Operation and Maintenance Manual

Constant Climate Chamber

Environmental Test Chamber

Preface

First of all, thank you for your love for our high and low temperature damp heat test chamber and your strong support for our cause!

Market competition and product quality requirements have promoted the development of environmental research. In turn, the progress of environmental research has promoted the improvement of material product quality. Fortunately, Chinese enterprises have realized that the environmental adaptability test of products is an important means of product quality assessment, and the feedback of environmental test results is an important basis for improving product quality - in fact, environmental test has become a necessary procedure for enterprises to assess product quality.

In terms of the research and development of environmental adaptability test equipment, we follow the objective laws and carefully make it with strict standards. Thus, the determination, reliability and practicability of the equipment are guaranteed.

In order to enable your company to quickly understand and correctly use this series of equipment, we carefully prepare this manual. When you use this series of equipment, please read it fully and follow the safety precautions and operation methods listed in the manual to prevent damage to this series of equipment and ensure the safety of use and the reliability of test results.

1、 Product Overview

This equipment simulates the environment of high temperature, high humidity and damp heat cycle, and is applicable to the alternating high temperature, high humidity, temperature and humidity of electrical and electronic products, lamps and lanterns, metal parts, materials, and Chinese electronic components, as well as the suitability of use performance and storage under the condition of temperature cycle change, and can also be used to check the ability of the sample to withstand certain corrosion (non monooxide acid and alkali).
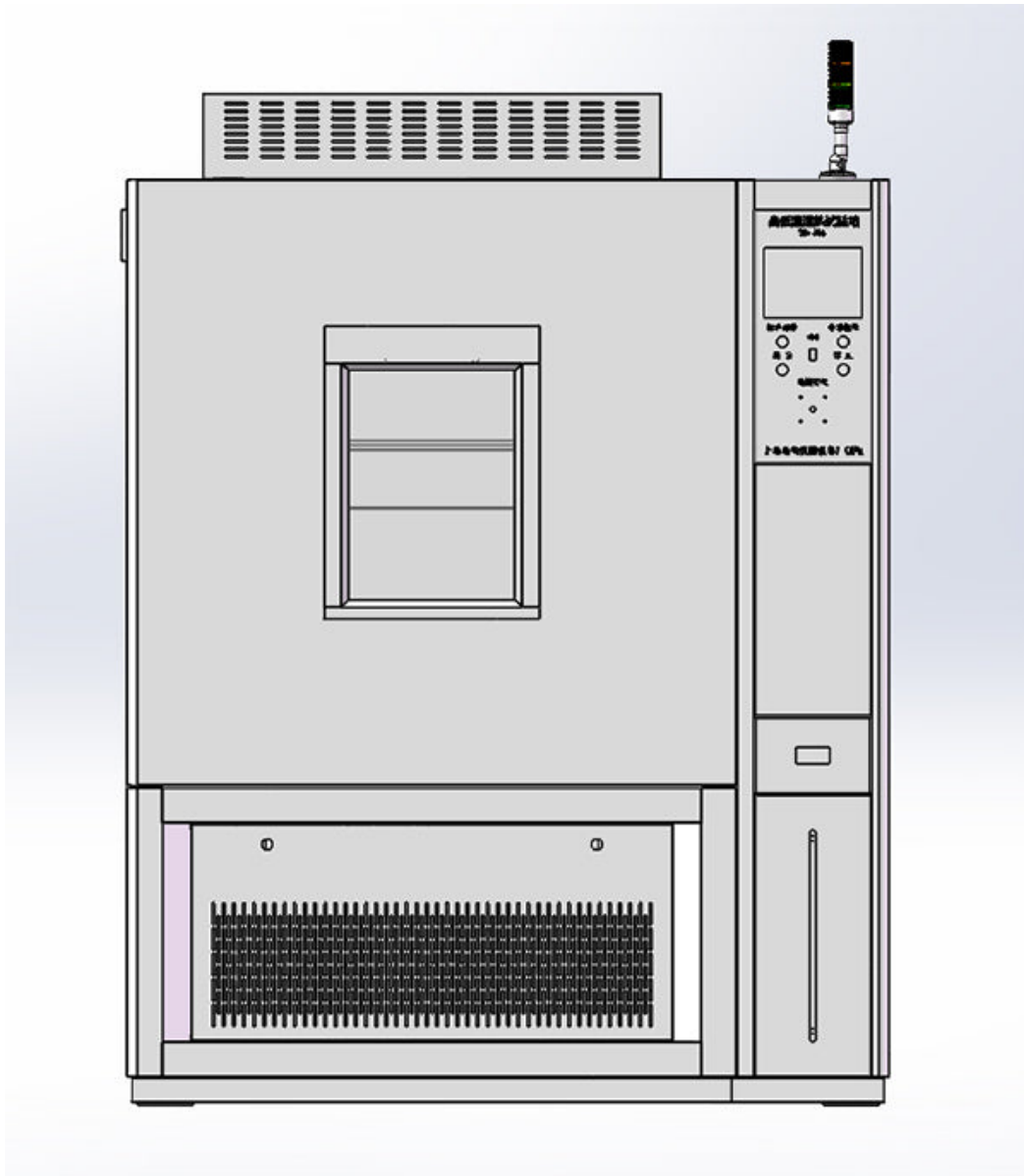
2、 Technical parameters

1. Temperature regulation range: - 40~180 ℃／- 70~180 ℃
2. Temperature control accuracy: ± 0.1 ℃ Temperature uniformity: ≤ 2 ℃
3. Humidity regulation range: 15%~98% RH
4. Humidity accuracy: ± 2%~3% RH
5. Power supply: 220V/60HZ 440V/60HZ
6. Installed power: 12.8KW

Note: The above data are measured under normal temperature and no-load condition of the test chamber.

The following is the corresponding diagram of temperature and humidity:
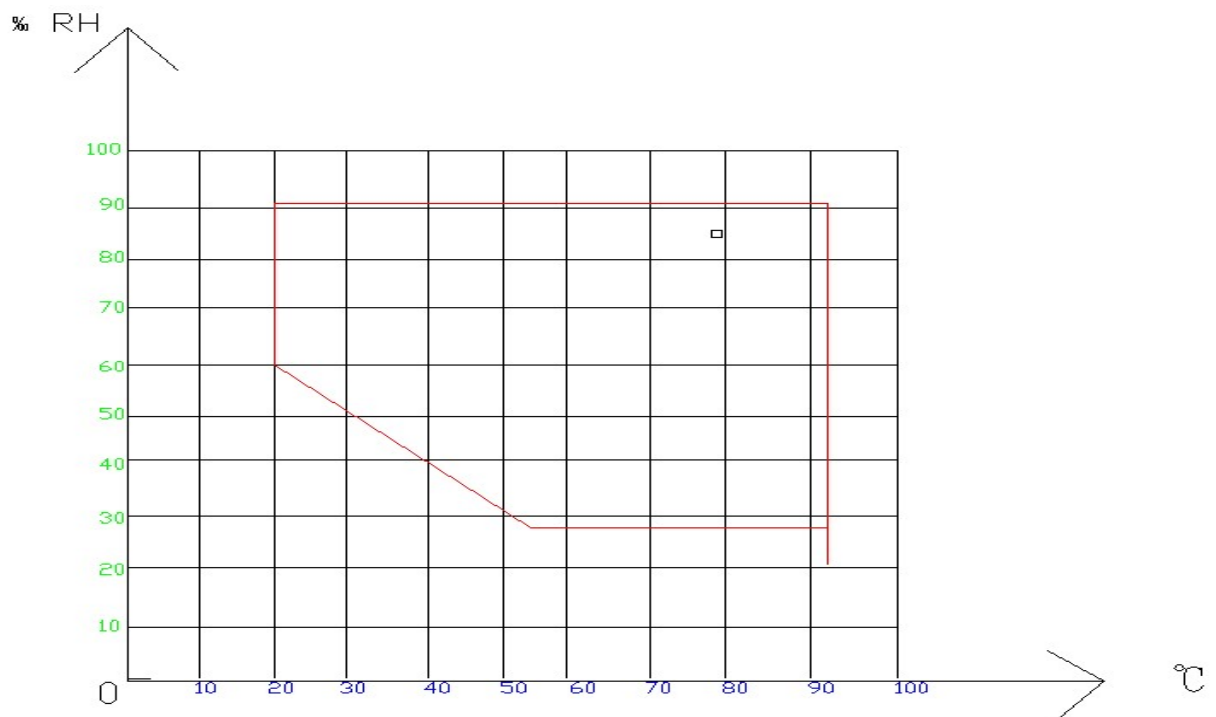
3、 Product service conditions

1. Ambient temperature: 10~30 ℃
2. Relative humidity: no more than 85% R.H
3. Atmospheric pressure: 86~106Mpa
4. No strong vibration around
5. No direct sunlight or direct radiation from other heat sources
6. There is no strong airflow around. When the surrounding air is forced to flow, the air flow should not be blown directly onto the box
7. No strong electromagnetic field around
8. No high concentration dust and corrosive substances around
9. In order to ensure the normal operation and convenient operation of the equipment, in addition to keeping the equipment horizontally placed, a certain space shall be reserved between the equipment and the wall or objects.

4、 Product structure

The door of the test chamber is a single pull type door with a glass observation window, which is made of three-layer hollow tempered glass and has the function of electric defrosting.

The inner tank of the experimental equipment is made of SUS304/2B high-grade stainless steel plate, and the shell is made of cold rolled steel plate after rust prevention treatment and electrostatic spraying

The equipment control system adopts imported temperature and humidity controller, which has PID self tuning ability, high precision and high stability.

The equipment has the functions of over temperature protection, voice prompt and timing. When the timing is over or the alarm is given, the power supply will be automatically cut off to stop the operation of the equipment, so as to ensure the safety of the equipment and personnel.

The sealing strip of the equipment is made of silica gel, which has

good toughness and is not easy to deform and become sticky under high and low temperatures.

5、 Precautions for use of new machine

1. Please place the equipment in strict accordance with the "Product Use Conditions" in this manual

2. Before the equipment is used for the first time, please open the upper electric cabinet board on the right side of the box and check whether any components are loose or fall off during transportation

3. Before the equipment is powered on, please confirm whether the equipment is safely grounded

4. Please provide qualified special power supply for the equipment according to the requirements of the manual, and pay attention to avoid phase sequence phase loss when providing power supply (observe the green light of the phase sequence protector indicator for the model with three-phase voltage input, and the red light indicates phase loss or incorrect phase sequence)

5. Open the equipment door and manually add water to the humidity sensor with gauze inside the studio The gauze shall be wet and the sink shall be full of water. (The machine is equipped with automatic water supplement function, and no water is needed during the test)

6. If the water tank is built in the equipment, please open the right water filling drawer to add water directly. Please pay attention to the water level indication when adding water. The maximum capacity of the water tank is about 25 liters. (Please give priority to pure water).

7. If the equipment is equipped with an external water tank, the storage capacity will generally be greater than 25 liters. When taking out the water storage pump in the tank, the user should connect the power supply of each water pump with the equipment socket according to the back power supply indication, and pay attention to that the connection of the water pipe should be consistent with the power supply of the control socket. (If the control power socket of the water pump is not connected with the water pipe of the water pump, the water cup in the control cabinet

may overflow)

8. Test run of equipment: After the above steps are completed, turn the power start switch to the right, set the temperature of the control instrument to 60 ℃, and the humidity to 80%, and observe whether the equipment has abnormal noise. If the temperature can rise to 60 ℃ and the humidity can also rise to within 40 minutes, it indicates that the equipment heating and humidification system is normal.

9. When the new equipment is just used, it may have a slight odor, which is a normal phenomenon. (It is generally caused by sealing glue.

6、Precautions before equipment operation

Please confirm whether the equipment has been reliably grounded. Please install the external protection mechanism and power the system according to the requirements of the product nameplate

Before baking, the leachate must be dripped outside the test chamber and then put into it

There is a test hole on the side of the machine. When connecting the test line of the test piece, please pay attention to the area of the conductor and insert the insulation material after the connection.

It is absolutely prohibited to test explosive, combustible and highly corrosive substances.

The equipment must carefully read the instructions and be operated and maintained by a specially assigned person skilled in operation. Other personnel are strictly forbidden to operate the equipment at will to prevent failure.

The samples must be placed firmly, and should not be stacked to shield each other. The horizontal section area should not be greater than 2/3 of the equipment section.

Considering that chlorine contained in tap water will corrode internal metal components during heating, it is recommended to use filtered pure water.

7、Precautions during equipment operation

During the operation of the equipment, unless it is quite necessary, please do not open the door casually and put your hand into the test box, otherwise the following adverse consequences may be caused.

A: The side of the test room is still in high temperature and humidity, which is easy to cause burns.
B: High temperature gas may trigger a fire.
C: Sudden temperature and humidity changes will lead to instrument parameter confusion or false alarm.
When operating the instrument, please fully read (detailed description of the controller part), and do not arbitrarily change the set parameter values inside the instrument to prevent affecting the control accuracy of the equipment or affecting the normal operation of the equipment.
If there is any abnormal condition or burning smell in the laboratory, stop using it and check it immediately.
At the end of the test, wear heat-resistant gloves or tools to avoid scalding.
When the equipment is running, it is strictly forbidden to open the electrical control box to prevent dust from entering or electric shock accidents.
If the equipment needs to be tested at night, personnel must be arranged to guard it to prevent accidents.
After the high humidity test of the equipment, take out the sample, and run it at 80 ℃ for two hours without load to dry the inward humidity and protect the heater and other elements.
When using humidity, pay attention to the water level change of the water storage tank. Generally, when the temperature is set at 65 ℃ and the humidity is set at 85%, the water consumption is about 0.6 L/h.

8、 Simple operation methods and steps

Operation examples (see the instrument manual for detailed operation methods).

9、 Maintenance

Keep the appearance clean at all times.

Do not place objects on the top of the machine to facilitate heat dissipation of the motor and control parts.

After long-term use of the equipment, if there is abnormal noise in the motor blower, door lock hinge and other parts, check them, and pay attention to oil regularly and clearly.

If the temperature of electrical components is too high, the cause must be checked immediately.

After each use, the test chamber shall be kept clean to prevent corrosion.

The control cabinet shall be cleaned once a month to prevent excessive dust from affecting the normal operation of the equipment.

After the test, turn off the main power supply, wipe the water trace in the working chamber, and try to keep the test chamber in a dry environment.

If the electrical components on the control panel need to be replaced in case of failure, please do not dismantle them randomly to ensure the service life of the test box.

When the machine is stopped for a long time, please clean the water in the water tank.

10、 Troubleshooting

Phenomenon	Principle	Handle
1. No operation, no power supply	1. The socket has no power supply	1. Replace the socket
	2. The plug is not plugged or disconnected	2. Plug or connect the wire
	3. Open circuit of fuse	3. Replace the fuse
	4. The power switch is not closed	4. Turn on the power switch
2. The temperature in the box does not rise	1. Low setting temperature	1. Adjust the set temperature
	2. The electric heater is damaged	2. Replace the electric heater
	3. The temperature controller is broken	3. Change the temperature controller
	4. The connecting wire of temperature sensor is loose	4. Tighten the nut of the sensor connecting wire
3. The humidity in the box does not rise	1. Water tank is short of water	1. Water tank filling
	2. Long term water shortage, water shortage protection	2. Water tank filling
	3. The water pump is damaged due to long-time water shortage	3. Replace the water pump and fill it with water
4. Large error between the set temperature and the temperature in the box	1. The temperature sensor is damaged	1. Replace the temperature sensor
	2. The temperature controller is set with deviation	2. Adjust the set deviation value of the temperature controller
5. Temperature out of control	1. The fixing of temperature sensor falls off	1. Fix the temperature sensor
	2. The temperature controller is broken, and the silicon-controlled rectifier is broken	2.Change the temperature controller and silicon controlled rectifier
6. Temperature does not drop or is too slow	1. The refrigerant leaks	1. Check the refrigerant pressure and supplement
7.The instrument display screen alarm does not work	1. The water tank is protected from water shortage	1. Water tank filling
	2. Overload protection of low-temperature unit	2. Notify the technician to repair or clean the dust on the radiator surface

11、 Attached documents and attachments

Serial No	Name	Quantity	Remarks
1	File	3 copies	One copy of operation manual, certificate and warranty card
2	Fuse core	2 individual	Nothing
3	Waste water drainage pipe	1 individual	Random
4	water storage tank	1 individual	Random
5	Water storage pump	2 individual	Random
6	Special connector	1 set	Random

Programmable controller with constant temperature and humidity

TH series manual

Directory

Flow chart of operation setting

flow chart below

Stop of value (Fig. 2)
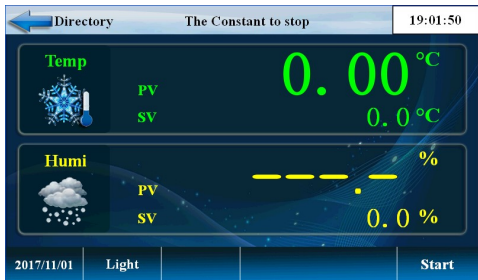
Fixed value startup (Figure 3)

Main picture (4)

Detailed value setting (Figure 5)

(Figure 6)

Program setting

System settings (Figure 7)

(Figure 8)

Password setting
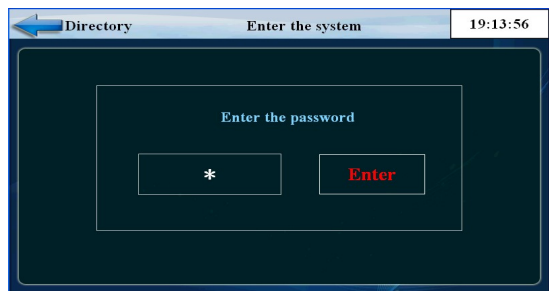
1.1 initial picture

Display when power is switched on

Figure 9

1.2 main picture

Figure 10

Number	Name	Instructions
1	Monitor screen	Enter monitor screen
2	Setting value	Enter the set value setting screen
3	program settings	Enter the program settings screen
4	Curve monitoring	Enter the curve monitor screen
5	Operation setting	Enter the running picture
6	reserve set	Enter booking picture
7	file management	Enter the file management picture
8	alarm monitoring	Enter alarm monitor screen
9	catalogue	Enter the system settings screen

1.3 run screen

The display information status picture of the controller

1.3.1 program stop screen
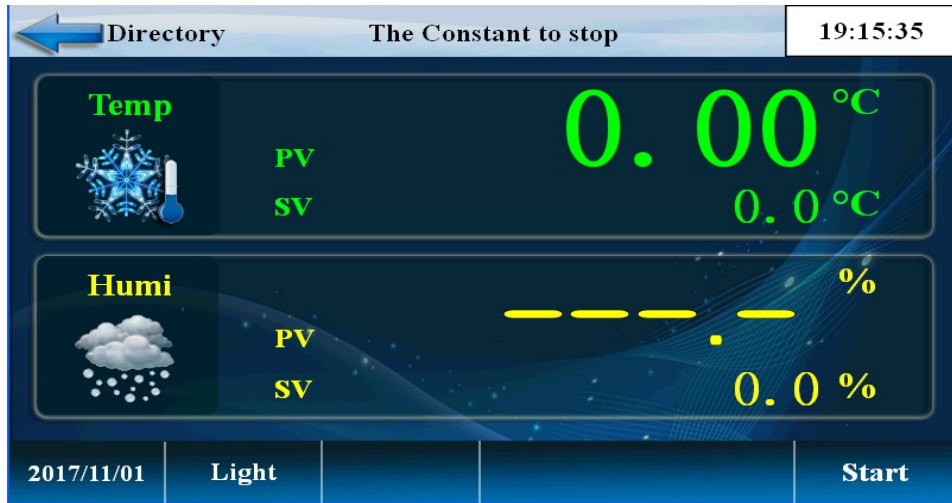
Figure 11

Number	Name	Instructions
1	show value	Current temperature display value
2	form	Current program number that can start running
3	firing	Start button
4	segment	The current operating segment
5	headlamp	Light button
6	catalogue	Home

Program startup determination   Program stop determination
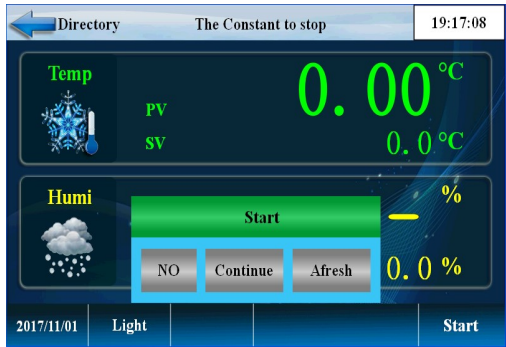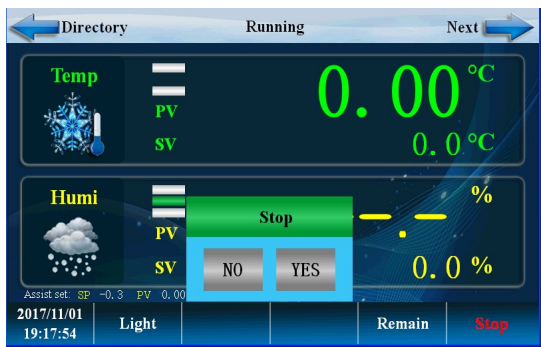
Figure 12

1.3.2 program running screen 1

figure 13

Number	Name	Instructions
1	Start the confirmation	The choice is to start effectively, and choose not to start invalid
2	Start to stop	The choice is to stop effectively and choose not to stop invalid
3	remaining time	The remaining time of the current section
4	headlamp	Light button
5	Program segment number	The currently running program, Sec
6	hops	Select "skip segment" to skip this paragraph
7	keep	Select "hold" to run, keep the timing unchanged
8	changing-over	Switch to Figure 14
9	Temperature display	Display current temperature
10	setting temperature	Display current setting temperature
11	Humidity display	Display current humidity
12	Humidity setting	temperature set point

1.3.3 program running detailed picture 2

figure 14

Number	Name	Instructions
1	Temperature output intensity	Temperature PID control output power
2	Program cycle	Number of program cycles
3	PID number	The PID parameter group used in the current control
4	Segment number cycle	Segment number cycle
5	changing-over	Switch to the real time record curve screen
6	put forth one's strength	Humidity PID control output power
7	output listing	Detailed description at output

1.3.4 fixed value stop screen

Figure 15

Number	Name	Instructions
1	catalogue	Return directory (Figure 10)
2	temperature set point	Setting temperature
3	Humidity setting value	Setting humidity
4	firing	Fixed value start button

1.3.5 fixed value start up screen

Fixed value start up determination　　　Setting stop determination
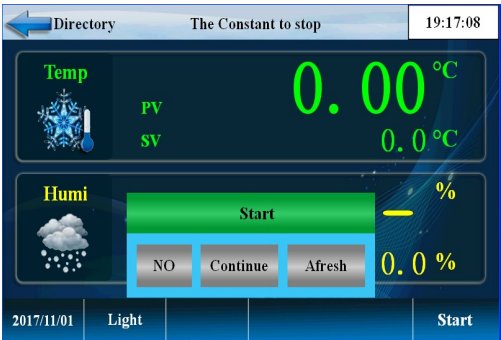
Fixed value running picture

Figure 16

Number	Name	Instructions
1	Turn on the start switch	The choice is to start effectively, and choose not to start invalid
2	Stop button	The choice is to stop effectively and choose not to stop invalid
3	catalogue	Return
4	temperature	Setting value and setting temperature
5	humidity	Setting value and setting humidity
6	floodlight	Switch lamp
7	keep	Select "keep" run time to stay the same.

Fixed value running screen 2

figure 17

Number	Name	Instructions
1	catalogue	Return directory
2	Output display	Temperature control PID output
3	PID number	The PID segment of the current setting
4	performance period	Timed running time
5	keep	Select "hold" to run, keep the timing unchanged
6		

1.4 operation settings screen

Figure 18

Click on 'run settings' and enter the following picture
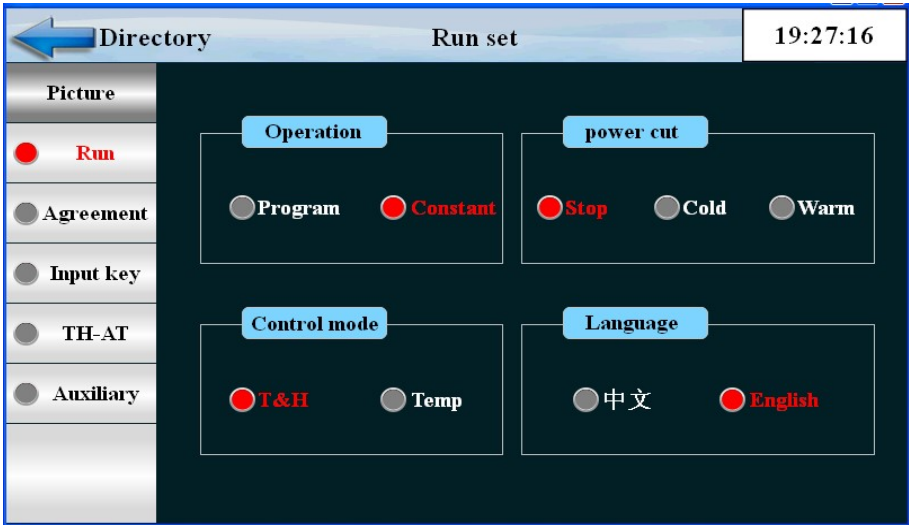
Figure 19

Click the 'communication settings' button and enter the following picture
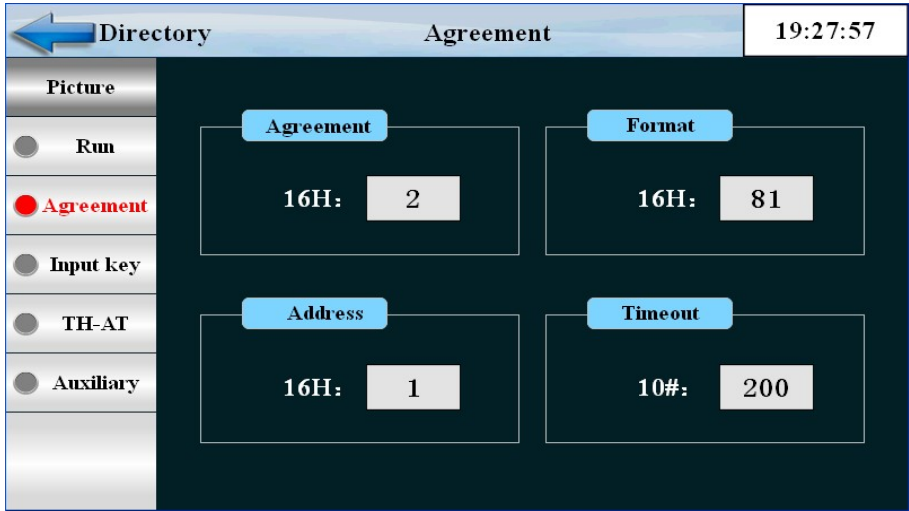
Figure 20

Number	Name	Instructions
1	Communication protocol	Communication port
2	The communication format	Baud rate
3	Address stand no.	From machine address number.
4	timeout	Communication timeout

Click the permissions settings button to enter the picture below
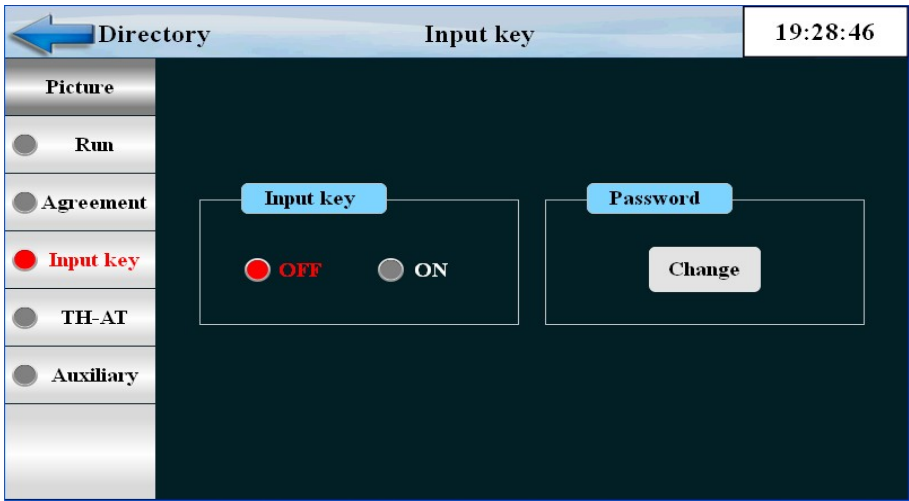
Figure 21

Number	Name	Instructions
1	Input permission	Input permissions open or close
2	Password authority	Password modification permission

Click the 'TH-AT' button and enter the following picture
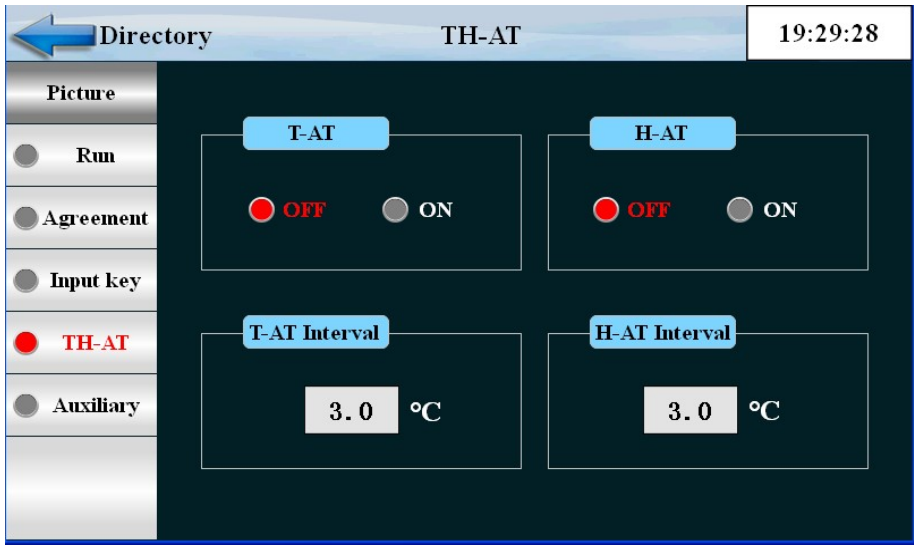
Figure 22

Number	Name	Instructions
1	T-AT	Temperature fuzzy control + adaptive PID
2	H-AT	Humidity fuzzy control + adaptive PID

Click the "auxiliary function" button to enter the picture below
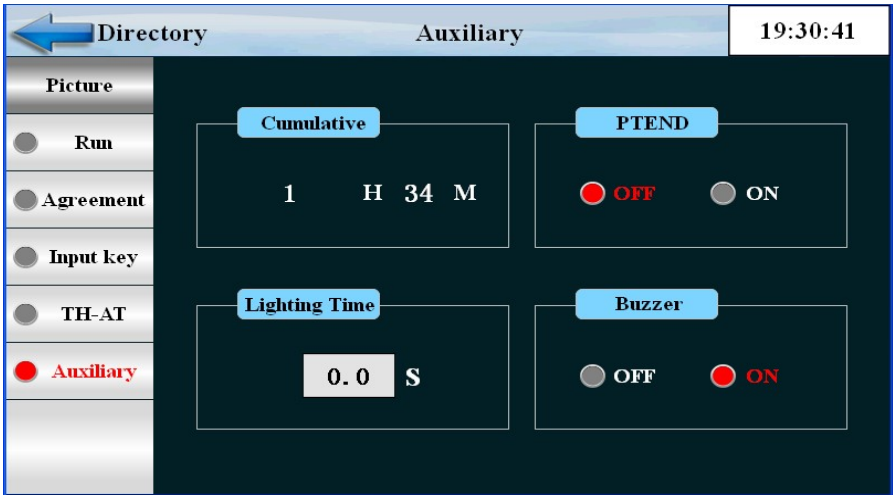
Figure 23

Number	Name	Instructions
1	Current "on" time	Power on time
2	PTEND	end of program
3	lighting hours	Set lighting time
4	buzzer	HMI alarm buzzer with on / off

1.5 appointment setting screen

Set the current time, set the appointment run time

Figure 24

Click 'appointment settings' to enter the following picture
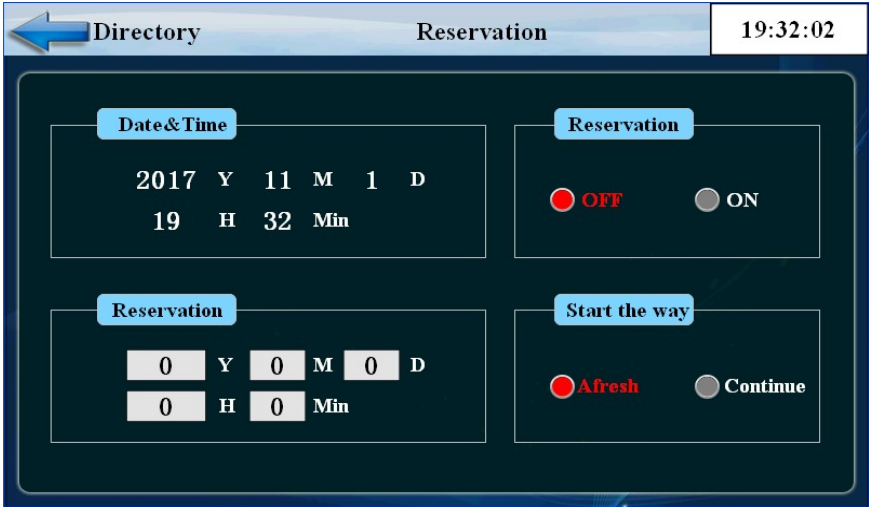
Figure 25

Number	Name	Instructions
1	present time	present moment
2	Duty time	Machine reservation start time
3	Reservation mode	Reboot or continue operation
4	Reservation switch	OFF reservation does not start, ON appointment starts

1.6 file management picture

Figure 26

Click the "file management" button to enter the following picture to

set up the manufacturer information

Figure 27

1.7 alarm monitoring screen

Figure 28

Click the "alarm monitor" button to enter the picture below

Figure 29

Click the "history alarm" button to enter the picture below

Figure 30

Number	Name	Instructions
1	DI alarm	Fault alarm record of external input
2	Historical alarm	Alarm history data
3	Alarm release	Manually release alarm signal
4	Delete start	Operator removes alarm history

1.8 curve display screen

Figure 31
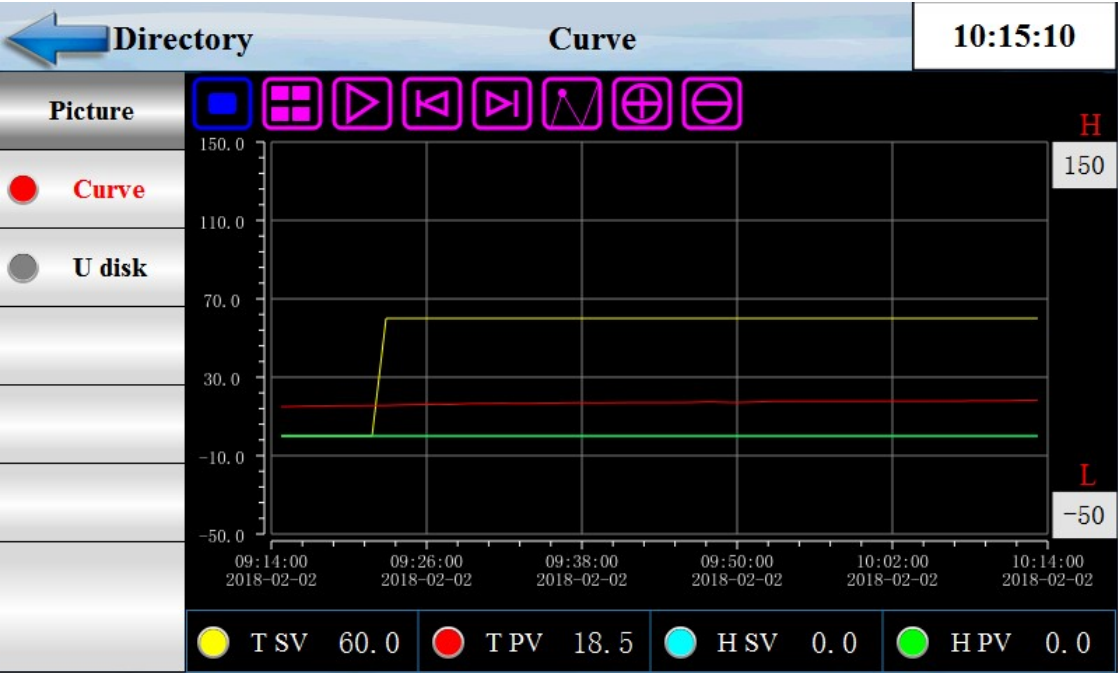
Click the 'curve monitor' and enter the following picture

Figure 32

Number	Name	Instructions
1	Setting temperature SP	Current setting temperature display
2	Real time temperature PV	detection temperature
3	Setting humidity SV	Setting humidity display at present
4	Real time humidity PV	Current humidity display
5	superior limit	Upper limit of curve display
6	lower limit	Lower limit of curve display

Click the 'data export' button and enter the following picture

Figure 33

Export data process: insert the USB flash drive into the touch screen at the back of the USB - A port, in touch screen opens at "export data" screen shown , data set is defined as 1, file naming their own definition for example 123.The storage interval is the interval between which we view the data. Start time and end time to set the time according to the time period when you view the data. Then click the button 'data import U disk', and the status monitor is shown as' 1 'to be successful for exporting data. If the other data is displayed, the export data is not successful, and the prompt is reworked according to the following data definition.

Number	Name	Instructions
1	data form	Expressed in tabular form
2	file designation	Named export file
3	data set data set	Derived data set
4	Storage interval	The interval between data
5	DELETE	DELETE
6	starting time	Export data start time
7	terminal time	Export data cutoff time
8	Data import into U disk	Data import into U disk

1.9 program settings screen

This is the central screen for setting up the program running

parameters

Figure 34

Click the program settings button and enter the following picture

Figure 35

Number	Name	Instructions
1	EDIT	Program edit screen
2	segment number	Display the current editing code
3	temperature	Temperature per set
4	humidity	Each set of humidity
5	time	An hour for each temperature and humidity
6	TS	Timing information setting
7	Program number	Current recipe number

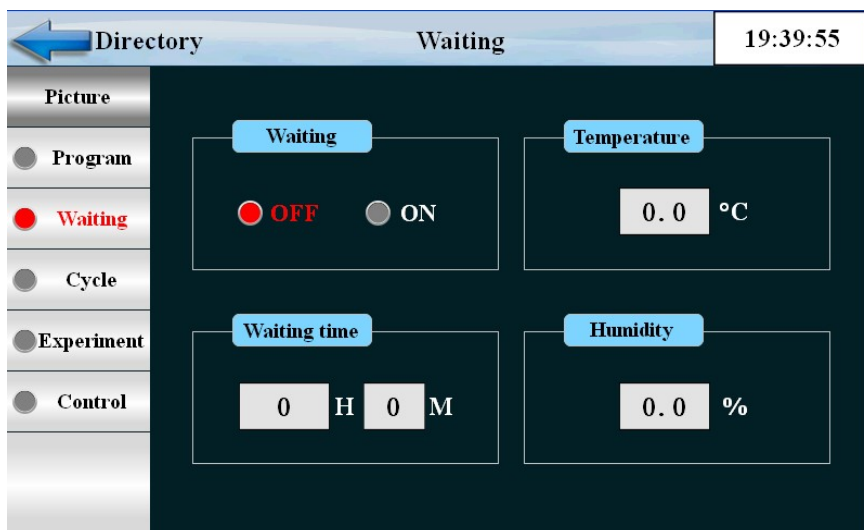Click 'program standby' button to enter the following picture

Figure 36

Number	Name	Instructions
1	Set the standby	Setting standby
2	stand-by time	Set standby time
3	temperature province	Temperature standby area
4	Humidity area	Humidity standby area

Click the "cycle edit" button to enter the following picture

Figure 37

Number	Name	Instructions
1	Program number	Set the program number of the program to be recycled
2	repeat all	Set the number of cycles for the program to be infinite at 0
3	Start code	The program segment in the program has been set up to start the partial cycle operation
4	No end	The program segment has been set in the program to set the end of the end of the partial cycle operation. It is not circulating when it is less than 0
5	cycle index	In the program set, the number of cycles of the partial cycle operation is set, and the cycle is less than 0
6	parameter determination	Input the current parameters to the controller
7	Parameter upload	Upload the current parameters to the display
8	connect to	The number of programs should be run continuously after the current program is running

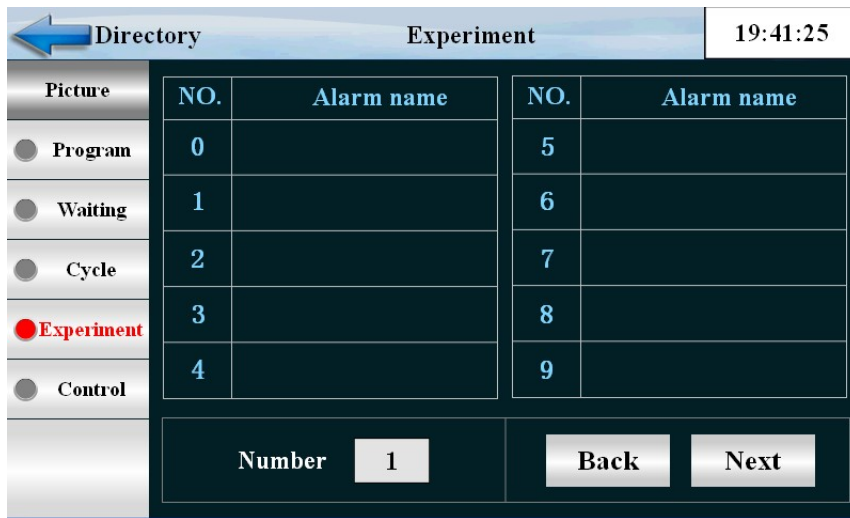Click the "experiment title" button and enter the following picture

Figure 38

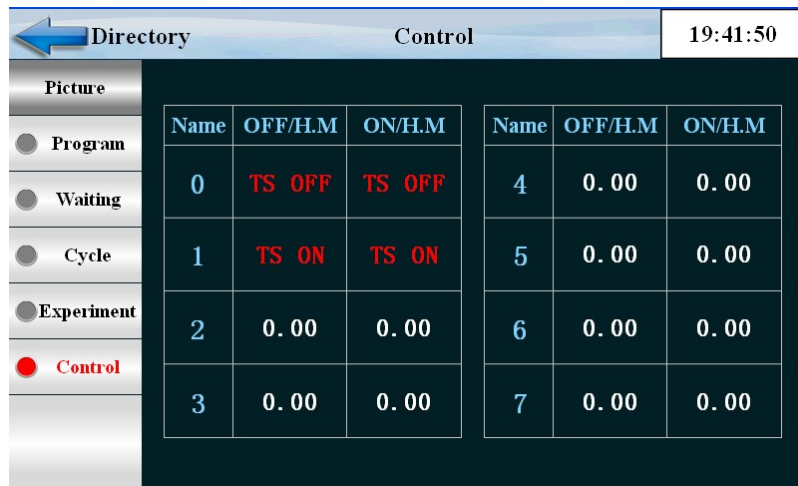Click the "quick control settings" button to enter the picture below

Figure 39

Number	Name	Instructions
1	Experimental title	Enter the settings experiment name screen
2	Message setting	Message timing control
3	Experimental title	Setting the title of the experiment

1.10 setting value setting

Figure 40
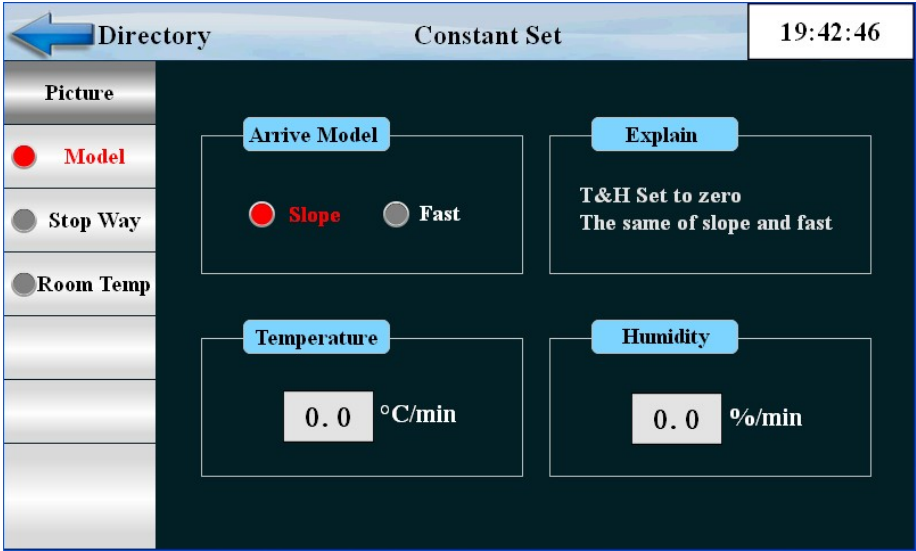
Click the "Settings" to enter the following picture

Figure 41

Number	Name	Instructions
1	control method	Slope control and fast control
2	Temperature slope	The temperature rises or falls at a certain slope
3	Humidity slope	Humidity rises or falls at a certain slope

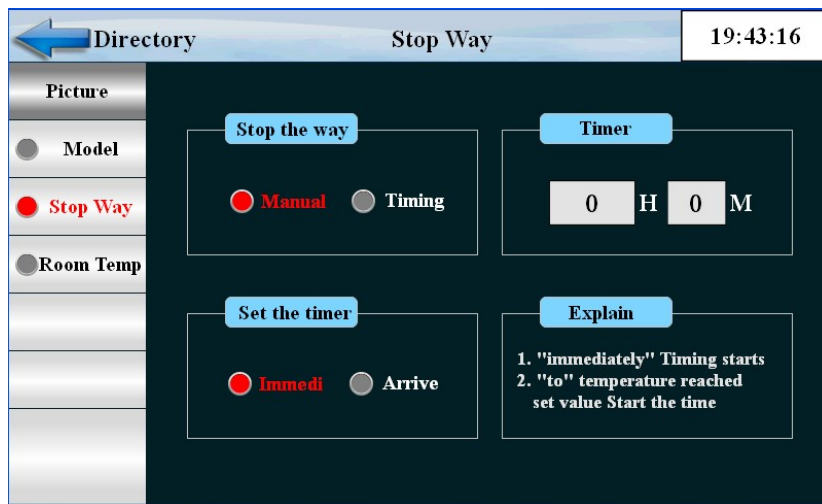Click the stop mode and enter the following picture

Figure 42

Number	Name	Instructions
1	stop mode	Manual stop and timing stop two ways
2	Timer	Set down time
3	timing pattern	There are two ways to start timing immediately and to set the temperature

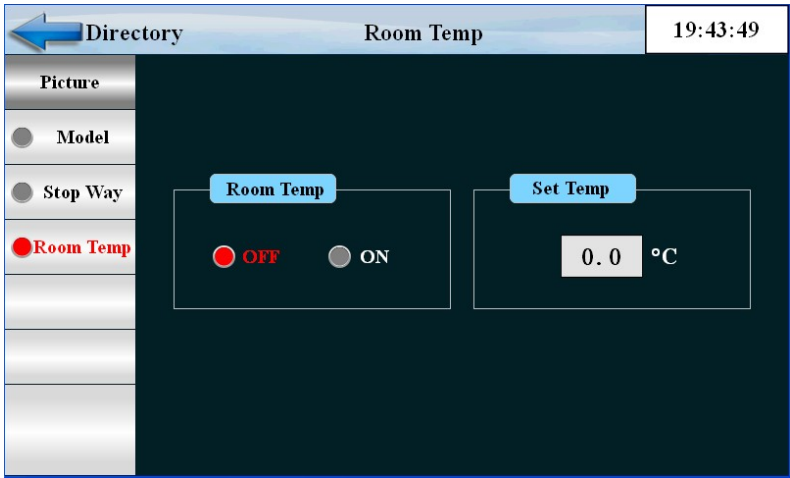Click the "back t ambient" button to enter the picture below

Figure 43

Number	Name	Instructions
1	Back to room temperature	Whether or not to return to normal temperature shutdown
2	Back to room temperature	Setting back to room temperature