

# Operation Manual

## BSH5002 myBlock™ Dry Bath Incubator



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# Contents

CHAPTER 1 INTRODUCTION-----	1
CHAPTER 2 SPECIFICATIONS-----	2
1. AMBIENT OPERATING ENVIRONMENT:-----	2
2. TECHNICAL DATA:-----	2
CHAPTER 3 OVERVIEW-----	3
1. STRUCTURE OVERVIEW-----	3
2. KEYPADS-----	4
3. DISPLAY-----	4
CHAPTER 4 OPERATION-----	5
1. TEMPERATURE AND TIME SETTING-----	5
3. TEMPERATURE CALIBRATION-----	6
4. TEMPERATURE CONTROL BY EXTERNAL SENSOR-----	10
CHAPTER 5 FAILURE ANALYSIS AND TROUBLESHOOTING-----	11
ANNEX: WIRING DIAGRAM-----	12

## Chapter 1 Introduction

The dry bath incubator is controlled by sophisticated software, which can be widely used for the preservation and reaction of samples, the amplification of DNA, the pre-denaturation of the electrophoresis, blood serum coagulation and a variety of laboratory procedures.

### Features:

- Large digital display of time and temperature
- Extremely accurate temperature control up to 105°C
- Built-in over-temperature protection
- In-Lab calibration
- Plastic lid for enhanced precision and eliminating waste of energy
- Quick-Flip blocks available for a variety of tube sizes

## Chapter 2 Specifications

### 1. Ambient operating environment:

Ambient temperature: 5°C ~ 35°C

Relative humidity: ≤70%

Power supply: AC115V or 230V, 50-60Hz

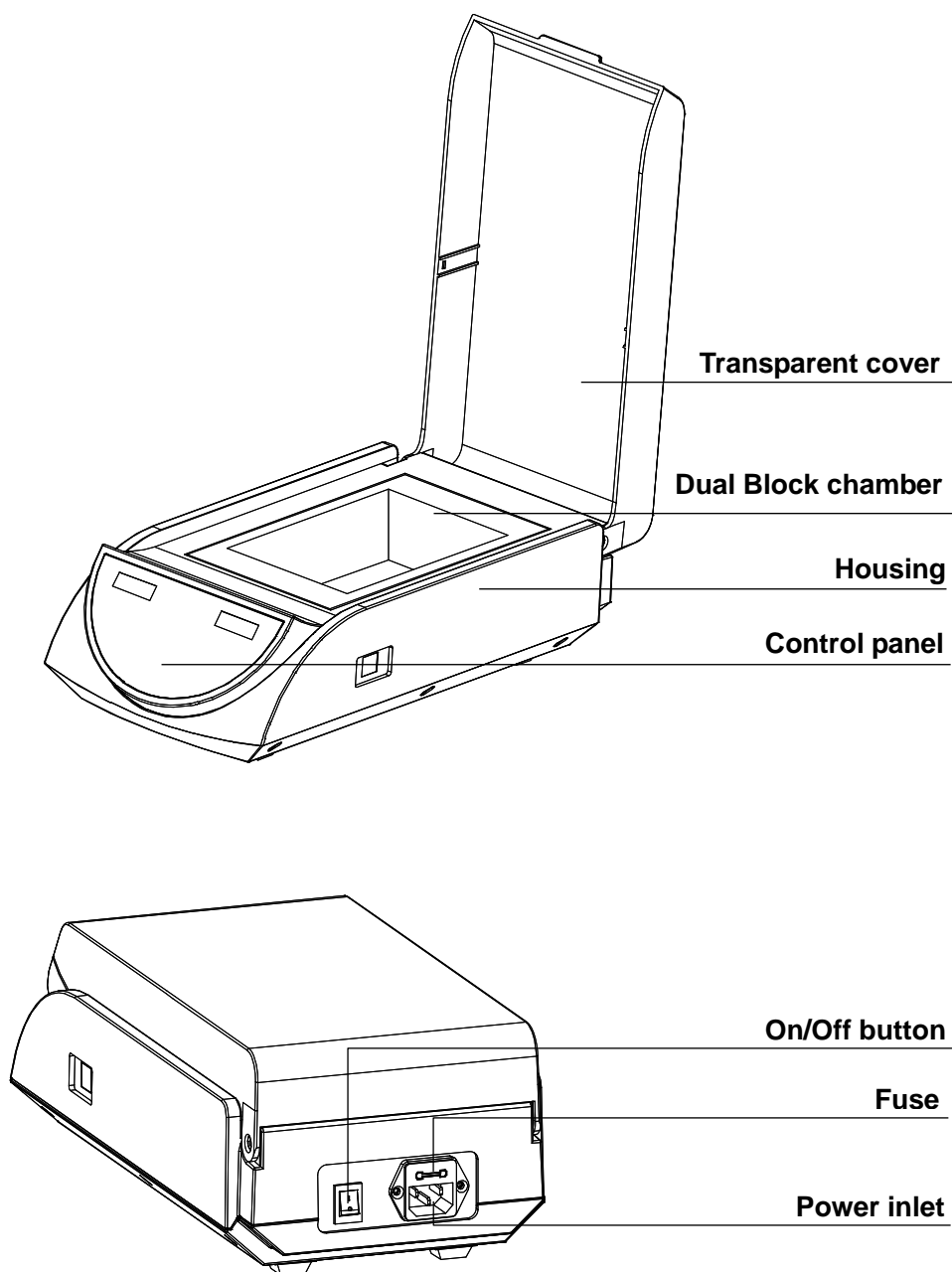
### 2. Technical Data:

Item No.	BSH5000 (-E)
Temperature range	Ambient (Room Temp) +5°C ~ 105°C
Timer	Max. 99hr & 59min.
Temperature accuracy	≤ ±0.1 °C
Temperature uniformity	≤ ±0.2 °C
Heating time (20-105°C)	≤20min
Block material	Aluminum
Power	120W (single)/240W (dual)
Fuse	250V 4A Φ5×20
Dimensions (L×W×H)	7x10x5 in. / 18x25x13 cm (single) 6.3x14.5x5 in./ 16x36.5x13 cm (dual)
Warranty	2 Years

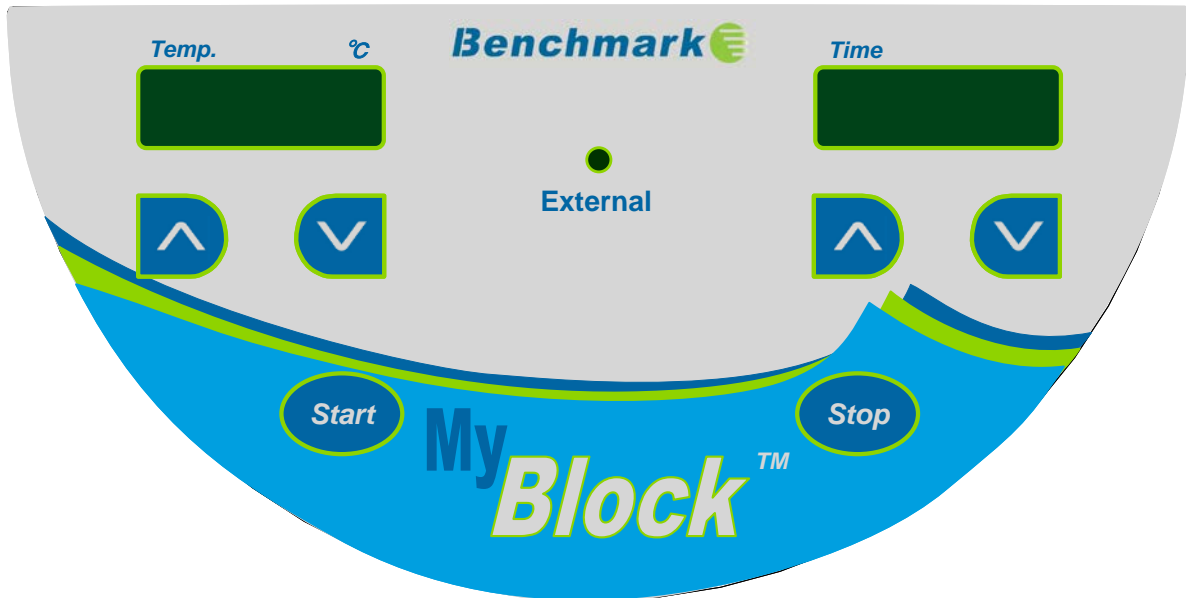
## Chapter 3 Overview

This chapter focuses on the introductions of the structure, keypads and key-functions of the instrument, as well as preparatory work prior to initial operation.

### 1. Structure overview



## 2. Keypads



## 3. Display



**Down key:** Used in both time and temperature mode to decrease the setting.



**Up key:** Used in both the time and temperature mode to increase the setting.

**Start**

**Start key:** After the temperature and time setting is selected, press this key to start the timer.

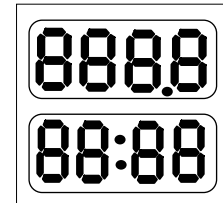
**Stop**

**Stop Key:** Press this key to stop the timer

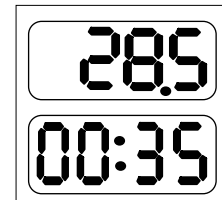
## Chapter 4 Operation

### 1. Temperature and time setting

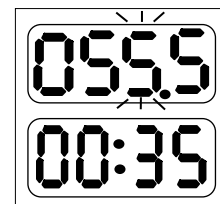
- a) Press the On/Off switch to power on the instrument. The instrument performs a self test followed by an alarm to signal that the product is ready for use.



- b) After about 3 sec. the temperature will automatically increase to the most recent setting. The values shown on the display are actual settings (real time temperature & time remaining.) The example shows an actual temp. of 28.5°C and 35 min. remaining.



- c) To adjust the set temperature, use the ▲ and ▼ keys to select the desired temperature (Ex. 55.5). After 5 seconds, the temperature is stored and the instrument will begin heating.



- d) To set the time, press ▲ or ▼ keys to set the desired time (ex. 1 hr 20 min.). After 5 seconds the desired time is stored.



NOTE: The timer will not begin unless the “Start/Stop” button has been pressed

## 2. Timer Operation (Advanced)

The default setting of the instrument is designed so that the heater will continue to hold the set temperature even once time has expired and “oVer” is showing on the time display. This setting can be adjusted so that the heater will shut down once time has expired. To adjust the advanced time setting, set the “Stop” key and hold it for 10 seconds. After 10 seconds, the display will show “OP:1” use the ▲ or ▼ key to select “OP:2”. The setting has now been changed and can be stored by pressing the “Start” key.

## 3. Temperature Calibration

The temperature of the instrument has been calibrated prior to shipment. However, in the event that an adjustment to the calibration is required, the user can adjust the calibration with either a thermometer/thermocouple or with the optional external temperature probe. (*sold separately*).

**Caution:** To ensure accuracy over a wide range of temperatures, the instrument is calibrated at two temperatures points, both 40°C and 100°C.

### a) Calibration with a thermometer:

a) Power on the machine and ensure that the temperature on the display is less than 35°C.

b) Inject olefin or mineral oil into one of the block wells, and then put a thermometer/thermocouple into this well (make sure that the precision of the thermometer should be within 0.1°C and it be fully submerged into the well). See Fig a.



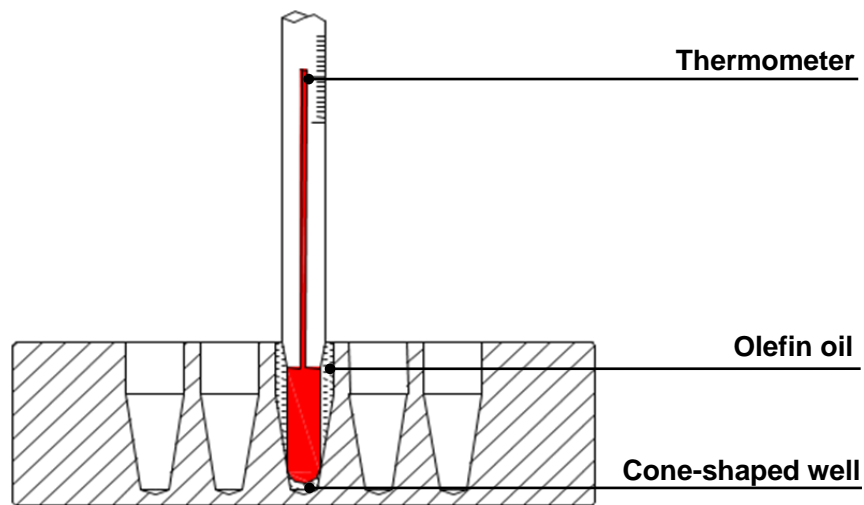
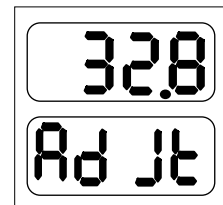
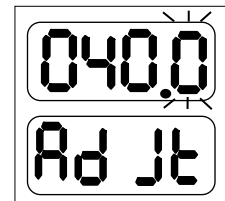


Fig. a

- c) Press “Stop” key and the ▼ key simultaneously for 3 seconds, the bath enters into the temperature calibration interface. At this point, “Ad Jt” is displayed, indicating entry into temperature calibration mode. The temperature displayed is current measured temperature and over time, it begins to rise to 40.0 C. (Note, it may take up to 30 minutes before a change on the display to 40°C is shown.)



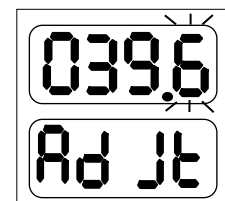
Once held constant at 40.0 °C, the decimal digit begins to flash.



Please wait 20 minutes, then the user can read the value on the Thermometer and use the up and down keys to match the temperature on the display to the value shown on the thermometer.

**Note:** It is important to allow 20 minutes for the temperature to equilibrate before making any adjustment to the temperature.

Ex. If the actual read out of thermometer is 39.6, modify the temperature to 39.6 by pressing ▼ or ▲. Then press “Start” to confirm the input value.

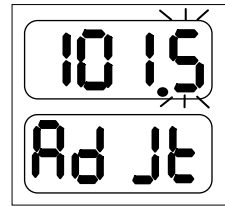


The 40° Calibration has now been completed and the dry bath begins the 100°C calibration

- d) Once the “Start” button is pressed, Then the instruments will the automatically begin to heat to 100°C. Once 100°C is shown on the display (this may take up to 30 minutes) and held as constact, the decimal begins to flash. Please wait 20 minutes and then check the actual value from thermometer.

**Note:** It is important to allow 20 minutes for the temperature to equilibrate before making any adjustment to the temperature.

If the actual thermometer shows 101.5, modify the temperature display to 101.5 by pressing ▼ or ▲. Then press “Start” to confirm the input value.



**Note:** Pressing “Stop” and “▼” simultaneously during the temperature calibration indicates exiting the temperature calibration program. The adjustments will be cancelled and the changes will not take effect.

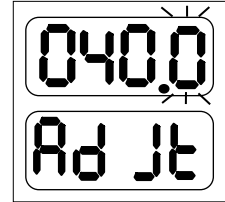
**3.2. Calibration with the External Temperature Probe:**

- a) Power on the machine. Before beginning the calibration, always ensure that the temperature on the display is less than 35°C.
- b) Put External Temperature Probe into a block well.

- c) Press “Stop” key and the “▲” key simultaneously and hold for 3 seconds. This will enter the temperature calibration mode with the external probe. “EAdJ” will be displayed, indicating entry into external temperature calibration mode. The temperature displayed is the External probes current temperature and it will begin to rise to 40.0 automatically. (Note, it may take up to 30 minutes before a change on the display to 40.0°C is shown.)

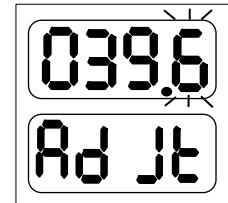


Once held constant at 40.0 °C, the decimal digit begins to flash.

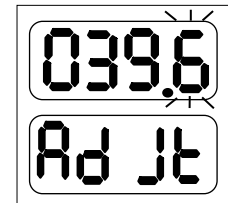


Note: It is important to allow 20 minutes for the temperature to equilibrate before making any adjustment to the temperature.

After 20 minutes, Press the “Stop” key to display the temperature value of External Probe. (Ex. If the displayed value is 39.6°C.)



Press “Stop” again (or wait for 6 seconds), then display shows “ Ad Jt ”. The temperature can now be adjusted by pressing ▼ or ▲ to match the measured value (ex. 39.6). Then press the “Start” key to confirm.

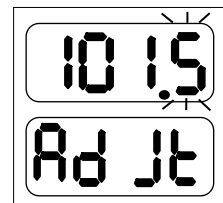


The 40° Calibration has now been completed and the dry bath begins the 100°C calibration

- d) The instrument will then heat to 100.0°C automatically. Once 100.0°C has been reached and held constant, the decimal point will begin to flash.

Note: It is important to allow 20 minutes for the temperature to equilibrate before making any adjustment to the temperature.

After 20 minutes, press the “Stop” key to show the actual readout of the external probe (for ex. 101.5°C).



Press “Stop” again (or wait for 6 seconds), then display shows “ Ad Jt ”. Now adjust the displayed temperature to the measured value (101.5) by pressing ▼ or ▲. Then press the “Start” key to confirm.

Note: Pressing “Stop” and “▲” simultaneously during the temperature calibration indicates exiting the temperature calibration program. The procedure will be cancelled and the changes will have of no effect.

#### 4. Temperature control by external sensor

- a) Insert the external temperature probe into a well of the dry bath or directly into a sample tube.
- b) Press and hold "Stop", then simultaneously press and hold "▲" for 3 seconds, the external indicator light goes on to indicate that it has entered into the temperature control mode of external sensor.

**Note:** After entering into the external temperature control mode, the user can simultaneously press "Stop" and "▲" for 3 seconds to exit this mode. Upon exiting the external indicator light will go off.

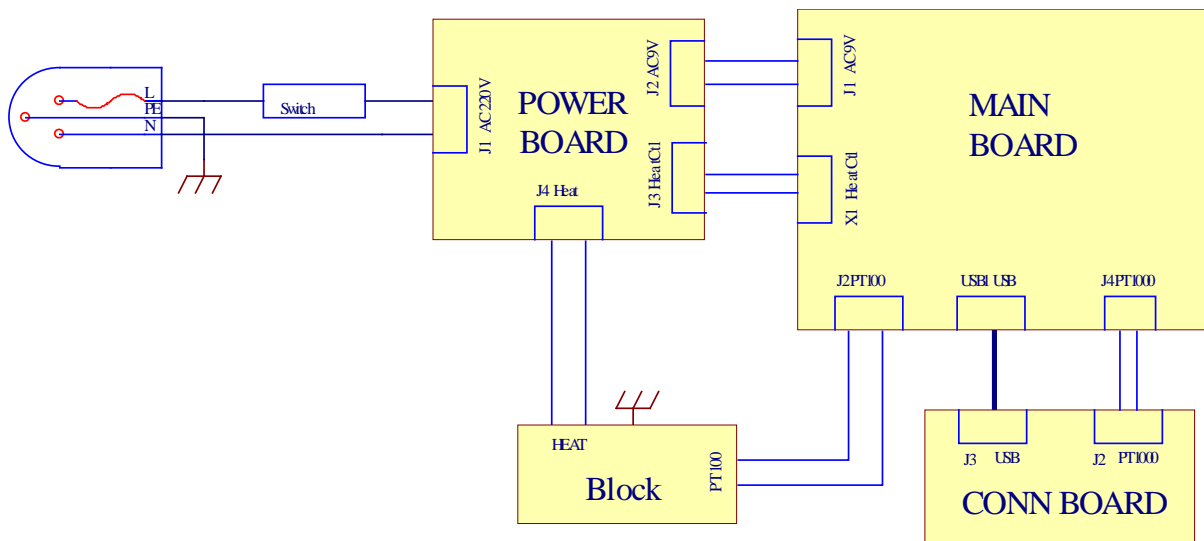
## Chapter 5 Failure Analysis and Troubleshooting

### Problems and actions

No.	Common problem	Possible cause	Action(s)
1	No display on the screen	No power on the main power plug	Check power supply and plugged properly
		Faulty fuse	Change fuse
		On/Off button broken	Change button
		Others	Contact the supplier
2	The actual and displayed temperatures are quite different	Broken sensor or loose contact of the block	Contact the supplier
3	“OPEn” displayed, alarming “beep”	Sensor disconnect	Contact the supplier
	“SHOr” displayed, alarming “beep”	Sensor short-circuit	
	“HHHH” displayed, alarming “beep”	Sensor broken, or block temperature is too high	
4	No heating	Sensor broken	Contact the supplier
		Heating tube broken	
5	Keys don't work	Faulty key	Contact the supplier

# Annex: Wiring Diagram

(for reference only)



# Memo

Empty memo box for content.

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