Platinum Temperature Sensor **FMC 2105**

Technical Data

Resistance at 0 °C	100 Ω
Temperature coefficient (0 °C up to 100 °C)	3.85 · 10^{-3} K^{-1}
Tolerance classes to DIN EN 60751	⅓ DIN B (0 °C - +150 °C), A, B
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 +550 °C
Pt	-50 °C up to +600 °C
Measurement current (DC) at 25 °C	1.0 mA
Maximal permissible peak current (DC) at 25 °C	3.0 mA
Insulation resistance	> 10 MΩ
Self-heating at 0 °C	< 0.5 K / mW
Thermal response time	
Flowing water (v = 0.2 m/s)	$T_{0.5}$ = 0.07s, $T_{0.9}$ = 0.2s
Flowing air (v = 1 m/s)	$T_{0.5}$ = 4 s, $T_{0.9}$ = 10 s

Resistance value [Ω] at

Temperature	Tolerance class		
	⅓ DIN B [Ω]	A [Ω]	B [Ω]
0 °C	100 ± 0.04	100 ± 0.06	100 ± 0.12
+100 °C	138.51 ± 0.10	138.51± 0.13	138.51 ± 0.30

Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751

Operating conditions

Unprotected application only in dry environments without any contamination

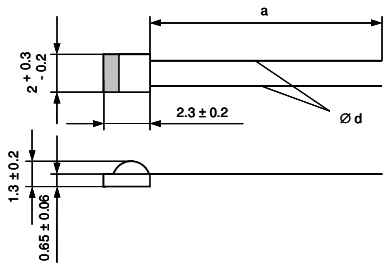
Technology

Advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer)

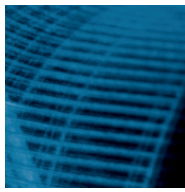
Conformity

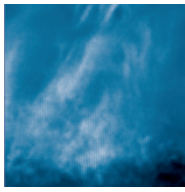
2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



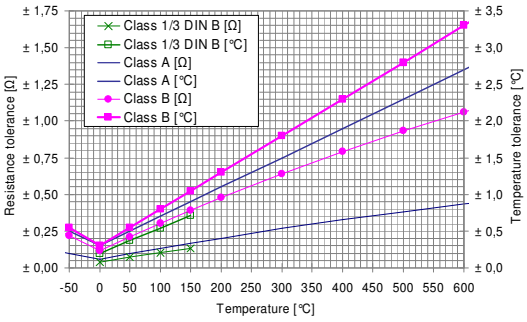
Leads	AgPd5	NiAu	NiPt	Pt
a [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,25	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of FMC 2105 (Pt-Leads)

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

$R_T = R_o \cdot (1 + A \cdot T + B \cdot T^2 + C \cdot (T - 100\ °C) \cdot T^3)$

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

$R_T = R_o \cdot (1 + A \cdot T + B \cdot T^2)$

Tolerance classes to DIN EN 60751:

Class ⅓ DIN B (0 °C - +150 °C): $\Delta T = \pm (0.1 + 0.0017 \cdot |T|)$

Class A: $\Delta T = \pm (0.15 + 0.002 \cdot |T|)$

Class B: $\Delta T = \pm (0.3 + 0.005 \cdot |T|)$

Whereby:

R_T … Resistance [Ω] at temperature T

R_o … Resistance [Ω] at 0 °C

T … Temperature [°C]

ΔT …Permissible temperature deviation at T [°C]

A = 3.9083 · 10^{-3} $°C^{-1}$

B = - 5.775 · 10^{-7} $°C^{-2}$

C = - 4.183 · 10^{-12} $°C^{-4}$

Fields of application

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

Ordering examples

	Construction		Class of accuracy	Lead material	Temperature range [°C]
Code	**FMC**	**2105**	**A**	**AgPd5**	**- 50/400**
Code	**FMC**	**2105**	**B**	**NiPt**	**- 50/550**

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

UST Umweltsensortechnik GmbH is certified according to

Made in Germany

UST Umweltsensortechnik GmbH
Dieselstr. 2, 98716 Geschwenda, Germany
Phone +49 36205 713-0
Fax +49 36205 713-10
info@umweltsensortechnik.de
www.umweltsensortechnik.de