RTC500-WIFI
Thermostat

1. Introduction

RTC-500 / RTC-500 WIFI is an inetgrated plug -and-play integrated probe and is pre-connected to two output sockets to control temperature and humidity simultaneously. The large LCD screen ituitivty displays temperature,humidity, and other parameters. With the thee-key design, it enables quick parameter stting, such as alarm limit clibration, protection time, unit switching, etc. such as alarm limit clibration, protection time, unit switching, etc. greenhouse, and other application scenarios.

2.Overview

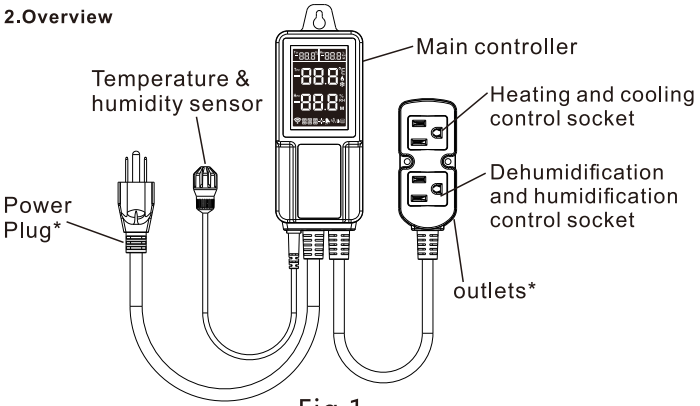

Fig.1

2.1 Display Introduction

Please check the instructions below before parameter configuration.

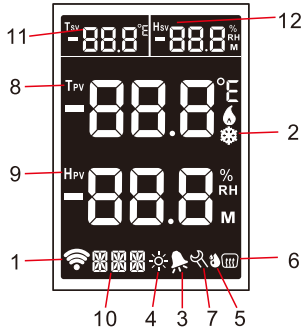

Fig.2

S/N	Icon	Function	Status		
			OFF	Flashing	ON
1		Wi-Fi connection status	Not connected	Resetting	ON
2		Cooling status	OFF	Protection delay	ON
3		Alarm status	No alarm	——	Alarm
4		Heating Status	OFF	Protection delay	ON
5		Humidification status	OFF	Protection delay	ON
6		Dehumidification Status	OFF	Protection delay	ON
7		Setting Status	Non-setting	——	Setting
8	TPV	Temperature-present value	——	——	——
9	HPV	Humidity-present value	——	——	——
10	——	Parameter code’	——	——	——
11	TSV	Temperature-set value	——	——	——
12	HSV	Humidity-set value	——	——	——

Table 1

Refer to 2.2 Parameter Table for details.

2. 2 Paramerter Table

	Code	Function	Sunction	Defaylt value	
1	TCH	Temperature cooling/heating mode selection	C/H	H	Temperature related parameters
2	TS	Temperature Set Value	-5~70℃	22℃	
			23~158℉	72℉	
3	TD	Temperature differential	0.2~15℃	2	
			1~30℉	3	
4	TPT	Temperature protectio time	0~10MIN	3	
5	TAH	Temperature alarm high limit. When the temperature exceeds the upper limit, the alarm value displays **ETH** and emits an alarm sound	-5~70℃	35	
			23~158℉	95	
6	TAL	Temperature alarm low limit. When the temperature exceeds the lower limit, the alarm value displays **ETL** and emits an alarm sound.	-5~70℃	0	
			23~158℉	32	
7	TCA	Temperature Calibration	-10~+10℃	0	
			-15~+15℉	0	
8	CF	Temperature unit	C/F	℃	
9	HDH	Dehumidifying/Humidifying mode selection	H/D	H	Humidity related parameters
10	HS	Humidity set value	5~99%RH	50	
11	HD	Humidity differential	1~30%RH	5	
12	HPT	Humidity protection time	0~10MIN	3	
13	HAH	Humidity alarm high limit When the humidity exceeds the upper limit, the alarm value shows **EHH** and emits an alarm sound.	5~99%RH	99	
14	HAL	Humidity alarm low limit When the humidity exceeds the lower limit, the alarm value shows **EHL** and emits an alarm sound	5~99%RH	5	
15	HCA	Humidity calibration	-10~10%RH	0	
16	COT	Continuous operating time	0~999MIN	30	
17	BL	Backlinght time	0~999MIN	30	

Table 2

2.3Button Operation

S/N	Button	Operating	Non-setting mode	Setting mode		Remarks
				Number flashing	Number non-flashing	
1	∧	Press	View parameter value	Previous parameter	Increases	—
		Press and hold	—	—	Continuous increases	—
2	SET	Press	—	Number non-flashing	Number flashing	—
		Press and hold for 3 seconds	Setting mode	Non-Setting mode		—
3	∨	Press	View parameter value	Next parameter	Decreases	—
		Press and hold	—	—	Continuous decreases	—
4	SET + ∨	Press and hold for 5 seconds	Wi-Fi reset	—	—	Only for RTC-500 wifi
5	∧ + SET + ∨	Press and hold for 5 seconds	Equipment reset	—	—	—
6	SET + ∨	Press and hold for 3 seconds	Turn on or off the control system	—	—	—

Table 3

3. Operation

Important: Improper use of the product may cause injury or product damage.
Please read, understand and follow the operating steps below.

3.1 Sensor Installation

Plug the sensor fully into the headphone jack from the button of the main controller.

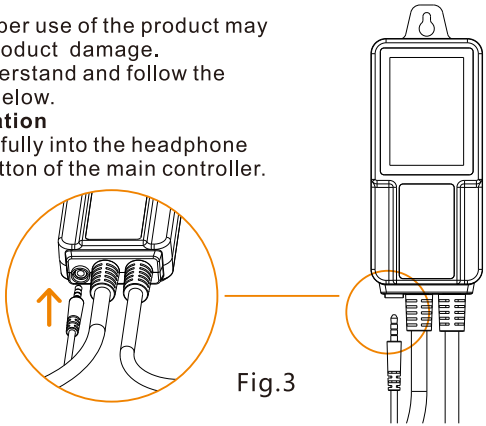

Fig.3

3.2 Power-on

Please insert the power plug into the power socket to power on the controller (within the range of 100-240VAC).
The screen will light up and display the temperature, humidity, and other readings.

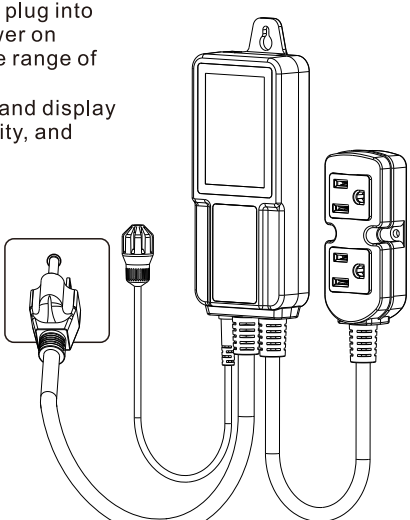

Fig.4

3.3 Parameter Setting

On the home screen, press ⌄ or ⌃ to view parameter values,and the LCD will display icon.

In the menu setting, press SET button and the parameter light will be on or flashes. When it is flashing, press ⌄ or ⌃ button to switch to the next parameter; when the parameter light is on, press ⌄ or ⌃ button to increase or decrease the setting value.

In the menu setting, press and hold **SET** button for 3 seconds to save settings and exit; or the controller will save and exit setting mode after 30 seconds of idle.

The Tsv displays temperature-related parameters and Hsv displays humidity-related parameters.

For example, set TS and TD parameters into TS = 20°C and TD = 5°C respectively.

1. Press **SET** button and release after the buzzer beeps (about 3 seconds);
2. Press ⌃ button, and the parameter code will display TS;
3. Press SET button, and will flash, indicates TS parameter is ready to be set;
4. Press(or press and hold)⌄/⌃button to change the value to 20;
5. Press ⌃ button, and the parameter code will display TD;
6. Press **SET** button, and will flash,indicates TD parameter is ready to be set;
7. Press (or press and hold)⌃/⌄button to change the value to 5;
8. Press SET button and release after the buzzer beeps (about 3 seconds) to exit the parameter setting.

4.Function Description

4.1 Temperature Setting-TCH,TS,TD

Cooling mode (TCH=C)

When **Tpv** (temperature-preaent value) is higher than TS+TD (temperature-set value+temperature differential), ❄ will appear, work1 will be turned on,and cooling will begin;

When Ypv (temperature-present value) is lower than TS(temperature-set value), ❄ will disappear,work1 will be turned off,and cooling will stop.

For exanple: TS=15℃,TD=5℃, as shown in Fig.5.

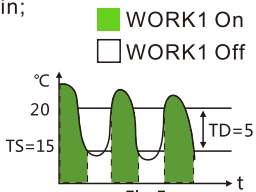

Fig.5

Heating mode(TCH=H)

When **Tpv** (temperature-present value) is lower than TS-TD (temperature-set value-temperature differential), ☼ will appear, work1 will be turned on,and heating will begin;

When **Tpv** (temperature-present value) is higher than TS (temperature-set value), ☼ will disappear,work1 will be turned off,and heating will stop;

For example:TS=15℃,td=5℃,as shown in Fig.6.

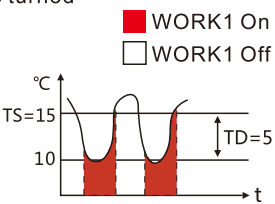

Fig.6

4.2 Temperature Protection Time-TPT

WORK1 is a temperature socket and the time interval form its power-off to power-on again should meet the time requirement for TPT.If not, ❄ or ☼ will flash.

This protection time requirement should also be satisfied when the controller is just powered on,

4.3 Temperature Alarm Limit-TAH,TAL

When Tpv(temperature-present value) is higher than TAH (temperature alarm high limit),the temperature alarm high limit will be triggered and EtH code will be displayed;

When Tpv(temperature-present value) is lower than TAL (temperature alarm low limit),the temperature alarm low limit will be triggered and EtL code will be displayed;

During the alarm,the buzzer makes a sound of “bi-bi-Biii” until the temperature is back to the nomal temperature range;or press any button to mute the alarm.
During the temperature alarm limit,the output of WORK1 socket is not affected.

4. 4 Temperature Calibration-TCA

The temperature can be calibrated if the temperature-present value deviates from the actual temperature.
Tpv（temperature-present value after calibration）=**Tpv** (temperature-present value before calibration)+TCA(temperature calibrated value).

4. 5 Temperature Unit-CF

The temperature unit can be switched between Celsius and Fahrenheit.
The temperature related parameter values will be restored to factory default values after the temperature unit is changed.

4.6 Humidity Settings-HDH,HS,HD

Dehumidifying mode(HDH=D)

When **Hpv**(humidity-present value) is higher than HS+HD (humidity set value+humidity differential), will appear,work2 will be turned on,and Dehumidifying will begin;

When **Hpv** (humidity-present value) is lower than HS(humidity set value), will disappear,work2 will be turned off, and dehumidifying will stop.
FOR example:HS=50% RH，HD=10%RH，as shown in Fig.7.

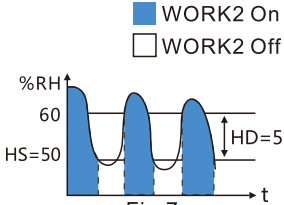

Fig.7

Humidifying Mode (TCH=H)

When **Hpv**(humidity-present value) is lower than HS-HD(humidity set value-humidity differential), will appear,work2 will be turned on, and Humidifying will begin;

When **Hpv**(humidity-present value) is higher than HS(humidity set value), will appear, work2 will be turned off, and humidifying will stop.

For example：HS=50%RH, HD=10%RH,as shown in Fig.8.

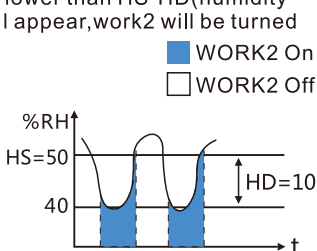

Fig.8

4.7 Humidity Protection Delay-HPT

WORK2 is a humidity socket and the time interval form its power-off to power-on again should meet the time requirement for HPT. If not, or light will flash.

This protection time requirement should also be satisfied when the controller is just powered on.

4.8 Humidity Alarm High Limit-HAH,HAL

When Hpv(humidity-present value) is higher than HAH(humidity alarm high limit), the humidity alarm high limit will be triggered and EHH code will be displayed;

When Hpv(humidity-present value) is lower than HAL (humidity alarm lower limit), the humidity alarm lower limit will be triggered and EHL code will be displayed;

During the alarm,the buzzer makes a sound of " bi-bi-Biii " until the Humidity is back tu the nomal humidity range; or press any button to mute the alarm. During the humidity alarm high limit, the output of WORK2 socket is not affected.

4.9 Humidity Calibration-HCA

The humidity can be calibrated if the humidity-present value deviates from the actual humidity.
Hpv(humifity-present value after calibration)=Hpv(humidity-present value before calibration)+HCA(humidity calibrated value) .

4.10 Continuous Operating Time-COT

During humidity control, when COT≠0 and output conditions are met,WORK2 socket will work in on-off-on-off....mode.COT is time on as well as time off.
eg,if COT=10,the WORK2 output socket will turn on for 10 minutes and off for 10 minutes,then repeat.
When COT=0 and output conditions are met,WORK2 output socket will not be affected by COT.

4.11 Continuous Operating Time-COT

BL is the screen display time.When BL=0 indicates display is always on.

5.Equipment Installation

⚠ As a safety precaution, it is recommendet to power on the equipment after the installation is completed.
The only installation method is by hanging the equipment.Please check the installation distance and screw size according to its application scenario before installation.
The schematic diagram of equipment installation is shown below;

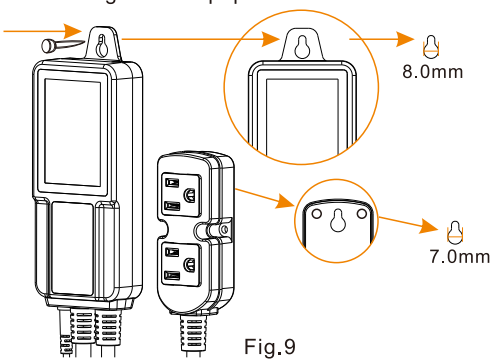

Fig.9

6.Alarm

In the following circumstances during operation, the buzzer will give a " bi-bi-Biii " alarm,and at the same time,the alarm symbol 🔔 on the screen will appear.Press any button to mute the alarm.

S/N	Code	Function	Socket output status
1	Err	Sensor failure	Outputs terminated
2	EtH	Temperature alarm high limit	Outputs unchanged
3	EtL	Temperature alarm low limit	Outputs unchanged
4	EHH	Humidity alarm high limit	Outputs unchanged
5	EHL	Humidity alarm low limit	Outputs unchanged

7.Restore Operation Function

7.1 Restore Factory Settings

When the controller is powered on and in non-setting parameter status,please press ∧ + **SET** + ∨ buttons simultaneously on the main controller and release until the screen turns off automatically. Wait for the equipment to restart automatically and restore to factory settings.

7.2 Restore Wi-Fi Network Settings (for RTC-500 wifi)

In you would like to reconfigure to a new Wi-Fi network,please keep the equipment in power-on status,press **SET** + ⊡ buttons and release when the symbol on the screen flashes.The icon will disappear after the network restoration is completed.
Please do not power off the equipment during the restoration process.

8.Access to Network(fou RTC-500 wifi)

RC-500WiFi TH features a built-in Wi-Fi module that allows you to remotely view and configure it on the app.

8.1 Before you begin,please make sure:

The device supports 2.4G Wi-Fi,(5G Wi-Fi is not compatible.)
The device is in a good and stable Wi-Fi network environment.
Search Elitech in the App Store,download and install the app.

8.2 Conneat the device to Elitech app

1. Find the QR code label on the device.
   (It shows QR code and 20 numbers)
2. Power on the device.
3. Log in your Elitech account
   (Register an Elitech account)

Fig. 13

4. Click the sign+on top right and add device.

Fig. 14

5. Click the sign on top right / Scan the QR code on the label,or manually type in 20 GUID numbers.Enter the device name that your prefer,and click Add.

Fig. 15

6.A window will pop up “The device scanned is a Wi-Fi device. Would you like to set Wi-Fi device. Would you like to set Wi-Fi ?” Click OK.

Fig. 16

7.Enter Wi-Fi password, click OK,and wait until the operation finishes.The whole process takes about 10 seconds. It exits configuration interface after the network is connected successfully.
The main interface displays the device is online. Meanwhile,the sign shows on top of the screen.

Fig. 17

Note: The device allows Wi-Fi to be configured within 30 minutes ofter power on.After 30 minutes,it needs to be powered off for a restart.Or you may refer to **7.2 Restore Wi-Fi Network Settings.**

9. Technical Parameters

Working valtage: 100~240VAC , 50/60Hz
Temperature measurement range: -5~70℃ / 23~158℉
Temperature measurement accuracy: ±0.5℃/±1℉
Temperature resolution: 0.1℃/0.1℉
Humidity measurement range:5~99%RH
Humidity control range:5~99%RH
Humidity measurement accuracy:+5%RH
Humidity resolution: 0.1%RH
Relay contact output capacity: 10A(resistive)/100~240VAC
Output power: 2200W(resistive) in total/
200W(inductive) per channel @220VAC,
1100W（resistive）in total/
100W(inductive) per channel @110VAC

Total power consumption: <5W
Working environment temperature: 0℃~60℃/32~140℉
Storage temperature: -10℃~90℃/14~140℉
Length of power probe:1.5m
Length of output power probe:0.3m
Enclosure size: 153*60*29mm
Length of sensor cable: 2m(including probe length)
Wi-Fi type*: 2.4G (not support 5G)

Only for RTC-500 wifi

FCC STATEMENT :

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.
Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.