

HEAT PUMP DC INVERTER MONOBLOC TYPE AIR TO WATER

Models: AW-9M1, AW-15M1, AW-15M3, AW-20M3, AW-25M3

R32

>> Installation & Operation Manual



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1. Preface

Thank you for choosing our products and greatly we appreciate your confidence in us!

Your home is fitted with a unique renewable heating technology, allowing you to benefit from lower running costs and a more even temperature throughout your home.

These are the DC inverter air source heat pumps, that collect and utilize thermal energy from the outside air to heat the home and provide domestic hot water. The heat generated can be used to warm water for radiators, underfloor heating systems, or provide domestic hot water in your home.

We have produced this manual with the utmost care so that you get the maximum benefit from your heat pump.

The instructions and recommendations contained in this manual should be read carefully and understood since they provide valuable information concerning the heat pump's safe handling and operation. Keep this manual in an accessible place for easy future reference.

General

It's a kind of integrated DC inverter unit that comprises heating, cooling, and water heating functions. It adopts R32 refrigerant. For heating, ambient temperature range is -25~43°C while the leaving water temperature range is 18~60°C.

The heat pump is designed especially for the European market. The whole series of products strictly comply with EN14511, SCOP class A+++(35°C), SCOP class A++(55°C) with EN14825. The unit can realize space heating and sanitary hot water supply through terminal units, like the floor coil, radiator and fan coil unit.

Environment-friendly refrigerant R32 is adopted for the unit, with ODP of 0 and quite low GWP (=675). Besides, the adopted heat pump technologies will reduce consumption of coal and other energy source and lower greatly CO_2 emission.

Ranged from 6kW~25kW, it is widely applicable to small and medium-sized apartments, large-sized villas, etc.

Features

- Sustainable development
- High energy class A+++
- Full inverter technology
- Work well at low temp. down to -25°C
- Monobloc concept, easy to install

- Low noise level
- Hot water temp. up to 60°C
- Touchscreen controller with RS485
- Smart phone WIFI control
- Built-in back up electrical heater



2. Safety Precautions

The safety of you and your families is the most important!

Read these instructions carefully before installation. Keep this manual handy for future reference.

Improper installation of equipment or accessories may result in electric shock, short-circuit, leakage, fire, or other damage to the equipment. Be sure to only use accessories made by the supplier, which are specifically designed for the equipment, and make sure to get the installation done by a professional.

All the activities described in this manual must be carried out by a licensed technician. Be sure to wear adequate personal protection equipment such as gloves and safety glasses while installing the unit or carrying out maintenance activities.

Contact your dealer for any further assistance.

WARNING

Installer & maintainer must be professionally trained.

The installation, maintenance and renovation must be done by the designated dealer and professionals.

The installer must have relevant professional knowledge and authorization.

Wrong installation or repair resulting in the damage on furniture and decoration, injury or electric shock, and even serious accidents such as fire, the manufacturer will be beyond the legal responsibility.



Caution: Risk of fire/flammable materials

WARNING

- These DC inverter heat pumps contain the flammable and explosive refrigerant R32.
- The installation and maintenance must be in the open air or with good air ventilation.
- The area should be checked with a suitable refrigerant detector before and during work to ensure that there is no potentially flammable gas. Make sure that the leak detection equipment used is suitable for flammable refrigerants, ie. it does not produce sparks, is properly sealed or has internal safety.



ATTENTION

The installation space is well ventilated, once there is refrigerant leakage, the gas will not gather, so there is no combustible gas leak near the installation location.

If there is such risk, please change the installation environment, otherwise, it's easy to cause poisoning, fire accident, etc.



ATTENTION

If there is refrigerant leak during the installation, ventilation measures must be taken immediately. Otherwise, if the leaked refrigerant meets fire, such as heater, stove or electric rice cooker, etc., poisonous gas maybe produced.



NOTE

Please ensure the reliable grounding when installation.

Please don't use this machine is there is no grounding or the grounding is not reliable.

If you are not sure if the grounding is reliable, please turn to the professional for checking.

Requirements for the installation environment

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WARNING

The installation location must be ventilated, waterproof, sun-proof, and requires a convenient power supply, water supply and drainage channels.



WARNING

The wall or stand must meet the bearing requirements.



NOTE

The unit should be installed firmly to run without vibration and the noise will not affect the neighbors



NOTE

Drainage piping can smoothly drain and will not lead to leakage or make the furniture wet.



NOTE

Check the baseplate / foundation regularly.

Inspect the baseplate or foundation of the equipment at least once every month to avoid any decline or damage. The household power supply, circuit to comply with relevant standards

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WARNING

Customer's electrical environment must be in accordance with local electrical safety regulations.

The power supply specifications conform to the requirements of the local rating. There must be reliable grounding, leakage protector and give the machine power supply directly by the leakage switch wiring way.



WARNING

The power circuit should be equipped with electric leakage protector.

The location of the power supply should be not lower than 1.8 meters from the ground, and be water-proof well and far away from children.

Check whether the socket is qualified, after the unit runs for half an hour, remove the plug, if the pin is hot, that means the plug is not qualified it must be replaced by another qualified one.

The power lines must not be hurt or with damage. If there is any damage, please contact the relevant dealer or professional staff for replacement.



WARNING

The requirement on installation accessories:

Please use the accessories in the packing according to the requirement, do not replace them with any other similar.

The accessories purchased additionally by plumber or user must be the designated model or specification. Wrong accessories beyond the specified are used could possibly result in operating problems of the heat pump.



3. General Information

3.1 Specifications

	Model		AW-9M1	AW-15M1	AW-15M3	AW-20M3	AW-25M3	
ErP E	N14825 (35	°C)	A+++	A+++	A+++	A+++	A+++	
ErP E	EN14825 (55	°C)	A++	A++	A++	A++	A++	
Heating of	capacity	kW	4.1~10.8	6.5-20.2	6.5~20.2	9.0~26	11.3~31	
Heating	Capacity	kW	8.933	15.031	15.031	19.935	24.801	
(A7/W35)	Power input	kW	2.080	3.490	3.490	4.505	5.828	
	COP		4.3	4.31	4.31	4.43	4.26	
Heating	Capacity	kW	8.156	13.946	13.946	19.625	23.600	
(A7/W55)	Power input	kW	2.957	4.954	4.954	7.049	8.395	
	COP		2.73	2.82	2.82	2.78	2.81	
Powers	supply	V/Ph/Hz	220-24	0/1/50		380-415/3/50		
Electrical he	ater power	kW	3	4.5	4.5	6	6	
Electrical curre	l heater ent	А	13.6	20.5	13.6	18.2	18.2	
Max pow	er input	kW	7.39	11.8	11.66	15.2	16.5	
Мах сі	urrent	А	33.6	53.6	24.5	32.2	34.1	
Operating	air temp.	°C		-68				
Max. wate	er temp.	°C	60					
10/			Heating, Cooling, Hot water,					
VV	orking mode		Heating + Hot water, Cooling + Hot water					
C	Compressor		DC inverter					
(Condenser			Plat	e heat exchange	er		
E	Evaporator			Louvre &	& hydrophilic fin-	tubes		
Exp	pansion valv	e		Electro	onic expansion v	alve		
High	pressure sw	itch			4.2/3.6MPa			
Low p	oressure swi	tch			0.05/0.15MPa			
Water	flow	m³/h	1.50	2.6	2.60	3.40	4.30	
Pipe con	nection	inch	1"	1"	1"	1-1/4"	1-1/4"	
Refrigera	nt (R32)	kg	1.2	2.3	2.3	2.8	3.0	
CO ₂ equ	iivalent	ton	0.81	1.5525	1.5525	1.89	2.025	
Net s	size	mm	1120x480x712	1120x48	80x1230 1365x565x1415		65x1415	
Net we	eight	kg	86	123	123	170	185	
Noi	se	dB(A)	52	56	56	58	58	

* The technical specifications of our heat pumps are provided for information purposes only. We reserve the right to make changes without prior notice.



3.2 Dimensions



AW-15M1 / AW-15M3



AW-20M3 / AW-25M3



3.3 Equipment Selection

What Size Heat Pump Do you Need?

Choosing the right sized heat pump is key to ensuring optimum comfort and warmth in your home.

Undersize your heat pump and it will struggle to keep your home warm on the coldest days. If you have a backup electric heater, your home will stay warm, but you could spend a fortune on electricity.

Oversized heat pumps come with financial costs. Besides the higher upfront cost, an oversized unit will need to be replaced sooner than a properly sized unit, since kicking on and off constantly leads to more wear and tear. If you oversize your unit, even a variable speed model will kick on and off frequently, as its lowest speed might still overheat your home.

There are several factors to affect the needs of your home: The local climate, including how many days per year you need heating and cooling Your home's square footage and layout How many windows do you have and where they're located Your home's air filtration The insulation quality in your home How many people live in your home Your preferred temperature

Heat-generating appliances in your home Recommended Area Reference Table for Air Source Heat Pump



<u> </u>		0	· · ·		
Model no.	AW-9M1	AW-15M1	AW-15M3	AW-20M3	AW-25M3
Floor heating (m ²)	90 ~ 110	150 ~ 180	150 ~ 180	200 ~ 250	250 ~ 310
Radiator (m ²)	65 ~ 80	115 ~ 135	115 ~ 135	150 ~ 180	190 ~ 220

(For example, with good insulation house heating consumption)

Please note: Above data are provided for information purposes only. It depends on the installation and insulation. For accurate data, please consult local professional installation company.

Buffer tank selection:

HEAT PUMP POWER	9kw	15kw	20-25kw
Buffer tank 50L ~ 60L	\checkmark		
Buffer tank 60L ~ 80L		\checkmark	
Buffer tank 80L ~ 100L			
Buffer tank 100 ~ 150L			\checkmark

Please note: Above data are provided for information purposes only. It depends on the installation and insulation. For accurate data, please consult local professional installation company.

Domestic hot tank selection:

Generally speaking, a typical domestic household will use around 35 to 50 litres of water for every person. Again though, it's not always so straightforward. The habits of the people in the household will also need to be considered. For example, those who love soaking for a long time in the tub will use more water than those content to just take a quick shower.

The average consumption values in the table below can give you an idea of the amount of hot water needed daily for each occupant:

Low consumption = $20 \sim 40$ litres Average consumption = $40 \sim 60$ litres High consumption = $50 \sim 70$ litres

That means typically, a 4-person household will need a hot water cylinder that can provide around 200 litres daily.

DHW tank	100L	150L	200L	250L	300L	400L	500L
Suitable for	1∼ 3	2 ~ 4	3 ~ 5	4 ~ 6	5 ~ 7	7 ~ 9	9 ~ 11
	people						

Heat dissipation area of the coil is also a very important part, for example SUS wave coil,

HEAT PUMP	9kw	15kw	20 kw	25kw
DHW tank Coil	ϕ 28*23m	φ 32*35m	Φ 32*46m	Φ 32*57m

Please note: Above data are provided for information purposes only. It depends on the installation and insulation. For accurate data, please consult local professional installation company.

3.4 Components



		1		1	
1	Touchscreen controller	15	Top plate 1 of compressor	29	Electronic expansion valve
2	Left grille	16	Main board	30	Chassis
3	Front panel	17	Back grille	31	Back panel of compressor
4	Network	18	Back panel	32	Power/signal terminals
5	Axial fan blade	19	High pressure gauge	33	Service valve
6	Axial fan motor	20	Low pressure gauge	34	Low pressure sensor
7	Shockproof bracket	21	PG connection	35	Right panel of compressor
8	Motor bracket	22	Drain valve	36	Low pressure switch
9	Electrical box	23	Water flow switch	37	High pressure switch
10	Drive module	24	Electrical heater	38	Compressor chassis
11	Electrical box cover	25	Plate heat exchanger	39	Compressor shock absorber
12	Top panel	26	Accumulator	40	Front panel of compressor
13	4 way valve	27	Water pump	41	Top plate 2 of compressor
14	Compressor	28	Right panel		

Please note: The list for reference only!

Model: AW-15M3



4. Installation



ATTENTION

The following installation places may cause the malfunction of the machine

- The places where there is mineral oil;
- The place that contains salt in the air, such as the seaside;
- The place that contains corrosive gas, such as hot spring area;
- The place where the powers supply voltage fluctuates seriously;
- In the car or cabin etc.;
- The place where is full of oil gas and oil spray, such as the kitchen;
- The place where there is strong electromagnetic waves;
- The place where exists flammable gas or material;
- The place where there is acidic or alkali gas evaporation;
- Other places where belongs to special environmental conditions

4.1 The choice of the installation location

- The unit can be installed on the balcony or external wall; meanwhile, please waterproof measures should be done well.
- There is sufficient space for installation and maintenance.
- There is no barrier in front of the heat pump air outlet and strong wind can't blow there.
- The installation place should be well ventilated and avoid the environment where there is flammable, explosive gas and strong corrosive gas.
- The installation place should be convenient to install the pipe and electric wiring.
- The bearing surface is flat, can withstand the uni weight and doesn't increase the vibration and noise.
- If the installation base is metal parts, insulation treatment must be done well, and to comply with relevant standards.
- The running noise and discharge cold air will not affect yourselves and your neighbors
- The high voltage and strong magnetic field should be avoided. There should be no water logging in the installation place.
- The unit should be sheltered against snow in winter in a snowy area. The height of the stand for the heat pump must take the snow depth into account.

4.2 Transport and handling

- Because the gravity center of the unit is not in the middle, when you move the machine, please beware of the weight difference between two ends of the heat pump
- Please do not hold the air inlet, or it will be deformed.
- In the movement, please don't touch the fan blade by hand or other things in order to prevent from the damage on the fan blade.
- Please don't lean it more than 45°C or lie it down.
- Please try to use the auxiliary equipment, such as the forklift or crane to prevent the body injury caused by the overweight in the movement of the big models.

4.3 Matters needing attention for installation

- The installation should be done by the qualified dealer or professional technicians.
- If the installation is improper, it may cause the water leak, current leak or accidents such as fire.
- The installation bearing surface should be flat and can support the weight of the unit.
- Please install the unit firmly by using the MB expansion valve to fix it on the stand and antivibration rubber pads should be used to prevent the abnormal vibration and noise.
- Please try to remove the barrier around the unit, otherwise the air circulation range will be too small and affect the performance.
- If the unit is installed in the basement, indoor or in the other closed space, good air circulation between the unit and outdoor should be ensured.
- If the unit is installed at the seaside or in the high place where there is a strong wind, to make sure the normal operation of the fan blade, it must be installed against the wall. If necessary please use the baffle.
- In the place where there is a strong wind, please make sure the air outlet of the unit and the strong wind are the same direction, in order to prevent the strong wind blow to the indoor unit and affects the performance. If the wind direction can't be ensured, please put a baffle in front of the wind net of the air outlet.





When the unit is moved to another place, the movement and installation should be done by the professionals. If the user installs the unit on their own, we'll not be responsible for the accidents such as the fire, current leak, etc.

4.4 The space of installation and maintenance

Please leave enough maintenance space as the below before the installation.



4.5 Installation of the water pipes

- 1. To reduce the resistance of the water pipe as much as possible, reducing the elbow position and variable diameter can be adopted.
- 2. In the process of the piping connection, please make sure the whole system to be clean, no rust and no other dirt, in order to prevent the piping blockage.
- 3. The leak test should be done after the piping connection is finished. The test should focus on the screw thread connection to ensure the whole system without leakage, then thermal insulation should be done.
- 4. After all the piping are connected and tested leakage, 20mm thick thermal insulation must be packed on the piping in order to reduce the heat loss and prevent the water pipe from freezing in winter.
- 5. Expansion tank needs to be installed in the highest point of the water circuit. The water level of the expansion tank should be at least 0.5 M higher than the highest point.
- 6. Check the water flow of the water circuit system to ensure the normal water flow rate.
- 7. If there is a water flow fault, check the installation of the water circuit system. In order to make sure the protection on the unit when the system has no water, do not bridge the water flow switch casually.
- 8. Auto vent valve should be installed in the highest point of the water circuit, to prevent the air trapping which will affect the operating effect.

Thermometer and pressure gauge should be installed for the water inlet and water.

Model no.	AW-9M1	AW-15M1	AW-15M3	AW-20M3	AW-25M3
Water flow (m/h³)	1.5	2.6	2.6	3.4	4.5
Main water pipe	DN25	DN25	DN25	DN32	DN32

Water flow & Main water pipe

4.6 Water injection and evacuation

- 1. Vent valve needs to be installed in the highest point of the water circuit system and drain valve needs to be installed in the lowest point of the water circuit system.
- 2. When the installation is finished, please keep the power supply off.
- 3. Open the water feeding valve, the water injection begins. At this time, please keep the auto air vent valve open, the air in the system shall go out through the vent valve outlet.
- 4. Double check all the connections and turnings of the water circulation system, make sure there is no leak.
- 5. After making sure there is no leak, then start the water pump to run the water circuit and double check and make sure no leak from the connections and turnings.

When the sound "beep" disappears from the vent valve, the water injection is finished and water pump can be stopped, then go on the power installation, and after that, prepare to power on the heat pump and start it by pressing the on/off button of its wired controller.

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ATTENTION

Choose one of the water supply valves to install.

The temperature of the water supply to the buffer tank needs to be less than 50° C.

The water quality needs to meet the requirements in the following table, otherwise, the heat exchanger and the floor heating pipes will scaling after a period of using. It will affect the heat exchanger efficiency.

Ph value	6.5-8.0
Total hardness	200µV/cm(25°C)
Conductivity	< 50 ppm
Sulfide	No
Chloridion	<50ppm
Ammonia ion	No
Sulfate ions	<50ppm
Silicon	<30ppm
Iron content	<0.3ppm
Sodion	No requirement
Calcium ion	<50ppm



WARNING

In case of power failure or power off for long time in cold winter, the heating water inside the heat pump and inside the outdoor pipes must be drained out, otherwise the heat pump heat exchanger and outdoor water pipes could be iced and damaged.

4.7 Installation of 3-way valve

3-way valve is on when unit is in DHW mode, switches off in other modes or when unit is off.



NOTE

When unit switches from DHW mode to AC heating mode, compressor does not stop. The controller drives the 3-way valve to switch the water circuit and controller switches the mode.

4.8 Temperature sensors installation

The DC inverter heat pumps are with the

- Buffer tank sensor
- DHW tank sensor

They are already installed from the controller system when ex-factory. They are on the behind of the outdoor unit, with at least 5 meters long cables. They should be directly placed into their tanks respectively.

NOTE

- There are name labels on each sensor, please don't mix by mistake.
- The cable for each sensor is 5~7 meters accordingly when ex-factory. The cables can be prolonged by installers when necessary.



NOTE

Please use heat conducting silicone grease for each sensor into the tank, so that it can feel the tank temperature accurately.



4.9 Installation diagram

a. Installation for only heating



b. Installation for only hot water



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c. Installation for hot water & heating with three-way valve



Direction of 3-way valve:

A - connect to room heating

B – connect to water tank heating

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Warning!

Cable (wire) for the 3 way valve is strong current one with 220V voltage once the heat pump with electricity. If the installation does not need the 3 way valve, please use the insulation to protect the cable's terminal well and put it at a safe place. Do not exposed the cable's terminal and do not put the place where people especially children can touch. Be aware of electricity.

Notice:

- Please put the water tank sensor at one-third of water tank from bottom.
- If heat pump no needs to connect with water tank, it must be connected with water tank sensor on the terminal, and put the water tank sensor on return water pipe, to ensure heat pump works normally.
- If the outdoor unit is situated on the ground, rubber feet must be fixed to the bottom of the unit, to help with vibration.
- When no need to use the heat pump in winter, please drain the system's water out completely, to prevent the damage from heat exchanger.
- To ensure the heat pump's efficiency and safety, please periodically clean the water circuit inside heat pump.
- It add antifreeze, according to local installation requirements and climate conditions.



5. Electric connection

5.1 Electric wiring



- (1) The unit should use the dedicated power supply; the power supply voltage should consist with the local rules of the rated voltage.
- (2) The external power supply circuit must have grounding and the unit power supply grounding wire should be connected to the external grounding wire reliably.
- (3) The electrical wiring construction must be carried out by the professional technician based on the circuit diagram.
- (4) The leakage protection device must be set up in accordance with the local relevant technical standard of the electrical equipment.
- (5) The power supply line and the signal line should be arranged reasonably and neatly. They can't interfere with each other and contact with the connection pipe and valve body.
- (6) When all the wiring construction is finished, the power should be connected after all is checked to be no problem.

5.2 Electric wiring steps

Remove the screws of the maintenance panel, push it down off the top panel, then take it out.







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Through the power line from the hole, and connect the line with the terminal.



Notice:

- 1. There are 2 holes on the back of the outdoor unit, for going through the power cables and signal cables. Signal cables must be separated from cables with power 230V or 380V, to avoid signal interruption.
- 2. Detailed arrangement for the wiring terminals please refer to wiring diagram in this manual.

Model no.	Power supply	Max. Power Input (kW)	Max. Current (A)	Main power cable size	Air circuit breaker
AW-9M1	230V/1Ph/50Hz	7.39	33.6	3 * 6.0 mm ²	60A
AW-15M1	230V/1Ph/50Hz	11.8	53.6	3 * 10.0 mm ²	80A
AW-15M3	380V/3Ph/50Hz	11.66	24.5	5 * 4.0 mm ²	40A
AW-20M3	380V/3Ph/50Hz	15.2	32.2	5 * 6.0 mm ²	60A
AW-25M3	380V/3Ph/50Hz	16.5	34.1	5 * 6.0 mm ²	60A

Main power cables (heat pump with electrical heater)

DANVEX

6. Trial operation

6.1 Inspection before the trial operation

Please check if the following items before the trial operation.

- (1) If the unit is installed correctly;
- (2) If the piping and wiring are correct;
- (3) If the drainage is smooth;
- (4) If the thermal insulation is well done;
- (5) If the grounding wire is connected properly;
- (6) If the power supply voltage fits the rated voltage of the unit;
- (7) If there is any barrier in front of the air inlet/outlet;
- (8) If the air inside the water circuit system is totally evacuated, if all the valves are opened;
- (9) The current leak protector can act effectively;
- (10) The inlet water pressure is no less than 0.15MPa.

6.2 Trial operation

When all the above items are normal, connect the power supply and start the unit.

During the trial operation, check the following items:

- 1) If the unit working performance is normal, if it can normally produce the demanded heating capacity or cooling capacity;
- 2) If the water connection is tightly fixed without water leak;
- 3) If the fan blade runs normally; if the outlet air is smooth and if there is abnormal vibration from the fan motor;
- 4) During the unit running, if there is abnormal vibration and noise;
- 5) If the operation keys of the controller is flexible, reliable and responds normally;
- 6) If the controller display is normal, if there is missing or wrong segment, if the back light brightness is normal;
- 7) If there is any abnormal vibration and pipeline collision from the pipe system during the operation;
- 8) If the power line is hot abnormally during the unit operation;

DANVA

7. Control & Operation

7.1 Homepage

This display panel uses the capacitor touch screen for input operation. The valid touching area indicates the black rectangle when the display panel lights off.

This control panel is of high sensitivity and will respond to unexpected clicks by foreign matters on the display panel. Therefore, please keep it clean during operation.



Display:

No	Item	Description
1	Running icons	Icons of the running part, such as water pump, compressor, ect.
2	ON/OFF	It is used to turn on or off the unit. Sign turns to orange when unit on, dark blue when off.
3	Mode selection	Go to the mode selection page.
4	Parameter setting	Go to the parameter setting page.
5	Timer setting	Go to the timer setting page.
6	Current mode	Display current mode
7	Current temp.	Display current temperature.
8	Date and time	Display date and time, click it to setting
9	Status icons	Icons of unit status
10	Temp. setting	Adjust the temp. of current mode by up and down
11	Temp. setting bar	Move the ball to right or left to set the setting temperature.
12	Temp. setting value	Adjust the temp. of current mode by up and down



lcons:

	Water pump is running	C	Unit is running with night mode
	Compressor is running		Unit is defrosting
222	DHW electrical heater is running	SS	Unit is under sterilization
<u> 555</u>	Heating heater is running	(Unit is running with ECO mode
HDO	Remote control activated	(((.	Unit has connected to Wifi.
55	Fan motor is running	1	Run interface
	Unit is running with heating mode		Back to homepage
*	Unit is running with cooling mode	Ĭ	Fault sign: Sign turns to red when there is a failure.
	Unit is running with DHW mode	EN	Current language (optional)

7.2 Unit on or off



When the heat pump is off, the homepage display the blue on/off sign and OFF. Click the on/off sign, there is selection box, choose OK to turn on the unit. On/off sign turns to orange when unit on, and display ON on the homepage.

Unit off operates is in the same way as unit on.



7.3 Mode selection

Touch "MODE" on homepage to enter. Touch the back button on the upper left corner to return to homepage.



Heating:

Room heating mode: In this mode, heat pump only heats the room.

Heat pump runs according to return water temperature. You can set the water temp. directly. Heat pump stops running as soon as room temperature reaches setting temperature. Heat pump restarts when the temperature drops back according to parameter HEAT Set T.. Return water temperature is adjustable from 18°C to 60°C. Factory setting is 25°C.

Cooling:

Room cooling mode: In this mode, heat pump only cools the room.

Heat pump runs according to return water temperature. You can set the water temp. directly. Heat pump stops running as soon as room temperature reaches setting temperature. Heat pump restarts when the temperature drops back according to parameter COOL Set T.. Adjustable from 8°C to 28°C, factory setting is 25°C.

DHW:

Domestic hot water heating mode: In this mode, heat pump only heats the domestic water tank. Heat pump stops running as soon as water tank's temperature reaches setting temperature. Heat pump re-starts when the temperature drops back according to parameter DHW Set T. Water temperature is adjustable from 30°C to 55°C. Factory setting is 50°C.

DHW+Heating:

Heat pump runs with domestic hot water heating and room heating.

DHW+Cooling:

Heat pump runs with domestic hot water heating and room cooling.

Note:

In auto mode, domestic hot water heating has the priority. When water tank reaches the setting temperature, 3-way valve will turn to heat/cool room automatically. If water tank temperature decreases, 3-way valve's direction will revert to water tank heating.



7.4 Parameter

Touch "Parameter" on homepage to enter.

Touch the back button in the upper left corner to return to homepage.

4 5 4			
Return			
	<u> 288</u>		
Status	User	Engineer	Performance
Curve view	Wifi	ECO	

7.4.1 Unit status

Touch "Status" to check the unit status.

These parameters are the actual operating value of the unit and cannot be set.

Parameters	Meaning	Parameter range	Remark
DHW temp.	Domestic hot water tank temp.	-30°C ~ 99°C	Measured value
BTW temp.	Heating tank temp.	-30°C ~ 99°C	Measured value
BTW inlet temp.	Water inlet temp.	-30°C ~ 99°C	Measured value
BTW outlet temp.	Water outlet temp.	-30°C ~ 99°C	Measured value
Heating coil	Heating coil temp.	-30°C ~ 99°C	Measured value
Cooling coil	Cooling coil temp.	-30°C ~ 99°C	Measured value
Exhaust coil	Compressor discharge temp.	0°C ~ 125°C	Measured value
Evap. temp.	Compressor suction temp.	-30°C ~ 99°C	Measured value
Ambient temp.	Outdoor ambient temp.	-30°C ~ 99°C	Measured value
Expansion valve	Electronic expansion valve steps	100 ~ 480N	Measured value
EVI inlet temp.	EVI circuit gas inlet temp.	-30°C ~ 99°C	Measured value
Solar water temp.	Solar water tank temperature	-30°C ~ 99°C	Measured value
IPM temp.	Module radiator temperature	-30°C ~ 99°C	Measured value
Comp. Freq.	Compressor frequency	0 ~ 90Hz	Measured value
Comp. Current	Compressor current	0 ~ 50A	Measured value



Parameters	Meaning	Parameter range	Remark
Comp. type	Compressor unit type	1~8	Measured value
EVI outlet temp.	EVI circuit gas outlet temp.	-30°C ~ 99°C	Measured value
EVI valve	EVI circuit EEV steps	0 ~ 480N	Measured value
DC. voltage	DC voltage		Measured value
Fan 1 speed	DC fan motor 1 speed		Measured value
Fan 2 speed	DC fan motor 2 speed		Measured value
L pressure	Low pressure sensor pressure	0 ~ 2MPa	Measured value
H pressure	High pressure sensor pressure	0 ~ 5MPa	Measured value
L Temp	Low pressure sensor temp.	-30 ~ 70°C	Measured value
H Temp	High pressure sensor temp.	-30 ~ 70°C	Revised
Pump operation hour	Accumulated running hours for circulating water pump	0 ~ 65535 hours	Measured value
Comp. operation hour	Accumulated running hours for compressor	0 ~ 65535 hours	Measured value
Heating L1 E-heater accumulated running hours	Accumulated running hours for electrical heater of heating line 1	0 ~ 65535 hours	Measured value
Heating L2 E-heater accumulated running hours	Accumulated running hours for electrical heater of heating line 2	0 ~ 65535 hours	Measured value
DHW add operation hour	Accumulated running hours for electrical heater of DHW mode	0 ~ 65535 hours	Measured value
Pump operation time	Accumulated number of starts for circulating water pump	0 ~ 65535 times	Measured value
Comp. operation time	Accumulated number of starts for compressor	0 ~ 65535 times	Measured value
Heating L1 E-heater accumulated number of starts	Accumulated number of starts for electrical heater of heating line 1	0 ~ 65535 times	Measured value
Heating L2 E-heater accumulated number of starts	Accumulated number of starts for electrical heater of heating line 2	0 ~ 65535 times	Measured value
DHW add operation time	Accumulated number of starts for electrical heater od DHW mode	0 ~ 65535 times	Measured value

Operation hour & time

Record the cumulative operating hour and switching frequency of compressor, water pump, and electric heaters

7.4.2 User parameter

Touch "Parameter" to enter the "User" interface.

Touch the number on the right, write the desired value and press \checkmark to modify the corresponding parameter value.

Parameters	Meaning	Parameter range	Default
DHW Set T.	Hot water mode setting temperature	30°C ~ 55°C	50°C
HEAT Set T.	Heating mode setting temperature	18°C ~ 60°C	25°C
COOL Set T.	Cooling mode setting temperature	8°C ~ 28°C	25°C



Parameters	Meaning	Parameter range	Default
AUTO Set T.	Auto mode setting temperature	15°C ~ 25°C	25°C
Initial BTW T.	Automatic heating curve start temp.	15°C ~ 25°C	20°C
Max. BTW T.	Automatic heating curve maximum temp.	24°C ~ 50°C	43°C
DHW ∆T.	DHW temp. drop for restart	1°C ~ 20°C	5°C
BTW ∆T.	Heating temp. drop for restart	1°C ~ 20°C	2°C
Night Mode	Night Mode on/off	ON / OFF	OFF
Night Fre.Set	Night Mode compressor frequency	20HZ ~ 120HZ	60HZ
Night Fan Speed	Night Mode fan speed	30rpm ~ 90rpm	60rpm
Night Start Time	Night Mode start time	0H ~ 23H	19H
Night Stop Time	Night Mode stop time	0H ~ 23H	7H

Night Mode

Heat pumps have the additional benefit of the Night Mode feature. By setting the wind speed and compressor frequency, when quiet operation matters the most the heat pump will keep you comfortable at night while not disturbing your sleep.

7.4.3 Engineer parameter

The user cannot modify this parameter, please contact the engineer. Touch "Engineer parameter" to password interface, enter the password and press √ to enter.



7.4.3.1 Compressor

Touch "Compressor" of "Engineer" to enter.

Touch the number of	n the right, write t	ne desired value and press	s \checkmark to confirm the modification.
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Parameters	Meaning	Range	Default	Remark
Frequency code	Compressor speed code	1 ~ 8	3	Adjustable
Comp. control	Compressor frequency	Auto/manual	Auto	Adjustable
Comp. Freq.	Compressor manual frequency	30 ~ 90	50	Valid manual only
DHW tank factor	Hot water tank correction factor	1 ~ 10	10	Adjustable
Exhaust TP0	Exhaust protection setting TP0	50 ~ 125°C	96°C	Adjustable
Exhaust TP1	Exhaust protection setting TP1	50 ~ 125°C	102°C	Adjustable



Parameters	Meaning	Range	Default	Remark
Exhaust TP2	Exhaust protection setting TP2	50 ~ 125°C	106°C	Adjustable
Exhaust TP3	Exhaust protection setting TP3	50 ~ 125°C	110°C	Adjustable
Exhaust TP4	Exhaust protection setting TP4	50 ~ 125°C	114°C	Adjustable
Fre.Jump Min 1	Min. frequency modulation point 1	0Hz ~ 125Hz	125Hz	Adjustable
Fre.Jump Min 2	Min. frequency modulation point 2	0Hz ~ 125Hz	125Hz	Adjustable
Fre.Jump Min 3	Min. frequency modulation point 3	0Hz ~ 125Hz	125Hz	Adjustable
Fre.Jump Min 4	Min. frequency modulation point 4	0Hz ~ 125Hz	125Hz	Adjustable
Fre.Jump Max 1	Max. frequency modulation point 1	0Hz ~ 125Hz	125Hz	Adjustable
Fre.Jump Max 2	Max. frequency modulation point 2	0Hz ~ 125Hz	125Hz	Adjustable
Fre.Jump Max 3	Max frequency modulation point 3	0Hz ~ 125Hz	125Hz	Adjustable
Fre.Jump Max 4	Max. frequency modulation point 4	0Hz ~ 125Hz	125Hz	Adjustable
DHW Max Fre.	Max compressor frequency for DHW mode	30Hz ~ 100Hz	50Hz	Adjustable
Heat Max Fre.	Max compressor frequency for heating mode	30Hz ~ 100Hz	80Hz	Adjustable
Cool Max Fre.	Max compressor frequency for cooling mode	30Hz ~ 100Hz	80Hz	Adjustable

DHW tank factor is Hot water tank correction factor, 10 means 100% compressor frequency for DHW, for example 100% is 60Hz now, if you set "DHW tank factor" at 7, that means compressor frequency for DHW is 60x70%=42Hz.

7.4.3.2 Fan settings

Touch "Fan" of "Engineer" to enter.

Touch the number on the right, write the desired value and press \checkmark to confirm the modification.

Parameters	Meaning	Range	Default	Remark
DC.fan manual	Manual DC fan speed gear selection	1 ~ 6	1	Adjustable
DC.fan gear 1	DC fan speed gear 1	30 ~ 120 rpm	30 rpm	Reserved
DC.fan gear 2	DC fan speed gear 2	30 ~ 120 rpm	40 rpm	Reserved
DC.fan gear 3	DC fan speed gear 3	30 ~ 120 rpm	50 rpm	Reserved
DC.fan gear 5	DC fan speed gear 4	30 ~ 120 rpm	60 rpm	Reserved
DC.fan gear 5	DC fan speed gear 5	30 ~ 120 rpm	75 rpm	Reserved
DC.fan gear 6	DC fan speed gear 6	30 ~ 120 rpm	85 rpm	Reserved
DC.fan Mode	DC fan control type	Auto / manual	Auto	Adjustable
Fan 1 select	Fan 1 controls selection	AC / DC	DC	Adjustable
Fan 2 select	Fan 2 control selection	AC / DC	For 9kw: AC For 15kw/20kw /25kw: DC	Adjustable
Evaporation temperature	Evaporation temperature	-5 ~ 20°C	12°C	Adjustable
Fan on deviation	Fan motor start deviation	0 ~ 30°C	15°C	Adjustable
Fan off deviation	Fan motor stop deviation	0~30°C	3°C	Adjustable



Parameters	Meaning	Range	Default	Remark
Maximum fan speed	Maximum fan speed	10~100 rpm	95 rpm	Adjustable
Minimum fan speed	Minimum fan speed	10~100 rpm	30 rpm	Adjustable

7.4.3.3 Main valve settings

Touch "Main valve" on "Engineer" interface to enter.

Touch the number on the right, write the desired value and press \checkmark to confirm the modification.

Parameters	Meaning	Range	Default	Remark
EEV Mode	Electronic expansion valve mode selection	Auto / Manual	Auto	Adjustable
Initial step	Electronic expansion valve initial steps	150 ~ 500P	200P	Adjustable
Adjust step	Electronic expansion valve manual steps	30 ~ 500P	250P	Adjustment precision changed to 2P
EEV Superheat /C	Heating target superheat	-20°C ~ 20°C	1°C	Adjustable
EEV Superheat /H	Cooling target superheat	-20°C ~ 20°C	1°C	Adjustable
Discharge Superheat	Compressor discharge temperature superheat	15°C ~40°C	25°C	Adjustable

7.4.3.4 EVI valve settings (Reserved)

Touch "EVI valve" on "Engineer " interface to enter.

Touch the number on the right, write the desired value and press \checkmark to confirm the modification.

Parameters	Meaning	Range	Default	Remark
EVI function	EVI function	ON / OFF	OFF	Adjustable
Start Air Temp	Ambient temp. for EVI starts	-5 ~ 20°C	7°C	Adjustable
Start ∆T	Temp. difference between cooling coil and heating coil to start EVI valve	20 ~ 60°C	38°C	Adjustable
EEV Superheat	target superheat	1 ~ 15	6	Adjustable
EEV Mode	EVI valve mode	Auto / Manual	Auto	Adjustable
Initial step	EVI valve initial step	150 ~ 500P	200	Adjustable
Adjust step	EVI valve manual step	30 ~ 500P	250	Adjustable

7.4.3.5 Defrost parameter

Touch "Defrost" on "Engineer " interface to enter.

Touch the number on the right, write the desired value and press \checkmark to confirm the modification.

Parameters	Meaning	Range	Default	Remark
Def. Cycle	Defrost cycle	30min ~ 90min	45min	Adjustable
Def. start temp.	Defrost start temperature	-20 ~ 5°C	-7°C	Adjustable
Def. stop temp.	Defrost exit temperature	1°C ~ 30°C	10°C	Adjustable
Def. Max. time	Max defrost time	1min ~ 12min	8min	Adjustable



Parameters	Meaning	Range	Default	Remark
Def. ∆T	The temperature difference between the ambient temp. and the coil temp. to start defrosting	0°C ~ 12°C	1°C	Adjustable
Def.Stop Ptemp	Exceeded how much ambient temp. is no longer defrosting	1°C ~ 30°C	4°C	Adjustable
Ambient set	Start temp. difference defrosting ambient temp. entry value	-25°C ~ 5°C	-5°C	Adjustable
Def. fre. set	Compressor frequency setting during defrost	20Hz ~ 120Hz	70Hz	Adjustable

When defrost is running, wire controller displays symbol " 🐺 ".

In the heating mode, when the outdoor evaporator surface has white frost (when the air temp. is low or the air is humid, this phenomenon will be more obvious), the heat exchange and performance will be affected, so when the frost gets to a certain degree, the system will run the defrosting automatically. In the defrosting mode, the outdoor fan motor will stop running. Sometimes there is vapor from the outdoor evaporator. Those are normal defrosting phenomena instead of faults.

Manual defrosting

When outdoor ambient temp. ≤15°C, the controller can be operated to do the manual defrosting by longpress main menu "Parameter".

The manual defrosting duration is the set duration, regardless the coil temperature.

7.4.3.6 AUX parameter

Touch "AUX " on "Engineer " interface to enter.

Touch the number on the right, write the desired value and press \checkmark to confirm the modification.

Parameters	Meaning	Range	Default	Remark
AC heater delay	Heating electrical heater start delay	0 ~ 120M	30M	Adjustable
DHW ∆T EH	The heating water temp. difference when the manual DHW electrical heater is turned on	0°C ~ 15°C	5°C	Adjustable
EH start delay.	DHW electrical heater start delay	0 ~ 120M	30M	Adjustable
AC heater	Heating electrical heater	ON/OFF	ON	Adjustable
DHW heater	DHW electrical heater	ON/OFF	ON	Adjustable
AC heater amb.T	Ambient temp. when start heating electrical heater	-30°C ~ 50°C	2°C	Adjustable
AC heater 2 delay	Heating electrical heater 2 start delay	0 ~ 60M	20M	Reserved

BTW tank electric heater 1

1. Conditions for turning on electric heater:

- > Starts in defrosting mode.
- > Starts in secondary anti-frozen protection.
- > There is protection acting in heating mode.
- ➢ In heating mode, ambient temp.≤ "AC HEATER AMB. T"
- When the frequency changes after starting the compressor, if the "BTW temp." change is less than 1°C within 30mins, BTW tank electric heater 1

2. Conditions for turning off electric heater:

- > In heating mode, higher +2°C than "AC HEATER AMB. T"
- > BTW tank temp. sensor error or water flow switch error,
- Defrosting quits.
- > Secondary anti-frozen protection quits.
- > Not at the heating mode.
- > "BTW temp." ≥ "HEAT Set T."

BTW tank electric heater 2

After 20mins of starting the BTW tank electric heater 1, if the "BTW temp." had not yet risen to the "HEAT Set T.", then BTW tank electric heater 2 turns on;

3. BTW tank electric heater 2 and BTW tank electric heater 1 are turned off simultaneously.

4. When the BTW tank electric heater is turned on, the icon of DHW tank electric heater $\underbrace{\mathfrak{M}}$ is displayed on homepage.

DHW tank electric heater

1. DHW tank electric heater turns on when all the following conditions are met at the same time:

- In DHW mode, compressor runs for 30 mins ("EH start delay." default 30mins) or stops with error for more than 5 mins
- > "DHW temp." ≤ "DHW Set T." "DHW △T." + "DHW △T EH"
- 2. Condition for switching off DHW tank electric heater
 - > "DHW temp." ≥"DHW Set T."
- 3. When DHW sterilization function is operating, the DHW tank electric heater is turned on forcibly.
- 4. When the DHW tank electric heater is turned on, the icon of DHW tank electric heater $22
 is displayed on homepage.
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 is displayed by the icon of DHW tank electric heater is turned on the icon of DHW tank electric heater is turned on homepage.
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 is displayed by the icon of DHW tank electric heater is turned on the icon of DHW tank electric heater is turned on the icon of DHW tank electric heater is turned on homepage.$

7.4.3.7 Solar parameter

Touch "Solar" on "Engineer" interface to enter.

Touch the number on the right, write the desired value and press \checkmark to confirm the modification.

Parameters	Meaning	Range	Default	Remark
Solar system	Solar auxiliary system	ON / OFF	OFF	Adjustable
Solar mode	Heating mode	Heating / DHW / DHW+Heating	Heating	Adjustable
Start ∆T	Starting temperature difference	1°C ~ 30°C	15°C	Adjustable
Hysteresis	Temperature return difference	1 ~ 10	5	Adjustable
Max. Tank T	Maximum temperature of water tank	50 ~ 99	90	Adjustable

Solar assistant heating control

The solar assistant heating control is built in the indoor PCB and the wired controller panel. Under the wire controller menu Parameter setting there is the menu Solar Parameters.



1) Control logic:

- When parameter Solar system is set to OFF, controller does not check solar temperature sensor, does not receive or report errors.
- When parameter Solar system is set to ON, controller thinks the system is connected to solar assistant system. Controller reports error as long as solar temperature sensor is disconnected or short-circuit, but it does not influence the operation of heat pump, it just stops the solar circulating pump.
- Solar mode can be set to heating, DHW, or DHW + heating.
- The port OUT 5 on indoor PCB, is to control the 3-way valve for solar circuit, switching between DHW tank and AC heating water tank.
- When DHW mode is active, this 3-way valve is energized.
- In heating mode or DHW mode:

If the following conditions are matched at the same time, controller turns on the solar circulating pump (OUT3) and heats the AC heating tank:

- * Heat pump is in heating or Auto heating mode(as long as this mode is selected by controller and heat pump is at ON status, regardless standby status by reaching set temperature or not).
- * Parameter Solar system is set to ON.
- * Parameter Solar mode is set to heating or DHW+Heating
- * Solar sensor temp.– BTW temp.> Parameter Start $\triangle T$

When solar sensor temp. – BTW temp. < Parameter Start $\triangle T$ – Hysteresis, or BTW temp. reaches the set value of Parameter Max Tank T, controller stops the solar circulating pump.

If the following conditions are matched at the same time, controller turns on the solar circulating pump (OUT3) and solar 3 way valve (OUT2), and heats the DHW tank:

- * Heat pump controller is in DHW mode (as long as this mode is selected by controller and heat pump is at ON status, regardless standby status by reaching set temperature or not).
- * Parameter Solar system is set to ON.
- * Parameter Solar mode is set to DHW or DHW+Heating.
- * Solar sensor temp. –DHW temp.>Parameter Start $\triangle T$

When solar sensor temp. – DHW temp. < Parameter Start $\triangle T$ – Hysteresis or DHW temp. reaches Parameter Max Tank T set value(Max. tank temperature), controller stops the solar circulating pump.

7.4.3.8 Other settings

Touch "Other" on "Engineer" interface to enter.

Touch the number on the right, write the desired value and press \checkmark to confirm the modification.

Parameters	Meaning	Range	Default	Remark
BTW pump	Water pump mode	ON / OFF / Interval	Interval	Adjustable
Spray Valve	Opening temperature of liquid injection solenoid valve	0°C ~ 20°C	8°C	Adjustable
Refrigerant	Refrigerant	R32 / R410a	R32	Adjustable
Low pressure	Low pressure sensor	Use / None	Use	Adjustable
High pressure	High pressure sensor	Use / None	None	Adjustable



Water pump mode

The unit receives signal to turn on, circulating pump starts 5min before compressor does.

- 1). The unit receives signal to turn off, circulating pump stops 5min after compressor does.
- 2). Circulating pump keeps on during defrosting.
- 3). Compressor stops after reaching set temperature, circulating pump keeps on when AC demand signal is on regardless parameter setting. When AC demand signal is off, circulating pump operates according to BTW Pump on sub-menu Other settings as follows:

BTW Pump selects to ON, keeps on after reaching set temperature;

BTW Pump selects to OFF, stops 5min after compressor stops;

BTW Pump selects to Interval, operates as per ambient temperature after reaching set temperature and compressor stops;

- When outdoor temp. is at (+2°C, +∞), circulating pump keeps off when unit stops;
- When outdoor temp. is at (-2°C,+2°C), circulating pump stops for 20min, then runs for 10min, and operates in this cycle;
- When outdoor temp. is at (-6°C,-2°C), circulating pump stops for 15min, then runs for 15min, and operates in this cycle;
- When outdoor temp. is at (-10°C,-6°C), circulating pump stops for 10min, then runs for 20min, and operates in this cycle;
- When outdoor temp. is at (-∞, -10°C), circulating pump keeps on;

When outdoor temp. sensor is error, circulating pump stops for 15min, then runs for 15min, and operates in this cycle;

7.4.3.9 Test settings

Touch "Test" on "Engineer" interface to enter.

Touch the number on the right, write the desired value and press \checkmark to confirm the modification.

Parameters	Meaning	Default	Remark
Test Fre.1	Compressor test frequency 1	52Hz	Adjustable
Test Fre.2	Compressor test frequency 2	50Hz	Adjustable
Test Fre.3	Compressor test frequency 3	48Hz	Adjustable
Test Fre.4	Compressor test frequency 4	60Hz	Adjustable
Test Fre.5	Compressor test frequency 5	65Hz	Adjustable
Test Fre.6	Compressor test frequency 6	75Hz	Adjustable
Test Step.1	Test opening of expansion valve 1	144P	Adjustable
Test Step.2	Test opening of expansion valve 2	142P	Adjustable
Test Step.3	Test opening of expansion valve 3	138P	Adjustable
Test Step.4	Test opening of expansion valve 4	130P	Adjustable
Test Step.5	Test opening of expansion valve 5	124P	Adjustable
Test Step.6	Test opening of expansion valve 6	120P	Adjustable



7.4.3.10 Sterilization

Touch "Test" on "Engineer" interface to enter.

Touch the number on the right, write the desired value and press \checkmark to confirm the modification.

Parameters	Meaning	Range	Default	Remark
Sterilization	Sterilization on/off	ON / OFF	OFF	Adjustable
Water temp.	Sterilization water temp	60°C ~ 90°C	65°C	Adjustable
Duration	Duration of sterilization	10 ~ 80Min	15Min	Adjustable
Period	Sterilization period	5 ~ 99D	7D	Adjustable
Start time	Sterilization start time	0 ~ 23H	0H	Adjustable
Max. time to quit	Max. time to quit sterilization	0 ~ 240min	180 min	Adjustable

DHW sterilization (when DHW mode is active)

- DHW sterilization is once every 7 days (default).
- When DHW sterilization function is operating, the DHW tank electric heater is turned on forcibly.
- DHW tank temp.≥65°C, and keeps for 15min≥65°C, controller quits sterilization.
- When DHW sterilization function starts, it would forcibly quits this function if the DHW tank temp. fails to reach 65°C in 180 min continuously.
- When DHW mode is active, press "Parameter" on homepage for 10s and it starts the DHW sterilization function manually.
- When DHW sterilization is running, wire controller displays symbol " W ".

7.4.4 Performance parameter

The user cannot modify this parameter, please contact the engineer.

Touch "Performance parameter" to password interface, enter the password and press $\sqrt{}$ to enter.

These parameters corresponding to each working condition can be modified, including Max.

compressor frequency,

								4
Range of Nater temp.	Range of Amblent temp.	Heating code	llex. Compressor Fre. (Rps)	Superheat setting(k)	initial step of EEV (5, INT)	lin. step van EEV (STEP)	Fan speed (RPE)	
	25°C < Ambient temp.	heating code 01	50	0	300	150	65	
	15°C< Amblent temp.≪24°C	heating code 02	55	0	240	140	70	
water temp. <29°C	5°C< Ambient temp.≤14°C	heating code 03	64	0	170	120	80	
	-5°C< Ambient temp.≪5°C	heating code 04	75	1	140	100	95	
	-15°C< Ambient temp.≤-6°C	heating code 05	80	1	140	100	95	
	Ambient temp. ≪-16°C	heating code 06	80	1	130	100	95	

superheat setting, initial step of EEV, min. step of EEV and fan speed. Touch the corresponding working condition parameter values, write down the required values, and press $\sqrt{}$ to confirm modify.

7.4.5 Heating curve

Touch the "Run the curve" to enter curve page. It is the running curve of unit in one day, for room heating temp., domestic hot water temp., and ambient temp..

Our inverter heat pump has the heating curve function. The heating curve automatically adjusts the heating water set temp. according to the change



in outdoor temperature and the requirements of the indoor temperature, thereby creating a more comfortable indoor environment. Users can decide whether to turn on the heating curve, and adjust the settings, to make heating more comfortable.

7.4.6 Wifi

Touch the "WIFI" to connect the wifi. Please refer to the WiFi manual.

< Return	Wifi setting
State	No network
Mode	SMART AP
Wifi Reset	4 7

7.4.7 Heating mode ECO function

The living habits of each family are different. For example, if family members go out for work during the day and come back in the evening, the heating water set temperature can properly be lowered through the ECO function during the day, therefore the workload of the heat pump and energy consumption can be reduced effectively. This function provides multi-stage settings. Users can set multi-stage water temperatures according to different needs in a day.

There are 3 modes for ECO function: Ordinary, Curve and Temp. timing. Default to use Ordinary mode. All 3 modes are available for heating mode only.





E0 Ordinary:

Ordinary mode set the water temp. directly by setting parameter HEAT Set T..

E1 Curve:

Heat pump runs according to heat curve.

- When chosen curve mode, the controller regulates heating water temperature as per the heating curve:
 - * With "A" displayed before heating symbol in controller.
 - * Parameter *AUTO Set T.* in heating mode displays as set room temp.(set range 15~25°C).
 - * Parameter *Initial BTW T.* does not change (set range 15~25°C). Parameter *Max. BTW T.* (set range 24~50°C).
- In this mode, heating tank target temp. is regulated as per heating curve, and heating curve is determined by AUTO Set T., Initial BTW T., Max. BTW T. and outdoor ambient temp.



Formula as follows:

Heating tank target temp.= Initial BTW T. + (Max. BTW T. – Initial BTW T.) / 35 x (AUTO Set T. – Ambient temp.)

Note: $15^{\circ}C \le$ heating tank target temp. $\le 60^{\circ}C$

For example: AUTO Set T. = 20°C

Max. BTW T. = 48°C

At the following outdoor temp. the heating tank target temp. is:



When ambient temp. is 20°C, heating tank target temp.= $20+(48-20)/35 \times (20-20)=20$ °C When ambient temp. is 0°C, heating tank target temp.= $20+(48-20)/35 \times (20-0)= 36$ °C When ambient temp. is -15°C, heating tank target temp.= $20+(48-20)/35 \times (20+15)=48$ °C

Note:

a) Max BTW temp and initial BTW temp are for controlling the heating curve slope, and Set room temp is for controlling the heating curve parallel move.

b) Auto heating mode comparing with heating mode, the difference just is the calculating of the heating tank target temp. In heating mode the target temp. is fixed, while in Auto heating the target temp. changes as per the heating curve. While the compressor on/off and BTW \triangle T. are completely the same in these 2 modes.

E2 Temp. timing:

	≙ Ω			
< R	eturn Second function mode			
S/N	Parameter	Unit	Set Value	
01	Temp time 1	н	23	
02	Temp time 2	Н	6	
03	Temp time 3	Н	9	
04	Temp time 4	Н	17	
05	Temp set 1	°C	35	

	<u>í</u>	Û			
< R	eturn	Second function m	node		
S/N		Parameter	Unit	Set Value	_
06	Temp set 2		°C	42	Ľ
07	Temp set 3		н	30	
08	Temp set 4		н	40	

In E2 mode, you can set difference target temp. for 4 period per day.

For example, the setting in picture, that is:

23:00pm to 6:00am, target temp. is 35°C.

6:00am to 9:00am, target temp. is 42°C.

9:00am to 17:00pm, target temp. is 30°C.

17:00p m to 23:00pm, target temp. is 40°C.

7.5 Date and clock setting



Click on the top right corner of the homepage to set the current date and time.

01/08/22: day/month/year

11:30 current time

MON: current week

DANV=x

Click the corresponding date or time, it will display a keyboard to change the date or time, click " \checkmark " to confirm, " X " to cancel.

7.6 Timer setting

Click main menu TIMER on the homepage to set the timer. You can set 4 timers.

Timer 1: timer 1 for whole set unit on/off Timer 2: timer 2 for whole set unit on/off Water T1: timer 1 for DHW on/off Water T2: timer 2 for DHW on/off

Return	Set timezo	ne on/off			
Timer 1 08:00 ~ 08:00	Timer 2 08:00 ~ 08:00	DHW T1 08:00 ~ 08:00	DHW T2 08:00 ~ 08:00		
color at that	color at that time, the timer is active				

Press the button to right, and it turn to green color, at that time, the timer is active.

7.7 Alarms record

In the upper right corner of homepage, press \square to check the history alarms. Display up to 6 recent fault history records with date & time.

Press ⇐ to switch between active alarms and history alarms.

Press **1** on history alarms to clean the fault log.



7.8 Change language (optional)

You can change to other language in the homepage by pressing the icon of current language, such as "EN" for Englis



8. Wi-Fi Control

Thank you for choosing our WIFI control system.

Thanks to the highly advanced WIFI control capabilities built into the control panel. By connecting the WIFI control function, you can easily control your heating, cooling, and hot water system via a smartphone app. It quickly provides you with a status overview of your heat pump.

You always have access to the heat pump via your smartphone and have the reassurance that it will let you know if something happens. Managing your comfort has never been easier.

The Wifi App is compatible with devices using standard Android or iOS operating systems.

Please read this operation manual carefully before use and retain it for future reference.

Please Notice: 1. The weather forecast is just for reference. 2. APP is subject to updating without notice

8.1. General

Thank you for using our heat pump with the WIFI function, you can remotely control your heat pump from your smartphone. The control panel information could synchronize to the Smart Life APP via an internet connection (2.4GHz WIFI). For the first-time connection, your smartphone and the WIFI controller must be under the same WIFI network. From then on, your smartphone can use the wifi to control the pool heat pump remotely.



< Return	Wifi setting
State	No network
Mode	SMART AP
Wifi Reset	;

Built-in WIFI, easy to operation no need additional WIFI module



By Smart Life APP, you can turn the heat pump on or off, adjust the water temp., change the mode, set the time and timer on/off, and check error code right at your fingertips.

Smart Life APP is compatible with devices using standard Android or iOS operating systems.

Several heat pumps with WiFi control panel could connect to one phone's app, and several phones' apps could connect to one heat pump.

Heat pump with WIFI function

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8.2. App download

Search Smart life App from Phone Android Store (such as Google play) or Apple Store, download Smart life App and install.



Icon of Smart Life



Also can scan the QR code to install the app

Please note: 1. Smart Life App requires you to agree to obtain location permission.

2. Android smartphone needs to open "unknown source"

8.3. User registration or log in

When you enter this app for the first time, the user Agreement and policy will pop up. Click Agree and select "Register" in the upper right corner to register by email or phone.



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- If you are a new user register, please follow the below steps to register:
 - Read "Privacy Policy", "User Agreement" and "Third Party Information Sharing List", then click "Agree" to enter.
 - Click "Register" in the upper right corner to go into register page.
 - > Enter your mobile number or email to get a verification code.
 - Enter the verification code.
 - Set an account password and remember it.
 - Finish and enter the main interface of APP.
- Log in with an existing account:
 - Enter your account and password, then check agree the "Privacy Policy", "User Agreement" and "Third Party Information Sharing List"
 - If you forgot your password, you can choose log in with your verification code. Click "Forgot Password"
 → enter your phone number →click "Get Verification Code",
 - > After logged in, enter the main interface of APP.



8.4. Add device

Click "+" in the upper right corner or "Add device", go to choose device type, in "Large Home Appliances" choose "Smart Heat Pump (Wi-Fi)"

Please note: Smart Life App requires you to agree to obtain location permission.





8.5. Wifi modes



Please keep the control panel and smartphone receive the same networks, make sure the router is configured at 2.4GHz.

There are 2 pairing modes: smart mode and AP mode. Default mode is smart mode.

- Click "SMART" enter to smart mode, an on controller blink rapidly, type the WIFI password, connect the WIFI to 100%.
- Click "AP" enter to AP mode, and connect with hotspots of heat pump.

	Smart mode	AP mode
Button	Click "SMART" to smart mode	Click "AP" to AP mode
" 훅 " on controller	Rapidly blink	Slowly blink
Connected WiFi	2.4GHz WiFi of your smartphone	2.4GHz WiFi of your smartphone, and hotspots of heat pump
Usage mode	Default mode	Due to permissions, location and other reasons, some smartphone can't use smart mode, please try to use AP mode.

Difference between smart mode and AP mode

Please note: 1. It must be consistent with the WIFI which the smartphone is connected to. 2. Please complete pairing process within 3 minutes after heat pump reset.

8.6. Smart mode

- Place your smartphone and control panel as closed as possible to the router, keep the network stable. Make sure the router is configured at 2.4GHz. Keep control panel and smartphone receive the same networks.
- Power on the heat pump. On the main screen of the touch screen, click "Parameter" enter to "Main Menu", then click "WIFI" enter to wifi setting interface.
- Select "SMART" on control panel.



Return	Wifi setting
State	No network
Mode	SMART AP
Wifi Reset	

- > On App, click "Confirm the indicator is blinking".
- Type the WIFI name and password, then click "Next". It must be connected to the same WIFI as your smartphone.
- \succ \mathfrak{M} on the top of control panel is blinking, App and control panel begins to be connected.

10:30 ×	ul ≎ ■ Wi-Fi Mode ≒	10:30I ♀ ■ ×	
Reset the dev	vice	Select 2.4 GHz Wi-Fi Network and enter password. If your Wi-Fi is 5GHz, please set it to be 2.4GHz. Common router setting method Wi-Fi - 5Ghz Wi-Fi - 2.4Ghz Wi-Fi - 2.4Ghz Wi-Fi - 8Chz Wi-Fi Name	Type the WIFI name which your smartphone connected on Type the WIFI password
Confirm the i	indicator is blinking ice Step by Step	Next	——— Then confirm

- Wait for 100% to connect successfully.
- > After App connects the heat pump successfully, it shows "Added successfully". **3** stops flashing.
- \succ Click $\not \sim$, the heat pump can be named as you want.
- > Click "Done" to finish. The screen of smartphone will display the app control interface.





- If connection failed, please check demerit points and retry:
 - (1) Check if the heat pump has been reset and indicator is blinking quickly.
 - (2) Check if it is 2.4 GHz WIFI.
 - (3) Verify the WIFI password.
 - (4) try to reset the Wifi
- Due to permissions, location and other reasons, some smartphone can't use smart mode, please try to "Switch Pairing Mode" to AP mode.





8.7. AP mode

- Place your smartphone and control panel as closed as possible to the router, keep the network stable. Make sure the router is configured at 2.4GHz. Keep control panel and smartphone receive the same networks.
- Power on the heat pump. On the main screen of the touch screen, click "Parameter" enter to "Main Menu", then click "WIFI" enter to wifi setting interface.
- Select AP mode.
- Select "WIFI Device" from "Add Device" in the upper right corner, click "AP Mode" on top-right corner, and then click OK.
- Click "Confirm Indicator" and then "Next".
- Enter the WIFI password then click "Confirm". It must be consistent with the WIFI which the phone is connected to.
- The "Go to Connect " page is displayed. Click "Connect Now" as prompted to enter the "Try to connect device" page. Find SmartLife_XXX connection, for example: SmartLife-966E in the following figure return to "Smart life" APP, App go into connecting device page automatically, wait until 100%.
- After App connects the heat pump successfully, it shows "Added successfully".
- If connection failed, please check demerit points and retry:
 - (1) Check if the heat pump has been reset and indicator is blinking slowly.
 - (2) Check if it is 2.4 GHz WIFI.
 - ③ Verify the WIFI password.
 - (4) try to reset the Wifi









The network is connected
SMART
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t

After the device is successfully added, the user can enter into the device operation interface by going to the main interface and clicking the added device, then below functions can be operated.

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- A: Return to previous page
- B: Modify button, click it enter to modify interface, including device name, select device location, check device network, share device, create group, view device information, feedback, check for firmware update and etc.
- C: Current error code of heat pump if any failure happened
- D: Current running mode status
- E: Temperature setting bar. Move the ball to right or left to set the setting temperature.
- F: Setting temperature value. This value will be changes according to the location of the ball in the temperature setting bar.
- G: The actual temperature value of the current mode, this value
- H: Switch modes to view the status of another mode for DHW&HEAT / DHW&COOL
- I: Running mode of heat pump
- J: Mode button, click it enter to mode interface,
- K: Timer button, click it enter to timer interface.
- L: On/off button, click it to switch on or switch off the heat pump.

8.9. Heat pump mode selection

Click mode button on operation page, the mode selection interface will pop up, choose the mode you want.







In the mode interface, there are five modes can be selected, that is DHW, Heating, Cooling, heating & DHW, Cooling & DHW. The modes are same as the heat pump.



8.10. Timer setting

Click timer button on operation page, to enter the timer setting interface, as shown below, click "Add " to enter timer setting, slide the hour and minute up and down to set the time for timer on and time off, repeat the date you want.

After setting, click "Save" to confirm and save.







8.11. Share device & remove device

Share device:

After binding, if your family members also want to control the device. Please let your family register a Smart Life App first.

(1) Click \mathscr{Q} on operation page and click "share Device" to share the device to other user's account.

(2) Click "Add Sharing" and input the shared account and click "Done".

(3) The shared account will receive the shared device, and he/she can operate the shared device.



0:30 .ul	∻ - `	10:30	.ul ≎ I		10:30		all ≑ ■
		Done	Device Sharing		<	Add Sharing	Done
DC inverter heat pump	\mathbf{Z}	If a permaner	it resident in your home has an account, we		Region	France +33	>
evice Information	>	recommend t share all your	hat you set the account as a family member family devices and "Tap-To-Run" Scene with	and the			
vice Network	>	family memb	er.Home Settings		Account	Please enter your a	ccount
p-to-Run and Automation	× .						
rice Offline Notification							
fline Notification							
ers		Devi	ce is not shared, add an account to share it				
are Device from	>						
ate Group	5						
a & Feedback	>						
d to Home Screen	2						
ck Device Network Check	Now >						
vice Update No updates avail	able >						
Remove Device							
NUMBER DEVICE	- 10		Add Sharin				

Remove device:

Click 2 on operation page and click "Remove Device" to remove the device. Click "Disconnect" or "Disconnect and wipe data" to remove the device.



9. Common control functions

9.1 Power cut memory function

- Parameters can be set, and controller always stores the setting.
- Controller can memory on/off status and electric heater status.
- If the electricity power is cut abnormally, or the unit is turned off, the controller would stays at the standby status or continues the previous status before electricity was cut.

9.2 AC demand switch (HDO function)

- When AC demand switch is on, AC modes are enabled.
- When AC demand switch is off, relay OUT 1 is on. When AC demand switch is off, OUT 1 is off.

When AC demand switch is off, AC modes are disenabled and on screen the symbol (cooling/heating symbol) flashes.

9.3 Anti-frozen protection

In the cold winter, when the unit is in standby mode, sometimes it will run the water pump automatically or even start the compressor to run for a short time, in order to prevent the freezing of the water circuit at the low temp. Those are the antifreeze protection operations of the system instead of fault.

In the cold winter, if the unit is no longer used, please keep the unit energized. Please do not cut off the power supply, otherwise, it will be impossible to run the antifreeze protection mode resulting in the water circuit freezing and damaging the unit.

If the unit will not be used for a long time, please make sure the water circuit system is completely drained before cutting off the power supply.

First level anti-frozen protection

- In standby mode, when ambient temp. is ≤ 2°C and water inlet temp. is ≤ 8°C, the unit will automatically start and operate the water pump mode;
- When the ambient temp. is ≥ 4°C or water inlet temp. is ≥ 15°C, exit the first level of antifrozen protection;
- The ambient temp. sensor error is only determined based on the water inlet temp. to determine whether to enter anti-frozen
- When there is water inlet temp. sensor error, change to use the water outlet temp. and ambient temp. to determine whether to enter the anti-frozen system
 - In standby mode, when ambient temp. is ≤ 2°C and water outlet temp. is ≤ 8°C, the unit will automatically start and operate with DHW mode;
 - When ambient temp. is ≥ 4°C or water outlet temp. is ≥ 15°C, exit the first level of antifrozen protection;

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Secondary anti-frozen protection

- Priority to enter the hot water tank for anti-frozen protection;
- In the shutdown state, when ambient temp. is ≤ 2°C and the DHW tank temp. is ≤ 10°C, the unit will automatically start and operate with DHW mode, and the electric heating of the hot water tank will be turned on; When DHW tank temp is ≥ 15°C, exit anti-frozen (if there is no DHW mode, unit does not enter anti-frozen);
- In the shutdown state, when ambient temp. is ≤ 2°C and buffer tank temp. is ≤ 10°C, the unit will automatically start up and operate with heating mode, and electric heater of buffer tank will be turned on. When buffer tank temp. is ≥ 15°C, the anti-frozen will exit;
- If you manually turn on the unit before completing the anti-frozen function, firstly finish the anti-frozen function and then enter the startup function;
- When starting up, the unit is in heating mode and DHW heating. When ambient temp. is ≤ 2°C and buffer tank temp. is ≤ 10°C, the system starts up to heat and prevent freezing;
- Ambient temp. sensor error, entering anti-frozen conditions, only considering the DHW tank temp.; If DHW tank temp. sensor error, it will not enter anti-frozen.
- When this protection occurs, the control panel displays the error code "E18/E19", which can be automatically restored.

9.4 Crankshaft heater

When the outdoor ambient temperature is relatively low, in order to prevent the outdoor refrigerant from freezing

Conditions for turning on crankcase heater

- > The compressor is in the shutdown state;
- > "Ambient temp." $\leq 15^{\circ}$ C;

Conditions for turning off crankcase heater (exit when meet one of the following conditions)

- Compressor works;
- ➢ "Ambient temp." ≥ $17^{\circ}C$;

9.5 Chassis heater

very helpful to defrosting

Conditions for switching on chassis heater (must simultaneously meet the following conditions)

- Compressor works;
- ➢ "Ambient temp." ≤ 1°C;
- > Heat pump is running in heating model or defrosting;

The exit condition for chassis heater (exit when meet one of the following conditions)

- Compressor stop running
- ➤ "Ambient temp." ≥ 3°C
- > Heat pump is running in cooling model
- Ambient temperature fault

Note: the chassis electric heater works for a delay of 3 minutes after it meets the exit conditions.

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10. Maintenance and trouble shooting

10.1 explanation for some phenomena during the unit operation

Start delay

During the unit running, if the unit is turned off or stops automatically, if restart the unit, the unit has to wait for 3 minutes to start. This setting is the protection on compressor instead of fault.

Defrosting

In the heating mode, when the outdoor evaporator surface has white frost (when the air temp. is low or the air is humid, this phenomenon will be more obvious), the heat exchanging and performance will be affected, so when the frost gets to a certain degree, the system will run the defrosting automatically.

In the defrosting mode, the outdoor fan motor will stop run. Sometimes there is while vapor from the outdoor evaporator. Those are normal defrosting phenomenon instead of fault.

Antifreeze protection

In the cold winter, when the unit is standby mode, sometimes it will run the water pump automatically or even starts the compressor to run for a short time, in order to prevent the freezing of the water circuit at the low temp. Those are the antifreeze protection operation of the system instead of fault.

In the cold winter, if the unit is no longer used, please keep the unit energized. Please do not cut off the power supply, otherwise, it will be impossible to run the antifreeze protection mode and result in the water circuit freezing and damage on the unit.

If the unit will not be used for a long time, please make sure the water circuit system is completely drained before cutting off the power supply.

Fault displaying

During the normal operation, if the unit suddenly stops, please immediately check the content displayed on the controller in order to make clear if it is the action of some protective device.

The unit system is set with many protection measures, if there is fault code on the controller displayer, please immediately contact your dealer or after service support to solve the problem.

Screen lock function

In the running of the unit, if the controller can't be operated, please check if the controller screen is locked.

10.2 Notes about unit running

Please keep the air inlet/outlet surroundings clean, do not block the air inlet/outlet channel in order to not affect the heat exchanging efficiency.

Set a comfortable water temp instead of over-high water temp, otherwise it will cause the electricity waste and overload operation of the compressor, possibly also affect the life span of the unit. In any case, if the unit has abnormal noise and over vibration, please immediately contact your dealer or after-sales technician.



10.3 Fault code table

Code	Meaning	Causes	Solution
E00	Communication error	1. The connection line between the mainboard and the wire controller is unplugged or loose	Re-insert the connector
		2. The mainboard failure	replace a new mainboard
F01	Water inlet	1. Temp. sensor is unplugged or loose	Re-insert the temp. sensor
LUI	error	2. Temp. sensor is short circuit or disconnected	Replace a new temp. sensor
F02	Water outlet	1. Temp. sensor is unplugged or loose	Re-insert the temp. sensor
	error	2. Temp. sensor is short circuit or disconnected	Replace a new temp. sensor
		1. The direction of water flow switch is inconsistent with the actual direction	Check the flow direction and adjust the flow switch arrow to the correct direction
E06	Water flow switch	2. The connection between water flow switch and the mainboard is unplugged or loose	Reconnect the water flow switch wire
	protection	 Water flow switch wiring is disconnected 	Replace a new water flow switch
		 The water flow switch baffle is too short or damaged 	Replace a water flow switch with a new suitable baffle
		5. Water flow switch is damaged	Replace a new water flow switch
F04	The fault of power supply	1. The power supply fault phase	Replace the power supply phrase sequence
L04	phrase sequence	2. The power supply miss phase	Ask the power supply department to check the circuit
	Water temp.	1.Water flow is not enough	Check whether the water way is normal and whether the water pump works properly
E05	difference between inlet	2. The temp. sensor is not properly connected to the water pipe	Reinsert temp. sensor
	too big	3. Resistance of temp. sensor is incorrect	Replace the temp. sensor head with the correct resistance value
		4. Temp. sensor is broken	Replace a new temp. sensor
		1. Fan does not work or the speed is too slow	Check the fan parameters and use the correct fan parameters
		2. Fan is damaged	Replace the motor
E07	Coil temp. is too high	3. The surface of the evaporator is seriously stained, and the small fin gap affects the air volume	Clean the evaporator
		4. The temp. sensor head is in wrong position	Place the temp. sensor head in the correct position
		5. The coil temp. sensor is broken	Replace the coil temp. sensor head



Code	Meaning	Causes	Solution
	DHW tank	1. Temp. sensor is unplugged or loose	Re-insert the temp. sensor
E08	temp. sensor error	2. Temp. sensor is short circuit or disconnected	Replace a new temp. sensor
F 00	Heating tank	1. Temp. sensor is unplugged or loose	Re-insert the temp. sensor
E09	temp. sensor error	2. Temp. sensor is short circuit or disconnected	Replace a new temp. sensor
		1. In the heating or DHW mode, water flow is not enough	Check whether the water pump works normally and whether the water flow is blocked
		2. In cooling mode, the fan speed is too low	Check whether the motor parameters are correct and whether the motor runs normally
E10	Pign pressure protection	3. The opening of expansion valve is too small	Check whether the parameters of the expansion valve are correct and the control of the expansion valve is normal
		4. Connection of high pressure switch was loose, or the switch was broken	Check if the wire connection of high pressure switch was ok, or change a new high pressure switch
		1. Refrigerant was not enough	Check if there any place leak refrigerant, especially on the welding position
		2. Expansion valve opening is too small	Check whether the expansion valve parameters are correct and whether the expansion valve control is normal
E11	Low pressure protection	3.The fan speed is too low	Check the motor parameter setting and whether the motor runs normally
		4. The evaporator is heavily frosted	Force defrost and check defrost related parameter Settings
		5. Connection of low pressure switch was loose, or the switch was broken	Check if the wire connection of low pressure switch was ok, or change a new low pressure switch
	Motor cutlet	1. Resistance of temp. sensor is incorrect	Replace the temp. sensor head with the correct resistance value
E12	temp. is too	2. The outlet temp. sensor head is placed incorrectly	Place the temp. sensor head in the correct position
	nıgri	3. The temp. sensor head is damaged	Replace a new temp. sensor
	Motor outlet	1. The water temp. is too low	Stop cooling operation and switch to heating operation
E13 Wa temp	temp. is too low	2. The unit cannot start	Check the power supply and unit parameters to ensure that the unit can start and run correctly



Code	Meaning	Causes	Solution
E1/	Compressor	1. Temp. sensor is unplugged or loose	Re-insert the temp. sensor
	sensor error	2. Temp. sensor is short circuit or disconnected	Replace a new temp. sensor
F15	Compressor discharge	1. Temp. sensor is unplugged or loose	Re-insert the temp. sensor
	temp. sensor error	2. Temp. sensor is short circuit or disconnected	Replace a new temp. sensor
		1.Refrigerant is excessive	Drain the excess refrigerant
E16	Compressor discharge temp, is too	2.Expansion valve opening is too small	Adjust the parameters of the expansion valve to a proper opening
	high	3. Water flow was not enough	Check whether the water pump is running normally and whether the water is blocked
E18/	DHW/AC level	 The ambient temp. is lower than C and the temp. of the hot water tank is lower than 10 ° C 	Forced heating
E19 2 anti-frozen protection	 2. The ambient temp. is lower than 2 ° C and the air conditioner water tank temp. is lower than 10 ° C 	Forced heating	
E20 Ambient temp. sensor error	1. Temp. sensor is unplugged or loose	Re-insert the temp. sensor	
	2. Temp. sensor is short circuit or disconnected	Replace a new temp. sensor	
E21	Heating coil	1. Temp. sensor is unplugged or loose	Re-insert the temp. sensor
	error	2. Temp. sensor is short circuit or disconnected	Replace a new temp. sensor
F22	Cooling coil	1. Temp. sensor is unplugged or loose	Re-insert the temp. sensor
	error	2. Temp. sensor is short circuit or disconnected	Replace a new temp. sensor
nı E24 comm	Inverter communication	1. The connection between the module and the mainboard is plugged or loose	Re-insert the cable
	error	2. Damage of the module	Replace a new module
		3. Damage of the mainboard	Replace a new mainboard
E25	Inverter abnormal protection	See the following secondary code	
E26	Inverter radiator	1.Due to poor heat dissipation, the condensing fan speed is too low or stops running unexpectedly	Check whether the motor is damaged or whether the motor running parameters are set correctly
	temperature is too high	2. The ambient temp. rises too fast, which leads to the over-temp. and frequency reduction too late to respond	Check whether the installation position of the unit is reasonable



Code	Meaning	Causes	Solution
	Compressor	1.The compressor load is temporarily too large (for example, liquid compression)	Check the system is functioning properly
		2.The program does not match the compressor	Replace the correct procedure
E27	current is too high	3.The U, V, and W cables of the compressor are inverted, and the compressor reverses	Rewiring
		4.Compressor wear (cylinder wear due to lack of oil and liquid compression)	Replace the compressor
E20	Inverter temp.	1. Temp. sensor is unplugged or loose	Re-insert the sensor head
E20	sensor error	2. Temp. sensor is short circuit or disconnection	Replace a new temp. sensor
E29	Compressor overload protection	1. The compressor is temporarily overloaded (liquid compression).	Change the system design or check the system is functioning properly
	Water inlet	1. The water temp. is below 12 degrees for 30 seconds when defrosting	Water temp. is too low before defrosting
E30	temp. is too low during defrosting	2. The position of temp. sensor is wrong	Place the temp. sensor head in the correct position
	denosting	3. The temp. sensor is faulty or damaged	Replace a new temp. sensor
E33	EVI inlet temp.	1. Temp. sensor is unplugged or loose	Re-insert the temp. sensor
	sensor error	2. Temp. sensor is short circuit or disconnected	Replace a new temp. sensor
E3/	EVI outlet	1. Temp. sensor is unplugged or loose	Re-insert the temp. sensor
	error	2. Temp. sensor is short circuit or disconnected	Replace a new temp. sensor
E35	Solar temp.	1. Temp. sensor is unplugged or loose	Re-insert the temp. sensor
200	sensor error	2. Temp. sensor is short circuit or disconnected	Replace a new temp. sensor
F37	DC fan 1 error	1. The DC motor cable is inserted or loose	Reconnect the cables
207		2. The DC motor is faulty or damaged	Replace a new motor
F38	DC fan 2 error	1. The DC motor cable is inserted or loose	Reconnect the cables
		2. The DC motor is faulty or damaged	Replace a new motor
		1. Cables to the high pressure sensor are inserted or loose	Reconnect the cables
E39	High pressure sensor failure	2. The specification of the high pressure sensor is wrong and the test range is incorrect	Replace the correct specifications
		3. High pressure sensor damage	Replace a new sensor



Code	Meaning	Causes	Solution
		1. Cables to the low pressure sensor are inserted or loose	Reconnect the cables
E40	Low pressure sensor failure	2. The specification of the low pressure sensor is wrong and the test range is incorrect	Replace the correct specifications
		3. Low pressure sensor damage	Replace a new sensor
		1.The compressor load is temporarily too large (for example, liquid compression)	Change the system design or check the system is functioning properly
	Compressor	2.The program does not match the compressor	Replace the correct procedure
1	overcurrent (Hardware)	3.The U, V, and W wires of the compressor are inverted, and the compressor reverses	Rewiring
		4.Compressor wear (cylinder wear due to lack of oil and liquid compression)	Replace the compressor
		1.The compressor load is temporarily too large (for example, liquid compression)	Change the system design or check the system is functioning properly
2	Compressor out of step	2.The program does not match the compressor	Replace the correct procedure
		3.The high and low pressure difference of the compressor is too large	Restart after pressure equalizes
	Compressor out of phase	1.Cables U, V, and W of the compressor are leaky or improperly connected	Rewiring
8		2.The program does not match the compressor	Replace the correct procedure
		3.The high and low pressure difference of the compressor is too large	Restart after pressure equalizes
		1.Check whether the AC voltage is abnormal	Checking the Power Input
16	The DC voltage is too low	2.The AC is suddenly powered off, and the DC voltage is detected to be too low when the converter capacitor residual power supply chip works	Power on again after a certain period of time
32	DC voltage is too high	1.Check whether the AC voltage is abnormal	Checking the Power Input
		1.Check whether the communication cable is improperly connected	Reconnect and insert the wiring interfaces
257	Abnormal communication	2.Whether the baud rate and address code are set according to the communication protocol	Check the program communication protocol
		3.Replace the frequency converter for testing	Replace a new module



Code	Meaning	Causes	Solution
258	AC out of phase or CT disconnection	1. Current transformer(CT)is damaged	Check the Current transformer, Replace a new driver
		2.Air compressor no-load operation above 40Hz frequency AC current is very small, resulting in abnormal detection of current transformer	Run again with load
		3. The three-phase driver module input phase is missing. Check whether the three-phase input cable is disconnected	Check the Power Input
260	AC overcurrent or compressor overpower	1.AC overcurrent (currently separate filter board external models have), the load is suddenly too large to reduce frequency too late	Turn on after power off
		2.Compressor overpower (closed plate, three-phase 380V, no separate filter plate model) load is suddenly too large to reduce frequency too late	Turn on after power off
		3.Compressor overpower (closed plate, three-phase 380V, no separate filter board model) the high and low pressure difference of the compressor is too large	Restart after pressure equalizes
288	IPM module high temp. protection	1.Due to poor heat dissipation, the condensing fan speed is too low or stops running unexpectedly	Check whether the motor is damaged or whether the motor running parameters are set correctly
		2. The ambient temp. rises too fast, which leads to the over-temp. and frequency reduction too late to respond	Check whether the installation position of the unit is reasonable
320	Compressor phase current protection (Software protection)	1.The compressor load is temporarily too large (for example, liquid compression)	Change the system design or check the system is functioning properly
		2.The program does not match the compressor	Replace the correct procedure
		3.The U, V, and W wires of the compressor are inverted, and the compressor reverses	Rewiring
		4.Compressor wear (cylinder wear due to lack of oil and liquid compression)	Replace the compressor

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10.4 Malfunctions and treatment

Marning!

If any fault occurs and the unit stops running, please contact your dealer or after-sales technician to solve the problem. Please do not dismantle the unit and do repair by your own in order to avoid any unnecessary injury.

When the unit has abnormal fault, please immediately cut off the power supply, do not force it to run, otherwise there will be more damage

10.5 Cleaning



Warning!

For the sake of safety, the unit much be turned off and the power supply is cut off before the cleaning. Please take care to not damage the temp sensors during the cleaning.

- 1) Please be careful of those sharp metal edges and evaporator fins during the clearing to avoid the injury caused by improper operation.
- 2) Regularly check the air inlet and air out and see if there is any blockage.

10.6 Maintenance



Attention!

When the unit is prepared to be put in use again after a period of leaving unused, please check the air inlet and air outlet to see if there is any blockage. If there is blockage, please clean up immediately.

- 1) Before the use of the unit in each season, Please clean the filter on the water circuit system to make sure the smooth water flow
- 2) During the unit operation, when the water flow is mall and the water temp difference is too big, please check if the filter of the water circuit is clear.
- 3) Before the use of the unit in each season, please check if the heat exchanger surface is clean. If there is too much dirt or impurities, please contact your dealer or the after-sales serviceman to do the cleaning in order to make sure the good heat exchanging efficiency and using effect.
- 4) In heavy snowfall areas, it is very important to select an installation site where the snow will not affect the unit. If lateral snowfall is possible, make sure that the heat exchanger coil is not affected by the snow (if necessary construct a lateral canopy).

10.7 After-sales service

When the unit can't work normally, please immediately turn off the unit and cut off the power supply, then contact the local dealer or professional technician to solve the problem.



11. Wiring diagram For AW-9M1 (230V/1Ph/50Hz)





For AW-15M1 (230V/1Ph/50Hz)





For AW-15M3 (380V/3Ph/50Hz)



11. Wiring diagram

For AW-20M3 / AW-25M3 (380V/3Ph/50Hz)





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