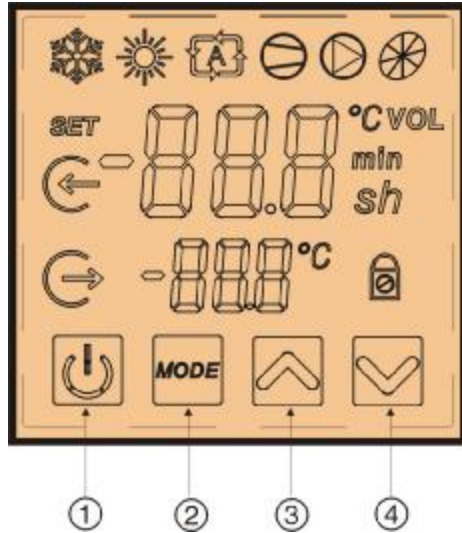


1 Controller Operation

1.1 Control panel explanation



① On/Off key

Press this key to switch on/off; (hold on 0.5 s)

② Mode key

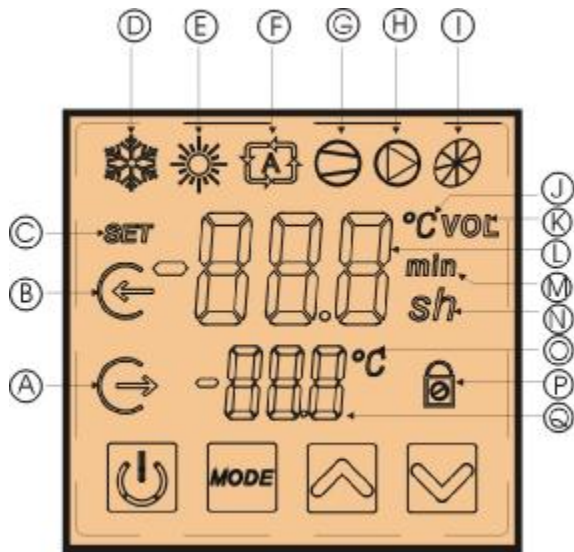
Select mode and set parameter.

Release more factory parameters; (press for 10 s)

③ ④ Arrow key

Increase and decrease value;

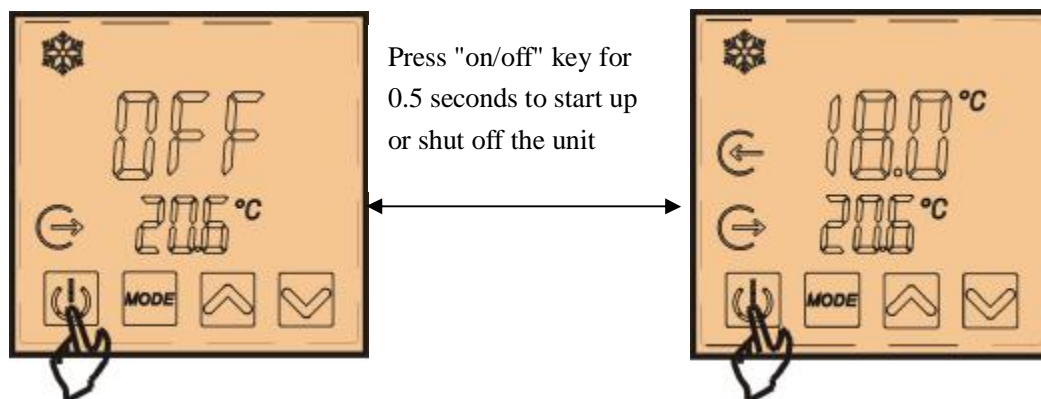
1.2 Display Explanation



| Symbol | Explanation | Symbol | Explanation |
|--------|-------------------|--------|--------------------------|
| A | Outlet water | J | Centigrade |
| B | Inlet water | K | Volume |
| C | Setting indicator | L | Inlet water temperature |
| D | Cooling | M | Minute |
| E | Heating | N | S-second, H-hour |
| F | Automatic | O | Centigrade |
| G | Compressor | P | Lock |
| H | Pump | Q | Outlet water temperature |
| I | Fan | | |

1.3 Operation Instruction

1.3.1 On-off operation



When the unit is on, press "on/off" key for 0.5 seconds to start it up;
 When the unit is off, press "on/off" key for 0.5 seconds to shut it down.

1.3.2 Mode selection

The unit has four operation modes:

Cooling mode, Heating mode, Auto heat pump mode, Hybrid mode.

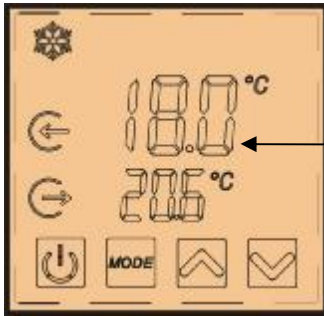
When parameter "H05=0", there is only "cooling mode" to choose;

When parameter "H05=1", Press "mode" can select modes of heating, cooling, automatic;

When parameter "H05=2", Press "mode" can select modes of heating, cooling, hybrid;

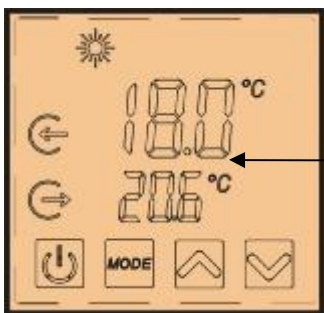
When parameter "H05=3", there is only "heating mode" to choose.

1) Cooling mode



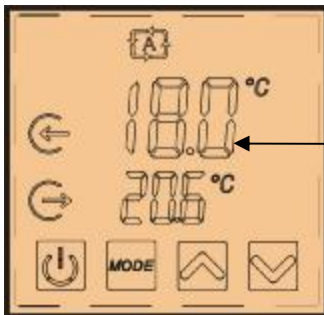
When parameter "H05"=0/1/2,
"cooling mode" can be chose

2) Heating mode



When parameter "H05"=1/2/3,
"Heating mode" can be chosen

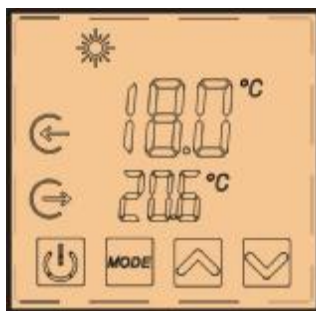
3) Auto heat pump mode



When parameter "H05"=2, "Auto
mode" can be chosen

Auto heat pump mode: System can adjust heating and cooling mode automatically, and there is no electrical heater function.

4) Hybrid mode



+

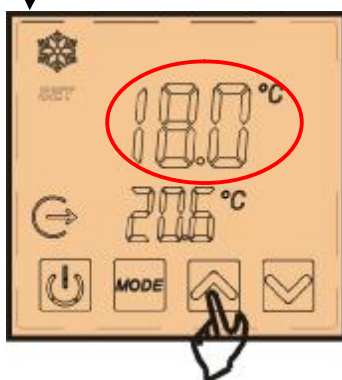
Electrical heater

Hybrid mode: When parameter "H05"=3, "Hybrid mode" can be chosen, and there is no "Auto heat pump" function.

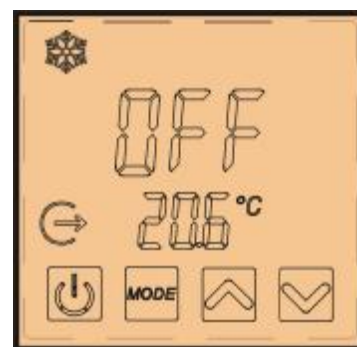
1.3.3 Direct Setting



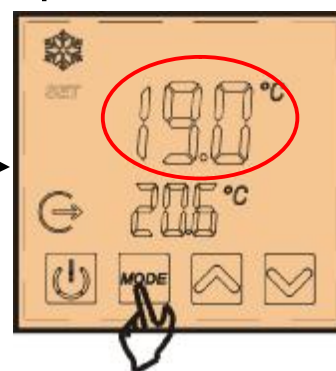
In off/on interface, press "up" or "down"



Target temperature "18.0°C" flashing, press "up" or "down" to change parameter value.



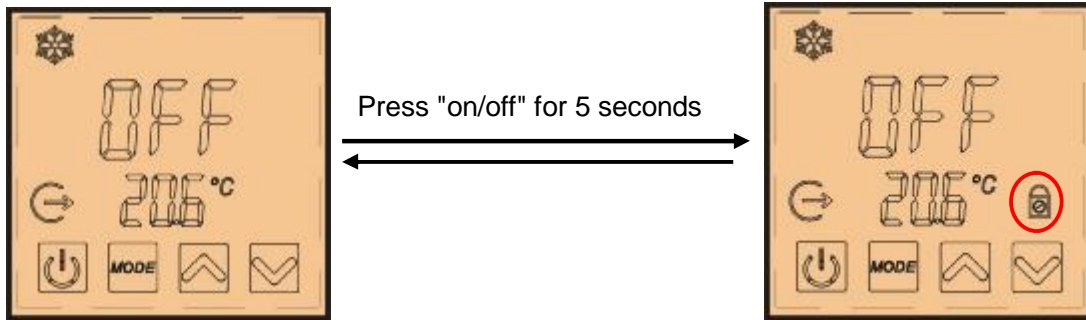
After finishing parameter value setting, press "mode" to save and exit.



Attention:

- 1) Cooling target temperature should be set at cooling mode, it is the same with heating target temperature;
- 2) Press "mode" to save parameter setting and back to main interface.
- 3) Press "on/off" can not save parameter setting but back to main interface
- 4) If there is no operation for 5 seconds, the system will remember the parameter setting and back to the main interface.

1.3.4 Keyboard lock and unlock



In on/off interface, hold on “on/off” for 5 seconds, the keyboard will be locked.

When the keyboard is locked, hold on “lock” for 5 seconds, the keyboard will be unlocked.

Attention: When the unit has alarm status, the lock of keyboard can be canceled automatically.

1.3.5 Parameter Setting

The parameters are divided into 2 different types, according to their level of access by the user (password) and their function.

Factory parameters

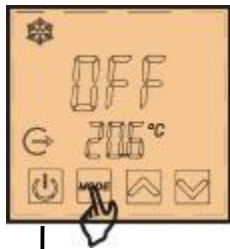
Accessible with the 66 "factory" password, allow the configuration of all the unit parameters.

User parameters

Accessible with the 22 "User" password, allow the configuration of the parameters that typically can be set by the user.

| level | Level name | password |
|-------|------------|----------|
| U | User | 22 |
| F | Factory | 66 |

I Factory Parameter Setting



Press "mode" for 10s to enter password interface.



Input password 66.



Press "mode" to enter.



You can press "up" or "down" to select relevant parameter code a/d/f..., there we just get "/" for example and press "mode" to enter.



Press "mode"



Press "up/down"

1) The other steps is the same with parameter "/";
 2) Press "on/off" twice can exit parameter interface;
 3) If there is no operation in 20 seconds, the system will remember the previous setting and exit the setting interface.



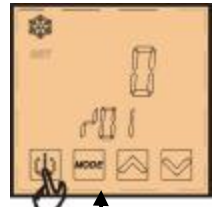
After selecting parameter code, press "mode" to enter the subparameter.



Press "up/down" to select other parameter code.



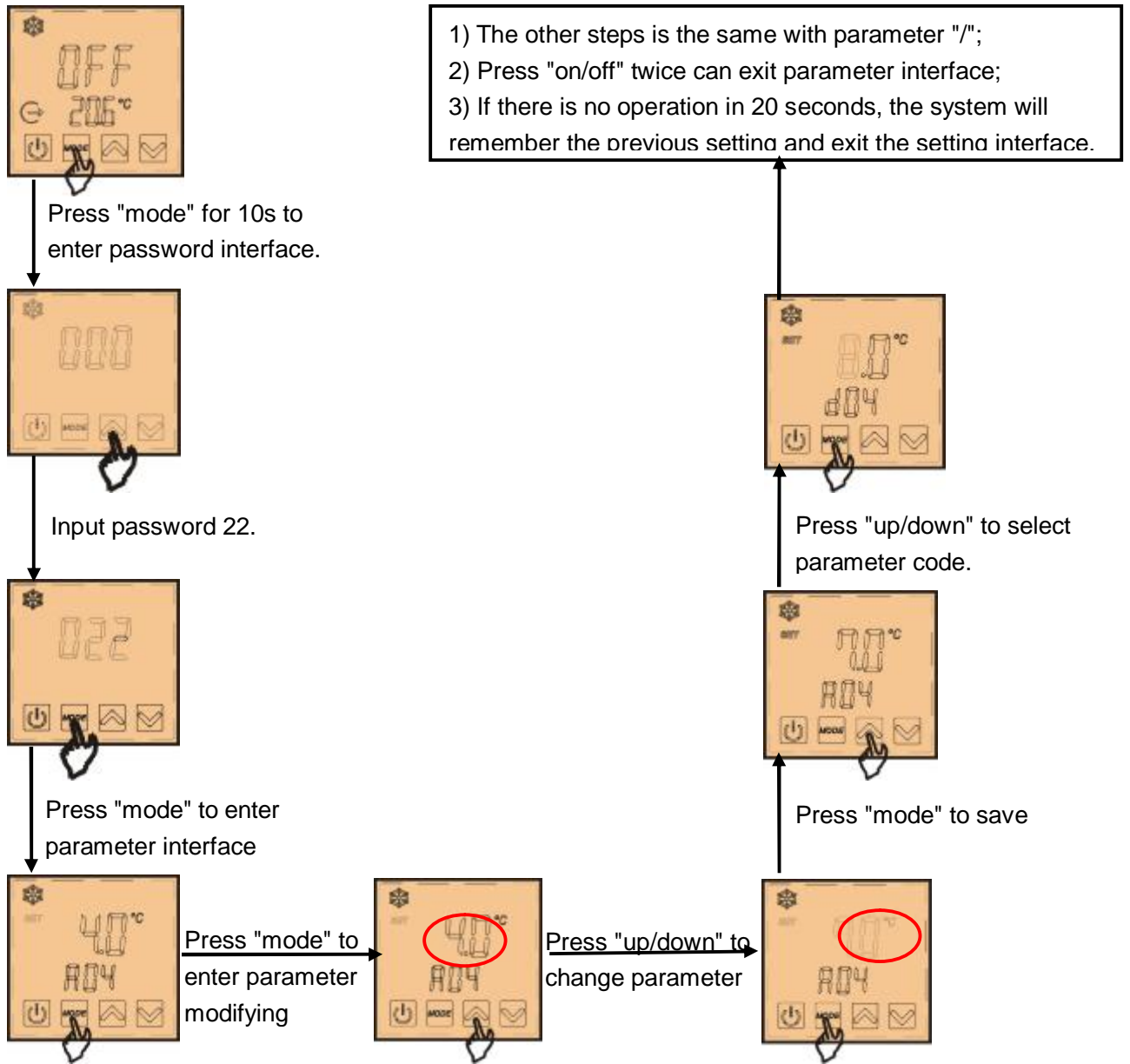
You can press "up" or "down" to select relevant "/02" "/03"... we just get "/01" for example and press "on/off" to exit.



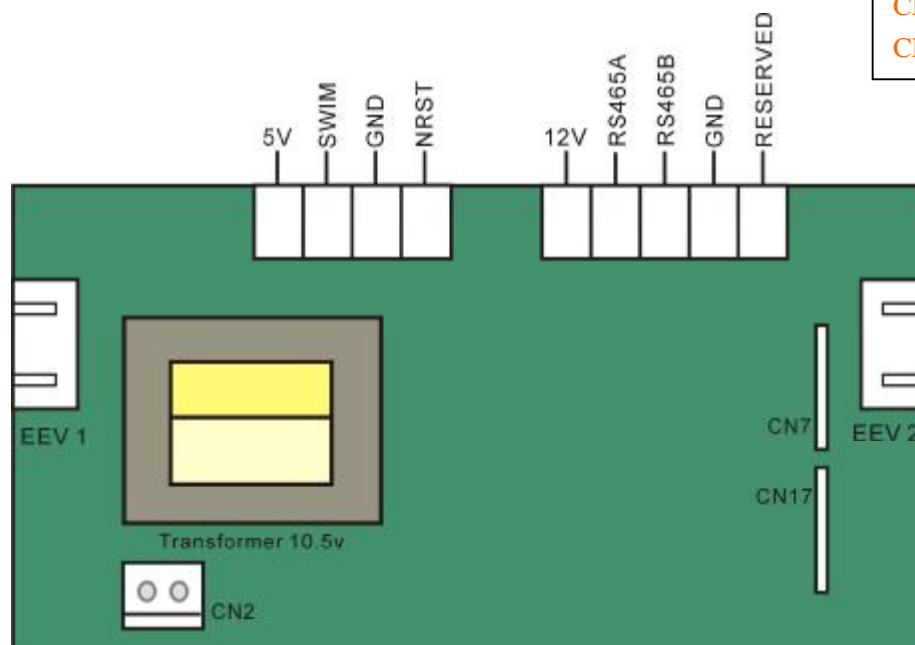
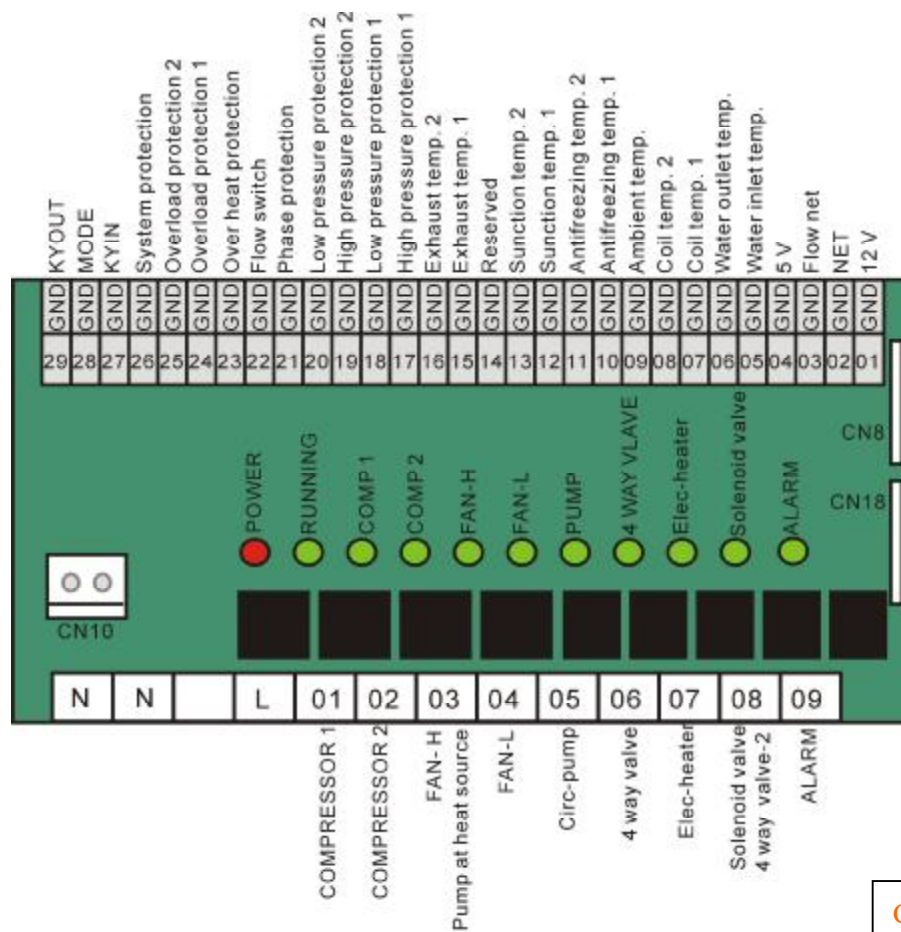
Press "mode" to save



I User Parameter Setting



2 PCB I/O Ports description



CN2 connect with CN10
 CN8 connect with CN7
 CN18 connect with CN17

3 Troubleshooting

There will be malfunction code shown on the controller when relative malfunction occurs.

| Code | Failure | Reason | Solution |
|------|---|--|---|
| P01 | Water inlet temp.sensor failure | Temp. Sensor is broken | Check or change it |
| P02 | Water outlet temp.sensor failure | Temp. Sensor is broken | Check or change it |
| P03 | Heat recovery temp.sensor failure | Temp. Sensor is broken | Check or change it |
| P04 | Ambient temp.sensor failure | Temp. Sensor is broken | Check or change it |
| P15 | Coil temp.sensor 1 failure | Temp. Sensor is broken | Check or change it |
| P25 | Coil temp.sensor 2 failure | Temp. Sensor is broken | Check or change it |
| P17 | Suction temp.sensor 1 failure | Temp. Sensor is broken | Check or change it |
| P27 | Suction temp.sensor 2 failure | Temp. Sensor is broken | Check or change it |
| P181 | Exhaust temp.sensor 1 failure | Temp. Sensor is broken | Check or change it |
| P281 | Exhaust temp.sensor 2 failure | Temp. Sensor is broken | Check or change it |
| P19 | Antifreezing temp.sensor 1 failure | Temp. Sensor is broken | Check or change it |
| P29 | Antifreezing temp.sensor 2 failure | Temp. Sensor is broken | Check or change it |
| E11 | High pressure protection 1 (HP1) | HP 1 switch is broken | Check or change it |
| E21 | High pressure protection 2 (HP2) | HP 2 switch is broken | Check or change it |
| E12 | Low pressure protection 1 (LP1) | LP 1 switch is broken | Check or change it |
| E22 | Low pressure protection 2 (LP2) | LP 2 switch is broken | Check or change it |
| E03 | Water flow protection | Flow switch is broken | Check or change it |
| E031 | Water flow protection at heat source side | Flow switch is broken | Check or change it |
| E032 | Water flow protection at using side | Flow switch is broken | Check or change it |
| E04 | Over-heat protection | Electric heater is overheat | Check it's function |
| E101 | Over-load protection 1 | Compressor is overload | Check it's function |
| E201 | Over-load protection 2 | Compressor is overload | Check it's function |
| E06 | Temp. Difference between inlet and outlet | Temp. Difference>13℃ | Temp. Difference<13℃, And power off |
| E17 | Antifreezing protection 1 | Antifreezing temp. 1<2℃ | 9℃<Antifreezing temp. 1 |
| E27 | Antifreezing protection 2 | Antifreezing temp. 2<2℃ | 9℃<Antifreezing temp. 2 |
| E171 | Antifreezing protection 1 at using side | Antifreezing temp. 1 at using side<2℃ | 9℃<Antifreezing temp. 1 |
| E271 | Antifreezing protection 2 at using side | Antifreezing temp. 2 at using side<2℃ | 9℃<Antifreezing temp. 2 |
| E172 | Antifreezing protection 1 at heat source side | Antifreezing temp. 1at heat source side<2℃ | 9℃<Antifreezing temp. 1 |
| E272 | Antifreezing protection 2 at heat source side | Antifreezing temp. 2at heat source side<2℃ | 9℃<Antifreezing temp. 2 |
| E19 | Primary antifreezing protection | 2℃<inlet temp.≤4℃, Ambient temp.≤0℃ | 9℃<inlet water temp. 1 |
| E29 | Secondary antifreezing protection | inlet temp.≤2℃, Ambient temp.≤0℃ | 18℃<inlet water temp. 1 |
| P128 | Exhaust temp. 1 is too high | Exhaust temp. 1 > 120℃ | / |
| P282 | Exhaust temp. 2 is too high | Exhaust temp. 2 > 120℃ | / |
| E05 | System protection | System protection switch is broken | Check or change it |
| / | Defrosting | / | / |
| E08 | Communication failure | Communication failure between wire controller and main board | Check the connection between wire controller and main board |
| EE | Power phase failure | Power phase error or shortage | Check the power phase |

4 Parameter

4.1 Parameter table

| Parameter and description | | Setting value | | Default level | Mod bus address |
|---------------------------|--|---------------|---------|---------------|-----------------|
| | | Code | Setting | | |
| / Hardware parameter | Whether enable system 1 high pressure switch | /01 | 0/1 | F | 44701 |
| | Whether enable system 2 high pressure switch | /02 | 0/1 | F | 44702 |
| | Whether enable system 1 low pressure switch | /03 | 0/1 | F | 44703 |
| | Whether enable system 2 low pressure switch | /04 | 0/1 | F | 44704 |
| | Whether enable phase monitor protection | /05 | 0/1 | F | 44705 |
| | Whether enable water flow protection | /06 | 0/1 | F | 44706 |
| | Whether enable electrical heater Overload protection | /07 | 0/1 | F | 44707 |
| | Whether enable system 1 overload protection | /08 | 0/1 | F | 44708 |
| | Whether enable system 2 overload protection | /09 | 0/1 | F | 44709 |
| | Whether enable remote on/off switch | /10 | 0/1 | F | 44710 |
| | Whether enable system protect | /11 | 0/1 | F | 44711 |
| | Whether enable Outlet probe | /12 | 0/1 | F | 44712 |
| | Whether enable Coil 1 probe | /13 | 0/1 | F | 44713 |
| | Whether enable Coil 2 probe | /14 | 0/1 | F | 44714 |
| | Whether enable Ambient probe | /15 | 0/1 | F | 44715 |
| | Whether enable deice 1 probe | /16 | 0/1 | F | 44716 |
| | Whether enable deice 2 probe | /17 | 0/1 | F | 44717 |
| | Whether enable Suction 1 probe | /18 | 0/1 | F | 44718 |
| | Whether enable Suction 2 probe | /19 | 0/1 | F | 44719 |
| | Whether enable exhaust 1 probe | /20 | 0/1 | F | 44720 |
| | Whether enable exhaust 2 probe | /21 | 0/1 | F | 44721 |
| | Whether enable $\Delta T1$ protect | /22 | 0/1 | F | 44722 |
| | Whether enable Cooling mode | /23 | 0/1 | F | 44723 |
| | Whether enable Economic heating | /24 | 0/1 | F | 44724 |
| | Whether enable AUTO mode | /25 | 0/1 | F | 44725 |
| | Whether enable Heating mode | /26 | 0/1 | F | 44726 |
| | Whether enable High demand | /27 | 0/1 | F | 44727 |
| | Whether enable heat recovery temperature | /28 | 0/1 | F | 44728 |
| A Protection parameter | high pressure alarm time delay | A01 | 0 | F | 46501 |
| | Low pressure alarm time delay | A02 | 300 | F | 46502 |
| | Stop unit air temperature | A03 | -15 | F | 46503 |
| | Antifreeze setting temperature | A04 | 2/4 | U | 46504 |
| | Antifreeze differential protection | A05 | 5 | F | 46505 |
| | Discharge temp. protection setting | A06 | 120 | F | 46506 |
| | Discharge temp. differential protection | A07 | 30 | F | 46507 |
| | inlet/out differential protection setting value | A08 | 13 | F | 46508 |
| | Start spraying air temperature | A09 | 35 | F | 46509 |

| | | | | | |
|------------------------------|---|-----|-----------|---|-------|
| C Compressor parameter | Minimum on time | C01 | 120 | F | 46701 |
| | Minimum off time | C02 | 180 | F | 46702 |
| | Delay between starts of the 2 compressors | C03 | 300 | F | 46703 |
| | Rotation | C04 | 0/1/2 | F | 46704 |
| d Defrost Parameter | Start defrosting temperature | d01 | -7 | U | 46801 |
| | End defrost temperature | d02 | 13 | U | 46802 |
| | defrosting cycle | d03 | 45 | U | 46803 |
| | Maximum defrosting time | d04 | 8 | U | 46804 |
| | Minimum defrosting time | d05 | 3 | F | 46805 |
| | Defrost mode | d06 | 0 | F | 46806 |
| | Defrost heater control | d07 | 1 | F | 46807 |
| | Defrost AUTO set | d08 | 4 | F | 46808 |
| E EEV parameter | EEV 1 mode | E01 | 1 | U | 46901 |
| | Super heat 1 | E02 | / | F | 46902 |
| | Initial place 1 | E03 | / | U | 46903 |
| | EEV 2 mode | E04 | 1 | U | 46904 |
| | Super heat 2 | E05 | / | F | 46905 |
| | Initial place 2 | E06 | / | U | 46906 |
| | Minimum place | E07 | / | F | 46907 |
| | Defrost place | E08 | / | F | 46908 |
| | Cooling place | E09 | / | F | 46909 |
| | Low exhaust | E10 | 50 | F | 46910 |
| | High exhaust | E11 | 90 | F | 46911 |
| F Fan parameter | Fan parameter | F01 | 0/1/2/3/4 | U | 47001 |
| | Coil temperature in high speed fan mode (Cooling) | F02 | 40 | F | 47002 |
| | Coil temperature in low speed fan mode (Cooling) | F03 | 15 | F | 47003 |
| | Coil temperature when the fan stop (Cooling) | F04 | 10 | F | 47004 |
| | Coil temperature in high speed fan mode (Heating) | F05 | 10 | F | 47005 |
| | Coil temperature in low speed fan mode (Heating) | F06 | 20 | F | 47006 |
| | Coil temperature when the fan stop (Heating) | F07 | 30 | F | 47007 |
| | Fan start low speed running time | F08 | 0 | F | 47008 |
| | Fan stop low speed running time | F09 | 8 | F | 47009 |
| | Fan quantity | F10 | 1/2 | F | 47010 |
| | Fan speed control temp. | F11 | 0/1 | F | 47011 |
| H System Parameter | Automatic restarting | H01 | 1 | F | 47201 |
| | System quantity | H02 | 1/2 | F | 47202 |
| | 4-way valve polarity | H03 | 0/1 | F | 47203 |
| | 4-way valve control | H04 | 0 | F | 47204 |
| | Model(cooling only/heating & cooling/auxiliary electrical heating/heating only) | H05 | 0/1/2/3 | U | 47205 |
| | Type | H06 | 0/1/2 | F | 47206 |
| | Class | H07 | 0/1 | F | 47207 |
| | Capacity Control | H08 | 1 | F | 47208 |

| | | | | | |
|------------------------------|--|-----|-------|---|-------|
| H System Parameter | Coil sensor function | H09 | 0/1 | F | 47209 |
| | Physical address | H10 | 1 | F | 47210 |
| | Baud rate | H11 | 3 | F | 47211 |
| | Parity bit | H12 | 0 | F | 47212 |
| | Stop bit | H13 | 1 | F | 47213 |
| P Water pump parameter | Water pump mode | P01 | 2 | U | 48001 |
| | Water pump running cycle | P02 | 30 | U | 48002 |
| | Water pump running time | P03 | 3 | U | 48003 |
| | Delay in switching on the compressor after switching on the pump | P04 | 1 | U | 48004 |
| | Filter | P05 | 0 | F | 48005 |
| | Start filter 1 | P06 | 10 | F | 48006 |
| | Stop filter 1 | P07 | 12 | F | 48007 |
| | Start filter 2 | P08 | 15 | F | 48008 |
| | Stop filter 2 | P09 | 17 | F | 48009 |
| r Temp. parameter | Inlet water setting temperature (cooling) | r01 | ? | F | 48201 |
| | Inlet water setting temperature (Heating) | r02 | ? | F | 48202 |
| | Target setting temperature (Auto mode) | r03 | 27 | F | 48203 |
| | Cooling differential | r04 | 1 | F | 48204 |
| | Cooling stop differential | r05 | 1 | F | 48205 |
| | Heating differential | r06 | 1 | F | 48206 |
| | Heating stop differential | r07 | 1 | F | 48207 |
| | Minimum set point in Cooling | r08 | 8 | F | 48208 |
| | Maximum Cooling set point | r09 | 28 | F | 48209 |
| | Minimum Heating set point | r10 | 15 | F | 48210 |
| | Maximum Heating set point | r11 | 40/55 | F | 48211 |
| | Electrical ΔT_6 | r12 | 2 | F | 48212 |
| | Electrical Ambient | r13 | 15 | U | 48213 |
| | Electrical Delay | r14 | 30 | U | 48214 |
| | Electrical force | r15 | 5 | F | 48215 |
| | Compensation | r16 | 0/1 | F | 48216 |
| | Maximum ΔT_7 | r17 | 5 | F | 48217 |
| | Cooling compensation constant | r18 | 1 | F | 48218 |
| | Cooling compensation start air temperature | r19 | 35 | F | 48219 |
| | Heating compensation start air temperature | r20 | 5 | F | 48220 |
| | Whether enable heat recovery | r21 | 0 | F | 48221 |
| | The target temperature Of heat recovery | r22 | 50°C | U | 48222 |
| | Temperature differential of heat recovery | r23 | 5°C | F | 48223 |
| | The temperature to stop heat recovery | r24 | 10°C | F | 48224 |
| | Temperature differential to stop heat recovery | r25 | 5°C | F | 48225 |
| | Electric heater mode | r26 | 0 | F | 48226 |
| | Ambient temperature to start up antifreezing heater | r27 | 3°C | F | 48227 |
| | Temperature differential to stop antifreezing heater | r28 | 3°C | F | 48228 |

| | | | | | |
|----------------------------------|-------------------------------------|-----|----------|-----|-------|
| U Water flow parameter | flow meter | U01 | 0/1 | F | 48501 |
| | Pulse | U02 | 205 | F | 48502 |
| | Flow protect | U03 | 0 | F | 48503 |
| | Flow alarm | U04 | 0.3 | F | 48504 |
| S Switch state checking | System1 HP | S01 | CL/OP | F/U | 28301 |
| | System2 HP | S02 | CL/OP | F/U | 28302 |
| | System1 LP | S03 | CL/OP | F/U | 28303 |
| | System2 LP | S04 | CL/OP | F/U | 28304 |
| | Phase monitor | S05 | CL/OP | F/U | 28305 |
| | Water Flow switch | S06 | CL/OP | F/U | 28306 |
| | Electrical heater overload | S07 | CL/OP | F/U | 28307 |
| | COMP1 overload | S08 | CL/OP | F/U | 28308 |
| | COMP2 overload | S09 | CL/OP | F/U | 28309 |
| | on/off switch | S10 | CL/OP | F/U | 28310 |
| | mode switch | S11 | CL/OP | F/U | 28311 |
| | System protect | S12 | CL/OP | F/U | 28312 |
| | Water flow | S13 | CL/OP | F/U | 28313 |
| T Temp. checking | Inlet water temp. | T01 | -30~99°C | F/U | 28401 |
| | Outlet water temp. | T02 | -30~99°C | F/U | 28402 |
| | Coil 1 temperature | T03 | -30~99°C | F/U | 28403 |
| | Coil 2 temperature | T04 | -30~99°C | F/U | 28404 |
| | Ambient temperature | T05 | -30~99°C | F/U | 28405 |
| | Antifreeze 1 temperature | T06 | -30~99°C | F/U | 28406 |
| | Antifreeze 2 temperature | T07 | -30~99°C | F/U | 28407 |
| | Suction 1 temperature | T08 | -30~99°C | F/U | 28408 |
| | Suction 2 temperature | T09 | -30~99°C | F/U | 28409 |
| | Exhaust 1 temperature | T10 | -30~99°C | F/U | 28410 |
| | Exhaust 2 temperature | T11 | -30~99°C | F/U | 28411 |
| | Hot water temperature | T12 | -30~99°C | F/U | 28412 |
| O Load output | Compressor 1 output | O1 | CL/OP | F/U | 27901 |
| | Compressor 2 output | O2 | CL/OP | F/U | 27902 |
| | Fan output (High speed) | O3 | CL/OP | F/U | 27903 |
| | Fan output (Low speed) | O4 | CL/OP | F/U | 27904 |
| | Circulate pump output | O5 | CL/OP | F/U | 27905 |
| | 4-way valve output | O6 | CL/OP | F/U | 27906 |
| | Heat element output | O7 | CL/OP | F/U | 27907 |
| | Alarm output | O8 | CL/OP | F/U | 27908 |
| | Spray valve output | O9 | CL/OP | F/U | 27909 |
| | Electronic Expansion valve 1 output | O10 | 0~500 | F/U | 27910 |
| | Electronic Expansion valve 2 output | O11 | 0~500 | F/U | 27911 |

4.2 Description of the parameters

/— Hardware parameter: Setting whether system enable relevant hardware.
From parameter "/ 01" to "/ 28 ", setting whether system enable relevant hardware.
0=NO, 1=YES

A—Protection parameter

A01—High pressure alarm time delay

Establish the delay time when there is high pressure alarm.

A02—Low pressure alarm time delay

Establish the delay time when there is low pressure alarm.

A03—Stop unit air temp.

Establish temperature for stopping the unit.

A04—Antifreeze setting temperature

This represents the temperature (antifreeze set point) at the evaporator outlet below which an antifreeze alarm is activated.

A05—Antifreeze differential protection

This represents the delay in the activation of the antifreeze alarm when starting system

A06—Discharge temperature protection setting

This represents the temperature (discharge temp. protection set point) at the condenser inlet over which a protection alarm is activated.

A07—Discharge temperature differential protection

This represents the delay in the activation of the protection alarm when starting system

A08—in /outlet differential protection setting value

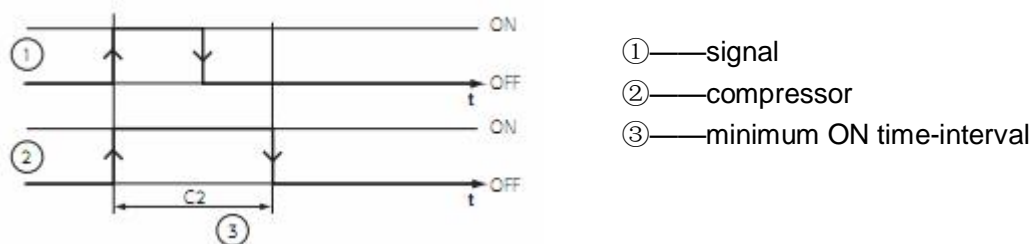
Establishes differential temperature protection for water inlet and outlet

A09—Start spraying air temp.

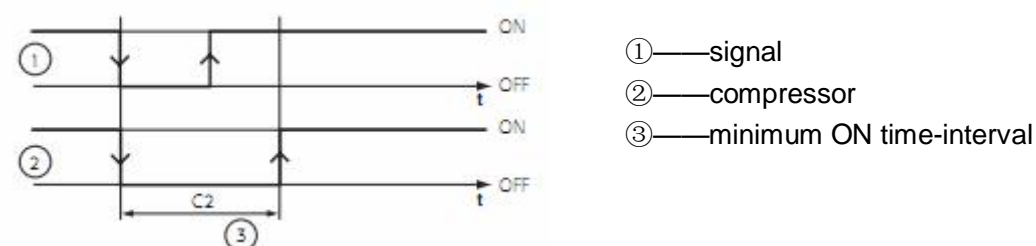
Establishes ambient temperature when system needing to start up spraying valve.

C—Compressor parameter

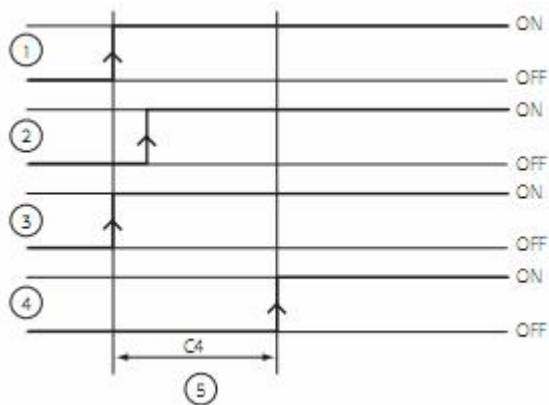
C01—This establishes the time that the compressor must remain ON for when started, even if the stop signal is sent.



C02—this establishes the time that the compressor must remain OFF for when stopped, even if the start signal is sent.



C03—Start delay between compressors



- ①—1st signal
- ②—2nd signal
- ③—1st compressor
- ④—2nd compressor
- ⑤—time delay between two compressors ON

C04—Rotation (for the two systems)

C04=0, system will start up compressors in rotation, count the compressor's running time and record it. When turn off the unit, the system will firstly shut off the compressor that running time is longer; when turn on the system, it will firstly turn on the compressor which running time is shorter.

C04=1, when there is only need one compressor, system will start up compressor 1 firstly;
C04=2, when there is only need one compressor, system will start up compressor 2 firstly;

D—Defrost Parameter

D01—Start defrost temperature

To start defrostation, the condition must be valid for the time d03.

D02—End defrost temperature

Establishes the temperature above which the defrost cycle ends.

D03—Defrosting cycle

Represents delay between two successive defrost cycle. The first time, when coil temperature is lower than D01, there must be valid for the time d03 to start the defrostation.

D04—Maximum defrosting duration

Represents the maximum duration of the defrost cycle (the defrost ends when the maximum duration has been arrived, even if the defrost hasn't finished)

D05—Minimum defrosting duration

Represent the minimum duration of the defrost cycle (the defrost continues even if the value read by the condenser probe exceed the end temperature)

D06—Defrost mode

D06=0: the mode is normal defrost;

D06=1: the mode is economical defrostation; (Two systems can defrostation alone)

D06=2: there is no defrostation function for system.

D07—Defrost electric heater control

D07=0: There is no influence to electric heater when defrosting;

D07=1: Electric heater is started up by force.

D08—Defrost AUTO set

When ambient temperature \geq D08, system will use economical mode to defrost;

When ambient temperature $<$ D08, system will use normal mode to defrost;

E—EEV parameter

E01—EEV 1 mode

E01=0: EEV 1 is running by manual operation;

E01=1: EEV 1 is running by automatic operation;

E02—Target Super heat 1 (TSH)

E03—Initial position 1

If E01=0, represents expansive valve fix this position always.

If E01=1, represents expansive valve initiation position

The EEV2 action is the same with EEV1's.

E04—EEV 2 mode

E05—Target Super heat 2

E06—Initial position 2

If E04=0, represents expansive valve fix this position always.

If E04=1, represents expansive valve initiation position.

E07—Minimum position

E08—Defrost position

Fix the EEV position during system is defrosting.

E09—Cooling position

Fix the EEV position during system at cooling mode.

E10—Low exhaust

E11—High exhaust

When exhaust temp. $\leq E10$, the EEV place won't expand;

When exhaust temp. $\geq E11$, the EEV place won't reduce.

F—Fan parameter

Normally, Fan will start up 5s ahead of Compressor and 30s later to close down. When at defrosting, Fan running situation is according to deforestation control.

F01—Fan parameter

F01=0: in low speed fan mode;

F01=1: in high speed fan mode;

F01=2: the fan running modes depend on coil or ambient temperature (F02-F07);

Attention: The temperature probe is decided by F11

F01=3: the fan runs at low speed during F08-F09, the fan runs at high speed during other time;

F01=4: the fan running mode is depend on F02 and F03, fan will at low speed if one condition of fan running low speed mode is met;

F02—Coil or ambient temperature set point for high speed fan mode (Cooling)

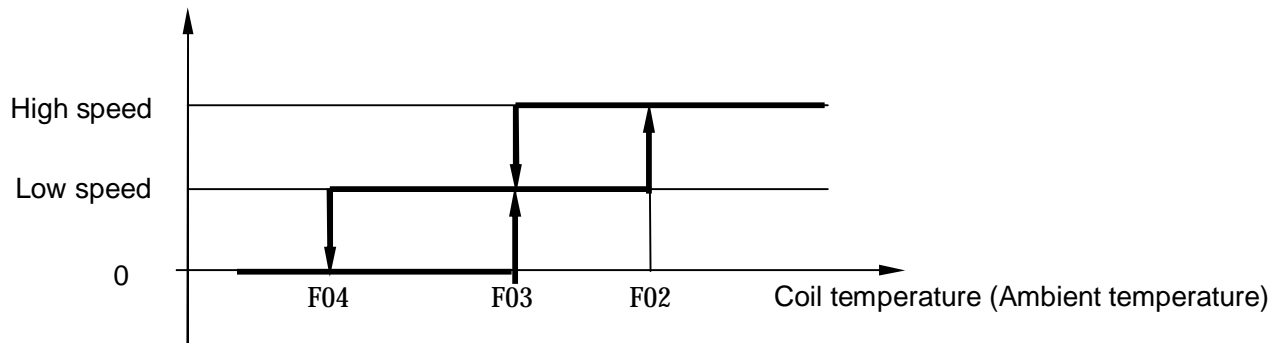
This represents if the temperature above F02, the fan will on high speed (Cooling)

F03—Coil or ambient temperature set point for low speed fan mode (Cooling)

This represents if the temperature below which the fans remain on at low speed (Cooling)

F04—Coil or ambient temperature set point for the fan stop (Cooling)

This represents the temperature in reference to F03 below which the fans are stopped.



At cooling mode, F11=0, when H02=1, Fan speed is decided by coil temperature.

When H02=2, Fan speed is decided by the higher of the two coil temperature.

F05—Coil or ambient temperature set point for high speed fan mode (Heating)

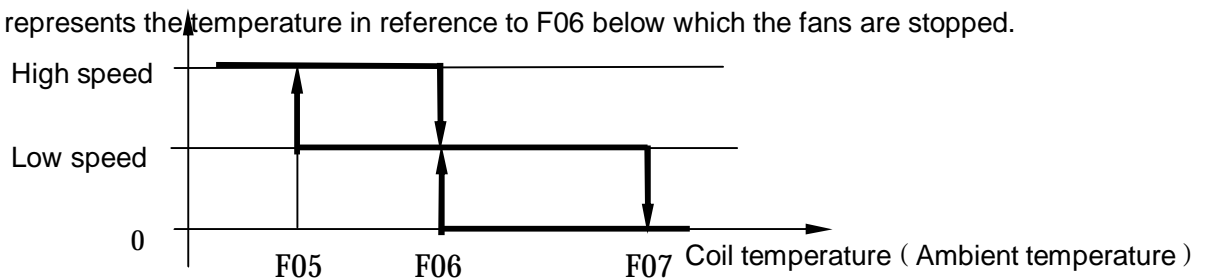
This represents the temperature above which the fans remain on at high speed (Heating)

F06—Coil or ambient temperature set point for low speed fan mode (Heating)

This represents the temperature below which the fans remain on at low speed (Heating)

F07—Coil or ambient temperature set point for the fan stop (Heating)

This represents the temperature in reference to F06 below which the fans are stopped.



At cooling mode, when H02=1, Fan speed is decided by coil temperature.

When H02=2, Fan speed is decided by the lower of the two coil temperature.

F08—Fan start low speed running time (Just for F01=3)

F09—Fan stop low speed running time (Just for F01=3)

F10—Fan quantity

When F10=1, there is just one Fan system;

Fan will start up when one compressor is on and Fan will shut off after both compressors has turned off.

When F10=2, there are two Fan systems;

Fan high speed port is used as system 1, Fan low speed port is used as system 2.

Normally, Fan will start up 5s ahead of Compressor and 30s later to close down. And there is no speed regulated function for Fans.

F11—Fan speed control temp.

When F11=0, Fan speed is decided by coil temperature of system1 and system 2;

When F11=1, Fan speed is decided by ambient temperature. At this time, F02-F07 are also according to ambient temp. But not coil temperature.

Attention:

1) When H06=0/1, Fan-high-speed port has output when Fan is at high speed. And vice versa. (For single system, Fan-high-speed port and low-speed port can not get output at the same time)

2) When H06=2, It is water to water heat pump, Fan-high-speed port is used as water pump at heat source and all the F parameters is invalid.

H——System Parameter

H01——Automatic restart

H01=0: disable automatic restart; H01=1: enable automatic restart

H02——System quantity

H02=1: Just one system; H02=2: Two systems;

H03——4-way valve polarity

H03=0: when system in heating mode, 4-way valve is power on;

H03=1: when system in heating mode, 4-way valve is power off.

H04——4-way valve control

H04=0: 4-way valve is action after compressor has shut off;

H04=1: 4-way valve can action when compressor is running;

H05——Model (cooling only/heating & cooling/auxiliary electrical heating/heating only)

H05=0: only cooling;

H05=1: heating, cooling and automatic; (there is no electrical heating)

H05=2: auxiliary electrical heating; (there is no automatic)

H05=3: only heating.

H06——Type

H06=0: swimming pool; (there are heating, cooling, automatic modes)

H06=1: Air to water heat pump; (there are heating, cooling, electrical heating modes)

H06=2: Water to water heat pump. (there are heating, cooling, electrical heating modes)

Attention: 1) When H06=2: system has no defrostation, the coil temperature is used as Antifreezing or evaporation temperature, the fan-high port is used as pump port in heat source side, and the fan-low port is disabled.

2) If "/23 /24 /25 /26 /27" parameters are set 0, then H05 H06 setting is invalid.

H07——Class

H07=0: when /10=0, system is operated by controller;

When /10=1, system is operated by controller and KYIN port;

H07=1: system is operated by remote signal, controller can only read parameter and check switches alarming state;

H08——Capacity Control

H08=0, there is no capacity control for compressor;

The time of second compressor starting up and shutting off is 5s delay than the first one.

H08=1, there is capacity control for compressor;

The first compressor starts up at (target temp.± differential), the second compressor starts up at (target temp. ± 2*differential)

H09——Coil sensor function

This parameter is just for water to water heat pump.

H09=0, coil sensor is used as antifreezing temperature;

H09=1, coil sensor is used as evaporation temperature.

Attention: 1) H06=2 and H09=0, coil temperature of system1 and system2 is used as antifreezing temperature.

2) H06=2 and H09=1, coil temperature of system1 and system2 is used as evaporation temperature.

3) H06≠2, H09 parameter is disabled.

H10—Modbus address

H11—Baud rate (1200*2ⁿ) (n=0、1、2、3、4、5)

H12—Parity bit

H12=0, There is no parity bit;

H12=1, the parity bit is odd number;

H12=2, the parity bit is even number.

H13—Stop bit

P—Water pump parameters

P01—Water pump mode

P01=0, water pump will always on except on standby and alarm.

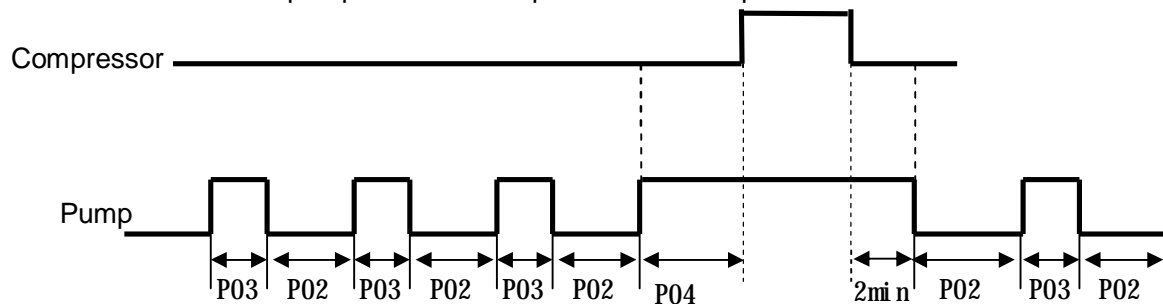
P01=1, water pump will operate depend on compressor, and has 2 minutes delay after the compressor has stopped;

P01=2, water pump will be started and stopped at regular intervals after compressor stop. Depend on P02 and P03.

P02—Water pump start interval time

P03—minimum on time that the pump remains on.

P04—the time of pump advance compressor to start up.



P05—Pump filter

Pump filter: when compressor has stopped, pump will run during p05-p06/p07-p08;

P05=0, NO; P05=1, YES.

P06—the time to start filter 1

P07—the time to stop filter 1

P08—the time to start filter 2

P09—the time to stop filter 2

R—Temperature parameter

R01—Cooling set point

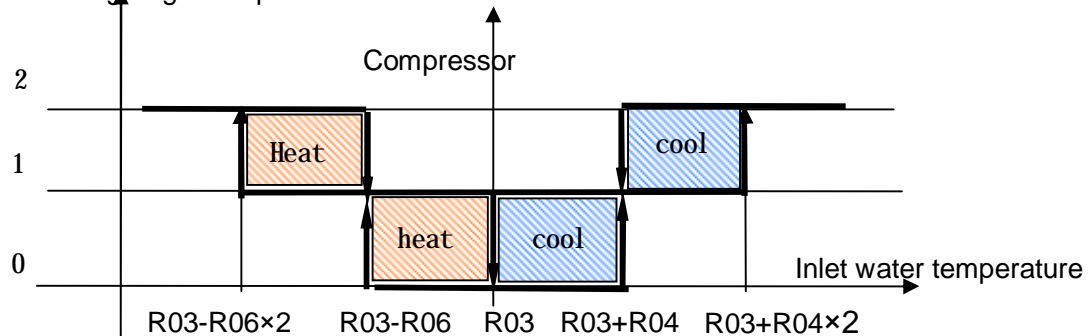
Inlet water setting temperature (Cooling)

R02—Heating set point

Inlet water setting temperature (Heating)

R03—AUTO set point (Auto mode)

The setting target temperature of automatic mode.

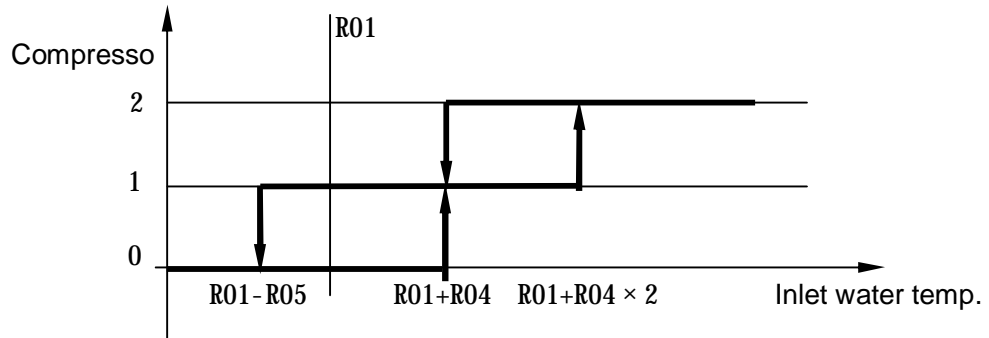


R04—Start differential of cooling

This represents the difference between R01 and start cooling point.

R05—Stop differential of cooling

This represents the difference between R01 and stop cooling point.

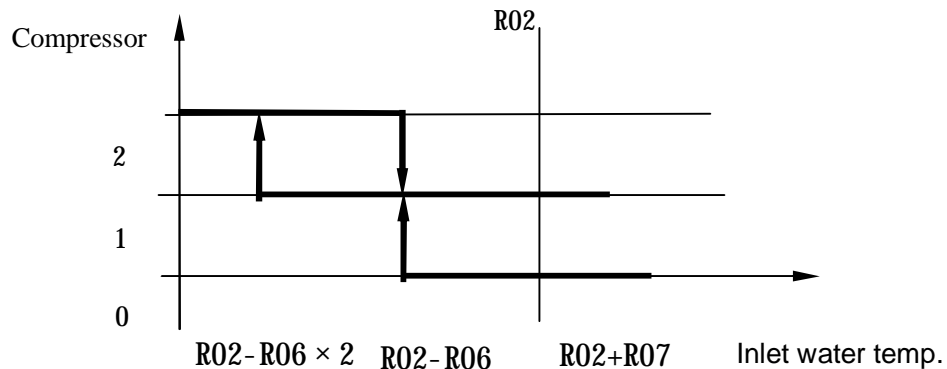


R06—Start differential of heating

This represents the difference between R02 and start heating point.

R07—Stop differential of heating

This represents the difference between R02 and stop heating point.



R08—Minimum set point in Cooling

Establish the minimum limit for setting the Cooling set point

R09—Maximum Cooling set point

Establishes the maximum limit for setting the Cooling set point

R10—Minimum Heating set point

Establish the minimum limit for setting the Heating set point

R11—Maximum Heating set point

Establish the maximum limit for setting the Heating set point

R12—Electrical ΔT_6

This represents the temperature differential in the activation for the Electrical heater

R13—Electrical Ambient

Establish ambient temperature for starting up electrical heater.

R14—Electrical delay

This represents the delay in the activation of the Electrical heater

R15—Electrical Force

This represents ambient temperature in the activation of the Electrical heater when without delay.

R16—Compensation

Establish whether there is compensation function for system or not.

R17—Maximum $\Delta T7$

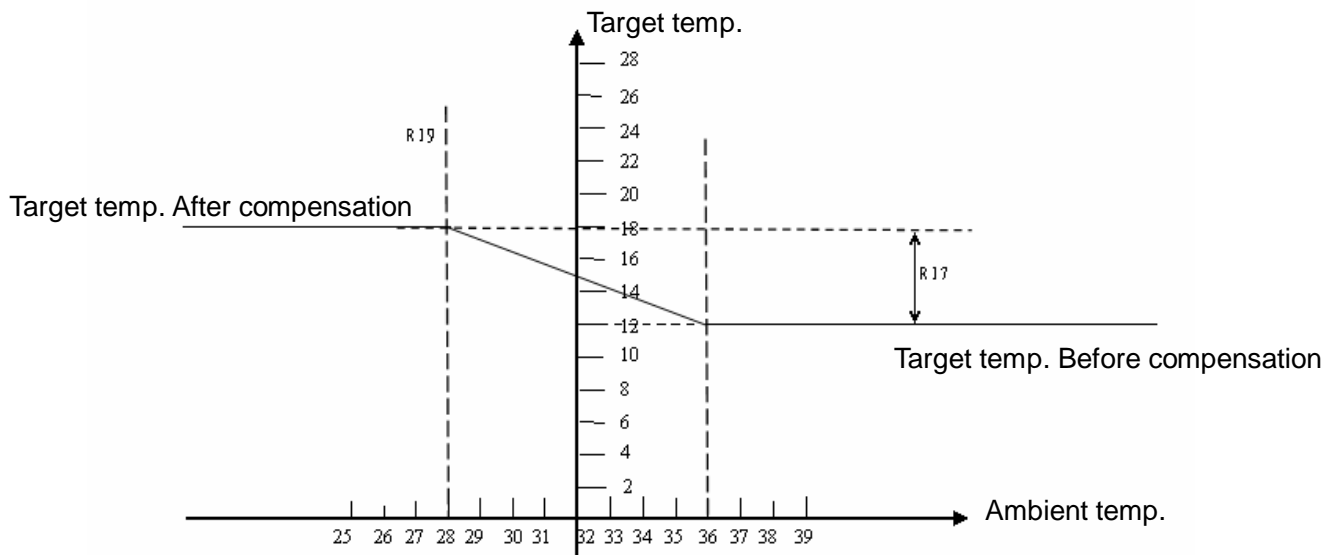
Indicates the maximum deviation from the set point beyond which compensation is stopped.

R18—Compensation constant

Sets the coefficient that controls the compensation algorithm

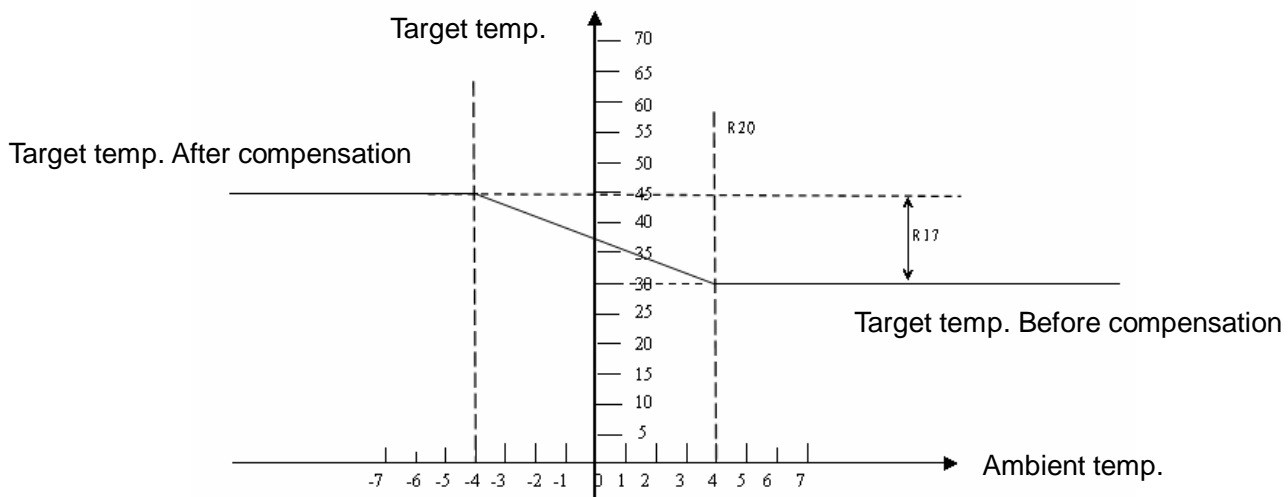
R19—Cooling compensation start air temp.

Sets the temperature above which the compensation function starts (cooling).



R20—Heating compensation start air temp.

Sets the temperature below which the compensation function starts (Heating).



R21—whether enable heat recovery

R21=0, NO; R21=1, YES.

R22—the target temp. Of heat recovery

Establish differential temperature protection for water inlet and outlet

R23—temperature differential of heat recovery

R24—the temperature to stop heat recovery

R25—temperature differential to stop heat recovery

When R21=1, fan low-speed port is used as heat recovery output port.
Ambient temperature < R24, and unit type is swimming pool or air to water heat pump,
heat recovery port without output;
Ambient temperature \geq R24+R25, or unit type is water to water heat pump, heat recovery
control is as follows:

- (a) Heat recovery temp. $T12 \leq R22-R23$, heat recovery port with output;
- (b) Heat recovery temp. $T12 \geq R22$, heat recovery port stop output;

R26—Electric heater mode

R26=0, hydraulic electrical heater

R26=1, tank electrical heater

R26=2, antifreezing heater band

R27—the ambient temperature for start up antifreezing heater band

R28—the temperature differential to stop antifreezing heater band

When ambient temperature < R27, antifreezing heater band will be started up;

When ambient temperature > R27 + R28, antifreezing heater band will be stopped;

U—Water flow parameter

U01—whether enable flow meter

U01=0, NO; U01=1, YES.

U02—Pulse (1L)

Actual water flow (L/minute) = Actual pulse every minute (N/minute)/ U02 (N/L)

U03—Flow protect

U03=0, Water flow can only be checked by user;

U03=1, if water flow <U04, there will be flow too small alarm;

The malfunction will disappear when water flow \geq U04+0.3 m³ /h

U04—Flow alarm value

Establish the value when there is flow alarm.