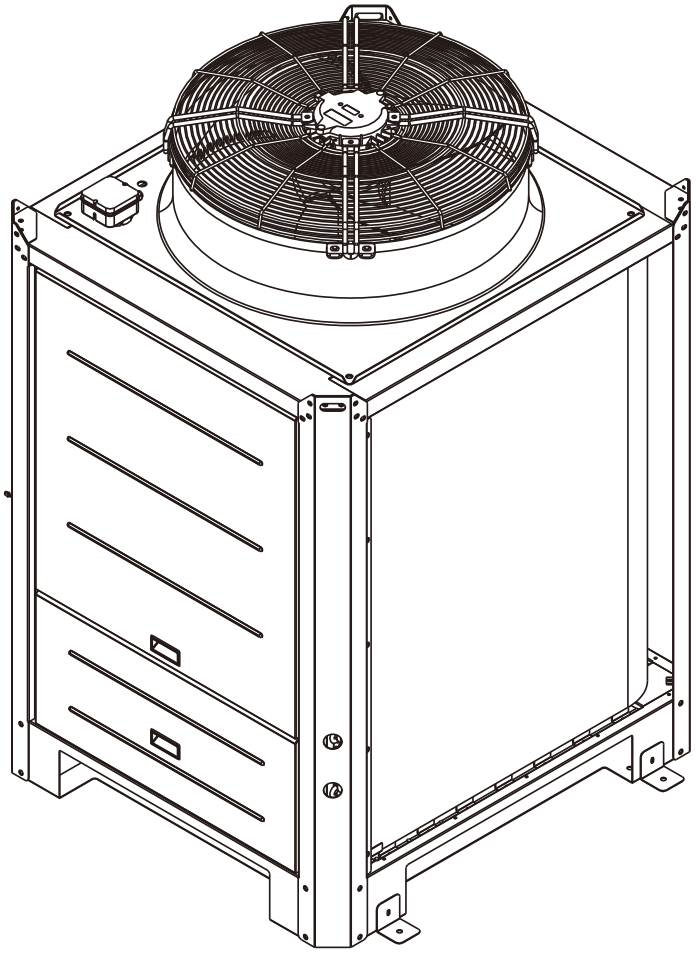
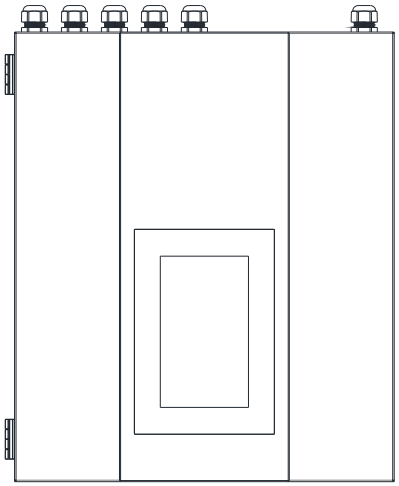
PAVH-40V4GEB





DC Inverter Air to Water Heat Pump

User's manual

Before operating this product, please read the instructions carefully and keep this manual for future use.

Catalogue

1. Product Specifications

1-1. Specifications

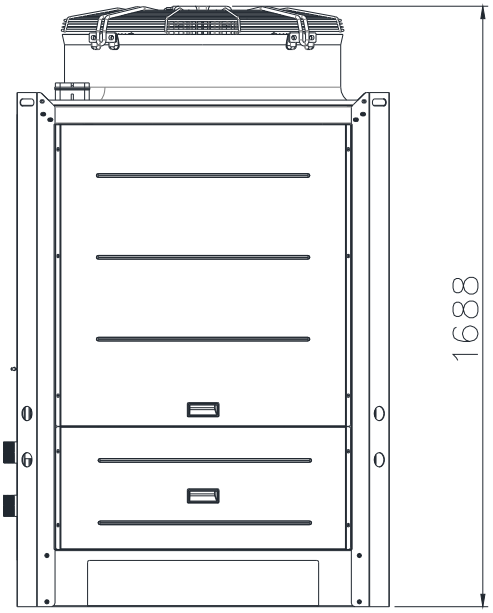
Model information			
Model			PAVH-40V4GEB
Performance			
Min/max heating capacity (1)		kW	13.7~38.4
El. heating power input min/max (1)		kW	2.8~9.9
C.O.P min/max (1)		W/W	3.86~4.92
Min/max heating capacity (2)		kW	13.5~38.2
El. heating power input min/max (2)		kW	3.5~12.3
C.O.P min/max (2)		W/W	3.09~3.83
Min/max cooling capacity (3)		kW	11.5~36.0
El. coolimg power input min/max (3)		kW	2.7~10.4
E.E.R. min/max (3)		W/W	3.45~4.20
Min/max cooling capacity (4) (A35/W7)		kW	4.4~15.0
El. cooling power input min/max (4)		kW	2.9~5.6
Min/max ambient working temp. in heating mode		°C	-23-45
Min/max ambient working temp. in cooling mode		°C	21-45
Max flow temp. in heating mode		°C	75
Min set temp. in heating mode		°C	20
Min set temp. in cooling mode		°C	7
Sound power level	Outdoor unit	dB (A)	66
	Indoor unit	dB (A)	/
Electrical heaters			
Heating cable - condense water		W	440
Compressor heater		W	30
Power supply			
Power supply - Outdoor unit	Outdoor unit	V / Hz / N	400V/50Hz/3N
	Fuse Outdoor unit	A	3p/50A/C
Power supply - Indoor unit	Indoor unit	V / Hz / N	230V/50Hz/1N
	Fuse Indoor unit	A	1p/6A/C
Components			
Refrigerant	type	/	R290
	charge	kg	4.7kg
	GWP	/	3
	t CO_2 Equiv.	/	0.014
Hydraulics			
Minimum water flow		m^3/h	$4m^3/h$
Nominal water flow		m^3/h	$6.88m^3/h$
Hydraulic connections		Size	G2"
Flow switch	Manufacturer		ACOL
Flow switch	type		WFS27035PG-3.0
Dimensions and weight			
Dimensions net (L x D x H)	Outdoor unit	mm	1050*1170*1690
	Indoor unit	mm	480*135*380
Net weight	Outdoor unit	kg	355
	Indoor unit	kg	10

(1) Heating condition: water inlet/outlet temperature: 30 °C/35°C, Ambient temperature: DB 7 °C /WB 6 °C ;
(2) Heating condition: water inlet/outlet temperature: 40°C/45°C, Ambient temperature: DB 7 °C /WB 6 °C ;
(3) Cooling condition: water inlet/outlet temperature: 23 °C/18°C, Ambient temperature: DB 35 °C /WB 24 °C ;
(4) Cooling condition: water inlet/outlet temperature: 12°C/7°C, Ambient temperature: DB 35 °C /WB 24 °C;
(5) The specifications are subject to change without prior notice. For actual specifications of unit, please refer to the stickers on the unit.

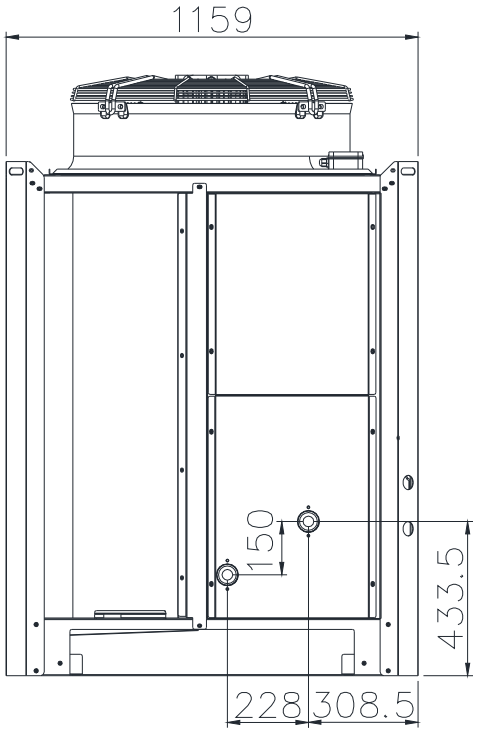
1. Product Specifications

PAVH-40V4GEB

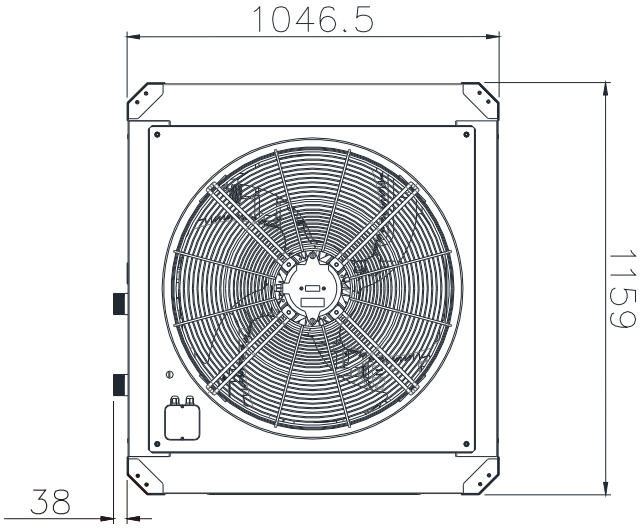
Unit:mm



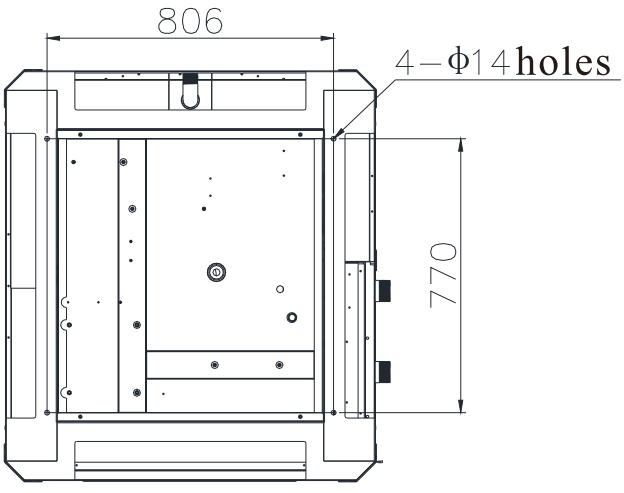
Front view



Side view



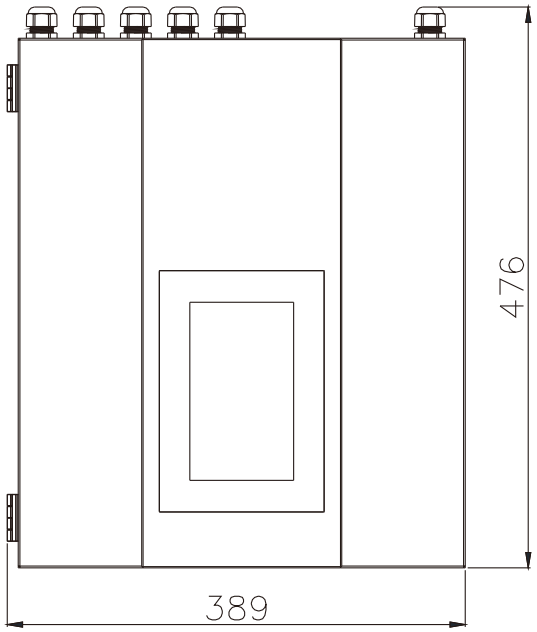
Top view



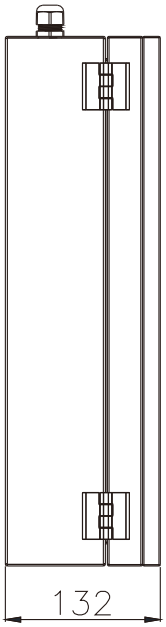
Bottom view

1. Product Specifications

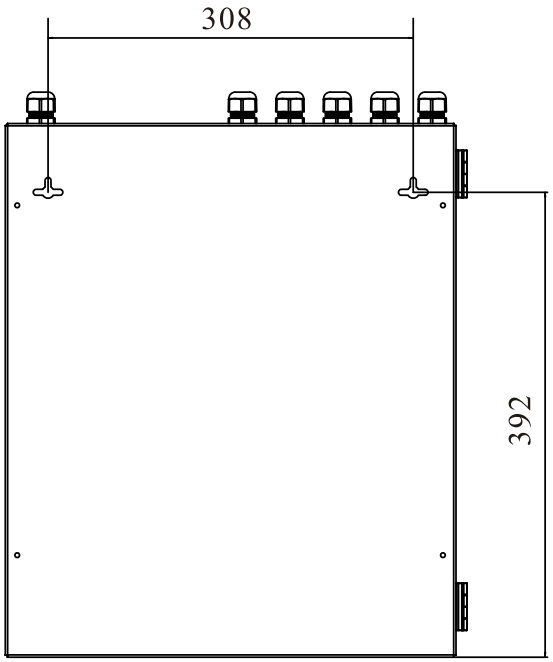
AWC30/90-EVI-M



Front view



Side view

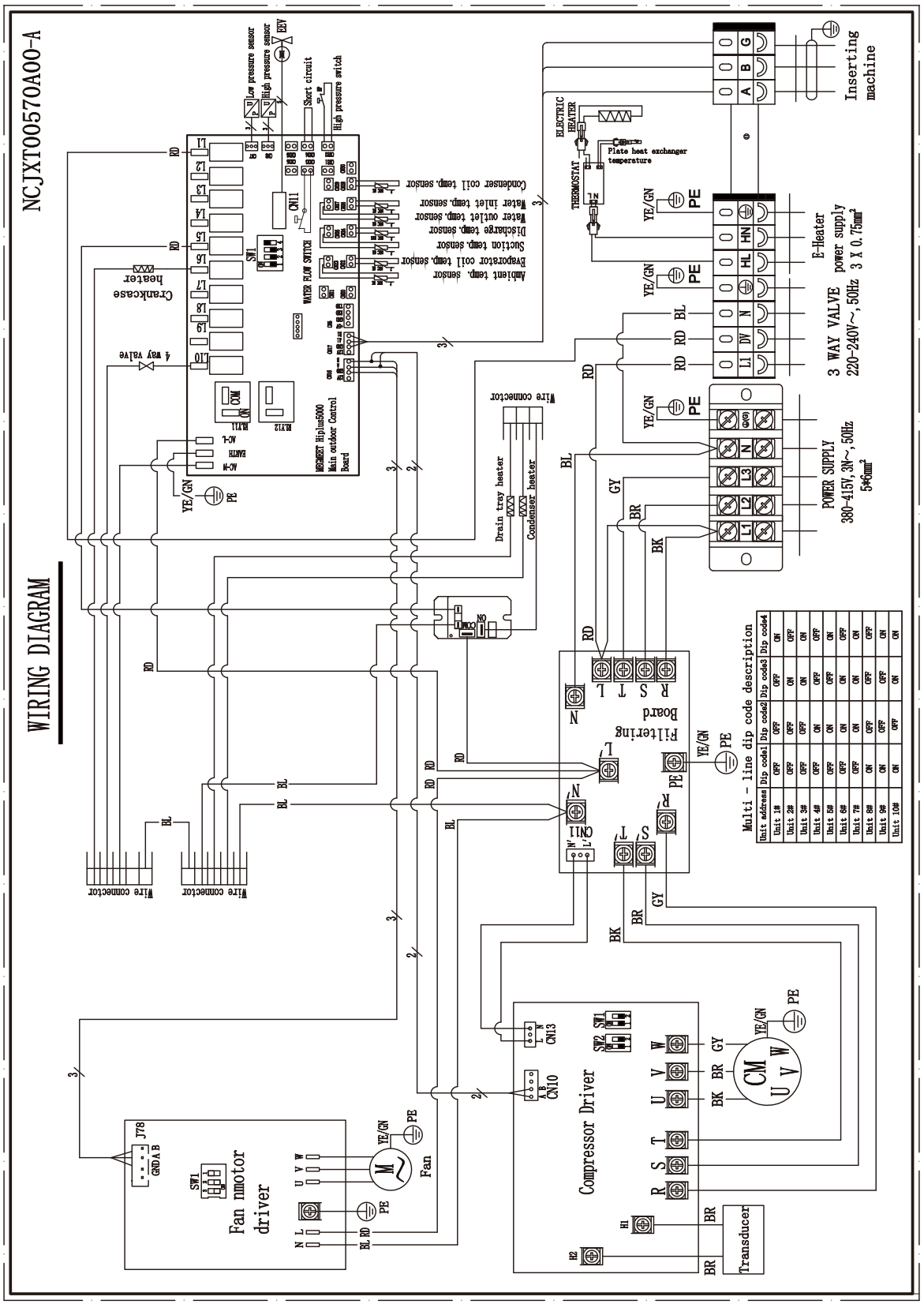


Back view

2. Product Data

2-1.Electrical Wiring Diagrams

PAVH-40V4GEB--Outdoor unit

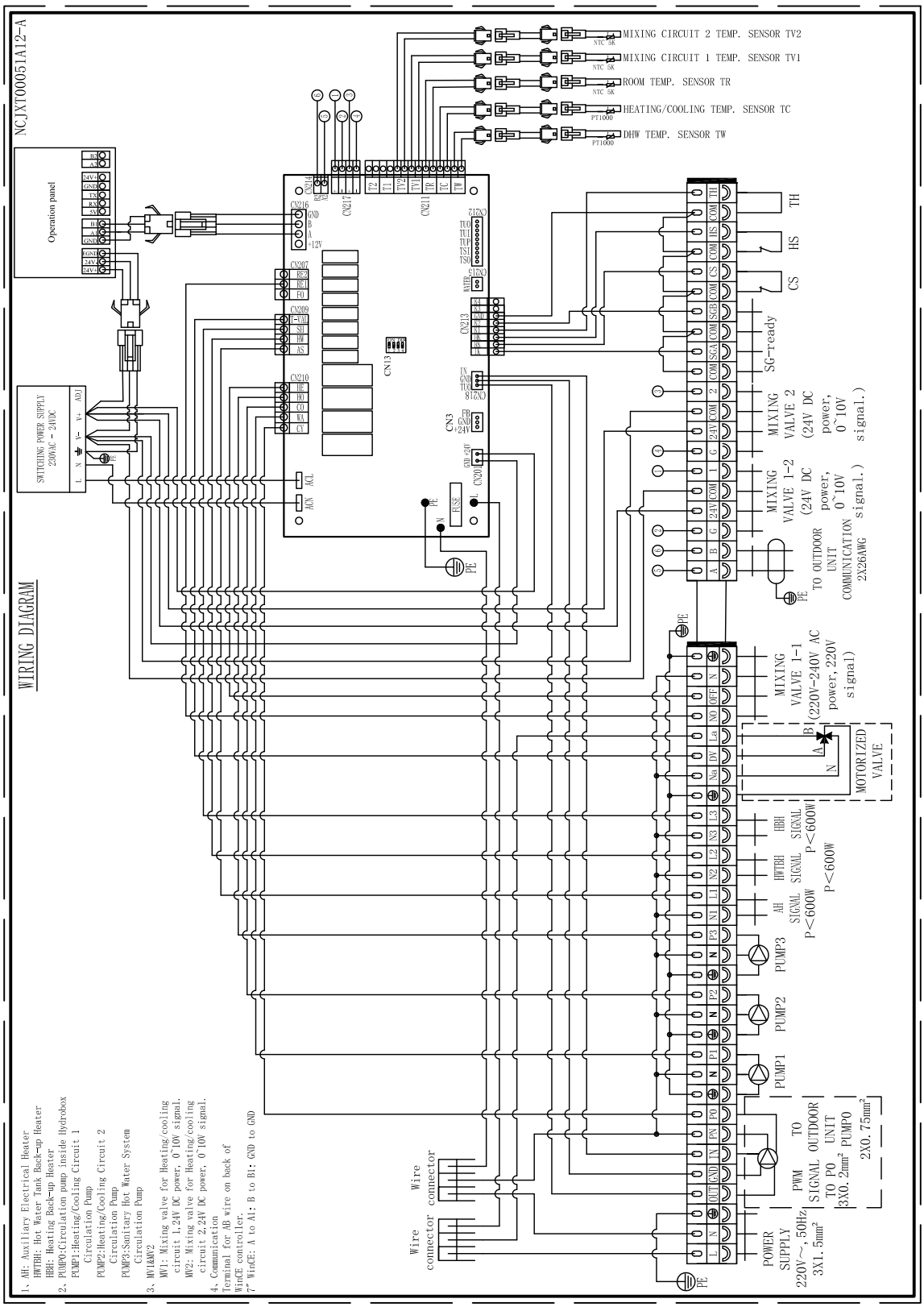


TAKE CARE!
The specifications are subject to change without prior notice.
For actual specifications of the unit, please refer to the specification stickers on the unit.

2. Product Data

2-1.Electrical Wiring Diagrams

AWC30/90-EVI-M



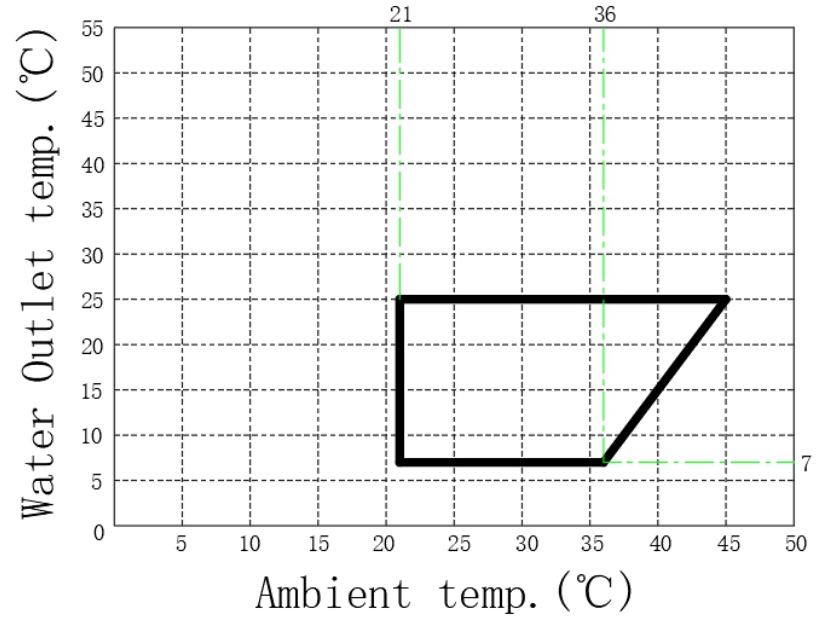
TAKE CARE!
The specifications are subject to change without prior notice.
For actual specifications of the unit, please refer to the specification stickers on the unit.

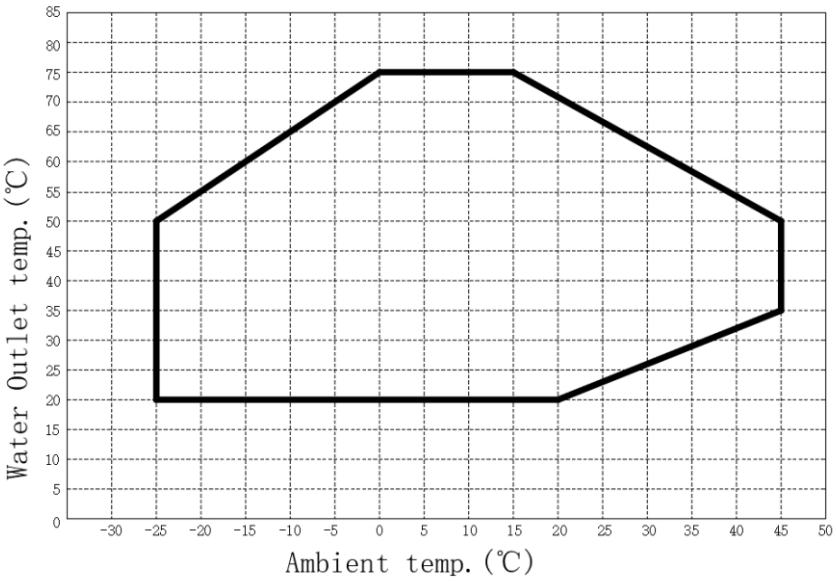
2. Product Data

2-2. Operation temperature range

PAVH-40V4GEB

Cooling mode





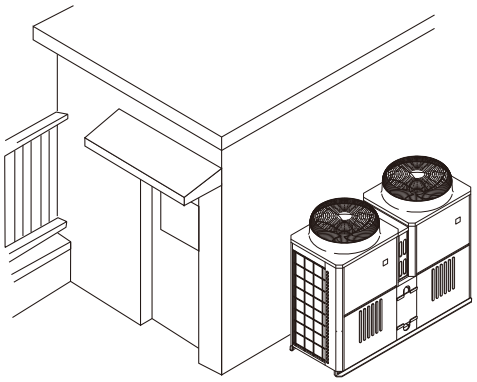
3. Installation

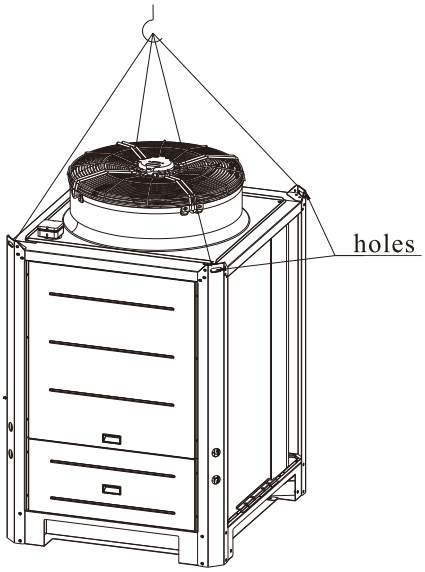
3.1. Selecting the Installation Site

3.1.1 Installation Conditions

Select a installation site that meets the following conditions:

- Unit can have free air circulation.
- The noise from the unit will not be a problem.
- Condense water from the unit can be drained.
- Unit has open space as shown in the drawing 3.1.2.
- Stand of the unit must be at least 50cm high in cold areas, to avoid snow accumulation.





Pass two ropes through four holes of the heat pump and lift it with hook.

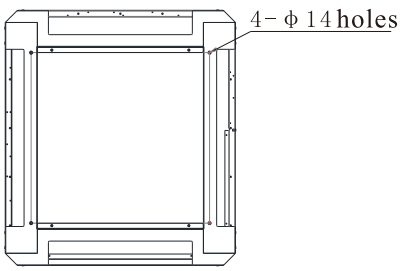
Lift of the unit : Rope used for lifting the unit should bear at least 3 times the weight of the unit. Hook should be fixed to the unit, and lifting angle must over 60°

Note : Don't stay under the unit when unit is being lifting up. Add soft material between rope and unit to avoid unit damage.

1.Fix the outdoor unit on the bracket.

2. Four M10 bolts pass through four holes of bracket and of the bottom plate installation holes.

3.Tighten nuts with a wrench.

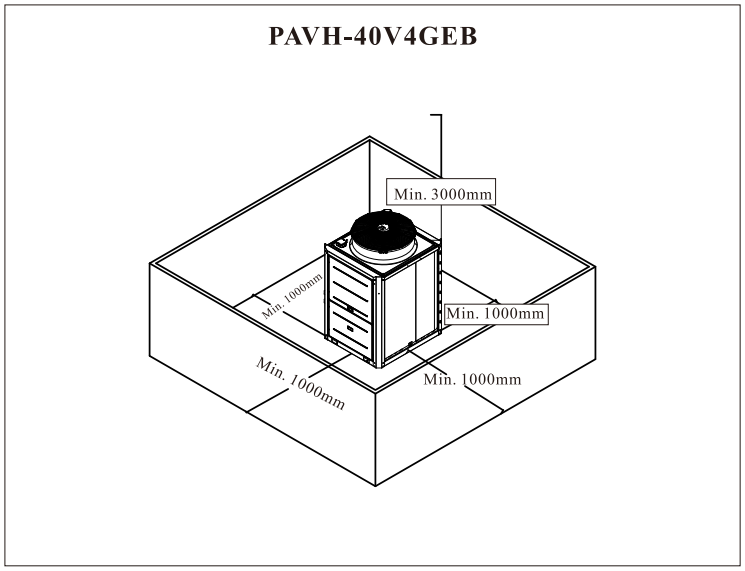


3. Installation

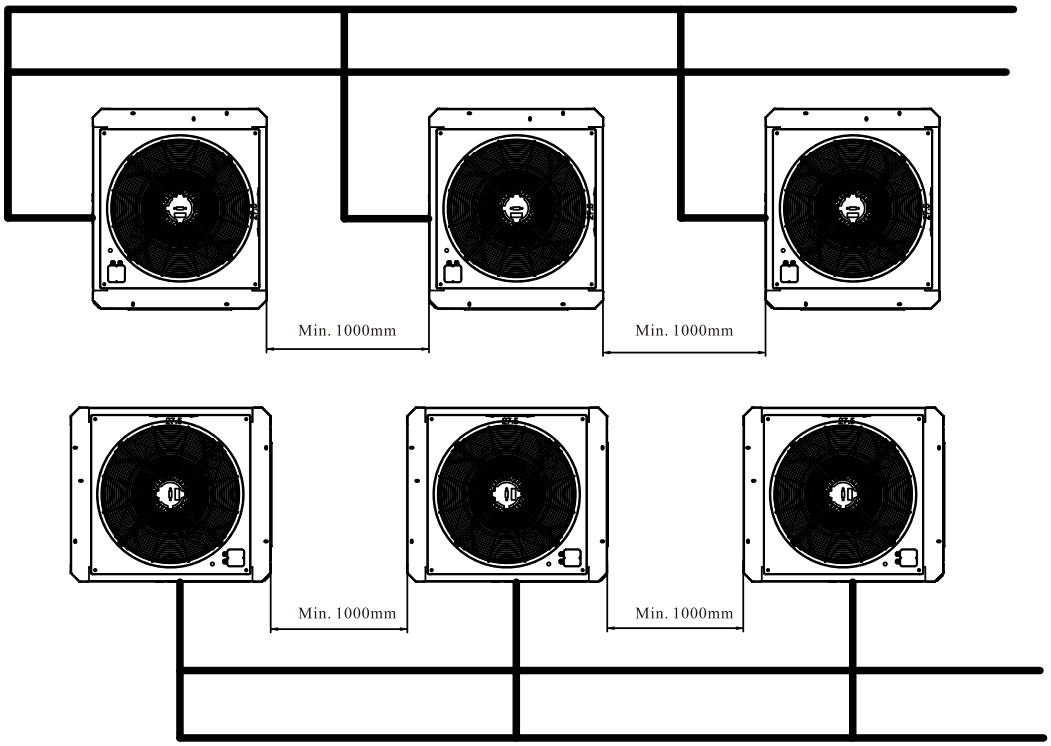
3.1.2. Installation space requirements

1.Single unit installation

Secure enough space around the unit as shown in the figures below.



Side-by-side installation



3.2. Unit Installation

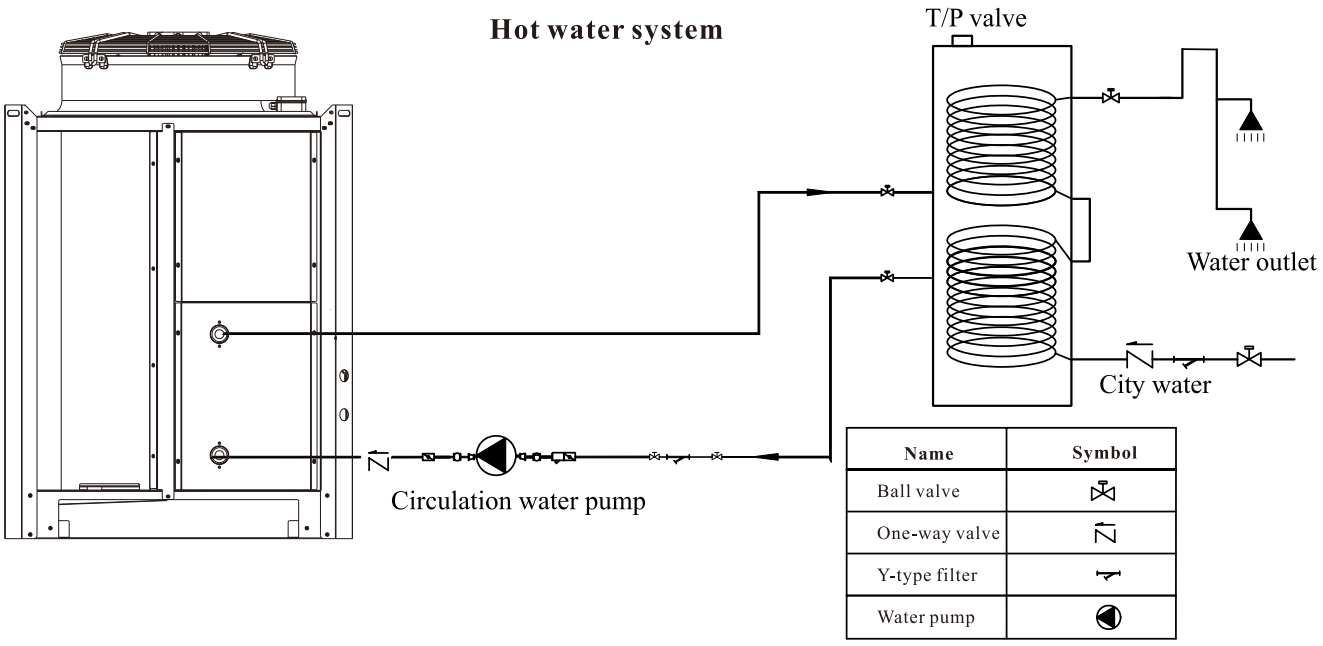
The unit must be installed on flat concrete blocks, or a dedicated mounting bracket.

4. System Design

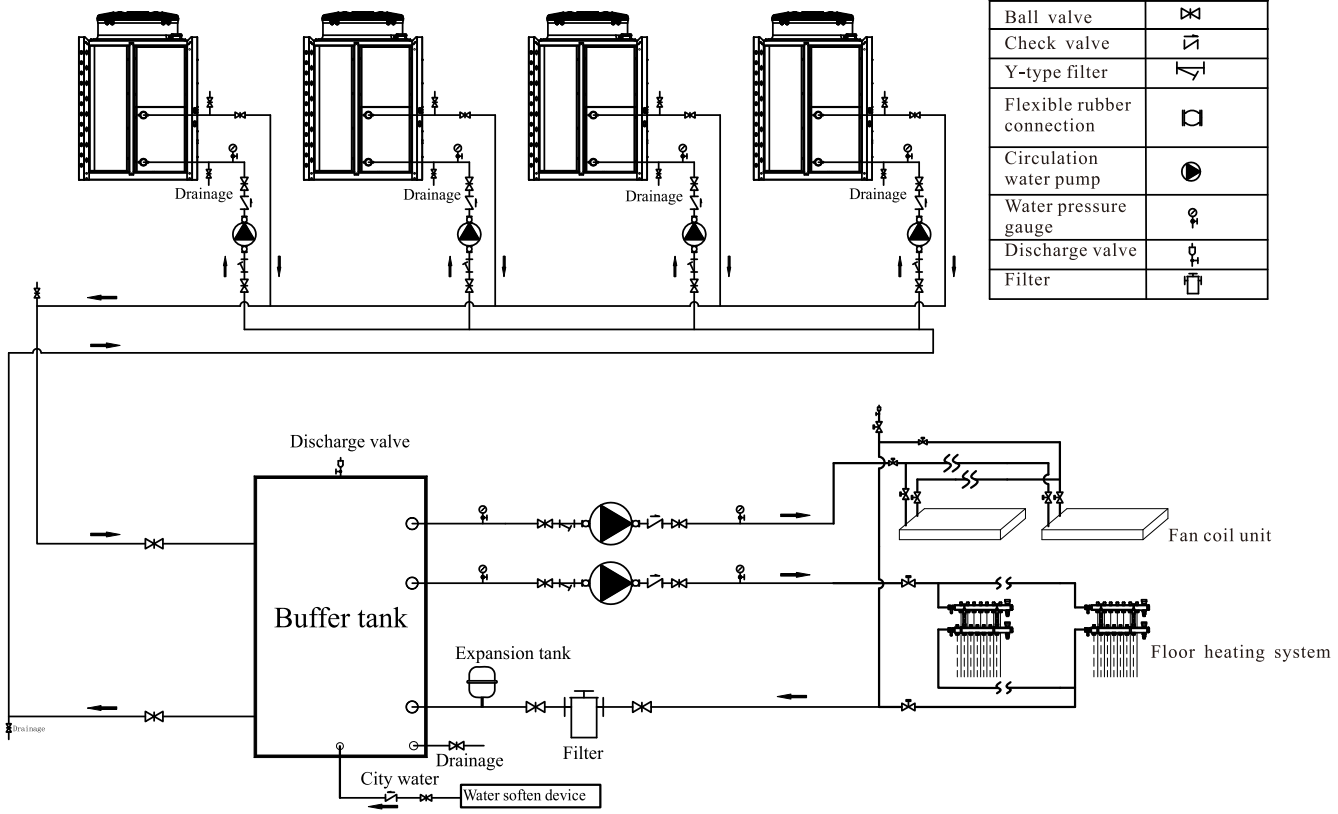
4.1. Water Pipe Installation

4.1.1. Caution for water pipe installation

The installation should be done by qualified installer. Before installation, please make sure the power supply is cut off.



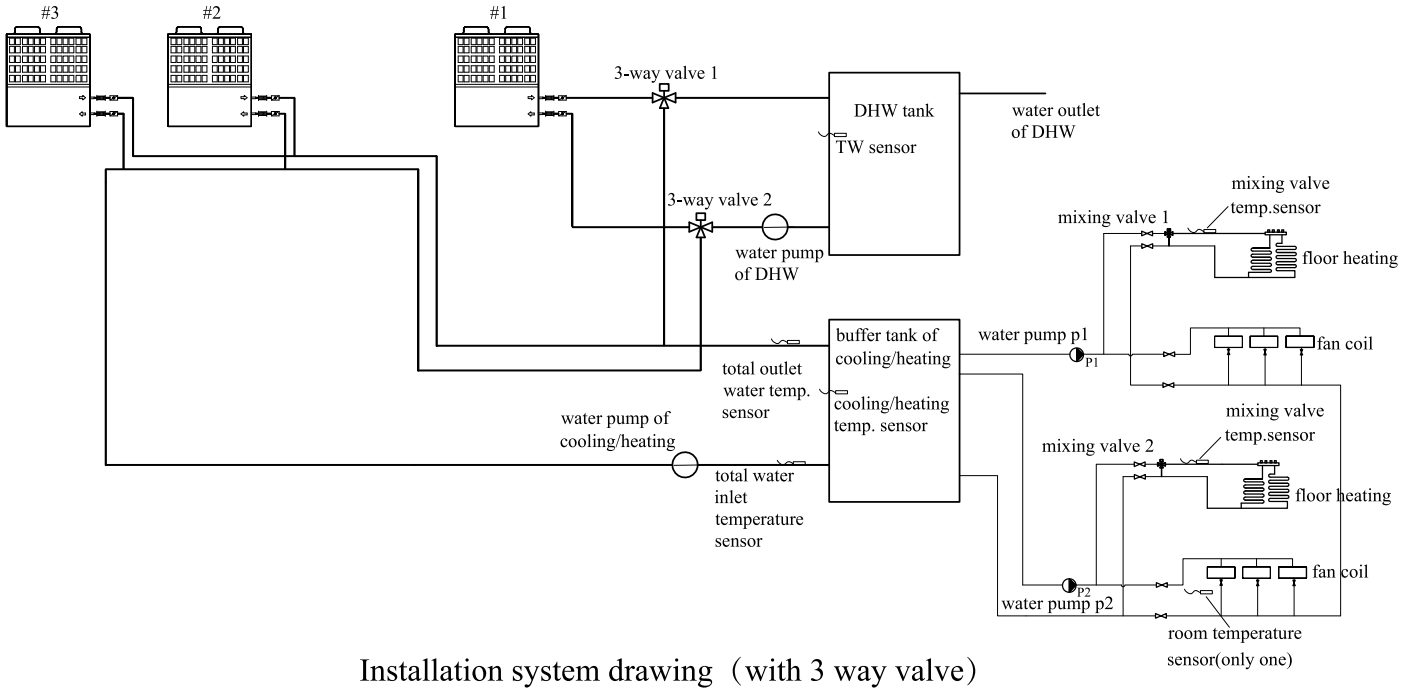
Name	Symbol
Ball valve	
One-way valve	
Y-type filter	
Water pump	



Name	Symbol
Ball valve	
Check valve	
Y-type filter	
Flexible rubber connection	
Circulation water pump	
Water pressure gauge	
Discharge valve	
Filter	

Attention: Maximum 10 units can be connected in parallel.

4. System Design



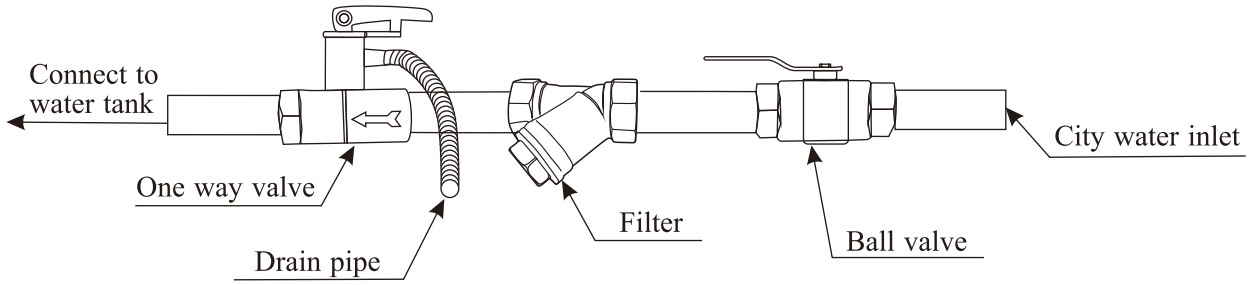
Installation system drawing（with 3 way valve）

4. System Design

4.1.2. Installing the water pipes

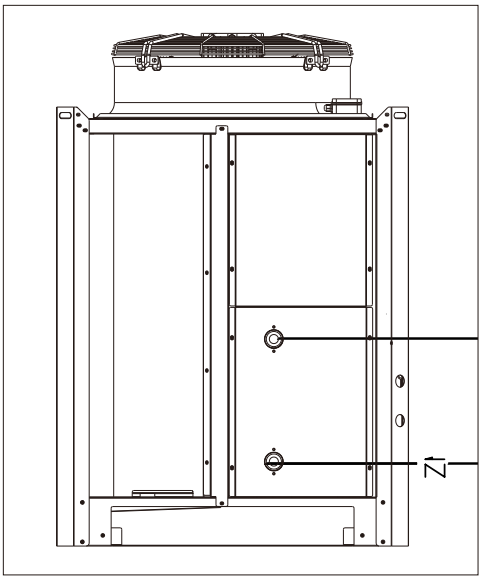
Installing the Filter

A mesh filter must be installed in front of the water inlet of the unit and water tank, to keep the water quality and collect impurity contained in the water. Take care to keep the water filter mesh towards the bottom. Ball valve is recommended to be installed at both sides of the filter, so as to clean or change the filter in a easier way.



Check valve

A check valve must be installed in front of the water inlet of the unit to prevent the refrigerant from flowing back into the room through the water inlet after the heat exchanger is damaged, the water outlet relies on the gas separator valve and exhaust valve to discharge the refrigerant.



4. System Design

4-2. Ensuring enough water in the water circuit

4.2.1.Required amount of water

Buffer tank is to be included in the system,
It should be installed between heat pump and distribution system,in order to:
1) Ensure heat pump unit has stable and enough water flow rate.
2) Store heat to minimize fluctuation of system heating/cooling load.
3) Extend the water volume of distribution system for proper working of heat pump unit.

Model	Minimum amount of water (ℓ)
PAVH-40V4GEB	320

4-3. Inlet/Outlet pipe connection size and material

The table below shows the inlet/outlet pipe connection size

Inlet/Outlet pipe connection size

Model	Inlet pipe connection	Outlet pipe connection
PAVH-40V4GEB	2”Female screw	2”Female screw

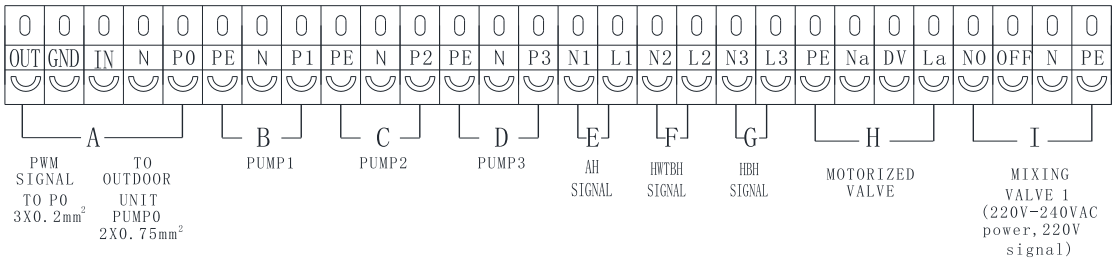
5. Installation

5.1. Wiring

5.1.1 Explanation of terminals
1) Terminal block 1

PAVH-40V4GEB

For user's side



A : Circulation pump for heating/cooling: ON/OFF signal of circulating pump. This port is an active output signal. It can not be operated directly with load, but only as output signal. When connecting AC water pump, only P0/N/PE need to be connected. When connecting DC water pump, all OUT/GND/IN/PE/N/P0/PE terminals need to be connected.

B : Secondary pump 1: In the heating system, the ON/OFF signal of the circulating water pump of system 1. It can not be operated directly with load, but only as output signal.

C : Secondary pump 2: In the heating system, the ON/OFF signal of the circulating water pump of system 2. It can not be operated directly with load, but only as output signal.

D : Circulation pump for hot water: ON/OFF signal of circulating water pump at domestic hot water side of the unit. This port is an active output signal with an output of 220V/50HZ. It can not be operated directly with load, but only as output signal.

E&G:(Heating/cooling system)
External source for heating stage 1/External source for heating stage 2
If there is an external standby heater for heating, it can be connected to these ports for controlled by the heat pump. It can not be operated directly with load, but only as output signal.

There are two priority levels for electric heater of heating: auxiliary electric heater AS, electric heater of heating SH. When there is a need of opening electric heater, it will open the one with high priority firstly;

F: (DHW system)
External source for DHW stage 1
If there is an external standby heater for heating, it can be connected to these ports for controlled by the heat pump. It can not be operated directly with load, but only as output signal.

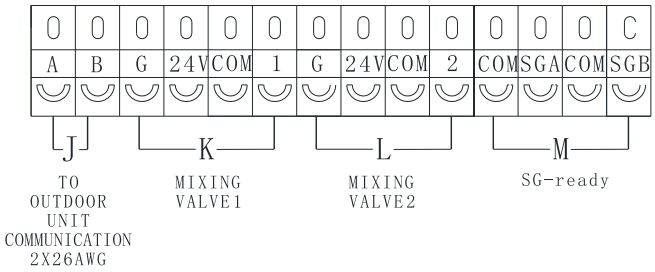
H:Diverting valve outputLa = constant power (230VAC); Na = Neutral; DV = Signal output during heating mode (230VAC)

I:Mixing valve 1Waterway regulation in heating/cooling system(220V-240V AC power,220V signal)

5. Installation

2) Terminal block 2

For user's side



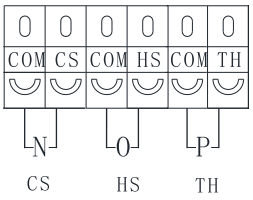
J:Indoor and outdoor communication cable
Heat pump outdoor unit AB cable need to be connected with the indoor controller AB cable for communication.

K&L:(Heating/cooling system) Mixing valve 1. (Heating/cooling system) Mixing valve 2
Waterway regulation in heating/cooling system.
This port is an active signal DC24V, which cannot be connected to active signals
(such as current and voltage signals).

M:The "Smart Grid Readiness" function (abbr. "SG Ready") increases the hot water production of the unit, in winter heating or DHW mode depending on the operating mode, increasing the hot water setpoint, when the electrical grid "Smart Grid" sends a signal to the unit control through a digital input.

3) Terminal block 3

For user's side



N:Cooling signal terminal: Decide whether the heat pump starts cooling/heating according to the external signal switch.

O:Heating signal terminal: Decide whether the heat pump starts cooling/heating according to the external signal switch.

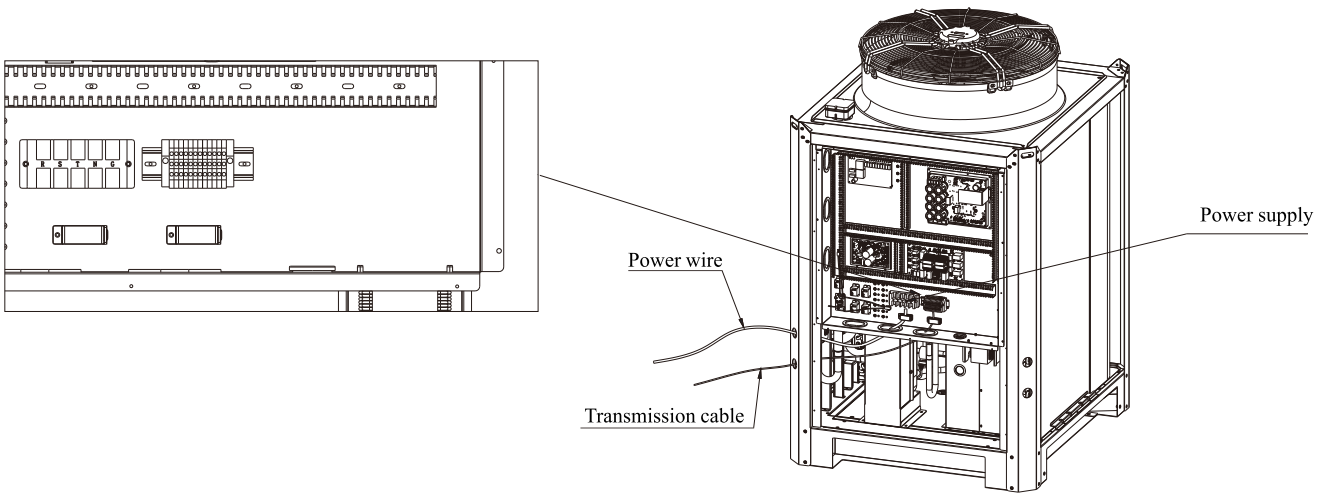
P:High temperature signal: Set the working mode of circulating water pump in the two systems.
The high temperature of system 1 or system 2 is valid)only one system can be selected at the same time.)
If system 1 is selected as high temperature system, then the high temperature function of system 1 is controlled by external signals, and whether to start the high temperature function is determined by the ON/OFF signal at the high temperature signal terminal.

6. Wiring Design

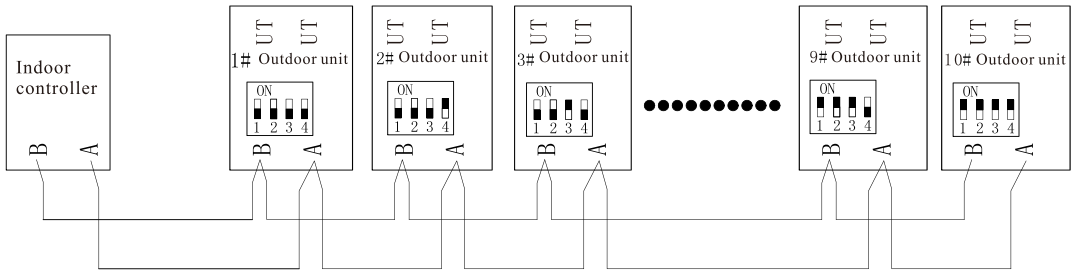
6-1. Connect to power supply

(1)Terminal Block Arrangement

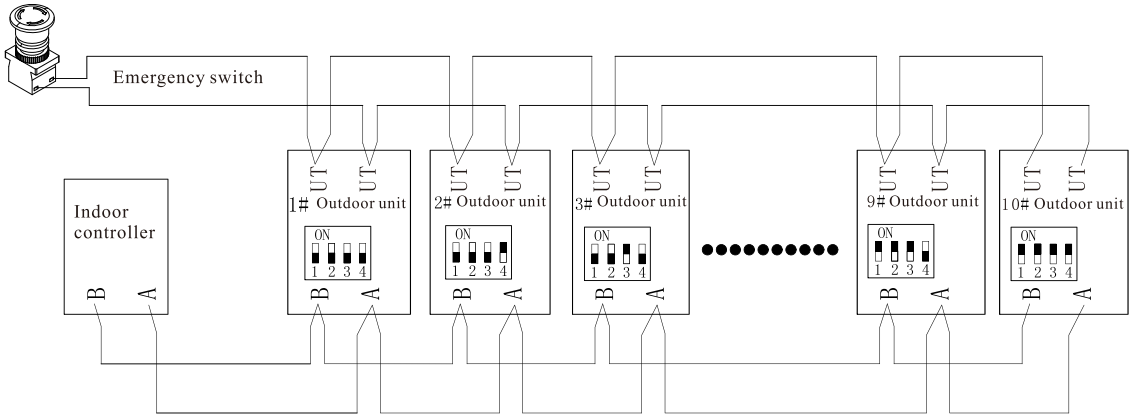
Remove the front panel of the control box, unscrew the four screws and pull the panel forward and then down.



Communication for multiple units

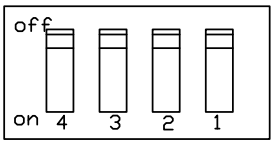


Emergency operation



6. Wiring Design

Dip switch (SW1) is used to set the system number.



Outdoor unit main PCB--SW1

When multiple units work together, please set the dip switch as follows.

The Dip switch is detected only once when the unit is powered on. If you want to reset the dip switch, please cut off power first and reset dip switch, then power on the unit.

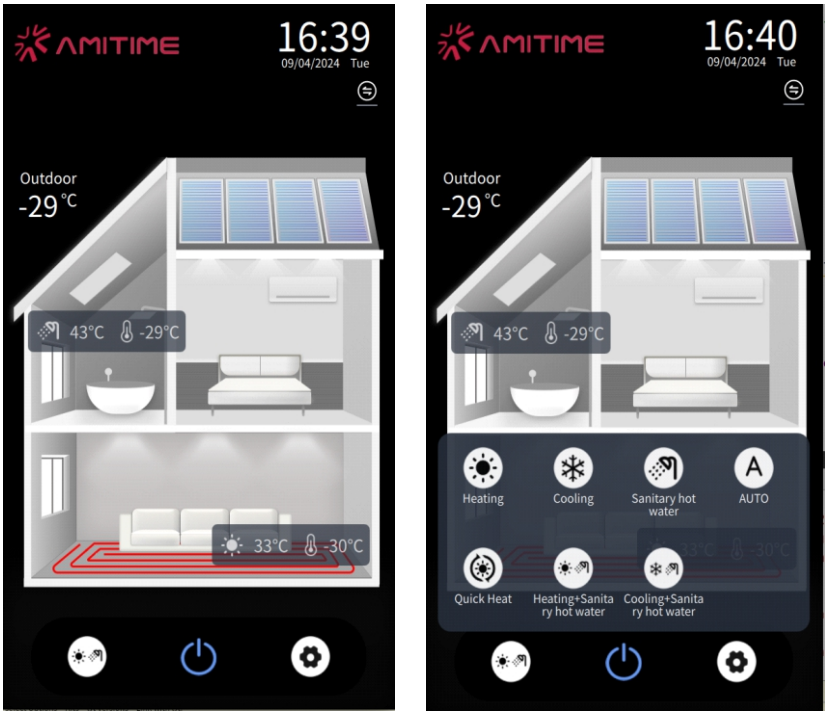
The value of dip switch: OFF=0,ON=1.

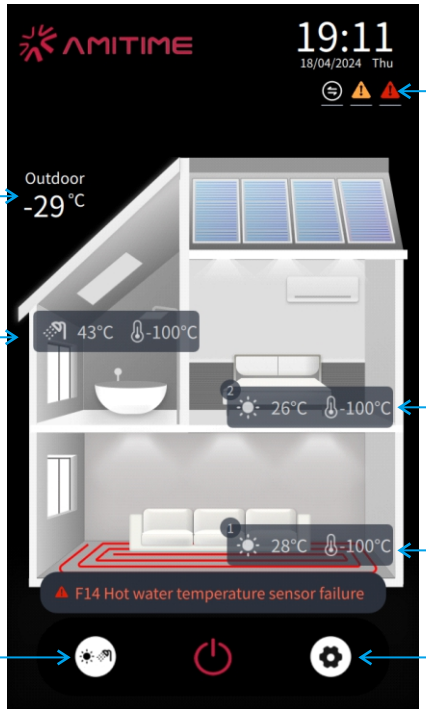
Multi - line dip code description

Unit address	Dip code1	Dip code2	Dip code3	Dip code4
Unit 1#	OFF	OFF	OFF	ON
Unit 2#	OFF	OFF	ON	OFF
Unit 3#	OFF	OFF	ON	ON
Unit 4#	OFF	ON	OFF	OFF
Unit 5#	OFF	ON	OFF	ON
Unit 6#	OFF	ON	ON	OFF
Unit 7#	OFF	ON	ON	ON
Unit 8#	ON	OFF	OFF	OFF
Unit 9#	ON	OFF	OFF	ON
Unit 10#	ON	OFF	ON	ON

7. Touchscreen Panel Overview

Main Page



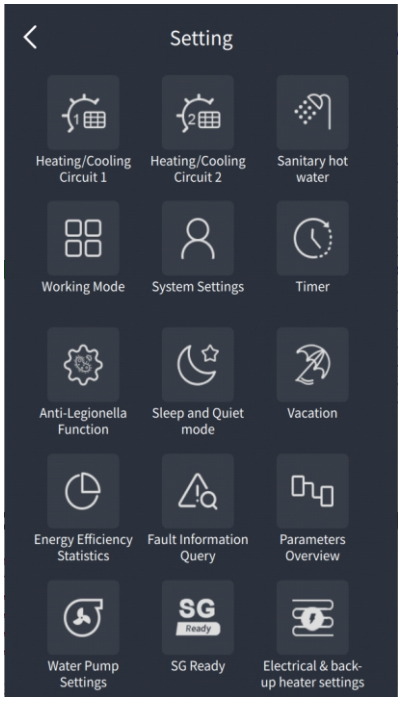


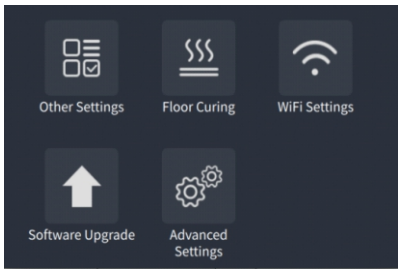
7. Touchscreen Panel Overview

1		Heating mode
2		Cooling mode
3		Sanitary hot water mode
4		Anti-legionella is working
5		Anti-legionella failed
7		Seelp mode
8		Low noise mode
9		Vacation mode
10		DHW ECO
11		Heating ECO
12		SG-Ready 1
		SG-Ready 2
		SG-Ready 3
		SG-Ready 4

13		Electrical utility lock
14		P0
15		P1
16		P2
17		P3
18		AH
19		HBH
20		HWTBH
21		Floor curing
22		Error for system 1
23		Error for system 2
24		Communication normal
25		Communication failed

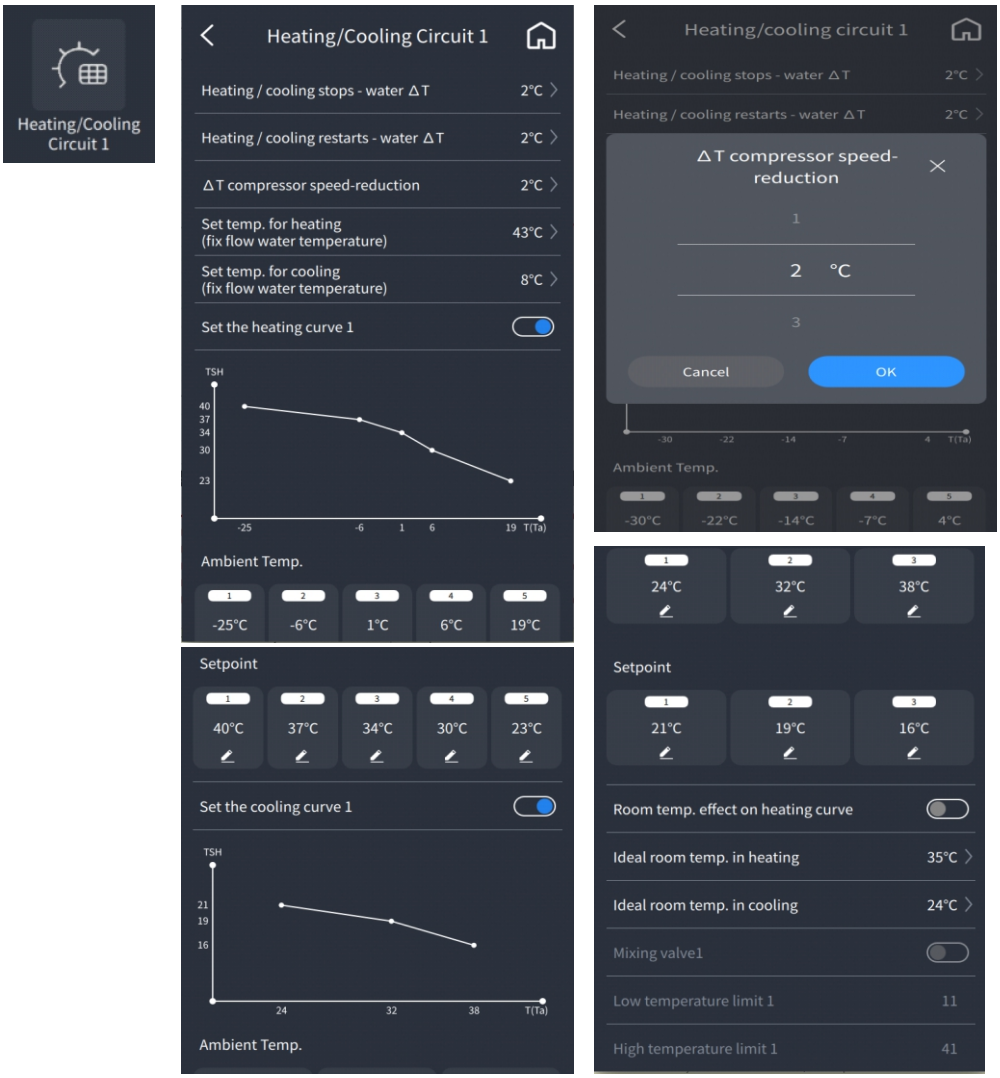
7. Touchscreen Panel Overview





7. Touchscreen Panel Overview

1.Heating Cooling circuit 1



1.01)Heating or Cooling Stops based on Water ΔT

1.02) Heating or Cooling Restarts based on Water ΔT

ΔT is a temperature deviation value. Set ΔT to stop(1.01) or restart(1.02) the unit. Unit stops running when [Tset+ΔT] in heating operation, or when [Tset–ΔT] in cooling operation.

For example, in heating mode, if Tset=48, while ΔT(1.01)=2℃, and ΔT(1.02)=1℃, when the water temperature is higher than 50℃ (48+2℃) , unit stops. When unit stops and the water temperature drops lower than 47℃ (48-1℃) ,unit restarts.

1.03) △T Compressor Speed-Reduction

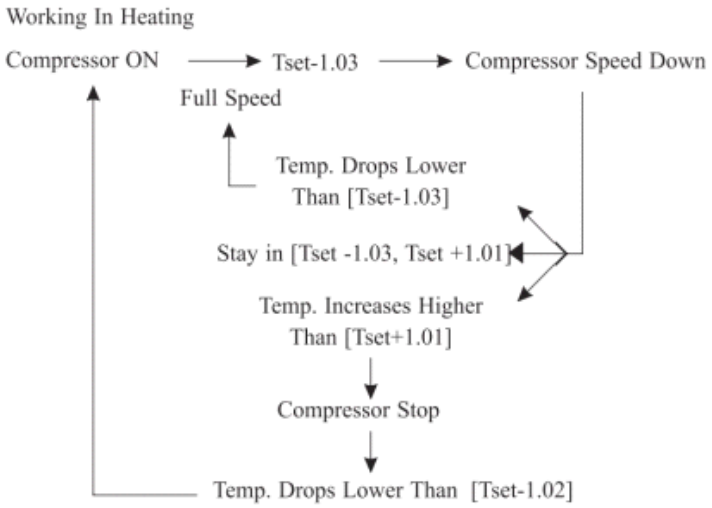
This parameter is used to set a temperature that compressor starts to slow down its speed.

Normally if actual water temperature is lower than [Tset-△T] (in heating mode) or higher than [Tset+△T] (in cooling mode), compressor always works with its maximum allowable speed.

If real temperature is between [Tset-△T, Tset] in heating mode or [Tset, Tset+△T] in cooling mode, compressor will adjust frequency, to balance the total heating output and system heating load.

This setting is to balance the comfort and energy-saving demand. If this value is set too big, even if the room is not warm (or cool) enough, compressor will slow down its speed quite soon to save energy. If this value is set too small, even if the room is warm (or cool) enough, compressor will slow down its speed quite late, which consumes more power.

For example, in heating mode, if Tset=48℃ and △T=2℃, compressor will work at maximum speed to get 46℃ as soon as possible, then it will lower the speed. But if even the compressor works in its lowest allowable speed, the water temperature still goes over [Tset+△T], unit stops.



1.04) Set temp. for heating (fix flow water temperature)

1.05) Set temp. for cooling (fix flow water temperature)

This option can be set only when "Water Temperature Control" is selected for "basic operation mode". If heating curve function is off, a fixed water temperature for heating can be set via "Set Temp For Heating" (1.04); If cooling curve function is off, a fixed water temperature for cooling can be set via "Set Temp For Cooling"(1.05).

7. Touchscreen Panel Overview

1.06) Set the heating curve 1

Set whether heating curve 1 function is needed or not.

If heating curve function is off, set this parameter to off, then you can set a fixed water set temperature under heating mode via parameter "Set Temp For Heating".

If Heating Curve 1 is on, user can set a this parameter to create a suitable curve which fits his house.

The horizontal coordinate is the ambient temperature and the vertical coordinate is the water temperature. When the curve function is turned on, the system will use the water temperature corresponding to the current ambient temperature in the curve as the set temperature for heating in circuit 1.You can modified the datas below to get ideal curve.

1.07) Set the Cooling curve 1

Same as setting in 1.06, just modified heating to cooling mode.

1.08) Room temp. effect on heating curve

Turn ON/OFF this function, to decide if room temp. need to have a influence on heating curve or not.

1.09) Ideal room temp. in heating

1.10) Ideal room temp. in cooling

Set an ideal room temperature in heating(1.09) or in cooling(1.10).

When in Room Temperature Control mode, this parameter will also be the Room Set Temperature for heating(1.09) or cooling(1.10).

For example:

If 1.08(Room temp. effect on heating curve) is on, current the unit works in heating mode, water set temperature in the heating curve is 35℃, and room temperature is 27℃, while 1.09 (Ideal Room Temp. in Heating) is set to 22℃, then the unit will deduct (27℃-22℃)=5℃ from water set temperature, which means unit will take (35℃-5℃)=30℃ as the final set water temperature.

1.13) Low temperature limit1

1.14) High temperature limit 1

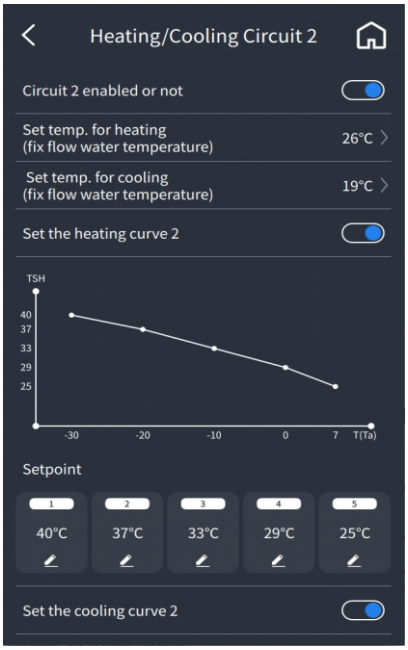
These two parameters are used by the installer, to set the set temperature range for circuit l for safety purpose.

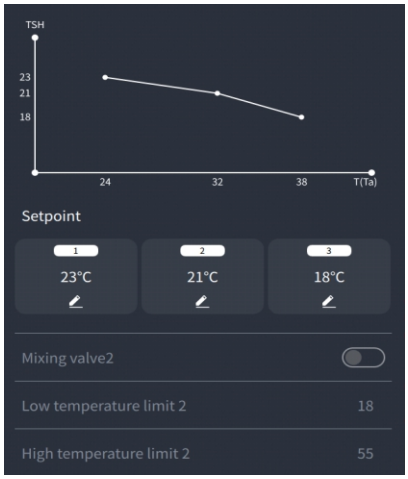
1.15) Mixing valve 1

Set whether circuit 1 has a mixing valve connected or not.

7. Touchscreen Panel Overview

2.Heating Cooling circuit 2





2.01) Circuit 2 enabled or not

Set whether the system has the second circuit or not.

"Heating&cooling Circuit 2" is allowed to operate when the house has two circuits.

2.02) Set temp. for heating (fix flow water temperature)

2.03) Set temp. for cooling (fix flow water temperature)

If heating curve function is disabled for circuit 2, a fixed value of set water temperature in heating mode(2.02) or cooling mode(2.03) can be set here.

2.04) Set the heating curve 2

Set whether heating curve 2 function is needed or not.

If heating curve function is off, set this parameter to off, then you can set a fixed water set temperature under heating mode via parameter "Set Temp For Heating".

If Heating Curve 2 is on, user can set a this parameter to create a suitable curve which fits his house.

The horizontal coordinate is the ambient temperature and the vertical coordinate is the water temperature. When the curve function is turned on, the system will use the water temperature corresponding to the current ambient temperature in the curve as the set temperature for heating in circuit 1.

You can modified the datas below to get ideal curve.

2.05) Set the Cooling curve 2

Same as setting in 2.04, just modified heating to cooling mode.

2.06) Mixing valve 2

Set whether circuit 2 has a mixing valve connected or not.

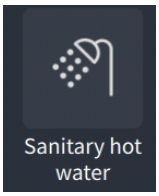
2.08) Low temperature limit 2

2.09) High temperature limit 2

These two parameters are used by the installer, to set the set temperature range for circuit 2 for safety purpose.

7. Touchscreen Panel Overview

3.Sanitary Hot Water



3.01) Setpoint DHW

Set temperature for sanitary hot water.

3.02) DHW restart ΔT setting

Heat pump unit will restart to work for sanitary hot water, after temperature drops below Tset-ΔT here.

3.03) Heating/DHW shifting priority

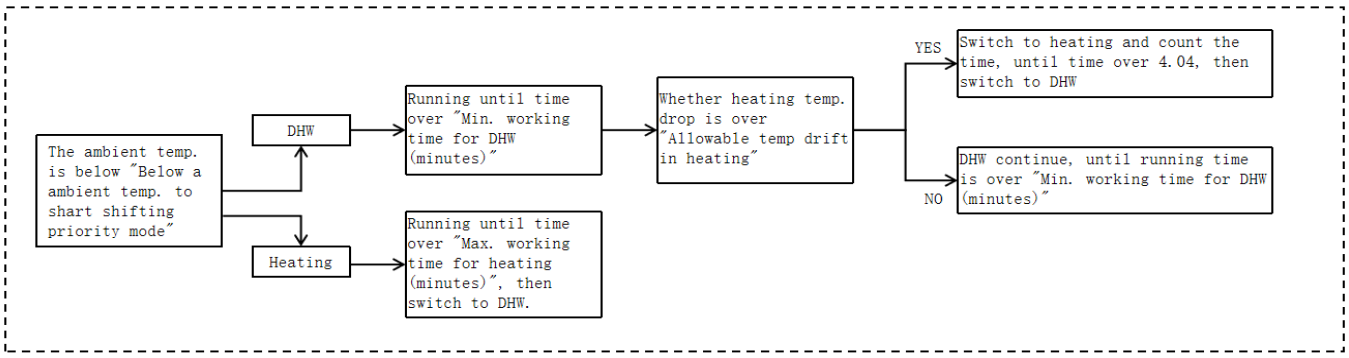
Turn ON/OFF this function

Air to water heat pump is an equipment that absorbs heat from surrounding air, and transfers it to water. The lower the ambient temperature is, the less heat the unit absorbs, so performance of heat pump will reduce if ambient temperature drops, it takes longer time to heat up the sanitary hot water. At the same time, the lower ambient temperature it is, the more heating demand for the house. If the unit does not provide enough heat while it is working for hot water, the temperature inside the house may drop too much. So parameters 4.01~4.05 try to balance the demand for sanitary hot water and heating.

When this function is ON, AH (Auxiliary Heater) or HWTBH (Hot Water Tank Back-up Heater) or both, depending on their priority, will work individually or together to enhance heat pump's capacity in hot water mode to heat up the water as soon as possible.

7. Touchscreen Panel Overview

Shifting priority logic:



3.04) Below a ambient temp. to shart shifting priority mode

Set an ambient temperature which below it, this function starts to work.

3.05) Min. working time for DHW (minutes)

Under shifting priority mode, set the minimum working period for sanitary hot water mode.

3.06) Max. working time for heating (minutes)

Under shifting priority mode, if system switch from DHW to heating, this value depend the maximum working period for heating mode.

3.07) Allowable temp drift in heating

Set allowable temperature drift in heating mode.

3.08) DHW backup heater for shifting priority

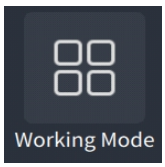
Working mode of HWTBH (Hot Water Tank Back-up Heater) in this function. If it is set ON, even if heat pump switch to house heating, HWTBH will keep on working to help the unit heat up hot water as soon as possible.

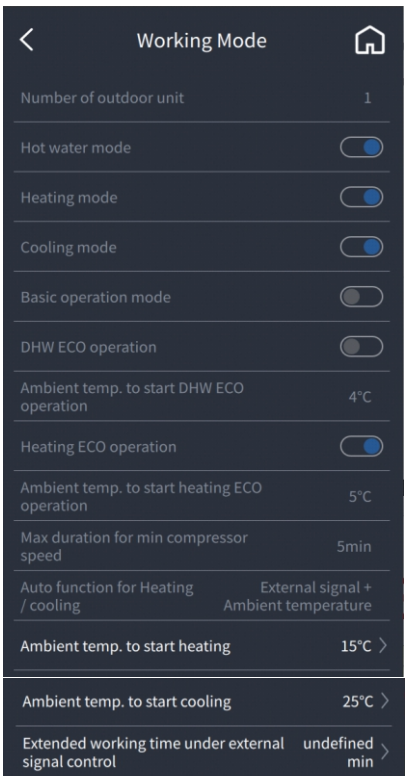
3.09) High temperature limit (DHW)

This parameter is used by the installer, to set the set temperature range for DHW for safety purpose.

7. Touchscreen Panel Overview

4.Working mode





Number of outdoor unit

If system have more than 1 unit, please set the total QTY here.

7. Touchscreen Panel Overview

Heating ECO operation

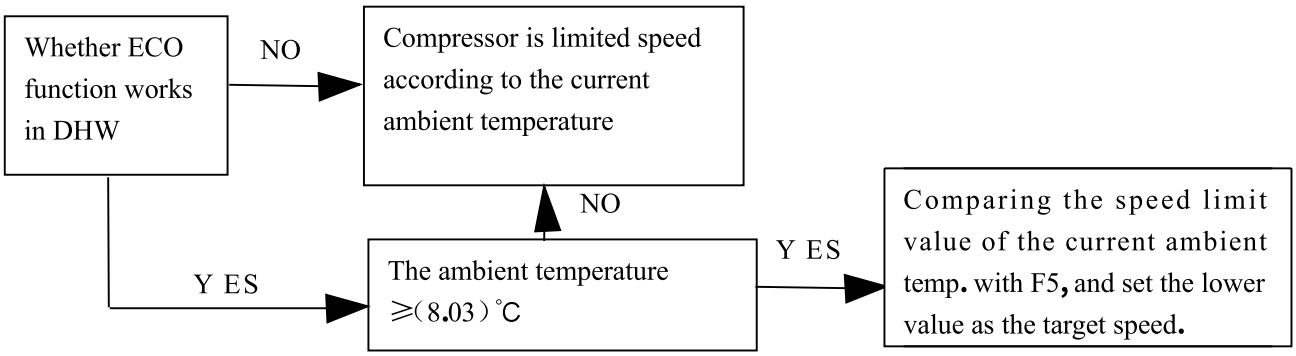
Turn ON/OFF this function.

If ambient temperature is too low, if activatied this function, compressor will stop, and HBH will work.

Ambient temp. to start heating ECO operation

Set the start ambient temperature of Heating ECO function. If the ambient temperature is lower than this value, the heat pump will shutdown and the auxiliary heater(HBH) starts.

The logic is:



Max duration for min. compressor speed

When unit output is higher than demand, compressor speed reduces.

If compressor has continuously worked at minimum compressor speed F1 over this setting time, unit stops.

Auto function for Heating / cooling

This function allows the unit to start cooling or heating operations automatically, according to:

(1)If setting="Ambient Temp", system will automatically choose cooling or heating operation based on the outdoor ambient temperature, compared with parameter set in “Outdoor temp. to start heating” and “Outdoor temp. to start cooling”.

(2)If setting="External Signal Control",an external room thermostat or central control system in the building can control the cooling or heating requirements by connecting it to the respective signal ports.

(3)If setting="Ambient Temp.+External Signal Control",unit will take both the ambient temperature and external signal into consideration for cooling or heating mode selection.

Number of outdoor unit

If system have more than 1 unit, please set the total QTY here.

7. Touchscreen Panel Overview

Hot water mode

Set whether the system has sanitary hot water circuit or not. When unit works in Sanitary Water mode, 3-way valve leads water to HWT (hot water tank) automatically.

Heating

Set whether the system has water circuit for house heating or not. When unit works in heating mode, 3-way valve leads water to heating circuit automatically.

Cooling

Set whether the system has water circuit for house cooling or not. When unit works in cooling mode, 3-way valve leads water to cooling circuit automatically.

Basic operation mode

Set the basic operation mode, as "Water Temperature Control" (by default) or "Room Temperature Control".

Note: if set to "Room Temperature Control", heating curve function is not activated.

DHW ECO operation

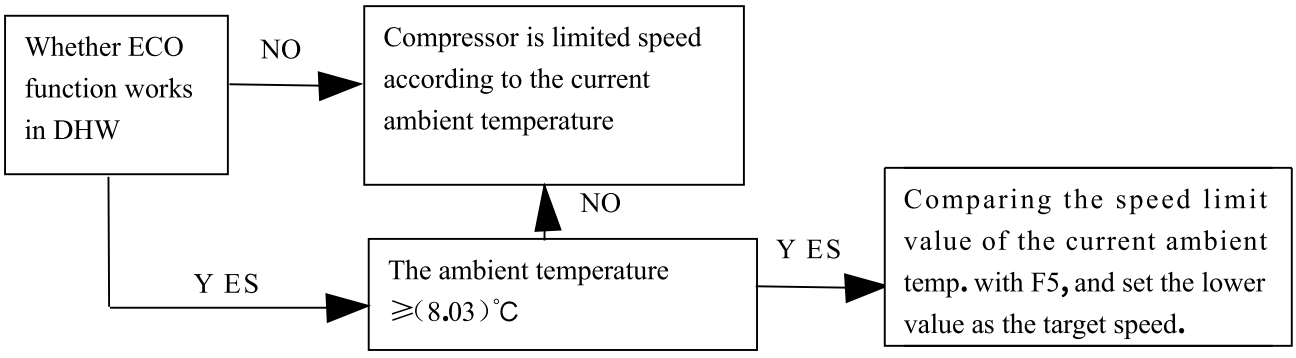
Turn ON/OFF this function.

When ambient temperature is not too low and the DHW demand is no too urgent, the output capacity of the heat pump can be appropriately reduced to obtain higher energy efficiency by reducing the compressor frequency in DHW mode. This function is set by the installer.

Ambient temp. to start DHW ECO operation

If ambient temp. is higher than this setting, compressor will check current frequency with F5, and then work with a lower frequency.

The logic is:



7. Touchscreen Panel Overview

Max duration for min. compressor speed

When unit output is higher than demand, compressor speed reduces.

If compressor has continuously worked at minimum compressor speed F1 over this setting time, unit stops.

Auto function for Heating / cooling

This function allows the unit to start cooling or heating operations automatically, according to:

(1)If setting="Ambient Temp", system will automatically choose cooling or heating operation based on the outdoor ambient temperature, compared with parameter set in “Outdoor temp. to start heating” and “Outdoor temp. to start cooling”.

(2)If setting="External Signal Control",an external room thermostat or central control system in the building can control the cooling or heating requirements by connecting it to the respective signal ports.

(3)If setting="Ambient Temp.+External Signal Control",unit will take both the ambient temperature and external signal into consideration for cooling or heating mode selection.

Note:

If this parameter is set to OFF, then make sure that parameter(Heating Water Circuit) and (Cooling Water Circuit) are not set to ON simultaneously, as the system can not determine actual requirement, due to mode conflict. Also if "External Signal Control" is used to take control, please ensure that the external signal will not be activated at the cooling and heating ports at the same time.

Ambient temp. to start heating

For example, set value as 18℃, the system will start heating operation automatically when ambient temperature is lower than 18℃.

Ambient temp. to start cooling

For example, set value as 28℃, the system will start heating operation automatically when ambient temperature is higher than 28℃.

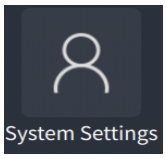
Extended working time under external signal control

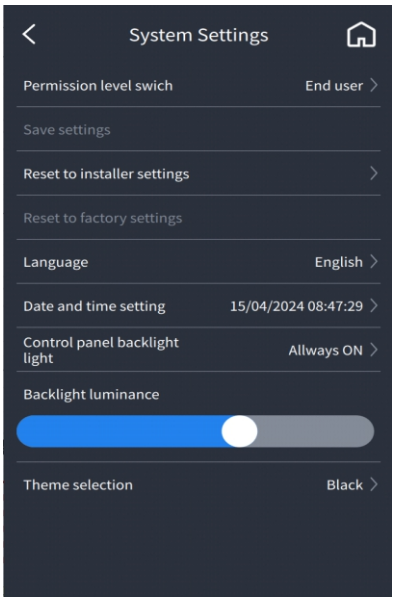
When the external signal controls heating and cooling operations of the unit, this setting is the heat pump OFF delay time after OFF signal.

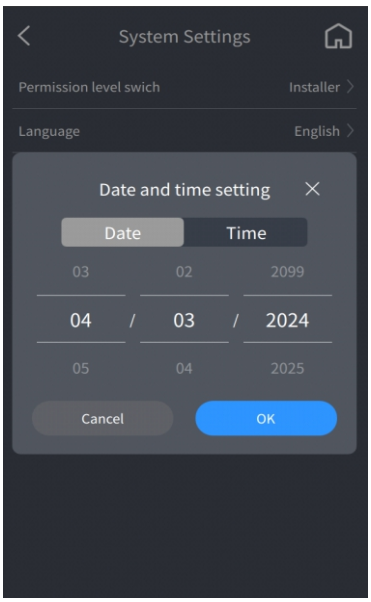
The unit keep running for some time to ensure overall room temp. instead of only the thermostat detecting temp. reaches the set value.

7. Touchscreen Panel Overview

5.System settings







5.01) Reset to installer settings

Loaded the saved "Installer Settings".

5.02) Reset to factory settings

Reset the whole system back to factory default settings.

Note: Saved "Installer Settings" will be cleared.

Language

Set system language.

Date and time setting

Set system clock date and time by manual.

Controller panel backlight setting

Set the screen rest time.

Backlight luminance

Set the screen brightness.

Theme selection

It can select different color of background.

Permission level

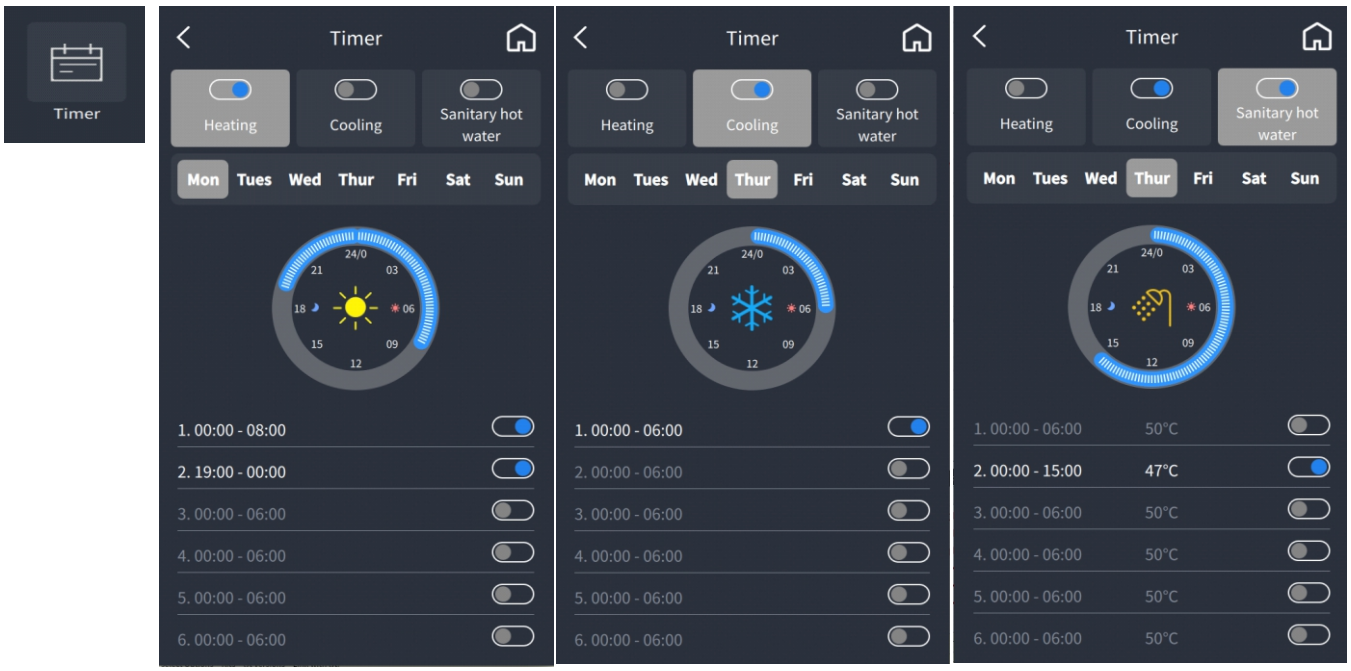
For the safety of the product, some parameters can only be adjusted under installer's permission level. The permission level can be changed in this menu. A password is needed for activating the installer's permission level.

Save Settings

This parameter is used by installer to save the current settings as "Installer Settings", so the customer can load the saved settings into the system, when needed.

7. Touchscreen Panel Overview

6.Timer



Set the timer for heating/cooling/DHW seperately.
And you can select day, temperature in each mode.

Permission level

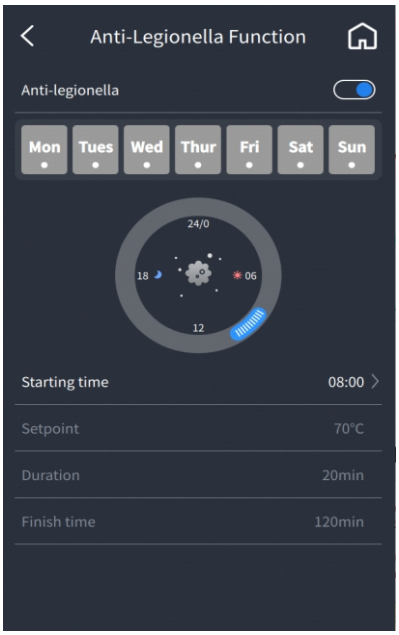
For the safety of the product, some parameters can only be adjusted under installer's permission level. The permission level can be changed in this menu. A password is needed for activating the installer's permission level.

Save Settings

This parameter is used by installer to save the current settings as "Installer Settings", so the customer can load the saved settings into the system, when needed.

7. Touchscreen Panel Overview

7.Anti-legionella



When the Anti-Legionella function starts and is in the setting timer of parameter 6.02, the unit will heat up DHW tank to the 6.03 temperature setpoint. When the water outlet temperature (TUO) reaches the unit's max. water outlet temperature (TUOmax) , the compressor will stop, then the auxiliary heater (AH) and the DHW backup heater (HWTBH) will start to heat up the DHW tank until the DHW temperature reaches the sterilization temperature.

Then system will counting the time for sterilization, if it is over ""duration"" that you set, then exit sterilization; When the sterilization function running time is greater than the maximum running time of 120 minutes, also exit sterilization, waiting for the next opening."

Note: Please always refers to local regulation for a correct usage of this function.

7.01) Anti-legionella program

Turn ON/OFF Anti-Legionella function.

7.02) Starting time

Set the start time for the Anti-Legionella function to run, which can only be set when 6.01 is turned on. Select weekday(s) for the start of Anti-Legionella operation, select which clock in everyday.

7.03) Setpoint

Set the target sanitary hot water temperature for sterilization.

Please refers to the local regulation for the correct setting of this temperature.

7.04) Duration

Set for how long the unit should try to keep this set high temperature, to ensure the bacteria in the shower water tank can be killed.

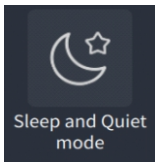
7.05) Finish time

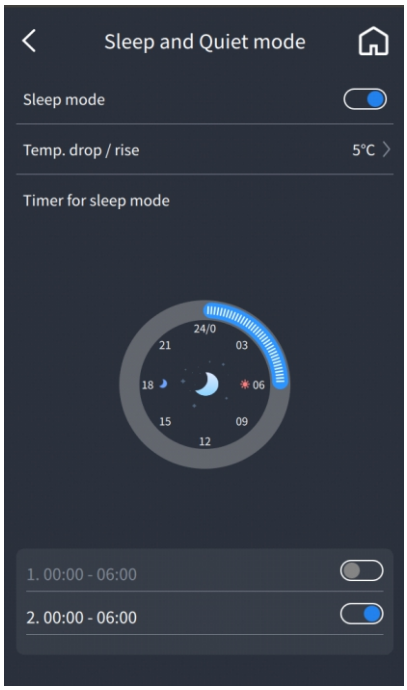
Set an ending time for this Sterilization function, even it is not finished successfully.

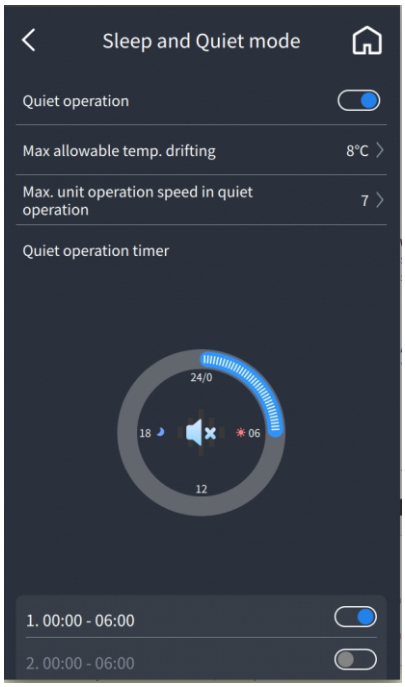
This time should be longer than what it is set in parameter 7.04 .

7. Touchscreen Panel Overview

8.Sleep and Quiet mode







8.01) Sleep mode

Turn ON/OFF Sleep operation mode.

When the house heating demand can be lower, like sleep period or working time, a lower set temp. can be set here for better system consumption.

8.02) Temp. drop / rise

Set temperature drop (in heating) or increase (in cooling) based on standard set temperature during sleep mode.

8.03) Timer for sleep mode

Set a timer for Sleep mode.

Different time periods for every day in a week can be set.

8.04) Quiet operation

Turn ON/OFF quiet operation mode.

After activating this function and setting the time period for quiet operation, unit will reduce its noise level.

Note: Unit efficiency in Quiet Operation mode will be lower than standard working mode.

8.05) Max allowable temp. drifting

When the unit works in quiet mode, the output may drop because both fan and compressor may need to work in lower speed. So temperature in the system may drop (in heating) or increase (in cooling) due to the lower output.

The data set here is a temperature difference between set temperature and bearable temperature. If current temperature is lower then TS deduct this value, unit will exit this Quiet Operation, to ensure a comfortable house temperature."

8.07) Max. unit operation speed in quiet operation

Set the max. compressor frequency limitation under quiet mode.

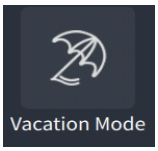
8.06) Quiet operation timer

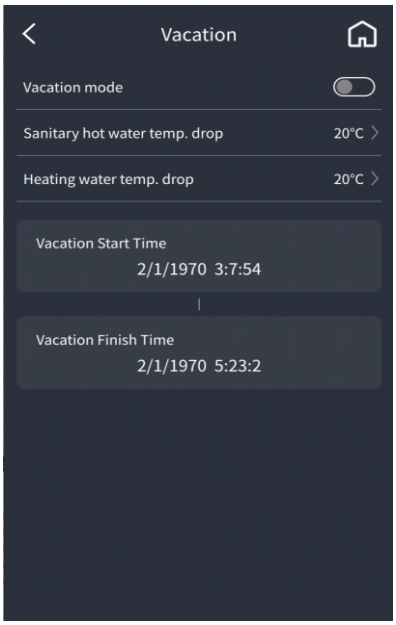
Set a working time period for Quiet Operation.

Different time periods for every day in a week can be set.

7. Touchscreen Panel Overview

9.Vacation mode





If you need to be away from home for some days, use Vacation Mode function to save energy by keeping low heat.

Vacation mode

Turn ON/OFF Vacation mode.

Sanitary hot water temp. drop

Set an allowable temperature drop for sanitary hot water based on standard DHW set value during the set time for vacation mode.

Heating water temp. drop

Set an allowable temperature drop for heating based on standard DHW set value during the set time for vacation mode.

Vacation start time

Set the time and date that vacation starts.

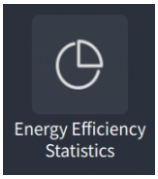
Vacation finish time

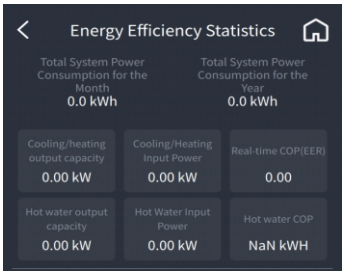
Set the time and date that vacation finishes.

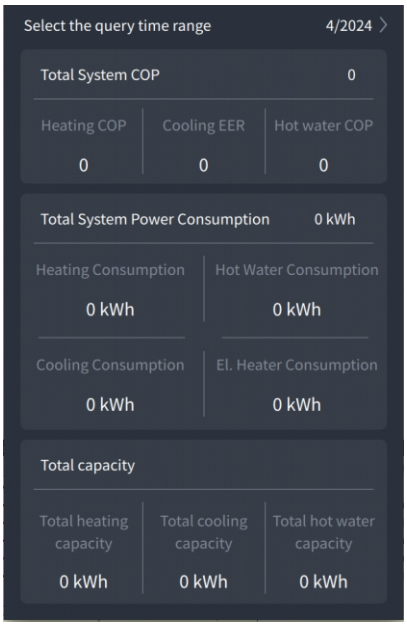
After this time, the setting temperature of sanitary hot water and heating will restore.

7. Touchscreen Panel Overview

10.Energy Efficiency Statistics







Energy Efficiency Statistics

The following is the system's energy efficiency information. You can view the current energy efficiency information as well as the historical energy efficiency information.

This menu is designed for viewing the power consumption and COP (optional) of the heat pump and system.

Total system Power Consumption for the month

Total system Power Consumption for the Year

Cooling/Heating output capacity

Cooling/Heating input power

Real-time COP(EER)

Hot Water output capacity

Hot Water input power

Hot water COP

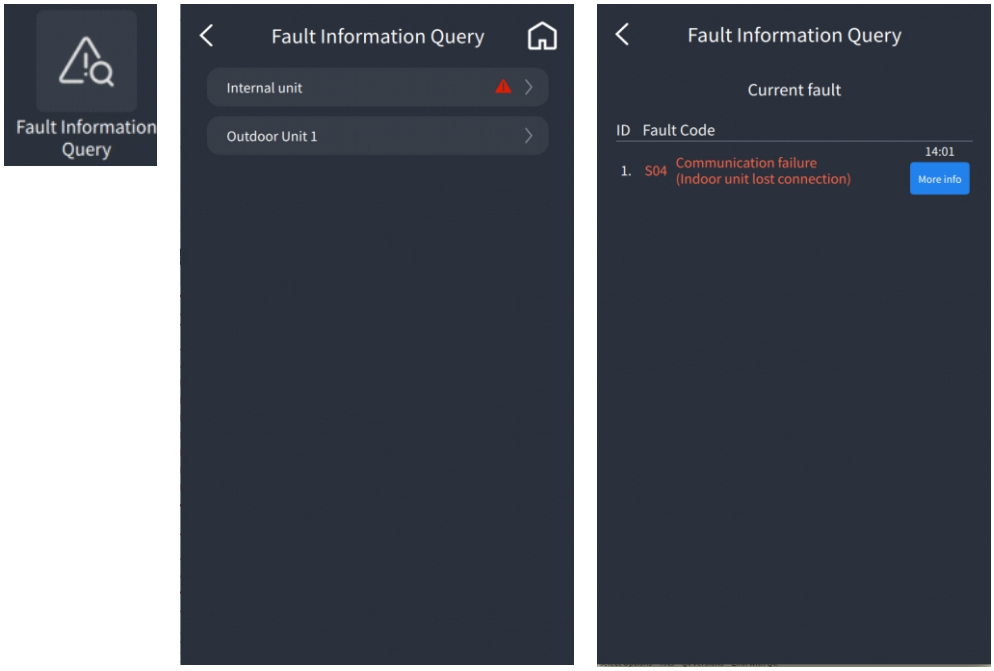
Select the query time range

Click through for historical energy efficiency information.

Click the ‘Month’ button to choose to query energy efficiency data for a particular month; click the ‘Year’ button to choose to query energy efficiency data for a particular year.

7. Touchscreen Panel Overview

11.Error info

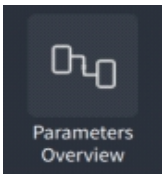


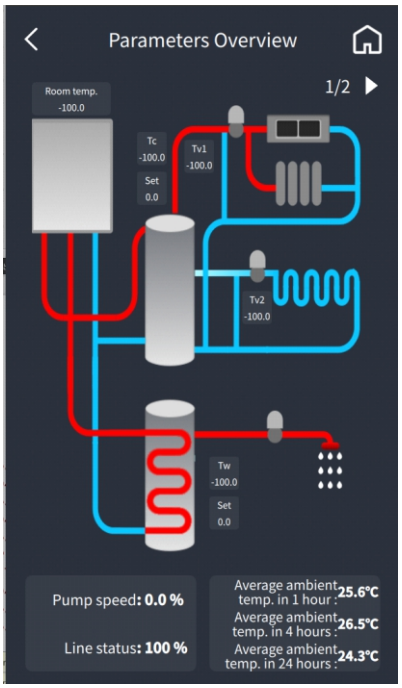
1st page, select unit(s) which reports error code. The system supports multi-unit cascade.
2nd page, check current error or history error of the unit.

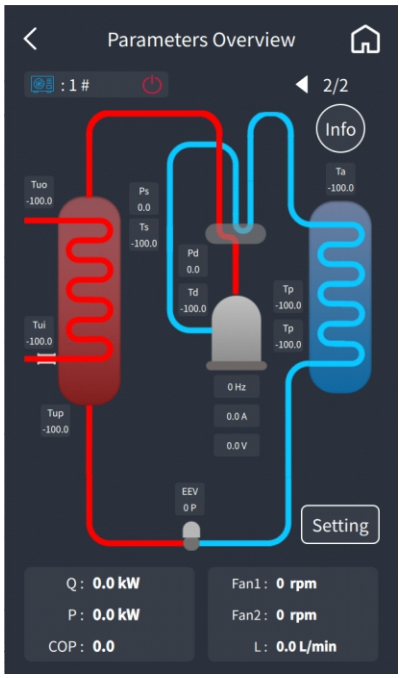
Notes: Only activate the installation level, then the historical fault can be checked and clear

7. Touchscreen Panel Overview

12.Parameters overview







Parameters overview for indoor and outdoor units.

Tuo: Heat exchanger water outlet temp.

Tui: Heat exchanger water return temp.

Tup: Internal coil temp.

Tw: Sanitary hot water temp.

Tc: Cooling/Heating water temp.

Ta: Ambient temp.

Pd: High pressure

Ps: Low pressure

Td: Compressor air discharge temp.

Ts: Compressor air suction temp.

Tp: Outdoor coil temp.

Op: EEV opening

Tv1: mixing temp. 1

Tv2: mixing temp. 2

Tr: Room temp.

Pump speed

Fan speed

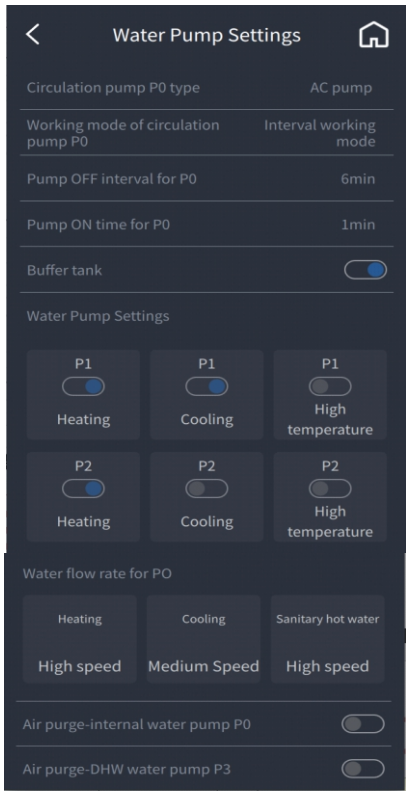
Line status 1: Indoor communication

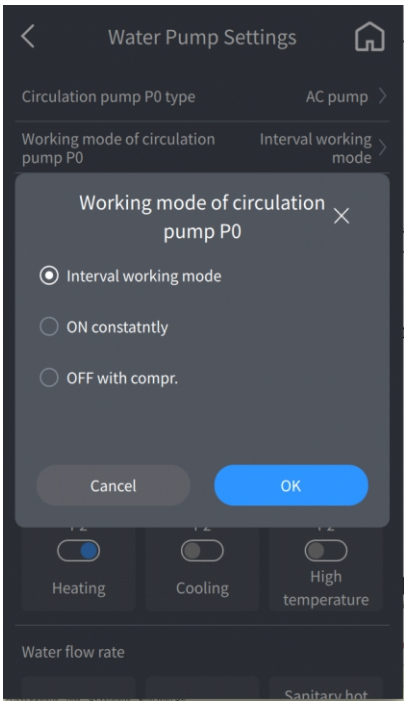
Line status 2: Outdoor communication

Note: Only activate the installation level, then you can be checked and set the "Setting" on the refrigerant system diagram.

7. Touchscreen Panel Overview

13.Water pump settings





Circulation pump P0 type

To set the type of circulation pump inside the unit (P0). It set by installer

Working mode of circulation pump P0

To set the working mode of circulation pump for cooling/heating operation inside the unit (P0).

P0 can work as the following settings:

1. Interval working mode. In this setting, P0 stops after compressor stops, but runs for a while after stops for an interval period.

2. ON constantly. P0 will work constantly even if compressor stops after reaching the set temperature.

3. OFF with compressor. It means P0 stops after compressor stops.

7. Touchscreen Panel Overview

Pump Off interval for P0

Pump On time for P0

If unit circulation pump P0 working mode is set to "Interval working mode", that means circulation pump stops after compressor stops.

After it stops, it will run for "ON interval" time after every "OFF interval" minute stops.

Buffer tank

Set if system install buffer tank or not.

Water Pump Settings

These parameters are used for setting the working of external circulation pump P1 and P2, for heating/cooling circuit 1, and heating/cooling circuit 2.

If P1 activated to high temperature, means during two heating circuit 2 funtion, P1 is connect with higher water temp. system. Same as P2.

Water flow rate for PO

These parameters are used for controlling the speed of P0.

Air purge-internal water pump P0

This function is used for automatically discharging the air in the heating & cooling circuit.

Air purge-DHW water pump P3

This function is used for automatically discharging the air in the DHW circuit.

Circulation pump P0 type

To set the type of circulation pump inside the unit (P0). It set by installer

Working mode of circulation pump P0

To set the working mode of circulation pump for cooling/heating operation inside the unit (P0).

P0 can work as the following settings:

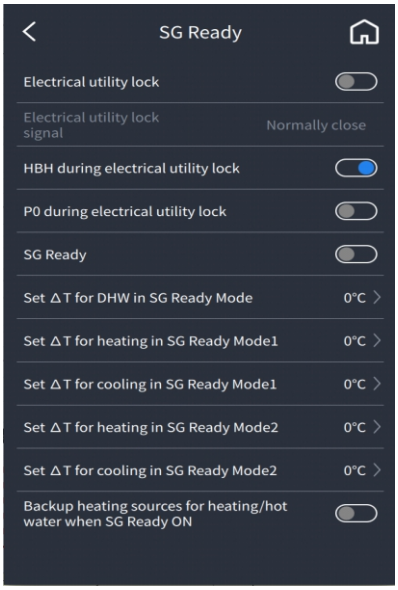
1. Interval working mode. In this setting, P0 stops after compressor stops, but runs for a while after stops for an interval period.

2. ON constantly. P0 will work constantly even if compressor stops after reaching the set temperature.

3. OFF with compressor. It means P0 stops after compressor stops.

7. Touchscreen Panel Overview

14.SG-ready



Set ON/OFF electrical utility lock function.

Electrical utility lock signal

Set the type of signal from electricity company. “Normally Open” means when unit can work as normal when it gets ON signal, the unit should stop working when it receives an OFF signal.

“Normally Close”means the opposite.

HBH during electrical utility lock

Set whether turn on HBH (Heating Back-up Heater), when unit is blocked by Electrical Utility Lock. e.g. gas boiler.

P0 during electrical utility lock

Set the working of circulation pump when unit is blocked by Electrical Utility Lock.

If it's activated, the circulation pump will keep on working when compressor stops.

If it's not activated, the circulation pump will stop working when compressor stops.

SG-Ready

The smart grid will send two external signals to adjust heat pump's operation to match the state of the gird and shaving peaks/ filling valleys.

If the unit is supposed to adjust working during this period or need to turn on "SG-Ready" function, one can connect the signal from smart grid to this “SG-Ready” port and use the parameter setting to activate this function.

7. Touchscreen Panel Overview

Set ΔT for heating in SG Ready mode

Set this parameter to raise the setpoint in heating mode when the SG Ready mode is activated and receive smart grid signal input 0:1(SGA: open, SGB: closed) or 1:1(SGA: closed, SGB: closed)

Set ΔT for cooling in SG Ready mode

Set this parameter to reduce the setpoint in cooling mode when the SG Ready mode is activated and receive smart grid signal input 0:1(SGA: open, SGB: closed) or 1:1(SGA: closed, SGB: closed)

Set ΔT for DHW in SG Ready mode

Set this parameter to reduce the setpoint in DHW mode when the SG Ready mode is activated and receive smart grid signal input 0:1(SGA: open, SGB: closed) or 1:1(SGA: closed, SGB: closed)

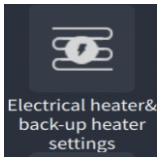
Backup heating sources for heating/hot water when SG Ready ON

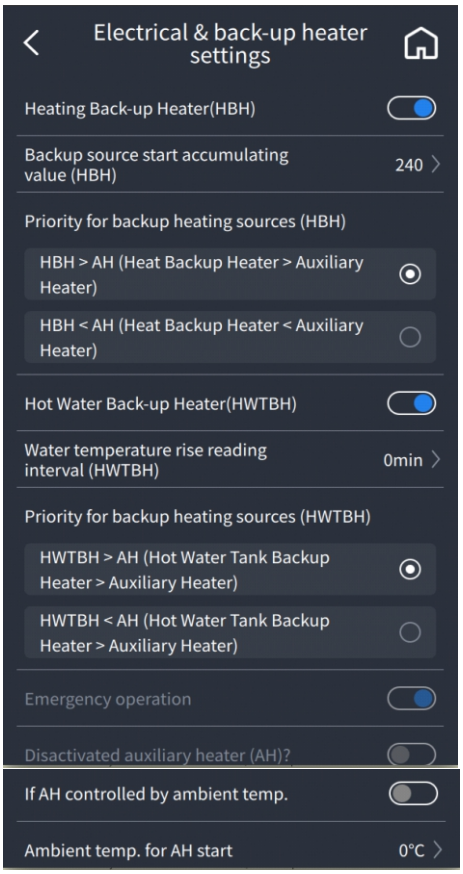
The heating backup heater(HBH) and DHW backup heater(HWTBH) will startup immediately when unit receivesmart grid signal input 1:1(SGA: closed, SGB: closed)

SGA	SGB	Status Icon	SG Ready operation requirement
1	0		Insufficient energy from the grid necessitates a forced shutdown of the heat pump. After shutdown, the backup heater can be turned on.
0	0		The heat pump is operating normally
0	1		Grid recommends to consume more power by heat pump. The heat pump will automatically add a set temperature difference on the original set water temperature to get a new set point.
1	1		Grid produces too much power and has to be consumed by heat pump. At this time, heat pump will automatically adjust the set temperature to the maximum set temperature allowed by the system, and the electric heating can be turned on in order to consume more power from Grid.

7. Touchscreen Panel Overview

15.El. backup heater





1. AH---Auxiliary Heater
2. HBH---Heating Back-up Heater
3. HWTBH---Hot Water Back-up Heater"

15.01) Heating Back-up Heater(HBH)

Set whether the system has HBH(Heating Back-up Heater)

15.02) Backup source start accumulating value (HBH)

Accumulated Value between operation time VS set temp. to start HBH.

This is for adjusting how fast Backup Heating Sources for heating operation will be turned ON if heat pump unit can't provide enough power. The bigger the value is set, longer time it takes to start the HBH.

15.03) Priority for backup heating sources (HBH)

Set the priority of HBH compared with unit AH (Auxiliary Electric Heater inside the indoor unit). When unit works in heating, if heat pump unit can't provide enough power, it will turn on AH or HBH(which set to have the higher priority) automatically. If after AH or HBH activated, that the total output power is still not enough, unit will turn on the lower priority backup heating source also.

15.04) Hot Water Back-up Heater(HWTBH)

Set whether the system has HWTBH (Hot Water Tank Back-up Heater).

15.05) Water temperature rise reading interval (HWTBH)

Time interval for checking the temperature increase when unit works in DHW mode. If within this interval, DHW temperature can not increase for 1 ℃, unit will activate HWTBH.

15.06) Priority for backup heating sources (HWTBH)

Set the priority of HWTBH compared with unit AH (Auxiliary Electric Heater inside the indoor unit). When unit works in hot water, if heat pump unit can't provide enough power, it will turn on AH or HWTBH (which set to have the higher priority) automatically. If after AH or HWTBH is working, that the total output power is still not big enough, unit will turn on the lower priority Backup Heating Source also.

15.07) Emergency operation

When heat pump failed to work, whether the unit should turn ON the back-up heating system automatically.

Note: If this function is activated, customer should check the working status of heat pump unit occasionally, to ensure heat pump unit is functioning well.

Disactivated auxiliary heater (AH)?

This function sets whether auxiliary heater is disactivated. The premise of choosing this option is setting "Heating backup heater(HBH)"=on. After turn on this function, the unit will not startup AH under heating mode.

If AH controlled by ambient temp.

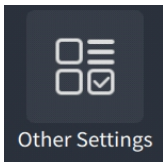
This function sets whether auxiliary heater(AH) is controlled by ambient temperature.

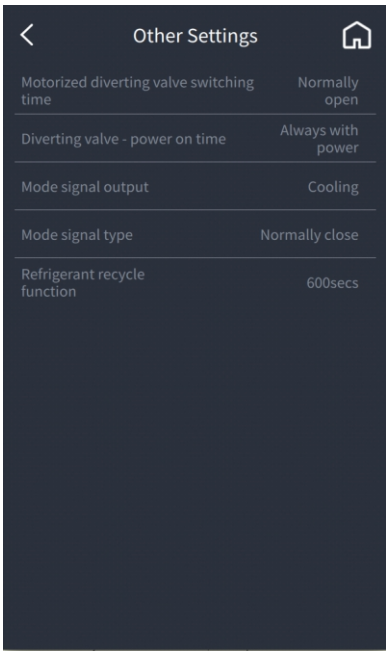
Ambient temp. for AH start

If setting "Block the Working of Auxiliary Heater(AH)According to Ambient Temp."=on, the auxiliary heater(AH) will only work when ambient temperature < setpoint of this item (HBH and HWTBH are still valid).

7. Touchscreen Panel Overview

16.Other settings





Motorized diverting valve switching time

Set the switching time of the motorized diverting valve spending on switching the water flow fully between DHW and Heating/Cooling circuit.

Note: This parameter must comply with the motorized diverting valve. Otherwise unit may not be able to work due to not enough water flow rate.

Diverting valve - power on time

Set how long the motorized diverting valve should be powered, for switching the water flow fully between DHW and Heating/Cooling circuit.

Mode signal output

This function is only used as the second signal output, and can be selected as cooling signal output, heating signal output, or invalid.

Mode signal type

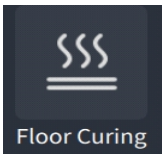
Refrigerant recycle function

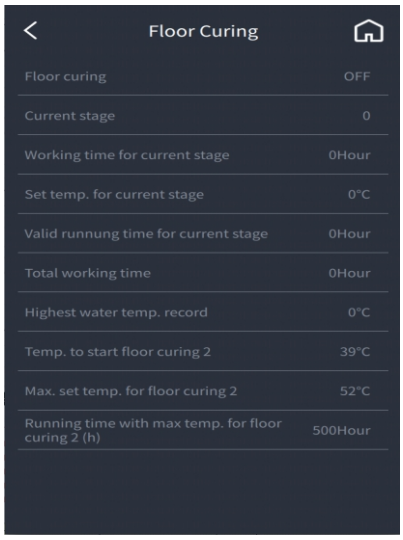
Recycle the refrigerant in the complete system into condensing unit for service purpose.

When it is activated, unit will be forced to work in cooling mode for some time, to push all refrigerant gas back to outdoor unit.

7. Touchscreen Panel Overview

17.Floor curing





Floor Curing

Turn ON/OFF this function.

If this is a new house with new floor heating system installation, you can use this function to heat the humidity during the pipes. By heating for several rounds, it can check if there is any weakness during the pipes, and fix it before move to the house.

Current stage

floor curing have several stage, it mean which stage it is.

Working time for current stage

Running time for this stage

Set temp. for current stage

Set temp. for this stage

Valid runnung time for current stage

This parameter is the valid running time during floor curing operation in current stage.

The calculation method for ""valid running time"" is to accumulate within the range of ""set temperature"" -2℃ < heating temperature(TW) <""set temperature"" +1℃."

Total working time

This is a record for total running time of floor curing mode.

Highest water temp. record

This is a record for highest water temp. during floor curing mode.

Temp. to start floor curing 2

Floor curing 2 is another solution to heat the system.

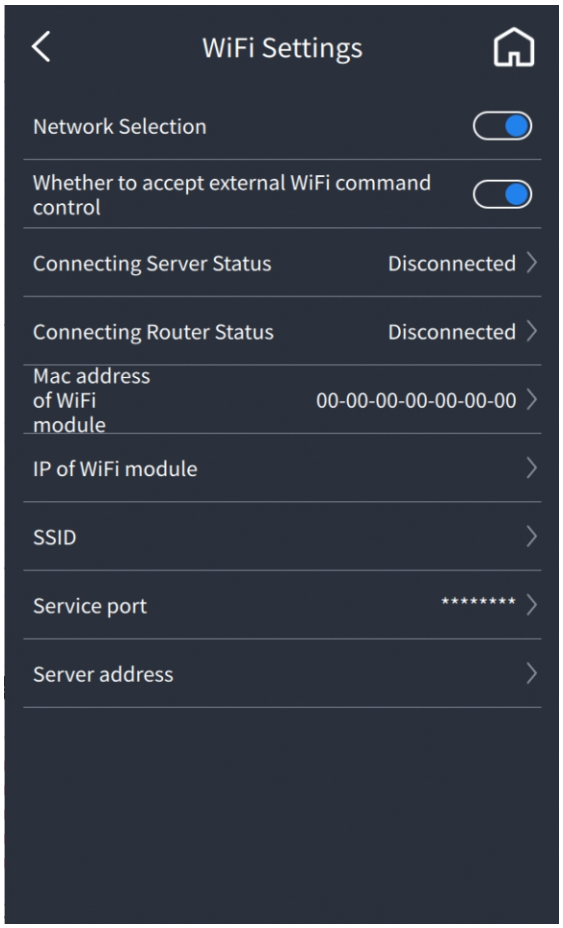
Max. set temp. for floor curing 2

Running time with max temp. for floor curing 2 (h)

Set the start temperature, max temperature and lasting time for second-stage of Floor Curing operation.

7. Touchscreen Panel Overview

18.WiFi Settings



Network Selection

Whether to accept external WiFi command control

Connecting Server Status

Connecting Router Status

Mac address of WiFi module

IP of WiFi module

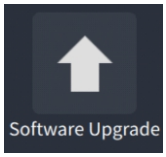
SSID

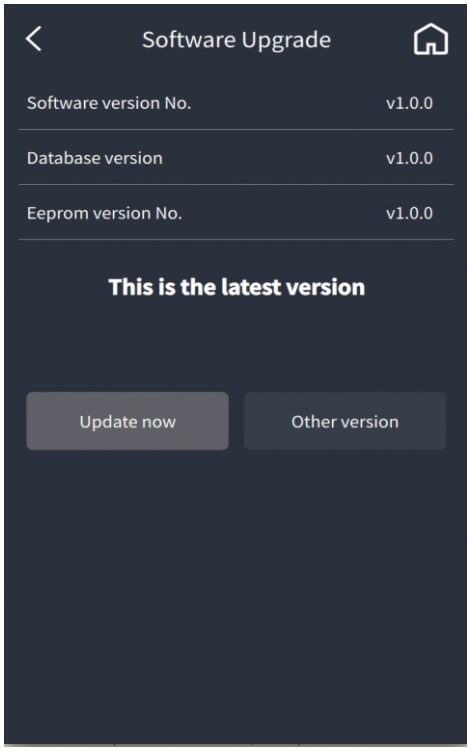
Server port

Server address

7. Touchscreen Panel Overview

19.Software upgrade





This software upgrade can be easily done by a USB flash drive.

Copy the new program to a USB flash drive on computer, then insert the USB flash drive into the PCB of the operation panel.

Click "Update now", a window will pop up, select the program.

8. Failure code list

Failure code	Failure list	Possible reasons and solutions
F09	DC fan motor failure (FAN 1)	Speed of DC fan motor (FAN 1) can't reach the required value or no feedback signal. Please check whether the PCB or fan motor is broken.
F10	DC fan motor failure (FAN 2)	Speed of DC fan motor (FAN 2 for dual fan system) can't reach the required value or no feedback signal. Please check whether the PCB or fan motor is broken.
F11	Evaporating pressure too low for 3 times protection	If system too low pressure protection detected by evaporating pressure sensor happened 3 times in a certain period of time, it gives this failure code and unit can't be restarted until repowered. Check whether system has not enough refrigerant or leakage inside (more likely it is not enough refrigerant that caused this abnormal evaporating pressure); whether fan motor and water pump is working OK; whether condensor is blocked; whether EEV whether EEV works normally; whether water temperature too low, and whether water inlet & outlet temperature has too big difference in cooling
F12	Condensing pressure too high for 3 times protection	If system too high pressure protection detected by condensing pressure sensor happened 3 times in a certain period of time, it gives this failure code and unit can't be restarted until repowered. Check whether water flow rate is not enough (more likely it is not enough water flow rate that caused system build up too high pressure); whether fan motor and water pump is working OK; whether condensor is blocked; whether EEV works normally; whether water temperature too high, and whether water inlet&outlet temperature has too big difference
F13	Room temp.sensor failure - TR	Check whether room temperature sensor is open, short-circuit or value drifts too much. Replace it if necessary.
F14	DHW temp.sensor failure - TW	Check whether sanitary hot water temperature sensor is open, short-circuit or value drifts too much. Replace it if necessary.
F15	Heating/cooling temp. sensor failure	Check whether cooling/heating water temperature sensor is open, short-circuit or value drifts too much. Replace it if necessary.
F16	Water outlet temperature sensor failure - Tuo	Check whether water outlet temperature sensor is open, short-circuit or value drifts too much. Replace it if necessary.
F17	Water inlet temperature sensor failure - Tui	Check whether water inlet temperature sensor is open, short-circuit or value drifts too much.Replace it if necessary.
F18	Indoor coil temperature sensor failure - Tup	Check whether indoor coil temperature sensor is open, short-circuit or value drifts too much. Replace it if necessary.
F21	Mixing circuit 1 temp. sensor failure - Tv1	Check whether TV1 temperature sensor is open, short-circuit or value drifts too much. Replace it if necessary.
F22	Mixing circuit 2 temp. sensor failure - TV2	Check whether TV2 temperature sensor is open, short-circuit or value drifts too much. Replace it if necessary.
F27	Indoor PCB EEPROM Failure	Cut the unit power, connect CN213-5 and CN213-6 together, repower the unit and then cut the power and cancel the connect. If still not OK, replace the indoor PCB.
F28	DC pump PWN signal feedback failure	Check water pump cable connection; check power supply to water pump; check whether water pump is broken.
F29	Mixing valve 1 failure	Check MV1 cable connection; check whether PCB output voltage signal; check whether MV1 is broken.
F30	Mixing valve 2 failure	Check MV2 cable connection; check whether PCB output voltage signal; check whether MV2 is broken.
F31	Economizer inlet temp. sensor failure	Check whether the sensor is open, short-circuit or value drifts too much. Replace it if necessary.
F32	Economizer outlet temp. sensor failure	Check whether the sensor is open, short-circuit or value drifts too much. Replace it if necessary.
F33	Defrosting temp. sensor failure	Check whether the sensor is open, short-circuit or value drifts too much. Replace it if necessary.
F34	Water tank temp. sensor failure	Check whether the sensor is open, short-circuit or value drifts too much. Replace it if necessary.
F35	Compressor discharge temp. too high for 3 times protection	If it gives this failure code,unit can't be restarted until repowered.Check whether system is lacking of enough refrigerant, or blocked, whether the system has air inside, or water flow rate too small

8. Failure code list

Failure code	Failure list	Possible reasons and solutions
P01	Main line current protection	Input current too high or too low, or system works in over-load condition. Unit recovers automatically after 5 minutes when it happened the first time. If same failure happened 3 times in a certain period of time, unit stops until repowered. Check unit input current. Check whether fan motor and water pump is working OK; whether condensor is blocked; whether water temperature too high, and whether water inlet&outlet temperature has too big difference
P02	Compressor phase current protection	Compressor input current too high or too low, or system works in over-load condition. Check compressor input current. Check whether fan motor and water pump is working OK; whether condensor is blocked;whether water temperature too high, and whether water inlet&outlet temperature has too big difference
P03	Compressor drive protection	Compressor drive failure. Check whether cable is broken or loosen. Check whether compressor driver PCB or compressor is broken.
P04	Compressor oil return protection	If unit has been continuously working in low speed for certain period of time, unit starts this protection to suck compressor oil back into compressor. This is a normal protection and doesn't need any treatment.
P05	High pressure switch protection	If system pressure is too high or too low, it activates this protection. Unit recovers automatically after 5 minutes when it happened the first time. If same failure happened 3 times in a certain period of time, unit stops until repowered. Check whether fan motor and water pump is working OK; whether condensor is blocked; whether water temperature too high, and whether water inlet&outlet temperature has too big difference
P06	High pressure too-high protection	This protection happens when system pressure is higher than the set compressor speed-down pressure point. If after slow down the compressor speed but pressure still higher than the protection point, compressor stops. Check whether water temperature set value is too high; whether system water flow rate too small; whether EEV works normally; whether air circulates fluently in cooling mode; whether water inlet&outlet temperature has too big difference
P07	Compressor preheating	This is a normal protection and doesn't need any treatment.
P08	Discharge temp. too high protection	Check whether water temperature set value is too high, especially when ambient temperature is low; whether water flow rate too small; whether system is lacking of enough refrigerant.
P09	Outdoor coil temp. sensor too high in cooling	Check whether air circulates fluently in outdoor unit.
P10	AC high/low voltage protection	Unit input voltage too high or too low. Check the voltage of unit power supply.
P11	Outdoor ambient temp. out of working range	Ambient temperature is too high or too low for unit to work.
P12	Compressor speed limit by ambient temp.	This is a normal protection and doesn't need any treatment.
P13	Low pressure switch protection	If system pressure reach the set value of pressure switch, it activates this protection. Unit recovers automatically after 1 minutes when it happened the first time. If same failure happened 3 times in one hour, unit stops until repowered. Check whether there is leakage on refrigerant system, or EEV has no action or is blocked.
P14	Anti-freezing protection-stage 1 active	Ambient temp. is too low,and inlet or outlet water temp. is too low.
P15	Anti-freezing protection-stage 2 active	Ambient temp. is too low, and inlet or outlet water temp. is too low.
P17	Condenser deltaT too high	Check whether there is air or dirty inside water system, or water flow rate is too small
P18	Evaporating pressure too low protection	If system pressure reach the set value of pressure sensor, it activates this protectio. Unit recovers automatically after 30 seconds when it happened the first time. If same failure happened 3 times in one hour, unit stops until repowered. Check whether there is leakage on refrigerant system, or EEV has no action or is blocked.
P19	Too high input voltage protection	If the voltage is detected higher than set value,it activates this protection. Unit recovers automatically in 60 seconds when it comes to normal. Check whether the input voltage is too high, or change driver PCB

8. Failure code list

Failure code	Failure list	Possible reasons and solutions
P20	Too low input voltage protection	If the voltage is detected lower than set value, it activates this protection. Unit recovers automatically in 60 seconds when it comes to normal. Check whether the input voltage is too high, or change driver PCB
P21	Too high input current protection	If the current is detected higher than set value, it activates this protection. Unit recovers automatically in 60 seconds when it comes to normal. Check whether the current is too high, or refrigerant is too much, or change driver PCB
P22	Too low input current protection	If the current is detected lower than set value, it activates this protection. Unit recovers automatically in 60 seconds when it comes to normal. Check whether the current is too low, or refrigerant is too little, or change driver PCB
P25	Indoor coil temp. sensor failure in heating	Check whether there is air or dirty inside water system, or water flow rate is too small, or refrigerant system is blocked.
P26	Service Lock	If the service time is up, find installer to unlock it.
P27	Power supply phase protection	Check whether there is wrong phase or there is no voltage on one phase.
S01	Anti-freezing protection in cooling	1.Check whether set temperature for cooling is too low; whether system has too small water flow rate; check water system especia lly the filter.2.Check whether system has not enough refrigerant inside by measuring the evaporating pressure.
S02	Too small water flow rate protection	System water flow rate is less than minimum allowable flow rate. Check the water system, especially the filter; check the working status of water pump.
S03	Water flow switch failure	Water flow switch failed to work. Check whether flow switch is broken or not well connected.
S04	Communication failure between operation panel and indoor PCB	Communication failure between operation panel and the indoor PCB. Check the cable connection in between. Communication data lost too much. Check whether communication cable is longer than 30M; whether there has a source of the disturbance nearby the unit. Unit recovers when communication recovers.
S05	Communication failure between operation panel and outdoor PCB	Communication failure between operation panel and the outdoor PCB. Check the cable connection in between. Check whether the last three switches on outdoor power PCB are set to 001; whether last three switches on indoor PCB are set to 001. Unit recovers when communication recovers.
S06	Water outlet temp. too low (Tuo)	Compressor stops if water outlet is lower than 5 ℃ in cooling mode. Check whether temperature sensor Tc is OK and well connected;whether set water temperature too low;whether system flow rate too small.
S07	Water outlet temp. too high (Tuo)	Compressor stops if water outlet is higher than 57 ℃ in heating or hot water mode. Check whether temperature sensor Tc and Tw is OK and well connected; whether set water temperature too high; whether system flow rate too small.
S08	Defrost failed for 3 times	System water temperature is too low for defrosting. Please either set the temperature higher, have the back-up heating source connected or close some heating circuit so to let the system has enough high water temperature for a safe defosting.
S09	Defrost failed	If water outlet temperature is lower than 15 ℃ during defrosting, water may freezing up in the plate heat exchanger and cause damage, so unit will quit current defrosting mode. It will try again in next defrosting cycle but if it continuously failed to make the defrosting for 3 times, it shows S08 failure code and can only be restarted by repower the unit. Please either set the temeprature higher, have the back-up heating source connected or close some heating circuit so to let the system has enough high water temperature for a safe defosting.
S10	Not enough water flow for 3 times	If “too small water flow rate protection”happens over 3 times in certain period of time, it gives this failure code and unit stops until repower.his failure means the system water flow rate is less than minimum allowable flow rate. Check the water system, especially the filter;check the working status of water pump.
S11	Anti-freezing protection in cooling for 3 times	If “Anti-freezing protection in cooling”happens over 3 times in certain period of time, it gives this failure code and unit stops until repower.1.Check whether set temperature for cooling is too low; whether system has too small water flow rate; check water system especially the filter.2.Check whether system has not enough refrigerant inside by measuring the evaporating pressure.
S12	Floor curing failure	If floor curing function can’t be finished in the maximum allowable time, it shows this information. Unit will go back to normal working mode,with failure information shown on the display. Failure information can only be erased until repower or start the floor curing function again.

8. Failure code list

Failure code	Failure list	Possible reasons and solutions
S13	4-way valve failure	Check whether the ambient temp. sensor and outdoor evaporator coil temp. sensor are well connected. Check whether the 4-way valve is switched well.
S14	3-way valve failure	Check whether the DHW temp. and water inlet temp. is correct.Check whether the water flow rate is not enough in hydraulic system.Check whether the hydraulic system is blocked.Check whether the 3-way valve is switched well.
S15	Overall water outlet temperature sensor failure	Check whether overall outlet temperature sensor is open, short-circuit or value drifts too much. Replace it if necessary.
S16	Overall water inlet temperature sensor failure	Check whether overall inlet temperature sensor is open, short-circuit or value drifts too much. Replace it if necessary.
S17	Outdoor PCB failure	One of outdoor PCB has failure. Pls check the failure code for this outdoor unit, and solve it.
S18	Communication failure of all outdoor PCB	Check whether the communication cable between indoor PCB and all outdoor units are connected well. or replace indoor PCB.
S19	Ambient temp. sensor failure	If ambient temp. of all outdoor units failed, it activates this failure. Check whether ambient temp. sensors of all outdoor units are open, short-circuit or value drifts too much. Replace it if necessary.
S20	All outdoor PCB failure	If all outdoor units stops for 3 times and be locked , it activates this failure. Check failure code for all outdoor units, and then solve it.

Note 1:For single compressor system,failure code is 3 digits as ***, like Po1.

Note 2: For double compressor system,if the failure code is for either one of sytems, the failure code has 4 digits, 1*** for system 1, 2*** for system 2. *** means code for each system. for example, 1P01 for system 1, 2P01 for system 2.

Note 3: For double compressor system,for common failure of the whole system, the code is 3 digits, like ***. For example,Water outlet temperature sensor failure is common failure for whole water system, the code will be F16.

NOTES

Thank you for choosing our quality product.
Please read this manual carefully before use and
follow the instructions to operate the unit in order
to prevent damages on the device or injuries to staff.

Specifications are subject to change with product
improvements without prior notice. Please refer to the
specification sticker on the unit for upgraded specifications.

NCSMS00928A00-A