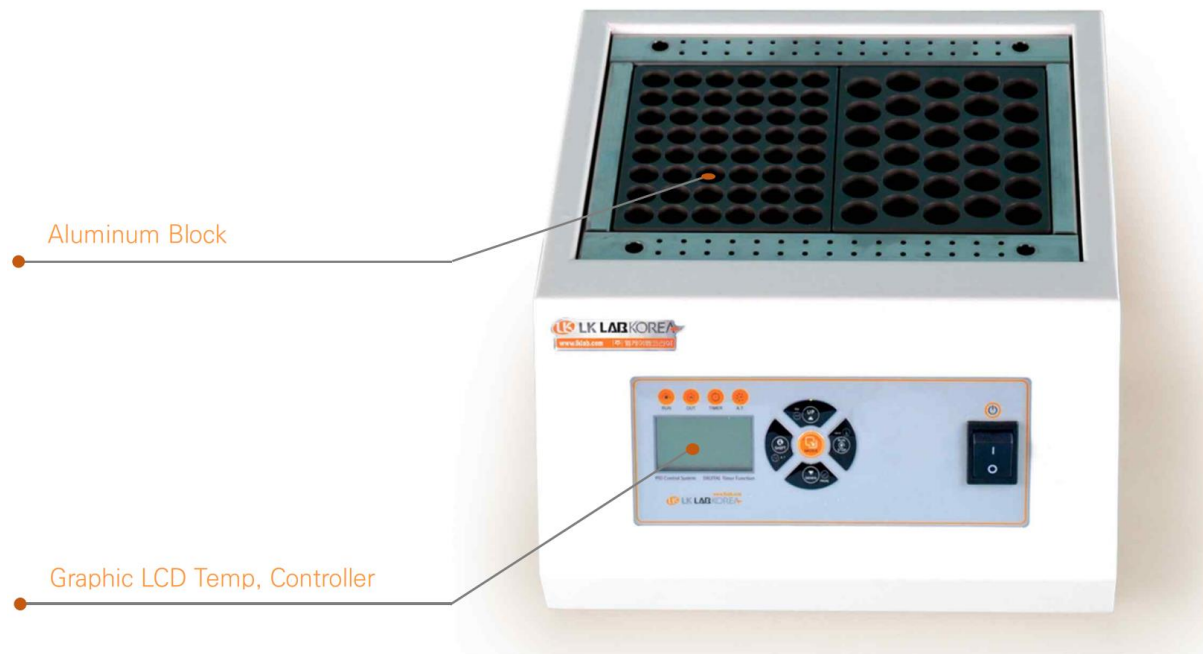




Heating Block Bath

User Guide

Version 1.0

Model

LI-HB001, LI-HB011, LI-HB021

Thank you for purchasing the product of LK Lab Korea Co.,Ltd.

**This User Guide describes your product's function,
operation and safe use.**

**Please read carefully and keep them in mind
before you operate products.**

**In case some parts which need extra care for users,
we put some marks as below for the occasion.**



[Warning Mark]

Indicates the situation requires user's attention.

Be careful when operating or controlling during usage.



[Attention mark]

Indicates a dangerous situation.

Failure of this warning could result in serious injury of equipment damage.

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1 Preparation

1.1 Introduction

This product is a heating block bath designed for temperature control in various fields, including chemistry, biology, medicine, and pharmaceuticals. It has been developed with a focus on maximizing user convenience and safety through a range of features and safety mechanisms.

The product possesses the following features:

1.2 Feature

1.2.1 Performance and Convenience

- Precise temperature control is achievable with a resolution of 1/100°C.
- External sensors allow for separate control of the block's temperature.
- Equipped with a Graphic LCD Display Controller for easy and straightforward operation.
- Features a PID control system powered by a high-performance microprocessor, enabling fast and precise temperature management.
- Includes an AUTO TUNING function that automatically calculates PID values based on the experimental environment, facilitating quick and convenient temperature control during experiments.

1.2.2 Safety

- Equipped with Overcurrent Protection Device
- In the event of an abnormal situation, alerts are provided through a buzzer and messages displayed on the screen.

1.3 Installation

1.3.1 Product Components

Main Body 1ea, Power Cord 1ea, User Manual 1ea

1.3.2 Product Installation Environment

- Avoid direct sunlight.
- Install on a stable, flat surface with minimal vibration.
- Maintain ambient temperature between 5°C and 40°C.
- Ensure ambient humidity remains below 80% RH.
- Do not install in areas where flammable gases may leak.
- Avoid installation in locations with strong high-frequency noise.
- Do not install in areas prone to electrical leakage or water leakage.
- Avoid environments with corrosive gases or excessive dust.



- Please install in an environment where the ambient temperature is between 10°C and 32°C, and humidity is below 80%.

1.3.3 Power Connection

- ① Set the Power Switch to Off.
- ② If the power cord is disconnected from the main unit, first connect it to the unit and then plug the cord into the outlet.

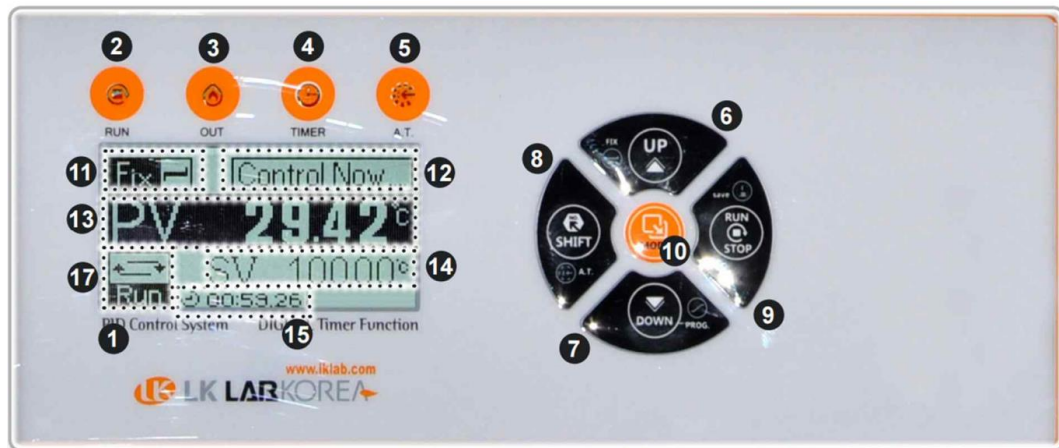


- When connecting the power, please ensure to check the power specifications on the rear of the unit and provide power that matches these specifications.

- Always use a grounded power source.
- Do not touch the power cord with wet hands.

2 Operation

2.1 Naming and Function of Temperature Controller



[1] Graphic LCD

Displays the device's status and various data.

[2] Run Lamp

Illuminates when the device is in the Run state.

[3] Heater Lamp

Flashes to indicate the output level of the heater.

[4] Timer Lamp

Lights up when the device is in Timer Run mode.

[5] A.T Lamp

Illuminates during the Auto Tuning state.

[6] Up Key

Used to increase the set value.

[7] Down Key

Used to decrease the set value.

[8] Shift Key

Used for shifting set value positions and for Auto Tuning.

[9] RUN / STOP Key

Used to save the device's run/stop settings.

[10] Mode Key

Used to switch between menus.

[11] Message Window

Displays messages related to the device's status.

[12] PV Display

Shows the current temperature value.

[13] SV Display

Displays the target temperature value.

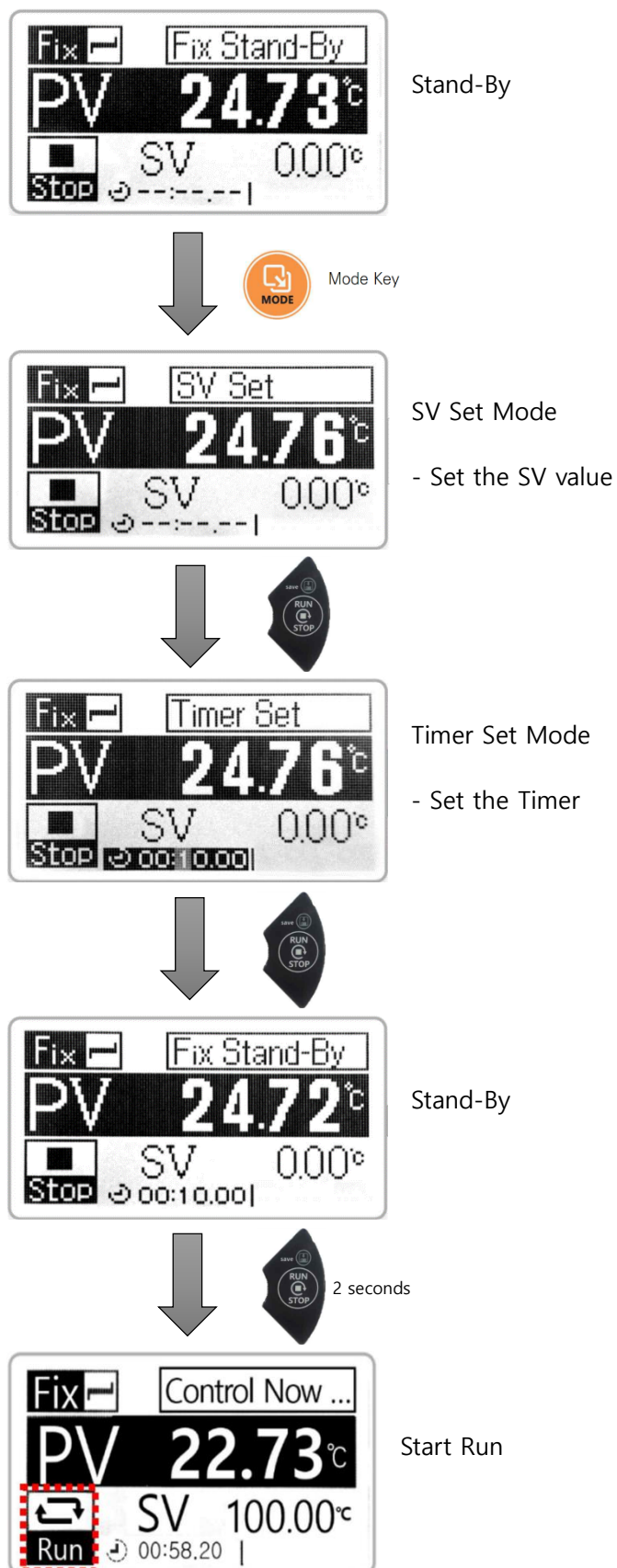
[14] TIMER Display

Shows the remaining time during TIMER operation. "--.--.--" indicates that the timer function is not in use.

[15] RUN / STOP Display

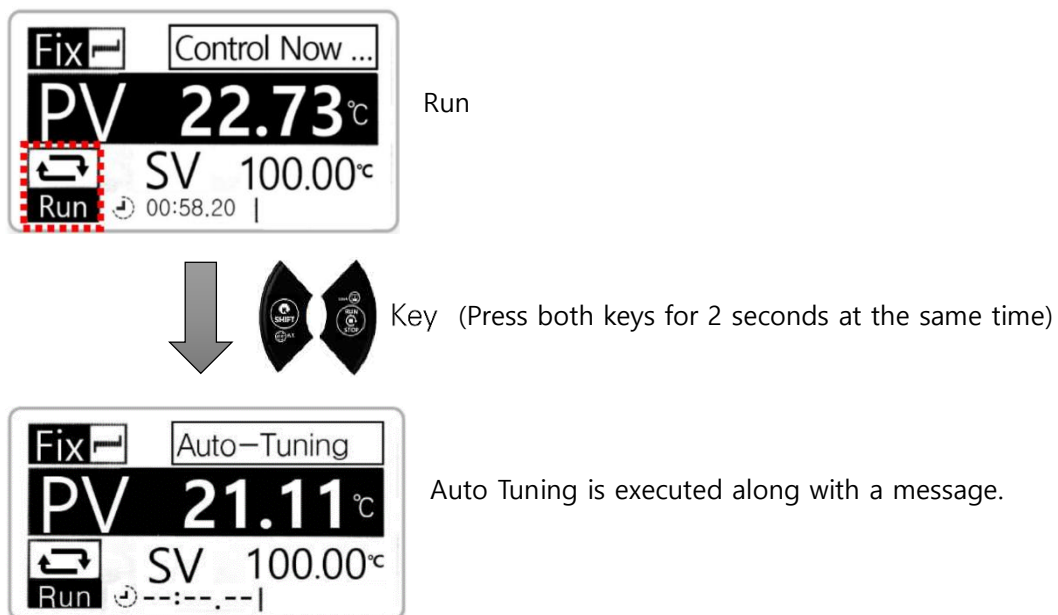
Indicates the run/stop status of the device.

2.2 Operation Method



2.3 Auto-tuning

Auto Tuning allows the device to automatically calculate the optimal P.I.D Gain for the experimental environment, enabling more accurate and faster experiments. The calculated Gain is saved automatically, so tuning only needs to be performed once for experiments under the same conditions. Auto Tuning can only be initiated when the device is in the Run state.



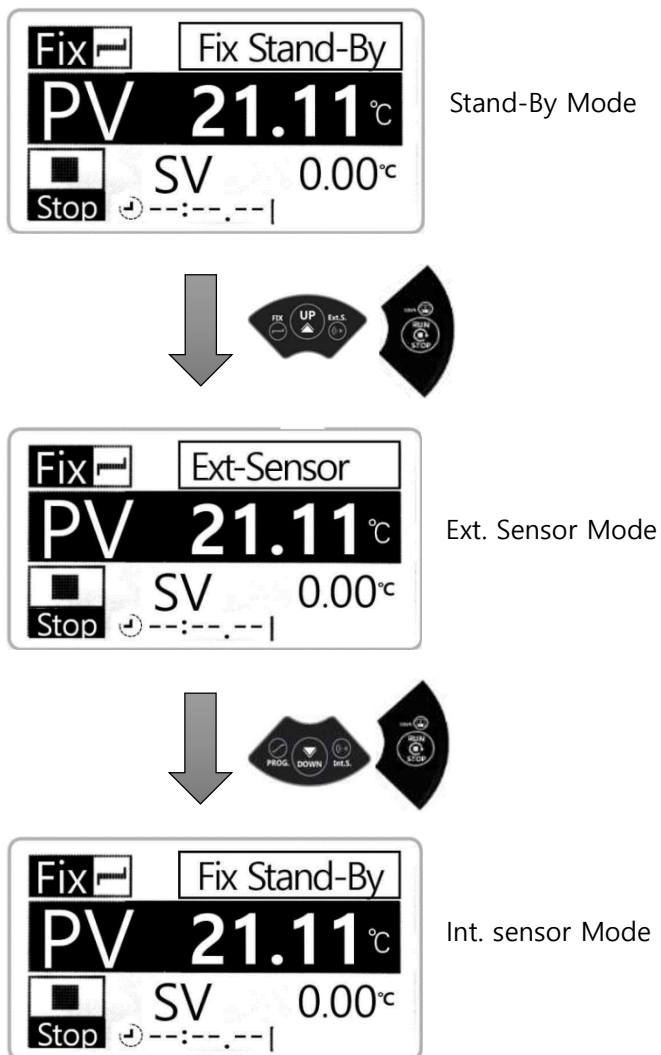
- * Once Auto Tuning is complete, it will control the device at the set temperature.
- * To stop Auto Tuning, press and hold the Shift key and RUN/STOP key simultaneously for 2 seconds.



- During Auto Tuning, the temperature may exceed the set temperature.

2.4 Use External Sensor

This function is used to directly control the external experimental temperature with the device. By attaching an external sensor and setting the mode to EXT. Sensor Mode, the device will regulate temperature based on the external sensor input. Functions such as Program Mode and Auto Tuning can also be utilized in the same manner as with the internal sensor.



- Please perform the sensor switch only while the device is stopped.

3 Maintenance

3.1 Maintenance After Use

- After the experiment is complete, set the Power Switch to OFF.
- If the device becomes contaminated, unplug the power cord and clean the affected areas with an alcohol-based solution.
- When not in use for an extended period, unplug the power cord and clean the device before storing it.



- **Do not use strong acid, strong base, or volatile solution when cleaning**
- **Dry completely after cleaning**

3.2 Disorder & Solutions

3.2.1 If the Device Does Not Power On

- Please check the power supply.
- Ensure that the circuit breaker on the side of the device is in the ON position.
- Verify that the Power Switch on the side of the device is set to ON.
- Check that the Power Cord is securely connected.
- Check circuit breaker for the outlet to which the device is connected is turned ON.
- If the device still does not operate normally after performing all these checks, please contact our Customer Service department.

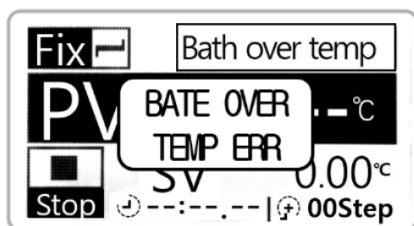
3.2.2 If the Device's Circuit Breaker Continually Trips

- Please contact our Technical Service department.

3.2.3 If Temperature is Not Controlled

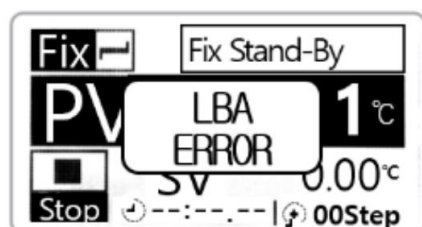
- Execute Auto Tuning.
- If still not working after those solution above, contact our Technical Support Department.

3.2.4 Error Message



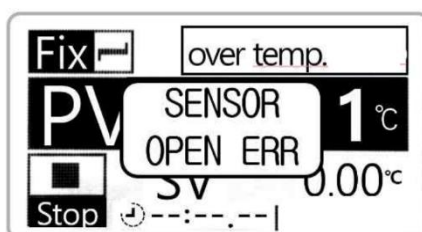
<Over Temp. Error>

Occurs when the temperature exceeds the device's operating range. Stop the device and wait for the temperature to drop. Once the temperature has decreased, press the Mode Key to return to normal operation.



<LBA; Control Routine Breaking Down Alarm>

If this error message comes up, contact our Technical Support Department.



<Sensor Open Error>

Occurs when there is an issue with the sensor. When using the external sensor mode, please check the connection. If the external sensor mode is not in use, please verify the mode settings.

3.3 After Sales Services

3.3.1 Warranty Period

The warranty period is one year from the date of purchase. After one year, free warranty repair services will no longer be available, and you will be responsible for any repair or parts replacement costs. During the warranty period, you can receive service from LK Lab Korea's Customer Service department or the point of purchase.

3.3.2 Warranty Exclusions

Situations Not Covered by Warranty service will not be provided for damages caused by fire, flooding, contamination due to improper use, use of incorrect power supply, operation under abnormal conditions, or damage resulting from improper handling or misuse.

3.3.3 How to Request Warranty Service

To request service, please contact our customer service department or the point of purchase. Include your contact information along with a detailed description of the product's symptoms. After submitting your service request, we will send you an estimate. Please review the estimate and decide whether to proceed with the repair. If we do not receive a response within two weeks after submitting the estimate, the product will be returned to you.



- In the event of a service issue, please contact our Technical Support Department or the point of purchase for repairs. Disassembling the device or replacing parts on your own may result in voiding the warranty.
- Repairs cannot be processed for damage that exceeds normal operational limits.

4 Specification

Cat. No	Model	Range	Block
H04-91-001	LI-HB001	200 °C	1 ea
H04-91-011	LI-HB011		2 ea
H04-91-030	LI-HB101	300 °C	1 ea
H04-91-040	LI-HB111		2 ea

Cat. No.		H04-91-001	H04-91-011	H04-91-030	H04-91-040
Model		LI-HB001	LI-HB011	LI-HB101	LI-HB111
Block		1ea	2ea	1ea	2ea
Controller	Control / Display	PID Control, Auto-tuning / GLCD (Graphic LCD)			
	Resolution	0.1 °C			
Temperature	Range	Ambient +10 to 200°C		Ambient +10 to 300°C	
	Uniformity at 100°C	±0.52°C	±0.66°C	±0.52°C	±0.66°C
Size	Interior	w121xd91xh60 mm	w181xd121xh60 mm	w121xd91xh60 mm	w181xd121xh60 mm
	Exterior	w190xd230xh170 mm	w250xd280xh170 mm	w235xd250xh170 mm	w295xd300xh170 mm
Material	Interior	Stainless Steel 304			
	Exterior	Powder Coated Steel			
Electric Supply	Power	1 Phase, 220VAC, 50/60 Hz			
	Max Consumption	250 W (1.2 A)	350 W (1.6 A)	600 W (2.7 A)	800 W (3.6 A)
	Power Line	Standard Plug			

- Suitable for experiments such as sample drying, heating, concentration, and culturing
- Various block configurations to accommodate different tube sizes, including test tubes, microtubes, and cuvettes.
- Equipped with an external sensor and a standard RS485 port for PC communication.
- Graphic LCD display with a user-friendly and intuitive interface.
- 10-step temperature and time program controller.
- Temperature deviation alarm feature.
- Dual over-temperature safety device, consisting of a primary controller over-temperature alarm and a secondary over-temperature cut-off circuit.

Heating Block Bath

User Guide

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