



Shaking Water Bath

User Guide

진탕 항온 수조 사용자 설명서 version 1.0

Model

LB-SW025, LB-SW035, LB-SW060

LK Lab Korea: 031-572-4952

Thank you for purchasing this product

from LK Lab Korea co., Ltd.

This user guide provides explanations of function of product,

User manual and cautions.

Be sure to read this manual thoroughly before using this product.

Particular attention should be paid

To the used of the following warnings.



[Caution]

Indicates the situation requires user's attention.
Be careful when operating or controlling during usage.



[Warning]

Indicates a dangerous situation.
Failure of this warning could result in serious injury of equipment damage.

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1. Preparation

1.1 Product Introduction

The product "Shaking Water Bath" is used for controlling temperature concurrently with shaking in a variety field such as chemical, biology, medical science, and pharmaceutical.

Our company considers the utmost effort to offer safety and convenience to all users by using variety functions and safety devices.

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1.2 Product Features

1.2.1 Performance and convenience

- Able to control the operating temperature.
- Lid is easy to open and close, and prevents specimen to be contaminated by condensate water which is dropped inside flowing through a triangle shaped lid.

1.2.2 Safety

- prevent overcurrent of the device through circuit breaker.
- check the disorder situation of the device, and inform through screen message with buzzer.

1.3 Product Structures



[Shaking Water Bath]

[1] Temp. Controller

[2] Power Switch

[3] Over Temp. Limiter

[4] Circuit Breaker

[5] Power Cord

[6] Drain Port

[7] Drain Valve

[8] Bath Cover

[9] Spring Rack

[1] Temp. Controller

- used to control the temperature.

[2] Power Switch

- ON/OFF switches of the main power.

[3] Over Temp. Limiter

- prevents the over temperature shutting down the heater power if the temperature is getting higher than set temperature. (Set the temperature 10% higher)

[4] Circuit Breaker

- Circuit breaker for preventing overcurrent.

[5] Power Cord

- Power cord to supply the power in device.

[6] Drain Port

- used for exhausting the inside solution in Bath.

[7] Drain Valve

- Inside solution have been exhausted through Drain Valve if insert it in Drain Port

[8] Bath Cover

- Bath Cover must be closed if activating for high temperature.

[9] Spring Rack

- helps to fix the laboratory container during experiment

1.4 Product Installation

1.4.1 Product components

Main body 1ea, User Guide 1copy

1.4.2 Environment for product Installation

- Avoid direct light
- Place where with less vibration and flat surface
- Avoid the place where may occur flammable gas
- Avoid the place where may occur noise and high frequency
- Avoid the place where may occur over current or water leak
- Avoid the place where may occur corrosive gas or dust
- Do not install the device in enclosed place.
- Secure the space about 20cm from the periphery of the device when install the device.



- Place the device within temperature of surrounding area below 5°C to 40°C.
- Place the device within humidity of surrounding area below 80%.

1.4.3 Connecting of Power

- Set the power switch OFF
- If the Power cord is separated from the main body, Connect the power cord to the main body at first and plug the cord to power supply point (outlet).



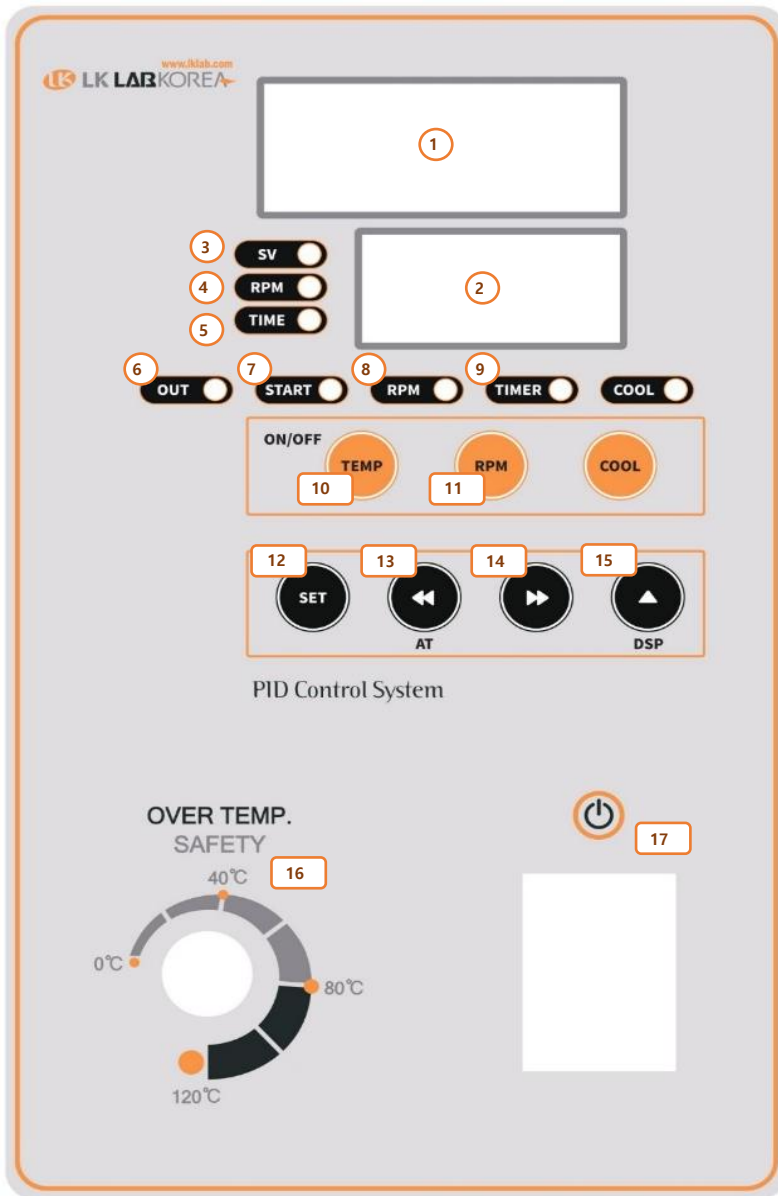
- Before plug to supply electronic power, please carefully check for electrical specification of equipment and considering the specification.
- Must use power supply point that completely ground connected.
- Do not touch the power cord with wet hand.

1.4.4 Initial Setting

- Fully fill with solutions into the bath.

2. Usage

2.1 Name of the Temperature Controller and its Function



[1] Current Temperature

[2] Setting temperature, current speed, and time

[3] Displaying set temperature LED

[4] Displaying RPM LED

[5] Displaying time LED

[6] Displaying temperature output LED

[7] Displaying function of temperature control ON/OFF

[8] Displaying function of rpm control on/off

[9] Displaying time motion LED

[10] ON/OFF Switch for the function of temp. Control

[11] ON/OFF switch for the function of RPM Control

[12] Switch for selecting the changes of the data.

[13] Move to the left and auto tuning

[14] Switch for move to the right

[15] Value increase and switch for selecting a screen

[16] Over Temp. Safety

[17] Power Switch

2.2 Explanation of Controller Screen



– Indicate current temperature of the inside Bath on the [1] display screen

– Indicate one of the set temperatures, RPM, or set time on the [2] display screen.

– Alternately indicated the set temperature, RPM, and time if press the [15] button.



[3] RPM

– Display current RPM during operation

– Display set RPM when operation is stopped

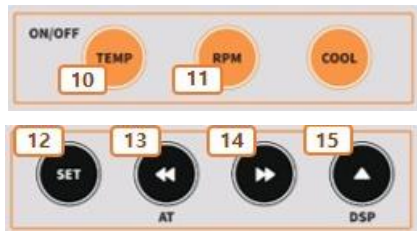


[4] TIME

– Display the remaining time during operation

– Display the set time when operations is stopped. The motor will continue to continuously operate if (–.–) is displayed.

2.3 Setup Method



– Press the [12] button once to set the temperature (SV).

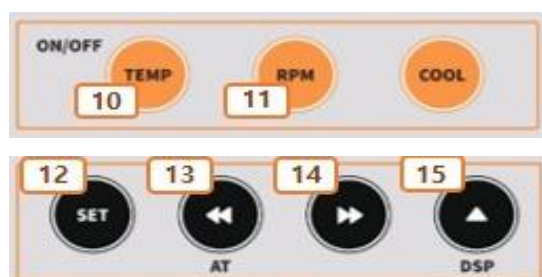


– Press the [12] button twice to set the Shaking (RPM)



– Press the [12] button 3 times to set the time (TIMER)

2.4 Operation Method



〈In case of not use time〉

1. In case of use temperature only
 - Operating temperature (SV) pressing the [10] button after setting up temperature only.
2. In case of use shaking only
 - Operating shaking (RPM) pressing the [11] button after setting up RPM/Time (00.00)
3. In case of use temperature and shaking
 - Operating temperature (SV) and shaking (RPM) pressing the [10] and [11] after setting up Temp./RPM/Time (00.00)

〈In case of use time〉

1. In case of use temp. and time
 - Operating Temperature (SV) and Time (TIME) pressing the [10] and [11] buttons after setting up the Temp. /RPM (000)/Time
2. In case of use shaking and time
 - Operating the shaking (RPM) and time (TIME) pressing the [11] button after setting up the RPM/Time

〈 In case of use low temp. 〉

1. In case of use the product 'LI-BS200L'
 - Press the [10] button and Cool Button in order.

2.5 A Function of Auto Tuning

Auto Tuning can calculate the optimum P.I.D. Gain for the device's own experimental environment, enabling more accurate and quicker experiments.

The calculated Gain is automatically stored, so run the tuning once for the same condition experiment.

Auto Tuning can only be started in the Run state.



– Press and hold the [13] button for 5 seconds.

Once Auto tuning has been ended, it controls to the set temperature

To stop the auto tuning, press and hold the [13] button for 2 seconds.



_ It may occur to temperature getting occur than set temperature during auto tuning

3. Maintenance

3.1 Maintaining after use

- After treat, Power Switch has to be turned OFF.
- If the equipment has been contaminated, plug OFF the Power Cord and cleaning the contaminated area with Alcoholic liquid
- If the equipment would not be used for long time, plug OFF the Power Cord and store the equipment keep it clean.



- Do not use strong acid, alkaline or volatility solution for cleaning the equipment.
- Completely dry the equipment after cleaning.

3.2 Disorder and Solution

3.2.1 Power on Disorder

- Please check the power supply
- Please check if Power switch is 'ON'
- Please check that Circuit Breaker is protruding forward.
- Please check if Power Cord is will connected with the main body.
- Please check if the consent's breaker is 'ON'
- If no problem with the check list above, please contact our Technical Support Department.

3.2.2 Circuit Breaker of the device is keeping short continuously

- Please contact our Technical Support Department.

3.2.3 Temperature Control Disorder

- Please check if the Over Temp. Limiter set 10% higher than treat value.
- Please operate Auto-Tuning.
- If still not working after those solutions above, please contact our Technical Support Department.

3.2.4 Error Message

uuuu	If the current temperature is higher than maximum set value (100°C)
nnnn	If current temperature is lower than 0°C.
Err0	If the value of the rpm is still 0 after 15 seconds pushed the Motor on Switch button
Err1	If the value of the RPM is over +30RPM which is the Maximum set value after Motor on.
End	If the operating time of the regulator is completely end.



- Failure beyond the normal limit cannot be processed by A / S.
- In case apply A/S, use have to inquire to our Technical Support Department or Supplier of the equipment. If user randomly disassembles or changes parts inside, repair of equipment cannot be available.

3.3 After Sales Service (A/S)

3.3.1 Warranty

Warranty period is expired by 1 year after purchasing equipment.

After 1 year, cannot get warranty repairing service. User has to pay for replacing parts or repairing work. Within warranty period, user can get service from LK Lab Korea's Technical Support Department or Supplier of the equipment.

3.3.2 Exceptional Case of Warranty

Damage or defective by fire or inundation, carelessness usage, do not use standard liner power supply recommended, operation at abnormal condition, misuse or unskilled usage cannot be get warranty service.

3.3.3 Applying A/S

Firstly, contact to our Technical Support Department or Supplier of the products and inform detailed sympathy with contact of user by mail or fax. After receipt of A/S inquiry, our technician quotes and user decides after get quoted. The product after 2 weeks from receipt of A/S inquiry without response will be return to the user.

LK LAB Korea After-Service Department: 031-572-4952

4. Specification

Cat. No.	Model	Capacity	Speed
B04-44-050	LB-SW025	24 L	20 ~ 180 rpm
B04-44-060	LB-SW035	35 L	
B04-44-070	LB-SW060	60 L	

Cat. No.		B04-44-050	B04-44-060	B04-44-070
Model		LB-SW025	LB-SW035	LB-SW060
Capacity		24 L	35 L	60 L
Controller	Control	PID Control, Auto-Tuning		
	Display	LED Segment		
	Resolution	0.1 °C		
Temperature	Range	Ambient +5 to 100 °C		
	Accuracy	±0.3 °C		
	Uniformity	±0.85 °C	±1.00 °C	±1.20 °C
Shaking	Range	20 ~ 180 rpm		
	Motion	Reciprocation (stroke : 30 mm)		
Dimension (w x d x h)	Internal	350 x 300 x 250 mm	400 x 350 x 250 mm	600 x 400 x 250 mm
	External	663 x 405 x 420 mm	713 x 455 x 420 mm	913 x 505 x 420 mm
Electric supply	Power	1 Phase / 220 VAC / 60 Hz		
	Max Consumption	700 W (3.2 A)	1.1 kW (5 A)	2.1 kW (9.6 A)
	Power Line	Standard Plug		
Material	Interior	304 Stainless Steel		
	Exterior	Powder Coated Steel		
Other	Drain	1/4" Hose Nipple Male		
	Rack	Spring Wire Rack 기본 장착		

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