2

## Functional performance (according to DIN EN 60751)



Picture 1: Resistance and temperature tolerances of Pt100 (Please note - the permitted operating temperature range depends on lead material!)

Temperature range from -50 °C up to 0 °C:

$$R_t = R_0 \cdot (1 + A \cdot t + B \cdot t^2 + C \cdot (t - 100 \text{ °C}) \cdot t^3)$$

Temperature range from 0°C up to +600°C:

$$R_t = R_0 \cdot (1 + A \cdot t + B \cdot t^2)$$

Tolerance classes according to DIN EN 60751:

Class F 0,1 (0°C - +150°C):  $\Delta t = \pm (0,1 + 0,0017 \cdot |t|)$

Class F 0,15 (-30°C - +300°C):  $\Delta t = \pm (0,15 + 0,002 \cdot |t|)$

Class F 0,3 (-50°C - +500°C):  $\Delta t = \pm (0,3 + 0,005 \cdot |t|)$

Whereby:

R<sub>t</sub> ... Resistance [Ω] at temperature t

R<sub>0</sub> ... Resistance [Ω] at 0 °C

t ... Temperature [°C]

Δt ... Permissible temperature deviation at t [°C]

$$A = 3,9083 \cdot 10^{-3} \text{ °C}^{-1}$$

$$B = -5,775 \cdot 10^{-7} \text{ °C}^{-2}$$

$$C = -4,183 \cdot 10^{-12} \text{ °C}^{-4}$$

## Fields of application

- Industrial electronics
- Building automation
- Automotive electronics
- Energy and environmental engineering
- Safety and medical engineering

## Ordering examples

Design	Class of accuracy	Leads (ø d x l [mm] lead material)	Operating temperature range [°C]
FMC 2105 2x2,3x1.3	F 0,15	0,25x15 AgPd5	-50/+400
FMC 2105 2x2,3x1.0	F 0,3	0,2x10 NiPt	-50/+500

Other classes of accuracy and wire lengths are available on request.