



HEAT PUMP

Operation & Installation Manual

Preface

- This manual includes all the necessary information regarding the Installation and maintenance of this product. Please take the time to read it through before operating.
- When Installing the hot water cylinder, please follow the Instructions as documented in this manual.
- Once the Installation is complete, check that all connections are secure before the power is turned On.
- The installer is to explain to the end user how to operate and maintain the unit in accordance to this Instruction manual.
- It is important that the installation and operational instructions laid out in this manual are strictly adhered to.
- A maintenance programme must be carried out as recommended in this manual.
- Failure to comply with these recommendations will invalidate the warranty.
- This manual could be subject to change without prior notice, if it is felt that product improvements are to be carried out.
- 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.
- 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.

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1. Safety Precautions

To prevent personal injury and avoid causing damage to the unit, please take the time to read the information documented in this manual.

Icon	Meaning
 WARNING	A wrong operation may lead to serious injury or death.
 ATTENTION	A wrong operation may lead to injury or loss of material.

Icon	Meaning
	Prohibited (Next to this icon)
	Compulsory - The listed action must be implemented.
	Attention to what is indicated.



INSTALLATION WARNING

 Professional installer required	The heat pump must be installed by qualified persons. Improper installation could result in electrical shock/water leakage or fire.
 Earthing is required	Please ensure that the unit and power connections have a good earth. Failure to do this may cause an electrical shock.
 Check drainage fittings	Before installation, make sure there are no leakages on the drainage fittings.

1. Safety Precautions

 Installation place	The unit CANNOT be installed near flammable gas.
 Fixing the unit	Ensure that the base you are fixing to is level and strong enough.
 Circuit breaker required	This unit requires a circuit breaker. failure to do so could result in an electrical shock or fire.

OPERATION WARNING

 Prohibited	Do not put fingers or any other objects into the fans. Children should be kept clear of this appliance.
 Shut off the power	In the event of a unit malfunction please shut the power off and contact your service engineer.

MOVE AND REPAIR

 Important	If the heat pump needs to be relocated or installed again, only use an authorised dealer or qualified persons.
 Prohibited	It is prohibited for the end user to repair the unit themselves, unless qualified. failure to do so may lead to serious injury or, and damage to the unit.
 Important	Should the heat pump need to be repaired, only use an authorised dealer or qualified persons.

OPERATION ATTENTION

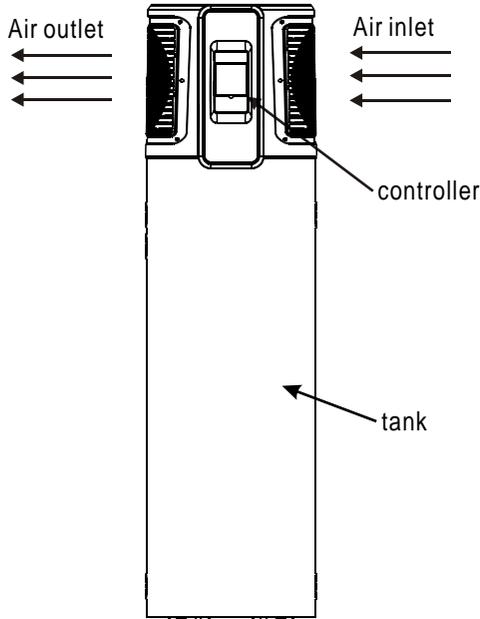
 Shut off the power	Turn the power off before cleaning the unit.
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USAGE WARNING

 Usage warning	<p>Danger - High temperature.</p> <p>Set a too high temperature of outlet water can cause scalding! If the product need repair, please do not attempt to repair by yourself. Inform the local vendors and send the barcode on the casing of the unit order to reach professional repair.</p>
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2. Specifications

2.1 Appearance



2.2 Characteristics

- Smart and efficient unit

The operational costs can be up to 75% less than that of an electric water heater, and can be installed in locations which are unsuitable for solar hot water heating.

- Safe and environmentally friendly

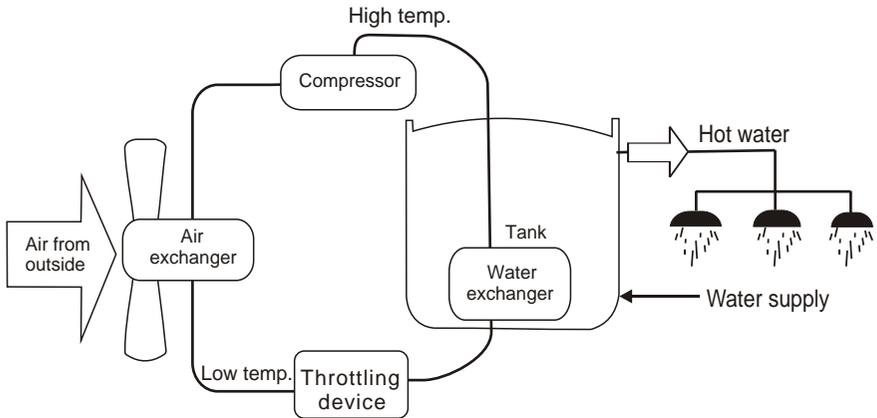
Produces no harmful gases along with no open flame, making the unit safe to work with when installing.

- Easy to operate

Featuring an easy to use timer for both start and stop operations, with a controller to set the desired water temperature.

2. Specifications

2.3 Principal



System Principle:

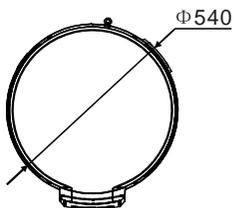
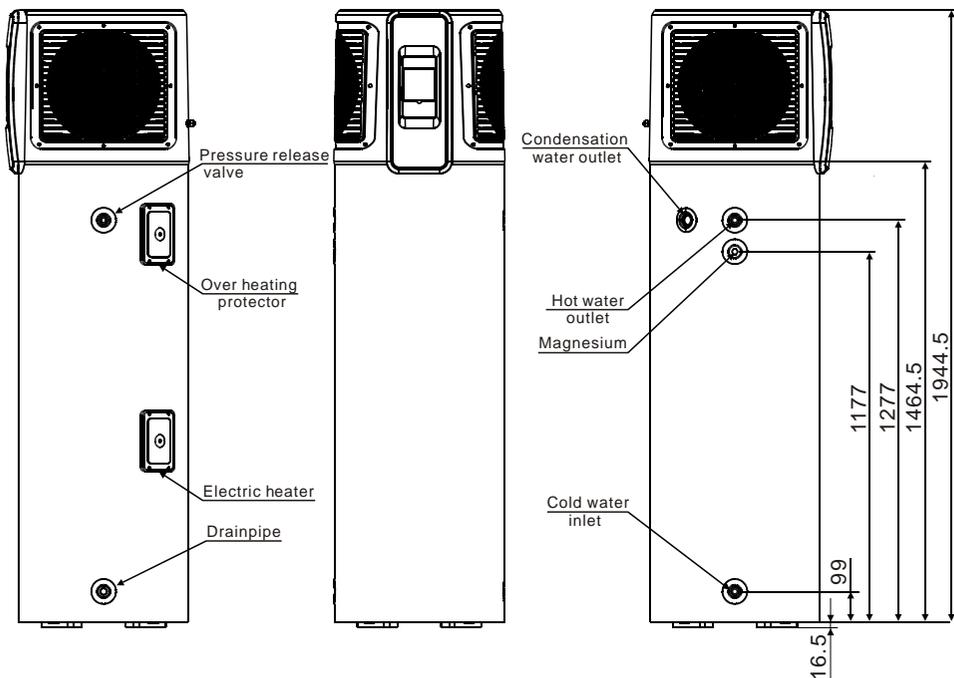
- ① Refrigerant is compressed into vapor with high temperature and high pressure when it goes through the compressor.
- ② On the discharge side of the compressor, the now hot and highly pressurized vapor is cooled down through the heat exchange with the water in the tank until it condenses into a high pressure, moderate temperature liquid.
- ③ Then the pressure of the liquid refrigerant drops as it passes throttling device.
- ④ Finally, refrigerant absorbs heat from the surrounding air and evaporates into vapor with low temperature and low pressure and then it goes into compressor again.
- ⑤ The cooled surrounding air could be blown to the rooms which need fresh cooled air.

2. Specifications

2.4 dimensions

MODEL: ATMOS AIR 180

Unit: mm



2. Specifications

2.5 performance parameters

Model		ATMOSAIR 180
Heating capacity	kW	1.7
Water tank capacity	L	180
Power input	kW	0.43
Running current	A	1.8
Power supply		240V~/50Hz
Compressor Number		1
Compressor		rotary
Rated outlet water Temp.		55
Nosie	dB(A)	See nameplate
Water inlet/outlet size	inch	3/4
*Auxiliary E-heater	kW	1.5
Net dimensions	mm	See the drawing of the units
Shipping dimensions	mm	See package label
Net weight	kg	See nameplate
Shipping weight	kg	See package label

Measurement conditions:

Instant heating: Ambient temperature 20°C/15°C, Water inlet 15°C, Water outlet 55°C

Work range

(1). Ambient temperature is 0°C~40°C (Heat Pump)

Operating parameters

The range of the operating water pressures: 0.15~0.7MPa

FREEZE PROTECTION

The water heater has a freeze protection system. The freeze protection system will protect the water heater from damage, by preventing ice forming in the waterways of the water heater, in the event of freezing conditions occurring.

3.Function presentation

Heating capacity

- In low ambient conditions the heating output decreases.

3 minutes protection

- If the unit stops and you re start the unit or turn it on by the manual switch, the unit will not start to run again for approx 3 minutes. This is a protection feature to safe guard the compressor.

Defrosting

- In the heating mode the unit will defrost automatically, maximizing the heating efficiency (Lasting 2 - 10 minutes).
The fan motor will stop running whilst the unit is defrosting.

Working conditions

- In order to use the unit correctly, please run the unit at environment temperature 0°C ~ 40°C . The unit includes sophisticated electronic devices, prohibited to use water from lake, untreated river water and groundwater!

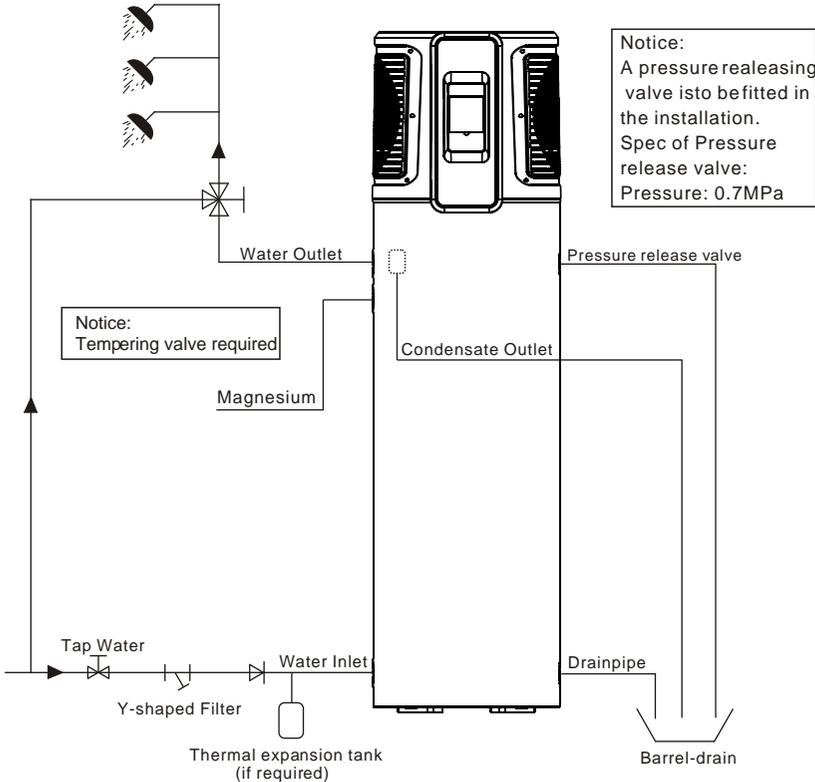
Water temperature or pressure protection

- When the tank pressure reaches 0.7MPa, the Pressure release valve will open automatically so as to decrease the pressure .

4. Installation

Setup cannot affect the building structure and safety.

4.1 Pipeline connectionsketch



Pipeline connection explanation

Installation of the water inlet or outlet pipes: The specification of the water inlet and outlet thread is BSP3/4(internal thread).pipes must be heat-resistant and durable.

Installation of the pipe for Pressure release valve: The spec of the valve connecting thread is BSP3/4(internal thread).After installation, it must be confirmed that the drainpipe outlet is exposed in the air. When the flexible drainpipe is joined to the pressure relief orifice of this valve,you must ensure that the flexible drainpipe is pointing downwards and exposed in the air.



ATTENTION

ATTENTION: The Pressure release valve attached with the unit must be installed, failure to do so will cause damage to the unit, and possible personal injury.

Do not use stainless steel fittings to connect directly with other metals to prevent galvanic corrosion.

Drain the watertank through the drain valve at the bottom part of the unit.

4. Installation

WARNING

For continued safety of this appliance it must be installed, operated and maintained in accordance with the manufacturer's instructions.

If the water supply pressure exceeds the rated pressure, a pressure reducing valve is to be fitted when installing the unit.

The water may drip from the discharge pipe of the pressure relief device and that this pipe must be left open to the atmosphere.

The pressure relief device should be operated regularly to remove lime deposits and verify that it is not blocked.

A discharge pipe connected to the pressure relief device is to be installed in a continuously downward direction and in a frost-free environment.

Facilities for draining and filling of systems shall be provided where these are required for servicing purposes. The drainage facilities, where fitted, shall be at the lowest point in the closed circuit.

4.2 Transportation

As a rule, the unit is to be stored and/or transported in its shipping container in the upright position and without water charge. For transport over short distance, and provided due care is exercised, an inclination angle of up to 30 degrees is permitted. Both during transport and storage, ambient temperatures of 0°C to 40°C are permissible.

4.2.1 Transport using a forklift

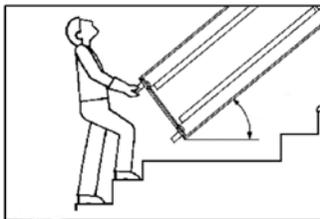
When transported by a fork lift, the unit must remain mounted on the pallet. The lifting rate should be kept to a minimum. Due to its top-heaviness, the unit must be secured against tipping over. To prevent any damage, the unit must be placed on a level surface!

4.2.2 Manual transport

For the manual transport, the wooden pallet can be used for bottom part.

Using ropes or carrying straps, a second or third handling configuration is possible. With this type of handling, care must be taken that the max.

Permissible inclination angle of 60 degrees is not exceeded. If transport in an inclined position cannot be avoided, the unit should be placed into operation one hour after it has been moved into final position.

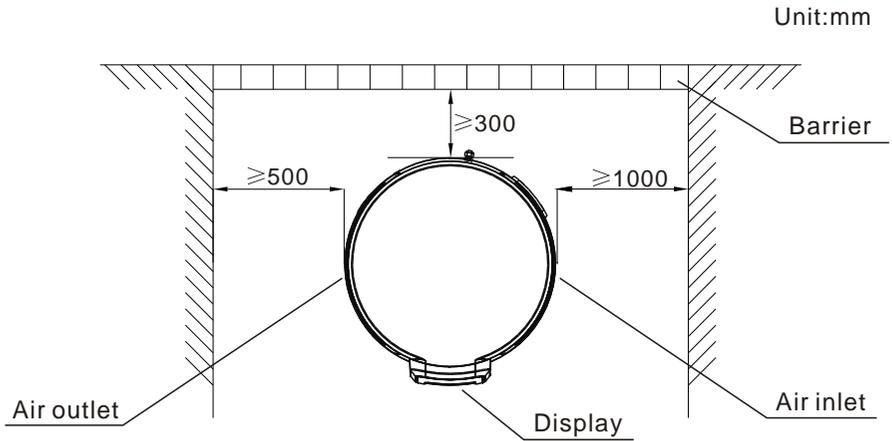


CAUTION High center of gravity!

4. Installation

4.3 Installation space

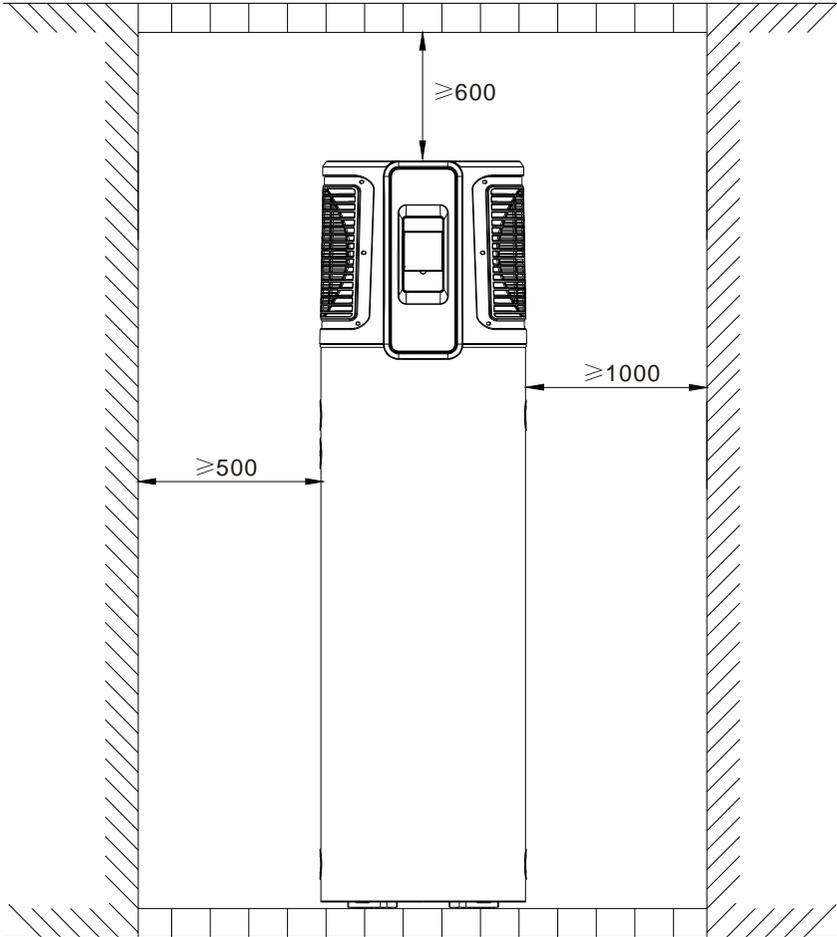
Before installation, please ensure that you leave the space as shown below for maintenance.



CAUTION :The minimum space of installation is 10 cubic meter.

4. Installation

Unit:mm



4. Installation

4.4 Cable connection

- This unit requires an isolating switch as required by local by laws.
- If the power cord is damaged, It must be replaced by a qualified electrician.

4.5 Trial running

4.5.1 Inspection before trial running

- Check the water supply to the tank and pipe connections for possible leaks.
- Check that all power connections are secure before switching on.

4.5.2 Trial running

- Switch on the unit using the controller
- In the case of any unusual noise, switch the power off and consult your provider;
- The parameters have been pre set to a temperature of 60 degrees.

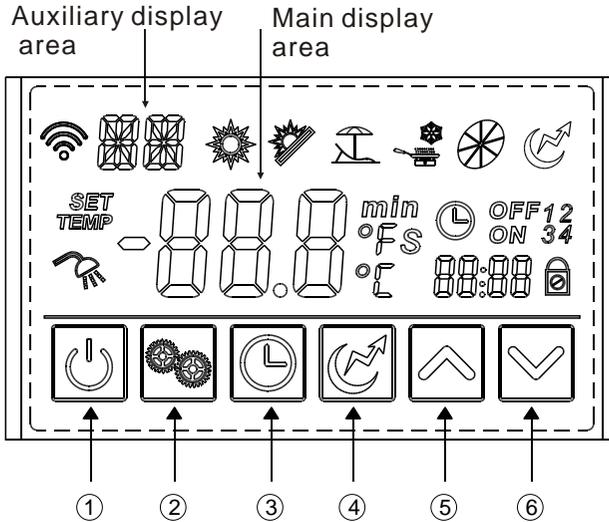
4.6 Seismic restraints

- The unit must be braced with with seismic restraints according to local by laws.

5.Usage

5.1 The function diagram of the wire controller

1.Function of wire controller



1) Function of key

NO.	Button	Name	Function
①		ON/OFF	Turn on/off the unit.
②		Mode	Switch unit running modes or save setting parameters.
③		Clock	Set the clock or the timer.
④		Electric Heater	Turn on/off the electric heater or switch fan modes.
⑤		Up	Move up or increase parameter values.
⑥		Down	Move down or decrease parameter values.

Status icon	Name	What it means
	Heating	Shows that the unit is in heating mode.
	Eco.heating	Shows that the unit is in eco.heating mode.
	Vacation	Shows that the unit is in vacation mode.
	Fan	Shows that the fan is on and the speed of the fan.
	Electric heater	Shows that the electric heater is on.
	Set temperature achieved	Shows that the water temperature has reached the target point and the unit shut off automatically.
<i>SET</i>	Parameter setting	Shows that the parameter is adjustable.
<i>TEMP</i>	Temperature	Shows that the temperature is non-adjustable (measured value).
	Timer & ON	Shows that the unit will be turned on by the timer automatically.
	Timer & OFF	Shows that the unit will be turned off by the timer automatically.
<i>min</i>	Minute	Shows that the main display area displays the minute.
<i>S</i>	Second	Shows that the main display area displays the second.
<i>°C</i>	Centigrade	Shows that the temperature in Main display area or Auxiliary display area is in °C.
<i>°F</i>	Fahrenheit	Shows that the temperature in Main display area or Auxiliary display area is in °F.
	Lock	Shows that the keyboard is locked.

5.Usage

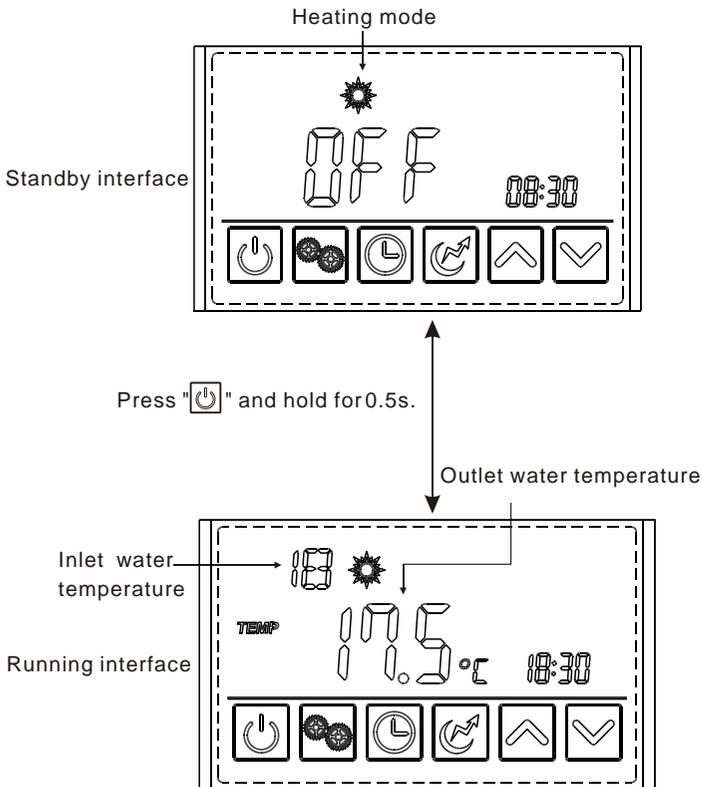
5.2 Usage of wire controller

5.2.1 Turn ON/OFF the unit

Press "⏻" and hold for 0.5s in the standby interface of the wire controller to turn on the unit and at this time the main display area shows the water outlet temperature.

Press "⏻" and hold for 0.5s in the running interface of the wire controller to turn off the unit and at this time the main display area shows OFF.

Note: The ON/OFF button can only be used to turn on/off the unit in standby or running interface of the wire controller.

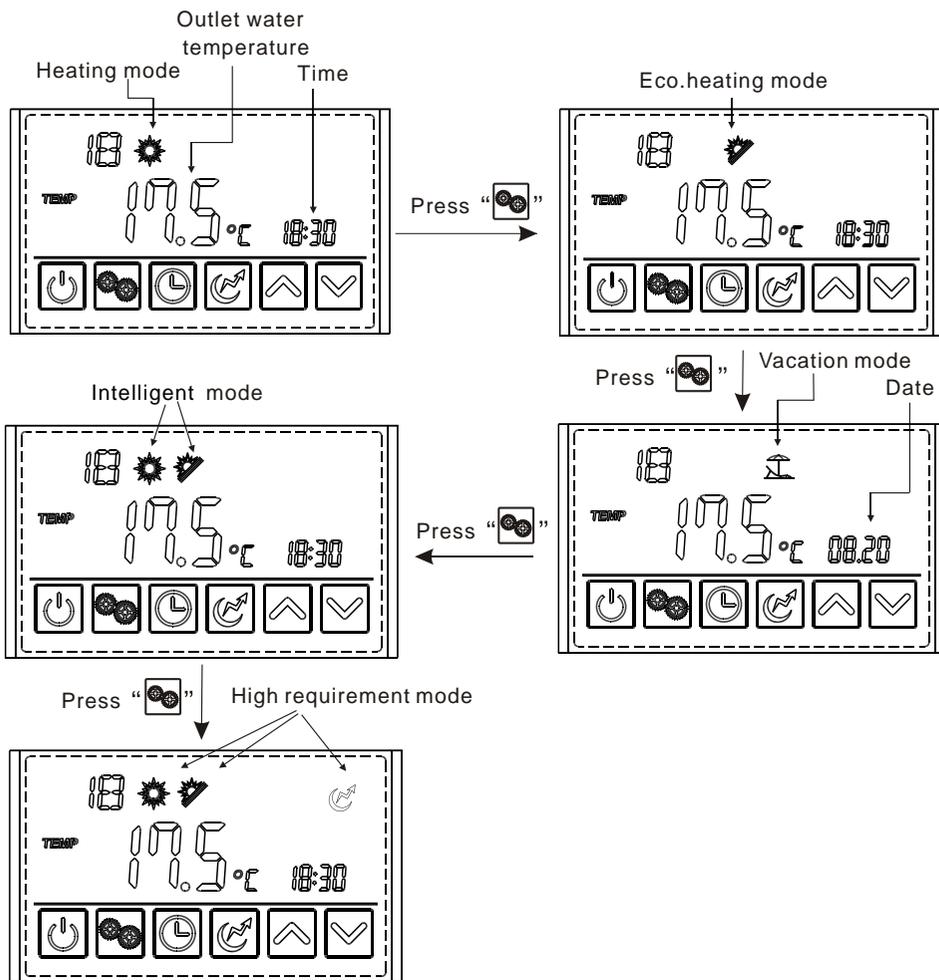


5.2.2 Mode selection

Press "⚙️" to select the mode from Heating, Eco.heating, Intelligent, Vacation, High requirement in the standby or running interface.

For example:

5.Usage

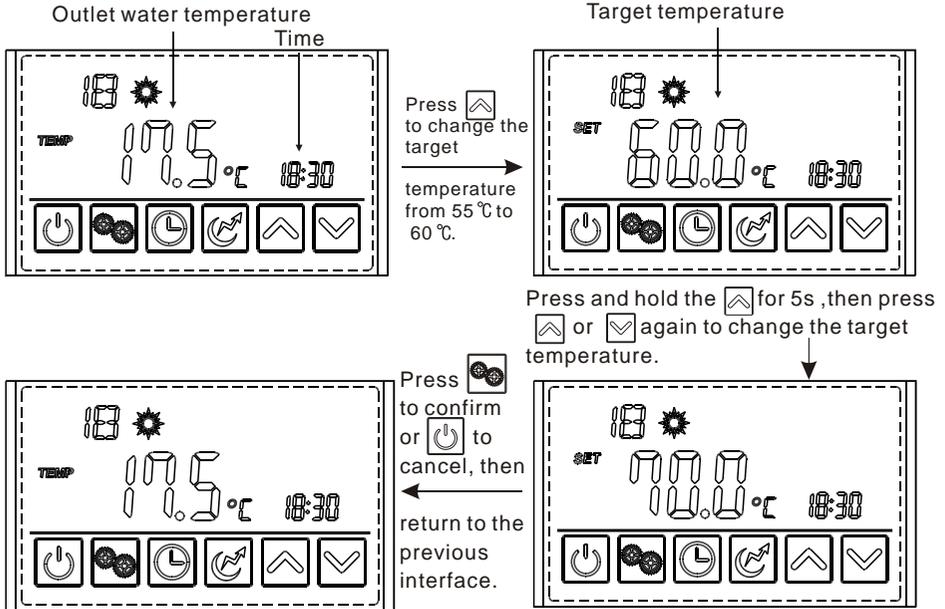


5.2.3 Target temperature checking and setting

In the standby or running interface, press "

Example: Change the target temperature from 55°C to 70°C when the actual outlet water temper is 18.

5.Usage



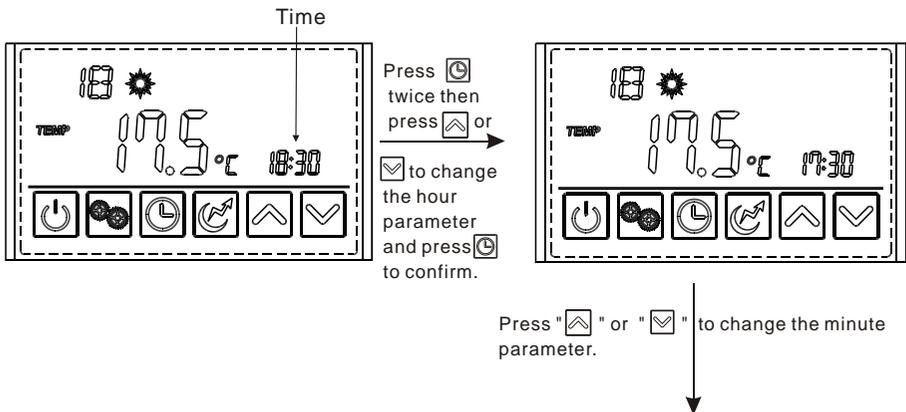
5.2.4 Timesetting

In the standby or running interface, do as follows to set the time when in heating mode. When press "" once, the time parameter will flash. When press "" again, the hour parameter will flash then press "" or "" to change it. After making the changes to the parameter, press "" to confirm, then change the minute parameter as well as the date parameter in the same way.

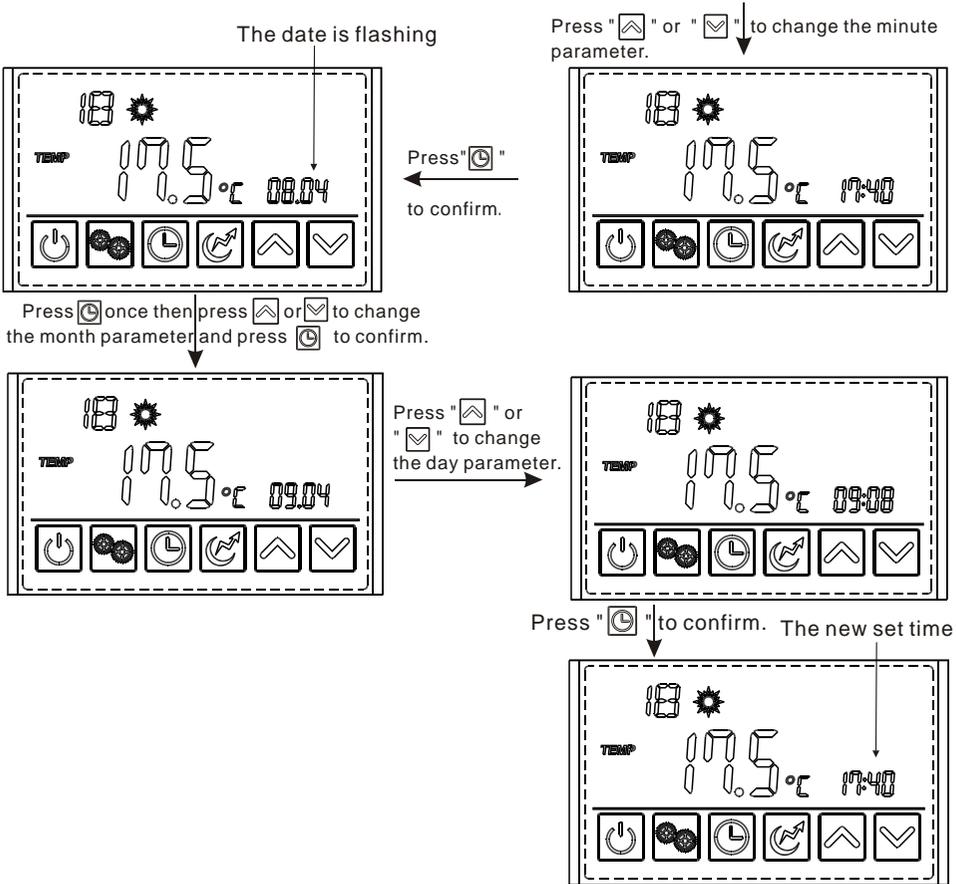
If no operations are performed on the keypad for 10s, the controller exits the parameter modification menu by timeout and the changes are confirmed.

Note: Set the date in the same way when in vacation mode.

Example: Change the time and date from 18:30 on August 4th to 17:40 on September 8th.



5. Usage



5.2.5 Timersetting

5.2.5.1 Under the standard mode, economic mode, intelligent mode, you can enter the timer setting.

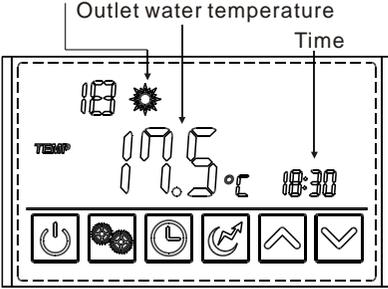
Press " " and hold for 2s, the "ON" and " 1 " will flash, and then you can set the turn on time of timer1 as the 24 clock setting show. After finishing, " OFF " and " 1 " will flash, that means you can set the turn off time of timer1. The "ON " and " 2 " will flash after finishing the timer1 setting, you can set the turn on time of timer2. After finishing, the " OFF " and " 2 " will flash, and then you can set the turn off time of timer2. Press " " again to save and back to the interface. If you don't need to set the timer2, you can press the " " to save after finishing the timer1 setting. You will find the " ON " and " 2 " flash. No operation for 5s, the program will back to the interface automatically.

Note: When press " " and hold for 2s, the " ON " and " 1 " will flash. It is not necessary for you to set the turn on time of the timer1. You can sequentially to press " " for 2s to enter to the turn off time of timer1. So does the timer2. Or press " " or " " to circularly display.

Timer Cancel: Press " " and hold for 2s to enter into the interface, and then press " " to cancel all the operation. Please see the following picture for more details.

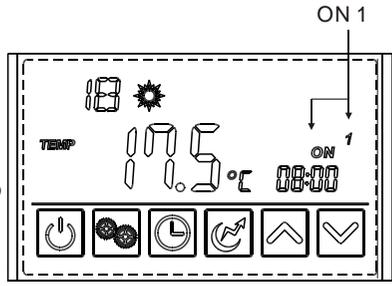
5. Usage

Heating mode

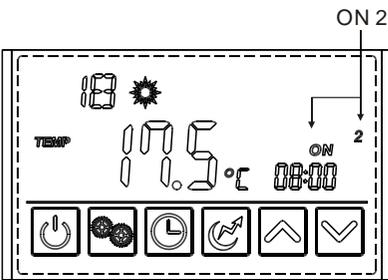


Press and hold for 2s.

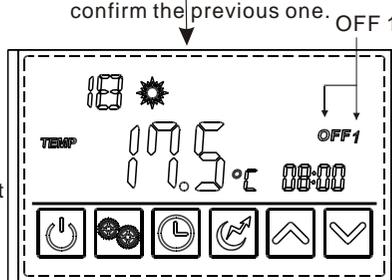
Press "" to cancel the setting



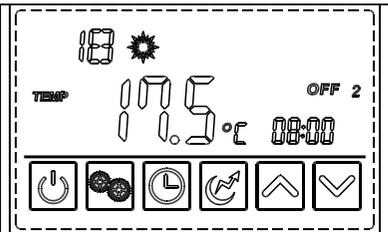
Press "" and hold for 2s to enter into the next setting without confirm the previous one.



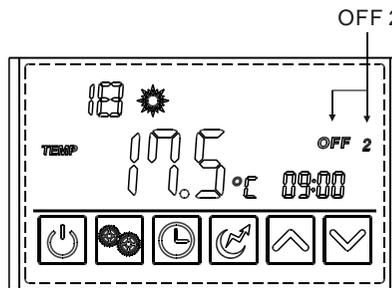
Press "" and hold for 2s to enter into the next setting without confirm the previous one.



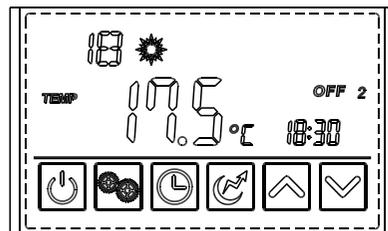
Press "" and hold for 2s to enter into the next setting without confirm the previous one.



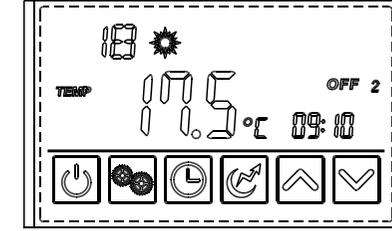
Set the hour.



Set the minute.

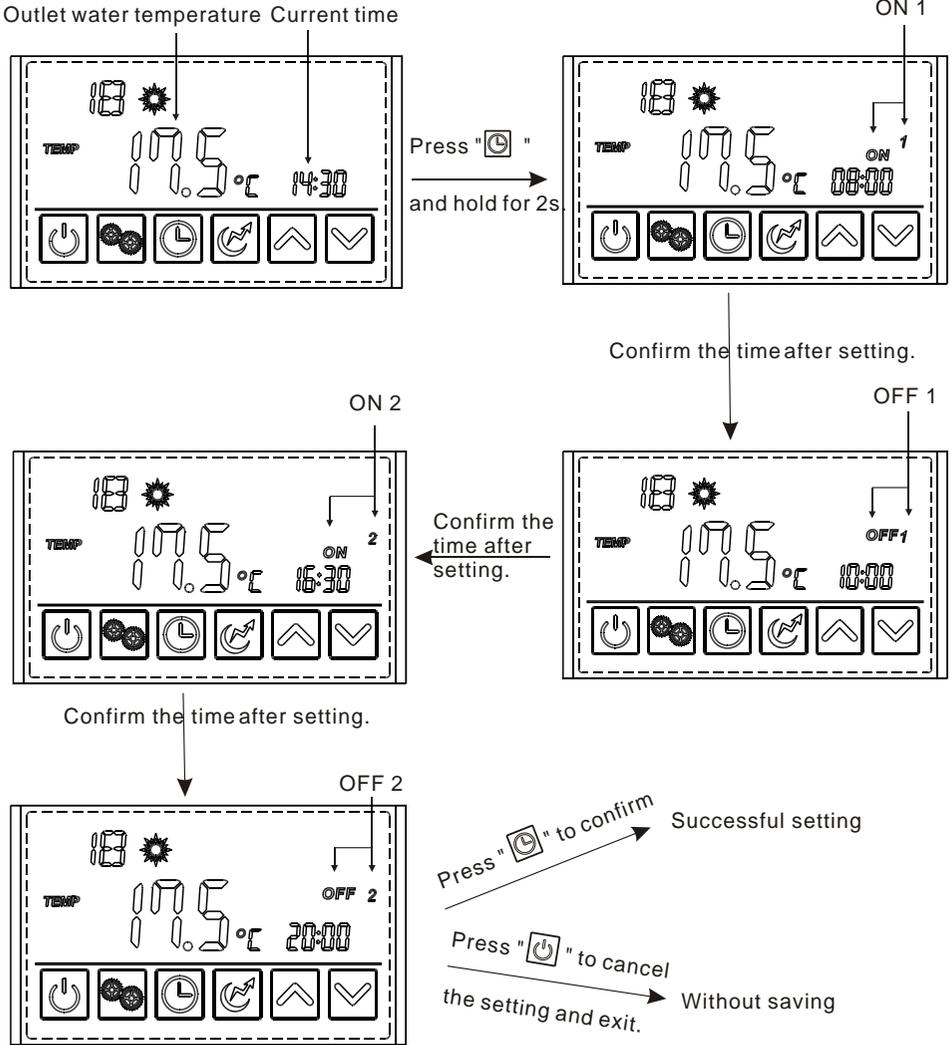


Press to confirm the time.



5. Usage

Example: **Running period 1:** 8:00~10:00; **Running period 2:** 16:30~20:00.

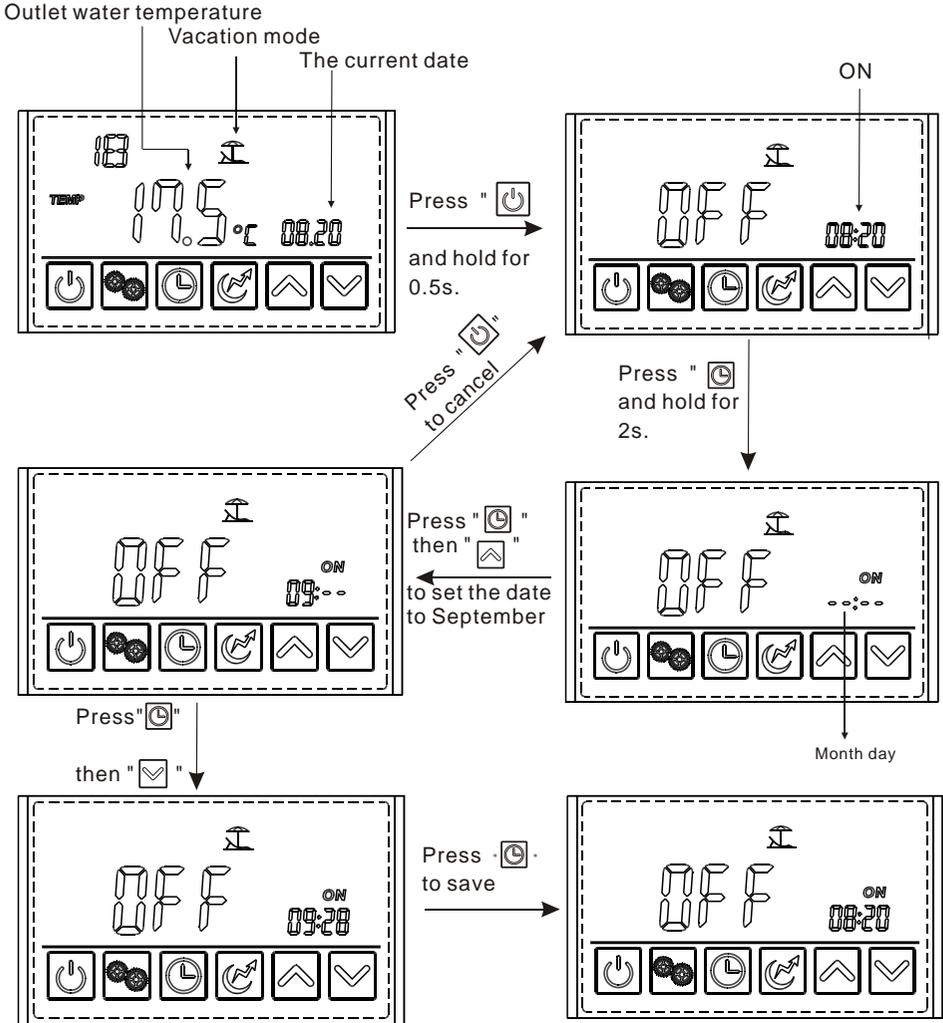


5. Usage

5.2.5.2 In the vacation mode

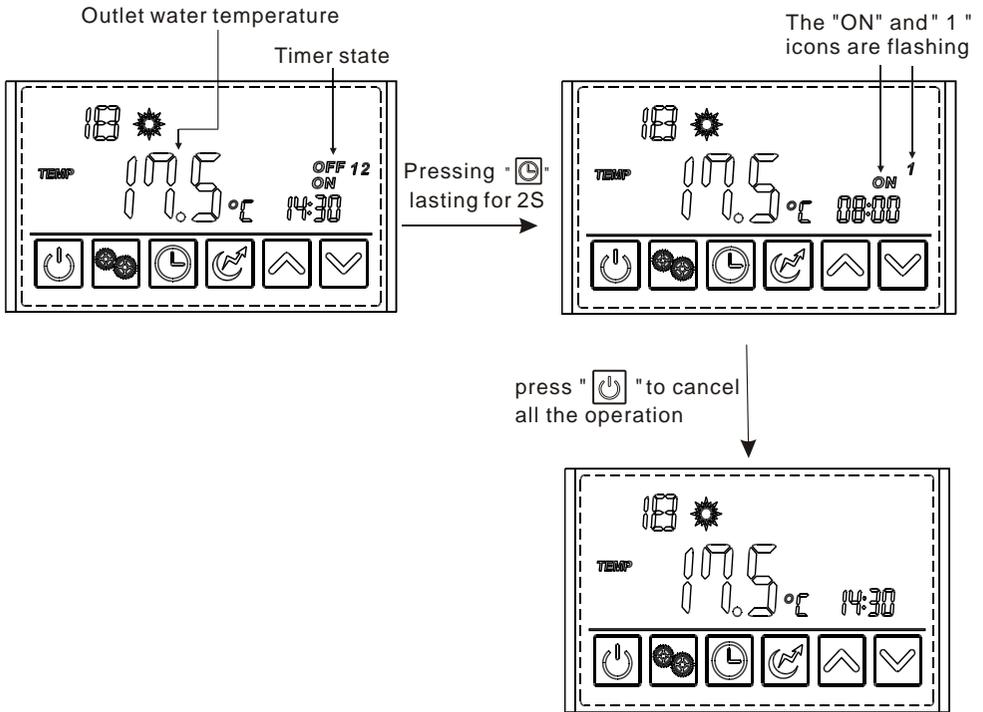
Press "⏻" and hold for 2s to enter into the timer setting interface. The symbol "ON" and the date parameter are flashing at this time. Then set the date in the same way as "2.4".

Example: Set the start-up date on September 28. (Note: Turn off the unit before going out.)



5. Usage

5.2.5.3 If you want to cancel the timer setting ,follow this below

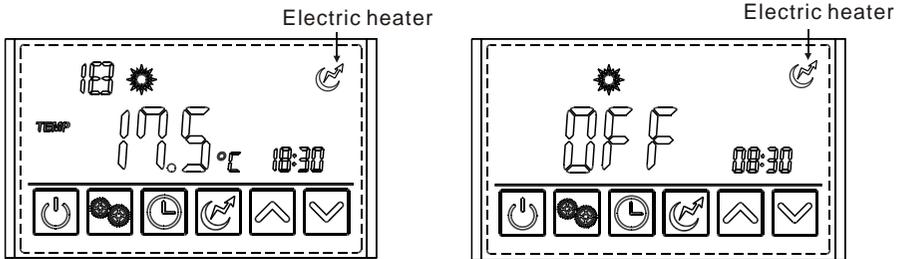


5. Usage

5.2.6 Electric heater setting

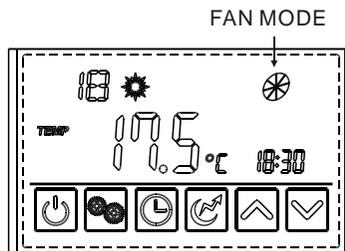
The electric heater can be turned on when the unit is heating or standby.

Press "" once to turn on the electric heater and press "" again to shut it off.



5.2.7 Fan mode setting

Press "" and hold for 2s for the first time to change the fan mode to low speed running and the fan will run at low speed when the unit target temperature is reached. Press "" and hold for 2s again to change the fan mode to high speed running and the fan will run at high speed when the unit target temperature is reached. Press "" and hold for 2s for the third time to change the fan mode to shut-down and the fan will stop running when the unit target temperature is reached.



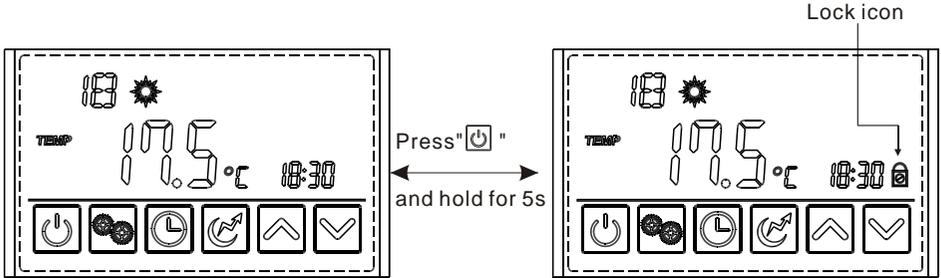
Definition of the fan icon

-  (Running) : shows that the fan is running at high speed
-  (Running) : shows that the fan is running at low speed.
- Fan icon disappears: shows that the fan is shut off.
-  (Static) : shows that the fan will run at high speed when target setting temperature is reached.
-  (Static) : shows that the fan will run at low speed when target setting temperature is reached.

5. Usage

5.2.8 Keyboard locking

Press "⏻" and hold for 5s once to lock the keyboard. Press "⏻" and hold for 5s again to unlock the keyboard.



6.Maintenance and repair

6.1 Maintenance

- Check the water supply and air vent frequently, to avoid lack of water or air in the water loop. Clean the water filter periodically, helping the water to stay clean. Lack of water and dirty water can damage the unit. The heat pump will start the water pump every 72 hrs when it is not running, to avoid freezing.
- Keep the unit in a place which is dry and clean, and has good ventilation. Clean the heat exchanger every 1 to 2 months to keep a good heat exchange rate.
- Check each part of the unit and the pressure of the system. Delete and recharge the refrigerant if it is needed.
- Check the power supply and the electrical system, make sure the electrical components are good, the wiring is tight.
- If the heat pump is not used for a long time, please drain out all the water in the unit and seal the unit. Please drain the water from the lowest point of the heat exchanger to avoid freezing in winter. Water recharge and full inspection on the heat pump is needed before it is restarted.
- Don't power off the unit when you use it in continuity, or the water in the pipe will freeze and split the pipe.
- If the power supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.
- Steps for replacing the magnesium rod:
 - Check the state of the magnesium rod half a year according to the above steps and we suggest that the magnesium rod should be replaced once a year.
 - When the diameter of the magnesium rod is less than 5 mm and the length is less than 100mm, please replace it immediately.
 - Step 1: Disconnect the power supply, close the water inlet of the unit, and then open the water outlet to release the pressure in the water tank till no water come out from the outlet.
 - Step 2: Open the water drain valve at the bottom of the unit, empty the water tank and replace the magnesium rod.
 - Step 3: After the replacement, close the drain valve, keep the water outlet opened, then open the water inlet to fill water to the tank until there is water flow out from the water outlet.

6.Maintenance and repair

6.2 The normal failure and solutions

For any malfunctions, please refer to the table below :

Malfunction	Display	Causes	Solution
Bottom water temp. Failure	P01	The water bottom temp. Sensor is open or short circuit	Check or change the water bottom temp. Sensor
Top tank water temp. Failure	P02	The water top tank temp. sensor is open or short circuit	Check or change the water top tank temp. Sensor
Ambient temp. Failure	P04	The ambient temp. sensor is open or short circuit	Check or change the ambient temp. Sensor
Coil temp. Failure	P05	The pipe temp. sensor is open or short circuit	Check or change the pipe temp. Sensor
Refrigerant absorb temp. Failure	P07	The evaporator temp. Sensor is open or short circuit	Check or change the evaporator temp. Sensor
Anti-freeze temp. Failure	P09	The anti-freeze temp. Sensor is open or short circuit	Check or change the anti-freeze temp. Sensor
Solar temp. Failure	P034	The solar temp. Sensor is open or short circuit	Check or change the solar temp. Sensor
High pressure protection	E01	The exhaust pressure is high , high pressure switch action	Check high pressure switch and cooling return circuit
Low pressure protection	E02	The suction pressure is low, Low pressure switch action	Check low pressure switch and cooling return circuit
Water flow failure	E03	No water or litter water in water system	Check the flow volume ,water pump is failure or not
Electric-heater overheat protection	E04	Water flow volume not enough, Water system pressure difference is small	Check the flow volume, water system is jammed or not
Anti-freeze protection	E07	Water flow volume not enough, Water system pressure difference is small	Check the flow volume, water system is jammed or not
Communication failure	E08	Wired remote control with master signal failure	Check the connection line between the wired remote control and motherboard
Winter frost protection	E09	Ambient temperature is too low	

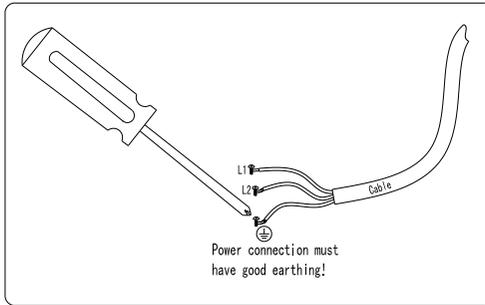
7. Appendix

7.1 CAUTION

1. To reduce the risk of excessive pressures and temperatures in this water heater, install temperature and pressure protective equipment required by local codes and no less than a combination temperature and pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials, as meeting the requirements for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22. This valve must be marked with a maximum set pressure not to exceed the marked maximum working pressure of the water heater. Install the valve into an opening provided and marked for this purpose in the water heater, and orient it or provide tubing so that any discharge from the valve exits only within 6 inches above, or at any distance below, the structural floor, and does not contact any live electrical part. The discharge opening must not be blocked or reduced in size under any circumstances.
2. Hydrogen gas is produced in a hot water system served by this heater that has not been used for a long period of time (2 weeks or more). Hydrogen gas is extremely flammable. To reduce the risk of injury under these conditions, it is recommended that the hot water faucet be opened 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 faucet at the time it is open.
3. Children should be supervised to ensure that they do not play with the appliance.
4. The appliance is fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under over voltage category III conditions, and these means must be incorporated in the fixed wiring in accordance with the wiring rules.

7. Appendix

7.2 The method of grounding



7.3 Use of the Pressure release valve

Pressure release valve is used to pressure going too high inside the tank. When the pressure reaches the set value, the valve will open automatically so as to decrease the pressure .

The handle of the safety valve should be pulled once every six months so as to remove the calcium carbonate deposition decrease the temperature. Take care as the temperature of the discharging water is very high.

Vent pipes should be thermally insulated to prevent the pipes freezing in the winter.

Remark:

Pressure release valve: Model: YA-20, action pressure:0.7MPa

WARNING

Fail to operate the relief valve easing gear at least once every six months may result in the water heater exploding. Continuous leakage of water from the valve may indicate a problem with the water heater.

7. Appendix

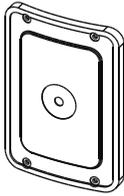
7.4. Drain out the water in the storage tank

Cut out the water supply connection between the tap water supply and the tank by closing the corresponding valve. Open the hot water outlet and then open the drain outlet valve at the same time. The water in the tank will be drained out through the drain outlet.

7.5 Use of the overheating protector

DANGER: The operation of the thermal cut-out indicates a possibly dangerous situation. Do not reset the thermal cut-out until the water heater has been serviced by a qualified person.

The overheating protector is used to turn the power off, preventing the water from being heated too high. To return the unit to its normal operational status it will have to be re set manually. Operation details



loosen the screws and open the cover



Press the red button to reset



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