LA WAVE

Operating Instructions

Water Bath

WB-0013

PREFACE

Welcome to use "Operating Instructions of Water Bath". Users should read this manual carefully, follow the instructions and procedures, and be ware of all the cautions when using this instrument.

DECLARATION OF CONFORMITY

This water bath complies with the relevant standards of

2014/35/EU EN61010-1

2014/30/EU EN55011/B, EN61326-1

YY91037-99

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).

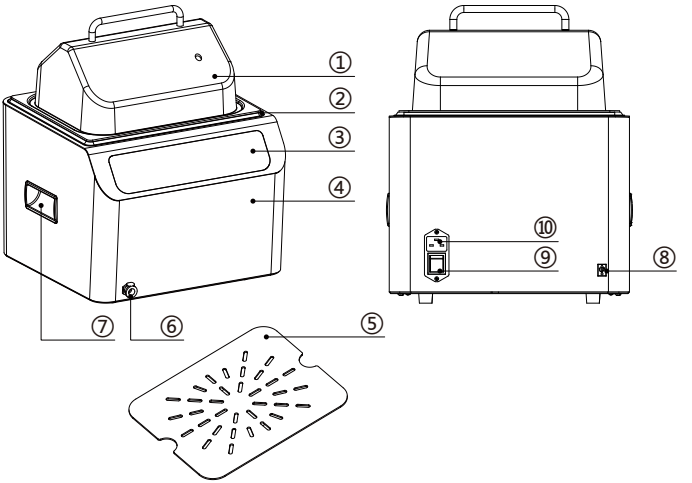
Caution:

If the device/adapter is obviously damaged, please don't connect the power cord.

Box contents

Model	WB-0013
Water bath	1
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 Stainless-steel chamber ③ LED display
④ Water bath ⑤ Base tray ⑥ Drain port ⑦ Handle
⑧ USB port ⑨ Power switch ⑩ 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.
3. 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 "dry" and sound an alarm. If theprotection 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. Filling the baths

For safe use, please do not fill the bath with water during heating process. Please turn off the power first if you need to add water. If filling water triggers a safety warning during the heating process, please restart the machine to dismiss the warning.

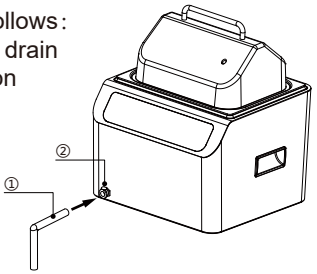
4.3. Emptying the baths

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.

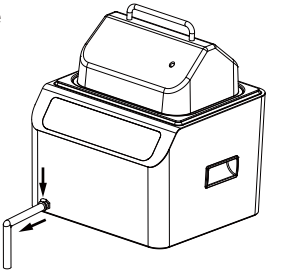
The drainage operation is as follows:

1. Insert the drain pipe into the drain port according to the direction shown in the figure.

① Drain pipe
② Drain port



2. After draining, loosen the lock of the drain port in the direction of the arrow as shown in the figure, and then quickly pull out the drain pipe.



4.4. Using transparent lid

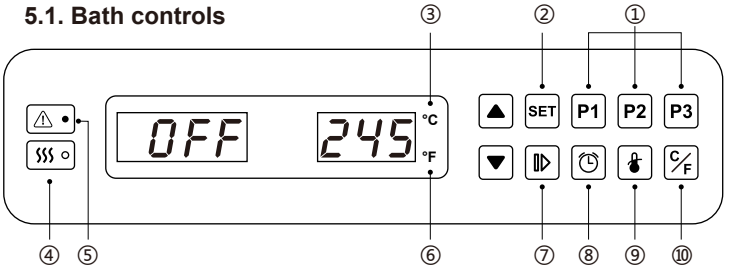
- When the setting temperature is above 60°C , use the lid to maintain proper temperature control and ensure that the water temperature reaches the set point.
- The lid will also prevent excessive evaporation that requires the bath to be filled more often and will save energy.

4.5. 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 Set ③ ℃ indicator ④ Heating indicator
⑤ Alarm indicator ⑥ ℉ indicator ⑦ Run/Stop
⑧ Countdown ⑨ Over-temperature alarm key ⑩ ℃/℉ switch

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:
Current temperature: 50.0℃;
Press the run/stop key to start heating, it displays - - - - and the current temperature.

Operation	Display	
	OFF Current temperature	The bath is in unheated status
[▶‖] →	- - - - &50.0	Press the run/stop key to start heating, it displays the current temperature, countdown is off
[▶‖] →	OFF	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	
[▲] [▼] →	50.0	Directly set the heating temperature you require
[SET] →	37.0	Press the set key to save the value then exit, it displays the current temperature/OFF

Method 2:
Press [SET] 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	
SET →	°C	Press set key to enter the first level menu
▲ ▼ →	rEP	Enter the temperature setting submenu
SET →	50.0	Press set key again to enter the temperature setting menu option
▲ ▼ →	55.0	Set the temperature you require
SET →	37.0	Press the set key to save the setting then exit, it displays the current temperature/OFF.

Method 3: Run the preset P1 P2 P3. 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 your 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.

The steps to set the preset program are as follows:

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

Operation	Display	
P1 →	Pr1	Select the preset you wish to set;
▲ ▼ →	50.0	Set the value you wish to use;
P1 →	37.0	Press the preset again to store the value and the bath with automatically return to displaying the current temperature/OFF

Products can only use distilled water or deionized water filled sink, do not recommend the use of tap water
Running the preset as the following procedures
For example: run the preset P1

Operation	Display	
P1 →	Pr 1	Press the preset you want to use;
SET →	50.0	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
°C/°F →	°F indicator is on

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	
	OtP	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 "OtA" 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 0~99H59min.
After the countdown is over, an alarm will sound three times and the heating will stop, "OFF" is displayed.

Note:

1. The countdown can start only in heating state. The countdown will stop once the heating is stopped.
2. In heating state, save the setting value of timer, the countdown will start immediately.
3. In unheated state, save the setting value of timer, then press the "Run/Stop" to start countdown.
4. 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 1 hour 10 minutes.

Operation	Display
	---- current temperature — When the countdown is 0, it displays ---- and the current temperature, and the countdown is off; when the countdown is not 0, it displays the length of the countdown and the current temperature.
	00:00 current temperature — The first two digits are flashing; enter the state of setting countdown hours
	01:00 current temperature — Set countdown hours
	01:00 current temperature — The last two digits are flashing; enter the state of setting countdown minutes
	01:10 current temperature — Set countdown minutes
	01:10 current temperature — Press the SET to save the setting, or the setting is invalid. The countdown timer will begin once you save the setting. The setting will exit automatically after 10S without operation

5.8. Setting the dry-start protection alarm

When the device is started, the dry-start protection alarm function is automatically turned on.
When the system detects that the inner pot is in a dry state, it will stop heating and sound an alarm.

6. CALIBRATION

6.1. Calibration condition

To ensure accurate calibration results, good calibration conditions are required:

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.
4. Add water to the water bath to 50 mm above the tray, and place the thermometer in the center of the water bath, 40 mm away from the tray.

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

t 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 40.0 C but the actual liquid temperature is 42.0°C

After calibration, the screen displays 41.8 C and the actual liquid temperature is 42.0°C

Operation	Display	
SET	°C	Select the menu option
▲ ▼	LCP	Select the low temperature point calibration setting menu option
SET	40.0	Press SET to enter the calibration value
▲ ▼	42.0	Enter the reference thermometer value
SET	SEt	Press to store the calibration value, or the setting is invalid. The setting will exit automatically after 10S without operation
	41.8	

High temperature point calibration:

For example:
Before calibration, the screen displays 95°C but the actual liquid temperature is 98.0°C;
After calibration, the screen displays 97.7°C and the actual liquid temperature is 98.0°C;

Operation	Display	
SET	°C	Select the menu option
▲ ▼	HCP	Select the high temperature point calibration setting menu option
SET	95.0	Press set to enter the calibration value
▲ ▼	98.0	Enter the reference thermometer value
SET	SEt	Press to store the calibration value, or the setting is invalid. The setting will exit automatically after 10S without operation
	97.7	

Restart the device after high and low temperature points calibration. Leave the bath temperature to be stable and check the calibration.

7. FAULTS

Error code	Cause	Solution
Err 1 SHt	Temperature sensor 1 short-circuit	Check the temperature sensor 1 or motherboard for a short circuit fault.
Err2 OPn	Temperature sensor 1 open-circuit	Check if the sensor 1 is well connected.
Err3 SHt	Temperature sensor 2 short-circuit	Check the temperature sensor 2 or motherboard for a short circuit fault.
Err4 OPn	Temperature sensor 2 open-circuit	Check if the sensor 2 is well connected.
Err5 dry	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
Err6 OtP	Over-temperature Alarm 1. The initial water temperature is above the OtP value 2.The OtP setting value is too low	1. Let water cool. 2.Reset the OtP value
Err7 rOn	Temperature sensors malfunction	Contact supplier or manufacturer.
Err8 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	WB0013
Voltage	AC100~120V,50/60HZ AC200~240V,50/60HZ
Power [W]	1000
Heating temperature range [℃] (under standard atmosphere)	Room temp. +5～99.9
Temperature stability [℃]	±0.3
Temperature display accuracy[℃]	0.1
Time setting range [min]	0-99H59min
Dimensions(W x H x D)	348 x 349 x 427mm
Chamber Dimensions(W x H x D)	300 x 240 x 200mm
Reservoir capacity [L]	13
Weight [kg]	7.4

10. WARRANTY

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

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.

LAB
WAVE

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