Temperature and Humidity Calibration

What is Temperature and Humidity Calibration?

Temperature and humidity calibration ensures the accuracy of measuring instruments used in a variety of critical applications, from quality control in industrial processes to environmental monitoring. At Applus+ Laboratories, we offer both in-laboratory and on-site calibration services, complying with ISO 17025 and ensuring traceability and international compliance. Our services ensure that instruments provide accurate and reliable measurements.

ISO 17025 Standard

ISO 17025 is an international standard that specifies the general requirements for the competence of testing and calibration laboratories. Its purpose is to ensure that these laboratories operate competently and generate technically valid and reliable results.

This provides confidence to customers and stakeholders that the results obtained are accurate and can be used with confidence in decision making, research and development, as well as in the quality assurance of products and services.

Temperature Calibration

Temperature calibration includes equipment and instruments such as specialized thermometers and units of measurement divided into ranges.

Temperature Calibration Measurement Equipment and Instruments

Applus+ Laboratories calibrates a wide variety of temperature measurement equipment, ensuring its accuracy and reliability.

- **Direct reading and liquid column thermometers**: Used to measure temperature in laboratories and industrial processes. We guarantee their accuracy for specific applications.
- **Infrared radiation thermometers (pyrometers)**: Instruments that measure temperature at a distance using infrared radiation. They are essential for industrial and research applications.
- **Platinum thermometric resistors (Pt-100, Pt-200, Pt-1000)**: Highly accurate temperature sensors, used in critical processes that require accurate measurements.
- **Thermocouples (Types K, N, J, T, E, S, R, B)**: Versatile and robust temperature sensors used in various industrial and scientific applications.
- **Temperature calibrators**: Devices used to calibrate other thermometers and sensors, ensuring measurement accuracy.
- **Calibrations of isothermal media**:
  - **Stoves, ovens, climatic chambers, freezers, incubators, refrigerators, autoclaves, digesters and block heaters, aeronautical thermal installations, wood heat treatment installations, refrigerators, air-conditioned rooms, thermocyclers**: Equipment used in laboratories and industries to maintain controlled temperature conditions. Their calibration ensures optimum performance.
  - **Thermostatic baths**, furnaces, dry block furnaces, vacuum furnaces, continuous furnaces: Used to maintain constant temperatures in laboratory and calibration processes.

Temperature Measurement Units

We calibrate the following quantities and fields of measurement to guarantee the accuracy and reliability of the instruments:

- **Immersion Calibration Ranges**: From -95 °C to 1250 °C
- **Air Calibration Ranges**: From -40 °C to 180 °C for Platinum Resistance Thermometers Direct reading thermometers with thermometric resistance sensor, Direct reading thermometers with other sensors.
- **Calibration of In Situ Thermometers**: Accredited range from -50 °C to 1100 °C.
- **Infrared Radiation Pyrometers**: Wavelength from 8 to 14 microns in the range from -10 °C to 950 °C, between 0.8 and 1.8 microns in the range from 300 °C to 1300 ° C and between 1.8 and 3 microns in the range from 300 °C to 1300 °C.
- **Calibration of thermography cameras**: Wavelength from 8 to 14 microns in the range from -10 °C to 450 °C.

Humidity Calibration

Humidity calibration includes instruments such as hygrometers and climatic chambers that measure humidity according to different units.

Humidity Calibration Equipment and Measuring Instruments

Applus+ Laboratories offers calibration of a variety of humidity measurement equipment, essential for various industrial and environmental applications.

- **Hygrometers**: Instruments used to measure relative humidity in different environments. They are essential in quality control and storage processes.
- **Thermohygrometers for environmental conditions**: Combine temperature and humidity measurement, used in environmental monitoring and process control.
- **Humidity transmitters**: Sensors that convert humidity into an electrical signal to be measured and controlled in industrial systems.
- **Data-loggers**: Devices that record humidity and temperature data over time, used in environmental condition monitoring.
- **Climatic chambers**: Equipment that maintains controlled temperature and humidity conditions, essential in testing and storage of sensitive products.

Humidity Measurement Units

We calibrate the following quantities and fields of measurement to guarantee the accuracy and reliability of the instruments:

- **Relative Humidity Calibration Ranges**: from 10 %hr to 98 %hr.
- **Temperature Calibration Ranges**: At different temperatures from 5°C to 90 °C.

How to Callibrate Temperature and Humidity Calibration Instruments

To callibrate temperature and humidity measuring instruments, follow these steps:

- **Select an Accredited Laboratory**: Choose Applus+ Laboratories, accredited to ISO 17025.
- **Send Instruments for Calibration**: Instruments can be sent to our laboratory or our experts can perform on-site calibration.
- **Calibration Process**: We use traceable reference standards to test and adjust instruments, ensuring that your measurements are aligned with recognized benchmarks.
- **Receive Calibration Certificate**: A detailed calibration certificate is issued, confirming that the instrument meets the required standards.

Benefits of Temperature and Humidity Calibration

Calibrating these instruments offers numerous benefits:

- **Improved Accuracy**: Ensures accurate measurements for critical processes.
- **Regulatory Compliance**: Meets stringent ISO 17025 standards.
- **Reliability**: Increases the reliability of measurement data.
- **Traceability**: Provides documented traceability to national and international standards.
- **Cost Efficiency**: Prevents costly errors and penalties for non-compliance.

Why choose Applus+ Laboratories for Humidity and Temperature Calibration?

Applus+ Laboratories offers several advantages for the calibration of these instruments:

- **Accredited Experience**: We are accredited by ENAC according to ISO 17025, guaranteeing high standards of accuracy and reliability.
- **Comprehensive Services**: Our calibration services cover a wide range of instruments and measurement variables.
- **Advanced Equipment**: We use state-of-the-art equipment for accurate calibration.
- **Experienced Professionals**: Highly trained personnel with extensive experience in temperature and humidity measurements.
- **Customized Solutions**: Services tailored to the specific needs of each client.
- **Quality Assurance**: Rigorous quality controls and traceability in all calibration processes.