DEARTO Instrument·Quality Model

Professional Manufacturer of
Temperature and Humidity
Precision Calibration Instrument

Address : High-tech Development Zone, Tai'an,
Shandong Province China

Telephone : +86 0538-5089056

Fax : +86 0538-5059718

Website : www.dearto.cn www.dearto.com

E-mail : tadtzdh@dearto.cn

After sale : services@dearto.cn

Website QR code

Website QR code

DEARTO

Temperature

nV
High-Precision

Humidity

On-site Metrology

Tai'an Detu Automation Instrument Co., Ltd.

About us

COMPANY INTRODUCTION

Hand in hand to create
a better future

DEARTO-Your Partner for Professional Temperature and Humidity Calibration Solutions

Tai'an Detu Automation Instrument Co., Ltd. is a high-tech enterprise based in Tai'an High-Tech Zone, Shandong, China. We specialize in the R&D, manufacturing, and sales of temperature and humidity calibration equipment. Committed to independent innovation, DEARTO is a recognized pioneer in intelligent calibration systems and has been honored with numerous industry distinctions, including: High-Tech Enterprise certification, membership in the National Temperature Measurement Committee, council membership of the Shandong Metrology & Testing Association,and recognition as a “Specialized and Innovative SME” and a “Gazelle Enterprise” in Tai’an.

DEARTO holds multiple invention, utility model, and design patents, along with software copyrights. We have participated in drafting industry standards and operate R&D centers in Tai'an and Chengdu, China. Our product portfolio includes: Temperature Automatic Calibration Systems, Humidity Metrology Instruments, Surface Probe Temperature Calibrators, Blackbody Calibrators, Smart Thermometer Readouts, On-site Metrology Instruments, and Temperature and Humidity Data Acquisition Loggers.

With a customer-oriented mindset, we offer customizable solutions tailored to diverse industry needs. Our instruments are widely used by national and regional metrology institutes, research institutions, and key players in sectors such as power, petrochemical, pharmaceutical, and semiconductors, among others. Our reputation is built on precise performance, smart functionality, and thoughtful design—all supported by a robust quality assurance system and professional technical support.

DEARTO products are trusted by satisfied customers worldwide, including the U.S., Canada, Germany, France, Italy, Australia, Singapore, Brazil, and many other countries across Asia, Europe, and the Americas.
With extensive experience and a proven track record in temperature and humidity metrology, DEARTO provides reliable, long-term support to global partners. We remain committed to our core belief in “**DEARTO Instrument · Quality Model**”, delivering innovative and outstanding solutions.

DEARTO Spirit

Independent Innovation
Rigorous Focus
Efficient Collaboration
Integrity & Accountability

Our Philosophy

Innovation Defines the Future,
Precision Measures the World.
In Data We Trust, Every Measurement Counts.

CONTENT

Temperature Automatic Calibration Systems

p.5 DTZ-01/02 Thermocouple and Resistance Temperature Detector Automatic Calibration System
p.9 DTZ-01S Noble Metal Thermocouple Wire Automatic Calibration System
p.10 DTZ-WK Electronic Scanning Switch Automatic Test System
p.11 DTZ-NTC Thermistor Automatic Detection System
p.13 DTZ-TS Temperature Switch Automatic Calibration System
p.14 DTZ-OTG Transformer Temperature Controllers Smart Calibration System

Smart Thermometer Readouts

p.15 DTMC-301 mK Grade High - Precision Thermometer Readout
p.20 DTMA-101 Portable Thermometer Readout
p.21 DTMC Six-channel Precision Thermometer Readout
p.22 DTSW Stick Standard (Precision) Digital Thermometer

Humidity Metrology Instruments

p.37 DTLH Ultra - Low Temperature and Humidity Smart Calibration Chamber
p.37 DTLH Oversized Smart Temperature and Humidity Calibration Chamber
p.37 DTLH Smart Temperature and Humidity Calibraiton Chamber
p.40 DTHTH High Temperature and High Humidity Smart Calibration Chamber
p.45 DTSL Pro Fully Automatic Temperature and Humidity Calibration System
p.48 DTSL-DHT Temperature and Humidity Sensors Automatic Calibration Platform
p.49 DTWL High-Precision Temperature Calibration Chamber
p.50 DTLH-Mob Portable Temperature and Humidity Calibration Chamber
p.51 TADT Portable Humidity Generator
p.52 TADT-atm Integrated Temperature, Humidity, and Pressure
p.54 DT-ACG200 Control Generator Chilled Mirror Precision Dew Point Meter

Temperature Sources

p.23 DTS-CT Smart Calibration Bath
p.25 DTS-CH Ultra - Low Temperature Smart Calibration Bath
p.25 DTS Calibration Bath
p.26 DTS-T Wide Temperature Range Smart Calibration Bath
p.27 DTF Triple Point of Water Maintenance Bath
p.28 DTW High Temperature Smart Calibration Salt Bath
p.29 DTS-B Portable Smart Refrigerated Calibration Bath
p.30 DTS-300B Portable Smart Heating Calibration Oil Bath
p.31 DTL Thermocouple Calibration Furnace
p.34 DTL-H High Temperature Thermocouple Calibration Furnace
p.35 DTG Smart Dry Block Calibrator
p.35 DTG-ETC Micro Smart Dry Block Calibrator

Surface Probe Temperature Calibrators

p.55 DTZ-400 Surface Probe Temperature Calibrator

Blackbody Calibrators

p.58 DTM-B Portable Blackbody Source
p.60 DTR DTR Blackbody Source
p.60 DTM DTM High Temperature Blackbody Source

Temp. and Hum. Data Acquisition Logger

p.62 DTZ-300WX Distributed Wireless Data Acquisition System
p.63 DTZ-300BX Multi-Channel Temperature and Humidity Data Acquisition Logger
p.65 DTWX-01 Online Temperature and Humidity Monitoring System
p.66 DTZ-300BW Smart Multi-Channel Temperature and Humidity Data Acquisition Logger
p.67 DTPro Wireless Real-Time Validation System
p.67 DTRC Wireless Temperature, Humidity, and Pressure Validation System

Appendice

p.1 Honor Of Qualification
p.71 Typical Customers

Company qualification

Business License

High-Tech Enterprise

Shandong Provincial "Specialized, Refined, Distinctive, and Innovative" SME

Company qualification

Shandong Provincial Innovative SME

Tai'an Gazelle Enterprise

ISO 9001 Quality Management System Certification

Invention Patent

Intelligent Thermostatic Bath Control System

An instrument temperature and humidity tester

DEARTO Instrument · Quality Model

Utility Model Patent

Temperature & Humidity Calibration Chamber

A temperature and humidity tester

Over-temperature protection circuit

High-Precision Temperature Chamber

Temperature and Humidity Calibration Chamber

Thermocouple calibration furnace

Micro smart calibration bath

Wireless Thermohygrometer

Hand-held digital thermometer

Surface Surface Probe Temperature Calibrator

Computer Software Copyright Registration Certificate

Thermal meters calibration system

Standard Thermocouple Calibration System

TC & RTD Simultaneous inspection system

Scanner Automatic test system

NTC thermistor Automatic detection system

Honor Of Qualification

Software Copyright Registration Certificate


Precious Metal Thermocouple Wire Test Software


Platinum Rhodium Thermocouple Filament Test Software


Thermocouple Calibration Furnace Temperature Field Test Procedure


Automatic Temperature Control Software For Constant Temperature Bath


Intelligent Water Three-Phase Point Bath Automatic Control System


Intelligent Oil Bath Automatic Control System


Uncertainty Calculation Software


Industrial RTD Uncertainty Calculation Software


Data correction software


Digital Temperature Indicator and Regulator Verification System


Fully Automatic Photographing, Recognition and Verification System for Thermohygrometers


Temperature and Humidity Calibration Chamber Control System


Mechanical Thermohygrometer Calibration System


Digital Thermohygrometer Automatic Calibration System


High-Precision Digital Thermometer System


Dual-Channel Precision Thermometer


Temperature and Humidity Field Testing System


Automatic Temperature Field Testing System


Wireless Intelligent Temperature Field Inspection System


Wireless temperature/humidity/ pressure verification system

Temperature Automatic Calibration System

Product selection navigation map

Thermocouple & RTD Automatic Calibration System

DTZ-01 Thermocouple and Resistance Temperature Detector Automatic Calibration System

DTZ-NTC Thermistor Automatic Calibration System

DTZ-01S Noble Metal Thermocouple Wire Automatic Calibration System

DTZ-02S Base Metal Thermocouple Wire Automatic Calibration System

Electronic Scanning Switch Automatic Test System

DTZ-WK Electronic Scanning Switch Automatic Test System

Temperature Switch Automatic Calibration System

DTZ-OTG Transformer Temperature Controllers Smart Calibration System

DTZ-TS Temperature Switch Automatic Calibration System

Multi-Furnace Thermocouple & RTD Automatic Calibration System

DTZ-02 Multi-Furnace Thermocouple & RTD Automatic Calibration System

DTZ-02A Group Furnace Automatic Calibration System for Standard Thermocouple

DTZ-03 Automatic Simultaneous Calibration System For Thermocouple and RTD

Thermocouple and Resistance Temperature Detector Automatic Calibration System

Overview

The DTZ-01 and DTZ-02 Thermocouple and RTD Automatic Calibration Systems are designed for the automatic calibration and verification of temperature sensors, including working thermocouples, industrial RTDs, liquid-in-glass thermometers, bimetallic thermometers, and pressure thermometers. The systems can simultaneously control 1 to 10 calibration furnaces, each capable of calibrating up to 10 thermocouples at once. The systems also support batch calibration of various platinum and copper RTDs, with a capacity of up to 100 sensors in a single operation, meeting high-throughput calibration needs.

PC-Based Professional Calibration Software

Calibration Scope

- The systems support automatic calibration of:
  Primary and secondary standard thermocouples (S, R, B), working thermocouples (S, R, short S/R, B, K, N, E, J, T, EA-2, WRe3-WRe25, WRe5-WRe26).
  Various industrial RTDs (Pt100, Pt10, Pt-X, Cu50, Cu100, Cu-X, BA1, BA2) and integrated transmitters (0–10 mA, 4–20 mA, 1–5 V).
  Thermocouple wires (SP, SN, RP, RN, BP, BN, KP, KN, NP, NN, JP, JN, EP, EN, TP, TN).
- The system software supports S, R, B, T standard thermocouples and standard platinum resistance thermometers.
- Double verification is provided for I-class S/R and II-class B working noble metal thermocouples, consolidating the results from two verification runs into a finalized report.
- A combination of manual and semi-automatic calibration is supported for liquid-in-glass thermometers, bimetallic thermometers, and pressure thermometers with automatic data processing and report generation.

Technical Parameters

Scanner parasitic EMF	≤0.2μV	Thermocouple cold junction compensation range	5 °C to 50 °C
Inter-channel data acquisition deviation	≤0.5μV , 1.0 mΩ	Thermocouple calibration furnace control capability	220V、0 to 40A
Measurement repeatability	≤1.0μV , 3.0 mΩ	Set point deviation	≤0.1°C
Verification of measurement data processing results	≤0. 1μV , 0.1mΩ	Total extended uncertainty of thermocouple system	≤0.68°C
Total expanded uncertainty of RTD system	Standard Platinum Resistance Thermometer (Rtp) — Measurement after rechecking with a triple-point-of-water cell: RTD ≤ 0.03 °C (at 0 °C); 0.06 °C (at 100 °C)		
	Standard Platinum Resistance Thermometer (Rtp) — Using value from calibration certificate: RTD ≤ 0.05 °C (at 0 °C); 0.09 °C (at 100 °C)		
Temperature stability of working thermocouple system	≤ 0.5 °C/6 min; measurement ≤ 0.1 °C/min		
Temperature stability of industrial RTD system	≤ 0.01 °C/10 min; measurement ≤ 0.01 °C/min		

Procedures / Standards

Code	Name of Procedure (Specifications)	Code	Name of Procedure (Specifications)
JJG75-2022	Verification Regulation of Standard Platinum-10% Rhodium/Platinum Thermocouples	JJF1098-2003	Calibration Specification for Auto-measuring System of Thermocouples and resistance Thermometers
JJG141-2013	Verification Regulation of Working Noble Metal Thermocouples	JJG130-2011	Verification Regulation of Liquid-in-Glass Thermometers for Working
JJF1637-2017	Calibration Specification for Base Metal Thermocouples	JJG161-2010	Verification Regulation of Standard Mercury-in-Glass Thermometers
JJF1991-2022	Calibration Specification for Short Base Metal Thermocouples	JJF1909-2021	Calibration Specification for Filled System Thermometers
JJG668-1997	Verification Regulation of Working Platinum-10% Rhodium/Platinum and Platinum-13% Rhodium/ Platinum Thermocouple with Short Length	JJF1184-2024	Testing Specification for Temperature Uniformity in Thermocouple Calibration Furnaces
JJG368-2000	Verification Regulation of the Working Copper/ Copper — Nickel Thermocouple	JJF1908-2021	Calibration Specification for Bimetallic Thermometers
JJG229-2010	Verification Regulation of Industry Platinum and Copper Resistance Thermometers	JJF1183-2007	Calibration Specification for Temperature Transmitters
JJF1262-2010	Calibration Spectification for Sheathed Thermocouples	AMS2750F	High temperature measurement
JJF1176-2024	Calibration Specification for (0~2300)°C Tungsten Rhenium Thermocouples	JJF1030-2023	Measurement and Test Norm of Metrological Characteristics of Thermostatic Baths for Temperature Calibration

PC-Based Professional Calibration Software

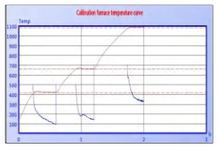
Calibration/Verification Scope

Calibration function	Type	Grade	Remarks
Standard thermocouple	S,R,B	First-class and second-class	Standard thermocouples
Working Thermocouples	S, R, short S, short R	Class I, II	Noble-metal working thermocouples
	B	Class II, III	—
	K,N,E,J,T,EA-2,etc	Grade 1 , 2	Base-metal thermocouples
	WRe3-WRe25,WRe5-WRe26	—	Tungsten–rhenium working thermocouples
Industrial RTD	Pt100,Pt10,Cu50,Pt-X,Cu-X,Cu100	Grade AA , B , C , etc	2-, 3-, or 4-wire
Temperature transmitter	0-10mA,4-20mA,1-5V	—	Voltage-type and current-type
Noble metal thermocouple wire	SP,SN,RP,RN	Standard (First-, Second-class), Class I, II	Pt-Rh 10 Alloy, Pt-Rh 13 Alloy
	BP,BN	Standard (First-, Second-class), Class II, III	—
Fine-wire platinum–rhodium thermocouple	SP , SN (pure platinum) RP , RN (pure platinum) BP : platinum-rhodium 30 alloy, BN : platinum-rhodium 6 alloy	—	Pt-Rh 30 Alloy
Base metal thermocouple wire	KP, KN, NP, NN, JP, JN, EP, EN, TP, TN	Class I, II, III	NiCr alloy, NiCrSi alloy, CuCr alloy

Product Features

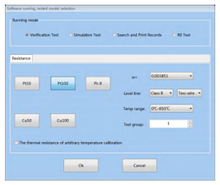
- System software supports single-furnace low-EMF scanners, dual-furnace low-EMF scanners, and multi-furnace low-EMF scanners.
- The systems support communication protocols for a variety of digital multimeters and high-precision thermometers.
- System software allows simultaneous, user-defined selection of different types of calibration furnaces and standard instruments.
- The systems support constant-temperature sources from different manufacturers, with user-selectable temperature control modes.
- Multiple thermocouple reference junction compensation methods are offered, including 0 °C thermostat compensation and automatic ambient temperature compensation.
- Temperature can be controlled using a standard thermocouple to improve accuracy, control speed, and stability.
- Power-off protection and calibration resumption prompts are available; after power is restored, the user can choose whether to continue the calibration process.
- Forced-calibration and over-temperature protection are featured to meet diverse customer testing requirements.
- The systems utilize advanced professional PID algorithms, supporting automatic PID tuning for calibration furnaces and automatic saving of parameters after tuning.

Main Interface



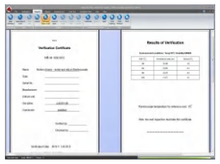
Curve Data Tracking Interface

- Provides multimedia audible alarms and intelligent prompts during test startup, upon completion, and in case of errors.
- Supports automatic channel checking and filtering, with prompts for abnormal data after inspection.
- Electronic signature is supported.
- Automatically saves calibration data to the database upon completion.
- Supports grouped calibration: up to 100 RTDs can be calibrated in one session, divided into 10 groups for Pt10, Pt100, Pt-X, Cu50, Cu100, Cu-X industrial RTDs, improving testing efficiency.
- Allows input of transmitter information (0–10 mA, 4–20 mA, 1–5 V, etc.), with editable parameters including upper and lower temperature limits, accuracy, compensation wire type, and load resistance for current transmitters (default 250 Ω).
- Supports mixed calibration: each calibration furnace can be set with its own sensor type and quantity, allowing simultaneous calibration of different base-metal or noble-metal thermocouples in the same furnace, with automatic data processing and result determination.
- Displays a consolidated overview of multiple furnaces' operating status, including current temperature, setpoint, rate of change, and progress.
- Enables fully automatic calibration, including automatic temperature control, data monitoring, data acquisition, and processing, with automatic generation of various reports and database storage; supports database search and retrieval.
- Meets or exceeds the requirements of JJF 1098-2003 Calibration Specification for Auto-measuring
- System of Thermocouples and Resistance Thermometers.
- Features integrated statistical management, multi-threaded design, compatibility, and self-diagnostic capability.
- Compatible with Windows 2000, XP, Windows 7, Windows 8, and Windows 10 operating systems; practical, professional, and open, supporting interfacing with equipment from multiple manufacturers. Core technology is independently developed with full intellectual property rights, based on national verification regulations and specifications, with dynamic simulation of calibration scenarios, providing comprehensive after-sales and upgrade support.



Exclusive Features

- The systems support calibration to U.S. standards, in compliance with AMS 2750F Aerospace Material Specification and ASTM E230/E230M-23 Standard Specification for Temperature-Electromotive Force (emf) Tables for Standardized Thermocouples.
- The systems support combined calibration of thermocouples for low- and high-temperature ranges, with automatic selection of the temperature source and reference instrument. Automatically merges raw reports: for temperatures below 300 °C, a standard platinum resistance thermometer is automatically selected; for high temperatures, a standard thermocouple is selected — without manual changes to the reference instrument type.
- Test item headers are customizable; a wide range of header fields (serial number, model/specification, manufacturer, submitting organization, appearance, submission date, insulation resistance, management category, special handling) can be freely selected and defined to meet diverse customer requirements.
- Intelligent search: allows one-click search based on sensor information such as calibration completion date, calibration type, sensor type, accuracy class, certificate number, and pass/fail result.
- Customizable sensor class settings for easier filtering by accuracy requirements.
- Quick copy: allows one-click copying from an existing calibration record into the device information field.
- Compensation wire database management: stores predefined correction parameters; compensation wires can be selected by ID number with automatic entry of correction values.
- Automatically generates tolerance values for additional temperature points beyond those specified in the verification regulation, using the tolerance calculation method from the regulation; automatically determines thermocouple class based on measured error.
- Automatically updates the probe diameter information when "armored" is selected.
- Allows free configuration of up to 10 temperature test points; automatically switches between reference instrument and temperature source for high and low temperature points.
- Automatic temperature control deviation correction during calibration to ensure data accuracy.
- Provides prompts during calibration if data fails to meet tolerance or shows poor repeatability.
- Bundled with PC-based Dearto Thermal Calculator software / WeChat applet for automatic temperature calculation for working thermocouples, industrial RTDs, standard thermocouples, standard platinum resistance thermometers, temperature transmitters, and thermistors.



Temperature Scale Conversion Software

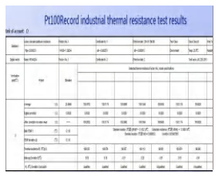
Software Copyright Registration Number

2013SR024368 2015SR104859 2015SR105857 2016SR107593 2016SR107498 2020SR1061905 2022SR0308254 2022SR0301664 2022SR0299401

DEARTO Instrument · Quality Model

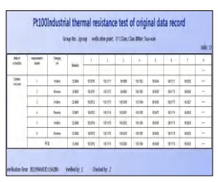
Professional Report and Custom Certificate Functions

- Automatically generates calibration, verification, and customized raw record forms.
- Raw record forms can be custom-named for fast retrieval of different record types and contents.
- Supports traceable modification of raw record forms; after data changes, the system automatically recalculates the calibration conclusion. All modifications are logged and stored for future review and traceability.
- Automatically issues verification certificates in standardized Word format upon completion.
- Supports preview of verification/calibration certificates in Word format.
- Customizable Word certificate templates, allowing users to define certificate content.



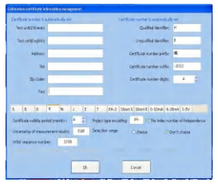
Uncertainty Analysis and Evaluation

- Supports automatic calculation of uncertainty for thermocouples and RTDs, displaying a summary table of uncertainty components with the option to review full calculation details.
- Equipped with dedicated software for automatic repeatability testing.
- Supports automatic repeatability testing for calibration system thermocouples, low-temperature thermocouples, and RTDs; can be used as a standard-establishment tool, generating a summary table of uncertainty components and a Word-format uncertainty evaluation report.
- Bundled with PC-based Dearto Thermal Calculator software / WeChat applet offering multiple commonly used formulas for industrial thermocouples, industrial RTDs, standard thermocouples, standard platinum resistance thermometers, temperature transmitters, and thermistors.



Bundled Professional Edition Automatic Test System Software

- Automatically completes parasitic EMF and inter-channel data difference testing as required by JJF 1098-2003 Calibration Specification for Auto-measuring System of Thermocouples and Resistance Thermometers.
- Automatically tests low-EMF scanners / scanning switch modules (for standard thermocouples, working thermocouples, and industrial RTDs), performing data acquisition, calculation, and result determination to ensure accuracy and efficiency.
  1. Supports automatic testing for all series of low-EMF scanners.
  2. Before testing, automatically performs channel data checks, real-time communication checks, abnormal condition alerts, automatic repeat tests, and automatic recovery.
  3. Intelligent process control for parasitic EMF testing.
  4. Guided inter-channel data difference testing, with pop-up and voice prompts to instruct the user to switch signal sources as needed.
  5. Real-time display of calibration data for immediate review.
  6. Real-time saving of calibration data, with the ability to resume calibration after system shutdo wn or manual stop.
  7. When resuming, allows selection of a new start point.
  8. Supports simulated calibration for training and demonstration purposes.
  9. Supports export of test data to Excel or WPS formats.



Exclusive Features of Low-EMF Scanners

- 7-inch LCD control and display panel for real-time monitoring of standard and test channel positions/status, with the ability to switch between them. Enables calibration/verification without connection to the host PC.
- Convenient query functions: built-in quick guide for system operation, with on-demand instructions covering wiring for standard and test devices, test workflows, and maintenance guidelines.

Overview

The DTZ-01S Automatic Calibration System for Noble Metal Thermocouple Wire is a fully automated metrology and inspection platform designed specifically for noble metal thermocouple wire production. The system integrates a multi-channel low-EMF scanner, digital multimeter, calibration furnaces, and other key components, forming a complete end-to-end solution—from raw wire property testing to calibration of finished thermocouple products. Using a modular control architecture, it supports automated EMF–temperature curve mapping of Pt–Rh wires, realization of standard thermocouple traceability, and on-site calibration of industrial-grade noble metal thermocouples. This enables fully automated, high-accuracy, and intelligent metrology across the entire process, from single-wire testing to paired thermocouple component calibration.

DTZ-01S Noble Metal TC Wire Automatic Calibration System

PC-Based Professional Calibration Software

Features / Advantages

Flexible compatibility with multiple thermocouple types	Supports standard thermocouples (S, R, B, ST) as well as independent positive/negative single noble metal wires and paired wire testing.
Simultaneous batch testing of positive and negative wires	Capable of high-precision simultaneous EMF measurement for up to 8 positive Pt–Rh wires and 8 negative Pt–Rh wires, significantly reducing batch test time and improving throughput via parallel multi-channel processing.
Dual-polarity and like-polarity calibration	Performs both forward/reverse polarity verification and like-polarity comparison simultaneously. Multi-dimensional cross-analysis enables result validation, anomaly diagnosis, and dynamic optimization of production parameters.
High-temperature furnace with segmented PID control	Multi-stage PID algorithms adaptively regulate the heating process, ensuring precise temperature control and minimal fluctuation across the entire range. Real-time current monitoring and load protection prevent overheating and damage, ensuring stability and safety.
Optimized multi-channel low -EMF scanner interface	Automatically adapts to dual-polarity and like-polarity measurement modes, enabling dual-mode simultaneous measurement while simplifying operation and eliminating wiring-related measurement errors.
Optimized palladium-point furnace linear heating control	High-precision temperature control algorithms, designed to meet national standards, maintain strict linear heating rates, ensuring accurate reproduction of the palladium point platform for stable EMF measurement references.
Manual verification and multi-dimensional data fusion	Provides a fully adjustable manual interface supporting both single and batch acquisition modes. Bidirectional test data are fused via multi-dimensional error compensation algorithms to eliminate system bias and improve accuracy.
Non-uniformity testing at specified temperature points	Uses multi-probe arrays to collect EMF data across multiple points at the target temperature, combined with spatial distribution analysis to detect material non-uniformities, ensuring batch consistency and process reliability.
Fully automatic, unattended calibration	Multi-threaded control with embedded algorithms automates furnace temperature control, multi-channel real-time monitoring, intelligent data processing, and standardized report generation, reducing operator intervention and improving efficiency and consistency.
Visual monitoring interface	Integrates multi-source data display for real-time system status, calibration point temperatures, synchronized multi-channel data, and error analysis. A graphical interface with smart prompts ensures intuitive process control.
Intelligent report generation and output	Automatically produces test record tables, supports export of raw data, and ensures standardized, easily accessible calibration documentation.
Dynamic temperature curve tracking and historical review	Continuously updates temperature trend curves and allows review of historical data, providing clear visual references and traceability for calibration processes.

Overview

The DTZ-WK Electronic Scanning Switch Automatic Test System is designed for switching and acquiring signals from RTDs and thermocouples, making it suitable for industrial applications requiring multi-point temperature measurements in bulk. The DTMC-mK301-WK scanning switch module, with its outstanding performance and unique features, provides an efficient and precise solution for rapid switching and data acquisition of multi-channel temperature signals. As a functional expansion to the mK301 high-precision thermometer readout, the DTMC-mK301-WK enables real-time viewing of multi-channel, multi-type temperature signals, synchronously displaying electrical measurement and temperature data for each channel.

DTZ-WK Electronic Scanning Switch Automatic Test System

mK Grade High - Precision Thermometer Readout

Electronic scanning switch

Features / Description

Flexible application	Supports both manual and automatic testing modes.
Low parasitic EMF and fast channel switching	Parasitic EMF ≤ 0.2 μV; channel connect/disconnect time < 100 ms.
Channel expansion for batch calibration	Equipped with 8 DUT channels plus expansion ports; supports cascading up to 32 channels for batch testing.
Multi-sensor compatibility	Automatically converts electrical measurements to temperature values in real time, with results displayed on the mK301 main interface; supports 2/3/4-wire RTDs and S/R/B/K/N/J/E/T/WRe3/WRe5 thermocouples.
Built-in CJC automatic compensation	Automatically corrects for cold junction temperature variations to eliminate measurement errors, ensuring accurate thermocouple signal conversion.
Multiple mode switching	Supports switching between 3-wire RTDs with single/double lead wires, 2-wire RTDs, 4-wire RTDs, and thermocouple modes.
Automatic calculation for 3-wire RTDs	Automatically computes results for 3-wire RTDs (single or double lead) and displays them in real time on the mK301 interface.
Rs232 communication	Rs232 interface enables efficient data transfer and system integration.
Multiple quick-connection interfaces	Provides 4 mm banana jacks, U-type solder lugs, and standard binding posts to suit different applications and improve testing efficiency.

Applications

RTD Automatic Test System

When integrated with the mK301 high-precision thermometer readouts, standard references, and a temperature source, the DTMC-mK301-WK forms a complete 2/3/4-wire RTD measurement system. It supports flexible manual/automatic operation modes, displays resistance and corresponding temperature values in real time, and uses built-in algorithms for precise conversion. All data are presented directly on the mK301 interface, enabling efficient end-to-end processing from signal acquisition to result analysis.

Thermocouple Automatic Test System

When combined with the mK301 high-precision thermometer readouts, standard references, a temperature source, a cold-junction thermostat, and a Pt100 sensor, the DTMC-mK301-WK forms a complete thermocouple calibration system. It supports all common thermocouple types (S/R/B/K/N/J/E/T/WRe3/WRe5), automatically converts electrical measurements to temperature values in real time, and synchronously displays results on the mK301 interface. This delivers fully automated processing from signal acquisition to result output, meeting high-accuracy, multi-type thermocouple measurement requirements.

DTZ-NTC Thermistor Automatic Detection System

Overview

The DTZ-NTC Thermistor Automatic Testing System delivers a fully automated, end-to-end thermistor testing solution by integrating a multi-channel low-EMF scanner, precision digital multimeter, professional PC software, and constant-temperature oil/water bath. Powered by advanced algorithms, the system precisely accommodates various thermistor parameters, covering a wide range of operational scenarios. It supports complete automation from data acquisition to quality analysis, with built-in industrial-grade data analytics for standardized report generation and remote monitoring. Offering high reliability and scalability, it provides an efficient solution for sensor calibration, batch verification, and quality control in modern intelligent manufacturing.

Product Features

Custom Sensor Configuration

Users can define thermistor type, instrument ID, manufacturer, client, and other test details; supports mixed-type testing.

Smart Reference Management

The system allows custom entry of reference standard details—such as serial number, class, model, manufacturer, traceability source, and certificate information—for up to nine standards. During testing, the operator can quickly select the required standard, ensuring organized management and efficient calibration.

Operation Modes

Supports both actual and simulated operation for training or demonstration, with up to ten thermistors tested simultaneously.

Temperature Point Management

Up to 8 configurable temperature points.

Intelligent Monitoring and Visualization

The main interface displays real-time key parameters—current/set temperatures, deviations, readings, change rate, and run time—for complete process visibility.

Dynamic Temperature Curve Tracking

The curve interface updates the reference standard temperature in real time and allows review of historical temperature trends.

Customizable Auxiliary Functions

The test software supports recalibration of the Rtp value for the reference standard. Data acquisition and test sequences can be configured according to customer requirements. Record table headers can be customized for clear and application-specific reporting.

Intelligent Data Management and Easy Retrieval

Test data is automatically saved and recorded, with real-time access to operational data. The record table logs acquisition data for each sensor under test and automatically calculates temperature deviations.

Integrated Calculation & Certification

The system calculates actuation temperature errors and generates test results and certificates, with functions for exporting, viewing, switching, searching, and printing certificates. Raw test data is automatically stored in dedicated folders for export, review, and reference—ensuring intelligent processing and standardized management of test data, thereby improving calibration efficiency and convenience.

Tested Sensor Configuration Interface

PC-Based Professional Calibration Software

Features / Description

Multi-channel high-speed synchronous measurement	Supports simultaneous measurement across multiple channels. Channel-to-channel data acquisition difference ≤ 1 mΩ; measurement repeatability ≤ 3 mΩ. Individual channel switching time < 100 ms. Ensures precision and stability in batch testing, significantly improving efficiency and consistency.
High-precision measurement compatibility	Fully compatible with high-accuracy digital multimeters and digital bridges (accuracy better than ±0.1%). Hardware-level signal optimization ensures resistance measurement errors remain tightly controlled, meeting the stringent requirements of precision electronics and industrial quality control.
Broad instrument compatibility	Supports seamless integration with various precision digital multimeters, enabling flexible adaptation to different instrument models and enhancing system versatility.
Precision temperature control	Utilizes PID control to achieve constant-temperature bath control accuracy better than ±0.1 °C and uniformity ≤ ±0.01 °C. Provides a stable, repeatable thermal environment for thermistor testing.
High-efficiency multi-batch testing	Supports up to 10 thermistor groups tested simultaneously, including mixed B-value parameters, for high-throughput and diverse application needs.
Quick standard reference configuration	Built-in database supports up to 9 standard references with stored parameters for one-touch selection—eliminating repeated calibration and improving operational efficiency.
Customizable data sampling rate	Flexible sampling frequency settings adapt to varying data-density requirements in different test scenarios.
Real-time temperature curve display	The system provides real-time temperature-control curve display for clear trend monitoring, accurate temperature-field control, and reliable, traceable data.
Intelligent document & report management	The system offers customizable record headers, one-click report/certificate generation with Excel export, and quick search for fast template adjustments, efficient data handling, and easy result traceability.

Software Copyright Registration Number 2022SR0299401

Overview

The DTZ-TS Temperature Switch Automatic Calibration System is an intelligent verification platform that integrates multidisciplinary technologies. It combines professional software algorithms, high-precision temperature measurement terminals, and a fully automated test architecture. The system is specifically designed for industrial-grade temperature switches and thermal control components. Through an automatic verification process, it enables fully unattended testing—from raw data acquisition and multi-dimensional feature analysis to automatic certificate generation—significantly improving verification efficiency and result reliability.

DTZ-TS Temperature Switch Automatic Calibration System

Professional PC-Based Calibration Software

mK Grade High - Precision Thermometer Readout

Temperature Switch Automatic Calibration System

Feature / Description

Flexible adaptation	Compatible with multiple types of temperature switches: active, passive, normally closed, and normally open.
Intelligent integration of components	The scanning device powers the switches under test in real time. Supports both manual and automatic test modes. Channel indicators display switching actions in real time, integrating power supply, testing, and status indication to improve efficiency and usability.
High-precision multi-channel measurement	Equipped with a high-precision multi-channel thermometer readout with a resolution of 0.0001. Supports up to 10 channels for simultaneous verification. Ensures high accuracy and reliability to meet strict calibration requirements.
Built-in uncertainty evaluation	Fully compliant with JJF 1632-2017 Calibration Specification for Temperature Parameters of Temperature Switches. Includes automated calculation of combined standard and expanded uncertainty (k=2) with traceable computation records and verification reports.
Enhanced temperature stability	Utilizes a multi-stage PID algorithm with real-time temperature feedback to ensure that after heating reaches steady state, the system achieves the specified fluctuation threshold within the set time (≥10 min). Dynamic compensation strategies maintain long-term stability, meeting technical requirements for stabilization time in metrological verification procedures.
Controlled temperature ramp rates	PID-based control limits heating/cooling rates to ≤1 °C/min, ensuring smooth transitions and preventing measurement errors from rapid fluctuations.
Integrated temperature control & switch detection	Provides real-time monitoring of temperature switch state changes while precisely controlling heating and cooling of the constant-temperature bath. This enables fully synchronized automation of temperature regulation and switch testing, ensuring efficiency and accuracy in the verification process.
Intelligent error calculation & decision-making	Displays standard reference data, bath conditions, and task status dynamically. Provides intuitive feedback and transparency throughout the verification process.
Temperature curve tracking & historical review	Real-time curve updates with access to historical data for trend analysis and traceability.
Automated reporting	Automatically generates test record tables, supporting export and printing of raw records and calibration certificates. This ensures standardized data management and convenient output in compliance with regulated verification workflows.
Efficient historical data retrieval	Supports keyword-based search, allowing users to quickly locate historical records for precise data retrieval and flexible access, significantly improving efficiency and convenience in data management.
Broad communication compatibility	Supports RS232, RS485, and Type-C interfaces for flexible integration across industrial environments.
Simplified wiring & remote extension	Employs a simplified wiring design that supports ultra-fast sensor connections and provides extension ports for long-distance testing, greatly enhancing ease of operation and adaptability to diverse testing environments.。

Overview

The Transformer Temperature Controller Smart Calibration System is a specialized system designed for the verification/calibration of transformer oil temperature controllers, transformer winding temperature controllers, temperature switches, bimetal thermometers, and pressure thermometers. Independently developed, the system meets the demands of high-volume calibration scenarios, providing users with an intelligent, convenient, and batch-oriented verification/calibration workflow. It supports simultaneous remote signal acquisition from up to 10 units under test (UUTs), automatically calculating key metrics such as indication error, hysteresis error, repeatability error, and inter-device deviation.

DTZ-OTG Transformer Temperature Controllers Smart Calibration System

Key Features

- The system supports both Windows and domestic Kylin OS, meeting localization requirements.
- The system supports both Chinese and English language switching functionality, catering to international application needs.
- Supports multi-point calibration for switch outputs, displayed values, and thermal analog signals.
- Supports automatic optimization and sequencing of test points when the thermometers under test of the same category have different measuring ranges, enhancing efficiency.
- Supports automatic matching of test items based on relevant specifications and automates the corresponding verification procedure.
- Features cross-platform printing, Excel export, real-time line chart display, and retrieval of historical calibration records, ensuring convenient data processing and review. Data storage utilizes persistent storage to guarantee data security.

Product Functions

- Superimposed Calibration Function: Capable of completing remote signal and contact action signal acquisition within the same heating/cooling cycle. It calibrates data indicators for multiple items including indication error, indication hysteresis, indication repeatability error, inter-device deviation, as well as contact action error and switch differential. These measurements can also be performed independently.
- Diversified calibration Modes: Indication calibration supports both manual and automatic modes. Pre-configured modes include automatic image capture, automatic recognition, and unattended calibration.
- Batch Calibration Function: The system supports simultaneous execution of calibration tasks using multiple wide temperature range Smart temperature baths. It supports the simultaneous calibration of multiple UUTs of the same category but with different ranges, reducing wait times and meeting high-volume calibration demands.
- Efficient Auxiliary Functions: Supports forced acquisition, pre-heating, simulated process rehearsal calibration, and resume-after -power-failure functionality, significantly reducing process waiting times and improving efficiency.
- Full cycle Management Reminders: Utilizes a message center to provide reminders for upcoming UUT and equipment calibration expiry dates, helping users keep track of asset status and avoid compliance issues due to expiration.
- Data Security and Management: Employs persistent data storage in a database, with records sheet stored separately to reduce load. Manages UUTs, standard devices, certificate templates, and regulations throughout the entire process. Supports the generation, printing, preview, and retrieval of certificates/original records, facilitating convenient data traceability.
- Professional Integrated Test Platform: Integrates the temperature controller under test, electrical measurement instruments, the test platform, and wiring harnesses to enable rapid and accurate testing, thereby improving efficiency.

Procedures / Standards

No.	Code	Description
1	JJF 1908-2021	Calibration Specification for Bimetallic Thermometers
2	JJF 1909-2021	Calibration Specification for Filled System
3	JJF 1632-2017	Calibration Specification for Temperature Parameters of Temperature Switches
4	JB/T 6302-2016	Top-oil temperature indicators for transformers
5	JB/T 8450-2016	Winding temperature indicators for transformers

mK Grade High - Precision Thermometer Readout

Overview

The DTMC-mK301 is a new-generation, multi-channel, ultra-high-precision thermometer readout developed for temperature metrology and calibration. It integrates high-accuracy electrical measurement technology, intelligent interface design, and application-specific functions to fully meet the calibration needs of both laboratories and fieldwork. The DTMC-mK301 measures: standard and industrial RTDs, thermocouples, thermistors, temperature transmitters, humidity sensors, DC current, resistance, and voltage signals. It supports ITS-90 and IEC 60751 standards and features built-in thermophysical conversion tools, intelligent sensor management, and broad compatibility across industries such as power, petrochemical, metrology, metallurgy, biotechnology, pharmaceuticals, and scientific research.

Temperature index

Sensor	Type	Temperature range (°C)	Accuracy at example points (°C)
Standard platinum resistance thermometers (SPRT)	Pt25	-189 to 660	0.0033 at -200 , 0.0060 at 0 , 0.0100 at 100 0.0180 at 300 , 0.0280 at 600
	Pt100	-189 to 660	0.0033 at -200 , 0.0060 at 0 , 0.0100 at 100 0.0180 at 300 , 0.0280 at 600
Platinum resistance thermometers (PRT)	Pt10	-189 to 961 -200 to 740	0.005 at -200 , 0.0009 at -100 , 0.012 at 0 , 0.031 at 600
	Pt100	-189 to 961 -200 to 740	0.0080 at 0 , 0.0185 at 300 0.0280 at 600
	Pt200	-189 to 961 -200 to 740	0.0020 at -200 , 0.0048 at -100 0.0300 at 600
Thermocouples (TC)	K	-270 to 1370 -100 to 1300	0.038 at 600, 0.050 at 1000
	N	-270 to 1300 -200 to 1300	0.038 at 600, 0.050 at 1000
	J	-210 to 1200 -100 to 900	0.018 at 300, 0.026 at 600
	E	-210 to 1000 -90 to 700	0.020 at 300, 0.028 at 600
	T	-270 to 400 -150 to 400	0.01 at 0, 0.02 at 200
	R	-50 to 1760 0 to 1760	0.055 at 300 0.06 at 600 0.08 at 1000
	S	-50 to 1760 0 to 1760	
	B	250 to 1820 300 to 1800	0.07 at 1000, 0.068 at 1200, 0.088 at 1800
Remsrk: Sensor deviation not included			

Features	Description
Channels	Two front (CH1 & CH2) and one rear (CH3) input channels，External 8-channel electronic scanning switch (optional)
Inputs	CH1/CH2: RTD, TC
	CH3: current input
Connectors	RTD (front): Lemo EPG.1B.306.HLN 6-pin
	RTD (rear): 4 mm low-thermal posts
	TC: Mini TC connector (ASTM E1684-05)
Drive current	SPRT/PRT: 1 mA ±0.1%, auto-reversing
Cold junction compensation (CJC)	CJC is built-in; CH1 and CH2 can be CJC to each other; user-defined cold junction temperature; accuracy is ±0.1 °C
Smart sensor features	Auto-recognition of sensor SPRT/PRT
	Supports 100 sensor profiles
	ITS-90; IEC60751(2008); Callendar-van Dusen; Steinhart-Hart; B-value; polynomial conversions
Sensor support	SPRT: Pt25, Pt100; PRT: Pt100, Pt1000, Pt-X; copper RTDs: Cu50, Cu100, Cu-X; Nickel RTDs: Ni50, Ni120, Ni1000
	Thermistors: 0 kΩ to 40 kΩ
	TC: S, B, K, N, J, E, T, R, S, B, WRe3 and WRe5
	Transmitters: 0 mA to 20 mA / 4 mA to 20 mA
Environmental conditions	Storage: -10 °C to 50 °C, <75% RH (non-condensing) Operation: 15 °C to 30 °C, <75% RH (non-condensing) Calibration: 20 °C ± 1 °C, <40% RH (non-condensing)

- **Measurement Accuracy： 18ppm**
- **Measurement Resolution：10nV/0.01mΩ**
- **Automatic Test of Technical Performance for Constant Temperature Baths**

mK Grade High - Precision Thermometer Readout

Selection Guide

Function / feature	DTMC-mK301-PRTG	DTMC-mK301G	DTMC-mK301HG	DTHPA-mK301G
Multi-channel temperature meter	●	●	●	●
DC multimeter mode			●	●
Sensor testing		●	●	●
SPRT 25 Measurement	●	●	●	●
SPRT 100 Measurement	●	●	●	●
RTD	●	●	●	
RTC Measurement		●	●	●
TC Measurement		●	●	●
Thermistor measurement	●	●	●	●
Transmitter	●	●	●	●
Technical Performance Testing of Constant Temperature Baths	●	●	●	●
Temperature switch test		●	●	
Electronic scanning switch	●	●	●	●
Smart sensor support Optional	●	●	●	
Smart terminal box Optional	●	●	●	
Built-in thermal calculator	●	●	●	●
Sensor management	●	●	●	●
Data storage	●	●	●	●
Intelligent communication	●	●	●	●

Electrical test indicators

Applicable Models				DTMC-mK301HG	DTMC-mK301G
Channel Type	Range	Input range	Resolution	Accuracy(1 year)	
SPRT 25	120Ω	0Ω to 125Ω	0.01mΩ	15ppm+3ppm	30ppm+5ppm
SPRT 100	400Ω	0Ω to 400Ω	0.01mΩ	15ppm+3ppm	30ppm+5ppm
PRT	100Ω	0Ω to 110Ω	0.01mΩ	15ppm+3ppm	30ppm+5ppm
PRT	400Ω	0Ω to 410Ω	0.01mΩ	15ppm+3ppm	30ppm+5ppm
PRT	1KΩ	0Ω to 1.1KΩ	0.01mΩ	28ppm+1ppm	30ppm+1ppm
PRT	4KΩ	0Ω to 4.1KΩ	0.01mΩ	28ppm+1ppm	30ppm+1ppm
TC	30mV	-35mV to 35mV	10nV	36ppm+6ppm	40ppm+7ppm
TC	100mV	-120mV to 20mV	10nV	36ppm+6ppm	40ppm+7ppm
DCV	1V	-1V to 1V	10nV	30ppm+2ppm	30ppm+2ppm
DCV	10V	-10V to 10V	10nV	30ppm+2ppm	30ppm+2ppm
Transmitter	25mA	0mA to 25mA	0.001mA	0.02%	0.02%
Remarks : Testing environmental: 1-hour warm-up, 20 ± 1 °C, 40% RH					

Category	Indexing number	Temperature range (°C)	Corresponding to English	Corresponding coefficient			Corresponding freezing point		
Standard platinum resistors	SPRT	0 to 660.323	SPRT	a7	b7	c7	Tin WSn	Zinc WZn	Aluminum WAI
		0 to 419.527		a8	b8		Tin WSn	Zinc WZn	
		0 to 231.928		a9	b9		Tin WSn	Indium WIn	
		-189.834 to 0		a4	b4		Argon Triple Point War	Mercury Triple Point Whg	
		0 to 156.5985		a10			Indium Win		
		0 to 29.7646		a11			Gallium Melting Point Wga		
		-38.8344 to 29.7646		a5	b5		Gallium Melting Point Wga	Mercury Triple Point Whg	
Industrial thermal resistance	PT 100	-200 to 850	RTD						
	Cu100	-50 to 150							
Standard thermocouple	S	300 to 1300	RTC						
	B	0 to 1820							
Industrial thermocouple	S	-50 to 1760	TC						
	R	-50 to 1761							
	B	0 to 1820							
	K	-270 to 1370							
	N	-270 to 1300							
	E	-270 to 1000							
	J	-210 to 1200							
	T	-270 to 400							
	Tungsten rhenium WRe3、WRe5	0 to 2310	TC-WRe3						
		0 to 2311	TC-WRe5						

Accessory Selection Table

Accessory	Model (Custom temperature ranges for smart sensors available on demand)	Functions / Operating Instructions
Smart Sensor	IS-Pt-01-2m (Armor-Clad, 500mm), Temperature Range (-80 to 300°C)	Feature: The smart sensor's aviation connector incorporates a parameter chip. Utilizing pre-loaded characterization data, it delivers high accuracy within 0.05°C to 0.1°C over the entire operating temperature range (from low to high temperatures). Operation: When plugged in on any system interface, the sensor's parameters are automatically recognized, saved to the active channel, and registered in the thermometer management list.
	IS-Pt-02-2m (Armor-Clad, 500mm) Temperature Range (-40 to 150°C)	
Precision Sensor	Pt-01-2m ,Temperature Range (-80 to 300°C)	The precision sensor (pistol-grip style) utilizes fitted characterization data to deliver an accuracy of better than 0.05°C to 0.015°C across the entire low to high temperature range.
	Pt-02-2m, Temperature Range (-40 to 150°C)	
Precision Sensor	Industrial-Grade	Pistol-Grip
Smart Junction Box and Connection Cable	mK-TB-IS	The built-in sensor parameter chip automatically stores the certificate values of the standard PRT.
Junction Box and Connection Cable	mK-TB	For connecting a PRT to a thermometer with a front-panel aviation plug.
USB-RS232	USB-RS232-2m	Read thermometer data through a serial port via SCPI commands.

General Indicator

Screen	7-inch high-definition touch screen
Resolution	Temp.：（0.1 to 0.00001°C optional ）Electrical testing： 0.01mΩ ; 10nV
Number of channels	Front panel : 2 Channels , Rear panel : 3 Channels
Data storage capacity	Built-in 8G storage, all stored data are time-stamped
Communication interface	COM2
Language	Chinese, English
Power supply requirements	110V±10% ; 220V±10% AC voltage shift pulley
Product size	270mm×260mm×145mm
Weight	Weighing of single host (3.39kg) ; Host + accessories (4.32kg) Host + accessories + packaging (6.93kg) ; Junction box (0.15kg)

DEARTO Instrument · Quality Model

Key Functions

mK-Grade Precision Thermometer Readout

- Resolution 0.00001 °C
- Accuracy: 5 ppm @ 0 °C (using SPRT)

Channels & Sensor Support

- 3 input channels: CH1 and CH2 (front), CH3 (rear),
  External 8-Channel Electronic Scanning Switch (Optional).
- Supports 2 standard platinum resistance thermometers (SPRT), 2 standard thermocouples.
- Supports RTDs: Pt (Pt25, Pt100, PtX), Cu (CuX), and Ni (NiX).
- Supports thermocouples: K, N, J, E, T, R, S, B, WRe3, WRe5.
- Supports thermistors: 0 kΩ to 40 kΩ.
- Supports temperature transmitters: 0 mA to 20 mA / 4 mA to 20 mA.
- Automatic current reversal for RTD input to eliminate EMF thermal voltage error.

Thermocouple Cold Junction Compensation

- Multiple compensation modes supported: internal compensation, external compensation, fixed compensation.

Multiple Conversion Algorithms Supported

- ITS-90, Callendar-Van Dusen, IEC 60751:2008, polynomial equations, Steinhart–Hart, B-Value, linear conversion.

Sensor Management Function

- Supports management of up to 100 sensor profiles.
- Editable sensor parameters improve measurement accuracy.

Smart Sensor Capability

- Automatic detection and data upload when a smart sensor is connected.

Smart Terminal Box Support

- Stores and auto-uploads SPRT certificate values
  Plug-and-play operation; no need to manually input certificate data

User Interface & Display Modes

- Five display modes: single-channel, dual-channel, triple-channel, curve display, table display.
- Real-time display of sensor information, measurement data, and trends.
- Automatic statistical analysis: max, min, average, peak-to-peak, standard deviation, stability, etc.
- Real-time curve plotting.
- 7-inch high-resolution capacitive touchscreen.

Thermophysical Calculator

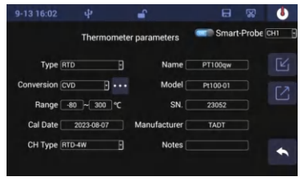
- Built-in thermophysical calculator.
- Integrated ITS-90 fixed-point reference data.

Data Logging & Storage

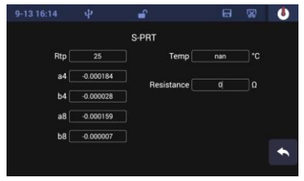
- Timestamped data recording.
- 8 GB internal storage; external USB drive supported.
- SCPI communication protocol over RS232/WLAN.
- Screenshot feature available on all display screens, no need for manual data recording.

Thermometer list

ITS-90



Sensor Management Function



Smart Junction Box Functions

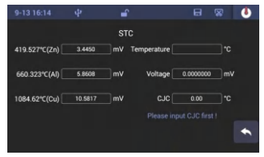
Triple-Channel Display Interface

DEARTO Instrument · Quality Model

Major Modules

Sensor Testing

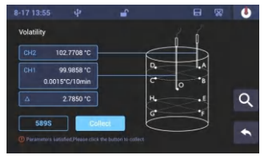
- Supports two standard platinum resistance thermometer (PRT) probes simultaneously.
- Supports two standard thermocouple (TC) probes simultaneously.
- Compatible with various thermocouple types and RTDs, as well as temperature transmitters



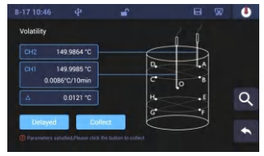
Standard thermocouple settings

Automatic Performance Testing for Calibration Baths

- Connect the DTMC-mK301 thermometer readout and sensors (fixed or movable) to a calibration bath. After configuring basic test settings, the system performs auto data collection, auto calculation, auto stability judgment, and auto export of results to file.
- Fully complies with JJF1030-2023 standard for calibration bath performance testing.
- Data management: viewing history by year, accessing individual test records, and exporting or deleting selected data.
- Test capabilities: fluctuation test with user-defined acquisition method; uniformity test with automatic calculation of horizontal and working area temperature deviations; ramp rate deviation test with auto conclusions and savable data.
- Data export & reports: reports accessible via the “Data” section; supports USB export, and test reports generated automatically based on recorded data.



Constant temperature bath uniformity test



Constant temperature bath fluctuation test interface

Electronic Scanning Switch (Auto Mode)

- The DTMC-mK301-WK scanning switch module enables automatic signal switching and acquisition for thermocouples and RTDs. Designed for multi-point industrial temperature measurement, it provides: fast and accurate multi-channel switching and data reading, manual and automatic channel selection, and real-time display and synchronization with the mK301 touchscreen.

High-Precision DC Multimeter Mode

- The DTHPA-mK301 in DC multimeter mode is ideal for standard temperature laboratories. It supports: high-accuracy measurement of temperature and electrical signals, performance validation of furnaces and calibration baths, and multi-channel temperature signal acquisition and logging.

Procedures / Codes

Code	Name of Procedure (Specifications)	Code	Name of Procedure (Specifications)
JJG 75-2022	Standard Platinum-10% Rhodium/Platinum Thermocouples	JJG 167-1995	Standard Platinum-30% Rhodinum/Platinum-6% Rhodium Thermocouple
JJG 229-2010	Verification Regulation of Industry Platinum and Copper Resistance Thermometers	JJG 229-2010	Verification Regulation of Standard platinum resistance thermometer
JJG 141-2013	Verification Regulation of Working precious metal thermocouples	JJG 141-2013	Verification Regulation of industrial platinum-copper resistors
JJF1379-2012	Calibration Specification of Thermistor Thermometers	JJF1379-2012	Tungsten-rhenium thermocouple wire and indexing table
JJF 1587-2016	Calibration Specification for Multimeter "	JJF 1587-2016	Calibration Specification for Base Metal Thermocouples

Overview

The DTMA-101 Portable Thermometer Readout is a high-precision instrument designed for metrology, research, and industrial applications. Compatible with various sensors, it offers advanced features like automatic data correction and traceable history, delivering reliable performance across demanding temperature measurement tasks.

DTMA-101 Portable Thermometer Readout

Features / Description

Smart capacitive touchscreen	Featuring advanced capacitive touch technology and a multi-function display for intuitive operation.
Multi-point correction	8-point correction is supported. Correction values are stored and auto-matched to the connected sensor. Dates of correction are automatically recorded.Display the latest 250 data curves in real time to facilitate users to analyze trends.
Real-time data curve display	Displays the most recent 200 data curves to support trend analysis.
Multi-unit display	Temperature is shown in °C, K, °F, and resistance in Ω, with max, min, average, and stability values displayed in real time.
Calibration modes	Prevents accidental touch or error modification of device parameters, supports locking the current data and stops refreshing, making it convenient to record data.
Built-in sensor parameter database	It ensures accurate measurements across a wide range.
Alarm notification	Visual alarm triggers when measurements exceed user-defined thresholds.
Anti-mistouch design	Prevents accidental parameter changes. Allows the user to freeze the current data display for easy recording.
Customizable sampling interval	Supports customization of sensors according to user needs to meet the needs of special application scenarios.
Standards compliance	Fully compliant with the ITS-90 international temperature scale, and supports Pt sensors with alpha values of 0.00385 (385), 0.003911 (3911), 0.003916 (3916), and 0.003926 (3926), ensuring high compatibility and reliability.
Custom sensor support	Sensor customization is available to meet specific environmental or application needs.

Technical Parameters

Temperature measurement range		-200°C to 800°C
Connection method		4-wire
Resistance measurement range		0Ω to 400Ω
Resistance display resolution		0.0001Ω
Supported sensor types		Industrial RTD (Pt100), Standard PRT (Pt25)
Resistance accuracy		±(0.0020% of reading + 0.0010% of full scale) (24 hrs)
		±(0.0040% of reading + 0.0010% of full scale) (1 year)
Temperature measurement accuracy	at -100 °C	±0.008°C
	at 0°C	±0.010°C
	at 100 °C	±0.012 °C
	at 200 °C	±0.014°C
	at 300 °C	±0.016 °C
	at 400 °C	±0.018 °C
	at 500 °C	±0.020 °C
	at 600 °C	±0.022 °C

Overview

The DTMC Six-channel Precision Thermometer Readout are modular, multi-channel temperature measurement instruments available in 2, 4, 6, or 8 channel configurations. Each channel can be freely configured with either RTD, thermocouple, or thermistor input modules. This system is characterized by high accuracy, broad sensor compatibility, and extensive functionality. The devices support both wired and wireless connectivity to PCs or mobile terminals. They are ideal for applications such as: Temperature uniformity testing in calibration baths./Furnace uniformity verification for thermocouples Dry-block calibrator testing./This makes the DTMC six-channel precision thermometer readouts an excellent choice for metrology laboratories, calibration facilities, and research environments.

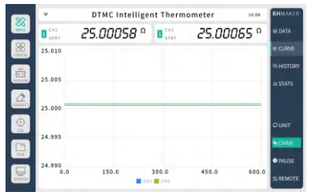
DTMC Six-channel Precision Thermometer Readout

PC and mobile users can log in to DTMC six-channel precision thermometer readouts via Google Chrome to remotely view real-time data

Key Features

- 2.4 GHz wireless connectivity to tablets or laptops is supported; real-time data are accessible via browser - no software installation required.
- A wide range of temperature sensors are supported, including standard and industrial
- RTDs and thermocouples.
- RTD sensor parameters are editable and customizable to suit different applications.
- A cold junction sensor is dedicated per thermocouple channel, with accuracy better than ±0.1 °C.
- Multiple cold junction compensation modes: fixed value, internal auto-compensation, and external compensation.
- Independent sampling is implemented by each channel; the modular architecture increases reliability and flexibility.
- Each channel independently implements calibration and corrections using single-point, multi-point, segmented-linear, or least-squares fitting method.
- Multiple datasets are displayed, including historical, statistical, and graphical data.
- Multiple data formats are available for storage and output, including voltage, resistance, or temperature.
- Built-in encryption is supported for data security.
- Communication via RS232 or wireless is supported; devices are compatible with PC or mobile terminals.
- 8 GB internal storage.
- 7-inch industrial-grade color touchscreen for intuitive operation.

Supports 8-channel multi-channel measurement



Product selection table

Technical indicators

Channel types	Range	Measurement range	Resolution	Accuracy (at 20 ± 5 °C for 1 year)	Temperature coefficient
Thermocouple	100mV	-20mV to 100mV	0.1uV	15ppm+15ppm	3ppm
Platinum resistance	100Ω	0Ω to 125Ω	0.1mΩ	4ppm+8ppm	1ppm
	400Ω	0Ω to 400Ω	0.1mΩ	4ppm+6ppm	1ppm

Model	Channel number
DTMC-2G	2
DTMC-4G	4
DTMC-6G	6
DTMC-8G	8

Accuracy is specified as ppm of ± (ppm of reading + ppm of full scale).Temperature coefficient applies outside the 15°C to 25 °C ambient range.

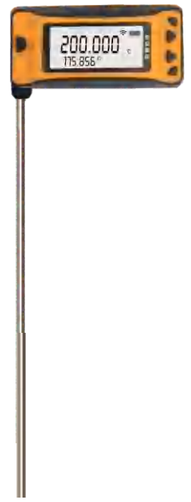
Sensor	Type	Measuring range(0°C)	Accuracy (°C)	Resolution (°C)	Sampling frequency	Data type
Thermocouple	K	-200 to 1372	0.15	0.01 or 0.001	1Hz to 10Hz	Voltage and temperature
	J	-210 to 1200	0.1			
	T	-200 to 400	0.1			
	E	-200 to 1000	0.07			
	N	-200 to 1300	0.15			
	B	250 to 1820	0.3 at 1000			
	R	-50 to 1768	0.2 at 1000			
	S	-50 to 1768	0.25 at 1000			
RTDs	Pt25	-189 to 961	0.005 at 0	0.0001		Resistance and temperature
	Pt100	-200 to 950	0.005 at -100	0.001		
			0.006 at 0			
			0.008 at 300			
			0.012 at 600			

Power supply	12VDC 2A
Communication	RS-232,Wireless
Enclosure	Aluminum alloy+ABS
Dimensions(mm)	250×170×70
Weight (kg)	2kg
Operating environment	5 to 35 °C, 0 to 85 %RH (non-condensing)
Storage environment	0 to 70 °C, 0 to 100 %RH (non-condensing)

Overview

The DTSW precision digital thermometers are high-performance instruments designed for industrial temperature calibration and precision measurement. They deliver accuracy and repeatability better than ±0.05 °C/year. With a built-in rechargeable lithium battery (no replacement required), they are portable, durable, and easy to read, making them ideal for both laboratory reference use and high-accuracy field measurements.

DTSW Precision Digital Thermometer



DTSW-2G Industrial - Grade Digital Thermometer

DTSW-1G Stick Standard (Precision) Digital Thermometer

Data Correction Software

DTSW-LcG Precision Digital Thermometer

Digital Thermometer Management Software

Technical indexes

Category	Stick standard (precision) digital thermometers				Digital Thermometer	
Model	**DTSW-II**	**DTSW-1-AG**	**DTSW-1-BG**	**DTSW-2G**	**DTSW-kLG**	**DTSW-LcG**
Range(°C)	**-5 to 60**	**-80 to 160**	**-80 to 300**	**-80 to 300**	**-80 to 400**	**-30 to 150**
Accuracy(°C)	≤0.01	0.04+0.005%FS	0.05+0.01%FS	0.1	0.2	≤0.05
Calibration interval (year)	1	1	1	1	1	
Temperature coefficient	<1ppm/°C	<1ppm/°C	<1ppm/°C	<1ppm/°C	<1ppm/°C	
Sensor length	500mm(19.68 in)		500mm(19.68 in)	500mm(19.68 in)	1 to 1.5 m	
Sensor diameter	6mm		6mm	6mm	Compliant with JJF 1076–2020	
Sensor material	316 stainless steel (medical/food grade)		316 stainless steel (medical/food grade)		Flexible cable for some models	
Sensor type	Thin-film Pt RTD		Wire-wound platinum RTD		Wire-wound platinum RTD	
Display resolution (°C)	0.001°C		0.001°C		0.001°C	

Sampling interval (s)	0.5, 1, or 2	Charging voltage	DC5V
Thermal response time constant	30S	Communication module temperature range	−20°C to 60°C(-4℉ to 140℉)
Unobstructed wireless range (m)	160	Main unit operating temperature range	−10°C to 50°C(14℉ to 122℉)
Communication interface	USB and wireless	Sensor protection rating	IP68
Battery type	Lithium battery	Weight of complete unit (g)	202g
Charging time (h)	2	Main unit dimensions (L × W × Thickness in mm)	106×48×37
Battery life	≥ 1,000 charge-discharge cycles	Warm-up time before ready to use (min)	1
Main unit protection rating	Ip50	Storage conditions	-20 °C to 60 °C (-4°F to 140°F), 5% to 80% RH (non-condensing)

DTS-CT Smart Calibration Bath

Overview

DTS-CT Smart calibration bath adopts large-screen capacitive screen for smart control & smart human-computer interaction interface, which is convenient & practical to operate. Using dual-chamber side-stirring technology, through smart PID adjustment, the constant temperature bath can achieve an ideal uniform environment, which can meet the verification/calibration of temperature sensors such as various low-temperature TCs, industrial thermal resistance, pressure thermometers, bimetal thermometers,and glass liquid thermometers.

Features / Description

Adjustable heating and cooling rates	Heating and cooling rates are fully adjustable, allowing precise control over temperature changes. The system ensures smooth and uniform temperature transitions, meeting the requirements for calibration, validation, and verification of various temperature switches.
Active smoke exhaust system (optional)	Active smoke exhaust system to create a healthy working environment. Patented structure design, flexible for a variety of smoke extraction scenarios.
Smart liquid refill	The smart system supports automatic liquid replenishment upon startup to reach the ideal liquid level. Both manual and automatic replenishment modes are available. Real-time liquid level monitor can trigger an automatic shutdown when low levels of liquid are detected.
Multi-point temperature correction	The smart system supports multi-point temperature calibration and correction, ensuring minimal deviation between the temperature bath and the reference standard.
Adjustable liquid level	Liquid level can be set freely to accommodate various short-type temperature sensors and fulfill different immersion depth requirements.
Three-axis mechanical arm	The smart touchscreen is mounted on a three-axis mechanical arm, enabling flexible angle adjustments for convenient viewing of equipment status from any position.
Mobile App control	Through the mobile App developed for the calibration bath, users can operate the temperature bath and monitor its real-time status.
Real-time stability indication	Stability indication displays real-time stability data of the bath and reliefs operators from repeated manually checking.
Comprehensive communication support	Smart models support USB, Wi-Fi, WLAN, and serial communication, enabling data upload and export.
Smart large touchscreen control	A large capacitive touchscreen is embedded with intuitive operation system The smart interface supports multi-function window displays, enabling easy temperature setting and one-click startup.
Language and units	The system supports English and Chinese interfaces. Temperature units can be switched between Fahrenheit (°F), Celsius (°C), and Kelvin (K).
Multi-layer insulation	The multi-layer insulating structure effectively blocks thermal bridges, ensuring stable temperature fields and minimal fluctuations while preventing burns or frostbite. Built-in overflow circuits protect surfaces from liquid contamination.
Dual independent protection circuits	Dual independent protection circuits automatically cut power in case of overheating, providing enhanced safety.
Smart energy-saving mixer	The mixer is controlled by the smart system based on the startup conditions and the liquid temperature. This design reduces noise, minimizes power consumption, and extends equipment service life.

Model		DTS-CT300G	DTS-CT01G	DTS-CT10G	DTS-CT30G	DTS-CT40G	DTS-CT60G	DTS-CT80G	DTS-CT100CHG
Range(°C)		70 to 300	0 to 105	-10 to 105	-30 to 105	-40 to 105	-60 to 105	-80 to 105	-100 to 20/100
Bath liquid		L30-300	L15N-95-R		L40N-95-R		L100N-20		L100N-20
Uniformity (°C)	Radial	≤0.01	≤0.01		≤0.01		≤0.01		≤0.01
	Axial	≤0.01	≤0.01		≤0.01		≤0.01		≤0.01
Stability (°C/10 min)		±0.007	±0.01		±0.01		±0.01		±0.01
Resolution (°C)		0.001	0.001		0.001		0.001		0.001
Access opening × depth (mm)		φ150×480	φ130×480		φ130×480		φ130×480		φ130×480
Volume (L)		23	18.5		18.5		18.5		18.5
Maximum power (kW)		3	2		2.8		3		3
Dimensions (L×W×H in mm)		660×540×1120			660×540×1120		700×590×1120		800×600×1000
Weight (kg)		95			115		155		200
Customization Available		Access opening φ200mm, φ300mm, φ500mm							

Accessories for temperature calibration bath

Item	Flange for high temperature calibration oil bath (customizable opening size)	Flange for refrigerated temperature calibration bath (customizable opening size)	Bath liquid
Image			
Specification	14-hole stainless steel insert plate	17-hole epoxy board insert plate	Methyl silicone oil/antifreeze

Smart Accurate Security


Adjustable heating and cooling rates with free setting


Active Smoke Extraction System for a Healthy, Smoke-Free Environment.


Smart HMI with User-Friendly Operation.


Real-time Curve Display with Automatic Fluctuation Calculation.


Smart auto-fill to ideal level. Low-level alarm with auto-shutdown.

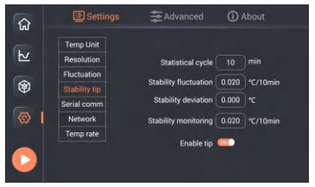

Features multi-point calibration for minimal bath-to-standard deviation.


Ergonomic design with a 3-axis arm for full flexibility

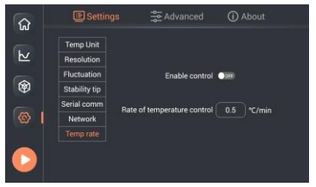

Dual-sensor overheating protection with auto power-off and dual safeguards.

Product details

Mobile APP control function

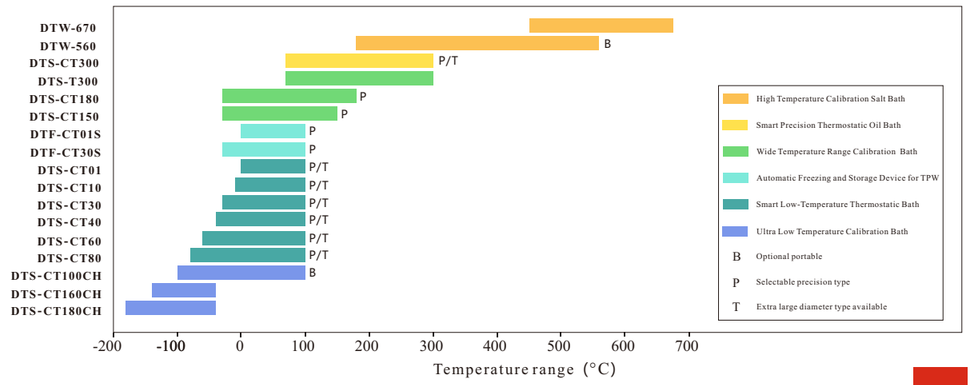


Stability tip



Temperature control rate is adjustable

Product Selection Sheet



Overview

The DTS-CH series, designed specifically for the testing of ultra-low temperature sensors, sets a new standard in smart temperature calibration. These advanced models deliver exceptional accuracy and precision across a wide temperature range. They perform excellent during high-precision testing of temperature components, such as thermocouples and resistance temperature detectors.

Ultra - Low Temperature Smart Calibration Bath

Operation window(-100°C)

Advanced Settings

Technical indicators

Specifications	Compact type		Laboratory Type		
Model	DTS-CT100CH-BG	DTS-CT60CH-BG	DTS-CT100CHG	DTS-CT160CHG	DTS-CT180CHG
Range (°C)	-100 to 100	-60 to 100	-100 to 95	-160 to -40	-180 to -40
Stability (°C / 10 min)	±0.01	±0.01	±0.01	±0.03	±0.03
Uniformity (°C)	≤0.02	≤0.02	≤0.01	≤0.05	≤0.05°C
Dimensions (L×W×H in mm)	464×434×789	464×434×789	500 × 620 × 600	500 × 620 × 600	500 × 620 × 600
Axial/radical uniformity (°C)	φ100×300	φ100×300	φ130×480	φ12×280(Support customization)	
Power (V / Hz)	220 / 50 or 110 / 60		220 / 50 or 110 / 60	220 / 50 or 110 / 60	

DTS Calibration Bath

Category		Oil Bath	Water bath	Precision Calibration Baths					
Model		DTS-300G	DTS-95G	DTS-01G	DTS-10G	DTS-30G	DTS-60G	DTS-80G	DTS-100CHG
Range(°C)		70 to 300	RT+10 to 95	0 to 105	-10 to 105	-30 to 105	-60 to 100	-80 to 100	-100 to 20/100
Bath liquid		L30-300	L15N-95-R	L15N-95-R		L35N-95-R	L100N-20	L100N-20	
Uniformity (°C)	Radial	≤0.01	≤0.01	≤0.01		≤0.01°C		≤0.01°C	
	Axial	≤0.01	≤0.01	≤0.01		≤0.01°C		≤0.01°C	
Stability (10°C/min)		±0.007	≤0.01	≤0.01		±0.01°C		±0.01°C	
Access opening × depth (mm)		φ150×480		φ150×480		φ130×480		φ130×480	
Volume (L)		23		23		18.5		18.5	
Dimensions (L×W×H in mm)		660×540×1120		660×540×1120		700×590×1120		800×600×1000	

Overview

DTS-T Wide Temperature Range Calibration Bath with Extended Temperature Range Maintaining all core specifications while expanding the temperature range, a single unit now replaces the need for two separate baths—enabling dual functionality with higher efficiency and convenience.The DTS-T300 Smart Rapid Heating and Cooling Circulator Calibration Oil Bath is a rapid heating and cooling calibration oil bath with a fast-cooling rate- cooling from 300°C to 100°C in approximately 15 minutes. It is equipped with a return measurement function, ensuring precise temperature control and uniformity.

Wide Temperature Range Smart Calibration Bath

New Arrivals | Range

-80°C to 150°C

DTS-T300 Recirculating Oil Bath cools rapidly from 300°C to 100°C in just 15 minutes, featuring return measurement function.

Specifications	Rapid Heating and Cooling Circulator Calibration Oil Bath	Wide Temperature Range Smart Calibration Bath				
Model	DTS-T300G	DTS-CT180-20G	DTS-CT180-30G	DTS-CT150-40G	DTS-CT150-60G	DTS-CT150-80G
Range (°C)	**70 to 300**	**-20 to 180**	**-30 to 180**	**-40 to 150**	**-60 to 150**	**-80 to 150**
Bath liquid	L30-300	L40N-180	L40N-180	L60N-150	L80N-150	L80N-150
Radical uniformity (°C)	≤0.01	≤0.01	≤0.01	≤0.01	≤0.01	≤0.01
Axial uniformity (°C)	≤0.01	≤0.02	≤0.02	≤0.02	≤0.02	≤0.02
Stability (°C / 10 min)	±0.007	±0.01	±0.01	±0.01	±0.01	±0.01
Access opening × depth (mm)	φ150×480	φ130×480	φ130×480	φ130×480	φ130×480	φ130×480
Volume (L)	23	18	18	18	18	18

Ultra-wide temperature range coverage: -80°C to 150°C, breaking traditional limitations. Meet diverse experimental needs with a single instrument.

No need to replace media, interrupt processes, or adjust equipment across the entire temperature range. Seamless transition from low to high temperatures with stable temperature control achieved through one-key setting.

Supports bilingual switching between Chinese and English, and allows custom temperature unit switching for °F, °C, K, etc.

Supports segmented temperature correction. Automatically applies calibration values during temperature control to avoid repeated adjustments during heating or cooling.

Supports linear heating and cooling at specified rates to meet precise temperature control requirements.

Supports parameter tuning for multiple temperature points, automatically saving PID parameters for each set point. During temperature control, the system intelligently calls the corresponding tuning parameters to achieve full-range precision, ensuring optimal performance at any set temperature.

Equipped with an intelligent overheat protection mechanism featuring multiple safety safeguards.

Supports multi-channel remote communication control via serial port, WLAN, and WiFi.

Allows remote device operation and real-time monitoring of device status through a smartphone app.

Overview

The DTF triple point of water maintenance bath is an automatic freezing system composed of a refrigerated temperature calibration bath and a water triple point cell holder. It features a refrigeration unit with low noise, high reliability, and long service life. A high-precision temperature controller enables fully automatic freezing and storage, ensuring compact structure, easy operation, and intuitive bath temperature readings. This system is ideal for metrology, biochemical, petroleum, meteorology, energy, environmental protection, pharmaceutical industries, as well as manufacturers of thermometers and temperature controllers for physical parameter testing. Additionally, it provides a stable temperature source for other experimental research applications.

DTF Triple Point of Water Maintenance Bath

Water Triple Point Bottle

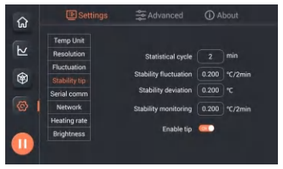
Multi-purpose functionality	The models support automatic freezing with a three-in-one design, functioning as a water triple point cell freezer, water triple point cell storage unit, and refrigerated temperature bath.
Smart large touchscreen control	A large capacitive touchscreen is embedded with intuitive operation system The smart interface supports multi-function window displays, enabling easy temperature setting and one-click startup.
Real-time stability indication	Stability indication displays real-time stability data of the bath and reliefs operators from repeated manually checking.
Multi-point temperature correction	The smart system supports multi-point temperature calibration and correction, ensuring minimal deviation between the temperature bath and the reference standard.
Comprehensive communication support	Smart models support USB, Wi-Fi, WLAN, and serial communication, enabling data upload and export.
Automatic calculation of stability	The system automatically calculates temperature stability, with a customized time interval setting.
Three-axis mechanical arm	The smart touchscreen is mounted on a three-axis mechanical arm, enabling flexible angle adjustments for convenient viewing of equipment status from any position.

Model		DTF-CT01SG	DTF-01SG	DTF-CT30SG	DTF-30SG
Control mode		Smart touchscreen	Button	Smart touchscreen	Button
Range		-10°C to 105°C	-10°C to 100°C	-30°C to 105°C	-30°C to 100°C
Stability		±0.005°C/10min(at 0°C)		±0.005°C/10min(at 0°C)	
Uniformity	Radial	≤0.01°C		≤0.01°C	
	Axial	≤0.01°C		≤0.01°C	
Frozen system time		120min		120min	
Retention time		≥6H		≥6H	
Working medium		L15N-95-R		L15N-95-R	
Access opening × depth		φ130×480(mm)		φ130×480(mm)	
Volume		18.5L		18.5L	
Frozen system number		1 to 3		1 to 3	
Maximum power		2kW		2kW	
Dimensions(L×W×H)		660×540×1120(mm)		660×540×1120(mm)	

Overview

The DTW High Temperature Smart Calibration Salt Bath is a newly developed product designed to meet the calibration, validation, and verification requirements of temperature sensors. Structurally identical to standard laboratory oil baths, it features an independent heating system, stirring system, and a high-precision temperature control system (accuracy up to 0.1 grade). This bath provides a stable and precise heat source with a non-pressurized, non-toxic, and non-corrosive bath liquid. The bath's insertion port diameter can be customized as needed, making it ideal for high-precision testing of thermocouples and resistance thermometers.

DTW High Temperature Smart Calibration Salt Bath



Linear temperature control	The salt bath supports linear heating at a specified rate, meeting the calibration, validation, and verification requirements of various temperature switches.
Multi-point calibration & correction	Temperature is corrected segmentally, with automatic linear fitting between set values (SV) and process values (PV). Temperature points are PID controlled segmentally and saved automatically to ensure precise temperature control at any setpoint.
Automatic temperature control	Heating and stirring are fully automatically controlled, eliminating the need for manual operation.
Scheduled salt melting function	The bath supports automatic startup, shutdown and salt melting at set time, improving operational efficiency.
Comprehensive communication support	Smart models support USB, Wi-Fi, WLAN, and serial communication, enabling data upload and export.
Smart large touchscreen control	A large capacitive touchscreen is embedded with intuitive operation system The smart interface supports multi-function window displays. Real-time stability and temperature control curve are calculated and displayed. Multi-touch supports for free zooming and panning.
Language and units	The system supports English and Chinese interfaces. Temperature units can be switched between Fahrenheit (°F), Celsius (°C), and Kelvin (K).
Dual independent protection circuits	Dual independent protection circuits automatically cut power in case of overheating, providing enhanced safety.

Specifications	Portable High Temperature Smart Calibration Salt Bath	High Temperature Smart Calibration Salt Bath	
Model	DTW-560BG	DTW-560G	DTW-670G
Range(°C)	180 to 560	180 to 560	450 to 670
Stability (°C/10 min)	±0.01	±0.01	±0.01
Horizontal uniformity (°C)	≤0.01	≤0.01	≤0.01
Vertical uniformity (°C)	≤0.02	≤0.02	≤0.02
Access opening × depth (mm)	φ100×200	φ150×400	φ150×400
Maximum power (kW)	1	3	3
Customization	**Special liquid baths are available for temperature ranges of 500 °C to 850 °C and 850 °C to 1100 °C**		

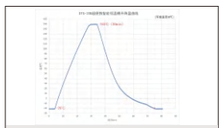
DTS-B Portable Smart Calibration Baths

Overview

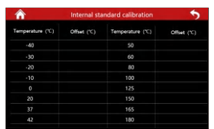
DTS-BG Portable Smart Calibration Bath is a kind of high precision and automatic temperature calibration device. The bath is compact in structure, light in weight, easy to carry and durable. Suitable for all kinds of industrial thermal resistance, low temperature thermocouple, armored thermocouple, working glass liquid thermometer, standard mercury thermometer, bimetal thermometer, pressure thermometer and other temperature sensor validation/calibration.

DTS-B Portable Smart Refrigerated Calibration Bath

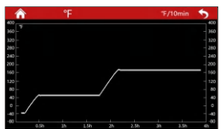
In a high temperature environment of 15to35℃, -40 detection points are not affected



-20℃ to 150℃,Intelligent high temperature rapid drop, meet the multi-cycle difference test.



Multi - temperature point automatic correction, calibration.



Real-time display of temperature curve and fluctuation.

Technical indicators

Model	DTS-20BG	DTS-30BG	DTS-95BG	DTS-125BG	DTS-40BG	DTS-30BG-mt
Temperature range(°C) (Supports customization)	-20 to 150	-30 to 150	-40 to 95	-40 to 125	-40 to 150	-30 to 150
	-20 to 180	-30 to 180			-40 to 180	-30 to 180
Control mode	Smart touch screen					Smart touch screen
Temperature resolution (°C)	0.001					0.001
Stability (°C / 10 min)	± 0.02 (at 0°C)					± 0.02 (at 0°C)
Uniformity (°C)	≤0.02(at 0°C) ≤0.01(at 100°C)					≤0.01(at 100°C)
Maximum power (kW)	1					1
Access opening × depth (mm)	φ60×280 / φ80×280 / φ100×280(Supports customization)					φ60×250(customization)
Dimensions (L×W×H in mm)	225×430×500					185×331×400
Bath liquid	L40N-180					L40N-180

Functions and features	
Unaffected by ambient conditions	The -40 °C calibration point remains stable and unaffected in ambient temperatures ranging from 15 °C to 35 °C.
Intelligent rapid cooling	Cooling from 150 °C to 25 °C takes as short as 30 minutes and passes multi-cycle hysteresis testing.
Press-seal design	Features a quick-press sealing structure for leak prevention and convenient on-site transport.
Smart touchscreen interface	Equipped with an intelligent touchscreen and user-friendly interface. Temperature resolution is up to 0.001 °C.
Real-time Curve Display	Displays live temperature curves and automatically calculates stability.
Multi-point calibration	Supports calibration at multiple temperature points; temperature sensors allow segmented multi-point correction with fully automatic segmented control.
Communication functionality	Equipped with RS-232 communication port for connection with an upper-level host system.
Overheat protection	Includes over-temperature protection and heating limit functions for safe and reliable operation.

DTS-300B Portable Smart Heating Calibration Oil Bath

Portable Smart Heating Calibration Oil Bath

Design Patent

- Rotatable Screen
- Free-Angle Positioning
- Contamination-Resistant Design

Micro Smart Heating Calibration Oil Bath

Technical Indicators

Specifications	Portable Smart Heating Calibration Oil Bath		Micro Smart Heating Calibration Oil Bath	
Model	DTS-180BG	DTS-300BG	DTS-180BG-mt	DTS-300BG-mt
Temperature range(°C)	60 to 180	60 to 300	60 to 180	60 to 300
Control mode	Smart touch screen	Smart touch screen	Smart touch screen	Smart touch screen
Temperature resolution (°C)	0.001°C	0.001°C	0.001°C	0.001°C
Stability (°C / 10 min)	0.01 (at 60°C and 100°C), 0.02 (at 300°C)		0.01 (at 60°C and 100°C), 0.02 (at 300°C)	
Uniformity (°C)	≤ 0.01 (at 60°C and 100°C), ≤ 0.02 (at 200°C and 300°C)		≤ 0.01 (at 60°C and 100°C), ≤ 0.02 (at 200°C and 300°C)	
Power (kW)	1		1	
Access opening × depth (mm)	φ80×280		φ60×250	
Dimensions (L×W×H in mm)	220×370×425		185×331×400	
Bath liquid	L30-300		L30-300	

Product Functions And Features	
Press-to-seal structure	Quick, press-type sealing structure; heat-resistant and suitable for field transport and remote site applications.
Unique overflow valve design	Integrated overflow valve and oil reservoir with a concealed handle for convenient on-site calibration and verification.
Smart touchscreen interface	Full-color smart touchscreen with a user-friendly human-machine interface, multi-function display window, and multi-point touch capability.
Real-time temperature curve display	Real-time display of temperature curves with automatic fluctuation calculation.
Multi-point calibration	Supports automatic calibration/correction at multiple temperature points; fully automatic segmented temperature control with fast heating.
Overheat protection	Built-in overheat protection and temperature rise limit for safe and reliable operation.
Communication interface	Equipped with RS-232 communication port for connection with an upper-level host system.

DTL Thermocouple Calibration Furnace Series

Overview

The DTL thermocouple calibration furnace is a constant temperature device designed for the calibration of various types of standard thermocouples, noble metal thermocouples, and base metal thermocouples. This series of products offers excellent insulation and electrical leakage protection. Additionally, we offer customized non-standard solutions to meet specific customer requirements.

Product selection table

NO	Product name	Model	Temperature range (°C)	Furnace Bore size (mm)	Note
1	Standard Thermocouple Calibration Furnace	DTL-600BG	300 to 1300	φ20×600	Temperature range and furnace bore size can be customized as required
2	Base Metal Thermocouple Calibration Furnace	DTL-600G		φ40×600	
3	Noble Metal Thermocouple Calibration Furnace	DTL-600EG			
4	Thermocouple Calibration Furnace - Customizable	DTL-600TG		φ60×600	
5	Short Base metal Calibration Furnace	DTL-300G		φ40×300	
6	Short Noble metal Calibration Furnace	DTL-300BG		φ20×300	
7	Ultra short Thermocouple Calibration Furnace	DTL-150G		φ40×150	
8	High Temperature Thermocouple Calibration Furnace	DTL-HG	800 to 1700	φ30×600/φ50×600	
9	Thermocouple Annealing Furnace	DTL-TG	300 to 1200	φ40×1000	
10	Multi - Zone Precision Thermocouple Calibration Furnace	DTL-IIIG	300 to 1200	φ40×1000	

DTK-AI Smart Furnace Temperature Controller

Real-time Temperature Control Curve Display

Product Overview

The DTK-AI Furnace Temperature Intelligent Controller is primarily designed for temperature regulation in thermocouple verification furnaces. It enables precise temperature control for one or multiple constant-temperature devices. Equipped with a capacitive smart touch screen, the controller meets the technical requirements specified in verification regulations such as JJF1637-2017, JJG141-2013, JJG75-2022, JJG668-1997, and JJG368-2000.

Features / Description

- Capacitive touchscreen:Intuitive multi-function interface with one-click startup.
- Temperature resolution:Adjustable resolution of 0.01°C, 0.1°C, or 1°C throughout full temperature range.
- 14-point calibration and correction:Automatic multi-point calibration and correction for minimal error.
- Adjustable heating rate:Smooth and programmable temperature ramping.
- Real-time graphing:Live display of temperature history curves.
- Data logging:Customizable data collection intervals.
- PID control:Auto-tuning and manual tuning supported.
- Stability monitoring:Real-time status feedback.
- Bilingual interface:English and Chinese language support.
- Overheat protection:Safety shutdown at preset limits.
- Communication options:USB, Wi-Fi, WLAN, and serial ports.
- Temperature units:Supports °C, °F, and Kelvin.

DTL Thermocouple Calibration Furnace

Thermocouple Annealing Furnace

Thermocouple Calibration Furnace

Short Thermocouple Calibration Furnace

Recommendation

Temperature range: 300°C to 1300°C (long-term thermal stability)

Furnace bore dimensions and temp.range support customization

Technical indicators

Product name	Base Metal Thermocouple Calibration Furnace		Noble Metal Thermocouple Calibration Furnace			Thermocouple Annealing Furnace
Variants	Base Metal Calibration Furnace	Base Metal Short Furnace	Standard S-Type Furnace	S-Type Working Furnace	Short S-Type Working Furnace	
Range (°C)	300 to 1300	300 to 1300	300 to 1300		300 to 1300	300 to 1200
Furnace chamber dimensions	φ40×600(mm)	φ40×300(mm)	φ20×600(mm)		φ20×300(mm)	φ40×1000(mm)
Temperature field performance	An isothermal block ensures an effective working area where: within 30 mm axial range, the temperature difference between any two points is ≤ 0.5 °C; within a radial radius of ≥ 14 mm, the temperature difference between any two points on the same cross-section is ≤ 0.25 °C.	The insertion depth-to-diameter ratio of the thermocouple into the isothermal block exceeds 10:1. Within 30 mm from the bottom of the well, the axial temperature variation is ≤ 0.5°C. The absolute temperature difference between any two points on the same cross-section at the bottom of the well does not exceed 0.5 °C.	A ± 20 mm isothermal zone is located at the furnace center, with a temperature gradient ≤ 0.4 °C/10 mm.	The peak temperature deviation from the furnace's geometric center is ≤ 20 mm. The temperature gradient is ≤ 0.4 °C/10mm within ± 20 mm from the highest temperature point.	The peak temperature is located at the axial geometric center, with a maximum deviation of ≤ 10 mm. Within a 20 mm range from the furnace chamber's geometric center, the axial temperature gradient is ≤ 0.4 °C/10mm.	Uniform temperature field starts within 100 mm from the furnace opening. A ± 20 °C uniform temperature field extends over 400 mm in length.
Rules and regulations for imple mentation	"JJF1184-2024 Technical specification for temperature field test of thermocouple Calibration Furnacee" "JJF1637-2017 Calibration specification for low cost metal thermocouples" "JJF 1262-2010 Calibration specification for armoured thermocouples" "JJF1991-2022 Calibration specifications for short-type intact metal thermocouples" "JJG141-2013 Validation regulation of precious metal thermocouple for work" "JJG75-2022 Verification regulation of standard platinum-rhodium 10-platinum thermocouple" "JG668-1997 Validation regulation of working (Platinum-rhodium 10-Pt, Platinum-rhodium 13-PT) Short thermocouple" "JJG167-1995 Validation regulation of standard Platinum-rhodium 30-Platinum-rhodium 6 thermocouple"					

Multi - Zone Precision Thermocouple Calibration Furnace

Ultra Short Thermocouple Calibration Furnace
Base metal Thermocouple Calibration Furnace
Noble metal Thermocouple Calibration Furnace
Thermocouple Annealing Furnace

Multi-Mode Autonomy

DTBH Ice Point Cell

DTBH Automatic Zero-Degree Thermostat is a professional thermocouple reference junction temperature control device. It delivers a stable and precise 0°C environment for extended periods, ensuring highly reliable measurement data. Utilizing efficient refrigeration technology, it achieves rapid cooling—reaching 0°C from room temperature (25°C) in just 15 minutes—significantly improving workflow efficiency.

Technical indicators

Model	DTBH-01G	DTBH-03G
Accuracy (°C)	0±0.05	0±0.03
Resolution (°C)	0.001	
Stability (°C / 30 min)	0.03	
Insertion depth (mm)	205	
Insert ports (mm)	7×φ9	
Ambient temperature (°C)	5 to 30	
Humidity (% RH)	10 to 80	
Dimensions (mm)	360×125×310	

DJ-201T Smart Switching Platform

- **Supports connection of temperature transmitters:**
  2-wire current-type temperature transmitter (4–20 mA);
  4-wire current-type temperature transmitter (4–20 mA);
  Voltage-type temperature transmitter (0–5 V / 0–10 V).
- **Supports 10-channel thermocouple-specific sockets**
- **Supports RS485 communication port.**
- Automatic RTD wiring switching: detects and switches between 2-wire, 3-wire, and 4-wire modes during calibration. In 3-wire RTD testing, automatically switches between single-lead and double-lead configurations.
- Designed for streamlined, clean, and convenient wiring.

DEARTO Instrument · Quality Model

DTL-H High Temperature Thermocouple Calibration Furnace

New Products

Furnace chamber dimensions Customizable
φ55mm、φ100mm

Product Overview

The DTL-H high-temperature thermocouple calibration furnace replaces traditional metal-heated high-temperature calibration furnaces, offering long service life and stable temperature fields. It fully meets the technical requirements of national calibration regulations and standards, making it an ideal device for high-temperature B-type thermocouple calibration.

Execution Procedures: JJG141-2013 Validation regulation of precious metal thermocouple for work
JJG167-1995 Validation regulation of standard Platinum-rhodium 30-Platinum-rhodium 6 thermocouple

Technical indicators

Model	DTL-H1700G	DTL-H1700G-55	DTL-H1700G-100
Range (°C)	**800 to 1700**	**800 to 1700**	**800 to 1700**
Furnace chamber dimensions (mm)	φ30×600 / φ50×600	φ55×600	φ100×600
Temperature field performance	Type B Standard Thermocouple Furnace: the hottest point in the furnace must not deviate more than 20 mm from the furnace center. Within ±20 mm of the hottest point, the temperature gradient must be ≤ 0.5 °C/10 mm. Type B Working Thermocouple Furnace: the hottest point in the furnace must not deviate more than 20 mm from the geometric center. Within ±20 mm of the hottest point, the temperature field must be uniform with a gradient ≤ 0.5 °C/ 10 mm.		
Power (kW)	3.0		
Maximum Operating Current(A)	70		
Rated Voltage(V/ Hz)	AC 220/50		
It is equipped with a standalone dedicated control cabinet.			
The system features current limiting and freewheeling protection functions, which extend the controller's service life.			
An emergency stop button is provided, allowing manual one-key shutdown of the equipment.			
Fully automatic temperature control: Once activated, it operates autonomously without requiring manual intervention.			
The system features overcurrent protection and upper current limit functionality, which safeguards the heating elements by preventing overload caused by low impedance during startup.			

Custom tungsten-rhenium thermocouple calibration furnaces can be manufactured upon request.

Smart Dry Block Calibrator

Category	Mid-temperature smart dry block calibrator		High-temperature smart dry block calibrator		Micro dry well	
Model	**DTG-660G-A**	**DTG-660G-B**	**DTG-1200G-A**	**DTG-1200G-B**	**ETC-150G**	**ETC-400G**
Range (°C)	50 to 660	50 to 660	300 to 1200	300 to 1200	-10 to 150	50 to 400
Stability (°C)	±0.2	±0.1	±0.4	±0.2	±0.1	±0.1
Resolution (°C)	0.01	0.01	0.1	0.1	0.1	0.1
Power (W)	650	650	2200	2200	230	350
Radial uniformity (°C)	≤0.3	≤0.15	≤1.0	≤0.8	≤0.2	≤0.2
Well depth (mm)	Well Depth: 170 mm Hole Depth: 155 mm		Well Depth: 180 mm Hole Depth: 135 mm		120	110
Dimensions (L×W×H /mm)	170(W)×285(L)×335(H)		170(W)×285(L)×335(H)		230×180×125	220×160×100
Hole sizes of standard insert (mm)	φ4.5,φ6.5,φ8,φ10		φ6.5,φ12		φ4, φ6,φ7	φ4.5,φ8,φ6.5,φ10
	Specify the insertion depth and diameter of the sensors to be tested when placing an order(Customization supported)					
Power supply (V / Hz)	220 / 50 ; 110 / 60					

DTG-MU Smart Electrical Measurement Dry Block Calibrator

- **Automatic smart calibration**:Built-in calibration routines for thermocouples, RTDs, and temperature transmitters. Calibration is completed automatically upon setting parameters.
- **Wireless remote control**:Wi-Fi connectivity enables remote control via mobile phone or PC.
- **Dual-channel electrical measurement**:Includes one reference RTD input and one DUT channel supporting thermocouples, RTDs, and loop current measurement.
- **Intelligent reference thermometer**:Aviation connector with embedded chip storing ITS-90 parameters. Automatically identified and plug-and-play capable.
- **Hart protocol support**:Compatible with HART smart temperature transmitters.
- **Internal self-calibration**:Supports internal sensor auto-calibration and external standard RTD-based control.
  Multiple safety features:Uses materials compliant with V-0 fire-retardant standards. Equipped with over-temperature protection.

Technical indicators

Model	DTG-MU-N40G	DTG-MU-350G	DTG-MU-660G
Range(℃)	**-40 to 150**	**33 to 350**	**50 to 660**
Display accuracy (°C)	± 0.2 (throughout full temperature range)		±0.35 to ±0.5
Stability (°C)	±0.01	±0.02	±0.03 to ±0.05
Axial uniformity within 40mm (°C)	± 0.1 at -40°C, ± 0.05 at 0°C, ± 0.07 at 150°C	± 0.04 at 33°C, ± 0.1 at 200°C, ± 0.2 at 350°C	± 0.05 at 50°C, ± 0.35 at 420°C, ± 0.5 at 660°C
Radial stability (°C)	±0.01 (throughout full temperature range)	±0.01 at 33°C, ±0.015 at 200°C, ±0.02 at 350°C	±0.02 at 50°C, ±0.05 at 420°C, ±0.1 at 660°C
Insertion depth (mm)	150	150	150
Insert diameter (mm)	25.3	25.3	24.4
Built-in reference thermometer accuracy(4-wire) (°C)	±0.013 at -25°C, ±0.015 at 0°C, ±0.020 at 50°C, ±0.025 at 150°C, ±0.030 at 200°C, ±0.040 at 350°C, ±0.050 at 420°C, ±0.070 at 660°C		
Reference resistance range (Ω)	0 to 400		
Reference resistance accuracy (Ω)	0.0025 (0 Ω to 42 Ω), ±60 ppm of reading (42 Ω to 400 Ω)		
Built-in mA measurement accuracy	0.02% of reading + 0.002 mA		
HART communication	Supports reading and calibration of HART temperature transmitters		
Thermocouple mV Range	–10 to 75		
RTD Ω Range	0 to 400		

Overview

DTG Smart Dry-Block Calibrator is a reliable and stable wide-temperature constant temperature source, suitable for both field and laboratory applications. It meets the requirements of on-site calibration in terms of accuracy, speed, stability, and portability. Designed with a strong emphasis on user needs in field environments, the instrument combines lightweight construction, portability, and rapid operation while maintaining stability, consistency, and accuracy comparable to similar laboratory equipment.

DTG Smart Dry Block Calibrator
Micro Smart Dry Block Calibrator

DTG-ETC Micro Smart Dry Block Calibrator

DTG Mid/High - Temperature Smart Dry Block Calibrator

DTG Low - Temperature Smart Dry Block Calibrator

DTG-ULT Ultra-Low Temperature Smart Dry Block Calibrator

New Products

-100°C

Features / Description

- Smart touchscreen interface:High-resolution color capacitive screen with bilingual (Chinese/English) support. Temperature units (°C/°F) can be freely switched. Intuitive operation with real-time calibration status display.
- Rapid calibration:Fast temperature ramp-up and cooldown with minimal stabilization time.
- Lightweight and portable:Compact and lightweight with an insulated handle located away from the heat zone—ideal for field calibration and verification work.
- Customizable inserts:Inserts can be customized based on the insertion depth and diameter of the sensors under test.
- Built-in protection:Internal over-temperature protection ensures safe and stable operation.
- Multi-point correction:Supports automatic calibration and correction at multiple temperature points. Segmental PID control enables one-button heating and fully automatic temperature control.
- Communication interface:Equipped with RS-232 communication port. Enables data transfer to PC with automatic data logging.

Technical indicators

Model	DTG-ULT100G	DTG-ULT80G	DTG-ULT60G	DTG-U42G	DTG-150G	DTG-140G
Range (°C)	**-100 to 40**	**-80 to 40**	**-60 to 40**	**-42 to 150**	**-30 to 150**	**-20 to 140**
Resolution (°C)	0.1	0.1	0.1	0.01	0.01	0.01
Dimensions (L×W×H in mm)	168×273×515	168×273×515	168×273×515	199×328×364	170×320×330	170×320×330
Display Accuracy(°C)	±0.2@ -100 to 0	±0.2@ -100 to 0	±0.2@ -100 to 0	±0.2	±0.2	±0.2
Radial Stability (°C)	±0.1@ -100 to 0	±0.1@ -100 to 0	±0.1@ -100 to 0	±0.2	±0.2	±0.2
Stability (°C)	±0.03@ -100 to 0			±0.15	±0.15	±0.15
Hole sizes of standard insert(mm)	Block Diameter: 30 mm			φ4.5,φ6.5,φ8,φ10		
	Specify the insertion depth and diameter of the sensors to be tested when placing an order. （Customization supported）					
Language/Units	Bilingual Switching (Chinese/English) / Free Unit Conversion (°C / °F)					
Control Method	Smart Touch Screen / Multi-Point Calibration					
Power supply	220V / 50Hz ； 110V / 60Hz					

Humidity calibration

Product selection navigation chart

High Temperature and High Humidity Smart Calibration Chamber

DTHTH-180	Temperature Range : -40°C to 180°C
DTHTH-85	Daul 85 Verification : 85%RH @ 85°C
DTHTH-95	Daul 95 Verification : 95%RH @ 95°C

Oversized Smart Temperature and Humidity Calibration Chamber

DTLH-2RH	Hum. range: 5 %RH to 95 %RH Temp. range: -46 °C to 80°C/ 95°C
DTLH Series	Hum. range: 10 %RH to 95 %RH Temp. range: -46°C to 80°C/ 95°C
DTSL Pro	Unattended - Digital Thermo-Hygrometer Automatic Calibration System
DTSL Pro	Unattended-mechanical thermo-hygrometer automatic calibration system

Temperature and Humidity Sensors Automatic Calibration Platform

Adapted for Full Series of Temperature and Humidity Calibration Chambers

Standard Smart Temperature and Humidity Calibration Chamber

DTLH-1RH	Hum. range: 5 %RH to 95 %RH Temp. range: -8°C to 65 °C
DTLH Series	Hum. range: 10 %RH to 95 %RH Temp. range: -8°C to 65°C/70°C

Portable Humidity Generator

TADT-atm	Integrated Temperature, Humidity, and Pressure Control Generator
TADT-1	Working volume: 5L
TADT-2	Working volume: 9L
TADT-3	Working volume: 1.5L

Overview

The smart temperature (and humidity) calibration chamber is a specialized calibration, validation, and verification device designed for the calibration of temperature and humidity digital meters, sensors, transmitters, inspection instruments, data loggers, storage devices, and other related instruments. The system utilizes high-precision temperature and humidity sensors combined with an industrial programmable controller, enabling automatic humidity regulation within the chamber. It offers high control precision and repeatability, making it ideal for scientific research and product testing.

Ultra - Low Temperature and Humidity Smart Calibration Chamber

APP Curve Display

Control Interface

Blockbuster recommended | **Temperature Range**

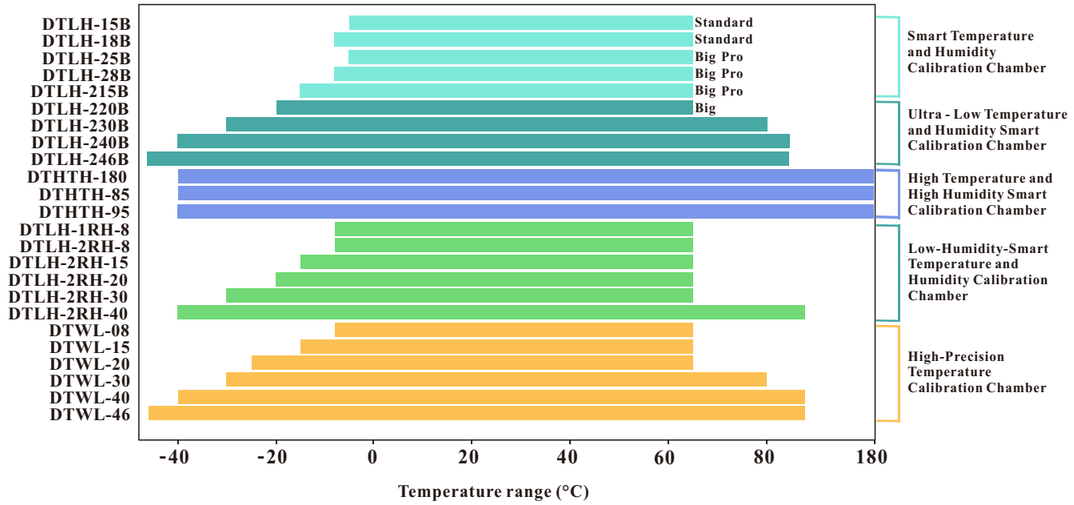
-46°C to 95°C

The Whole line of products can be upgraded to automatic validation system

Smart Programming	Smart Defrost	Real-Time Curve Display	Data Logging
Remote Control	Stability Alert	Mobile App	Auto-Correction / Calibration

Certificates of patent for utility model
Registration certificate of software copyright

Product selection table



High Temperature and High Humidity Smart Calibration Chamber

Model	DTHTH-180	DTHTH-85	DTHTH-95
		Supports dual 85verification	supports dual 95verification
Temperature range (°C)	-40 to 180	-40 to 180	-40 to 180
Humidity range (% RH)	5 to 95	5 to 95	5 to 95
	10 to 95	10 to 95	10 to 95
	20 to 95	20 to 95	20 to 95
Temperature resolution (°C)	0.01	0.01	0.01
Humidity resolution (% RH)	0.01	0.01	0.01
Temperature stability (°C/30 min)	≤±0.05(temperature only mode) ≤±0.1(Humidity On)	≤±0.05(temperature only mode) ≤±0.1(Humidity On)	
Temperature Uniformity Tested in accordance with JJF 1564-2016	≤0.2 (at 5°C to 50°C)	≤0.2 (at 5°C to 50°C)	
Temperature Uniformity Tested in accordance with JJF 1101-2019	0.5 (at < 5°C, 50 °C to 80 °C) ≤1.2 (at 80°C to 100 °C)	0.5 (at < 5°C, 50 °C to 80 °C) ≤1.2 (at 80°C to 100 °C)	
Humidity stability (% RH /30min)	≤±0.5	≤±0.5	
Humidity Uniformity Tested in accordance with JJF 1564-2016	≤0.8 (at 20°C)	≤0.8 (at 20°C)	
Temperature change rate (°C/min)	≤0.2	≤0.2	
Humidity change rate (% RH/min)	≤0.8	≤0.8	
Internal chamber dimensions (mm)	760×580×750 (D×W×H)	760×580×750 (D×W×H)	
External dimensions (mm)	1585×780×1780 (L×W×H)	1585×780×1780 (L×W×H)	
Power	AC 220 V ± 5% 50Hz, peak power 5 kW, typical power 3 kW		

DEARTO Instrument · Quality Model

High Temperature and High Humidity Smart Calibration Chamber

Supports dual 85verification
85 °C/ 85 %RH
Supports dual 95verification
95 °C/ 95 %RH

New Products Temperature range

-40°C to 180°C

DTLH Smart Temperature and Humidity Calibration Chamber

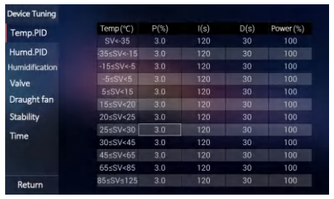
Specifications	Standard		Oversized		
Model	**DTLH-15BG**	**DTLH-18BG**	**DTLH-25BG**	**DTLH-28BG**	**DTLH-215BG**
Temp.range	**-5°C to 65°C**	**-8°C to 65°C**	**-5°C to 65°C**	**-8°C to 65°C**	**-15°C to 65°C**
Temp.resolution	0.01°C		0.01°C		
Humidity range	10 %RH to 95%RH (20 °C)(**5 %RH to 95 %RH is available**)				
Resolution	0.01 %RH		0.01 %RH		
Temp .stability	≤±0.05°C / 30min (-8 °C to 10°C) ≤±0.05°C / 30min (10°C to 30 °C) ≤±0.10°C / 30min (30 °C to 65 °C)		≤±0.05 °C / 30min (-15 °C to 10 °C) ≤±0.05 °C / 30min (10 °C to 30 °C) ≤±0.10 °C / 30min (30 °C to 65 °C)		
Temp.uniformity (customizable)	≤0.2 °C (15°C to 30 °C) ≤0.3 °C (-5 °C to 60 °C)		≤0.2 °C(15 °C to 30°C) ≤0.3°C (5 °C to 60 °C)		
Humi.stability	≤±0.3 %RH /30min(5 %RH to 80 %RH) ≤±0.5 %RH /30min(80 %RH to 95 %RH)		≤±0.3 %RH /30min (5 %RH to 80 %RH) ≤±0.5 %RH /30min (80 %RH to 95 %RH)		
Humi.uniformity (customizable)	≤0.8 %RH (5 %RH to 80 %RH) ≤1.0 %RH (80 %RH to 95% RH)		≤0.8 %RH(5 %RH to 80 %RH) ≤1.0 %RH(80 %RH to 96 %RH)		
Temp.change rate	≤0.02°C /min		≤0.02°C/min		
Humi. change rate	≤0.3 %RH /min		≤0.3 %RH /min		
Heating rate	15°C to 20°C in 20 min, 20°C to 30°C in 25 min, 20°C to 65°C in 60 min		15°C to 20°C in 30 min, 20°C to 30°C in 40 min, -15°C to 15°C in 50 min, 20°C to 65°C in 60 min		
Cooling rate	20°C to 15°C in 30 min, 30°C to 20°C in 35 min, 65°C to 20°C in 60 min		20°C to 15°C in 35 min, 30°C to 20°C in 40 min, 65°C to 20°C in 60 min		
Humidity rise rate(at 20 °C)	20% RH to 80% RH in 9 min, 10% RH to 95% RH in 12 min, 5% RH to 95% RH in 15 min		20% RH to 80% RH in 9 min, 10% RH to 95% RH in 12 min, 5% RH to 95% RH in 15 min		
Humidity reduction speed(at 20 °C)	80% RH to 20% RH in 15 min, 95% RH to 10% RH in 25 min		80% RH to 20% RH in 20 min, 95% RH to 10% RH in 25 min		
Internal chamber dimensions	520×510×500(mm)		820×800×510(mm)		
External dimensions (mm)	1780(H)×820(W)×965(T)		1730(H)×1045(W)×1300(T)		
Weight	350kg		450kg		
Supply power	AC 220V±5% 50Hz, Peak power 5kW,Typical power 3kW				
Smart programming	The system supports multi-segment programming, allowing users to predefine commonly used temperature and humidity calibration points in advance. One-click start (scheduled start) automatically executes calibration without needing to set points repeatedly.				
Remote control via mobile App (Wi-Fi enabled)	Mobile App integration enables remote temperature and humidity control. Users can monitor real-time data and system status, adjust settings, and start/stop operations remotely. Enhances efficiency by reducing manual intervention.				
PC remote operation (Ethernet/Wi-Fi/ Serial port)	Optional PC software allows remote monitoring and control of the chamber. Supports real-time temperature and humidity readings, system configuration, and remote start/stop.				
Stability status indication	Intelligent stability detection is based on the deviation, fluctuation, and stabilization time of temperature and humidity. Real-time fluctuation assessment determines chamber stability.Customizable stability evaluation intervals (i.e., 1, 5, 10, 20, or 30 min) are available.				
Curve display, scaling, and saving	Real-time curve data are visualized with automatic zooming for detailed analysis. Capacitive touchscreen with multi-touch supports free drag, zoom, and pan to examine both overall trends and details of temperature and humidity variations. One-click screenshot is saved in image format for maintenance records and data tracking.				
Segment PID control	The system supports multi-segment PID control for both temperature and humidity, applying optimized control parameters at different setpoints. This ensures precise regulation, rapid stabilization, minimal overshoot, and reduced fluctuation, achieving optimal temperature and humidity control at every calibration point.				
Data logging & export	The system automatically records calibration chamber operation data and temperature/humidity curve data. Data is automatically formatted into an Excel file and can be exported to a USB drive with a single click.				
Multi-point correction	Wide correction range ensures high accuracy and minimal deviation.Superior linearity ensures consistent performance.				

DEARTO Instrument · Quality Model

Ultra - Low Temperature and Humidity Smart Calibration Chamber

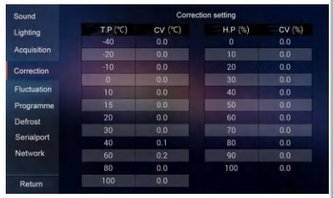
Model	DTLH-220BG	DTLH-230BG	DTLH-240BG	DTLH-246BG
Temp.range	**-20°C to 65°C**	**-30°C to 80°C**	**-40 °C to 80/95(°C)**	**-46 °C to 80/95(°C)**
Temp.resolution	0.01°C			
Humidity range	10 %RH to 95 %RH(20°C)(**Customizable： 5 %RH to 95 %RH(20°C)**)			
Hum. resolution	0.01 %RH			
Temp .stability	≤±0.05°C/30min		≤±0.05°C/30min	
Temp.uniformity (customizable)	≤ 0.1 (at 10°C to 30 °C), ≤ 0.15 to 0.3 (at other temperature)		≤ 0.1 (at 10°C to 30 °C), ≤ 0.15 to 0.3 (at other temperature)	
Hum.stability	≤ ± 0.3 (5% RH to 80% RH), ≤ ± 0.5 (80% RH to 95% RH)		≤ ± 0.3 (5% RH to 80% RH), ≤ ± 0.5 (80% RH to 95% RH)	
Hum.uniformity (customizable)	≤ 0.8 %RH		≤ 0.8 %RH	
Temp.change rate	≤ 0.03°C/min(under stable statu)		≤ 0.03 °C/min(under stable statu)	
Hum. change rate	≤ 0.3 %RH/min(under stable statu)		≤ 0.3 %RH/min(under stable statu)	
Heating rate	15°C to 35°C in 20 min, 20°C to 80°C in 40 min		15°C to 35°C in 20 min, 20°C to 80°C in 40 min	
Cooling rate	50°C to 15°C in 30 min, 80°C to 20°C in 40 min		50°C to 15°C in 30 min, 80°C to 20°C in 40 min	
Humidity rise rate(at 20 °C)	20% RH to 80% RH in 9 min, 10% RH to 95% RH in 15 min		20% RH to 80% RH in 9 min, 10% RH to 95% RH in 15 min	
Humidity reduction speed(at 20 °C)	80% RH to 20% RH in 20 min, 95% RH to 10% RH in 25 min		80% RH to 20% RH in 20 min, 95% RH to 10% RH in 25 min	
Internal chamber dimensions (mm)	620×780×500		620×780×500	
External dimensions (mm)	1700(H)×1400(T)×1000(W)		1820(H)×1682(T)×1172(W)	
Weights	450kg		500kg	
Power	AC 220 V ± 5% 50 Hz, peak power 5 kW, typical power 3 kW		AC 380 V ± 5% 50 Hz, peak power 7 kW, typical power 5 kW	

Smart Application



Segmented PID control

Device is self-tuning



Multipoint temperature and humidity correction

Aperture transparent internal doors for smart temperature (and humidity) calibration chambers

Standard Smart Temperature and Humidity Calibration Chamber

Procedures, norms, standards for implementation

"JJF1076-2020 Calibration specification for digital hygrometer"

"JJG205-2005 Specification for the validation of mechanical hygrograph"

"JJF1564-2016 Calibration specification for temperature and humidity standard chamber"

"JJF（Military）165-2017 Calibration specification for digital hygrometer"

Highlights

Advanced Technology

- Humidity Control: Split-Flow Method is used for humidity generation, significantly reducing stabilization time compared to dual-temperature methods and improving calibration efficiency.
- Temperature Control: liquid-bath-and-isothermal-plate heating technology is adopted, ensuring stable thermal radiation and uniform temperature distribution.
- Optimized Air Circulation: Features a unique internal air circulation system, eliminating dead zones and ensuring consistent airflow. Variable frequency technology allows for precise fan speed control, maintaining temperature uniformity at low speeds.

Product intellectualization

- IoT-Enabled Remote Control: Metrology technology is integrated with IoT, allowing Wi-Fi remote control for easier operation.
- High-Definition Touchscreen: Multi-touch capacitive display, enhancing user experience.
- One-Touch Start: Fully automatic operation reduces training time for metrology personnel.
- Scheduled Operation: Supports timed startup and shutdown, enabling remote operation and improving efficiency.

Smart Functionality

- Corrosion & Rust Resistant: The outer shell is phosphated, passivated, and coated with an anti-corrosion finish, resistant to rust and salt spray.
- Premium Internal Components: Inner chamber is constructed from SUS304 stainless steel.
- High-precision sensors: high precision platinum resistance temperature sensors and humidity sensors are equipped for precise control.
- **Supports customized design of double-hole transparent inner door: Equipped with a high-transparency door and 2 glove port operation openings, it facilitates users in various operations such as observation, adjustment, and reading.**

Upgrade to Fully Automatic and Unattended Calibration

- An upgrade with smart imaging system, dew point meters, industrial cameras, robotic imaging systems, and database management software enables fully automatic temperature and humidity calibration. This system automates data recording and report generation, reducing manual labor and increasing efficiency.

DEARTO Instrument · Quality Model

Key Features

Smart Large Touchscreen

Models feature high-definition capacitive touchscreens with clearer display and multi-touch support, and are designed for intuitive smartphone-like user experience.

Mobile App Remote Control

Users operate smartphone/tablet App to remotely set temperature and humidity, start/stop the device, and monitor real-time status and fluctuations.

Programmable Calibration

Multi-stage programming function allows users to predefine five calibration points as per metrology standards. The system executes the calibration sequentially with one-click activation, eliminating the need for manual input.

Rate of Change Indicator

Temperature and humidity variation rates are displayed with customizable measurement intervals.

Real-Time Status Monitoring

Real-time stability is calculated and displayed. The stability status, USB drive connection, and Wi-Fi connection status are displayed.

Graphical Data Visualization

The system supports real-time temperature and humidity curves display, touchscreen zoom & pan functionality, and one-click screenshot and USB export.

Data Logging & Export

Data can be automatic saved in Excel format and exported to a USB drive with one-click.

Scheduled Startup

The system supports pre-programmed startup, allowing the system to reach operational conditions before work hours for immediate use.

Multi-Point Calibration

The system enables multi-point calibration for temperature and humidity sensors, ensuring minimal deviation from reference standards through segmented correction.

Segmented PID Control

The system implements multi-segment PID regulation, ensuring fast, stable adjustments with zero overshoot. The system can increase humidity from 40% RH to 60% RH within 15 minutes.

Fan Speed Control

The main internal circulation fan features variable frequency speed regulation, allowing adjustable airflow via the touchscreen interface.

Multiple Safety Protections

Includes overheat protection, low liquid level alarm, water tank refill alerts, compressor overheat warning & startup protection.

Communication Expansion

Equipped with Ethernet, Wi-Fi, USB, and RS-232 ports, enabling PC connectivity for data acquisition and system configuration.

Main interface of mobile APP

Touch screen curved interface

Programming setting interface

Real-time display of temperature change rate and steady state

Included and optional accessories

Item	S-shaped carabiner	Working medium	Appendix
Photo			
Included / optional	Included	Included	Included

Item	Temperature and humidity meter	Hanging holder	Instrument Cart
Photo			
Included / optional	Optional	Optional	Optional

DTSL Pro Fully Automatic Temperature and Humidity Calibration System

Overview

The DTSL Pro series consists of DEARTO's full range of temperature and humidity calibration chambers, precision dew point meters, precision digital thermometers, robotic imaging systems, and an automatic recognition system, forming a completely automatic calibration setup.

System Overview

The DTSL Pro-svr3 fully automatic temperature and humidity calibration system enables automatic positioning, image capture, data collection, recognition, calculation, and result evaluation, completing the entire calibration process without human intervention. This system allows for unattended calibration of temperature and humidity meters. It automatically controls temperature and humidity, monitors real-time chamber conditions via a dew point meter, and determines stability before proceeding. Once stable, the system coordinates the robotic camera, data acquisition devices, recognition software, and calibration chamber to automatically position itself to the device under test. The built-in intelligent rotational positioning system receives controller signals, captures images, records data, recognizes readings, and inputs the results into the host system. It then automatically calculates and determines the calibration outcome based on standard verification points.

Main implementation of calibration regulations

"JJG 205-2005 Calibration Regulations for Mechanical Thermohygrometer"

"JJF1076-2020 Calibration Specifications for Digital Thermohygrometer"

"JJF1564-2016 Calibration Specifications for Temperature and Humidity Standard Chamber"

Key Features of DTSL Pro-svr3

Unattended, Fully Automatic Calibration

- No manual intervention is required throughout the calibration process, improving efficiency and reducing labor costs. Automatic multi-point temperature and humidity control is enabled. The system supports automatic positioning, image capture, recognition, and calibration for digital temperature and humidity meters. Calibration results are automatic calculated and pass/fail is automatically determined.

High Stability & Data Reliability

- High-definition cameras are used to capture meter readings. AI-powered software automatically identifies temperature and humidity values, saving both raw images and extracted data for error-free, repeatable calibration. The system eliminates issues of human reading errors, discrepancies, and verification difficulties associated with traditional manual calibration.

Artificial Intelligence Learning Capability

- The system has self-learning capabilities, allowing recognition of new temperature and humidity meters. The recognition module can be upgraded independently. Users can train the system to recognize new temperature and humidity meters by providing images.

High-Recognition Efficiency

- The system sequentially controls calibration chamber conditions according to standard verification points. Once each point stabilizes, the system automatically captures data based on user-defined stability periods. Image recognition time is negligible compared to overall temperature and humidity stabilization time.

Database Management Software

The database management software allows users to input test request details into the system, select the temperature and humidity instruments for the current calibration cycle, and automatically assign each device to the appropriate position in the calibration chamber's rack. The system automatically sets control points for calibration, then identifies and records measurement data and images. Users can edit, search, delete, and export calibration records as Office documents, ensuring electronic storage and traceability.

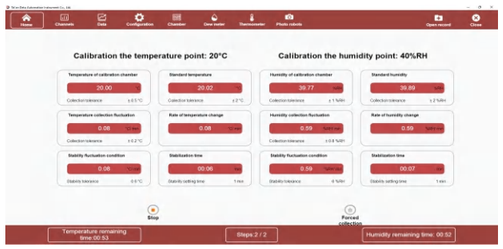
- The software uses MySQL Database to support both local and remote network connections, enabling multi-location laboratory data management, data sharing, and multi-device operation.
- The software can scan and extract information from test request forms, automatically populating fields, streamlining the process and reducing manual workload.
- Calibration data can be exported to Excel, ensuring data integrity and traceability.
- The system analyzes instrument types (e.g., digital or analog) and automatically recognizes and displays relevant information, assisting metrologists in efficient calibration and evaluation.

Unattended -

Automatic positioning
Automatic photo
Automatic collection
Automatic identification
Automatic calculation
Automatic judgment

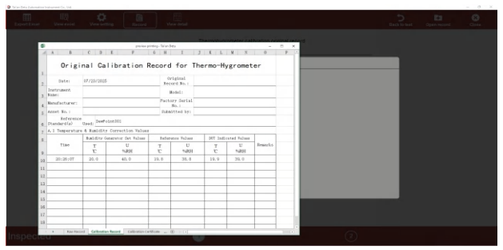
Professional Software Functions of DTSL Pro-svr3

- **Fully Automatic Temperature & Humidity Control**
  The software supports custom multi-point calibration of temperature and humidity. One-click startup automates temperature and humidity control, image capture, and calibration. The system automatically calibrates temperature and humidity points according to regulatory standards by default. Users can manually modify calibration points during the process, and the system will automatically resume calibration.
- **Compatibility with Multiple Standard Instruments**
  The system supports multiple brands of precision dew point meters and digital thermometers, automatically collecting standard reference data.
- **Dual-Mode Positioning**
  Automatic and manual positioning are available for calibration meters. Built-in intelligent rotation system adjusts the relative positioning automatically for optimal image capture and data acquisition.
- **Fully Automatic Calibration Process**
  The system automatically performs calibration at preset points: captures images, recognizes temperature and humidity values, and records data into the system. After completing all calibration points, the system automatically calculates results and determines pass/fail status.
- **Data Review & Verification**
  Manual verification of calibration data allows users to review and adjust extracted readings.
  Users can modify temperature and humidity values, and the system automatically updates calculations.
- **Custom Report Generation**
  Users can preview, print, and export calibration records. The system automatically generates Excel reports, which can be customized as needed.
- **Modular Database Management**
  The software digital archives temperature and humidity instrument information, calibration data, and image records, with all data securely stored in the database for centralized management.
- **Centralized Management of Tested Instruments**
  Batch entry of submitted temperature and humidity instruments is enabled, including details such as quantity, instrument ID, name, model, manufacturer, accuracy, measurement range, submitting organization, and address, etc.



Operating main interface

Automatic data collection interface



Automatically determine the verification results

Item selection interface

Multiple Operating Modes

The DTSL Pro fully automatic temperature and humidity calibration system offers multiple work modes tailored to different operational requirements:

Mode 1: Unattended Automatic Image Capture System (DTSL Pro-svr2)

The system automatically controls temperature and humidity within the calibration chamber, with a dew point meter monitoring real-time condition. Once stability conditions are met, the system automatically operates the robotic camera, positioning it to capture images of each instrument under test. After all calibration points are processed, the system moves to the data processing stage, where users input measured values based on the captured images. The system then automatically calculates calibration results and determines pass/fail status.

Mode 2: Automatic Control Calibration System (DTSL Pro-svr1)

The system automatically controls temperature and humidity within the calibration chamber, with a dew point meter monitoring real-time condition. Once stable, the system automatically collects reference data, and users manually enter the instrument's readings. Upon completion, the system calculates the calibration results and determines the final outcome.

Mode 3: Data Processing Calibration System (DTSL Pro-svr0)

Users manually set temperature and humidity conditions. Once stable, users manually enter test readings. The system calculates results automatically. For mechanical hygrometers, the system calculates the average over two calibration cycles; for digital hygrometers, it averages three calibration cycles.

Comparison of features between DTSL Pro systems

No	Function	Unattended & fully automatic temperature and humidity calibration system	Unattended & automatic image capture system	Automatic control calibration system	Data processing Calibration system
1	**Software**	**DTSL Pro-svr3**	**DTSL Pro-svr2**	**DTSL Pro-svr1**	**DTSL Pro-svr0**
2	Automatic temperature and humidity control	●	●	●	
3	Dew point meter automatic control	●	●	●	
4	Automatic positioning	●	●		
5	Automatic image capture	●	●		
6	Automatic data collection	●	●		
7	Automatic recognition	●			
8	Automatic calculation	●	●	●	●
9	Automatic result evaluation	●	●	●	●
10	Export calibration reports	●	●	●	●
11	Manual data entry	●	●	●	●

Overview

Temperature and humidity sensors are widely used in critical fields such as meteorological monitoring, industrial control, aerospace, and medical equipment. Their measurement accuracy directly impacts system reliability and data value. Traditional manual calibration methods are low in efficiency and poor in consistency. The DTSL Pro-DHT Temperature and Humidity Sensors Automatic Calibration Platform addresses these industry challenges through technological innovation, reducing labor costs, minimizing frequent power cycling of constant temperature and humidity equipment, and decreasing device wear.

DTSL-DHT Pro Temperature and Humidity Sensors Automatic Calibration Platform

Product Application

The DTSL -DHT Pro Temperature and Humidity Sensors Automatic Calibration Platform is a professional automated detection solution for digital temperature-humidity sensor probes and temperature-humidity transmitters. The platform supports probes and transmitters from multiple brands and types, enabling automated process control, calibration, generation of calibration records, and production of calibration certificates. It provides an efficient, convenient, and accurate automated calibration platform for professional testing institutions, manufacturers, research organizations, and other industries.

Regulations and Specifications

"JJF 1076-2020 Calibration Specification for Digital Hygrometers"

"JJF 1101-2019 Calibration Specification for Temperature and Humidity Parameters in Environmental Testing Equipment"

"JJG (Meteorological) 003-2011 Verification Regulation for Humidity Sensors in Automatic Weather Stations"

"JJG (Meteorological) 007-2024 Verification Regulation for Platinum Resistance Temperature Sensors for Meteorological Use"

Intelligent Electrical Signal Automatic Switching Platform

- Supports both analog and digital temperature and humidity sensors and transmitters, with a capacity of up to 48 devices under test per unit.
- Analog support includes 2-channel analog voltage signals, 2-wire/3-wire current transmitter signals, 3-wire voltage transmitters, and 4-wire PT100 signals. Digital terminal blocks support RS485 and UART signals.
- Visualized dynamic display of current channel status and signal types.
- Standardized communication protocols enable real-time intelligent temperature data exchange with high-precision data acquisition devices.

Product Features

- Improved Calibration Efficiency:Intelligent automation replaces manual operations, eliminating time-cost manual adjustments, recordings, and repeated tests, significantly accelerating calibration speed.
- Extensive Compatibility:Supports temperature and humidity probes and transmitters from multiple brands and models on the market, such as Vaisala (Finland), Rotronic (Switzerland), Michell Instruments (UK), and various domestic brands. Compatible with high-quality temperature and humidity calibration chambers.
- Batch Calibration Capability:Supports synchronous calibration of multiple sensors, with a capacity of calibrating at least 48 units simultaneously, meeting large-scale testing, calibration, and production needs.
- Intelligent Operation and Data Traceability:Trully achieve fully automated control solution that automatically controls the temperature and humidity of standard chambers and automatically reads temperature-humidity data from temperature-humidity sensors and transmitters, eliminating human error. Utilizes high-precision calibration chambers and closed-loop control algorithms to avoid subjective operational deviations.
- Flexible Calibration Configuration:Supports up to 10 temperature and humidity calibration points, Configurable tolerance for each temperature and humidity point.
- Standardized Data Recording:Automatically generates verification/calibration records in accordance with regulations and specifications. Supports export of original verification/calibration data sheets and certificates.

Overview

The DTWL high-precision temperature chamber is a specially designed air-based thermostatic chamber, offering high temperature control accuracy, excellent temperature uniformity, and minimal fluctuation. Many temperature-measuring instruments and sensors cannot be calibrated using liquid-based temperature sources and are unsuitable for calibration in temperature calibration baths. The DTWL high-precision temperature chamber addresses this issue, filling a critical gap in precision temperature sources, and providing a complete calibration solution for temperature measurement instruments.

DTWL High-Precision Temperature Calibration Chamber

Key Features

- **Thermostatic liquid bath technology enhances temperature feld stability:** Temperature control employs liquid-bath-and-isothermal-plate heatingtechnique, where the liquid medium is regulated to a stable temperaturewithin the thermostatic bath before circulating in the working chamber.Heat radiation ensures a uniform and stable working chambertemperature, achieving a signifcant improvement in thermalperformance compared to the traditional simultaneous heating andcooling approach.
- **High-precision air bath thermostatic source**: The system is equippedwith high-precision temperature control sensors and meters, ensuringprecise temperature regulation with minimal indication deviation.

Technical indexes

Model	DTWL-46	DTWL-40	DTWL-30	DTWL-20	DTWL-15	DTWL-08
Range(°C)	-46 to 80/95	-40 to 95	-30 to 80	-20 to 70	-15 to 65	-8 to 65
Uniformality(°C)	0.3 / 0.2 / 0.1 / 0.05 （support on-demand selection）					
Stability	0.05°C/10min					
Internal chamber dimensions(mm)	620(H)×780(W)×500(T)					
External dimensions (mm)	1700(H)×1400(H)×1000(H) （customization）					
Features	The model features a high-definition capacitive touchscreen with clearer display and multi-touch support, designed for an intuitive smartphone-like user experience.					
	Users operate smartphone/tablet App to remotely set temperature and humidity, start/stop the device, and monitor real-time status and fluctuations.					
	Real-time stability is calculated and displayed. The stability status, USB drive connection, and Wi-Fi connection status are displayed.					
	The system supports real-time temperature and humidity curves display, touchscreen zoom & pan functionality, and one-click screenshot and USB export.					
	Data can be automatic saved in Excel format and exported to a USB drive with one-click.					
	The system supports pre-programmed startup, allowing the system to reach operational conditions before work hours for immediate use.					
	The system enables multi-point calibration for temperature and humidity sensors, ensuring minimal deviation from reference standards through segmented correction.					
	The system implements multi-segment PID regulation, ensuring fast, stable adjustments with zero overshoot.					
	The main internal circulation fan features variable frequency speed regulation, allowing adjustable airflow via the touchscreen interface.					
	It includes overheat protection for the thermostatic bath, start/stop protection, low liquid level alarm, and compressor overheat alarm.					
	Equipped with Ethernet, Wi-Fi, USB, and RS-232 ports, enabling PC connectivity for data acquisition and system configuration.					

Overview

The DTLH-Mob Portable Temperature and Humidity Calibration Chamber is custom-designed for field testing and mobile applications. It features a 304 stainless steel inner chamber (corrosion-resistant) and an outer electrostatic spray-coated protective structure, integrated with an omnidirectional locking caster system. Its compact design significantly reduces the overall size, meeting high-frequency mobility requirements and ensuring efficient deployment for field calibration.

DTLH-Mob Portable Temperature and Humidity Calibration Chamber

- **Compact and lightweight design, custom-developed for on-site testing.**
- **Features intelligent touch screen control with one-touch programming.**
- **Suitable for multiple scenarios, meeting diverse calibration needs.**

Features

- **Outstanding Portability**
  Designed specifically for on-site testing and mobile scenarios, portable temperature and humidity calibration chamber is equipped with an omnidirectional locking caster system. The compact structure design greatly reduces its volume, fulfilling the demands of frequent movement and enabling efficient on-site calibration deployment.
- **Robust and Durable Structure**
  Constructed with a 304 stainless steel inner chamber (corrosion-resistant) and an outer electrostatic spray-coated shell, it incorporates a double-layer high-temperature resistant and anti-aging silicone sealing structure. This ensures both corrosion resistance and an aesthetically pleasing appearance while significantly enhancing environmental isolation. It effectively blocks external interference, maintaining long-term stability and control of temperature and humidity in the testing zone.
- **GUI Based Operation, Simple and Convenient**
  Equipped with a 5-inch high-definition touchscreen, it integrates high-precision temperature and humidity sensors and a programmable controller. It supports real-time monitoring of temperature and humidity curves and programmable control. The user-friendly interface allows flexible adaptation to diverse testing scenarios, providing a stable and reliable temperature and humidity environment for on-site metrology verification.
- **Precise and Stable Temperature Control**
  Utilizing high-precision temperature and humidity sensors with PID auto-tuning function, it enables fast and stable temperature and humidity contol. Built-in multi-point independent temperature calibration ensures post-calibration temperature indication error ≤ 0.1°C and humidity indication error ≤ 1.0% RH. Minimal deviation across the full range guarantees exceptional measurement accuracy.
- **Flexible Functional Expansion**
  A pre-configured programmable temperature and humidity control interface supports one-touch operation, meeting multiple calibration points requirements. It significantly improves testing efficiency and adapts to diverse calibration scenarios.

Technical indexes

Temperature Range(°C)	-5 to 50	5 to 50
Humidity Range(%RH)	10 to 95 / 5 to 95	
Temperature Stability(°C)	≤±0.1 (at 5°C to 50°C)	
Temperature Uniformity(°C)	≤0.3 (at 5°C to 50°C)	
Humidity Stability(%RH)	≤±0.6 (at 20°C)	
Humidity Uniformity(%RH)	≤1.0 (at 20°C)	
Dimensions (L×W×H)(mm)	700×600× 600	
Volume/working are(L)	30	
Weight(kg)	50	

PID auto-tuning sensors ensure stable and reliable temperature and humidity control.

Displays real-time temperature and humidity curves for continuous data tracking.

Multi-point linear correction capability ensures errors < 0.1°C (1.0%RH).

Overview

The TADT portable humidity generator is a high-precision, portable temperature and humidity calibration instrument designed to meet the metrological calibration needs of temperature and humidity sensors, transmitters, and other small temperature and humidity measuring instruments.

TADT Portable Humidity Generator

TADT-1G (Volume：5L)

TADT-3G (Volume：1.5L)

Product Features

- The test chamber offers a volume 3 to 5 times larger than comparable products, enabling more efficient and flexible calibration conditions.
- It is compatible with a wide range of immersion-type chilled mirror dew point sensor heads, allowing for convenient comparative calibrations.
- Modular sensor ports accommodate temperature and humidity probes and transmitters of various diameters, enhancing versatility.
- A transparent observation window combined with an integrated lighting system facilitates easy reading of small-scale temperature and humidity instruments.
- Supports simultaneous calibration of 10 to 15 miniature temperature and humidity probes, or 3 to 5 standard-sized digital temperature and humidity meters.
- Ensures temperature uniformity of ≤ 0.1°C across the full calibration range of 5°C to 50°C.
- The externally mounted drying cylinder allows for desiccant replacement during operation, improving ease of maintenance and operational efficiency.
- Dual-zone drying cylinder design supports both molecular sieve and silica gel desiccants for flexible drying configurations.
- Real-time display of liquid level and desiccant status enables intuitive monitoring and timely maintenance.
- Equipped with four external signal input channels, supporting standard signal types: 0 - 1 V, 0 - 5 V, and 4 - 20 mA.
- Built-in humidity conversion software simplifies conversion between relative humidity, temperature, and dew point temperature.
- Temperature and humidity curves are displayed for real-time trends monitoring.
- Features a 7-inch full-color LCD touchscreen for clear visualization and user-friendly operation.

Technical indicators

Model	TADT-1G	TADT-2G	TADT-3G
Nominal temperature range (°C)	5 to 50	5 to 50	5 to 50
Nominal humidity range at 20 ± 3°C (% RH)	5 to 95	5 to 95	5 to 95
Working chamber size (mm)	160×175×175	280×175×175	110×110×110
Working volume (L)	**5L**	**9L**	**1.5L**
External dimensions (mm)	550×300×600	550×300×600	370×480×200
Maximum permissible temperature error (°C)	± 0.05 (at 17°C to 23°C), ± 0.1 (at 5°C to 50°C)		
Maximum permissible relative humidity error (% RH)	± 0.8 (at 17°C to 23°C), ± 1.5 (at 5°C to 50°C)		
Temperature uniformity at 20 ± 3°C (°C)	≤0.1		
Humidity uniformity at 20 ± 3°C (% RH)	≤0.5		
Temperature stability (°C)	±0.05		
Humidity stability (% RH)	±0.5		
Sensor testing window	Combined design, support on-demand customization		

Overview

The TADT-atm is a high-end measurement device specifically developed to meet the calibration requirements of meteorological units in motor vehicle testing. It accurately measures critical environmental parameters such as temperature, relative humidity, and atmospheric pressure, and can precisely simulate various conditions. This ensures accurate and efficient calibration of meteorological units. The system is primarily used in motor vehicle inspection stations, metrology institutes, and research institutions, helping ensure the measurement accuracy of meteorological units and, in turn, improving the reliability of vehicle inspection results.

TADT-atm Integrated Temperature, Humidity, and Pressure Control Generator

Temperature
Relative Humidity
Atmospheric Pressure
} Simultaneous calibration

Working volume : 9.3L

Features & Advantages

Integrated multi-parameter calibration	The system enables simultaneous calibration of temperature, relative humidity, and atmospheric pressure, eliminating the need for multiple devices and significantly improving calibration efficiency.
Intuitive user interface	Equipped with a 7-inch color LCD touchscreen. The user interface is simple and intuitive, delivering a user-friendly interactive experience.
Real-time curve display	Offers powerful data visualization capabilities, supporting real-time display of temperature, humidity, and pressure curves for clear monitoring of parameter trends.
Accurate calibration function	Supports multi-point correction of temperature, humidity, and pressure to ensure the reliability of measurement data.
Intelligent conversion software	Integrated with professional humidity conversion software to allow fast calculation of relative humidity, temperature, and dew point temperature.
Communication interface	Supports RS232 or RS485 communication for easy data exchange and system integration with external equipments.
Modular power and communication	Provides separate power and communication modules for sensors under calibration, enhancing flexibility and adaptability to diverse application scenarios.
Efficient structural design	The measuring chamber features a transparent window and internal lighting for easy reading of small temperature and humidity instruments. An external drying cylinder design allows desiccant replacement during operation. Dual-zone drying cylinders support both molecular sieves and silica gel desiccants. Visual display of liquid level and desiccant status enables real-time monitoring.
Flexible calibration point configuration	Temperature calibration includes multiple points: -10 °C, 0 °C, 20 °C, 30 °C, and 40 °C, with a scientifically sequenced calibration process starting from sub-zero and gradually increasing to prevent frosting. Relative humidity calibration covers 30%, 50%, and 80% RH, precisely targeting common calibration ranges. Atmospheric pressure calibration points can be flexibly set according to local standard, upper, and lower atmospheric pressure values, ensuring accurate and practical calibration results across regions.
Standardized, efficient calibration workflow	The preparation before calibration is simple. After preheating, place the sensor from the weather unit under test in the center of the calibration chamber and close the lid to begin. During calibration, once each setpoint stabilizes, data is recorded at one-minute intervals to ensure efficient and orderly execution, delivering reliable calibration results to the user.

Technical Parameters

Temperature indicators		Relative Humidity indicators		Atmospheric pressure indicators	
Temperature range(°C)	**-20 to 50**	**Humidity range at 20 °C (% RH)**	**5 to 95**	**Pressure range (kPa)**	**50 to 120**
Maximum permissible error (°C)	≤ ±0.1	Maximum permissible error (% RH)	≤ ±0.8	Pressure sensor accuracy (%)	0.1
Temperature change rate (°C/min)	≤ ±0.2 (at -20 °C to 50 °C)	Humidity change rate at 20 °C (% RH/min)	≤ ±0.8		
Temperature uniformity (°C)	≤ 0.1 (at 10 °C to 30 °C), ≤ 0.2 (at 30 °C to 50 °C), ≤ 0.3 (at -20 °C to 10 °C)	Humidity uniformity (% RH)	≤ 0.5 (5% RH to 80% RH) ≤ ±1.0 (at 95% RH)	Pressure stability (kPa/min)	≤0.1
Temperature stability (°C)	≤ ±0.05 (at 10°C to 30°C), ≤ ±0.1 (at 30 °C to 50 °C), ≤ ±0.2 (at -20 °C to 10 °C)	Humidity stability (% RH)	±0.3 (30% RH to 80% RH) ±0.5 (5% RH to 30% RH) ±0.5 (at 95% RH)	Customization is supported	

Overview

The low dew point generator can continuously generate moisture at -80℃to + 20℃ dew point, and the flow rate is adjustable from 0-10L /min. The system is composed of air compressor, dry gas generating device, dew point generating device, flow valve and other units. The entire system is compact,small in size. At the same time, the degree of automation is high. Applicable to measurement, universities, scientific research, dew point instrument production, military, electric power, petrochemical,natural gas, steel, microelectronics and many other industries.

DTHG Low Dew Point Generator

Product Features

- Integrated chassis design, easy to operate.
- Air source, dry gas generating device, dew point generating device and dew point meter can be disassembled separately for easy selection on demand.
- The total flow rate is 0-10L adjustable, and the flow rate can be adjusted according to the number of tested devices.
- The dry gas generator can stably output dry gas with dew point temperature ≤-80℃.
- The dew-point generating device uses a mass flowmeter with high precision and high stability for dry and wet gas mixing, and is equipped with stable gas output.
- System operation adopts a 7-inch large screen, man-machine interface operation is simple and convenient.

Technical Indexes

Part name	Dry gas generator	Part Name	Humidity generator
Working principle	Desiccant pressure swing adsorption	Working principle	Shunt method
Minimum dew point of dry gas	≤-80°C	Range	DP: -80°C to +15°C (Upper limit is less than 5°C Ambient temperature)
Input gas pressure	0.6-0.8MPa	Stability	DP: Fluctuation ≤±0.1°C in half an hour
Output gas pressure	0.3MPa (Adjustable)	Response Time	≤1min
Operating temperature	5 °C to 40°C	Operating temperature	5°C to 40°C
Storage temperature	-40°C to +50°C	Storage temperature	-40°C to +50°C
Air inlet and outlet connector	1/4 Inch Stainless Steel Sleeve	Output	3 gas output: 1 output is connected to the standard, 2 working gas output
Power Source	AC220V±10% 50Hz	Air inlet and outlet connector	316 Stainless steel 1/4"
Power	300W	Adjustable Flow	0-10L/min
Dimension(mm)	485 ×500×260 (W×D×H)	Air source Pressure Range	0.2-0.4MPa

DT-ABG High Temperature And High Humidity Chilled Mirror Dew Point Meter

High temperature and high humidity chilled mirror Dew Point Meter is used for high temperature dew point temperature, moisture content of flue gas, blast furnace gas dew point and so on. The product adopts chilled mirror principle, touch screen control system, automatic continuous analysis. It has high precision and can test high temperature dew point. It is widely used in temperature and humidity measurement and testing in electric power, environmental protection, metallurgy, medicine and other industries.

Technical Indexes

Dew point/Frost point range	+15°C to +98°C	Serial Output	RS 232
Dew point measurement accuracy	±0.1°C	Power Source	220VAC, 50/60Hz;Power:60W
Display resolution	0.01°C	Operating Temperature	-20 to100°C ; Humidness:≤95%
Repeatability	±0.05°C		
Sensitivity	±0.01°C		
Response time	Stability test for 1 minute±15°Cdp		
Range	-45 °C to +150 °C		
Precision	±0.1 °C		
Withstand voltage range	Less than1.5MPa		
Screen	7 "Color Touch Screen		
Measurement display unit	°C dp, °C, %RH, PPMV, L/min		

Overview

The chilled mirror precision hygrometer is microprocessor-controlled and adopts a chilled mirror sensor as its core measurement unit. It integrates advanced sensor signal acquisition and processing technologies, together with intelligent data analysis and calculation algorithms. It features high sensitivity, fast response speed, high accuracy, strong anti-cross-interference capability, and stable signal output. This instrument delivers comprehensive, rapid, and accurate dew point measurement and analysis solutions for various industries and environmental scenarios.

Chilled Mirror Precision Dew Point Meter

DT-ACG700G

Optidew 401

DT-ACG200G

Functions / Specifications

Model	Optidew 401	DT-ACG200G
Dew Point(°C)	**-25 to 90**	**-30 to 90**
Temperature range(°C)	-40 to 90	-50 to 180
Response Time	1min +10°C dp Stable Measurement	±1°C / m
Measurement Accuracy(°C)	±0.15	±0.15
Temperature Accuracy(°C)	±0.1	±0.1
Resolution(°C)	0.01	0.01
Repeatability(°C)	±0.05	±0.05
Display	5.7"LCD	4.3"LCD
Unit	Dew Point (°C),Dew Point (°F), Relative Humidity (% RH),Parts Per Million (ppm),Mixing Ratio (g/kg)	°C , °F, PPMv, PPMw, RH (%), g/kg , mg/m3 , etc .
Analog output	Two-channel 0/4 to 20mA output (Max. load 500Ω)	4 to 20mA (default)/0 to 20mA/0 to 24mA (<500Ω)
Data logging	SD Card	SD Card (FAT-32) , 32Gb (Max)
Power supply	85 to 264VAC, 47 to 63Hz	80 to 264 VAC/47 to 63Hz

Model	DT-ACG600G	DT-ACG600PG	DT-ACG700G	DT-ACG800G
Dew Point(°C)	**-65 to +20**	-65 to +20	**-70 to +20**	**-80 to +20 / -90 to +20**
Measurement Accuracy(°C)	±0.1	±0.1	±0.1	±0.1
Resolution(°C)	0.01	0.01	0.01	0.01
Repeatability(°C)	±0.05	±0.05	±0.05	±0.05
Response Time(°C/min)	±10	±10	±10	±10
Flow Measurement Range(L/min)	0 to 2	0 to 2	0 to 2	0 to 2
Accuracy(%)	±5	±5	±5	±5
Pressure Measurement Range(kPa)	/	0 to 200(abs)	0 to 200(abs)	0 to 200(abs)
Accuracy(%FS)	/	±0.25	±0.25	±0.25
Temperature Sensor Specifications	/	4-wire Pt100	4-wire Pt100	4-wire Pt100
Temperature Sensor Accuracy(°C)	/	±0.1	±0.1	±0.1
Temperature Sensor Length(m)	/	2	2	2

DTZ-400B Surface Probe Temperature Calibrator

Overview

The DTZ-400 surface probe temperature calibrator feature a large 130 mm flat calibration surface and are designed to calibrate a wide range of surface sensors of various shapes and sizes, including L-shaped sensors, thermistors, thin-film sensors, surface RTDs, ribbon sensors, and surface thermocouples. Each calibrator consists of a controller and a heating block, offering intuitive operation with quick temperature setup and fast, stable heating. They are equipped with multi-segment PID control and an RS-232 interface for connection to a PC. With minor modifications, the calibrators can be upgraded into blackbody sources for calibrating infrared thermal imagers.

Measurement Standard

DTMA-101

DTZ-460BG Surface Probe Temperature Calibrator

Wide Measuring Range
35 °C to 600 °C

Product features

- Wide temperature range and multiple models are available: 35 °C to 400 °C, 50 °C to 500 °C, and 50 °C to 600 °C ranges.
- Large 130 mm calibration surfaces are ideal for various sensor types and calibration procedures, such as L-shaped sensors, thermistors, thin-film sensors, surface RTDs, ribbon sensors, and surface thermocouples, etc
- Accuracy is high: ≤ ±0.5 °C at 200 °C.
- Fast heating and cooling: temperature rises from room temperature to 400 °C in just 30 minutes; optional fast-cooling setup brings 400 °C down to room temperature in 45 minutes.
- Excellent stability: ±0.3 °C / 10 min at 300 °C.
- High resolution: 0.01 °C temperature display resolution.
- Multi-segment PID control: customizable for high, medium, and low temperature zones.
- Aerospace-grade surface coating: coated with a high-hardness, high-wear-resistance, high-thermal-conductivity aerospace composite.
- Grooved design: accommodates L-shaped surface sensors for accurate placement during calibration.
- Reference probe socket: a built-in insertion port below the surface center allows placement of a precision RTD as a reference standard, improving calibration accuracy.
- An RS-232 communication interface is supported.
- Uniform surface temperature and smooth finish: the aluminum block provides high flatness and surface finish, ensuring optimal thermal contact with surface sensors. This minimizes measurement uncertainty during calibration.
- Accurate and stable temperature control: minimal overshoot with user-defined PID parameters and alarm settings for different temperature ranges.
- Portable and user-friendly: compact and lightweight design, with total system weight of only 12 kg.

Maximum calibration temperature can reach 600°C, and the speed of heating and cooling is fast

Excellent heating and cooling rate, from room temperature to 400°C, 30 minutes, from 400°C to room temperature, with a rapid cooling device only 45 minutes, greatly improve the work efficiency.

Calibration plane diameter up to 130 mm, can meet the vast majority of surface temperature sensor calibration requirements

Plane diameter up to 130mm, enough to calibrate various sizes and different types of surface sensors.

Recessed clamshell design for calibration of L-bend surface temperature sensors. An external reference platinum resistance thermometer can be installed to reduce the uncertainty of calibration

In order to achieve the required accuracy of calibration, the design engineer specially reserved a thermometer socket at the bottom of the aluminum surface. A high precision platinum resistance thermometer can be inserted as a standard for comparison and calibration, greatly improving the accuracy of calibration.

Excellent temperature uniformity and surface finish of the calibration plane

Uses aluminum as the surface for a high finish, which ensures that the calibrated sensor is in good contact with the surface temperature calibrator, thus reducing calibration uncertainty. The measuring surface adopts "aerospace composite coating", with high hardness, good wear resistance and high thermal conductivity.

Accurate temperature control, stable, small overshoot temperature

The device provides a variety of parameter options for users to choose, including setting PID parameters of high, medium and low three different temperature segments, inflection point between different temperatures, alarm temperature, etc.

Technical Indicators

Model	DTZ-400BG	DTZ-450BG	DTZ-460BG
Temperature range (°C)	**35 to 400**	**50 to 500**	**50 to 600**
Product type	Smart touch screen	Smart touch screen	High temperature custom style
Diameter of flat calibration	130mm		
Temperature stability (°C / 10 min)	±0.2 (at RT to 100 °C); ±0.3 (at 100 °C to 300 °C); ±0.4 (at 300 °C to 400 °C); ±0.6 (at 400 °C to 500 °C)		
Temperature uniformity (°C)	0.3 (at RT to 100 °C); 0.7 (at 100 °C to 300 °C); 1.2 (at 300°C to 400 °C); 1.8 (at 400 °C to 500 °C)		
Display accuracy	±0.3°C to ±0.5°C		
Heating time (min)	30 (from RT to 400 °C)		
Cooling time (min)	45 (from 400 °C to RT with fast cooling option)		
Stabilization time (min)	8		
Display resolution (°C)	0.01		
Power	220VAC / 50Hz / 800W		
Communication interface	RS-232		
Sensor type	RTD(100Ω)		
Heater dimensions (mm)	190(H)×190(H)×280(L)	214(H)×323(W)×325(L)	
Controller dimensions (mm)	145(H)×175(W)218(L)	144(H)×175(W)×220(L)	
Weight (kg)	12		
Storage conditions	-20 °C to 60 °C, 5% RH to 80% RH (non-condensing)		

Radiation Thermometer Calibration Apparatus

Product selection navigation chart

Portable Blackbody Source

DTBF-50	Normal Temp.	30°C to 50°C
DTM-35N	Low Temp.	-35 °C to 125°C
DTM-20N		-20 °C to 125°C
DTM-10N		-10 °C to 125°C
DTM-550B	Medium Temp.	RT+10 °C to 550°C
DTM-550		50 °C to 550°C

Laboratory Blackbody Source

DTR-50N	Low Temp.	-50 °C to 100 °C
DTR-30N		-30 °C to 100 °C
DTM-50N		-50 °C to 80 °C
DTM-30N		-30 °C to 80 °C
DTM-700G	Normal Temp.	50 °C to 700 °C
DTR-800		50 °C to 800 °C
DTR-1200		100 °C to 1250 °C

Infrared Thermometer Testing Platform

Ensure the accuracy, reliability, and consistency of its measurement results.

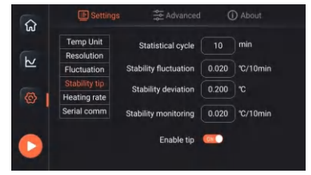
High Temperature Blackbody Source

DTR-1700	High Temp.	500 °C to 1700 °C
DTM-2050		300 °C to 2050 °C
DTM-2350		600 °C to 2350 °C
DTM-2650		600 °C to 2650 °C
DTM-3050	Ultra-High Temp.	600 °C to 3050 °C

Overview

The blackbody radiation source is an essential standard device used in infrared calibration, precision temperature measurement, and related scientific and industrial applications. It provides a stable and highly accurate reference for calibrating infrared thermometers, thermal imagers, and other non-contact temperature measurement instruments. Owing to its excellent precision, stability, and adaptability, it is widely employed in calibration laboratories, industrial quality control, and scientific research environments.

DTM-B Portable Blackbody Source



Stability tips

Features / Advantages

Full-range temperature resolution 0.01°C	3-speed self-adjustment 0.01°C, 0.1°C, 1°C.
6-10 point temperature calibration and correction	Automatic linear fitting of SV and PV values to ensure high precision temperature control.
Capacitive touch screen	Smart human-machine interaction interface, multi-function window display.
Adjustable rate of temperature rise	Supports uniform temperature rise according to the set value to ensure the smoothness and controllability of temperature change.
Stability tips	Real-time display of operational data, intuitive understanding of the state of the equipment.
Chinese and English switching	With bilingual switching interface, adapt to internationalization needs.
Over-temperature Automatic protection	Hardware and software dual protection mechanism.
Communication mode	Support USB, WIFI, WLAN, serial communication.
Temperature unit switching	Support °C, °F, K unit switching.
Mobile APP control	Support remote control and real-time monitoring of equipment operating status.

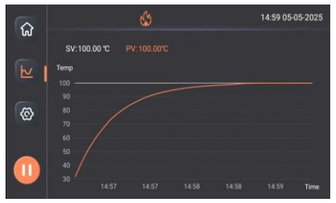
Technical Parameters

Model	DTM-35NBG	DTM-20NBG	DTM-10NBG	DTM-550BG
Temperature range (°C)	**-35 to 125**	**-20 to 125**	**-10 to 125**	**RT+10 to 550**
Emissivity	Better than 0.995			Better than 0.995
Temperature resolution(°C)	0.01°C(full scale)			0.01°C(full scale)
Target size (D × L in mm)	φ65 × 160			φ65mm / 160mm
Target shape	Cylindrical/conical			Cylindrical/conical
Accuracy (°C)	±0.2 (at -20 °C to 100 °C) ±0.3 (at 100 °C to 125 °C)			±0.3 (at RT to 300 °C) ±0.5 (at 300 °C to 550 °C)
Stability (°C/10 min)	±0.10 (at -20 °C to 100 °C) ±0.15 (at 100 °C to 125 °C)			±0.1 (at RT to 100 °C), ±0.1 (at 100 °C to 300 °C) ±0.2 (at 300 °C to 500 °C),±0.3 (at 500 °C to 550 °C)
Temperature uniformity (°C)	≤ 0.10 (at -20 °C to ≤ 100 °C), ≤ 0.15 (at 100 °C to 125 °C)			≤ 0.10 (at RT to 100 °C), ≤ 0.30 (at 100 °C to 300 °C), ≤ 0.45 (at 300 °C to 400 °C), ≤ 0.60 (at 400 °C to 500 °C), ≤ 0.75 (at 500 °C to 550°C
Heating time (min)	25 (from 25 °C to 125 °C)			35 (from 50 °C to 300 °C), 58 (from 50 °C to 550 °C)
Cooling time (h)	0.5 (from 25 °C to -20 °C)			2.5 (from 300 °C to 50 °C), 3.5 (from 550 °C to 50 °C)
Power (W)	600W			1000W
Interfaces	RS-232 / USB / Wi-Fi / LAN			RS-232 / USB / Wi-Fi / LAN
Power supply	AC 220 V ±10%, 50 Hz, 5.5 A			AC 220 V ±10%, 50 Hz, 5.5 A
Weight (kg)	10kg			10kg
Dimensions (L × W × H in mm)	345(L)× 200(W)×360(H)			345(L)× 200(W)×360(H)

Overview

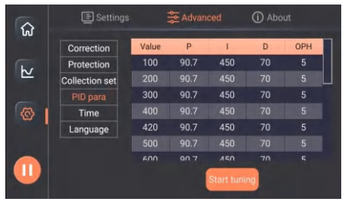
The DTME-50 Ear/Forehead/Body Thermometer Calibrator is primarily used for calibrating non-contact infrared thermometers such as infrared ear and forehead thermometers. This product is a high-precision, self-regulating digital temperature calibration unit featuring excellent temperature stability, uniform thermal field, and high control accuracy. It offers low noise, high reliability, and long service life. The device uses PID temperature regulation for automatic temperature control, and its compact structure, intuitive display, and user-friendly operation make it ideal for calibration tasks.

Smart Application

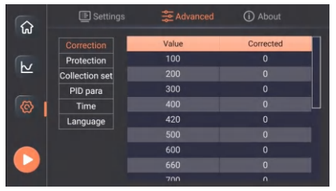


Real-time curve display

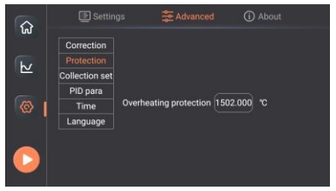
Customizable temperature unit switching



Segmented PID control



6 to10 point temperature correction



Automatic overtemperature protection

Bilingual interface(Chinese/English)

DTME-50 Ear / Forehead / Body Thermometer Calibrator

Infrared Body Temperature Screening Device

Technical indicators

Specification	Ear / Forehead /Body Thermometer Calibrator	Thermometer Calibration Device	Infrared Body Temperature Screening Device	
Model	**DTME-50G**	**DTSE-50G**	**DTBF-50G**	**DTM-3050BSG**
Temperature range	0°C to 50°C (32 to 42°C)	0°C to 100°C	**30°C to 50°C**	**30°C to 50°C**
Temperature resolution	0.001°C	0.001°C	0.01°C	0.01°C
Stability	±0.01°C /10min	±0.01°C /10min	≤0.01°C /30 min	±0.05°C/30min
Target size	φ10 / φ50(mm)	φ130(mm)	φ60(mm)	70×70(mm)
Emissivity	0.999	0.999	0.997	0.95
Power supply	220V ± 10% 50Hz	220V ± 10% 50Hz	220V ± 10% 50Hz	220V ± 10% 50Hz
Power	2kW	2kW	100W	60W
Operating temperature	15°C to 30°C	15°C to 30°C	10°C to 32°C (non-condensing)	0 to 40°C
Weight	115kg	115kg	8.3kg	2.5kg
Dimensions	660×540×1120(mm)	660×540×1120(mm)	358×154×251(mm)	140×250×180(mm)

Overview

The bold radiation source is a device that plays a key role in infrared calibration, temperature measurement and related scientific research and industrial applications. It can generate stable and accurate blackbody radiation, providing standard radiation reference for the calibration and calibration of various infrared temperature measuring instruments, thermal imagers and other equipment. Its high precision, stability and versatility have important application value in scientific research, industry and calibration fields.

Laboratory Blackbody Source

Technical indicators

Specification	Low-Temperature Blackbody Sources		Mid-Temperature		High Temperature
Model	**DTR-50NG**	**DTR-30NG**	**DTR-800G**	**DTR-1200G**	**DTR-1700**
Temperature range(°C)	**-50 to 100**	**-30 to 100**	**50 to 800**	**300 to 1250**	**500 to 1700**
Emissivity	Superior to0.998		Superior to 0.998		0.999
Target size (mm)	φ65(customization)		φ65(customization)		φ50 / 25.4(1.0")
Target shape	Spherical		Spherical		Closed tubular cavity
Stability(°C/10min)	≤0.1		≤ max[0.1 °C, 0.1%t]		±0.2
Power (kW)	3		4		3
Target surface uniformity	≤0.15°C		≤ max[0.15 °C, 0.15%t]		Accuracy = ±(0.25% of reading + 1 °C)
Temperature resolution	0.01°C		0.1°C		0.1°C
Dimensions (L × W × H / mm)	850×550×1100		550×600×800		510×670×560

Specification	Low-Temperature Tubular Blackbody Sources		Mid-Temperature Tubular Blackbody Sources	
Model	DTM-50NG	DTM-30NG	DTM-550G	DTM-700G
Temperature range(°C)	**-50 to 80**	**-30 to 80**	**50 to 550**	**50 to 700**
Emissivity	> 0.995		> 0.995	> 0.995
Target size (mm)	φ65mm		φ65mm	φ65mm
Stability	≤ max[0.1 °C, 0.1%t]/10 min		≤ max[0.1 °C, 0.1%t]/10 min	≤ max[0.1 °C, 0.1%t]/10 min
Power source	220 VAC, 50 Hz		220 VAC, 50 Hz	220 VAC, 50 Hz
Power(kW)	3		3	1.2
Target surface uniformity	≤ max[0.15 °C, 0.15%t]		≤ max[0.15 °C, 0.15%t]	≤ max[0.15 °C, 0.15%t]
Temperature resolution	0.1°C		0.1°C	0.1°C
Dimensions (L × W × H/ mm)	300×215×280		240×375×290	300×450×370

Product name	High Temperature Blackbody Sources			Ultra-High Temperature Blackbody Sources
Model	DTM-2050G		DTM-2350G	DTM-2650G	DTM-3050G
Temperature range (°C)	**300 to 2050**		**600 to 2350**	**600 to 2650**	**600 to 3050**
Emissivity	0.995 (near flat)		0.995 (near flat)		0.995 (near flat)
Target size (mm)	25.4(1.0")		25.4(1.0")		25.4(1.0")
Stability (°C)	±1		±1		±1
Power(kW)	14		25		25
Accuracy	±(0.25% of reading + 1 °C)		±(0.25% of reading + 1 °C)		±(0.25% of reading + 1 °C)
Dimensions (L × W × H/mm)	600×1800×800		600×1800×800		600×1800×800

Temperature and Humidity Inspection System

Product selection navigation chart

Distributed Wireless Acquisition System

DTZ-300WX Distributed Wireless Data Acquisition System

Smart Multi-Channel Temperature and Humidity Data Acquisition Logger

DTZ-300BWG Smart Multi-Channel Temperature and Humidity Data Acquisition Logger

DTZ-300BX1609G Multi-Channel Temperature and Humidity Data Acquisition Logger

Online Temperature and Humidity Monitoring System

DTWX-01 Online Temperature and Humidity Monitoring System

DTWX-02G Field Wireless Temperature and Humidity Monitoring System

DTZ-500G Wireless Furnace Temperature Tracking and Testing System

Wireless Temperature/Humidity/Pressure Validation System

DTPro Wireless Temperature, Humidity, and Pressure Validation System

TDLB Wireless Temperature Validator

MDLA Wireless Temperature & Humidity Validator

PDLA Wireless Temperature & Pressure Validator

DTRC Wireless Real-Time Validation System

Overview

The DTZ-300WX distributed wireless data acquisition system is a modular, multifunctional wireless data acquisition platform. It supports up to 160 temperature sensors and 100 humidity sensors simultaneously. Each channel is independently configurable, with real-time display, automatic result calculation, and full compatibility with temperature and humidity distribution testing in various environmental chambers and equipment. Its compact, portable design makes it ideal for on-site applications.

DTZ-300WX Distributed Wireless Data Acquisition System

Key Features

- **Fast Sampling**:Sampling time is < 0.1 s per channel and < 10 seconds for 16 channels.
- **Long-Range Wireless Communication**:Distance of data communication is ≥1000 m (in open space, antenna 1.2 m above ground).
- **Large Coverage**:Supports multiple measurement modules to cover multiple zones, devices, or test points for complete environmental inspection.
- **Flexible Grouping**:Channels can be grouped for independent measurements per group.
- **Simultaneous Correction**:Supports high-precision correction across multiple modules and channels in one operation.
- **Regulation Compliance**:Supports national calibration regulations with built-in automatic calculation — no PC software required.
- **Convenient Data Logging**:Each module can independently acquire, store, and export data in real time.
- **Live Data Refresh**:View all sampling data from a single module interface with continuous updates.
- **Large Storage Capacity**:Built-in 16 GB memory card.
- **Multi-Device Support**:One host can monitor multiple devices concurrently and support 160 temperature channels and 100 humidity channels simultaneously.
- **Secure Sensor Connections**:Locking connectors provide robust mechanical fastening between sensor and module to prevent cable detachment.
- **Wide Sensor Compatibility:**Thermocouples: S, R, B, K, N, E, J, T;RTD: Pt100; Built-in cold junction compensation for Pt100.
- **Low Power Design**:Intelligent sleep mode extends standby time without compromising measurement performance.
- **Alarm Functionality**:Configurable threshold alarms allow any out-of-range values to be shown in red for immediate attention.
- **Built-In Battery with Smart Power Switching**:The built-in lithium battery features charge/discharge protection and auto-switching between internal and external power sources to extend its lifespan.
- **Intuitive Visual Interface**:It features a clean, intuitive touchscreen interface with a clear and well-organized menu structure.

Performance Specifications

Host Unit

- 4.3-inch capacitive touchscreen
- Built-in lithium battery
- Fully charged runtime: ≥25 hours
- Built-in 16 GB TF card
- USB flash drive data export supported
- Type-C charging port

Temperature Module

- Wireless transmission range: >1000 m (open area, 2 m elevation)
- Fully charged runtime: ≥30 days
- Supported sensors: RTDs (Pt100) and thermocouples (K, J, E, N, R, S, B, T)
- Temperature resolution: 0.001 °C
- Accuracy with Pt100 across -80 °C to 300 °C: better than ±0.1 °C
- Type-C charging port

Humidity module

- Wireless transmission range: >1000 m (open area, 2 m elevation)
- Fully charged runtime: ≥15 days
- Supports 10-channel VAISALA humidity probes
- Humidity resolution: 0.01% RH
- Accuracy: ≤1.5% RH
- Type-C charging port

DTZ-300BX1609 Multi-Channel Temperature and Humidity Data Acquisition Logger

Overview

The DTZ-300BX1609 multi-channel temperature and humidity data acquisition logger supports connections to up to 16 temperature channels and 9 humidity channels. Designed specifically for temperature and humidity field inspections, it provides real-time display of temperature, humidity, and other measurement data for each channel. The device is compact, lightweight, and easy to carry for on-site monitoring applications. It is ideal for testing environmental chambers and thermal processing equipment.

Technical indicators

Temperature indicators				
Sensor	Type	Measuring range	Accuracy	Resolution
4-wire industrial RTD	Pt100	-200°C to 800°C	±0.1°C	0.01°C
Thermocouple	K	-200°C to 0°C	±(T×0.155%+0.05)°C	
		0°C to1372°C	±(T×0.077%+0.05)°C	
	J	-200°C to 0°C	±(T×0.15%+0.05)°C	
		0°C to 1200°C	±(T×0.065%+0.05)°C	
	E	-200°C to 0°C	±(T×0.121%+0.05)°C	
		0°C to 1000°C	±(T×0.065%+0.05)°C	
	N	-200°C to 0°C	±(T×0.180%+0.08)°C	
		0°C to 1300°C	±(T×0.065%+0.08)°C	
	R	0°C to 1768°C	±(T×0.07%+0.4)°C	
	S	0°C to 1768°C	±(T×0.07%+0.4)°C	
	B	400°C to 1820°C	±(T×0.065%)°C	
	T	-250°C to 0°C	±(T×0.10%+0.05)°C	
		0°C to 400°C	±(T×0.065%+0.05)°C	
Humidity Sensor	Humidity	0%RH to 100%RH	±1.5 %RH	0.01%RH

Hardware parameter			
Input voltage (V)	4.5 to 5.5	Input Current (A)	Max 2.2
Battery	4.2V/20000mAh	Battery life (h)	≥30
Display	5-inch capacitive screen	Resolution	854×480
Operating temperature (°C)	-10 to 50	Operating humidity (% RH)	≤80
Power switch	Anti-accidental touch slide switch	Charging interface	DC6.4×2.1
Dimensions(mm)	180×150×70	Weight (kg)	<1.5
Communication Interface	AUX3.5mm	U disk interface	USB2.0
Temperature sensor interface	Embedded terminal block	Humidity sensor interface	Embedded wiring terminals

Execute calibration procedures

No.	Code	Name of Procedure (Specifications)
1	JJF1101-2019	Calibration Specification for Environmental Testing Equipment for Temperature and Humidity Parameters
2	GB/T9452-2012	Testing method for work zone of heat treatment furnace
3	QJ1428-1988	Control and Measurement of Temperature of Heat-Treated Furnace
4	GJB509B-2008	Quality control for heat treatment process
5	HB5425-2012	Testing method for working zone of heat treatment furnace for aviation
6	GB/T 5170.1-2016	Inspection methods for environmental testing equipments for electric and electronic products—Part 1: General
7	GB/T 5170.2-2017	Inspection methods for environmental testing equipment - Part 2: Temperature testing equipment
8	GB/T 5170.5-2016	Inspection methods for environmental testing equipments for electric and electronic products—Part 5: Damp heat testing equipments
9	HB6783-1993	Calibration method of climate environment test chamber (chamber) for military airborne equipment
10	JB/T5520-91	Drying oven technical conditions
11	JJF1376-2012	Calibration specifications for box-type resistance furnaces
12	JJF1564-2016	Temperature and humidity standard chamber calibration specifications

USB connection/optional

Key Features

- **High Accuracy & Fast Acquisition**:All channels are capable of fast data acquisition while maintaining high measurement accuracy, significantly improving operational efficiency.
- **Smart Touchscreen Interface**:The devices are equipped with high-resolution capacitive touchscreens for intuitive operation. Real-time display of data and battery status. Customizable parameters include sensor type, number of channels, sampling interval, date/time, and more.
- **Standalone Data Acquisition**:No PC is required during field use. The multi-channel data acquisition unit independently collects and stores data to a USB drive. Data can be viewed and analyzed on a PC by simply inserting the USB drive.
- **Supports 8 GB USB Storage**:Measurement data are saved in real time to a USB flash drive and can be processed using Excel or exported to proprietary software for report generation and certificate output.
- **Automatic Correction**:The devices support linear correction for common K, N, S thermocouples, Pt100 RTDs, and humidity sensors. They allow multi-point temperature correction input and storage on a per-channel basis.
- **Communication Features**:The devices connect to a PC via USB cable. They are compatible with professional database management software that displays real-time graphs of temperature and humidity across all channels. They calculate center point, fluctuation, uniformity, rate of change, current progress, and system status. Supports multiple inspection units operating in parallel with independent data processing, boosting efficiency.
- **Designed for Field Calibration**:The instruments support 16 temperature channels and 9 humidity channels to meet most calibration scenarios. Simultaneous calibration of multiple chambers is enabled to save on-site time.
- **Simplified Connection**:Standardized connectors are used for quick, reliable wiring. Temperature and humidity ports are keyed to prevent incorrect connections, ensuring system reliability.
- **Broad Sensor Compatibility**:The instruments are compatible with thermocouples (S, R, B, K, N, E, J, T) and Pt100 RTDs. Custom sensor options are available for specialized applications.
- **Professional Cold Junction Compensation**:An external 4-wire Pt100 is used for cold junction compensation in thermocouple channels. Reference junction compensation error is < 0.2 °C; inter-channel error is < 0.1 °C.
- **Long Battery Life & Low Power Design**:Built-in high-capacity lithium battery supports ≥ 30 hours of continuous operation. Features charge/discharge protection and automatic switching between external and internal power sources to extend battery life. Uses a secure DC 6.4×2.1 charging interface with high current capability.

Software Technical Features

Simultaneous measurement across multiple devices

Submission information management

Intelligent data retrieval

Smart resume from breakpoint

Intelligent data management

Real-time statusand curve display

Software copyright registration number 2016SR171562 2020SR0328008

Overview

The DTWX-01 online temperature and humidity monitoring system is part of our high-quality "Smart Temperature and Humidity Inspection Systems" product line. It is specially designed for low-temperature environments where wired connections are impractical. Typical application scenarios include large grain storage warehouses, tobacco warehouses, cold storage facilities, ammunition depots, equipment rooms and other temperature- and humidity-sensitive areas. The DTWX-01 offers high accuracy, compact size, lightweight design, multi-channel support, data visualization, and compliance with relevant standards. With its powerful features, portability, and ease of use, it is an ideal solution for temperature and humidity measurement and data logging in low-temperature or large-area environments.

DTWX-01 Online Temperature and Humidity Monitoring System

- **Supports 80 channels online simultaneously, expandable up to 250**
- **All products support industry- and application-specific customization**
- **Designed for temperature and humidity monitoring in large high/low-temperature environments; supports wireless measurement, remote data monitoring, built-in storage, and USB drive export mode**

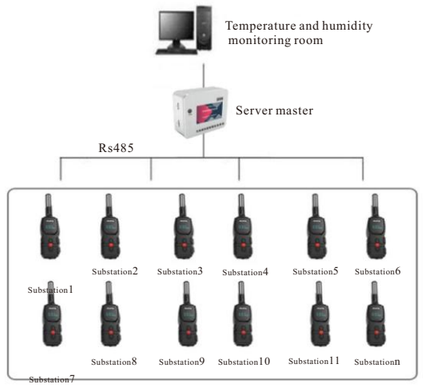
System Functions and Features

- Eliminates the limitations of wired sensor placement; no need for fixed cable routing.
- Simple, user-friendly interface with real-time visual feedback for efficient monitoring.
- Wide measurement range with excellent precision.
- Operates continuously for more than 100 hours on a single charge.
- Easy to transport and deploy in field settings.
- Functions autonomously even without connection to a PC.
- Measurement data can be exported in multiple formats, including Excel.
- Supports various national and industry standards for thermal field testing across different device types.
- Supports real-time monitoring of up to 80 channels simultaneously, expandable to a maximum of 250 channels.

Temperature data recording Terminal (sub-station)

Server (Host Unit) Functions

- **Data Storage**
  Automatically saves data locally to a USB drive for later processing and analysis.
- **Real-Time Display**
  The server features a user interface that displays real-time data from all active channels during acquisition.
- **Channel Configuration and Management**
  Users can freely select which channels to activate. The system automatically d removes non-functioning channels to optimize performance and ensure data sy
- **Auto-Connection with Terminals**
  Automatically connects to remote temperature and humidity data loggers at sta complex setup required.



Temperature and humidity data recording terminal (sub-station) function

- Real-time temperature and humidity display.
- Battery level indicator.
- Device ID display.
- Data correction: supports in-field calibration or offset correction to improve measurement accuracy.
- Standalone operation: terminal units can operate independently of the server for flexible deployment.

Overview

The DTZ-300BW is a configurable, multifunctional inspection unit equipped with 24 high-precision 24-bit sampling channels. Each channel can be independently configured to support one of four input types: thermocouple, RTD, humidity sensor, or analog signal. When configured for humidity sensor input, the system can simultaneously provide up to 24 channels of 5V power output for sensor excitation.

DTZ-300BW Smart Multi-Channel Temperature and Humidity Data Acquisition Logger

PC and mobile users can log in to DTZ-300BW smart temperature and humidity inspection instrument via Google Chrome to remotely view real-time data.

Key Features

- Displays real-time data across all 24 high-precision 24-bit sampling channels.
- Each of the 24 channels can be individually set to thermocouple, RTD, humidity sensor, or analog signal mode.
- Each thermocouple channel includes its own internal cold junction sensor and independent sampling circuitry for high precision; all modules are designed for < ±0.1 °C measurement accuracy.
- Supports editing of sensor type, range, sampling time, and interval on a per-channel basis.
- Each channel supports single-point, segmented linear, or least squares curve calibration.
- High-accuracy measurement of analog and reference signals meets the stringent demands of precision electrical metrology.
- Real-time display, storage, and output of voltage, resistance, temperature, and humidity data.
- Built-in encryption algorithm supports secure data file protection.
- Supports RS232, wired LAN, and wireless communication with both PC and mobile interfaces.
- Provides 24 channels of 5V output, simplifying connection for humidity sensors.
- 8 GB of internal memory for data storage; data export supported via USB interface.

Power supply	12VDC 2A
Communication interface	Rs232 , LAN , Wireless
Enclosure material	Aluminum alloy+ ABS
Dimensions	250mm×170mm× 70mm
Weight	1.6kg
Operating environment	5 °C to 35 °C, 0% RH to 85% RH
Storage environment	0 °C to 70 °C, 0% RH to 100% RH

Technical indicators

Sensor type	Measuring range(°C)	Display resolution(°C)	Accuracy(°C)	Sampling rate	Sampling mode	Configurable output format	Remarks
K	-200 to 1300	0.01	0.5	0.2 s / 24 channels	24-channel simultaneous sampling ensures fully synchronized real-time data acquisition	Voltage or temperature	Complies with the ITS-90 temperature scale
J	-200 to 900		0.5				
T	-200 to 400		0.5				
E	-200 to 1000		0.5				
N	-200 to 1300		0.5				
B	250 to 1820		0.8 at 1000°C				
R	0 to 1768		0.7 at 1000°C				
S	0 to 1768		0.9 at 1000°C				
Pt100	-200 to 800	0.001	0.05 at 0°C			Resistance or temperature	1 mA excitation current source
			0.08 at 300°C				
			0.12 at 600°C				
Humidity	0 %RH to 100 %RH	0.01%RH	1.5%RH			Voltage or humidity	5 V power output supply

Input type	Measurement range	Resolution	Accuracy = ± (% of reading + % of full scale)
Voltage (100 mV)	-20 to 100	0.1uV	0.01%+0.008%
Voltage (1 V)	0 to 1	0.1mV	0.02%+0.02%
Resistance (400 Ω)	0 to 400	0.1mΩ	0.016%+0.001%

Product model	Channel number
DTZ-300BWG-16	16
DTZ-300BWG-20	20
DTZ-300BWG-24	24
DTZ-300BWG-XX	Customized

Overview

The DTRC wireless real-time validation systems support wireless real-time data transmission and remote programming. They are user-friendly and designed to improve validation efficiency, offering accuracy up to ±0.1 °C. The software is developed specifically for GMP applications and complies with FDA 21 CFR Part 11. They feature low power consumption, with battery capacity supporting over 150,000 sampling.

DTRC Wireless Real-time Validation System

DT Pro Wireless Temperature, Humidity, and Pressure Validation System

Wireless Real-time Validation System

Wireless real-time temperature validation system

Wireless real-time temperature and humidity validation system

Wireless Temperature/Humidity/Pressure Sterilization

Key Features

Wireless Real-time Validation System

- Wireless real-time data transmission
- Supports remote programming to significantly improve validation efficiency
- Compliant with GMP and GSP standards
- Meets FDA 21 CFR Part 11 requirements
- Data is immutable and fully traceable
- Powerful integrated data analysis with a user-friendly interface
- Reliable and secure system management
- Lifetime free software upgrades

Wireless Temperature/Humidity/Pressure Sterilization

- The system is composed of: wireless validation probes (temperature, temperature & humidity, or temperature & pressure), data reading workstation, and wireless validation software.
- Each probe includes an internal battery and is configured via the software and reader. Probes are placed inside the target equipment to ecord conditions continuously. Data is retrieved via software, which also provides automatic analysis and reporting.
- The data reading workstation is available in a single-port version and a 10-port version. These connect to the computer via standard USB and support secure, efficient data communication.
- The software automatically handles data acquisition, data analysis, report generation (with electronic signature support), custom phase-based validation, generation of stage-by-stage validation reports
- The interfaces enable switch between English and Chinese.
- The system is fully compliant with FDA 21 CFR Part 11
- The system includes audit trail and three-tier user permission system.
- Statistical tools include max, min, average, span, max temperature deviation at a same time point, F_0 value calculation, etc.

Implemented procedures and specifications

GMP	Steam sterilizer validation, water bath sterilizer validation, stopper and aluminum cap washing machine validation, freeze dryer validation, ultra-low temperature freezer validation, constant temperature and humidity chamber validation, stability chamber validation
GSP	Cold storage validation, refrigerated truck validation, cooler/insulated container validation, ambient/room temperature warehouse validation
Biological	Fermenter validation, bioreactor validation, process development data acquisition
Food	Pasteurization validation, sterilization tunnel validation, rotary freezer validation, blast freezer validation, cold room validation
Logistics	Cold chain tracking, trailer temperature monitoring
Medical	High-temperature sterilization, steam sterilization, medical device temperature validation

Overview

A DTPro wireless temperature, humidity, and pressure validation system consists of validation software, wireless probes, and a data reader. Each wireless probe is battery-powered and configured via the software and reader. Once placed inside the equipment under test, the probe continuously records environmental conditions. Data is then retrieved through the validation software for statistical analysis and report generation.

Technical Parameters

Product name	Wireless real-time temperature validation system	Wireless real-time temperature & humidity validation system	Wireless real-time temperature & pressure validation system
Product model	DTRC-1G	DTRC-2G	DTRC-3G
Wireless protocol	Bluetooth low energy	Bluetooth low energy	Bluetooth low energy
Transmission distance (m)	20	20	20
Measuring range	-90°C to 150°C	-40 °C to 85 °C, 0% RH to 100% RH	-40 °C to 140 °C, 0 kPa to 600 kPa (abs)
Measurement accuracy	±0.1 °C	±0.1 °C, ±2% RH	±0.1 °C, ±0.1% of full scale
Resolution	0.01°C	0.01 °C, 0.01% RH	0.01 °C, 0.01 kPa
Logging interval	1 second to 18 hours	1 second to 18 hours	1 second to 18 hours
Storage capacity	64,000 records	32,000 temp + 32,000 humidity	32,000 temp + 32,000 pressure
Probe size (mm)	φ24 × 78.6	φ25.8 × 74.6	φ25.8 × 89.2
Battery		1700 mAh / 3.6 V high-temp lithium	
Probe weight (g)	91	104	121
Material		316L stainless steel +PEEK	
Protection rating	Ip68 (fully waterproof)	Dustproof, not waterproof	Ip68 (fully waterproof)

Product name	Wireless temperature validation system		Wireless temperature & humidity validation system	Wireless temperature & pressure validation system
Model	TDLA	TDLB/TDLC(Flexible probe)	MDLA	PDLA
Operating temperature	-90 °C to 150 °C(With thermal insulation box: up to 400 °C)	-50 °C to 150 °C (With thermal insulation box: up to 400 °C)	-40°C to 125°C	-40°C to 140°C
Measurement range	-90°C to 150°C	-50°C to 150°C	0 %RH to 100 %RH	0 to 600 kPa (abs)
Resolution	0.01°C	0.01°C	0.01°C	0.008psi
			0.01%RH	0.01kpa
Measurement accuracy	±0.1 °C at -50 °C to 150 °C, ±0.2 °C below -50 °C	±0.1°C	±0.1°C	±0.1% of full scale
			±2%RH	
Sensor type	Pt1000 Class 1/3 DIN	Pt1000 Class 1/3 DIN	Temperature:PT100	Strain gauge
			Humidity:capacitive	
Storage capacity	64,000 records	64,000 records	32,000 records per channel	64,000 records
Logging interval	1 second to 18 hours	1 second to 18 hours	1 second to 18 hours	1 second to 18 hours
Battery life	36 months	36 months	36 months	36 months
Communication interface	RS-485 contact port	RS-485 contact port	RS-485 contact port	RS-485 contact port

Implemented procedures and specifications

Serial number	Code	Procedure name
1	GBT 30690-2014	The sterilization effect monitoring method and evaluation requirements of small pressure steam sterilizer
2	PDA TR1-2007	Damp heat sterilization validation
3	JJF 1366-2012	Calibration Regulations for Temperature Data Collector
4	JJF 1101-2003	Code for Calibration of Temperature and Humidity of Environmental Test Equipment
Related regulations	"Pharmaceutical Production Quality Management Standards" (revised in 2015) "Guidelines for Pharmaceutical Production validation" (2003 edition) FDA 21CFRPart11 Clause EN285-2006 (German Standard) EN554: 1994 (German Standard) HTM2010 (British Standard)	

Thermal Laboratory Supporting Instruments

Overview

The DTEL-15 series multi-function process calibrator is a high-performance instrument designed for calibrating thermal secondary instruments, pressure instruments and DCS systems. It is beautifully shaped and durable, making it an ideal tool for calibrating, maintaining and repairing thermal instruments.

Infrared Thermometer Testing Platform

- Overall Dimensions540 x 440 x 800 mm (L x W x H)
- Worktable Panel Size360 x 460 mm (L x W)
- Auxiliary Platform Size210 x 150 mm (L x W)
- Motorized Vertical Travel270 mm
- Manual Vertical Travel100 mm
- Horizontal (X-Axis) Travel210 mm
- Longitudinal (Y-Axis) Travel150 mm
- Positioning Accuracy1 mm
- Repeatability1 mm
- Measuring Height Range900 ~ 1270 mm
- Min. Tabletop Height700 mm
- Max. Tabletop Height900 mm

DTD-02G Liquid-In-Glass Thermometer Reading Device

The DTD-02 is a visual reading system for liquid-in-glass thermometers. Using CCD imaging technology, it magnifies the thermometer scale onto an LCD monitor. It can also be used for other image enlargement tasks.

Key Features

- Clear and accurate readings that reduce eye strain over long inspection periods.
- Large field of view allows for individual or group observation.
- Adjustable magnification and viewing angle.
- Sensitive positioning mechanism and portable.
- Improves safety by avoiding close-range exposure to high-temperature bath media vapors.

Execution standard

- JJG161-2010 “Standard mercury thermometer”
- JJG 130-2011 “Vitreous thermometer for working use”
- JJG 131-2004 “validation regulation of electric contact glass mercury thermometer”
- JJG 618-1999 “validation regulation of high precision glass mercury thermometer”
- JJG 207-92 “validation regulation of glass liquid thermometer for meteorological use”

DT1000G Thermocouple Cleaning and Annealing Device

DT1000G thermocouple cleaning annealing device is designed in accordance with the "JJG75-2022", "JJG167-1995", "JJG141-2013", "JJG668-1997" validation regulations, and the standard and working precious metal thermocouples are energized cleaning and annealing before validation.

Technical indicators

- Working voltage: Communication 220V±10%/50HZ
- Control mode: Smart touch screen
- Working current: 0 to 20A
- Current Regulation Accuracy: Class 0.5
- Current display resolution: 0.1A
- Clean the number at the same time: 3
- Time adjustment accuracy: 1min
- Environment temperature: 0°C to 30°C
- Relative humidity: ≤85%RH
- Overall dimensions mm : 1000(L)×460(W)×1770(H)

DTEL-15 Multifunction Process Calibrator

Features/Advantages

- **Multi-functional measurement and output**: It can measure and output various signals such as V, mV, mA, Ω, Hz, etc. It can also simulate thermocouple or RTD signals, measure pressure and temperature, and calibrate pressure switches.
- **Signal isolation and power supply**: Output analogue signals can be carried out at the same time and isolated from each other, 24V DC power supply is provided, which is isolated from measurement and output, 24V DC loop power supply is also provided and the mA signal of the loop is measured.
- **Friendly operation interface**: Equipped with high-resolution display, it has good human-machine interaction interface and adopts full Chinese operation interface. Flexible output modes: support step output, programmable step signal and interval time, with two modes: automatic and manual; output mA signal with two modes: mA source or analogue transmitter; output Hz signal amplitude can be set, with square wave or sine wave mode.
- **Temperature Compensation and Unit Conversion**: Cold end temperature compensation of Pt100 probe, ambient temperature tracking or constant temperature setting mode; multifunctional and programmable unit conversion function, which can convert a variety of unit quantities.
- **Data processing and other features**: can lock and unlock the value during measurement, collect the most value and calculate the average value; can store the on-site inspection data and manage it through the communication software; powerful lithium battery can continue to work for more than 12-30 hours, and can be calibrated for the output and measurement items.

Technical Parameters

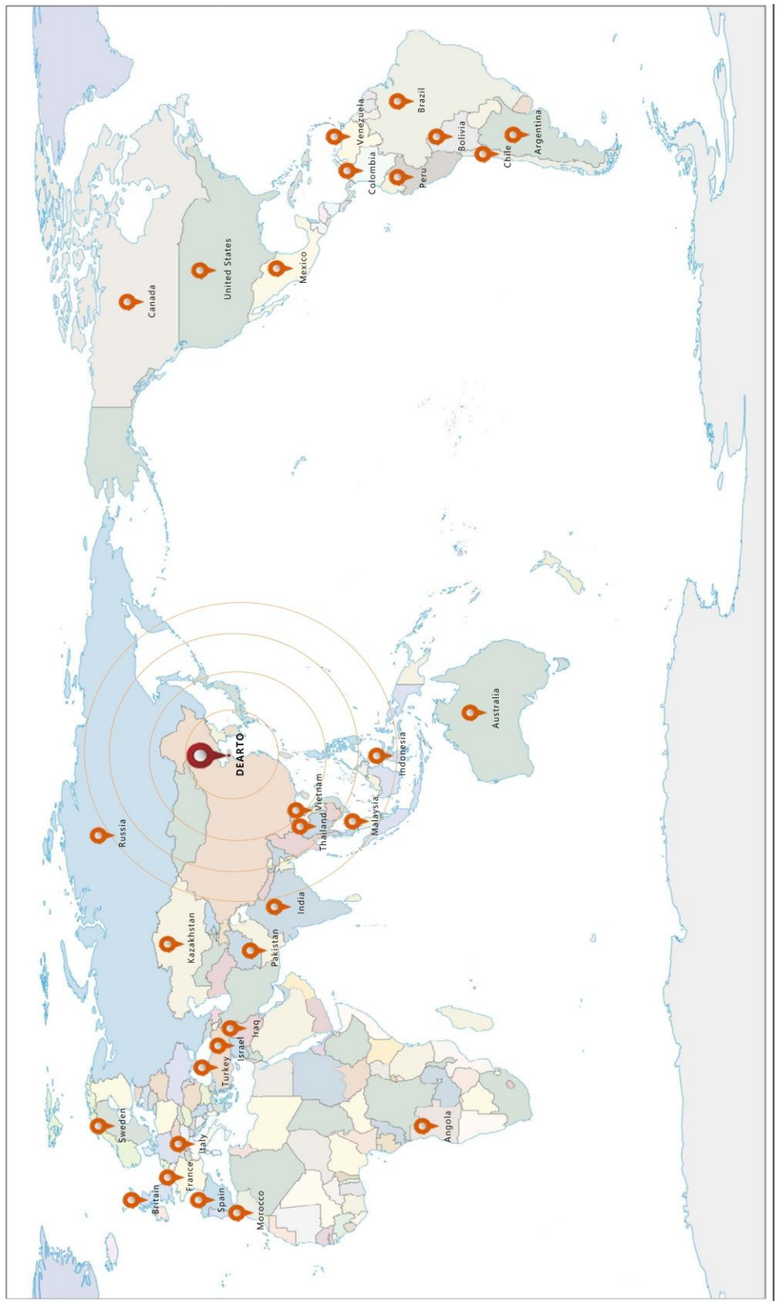
Output range	One year, ambient temperature: 20°C ±5°C		Measurement range	Accuracy indicators ±(%RD+%FS)	
	Level 0.01	Level 0.02		Level 0.01	Level 0.02
10.99999 V	±(0.008 % Reading +0.0001 V)	±(0.015 % Reading +0.0001 V)	± 59.9999 V	±(0.008 % Reading +0 .0005 V)	±(0.015 % Reading +0 .0005 V)
1.099999 V	±(0.008% Reading +0.00001V)	±(0.015 % Reading +0.00001V)	± 5.99999 V	±(0.008 % Reading +0 .00005 V)	±(0.015 % Reading +0 .00005 V)
– 99.9999 mV to 109.9999 mV	±(0.008% Reading +0.003 mV)	±(0.015 % Reading +0 .003 mV)	± 599.999 mV	±(0.008 % Reading +0.005 mV)	±(0.015 % Reading +0.005 mV)
10 types of thermocouples	See "TC Thermocouple Technical Indicators" for details	See "TC Thermocouple Technical Indicators" for details	± 1 19.999 mV	±(0.008 % Reading +0.003 mV)	±(0.015 % Reading +0.003 mV)
30.0999 mA	±(0.01 % Reading + 1 μA)	±(0.015 % Reading +1 μA)	10 types of thermocouples	See "TC Thermocouple Technical Indicators" for details	
4000.00 Ω	± 0.008 % Reading +0.04 Ω)	±(0.015 % Reading +0.04 Ω)	± 1 19.999 mA	±(0.01 % Reading+1 μA)	±(0.015 % Reading+1 μA)
400.000 Ω	±(0.008 % Reading +0.005 Ω)	±(0.015 % Reading +0.005 Ω)	± 23.9999 mA	±(0.01% Reading +1 μA)	±(0.015 % Reading+1 μA)
6 types of thermal resistance	See “RTD Thermal Resistance Technical Indicators” for details		5999.99 Ω	±(0.008% Reading+0.05 Ω)	±(0.015 % Reading+0.05 Ω)
54999.9 Hz	± 2 Hz	± 2 Hz	59999.9 Hz	± 2 Hz	± 2 Hz
5499.99 Hz	± 0.2 Hz	± 0.2 Hz	9999.99 Hz	± 0.4 Hz	± 0.4 Hz
549.999 Hz	± 0.02 Hz	± 0.02 Hz	999.999 Hz	± 0.04 Hz	± 0.04 Hz

Typical Customers




中国计量科学研究院 National Institute of Metrology, China
NIMTT
中国交建 CHINA COMMUNICATIONS CONSTRUCTION
国家电网公司 STATE GRID CORPORATION OF CHINA
中国铝业网 中国铝业股份有限公司官网
CEEC 中国能建
中国电建 POWERCHINA
NEC 中国核建
中国一汽 FAW GROUP
Sinopec 中国石化
中国石油
DEC 东方电气
国药集团 SINOPHARM
華潤 与您携手 改变生活
GEELY 吉利控股集团
SGS
WEICHAI 潍柴
BYD
蒙牛
伊利
Coca-Cola 可口可乐
Heraeus
BOE
Haier
Hisense
FOXCONN
BAOWU
COSCO SHIPPING 中远海运控股股份有限公司

Customer Network of DEARTO



Free technical support Free software upgrades 24-hour service