

Operation Manual



BBWA-302

Water Bath BBWA-302

Thank you for Choosing Biolab products. Please read the "Operating Instructions" and "Warranty" before operating this unit to assure proper operation.

PREFACE

Thanks for choosing Thermostatic water bath. This operation manual describes function and operation of the instrument. In order to use the instrument properly, please read this manual carefully before operating the Instrument.

Opening Check

Please check the instrument and appendix with the packing list when you first open the packing case. If anything does not match with the packing list, please contact with the vendor or the producer.

Safety Warnings and Guidelines

1 Important Operation Information of The Security

Users should have an entire conception of how to use the instrument properly before operating it. Please read this operation manual carefully before using the instrument.



It is forbidden operating before read the operation manual. Read the guidelines and directions below and carry out the countermeasure according to them.

2 Security

To operation, maintenance and repair the instrument, please comply with the basic guidelines and the remarked warnings below. Otherwise, the instrument will suffer effect on the scheduled working life and also on the protection provided.



The instrument is equipped with an insulation cover and test tube holder. If users need special support holder, please order from the factory.



Before operation, read the manual carefully. These units are designed for using in the laboratory environments by who're knowledgeable in safe laboratory practices.



The operator should not open or repair the instrument by himself. Otherwise, the instrument will lose the qualification of repair guarantee or cause accidents. The company will repair the instrument based on warranty description.



A. C. power's grounding should be reliable to safeguard against an electric shock. The 3-pin plug supplied with instrument's power cable is a safety device that should be matched with a suitable grounded socket.

Make sure the voltage is complying with the voltage required. Make sure the rated electrical outlet load no lower than the demand. Power line should be replaced with the same type if it any damage. Make sure there is nothing on the power line. Hold the jack when pull out the power line. Do not pull the power line. Do not put the power line in ambulatory place.



The temperature of the Instrument might be very high during the normal operation. There is a possibility of burns or liquid boiling, therefore, during the whole operation, It is strictly prohibited any part of the body touching the instrument from scald.



Forbidden heating if no water in the tank, it should be maintained at a certain water level while working(not less than 1/2).

The maximum water level should not exceed 3/4, so as to avoid water boiling splashing out.

If you need to adjust the oscillation speed, please adjust the potentiometer slowly to prevent the water from splashing out.

If water splashes on the surface, it should be promptly wiped clean with a rag.



Power off when operation finished. If long period do not use the instrument, pull off the connector plug, cover a cloth on the instrument to prevent from dust.

Pull the connector plug from the jack at once in the following case, and contact the vendor.



- There is some liquid flowing into the instrument;
- Drenched or fire burned;
- Abnormal operation: such as abnormal sound or smell;
- Instrument dropping or outer shell damaged;
- The function has obviously changed.

3 Instruments Maintenance

After each use, should promptly wipe the water drop in the tank with a clean rag. If there are smutches on the instrument, clean them with cloth.



Power off when cleaning the instrument. Do not drop the clean fluid in the well when cleaning. Corrosive clean fluid is strongly prohibited.

4 After Sale Service Commitment

A) Content of warranty

The company will be responsible for replacement due to fault caused by the materials and manufacturing from the date of delivery within 1 month. The company will provide free warranty due to fault caused by the materials and manufacturing from the date of delivery within 12 months. In the warranty period, the company will provide free repair service or replacement for those machines which are proved as defective apparatus selectively.

B) Scope of Warranty

Improper use or use under unmoral condition, damage caused by repair or modify without authority etc. do not belong to the scope of warranty.

Out of Warranty period, charge the cost of fees appropriately

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01 INTRODUCTION

BBWA-302 Thermostatic Water Bath is a temperature-controlled thermostatic bath biochemical equipment, It is mainly used for shaking culture of various liquid and solid compounds such as biology, biochemistry, cell, bacteria and so on in colleges and universities, industrial and mining enterprises and scientific research institutes, is an indispensable laboratory equipment for the close cultivation of plants, animals, microorganisms, genetic viruses, medicine, environmental protection and other scientific research, education and production departments.

This product has the following features:

Features:

1. Unique and novel appearance, small size, powerful functions. All surface that contact with water adopt stainless steel material and PC material, with strong corrosion resistance.
2. Using a once punch-formed stainless steel inner liner, with unique sealing structure to eradicate water leakage; Three groups of water tanks post position independent drain valves separately, can easily emptying the sewage after clean the Inner container.
3. Using microcomputer program PID automatic temperature control, uniform temperature control, high precision.
4. Built-in water level sensor, to prevent the hidden dangers of dry burning, safe and reliable.
5. Dual digital tube digital holographic display temperature and timing time, parameter display is accurate and intuitionistic, with beep alarm prompt function.

02 SPECIFICATIONS

1. The Normal Operation Condition

Ambient Temperature: 5°C ~ 35°C

Relative Humidity: ≤70%

Power: AC220V ~ 5A 50-60Hz

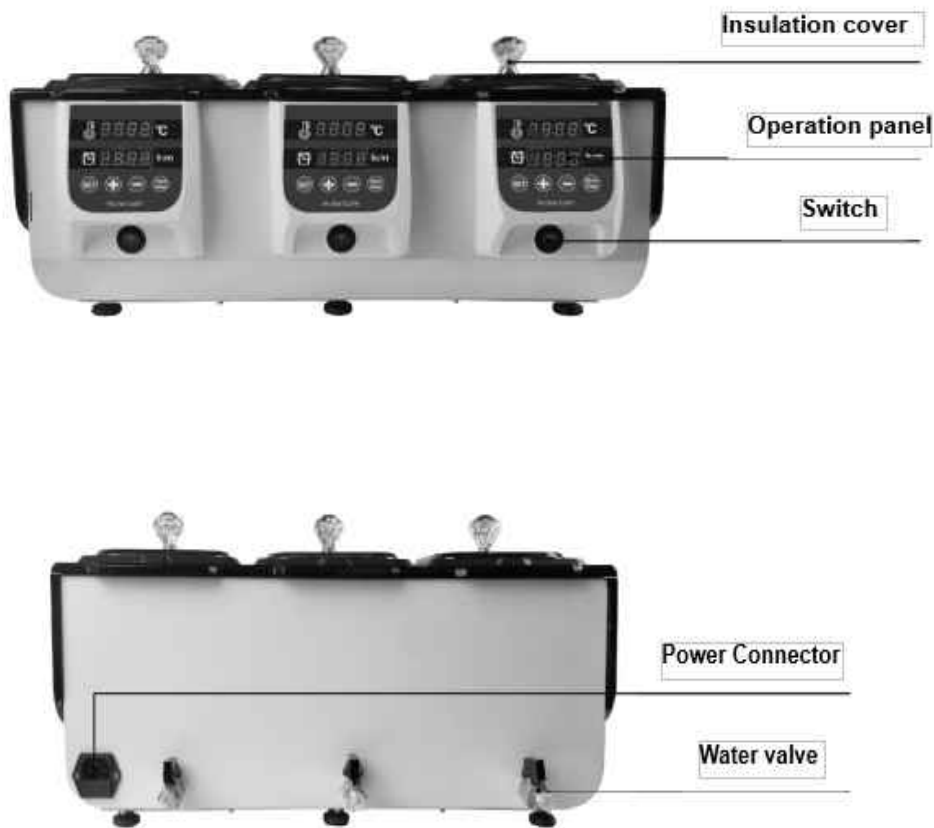
2. The Basic Parameters and Specifications

Model	BBWA-302
Temp. range	R.T.+5°C~ 100°C
Temp. accuracy	0.5°C
Temp. Uniformity @37°C	0.5°C
Number of holes	1
Volume	2L×1 hole
Inner dimension(mm)	135×150×143×1 hole
Voltage	AC 220V 50/60Hz
power	300W
Dimension (WxDxH)	198mm×310mm×255mm
Net Weight	2.3kgs

03 BASIC OPERATING INSTRUCTIONS

This chapter mainly describes the instrument's mechanical structure, the keyboard and functions of each key, as well as preparations before power on. When using the instrument for the first time, you should be familiar with this chapter before turning on the instrument.

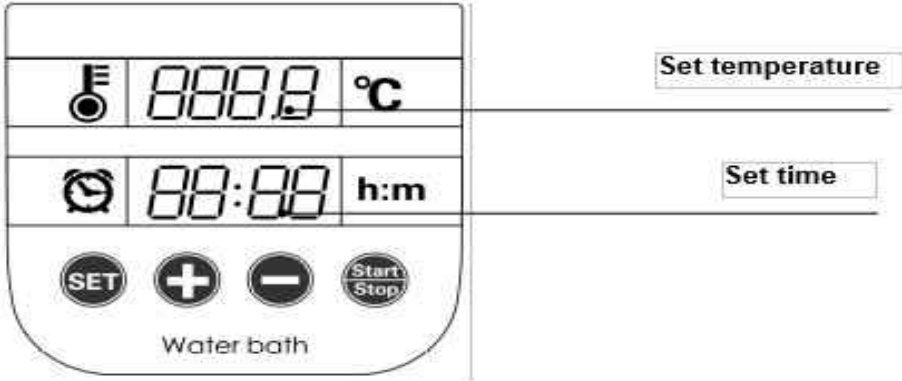
1. Structure Description (Take BBWA-304 as an example)



2. Keyboard and Display Panel



Display Panel:



3.Operation button description



Select the section in which the program needs to run.
You can choose to set the temperature and time.



Temperature and time setting keys, press this key to set the temperature and time.



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04 OPERATION GUIDE

1. Time and temperature settings

a) Add clean water to each of the three Inner containers. The water level must exceed the heating tube.

(Note! Do not press the temperature control switch before adding water. To avoid burning the heater tube, the heating tube will not work if the water level is too low.)

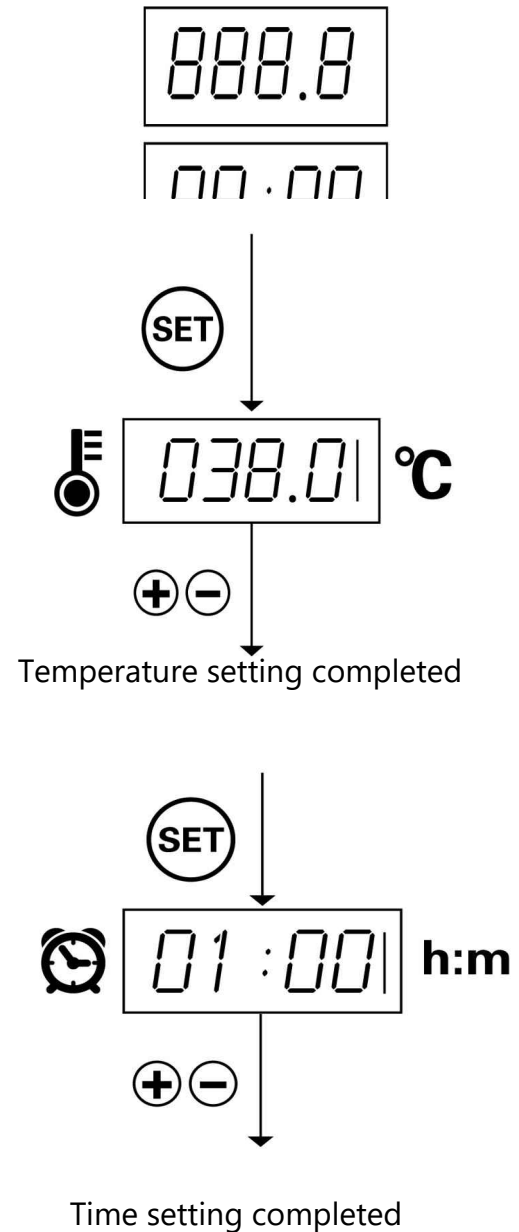
b) Press the power switch on the bottom of the corresponding sink. The display shows numbers "" one after the other, as shown on the right. Accompanied by the "buzz" sound, the instrument enters the initial interface.

Set the temperature:

Press the "SET" button to select setting the temperature. As shown in the right figure, it is 38.0°C and the cursor flashes after the decimal point. Press the "+" or "-" key to increase or decrease the value of the set temperature, and increase or decrease in small numbers, ones digits, ten digits and hundreds digits in sequence.


Setting time:

Press the "SET" key to select setting the time. The modification principle is the same as the principle of temperature. If the time is set to 1 hour and 20 minutes, the operation is as follows: press the "+" key, and after reaching 1 hour 20 minutes according to the increase of the time setting value Release the "+" key, the instrument automatically confirms the setpoint and saves the setpoint.





Note! When the time is set to 00:00, the time running value is ∞, and the instrument keeps constant temperature while temp. kept at the setting Value.

2. Operation and stop

a) After the temperature and time are set, press the  key to release it immediately, the instrument starts to run, the temperature starts to rise, and the instrument starts heating. At this time, the temperature display window shows the instantaneous temperature value. During the temperature increase process, the heating indicator light changes from gray to bright, and starts blinking. When the temperature in the water tank reaches the set temperature, the indicator light remains light on unchanged and the control enters a constant temperature state.



If you want to interrupt the operation, press  to interrupt the operation. At this point should pay attention to safety and prevent high temperature burns.

When the instrument runs to the setted time, the alarm "di di di" three times, the time display window shows "  OVER h:m means the operation is over, that is, the end of the operation.



b) After the operation is completed, the instrument waits for an instruction at the end of the interface. Press the key at this time to reset the temperature or time. Press the START/STOP key directly to start the program according to the previously set temperature and time parameters.

3. Temperature error calibration

The temperature of this instrument has been calibrated before leaving the factory. However, if there is a deviation between the actual temperature and the displayed temperature due to some reasons, the temperature error can be corrected according to the following methods.

Attention! In order to ensure the accuracy of temperature, this instrument adopts two-point temperature calibration method, namely the two-point temperature synchronous linear calibration method of 50°C and 95°C. After two-point temperature linear calibration, the system ensures that the temperature accuracy of other temperature points is $\leq \pm 0.5^\circ\text{C}$.

When calibrating the temperature, the ambient temperature and the temperature of the module must be lower than 35°C.

The specific operation method is as follows:

a) After the instrument is turned on, enter the waiting interface. At this time, observe the temperature of the display window and confirm that the temperature value should be less than 45°C.

If the temperature is higher than 45°C, wait for the temperature to drop to 45°C, and then operate according to the following methods.

b) Put the thermometer in the sink (center position above the holder).

c) Long press the "+" and "-" keys at the same time to enter the temperature calibration interface, see the figure on the right.

At this time, the time display window displays " Ad Jt ", indicating that the temperature calibration program has been entered; the temperature display window displays the instant temperature, and it automatically starts to heat up to 50.0°C.

When the temperature rises to a constant temperature of 50.0°C, the decimal place starts to flash, waiting for the temperature calibration value of 50°C. After 20 minutes of constant temperature, read the actual temperature of the thermometer.

Attention! In order to ensure the accuracy of temperature calibration, it is recommended that users read the measured temperature after 20 minutes of constant temperature.

constant temperature!

If the value read by the thermometer is 49.6°C, press the "+" or "-" key to modify the temperature value in the temperature display window to make the temperature value 49.6, and press the START/STOP key to confirm the input value.

d) Then the instrument automatically heats up to 95°C, waits for the temperature calibration value to be input after the temperature is kept at 95°C. It is also required to read the measured temperature of the thermometer after 20 minutes of constant temperature.

Attention! In order to ensure the accuracy of temperature calibration, it is recommended that users read the actual measurement after 20 minutes of constant temperature!



If the value read by the thermometer is 95.5°C, press the "+" or "-" key to modify the temperature value in the temperature display window to make the temperature value 95.5, and press the START/STOP key to confirm the input value.



e) In this way, the two-point temperature calibration has been completed, exit the temperature calibration interface and return to the waiting interface.

Attention! During the two-point temperature calibration process, two points must be calibrated at once, otherwise the corrected temperature value will be invalid!

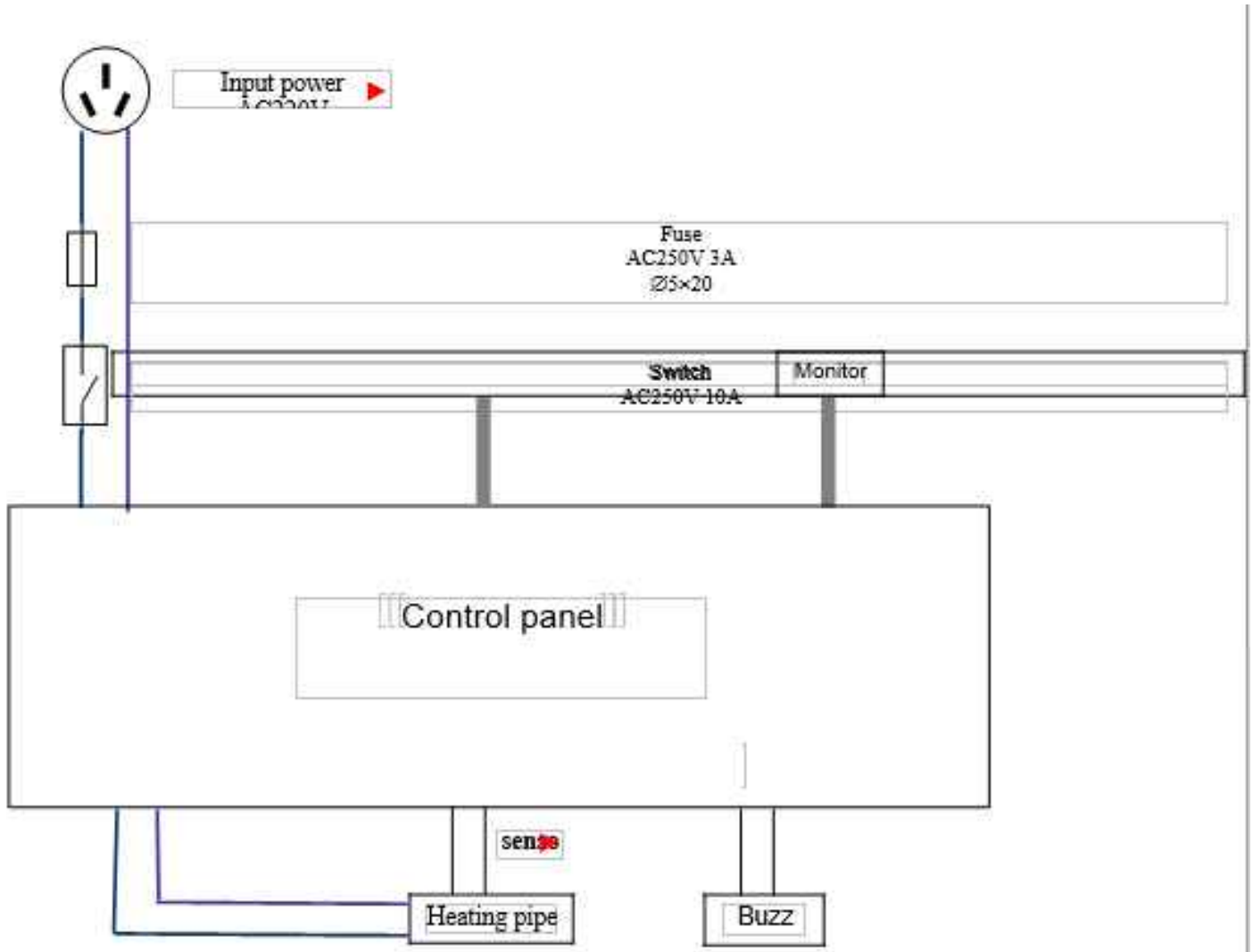
05 FAILURE ANALYSIS AND TROUBLE SHOOTING

Failure Analysis and Processing Procedures

No.	Phenomenon	Possible Causes	Processing Procedure
1	No signals on the display when power on.	No power	Check the power
		Broken fuse	Exchange fuse
		Broken switch	Exchange the switch
		Others	Contact with the seller
2	The actual and displayed temperatures are much different.	Broken sensor	Contact with the seller
3	The display shows "Err0"	Temp. sensor short circuit	Contact with the seller
	The display shows "Err1"	Temp. sensor short circuit	Contact with the seller
	The display shows "Err2"	Water shortage	Add water
4	Water bath is not heated	Broken sensor	Contact with the seller
		Heating tube is damaged	
		Broken TE module	
5	The key does not work	Broken keys	Contact with the seller

Appendix A : Wiring Diagram of BBWA-302

(Below diagram is just for reference. It is subject to change without prior notice.)





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