



General Information

In many industrial sectors and fields of research, temperature measurement is one of the most important parameters to determine product quality, security, and reliability. Temperature sensors are available in several types, all of which have a unique performance characteristic. The performance capability of the various sensors are a result of the manufacturing process and component materials associated with their technologies and intended application. IST sensors exceed the industry standard of temperature measurement and have the capability to directly replace older traditional methods and provide the maximum performance. To this end, IST has concentrated its development and manufacturing on the process and materials of high-end thin-film temperature sensors. Additionally, these processes, partially derived from the semiconductor industry, allow IST to manufacture sensors in very small dimensions. Because of their low thermic mass, thin-film temperature sensors exhibit a very short response time. IST core technology and processes result in thin-film sensors that combine the positive attributes of traditional wire-wound platinum sensors - accuracy, long-term stability, repeatability, interchangeability, and wide temperature range, with the advantages of mass-production, which ultimately creates an optimal price/performance ratio.

Sensor Construction

The temperature sensor consists of a photo-lithographically structured, high-purity platinum coating arranged in the shape of a meander. The platinum thin-film structures are laser-trimmed to form resistive paths with a precisely defined basic value of resistivity. The sensors are covered with a glass passivation layer to protect the sensor against mechanical and chemical damage. The bonded leadwires, which are additionally covered with a drop of glass, make electrical contacts to the resistive structure.

Typical Features

- brief response time
- excellent long-term stability
- low self-heating rate
- excellent price/performance ratio
- small dimensions
- resistant against vibration and temperature shocks
- simple interchangeability

Response Time

The response time $T_{0.63}$ is the time in seconds the sensors need to respond to 63% of the change in temperature. The response time depends on the sensor dimensions, the thermal contact resistance, and the enclosure medium.

Long-Term Stability

The change of ohmage after 1,000 hrs at maximum operating temperature until the 7W types (750°C) amounts to less than 0.03%.

Self Heating

To measure the resistance, an electric current has to flow through the element, which will generate heat energy resulting in errors of measurement. To minimize the error, the testing current should be kept low (approximately 1 mA for pt-100). Temperature error $\Delta T = RI^2 / E$; with E = self-heating coefficient in mW/K R = resistance in k Ω , I = measuring current in mA

Applied Current

The amount of thermal transfer from the sensor in application determines how much measuring current can be applied. There is no bottom limit of the applied current with platinum thin-film. The current depends highly on the application in use. For sensors from 750°C - 1000°C (7W, 8W, 10W), the current must reach no higher than 1 mA.

We recommend at:

100 Ω : 1 mA 500 Ω : 0.5 mA 1000 Ω : 0.3 mA 2000 Ω : 0.2 mA 10000 Ω : 0.1 mA

The point of measurement is 5 mm behind of the end of the wire. At wire lengths longer than 10 mm, the wire resistor is compensated (measured at room temperature).



Nominal values

The nominal or rated value of the sensor is the target value of the sensor resistance at 0° C. The temperature coefficient α is defined

as $\alpha = \frac{R_{100} - R_0}{100 \cdot R_0}$ [K⁻¹] and has the numerical value of 0.00385 K⁻¹ according to DIN IEC 751.

In practice, a value multiplied by 10⁶ is often entered: $TCR = 10^6 \cdot \frac{R_{100} - R_0}{100 \cdot R_0}$ [ppm/K].
In this case, the numerical value is 3850 ppm/K.

Temperature Characteristic Curve

The characteristic temperature curve determines the dependence of the electrical resistivity on the temperature. The following definition of the temperature curve according to the DIN EN 60751 standard applies:

-200 to 0°C $R(t) = R_0 (1 + A \cdot t + B \cdot t^2 + C \cdot [t-100] \cdot t^3)$

0 to 850°C $R(t) = R_0 (1 + A \cdot t + B \cdot t^2)$

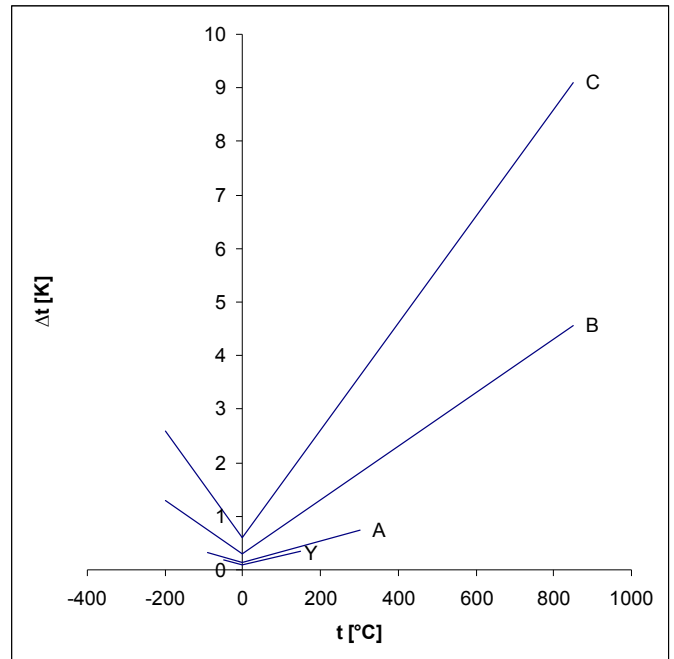
Platinum (3850 ppm/K):
A = 3.9083 * 10⁻³ [°C⁻¹]; B = -5.775 * 10⁻⁷ [°C⁻²];
C = -4.183 * 10⁻¹² [°C⁻⁴]

Platinum (3750 ppm/K):
A = 3.8102 * 10⁻³ [°C⁻¹]; B = -6.01888 * 10⁻⁷ [°C⁻²];
C = -6 * 10⁻¹² [°C⁻⁴]

Platinum (3770 ppm/K):
A = 3.8285 * 10⁻³ [°C⁻¹]; B = -5.85 * 10⁻⁷ [°C⁻²];

Platinum (3911 ppm/K):
A = 3.9692 * 10⁻³ [°C⁻¹]; B = -5.829 * 10⁻⁷ [°C⁻²];
C = -4.3303 * 10⁻¹² [°C⁻⁴]

R₀ = Resistance value in ohm at 0°C;
t = temperature in accordance with ITS 90



Tolerance field

Tolerance Classes DIN EN 60751 Norm

Temperature sensors are divided into classes according to their limit deviations (DIN EN 60751, 2009-05):

Class	+/- limit deviations in °C (K)	IST AG designation	area of validity of temperature class
DIN EN 60751, F 0.1 (former class 1/3 DIN B)	0.10 + 0.0017 x t	Y	-50°C to 150°C
DIN EN 60751, F 0.15 (former class A)	0.15 + 0.002 x t	A	-90°C to 300°C
DIN EN 60751, F 0.3 (former class B)	0.30 + 0.005 x t	B	-200°C to 850°C
2 DIN EN 60751, F 0.6 (former class C)	0.60 + 0.01 x t	C	-200°C to 850°C
1/5 DIN EN 60751 F 0.3	0.06 + 0.001 x t	K	on request
1/10 DIN EN 60751 F 0.3	0.03 + 0.0005 x t	K	on request

| t | is the numerical value of the temperature in °C without taking into account either negative or positive signs.
Special selection of sensors upon request (e.g. pairings, grouping, special tolerances)



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Tolerance Classes DIN EN 60751 and GOST 8.625-2006 norm (only PW and PG product series)

Class	+/- limit deviations in °C (K)	IST AG designation	area of validity of temperature class
DIN/GOST, F 0.1 (former class 1/3 DIN B)	$0.10 + 0.0017 \times t $	Y	-200°C to 500°C
DIN/GOST, F 0.15 (former class A)	$0.15 + 0.002 \times t $	A	-200°C to 600°C
DIN/GOST, F 0.3 (former class B)	$0.30 + 0.005 \times t $	B	-200°C to 600°C
DIN/GOST, F 0.6 (former class C)	$0.60 + 0.01 \times t $	C	-200°C to 600°C

Response Times and Self-Heating

Dimension Number	Sensor Size L x W x T / H in mm	Response Time in seconds						Self-Heating			
		Water 0.4 m/s			Air 1m/s			Water v = 0 m/s		Air v = 0 m/s	
		T _{0.5}	T _{0.63}	T _{0.9}	T _{0.5}	T _{0.63}	T _{0.9}	mW/K	ΔT[mK]*	mW/K	ΔT[mK]*
161	1.6 x 1.2 x 0.25/0.8	0.05	0.08	0.18	1	1.2	2.5	12	8.3	1.8	56
308	3.0 x 0.8 x 0.25/0.6	0.08	0.10	0.25	1.2	1.5	3.5	15	6.7	2.2	46
232	2.3 x 2.0 x 0.25/1.3	0.09	0.12	0.33	2.7	3.6	7.5	40	2.5	4	25
202	2.0 x 2.0 x 0.65/1.3	0.11	0.16	0.38	3.6	4.9	10.2	32	3.1	3.2	31
216	2.5 x 1.6 x 0.65/1.3	0.12	0.18	0.42	4	5.4	11	36	2.8	3.6	28
232	2.3 x 2.0 x 0.65/1.3	0.15	0.2	0.55	4.5	6	12	40	2.5	4	25
325	3.0 x 2.5 x 0.65/1.3	0.25	0.3	0.7	5.5	7.5	16	90	1.1	8	13
516	5.0 x 1.6 x 0.65/1.3	0.25	0.3	0.7	5.5	7.5	16	80	1.3	7	14
520	5.0 x 2.0 x 0.65/1.3	0.25	0.3	0.75	6	8.5	18	80	1.3	7	14
525	5.0 x 2.5 x 0.65/1.3	0.33	0.4	0.85	6.5	9	19	90	1.1	8	13
538	5.0 x 3.8 x 0.65/1.3	0.35	0.4	0.9	7.5	10	20	140	0.7	10	10
505	5.0 x 5.0 x 0.65/1.3	0.4	0.5	1.1	8	11	21	150	0.7	11	9
102	10.0 x 2.0 x 0.65/1.3	0.33	0.4	0.85	7.5	10.5	20	140	0.7	10	10
281	1 x 13 x Ø 2.8	2.5	4.5	8	10	15	28	60	1.7	5.5	18
281	2 x 13 x Ø 2.8	2	2.5	5.5	10	12	22	45	2.2	4	25
451	1 x 13 x Ø 4.5	8	10	22	12	22	40	85	1.2	8	13
451	2 x 13 x Ø 4.5	5	6	14	16	18	37	60	1.7	6.5	15
SMD 1206	3.2 x 1.6 x 0.4	0.15	0.25	0.45	3.5	4.2	10	55	1.8	7	14
SMD 0805	2.0 x 1.2 x 0.4	0.10	0.12	0.33	2.5	3	8	38	2.6	4	25
FC 0603	1.5 x 0.75 x 0.4	0.08	0.10	0.25	1.8	2.2	5.5	25	4	2.5	40

*self heating ΔT[mK] measured for Pt100 at 1mA applied current at 0°C

L: Chip length (sensor length without connections)
W: Sensor width

T: Chip thickness (sensor thickness without connections)
H: Sensor height (incl. connections and strain relief)

Notification: The values in the table are of informative nature only. Due to different measurement conditions you might assess deviant self heating and response time values of your application.

Tolerances of dimensions

Sensor width (W) ± 0.2 mm	Wire length ± 1.0 mm (5-100 mm)
Sensor length (L) ± 0.2 mm	Wire length longer than 100 mm, tolerances on request
Sensor height (H) ± 0.3 mm	Tube length (sensor elements in round housing) ± 0.2 mm
Sensor thickness (T) ± 0.1 mm	Tube diameter (sensor elements in round housing) ± 0.1 mm
Ni/Au flat wire (H) ± 0.02 mm	Ni/Au flat wire (B) ± 0.05 mm



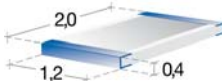
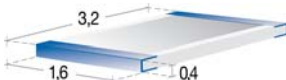
SMD – Product Series

Temperature Range: $-50^{\circ}\text{C} \dots +150/250^{\circ}\text{C}$

Platinum temperature sensor elements in SMD construction Soldering junction (reflow solderable), RoHs compliant

Technical Data

Temperature range:	-50°C to $+150^{\circ}\text{C}$ (2P), -50°C to $+250^{\circ}\text{C}$ (3P, 4P)
Classes:	DIN EN 60751 F 0.15 (Class A) DIN EN 60751 F 0.3 (Class B) 2x DIN EN 60751 F 0.3 (Class C)
Contact connection:	Contacts around the sides: 2P = Contacts tin-coated (96.5Sn/3Ag/0.5Cu), LMP lead free, reflow soldering 3P = Contacts tin-coated (5Sn/93.5Pb/1.5Ag), HMP, reflow soldering 4P = Gold Contacts, solderable layer The precision class is dependent on the soldering process
Solderability:	$235^{\circ}\text{C} \leq 8\text{s}$ (DIN IEC 68 T2-20, Ta Meth. 1)
Resistance to soldering heat:	260°C 10s (DIN IEC 68 T2-20, Ta Meth. 1A)
Long-term stability:	max. Drift = 0.04% after 1000h at 130°C

Dimension in mm	Nominal Resistance at 0°C in Ohm	Chip-Dimension in mm	Description
	100	LxW 2.0 x 1.2	P0K1.0805.xP.x
	500	LxW 2.0 x 1.2	P0K5.0805.xP.x
	1000	LxW 2.0 x 1.2	P1K0.0805.xP.x
	100	LxW 3.2 x 1.6	P0K1.1206.xP.x
	500	LxW 3.2 x 1.6	P0K5.1206.xP.x
	1000	LxW 3.2 x 1.6	P1K0.1206.xP.x



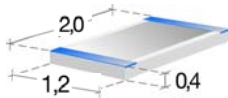
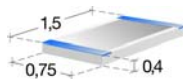
FC – Product Series

Temperature Range: **-50° C...+150/250/400/600°C**

Platinum temperature sensor elements in FC (Flip Chip) construction Soldering junction (reflow solderable), RoHs compliant

Technical Data

Temperature range:	-50°C to +150°C (1FC), -50°C to +250°C (2FC, 3FC), -50°C to +400°C (4FC+5FC), -50°C to +600°C (6FC)
Classes:	DIN EN 60751 F 0.15 (Class A) DIN EN 60751 F 0.3 (Class B) 2x DIN EN 60751 F 0.3 (Class C)
Contact connection:	Pads: 1FC = Contacts tin-coated, soldering depot, LMP lead-free, 96.5Sn 3 Ag 0.5Cu (reflow soldering) 2FC = Contacts tin-coated, soldering depot, HMP, 5Sn 93.5Pb 1.5Ag (reflow soldering) 3FC = Au-Pads (bonding pads) 4FC = Thin film Pt-pads 5FC = increased thinfilm Pt-pads (solderable pads) 6FC = Thick film Pt-pads (welding) The precision class is dependent on the soldering process
Solderability:	235°C ≤ 8s (DIN IEC 68 T2-20, Ta Meth. 1) → 1FC, 2FC, 5FC
Resistance to soldering heat:	260°C 10s (DIN IEC 68 T2-20, Ta Meth. 1A) → 1FC, 2FC, 5FC
Long-term stability:	Max. Drift = 0.04% after 1000h at 130°C

Dimension in mm*	Nominal Resistance at 0°C in Ohm	Chip-Dimension in mm	Description
	100	LxW 2.0 x 1.2	P0K1.0805.xP.x
	500	LxW 2.0 x 1.2	P0K5.0805.xP.x
	1000	LxW 2.0 x 1.2	P1K0.0805.xP.x
	100	LxW 1.5 x 0.75	P0K1.0603.xFC.x*
	500	LxW 1.5 x 0.75	P0K5.0603.xFC.x*
	1000	LxW 1.5 x 0.75	P1K0.0603.xFC.x*

*Different chip sizes available



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Platinum Temperature Sensors



2S – Product Series

Temperature Range: $-50^{\circ}\text{C} \dots +200^{\circ}\text{C}$

Platinum temperature sensor elements with SIL connectors (solderable, crimpable)
RoHs compliant

- Advantages:**
- Stabilized connector pins
 - Easy handling
 - Connectors maintain shape

Dimension in mm	Nominal Resistance at 0°C in Ohm	Chip-Dimension in mm	Description
	100 1000	LxW 3.0 x 2.5 LxW 3.0 x 2.5	P0K1.325.2S.x P1K0.325.2S.x
	100 1000	LxW 5.0 x 2.5 LxW 5.0 x 2.5	P0K1.525.2S.x P1K0.525.2S.x
	100 1000	LxW 5.0 x 3.8 LxW 5.0 x 3.8	P0K1.538.2S.x P1K0.538.2S.x
	100 1000	LxW 5.0 x 5.0 LxW 5.0 x 5.0	P0K1.505.2S.x P1K0.505.2S.x



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Platinum Temperature Sensors

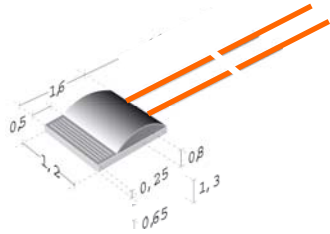
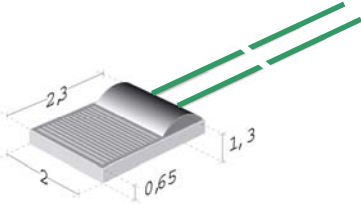
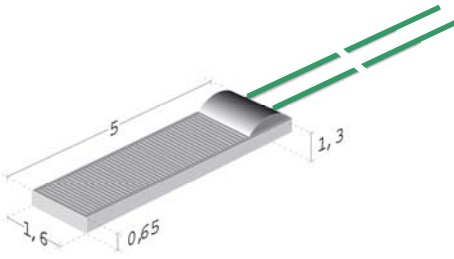
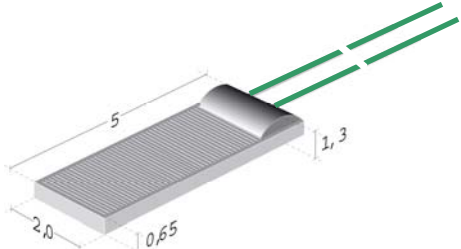


2I – Product Series

Temperature Range: **-50°C...+200°C**

Platinum temperature sensor elements with long insulated connections (solderable, crimpable)
RoHs compliant

Length from 20 mm to over 1000 mm, Cu/Ag-wire, PTFE insulated, AWG 30/1
Other connection length, nominal value, wire diameter and chip sizes on request

Dimension in mm	Nominal Resistance at 0°C in Ohm	Chip-Dimension in mm	Description
	100 1000 (AWG 32)	LxW 1.6 x 1.2 LxW 1.6 x 1.2	P0K1.161.2I.x.x P1K0.161.2I.x.x
	100 500 1000	LxW 2.3 x 2.0 LxW 2.3 x 2.0 LxW 2.3 x 2.0	P0K1.232.2I.x.x P0K5.232.2I.x.x P1K0.232.2I.x.x
	100 500 1000	LxW 5.0 x 1.6 LxW 5.0 x 1.6 LxW 5.0 x 1.6	P0K1.516.2I.x.x P0K5.516.2I.x.x P1K0.516.2I.x.x
	100 1000	LxW 5.0 x 2.0 LxW 5.0 x 2.0	P0K1.520.2I.x.x P1K0.520.2I.x.x



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Platinum Temperature Sensors



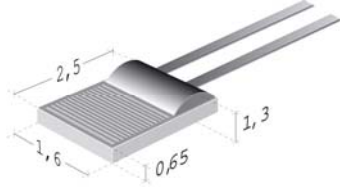
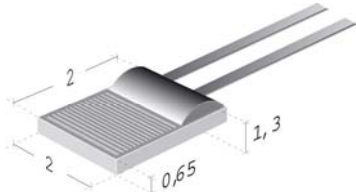
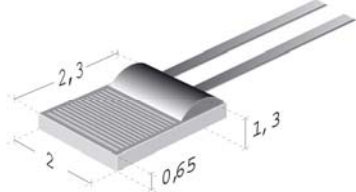
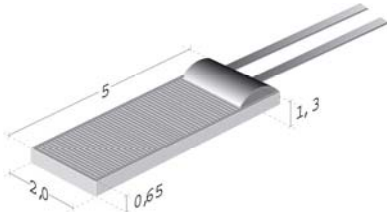
3FW – Product Series

Temperature Range: **-200...+300°C**

Platinum temperature sensor elements with flat wire (FW) connections (solderable, weldable, crimpable), RoHs compliant

Advantage: Best price-performance ratio

Ni/Au wire, 0.2 mm x 0.4 mm x 7/10 mm (Ø x W x L)

Dimension in mm	Nominal Resistance at 0°C in Ohm	Chip-Dimension in mm	Description
	100 1000	LxW 2.5 x 1.6 LxW 2.5 x 1.6	POK1.216.3FW.x.x P1K0.216.3FW.x.x
	100 500 1000	LxW 2.0 x 2.0 LxW 2.0 x 2.0 LxW 2.0 x 2.0	POK1.202.3FW.x.x POK5.202.3FW.x.x P1K0.202.3FW.x.x
	100 500 1000	LxW 2.3 x 2.0 LxW 2.3 x 2.0 LxW 2.3 x 2.0	POK1.232.3FW.x.x POK5.232.3FW.x.x P1K0.232.3FW.x.x
	500 10'000	LxW 5.0 x 2.0 LxW 5.0 x 2.0	POK5.520.3FW.015 P10K.520.3FW.010



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Platinum Temperature Sensors

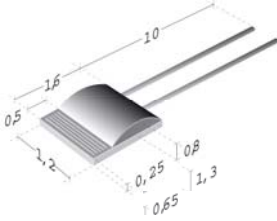
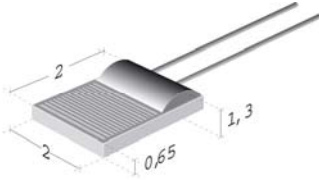
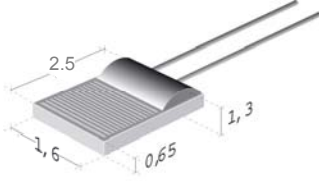
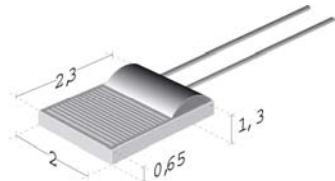
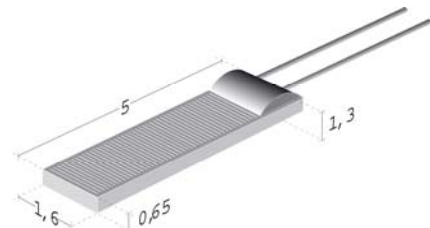


4W – Product Series

Temperature Range: -200°C...+400°C

Platinum temperature sensors elements with wire connections
RoHs compliant

Silver wire connection 0.25 mm x 10 mm (Ø x L), (solderable, weldable)
Other connection length on request

Dimension in mm	Nominal Resistance at 0°C in Ohm	Chip-Dimension in mm	Description
	100 500 1000	LxW 1.6 x 1.2 LxW 1.6 x 1.2 LxW 1.6 x 1.2	P0K1.161.4W.x.010 P0K5.161.4W.x.010 P1K0.161.4W.x.010
	100 500 1000 2000	LxW 2.0 x 2.0 LxW 2.0 x 2.0 LxW 2.0 x 2.0 LxW 2.0 x 2.0	P0K1.202.4W.x.010 P0K5.202.4W.x.010 P1K0.202.4W.x.010 P2K0.202.4W.x.010
	100	LxW 2.5 x 1.6	P0K1.216.4W.x.010
	100 500 1000 2000	LxW 2.3 x 2.0 LxW 2.3 x 2.0 LxW 2.3 x 2.0 LxW 2.3 x 2.0	P0K1.232.4W.x.010 P0K5.232.4W.x.010 P1K0.232.4W.x.010 P2K0.232.4W.x.010
	100 500 1000 2000	LxW 5.0 x 1.6 LxW 5.0 x 1.6 LxW 5.0 x 1.6 LxW 5.0 x 1.6	P0K1.516.4W.x.010 P0K5.516.4W.x.010 P1K0.516.4W.x.010 P2K0.516.4W.x.010



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4W – Product Series

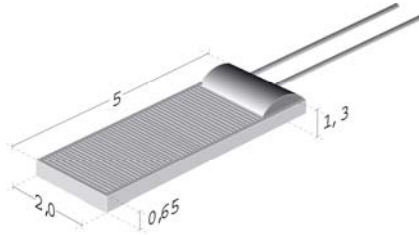
Temperature Range: -200°C...+400°C

Dimension in mm

Nominal Resistance at 0°C in Ohm

Chip-Dimension in mm

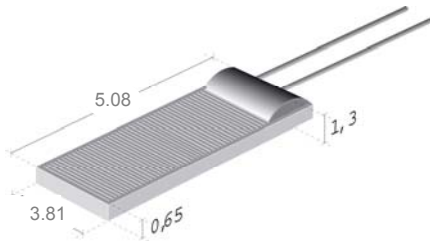
Description



100
500
1000
10'000

LxW 5.0 x 2.0
LxW 5.0 x 2.0
LxW 5.0 x 2.0
LxW 5.0 x 2.0

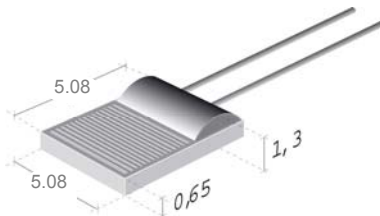
P0K1.520.4W.x.010
P0K5.520.4W.x.010
P1K0.520.4W.x.010
P10K.520.4W.x.010



100
1000

LxW 5.08 x 3.81
LxW 5.08 x 3.81

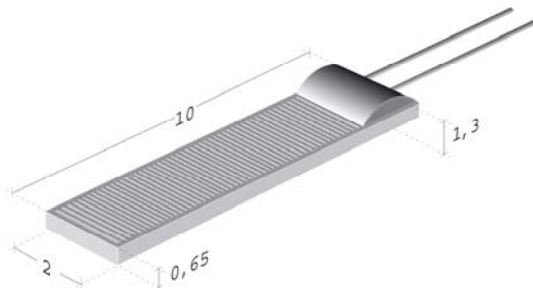
P0K1.538.4W.x.010
P1K0.538.4W.x.010



100
1000

LxW 5.08 x 5.08
LxW 5.08 x 5.08

P0K1.505.4W.x.010
P1K0.505.4W.x.010



100
500
1000

LxW 10.0 x 2.0
LxW 10.0 x 2.0
LxW 10.0 x 2.0

P0K1.102.4W.x.010
P0K5.102.4W.x.010
P1K0.102.4W.x.010



INNOVATIVE SENSOR TECHNOLOGY



6W – Product Series

Temperature Range: -200°C...+600°C

Platinum temperature sensor elements with wire connections
RoHS compliant

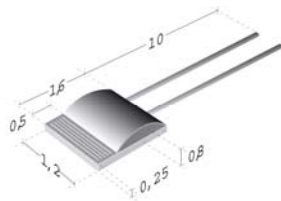
Platinum-coated nickel wire connection, 0.2 mm x 7/10/15 mm (Ø x L), (solderable, weldable, crimpable), other connection length on request

Dimension in mm

Nominal Resistance at 0°C in Ohm

Chip-Dimension in mm

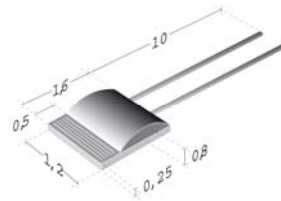
Description



100
500
1000

LxW 1.6 x 1.2
LxW 1.6 x 1.2
LxW 1.6 x 1.2

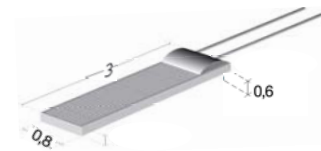
P0K1.161.6W.x.010
P0K5.161.6W.x.010
P1K0.161.6W.x.010



100
1000
(pure platinum wire, 0.2 mm diameter)

LxW 1.6 x 1.2
LxW 1.6 x 1.2

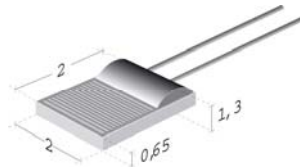
P0K1.161.7W.x.010
P1K0.161.7W.x.010



100
500
1000
(pure platinum wire, 0.15 mm diameter)

LxW 3.0 x 0.8
LxW 3.0 x 0.8
LxW 3.0 x 0.8

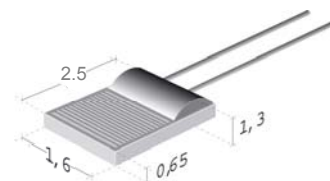
P0K1.308.7W.x.007
P0K5.308.7W.x.007
P1K0.308.7W.x.007



100
500
1000
2000

LxW 2.0 x 2.0
LxW 2.0 x 2.0
LxW 2.0 x 2.0
LxW 2.0 x 2.0

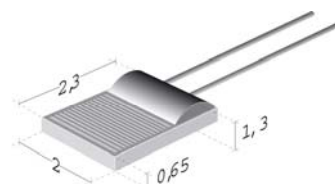
P0K1.202.6W.x.010
P0K5.202.6W.x.010
P1K0.202.6W.x.010
P2K0.202.6W.x.010



100
1000

LxW 2.5 x 1.6
LxW 2.5 x 1.6

P0K1.216.6W.x.010
P1K0.216.6W.x.010



100
500
1000
2000

LxW 2.3 x 2.0
LxW 2.3 x 2.0
LxW 2.3 x 2.0
LxW 2.3 x 2.0

P0K1.232.6W.x.010
P0K5.232.6W.x.010
P1K0.232.6W.x.010
P2K0.232.6W.x.010



INNOVATIVE SENSOR TECHNOLOGY



6W – Product Series

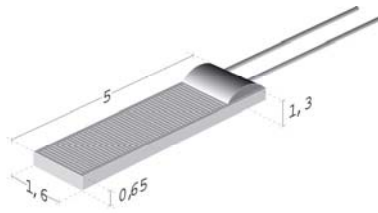
Temperature Range: -200°C...+600°C

Dimension in mm

Nominal Resistance at 0°C in Ohm

Chip-Dimension in mm

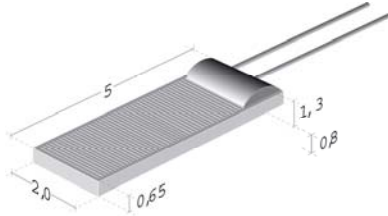
Description



500
1000
2000

LxW 5.0 x 1.6
LxW 5.0 x 1.6
LxW 5.0 x 1.6

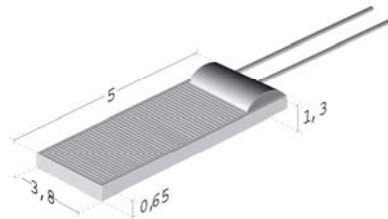
P0K5.516.6W.x.010
P1K0.516.6W.x.010
P2K0.516.6W.x.010



100
500
1000
10'000

LxW 5.0 x 2.0
LxW 5.0 x 2.0
LxW 5.0 x 2.0
LxW 5.0 x 2.0

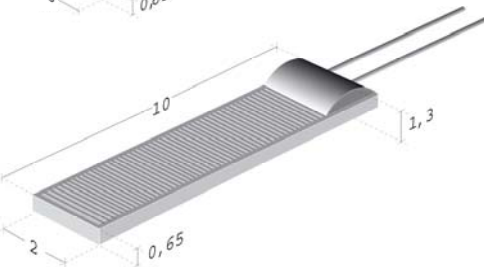
P0K1.520.6W.x.010
P0K5.520.6W.x.010
P1K0.520.6W.x.010
P10K.520.6W.x.010



100
1000

LxW 5.0 x 3.8
LxW 5.0 x 3.8

P0K1.538.6W.x.010
P1K0.538.6W.x.010



100
500
1000

LxW 10.0 x 2.0
LxW 10.0 x 2.0
LxW 10.0 x 2.0

P0K1.102.6W.x.010
P0K5.102.6W.x.010
P1K0.102.6W.x.010



INNOVATIVE SENSOR TECHNOLOGY



7W – Product Series

Temperature Range: -200°C...+750°C

Platinum temperature sensor elements with wire connections
RoHs compliant

Advantage: Highest performance

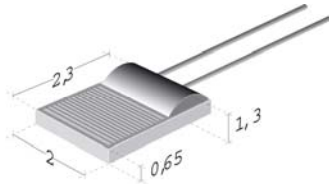
Platinum wire connection 0.2 mm x 7 mm (Ø x L), (solderable, weldable, crimpable)
Other connection length on request

Dimension in mm

Nominal Resistance
at 0°C in Ohm

Chip-Dimension
in mm

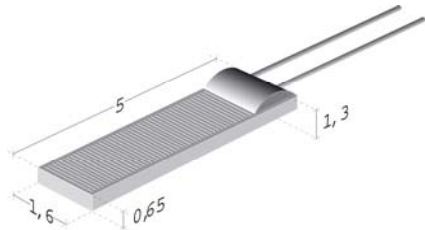
Description



100
1000

LxW 2.3 x 2.0
LxW 2.3 x 2.0

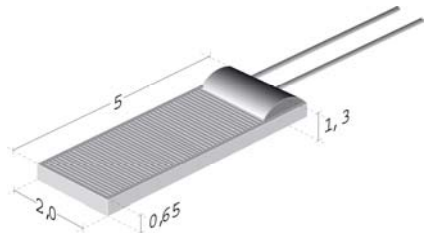
P0K1.232.7W.x.007
P1K0.232.7W.x.007



100
500
1000

LxW 5.0 x 1.6
LxW 5.0 x 1.6
LxW 5.0 x 1.6

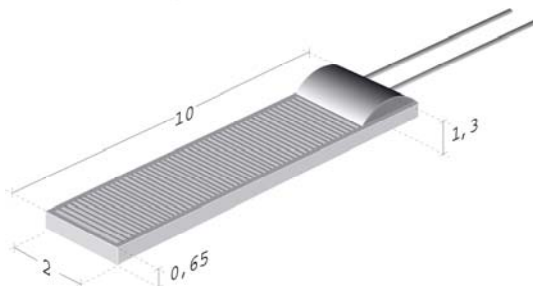
P0K1.516.7W.x.007
P0K5.516.7W.x.007
P1K0.516.7W.x.007



100
500
1000

LxW 5.0 x 2.0
LxW 5.0 x 2.0
LxW 5.0 x 2.0

P0K1.520.7W.x.007
P0K5.520.7W.x.007
P1K0.520.7W.x.007



100
500
1000

LxW 10.0 x 2.0
LxW 10.0 x 2.0
LxW 10.0 x 2.0

P0K1.102.7W.x.007
P0K5.102.7W.x.007
P1K0.102.7W.x.007



Platinum Temperature Sensors

PW – Product Series

Temperature Range: -200°C...+600°C

Platinum temperature sensor elements with wire connections
RoHs compliant

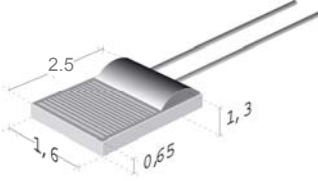
- Advantages:
- Dramatically reduced hysteresis
 - Alternative product to wire-wound sensors
 - Huge temperature and tolerance range

Platinum wire connection 0.2 mm x 7 mm (Ø x L), (solderable, welding, crimp able)
 Temperature coefficient 3850 ppm/K
 Available in round housing

Extended temperature- tolerance range at DIN EN 60751:

- F 0.1 (former class 1/3 DIN B) -200°C to +500°C
- F 0.15 (former class A) -200°C to +600°C
- F 0.3 (former class B) -200°C to +600°C

- 1/5 DIN EN 60751 F 0.3 -100°C to +300°C
- 1/10 DIN EN 60751 F 0.3 -50°C to +125°C

Dimension in mm	Nominal Resistance at 0°C in Ohm	Chip-Dimension in mm	Description
	100	LxW 2.5 x 1.6	PW0K1.216.7W.x.007
	500	LxW 2.5 x 1.6	PW0K5.216.7W.x.007
	1000	LxW 2.5 x 1.6	PW1K0.216.7W.x.007



INNOVATIVE SENSOR TECHNOLOGY



Platinum Temperature Sensors

PW – Product Series

Temperature Range: -200°C...+600°C

Dimension in mm

Nominal Resistance at 0°C in Ohm

Chip-Dimension in mm

Description



100
500
1000

LxB 13.0 x 2.8
LxB 13.0 x 2.8
LxB 13.0 x 2.8

PW0K1.281.7W.x.R
PW0K5.281.7W.x.R
PW1K0.281.7W.x.R



100

LxB 13.0 x 2.8

PW0K1.1613.6W.x.R



INNOVATIVE SENSOR TECHNOLOGY



Platinum Temperature Sensors

6PG – Product Series

Temperature Range: -200°C...+600°C

Platinum temperature sensor elements with wire connections
RoHs compliant

- Advantage:**
- Dramatically reduced hysteresis
 - Alternative product to wire-wound sensors
 - Huge temperature and tolerance range

Platinum wire connection, 0.2 mm x 7 mm (Ø x L), (solderable, weldable, crimpable)
 Temperature coefficient 3911 ppm/K
 Available in round housing

Extended temperature- tolerance range at GOST 8.625-2006:

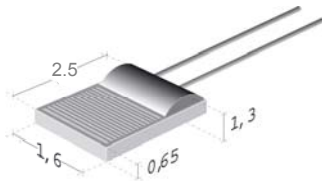
- F 0.1 (former class 1/3 DIN B) -200°C to +500°C
- F 0.15 (former class A) -200°C to +600°C
- F 0.3 (former class B) -200°C to +600°C

Dimension in mm

Nominal Resistance at 0°C in Ohm

Chip-Dimension in mm

Description



50
100

LxW 2.5 x 1.6
LxW 2.5 x 1.6

PG050.216.7W.x.007
PG0K1.216.7W.x.007



50
100

LxB 13.0 x 2.8
LxB 13.0 x 2.8

PG050.281.7W.x.R
PG0K1.281.7W.x.R



INNOVATIVE SENSOR TECHNOLOGY



Platinum Temperature Sensors

4PG – Product Series

Temperature Range: -200°C...+400°C

Platinum temperature sensor elements with wire connections
RoHs compliant

- Advantage:
- Dramatically reduced hysteresis
 - Alternative product to wire-wound sensors
 - Huge temperature and tolerance range

Platinum-coated nickel wire, 0.2 mm x 7 mm (Ø x L), (solderable, weldable, crimpable)
Temperature coefficient 3911 ppm/K
Available in round housing

Extended temperature- tolerance range at GOST 8.625-2006:

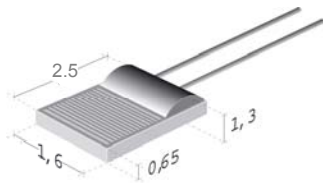
- F 0.1 (former class 1/3 DIN B) -200°C to +400°C
- F 0.15 (former class A) -200°C to +400°C
- F 0.3 (former class B) -200°C to +400°C

Dimension in mm

Nominal Resistance at 0°C in Ohm

Chip-Dimension in mm

Description



50
100

LxW 2.5 x 1.6
LxW 2.5 x 1.6

PG050.216.4K.x.010
PG0K1.216.4K.x.010



50
100

LxB 13.0 x 2.8
LxB 13.0 x 2.8

PG050.281.4K.x.R
PG0K1.281.4K.x.R



INNOVATIVE SENSOR TECHNOLOGY



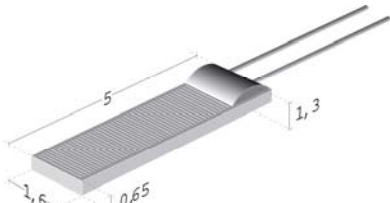
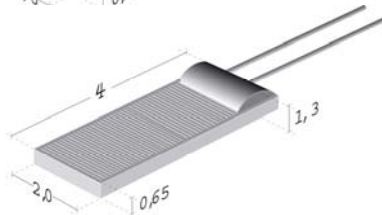
Platinum Temperature Sensors

8W – Product Series

Temperature Range: -200°C...+850°C

Platinum temperature sensor elements with wire connections
RoHs compliant

Platinum wire connection, 0.2 mm x 7 mm (Ø x L), (solderable, weldable, crimpable)

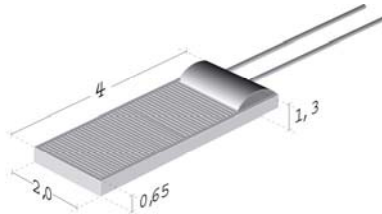
Dimension in mm	Nominal Resistance at 0°C in Ohm	Chip-Dimension in mm	Description
	100 1000	LxW 5.0 x 1.6 LxW 5.0 x 1.6	P0K1.516.8W.x.007 P1K0.516.8W.x.007
	200	LxW 4.0 x 2.0	P0K2.420.8W.x.007

10W/10K – Product Series

Temperature Range: -70°C...+1000°C

Platinum temperature sensors elements with wire connections
RoHs compliant

DPH-platinum wire connection, 0.2 mm x 7 mm (Ø x L), (solderable, weldable, crimpable)
Temperature coefficient 3770 ppm/K

Dimension in mm	Nominal Resistance at 0°C in Ohm	Chip-Dimension in mm	Description
	200	LxW 4.0 x 2.0	P0K2.420.10K.K.007



INNOVATIVE SENSOR TECHNOLOGY



Platinum Temperature Sensors


4SW – Product Series

Temperature Range: -200°C...+400°C

Platinum temperature sensor elements with perpendicular wire connections
RoHs compliant

Advantage: Perfect for small contact surfaces

Silver wire connection, 0.25 mm x 10 mm (Ø x L), (solderable, weldable)
Other connection length and chip size on request

Dimension in mm	Nominal Resistance at 0°C in Ohm	Chip-Dimension in mm	Description
	100	LxW 2.3 x 2.0	P0K1.232.4SW.x.010
	500	LxW 2.3 x 2.0	P0K5.232.4SW.x.010
	1000	LxW 2.3 x 2.0	P1K0.232.4SW.x.010

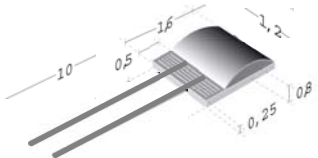
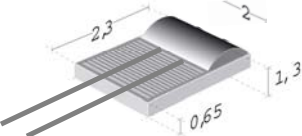
U – Product Series

Temperature range: -200°C...+300/400/600°C

Platinum temperature sensor elements with inverse wire connections
RoHs compliant

Advantages: - Better isolation against mounting area
- Vertical wires can be carried away on chip area
- Perfect for limited space packaging

Other connection length, nominal resistance and chip size on request

Dimensions in mm	Nominal Resistance at 0°C in Ohm	Chip-Dimensions in mm	Example of Description
	1000	LxW 1.6 x 1.2	P1K0.161.2I.x.040.U
	1000	LxW 2.3 x 2.0	P1K0.232.2I.x.100.U



INNOVATIVE SENSOR TECHNOLOGY



Platinum Temperature Sensors

T/D – Product Series

Temperature Range: -200°C...+400/600°C

Platinum temperature sensor elements with thin substrates for fast response time
RoHs compliant

D- Product Series (-200°C to +400°C):

Silver wire connection, 0.25 mm x 15 mm (Ø x L), (solderable, weldable, crimpable)

Substrate 0.38 mm thick

T- Product Series (-200 to +600°C):

Platinum-coated nickel wire, 0.2 mm x 10 mm (Ø x L), (solderable, weldable, crimpable)

Substrate 0.254 mm thick

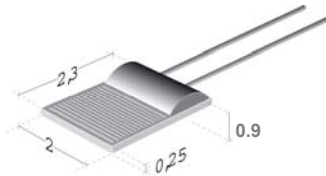
Other connection lengths and chip sizes on request

Dimensions in mm

Nominal Resistance at 0°C in Ohm

Chip-Dimension in mm

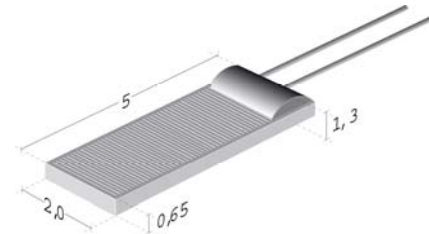
Description



100
500
1000

LxW 2.3 x 2.0
LxW 2.3 x 2.0
LxW 2.3 x 2.0

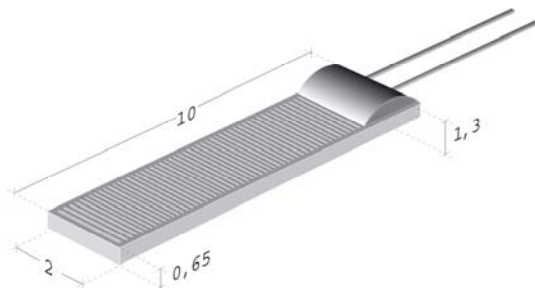
P0K1.232.6W.x.010.T
P0K5.232.6W.x.010.T
P1K0.232.6W.x.010.T



100

LxW 5.0 x 2.0

P0K1.520.6W.x.007.T



1000

LxW 10.0 x 2.0

P1K0.102.6W.x.007.T



INNOVATIVE SENSOR TECHNOLOGY



Platinum Temperature Sensors

R – Product Series

Temperature Range: -50°C...+600°C

Platinum temperature sensors in round housing (only usable in dry environment)
RoHs compliant

Advantage: Facilitates mounting

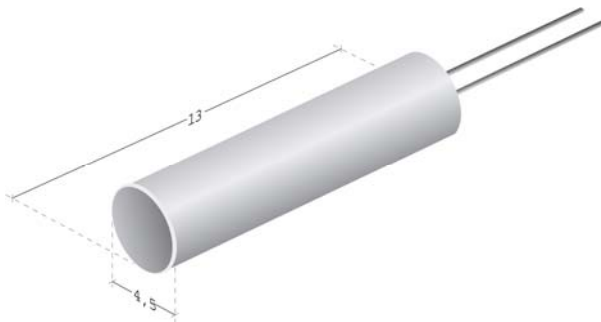
Platinum-coated nickel wire, 0.2 mm x 7 mm (Ø x L), (solderable, weldable, crimpable)

Dimension in mm

Nominal Resistance at 0°C in Ohm

Chip-Dimension in mm

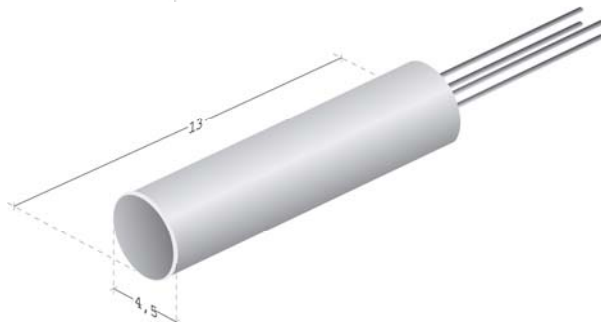
Description



100
500
1000

LxW 13.0 x 4.5
LxW 13.0 x 4.5
LxW 13.0 x 4.5

P0K1.451.6W.x.R
P0K5.451.6W.x.R
P1K0.451.6W.x.R



100
500
1000

LxW 13.0 x 4.5
LxW 13.0 x 4.5
LxW 13.0 x 4.5

2xP0K1.451.6W.x.R
2xP0K5.451.6W.x.R
2xP1K0.451.6W.x.R



100
500
1000

LxW 13.0 x 2.8
LxW 13.0 x 2.8
LxW 13.0 x 2.8

P0K1.281.6W.x.R
P0K5.281.6W.x.R
P1K0.281.6W.x.R



100
500
1000

LxW 13.0 x 2.8
LxW 13.0 x 2.8
LxW 13.0 x 2.8

2xP0K1.281.6W.x.R
2xP0K5.281.6W.x.R
2xP1K0.281.6W.x.R



INNOVATIVE SENSOR TECHNOLOGY



Platinum Temperature Sensors

CustomSens

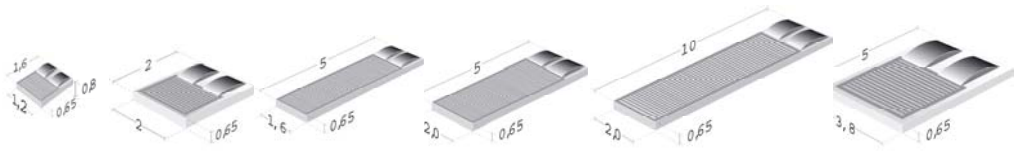
Thin-film temperature sensors with universal connection possibilities

It is the policy of IST to put forward as many sensor options as possible to best serve the customers' needs. True to this policy is the CustomSens product. We are bringing a new range of sensors on to the market which will provide enormous versatility. The highlight of these thin-film temperature sensors is the flexibility of determining your own wire termination type or style as required. You can decide how much work we should take off your hands in the assembly of the sensors. You can choose between short or long connections, whether they are to be bare or insulated, and whether the sensor is to be completed in 2-, 3- or even 4-wire technology. It is not only the great choice of these variables which offers you many advantages. Through the customized connection structure, the sensors are also characterized by superior product properties, giving you a double benefit.

Universal possibilities

Below you will find all the variables at a single glance. When you combine these with your requirement profile, you will obtain a customized sensor.

1. form of shape:
Dimensions in mm



2. Nominal resistance:	50 Ohm	100 Ohm	500 Ohm	1000 Ohm	10'000 Ohm	
3. Temperaturerange:	150°C	200°C	400°C	600°C	750/850/1000°C	
Wire material:	Enameled Copper Wire	PTFE insulated	Silver bare	Pt/Ni bare	Platinum bare	
Wire diameter:	0.2 mm	AWG 26/30/32 Stranded Wire AWG 28/7	0.25 mm	0.2 mm	0.2 mm	
4. Number of wires:	2-Wires		3-Wires		4-Wires	
5. Wire length:	5 mm			1000 mm		
6. Tolerance:	DIN EN 60751 F 0.3 (Class B)	DIN EN 60751 F 0.15 (Class A)	1/3 DIN EN 60751 F 0.3 (Class B)	1/5 DIN EN 60751 F 0.3 (Class B)	1/10 DIN EN 60751 F 0.3 (Class B)	GOST 8.625-2006
7. Metallised backside:	Ni/Cr/Ni/Au -200°C + 400°C			Platinum -200°C + 600°C		

Your Sensor e.g.:



Special materials
and sizes on request



INNOVATIVE SENSOR TECHNOLOGY



TEMPERATURE



HUMIDITY



FLOW

Platinum Temperature Sensors Order Information

23/23

P 1 K 0. 5 2 0. 4 W. B. 0 1 0. M | Example

Specials

- T Substrate thickness 0.25 mm
- D Substrate thickness 0.38 mm
- R Round housing
- W Sintered powder
- M Metallised backside
- U Inverted welding
- S Special*

Connection length in mm

Tolerance classes

- A Class F 0.15 (former Class A)
- B Class F 0.3 (former Class B)
- C Class 2 x F 0.3 (former 2 x Class B)
- Y Class F 0.1 (former 1/3 Class B)
- P Pairs*
- G Groups*
- K Customer specific*

Extension type

- S SIL (Single in line)
- P SMD contact around the sides →
- FC Flip Chip →
- W Wire
- SW Perpendicular leads
- FW Flat wire
- I Insulated contacts
- E Enameled wires
- L Insulated stranded wires
- K Customer specific*

2P = Contact tin-coated, LMP lead free, RoHS-conform
 3P = Contact tin-coated, HMP, RoHS-conform
 4P = Gold coated contacts, solderable layer

1FC = contact tin-coated, LMP lead free
 2FC = contact tin-coated, HMP
 3FC = Au-Pads (bonding pads)
 4FC = Thin film Pt-pads
 5FC = increased thin film Pt-Pads (solderable pads)
 6FC = Thick film Pt-pads

Temperature range

- 1 -50°C to 150°C
- 2 -50°C to 200°C
- 3 -200°C to 300°C
- 4 -200°C to 400°C
- 6 -200°C to 600°C
- 7 -200°C to 750°C
- 8 -200°C to 850°C
- 10 -70°C to 1000°C

Mechanical dimensions (see various dimensions) in mm

Resistance value in ohm at 0°C

Characteristic curve

- Pt 3850 ppm/K
- W Pt 3850 ppm/K (extended temperature range)
- U Pt 3750 ppm/K
- G Pt 3911 ppm/K

Material identification

P Platinum

* Additional details, specifications required from the customer

Order example:

- P 1K0. 520. 4 W. B. 010. M
- 1: Material identification = Platinum Temperature Sensor
 - 2: Resistance value in ohm = 1'000 Ω / 0°C
 - 3: Chip dimension = 5 mm x 2 mm
 - 4: Temperature range = -200°C to +400°C
 - 5: Extension = Wire connections (Ag, Ø 0.25 mm)
 - 6: Tolerance class = DIN EN 60751 F 0.3 (former Class B)
 - 7: Connection length = 10 mm
 - 8: Special = metalized backside

Specifications are subject to change without notice



INNOVATIVE SENSOR TECHNOLOGY



All mechanical dimensions are valid at 25°C ambient temperature, if not differently indicated. All data except the mechanical dimensions only have information purposes and are not to be understood as assured characteristics. Technical changes without previous announcement as well as mistakes reserve. The information on this data sheet was examined carefully and will be accepted as correct. No liability in case of mistakes. Load with extreme values during a longer period can affect the reliability. All rights reserved. The material contained herein may not be reproduced, adapted, merged, translated, stored, or used without the prior written consent of the copyright owner. Typing errors and mistakes reserved. Product specifications are subject to change without notice.