

LAB
WAVE
Operating Instructions



Water Bath
WB-0005

DECLARATION OF CONFORMITY

Water baths meet the requirements of international safety standard IEC61010-1: 2001 “Safety requirements for electrical equipment for measurement, control, and laboratory use”

1. SAFETY INSTRUCTIONS

Read the operating instructions in full before starting up and follow the safety instructions.

- Socket must be earthed (protective ground contact) before use.
- Water must be filled into the chamber before power-on.
- Avoid operating the bath without water.
- The symbols below are marked on the equipment and in this manual to indicate:



Caution: Surfaces can be hot during and after use



Caution: Socket must be earthed
(protective ground contact).

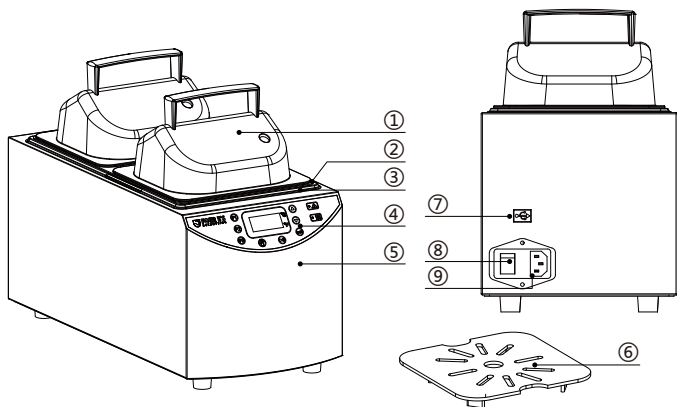
2. UNPACKING

Please unpack the device carefully and check it for damage. It is important that any transport damage is detected when the device is unpacked. If necessary, any inventory of the damage should be made immediately (postal service, railway, haulage company).

Box contents

Model	WB-0005
Water bath	1
Cover board	/
Transparent lid	1
Base tray	1
Power cable	1
USB Type-A cable	1
Operating manual	1

Note: There is a USB port at the back for software upgrade. For upgrading instruction, please contact your local dealer or manufacturer.



- ① Transparent lid ② Cover board ③ Stainless-steel chamber
④ LED display ⑤ Water bath ⑥ Base tray ⑦ USB port
⑧ Power switch ⑨ Power socket

3. INSTALLATION

3.1 Assembly of the equipment and components

The water bath has three main components, the bath, the lid and the base tray. The base tray fits into the bath with the feet downward so that it creates a gap between the bottom of the chamber and the tray.

Note:

1. For optimum temperature stability, avoid allowing the base tray and sample container to touch the sides of the chamber while operating.
2. The lid should only be lifted by the handle, as other parts can become hot during use.
It has a vent/thermometer hole—this hole should not be sealed as pressure could build up inside the bath.

3.2 Instrument placement


Place the water bath on a level, non-combustible surface. Ensure that the mains plug and the switch are easily accessible.

3.3 Electrical supply

- Check that the supply voltage marked on the serial number label, and the type of mains plug, are correct for your mains supply outlet, which must have a ground connection.
- To disconnect the equipment from the mains supply, remove the mains plug from the mains supply outlet.

4. CORRECT USE

4.1. Avoid operating the bath without water

- Avoid using your bath without water in the chamber. Dry-start will affect the service life of the key component.
- The bath has an inbuilt protection mechanism known as dry start protection which will detect this condition in most circumstances and prevent the bath from continuing to heat. In this instance the bath will display “” and sound an

alarm. If the protection program fails to detect the dry-heating, built-in safety temperature cut-out switch will cut off the heating to protect the water bath when heated to a certain temperature .

Note:

The dry-start protection program is on by default. If you need to turn it off, please refer to **5.8. Setting the dry-start protection alarm**. The chamber internal surface can become very hot if an accidental dry start has occurred, even if the dry start cut out has operated. Avoid touching the chamber until it has been left to cool.

4.2. Emptying the baths

Before emptying any bath, disconnect the device from the power supply and pull out the plug. Then allow the water temperature to fall to a safe level and take reasonable precautions to prevent accidental spillage.

4.3. Using transparent lid

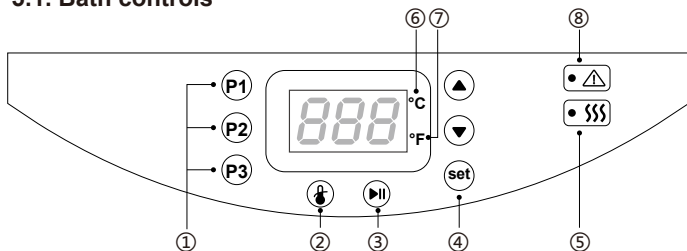
- When the setting temperature is above 60°C , use the lid to maintain proper temperature control and ensure that the water temperature reaches the set point.
- The lid will also prevent excessive evaporation that requires the bath to be filled more often and will save energy.

4.4. Using base tray

- Using the base tray can improve temperature control inside containers.
- Don't put the containers or other items into the stainless-steel chamber directly. Avoid the containers or other items direct contact with the inside walls of chamber.

5. OPERATION

5.1. Bath controls





- ① Preset program ② Over-temperature alarm key ③ Run/Stop
④ Set ⑤ Heating indicator ⑥ °C indicator ⑦ °F indicator
⑧ Alarm indicator

5.2. Run/Stop

When it is displayed OFF, the water bath is in unheated status.
When it displays the actual temperature, the water bath is in heating status.



Press  to switch run/stop heating

For example:

Operation	Display
	<i>OFF</i> The bath is in unheated status
 →	<i>50.0</i> Press the run/stop key to start heating, it displays the current temperature
 →	<i>OFF</i> Press the run/stop key again, heating stops, and the screen displays "OFF"




5.3. Heating temperature setting

Method 1:


Directly press   to enter the temperature setting as following steps:

For example:

the current temperature is 37.0°C, and set the temperature 50.0°C






Operation	Display
  →	<i>50.0</i> Directly set the heating temperature you require
 →	<i>37.0</i> Press the set key to save the value then exit, it displays the current temperature/OFF




Method 2:

Press  to enter the temperature setting sub-menu to adjust the temperature as following steps:

For example:

the current temperature is 37.0°C, and set the temperature 50.0°C

Operation	Display
 →	<i>° C</i> Press set key to enter the first level menu
 →	<i>50.0</i> Press set key again to enter the temperature setting menu option
  →	<i>55.0</i> Set the temperature you require
 →	<i>37.0</i> Press the set key to save the setting then exit, it displays the current temperature/OFF.

Method 3: Run the preset    . Please see the detailed steps 5.4 for how to configure and run the presets.

5.4. Configuring and running temperature presets

The bath has 3 presets: **P1** **P2** **P3** . Temperature presets allow you to conveniently store or run bath temperature settings for you routinely use.

Before you can use presets, you need to store the values you wish to use in at least one of the presets as the following procedures:

For example:

configuring the preset P1, the current temperature is 37.0°C, preset the temperature 50.°C

Operation	Display	
P1 →	<i>P r 1</i>	Select the preset you wish to set;
▲ ▼ →	<i>50.0</i>	Set the value you wish to use;
P1 →	<i>37.0</i>	Press the preset again to store the value and the bath with automatically return to displaying the current temperature/OFF

Running the preset as the following procedures

For example: run the preset P1






Operation	Display	
P1 →	<i>P r 1</i>	Press the preset you want to use;
set →	<i>50.0</i>	Press "set" to confirm the preset, it displays the current temperature/OFF.

5.5. Switch between Fahrenheit Temperature (°F) and Celsius Temperature (°C)

When the °C indicator is on, the unit of temperature is °C; When the °F indicator is on, the unit of temperature is °F.

Setting procedures as following:

For example: switch "°C" to "°F".

Operation	Display
 →	\square [Select the menu option;
 →	CFU Navigate to the switching °C/ °F selection menu option
 →	[Press the set key to enter °C/ °F switching
 →	F Switch to °F; C stands for °C, and F stands for °F
 →	37.0 Press the set key to save the setting, it displays the current temperature/OFF.




5.6 Setting the over temperature alarm

Protect the sample by setting the max. temperature that the bath allows to be heated.

The setting procedures are as following:

For example:

the current temperature is 37.0°C and the over-temperature alarm limit is 90.0°C

Operation	Display
	0tP Press the over-temperature alarm key to enter the setting menu.
 →	90.0 Set the over-temperature alarm limit you require
 →	37.0 Press the over-temperature alarm key again to save the setting, it displays the current temperature/OFF.

If the liquid temperature exceeds the setting over-temperature alarm limited temperature, the water bath will stop heating, display “0tA” and start an alarm. The alarm can be turned off by the following operations:

- Turn off the power, the alarm is turned off, and restart the machine after the water temperature is lower than the over-temperature alarm limited temperature ;
- Add some cold water until the water temperature drops below the over-temperature alarm limited temperature, and the alarm will be turned off;

- Set the over-temperature alarm limited temperature to above the water temperature, and the alarm will be turned off.

5.7. Setting the countdown timer

The countdown timer range is 1~999 min

After the countdown is over, an alarm will sound three times and the heating will stop, "OFF" is displayed.









Note:




1. When the countdown time is more than 10 minutes, the countdown time is hidden and the real-time temperature is displayed.
2. When the countdown time is less than 10 minutes, the countdown time is displayed.
3. The countdown can start only in heating state. The countdown will stop once the heating is stopped.
4. In heating state, save the setting value of timer, the countdown will start immediately.
5. In unheated state, save the setting value of timer, then press the "Run/Stop" to start countdown.
6. The countdown settings are independent of the temperature settings. When setting the countdown, take into account the time required to achieve the set temperature.

The countdown timer setting as following procedures:

For example:

set the countdown time from 0 to 10 min.

Operation	Display	
 →		Select the menu option
 →		Navigate to the countdown timer selection menu option
 →		Press set key to enter the countdown timer setting If the countdown time is 0, it displays OFF. If not, it displays the countdown timer value
 →		Set the countdown time you require The "•" in lower right corner means that it is in countdown timer setting












		<i>9.57</i>	Press  key to save the setting The countdown timer will begin once you save the setting The setting will exit automatically after 5S without operation
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5.8. Setting the dry start protection alarm

When the dry start protection alarm function is on, the bath will stop heating and an alarm will sound when the system detects that the inner chamber is in dry-start status. When the dry start protection alarm is off, there is no protection alarm and the bath will stop heating if the inner chamber is in dry status and error code “*dry*” will be shown

For example:

the current temperature is 37.0°C, set the dry start protection alarm from “ON” to “OFF”;

Operation	Display		
		<i>0 [</i>	Select the menu option
		<i>dPR</i>	Select the dry start protection alarm setting menu option
		<i>On</i>	Press set key to enter the dry start protection alarm setting. The default setting is “ON”
		<i>OFF</i>	Select to turn off the dry start protection alarm
		<i>37.0</i>	Press  key to save the setting The setting will exit automatically after 5S without operation It displays the current temperature/OFF

6. CALIBRATION

6.1. Calibration condition

1. The accuracy of the thermometer should be more than 10 times that of the water bath display.
2. At a stable ambient temperature (+/-1°C) without air convection.
3. Wait for the liquid to reach the calibration setting temperature and stabilize for 30 minutes before calibrating.

6.2. Dual point calibration

Due to the influence of ambient temperature, humidity, and pot structure, the water bath has a certain deviation in temperature measurement. In order to improve the measurement and control accuracy, each single instrument is calibrated before shipment. Includes two calibration options -- low temperature point and high temperature point.

Low temperature point(LCP): 5 ~ 50°C

High temperature point(HCP): Above 55°C









It is recommended that 40°C is used for low temperature calibration point and 80°C for high temperature calibration point.

Low temperature point calibration:

For example:

Before calibration, the screen displays 32.0 C but the actual liquid temperature is 37.0°C

After calibration, the screen displays 36.8 C and the actual liquid temperature is 37.0°C








Operation	Display	
 →		Select the menu option
 →	LCP	Select the low temperature point calibration setting menu option
 →	32.0	Press set to enter the calibration value
 →	37.0	Enter the reference thermometer value
 →	SEt	Press  to store the calibration value The setting will exit automatically after 5S without operation
	36.8	Leave the bath to stabilize and check the calibration

High temperature point calibration:

For example:

Before calibration, the screen displays 60°C but the actual liquid temperature is 65.0°C;

After calibration, the screen displays 64.7°C and the actual liquid temperature is 65.0°C;

Operation	Display	
 →	$^{\circ}C$	Select the menu option
 →	HCP	Select the high temperature point calibration setting menu option
 →	60.0	Press set to enter the calibration value
 →	65.0	Enter the reference thermometer value
 →	Set	Press  to store the calibration value The setting will exit automatically after 5S without operation
	64.7	Leave the bath to stabilize and check the calibration

7. FAULTS

Error code	Cause	Solution
<i>Shc</i>	Temperature sensor short-circuit	Check the temperature sensor or motherboard for a short circuit fault.
<i>OPn</i>	Temperature sensor open-circuit	Check if the sensor is well connected.
<i>dry</i>	Dry-start alarm, no water in the chamber or the water level is below the min.	Switch the bath off and refill the bath with water
<i>OTP</i>	Over-temperature Alarm 1. The initial water temperature is above the <i>OTP</i> value 2. The <i>OTP</i> setting value is too low	1. Let water cool. 2. Reset the <i>OTP</i> value
<i>rOn</i>	Temperature sensors malfunction	Contact supplier or manufacturer.

Error code	Cause	Solution
Out	Calibration temperature not within the required range	1. Check if the low calibration point or high calibration point is within the required range. 2. Check if the temperature difference between the one measured by a thermometer and the one measured on the water bath is more than 10°C (If it is, there is issue on the temperature probe on the water bath)

8. MAINTENANCE AND CLEANING

Correct use of the instrument to keep it in good working condition will help extend its service life.

Disconnect the power supply before maintenance and cleaning.

No routine maintenance is required except for cleaning. Clean the outside of the equipment with a damp cloth soaked in soap, dish washing liquid or alcohol. Wait for dry before continuing to use.

There are no user serviceable parts inside the unit.

9. TECHNICAL DATA

Model	WB-0005
Input	200-240VAC,50/60HZ 100-120VAC,50/60HZ
Power[W]	450
Heating temperature range [°C] (under standard atmosphere)	Room temp. +5 ~ 99
Temperature stability [°C]	±0.5
Temperature display accuracy[°C]	0.1
Time setting range[min]	1-999
Dimensions(W x H x D)[mm]	394*188*285
Reservoir capacity[L]	5
Weight[kg]	4.5

10. WARRANTY

You have purchased an original laboratory machine which meets the highest engineering and quality standards. In accordance with our warranty conditions, the warranty period is 12 months from our shipment.

The warranty does not cover worn out parts, accidental damage, incorrect storage, nor does it apply to faults resulting from improper use, insufficient care or maintenance not carried out in accordance with the instructions in this operating manual.

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