

ALSAVO®
Household Heat Pump User Manual
(INVERBOOST Technology Air Source Heat Pump By POOLCLUB)



ENGLISH

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1. PLEASE READ BEFORE INSTALLATION

1.1. RUNNING GENERAL FUNCTION

Heat pump running function:

It is a low carbon way to heat your house, the heat pump take the energy on the air, the heat pump absorbs heat from the outside air into a liquid refrigerant at a low temperature. The compressor heat the liquid refrigerant to increase the temperature in the circuit and heat the water.

House heating:

The hot water pass first in water tank and the circulator pump will push the water to go through convector, radiators or floor heating make the room heated.

On heating function the unit can run with ambient temperature from -20°C to 35°C.

House cooling:

By reverse the cycle of running on the heat pump we can cool the water. To do that the installation must be equipped of convector and we can cooling the house.

On cooling function the unit can run with ambient temperature from 10°C to 43°C.

Domestic hot water:

By using an enamel water tank we can hot the sanitary water. The water sanitary stored is warm and supply the hot water for your hot taps, showers and baths.

Pool heating

This heat pump is also an ideal choice for pool heating. Via heat ex-changer it can heat your private pool anytime, extend your swimming season.

Anti-freezing protection

The heat pump as a protection anti-freezing function in running, but it was preconized to added glycol on the water circuit. This why is mandatory to disconnect electricity and shut down the heat pump during the winter season other way the function do not apply. The circulator start if the ambient temperature is below 3°C.

Operating range:

To provide you comfort and pleasure, please set water temperature efficiently and economically.

Heat pump operation ambient temp. range: -20°C to 43°C

Heat pump operation water temp. range: 5°C to 55°C

1.2. SERVICE OPERATIONS

1. This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
2. The specific instructions related to the safe operation of this appliance shall be collated together in the front section of the user instructions. The height of the characters, measured on the capital letters, shall be at least 3 mm. These instructions shall also be available in an alternative format, e.g. on a website, www.alsavo.com.
3. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
4. If a stationary appliance is not fitted with a supply cord and a plug, or with other means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under over-voltage category III conditions, the instructions shall state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules. See protection device reference and cable specification Page 67.
5. The appliance shall be installed in accordance with national wiring regulations.
6. Details of type and rating of fuses. See protection device reference and cable specification Page 67.
7. Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
8. The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.)
9. Do not pierce or burn.
10. Be aware that refrigerants may not contain an odour.
11. Compliance with national gas regulations shall be observed.
12. A notice that servicing shall be performed only as recommended by the manufacturer.

13. A warning that the appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
14. The appliance shall be stored so as to prevent mechanical damage from occurring.
15. Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized assessment specification.
16. Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
17. The manual shall contain specific information for service personnel who shall be instructed to undertake the following when servicing an appliance that employs a flammable refrigerant.

Checks to the area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.

Work procedure

Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapour being present while the work is being performed.

General work area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

Checking for presence of refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

Presence of fire extinguisher

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO₂ fire extinguisher adjacent to the charging area.

No ignition sources

No person carrying out work in relation to a refrigeration system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which flammable refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

Checks to the refrigeration equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt consult the manufacturers technical department for assistance.

The following checks shall be applied to installations using flammable refrigerants:

- the charge size is in accordance with the room size within which the refrigerant containing parts are installed;
- the ventilation machinery and outlets are operating adequately and are not obstructed;
- if an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
- marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

Checks to electrical devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include

- that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- that no live electrical components and wiring are exposed while charging, recovering or purging the system;
- that there is continuity of earth bonding.

Repairs to sealed components

During repairs to sealed component, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

Ensure that apparatus is mounted securely.

Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.

NOTE The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

Repair to intrinsically safe components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.

Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.

Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of ageing or continual vibration from sources such as compressors or fans.

Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A torch (or any other detector using a naked flame) shall not be used.

Leak detection methods

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants.

Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration. Detection equipment shall be calibrated in a refrigerant-free area. Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25% maximum) is confirmed.

Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work. If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

Removal and evacuation

When breaking into the refrigerant circuit to make repairs - or for any other purpose - conventional procedures shall be used. However, it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

1. remove refrigerant;
2. purge the circuit with inert gas;
3. evacuate;
4. purge again with inert gas;
5. open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. The system shall be "flushed" with OFN to render the unit safe. This process may need to be repeated several times.

Compressed air or oxygen shall not be used for this task.

Flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe - work are to take place.

Ensure that the outlet for the vacuum pump is not close to any ignition sources and there is ventilation available.

Charging procedures

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerant does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept upright.
- Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigeration system.

Prior to recharging the system it shall be pressure tested with OFN. The system shall be tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

- a) Become familiar with the equipment and its operation.
- b) Isolate system electrically.
- c) Before attempting the procedure ensure that.
 1. mechanical handling equipment is available, if required, for handling refrigerant cylinders;
 2. all personal protective equipment is available and being used correctly;
 3. the recovery process is supervised at all times by a competent person;
 4. recovery equipment and cylinders conform to the appropriate standards.
- d) Pump down refrigerant system. if possible.
- e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- f) Make sure that cylinder is situated on the scales before recovery takes place.
- g) Start the recovery machine and operate in accordance with manufacturers instructions.
- h) Do not overfill cylinders. (No more than 80 volume liquid charge).
- i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
- j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

Labeling

Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

Recovery

When removing refrigerant from a system, either for the servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designate for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of Refrigerant). Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants In addition, a set of calibrated weighing scales shall be available and in good working order Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged. Do not mix refrigerants in recovery nits and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

1.3. SAFETY PRECAUTIONS

We have provided important safety messages in this manual and on your heat pump. Please always read and obey all safety messages.

Environment friendly R32 Refrigerant is used for this heat pump.

1. Warning



The WARNING sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury or injury to a third party. These signs are rare, but are extremely important.



2. Attention

a. Please read the following instructions before installation, use and maintenance.

	<p>a. Keep the heat pump away from fire source.</p>
	<p>b. It must be placed in well ventilated area, indoor or closed area is not allowed.</p>
	<p>c. Repair and disposal must be carried out by trained service personnel</p>
	<p>d. Vacuumize completely before welding. Welding can only be carried out by professional personnel in service center.</p>

b. Installation must be done by professional staff only in accordance with this manual.

c. Leakage test must be performed after installation.

d. Please don't stack substances, which will block air flow near inlet or outlet area, otherwise the efficiency of the heat pump will be reduced or even stopped.

e. Set proper temperature in order to get comfortable water temperature to avoid overheating or overcooling.

- f. In order to optimize the heating effect, please install heat preservation insulation on pipes between swimming pool and the heat pump, and please use a recommended cover on the swimming pool.
- g. Connecting pipes of the swimming pool and the heat pump should be $\leq 10\text{m}$.
- h. Except for the methods recommended by the manufacturer, do not use any methods to accelerate the defrosting process or clean the frosted parts.
- i. If a repair is required, please contact the nearest after-sales service center. The repair process must be strictly in accordance with manual. All repair practice by non-professional is prohibited.
- j. Don't use or stock combustible gas or liquid such as thinners, paint and fuel to avoid fire.

3. Safety

- a. Please keep the main power supply switch far away from the children.
- a. When a power cut happens during operating, and later the power is restored, the heat pump will start up.
- b. Please switch off the main power supply in lightening and storm weather to prevent from machine damage that caused by lightning.
- c. Safety inspection must be carried before the maintenance or repair for heat pumps with R32 gas in order to minimize the risk.
- d. Installation and any repairing should be conducted in the area with good ventilation. The ignition source is prohibited during the operation.
- e. If R32 gas leaks during the installation process, all operations must be stopped immediately and call the service center.

1.4. SAFETY CONSIDERATIONS

Please read this manual carefully before proceeding with the installation or modification of the heating system, operation of the heating system, and setup. This manual contains all the necessary information for using and installing the heat pump. Installers must read the manual and follow the implementation and maintenance instructions carefully.

The installer is responsible for the installation of the product and should follow all manufacturer's instructions and application regulations. Failure to follow the manual instructions, and wrong installation, will not enjoy the original warranty policy. The manufacturer disclaims all responsibility for damage to persons, objects, and errors caused by installations that do not follow the manual guidelines. Any non-compliant use will be considered dangerous.

WARNING: When not in use and to prevent any freezing during negative temperature we must :

- Keep the heat pump under electrical alimentation, it will run if the ambient temperature is below 0°C

- If you shut down the electricity power you must drain in otherwise the plate exchanger will be damaged by freezing

With no respect for this consideration you will avoid the warranty.

WARNING: If you want to open the cabinet to get inside the heat pump, be sure to cut off the power because there is a high voltage inside.

WARNING: Keep the controller in a dry place or in preference in an indoor place or under cover to prevent moisture damage.

Heat pumps are state-of-the-art and designed to meet all recognized technical requirements. The heat pump system needs to be driven by electricity, absorb the heat of the air, and exchange heat through the built-in refrigerant. The whole system is very precise. In addition, the installation must also be carried out by qualified staff in strict accordance with the requirements of the manufacturer. Installation and use, improper use may result in serious injury or death, as well as damage.

The precautions listed here are divided into the following categories. They are very important, so be sure to follow them carefully.

Meanings of DANGER, WARNING, CAUTION.



DANGER

Indicates an imminently hazardous situation that if not avoided, will result in death or serious injury.



WARNING

Indicates a potentially hazardous situation that if not avoided, could result in moderate injury.



CAUTION

Indicates a potentially hazardous situation which if not avoided, may result in minor or moderate injury. It is also used to alert against unsafe practices.



1.4.1. DANGER

Before touching the electric terminal parts, turn off the power switch.

When service panels are removed, the user can be easily touched by accident.

Never leave the unit unattended during installation or servicing when the service panel is removed.

Do not touch water pipes during and immediately after operation as the pipes may be hot and could burn your hand. To avoid injury, give the piping time to return to normal temperature, or be sure to wear protective gloves.

Do not touch any switch with wet fingers. Touching a switch with wet fingers can cause electrical shock.

Before touching electrical parts, turn off all applicable power to the unit.

Do not touch the inlet and outlet pipes of the machine when the machine is running to avoid burns.

Do not directly touch the radiator fins of the machine with your hands to avoid cuts.

Ask your dealer or qualified person to follow the instructions in this manual for installation work. Do not install the unit by yourself. Improper installation may result in water leakage, electric shock, or fire resulting in injury, death, and property damage.

Be sure to use the accessories and parts provided by the manufacturer for installation work. Improper use of other parts may result in water leakage, electric shock, fire, or the device falling from the base.

Make sure all electrical work is linked by a qualified person using a separate circuit in accordance with local laws and regulations and this manual. Insufficient power circuit capacity or improper electrical construction may result in electric shock or fire.

Be sure to install ground fault circuit breakers by local laws and regulations. Failure to install a ground fault circuit breaker may result in electric shock and fire.



1.4.2. WARNING

Work on the heat pump (such as setup, repair, connection, and initial start-up) may only be performed by authorized personnel who have completed qualified technical or vocational training and attended an advanced training course. This includes, in particular, heating specialists and climate control technicians, who have experience installing and maintaining heating, climate control, and cooling units and heat pumps due to their technical training and knowledge of heat pumps. However, when working, due to the different designs of heat pumps of various brands, it is necessary to read this manual carefully and operate in strict accordance with the instructions.

Keep the heat pump all the time under electrical alimentation, particularly during the winter season, with anti-freezing protection.

Precaution during installation:

Safely dispose of packing materials such as nails and other metal or wood parts that could cause injuries. Mount the device on a pedestal or stand capable of supporting its weight.

An unstable base or an unstable stand may cause the device to fall and possibly cause injury.

When installing, it is necessary to fully consider the impact of strong winds, hurricanes, or earthquakes on the equipment, adjust the installation position and strengthen the stability of the installation. Improper installation work may cause the device to fall.

Electrical wiring safety:

Electrical installation maybe carried out only by electrical engineers and in compliance with the valid electro-technical guidelines as well as the regulations of the relevant energy supply company (EVU).

Before servicing, disconnect all of the circuits of the system from the power supply (switch off the main switch, disconnect the fuse) and secure against unintentional restart.

Make sure all wiring is secure and correct. Use designated wires and ensure that terminal connections or wires are protected from water and other adverse external forces. An incomplete connection or fixing may result in fire.

Ground the device. The grounding resistance should comply with local laws and regulations. Do not connect the ground wire to the gas pipe or water pipe, lightning protection wire, or telephone ground wire. This may cause fire, explosion, and high electrical thresholds. Incomplete grounding may lead to electric shock.

When wiring the power supply, make sure that the front panel can be firmly fixed. If the front panel is not in place, overheating of the terminals, electric shock, or fire may result.

Electrical installation may be carried out only by electrical engineers and in compliance with the valid electro-technical guidelines as well as the regulations of the relevant energy supply company (EVU).

Before servicing, disconnect all of the circuits of the system from the power supply (switch off the main switch, disconnect the fuse) and secure against unintentional restart.

Gas refrigerant HFC:

After completing the installation work, make sure that there is no refrigerant leakage.

There is refrigerant in the refrigeration pipe, which may be very cold or very hot. Do not touch the refrigerant pipe during and immediately after the operation. Burns or frostbite may result if the refrigerant pipes are touched. To avoid injury, give the pipes time to return to normal temperature, or if you must touch them, be sure to wear protective gloves.

Never directly touch any leaking refrigerant as it could cause severe frostbite.

When working on the refrigerant circuit, ensure that the workplace is well-ventilated. Never carry out work on the refrigerant circuit in closed rooms or work pits.

Do not let gas refrigerant HFC come into contact with open fire, embers, or hot objects.

Never allow gas refrigerant HFC to escape into the atmosphere (high pressure at the point of the leak).

When removing the service pipes from the filling connections, never hold the connections in the direction of your body. Residual gas refrigerant HFC could escape.

Water connection:

We preconize to dosing additional "glycol" on the water circuit instead to prevent any freezing during the cool season.

Always wear safety goggles and protective gloves.

Touching internal parts can cause burns. To avoid injury, give the internal parts time to return to normal temperature, or if you must touch them, be sure to wear protective gloves. And to avoid electric shock, please turn off all power before touching.

Seals must not be damaged or removed.

The domestic water connection must comply with the requirements of local drinking water standards.

Generals advertising:

Do not touch the internal parts (pump, etc.) during and immediately after the operation.

This device should only be used by children 12 years of age and older and by persons with no physical, sensory, or mental abilities. And before use, please carry out relevant training and read this manual to understand the dangers arising therefrom. Children must not play with the device.

Children should be supervised to ensure they do not play with the equipment and stay away from the installation site during installation.

Equipment covers and service panels must be replaced as soon as the work is completed.

Only original replacement parts may be used.

Components and spare parts must at least satisfy the technical requirements defined by the manufacturer.



1.4.3. CAUTION

Do not wash the unit. This may cause electric shock or fire. Equipment must be installed by national wiring regulations. If the power cord is damaged, it must be replaced by qualified personnel of the manufacturer, and its service agent, to avoid a hazard.

Do not install this unit in the following locations:

- a) Where there is mineral oil mist, oil mist, or vapor. Plastic parts can age, causing them to loosen or leak.
- b) Where corrosive gas (such as sulfurous acid gas) is generated. Where corrosion of copper pipes or welded parts can lead to refrigerant leaks.
- c) Where there are machines that emit electromagnetic waves. Electromagnetic waves can interfere with control systems and cause equipment failure.
- d) Where flammable gases may leak, where carbon fibers or combustible dust are suspended in the air, or where volatile flammables such as paint thinner or gasoline are handled. These types of gases can cause fires.
- e) Places with high salinity in the air, such as near the ocean.
- f) Places with large voltage fluctuations, such as factories.
- g) in a vehicle or vessel.
- h) Where acidic or basic vapors are present.

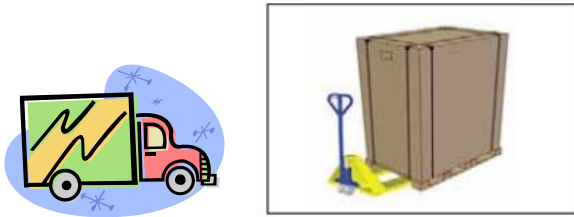
The worst installation must be created leakage, the water connection must be installed correctly, Seals must not be damaged.

The wiring must be performed by professional technicians by the national wiring regulations and this circuit diagram.

Disposal: Do not dispose of this product as unsorted municipal waste. It is necessary to collect these wastes separately for special treatment. Do not dispose of electrical appliances as municipal waste, use a separate collection facility, contact your local authority for information on available collection systems. If appliances are discarded in landfills or dumps, hazardous substances can leak into groundwater and enter the food chain to damage your health.

1.5. TRANSPORT INFORMATION

1.5.1. Delivery of the unit



For transportation, the heat pumps are fixed on the pallet and covered with a cardboard box. To protect from any damage, the heat pump must be transferred in its package. It is the responsibility of the addressee to notify of any damage incurred during delivery within 48 hours. No responsibility can be taken once the unit has been signed for.

1.5.2. Stock advice



The warehouse should be bright, spacious, open, well-ventilated, have ventilation equipment, and no fire source.

Heat pumps must be stored and transferred in a vertical position in their original packaging. If it is not the case, it cannot be operated until a minimum period of 24H has passed before the unit can have the electrical power turned on.

FORBIDDEN



1.5.3. Transfer to the final position

During the unpacking of the product and the transfer from the pallet to the final place of installation, it is necessary to maintain the heat pump in a vertical position.

Smoking and the use of flames are prohibited near the R32 machine.

1.6. GAZ REGULATION AND MANIPULATION

Regulation (EU) No. 517/2014 of 16/04/14 on fluorinated greenhouse gases and repealing Regulation (EC) No. 842/2006

1. Operators of equipment that contains fluorinated greenhouse gases in quantities of 5 tons of CO₂ equivalent or more and not contained in foams shall ensure that the equipment is checked for leaks.

2. For equipment that contains fluorinated greenhouse gases in quantities of 5 tons of CO₂ equivalent or more, but of less than 50 tons of CO₂ equivalent: at least every 12 months.

Picture of the equivalence CO₂ Load and Tons amounting CO₂, frequency of test

From 7 at 75 kg load = from 5 at 50 Tons Each year

Concerning the Gas R32, 7.40kg amounting at 5 tons of CO₂, commitment to check each year.



IMPORTANT

Training and certification

1. The operator of the relevant application shall ensure that the relevant personnel have obtained the necessary certification, which implies appropriate knowledge of the applicable regulations and standards as well as the necessary competence in emission prevention and recovery of fluorinated greenhouse gases and handling safety the relevant type and size of equipment.

Record keeping

1. Operators of equipment which is required to be checked for leaks, shall establish and maintain records for each piece of such equipment specifying the following information:

a) The quantity and type of fluorinated greenhouse gases installed;

b) The quantities of fluorinated greenhouse gases added during installation, maintenance or servicing or due to leakage;

c) Whether the quantities of installed fluorinated greenhouse gases have been recycled or reclaimed, including the name and address of the recycling or reclamation facility and, where applicable, the certificate number;

d) The quantity of fluorinated greenhouse gases recovered

e) The identity of the undertaking which installed, serviced, maintained and where applicable repaired or decommissioned the equipment, including, where applicable, the number of its certificate;

f) The dates and results of the checks carried out;

g) If the equipment was decommissioned, the measures taken to recover and dispose of the fluorinated greenhouse gases.

2. The operator shall keep the records for at least five years, undertakings carrying out the activities for operators shall keep copies of the records for at least five years.

2. SPECIFICATIONS

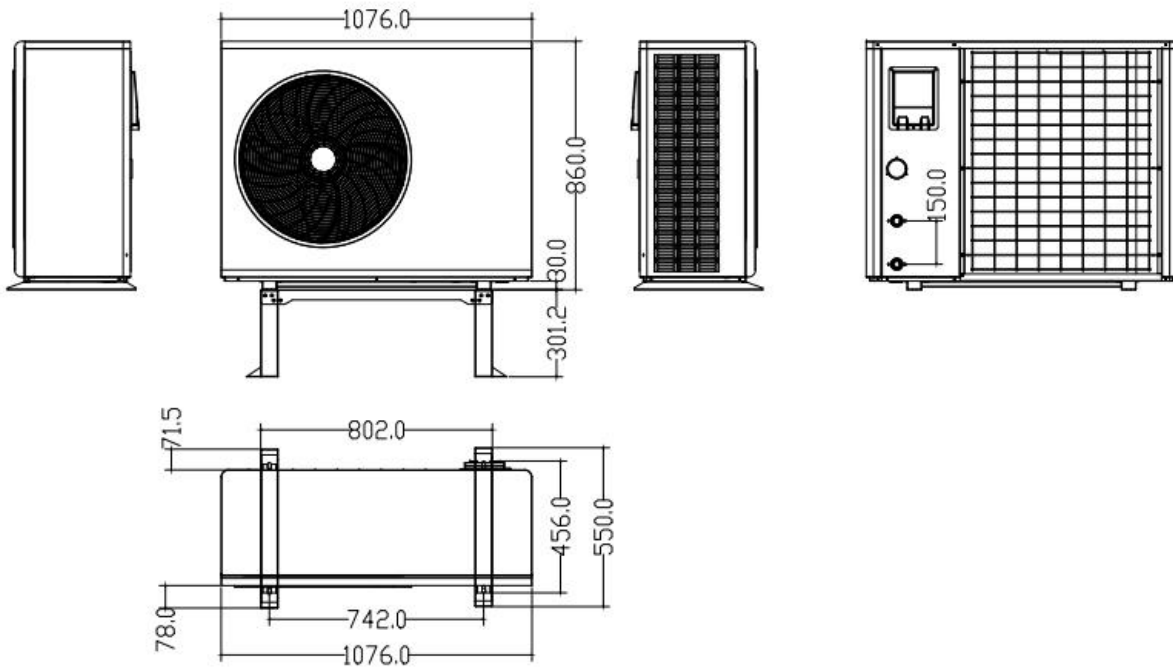
Alsavo model			ALSAVO HEAT 07i	ALSAVO HEAT 10i	ALSAVO HEAT 12i
Suggested space heating area		m ²	72-105	116-145	170-280
Suggested buffer tank			60L	60L	60L/80L
Swimming Pool Side at Air 15°C, Water 30/35°C	Heating capacity	kW	8.10	13.90	16.10
	Power input	kW	1.62	2.78	3.22
	COP		5.00	5.00	5.00
Heating at Air -7°C, Water 30/35°C	Heating capacity	kW	3.98	6.54	7.74
	Power input	kW	1.26	2.16	2.45
	COP		3.17	3.09	3.23
Heating at Air -7°C, Water 50/55°C	Heating capacity	kW	3.68	6.83	7.60
	Power input	kW	1.72	3.10	3.41
	COP		2.14	2.22	2.24
Heating at Air 7°C, Water 30/35°C	Heating capacity	kW	1.81	2.83	3.41
	Power input	kW	0.32	0.46	0.65
	COP		5.87	6.72	5.85
Heating at Air 7°C, Water 50/55°C	Heating capacity	kW	1.64	2.88	3.34
	Power input	kW	0.40	0.61	0.81
	COP		4.15	4.69	4.23
General Data					
Compressor type			Inverter compressor		
Power supply		V	220-240V/50Hz/1PH		
Rated heating capacity		kW	7	10	12
Max Power Input		kW	3.34	3.89	5.43
Rated Current		A	14.0	16.0	23.0
Minium Fuse Current		A	17.0	20.0	28.0
Suggested water flux		m ³ /h	1.2	1.7	2.1
Water connection			G1"	G1"	G1"
Heat exchanger			Plate exchanger		
Net weight		kg	69	82	88
Gross weight		kg	91	89	109
Net dimension		mm	1076*456*860	1076*456*860	1052*453*1260
Packing dimension		mm	1140*536*1005	1140*536*1005	1110*533*1405

Alsavo model			ALSAVO HEAT 16i	ALSAVO HEAT 12iT	ALSAVO HEAT 16iT
Suggested space heating area		m ²	186-235	170-280	186-235
Suggested buffer tank			80L/100L	60L/80L	80L/100L
Swimming Pool Side at Air 15°C, Water 30/35°C	Heating capacity	kW	23.80	16.00	24.20
	Power input	kW	4.76	3.20	4.84
	COP		5.00	5.00	5.00
Heating at Air -7°C, Water 30/35°C	Heating capacity	kW	10.71	7.52	10.71
	Power input	kW	3.53	2.41	3.49
	COP		3.08	3.17	3.12
Heating at Air -7°C, Water 50/55°C	Heating capacity	kW	11.05	7.43	10.86
	Power input	kW	5.69	3.69	5.43
	COP		1.95	2.02	2.01
Heating at Air 7°C, Water 30/35°C	Heating capacity	kW	4.39	3.08	4.30
	Power input	kW	0.85	0.54	0.79
	COP		5.56	6.17	5.91
Heating at Air 7°C, Water 50/55°C	Heating capacity	kW	4.51	3.33	4.27
	Power input	kW	1.14	0.78	1.05
	COP		4.06	4.34	4.17
General Data					
Compressor type			Inverter compressor		
Power supply		V	220-240V/50Hz/1PH	380-415V/50Hz/3PH	
Rated heating capacity		kW	16	12	16
Max Power Input		kW	6.51	5.43	6.37
Rated Current		A	26.0	12.0	12.0
Minium Fuse Current		A	32.0	15.0	15.0
Suggested water flux		m ³ /h	2.8	2.1	2.8
Water connection			G1"	G1"	G1"
Heat exchanger			Plate exchanger		
Net weight		kg	119	88	119
Gross weight		kg	126	109	126
Net dimension		mm	1052*453*1260	1052*453*1260	1052*453*1260
Packing dimension		mm	1110*533*1405	1110*533*1405	1110*533*1405

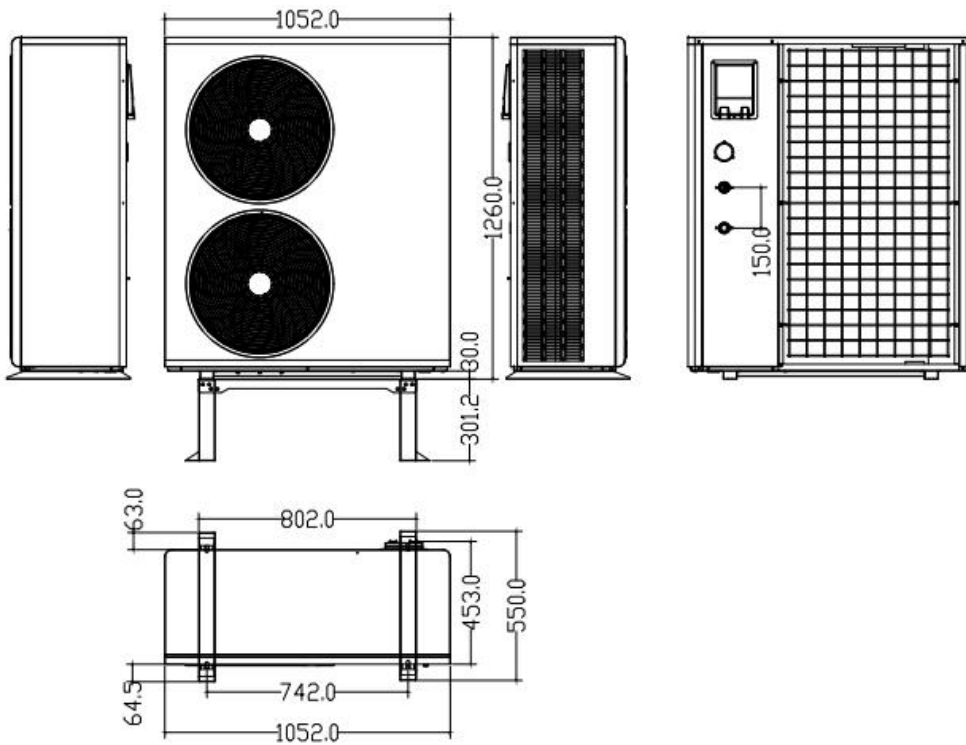
*The above data is only a reference. Please refer to the nameplate on the unit.

3. DIMENSION

ALSAVO HEAT 07i/ALSAVO HEAT 10i



ALSAVO HEAT 12i/ALSAVO HEAT 16i/ALSAVO HEAT 12iT/ALSAVO HEAT 16iT

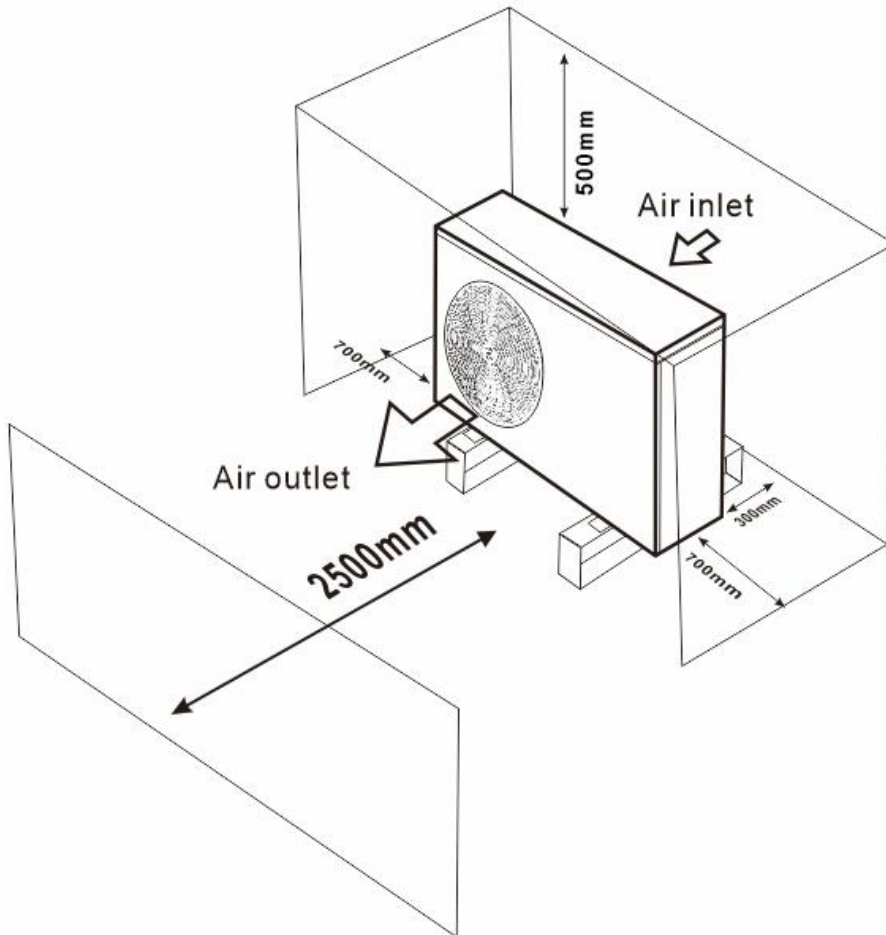


Unit: mm

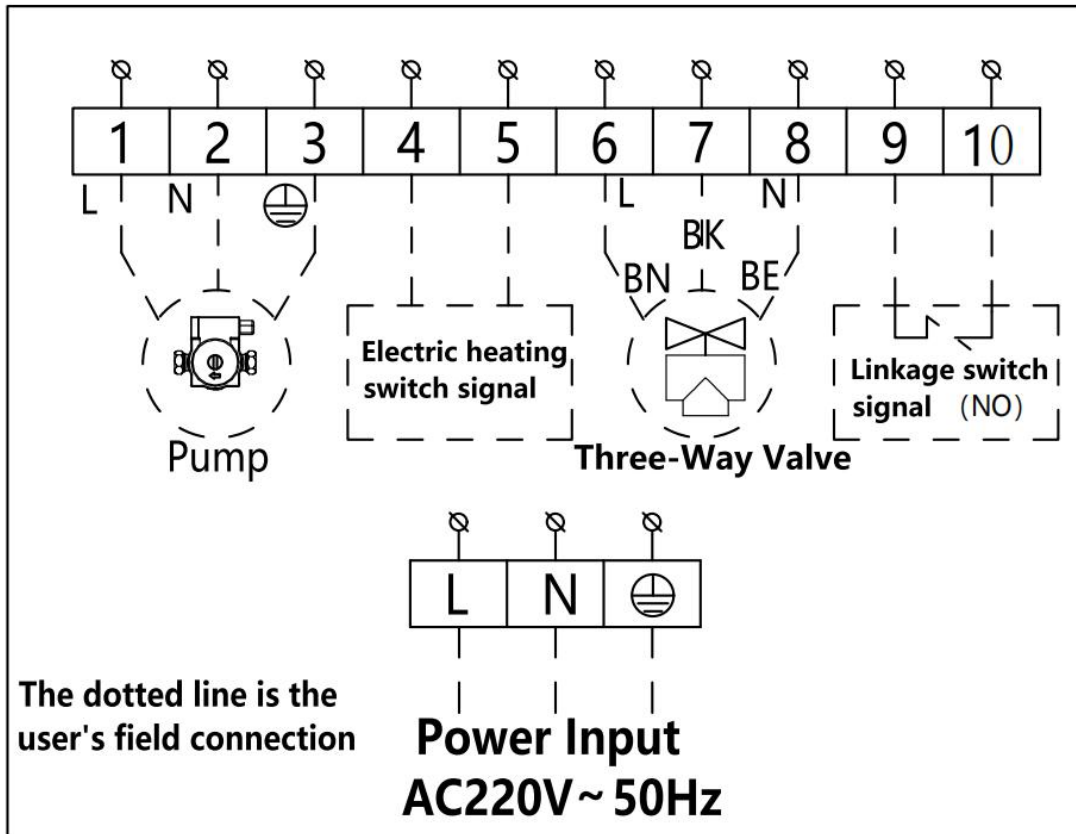
4. INSTALLATION, APPLICATION AND OPERATING

4.1 INSTALLATION

The unit may be installed in virtually any outdoor location as long as the specified minimum distances to other objects are maintained (see drawing below). Please consult your installer for installation with an indoor pool. Installation in a windy location does not present any problem at all.



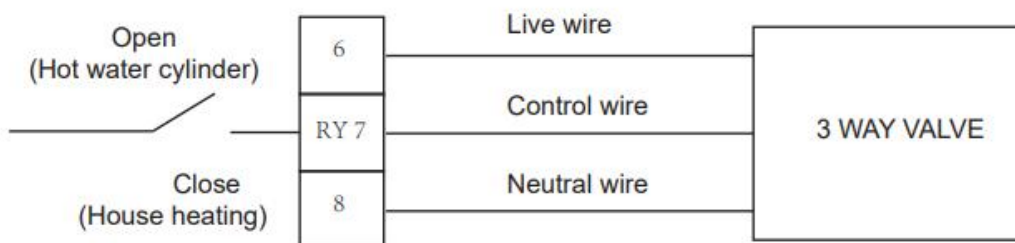
4.2. WIRING CONNECTION



For terminals 1 to 3, they are connected to circulator pump. For the models integrated with circulator pump, they are already connected in default. If you have external circulator pump, you can also connect to these terminals.

For the terminal 4 & 5, they are for the auxiliary heater.

For terminals 6 to 8, they are for the three way valve.



For terminal 9 to 10, they work as a switch to control the heat pump. They are connected in default. If you need to control the heat pump by additional switch, you can connect your device to these terminal.

4.3. HOW TO SELECT THE RIGHT PIPE SIZE

*Please note that these sizes are for guidance only and may differ dependant on pipe run, pressure losses within the system and number of bends.

Table of recommendations for pipework

Model	Metal Pipe O.D.	PPR Pipe O.D.	Copper
ALSAVO HEAT 07i	DN25	DE32	22mm
ALSAVO HEAT 10i	DN25	DE32	28mm
ALSAVO HEAT 12i	DN25	DE32	28mm
ALSAVO HEAT 12iT	DN25	DE32	28mm
ALSAVO HEAT 16i	DN25	DE32	35mm
ALSAVO HEAT 16iT	DN25	DE32	35mm



4.4. HOW TO SELECT THE RIGHT EXPANSION VESSEL & BUFFER TANK

Model	Expansion vessel	Buffer tank
ALSAVO HEAT 07i	5L	60L
ALSAVO HEAT 10i	5L	60L
ALSAVO HEAT 12i	8L	60L/80L
ALSAVO HEAT 12iT	8L	60L/80L
ALSAVO HEAT 16i	12L	80L/100L
ALSAVO HEAT 16iT	12L	80L/100L


4.5. ADVISED WATER FLUX


Model	07i	10i	12i	16i	12iT	16iT
Advise water flux (m ³ /H)	1.2	1.7	2.1	2.8	2.1	2.8

4.6. HOW TO SELECT THE RIGHT APPLICATION

Press and hold the clock button  and the up button  together for 3 seconds to enter the parameter setting interface (more setting details see section 2.2 of the CONTROLLER chapter), select the corresponding P20 parameter according to the actual terminal device that needs to be connected as below:



Default setting P20=7.



P20=1, Domestic water tank model 




P20=2, Space heating model 

P20=3, Domestic water tank heating / space heating model  / 

P20=4, Space cooling model 

P20=5, Domestic water tank heating / space cooling model  / 

P20=6, Space heating / cooling model  / 

P20=7, Domestic water tank heating / space heating / cooling model  /  / 

4.7. APPLICATION MODELS (12 VERSIONS)

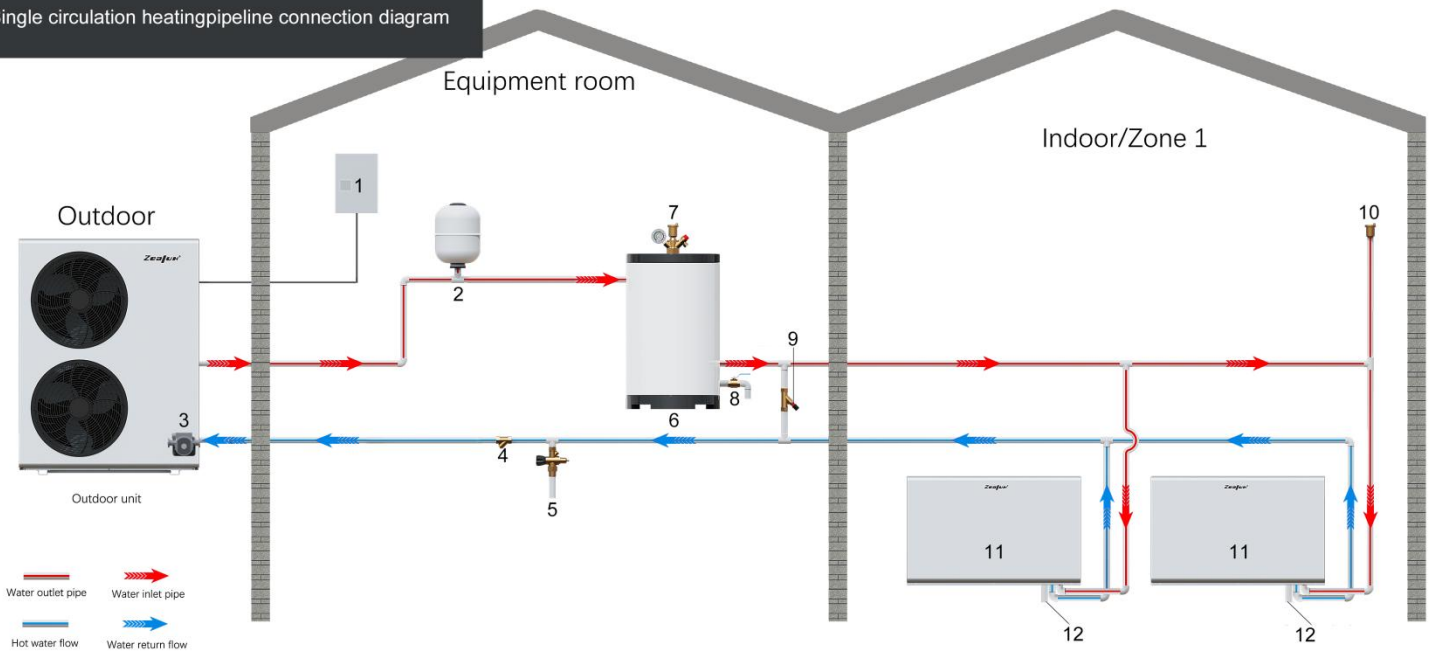
Application 1

P20=2, Space heating model ☀️

P20=4, Space cooling model ❄️

P20=6, Space heating / cooling model ☀️ / ❄️

Single circulation heatingpipeline connection diagram



Caution:
 (1) Air exhaust valve should be installed at the top of water pipeline
 (2) Sewer valve should be installed at the lowest position of water pipeline

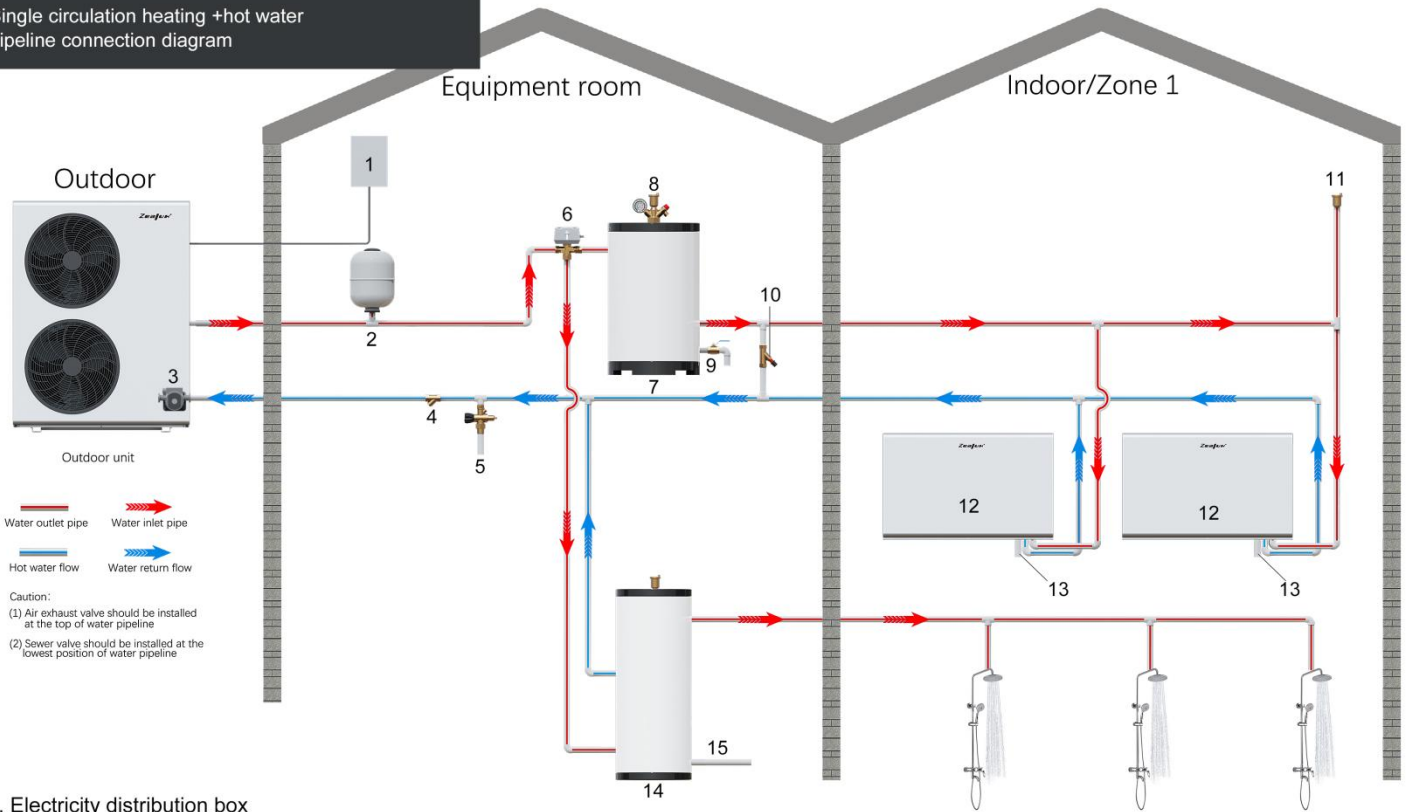
- | | |
|--|---------------------------------------|
| 1. Electricity distribution box | 8. Drain outlet |
| 2. Expansion vessel | 9. Differential pressure bypass valve |
| 3. Internal circulation water pump | 10. Air exhaust valve |
| 4. Filter | 11. Radiator and fan coil |
| 5. Automatic water refill valve | 12. Condensation hose |
| 6. Buffer tank | |
| 7. Security device (Air release valve + Pressure gauge + Pressure release valve set) | |

Application 2

P20=7, Domestic water tank heating / space heating / cooling model



Single circulation heating +hot water pipeline connection diagram



- 1. Electricity distribution box
- 2. Expansion vessel
- 3. Internal circulation water pump

- 4. Filter
- 5. Automatic water refill valve
- 6. 3 way electromagnetic valve
- 7. Buffer tank

- 8. Security device (Air release valve + Pressure gauge + Pressure release valve set)

- 9. Drain outlet
- 10. Differential pressure bypass valve
- 11. Air exhaust valve
- 12. Radiator and fan coil

- 13. Condensation hose
- 14. Hot water cylinder
- 15. City water

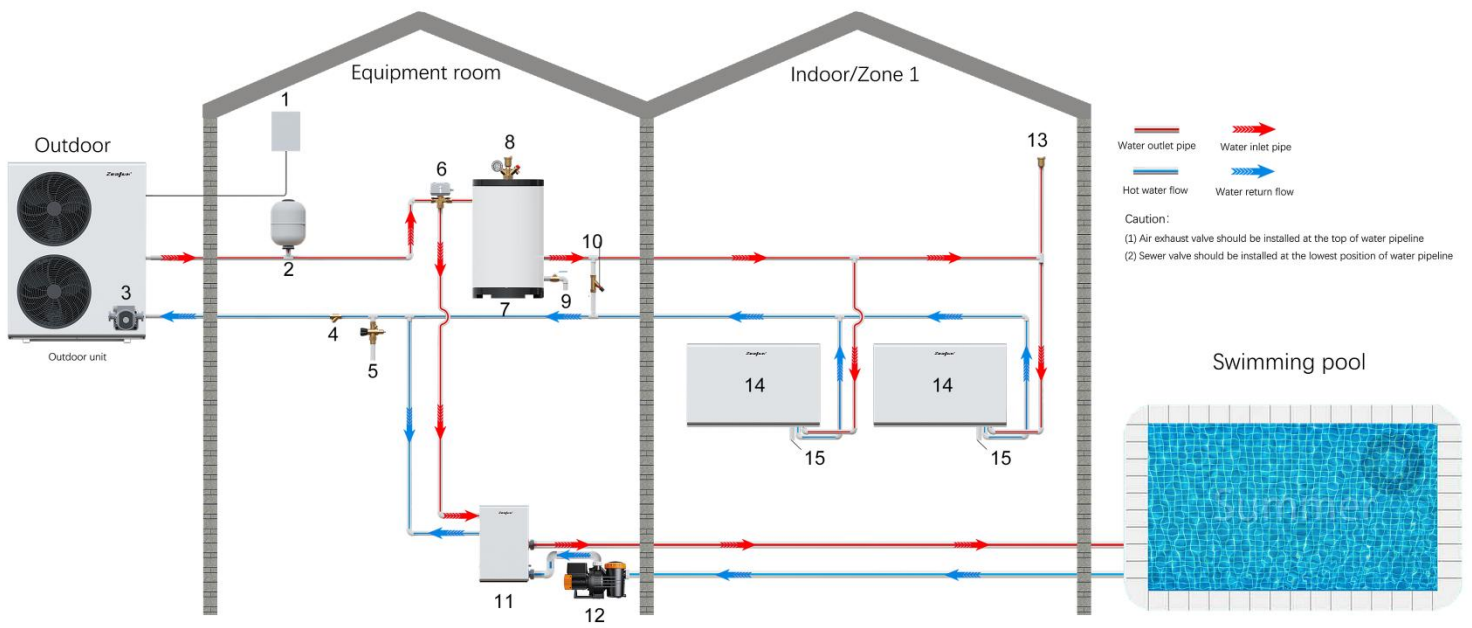
Application 3

P20=2, Space heating model ☀️

P20=4, Space cooling model ❄️

P20=6, Space heating / cooling model ☀️ / ❄️

Single circulation heating+ pool water pipeline connection diagram



- 1. Electricity distribution box
- 2. Expansion vessel
- 3. Internal circulation water pump
- 4. Filter
- 5. Automatic water refill valve
- 6. 3 way electromagnetic valve
- 7. Buffer tank
- 8. Security device (Air release valve + Pressure gauge + Pressure release valve set)

- 9. Drain outlet
- 10. Differential pressure bypass valve
- 11. Heat exchanger for pool
- 12. Inverter water pump

- 13. Air exhaust valve
- 14. Radiator and fan coil
- 15. Condensation hose

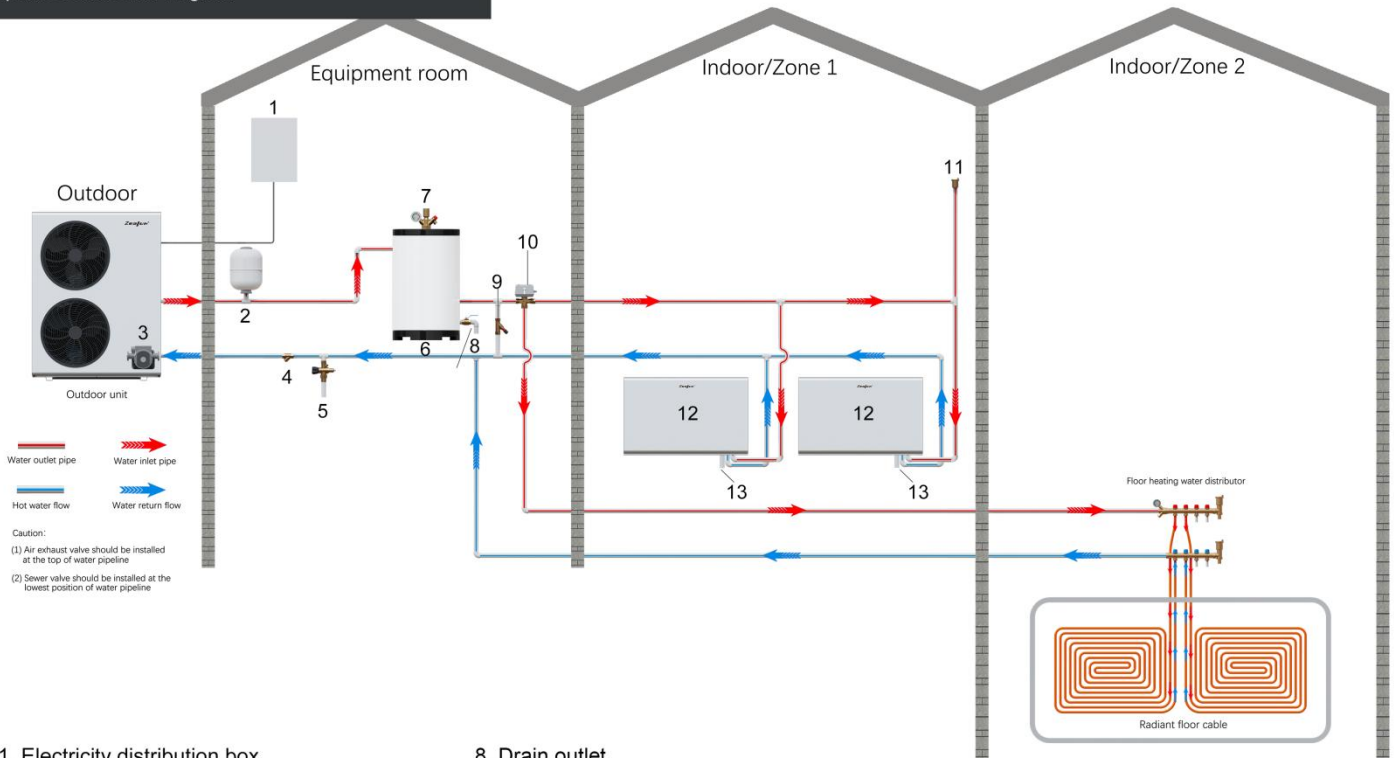
Application 4

P20=2, Space heating model ☀️

P20=4, Space cooling model ❄️

P20=6, Space heating / cooling model ☀️ / ❄️

Single circulation heating+dual zones(floor heating)
pipeline connection diagram



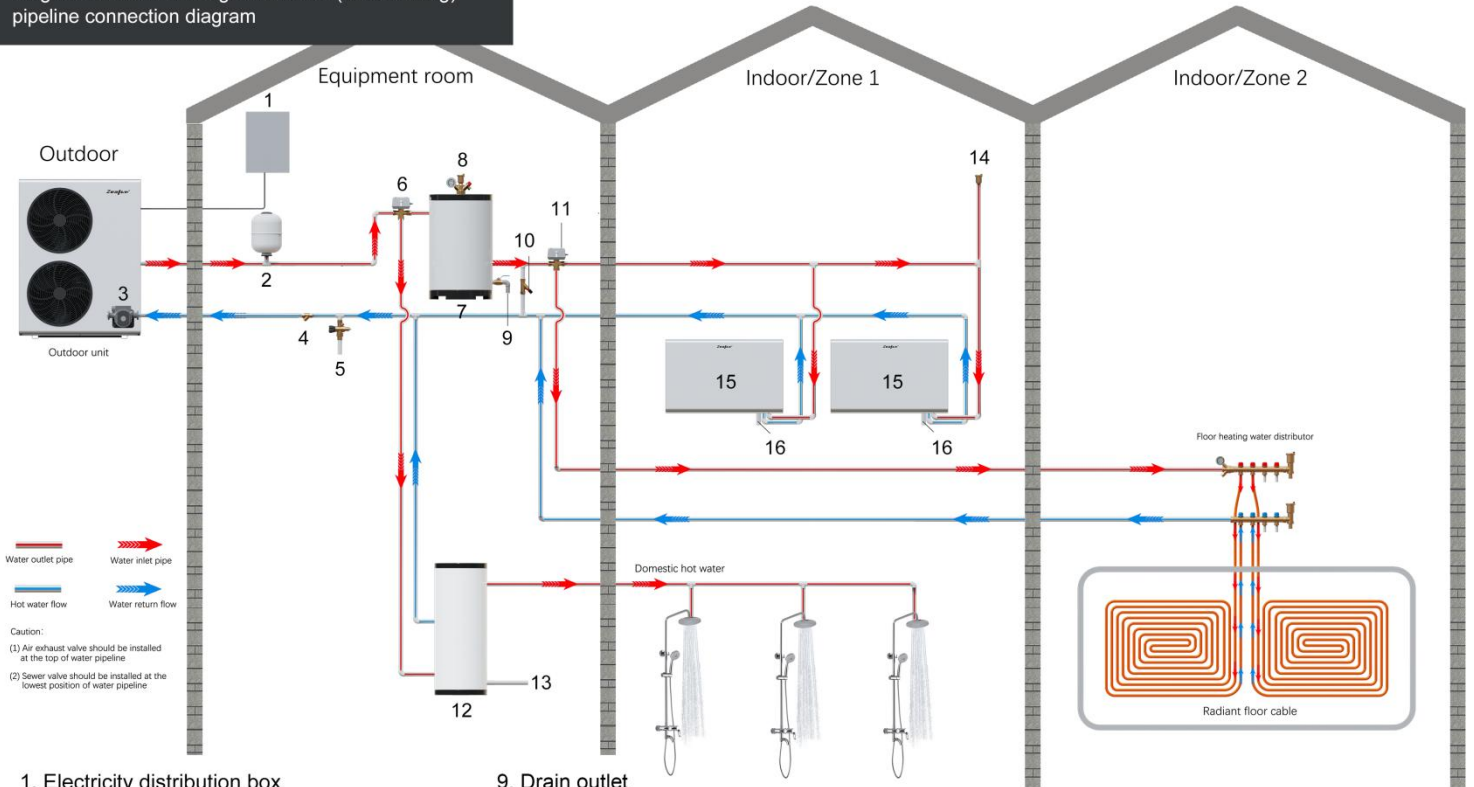
- | | |
|--|---------------------------------------|
| 1. Electricity distribution box | 8. Drain outlet |
| 2. Expansion vessel | 9. Differential pressure bypass valve |
| 3. Internal circulation water pump | 10. 3 way electromagnetic valve |
| 4. Filter | 11. Air exhaust valve |
| 5. Automatic water refill valve | 12. Radiator and fan coil |
| 6. Buffer tank | 13. Condensation hose |
| 7. Security device (Air release valve + Pressure gauge + Pressure release valve set) | |

Application 5

P20=7, Domestic water tank heating / space heating / cooling model



Single circulation heating+dual zones(floor heating) pipeline connection diagram



→ Water outlet pipe
→ Water inlet pipe
→ Hot water flow
→ Water return flow
 Caution:
 (1) Air exhaust valve should be installed at the top of water pipeline
 (2) Sewer valve should be installed at the lowest position of water pipeline

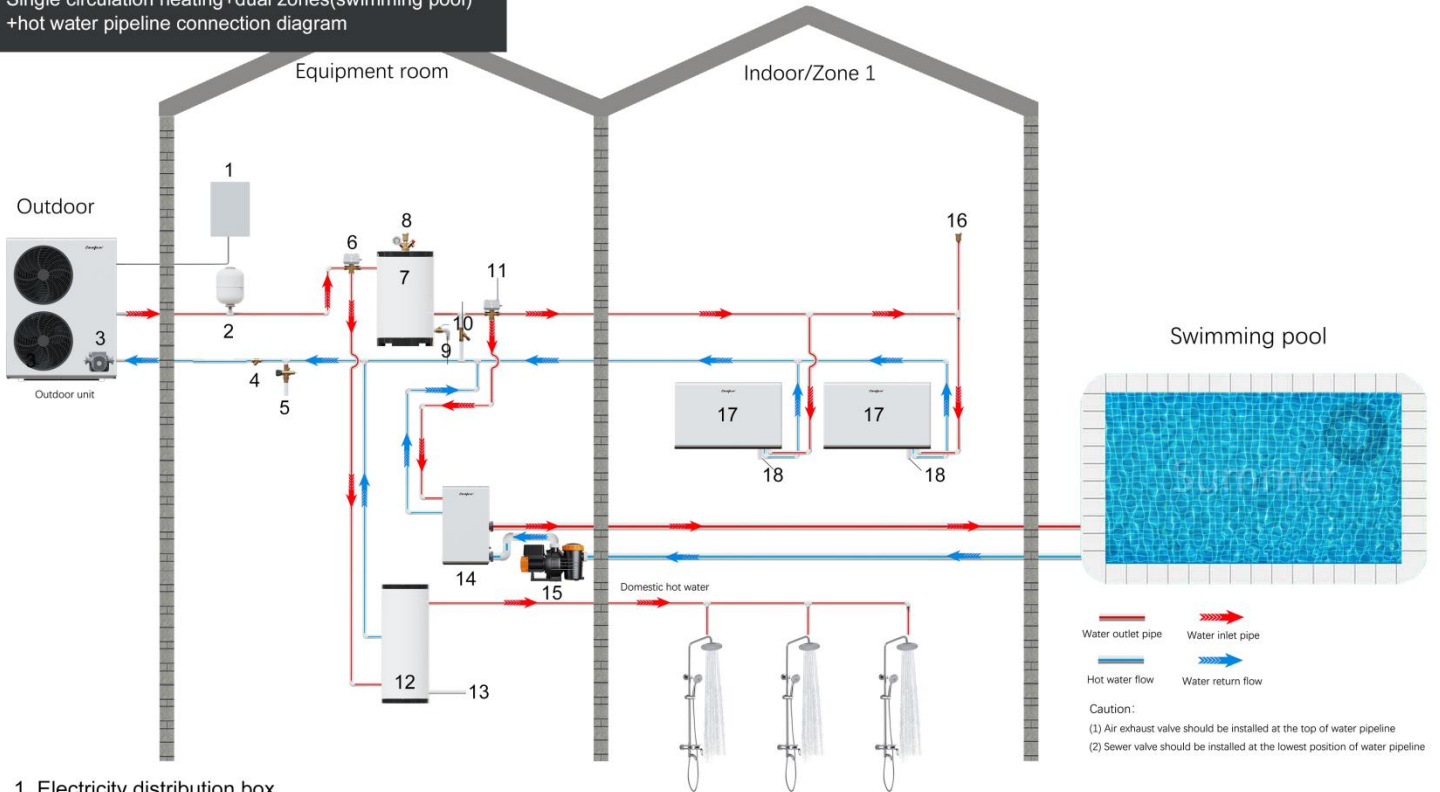
- | | | |
|--|--|---------------------------|
| 1. Electricity distribution box | 9. Drain outlet | |
| 2. Expansion vessel | 10. Differential pressure bypass valve | |
| 3. Internal circulation water pump | 11. 3 way electromagnetic valve | |
| 4. Filter | 12. Hot water cylinder | |
| 5. Automatic water refill valve | 13. City water | 15. Radiator and fan coil |
| 6. 3 way electromagnetic valve | 14. Air exhaust valve | 16. Condensation hose |
| 7. Buffer tank | | |
| 8. Security device (Air release valve + Pressure gauge + Pressure release valve set) | | |

Application 6

P20=7, Domestic water tank heating / space heating / cooling model



Single circulation heating+dual zones(swimming pool)
+hot water pipeline connection diagram



- 1. Electricity distribution box
- 2. Expansion vessel
- 3. Internal circulation water pump
- 4. Filter
- 5. Automatic water refill valve
- 6. 3 way electromagnetic valve
- 7. Buffer tank
- 8. Security device (Air release valve + Pressure gauge + Pressure release valve set)

- 9. Drain outlet
- 10. Differential pressure bypass valve
- 11. 3 way electromagnetic valve
- 12. Hot water cylinder
- 13. City water

- 14. Heat exchanger for pool
- 15. Inverter water pump
- 16. Air exhaust valve
- 17. Radiator and fan coil
- 18. Condensation hose

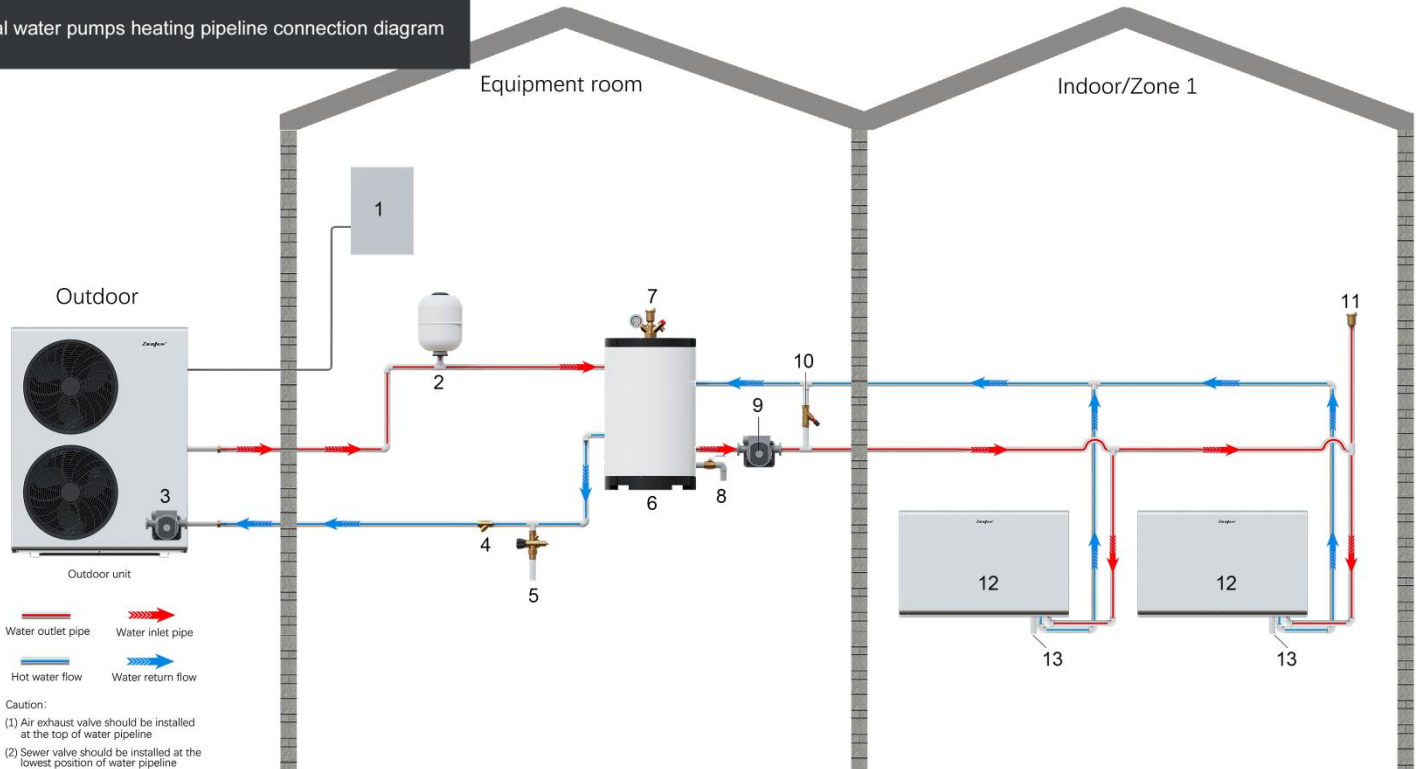
Application 7

P20=2, Space heating model ☀️

P20=4, Space cooling model ❄️

P20=6, Space heating / cooling model ☀️ / ❄️

Dual water pumps heating pipeline connection diagram



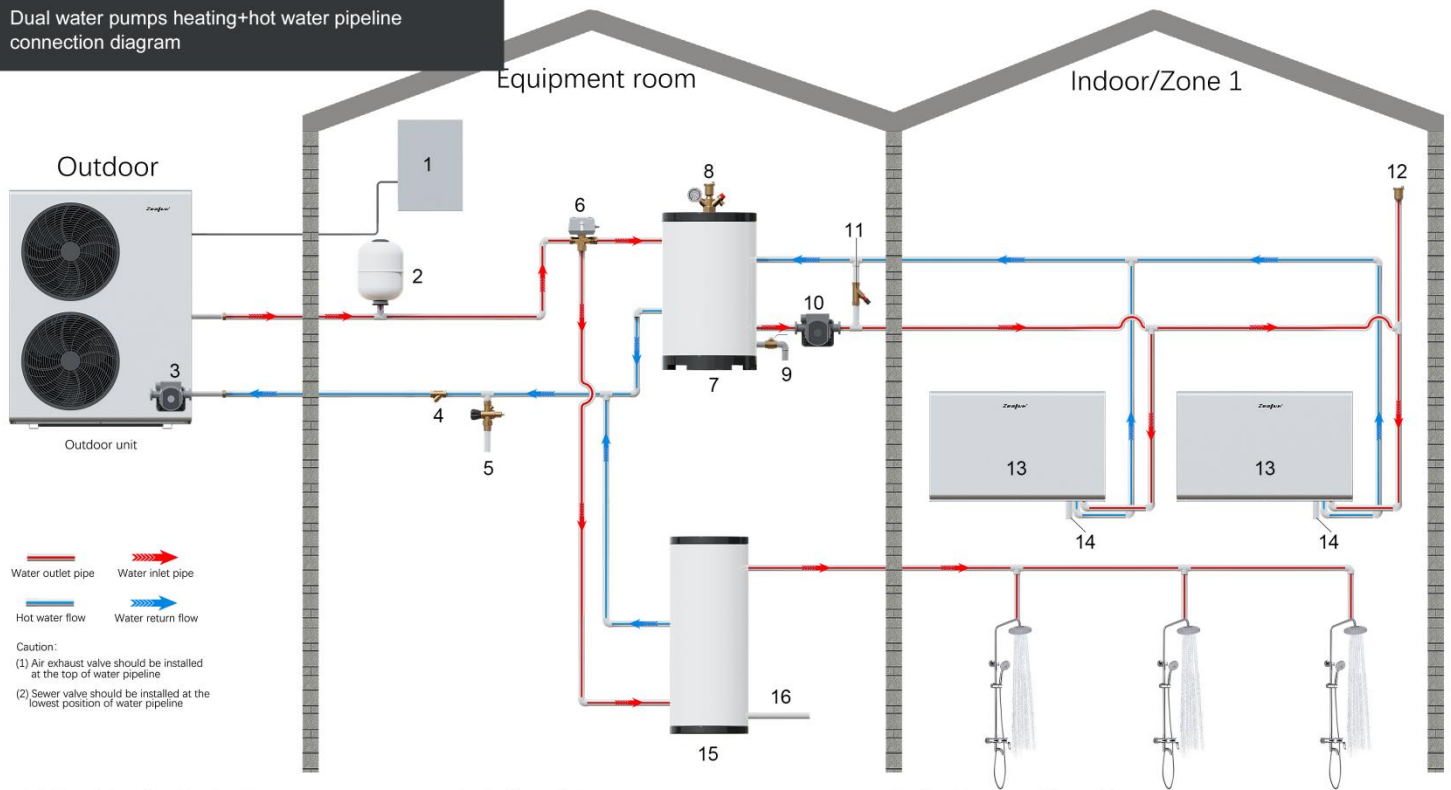
- | | |
|--|--|
| 1. Electricity distribution box | 8. Drain outlet |
| 2. Expansion vessel | 9. Circulation water pump |
| 3. Internal circulation water pump | 10. Differential pressure bypass valve |
| 4. Filter | 11. Air exhaust valve |
| 5. Automatic water refill valve | 12. Radiator and fan coil |
| 6. Buffer tank | 13. Condensation hose |
| 7. Security device (Air release valve + Pressure gauge + Pressure release valve set) | |

Application 8

P20=7, Domestic water tank heating / space heating / cooling model



Dual water pumps heating+hot water pipeline connection diagram



Water outlet pipe
 Water inlet pipe
 Hot water flow
 Water return flow

Caution:
 (1) Air exhaust valve should be installed at the top of water pipeline
 (2) Sewer valve should be installed at the lowest position of water pipeline

- | | | |
|--|--|---------------------------|
| 1. Electricity distribution box | 9. Drain outlet | 13. Radiator and fan coil |
| 2. Expansion vessel | 10. Circulation water pump | 14. Condensation hose |
| 3. Internal circulation water pump | 11. Differential pressure bypass valve | 15. Hot water cylinder |
| 4. Filter | 12. Air exhaust valve | 16. City water |
| 5. Automatic water refill valve | | |
| 6. 3 way electromagnetic valve | | |
| 7. Buffer tank | | |
| 8. Security device (Air release valve + Pressure gauge + Pressure release valve set) | | |

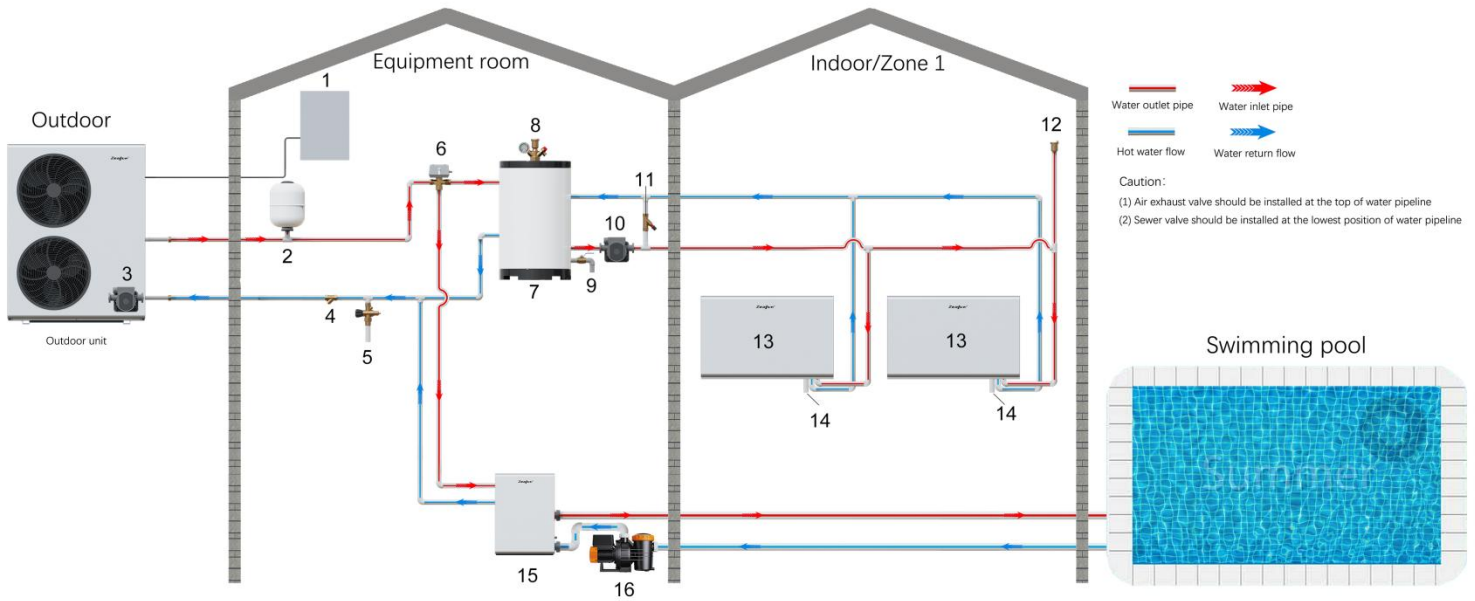
Application 9

P20=2, Space heating model ☀️

P20=4, Space cooling model ❄️

P20=6, Space heating / cooling model ☀️ / ❄️

Dual water pumps heating+swimming pool water pipeline connection diagram



- 1. Electricity distribution box
- 2. Expansion vessel
- 3. Internal circulation water pump
- 4. Filter
- 5. Automatic water refill valve
- 6. 3 way electromagnetic valve
- 7. Buffer tank

- 9. Drain outlet
- 10. Circulation water pump
- 11. Differential pressure bypass valve
- 12. Air exhaust valve

- 13. Radiator and fan coil
- 14. Condensation hose
- 15. Heat exchanger for pool
- 16. Inverter water pump

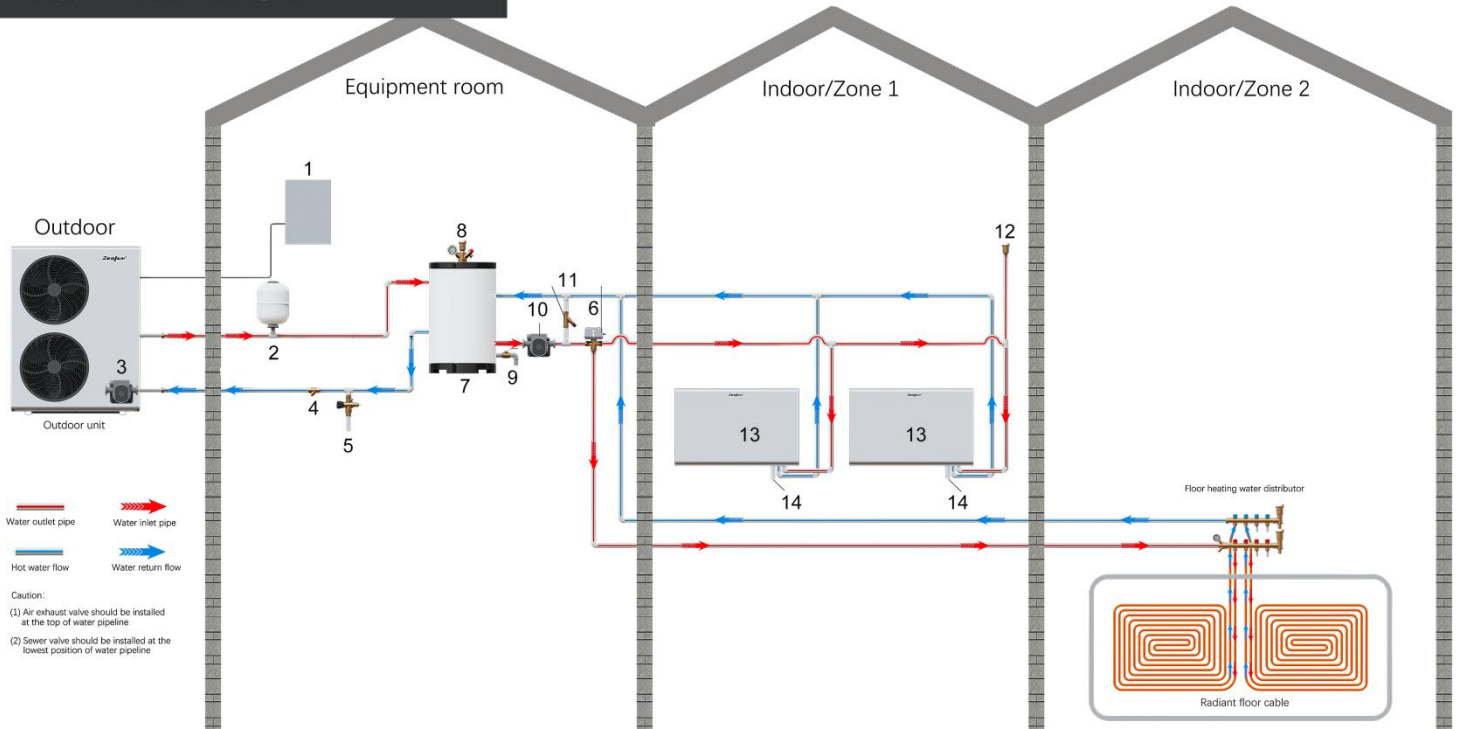
Application 10

P20=2, Space heating model ☀️

P20=4, Space cooling model ❄️

P20=6, Space heating / cooling model ☀️ / ❄️

Dual water pumps heating+dual zones(floor heating)
water pipeline connection diagram



Caution:
(1) Air exhaust valve should be installed at the top of water pipeline
(2) Sewer valve should be installed at the lowest position of water pipeline

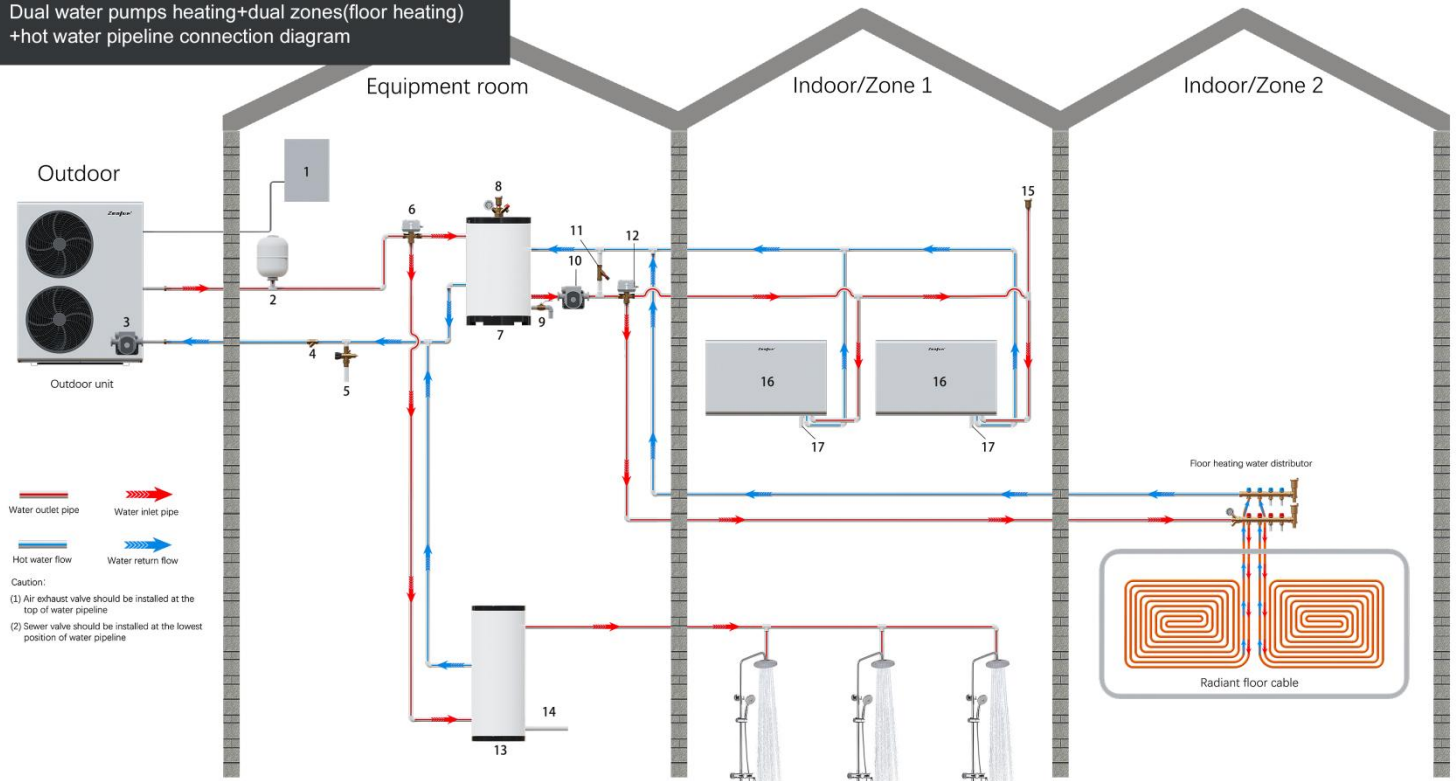
- 1. Electricity distribution box
- 2. Expansion vessel
- 3. Internal circulation water pump
- 4. Filter
- 5. Automatic water refill valve
- 6. 3 way electromagnetic valve
- 7. Buffer tank
- 8. Security device (Air release valve + Pressure gauge + Pressure release valve set)
- 9. Drain outlet
- 10. Circulation water pump
- 11. Differential pressure bypass valve
- 12. Air exhaust valve
- 13. Radiator and fan coil
- 14. Condensation hose

Application 11

P20=7, Domestic water tank heating / space heating / cooling model



Dual water pumps heating+dual zones(floor heating)
+hot water pipeline connection diagram



- 1. Electricity distribution box
- 2. Expansion vessel
- 3. Internal circulation water pump
- 4. Filter
- 5. Automatic water refill valve
- 6. 3 way electromagnetic valve
- 7. Buffer tank

- 9. Drain outlet
- 10. Circulation water pump
- 11. Differential pressure bypass valve
- 12. 3 way electromagnetic valve
- 13. Hot water cylinder

- 14. City water
- 15. Air exhaust valve
- 16. Radiator and fan coil
- 17. Condensation hose

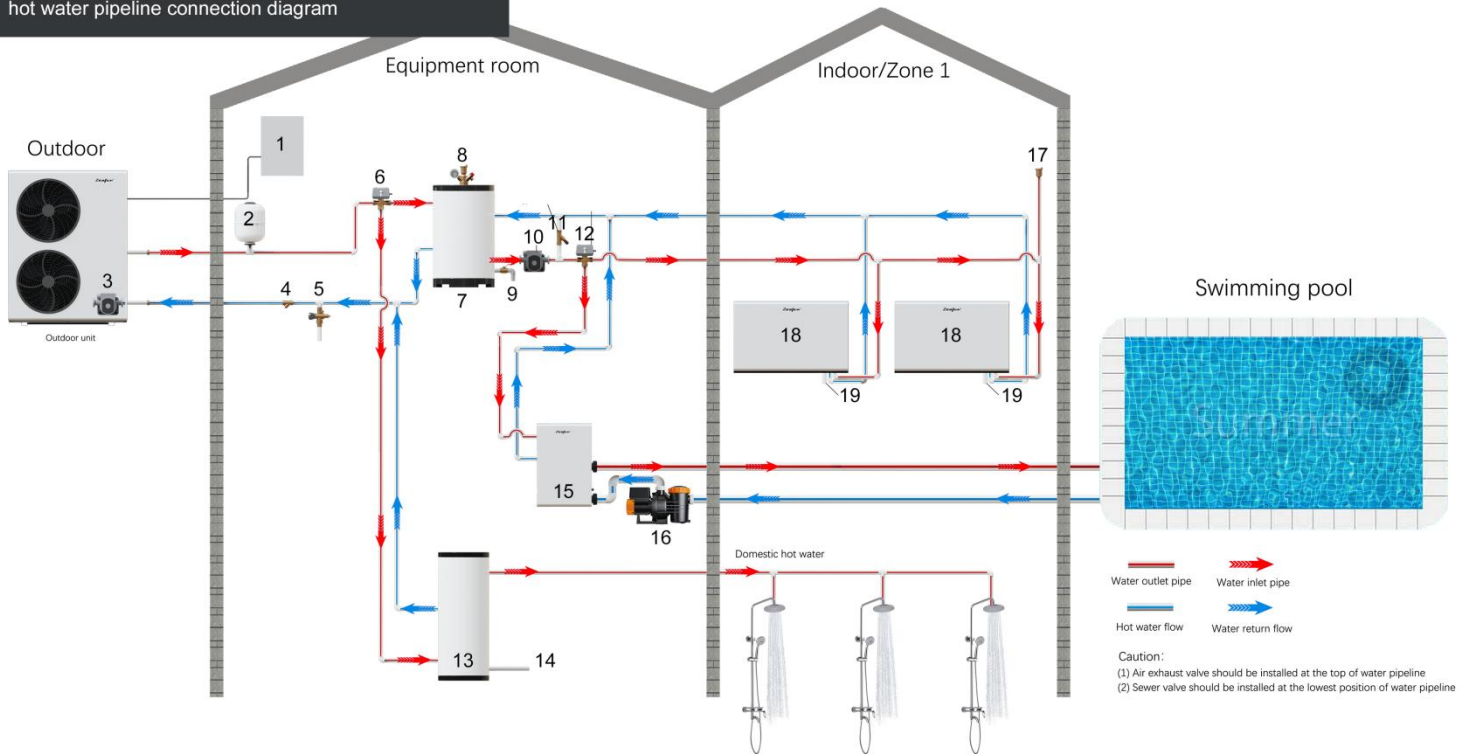
8. Security device (Air release valve + Pressure gauge + Pressure release valve set)

Application 12

P20=7, Domestic water tank heating / space heating / cooling model



Dual water pumps heating+dual zones(swimming pool)
hot water pipeline connection diagram



- | | | |
|--|--|-----------------------------|
| 1. Electricity distribution box | 9. Drain outlet | 15. Heat exchanger for pool |
| 2. Expansion vessel | 10. Circulation water pump | 16. Inverter water pump |
| 3. Internal circulation water pump | 11. Differential pressure bypass valve | 17. Air exhaust valve |
| 4. Filter | 12. 3 way electromagnetic valve | 18. Radiator and fan coil |
| 5. Automatic water refill valve | 13. Hot water cylinder | 19. Condensation hose |
| 6. 3 way electromagnetic valve | 14. City water | |
| 7. Buffer tank | | |
| 8. Security device (Air release valve + Pressure gauge + Pressure release valve set) | | |

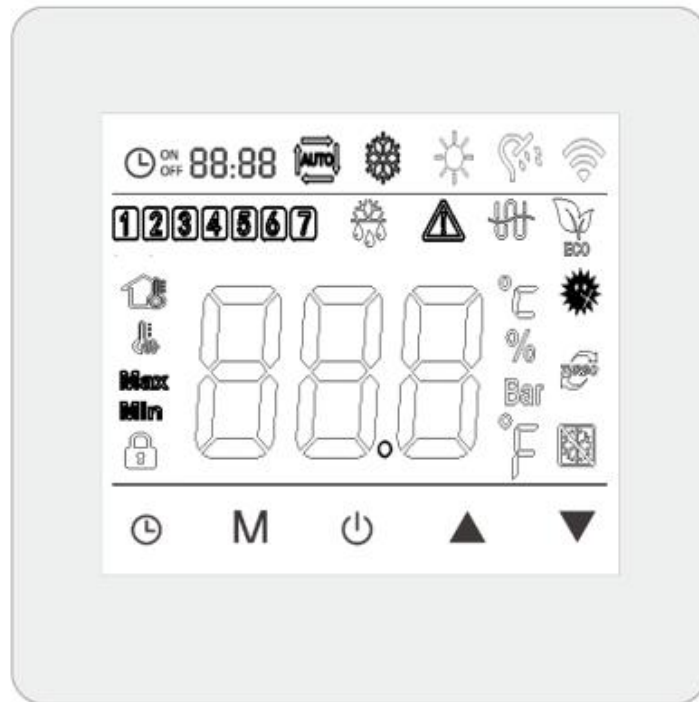
OPERATING LOGIC

When space heating and domestic water tank heating are needed at the same time, and required to set up different corresponding temperatures, domestic water tank is preferential heating. By setting the value of P1 (the temperature of domestic water tank) directly, when the temperature reaches set value + constant temperature difference, the heat pump stops the domestic water tank heating, and the three-way valve is automatically switched to start space heating.

On space heating state, the water temperature is controlled according to the P2 set value. If the terminal is a convector, the water inlet temperature controlled by the heat pump directly, and the zone target temperature required by the terminal devices. When the target zone environmental temperature is achieved, the two-pass valve will be closed, the water flow is cut off.

Parameter No.	Function Description	Optional range	Factory default
P1	Domestic water tank set temperature	20-55°C	55°C
P2	Space heating mode set temperature	15-60°C	40°C

5. CONTROLLER FUNCTION



5.1. Main function and icon introduction

Mode Introduction



: Space heating mode (P20=2)



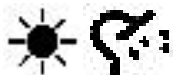
: Space cooling mode (P20=4)



:Space heating/cooling mode (P20=6)



: Domestic water tank heating mode (P20=1)



: Space heating + Domestic water tank heating mode (P20=3)




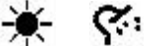












: Space cooling + Domestic water tank heating mode (P20=5)



: Space heating/cooling mode + Domestic water tank heating mode (P20=7)

Icon and Function Introduction

Key icon	Description
	Space heating mode
	Space cooling mode
	Domestic water(tank) heating mode
	Space heating + Domestic water(tank) heating mode
	Space cooling + Domestic water(tank) heating mode
	Clock/Timer
	Time adjustment
	Timer on
	Timer off
	Temperature in degrees Celsius
	Lock screen
	Current temperature
	Setting temperature
	Wi-Fi

5.2. Controller Operation

➤ Temperature Adjustment

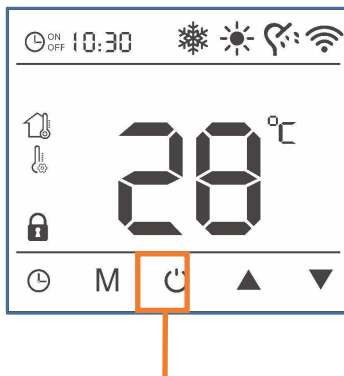
1/ Press the up ▲ and down ▼ to adjust the target temperature



Short press to adjust the target temperature

➤ ON/OFF

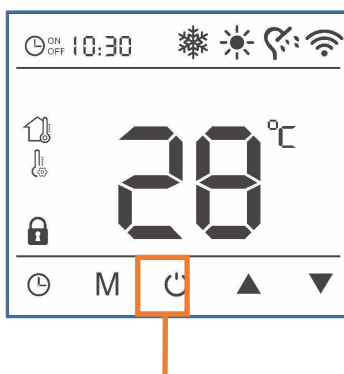
1/ Press ON/OFF button ⏻ to turn on or off the machine.



Short press to turn on/off the machine

2/ Lock/unlock screen

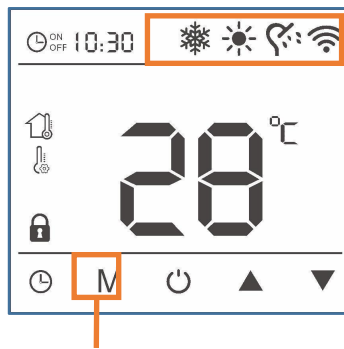
The controller will automatically lock 30 seconds after no operation.



Long pressing to unlock the controller

➤ Mode selection

1/ Press **M** to change the operation mode.



① Press to change mode

② The corresponding icon appears

➤ Adjusting the heating temperature (direct heating)








In the water tank mode, it displays the set temperature of the water tank and the real-time temperature of the water tank. In the main interface, use the ▲ and ▼ to set the set temperature of the water tank.

In heating mode, it displays the set temperature and real-time return water temperature. In the main interface, use the ▲ and ▼ keys to adjust the set temperature.

In cooling mode, it displays the return water set temperature and the real-time return water temperature. In the main interface, use the ▲ and ▼ keys to adjust the set temperature.








In the automatic mode, the set temperature in the room or water tank mode is displayed according to the actual operation mode, and the real-time temperature also displays the return water or water tank temperature according to the actual operation mode. Do not use the ▲ and ▼ keys to adjust the set temperature in the main interface of starting up.

- Zone Thermostat Setting (Adjust directly on the controller of the fan coil or the controller of the mixing valve)

Long press  and  for 3 seconds to enter parameter setting, press  and  to select P value, press  to enter P value setting. Using  and  to change the setting.

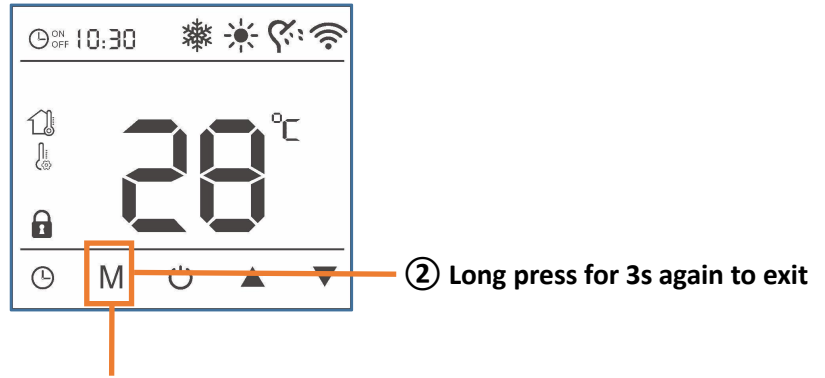
Parameter	Function Description	Optional range	Factory default
P2	Space heating mode set temperature	15-60°C	40°C
P3	Space cooling mode set temperature	5-35°C	10°C
P5	Space mode start hysteresis	2-15°C	3°C
P6	Constant temperature difference (set the difference value between the set temperature and the actual temperature when the constant temperature is started)	0-6°C	2°C
P7	Electric heating on and off settings in space heating mode	0: automatic 1: off	0
P10	Maximum floor water outlet temperature in space heating	(MAX.TEMP)25-67°C	60°C
P19	Pump control when reach target temperature in space mode	0: Always on/ 1: Turn on the water pump at intervals after reaching the target temperature	0

- Hot water tank temperature setting

Long press  and  for 3 seconds to enter parameter setting, press  and  to select P value, press  to enter P value setting. Using  and  to change the setting.

Parameter	Function Description	Optional range	Factory default
P1	Domestic water tank set temperature	20-55°C	55°C
P4	Water tank heating start hysteresis	3-15°C	5°C

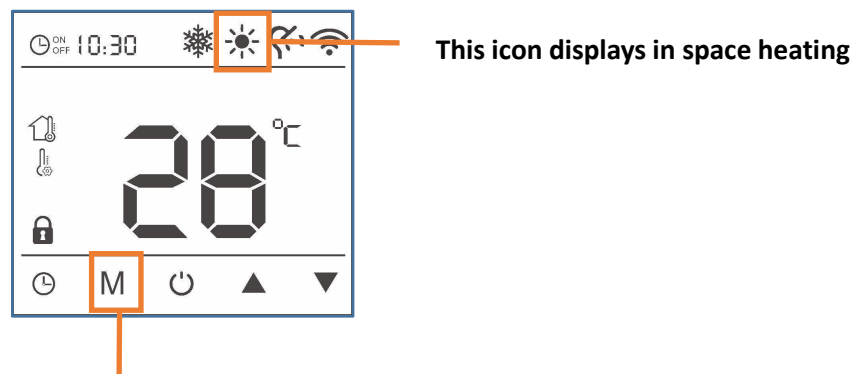
➤ Refrigerant recycling mode



① Long press for 3s under controller off state until display

Press and hold the mode selection button **M** for 3 seconds under the off state of the controller, and the controller will display “C”, at this point the heat pump enters the refrigerant recycling mode; Press and hold mode selection button **M** for 3 seconds again, or press ON/OFF button **⏻** to exit the refrigerant recycling mode and the controller returns to the off state.

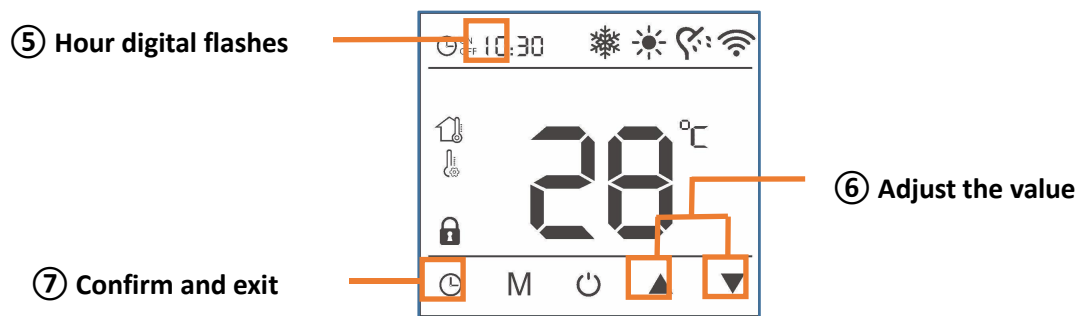
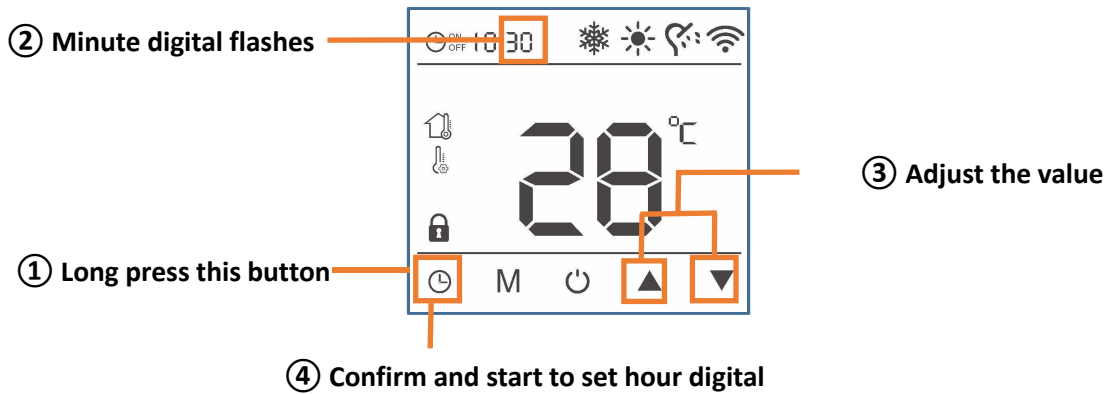
➤ Mandatory defrosting



Long press for 3s under controller on state and heating mode

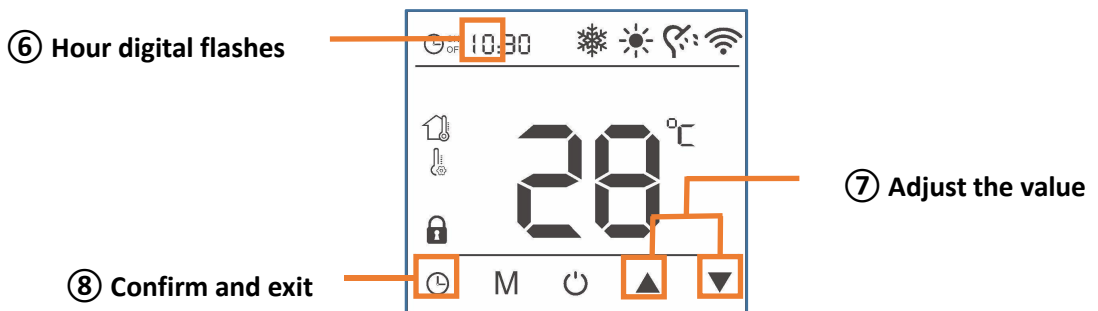
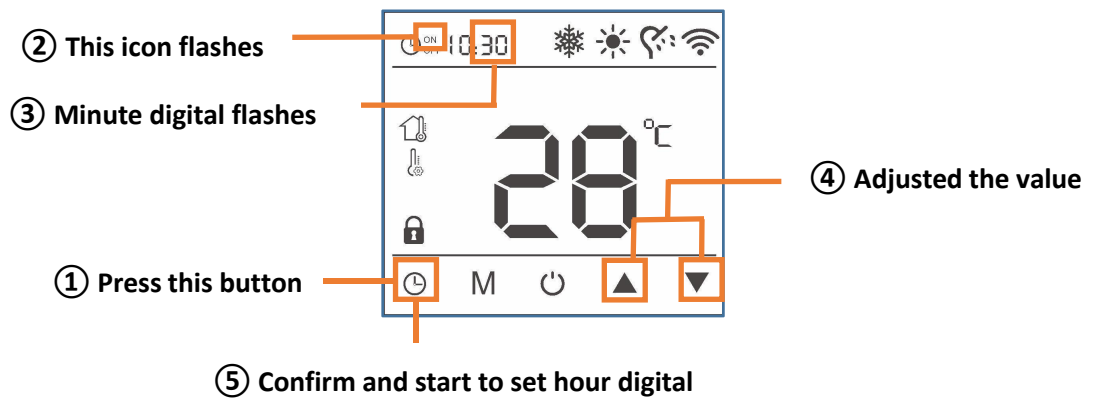
Press and hold the mode selection button **M** for 3 seconds under the on state of the controller and heating mode to enter the mandatory defrosting process.



➤ Time setting





Note: The clock setting will be automatically determined, and the clock adjustment state will be exited 10 seconds after no operation.

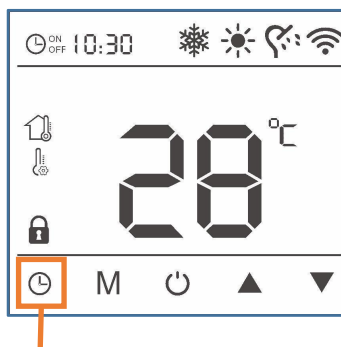
➤ Timer setting




After setting the timer on time, press the clock button  to display the last set timer off time, the timer off icon  flashes, same way to set the timer off time as setting timer on time.

Note: The timer setting will be automatically determined, and the timer adjustment state will be exited 10 seconds after no operation and then the timer on icon  and timer off icon  will be always on.

- Cancel the timer setting










Press this button in unlocked state to cancel the timer

A confirm timer setting can be canceled by press the ON/OFF button  in the unlocked state of the controller.

5.3. Installation Zone System

DHW Tank Settings

DHW Tank Electric Heating Settings

Long press  and  for 3 seconds to enter parameter setting, press  and  to select P value, press  to enter P value setting. Using  and  to change the setting.

Parameter	Function Description	Optional range	Factory default
P8	Electric heating start temperature	-30~15°C	-7°C
P9	Start time in electric heating does not heat up	2-90 minutes	30 minutes

5.4. Heating Settings (Target Temperature)

5.4.1. Recommended Setting Temperature for Terminal Equipment

Equipment	Suggest setting temperature
Floor heating	30°C
Fan coil	40°C
Heating radiator	50°C

5.4.2. Weather Compensation Mode

Weather Compensation Mode Introduction

This mode automatically adjusts the target water inlet temperature of the unit according to the change of the outdoor ambient temperature in the heating mode. The lower the outdoor ambient temperature is, the higher the target water inlet temperature is set (up to 60°C); the higher the outdoor ambient temperature is, the lower the target water inlet temperature is set (when the outdoor ambient temperature is 18°C, the target water inlet temperature is 18°C).

ON/OFF of the Weather Compensation Mode

Set through the line controller parameter P23, when P23=1, the weather compensation mode is on; when P23=0, the weather compensation mode is off. (Default value P23=1, i.e. weather compensation mode is on by default)

Weather Compensation Operating Logic

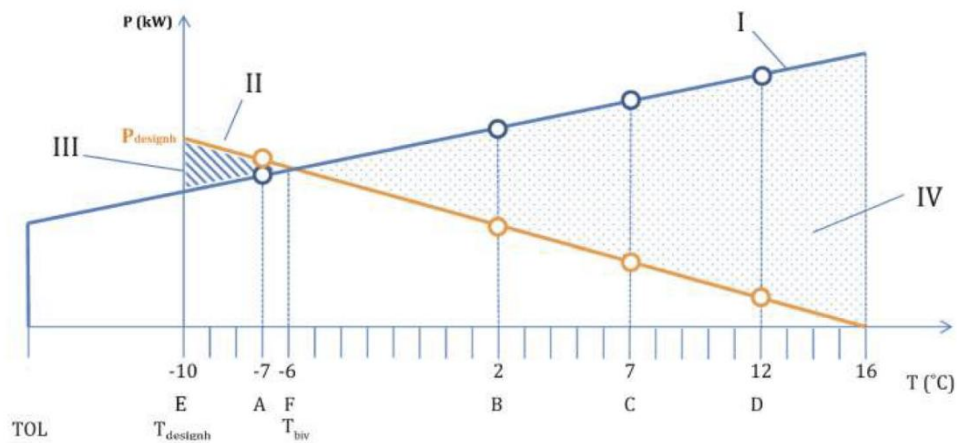
$$T_s = \frac{P25 + P24 - 18}{28} * (18 - T_{out}) + 18$$

- Formula code parsing:
- Ts: Target temperature under weather compensation mode(maximum limit 60°C)
P25: Curve adjustment parameter 2, adjustment range: 30~45°C, default: 30°C
P24: Curve adjustment parameter 1, adjustment range: -10~10°C, default: 0°C
Tout: Ambient temperature(measured value, round figure)

P24+P25 \ Tout	-10	-7	2	7	12	16	18
20	20.0	19.8	19.1	18.8	18.4	18.1	18.0
21	21.0	20.7	19.7	19.2	18.6	18.2	18.0
22	22.0	21.6	20.3	19.6	18.9	18.3	18.0
23	23.0	22.5	20.9	20.0	19.1	18.4	18.0
24	24.0	23.4	21.4	20.4	19.3	18.4	18.0
25	25.0	24.3	22.0	20.8	19.5	18.5	18.0
26	26.0	25.1	22.6	21.1	19.7	18.6	18.0
27	27.0	26.0	23.1	21.5	19.9	18.6	18.0
28	28.0	26.9	23.7	21.9	20.1	18.7	18.0
29	29.0	27.8	24.3	22.3	20.4	18.8	18.0
30	30.0	28.7	24.9	22.7	20.6	18.9	18.0
31	31.0	29.6	25.4	23.1	20.8	18.9	18.0
32	32.0	30.5	26.0	23.5	21.0	19.0	18.0
33	33.0	31.4	26.6	23.9	21.2	19.1	18.0
34	34.0	32.3	27.1	24.3	21.4	19.1	18.0
35	35.0	33.2	27.7	24.7	21.6	19.2	18.0
36	36.0	34.1	28.3	25.1	21.9	19.3	18.0
37	37.0	35.0	28.9	25.5	22.1	19.4	18.0
38	38.0	35.9	29.4	25.9	22.3	19.4	18.0
39	39.0	36.8	30.0	26.3	22.5	19.5	18.0
40	40.0	37.6	30.6	26.6	22.7	19.6	18.0
41	41.0	38.5	31.1	27.0	22.9	19.6	18.0
42	42.0	39.4	31.7	27.4	23.1	19.7	18.0
43	43.0	40.3	32.3	27.8	23.4	19.8	18.0
44	44.0	41.2	32.9	28.2	23.6	19.9	18.0
45	45.0	42.1	33.4	28.6	23.8	19.9	18.0
46	46.0	43.0	34.0	29.0	24.0	20.0	18.0
47	47.0	43.9	34.6	29.4	24.2	20.1	18.0
48	48.0	44.8	35.1	29.8	24.4	20.1	18.0
49	49.0	45.7	35.7	30.2	24.6	20.2	18.0
50	50.0	46.6	36.3	30.6	24.9	20.3	18.0
51	51.0	47.5	36.9	31.0	25.1	20.4	18.0
52	52.0	48.4	37.4	31.4	25.3	20.4	18.0
53	53.0	49.3	38.0	31.8	25.5	20.5	18.0
54	54.0	50.1	38.6	32.1	25.7	20.6	18.0
55	55.0	51.0	39.1	32.5	25.9	20.6	18.0

➤ Examples of Applications of Weather Compensation Mode

When P25 is set to 30 and P24 to 0, the target water inlet temperature is set to 30°C under the -10°C ambient temperature correspondence, and the corresponding target water inlet temperature is 18°C at 18°C ambient temperature, which is highly energy efficient and the comprehensive energy efficiency is close to A+++.



Direct Heating Mode

P23 parameter is set to 0 (weather compensation mode is off), user can adjust the target inlet water temperature by pressing the "up" and "down" buttons directly from the controller.

5.5. DHW Tank Heating Settings

DHW Tank Heating Priority Settings

When P20=1, 3, 5, 7, it is DHW tank heating priority.

DHW Tank Reheating Temperature and Maximum Heating Time Settings

Parameter	Function Description	Optional range	Factory default
P4	Water tank heating start hysteresis	3-15°C	5°C

DHW Tank Sterilization Mode Settings

Water Tank High Temperature Sterilization Function

➤ Motion Activation

- ① The first time it is enabled, each time the unit is powered up and recognises that P32 is a non-zero value, it is programmed to set d40 to 1 once and to select a sterilisation operating period close to the current point in time to heat the tank temperature (achieved through the output of the relay controlling the electric heating of the tank) to 75°C once.
- ② When the water tank is heated to 75°C, end the last timer and restart the timer (d40=P32); when the countdown of the day (d40 can be checked) is 1 and the sterilisation operation period is reached, perform the water tank temperature heating to 75°C once.



➤ Motion Completion

When the unit identifies that the temperature of the water tank is $\geq 75^{\circ}\text{C}$ (parameter adjustable), the relay stops the output, completes the sterilisation function of the current time, and enters the next sterilisation cycle timing.

Corresponding Controller Parameters

Controller Parameters	Parameters Explanation	Adjustment Range	Unit	Default Value	Minimum Adjustment Value	Remark
P32	Sterilisation function cycle days setting	0-30	Day	14	± 1	When set to 0, the sterilisation function does not run; When set to 1, the sterilisation function runs on a daily cycle.
P33	Sterilisation runtime	0-23	Hour	1	± 1	When set to 1, means that the water tank heat by using the water tank electric heating from 1:00 a.m., and ends when the water tank temperature reaches 75°C , and enters the next timing cycle
P34	Sterilisation target water temperature setting	60-95	$^{\circ}\text{C}$	75	± 1	
d40	Sterilisation countdown days	30-0	Day	P21 set value	Decreasing by 1 per day	

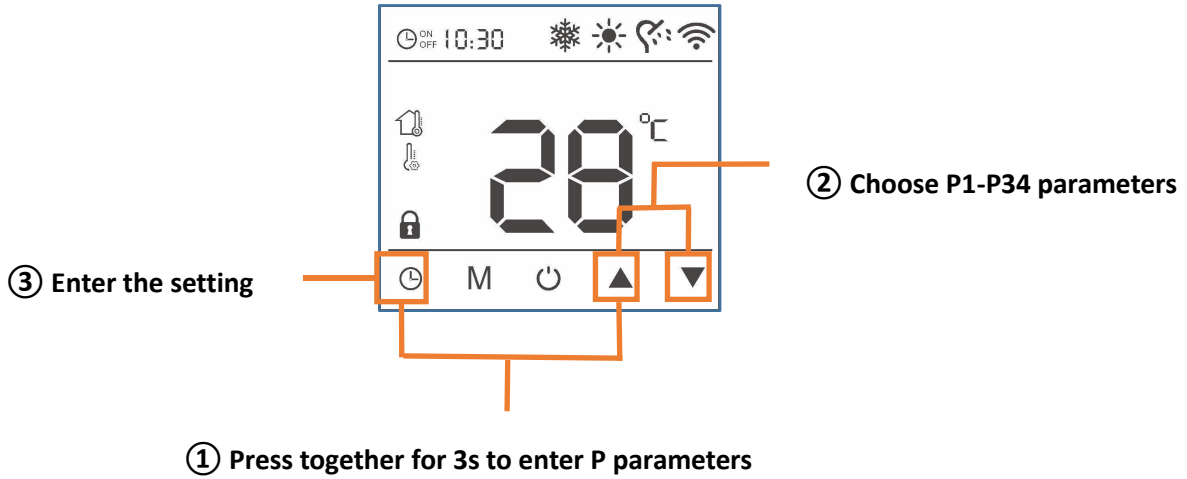
Notes:

- During the process of heating with the water tank electric heating, the "  " icon on the controller flashes, indicating that the target water temperature of the water tank is being heated up to 75°C ; until the heating process is finished, the "  " icon turns into a normally lit state.
- The sterilisation function is not performed when the tank temperature sensor is faulty.

5.6. PARAMETERS DATA

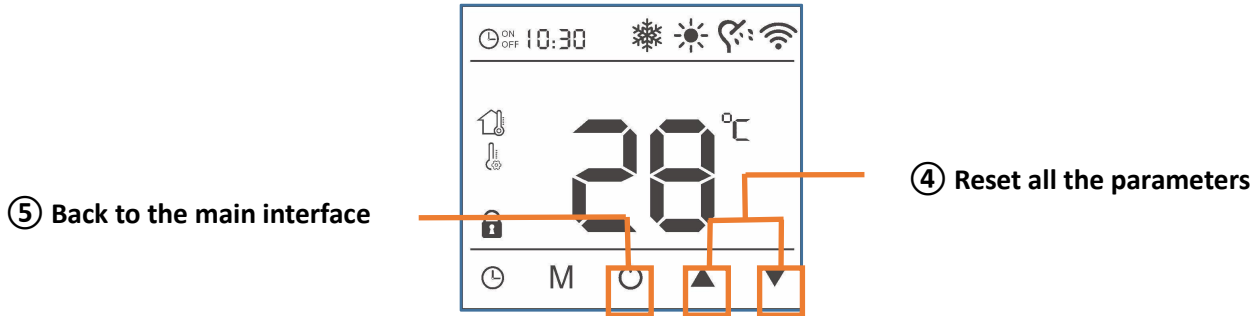
Parameters Setting

1/ P Parameter viewing and setting



2/Parameter reset

Press and hold the up ▲ and down ▼ buttons at the same time, when beep sound is heard, the parameters are reset and the default values are displayed.

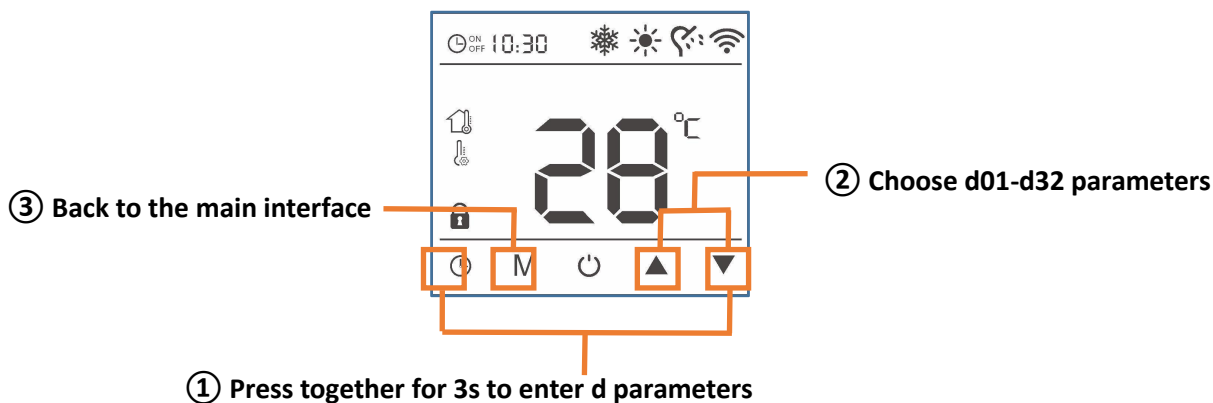


Parameter	Function Description	Optional range	Factory default
P1	Domestic water tank set temperature	20-60°C	55°C
P2	Space heating mode set temperature	15-60°C	40°C
P3	Space cooling mode set temperature	5-35°C	10°C
P4	Water tank heating start hysteresis	3-15°C	5°C
P5	Space mode start hysteresis	2-15°C	3°C

P6	Constant temperature difference (set the difference value between the set temperature and the actual temperature when the constant temperature is started)	0-6°C	2°C
P7	Electric heating on and off settings in space heating mode	0: automatic 1: off	0
P8	Electric heating start temperature	-30~15°C	-7°C
P9	Start time in electric heating does not heat up	2-90 minutes	30 minutes
P10	Maximum floor water outlet temperature in space heating	(MAX.TEMP) 25-67°C	60°C
P11	Critical temperature for the outdoor ambient temperature to be too low	-40-0°C	-30°C
P12	Defrost mode	0: Smart defrost/ 1: periodical defrost	1
P13	Defrost temperature setting	-15-2°C	-4°C
P14	Defrost exit temperature setting	8-20°C	15°C
P15	Defrost program interval	25-70 minutes	40 minutes
P16	Duration of defrosting process	2-20 minutes	12 minutes
P17	Tank temperature compensation	-5-5°C	0°C
P18	Temperature compensation of outlet and inlet water	-5-5°C	0°C
P19	Pump control when reach target temperature in space mode	0: Always on/ 1: Turn on the water pump at intervals after reaching the target temperature	0
P20	Model parameter selection: 1: Domestic water tank model 2: Space heating model 3: Domestic water tank heating and space heating model 4: Space cooling model 5: Domestic water tank heating and space cooling model 6: Space heating or cooling model 7: Domestic water tank heating and space heating or cooling model	1; 2; 3; 4; 5; 6; 7	7
P21	Turn on the pump manually, only	0: off	Power on or

	valid in off state of the controller	1: Turn on the water pump forcibly	switch off the machine to release the settings
P22	Phase sequence protection	0 ~ 1 (0: off, 1: on)	0
P23	Weather compensation mode ON/OFF	0 ~ 1 (0: off, 1: on)	1
P24	Curve adjustment parameter 1	-10 ~ 10°C	0°C
P25	Curve adjustment parameter 2	30 ~ 45°C	30°C
P26	Heating types	0: Water tank heating 1: Pool Heating	0
P27	Maximum frequency limit for pool heating	30 ~ 100Hz	75
P28	Pool heating return air superheat temperature	-10 ~ 10°C	3°C
P29	Power compensation value	-40 ~ 200(*10W)	20
P30	Water flow rate setting	0.1 ~ 5.0 m3/H	1.2
P31	Correction parameter for temperature difference between inlet and outlet water	-9.9 ~ 9.9°C	0.0°C
P32	Sterilization function cycle days setting	0 ~ 30 days	14 days
P33	Sterilization runtime	0 ~ 23 hours	1 hour
P34	Sterilization target water temperature setting	60 ~ 90°C	75°C

Parameters Checking



Parameter	Parameter Description
d01	Frequency
d02	Current
d03	Water in temperature
d04	Domestic tank temperature
d05	Water pipe temperature
d06	/
d07	Exhaust temperature
d08	Ambient temperature
d09	Evaporator temperature
d10	Return temperature
d11	Temperature after throttling
d12	Electronic expansion valve opening (displayed as actual opening angle)
d13	Protection code
d14	Shutdown code
d15	Shutdown time (last shutdown time, minutes)
d16	Outdoor fan speed (actual value*10)
d17	Target frequency
d18	EVI electronic expansion valve opening (displayed as actual opening angle)
d19	IPM module temperature
d20	WIFI connection status: 0, 1, 6: configuration status; 2: configured; 3: connected to the router; 4: connected to the cloud;

	5: low power mode
d21	Economizer inlet temperature
d22	Economizer outlet temperature
d23	/
d24	/
d25	Operating hours
d26	Operating days
d27	DC voltage
d28	AC input voltage
d29	Fan motor output power
d30	Compressor phase voltage
d31	Compressor phase current
d32	Remote signal strength

5.7. Display function description

- The screen will light up on first power up. After normal display, it will keep the state of the last power-off. The set temperature, actual temperature on the main interface will switch automatically along with the operation mode change.

- In the water tank mode, the tank set temperature and the tank real-time temperature will be displayed. Use the up ▲ and down ▼ buttons in the main interface to adjust the tank set temperature.

- In the heating mode, the set temperature and the real-time temperature of the inlet water will be displayed. Use the up ▲ and down ▼ buttons in the main interface to adjust the set temperature.

- In cooling mode, the set temperature and the real-time temperature of the inlet water are displayed. Use the up ▲ and down ▼ buttons in the main interface to adjust the set temperature.

- In Space heating/cooling + Domestic water tank heating mode, the set temperature in space or water tank mode is displayed according to the actual operation mode, and the real-time temperature also displays the inlet water or water tank temperature according to the actual operation mode. In the power-on main interface, you cannot use the up ▲ and down ▼ buttons to adjust the set temperature.

- Backlight When user press any button of the controller, the backlight turns on, if there is no operation within 1 minute, the backlight turns off.

Note: In Space heating/cooling + Domestic water tank heating mode, the temperature display area first shows the temperature of the water tank, and when it reaches the target temperature, the temperature display area shows the actual inlet water temperature.

5.8. Memory function

The controller can memorize the on-off state, operation mode, parameter setting, the time of timer and clock. When the on-off state, operation mode, parameter setting and timing time are changed for 2 seconds, the controller will start to rewrite the EEPROM and store the data, the controller will process the state according to the last power outage.

Note: The controller will not memorize the functions setting of refrigerant recovery, mandatory defrosting, and manual water pump opening.

6. TROUBLESHOOTING

Error code	Description	Solution
E01	PCB/Controller EEPROM error	<ol style="list-style-type: none"> 1. Re-connect to the power and restart 2. Replace the controller 3. Replace the PCB
E02	Water cylinder temp sensor error	<ol style="list-style-type: none"> 1. Check the wiring of the sensor and terminal 2. Replace the sensor
E03	Water supply temp sensor error	<ol style="list-style-type: none"> 1. Check the wiring of the sensor and terminal 2. Replace the sensor
E04	Return water temp sensor error	<ol style="list-style-type: none"> 1. Check the connection of the sensor and terminal 2. Replace the sensor
E05	Evaporator temp sensor error	<ol style="list-style-type: none"> 1. Check the connection of the sensor and terminal 2. Replace the sensor
E06	Ambient temp sensor error	<ol style="list-style-type: none"> 1. Check the connection of the sensor and terminal 2. Replace the sensor
E07	Compressor exhaust temp sensor error	<ol style="list-style-type: none"> 1. Check the connection of the sensor and terminal 2. Replace the sensor
E08	PCB/Controller communication error	<ol style="list-style-type: none"> 1. Check if the signal cable disconnect 2. Replace the signal cable 3. Replace the controller 4. Replace the PCB
E09	/	/
E10	/	/
E11	Over current protection	<ol style="list-style-type: none"> 1. Check the fan motor output 2. Check the driver board if burned or not 3. Check the compressor earth line 4. Replace the driver board
E12	PCB module error	Replace the PCB
E13	High voltage/Low voltage protection	Check the voltage
E14	Water flow protection	<ol style="list-style-type: none"> 1. Water system stuck or not vacuumed, check the water system 2. Water flow switch failed, replace with a new one 3. Water pump failed, replace with a new one
E15	System high pressure protection	<p>If appear when start the hp,</p> <ol style="list-style-type: none"> 1. replace the PCB 2. replace the high pressure switch <p>If appear during running, please check,</p> <ol style="list-style-type: none"> 1. if the ventilation is OK

		2. if the water flow is sufficient
E19	Return temp sensor error	1. Check the wiring of the sensor and terminal 2. Replace the sensor
E20	Throttling temp sensor error	1. Check the wiring of the sensor and terminal 2. Replace the sensor
E21	High water temp protection in heating mode	Measure the real water out water temp to see if over the protection value. 1. Replace the temp sensor 2. Replace the PCB
E22	Low water temp protection in cooling mode	Measure the real water out water temp to see if over the protection value. 1. Replace the temp sensor 2. Replace the PCB
E23	Excessive temperature difference between inlet and outlet water protection	Measure the real water out water temp to see if over the protection value. 1. Replace the temp sensor 2. Replace the PCB
E24	/	/
E25	Anti frozen protection	Disappear when ambient temp rise up
E26	PCB/Driver board communication error	Replace the PCB
E27	System low pressure protection	1. Check the pressure gauge 2. Refill the gas to rated amount
E28	High exhaust temp protection	1. Check the water pump if normal running 2. Check the water flow is sufficient 3. Check the connection of water flow switch terminal 4. Replace the water flow switch
E29	Evaporator high temp protection in cooling mode	1. Check the ventilation 2. Check the fan speed 3. Replace the temp sensor 4. Replace the PCB
E30	Low ambient temp protection	Disappear when ambient temp rise up
E31	No.1 fan motor error	Fan motor stuck or failed, replace the fan motor
E33	Compressor fail to start error	1. Replace the compressor 2. Replace the PCB
E34	Compressor speed feedback error	1. Replace the compressor 2. Replace the PCB
E35	/	/
E36	IPM high temp protection	1. Check if high ambient temp 2. Check if low air volume

E37	Compressor over current protection	1. Check the water flow 2. Check the gas system if stuck
E38	U-phase over current protection	1. Check the compressor wires connection 2. Replace the compressor
E39	V-phase over current protection	1. Check the compressor wires connection 2. Replace the compressor
E40	W-phase over current protection	1. Check the compressor wires connection 2. Replace the compressor
E41	DC over voltage protection	1. Check the power supply 2. Replace the PCB
E42	DC under voltage protection	1. Check the power supply 2. Replace the PCB
E43	U-phase error protection	Check the compressor wiring
E44	V-phase error protection	Check the compressor wiring
E45	W-phase error protection	Check the compressor wiring
E46	U-phase offset fault	Check the compressor wiring
E47	V-phase offset fault	Check the compressor wiring
E48	W-phase offset fault	Check the compressor wiring
E49	Compressor stall error	1. Check the compressor terminal 2. Replace the driver board 3. Replace the compressor
E50	Compressor speed abnormal protection	1. Check if the compressor fail 2. Replace the driver board
E51	Compressor stuck error	1. Re-connect to the power and restart 2. Replace the compressor
E52	PFC over current protection	Replace the PCB
E53	PFC over voltage protection	Replace the PCB
E54	PFC over voltage protection	Replace the PCB
E55	PFC error	Replace the PCB
E56	Economizer inlet temp sensor error	1. Check the connection of the sensor and terminal 2. Replace the sensor
E57	Economizer outlet temp sensor error	1. Check the connection of the sensor and terminal 2. Replace the sensor
E58	PFC data loading error	1. Re-connect to the power and restart 2. Replace the PCB
E59	Driver data loading error	1. Re-connect to the power and restart 2. Replace the PCB
E60	DC voltage feedback over voltage protection	1. Re-connect to the power and restart 2. Replace the PCB

E64	Driver communication disconnect	1. Re-connect to the power and restart 2. Replace the PCB
E65	Driver execution overload	1. Re-connect to the power and restart 2. Replace the PCB
E94	Reserved	/
E95	NO.2 fan motor error	Fan motor stuck or failed, replace the fan motor
E96	Reserved	/
E97	Reserved	/
E98	Reserved	/
E99	Reserved	/


7. APP CONNECTION

7.1. TUYA WIFI APP "Download"

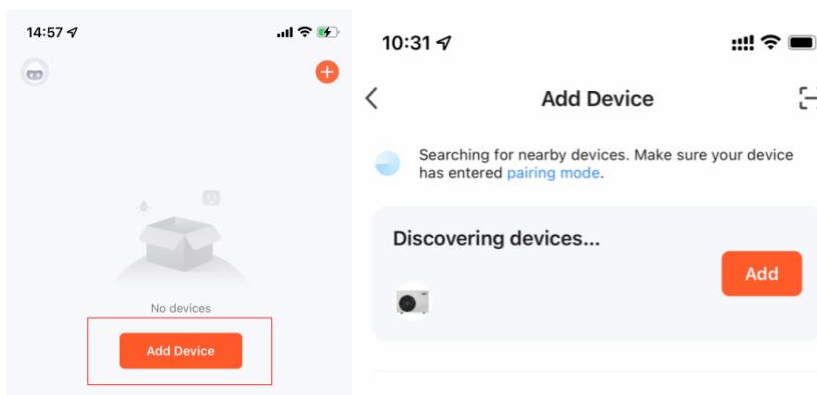
Download "TUYA" APP from GOOGLE PLAY for Android or APP STORE for iPhone.

7.2. CONNECTION

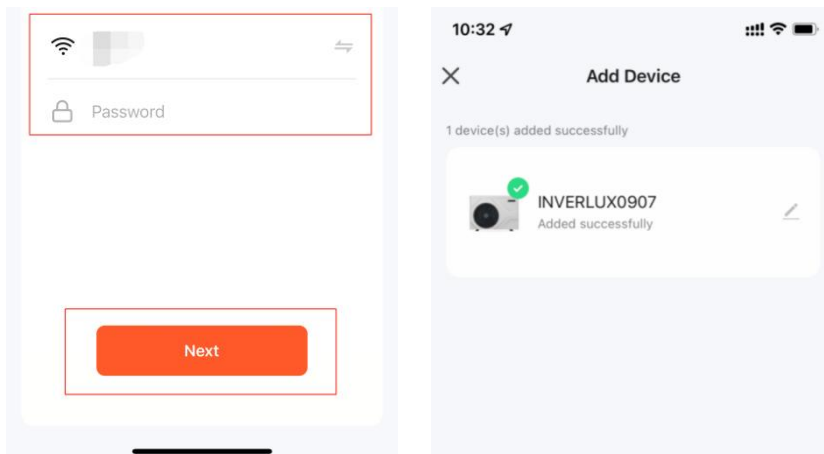
Make sure your smart phone is under 2.4 GHz wireless network signal and your heat pump device is on to use TUYA and follow instruction as below.

7.2.1. Keep pressing the mode selection button **M** and down **▼** buttons on the control panel until you see the WIFI icon  is flicking, that means the heat pump is waiting for the connection of WIFI.

7.2.2. Press "Add Device", and the heat pump will auto detected by the app, then please add your heat pump device.



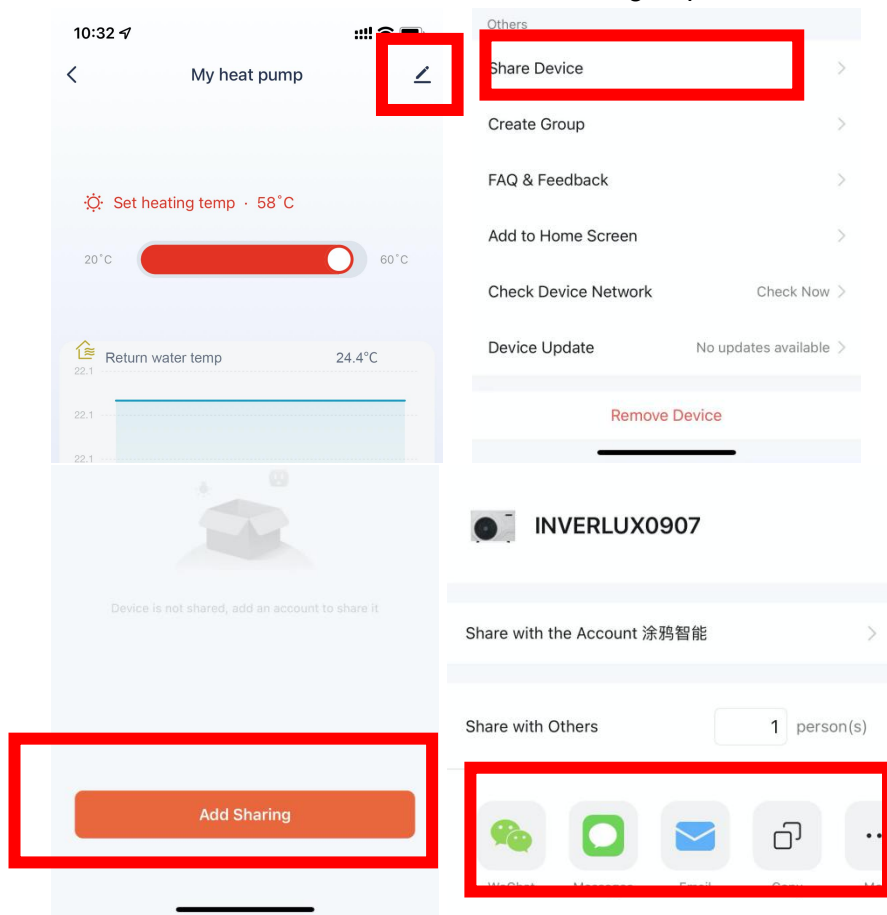
Select 2.4 GHz WIFI Network and enter password. If your device is on, press Next directly, and it will connect the heat pump successfully.



7.3. CONNECTION SHARE

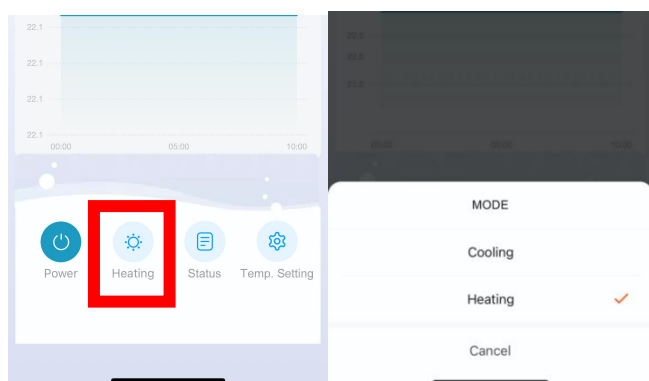
Users who have successfully connected can freely share the link of the machine, so that other members can also control it through their mobile phone.

7.3.1. Use "Share Device" function and create a group to share the connection.



7.3.2. Operating mode, target temperature and work status control

- Turn on/off the heat pump by pressing "power".
- Adjust the target temperature by dragging the right end of the temperature bar around the temperature dial. Temperature regulation accuracy is $\pm 0.1^{\circ}\text{C}$.
- Changing work status by choosing "Heating" "Cooling".



7.3.3. Status of the heat pump

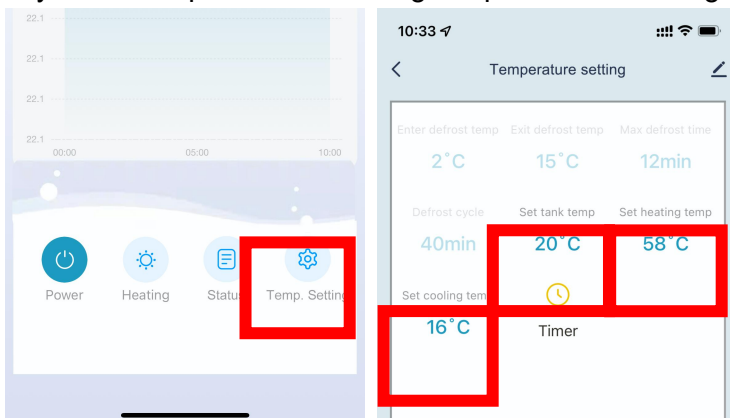
The real-time status of heat pump can be queried through the "status" interface.



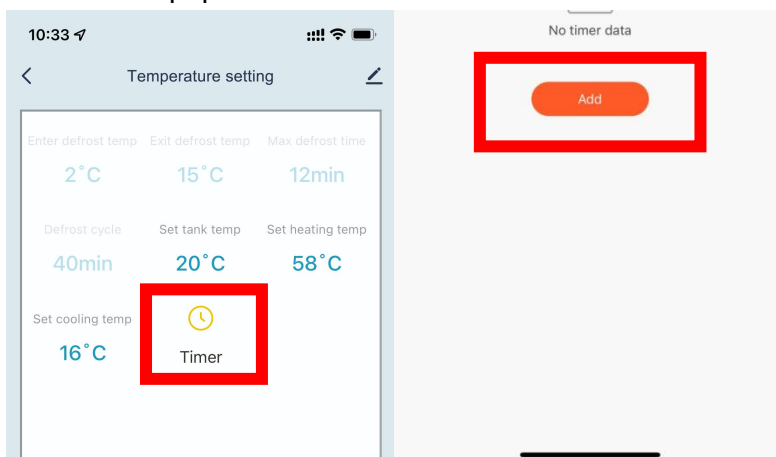
7.3.4. Status of the heat pump

Press the "setting" button and enter the setting interface.

Only "Tank temperature" "Heating temperature" "Cooling temperature" can be adjusted.

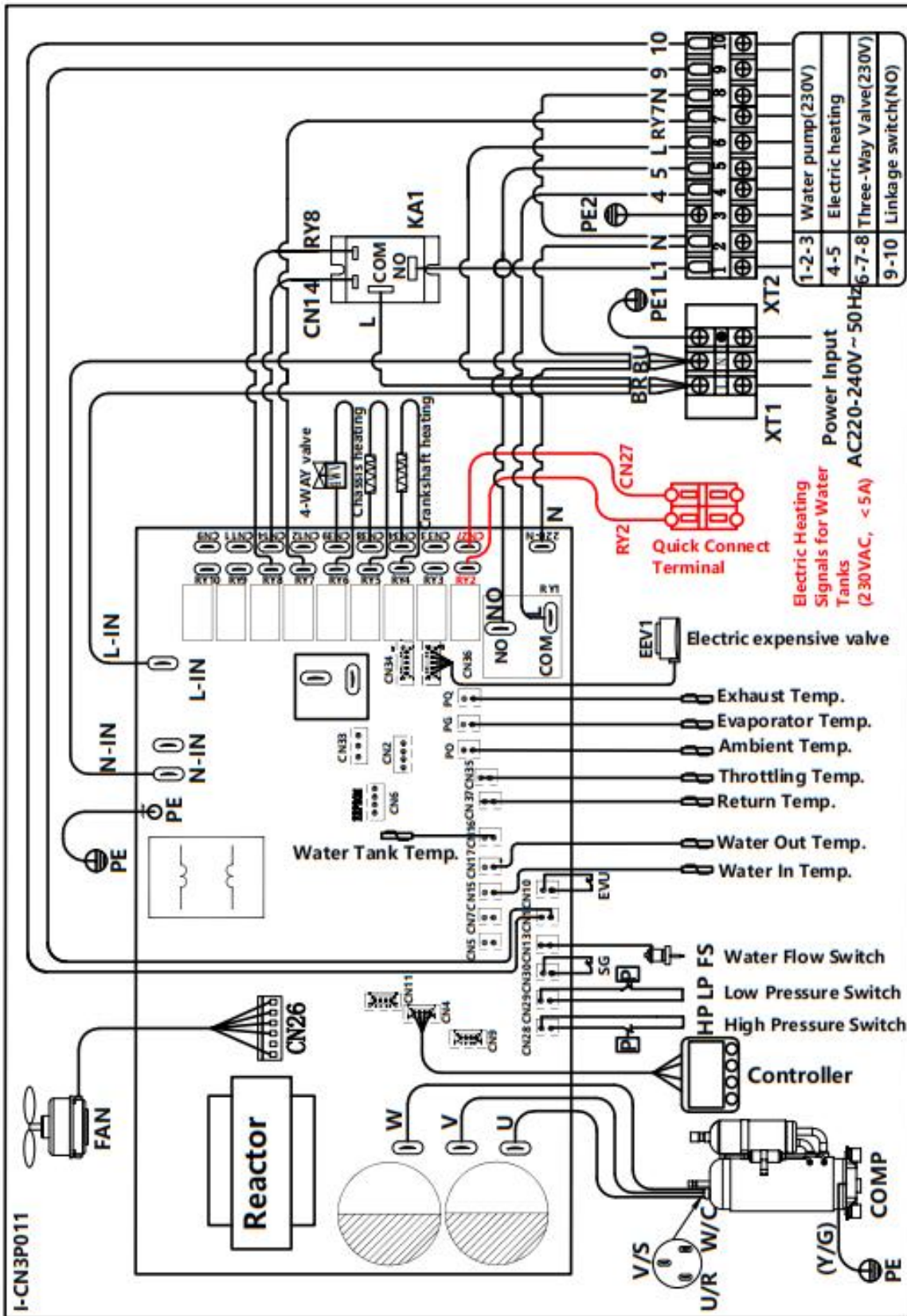


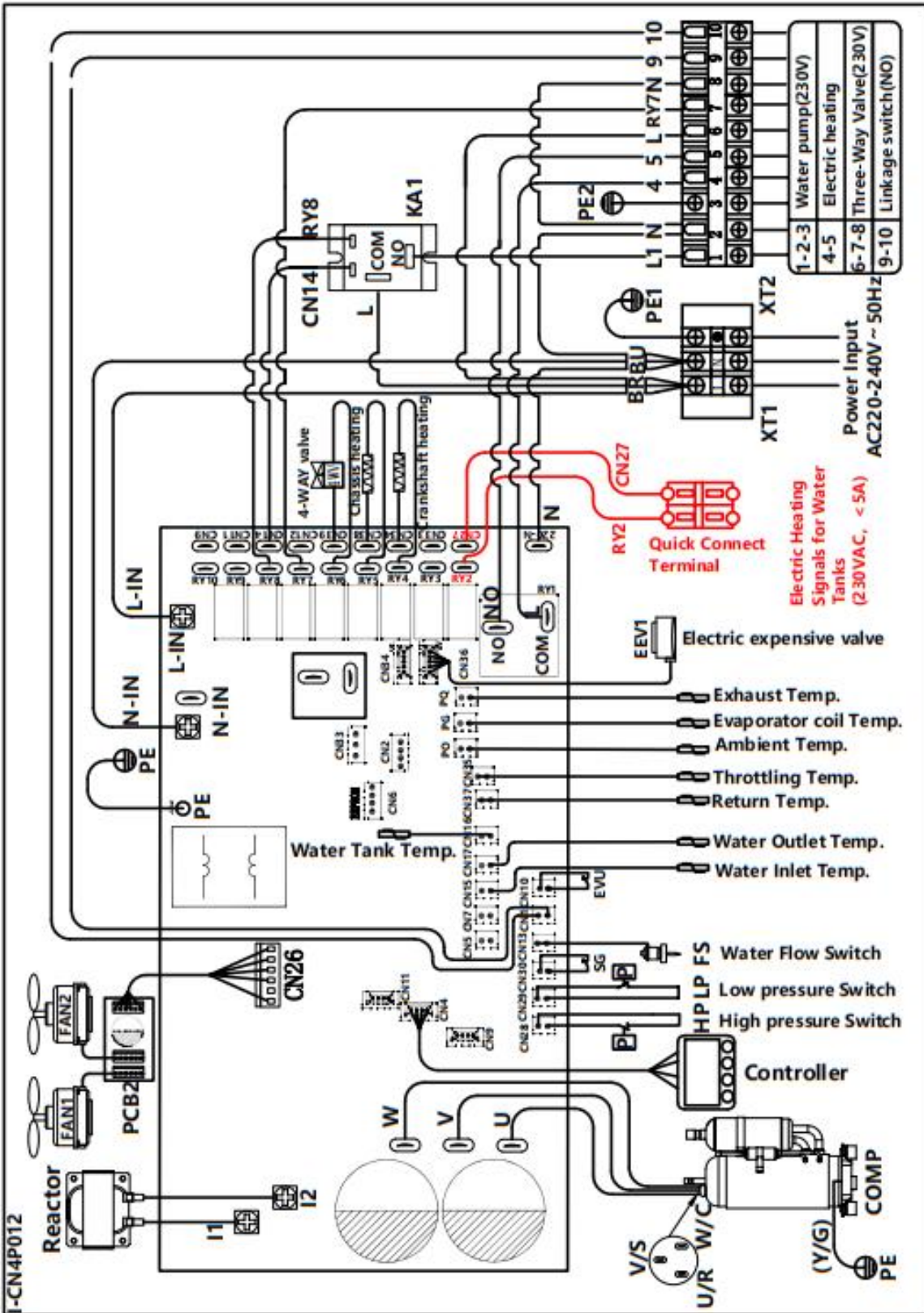
- Timer set up: press the "Timer".

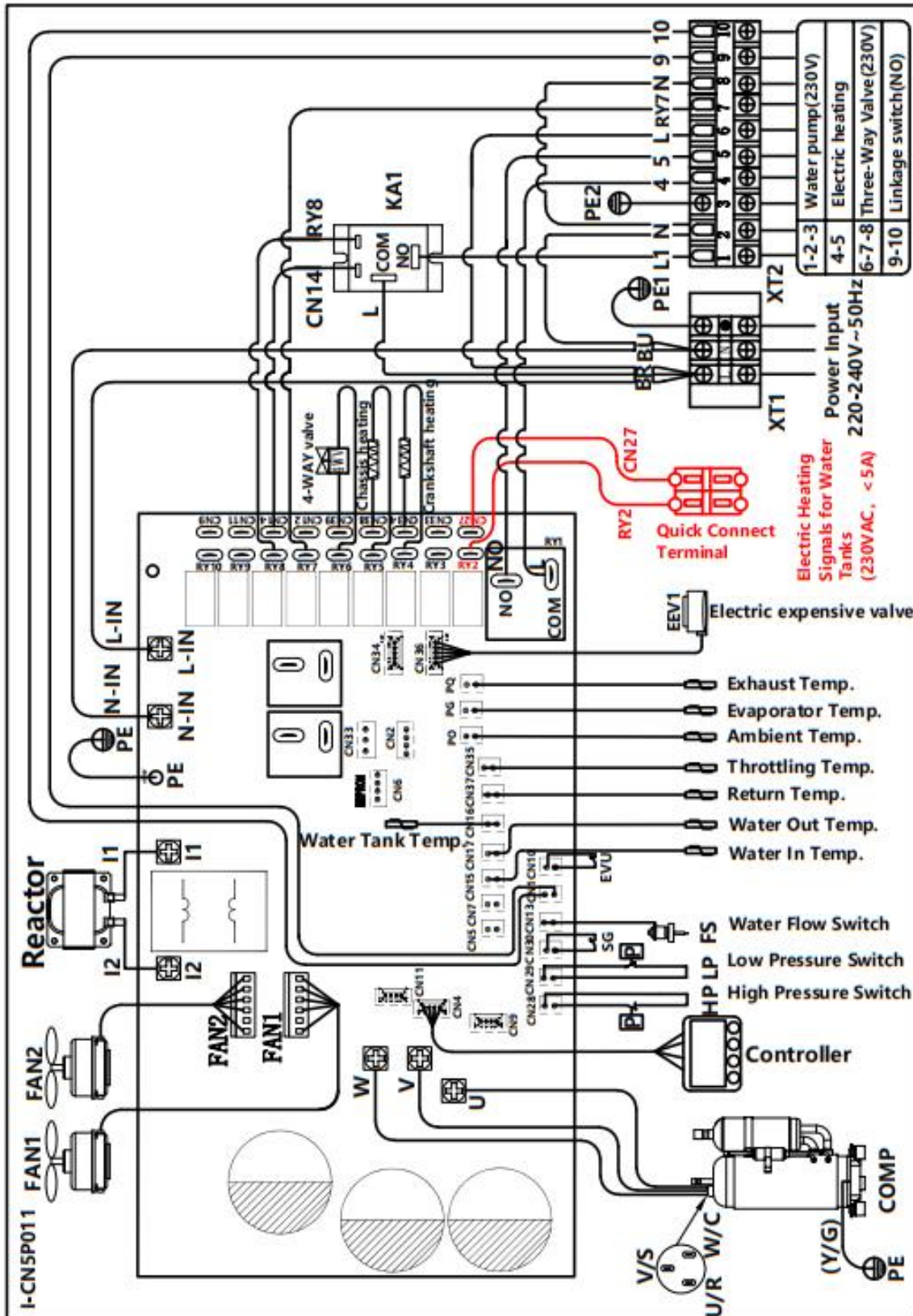


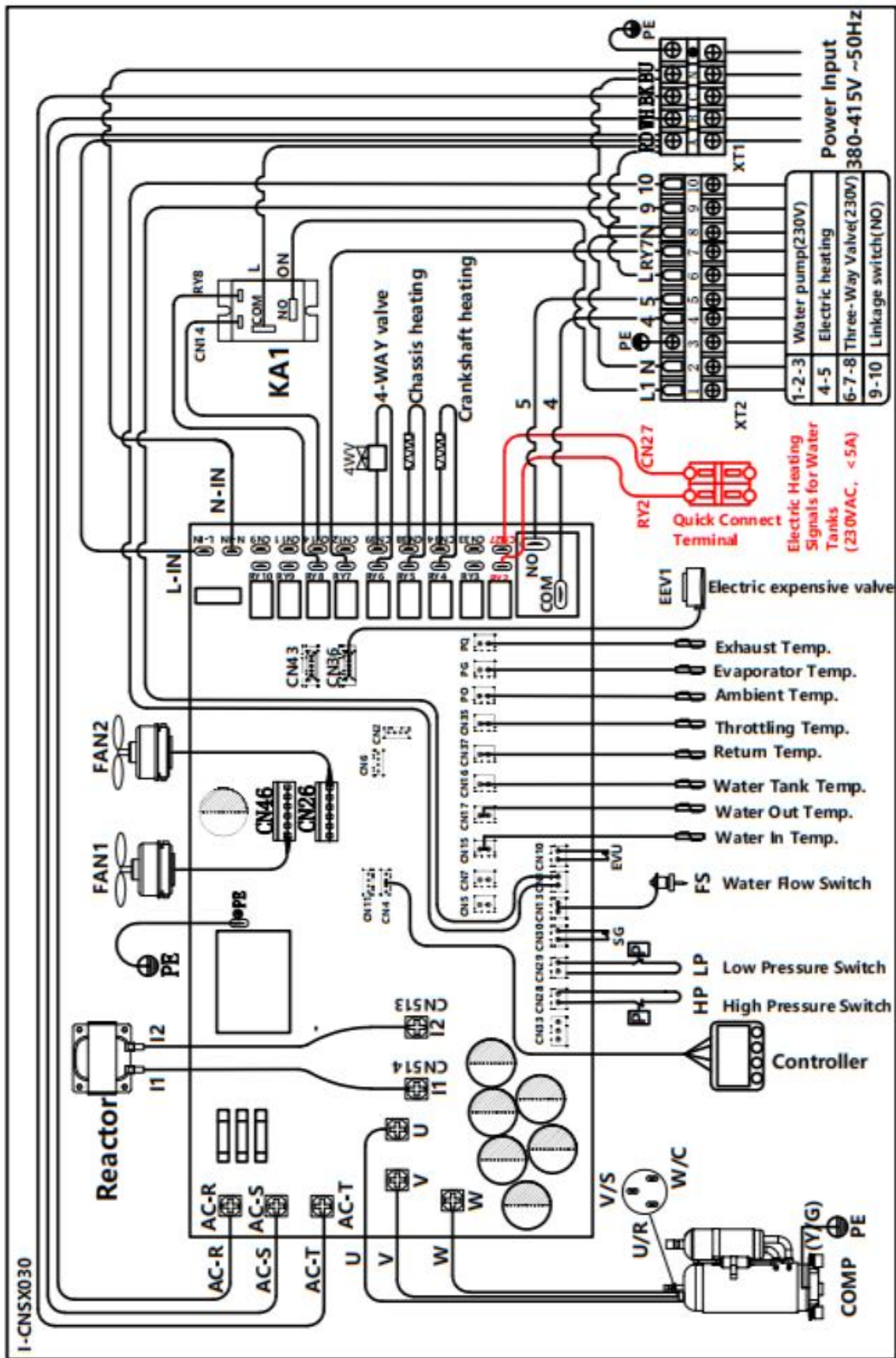
8. ELECTRONIC CARD

Model: ALSAVO HEAT 07i/ALSAVO HEAT 10i









Note:



- 1) Must be hard wired, plug is not allowed. Must comply with 60245 IEC57.
- 2) The heat pump must be earthed well.
- 3) means for disconnection must be incorporated in the fixed wiring in accordance with the wiring.
- 4) The machine is connected to the fixed wiring by a set of power supply cords, which must be connected and installed with an all-pole disconnection device whose contact opening distance meets the condition of overvoltage class III.

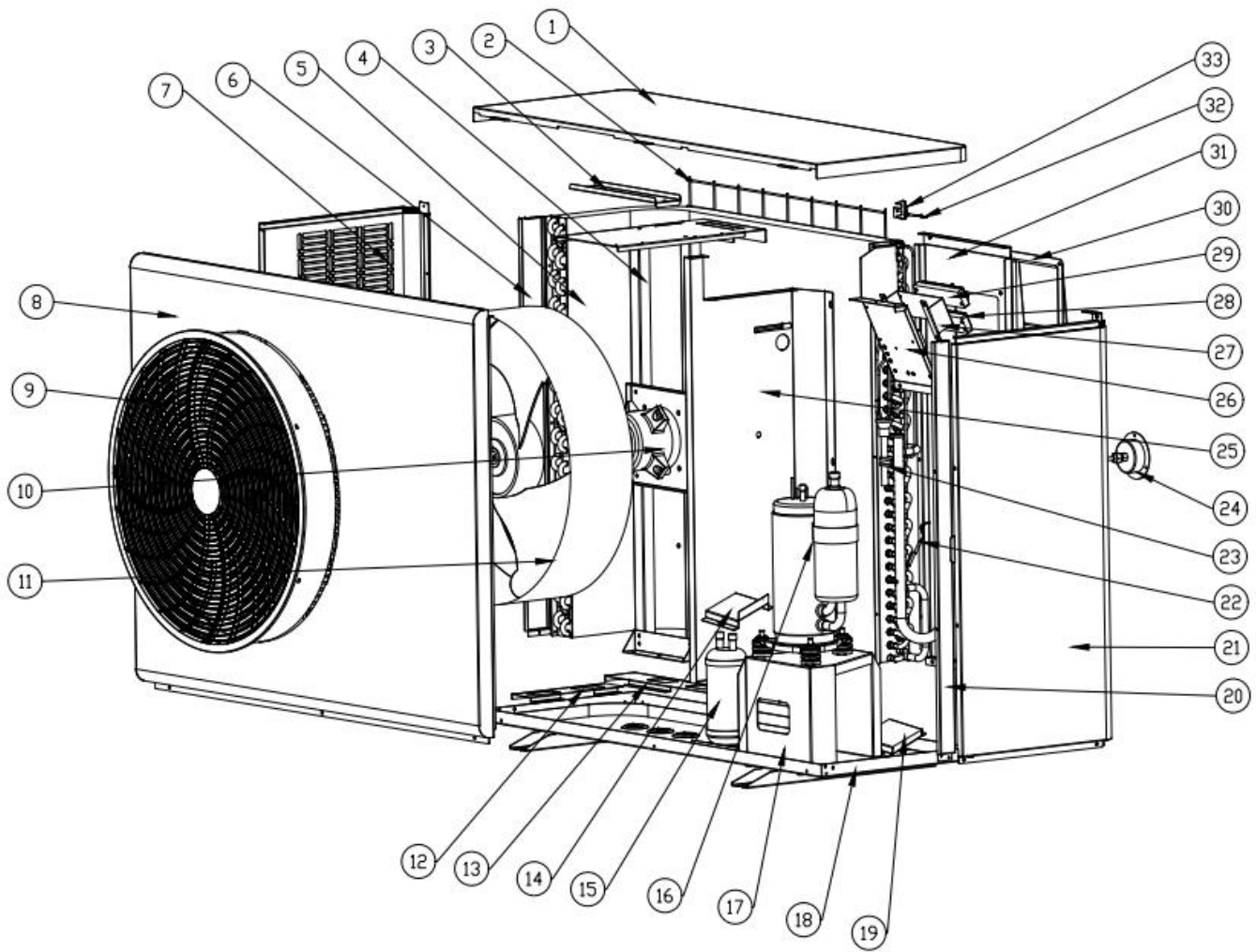
References for protecting devices and cable specification

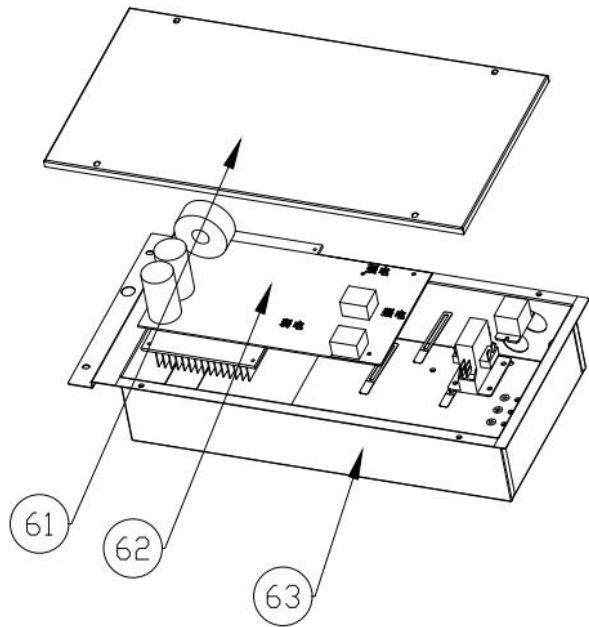
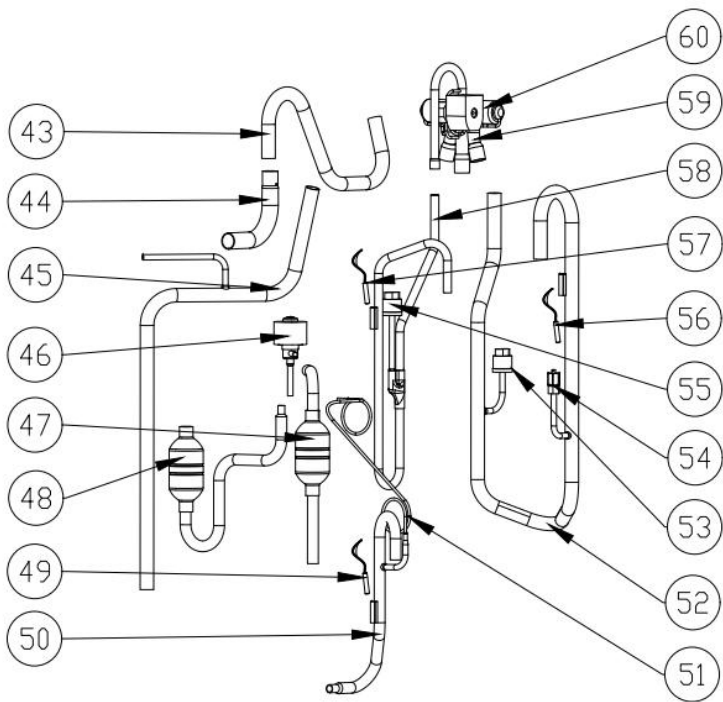
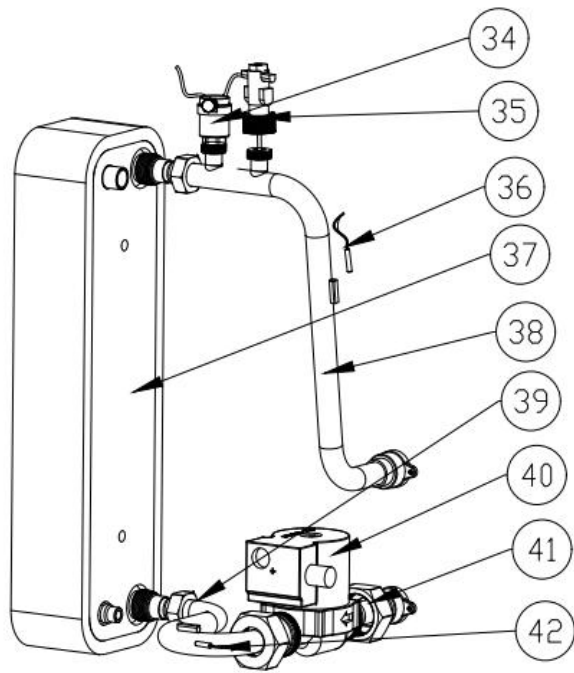
Model	Rated current	Fuse	Power Cord	Recommended RCD
ALSAVO HEAT 07i	14A	17A	3 x 2.5mm ²	30mA
ALSAVO HEAT 10i	16A	20A	3 x 4mm ²	30mA
ALSAVO HEAT 12i	23A	28A	3 x 4mm ²	30mA
ALSAVO HEAT 16i	26A	32A	3 x 6mm ²	30mA
ALSAVO HEAT 12iT	12A	15A	5 x 2.5mm ²	30mA
ALSAVO HEAT 16iT	12A	15A	5 x 2.5mm ²	30mA

※ Above data is subject to modification without notice.

9. EXPLODED VIEW

Schema: ALSAVO HEAT 07i

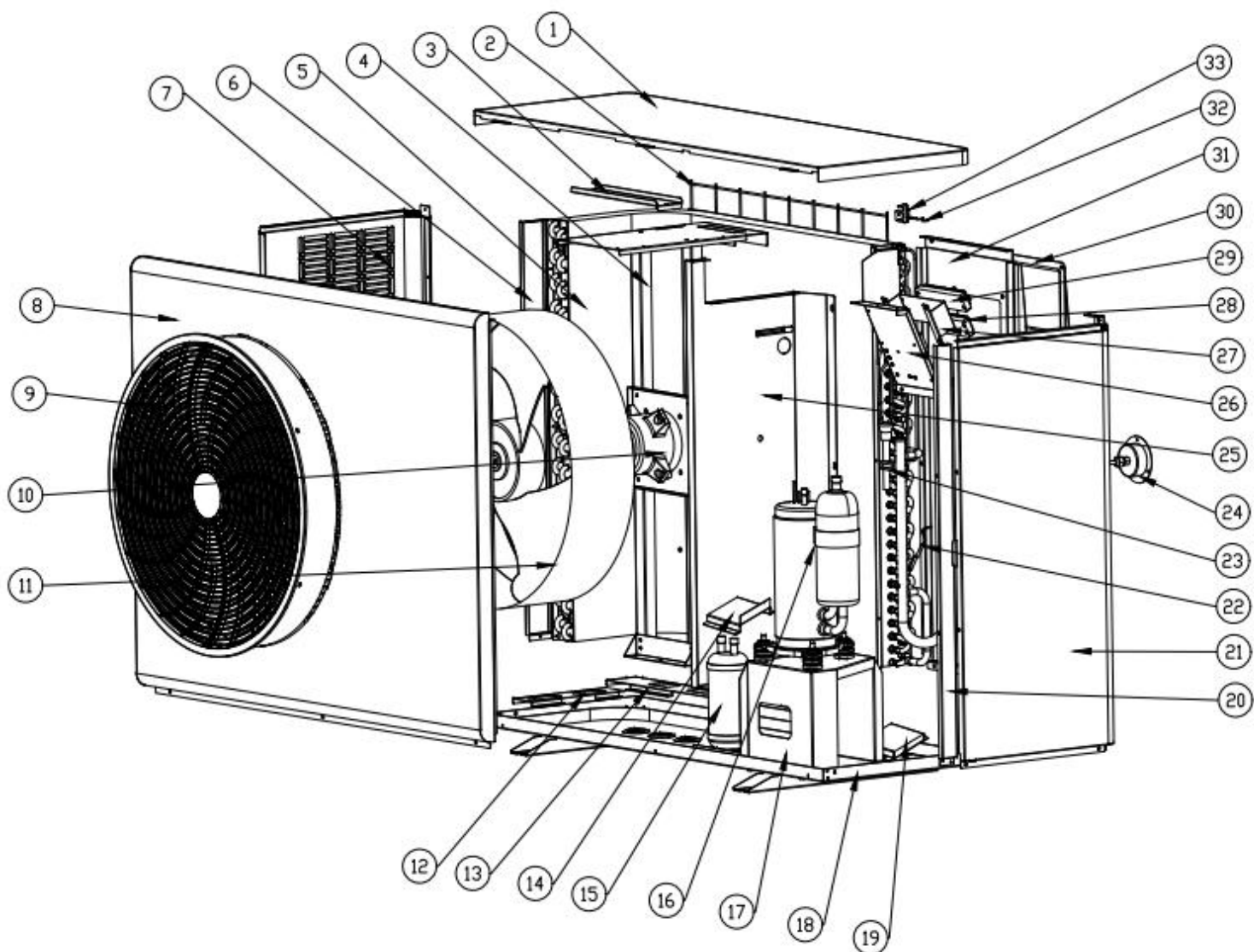


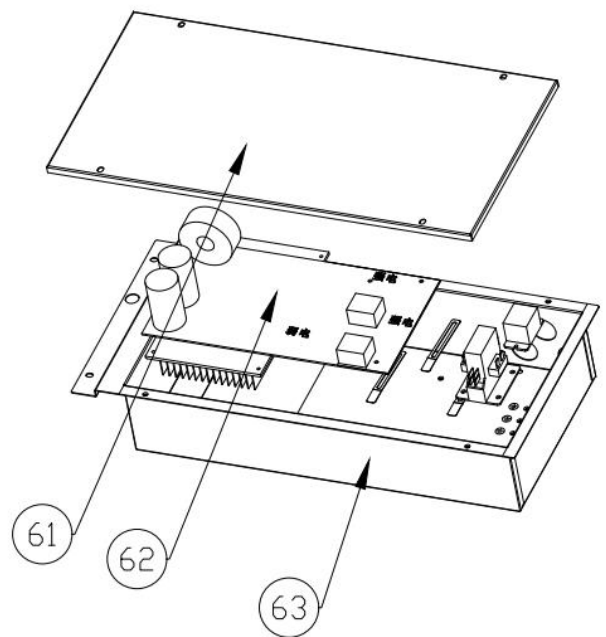
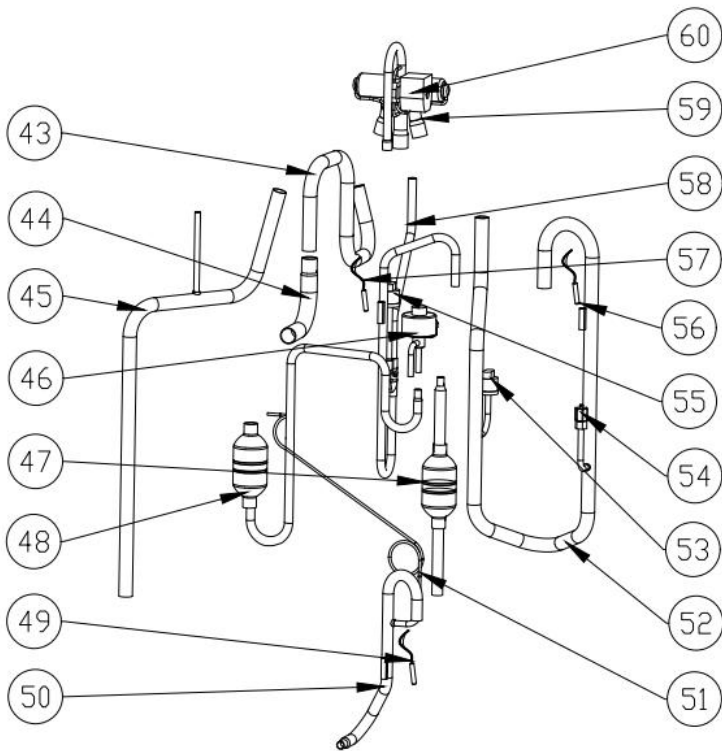
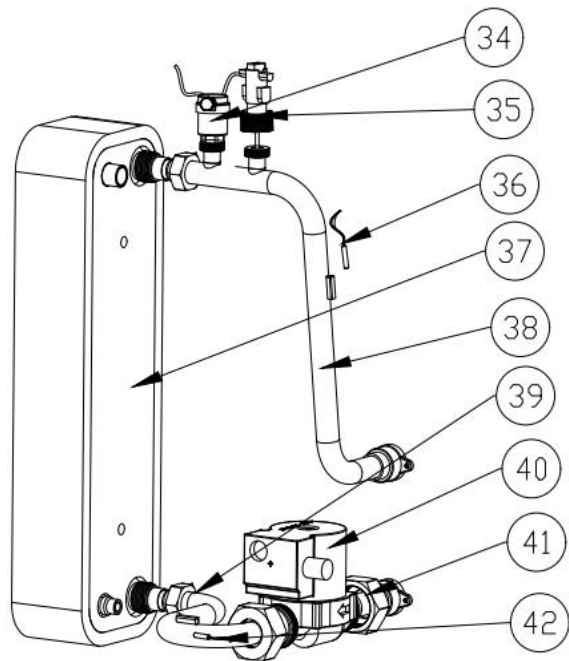


Parts: ALSAVO HEAT 07i

NO.	ERP	Part Name	NO.	ERP	Part Name
1	108540174-1	Top cover	33	133020010	Ambient temperature clip
2	108540076	Back grille	34	120000126	Exhaust Valve
3	108540125	Support plate	35	116000118	Water flow switch
4	108540136	Motor bracket	36	117110182	Water out temp sensor
5	103000423	Evaporator	37	102030014	Plate heat exchanger
6	108540141	Evaporator plate	38	113560026	Pipe
7	108540176-1	Left panel	39	113560010	Pipe
8	108540147-1	Front Panel	40	107000031	Water pump
9	133020079	Ventilation	41	113560011	Pipe
10	112000031	Fan motor	42	117110181	Water in temp sensor
11	132000023	Fan blade	43	113210011	Pipe
12	108540142	Evaporator support plate 1	44	113320017	Pipe
13	108540143	Evaporator support plate 2	45	113060238	Pipe
14	108540140	Heat exchanger support plate	46	119000056	EEV
15	105000004	Reservoir	47	113120088	Pipe
16	101000223	Compressor	48	113080170	Pipe
17	108540144	Compressor support plate	49	117110186	Throttling temp sensor
18	108540155	Base plate	50	113320025	Pipe
19	108540156	Water pump bracket	51	109000038	Capillary
20	108540139	Pillar	52	113020735	Gas return pipe
21	108540177-1	Right panel	53	116000122	Low Pressure Switch
22	117110181	Evaporator temp. sensor	54	120000097	Gas valve
23	136020005	Rubber	55	116000120	high voltage switch
24	106000012	Pressure gauge	56	117110185	Return temp sensor
25	108540171	Isolation plate	57	117110184	Exhaust temp sensor
26	108470160	Terminal plate	58	113010488	Exhaust pipe
27	108470161	Terminal frame	59	121000024	Four-way valve
28	115000070	Terminal	60	121000037	Four-way valve wiring
29	115000025	Terminal	61	108540138	Electric control box cover
30	133030022	Wiring cover	62	117100100	PCB
31	108540175-1	Back panel	63	108540137	Electric control box cover
32	117110183	Ambient temp sensor			

Schema: ALSAVO HEAT 10i

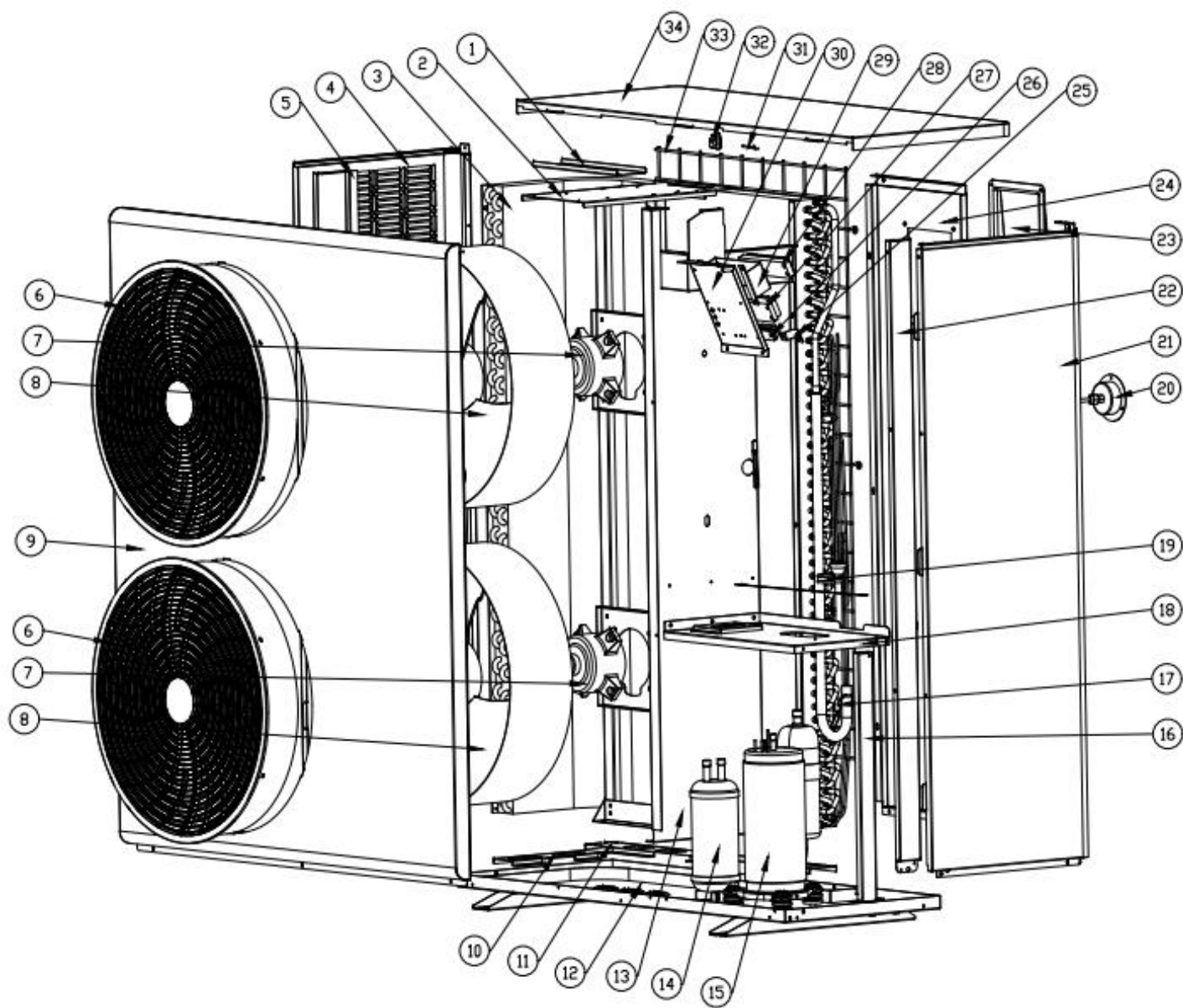


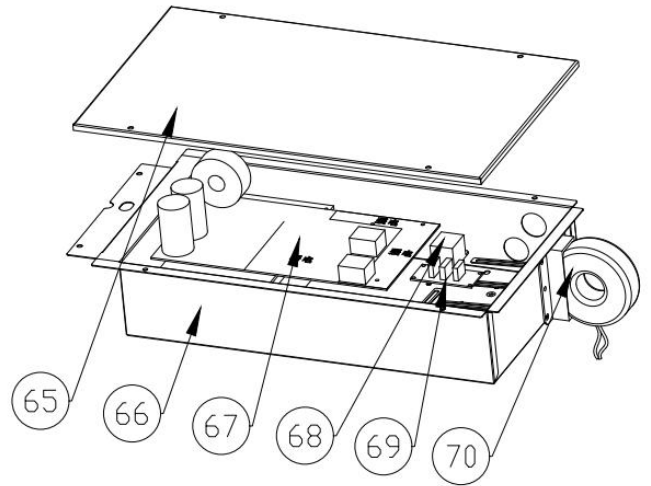
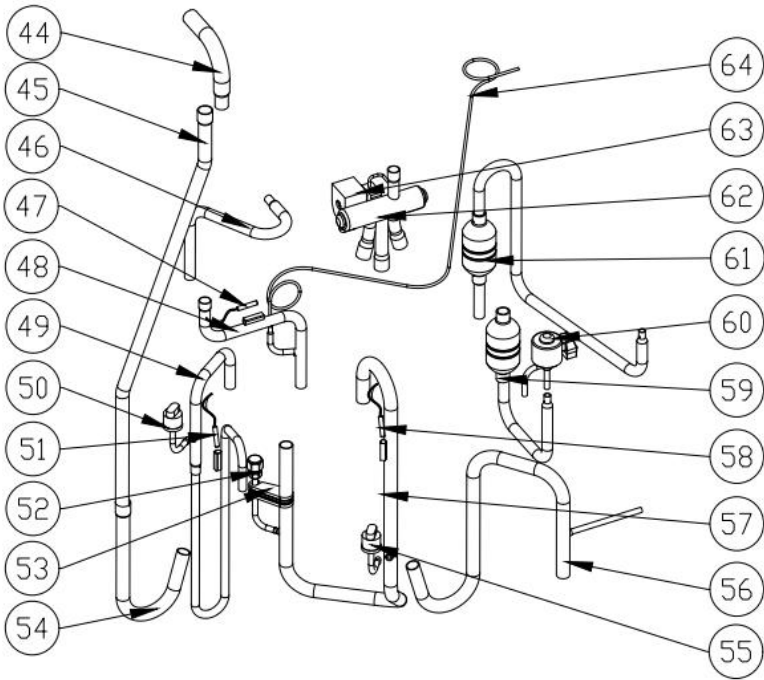
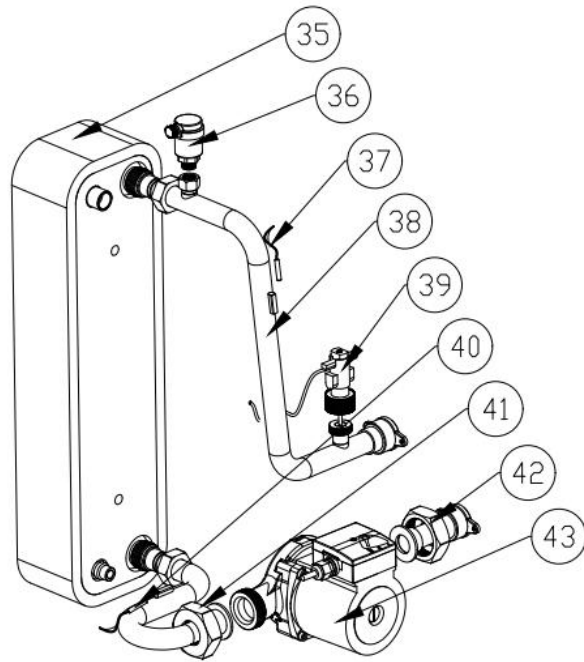


Parts: ALSAVO HEAT 10i

NO.	ERP	Part Name	NO.	ERP	Part Name
1	108540174-1	Top cover	33	133020010	Ambient temperature clip
2	108540076	Back grille	34	120000126	Exhaust Valve
3	108540125	Support plate	35	116000118	Water flow switch
4	108540136	Motor bracket	36	117110182	Water out temp sensor
5	103000423	Evaporator	37	102030014	Plate heat exchanger
6	108540141	Evaporator plate	38	113560026	Pipe
7	108540176-1	Left panel	39	113560010	Pipe
8	108540147-1	Front Panel	40	107000031	Water pump
9	133020079	Ventilation	41	113560011	Pipe
10	112000031	Fan motor	42	117110181	Water in temp sensor
11	132000023	Fan blade	43	113210011	Pipe
12	108540142	Evaporator support plate 1	44	113320017	Pipe
13	108540143	Evaporator support plate 2	45	113060238	Pipe
14	108540140	Heat exchanger support plate	46	119000056	EEV
15	105000004	Reservoir	47	113120075	Pipe
16	101000267	Compressor	48	113080170	Pipe
17	108540144	Compressor support plate	49	117110186	Throttling temp sensor
18	108540155	Base plate	50	113320025	Pipe
19	108540156	Water pump bracket	51	109000038	Capillary
20	108540139	Pillar	52	113020735	Gas return pipe
21	108540177-1	Right panel	53	116000122	Low Pressure Switch
22	117110181	Evaporator temp. sensor	54	120000097	Gas valve
23	136020005	Rubber	55	116000120	high voltage switch
24	106000012	Pressure gauge	56	117110185	Return temp sensor
25	108540171	Isolation plate	57	117110184	Exhaust temp sensor
26	108470160	Terminal plate	58	113010488	Exhaust pipe
27	108470161	Terminal frame	59	121000024	Four-way valve
28	115000070	Terminal	60	121000037	Four-way valve wiring
29	115000025	Terminal	61	108540138	Electric control box cover
30	133030022	Wiring cover	62	117100100	PCB
31	108540175-1	Back panel	63	108540137	Electric control box cover
32	117110183	Ambient temp sensor			

Schema: ALSAVO HEAT 12i

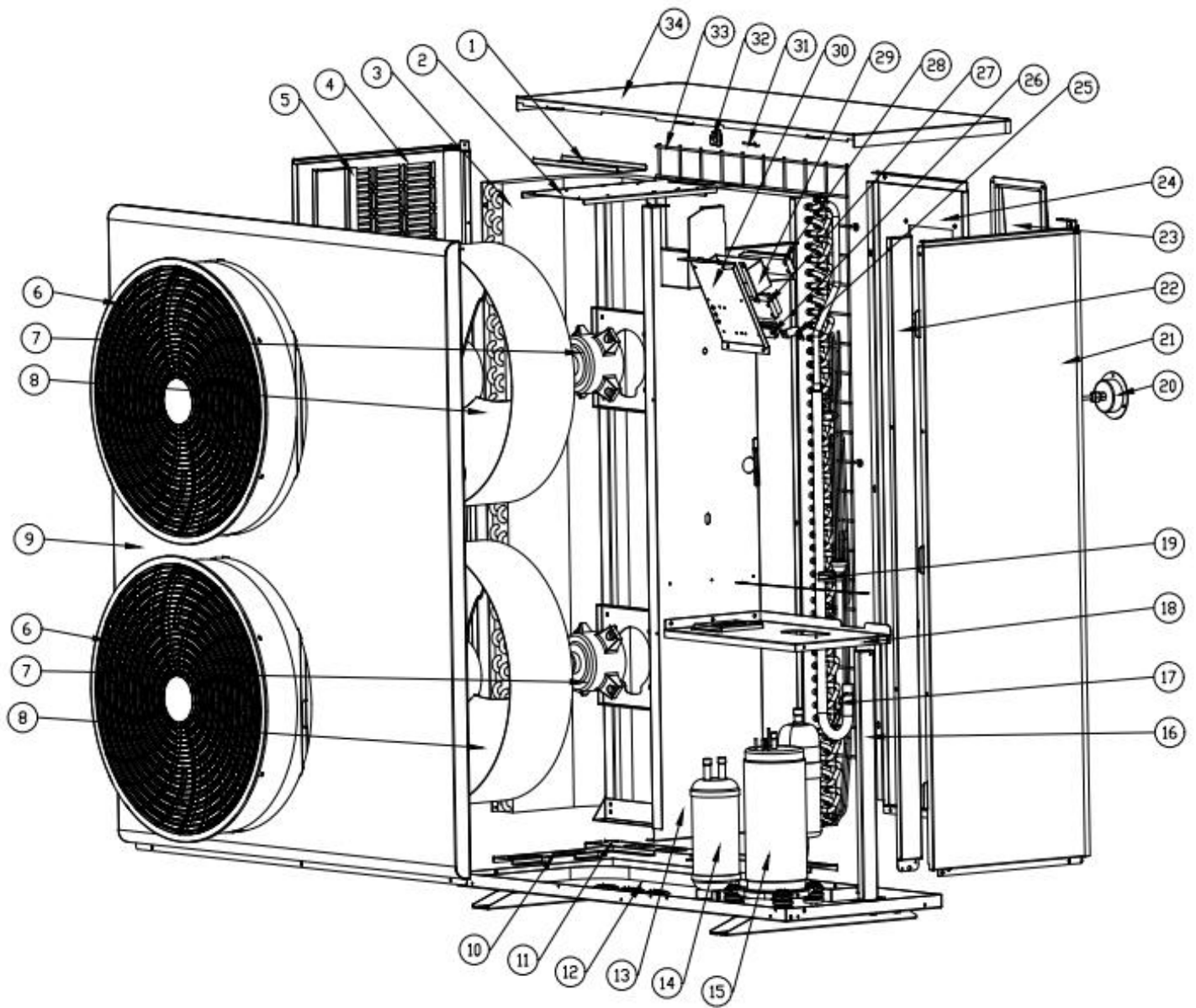


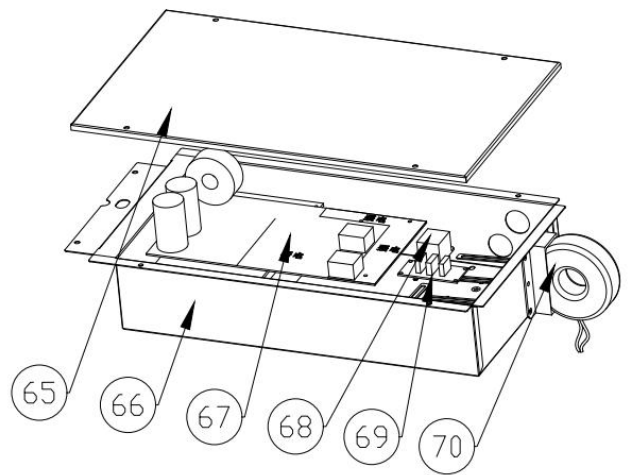
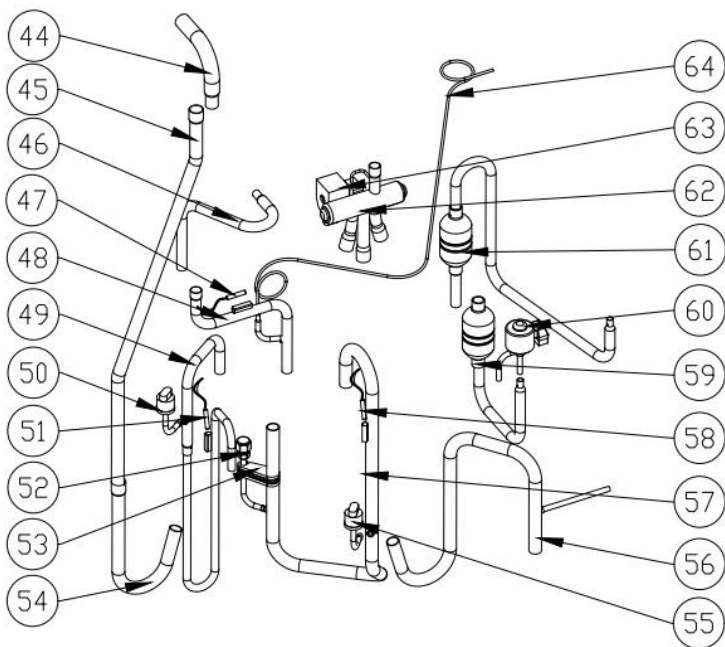
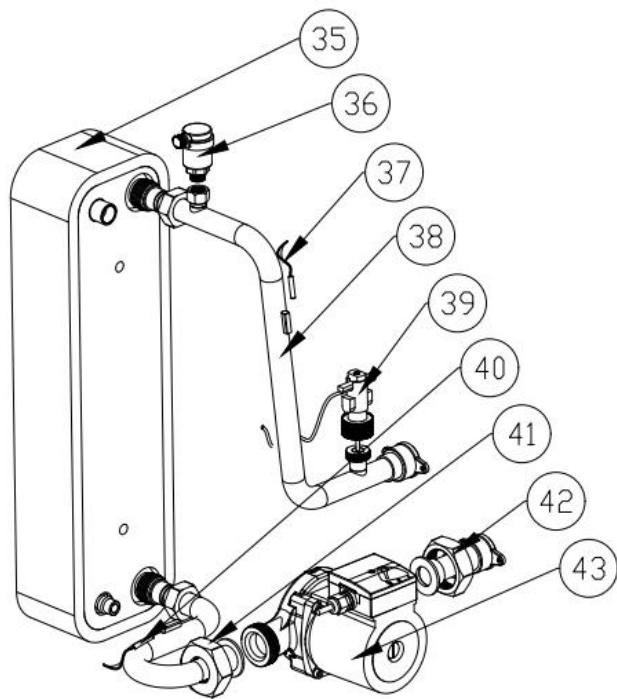


Parts: ALSAVO HEAT 12i

NO.	ERP	Part Name	NO.	ERP	Part Name
1	108470197	Support plate	36	120000126	Exhaust valve
2	108470215	Motor bracket	37	117110192	Water out temp sensor
3	103000429	Evaporator	38	113560028	Pipe
4	108470206-1	Left panel	39	116000118	Water flow switch
5	108470162	Evaporator plate	40	117110191	Water in temp sensor
6	133020078	Ventilation	41	113560027	Pipe
7	112000031	Fan motor	42	113560011	Pipe
8	132000015	Fan blade	43	107000032	Circulation pump
9	108470207-1	Front panel	44	113320023	Pipe
10	108470164	Evaporator plate	45	113210015	Pipe
11	108540143	Evaporator support plate 2	46	113320043	Pipe
12	108470200	Base plate	47	117110195	Throttling temp sensor
13	108470194	Isolation plate	48	113220013	Pipe
14	105000015	Reservoir	49	113010509	Exhaust pipe
15	101000267	Compressor	50	116000121	High pressure switch
16	108470202	Right support plate	51	117110193	Exhaust temp sensor
17	117110191	Evaporator temp. sensor	52	120000097	Gas valve
18	108470196	Plate exchanger support plate	53	136020154	Pipe fixing block
19	136020005	Rubber	54	113210014	Pipe
20	106000012	Pressure gauge	55	116000122	Low pressure switch
21	108470203-1	Right panel	56	113020741	Pipe
22	108470170	Pillar	57	113020771	Gas return pipe
23	133030022	Wiring cover	58	117110194	Return temp sensor
24	108470205-1	Back panel	59	113120093	Pipe
25	136010004	Crimping clip	60	119000079	EEV
26	108010086	Crimping clip	61	113080169	Pipe
27	115000025	Terminal	62	121000028	Four-way valve
28	115000070	Terminal	63	121000038	Four-way valve coil
29	108470160	Terminal plate	64	109000116	Capillary
30	108470161	Terminal frame	65	108470176	Electric control box cover
31	117110183	Ambient temp sensor	66	108470193	Electronic control box
32	133020010	Ambient temperature sensor clip	67	117100098	PCB
33	108470014	Back grille	68	142000038	30A air conditioning relay
34	108470204-1	Top cover	69	117010081	Distribution boards 1-2
35	102030016	Plate heat exchanger	70	117220006	PFC inductor

Schema:ALSAVO HEAT 16i

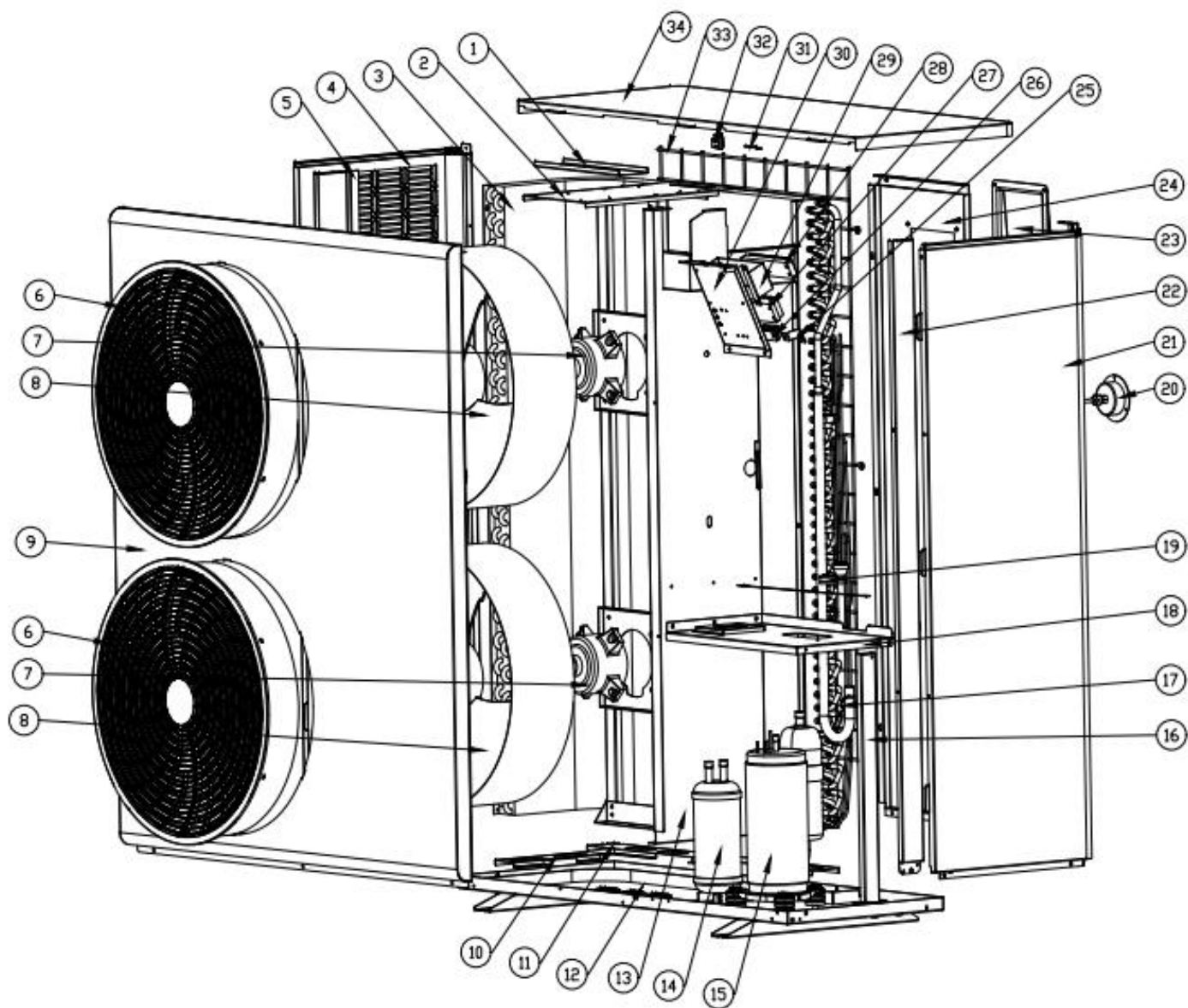


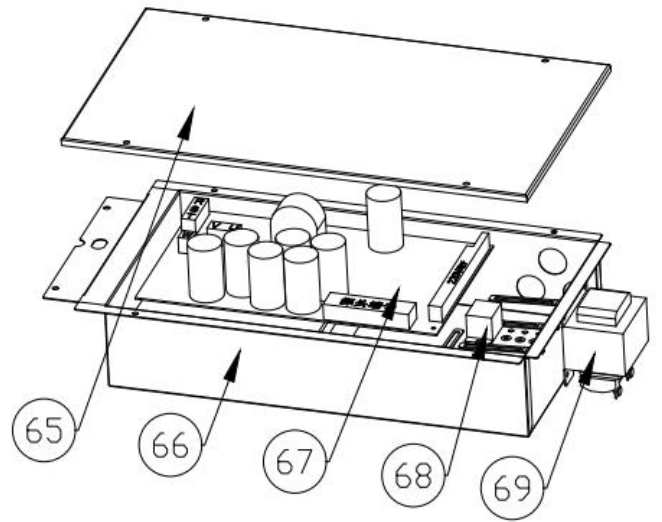
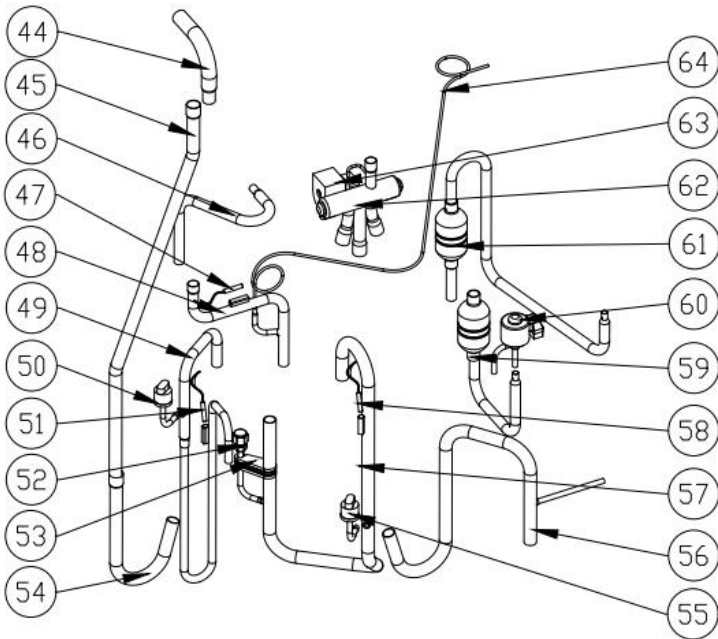
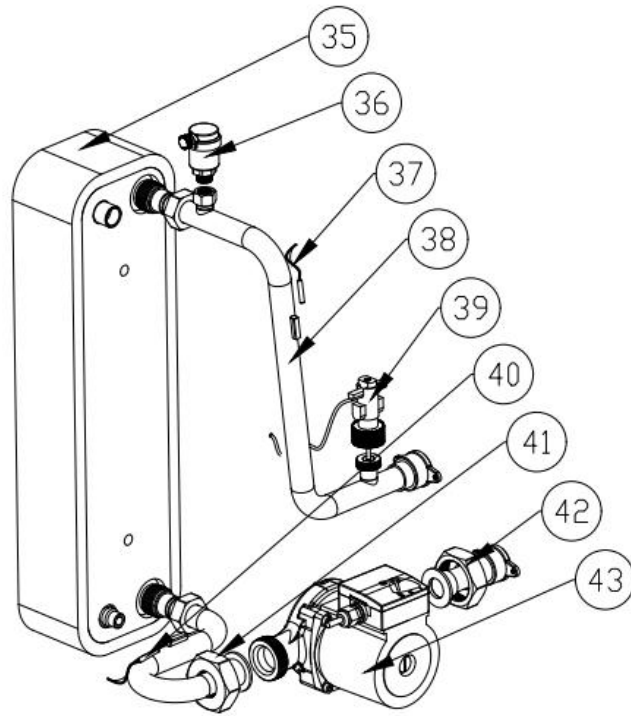


Parts: ALSAVO HEAT 16i

NO.	ERP	Part Name	NO.	ERP	Part Name
1	108470197	Support plate	36	120000126	Exhaust valve
2	108470215	Motor bracket	37	117110192	Water out temp sensor
3	103000448	Evaporator	38	113560032	Pipe
4	108470206-1	Left panel	39	116000118	Water flow switch
5	108470162	Evaporator plate	40	117110191	Water in temp sensor
6	133020078	Ventilation	41	113560031	Pipe
7	112000031	Fan motor	42	113560011	Pipe
8	132000015	Fan blade	43	107000032	Circulation pump
9	108470207-1	Front panel	44	113320023	Pipe
10	108470164	Evaporator plate	45	113210020	Pipe
11	108540143	Evaporator support plate 2	46	113320031	Pipe
12	108470200	Base plate	47	117110195	Throttling temp sensor
13	108470194	Isolation plate	48	113220013	Pipe
14	105000015	Reservoir	49	113010493	Exhaust pipe
15	101000239	Compressor	50	116000121	High pressure switch
16	108470202	Right support plate	51	117110193	Exhaust temp sensor
17	117110191	Evaporator temp. sensor	52	120000097	Gas valve
18	108470196	Plate exchanger support plate	53	136020154	Pipe fixing block
19	136020005	Rubber	54	113210014	Pipe
20	106000012	Pressure gauge	55	116000122	Low pressure switch
21	108470203-1	Right panel	56	113020741	Pipe
22	108470170	Pillar	57	113020740	Gas return pipe
23	133030022	Wiring cover	58	117110194	Return temp sensor
24	108470205-1	Back panel	59	113120093	Pipe
25	136010004	Crimping clip	60	119000079	EEV
26	108010086	Crimping clip	61	113080164	Pipe
27	115000025	Terminal	62	121000028	Four-way valve
28	115000070	Terminal	63	121000038	Four-way valve coil
29	108470160	Terminal plate	64	109000116	Capillary
30	108470161	Terminal frame	65	108470176	Electric control box cover
31	117110183	Ambient temp sensor	66	108470193	Electronic control box
32	133020010	Ambient temperature sensor clip	67	117100094	PCB
33	108470014	Back grille	68	142000038	30A air conditioning relay
34	108470204-1	Top cover	69	117010081	Distribution boards 1-2
35	102030031	Plate heat exchanger	70	117220006	PFC inductor

Schema: ALSAVO HEAT 12iT

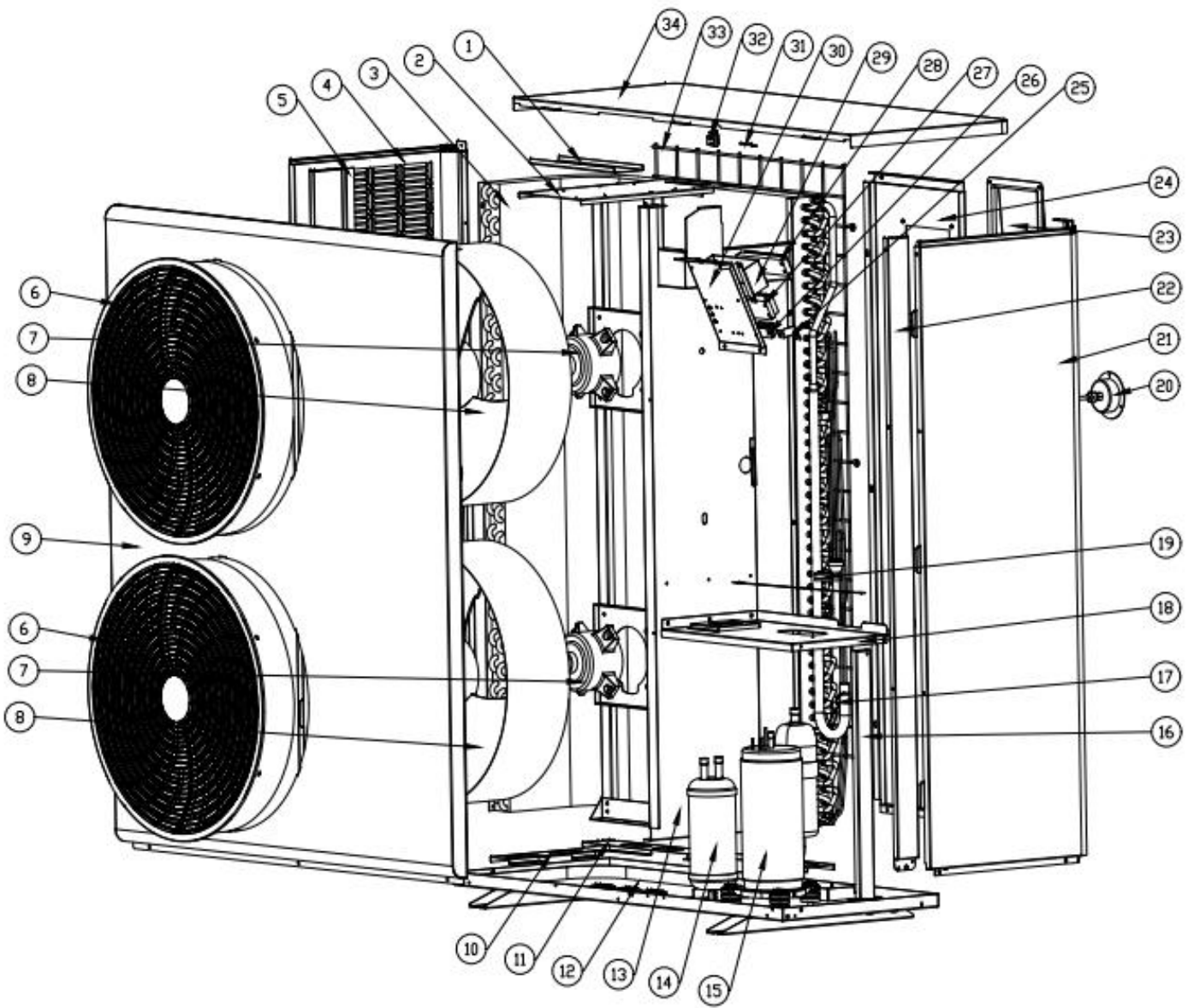


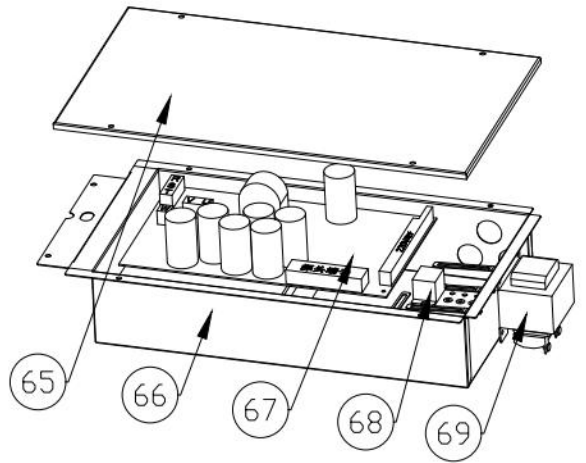
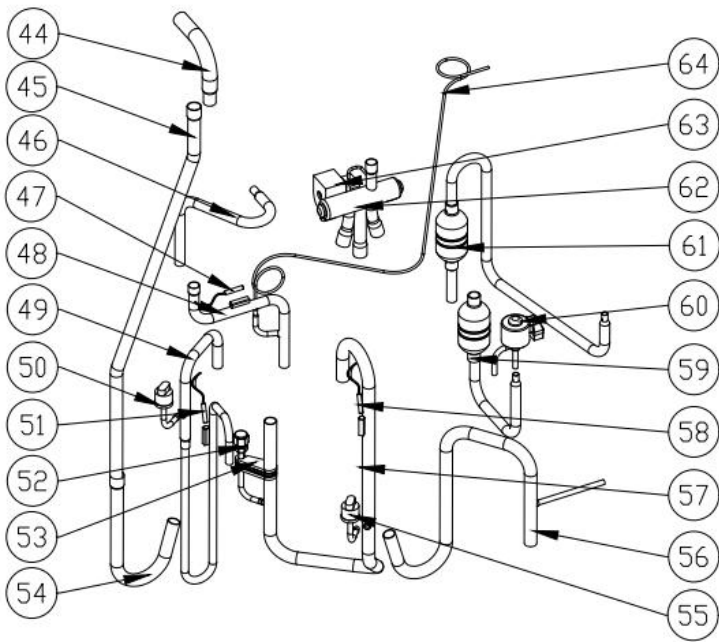
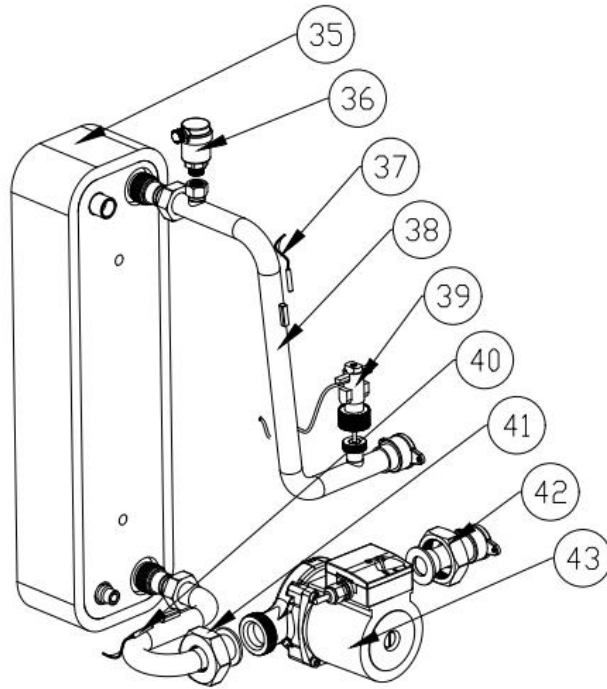


Parts: ALSAVO HEAT 12iT

NO.	ERP	Part Name	NO.	ERP	Part Name
1	108470197	Support plate	36	120000126	Exhaust valve
2	108470215	Motor bracket	37	117110192	Water out temp sensor
3	103000429	Evaporator	38	113560024	Pipe
4	108470206-1	Left panel	39	116000118	Water flow switch
5	108470162	Evaporator plate	40	117110191	Water in temp sensor
6	133020078	Ventilation	41	113560024	Pipe
7	112000031	Fan motor	42	113560035	Pipe
8	132000015	Fan blade	43	107000032	Circulation pump
9	108470207-1	Front panel	44	113320023	Pipe
10	108470164	Evaporator plate	45	113210020	Pipe
11	108540143	Evaporator support plate 2	46	113320026	Pipe
12	108470200	Base plate	47	117110195	Throttling temp sensor
13	108470194	Isolation plate	48	113220013	Pipe
14	105000015	Reservoir	49	113010509	Exhaust pipe
15	101000267	Compressor	50	116000121	High pressure switch
16	108470202	Right support plate	51	117110193	Evaporator temp. sensor
17	117110191	Evaporator temp. sensor	52	120000097	Gas valve
18	108470196	Plate exchanger support plate	53	136020154	Pipe fixing block
19	136020005	Rubber	54	113210014	Pipe
20	106000012	Pressure gauge	55	116000122	Low pressure switch
21	108470203-1	Right panel	56	113020741	Pipe
22	108470170	Pillar	57	113020771	Gas return pipe
23	133030022	Wiring cover	58	117110194	Return temp sensor
24	108470205-1	Back panel	59	113120093	Pipe
25	136010004	Crimping clip	60	119000079	EEV
26	108010086	Crimping clip	61	113080169	Pipe
27	115000006	Terminal	62	121000028	Four-way valve
28	115000070	Terminal	63	121000038	Four-way valve coil
29	108470160	Terminal plate	64	109000116	Capillary
30	108470161	Terminal frame	65	108470176	Electric control cover
31	117110183	Ambient temp sensor	66	108470192	Electric control box cover
32	133020010	Ambient temperature sensor clip	67	117100107	Inverter controller
33	108470014	Back grille	68	142000038	30A air conditioning relay
34	108470204-1	Top cover	69	117230015	Reactor
35	102030023	Plate heat exchanger			

Schema:ALSAVO HEAT 16iT





Parts: ALSAVO HEAT 16iT

NO.	ERP	Part Name	NO.	ERP	Part Name
1	108470197	Support plate	36	120000126	Exhaust valve
2	108470215	Motor bracket	37	117110192	Water out temp sensor
3	103000448	Evaporator	38	113560024	Pipe
4	108470206-1	Left panel	39	116000118	Water flow switch
5	108470162	Evaporator plate	40	117110191	Water in temp sensor
6	133020078	Ventilation	41	113560025	Pipe
7	112000031	Fan motor	42	113560011	Pipe
8	132000015	Fan blade	43	107000032	Circulation pump
9	108470207-1	Front panel	44	113320023	Pipe
10	108470164	Evaporator plate	45	113210020	Pipe
11	108540143	Evaporator support plate 2	46	113320031	Pipe
12	108470200	Base plate	47	117110195	Throttling temp sensor
13	108470194	Isolation plate	48	113220013	Pipe
14	105000015	Reservoir	49	113010493	Exhaust pipe
15	101000239	Compressor	50	116000121	High pressure switch
16	108470202	Right support plate	51	117110193	Evaporator temp. sensor
17	117110191	Evaporator temp. sensor	52	120000097	Gas valve
18	108470196	Plate exchanger support plate	53	136020154	Pipe fixing block
19	136020005	Rubber	54	113210014	Pipe
20	106000012	Pressure gauge	55	116000122	Low pressure switch
21	108470203-1	Right panel	56	113020741	Pipe
22	108470170	Pillar	57	113020740	Gas return pipe
23	133030022	Wiring cover	58	117110194	Return temp sensor
24	108470205-1	Back panel	59	113120093	Pipe
25	136010004	Crimping clip	60	119000079	EEV
26	108010086	Crimping clip	61	113080164	Pipe
27	115000025	Terminal	62	121000028	Four-way valve
28	115000070	Terminal	63	121000038	Four-way valve coil
29	108470160	Terminal plate	64	109000116	Capillary
30	108470161	Terminal frame	65	108470176	Electric control cover
31	117110183	Ambient temp sensor	66	108470192	Electric control box cover
32	133020010	Ambient temperature sensor clip	67	117100108	Inverter controller
33	108470014	Back grille	68	142000038	30A air conditioning relay
34	108470204-1	Top cover	69	117230015	Reactor
35	102030023	Plate heat exchanger			

10. MAINTENANCE

The following points must be checked, measured, and controlled:

Heat pump unit

- Electrical protections and connections, power supply voltage and current
- Air exchanger cleaning
- Condensate evacuation
- Fan operation
- Operating temperatures on air and water
- Apparent tightness of the refrigeration circuit

Whole installation

- Filter cleaning
- Expansion vessel
- Operation of the circulator
- Heat water transfer fluid and antifreeze protection level
- Safety valve sealing and hydraulic components.
- Storage balloon protection
- Visual and auditory state of the whole installation, leakage, isolation...

Protection

The heat pump as a protection anti-freezing function in running, but it was preconized to added glycol on the water circuit. This why is mandatory to disconnect electricity and shut down the heat pump during the winter season other way the function do not apply.

Or drain the water circuit to avoid any risk of freezing when the heat pump is OFF.

Post-intervention functional test

Explanations to the user and advice on how the system works.



This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.



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AAHP08