

# Domestic Hot Water Heat Pump **TOR (R290)**



Models:  
TOR/200S  
TOR/300S

## Operation and Installation Manual

Before operating this product, please read the instructions carefully and keep this manual for future use.





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**Note:**

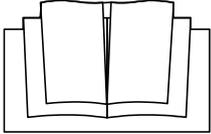
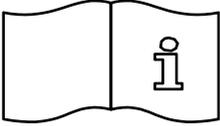
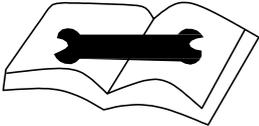


READ THIS MANUAL CAREFULLY BEFORE STARTING UP THE UNIT. DO NOT THROW IT AWAY. KEEP IT IN YOUR FILES FOR FUTURE REFERENCE.



BEFORE OPERATING THE UNIT, MAKE SURE THE INSTALLATION HAS BEEN CARRIED OUT CORRECTLY BY A PROFESSIONAL DEALER. IF YOU FEEL UNSURE ABOUT OPERATION, CONTACT YOUR DEALER FOR ADVICE AND INFORMATION.

## Explanation of display symbols' on the unit.

	WARNING	This symbol shows that this appliance used a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.
	CAUTION	This symbol shows that the operation manual should be read carefully.
	CAUTION	This symbol shows that information is available such as the operating manual or installation manual.
	CAUTION	This symbol shows that service personnel should be handling this equipment with reference to the installation manual.

## SAFETY INSTRUCTIONS

To prevent injury to the user, other people, or property damage, please follow the instructions below. Incorrect operation due to ignoring these instructions may cause harm or damage.

### 1. Intended Use

#### Warning

This product is designed only for heating domestic water according to the specifications in this manual. It is intended for indoor fixed installation in adequately ventilated locations. Any other use (e.g., space heating, industrial use, outdoor installation) is misuse and may cause injury, damage, or void warranty. Use only original manufacturer-approved accessories and parts.

## 2. General Safety Information



### Warning

Install the unit only in compliance with local laws, regulations and standards. Check voltage and frequency before installation. The unit is only suitable for earthed sockets (220-240V~, 50Hz). Children aged 8 years and older and persons with reduced physical, sensory or mental capabilities may use this appliance only if supervised or instructed. Children shall not play with the appliance or perform cleaning/maintenance unsupervised. Keep safety labels intact. Dispose of plastic bags, nails, and sharp packing materials immediately to avoid suffocation or injury.



### Caution

The unit is designed for indoor use only. Do not install or operate in locations with flammable gases, corrosive gases (e.g., sulfurous acid), oil mist, strong electromagnetic waves, high salt content (e.g., near ocean), unstable voltage, vehicles or vessels.

## 3. Installation Safety



### Warning

Installation must be performed by qualified technicians. Do not install the unit yourself. Ensure the installation surface is flat, stable, and can support at least 20 g/mm<sup>2</sup> considering wind, vibration, and earthquakes. In confined spaces, ensure adequate ventilation to avoid suffocation risk from refrigerant leaks. Use only manufacturer specified parts. Electrical installation must use a dedicated 16A circuit with ground fault circuit interrupter (GFCI) and proper grounding. Use specified wire gauge and fix wires securely on the terminal block to avoid stress on components. Never use extension cords. The power socket should be at least 1.8 m above the floor in areas prone to water splashing. Drainage and piping must follow the installation manual.



### Warning

This appliance shall be installed in a room with a floor area larger than 4 m<sup>2</sup> (refer to refrigerant charge label for details) according to applicable standards for hydrocarbon refrigerant (R290).



Caution

Keep the power cord at least 1 meter away from televisions or radios to avoid interference. Confirm no hidden water, gas, or electrical lines before drilling walls/floors.

## 4. Operation Safety



Warning

Do not operate with wet hands. Do not insert fingers or objects into fan or evaporator. Do not remove protective grills or covers. Do not operate near flammable gases. If abnormal noise, odor, or malfunction occurs, turn off power immediately and contact service. Hot water may exceed 50°C; mix with cold water to avoid scalding. Keep heaters away from power cords.



Caution

Avoid touching refrigerant pipes or internal parts during/immediately after operation - burns or frostbite may occur. Allow time to cool or wear protective gloves. Do not wash the unit with water directly. Do not accelerate defrosting by unauthorized methods.

## 5. Maintenance and Service



Warning

Always turn off power before servicing or cleaning. If plug is removed, ensure it remains disconnected during service. Only licensed technicians may repair or handle refrigerant. Damaged power cords must be replaced by authorized personnel.



Caution

Wear gloves and safety glasses during maintenance. Check for refrigerant leaks after service. Do not reuse disassembled refrigerant joints.

## 6. Special Requirements for R290 Refrigerant



Warning

Do not allow refrigerant leakage near open flames. R290 has no odor. Store/install in well-ventilated area away from ignition sources. Installation, servicing, maintenance and recycling must be done by certified personnel. Protect pipework from damage and keep pipe length minimal. Leak detection systems must be checked at least every 12 months with records.

## 7. Disposal & Environmental Protection

Do not dispose of this product as unsorted municipal waste. Follow local laws for separate collection and recycling. Improper disposal may release hazardous substances polluting groundwater and food chain. Contact dealer or local authorities for disposal information. Refrigerant and oil must be recovered by certified technicians and disposed properly.



This marking shown on the product or its literature indicates that electrical waste or electrical equipment must not be mixed with general household waste.

Proper disposal of this product (Electrical and electronic waste)

This appliance contains refrigerant and other potentially hazardous materials. When disposing of this appliance, the law requires special collection and treatment. Do not dispose of this product as unsorted household or municipal waste.

When disposing of this appliance, you have the following options:

- Dispose of the appliance at a designated municipal electronic waste collection point.
- When purchasing a new appliance, the dealer will collect the old appliance free of charge.
- The manufacturer will collect the old appliance free of charge.
- Sell the appliance to certified scrap dealers.

#### Special notice

Disposing of this appliance in the forest or in surrounding natural areas endangers your health and is harmful to the environment. Hazardous substances can leak into groundwater and enter the food chain.

# **INTRODUCTION**

## **This manual**

This manual includes the necessary information about the unit. Please read this manual carefully before you use and maintain the unit.

## **Intended Use of the Unit**

The hot water heat pump is one of the most economical systems to heat the water for family domestic use. Using free renewable energy from the air, the unit is highly efficient with low running costs. Its efficiency can be up to 3 to 5 times more than conventional gas boilers or electrical heaters.

### **Waste Heat recovery**

Units can be installed near the kitchen, in the boiler-room or the garage, basically in every room which has a large number of waste-heat so that the unit has the higher energy efficiency even with very low outside temperatures during the winter.

### **Hot water and dehumidification**

Units can be placed in the laundry room or clothing room. When it produces hot water it lowers the temperature and dehumidifies the room as well. The advantages can be experienced particularly in the humid season.

### **Storage room cooling**

Units can be placed in the storage room as the low temperature keeps the food fresh.

### **Hot water and fresh air ventilation**

Units can be placed in the garage, gym, basement etc. When it produces hot water, it cools the room and supplies fresh air.

### **Compatible with different energy sources**

Units can be compatible with solar panels, external heat pumps, boilers or other different energy sources.

### **Ecological and Economical Heating**

Units are the most efficient and economical alternative to both fossil fuel boilers and heating systems. By making use of the renewable source in the air, it consumes much less energy.

### **Compact design**

Units are especially designed for offering sanitary hot water for family use. Its extremely compact structure and elegant design are suitable for indoor installation.

### **Multiple Functions**

The special design of the air inlet and outlet makes the unit suitable for various ways of connections. With different ways of installation, the unit can work as just a heat pump but also as a fresh air blower, a dehumidifier, or an energy recovery device.

### **Other features**

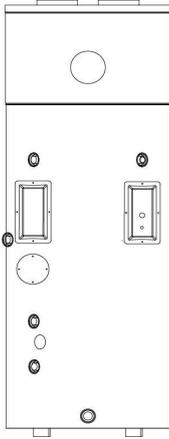
Stainless steel tank and a magnesium anode assure the durability of components and the tank.

Highly efficient compressor with the R290 refrigerant.

Electrical element available in the unit as a back-up, assuring constant hot water even in extreme cold winters.

# SCOPE OF DELIVERY

Before starting the installation, please make sure that all parts are found inside the box.

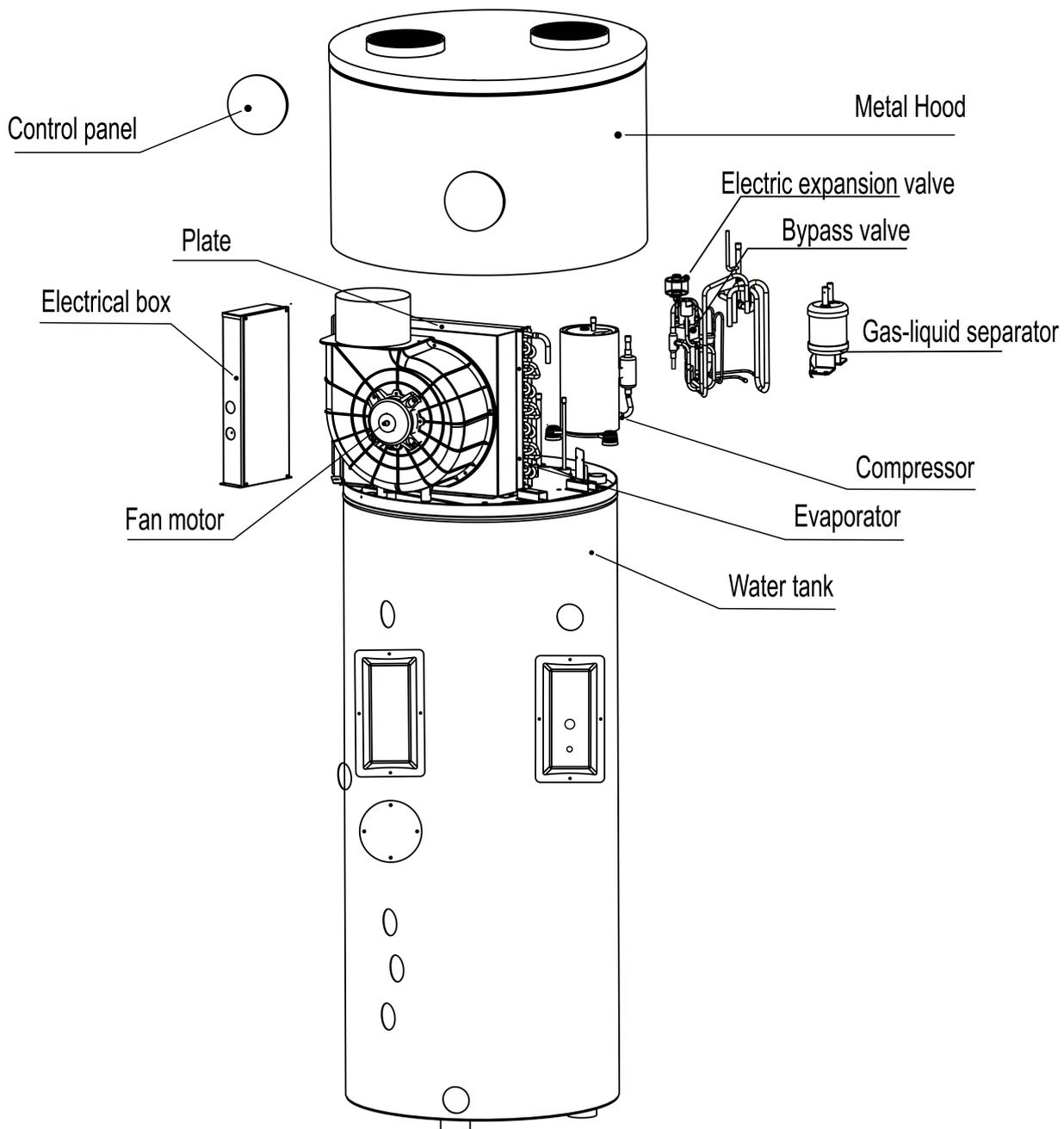
The Unit Box		
Item	Image	Quantity
Domestic hot water heat pump		1
Operation and Installation Manual		1

# OVERVIEW OF THE UNIT

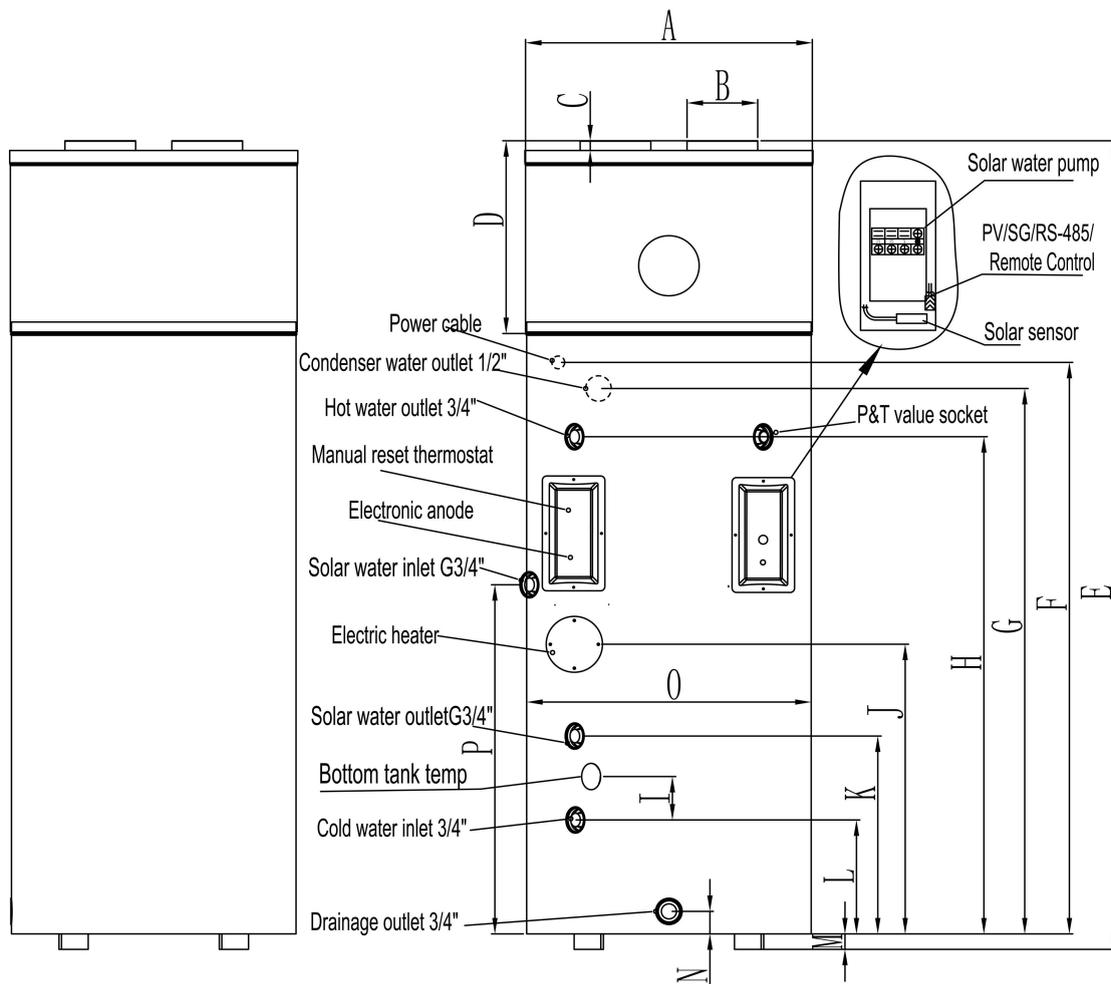
## Parts and descriptions

TOR/200S

TOR/300S



# Dimensions



	<b>200L</b>	<b>300L</b>
<b>A</b>	Ø565	Ø647
<b>B</b>	Ø160	Ø160
<b>C</b>	25	25
<b>D</b>	450	455
<b>E</b>	1750	1850
<b>F</b>	1185	1285
<b>G</b>	1135	1230
<b>H</b>	1020	1120
<b>I</b>	120	135
<b>J</b>	600	665

K	445	430
L	250	250
M	30	30
N	40	40
O	Ø560	Ø640
P	735	730

**Remark:** (With Solar heat exchange coil)

1. The extra heat source is optional.
2. Add the solar water collector control.

While the parameter 23=1, solar water collector control is available. The terminal “TO PUMP” is connected to solar energy water pump, “FS” is connected to the flow switch of solar water circuit, “SOLAR SENSOR” is checking the temperature of solar thermal collector.

**Note:**

1. This unit is equipped with electronic anode or/and magnesium anode rod.
2. If the unit is equipped with electronic anode, after the unit is filled with water, to prevent the water tank from corrosion, power off is strictly prohibited.
3. When the unit displays a water shortage warning, please promptly check whether the water tank is filled; during the water shortage warning period, the corresponding functions will be disabled, and hot water heating will be allowed for a maximum of 3 days before stopping.
4. Please ensure that the water tank is filled with water fully before powering on the unit.
5. It is recommended to check the magnesium anode rod for the first time after 3 to 6 months of use. The subsequent inspection intervals are determined based on the actual consumption of the magnesium anode rod, usually once every 6 to 12 months. If it is close to being consumed, it should be replaced in time, otherwise the inner tank may be damaged.

**How to replace the magnesium anode:**

1. Turn the power of the unit ‘OFF’ and pull out the plug.
2. Drain all the water out of the tank.
3. Remove the old magnesium anode from the tank.
4. Replace the new magnesium anode.
5. Refill the water.

**Note:**

The warranty does not cover damages caused by limestone formations, deposits and impurities from the water supply and/or from failure to clean the systems.

## Water Quality Requirement Table

Items	Limit	Unit
pH	7.5 - 9.0	—
SO <sub>4</sub> <sup>2-</sup>	< 100	ppm
HCO <sub>3</sub> <sup>-</sup> / SO <sub>4</sub> <sup>2-</sup>	> 1	—
<b>Total Hardness</b>	8 - 15	°f
Cl <sup>-</sup>	< 50	ppm
PO <sub>4</sub> <sup>3-</sup>	< 2.0	ppm
NH <sub>3</sub>	< 0.5	ppm
<b>Free Chlorine</b>	< 0.5	ppm
Fe <sub>3</sub> <sup>+</sup>	< 0.5	ppm
Mn <sup>2+</sup>	< 0.05	ppm
CO <sub>2</sub>	< 50	ppm
H <sub>2</sub> S	< 50	ppb
<b>Temperature</b>	< 65	°C
<b>Oxygen Content</b>	< 0.1	ppm
<b>Sand</b>	< 10	mg/L
<b>Ferrite Hydroxide (Fe<sub>3</sub>O<sub>4</sub>, black)</b>	< 7.5	mg/L
<b>Iron Oxide (Fe<sub>2</sub>O<sub>3</sub>, red)</b>	< 7.5	mg/L

## Schematic overview of the water and refrigeration circuit

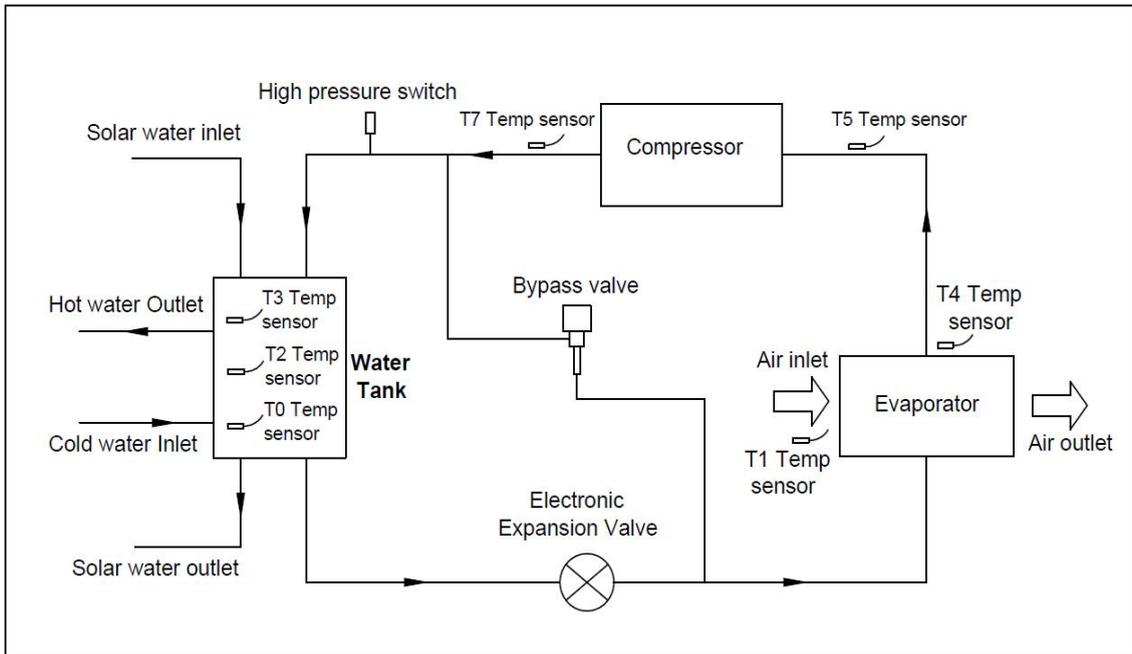


Fig. 1. Schematic overview of the system with a bypass valve

**Note:** Solar heat exchange coil is optional.

### Tips: How to Choose the Right Unit

Please refer to the table below to choose the suitable unit.

Family members	Tank capacity
3 to 4 people	200L
More than 6 people	300L

**Note:** The table is just for reference.

# INSTALLATION



## Warning

- Ask your supplier to install the unit. Incomplete installation performed by yourself may result in a water leakage, electric shock or fire.
- Indoor installation is highly recommended. It is not allow to install the unit outdoor or rain achieving place.
- The installation place without direct sunlight and other heat supplies is recommended. If no way to avoid these, please install a covering.
- The unit must be securely fixed to avoid noise and vibration.
- Make sure that there's no obstacle around the unit.
- In the place where there is strong wind, fix the unit in the location protected from the wind.

## Transportation

As a rule, the unit is to be stored and/or transported in its shipping container in upright position and without water charge. For a transport over short distance (provided that it is done with care), an inclination angle up to 30 degrees is permitted, both during transport and storage. Ambient temperatures of -20 to +70 degrees Celsius are permitted.

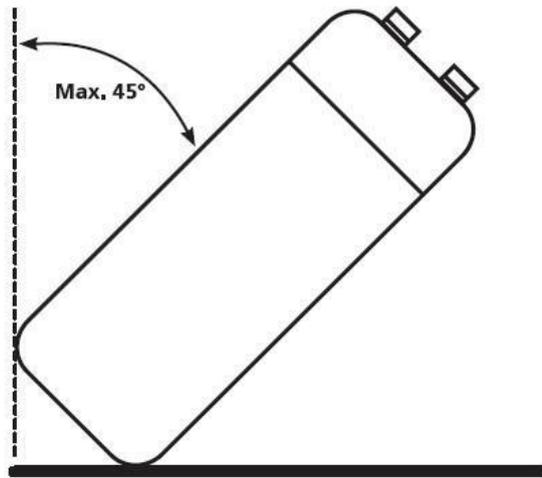
### Transport using a forklift

When transported by a forklift, 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.

### Manual transport

For the manual transport, a wooden/plastic pallet can be used. Using ropes or carrying straps, a second or third handling configuration is possible. With this type of handling, it is advised that the maximum permissible inclination angle of 45 degree is not exceeded. If transport in an inclined position cannot be avoided, the unit should be taken into operation one hour after it has been moved into final position.

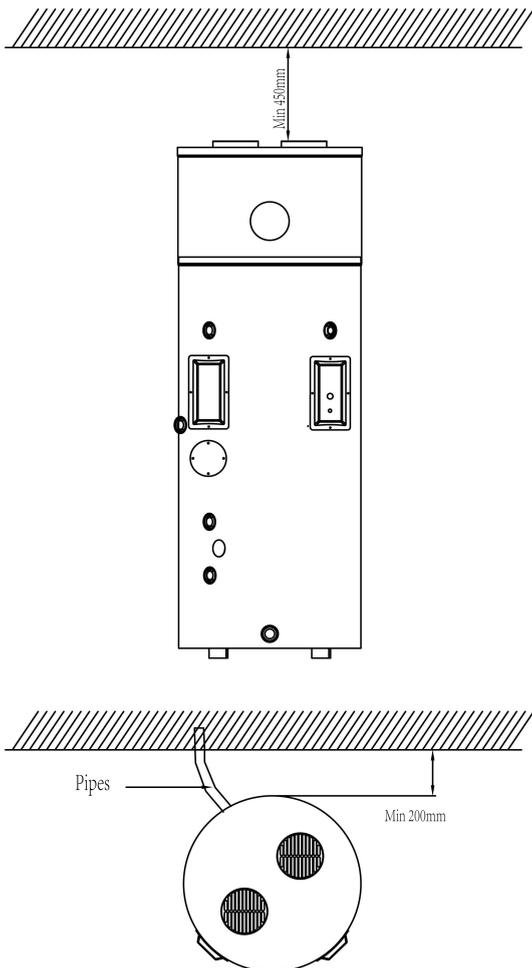


**ATTENTION:**

DUE TO THE HIGH CENTER OF GRAVITY, LOW OVERTURNING MOMENT, THE UNIT MUST BE SECURED AGAINST TIPPING OVER.

**Required service space**

Below you will find the minimum space required to be able to complete service and maintenance tasks on the units.

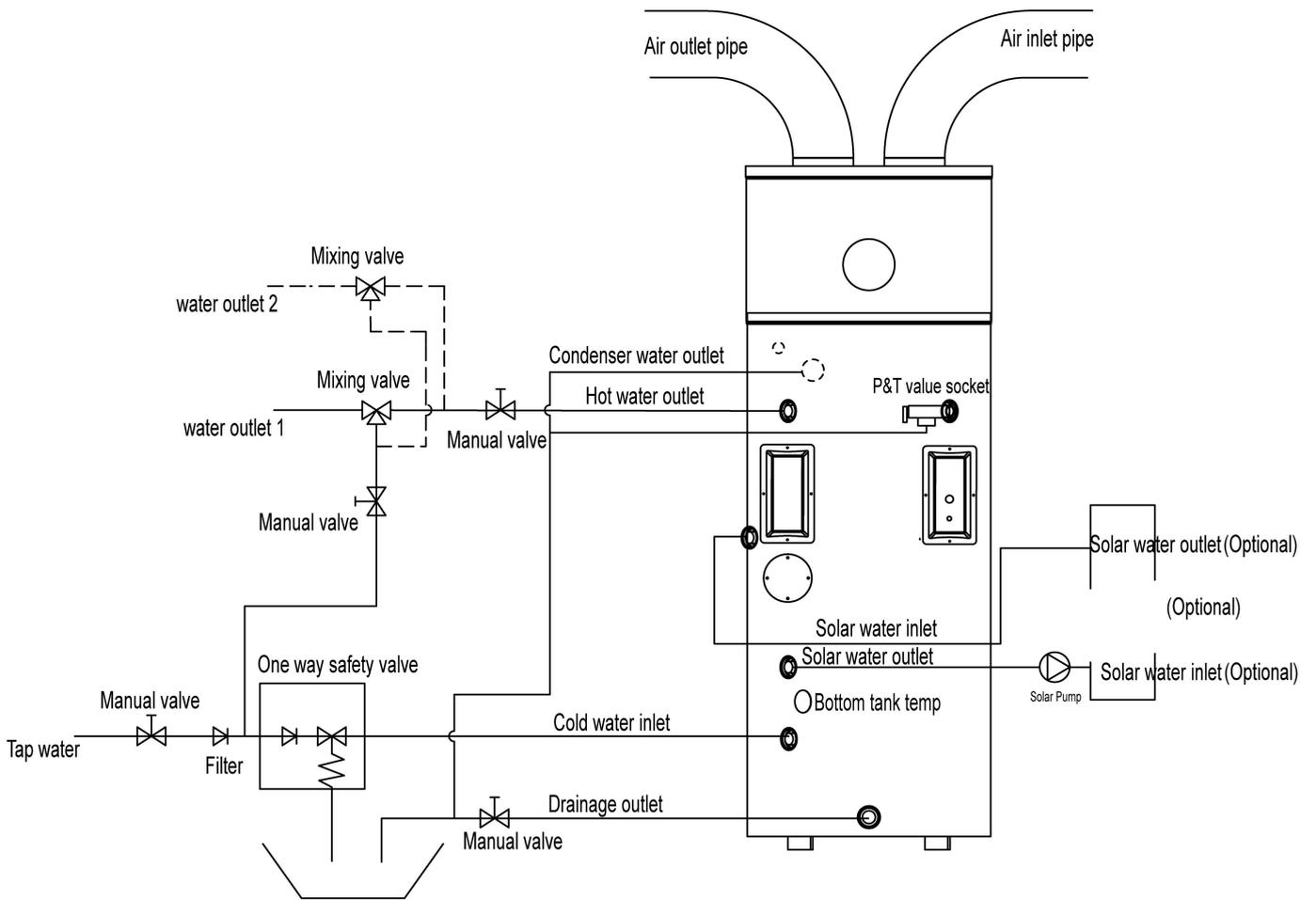


**Note:**

If the air inlet and/or outlet pipes are plugged, the airflow rate and performance of the heat pump unit will be reduced.

If the unit connects with air ducts it should be DN160mm for pipes or 160mm internal diameter flexible hose.

## Installation overview



### Note:

This unit has a reserved installation port for the TP valve. It is mandatory to use the TP valve on site otherwise the heat pump will be out of warranty. The working pressure of the TP valve is 0.7 MPa and the working temperature is 99 degrees.

### ! ATTENTION:

- The one-way safety valve must be installed. If not, it could cause damage to the unit, or even hurt people. The set point of this safety valve is 0.7 MPa. For the installation place, please refer to the pipeline connection sketch.

- The discharge pipe connected to the one-way safety valve is to be installed in a continuously downward direction and in a frost-free environment.
- The water may drip from the discharge pipe of the one-way safety valve and that this pipe must be left open.
- The one-way safety valve is to be operated regularly to remove lime deposits and to verify that it is not blocked. Please beware of burn, because of the high temperature of water.
- The tank water can be drained through the drainage hole on the bottom of the tank.
- After all the pipes installed turn on the cold water inlet and hot water outlet to fill the tank. When there is water normally following out from water outlet, the tank is full. Turn off all valves and check all pipes. If any leakage, please repair.
- If the inlet water pressure is less than 0.15MPa, a pressure pump should be installed at the water inlet. For ensure the long safety using age of tank at the condition of water supply hydraulic higher than 0.65MPa, a reducing valve should be mounted at the water inlet pipe.
- Filters are needed in the air inlet. If the unit is connected with ducts, filter in there must be put forward to the air inlet of duct.
- To fluently drain condensate water from evaporator, please install the unit at the horizontal floor. Otherwise, please make sure the drain vent is at the lowest place. Recommending the inclination angle of unit to be ground should no more than 2 degree.

## Installation positions

### 1. Waste heat can be useful heat

Units can be installed near the kitchen, in the boiler-room or the garage, basically in every room which has a large number of waste-heat so that the unit has the higher energy efficiency even with very low outside temperatures during the winter.



## 2. Hot water and dehumidification

Unit can be placed in the laundry room or clothing room. When it produces hot water it lowers the temperature and dehumidifies the room as well. The advantages can be experienced particularly in the humid season.



## 3. Solar panel or external heat pump could be the second heat source

Unit can work with solar panel, external heat pump, boiler or other different energy source.

### **NOTE:**

- Choose the right path to move the unit.
- This unit complies with the relevant technical standards of electrical equipment.

## Water loop connection

Please pay attention to the following points when connecting the water loop pipe:

1. Try to reduce the pressure drop in the water loop.
2. Ensure the pipes are clear and the water loop is unobstructed; inspect the pipes thoroughly for any leaks, then wrap them with insulation.
3. Install a one-way valve and a safety valve in the water circulation system.
4. The nominal width of the field-installed sanitary pipes must be chosen based on the available water pressure and the anticipated pressure drop within the piping system.
5. Flexible water pipes may be used. To prevent corrosion, ensure that all materials in the piping system are compatible.
6. When installing pipework at the customer's site, take care to avoid any contamination of the piping system.

## System filling and emptying

System filling:

If the unit is used for the first time or used again after emptying the tank, please make sure that the tank is full of water before turning on the power.

1. Open the cold-water inlet and hot water outlet.
2. Start the system filling. When there is water normally flowing out from the hot water outlet, the tank is full.
3. Turn off the hot water outlet valve and system filling is finished.



**ATTENTION:**

Operation without water in water tank may result in damage of auxiliary e-heater!

Water emptying:

If the unit needs cleaning, moving etc., the tank should be emptied.

1. Close the cold-water inlet
2. Open the hot water outlet and open the manual valve of drainpipe
3. Start the water emptying.
4. After emptying, close the manual valve.

## **Wire connection**

- The specification of the power supply wire is 3\*1.5 mm<sup>2</sup>.
- There must be a switch when connecting the unit to the power system. The current of the switch is 16A.
- A creepage breaker must be installed near the power supply, and the unit must be effectively earthed. The specification of the creepage breaker is 30 mA, less than 0.1 sec.

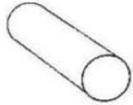
THE APPLIANCE SHALL BE INSTALLED IN ACCORDANCE WITH NATIONAL WIRING REGULATIONS.

## Test running

### Checks before test running

- Check both the water in the tank as well as the water pipe connection.
- Check the power system, make sure that the power supply is normal and the wire connection is ok.
- Check the inlet water pressure, make sure that the pressure is sufficient (above 0.15Mpa).
- Check if any water flows out from the hot water outlet, make sure that the tank is full of water before turning on the power.
- Check the unit; make sure everything is ok before turning 'ON' the power of the unit, check the light on the wire controller when the unit runs.
- Use the wire controller to start the unit.
- Listen to the unit carefully when turning 'ON' the power of the unit. Turn the power 'OFF' when you hear an abnormal sound.
- Measure the water temperature, to check the undulation of the water temperature.
- Once the parameters have been set, the user cannot change the parameters optionally. Please use a qualified service person to do this.

## Setting the fan speed

		Ø 125		Ø 150		Pa MAX 160
		Pa	m <sub>equivalent</sub>	Pa	m <sub>equivalent</sub>	
1m PVC		3	1	2.5	1	
1m Al		4.5	1,5	3	1,3	
Grille		15	5	12	5	
 90° PVC		14	4,5	9	4	
 90° Al		16	5,5	9	4	

According to actual needs, the parameter for adjusting the fan speed can be set. It is recommended to set the speed based on the length of the air duct, and you should consult installation technicians before adjusting.

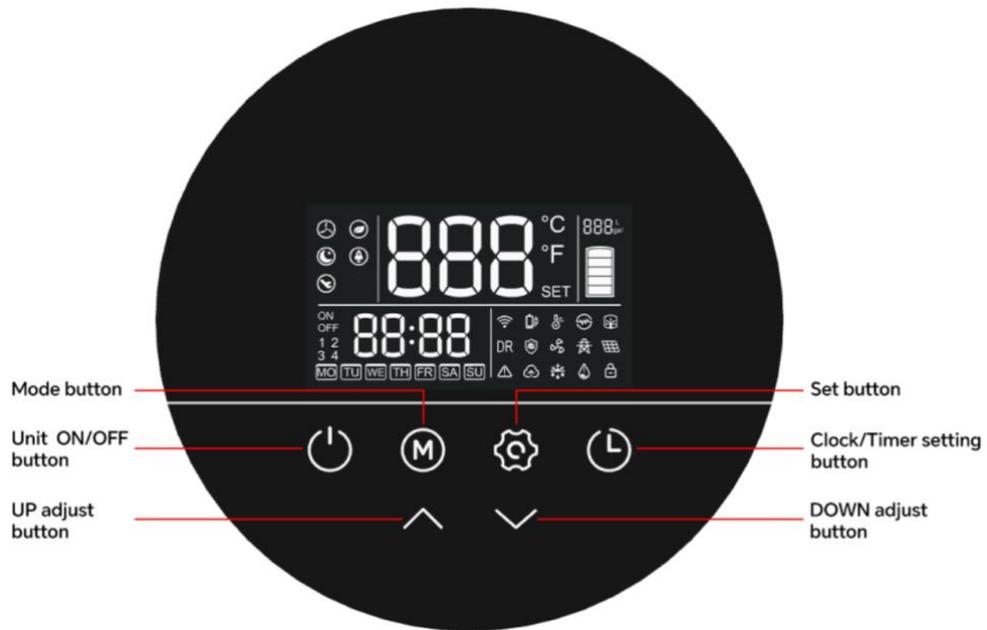
The factory default program is 880.

Total Length of Air Inlet and Outlet Ducts (m)	Fan Speed (rpm)
≤5	880
5 < length ≤ 10	950
10 < length ≤ 14	1050
14 < length ≤ 18	1150
≥18	1250

Attention: The fan speed should be adjusted according to actual needs, and high speed cannot be set at will. High speed will make the equipment noisy and may degrade performance. If necessary, consult a technical person.

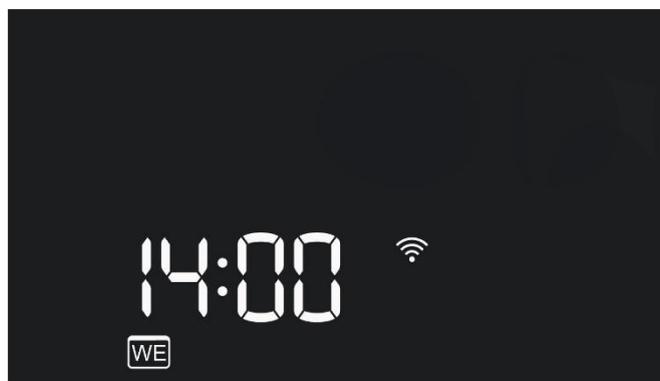
# CONTROL DISPLAY

## User Interface Introduction



## Powered On

When the unit is powered on, the screen will display all characters and icons for 2 seconds, then show “IN” and enter the data reading phase. After successful data reading, it will enter standby mode.



1. During the unit's heating process, the screen will automatically dim. During standby or when the unit stops after reaching the set temperature, the screen will automatically turn off. The screen will only be reactivated and lit up when a button is pressed. If there is no operation for 30 seconds, the screen will automatically return to its previous state to reduce the unit's energy consumption and extend the screen's lifespan.
2. In any setting state, if there is no operation on the wired controller for 10 seconds, it will automatically exit the current setting state.
3. During operation, if the wired controller is disconnected, the main unit can continue to operate in the originally set state, including after a power outage and restart.

## **Button**

Press and hold this button for 2 seconds to turn the device on or off.

In parameter and temperature setting mode, short press this button to save and exit the setting mode; in parameter and timer inquiry mode, short press this key to exit the inquiry mode.



## **^ and v button**

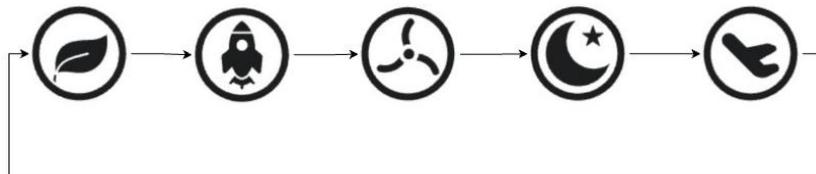
These two buttons can be used for temperature adjustment, parameter setting, parameter inquiry, clock adjustment, timer adjustment, etc. The following describes the functions of these two buttons in different states:

- In power-on state, pressing this button can directly change the set water temperature;
- In clock setting state, pressing this button can adjust clock-related data, such as year, month, day, hour, and minute;
- In timer state, pressing this button can check timer information or adjust the timer on/off settings;

At any time, pressing and holding the  $\wedge + \vee$  buttons simultaneously for 2 seconds enters child lock mode; pressing and holding the  $\wedge + \vee$  buttons simultaneously for another 2 seconds exits child lock mode. When the keyboard is locked, the  icon stays on; pressing any button will cause the icon to flash as a prompt. It needs to be unlocked before normal operation can be performed.

## **Button**

Press this button to change the unit's operating mode. Each press changes the mode once, cycling through the following sequence: Eco Mode → Boost Mode → Ventilation Mode → Silent Mode → Holiday Mode → Eco Mode



## **Button**

### **Calendar & Clock Setting:**

The control display features a built-in perpetual calendar setting. Even during brief power outages, the internal clock keeps running.

On the main interface, whether the unit is on or in standby, press  button to enter the time setting mode.

Short press  button to enter the year setting; the time area displays the year and flashes, and you can change the year using  or  buttons. At the same time, the water temperature area displays step 0.

After selecting the year, press  button again to enter the month setting. The time area displays the month and flashes; you can change the month using the  or  buttons, and the water temperature area displays step 1.

After selecting the month, press  button again to enter the date setting. The time area displays the date and flashes; you can change the date using the  or  buttons, and the water temperature area displays step 2.

After selecting the date, press  button again to enter the hour setting (24-hour format); the hour in the time area flashes, and you can change the hour using the  or  buttons, with the water temperature area displaying step 3.

After selecting the hour, press  again to enter the minute setting; the minute in the time area flashes, and you can change the minute using the  or  buttons, with the water temperature area displaying step 4.

After selecting the minute, press  button to return to the year setting, and the cycle repeats. At any point during the setting process, long press  button for 2 seconds to save the settings and exit the time setting mode; during the setting process, short press  button to exit without the saving.

After the setting is completed, the weekday will automatically adjust according to the settings.

### **Weekly Timer Setting:**

In the main interface when the unit is on or in standby, long press  button for 2 seconds to enter the timer setting mode. There are 4 timers in total, which can be used individually or simultaneously; when multiple timers are used at the same time, the timer with the nearest time takes priority.

After long pressing this button, enter the timer viewing mode:



The corresponding timer number flashes, and you can view the timer information for groups 1-4 using the  $\wedge$  or  $\vee$  buttons.

If you need to set a timer, use the  $\wedge$  or  $\vee$  buttons to select the desired timer, then press  $\text{⏸}$  button to enter the week selection; the selected week day flashes, and you can select the desired day(s) using the  $\wedge$  or  $\vee$  buttons.

The timer days include daily execution, execution from Monday to Friday, or execution on a specific day of the week. After confirming, press this button again to enter the timer ON/OFF selection; timer ON or timer OFF flashes, and you can select the desired timer ON or OFF using the  $\wedge$  or  $\vee$  buttons. Press this button to enter the timer hour selection, which flashes; use the  $\wedge$  or  $\vee$  buttons to select the desired hour, then press this button to enter the minute selection.

After selecting the minute, press this button to return to the timer number selection. If you need to set other timers, repeat the above steps. After completing the timer operations, long press this button for 2 seconds to save the timer settings.

If there is no operation for 10 seconds or the power on/off button is pressed, the timer mode will exit. When a timer is set and active, the main interface will display the corresponding timer and timer ON/OFF status. Once a timer is set, it remains effective even if the unit is powered off.

Timer Clearing: In the timer setting mode, short press the  $\text{⚙}$  button to clear the current timer setting; long press the  $\text{⚙}$  button for 2 seconds to clear all timers.

## Operating Modes

After turning on the unit, use the **(M)** button to select the desired mode. The available modes are: Eco– Boost– Ventilation– Silent– Holiday, which can be selected in a loop.

### **Eco Mode:**

Mainly uses the heat pump for water heating, allowing the unit to operate at optimal efficiency; the water temperature can be set between 30-75°C, with a default of 50°C. When the water temperature exceeds 65°C, or the ambient temperature exceeds 43°C or drops below -7°C, if there is a water heating demand, the unit will stop heat pump heating and automatically switch to auxiliary electric heating.

### **Boost Mode:**

The heat pump and Auxiliary Heating Element work simultaneously to meet rapid heating needs; other operations are the same as in energy-saving mode.

### **Independent Ventilation Mode:**

In this mode, the water tank is not heated, and only the fan operates, which can satisfy ventilation requirements.

### **Silent Mode:**

In this mode, water tank heating is the same as in energy-saving mode, but the fan speed is reduced by one level to lower wind noise and meet specific usage needs (the exact reduced speed can be set by the user according to their needs via system parameter 44).



3. Clock and timer display: On the main interface, the current time is displayed. When the timer is set and active, the timer code and the on/off status of the timer are displayed. When in timer mode, the timer information is shown.
4. System status icons

### Icon Introduction:

 Icon:

This icon stays on when WIFI is connected. It blinks when not connected; it is off when there is no WIFI function.

 Icon:

This icon stays on when the compressor is running, turns off after the compressor shuts down

 Icon:

High water temperature warning: This icon stays on when the water temperature is  $\geq 50^{\circ}\text{C}$ , and turns off when it is  $< 50^{\circ}\text{C}$ .

 Icon:

This icon stays on when the electric heater is activated, and turns off when the electric heater is deactivated.

 Icon:

The icon stays on when the electronic anode is effective and functioning normally; it flashes when there is a water shortage or malfunction; it is off when this function is not available.

 Icon:

This icon stays on during sterilization and turns off when exiting.

 Icon:

This icon stays on when the ventilator is running and turns off when the ventilator stops.

 Icon:

When the SG-ready function is activated, this icon stays ON when the unit receives the SG signal, and turns OFF when there is no signal.

The SG-ready function is set by EEPROM parameter #35 SMART CONTROL=0, which means no SG function.

When EEPROM parameter #35 SMART CONTROL=1, the SG-ready function is activated, with four conditions based on different signals between ports CN8 (SG – grid signal) and CN9 (EVU -):

<b>CN8 (SG - Grid Signal)</b>	<b>CN9 (EVU/ PV Signal)</b>	<b>Status Description Under SG-Ready Protocol</b>	<b>Unit Action/Setting</b>
Closed (1)	Open (0)	Operating Mode 1	Unit stops immediately for 2 hours, then runs Operating Mode 2.
Open (0)	Open (0)	Operating Mode 2	Max water temperature set by EEPROM parameter #36; user can adjust target temperature below max
Open (0)	Closed (1)	Operating Mode 3	Water temperature set by EEPROM parameter #37
Closed (1)	Closed (1)	Operating Mode 4	Water temperature set by EEPROM parameter #38

Note: When in SG mode under operating modes 1, 3, or 4 above, the unit's target water temperature will switch to automatic adjustment. The  $\wedge$  or  $\vee$  buttons cannot change the set temperature, but there will be an audible response when they are pressed.

 Icon:

When the PV function is activated, the icon will stay on when the unit receives a PV signal, and will turn off when there is no signal.

When PV function is enabled, the unit will automatically respond to the PV operation signal (the unit needs to be connected to the PV input signal); at this time, the set water temperature of the unit will switch to automatic adjustment under condition 4, and the  $\wedge$  or  $\vee$  buttons cannot change the set temperature of the unit under condition 4 as below, but there will be a sound response to the operation.

The PV function is set by EEPROM parameter #35, SMART CONTROL=3. There are two conditions based on different signals between the ports CN9 (EVU-PV signal):

Condition	CN9 (EVU - PV Signal)	Electricity Price Period	Water Temperature Setting
Condition1	Open (0)	Valley electricity price period	Max water temperature = EEPROM parameter #36; user can adjust target temperature below max
Condition2	Closed (1)	Free electricity price period 2	Water temperature = EEPROM parameter #38

Note: When under condition 2, the unit's target water temperature will switch to automatic adjustment. The  $\wedge$  or  $\vee$  buttons cannot change the set temperature, but there will be an audible response when they are pressed.

 Icon:

When a fault occurs, this icon stays on and displays the corresponding fault code. It turns off after the fault is resolved.

 Icon:

When defrosting, the light stays on; when anti-freezing, it blinks.

 Icon: This icon stays on and reports a water shortage when an abnormal output voltage is detected at the electronic anode.

 Icon:

This icon stays on when an upgradeable program is available; it flashes during the update process; and it turns off after the update is completed.

 Icon:

When locked, the icon stays on. When any button is pressed, the icon flashes. Unlocking is required for normal operation.

## History Fault Codes Inquiry Function

Historical fault code inquiry: Press the  +  buttons simultaneously for more than 2 seconds to enter the fault code inquiry mode.

You can use the  or  buttons to cycle through the 10 most recent historical fault codes. If the number of codes exceeds the display limit, the earliest fault code will be automatically replaced. If there is no historical fault, “no” will be displayed.

As shown in the figure: When the 10<sup>th</sup> fault code is displayed, the clock area shows the serial number of the fault code (the highest digit is the most recent fault code), and the water temperature area shows the fault code corresponding to the serial number.



Clearing historical fault codes: In the fault query mode, press the  +  button simultaneously for more than 2 seconds. After 10 seconds, the fault records will be automatically cleared.

## EEPROM reset function

Press and hold the  button for 2s to enter the system parameter state. At this time, press and hold  +  buttons for more than 2s simultaneously. The screen temperature area prompts for password input (password: 888). Use  or  button to input the password and press the  button to confirm the password. If the password is incorrect, it will return to reset; after the correct password is entered, the controller will beep once and return to the shutdown interface, and the parameters will be restored to factory settings.

## Power Reset Operation (on some models)

Short press the  button to enter the system operation data status. Then, simultaneously long press the  +  buttons for more than 2 seconds. The screen temperature area will prompt you to enter the password (password: 666). Use the  or  button to input the password, and press the  button to confirm. If the password is incorrect, it will return for you to reset it. After entering the correct password, the controller will beep twice and return to the main interface, and the power consumption will be reset to zero.

## Manual Sterilization Function Operation

When the unit is off, press and hold the  +  button simultaneously for more than 2 seconds, and the unit will immediately enter sterilization mode. The sterilization process is the same as automatic sterilization. To stop sterilization, press and hold the  +  button simultaneously for more than 2 seconds again to exit sterilization operation.

Note:

For models using anode magnesium rods, the controller has a default reminder function to check the magnesium rod. Timing starts from power-on, and when the accumulated time reaches 150 days, CH will be displayed in the water temperature area as a reminder. If the magnesium rod is in good condition or needs to be replaced, after reinstalling the magnesium rod, the timer needs to be reset.

The reset operation is as follows: On the main interface (either on or standby), press and hold the  +  buttons simultaneously for more than 2 seconds. The controller will beep three times  , indicating the reset is successful, the accumulated running days are cleared to zero, the CH reminder on the display disappears, and the timer restarts the next cycle.

If this function is not needed, you can enter system parameter 70 and set the parameter to invalid.

# PARAMETER CHECKING AND ADJUSTMENT

## Query of system operation data

On the main interface (whether powered on or in standby), press the  button to enter the system operation data query mode; use the  or  button to check the current operation status of different data.

Parameter No.	Description	Range	Remarks
0	Middle tank water temp.	-20 to 90°C	Actual Value
1	Upper tank water temp.	-20 to 90°C	Actual Value
2	Evaporator coil temp.	-20 to 90°C	Actual Value
3	Return gas temp.	-20 to 90°C	Actual Value
4	Ambient temp.	-20 to 90°C	Actual Value
5	Electronic expansion valve step	0 to 470	Actual Value
6	Temp of solar thermal collector	-20 to 150°C	Actual Value
7	Discharge temperature	-20 to 150°C	Actual Value
8	Lower tank water temp.	-20 to 90°C	Actual Value
9	DC fan speed	0-140	Actual Value = Display Value x 10 RPM
10	Smart control status	0-4	When Smart control is invalid, display 0; for 1-4, display according to the actual status
11	Cumulative operating days of magnesium anode	0-360	Actual Dates
12	Output voltage of electrical anode	0-50	Actual Value = Display Value / 10 V
13	Energy Monitoring – Power Input	0-999	Actual Value = Display Value x 10 W
14	Energy Monitoring – Voltage	0-999V	Actual Value
15	Energy Monitoring – Current	0-999	Actual Value = Display Value / 10 A

## System parameter inquiry and modification (Only for Installation & Service)

On the main interface (either powered on or in standby), press and hold the  button for 2 seconds to enter the system parameter inquiry and modification mode. Use  or  buttons to check the different system parameter values.

If you need to modify system parameters (please contact your service provider for assistance), first select the parameter you want to modify, then press the  button to enter the parameter modification mode. Use the  or  buttons to change the parameter value, and press the  button to confirm and return to the system parameter inquiry. If you need to modify other parameters, repeat the above steps.

If there is no operation for 10 seconds or the  button is pressed, the system will exit the inquiry and modification mode.

Parameter No.	Description	Range	Default	Remarks
0	Tank Water Temperature Setting TS1	30 to 75°C	50°C	Adjustable
1	Heating Hysteresis Temperature Setting TS6	2 to 15°C	5°C	Adjustable
2	Sterilization weekly Interval	1-4 weeks	1 week	Adjustable
3	Sterilization weekly Time	0-7	7	Adjustable, 0 for daily sterilization, 1-7 for Monday to Sunday
4	Sterilization Start Time t5	0 to 23 hours	23	Adjustable
5	Electric Auxiliary Heating Sterilization Stop Temperature TS3	50 to 75°C	70°C	Adjustable

6	Sterilization Duration t2	0 to 90min	30min	Adjustable
7	Maximum Sterilization Operation Time	2-12 hours	6 hours	Adjustable
8	Whether to Continue Sterilization After Powering On Again During Sterilization	0-1	0	0 - Not execute, 1 - Execute
9	Heating Defrost Cycle t3	30 to 90min	45min	Adjustable
10	Heating Defrost Entry Temperature Point TS4	-30 to 0°C	-7°C	Adjustable
11	Heating Defrost Exit Temperature Condition TS5	2 to 30°C	6°C	Adjustable
12	Heating Defrost Exit Time t4	1 to 12min	8min	Adjustable
13	Electronic Expansion Valve Mode	0/1	1	0 - Manual, 1 - Automatic
14	Target Superheat TSH1	-9 to 9°C	5°C	Adjustable
15	Manual Electronic Expansion Valve Opening/ Initial Opening	30 to 480P	350	Adjustable (Parameter 10=0 valid)
16	Electronic Expansion Valve Minimum Opening	30-480P	100	Adjustable
17	Electronic Expansion Valve Defrost Opening	100-480P	480	Adjustable
18	Electronic Expansion Valve Adjustment Cycle	20-120S	30S	Adjustable
19	Electronic Expansion Valve Adjustment Parameter KP3	0.5-5	3	Adjustable, display multiplied by *10
20	Electronic Expansion Valve Adjustment Parameter KP2	0.5-5	2	Adjustable, display multiplied by *10
21	Electronic Expansion Valve Adjustment Parameter KP1	0.5-5	1	Adjustable, display multiplied by *10
22	Target Superheat TSH2	-9 to 9°C	5°C	Adjustable
23	Solar Water Pump	0-1	0	0 - Invalid, 1 - Valid
24	Solar Water Pump Start Temperature Difference TS7	2-20°C	10°C	Adjustable
25	Recirculation Water Pump	0-1	0	0 - Invalid, 1 - Valid

26	Recirculation Water Pump Stop Time t7	1-99*10min	3	Adjustable N*10min
27	Recirculation Water Pump Running Time t8	1-30min	3	Adjustable
28	Whether Defrost Auxiliary Heating is Enabled	0/1	0	0 - Off, 1 - On
29	Fan Type	0/1	1	0 - AC, 1 - DC
30	DC Fan Speed Setting TS8	50-140	88	Adjustable N*10RPM
	Dipswitch 1=0: 88; when Dipswitch 1=1: 65			
31	Are electronic anodes effective	0/1/2	0	0-Invalid (magnesium rod), 1-Valid (E- anodes), 2-E-Anode+Magnesium
32	Allowed continued operation time t9 when electronic anode fails	0-7 day	3	Adjustable (will be valid when EEPROM #31 is set 1 or 2)
33	Upper limit of anode output voltage	3.5-4.5V	4.5V	Adjustable, display by *10
34	Lower limit of anode output voltage	1.0-2.0V	1.0V	Adjustable, display by *10
35	SMART CONTROL	0/1/2/3	0	0-Invalid, 1-SMART GRID, 2-meter, 3-PV
36	Set water temperature TS9 during valley electricity price period	10-75°C	65°C	Adjustable
37	Set water temperature TS10 during free electricity period 1	10-75°C	70°C	Adjustable
38	Set water temperature TS11 during free electricity period 2	10-75°C	75°C	Adjustable
39	Accumulated lock time t10 for smart grid state 1	0-2 hour	2	Adjustable
40	Is the electricity meter module effective?	0/1	0	0-Invalid, 1-Valid
41	Host communication address setting IP	1-16	1	Using CN5 communication port
42	Power-off memory function	0-1	1	0-Invalid, 1-Valid
43	Is the Ventilation function effective?	0-1	0	0-Invalid, 1-Valid

44	DC fan silent correction speed	0-50	0	Adjustable N*10RPM
45	Usage time of the anode magnesium rod reminder function	9-36	15	Adjustable N*10day(will be valid when EEPROM #31 is set 0 or 2, at the same time EEPROM #70 is set 1)
46	V40 benchmark value	80-600L	210L	Adjustable
	Dipswitch 3 and Dipswitch 4: OFF/OFF: 200 L; OFF/ON: 300 L; ON/OFF: 500 L; ON/ON: 100 L			
47	Determine the cooling time with water (min)	1-20min	10min	Adjustable
48	The cooling time control at the start point of V40 calculation	10-90 min	30 min	Adjustable
49	The cooling time control at the end point of V40 calculation	1-10 min	2 min	Adjustable
50	Set the water temperature in AI mode	43-58°C	52°C	Adjustable
51	The AI mode T3 forces the start temperature	32-42°C	35°C	Adjustable
52	Determine the reference value for starting and stopping the heat pump	0-50	20	Adjustable
53	Heating rate value	15-50	30	Adjustable
54	Determine the reference value of water consumption for the set temperature L	80-400L	160L	Adjustable
55	Minimum emergency water volume (V40)	30-100L	50L	Adjustable
56	The AI mode simultaneously activates the hot water volume (V40)	30-90L	30L	Adjustable
57	V40 update time (s)	10-120S	30S	Adjustable
58	Temperature unit selection (0: °C/1:°F)	0/1	0	Choosable
59	Volume units L: 0, gallon gal: 1	0/1	0	Choosable
60	Reserved	--	-	-
61	Available water volume and V40 (0-OFF, 1-ON)	0/1	1	Choosable

62	High water temperature warning value	45-65°C	50°C	Adjustable
63	Does the buzzer sound (0 sounds, 1 does not sound)	0/1	0	Choosable
64	Cold water temperature judgment	32-42°C	40°C	Adjustable
65	Determine the reference value of water consumption for the set temperature 2	50-400L	100L	Adjustable
66	Determine the reference value of water consumption for the set temperature 3	120-400L	220L	Adjustable
67	Remote switch control (0 to disable this function, 1 to enable)	0/1	1	Choosable
68	Select whether the T0 sensor is effective (0-Invalid, 1-Valid)	0/1	1	Selectable (if a failure occurs, the T0 fault will not trigger an alarm)
69	Compressor discharge temperature difference TS12	1-20°C	4	Adjustable
70	Is the anode magnesium rod inspection reminder function effective	0-1	1	0-invalid, 1-valid

## Malfunctioning of the unit and error codes

When an error occurs or the protection mode is set automatically, the circuit board and the wired controller will both display the error message.

Protection/ Malfunction	Error code	Possible reasons	Corrective actions
Standby			
Normal running			
Middle tank water temp. sensor failure	P01	1) The sensor open circuit 2) The sensor short circuit 3) PCB board failure	1) Check the sensor connection 2) Replace the sensor 3) Change the PCB board
Upper tank water temp. sensor failure	P02	1) The sensor open circuit 2) The sensor short circuit 3) PCB board failure	1) Check the sensor connection 2) Replace the sensor 3) Change the PCB board
Evaporator coil temp. sensor failure	P03	1) The sensor open circuit 2) The sensor short circuit 3) PCB board failure	1) Check the sensor connection 2) Replace the sensor 3) Change the PCB board
Return air temp sensor failure	P04	1) The sensor open circuit 2) The sensor short circuit 3) PCB board failure	1) Check the sensor connection 2) Replace the sensor 3) Change the PCB board
Ambient temp. sensor failure	P05	1) The sensor open circuit 2) The sensor short circuit 3) PCB board failure	1) Check the sensor connection 2) Replace the sensor 3) Change the PCB board
Solar temp. sensor failure	P06	1) The sensor open circuit 2) The sensor short circuit 3) PCB board failure	1) Check the sensor connection 2) Replace the sensor 3) Change the PCB board
DC fan failure	P09	1) Connecting wire off 2) DC fan failure PCB board failure	1) Check the DC fan connection 2) Replace the DC fan ; 3) Change the PCB board
Sterilization abnormality	P10	1) Encountering peak water usage during sterilization period. 2) Abnormal water temperature sensor. 3) Protector activated. 4) Electric heating failure. 5) Main control board malfunction	1) Normally, no action is required. 2) Replace the water temperature sensor. 3) Check the cause of protector activation or update. 4) Replace the electric heater. 5) Replace the main control board
Water tank bottom temperature sensor failure	P11	1) The sensor open circuit 2) The sensor short circuit 3) PCB board failure	1) Check the sensor connection 2) Replace the sensor 3) Change the PCB board

Exhaust temperature sensor fault	P12	1) The sensor open circuit 2) The sensor short circuit 3) PCB board failure	1) Check the sensor connection 2) Replace the sensor 3) Change the PCB board
Power module abnormal	P13	1) Power module failure 2) Main control board failure	Replace the main control board
Emergency switch off	EC	1) Connecting wire off 2) PCB board failure	1) According to the physical truth judging whether is normal or not 2) Change the PCB board
High pressure protection (HP Switch)	E01	1) Too high air inlet temp 2) Less water in the tank 3) The electronic expansion valve assembly blocked 4) Too much refrigerant 5) The switch damaged 6) The uncompressed gas is in refrigerant system 7) PCB board failure	1) Check if the air inlet temp is over the working limited 2) Check if the tank is full of water. If not, charge water 3) Replace the electronic expansion valve assembly 4) Discharge some refrigerant 5) Replace a new switch 6) Discharge and then recharge the refrigerant 7) Change the PCB board
Heat pump system malfunction	E02	1) Exhaust sensor loose. 2) Severe refrigerant shortage in the heating system. 3) Expansion valve malfunction. 4) Exhaust sensor abnormal. 5) Main control board malfunction	1) Reinstall 2) Leak detection and refrigerant recharge 3) Replace expansion valve 4) Replace sensor 5) Replace main control board
Overheat protection (HTP Switch)	E03	1) Too high tank water temp 2) The switch damaged 3) PCB board failure	1) If the tank water temp is over 85C, the switch will open and the unit will stop for protection. After the water comes to normal temp, 2) Replace a new switch 3) Change the PCB board
Solar thermal collector high tem protection	E04	1) Solar water circuit water flow very little or without water flow 2) Related connecting wires off Water pump failure 3) PCB board failure	1) Solar water circuit fluid infusion and exhaust 2) Related connecting wires being reconnected 3) Change the water pump 4) change the PCB board
Water flow failure	E05	1) Solar water circuit water flow very little or without water flow 2) Related connecting wires off 3) water pump failure 4) Water flow switch failure 5) PCB board failure	1) Solar water circuit fluid infusion and exhaust 2) Related connecting wires being reconnected 3) Change the water pump 4) Change the water flow switch 5) Change the PCB board

Discharge temperature overheat protection	E06	<ol style="list-style-type: none"> <li>1) System refrigerant shortage</li> <li>2) Expansion valve malfunction</li> <li>3) Water tank shortage</li> <li>4) Sensor abnormality</li> <li>5) Main control board malfunction</li> </ol>	<ol style="list-style-type: none"> <li>1) Leak detection and refrigerant recharge</li> <li>2) Replace the expansion valve</li> <li>3) Fill the water tank</li> <li>4) Replace the sensor</li> <li>5) Replace the main control board</li> </ol>
Communication failure	E08	<ol style="list-style-type: none"> <li>1) The communication circuit is loosen</li> <li>2) PCB board failure</li> <li>Wired controller failure</li> </ol>	<ol style="list-style-type: none"> <li>1) Check the communication circuit connection</li> <li>2) Change the PCB board Change the line controller</li> </ol>
The cumulative operating days of the magnesium anode have reached	CH	Magnesium anode timer has expired.	<ol style="list-style-type: none"> <li>1) Check the consumption of the magnesium anode or replace it</li> <li>2) Reset the accumulated time</li> </ol>

# MAINTENANCE

## Maintenance activities

In order to ensure an optimum operation of the unit, a number of checks and inspections on the unit and the field wiring have to be carried out at regular intervals, preferably yearly.

- Check the water supply and air vent frequently, to avoid lack of water or air in the water loop.
- Clean the water filter to keep a good water quality. Lack of water and dirty water can damage the unit.
- Keep the unit in a place where it is dry and clean, and which has good ventilation. Clean the heat exchanger every one to two months.
- Check each part of the unit and the pressure of the system. Replace the defect part if there is any, and recharge the refrigerant if it is required.
- Check the power supply and the electrical system, make sure the electrical components are good, and the wiring is well. If there is a damaged part or a strange smell, please replace it in time.
- If the heat pump is not used for a long time, please drain out all the water from the unit and seal the unit to keep it good. Please drain the water from the lowest point of the boiler to avoid freezing in winter. Water recharge and full inspection on the heat pump is required before it is restarted.
- Do not turn the power 'OFF' when you use the unit continuously, or the water in the pipe will freeze and damage the pipe.
- Keep the unit clean by means of soft damp cloth, no maintenance is required by the operator.
- It is recommended to clean the tank and e-heater regularly to keep an efficient performance.
- It is recommended to set a lower temperature to decrease the heat release, prevent scale and save energy if the outlet water is sufficient.
- Clean the air filter regularly to keep an efficient performance.

## TROUBLESHOOTING

This section provides useful information for diagnosing and correcting certain troubles which may occur. Before starting the troubleshooting procedure, carry out a thorough visual inspection of the unit and look for obvious defects such as loose connections or defective wiring.

Before contacting your local dealer, read this chapter carefully, it will save you time and money.



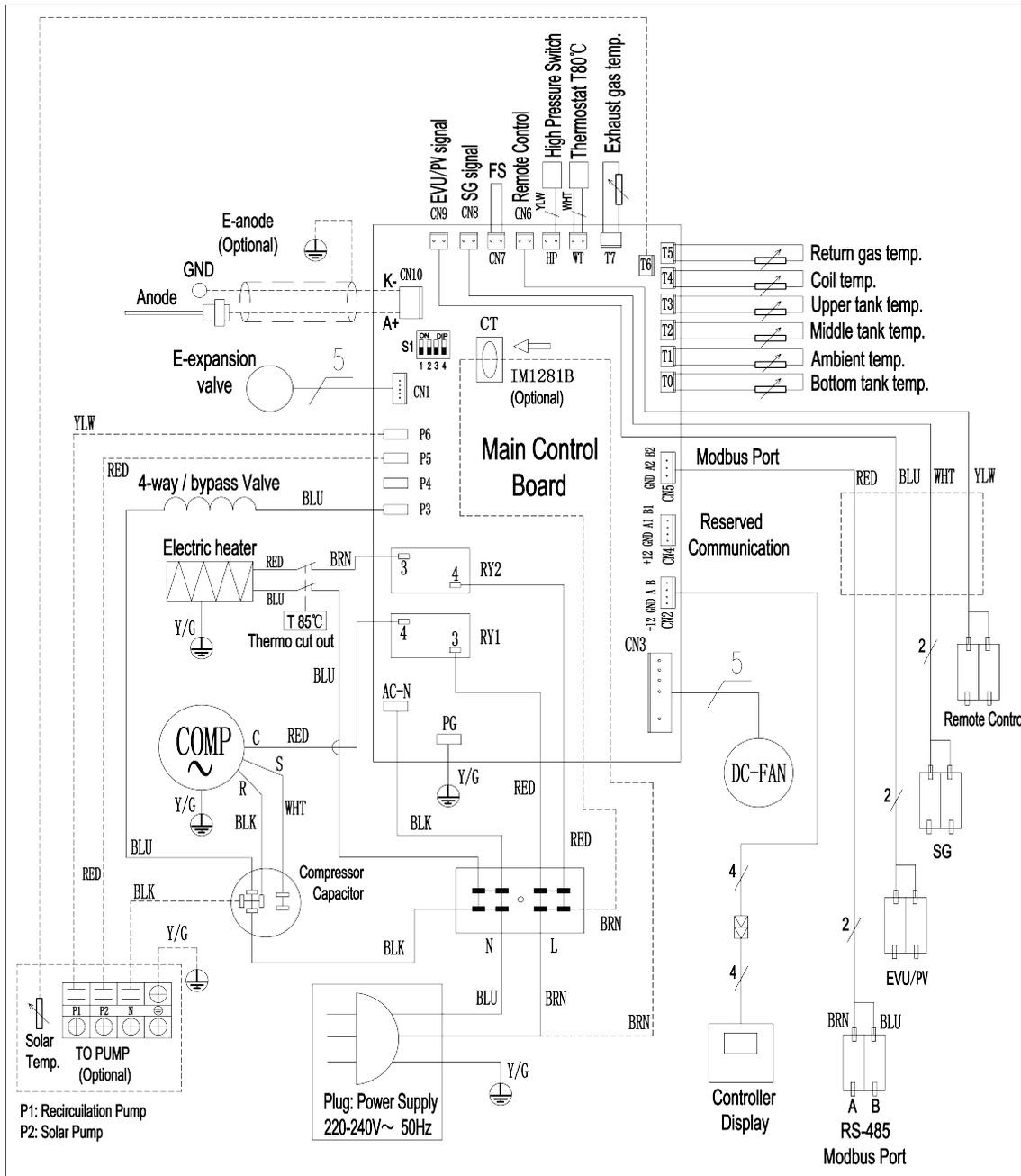
WHEN CARRYING OUT AN INSPECTION ON THE SWITCH BOX OF THE UNIT,  
ALWAYS MAKE SURE THAT THE MAIN SWITCH OF THE UNIT IS SWITCHED 'OFF'.

The guidelines below might help to solve your problem. If you cannot solve the problem, consult your installer/local dealer.

- No image on the controller (blank display). Check if the main power is still connected.
- One of the error codes appears, consult your local dealer.
- The scheduled timer does work but the programmed actions are executed at the wrong time (e.g. 1 hour too late or too early). Check if the clock and the day of the week are set correctly, adjust if necessary.

# WIRING DIAGRAM

Please refer to the wiring diagram on the electric box. With Solar coil



**Note:** The Drawings are subject to change without prior notice.

Dipswitch Specifications (Factory Preset):

SW1	DC Fan Default Presetting	ON: 650 RPM; OFF: 880 RPM
SW2	Reserved	Reserved
SW3/SW4	Water tank volume setting	OFF/OFF: 200 L; OFF/ON: 300 L; ON/OFF: 500 L; ON/ON: 100 L

# TECHNICAL SPECIFICATION

TECHNICAL DATA (TOR**)		200L	300L
Power supply	V/Ph/Hz	220-240/1/50	
Water tank Volume	L	200	300
Max power input	W	700+1600 (e-heater)	
Max current	A	3.05+6.8 (e-heater)	
Max.outlet water temperature range(without using E-heater)	°C	65	
Max. water temperature	°C	75	
Min. water temperature	°C	30	
Ambient working temp.	°C	-7 to 43	
Max. discharge pressure	bar	30	
Max. suction pressure	bar	10	
Refrigerant type		R290	
Compressor	Type	Rotary	
	Brand	GMCC	
Fan motor	Type	DC motor	
	W	26	
	RPM	880	
Air flow	m3/h	350	
Duct diameter	mm	160	
Max allowed pressure of tank	bar	10	
Inside body material of tank		Duplex 2205	
Auxiliary electrical heater	kW	1.6	
Electronic expansion valve		yes	
Anti-corrosion type		Magnesium anode / Electrical anode anti-corrosion system)	
Solar heat exchanger		316L, 1m <sup>2</sup>	
Hot water outlet	inch	G 3 / 4	
Solar heat source inlet/outlet	inch	G 3 / 4	
Cold water inlet	inch	G 3 / 4	
Drainage	inch	G 3 / 4	
Condensed water outlet	inch	G 1 / 2	
Heat pump heat exchanger material		Microchannel heat exchanger (Aluminum alloy)	
Net Dimensions		Ø560x1750	Ø640x1850
Packing Dimensions		629x629x1910	695x695x2010
Net Weight		72	87
Gross Weight		86	105

**Note:** Specifications are subject to change without prior notice.

# TEMPERATURE SENSOR R-T CONVERSION TABLE

R25= 5.0KΩ±1.0% B25-50 = 3470K±1.0%

°C	Rmin /KΩ	KΩ	Rmax/ KΩ	°C	Rmin /KΩ	KΩ	Rmax/ KΩ	°C	Rmin /KΩ	KΩ	Rmax/ KΩ
-20	36.195	37.303	38.441	21	5.779	5.847	5.914	62	1.343	1.374	1.406
-19	34.402	35.437	36.499	22	5.558	5.62	5.683	63	1.301	1.331	1.362
-18	32.709	33.676	34.668	23	5.346	5.404	5.463	64	1.26	1.29	1.321
-17	31.109	32.012	32.939	24	5.144	5.198	5.252	65	1.221	1.25	1.28
-16	29.597	30.441	31.306	25	4.95	5	5.05	66	1.183	1.212	1.242
-15	28.168	28.957	29.765	26	4.761	4.811	4.861	67	1.147	1.175	1.204
-14	26.816	27.554	28.308	27	4.58	4.63	4.68	68	1.111	1.139	1.168
-13	25.538	26.227	26.932	28	4.408	4.457	4.507	69	1.077	1.105	1.133
-12	24.328	24.972	25.631	29	4.242	4.292	4.341	70	1.045	1.072	1.099
-11	23.183	23.785	24.4	30	4.084	4.133	4.182	71	1.013	1.04	1.067
-10	22.098	22.661	23.236	31	3.933	3.981	4.03	72	0.983	1.009	1.035
-9	21.071	21.598	22.135	32	3.788	3.836	3.885	73	0.953	0.979	1.005
-8	20.098	20.59	21.093	33	3.649	3.697	3.745	74	0.925	0.95	0.975
-7	19.176	19.636	20.106	34	3.516	3.563	3.611	75	0.897	0.922	0.947
-6	18.301	18.732	19.171	35	3.388	3.435	3.483	76	0.871	0.895	0.919
-5	17.472	17.875	18.285	36	3.266	3.313	3.36	77	0.845	0.869	0.893
-4	16.686	17.063	17.446	37	3.149	3.195	3.241	78	0.82	0.843	0.867
-3	15.94	16.292	16.65	38	3.037	3.082	3.128	79	0.796	0.819	0.842
-2	15.231	15.561	15.896	39	2.929	2.974	3.019	80	0.773	0.795	0.818
-1	14.559	14.867	15.18	40	2.826	2.87	2.915	81	0.751	0.773	0.795
0	13.92	14.208	14.501	41	2.726	2.77	2.815	82	0.729	0.751	0.773
1	13.313	13.582	13.856	42	2.631	2.675	2.718	83	0.708	0.729	0.751
2	12.736	12.988	13.244	43	2.54	2.583	2.626	84	0.688	0.709	0.73
3	12.188	12.423	12.662	44	2.452	2.494	2.537	85	0.668	0.689	0.709
4	11.666	11.887	12.11	45	2.368	2.409	2.451	86	0.649	0.669	0.69
5	11.17	11.376	11.585	46	2.287	2.328	2.369	87	0.631	0.651	0.671
6	10.698	10.891	11.086	47	2.209	2.25	2.29	88	0.613	0.632	0.652
7	10.249	10.429	10.611	48	2.135	2.174	2.214	89	0.596	0.615	0.634
8	9.822	9.99	10.16	49	2.063	2.102	2.141	90	0.579	0.598	0.617
9	9.414	9.572	9.73	50	1.994	2.032	2.071	91	0.563	0.581	0.6
10	9.027	9.173	9.321	51	1.927	1.965	2.003	92	0.548	0.566	0.584
11	8.657	8.794	8.932	52	1.863	1.901	1.938	93	0.533	0.55	0.568
12	8.305	8.432	8.561	53	1.802	1.839	1.876	94	0.518	0.535	0.553
13	7.969	8.088	8.208	54	1.743	1.779	1.815	95	0.504	0.521	0.538
14	7.648	7.76	7.872	55	1.686	1.721	1.757	96	0.49	0.507	0.524
15	7.343	7.446	7.551	56	1.631	1.666	1.701	97	0.477	0.493	0.51
16	7.051	7.148	7.245	57	1.579	1.613	1.647	98	0.464	0.48	0.496
17	6.773	6.863	6.953	58	1.528	1.561	1.595	99	0.452	0.467	0.483

<b>18</b>	6.507	6.5911	6.675	<b>59</b>	1.479	1.512	1.545	<b>100</b>	0.439	0.455	0.47
<b>19</b>	6.253	6.331	6.41	<b>60</b>	1.432	1.464	1.497				
<b>20</b>	6.011	6.083	6.156	<b>61</b>	1.386	1.418	1.451				

# RESISTANCE CHARACTERISTICS OF SOLAR TEMPERATURE SENSOR

R25= 50KΩ±1.0% B25-50 = 3950K±1.0 %

Temp. (°C)	Resistance (KΩ)						
-20	466.6	20	62.41	60	12.33	100	3.278
-19	441.1	21	59.68	61	11.89	101	3.182
-18	417.2	22	57.07	62	11.46	102	3.088
-17	394.7	23	54.6	63	11.06	103	2.998
-16	373.5	24	52.24	64	10.67	104	2.911
-15	353.6	25	50	65	10.29	105	2.827
-14	334.8	26	47.86	66	9.936	106	2.746
-13	317.2	27	45.83	67	9.591	107	2.667
-12	300.6	28	43.89	68	9.259	108	2.591
-11	284.9	29	42.05	69	8.941	109	2.517
-10	270.2	30	40.28	70	8.635	110	2.446
-9	256.3	31	38.61	71	8.341	111	2.378
-8	243.1	32	37.01	72	8.058	112	2.311
-7	230.7	33	35.49	73	7.786	113	2.247
-6	219	34	34.03	74	7.525	114	2.184
-5	208	35	32.65	75	7.247	115	2.124
-4	197.6	36	31.32	76	7.032	116	2.065
-3	187.7	37	30.06	77	6.8	117	2.009
-2	178.4	38	28.85	78	6.576	118	1.955
-1	169.6	39	27.7	79	6.361	119	1.902
0	161.3	40	26.6	80	6.153	120	1.849
1	153.4	41	25.55	81	5.954	121	1.796
2	146	42	24.54	82	5.762	122	1.743
3	139	43	23.58	83	5.577	123	1.69
4	132.3	44	22.66	84	5.398	124	1.637
5	126	45	21.78	85	5.227	125	1.584
6	120	46	20.94	86	5.061	126	1.531
7	114.3	47	20.14	87	4.902	127	1.487
8	109	48	19.37	88	4.748	128	1.425
9	103.9	49	18.64	89	4.6	129	1.372
10	99.04	50	17.93	90	4.457	130	1.319
11	94.47	51	17.26	91	4.319		
12	90.12	52	16.61	92	4.188		
13	86	53	15.99	93	4.058		
14	82.09	54	15.4	94	3.935		
15	78.38	55	14.83	95	3.815		
16	74.85	56	14.29	96	3.7		
17	71.5	57	13.77	97	3.589		
18	68.32	58	13.27	98	3.482		
19	65.29	59	12.79	99	3.378		

# Thermomax Heat Pump App User Manual

This manual provides step-by-step guidance for downloading, installing, and using the App to control your heat pump remotely.

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## Step 1: Install the App

### Option 1: Scan the QR Code (Only Android)

Scan the QR code to download the **Thermomax** App for Android. Follow the system instructions to complete the installation.

**Note:** For Android devices, use a web browser (not the camera app) to scan the QR code.

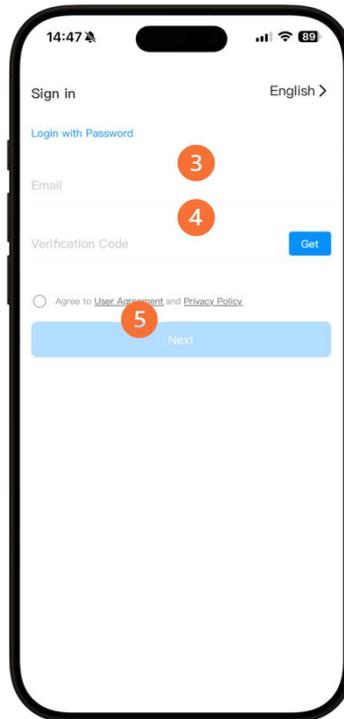


### Option 2: Search in the App Store

- For iOS: Search **Thermomax** in the **Apple App Store**
- For Android: Search **Thermomax** in the **Google Play Store**

Download and install the App.

## Step 2: Register and login an Account

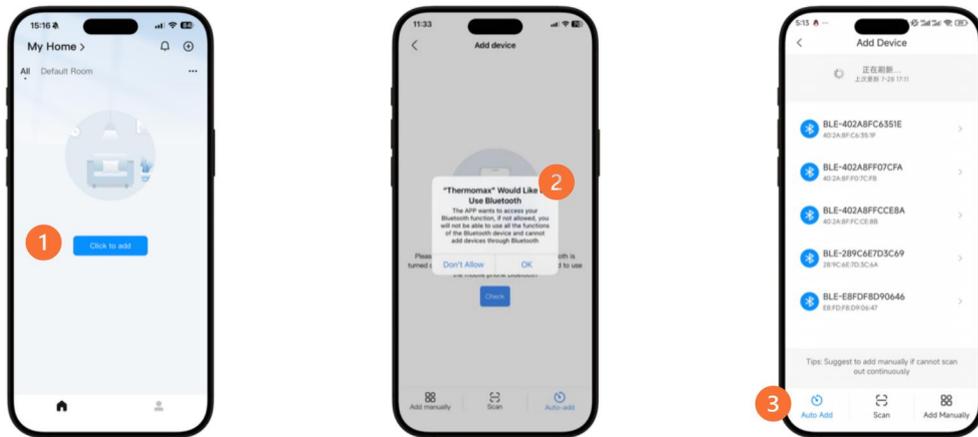


1. Open the App.
2. When the **Privacy Policy** and **Add Device** screens appear, tap **Agree** and then **Skip**.
3. Enter your email address and tap the “Get” button to receive a verification code. The code will be sent to your email.
4. Check your email. Input the verification code and click agree to User
5. Tap the “Next” button

**Note:** If you don't receive the code, please check the email address and try to get a verification code again.

## Step 3: Connect the Heat Pump

### 3.1 Add the Device



1. Log in to the App and tap **Click to Add**.
2. When prompted, allow **Bluetooth access**.
3. Tap **Auto-add** Icon.
4. Ensure your smartphone and the module are on the **same Wi-Fi network**.  
And you will be able to discover the nearby heat pump unit.

### 3.2 Enable Pairing Mode

If you can add the device in last step, you can skip this step. If you cannot discover the unit automatically, please proceed with this step.

1. Power on the heat pump.
2. Press and hold the 4 buttons  $\textcircled{M}$  ,  $\textcircled{C}$  ,  $\wedge$  ,  $\vee$  at the same time for **2 seconds**.
3. The Signal icon will begin flashing.
  - **Fast flashing**: Controller is in pairing mode.
  - **Slow flashing**: Controller is connecting to the App.
  - **SET icon turns off**: Connection completed.
4. In the App, select the MAC address of your device to continue.

## Step 4: Connect to Wi-Fi

- If your phone is not connected to Wi-Fi, the App will prompt you to connect. Tap **Go to Connect**.
- If already connected:
  1. Allow location access if prompted (especially on Android 10+).
  2. Enter the **Wi-Fi name** and **password**.
  3. Tap **Next** to continue.

The App will connect your phone, the Wi-Fi module, and the router. Once the process finishes, it will proceed to the device list screen.

Select your heat pump (e.g., **One DHW HPCE...**) to access the control interface.

## Step 5: Using the App

### 1. Modify Button

Tap this to enter the configuration menu.

### 2. Temperature Setting

Tap **+** or **-** to set your desired water temperature.

### 3. Target Temperature Display

Shows the current set temperature value.

### 4. Water Tank Temperature

Displays the actual water temperature detected by the tank sensor.

### 5. Timer Function

- Tap the **Timer** icon to enter the scheduling screen.
- Tap **+** to add a new schedule.
- Adjust the desired on/off time, then tap **Save**.



To delete a schedule, swipe it left.

**Note:** Currently, schedules apply to times only, not specific calendar dates.

## **6. Mode Selection**

Tap a mode icon to switch operation modes (e.g., Heating, Eco, Holiday).

## **7. Query Button**

Tap this icon to view operating status and key parameters.

## **8. On/Off Button**

Tap to power the heat pump unit on or off.

## **9. Settings Menu**

Tap this icon to access additional functions and advanced settings.

## **Additional Notes**

- Make sure both your heat pump firmware and App version are up to date.
- For technical support, please contact your local service provider or visit the official Thermomax website.







