Constant Temperature Chamber

1. Product model number

WHW-200L

Model naming method

Model	WHW	-	200 L	-	4T	S	-	5V10mA 160CH	-	220V	-	B
Characteristic	①		②		③	④		⑤		⑥		⑦

Symbol meaning		
	①	Constant temperature test box series
	②	Nominal volume: 200L (other digital analogy)
	③	4T: 4 temperature zones (not indicated by the single temperature zone)
	④	Refrigeration mode: S represents the semiconductor refrigeration (temperature range: 15℃ -60℃) Compressor refrigeration does not indicate (temperature range: 0℃ -60℃)
	⑤	5V10mA 160CH: Power supply equipment specifications and number of channels, but not omitted by default
	⑥	220V: Equipment voltage 220V (default 220V omitted not indicated, other voltages by analogy)
	⑦	B: Product iteration update version number, then A, B, C....., Default A does not indicate

2. Product application

- Constant temperature test of new energy soft package polymer cell and buckle cell
- Electronic, electrical, instrument, materials, semiconductor and other production enterprises to non-flammable, non-explosive items for constant temperature test
- Environmental protection, agricultural and livestock, aquatic scientific research institutions and production of water analysis, bacteria, mold, microbial culture, preservation, plant cultivation, breeding test of constant temperature test

3. Limit the sample

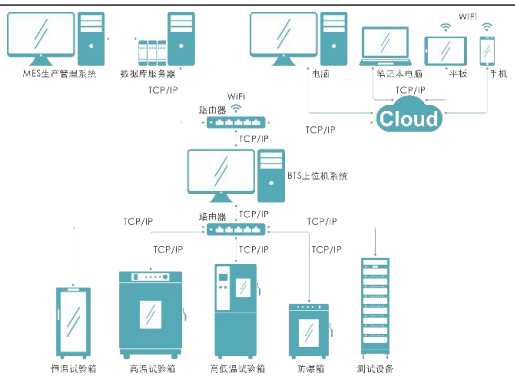
This test equipment is prohibited by:

- Test or storage of samples of inflammable, explosive and volatile substances
- Test or storage of test samples of corrosive substances
- 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 and size

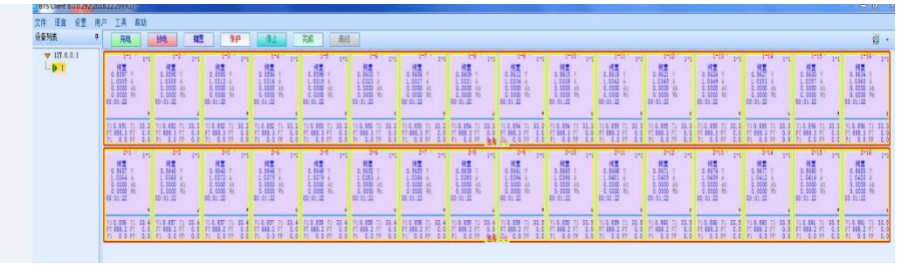
4.1 Nominal content product	200L
4.2 Inner box size	W500 mm × D 00 mm × H800 mm

4.3 Overall dimensions	W600 mm × D720 mm × H1500 mm
4.4 Net weight of the equipment	About 160kg
5. Performance	
5.1 Test the environmental conditions	Ambient temperature is + 25℃, relative humidity is 85%, with no sample in the test box (no load)
5.2 Temperature range	0～60℃
5.3 Temperature fluctuation degree	≤1℃ (equivalent to ± 0.5℃, with no load and stable temperature)
5.4 Temperature deviation	± 2.0℃ (when no load and temperature is stable)
5.5 Heat-up time	25℃~60℃ ≤30 min (no load, average nonlinearity)
5.6 Cooling down time	25℃~0℃ ≤50 min (no load, average nonlinear)
6. Structural characteristics	
6.1 Thermal insulation and envelope structure	Outer wall material: high quality cold-rolled steel plate, surface spray plastic and paint treatment Inner wall material: stainless steel plate SUS304 Box insulation material: polyurethane foam (insulation thickness of 50mm)
6.2 Air conditioning channel	Axial flow fan, heater, and evaporator
6.3 Standard configuration of the test box	Box door: air anti-fog toughened glass + frame Lead hole (with soft glue plug): ϕ 80mm / 4 Caster: 4 pcs (with brakes) Cell tray: electric insulation, cell tray 4 layers, load-bearing (all cloth): 10kg / layer Lighting: LED lighting lamp 
6.4 The Control Panel	Touch-type control button
6.5 Heater	Stainless steel, a heating pipe Heater control mode: no contact and other periodic pulse widening, SSR (solid state relay)
7. Refrigeration system	

7.1 Refrigeration compressor	Fully enclosed piston compressor 
7.2 Cooling mode	Air-cooled
7.3 The throttle device	Capillary
7.4he refrigerant	R134a
7.5 Welding process	Nitrogen-charge protective welding
8. Electrical control system	
8.1 controller	LED digital display + touch key type controller
8.2 Setting mode	Touch key type
8.3 Control mode	Forced circulating ventilation and balancing temperature regulation method. The control system controls the output of the heater through the PID automatic operation output result according to the set temperature value, so as to achieve a dynamic balance
8.4 Communication mode	The Ethernet standard interface
8.5 Temperature control module	Independent research and development (high and low temperature shock, vibration and EMC)
9. Interconnection with the battery cell testing equipment	
9.1 Hardware connection of the equipment	BTS upper computer, cell testing equipment and test box pass Channel line, and data communication line to achieve hardware interconnection 
9.2 Schematic diagram of the network	

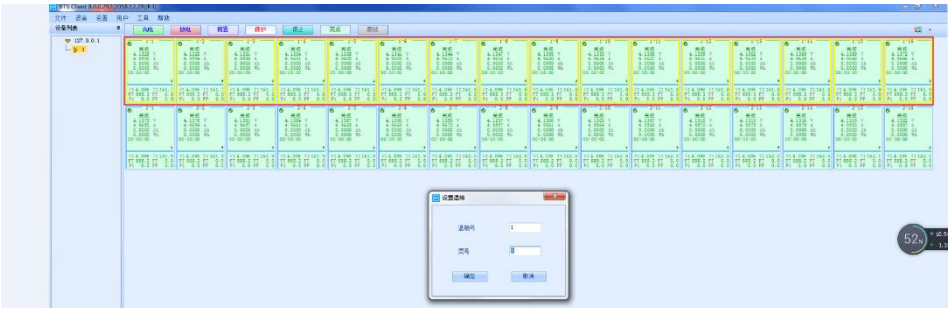
9.3 Upper computer programming control interface (see equipment random data for details)

Step 1: Open the software interface

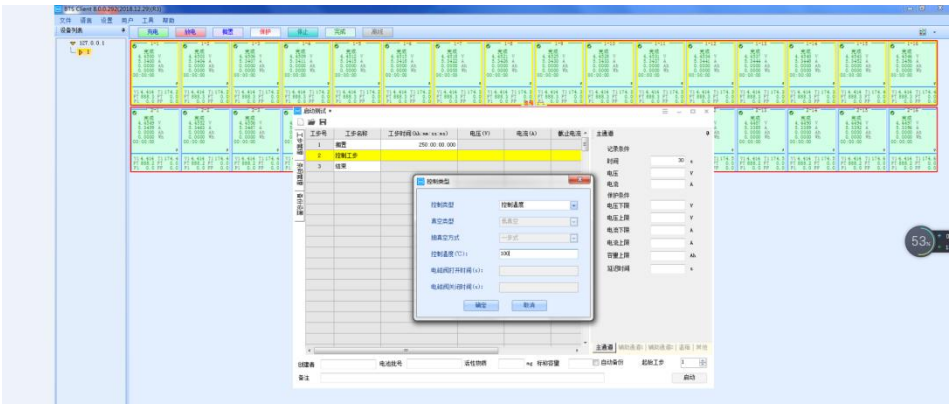


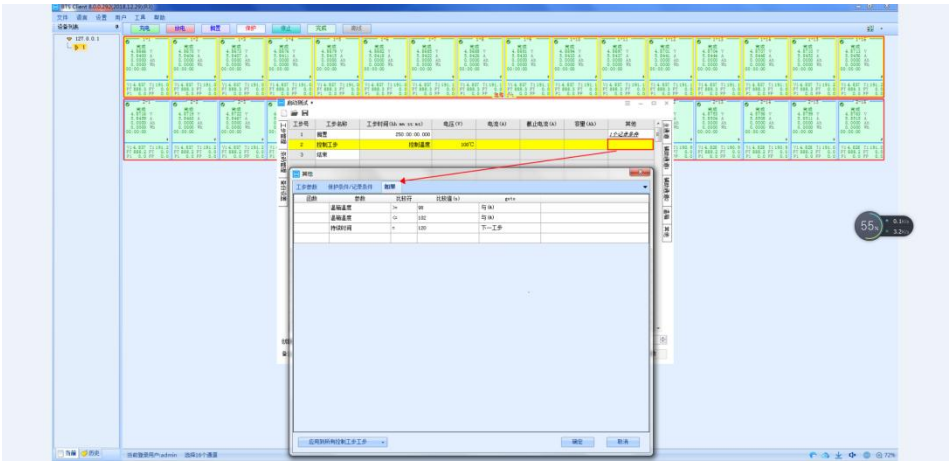
Step 2: Select to set up the test box

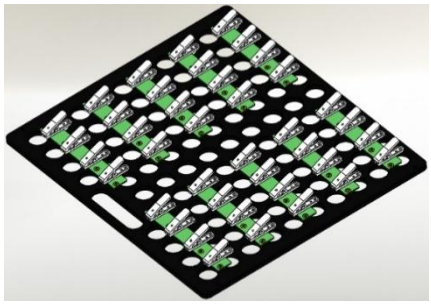
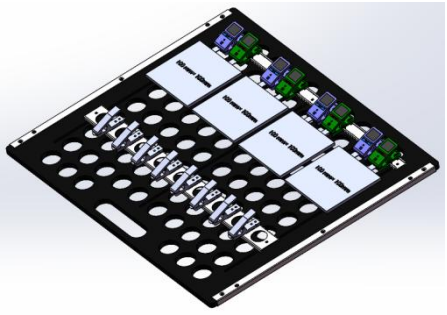
Step 3: Find the test box to be set up



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



	Step 5: Set the working step control conditions 
10. Safety protection device	
Test box	Leakage protection, short-circuit protection, etc
11. Other configurations	
11.1 Power supply cable	(Single-phase + protected ground wire) 1 cable (the specific specifications are selected according to the contract requirements)
11.2 Main power supply leakage circuit breaker	Single-phase + protective ground line
12. Transportation test box is integral, overall transportation	
size	Maximum shipping size (excluding packaging): "See 4.3 Outline dimensions"
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	● Ground level and flatness of 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 ● There is appropriate use and maintenance space around the equipment. There should be room for the opening door of the equipment, and no other objects in front of the equipment door
13.2 The Environmental conditions	Temperature: 5℃ ~35℃; relative humidity: 85%; air pressure: 86 kPa ~ 106 kPa

13.3 Power supply conditions Source Power capacity maximum current	● AC (220 ± 22) V (50 ± 0.5) Hz single-phase + protected ground wire ● The protective ground ground resistance is less than 4 Ω ● 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 ● 2k W ● 10A
13.4 Other	Opening the door of the test box will cause the temperature fluctuation in the box; if opening the door several times or opening the door for a long time or the test sample emits wet steam, the heat exchanger of the refrigeration system may cause frost or freeze and fail to work normally
14. Cell specifications and placement method	
14.1 Cell specifications	Buckle-type cell or soft-pack cell
14.2 Cell placement mode	Four layers are placed (up to 40 buckle cells can be placed in each layer)
14.3 Cell tray form and cell fixing mode (cell tray can be customized as needed) Cell tray using electric, insulated electric wood quality	 purpose-made pallet  General tray
15. Simulation diagram during stable temperature operation in the test box (schematic diagram only)	
No-load run