Platinum Temperature Sensor **Pt2000 2x6x1.3**

Technical Data

Resistance at 0 °C (R_0)	2000 Ω
Temperature coefficient (0 °C up to +100 °C)	3.85 · 10^{-3} K^{-1}
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	0.1 mA
Maximal permissible peak current (DC) at 25 °C	0.3 mA
Insulation resistance	> 10 MΩ
Self-heating at 0 °C	< 0.5 K / mW
Thermal response time	
Flowing water (v = 0.2 m/s)	$T_{0.5}$ = 0.07 s, $T_{0.9}$ = 0.3 s
Flowing air (v = 1 m/s)	$T_{0.5}$ = 6 s, $T_{0.9}$ = 20 s

Resistance value [Ω] at

Temperature	Tolerance class		
	F 0,1 [Ω]	F 0,15 [Ω]	F 0,3 [Ω]
0 °C	2000 ± 0.8	2000 ± 1.2	2000 ± 2.4
+100 °C	2770.1 ± 2	2770.1 ± 2.7	2770.1 ± 6.1

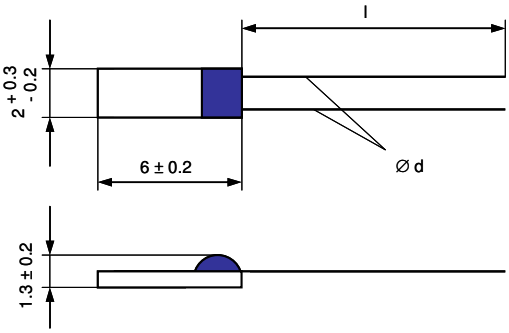
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

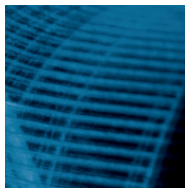
Operating conditions: Unprotected application only in dry environments without any contamination

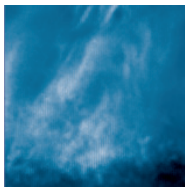
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



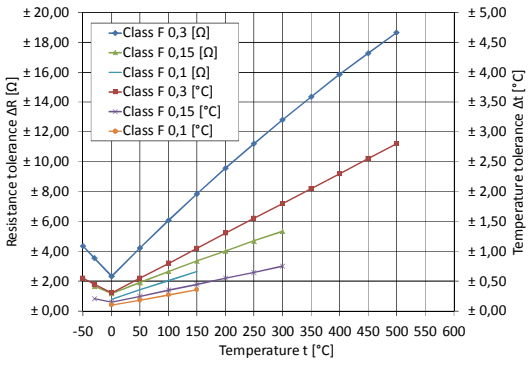
Leads	AgPd5	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
Ø d [mm]	0,25	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt2000 (Please note - the operating temperature range depends on lead material!)

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 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_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	Leads (ø d x l [mm] lead material)	Operating temperature range [°C]
Pt2000 2x6x1.3	**F 0,15**	**0.25x15 AgPd5**	**-50/+400**
Pt2000 2x6x1.3	**F 0,3**	**0.2x10 NiPt**	**-50/+500**

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

UST Umweltsensortechnik GmbH is certified according to

TÜV NORD ISO/TS 16949

TÜV NORD ISO 14001

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Made in Germany

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www.mic-sensor.com

UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **Pt100, Ø 3 x 12**

Technical Data

Resistance at 0 °C (R_0)	100 Ω
Temperature coefficient (0 °C up to +100 °C)	$3.85 \cdot 10^{-3}$ K^{-1}
Tolerance classes according to DIN EN 60751	• F 0,15 (-30 °C - +300 °C) • F 0,3 (-50 °C - +500 °C)
Operating temperature range depending on lead material:	
AgPd5	-50 °C up to +400 °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	< 0.2 K/mW
Thermal response time	
Flowing water (v = 0.2 m/s)	$T_{0.5} \leq 1.3$ s, $T_{0.9} \leq 5.0$ s
Flowing air (v = 1 m/s)	$T_{0.5} \leq 15$ s, $T_{0.9} \leq 50$ s

Resistance value [Ω] at

Temperature	Tolerance class	
	F 0,15 [Ω]	F 0,3 [Ω]
0 °C	100 ± 0.06	100 ± 0.12
+100 °C	138.51± 0.13	138.51 ± 0.30

R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %

Specification	DIN EN 60751
Type	Film sensor

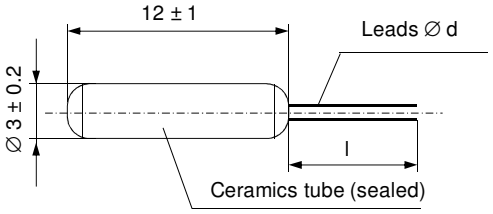
Technology: Chip - advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer), assembled in a sealed ceramic protective tube

Remark: For high temperature applications the sensor element has to be protected applicable against contaminations of substances (heavy metals, Si, P, Cl, Na, Ka etc.) which could destroy for example the pattern structure caused by chemical or electro-chemical reactions.

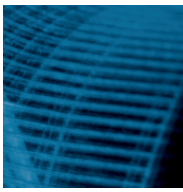
Operating conditions: Unprotected application only in dry environments without any contamination. Any compressive and tensile stresses of the leads have to be avoided.

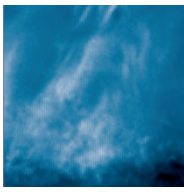
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



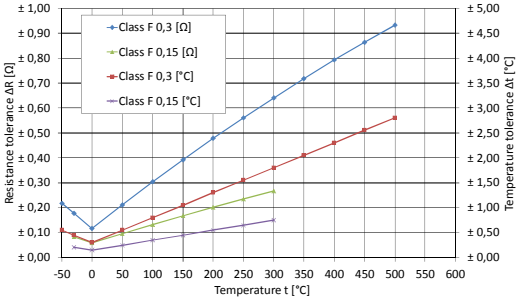
Leads	*AgPd5*	*Pt*
l [mm]	*15 ± 1*	*7 ± 1*
d [mm]	*0,25*	*0,2*





Functional performance

according to DIN EN 60751



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

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 according to DIN EN 60751:

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_t … Resistance [Ω] at temperature t

R_o … Resistance [Ω] at 0 °C

t … Temperature [°C]

Δt … Permissible temperature deviation at t [°C]

A = $3.9083 \cdot 10^{-3}$ °C^{-1}

B = $-5.775 \cdot 10^{-7}$ °C^{-2}

C = $-4.183 \cdot 10^{-12}$ °C^{-4}

Fields of application

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

Ordering example

Construction	Class of accuracy	Leads (ø d x l [mm] lead material)	Operating temperature range [°C]
Temperature sensor Pt100, Ceramics tube Ø 3 x 12 mm sealed	**F 0,3**	**0.2x7 Pt**	**-50/+600**

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

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micsensor@yeah.net
www.mic-sensor.com

High Temperature Sensor Pt100 HT1000°C FMR Ø2.6x8 ctbs

Technical data

Resistance at 0°C	100 Ω
Temperature coefficient (0 °C up to +100 °C)	3.85 · 10^{-3} K^{-1}
Tolerance class according to DIN EN 60751	F 0,3 (-50°C - +500°C) F 0,6 (-50°C - +600°C) (sensor element)
Operating temperature range	-50 °C up to +1000 °C
Measurement current (DC) at 25 °C	1.0 mA
Insulation resistance	> 10 MΩ
Self-heating at 0 °C	< 0.2 K/mW
Thermal response time Flowing air	$T_{0.5} \leq 5$ s, $T_{0.9} \leq 9$ s

Resistance values of Platinum temperature sensor element (each resistance value plus lead resistance)

	F 0,3 [Ω]	F 0,6 [Ω]
0 °C	100 ± 0.12	100 ± 0.24
+100 °C	138.51± 0.3	138.51± 0.61

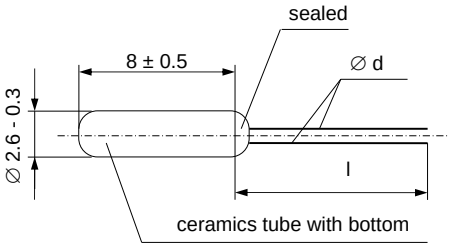
Operating conditions: Unprotected application only in dry environments without any contamination. Any compressive and tensile stresses of the leads have to be avoided.

Remark: For high temperature applications the sensor element has to be protected applicable against contaminations of substances (heavy metals, Si, P, Cl, Na, K etc.) which could destroy for example the pattern structure caused by chemical or electro-chemical reactions.

Technology: Chip - advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivation layer), assembled in a sealed ceramic protective tube

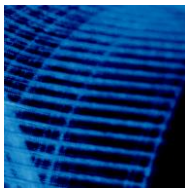
Conformity: 2011/65/EU: Restriction of the use of Hazardous Substances Directive (RoHS)

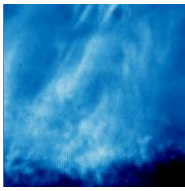
Dimensions [mm]



Leads:

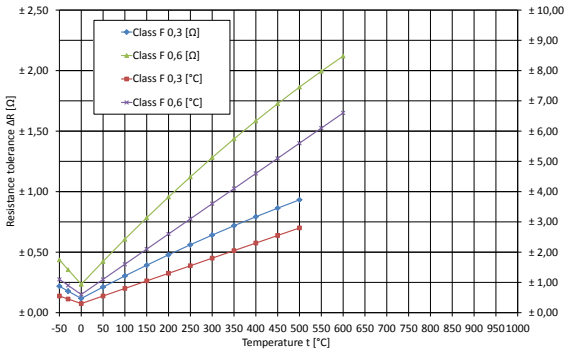
Ht-Pt, Ø d: 0.2 mm; l: variable, e.g. 7 ± 1





Functional performance
(Platinum temperature sensor element)

according to DIN EN 60751 (-50 °C up to 600 °C)



Picture 1: Resistance and temperature tolerances of Pt100 HT1000°C Ø2.6x8 (Platinum temperature sensor element)

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 +850 °C:

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

Tolerance class (-50 °C up to 600 °C):

Class F 0,3 (-50°C - +500°C): $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Class F 0,6: (-50°C - +600°C): $\Delta t = \pm (0.6 + 0.01 \cdot |t|)$

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

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

Ordering example

Please use the following code/article description e.g.:

Pt100 HT1000°C, FMR, ceramics tube with bottom/sealed (ctbs) Ø2.6x8 mm, Leads Ht-Pt Ø 0,2 mm, variant l=7 mm

(Other wire lengths are available on request.)

UST Umweltsensortechnik GmbH is certified according to

TÜV NORD CERT GmbH ISO/TS 16949

TÜV NORD CERT GmbH ISO 14001

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Made in Germany

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www.mic-sensor.com

UST UMWELT SENSOR TECHNIK

High Temperature Sensor Pt100 HT1000°C Ø2.6x8 ctbs

Technical data

Resistance at 0°C	100 Ω
Temperature coefficient (0 °C up to +100 °C)	3.85 · 10^{-3} K^{-1}
Tolerance class according to DIN EN 60751	F 0,3 (-50°C - +500°C) F 0,6 (-50°C - +600°C) (sensor element)
Operating temperature range	-50 °C up to +1000 °C
Measurement current (DC) at 25 °C	1.0 mA
Insulation resistance	> 10 MΩ
Self-heating at 0 °C	< 0.2 K/mW
Thermal response time Flowing air	$T_{0.5} \leq 5$ s, $T_{0.9} \leq 9$ s

Resistance values of Platinum temperature sensor element (each resistance value plus lead resistance)

	F 0,3 [Ω]	F 0,6 [Ω]
0 °C	100 ± 0.12	100 ± 0.24
+100 °C	138.51± 0.3	138.51± 0.61

Leads	
Material	NiSi
Ø d	0.3 mm
Resistivity at 20°C	34 µΩ · cm

(Source: Product information of the lead manufacturer)

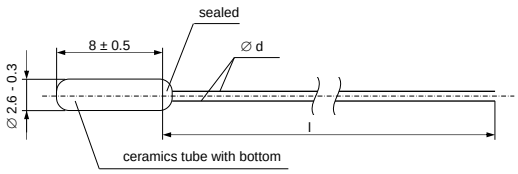
Operating conditions: Unprotected application only in dry environments without any contamination. Any compressive and tensile stresses of the leads have to be avoided.

Remark: For high temperature applications the sensor element has to be protected applicable against contaminations of substances (heavy metals, Si, P, Cl, Na, K etc.) which could destroy for example the pattern structure caused by chemical or electro-chemical reactions.

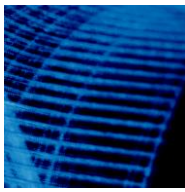
Technology: Chip - advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivation layer), assembled in a sealed ceramic protective tube

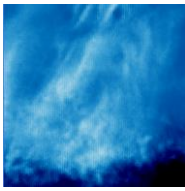
Conformity: 2011/65/EU: Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



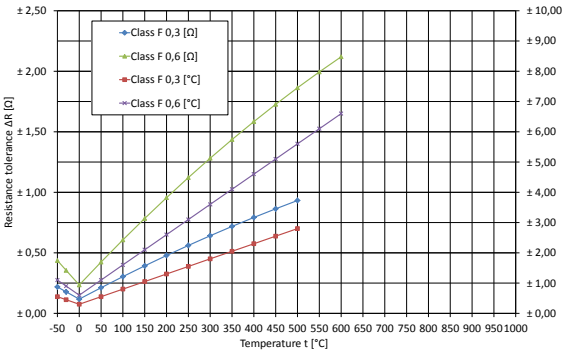
Ø d: 0.3 mm, l: variable





Functional performance
(Platinum temperature sensor element)

according to DIN EN 60751 (-50 °C up to 600 °C)



Picture 1: Resistance and temperature tolerances of Pt100 HT1000°C Ø2.6x8 (Platinum temperature sensor element)

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 +850 °C:

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

Tolerance class (-50 °C up to 600 °C):

Class F 0,3 (-50°C - +500°C): $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Class F 0,6: (-50°C - +600°C): $\Delta t = \pm (0.6 + 0.01 \cdot |t|)$

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

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

Ordering example

Please use the following code/article description e.g.:

Pt100 HT1000°C, ceramics tube with bottom/sealed (ctbs) Ø2.6x8 mm, Leads NiSi Ø0,3 mm, variant l=100 mm

(Other wire lengths are available on request.)

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Made in Germany

UST Umweltsensortechnik GmbH
Dieselstr. 2 und 4, 98716 Geschwenda, Germany
Phone: 0523-88155558
Mobile: 13701245182
micsensor@yeah.net
www.mic-sensor.com

Platinum Temperature Sensor **FMR 2103 HT 850 ctss**

Technical Data

Resistance at 0°C	100 Ω
Temperature coefficient (0°C up to 100°C)	3.85 · 10^{-3} K^{-1}
Tolerance classes according to DIN EN 60751	F 0,3 (-50°C - +500°C) F 0,6 (-50°C - +600°C)
Operating temperature range depending on lead material: HT-Pt	 -50 °C up to +850 °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) Flowing air (v = 1 m/s)	 $T_{0.5}$ = 0.07s, $T_{0.9}$ = 0.3s $T_{0.5}$ = 6 s, $T_{0.9}$ = 20 s

Resistance value [Ω] at

Temperature	Tolerance class	
	F 0,3 [Ω]	F 0,6 [Ω]
0 °C	100 ± 0.12	100 ± 0.24
+100 °C	138.51± 0.3	138.51± 0.61

R_t measuring point	2 mm from wire end
Maximal Resistance change at UCT 250 h	< 0.1 %

Operating conditions

Unprotected application only in dry environments without any contamination

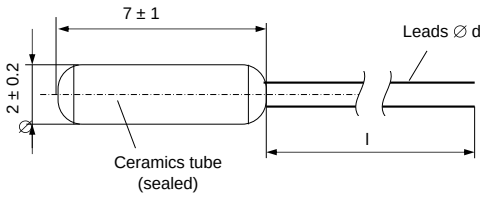
Technology

Chip - advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer), assembled in a sealed ceramics tube

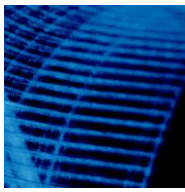
Conformity

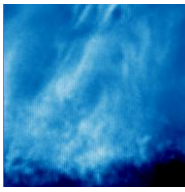
2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



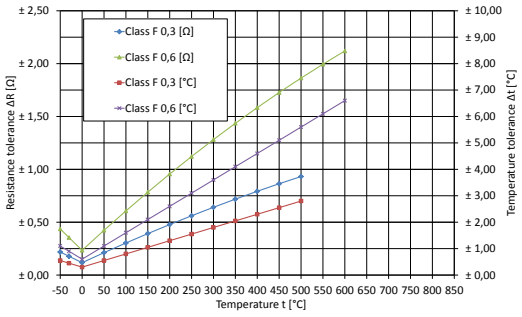
Leads	HT-Pt
l [mm]	7 ± 1
Ø d [mm]	0,2





Functional performance

according DIN EN 60751



Picture 1: Resistance and temperature tolerances of FMR 2103

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:

Class F 0,3 (-50°C - +500°C): $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Class F 0,6: (-50°C - +600°C): $\Delta t = \pm (0.6 + 0.01 \cdot |t|)$

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 example

Construction	Class of accuracy	Leads (ø d x l [mm] lead material)	Operating temperature range [°C]
FMR2103 HT850 ctss	**F 0,3**	**0.2x7 HT-Pt**	**-50/+850**

1) Class of accuracy according to DIN EN 60751

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

Made in Germany

UST Umweltsensortechnik GmbH is certified according to

TÜV NORD ISO/TS 16949

TÜV NORD ISO 14001

铂基传感 BOJI SENSING

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UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMR 2103 ctss**

Technical Data

Resistance at 0°C	100 Ω
Temperature coefficient (0°C up to 100°C)	3.85 · 10^{-3} K^{-1}
Tolerance classes according to DIN EN 60751	F 0,3 (-50°C - +500°C) F 0,6 (-50°C - +600°C)
Operating temperature range depending on lead material: AgPd5 Pt	 -50 °C up to +400 °C -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) Flowing air (v = 1 m/s)	 $T_{0.5}$ = 0.07s, $T_{0.9}$ = 0.3s $T_{0.5}$ = 6 s, $T_{0.9}$ = 20 s

Resistance value [Ω] at

Temperature	Tolerance class	
	F 0,3 [Ω]	F 0,6 [Ω]
0 °C	100 ± 0.12	100 ± 0.24
+100 °C	138.51± 0.3	138.51± 0.61

R_t measuring point	2 mm from wire end
Maximal Resistance change at UCT 250 h	< 0.1 %

Operating conditions

Unprotected application only in dry environments without any contamination

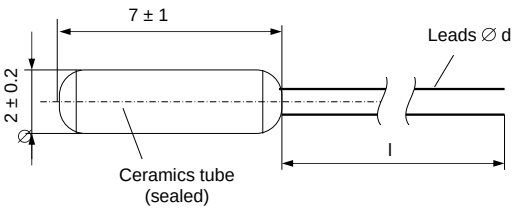
Technology

Chip - advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer), assembled in a sealed ceramics tube

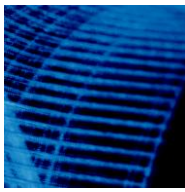
Conformity

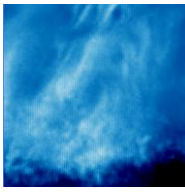
2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



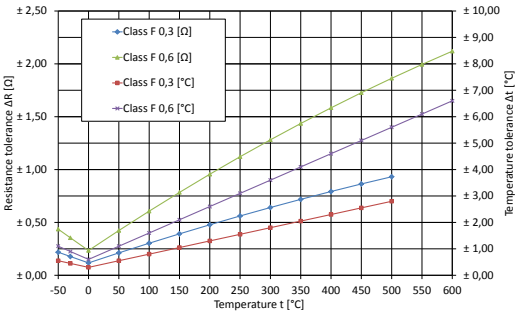
Leads	AgPd5	Pt
l [mm]	15 ± 1	7 ± 1
Ø d [mm]	0,25	0,2





Functional performance

according DIN EN 60751



Picture 1: Resistance and temperature tolerances of FMR 2103 (Please note - the operating temperature range depends on lead material!)

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:

Class F 0,3 (-50°C - +500°C): $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Class F 0,6: (-50°C - +600°C): $\Delta t = \pm (0.6 + 0.01 \cdot |t|)$

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 example

Construction	Class of accuracy	Leads (ø d x l [mm] lead material)	Operating temperature range [°C]
FMR 2103 ctss	**F 0,3**	**0.25x15 AgPd5**	**-50/+400**
FMR 2103 ctss	**F 0,6**	**0.2x7 Pt**	**-50/+600**

1) Class of accuracy according to DIN EN 60751

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

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Platinum Temperature Sensor **2 x Pt100, Ø 4,5 x 13**

Technical Data

Resistance at 0 °C (R_0)	100 Ω
Temperature coefficient (0 °C up to +100 °C)	3.85 · 10^{-3} K^{-1}
Tolerance classes according to DIN EN 60751	• F 0,15 (-30 °C - +300 °C) • F 0,3 (-50 °C - +500 °C)
Operating temperature range depending on lead material:	
AgPd5	-50 °C up to +400 °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	< 0.2 K/mW
Thermal response time	
Flowing water (v = 0.2 m/s)	$T_{0.5} \leq 1.3$ s, $T_{0.9} \leq 5.0$ s
Flowing air (v = 1 m/s)	$T_{0.5} \leq 15$ s, $T_{0.9} \leq 50$ s

Resistance value [Ω] at

Temperature	Tolerance class	
	F 0,15 [Ω]	F 0,3 [Ω]
0 °C	100 ± 0.06	100 ± 0.12
+100 °C	138.51± 0.13	138.51 ± 0.30

R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %

Specification	DIN EN 60751
Type	Film sensor

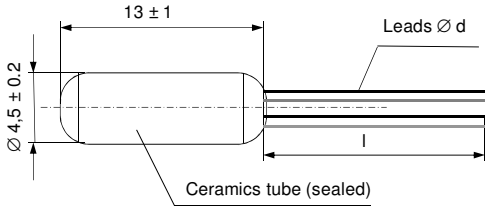
Technology: Chip - advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer), assembled in a sealed ceramic protective tube

Remark: For high temperature applications the sensor element has to be protected applicable against contaminations of substances (heavy metals, Si, P, Cl, Na, Ka etc.) which could destroy for example the pattern structure caused by chemical or electro-chemical reactions.

Operating conditions: Unprotected application only in dry environments without any contamination. Any compressive and tensile stresses of the leads have to be avoided.

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

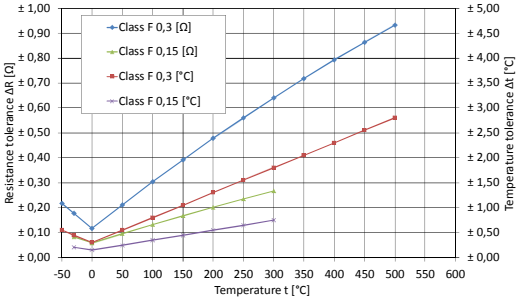
Dimensions [mm]



Leads	*AgPd5*	*Pt*
l [mm]	*15 ± 1*	*7 ± 1*
d [mm]	*0,25*	*0,2*

Functional performance

according to DIN EN 60751



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

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 according to DIN EN 60751:

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_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 example

Construction	Class of accuracy	Leads (ø d x l [mm] lead material)	Operating temperature range [°C]
Temperature sensor 2 x Pt100, Ceramics tube Ø 4,5 x 13 mm sealed	**F 0,3**	**0.2x7 Pt**	**-50/+600**

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

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www.mic-sensor.com

Platinum Temperature Sensor **2 x Pt100, Ø 3 x 12**

Technical Data

Resistance at 0 °C (R_0)	100 Ω
Temperature coefficient (0 °C up to +100 °C)	$3.85 \cdot 10^{-3}$ K^{-1}
Tolerance classes according to DIN EN 60751	• F 0,15 (-30 °C - +300 °C) • F 0,3 (-50 °C - +500 °C)
Operating temperature range depending on lead material:	
AgPd5	-50 °C up to +400 °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	< 0.2 K/mW
Thermal response time	
Flowing water (v = 0.2 m/s)	$T_{0.5} \leq 1.3$ s, $T_{0.9} \leq 5.0$ s
Flowing air (v = 1 m/s)	$T_{0.5} \leq 15$ s, $T_{0.9} \leq 50$ s

Resistance value [Ω] at

Temperature	Tolerance class	
	F 0,15 [Ω]	F 0,3 [Ω]
0 °C	100 ± 0.06	100 ± 0.12
+100 °C	138.51± 0.13	138.51 ± 0.30

R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %

Specification	DIN EN 60751
Type	Film sensor

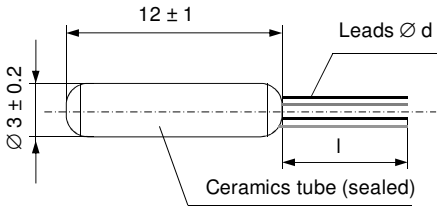
Technology: Chip - advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer), assembled in a sealed ceramic protective tube

Remark: For high temperature applications the sensor element has to be protected applicable against contaminations of substances (heavy metals, Si, P, Cl, Na, Ka etc.) which could destroy for example the pattern structure caused by chemical or electro-chemical reactions.

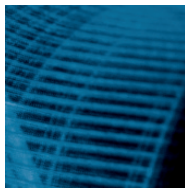
Operating conditions: Unprotected application only in dry environments without any contamination. Any compressive and tensile stresses of the leads have to be avoided.

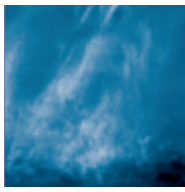
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



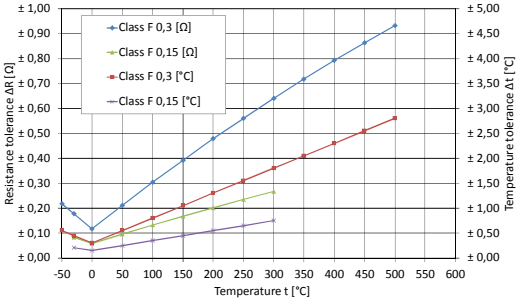
Leads	AgPd5	Pt
l [mm]	15 ± 1	7 ± 1
d [mm]	0,25	0,2





Functional performance

according to DIN EN 60751



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

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 according to DIN EN 60751:

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_t … Resistance [Ω] at temperature t

R_o … Resistance [Ω] at 0 °C

t … Temperature [°C]

Δt … Permissible temperature deviation at t [°C]

A = $3.9083 \cdot 10^{-3}$ $°C^{-1}$

B = $-5.775 \cdot 10^{-7}$ $°C^{-2}$

C = $-4.183 \cdot 10^{-12}$ $°C^{-4}$

Fields of application

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

Ordering example

Construction	Class of accuracy	Leads (ø d x l [mm] lead material)	Operating temperature range [°C]
Temperature sensor 2 x Pt100, Ceramics tube Ø 3 x 12 mm sealed	**F 0,3**	**0.2x7 Pt**	**-50/+600**

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

UST Umweltsensortechnik GmbH is certified according to

Made in Germany

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www.mic-sensor.com

High Temperature Sensor Pt100 HT850°C Ø2.6x8 ctbs

Technical data

Resistance at 0°C	100 Ω
Temperature coefficient (0 °C up to +100 °C)	3.85 · 10^{-3} K^{-1}
Tolerance class according to DIN EN 60751	F 0,3 (-50°C - +500°C) F 0,6 (-50°C - +600°C) (sensor element)
Operating temperature range	-50 °C up to +850 °C
Measurement current (DC) at 25 °C	1.0 mA
Insulation resistance	> 10 MΩ
Self-heating at 0 °C	< 0.2 K/mW
Thermal response time Flowing air	$T_{0.5} \leq 5$ s, $T_{0.9} \leq 9$ s

Resistance values of Platinum temperature sensor element (each resistance value plus lead resistance)

	F 0,3 [Ω]	F 0,6 [Ω]
0 °C	100 ± 0.12	100 ± 0.24
+100 °C	138.51± 0.3	138.51± 0.61

Leads	
Material	NiSi
Ø d	0.3 mm
Resistivity at 20°C	34 µΩ · cm

(Source: Product information of the lead manufacturer)

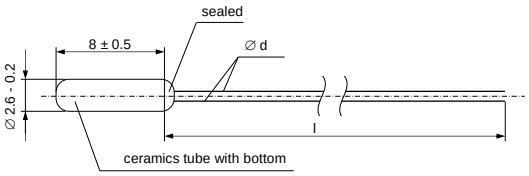
Operating conditions: Unprotected application only in dry environments without any contamination. Any compressive and tensile stresses of the leads have to be avoided.

Remark: For high temperature applications the sensor element has to be protected applicable against contaminations of substances (heavy metals, Si, P, Cl, Na, K etc.) which could destroy for example the pattern structure caused by chemical or electro-chemical reactions.

Technology: Chip - advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivation layer), assembled in a sealed ceramic protective tube

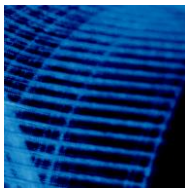
Conformity: 2011/65/EU: Restriction of the use of Hazardous Substances Directive (RoHS)

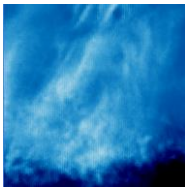
Dimensions [mm]



Ø d: 0.3 mm,

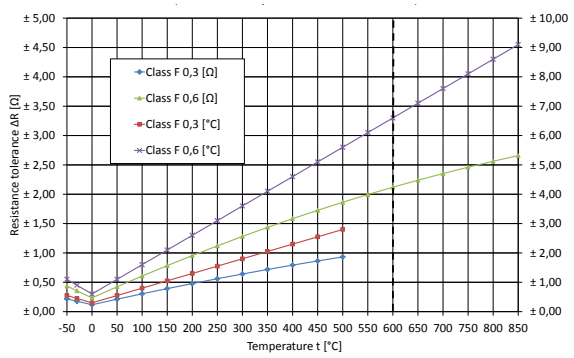
l: 300 mm ± 1 mm





Functional performance

(Platinum temperature sensor element)
from -50 °C up to 850 °C
(according to DIN EN 60751 from -50 °C up to 600 °C)



Picture 1: Resistance and temperature tolerances of HTS Pt100 HT850°C Ø2.6x8 (Platinum temperature sensor element)

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 +850 °C:

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

Tolerance classes (according to DIN EN 60751 from -50 °C up to 600 °C):

Class F 0,3 (-50°C - +500°C): $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Class F 0,6: (-50°C - +600°C/+850°C):

$\Delta t = \pm (0.6 + 0.01 \cdot |t|)$

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

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

Ordering example

Please use the following code/article description:

HTS Pt100, HT850°C, class F0,3 up to 500°C, F 0,6 up to 850°C, ceramics tube with bottom/sealed (ctbs) Ø2.6x8 mm, Leads NiSi Ø0,3 mm, variant l=300 mm

(Other wire lengths are available on request.)

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