# 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℃)<br>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**

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

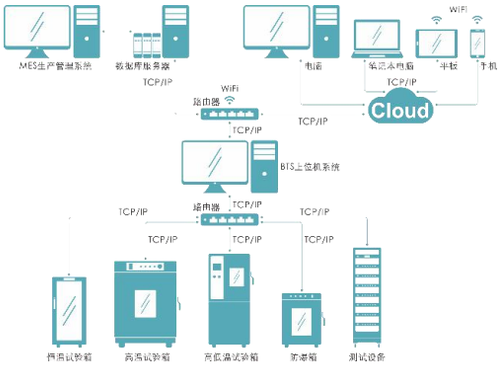


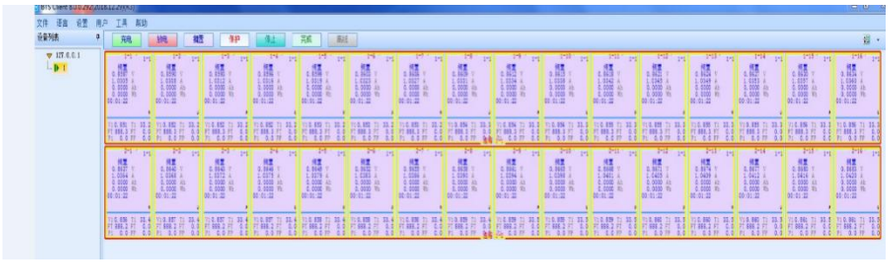
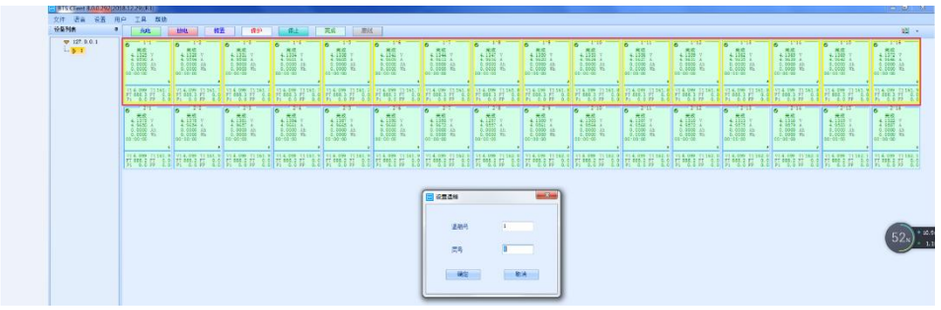
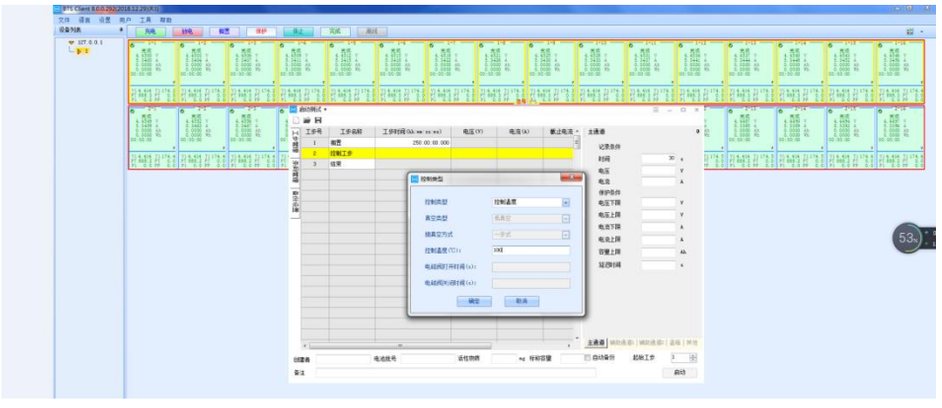
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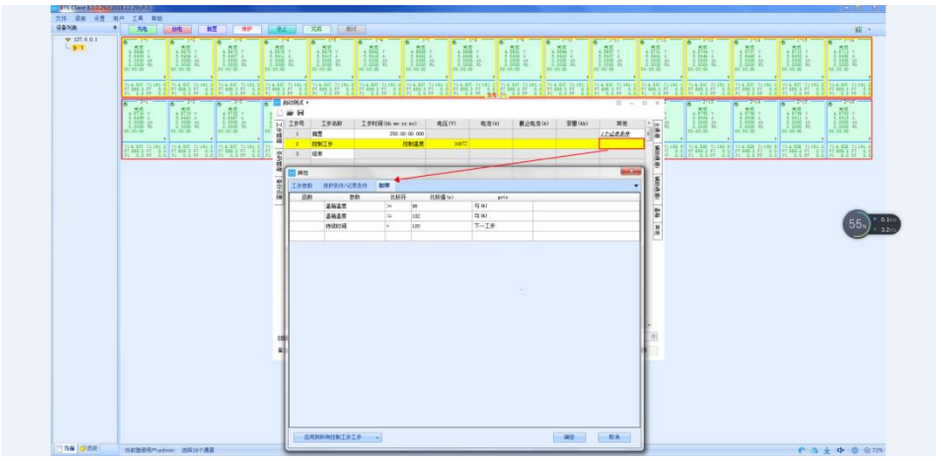
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| 4.3 Overall dimensions | W600 mm × D720 mm × H1500 mm |
| 4.4 Net weight of the equipment | About 160kg |
| **5. Performance** | |
| 5.1 Test the environmental conditions | Ambient temperature is + 25℃, relative humidity is 85%, with no sample in 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<br>Inner wall material: stainless steel plate SUS304<br>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<br>Lead hole (with soft glue plug): ϕ 80mm / 4<br>Caster: 4 pcs (with brakes)<br>Cell tray: electric insulation, cell tray 4 layers, load-bearing (all cloth): 10kg / layer<br>Lighting: LED lighting lamp  |
| 6.4 The Control Panel | Touch-type control button |
| 6.5 Heater | Stainless steel, a heating pipe<br>Heater control mode: no contact and other periodic pulse widening, SSR (solid state relay) |
| **7. Refrigeration system** | |

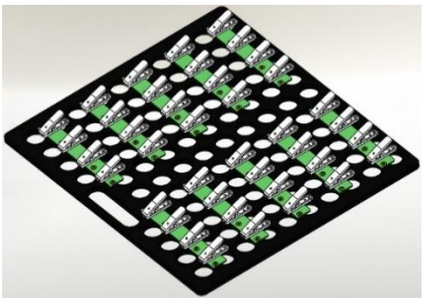
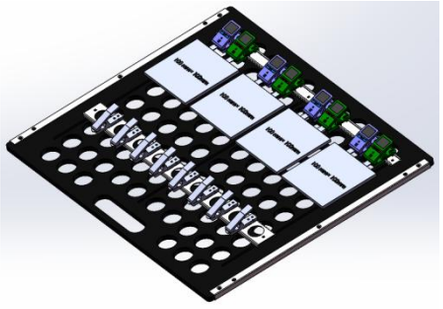
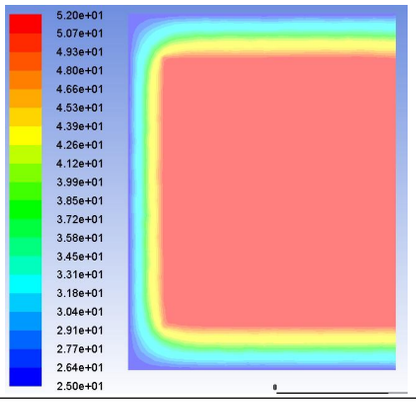


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| 7.1 Refrigeration compressor | Fully enclosed piston compressor  |
| 7.2 Cooling mode | Air-cooled |
| 7.3 The throttle device | Capillary |
| 7.4he refrigerant | R134a |
| 7.5 Welding process | Nitrogen-charge protective welding |
| **8. Electrical 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 |  |

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| 9.3 Upper computer programming control interface (see equipment random data for details) | Step 1: Open the software interface<br><br>Step 2: Select to set up the test box<br><br>Step 3: Find the test box to be set up<br><br>Step 4: Set up the test box to control the temperature<br> |

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| | Step 5: Set the working step control conditions<br> |
| **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<br>● well-ventilated<br>● No strong vibration around the equipment<br>● There is no strong electromagnetic field influence around the equipment<br>● There is no flammable, explosive, corrosive substances and dust around the equipment<br>● 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 |

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| 13.3 Power supply conditions<br><br>Source<br><br>Power capacity maximum current | ● AC (220 ± 22) V (50 ± 0.5) Hz single-phase + protected ground wire<br>● The protective ground ground resistance is less than 4 Ω<br>● 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<br>● 2k W<br>● 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)<br><br>Cell tray using electric, insulated electric wood quality | <br>purpose-made pallet<br><br>General tray |
| **15. Simulation diagram during stable temperature operation in the test box (schematic diagram only)** | |
| No-load run |  |