



# Temperature Calibrators and Micro Calibration Bath



Series TP 17 000 / TP 17 000 S / TP M 000 S



# The solution for service and industrial sector

## Economic and safe!

Exact temperature measurement and monitoring are “musts” in applications crucial to operational safety of machinery and industrial installations.

Regular inspection of the temperature sensors used in these applications is absolutely essential for economic and technical-safety reasons and is already prescribed as obligatory in many sectors.

### Temperature calibrators for applications in

- Energy-production and energy distribution sector
- Chemical and petrochemical industry
- Pharmaceutical industry
- Food industry
- and a great deal more

The temperature calibrators and calibration bath are already a part of the standard equipment of the technician in the above listed sectors.

These compact devices are easy to transport and easy to operate and have all performance features required for “in-situ inspection”.

### For inspection of

#### Thermometers/SIKA industrial thermometers

Inspection is performed by comparison of the temperature measured by the test piece and the block temperature indicated by the calibrator / calibration bath.

#### Temperature switches/thermostats

The test piece is inserted into the block and connected to the external transducer. The switch setting respective to the switch point is signalled by reached temperature.

#### Resistance thermometers and thermocouples

A separate temperature measuring instrument is required for inspection. We recommend the use of our temperature measuring device TT Scan. The inspection is performed by comparison of the temperature indicated on the external measuring instrument with the reference temperature of the calibrator / calibration bath.



A guarantee of 5 years is granted to all TP 17 000 / TP 17 000 S / TP M 000 which are calibrated and tested at least once per year by the SIKA DKD laboratory.

## Description

The calibrators of series TP 17 000 and TP 17 000 S contains an electronically controlled metal block with a bore for the reception of the test piece. Adapter sleeves are used for test pieces with smaller diameter. The block is mounted in a heat insulated housing. The micro calibration bath of serie TP M 000 S contains a tank, who is mounted in a heat insulated housing. On using different calibration liquids various calibration ranges can be covered.

### Different test piece fixtures





The complete electronic is located in the front of the calibrator. The required temperature is easily set on the digital controller.




The current temperature will automatically adjusted to the set value. The current temperature and set temperature are constantly shown on the 2-line, 4-digit, 7-segment LED display.






## Technical data - micro calibration bath TP M 000 S

Device type	TP M 165 S	TP M 225 S
		
Temperature range	-35 °C...165 °C	U...225 °C
Bath temperature control	Digital PID controller, automatic fan adjustment with softstart for fan	
Tolerance	±0.1 °C	±0.2 °C
Stability	±0.05 °C	
<b>Display</b>		
Bath temperature display	4-digit, 2-line, 7-segment LED, 7 mm high, red and green	
Display range	-50.0 °C...165.0 °C	0.0 °C...225.0 °C
Resolution	0.1 °C	
<b>Test piece fixture</b>		
Tank material	Aluminium	
Tank bore	Ø 60 mm	
Tank depth	Sensor cage 150 mm (total tank depth 170 mm)	
Tank equipment	Screw cap, speed controlled magnetic stirrer, sensor basket, suction pump	
<b>Equipment features</b>		
Control OFF	Switch off of the control function	
Hand control	Manual control of the bath temperature by hand	
Temperature steps	Set point memory for 4 temperature values	
Gradient control	Programmable °C/min	
Ramp functions	Programmable temperature section	
Computer interface	Serial RS 485 (incl. protocol)	
<b>General data</b>		
Power supply	90...240 VAC, 50/60 Hz	230 VAC, ±10 %, 50/60 Hz
Power consumption	App. 400 VA	App. 1000 VA
Dimensions L x W x H	App. 210 x 380 + 50 x 300 mm	App. 147 x 330 + 70 x 270 mm
Weight	App. 12.5 kg	App. 7.5 kg
<b>Options</b>		
Accessories	Function cap, sensor stand, aluminium transport case, software	Function cap, sensor stand, aluminium transport case, nylon service case, software
Power supply	115 VAC, ±10 %, 50/60 Hz	
Certificates	DKD-Certificates (acc. guideline DKD-R5-4), SIKA works certificate	
Engineering unit	Display of temperature in °F	

## Technical data - temperature calibrators TP 17 000

Device type	TP 17 165	TP 17 450	TP 17 650
			
Temperature range	-35 °C...165 °C	U...450 °C	U...650 °C
Block temperature control	Digital PID controller, automatic fan speed adjustment with softstart for fan		
Tolerance	±0.4 °C	±0.6 °C	±0.8 °C
Stability	±0.1 °C		
<b>Display</b>			
Block temperature display	4-digit, 2-line, 7-segment LED, 7 mm high, red and green		
Display range	-50.0 °C...165.0 °C	0.0 °C...450.0 °C	0.0 °C...650.0 °C
Resolution	0.1 °C		
<b>Test piece fixture</b>			
Block material	Aluminium		Brass
Block bore	Ø 28 mm	Ø 60 mm	Ø 28 mm
Block depth	150 mm		
Adapter sleeves	Inside diameter between 1.5 mm and 25 mm in steps of 0.5 mm	Inside diameter between 1.5 mm and 55 mm in steps of 0.5 mm	Inside diameter between 1.5 mm and 25 mm in steps of 0.5 mm
<b>Equipment features</b>			
Control OFF	Switch off of the control function		
Hand control	Manual control of the block temperature by hand		
<b>General data</b>			
Power supply	90...240 VAC, 50/60 Hz	230 VAC, ±10 %, 50/60 Hz	230 VAC, ±10 %, 50/60 Hz
Power consumption	App. 400 VA	App. 2000 VA	App. 1000 VA
Dimensions L x W x H	App. 210 x 380 + 50 x 300 mm	App. 150 x 330 + 70 x 270 mm	
Weight	App. 10.0 kg	App. 7.5 kg	
<b>Options</b>			
Accessories	Aluminium transport case	Aluminium transport case, nylon service case	
Power supply			115 VAC, ±10 %, 50/60 Hz
Certificates	DKD-Certificates (acc. guideline DKD-R5-4), SIKa works certificate		
Engineering unit	Display of temperature in °F		

## Technical data - temperature calibrators TP 17 000 S

Device type	TP 17 165 S	TP 17 450 S	TP 17 650 S
			
Temperature range	-35 °C...165 °C	U...450 °C	U...650 °C
Block temperature control	Digital PID controller, automatic fine adjustment with softstart for fan		
Tolerance	±0.2 °C	±0.3 °C	±0.4 °C
Stability	±0.05 °C		
<b>Display</b>			
Block temperature display	4-digit, 2-line, 7-segment LED, 7 mm high, red and green		
Display range	-50.0 °C...165.0 °C	0.0 °C...450.0 °C	0.0 °C...650.0 °C
Resolution	0.1 °C		
<b>Test piece fixture</b>			
Block material	Aluminium		Brass
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<b>Options</b>			
Accessories	Aluminium transport case, software	Aluminium transport case, nylon service case, software	
Power supply			115 VAC, ±10 %, 50/60 Hz
Certificates	DKD-Certificates (acc. guideline DKD-R5-4), SIKA works certificate		
Engineering unit	Display of temperature in °F		

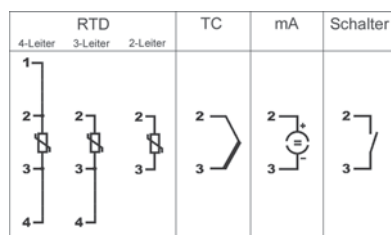
# TT-Scan

## Technical data - precision measuring instrument with scanner



### Properties

#### Possibilities to connect



#### Version

Scanner device with precision measuring instrument

#### Measuring inputs

Switchable  
For up to 8 sensors  
Sensor type free configurable  
Technical datas see page 7

### General data

#### Power supply

230 VAC  $\pm 10\%$ , 50/60 Hz over mains adapter

#### Power consumption

Approx. 100 W

#### Dimensions (D x W x H)

200 x 140 + 40 x 380 mm

#### Weight

Approx. 2.5 kg

### Equipment features

32x 4 mm connections free of thermal voltage  
Connection for external calibration reference sensor  
External cold junction available  
Serial USB data interface, incl. USB data cable

### Options

DKD-Certif cate, SIKA works certif cate, test & calibration software, Aluminium transport case, reference sensors

# TT-Scan - measuring inputs

## Technical data

Version		Measuring range	Tolerance
<b>Resistance thermometer according to DIN EN 60751</b>			
Pt100 Pt500 Pt1000	2, 3, 4 wire	-90.00...850.00 °C	±0.005 % FS ±0.01 °C
Connection possibility through 4 mm connections free of thermal voltage			
<b>Thermocouples according to DIN EN60584 / DIN 43710</b>			
Type K	NiCr-NiAl	-90.00...999.99 °C 1000.0...1370.0 °C	±0.007 % FS ±0.01 °C ±0.005 % FS ±0.1 °C
Type J	FeCu-Ni	-90.00...900.00 °C	±0.005 % FS ±0.01 °C
Type N	NiCrSi - NiSiMg	-90.00...999.99 °C 1000.0...1370.0 °C	±0.007 % FS ±0.01 °C ±0.005 % FS ±0.1 °C
Type E	NiCr-CuNi	-90.00...700.00 °C	±0.005 % FS ±0.01 °C
Type R	Pt13Rh – Pt	0.00...999.99 °C 1000.0...1760.0 °C	±0.05 % FS ±0.01 °C ±0.03 % FS ±0.1 °C
Type T	Cu-CuNi	-90.00...400.00 °C	±0.01 % FS ±0.01 °C
Type B	Pt30Rh-Pt6Rh	0.00...999.99 °C 1000.0...1820.0 °C	±0.05 % FS ±0.01 °C ±0.03 % FS ±0.1 °C
Type S	Pt10Rh-Pt	0.00...999.99 °C 1000.0...1760.0 °C	±0.05 % FS ±0.01 °C ±0.03 % FS ±0.1 °C
Type L	Fe-CuNi	-90.00...900.00 °C	±0.005 % FS ±0.01 °C
Type U	Cu-CuNi	90.00...600.00 °C	±0.01 % FS ±0.01 °C
Automatic comparison point compensation between 0 °C and 60 °C Accuracy of the comparison point Pt100 DIN class A Possibility of connection through 4 mm connections free of thermal voltage			
<b>Standard signal input</b>			
Current (switchable)	mA	0(4)...20 mA	±0.015 % FS ±0.01 mA
Transmitter supply 24 VDC, I <sub>max</sub> = 30 mA Possibility of connection through 4 mm connections free of thermal voltage			
<b>Temperature switch</b>			
Automatic detection of an edge change, determining the hysteresis, Independent detection normally closed / normally open Potential-free input contacts (U <sub>max</sub> = 5 V, I <sub>max</sub> = 1 mA) Possibility of connection through 4 mm connections free of thermal voltage			
<b>Calibration reference sensor connection</b>			
Pt100	4-wire	-90.00 °C...850.00 °C	±0.005 % FS ±0.01 °C
Polynomial correctable through internal parameters or through external EEPROM inside the sensor Possibility of connection through 7-pin built-in socket			

# Our Production and Sales Range



Flow Sensors without moving Parts



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Subject to technical modification

