

# TEMPERATURE

## Calibration Service for Temperature

The calibration laboratory of E+E Elektronik GmbH is accredited according to DIN EN ISO/IEC 17025, with identification number 0608, by Akkreditierung Austria / Federal Ministry of Science, Research and Economy. E+E Elektronik is a designated lab, responsible for the maintenance of the “National Standard for Air Humidity” in Austria.

The reliable calibration of the temperature transmitters is carried out either in our lab or directly on-site.

The E+E ÖKD calibration lab offers calibrations for air temperature sensors from -70 °C to 200 °C (-94 °F to 392 °F) and for contact thermometers from -45 °C to 425 °C (-49 °F to 797 °F). The special calibration of the air temperature sensor in a temperature-stabilised measurement chamber, with constant air flow has the advantage that the intrinsic warming of the test specimen (depending on the measurement medium) is also taken into account.



For the reliable calibration of stationary systems such as furnaces, temperature cabinets, refrigeration and freezer cabinets, the on-site service from E+E Elektronik offers special benefits:

- No test equipment failures
- Fast delivery time
- No transport risks

### Calibration object

- Immersion, penetration or air probes
- Temperature transmitters
- Data loggers, hand-held transmitters
- Contact surface temperature probes
- Temperature cabinet, furnace
- Refrigeration / freezer cabinets



### Calibration range

Calibration standard	Calibration object	Measurement method	Measurement range
ÖKD Lab	Air temperature probe (transmitter, data logger)	Comparative measurement in temperature-stabilised measurement chamber	(-70 to 200) °C
ÖKD on-site	Air temperature probe (transmitter, data logger)	Comparative measurement in temperature-stabilised measurement chamber	(-25 to 100) °C
ÖKD Lab/ on-site	Contact thermometer (immersion, penetration, air probes)	Comparative measurement in the block calibrator	(-45 to 425) °C
ISO E+E / on-site	Air temperature probe (transmitter, data logger)	Comparative measurement in the block calibrator	(-30 to 155) °C
ISO E+E / on-site	Contact thermometer (immersion/penetration probe)	Comparative measurement in the block calibrator	(-30 to 425) °C
ISO E+E / on-site	Contact surface temperature probe	Comparative measurement with surface temperature calibrator	(35 to 400) °C
ISO E+E / on-site	Temperature cabinet, dry cabinet, furnace, refrigeration cabinet, frozen cabinet	Comparative measurement with accredited calibrated transmitter	(-45 to 1100) °C

## OEKD Calibration Standard

### ÖKD ACCREDITED CALIBRATION - Accreditation Austria

The essential characteristic of an accredited calibration certificate is the traceability of measurement results and thus their international comparability. The essential factor is mainly the indication of measurement uncertainties, which is determined from the measurement process.

According to international agreements (ILAC), only calibration labs accredited in accordance with EN ISO/IEC 17025 can perform traceable calibrations, thus ensuring full international comparability of the calibration results.



### Calibration procedure

The calibration is performed for air temperature sensors in a temperature-stabilised measurement chamber at a gas flow of 5 l/min, for contact thermometer in a block calibrator with high precision temperature regulation. The generated temperature is determined using a calibrated Pt100 resistance thermometer and used as a reference value.

## ISO Calibration Standard

ISO calibrations are comparative measurements of external test samples with E+E internal reference units. The reference units used are traceable to national standards. The comparative measurement is performed according to internal procedures, which comply with the requirements of ISO 9001.

By using high quality measuring equipment, the comparative measurement provides information about the device's calibration situation.

## Ordering Guide

Calibration standard		OEKD-B	ISO-B
Calibration object	Transmitter, data logger for air temperature	L	L
	Contact thermometer (immersion, penetration, air probes)	K	K
	Contact surface temperature probe		O
	Temperature cabinet, furnace		T
	Refrigeration/freezer cabinets		G
Calibration points	Number of calibration points	1...9	1...9
Text entry	Values for calibration points (e.g.: -5/20/80 °C)		

### Order example:

**OEKD-BK3**

**Text field: -5/20/80 °C**

#### Description:

- [B] accredited temperature calibration of a
- [K] - contact thermometer with
- [3] - 3 points at -5/20/80 °C

### Order example:

**ISO-BO3**

**Text field: 100/200/300 °C**

#### Description:

- [B] ISO temperature calibration of a
- [O] - surface probe with
- [3] - 3 points at 100/200/300 °C