

INSTALLATION & OWNER'S MANUAL

Split Type Air-source Heat Pump Water Heater

KTHR-190-B



Original instructions
Thank you very much for purchasing our product,
Before using your unit , please read this manual carefully and keep it for future reference.

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Safety Precautions

It is crucial that you read the SAFETY PRECAUTIONS chapter before installing and operating the product. Not following the instructions may lead to serious damage or injury. The level of severity of potential damage or injuries is classified as either a WARNING or CAUTION.

Explanation of Symbols



WARNING

This symbol indicates the possibility of personnel injury or loss of life.

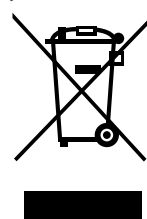


CAUTION

This symbol indicates the possibility of property damage or serious consequences.

WARNING

- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or a qualified persons in order to avoid a hazards.
- **DISPOSAL:**
Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.
Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.
Contact your local government for information regarding the collection systems available.
- If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.
- The wiring must be performed by professional technicians in accordance with national wiring regulations and the product circuit diagram.
- If the appliances that are intended to be permanently connected to fixed wiring, an all-pole disconnection device which has at least 3mm clearances in all poles, the installation of a residual current device(RCD)having a rated residual operating current not exceeding 30 mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
- The handle of PTR valve should be pulled out once per half a year to make sure that there is no jam of the valve.
- This appliance can be used by children aged from 3 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 be allowed to perform maintenance nor cleaning work without supervision, children aged from 3 to 8 years are only allowed to operate the tap connected to the water heater.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.



- A discharge pipe connected to the pressure-relief device should be installed in a continuously downward direction and in a frost-free environment.
- The water may drip from the discharge pipe of the pressure-relief device and that this pipe must be left open to the atmosphere.
- For information on how to drain the water heater, please refer to the relevant paragraphs in the manual.
- The pressure-relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked.

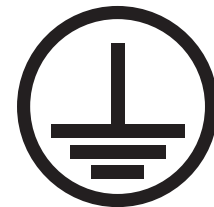
Your safety is the most important thing we are worried about.

⚠ WARNING

If you can't make sure that your house power supply is earthed well, please don't install the unit. Please have a qualified professional to perform the reliable earthing connection and the installation of the unit. Examples of a qualified professional include: licensed plumbers, authorized electric company personnel, and authorized service personnel.

⚠ WARNING

This unit requires reliable earthing before usage, otherwise it might cause death or injury.



⚠ WARNING

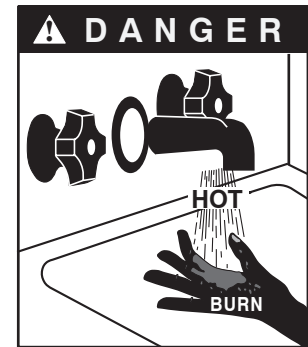
- The unit must be earthed effectively.
- A creepage breaker must be installed adjacent to the power supply.
- Do not remove, cover or deface any permanent instructions, labels, or the data label from either the outside of the unit or inside of unit panels.
- Ask qualified professional to perform the installation of this unit in accordance with local national regulations and this manual. Improper installation may result in water leakage, electric shock or fire.
- Ask qualified professional for relocating, repairing and maintaining the unit. Improper installation may result in water leakage, electric shock or fire.
- When performing electric connection work, it is important to follow the instructions provided by the local power company, local electric utility, and the product manual.
- It is crucial to never use wires or fuses with the wrong rated current, as this may cause the unit to break down and potentially result in a fire.
- Never use a flammable spray such as hair spray, lacquer paint near the unit. It may cause a fire.

⚠ CAUTION

- In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.

⚠ OPERATION WARNING

- To ensure safe usage, it is important to properly ground the earthing pole of the socket and ensure that the power supply socket and plug are dry and tightly connected.
- Before turning on the power supply please make sure all electrical cables and power sockets are conform to your own countries regulations. In case of electrical components getting unexpectedly hot please shut off power supply and control each electrical components.
- Before cleaning, stop the operation and turn off the breaker off or pull out the power plug to avoid the risk of electric shock or injury.
- Water that has been heated to over 50°C can cause serious burns if delivered directly to the taps. Children, disabled persons and elderly people are particularly at risk. We recommend installing a thermostatic mixer or water temperature limiting valve on the water delivery line. Before taking a bath or shower, it is important to touch the water to feel its temperature to ensure that it is not too hot.
- Do not operate the unit with a wet hand. An electric shock may be caused.
- The power supply should be installed at a height of over 1.8m to prevent water spatters from reaching it.
- A one-way valve must be installed on the water inlet side, which is available from accessories, see manual “accessories” part.
- It's normal if some water drops from the hole of PT valve during operation. But, if there is a great amount of water, call your service agent for instructions.
- After a long term use, check the unit base and fittings. If damaged, the unit may sink and result in injury.
- Arrange the drain pipe to ensure smooth draining.
- Improper drainage work may cause wetting of the building, furniture etc.
- Do not touch the inner parts of the controller.
- Do not remove front panel of the machine. There are some parts inside that are dangerous to touch, and doing so may cause a machine malfunction.
- Do not turn off the power supply.
- System will stop or restart heating auto matically. A continuous power supply for water heating is necessary, except service and maintenance.
- If the unit has not been used for a long period of 2 weeks or more, hydrogen gas may be produced in the water piping system.
- Hydrogen gas is extremely flammable. To reduce the risk of injury under these conditions, it is recommended to open the hot water tap for several minutes at the kitchen sink before using any electrical appliance connected to the hot water system. When hydrogen is present, there will probably be an unusual sound such as air escaping through the pipe as the water begins to flow. There should be no smoking or open flame near the tap at the time it is open.
- How to install the appliance to its support, please read the information for details in "Installation" sections.
- The water inlet temperature of the equipment shall not be lower than 4°C, and the Maximum water temperature of the equipment can be set as 70°C.



TAKE NOTE OF FUSE SPECIFICATIONS

The unit's circuit board (PCB) is designed with a fuse to provide overcurrent protection. The specifications of the fuse are printed on the circuit board ,such as : T5A/250VAC and T16A/250VAC.

For R32 refrigerant charge amount and minimum room area

- When flammable refrigerant is employed, appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specific for operation.
- Please select the corresponding room area based on the actual refrigerant charge amount and installation height. Different products have different installation height requirements. For the refrigerant charge amount, please refer to the "SAFETY MANUAL" packed with the outdoor unit.

A_{min} (m²)	h (m)																	
m_c (kg)	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	≥23
≤1.836	No requirements																	
1.9	31.0	22.8	17.5	13.8	11.2	9.3	7.8	6.6	6.0	5.6	5.2	4.9	4.6	4.4	4.2	4.0	3.8	3.6
2.0	34.4	25.3	19.4	15.3	12.4	10.3	8.6	7.4	6.4	5.9	5.5	5.2	4.9	4.6	4.4	4.2	4.0	3.8
2.2	41.6	30.6	23.4	18.5	15.0	12.4	10.4	8.9	7.7	6.7	6.0	5.7	5.4	5.1	4.8	4.6	4.4	4.2
2.4	49.5	36.4	27.9	22.0	17.8	14.8	12.4	10.6	9.1	8.0	7.0	6.2	5.9	5.6	5.3	5.0	4.8	4.6
2.6	58.1	42.7	32.7	25.8	20.9	17.3	14.6	12.4	10.7	9.3	8.2	7.3	6.5	6.0	5.7	5.4	5.2	5.0
2.8	67.3	49.5	37.9	29.9	24.3	20.1	16.9	14.4	12.4	10.8	9.5	8.4	7.5	6.8	6.2	5.9	5.6	5.4
3.0	77.3	56.8	43.5	34.4	27.9	23.0	19.4	16.5	14.2	12.4	10.9	9.7	8.6	7.8	7.0	6.4	6.0	5.7
3.2	87.9	64.6	49.5	39.1	31.7	26.2	22.0	18.8	16.2	14.1	12.4	11.0	9.8	8.8	8.0	7.2	6.6	6.1
3.4	99.2	72.9	55.8	44.1	35.8	29.6	24.8	21.2	18.3	15.9	14.0	12.4	11.1	9.9	9.0	8.1	7.4	6.8
3.6	111.3	81.8	62.6	49.5	40.1	33.1	27.9	23.7	20.5	17.8	15.7	13.9	12.4	11.1	10.1	9.1	8.3	7.6
3.8	124.0	91.1	69.7	55.1	44.7	36.9	31.0	26.4	22.8	19.9	17.5	15.5	13.8	12.4	11.2	10.2	9.3	8.5
4.0	137.3	100.9	77.3	61.1	49.5	40.9	34.4	29.3	25.3	22.0	19.4	17.2	15.3	13.7	12.4	11.3	10.3	9.4
4.2	151.4	111.3	85.2	67.3	54.5	45.1	37.9	32.3	27.9	24.3	21.3	18.9	16.9	15.1	13.7	12.4	11.3	10.4
4.4	166.2	122.1	93.5	73.9	59.9	49.5	41.6	35.4	30.6	26.6	23.4	20.7	18.5	16.6	15.0	13.6	12.4	11.4
4.6	181.6	133.4	102.2	80.7	65.4	54.1	45.4	38.7	33.4	29.1	25.6	22.7	20.2	18.2	16.4	14.9	13.6	12.4
4.8	197.7	145.3	111.3	87.9	71.2	58.9	49.5	42.2	36.4	31.7	27.9	24.7	22.0	19.8	17.8	16.2	14.8	13.5
5.0	214.6	157.7	120.7	95.4	77.3	63.9	53.7	45.7	39.5	34.4	30.2	26.8	23.9	21.4	19.4	17.6	16.0	14.6

Area
formula

A_{min} is the required minimum room area in m².

m_c is the actual refrigerant charge in the system in kg.

(**m_c**: the sum of the nameplate nominal charge and the additional charge during installation).

h is the height of the bottom of the appliance relative to the floor of the room after installation.

Note: If the refrigerant charge amount of the machine you purchased is between the two charging values in the table, the minimum room area corresponds to the value of the maximum refrigerant charge amount. For example, if the refrigerant charge amount of your machine is 2.1 kg, which is between 2.0kg and 2.2kg, then the minimum room area is the room area corresponding to 2.2 kg.

For installation height, please refer to the actual installation height in the Owner's Manual. For Floor standing units and other device with the installation height less than 0.6m, please refer to the room area corresponding to a height of 0.6m in the above table.

Parts Names

When ordering spare parts please always give the following information:

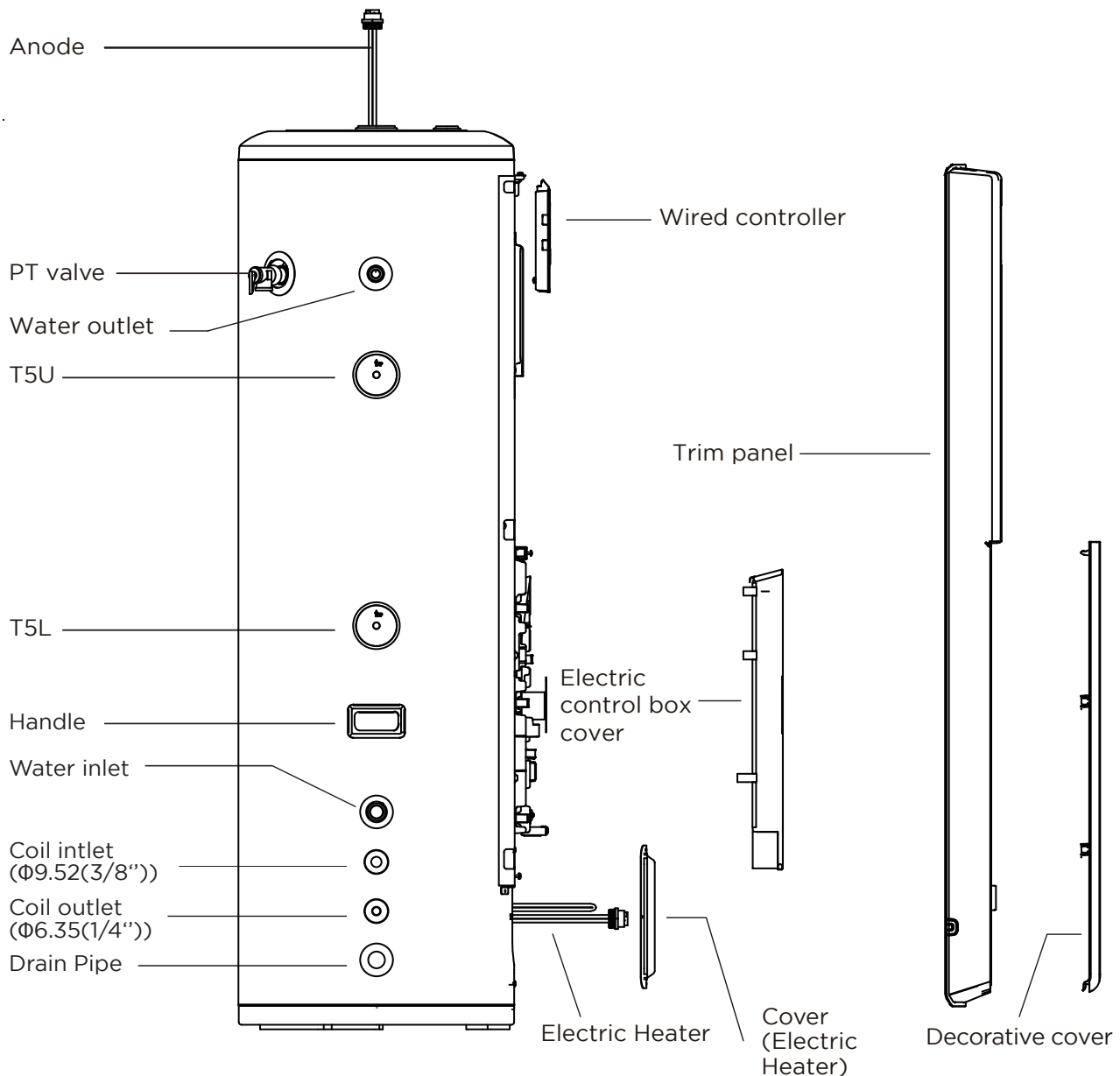
- 1) Model, serial and product number.
- 2) Parts name.

● NOTE

All the picture in this manual are for reference purpose only.

They may be slightly different from the heat pump water heater you purchased (depends on model). Please refer to the real sample instead of the picture of this manual.

MODEL NUMBER: KTHR-190-B



Installation Reparation

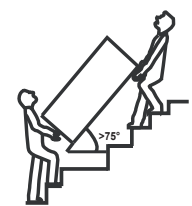
Unpacking

1.Accessories

Accessory Name	Qty.	Shape	Purpose
User Manual	1		Installation and use instruction
Energy efficiency label	≥1		EN16147 energy efficiency rating
Safety Valve	1		Prevent tank overpressure, prevent flowing backwards
Technical Parameter Table	1		Introduction of technical parameters
Water Pipe Joint	2		Connect the inlet and outlet water pipes
Fixed Strip	1		Fixed water tank

2.How to transport

- In order to avoid scratch or deformation of the surface of the unit, apply guard boards to the surface. Don't incline the unit more than 75° in moving, and keep it vertical when installing.
- This unit is heavy, and must be carried by two or more persons. Otherwise it cause injury and damage.



Gradient limit>75°

Location requirements

- Sufficient space must be preserved for installation and maintenance to facilitate piping and wiring. Please refer to the "Maintenance space requirements" for the specific area required. The floor should be flat, inclined no more than 2°, and able to bear the weight of the unit without increasing noise or vibration.
- No flammable gas should be leaked nearby.
- It is convenient for piping and wiring.
- If the unit has to be installed on a metal part of a building, ensure proper electric insulation which meets the relevant local electric standard.
- The floor at the place of installation must be waterproof and have proper drainage to limit the extent of damage in case of water leakage. It is the responsibility of the installer to ensure that installation and draining works are compliant with regulations.
- The unit shall not be installed in locations where it is exposed to oil, smoke, dust, or particles, such as kitchens or factories.
- Direct sun-exposure installation scenarios should also be avoided.
- It is recommended to install the main unit in an indoor ambient range of 5~43°C. The unit should not be installed outdoors or in a place where it may be exposed to rain. To protect the product from the damage of rainwater and sunlight exposure, please install a covering object.

CAUTION

- The ambient air temperature must also be considered when installing this unit, in heat pump mode the ambient air temperature must be within operating temperature. If the ambient air temperature falls outside these upper and lower limits, the electrical elements will be activated to meet the hot water demand and the heat pump does not operate.
- For the specific operating range of the outdoor unit, please refer to the outdoor unit's instruction manual.
- The unit should be located in an area not subject to freezing temperatures. The unit located in unconditioned spaces (i.e., garages, basements, etc.) may require the water piping, condensate piping, and drain piping to be insulated to shelter against freezing.

Installing the unit in any of the following places may lead to malfunction (If it is inevitable, consult the supplier).

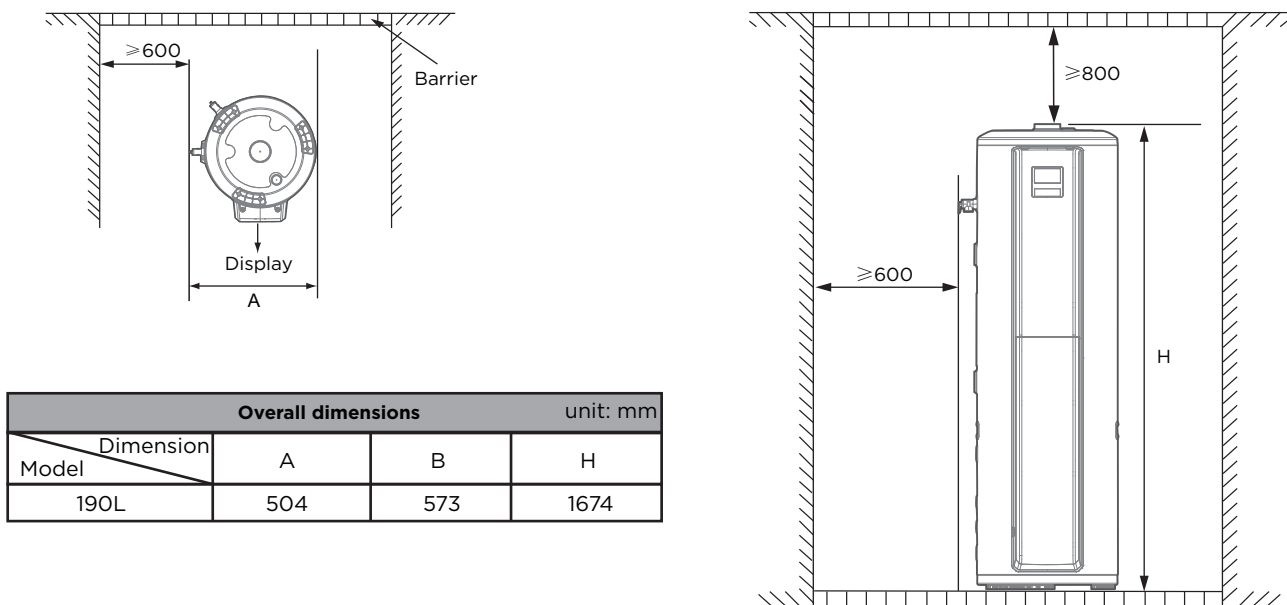
The unit should not be installed in areas that

- contain mineral oils, such as lubricants used in cutting machines;
- contain a high level of salt in the air like seaside;
- contain corrosive gases such as sulfide gas like hot spring areas;
- have high power voltage fluctuations;
- are inside a car or cabin;
- have direct sunlight and other heat sources. there is no way to avoid these locations, a covering should be installed;
- contain oil, like kitchen;
- have strong electromagnetic waves;
- contain flammable gases or materials;
- contain acid or alkali gases, or other special environments;

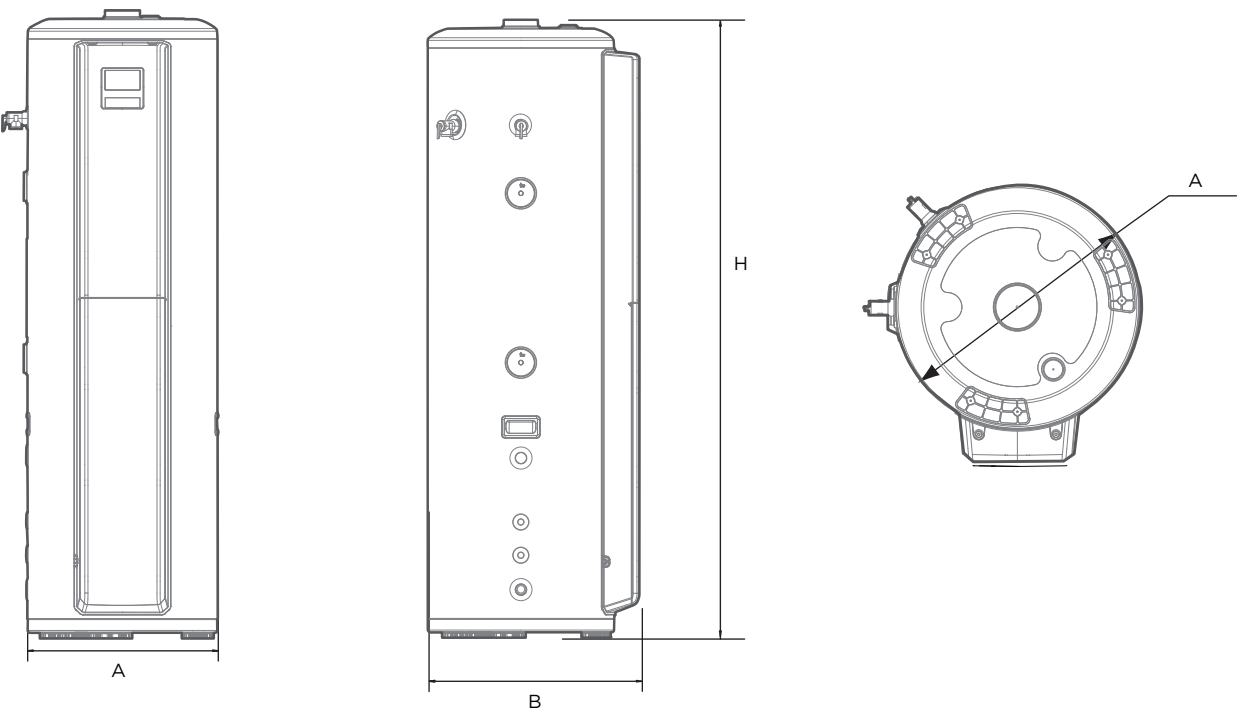
WARNING

- The unit must be securely fixed on a hard wall, otherwise the unit could fall down. It might damage the unit and hurt people.
- Make sure the minimum maintenance distances around the unit are respected.

Installation space requirements (unit: mm)



Water tank outline dimension (unit: mm)



Installation guidelines

CAUTION

- The tank is intended to be installed in an indoor environment with an ambient temperature range of 5°C to 43°C. The ambient temperature around the indoor unit must be $\geq 5^{\circ}\text{C}$ to prevent water from freezing.
- In order to effectively fix the water tank, please make sure that the water tank is placed on a flat and hard concrete floor.
- Please ensure that the water outlet at the bottom of the water tank has been filled with water before the water tank.

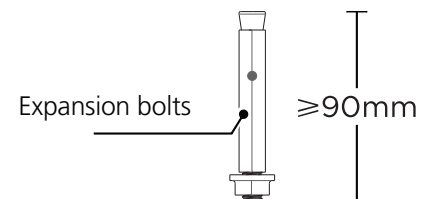
Handling and Installation of the water tank

- The water tank is both fragile and heavy, and therefore requires two people or more to carry and install it. Not following this requirement may lead to the machine getting damaged or causing casualties.
- It is important to handle the tank as it was delivered from the factory and not to disassemble it by yourself.
- To avoid surface abrasions and deformation, it is important to protect the surface of the body in contact with hard objects.
- Additionally, it is important to ensure the tank is installed vertically and reliably, with the necessary space for installation and maintenance.

Fixing method

WARNING

- The appearance of the water tank and the orientation of the water tank orifices are for reference only and can be adjusted according to the actual installation.
- The position of the fixing strip can be adjusted according to the actual situation.
- The length of the expansion bolt is not less than 90mm.



Lift the unit following the subsequent installation steps:

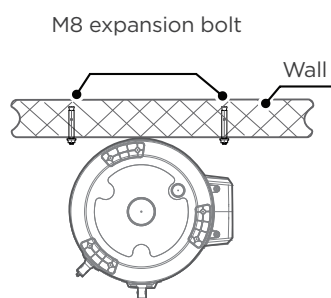
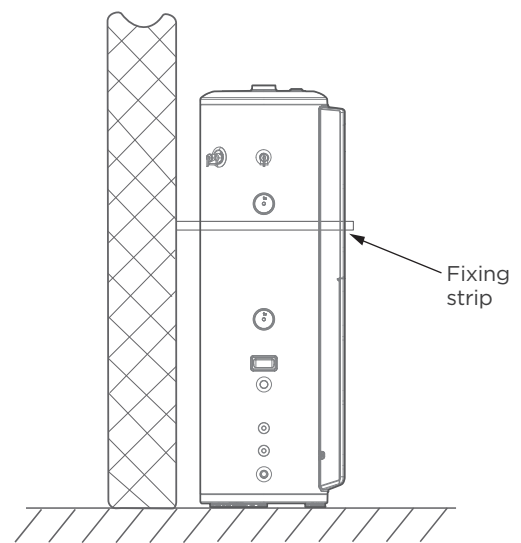
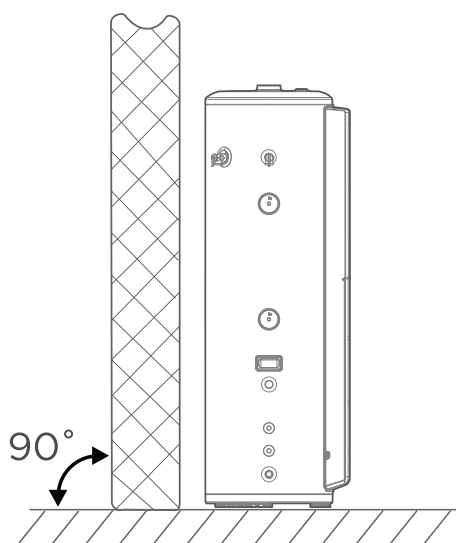
NOTE

- Installation of outdoor units or other packaged products can be found in the Owner's Manual & Installation Manual.

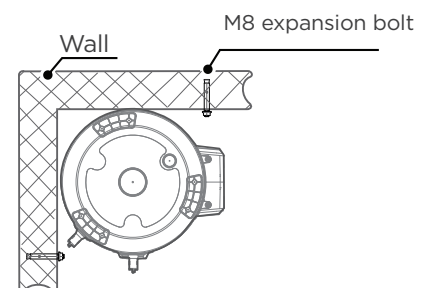
- First, position the water tank against a wall on a hard, flat surface to ensure the tank stands vertically.
- Connect the refrigerant pipes and water pipes of the internal and external units according to the installation instructions.
- Draw mark on the wall for the wall bracket drilling holes, Install the expansion bolts in the wall according to the drawing.
- Fix the end with less holes for mounting the fixing strip on the expansion bolt.
- Tighten the fixing strip to the appropriate hole position, and then fix it with a screw on another expansion bolt.
- If the fixing strip has extra length please cut off.
- After the installation is completed, check whether the water tank is safely and securely fixed. It is mandatory to install a retention tray below the water heater if installed above a living area. A drain connected to the sewer is required.

If the water tank is installed in enclosed space (e.g. cabinet), the minimum space required for installation and maintenance is as follow. (unit: mm)

The water heater must be located in a space $>15\text{m}^3$, and must have unrestricted air flow. As an example, a room that has an 2.5 tall ceiling and is 3 meters long by 2 meters wide would contain 15m^3 .



One side wall (top view)

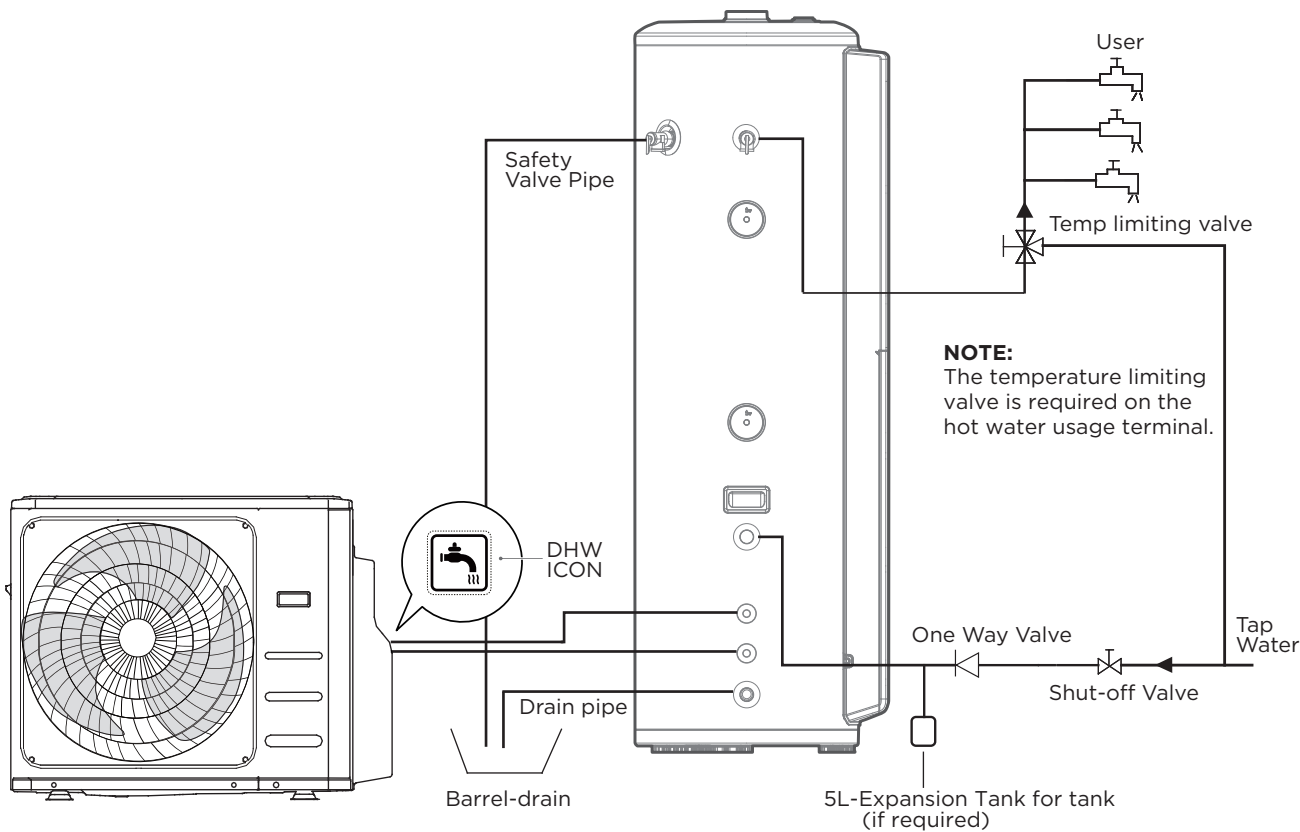


Corner wall (top view)

Installation

Piping System

Before connecting the condenser pipe, please remove the protective foam and check the pressure retention effect of nitrogen.



The following accessories are not included inside the packaging, to ensure the safe operation of water piping system, the installer need to buy and choose the suitable configuration by themselves.

Accessories	Function	Description
Shut-off Valve	The switch acts to cut off the water path.	Must be installed, selected according to the water pipe diameter.
One Way Valve	Prevent backflow in the water line.	Must be installed.
Expansion tank	Maintains constant water supply pressure.	Recommended installation, optional according to the specification of 5L.
Temp limiting valve	Prevent outgoing water temperature to be too high.	Must be installed, selected according to the water pipe diameter.

Water inlet or outlet pipes: The spec of the water inlet or outlet thread is RC3/4" (external thread). Pipes must be heat-insulated. External static pressure at testing 0.1MPa.

Note:

- No device (shut-off valve, pressure reducer, etc.) should be placed between the safety group and the cold water supply line of the water heater.

⚠ WARNING

- Please refer to the above figure for the piping water system. If the installation is in an area where the outside temperature falls below freezing point, it is necessary to provide insulation for all hydraulic components. The handle of PTR valve should be pulled out once per half a year to make sure that there is no jam of the valve.
- Please be cautious of burns as the water might be hot.
- The drainage pipe should be well insulated in order to prevent water inside pipe from freezing in cold weather.
- There is a risk of freezing if the tank is located in an ambient temperature below 0°C. To avoid freezing the water tank, empty the tank without powering it up. (In a way, the unit stays energized to protect the tank).
- A one-way valve (not included) must be installed on the water inlet side.

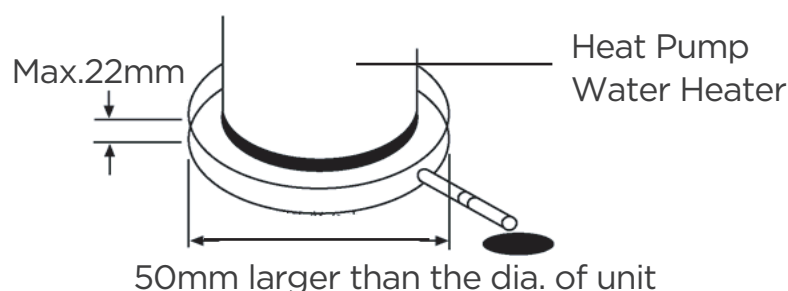
⚠ WARNING

- Do not dismantle the PTR Valve.
- Do not block off the drainage pipe, it may cause explosion and injury.



EXPLOSION

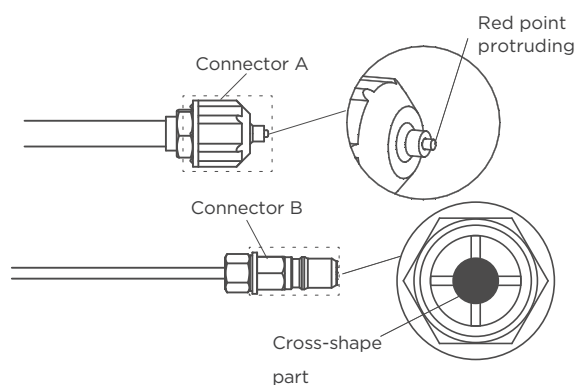
- 1) Installation of the pipe for PTR valve: The spec of the valve connecting thread is RC3/4" (internal thread). After installation, it must be confirmed that the
- 2) drainpipe outlet is exposed in the air.
External static pressure at testing 0.1MPa.
- 3) Installation of the One Way Valve: The One Way Valve thread is RC3/4" . It is used to prevent water from flowing backwards.
- 4) After connecting the water sytem piping, open the cold water inlet valve and hot water outlet valve and bleed all air from the tank. When water flows smoothly out from water outlet pipe (tap water outlet), the tank is full, close all valves and check pipings to make sure there is no leakage.
- 5) If the inlet water pressure is less than 0.15MPa, a pump should be installed at the water inlet side. For guarantee the safety usage of tank at the condition of water supply pressure higher than 0.65MPa, a reducing valve should be installed at the water inlet pipe. It is recommended to use a permanently fixed pipe for the connection between the machine and the tap water, and not allow to use a hose-set for the connection.
- 6) Condensate water may leak from the unit if the drainage pipe is blocked, or if the unit operates in high humidity environment, A drainage pan is recommended as shown as figure.



Refrigerant circuit

CAUTION

For tanks with optional connectors, please strictly follow the following instructions for operation.



- Before performing the refrigerant piping connection, always wear work gloves and goggles and remember that the connectors A and B are not allowed to face people directly.
- Keep pressing the cross-shape part of connector B with a tool for about 5-10 seconds until the red protruding point of connector A retracts completely.
- Remove connectors A and B, then perform the refrigerant piping connection between indoor unit and outdoor unit.

Refrigerant piping

Refrigerant piping length between indoor unit and outdoor unit

NOTE: For specific installation guidelines, please refer to the Outdoor unit <Owner's Manual & Installation Manual>.

Refrigerant piping size

Piping connection size of outdoor unit and indoor unit

Outdoor unit			Indoor unit		
Model	Pipe size		Model	Pipe size	
	Gas pipe	Liquid pipe		Gas pipe	Liquid pipe
KAM4HR-80 DR8	Ø9.52(3/8")	Ø 6.35(1/4")	KTHR-190	Ø9.52(3/8")	Ø 6.35(1/4")
			KTHR-100	Ø9.52(3/8")	Ø 6.35(1/4")
KAM3HR-52 DR8	Ø9.52(3/8")	Ø 6.35(1/4")	KTHR-100	Ø9.52(3/8")	Ø 6.35(1/4")
KAM4HR-80 DR9	Ø9.52(3/8")	Ø 6.35(1/4")	KTHR-190-B	Ø9.52(3/8")	Ø 6.35(1/4")
			KTHR-100	Ø9.52(3/8")	Ø 6.35(1/4")

The unit installation and refrigerant piping should comply with the relevant local and national regulations for the designed refrigerant. Due to R32 refrigerant and depending on final refrigerant charge amount, a minimum floor area for installation must be considered. If total refrigerant charge amount <1.84kg, there are no additional minimum floor area requirements.

Refrigerant charge

Refrigerant charge amount

Please refer to the installation and operation manual of the outdoor unit for the refrigerant filling quantity.

Electric Connection

CAUTION

- The power supply should be hard wired.
- Power supply circuit should be earthed effectively.
- The wiring must be performed by professional technicians in accordance with national wiring regulations and this circuit diagram.
- An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.
- Set the electric leakage protector according to the relevant electric technical standards of the state.
- The supply cord and the signal cord shall be laid out neatly and properly without mutual interference or contact to the connection pipe or valve.
- After wire connection, check it again and make sure that the connections are securely tighten before power is turned on.
- When installing the product, pay attention to install the signal cable of the water tank to the place where the user can't touch it.

WARNING

- The fixed wiring insulation must be protected, for example, by insulating sleeving having an appropriate temperature rating.

Specifications of Power Supply

- Please choose the power cord according to the table, and make sure it comply with local electric standard.
- Recommended supply cord mode is H07RN-F.

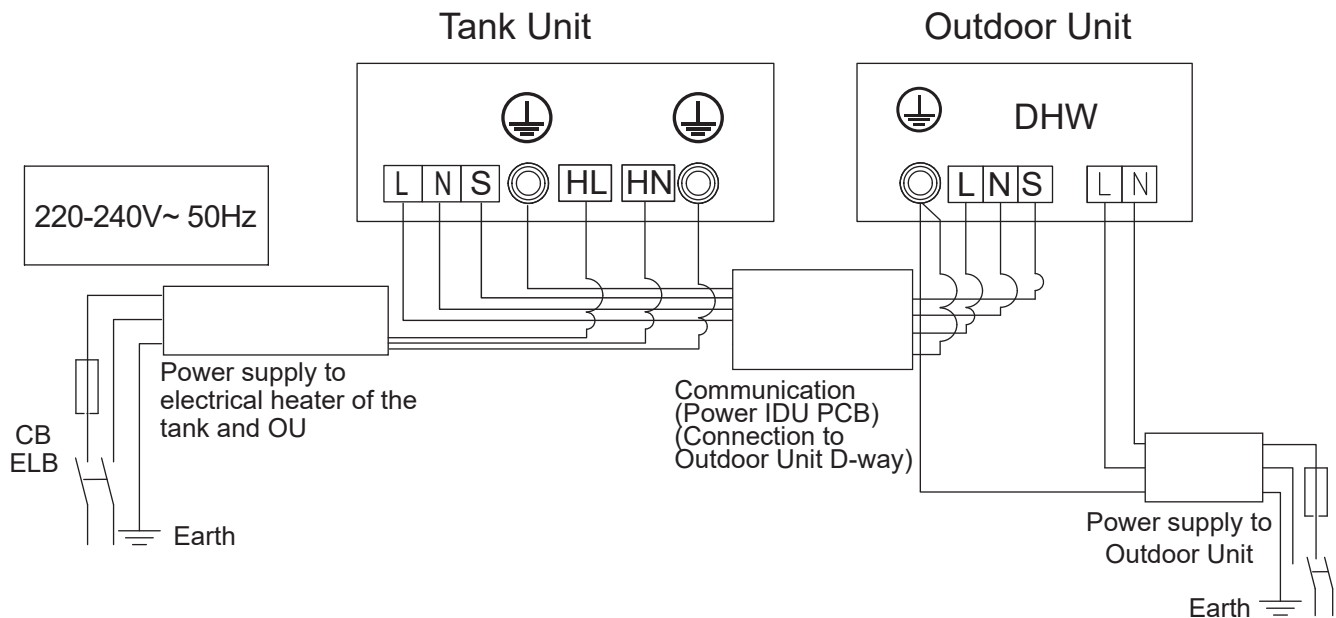
WARNING

The unit in must be installed with an RCD near the power supply and must be effectively earthed.

Model Name	KTHR-190-B
Power Supply	220-240V~ 50Hz
Min. Diameter of Power Supply Cord (mm ²)	1.5 (For water tank with electric heating)
Min. Diameter of Power Earth Cord (mm ²)	1.5 (For water tank with electric heating)
Min. Diameter of Power Supply Cord (mm ²)	1.5 (For water tank with Outdoor unit)
Min. Diameter of Power Earth Cord (mm ²)	1.5 (For water tank with Outdoor unit)
Manual Switch(A)Capacity/Fuse(A)	30/20(For DHW)
CreepageBreaker	(Not including)

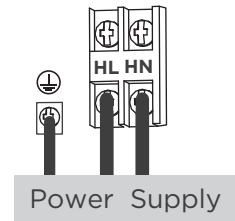
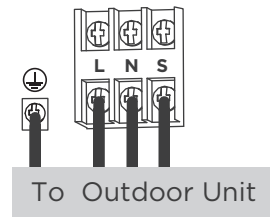
Electrical wiring diagram

The water tank units can only be connected to the DHW system. The units must be connected as per the relevant electrical diagrams, based on the applicable powering scheme and local regulations. If the tank and outdoor unit are power supplied independently, the electric heating power supply line must be connected.



⚠ CAUTION

- Connect the cables to the terminals, as identified, with their matching numbers on the terminal block of the indoor and outdoor units.



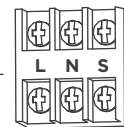
- For the wiring of the terminal socket in the control box, the wire must be crimped to its crimping terminal before wiring.

For 230V sockets, the crimping terminal length should be 12mm~15mm, and the torque used to fix the screw should be 0.4N·m~0.5N·m.

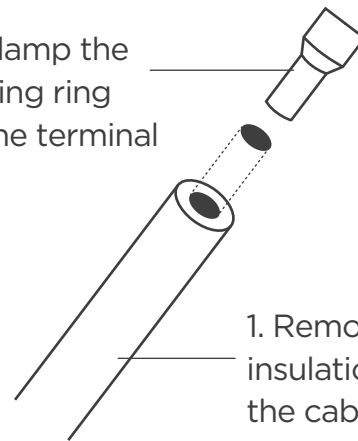
For communication sockets, the crimping terminal length should be 8mm~9mm, and the torque to fix the screw should be 0.3N·m~0.5N·m.

Note that the screws on both ends of the terminal socket must be securely tightened. It is recommended to use ring terminals for crimping.

- Screw the terminal onto the socket



- Clamp the crimping ring on the terminal



- Remove the insulation part on the cable

- When wiring the water tank, the length of the cables from the terminal to the water tank cable gland should be:
 140-160mm for the connection cable to the outdoor unit,
 180-200mm for the electric heating connection cable,
 230-250mm for the signal wire connection.

Installation checklist

Location & space

- ☐ The floor beneath the water heater must be able to support the weight of the unit when filled with water.
- ☐ Located indoors (such as a basement or garage) and in a vertical position. Sheltered from freezing temperatures.
- ☐ Provisions have been made to protect the area from water damage.
- ☐ Metal drain pan installed and piped to an adequate drain.
- ☐ Sufficient space to service the water heater.
- ☐ The site location must be free from any corrosive elements in the atmosphere such as sulfur, fluorine, and chlorine. These elements are found in aerosol sprays, detergents, bleaches, cleaning solvents, air fresheners, paint, and varnish removers, refrigerants, and many other commercial and household products. In addition excessive dust and lint may affect the operation of the unit and require more frequent cleaning.

Note: The unit should not be installed in an enclosed cabinet in principle, otherwise, corresponding ventilation conditions must be met. For details, see the “Minimum area requirements” part of “Installation” .

- ☐ Please refer to the installation manual of the outdoor unit for the outdoor air temperature. If the ambient air temperature falls outside these upper and lower limits the electrical elements will be activated to meet the hot water demand.

Water System Piping

- ☐ PTR valve (Temperature and pressure relief valve) properly installed with a discharge pipe run to an adequate drain and sheltered from freezing.
- ☐ All pipes must be properly installed and with no water leakage.
- ☐ Unit completely filled with water.
- ☐ Water temperature limit valve or mixer tap (recommended) installed per manufacturer's instructions.

Condensate Drain Line Installation

- ☐ Must be located with access to an adequate drain or condensate pump.
- ☐ Condensate drain lines installed and piped to an adequate drain or condensate pump.

Electrical Connections

- ☐ The water heater requires 230 VAC for proper operation.
- ☐ Wiring size and connections comply with all local applicable codes and the requirements of this manual.
- ☐ Water heater and electrical supply are properly grounded.
- ☐ Proper overload fuse or circuit breaker protection installed.

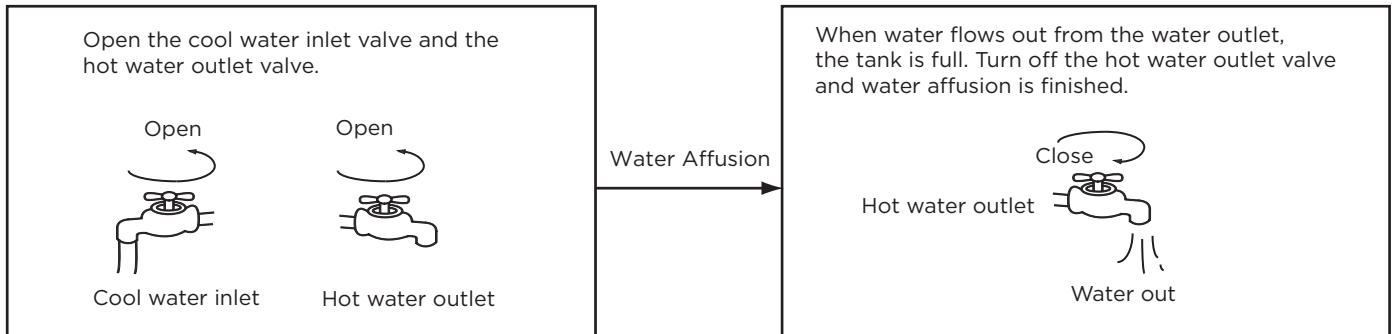
Post Installation Review

- ☐ Understand how to use the User Interface Module to set the various parameters and functions.
- ☐ Understand the importance of routine inspection/maintenance of the condensate drain pan and lines. This is to help prevent any possible drain line blockage resulting in the condensate drain pan overflowing.

Trial-run

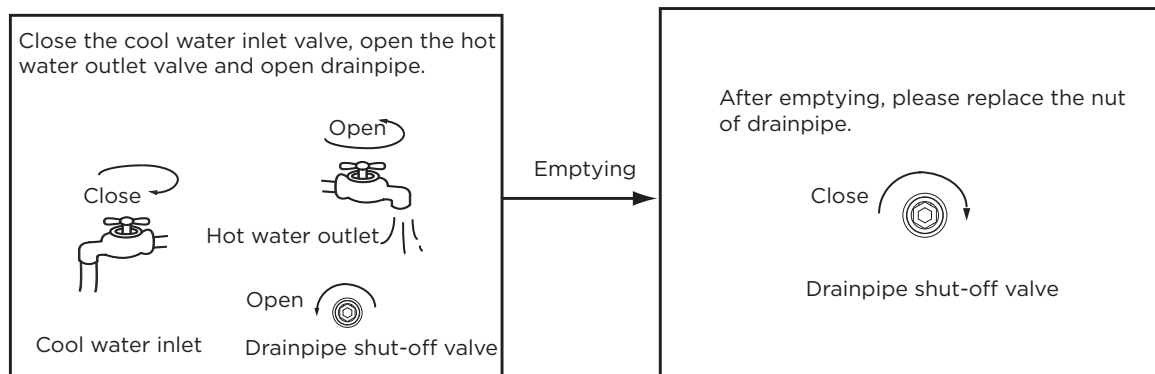
Water affusion before operation

Before using this unit, please follow the steps below. Water Affusion: If the unit is used for the first time or used again after emptying the tank, please make sure that the tank is full of water before turning on the power. Method:



⚠ CAUTION

- Operation without water in water tank may result in the damage of auxiliary E-heater.
- In case of such damage, the manufacturer will not be liable for any damages caused by this issue.
- After powered on, the display lights up. Users can operate the unit through the buttons under the display.
- Emptying: If the unit needs cleaning, moving etc, the tank should be emptied. Method:



TRIAL-RUN

1. Electrical Connections

- 1) Check the installation check list before TRIAL-RUN.
- 2) Check the installation of the system.
- 3) Check the connection of water/air piping and wiring.
- 4) Check that the condensate water is draining smoothly and the insulation work has been done for all hydraulic parts.
- 5) Check the power supply.
- 6) Check that there is no air in the water pipeline and that all valves are opened.
- 7) Check that an effective RDC is installed.
- 8) Check that there is inlet water pressure (between 0.15MPa and 0.65MPa) .

2. During operation

1) System Structure Figure

- The Unit has two kinds of heat sources: Heat pump (compressor) and electric heater. The unit will automatically select the heat sources to heat the water to the setpoint temperature.

2) Water Temperature Display

- The temperature shown on the display depends on the maximum of the upper sensor and the lower sensors.

3) Heat source will be automatically selected by the unit. But manually E-Heater operation is available.

- Running Temperature Range

Water temperature setpoint range: 38°C to 70°C.

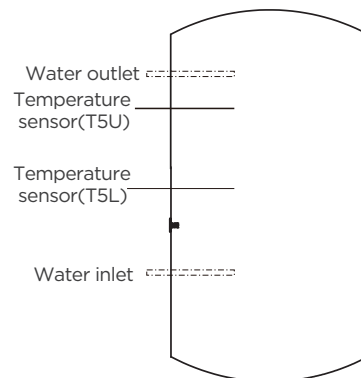
Outdoor temperature range for electrical heater operation: -20°C to 47°C.

4) Heat Source Shift

- If the setpoint water temperature is higher than Max. temp(Heat pump), the unit will first activate the heat pump to the Max. temperature, then stop the heat pump, and then activate the electrical heater in order to continue heat the water.
- If you manually activate the electrical heater while the heat pump is running, both the electrical heater and the heat pump will work together until the water temperature reaches the setpoint temperature. Therefore, if you want to heat the water quickly, please manually activate the electrical heater.

NOTE

The electrical heater will be activated once during the current heating process. If you want to activate the electrical heater again, please push the  button again.



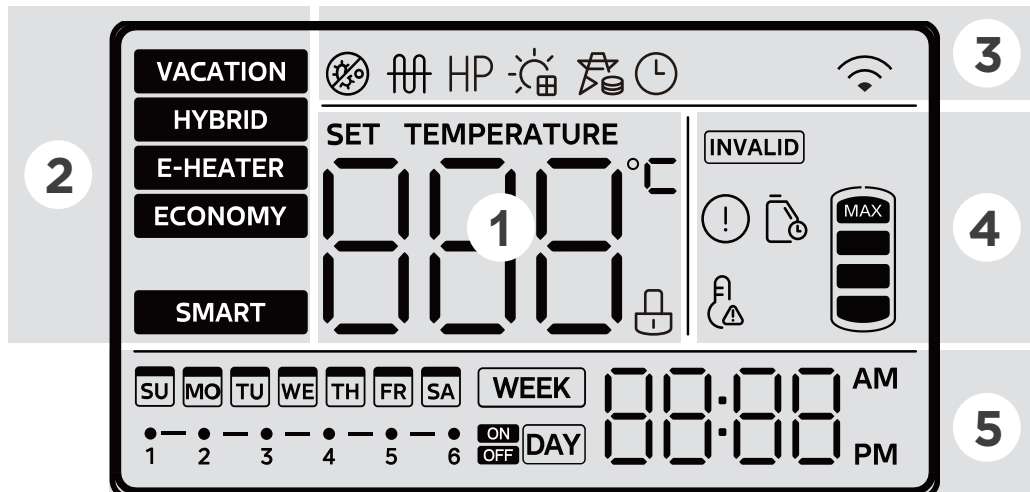
Query mode

Press the **Q** button for 1 second to enter into the query mode, then the system running parameters will be shown one by one with the following sequence by each pushing of **^**/**v** button, refer to the table below.

No.	parameters	unit	comment
0	<i>T S U</i>	Temp./°C	T5U
1	<i>T S L</i>	Temp./°C	T5L
2	<i>T S I</i>	Temp./°C	---
3	<i>T S</i>	Temp./°C	Heat pump stop temp
4	<i>T 3</i>	Temp./°C	T3
5	<i>T 4</i>	Temp./°C	T4
6	<i>T P</i>	Temp./°C	TP
7	<i>T H</i>	Temp./°C	---
8	<i>o n</i>	Outdoor unit operating mode	0: Shutdown 1: Cooling 2: Heating 3: Air supply 4: Dehumidification 5: / 6: Forced cooling 7: Defrosting 8: Self-cleaning 9: / 10: Forced defrosting 11: / 12: DHW 13: HEAT + DHW 14: COOL + DHW
9	<i>T F r</i>	Hz	Outdoor unit compressor frequency
10	<i>T T</i>	Temp./°C	Sterilization temperature
11	<i>ℓ o</i>	Current	Current value
12	<i>F 0</i>	---	---
13	<i>ℰ o</i>	Parameters checksum	0-255
14	<i>ℰ ℰ r</i>	Electronic expansion valve opening	---
15	<i>ℰ ℰ ℓ</i>	Heat pump energy demand	0: NO 1: YES
16	<i>P U P</i>	Water pump	---
17	<i>P S</i>	High standby consumption	0: NO 1: YES

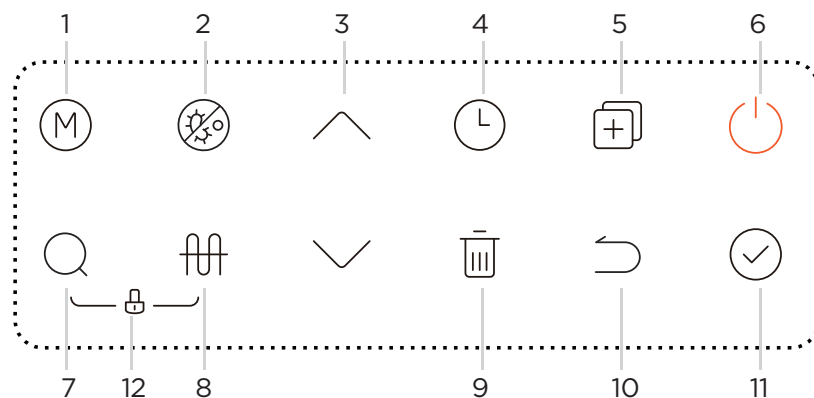
No.	parameters	unit	comment
18	<i>F T</i>	Fan type	---
19	<i>H T</i>	Electric heating control	Electric heating control type (0: Single water temperature control; 1: Dual water temperature control)
20	<i>H P</i>	Heat pump control	Heat pump control type (0: Single water temperature control; 1: Dual water temperature control)
21	<i>F S I</i>	Compressor electromechanical heating belt	---
22	<i>S I o</i>	Water tank capacity	
23	<i>P 4 P</i>	Four-way valve	---
24	<i>U U</i>	Machine type	0: Integral water heater 1: split water heater
25	<i>U 1</i>	Version	software version (tank)
26	<i>U 2</i>	Version	software version (display)
27	<i>U 3</i>	Version	software version (outdoor unit)
28	<i>U 4</i>	Electric heating code	0
29	<i>U T</i>	machine code	1
30	<i>I ℰ r</i>	Fault codes	Last fault (Fault number)
31	<i>2 ℰ r</i>	Fault codes	Penultimate fault (Fault number)
32	<i>3 ℰ r</i>	Fault codes	Third to last fault (Fault number)
33	<i>H H H</i>	Maintenance Run Time	Unit: Day
34	<i>T L F</i>	Logic operation target temperature	Logic operation target temperature
35	<i>d P U</i>	Version	protocol version (display)
36	<i>I P U</i>	Version	protocol version (unit)
37	<i>ℰ n d</i>	---	END

Operation



Area	Icon	Description
1 Information		00.0 will be lit up if screen is unlocked. It shows the water temperature on normal display; It shows the setting temperature during setting process; It shows the remaining vacation days on vacation mode; It shows the unit setting/running parameters, error/protection code on querying.
	SET TEMPERATURE	The icon lights up when the water temperature is being set.
		Child lock: If the buttons are locked, the icon will be lit up, otherwise it will be turned off.
2 Mode	VACATION	VACATION MODE: For the vacation mode, the water temperature will be set at 15°C to keep a low energy consumption while preventing freezing in the tank.
	HYBRID	HYBRID MODE: When the ambient temperature is above 43°C, it is executed in eco mode. When the ambient temperature is between 0°C to 43°C, the electrical heater is turned on after the heat pump works for 1 hour. When the ambient temperature is below 0°C, it is executed in E-HEATER mode.
	E-HEATER	E-HEATER MODE: When there is a demand for heat, the heat pump and the electrical heater run at the same time if heat pump working conditions are met.
	ECONOMY	ECONOMY MODE: It is recommended to use this operating mode whenever possible, as it saves more energy. The heat pump unit heats up to the maximum water temperature achievable, before turning on the electrical heater for heating, the heat pump and the electrical heater will not be turned on simultaneously.
	SMART	SMART MODE The SMART MODE algorithm will make sure the water temperature will never go below a certain temperature (40°C by default). The smart mode will record the user's hot water usage habits for the past 7 days, heat the water in advance according to the user's water consumption time, and stay on standby (do not heat the water) at other times. (It is recommended that the user set this mode after 7 days of normal operation of the unit, so as to avoid the machine failing to record complete user habits and affecting the use experience.)

Area	Icon	Description
3 Function		It will be lit up when the disinfection process is active.
		Electrical heater icon: It will lit up when electrical heater is running, otherwise it will be off. NOTE: When the operating conditions are not met to turn on the electrical heater, the corresponding icon will briefly light up and then goes off.
	HP	Heat pump icon: When the heat pump (compressor) is operating and producing hot water, the icon lights up.
		The icon lit up when the clock is being set.
		Wireless: will be lit up when Wireless is connected; will be off when Wireless is not connected; will flash with 2Hz frequency when setting Wireless. NOTE: When the wireless is connected, the timer function, weekly disinfect function, vacation mode and smart mode can be used .
		When the icon is lit up, the unit is adjusted to the highest setpoint temperature.
		When the icon is lit up, the unit cannot start.
4 Warning	INVALID	For all invalid actions, this icon will flash 3 seconds.
		Error: It will be lit up when unit is under protection/ error.
		It flashes to remind the user to maintain the water tank. If you do not need maintenance reminders, you can enter engineering mode channel 2 to disable this function, or engineering mode channel 4 to reset the maintenance reminder time, the default maintenance reminder time is 365 days.
		High temp. alarm If water temp is higher than 50°C, the warning light will turn on, when temperature decreases then the warning light will turn off.
		Hot water quantity indicator It represents the amount of available hot water remaining inside the tank, it does not represent the water level in the tank. The available amount of hot water aims at representing the volume of the mixed hot water based on the hot water temperature. The amount of available hot water is divided into 4 levels, and the number of hot water levels decreases with water usage.
5 Timer	88:88 ^{AM} PM	Time and clock setting Displays the current time or the time programmed during in the time scheduler.
		Schedule settings There is an option to set a schedule on weekly or daily basis. If no schedule is set, the corresponding part of the screen remains blank. Otherwise “WEEK” or “DAY” is displayed accordingly. During setting the corresponding icon (“WEEK” or “DAY”) is flashing.



● NOTE

The unit will conduct a self-test within 10 seconds after being powered on, and it is recommended that no operations should be performed during this time. Pressing any button is only effective when the button and display are unlocked. If the operating conditions are not met to turn on this function, the corresponding icon on the wire controller will light up briefly and then turn off.

1) Weekly disinfect function

In disinfection mode, the unit immediately start to heat the water up to 70°C to kill the potential legionella bacteria inside water of tank,  icon will light on the display screen while disinfection mode is working. The unit will quit disinfection as soon as water temperature is higher than 70°C and light off  icon. If the tank is powered on again, disinfection will be carried out the next day. Each time the disinfection mode is exited, disinfection will be performed again after 7 days.

2) Auto restart

If the electricity power failed, the unit can memorize all setting parameters, the unit will resume to the previous setting when power recover.

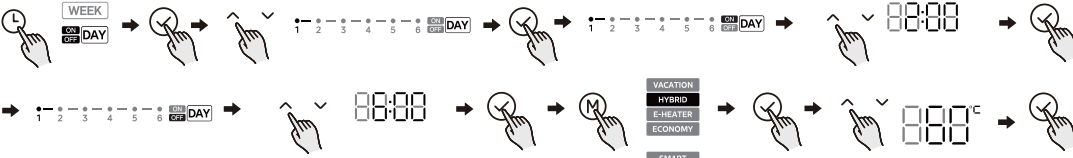
3) Screen backlight auto turns off

If there is no button activation for 10s, the screen will be locked (extinguished) . Push any valid buttons to unlock them(lighted) . Enter engineering mode channel 30 to switch it on-off .

4) Remote on/off function

If the terminal receives a signal, the unit will be stopped.

Detailed operating instructions

No	Icon	Description
1		MODE Press this button to switch mode HYBRID ▶ E-HEATER ▶ ECONOMY ▶ SMART ▶ VACATION
2		Click the button to turn on the disinfection function.
3		UP & DOWN If the screen is unlocked, press   to adjust the corresponding value. While setting temperature/timer/vacation days, press more than 1s to change the value continuously. Press  to validate the setting. On querying mode, use the buttons to select the checked items.
4		Daily timer setting:  • While setting the [on/off time], you can restore to the default value (displaying-.-) by pressing  .

12		CHILD LOCK - On the user interface, long press the combination key for 2 seconds to enter the child lock state; - In the state of child lock, long press the key combination again for 2 seconds to release the child lock state; - In the locked state, there will be an icon  next to the water temperature display. - When there is no operation of any button for 60 seconds, button will be locked. Press  +  simultaneously will be unlocked.
13	 Press for 3 sec	Connecting the wireless function - In the user interface, long press  for 3 seconds to enter the AP wireless network mode, there will be a  in the upper right corner of the controller display. At this time, enter the APP, select the category of air water heater, choose the correct model, and then network according to the APP prompts, and after the network is completed, the wireless icon  will be always on; - Wireless matching can last up to 8 minutes, after 8 minutes, if the matching is not successful, the wireless icon will go out; - Long press  for 8 seconds in the user interface to reset the wireless function; It can be set in both power on and power off state.
14		1) In the main screen, long press the timer button for 3 seconds to enter the date setting, press the up/down button to select the date, press the confirmation button to enter the clock setting, press the up/down button to modify the time, and long press accelerate the increase/decrease of the time. After setting the clock, press the confirm button to return to the main interface to complete the setting of date and time. (2) After 30 seconds from the last operation of the up/down button or pressing the return button or the power on/off button, you can directly exit the date and time setting; 3) Setting can be done in both power-on and power-off state.

Priority schedule

NOTE

- If the electrical heater always takes over the DHW heat load because of the Priority Setting being set to AC, the electricity consumption will significantly increase. For months where space heating/cooling is less important, it is recommended to set the Priority Setting to DHW.
- If DHW is set as priority and frequent DHW operation is expected, there is risk for comfort problem due to interruption of AC operation. For the months where space heating/cooling is more important, it is recommended to set the Priority schedule to AC.
- Simultaneous heating is available for some models, for example, the combination of KAM4HR-80 DR9 and KTHR-100. However, to ensure your comfortability and the efficiency of DHW, the use of simultaneous heating might be limited in case of relative low or high ambient temperature and water temperature.

Air Conditioning or domestic hot water priority

- When multiple indoor units are connected to the outdoor unit (refer to Installer Reference Guide for details), the user can set on the user interface whether to put DHW or Air Conditioning (A/C) as priority. This will determine how the outdoor unit will react in case multiple indoor units requested operation at the same time:

- If DHW is set as priority, outdoor unit can decide to operate only for DHW, while A/C operation is put on hold. In this case, once DHW operation is finished, outdoor unit can switch to A/C operation.
- If A/C is set as priority, outdoor unit can decide to operate only for the A/C, in this case the electrical heating can be used for DHW production. Once A/C operation is finished, outdoor unit can switch to DHW.
- Simultaneous heating is available for some models, for example, the combination of KAM4HR-80 DR8 and KTHR-100 In suitable ambient temperature and water temperature, the outdoor unit can support the DHW and AC heating simultaneously. In non-electrical heating mode, the electrical heating automatically turns off to save energy.

To select the Priority schedule

1	Long press  for 3 seconds to enter engineering mode and select F13 channel.	 	Press the up and down keys to operate
2	F13 set to 0, priority set to AC.	  	Press the up and down keys to operate Confirm
3	F13 set to 1, priority set to DHW.	  	Press the up and down keys to operate Confirm

Active heat recovery and water tank energy storage function

NOTE

- This function can maximize the reuse of waste heat from air conditioning to produce domestic hot water. However, it should be noted that during this process, the water tank temperature may be higher than the set temperature.

1	Long press  for 3 seconds to enter engineering mode and select F46 channel.	 	Press the up and down keys to operate
2	F46 set to 0, the active heat recovery and water tank energy storage function turned off.	  	Press the up and down keys to operate Confirm
3	F46 set to 1, the active heat recovery and water tank energy storage function turned on.	  	Press the up and down keys to operate Confirm

Smart mode minimum water temperature guarantee function.

NOTE

- If users are concerned that the water temperature in the tank may not meet the minimum water temperature requirement due to occasional changes in water usage habits while using Smart mode, they can use this function to adjust the minimum guaranteed water temperature to suit their needs (default 40°C).

1	Long press  for 3 seconds to enter engineering mode and select F10 channel.	 	Press the up and down keys to operate
2	Choose the minimum guaranteed water temperature that suits you.	  	Press the up and down keys to operate Confirm

To turn on /off the electrical heater.

NOTE

- In order to avoid to affect the effectiveness of the hot water heating process, we recommend users not to turn off the electrical heater.

1	Long press  for 3 seconds to enter engineering mode and select F6 channel.	 	Press the up and down keys to operate
2	F6 set to 0 means the electrical heater is deactivated and will not turn on during heating time.	  	Press the up and down keys to operate Confirm
3	F6 set to 1 means the electrical heater is activated and will be turned on during heating time according to the need.	  	Press the up and down keys to operate Confirm

To active the Weekly disinfect function .

NOTE

- Weekly disinfect function activation will turn on the electrical heater. The factory setting is off (deactivated) by default.

1	Long press  for 3 seconds to enter engineering mode and select F7 channel.	 	Press the up and down keys to operate
2	F7 set to 0 means the weekly disinfect functions is turned off.	  	Press the up and down keys to operate Confirm
3	F7 set to 1 means the weekly disinfect functions turned on.	  	Press the up and down keys to operate Confirm

Modify the logic of the SmartGrid function

- State1: When the ON/OFF terminal receives a valid signal, the system reduces the power or stops operating.

1	Long press  for 3 seconds to enter engineering mode and select F47 channel.	 	Press the up and down keys to operate
2	F47 set to 0 means Turn off Tank F47 set to 1 means Turn off Tank, ODU, IDU F47 set to 2 means Power limit 4.2kW F47 set to 3 means Power limit 40%	  	Press the up and down keys to operate Confirm

- State2: When the SG/PV terminal receives a valid signal, the operating power of the system is increased and the target water temperature is increased.

1	Long press  for 3 seconds to enter engineering mode and select F48 channel.	 	Press the up and down keys to operate
2	F48 set to 0 means increase the target temperature and immediately activate the heat pump + electric heating.	  	Press the up and down keys to operate Confirm
3	F48 set to 1 means increase the target temperature, and the electric heating is not forced to activate.	  	Press the up and down keys to operate Confirm

- When the ON/OFF and SG/PV terminals receive a valid signal at the same time:

1	Long press  for 3 seconds to enter engineering mode and select F49 channel.	 	Press the up and down keys to operate
2	F49 set to 0 means only the ON/OFF terminal is valid.	  	Press the up and down keys to operate Confirm
3	F49 set to 1 means only the SG/PV terminal is valid.	  	Press the up and down keys to operate Confirm

Use Your Appliance with the NetHome Plus App

⚠️ Ensure that your mobile phone is connected to the home wireless network, the 2.4GHz band wireless signal is enabled on your wireless router and you know the network password.

⚠️ Turn on Bluetooth on your phone and the device must also be powered up.

1 Download NetHome Plus App

CAUTION :

The following QR code is only available for downloading APP. It is totally different with the QR code packed with unit.

Android Phone users: scan Android QR code or go to google play, search “Nethome Plus” App and download it. IOS users: scan IOS QR code or go to APP Store, search “Nethome Plus” app and download it.



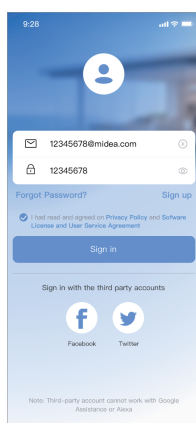
Android



IOS

2 Register or Login account

Open the App and create a user account, if you already have one, just log in.

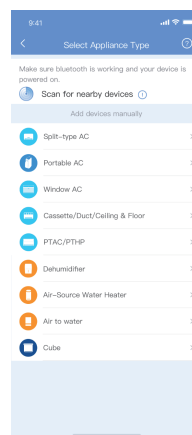


3 Add your appliance

Tap the “+” icon to add home appliance to your NetHome Plus account.

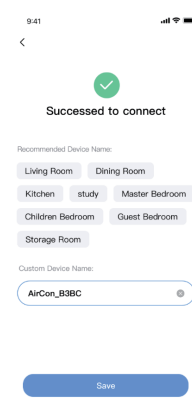


4 Choose Air Source Heat Pump Water Heater



5 Connected to the network

Follow the instructions in the app to set up the Wireless connection. If the network connection fails, please refer to the App tips for operation. The actual UI design may look different from examples due to app updates.



Compliance

This device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. (European Union products only)

Wireless module models:

EU-SK110, US-SK110:

FCC ID: 2ADQOMDNA23

IC: 12575A-MDNA23

BLE:2402-2480MHz,

TX Power: <10dBm

Wireless:2400-2483.5MHz,

TX Power: <20dBm

Operation is subject to the following two conditions:

(1) This device may not cause harmful

interference;

(2) This device must accept any interference,

including interference that may cause

undesired operation of the device.

Only operate the device in accordance with the instructions supplied.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This device complies with FCC radiation exposure limits set forth for an uncontrolled environment.

In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate

radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

Trouble Shooting

Non-error tips

Q: Why can't the compressor start immediately after the setting?

A: The unit will wait for 3 minutes to balance the pressure of the system before starting the compressor again. It's a self protection logic.

Q: Why does the temperature shown on the display panel decreased sometimes while the unit is running?

A: When the temperature of the upper part of the tank is significantly higher than that of the bottom part, the hot water in the upper part will be mixed with the cold water from the inlet pipe that continually flows into the bottom, thereby decreasing the temperature of the upper part.

Q: Why dose the temperature shown on the display sometimes decrease quickly?

A: Since the tank is a pressure-bearable tank type, in case of a high demand for hot water, the hot water will be quickly drawn from the upper part of the tank, and the cold water will rapidly enter the bottom part of the tank. If the surface of the cold water reaches the upper temperature sensor, the temperature displayed on the screen will decrease rapidly.

Q: Why does the temperature shown on the display sometimes decreases a lot, but there is still hot water coming out?

A: Because the upper water sensor is located at the upper 1/4 of the tank, when temperature on the display starts decreasing, it means there is still 1/4 tank of hot water available.

Q: Why does the unit sometimes shows " EHLA " on display ?

A: When the unit does not have electric heating function, the heat pump operating outdoor temperature range is -15~43°C. If the outdoor temperature is out of the range, the system will show the above-mentioned signal to let user notice it.

Q: Why are the buttons sometimes unavailable?

A: If there is no operation on panel for 60s, the unit will lock the panel, shows "🔒". To unlock the panel, please press the "🕒"+"🕒" button for 2 seconds.

Q: Why sometimes there is some water flowing from the drainage pipe of safety valve?

A: Because the tank is a pressured one, when water is heated inside the tank, water will expand, so the pressure inside of tank will increase, if the pressure goes above than 0.85Mpa, the safety valve will activate to relief the pressure and hot water will be discharged. If water drop is continually discharged from safety valve drainage pipe, it is abnormal, please contact qualified professional to repair it.

Self-protection of unit

- 1) When self-protection happens, the system will be stopped and start self-check, and restart when the protection resolved.
- 2) When the self-protection happens, the ① will flash and error code will be shown at the water temperature indicator. But the ① and error code does not disappear until the protection is resolved.

When Error happened

- 1) If some normal errors happen, the unit will automatically shift to electrical heater for emergency DHW production, please contact qualified professional to repair it.
- 2) If some serious error happen, the unit will not start, please contact qualified person to repair it.

Error trouble shooting

Error	Possible reason & Solution
Display does not lit up/water is cold.	Check that the product is powered/ set the temperature at a higher value.
No hot water coming out.	Check that the tap line is clear; check that the tap water pressure is not too low.
Water in safety valve relief port flow out of the pressure relief port of the safety valve.	If there is only a small amount of water flow out, for the water thermal expansion caused by the normal phenomenon, do not block; if a large amount of water flow out, please replace the safety valve.
It takes a long time to heat a tank of water.	- When the ambient temperature is low, the heating speed of the unit is reduced, which is a normal phenomenon, please heat up in advance. - Check whether the electric heating is running normally, check whether the set mode is air conditioning + hot water production at the same time on mode, at the same time on mode under the slower rate of warming.
Automatic operation or shutdown.	Is it because the reservation/timer function is set.
It does not work.	Is the circuit breaker not closed. •Is the fuse blown. • Whether the reservation/timer function is set. • Whether it is caused by the protection of the unit (the corresponding protection code will be displayed) • Whether the water temperature is high and has not reached the conditions for the unit to turn on.
The heating effect is not obvious.	Whether the air inlet and outlet of the unit are blocked.
Compressor does not run after power on.	- There is hot water in the tank and it can be used. - When the power switch is turned on, the hot water dispenser will not run for about 3 minutes after the operation stops, because the compressor cannot be started within 3 minutes of stopping. - The water heater cannot run for about 3 minutes after running stops when the power switch is turned on.
Display of water temperature Slow rise.	Because the upper part of the tank water temperature is higher, the middle and lower part of the water temperature is lower, need to wait until the whole tank water temperature is basically the same, show the water temperature will rise faster. When the temperature of the water in the whole tank is basically the same, the temperature of the water will rise faster.
Shows that the water temperature decreases during the heating process.	When the temperature of the upper part of the tank is much higher than the lower , due to the natural convection of hot and cold water in the heating process, it will make the Hot and cold water will be stirred and mixed to a certain extent, and the temperature of the upper hot water will be slightly reduced, or the unit may slightly reduce the temperature when the defrosting action is performed. The temperature of the upper hot water will be slightly reduced, or when the unit is defrosting, the display temperature may also be slightly reduced.
Shows a decreasing water temperature, indicating low or no heating.	To avoid the host from turning on and off too frequently, a condition has been set for the host to start up and use water temperature. When not using water, the host will only start heating when the displayed water temperature drops below the set return temperature. (The return temperature value can be set via the wired remote controller.)
The display shows that the water temperature will suddenly, drop a lot.	Since the unit is built-in pressurized water tank, when using hot water, cold water needs to enter the tank to top off the hot water, and there will be obvious stratification between the hot and cold water. There will be obvious stratification between the hot and cold water, when the cold water overflows the temperature sensor on the upper part of the tank, the water temperature will be suddenly reduced. When the cold water overflows the temperature sensor on the upper part of the tank, the water temperature will be suddenly lowered, which is a natural phenomenon of the high utilization rate of the unit's water tank.
Shows that the temperature of the water is decreasing a lot. But there is still hot water.	The upper part of the water tank temperature sensor is placed in the upper 1/4 of the water tank, and the display of the water temperature is the temperature of the upper part of the water tank temperature sensor. When the water is being used and the displayed water temperature is suddenly lowered, there is still almost 1/5 of the tank's hot water available for use. When the water is being used, there is still almost 1/5 tank of hot water in the tank after the display water temperature drops suddenly.
Displayed water temperature and set water temperature difference.	- Whether to set the reservation function, the unit will be heated up in advance when reservation is made, and the display temperature will be slightly decreased due to natural heat dissipation, which is a normal phenomenon. Due to natural heat dissipation, the display temperature will drop slightly, which is a normal phenomenon. - Whether the unit is protected.
During the heating process the compressor will not stop running and the fan machine stops.	When the ambient temperature is low, the evaporator may be frosted resulting in poor heat transfer, at this time the host will be defrosting operation. The compressor will be running when defrosting, and the fan will stop running.
The safety valve is releasing water.	As the water tank itself is a closed pressurized container, when heated, the water is subjected to thermal expansion. When the pressure inside the tank is greater than 0.8MPa, the pressure relief port of the safety valve will act to flow out hot water, thus protecting the tank from pressure damage or even explosion.

Error	Possible reason & Solution
Deviation of display from set temperature.	When the unit reaches the temperature and stops, there may be a small deviation between the display temperature and the set temperature, which is a normal phenomenon.
The unit heats up for a period of time and shows that the temperature has not risen.	● If the user continues to use hot water, resulting in the lower part of the tank into the more cold water, the unit mainly heats the lower part of the water temperature, the priority of the temperature under the tank rises while the upper part of the tank does not rise significantly is a normal phenomenon. ● Check whether the host is working properly and the tank setting operation mode, the tank energy-saving mode host heating hot water to the maximum water temperature will stop working, using electric heating, check whether the electric heating is working properly.
Displayed temperature deviation from setpoint after sterilization.	● Sterilization is completed after a period of time, the current display temperature and the user set temperature is not consistent with the normal phenomenon. It takes a long time for the water tank temperature to decrease from 70 °C to the user setting temperature; ● Turn on the forced sterilization or automatic sterilization, the set temperature of the unit becomes 70 °C (once effective). The sterilization symbol of the heating process lights up. After the water tank temperature reaches 70 °C to complete the sterilization, the sterilization icon goes out.

Error code table

Display	Malfunction Description
EhOb	Tank and LCD panel communication error.
EH00	Machine working parameters are abnormal.
EL01	Faulty communication between water tank and outdoor unit
PH15	Leakage protection
EC54	Error of TP
EC53	Error of T4
EC52	Error of T3
EHEA	Impressed current anode default.
EH5L	Error of T5L
EH5U	Error of T5U
EH5d	Electric heating disconnection protection
PHdH	Dry burning protection
EC51	Abnormal operating parameters of the outdoor unit
PH23	Anti-freeze protection for refrigeration status
PH24	Anti-freeze protection for low-temperature conditions
EC72	DC fan out of phase
PC12	341 Voltage protection or MCE fault

Display	Malfunction Description
PC00	IPM module protection
PC01	Main control voltage protection
PC02	Compressor top temperature protection
PC03	System pressure protection or failure
PC04	Compressor feedback protection
PC08	Outdoor unit current protection
PC40	Outdoor main control & driver chip communication failure
PC43	Compressor phase failure protection
PC44	Compressor 0 speed protection
PC45	341PWM Synchronization Guarantee
PC46	Compressor stall protection
PC49	Compressor overcurrent protection
PC51	T2 high temperature protection
PC52	T2 low temperature protection
EC07	Outdoor unit fan stall protection
PH9b	Over-temperature protection for water tanks

Display	Malfunction Description
EC55	IGBT sensor failure
EC56	T2b sensor failure

Display	Malfunction Description
EHdT	Single connection water tank failure

NOTE

- The diagnostic codes listed above are the most common. If a diagnostic code not listed above is displayed, contact residential technical assistance referencing the number on the front of this manual.

Maintenance

CAUTION

The maintenance of the unit requires professional after-sales personnel responsible for overhauling the unit.

Maintenance

- 1) Check the connection between power supply plug and socket and ground wiring regularly;
- 2) In some cold area (below 0°C), if the system will be stopped for a long time, all the water should be drained to prevent of freezing of inner tank and damage of electrical heater.
- 3) It is recommended to clean the inner tank and electrical heater every year to keep an efficient performance.
- 4) Check the anode rod every year and change it, if it has been used out. For more details, please contact the supplier or the after-sale service.
- 5) If the outlet water volume is sufficient, it is recommended to set a lower setpoint temperature in order to decrease the heat loss, prevent scale buildup, and save energy.
- 6) Before shutting the system off for a long time, please:
- 7) Shut off the power supply;
Release all the water in water tank and the pipeline and close all the valves;
Check the inner components regularly.
- 8) How to replace the anode rod
 - Empty the tank, and drain out the water, until there are no water flow out.
 - Get off the anode rod.
 - Replace with a new one, and make sure effective sealed.
 - Open cold water inlet tap until water flows out from outlet tap, then turn of water outlet tap.
 - Power on then restart the unit.

- As the anode rod needs to be replaced from the top, a minimum maintenance space of 800 mm needs to be left at the top of the installation to allow for the replacement of the anode rod.
- Replacement of anode rod should be carried out by a professional service technician, do not replace the anode rod without authorization as this may damage the tank.

Recommended regular maintenance table

Checking Item	Checking Content	Checking Frequency	Action
1	anode rod	Every year	Replace it if it has been used out
2	inner tank	Every year	Clean the tank
3	electrical heater	Every year	Clean the electrical heater
4	Safety valve	Every month	operate the handle of safety valve to ensure that water-ways are clear.

If water doesn't flow freely when operating the handle, replace the safety valve with a new one.

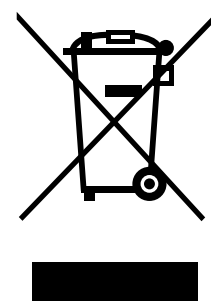
Disposal and Recycling

Important instructions for environment (European Disposal Guidelines)

Compliance with the WEEE Directive and Disposing of the Waste Product:

This product complies with EU WEEE Directive (2012/19/EU). This product bears a classification symbol for waste electrical and electronic equipment (WEEE).

This symbol indicates that this product shall not be disposed with other household wastes at the end of its service life. Used device must be returned to official collection point for recycling of electrical electronic devices. To find these collection systems please contact to your local authorities or retailer where the product was purchased. Each household performs important role in recovering and recycling of old appliance. Appropriate disposal of used appliance helps prevent potential negative consequences for the environment and human health.



RED Declaration of Conformity (DoC)

Unique identification of this DoC: No.20250508005....

We,

Frigicoll HVAC S.L.

Blasco de Garay 4, 08960 Sant Just Desvern, Barcelona, Spain

declare under our sole responsibility that the product:

product name: HEAT PUMP WATER HEATER

trade name: KAYSUN

Type or model: KAM4HR-80 DR8+KTHR-190/ KAM4HR-80 DR8+KTHR-100/
KAM3HR-52 DR8+KTHR-190/KAM4HR-80 DR9+KTHR-190-B

relevant supplementary information:
(e.g. lot, batch or serial number, sources and numbers of items)

to which this declaration relates is in conformity with the essential requirements and other relevant requirements of the RE Directive (2014/53/EU).

The product is in conformity with the following standards and/or other normative documents:

HEALTH & SAFETY (Art. 3(1)(a)): EN 62311:2008, EN IEC 62311:2020, EN 60335-2-40:2003+A11:2004+A12:2005+A1:2006+A2:2009+A13:2012, EN 60335-1:2012+A11:2014+A13:2017+A1:2019 + A14:2019 + A2:2019+A15:2021, EN 60335-2-21:2021 + A1:2021, EN 62233:2008, EN 62479:2010, EN 50663:2017,

EMC (Art. 3(1)(b)): EN 301 489-1 V2.2.3:2019, EN 301 489-17 V3.2.4:2020, EN IEC 55014-1:2021, EN IEC 55014-2:2021, EN IEC 61000-3-2:2019/A1:2021, EN 61000-3-3:2013/A2:2021

SPECTRUM (Art. 3(2)): EN 300 328 V2.2.2 (2019-07)

OTHER (incl. Art. 3(3)(d)): EN 18031-1:2024

Limitation of validity (if any):

Supplementary information:

Notified body involved: N/A.....

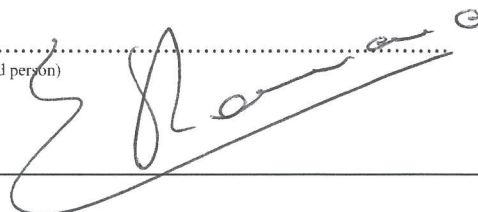
Technical file held by: GD Midea Air-Conditioning Equipment Co., Ltd.

Place and date of issue (of this DoC): Barcelona/2025-05-08

Signed by or for the manufacturer:
(Signature of authorised person)

Name (in print): Eduardo Romano

Title: General Director



The design and specifications are subject to change without prior notice for product improvement. Consult with the sales agency or manufacturer for details. Any updates to the manual will be uploaded to the service website, please check for the latest version.

Importer/Manufacturer:

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