1. Product name: High and Low Temperature Test Chamber

Note: No picture is available, subject

1.1 Product model number	WGDW-50L-40-5V30A16CH (see 9.1 for specification of test equipment)

1.2 Model naming method

model	WGDW	-	50L	-	2	-	40	H	W	B	F	C	-	380V	-	B
characteristic	(1)		(2)		(3)		(4)	(5)	(6)	(7)	(8)	(9)		(10)		(11)

Meaning	(1)	High and low temperature box series
	(2)	Nominal content product of box in single temperature zone: 50L (other digital analogy)
	(3)	2:2 temperature zone box type (1 temperature zone does not indicate, other numbers by analogy)
	(4)	Minimum achievable temperature: 0:0℃, 20: -20℃, 40: -40℃, 70: -70℃
	(5)	Whether with damp heat function: H: damp heat type (dry hot type, without humidification function)
	(6)	Cooling mode of refrigeration unit: W: water cooled; A: air cooling (not omitted)
	(7)	B: Burproof (no burst function)
	(8)	F: Automatic fire extinguishing function (no fire extinguishing function)
	(9)	C: stacked refrigeration system (single compressor system, only for-40℃ equipment)
	(10)	380V: Equipment voltage 380V (default 380V omitted not indicated, other voltages by analogy)
	(11)	B: Product iteration update version number, then A, B, C....., Default A does not indicate

2. Product application	Suitable for aviation, automotive, scientific research and other fields of electrical, electronics and other products, parts and materials in high and low temperature environment storage, transportation, use of the adaptability test, is the new energy field production enterprises, scientific research institutes for the reliability of the cell performance test equipment
3. Limit the sample	This test equipment is prohibited by: Test or storage of samples of inflammable, explosive and volatile substances Test or storage of test samples of corrosive substances Testing or storage of biological samples Test or storage of samples of strong electromagnetic emission sources Test and storage of test samples of radioactive substances Test and storage of test samples of highly toxic substances Testing or storage of tests or specimens that may produce such substances or objects
4. Volume, size, and weight	
4.1 Nominal content product	50L
4.2 Inner box size	W450mm×D350mm×H320mm
4.3 Overall dimensions	W710mm×D1000 mm×H700mm (without, bulge)
4.4 Net weight of the equipment	About 120kg
5. Performance	
5.1 Test the environmental conditions	Ambient temperature at +25°C, relative humidity ≤85%, with no specimen inside the test chamber (idle condition)

5.2 Test method	GB / T 5170.2-2017 temperature test equipment
5.3 Temperature range	-40℃～100℃
5.4 Temperature fluctuation degree	≤±0.5℃ (when no load, temperature is stable)
5.5 Temperature deviation	±2.0℃ (when no load and temperature is stable)
5.6 Heat-up time	+20℃ → +100℃ 40 min (no load, average nonlinear)
5.7 Cooling time	+20℃ → -40℃ 60 min (no load, average nonlinear)
5.8 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 of high and low temperature test box (Load is not greater than heat capacity of 35 kg/m^3 steel, no active humidity and thermal load during damp heat test)
6. Structural characteristics	
6.1 Thermal insulation and envelope structure	Outer wall material: high quality cold-tempered steel plate, surface spray plastic and paint treatment Inner wall material: stainless steel plate SUS304 Box insulation material: rigid polyurethane foam + glass wool (insulation thickness: 70mm) Door thermal insulation material: glass wool
6.2 Air conditioning channel	Centrifugal fan, heater, evaporator (and dehumidifier), etc

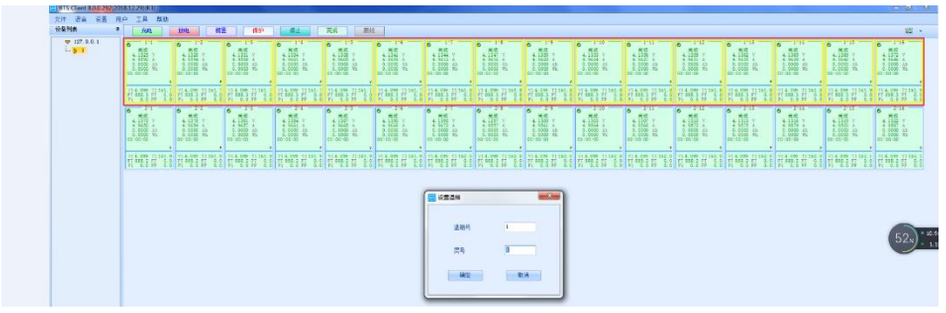
6.3 Standard configuration of the test box	Lead holes (increased): φ50mm / 2 (With soft glue plug) Casters: 4 (with adjusting feet) 
	Observation window: multi-layer insulating electric heating film heating anti-fog observation window (located on the door) The visual range is about: 150×150mm (W×H), with electric thermal defogging in the glass, which can provide the best observation line of sight; Lighting lamp: 1 Cell tray (increased): 2 layers of high temperature resistant electric insulation cell tray, load-bearing (uniform): 5kg / layer (cumulative total load of samples in the box does not exceed: 10kg) 
6.4 Door	Single open hinge door (left hinge, right handle), with observation window, lighting, Window frame / door frame anti-condensation electric heating device, double-layer silicone rubber sealing strip
6.5 The Control Panel	Controller display screen, overtemperature protection setting device, etc
6.6 Refrigeration unit room	Refrigeration unit, water connection tray, drainage hole, condenser, etc
6.7 Power distribution control cabinet	Total power supply leakage circuit breaker, distribution board, exhaust fan, Ethernet physical interface 1 Temperature and humidity controller, AC contactor, circuit breaker, thermal relay Temperature-limiting protector, solid-state relay and transformer, etc
6.8 Heater	Nickel-chromium alloy electric heating wire type heater

	Heater control mode: no contact and other periodic pulse widening, SSR (solid state relay)
6.9 Power cord hole and drainage hole	Located on the back of the box
7. Refrigeration system	
7.1 Working mode	Mechanical compression, single-stage refrigeration mode
7.2 Refrigeration compressor	France imported "Taikang" fully enclosed compressor or Emerson Valley wheel compressor 
7.3 Main refrigeration components	Expansion valve, pressure controller, dry filter, Refrigeration solenoid valve, liquid reservoir, oil separator, etc
7.4 Evaporator	Finned tube heat exchanger (also used as a dehumidifier)
7.5 Condenser	Air-cooled type: fin-tube type heat exchanger
7.6 The throttle device	Expansion valve / capillary tube
7.7 Control mode of the refrigerator	The control system automatically adjusts the operating condition of the refrigeration unit according to the test conditions Compressor return cooling circuit
7.8 Refrigerant	R404A (the ozone depletion index is 0)
7.9 Welding process	Nitrogen filling protection welding
8. Control system	
8.1 Controller model number	Professional temperature controller
8.2 Display	Hd color LCD touchscreen
8.3 Operation mode	Program mode, fixed value mode

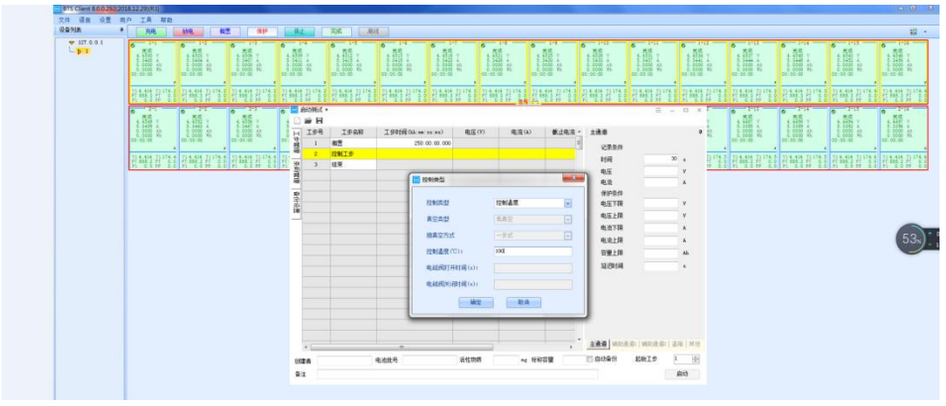
8.4 Setting mode	Color touch, human-computer interaction, Chinese / English interface
8.5 Control mode	Anti-integral saturation PID BTC balance temperature regulation control mode
8.6 Temperature measurement method	Class A armored PT100 sensor
8.7 Display accuracy	Temperature: 0.01℃; time: 1min
8.8 Overtemperature protection	Independent overtemperature protector will protect the shutdown and send an alarm signal when the studio temperature exceeds the temperature set by this protection device
9. Interconnection with the battery cell testing equipment	
9.1 Testing equipment	5V30A16CH, is located at the top of the box
9.2 The median machine	One
9.3 The Network Switch	One
9.4 Upper computer programming control interface (see equipment random data for details)	Step 1: Open the software interface  Step 2: Select to set up the test box



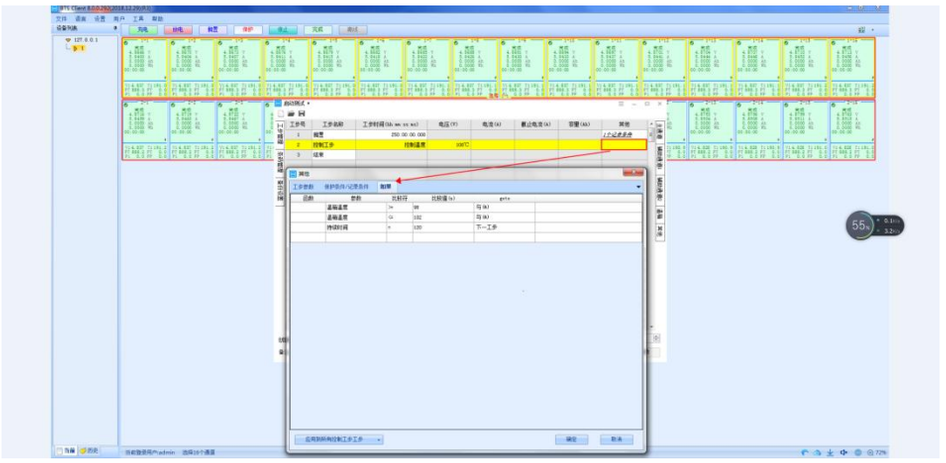
Step 3: Find the test box to be set up

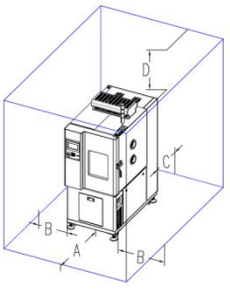


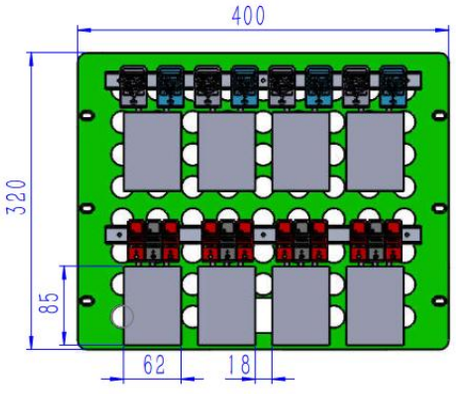
Step 4: Set up the test box to control the temperature



Step 5: Set the working step control conditions

	
10. Safety protection device	
10.1 Refrigeration system	Compressor overheating, compressor overload, compressor overpressure, condensing fan overheating
10.2 Test box	Adjustable overtemperature protection, abnormal protection of the circulation fan in the box
10.3 Other	Phase sequence and phase protection of total power supply, leakage protection, overload and short circuit protection, power recovery protection
11. Other configurations	
11.1 Power supply cable	1 five-core (three-phase four-wire + protective ground wire) cable (specific specifications are selected according to the contract requirements)
11.2 Main power supply leakage circuit breaker	Three-phase, four-wire + protective ground wire
11.3 Data	Provide the Chinese user manual and the Chinese technical materials
12. Transportation test box is integral, overall transportation	
12.1 Dimensions	Maximum shipping size (excluding packaging): "See 4.3 Outline dimensions"
12.2 Weight	Maximum shipping weight (excluding packaging): "See 4.4 Weight"

13. The following conditions are guaranteed by the user (the user is responsible for the installation of the power supply line of the equipment)	
13.1 Installation site	The ground is flat and complies with GB50209-2002 specification: flatness 5mm / 2m well-ventilated No strong vibration around the equipment There is no strong electromagnetic field influence around the equipment There is no flammable, explosive, corrosive substances and dust around the equipment Appropriate space for use and maintenance around the equipment, as shown in the figure: A: not less than 60cm; B: not less than 60cm C: No less than 70cm; D: not less than 50cm 
13.2 The Environmental conditions	Temperature: 5℃~35℃; relative humidity: ≤85% air pressure: 86kPa ~ 106kPa
13.3 Power supply conditions Power source Distribution power Maximum current	AC (380±38)V (50±0.5) Hz three-phase five-wire system The protective ground ground resistance is less than 4Ω The user is required to configure an air or power switch for the equipment at the installation site, and the switch must be independent for the equipment 3kW (temperature box) + 3.6kW (test equipment) 6A (temperature box) + 7.2A (test equipment)
13.4 Other	Opening the door of the test box during the test will cause the temperature fluctuation in the box; If the door opens many times or leaves the door open for

	a long time or the test sample emits wet steam, the heat exchanger of the refrigeration system may freeze and fail to work normally
14. Cell specifications and placement method	
14.1 Cell specifications	Soft pack cell 5V30A16CH, cell size see the following figure
14.2 Cell placement mode	Second floor placement, each floor is 8 CH
14.3 The cell pallet form and the cell fixing mode	 Pour: 1、Each layer of cell tray is equipped with 2 C type rail, a total of 4; 2、 The channel line should use silicone rubber soft line; 3、Pictures are for reference only, subject to the physical object.
15. Simulation diagram during stable temperature operation in the test box (schematic diagram only)	
No-load run	