Platinum Temperature Sensor **FMC 2105 cbsp**

Technical Data

Resistance at 0°C (R_0)	100 Ω
Temperature coefficient (0°C up to +100°C)	3,85 · 10^{-3} C^{-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	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 values [Ω] at Temperature t

t	Tolerance class		
	F 0,1 [Ω]	F 0,15 [Ω]	F 0,3 [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

R_t measuring point	2 mm from wire end

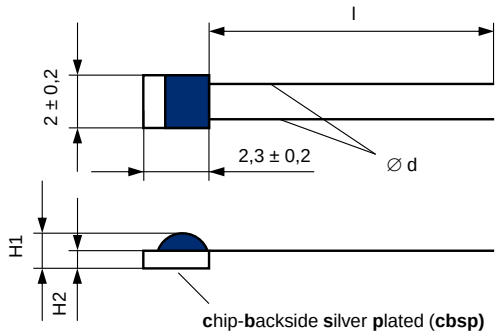
Maximal Resistance Change at UCT 250 h	< 0,1 %
Specification	DIN EN 60751
Type	Film sensor

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

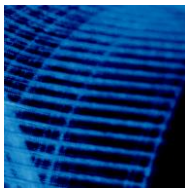
Operating conditions: Unprotected application only in dry environments without any contamination.

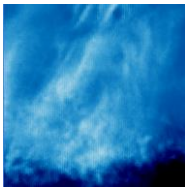
Conformity: 2011/65/EU: Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]

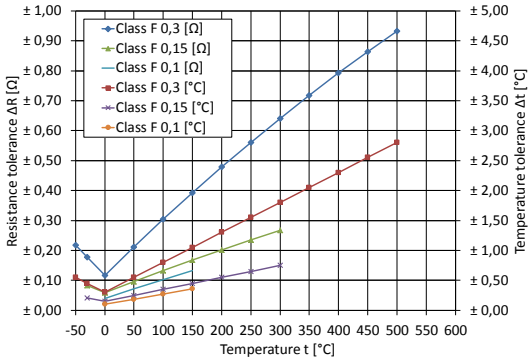


	FMC2105 2x2,3x1,3	FMC2105 2x2,3x1,0	Leads	AgPd5	NiAu	NiPt	Pt
H1 [mm]	1,3 ± 0,2	1± 0,2	l [mm]	15 ± 1	15 ± 1	10 ± 1	7 ± 1
H2 [mm]	0,65	0,4	d [mm]	0,25	0,2	0,2	0,2





Functional performance (according to DIN EN 60751)



Picture 1: Resistance and temperature tolerances of Pt100 (Please note - the 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]
FMC 2105 cbsp 2x2,3x1,3	**F 0,15**	**0,25x15 AgPd5**	**-50/+400**
FMC 2105 cbsp 2x2,3x1,0	**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 CERT GmbH ISO/TS 16949

TÜV NORD CERT GmbH ISO 14001

铂基传感 BOJI SENSING

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

UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2105 cryo**

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	• F 0,3 (-200 °C - +150 °C) • F 0,6 (-200 °C - +150 °C)
Operating temperature range depending on lead material:	
AgPd5	-200 °C up to +150 °C
Pt-coated Ni-wire	-200 °C up to +150 °C
AuPd5, Pt	-200 °C up to +150 °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)	$T_{0.5}$ = 0.07 s, $T_{0.9}$ = 0.2 s
Flowing air (v = 1 m/s)	$T_{0.5}$ = 4 s, $T_{0.9}$ = 10 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 ± 0.30	138.51 ± 0.61

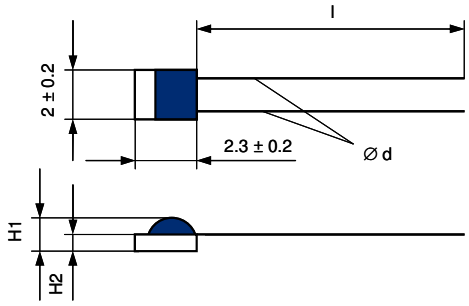
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Type	Film sensor

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

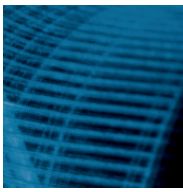
Operating conditions: Unprotected application only in dry environments without any contamination

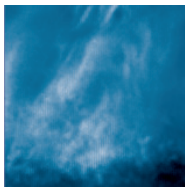
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]

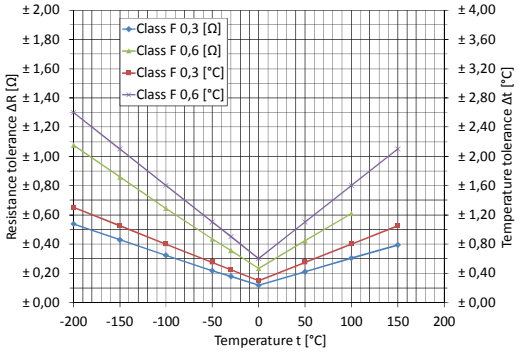


	FMC2105 cryo 2x2.3x1.3	FMC2105 cryo 2x2.3x1.0	Leads	AgPd5	NiPt	AuPd5	Pt
H1 [mm]	1.3 ± 0.2	1± 0.2	l [mm]	15 ± 1	10 ± 1	10 ± 1	7±1
H2 [mm]	0.65	0.4	d [mm]	0,25	0,2	0,25	0,2





Functional performance



Picture 1: Resistance and temperature tolerances of Pt100 cryo

Temperature range from -200 °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 +150 °C:

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

Tolerance classes:

Class F 0,3 (-200 °C - +150 °C): $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Class F 0,6 (-200 °C - +150 °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 examples

Construction	Class of accuracy	Leads (ø d x l [mm] lead material)	Operating temperature range [°C]
FMC2105 2x2,3x1.3 cryo	**F 0,3**	**0.25x15 AgPd5**	**-200/+150**
FMC2105 2x2,3x1.0 cryo	**F 0,6**	**0.2x10 NiPt**	**-200/+150**

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

铂基传感 BOJISENSING

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

UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2105 cryo**

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	• F 0,3 (-200 °C - +150 °C) • F 0,6 (-200 °C - +150 °C)
Operating temperature range depending on lead material:	
AgPd5	-200 °C up to +150 °C
Pt-coated Ni-wire	-200 °C up to +150 °C
AuPd5, Pt	-200 °C up to +150 °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)	$T_{0.5}$ = 0.07 s, $T_{0.9}$ = 0.2 s
Flowing air (v = 1 m/s)	$T_{0.5}$ = 4 s, $T_{0.9}$ = 10 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 ± 0.30	138.51 ± 0.61

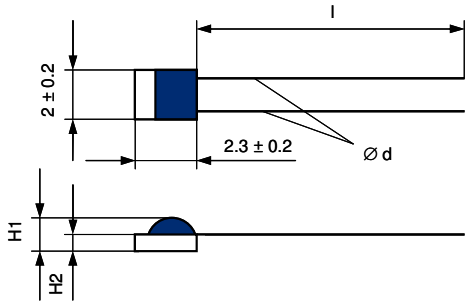
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Type	Film sensor

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

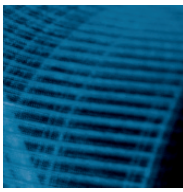
Operating conditions: Unprotected application only in dry environments without any contamination

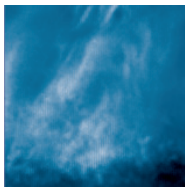
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]

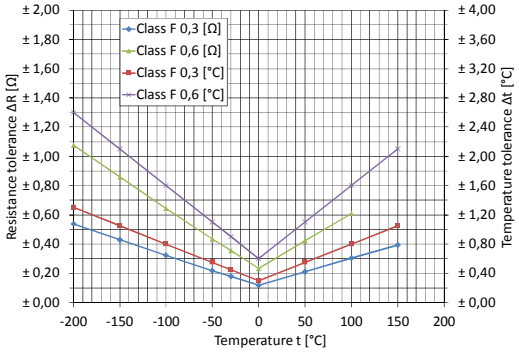


	FMC2105 cryo 2x2.3x1.3	FMC2105 cryo 2x2.3x1.0	Leads	AgPd5	NiPt	AuPd5	Pt
H1 [mm]	1.3 ± 0.2	1± 0.2	l [mm]	15 ± 1	10 ± 1	10 ± 1	7±1
H2 [mm]	0.65	0.4	d [mm]	0,25	0,2	0,25	0,2





Functional performance



Picture 1: Resistance and temperature tolerances of Pt100 cryo

Temperature range from -200 °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 +150 °C:

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

Tolerance classes:

Class F 0,3 (-200 °C - +150 °C): $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Class F 0,6 (-200 °C - +150 °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 examples

Construction	Class of accuracy	Leads (ø d x l [mm] lead material)	Operating temperature range [°C]
FMC2105 2x2,3x1.3 cryo	**F 0,3**	**0.25x15 AgPd5**	**-200/+150**
FMC2105 2x2,3x1.0 cryo	**F 0,6**	**0.2x10 NiPt**	**-200/+150**

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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Phone: 0523-88155558
Mobile: 13701245182
micsensor@yeah.net
www.mic-sensor.com

UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2101**

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 0,1 (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	1.0 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, $T_{0.9}$ = 0.3s
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	100 ± 0.04	100 ± 0.06	100 ± 0.12
+100 °C	138.51 ± 0.1	138.51±0.13	138.51 ± 0.3

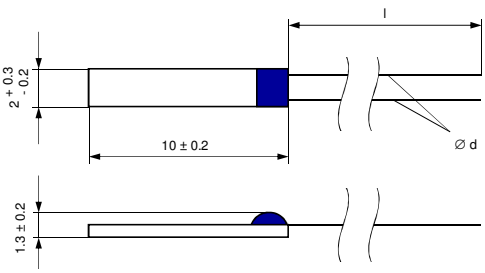
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

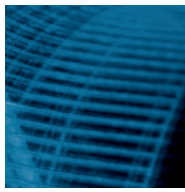
Operating conditions: Unprotected application only in dry environments without any contamination

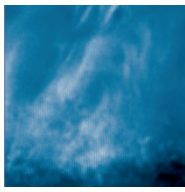
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



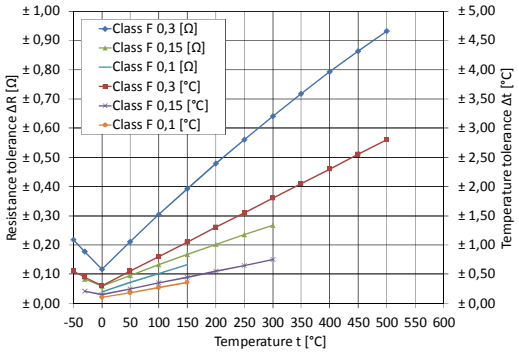
Leads	AgPd5	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt100 (Please note - the 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]
FMC 2101	**F 0,15**	**0.25x15 AgPd5**	**- 50/+400**
FMC 2101	**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

Ex

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Phone: 0523-88155558
Mobile: 13701245182
micsensor@yeah.net
www.mic-sensor.com

UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2102**

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 0,1 (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	1.0 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)	$T_{0.5}$ = 0.07 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	100 ± 0.04	100 ± 0.06	100 ± 0.12
+100 °C	138.51± 0.1	138.51± 0.13	138.51± 0.3

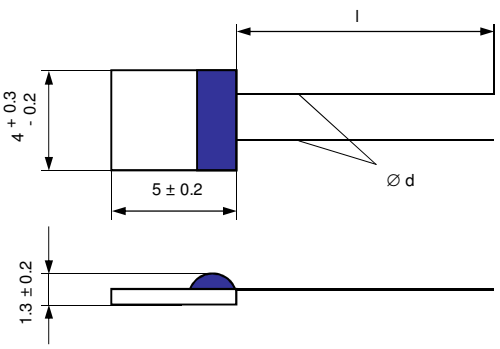
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

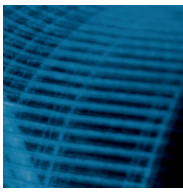
Operating conditions: Unprotected application only in dry environments without any contamination

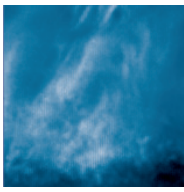
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



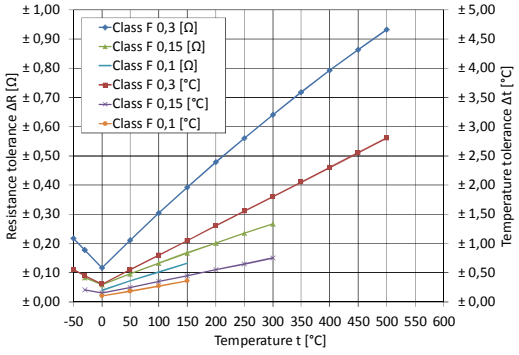
Leads	AgPd5	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt100 (Please note - the 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]
FMC 2102	**F 0,15**	**0.25x15 AgPd5**	**- 50/+400**
FMC 2102	**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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Mobile: 13701245182
micsensor@yeah.net
www.mic-sensor.com

UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2103 cryo**

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	• F 0,3 (-200 °C - +150 °C) • F 0,6 (-200 °C - +150 °C)
Operating temperature range depending on lead material:	
AgPd5	-200 °C up to +150 °C
Pt-coated Ni-wire	-200 °C up to +150 °C
AuPd5, Pt	-200 °C up to +150 °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, $T_{0.9}$ = 0.3s
Flowing air (v = 1 m/s)	$T_{0.5}$ = 6 s, $T_{0.9}$ = 20 s

Resistance value [Ω] at

Temperature	Tolerance class	
	F 0,3 [Ω]	F 0,6 [Ω]
0 °C	100 ± 0.12	100 ± 0.24
+100 °C	138.51 ± 0.30	138.51 ± 0.61

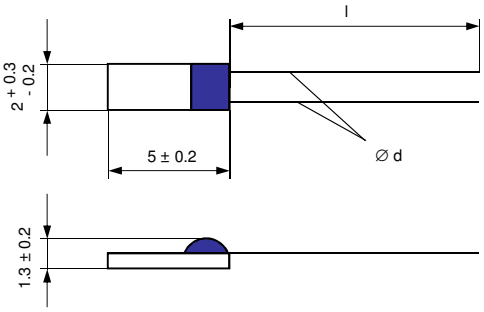
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Type	Film sensor

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

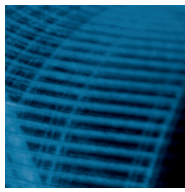
Operating conditions: Unprotected application only in dry environments without any contamination

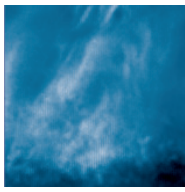
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]

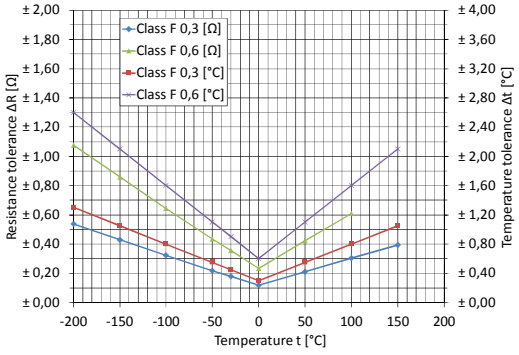


Leads	AgPd5	NiPt	AuPd5	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2





Functional performance



Picture 1: Resistance and temperature tolerances of Pt100 cryo

Temperature range from -200 °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 +150 °C:

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

Tolerance classes:

Class F 0,3 (-200 °C - +150 °C): $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Class F 0,6 (-200 °C - +150 °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 examples

Construction	Class of accuracy	Leads (ø d x l [mm] lead material)	Operating temperature range [°C]
FMC2103 2x5x1.3 cryo	**F 0,3**	**0.25x15 AgPd5**	**-200/+150**
FMC2103 2x5x1.3 cryo	**F 0,6**	**0.2x10 NiPt**	**-200/+150**

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

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UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2103**

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 0,1 (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	1.0 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, $T_{0.9}$ = 0.3s
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	100 ± 0.04	100 ± 0.06	100 ± 0.12
+100 °C	138.51± 0.1	138.51± 0.13	138.51± 0.3

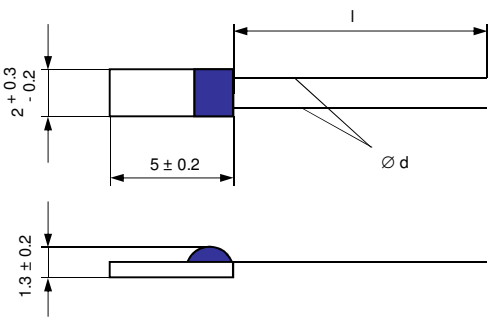
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

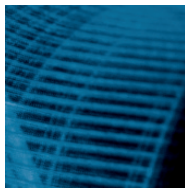
Operating conditions: Unprotected application only in dry environments without any contamination

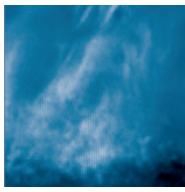
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



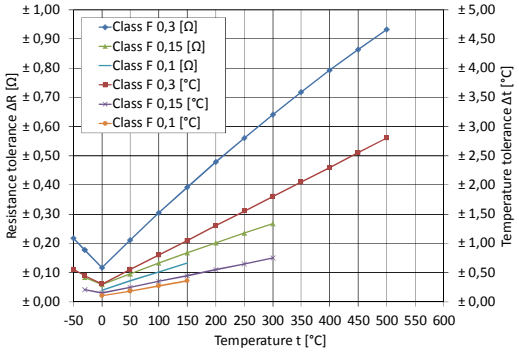
Leads	AgPd5	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt100 (Please note - the 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]
FMC 2103	**F 0,15**	**0.25x15 AgPd5**	**- 50/+400**
FMC 2103	**F 0,3**	**0.2x10 NiPt**	**- 50/+500**

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

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TÜV NORD ISO 14001

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Phone: 0523-88155558
Mobile: 13701245182
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UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2104**

Technical Data

Resistance at 0 °C (R_o)	100 Ω
Temperature coefficient (0 °C up to 100 °C)	3.85 · 10^{-3} K^{-1}
Tolerance classes according to DIN EN 60751	• F 0,1 (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	1.0 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)	$T_{0.5}$ = 0.05 s, $T_{0.9}$ = 0.2 s
Flowing air (v = 1 m/s)	$T_{0.5}$ = 4 s, $T_{0.9}$ = 10 s

Resistance value [Ω] at

Temperature	Tolerance class		
	F 0,1 [Ω]	F 0,15 [Ω]	F 0,3 [Ω]
0 °C	100 ± 0.04	100 ± 0.06	100 ± 0.12
+100 °C	138.51±0.1	138.51±0.13	138.51±0.3

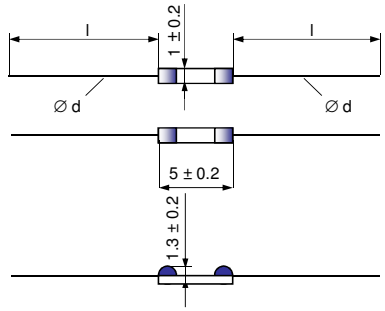
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

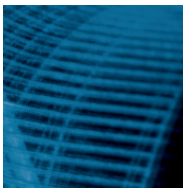
Operating conditions: Unprotected application only in dry environments without any contamination

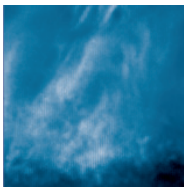
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



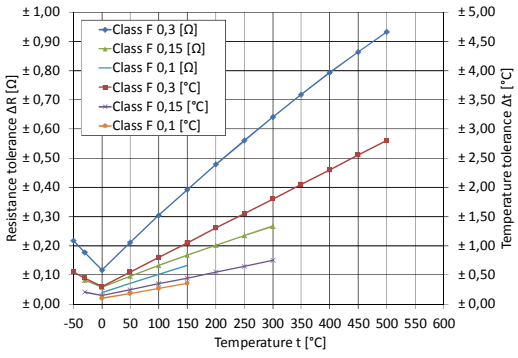
Leads	AgPd5	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt100 (Please note - the 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]
FMC 2104	**F 0,15**	**0.25x15 AgPd5**	**- 50/+400**
FMC 2104	**F 0,3**	**0.2x10 NiPt**	**- 50/+500**

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

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UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2104**

Technical Data

Resistance at 0 °C (R_o)	100 Ω
Temperature coefficient (0 °C up to 100 °C)	3.85 · 10^{-3} K^{-1}
Tolerance classes according to DIN EN 60751	• F 0,1 (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	1.0 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)	$T_{0.5}$ = 0.05 s, $T_{0.9}$ = 0.2 s
Flowing air (v = 1 m/s)	$T_{0.5}$ = 4 s, $T_{0.9}$ = 10 s

Resistance value [Ω] at

Temperature	Tolerance class		
	F 0,1 [Ω]	F 0,15 [Ω]	F 0,3 [Ω]
0 °C	100 ± 0.04	100 ± 0.06	100 ± 0.12
+100 °C	138.51±0.1	138.51±0.13	138.51±0.3

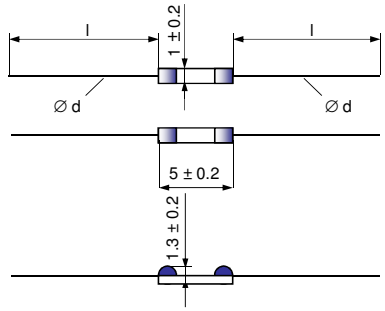
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

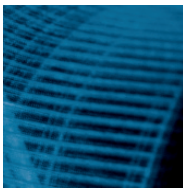
Operating conditions: Unprotected application only in dry environments without any contamination

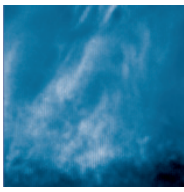
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



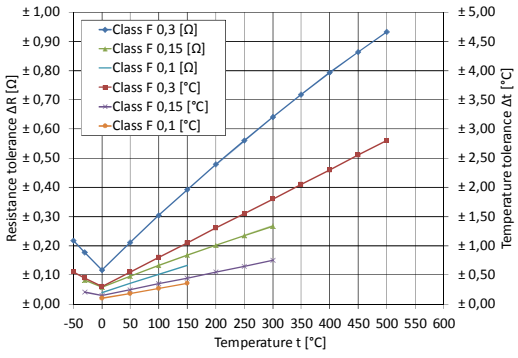
Leads	AgPd5	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt100 (Please note - the 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]

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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]
FMC 2104	**F 0,15**	**0.25x15 AgPd5**	**- 50/+400**
FMC 2104	**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

Ex

铂基传感 BOJISENSING

Made in Germany

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

UST UMWELT SENSOR TECHNIK

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 0,1 (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)
AuPd5, 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

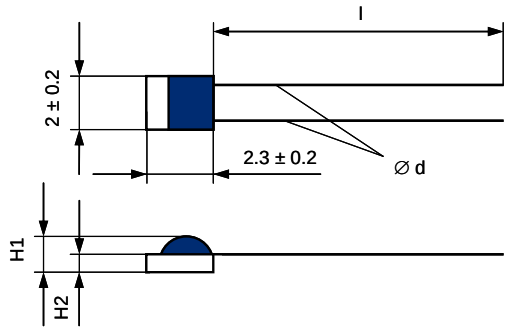
Resistance values [Ω] at Temperature t

t	Tolerance class			
	1/10 Din F0,3 [Ω] *)	F 0,1 [Ω]	F 0,15 [Ω]	F 0,3 [Ω]
0 °C	100 ± 0.012 *)	100 ± 0.04	100 ± 0.06	100 ± 0.12
+100°C	138.51 ± 0.1 *)	138.51 ± 0.10	138.51± 0.13	138.51 ± 0.30

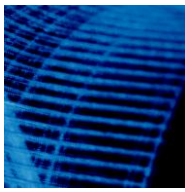
*) These temperature sensor elements are selected only to 1/10 Din F 0,3 at 0°C. The resistance tolerance of these temperature sensor elements at lower or higher temperatures is generally higher (e.g. F 0,1 at 100°C).

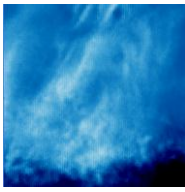
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor
Technology: Advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer)	
Operating conditions: Unprotected application only in dry environments without any contamination	
Conformity: 2011/65/EU: Restriction of the use of Hazardous Substances Directive (RoHS)	

Dimensions [mm]

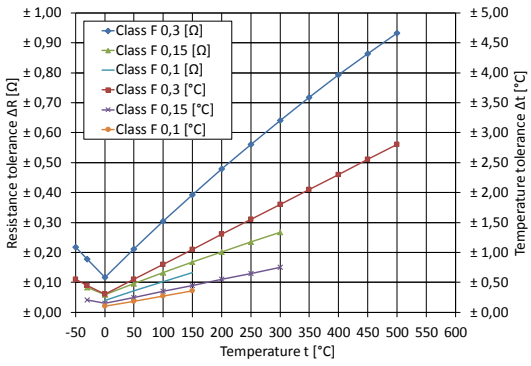


	FMC2105 2x2.3x1.3	FMC2105 2x2.3x1.0	Leads	AgPd5	NiAu	NiPt	AuPd5	Pt
H1 [mm]	1.3 ± 0.2	1± 0.2	l [mm]	15 ± 1	15 ± 1	10 ± 1	10 ± 1	7 ± 1
H2 [mm]	0.65	0.4	d [mm]	0,25	0,2	0,2	0,25	0,2





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 0,1 (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]
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.

UST Umweltsensortechnik GmbH is certified according to

TÜV NORD CERT GmbH ISO/TS 16949

TÜV NORD CERT GmbH ISO 14001

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UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2105 AgPd5 Ø 0,25x65**

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 class according to DIN EN 60751	F 0,3 (-50 °C - +500 °C)
Operating temperature range depending on lead material:	
AgPd5	-50 °C up to +400 °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 F 0,3 [Ω]
0 °C	100 ± 0.12
+100 °C	138.51 ± 0.30

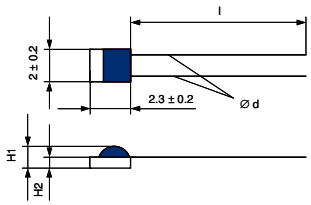
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

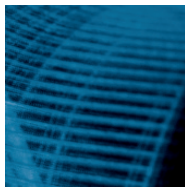
Operating conditions: Unprotected application only in dry environments without any contamination

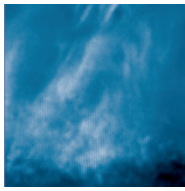
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



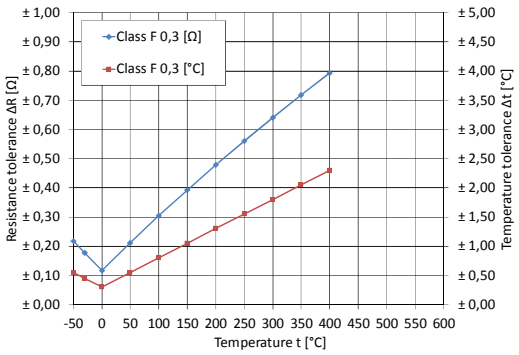
	FMC2105 2x2.3x1.3	Leads	AgPd5
H1 [mm]	1.3 ± 0.2	l [mm]	65 ± 1
H2 [mm]	0.65	d [mm]	0,25





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 class according to DIN EN 60751:

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

(Please note: Operating temperature range depending on lead material AgPd5: -50 °C - +400 °C)

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]
FMC 2105 2x2,3x1.3	**F 0,3**	**0.25x65 AgPd5**	**-50/+400**

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

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www.mic-sensor.com

Platinum Temperature Sensor **FMC 2105 AgPd5 Ø 0,25x65**

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 class according to DIN EN 60751	F 0,3 (-50 °C - +500 °C)
Operating temperature range depending on lead material:	
AgPd5	-50 °C up to +400 °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 F 0,3 [Ω]
0 °C	100 ± 0.12
+100 °C	138.51 ± 0.30

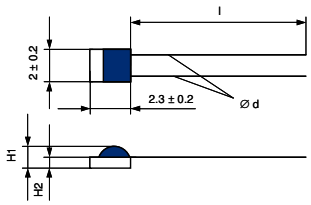
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

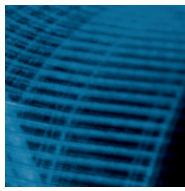
Operating conditions: Unprotected application only in dry environments without any contamination

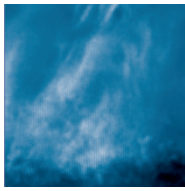
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



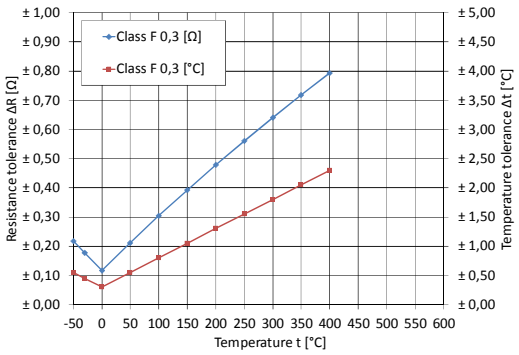
	FMC2105 2x2.3x1.3	Leads	AgPd5
H1 [mm]	1.3 ± 0.2	l [mm]	65 ± 1
H2 [mm]	0.65	d [mm]	0,25





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 class according to DIN EN 60751:

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

(Please note: Operating temperature range depending on lead material AgPd5: -50 °C - +400 °C)

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]
FMC 2105 2x2,3x1.3	**F 0,3**	**0.25x65 AgPd5**	**-50/+400**

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

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Platinum Temperature Sensor **FMC 2105**

Technical Data

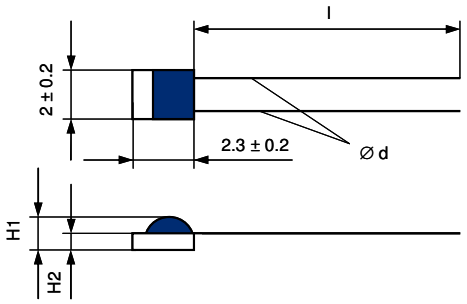
Resistance at 0 °C (R_0)	100 Ω
Temperature coefficient (0 °C up to +100 °C)	3.85 · 10^{-3} K^{-1}
Tolerance classes according to DIN EN 60751	• F 0,1 (0 °C - +150 °C) • F 0,15 (-30 °C - +300 °C) • F 0,3 (-50 °C - +500 °C)
Operating temperature range depending on lead material:	
AgPd5, Ni, Au-coated Ni-wire	-50 °C up to +400 °C
Pt-coated Ni-wire	-50 °C up to +500 °C (short-time up to +550 °C)
AuPd5, 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

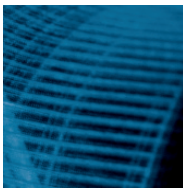
Temperature	Tolerance class		
	F 0,1 [Ω]	F 0,15 [Ω]	F 0,3 [Ω]
0 °C	100 ± 0.04	100 ± 0.06	100 ± 0.12
+100 °C	138.51 ± 0.10	138.51± 0.13	138.51 ± 0.30

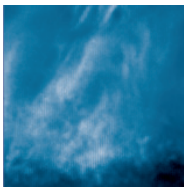
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor
Technology: Advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer)	
Operating conditions: Unprotected application only in dry environments without any contamination	
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)	

Dimensions [mm]



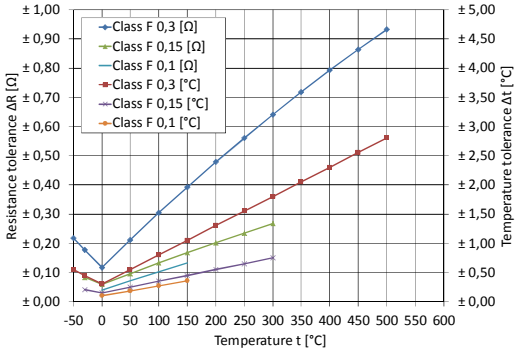
	FMC2105 2x2.3x1.3	FMC2105 2x2.3x1.0	Leads	AgPd5	Ni	NiAu	NiPt	AuPd5
H1 [mm]	1.3 ± 0.2	1± 0.2	l [mm]	15 ± 1	10 ± 1	10 ± 1	10 ± 1	10 ± 1
H2 [mm]	0.65	0.4	d [mm]	0,25	0,2	0,2	0,2	0,25





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:

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

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

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:

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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]
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.

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UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2105**

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 0,1 (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, Ni, 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)
AuPd5, 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
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Resistance value [Ω] at

Temperature	Tolerance class		
	F 0,1 [Ω]	F 0,15 [Ω]	F 0,3 [Ω]
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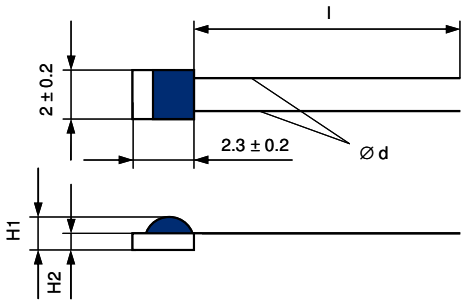
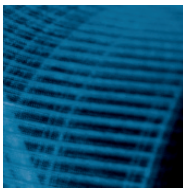
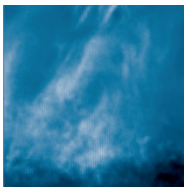
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor
Technology: Advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer)	
Operating conditions: Unprotected application only in dry environments without any contamination	
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)	

Dimensions [mm]



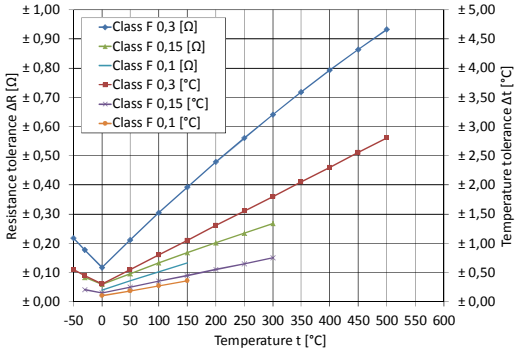
	FMC2105 2x2.3x1.3	FMC2105 2x2.3x1.0	Leads	AgPd5	Ni	NiAu	NiPt	AuPd5
H1 [mm]	1.3 ± 0.2	1± 0.2	l [mm]	15 ± 1	10 ± 1	10 ± 1	10 ± 1	10 ± 1
H2 [mm]	0.65	0.4	d [mm]	0,25	0,2	0,2	0,2	0,25





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 0,1 (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]
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.

UST Umweltsensortechnik GmbH is certified according to

TÜV NORD ISO/TS 16949

TÜV NORD ISO 14001

铂基传感 BOJI SENSING

Made in Germany

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

UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2107**

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 0,1 (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	1.0 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, $T_{0.9}$ = 0.3s
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	100 ± 0.04	100 ± 0.06	100 ± 0.12
+100 °C	138.51± 0.1	138.51± 0.13	138.51± 0.3

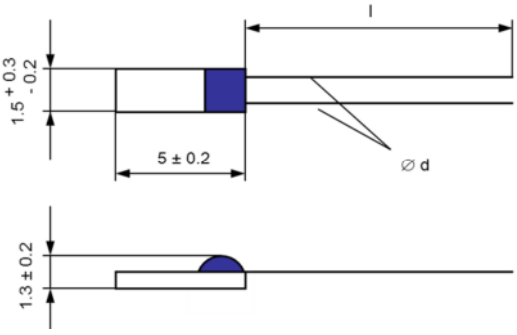
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

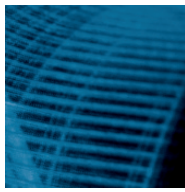
Operating conditions: Unprotected application only in dry environments without any contamination

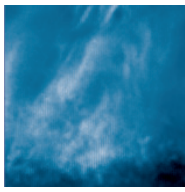
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



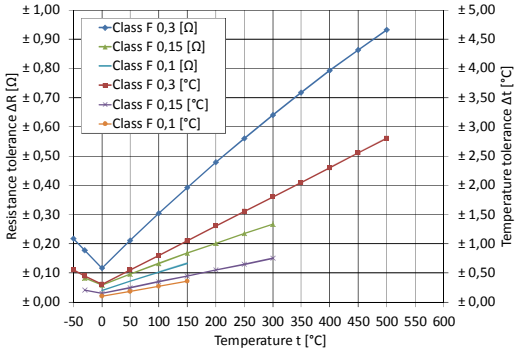
Leads	AgPd5	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt100 (Please note - the 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]
FMC 2107	**F 0,15**	**0.25x15 AgPd5**	**-50/+400**
FMC 2107	**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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UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2107**

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 0,1 (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	1.0 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, $T_{0.9}$ = 0.3s
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	100 ± 0.04	100 ± 0.06	100 ± 0.12
+100 °C	138.51± 0.1	138.51± 0.13	138.51± 0.3

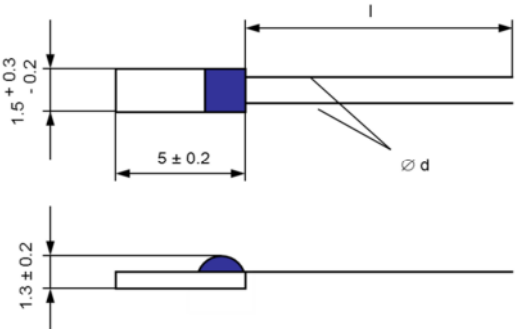
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

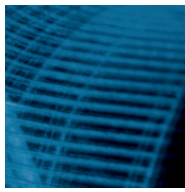
Operating conditions: Unprotected application only in dry environments without any contamination

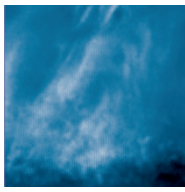
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



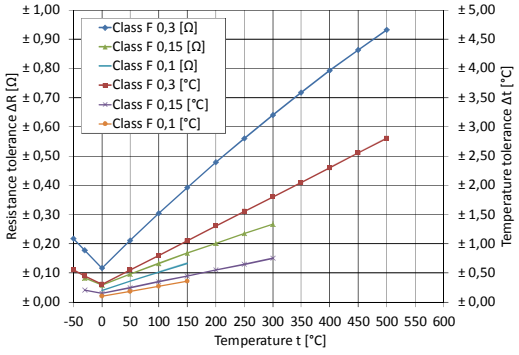
Leads	AgPd5	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt100 (Please note - the 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]
FMC 2107	**F 0,15**	**0.25x15 AgPd5**	**-50/+400**
FMC 2107	**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

铂基传感 BOJI SENSING

Made in Germany

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

UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2108**

Technical Data

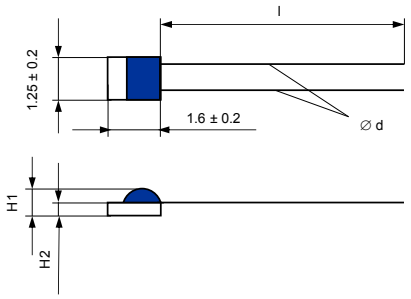
Resistance at 0°C (R_0)	100 Ω
Temperature coefficient (0°C up to +100°C)	3.85 · 10^{-3} K^{-1}
Tolerance classes according to DIN EN 60751	• F 0,1 (0°C - +150°C) • F 0,15 (-30°C - +300°C) • F 0,3 (-50°C - +500°C)
Operating temperature range depending on lead material:	
AgPd5, Au-coated Ni-wire	-50 °C 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	1.0 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)	$T_{0.5}$ = 0.05 s, $T_{0.9}$ = 0.2 s
Flowing air (v = 1 m/s)	$T_{0.5}$ = 3 s, $T_{0.9}$ = 10 s

Resistance value [Ω] at

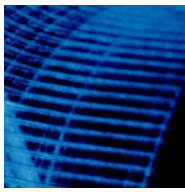
Temperature	Tolerance class		
	F 0,1 [Ω]	F 0,15 [Ω]	F 0,3 [Ω]
0 °C	100 ± 0.04	100 ± 0.06	100 ± 0.12
+100 °C	138.51 ± 0.10	138.51± 0.13	138.51 ± 0.30

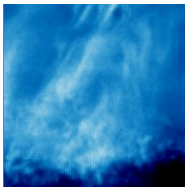
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor
Technology: Advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer)	
Operating conditions: Unprotected application only in dry environments without any contamination	
Conformity: 2011/65/EU: Restriction of the use of Hazardous Substances Directive (RoHS)	

Dimensions [mm]



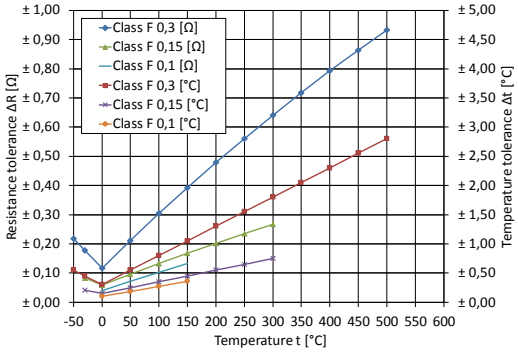
	FMC2108 1,25x1,6x1.3	FMC2108 1,25x1.6x1.0	Leads	AgPd5	NiAu	NiPt	Pt
H1 [mm]	1.3 ± 0.2	1± 0.2	a [mm]	15 ± 1	15 ± 1	10 ± 1	7 ± 1
H2 [mm]	0.65	0.4	d [mm]	0,15	0,2	0,2	0,2





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 0,1 (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]
FMC2108 1,25x1,6x1.3	**F 0,15**	**0.15x15 AgPd5**	**-50/+400**
FMC2108 1,25x1,6x1.0	**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 TÜV NORD CERT GmbH ISO/TS 16949

TÜV NORD TÜV NORD CERT GmbH ISO 14001

铂基传感 BOJISENSING ™

Made in Germany

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

UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2133**

Technical Data

Resistance at 0 °C	500 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,Ni, 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	1.0 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, $T_{0.9}$ = 0.3s
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	500 ± 0.2	500 ± 0.3	500 ± 0.6
+100 °C	692.53 ± 0.5	692.53 ± 0.7	692.53 ± 1.5

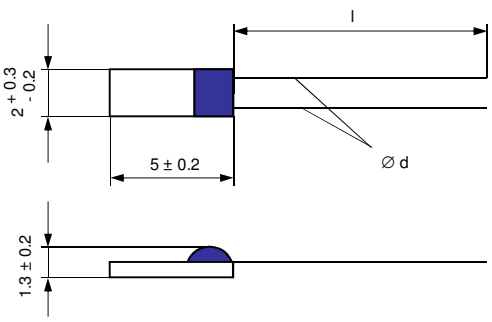
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

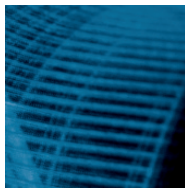
Operating conditions: Unprotected application only in dry environments without any contamination

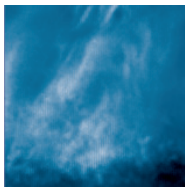
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



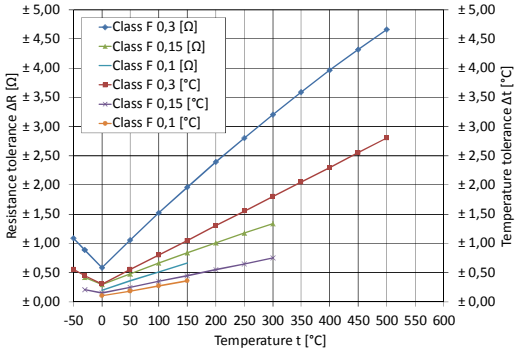
Leads	AgPd5	Ni	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt500 (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]
FMC 2133	**F 0,15**	**0.25x15 AgPd5**	**- 50/+400**
FMC 2133	**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

铂基传感 BOJISENSING

Made in Germany

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

UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2135**

Technical Data

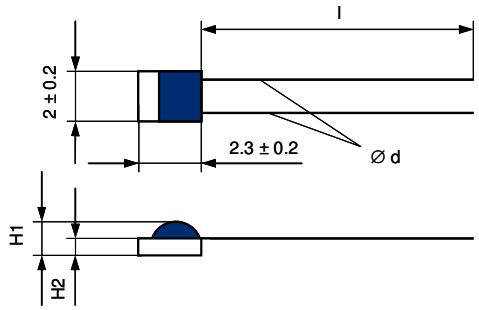
Resistance at 0 °C (R_0)	500 Ω
Temperature coefficient (0 °C up to +100 °C)	3.85 · 10^{-3} K^{-1}
Tolerance classes according to DIN EN 60751	• F 0,1 (0 °C - +150 °C) • F 0,15 (-30 °C - +300 °C) • F 0,3 (-50 °C - +500 °C)
Operating temperature range depending on lead material:	
AgPd5,Ni,Au-coated Ni-wire	-50 °C up to +400 °C
Pt-coated Ni-wire	-50 °C up to +500 °C (short-time up to +550 °C)
AuPd5, Pt	-50 °C up to +600 °C
Measurement current (DC) at 25 °C	0.1 mA
Maximal permissible peak current (DC) at 25 °C	1.0 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

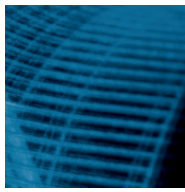
Temperature	Tolerance class		
	F 0,1 [Ω]	F 0,15 [Ω]	F 0,3 [Ω]
0 °C	500 ± 0.2	500 ± 0.3	500 ± 0.6
+100 °C	692.53 ± 0.5	692.53 ± 0.7	692.53±1.5

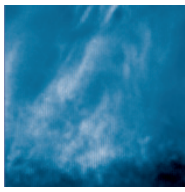
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor
Technology: Advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer)	
Operating conditions: Unprotected application only in dry environments without any contamination	
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)	

Dimensions [mm]



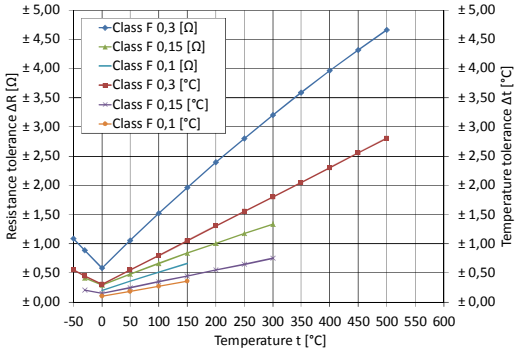
	FMC2135 2x2.3x1.3	FMC2135 2x2.3x1.0	Leads	AgPd5	Ni	NiAu	NiPt	AuPd5	Pt
H1 [mm]	1.3 ± 0.2	1± 0.2	l [mm]	15 ± 1	10 ± 1	10 ± 1	10 ± 1	10 ± 1	7 ± 1
H2 [mm]	0.65	0.4	d [mm]	0,25	0,2	0,2	0,2	0,25	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt500 (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]
FMC 2135 2x2,3x1.3	**F 0,15**	**0.25x15 AgPd5**	**-50/+400**
FMC 2135 2x2,3x1.3	**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

Made in Germany

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micsensor@yeah.net
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Platinum Temperature Sensor **FMC 2141**

Technical Data

Resistance at 0 °C	1000 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)	$T_{0.5}$ = 0.07s, $T_{0.9}$ = 0.3s
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	1000 ± 0.4	1000 ± 0.6	1000 ± 1.2
+100 °C	1385.1 ± 1	1385.1±1.3	1385.1 ± 3

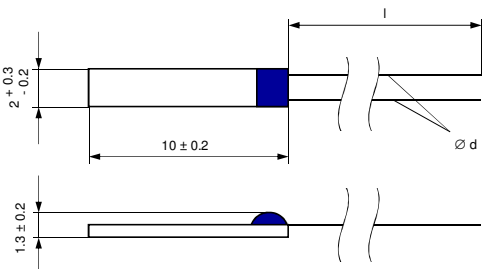
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

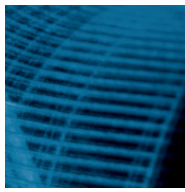
Operating conditions: Unprotected application only in dry environments without any contamination

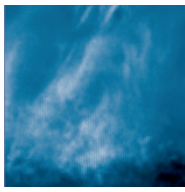
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



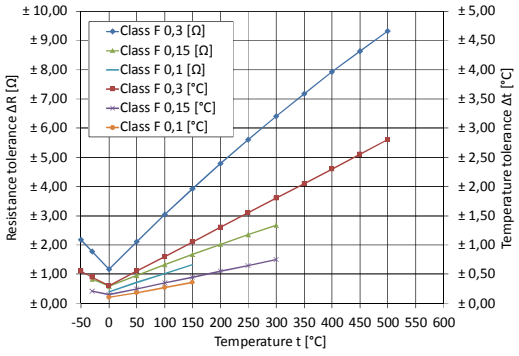
Leads	AgPd5	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt1000 (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]
FMC 2141	**F 0,15**	**0.25x15 AgPd5**	**- 50/+400**
FMC 2141	**F 0,3**	**0.2x10 NiPt**	**- 50/+500**

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

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UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2142**

Technical Data

Resistance at 0 °C	1000 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	1000 ± 0.4	1000 ± 0.6	1000 ± 1.2
+100 °C	1385.1 ± 1	1385.1±1.3	1385.1 ± 3

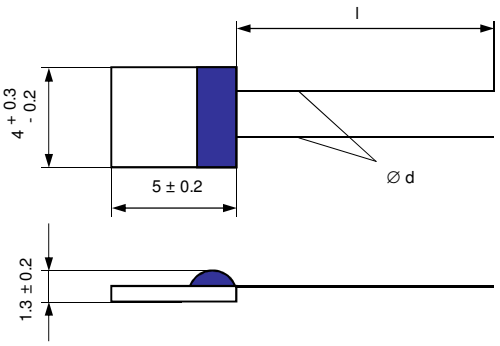
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

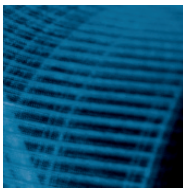
Operating conditions: Unprotected application only in dry environments without any contamination

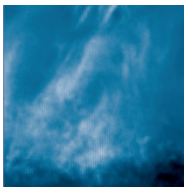
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



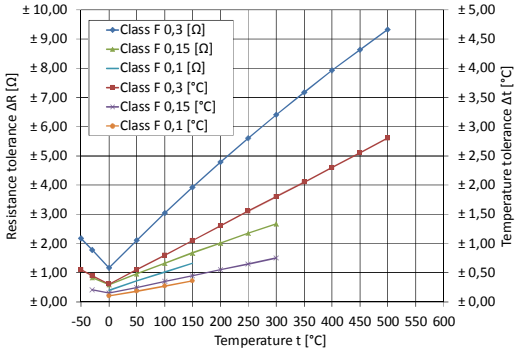
Leads	AgPd5	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt1000 (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]
FMC 2142	**F 0,15**	**0.25x15 AgPd5**	**- 50/+400**
FMC 2142	**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

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Mobile: 13701245182
micsensor@yeah.net
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UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2143**

Technical Data

Resistance at 0 °C	1000 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)	$T_{0.5}$ = 0.07s, $T_{0.9}$ = 0.3s
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	1000 ± 0.4	1000 ± 0.6	1000 ± 1.2
+100 °C	1385.1 ± 1	1385.1±1.3	1385.1 ± 3

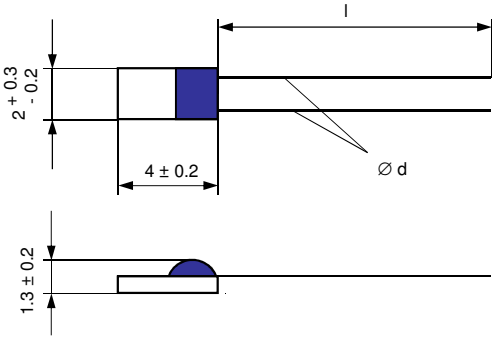
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

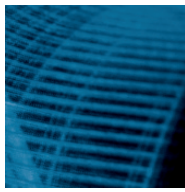
Operating conditions: Unprotected application only in dry environments without any contamination

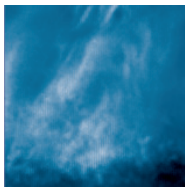
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



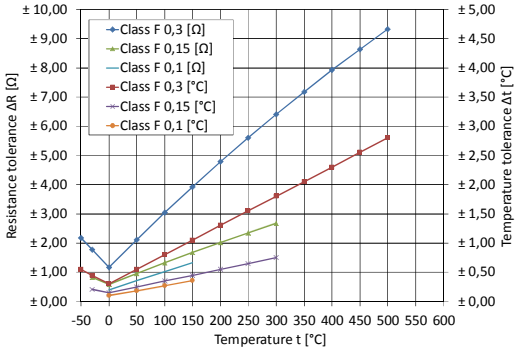
Leads	AgPd5	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt1000 (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]
FMC 2143	**F 0,15**	**0.25x15 AgPd5**	**- 50/+400**
FMC 2143	**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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Mobile: 13701245182
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www.mic-sensor.com

UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2145 cryo**

Technical Data

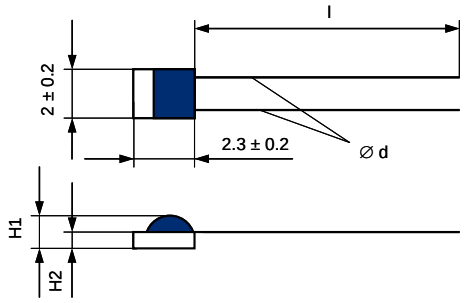
Resistance at 0°C (R_0)	1000 Ω
Temperature coefficient (0°C up to +100°C)	3.85 · 10^{-3} K^{-1}
Tolerance classes	• F 0,3 (-200°C - +150°C) • F 0,6 (-200°C - +150°C)
Operating temperature range depending on lead material:	
AgPd5, NiAu,	-200 °C up to +150 °C
Pt-coated Ni-wire	-200 °C up to +150 °C
Pt	-200 °C up to +150 °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)	$T_{0.5}$ = 0.07s, $T_{0.9}$ = 0.2s
Flowing air (v = 1 m/s)	$T_{0.5}$ = 4 s, $T_{0.9}$ = 10 s

Resistance value [Ω] at

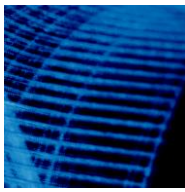
Temperature	Tolerance class	
	F 0,3 [Ω]	F 0,6 [Ω]
0 °C	1000 ± 1.2	1000 ± 2.4
+100 °C	1385.1 ± 3.0	1385.1 ± 6.61

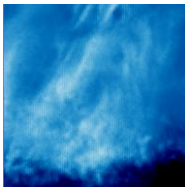
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Type	Film sensor
Technology: Advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivation layer)	
Operating conditions: Unprotected application only in dry environments without any contamination	
Conformity: Conformity: 2011/65/EU: Restriction of the use of Hazardous Substances Directive (RoHS)	

Dimensions [mm]

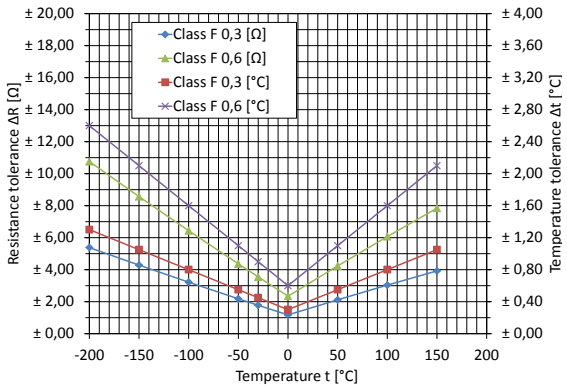


	FMC 2145 1,25x1,6x1.3	FMC 2145 1,25x1,6x1.3	Leads	AgPd5	Ni	NiAu	NiPt	Pt
H1 [mm]	1.3 ± 0.2	1± 0.2	l [mm]	15 ± 1	15 ± 1	10 ± 1	10 ± 1	7 ± 1
H2 [mm]	0.65	0.4	d [mm]	0,15	0,2	0,2	0,2	0,2





Functional performance



Picture 1: Resistance and temperature tolerances of Pt1000 cryo

Temperature range from -200 °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 +150°C:

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

Tolerance classes:

Class F 0,3 (-200°C - +150°C): $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Class F 0,6 (-200°C - +150°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 examples

Construction	Class of accuracy	Leads (ø d x l [mm] lead material)	Operating temperature range [°C]
FMC2145 2x2,3x1.3 cryo	**F 0,3**	**0.25x15 AgPd5**	**-200/+150**
FMC2145 2x2,3x1.0 cryo	**F 0,6**	**0.2x10 NiPt**	**-200/+150**

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

Made in Germany

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

Platinum Temperature Sensor **FMC 2146**

Technical Data

Resistance at 0 °C	1000 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)	$T_{0.5}$ = 0.07s, $T_{0.9}$ = 0.3s
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	1000 ± 0.4	1000 ± 0.6	1000 ± 1.2
+100 °C	1385.1 ± 1	1385.1±1.3	1385.1 ± 3

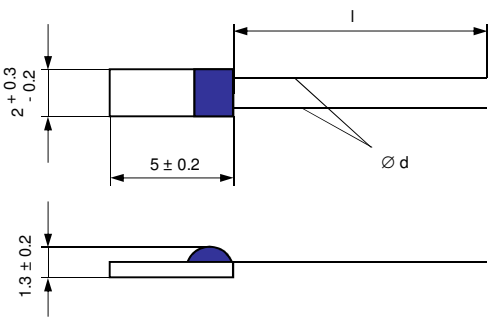
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor

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

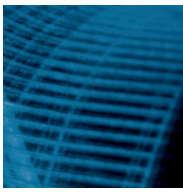
Operating conditions: Unprotected application only in dry environments without any contamination

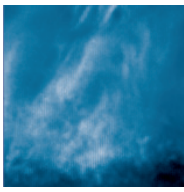
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)

Dimensions [mm]



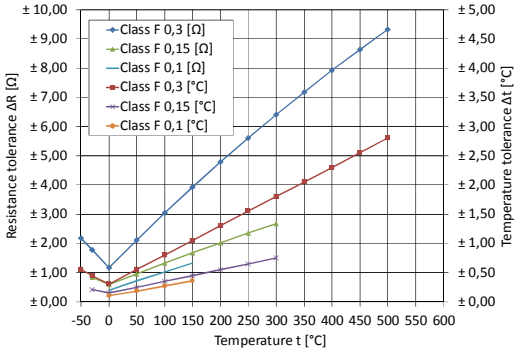
Leads	AgPd5	NiAu	NiPt	Pt
l [mm]	15 ± 1	10 ± 1	10 ± 1	7 ± 1
d [mm]	0,25	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt1000 (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]
FMC 2146	**F 0,15**	**0.25x15 AgPd5**	**- 50/+400**
FMC 2146	**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

Ex

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Dieselstr. 2, 98716 Geschwenda, Germany
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micsensor@yeah.net
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UST UMWELT SENSOR TECHNIK

Platinum Temperature Sensor **FMC 2148**

Technical Data

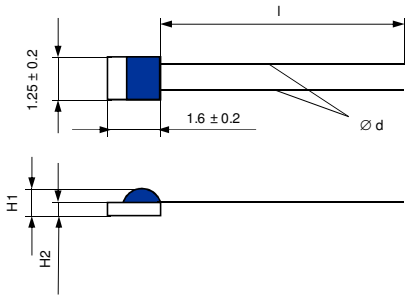
Resistance at 0 °C (R_0)	1000 Ω
Temperature coefficient (0 °C up to +100 °C)	3.85 · 10^{-3} K^{-1}
Tolerance classes according to DIN EN 60751	• F 0,1 (0 °C - +150 °C) • F 0,15 (-30 °C - +300 °C) • F 0,3 (-50 °C - +500 °C)
Operating temperature range depending on lead material:	
AgPd5, Au-coated Ni-wire	-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)	$T_{0.5}$ = 0.05 s, $T_{0.9}$ = 0.2 s
Flowing air (v = 1 m/s)	$T_{0.5}$ = 3 s, $T_{0.9}$ = 10 s

Resistance value [Ω] at

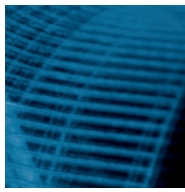
Temperature	Tolerance class		
	F 0,1 [Ω]	F 0,15 [Ω]	F 0,3 [Ω]
0 °C	1000 ± 0.4	1000 ± 0.6	1000 ± 1.2
+100 °C	1385.1 ± 1	1385.1±1.3	1385.1 ± 3

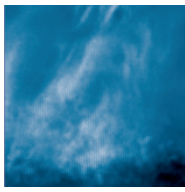
R_t measuring point	2 mm from wire end
Maximal Resistance Change at UCT 250 h	< 0.1 %
Specification	DIN EN 60751
Type	Film sensor
Technology: Advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer)	
Operating conditions: Unprotected application only in dry environments without any contamination	
Conformity: 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)	

Dimensions [mm]



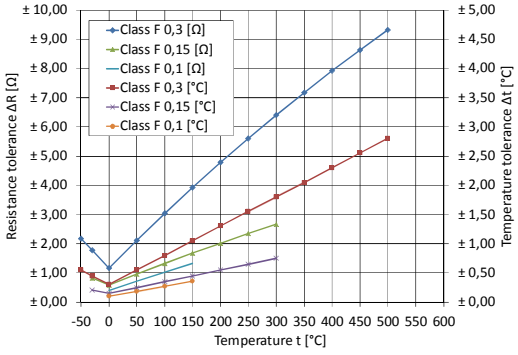
	FMC2148 1,25x1,6x1.3	FMC2148 1,25x1.6x1.0	Leads	AgPd5	NiAu	NiPt	Pt
H1 [mm]	1.3 ± 0.2	1± 0.2	a [mm]	15 ± 1	15 ± 1	10 ± 1	7 ± 1
H2 [mm]	0.65	0.4	d [mm]	0,15	0,2	0,2	0,2





Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of Pt1000 (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

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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]
FMC2148 1,25x1,6x1.3	**F 0,15**	**0.15x15 AgPd5**	**-50/+400**
FMC2148 1,25x1,6x1.0	**F 0,3**	**0.2x10 NiPt**	**-50/+500**

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

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