

User's Manual

Oven-HT series Blast Air Oven

This Manual applies to:

Oven-HT series (horizontal airflow from back)

Oven-80HT/140HT/230HT



Thanks!

Thank you very much for your purchase of our Oven-HT series blast air oven of which is specially designed for you. Your choice indicates that you have very high requirement on style and performance of automatic blast air oven.

SciQuip blast air oven has achieved good reputation and trust among various clients for its advanced temperature controlling technology, sound framework design, excellent exterior moulding and outstanding professional workmanship. This products have been continuously exported to the dominant companies in Europe, America and East Asia. Blast Air Oven applies dry heat to stopping microorganism oxygenation and protein denaturation, affecting electrolyte concentration, hence, killing the residual microorganism in some time.

The Blast Air Oven is widely used in the field of biochemistry, chemical pharmacy, medical sanitation, agriculture and environment protection, etc. It is an ideal equipment for thermal denaturation and induration of specimens, and the drying, sterilization, baking operations of specimens like food, electronic components, building material, etc.

“SciQuip” thank you for your trust in its product!

Since the date of your purchase of this product, after-sale service will always be with you. No matter what questions you meet in your using, please do not hesitate to contact us whenever you want.

Reminder

The manual should be read and understood thoroughly, because it can help you to master the operating method and feature of this high-tech product. Prior to operation, we strongly recommend you to read this manual completely so that you can master all the function to the utmost extent.

Safety instruction!
Please be sure to follow the instructions, which are really important for your safety.

	<p>Danger!</p> <p>Warnings against likely injury or death</p>
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1. Grounding outlet to avoid accidental electric shock or fire disaster.
2. Do not attempt to repair the product yourself. Do not open the door of power box by unprofessionals to avoid electric shock..
3. Please use the independent mains jack socket. Make sure the proper plug with outlet. Loose connection will result in fire disaster caused by overheating.
4. Do not pull out the plug when it is operating. Do not drag the wire to plug the outlet.
5. Do not damage the wires or use the undesignated wires. Do not try to extend the wires or attach wires at the middle by yourself. Improper handling of wires will result in fire or electric shock.
6. Plug the outlet with wet will get risk of electric shock.
7. Do not put flammable or explosible object inside the chamber.
8. When in operation, the window of the equipment has a relative high temperature, so any physical contact with it should be avoided.
9. To avoid burn, do not fetch the object inside the chamber until the temperature inside is drop to normal, except security measure has been taken.
10. Do not put fingers, rods or other kinds of foreign bodies into the inlet or outlet of air.
11. In case of malfunction or burning smell, the unit must be immediately unplug and ceased for further checking.
12. The electric power supply must be cut off under following situations:
 - 12.1. When opening the door of power box.
 - 12.2. When replacing the fuse.
 - 12.3. When the malfunction occurs.
 - 12.4. When not using for a long period of time.
 - 12.5. When moving the equipment.



Attention!

Instructions to keep the normal life and proper operations of the equipment!

- 1.The unit must be placed horizontally on solid, flat floors.
- 2.The unit must be provided with sufficient clearance on all sides of the unit, at least 20cm.
- 3.Do not leave the unit in a location exposed to direct sunlight or near heater.
- 4.The unit must be kept faraway from source of electromagnetic interference.
- 5.When in normal operation, culture inside the incubator should be placed to the extent of which the air flow inside the equipment is not affected to keep the temperature uniformity in the working chamber.
- 6.Make sure the shelf inside the chamber is horizontal.
- 7.Open or close the door heavily will probably leads to the damage of the equipment.
- 8.When in operation, do not open the door indiscriminately which will affect the temperature inside.
- 9.The exterior of equipment must be kept away from volatile, flammable, explosive liquids or gases.
- 10.Please keep the chamber clean. Regular cleaning is required.



Attention!

Apart from the above warnings and instruction, there are several other special reminder with a exclamation point within a triangle, please read and follow. Any neglect will probably lead to hidden trouble, serious damage, or accidental injury.

Attention!

Please close the door immediately after take/put the sample, otherwise the temperature control precision could the affected.

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1. Key features

1. Individualized 10 segments, 18-step preset programmes achieve temperature preset timing programs or reciprocating, stepped, ladderlike temperature running.
2. Sound heat insulation design and the transparent glass door meet European security standard.
3. Automatic power on and power off, timing operation, clock indicating, power off recovery, parameter recalling and encryption, temperature indicating and correcting, RS-232 interface and built-in microprinter.
4. Monitoring timer, independent exceeding guard, over temperature protector (adjustable).
5. Independent protector for electric leakage and over current.
6. Self-diagnosed techniques, such as power cut alarm, sensor failure alarm, and upper and lower temperature limit exceeding alarm.
7. Highly responsive thermal sensor and environmental scanning microprocessor chip.
8. Three-dimensional heating technology ensures the solid temperature uniformity in the working chamber.
9. Sound airway structure and gentle airflow circulation design.
10. Unique design of chamber guarantees the cleanliness of the sample.
11. Mirror stainless steel chamber, electro polished stainless steel shelves and toughened glass internal door.
12. The luxurious and elegant profile with aesthetic designing.
13. Air ventilation Adjustment
For discharge the excess humidity evaporation, the unit is equipped with a adjustable air ventilation.
Turn the knob clockwise located on the right sidewall to open up air vent, or anti-clockwise to close. Air vent located on the back wall.

2. Technical Specification

Model	Oven-80HT	Oven-140HT	Oven-230HT
Volume (L)	80	140	230
Heating Mode	Back Heating		
Programmable Control (9Segment/18 steps)	Standard		
Temperature Range (°C)	Ambient+5 to 300		
Temperature Accuracy (°C)	0.1		
Temperature Uniformity (%)	< ± 2.5% (@max temperature)		
Display	LED		
Alarm	Enabled		
Timer (min)	1-999		
Settings	Digital		
Grids Included	2(max13)	2(max17)	2(max21)
Grid Size (mm) (WxD)	319*330	385*405	475*485
Chamber Dimensions (mm) (WxDxH)	375*365*550	450*440*685	520*540*800
Exterior Dimensions (mm) (WxDxH)	565*495*960	640*570*1095	720*670*1290
Packing Dimensions (mm) (WxDxH)	650*590*1130	720*670*1255	800*720*1450
Net/Gross Weight (kg)	58/98	70/104	104/150
Power (W)	220V 50/60Hz		

3. Control Panel



Change/Confirm button:



Press this button to display clock time. Hold on this button for 3 seconds to change the parameter, and press this button again to confirm the change.

Increase button:



Press this button, the parameter will increase by one digit, the parameter will keep increasing while this button is held on.

Decrease button:



Press this button, the parameter will decrease by one digit, the parameter will keep decreasing while this button is held on .

Program button:



Press this button to set the program control parameter.

Temperature button:



Press this button to display the preset temperature, press this button again to confirm the change.

Time button:



Press this button to display the operating time, press this button again to display the preset time.

Operating button:



Under constant temperature control mode, press this button to start operation and press it again to stop operation. Under programme control mode, press this button to start operation and press it again to keep the status, hold on this button for 3 seconds to stop operation.

Temperature exceeding alarm indicator:



When real temperature exceeds the upper or lower temperature limit, alarm will be activated, this indicator will be light and the buzzer will keep alarming.

Heating indicator:



When the heater is connected with power supply, this indicator will be light. This indicator will twinkle when the real temperature close to the preset value.



Real temperature Indicator:

When the screen is displaying the real temperature, this indicator will be light.



Temperature setting Indicator:

When the screen displays the preset temperature, this indicator will be light.



Time indicator:

When screen displays the operating time, this indicator will be light, twinkles when the screen displays preset time.



Operating status indicator:

When the equipment is well functioned, this indicator will be light.

- **Status keeping indicator:**
HOLD Under program control mode, when the equipment is in the state of temperature keeping, this indicator will be light.
- **Refrigeration indicator:**
COLD When the refrigerating system is working, this indicator will be on.

4.Preparation and Start-up

- 1.After the equipment is positioned according to the points for attention, press down the pressing board on the castor to fix so as to avoid any move when using.
- 2.Configuration of power supply of AC 220~240V 50/60Hz with capacity not less than the power required in the specification. Use a dedicated jack socket for this equipment.



Attention!

Only use a properly grounded outlet, verify the local voltage of power supply before start, we are not responsible for damages caused by incorrect voltage of power supply.

- 3.Connect the plug of power supply of the equipment with an independent jack socket.
- 4.Turn on the master switch on the right side of the equipment, power is applied to the unit, the five digital tube displays the following in turn: PHTC3, Time, Real temperature.

PHTC3

10.25

25.1

Then the equipment is in the state of readiness.



Attention:

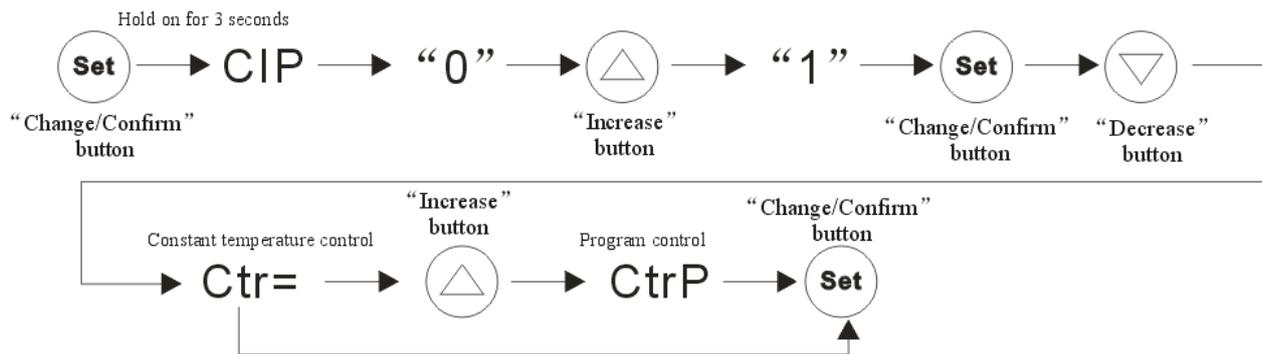
Press the “Change/Confirm” button to display time. When in setting operation, If the button is left untouched for 3 minutes, the screen will automatically switch to display the real temperature.

5.Setting of the control mode

This equipment has two operating mode, i.e. constant temperature control and programme control, users can choose one according to their need.

Hold on the “Change/Confirm” button for 3 seconds, the screen displays “CIP” and a second later “0”, press the “Increase” button to input the password “1”, then press the “Change/Confirm” button, the screen will display the original control mode: “Ctr=” means constant temperature control, “CtrP” means programme control. Press the “Decrease” or “Increase” button to change the control mode. Press the “Change/Confirm” button to confirm the change.

Simplified instruction on the setting of control mode



Attention:

When the control mode is programme control, press “Programme” button and the first digit displaying on the screen will be “P”.

6.Setting of parameter under the constant temperature control mode

1.Setting Temperature Parameter

Press the “Temperature” button to display the real value(one decimal), the green PV indicator turns on. Press the “Temperature” button again, the screen displays the preset parameter(one decimal), the yellow SV indicator turns on. Press the “Increase” or “Decrease” button can change the parameter.

2.Setting Time Parameter

Press the “Time” button to display operating time or the preset time delay switch on, the red TM indicator turns on. Press the “Time” button again to display the preset timing parameter(minute, one decimal), the red TM indicator twinkles. Press the “Increase” or “Decrease” button can change the parameter.



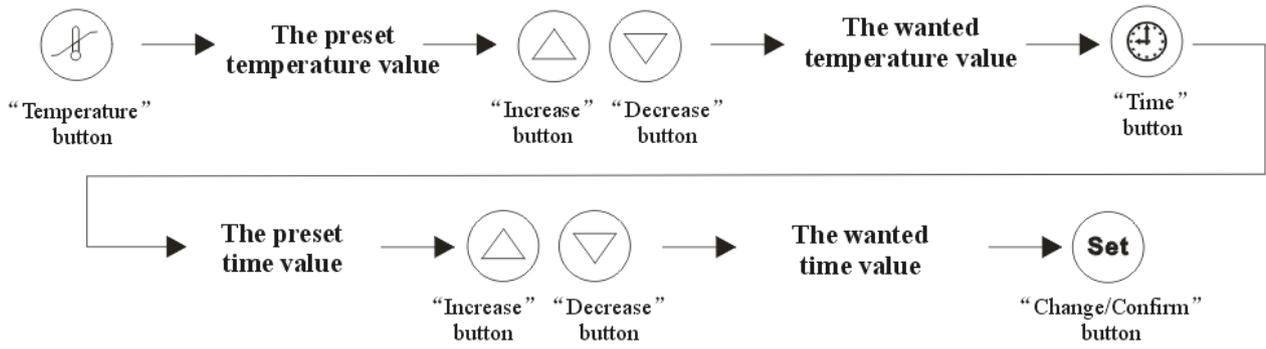
Special Attention!

When the timing range is within 1-999 minutes and the parameter is “0”, the equipment will work continuously.

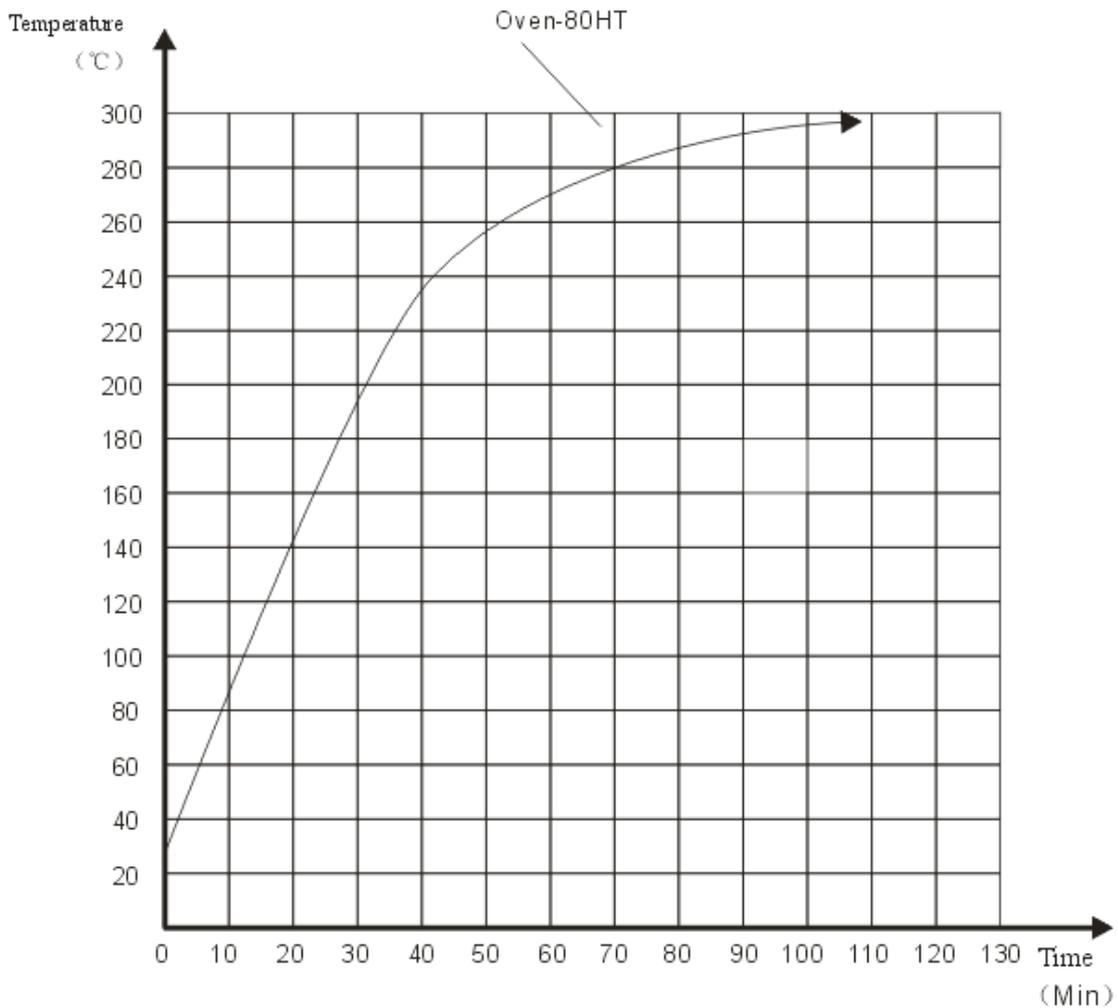
Press the “Time” button again, the screen will display the operating time(minute, one decimal), the red TM indicator turns on. When in operation, the decimal point twinkles every second, the displaying time increase by 0.1 every 6 seconds.

3.Press the “Change/Confirm” button to confirm the change.

Simplified instruction on the setting of constant temperature control mode

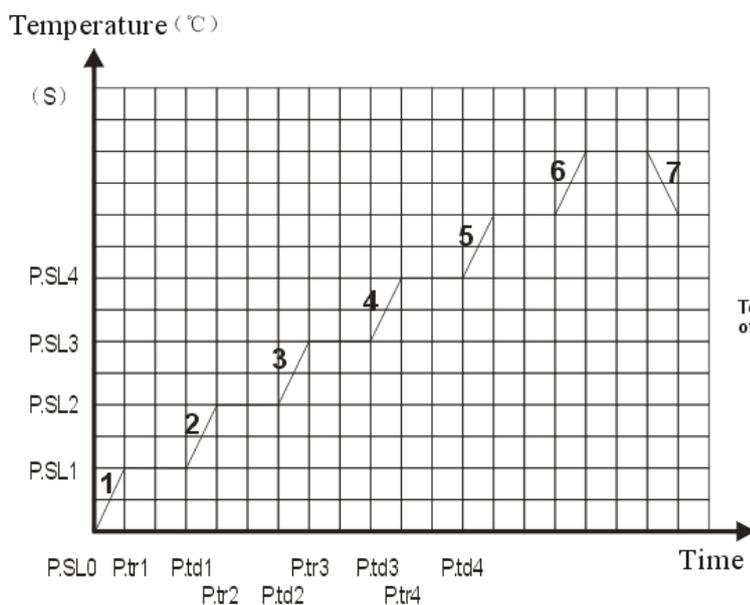


Below is a graph showing the relation under normal condition between time and temperature when temperature keeps increasing. It can be referred to when setting temperature and time.

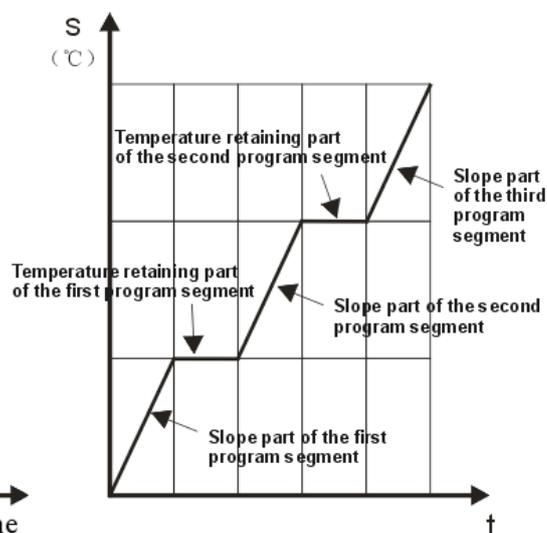


Graph one

7.Setting of parameter under the programme control mode



Graph 2



Graph 3

2. Every time the “Program” button is pressed, parameter symbol and number will be displayed alternately on the screen, temperature(°C) and time(minute) have one decimal on display. Press the “Decrease” or “Increase” button to set the temperature and time parameter. Refer to the graph two to see the operating process.

1.P.SLO — The starting time parameter of the programme

2.P.tr1 — Heating time of the slope part of the first programme segment

3.P.SL1 — The ending temperature of the slope part of the first programme segment

4.P.td1 — Time of temperature retaining of the temperature retaining part of the first programme segment

5.P.tr2 — Heating time of the slope part of the second programme segment

6.P.SL2 — The ending temperature of the second programme segment

7.P.td2—Time of temperature retaining of the temperature retaining part of the second programme segment

⋮
 ⋮ The rest may be deduced by analogy
 ⋮

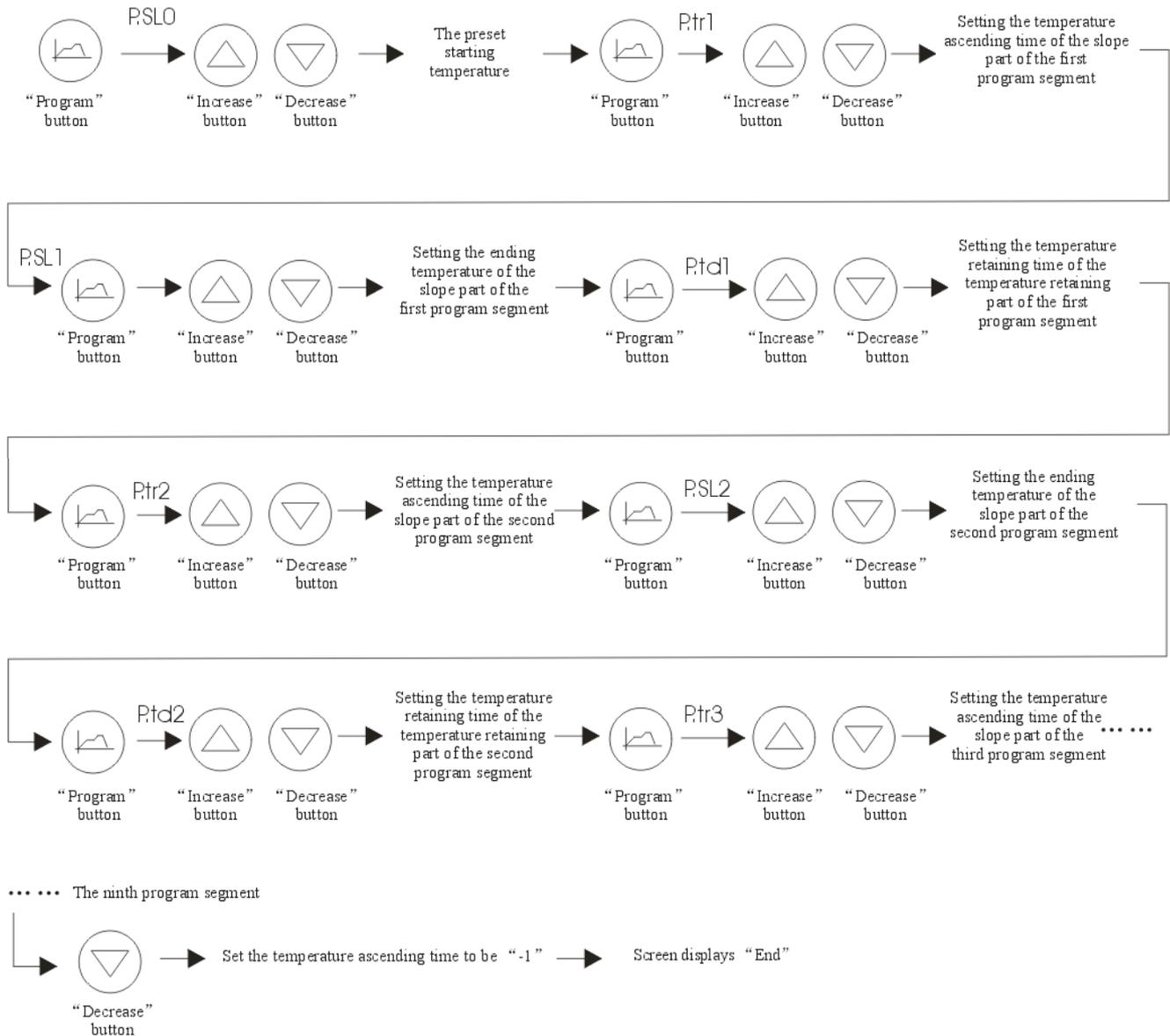
P.td9— Time of temperature retaining of the temperature retaining part of the ninth programme segment

P.Hb— Feedback value, condition for entering the retaining segment(°C, one decimal)

P.PLC— Cycle time(1—99)

Each program segment have two small segment, i.e. slope segment and temperature retaining segment (refer to graph three), and consist of three parameter: the temperature ascending time of the slope segment, the ending temperature of the slope segment, the temperature retaining time of the temperature retaining segment. When the slope segment ends, program enters into the temperature retaining segment, the setting temperature is the ending temperature of the slope segment. The ending temperature of the last slope segment is the starting temperature of next slope segment. This equipment has up to 9 program segment to set (9 slope segment + 9 temperature retaining segment). When you do not need all the 9 segment, you can set the temperature ascending time of the next segment left unused to be "-1" and the screen will display "End".

Simplified instruction on the setting of program control time and temperature



3. When setting is finished and program parameter is not displayed on screen, press the "Operating" button, the red operating indicator RUN turns on, the program begin running from the first program segment. At this time, if screen is switch to display the preset temperature, the process in which temperature changes with time can be seen on the screen. If screen switch to display operating time, the process of time change can be seen. When temperature and time are displaying on the screen, the first digit tube displays the current program segment. When the slope segment is over and goes into the temperature retaining segment, the yellow indicator HOLD turns on. When the ninth segment or the End segment is over, operation stops, the screen displays "Stop". When in operation, the control program adjust the output incessantly to make the real temperature follow the preset temperature.

4. When in operation, press the "Operating" button to enter into the retaining state, the indicator RUN twinkles, operating time is on hold, press the "Operating" button again to resume operation, the red indicator turns on, the operating time continue to count . If the "Operating" button is held on for 3 seconds at this time, operation will be stopped and screen displays "Stop".

5. If you want to start operation from a randomly selected segment, press the "Program" button to display the program segment, then press the "Operating" button when the segment you want is displayed on the screen. The program begin operation from the segment displayed on the screen and take the current real temperature as the starting temperature.

6. The setting and application of the parameter Hb (feedback value). Parameter Hb is the condition for temperature to enter from the slope segment into the retaining segment. When setting of each program segment is over, screen displays "Hb" (°C, one decimal), press the "Increase" or "Decrease" button to set the Hb parameter. If the parameter is "0", the slope segment ends and enter into the retaining segment unconditionally. When the parameter is bigger than "0" and the deviation between the real temperature and the preset temperature of the retaining segment is smaller than the Hb parameter, the program re-enter into the retaining segment and the retaining time begin to count.



Attention!

When the Hb parameter is "0", the slope segment ends and enter into the retaining segment unconditionally.

7. The setting and application of the parameter PLC(cycle time). When in program operation, this equipment has a cycle time of 1-99. Setting method: Press the "Program" button until the screen displays the "P.PLC "and number alternately, press the "Increase" or "Decrease" button to set the cycle time. When the time of slope segment or retaining segment of a certain program segment is "STEP"(when the screen displays "End", subtract 1 one more time) and program reaches this segment, the cycle time subtract 1, program jump to the first segment to renew operation in cycle. When cycle time reduce to "0", program skip the cycle and run the next segment of "STEP". When in operation and operating time is on display, hold on the 'Decrease' button to display the balance cycle time.

8. Setting and Application of other functions

1. Setting of the delayed time of turning on the equipment

This equipment can achieve time delay switch on. When the parameter of time delay is not “0”, the equipment can switch on automatically after time delay.

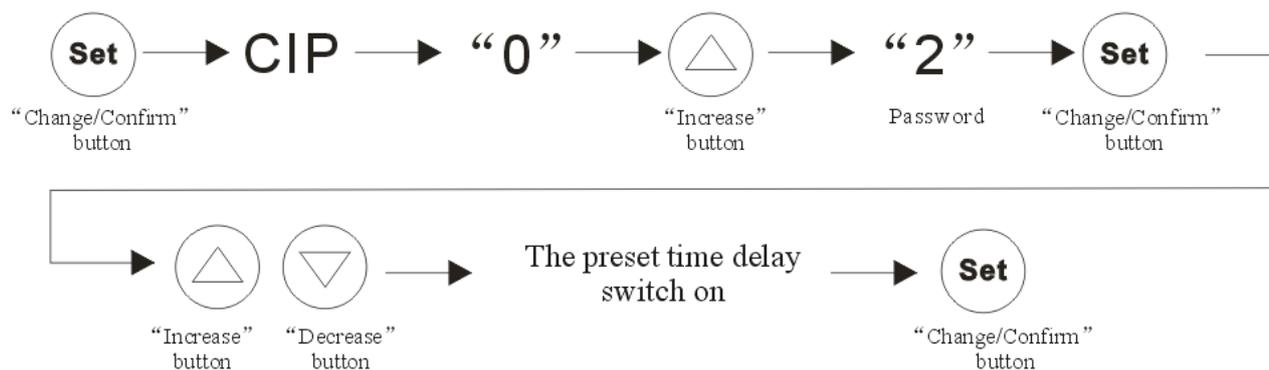


Attention!
When the parameter of time delay is not “0”, the equipment can switch on automatically after time delay.

Hold on the “Change/Confirm” button for 3 seconds, screen displays “CIP”, a second later “0”, press the “Increase” button to input the password “2”, press the “Change/Confirm” button again and the screen will display the delay time to switch on the equipment, the symbol “dtl” and number displays alternately on the screen (minute, one decimal), press the “Increase” or “Decrease” button to set the parameter, press the “Change/Confirm” button to confirm the change. Press the “Operating” button at this time, the yellow indicator HOLD turns on and the preset time begin to count down. When time reduce to “0”, indicator HOLD turns off, operation begins, the red operating indicator RUN turns on (Under programme control mode, operation of programme segment begins.).

Simplified instruction on the setting of time delay switch on

Hold on for 3 seconds



2. Setting of the temperature exceeding alarm

Hold on the “Change/Confirm” button for 3 seconds, screen displays “CIP”, a second later “0”, press the “Increase” button to input the password “3”, press the “Change/Confirm” button again, screen displays symbol and number alternately:

1) Prnt (the use of interface of printer)

2) ALH (upper limit alarm value, °C, one decimal) When the real temperature reaches this value, the equipment cut off the heating output automatically thus stop the operation. Press the “Increase” or “Decrease” button to change the ALH value, then press the “Change/Confirm” button again to confirm the change.



Special Attention:
The upper limit alarm value must be larger than the preset temperature.

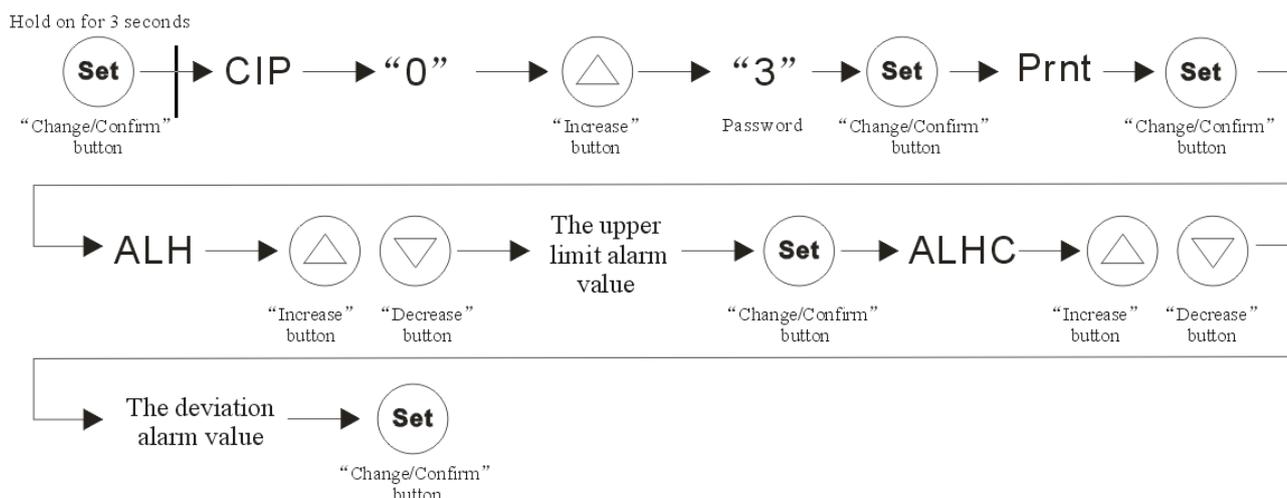
3)ALHC(The alarm value of deviation of real temperature and the setting temperature, °C, one decimal)
 When real temperature is beyond this value, the equipment alarms continuously and the alarm indicator turns on, heating output is automatically cut off. Press the “Increase”or “Decrease”button to set this parameter, press the “Change/Confirm” button again to confirm the change.



Attention!

- 1.When this ALHC value is “0”, equipment will not alarm.
- 2.Change the preset temperature or enlarge the ALHL value can terminate the temperature exceeding alarm.
- 3.When deviation is back to the range you set, the equipment terminate the temperature exceeding alarm automatically.
- 4.Press the “Operating”button can make the equipment stop running.

Simplified instruction on the setting of temperature exceeding alarm

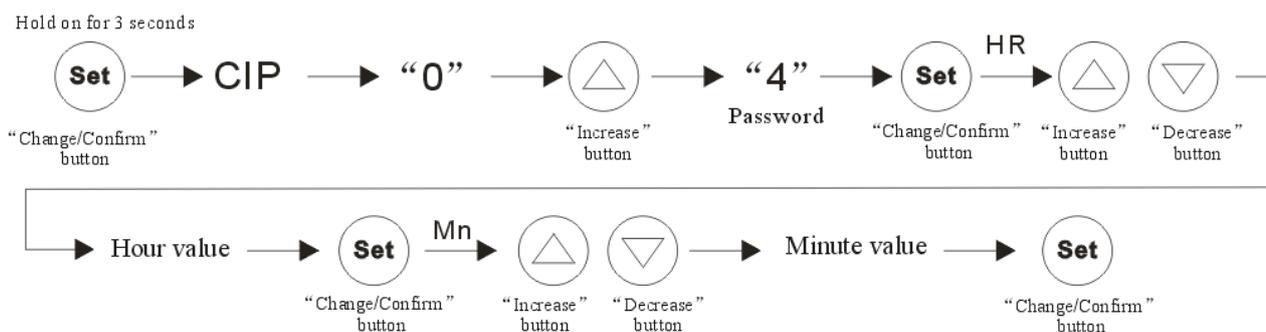


3.Setting of the clock

Press the “Change/Confirm” button to display the clock on the screen. The clock time can be changed when deviation between clock and standard time occurs.

Hold on the “Change/Confirm” button for 3 seconds, screen displays “CIP”, a second later “0”, press the “Increase”button to input the password “4”, press the “Change/Confirm” button again, screen displays the hour value, press the “Increase”or “Decrease”button to change the hour value, press the “Change/Confirm” button one more time, screen display the minute value, press the “Increase”or “Decrease”button to change the minute value, press the “Change/Confirm” button at last to confirm the change.

Simplified instruction on the setting of time



4. Power-off recovery

This equipment has power-off recovery function. When the external power is recovered after a sudden cut off and the deviation of temperature inside is within 2°C the equipment can automatically recover to run according to the originally designed programme

5. Air ventilation Adjustment

For discharge the excess humidity evaporation, the unit is equipped with a adjustable air ventilation.

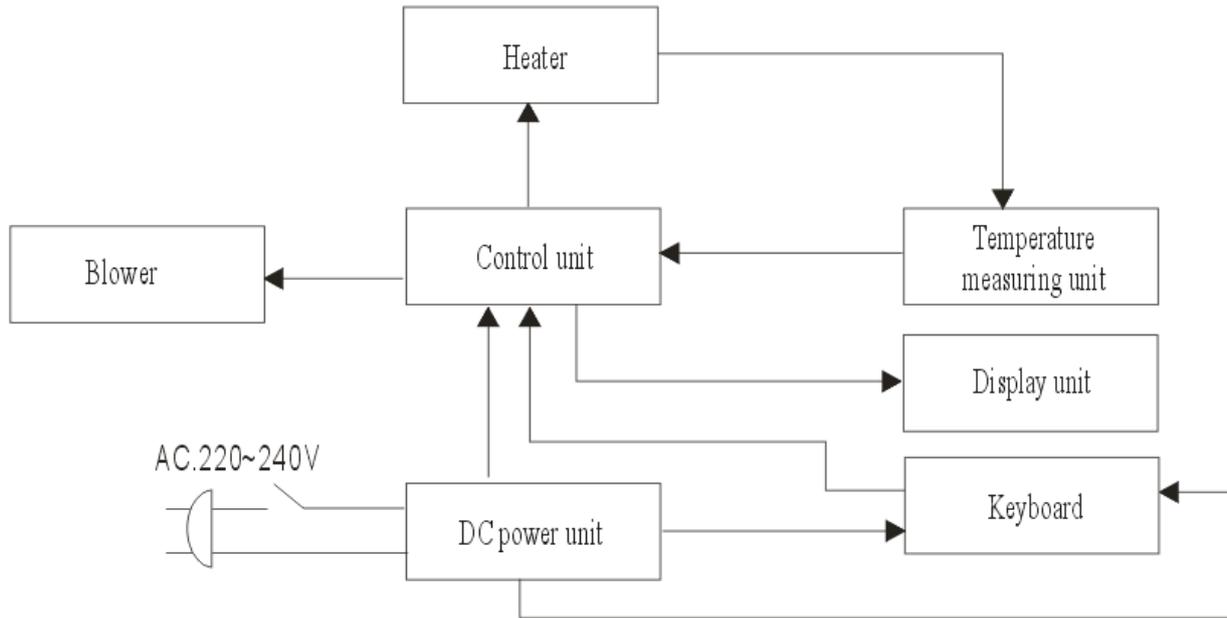
Turn the knob clockwise located on the right sidewall to open up air vent, or anti-clockwise to close. Air vent located on the back wall.



9. Operation and Switch off

1. When the above setting is finished, press the “Operating” button and the equipment runs according to the designed programme, the red operating indicator RUN turns on.
2. When the equipment is in the state of temperature control or programme control, the red heating indicator turns on or twinkles means the heating is connected and it is normal.
3. When in operation, if you need to change parameter, press the “Operating” button to stop running, change the parameter after the operating indicator turns off.
4. When in operation, the operating time increases and twinkles by second. When operating time reaches the preset value, heating output will be stopped, the operating indicator turns off. At this time, the power control transformer is still connected to power supply, so turn off the main switch on the right side of the equipment to switch off the equipment.

10. Electric theorem



11. Normal Malfunction and debugging

Encountered symptoms	Possible cause	Debugging
Power on without display	<ol style="list-style-type: none"> 1. Power supply is not connected 2. Block have access to jack socket 3. The power switch have not been turned on 4. The fuse is broken 5. Malfunction of power box circuit occurs 	<p>Check the power supply system to see if there is voltage</p> <p>Plug the equipment firmly</p> <p>Turn on the power switch on the right side of the equipment</p> <p>Replace the fuse with new one of same specification</p> <p>Notify the manufacturer for repair service</p>
Equipment enter into the state of temperature exceeding alarm	<ol style="list-style-type: none"> 1. Equipment has not yet enter into the state of constant temperature 2. Setting of the parameter is unreasonable 3. Malfunction of heating system occurs 	<p>Wait a minute and observe for a while</p> <p>Refer to the operating procedure and change or re-set parameter</p> <p>Notify the manufacturer for repair service</p>
Real temperature is lower than the setting temperature, thus activate the lower temperature deviation alarm	<ol style="list-style-type: none"> 1. Equipment has not yet enter into the state of constant temperature 2. Temperature deviation alarm value is too small 3. Abnormal condition occurs with the heater 	<p>Wait a minute and observe for a while</p> <p>Reset the alarm value</p> <p>Notify the manufacturer for repair service</p>
Screen displays nothing or lack of stroke or distortion	<ol style="list-style-type: none"> 1. Equipment is disturbed by high frequency 2. Eliminate the source of disturbance and restart the operation 3. Block has access to displaying circuit 	<p>Eliminate the source of disturbance and restart the operation</p> <p>Refer to professionals for check or repair service</p> <p>Notify the manufacturer for repair service</p>