Temperature calibrators

founded 1901
Dr. Siebert & Kühn GmbH & Co. KG

TP 17 / TP M series

Ideal for service and industrial applications

Economical and safe

Application areas

Precise temperature measurement in industrial processes is crucial for obtaining and maintaining high product quality and ensuring the operability of machinery and systems. Furthermore, precise acquisition of measurement data forms the basis for process optimisation and productivity enhancement. As all sensors age during use and therefore drift, periodic calibration is essential or mandatory for both economic and safety reasons.
Quality assurance and environmental management systems, such as ISO 9001 or ISO 14001, and international regulations, such as FDA, require systematic and well-documented calibration. SIKA temperature calibrators support this with the following features:

- reliable measurements with low effort
- fast and accurate
- light and compact, suitable for carrying on site
- easy to use

Our temperature calibrators are already standard equipment for service technicians in many areas.

Description

- **Metal block calibrators**

  Temperature calibrators in the TP 17 series are metal block calibrators equipped with an electronically controlled dry block with precision bores to hold test items. Seven models with heating/cooling function and four models with heating function, covering a temperature range of -55 °C to 650 °C, make it easy to select the right model for your calibration tasks. Various block diameters are also available.

The **TP 17 Zero** model is especially suitable for generating a precise ice point temperature, for example as a cold junction temperature for thermocouples. The specially designed dry block can hold up to seven test sensors at the same time.

- **Micro calibration baths**

  The micro calibration baths of the TP M series use a liquid tank to enable the calibration of sensors with special shapes or large sensor heads, as well as immersion tubes with a wide variety of diameters. Calibration can be performed in different temperature ranges by using different calibration liquids. A continuously adjustable magnetic stirrer agitates the calibration liquid to provide a large homogeneous measuring zone. The threaded cover is leakproof, allowing the liquid to be left in the tank during transport. You can choose from a model with heating and cooling functions or between two heated baths, depending on your calibration tasks.

All temperature calibrators have the operating elements and indicators for the setpoint and actual temperatures, as well as operating elements for activating other calibration functions, located on the front panel.

If necessary, customer-specific requirements can be implemented in special versions.

SIKA service calibrators for testing:

- **Resistance thermometers and thermocouples**
- **Temperature switches and thermostats**
- **Thermometers and SIKA industrial thermometers**

Along with their specifications and functions, SIKA temperature calibrators feature long service life. Our five-year warranty testifies to our confidence in the quality of these products. To maintain the warranty, the calibrators must be checked and calibrated once a year by the SIKA DKD lab.

Test item fixing

founded 1901
Dr. Siebert & Kühn GmbH & Co. KG

The right adaption for every sensor

Adapter sleeves

Dry-block calibrators are designed to simplify temperature calibration in the lab and in the field. With the help of adapter sleeves, straight temperature sensors with almost any length and diameter can be calibrated. The dry block covers the entire temperature range of the calibrator with no need for changing the calibration medium. Viscosity, flash point and outgassing are of no concern.

Calibration liquids

Using a liquid calibration medium is advantageous for checking temperature sensors with unusual shapes or dimensions. The test item is immersed in the liquid without an insulating air gap, resulting in direct contact between the calibrator and the test item. The calibration liquid is chosen according to the desired calibration temperature. A sensor lid with five silicone plugs and/or a stand base ensures stable positioning of the test items in the calibration bath. The sensor lid reduces heat radiation from the surface of the liquid, which could otherwise lead to measurement errors.

Liquid	Limits	Flash point
Demin. water	2...90 °C	-
Silicone oil 5 CS	-40...123 °C	133 °C
Silicone oil 10 CS	-35...155 °C	165 °C
Silicone oil 20 CS	7...220 °C	230 °C
Silicone oil 50 CS	25...270 °C	280 °C

Tub insert

Our tub insert is ideal for situations where a variety of liquids are used. It eliminates the time-consuming tasks of exchanging the liquid and cleaning the bath. The separate tub insert is just as leakproof as the bath itself.

Calibration reference sensor

If the sensor to be calibrated is too short to reach the homogeneous zone in the metal block or the micro bath, an external reference sensor with its own display can be used. The reference sensor has excellent long-term stability, and the linearisation data is stored in an EEPROM in the handle. The SIKA TT-Scan scanner unit allows measurement data to be acquired from up to eight test items in sequence and displayed on a PC using test and calibration software.

See the TT-Scan data sheet for detailed technical information

Please contact one of our product specialists for advice on the optimal configuration of your temperature calibrator with suitable adapter sleeves, soft cases and other accessories according to your specific needs.

Major functions

Utilise the full potential of your SIKA calibrator

Function

Function	Standard	S-version
Controller OFF	✓	✓
Manual control	✓	✓
Time counters	✓	✓
Setpoint memory		✓
Temperature profile		✓

Controller OFF

This function disables automatic temperature regulation at the last setpoint temperature entered by the user. This can be helpful, for example if you wish to adjust the settings of the calibrator.

Manual control

This function allows you to directly control how fast the calibrator reaches the setpoint temperature. Using the controls, you can manually adjust the output power of the calibrator in steps as small as 0.1%.

Time counter

The total operating hours and operating hours since the last calibration make it easier to comply with the prescribed service and recalibration intervals.

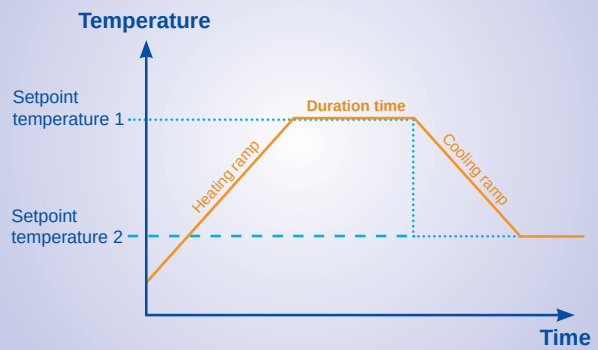
Setpoint memory

Up to four setpoint temperatures can be stored and subsequently activated and achieved in the desired sequence at the touch of a button.

Temperature profile

This function can be used to define a simple temperature profile with two setpoint values, a heating rate (°C/min), a cooling rate and a duration time. The temperature calibrator will the follow this task-specific temperature profile.

Example of temperature profile



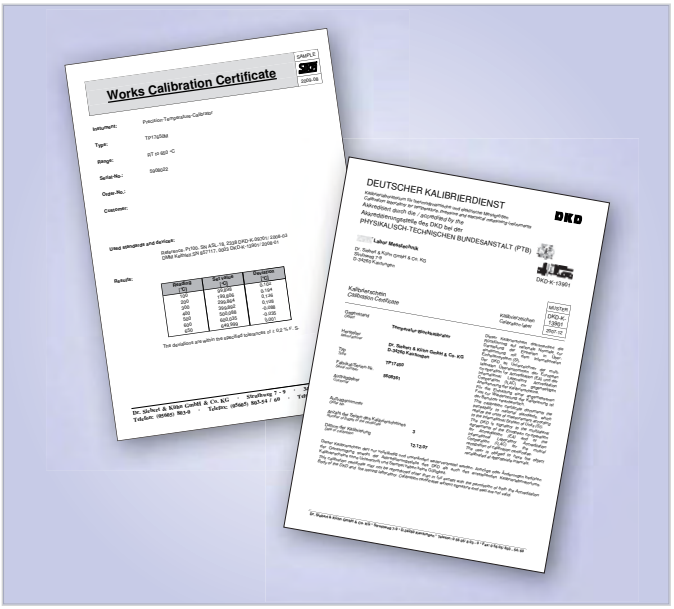
PC connection and software

S-version temperature calibrators are equipped with an RS 485 port as standard. This allows up to 32 calibrators to be integrated into a network or data to be transmitted over relatively long distances for remote monitoring. The software protocol used for this purpose is MODBUS RTU, which is supported by numerous commercial monitoring programs. Converters for RS 232 or USB are available for connection to a PC.

The Windows PC software comprises an extensive program package for device configuration and data analysis with TP series calibrators and the TT-Scan unit with an external PC.

Certificates

Each SIKA temperature calibrator is delivered with a test certificate.



If you wish, you can receive a SIKA works certificate instead. This works certificate contains the results of multipoint testing with test points uniformly distributed over the full measuring range. Special measurement points are possible on request.

You can also order a separate DKD certificate from our accredited SIKA DKD lab. All measurements fulfil the requirements of the DKD R5-4 guideline.

General data

Block

Dry block Ø 28 mm or Ø 60 mm
Micro bath Ø 60 mm
Immersion depth 150 mm (170 mm)

LED display (Sensitive Touch)

2-line, 4-digit display
for reference temperature (red) and
setpoint temperature (green) in
units of °C (optional °F)

Dimensions and weight
➥ Heating function

Width approx. 150 mm
Height approx. 330 + 70 mm
Depth approx. 270 mm
Weight 7.5 kg (max.)

Dimensions and weight
➥ Heating/cooling function

Width approx. 210 mm
Height approx. 380 + 50 mm
Depth approx. 300 mm
Weight 12.5 kg (max.)

Basic configuration

- Digital PID controller
- Automatic fine adjustment with soft-start fan
- Controller OFF function
- Manual temperature control
- Operating and service hours counters

The TP 17 ZERO has a non-standard configuration; see page 8 for details

Micro calibration bath
with heating and cooling functions

TP M 165 S

	TP M 165 S
Temperature range	-35...165 °C
Tolerance	±0.1 °C
Stability	±0.05 °C
Display	
Display range	-50...165 °C
Resolution	0.01 °C in the range -9.99...99.99 °C, else 0.1 °C
General data	
Supply voltage	100...240 VAC, 50/60 Hz
Power consumption	Approx. 400 VA
Tank	
	Ø 60 mm / depth 170 mm
Configuration	
	• Controller OFF function • Manual temperature control • Operating and service hours counters • Setpoint memory for 4 temperatures • Gradient control °C/min • Ramp/duration function • RS 485 serial interface
Included accessories	
	Magnetic stirrer, magnet lifter, sensor basket, screw cap, suction pump, sensor lid with 5 silicone plugs, test certificate, mains cable
Options	
	DKD certificate, SIKA works certificate, test and calibration software, PC connection RS 232 or USB, aluminium transport case, calibration liquids, stand base, tub insert

Micro calibration baths with heating function

SIKA® founded 1901
Dr. Siebert & Kühn GmbH & Co. KG

TP M 225 S / TP M 255 S

	TP M 225 S	TP M 255 S
Temperature range	RT...225 °C	RT...255 °C
Tolerance	±0.2 °C	±0.2 °C
Stability	±0.05 °C	±0.05 °C
Display		
Display range	0...225 °C	0...255 °C
Resolution	0.01 °C in the range -9.99...99.99 °C, else 0.1 °C	
General data		
Supply voltage	230 VAC ±10%, 50/60 Hz	
Power consumption	Approx. 1000 VA	
Tank		
	Ø 60 mm / depth 170 mm	
Configuration		
	• Controller OFF function • Manual temperature control • Operating and service hours counters • Setpoint memory for 4 temperatures • Gradient control °C/min • Ramp/duration function • RS 485 serial interface	
Included accessories		
	Magnetic stirrer, magnet lifter, sensor basket, screw cap, suction pump, sensor lid with 5 silicone plugs, test certificate, mains cable	
Options		
	DKD certificate, SIKA works certificate, test and calibration software, PC connection RS 232 or USB, aluminium transport case, service bag, calibration liquids, stand base, tub insert, supply voltage 115 VAC ±10%, 50/60 Hz	

Metal block calibrator ideal for generating a ice point temperature

TP 17 ZERO - Ice point calibrator

	TP 17 ZERO
Temperature range Tolerance Stability	-10...100 °C ±0.05 °C at 0 °C ±0.05 °C at 0 °C
Display	
Display	1-line, 4-digit digital display, 14 mm height, reference or setpoint temperature (red), shift index display for trend indication
Display range	-10...100 °C
Resolution	0.1 °C
General data	
Supply voltage	100...240 VAC, 50 / 60 Hz
Power consumption	Approx. 400 VA
Dimensions	Width approx. 160 mm Height approx. 320 + 50 mm Depth approx. 230 mm
Block	
	7 drillings with Ø 6,5 mm / depth 150 mm
Configuration	
	• Info signal “0 °C reached” with 10 VDC • Info signal “power supply” with connector plug • RS 485 serial interface
Included accessories	
	test certificate, mains cable
Options	
	DKD certificate, SIKA works certificate, test and calibration software, PC connection RS 232 or USB, aluminium transport case

Metal block calibrators with heating and cooling functions

SIKA® founded 1901
Dr. Siebert & Kühn GmbH & Co. KG

TP 17 200 / TP 17 200 S - Calibration up to -55 °C!

	TP 17 200	TP 17 200 S
Temperature range Tolerance Stability	-55...200 °C ±0.4 °C ±0.1 °C	-55...200 °C ±0.2 °C ±0.05 °C
Display		
Display range	-60...200 °C	
Resolution	0.1 °C	0.01 °C in the range -9.99...99.99 °C, else 0.1 °C
General data		
Supply voltage	100...240 VAC, 50 / 60 Hz	
Power consumption	Approx. 600 VA	
Block		
	Ø 28 mm / depth 150 mm	
Configuration		
	• Controller OFF function • Manual temperature control • Operating and service hours counters	• Controller OFF function • Manual temperature control • Operating and service hours counters • Setpoint memory for 4 temperatures • Gradient control °C/min • Ramp/duration function • RS 485 serial interface
Included accessories		
	Adapter sleeve-changing tool, test certificate, mains cable	
Options		
	DKD certificate, SIKA works certificate, test and calibration software, PC connection RS 232 or USB, aluminium transport case, adapter sleeves	

Metal block calibrators
with heating and cooling functions

TP 17 165 / TP 17 165 S

	TP 17 165	TP 17 165 S
Temperature range Tolerance Stability	-35...165 °C ±0.4 °C ±0.1 °C	-35...165 °C ±0.2 °C ±0.05 °C
Display		
Display range	-50...165 °C	
Resolution	0.1 °C	0.01 °C in the range -9.99...99.99 °C, else 0.1 °C
General data		
Supply voltage	100...240 VAC, 50/60 Hz	
Power consumption	Approx. 400 VA	
Block		
	Ø 28 mm / depth 150 mm	
Configuration		
	• Controller OFF function • Manual temperature control • Operating and service hours counters	• Controller OFF function • Manual temperature control • Operating and service hours counters • Setpoint memory for 4 temperatures • Gradient control °C/min • Ramp/duration function • RS 485 serial interface
Included accessories		
	Adapter sleeve-changing tool, test certificate, mains cable	
Options		
	DKD certificate, SIKA works certificate, test and calibration software, PC connection RS 232 or USB, aluminium transport case, adapter sleeves	

TP 17 166 / TP 17 166 S - large calibration volume

	TP 17 166	TP 17 166 S
Temperature range Tolerance Stability	-35...165 °C ±0.4 °C ±0.1 °C	-35...165 °C ±0.2 °C ±0.05 °C
Display		
Display range	-50...165 °C	
Resolution	0.1 °C	0.01 °C in the range -9.99...99.99 °C, else 0.1 °C
General data		
Supply voltage	100...240 VAC, 50 / 60 Hz	
Power consumption	Approx. 400 VA	
Block		
	Ø 60 mm / depth 150 mm	
Configuration		
	• Controller OFF function • Manual temperature control • Operating and service hours counters	• Controller OFF function • Manual temperature control • Operating and service hours counters • Setpoint memory for 4 temperatures • Gradient control °C/min • Ramp/duration function • RS 485 serial interface
Included accessories		
	Adapter sleeve-changing tool, test certificate, mains cable	
Options		
	DKD certificate, SIKA works certificate, test and calibration software, PC connection RS 232 or USB, aluminium transport case, adapter sleeves	

Metal block calibrators with heating function

TP 17 450 / TP 17 450 S - large calibration volume

	TP 17 450	TP 17 450 S
Temperature range Tolerance Stability	RT...450 °C ±0.6 °C ±0.1 °C	RT...450 °C ±0.3 °C ±0.05 °C
Display		
Display range	0...450 °C	
Resolution	0.1 °C	0.01 °C in the range -9.99...99.99 °C, else 0.1 °C
General data		
Supply voltage	230 VAC ±10 %, 50 / 60 Hz	
Power consumption	Approx. 2000 VA	
Block		
	Ø 60 mm / depth 150 mm	
Configuration		
	• Controller OFF function • Manual temperature control • Operating and service hours counters	• Controller OFF function • Manual temperature control • Operating and service hours counters • Setpoint memory for 4 temperatures • Gradient control °C/min • Ramp/duration function • RS 485 serial interface
Included accessories		
	Adapter sleeve-changing tool, test certificate, mains cable	
Options		
	DKD certificate, SIKA works certificate, test and calibration software, PC connection RS 232 or USB, aluminium transport case, service bag, adapter sleeves	

TP 17 650 / TP 17 650 S

	TP 17 650	TP 17 650 S
Temperature range Tolerance Stability	RT...650 °C ±0.8 °C ±0.1 °C	RT...650 °C ±0.4 °C ±0.05 °C
Display		
Display range	0...650 °C	
Resolution	0.1 °C	0.01 °C in the range -9.99...99.99 °C, else 0.1 °C
General data		
Supply voltage	230 VAC ±10 %, 50/60 Hz	
Power consumption	Approx. 400 VA	
Block		
	Ø 28 mm / depth 150 mm	
Configuration		
	• Controller OFF function • Manual temperature control • Operating and service hours counters	• Controller OFF function • Manual temperature control • Operating and service hours counters • Setpoint memory for 4 temperatures • Gradient control °C/min • Ramp/duration function • RS 485 serial interface
Included accessories		
	Adapter sleeve-changing tool, test certificate, mains cable	
Options		
	DKD certificate, SIKA works certificate, test and calibration software, PC connection RS 232 or USB, aluminium transport case, service bag, adapter sleeves, Supply voltage 115 VAC ±10 %, 50/60 Hz, Wide range power supply 90...240 V ±10 %, 50/60 Hz	

Our Production and Sales Range

Flow Sensors without moving Parts

Turbine Flow Sensors

Flow Switches

Pressure Gauges and Pressure Sensors

Industrial Thermometers

Electronic Digital Thermometers, Dial Thermometers

Measuring Instruments

Temperature Sensors

Calibrators, DKD-Laboratory

Your competent partner for measurement and control

SIKA®
founded 1901
Dr. Siebert & Kühn GmbH & Co. KG

…measurement…control…calibration
Phone: 0700 CALL SIKA
Phone: +49 5605 803-0
Fax: +49 5605 803-54
E-Mail: info@sika.net
Internet: http://www.sika.net
Struthweg 7-9, 34260 Kaufungen
P. O. Box 1113, 34254 Kaufungen
Germany

Subject to technical modification