WGDW High and Low Temperature All-in-One Testing System

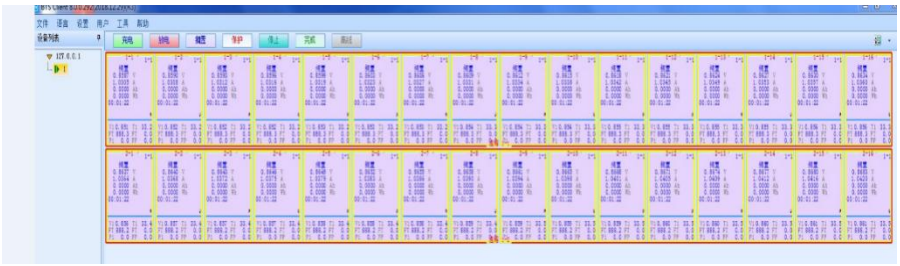
1. Model	
Material code	WGDW-100L-70C-380V-5U
2. Product application	
Product application	It is suitable for the adaptability test of electrical appliances, electronics and other products, parts and materials in aviation, automobile, scientific research and other fields when they are stored, transported and used in high and low temperature environment. It is a reliable test equipment for cell performance testing of new energy production enterprises and research institutes
3. Sample restrictions	
Sample restrictions	This test equipment is prohibited: Test or storage of samples of inflammable, explosive and volatile substances Testing or storage of corrosive material samples Testing or storage of biological samples Test or storage of samples from strong electromagnetic sources Testing and storage of radioactive material samples Testing and storage of samples of highly toxic substances Tests or storage of samples of the above substances or objects during testing or storage
4. Volume, size and weight	
Nominal volume	125L
Inner box size	W500 mm×D500 mm×H500 mm
External dimensions	W750 mm×D1220 mm×H1800 mm (excluding the height of protrusions)
Net weight of equipment	About 280 kg
5. Performance	
Test environment conditions	The ambient temperature is +25℃, the relative humidity is less than or equal to 85%, and there is no sample in the test chamber (no load)
Test method	GB/T 5170.2-2017 Temperature test equipment
Temperature range	-70℃ ~ 150℃
Temperature fluctuation	≤±0.5℃ (no load, temperature stable)
Temperature deviation	±2.0℃ (no load, temperature stable)
Heating time	+20℃→+150℃ ≤60 min (no load, average nonlinearity)
Cooling time	+20℃→-70℃ ≤75 min (no load, average nonlinearity)

Meet the test method	GB/T 2423.1-2008 Low temperature test method Ab GB/T 2423.2-2008 High temperature test method Bb GJB 150.3A-2009 High temperature test GJB 150.4A-2009 Low temperature test GB/T 10592-2008, technical conditions for high and low temperature test chamber (The heat capacity of the load is not greater than 35kg/m³ steel, and there is no active wet and hot load during the humid and hot test)
6. Structural characteristics	
Insulation envelope structure	Exterior wall material: high quality cold rolled steel plate, surface spray and paint treatment
Air conditioning channel	Centrifugal fan, heater, evaporator (also dehumidifier), etc., C-type air supply and return mode
Standard configuration of test chamber	Lead hole (optional): φ80mm / 2 (Paired with soft rubber plug, located on the right side of the box) Wheels: 4 (with adjustable feet) 
	Observation window: multi-layer hollow electric heating film heating anti-fog observation window (located on the door) Visible range: about 150×150 mm (width×height), glass with electric heating deicing, can provide the best observation line of sight; Lighting: 1 Cell pallet (optional): high temperature resistant electric insulation cell pallet 2 layers, load-bearing (evenly distributed): 15kg/l (the total bearing of samples in the box does not exceed 30kg) 
Doors	Single hinge door (left hinge, right handle), with observation window and lighting lamp Window frame/door frame anti condensation electric heating device, double layer
Control panel	Controller display, over-temperature protection setter, etc
Refrigeration unit room	Refrigeration unit, water tray, drainage hole, condenser, etc
Distribution control cabinet	Total power supply leakage circuit breaker, distribution board, exhaust fan, Ethernet physical interface 1
Heater	Nickel-chromium alloy electric heating wire heater Heater control mode: contact less periodic pulse width modulation, SSR (solid state
Power cable hole and osculum	Located on the back of the box
7. Refrigeration system	
Working mode	Mechanical compressor cascade refrigeration mode

Refrigeration compressor	France imports "Taikang" fully enclosed compressor or Emerson gas turbine compressor 
Main refrigeration components	Throttle valve, pressure controller, drying filter Electromagnetic refrigeration valve, reservoir, oil separator, etc
Evaporator	Finned tube heat exchanger (also used as dehumidifier)
Condenser	Air-cooled type: finned tube heat exchanger
Throttle device	Throttle valve/ capillary tube
Refrigeration machine control mode	The control system automatically adjusts the operating condition of the refrigeration unit according to the test conditions Compressor return gas cooling circuit
Refrigerant for manufacturing	R23/R404A (Ozone depletion index 0)
Welding process	Nitrogen protection welding
8. Control system	
Controller model	Professional temperature controller
Display	High color LCD touch screen
Operation mode	Program mode, set value mode
Setting method	Color touch human-computer interaction, Chinese/English interface
Control mode	Anti-integral saturation PID BTC balance temperature control mode
Temperature measurement method	Grade A armored PT100 sensor
Display accuracy	Temperature: 0.01℃; Time: 1min
Overtemperature protection	Independent overtemperature protector, when the studio temperature exceeds the temperature set by this protection device, it will protect the shutdown and send an alarm signal
9. Cell testing equipment and test interconnection	
Testing equipment	5V100mA80CH, located at the top of the box （Support customization）
Control unit	One
Network switch	One

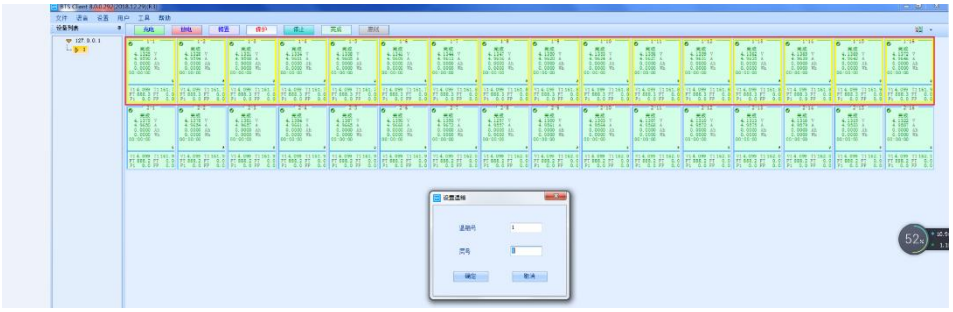
Upper computer programming control interface (see the equipment random materials for details)

Step 1: Open the software interface

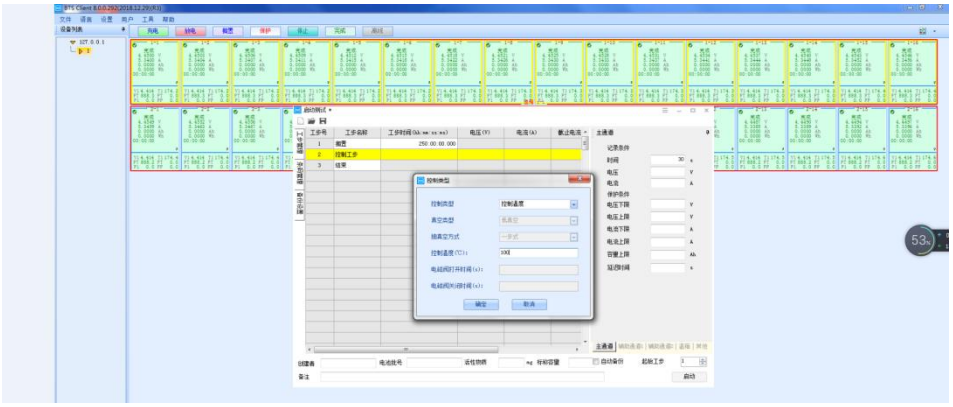


Step 2: Select the test chamber

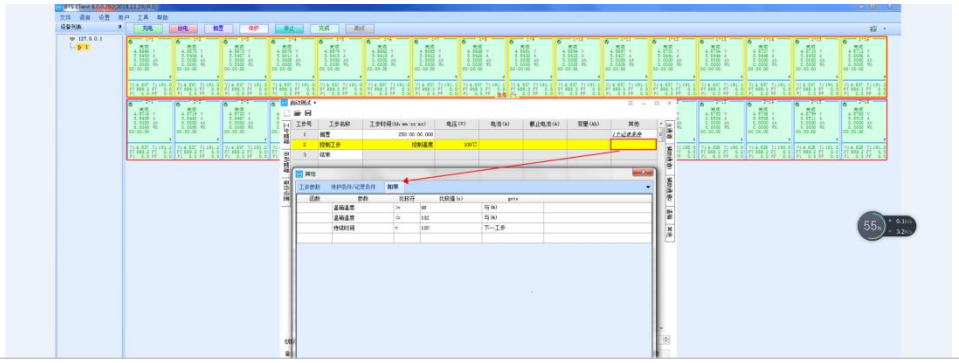
Step 3: Find the test chamber to be set up

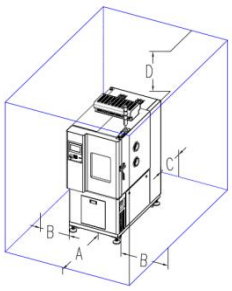


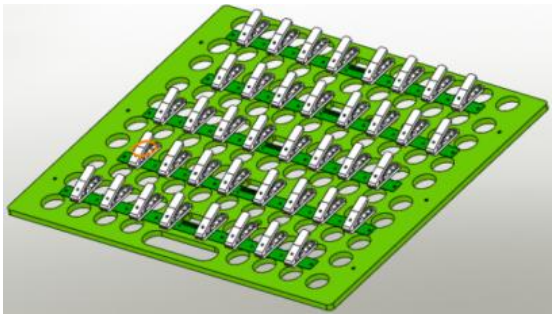
Step 4: Set the control temperature of the test chamber



Step 5: Set the work step control conditions



10. Safety protection device	
Refrigeration system	Compressor overheating, compressor overload, compressor overpressure
Test chamber	Adjustable over-temperature protection, abnormal protection of in-box circulating fan
Other	Power supply phase sequence and phase loss protection, leakage protection, overload and short circuit protection, power failure recovery protection
11. Other configurations	
Power cable	One five-core (three-phase four-wire + protective earth wire) cable (the specific specification is selected according to the contract requirements)
Total power leakage circuit breaker	Three phase four wire + protective earth wire
Data	Provide Chinese user manual and Chinese technical data
12. Transportation	**The test box is integral and transported as a whole**
Size	Maximum transport size (excluding packaging): "See 4.3 Dimensions"
Weight	Maximum transport weight (excluding packaging): "see 4.4 Weight"
13. Conditions of Use The user shall guarantee the following conditions (the installation of power	
Installation site	The ground is flat and conforms to GB50209-2002 specification: flatness is less than 5mm/2m well-ventilated There is no strong vibration around the equipment There is no strong electromagnetic field around the equipment There is no flammable, explosive, corrosive substances and dust around the equipment Appropriate space for use and maintenance is left around the equipment, as shown in the figure: A: no less than 80cm B: no less than 60cm C: not less than 70cm D: not less than 50cm 
Environmental conditions	Temperature: 5℃~35℃; Relative humidity: less than or equal to 85%; Air pressure: 86kPa~106kPa
Power supply conditions Source Power distribution maximum current	AC (380±38) V (50±0.5) Hz three-phase five-wire system The grounding resistance of the protective earth wire is less than 4Ω Users are required to install air or power switches with the corresponding capacity for the equipment at the installation site, and the switch must be used independently for the equipment
Others	Opening the door of the test chamber during the test will cause temperature fluctuations in the chamber; if the door is opened repeatedly or kept open for a long time during the test or the test sample emits moisture, it may cause the heat exchanger of the refrigeration system to freeze and fail to work normally

14. Cell specification and placement method	
Cell specification	Clip-on cell 80CH
Cell placement method	Place on the second floor, 40CH per floor
Cell tray form and cell fixing method	 pour: 1、The equipment is equipped with a two-layer battery dedicated cell pallet; 2. The pictures are for reference only, and the
15. Simulation diagram of stable operation of temperature in the test chamber (only schematic)	
no-load run