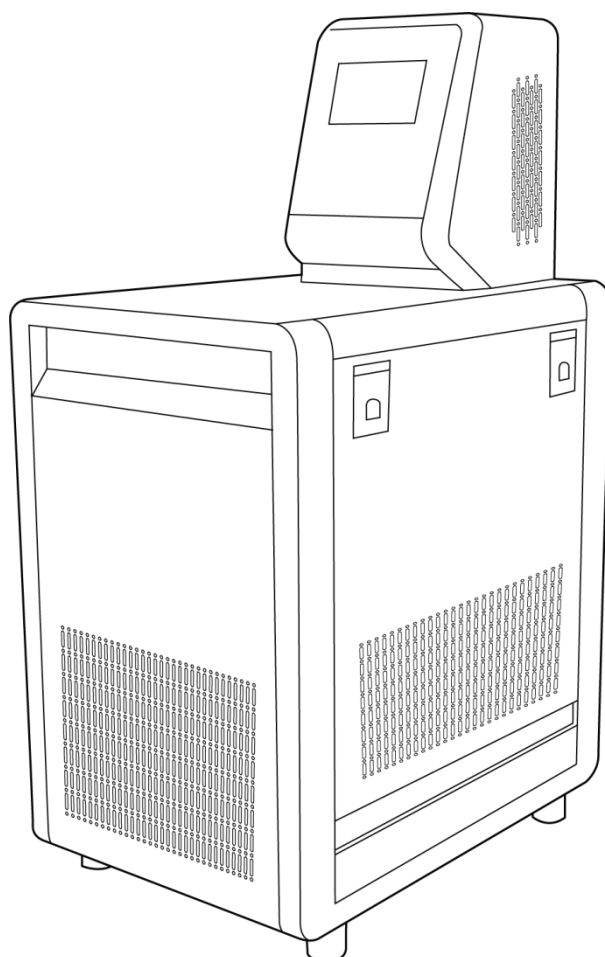


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USER'S INSTRUCTIONS

Before using the product, please read this instruction manual thoroughly and retain it for future reference.

SDC Series Intelligent Touch-Control

Low-Temperature Thermostatic Circulating Bath

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Preface

Thank you for choosing SDC Series Intelligent Touch-Control Low-Temperature Thermostatic Circulating Bath from Lichen-Scientific. To get a better user experience, please read this instruction manual carefully and comply with safety operating regulations!

Please keep this instruction manual properly for future reference!

Notes:

- Please ensure that only personnel who have received relevant training can operate and use this instrument.
- Please comply with safety regulations, personal safety, accident prevention and other related regulations.
- Use an independent power socket with protective grounding and verify that the grounding terminal is securely connected.
- For experimental safety, install an external grounding device and a leakage protector compatible with the equipment's power requirements.
- Fully insert the power plug into the socket; do not use any power source other than the one specified.
- Never plug/unplug the power cord or operate the instrument with wet hands.
- Do not damage, modify, pull, excessively bend, or twist the power cord. Keep heavy objects away from the cord.
- Place the instrument on a stable, clean, slip-resistant, dry, and fireproof surface. Avoid direct sunlight and extreme temperature fluctuations.
- Always fill the tank with liquid medium before operation to prevent heater damage. Maintain the liquid level approximately 30 mm below the work surface.
- When used as a secondary constant temperature field, monitor the tank's liquid level and replenish the medium promptly.
- Select the liquid medium based on the following working temperature ranges:
 - 5°C to 85°C: Water is generally suitable.
 - 85°C to 95°C: A 15% glycerol aqueous solution is recommended.
 - Below 5°C: Use alcohol or a specialized coolant.
- To prolong the compressor's service life, wait 10–20 minutes after turning off the refrigeration switch before restarting (depending on ambient temperature).
- During heating operation, avoid contact with the liquid medium and high-temperature components to prevent burns.
- At low operating temperatures, do not touch the liquid medium or cold components to avoid frostbite.

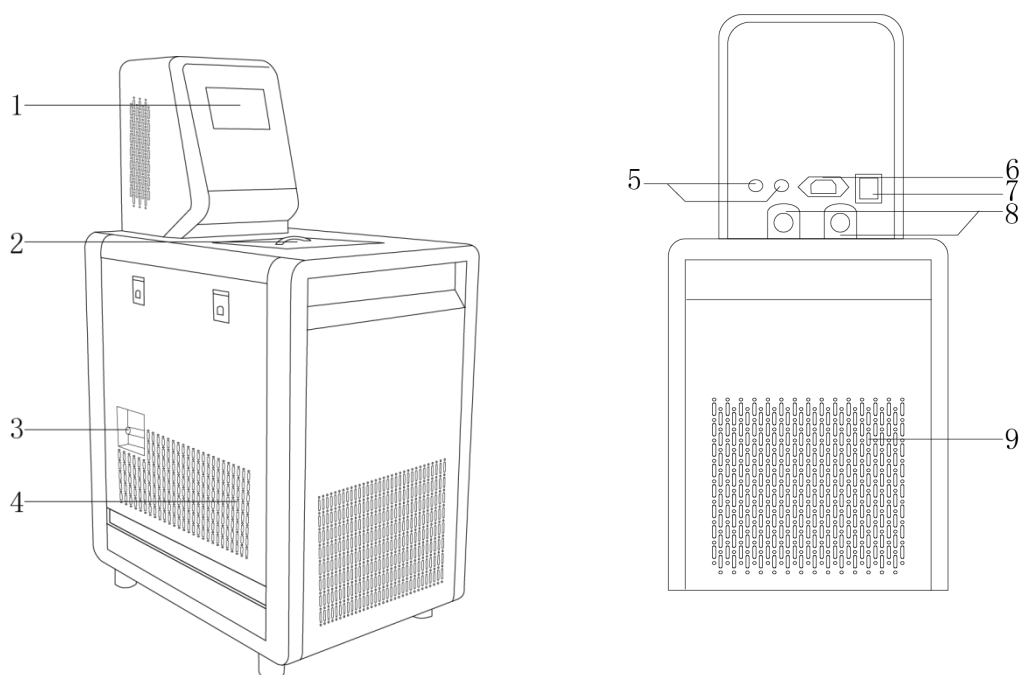
- When used as a secondary temperature field, insulate hoses to minimize heat exchange between the liquid medium and the environment.
- Always turn off and disconnect the power before cleaning the instrument.
- In case of equipment malfunction, immediately cut off the power and contact our service department for guidance or return the unit for repair.

I. Overview

Featuring the latest international refrigeration system, these instruments deliver stable and reliable performance. With dual internal/external circulation functions:

- Internal Circulation: Directly conducts constant temperature testing on samples or products within the bath.
- External Circulation: Uses a circulation pump to maintain uniform temperature and reduce fluctuations by recycling the liquid medium, enhancing thermal stability.

II. Structure



1. 4.3-inch Touch Screen Display

2. Working Bath

3. Drain Valve

4. Removable Heat Dissipation Window

5. Fuse

6. Power Interface

7. Main Power Switch

8. Water Outlet and Inlet

9. Heat Dissipation Window

III. Product Features

1. 4.3-inch Touchscreen Display: Provides clear real-time visualization of operational data for intuitive control.

2. Streamlined Aesthetic Design: Molded control section with a sleek, streamlined appearance for an elegant look.
3. Tool-Free Maintenance: Removable door panel requires no tools, facilitating easy dust cleaning.
4. Reliable Stainless Connections: Circulation and drain interfaces use 304 stainless steel barbed fittings for quick, secure installation.
5. Hidden Drain Valve: Built-in concealed drain valve offers a clean and tidy aesthetic.
6. Corrosion-Resistant Construction: 304 stainless steel worktable and inner tank prevent corrosion and rust.
7. Heat-Free Circulation Pump: Eliminates interference with the tank's temperature field caused by pump self-heating.
8. Secure & Treated Coils: Refrigeration coils feature positioning and surface treatment to prevent shaking, corrosion, and rust.
9. High-Performance Stirring Circulation Motor: Ensures efficient liquid circulation with low noise, low heat generation, full enclosure, and a long service life.
10. Temperature Calibration Function: Allows instrument temperature to be adjusted to match a standard thermometer.
11. Auto-Tuning & PID Control: Features auto-tuning and a precise PID system to minimize temperature fluctuations upon reaching the setpoint.

IV. Product Parameters

Model	LC-SDC-0506N	LC-SDC-0510N	LC-SDC-0515N	LC-SDC-0520N	LC-SDC-0530N
Power Supply	220V/50Hz				
Power Consumption	1.2KW	1.3KW	2KW	2KW	2.5KW
Display	TFT Touchscreen				
Temperature Control Range	-5°C-100°C				
Temperature Fluctuation	0.05 - 0.1°C				
Bath Capacity	6L	10L	15L	20L	30L
Pump Head	2m	2m	2.5m	2.5m	3m
Pump Flow Rate	8L/min	8L/min	10L/min	10L/min	13L/min
Chamber Dimensions (L×W×H)	270×200×130mm	270×200×200mm	300×250×210mm	300×250×270mm	460×340×210mm
Opening Dimensions	180×140mm	180×140mm	235×160mm	235×160mm	310×280mm

(W×H)					
Net Weight	28kg	29kg	41kg	43kg	64kg
Dimensions (L × W × H)	440×300× 750mm	440×300× 750mm	520×380× 830mm	520×380× 830mm	665×490× 990mm

Model	LC-SDC-1006N	LC-SDC-1010N	LC-SDC-1015N	LC-SDC-1020N	LC-SDC-1030N
Power Supply	220V/50Hz				
Power Consumption	1.3KW	1.4KW	2KW	2KW	2.5KW
Display	TFT Touchscreen				
Temperature Control Range	-10°C - 100°C				
Temperature Fluctuation	0.05 - 0.1°C				
Bath Capacity	6L	10L	15L	20L	30L
Pump Head	2m	2m	2.5m	2.5m	3m
Pump Flow Rate	8L/min	8L/min	10L/min	10L/min	13L/min
Chamber Dimensions (L×W×H)	270×200× 130mm	270×200× 200mm	300×250× 210mm	300×250× 270mm	460×340× 210mm
Opening Dimensions (W×H)	180×140mm	180×140mm	235×160mm	235×160mm	310×280mm
Net Weight	28kg	29kg	41kg	43kg	64kg
Dimensions (L × W × H)	440×300× 750mm	440×300× 750mm	520×380× 830mm	520×380×830mm	665×490× 990mm

Model	LC-SDC-2006N	LC-SDC-2010N	LC-SDC-2015N	LC-SDC-2020N	LC-SDC-2030N
Power Supply	220V/50Hz				
Power Consumption	1.4KW	1.5KW	2KW	2KW	2.5KW
Display	TFT Touchscreen				
Temperature Control Range	-20°C - 100°C				
Temperature Fluctuation	0.05 - 0.1°C				
Bath Capacity	6L	10L	15L	20L	30L
Pump Head	2m	2m	2.5m	2.5m	3m
Pump Flow Rate	8L/min	8L/min	10L/min	10L/min	13L/min
Chamber Dimensions (L×W×H)	270×200× 130mm	270×200× 200mm	300×250× 210mm	300×250×270mm	460×340× 210mm

Opening Dimensions (W×H)	180 × 140mm	180 × 140mm	235 × 160mm	235 × 160mm	310 × 280mm
Net Weight	29kg	30kg	41kg	43kg	64kg
Dimensions (L × W × H)	440 × 300 × 750mm	440 × 300 × 750mm	520 × 380 × 830mm	520 × 380 × 830mm	665 × 490 × 990mm

Model	LC-SDC-3006N	LC-SDC-3010N	LC-SDC-3015N	LC-SDC-3020N	LC-SDC-4006N
Power Supply	220V/50Hz				
Power Consumption	2KW	2.1KW	2.5KW	2.5KW	2.2KW
Display	TFT Touchscreen				
Temperature Control Range	-30°C - 100°C				-40°C - 100°C
Temperature Fluctuation	0.05 - 0.1°C				
Bath Capacity	6L	10L	15L	20L	6L
Pump Head	2m	2m	2.5m	2.5m	2m
Pump Flow Rate	8L/min	8L/min	10L/min	10L/min	8L/min
Chamber Dimensions (L×W×H)	270×200×130mm	270×200×200mm	300 × 250 × 210mm	300 × 250 × 270mm	270 × 200 × 130mm
Opening Dimensions (W×H)	180 × 140mm	180 × 140mm	235 × 160mm	235 × 160mm	180 × 140mm
Net Weight	46kg	47kg	60kg	60kg	46kg
Dimensions (L × W × H)	515 × 435 × 880mm	515 × 435 × 880mm	515 × 460 × 1000mm	515 × 460 × 1000mm	515 × 435 × 880mm

Model	LC-SDC-4010N	LC-SDC-4015N	LC-SDC-4020N	LC-SDC-5006N	LC-SDC-5010N
Power Supply	220V/50Hz				
Power Consumption	2.3KW	2.5KW	2.5KW	3KW	3KW
Display	TFT Touchscreen				
Temperature Control Range	-40°C - 100°C			-50°C - 100°C	
Temperature Fluctuation	0.05 - 0.1°C				
Bath Capacity	10L	15L	20L	6L	10L
Pump Head	2m	2.5m	2.5m	2m	2m
Pump Flow	8L/min	10L/min	10L/min	8L/min	8L/min

Rate					
Chamber Dimensions (L×W×H)	270 × 200 × 200mm	300 × 250 × 210mm	300×250×270mm	270 × 200 × 130mm	270 × 200 × 200mm
Opening Dimensions (W×H)	180 × 140mm	235 × 160mm	235×160mm	180 × 140mm	180 × 140mm
Net Weight	47kg	60kg	60kg	85kg	86kg
Dimensions (L × W × H)	515 × 435 × 880mm	515 × 460 × 1000mm	515 × 460 × 1000mm	570×430×1070mm	570×430×1070mm

V. Equipment Installation

1. Selection of Working Environment

The working environment shall meet the following requirements:

(1) Choose a location without direct sunlight on the instrument, place it on a stable floor or laboratory bench in a well-ventilated, dust-free, and cool area. Keep the instrument away from windows, and avoid facing it directly towards a window.

(2) For operational convenience and safety, ensure sufficient space between the instrument and obstacles. The following dimensions are recommended when installing the unit indoors:

- ① At least 300mm between the top of the tank and any overhead obstacle.
- ② At least 500mm between the sides of the tank and any obstacles on either side.
- ③ At least 500mm between the rear of the tank and any obstacles.
- ④ At least 1000mm between the front of the tank and any obstacles.

(3) Ambient temperature: +10°C to +30°C.

(4) Do not use the instrument in environments with high humidity, high dust levels, or vibration.

(5) Do not use the instrument in flammable, explosive, or corrosive environments.

(6) The equipment should be kept away from sources of electromagnetic interference and devices that generate high frequencies (e.g., high-frequency electric welders).

2. Installation

(1) Carefully open the packaging and check all components against the packing list.

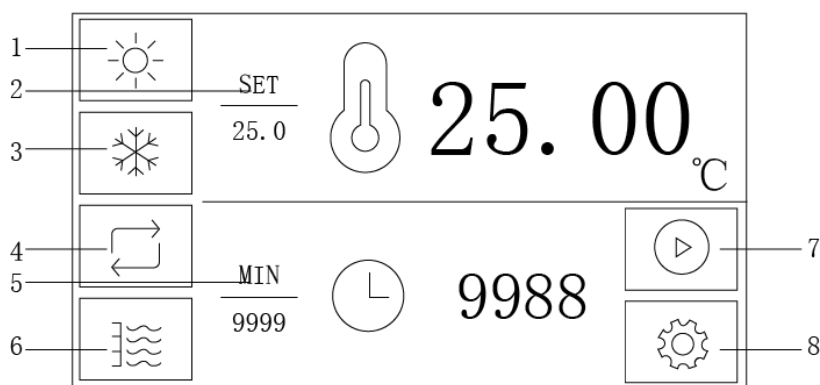
(2) After opening, lift the instrument away from the packaging base and place it in a spacious location. Check the entire instrument for any damage incurred during transportation. Once confirmed to be undamaged, move it to the installation location and ensure it is stable. Due to the presence of refrigerant, the instrument must not be inverted or placed on its side. It is recommended to let it sit flat for 1-2 days before starting up.

(3) Connecting external circulation pipes (using a jacketed constant-temperature cup as an example; standard silicone tube fits barbed fittings with an outer diameter of 8–10 mm): Connect the outlet port of this instrument to the inlet pipe (lower port) of the constant-temperature cup or equipment requiring temperature-controlled cooling water. Connect the return pipe (upper port) of the constant-temperature cup to the inlet (return) port of this unit.

(4) After filling with circulation liquid, check for leaks at the silicone tube connections. Address any leaks promptly. Furthermore, when the external circulation pump is activated, liquid from the constant temperature bath will flow into the external jacket. Timely replenishment of the liquid in the constant temperature bath.

VI. Equipment Operation

1.Operation Interface (display screen)



Display	Description
1-Heating Indicator	A steady light indicates the heating function is activated.
2- SET	Displays the current set temperature.
3-Refrigeration Key	Briefly press the "Refrigeration Key" to turn the compressor ON/OFF.
4-Circulation Key	Briefly press the "Circulation Key" to turn the circulation function ON/OFF.
5-MIN	Displays the current set time on the instrument.
6-Water Level Indicator	Steady light indicates normal water level; flashing indicates low water level (Optional low water level alarm function).
7-Start/Stop Key	Briefly press the "Start/Stop Key" to start or stop the operation.
8-Setting Key	Briefly press the "Setting Key" to enter the parameter setting mode.

2. Operating Procedures

(1) Pre-Startup Preparation

① Power Requirements: For safety, the single-phase three-wire or three-phase five-wire system (select the power specification according to the model) must have a proper ground connection. The power outlet location must be safe and secure.

② If testing samples or using internal circulation, connect the instrument's outlet and inlet ports with a piece of silicone tube (20-30 cm).

③ If using external circulation, check that the two external silicone tubes and insulation jacket are properly installed to prevent leaks.

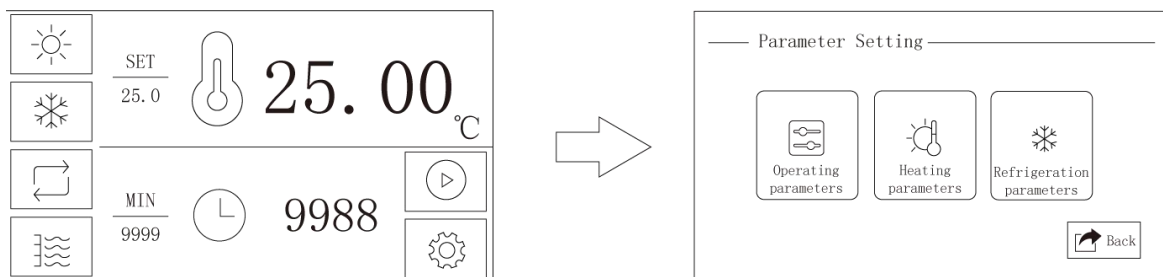
④ Filling with Circulation Liquid: Before initial use, fill the unit with circulation liquid. The liquid level should be 2-4 cm below the top opening. To prevent clogging from foreign matter or scale, use deionized water or a dedicated circulation fluid.

⑤ When the external circulation function is activated, liquid will flow from the constant-temperature bath into the external jacket. The liquid level in the bath must be replenished promptly to prevent the instrument from running dry, which could cause damage.

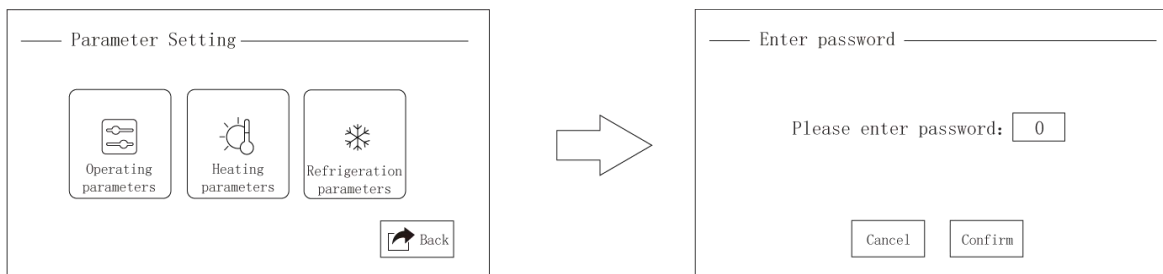
(2) Startup Steps

① Add the liquid medium into the tank. The liquid level should be 2-4 cm below the work surface.

② Press the "Setting Key" to enter the parameter setting interface.



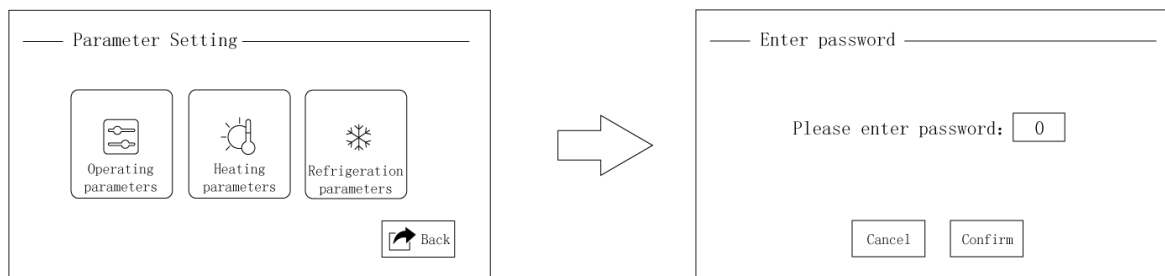
③ Press "Operation Parameters" to access the temperature and time settings.



④ Set the desired constant temperature and operation time, then press the "Return Key" to save the parameters automatically.

⑤ Press the "Start/Stop Key" to begin operation.

⑥ The heating and cooling parameters are preset at the factory and require no modification. If adjustment is necessary, enter the password (1234).



VII. Maintenance

1. Keep the interior and exterior of the constant temperature bath clean. If the unit will not be used for an extended period, cover it with the plastic dust cover and store it in a dry indoor location.
2. Perform regular daily maintenance. Operation and maintenance should be carried out by designated personnel. Always disconnect the power supply before performing any maintenance to ensure safety.
3. Do not use the unit in environments with high voltage, strong current, powerful magnetic fields, or corrosive gases (e.g., containing acidic, alkaline, or sulfur substances) to avoid interference, damage, and potential hazards.
4. If the unit will be out of service for a long time, turn off the main power switch on the rear panel and unplug the main power cord. Drain all liquid from the tank and wipe the tank dry.
5. After prolonged operation, if a significant decrease in flow rate or pressure is observed, disassemble the pump for inspection and replace any worn parts.
6. Draining: The unit is equipped with one stainless steel barbed fitting and a drain silicone tube. Before draining, ensure the round silicone gasket is properly positioned. Then, tighten the threaded barbed fitting and connect the drain tube securely.

VIII. Troubleshooting

Fault	Possible Cause	Solution
No display when pressing the power button during initial startup.	Main power switch (circuit breaker) on the rear of the unit is in the "OFF" position.	Turn the main switch to the "ON" position.
	Fuse is blown.	Unplug the power cord, remove the fuse from the rear of the unit, and replace it with a new one.

Pump does not operate or there is no water circulation after setting parameters and starting the unit for the first time or after prolonged storage. Pressing the 'Circulation' key briefly does not start the pump or circulate water.	Accumulation of heavy scale inside the pump.	Disassemble the pump housing and clean out any internal blockages.
	Reduced lubrication of the rotor due to prolonged inactivity, making the pump difficult to start.	Unplug the power cord, open the device cover, lift the rubber disc directly below the motor rotor, clear any internal blockages, and the motor can be restarted.
	Silicone tube is blocked.	Check the external silicone tubes for kinks or blockages.
	Motor is damaged.	Replace the pump directly. (Note: Different units may use different pump types; pay attention to the disassembly method).
Compressor or exhaust fan fails to start.	The 'Refrigeration' key is not activated.	Press the 'Refrigeration' key to turn it on.
	Circuit board malfunction.	Replace the circuit board.
	Compressor or fan unit failure.	Contact the manufacturer for professional inspection or replacement.

IX. Warranty Statement

One-year warranty period (since the date of product sale). During the warranty period, users may request free replacement or repair for quality-related issues upon presentation of the warranty card and commercial invoice.

The following situations are excluded:

1. The warranty period has expired.
2. Instrument damage due to user negligence.
3. Damage caused by non-compliance with operating instructions.
4. Damage from exposure to radioactive or corrosive environments.
5. Damage resulting from unauthorized disassembly, repair, or adjustment by personnel not approved by Shanghai Lichen-BX Instrument Technology Co., Ltd.

X. Unpacking and Inspection

Carefully unpack the package and inspect and inventory the instrument components against the packing list in this manual's appendix. Contact us immediately if any damage is found.

XI. Packing List

No.	Name	Quantity
1	Main Unit	1
2	Power Cord	1
3	Constant Temperature Silicone Tube + Insulation Jacket	2
4	Stainless Steel Cover Plate	1
5	Stainless Steel Drain Connector (with sealed silicone gasket) + Drain Tube (30cm)	1
6	Fuse	2
7	User Manual	1
8	Qualification Certificate/Warranty Card	1

XII. Appendix

1. Consumables, Wear-Prone Parts, and Optional Accessories Specifications (Items not covered under the whole-unit warranty)

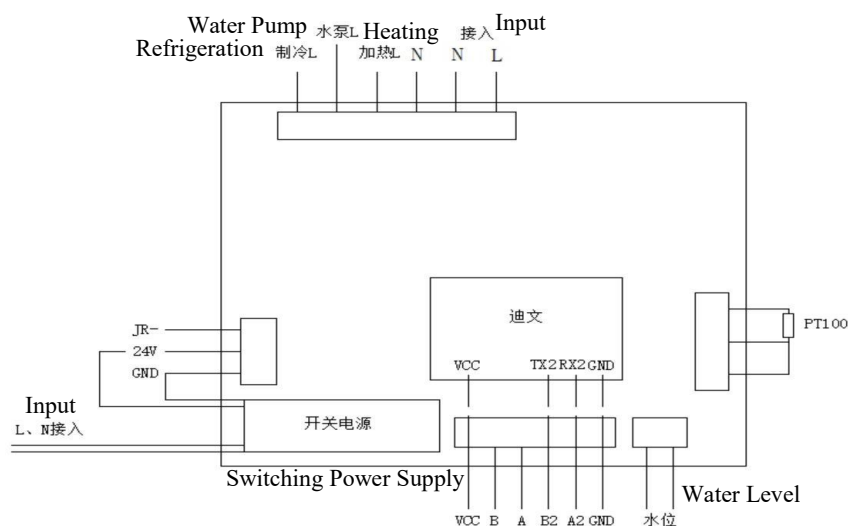
Consumables/Wear-Prone Parts: Refrigerant, Constant Temperature Silicone Tube.

Optional Accessories: Borosilicate Glass Double-Layer Constant Temperature Reaction Vessels (50ml, 100ml, 300ml, 500ml, 1000ml, 2000ml, 5000ml), R485 Communication Interface.

2. Compatible Equipment

Rotary Evaporators, Reaction Kettles, Viscometers, Rheometers, Electrophoresis Apparatus, Abbe Refractometers, Ultrasonic Cell Disruptors, Homogenizers.

3. Wiring Diagram



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