ECO-TEC
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User Manual

airExpert R290

Hot Water Heat Pump

Content

1. Preface 01

2. Safety Instructions 02

3. Unit Dimension (mm) 06

4. Maintenance 08

5. Parameters 16

6. Display Operation Guide 17

7. Failure List & Troubleshooting 30

1. Preface

In order to provide customers with high-quality, strong reliable and good versatile products, this heat pump is manufactured by strict design and manufacture standards.
This manual includes all the necessary information about installation, debugging and maintenance. Please read the manual carefully before you start or maintain the unit.
The manufacturer of this product will not be held responsible if someone is injured or the unit is damaged, as a result of improper installation, debugging, unnecessary maintenance which is not in line with this manual.
The unit must be installed by qualified personnel.

It is vital that the below instructions are adhered to at all times to keep the warranty.
—The unit can only be turned on or repaired by a qualified installer or an authorized dealer.
—Maintenance and operation must be carried out according to the recommended time and frequency, as stated in this manual.
—Use standard spare parts only.
Failure to comply with these recommendations will invalidate the warranty.

2. Safety Instructions

The manual provides many important security measures for you to use the air source heat pump water heater. To prevent the users and others from the unpredictable/unexpected hurt of this unit, and avoid damage on the unit or other property, please read the manual carefully before using the unit. All safety measures have safety warnings. The followings are the meanings of each warning:

Mark Notes

Mark	Meaning
WARNING	A wrong operation may lead to death or grievous injury on people.
ATTENTION	A wrong operation may lead to harm on people or loss of material.

Icon Notes

Icon	Meaning
	Prohibition. What is prohibited will be nearby this icon.
	Compulsory implement. The listed action need to be taken.
	ATTENTION (include WARNING) Please pay attention to what is indicated.

1. The hurt means no need to be in hospital and cure for a long time, it's injury, burn and get an electric shock.

2. The material lost means property and datum lost.

Warning

Installation	Meaning
Professional installer is required.	The heat pump must be installed by qualified personals, to avoid improper installation which may lead to water leakage, electrical shock or fire.
Earthing is required.	Please make sure that the unit and power connection have good earthing, otherwise may cause electrical shock.
Concentration limits	When install the unit in a small room, please take some measures to prevent the asphyxia caused by the leakage of refrigerant. Please consult the dealer for concrete measures.

Operation	Meaning
PROHIBITION	DO NOT put fingers or others into the fans and evaporator of the unit, otherwise harm may occur.
Shut off the power.	When there is something wrong or strange smell, the power supply needs to be shut off to stop the unit. Continue running may cause short circuit or fire.

Move and Repair	Meaning
Entrust	When the heat pump needs to be moved or installed again, please entrust dealer or qualified person to carry it out. Improper installation will lead to water leakage, electrical shock, injury or fire.
Entrust	It is prohibited to repair the unit by the user himself, otherwise electrical shock or fire may occur.
Prohibit	When the heat pump needs to be repaired, please entrust dealer or qualified person to carry it out. Improper movement or repair on the unit will lead to water leakage, electrical shock, injury or fire.

The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.)

ATTENTION

Installation	Meaning
Installation Place	The unit CANNOT be installed near the flammable gas. Once there is any leakage of the gas, fire may occur.
Fix the unit.	Make sure that the basement of the heat pump is strong enough, to avoid any decline or fall down of the unit
Need circuit breaker.	Make sure that there is circuit breaker for the unit, lack of circuit breaker may lead to electrical shock or fire.

Operation	Meaning
Check the installation basement.	Please check the installation basement regularly (one month), to avoid any decline or damage on the basement, which may hurt people or damage the unit.
Switch off the power.	Please switch off the power when cleaning or maintenance.
Prohibition	It is prohibited to use copper or iron as fuse. The right fuse must be fixed by electrician for the heat pump.
Prohibition	It is prohibited to spray the flammable gas to the heat pump, as it may cause fire.

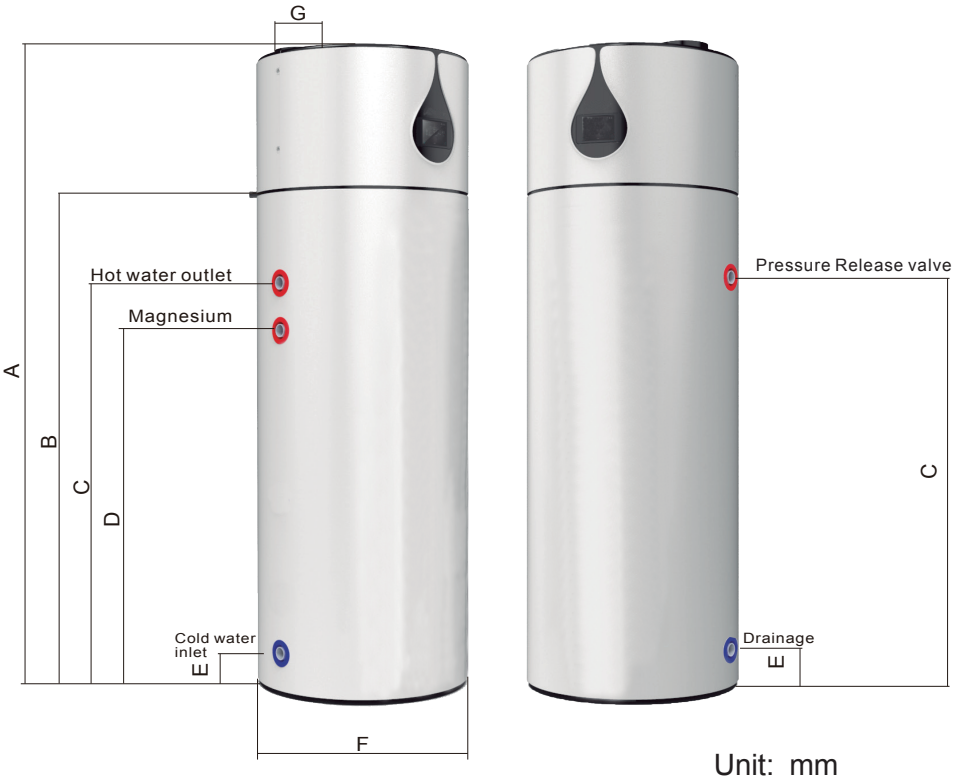
Usage	Meaning
Check the plug	The earth electrode of socket should have the perfect earth wiring and the rating current should be more than 16A. Keep the socket and plug dry to avoid leakage and check if they are connected well usually. The check ways are as follow: Put the plug into the socket and turn on the unit, then pull out the plug half an hour later and check if the plug is hot. If it is hot (more than 50 ℃), please have a qualified socket to replace it to avoid the burnout or fire caused by the bad contact.
Check power socket	In the water splashed places and may be on the wall, the installation height of power socket cannot be less than 1.8 meters, to ensure that water does not splash socket, and cannot be installed in the place that children may touch. As the water temperature in the tank is very high (over 50 ℃ hot water will burn the body), you should adjust a suitable water temperature before spraying to the body.
Usage attention	If the unit has not been used more than 2 weeks, please turn on the hot water tap for a few minutes. Sometimes there may be an unusual sound like the air passes through the pipe, the sound is normal and please feel free to use.
Power line replace	If the power line are damaged, ask the professional serviceman to use the power line provided by the manufacturer to replace it.
Parts replace	If the parts are damaged, ask the professional serviceman to use the parts provided by the manufacturer to replace it.
Save labels	Do not tear down any permanent instructions, labels or parameters panel of the heater.

3. Unit Dimension (mm)

Packing list About the Box

	Heat Pump Water Heater × 1
	Pressure Release valve × 1

Dimensions



Unit: mm

Model / Dimensions	BECP200-SAV
A	1600
B	1162
C	903
D	783
E	128
F	Φ640
G	Φ160

4. Maintenance

WARNING:

Servicing shall be performed only as recommended by the manufacturer.
The local assembly should be the ones designated by manufacturer.
The power cable connection should be complied with the local rules.
If you need to remove or reinstall the unit, please ask the qualified person to make it to avoid improper installation which will lead to water leakage, electrical shock or fire.
The heat pump should be maintained by qualified person to avoid improper maintenance which will lead to water leakage, electrical shock or fire.

ATTENTION:

It should keep dry, clean and well-ventilated around the units to maintain its good effect of heat transfer and energy saving.
Check the parts of the unit and the pressure of the system regularly (once 1 year). If there is any unusual phenomena, repair and replace it immediately.
Check if the electrical wiring is not firm enough and the electrical element has any unusual action and smell. If so, repair and replace it immediately.
Do not make the unit power off if the unit is not used for a long time. We will not be responsible for any lost caused by the frost crack of parts due to the long time power off.
Check if the power socket and plug have a good contacting, perfect earthing and thermal protections.
In the cold area (below 0 ℃), if you do not use the unit for a long time, please drain the water in the tank to avoid the damage due to freeze.
It is recommended that the set temperature can be set lower when there is enough hot water for daily life to save energy and extend the service life of water heater.
The safety cable specification is 5A/250VAC, and must meet the explosion-proof requirements.

Be aware that refrigerants may not contain odour.

Water quality shall meet the following conditions.

Water heater system	Total Dissolved Solids (TDS) mg/L or ppm	Hardness (as $CaCO_3$) mg/L or ppm	Saturation index (Langelier)	PH	Dissolved CO_2 mg/L or ppm	Chlorides mg/L or ppm
	2500*	200	+0.4to-1.0 @65℃	6.5 to 9.5	N/A	N/A
*For TDS levels up to and including 800mg/liter the magnesium based anode is to be used. It is recommended that magnesium anode be checked annually. This is the anode fitted during manufacture of the cylinder. For TDS levels greater than 800mg/liter and not exceeding 2500mg/liter the magnesium-based anode is to be used. Frequently inspection of magnesium anode is recommended. This anode Can be fitted by an authorized person. This Warranty does not apply if the TDS exceeds 2500 mg/liter.						

Information on Maintenance and servicing:

1) Checks to the area
   Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system
2) Work procedure
   Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed
3) General work area
   All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the work space shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.
4) Checking for presence of refrigerant
   The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.
5) Presence of fire extinguisher

If any hot work is to be conducted on the refrigeration equipment or any associated parts appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO_2 fire extinguisher adjacent to the charging area

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

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

8) Checks to the refrigeration equipment
Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt consult the manufacturer's technical department for assistance.
The following checks shall be applied to installations using flammable refrigerants
-The charge size is in accordance with the room size within which the refrigerant containing parts are installed:
-The ventilation machinery and outlets are operating adequately and are not obstructed;
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
-Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
-Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

9) Checks to electrical devices

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

- avoid possibility of sparking,
- That there no live electrical components and wiring are exposed while charging, recovering or purging the system;
- That there is continuity of earth bonding.

Repairs to sealed components
1) During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
2) Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc. Ensure that apparatus is mounted securely.
Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.
NOTE: The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them

Repair to intrinsically safe components
Do not apply any permanent inductive or capacitance loads to the circuit without ensuring. that this will not exceed the permissible voltage and current permitted for the equipment in use.
Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus

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

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

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

Leak detection methods
The following leak detection methods are deemed acceptable for systems containing flammable refrigerants.
Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed.
Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work
If a leak is suspected, all naked flames shall be removed/ extinguished
If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

Removal and evacuation
When breaking into the refrigerant circuit to make repairs - or for any other purpose conventional procedures shall be used. However, it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:
Remove refrigerant;
Purge the circuit with inert gas;
Evacuate:

Purge again with inert gas;
Open the circuit by cutting or brazing.
The refrigerant charge shall be recovered into the correct recovery cylinders. The system shall be "flushed" with OFN to render the unit safe. This process may need to be repeated several times. Compressed air or oxygen shall not be used for this task Flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital it brazing operations on the pipe-work are to take place
Ensure that the outlet for the vacuum pump is not close to any ignition sources and there is ventilation available.

Charging procedures
In addition to conventional charging procedures, the following requirements shall be followed
- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.
- Cylinders shall be kept upright.
- Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigeration system.
Prior to recharging the system it shall be pressure tested with OFN. The system shall be leak tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

Decommissioning
Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.
a) Become familiar with the equipment and its operation.
b) Isolate system electrically
c) Before attempting the procedure ensure that:
Mechanical handling equipment is available, if required, for handling

refrigerant cylinders:

- All personal protective equipment is available and being used correctly;
- The recovery process is supervised at all times by a competent person;
- Recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible
e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system
f) Make sure that cylinder is situated on the scales before recovery takes place
g) Start the recovery machine and operate in accordance with manufacturer's instructions.
h) Do not overfill cylinders. (No more than 80 % volume liquid charge).
i) Do not exceed the maximum working pressure of the cylinder, even temporarily
j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off
k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked

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

Recovery
When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.
When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good

condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.
The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely

5. Parameters

Model		BECP200-SAV
Power Supply	/	230V~/50Hz
Moisture Resistance	IPX	IPX1
Electrical Shockproof	I	I
Heating Capacity Range	kW	1.5
Heating Power Input Range	kW	0.41
Heating Current Input Range	A	1.8
Auxiliary E-heater	kW	1.5
Max. Power Input	kW	2.2
Max. Current Input	A	9.3
Refrigerant / Proper Input	g	R290 / 150g
Unit Dimension(L/W/H)	mm	Φ640×1600
Rated Outlet Water Temperature	℃	55
Air Volume	m^3/h	350
Air Pressure	Pa	40
Air Duct Diameter	mm	Φ160
Water Inlet/Outlet Size	inch	3/4"
Compressor		Rotary

Measurement conditions: Instant heating: Ambient temperature20℃/15℃,Water inlet 15℃ Water outlet 55℃.

Work range:

(1).Ambient temperature is -5℃~43℃(Heat Pump).

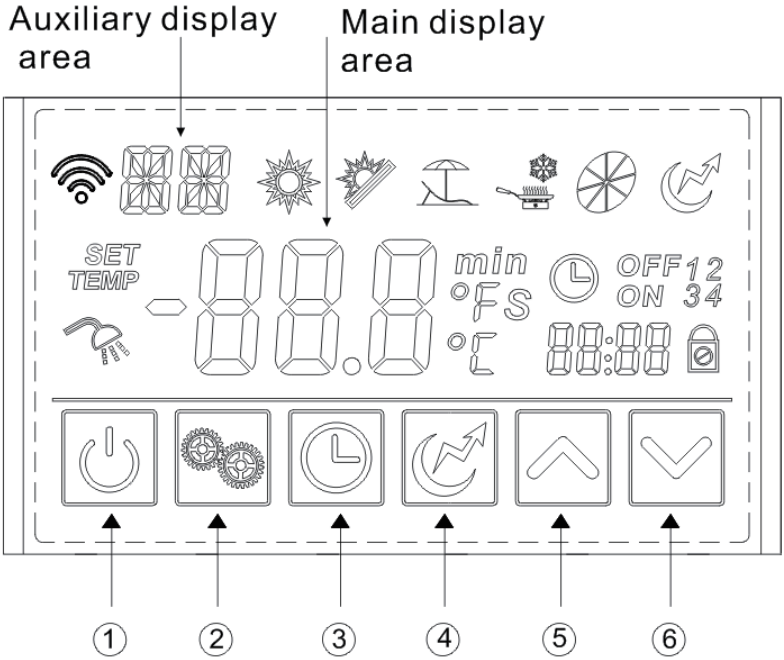
(2).The max temperature of water tank is 60℃.

Operating parameters:

The range of the operating water temperatures: 10~60℃. The range of the operating water pressures: 0.15~0.7MPa.

6. Display Operation Guide

6.1. 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.
	Cooling	Shows that the unit is in cooling 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.
SET	Parameter setting	Shows that the parameter is adjustable.
TEMP	Temperature	Shows that the temperature is non-adjustable (measured value).
ON	Timer & OFF	Shows that the unit will be turned off by the timer automatically.
OFF	Timer & ON	Shows that the unit will be turned on by the timer automatically.
min	Minute	Shows that the main display area displays the minute.
S	Second	Shows that the main display area displays the second.
°C	Centigrade	Shows that the temperature in Main display area or Auxiliary display area is in ℃.
°F	Fahrenheit	Shows that the temperature in Main display area or Auxiliary display area is in.
	Lock	Shows that the keyboard is locked.
	WiFi	Shows that the WiFi connection.

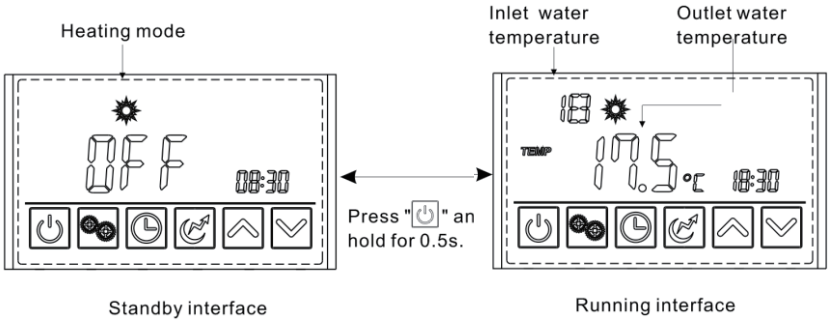
6.2. Usage of wire controller

6.2.1 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.



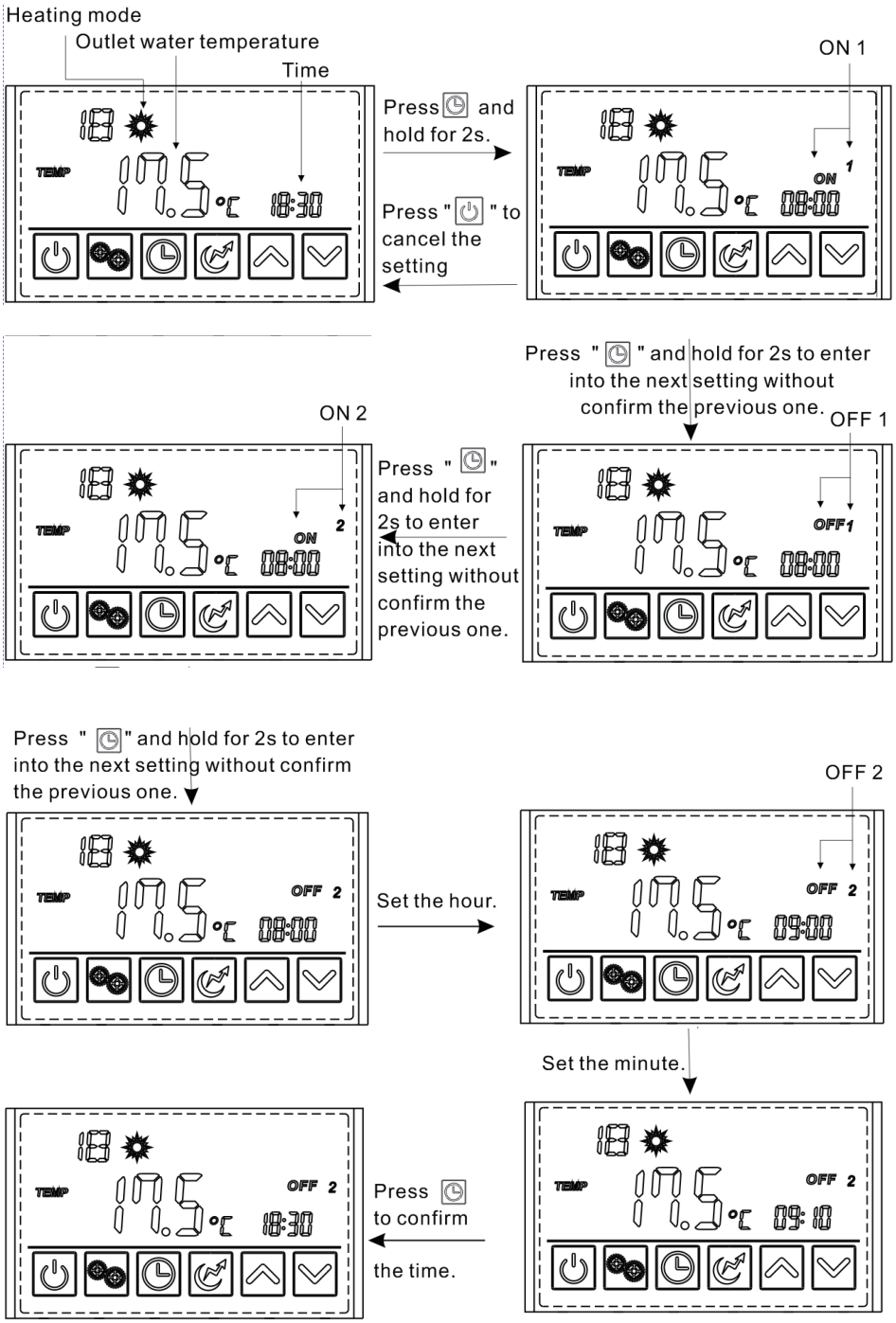
6.2.2 Timer setting

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

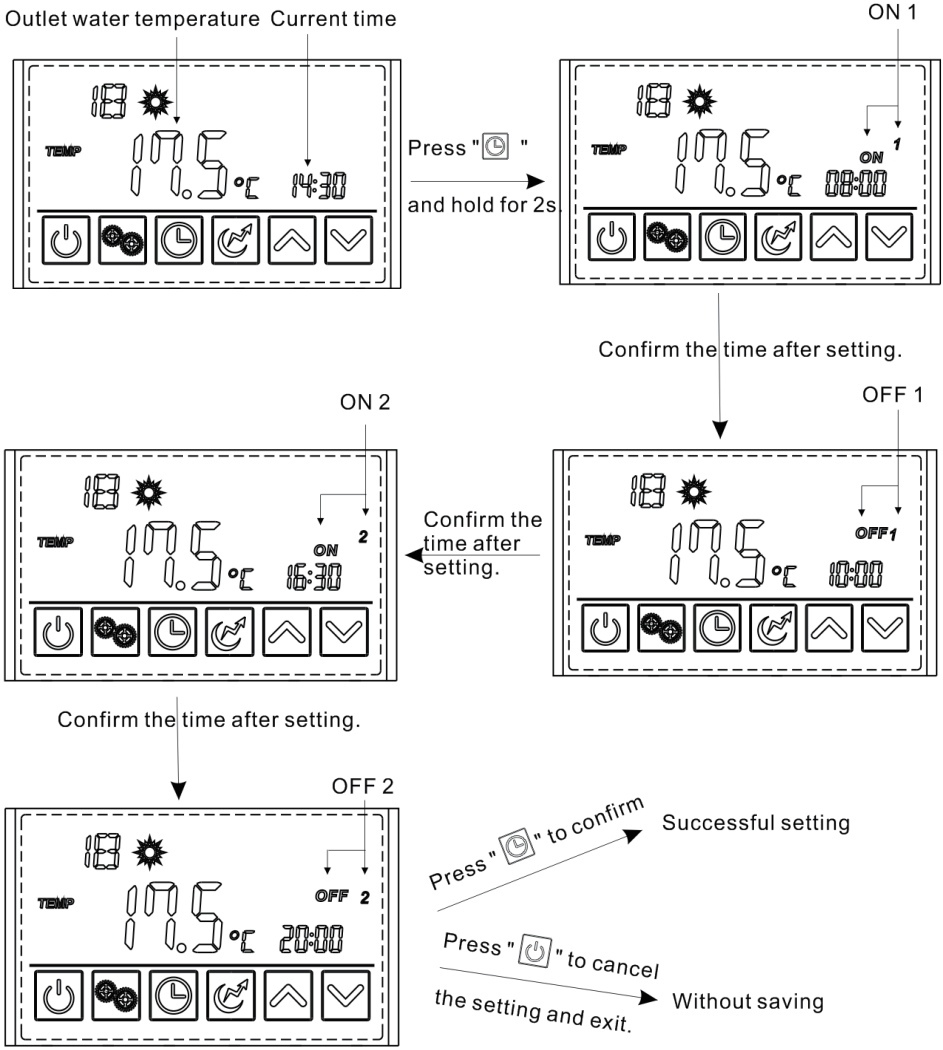
Press " " and hold for 2s, the " ON "and " 1 " will flash, and then you can set the turn on time of timer1 as the 2.6 clock setting show. After finishing, " OFF " and " 1 " will flash, that means you can set the turn off time of timer1.The "ON " and " 2 " will flash after finishing the timer1 setting, 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.


Heating mode
Outlet water temperature
Time
TEMP
17.5 °C 18:30
Press and hold for 2s.
Press " " to cancel the setting
ON 1
ON 1
17.5 °C 08:00
Press " " and hold for 2s to enter into the next setting without confirm the previous one.
OFF 1
OFF 1
17.5 °C 08:00
Press " " and hold for 2s to enter into the next setting without confirm the previous one.
ON 2
ON 2
17.5 °C 08:00
Press " " and hold for 2s to enter into the next setting without confirm the previous one.
OFF 2
OFF 2
17.5 °C 08:00
Set the hour.
OFF 2
OFF 2
17.5 °C 09:00
Set the minute.
OFF 2
17.5 °C 09:10
Press to confirm the time.
OFF 2
17.5 °C 18:30

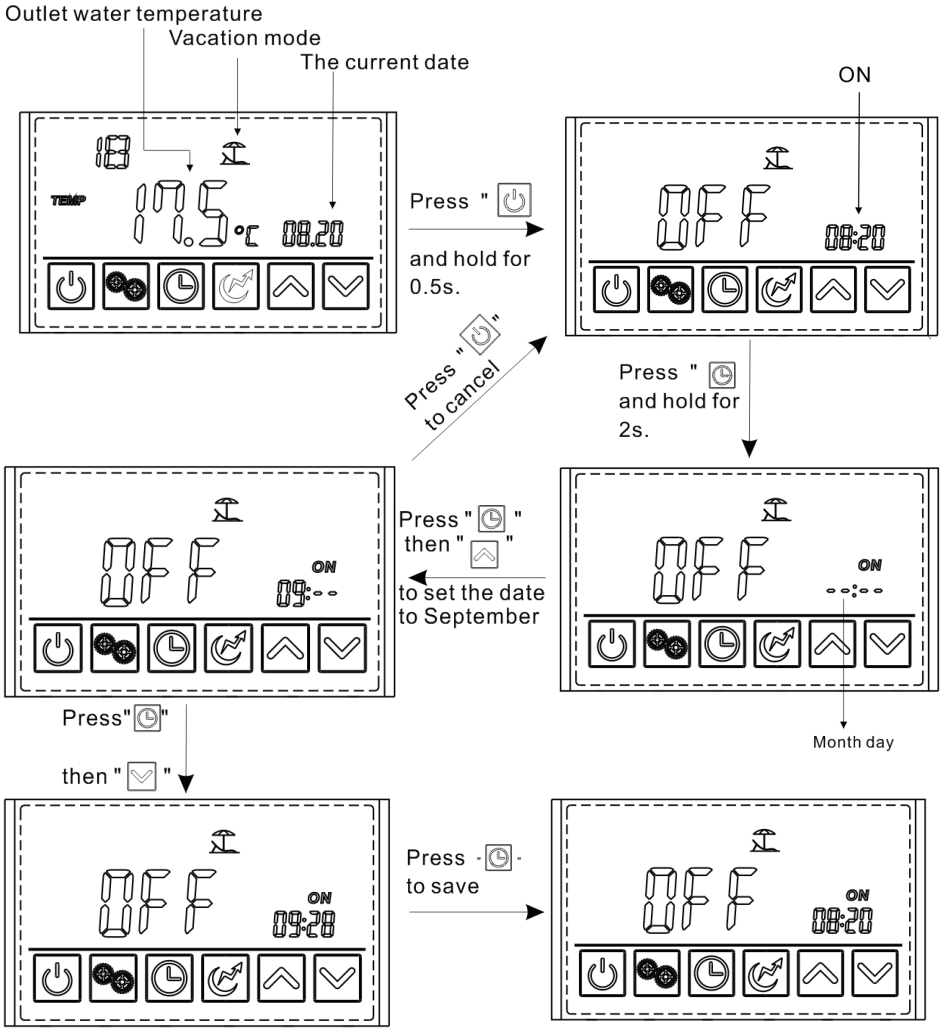
Example: Running period 1: 8:00~10:00; Running period 2: 16:30~20:00.



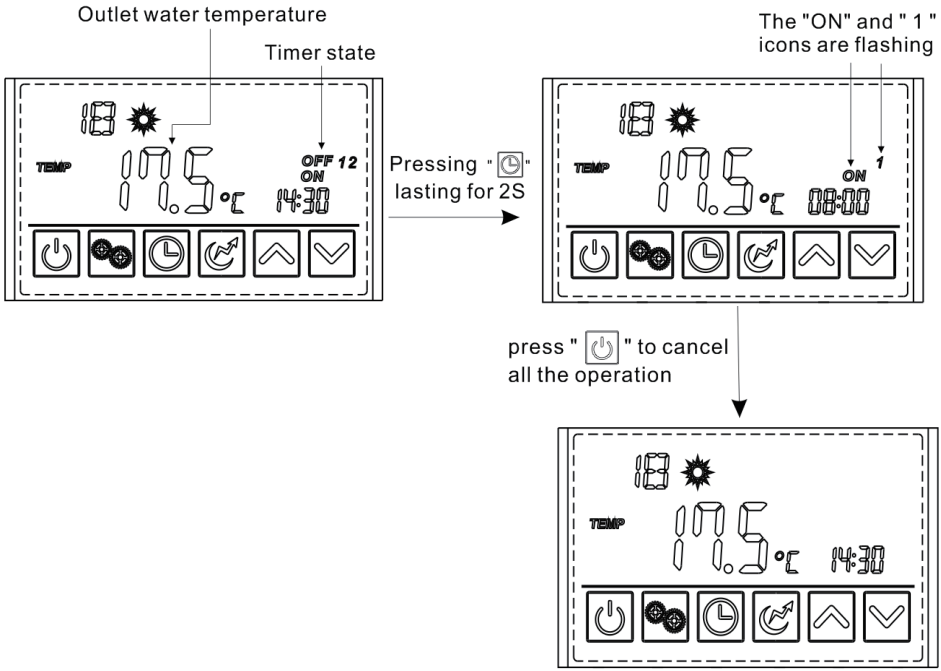
2) In the vocation mode

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” 2.6 ” .

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



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

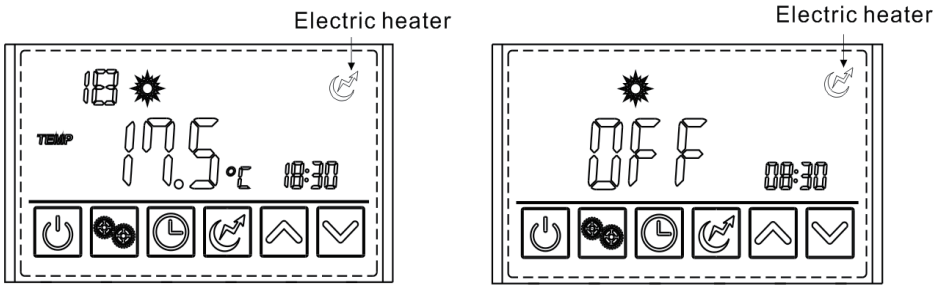


6.2.3 Electric heater setting

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.

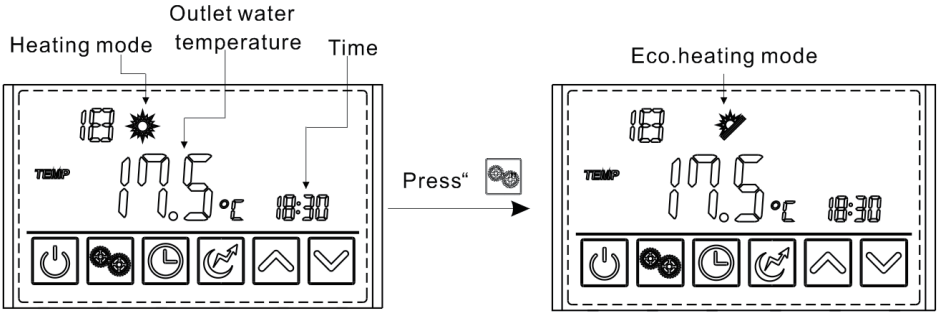
Electric heating mode

When the unit is turn off, press" " can turn on the electric heating mode. At this time, the" " is light up, and the main display area alternate 2S shows" OFF" and outlet water temperature .Short press " " again to turn off the electric heating mode, and the main display area shows "OFF".



9.2.4 Mode selection

Press " " to select Standard heating mode, Eco heating mode, Vacation heating mode, Intelligent heating mode and High demand heating mode in power-on state and power-off state.
For example:"

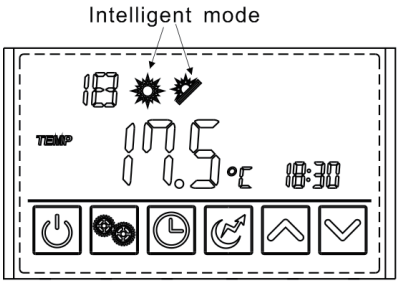


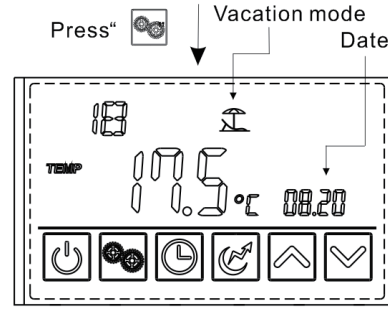
Standard heating mode

We also call standard heating mode. The heat pump system will start according to the actual temperature and target temperature. The electric heater will not start immediately. After R06 time, the controller will judge if it reaches target temperature. If not, the electric heater will start.

Eco heating mode

The heat pump system will start according to the actual temperature and target temperature. But the lectric heater will be off all the time.





Press“

Intelligent heating mode

The heat pump automatically switches to economy mode, standard mode and high demand mode according to different mbient temperatures.

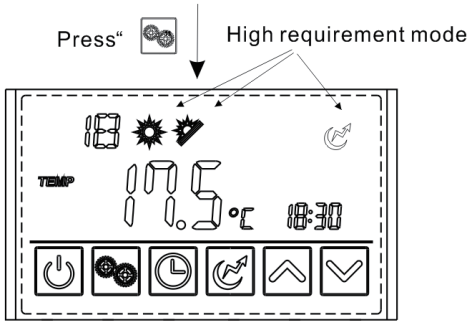
When ambient temp reaches T01>R10, the heat pump will enter Eco heating mode. (electric heater can not start up)

When ambient temp reaches R09<T01≤ R10, the heat pump will enter standard heating mode.(after R06 time , electric heater will judge whether to start up according to R03 return differential temp)

When ambient temp reaches R08≤T01≤R09, the heat pump will enter high demand heating mode. (electric heater will judge whether to start up according to R03 return differential temp)

Vacation heating mode

When you select vacation mode, you need to set a vacation time. The unit will keep operating the mode you set before the vacation time. Once it reached the vacation time, the heat pump will exit the vacation mode and run in the previous setting mode before vacation.



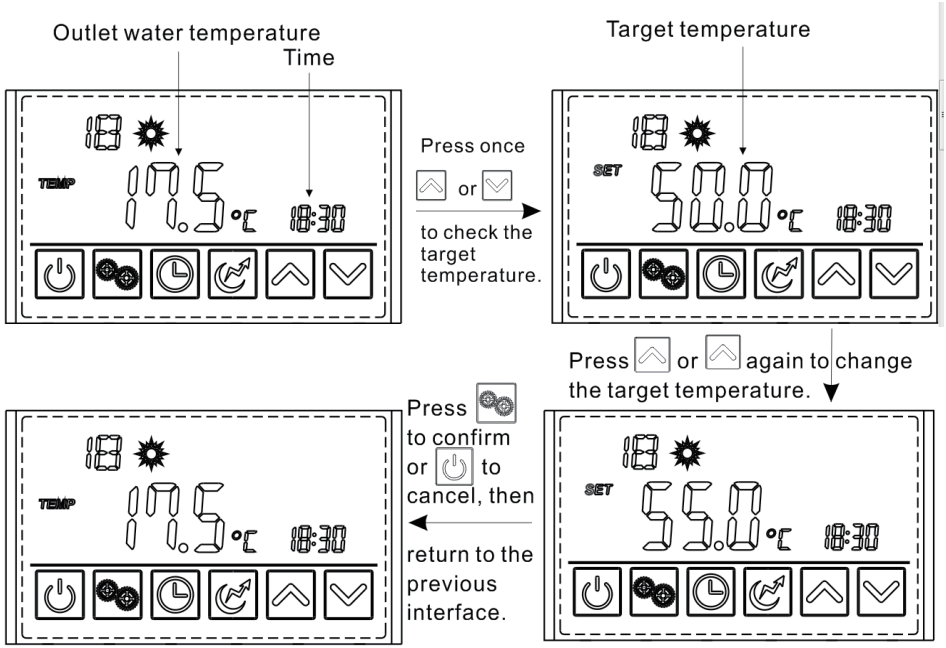
High demand heating mode

We also call it high demand heating mode. The difference between heating mode and high requirement mode is R06 delay time of electric heater start. In the high demand heating mode, electric heater will start without delay, which can help user to heat water quickly in a short time.

6.2.5 Target temperature checking and setting

In the standby or running interface, press " ⌃ " or " ⌄ " once to check the target temperature of the outlet water. Press " ⌃ " or " ⌄ " again to change the target temperature. After making the changes to the parameter, press " ⚙ " to confirm or " ⏻ " to cancel the changes, then return to the previous interface. If no operations are performed on the keypad for 5s, the controller exits the parameter modification menu by timeout and the changes are confirmed.

Example: Change the target temperature from 55℃ to 55℃ when the actual outlet water temperature is 17.5℃.



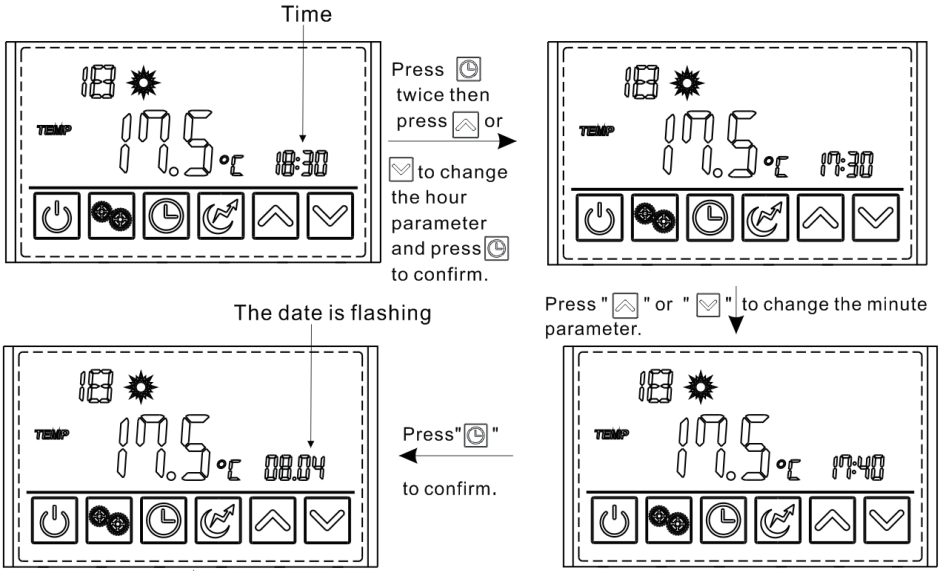
6.2.6 Time setting

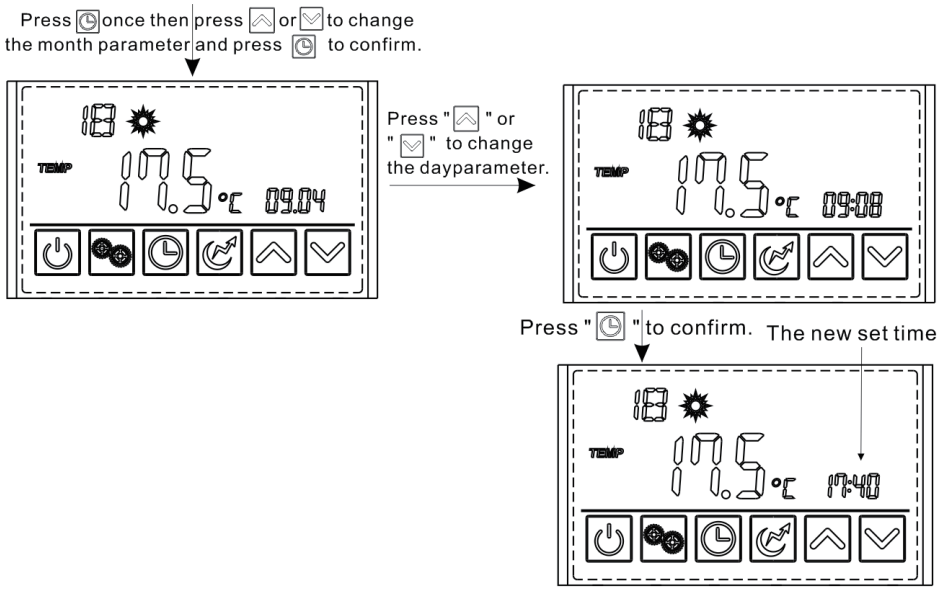
In the standby or running interface, do as follows to set the time when in heating mode. When press " " once, the time parameter will flash. When press " " again, the hour parameter will flash then press " " or " " to change it. After making the changes to the parameter, press" " to confirm, then change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

If no operations are performed on the keypad f or 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.

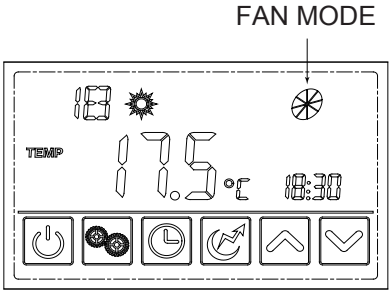
Example: Change the time and date from 18:30 on August 4th to 17:40 on September 8th.





9.2.7 Fan mode setting

In the main interface, long press the " " for 2S to set the fan mode.It will flash only when the fan is running, otherwise the fan blade will be static during forced ventilation;



Definition of the fan icon

1. or : shows the fan will run at gear 1 when target setting temperature is reached. (Lowest speed)

2. :shows the fan will run at gear 2 when target setting temperature is reached.

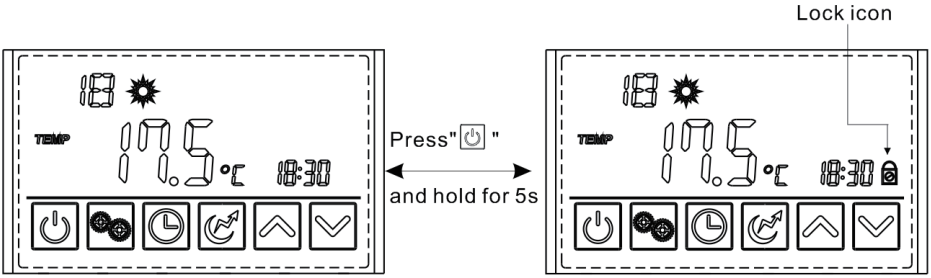
3. :shows the fan will run at gear 3 when target setting temperature is reached.

4. :shows the fan will run at gear 4 when target setting temperature is reached.

5. :shows the fan will run at gear 5 when target setting temperature is reached. (Highest speed)

9.2.8 Keyboard locking

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



7. Failure List & Troubleshooting

7.1. Non-error tips

1）Why the compressor is not running when I start up the unit?
Answer: When the unit is powered on after the last shut-down, the compressor will not run until 3 minutes later. This is the self-protection of the unit.

2）Why sometimes the outlet water temperature on the display increases slowly?
Answer：Because the water temperature is different between the upper layer and bottom layer in the tank at the beginning. When the water temperature in all parts of the tank is basically the same, it will rise faster.

3）Why the outlet water temperature on the display decreases when the unit is in heating mode?
Answer：If the upper water temperature is much higher than that of the bottom water, the water temperature will decrease a little because of the convection between hot water and cold water in the tank.

4）Why does the unit not start up to heat when the outlet water temperature decreases?
Answer: The water temperature will decrease because of the heat loss if the hot water in the tank is not used for a long time. In order to avoid the continual ON/OFF, the unit does not start up until the water temperature decrease for more than 5℃.

5）Why does the outlet water temperature decrease a lot abruptly?
Answer: The temperatures of hot water and cold water in the tank are different. The cold water may go to the upper sensor when the hot water have been used up.

6）Why the hot water is still available when the water out temperature on the display decreases a lot?
Answer: Because the upper sensor is positioned near the top of the tank, there is still 1/5 of hot water available when the outlet water temperature on the display decreases a lot.

7）Why the compressor stops but the fan keeps running when the unit is in the heating mode?
Answer: The unit needs to defrost when the evaporator freezes because of the low ambient temperature. The compressor will stop and the fan keeps running when the unit defrosts.

8）Why is the heating time so long?
Answer: Energy saving, little power consumption and long heating time are the

distinguishing features of the units. Normally, the heating time is 2~6 hours according to the inlet water temperature, water consumption and ambient temperature.

7.2. The normal failure and solutions

For any malfunctions, please refer to the table below:

Display	Malfunction Description	Corrective action
P01	Bottom water temp. sensor failure (sensor is open or short circuit)	Check or change the water bottom temp. sensor.
P02	Top tank water temp. sensor Failure (sensor is open or short circuit)	Check or change the water top tank temp. sensor.
P03	Discharge temp. sensor failure (sensor is open or short circuit)	Check or change the discharge temp. sensor.
P04	Ambient temp. sensor failure (sensor is open or short circuit)	Check or change the ambient temp. sensor.
P05	Coil temp. sensor failure (sensor is open or short circuit)	Check or change the pipe temp. sensor.
P07	Suction temp. sensor failure (sensor is open or short circuit)	Check or change the suction temp. sensor.
P08	Solar temp. sensor failure (sensor is open or short circuit)	Check or change the solar temp. sensor.
P82	Discharge overheating protection	Check if the refrigerant system has leak points or is blocked.
E01	High pressure protection (The exhaust pressure is high, high pressure switch action)	Check the high pressure switch or check if the refrigerant system is blocked.
E02	Low pressure protection (The suction pressure is low, Low pressure switch action)	Check the low pressure switch or check if the refrigerant system has leaks.

E08	Communication failure (Wired remote control with master signal failure)	Check the connection line between the wired remote control and motherboard.
E09	Winter frost protection	The water temperature is too low, please pay attention to anti-freezing.
E11	DC motor stalling	Check the motor and its connector.
E13	Electronic anode 1 short-circuit	Check the electronic anode and its connector to the main controller.
E14	Electronic anode 1 open-circuit	Check the electronic anode and its connector to the main controller.
E18	Electronic anode 2 short-circuit	Check the electronic anode and its connector to the main controller.
E19	Electronic anode 2 open-circuit	Check the electronic anode and its connector to the main controller.
E43	High pressure switch three times protection	Check the high pressure switch or check if the refrigerant system is blocked.
E44	Low pressure switch three times protection	Check the low pressure switch or check if the refrigerant system has leaks.
E45	Discharge overheating three times protection	Check if the refrigerant system has leak points or is blocked.

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