DEARTO
泰安德图

Temperature

Humidity

On-site Metrology

DEARTO Instrument·**Quality** Model

Professional Manufacturer of Temperature
and Humidity Precision Calibration
Instrument

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Tai'an Detu Automation Instrument Co., Ltd.

DEARTO

About us
COMPANY INTRODUCTION

Hand in hand to create a better future

DEARTO provide you with a complete solution of specialized temperature and humidity metrology.

Tai'an Detu Automatic Instrument Co., Ltd. is located in National high-tech industrial development district,Taian,Shandong Province , the company focuses on temperature and humidity measurement calibration technology research and development, adhere to independent innovation, is committed to creating an industry model of intelligent temperature and humidity measurement calibration instrument. The company has won the "**national high-tech enterprise**", **Specialized,Refined,Distinctive and Innovative" SME, national science and technology SME**, Shandong Province contract-abiding and trustworthy enterprise; Shandong metrology and testing institute council unit, national temperature measurement and testing institute member unit, with professional research and development and richTemperature and humidity calibration experience of the team.

DEARTO has obtained more than 50 patents and software Copyrights. Participated in drafting a number of standards/specifications; There are two in Tai 'an and ChengduR & D base, our high-quality representative products include temperature measurement calibration instruments, humidity measurement calibration instruments, on-site intelligent calibrationProfessional series of products, such as instrument, surface temperature calibrator instrument, radiation thermometer calibration device, etc., are guided by customer needs and can be provided at the same timeProfessional customized products.

DEARTO products have been widely used in national, provincial and municipal metrology institutes, aerospace, national defense forces, military enterprises,Electric power, petroleum, smelting, chemical industry, machinery manufacturing, biopharmaceutical, instrumentation, institutions of higher learning, semiconductor chips, calibration institutions and so onMany industries. Detu instrument with accurate product quality, professional technical service ability is highly recognized by the market. Based on the Chinese market,Tetu instrument has been exported to the United States, Italy, Spain, Canada, Germany, Czech Republic, Singapore,Israel, Australia, Vietnam, Bolivia, Chile, Peru, Indonesia,Kazakhstan, Bangladesh, Thailand, etc.

DEARTO in the field of temperature and humidity measurement expertise and a wealth of successful business cases to fully ensure that customers provide continuous serviceAbility. The company will continue to uphold the core concept of "Dearto Instrument · Quality model", strictly implement standardized management, perfect quality assurance system,Adhere to integrity-based, high quality and efficient service to every customer; Adhere to independent innovation to help the development of temperature and humidity metrology industry.

CONTENT

Company qualification

The business license

National high-tech enterprise

Shandong province "Specialized, Fined,Peculiar and New Fields" SME

National patent certificate

Temperature and humidity test chamber

Handheld digital thermometer

Appearance of temperature and humidity validation chamber

Temperature tester

High precision temperature chamber

Certificate of patent/software copyright

Thermocouple validation furnace

Micro intelligent constant temperature bath

Wireless hygrograph

The utility model relates to an instrument temperature and humidity tester

Industrial thermal resistance uncertainty calculation software

Thermocouple uncertainty calculation software for work

Software copyright registration certificate

Thermal instrument validation system

Standard thermocouple validation system

Thermocouple thermal resistance detection system

Scanner automatic test system

Thermistor automatic test system

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 tank automatic control system

Intelligent oil tank automatic control system

Temperature and humidity validation box control system

Mechanical hygrograph validation system

Digital hygrometer calibration system

Temperature and humidity field test system

Automatic temperature field test system

High precision digital thermometer system

Uncertainty calculation software

Data correction software

validation system of digital temperature indicator and regulator

Automatic control system of double channel precision thermometer

Wireless temperature field intelligent inspection system

Wireless temperature/ humidity/pressure validation system

Product overview

DTZ-01G Thermocouple and thermal resistance automatic validation system is an automatic validation equipment integrating computer technology, electronic technology and automatic testing technology. The system can realize the complete automation of temperature control, data acquisition, data processing, report form generation, data storage and printing in the process of primary and secondary temperature instrument validation/calibration. The function and technical index of the system fully comply with the relevant national validation regulations and the itS-90 international temperature scale.

Group furnace thermocouple and thermal resistance validation system

DTZ-01G	Automatic validation system for thermocouple and thermal resistance
DTZ-NTC	Thermistor automatic detection system
DTZ-01SG	Automatic validation system for precious metal thermocouple wire
DTZ-EG	International version·Automatic validation system for thermocouple and thermal resistance

Automatic validation system for thermocouple and thermal resistance
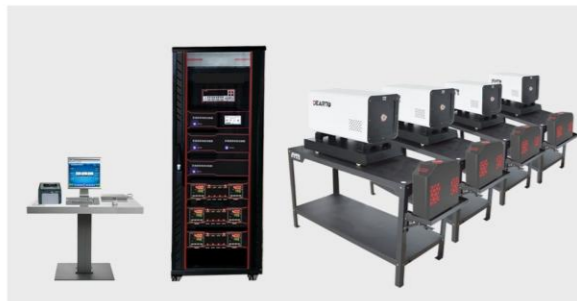
DTZ-02G	Group furnace thermocouple automatic validation system
DTZ-02AG	Calibration system for thermocouple and thermal resistance of standard couple group furnace
DTZ-02G	Group furnace thermocouple and thermal resistance automatic validation system
DTZ-03G	Automatic co-checking system for thermocouple and thermal resistance

Intelligent precision thermostatic bath series

DTS-CTG	Intelligent Calibration Baths	【-100°C ~ 300°C
DTS-G	Precision Calibration Baths	【-100°C ~ 300°C
DTS-CHG	Refrigerated Temperature Calibration Baths 【-180°C ~ 95°C	
DTS-T500G	Super Large Diameter Calibration Baths 【φ500mm	
DTF-G	Triple Point of Water Maintenance Bath	
DTS-TG	High and Low temperature Calibration Baths 【-30°C ~ 180°C	
DTR-G	Heat pipe thermostatic bath	【50°C ~ 550°C
DTW-G	Precision Sailt Baths	【180°C ~ 670°C

Thermocouple testing furnace series

DTL-600BG	Standard thermocouple testing furnace
DTL-600G	Low temperature metal thermocouple testing furnace
DTL-300G	Short thermocouple validation furnace
DTL-HG	High temperature thermocouple validation furnace
DTL-TG	Thermocouple annealing furnace
DTL-IIIG	Multi-temperature zone precision calibration furnace

DTZ-01G Automatic validation system for thermocouple and thermal resistance

Product Functions

Validation / Calibration Function	Indexing Number	Grade	Notes
Standard Thermocouple	S/R/B	Class I, and Class II	Standard thermocouple
Thermocouple for Working	S/RShort S/Short R	Grade Iand II	Precious metal thermocouple for working
	B	Grade Iand II	
	Grade K, N, E, J, T, EA-2	Grade I, II	Base metal thermocouple for working
	WRe3-WRe25/WRe5-WRe26		Tungsten rhenium thermocouple for work
Industrial Thermistor	Pt100/Pt10/Cu50/Pt-X/Cu-X	Grade AA, A, B, and C	Two-wire, three-wire, and four-wire system
Temperature Transmitter	0-10mA/4-20mA/1-5V		With thermocouple and thermistor
Precious Metal Thermocouple Wire	S/R	Standard Grade (Class I and II), Grade I and II	Previous metal thermocouple wire
	B	Standard Grade (Class I and II), Grade I and II	
Platinum Rhodium Thermocouple Wire	S/R/B		
Base Metal Thermocouple Wire	K/N/E/J/T	Grade I, II, and III	Base metal thermocouple wire
Platinum Wire for Electrical Resistance Thermometer	Pt25/Pt100/Pt10	Standard Grade (Class I and II), Grade A and B	Platinum wire for electrical resistance thermomete
Expansion Thermometers	Standard mercury-in-glass thermometer, liquid-in-glass thermometers for working, bimetal thermometer, and pressure type thermometer		
Secondary Temperature Instruments	Moving-coil temperature indicator regulator, digital temperature indicating regulator, indu strial process measurement recorder		

Product features

Efficient working mode

■ Mixed validation function: it can realize the mixed validation of metal thermocouple with different degrees in the same furnace.

■ Group validation function: low temperature thermocouple, thermal resistance can be group validation, a batch of validation 10Group (100 PCS).

■ Strong inspection function: the system can carry out rapid compulsory validation according to user requirements.

■ Verify the special positioning device for the furnace, and quickly install the thermocouple to ensure the accuracy of the position.

■ Advanced temperature control mode, fast temperature rise, good stability effect, shorten the validation time, improve efficiency.

■ Perform automatic uncertainty calculation, display the summary table of uncertainty components and calculation process.

■ Support the use of standard couple for temperature control, improve the temperature control accuracy, temperature control speed and temperature control stability.

■ It can be upgraded to multi-furnace group control system in case of large number of validation.

Perfect security mode

■ Dual temperature control protection with imported intelligent instrument and software, and has the function of overtemperature protection, power failure protection.

■ Self-check and line check function: humanized prevention and protection can be carried out for the standard and checked wiring opening and reverse connection.

■ The software supports multimedia sound alarm and prompt function, allowing customers to personalized alarm and prompt sound of various eventsRichard.

■ The standard cabinet, the power supply and signal control part of separate processing, to avoid the signal interference problem.

The configuration is flexible and diverse

- Support a variety of models of digital table communication.
- Compatible with different manufacturers of constant temperature source./
- Thermocouple validation temperature point can be set at any point according to customer requirements, such as 660.5°C.
- Reference end can be compensated by freezing point thermostat or automatic compensation by reference end temperature sensor. The reference end temperature sensor is adoptedClass A Pt100 platinum resistance, stable reading, high measurement accuracy, easy correction. The corrected value can be input into software to improve the accuracy of measurementThe accuracy.

Graphical software operating platform

- The software can run in Windows series operating system, Chinese interface, simple operation.
- Rich display interface: real-time display of validation data and temperature control curve, and can automatically track, display all the status information of all validation furnace, constant temperature tank, standard device, convenient metering personnel to control the real-time operation of equipment.
- Simulation validation function, software simulation to complete the whole validation process, can be used for software learning and demonstration. Software and hardware products have completely independent intellectual property rights, upgrade service is guaranteed, to provide customers with more thoughtful service.

Modular data management functions

- It has powerful data collection, data analysis and processing, report management, data query, equipment self-check and other functional modules. After validation, all the original data and validation certificates are automatically stored in the database. Users can query and print the original records and reports according to the condition query function, and have memory function. The checked information can be directly alled in the next validation.
- The system data backup function can adopt manual backup and automatic backup to facilitate measurement traceability.

Uncertainty calculation software (Software Copyright Registration No. 2020SR0328241)

- Uncertainty calculation software is a calculation validation system software of uncertainty, DTZ - 01 thermocouple, heat resistance can be calculated automatic validation system, or other thermocouple thermal resistance automatic validation system uncertainty, automatic calculation of each component of uncertainty, synthetic uncertainty and expanding uncertainty, supports export uncertainty analysis file.

Free professional version of temperature scale conversion software

- Provide ITS 90 international temperature scale conversion desktop software and mobile phone App,which can realize temperature unit conversion; Conversion of temperature value and potential value and calculation of differential thermoelectric potential of thermocouple (containing tungsten-rhenium thermocouple) for work; Industrial thermal resistance temperature value and resistance value conversion and differential thermal resistance calculation; Conversion between standard even temperature value and potential value and calculation of integral hundred certificate value; Standard platinum resistance temperature value and resistance value conversion; Dry and wet bulb humidity conversion; Conversion of heat transfer coefficient; Conversion of heat transfer rate; Power unit, pressure unit, diffusion coefficient, length unit, area unit, surface tension, speed unit, force unit, dynamic viscosity, kinematic viscosity, energy unit conversion.

**Multichannel low potential scanner**

- The fully sealed low potential scanning switch driven by stepper motor is adopted. The switch substrate is made of large area covered with silver material, dustproof,Wear resistance, oxidation resistance; Thewiring terminals are of the same batch of pure copper material. The parasitic potential is ≤0.2μV for a long time.
- Including four-wire reversing switch, through the unique forward and reverse measurement switching function, effectively eliminate the parasitic electricity in the measurement loopThe effect of potential on the measured results.
- The use of color touch screen, built-in use guide, customers do not need to read the manual can query the use of the system at any time,Real-time display of standard, channel position and status, can switch standard, channel position, manual validation can be carried out when the state is separated from the host computer.
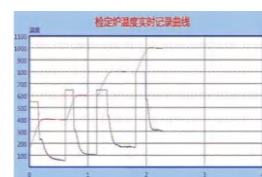

Main interface of the system

Thermocouple characterization operation interface
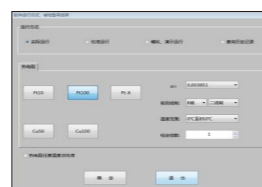
RTD characterization operation interface

Temperature of the calibration furnace is recorded in real time

Mobile version of 90 temperature scale thermal calculator

Software copyright registration number

2015SR104859
2015SR105857
2016SR107498
2020SR1061905
2013SR024368
2016SR107593

Integrated terminal

- The system wiring platform and three-wire resistance converter integrated design, compatible with thermocouple, two-wire heating resistance, three-wire heating resistance, four-wire heating resistance wiring. Automatically complete the measurement function switch of including two internal leads and including one internal lead in the validation of three-wire heating resistance.

Stable and reliable product performance

- The company has passed iso9001:2015 international quality management system certification and strictly implemented the products from raw material selection, production and processing to finished products are in line with the national industry standards, better than the domestic regulations and norms at the same time meet the requirements of AMS 2750F Aerospace Materials Specification high Temperature Measurement.

Software secondary development function

- Users can design their own form and certificate format according to requirements.Software can be customized and modified on the existing basis according to user needs, provide relevant interfaces, realize the secondary development of software to meet users' own needs.

Technical indicators

- Multi-channel scan switch parasitic potential: ≤0.2μV
- Data collection difference between channels: ≤0.5μV 1mΩ
- Measurement repeatability: ≤1.0μV 3mΩ
- Thermocouple validation furnace constant temperature performance:
  constant temperature ≤0.5°C/6min measurement ≤0.1°C/min
- Constant temperature oil, water tank constant temperature performance:
  constant temperature ≤0.02°C/10min measurement ≤0.01°C/min
- Thermocouple reference compensation range: 0°C-50°C   Display resolution: 0.01°C

Procedures, norms, standards for implementation

Sequence	Code of regulations and codes	Name of procedure and specification
1	JJG75-1995	Validation regulation of standard platinum-rhodium 10-platinum thermocouple
2	JJG141-2013	Validation regulation of precious metal thermocouple for work
3	JJF1637-2017	Specification for calibration of metal thermocouple
4	JJG668-1997	Validation regulation of platinum-rhodium 10- Platinum and platinum-rhodium 13- Platinum short thermocouple for working
5	JJG368-2000	Validation regulation of copper-copper-nickel thermocouple used in work
6	JJG229-2010	Validation regulation of industrial platinum and copper thermal resistance
7	JJF1262-2010	Calibration specification for armored thermocouple
8	JJF1176-2007	Calibration specification for tungsten-rhenium thermocouple (0-1500℃)
9	JJF1098-2003	Calibration specification for thermocouple and thermal resistance automatic measuring system
10	JJG130-2011	Validation regulation of glass liquid thermometers used in work
11	JJG161-2010	Validation regulation of standard mercury thermometers
12	JJG310-2002	Validation regulation of pressure thermometers
13	JJF1909-2021	Specification for calibration of pressure thermometers
14	JJG226-2001	Validation regulation of bimetal thermometers
15	JJF1908-2021	Specification for calibration of bimetallic thermometers
16	JJF1184-2007	Technical specification for temperature field test of thermocouple validation furnace
17	JJF1030-2010	Specification for technical performance test of constant temperature tank
18	JJF1183-2007	Calibration specification for temperature transmitters
19	AMS2750F	High temperature measurement

DTZ-02G Group furnace thermocouple and thermal resistance automatic validation system

Product overview

DTZ-02G Group furnace automatic testing system can control 1-10 inspection furnaces at the same time, each testing furnace can be verified 1-10 thermocouples at a time, and at the same time carry out industrial thermal resistance, low temperature thermal power puppets, integrated temperature transmitter, Automatic validation/calibration of glass liquid thermometer, dual metal thermometer, and pressure -type thermometer. The system can perform 100 test/calibration of 100 thermocouples at the same time, meet the requirements of large -scale thermocouple puppets in a short time, and support the grouping of various industrial platinum and copper heat resistance in various types of industrial platinum and copper heat resistance.

Product functions and features

- Support automatic validation of low temperature thermocouple, automatic temperature control, automatic validation of all calibration points, without manual participation.
- Automatic validation is supported to realize automatic temperature control, data monitoring, data acquisition and data processing. After validation, various reports are automatically generated and records are saved. Supports search and query through the database.
- Support thermocouple low temperature section and high temperature section combined validation, can automatically select constant temperature source and standard device, automatic combined report form. Standard platinum resistance validation is used in low temperature section, and standard thermocouple validation is automatically selected in high temperature section without manual modification of standard.
- Support to summarize and display the operation status information of all validation furnaces, convenient to check and manage the validation process, check the set temperature value, actual temperature value and temperature change rate of validation furnaces, etc.
- Supports automatic channel check and filtering. During the channel check, the system automatically prompts the discovery of open and short circuits.
- Support multimedia sound alarm, electronic signature and other functions。
- Support validation in accordance with the American standard: meet the requirements of the American standard "AMS2750F Aerospace Materials Specification for High Temperature Measurement".
- Support automatic calculation of thermocouple and thermal resistance uncertainty, display the uncertainty component summary table and support to view all the calculation process of each component.
- Equipped with professional uncertainty repeatable automatic testing software:Support automatic test group furnace test system thermocouple, low temperature thermocouple, thermal resistance repeatability. It can be used as a standard building tool to generate a summary table of uncertainty components and an uncertainty evaluation report in WORD format.
- It is equipped with ITS 90 international temperature scale conversion PC software and mobile phone App professional software, which can easily realize the temperature conversion of working thermocouple, industrial thermal resistance, standard thermocouple, standard platinum resistance, temperature transmitter and other sensors.

Uncertainty component calculation process

Support validation according to American standard

Electronic signature function

Multimedia sound alarm function

Supporting professional version of automatic test system software

It can be used for automatic testing of low potential scanner in standard thermocouple automatic measuring system, working thermocouple automatic measuring system and industrial thermal resistance automatic measuring system. According to "Calibration specification for Thermocouple and thermal resistance Automatic measuring System", it can complete the parasitic potential test of scanner and data difference test between channels.

- Full support for a full range of low potential scanner automatic testing.
- Conduct data collection, data calculation and conclusion judgment in strict accordance with the specification requirements.
- Simple operation, easy to use, through validation wizard, intelligent prompt to guide users to operate accurately.
- Intelligent test process control, automatic completion of parasitic potential project test.
- Intelligent guide channel data difference project test, through pop-up window, voice prompt users to switch signal source in time.
- Channel data is automatically checked before the test to detect data anomalies in a timely manner.
- Check communication abnormality in real time, prompt abnormality in time, intelligent automatic retry, automatic recovery.
- Support simulation validation, convenient system learning and demonstration.
- Validation data can be saved in real time, and data validation can be continued after the system abnormally exits or manually stops.
- Support validation parameter configuration to meet different test requirements.
- Validation data is displayed in real time for checking validation situation in time.
- When continuing validation, the starting position of validation can be selected again.
- Export test data to Excel and WPS record files.

General functions and features

- Support to control 1-10 calibration furnaces simultaneously for automatic validation/calibration of calibration/standard (B, S, R, K, N, E, J, T) thermocouples and working thermocouples. At the same time carry out validation/calibration(Pt10, Pt100, PT-X, Cu50, Cu100, Cu-X) all kinds of industrial platinum, copper thermal resistance, low temperature thermocouple, (0-10mA, 4-20Ma, 1-5V, etc.) integrated temperature transmitter.
- With mixed calibration function, improve detection efficiency, each thermocouple validation furnace can be set separately to be tested and the number of detection, and realize the validation/calibration of different calibration number of metal thermocouple in the same validation furnace, and can automatically process data and result judgment.
- It supports group validation of various industrial platinum and copper thermal resistors (Pt10, Pt100, PT-X, Cu50, Cu100, Cu-X), and 100 thermal resistors can be verified at one time.
- Thermocouple group furnace validation system software runs independently, compatible with low temperature constant temperature tank, constant temperature oil tank, validation furnace and other different constant temperature sources, to achieve normal communication, control, acquisition and validation work.
- Thermocouples for work provide a variety of reference terminal processing methods, support zero thermostat compensation or automatic room temperature compensation.
- Standard temperature control couples are supported to improve temperature control accuracy, speed, and stability.
- Software system measurement management integration, multi-thread design, compatibility and self-diagnosis ability.
- System software compatible with windows2000, XP, windows7, windows8, windows10 and other operating platforms, all Chinese interface, mouse click operation, with practical, professional, open, compatible with different manufacturers of supporting equipment.
- The validation device software is independently developed in strict accordance with relevant national validation regulations and norms, and has dynamic simulation validation.
- The system software has the function of power failure protection, and the connection validation can be selected according to the demand after the power supply is restored。
- The core technology of software and hardware in the system has completely independent intellectual property rights, providing all-round upgrade guarantee for customers.
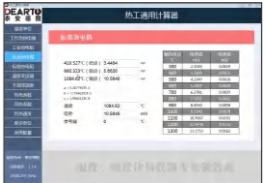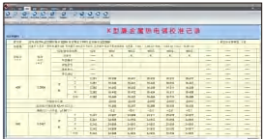

System main interface

Uncertainty configuration interface

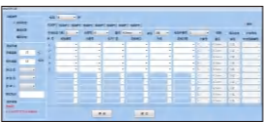Configuration interface of thermocouple validation furnace

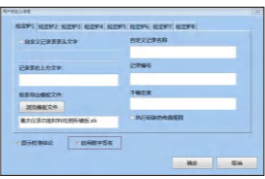ITS 90 international temperature scale conversion software

Calibration record sheet

Product overview

DTZ-02AG Standard group furnace thermocouple validation system is mainly used for automatic validation/calibration of various standard thermocouples and working thermocouples. Through hardware design adjustment and software architecture upgrade, the system realizes the function of validation of standard thermocouple, precious metal thermocouple and inexpensive metal thermocouple at the same time, supporting the control of 10 validation furnaces at the same time. It can meet the requirement of verifying a large number of standard thermocouples in a short time or at the same time when verifying a large number of working thermocouples.

Low potential scanner proprietary features

- Low potential scanner adopts 7 inch LCD control screen: real-time monitoring standard, channel position and status, can switch standard, channel position; validation/calibration can be carried out when it is separated from the host computer.
- Convenient and quick query function: built-in quick guide for the use of products, customers can query the use instructions of the system at any time, including the standard, wiring mode, testing process and maintenance and other practical functions.
- The low potential scanning switch is fully enclosed low potential scanning switch driven by stepper motor. The switch substrate is made of large area silver coated material, dustproof,wear-resistant and oxidation resistant. The wiring terminals are made of the same batch of pure copper; The switch has low parasitic potential, small contact resistance, good stability and high reliability. The parasitic potential is less than 0.2μV for a long time. Service life is more than 10 years.
- Optimized thermal resistance measurement method: including four-wire reversing switch, through the unique forward and reverse measurement switching function, effectively eliminate the influence of parasitic potential in the measurement loop on the measurement results.

Multichannel low potential scanner

DTZ-02AG Thermocouple validation system of standard couple group furnace

Product Functions

Validation / Calibration Function	Indexing Number	Grade	Notes
Standard Thermocouple	S,R,B	Class I, and Class II	Standard thermocouple
Thermocouple for Working	S,RShort S,Short R	Grade Iand II	Precious metal thermocouple for working
	B	Grade Iand II	
	Grade K, N, E, J, T, EA-2	Grade I, II	Base metal thermocouple for working
	WRe3-WRe25,WRe5-WRe26		Tungsten rhenium thermocouple for work
Industrial Thermistor	Pt100,Pt10,Cu50,Pt-X, Cu-X,Cu100	Grade AA, A, B, and C	Two-wire, three-wire, and four-wire system
Temperature Transmitter	0-10mA,4-20mA,1-5V		With thermocouple, thermal resistance
Precious Metal Thermocouple Wire	S,R	Standard Grade (Class I and II), Grade I and II	Previous metal thermocouple wire
	B	Standard Grade (Class I and II), Grade II and III	
Platinum Rhodium Thermocouple Wire	S,R,B		
Base Metal Thermocouple Wire	K,N,E,J,T	Grade I, II, and III	Base metal thermocouple wire
Platinum Wire for Electrical Resistance Thermometer	Pt25,Pt100,Pt10	Standard Grade (Class I and II), Grade A and B	Platinum wire for electrical resistance thermomete
Expansion Thermometers	Standard mercury-in-glass thermometer, liquid-in-glass thermometers for working, bimetal thermometer, and pressure type thermometer		
Secondary Temperature Instruments	Moving-coil temperature indicator regulator, digital temperature indicating regulator, indu strial process measurement recorder		

Technical indicators

Project	Indicators	Project	Indicators
Degree of accuracy	0.005%	Display resolution	0.01°C
Scan switch parasitic potential	≤0.2μV	Thermocouple free end compensation range	(5 - 50)°C
Data collection difference between channels	≤0.5μV, 1.0 mΩ	Control ability of thermocouple validation furnace	220V，0 - 40A
Repeatability of measurement	≤1.0μV, 3.0 mΩ	Set point deviation	≤0.1°C
Validation of measurement data processing results	≤0. 1μV, 0.1mΩ	Total extended uncertainty of thermocouple system	≤0.68°C
Total expansion uncertainty of thermal resistance system	The standard platinum resistance Rtp is remeasured using a water three-phase point flask to obtain: thermal resistance≤0.03°C(0°C); 0.06(100°C)		
	Standard platinum resistance Rtp directly uses the value given by the certificate: thermal resistance≤0.05°C(0°C)；0.09(100°C)		
Thermocouple system for working	Constant temperature ≤0.5°C/6min Measurement ≤0.1°C/min		
Constant temperature performance of industrial thermal resistance system	Constant temperature ≤0.02°C/10min Measurement ≤0.01°C/min		

Technical indicators

Project	Indicators	Project	Indicators
Degree of accuracy	0.005%	Display resolution	0.01°C
Scan switch parasitic potential	≤0.2μV	Thermocouple free end compensation range	(5 - 50) °C
Data collection difference between channels	≤0.5μV、1.0 mΩ	Control ability of thermocouple validation furnace	220V，0 - 40A
Repeatability of measurement	≤1.0μV、3.0 mΩ	Set point deviation	≤0.1°C
Validation of measurement data processing results	≤0. 1μV、0.1mΩ	Total extended uncertainty of thermocouple system	≤0.68°C
Total expansion uncertainty of thermal resistance system	The standard platinum resistance Rtp is remeasured using a water three-phase point flask to obtain: thermal resistance≤0.03°C (0°C)；0.06 (100°C)		
	Standard platinum resistance Rtp directly uses the value given by the certificate: thermal resistance≤0.05°C (0°C)；0.09 (100°C)		
Thermocouple system for working	Constant temperature ≤0.5°C/6min Measurement ≤0.1°C/min		
Constant temperature performance of industrial thermal resistance system	Constant temperature ≤0.02°C/10min Measurement ≤0.01°C/min		

Product features

- The system can automatically calibrate standard thermocouple, precious metal thermocouple and low metal thermocouple simultaneously.
- Support mass validation, up to 100 standard thermocouples/working thermocouples at the same time.
- Support automatic validation, automatic temperature control, data monitoring, data acquisition and data processing.
- After validation is completed, various reports are automatically generated and records are saved, and retrieval and query are supported through the database.
- The temperature control system is equipped with imported intelligent PID controller and adopts advanced expert PID algorithm to effectively prevent temperature overshooting and temperature fluctuation in the process of temperature control.
- Thermocouple group furnace validation system software runs independently, compatible with low temperature constant temperature tank, constant temperature oil tank, validation furnace and other different constant temperature sources, to achieve normal communication, control, acquisitionWait for validation work.
- The system has the function of mixed validation, which can realize the mixed validation of standard thermocouple with different degrees in the same furnace.
- Equipped with ITS 90 international temperature scale conversion desktop software and mobile phone App, it can realize the temperature conversion of working thermocouple, industrial thermal resistance, standard thermocouple, standard platinum resistance, temperature transmitter and other sensors.
- The validation system conforms to the requirements of JJF1098-2003 "Calibration specification for Thermocouple and thermal resistance Automatic Measurement System" and other related regulations and specifications.

Product overview

DTZ-03G Thermocouple and thermal resistance automatic simultaneous inspection system supports industrial thermocouple and thermal resistance validation. During the validation process, thermocouple validation and thermal resistance validation operate independently without interference, and can automatically control temperature, monitor, collect and issue validation results, with friendly interface, comprehensive function and simple operation.

Product overview

Thermistor automatic detection system is mainly used for automatic validation/calibration of various thermistor sensors. The system is controlled by computer multi-channel low potential scanner, digital multimeter, constant temperature oil (water) tank and other equipment, to achieve the NTC thermistor data acquisition, data processing, report generation, printing, and data storage of the full automatic detection equipment. In order to better test thermistors, the system also supports automatic testing of NTC thermistors with different nominal resistance and B value range.

DTZ-03G Automatic Simultaneous validation System for Thermocouple and Thermistor

DTZ-NTCG Thermistor automatic detection system

Technical indicators

- Multi-channel scan switch parasitic potential: ≤0.2μV
- Data collection difference between channels: ≤0.5μV 1mΩ
- Measurement repeatability: ≤1.0μV 3mΩ
- Thermocouple validation furnace constant temperature performance: constant temperature ≤0.5°C/6min measurement ≤0.1°C/min
- Constant temperature oil, water tank constant temperature performance: constant temperature ≤0.02°C/10min measurement ≤0.01°C/min
- Thermocouple reference compensation range: 0°C-50°C
- Resolution: 0.01°C

Software copyright registration number　　**2018SR257584**

Product features

- Automatic simultaneous validation of working thermocouple, industrial thermal resistance, etc., 1-10 thermocouple/thermal resistance can be verified at one time.

- Assist in verifying glass liquid thermometers, bimetal thermometers, pressure thermometers, etc., automatically process data and generate record forms.

- It can automatically calibrate S, R, B, K, N, J, E, T, short S, short R equal division number for working thermocouple; Pt10, Pt100, Cu50, Cu100, PT-X (other resistance value platinum thermal resistance), Cu-X (other resistance value copper thermal resistance) equigraded industrial thermal resistance.

- The system wiring platform and three-wire resistance converter integrated design, compatible with thermocouple, two-wire heating resistance, three-wire heating resistance, four-wire heating resistance wiring. Automatically complete the function switch of including 2 internal leads and including 1 internal leads in the validation of three-wire heating resistance.

- The validation temperature point setting can either adopt the default value of the regulation, or set according to user requirements.

- The reference terminal can be compensated by zero temperature thermostat or automatically compensated by the temperature sensor of the reference terminal.

- The reference temperature sensor adopts grade A Pt100 platinum resistance, stable reading and high measurement accuracy.

- Automatically generate validation data record form, validation certificate or validation result notification, validation record form can be exported and displayed in Excel, convenient for user operation. Form and certificate format can be designed according to user requirements.

- Data records are stored in the system hard disk, which makes it easy to query data records and support printing and output validation data. With the function of simulation validation, the whole validation process can be completed by software simulation, which can be used for software learning or demonstration.

Product features

- System software compatible with windows2000, XP, windows7, windows8 and other operating platforms, all Chinese interface, mouse click operation, convenient and fast; Professional, easy to use, strong operability, open interface compatible with different manufacturers of supporting equipment.

- The system software can realize thermistor group validation.

- Test temperature points can be set up to 8 different temperature points, to meet the requirements of the test.

- Can be carried out at the same time a variety of different ratios of thermistor test.

- Real-time view of temperature control curve.

- The software can customize the record table title to meet the personalized needs of users.

- Test data collection times can be changed according to test requirements.

- The software has a professional, rich report output function: automatically generate validation data record form, validation certificate or validation result notice, all forms, certificates can be exported and displayed in Excel, convenient for customers to operate. Form, certificate format can be designed according to customer requirements.

Software interface

| Record sheet of test results | Original data record sheet | Temperature control record curve |
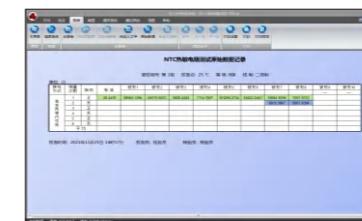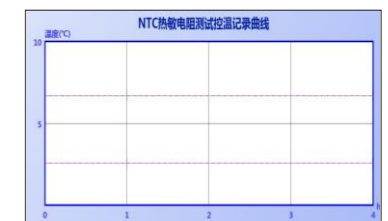
Product overview

DTZ-E International edition. Thermocouple, heat resistance, automatic validation system is facing export project company independent orientation research and development of software system, the system has been exported to Italy, the United States, Russia, Canada, Spain, Australia, Indonesia, Israel, Vietnam, Bolivia, Chile, Peru, Indonesia, Bangladesh, Thailand, kazakhstan and other countries. It has been successfully applied in electric power, shipbuilding, metering/calibration institutions, machinery manufacturing and other industries.

Product overview

DTZ-01SG The automatic validation system of precious metal thermocouple wire is completely developed based on the technological process of the thermocouple manufacturer. It is mainly used for the thermoelectric electromotive force measurement of precious metal platinum rhodium wire/platinum rhodium wire, calibration of paired platinum rhodium thermocouple, calibration of standard platinum rhodium thermocouple and calibration of industrial precious metal thermocouple. The system can fully automate the measurement and validation process of thermocouple wire and thermocouple.

DTZ-E International version·Automatic validation system for thermocouple and thermal resistance

DTZ-01SG Automatic validation system for precious metal thermocouple wire

English software

French software

Software copyright registration number　　2016SR107498
2016SR107593

Product features
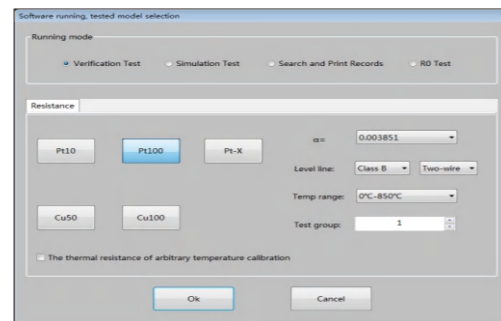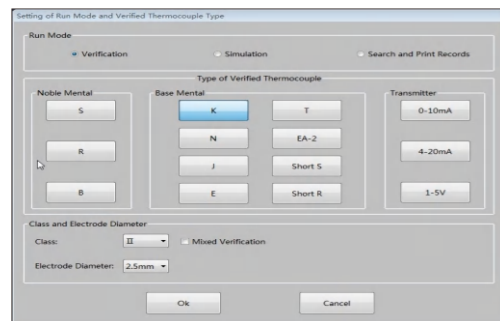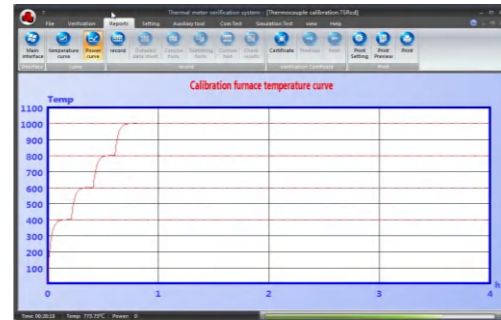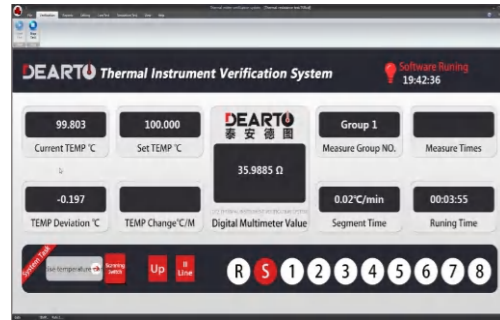
Advanced technology

■ Optimize the multi-channel low potential scanner design, without changing the wiring mode, can simultaneously carry out bipolar method and the same name pole method measurement.

■ Support the use of bipolar method and the same name method calibration,users through data comparison, can review the results, analysis of problems, excellentProcess.

■ Add automatic segmented PID temperature control mechanism for high temperature furnace to accurately control the whole process of temperature rise in low temperature section of high temperature furnace to prevent electricityCurrent load damage.

■ Perfect the temperature control function of palladium point furnace for platinum rhodium filament measurement, linearly heating up in strict accordance with national standards, and reproduce the palladium point platform.

Feature-rich

■ Complete automatic measurement and validation, realizing temperature control, data monitoring, data acquisition, data processing, report generation and printingFully automated.

■ The interface is rich in content, real-time display of validation system operation information, standard couple temperature curve, validation/calibration point collection data.

■ Simulation validation function, complete the whole validation process by software simulation, can be used for software learning and demonstration.

■ The software report template has perfect functions and strong adaptability, and can be customized and modified according to user needs.

Flexible configuration

■ Support manual validation, users can achieve data collection through manual control, adapt to different business needs.

■ It can measure thermoelectric potential of 10 positive and 10 negative wires at the same time with high speed and efficiency.

■ Can choose a variety of data acquisition methods, effective use of positive and negative test data to eliminate systematic errors.

■ Support the specified temperature point non-uniform thermoelectric potential test function.

Software copyright registration number

Software copyright registration number

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DTS-CTG Intelligent Calibration Baths

Product overview

DTS-CTG Intelligent Calibration Baths is a new type of intelligent constant temperature bath launched by our company, using touch screen control and operation, completely intelligent man-machine interface, more convenient, simple and practical control. The structure adopts double chamber side stirring technology, and intelligent PID adjustment makes the constant temperature bath to reach the ideal uniform temperature field, which can meet the validation/calibration of various temperature sensors such as low temperature thermocouple, industrial thermal resistance, pressure type thermometer, bimetal thermometer, glass liquid thermometer and so on.

Intelligent Accurate Security

Temperature control rate is adjustable
Set heating rate freely

Active smoke extraction system
Create a healthy smoke-free environment

Intelligent man-machine interface
The operation is simple

Real-time curve display Automatic calculation of volatility

Intelligent rehydration
Low level alarm
Real-time monitoring of liquid level

Uniform temperature field
Stability warning function
Steady state display in real time

Ergonomic design
The cantilever
Angle length of three axis machinery can be adjusted freely

Overheat protection
Overtemperature power outage Software and hardware protection

Product details

Mobile APP control function
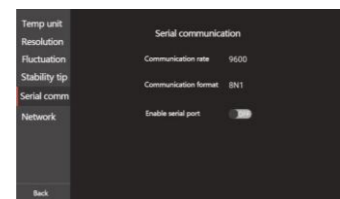
USB, WIFI, WLAN, Serial communication
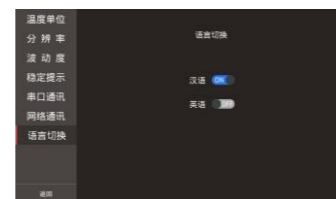
Chinese-english bilingual switching

Product selection table

Temperature range	-180°C~-40°C	-100°C~100°C		-30°C~180°C	70°C~300°C	180°C~670°C
Name	Refrigerated Temperature Calibration Baths	Intelligent Low temperature Calibration Baths Precision low temperature calibration baths Super Large Diameter Calibration Baths Triple Point of Water Maintenance Bath		High and Low temperature Calibration Baths	Intelligent precision constant temperature oil bath Precision Calibration oil bath Super Large Diameter Calibration Baths Can recycled rapidly cooling the constant Calibration Baths	Precision Sailt Baths Heat pipe Calibration Baths
Model	DTS-180CHG DTS-160CHG	DTS-CT01G DTS-CT10G DTS-CT30G DTS-CT40G DTS-CT60G DTS-CT80G DTS-CT100CHG DTS-CT10-T500G DTS-CT30-T500G DTS-CT80-T500G	DTS-01G DTS-10G DTS-30G DTS-40G DTS-60G DTS-80G DTS-100CHG DTS-10-T500G DTS-30-T500G DTS-CT10-T500G	DTF-CT01SG DTF-CT30SG DTF-01SG DTF-30SG DTF-01G	DTS-CT150G DTS-CT180G DTS-T150G DTS-T180G	DTS-CT300G DTS-300G DTS-T300G DTS-300-T500G DTS-300-T300G	DTW-560G DTW-670G DTR-02G DTR-03G

Technical indicators

The heating and cooling speed is adjustable	Adjustable temperature control rate, free setting temperature rise rate. According to the set temperature rise rate, uniform temperature rise, meet the validation/calibration 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.
Intelligent rehydration function	Support startup intelligent liquid refill to the ideal level; Simultaneously compatible with manual and automatic refill modes; Real-time monitoring of liquid level, low level alarm automatically stop.
Real-time curve display Automatic calculation of volatility	Real-time curve display, fluctuation automatically calculated. Multi-touch supports free zooming and panning and temperature fluctuation acquisition cycleSupports custom Settings
Composite insulation design	Multi-layer composite heat insulation structure, more effective blocking thermal bridge. Ensure better temperature field stability and volatility
Dual sensor overheat protection	Double sensor overheat protection, automatically cut off the power supply when overtemperature. Independent overheat monitoring hardware, hardware and software double safety protection.
Communication function	Supports USB, WIFI, WLAN, and serial port communication
Stable prompt	With stability prompt function, stable state real-time display
Multipoint correction	Support temperature 12 test point calibration, correction function.
Smart touch screen	Large capacitive screen intelligent control, intelligent human-computer interaction interface, support multi-touch, multi-function window display, intuitive, easy to control.
Anti-oil pollution design	The table adopts integrated operating table with built-in overflow loop to prevent liquid media from polluting the table.
Ergonomic design	Ergonomic design, temperature control screen adopts three-axis mechanical cantilever installation, Angle and length can be adjusted at will, convenient operation.

Model	DTS-CT300G	DTS-CT01G	DTS-CT10G	DTS-CT30G	DTS-CT60G	DTS-CT80G	DTS-CT100CHG
Temperature range	70°C~300°C	0°C~100°C	-10°C~100°C	-30°C~100°C	-60°C~100°C	-80°C~100°C	-100°C~95°C
Working medium	L30-300	L15N-95-R		L35N-95-R	L100N-20		L100N-20
Temperature uniformity Radial	≤0.01°C	≤0.01°C			≤0.01°C		≤0.01°C
Temperature uniformity Axial	≤0.01°C	≤0.01°C			≤0.01°C		≤0.01°C
Temperature fluctuation	±0.007°C/10min	±0.01°C/10min			±0.01°C/10min		±0.01°C/10min
Display resolution	0.001°C	0.001°C			0.001°C		0.001°C
Work area dimensions	φ150×480	φ130×480			φ130×480		φ130×480
Volume	23L	18.5L			18.5L		18.5L
Power	3kw	2kw		2.8kw	3kw		3kw
Overall size	660 (L) ×540 (W) ×1120 (H)				700×590×1120		800×600×1000
Weight	95kg			115kg	155kg		200kg

Intelligent precision thermostatic bath Accessory list

Name	Precision thermostatic oil flange (The opening size can be customized)	Precision low temperature thermostatic flange (hole size support customization)	Working medium
Picture			
Ppecifications	14-hole stainless steel insert disc	17-well epoxy board insert disk	Methyl silicone oil/antifreeze

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DTS-G Precision Calibration Baths

Product characteristics

- The working mode of double - chamber side agitation has good temperature field uniformity.
- Intelligent PID control, with good temperature field stability and uniformity.
- Adopt high resolution display instrument, resolution 0.001°C.
- Imported compressor, stable and reliable performance, optimized refrigeration system cooling faster.
- RS-232 / RS-485 communication interface optional, can realize computer control.
- Humanized design is comfortable and convenient to operate.

Name	Oil bath	Water bath	Precision Calibration Baths					
Model	DTS-300G	DTS-95G	DTS-01G	DTS-10G	DTS-30G	DTS-60G	DTS-80G	DTS-100CHG
Temperature range	70°C~300°C	RT+10~95°C	0°C~105°C	-10°C~105°C	-30°C~105°C	-60°C~100°C	-80°C~100°C	-100°C~95°C
Working medium	L30-300	L15N-95-R	L15N-95-R		L35N-95-R	L100N-20		
Temperature uniformity — Radial	≤0.01°C	≤0.01°C	≤0.01°C					
Temperature uniformity — Axial	≤0.01°C	≤0.01°C	≤0.01°C					
Temperature fluctuation (10°C/min)	±0.007°C /10min	≤0.01°C/10min	±0.01°C					
Work area dimensions(mm)	φ150×480 (mm)		φ130×480 (mm)					
Volume (L)	23 (L)		18.5					
Overall size	660 (L) ×540 (W) ×1120 (H) (mm)					700×590×1120		800×600×1000
Power	3kw		2kw	2.8kw	3kw		3kw	
Weight	94kg	95kg	115kg		155kg		200kg	

DTR-G Heat pipe Calibration Baths

Name	Heat pipe Calibration Baths		
Model	DTR-01G	DTR-02G	DTR-03G
Temperature range	50°C~300°C	200°C~400°C	300~550°C
Temperature fluctuation	±0.03°C/10min	±0.05°C/10min	±0.05°C/10min
Temperature uniformity — Radial	≤0.03°C	≤0.03°C	≤0.03°C
Temperature uniformity — Axial	≤0.05°C	≤0.05°C	≤0.05°C
Work area dimensions	φ200×450(mm)		
Rated power	2.2KW		

DTS-TG High and Low temperature Calibration Baths

DTS-CT300TG Can circulate rapidly to raise and lower temperature oil bath cooling speed, from 300°C to 100°C about 15 minutes, with return measurement function.

Name	High and Low temperature Calibration Baths (precision)		High and Low temperature Calibration Baths (Smart model)		Can recycled rapidly cooling the constant Calibration Baths
Model	DTS-T150G	DTS-T180G	DTS-CT150G	DTS-CT180G	DTS-CT300TG
Temperature range	-20°C ~ 150°C	-20°C ~ 180°C	-20°C ~ 150°C	-20°C ~ 180°C	70°C ~ 300°C
	-30°C ~ 150°C	-30°C ~ 180°C	-30°C ~ 150°C	-30°C ~ 180°C	
Working medium	L40N-180				L30-300
Temperature uniformity — Radial	≤0.01°C				≤0.01°C
Temperature uniformity — Axial	≤0.02°C				≤0.01°C
Temperature fluctuation	±0.01°C/10min				±0.01°C/10min
Work area dimensions	φ130×480(mm)				φ150×480(mm)
Volume	18L				23L

Refrigerated Temperature Calibration Baths

Model	Refrigerated Temperature Calibration Baths		Portable	
Control mode	DTS-CT160CHG	DTS-CT180CHG	DTS-CT60CH-BG	DTS-CT100CH-BG
Temperature range	-160°C ~ -40°C	-180°C ~ -40°C	-60°C ~ 95°C	-100°C ~ 95°C
Temperature field uniformity	≤0.05°C		≤0.01°C	≤0.01°C
Temperature fluctuation	±0.03°C/10min		±0.01°C/10min	≤0.01°C/10min
Work area dimensions	6, φ12×280(Support customization)		φ100×300	φ100×300
Overall size	500×620×(L)600		320×480×(L)530	420×510×(L)700
Power supply	3.0		1.5	2.5

Super Large Diameter Calibration Baths

Work area dimensions	φ300×480 （Support special customization）		φ500×480 （Support special customization）	
Model	DTS-300-T300G	DTS-80-T300G	DTS-300-T500G	DTS-80-T500G
Temperature range	70°C ~ 300°C	-80°C ~ 95°C	70°C ~ 300°C	-80°C ~ 95°C
Temperature field uniformity	≤0.01°C	≤0.01°C	≤0.01°C	≤0.01°C
Temperature fluctuation	±0.01°C/30min	±0.01°C/30min	±0.01°C/30min	±0.01°C/30min
Support special customization	38L	38L	130L	130L
Power supply	380V	220V	380V	220V
Note	Supports customized smart touch screen models			

Product overview

DTF-G Triple Point of Water Maintenance Bath is an automatic freezing device composed of constant temperature refrigeration bath and water three-phase point bottle support. Imported compressor is adopted to realize automatic control of freezing and preservation. It is suitable for measurement, biochemical, petroleum, meteorological, energy, environmental protection, medicine and other departments and manufacturers of thermometers, temperature controllers to carry out physical parameters testing, and can provide constant temperature source for other experimental research work.

Product overview

DTW-G Precision Sailt Baths is according to user's requirement for on-site validation and developed a new product, it with lab to use standard tank structure are exactly the same, with independent heating system, mixing system and as high as 0.1 original imported from Japan the thermostat, to provide users with accurate high temperature heat source, very suitable for industrial field and laboratory use.

DTF-G Triple Point of Water Maintenance Bath

Water triple point bottle

DTW-G Precision Sailt Baths

Product features

- With independent heating system, stirring system and 0.1 level of the original Japanese imported temperature control system.
- Wide temperature range, high temperature control accuracy of the whole temperature section
- liquid medium no pressure, non-toxic, no corrosion
- Detection jack aperture support to customize different sizes according to requirements
- Suitable for high-precision detection of thermocouple, thermal resistance and other temperature components

Technical indicators

Model	DTF-CT01SG	DTF-01SG	DTF-CT30SG	DTF-30SG
Control mode	Smart touch screen	Temperature control instrument	Smart touch screen	Temperature control instrument
Temperature range	-10°C~105°C		-30°C~105°C	
Temperature fluctuation	±0.005°C/10min(@0°C)			
Temperature uniformity — Radial	≤0.01°C			
Temperature uniformity — Axial	≤0.01°C			
Frozen system time	120min			
Retention time	≥6H			
Working medium	L15N-95-R			
Work area dimensions	φ130×480(mm)			
Volume	18.5L			
Frozen system number	1~3			
Power	2kw			
Overall dimensions	660mm(L)×540mm(W)×1120mm(H)			
Weight	95Kg			
Features	■ Intelligent touch screen, multi-function window, intuitive display, easy to operate. ■ Stability prompt function, stable state real-time display. ■ Support automatic calibration and correction function of temperature 12 test points ■ One bath and three uses (water three-phase point freezer, water three-phase point bottle preservator, refrigeration thermostatic bath)			

Technical indicators

The heating and cooling speed is adjustable	Adjustable temperature control rate, free setting temperature rise rate. According to the set temperature rise rate, uniform temperature rise, meet the validation/calibration 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.		
Intelligent rehydration function	Support startup intelligent liquid refill to the ideal level; Simultaneously compatible with manual and automatic refill modes; Real-time monitoring of liquid level, low level alarm automatically stop.		
Dual sensor overheat protection	Double sensor overheat protection, automatically cut off the power supply when overtemperature. Independent overheat monitoring hardware, hardware and software double safety protection.		
Stable prompt	With stability prompt function, stable state real-time display		
Multipoint correction	Support temperature 12 test point calibration, correction function.		
Smart touch screen	Large capacitive screen intelligent control, intelligent human-computer interaction interface, support multi-touch, multi-function window display, intuitive, easy to control.		
Name	Portable high temperature precision salt bath	Laboratory calibration of high temperature precision salt bath	
Model	DTW-560BG	DTW-560G	DTW-670G
Temperature range	180°C~560°C	180°C~560°C	450°C~670°C
Temperature fluctuation	±0.01°C/10min	±0.01°C/10min	±0.01°C/10min
Radial uniformity	≤0.01°C	≤0.01°C	≤0.01°C
Axial uniformity	≤0.02°C	≤0.02°C	≤0.02°C
Work area dimensions	φ100×200(mm)	φ140×400(mm)	φ140×400(mm)
Rated power	1.0KW	2.5KW	2.5KW
Note	Can be customized 500°C~850°C, 850°C~1100°C Special medium liquid bath		

DTL-G Thermocouple Calibration Furnace

Product overview

DTL-G Thermocouple validation furnace is a temperature field constant temperature equipment for the validation of various types of standard thermocouple, precious metal thermocouple and inexpensive metal thermocouple. This series of products have the advantages of good heat preservation, anti-leakage and so on. The technical indexes of the temperature field are in full compliance with the technical requirements of the relevant national validation regulations and specifications. At the same time, our company can provide non-standard customization for customers.

Product selection table

Sequence	Name	Model	Temperature range（°C）	Chamber size（mm）	Note
1	Standard thermocouple testing furnace	DTL-600BG	300~1200	φ20×600	
2	Low-cost metal thermocouple testing furnace	DTL-600G	300~1200	φ40×600	
3	Thermocouple testing furnace - custom made	DTL-600EG	300~1300	φ40×600	
4	Thermocouple testing furnace - custom made	DTL-600TG	300~1200	φ60×600	Temperature range and furnace size can be customized as required
5	Short thermocouple validation furnace	DTL-300G	300~1200	φ40×300	
6	Ultra-short thermocouple validation furnace	DTL-150G	300~1200	φ40×150	
7	High temperature thermocouple validation furnace	DTL-HG	800~1700	φ30×600	
8	Thermocouple annealing furnace	DTL-TG	300~1200	φ40×1000	
9	Multitemperature precision thermocouple validation furnace	DTL-IIIG	300~1200	φ40×1000	

Ther validation furnace

Short thermocouple validation furnace

Thermocouple annealing furnace

Model	DTL-600G	DTL-600BG	DTL-300G	DTL-TG
Name	Low-cost metal thermocouple testing furnace	Standard thermocouple testing furnace	Short thermocouple validation furnace	Thermocouple annealing furnace
Temperature range	300°C-1200°C	300°C-1200°C	300°C-1200°C	300°C-1200°C
Chamber size	φ40mm×600mm	φ20mm×600mm	φ40mm×300mm	φ40mm×1000mm
Temperature field distribution	The temperature homogenizing block is configured. The temperature difference between any two points in the axial direction of the effective working area is not more than 0.5°C, and the temperature difference between any two points in the same section is not more than 0.25°C in the radial radius of 14mm.	The highest point of temperature in the furnace is no more than 20mm away from the geometric center of the furnace, and the temperature gradient within the highest point ±20mm is ≤0.4°C/10mm uniform temperature field	The center of temperature field shall be less than 10mm away from the geometric center, and the tempe rature difference shall be less than or equal to 1°C within 40mm; The temperature gradient within ±20mm in the center of the temperature field shall not exceed 0.4°C/cm	One end of the uniform temperature field is less than 100mm away from the furnace mouth, and the length of the uniform temperature field at ±20°C is greater than 400mm
Scope of application	validation/calibration of low metal thermocouple	Calibration/calibration of standard thermocouple and S/R type thermocouple	Validation/calibration of S, R short thermocouple and short low metal thermocouple	Standard thermocouple, working precious metal thermocouple, etc
Rules and regulations for imple mentation	"JJF1184-2007 Technical specification for temperature field test of thermocouple validation furnace" "JJF1637-2017 Specification for calibration of metal thermocouple" "JJF 1262-2010 Calibration specification for armored thermocouple" "JJG141-2013 validation regulation of precious metal thermocouple for work" "JJG75-1995Verification regulation of standard platinum-rhodium 10-platinum thermocouple"	"JJF1184-2007 Technical specification for temperature field test of thermocouple validation furnace" "JJG668-1997 validation regulation of working (Platinum-rhodium 10-Pt, Platinum-rhodium 13-PT) Short thermocouple"	"JJG75-95 validation regulation of standard platinum-rhodium 10-platinum thermocouple" "JJG167-95 validation regulation of standard Platinum-rhodium 30-Platinum-rhodium 6 thermocouple" "JJG141-2013 validation regulation of precious metal thermocouple for work"	

Custom - thermocouple testing furnace			
Name	Thermocouple validation furnace (1300°C)	Thermocouple validation furnace (φ60mm)	Ultra-short thermocouple validation furnace (150mm)
Model	DTL-600EG	DTL-600TG	DTL-150G
Temperature range	300°C-1300°C	300°C-1200°C	300°C-1200°C
Chamber size	φ40mm×600mm	φ60mm×600mm	φ40mm×150mm
Scope of application	validation/calibration of low metal thermocouple, S, R short type thermocouple, short low metal thermocouple		

DTL-HG High temperature thermocouple validation furnace

Product overview

Type high temperature thermocouple validation furnace replaces the original high temperature thermocouple validation furnace heated by metal material on the market. It has the advantages of long service life and stable temperature field, and its technical indicators fully meet the technical requirements of the existing domestic regulations and specifications. It is an ideal equipment for the transfer of quantity value in the validation of high temperature B-type thermocouple. Executive regulation: validation regulation of JJG141-2013 Precious Metal Thermocouple for work and validation regulation of JJG167-1995 standard Platinum-rhodium 30-platinum-rhodium 6 Thermocouple.

Technical indicators

Highest temperature	800°C～1600°C	800°C～1700°C
Temperature field indicators	The highest point of temperature is no more than 20mm away from the geometric center of the furnace, and the highest point ±20mm has a uniform temperature field with a temperature gradient ≤0.5°C/10mm.	
Power	3.0KW	
Working current	70A	
Rated voltage	AC220V / 50HZ	
Chamber diameter	φ30mm×600mm（furnace size can be customized）	
Equipped with independent special control cabinet		
With current limiting function, with continuous current protection function: prolong the life of the controller.		
Equipped with emergency stop button, can manually stop the work of the equipment.		
Automatic temperature control: after startup, automatic temperature control without manual intervention.		
With overcurrent protection, limit the upper current, protect the heater, avoid the moment of startup low impedance caused by heating overload.		

Multi-temperature precision thermocouple validation furnace/Automatic zero degree thermostat

DTL-IIIG Multitemperature precision thermocouple validation furnace			
Model	Annealing mode	Long furnace model	Short furnace model
Highest temperature	1200°C	1200°C	1200°C
Uniform temperature field	Maximum operating temperature 1100°C, uniform temperature field 400mm±20°C (end furnace mouth end 100mm)	The radial temperature field was 28mm<0.25°C, the axial temperature field was 30mm, and the temperature gradient was <0.5°C	40mm/8°C, Temperature gradient 0.4 °C/10mm
Power	2KW	2KW	1.5KW
Rated current	10A	10A	8A
Overall dimensions	620×260×300(mm)		

Name	DTBH Automatic zero thermostat	
Model	DTBH-01G	DTBH-03G
Accuracy	0°C±0.05°C	0°C±0.03°C
Display resolution	0.001°C	
Stability (30 min)	0.03°C/30min	
Depth of insertion aperture	205mm	
Measure the number and aperture of holes	7×φ9	
Environment temperature	5°C～30°C	
Relative humidity	10%RH~80%RH	
Overall size (mm)	360×125×310	

Humidity calibration

Product overview

DTLH-G Intelligent temperature Humidity Calibration Chamber is used to detect digital temperature and humidity meter, temperature and humidity sensor, temperature and humidity transmitter, temperature and humidity inspection instrument, temperature and humidity recorder, temperature and humidity storage and other principles of temperature and humidity meter calibration special validation equipment. The equipment can provide continuous, repeatable humidity measurement, suitable for scientific research and product testing fields.

Super size intelligent temperature and humidity test chamber

DTLH-2RHG	Humidity range	:	5%RH ~ 95%RH
	Temperature range	:	-30°C ~ 80°C
DTLH-G Series	Humidity range	:	10%RH ~ 95%RH
	Temperature range	:	-30°C ~ 80°C
DTLH Pro	Unattended - digital hygrograph automatic validation system		
DTSL Pro	Unattended - mechanical hygrometer automatic validation system		

Standard intelligent temperature and humidity test chamber

DTLH-1RHG	Humidity range	:	5%RH ~ 95%RH
	Temperature range	:	-8°C ~ 70°C
DTLH-G Series	Humidity range	:	10%RH ~ 95%RH
	Temperature range	:	-8°C ~ 70°C

High precision temperature chamber

DTWL-40G	Temperature range	:	-40°C ~ 65°C/70°C/80°C
DTWL-30G	Temperature range	:	-30°C ~ 65°C/70°C/80°C
DTWL-25G	Temperature range	:	-25°C ~ 65°C
DTWL-20G	Temperature range	:	-20°C ~ 65°C
DTWL-15G	Temperature range	:	-15°C ~ 65°C
DTWL-8G	Temperature range	:	-8°C ~ 65°C
Custom style	High precision temperature and humidity integrated chamber		

Portable humidity generator

TADT-1G	Portable humidity generator (5L)
TADT-2G	Portable humidity generator (9L)
TADT-3G	Portable humidity generator(1.3L)

DTLH Intelligent temperature Humidity Calibration Chamber

Mobile APP curve interface

Touch screen home screen

Blockbuster recommended **Humidity range**

5%RH ~ 95%RH

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

| Intelligent programming | Intelligent defrost | Real-time curve display | Data recording function |
| Remote control | Stability prompt | Mobile APP software | Automatic correction/calibration |

Certificate of patent for utility model
Registration certificate of software copyright

Custom model -
2 glove operating holes
Transparent glass interior door design

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"

Product features

Advanced technology

■ Humidity control adopts the principle of shunt humidity generation. Compared with the principle of double
temperature humidity generation, it can greatly shorten the time needed for stability and improve validation efficiency.
■ Temperature control using liquid bath constant temperature plate heating technology, liquid medium heat radiation,
more constant temperature, more uniform temperature field.
■ Measuring cavity inside the unique wind circulation design, to ensure no dead air flow; Frequency conversion
technologyis used to speed the fan to ensure the uniformity of internal temperature field at low speed.

Product intellectualization

■ The measurement technology and the Internet of things technology integration, wifi remote control, so that the
measurement is easier.
■ Hd touch screen control, multi-touch, greatly improve user experience.
■ One-button start, automatic control, shorten the training cycle for metering personnel.
■ Timing switching machine, remote switching machine, saving time, improve validation efficiency.

Excellent quality

■ The shell adopts thick plate phosphating, passivation and plastic spraying; Corrosion resistance, rust resistance,
salt spray resistance.
■ SUS304 is used in the tank.
■ High precision sensor, using imported high precision platinum resistance, Rotronic humidity sensor for
temperature and humidity control.
■ Support customization: Built-in high permeability vacuum glass door, with 2 glove operating holes

Can be upgraded to automatic validation system

■ With intelligent image acquisition system, dew point meter, industrial camera, camera robot and database management
software, it can be upgraded to automatic validation system of intelligent temperature and humidity meter to realize
automatic validation process. Records are automatically saved and reports are automatically generated. The measurement
personnel from the temperature and humidity meter reading record from the liberation of the work, greatly improve the
validation efficiency, reduce labor costs.

Intelligent Temperature and
Humidity Test chamber (Standard version)

Product functions

Hd touch screen

Adopt high resolution capacitive screen, display more clearly, support multi-touch, in
line with customers' mobile phone touch operation habits.

Wifi Control

Mobile phone /pad remotely sets the temperature and humidity, starts and stops the
device, and reads the current temperature and humidity value and fluctuation.

Programming function

With multi-stage programming function, the 5 temperature and humidity calibration
points specified in the relevant calibration specifications can be programmed into the
validation box in advance, which can be started with one key and run in sequence
without repeated input of temperature and humidity.

Rate of change prompt

Displays the temperature and humidity change rates. The measurement period of the
change rate can be set in the system Settings.

Status indicators

Real-time calculation of temperature and humidity fluctuation display, stable state
prompt, USB disk insertion detection, wifi connection prompt.

Curve shows

The temperature and humidity curves can be displayed in real time. Touch, zoom, and
translation are supported. The curves can be captured and saved to a USB flash drive
with one key.

Data records

Temperature and humidity data is automatically saved in XLS format and exported to
usb flash drive with one click.

Timing boot

The system has the function of timing boot, which can realize the timing boot before
work and immediately start work after work without waiting.

Multi-point calibration

Supports multi-point calibration of t/H sensors. The values of temperature and humidity
sensors can be modified in different stages to ensure that they are consistent with those
of the dew point tester.

Subsection control

Temperature and humidity adopt segmented PID control scheme, fast and stable, "zero"
overshoot, fast and stable humidity from 40%RH to 60%RH only 15 minutes.

Fan speed control

The main circulating fan in the cavity is controlled by frequency conversion. The fan
speed can be set by touch screen.

Multiple protection alarm

Overheat protection, liquid level alarm
Reminder of water shortage in refill tank
Compressor overheating alarm, start and stop protection function

Communication extension

With network port, wifi interface, USB interface, RS-232 interface, can communicate
with PC, data reading, system setting.
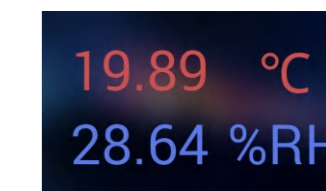
Main interface
of mobile APP

Touch screen
curved interface

Programming
setting interface

Real-time display of
temperature change
rate and steady state

Large screen display

Technical indicators

Name	Intelligent Temperature and Humidity Standard chamber (Extra-large model)				
Model	DTLH-25BG	DTLH-28BG	DTLH-215BG	DTLH-225BG	DTLH-230BG
Temperature range	-5°C ~ 65°C	-8°C ~ 65°C	-15°C ~ 65°C	-25°C ~ 65°C	-30°C ~ 65°C
Temperature resolution	0.01°C	0.01°C	0.01°C	0.01°C	0.01°C
Humidity range	10%RH ~ 95%RH(@20°C) (Support for custom)				
Moisture resolution	0.01%RH				
Temperature fluctuation	≤±0.1°C(@15°C、 @20°C、 @30°C)Special indicators can be customized				
Temperature uniformity	≤0.3°C(@15°C、 @20°C、 @30°C)Special indicators can be customized				
Humidity fluctuation	≤±0.8%RH (20°C)Special indicators can be customized				
Humidity uniformity	≤0.8%RH(@20°C 10%RH~80%RH); ≤1.0 %RH(@20°C 80%RH~95%RH)				

Performance indicators

Intelligent programming function	With multi-stage programming function, support the common temperature and humidity calibration points to be programmed into the validation chamber in advance, one-button start (timing start), automatic execution in order; There is no need to set the temperature and humidity point repeatedly every time.
Phone controls (WiFi control)	Equipped with mobile phone APP software, support mobile phone remote control temperature, humidity validation; Real-time reading of temperature, humidity and equipment running status; Remote setting of temperature and humidity values; Remote start and stop temperature and humidity validation chamber; Liberate metering personnel and improve work efficiency.
PC remote control (network port /WiFi/ serial port)	Equipped with computer software (optional), support computer remote control, real-time reading temperature, humidity value and running status; Supports remote setting of temperature and humidity values. Remote start and stop temperature and humidity validation chamber; Liberate metering personnel and improve work efficiency.
Automatic calculation of volatility	1. With the function of automatic real-time calculation of fluctuation, automatically judge the stable state of the validation chamber. 2. Support free setting of volatility calculation cycle (1min, 5min, 10min, 20min, 30min).
Stable prompt	With intelligent stability prompt function, according to temperature, humidity deviation, fluctuation, stability time and other parameters, automatically judge the stable state.
Maintenance prompt	Support automatic anti-rust maintenance of internal proportional valve, atomizer and other parts of the equipment, and automatically prompt maintenance period and spare part replacement period when the maintenance period expires, so as to reduce user requirements.
Curve scaling function (Curve saving)	Capacitive touch screen, support multi-touch, freely drag zoom, view local and overall curve details, intuitive view temperature and humidity changes.Curves support one - key screenshot save into picture format, as maintenance, data process records.
Segmented PID control	Temperature and humidity support multi-pid control design, different temperature and humidity points adopt different control parameters, to ensure that each temperature and humidity point of the equipment can achieve optimal control, fast and stable, better temperature control effect (small overshoot, rapid adjustment, small fluctuation).
Data logging/export	With storage and USB interface output function, support automatic recording of the operation data of the validation box, temperature and humidity curve data, automatic formation of EXCELTable, and one - key export to U disk.
Curve shows	Real-time display curve data, and support automatic zoom in and out, view the details of the data.
Multiple protection	Compressor start and stop, overheat protection (overtemperature protection), dry burning protection, low liquid level warning, water reminder, automatic liquid filling can be multiple protection functions.
Multipoint correction	Correction point range is wide, the deviation is smaller, and the linearity is good.

It has the function of inverter fan, timing startup, and can be upgraded to automatic temperature and humidity validation system.

Studio interior dimensions	820mm×800mm×510mm	620mm×780mm×500mm
Overall dimensions (H/W/h)	1700mm×1000mm×1300 mm	1700mm×1400mm×1000 mm
Weight	450Kg	
Display	7 "HD touch screen	
Viewing window/ operating hole	Three viewing Windows and two operating holes	
Composition — Shell	Pickling coating	
Composition — Tank	SUS304 drawing	
Composition — Seal	Medical grade silica gel	
Composition — Glass	3C certified 5 layers of vacuum high permeability tempered glass	
Power supply and input	AC220V±5% 50Hz Peak power 5KW, typical power 3KW	

DTLH-RH Low humidity

Name	Standard model		Extra-large model				
Model	DTLH-1RH-5G	DTLH-1RH-8G	DTLH-2RH-5G	DTLH-2RH-8G	DTLH-2RH-15G	DTLH-2RH-225G	DTLH-2RH-230G
Temperature range	-5°C ~ 55°C	-8°C ~ 65°C	-5°C ~ 65°C	-8°C ~ 65°C	-15°C ~ 65°C	-25°C ~ 65°C	-30°C ~ 65°C
Humidity display resolution	0.01°C	0.01°C	0.01°C	0.01°C	0.01°C	0.01°C	0.01°C
Humidity range(@20°C)	5%RH ~ 95%RH		5%RH ~ 95%RH			5%RH ~ 95%RH	
Humidity display resolution	0.01%RH		0.01%RH			0.01%RH	
Studio interior dimensions	520×510×500(mm)		820×800×510(mm)			620×780×500(mm)	
Overall dimensions (H/W/T)	1800×785×965(mm)		1700mm×1000mm×1300 mm			1700×1400×1000(mm)	
Weight	350Kg		450Kg			450Kg	
Temperature fluctuation	≤±0.1°C(@15°C、 @20°C、 @30°C)						
Temperature uniformity	≤0.3°C(@15°C、 @20°C、 @30°C)						
Humidity fluctuation	≤±0.8%RH (20°C)						
Humidity uniformity	Low humidity ≤1.0 %RH(20°C)						
Display	7 "HD touch screen						
Viewing window/ operating hole	Three viewing Windows and two operating holes						
Composition — Shell	Pickling coating						
Composition — Tank	SUS304 drawing						
Composition — Seal	Medical grade silica gel						
Composition — Glass	3C certified 5 layers of vacuum high permeability tempered glass						
Power supply and input	AC220V±5% 50Hz Peak power 5KW, typical power 3KW						

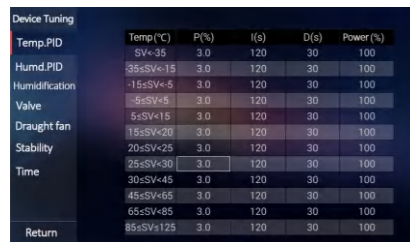| Name	Intelligent Temperature and Humidity Standard chamber (standard model)	
Model	DTLH-15BG	DTLH-18BG
Temperature range	-5°C ~ 65°C	-8°C ~ 65°C
Temperature display resolution	0.01°C	0.01°C
Humidity range	10%RH ~ 95%RH(@20°C) (Support for custom)	10%RH ~ 95%RH(@20°C) (Support for custom)
Humidity display resolution	0.01%RH	0.01%RH
Temperature fluctuation	±0.1°C(@15°C、 20°C、 30°C)	
Temperature uniformity	≤0.25°C(@15°C、 20°C、 30°C)	
Humidity fluctuation	≤±0.8%RH (20°C)	
Humidity uniformity	≤0.8 %RH(20°C)	
Studio interior size (mm)	520(L)×510(W)×500(H)(Support for custom)	
Overall size (mm)	1800(H)×785(W)×965(T)	
Weight	350Kg	
Display	7 "HD touch screen	
Viewing window/operating hole	Three viewing Windows and two operating holes	
Body composition — Shell	Pickling coating	
Body composition — Tank	SUS304 drawing	
Body composition — Seal	Medical grade silica gel	
Body composition — Glass	3C certified 5 layers of vacuum high permeability tempered glass	
Power supply and power	AC220V±5% 50Hz Peak power 5KW, typical power 3KW	

Product overview

DTSL Pro-svr3 fully automatic temperature and humidity meter calibration system is a new fully automatic thermo-hygrometer photo identification and calibration system independently developed by DEARTO. The system is a fully automatic calibration device composed of DEARTO's full range of temperature and humidity calibration chambers, precision dew point meters, precision digital thermometers, camera robots and automatic identification systems.
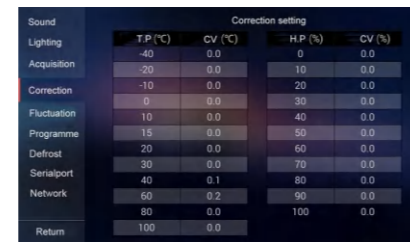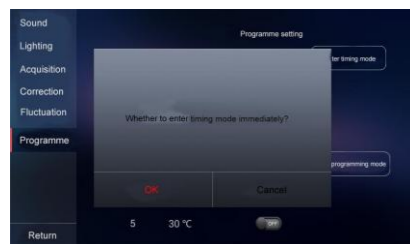
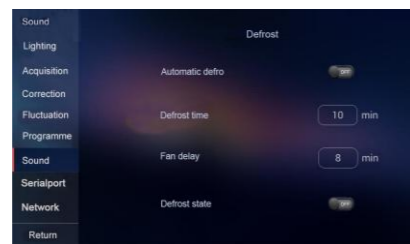## Intelligent application

Segmented PID control

Device is self-tuning

Multipoint temperature and humidity correction

Timing mode

Intelligent defrost

Low level detection

DTSL Pro Temperature Humidity Automatic Calibration System

Unattended -

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

Product Overview

DTSL Pro-svr3 fully automatic thermo-hygrometer calibration system supports automatic positioning, automatic photography, automatic collection, automatic identification, automatic calculation, and automatic judgment. It can complete the entire calibration process automatically without manual intervention and can realize unattended detection mode. This device can automatically control the temperature and humidity of the calibration chamber, monitor the temperature and humidity values of the calibration box in real time through a dew point meter, and automatically make stability judgments. After meeting the stable conditions, the system automatically controls the camera robot, data collection device, automatic identification system, temperature and humidity calibration box, precision dew point meter, etc. to position them in sequence to the thermometer being tested. It has a built-in intelligent rotation positioning device that automatically receives the controller signal and realizes data automation. Collect, take photos, archive and automatically identify the temperature and humidity values, and automatically enter them into the host computer. Based on the inspection of the calibration points, the calibration results and calibration conclusions are automatically calculated.

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"

Main features of the system

Unattended - fully automatic verification/calibration

■ Complete the entire calibration process fully automatically without manual intervention, improving work efficiency and reducing labor costs; automatically perform multi-point temperature and humidity control, automatically position and photograph the temperature and humidity meter, automatically identify the digital temperature and humidity meter, and automatically calculate the calibration results And determine the calibration conclusion to realize intelligent control of the equipment.

Stable performance, data security and reliability

■ The system uses a high-definition camera to take pictures of the temperature and humidity meter, and uses artificial intelligence and software-specific algorithms to automatically identify temperature and humidity values. At the same time, it archives the original pictures and identification data, which is more stable and reliable and can solve the reading errors, reading deviations, and readings caused by traditional manual readings. Data cannot be reviewed.

Standard selection table

Name	Picture	Model	Temperature range	Display resolution	Precision
Precision dew point meter		DT-ACG	-40°C~60°C	0.01°C	±0.2°C (Optional0.1°C)
		Optidew 401	-40°C~90°C	0.01°C	Temperature: ±0.1°C Dew point: ±0.15°C
		Dewstar R-1	-40°C~60°C	0.01°C	±0.15°C
Digital thermometer		DTSW-LcG	-30°C~150°C	0.001°C	±0.05°C

Accessory selection table

Name	Hook	Medium	Attachment
Picture			
Choose and buy information	Standard	Standard	Standard

Name	Temperatureand humidity meter	Rack	Instrument car
Picture			
Choose and buy information	Optional	Optional	Optional

Artificial intelligence learning ability

■ The biggest advantage of the system is its automatic learning ability, and the recognition of new temperature and humidity meters can be added later. The identification part has an independent module and can be independently upgraded. For new thermometers and hygrometers, users only need to provide pictures of the thermometer and hygrometer. After training, the automatic identification of the new thermometer and hygrometer can be realized by upgrading the identification module.

High recognition efficiency

■ The temperature and humidity calibration chamber in the system will be controlled sequentially according to the calibration points required by the regulations. When each calibration point is stable, the system can automatically collect according to the stabilization time set by the user. During the entire calibration process, the time for photographing and identifying is basically negligible compared to the time for temperature and humidity control and stabilization.
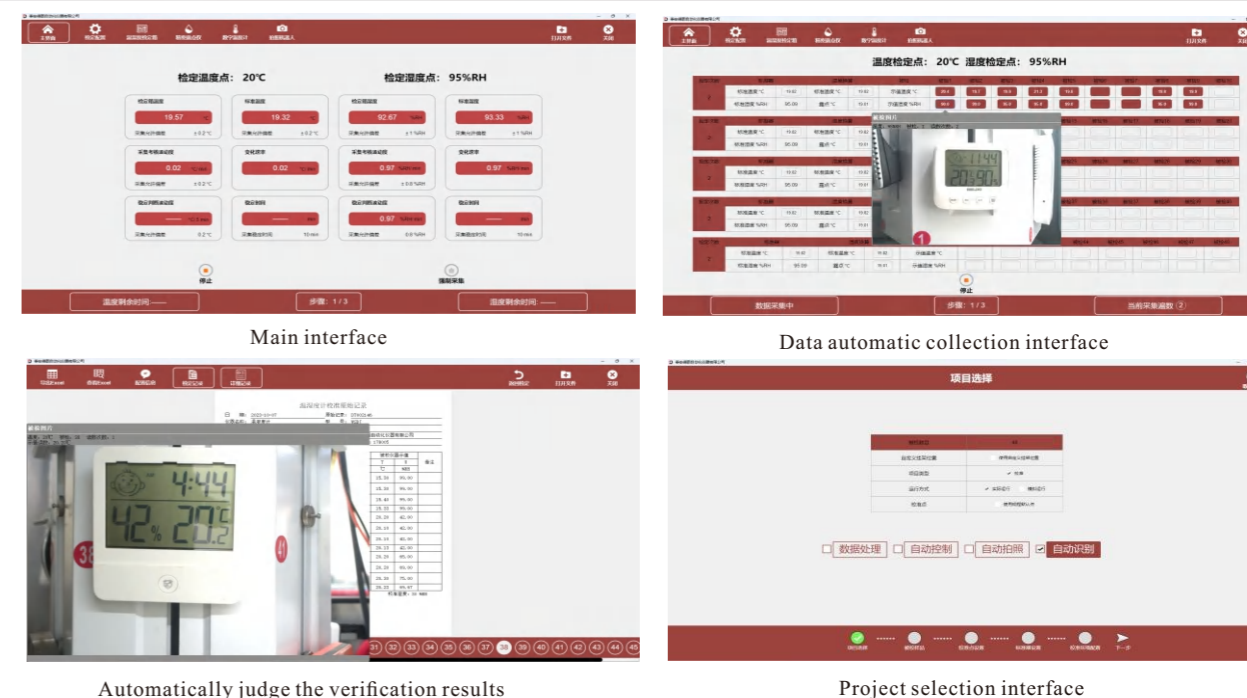
Database management functions

■ In the database management software, enter the inspection information of the inspection order into the database, select the temperature and humidity meters that need to be calibrated this round, and then automatically arrange and combine them through the operating software, and hang the meters on the inner cylinder rack in the temperature and humidity box. Corresponding hole position, and set the control point of the temperature and humidity controller to the data point that needs to be calibrated. After starting work, the identification data and images can be automatically identified and uploaded. Editing, querying, and deletion can be realized in the database management software. And it can export Office documents to realize data electronic document storage.

1.This software uses the MySql database, which can realize online testing inside and outside the network, facilitate laboratory data management in different locations, and realize data sharing and multi-machine operation.

2.The database management software can use the image scanning and input function to automatically input the valid information of the inspection form into the information column. The operation is convenient and fast, reducing the tedious workload.

3.The database operation software can import the original calibration data into excel documents and establish the traceability of the data.

4.The calibration and testing software can intelligently analyze the properties of temperature and humidity instruments (digital display, pointer), and identify and display effective information to facilitate the calibration staff's analysis and judgment.

Dedicated software system functions

■ **Fully automatic temperature and humidity control**: supports custom settings for multiple temperature and humidity point calibrations; one-click startup can automatically control temperature and humidity in the calibration chamber, and automatically take photos for calibration; supports selection of procedures for default temperature and humidity point calibration ;Supports custom modification of temperature and humidity points during the calibration process, and the system automatically continues the calibration according to user settings.

■ **Compatible with different types of standards**: supports multiple brands of precision dew point meters and precision digital thermometers, and the system automatically collects standard data.

■ **Dual positioning**: **supports dual mode selection of automatic positioning and manual positioning of the temperature and humidity meter**. Built-in intelligent rotation positioning device, automatically receives controller signals, automatically adjusts relative position, realizes automatic data collection, and takes photos and archives.

■ **Automatically complete the entire calibration process**: support automatic calibration based on set values, automatic photography, automatic identification of temperature and humidity values, automatic data entry into the system, automatic calculation and automatic determination of calibration results after all calibration points are completed, truly achieving unattended operation fully automatic verification.

■ **Data review function**: supports manual review of calibration data. Users can check the temperature and humidity values in the photos and input them manually through the data processing module. It also supports modifying the temperature and humidity values in the input box, and the system automatically updates the calculation results.

■ **Customized report function**: supports preview and printing of calibration records; supports exporting calibration records, generating Excel files and making customized modifications.

■ **Modular database management**: supports digital archiving of temperature and humidity meter information, calibration data, and image data, and all data can be saved to database management.

■ **Centralized management of inspected information**: Supports centralized management of temperature and humidity meters submitted for inspection, and supports batch input of temperature and humidity meter information submitted for inspection (including: number of temperature and humidity meters submitted for inspection, instrument number, instrument name, model specification, manufacturer, accuracy and Measuring range, unit for inspection, address of unit for inspection, etc.).

Main interface

Data automatic collection interface

Automatically judge the verification results

Project selection interface

A variety of working modes can be provided to support customized selection according to different needs and working scenarios.

DTSL Pro fully automatic temperature and humidity meter calibration system allows customers to customize the working mode according to different usage needs and different working scenarios.

Mode 1: Unattended-automatic photo taking system（DTSL Pro-svr2）：The system automatically controls temperature and wet, and monitors temperature and humidity values by real -time monitoring by dew -point instruments. To meet the stable conditions, automatically control the camera robot and the camera to locate each inspection thermometer in turn, and take pictures and archive. After all the verification points are completed, you only need to enter the inspection data, and the system automatically calculates the verification results, and gives the verification conclusion.

Mode 2: Automatic control calibration system（DTSL Pro-svr1）：The system automatically controls temperature and wet, and monitors temperature and humidity values by real -time monitoring by dew -point instruments. After stability, the standard data is automatically collected. The user can manually enter the verification data. After the verification is completed, the verification results are automatically calculated to give the verification conclusion.

Mode 3: Data processing calibration system（DTSL Pro-svr0）：Set the temperature and humidity independently. After the device is stable, manually enter the data inspection data, and automatically calculate the verification results after the entry is completed. (Remarks: The average value of the calculation of the mechanical temperature and humidity meter is calculated twice, and the average value of the digital temperature and humidity meter is determined three times.)

Main function selection for multiple working modes

No	Function list	Unattended - fully auto matic photography and identification system	Unattended-automatic photo taking system	Automatic control Calibration system	Data processing Calibration system
1	Software model	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 taking photos	●	●		
6	Automatic collection	●	●		
7	Automatic Identification	●			
8	Automatic calculation	●	●	●	●
9	Automatic judgment	●	●	●	●
10	Export verification records	●	●	●	●

High Precision Thermostat ▷

Wide temperature range
-40°C~100°C

With frequency conversion microcirculatory technology
Unique inner circulation

Accurate temperature control and uniform temperature field

Auxiliary refrigeration technology, low temperature and rapid stability

The measuring cavity adopts constant temperature liquid bath technology to ensure constant temperature

High precision temperature control, low temperature control deviation

Imported frequency conversion double compressor

Calibration project:
Digital Thermometer, Optical Fiber Thermometer, Cold Chain Temperature Recorder, Automatic Meteorological Station Temperature Parameter Calibration, Semiconductor Thermometer Chip, Wireless Sterilization validation Instrument

Product overview

DTWL-G High-precision thermostat is a special designed thermostat with air as heat transfer medium. It has high accuracy of temperature control, good uniformity of temperature field and low fluctuation. There are many temperature measuring instruments which can not touch the liquid constant temperature source and are not suitable for calibration in the liquid constant temperature bath .The emergence of high-precision thermostat solves the calibration problem of such instruments, fills the blank of the constant temperature source, and provides a complete solution for the calibration of temperature measuring instruments.

Product features

■ **Adopting constant temperature liquid bath technology, the temperature field is more constant**
The temperature control adopts the heating technology of liquid bath constant temperature plate. After controlling the liquid medium in the constant temperature tank to the constant temperature state, it circulates around the working chamber. By means of thermal radiation, the temperature of the working chamber is guaranteed to be constant and even.
Intelligent
■ It integrates metering technology with Internet of things technology, and wifi remote control makes metering easier.
■ Hd touch screen control, multi-touch, greatly improve the user experience.
■ One-click start, automatic control, shorten the training cycle for metering personnel.
■ Timing switch machine, remote switch machine, save time, improve validation efficiency.
Wide temperature range
■ High precision temperature box series products, can provide - 40 °C ~ 100 °C constant temperature environment.
■ Meet "JJF1407-2013 Index Instrument Thermometer Calibration Specification"
■ Meet "JJF1366-2012 Temperature data acquisition instrument calibration specification"
High precision air bath constant temperature source
■ High-precision temperature control sensor with high-quality temperature control table for high-precision temperature control and low indication deviation.
■ The shell adopts thick plate phosphating, passivation, plastic spraying, anticorrosion, rust resistance, salt fog resistance; SUS304 is used for the inner bladder.
■ High precision sensor, using imported high precision platinum resistance sensor.

Technical indexes

Model	DTWL-40G	DTWL-30G	DTWL-25G	DTWL-20G	DTWL-15G	DTWL-08G
Range	-40°C ~ 65°C / 70°C / 80°C	-30°C~ 65°C / 70°C / 80°C	-25°C ~ 65°C	-20°C ~ 65°C	-15°C ~ 65°C	-8°C ~ 65°C
Unifornality	0.3°C、0.2°C、0.1°C、0.05°C（Support on-demand selection）					
Stability	0.05°C/10min					
Working size	620(H)mm×780(W)mm×500(T)mm					
Dimensions	1700(H)mm×1400(H)mm×1000(H) mm （Support customization）					
Features	High-definition touch screen: adopts high-resolution capacitive screen, the display is clearer, multi-touch support,in line with the customer's mobile phone touch operation habits.					
	Wifi control: mobile phone/pad remotely set the temperature, start and stop the device, read the current temperature value and fluctuation degree and other device status.					
	Status prompt: real-time calculation and display of temperature fluctuations, prompts for reaching a stable state, detection of U disk insertion, and prompts for wifi connection.					
	Curve display: real-time display of temperature curve, support for touch zoom and pan operation, one-key screen capture and save the curve to U disk.					
	Data recording: temperature data is automatically saved in xls format and exported to U disk with one click。					
	Timing startup: The system has a timing startup function, which can realize the timing startup of the equipment before going to work, and start working immediately after going to work, without waiting.					
	Multi-point calibration: supports multi-point calibration of temperature and humidity sensors, and can perform segmented multi-point corrections on temperature sensors and displayed values to ensure consistency with the standard.					
	Sectional control: The temperature adopts a sectioned PID control scheme, which is fast and stable, and "zero" overshoot.					
	Fan speed control: the main circulating fan in the inner cavity adopts frequency conversion speed control, and the fan peed can be set through the touch screen。					
	Multiple protection alarms: constant temperature bath overheating protection, liquid level alarm/compressor overheating alarm, start-stop protection function					
	Communication expansion: with network port, wifi interface, USB interface, RS-232 interface, it can communicate with PC to realize data reading and system setting.					

TADT-G Portable humidity generator is a portable, high-precision temperature and humidity calibration instrument, which can meet the requirements of temperature and humidity sensors, temperature and humidity transmitters, small temperature and humidity meters and other conventional temperature and humidity measurement instruments.

The principle of chilled mirror is based on its physical definition and is a recognized standard of humidity measurement.Cold mirror dew point instrument has high precision, without drift, long life and good repeatability.

The mirror surface of this cold glass dew point instrument is gilded, and the photoelectric measuring room is made of excellent corrosion resistance to ensure accurate measurement data and adapt to harsh working conditions.

TADT-G Portable humidity generator

TADT-1（Volume：1.5L）

TADT-3（Volume：1.5L）

Chilled mirror precision dew point meter

DTSW-LcG Digital thermometer

DTSW-LcG
Digital thermometer

Michelle precision
dew point meter

DT-ACG Precision
dew point meter

Chilled mirror precision
dew point meter

Product features

■ The test chamber space can reach (3-5) times of similar products, providing more efficient test conditions.

■ The test chamber can accommodate various types of cold mirror dew point probe for comparison and calibration.

■ Combined sensor jack design, suitable for various diameter temperature and humidity sensors and transmitters.

■ The transparent window and lighting design of the measuring room facilitate the reading of various small temperature and humidity meters.

■ Can be calibrated at the same time (10~15) small temperature and humidity probe.

■ Can be calibrated at the same time (3-5) block of conventional size digital hygrometer.

■ The test chamber provides temperature uniformity within 0.1 ° C in the full range of 5℃ to 50℃.

■ External hanging dryer design, desiccant replacement can be operated online under the state of boot, convenient and simple.

■ Double zone drying cylinder design, support molecular sieve and color changing silica gel two kinds of desiccant.

■ Intuitive display of liquid level and dryer status, conducive to the working process of state monitoring.

■ Provide 4 channels external (0~1) V, (0~5) V and (4~20) mA standard signal input.

■ The instrument built-in humidity conversion software, convenient user relative humidity, temperature and dew point temperature conversion.

■ Temperature and humidity curve display helps you view the temperature and humidity trend.

■ 7 inch color LCD touch screen.

Technical indicators

Model	TADT-1G	TADT-2G	TADT-3G
Nominal temperature range	5°C ~50°C	5°C~50°C	5°C~50°C
Nominal humidity range	5%RH~95%RH(20±3°C)	5%RH~95%RH(20±3°C)	5%RH~95%RH(20±3°C)
Test chamber size	160×175×175(mm)	280×175×175(mm)	110×110×110(mm)
Working volume	5L	9L	1.5L
Whole machine size	550×300×600(mm)		370×480×200(mm)
Maximum allowable temperature error	±0.05°C(20±3°C) ±0.1°C(5~50°C)		
Maximum allowable error of relative humidity	±0.8%RH(20°C±3°C) ±1.5%RH(5°C~50°C)		
Temperature uniformity	≤0.05℃(20°C±3°C) ≤0.1°C(5°C~50°C)		
Humidity uniformity	≤0.3%RH(20°C±3°C) ≤0.5%RH(5°C~50°C)		
Temperature stability	±0.05°C		
Humidity stability	±0.2%RH		
Sensor test window	Combined design, support on-demand customization		
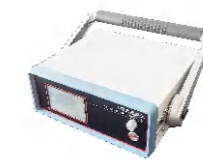
DTSW-LcG Digital thermometer

Measurement range	-30°C~150°C
Resolution	0.001°C
Accuracy（@20°C）	≤0.05°C
Sensor length	1~1.5m
Thermal response time	30S
Battery type	Lithium battery (not less than 1000 charge and discharge cycles)

Precision dew point meter Technical indicators

Model	Optidew 401	DT-ACG
Dew point measurement range	-25°C~90°C	-20°C ~ 90°C
Display resolution	0.01°C	0.01°C
Precision	Temperature:±0.1°C；Dew point：±0.15°C	Temperature:±0.1°C Dew point：±0.2°C
Repetitive	±0.05°C	±0.05°C
Service environment	-20 °C~ +50°C, Maximum 100%RH non-condensing (optional)	-20°C ~ 50°C;Humidity：≤95%
Response time	1 min +10°C DP stability measurement	1 min +10°C DP stability measuremen
Main controller weight	1.5kg	4kg
Power supply	100 ~ 240VAC, 50 ~ 60Hz	22VAC, 50/60Hz; Input：60W

Precision dew point meter

Dew point measurement range	-80°C~+20°C ; -90°C~+20°C
Dew point resolution	0.01°C
Dew point measurement accuracy	±0.1°C
Dew point repeatability	±0.05°C
Flow sensor	Measuring range：0~2l/min ; Precision：±5%
Pressure sensors	Measuring range：0~200kPa（abs） ；Precision：±0.25%FS
Temperature sensor (remote)	4-wire system PT100；Precision：±0.1°C；Cable length：＜2m
Analog output	4~20mA, 0~20mA, 0~24mA0~5Vand0~10V ; 3-channel output, user-defined selection

DTZ-400BG Surface temperature calibrator system

Product overview

DTZ-400BG Surface temperature calibrator is mainly used to calibrate L-type sensors and surface sensors of various sizes and types, such as thermistor, film sensor, surface resistance thermometer, strip sensor, surface thermocouple, etc. The product consists of controller and heater, easy to operate, intuitive display, effective use range up to 130mm diameter, support communication with the computer, a little change can be upgraded to the infrared thermal imager calibration source.

400.03 ℃
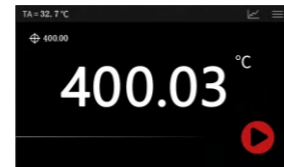
Smart touch screen home screen

300.05℃   0. 30℃ / 10min

Curve real-time display interface

DTZ-460BG Surface temperature calibrator

Wide measuring range
50°C~600°C

Product features

- Wide temperature range, multi-range selection：35°C～400°C / 50°C～500°C / 50°C～600°C
- Large calibration plane: up to 130mm.
- High accuracy：±0.5°C@200°C.
- Rapid rise and drop, fast and stable: it only takes 30min for room temperature to rise to 400°C.
- Temperature control and stable：±0.3°C/10min(@300°C).
- High resolution：0.01°C.
- Multi-stage temperature control: segmented PID control.
- Measuring surface adopts "aerospace composite coating", with high hardness, good wear resistance and high thermal conductivity.
- Groove clamshell design: can be used for calibration of L-bend surface temperature sensors.
- Standard jack on the side: the standard can be inserted right below the center of the measuring. surface to improve the accuracy of calibration.
- Support RS-232 communication: communication software is available.

Maximum calibration temperature can reach 600°C, and the speed of heating and cooling is fast
Very good speed of rise and drop, 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.

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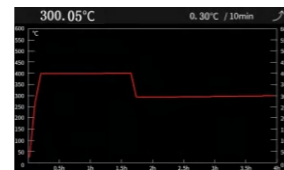ure calibrator, thus reducing calibration uncertainty. The measuring surface adopts "aerospace composite coating", with high hardness, good wear resistance and high thermal conductivity.

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	35°C~400°C	50°C~500°C	50°C~600°C
Product type	Smart touch screen	Smart touch screen	High temperature custom style
Calibration plane diameter	130mm		
Stability	±0.2°C/10min@ At room temperature≤ t ≤100°C ±0.3°C/10min@100°C < t ≤ 300°C ±0.4°C/10min@300°C < t ≤ 400°C ±0.6°C/10min@400°C < t ≤ 500°C		
Uniformity	0.3°C At room temperature≤ t ≤ 100°C 0.7°C at 100°C < t ≤ 300°C 1.2°C at 300°C < t ≤ 400°C 1.8°C at 400°C < t ≤ 500°C		
Heating up time	Room temperature~400°C 30min		
Cooling time	400℃~ room temperature It only takes 45 minutes with fast cooling device		
Stable time	8min		
Display resolution	0.01°C		
Power	220VAC / 50HZ / 800W		
Communication interface	RS-232		
Sensor type	RTD/100Ω		
Heating furnace size	280mm(L)×270mm(W)×190mm(H)		
Controller size	218mm(L)×175mm(W)×145mm(H)		
Weight	12kg		
Storage conditions	−20°C~60°C(−4°F~140°F) 5%RH~80%RH(No condensation)		

Product overview

DTMC-mk301 High-precision thermometer is a new generation of multi-channel super thermometer specially developed for the field of temperature measurement calibration and precision temperature measurement. It highly integrates high-accuracy electrical measurement technology, intelligent interaction technology, and industry needs, and comprehensively solves the measurement and calibration needs of laboratory and field temperature sensors.

Intelligent multi-channel thermometer series

DTMC-mk301G	High-precision thermometerr 【Support 1/2/3 channels
DTMC-G	Intelligent multi-channel thermometer 【Support 2/4/6/8 channels
DTSW-1G	Rod type standard digital thermometer 【Accuracy≤0.05°C
DTWH-G	Hand-held multichannel thermometer 【Channels 1/2/3 are supported
DTEL-15G	Multifunctional process calibrator

Ultra-portable intelligent thermostatic bath series

DTS-180BG	Temperature range:	60°C~180°C
DTS-300BG	Temperature range:	60°C~300°C
DTS-95BG	Temperature range:	-40°C~95°C
DTS-125BG	Temperature range:	-40°C~125°C
DTS-10BG	Temperature range:	-10°C~180°C
DTS-20BG	Temperature range:	-20°C~180°C
DTS-30BG	Temperature range:	-30°C~180°C
DTS-40BG	Temperature range:	-40°C~180°C

Portable intelligent dry block furnace series

DT-ULT100G	Temperature range:	-100°C~40°C
DTG-MU-N40G	Temperature range:	-40°C~150°C
DTG-140G	Temperature range:	-20°C~140°C
DTG-150G	Temperature range:	-30°C~150°C
DTG-MU-350G	Temperature range:	33°C~35°C
DTG-660G	Temperature range:	50°C~660°C
DTG-MU-660G	Temperature range:	50°C~660°C
DTG-1000G	Temperature range:	300°C~1000°C
DTG-1200G	Temperature range:	300°C~1200°C

Miniature dry well furnace series

ETC-150G	Temperature range:	-10°C~150°C
ETC-400G	Temperature range:	50°C~400°C

DTMC-mk301G High-precision thermometer

It is specially developed for temperature measurement calibration and precision temperature measurement.

High -accuracy electricity testing technology, intelligent interaction technology, and industry demand are highly integrated, and the needs of laboratories and on -site temperature measurement and calibration are fully solved.

Product characteristics

- mK Grade precision thermometer
- Support double standard platinum, double standard thermocouple.
- 7-inch HD touch screen，Resolution of 0.0001°C.
- Accuracy (at 0°C for SPRT) of 7ppm.
- Built-in thermal treasure book calculator.
- Built-in ITS-90 fixed-point information.
- The parameter editing function improves the measurement accuracy of the sensor.
- Record with time-labeled data,Curves are displayed in real time.
- 8G built-in storage space / external U disk to store data.
- All solid state design.
- Automatic data statistics (maximum / minimum / mean / peak / standard deviation / volatility, etc.) With 5 display modes, it can display probe information, measurement statistics or differences between measurements, temperature trends.

Product features

3 input channels (CH1 / CH2 / CH3)
Support resistance (Pt / Cu / Ni) (Pt 25 / Pt 100 / PT-X/ CuX / NiX)
Support for thermocouple (K / N / J / E / T / R / S / B / We3 / We5)
Support thermistor (0-40K)
Support temperature transmitter (0-20mA/4-20mA)
Smart sensor function
Standard device management function, can support 100 sets of sensor parameters.
Support for SCPI communication protocol (RS232 / WLAN).
The RTD supports automatic current switching, eliminating the EMF thermal potential error
Thermocouple cooling point compensation is available in various ways (built-in compensation / external compensation / fixed compensation).
Support for multiple conversion formulas (ITS-90 / Callendar-Van Dusen / IEC60751-2008 / polynomial / Stein-Hart / B value / linearity).

Product overview

DTMC-G Intelligent multi-channel temperature measuring instrument based on modular design of multi-channel, multi-function temperature measuring instrument, the whole series is divided into double channel, four channel, six channel and eight channel four configuration, channel support free combination configuration, respectively optional platinum resistance measurement module, thermocouple measurement module or thermiresistor measurement module, The products are suitable for constant temperature tank temperature field test, thermocouple furnace temperature field test, dry body furnace temperature field test and other precision temperature measurement related fields。

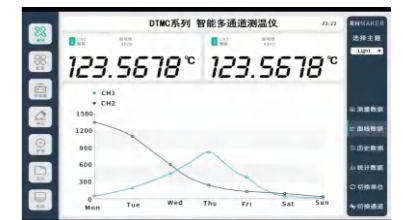# DTMC-G Intelligent multi-channel thermometer

PC and mobile terminal users support Google Browser login devices to remotely browse real-time data

Functions and features

- Support standard platinum resistance, industrial platinum resistance, thermocouple and other temperature sensors.
- Supports editing and configuration of platinum resistance sensor parameters.
- Thermocouple channel provides independent built-in cold end temperature sensor with temperature measurement accuracy better than 0.1°C.
- Thermocouple cold end compensation provides fixed value, internal automatic compensation and external compensation three ways.
- Independent sampling of each channel, modular design, effectively improve the reliability and adaptability of the instrument.
- Each channel can be calibrated and corrected independently by single point, multipoint, piecewise linear or least square method.
- Provide historical data, statistical data, curve data and other forms of data display.
- Supports storage and output of voltage, resistance, temperature and other data formats.
- Provides encryption algorithm support to encrypt data files, effectively improving security.
- Support RS232 and wireless communication mode, can connect to PC or mobile terminal.
- Provides 8 GB storage space for data storage.
- 7 inch industrial color touch screen display.

Supports 8-channel multi-channel measurement

Product selection table

Technical indicators (left column)

Electrical measurement indicators

Applicable model				DTMC-mk301HG	DTMC-mk301G
Channel type	Measuring range	Input range	Resolution	Accuracy(1 year)	
Standard platinum resistance(SPRT)	120Ω	0Ω~125Ω	0.01mΩ	15ppm+2ppm	30ppm+2ppm
Thermal resistance(PRT)	400Ω	0Ω~410Ω	0.01mΩ	15ppm+2ppm	30ppm+2ppm
Thermal resistance(PRT)	4KΩ	0Ω~4.1KΩ	0.1mΩ	15ppm+4ppm	30ppm+4ppm
Thermocouple(TC)	100mV	0mV~115mV	10nV	15ppm+10ppm	30ppm+10ppm
Transmitter	25mA	0mA~30mA	0.001mA	0.02%	0.02%

Note: the ambient temperature 20°C±1°C

Temperature indicators

Type	Indexing number	Temperature range	Accuracy
Standard platinum resistance(SPRT)	Pt25	-189°C~961°C	±0.006°C(@0°C)
Thermal resistance(PRT)	Pt100	-189°C~961°C	±0.003°C(@0°C)
Thermocouple(TC)	K	-270°C~1370°C	±0.08°C(@600°C)
	N	-270°C~1300°C	±0.08°C(@600°C)
	J	-210°C~1200°C	±0.08°C(@600°C)
	E	-210°C~1000°C	±0.08°C(@600°C)
	T	-270°C~400°C	±0.05°C(@200°C)
	R	-50°C~1760°C	±0.25°C(@1000°C)
	S	-50°C~1760°C	±0.30°C(@1000°C)
	S	250°C~1820°C	±0.30°C(@1000°C)

Note: Sensor itself deviations are not included

Functional parameters

Parameter		Indexes
Number of channels	3	Ch1 and CH2 front-facing,CH3 rear-facing
Input	Ch1 / CH2	TC / PRT
	Ch3	Electric current
Input connector	PRT (front panel)	Lemo EPG.1B.306.HLN 6-pin connector
	PRT (rear panel)	4mm Low thermal terminal posts
	TC	Mini thermocouple connector(ASTM E 1684-05)
Drive current	SPRT/PRT	1mA(±0.1%)(automatic reversing)
Cold junction compensation		Built-in cold junction compensation CH1 and CH2 are cold-junction compensation for each other Cold-junction compensation temperature can be entered
Cold junction compensation accuracy		±0.1°C
Intelligent sensors	SPRT/PRT	Support
Number of sensors managed		100 pieces
Data storage capacity		8G
Convert formulas		ITS-90；IEC60751(2008);Callendar-van Dusen ;Steinhart-Hart ；B value;Polynomial
Convert formulas	Thermal resistance	SPRT:PT25、PT100；PRT:PT100、PT1000、PT-X；Copper resistance CU50、CU100、CU-X；Nickel resistance NI50、NI120、NI1000
	Thermocouple	Standard thermocouples R、S、B；Industrial thermocouples K、N、J、E、T、R、S、B、We3、We5
Display screen		7 inch color touch screen
Interface port	USB/Network port	Support (USB stick storage data /firmware upgrade) / Support
	RS-232	2 ports
Power supply	RS-232	115V±10% and 230V±15%；Switchable 47~63HZ
Temperature and humidity conditions	Storage	-10°C~50°C，Relative humidity less than 75%RH (non-condensing)
	Operating	15°C~30°C，Relative humidity less than 75%RH (non-condensing)
	Calibration	20°C±1°C，Relative humidity less than 40%RH (non-condensing)

Technical indicators (right column)

Channel types	Range	Measuring range	Display resolution	24h/°C(20±1)°C	A year/°C(20±5)°C	Temperature coefficient PPM reading	Model	Channel number
Thermocouple	100mV	-100mV~100mV	0.1uV	15ppm+8ppm	15ppm+15ppm	3ppm	DTMC-2G	2
Platinum resistance	100Ω	0Ω~125Ω	0.1mΩ	4ppm+4ppm	4ppm+8ppm	1ppm	DTMC-4G	4
	400Ω	0Ω~400Ω	0.1mΩ	4ppm+4ppm	4ppm+6ppm	1ppm	DTMC-6G	6
	4KΩ	0Ω~4KΩ	1mΩ	4ppm+4ppm	4ppm+6ppm	1ppm	DTMC-8G	8

Type		Measuring range	Accuracy	Resolution	Sampling rate	Data type
Thermocouple	K	-200°C~1372°C	0.15°C	0.01°C or 0.001°C	1Hz ~ 10Hz	Configurable Voltage value Temperature value
	J	-210°C~1200°C	0.1°C			
	T	-200°C~400°C	0.1°C			
	E	-200°C~1000°C	0.07°C			
	N	-200°C~1300°C	0.15°C			
	B	250°C~1820°C	0.3°C@1000°C			
	R	-50°C~1768°C	0.2°C@1000°C			
	S	-50°C~1768°C	0.25°C@1000°C			
Platinum resistance	Pt25	-189°C~961°C	0.005°C@0°C	0.0001°C		Configurable Resistance value Temperature value
	Pt100	-200°C~950°C	0.005°C@ -100°C 0.006°C@ 0°C 0.008°C@300°C 0.012°C@600°C	0.001°C		

Power supply requirements	12VDC 2A
Communication interface	RS-232、Wireless
Shell material	Aluminum alloy+ABS
Module size	250mm×170mm×70mm
Module weight	2kg
Using environment	(5~35)°C(0~85)%RH
Storage environment	(0~70)°C (0~100)%RH

Product overview

DTSW-G "Stick" Digital Thermometer, is the latest in the field of industrial temperature calibrator, precision measurement, its accuracy and repeatability can be achieved better than 0.05°C/ year, lithium batteries don't need to replace the battery life long, easy to carry and intuitive readings, strong and durable. It can not only be used as a temperature standard in the laboratory, but also can provide reliable, accurate and high-precision temperature measurement in the industrial field.

DTSW-G "Stick" Digital Thermometer

Product features

- Excellent noise reduction design: The multi-stage anti-aliasing design is adopted, which greatly reduces the noise level of the input channel, effectively improves the signal-to-noise ratio of the measurement results, and the noise level is better than 0.1uV.
- Excellent long-term stability: using the ratio measurement principle, built-in reference grade standard resistance, temperature coefficient as low as 0.1ppm/°C, stability is better than the general-purpose 7 and a half digit multimeter.
- High-precision thermocouple cold junction: Each channel adopts an independent high-precision digital temperature sensor as the cold junction compensation sensor, and the distance between the cold junction temperature measurement point and the thermocouple junction point is less than 20mm, and combined with good uniform temperature design, it can provide reference junction compensation with an accuracy better than 0.15°C for the thermocouple measurement channel.
- Perfect parameter editing: built-in a variety of common thermal resistance, 13 kinds of thermocouple and thermistor calculation formula, users can edit the platinum resistivity according to ITS90 and CVD formulas, ordinary platinum resistance supports editing R0, alpha, beta and delta parameters.
- Statistical data analysis: Each channel has independent curve display and data analysis functions, and users can view the maximum value, minimum value, average value, standard deviation and other statistical data of the measurement data in real time. After starting the measurement, the measurement data is automatically saved to a file, and the user can browse and analyze the historical data at any time.
- Data encryption: It can provide encryption algorithm support to encrypt data files to meet the special requirements of special industries such as national defense and defense industry for data security.
- Wireless LAN: Connect to mobile terminal devices such as tablets and laptops through 2.4G wireless network, without installing any software, you can directly log in to the thermometer using the browser that comes with the mobile terminal (Google browser is recommended) to remotely browse real-time data.
- Large-capacity storage: built-in 8G mass memory, but also support U disk storage function, can easily import data into U disk. The exported data can be used by general-purpose workers such as ExcelWith software browsing or data processing, it can also be imported into special software for data analysis and report generation.
- Rich and friendly human-computer interaction function: using 7-inch touch screen design, providing a rich and friendly human-computer interaction interface, the operation interface content covers: channel setting, sensor setting, statistical data display, curve display, unit switching, channel correction, channel calibration, file operation, system settings, etc., without the help of any other peripherals can independently complete the data collection work of the test site.
- Reliable structural design: with a solid integrated design, in addition to USB interface and network interface, sealed integral mechanism, can work in high humidity environment for a long time.

DTMA-G Precision thermometer

Model	DTMA-01
Number of channels	1
Temperature range	− 200 °C ~ 660 °C
Resistance range	0 Ω ~ 400Ω
Resistance resolution	0.0001Ω
Temperature accuracy	± 0.003 @ -100°C ; ± 0.004 @ 0°C ± 0.005 @ 100°C ; ± 0.006 @ 200°C ± 0.007 @ 300°C ; ± 0.008 @ 400°C ± 0.009 @ 500°C ; ± 0.010 @ 600°C
Resistance accuracy	±(0.0010%RD + 0.0005%F.S.)(24h) ±(0.0020%RD + 0.0005%F.S.) (One year)

Product features

- Accurate and reliable: excellent accuracy indexes, annual change is better than that of 0.05℃, the electric temperature less than 1 PPM/℃
- Wireless communication: real-time data can be transmitted to the computer screen through wireless communication
- Curve display: computer software can display 32 thermometer real-time curves simultaneously
- Data recording: it can store the temperature measurement results of 16,000 bands
- Intelligent indication: trend indicator shows the trend of temperature change
- Zero mark: any zero mark, volatility, deviation value intuitive display
- Intelligent processing: the maximum, minimum and average values are directly calculated and displayed
- Unit conversion: K, °C, °F can be arbitrary switching
- Display of resistance value: the resistance value of the sensor is displayed synchronously with the temperature value
- Regular shutdown: you can set the shutdown time from 1 minute to 48 hours
- Ultra low power consumption: no battery replacement for lifeSampling
- Adjustable: sampling cycle from 1S to 2H can be customized to facilitate timed sampling
- Clean and corrosion resistant: the probe of food grade 316 stainless steel is corrosion resistant and easy to clean
- Easy to charge: the charging port is compatible with the mobile phone, and any standard USB port can be easily charged

Industrial grade digital thermometer

DTSW-LcG Digital thermometer

Technical indexes

Name	DTSW-G "Stick" Digital Thermometer				Digital thermometer	
Model	DTSW-II	DTSW-1G-A	DTSW-1G-B	DTSW-2G	DTSW-kLG	DTSW-LcG
Temperature range	-5°C-60°C	-80°C~160°C	-80°C~300°C	-80°C~300°C	-80°C~400°C	-30°C~150°C
Accuracy	≤0.01°C	0.04+0.005%FS	0.05°C+0.01%FS	0.1°C	0.2°C	≤0.05°C
Calibration cycle	One year				One year	
Temperature coefficient	<1ppm/°C				<1ppm/°C	
Length of sensor	500mm (19.68 in)				1~1.5m	
Sensor diameter	6mm				Meet the 1076-2020 calibration specification	
Sensor material	316 stainless steel (medical, food grade)				Cord	
Sensor specification	Thin film platinum resistance			Wire wound platinum resistance		
Display resolution	0.001°C (the user can be configured to 0.1°C, 0.01°C)					
Sampling frequency	0.5s, 1S and 2S can be configured			Charging voltage	DC5V	
Thermal response constant	30S			Operating temperature	−20°C ~60°C(14℉~122℉)	
Data storage	16,000 sets of data (with time stamp)			Host working environment	−10°C ~50°C(14℉~122℉)	
Communications	USB and wireless communication			Main engine protection class	IP50	
Wireless communication	No occlusion up to 160m			Sensor protection class	IP68	
The battery type	lithium battery			Host size (mm)	106mm(L)X48mm(W)X37mm(T)	
Lithium battery life	≤1000 charge and discharge cycles			Total weight	202g	
Charging time	2 hours			Storage condition	−20°C~60°C(−4℉~140℉) 5%RH-80%RH (Without condensation)	

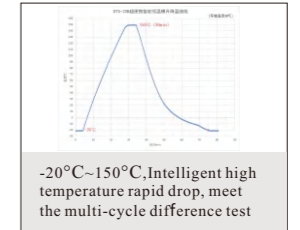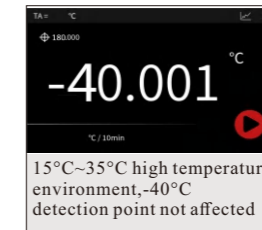# DTS-B Ultra - portable intelligent thermostatic bath

Product overview

DTS-BG Ultra-portable intelligent thermostatic bath is a kind of high precision and automatic temperature validation 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.

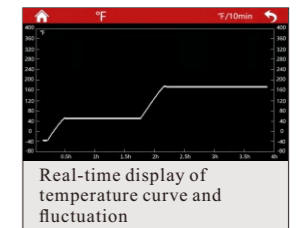## DTS-300BG Ultra-portable intelligent constant temperature oil bath

300.000 °C

Resolution: 0.001°C
Intelligent touch, human-computer interaction interface

外观设计专利证书

Chinese and English bilingual switching, °C, °F free switching

Technical indicators

Name	Ultra-portable intelligent thermostatic oil bath	
Model	DTS-180BG	DTS-300BG
Temperature range	60°C~180°C	60°C~300°C
Control mode	Smart touch screen	Smart touch screen
Display resolution	0.001°C	0.001°C
Temperature fluctuation(10min)	±0.02°C(60°C)　　±0.02°C(100°C)	±0.03°C(200°C)　　±0.035°C(300°C)
Temperature uniformity	≤0.01°C(60°C)　　≤0.01°C(100°C)	≤0.02°C(200°C)　　≤0.02°C(300°C)
Power	1KW	1KW
Work area dimensions	φ80mm×280mm	φ80mm×280mm
Overall dimensions	425×220×370mm	425×220×370mm
Working medium	Silicone oil(L30-300)	Silicone oil(L30-300)

Product functions and features

Press type sealing structure	Pressing type quick sealing structure, high temperature resistance, convenient remote carrying, site transportation.
Special overflow valve design	Special overflow valve, oil storage tank design, hidden handle, convenient on-site validation/calibration.
Smart touch screen	Intelligent color touch screen, human-computer interaction interface, multi-function display window, support multi-touch.
Real-time curve display	Real-time display of temperature curve, real-time automatic calculation of temperature fluctuation.
Multi-point calibration	Support multi-point correction, automatic segmented temperature control.
Overheating protection	With overheating protection, temperature limit function, safe and reliable.
Communication function	Rs-232 communication interface, can be connected to the upper computer.

DTS-BG Ultra-portable intelligent cryogenic bath

-40.001 °C

15°C~35°C high temperature environment,-40°C detection point not affected

-20°C~150°C,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

Name	Ultra-portable intelligent low -temperature bath (upper temperature can be customized)					
Model	DTS-10BG	DTS-20BG	DTS-30BG	DTS-95BG	DTS-125BG	DTS-40BG
Temperature range	-10°C~180°C	-20°C~150°C -20°C~180°C	-30°C~150°C -30°C~180°C	-40°C~95°C	-40°C~125°C	-40°C~150°C -40°C~180°C
Control mode	Touch screen					
Display resolution	0.001°C					
Temperature fluctuation	±0.02°C/10min(0°C)					
Temperature uniformity	≤0.02°C(0°C)　≤0.01°C(100°C)					
Power	1KW					
Work area dimensions	φ80mm×280mm / φ100mm×280mm (Hole diameter can be customized)					
Overall dimensions	430×225×500(mm)					
Working medium	L40N-180					

Proprietary functions and features

Not affected by environmental	At an ambient temperature of 15-35 °C, the detection point below -40°C is not affected.
Intelligent high temperature rapid drop	It only takes 30 minutes to drop from 150°C to 25°C, which meets the multi-cycle difference test.
Press type sealing structure	Press type fast sealing design, anti-leakage, convenient site transportation.
Smart touch screen	Intelligent touch screen, intelligent human-computer interaction interface, 0.001°C resolution.
Real-time curve display	Supports real-time display of temperature curves and fluctuations.
Multi-point calibration	Support 12-point temperature calibrator, can be segmented multi-point correction of temperature sensor, automatic segmented temperature control.
Communication function	With RS-232 communication interface, can be connected to the upper computer.
Overheating protection	With overheating protection, temperature limit function, safe and reliable.

DTG-G Portable intelligent dry block calibratar

Product overview

DTG-G Portable intelligent dry block calibratar , easy to operate, portable, accurate temperature control, suitable for laboratory and industrial site temperature measurement/calibration. The homogenizing block is made of alloy with high thermal conductivity to ensure the internal temperature field is uniform and stable. Temperature control precision, horizontal temperature field, vertical temperature field, stability, load performance and hysteresis effect technology are in the domestic advanced level, widely used in machinery, shipping, chemical, food, electric power, medicine and other industries.

DTG-G Portable intelligent dry block calibratar

Intelligent dry well temperature calibratar

Utility model patent certificate

Product features

- High -definition color capacitor screen, support Chinese and English bilingual switching, Celsius degrees fahrenheit free switching, simple operation, display calibration status in real time.
- Fast heating and cooling speed, short stable time.
- The equipment is lightweight, easy to carry, and applicable to the detection/calibration of on -site instruments.
- Average hot block customization service: supports different sizes and different specifications on demand.
- Built -in overheating protection function, safe and stable.
- Support multi -temperature point automatic calibration/correction; segmented PID control, one -click heating, fully automatic temperature control.
- With RS-232 communication interface, support data transmission, upload to the PC side, automatically save data.

Product features

- Intelligent calibration: built -in setting the parameters of thermocouple, thermal resistance, and temperature transmitter, the program can automatically complete the calibration work.
- Intelligent wireless remote operation: connect to mobile phones or computers through WIFI, remotely operate dry furnace.
- Dual -channel electrical test: standard RTD channels and passing channels all the way, including thermocouple, thermal resistance, and circuit measurement.
- Intelligent standard thermometer: The built-in chip built-in chip is stored in the standard ITS-90 parameter and information, and automatically reads, that is, plug and play.
- Support HART smart temperature transmitter calibration.
- Support the internal temperature control sensor's self -calibration function and support external standard RTD temperature control methods.
- Multiple safety protection: Related materials are preferably V0 fire prevention level, and automatic protection is automatically protected.

Technical indicators

Name	Low temperature intelligent dry block furnace			Medium temperature portable dry block furnace		High temperature portable dry blockfurnace		
Model	DTG-140G	DTG-150G	DT-ULT100G	DTG-660AG	DTG-660BG	DTG-1000G	DTG-1200AG	DTG-1200BG
Temperature range	-20°C~140°C	-35°C~150°C	-100°C~-40°C	50°C~660°C	50°C~660°C	300°C~1000°C	300°C~1200°C	300°C~1200°C
Temperature fluctuation	±0.15°C		±0.5°C	±0.2°C	±0.1°C	±0.2°C	±0.4°C	±0.2°C
Display resolution	0.01°C		0.01°C	0.01°C	0.01°C	0.1°C	0.1°C	0.1°C
Power input	400W		Support customization	650W	650W	2200W	2200W	2200W
Radial uniformity	≤0.2°C			≤0.3°C	≤0.15°C	≤0.8°C	≤1.5°C	≤0.8°C
Axial uniformity	Within 40mm≤1.0			Within 40mm≤1.0	Within 40mm≤0.5	Support customization		
Thermal block insert standard （mm）	φ4,5、φ6,5、φ8、φ10(Diameter and quantity can be customized)					φ6,5、φ12(Support customization)		
Well depth	170mm		Support customization	170mm				
Overall dimensions （mm）	330×170×320			285(L)×170(W)×335(H)				
Power supply	220V / 50Hz ；110V / 60HZ			220V / 50Hz ；110V / 60HZ				

Technical indicators

Model	DTG-MU-350G	DTG-MU-660G	DTG-MU-N40G
Display resolution	0.001°C		
Display	Touch screen, °C and °F switching		
Temperature range	33°C-350°C	50°C-660°C	-40°C-150°C
Display accuracy	± 0.2 °C full temperature	±0.35°C-±0.5°C	± 0.2 °C full temperature
Stability	±0.02°C	±0.03°C-±0.05°C	±0.005°C full temperature
Axial uniformity within 40mm	±0.04°C@33°C ±0.1°C@200°C ±0.2°C@350°C	±0.05°C@50°C ±0.35°C@420°C ±0.5°C@660°C	±0.1°C@-40°C ±0.05°C@0°C ±0.07°C@150°C
Radial uniformity	±0.01°C@33°C ±0.015°C@200°C ±0.02°C@350°C	±0.02°C@50°C ±0.05°C@420°C ±0.1°C@660°C	±0.01°C Full temperature
Reference resistance range	0Ω-400Ω		
Built-in mA measurement	0.02% Reading +0.002mA		
Thermocouple millivolt range	-10mV-75mV		
RTD resistance range	0Ω-400Ω		
RTD measurement function	4 wire RTD(With jumpers 2、3 wire RTD)		

ETC-G Micro dry furnace, is a kind of micro hand-held dry temperature calibration furnace, small and portable equipment, durable, simple operation, high accuracy. It is especially suitable for the field calibration of thermal resistance/thermocouple/temperature switch with various diameters, and suitable for the calibration occasions where fast calibration is required and the sensor is not convenient to disassemble.

DTEL-15G The multifunctional process signal calibrator is a portable field calibrator powered by a large-capacity high-performance polymer rechargeable battery, which can be connected to the external pressure module. It is easy to operate, powerful, stable performance and high accuracy. It is a very cost-effective thermal comprehensive calibration instrument.

ETC-G Miniature dry well furnace

ETC-150 Miniature dry well furnace

ETC-400 Miniature dry well furnace

Product features

- Temperature range: -10 ℃ ~ 400 ℃
- Fasting and cooling speed, it can reach a stable state in 15 minutes, saving testing time.
- Designed for on -site temperature testing, small volume, light weight, can be applied to small, limited space.
- Small and portable can be easily put in the box or toolbox to reduce the labor intensity of personnel.
- The solid metal shell can be used for a long time in the industrial environment.
- The hole size of the soaking block can be customized on demand.
- Equipped with 232 communication port.

Design patent certificate

Technical indicators

Model	ETC-150G	ETC-400G
Temperature range	-10℃~150 ℃	50℃~400℃
Display resolution	0.1 ℃	0.1 ℃
Temperature fluctuation	±0.1℃	±0.1℃
Insert depth	120mm	110mm
Thermal block insert aperture is standard	φ4，φ6，φ7	φ4.5，φ6.5，φ8，φ10
	Diameter and quantity can be customized	
Level of temperature field	≤0.2℃	≤0.2℃
Casing size	φ12.5mm×120mm(L)	φ30mm×110mm(L)
Overall dimensions	230×180×125(mm)	220×160×100(mm)
Power	230W	350W

DTEL-15G Multifunctional process signal calibrator

Product features

- At the same time output and measurement of V, mV, mA, Ω, Hz and other standard signals, as well as a variety of thermocouple (TC) and a variety of thermal resistance (RTD) temperature signal accurate simulation and measurement.
- The host has built-in pH (acidity) meter validation function.
- RTD measurement with custom PRT function, input platinum resistance corresponding to R0, A, B, C and other parameters can be used as A high precision thermometer.
- It can calibrate temperature meter, transmitter, recorder and other secondary instruments, and has the function of analog transmitter.
- 4~20mA output and measurement at the same time of direct 24V power distribution, and can provide 24V DC independent power supply mode.
- When the calibration transmitter measures its circuit signal, it can intuitively display the current parameters and corresponding temperature or pressure parameters without conversion.
- Large backlit LCD screen, full Chinese operation menu, complete functions, convenient for all on-site thermal signal detection and calibration.
- The highest accuracy grade of electrical signal is 0.01, and the factory internal control accuracy is ±0.005%FS.
- Good stability, the instrument internal temperature system automatic correction, minimum temperature coefficient ±0.0003%FS/℃.
- Maximum seven-digit display, high output and measurement resolution (mV resolution: 1μV, Ω resolution: 1mΩ).
- Compact size, easy to carry, anti-seismic and anti-fall silicone shell, to avoid accidental fall loss.
- Fully enclosed film touch button, 500,000-1 million ultra long service life.
- Support omega (thermal resistance) signal two, three, four line output and measurement.
- All signals can automatically step and ramp output, and can set any step (ramp) point and step (ramp) time.
- It can record on-site detection data in real time and realize paperless recording function.
- External high precision cold end compensation probe, can be manually or automatically cold end temperature compensation and setting.
- Using high capacity polymer rechargeable battery, continuous working time of more than 10hours.
- Standard gold-plated test line, less introduction of contact potential and contact resistance, to ensure high precision calibration.

DTEL-15G Multifunctional process signal calibrator

DTE-35G Multifunctional process calibrator

Technical indicators

Output range	Accuracy index ± %RD+%FS		Measuring range	Accuracy index ± %RD+%FS	
	0.01 Scale	0.02 Scale		0.01 Scale	0.02 Scale
10.99999 V	0.005%+0.002%	0.01%+0.002%	±109. 9999 V	0.005%+0.002%	0.01%+0.002%
1.099999 V			±10. 99999 V		
±109.999 mV	0.005%+0.004%	0.01%+0.004%	±1. 09999 V		
30.0999 mA	0.005%+0.004%	0.01%+0.004%	±109.999 mV	0.005%+0.004%	0.01%+0.004%
4~20mA Analog transmitter			±109.999 mA	0.005%+0.004%	0.01%+0.004%
4000.00 Ω	0.005%+0.004%	0.01%+0.008%	±23.9999 mA		
400.00 Ω			4000.00 Ω	0.01%+0.004%	0.01%+0.008%
59999.9 Hz	0.001% + 0.001%		400.000 Ω		
5999.99 Hz	0.001% + 0.002%		59999 Hz	0.005% + 0.002%	
599.999 Hz	0.001% + 0.004%		9999.9 Hz	0.005% + 0.004%	
Analog thermocouple	See thermocouple accuracy indicator		999.99 Hz	0.005% + 0.008%	
Analog thermal resistance	See thermal resistance accuracy indicator		99.999 Hz	0.005% + 0.01%	
PH	±0.0005pH		Thermocouple	See thermocouple accuracy indicator	
24V DC	±10%		Thermal resistance	See thermal resistance accuracy indicator	

Product overview

DTZ-300BW Intelligent inspection instrument is a freely configurable multi-function inspection unit, with 24 24-bit high-precision sampling channels, each channel can be independently configured, supporting thermocouple, platinum resistance, humidity sensor and analog four input modes.The product can be connected to the PC or mobile terminal by wired or wireless to remotely browse real-time data, which is suitable for the temperature field, humidity field, uniformity and volatility test of various temperature (humid) environment experimental equipment, industrial furnace and validation furnace.

Intelligent temperature and humidity inspection device series

DTZ-300BX1609G Intelligent temperature and humidity inspection device

DTZ-300BWG Intelligent temperature and humidity data acquisition logger

Wireless temperature and humidity intelligent inspection system

DTWX-01G Wireless temperature and humidity intelligent inspection system

DTWX-02G Field wireless temperature and humidity monitoring system

DTZ-500G Wireless furnace temperature tracking and testing system

Wireless real-time validation system

DTRC-G Wireless real-time validation system

DTRC-1G Wireless real-time temperature validator 【-80℃~150℃

DTRC-2G Wireless real-time temperature and humidity validator 【-40℃~85℃

DTRC-3G Custom style 【-199℃~400℃

Wireless temperature/humidity/pressure validation system

DTPro Wireless authentication system

TDLB-G Wireless temperature validator

MDLA-G Wireless temperature and humidity validator

PDLA-G Wireless pressure tester

DTZ-300BWG Intelligent temperature and humidity inspection device

PC or mobile users can use Google Browser to log in to the device and remotely view real-time data

Functions and features

- 7 inch industrial color touch screen display, supporting 24 high precision 24-bit sampling channels.
- Each of the 24 channels can be independently configured for thermocouple, platinum resistance, humidity sensor and analog input mode.
- Each channel provides independent built-in cold end temperature sensor, independent sampling, modular design, temperature measurement accuracy is better than 0.1℃.
- You can edit and configure sensor and sampling-related parameters, such as sensor type, range, sampling time, and sampling interval.
- All 24 channels can be calibrated and corrected independently by single point, piecewise linear or least square method.
- Display, store, and output multiple data formats such as voltage, resistance, temperature, and humidityProvides encryption algorithm support to encrypt data files, effectively improving security.
- Support RS232, wired network and wireless network communication, can be connected to PC or mobile terminal.
- It provides 24 5V power supply to facilitate the connection of humidity sensor.
- Provides 8 GB internal storage space for data storage. Data can be exported through a USB port.

Power supply	12VDC 2A
Communication interface	Rs232 , LAN , Wireless
Shell material	Aluminum alloy+ ABS
Boundary dimension	250mm×170mm× 70mm
Instrument weight	1.6kg
Environmental conditions	(5~35) ℃ (0~85) %Rh
Storage environment	(0~70) ℃ (0~100) %Rh

Technical indicators

Range	Measuring range	Display resolution	Accuracy	Sampling rate	Sampling mode	Output data type	Note
K	-200℃~1300℃	0.01℃	0.5℃	0.2S/ 24channel	24 channels of simultaneous samplingl This ensures that the data is synchronized in full real time	Configurable Voltage value Temperature value	It conforms to the ITS-90 temperature scale
J	-200℃~900℃		0.5℃				
T	-200℃~400℃		0.5℃				
E	-200℃~1000℃		0.5℃				
N	-200℃~1300℃		0.5℃				
B	250℃~1820℃		0.8℃@1000℃				
R	0℃~1768℃		0.7℃@1000℃				
S	0℃~1768℃		0.9℃@1000℃				
Pt100	-200℃~950℃	0.001℃	0.05℃@0℃ 0.08℃@300℃ 0.12℃@600℃			Configurable Voltage value Temperature value	1mAExcitation current source
Humidity	0%Rh~100%Rh	0.01%RH	0.1%Rh			Configurable Voltage value Relative humidity	5V power supply output

Range	Temperature range	Display resolution	Accuracy
100mV	-10mV~100mV	0.1uV	0.01%+0.008%
1V	0~1V	0.1mΩ	0.02%+0.02%
400Ω	0Ω~400Ω	0.1mV	0.004%+0.004%

Remark:
Accuracy metric: ± (% reading + % full scale)

Product model	Channel number
DTZ-300BWG-12	12
DTZ-300BWG-16	16
DTZ-300BWG-20	20
DTZ-300BWG-24	24
DTZ-300BWG-XX	Custom

Product overview

DTZ-300BX1609G Intelligent temperature and humidity inspection instrument   it can be connected to 16 temperature sensors and 9 humidity sensors. It has rich human-computer interaction functions and can display the temperature value, humidity value and other test data of each measured channel in real time. It is a special instrument for temperature and humidity field inspection. It is suitable for various temperature (humidity) environment experimental equipment and heat treatment furnace temperature field testing. The equipment is small in size and portable, making it easy to carry on-site for monitoring work.

DTZ-300BX1609G Intelligent temperature and humidity inspection instrument

Temperature channel: 16

Humidity channel: 9

Product features

- **Independent channel synchronous acquisition**: Each channel adopts an independent high-precision AD chip, and there is no need for channel switching during the measurement process, which effectively eliminates the introduction in the channel switching processUnder the premise of ensuring the accuracy of 0.01 level, each channel can be synchronized data acquisition at a speed of less than 0.1 seconds, under the premise of ensuring the measurement accuracy,Time synchronization between individual channel measurements is greatly improved.
- **Flexible channel configuration**: each channel supports four input modes of thermocouple, thermal resistance, humidity sensor and (0~1)V analog, which only need to be simple for the channelconfiguration, that is, flexible switching between different input modes, while the channel configuration can be stored as a configuration file for subsequent calls and modifications.
- **High-precision thermocouple cold junction**: Each channel adopts an independent high-precision digital temperature sensor as the cold junction compensation sensor, and the cold junction temperature measurement point is far from the thermocouple junction connection pointThe distance of less than 20mm, combined with a good temperature homogenization design, provides reference compensation with an accuracy of better than 0.15°C for each thermocouple measurement channel.
- **Meet AMS2750F specification**: Through the optimized design of analog input channel and reference terminal temperature measurement, the thermocouple measurement accuracy and channel-to-channel difference of DTZ-300BW series inspection instrument are effectively improved, which can meet the demanding requirements of AMS2750E specification for electrical measurement instruments.
- **Statistical data analysis**: Each channel has independent curve display and data analysis functions, and users can view the maximum value, minimum value, volatility and other statistics of the measurement data in real time Data. After starting the measurement, the measurement data is automatically saved to a file, and the user can browse and analyze the historical data at any time.
- **Data encryption**: It can provide encryption algorithm support to encrypt data files to meet the special requirements of special industries such as national defense and defense industry for data security.
- **Wireless LAN**: It can be connected to mobile terminal devices such as tablets and laptops through 2.4G wireless network, without installing any software, and can be directly used with mobile terminals's browser (Google browser is recommended) logs in to the inspector and remotely views real-time data.
- **Large-capacity storage**: built-in 8G large-capacity memory, while supporting U disk storage function, the inspection data can be stored in the built-in memory during stand-alone operation, and the stored data is available Excel and other general tools software to browse or data processing, can also import it into special software for data analysis, report generation and certificate output.
- **Friendly human-computer interaction function**: using 7-inch touch screen design, providing a rich and friendly human-computer interaction interface, the operation interface content covers: channel settings, inspection settings,Sensor setup, data curve display, channel correction, channel calibration, file manipulation, system setup, and more can be tested independently without any additional peripheralsData collection work for the field.
- **Reliable structural design**: With a robust integrated design, in addition to the necessary USB interface and network interface, the overall structure is effectively sealed, and can work in high humidity environment for a long time.

Product features

- **High accuracy and fast measurement**   Can quickly collect data from each channel while ensuring 0.01 level accuracy, which greatly improves work efficiency while ensuring measurement accuracy.
- **Intelligent human-computer interaction interface**   It adopts high-definition intelligent capacitive touch screen, which is simple and convenient to operate. It can display the collected data in real time and the battery power in real time. General parameters such as temperature sensor type, number of temperature sensor channels, number of humidity sensors, date, time, and collection interval support custom settings.
- **Convenient data collection**   There is no need for a PC at the work site. The multi-channel data collector can independently complete data collection and storage, and the data is stored in a USB flash drive in real time. After the collection work is completed, the U disk can be inserted into the computer to complete the display and analysis of the data.
- **Supports 8g large-capacity U disk storage function**   Sampling data supports real-time storage to USB flash drive. The stored data can be browsed or processed with general tool software such as Excel, or it can be imported into special software for data analysis, report generation and certificate output.
- **Auto correction function**   It supports the linear correction function of commonly used K, N, and S thermocouple temperature sensors, supports the linear correction function of Pt100 thermal resistance sensor, supports the linear correction function of humidity sensor, and supports the introduction and saving of multi-point temperature correction values in a single channel.
- **Communication function**   Supports connection to PC via data cable, supporting professional database management software, intelligent data management, real-time curve display of temperature and humidity information of each channel, test data of each channel: marked center point, fluctuation, uniformity, change rate, current detection progress, equipment Status, etc., supports multiple inspection instruments to carry out testing work at the same time, and the data is processed independently, effectively improving work efficiency.
- **Simple and fast connection method**   The wiring method uses standard connectors as connectors, making sensor wiring easier and faster. The temperature and humidity interfaces have anti-misplugging functions, effectively ensuring the reliability and performance indicators of system connections.
- **Built-in large-capacity lithium battery, low power consumption and long-lasting battery life**   Built-in large-capacity lithium battery, low power consumption design, supports 30 hours of continuous operation. The charging interface is 2.1×6.4DC, with reliable connection and large charging current. It has a battery charge and discharge protection circuit, which is safe and reliable; the external power supply and the battery intelligently switch the power supply to extend the battery life.Temperature data is automatically saved to the U disk.

Executed Procedures and Specifications

No.	Standard Code	Standard Name
1	JJF1101-2019	Specifications for Calibration of Temperature and Humidity on Environmental Test Device
2	GB/T9452-2012	Method for Determination of Effective Heating Zone of Thermal Treatment Furnace
3	QJ1428-88	Control and Measurement of Temperature of Thermal Treatment Furnace
4	GJB509B-2008	Quality Control Requirements on Thermal Treatment Process
5	HB5425-2012	Method for Determination of Effective Heating Zone of Thermal Treatment Furnace for Aviation Parts
6	GB/T5170-2008	Method for Inspection of Environmental Test Equipment for Electric and Electronic Products
7	HB6783-93	Method for validation of Climate Environment Test Chamber (Room) for Military Airborne Equipment
8	JB/T5520-91	Test of Electrically Heated Drying Oven
9	JJF1376-2012	Code for box type resistance furnace
10	JJF1564-2016	Temperature and humidity standard box calibration specification
11	AMS2750F	Pyrometry

Software Technical Features

Simultaneous measurement of multiple devices

Inspection information management

Intelligent data reading

Intelligent breakpoint continuation

Intelligent data Management

Real-time status and curve display

Software copyright registration number   2016SR171562   2020SR0328008

Product overview

DTWX-01G Wireless Temperature Humidity Acquisition System is mainly developed for temperature and humidity measurement scenarios in low-temperature areas where wired equipment is inconvenient to use. It can be applied to large storage grain warehouses, tobacco warehouses, cold storage, ammunition warehouses, equipment rooms and other large areas where temperature and humidity conditions are limited. DTWX-01 has the characteristics of high precision, small size, light weight, large number of channels, data visualization, perfect specification support and so on. It has powerful function, easy to carry and easy to use.

Technical indicators

Temperature indicators				
Name	Type	Temperature range	Accuracy	Resolution
Four-wire industrial grade PRT	Pt100	-200℃~800℃	±0.1℃	
	K	-200℃~0℃	±(T×0.155％+0.05)℃	
		0℃~1372℃	±(T×0.077％+0.05)℃	
	J	-200℃~0℃	±(T×0.15％+0.05)℃	
		0℃~1200℃	±(T×0.065％+0.05)℃	
	E	-200℃~0℃	±(T×0.121％+0.05)℃	
		0℃~1000℃	±(T×0.065％+0.05)℃	0.01℃
	N	-200℃~0℃	±(T×0.180％+0.08)℃	
		0℃~1300℃	±(T×0.065％+0.08)℃	
	R	0℃~1768℃	±(T×0.07％+0.4)℃	
	S	0℃~1768℃	±(T×0.07％+0.4)℃	
	B	400℃~1820℃	±(T×0.065％)℃	
	T	-250℃~0℃	±(T×0.10％+0.05)℃	
		0℃~400℃	±(T×0.065％+0.05)℃	
Humidity Sensor	Humidity	0%Rh~100%Rh	±1.5%	0.01%RH

Hardware parameter			
Input voltage	4.5-5.5V	Input Current	Max 2.2A
Battery	4.2V/20000mAh	Battery time	≥30h
Display	5-inch capacitive screen	Resolution	854×480
Working temperature	-10~50℃	Working humidity	≤80%RH
Power switch	Anti-accidental touch slide switch	Charging interface	DC6.4×2.1
Dimensions(mm)	180×150×70	Weight	<1.5kg
Communication Interface	AUX3.5mm	U disk interface	USB2.0
Sensor interface	Embedded wiring terminals	9 humidity sensor interface	Embedded wiring terminals

Execute calibration procedures

No.	Standard code	Standard name
1	JJF1101-2019	Environmental test equipment temperature and humidity calibration specifications
2	GB/T9452-2012	Method for determination of effective heating zone of heat treatment furnace
3	QJ1428-88	Heat treatment furnace temperature control and measurement
4	GJB509B-2008	Heat treatment process quality control requirements
5	HB5425-2012	Method for determination of effective heating zone of aerospace parts heat treatment furnace
6	GB/T 5170.1-2016	Inspection methods for environmental testing equipment for electrical and electronic products
7	GB/T 5170.2-2017	Environmental test equipment inspection methods: temperature test equipment
8	GB/T 5170.5-2016	Inspection methods for environmental testing equipment for electrical and electronic products
9	HB6783-93	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

DTWX-01G Wireless Temperature Humidity Acquisition System

Temperature and humidity data recording terminal (sub-station)

Temperature data recording Terminal (sub-station)

Server (master)

PC

Mobile terminal

- **80 channels are online at the same time, up to 250 channels**
- **The whole line of products can be customized according to industry and demand**
- **Temperature and humidity measurement in high and low temperature large space environment, support remote data monitoring, built-in storage and U disk mode.**
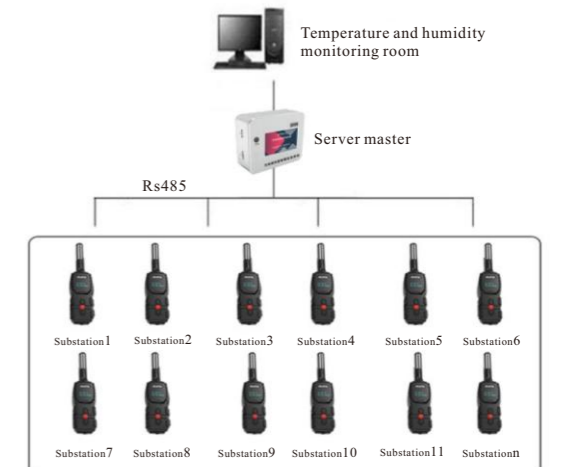
System functions and features

- With wireless data transmission technology, distance is no longer limited by wire points
- Using visual data processing, simple, convenient, fast
- High precision sensor, high precision, wide range
- Long endurance, can work continuously for more than 100 hours
- Small size, light weight, easy to carry
- The master station server is powerful and can work normally without the host computer
- Data and information can be exported freely to Excel files in any format
- Multi-procedure support, suitable for different types of equipment temperature field test
- A maximum of 80 channels can be online at the same time

Server (master) function

- Data storage Function
  Data can be automatically saved to the local USB disk for data processing after data recording is completed
- Real-time data display function
  The server (master station) has a user interface that can display the data of each working channel in real time after starting data recording.
- Channel work setting function
  It can select channels freely for data recording, intelligently distinguish channels that cannot work properly, and delete the channel from the working channel of the server (master station), effectively avoiding the impact on the efficiency of data collection and ensuring the simultaneity of data collection.
- Data recording terminal can go online automatically
  Server (master station) is automatically connected to the temperature and humidity data recording terminal upon startup, without complex Setting.

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

- Real-time display of temperature and humidity data
- Electric quantity display function
- Number display function
- Data correction function
- It can be separated from the server (main station) to carry out the detection work alone
- Support data correction, effectively improve measurement accuracy

Temperature data recording Terminal (sub-station)

Temperature and humidity monitoring room

Server master

Rs485

Substation1 Substation2 Substation3 Substation4 Substation5 Substation6

Substation7 Substation8 Substation9 Substation10 Substation11 Substation12

DT Pro Wireless temperature/humidity/ pressure sterilization

Product overview

DT Pro-G Wireless temperature/humidity/pressure sterilization can be widely used in equipment validation and environmental monitoring in pharmaceutical, food, biological, chemical and other industries. Compared with the traditional wired validation system, the probe can be conveniently and quickly arranged, and the detection point is physical constraints greatly improve validation efficiency.

Application scenarios

The system can be applied to GMP pharmaceutical industry, GSP industry, biological industry, medical industry, food industry, transportation industry.

GMP	Steam sterilizer validation / water bath sterilizer validation, rubber plug washer validation / aluminum lid washer validation, freeze dryer validation / cryogenic refrigerator validation, constant temperature and humidity chamber validation / stability incubator validation
GSP	Cold storage validation / refrigerated truck validation, refrigerator / incubator validation, cool storage /normal temperature storage validation
Biological	Stirred fermentation tank validation, culture tank validation, process development data
Food	Pasteurization validation, sterilization tunnel validation, rotary freezer validation, blast freezer validation, cold room validation
Transport	Cold chain process tracking, cabin temperature detection
Medical	High temperature sterilization testing, steam sterilization testing, medical supplies testing

Implemented procedures and specifications

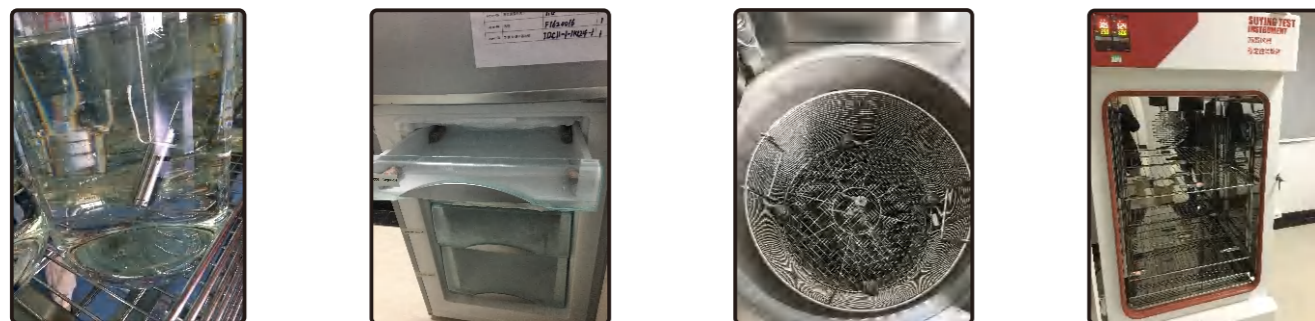| Serial number	Regulation code	Procedure name
1	GBT 30690-2014	The sterilization effect monitoring method and evaluation requirements of small pressure steam sterilizer
2	PDA TR1-2007	Damp heat sterilization validation
3	JJF 1366-2012	Calibration Regulations for Temperature Data Collector
4	JJF 1101-2003	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)	

Function

- The system consists of a wireless recorder (temperature, humidity, pressure), a data reading workstation, and wireless validation software.
- The system includes wireless validation software, wireless validation probes, data readers, etc. The wireless validation probe has its own battery, which is set up by wireless validation software and data reader, and then placed in the device under test to continuously record the situation in the device, and then read the data through the wireless validation software and perform statistical analysis of the data. Form a report.
- The data reading workstation is divided into a single-hole workstation and a 10-hole workstation. The universal USB serial port is used to connect to the computer, and data communication can be carried out conveniently, efficiently and safely.
- The software realizes data collection, data analysis and report generation, meets FDA 21 CFR Part 11, and supports electronic signature of documents. Support custom stages and verify each stage to generate stage validation report.

Features

- Switch between Chinese and English versions at will.
- Comply with FDA 21CFRPart 11 regulations.
- With data audit tracking function, with three levels of authority (freely assignable authority).
- It has data statistical analysis functions, including large and small values, average value, span, temperature difference at the same time, F0 value test, etc., and can be freely selected according to needs.

Scenes to be used

Technical indicators

Product name	Temperature Verifier		Temperature humidity tester	Temperature pressure tester
Model	TDLA	TDLB/TDLC(Flexible probe)	MDLA	PDLA
Operating temperature	-90°C~150°C (Expandableto 400°C with heat insulation box)	-50°C~150°C (Expandableto 400°C with heat insulation box)	-40°C~125°C	-40°C~140°C
Range	-90°C~150°C	-50°C~150°C	0~100%RH	0~100psi 0~6.894Bar (Absolute pressure)
Resolution	0.01°C	0.01°C	0.01°C	0.008psi
			0.01%RH	0.01kpa
Accuracy	Low temperature accuracy ±0.2°C below -50°C - 50-150°C accuracy + / - 0.1°C	±0.1°C	±0.1°C	±0.1°C Pressure ±0.1% full scale
			±2%RH	
Sensor	Pt100 Class 1/3 DIN	Pt100 Class 1/3 DIN	Temperature:PT100	Strain
			Humidity:capacitive	
Capacity (recording points)	64,000	64,000	32000 each	32000 each
Record frequency	1s~18h	1s~18h	1s~18h	1s~18h
Battery Life	36 months	36 months	36 months	36 months
Communication method	RS 485 Contact	RS 485 Contact	RS 485 Contact	RS 485 Contact

DTRC-G Wireless real-time validation system, support wireless real-time data transmission, remote programming, convenient and easy to use, improve validation efficiency, accuracy up to ±0.1℃. The software is specially developed for GMP and meets the requirements of FDA 21CFR Part 11. It is designed with low power consumption and can support more than 150,000 samples.

DTZ-500G Wireless Furnace Temperature Test System is composed of high temperature measuring instrument, heat insulation box, high temperature thermocouple and wireless terminal. The working principle is to heat the furnace temperature tracker and the painting workpiece simultaneously in the furnace, record the curing temperature of the workpiece and the temperature of the furnace gas during the painting process in real time, and display it in real time through the mobile phone, ipad or PC. In this way, the variation of temperature and the uniformity difference of furnace temperature in the production process can be understood.

▶ DTRC-G Wireless sterilization system

DTZ-500G Wireless furnace temperature test system

Wireless real-time temperature validation system

Wireless real-time temperature and humidity validation system

System functions and features

■ Wireless real-time data transmission, support remote programming function, effectively provide validation efficiency.

■ Software meets GMP and GSP requirements.

■ Comply with FDA 21CFRPart 11.

■ Data cannot be modified and can be traced.

■ Comprehensive data analysis, powerful, user-friendly interface.

■ System management is secure and reliable.

■ Free software upgrade for life.

Technical indicators

Name	Wireless real-time temperature validator	Wireless real-time temperature and humidity validator	Wireless real-time temperature and pressure verification instrument
Product model	DTRC-1G	DTRC-2G	DTRC-3G
Wireless transmission mode	Bluetooth	Bluetooth	Bluetooth
Wireless transmission distance	20m	20m	20m
Measuring range	-90℃ ~ 150℃	Temperature：-40℃ ~ 85℃ Humidity：0%RH~100%RH	Temperature：-40℃ ~ 140℃ Pressure: 0~600kpa(absolute pressure)
Accuracy measurement	±0.1℃	Temperature：±0.1℃ Humidity：±2%RH	Temperature：±0.1℃ ;Pressure：±0.1(Full range)
Display resolution	0.01℃	Temperature：0.01℃ Humidity：0.01%RH	Temperature：0.01℃ Humidity：0.01kpa
Record the frequency	1s ~ 18h	1s ~ 18h	1s ~ 18h
Data recording capacity	64000	Temperature：32000；Humidity：32000	Temperature：32000；Pressure: 32000
Battery	1700mAh/3.6V high temperature lithium batter		
Probe size	φ24mm×78.6mm	φ25.8mm×74.6mm	φ25.8mm×89.2mm
Material	316L stainless steel +PEEK		
Protection grade	IP68（Completely waterproof）	IP50(Dustproof or waterproof)	IP68（Completely waterproof ）

Technical indicators

DTZ-500G wireless furnace temperature test system								
Measuring points	18channels	Accuracy	±0.4℃	Sensor	K、N、S、T	Temperature measurement range		10~1300℃
In furnace time	Customized according to usage scenarios			RAM	8GB (large memory, can save data forever)			
The sampling period	1s~60s (Can be set according to test requirements)							
Battery	Rechargeable lithium polymer battery 2200mAh can be used continuously for 50 hours, can be used after 15 minutes of fast charging. If wireless is turned on, it can last for 13 hours on one charge.							
Computer requirements	Windows 98, 2000, XP, vista, win7, etc., can be connected to print out the temperature curve							
Incubator size	Customized according to usage scenarios							
Instrument description	The main chip of the instrument: the original high temperature host chip imported from the United States Insulation material: Nano insulation material imported from Germany Shell: high temperature resistant, corrosion resistant stainless steel Thermocouple Sensor: National Standard I See the technical solution for specific parameters according to the usage scenario							

Software function

1. Mark the time and slope between any two points.
2. Temperature annotation at any time point.
3. Any position, any range of curve scaling display.
4. Temperature difference curve display in any time range.
5. Complete furnace database (SMT)/temperature control program (heat treatment), equipment database.
6. Complete process analysis report PWI.
7, Simulation curve function, process optimization, test date and time.
8. Can directly print the test report or output

Features

■ The use of imported TF memory chip, accident will not lose data.

■ Store 8G data at the same time, more than automatic coverage; One-button operation, manual, temperature, time start, easy to use.

■ Independent development of all Chinese data setting and analysis software, operation at a glance.

■ Support wireless connection through PC or mobile terminal, real-time display of temperature curve data.

Temperature measurement process

■ According to the customer's requirements and the use environment, use a furnace temperature tracking device for temperature measurement. After connecting the thermal power puppet, put it in the heat insulation box and cover the heat insulation box to prevent heat leakage. Open your mobile phone, iPad, or desktop computer, control the furnace temperature tracking instrument in real time, and analyze the temperature data in real time. After the heat treatment is over, after the heat insulation box is cooled, take out the recorder.

Product overview

DTBR-G Black body radiation source is mainly used to calibrate radiation thermometers, infrared thermal imagers and other radiation temperature measuring instruments. The main technical indexes of the black body radiation source are the emissivity of the black body cavity, the uniformity of the target surface, the stability of temperature control and the stability of the radiation temperature of the cavity.

Spherical blackbody radiation source

DTBR-S50G	Low temperature	-50°C~100°C
DTBR-S30G		-30°C~100°C
DTBR-S800G	Medium temperature	50°C~800°C
DTBR-S1200G	High temperature	100°C~1250°C
DTBR-S1600G		500°C~1600°C

Tube blackbody radiation source

DTBM-50NG	Low temperature	-50°C~80°C
DTBM-30NG		-30°C~80°C
DTBM-550G	Medium temperature	50°C~550°C
DTBM-700G		50°C~700°C
DTBM-1200G	Medium temperature	100°C~1200°C
DTBM-1500G	Ultra high temperature	500°C~1600°C
DTBM-2500G		800°C~2500°C
		800°C~3000°C

Portable blackbody radiation source

DTBM-20NG	Low temperature	-50°C~80°C
DTBR-T50BG	Normal temperature	30°C~50°C
DTBM-20NG		-20°C~650°C
DTBM-500BG	Medium temperature	PT+10°C~500°C
DTBM-500MG		50°C~500°C

Calibration device for ear temperature/ frontal temperature/body temperature instrument

| DTME-50G | Ear temperature/frontal thermometer calibration device |
| DTSE-50G | Thermometer calibration device |

DTBR-G Blackbody radiation source

Technical indicators

Name	Low temperature blackbody radiation source		Medium temperature blackbody radiation source		High temperature blackbody radiation source
Model	DTBR-S50G	DTBR-S30G	DTBR-S800G	DTBR-S1200G	DTBR-1600G
Temperature range	-50°C~100°C	-30°C~100°C	50°C~800°C	100°C~1250°C	500°C~1600°C
Emissivity	Superior to0.998		Superior to 0.998		Superior to 0.998
Mouth cavity size	Φ65mm(Support customization)		Φ65mm(Support customization)		Φ50mm
Cavity shape	Spherical		Spherical		Spherical
Stability	≤0.1°C/10min		≤(Largest of 0.1°C and 0.1%t)/10min		≤(Largest of 0.1°C and 0.1%t)/10min
Power	3.0KW		4.0KW		6.5KW
Target surface uniformity	≤0.15°C		≤(0.15°C and 0.15%t were the largest)		≤(0.15°C and 0.15%t were the largest)
Resolution	0.01°C		0.1°C		0.1°C
Dimension	850×550×1100mm		550×600×800mm		730×780×1470mm
Net weight	About 100Kg		About 60Kg		About 150Kg

Name	Low temperature blackbody radiation source		Medium temperature blackbody radiation source	
Model	DTBM-50G	DTBM-30G	DTBM-550G	DTBM-700G
Temperature range	-50°C~80°C	-30°C~80°C	50°C~550°C	50°C~700°C
Emissivity	Superior to 0.995		Superior to 0.995	Superior to 0.995
Mouth cavity size	Φ65mm		Φ65mm	Φ65mm
Stability	≤(largest of 0.1°C and 0.1%t)/10min		≤(largest of 0.1°C and 0.1%t)/10min	≤(largest of 0.1°C and 0.1%t)/10min
Power source	220VAC 50Hz		220VAC 50Hz	220VAC 50Hz
Power	3KW		3KW	1.2KW
Target surface uniformity	≤(0.15°C and 0.15%t were the largest)		≤(0.15°C and 0.15%t were the largest)	≤(0.15°C and 0.15%t were the largest)
Resolution	0.1°C		0.1°C	0.1°C
Dimension	300×215×280(mm)		240×375×290(mm)	300×450×370 mm
Net weight	About 6Kg		About 6.5Kg	about 15Kg

Name	High temperature blackbody radiation source			Ultra-high temperature blackbody radiation source
Model	DTBM-1200G	DTBM-1500G	DTBM-1600G	DTBM-2500G
Temperature range	100°C~1200°C	500°C~1500°C	500°C~1600°C	800°C~2500°C(vacuum) 800C ~3000C(Vacuum, inflation)
Emissivity	Superior to 0.995		Superior to 0.995	Superior to 0.99
Mouth cavity size	Φ50mm		Φ50mm	Φ50mm / Φ25mm(3000°C)
Stability	≤(largest of 0.1°C and 0.1%t)/10min		≤(largest of 0.1°C and 0.1%t)/10min	Operating temperature 0.1% t°C/10min
Power	2.0KW		5.5KW	50KW
Target surface uniformity	≤(0.15°C and 0.15%t were the largest)		≤(0.15°C and 0.15%t were the largest)	≤ 0.15% t°C of operating temperature
Dimension	300×530×370		500×720×900(mm)	Furnace: 1150×500×1330 Transformer: 650×570×745 Temperature control device: 600×600×1420
Net weight	About 20Kg		About 120Kg	About 500Kg

Product overview

DTBF-50G Portable black body radiation source is designed for human body temperature measurement application, infrared NETD calibration, response rate test of small cost-effective black body. It is specially used for correcting the real-time relative temperature drift of infrared temperature rapid screening instrument, infrared thermal imaging temperature measure ment alarm system and other products

Product overview

DTME-50G Ear temperature/frontal temperature/body temperature instrument calibration device is mainly used to calibrate human red outer ear thermometer, infrared frontal temperature meter and other non-contact infrared thermometer calibration. This product is a high precision automatic control digital display temperature calibrator device, it has the characteristics of good temperature stability, uniform temperature field, high temperature control precision, low noise, good reliability, long life.

▶ Portable blackbody radiation source

DTME-50G Calibration device for ear temperature/ frontal temperature/body temperature instrument

Ear thermometer black body radiation chamber

Frontal thermometer black body radiation cavity

Technical indicators

Name	Portable blackbody radiation source		
Model	DTBM-20NBG	DTBM-500BG	DTBM-500MG(Non-point source)
Temperature range	-20°C~150°C	PT+10°C~500°C	50°C~500°C
Emissivity	Better than 0.995	Better than 0.995	Better than 0.995
Mouth cavity size	Φ65mm	Φ50mm	Φ120mm
Temperature stability	±0.1°C	≤(The greater of 0.1°C and 0.1%t)/10min	± 0.10 °C,50 °C When /± 0.30°C,300 °C When /± 0.40 °C,500°C When
Power supply	220V AC 50Hz	220VAC 50Hz	220VAC 50Hz
Power	350W	500W	500W
Target plane uniformity	±0.15°C	≤(The greater of 0.15°C and 0.15%t)	± 0.10°C, 50°C When /± 0.60 °C, 300°C When /± 1.00 °C,500°C When
Temperature resolution	0.01°C	0.1°C	0.1°C
Overall dimensions	200×320×280	260×200×260(mm)	260×200×360(mm)
Net weight	8.3Kg	6Kg	About 10Kg

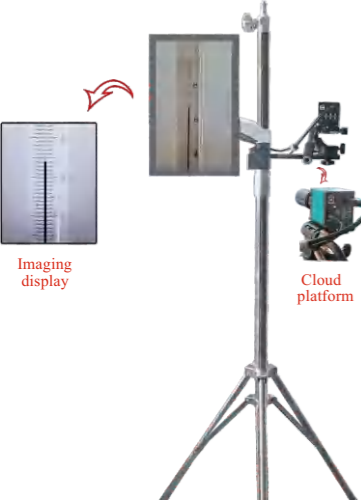| Name	Portable blackbody radiation source		Double cavity black body radiation source
Model	DTBF-T50BG	DTBR-FM3050G	DTBR-ST500G
Temperature range	30°C~50°C	30°C~50°C	-20°C~500°C, -20°C~100°C, 50°C~500°C -20°C~650°C; 50°C~650°C(Optional)
Emissivity	Better than 0.995	Better than 0.95	Better than 0.995
Mouth cavity size	Φ60(mm)	70×70(mm)	Φ65mm,Φ50mm(Optional)
Temperature stability	≤0.01°C/30 min	±0.05°C/30min	≤0.1%t/10min、(The greater of 0.1°C and 0.1%t)/10min
Power supply	220V ± 10% 50Hz	220V AC 50Hz	220V AC 50Hz
Power	100W	60W	850W
Working temperature	10°C~32°C, No condensation	0°C~40°C	0°C~40°C
Ambient temperature coefficient	±0.01 °C /10 °C (Typical values)	±0.01 °C /10 °C (Typical values)	/
Overall dimensions	358×154×251(mm)	140×250×180(mm)	380×220×320(mm)
Net weight	8.3Kg	2.5Kg	About 15.0Kg

Product features

- Adopting double - chamber side stirring method, temperature field uniformity is good.

- Intelligent PID control, with good temperature field stability and uniformity.

- Adopt high resolution display instrument, resolution 0.001℃.

- Imported compressor, stable and reliable performance, optimized refrigeration system cooling faster.

- RS-232 / RS-485 communication interface optional, can realize computer control.

Technical indicators

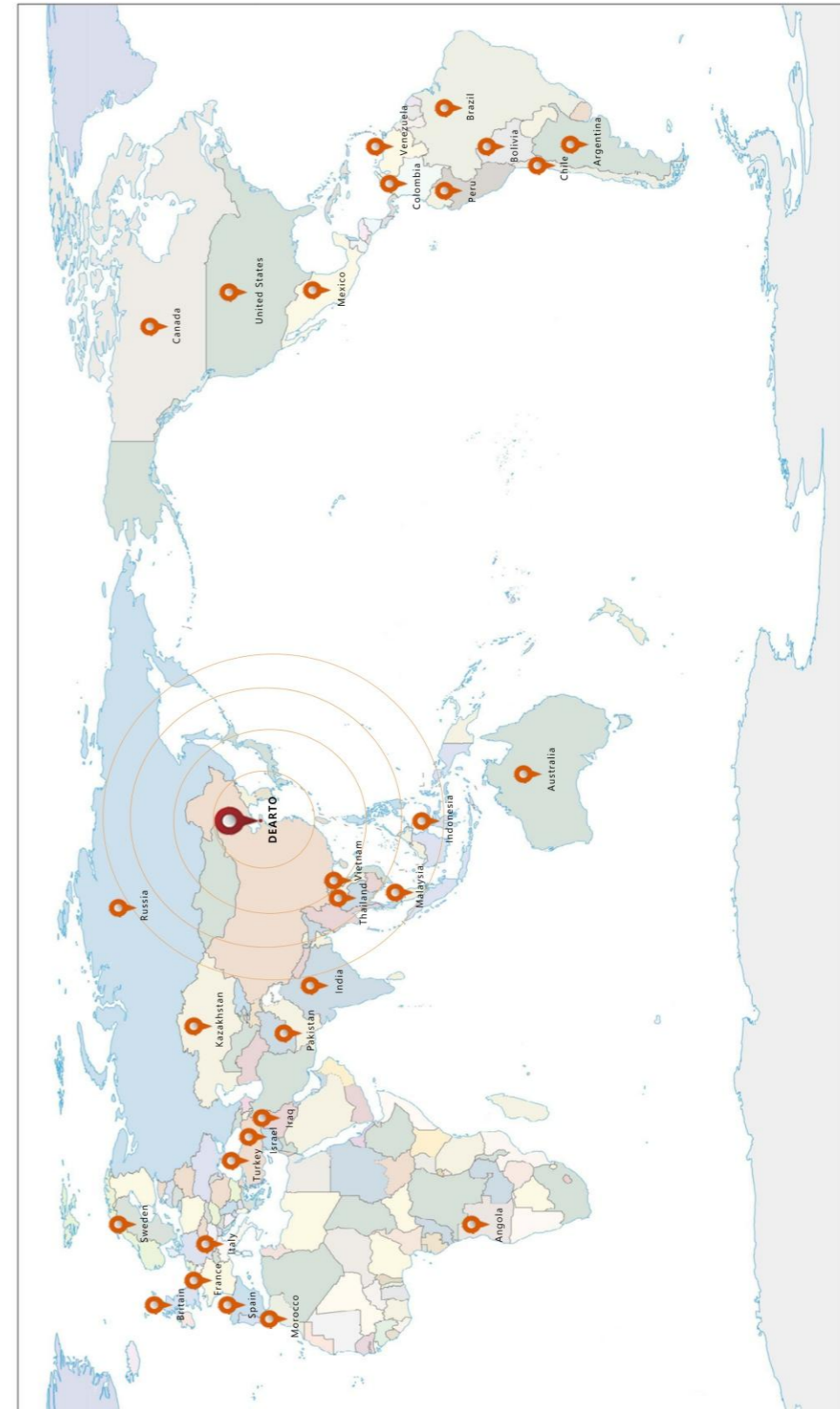| Name	Ear temperature/frontal thermometer calibration device	Thermometer calibration device
Model	DTME-50G	DTSE-50G
Temperature range	0°C ~ 50°C(32°C-42°C)	0°C~100°C
Display resolution	0.001°C	0.001°C
Temperature field uniformity	≤0.01°C	≤0.01°C
Temperature stability	±0.01°C /10min	±0.01°C/10min
Cavity diameter	φ10mm / φ50mm	φ130mm
Radiation coefficient	0.999	0.999
Power supply/input	220V/2kw	220V/2kw
Transition time	< 10min	< 10min
Environment temperature	15℃-30°C	15°C-30°C
Working medium	Antifreeze	Antifreeze

Hand switch

The manual transfer switch uses a specially machined low potential terminal to reduce the parasitic potential from the front-end wiring to data scanning acquisition. It can be compatible with the wiring of thermocouple, two-wire heating resistance, three-wire heating resistance and four-wire heating resistance. It can automatically complete the switching function of validation of three-wire heating resistance and eliminate the internal lead resistance of three-wire heating resistance.

Thermocouple quick furnace positioning device

The positioning device of thermocouple quick loading furnace is used for accurate positioning in the process of thermocouple validation. Gently pull the tray to make the validation furnace run along the track direction, and the thermocouple loading process can be completed quickly and accurately. The working end of thermocouple beam can be accurately sent into the center of uniform temperature field of validation furnace, and the accuracy and working efficiency of furnace positioning can be improved. The device can also be used as a whole, combining thermocouple validation furnace, precision temperature controller, support for a couple, special stand, zero temperature thermostat placement platform, compensation wire and other connections together, avoiding the tedious wiring and instrument placement problems, is the ideal supporting facilities for thermocouple validation and calibration.

DT1000G Thermocouple cleaning annealing unit

DT1000G thermocouple cleaning annealing device is designed in accordance with the "JJG75-1995", "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: 0-20A
- Accuracy of current regulation: 0.5 Scale
- Current display resolution: 0.1A
- Clean the number at the same time: 3
- Time adjustment accuracy: 1min
- Environment temperature: 0°C~30°C
- Relative humidity: ≤85%RH
- Overall dimensions mm :   1000(L)x460(W)x1770(H)

DTD-02G Glass liquid thermometer reading device

DTD-02 Liquid glass thermometer reading device is a reading device for testing liquid glass thermometers. It uses CCD technology to display the scale line of the thermometer on the LCD monitor, so that the scale line can be enlarged, and it can also be used for the observation of other images.

Product features

- The reading is clear and accurate, which greatly reduces the eye fatigue caused by long observation time and avoids the occurrence of errors.
- Observation field is large and can be observed by one or more people at the same time.
- Magnification is adjustable.
- Adjust azimuth sensitivity.
- The whole set of device includes observation and display part, sensitive adjustment, easy to move.
- Avoid testing high temperature glass liquid temperature timing, constant temperature tank high temperature medium evaporation harmful gas, close observation of the inspectors glass liquidHealth effects when the body thermometer is calibrated.

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"

Imaging display

Cloud platform

Digital precision pressure gauge

- Measuring range: -100kPa ~ 1kPa ~ 250MPa.
- Accuracy: ±0.02%, ±0.05%, ±0.1%, ±0.2%, ±0.5%.
- Measuring medium: Compatible with the sapphire phase of the pressure sensing part.
- Power source: four No. 5 batteries.

Pressure source series

Manual pressure source   Manual water pressure source   Hand hydraulic source

DTY2016 automatic pressure calibration table

- Pressure range: (-0.095 ~ 0 ~ 6) MPa The medium is air (0 ~ 70 ~ 100) MPa The medium is oil or water (-0.1 ~ 6) MPa medium is air
- Three output connectors: external standard pressure module, and external 2 gauges;
- Current measurement: (0 ~ 30) mA accuracy: 0.02%R.D+0.005%F.S
- Voltage measurement: (0 ~ 30) V accuracy: 0.02%R.D+0.005%F.S
- 24V DC power supply: multiple pressure transmitters can be supplied at the same time (load ≤500mA)
- Switch measurement: pressure switch on and off automatic measurement
- Display resolution: current, voltage 6 bits, pressure 5 bits
- Pressure accuracy class: 0.05%F.S, 0.02%F.S
- Pressure control fluctuation: 0.005%F.S last digit ±0 words
- Power supply: AC220V+10%/50Hz
- Overall dimensions: 600mm×400mm×280mmWeight: About 25kg

DTY2005 Fully automatic pressure calibration system

- Pressure range: micro pressure: (-20 ~ 20) kPa medium is air
- Air pressure: (-0.095 ~ 0 ~ 30 ~ 60)MPa medium is air
- Oil pressure: (0 ~ 70 ~ 100) MPa The medium is oil
- Water pressure: (0 ~ 70 ~ 100) MPa The medium is water
- Each part has three output connectors: external standard pressure module, and external 2 gauges;
- Current measurement: (0 ~ 30) mA accuracy: 0.02%R.D+0.005%F.S
- Voltage measurement: (0 ~ 30) V accuracy: 0.02%R.D+0.005%F.S
- 24V DC power supply: multiple pressure transmitters can be supplied at the same time (load ≤500mA)
- Switch measurement: pressure switch on and off automatic measurement
- Display resolution: current, voltage 6 bits, pressure 5 bits
- Pressure rating: 0.05%F.S, 0.02%F.S
- Pressure control fluctuation: 0.005%F.S last digit ±0 words
- Power supply: AC220V+10%/50Hz
- Dimensions: 1380mm×800mm×1200mm (can be customized according to user requirements)
- Weight: 120kg

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SGS

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