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# Platinum-chip temperature sensors with terminal clamps to EN 60751

- for temperatures from -30 to +105 °C
- standardized nominal values and tolerances
- with the nominal values 100 and 1000 Ω
- stable terminal clamps
- coated with an additional protective varnish

## Introduction

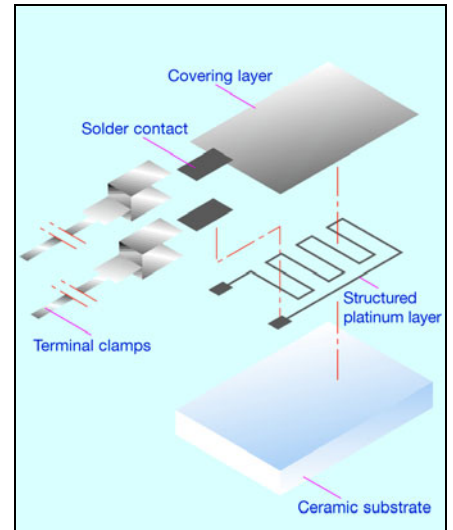
PCKL style platinum-chip temperature sensors are manufactured in the same way as the standard PCA style thin-film sensors. However, there are some differences in the connecting wire techniques. Compared with the standard temperature sensors, these sensors do not feature bonded connecting wires, but have terminal clamps that are pushed on and soldered on.

The terminal clamps are distinguished by their exceptionally high directional and bending strength.

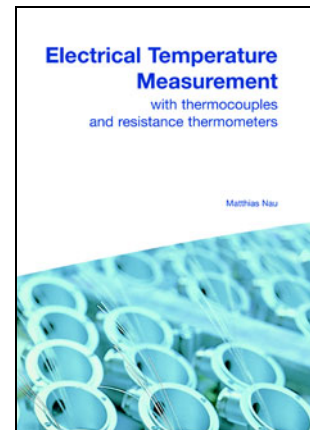
In addition, all JUMO temperature sensors with terminal clamps are coated with an additional protective varnish, which makes them ideally suited to a variety of probe constructions used in the HVAC sector.

The application temperature ranges from -30 to +105°C.

## PCKL style



## Technical publication



This revised edition takes account of altered standards and recent developments. The new chapter "Measurement uncertainty" incorporates the basic concept of the internationally recognized ISO guideline "Guide to the expression of uncertainty in measurement" (abbreviated: GUM).

In addition, the chapter on explosion protection for thermometers has been updated in view of the European Directive 94/9/EC, which has been in force since 1st July 2003.

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## JUMO platinum temperature sensors

Construction and application of platinum temperature sensors	Data Sheet 906000
Platinum-ceramic temperature sensors	Data Sheet 906022
Platinum-chip temperature sensors with connecting wires	Data Sheet 906121
Platinum-chip temperature sensors on epoxy card	Data Sheet 906122
Platinum-chip temperature sensors with terminal clamps	Data Sheet 906123
Platinum-chip temperature sensors in cylindrical style	Data Sheet 906124
Platinum-chip temperature sensors in SMD style	Data Sheet 906125

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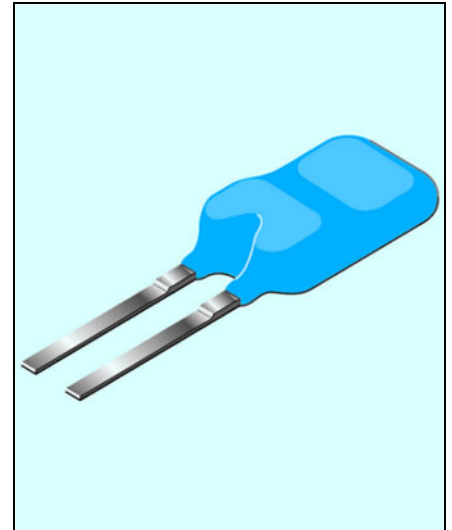


# Platinum-chip temperature sensors with terminal clamps to EN 60751

## PCKL style

### Brief description

PCKL style platinum-chip temperature sensors feature especially rigid terminal clamps for the electrical connection. One particular advantage is their high bending strength. Furthermore, the rectangular cross-section of the terminal clamps ensures excellent directional stability of the temperature sensor when assembled. The entire temperature sensor including the solder joint is additionally coated with epoxy protective varnish, as a protection against condensation and external effects. PCKL style platinum-chip temperature sensors lend themselves ideally to a variety of probes for use in the HVAC sector and, since the sensor is openly positioned in the air stream. Of course, all the positive characteristics of platinum-temperature sensors such as standardized nominal values to EN 60751, high long-term stability and good reproducibility of the electrical properties also apply to this style, thereby ensuring universal usability and interchangeability.



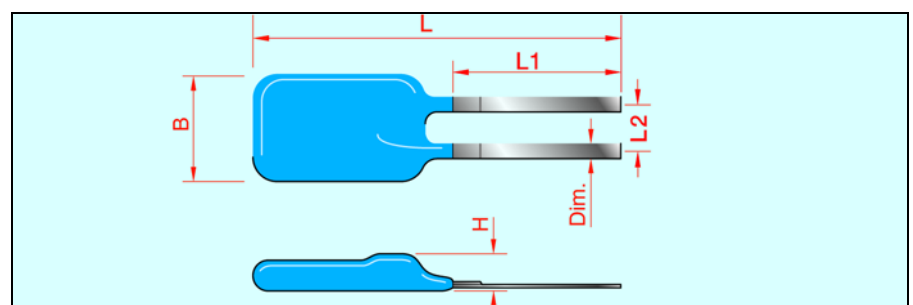
### Temperature sensors packed in bags

Temperature sensor					Connecting wire					Part no. for tolerance class		
Type	R <sub>0</sub> /Ω	B	L	H	Material	Dim.	L1	L2	R <sub>L</sub> in mΩ/mm	F0.1 (1/3 DIN B)	F0.15 (DIN A)	F0.3 (DIN B)
PCKL 1.4005.1	1 × 100	4.5	15.8	1.9	CuSn6	0.55 × 0.25	7	1.9	1.0	00474119T	on request	00480911T
PCKL 1.4005.10	1 × 1000	4.5	15.8	1.9	CuSn6	0.55 × 0.25	7	1.9	1.0	00457334T	on request	00480913T

Dim. tolerances: ΔB = ±0.3 / ΔL = ±0.8 / ΔH = ±0.3 / Dim. = approx. dim. / ΔL1 = +1.6 / ΔL2 = ±0.2  
 Dimensions in mm.

For a definition of the tolerance classes, see Data Sheet 906000  
 T = bag

### Dimensional drawing



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## Technical data

<b>Standard</b>	EN 60751
<b>Temperature coefficient</b>	$\alpha = 3.850 \times 10^{-3} \text{ } ^\circ\text{C}^{-1}$ (between 0 and 100 °C)
<b>Temperature range</b>	-30 to +105 °C
<b>Tolerance</b>	Temperature validity range class F0.1 (1/3 DIN B): -30 to +105 °C Temperature validity range class F0.3 (DIN B): -30 to +105 °C
<b>Measuring current/Maximum current</b>	Pt100 recommended: 1.0 mA, maximum: 1.8mA Pt1000 recommended: 0.1 mA, maximum: 0.5mA
<b>Operating conditions</b>	PCKL style platinum-chip temperature sensors are additionally coated with epoxy varnish. The coating offers protection against moisture and condensation. However, in spite of the additional protection against external effects, these temperature sensors may not be used in corrosive atmospheres. The user may have to carry out some checks before operation. <b>Please also refer to the Installation Instructions B 906121.4 "Notes on the application of platinum-chip temperature sensors."</b>
<b>Insulating varnish</b>	Epoxy varnish, blue UL approved, UL 94/V0
<b>Terminal clamps</b>	These temperature sensors feature terminal clamps that have been soldered on and are especially rigid. During further processing, it is essential to ensure that the connections are not subjected to lateral pressures. The maximum horizontal tension on the individual terminal clamp may be 10 N. Any kinking or bending of the terminal clamps is not permissible. The raster dimension (wire spacing) is 1.9 mm.
<b>Measurement point</b>	The nominal value specified refers to the standard connecting wire length L1. The measurement is acquired 2 mm from the open end of the wire. If the wire length is altered, changes in resistance will occur which may result in the tolerance class not being met.
<b>Long-term stability</b>	max. $R_0$ drift $\leq 0.05$ %/year (see Data Sheet 906000 for definitions)
<b>Insulation resistance</b>	> 10 M $\Omega$ at room temperature
<b>Vibration strength</b>	see EN 60751, Section 4.4.2
<b>Self-heating</b>	$\Delta t = I^2 \times R \times E$ (see Data Sheet 906000 for definitions)
<b>Packaging</b>	Bag
<b>Storage</b>	In the standard packaging, JUMO temperature sensors, PCKL style, can be stored for at least 12 months under normal ambient conditions. It is not permissible to store the sensors in aggressive atmospheres, corrosive media, or in high humidity.
<b>RoHS conforming</b>	Yes
<b>REACH conforming</b>	Yes

## Self-heating coefficients and response times

Type	Self-heating coefficient E in °C/mW		Response times in seconds			
	in water (v = 0.2 m/sec)	in air (v = 2 m/sec)	in water (v = 0.4 m/sec)		in air (v = 3 m/sec)	
			t <sub>0.5</sub>	t <sub>0.9</sub>	t <sub>0.5</sub>	t <sub>0.9</sub>
PCKL 1.4005.1	0.26	-	0.7	2,4	8,3	20
PCKL 1.4005.10	0.26	-	0.7	2,4	8,3	20