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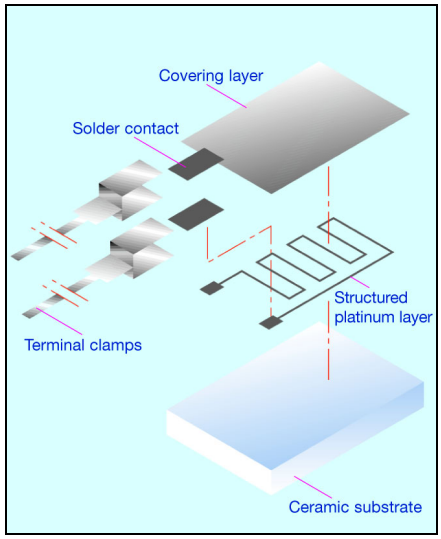
Platinum-chip temperature sensors with terminal clamps to EN 60 751

- **for temperatures from -40 to +105°C**
- **standardized nominal values and tolerances**
- **with the nominal values 100, 500 and 1000Ω**
- **stable terminal clamps**
- **coated with an additional protective varnish**
- **in blister belt packaging**

PCKL style

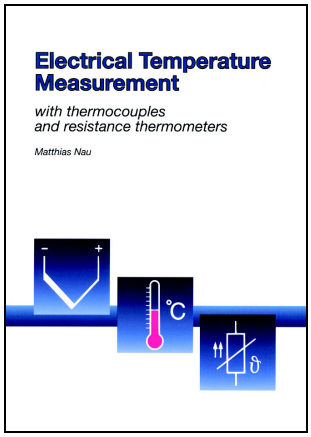


Introduction

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 -40 to +105°C.

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

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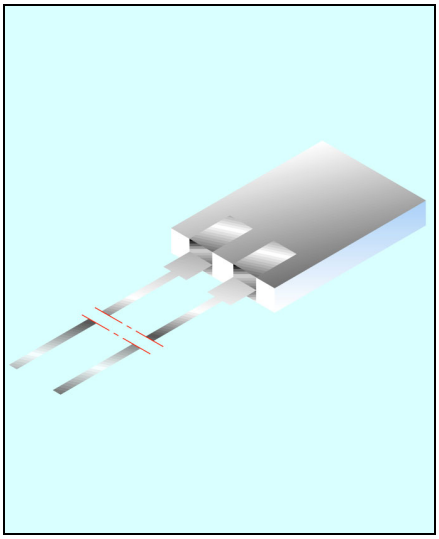
PCKL style



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.
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, excellent response times can be achieved.

The entire temperature sensor including the solder joint and terminal clamps (wire ends are bare) is additionally coated with PUR protective varnish, as a protection against condensation and external effects.

Of course, all the positive characteristics of platinum-temperature sensors such as standardized nominal values to EN 60 751, high long-term stability and good reproducibility of the electrical properties also apply to this style, thereby ensuring universal usability and interchangeability.

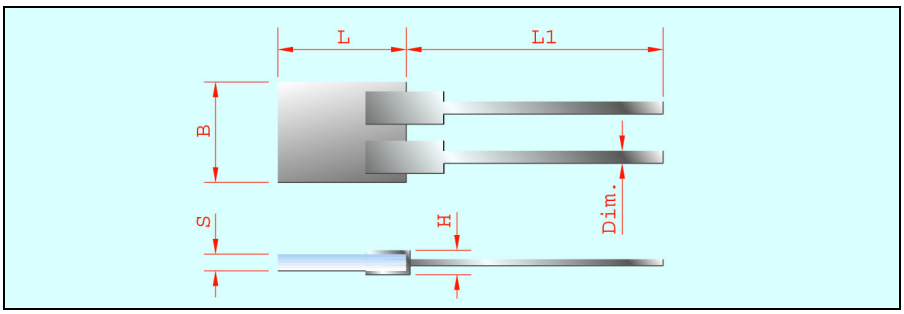
Temperature sensors in blister belt packaging or packed in bags

Temperature sensor						Connecting wire				Sales No. for tolerance class		
Type	R_0/Ω	B	L	H	S	Material	Dim.	L1	R_L in mΩ/mm	1/3 DIN B	A	B
PCKL 1.4005.1	1x100	3.9	5	1.5	0.65	CuSnP	0.55x0.25	10	1.0	90/00437207T	on request	90/00437211T
PCKL 1.4005.1	1x100	3.9	5	1.5	0.65	CuSnP	0.55x0.25	10	1.0	90/00365496B	on request	90/00365495B
PCKL 1.4005.5	1x500	3.9	5	1.5	0.65	CuSnP	0.55x0.25	10	1.0	on request	on request	on request
PCKL 1.4005.10	1x1000	3.9	5	1.5	0.65	CuSnP	0.55x0.25	10	1.0	90/00437209T	on request	90/00437210T
PCKL 1.4005.10	1x1000	3.9	5	1.5	0.65	CuSnP	0.55x0.25	10	1.0	90/00363505B	on request	90/00363504B

Dim. tolerances: ΔB = ±0.2 / ΔL = ±0.5 / ΔH = ±0.2 / ΔS = ±0.1 / Dim. = approx. dim. / ΔL1 = ±0.5
Dimensions in mm.

For a definition of the tolerance classes, see Data Sheet 90.6000
T = bag, B = blister belt

Dimensional drawing



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Technical data

Standard	EN 60 751
Temperature coefficient	α = 3.850 x 10^{-3} °C^{-1} (between 0 and 100 °C)
Temperature range	-40 to +105 °C
Tolerance	Temperature validity class 1/3 DIN B: -40 to +105 °C Temperature validity range Class B: -40 to +105 °C
Measuring current	Pt100 recommended: 1.0 mA Pt500 recommended: 0.7 mA Pt1000 recommended: 0.1 mA
Maximum current	Pt100 maximum: 7 mA Pt500 maximum: 3 mA Pt1000 maximum: 1 mA
Operating conditions	PCKL style platinum-chip temperature sensors are additionally coated with PUR varnish (polyurethane). 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. **Please also refer to the Installation Instructions B 90.6121.4 "Notes on the application of platinum-chip temperature sensors."**
Insulating varnish	Polyurethane resin (PUR) insulating and coating varnish, SL 1301 N, clear, (UL approval applied for)
Terminal clamps	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 10N. Any kinking or bending of the terminal clamps is not permissible. The raster dimension (wire spacing) is 1.9 mm.
Measurement point	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.
Long-term stability	max. R_0 drift ≤0.05 %/year (see Data Sheet 90.6000 for definitions)
Insulation resistance	>10 MΩ at room temperature
Vibration strength	see EN 60 751, Section 4.4.2
Self-heating	$\Delta t = I^2 \times R \times E$ (see Data Sheet 90.6000 for definitions)
Packaging	Blister belt/bag
Storage	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.

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 = 1 m/sec)	
			$t_{0.5}$	$t_{0.9}$	$t_{0.5}$	$t_{0.9}$
PCKL 1.4005.1	0.02	0.2	0.4	1	8	20
PCKL 1.4005.5	0.02	0.2	0.4	1	8	20
PCKL 1.4005.10	0.02	0.2	0.4	1	8	20