

# Reference thermometer

## Model CTP6000

WIKA data sheet CT 61.30

### Applications

- Reference thermometer for high-accuracy temperature measurement in a range of  $-196 \dots +420 \text{ }^{\circ}\text{C}$  [ $-321 \dots +788 \text{ }^{\circ}\text{F}$ ]
- Reference thermometer and a precision instrument for testing, adjusting and calibrating temperature measuring instruments in factories and calibration laboratories
- Comparative calibration in dry-well calibrators, tube furnaces and liquid baths

### Special features

- Temperature range:  $-196 \dots +420 \text{ }^{\circ}\text{C}$  [ $-321 \dots +788 \text{ }^{\circ}\text{F}$ ]
- High stability
- Low drift, long service life
- Connecting leads, banana plugs, DIN connector or SMART connector
- Different lengths, therefore also suitable for fixed point calibration

### Description

The CTP6000 platinum resistance thermometer (PRT) has been designed both for precise temperature measurement in fixed laboratories and also for on-site use. It combines excellent technical characteristics with a robust design. If the 'off the shelf' range will not suit the needs the thermometers can be supplied custom manufactured to almost any specification.

The thermometer's connections range from open cable ends, through common DIN connectors, to intelligent SMART connectors. With a SMART connector, the sensor-specific coefficients can be stored directly in the probe's connector. Thus the SMART connector can easily be switched between instruments or channels. Any confusion of the coefficients is thus ruled out.



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For calibration, the test items and the standard thermometer are brought to the same temperature in a temperature control unit.

As soon as a stable temperature is reached, the test items are read or their output signals are measured (resistance, thermoelectric voltage, standard signal) and compared with the standard thermometer.

The CTP6000, with a length of 500 mm [19.69 in], has been designed specifically for fixed-point calibration, which enables a calibration with the highest-possible accuracy.

## Specifications

Measuring element	
Type of measuring element	Pt100
Resistance at 0 °C [32 °F]	100 Ω
Measuring current	1 mA
Connection method	1 x 4-wire connection
Material	Platinum resistance

Accuracy specifications <sup>1)</sup>	
Tolerance class per EN 60751	Class A
Temperature coefficient	$\alpha = 0.00385$
Annual drift per EN 60751 <sup>2)</sup>	< 10 mK
Self-heating error in water at 0 °C [32 °F]	
Model CTP6000-200	< 3 mK
Model CTP6000-420	< 5 mK
Reference conditions	
Ambient temperature	23 ±2 °C [73 ±2 °F]
Air humidity	40 % r. F. ±25 % r. F.

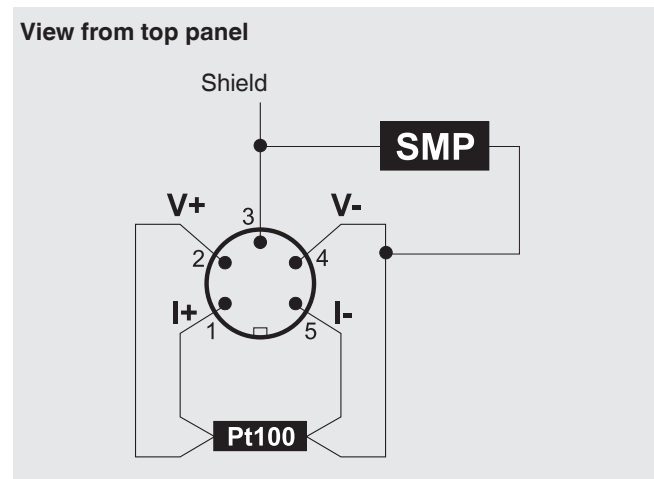
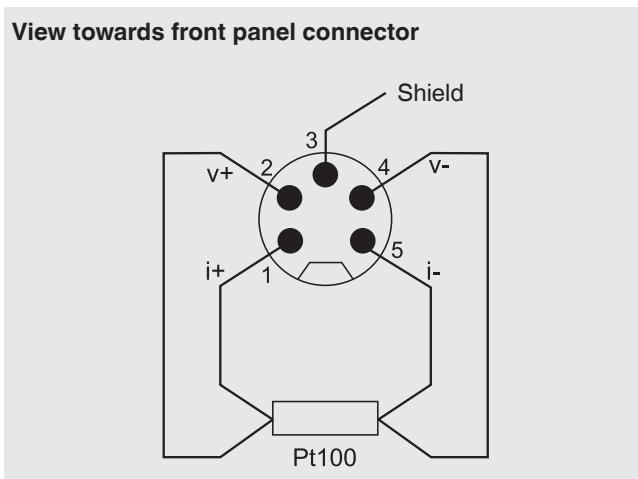
1) Specifications may deviate; they depend on the use of the thermometer. The specified values are typical values for use in laboratories.

2) Previous ageing is required. Recommendation =  $T_{\max} + 10$  K over 20 h

Measuring range	
Temperature range	
Model CTP6000-200	-200 ... +200 °C [-328 ... +392 °F]
Model CTP6000-420	-40 ... +420 °C [-40 ... +788 °F]
Max. temperature	
At the Handle	Max. 80 °C [176 °F]
At the cable	Max. 80 °C [176 °F]

Electrical connection	
Connection type	<ul style="list-style-type: none"> <li>■ Open cable ends</li> <li>■ 5-pin DIN connector</li> <li>■ 8-pin DIN connector</li> <li>■ SMART connector</li> <li>■ Banana plugs</li> </ul>
Pin assignment	240°
<b>Cable</b>	
Length	2 m [6.56 ft]
Material	PTFE sheath

### Pin assignment, 5-pin DIN connector (example)



With ASL's SMART connector on the probes, storing the data is needed only once - in the connector! The calibration data stays with the probe - permanently. It can even be used on another instrument without any further action.

The SMART connector saves time and reduces error. If there are existing calibrated or uncalibrated probes, no problem, ASL read-outs automatically register if a probe is SMART or normal.

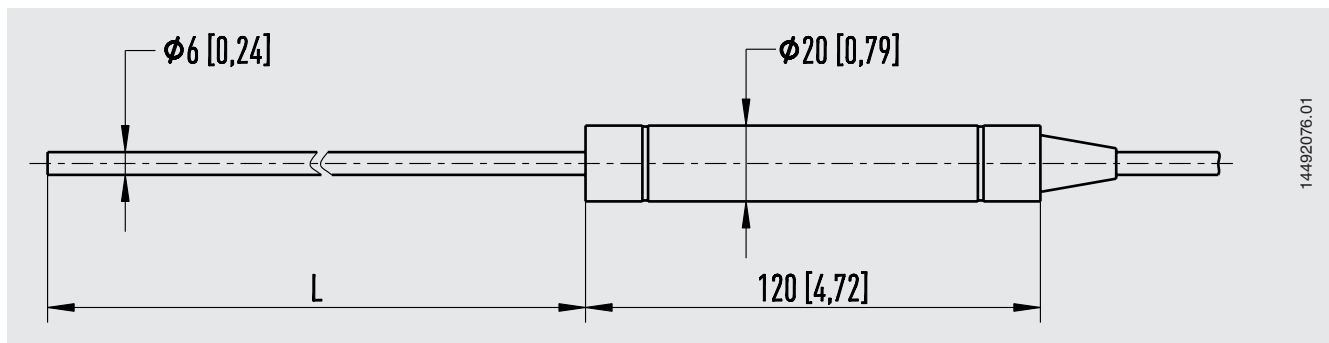
Operating conditions	
<b>Medium temperature range</b>	
Model CTP6000-200	-200 ... +200 °C [-328 ... +392 °F]
Model CTP6000-420	-40 ... +420 °C [-40 ... +788 °F]
<b>Permissible media</b>	The material resistance depends on the sheath material (stainless steel 1.4571)

## Certificates

Certificate	
Calibration	<ul style="list-style-type: none"> <li>■ Test log 3.1 per DIN EN 10204</li> <li>■ DAkkS calibration certificate with calculation of coefficients</li> <li>■ DAkkS calibration certificate with calculation of coefficients as well as additional value table print from K to K</li> <li>■ DAkkS calibration certificate at fixed points with calculation of coefficients</li> <li>■ DAkkS calibration certificate at fixed points with calculation of coefficients as well as additional value table print from K to K</li> </ul>
Recommended recalibration interval	1 year (dependent on conditions of use)



→ Approvals and certificates, see website

## Dimensions in mm [in]



Model	Dimensions	Active sensor length	Sheath material
CTP6000-200	d = 6 mm, l = 350 mm d = 0.24 in, l = 13.78 in	30 mm [1.18 in]	Stainless steel 1.4571
	d = 6 mm, l = 500 mm d = 0.24 in, l = 19.69 in		
CTP6000-420	d = 6 mm, l = 350 mm d = 0.24 in, l = 13.78 in	30 mm [1.18 in]	Stainless steel 1.4571
	d = 6 mm, l = 500 mm d = 0.24 in, l = 19.69 in		

## Accessories

		Order code
Description		CTX-A-R2
	<b>SMART DIN 5-pin connector</b>	-G-
	<b>DIN 5-pin connector</b>	-C-
	<b>Transport case for CTP6000</b> Dimensions: 680 x 170 x 70 mm [26.77 x 6.69 x 2.76 in] Weight: 460 g [1.01 lbs]	-O-
Ordering information for your enquiry:		
<b>1. Order code: CTX-A-R2</b> <b>2. Option:</b>		↓ [ ]

## Scope of delivery

- Model CTP6000 reference thermometer according to specification

## Ordering information

Model / Probe / Connection of the probe / Calibration / Calculation coefficients / Test point for the calibration certificate / Number of test points / Further approvals / Additional ordering information

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