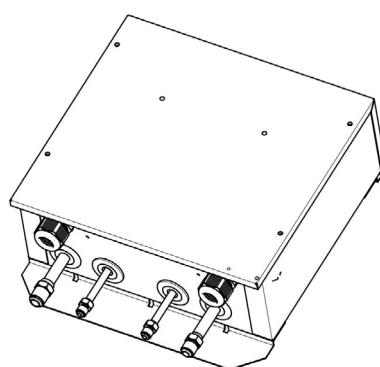


# DHW Kit

## Installation and user manual

### MVD-W120HN8



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# 1 SAFETY PRECAUTIONS

The precautions listed here are divided into the following types. They are quite important, so be sure to follow them carefully. Read these instructions carefully before installation. Keep this manual in a handy for future reference.

Meanings of DANGER, WARNING, CAUTION and NOTE symbols.

## **DANGER**

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

## **WARNING**

Indicates a potentially hazardous situation which if not avoided, could result in death or serious 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.

## **NOTE**

Indicates situations that could only result in accidental equipment or property damage.

## **WARNING**

- Improper installation of equipment or accessories may result in electric shock, short-circuit, leakage, fire or other damage to the equipment. Be sure to only use accessories made by the supplier, which are specifically designed for the equipment and make sure to get installation done by a certified person.
- All the activities described in this manual must be carried out by a licensed technician. Be sure to wear adequate personal protection equipment such as gloves and safety glasses while installing the unit or carrying out maintenance activities.
- This appliance which connect 1-phase 2.1KW backup heater can be connected only to a supply with system impedance no more than 0.3079Ω. In case necessary, please consult your supply authority for system impedance information.

## **WARNING**

The application uses R32 refrigerant.



**Caution: Risk of fire**

(for IEC/EN 60335-2-40  
except IEC 60335-2-40: 2018)






**Caution: Risk of fire**

(for IEC 60335-2-40: 2018 only)

## **WARNING**

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.

## Explanation of symbols displayed on the application

	CAUTION	This symbol indicates that the operation manual should be read carefully.
	CAUTION	This symbol indicates that service personnel should be handling this equipment
	CAUTION	This symbol indicates that additional information is available in documents such as the operating manual or installation manual.

## Special requirements for R32

### WARNING

- Do NOT have refrigerant leakage and open flame.
- Be aware that the R32 refrigerant does NOT contain an odour.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room that does not have continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn the unit.

### NOTE

- Do NOT re-use joints which have been used already.
- Joints made in installation between parts of refrigerant system shall be accessible for maintenance purposes.

### WARNING

Make sure installation, servicing, maintenance and repair comply with instructions and with applicable legislation (for example national gas regulation) and are executed only by authorised persons.

### NOTE

- Pipework should be protected from physical damage.
- Installation of pipework shall be kept to a minimum length.

For the corresponding space requirements of R32 refrigerant, please refer to the installation & operation manual of the ODU.

## DANGER

- Before touching electric terminal parts, turn off power switch.
- When service panels are removed, live parts can be easily touched by accident.
- Never leave the unit unattended during installation or servicing when the service panel is removed.
- 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.

## WARNING

- Tear apart and throw away plastic packaging bags so that children will not play with them. Children playing with plastic bags face danger of death by suffocation.
- Safely dispose of packing materials such as nails and other metal or wood parts that could cause injuries.
- Ask your dealer or qualified personnel to perform installation work in accordance with this manual. Do not install the unit by yourself. Improper installation could result in water leakage, electric shocks or fire
- Be sure to use only specified accessories and parts for installation work. Failure to use specified parts may result in water leakage, electric shocks, fire, or the unit falling from its mount.
- Install the unit on a foundation that can withstand its weight. Insufficient physical strength may cause the equipment to fall and possible injury.
- Perform specified installation work with full consideration of strong wind, hurricanes, or earthquakes. Improper installation work may result in accidents due to equipment falling.
- Make certain that all electrical work is carried out by qualified personnel according to the local laws and regulations and this manual using a separate circuit. Insufficient capacity of the power supply circuit or improper electrical construction may lead to electric shocks or fire.
- Be sure to install a ground fault circuit interrupter according to local laws and regulations. Failure to install a ground fault circuit interrupter may cause electric shocks and fire.
- Make sure all wiring is secure. Use the specified wires and ensure that terminal connections or wires are protected from water and other adverse external forces. Incomplete connection or affixing may cause a fire.
- When wiring the power supply, form the wires so that the front panel can be securely fastened. If the front panel is not in place there could be overheating of the terminals, electric shocks or fire.
- After completing the installation work, check to make sure that there is no refrigerant leakage.
- Never directly touch any leaking refrigerant as it could cause severe frostbite. Do not touch the refrigerant pipes during and immediately after operation as the refrigerant pipes may be hot or cold, depending on the condition of the refrigerant flowing through the refrigerant piping, compressor and other refrigerant cycle parts. Burns or frostbite are possible if you touch the refrigerant pipes. To avoid injury, give the pipes time to return to normal temperature or, if you must touch them, be sure to wear protective gloves.
- Do not touch the internal parts (pump, backup heater, etc.) during and immediately after operation. Touching the 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.

## CAUTION

- Ground the unit.
- Grounding resistance should be according to local laws and regulations.
- Do not connect the ground wire to gas or water pipes, lightning conductors or telephone ground wires.
- Incomplete grounding may cause electric shocks.
  - Gas pipes: Fire or an explosion might occur if the gas leaks.
  - Water pipes: Hard vinyl tubes are not effective grounds.
  - Lightning conductors or telephone ground wires: Electrical threshold may rise abnormally if struck by a lightning bolt.

## CAUTION

- Install the power wire at least 3 feet (1 meter) away from televisions or radios to prevent interference or noise.
- (Depending on the radio waves, a distance of 3 feet (1 meter) may not be sufficient to eliminate the noise.)
- Do not wash the unit. This may cause electric shocks or fire. The appliance must be installed in accordance with national wiring regulations. 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.
- Do not install the unit in the following places:
  - Where there is mist of mineral oil, oil spray or vapors. Plastic parts may deteriorate, and cause them to come loose or water to leak.
  - Where corrosive gases (such as sulphurous acid gas) are produced. Where corrosion of copper pipes or soldered parts may cause refrigerant to leak.
  - Where there is machinery which emits electromagnetic waves. Electromagnetic waves can disturb the control system and cause equipment malfunction.
  - Where flammable gases may leak, where carbon fiber or ignitable dust is suspended in the air or where volatile flammables such as paint thinner or gasoline are handled. These types of gases might cause a fire.
  - Where the air contains high levels of salt such as near the ocean.
  - Where voltage fluctuates a lot, such as in factories.
  - In vehicles or vessels.
  - Where acidic or alkaline vapors are present.
- This appliance can be used by children 8 years old and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they are supervised or given instruction on using the unit in a safe manner and understand the hazards involved. Children should not play with the unit. Cleaning and user maintenance should not be done by children without supervision.
- 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.
- This unit (model MHWK-120HN8) is a partial unit air conditioner, complying with partial unit requirements of this international standard, and must only be connected to other units that have been confirmed as complying to corresponding partial unit requirements of this international standard.
- The electrical interfaces shall be specified with purpose, voltage, current, and safety class of construction.
- Children should be supervised to ensure that they do not play with the appliance.
- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person.
- 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 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 substance can leak into the groundwater and get into the food chain, damaging your health and well-being.
- The wiring must be performed by certified person technicians in accordance with national wiring regulation 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 not exceeding 30mA shall be incorporated in the fixed wiring according to the national rule.
- Confirm the safety of the installation area ( walls, floors, etc. ) without hidden dangers such as water, electricity, and gas before wiring/pipes.
- Before installation, check whether the user's power supply meets the electrical installation requirements of unit ( including reliable grounding, leakage, and wire diameter electrical load, etc. ). If the electrical installation requirements of the product are not met, the installation of the product is prohibited until the product is rectified.
- Product installation should be fixed firmly, Take reinforcement measures, when necessary.

## NOTE

- About Fluorinated Gases
  - This air-conditioning unit contains fluorinated gases. For specific information on the type of gas and the amount, please refer to the relevant label on the unit itself. Compliance with national gas regulations shall be observed.
  - Installation, service, maintenance and repair of this unit must be performed by a certified technician.
  - Product uninstallation and recycling must be performed by a certified technician.
  - If the system has a leak-detection system installed, it must be checked for leaks at least every 12 months. When the unit is checked for leaks, proper record-keeping of all checks is strongly recommended.

## 2 GENERAL INTRODUCTION

The DHW Kit can be connected to the heat pump ODU and the Water tank. The DHW Kit is not allowed to be connected with outdoor alone. This manual describes how to install and operate a DHW Kit and a Water tank.

### 2.1 DHW Kit

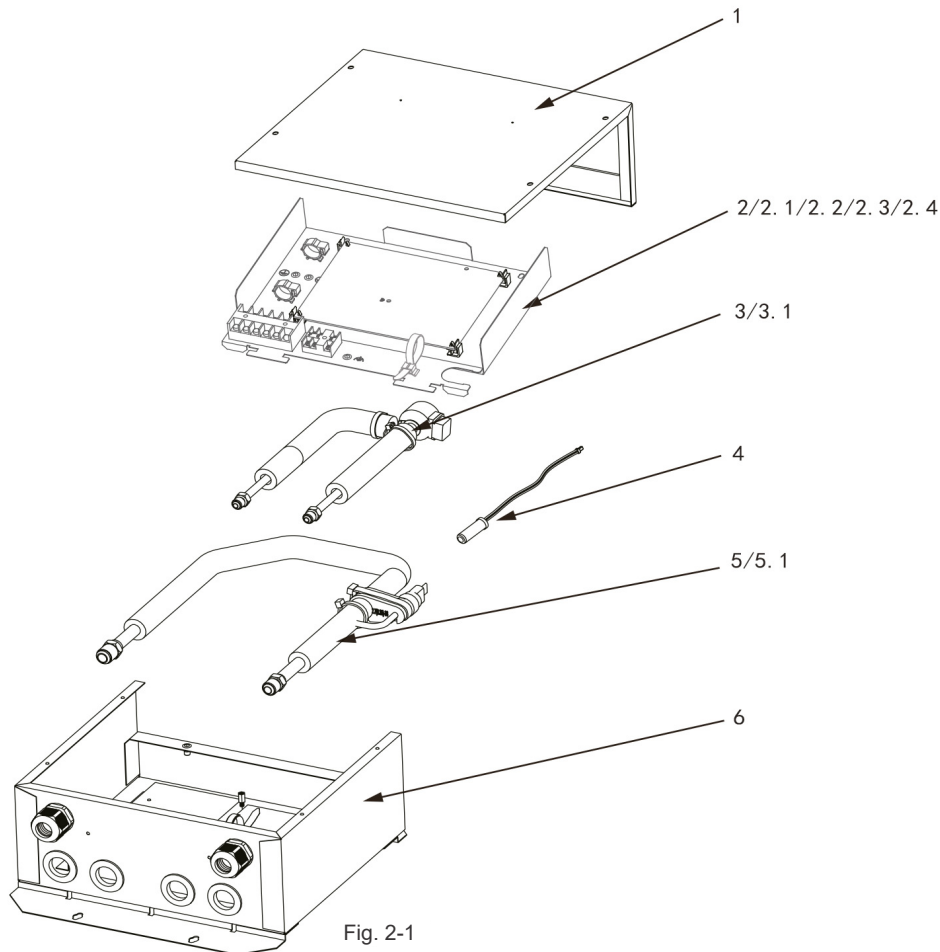
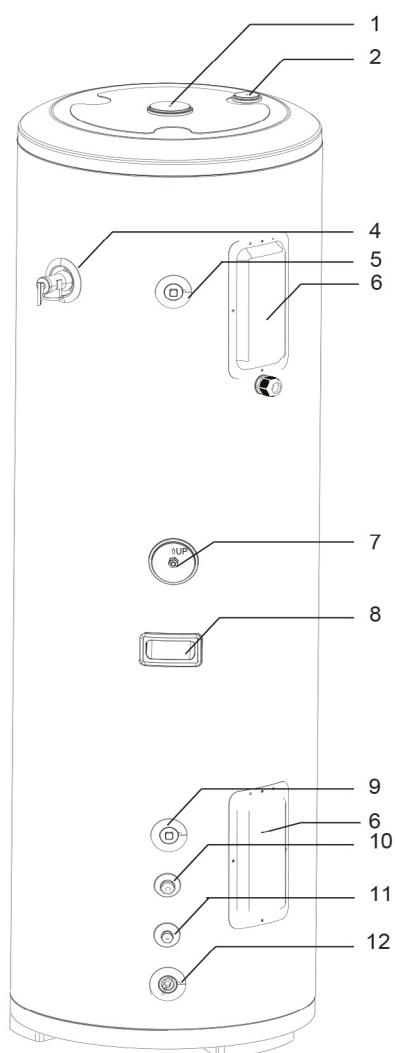


Fig. 2-1

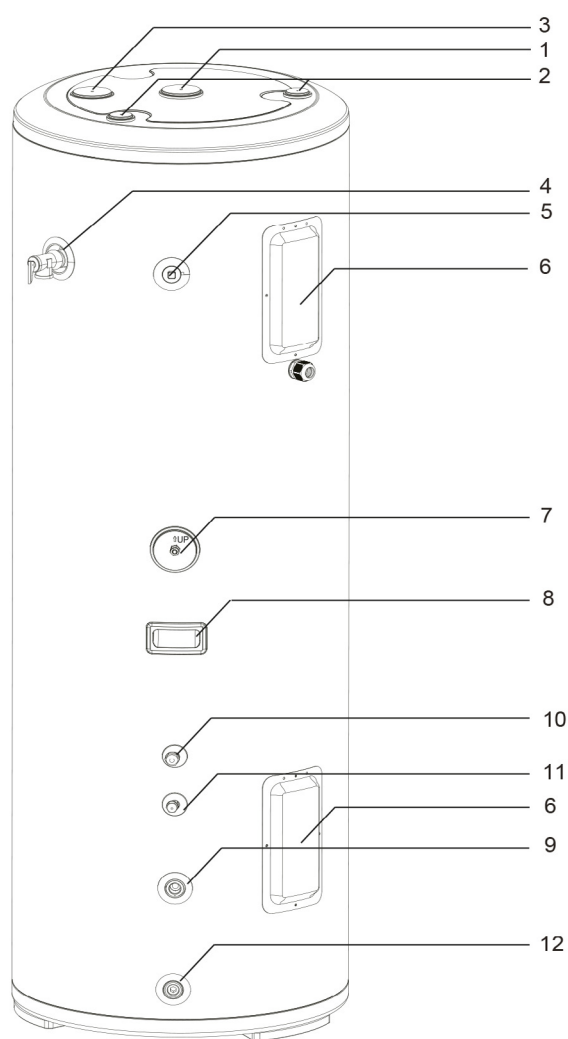
Table 2-1

No.	Name
1	DHW Kit Cover Assembly
2	Electric Control Welding Assembly
2.1	Electrical Box Separator Assembly
2.2	Outdoor Main Control Board Assembly
2.3	Power Terminal Block
2.4	Communication Terminal Block
3	Refrigerant Liquid Pipe Assembly
3.1	Electronic Expansion Valve Suite
4	Temperature Sensor
5	Refrigerant Gas Pipe Assembly
5.1	Pressure Sensor
6	DHW Kit Cover Welding Assembly

## 2.2 DHW Kit



200L With electric auxiliary heater.



300L With electric auxiliary heater.

Table 2-2















No.	Name
1	Magnesium Rod Insertion Port
2	Foam Filling Port
3	Reserved Port
4	Temperature Pressure Safety Valve
5	Water Outlet
6	Electric Auxiliary Heater
7	Water Tank Temperature Sensor
8	Handle
9	Water Inlet
10	Refrigerant Gas Pipe
11	Refrigerant Liquid Pipe
12	Drain Outlet



## 3 INSTALLATION

### 3.1 Installation Fittings

Table 3-1

	Name	Shape	Quantity	Use
DHW Kit	Installation & Owner's Manual		1	—
	Wired Controller		1	Wired Controller
	Wired Controller Cable group (20m)		1	—
	Screw ST3.9x10		4	Secure the installation board
	Plastic Expanded Tube		4	—
	Tie Wrap		2	—
	Flare Nut TLM-B02		2	Connect the refrigerant pipe
	Flare Nut TLM-A02		1	Connect the refrigerant pipe
	Flare Nut TLM-C02		1	Connect the refrigerant pipe
Water tank	Water Tank Fixing Strip		1	Fixed water tank
	PTR Valve		1	Pressure and temperature relief
	Connector		2	Connect water tank and safe care
	Seal Ring		2	Prevent rust between water tank and joint
	Safe Care		2	Isolation current to some extent

### 3.2 Before installation

- Before installation**

Be sure to confirm the model name and the serial number of the unit.

#### **⚠ CAUTION**

##### Frequency of Refrigerant Leakage Checks

- For unit that contains fluorinated greenhouse gases in quantities of 5 tonnes of CO<sub>2</sub> equivalent or more, but of less than 50 tonnes of CO<sub>2</sub> equivalent, at least every 12 months, or where a leakage detection system is installed, at least every 24 months.
- For unit that contains fluorinated greenhouse gases in quantities of 50 tonnes of CO<sub>2</sub> equivalent or more, but of less than 500 tonnes of CO<sub>2</sub> equivalent, at least every six months, or where a leakage detection system is installed, at least every 12 months.
- For unit that contains fluorinated greenhouse gases in quantities of 500 tonnes of CO<sub>2</sub> equivalent or more, at least every three months, or where a leakage detection system is installed, at least every six months.
- This air-conditioning unit is a hermetically sealed equipment that contains fluorinated greenhouse gases.
- Only certificated person is allowed to do installation, operation and maintenance.

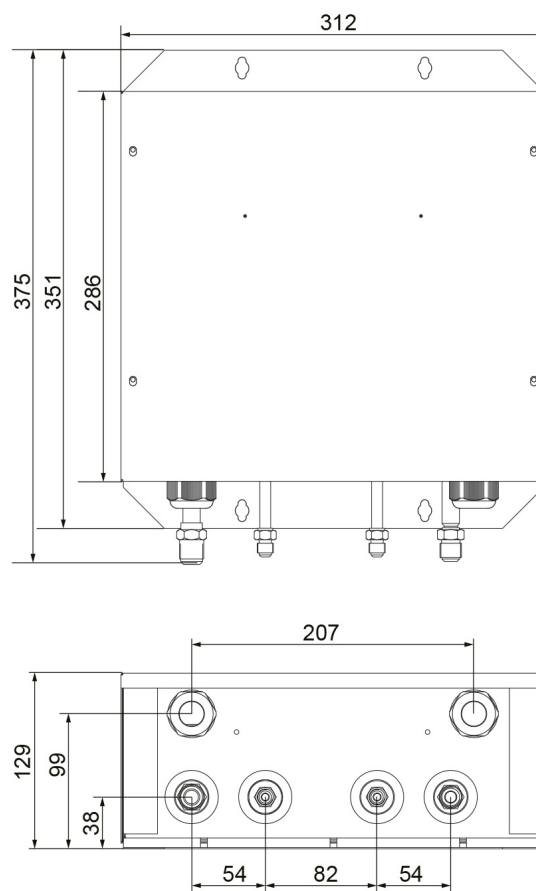
- Select an installation site where the following conditions are satisfied and one that meets with your customer's approval.
  - Places that are well-ventilated.
  - Safe places which can bear the unit's weight and vibration and where the unit can be installed at an even level.
  - Places where there is no possibility of flammable gas or product leak.
  - The equipment is not intended for use in a potentially explosive atmosphere.
  - Places where servicing space can be well ensured.
  - Places where the units' piping and wiring lengths come within the allowable ranges.
  - Places where water leaking from the unit cannot cause damage to the location (e.g. in case of a blocked drain pipe).
  - Do not install the unit in places often used as a work space. In case of construction work (e.g. grinding etc.) where a lot of dust is created, the unit must be covered.
  - Do not place any object or equipment on top of the unit (top plate)
  - Do not climb, sit or stand on top of the unit.
  - Be sure that sufficient precautions are taken in case of refrigerant leakage according to relevant local laws and regulations.

### NOTE

During installing, it is necessary to reserve enough installation space and maintenance space according to the following figures.

## 3.3 DHW Kit Installation Size and Methods.

### 3.3.1 DHW Kit Dimension sketch. (Unit: mm)



### 3.3.2 DHW Kit installation and fixed way

Drill four holes where you want to install the DHW Kit, with the positions of the holes shown below. Secure the DHW Kit using screws. The DHW Kit must be installed vertically on the wall.

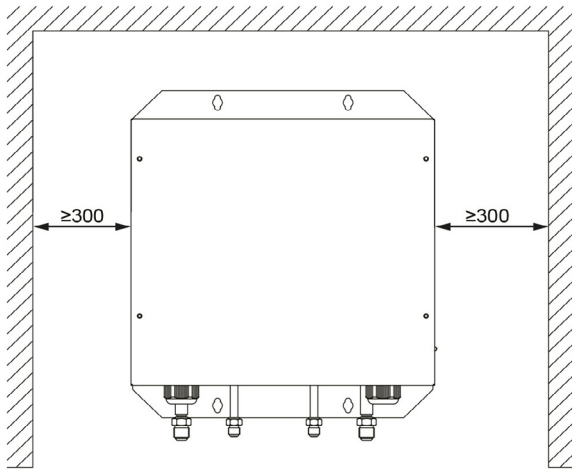


Fig. 3-3

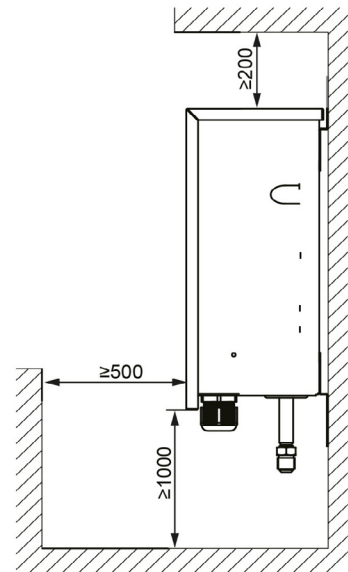


Fig. 3-4

### 3.4 Water tank Installation Size and Methods.

#### 3.4.1 Water tank installation and maintenance space. (Unit: mm)

#### NOTE

- If the water tank is completely installed outdoors, a rain shelter must be installed.
- When the water tank is installed outdoors, the distance between the water tank and the fence is not less than 200mm.
- When the water tank is installed indoors, the distance between the water tank and the wall is not less than 600mm.

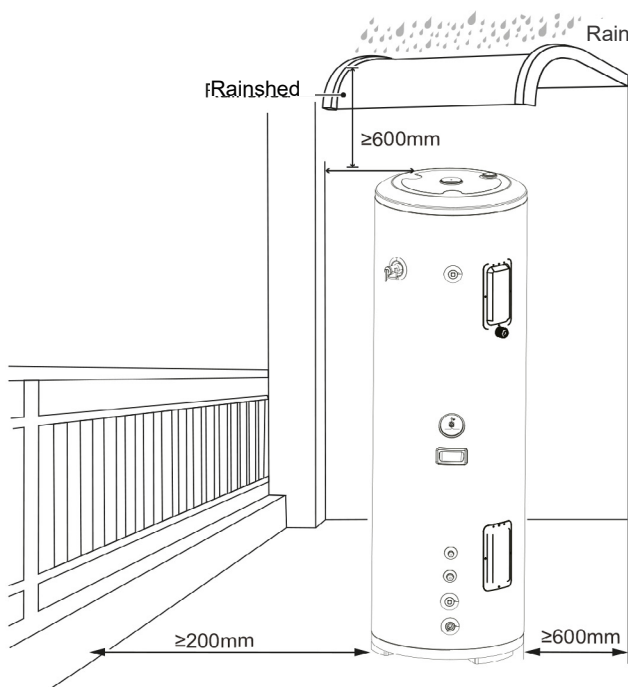


Fig 3-5

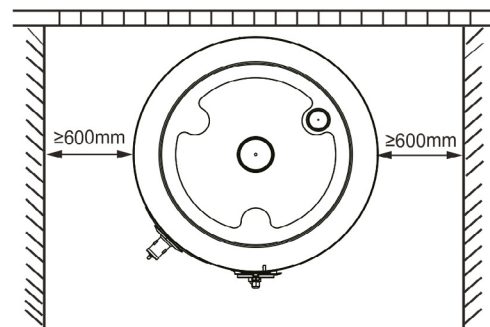


Fig 3-6

3.4.2 Water tank Dimension sketch and fixed way. (Unit: mm)

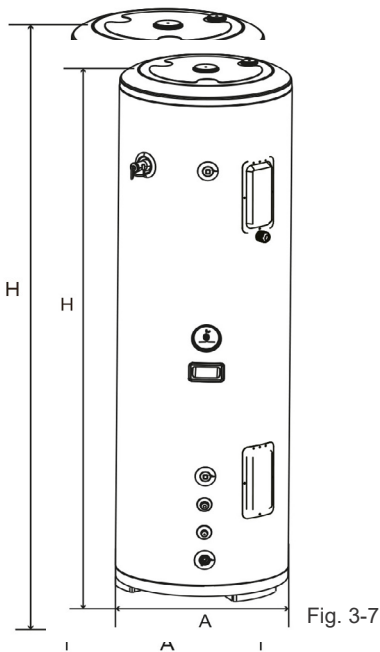
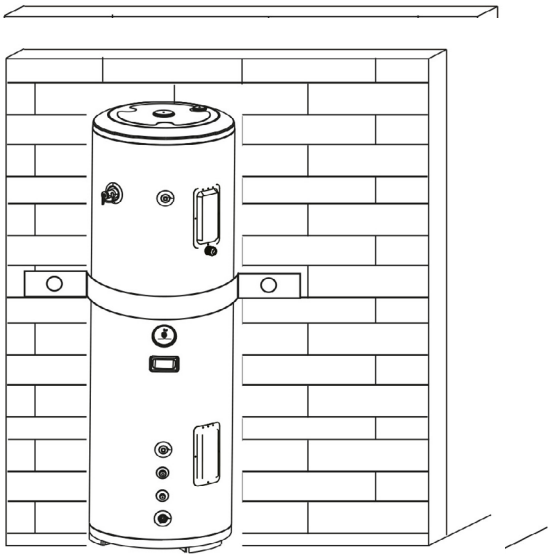


Fig. 3-7



Please install the water tank fixing strip as shown in the figure to ensure that the water tank is stably fixed. Fig. 3-8

Table 3-2

Model	Dimension	A	H
200L		505	1665
300L		580	1735

3.4.3 Water tank temperature sensor installation

Connect the water tank temperature sensor wire connector to the DHW Kit T5L connector.

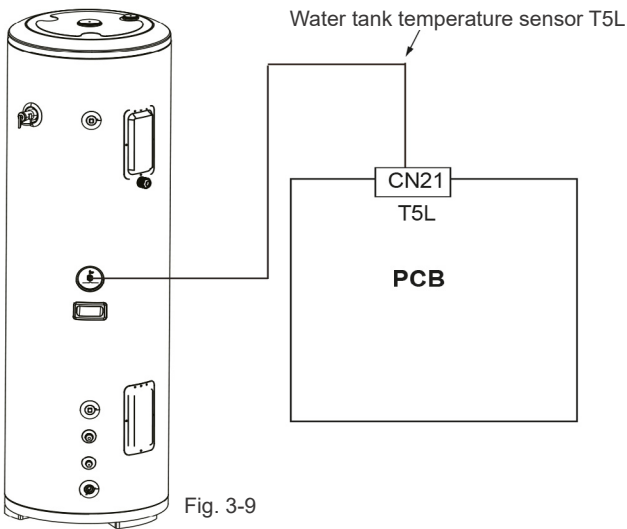


Fig. 3-9

### 3.5 Connection length of Water tank and DHW Kit pipe and height difference requirements:

Table 3-2

Max.length (m)	Max. height difference (m)	Standard length (m)	Standard height difference(m)
3	2	1	1
3	2	1	1

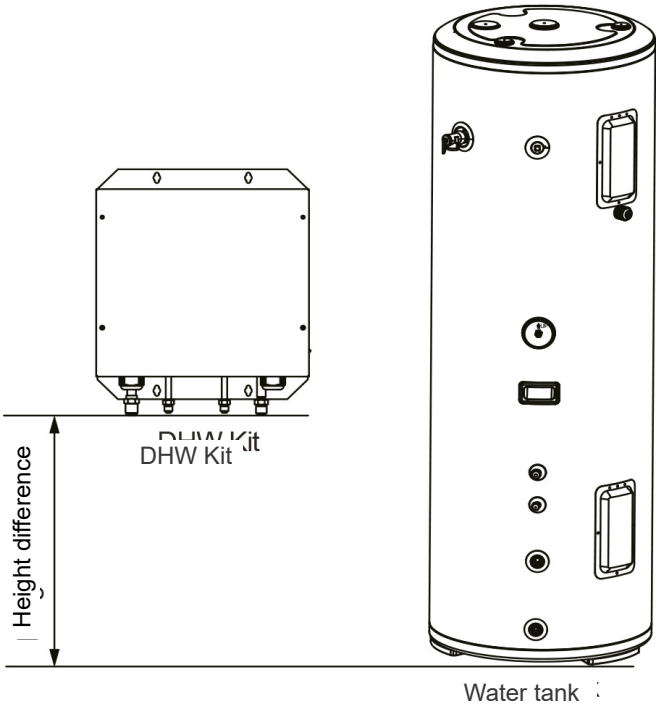


Fig. 3-10

### 3.6 Select refrigerant pipe

Table 3-3

Refrigerant piping	Liquid side	Between the nearest branch and DHW Kit	mm/inch	Φ6.35 / Φ1/4"
		Between the nearest branch and DHW Kit	mm/inch'	Φ6.35 / Φ1/4
	Gas side	Between Water tank and DHW Kit	mm/inch'	Φ6.35 / Φ1/4
		Between the nearest branch and DHW Kit	mm/inch	Φ12.7 / Φ1/2"
		Between the nearest branch and DHW Kit	mm/inch	Φ12.7 / Φ1/2"
		Between Water tank and DHW Kit	mm/inch	Φ9.52 / Φ3/8'

The pipe thickness of the refrigerant piping shall comply with the applicable legislation.  
The minimal pipe thickness for R32 piping must be in ccordance with the table below.

Table 3-4

Piping outer diameter (mm)	Minimum thickness (mm)	Temper grade
Φ6.4	0.80	M-type
Φ9.5	0.80	M-type
Φ12.7	1.00	M-type



### 3.7.2 PTR valve

- The valve body unloading pressure is 850kPa, unloading temperature is 99°C, and the valve body opening energy value is 46kW, more details refer to certificate No:WMK26608.
- PT valve is tightened with a 68N·m torque wrench. Apply sealant to the first 3 turns of screw thread before installation; After installation, the outlet of the drain pipe shall be installed face down, and the thread turns that are not screwed into the PT valve shall be less than 3 turns.
- Before filling the water tank, the PTR valve must be installed properly.
- The PTR valve should be checked every half year to make sure that there is no restriction of the valve. Please beware of hot water from the valve. The drainage pipe should be well insulated in order to prevent water inside pipe from freezing in cold weather.

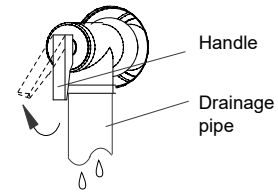


Fig.3-12

### 3.7.3 Refrigerant pipe connection

Align the center of the pipes.

Sufficiently tighten the flare nut with fingers, and then tighten it with a spanner and torque wrench .

The protective nut is a one-time part, it can not be reused. In case it is removed, it should be replaced with a new one.

Table 3-6

Outer diam.	Torque wrench (N·m)
1/4 (Φ6.35)	14.2-17.2(1.44-1.76kgf·m)
3/8 (Φ9.52)	32.7-39.9(3.33-4.07kgf·m)
1/2 (Φ12.7)	49.5-60.3(5.04-6.16kgf·m)

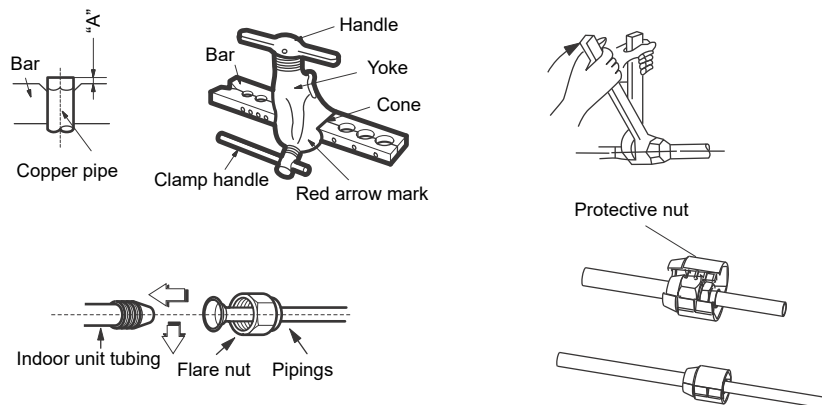


Fig.3-13

### ⚠ CAUTION

- Excessive torque can break nut on installation conditions.
- When flared joints are reused indoors, the flare part should be re-fabricated.

## 4. ELECTRICAL CONNECTION

### ⚠ DANGER

- The power supply must be cut off before any electrical work is carried out. Do not conduct electrical work when the power is on; otherwise, it may cause serious personal injury.
- The air conditioning unit must be grounded reliably and must meet the requirements of the local country/region. If the grounding is not reliable, serious personal injury due to electric leakage may occur.

### WARNING

- Installation, inspection or maintenance operations must be completed by professional technicians. All parts and materials must comply with the relevant regulations of the local country/region.
- The DHW Kit control box and ODU should use separate power supplies with rated voltage.
- The power supply of the DHW Kit must be equipped with a power disconnect device that conforms to the requirements of relevant local technical standards for electrical equipment. The power disconnecting device must be equipped with short circuit protection, overload protection and electric leakage protection. The clearance between open contacts of the power disconnecting device shall be at least 3mm.
- The core of the power cable must be made of copper, and the wire diameter should meet the current-carrying requirements. A wire diameter that is too small may cause the power cable to heat up, resulting in a fire.
- The power cable and the ground wire should be secured reliably to avoid stress on the terminals. Do not pull the power cable forcibly; otherwise, the wiring may become loosened or the terminal blocks may be damaged.
- Strong current wires such as power cables cannot be connected to weak current wires such as communication lines; otherwise, the product may be seriously damaged.
- Do not bond and connect the power cable. Bonding and connecting the power cable may cause it to heat up, resulting in a fire.

### CAUTION

- Avoid bonding and connecting the communication line. If doing so is unavoidable, at the very least, ensure a reliable connection by crimping or soldering and make sure the copper wire at the connection is not exposed; otherwise, communication failure may occur.
- The power cable and communication line must be routed separately, with a distance of over 5 cm. Otherwise, communication failure may occur.
- Do not connect the ground wire to the gas pipe, water pipe, lightning rod ground wire or telephone groundwire.
- After all wiring is completed, check carefully before turning on the power supply.
- For stationary appliances permanently connected to the fixed wiring, compliance with this requirement is considered to be met if the instruction concerning disconnection incorporated in the fixed wiring is in accordance with AS/NZS 3000.

## 4.1 Electrical wiring precautions

### Specification of power supply

Table 4-1

Item Model	Power	Min. wire dia. (mm <sup>2</sup> ) (metal pipesynthetic resin pipe wire)		Manual switch (A)		Leakage protector	Max. E-heater Power (W)
		Successive length ≤30m	Ground wire	Capacity	Fuse		
DHW-Kit	220-240V~50Hz	2.5	2.5	20	51	30mA below 0.1 sec	2100

### NOTE

- Specifications of power wires above (DHW Kit power wire and power wire that connects with water tank).
- Power supply provided individually (not use power supply device).

### CAUTION

- Wire diameter shown in the table above and successive length is the situation than voltage drop is in the range of 2%, when successive length is longer than the value shown in the table, please select wire diameter according to relative standards.



## 4.2 Wiring layout

### Wiring Inside the Electric Control Box

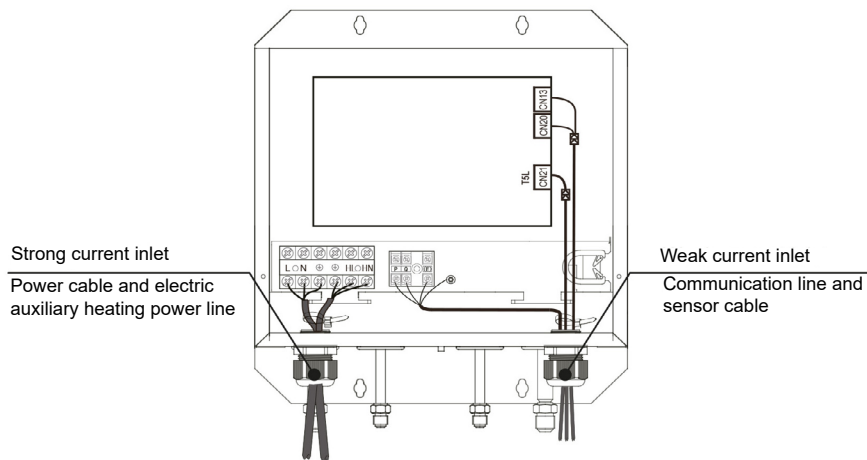


Fig. 4-1

#### NOTE

- The connection with the terminal block must be secure. Failure to do so may result in heating and even fire in serious cases.
- The power cable and the communication cable should be separated by at least 50 mm to prevent electromagnetic interference.
- The cables require an additional pull relief. Strap the cable with the installed tie wrap.
- Fasten and fix the cables with round wire clips to avoid stress on the terminals.

## 4.3 Power cord connection

Connect the electric auxiliary heating power line on the water tank and power cable to the corresponding port on the terminal block.

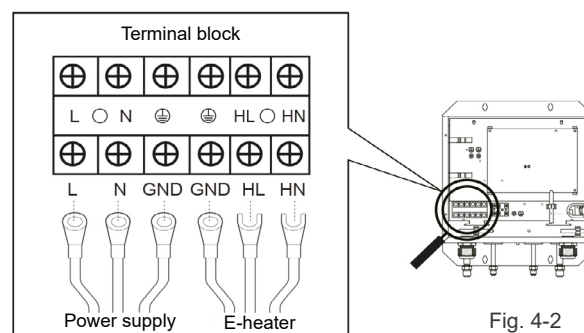


Fig. 4-2

#### WARNING

- Terminals must be used for connection. Use round-type terminals of the correct specifications to connect the power cables. Do not directly connect the cable ends. Use the correct terminal, or it may cause heating and fire.

## 4.4 Communication line connection

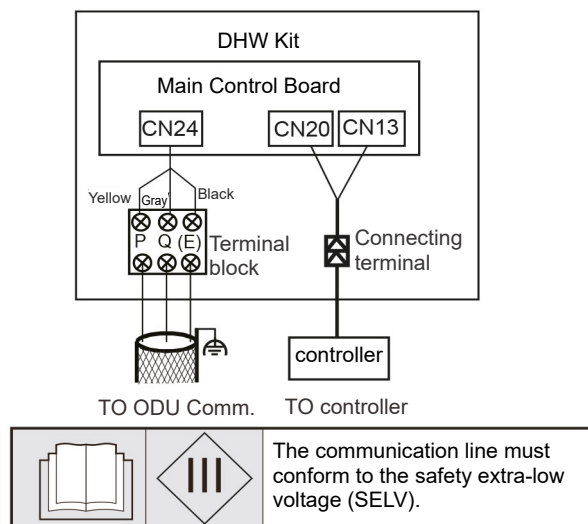


Fig.4-3

### ⚠ WARNING

- Do not connect the communication line when the power is on.
- Connect the shielding nets at both ends of the shielded wire to the sheet metal "⚡" of the electronic control box.
- Do not connect the power cable to the terminal of communication line, otherwise, the motherboard will be damaged.

### ⚠ CAUTION

- On-site wiring must comply with the relevant regulations of the local Country/region and must be completed by professionals.
- When a single communication line is not long enough, the joint must be crimped or soldered, and the copper wire at the joint shall not be exposed.

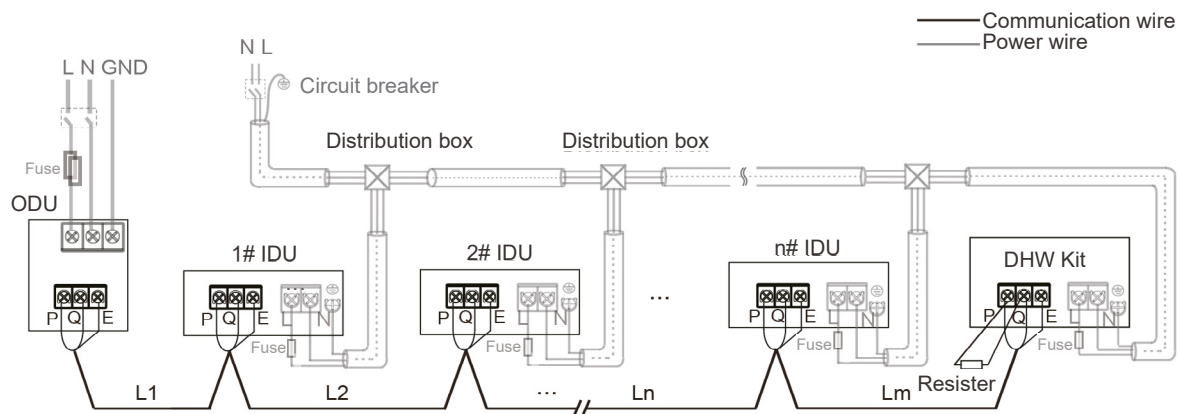


Fig.4-3


### ⚠ CAUTION

- $L1+L2+L_n+L_m \leq 1200m$ , communication wiring  $3 \times 0.75mm^2$ .
- In the whole system, DHW Kit is treated as an indoor unit.
- After the last indoor unit, the communication wiring should not route back to the outdoor unit as this will form a closed loop.
- When there is DHW Kit in system, the sequence of communication terminals of outdoor unit and indoor units PQE must be consistent.
- In the last indoor unit, connect a resistor of 120 ohms between the P and Q terminals.
- Applicable standards: EN 55014-1 and EN 55014-2. The communication line must be shielded wire.


## 5. FUNCTION INTRODUCTION


All operations need to be done by wired controller.

### 5.1 Unlock / Lock keyboard

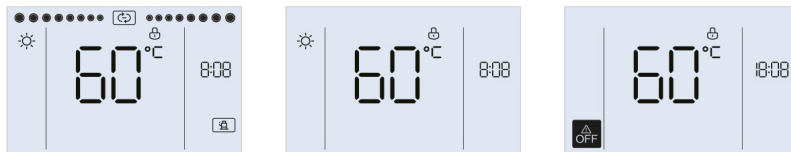
When the controller is locked and the  icon is lightened, any button is invalid at this time. Long press the  $\wedge$  +  $\vee$  key for 1 sec. to unlock the keyboard. The keyboard will be locked automatically When no button operation for 120 sec.

### 5.2 Turn on / turn off the unit

Press the  button to turn on or turn off the unit, When the keyboard is unlocked.

If unit is turned on and not operating, the main interface will display setting mode, current temperature, clock and so on. If unit is turned on and operating, the operating icon will flash. If unit is turned off, the  icon will be lightened and operating icon and mode icon will be distinguished.

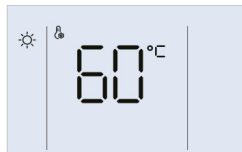
Some interface examples of operating, standby and OFF state are as follows:



### 5.3 Target temperature setting

In the main interface, press  $\wedge$   $\vee$  buttons to adjust target temperature. During adjusting, press  $\equiv$  or  $\checkmark$  button to confirm settings then return to main interface, or no press any button for 60 sec then confirm settings automatically and return to main interface.

An interface example of setting is as follows:



### 5.4 Other functional operations

Please refer to the manual of wired controller for other functions.

## 6. CHECK

### NOTE

Before switching on the unit, read following recommendations:

- When the installation and parameter setting are completed, cover all the sheet metal of the unit well.
- The unit should be maintained by professionals.

If the whole unit failed or in protection, the panel will display the corresponding code; when more than one failure or protection occurs, the order of failure protection will display. When checking, the number is displayed first, then the content. Press check button, you can go over parameters of the whole unit, the following table shows sequence of check:

DISP.	CONTENT	DESCRIPTION
0	Normal display	[dF] Defrosting
		[dC] Refrigerant recovery
		[0] OFF
		[Tx] ON or Standby
1	Operating mode	[0] OFF
		[5] ON (DHW mode)
2	DHW Kit communication address	
3	T5L temp. value	Over 100°C, the hundreds and tens digits are displayed in hexadecimal, and the single digits are displayed in decimal (For example, 105 is shown as A5)
4	T2 temp. value	Over 100°C, the hundreds and tens digits are displayed in hexadecimal, and the single digits are displayed in decimal (For example, 105 is shown as A5)
5	IDU capacity requirement	Unit: kW
6	EEV opening degree	Actual Value=DISP. *8
7	T5s setting temperature	Actual temperature=DISP. Unit:°C
8	Td setting auto start temp. of auxiliary E-heater	Actual temperature=DISP. Unit:°C
9	Trdh setting booting return difference temp.	Actual temperature=DISP. Unit:°C
10	Discharge pressure	Relative Pressure=DISP. Unit: MPa
11	The third to last error	
12	Penultimate error	
13	The last error	
14	Software version	Actual version
15	Check finished	Display “- -”

## 7 OPERATIONS AND PERFORMANCES

### CAUTION

Please cut off the manual switch power when unit fails. Do not restart until problems are solved.

- 1) About defrosting function perform at heating operation
  - In case of frosting during heating operation, to prevent the heating efficiency from decreasing, defrosting operation will turn on automatically (Approx. 2~7 minutes).
- 2) About protection device
  - When protection device operate, though the unit stops, the operating indicator of wire control still will be blinking.
  - When protection device operates, nixie indicator will display malfunction code (unit).
  - Protection device will act when the following circumstances occur:
    - Voltage is a little higher or lower compare to the voltage range (Exceeding the range of -10%~10% of 230V )
- 3) Start the unit after a long period out of service
  - Start-up the unit after out of service for a long period (includes drive up a unit at the first time), you would see rust mix up water in red, flow out from tap. Such that is a normal phenomenon, please be calmly and keep draining, after for a while rust will disappear.
- 4) About power failure
  - In case power failure during the unit working, please stop all operating actions.
  - At the next startup after power failure, the RUN indicator of wire controller will blink slowly for several seconds for noting user.
  - Misoperation occur during unit working.

## 8 MAINTENANCE

### 8.1 Confirmation before running

- 1) Make sure whether ground wire is broken or fall off.

### 8.2 Troubleshooting when abnormal situation happens

Before asking for serving or repairing, check the following points:

- Non-mechanical malfunction
- 1) Water oozes from safety valve pressure relief opening
    - When water heating, cold water will expand when heated, water oozing is normal. Do not block it for safety consideration.
    - If a large amount of water flows, it means safety valve is invalid. Stop using and replace safety valve.
  - 2) Long period for heating a tank of water
    - In winter, water heating efficiency will decrease because of low ambient temperature (about 0°C). It will take a longer time for water heating.
    - If customer needs to use hot water, please start the unit in advance.
- Need to check
- 1) Automatically start or stop
    - Whether we set timer wrongly.
  - 2) When not working
    - Check whether powering on.
    - Whether manual switch is on.
    - Whether fuse blows.
    - Whether start the protection device (indicator lights).
    - Whether it is not the time of timer on. (Operation lamp lights.)

### **WARNING**

If the following situation happens, please stop running and cut off power supply manually and contact with the dealer or service center.

- ON/OFF operation is ineffective.
- Fuse or RCCB trips frequently.
- Before leave unused for a long time, please complete the following items:
  - Drain water from tank and pipes, close all valve bodies.
- After leave unused for a long time, please check the following items:
  - Check whether water pipes, valves have been damages or blocked. Whether there's water leakage in joints, replace them when water leaks.
  - It is suggest to inspect anode protection material every half year. If it has been exhausted, please replace it with a new one.

## 8.3 After-sale service

In case of malfunctions, please cut off the power switch and contact after-sale service centre or technical service department, for detailed information please refer to User Service Guide.

## 8.4 Water quality limitations

### **NOTE**

If the water quality does not meet the requirements in the table below, please contact the supplier for advice.

Table 8-2

PH Value	Total Hardness	Electrical Conductivity
6.5-8.0	50ppm	<200 $\mu$ S/cm(25°C)
Sulphate Ion	Silicon	Iron Content
<50ppm	<30ppm	<0.3ppm
Sulfide Ion	Chloride Ion	Ammonia Ion
None	<50ppm	None
Sodium Ion	Calcium Ion	—
None	<50ppm	—

## 9. ERROR CODE SHOOTING TABLE

Error code	Error description
C1	Duplicate IDU address code
U3	Address code not detected
E2	Abnormal communication between the DHW Kit and wired controller
Cb	Abnormal communication between the DHW Kit and ODU
A5	ODU fault
E4	T5L (Tank temperature sensor (domestic hot water mode)) error
H2	T2 (Refrigerant liquid side temperature sensor) error
EF	Clock chip error
H8	High pressure sensor error
HP	Smart Grid signal error
PA	Low water temperature protection
F6	Electronic expansion valve (EEV) coil fault
EE	EEPROM error
HC	E-heater error (Current is less than 2A when e-heater operating)
db	Anti-freezing operating (not an error) for some unit
DF	Defrosting (not an error)
bA	The ambient temperature exceeds the declared range (not an error)
d0	Oil return running(not an error)

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