OPERATING MANUAL

BOD INCUBATOR

BIBD-201

CE ISO9001 CERTIFIED

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INDEX

1. Notify

• In order to ensure the safe use of this equipment, please read this manual carefully before use.
• Be sure to store this manual in a place convenient for users of the equipment.
• The company does not undertake safety guarantee for the use and operation methods other than those specified in this manual.
• This instruction manual is for the use of equipment users and maintenance personnel, please keep it properly.
• Due to the improvement of product function and performance, the equipment may be changed without prior notice.
• This instruction manual may not be reproduced in any form without the written permission of the Company.

2. Safety warning signs, marking description

This manual has important safety information, please be sure to follow it.
Be sure to keep this manual in a place where users of the device can easily access it.
The contents of the signs described in this section will appear on the device and in this manual to enable you to operate and use the device safely and correctly, and to protect the user or any other person from possible injury.
•"Warning" sign

 Warning:
Failure to comply with the warning signs may result in serious injury or death to persons.
•"Attention" sign

 Attention:
Failure to follow the caution signs may result in injury or damage to equipment and related property.

Meaning of logo

 Prohibited

 Followed

The identification on the device

 Alternating

 Protective conductor terminal

 Power on

 Power off

 Warning, attention, caution, danger

3. Safe operation precautions

 Warning

 The equipment shall not be placed outdoors for use. If the device is wet with rain, it may leak Electricity and electric shock。

 This device can only be installed by qualified engineering and technical personnel or maintenance personnel, such as unqualified personnel It may cause electric shock or fire.

 The equipment should be installed on a solid ground and due care should be taken to prevent the equipment from tipping over. If the ground is not enough
If the installation site is not suitable, the equipment may tip over or overturn, resulting in injury.

 Do not install the device in a wet area or in a place where water may splash. Otherwise it will be due to insulation
The degree is reduced and causes accidents such as leakage or electric shock.

 Do not install the device in a place where flammable or volatile materials are stored. Otherwise it may be caused explosion or fire

 Do not install the device in an area with acidic or corrosive gases. Otherwise it will be caused by corrosion leakage or electric shock.

 Use power outlets with ground wires to prevent electric shock. If the power socket is not grounded, ensure that qualified engineers install the grounding cables.

 Do not ground the device through the gas, water supply pipe, telephone cable, or lightning rod. The above grounding can cause electric shock if the pipe line is not complete.。

 Please use the dedicated power supply indicated on the nameplate of the device. The use of any other voltage or frequency of the power supply than that indicated on the nameplate may cause electric shock or fire

 If the container is not sealed, do not store volatile or flammable materials in the equipment, otherwise it may cause explosion or fire

 Do not insert metal objects, such as nails or wire, into any openings and gaps or into any outlets of the equipment, where accidental contact between such objects and moving parts may result in electric shock or injury.

 Use this device in a safe area when storing toxic, hazardous or radioactive materials. If used improperly, it may cause harm to human health and the environment.。

 Before repairing or maintaining the equipment, turn off the power switch (if any) and disconnect the power supply of the equipment to prevent electric shock or injury.

 Warning

 Do not touch any electrical parts such as power plugs or any switches with wet hands, as this can cause electric shock.

 Make sure you don't inhale drugs or particulates around the equipment during maintenance, as this could harm your health.

 Do not splash water directly onto the equipment. Otherwise it will cause electric shock or short circuit.

 Do not place containers of water on the device. Otherwise, leakage or contact may be caused by liquid splashing.

 Do not drag, wrap, bind the power cord, do not damage the power plug. A broken power cord or plug can cause fire or electric shock.

 Do not use power cords with loose plugs. This type of power cord may cause fire or electric shock.

 The user shall not disassemble, repair or modify the equipment without the authorization of our factory or the guidance of authorized personnel. Otherwise, it may cause fire or injury due to improper operation.

 If the device is not working properly, remove the power plug. Continued operation under abnormal conditions may cause electric shock or fire.

 When unplugging from a power outlet, hold the power plug firmly and do not pull the lead of the power plug. If the wire is pulled by hand, it may cause electric shock or fire due to short circuit.

 Remove the power plug before moving the device. Do not damage the power cord. A damaged power cord may cause electric shock or fire.

 When the equipment is not used for a long time, the power plug should be unplugged. Failure to do so may result in electric shock, leakage or fire due to deterioration of the insulator.

 If the device is left unused in an unsupervised area for an extended period of time, ensure that children do not access the device and that the door is not fully closed.

 Equipment disposal should be carried out by the corresponding personnel. The door should be removed to prevent accidents such as suffocation.

 Do not put plastic bags in the reach of children, because plastic bags may cause suffocation accidents.

 Attention

 After cleaning the dust off the power plug, insert the plug tightly into the socket. A dusty plug or improper connection may cause heat or ignition。

 After a power failure or power cut occurs, check the temperature, number of segments, and timing after restarting the device. Otherwise, the stored item may be damaged due to a change in the set value.

 If the device is not used for a long time after purchase, store the device in a dry and ventilated environment. If no, when you use it again, the device may be damaged and cannot work normally.

 When moving equipment, prepare proper tools or qualified personnel. Do not tip the equipment over to prevent equipment damage or personnel injury.

 It should be ensured that there is a sufficient width and height of the handling channel, if the need to move to the second floor or above, should ensure that the elevator can accommodate the size of the equipment, to ensure the safety of the equipment. Ensure adequate space for installation equipment and personnel.

 If the container is not sealed, do not store corrosive substances such as acids and alkalis in the device. Otherwise, the components in the container and electrical components may be corroded.

4. Product related (scope of application, working principle, technical parameters)

4.1 Application scope of the product

Biochemical incubator with cooling and heating two-way temperature control system, temperature control function, widely used in environmental protection, health and epidemic prevention, drug testing, agricultural livestock, aquatic research, colleges and universities, production departments, is water analysis and BOD determination, bacteria, mold, microbial culture, conservation, plant cultivation, breeding experiments of special constant temperature equipment.

4.2 Product working principle

The actual temperature sensed by the temperature sensor in the chamber is converted into an electrical signal, and the heater or refrigeration compressor is controlled by a microcomputer to achieve the required temperature

4.3 Technical specification

Model		BIBD-201
Temperature range	Temperature control range(°C)	0~70
	Uniformity range(°C)	±1(37°C)
	Fluctuation range(°C)	±0.5(heat)±0.7(refrigeration)

Electrical Specifications	Mains input	~220V ±10V,50/60Hz
	Input power(W)	1000
Refrigerating fluid		R134
Work environment		environment temperature10~30°C relative humidity70%
Equipment class		Class I

Table 1

⚠ Note: This machine has low temperature automatic frost function, in the low temperature automatic frost temperature will have some fluctuations is a normal phenomenon!

5. Product structure

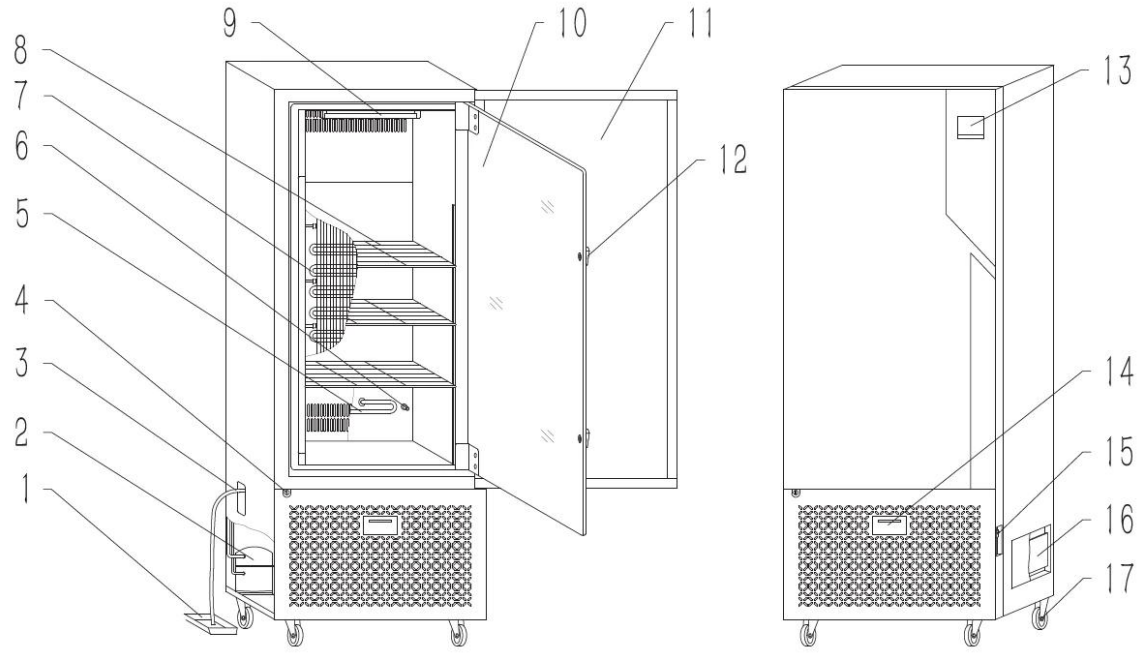

FIgure 1

Single door product structure diagram (for reference only)

1, Water tray	2, Compressor	3, Overflow tube	4,Door lock
5, Heater	6, Heat switch	7, Evaporator	8, Shelf
9, Light	10,Glass door	11,Door	12,Inner door lock
13,Screen	14,Reserved interface	15,Power switch	16,Control board
17 ,Wheel			

5.1 Control panel

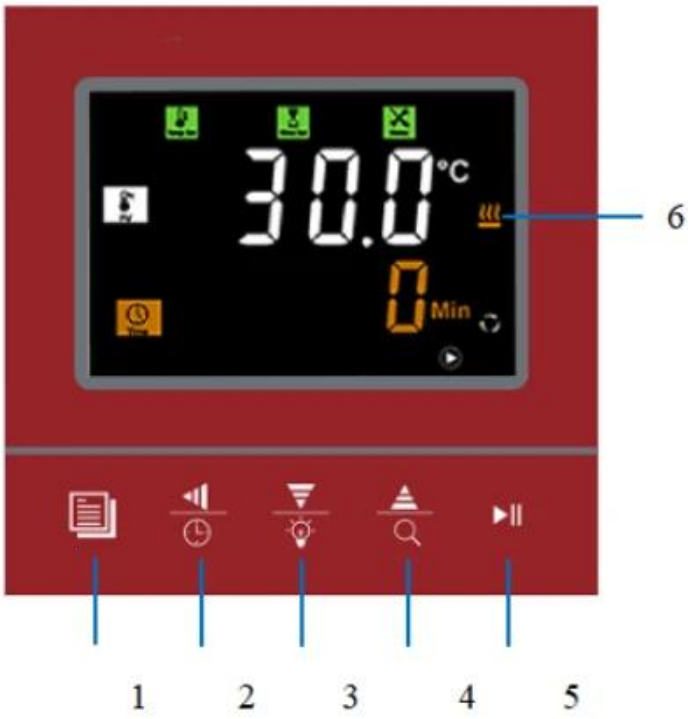

Figure 2
Key description
1.Setting key: Click to enter the setting state, and long press the key for 3 seconds to enter the internal parameter state;
2.Shift/Reservation key: Click in the setting state and enter the cursor to move; click in the standby state and "ord" will appear to set the reservation time (0.5h increment). Click the reservation key again to enter the reservation countdown page "oln" and start the reservation. Under the reservation countdown, long press the reservation key to cancel the reservation, or click the Run key to exit the reservation and run directly;
3.Reduce/Illumination key: Click or long press this key in the setting state to reduce the set value, click on the main interface to turn on or off the lighting lamp;
4. Add/Query key: Click or long press the key to increase the set value under the setting state. On the main page, click Query key to query the current set temperature ("CP-") and set time ("CT-").
Setting mode:
Set the temperature ("CP-") and set the time ("CT-").
Multi-valued mode:
Set temperature and set time
("CP1" : the current temperature is the temperature set in paragraph 1, "CP15" : the current temperature is the temperature set in paragraph 15)
("CT1" : the current temperature is the time set in paragraph 1, "CT15" : the current temperature is the time set in paragraph 15);
5. Stop/Run key: Click to start running or long press to stop running;
6. Status area Indicator area: Displays alarm, heating, cooling and other status information.

6. Equipment installation

6.1 Installation site

For proper operation and optimal performance, install the equipment in a location that meets the following conditions

 Note: Ambient temperature 10~30°C; Relative humidity below 70%

• A location that is protected from direct sunlight.

Do not install the device in direct sunlight. Installation in direct sunlight may cause the device to fail to achieve the expected performance.

• A place with adequate ventilation.

If the device is used in a small and closed room, it may not be able to dissipate heat in time, resulting in the device not working properly. The device must be at least 10CM away from the wall.

• A place away from heat

Avoid installing equipment near heat sources such as boilers or heaters. Excess heat from the outside will affect the expected performance of the equipment.

• A site with solid, level ground.

Install the device on a solid and level ground. An uneven ground or tilted device may cause device failure or injury. Install the equipment under stable conditions to avoid equipment shaking and noise.

• A location that is not prone to high humidity.

Install the device in a place where the humidity is no more than 70%. If installed in a place with high humidity, it may cause leakage or electric shock.

 Warning:

Do not use this device outdoors. If the equipment is exposed to rain, it may cause electrical leakage or electric shock.

Do not place the device in a wet place or in a place where water is likely to splash, or it may cause electrical leakage or electric shock due to reduced insulation.

• A location free of flammable or corrosive gases.

Do not install the equipment in a place with flammable or volatile substances, or it may cause an explosion or fire. Or it may cause leakage, electric shock or damage to the equipment due to corrosion.

6.2 Install

1. Remove packing material

After removing all packing materials, open the door and ventilate the equipment. If the shell and panel are dirty, please use neutral detergent to remove the dirt and clean the residual neutral detergent with clean water. After cleaning, wipe with a damp cloth, and then wipe clean with a dry cloth.

2. Fixed equipment

The box can be fixed with two brake wheels at the front of the device after it is placed in place to prevent the device from moving.

3. Ground connection

Warning
Use power outlets with ground wires to prevent electric shock. If the power socket is not grounded, ensure that qualified engineers install the grounding cables.
Do not ground the device through the gas pipe, water supply pipe, telephone line, or lightning rod. This type of grounding may cause electric shock due to incomplete circuit.

4. If not use the equipment
Close the box door before idle equipment and make sure the box is completely dry.
5. Before moving the equipment
Before moving the equipment, empty the water in the water tray if there is one. Spills or splashes of water may cause electrical leakage or shock.

6.3 Preparation for operation

Before starting the device for the first time, please follow the following procedures:
1. Remove the shelf and other accessories inside the device.
2. Wipe the inner wall of the box with gauze soaked in alcohol to disinfect it, and then wipe the alcohol away with dry gauze.
3. Put the shelf into the equipment according to your own experimental requirements.
4. Before using the device, insert the overflow pipe into the overflow port on the left of the device (see the component composition diagram), and place a water tray under the overflow pipe outlet for use.

Attention:
Do not use sodium chloride solvents or other halide solutions to clean the equipment, as this may cause rust.

7. Operation method

7.1 Set the status

Mode selection

Parameter	Name	Function description	Range (default)
Lc-	Code		121
H-	Mode selection	0: constant mode 1: multi-value mode	(0,1)0

Table 2
If the screen is not locked, hold down the Setting key to enter the Lc- password input screen. (The subsequent password input method is the same as this)

Constant mode (continuous operation when time is set to 0)

Parameter	Name	Function description	Range (default)

SP-	Setting temperature	Set the temperature at run time	30.0°C
ST-	Setting time	The unit h/min is determined by the parameter in the password	(0~9999)60

Table 3

When selecting the constant mode, click the setting key to set the temperature and time successively.

Multi-value mode (continuous operation when the number of segments is 1, the period is 1, and the set time is 0)

Parameter	Name	Function description	Range (default)
SC-	Set period	The cycle runs when the period is 0	(0~99)
SE-	Set number of segments	Sets the total number of segments	(1~30)1
SPx	Running temperature	Operating temperature of section x	30.0°C
STx	Running time	The running time of section x	(0~9999)60

Table 4

When selecting the multi-value mode, click the set key to set the period, number of segments, temperature of each segment, and time in turn

7.2 Parameter view

Parameter	Name
Lc-	Password 47
CT-	Box temperature
ET-	Evaporator temperature
Hd-	Environment temperature
LS-	Rotational speed of compressor

Table 5

7.3 Lock screen

Lock key parameter

Parameter	Name	Function description	Range (default)
Lc-	code		40
LoT	lock screen Clock	On the home screen, if no button is pressed within the lock screen time, the lock screen is displayed.	(0,9999)3min
LoP	Unlock Code		(0,9999)32

Table 6

Unlock: Click the set key to appear "Lok", enter the unlock password to unlock.

7.4 Internal parameter status

Alarm parameter

Parameter	Name	Function description	Range (default)
Lc-	code		11
AL-	over temperature alarm	Measure temperature > Set temperature + overtemperature protection temperature, prompt overtemperature alarm and disconnect heating	(0,50.0)5.0°C
dL-	low-temperature warning	Measuring temperature < set temperature - low temperature protection temperature Degree, indicating low temperature alarm	(0,50.0)5.0°C
ALT	Temperature alarm delay	The alarm delay time is too high or too low	(0,999)0min
PLT	Door opening alarm delay	Call the police after opening the door for a set time (Optional open door alarm function of the equipment can be effective)	(0,999)0min

Table 7

Measurement calibration

Parameter	Name	Function description	Range (default)
Lc-	Code		12
Pb-	Temperature zero adjustment	Temperature zero adjustment = Actual temperature value - instrument measurement value	(-10.0,10.0)0°C
Pk-	Temperature adjustment	Temperature full adjustment =1000* (actual temperature value - instrument measurement value)/instrument measurement value	(-99,999)0
EPb	Evaporator temperature zero adjustment	Temperature zero adjustment = Actual temperature value - instrument measurement value	(-20.0,20.0)0°C
EPk	Evaporator temperature full adjustment	Temperature full adjustment =1000* (actual temperature value - instrument measurement value)/instrument measurement value	(-99,999)0

Table 8

System parameter

Parameter	Name	Function description	Range (default)
Lc-	Code		23
bd-	Factory reset	0.Do not recover; 1: recovery	(0,1)0

SA-	Power-off memory	0: no power failure. 1: Power off function	(0,1)0
Adr-	Mailing address	485 Mailing address	(1,32)1
Hn-	Minute/hour	0: minute timing; 1: hourly timing	(0,1)0
Et-	Timing mode	1: timing when running 2: timing when the temperature reaches	(1,2)1

Table 9

Refrigeration parameter

Parameter	Name	Function description	Range (default)
Lc-	Code		9
FS-	Wind speed setting	Wind speed gear setting	(50~100)100%
Note: The remaining parameters are internal debugging parameters, please operate under the guidance of professional personnel			

Table 10

8. Alarm and security features

Fault code indication

Code	State	Code	State
E01	The power supply board is not communicating	E0b	Ambient temperature fault
E02	Case temperature overflow	E0d	The internal real-time clock is faulty
E03	Case overtemperature	E0E	Parameter storage failure
E04	Case low temperature		
E21	Evaporator temperature overflow		

Table 11

9. Daily use and maintenance

In the process of handling the biochemical incubator, it is prohibited to invert and lay it flat at more than 45 degrees

Do not frequently change the set value in use, so as to avoid frequent startup of the compressor resulting in overload, affecting the service life of the equipment.

This machine is equipped with two sets of fuses, if there is a fault in operation, please cut off the power supply first, check whether the fuse is intact, and then check other parts. (See component composition diagram for fuse location)

Be sure to close the inner door, and then close the trunk door. If the inner door is not fully closed, even if the door is closed, the equipment may not work at maximum performance. When closing the door, please be careful not to use too much force to damage the door seal.

In order to maintain the appearance of the device, do not wipe the exterior with corrosive solution. Wipe the inside with dry cloth or alcohol to keep the inside clean
When the device is not in use, keep the box dry and cut off the power supply.

In order to ensure the uniform temperature in the box, the axial flow fan in the box should be checked regularly to see whether it is running normally. During the experiment, the items in the box should not be placed too close and do not block the fan outlet to facilitate the air circulation in the box.

Do not touch the temperature probe in the box, resulting in uncontrolled temperature.

Make sure the shelf is secured, otherwise the culture may be damaged.

Do not lean against the glass or put pressure on the glass, which may cause injury to people.

Do not lean on the door of the device. Otherwise, the device may fall over or the door may be damaged, causing injury or damage to the device.

If the equipment fails, it should be repaired by professional personnel or contact the sales department of the factory.

From the date of product sale, within a year if there are quality problems the factory is responsible for free maintenance (except man-made damage). Discretionary repair fee beyond the "three guarantees" period.

10. Trouble Removal

Trouble removal	Check
Sensor fault alarm	· Abnormal temperature sensor, check the temperature sensor, model PT100.
The temperature does not rise to the set value	· Check the electric heating tube.
No display	· Check the fuse (15A) of the equipment. · Check whether the power switch indicator is on. If the indicator is not on, please change the power switch. · Check whether the incoming plug wire is ~ 220V

Table 12

11. Specification configuration sheet

Name	Biochemical incubator
Model	BIBD-201
Outside dimensions	630x680x1250
Internal dimensions	490x390x610
Dischargeable capacity	100L
Outer shell	High quality cold rolled steel matte spray coating
Inner shell	SUS304 mirror stainless steel
Door	Using the original double door design;
Interior door	Thickness 5mm toughened glass;
Shelf	High quality carbon steel surface chrome-plated, adjustable position;
Heat-insulation system	Polystyrene foam filled
Refrigerating system	High efficiency and energy saving of fluorine-free refrigerant, integrated refrigeration system, protection of each layer;
Heating system	Use electric heat pipe
Electric fan	centrifugal blower
Temperature sensor	Samsung temperature sensor PT100
Display	LED dot matrix LCD screen;
Alarm system	Temperature upper limit alarm, temperature sensor fault alarm;

Table 13

 Note: Design and specifications are subject to change without notice

12. Product packing list

Number	Model	Quantity	Notes
1	Operation instruction	1PC	
2	Shelf	2PCS(100L) 3PCS(150L) 4PCS(250L) 4PCS(400L) 6PCS(800L)	
3	Water tray	1PC	
4	Overflow tube	1PC	plastic rigid pipe

Table 14

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