



Technical Specification



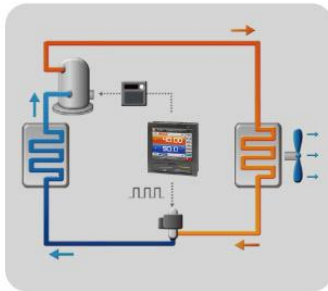
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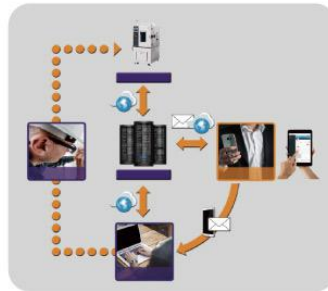


Mobile phone sweep
can visit our official website

1. Product overall view (Picture for reference only)



Energy Conservation



Remote network system



Circuit System

1.Product description:

1.1.R&D background

Battery explosion-proof high and low temperature test chamber is widely used to do accelerated damp and thermal testing, alternating temperature test and constant temperature test and etc in aerospace, aviation, electronics, automobiles, batteries and other industries, and also could do routine tests at high and low temperatures.Storage at low temperature to evaluate the performance of the specimen under given environmental conditions.

1.2.Product positioning

Providing virtual space to simulate the real environment, to verify the product inspection and R&D results for aerospace, aviation, electronics, automobile, battery and other products and quality inspection institutes, research institutes, colleges and universities and other experimental units. the test chamber is to shorten the development period. An indispensable right-hand man to improve product quality and reliability.

2.Product parameter, structure and system introductions:

2.1.Technical parameters:

| Model | | SM-G-1000-CA-FB |
|-----------------------|---------------------------|--|
| Temperature | Temperature control range | RT +10°C ~ +200°C |
| | Temperature fluctuation | ±0.5°C |
| | Cooling rate | Natural cooling |
| | Heating rate | RT + 10.0°C ~ +200.0°C within 30 mins (6.0 ~ 8.0°C/min) |
| | Temperature uniformity | ±2.0°C (RT +10.0°C ~ +100.0°C) ±2.5°C (+100.1°C ~ +200.0°C) |
| Material / components | Internal material | Adopts 1.2mm thickness stainless steel (SUS#304) |
| | External material | Adopts 1.2mm thickness cold rolled steel sheet / powder coating |
| | Heat insulating material | 100mm thickness polyurethane plate + 10mm thickness mineral wool |
| | Heater | Nickel chromium alloy heating wire |
| Safety features | Pressure relief port | 1pc 500mm x 500mm pressure relief port (automatically pop up to open when the internal pressure reaches to 0.104MPa) |
| | Explosion proof chains | To hold the door all the time to prevent the door exploded |
| | Insulation painting | To prevent the short circuit |
| Size/Weight | Internal dims (mm) | W1000 x D1000 x H1000 |
| | External dims (mm) | W1200 x D1450 x H1550 |

| | | |
|--------------|-----------------------------------|------|
| | Volume (L) | 1000 |
| | Weight (kg) | 600 |
| Power supply | 3 phases 380V AC 50Hz 27A | |
| Controller | Sanwood self-developed controller | |

2.2. Test sample limitations and test standards:

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|-------------------------|---|
| Test sample limitations | <p>Do not test or store of explosive, flammable, volatile materials</p> <p>Do not test or store of corrosive substances</p> <p>Do not test or store of biological samples</p> <p>Do not test or store of strong electromagnetic emission source samples</p> <p>Do not test or store of radioactive material samples</p> <p>Do not test or store of samples of highly toxic substances</p> <p>Do not test or store of samples that may produce highly toxic substances during testing or storage</p> |
| Test standards | IEC 60086-4, IEC 61960, IEC 62133, IEC 62660-2, IEEE 1625, IEEE 1725, SAE J2464, UL 1642, UL 2054, UN38.3 Lithium battery transportation testing. |

3. Chamber structure:

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| Structure | Assemble type |
| Internal chamber material | SUS#304 heat-resistant and cold-resistant stainless steel plate (1.2mm) internal chamber structure full seamless welding |
| Internal structure strengthening | SUS#304 (2mm) stainless steel reinforcement |
| External chamber material | Cold rolled steel sheet with powder coating (color can be customized) |
| Insulation material | Germany Bayer refractory grade high strength PU polyurethane foam insulation material + ultra-fine glass fiber |
| Door edge material | Double-layer high-tension silicone rubber seal, temperature resistant -90~180°C, lifespan up to 15 years |
| Explosion proof view window | The observation window is an automatic defrosting function of the multi-layer hollow tempered glass belt, which can ensure the frost-free and condensation phenomenon of the glass surface during any test. The explosion-proof membrane is applied to the explosion-proof membrane to prevent the impact of product explosion |
| Sample rack | Stainless steel sample holder 2 layers, height is adjustable, load-bearing (uniform): 20kg/layer |

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| Moving and positioning mode | 4 high load-bearing pulleys and PU horizontal angle wheels at the bottom for moving and fixing the equipment |
| Cable port(s) | 4pcs on right side with diameter of 100mm, black plastic cap, silicon plug, |
| Floor bearing | ≤ 100kg/m ² (uniform load) |
| Circulating motor | Stainless steel extended shaft circulating motor ensures long-term operation and sufficient air volume operation |
| Circulating wind wheel | The multi-wing centrifugal circulating wind wheel is used to strengthen the shaft and aluminum alloy to make high and low temperature resistant rotating blades, so as to achieve forced convection and effectively avoid looping dead angles. |
| Circulating air duct | The temperature-adjusting and conditioned air duct is designed as a double air duct, which is connected to the internal chamber but isolated. The wind path is in the form of a wind returning from the wind. The partition plate is formed by cold-bending processing of high-quality stainless steel plates, and adjustable louvers are used at the air outlet. Indirect heater, saturated humid air inlet, refrigeration dehumidification evaporator and circulating blast wind wheel are arranged in the temperature regulation air passage |

4. System introduction:



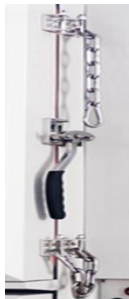
| | |
|--------------------------|---|
| Heating wires | High-quality explosion-proof nickel-chromium alloy heating wires (high resistivity, small temperature coefficient of resistance, small deformation at high temperature and not easy to embrittlement, self-heating temperature up to 1,000-1,500°C, long service life) rapid heat exchange, no hysteresis |
| Heating wires control | The solid state relay is used as a heating actuator, and there is no large current fluctuation and impact phenomenon, and the operation is stable. |
| Heating wires protection | The heating wires are provided with anti-dry protection to prevent the heater from continuously burning after the circulation fan stops for some reason, causing the heater itself to burn out or other accidents. |




5. Control system:

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| Controller model | Sanwood - SH5600 |
| Temperature setting accuracy | 0.01°C |
| Temperature control accuracy | ±0.5°C |
| Setting time capacity | 0H1M ~ 9,999H59M |
| Program time capacity | 100 groups with 99 segments/group, 999 cycles, Time 0H1M ~ 590H59M |
| Arithmetic control | The intelligent microcomputer PID+SSR/SCR can automatically forward and reverse the two-way synchronous output, including advanced slope control logic, which can set the temperature |

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|------------------------------|---|
| | synchronization slope, and the control precision is stable and accurate. |
| Communication interface unit | Standard communication interface device with Ethernet, can be connected and controlled simultaneously with computer (PC), equipped with full English PC software. |

7. Product explosion-proof function description:

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|---|--|
| 7.1. Explosion-proof safety design of chamber | |
| Internal chamber structure and material | The material of high and low temperature indoor chamber is made of high-strength stainless steel plate, and the whole machine is combined and integrated to prevent the damage of the box caused by the impact of the battery explosion. |
| Insulation design | Germany Bayer refractory grade high-strength PU polyurethane foam insulation and insulation material, the fire rating reaches Class A flame retardant, which can prevent the spontaneous combustion of the test chamber after the fire and explosion under abnormal battery test conditions.  |
| Window design | The observation window is covered with tempered glass and an explosion-proof membrane is applied to prevent the impact of the explosion of the battery on the personnel.  |
| Test chamber door chain | Designed with an explosion-proof safety door handle. Adding an explosion-proof chain to prevent the explosion during the test.  |

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| 7.2. Pressure relief port | |
| Explosion-proof pressure relief port | <p>The chamber designed with explosion-proof pressure relief port which used to release the sudden increased pressure in the cabinet (up to 0.104MPa).The port is automatically popped out to release the destructive pressure inside the chamber to prevent the explosion from such sudden increased pressure.</p>  |
| 7.3 CO2 fire extinguisher system | |
| CO2 Fire extinguishing device | <p>It is equipped with a set of CO2 fire extinguishing device, with automatic control solenoid valve and manual control. It can be set up with combustible gas detection probe or temperature sensor linkage, used to burn CO2 gas when the battery is on fire.</p>  |
| 7.4 Rare gas detector (optional to choose) | |
| Rare gas detector | <p>This device can be optionally selected to install in the area of electrical control cabinet, it will display and real time monitor the gas type generated by the battery during the abnormal charging/discharging, it can support to detect up to 30+ gas types (CO, H2S, SO2, NO, NO2 and etc), it can also monitor the O2 concentration from 0 to 30%, when there is any detectable gas detected, it will send alarm to the controller and display the real time concentration for the gas;</p>  |
| 7.5 CCTV monitor (optional to choose) | |
| CCTV monitor | <p>High resolution of CCTV monitor can be equipped inside to monitor the real time test status.</p> |



8. Main parts list:

| Name | Brand | Note |
|------------------------------------|---------------------------|---------|
| Controller | Weinview | SH-5600 |
| Heat exchanger | SANWOOD customized | |
| Leakage protection switch | France Schneider | |
| AC relay | France Schneider | |
| Thermal relay | France Schneider | |
| Phase sequence relay | Switzerland Carlo Gavazzi | |
| Solid state relay | Switzerland Carlo Gavazzi | |
| Temperature sensor | Taiwan Thermoway | |
| Circulating motor | Taiwan Yuzheng | |
| Over temperature protection device | South Korea RAINBOW | |

9. Product safety protection devices

- 1) Test chamber over-temperature protection (the independent adjustment temperature protector)
- 2) Attached no fuse protection switch
- 3) Heater over-temperature protection switch
- 4) System over-current protection device
- 5) Fast fuse
- 6) Fuseless switch
- 7) Line fuse
- 8) Vertical three-color warning light: yellow for power on; green for operation; red for fault.

10.Product safety conditions

| | |
|---------------------------------|--|
| Site requirements | Flat floor, well ventilated, free of flammable, explosive, corrosive gases and dust There is no strong electromagnetic radiation nearby |
| Indoor environmental conditions | Temperature: 5°C ~35°C Relative humidity: < 85%RH Air pressure: 86 ~106kpa |
| Equipment requires power | AC 380V three-phase four-wire + protective ground wire Voltage allowable fluctuation range: AC 380V (±10%) Frequency allowable fluctuation range: 50Hz(±1%) Protective earthing wire grounding resistance is less than 4Ω Users are required to configure a device with a considerable capacity of air or power switch at the installation site, and this switch must be used exclusively for this device. |



Sanwood self-developed controller



LED指示灯
LED indicating light



金属机械按钮
Metal mechanical button



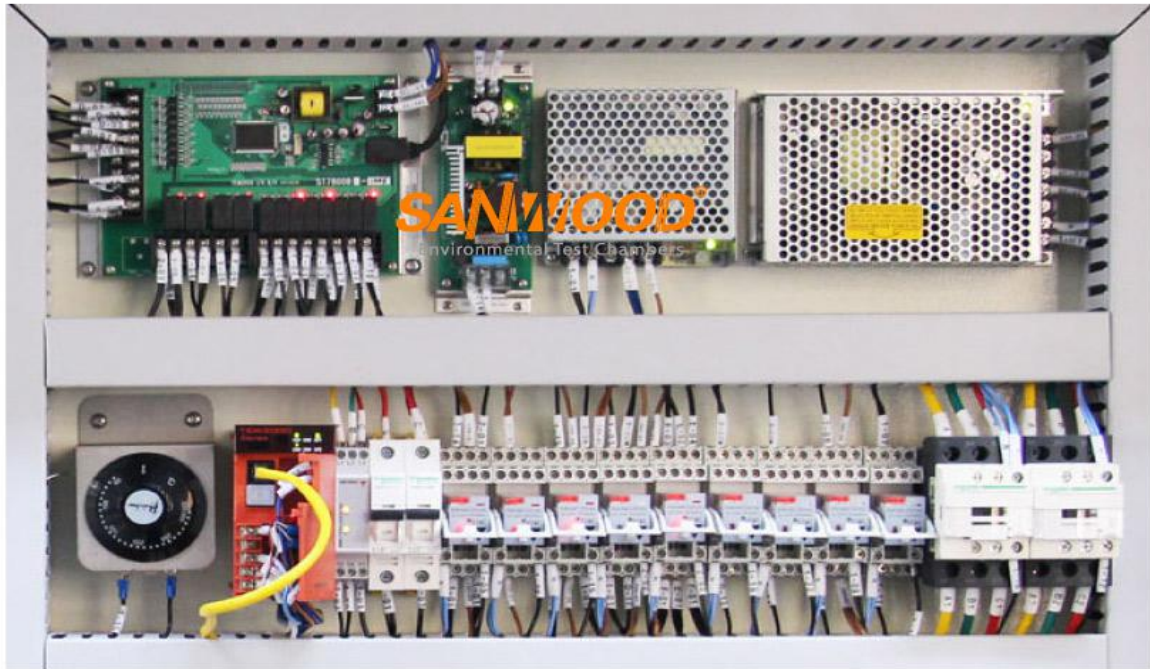
2xΦ100mm测试孔
2Φ100mm cable port



水平调节轮
Horizontal regulating wheel



防爆门锁
Explosion-proof door lock



交流接触器 (施耐德--法国)
AC contactor
Schneider-France



温控开关(rainbow-韩国)
Temperature Detect Switch (TDS)
RAINBOW-South Korea



漏电开关(施耐德--法国)
Leakage switch
Schneider-France



电源供应器(明纬-台湾)
Power supply
Mingwei-Taiwan



继电器(佳乐-瑞士)
Relay
Carlo Gavazzi - Switzerland



继电器(佳乐-瑞士)
Relay
Carlo Gavazzi - Switzerland



可选配件 Optional Accessory



视频监控装置

Video monitoring device



电池表面温度监控

Battery surface temperature monitoring



进排气装置

Intake and exhaust device



自动滤水系统

Automatic water filtration system



防积热装置

Thermal protection device



氢气感应装置

Hydrogen induction device



顶部防爆泄压口

Top explosion-proof pressure relief port



电子温度传感器

Electronic temperature sensor



冷水机

Water chiller



电子密码锁

Electronic coded lock



喷淋灭火装置

Sprinkling device



液氮灭火装置

Liquid nitrogen fire extinguishing device