

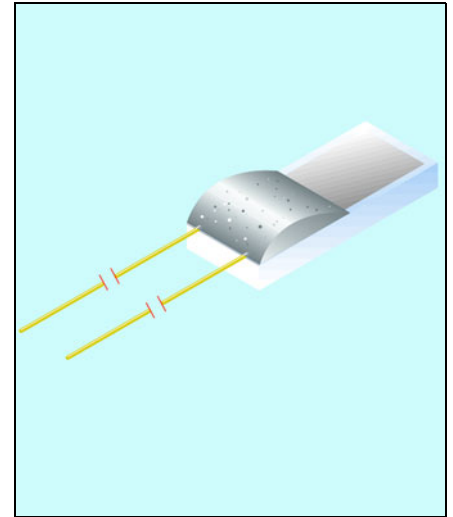
Platinum-chip temperature sensors with nickel connection wires (gold-plated) according to DIN EN 60751

Brief description

Platinum-chip temperature sensors are based on a temperature-dependent resistor, the curve and admissible tolerance of which are defined in the international standard DIN EN 60751. They combine the favorable properties of platinum temperature sensors with the advantages of large-scale production. They are characterized by standardization and universal interchangeability as well as high measuring accuracy, excellent long-term stability, and good reproducibility of the electric properties. Demand for large quantities has led to a notable price reduction over the last few years. For this reason, platinum-chip temperature sensors are also a real alternative to thermistors based on the principle of semi-conductors in terms of pricing.

Platinum-chip temperature sensors of the "EG" type can be universally used and are suitable for a wide range of applications in low and higher temperature ranges up to 500 °C. Short-term use of the sensors at up to 550 °C is admissible. The gold-plated connection wires are suitable for all common connection technologies: welding, soldering, and crimping. The operating temperature range is -70 to +500 °C.

Design type PCA/EG



Item overview

Temperature sensor						Connection wire				Part no. for tolerance class			
Type	R ₀ /Ω	W	L	H	S	Material	D1	L1	R _L in mΩ/mm	F0.1 (Class AA)	F0.15 (Class A)	F0.3 (Class B)	F0.6 (Class 2B)
PCA 1.1505.1EG	1×100	1,5	5,0	1,0	0,38	NiAu	0,20	10	2,4	00693656F	00693654F	00693651F	Upon request
PCA 1.1505.10EG	1×1000	1,5	5,0	1,0	0,38	NiAu	0,20	10	2,4	00693663F	00693662F	00693658F	Upon request
PCA 1.2003.1EG	1×100	2,0	2,5	1,3	0,64	NiAu	0,20	10	2,4	00692526F	00663905F	00663850F	Upon request
PCA 1.2003.10EG	1×1000	2,0	2,5	1,3	0,64	NiAu	0,20	10	2,4	00692528F	00692527F	00665252F	Upon request
PCA 1.2005.1EG	1×100	2,0	5,0	1,3	0,64	NiAu	0,20	10	2,4	00692062F	00692061F	00692053F	Upon request
PCA 1.2005.10EG	1×1000	2,0	5,0	1,3	0,64	NiAu	0,20	10	2,4	00691992F	00691986F	00691984F	Upon request

Dimension tolerances:

$\Delta W = \pm 0.2$ / $\Delta L = \pm 0.5$ / $\Delta H = \pm 0.2$ / $\Delta S = \pm 0.1$ / $\Delta D1 = \pm 0.01$ / $\Delta L1 = \pm 0.5$

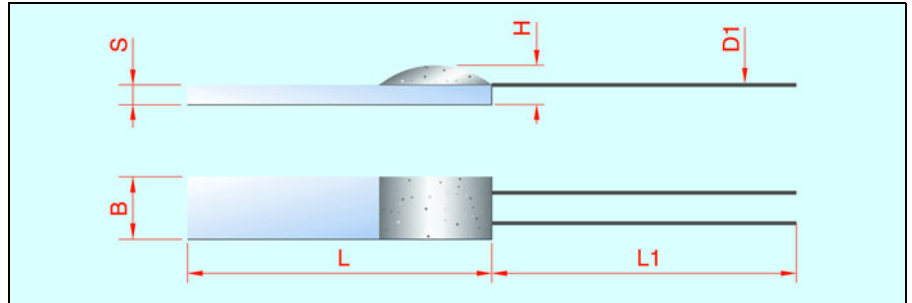
Dimensions in mm.

Definition of tolerance classes

See data sheet 906000

"F" = Folding box (blister)

Dimensional drawing



Technical data for type PCA/EG

Standard	DIN EN 60751:2009-05
Temperature coefficient	$\alpha = 3.850 \times 10^{-3} \text{ } ^\circ\text{C}^{-1}$ (between 0 and 100 °C)
Temperature range	-70 to +500 °C (temporarily 550 °C)
Tolerance	Temperature validity range, class F0.1 (class AA): -50 to +200 °C Temperature validity range, class F0.15 (class A): -70 to +300 °C Temperature validity range, class F0.3 (class B): -70 to +500 °C Temperature validity range, class F0.6 (class 2B): -70 to +500 °C
Measuring/maximum current	Pt100 recommended 1.0 mA, maximum 7 mA Pt500 recommended 0.7 mA, maximum 3 mA Pt1000 recommended 0.1 mA, maximum 1 mA
Operating conditions	Platinum-chip temperature sensors may not be used unprotected in humid ambient conditions or corrosive atmospheres. Direct immersion into liquids is also not permitted. The user should check the conditions, prior to using the sensors. Please also refer to the installation instructions B 906121.4 "Information for the application of platinum-chip temperature sensors."
Connection wires	These temperature sensors are equipped with connection wires made of gold-plated pure nickel wire. The connection wires are suitable for welded, soldered, and crimp connections. For further assembly, avoid exerting lateral pressure loads on the connections. Ensure that the horizontal traction on individual wires does not exceed 8 N. Avoid unnecessary bending of the connection wires because this will weaken the material and lead to the connection wires breaking. Please also refer to point 3 "Connection techniques" in our installation instructions. Longer connection wires up to a length of 300 mm (in one piece) can be fitted as an option. Extension wires or insulated strands in any lengths can also be fitted later as an alternative. In this case, however, take into account that this may result in restrictions concerning the operating temperature.
Measuring point	The specified nominal value is related to the standard connection wire length L1. The measured value is taken 2 mm in front of the open wire end. Wire length extensions could lead to resistance changes as a result of which the tolerance class can no longer be met.
Long-term stability	Max. R ₀ drift 0.05 %/year (for definition, see data sheet 906000)
Low-temperature application	Taking a nominal value drift and hysteresis effect within certain limits into account, temperature measurements are also possible up to -200 °C. Further details are available upon request.
Insulation resistance	> 10 MΩ at room temperature
Vibration resistance	See DIN EN 60751, section 6.6.4
Self-heating	$\Delta t = I^2 \times R \times E$ (see data sheet 906000 for definition)
Packaging	Standard packaging: Folding box (blister), packaging unit: 100 pieces, loose Blister tape: upon request Cardboard box: temperature sensors with connection wires > 30 mm On tape (on foil): upon request, over- or under-delivery ±3 %
Storage	In the standard or belt packaging option, JUMO temperature sensors in design type PCA/EG can be stored for at least 12 months under normal ambient conditions. Storage in an aggressive atmosphere or in corroding media as well as under high air humidity is not permitted.
RoHS compliant	Yes
REACH compliant	Yes

Self-heating coefficients and response times for type PCA/EG

Type	Self-heating coefficient E in K/mW		Response times in seconds			
	Water (v = 0.2 m/s)	Air (v = 2 m/s)	In water (v = 0.4 m/s)		In air (v = 1 m/s)	
			t _{0.5}	t _{0.9}	t _{0.5}	t _{0.9}
PCA 1.1505.1EG	0,02	0,2	0,1	0,3	3	8
PCA 1.1505.10EG	0,02	0,2	0,1	0,3	3	8
PCA 1.2003.1EG	0,02	0,2	0,1	0,3	3	9
PCA 1.2003.10EG	0,02	0,2	0,1	0,3	3	9
PCA 1.2005.1EG	0,02	0,2	0,1	0,3	3	9
PCA 1.2005.10EG	0,02	0,2	0,1	0,3	3	9