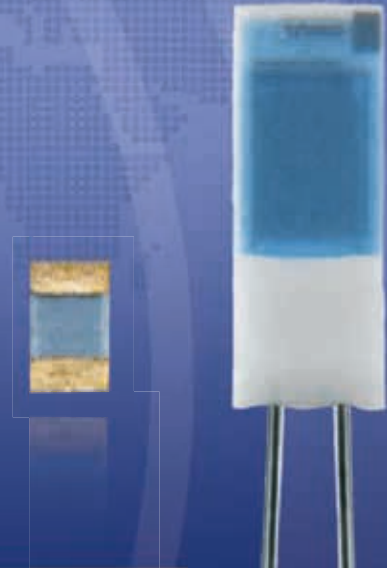




More than **sensors + automation**



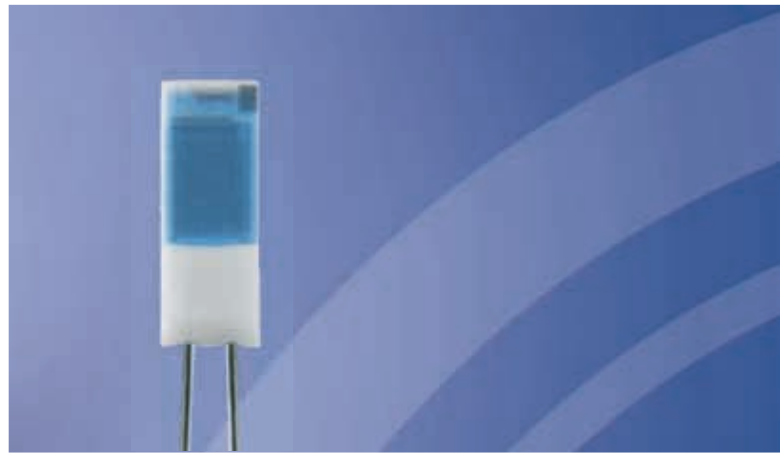
# Platinum-Chip Temperature Sensors in Thin-Layer Technology

Your expert partner for sensor applications



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## Dear Reader,

Temperature is one of the most commonly measured physical measurands throughout the world.

JUMO is one of the market leaders in the sector for temperature sensor technology. We have been manufacturing platinum-chip temperature sensors in complex production processes for 30 years.

High standards are already imposed in the design process. This leads to innovative, economical solutions that are right for the market. Another important factor is extensive qualification measures for our products. Especially in series production we conduct these measures together with our customers. We keep our products at the highest standard through continuous new and ongoing development.

Our expertise is underlined through our DAkkS laboratory. The traceability of measurement results according to national standards is therefore the key criterion for all calibrations.

Today JUMO temperature sensors are used in many areas of industry and services where they guarantee excellent and consistent product quality.

We always focus on the customer in everything we do. Customer satisfaction and long-term collaboration are the driving forces that keep us achieving outstanding performance time and time again.

This brochure provides an overview of our products for temperature sensor technology. Of course, we would also be happy to develop individual solutions that are completely customized to your requirements.

Further information about our products can be found at [www.jumo.net](http://www.jumo.net) using the specified type designation or data sheet number.

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# Platinum-chip temperature sensors in thin-layer technology

JUMO offers a multi-faceted program of platinum-chip temperature sensors. With an annual production of several million temperature sensors we are one of the world's leading suppliers.

Since the 1980s modified procedures originating from the field of semiconductor production have been continuously customized to Pt100 manufacturing. We supply precision and long-term stability from the cleanroom. Tolerances as of + 0.1 K are produced in series. Cost-effective series production, combined with the highest quality standards, make customer benefits complete.





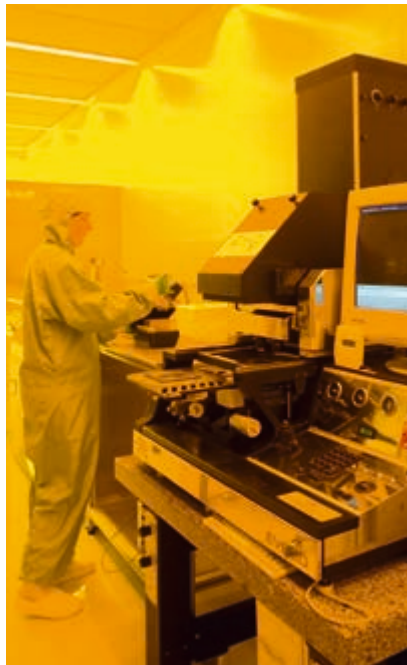
# Platinum-Chip Temperature Sensors

Platinum-chip temperature sensors    Platinum-chip temperature sensors with connection wires    Platinum-chip temperature sensors in special designs

## JUMO – your expert partner for sensor applications



Mechanical processes:  
welding, sawing



Photolithography: creating  
the structure on the substrate



Laser trimming of platinum-  
chip temperature sensors

### JUMO is committed to both quality and fair market prices

Platinum-chip temperature sensors in thin-layer technology promise excellent accuracy and long-term stability. To keep this promise, JUMO relies exclusively on Germany as the top production location. The tough requirements are met by highly-qualified employees and an efficient QM system. Our modern production plants are highly-automated so that their efficiency can create a positive price-performance ratio. Yet our system permits a high degree of flexibility so that we can do justice to special customer applications.

### Over 60 years of experience for our customers

The experience from our own temperature probe production goes straight into the development of new temperature sensors. JUMO offers expert support for temperature sensor assembly.

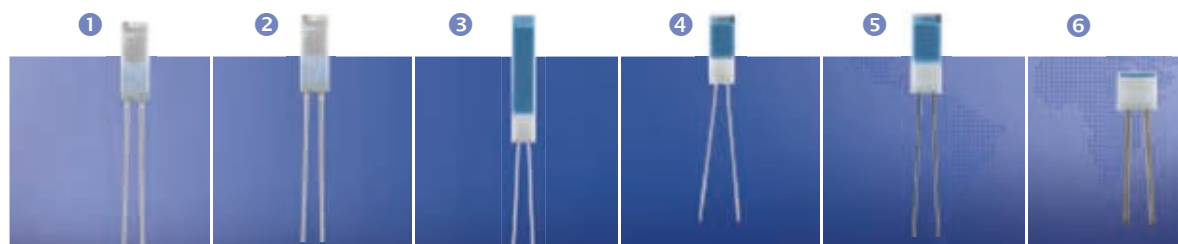
### Customer-specific modifications

The customers and their expectations for the application are our primary focus – especially when it comes to OEM applications. Along with mechanical and geometrical system solutions, special selections with a small tolerance class are in great demand.

# Platinum-chip temperature sensors with connection wires according to DIN EN 60751

JUMO offers a suitable solution for every application. A wide range of sensors are available in stock for almost all applications.

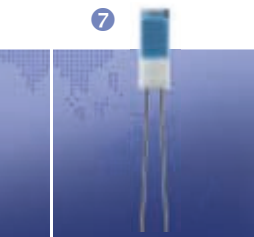
We offer the customer coordinated system solutions for special and OEM applications. The construction size  $1.2 \times 4$  mm (PCA 1.1204.1S) offers maximum convenience for tight installation situations. In addition, the construction size also has a particularly fast response time. The construction size  $2 \times 5$  mm (PCA 1.2005.1E) has an excellent price-performance ratio and is ideally suited for all manual placement tasks. Resealable packaging completes the product requirement for manual handling.



Design type		PCA/L	PCA/S	PCA/H	PCA/M	PCA/E	PCA/EG
Type		906121					
Application	Features	Broad range, the ideal sensor for every application					
	Areas of application	Measurement and control technology, heating and air-conditioning technology, industrial electronics, vehicle manufacture,					
Technical data	Wires	Ag 0.2 × 0.3 silver wire	Pt-Ni 0.2 mm platinum-wrapped wire	Pd 0.25 mm palladium wire	Pt-Ni 0.2 mm platinum-wrapped wire	Ni 0.20 mm	Ni-Au 0.20 mm gold-plated nickel wire
	Operating temperature	-70 to +250 °C	-70 to +400 °C	-70 to +600 °C	-70 to +550 °C	-70 to +500 °C	-70 to +500 °C
	Processing	Soft-soldering	Crimping, welding, hard-soldering	Welding, hard-soldering	Crimping, welding, hard-soldering		Crimping, welding, soft-soldering
	Size (W × L × H)	2 × 2.5 × 1.3 mm 2 × 5 × 1.3 mm 2 × 10 × 1.3 mm 4 × 5 × 1.3 mm	2 × 2.5 × 1.3 mm 2 × 5 × 1.3 mm 2 × 10 × 1.3 mm 1.2 × 4 × 1.1 mm	2 × 10 × 1.3 mm	1.5 × 2.5 × 1.0 mm 1.5 × 5 × 1.0 mm 2 × 2.5 × 1.3 mm 2 × 5 × 1.3 mm 2 × 10 × 1.3 mm 4 × 5 × 1.3 mm	1.5 × 2.5 × 1.0 mm 2 × 2.5 × 1.3 mm 2 × 5 × 1.3 mm	1.5 × 2.5 × 1.0 mm 2 × 2.5 × 1.3 mm 2 × 5 × 1.3 mm
	Nominal values	Pt100, Pt500, Pt1000	Pt100, Pt500, Pt1000, Pt2000	Pt100, Pt500, Pt1000	Pt100, Pt200, Pt500, Pt1000	Pt100, Pt200, Pt1000	Pt100, Pt1000, others upon request
	Tolerance classes	All tolerance classes possible					

# Platinum-Chip Temperature Sensors

Platinum-chip temperature sensors    Platinum-chip temperature sensors with connection wires    Platinum-chip temperature sensors in special designs



	PCA/ET
life sciences	
	Ni-Sn 0.20 mm tin-plated nickel wire
ing, hard-soldering,	
mm m	1.5 × 2.5 × 1.0 mm 2 × 2.5 × 1.3 mm
quest	

## ① Design type PCA/L

The "L" version is the preferred choice for the assembly of probes with connecting cables. It is particularly suitable for an electrical connection via soft-soldered joints. The connections are made of pure silver.

## ② Design type PCA/S

The "S" version is the preferred choice for application temperatures above 180 °C. It is particularly suitable for an electrical connection via welded, crimp, or hard-soldered joints.

## ③ Design type PCA/H

They are suitable for electrical connections using melting or laser welding techniques as well as hard-soldered joints. Sie eignen sich für einen elektrischen Anschluss über Anschmelz- oder Laserschweißverfahren sowie über Hartlötverbindung.

## ④ Design type PCA/M

The "M" version offers ultimate implementation possibilities for most applications. The sensors have an especially wide temperature measuring range. Their long-term stability ensures reproducible measurement values that are suitable for several thousand cycles.

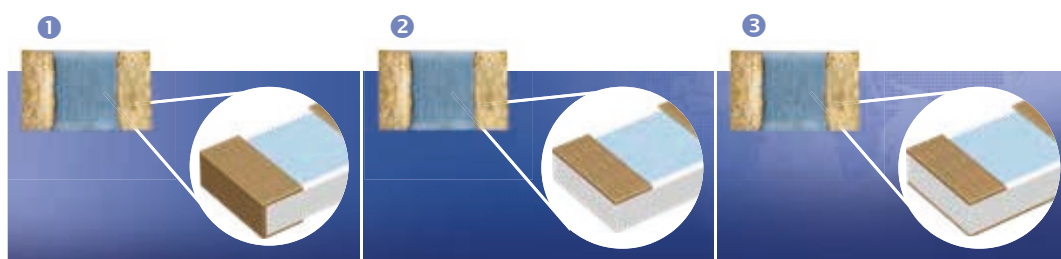
## ⑤, ⑥, ⑦ Design PCA/E, EG and ET

The "E" version can be used just about everywhere for numerous applications in low to high temperature ranges. The connection wires are particularly suitable for an electrical connection via welded, crimp, or hard-soldered joints. Design type PCA EG and ET are especially suited for soft-soldering.

# Platinum-chip temperature sensors in SMD design type according to DIN EN 60751

Platinum-chip temperature sensor in SMD design type are especially designed for the automatic placement on circuit boards. Their small size allows a high placement density.

The patented contact technology enables outstanding processing results and a high degree of temperature cycle stability.



	Design type	PCS/SMD with wrap-around contact	PCF/SMD Flip chip with one-sided contact	PCF-B/SMD Flip chip with one-sided contact and solderable back part
	Type	906125	906125	906125
Application	Features	For the automated placement on circuit boards, patented contact technology		
	Areas of application	Measurement and control technology, heating and air-conditioning technology, industrial electronics, life sciences		Surface and ambient temperature measurement on circuit boards
Technical data	Solder connections/ contact surfaces	Gold plated nickel-all-round contact	Gold-plated nickel solder contact (face down mounting)	
	Operating temperature	-50 to +250 °C		-70 to +250 °C
	Processing	Lead-free soldering; leaded soldering; high-temperature solder (HMP); low-temperature solder (LMP); conductive adhesive bonding; ultrasonic wire bonding		
	Size (W × L × H)	Type 0805 (JUMO: 1302): 1.25 × 2.0 × 0.4 mm Type 1206 (JUMO: 1503): 1.5 × 3.0 × 0.4 mm	Type 0805 (JUMO: 1302): 1.25 × 2.0 × 0.4 mm	
	Nominal values	Pt100, Pt500, Pt1000, others upon request		
	Tolerance classes	F0.1, F0.15, F0.3, F0.6		F0.3



# Platinum-Chip Temperature Sensors

Platinum-chip temperature sensors

Platinum-chip temperature sensors with connection wires

Platinum-chip temperature sensors in special designs



## ①, ② and ③ Design type PCS/SMD and PCF/SMD

Platinum-chip temperature sensors in SMD design type have a high-quality nickel contact and are available in 3 versions. The PCS design type has a solder contact (wrap-around contact) on the back while the PCF design type (flip chip) has a solder contact on the front.

In addition, the PCF design type can be fully equipped with solderable nickel-gold metallization on the back (PCF-B design type). The result is that a soldered connection can be used to establish direct thermal contact with another body. A new construction form in combination with an innovative

technology for manufacturing the solder contacts makes these sensors very robust.

They can therefore be used at temperatures up to 250 °C.

## Other advantages

- Better processing results during soldering
- Up to 15 % space reduction with the PCF design type
- Optimal protection against environmental influences



# Platinum-chip temperature sensors in special designs according to DIN EN 60751

JUMO has always offered customer-specific solutions, whether as a pre-assembled measuring insert or for applications in high-humid environments. Here, not only does our 40 years of experience in thin film technology come into play, but also our expertise in circuit board assembly as well as in measuring and control technology.



		Design type	PCSE	PCKL
		Type	906122	906123
Application	Features	Prefabricated measuring insert, automated downstream processing possible, price advantage due to SMD temperature sensors, gold-plated contact surfaces		Stable terminal clamps, additional protective coating, tin-plated terminal clamps, suitable for high levels of humidity
	Areas of application	Measurement and control technology, heating and air-conditioning technology, industrial electronics		
Technical data	Solder connections/ contact surfaces	Gold-plated		Tin-plated (terminal clamps)
	Operating temperature	-20 to +150 °C		-30 to +105 °C
	Processing	Soft-soldering		
	Size (W × L × H)	4.3 × 15 × 2.2 mm 4.1 × 28 × 2.2 mm		3.9 × 5 × 1.5 mm
	Nominal values	Pt100, Pt500, Pt1000		Pt100, Pt1000
		Tolerance classes	Class F0.3 and F0.6 others upon request	All tolerance classes

# Platinum-Chip Temperature Sensors

Platinum-chip temperature sensors

Platinum-chip temperature sensors with connection wires

Platinum-chip temperature sensors in special designs

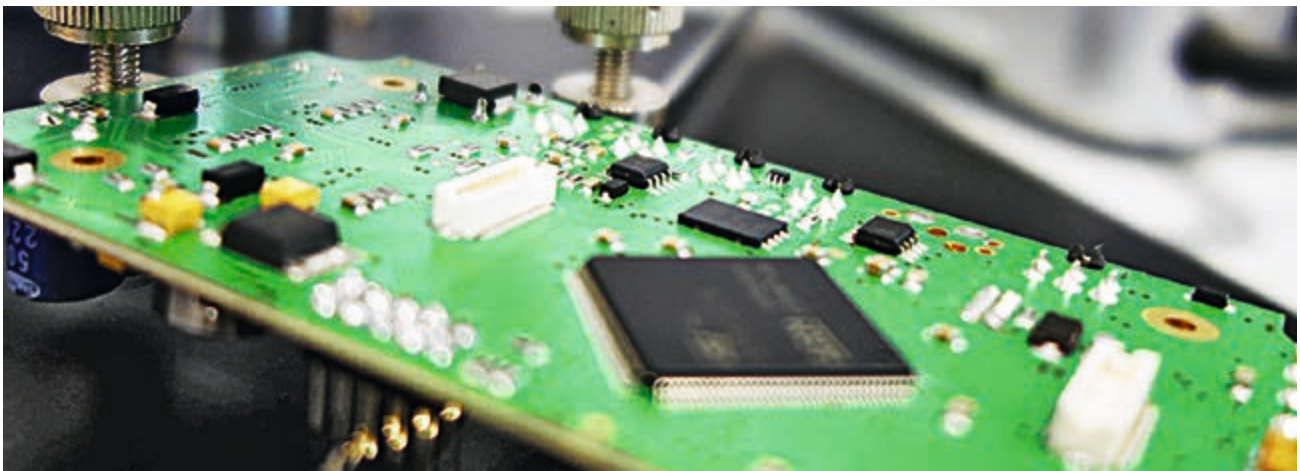


## ① Design type PCSE

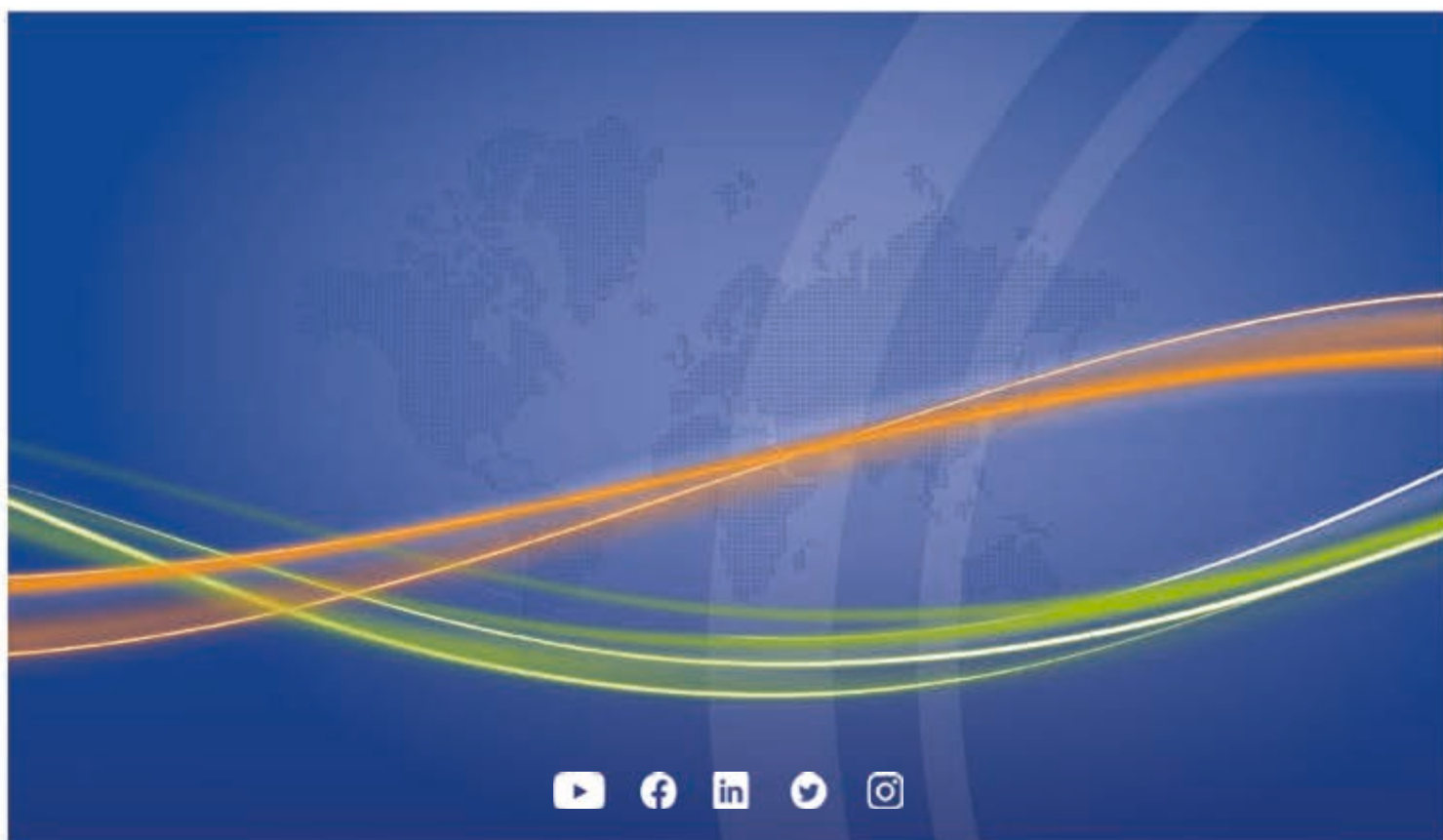
The design type represents an already prefabricated measurement insert. An equipped platinum SMD temperature sensor and 2 spacers to prevent short circuits are located on an epoxy PCB.

## ② Design type PCKL

Compared to the standard temperature sensors these sensors have terminal clamps with directional stability. Furthermore, an additional protective coating makes this sensor particularly well suited for humid environments.







[www.jumo.net](http://www.jumo.net)