DAIHAN Scientific
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WiseBath® Digital Water Bath

Operation Manual
(Version 1.2.1)

written for
Model WB-6, WB-11, WB-22

walts 2.1KW

DAIHAN Scientific, Co., Ltd.

Contents

Before Use

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Thank you very much for purchasing, *WiseBath*® Digital Water Bath. Before use, please read this manual carefully and use properly. And also, please keep this manual.

Please pay attention to the following Symbols and read the meaning carefully for user safety before using the device. The indicated cautions are related to the safety and you should observe all safety and warning instructions.

Here are the superior features as follows;

- Digital Feedback control by High-Performance Microprocessor
- Innovative Easy-to-Use Digital Fuzzy Controller
- Simplest Control by Jog-Shuttle Switch and LCD Display
- User's Self-compensation Function : Control Difference between Real Temperature and Indicated Temperature
- Storage of the set temperature and the set time
- Settable Digital Timer up to maximum 99 hours 59 minutes and delay function is available.
- Safety Devices : Over Temp. Protection, Over Current & Leakage Breaker, Alarm for sensor error.

Package Contents

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WB-6 / 11 / 22, Digital Wather Bath 6Lit. / 11Lit. / 22Lit .... ☐

Power Cord .... ☐

Technical Manual .... ☐

3

Appearance

We provide 3 models of *WiseBath* ® Digital Water Bath.
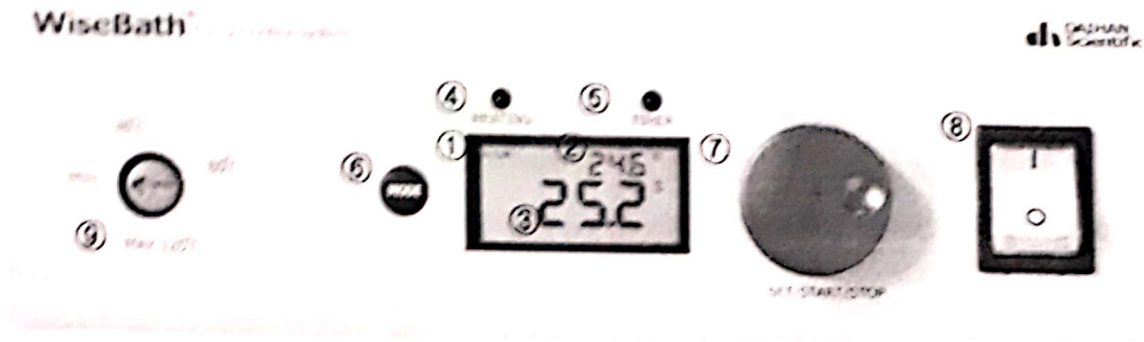<Figure 1> shows the appearance of *WiseBath* ®, WB-11.

<Figure 1> The appearance of WB-11

Models

(a) WB-6 : Digital Water Bath, 6 Lit.
(b) WB-11 : Digital Water Bath, 11 Lit.
(c) WB-22 : Digital Water Bath, 22 Lit.

Controller

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<Figure 2> Digital Control Panel

① Indicate the operation status

② Set Value (Refer to Table 1)

③ Current Value (Refer to Table 1)

④ Heating Lamp : Light the lamp during heating

⑤ Timer Lamp: Indication of Set Timer

⑥ Mode Switch

⑦ Jog-Shuttle Knob : Turning + Push Function

⑧ Main Power Switch
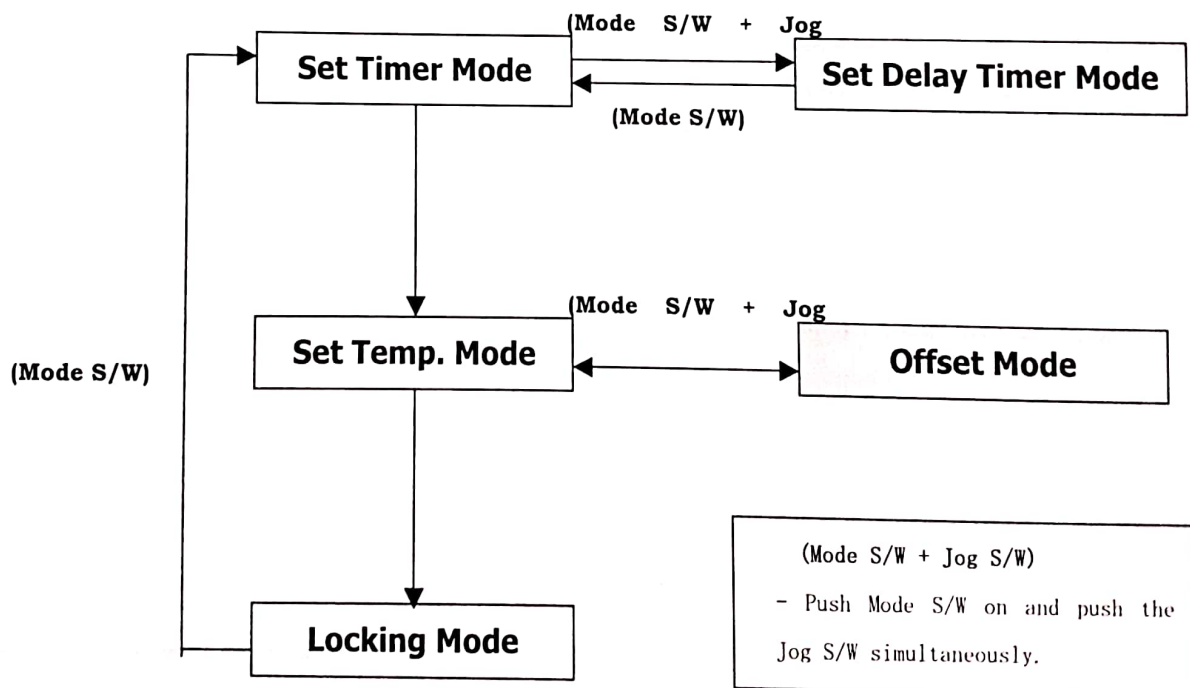
⑨ Over-Heat Protection Knob (SAFETY)

Operation

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1. Preparation

- Pour water in the bath and connect power cord, then turn the power on.
- Set the temperature of Safety Dial higher than applied temperature by 20~30℃..

2. Select Mode

WiseBath ® Water Bath series may be set to 3 basic modes by pressing Mode Switch, ⑥ (Refer to Figure 1). The three basic modes are (1) Timer Mode, (2) Heating Mode, (3) Locking Mode and the sub modes are Delay Mode and Offset Mode. The default mode is (1) Timer Mode.

```
                    (Mode  S/W  +  Jog
┌──► ┌──────────────┐ ──────────────► ┌──────────────────────┐
│    │ Set Timer Mode│ ◄──────────────│ Set Delay Timer Mode │
│    └──────────────┘   (Mode S/W)    └──────────────────────┘
│           │
│           ▼          (Mode  S/W  +  Jog
│    ┌──────────────┐ ──────────────► ┌──────────────────────┐
(Mode S/W) │ Set Temp. Mode│ ◄──────────────│     Offset Mode      │
│    └──────────────┘                 └──────────────────────┘
│           │
│           ▼                    ┌──────────────────────────────────┐
│    ┌──────────────┐            │ (Mode S/W + Jog S/W)             │
└────│ Locking Mode │            │ - Push Mode S/W on and push the  │
     └──────────────┘            │ Jog S/W simultaneously.          │
                                 └──────────────────────────────────┘
```

<Figure 3> Select Mode

Set Mode	Upper Reading	Lower Reading
Timer	Set Time	Rest Time
Delay Timer	"d-tr"	Set Time before Setup Rest Time after Setup
Temperature	Set Temperature	Current Temperature
Offset	Compensated Temperature	Offset Value
Locking	Current Temperature	Rest Time

<Table 1> LCD display for each mode

Set Mode	Heating LED	Timer LED
Timer	Heating Output	Blinking
Delay Timer	Heating Output	Blinking
Temperature	Heating Output	ON(Running)/OFF(Stop)
Offset	OFF	ON(Running)/OFF(Stop)
Locking	Heating Output	ON(Running)/OFF(Stop)

<Table 2> LED display for each mode

3. Set Timer

- When you turn the power on, it starts with 'Set Timer Mode' and the Timer LED is blinking.
- On this status, the upper reading on LCD indicates the Set Time and the lower reading indicates the rest of time. At this moment, the lower value is blinking.
- The default time is 00:00 and it means no limit of time. That is, it is operating continuously while the power is on
- If you turn the Jog Knob, setting Time can be adjusted with 1 minute resolution, and can be set up to 99 hrs 59 min maximum.
- After setting Operation Time, push the Jog Knob once lightly, then the controller starts counting the setting time.
- When the Timer counting is over, the Heater stops to work and the alarm buzzer will go off.

4. Set Temperature

- When you push MODE button on the Set Operation Time Mode, it changes into 'Set Temperature MODE' and then you can set up the required temperature.
- In this status, the upper reading on LCD Screen indicates the Set Temperature, and the lower reading indicates the Current Temperature.

- If you turn the Jog Knob clockwise, the Set Temperature increases, and if you turn the Jog Knob counterclockwise, it goes down. At this time, the Set Temperature can be adjusted by 0.1℃ resolution.
- After setting up the required temperature, press the Jog Knob once lightly, then the controller operates to reach the Set Temperature inside the bath. At this time, the "Heating" is lightening on the top left.
- If you press the Jog Knob once lightly during the operation, the heater is paused and "Heating" letter is blinking.
- The set value can't be changed during the operation, and you should press the Jog Knob to pause, if you want to change the value.

4. Locking Mode

- By setting "Locking Mode" after setting the temperature and the timer, you could prevent any changes of values by mistake.
- Press the Mode Switch on the Temperature mode, then the Locking Mode is valid.
- The readings on LCD Screen indicate the rest of the time, and the Current Temperature.
- When you press the Mode button on Locking Mode, it changes into "Set Operation Time Mode" again.

5. Set Offset

WiseBath ® Digital Water Bath has low Over/Undershoot and high accuracy of temperature inside the bath using Digital Fuzzy Control System.

Also, it provides Offset Function to addition or subtraction of indicated temperature. It is very convenient function to synchronize displayed temperature of the Bath with the measured value by the User.

- Press Mode Switch and Jog Knob simultaneously in Heating Mode (Mode S/W + Jog S/W).
- In this status, it is changed into "Offset" Mode and user can adjust the value. By pushing Jog Knob once, the offset would be setup.
- After the setup, the temperature on LCD display indicates the compensated temperature.
- At this time, press the Mode Switch and Jog Knob simultaneously, then escape from Offset Mode.

6. Set Delay Timer

- Press Mode Switch and Jog Knob simultaneously in Timer MODE (Mode S/W + Jog S/W).

- In this status, it is changed into 'Delay Timer' Mode and set delay time by turning the Jog Knob, then push Jog Knob once
- At this time, push the Mode Switch, then escape from Delay Mode
- If this timer is set, the heater does not work during the delay time. After delay time is over, heater starts to operate
- The set value can not be changed during the operation, and you should push the Jog Knob to pause, then user can change the value again

7. Storage of the Set Value

WiseBath ® Digital Water Bath has 'Memory' function to save each set value. The user can save the set values to be used frequently and does not have to set the same value every moment.

- Set the values of each mode (except Locking mode) using Jog Shuttle.
- Press the Jog knob over 1 second, then the set value blinks on LCD three times. It means that the value has been saved

8. Error Status

This instrument has 'Error' Status to protect the device from breakdown by improper operation.

- Breakdown of the sensor : Indicates 'Err 1' on LCD Display
- In this mode, the heating is stopped and a buzzer will go off three times per 1 minute

Specifications

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Dimension	Bath(mm)	WB-6	WB-11	WB-22
(w × d × h)	Bath(mm)	300×155×150	302×240×150	500×295×150
	Overall(mm)	338×195×250	338×280×250	536×335×250
Heater		800 W	1.2 kW	2 kW
Capacity		6 Lit.	11 Lit.	22 Lit.
Temp.	Range	Ambient + 5℃ ~ 100℃		
	Accuracy	±0.1℃		
	Uniformity	±1.0℃		
Controller		Digital Fuzzy Controller with Jog-Shuttle Switch (Turn + Push)		
Display		Digital LCD Display		
Timer		99hr 59min (Delay & Continuous function included)		
Safety Device		Adjustable Over Temp. / Sensor Error Detect		
Sensor		PT 100		
Options		Stainless Steel Cover		
Others		Storage Function (Temp., Timer),		
		Locking Mode (Jog-Shuttle Input disabled)		
		User Self-compensation function		
		Alarm (for Error Status and Timer-end)		
Power Supply*		AC 110 V, 60 Hz or AC 220 V, 50 / 60 Hz		

Safety Instructions

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1. Operate after checking the safety of the device.

2. Do not use a power source other than which the unit is designed to operate on. Inappropriate power supply may result in damage to the equipment. Adhere to all electrical codes.

3. Please do not touch the power code or the electronic device with wet hands. It may be causes an electric shock.

4. Only Pure Water should be used in the Bath.

5. Place the device on a level, horizontal surface without vibration to support the capacity of the device. If there is vibration, install the device on a support material with enough space.

6. When you clean the product, do not spray with water on the outside of machine. Be careful not to insert any solution into the controller.

7. Set the temperature of Safety Dial higher than operation temperature by 20~30℃. If Safety Dial is on the location of "0", the heater doesn't work.

8. Please use the product cleanly for a long lifetime of the unit.

9. If unexpected sound, smell or smog is generated, pull out the main plug and contact a manufacturer or a supplier.

10. This product must be connected to an earthed power supply.

※ **All circuits and electronic parts used for this product are DAIHAN's own technology, so please do not make it repaired by anyone who isn't our own staff or technician authorized by DAIHAN.**

Repairing and Cleaning

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1. Disconnect the power supply plug and pack the device if the unit is not going to be used for an extended period of time.

2. Do not disassemble or break up by yourself. It may cause damage to the designed safety.
   We do not have any responsibility for an accident, quality degradation or a defect caused by a customer.

3. Before cleaning, please pull the power cord off.
   We recommend you to use soft cloth, and if there is some dirt not to be cleaned, please use mild cleaning solution.

Troubles and Solutions

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Situation	Solution
The temperature doesn't rise up.	- Check the current setting temperature. - Check whether the power is on. - Check whether the Safety Dial is on the location of "0".
The power is on, but does not operate	- Check the power plug is connected well. - Check there is any problem in supplying the power. - Check that a short-circuit breaker is on.

※ If you still have the same troubles after you check up the above contents, you may contact with our head office or the supplier.

CERTIFICATION

of

Quality Tested by Manufacturer
and Free Warranty up to 2 Year

For DAIHAN Laboratory Equipment

Limited Warranty

1. This instrument has gone through our testing process about all functions before shipment.

2. This instrument is warranted for one year from purchasing date.

3. A breakdown caused by customer's misuse or natural disaster is excepted from this warranty.

Item	
Model No.	
Serial No.	**WB22061221004**
Date	
Customer	

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