Heat Pump User Manual

Comprehensive version

Attention

Thank you for choosing our product, we shall be more than glad to service you. For you to better operate this product and to prevent accidents due to misoperation, please read carefully this user manual before carring out any installation or operation, also please pay special attention to the warning, prohibition and attention instructions. We are continuously supplementing and upgrading this user manual to better service for you!

This manual is suitable for below heat pumps:

No.	Abbreviations	Details	Model
1	HW	Air source heat pump hot water series	CGK/C-XX, CGK/D-XX
2	HH	Air source heat pump heating + hot water series	CGK/C-XX, CGK/D-XX
3	HC	Air source heat pump heating + cooling series	CGK/C-XX (HC), CGK/D-XX(HC)
4	SP-H	Swimming pool heat pump heating series	CGY/C-XX, CGY/D-XX
5	SP-HC	Swimming pool heat pump heating and cooling series	CGY/C-XX(HC), CGY/D-XX(HC)
6	HT	Air source high temperature heat pump	CGK/C-XX(H), CGK/D-XX(H)

Note: Abbreviations name will be used in the below content, pls check the related content for your heat pump referring to the form above.

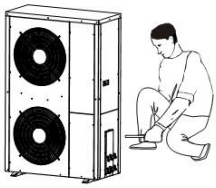
Contents

1. Attentions

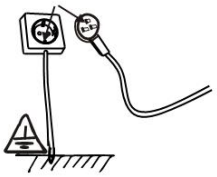
Warning Caution Prohibition

This appliance is not intended for use by persons, including children, with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be super vised to ensure that they do not play with the appliance.

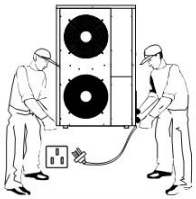
Be sure to read this manual before use.



Be sure to read this manual before use. The installation, dismantle mentand maintenance of the unit must be performed by qualified personnel. It is forbidden to do any changes to the structure of the unit. Otherwise injury of personor unit damage might happen.

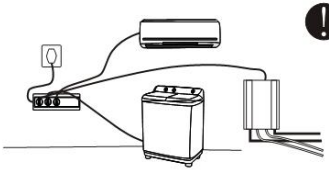


The power supply to the unit must be grounded.



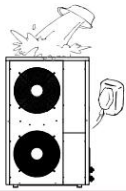
Make sure the power supply to the heat pump unit is off Before any operations are done on the unit.
When the power cord gets looser or is damaged, always get a qualified person to fix it.

Keep the unit away from the combustible or corrosive environment.

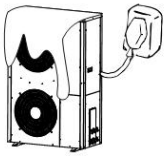


Use a dedicated socket for this unit, otherwise malfunction ma occur.

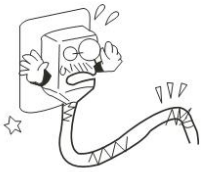
Do not touch the air outlet grill when fan motor is running.



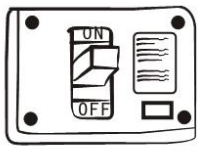
Water or any kind of liquid is strictly forbidden to be poured into the product, or may case creepage or breakdown of the product.



When running the unit, never cover clothes, plastic cloth or any other material that block ventilation on the product which will lead to low efficiency or even non-operation of this unit.



When the power cord gets loose or is damaged, always get a qualified person to fix it.

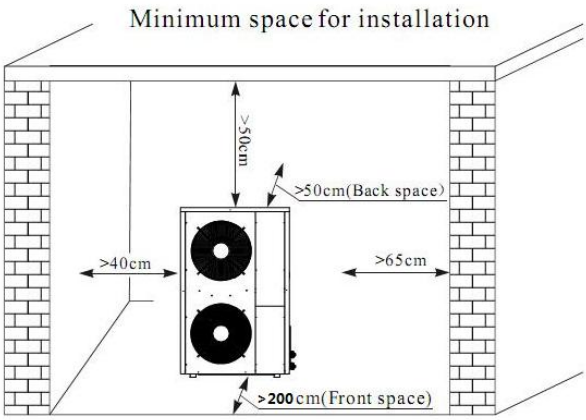


It is mandatory to use a suitable circuit breaker for the heat pump and make sure the power supply to the heater corresponds to the specifications. Otherwise the unit might be damaged.

2. Installation

(1) Heat pump installation location and attentions

* Heat pump is not allowed to be installed in the place where combustible gas may leaks.
* Heat pump is not allowed to be installed in the place where there is oil or corrosion gas released.
* Heat pump should be installed in a open space, and good ventilating.
* Heat pump each side to wall or barrel should be keep certain distance, air outlet to barrel distance should ≥2m, air inlet distance to wall or barrel≥0.5m, bottom distance to ground ≥0.5m, other side distance should be enough for installation or repairing.
* Heat pump should be installed on concrete basic or steel bracket, and anti-shock pad should be put between heat pump and basic or bracket. Then use expansion bolt to fix heat pump on bracket.
* Water drainage pipe and ditch should be set around heat pump and water pipes and water tank. When testing or repairing, maybe need drain plenty of water, and when heat pump is working, there are some condensed water flow down.

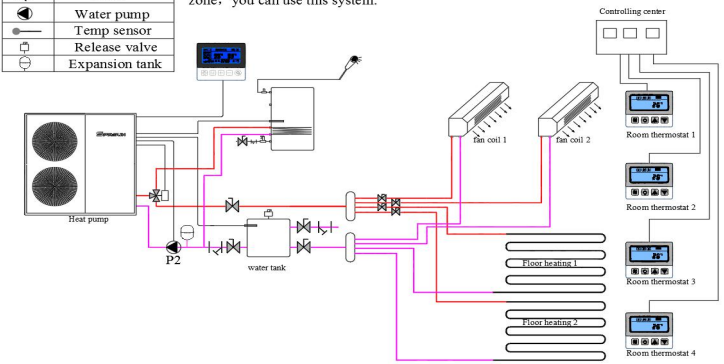


(2) Installation diagram and tips (for reference only, installation shall be based on actual project demand)

*for hot water and floor heating

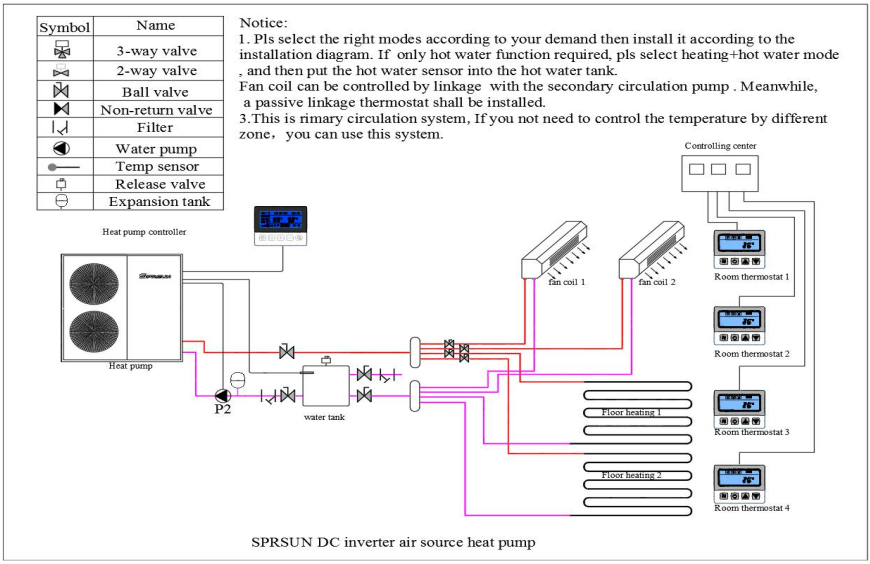
Symbol	Name
	3-way valve
	2-way valve
	Ball valve
	Non-return valve
	Filter
	Water pump
	Temp sensor
	Release valve
	Expansion tank

Notice:
1. Pls select the right modes according to your demand then install it according to the installation diagram. If only hot water function required, pls select heating+hot water mode , and then put the hot water sensor into the hot water tank.
Fan coil can be controlled by linkage with the secondary circulation pump . Meanwhile, a passive linkage thermostat shall be installed.
3.This is rimary circulation system, If you not need to control the temperature by different zone， you can use this system.



SPRSUN DC inverter air source heat pump

***for heating/cooling**



Tips for installation related to the water pipe part:

*Install a valve at the highest point of each water circulations for releasing air from water system.

* A Y filter is very important in front of circulating water pump of heat pump.

* If more heat pumps installed in one water pipe system, the connection of these heat pumps can't be in series, only can be in parallel or independent.

(3) Pre-start up

① Checking before pre-start up

- Check if the water pipe are connected well and if there is any leakage. The water supply valve are open.
- Make sure the water flow is enough and meet the demand of the heat pump selected and water flow smoothly without air . In cold area, pls make sure that the water flow is without freezing
- Check if the power cable is connected well and properly grounded.
- Check if fan blade is blocked by the fixing plate of fan blade and fan blade protecting grill.
- Check if the tank has been filled with water or enough water volume that can meet the demand of heat pump running

 If everything above is OK, the unit can start up. If any of them fails, please improve it.

② Pre-start up

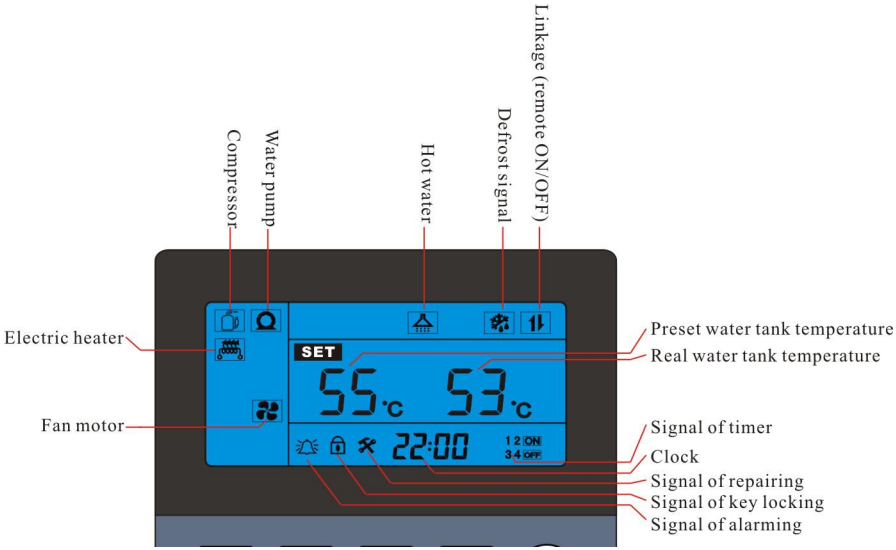
- After check completely and confirm no problem for installation, the unit can be power to start up .
- After connect power supply, heat pump delay 3mins to start. Check carefully is there is some abnormal noise or vibration or if the working current is normal or if water temp increasing is normal.
- After the unit is working properly for 10 minutes without any problem, then the pre-start up is usefully completed. If not, pls refer to Service and Maintenance Chapter to solve the problem.

Part 2. Use

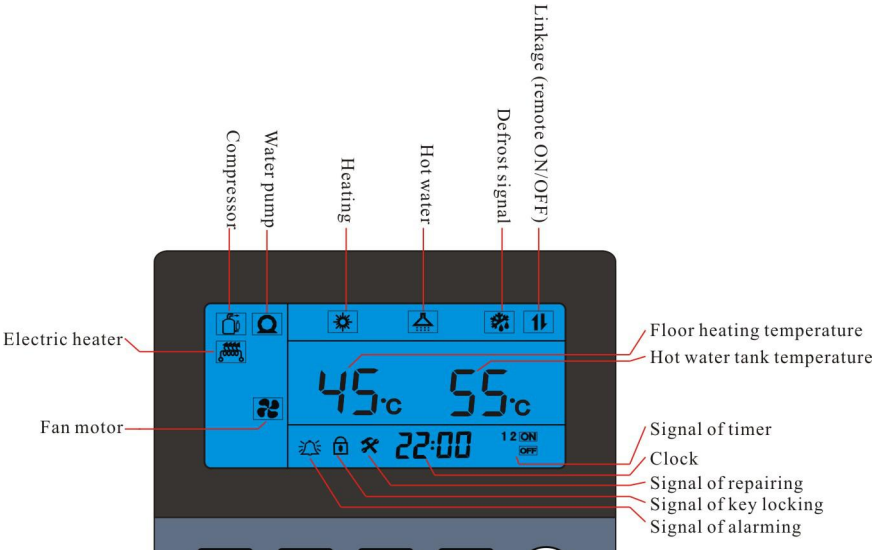
(1) Operating panel display

➢ HH series

① Single hot water mode

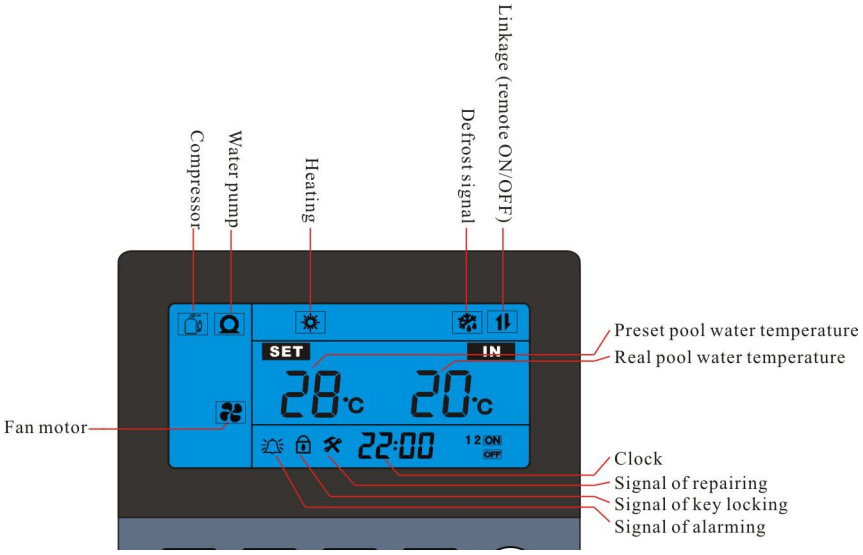


② Heating + hot water mode

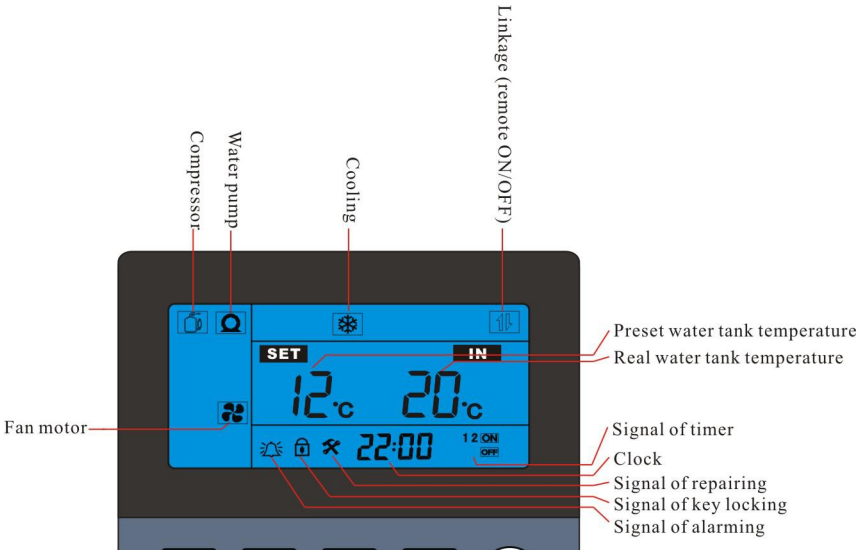


➢ SP-H and SP-HC series

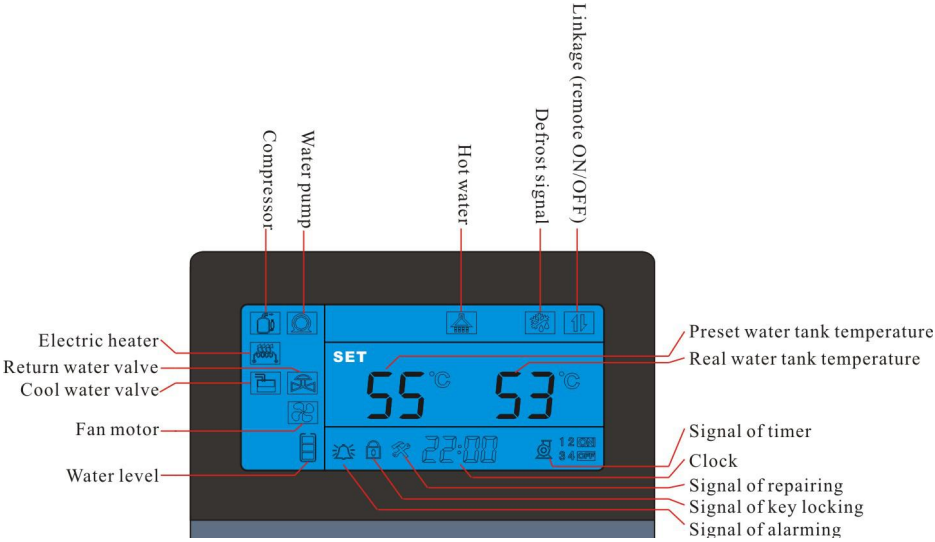
① Heating mode



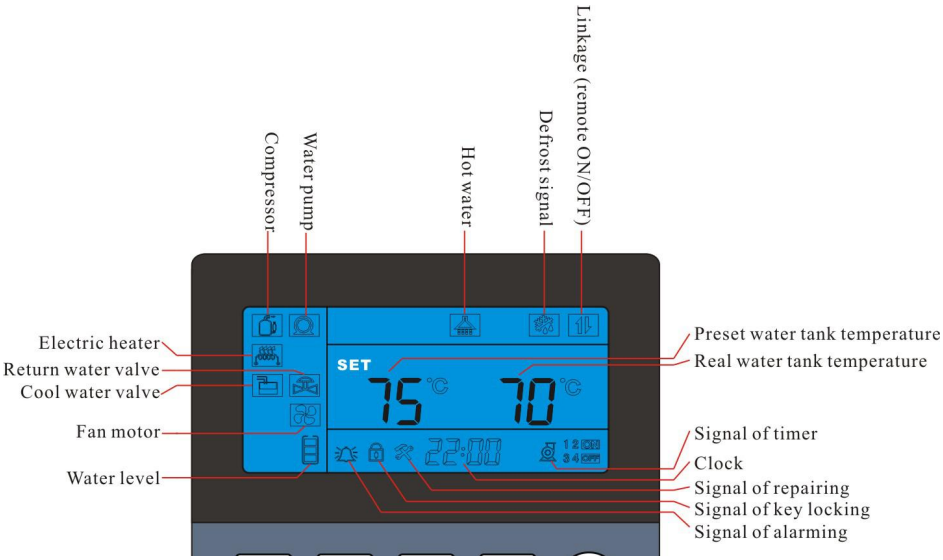
② Cooling mode



➢ **HW series**



➢ **HT series**



(2) Buttons function

Clock M + - power

- **"Power" button**

(2)1.1 Under unlock state, press this button for 1second, can turn on and turn off heat pump.

(2)1.2 Under other state, press this button, can return main interface.

(2)1.3 Under locking state, press this button for 5 seconds, can unlock buttons.

- **“M” button**

Under main interface, press “M” button, can query the working status parameters

- **“+”and “-“ button**

(2)2.1 Turns page, change value.

(2)2.2 Combine with “M” button, can query and set parameter.

(2)2.3 Under power on state, press “+”and “-“button, can set current working mode water temperature (except heating + hot water mode).

- **“Clock” button**

(2)3.1 Press this button for 10seconds, enter clock setting interface

(2)3.2 Press this button, can enter timer of ON/OFF setting, combine “+”and “-“button, can set timers.

(3) Operating

- **Operating panel get electricity**

When heat pump power supply is supplied, operating panel and PC board will get electricity, then display panel displays, background

light is very weak, all buttons are locked now, any touching is invalid.

- **Unlock buttons**

  Press “power” button for 3sec, when hear “Du” voice, move finger, now background light is strong, all buttons are unlocked, the lock symbol disappear. (if there is not operating on buttons for 60sec, buttons will be locked automatically, and displays lock symbol)

- **Turn on/off heat pump.**

  Press “power” button, if operating panel shows off state, will turn on heat pump.

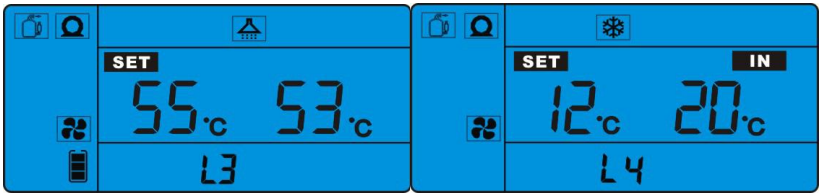
  If operating panel shows on state, will turn off heat pump.

- **Water tank temperature setting (L3 or L4)**

  Except HH series, other series have two way to set water tank temperature:

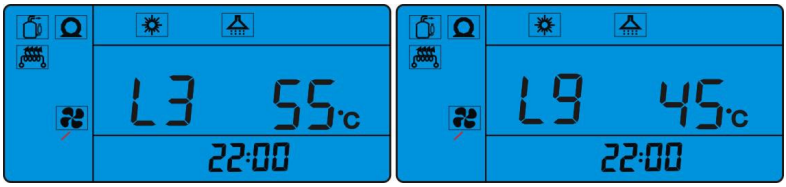
  Way 1:

  Under on state and main interface, press “+” and “-“ button, can adjust current working mode water tank preset temp. The preset water tank temp is the left one temperature, the real water tank temp is the right one temperature. When setting, the left temp will change, and display L3 or L4 below it.



Way 2:

Refer to “Table 3: user parameters query and setting” in P15. All user parameters can be set by the same way. Floor heating water temperature only can be set by this way.



(4) Parameters query and setting operation

① Working status parameters and history error code query

How to enter? Under main interface, press ”M” button, can query the working status parameters and history error codes.

Table 1: heat pump working status parameters query

Code	Meaning	Note
No code	Water tank temp and floor heating water temp	Displayed at the main interface
A1	Air heat exchanger 1 lowest tube temp	Same meaning for all series
A2	Inlet gas temperature of compressor 1	Same meaning for all series
A3	Outlet gas temperature of compressor 1	Same meaning for all series
A4	Ambient air temperature	Same meaning for all series
A5	Outlet water temperature	Same meaning for all series
A6	Return water temperature of water tank	For HW and HT series
	Inlet water temp	For HC and SP-H and SP-HC series
	Floor heating water temp	For HH series (displayed on main interface, the left one temperature)
A7	Reserved	Same meaning for all series
A8	Compressor 1 current	Same meaning for all series
A9	Electric expansion valve 1open degree	For HW and HH and SP-H series, rated heating capacity less than 52KW models
	Reserved	Other series and models
A10	Reserved	Same meaning for all series
b1	Air heat exchanger 2	Same meaning for all series

	lowest tube temp	
b2	Inlet gas temperature of compressor 2	Same meaning for all series
b3	Outlet gas temperature of compressor 2	Same meaning for all series
b8	Compressor 2 current	Same meaning for all series
b9	Electric expansion valve 2 open degree	For HW and HH and SP-H series, rated heating capacity less than 52KW models
	Reserved	Other series and models
C1	Reserved	Same meaning for all series
E1～E6	History error code	Same meaning for all series

Note: about water tank temp sensor, installation position in each series is different.

A. HW and HT series: should be installed in hot water tank by installer

B. HH series: hot water tank temp sensor should be installed in hot water tank by installer. (Floor heating water temp sensor should be installed in floor heating water tank or on floor heating system return water pipe)

C. HC series: water tank temp sensor has been installed on inlet water pipe by factory (if project has A/C water tank, installer can move the sensor to tank from heat pump)

D. SP-H and SP-HC series: has been installed in titanium heat exchanger by factory.

② User parameters query and setting (ON and OFF status can set)

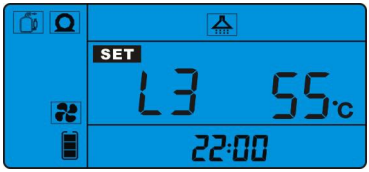
How to enter?

A. Under main interface, press “M” for 3seconds, enter user parameter query interface, then press “+”and “-“ button , can query L2 to L10 value.

B. Under user parameter query interface, press “M” button, enter setting interface, press “+”and “-“ button, to set the value of current parameter, press “M” button again, return query interface.

C. Under user parameters query interface and setting interface, if there is not operation for 30seconds constantly, system will quit user parameter query or setting interface automatically, and return to main interface, press “power” button can return main interface too.

Table 2: user parameters query and setting



Code	Meaning	Setting range	Factory setting
L2	Hot water tank temp drop (or increase) for compressor restart at heating (or cooling) mode	2℃～25℃	SP-H and SP-HC: 3℃ Other series: 5℃
L3	Preset water tank temperature of hot water (or heating) mode	30℃～F1 value	1. SP-H and SP-HC: 35℃ 2. HT series: 75℃ 3. HC series: 45℃ 4. Other series: 55℃
L4	Preset water tank temperature of cooling mode	8～32℃	12℃ *Remarks: for HC, SP-HC series*
L5	Ambient air temperature below which electric heater is allowed to start	-25℃～25℃	5℃
L6	Return water temperature setting from building hot water system	20℃～65℃	45℃ *Remarks: for HW, HT series*
L7	Water tank temperature below which cool water compensating is not allowed at hot water mode	20℃～60℃	20℃(20℃: compensate cool water is not limited by water tank temperature) *Remark: for HW, HT series*

L8	Compressor protect current setting	0～40A	0（0: will not detect current）
L9	Water temp setting of floor heating	20-55℃	45℃ *Remarks: for HH series*
L10	Floor heating water temp drop for compressor restart	2-15℃	2℃ *Remarks: for HH series*

Remarks: L3 setting range upper limit F1 is different for different series.

(5) Error code

Error code	Meaning
Er01	Wrong phase error
Er02	Lack phase error
Er03	Water flow switch error
Er04	Anti freeze protection
Er05	Outlet gas pressure of compressor 1 is too high error
Er06	Inlet gas pressure of compressor 1 is too low error
Er07	Outlet gas pressure of compressor 2 is too high error
Er08	Inlet gas pressure of compressor 2 is too low error
Er09	Communication error

Er11	Time limit for locking heat pump reached
Er12	Outlet gas temp of compressor 1 too high error
Er13	Outlet gas temp of compressor 2 too high error
Er15	Water tank temp sensor error
Er16	Air heat exchanger 1 lowest tube temp sensor error
Er17	Air heat exchanger 2 lowest tube temp sensor error
Er18	Outlet gas temp sensor error of compressor 1
Er19	Outlet gas temp sensor error of compressor2
Er21	Ambient air temp sensor error
Er22	Return water temp sensor error (from bathroom to water tank) *Remark: For HW and HT series*
	Inlet water temp sensor error *Remark: For HC, SP-H and SP-HC series*
	Floor heating water temp sensor error *Remark: For HH series*
Er23	Outlet water temp too low protection at cooling mode *Remark: for HC and SP-HC series*
Er25	Water level switch error *Remark: For HW and HT series*
Er27	Outlet water temp sensor error
Er29	Inlet gas temp sensor error of compressor 1
Er30	Inlet gas temp sensor error of compressor 2
Er35	Compressor 1 current too high error
Er36	Compressor 2 current too high error

Er44	Ambient temp too low protection
Er45	Outlet water temp too high error at heating (or hot water) mode

(6) Other operation

① Clock setting

A. At main interface, press “clock” button for 5 seconds, enter clock setting interface

B. At clock interface, press “clock” button, then “hour” flash, press “+”or “-”button，can set hour.

C. After finish setting hour, press “clock” button, then “minute” flash, now press “+”or“-”button，can set minute.

D. After finish setting minute, press “clock” button, to confirm clock setting, and back to main interface.

E. At clock setting interface, if there is not operation within 30seconds, system will confirm clock setting and back to main interface automatically.

F. At clock setting interface, press “power” button, can confirm current clock setting and back to main interface.

② Timer setting and cancelling (ON/OFF timer)

A. At main interface, press “clock” button, enter timer group

setting. Now press “+”or“-”button, can switch timer groups, there are 4 groups ON/OFF timer.

B. When group 1 ON timer flashing, press “clock” button, enter group 1 ON timer “hour” setting interface, “hour” flash, then press “+”or“-”button，then can set “hour” for group 1 ON timer.

C. After finish setting “hour”, press “clock” button, then “minute” flash, then press “+”or“-”button，can set “minute” for group 1 timer.

D. After finish setting group 1 ON timer “minute”, press “clock” button, enter group 1 OFF timer setting, same way like ON timer setting.

E. After finish setting group 1 ON/OFF timer, press “clock” button, confirm group 1 setting, and enter group 2 ON/OFF timer setting, same way like group 1 setting.

F. At timer interface, if there is not operation within 30seconds, then confirm current timer setting, and back to main interface (this setting can be remembered if electricity is cut off).

G. At timer interface, press “power” button, confirm current timer setting, and back to main interface.

H. Other groups ON/OFF timer setting are same way like group 1.

Remarks: groups 1 and 2 are heat pump ON/OFF timer, group 3 is return water timer, group 4 is cool water compensating timer, group 3 and 4

only valid for HW, HT series.

I. How to cancel timer?

At timer interface, press “clock” button for 5seconds, when the ON and OFF signal disappear, then press “power” button to confirm, can cancel current group ON/OFF timer.

③ Forced defrosting

A. At ON status, press “-” for 3seconds, enter forced defrost.

B. To quit forced defrost, there are two ways:

way 1, automatic quitting: when defrost time reach preset quitting temperature, can quit forced defrost.

way 2, forced quitting: Press “power” button， after power off, 3minutes later, will quit forced defrost completely.

④ Remove history error code

At the interface of query history error code, press “power” and “M” button together for 5seconds, can remove all the history error code.

⑤ Change working mode

Press “+” button for 5seconds, can change the working mode For HC and SP-HC series, change working mode between heating mode and cooling mode.

For HH series, change working mode between hot water mode and heating + hot water mode.

(7) Working modes

① ,HW, HT, SP-H series

The three series mainly used to supply hot water, (sometimes used for house heating), have only one working mode: hot water mode.

1.1 When hot water tank temp ≤L3- L2, heat pump start to heat.

1.2 When hot water tank temp ≥L3, heat pump stop heating.

② HH series

The two series mainly used to supply hot water and heating house, have two working mode: Hot water mode and hot water + heating mode.

2.1 Hot water mode controlling

2.1.1 When hot water tank temp ≤L3- L2, hot water side starts.

2.1.2 When hot water tank temp ≥L3, hot water side stops.

2.2 Hot water + heating mode controlling

2.2.1 Hot water mode: working same as 2.1

2.2.2 Heating mode

- The real water temp of heating system ≤L9 –L10, heating side starts.
- The real water temp of heating system ≥L9, heating side stops.

2.2.3 Hot water + floor heating controlling logic

- Hot water is priority, before hot water reach preset temp,

3-way valve doesn't have electricity

- When hot water reach preset temp, heat pump stop, then check heating side water temp automatically, if heating side water temp doesn't reach preset temp, then 3-way valve will get electricity, and meanwhile heat pump start. When heating system water temp reach preset temp, heat pump stop to standby. In the process, if check hot water tank temp dropped L2 temp, then heat pump stop and 3-way valve loss electricity, then heat pump restart to heat hot water.

③ HC, SP-HC series

The three series are all heating and cooling type. User can change the working mode between heating mode and cooling mode.

3.1 Heating mode

3.1.1 When water tank temp ≤L3- L2, start to heat..

3.1.2 When water tank temp ≥L3, stop heating.

3.2 Cooling mode

3.2.1 Water tank temp ≥ L4 + L2, start to cool.

3.2.2 Water tank temp ≤ L4， stop cooling.

④ Defrosting:

Defrost only valid at heating or/and hot water mode.

When defrost, the display panel will display defrost symbol.

Fan motor doesn’t work. Compressor stops first, then start.

Circulating water pump doesn’t stop.

(8) Electrical component controlling

① Compressor (installed inside heat pump)

1.1 Compressor start / stop according to water tank (or heating system) real temperature and preset temp.

1.2 After compressor stops, should need at least 3min, then it can restart again.

1.3 After compressor start, should work at least 2min first, then can stop. (Except turned off or there is error).

1.4 There is not 3min protection for the first time starting.

② Four - way valve (installed inside heat pump)

2.1 At heating or hot water mode, 4-way valve lose electricity.

2.2 When cooling or defrosting, four-way valve get electricity.

2.3 Four way valve delay 2min change direction after compressor stop when change working mode.

2.4 When defrosting and forced defrosting, 4-way valve get electricity.

③ Circulating water pump

3.1 HW, HC, HT series:

Circulating water pump start / stop together with compressor.

3.2 HH series

If change to hot water mode, circulating water pump start/stop together with compressor.

If change to hot water + heating mode, circulating water pump doesn't stop.

3.3 SP-H, SP-HC series

Circulating water pump doesn't stop.

④ Fan motor (installed inside heat pump)

4.1 Normally, fan motor start in advance than compressor, and stop at the same time as compressor.

4.2 When defrosting, fan motor doesn't work.

⑤ Auxiliary electrical heater

5.1 Starting conditions:

5.1.1 At heating or hot water mode

5.1.2 Ambient temperature ≤ L5

5.1.3 Water tank temperature < L3 - L2

5.1.4 Low level switch connects.

When all of above conditions are met, electric heater starts.

5.2 Stopping conditions:

5.2.1 Water tank temp ≥ L3.

5.2.2 Water tank temp sensor damaged and controller show

error code.

5.2.3 Ambient temp ≥L5+2℃;

5.2.4 Water level switch has error

5.2.5 Low level switch disconnects

Any of above condition is met, electric heater stops.

5.3 When defrosting, forced defrosting, secondary anti-freeze, electric heater is forced to start.

5.4 Except there is water level error, hot water tank temp sensor error, when there is other temp error, high and low pressure error protection, electric heater will start.

Remarks: HH series, only hot water side has electric heater function, heating side doesn't have.

⑥ Three-way valve

6.1 Only HH heat pump have three-way valve function. Installer need install three-way valve on outlet water pipe of heat pump.

6.2 When switch to hot water side, 3-way valve lose electricity. When switch to heating side, 3-way valve get electricity.

6.3 Before 3-way valve switch the direction, circulating water pump should stop first 10seconds in advance.

⑦ Electric expansion valve (installed inside heat pump)

Only HW, HH, SW-H series, rated heating capacity less than 52KW

models use electric expansion valve. The controlling is too complicated, and users needn't know this, so we don't introduce here.

⑧ Return water valve

Only HW, HT series has return water valve function.

8.1 Condition of return water valve open (all below condition should be met):

8.1.1 Low water level switch connects

8.1.2 Water tank temp ≥L6 + 5

8.1.3 Return water temp ≤ L6 – 5

8.2 Condition of return water valve closes (any below condition met):

8.2.1 Low water level switch disconnects

8.2.2 Water tank temp < L6 + 5

8.2.3 Return water temp > L6

⑨ Cool water compensating valve

Only HW, HT series have cool water compensating valve function. (When L7=20℃, cool water compensating function is invalid)

9.1 After compensate cool water manually, before high water level switch connects, the cool water compensating valve opens all the

time, until high water level switch connects, this valve will recover normal controlling function.

9.2 When select there is not cool water compensating timer, system can compensate cool water at any time.

9.3 When select there is cool water compensating timer, system can compensate cool water only in cool water compensating timer period.

9.4 Cool water compensating controlling as below:

9.4.1 When low water level switch is disconnecting, cool water compensating valve open.

9.4.2 When low water level switch connects, and high level switch disconnects, according to below work.

- Water tank temp ≥L7, cool water compensating valve opens to compensate.
- When water tank temp ≤L7-5，cool water compensating valve closes.

9.4.3 When high water level switch connects, cool water compensating valve closes.

9.4.4 When heat pump is under off state, cool water compensating valve is not allowed to pen,

9.4.5 When defrost, cool water compensating valve is forced to

close.

⑩ Linkage switch

10.1 Linkage switch is input OF/OFF signal, heat pump can be turned on/off by the signal.

10.2 When operating panel is under on state, if linkage signal is on, heat pump keep on state. If linkage signal is off, heat pump will be turned off.

10.3 When operating panel is under off state, if linkage signal is off, heat pump keep off state. If linkage signal is on, heat pump will be turned on.

Part 3. Maintenance and repairing

(1) Daily maintenance

Heat pump is high automatic equipment, if can check and maintain periodically, the stability and lifetime of heat pump will increase greatly.

① When using and maintain the heat pump, please note: all security device have been set before leave factory, please don't adjust anymore.

② Check if power cable and other cables connection is firm, if electrical unit work is abnormal, if yes, repair or replace at once.

③ Check periodically if water system leaks water, if insulation damaged.

④ Check if the air around is clean and dry, if ventilation is good.

⑤ Don't put debris around heat pump, avoid blocking air inlet and outlet.

⑥ If need stop heat pump for long time, should drain the water in the system, and cut off the power supply. Before restart, check the system completely.

⑦ When there is error codes, or heat pump work abnormally, please call local servicer to repair.

(3) Cleaing of the heat exchanger

In some application,the fouling tendency is very high,e.g,when using extremely hard water in very high temperature.In such case,it is always possible to clean the heat exchanger by circulating a clean liquid.Use a tank with weak acid ,5% oxalic acid.Pump the clean liquid through the

heat exchanger for 2 hours.This work should by done by qualified person.

Cleaning of the filter: The Y-filter must be cleaned regularly to ensure the water flow of the water system.

(4) Gas charging

Refrigerant is used for transferring energy during heating and cooling operation.If refrigerant is not enough,it will decrease the efficiency directly.Please pay attention to below items during gas charging.

1.This work should be done by qualified personal.

2.If your units needs recharging,then it has a leak,only adding refrigerant will not solve the problem.The leak must be located and repaired.

3.Refrigerant should not be charged over volume,otherwise high pressure fault and low cooling efficiency might happen.

4.If copper pipe is broken,new copper pipe must be used for replacement,because old copper pipe might have reaction with refrigerant,which will change the characteristic of it.

5.Ensure there has no air inside the refrigerant system.Air is the main cause of high pressure of refrigerant system and copper pipe broken.

(4) Error code and repairing

When below error happen, controller will alarm and display error code.

Error	Error code	Possible reason	Method to repair
High pressure error	Er05 Er07	1. Real water temp is too high but probe can't detect real temp 2. Water flow is too small 3. Refrigerant is excessive	1. Check if water tank temp probe is installed correctly 2.1 Release air from highest position of circulation. 2.2. Open Y type filter to check if there is impurity on the net. 3. Drain refrigerant and vacuum and refill refrigerant according to nameplate.
Low pressure error	Er06 Er08	1. Lack of refrigerant 2. Fan motor doesn't run 3. Air flow is blocked	1. Check leaking point and repair and refill refrigerant 2. Change fan motor or blade 3. Wash fin of air heat exchanger or remove barrier close air inlet or outlet.

Outlet gas temp too high error	Er12 Er13	1. Lack of refrigerant 2. Water pump is too small 3. Water pipe is too small 4. Air entered water system	1. Repair leakage and refill refrigerant 2. Change a bigger water pump 3. Change bigger size water pipe 4. Release air in water system
Outlet water temp too low protection when cooling	Er23	1. Circulating water pump is too small 2. Air entered water system 3. There is impurity in water filter.	1. Change a bigger water pump 2. Release air from water system 3. Clean the filter
Outlet water temp too high protection when heating (hot water)	Er45	1. Circulating water pump is too small 2. Air entered water system 3. There is impurity in water filter.	1. Change a bigger water pump 2. Release air from water system 3. Clean the filter
Compressor current is too large	Er35 Er36	1. The current detector is damaged 2. Compressor damaged 3. Compressor doesn’t start	1. Change the detector 2. Change compressor 3. Check if the compressor cable is loose

(3) Other problem and repairing

No	Error	Possible reason	Method
1	Heat pump doesn't run	1. Power supply cable is loose 2. The fuse of power supply is fused.	1. Cut off the power supply to check and repair. 2. Change the fuse.
2	Heating capacity is too small	1. Refrigerant is not enough 2. Water system insulating is not good 3. Air heat exchanger is dirty 4. Water heat exchanger scaled	1. Check leakage and repair and refill gas 2. Improve the insulation 3. Clean air heat exchanger 4. Clean water heat exchanger
3	Compressor doesn't run	1. Power supply has error 2. Cable connecting is loose 3. Compressor is overheat	1. Check reason and solve 2. Check loose and repair 3. Check reason and repair
4	Compressor noise is loud	1. Expansion valve damaged lead to liquid entering compressor 2. The internal parts of compressor damaged	1. Change expansion valve 2. Change compressor 3. Compensate oil

		3. Compressor lack of oil	for compressor
5	Fan motor doesn't run	1. Fan blade fixing screw is loose 2. Fan motor damaged 3. Fan motor capacitance damaged	1. Tight the screw 2. Change fan motor 3. Change the capacitance
6	Compressor run, but not heat	1. There is not refrigerant at all 2. Compressor damaged	1. Check leakage and repair 2. Change compressor

Warranty card

Product model：　　Bar code：

Buyer		Address	
Invoice No.		Date	

Repair date	Repair record	Repairer

Items of warranty:

1. Warranty terms: _____; Within warranty, any problem because of quality, please contact us for support.

2. When repair needed, please show the warranty card and invoice of order or other proof.

3. We don't afford the problem that is caused by re-fitment or adding other function by user.

4. Warranty card and invoice or other purchasing proof will be invalid if alerted.

5. Please keep the warranty card and invoice or other purchasing proofs well, we will need these for service purpose.

6. We will not provide free warranty for below conditions:

(1) without proof;

(2) errors caused by re-fitment or not correct operating;

(3) damage caused by not professional people operating;

(4) faulty by moving or falling;

(5) faulty caused by natural disaster.

CERTIFICATE

Product Model: _____

_____

Bar code: _____

_____