

## Test equipment for temperature and its traceability

- Pt100 precision resistance thermometer
- complete temperature measurement sets with indicator and DKD calibration certificate
- DKD certification as a service
- calibration range -80 to +1100°C

Raised quality expectations, improved measurement techniques, in addition to quality assurance systems, such as ISO 9000, have all led to increased demands on the documentation of processes and the monitoring of measuring equipment.

Precision platinum resistance thermometers are used mainly as factory standards. They are employed for monitoring all temperature probes used in industry, building technology and quality assurance.

In conjunction with the precision indicator (temperature measurement set), the measured temperatures can be read directly or transmitted on-line via the RS232 interface. The optional SmartGraph software enables the creation of tables and graphs, and the processing of the data in other Windows applications for documentation.

The central issue for all instruments is the traceability of the measurement results to the national standards. DKD certified test equipment is recognized, without any further specifications, as an instrument of traceability in Europe and in many other non-European countries. As a service, certification for existing test equipment can be provided at any time.



### Technical data

#### Precision resistance thermometer

#### Measuring insert

Pt100 ceramic temperature sensor to EN 60 751, Cl. A, 4-wire circuit

#### Temperatures

-50 to +250°C, -200 to +450°C (thermocouples -200 to +1100°C)

#### Protection tube

stainless steel 1.4541, 3mm and 4.5mm dia.

#### Protection

IP65

#### Connection

4-pole Lemosa coupling, size 1, 1.5m silicone-insulated connecting cable with mating plug included in delivery, ambient temperature -30 to +150°C

**Indicator****Description**

processor-controlled precision meter with numerous additional functions and RS232 interface.

**Ranges**

1- and 2-channel Pt100 2-wire / -200 to +800°C / resolution 0.1°C

1- and 2-channel Pt100 4-wire / -200 to +200°C / resolution 0.01°C

1-channel NiCr-Ni Type K / -200 to +1370°C / resolution 0.1°C

**Accuracy**

Pt100 2-wire /  $\pm 0.1^\circ\text{C}$  within the range -100 to +200°C, remaining range  $\pm 0.2^\circ\text{C}$

Pt100 4-wire /  $\pm 0.03^\circ\text{C}$  within the range -50 to +150°C, remaining range  $\pm 0.05^\circ\text{C}$

NiCr-Ni Type K /  $\pm 0.2^\circ\text{C}$  within the range -40 to +1000°C, remaining range  $\pm 0.3^\circ\text{C}$

**Display**

2-line LC display with bargraph trend display

**Stored values**

maximum, minimum, hold and average values, differential temperature T1-T2 on 2-channel instruments, calibration function

**Permissible operating temperature**

0 to 40°C

**Supply**

9V block battery (approx. 20 hours battery life), mains supply adapter connection can be provided

**SmartGraph****Documentation and evaluation software with mains adapter for stationary operation**

This accessory pack offers a wide range of facilities for on-line documentation and processing of the measurements under Windows. It can be usefully applied wherever measurements have to be frequently documented and compared. In addition, it permits efficient management of the precision resistance thermometers and their certification numbers.

A special interface adapter cable provides the mechanical connection between the portable meter and the PC. The measurement data can be conveniently shown as graphs or tables and analyzed. The number of measurement channels can be freely selected. Data can be printed out on any installed Windows printer.

A mains supply adapter is supplied for continuous operation, to eliminate the inconvenience of changing the batteries.

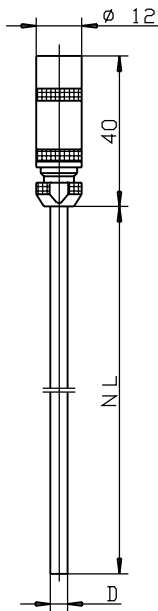
**Certification services**

The certification laboratory of the German Calibration Service (DKD) has been accredited since 1992 and is authorized to issue calibration certificates for temperature with the following minimum tolerances.

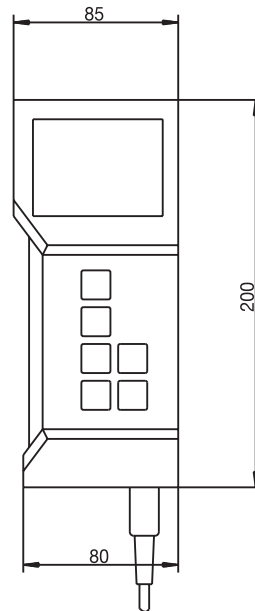
Object for calibration	Range	Measurement conditions	Tolerance
Resistance thermometer	0.01°C	water triple-point	0.005°C
Direct-reading electronic thermometers	-80 to 0°C	Comparison with standard resistance thermometers in liquid bath	0.015°C
and data logger	0 to 90°C	Comparison with standard resistance thermometers in water bath	0.010°C
	90 to 300°C	Comparison with standard resistance thermometers in liquid oil bath	0.015°C
Precious metal thermocouples	-80 to +300°C	Comparison with standard resistance thermometers in thermostatic baths	0.5°C
	300 to 1100°C	Comparison with standard thermocouples in tube furnaces	1.0°C
Base metal thermocouples	-80 to +300°C	Comparison with standard resistance thermometers in thermostatic baths	0.3% t , but not smaller than 0.5°C
Base metal thermocouples, direct-reading electronic thermometers	300 to 1100°C	Comparison with standard thermocouples in tube furnaces	1.5°C
Temperature block calibrators	30 to 133°C	Comparison with standard resistance thermometers	0.2°C
	133 to 660°C		0.0015°C * t/°C

**Extended possibilities through factory calibration on request!**

## Dimensions



Type 902721/10  
Type 902721/15



Type 902721/20  
Type 902721/25  
Type 902721/30  
Type 902721/35  
Type 902721/40

**Order details: Test equipment for temperature and its traceability**

<b>(1) Basic version</b>	
902721/10	Precision-resistance thermometer to EN 60 751 Pt100 4-wire / Lemosa connector / connecting cable / -50 to +250°C
902721/15	Precision resistance thermometer to EN 60 751 Pt100 4-wire / Lemosa connector / connecting cable / -200 to +450°C
<b>(2) Protection tube diameter D in mm</b>	
x x 3	3mm
x x 4.5	4.5mm
<b>(3) Fitting length EL in mm</b>	
x 200	200mm
x x 300	300mm
x 400	400mm
<b>(4) Packaging</b>	
x x 10	in screwed packaging
x x 11	in wooden case (not with EL 400mm)
<b>(5) Calibration / calibration points</b>	
x x 770	factory calibration
x x 771	DKD certification
x x ...	details in plain text
<b>(6) Extra codes</b>	
x x 000	no extra code



**Order code**      (1)      (2)      (3)      (4)      (5)      (6)      ,....  
**Order example**      902721/10 - 3 - 200 - 10 - +25 / 000

1. List extra codes in sequence, separated by commas.



**Order details: Test equipment for temperature and its traceability**

		<b>(1) Calibration type</b>	
		902721/50	DKD certification
		902721/55	Factory calibration
		<b>(2) Calibration object</b>	
x	x	1	resistance thermometers / thermocouples
x	x	2	data logger / measurement sets (direct-reading electronic thermometers)
x		3	temperature block calibrators
		<b>(3) Calibration points / temperatures</b>	
x	x	...	details in plain text

<b>Order code</b>	(1)	-	(2)	-	(3)
<b>Order example</b>	902721/50	-	1	-	+25

Note: The prices listed in the Price Sheet for calibration objects are prices for individual items. An increased number of test specimens or calibration points will reduce the costs considerably. Additional special conditions apply to recalibrations. Detailed prices on request!