



Operation manual

[INCUBATOR]

Model : IB-05G / 15G / 25G

Manual No : 00HAA0001141 (Version : 5.0)

This operation 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 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.








Thank you for purchasing Jeio Tech's product.

This operation manual forms a definition of warning marks according to the level of importance and danger in order to use the product safely and correctly and prevent the users from accidents or injuries. Hence, please use the product in accordance with the instructions.

Safety Notice

1. Caution

This product can cause a big accident in case of improper use of inflammable and combustible solvents in the chamber. Also, operation in the high temperature might cause a mechanical trouble and quality deterioration due to the function and the characteristic of the product.

Safety Precautions	
 DANGER	"Danger" means that the user may have serious damage and even die by improper handling on this unit.
 WARNING	"Warning" means that the user may have serious damage 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.



Although Jeio Tech thoroughly investigates the possibilities of dangerous situations from using the product, it is not possible to know every single danger. Hence, precautions described in this manual do not cover all the dangerous conditions.

However, you can operate this product safer when you follow the directions in this manual. Please, be sure to pay attention to the directions and be cautious so that a mechanical trouble or an accident would not be occurred.

2. Warning mark of product

The most important thing of the warning is a warning label attached to the product. It is located in front of the door.

Be fully aware of the warning contents during operation.

- ※ Please change to the new warning label when it is unreadable from wearing out. Please request the new label to us.



CONTENTS

1. Use and Feature	5
2. Installation	6
3. Notice	7
4. Name of the parts	8
5. Operating Controller	11
6. Maintenance	18
7. Dealing with Abnormal Condition	19
8. Guarantee	20
9. Equipment Disuse	20
10. Specifications	21
11. Install lab tracer	22
12. How to use lab tracer	23



1. Use and Feature

1) Use

- (1) This Incubator is used for cultivation of thermophile micro organism and normal micro organism like e coli and bacteria.
- (2) This Incubator is used for tissue of plant and animal, activating sperm and egg and determination of germfree of sterilized culture medium.
- (3) This Incubator is good for constant temperature test like test of plant storage, environment variation.

2) Feature

- (1) This multi purpose incubator for Biotechnology, pharmacy, medical, chemical, and biology. This unit has firstly developed CLS (Custom Logical Safe)–Control system for convinces in use and safety to user.
- (2) CLS–Control System means “Control system which has logical safety device specialized for individual model”. Laboratory must have Thermal safety secure because there are a lot of inflammable reagent. This system is highest safety secure control device (patent No. **0397583, 0328729**) and makes the unit suitable for this kind of environment.
- (3) This unit is designed to stop the Heater and Blower in order to protect the user from heat when its door opened while it works.
- (4) This unit has insulation for high temperature in the outside of the inner chamber and inside of the door and also has Chamber Silicone door for high temperature therefore insulation is perfect and heat lose is very low.
- (5) Triple observing window is good for insulation and observe. This is Optional
- (6) Uniform temperature in the chamber is made by special design.
- (7) Safety circuit is used to protect the instrument from over charge and over temperature of the heater.



2. Installation

- (1) Scope of delivery.

Main body(1set), Operation manual (1EA), Fuse (2EA), Shelf(2EA), Shelf guide(4EA) ,
Communication CD(1EA), RS-232 Communication cable(1EA)

- (2) This unit will work correctly on proper power supply. Please check power supply and ID Plate information are the same. User must use power supply connected earth and power cord must be connected to wall outlet supplying ground point.

WARNING

We don't have any responsibility for accident and lose of personal and asset if the ground earth is not connected.

- (3) Please install the unit in the flat place where prevent vibration and shock.
- (4) Please let the unit avoid heat source and direct sun light and let the unit located in ambient temperature range in 5°C ~ 40°C relative humidity lower than 80%.
- (5) Please don't install the unit where water and organic solvent is easily penetrates in the unit. They cause short circuit.
- (6) Please don't install the unit in dangerous place. (Where there are flammable gas and explosive material)
- (7) Please secure enough space for installation because the door of it opened 180°.
- (8) Do not install near to instruments of strong high-frequency (high-frequency welding machine, sewing machines, SCR Controller for big capacity)
- (9) This unit is quite heavy. Please move the unit with proper moving tool or 2 people together.
- (10) Power cord should includes Ground terminals when installing the instrument.
- (11) Install the instrument near to consents for easy usage.

CAUTION

Please think about the safety of user and instrument when you find out a place to install.



3. Notice

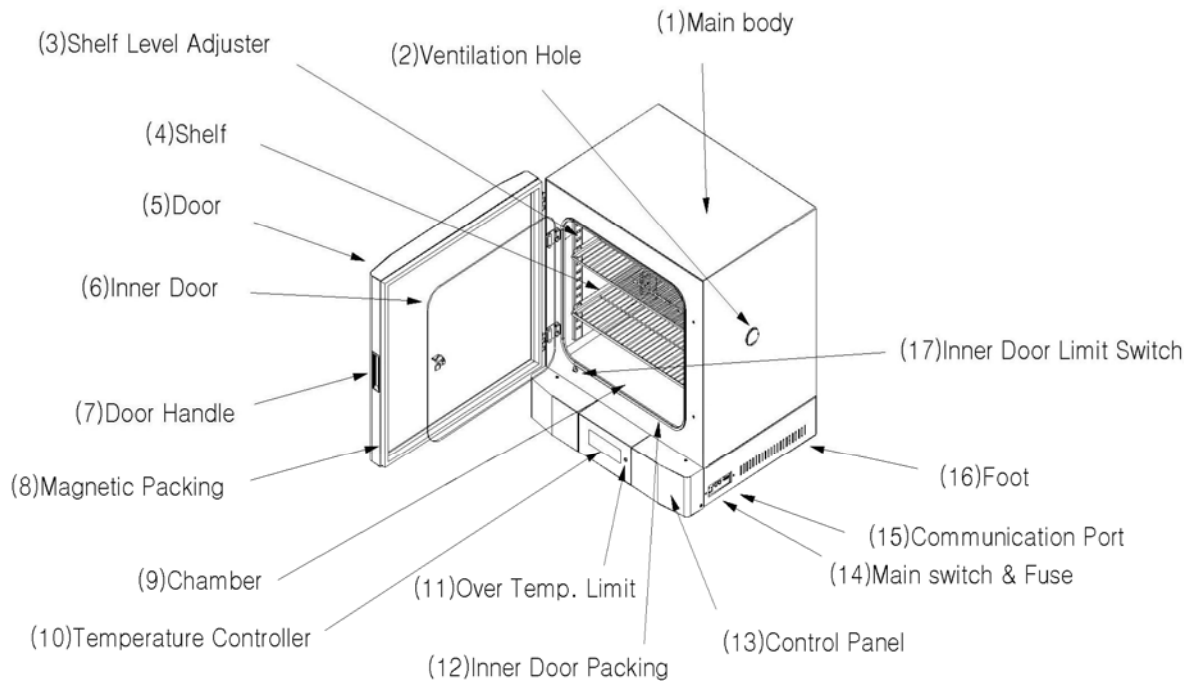
- (1) Please don't touch Power cord and electric part with wet hand.
- (2) Please don't put explosive and flammable chemicals (Alcohol, Benzene and etc) inside of the oven.
- (3) The samples inside of the oven are very hot when the oven is works and for a while after it stops. Please take safety glove when you touch samples.
- (4) Please don't set flammable materials near by oven.
- (5) Please don't pour water on the unit directly when you clean the unit.
- (6) Please don't put some conductive and flammable materials through ventilation or power supply port. It is dangerous and causing fire and electric shock.
- (7) Circuit and electric component used in this unit are developed by Jeio tech. Please don't try to repair by yourself. Wrong combination of electric part may cause fire. You must ask to official Jeio tech dealer or distributor in your region.



Don't put explosive and flammable materials inside of the Chamber.



4. Name of the parts



(1) Main body

Made by iron plate and painted.

(2) Ventilating hole

It changes air volume of ventilation. It's very hot, please wear safety glove when you need to adjust it. The safety gloves must be dry. Wearing wet gloves cause burning and electric shock.

(3) Shelf level adjustor

Shelf level is easily adjustable by the size of sample.

(IB-05G→8 levels, IB-15G→12 levels, IB-25G→14 levels)

(4) Shelf

It's made by Stainless steel wire. It's easy to clean and ventilation is good. The surface of it is electrically polished therefore it has beautiful face good anti-corrosion.

(5) Door

There are air barrier between door surface and insulation of the door. Therefore the surface of the door is cool.



(6) Inner door

User can observe the inside of the chamber through this transparent and made by reinforced glass inner door. This prevent environment inside of the chamber from exposure to outer air then polluted. turn the handle of glass door to clockwise rotation to close the door and to the opposite way of clockwise rotation to open the door.

(7) Door Handle

It is Door handle for door opening.

(8) Magnetic Packing

Used for shock absorber and double- air tightness.

(9) Chamber

It's made of stainless steel and there are Blower, Heater, Temp. sensor and Temp. regulator inside of the chamber.

(10) Temperature Controller

This has a Micro processor (CPU) which has Digital PID Auto tuning function. It also has temperature compensation function for temperature sensor and the highest class safety level control system such as heating volume controller.

(11) Over temp. Limit.

If the heater temperature rises higher than set temperature it cut the power of the temperature controller, makes the over temperature LED blinking and alarming beep sounds. If you resume the operation, please set knob of it about 15% higher than set temperature and press Start/Stop switch ones then check run led of temperature controller is on.

(12) Inner Door packing

A silicone rubber for high temperature keeps high air sealing.

(13) Control panel

Controller and electric component are there.



(14) Main switch & Fuse

This is the switch for main power. Fuse protects the instrument from electric shock. Please check out correct power supply when you replace Fuse.


(15) Communication port

User can monitor and remote control this unit by PC. Data print out through PC printer is also available. The unit can be connected to PC's com1 and com2 port through RS-232C protocol cable.

(16) Foot

This adjusts level of the instrument.

(17) Inner Door limit switch

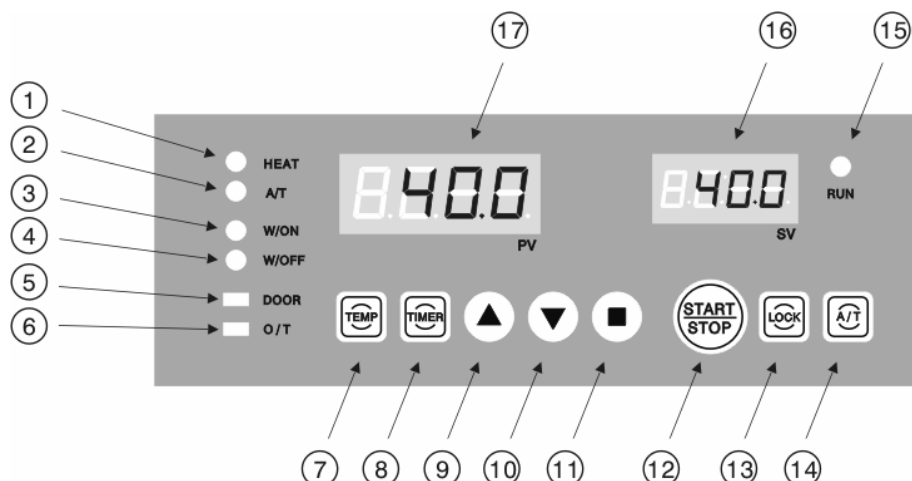
It's installed inside of the unit. The Logic IC of this switch put off the main switch. This cut off all 2 phase currency in the instrument therefore heater and blower stops for safety of user. Door LED blinking to indicate the door is opened. If the door is opened more than 1 minute then the alarming buzzer sound in order to inform the user that the door is opened for a while. Run LED is on by closing the Door and put  button.

5. Operating Controller

1) Features

- (1) CLS–Control System temperature and heater output are controlled in Main CPU which can do precise PID calculation. All control for safety is conducted by selective functional Logic IC which is installed separately. This is designed to conduct safety performance against any electric and electronic shock on the unit.
- (2) CLS–Control System shuts down all 2 phase power supply to each part immediately and informs user instability by audio and visual device then keeps in safe mode until all instability conditions removed.
- (3) CLS–Control System gives user two choice, one is resume operation of the unit and another is keeps the unit in standstill when the unit operation were terminated by power failure and then recovered.
- (4) CLS–Control System, the safety device designed to keep very small amount of currency (only 5V, 10mA) in contact point. This makes durability of contact point very long.

2) Name and operation



The instrument includes CPU for possible digital PID–Auto tuning software and the best safety controlling device for temperature– compensating function for Pt–100Ω sensor and heating control.



(1) HEATER LED

It shows Heating function is "ON"

(2) Auto Tune LED

Flickering begins on Auto-tuning.

(3) Wait On Timer LED

This is the LED indicating operation start time. The LED is blinking when the timer works and the LED off when the timer is in waiting condition.

(4) Wait Off Timer LED

This is the LED indicating operation stop time. The LED is blinking when the timer works and the LED off when the timer is in waiting condition.

(5) Door open LED

LED is on by opening the door.

(6) Over heating alarm LED

If the heater temperature rises higher than set temperature it cut the power of the temperature controller, makes the over temperature LED blinking and alarming beep sounds. If you resume the operation, please set knob of it about 15% higher than set temperature and press Start/Stop switch ones then check run led of temperature

(7) Temp. button.

This button is for temperature setting.

(8) Timer button.

This button is for timer setting.

(9) Up button.

This button is for increasing set value.

(10) Down button.

This button is for decreasing set value.

(11) Enter button.

This button is for saving value after varying set value.

(12) Start/Stop button.

This button is for start/stop of unit and for resuming operation after removing some unstable factors when operation is terminated because of it.



(13) Lock button.

This is to lock controller buttons.

(14) Auto Tune button.

The auto tune begins if you press this button for 1 second.

(15) RUN LED

This LED indicates Work/Stop state of unit. It turns on when the unit runs and turns down when the unit stops.


(16) SV display

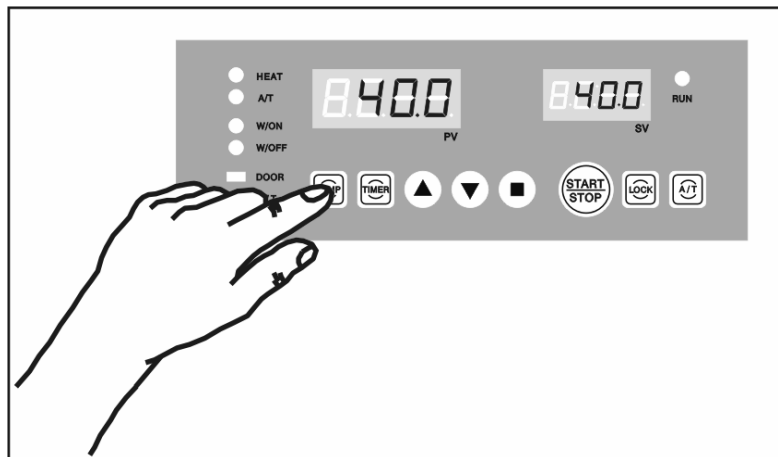
This display is for showing set temperature and showing remaining time when the timer function is activated.




(17) PV display

This display is for showing present temperature.


3) Temperature setting way

(1) Press  button. Set temperature value (SV) is blinking. This means you can vary set value.



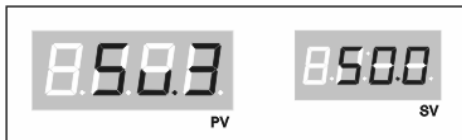
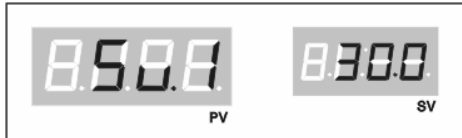
(2) Press   button to vary digit number and press  button when you save the value.

(3) It goes back to previous state without saving if you don't touch any button for 10 seconds.





(4) Press  button again when it is in SV set state then following additional functions are activated




4) Additional function of button





- (1) Favorite values can be stored at Sv.1, Sv2, Sv3 for each operation.

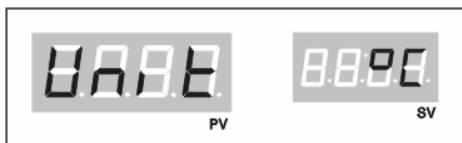
Press  2 times and set temp. values by pressing  and , and conclude the setting by pressing .

Set temperature is saved on memory and set temperature varies Sv1, Sv 2, Sv 3 are applied the same.



Press  button repeatedly then Sv1, Sv2, Sv3 are shown and temperature unit set mode shown by pressing 5 times repeatedly.

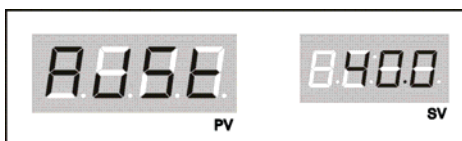
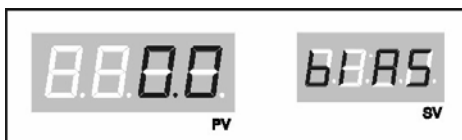
- (2) This is a function vary the unit of temperature value.




Initial display is °C and it can be varied °C and °F by pressing  and  buttons.



- (3) Next mode is shown by pressing  6 times.

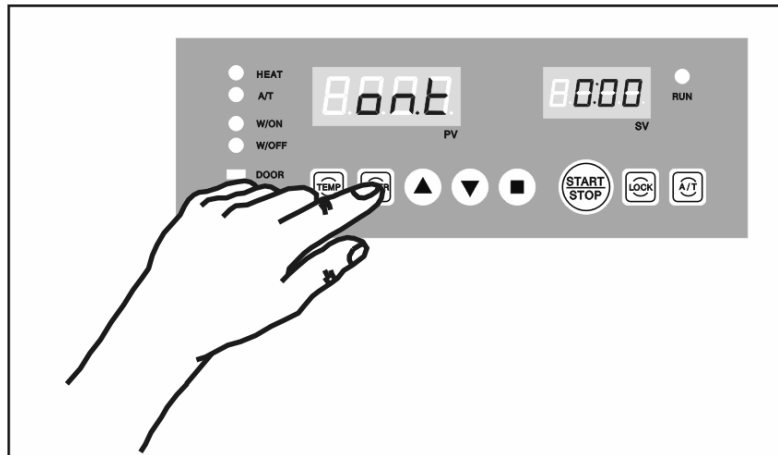
This compensates the temp. value errors. Requested values are put on PV display. Move to the next mode by pressing  and  buttons.






PV is put on the SV display and can be set as exactly as shown on thermometer. Set the value by pressing  and , and conclude the setting by pressing .



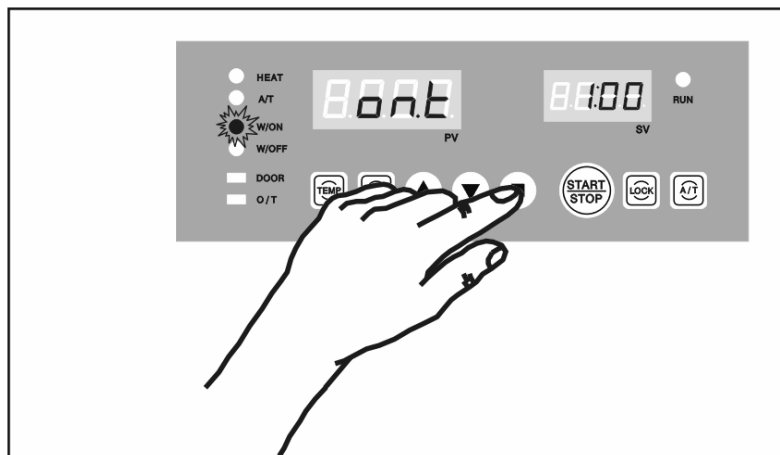
5) How to set Timer.






- (1) Press  button.

Timer (On Timer / Off Timer) is shown on PV and time is shown on SV display. Set time by pressing   button and Save by pressing  button.

- (2) W/ON LED turns on with Beep sound after finishing wait on timer set.

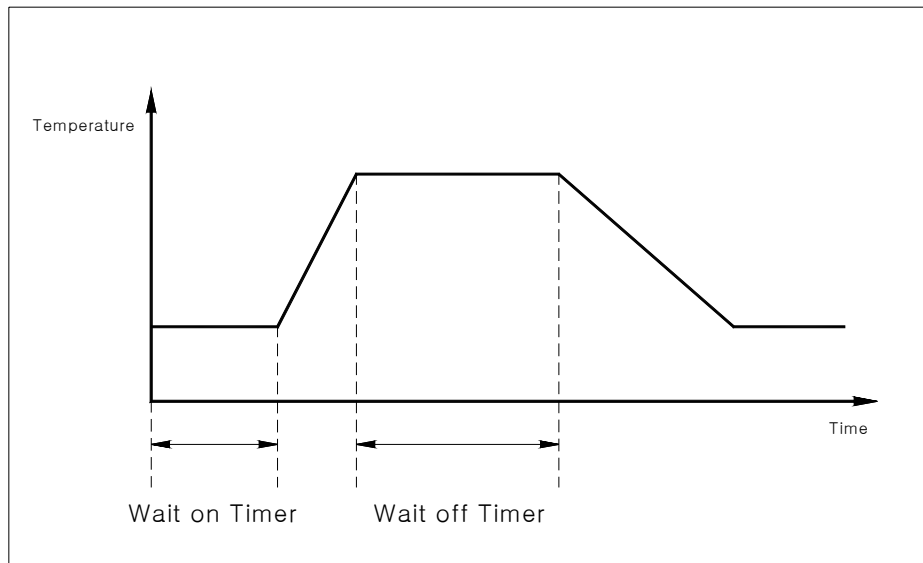


- (3) Press  button two times. You can set wait off timer.

Set time by pressing   button and save and finish by pressing  button.

- (4) W/OFF LED turns on with Beep sound after finishing wait on timer set.

- (5) The function of Timer is as follows.







👁 Wait On Timer

- The unit begins to work when the time programmed into 'Wait On' is attained.
- Maximum is 99hr 59min. and minimum is 1min.

👁 Wait Off Timer

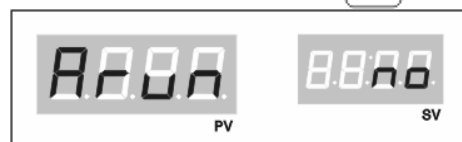
- The unit stops when the time programmed into 'Wait Off' is attained.
- Combination of Wait On Timer & Wait Off Timer.
- The unit works as picture above

(6) Set off Wait on/off Timer

Press  button one (Wait on Timer) or two (Wait off Timer) times and set Z(0) by pressing   and finally press  to set off.

6) Additional function of button.

The following Auto Run function is shown by pressing  button three times repeatedly.



(1) This is for compensating function after power failure.


If you set yes the unit will run or else the unit will not run after power failure situation finished.



7) Auto Tuning

Perform Auto Tuning in order to get precise and rapid temperature control. PID value saved automatically after Auto Tuning.

(1) Set temperature you want.


(2) Press  button for a while(3seconds) then Auto Tune shown display like right hand side picture and A/T LED blinking.


(4) RUN LED is on by pressing  button and Auto Tune is working with flickering A/T LED.

(5) Auto Tune time is various according to installed environment. LED turns off after finishing Auto Tune and Present temperature & Set temperature meet.

8) Key Lock

This is to lock controller buttons.

(1) Press  button for a while (3seconds), then Lock function is set with Beep sound and the unit wouldn't corresponding any more key pressing.

(2) In order to deactivate this function please Press  button for 3 seconds again.

(3) This protects improper pressing of the controller buttons while operation.



6. Maintenance

- (1) Turn off the main power switch and pull out a power plug from wall outlet.
- (2) Remove all liquid in the bath.
- (3) Wash with soft cloth containing neutral detergent.
- (4) Wash with soft cloth containing distilled water.
- (5) Dry with dry cloth.
- (6) Don't use organic solvent.
- (7) If user try to clean this unit with other method not mentioned on this manual please contact us in order not to damage to the unit.
- (8) Put on Safety glove for harmful chemicals and Safety Mask for harmful gas and then wash out pollutant with dried cloth when harmful chemicals and gases are spread out on the unit.



7. Dealing with Abnormal Condition

1) Check points when the unit doesn't work.

- (1) Check out power supply.
- (2) Check out fuse if off.
- (3) Check out Run LED on display is off.
Please press Start / Stop button if it is off.
- (4) Please check the power is out.

2) Malfunction check list.

Malfunction symptom	What to check and what to do.
Buzzer sound continuously(1)	If Door is opened, Press START/STOP Switch once and check out Run LED turns on.
No temperature control.	Check if there are machines generating strong high frequency noise near by the unit. Check if Some contaminants are in the control panel. Do Auto tune again.
Air circulation is not made in the chamber	Check the door switch (open and close the door 2~3times) Check the blower works correctly
Abnormal sound	Check the Impeller of blower is OK inside of the chamber. Open the back plate of the instrument and Check the Impeller of Blower touches any part.
No power	Check the Main power Switch is on. Check the power supply is on in the room. Check the power failure. Check the fuse is OK
Temperature wouldn't rise	Check the RUN LED is on. Press the START/STOP Switch once if the RUN LED is off. Check the door is opened.
Buzzer sound continuously(2)	Check the Over temp. limit is set lower than current set value of the temperature. If it is, please set the value of the Over temp. limit at least 15% higher than PV. Press the START/STOP Switch once and the check the RUN LED.

☞ If you can't recover the instrument please call a repair service.



8. Guarantee

1) Warranty service duration

It covers for 1 year since you purchase the unit and then after the duration you need to pay for service parts.

You can get faster and precise service by telling us the information as below.

- *Date of Purchase
- *Serial number
- *Symptoms and regions of break-down
- *Using environment

2) The case user can't get warranty service.

- *wrong operation by users.
- *Wrong usage and management.
- *Wrong remodeling and repair by users.
- *Break down by natural calamity.
- *Different usage from operation manual

9. Equipment Disuse

keeps an abolition way if disposes of a product or parts, and please dispose of abolition.

An abolition way of main configuration parts

Configuration Parts	Model	Weight (Kg)	Size (mm)	An abolition way
Main Body	IB-05G	45Kg	595×555×745	commits to a businessman treating a waste, and please dispose of abolition.
Main Body	IB-15G	55Kg	675×605×855	
Main Body	IB-25G	62Kg	805×655×885	



10. Specifications

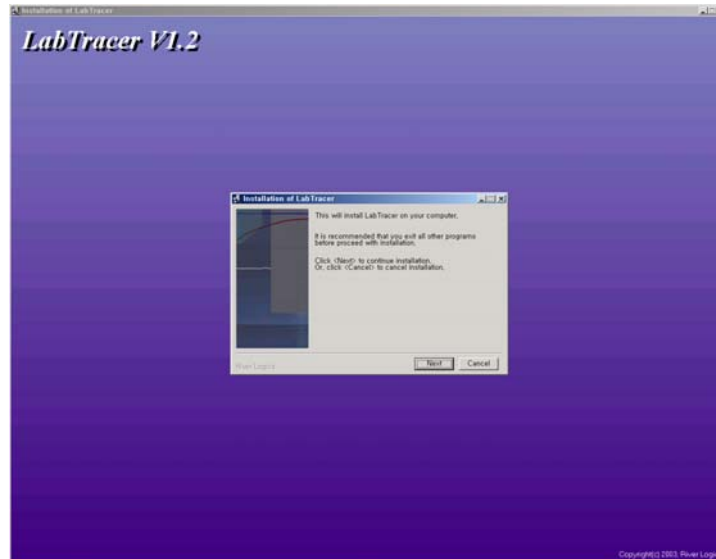
Model		IB-05G	IB-15G	IB-25G
Chamber volume		60L	102L	151L
Permissible environmental condition		Temperature 5℃ to 40℃ Maximum relative humidity 80% Altitude up to 2,000m		
Temperature	Range	Amb.+5℃~70℃		
	Uniformity	±0.4℃ at 40℃		
	Accuracy	±0.1℃ at 40℃		
	Controller	Digital PID auto tuning		
	Sensor	Pt100Ω		
	Heat up time	40℃ Within 45 min		
Material	Internal	Stainless steel, 0.8t		
	External	Steel, 0.8t power coating		
	Shelves	Stainless steel wire, electro polished		
	Insulation	Nonflammable polystyrene (20mm/10mm)		
	Door gasket	Foamed silicone rubber		
	Inner door	Tempered safety glass (5mm)		
	Ventilation slide	Stainless steel, dia. 38mm×1EA		
Safety device		CLS(Custom Logical Safe)-control system, Class II		
Over temp. limit		Hydraulic over temp. limit		
Heater		Incoloy fin, 230V/300W 115V/300W	Incoloy fin, 230V/500W 115V/500W	Incoloy fin, 230V/700W 115V/700W
Size (W×D×H)	Internal(mm)	400×360×420	480×410×520	610×460×540
	External(mm)	595×555×745	675×605×855	805×655×885
	Inner door(mm)	t5×415×455	t5×495×555	t5×625×575
Electric requirement		AC230V, 50/60Hz, 1.3A	AC230V, 50/60Hz, 2.2A	AC230V, 50/60Hz, 3.1A
		AC120V, 60Hz, 2.8A	AC120V, 60Hz, 4.6A	AC120V, 60Hz, 6.4A
Weight(net)		45kg	55kg	62kg



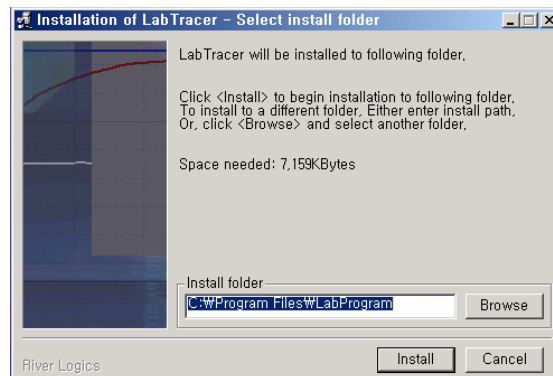
11. Install Lab Tracer

(1) Insert Installation CD and the software starts installation automatically.

(In case of no automatic running, run “SETUP.exe” file in CD.)



(2) Click “Next” button to choose destination of installation. (Default folder recommended)



(3) Click “Install” to start installation.

(4) Lab Tracer icon will be created on desktop after installation successfully.

(5) To start Lab Tracer, double click the icon.

Standard

Beyond Microsoft Windows 98

CPU : Beyond P-II 233

RAM : Beyond 32M Byte

Caution : If Windows 95 or 98 OS system is installed, time delay can arise between measuring time.

Recommend

Microsoft Windows 2000, XP

CPU : Beyond P-III 300

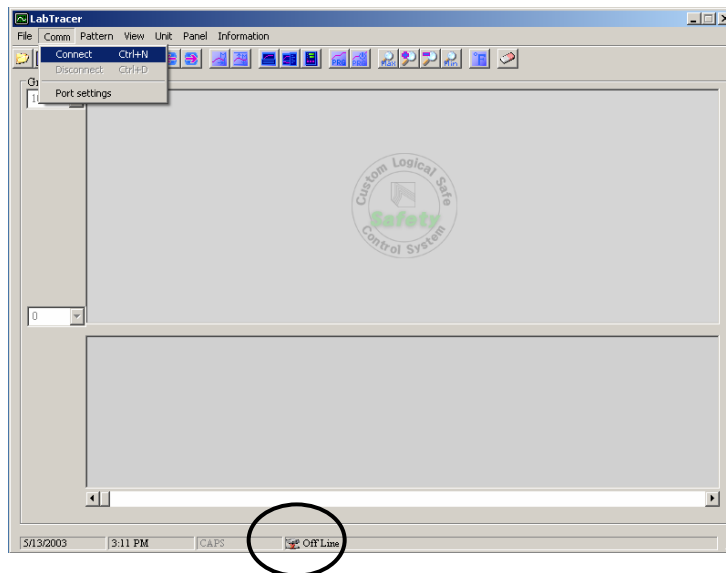
RAM : Beyond 64M Byte

12. How to use Lab Tracer.

(1) Connection for communication

Click **Comm** → **Connect** and your PC and equipment start connection of communication.

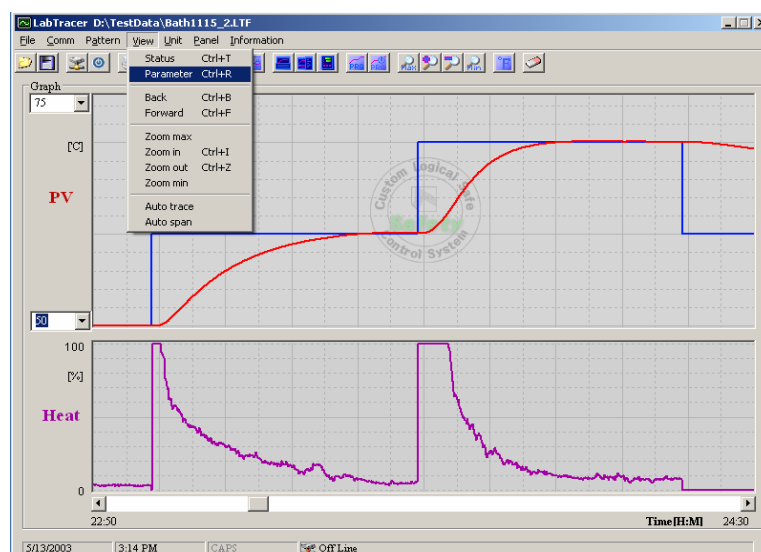
(In case of no connection, click **Comm** → **Port** and try to other ports.)



“On Line” displays on the bottom of the software, once communication is connected successfully. The window consists of 2 separate windows. Window on the top displays Temperature set point and actual temperature and window on the bottom displays output value of heating in graph mode.

(2) View

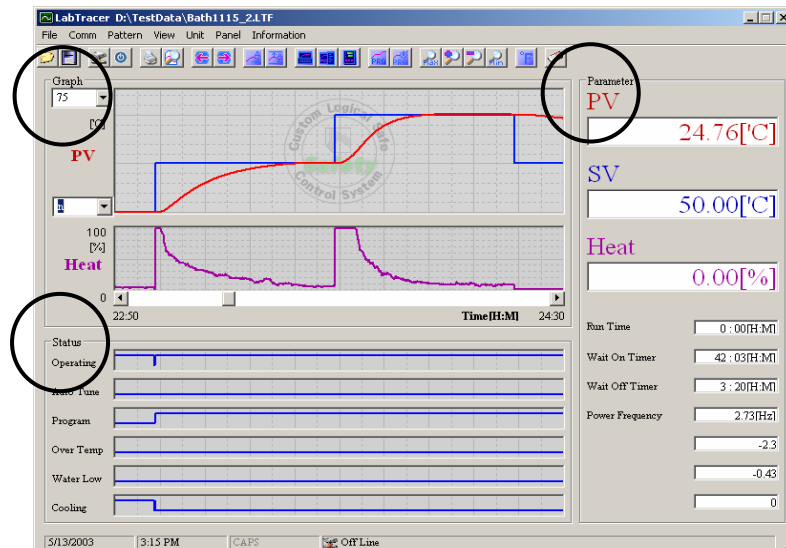
- ① If you click **View** → **Parameter**, window displays actual temperature, temperature set point and output of heating by graph and figures.





- ② If you click **View → Status**, additional separate window appears below showing actual temperature and set point window. Operating, Auto Tune, Program, Over Temp., Level, and etc display on this window.

The following picture is a monitoring window after choosing Status and Parameter in View menu.



User can monitor operating process through three divided interfaces. (Graph, Parameter, Status)

👁 **Graph** displays:

Actual temperature (Red line) and set point (Blue line) on the top of separate interfaces.

👁 **Status** says that:


- **Operating** represents the unit is Running.
If blue line is Hi, the unit is On(operating). If blue line is Low, the unit is Off.
- **Auto Tune** displays whether the unit performs Auto Tuning or not.
- **Program** displays whether the unit is in programmable mode or not.
- **Over Temp.** displays over heating condition of a unit.
- **Water Low** displays whether Water Level works or not.

In case water is at the low level, blue line is Hi position and low position under normal condition.

- **Cooling** displays whether compressor works or not.



③ **Parameter** interface has following values:

- 👁 **PV** is actual temperature.
- 👁 **SV** is temperature set point.
- 👁 **Heat** is output value of heating element.
- 👁 **Run Time** says operating time after you press  button.
- 👁 **Wait On Timer, Wait Off Timer** displays remained time from setting time.
- 👁 **Power Frequency** displays frequency of current power.

(3) Menu icon



- (a) File Open (Ctrl + O)
To open saved graph.
- (b) File Save (Ctrl + S)
To save proceeding graph.
- (c) Connect (Ctrl + C)
To connect unit and PC via RS-232 communication.
- (d) Disconnect (Ctrl + D)
To disconnect RS-232 communication.
- (e) Exit (Ctrl + X)
To terminate Lab Tracer.
- (f) Print (Ctrl + P)
To print saver graph or proceeding graph. (refer to p30)
- (g) Preview
To preview before printing.
- (h)(i) Scroll icon
To scroll graph.
- (j)(k) Auto Trace On/Off
If you want to fix and monitor the last point of graph on the center of windows, Click Auto Trace.
- (l)(m) Auto Span On/Off
Set Y axis(temperature range) of graph manually or automatically. You can put values of range if you choose manual.



① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬

① To display Status interface. (Ctrl + T)

② To display Parameter interface. (Ctrl + R)

③ Panel View

When you click Panel View, the same appearance of display panel of unit pops up and you can control the unit by the pop-up window.

④ Set Pattern of Program Run.

Set Pattern of Program Run and makes unit in a programmable operation.

Maximum number of pattern is 100 during 99hour.

CAUTION

– Program function can be controlled only by PC.

⑤ Program Run.

Program Run must be set in the main unit.

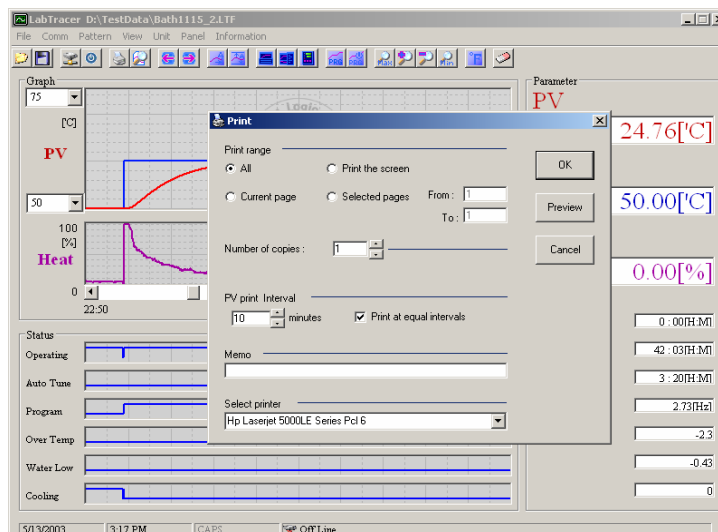
⑥ ~ ⑩ Zoom In/Out.

⑪ ~ ⑬ To convert temperature scale from °C to °F or vice versa.

(Note: Temperature scale of main body is not changed even though you convert temperature scale from Lab Tracer. To changer temperature scale of main body, you must change setting value of controller in main body.)

⑭ To erase graph.

(4) Print





① Print range

- All : Print a total page.
- Print the screen : Print the current screen. (In case Graph, Status, Parameter Frame on the window, they are printed. If not, they are not printed.
- Current page : Print a page of the currently main screen.
- Selected pages : Print selected page(s).

② Number of copies

- Maximum number of copies are 100 by scrolling up and down button.

③ PV print interval

- If you tick this option, PV and SV are printed in text mode.

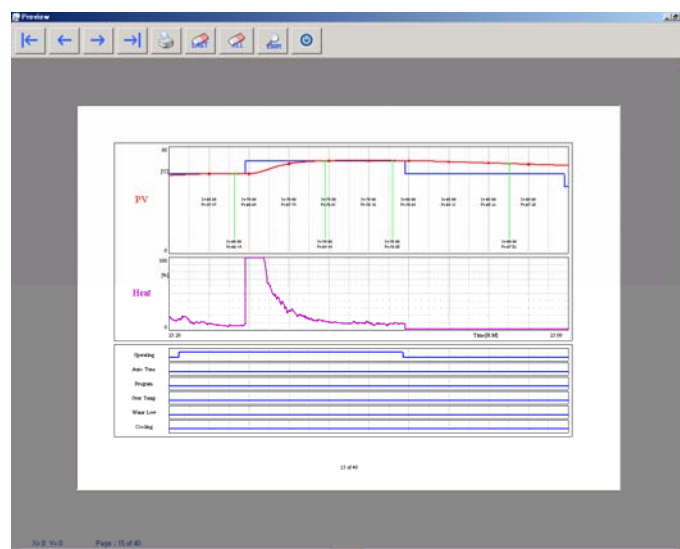
④ Memo

- Can write brief memo on print. Maximum to 60characters.

⑤ Select Print

- Can choose a printer.

(5) Preview and print



In case Print at equal intervals is ticked, PV and SV is printed in a regular interval(see above)




when you see preview and printing. If user wants to check a certain point, move cursor to the point and click. Green line with PV and SV will be printed on the copies. (see above)

① Last Point Delete 

– Delete last set point.

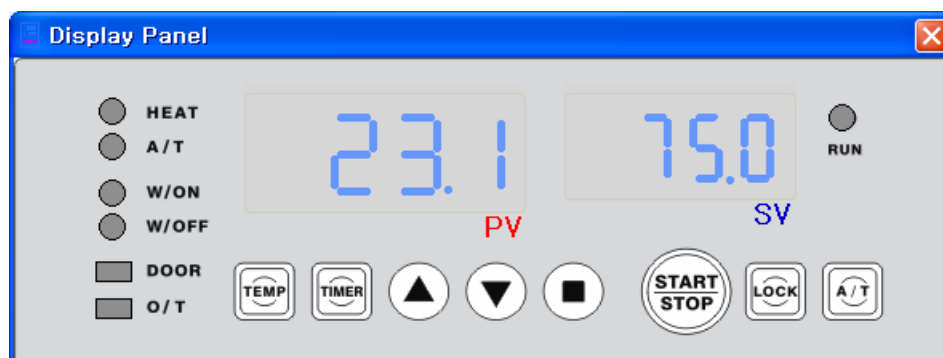
② All Point Delete 

– Delete all set points.

③ Zoon in / out 

– Zoon in or Zoon out.

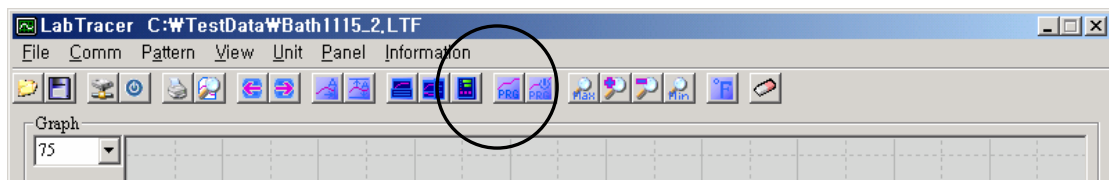
(6) Display



Performance of Display window is same as that of main display panel.

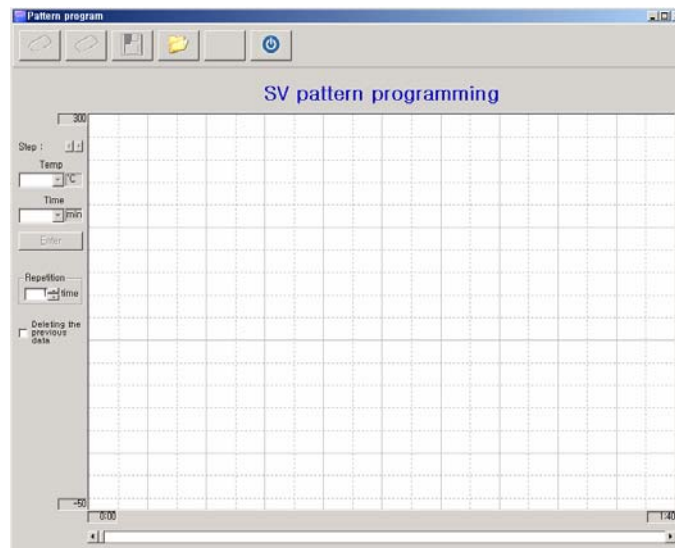
If communication via RS-232 between PC and main body is successful, user can control main body with your PC at a distance.

(7) Pattern Program



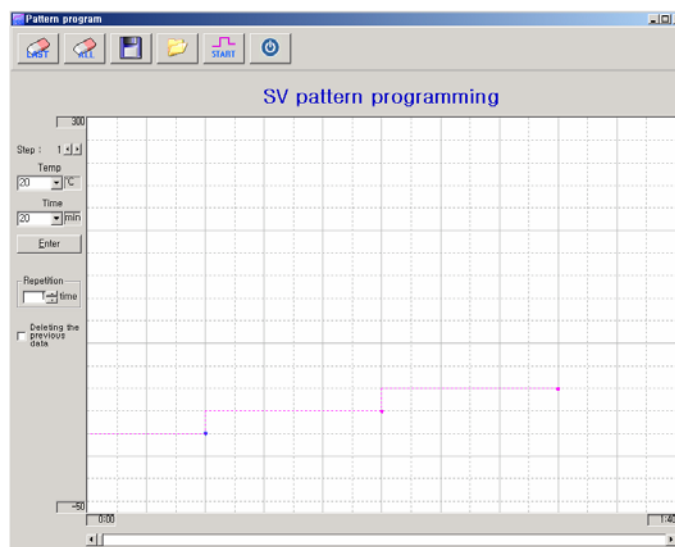
Pic 1. Main Lab Tracer

The following window will be open in case click PRG icon or **Pattern** -> **Pattern settings** in menu.



Pic 2. Pattern Program

In case you move mouse and click a certain point like pic 3., temperature set point and time, step number display on left side of window.



Pic 3. SV Pattern after clicking a certain point of window.

If you want to edit the selected point, Drag & Drop the selected step (blue color). It is very convenient to use short-keys when you want to change temperature and time. Because temperature can be adjusted 1 degree unit and time adjusted one minute unit.

① Short-key

↑ : Increase temperature by 1 degree.



↓ : Decrease temperature by 1 degree.

← : Decrease time by 1 minute.

→ : Increase time by 1 minute.

Alt + ↑ : Move an edit point to the right (the following step)

Alt + ↓ : Move an edit point to the left (a previous step)

Alt + ← : Move an edit point to the left (a previous step)

Alt + → : Move an editing point to the right (the following step)

② Last step delete



– Delete last set step.

③ All step delete



– Delete all set steps.

④ Pattern save



– Save programmed pattern.

– File extension is PIT.

– Choose a folder and write file name. Then, click save button.

⑤ Pattern open



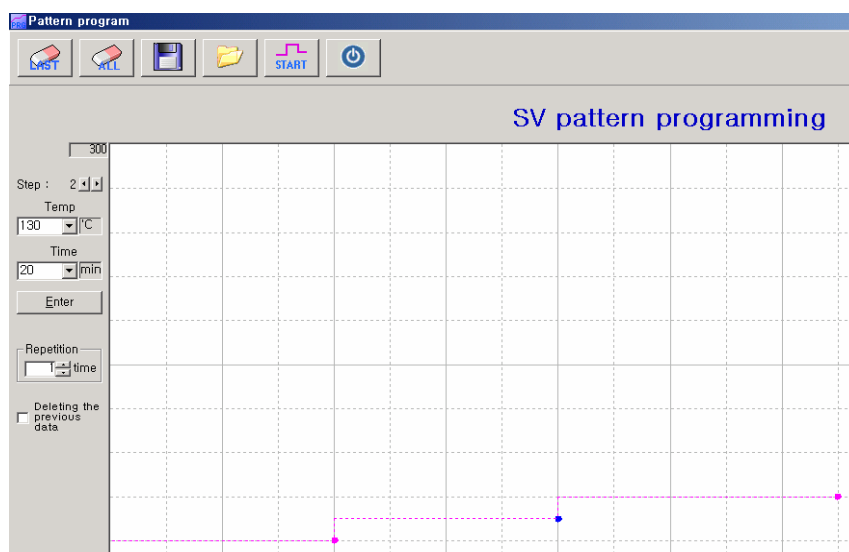
– Choose a pattern file and click open.

⑥ Start



– Click the START icon to operate unit after Pattern is set.

Note: i) If the main body is under abnormal condition such as Door Open, Over Temp. and etc, the main unit will not work.



Pic 4. Step information and control option.



- If you put and set number of pattern repetition, the main body will work as programmed.
- If you tick **“Deleting the previous data”** and press start icon, previous data will be erased. Please, be cautious.

※ Caution

- Maximum operating time is up 99 hours.
- If you program total working time over 99 hours, the unit does not perform in Program Mode. Especially be cautious when you program pattern repetition.
- Please, be aware of specification and program time and temperature.
- If you program pattern over equipment performance, the units can not work properly.