

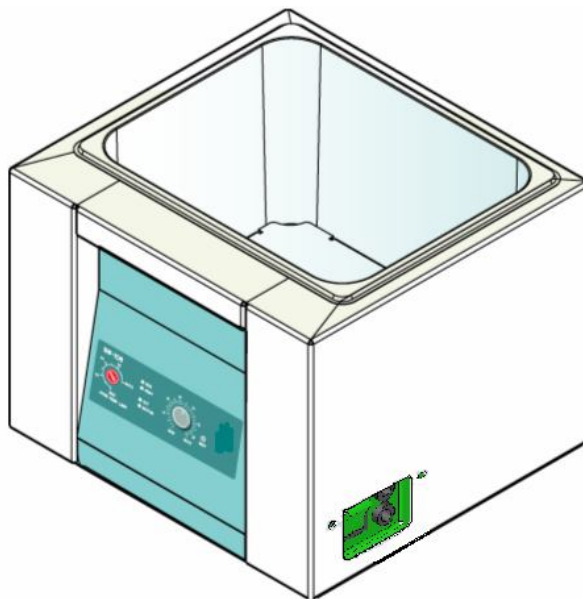


OPERATING MANUAL

[Basic Water Bath]

Model : BW ? 05B, 10B, 20B

Manual No : 00HAA0001200(Rev.1)



This operating manual describes the important subjects to maintain the product's functions and to use it safely. Especially, be sure to read <Safety Precaution> carefully before you use this equipment. Please keep this operating manual close to the equipment to use it after reading through it once. Please place it where the new user can find it easily for the safety use when you hand over or lend the equipment to others





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Chapter 1

Introduction

Thank you for purchasing the Lab Companion Bath.

Lab Companion Baths are realized perfectly the control and Bath circumstance related to the operator's experimental condition. Excellent Incoloy sheath heater positioned below bath widely and offers prompt temp compensation and accurate temp uniformity.

Before using the Bath, please comprehend the manual in detail.

Including;

- Caution about the operating manual
- Warning mark
- Caution for safe operation and unauthorized modification
- Disclaimer



Caution about the operating manual

1. Always keep this instruction near to the instrument.
2. Copying and distributing part or the whole of this the operating instruction with no permission are prohibited with the law.
3. The operating instruction promised perfection but please ask an agent or us if you have any question about insufficient points, error and omission on the operating instruction.

Warning mark

1. This operating instruction uses the warning Signal Word for safe operation to prevent the users from accidents or damage beforehand.
2. Defined by the Symbol Mark about the safety caution.



WARNING

¡Warning¡ means that the user may have serious damage and even die by improper handling on this unit.



CAUTION

¡Caution¡ means that the user may have minor damage and unit may have physical damage by improper handling on this unit.



Protective Ground Terminal
It marks the terminal must be connected Ground prior to operating the product.



NOTICE

It marks additional information on the operation and features of the product.

3. Be fully aware of the warning contents during operation.
4. Please exchange original label to the new warning label when it is unreadable from warning out.

☞ Please request the new label to an agent or us.



Caution for safe operation and unauthorized modification

1. In order to protect the product and system, please use the product in accordance with the instructions.
2. We shall not be responsible for any incidental or abnormal operation for breach of any express or implied warranty on this product or any part thereof.
3. It forbids reorganization of Inside of the product or adds.
4. Please contact the agent or us in case of the component and the consumable parts of the product will be replaced.
5. Do not give a strong shock to the product. It becomes the cause of product damage and wrong operations.

Disclaimer

1. In no event will Jeio Tech industries be liable for any incidental or consequential damages for breach of any implied warranty relating to the product.
2. Any special indirect or consequential property or commercial damage of any nature whatsoever. Some cases do not allow the exclusion of incidental or consequential damages, so the above limitation may apply to you.



Chapter 2

Check the condition of unit

Before you install Shaker, inspect it for damage that may have occurred in transportation. Confirm any damage for compensating following the Compensation regulations and transportation of Lab Companion.



Check the condition of unit before unpack

Protection from any damage occurring in transit, Lab Companion administers excellent packing and radical transportation.

Any damage or loss during transit, all responsibility is filled with the delivery carrier.

After receiving the unit, carefully unpack and inspect it for damage.

If the unit is damaged or loss during transit, Make sure as follows to be protected from the iLab Companion Regulations;

Confirmation a damaged unit

1. Check the front and rear sides of the unit under packed condition.
2. Carefully unpack the package.
3. Check with care any damage during the transportation of the unit
4. Check the parts (i.e. accessories- Page 9) of the unit.

Compensation regulation of damaged unit

If the unit is damaged, contact the delivery service company immediately.

1. Keep the condition as it delivered and wait for the confirmation by the carrier.
2. Within 15 days, submit an application be made in writing to the delivery service company.



NOTICE

Do not discard the carton or packing material for the unit until you have checked all of the damaged parts.

Compensation regulation of transport

1. Any damage that is occurred during the transport is responsible to the delivery service company.
2. Except for all damage from the transport, we Jeio Tech will service or return.
3. 3. If Jeio Tech or our authorized dealers do not deliver the unit, Jeio Tech disclaims all the responsibility for the damage.



Chapter 3

Installation

Before installation, be sure to check the electric conditions for electric safe. All persons expected to carry out operation, installation and maintenance of the unit, read and understand the safety information and operating instructions.

Including;

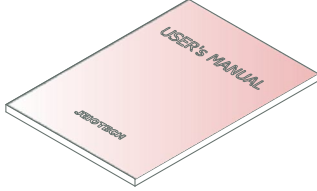
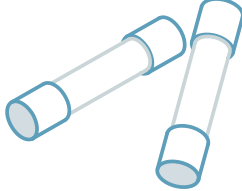
- contents
- Installation
 - Check points
 - Select a proper place
 - Level off
 - Power connection



Contents

After unpacking, Please check listed Bath component description as follows.

If you didn't receive one or more component as follow, Contact the Jeio Tech Service center or the distributor where you purchased.

	
Operating manual After unpacking, check the operating manual. If you didn't receive the operating manual, Contact the distributor or the Jeio Tech service center.	Fuse During being in use, if you contact the service center or the distributor, you will receive the service.

Installation

The machine should be installed on a safe and proper environment following to the below

Check Points

- Select a proper place, Level off the machine, - Power connection

Select a proper place

1. Operating condition

Room condition of temperature and humidity should be normal as 18 °C ~ 25 °C, below 80%RH.

2. Environmental condition

Do not expose the machine to direct ray of light.

3. Setting place

The floor should be on flat and leveled ground.

4. Space

The machine should be kept at least 1.5m from any illuminators and 20 cm from walls.

**CAUTION**

The machine should be operated at the optimum condition for cleanness, electricity and preparation against fire.





Level off

All of the bottom sides should be leveled.

Power connection

Check the ID Plate on the back side of the machine to find the electric conditions.

Power must be used upper 2 classes grounded.



 CAUTION	Check the power plug to find if the electric conditions are correct. The voltage fluctuation should be within 10%.
 WARNING	Do not connect the power before checking how to do correct operation.

1. Check if the plug condition and electric wires are normal.
2. Check the connection of ground wire.



Chapter 4

Safety Alert and Caution

 WARNING	¡Alert! shows that users can be dead or seriously wounded by wrong operation.
 CAUTION	¡Notice! shows that users can be wounded or machines broken by wrong operation.

¡Signal Word! is used in the operation manual for safe and proper operation and keeps users from being damaged by accidents. Each ¡Symbol Mark! is identified following to the degree of importance and danger.

Pay attention to the ¡Alert! and ¡Notice! in the manual to avoid from any accidents.



Safety Alert



WARNING

⚠ Alert ⚠ shows that users can be dead or seriously wounded by wrong operation.

Main Power

- Check the voltage, phase and capacity on the ID plate before installation. Sources of electricity should be separately wired.
- The sources of electricity should be grounded.
The sources of electricity without ground connection can cause serious damage to users or the machine. Don't earth the machine to gas pipes or water pipes.
- Do not connect multiple power cord.
It can cause fire and malfunction.

Safety

- Running water recommended must be non-flammability.
In case of flammability, the flashing point of running water must be over 40°C.
- Running water can be circulated and pumped below 20degrees.
- Running water circulated and pumped can be used below ambient 20°C. Running water must be lower 5°C from the flashing point. (Fp-5)
- Don't install the machine near to places where inflammable gas can be leaked.
Do not use the machine near to places where explosion can be happened due to organic evaporating gases.
Explosive materials: Acid, Esther, Nitro compound
Inflammable materials: salt peroxides, inorganic peroxide, salt acids
- Do not put inflammables and explosives in the machine.
- Put off the power plug if some sounds and smell, smokes are happened.
- Keep out the machine from heating source and sun direct. Install the unit ambient 5°C ~40°C and below 80%RH.
- Do not use the machine at places where moisture is high and flooding can be happened.
- Do not disassemble or fix, change the machine.
- Do not move the machine when running water heated.
Must drain running water completely when moving the




machine.

Overflowing running water can cause malfunction and burn.

- **At least 2 persons should move the machine when it is necessary.**
- **Be careful to enter moisture, organic solvents, dust and corrosiveness gas.**

Caution

 CAUTION	! Notice! shows that users can be wounded or machines broken by wrong operation.
--	--

Main Power

- **Do not put heavy things on the power line. Do not put the machine on the line.**
It causes fire and electric shock.
- **Connect the plug correctly and do not touch it with hands.**
It can cause fire if the connection is not fit.
It can cause fire and damage to users.

Safety

- **Install the machine near to the power cord can be easily reached.**
- **Do not install the machine near the high frequency noise place.**
Keep out a high-frequency welder and mass capacity SCR Controller.
- **Do not put inflammables and explosives in the machine.**
- **Do not install the machine near to the organic solvents.**
It may cause fire and malfunction.
- **Do not make the machine wet while cleaning. Do not put liquid on the machine.**
If the machine is wet, off the power and contact where you purchase the machine to check it.
- **Do not shock the machine or vibrate it.**
It can cause damage to the machine.
- **Do not clean the machine with solvent abstergent. Use smooth cloths.**
Cleaning with solvent can cause fire and deformity.

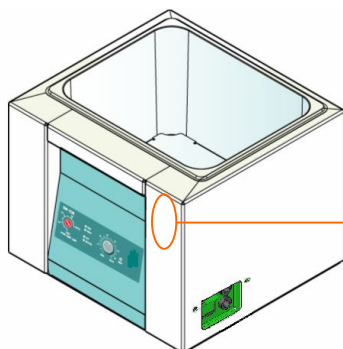


Alert Label

Alert labels are attached on the body for informing of safety and danger.

Keep the alerts in mind and follow the instruction

Ask extra labels to where you purchased the equipment if they're damaged.



 ADVERTENCIA		 WARNING
NO INTRODUZCAN MATERIALES EXPLOSIVOS O INFLAMABLES.		Do not locate combustible or explosive materials inside

*** Warning**

It informs not to put flammable or explosive samples in the chamber.

 ATENCION		 CAUTION
SUPERFICIE CALIENTE. CONTACTO PUEDE CAUSAR QUEMADURA. NO TOCAR.		Hot surface Contact may cause burn. Do not touch

*** Caution**

Users can be burnt by the hot surface of the chamber due to the high temperature.



Chapter 5

Names of each Component & Functions

Please, we recommend that operator learns name of each part of main body and function & and operation of display before using unit.

If you do not understand any, please, contact with agent or Jeio tech.

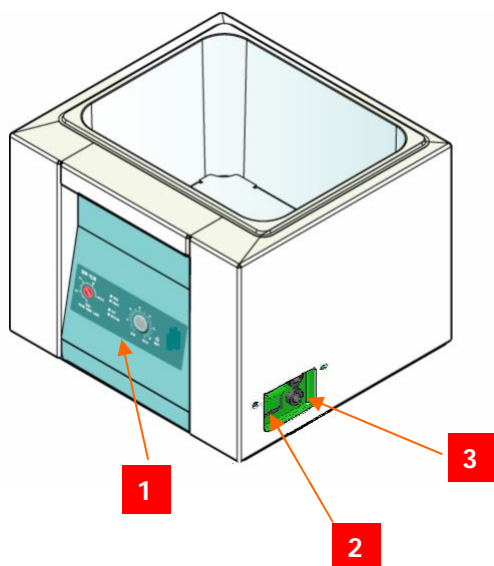
Including;

- Part names and functions
 - Main Body
 - Over temp. limit



Part names and functions

1. Main Body



1. Control Panel

Setting controls and operating

2. Main Power Switch

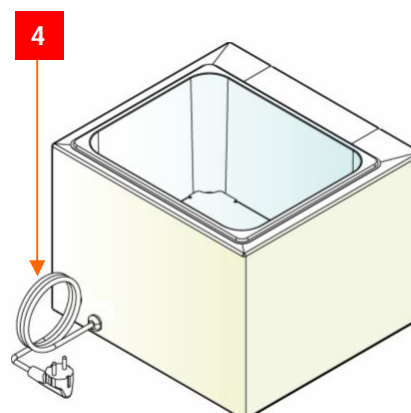
3. Fuse

Safety device is for preventing internal flow from overcurrent.

For replacement;

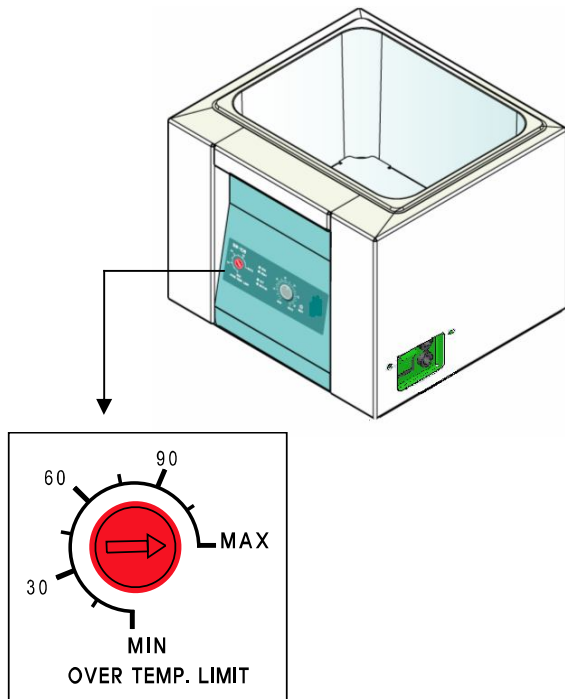
Model	Fuse Specification		
	230V	120V	100V
BW-05B	5A	8A	8A
BW-10B	5A	10A	12A
BW-20B	10A	10A	12A

4. Main Power Plug & Cable





2. Over Temp. Limit



Over Temp. Limit

This safety device cuts mains of equipment and the unit stops when it detects high temperature over set temperature.

Indication : Buzzer and O/T LED blinking.

To start the unit again, press START/STOP key.

Note) Please, eliminate the potential dangerous factor.

How to set :

1. Turn the knob (red color) of over temperature limit to clockwise with screw driver.
2. Set the value 10°C ~ 15°C higher than set temperature.



Chapter 6

Controls and functional element

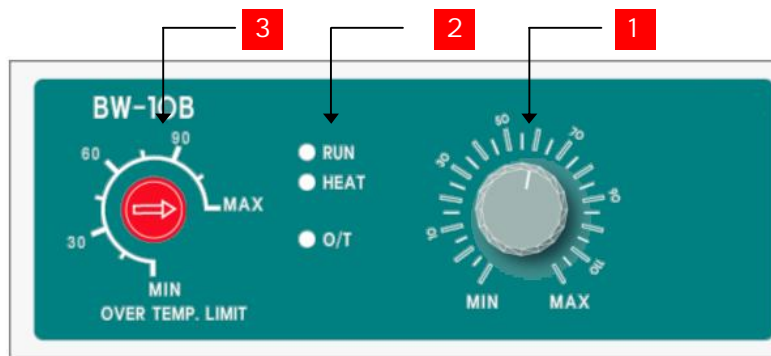
Please, learn controls and functional element before operating unit.

Including;

- Operating and Functional element
- Temperature setting procedure



Operating and functional element



1. Rotary knob for temperature

Tuning the aim of analogue rotary knob to set temperature.

2. Status indication

RUN LED: operating status.

HEAT LED: operating of heating element.

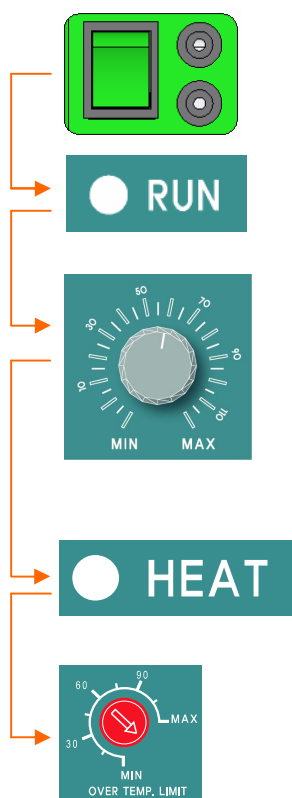
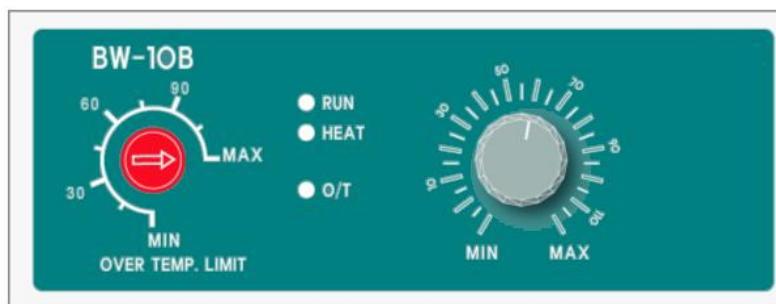
O/T LED: It is ON when overtemperature device is activated.

3. Over Temp. Limit

To prevent overheat of the unit or higher temperature than set temperature.



Temperature setting procedure



- ① Press Main Power Switch.
 - A. RUN LED is ON.
 - B. The unit starts operating.

- ② Tune the aim (temperature) of rotary knob.

Switch	Range(°C)
Value	0 ~ 110

- A. HEAT LED blinks and is ON after tuning.

- ③ Set Over temp. limit 10 ~ 15°C higher than set temperature.



Chapter 7

Maintenance & Troubleshooting

This chapter shows symptoms while operation. Please contact us referring to the contents when the equipment has problems. Please keep in mind how to clean the equipment and maintain it regularly.

Including;

- Maintenance
 - Every week/month/quarter/year
- Safekeeping and cleaning
 - Storage/Cleaning/Cleaning accessories
- Troubleshooting



Maintenance

Every Week

- Check the connection of the accessories.
- Keep clean the surface of the equipment..



CAUTION

Do not clean the bath with sulfuric acid, hydrochloric acid or organic solvent which can cause damage to the surface of the equipment.

Every Month

- Check the condition of power plug or wires.
- Check the button input condition, set values are input correctly
- Check the condition of ;Over Temp. Limit;



CAUTION

Stop draining water if the water in the bath is hot. User can be burnt. Put gloves when draining.

Every Quarter

- Check the every week/month ;check point;.
- Check if vibration or noise happens in the equipment.

Every Year

- Check the every week/month/quarter ;check point;.
- Check the temperature is controlled properly. Check if the constant temperature is maintained.



NOTICE

Maintain the equipment following to the maintenance standard for keeping the equipment under the best condition.



Safekeeping and Cleaning

Storage

Storage

Keep the equipment following to the orders below in case no operation for a long time.

1. Power off.
2. Get rid of all solvents in the chamber.
3. Keep the equipment after packing for dust protection.

External cleaning

Cleaning

External cleaning

1. Clean the external body by detergent.
2. Clean the external body by soft towel with pure water.
3. Clean the display with dry towel.

Inner cleaning

Inner cleaning

1. Power off.
2. Clean in the bath by soft towel with detergent.
3. Clean it with dry towel.

Cleaning Accessories

Cleaning accessories

1. Soak accessories in detergent.
2. Clean it with pure water.
3. Keep it after drying.



CAUTION

Please contact local dealer in case cleaning the equipment without methods mentioned in the manual not to damage it while cleaning.



CAUTION

When getting rid of toxic chemical materials or gases licked out from the equipment, close safety gloves and mask for protection.



Troubleshooting

Follow the below when problems happen.

Please ask service if problems not included in the table happen or can't be solved by the mentioned solutions.

Symptoms	Causes	Solutions
The equipment is not on.	<ul style="list-style-type: none">■ Wrong electric standard. - Or -■ Circuit breaker is off or power failure - Or -■ The plug is not fit into the socket properly. - Or -■ Fuses are disconnected. - Or -■ Socket/plug/power lines are damaged.	<ol style="list-style-type: none">1. Check the ID plate on the back to find electric condition whether it's fit to the socket power. <i>If not solved;</i>2. Check if the power is off. If the circuit breaker is off, fix it and operate the equipment again. <i>If not solved;</i>3. Plug the power to the socket again. <i>If not solved;</i>4. Check if the fuse set on the back of the equipment is short circuited. Replace with a new one when short circuited. Fuse capacity: Refer to Specifications (Page 27) <i>If not solved;</i>5. Check the socket/plug/power lines and replace with new one if they are damaged.6. Contact your local dealer to fix the equipment if the problems are not yet solved.
Fuses are short circuited frequently.	<ul style="list-style-type: none">■ Electric standard of fuses are not fit. - Or -■ Wires are damaged or shorted. - Or -■ Power input parts are wet.	<ol style="list-style-type: none">1. Connect the fuse tightly after checking voltage and ampere. Refer to Specifications (Page 27) <i>If not solved;</i>2. Replace with a new wire if they are damaged or shorted. <i>If not solved;</i>3. If the power connecting parts are wet, dry them and reconnect.4. Contact your local dealer to fix the equipment if the problems are not yet solved.
If circuit breakage is shorted continually.	<ul style="list-style-type: none">■ Too many plugs are connected.	<ol style="list-style-type: none">1. Check the voltage capacity supplied to the circuit breaker.2. Check many similar equipments are connected on the socket. Use separate socket not exceeded of the voltage capacity.3. Contact your local dealer to fix the equipment if the problems are not yet solved.



Symptoms	Causes	Solutions
Display does not show anything when power is on.	<ul style="list-style-type: none">■ Innter harness fails- Or -■ Controller & Display fails.	<ol style="list-style-type: none">1. Check the equipment by contacting the local dealer.
The equipment stops working automatically.	<ul style="list-style-type: none">■ The equipment is affected by strong noise.	<ol style="list-style-type: none">1. Check equipments with strong noises are installed near to the equipment and keep it far from them.2. Contact your local dealer to fix the equipment if the problems are not yet solved.
The equipment stops working by ;Over Temp Limit;.	<ul style="list-style-type: none">■ Over Temp. Limit is set wrongly.	<p>Reset the ;Over Temp. Limit;.</p> <ol style="list-style-type: none">1. Operate the equipment again to find any problems.2. Contact your local dealer to fix the equipment if the problems are not yet solved.



Chapter 8

Specifications and Circuit diagram

Check the specifications and circuit diagrams of the basic baths for proper operation.

Including;

- Specifications
- Circuit diagram



Specifications

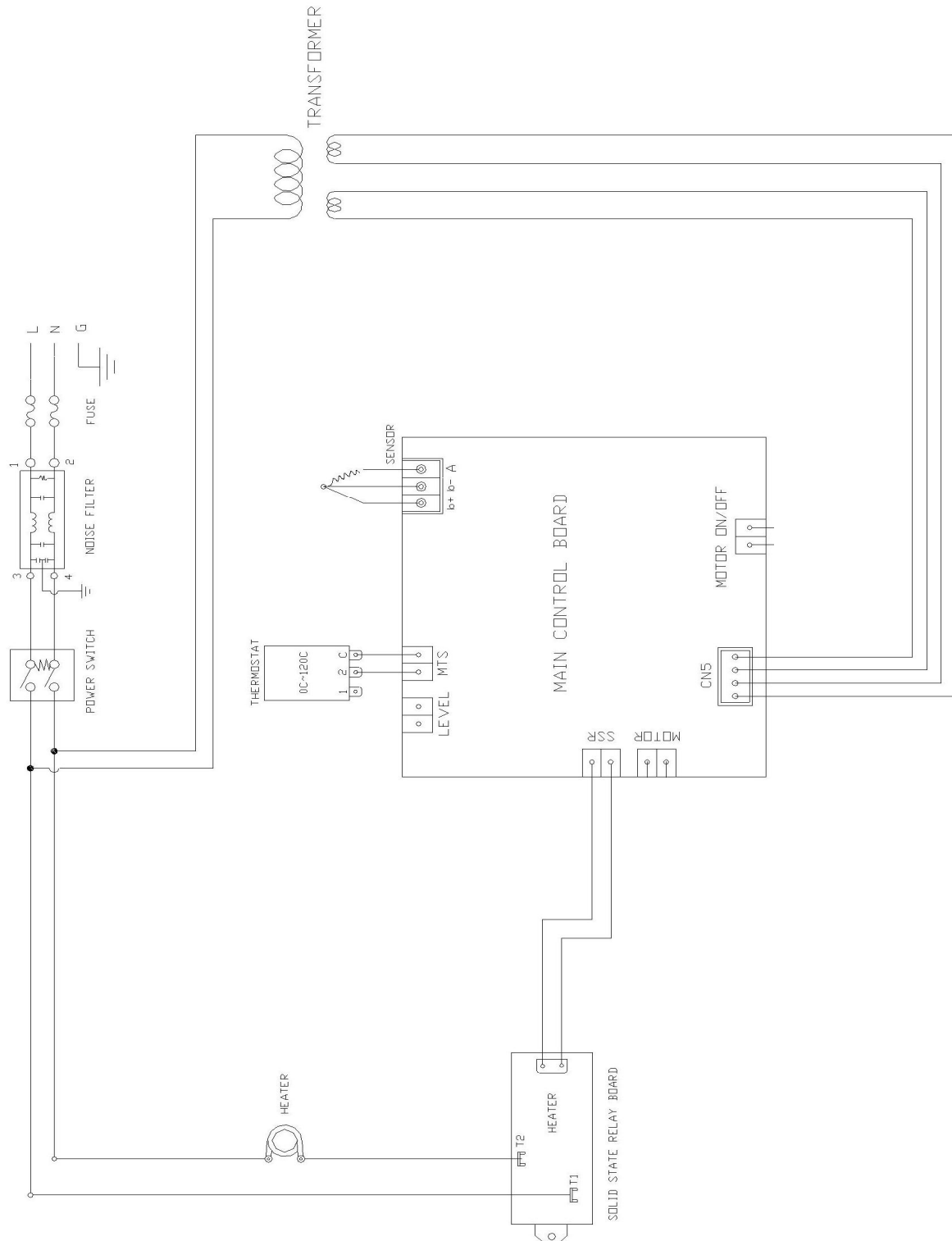
Model		BW-05B	BW-10B	BW-20B
Chamber volume		3.5ℓ	11.5ℓ	20ℓ
Temperature	Range	Amb. +7℃ ~ 100℃(lid off)		
	Accuracy	±0.5℃ at 50℃		
	Uniformity	±0.3℃ at 50℃		
	Heat up Time	50℃ within 40min		
	Controller	Analog controller type		
Permissible Environment condition		Temperature 5℃ to 40℃ Maximum relative humidity 80% Altitude up to 2,000m		
Material	Internal	Stainless steel, 0.6t		
	External	Steel, 1.2t, Double painted & baked		
Heater		700W/230V 700W/120V 700W/100V	1000W/230V 1000W/120V 1000W/100V	2000W/230V 1000W/120V 1000W/100V
Sensor		Pt 100 Ω		
Size(mm) (W _i D _i H)	Bath	240 _i 136 _i 115	300 _i 240 _i 165	498 _i 300 _i 165
	Top open	240 _i 136	300 _i 240	498 _i 300
	Overall (Lid off)	303 _i 242 _i 245	357 _i 330 _i 290	564 _i 392 _i 295
Safety device		Over temp limit / Current fuse		
Electric requirement	230VAC, 60/50Hz	3.0A	4.4A	8.7A
	120VAC, 60Hz	5.8A	8.3A	8.3A
	100VAC, 60Hz	7.0A	10.0A	10.0A
Weight(Net)		6.5Kg	10Kg	18.5Kg

※ Accuracy, Uniformity and Heat up time are changed by room temp. condition of heating load, power voltages.



Circuit diagram

Models ?BW-05B, 10B, 20B





Chapter 9

Warranty & Service

The equipment is covered by the warranty standard regulated by Jeio tech. Exceptions from the standards can't be covered by warranty.

Including;

- Warranty and Service
 - Warranty service
 - Exceptions from warranty
 - Service request
 - Return process



Warranty and Service

Under Warranty

Warranty service

If trouble occurs during product use, User can get free service for one year from the date of purchase.

Exception

Exceptions from warranty

User can not be credited by warranty in case of as below.

1. If trouble occurs by an act of God.
2. If the equipment breaks down due to misusing of available voltage.
3. If damage occurs by dropping a product, or impact.
4. If damage occurs in an appearance by organic solvents such as thinner, benzene.
5. If damage occurs without following to notice in the manual
6. If damage occurs by fixing the equipment by any person who is not related with Jeio tech.
7. If damage occurs by a mistake of a customer

Service

Service request

1. Contact the local agent with claim form including the below conditions.

- * Date of purchase
- * Name/Address/Contact no./E-mail
- * Serial Number
- * Symptoms

Returns

Return process

Contact the local agent with claim form including the below conditions

- * Date of purchase
- * Name/Address/Contact no./E-mail
- * Serial Number
- * Symptoms
- * Causes of returns
- * Forwarder information



Service contact

Service contact

Korea (Head office-Overseas department)

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