CRAFTED WITH INGENUITY
WITH CONSISTENT QUALITY

Please read the manual carefully before use

HWS constant temperature Constant Humidity Manual



BECAREFUL

As our productinnovation,as the upgrading of products may have certain parls and the instructions are not consistent,refer to the actual product please understanding

Telephone service

Products that provide value to customers

Attentive service and meticulous product development



Preface

A constant temperature and humidity incubator is an experimental equipment widely used in fields such as biology, medicine, and agricultural science. It can simulate and regulate different temperature and humidity conditions to cultivate and observe the growth and development process of microorganisms, plants, animals, and other organisms. It has important applications in microbial culture, plant seed culture, cell culture, insect culture, soil culture and other fields. With the continuous development of science and technology, the application fields of constant temperature and humidity incubators will also continue to expand and deepen, providing more accurate and efficient experimental support for the development of life sciences, biotechnology, agricultural science and other fields.

Functional features: The constant temperature function can automatically monitor the temperature and humidity inside the box, and adjust it according to the preset value to ensure that the temperature inside the box remains within the desired set range. The constant humidity function can automatically adjust according to the set humidity situation, keeping the humidity within the set value RH ± 5%, effectively preventing dry or humid air. In addition, the intelligent control system can intelligently adjust according to actual usage conditions, providing more accurate temperature and humidity control.

01 MAIN TECHNICAL PARAMETERS

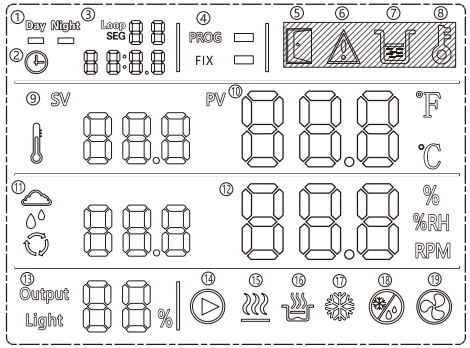
1. **Display mode:** LED LCD display
2. **Temperature measurement range:** 0-70 degrees; Temperature setting range: 0-70 degrees; Humidity measurement range: 5-99.9RH%; Humidity control range 30-95RH%
3. **Basic error of temperature display value:**<0.5%; Basic error of humidity display value: ± 2%
4. **Control accuracy:** start stop type: temperature ± 1.0 ℃, humidity ± 7.0RH%; Balance formula: temperature ± 0.1 ℃, humidity ± 1.0RH%.
5. **Illuminance:** LED light source
6. **Work cycle:** The temperature and humidity parameter cycle range can be set from 0 to 99.
7. **Power on mode:** 1. Power on stops, press the button to start running; 2. Start running directly from the first section when powered on; 3. Run from the last power outage.
8. **Sensor:** PT100; Humidity sensor: CHM02/A or customized according to requirements.
9. **Working environment:** Power supply voltage: 85~264VAC (50/60Hz); Environmental temperature: 0~50 ℃; Relative humidity: 40-93% RH.
10. **Output contact capacity:** (1) Heating, humidification, cooling: thyristor controlled 220VAC/16A; (2) Lighting, illumination or UV output, fan: 220VAC/5A.

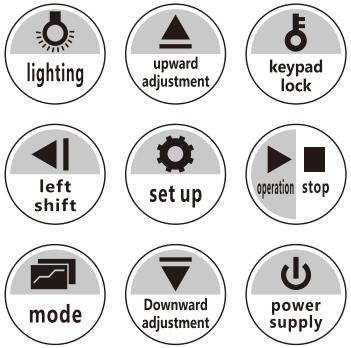
Product features

1. Microcomputer motherboard control system, LED color large screen LCD display, touch sensitive rebound button, timing function, power-off memory function.
2. Two operating modes to choose from (1. Power on stop, press key to start running 2. Power on direct running)
3. The box is treated with electrostatic spraying technology, resulting in a beautiful and elegant appearance, as well as anti-corrosion and durability.
4. The interior is equipped with a stainless steel inner liner, partition brackets, freely movable tray positions, and a drainage channel.
5. Equipped with an external 220V power supply for easy operation of experimental instruments. The door adopts magnetic suction and is equipped with double-layer observable tempered glass.
6. It has multiple protection functions such as over temperature alarm protection, over temperature power-off, temperature below alarm, etc.
7. According to customer needs, 1. RS485 communication interface 2. Embedded printer 3. USB transmission interface 4. Support customization of various sizes and functions

Constant temperature mode	Forced convection cycle, heating and cooling balance, and heating and cooling switching dual-mode	
performance	Use power supply	220V 50HZ
	Temperature range for use	0-70 ℃ (When the set temperature is ≤ 10 ℃, the ambient temperature should be lower than 35 ℃)
	Temperature resolution	0.1℃
	Temperature fluctuations	± 1 ℃ (equilibrium mode)
	Temperature distribution accuracy	±2℃
	Moisture control range	30%-95%
	defrost	Automatic defrosting, manual defrosting
structure	Inner liner	Stainless steel material
	Box body	The surface of cold-rolled steel plate adopts anti-corrosion high-temperature spray coating process
	heat preservation	Flame retardant insulation board+neutral silicone+polyurethane foam
	Heating source	Stainless steel heating tube
	compressor	Dongbei fully enclosed compressor
	Refrigerant liquid	R134a (fluorine free environmentally friendly refrigerant)
	BOD power supply	External 220V five hole socket (multiple optional)
	lighting	Built in LED lighting (multiple options available)
	Germicidal lamp	UV sterilization lamp (optional)
	Test hole	1 (optional)
	Directional universal wheel	2 directional and 2 universal joints
	a partition	Comes standard with 2 (optional)
	Load bearing capacity of each layer of partition	<15KG (optional)
	Fan	Low noise hood fan
	Observation window	Double layer tempered explosion-proof glass observation window
	Temperature display mode	Real time transmission, LCD display
	Temperature setting method	Touch the button to set
	Time setting method	0-9999 minutes, continuously running without timed power on
	Core Detail Features	Temperature deviation self repair function, self-tuning, keyboard lock. Memory Recovery
	Program mode	Programmable segment 0-99
	sensor	PT100
	Safety device	Safe tube, voltage overload and low protection, over temperature alarm, temperature deviation alarm. Leakage protection
	Mode selection	Balance mode, start stop mode
	Humidification method	External humidifier for humidification. Standard 3L humidifier, optional 6L humidifier

02 DISPLAY DESCRIPTION





(1) Day indicator light: flashes when setting daytime parameters, and lights up when running during daytime; Night indicator light: flashes when setting the night parameter, and lights up when running at night; These two indicator lights are mainly used for constant control of artificial climate or lighting. **(2)** Display of running time or parameter settings, or display of End or fault code during shutdown. **(3)** Seg segment number or Loop cycle display or display parameter code. **(4)** Program or fixed value indication. ROG is a 24 segment program control, FIX is a fixed value control. **(5)** Door opening indication. **(6)** Alarm indication. **(7)** Water shortage indication. **(8)** When the button is locked, it lights up. **(9)** Display the temperature setting value. **(10)** Display temperature measurement values. **(11)** Display the humidity setting value (note: display ---- when there is no humidity). **(12)** Display humidity measurement value (note: display ---- when there is no humidity). **(13)** Light level display (illuminated, light on) or heating output percentage display (unlit, output on). **(14)** Operation indicator light: It lights up when the controller is working. **(15)** Heating indicator light: It lights up when there is heating. **(16)** Humidification indicator light: It lights up when there is humidification output. **(17)** Cooling indicator light: It lights up when there is cooling output and flashes when there is a cooling delay. **(18)** Dehumidification indicator light: This light is on when dehumidification is present. **(19)** Fan indicator light: It lights up when the fan outputs.

Key keyboard description:

Lighting key: Lighting or UV lamp.
Upward adjustment key: Increase parameter value.
Keyboard lock key: Press for 2 seconds to lock/unlock the key; After locking the keyboard, other keys are invalid.
The corresponding lock button light is on or off.
Left shift key: Shift modification of parameter values.
Settings key: Enter parameter settings or long press for more than 2 seconds to enter LK or exit parameter settings.
Operation/Stop button: Press and hold for 2 seconds to start or stop.
Mode selection key: Press this key for 2 seconds in the shutdown state to switch between the program and the set value.
Downward adjustment key: Reduce the parameter value.
Power supply Key: can be switched on/off controller.

03 OPERATION

1. Press the setting button to enter the time setting, the time display will flash. Press the left shift button to enter, and press the up and down buttons to set the time
2. Press the settings button again to enter the temperature setting, and the temperature display will flash. Press the left shift button to enter, and press the up and down buttons to set the temperature
3. Press the settings button again to enter the humidity setting, and the humidity display will flash. Press the left shift button to enter, and press the up and down buttons to set the humidity
Press the settings button again to complete the setup
4. The mode key is a switch between single segment and multi segment

1, the number of repetition Settings: in the standard state, long press the setting key, then the LCD screen on the left upper row display LK, LK=8,
Tap the Set key to enter.

Cy	Number of repeats	0～99	0: always running; Other values: Stop after repeated run Cy. If timing is required, the parameter cannot be set to 0, and then the timing time is set. If the value is set to 1, the running timing time will stop once. If it is set to 2, the operation timing time is stopped twice, and so on	1

2, temperature control parameter setting: in the standard state, long press the setting key for more than 2 seconds, then the left side of the LCD screen display LK,
Adjust LK=18, press the "Set" button to enter the temperature parameter setting.

character	name	Setting Range	illustrate	Initial value
Pb	Zero adjustment of temperature	-100.0~100.0	Correction near zero degrees, which can be used to correct the temperature sensor measurement The error. Pb=reading value of mercury thermometer - current measurement value.	0.0℃
Pk	Temperature full degree adjustment (Slope)	-1000~1000	When there is a deviation in temperature near the set temperature, the value can be adjusted Pk=4000 × [Mercury reading value - current measurement value] ÷ current measurement value.	0
AL	Up and down deviation alarm Set value	0.0～50.0℃	When the temperature exceeds (temperature set value+AL) ℃, turn off the heating. When the temperature is below (temperature set value - AL-5.0) ℃, turn off the cooling. The abnormal indicator light is on and the buzzer sounds.	6.0℃
AP	What is allowed inside the box Maximum temperature setting	37.0-85.0	An alarm will be triggered when the measured temperature exceeds AP15 seconds, and the machine will automatically shut down after 1 minute. The buzzer keeps ringing, it must be powered off and restarted to eliminate it	65.0
Cr	Turn off temperature and cooling deviation	(0.0~60.0)℃	When the compressor starts and stops temperature control, the temperature measurement value is greater than or equal to the set temperature value +When Cr ℃ and the two compressor start-up times are ≥ Ct seconds, turn on the refrigeration.	0.5℃
P	Heating ratio belt	1.0~60.0℃	Proportional adjustment, the smaller the P, the faster the response speed	5.0
I	Heating integration time	1～3600秒	Integral action time constant, the smaller Iu, the stronger the ability to correct static errors	240
d	Heating differential time	0～3600S	Differential action time constant, the larger du, the stronger the ability to prevent overheating	60
Ar	Heating overshoot suppression	0～100%	Used to suppress temperature overshoot	100%
t	Heating control cycle	1～99秒	Control the heating output cycle	20秒

3. Compressor cooling and dehumidification parameter setting: In standard state, long press the setting button, and LK will be displayed on the upper left row of the LCD screen,
Adjust LK=38, press the setting button to enter the compressor cooling and dehumidification parameter settings.

Dehumidification split point	0-100%RH	When the set temperature is less than CL, and the set humidity is less than JS, balanced	0 %RH
Cooling temperature separation point	(0.0～60.0)℃	When the set temperature is greater than CL, the compressor starts and stops, otherwise according to JS	0.0 ℃
Compressor protection delay	(0～3600)seconds	Compressor delay protection time, twice start time ≥CT seconds	180seconds

4. Factory parameter setting: in the standard state, long press the setting key, then the upper row on the left side of the LCD screen displays LK, adjust LK=168, Tap the Set key to enter.

prompt	name	Setting Range	illustrate	Initial value
KA	Power-on operation Select	0-2	0: stops when powered on 1: runs from the first stage when powered on 2: Start running from the place where the power was cut off last time.	1
no	Programmed selection	0-1	0: Set value control 1:24 segment program control, In the shutdown state can also be switched by pressing a button.	0
in	Gating input selection	0-2	0: None 1: closed valid 2: open valid	1
uA	Water level input selection	0-2	0: None 1: closed valid 2: open valid	1
Ot	Allowable opening time	0-9999秒	When the door opening time exceeds Ot seconds, the buzzer alarm prompts. 0, no open door time beyond the alarm.	300秒
Fn	Fan operation selection	0-1	0: The fan is always on during operation. 1: The fan is selectively on	1
dL	standby	0-1		0
LC	Set value Password protection	0-1	0: No password protection 1: Change the time, temperature, humidity, The lighting setting value needs to be set LK to 2.	0
rL	Lower temperature setting	-10-85	Set and measure lower temperature limits	0.0
rH	Upper temperature setting	-10-85	Set and measure lower temperature limits	65.0

5. Further instructions on the operation

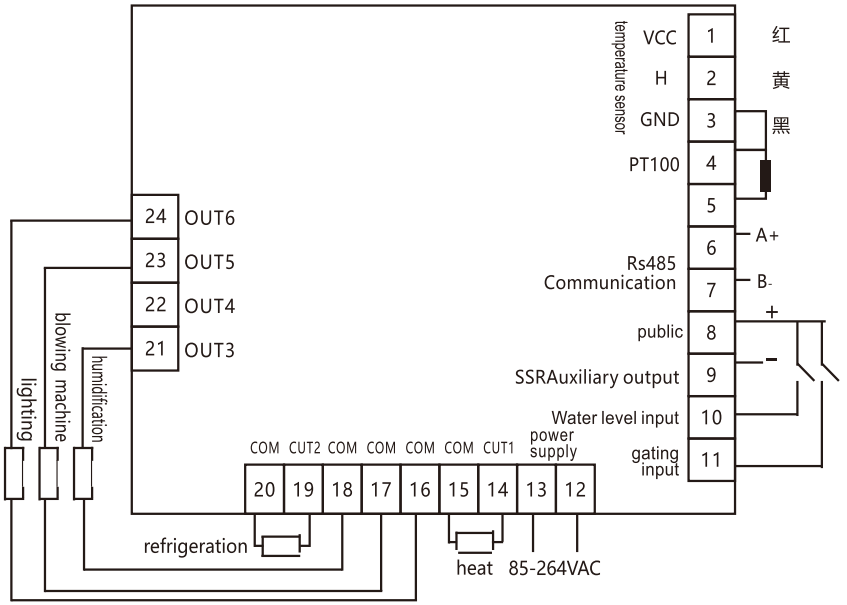
5.1: Set value modification: Press the set key, the corresponding set area of time, temperature, humidity and light flashes, modify the set time, set temperature, set humidity and light in turn. The first period is set to 0, and only the first period runs without timing. For a multi-segment program, if only three segments are run, the time of the fourth segment is set to 0, and so on; If you change the time of the current running segment to 0, the program keeps running in that segment and stops periodically.

5.2: UV disinfection function: If UV disinfection lamp is to be used, set LK to 3, press the set button to enter, modify the Ut disinfection time, at this time, the lamp will perform UV ultraviolet disinfection output; Press the manual button to start disinfection, sterilize Ut seconds, automatically turn off the disinfection lamp; Open the door during the disinfection process, automatically stop the disinfection lamp, and automatically start disinfection again after the door is closed.

5.3: Fixed value and 24 segment program key switch: in the shutdown state, hold down the mode key for 2 seconds, you can switch between 24 segment program control and day and night (or fixed value control). Program mode displays PROG; Fixed mode shows FIX. It can also be modified by the no parameter in the factory parameter.

prompt	name	Setting Range	illustrate	Initial value
SC	Humidity correction	-100-100	It can be used to correct the error of humidity sensor measurement. SC= Actual humidity n/A Measured humidity.	0
AS	Humidification condition	0-99.9	When the set temperature is less than AS, do not humidify	10.0
JA	standby			
Sr	Open dehumidification deviation	(0~60) %RH	When the measured temperature is within the set temperature +-1 degree range, And humidity measurement value ≥ humidity set value +Sr, When the compressor starts for two times ≥Ct seconds, start dehumidification.	3%RH
SL	Cancel dehumidification deviation	(0~60) %RH	Humidity Measurement Value ≤ Humidity setting value +Sr-SL Dehumidification is cancelled	1%RH
CS	standby			
Ps	Humidity proportional band	2~99%	The smaller the PS, the faster the humidity response	10
Is	Humidity integration time	1~3600S	The smaller the IS, the faster the humidity deviation is eliminated	240
ds	Humidity differential time	0~3600S	The larger dS is, the smaller humidity overshoot is	60
Ls	Humidity overshoot suppression	0-100%	Used to suppress humidity overshoot. If it is too small, the humidity may not rise	100%
Ts	Humidity control period	1~99second	Control the humidification output period	20second

04 WIRING DIAGRAM



05 FAULT CODE INDICATION

Fault name (code)	Fault description
E0	If the temperature inside the box exceeds the maximum temperature protection for 1 minute, it cannot be removed and must be removed by restarting
E1	The temperature in the box exceeds the maximum allowable temperature protection for 15 seconds, but less than 1 minute
E2	Higher than the temperature alarm deviation
E3	Deviation under temperature alarm
E4	The temperature sensor is faulty or the temperature exceeds the upper or lower limit of the measurement range, or the temperature detection is abnormal
E5	The ambient temperature exceeds 55 degrees
E6	The opening time exceeds the allowable opening time Ot. Procedure
E7	standby
E8	The humidity sensor is faulty or the humidity detection is abnormal
E9	If water is still insufficient after 2 minutes, automatic water refill fails

Options can be added, customized functions, sizes are as follows

Partition number, partition bearing, R485 interface, embedded printer, USB interface, voltage regulator, various sizes of holes, humidifier capacity size, box size, your ideas tell us, we achieve for you and other services.

Precautions for safe operation

1, for the safety of the test. Safety Install an external grounding device.
2, the equipment is strictly prohibited for flammable and explosive, highly toxic, strong corrosion, volatile toxic substances test.
3, according to the needs of the test products, culture products placed on the tray, placed density should be < 70% to ensure the temperature cycle in the box.
4. Ensure that the power plug is firmly inserted when the power is switched on. Place the equipment flat on the equipment platform or dry ground, and keep a gap of > 20CM or more with the wall or other items.
5, the equipment should be unplugged when not in use. Keep the container ventilated and dry and close the door.
6, please read the instructions carefully before operation.



Warranty description

Product warranty regulations

1, the warranty service is limited to the effective warranty period under normal use, due to the quality of the product itself caused by non-human damage failure, by invoice or provide a valid sales stamp receipt or online shopping record, can be used as a warranty certificate.
2, the customer has no warranty card and purchase invoice, can be guaranteed for 12 months according to the production date of the certificate (except that it can be proved within the warranty period).
3. If the product beyond the warranty period of the certificate needs warranty, the screenshot of the successful online shopping transaction can be provided with the same effect.

In accordance with the three package regulations will enjoy the following three package services

1. If product quality failure occurs within 7 days (inclusive) from the date of purchase, the seller is responsible for free return, replacement or repair; (Complete accessories, unused, does not affect the use of secondary sales, if you can not guarantee the above requirements, you can not enjoy the return, exchange service, please understand the inconvenience).
2, from the date of purchase 7-15 days (inclusive) within the product quality failure, the seller is responsible for free replacement or repair.
3, from the date of purchase 15 days after the failure, in the valid warranty period enjoy free warranty.
4. Others shall be implemented in accordance with the "Three Guarantees Law of the People's Republic of China". Product non-warranty regulations.

Product non-warranty regulations

The following circumstances are not within the scope of the three guarantees:
1. The contents on the certificate of three guarantees are inconsistent with the physical identification of the product or altered.
2. Maintenance or replacement of parts due to wear and tear.
3. The repairman who does not undertake repair disassembles.
4. Damage caused by the failure to operate and maintain according to the instructions.
5, due to the use of errors such as falling, extrusion, flooding or other irresistible force caused by damage.
6, the warranty card is not lost, please keep it properly.

Warranty card

Product information (required by retailers)			
Customer name		Contact number	
Product model		Date of purchase	
Retailer (stamp)			

Maintenance record 1			
Delivery time		Maintenance unit name (address)	
Product fault description			
Product maintenance status			
Return date		Maintenance signature	

Maintenance record 2			
Delivery time		Maintenance unit name (address)	
Product fault description			
Product maintenance status			
Return date		Maintenance signature	