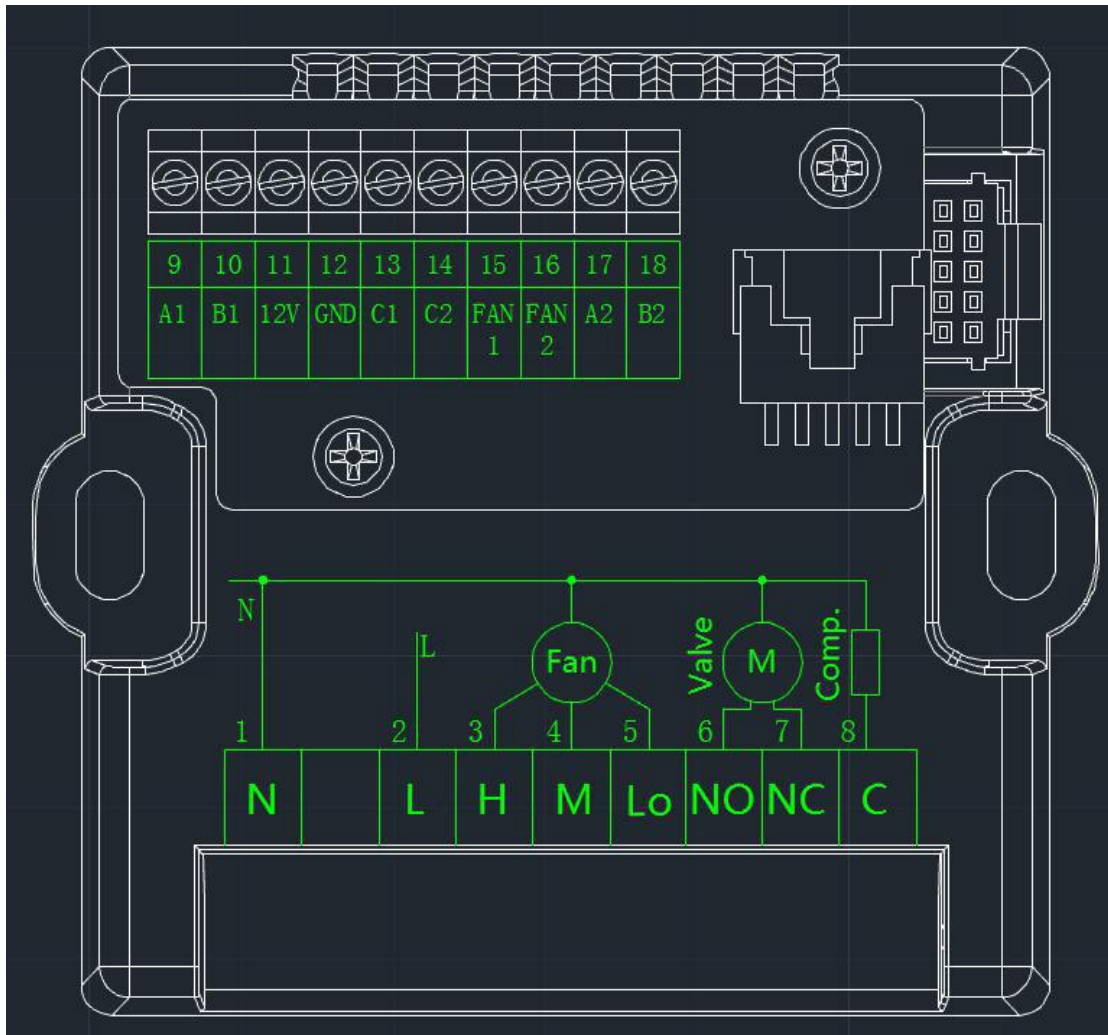


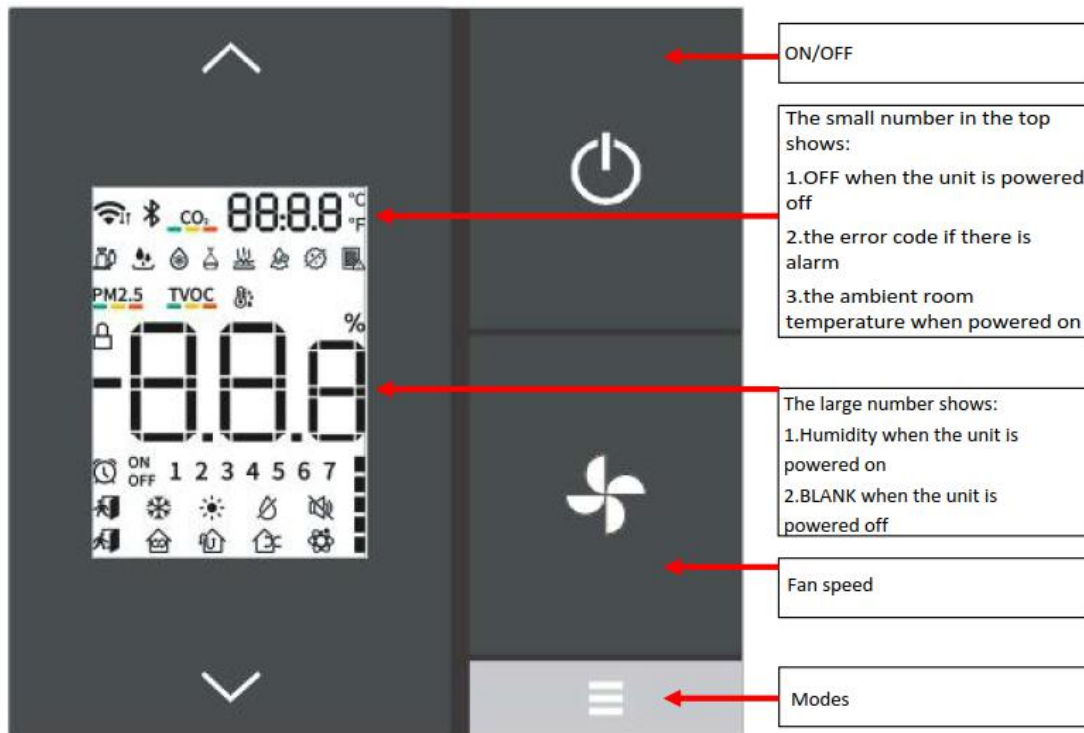
1. Controller Terminals:

<b>Terminal</b>	<b>Description</b>	<b>Load</b>
L,N	220VAC	Power supply
Relay 1 - H	220VAC output,Max.1A	High fan speed
Relay 2 - M	220VAC output,Max.1A	Medium fan speed;Fan coil valve
Relay 3 - Lo	220VAC output,Max.1A	Low fan speed;Humidifier
Relay 4 - C	220VAC output,Max.1A	Compressor
Relay 5 - NO	220VAC output,Max.1A,SPDT(single-pole double-throw)	Air damper open
Relay 5 - NC	220VAC output,Max.1A,SPDT(single-pole double-throw)	Air damper close
EC FAN1	0~10V	EC motor supply fan
EC FAN2	0~10V	EC motor exhaust fan
GND	Weak current common terminal	
RS485 - A1	Communicate with external temp.& humidity sensor	
RS485 - B1	Communicate with external temp.& humidity sensor	
RS485 - A2	Communicate with third-party	
RS485 - B2	Communicate with third-party	
12VDC	Power the external temp.& humidity sensor	

## 2. Terminals Diagram:




### 3. Controller's Interface:



#### 4. Parameters Setting:


##### A.General parameters

###### ON/OFF:


\*Short press  to turn on/off the controller:the small OFF appear in the top when the unit is powered off and disappear after 3 minutes;

\*Short press  to exit during parameters setting.



###### Fan Speed:

Press  to adjust the fan speed.

###### Air Damper:

Press  to open or close the air damper.

###### Mode Change:



Short press  &  simultaneously to change the available system working mode.



###### Humidity Set:

Press  to reduce humidity, press  to raise humidity (1% changed each press).

###### Temperature Set:



Only for the available system working mode.


Short press  &  simultaneously to change the available system working mode.The

temperature in the top will flash,press  to reduce temperature, press  to raise temperature (0.5°C changed each press).

5 seconds without setting,the value will be saved and exit


###### Filter:



Long press  &  simultaneously for 5 seconds to display the run time,wait for 5 seconds to exit;


Long press  for 10 seconds to clear the alarm and reset the time.

##### B.Factory Parameters


###### Factory parameters setting:


Long press  for 5 seconds to enter the factory parameters setting mode:the parameters code R,P,O,H,C,A,D,F will appear;




Press  or  to select the parameters code R,P,O,H,C,A,D,F;

Short press  to set the available code;

Press  or  to adjust the code value;
















Short press  to save the code value;

Short press  to exit without saving during the code value setting or return to the previous page;

Long press  &  &  simultaneously for 3 seconds to reboot the controller's setting;

10 seconds without setting, the value will not be saved and exit to the home screen.

5. Icon:

Icon	Description
	WiFi connection established
	WiFi connection not established
	ESP32 trigger
	Defrost
	Filter max. working time alarm,disappear after reset
	Compressor relay output active
	*Compressor working *Flashing when the minimum absolute humidity protection is activated
	Humidification
	Timer
°F	H05=1,temperature in degrees Fahrenheit
°C	H05=0,temperature in degrees Celsius
60%	Current humidity
■■■■■	Current air speed,AC 3 speeds,EC 1~5 speed.
	100% return air
	100% fresh air
	Mixed fresh and return air
	Dehumidification mode
	Cooling mode
	Heating mode

## 6. Working Mode:

### 6.1. Dehumidification Working Mode

Mode Code	H04=0
Function	Dehumidification
Relay 1	High fan speed
Relay 2	Medium fan speed
Relay 3	Low fan speed
Relay 4	Compressor
Relay 5	Air damper open

### 6.2. Description

If the humidity of the air is higher than the setting, the fan turns on; 5 seconds later, the compressor turns on;

If the humidity of the air is lower than the setting, the compressor turns off; 3 minutes later, the fan turns off.

The compressor should cycle on and off at an interval more than 3 minutes.

### 6.3. Initial Value

The controller has data memory function when there is power failure.

The initial value as below:

\*Fan speed: High

\*Air damper: close

\*Mode: the same before the power failure

### 6.4. Fan Control

6.4.1. The initial value is high speed, can be adjusted manually.

6.4.2. EC motor (0~10V) fan has 5 fan speeds, which can be set separately.

6.4.3. AC motor fan speed can be adjusted manually when H04=0:

F01=1, high fan speed available

F01=2, high fan speed & low fan speed available

F01=3, high fan speed & medium fan speed & low fan speed available

6.4.4. High fan speed & low fan speed available when H04=1.

6.4.5. High fan speed available when H04=2.

6.4.6. Fan works according to F02 when achieve the set humidity and temperature (only for the available system working mode):

F02=1, the fan turns off 3 minutes later after achieved the set humidity and temperature (only for the available system working mode)

F02=2, the fan keeps working after achieved the set humidity and temperature (only for the available system working mode)

### 6.5. Air Damper Control

Air damper works according to H01, R03 when the unit is turned on manually.

6.5.1. Open or close air damper manually when H01=0:

- \*Air damper close:100% return air
- \*Air damper open:mixed fresh and return air
- 6.5.2. Open or close air damper automatically when H01=1:
- \*Indoor humidity  $\geq$  R03:air damper close;Indoor humidity  $\leq$  R03~R04:air damper open.
- \*Can switch to manual mode from automatic mode and works manually for 30 minutes and continue to work automatically.
- \*Air damper close when the unit is powered off manually.

## 6.6. Defrost Control

6.6.1. Defrost conditions:Indoor temperature  $\leq$  D3, Defrost interval  $\geq$  D1

6.6.2. Defrost mode:compressor cycle off & fan runs at high speed

6.6.3. Defrost stop conditions:

- \*Defrost time  $\geq$  D2;
- \*Unit is turned off manually;
- \*Unit is turned off faulty.

## 7. Alarm

### 7.1. Filter Alarm

If the fan's running hour  $\geq$  H02,the filter alarm icon will appear.Reset the timer,the alarm will disappear.

### 7.2. Built-in temp.&humid sensor Error

When H03=1,if there is an open/short circuit of the humidity sensor or abnormal data(out of the normal temp.&humidity range),only the fan keeps working.

The error code is E01.It will resume operation after the error addressed.

### 7.3. RS485-1 Communication Error

When H03=0,if there is RS485-1 communication failure,only the fan keeps working.

The error code is E03.It will resume operation after the error addressed.

## 8. Parameters Code Description

Parameters	Code	Default	Precision	Range
Humidity set (dehumidify)	R01	50%	1%	1%~99%
Air damper automatic close/open value	R03	50%	1%	1%~99%



Air damper humidity differential	R04	3%	1%	1%~10%
Indoor temp. set	R05	25(77°F)	0.5(1°F)	5~35°C(41~95°F)
Humidity set (humidify)	R06	70%	1%	1%~99%
Humidity differential (humidify)	R07	3%	1%	1%~10%
Air damper automatic close/open	H01	1	/	0 - no in use 1 - in use
Filter alarm hour	H02	200	1	0 - no alarm 100 - 990,1=10 hours
Defrost interval	D01	40 minutes	1 minute	30~60 minutes
Defrost stop	D02	10 minutes	1 minute	1~15 minutes
Defrost start	D03	17(62°F)	1(2°F)	1~20°C(34~68°F)
AC fan speed set	F01	1	/	1 - low speed 2 - medium speed(DC motor fan:1,2 - low;3,4,5 - high) 3 - high speed(DC motor fan:1,2 - low;3,4 - medium;5 - high)
Fan set under achieved humidity	F02	1	/	1 - turns off 3 minutes later after achieved the set humidity 2 - keeps working after achieved the set humidity
FAN1, DC fan motor,speed 1 voltage	F03	500(5V)	10(0.1V)	400~950
FAN1, DC fan motor,speed 2 voltage	F04	600(6V)	10(0.1V)	F03~950
FAN1, DC fan motor,speed 3 voltage	F05	700(7V)	10(0.1V)	F04~950
FAN1, DC fan motor,speed 4 voltage	F06	800(8V)	10(0.1V)	F05~950
FAN1, DC fan motor,speed 5 voltage	F07	900(9V)	10(0.1V)	F06~950
FAN2, DC fan motor,speed 1 voltage	F08	400(4V)	10(0.1V)	400~950
FAN2, DC fan motor,speed 2 voltage	F09	500(5V)	10(0.1V)	F08~950
FAN2, DC fan motor,speed 3 voltage	F10	600(6V)	10(0.1V)	F09~950
FAN2, DC fan motor,speed 4 voltage	F11	700(7V)	10(0.1V)	F10~950
FAN2, DC fan motor,speed 5 voltage	F12	800(8V)	10(0.1V)	F11~950
RS485-2 Baud rate	P01	0		0-4800 1-9600
RS485-2 Address	P02	1		1~255
RS485-2 Protocol	P03	0		General open protocol
RS485-2 Communication status	007			0 - abnormal 1 - normal
Software version	009			
Dew point	010			
Absolute humidity	011			

### 9. Working Status Display

Type	Range	Precision
Indoor temperature	-30~99°C,-22~210°F	0.1°C,1°F
Indoor humidity	0~100%	0.10%
Absolute humidity	0.0~99.9	0.1g/kg
Fan's running time	0~999	10 hours

### 10. Error Code

Error	Code
Built-in temp. & humidity sensor failure	E01
External temp. & humidity sensor failure	E02
RS485-1 communication failure	E03

### 11. External temp. & humidity sensor RS485-1 Modbus communication protocol

Address:13 Baud rate:9600 Parity:8N1

Name	Add	Code	Byte	Read Only or Read/Write	Precision	Data Type
humidity	0000H	03	2	Read Only	0.10%	Temp1
temperature	0001H	03	2	Read Only	0.10%	Temp1

## 12. RS485-2 Modbus communication protocol

Function code description:

function 03 - read

function 06 - write single

function 16 - write multiple

Address	Function Code	Object	Byte	Read Only or Read/Write	Data
0x1001	03/16/16	ON/OFF	2 bytes	Read/Write	0 - OFF 1 - ON
0x1002	03/16/16	fan speed	2 bytes	Read/Write	1 - 1st fan speed 2 - 2nd fan speed 3 - 3rd fan speed 4 - 4th fan speed 5 - 5th fan speed
0x1003	03/16/16	air damper close/open	2 bytes	Read/Write	0 - close 1 - open
0x1004	03/16/16	humidity set	2 bytes	Read/Write	1~99%
0x1006	03/16/16	air damper automatic humidity set	2 bytes	Read/Write	1~99%
0x1008	03/16/16	air damper automatic close/open	2 bytes	Read/Write	0 - not in use 1 - in use
0x101B	03/16/16	temperature set	2 bytes	Read/Write	5~35°C
0x101C	03/16/16	working modes	2 bytes	Read/Write	0 - dehumidification 1 - cooling+dehumidification 2 - heating+dehumidification 3 - cooling+humidification 4 - heating+humidification 5 - humidification
0x101D	03/16/16	humidification set	2 bytes	Read/Write	1~99
0x2001	03	indoor temperature sensor	2 bytes	Read Only	
0x2002	03	indoor humidity sensor	2 bytes	Read Only	
0x2003	03	external temperature sensor	2 bytes	Read Only	
0x2004	03	external humidity sensor	2 bytes	Read Only	
0x2005	03	fan running time	2 bytes	Read Only	1=10 hours
0x2006	03	failure	2 bytes	Read Only	bit0:built sensor failure bit1:external sensor failure bit2:filter alarm bit3:minimum absolute humidity protection bit4:in defrost
0x2007	03	dew point	2 bytes	Read Only	
0x2008	03	absolute humidity	2 bytes	Read Only	