



(AS80 Series)

*Air-source High Temperature Heat Pump Water Heater
(Circulating type)*

Installation & Use Instructions



I. Notes

1.1.Dear User: Before install and use this product, please read this manual in details, to avoid the problem of equipment damage, operator injury and property damage, etc.

1.2.If you have any questions about technology when you read the manual, please inquire the local agent or our company as soon as possible.



Warning Means improper handling will cause serious injury or death.



Note Means improper handling will cause injuries or property damage.



Remind Means make further remind and interpretation to the contents stated.

Warning

- Please entrust professional installation, the installation personnel must have the relevant professional knowledge. Prohibited to install it yourself if you are not professional, otherwise, may cause leakage, electric shock, fire and other accidents.
- When the units need to move, repair or reinstall, please entrust dealer or professionals, prohibited to do maintenance or installation yourself if you are not professional, otherwise, can lead to leakage, electric shock, fire and other accidents.
- The unit can't install near the flammable (paint, coating, gasoline, chemical reagent, etc.), in order to prevent fire or explosion.
- Non-professional personnel can not adjust the internal switches, valves, controllers, etc.
- If unfortunately have a fire, the main power supply should be immediately shut down and take the corresponding correct measures to put down the fire.
- Please use the specified capacity of the fuse or overload protector, do not use the iron wire, copper wire instead, otherwise will lead to serious damage or fire to the unit.
- When customers purchase spare parts, choose the specified products of our company, otherwise may cause leakage, electric shock, fire and other accidents.
- During the electrical installation shall comply with the relevant provisions of the state, be sure to consult the electrical wiring diagram.
- Heat pump unit must be reliable grounding, forbid to operate the unit without grounding, it is strictly prohibited to connect ground wire on the zero line or water pipe.
- It is forbidden to put fingers, clubs in heat pump units, don't touch the fan blades to avoid an accident (Children must avoid by all means).

! Note

- Confirm whether installed leakage protection switch, must be installed leakage protection switch, otherwise may cause electric shock.
- Correct connection cable. If the cable connection error may damage the electrical components, do not touch the refrigerant exhaust pipe parts with the hand, to prevent burns.
- Do regular maintenance of the unit according to the instruction manual, to ensure the unit running in good condition.
- If the refrigerant leakage, should immediately cut off all the unit's power supply.
- When the fuse fusing repeatedly or leakage protection switch frequently open, should immediately stop running, cut off the power switch manually, and contact the dealer or customer service.
- When choosing to install the heat pump unit, please check whether the corresponding power supply capacity meets the requirements of this unit's power, see details on the nameplate or installation instruction.
- If the unit or water tank is mounted on the roof etc., be sure to take measures against lightning.

II. Characteristics and Parameters:

2.1、Technical Data:

table 1 AS80 series

AS80 series (High temperature air source heat pump water heater circulation type)											
Model		GRS-13I	GRS-13II	GRS-18II	GRS-26II	GRS-35II	GRS-55II	GRS-65II	GRS-78II	GRS-130II	GRS-150II
Horse Power	HP	5	5	7	10	15	20	25	30	48	60
Rated heating capacity	kW	13.5	13.5	17.8	26.1	34.7	55.2	64.3	78.5	129.5	153.7
Rated input power	kW	3.98	3.95	5.26	7.65	10.21	16.32	19.13	23.56	38.09	45.88
Rated input current	A	17.56	7.52	9.99	14.55	19.35	30.95	36.33	44.71	72.34	87.14
Maximum input power	kW	5.17	5.13	6.84	9.95	13.27	21.22	24.88	30.63	47.62	57.36
Maximum input current	A	23.23	9.75	13.02	19.13	24.98	40.25	46.88	57.96	90.44	108.94
Performance coefficient(COP)	/	3.39	3.42	3.38	3.41	3.40	3.38	3.36	3.33	3.40	3.35
Rated hot water output temp.	℃	75									
Maximum hot water output temp.	℃	80									
Rated hot water production	△t40	L/H	289.3	289.3	381.4	559.3	743.6	1182.9	1377.9	1682.1	2795.0
	△t60	L/H	192.9	192.9	254.3	372.9	495.7	788.6	918.6	1121.4	1863.3
Power supply		1N 220V/5 0Hz	3N 380V/50Hz								

Compressor	Type		Hermetic scroll type									
	Start Mode		Directly start(Soft start for option)									
	Qty.	Set	1	1	1	2	2	2	2	2	4	4
Water side heat exchanger	Type		Shell & coil(tube) heat exchanger									
	Water flow	m³/h	2.3	2.3	3.1	4.5	6.0	9.5	11.2	13.8	22.4	27.6
	Water Pressure Drop	kPa	≤53	<55	<57	<60	<70	<70	<72	<72	<75	<75
	Pipe size	mm	DN25	DN25	DN25	DN32	DN32	DN50	DN50	DN50	DN80	DN80
Refrigerant	Type		R134a									
	Throttle Type		Electronic expansion valve									
Noise		DB(A)	≤63	≤63	≤65	≤68	≤68	≤70	≤70	≤72	≤74	≤75
Dimension		mm	800/	800/	800/	1600/	1200/	1250/	1250/	1250/	2547/	2547/
			760/	760/	760/	760/	950/	1200/	1200/	1200/	1306/	1306/
			1100	1100	1100	1100	1950	2360	2360	2360	2375	2375
Net Weight		kg	160	150	180	255	290	447	510	610	1250	1280
Testing conditions:												
1. Application side initial water temperature: 15℃, end temperature 75℃, max. temperature 80℃.												
2. Ambient temperature dry bulb 20℃, wet bulb 15℃.												
The above parameters are based on Refrigerant R134a, for parameters based on other refrigerant please contact us.												

III.Installing Instruction

3.1.Installation Notes:

- 1).Installation position of the unit is more flexible, choose well ventilated position as priority.
- 2).The installation of the unit must be far away from the corrosive place.
- 3).Unit needs to have a professional installation, installation must comply with the corresponding provisions of the local government and relevant departments.
- 4).Installation's base height should be not less than 200 mm, need good drainage in installation spot, unobstructed.
- 5).Occasion for special installation requirements please refer to construction contractors or architects or other related professional consultation.
- 6).The unit can be installed on the ground, roof or the basement; But the premise should be sure to have adequate ventilation rate, and meet the demand of heat exchange. Need measures against lightning for the whole heat pump system if Install the heat pump on the roof.

7).When the unit is installed on the roof, the roof must have enough strength to support the weight of the unit and related parts, the unit can be placed on the concrete basis or channel steel frame.

8).Don't install the unit where have special request for noise and vibration.

3.2.Build the basis for heat pump:

Concrete basis:

The base is made of concrete, good at shockproof, specific requirements:

a.The surface of concrete basis should be solid and smooth, load-bearing of support surface should be 2 times of the operation weight of the unit.

b.When make concrete base, suggested the following treatment: place on the twisted steel which the diameter ≥ 9.5 mm, put two layers of the twisted steel up and down, 10cm distance between the two layers, and banding.

c.When do concrete basis on the concrete floor, the surface must be kept rough before construction, do cleaning up and supply enough water before constructing.

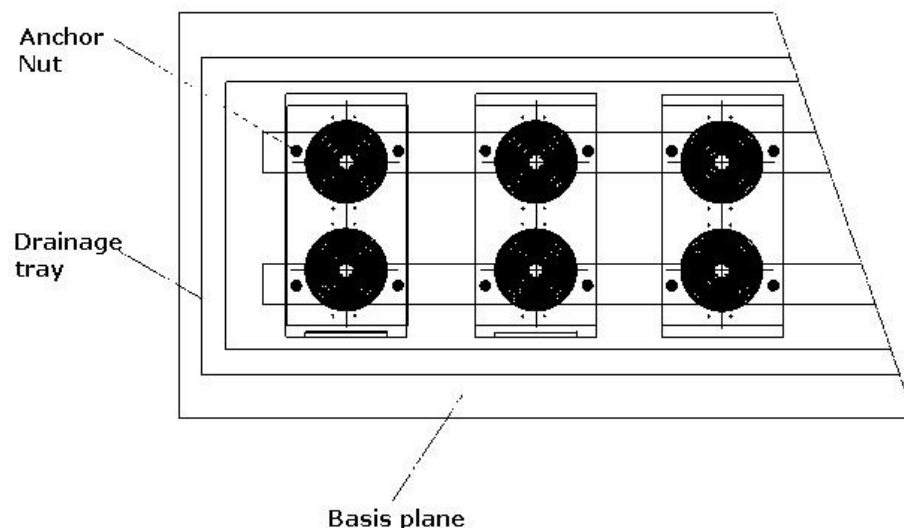
d.The concrete basis is mixed by ratio of 1:2:4, to be solid, and need bury the prescriptive size and quantity anchor bolt according the demand. The finished basis surface should be kept smoothly.

e.Concrete base station surface required waterproof treatment, drains shall be installed around and the slope should be larger than 0.5° , the slope toward to the drain outlet.

f.Concrete of basis must be dry completely before installing the machines.

g.In order to enable the device quietly operating, to avoid vibration and noise impact the floor, between the concrete basis and machine base need be isolated by shockproof pad, and keep horizontal.

h.The unit condensate water is a lot, please consider drainage around the basis, and install damping device between the basis.

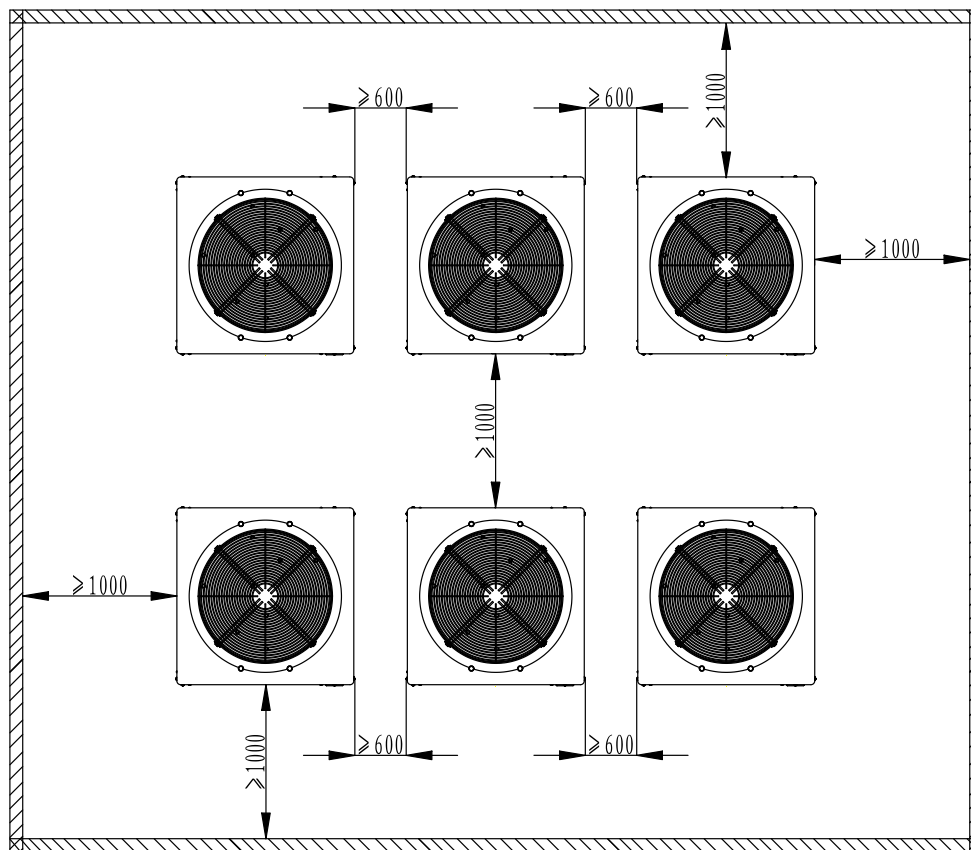


3.3.Installation space requirements:

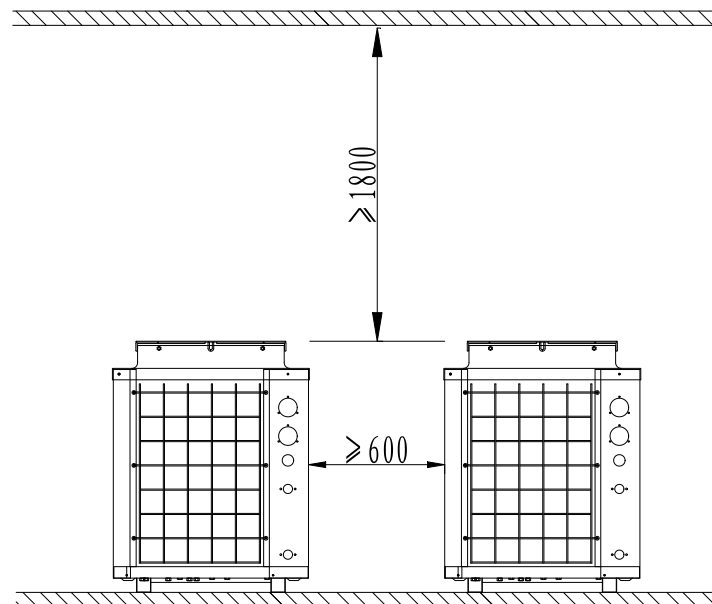
3.3.1 AS80 series

The above products installation layout reference as shown in (Picture 1) requires the reserved space, When the top side of unit

have obstructions reference as shown in (Picture 2) required reserve.



(Picture 2)



(Picture 3)



Remind

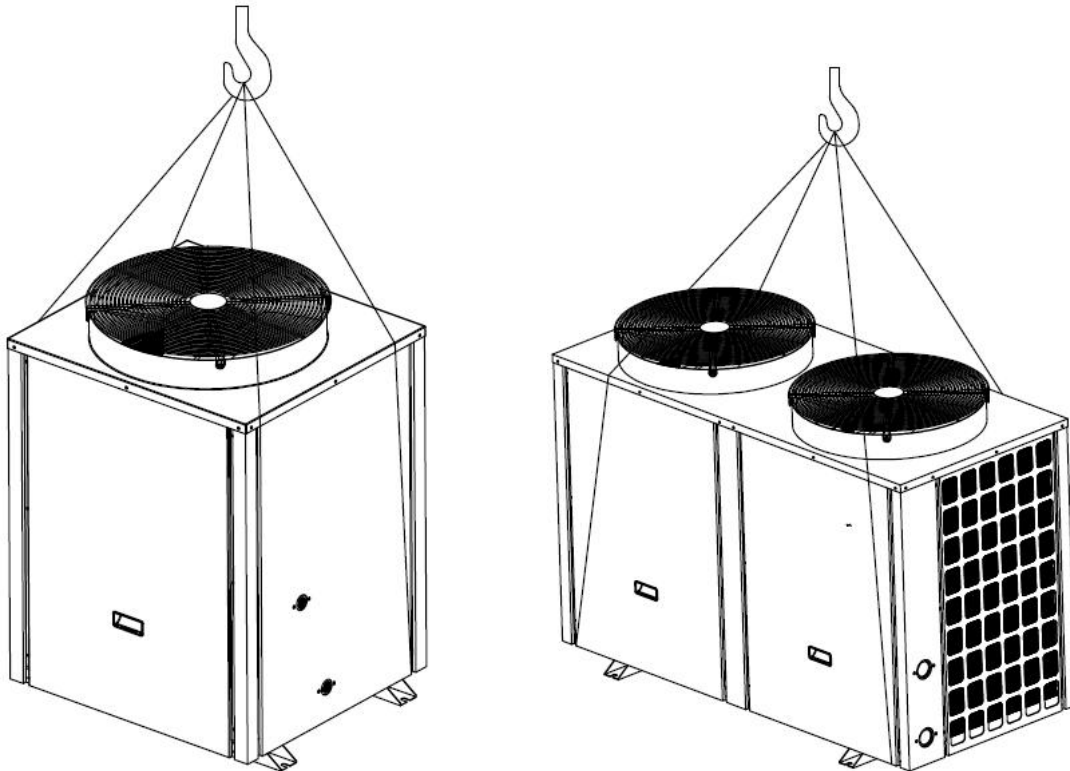
- The above diagram for reference only, product appearance may have differences with schematic structure, please refer to our actual product.

! Note

- If the unit is installed in the basement, should make sure good ventilation.
- Set aside enough space for unit installation.

3.4.The hoisting:

- 1). Recommended taking 2pcs of steel wire rope ($\geq \Phi 12.5$ mm) to lift the unit, handling process must be careful, to avoid any damage of the unit.
- 2). In order to avoid the surface scratches, deformation, please add protection sheet between the steel wire rope and the heat pump contact surface.
- 3). After hoisting, please remove transportation use plate.
- 4). According to the structure of unit, here under the hoisting picture for your reference.



! Note

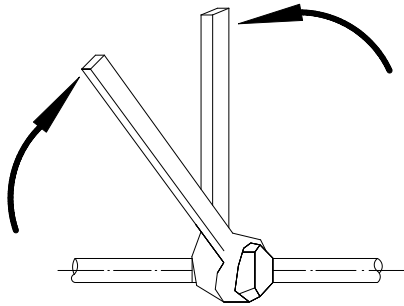
- Be sure to pay attention to safety when lifting.
- The hoisting illustration above are for reference only, specific lifting should be according to actual circumstances.

3.5.Pipeline installation:

- 1). Piping system design and construction must conform to the national plumbing pipe design specifications and relevant standards.

- 2). When under DN50, priority to choose PPR pipe, above DN50 (including DN50) choose galvanized pipe.
- 3). The installation process must prevent dust and other debris into the piping system.
- 4). Only install water pipe after the completion of fixing the unit.
- 5). Water inlet and outlet pipe, circulation system water pipe must be packed with thermal insulation material for heat preservation.

When connecting the water input pipe and water output pipe, Must use two tongs, respectively clamped to connect the two parts, to ensure that water input pipe and water output pipe of the unit can not be turn. As shown in the picture below:



3.6. The installation position for water tank

- a. Should be easy for installation of water pipe and electrical.
- b. Should supply enough space for installation and maintenance.
- c. The support surface should be flat, must bear the max. Weight of the water tank with full water.
- d. Must be free of corrosive gas leak

3.7. The installation for water level switch, overflow switch & water tank temperature probe:

- 1) The water level switch must be installed on the top interface of the water tank, and tighten it hard.

If cannot adopt thread connection to fix the water level switch, then can use the lifting lug of the water level switch for hanging installation. do not hang other position of the water level switch for avoiding damage of the water level switch.

■ In order to prevent the outflow of the water in the tank, it is necessary to have the overflow outlet and install overflow switch in the water tank, its installation height must be higher than water level switch, lower than the overflow outlet.

■ After the installation, please check if the water level switch (high, middle and low water level) is installed correctly, and if it can running normally.

■ Water tank temperature sensor can no be contacted directly with water, therefore must set sensor blind pipe, water tank temperature sensor is installed in the blind pipe.

3.8. Pipeline connection:

High temperature circulation type series products pipe connection refer to Picture as below:

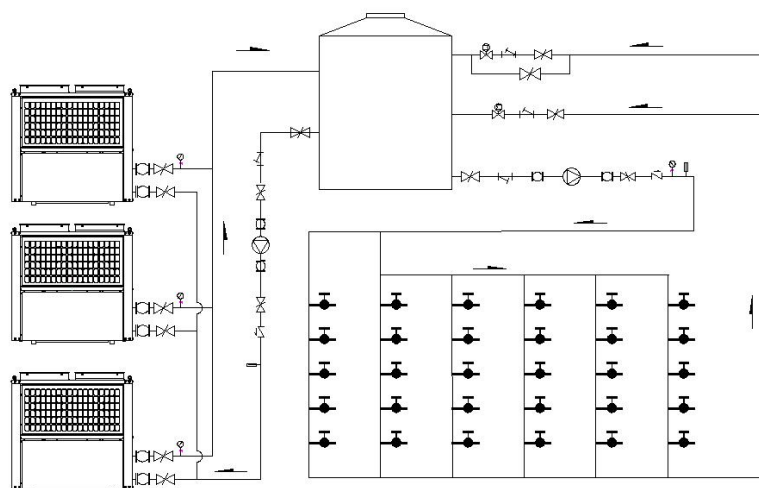


Table 2 Symbol descriptions:

Figure	Name	Figure	Name
	Filter		Water pressure meter
	Magnetic valve		Exhaust valve
	Check valve		Flexible joint
	Water pump		Butterfly valve
	Expansion tank		Sand cylinder filter
	Hair filter		P/T safety valve
	Negative pressure valve		Deep-well pump
	Cyclone desander		

3.9.Installation & selection of water pump:

3.9.1 The design & installation of the water booster pump:

1) The design of the system pressure is 0.20 MPa, work pressure range 0.05-0.35 MPa.

2)If the water inlet shall be connected to the tap water pipe network, must be connected to the main pipe of tap water.

①When water pressure $\geq$ 0.40 MPa, must install pressure reducing valve, adjust the water pressure of the unit water inlet to 0.20 MPa;

②When water pressure < 0.20 MPa, must install automatic constant pressure device.

3) Rated flow design for automatic constant pressure device:

Rated flow = unit rated water producing quantity x quantity of units

3.9.2 The design and installation of the hot water circulating pump:

1) Circulating water pump rated head of delivery:

The most unfavorable circulation pipeline (L1 + L2 + L3 +... + Ln) x resistance coefficient + pipeline total local resistance + unit resistance

2) Rated flow of circulating water pump:

Single unit cycle heating rated flow x quantity of units



Note

- When unit cycle heating, specific heat exchange side water flow please refer to performances table.



Note

- Hot water circulating pump must use hot water pump; the high temperature bearing capacity of the circulating water pump can not be lower than 80°C.

3.10. Water quality requirements

AS80 series products only used for heating sanitary hot water, the hot water be heated must comply the requirements as below table 2:

Table 2 Water quality requirement

Project			Reference value	Tendency	
				Corrosion	Scaling
Basic items	PH Value pH(25°C)		6.5~8.0	0	0
	Electrical conductivity(25°C)	μS/cm	<800	0	0
	Chloridion Cl ⁻	mg(Cl ⁻)/L	<200	0	
	Sulfate ion SO ²⁻	mg(SO ²⁻)/L	<200	0	
	Acid consumption (pH=4.8)	mg(CaCO ₃)/L	<100		0
	Full hardness	mg(CaCO ₃)/L	<200		0
Other items	Ferrum Fe	mg(Fe)/L	<1.0	0	0
	Sulfur ions S ²⁻	mg(S ²⁻)/L	not allowed	0	
	Ammonium ion NH ⁺	mg(NH ⁺)/L	<1.0	0	
	Silicon chloride SiO ₂	mg(SiO ₂)/L	<50		0
Note: 0 means corrosion or scaling tendency of relevant factors					



Note

- When the water quality can not reach the requirements, Equip corresponding water treatment equipment according to the water quality situation.

3.14. Electrical installation:

3.14.1 Electrical installation considerations:

- 1) The unit should use independent power supply, and power supply circuit must be reliable grounding.
- 2) Should have protection measures against electric leakage and short circuit, according to the relevant state regulations on electrical equipment standards.
- 3) When parallel wiring of high voltage and low voltage, please wire into a separate wire tube, to keep a proper distance, bigger distance if possible.
- 4) After all wiring completed, please check carefully and make sure no mistakes before connecting to power supply.
- 5) Three-phase unit (3N 380V/50Hz) voltage operating range: 342-418V.

3.14.2 Power wiring requirements:

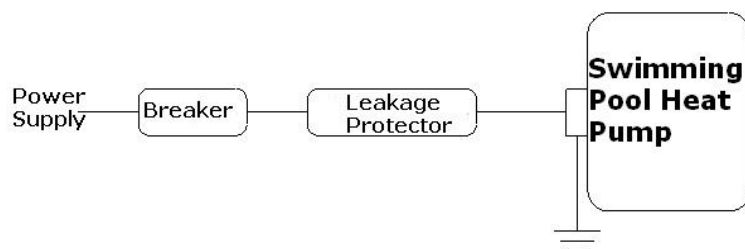
Table power wiring(copper wire) requirements

Model	Power supply	Wire diameter(mm ²)	Breaker capacity(A)
GRS-13I	1N 220V/50Hz	6	50
GRS-13II	3N 380V/50Hz	2.5	25
GRS-18II	3N 380V/50Hz	4	32
GRS-26II	3N 380V/50Hz	4	40

GRS-35II	3N 380V/50Hz	6	50
GRS-55II	3N 380V/50Hz	10	63
GRS-65II	3N 380V/50Hz	10	80
GRS-78II	3N 380V/50Hz	16	100
GRS-130II	3N 380V/50Hz	35	150
GRS-150II	3N 380V/50Hz	50	200

3.14.3 Connect to power supply:

Power wiring refer to the below connecting picture:

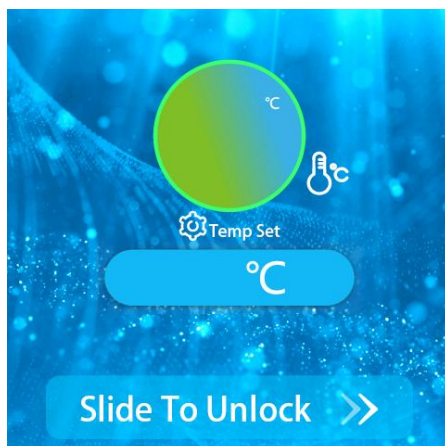


IV. Operation Illustration

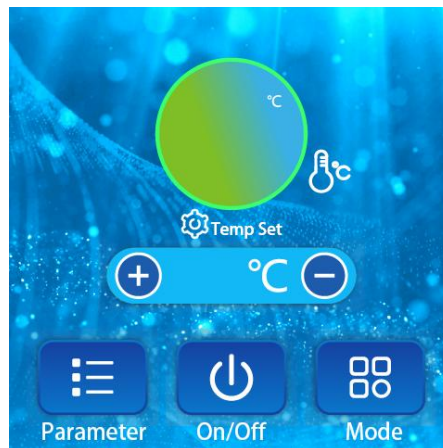
Boot interface:



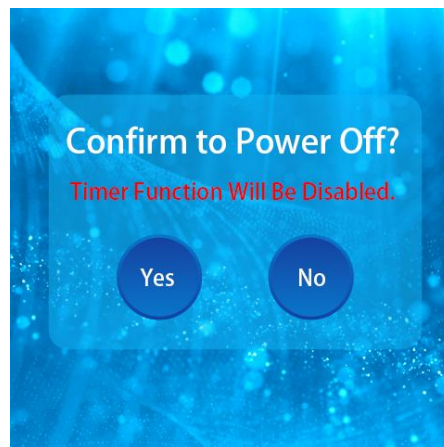
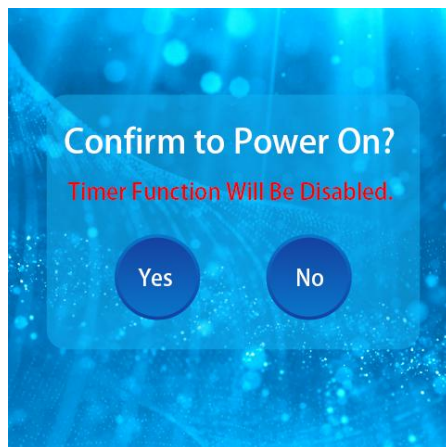
Slide on the screen to unlock the controller:



Main interface:

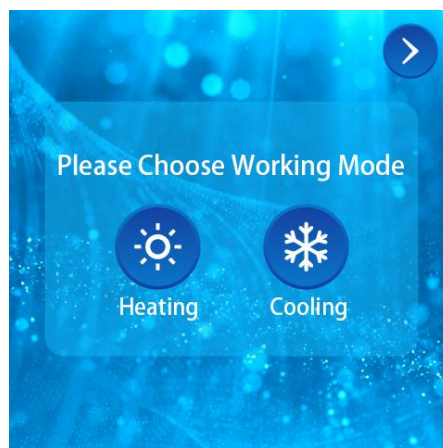


Press  to power on or off the heat pump:



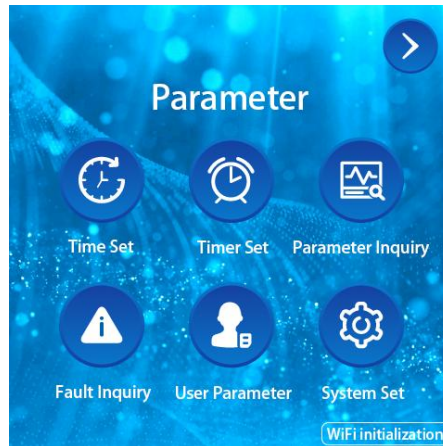
Press  or  to adjust the required water temperature;

Press  to change the mode, there are two modes: Heating and Cooling:

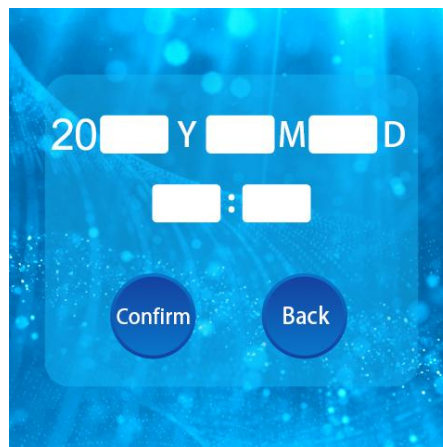




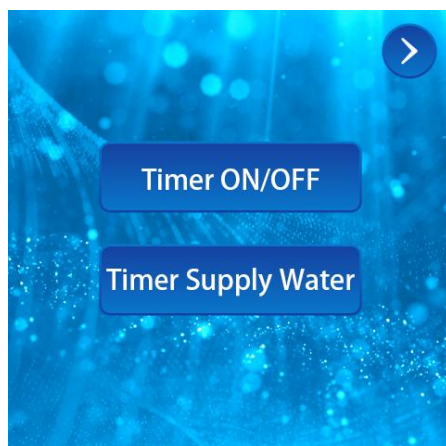
Press **Parameter** to check or set the parameters:



Press **Time Set** to set your local actual time:



Press **Timer Set** to set the timing on and timing off time, there are 4 groups for timing on and timing off:





Press **Parameter Inquiry** to check the working status temperatures:

Temp Sensor		Temp Sensor	
Water Tank Temp	Suction 1 Temp	Suction 2 Temp	Suction 3 Temp
Return Water Temp	Discharge 1 Temp	Discharge 2 Temp	Discharge 3 Temp
Water Outlet 1 Temp	Evaporator 1 Temp	Evaporator 2 Temp	Evaporator 3 Temp
Water Outlet 2 Temp	EEV 1 Openness	EEV 2 Openness	EEV 3 Openness
Ambient Temp	Comp 1 Current	Comp 2 Current	Comp 3 Current
	Assisted EEV 1 Openness	Assisted EEV 2 Openness	Assisted EEV 3 Openness
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Temp Sensor		Signal Input	
Suction 4 Temp		sw1	H level HP1 Water Flow 1
Discharge 4 Temp		sw2	M level HP2 Water Flow 2
Evaporator 4 Temp		sw3	L level HP3 Water Pressure
EEV 4 Openness		sw4	Anti-freezing HP4 Interlocking
Comp 4 Current		sw5	Defrosting LP1
Assisted EEV 4 Openness		sw6	LP2
			LP3
			LP4
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Relay Output	
Comp	
Fan	Water Supply Pump
Circulation Pump	Back Up
4-Way Valve	Assisted Valve
Refill Water Valve	E-Heater
Return Water Valve	
Fault Output	
Evaporator Plate E-heater	
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Press **Fault Inquiry** to check the current error code and history error code:

Current Fault	
Unit	Fault Description

History Fault		
Unit	Fault Description	Date



Press **User Parameter** to set and check the user parameter:

User Parameter

Mode

Cooling Temp

°C

Heating Temp

°C

Manual Electric Heater

Manual Defrost

Manual Return Water



Press **System Set** to set and check the factory parameters setting, firstly need to input the password:

Please Input Password.

Yes

No

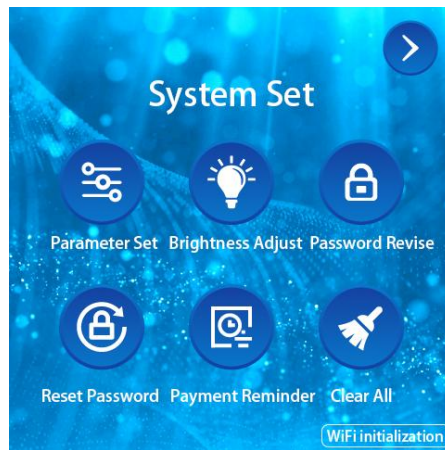
Wrong Password

Please retry

Yes

No

After input the correct password, enter the system setting interface:



Press **Parameter Set** to set the factory parameters:

HP Parameter

L1	Display Temp Positive Compensation	
L2	Comp Restart Temp Difference	
L3	Target Temp Set	
L4	Max Temp Limit Set	
L5	E-heater Start Ambient Temp Set	
L6	Return Water Temp Set	
L7	Refill Water Temp Set	
L8	Comp Current Set	

Restore Default
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HP Parameter

L9	Fan Speed Shifting Temp Set	
LA	Circulation Pump Working Options	
Lb	E-heater working option	
LC	E-heater Start Water Tank Temp	
Ld	E-heater Delay to Start After Comp Working	
LE	back up	
LF	Discharge Temp Protection Temp	
Lh	Display Temp Negative Compensation	

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HP Parameter

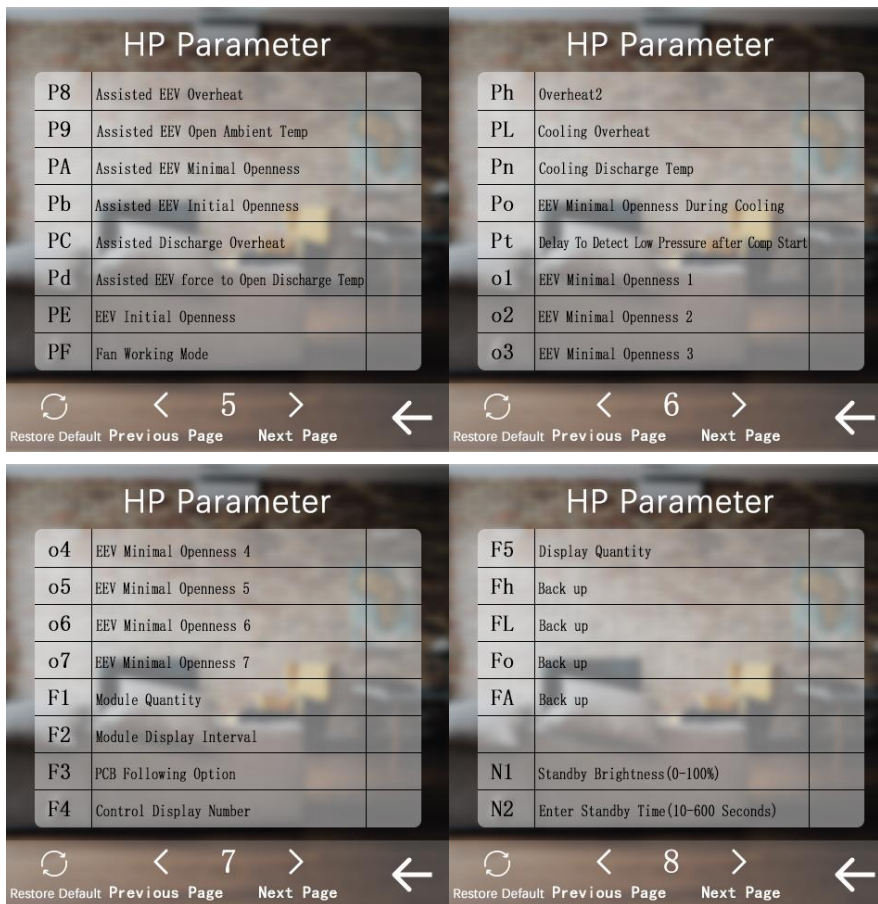
Ln	Minimal Temp limit Set	
Lo	Cycle Water Inlet and Outlet Temp Difference	
H1	Defrosting Cycle	
H2	Defrosting Enter Temp	
H3	Defrosting Time	
H4	Exit Defrosting Temp	
H5	Defrosting Enter Temp Difference 1	
H6	Defrosting Enter Ambient Temp	

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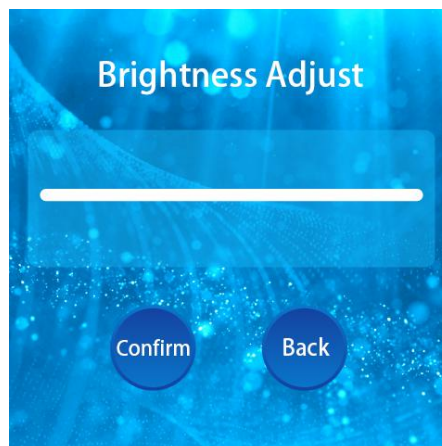
HP Parameter

H7	Defrosting Enter Temp Difference 2	
P1	EEV Adjusting Period	
P2	Overheat 1	
P3	EEV Open Discharge Temp	
P4	EEV Openness During Defrosting	
P5	EEV Minimal Openness During Heating	
P6	Discharge Overheat	
P7	Assisted EEV Adjusting Period	

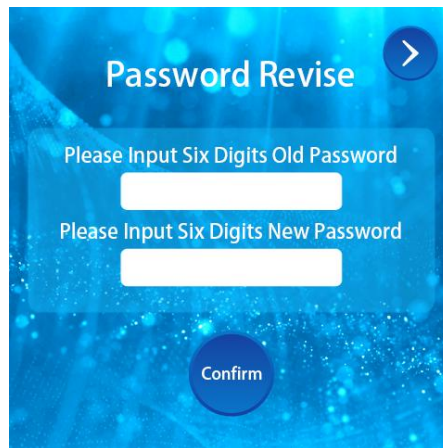
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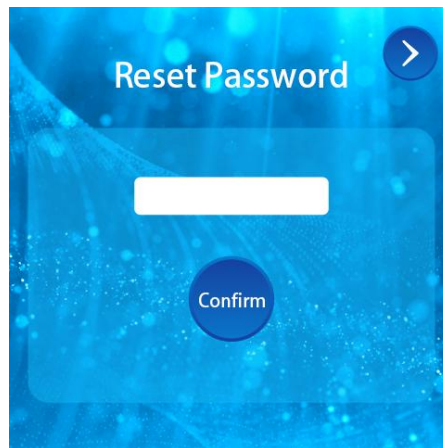
Press  **Brightness Adjust** to set the brightness of the screen:



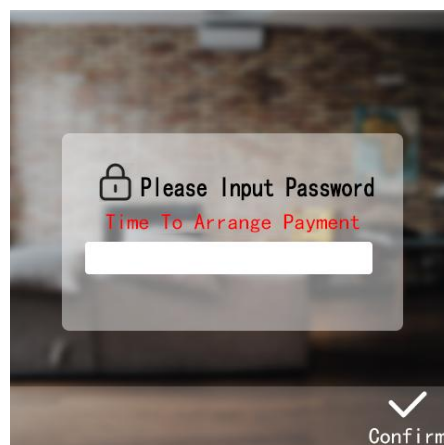
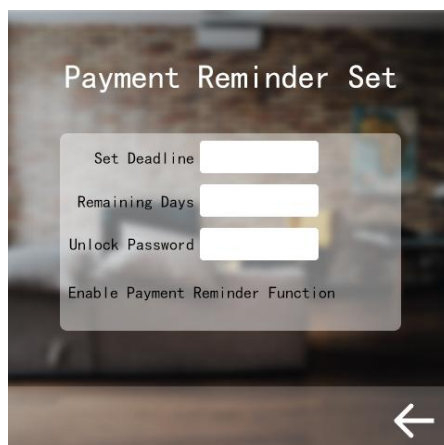
Press  **Password Revise** to revise the Password:



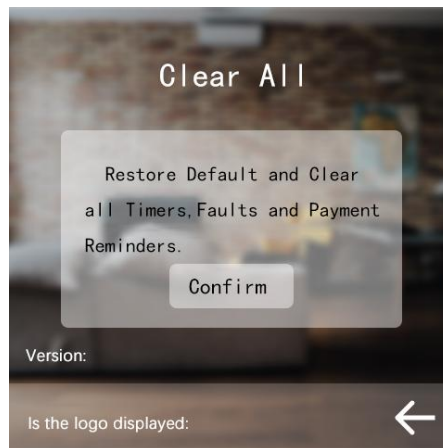
Press **Reset Password** to reset the password:



Press **Payment Reminder** to Activate and set up the scheduled payment collection function:



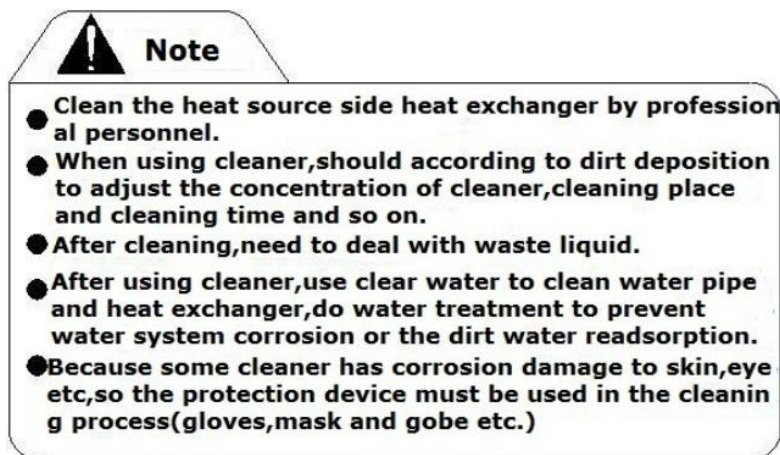
Press **Clear All** to restore default and clear all timers, faults and payment reminders setting:



VII. Maintenance

The heat pump is a more automatic equipment needing inspection regularly. If the maintenance is long-term and effective, the operation reliability and the service life will have a great increase. Maintenance must be operated by qualified persons.

1. Clean the water filter regularly to ensure the clean water in system and avoid the damage caused by its blocking.
2. When use and maintain the heat pump unit, please take note that all safety protection and parameters are set by factory already, do not change at random.
3. Always check whether the power unit and electrical system wiring is solid, and there are abnormal movements between electrical components. If does, carry out timely maintenance and replacement.
4. Check whether the water pump and water valve are working properly, check whether the water pipeline or pipe fittings have the problem of leakage.
5. Keep units in the clean, dry and well-ventilated environment, also regularly clean (1-2 months) the fin evaporator with clean water, to keep good heat absorption, turn the power off when cleaning.
6. Checking whether the components of units working properly, check whether the unit pipe connectors and air valves are with oil, make sure no leakage.
7. Around unit must not pile up sundries, to avoid blocking of the fan outlet, around the unit should be kept clean and dry, well ventilated.
8. Drain the water, cut off the power and put a protective cover, if the downtime is long. A comprehensive checking is necessary before using the unit again.
9. Please contact with the local special maintenance department of our company for the repairs in time if you can not solve failures.



VIII. Warranty services

8.1. The free warranty of our swimming pool heat pump is 24 months, starts from the date of shipment. The after-sale service department of our company will provide consumers free services due to the failure of the product quality under warranty.

8.2. Warranty certificate: The heat pump units are free to repair during the warranty period, if the users have the purchase invoice and products warranty card, and need to the product number is same as the warranty card number. If not, the units are regarded as products surpassing the warranty period. These products are not enjoy free warranty service, but the company can provide paid services for users.

8.3. The damages caused below are not in the free warranty coverage, but our company could provide paid service.

- a. Damage due to the consumer installing, dismantling and repairing.
- b. Damage due to transportation and maintenance by consumer themselves, or not using referring to the manual.
- c. Failure due to power supply not meet requirements, or due to natural disasters.
- d. Failure due to the dirty of the outdoor exchanger and the water system, also the irregular clearing the exchanger and filter.
- e. Not properly equipping filter for the refilling cold water pipe and water inlet pipe.
- f. Equipment failure caused by forced running for large water production seriously exceeds the heat pump capacity.
- g. The warranty card number of the product maintained does not match the product number.
- h. Warranty card with an eraser or revise.
- i. No warranty card and purchase invoices.
- j. Over warranty period products.