



Monobloc heat pump water heater
with sanitary storage with additional exchangers

GREEN 500 S NEW



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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.

INTRODUCTION

This manual

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

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 ~ 4 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 titanium anode assure the durability of components and the tank.

Highly efficient compressor with the R134a refrigerant.

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

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SAFETY INSTRUCTIONS

To prevent injury to the user, other people, or property damage, the following instructions must be followed. Incorrect operation due to ignoring of instructions may cause harm or damage.

Install the unit only when it complies with local regulations, by-laws and standards. Check the main voltage and frequency. This unit is only suitable for earthed sockets, connection voltage 220 – 240 V ~ / 50Hz.

The following safety precautions should always be taken into account:

- Be sure to read the following WARNING before installing the unit.
- Be sure to observe the cautions specified here as they include important items related to safety.
- After reading these instructions, be sure to keep it in a handy place for future reference.

Warning



Do not install the unit yourself.

Incorrect installation could cause injury due to fire, electric shock, the unit falling or leakage of water. Consult the dealer from whom you purchased the unit or a specialized installer.

Install the unit securely in a place.

When insufficiently installed, the unit could fall causing injury. The bearing surface should be flat to bear the weight of the unit and suitable for installing the unit without increasing noise or vibration. When installing the unit in a small room, please take measures (like sufficient ventilation) to prevent the asphyxia caused by the leakage of refrigerant.

Use the specified electrical wires and attach the wires firmly to the terminal board (connection in such a way that the stress of the wires is not applied to the sections).

Incorrect connection and fixing could cause a fire.

Be sure to use the provided or specified parts for the installation work.

The use of defective parts could cause an injury due to possible fire, electric shocks, the unit falling etc.

Perform the installation securely and please refer to the installation instructions.

Incorrect installation could cause an injury due to possible fire, electric shocks, the unit falling, leakage of water etc.

Perform electrical work according to the installation manual and be sure to use a dedicated section, fused with 16A.

If the capacity of the power circuit is insufficient or there is an incomplete electrical circuit, it could result in a fire or an electric shock.

The unit must always have an earthed connection.

If the power supply is not earthed, you may not connect the unit.

Never use an extension cable to connect the unit to the electric power supply.

If there is no suitable, earthed wall socket available, have one installed by a recognized electrician.

Do not move/repair the unit yourself.

If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard. Improper movement or repair on the unit could lead to water leakage, electrical shock, injury or fire.

The unit is no intended for use by children.

Children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge can use this appliance if they have been given supervision of instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Children without supervision shall not make Cleaning and user maintenance.

Do not tear off the labels on the unit.

The labels are for the purpose of warning or reminding, keeping them can ensure your safe operations.

Caution



Do not install the unit in a place where there is a chance of flammable gas leaks.

If there is a gas leak and gas accumulates in the area surrounding the unit, it could cause an explosion.

Perform the drainage/piping work according to the installation instruction.

If there is a defect in the drainage/piping work, water could leak from the unit and household goods could get wet and be damaged.

Do not clean the unit when the power is 'ON'.

Always shut 'OFF' the power when cleaning or servicing the unit. If not, it could cause an injury due to the high speed running fan or an electrical shock.

Do not continue to run the unit when there is something wrong or there is a strange smell.

The power supply needs to be shut 'OFF' to stop the unit; otherwise this may cause an electrical shock or fire.

Do not put your fingers or others into the fan, or evaporator.

The inside parts of the heat pump may run at high speed or high temperature, they could cause serious injury. Do not remove the grills on the fan outlet and top cover.

The hot water probable need to mix with cold water for terminal usage, too hot water (over 50°C) in the heating unit may cause injury.

The installation height of power supply should be over 1.8m, if any water may spatter, the unit can be safe from water.

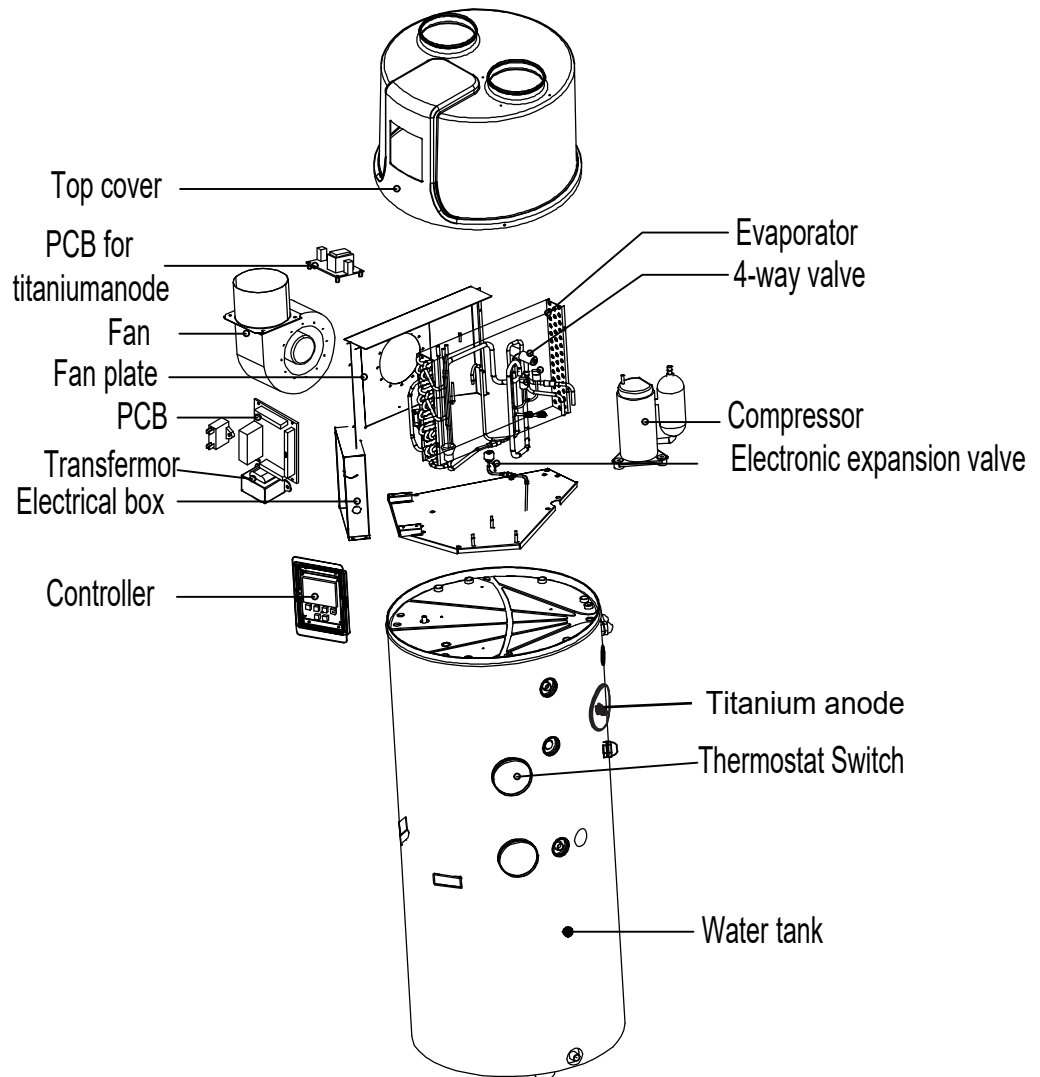
ITEMS INSIDE PRODUCT BOX

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

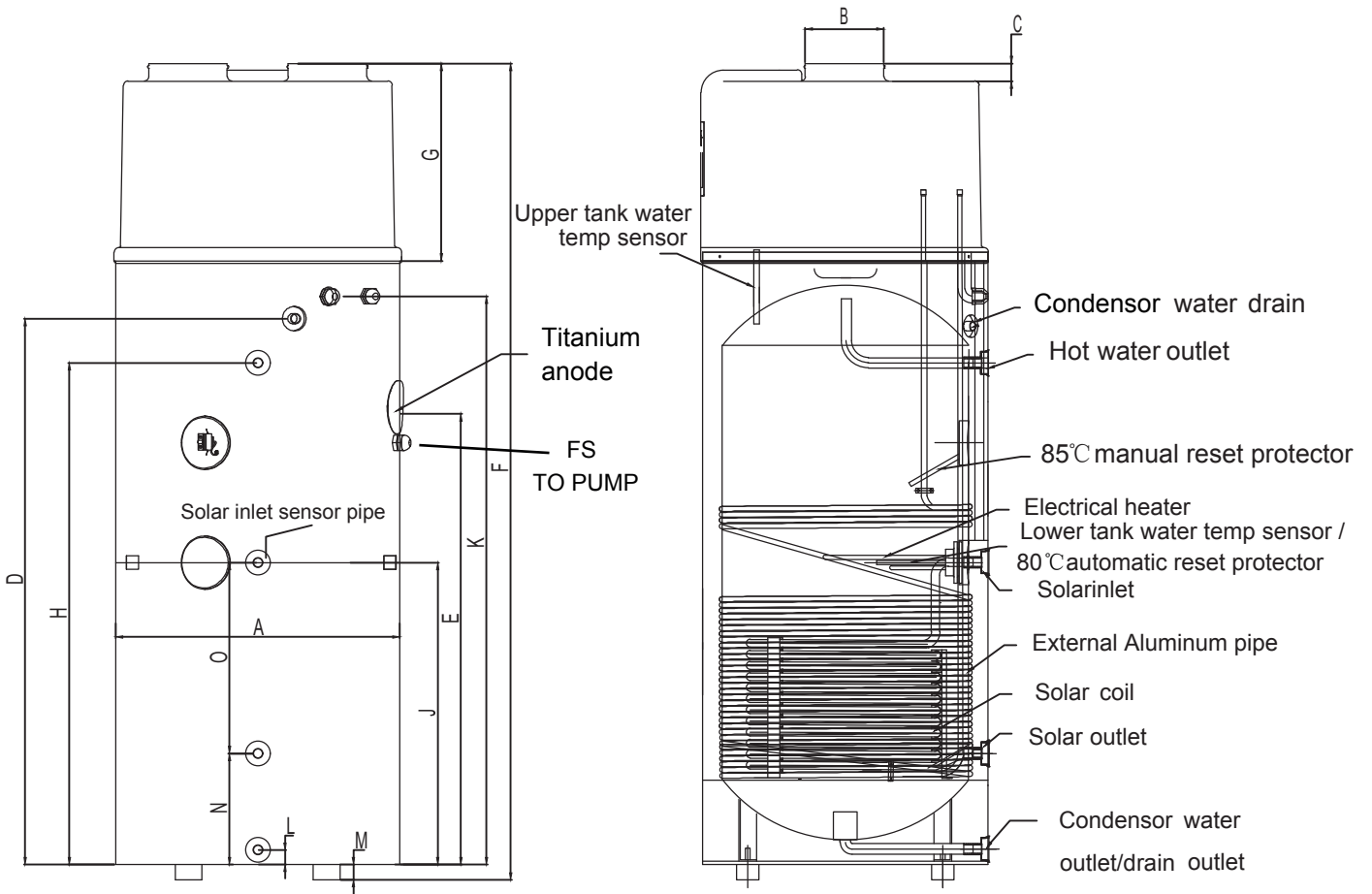
The Unit Box	
Item	Quantity
Domestic hot water heat pump	1
Operation and Installation Manual	1

OVERVIEW OF THE UNIT

Parts and descriptions



Model: GREEN 500 S NEW



GREEN 500 S NEW	
A	700
B	Ø177
C	40
D	1633
E	1252
F	2253
G	455
H	1520
J	893
K	1683
L	32.5
M	35
N	280
O	613

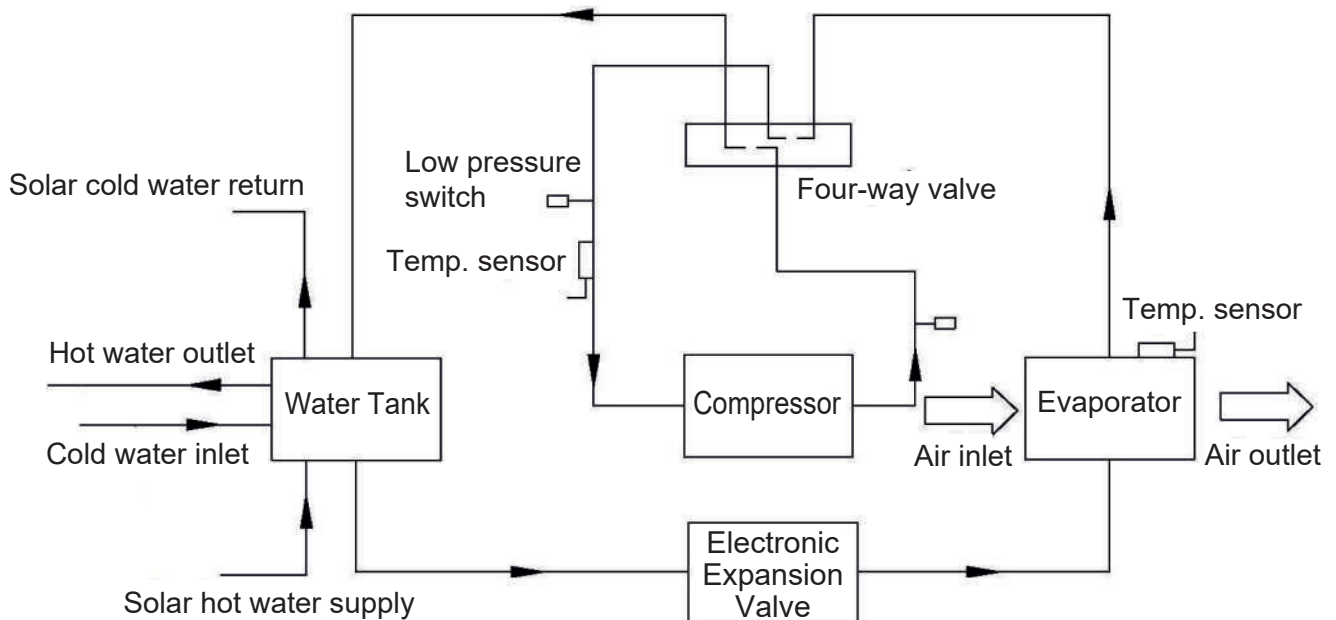
This unit is equipped with titanium anode

The titanium anode is an anti-corrosion element. It is pre-installed in the tank and protects both the tank and the other internal components, extending their life. In case the titanium anode does not work correctly, the error code E6 appears in the display of the Unit.

Disinfection cycle

This unit has automatic disinfection cycle which starts every 7 days. User can set the temperature and duration time of disinfection, as well as the time at which disinfection should start weekly.

Schematic overview of the water and refrigeration circuit



INSTALLATION

⚠ WARNING

- Asked 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 allowed to install the unit at 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 shaking.
- Make sure that there's no remora 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.

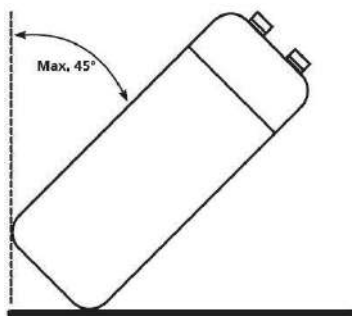
- Transport using a forklift

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

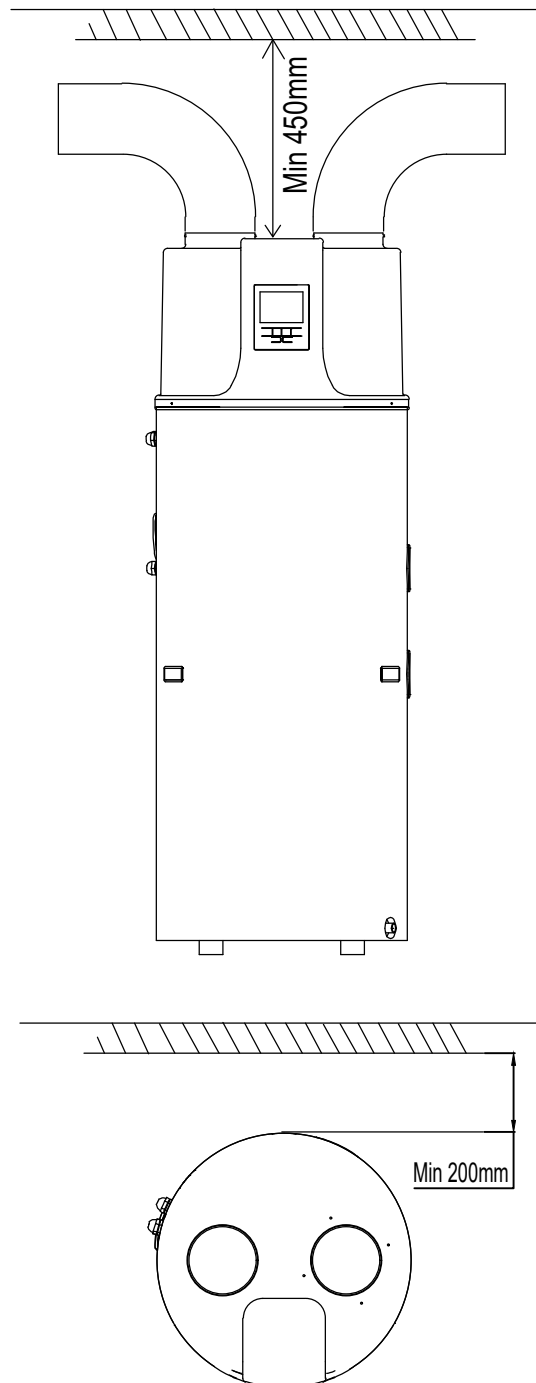
For the manual transport, a wooden/plastic pallet can be used. Using ropes or carrying straps, a second or third handling configuration is possible. With this type of handling, it is advised that the maximum permissible inclination angle of 45 degree is not exceeded. If transport in an inclined position 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

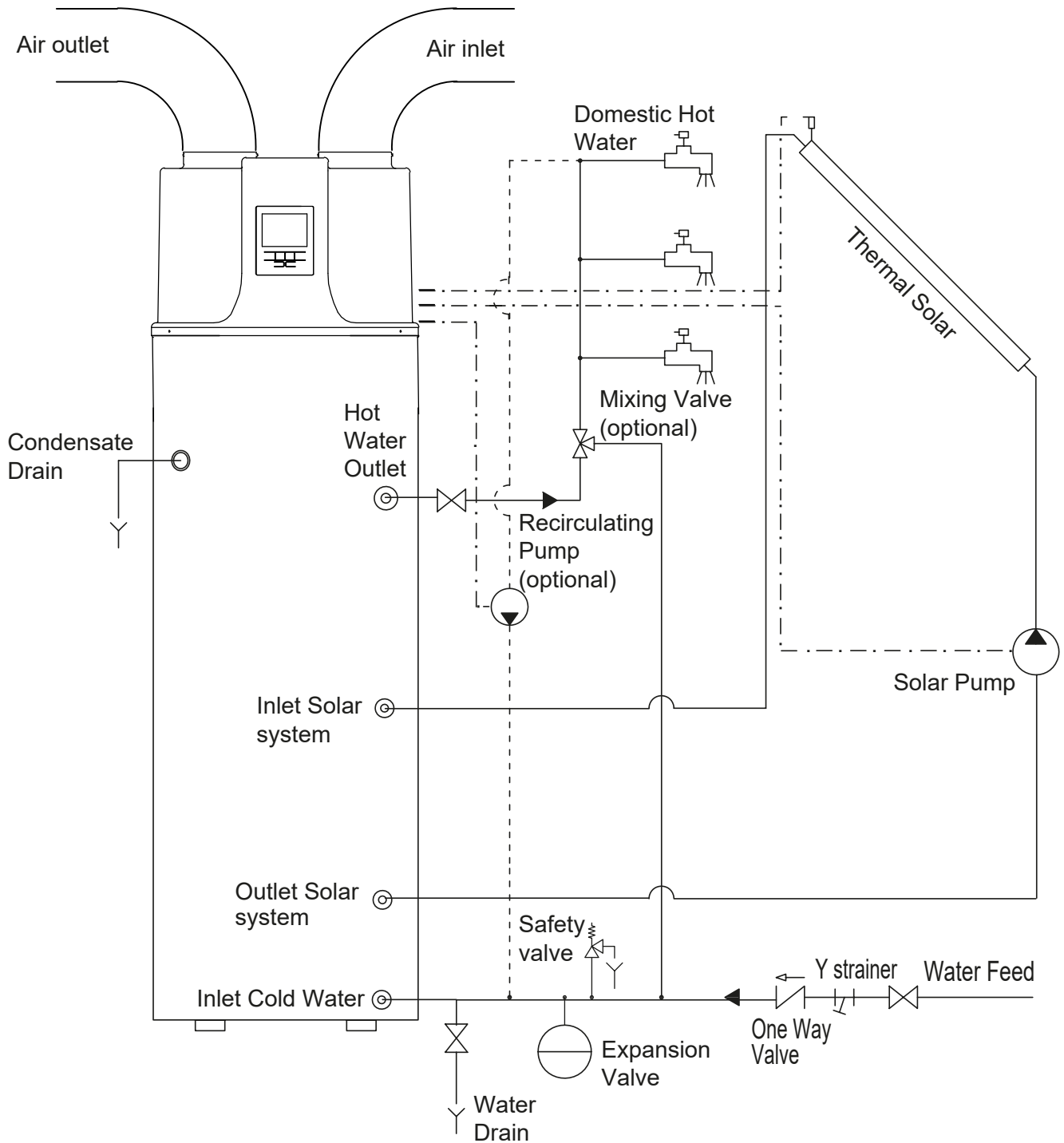
Below you will find the minimum space required to be able to complete service and maintenance tasks on the units.



Note:

- If air inlet and/or outlet pipes are connected, portion airflow and capacity in heat pump unit will lose.
- If the unit connects with air ducts it should be DN 180mm for pipes or 180mm internal diameter flexible hose. Total length of the ducts should not be longer than 8m or the maximum static pressure should not exceed than 60Pa. Be in mind of bending site of the duct no more than 4m.

Installation overview



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 to the atmosphere.
- 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.



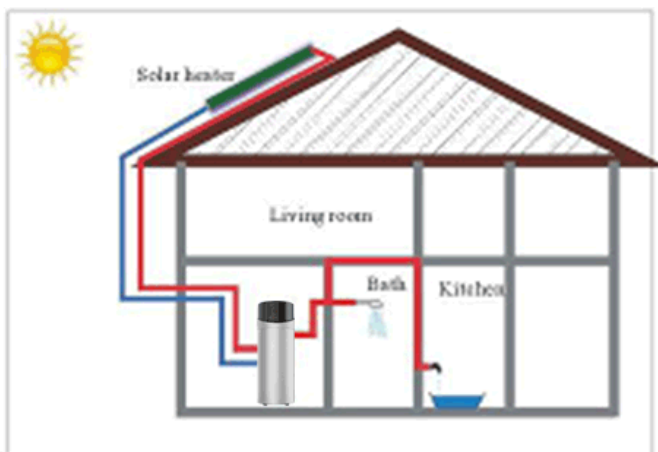
(2) Hot water and dehumidification

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.



(3) Solar panel or external heat pump could be the second heat source

Units 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 below points when connecting the water loop pipe:

1. Try to reduce the water loop resistance
2. Make sure there is nothing in the pipe and the water loop is smooth, check the pipe carefully to see if there is any leak, and then pack the pipe with the insulation.
3. Install the one way valve and safety valve in the water circulation system.
4. The nominal pipe wide of the field- installed sanitary installations must be selected on the basis of the available water pressure and the expected pressure drop within the piping system.
5. The water pipes may be of the flexible type. To prevent corrosion damage, make sure that the materials used in the piping system are compatible.
6. When installing the pipe-work on the customers' site, any contamination of the piping system must be avoided.

Water affusion and water emptying

Water Affusion:

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

- Open the cold water inlet and hot water outlet.
- Start the water affusion. When there is water normally flowing out from the hot water outlet, the tank is full.
- Turn off the hot water outlet valve and water affusion 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.

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

Wire connection

- The specification of the power supply wire is 3*1.5 mm².
- Fuse specification is T 3.15A 250V
- There must be a switch when connecting the unit to the power system. The current of the switch is 10A.
- The unit must be installed a Creepage Breaker near the power supply and must be effectively earthed. The specification of the creepage breaker is 30mA, less than 0.1sec.

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

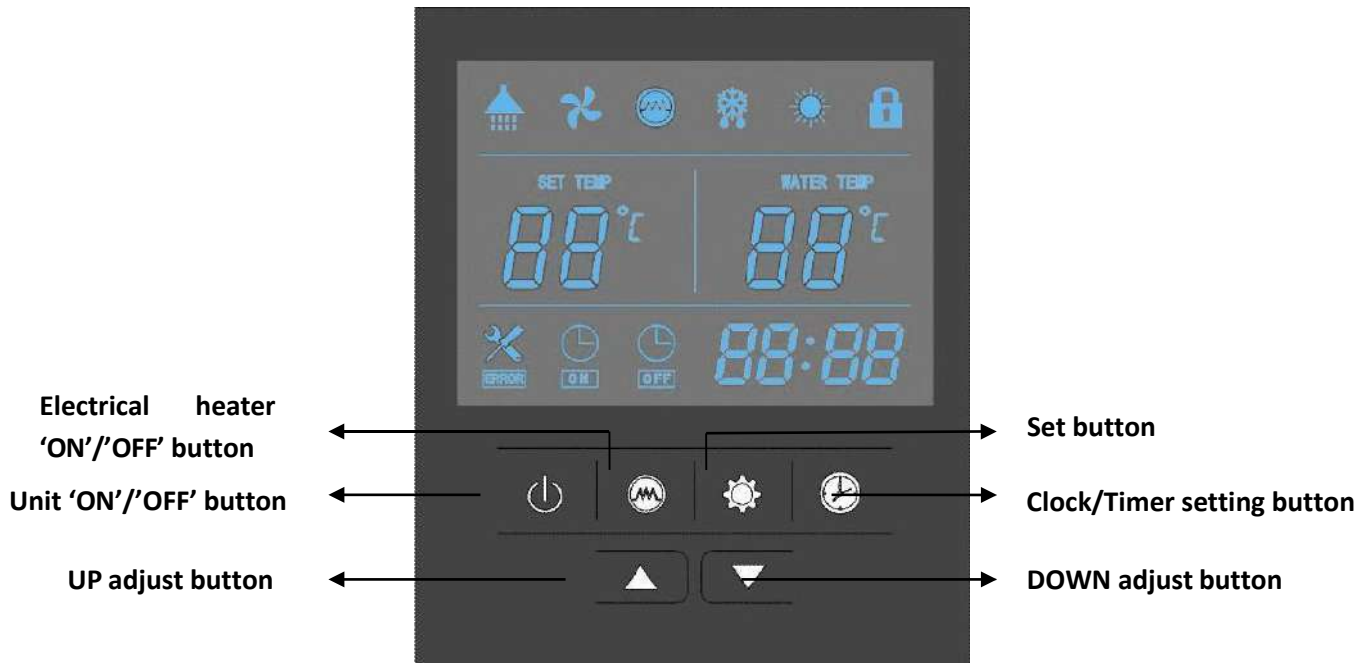
Trial running

Checks before trial 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.

OPERATION THE UNIT

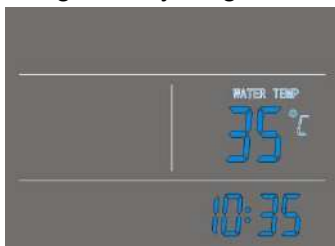
User interface and operation



Operations

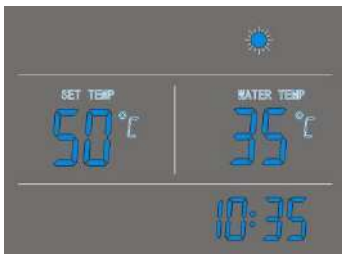
1. Power 'ON'

When turning 'ON' the power, whole icons are displayed on the controller screen for 3 seconds. After checking if everything is ok, the unit enters into the standby mode.



2. button

Press this button and keep for 2 seconds when the unit is standby, the unit can be turned 'ON'.
Press this button and keep for 2 seconds when the unit is running, the unit can be turned 'OFF'.
Short press this button to entry or exit the parameter setting or checking.



3. ▲ And ▼ buttons

- These are the multi-purpose buttons. They are used for the temp setting, parameter setting, parameter checking, clock adjustment and adjustment of the timer.
- During running status, press ▲ or ▼ button to adjust the setting temperature directly.
- Press these buttons when the unit is on clock setting status, the hour(s) and the minute(s) of the clock time can be adjusted.
- Press these buttons when the unit is on timer setting status, the hour(s) and the minute(s) of the timer 'ON'/'OFF' can be adjusted.

- Press ▲ and ▼ buttons at the same time and hold for 5 seconds, the buttons are locked.
- Press ▲ and ▼ buttons at the same time and hold for 5 seconds again, the buttons are unlocked.

4. 🕒 button

Clock setting:

- After power on, short press 🕒 button to entry the clock setting interface, hour and minute icons "88:88" flash together;
- Short press 🕒 button to switch hour/minute setting, press the ▲ and ▼ buttons to set the exact hour(s) and minute(s);
- Press 🕒 button again to confirm and exit.

Timer setting:

- After power on, long press 🕒 button for 5 seconds to entry the timer setting interface, the timer on icon 🕒 and hour icon "88:" flash together;
- Press the ▲ and ▼ buttons to set the exact hour(s).
- Press 🕒 button to transfer to minute setting, minute icon ":88" flash, press the ▲ and ▼ buttons to set the exact minute(s).


- Press 🕒 button again to transfer to timer off setting, the timer off icon 🕒 and hour icon "88:" flash together.
- Press the ▲ and ▼ buttons to set the exact hour(s).
- Press 🕒 button to transfer to minute setting, minute icon ":88" flash, press the ▲ and ▼ buttons to set the exact minute(s).
- Press 🕒 button again to save and exit the timer setting interface.

Press 🕒 button to cancel the timer settings during the timer 'ON' (or timer 'OFF') programming.










NOTE:

- 1) The timer 'ON' and timer 'OFF' functions can be set at the same time.
- 2) The timer settings are repeating.
- 3) The timer settings are still valid after a sudden power cut.

6. button

- 1) When the heat pump is ON, press this button to turn 'ON' the electrical heater. The heater icon  will be shown, and the electrical heater will work according to the control program (parameter 3).
- 2) When the heat pump is ON, press this button and hold for 5 seconds to enable or disable the fan ventilation function.
- 3) When the heat pump is OFF, press this button to entry E-heater heating mode.

7. button

- 1) Check the temperatures and EXV open steps (running parameter)
 - Press this button to entry temp and EXV open step checking.
 - Press the ▲ and ▼ buttons to check the temp sensor values and EXV open steps (parameters A-H).
- 2) Check the system parameters
 - In any status, press this button and hold for 5 seconds, entry the system parameter checking interface
 - Press the ▲ and ▼ buttons to check the system parameters.
- 3) Adjust the system parameters
 - Manufacturer parameters (password 76 or 29)
 - When the unit is off, press  and  2s to enter the password, water temp area  blinking (only 00 display), press "" to enter the password "7", press "" again to enter password "6", then press "" to confirm (If the password is wrong, it will return to home page, Enter another password)
 - After entering parameter modify page, press "▼" "▲" to select the parameter need to be modified.
 - Press "" to confirm the selection, press "▲" "▼" to modify the parameter. Press "" to confirm the modification and return to home page
 - No operation for 10s, the modification will be saved automatically and return to home page. Press "" could return to home page as well.

NOTE: The parameters have been set; the user cannot change the parameters optionally. Please ask a qualified service person to do this when required.

8. Error codes

During standby or running status, if there is a malfunction, the unit will stop automatically and show the error code on the left screen of the controller.




LED icons

1. Hot water available

The icon indicates that the domestic hot water temperature reaches the set point. The hot water is available for use. Heat pump is standby.

2. Fan ventilation

The icon indicates that the fan ventilation function is enabled.

When the unit is on, press the  button and hold it for 5 seconds the fan ventilation function can be enabled or disabled. If this function is enabled the fan will continue working to ventilate the air, when the water temperature reaches the set point and unit is standby. If this function is disabled the fan will stop, when the water temperature reaches the set point and unit is standby.

3. Electrical heating

The icon indicates that the electrical heating function is enabled. The electrical heater will work according to the control program.

4. Defrosting

this icon shows the heat pump is under defrosting

5. Heating

this icon shows the heat pump is working

6. Key lock

The icon indicates the key lock function is enabled. The keys cannot be operated until this function is disabled.

7. Left temperature display

The display shows the setting water temperature.

When checking or adjusting the parameters, this section will display the relating parameter number.

8. Right temperature display

The display shows the current downside temperature of the water tank.

When checking or adjusting the parameters, this section will display the related parameter value. In case any malfunction occurs, this section will display the related error code.

9. Time display

The display shows the clock time or timer time.

10. Timer 'ON'

The icon indicates that the timer 'ON' function is enabled.

11. Timer 'OFF'

The icon indicates that the timer 'OFF' function is enabled.

12. Error

The icon indicates there is malfunction.

13. Extra PV control function

The new PV function has been added in the main control board; it can be used to store energy in the tank in case of good solar insolation.

To enable the PV function, it's necessary to select 1 at parameter 35.

Then choice the set point of the hot water by parameter 29, between AUTOMATIC setting = 0 and MANUAL setting = 1.

AUTOMATIC setting, the set point is automatically chosen basing on the outside temperature.

MANUAL setting, the set point can be set manually but minimum value is 65°C.

The PV function start when the SWITCH PORT is closed and stop when the SWITCH PORT is open (please refer to wiring diagram)

PARAMETER CHECKING AND ADJUSTMENT

System parameter

A	Lower tank water temp	0~99°C	Real value, error P1
B	Upper tank water temp	0~99°C	Real value, error P2
C	Evaporator coil temperature	-15~99°C	Real value, error P3
D	Suction temperature	-15~99°C	Real value, error P4
E	Ambient temperature	-15~99°C	Real value, error P5
F	Return water temperature\solar water tank temperature	0~125°C	Real value, error P6
G	The opening electronic expansion valve	10~47	N*10
H	Real setting water temp	10~70°C	

The parameters with password “76” only could be modified by the factory.

The parameters with password “29” could be modified by the Installer.

Code	Description	Range	Default	Remarks	Password
0	Setting water temp TS1	10~70°C	50°C	Adjustable	29
1	Temp difference to heating TS6	2~15°C	5°C	Adjustable	29
2	Water temp to start e-heater TS2	10~85°C	65°C	Adjustable	29
3	Delay to start e-heater	0~90min	6min	Adjustable (Real time=setting value*5)	29
4	Temp to stop high temp disinfection TS3 (Upper tank water temp)	50~70°C	70°C	Adjustable	29
5	High temp disinfection time t2	0~90min	30min	Adjustable	29
6	Defrosting period t3	30~90min	45min	Adjustable	76
7	Temp to enter defrosting TS4	-30~0°C	-7°C	Adjustable	76
8	Temp to exit defrosting TS5	2~30°C	13°C	Adjustable	76

9	Time to exit defrosting t4	1~12min	8min	Adjustable	76
10	The operation of electrical expansive valve	0/1	1	0=manual, 1=auto	76
11	Target overheat temp	-9~9°C	4°C	Adjustable	76
12	The opening of the electrical expansive valve	10~47	35	N*10	76
13	Time to start high temp disinfection	0~23:00	23:00	If don't cut power, disinfection will work every week at the setting time.	29
14	Water pump selection	0/1/2	2	0: no water pump/1: return water pump/2 solar water pump	29
15	Return water temperature setting	15~50°C	35°C	Adjustable	29
16	Temperature difference to start return water pump	1-15°C	2°C	Adjustable	29
17	Temperature difference to start solar water pump	5-20°C	5°C	Adjustable	29
18	Temperature difference to stop solar water pump	1-4°C	2°C	Adjustable	29
19	E-heater or heat pump working when low temperature	0/1	1	0: heat pump / 1: e-heater	29
20	E-heater working or not when defrosting	0/1	1	0: e-heater not working / 1: e-heater working	29
21	Disinfection period	1-30days	7days	Adjustable	29
22	The opening of the electrical expansive valve during defrosting	10~47	30	N*10	76
23	The first action time of the electrical expansive valve	3~30	21	N*10s	76
24	Low pressure switch detects ambient temperature	-10~25	-5	Adjustable	29
25	Delay of low pressure switch detects temperature after compressor working	2min~20min	5min	Adjustable	76

26	Working temperature of 4-way valve changing way	-10°C~10°C	-2°C	Adjustable	76
27	Power on time for 4-way valve after compressor working	0-15min	2min	Adjustable	76
28	Electrical expansive valve action selection after compressor off	0-1	0	0: Invalid 1: Valid	76
29	Heat pump setting temperature control	0-1	0	0: TS1=Real value ; 1: TS1=Manual value	76
30	Compensation temperature	-10-10°C	0°C	Adjustable	76
31	The sampling period of Ambient temperature	2-120min	15min	Adjustable	76
32	E-heater control after Heat pump reach the temperature	0-1	1	Adjustment	29
33	Temp difference to start e-heater	1-10°C	3°C	Adjustable	29
34	The max setting temp of e-heater	65-85°C	75°C	Adjustable	76
35	Switch port application	0-1	0	0: On/off 1: PV function Adjustment	29

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.

Description	Error	Host operation/fault indicator
Standby		Dark
Normal running		Bright
Lower tank water temp sensor failure	P1	☆● (1 flashes 1 dark)
Upper tank water temp sensor failure	P2	☆☆● (2 flashes 1 dark)
Evaporator coil temp sensor failure	P3	☆☆☆● (3 flashes 1 dark)
Suction temp sensor failure	P4	☆☆☆☆● (4 flashes 1 dark)
Ambient temp sensor failure	P5	☆☆☆☆☆● (5 flashed 1 dark)
Return water/solar water tank temp sensor failure	P6	Bright
Emergency switch failure	P7	No icon display, only error code displayed
Water temp too high protection	P8	Bright
High pressure protection (HP switch)	E1	☆☆☆☆☆☆● (6 flashes 1 dark)
Low pressure protection (LP switch)	E2	☆☆☆☆☆☆☆● (7 flashes 1 dark)
Overheat protection (HTP switch)	E3	☆☆☆☆☆☆☆☆● (8 flashes 1 dark)
Water flow failure	E5	☆☆☆☆☆☆☆☆☆● (9 flashes 1 dark)
Electrical anode failure	E6	☆☆☆☆☆☆☆☆☆☆● (12 flashes 1 dark)
Communication failure	E8	Bright
Defrosting		☆☆☆☆☆☆☆☆..... (Long flash)

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 split 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.

ENVIRONMENTAL INFORMATION

This equipment contains fluorinated greenhouse gases covered by the Kyoto Protocol. It should only be serviced or dismantled by professional trained personnel.

This equipment contains R134a refrigerant in the amount as stated in the specification. Do not vent R134a into the atmosphere: R134a, is a fluorinated greenhouse gas with a Global Warming Potential (GWP) = 1975.

DISPOSAL REQUIREMENTS

Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.

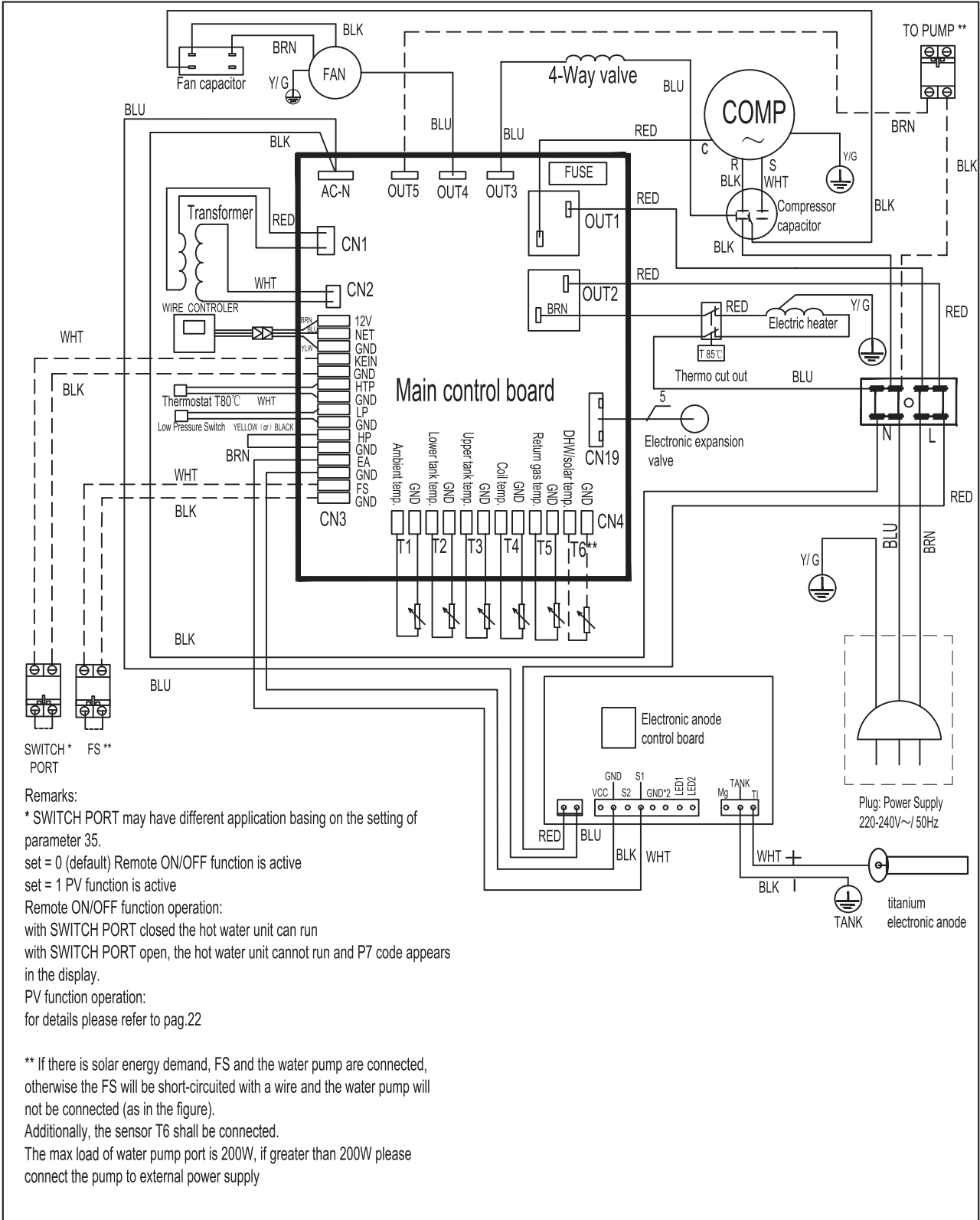


Your product is marked with this symbol. This means that electrical and electronic products shall not be mixed with unsorted household waste.

Do not try to dismantle the system yourself: the dismantling of the system, treatment of the refrigerant, of oil and other parts must be done by a qualified installer in accordance with relevant local and national legislation.

Units must be treated at a specialized treatment facility for re-use, recycling and recovery. By ensuring that this product is disposed off correctly, you will help to prevent potential negative consequences for the environment and human health. Please contact the installer or local authority for more information.

WIRING DIAGRAM GREEN 500 S NEW



TECHNICAL DATA TABLE GREEN 500 S NEW

Model	U.M.	GREEN 500 S NEW
Water Tank Volume	L	500
Solar Coil (INOX)	m ²	1.0
Rated Power Input ¹	W	945
Rated Hot Water Production Capacity ¹	L/h	82.0
COP _{DHW} ²	W/W	2.66
Test cycle profile ²	-	XXL
Hot Water Volume at 40°C ²	L	594
Energy Efficiency Class ³	-	A
IP Code	-	IPX1
Hot Water T adjustment range	°C	10~70 (50 default)
Max. Hot Water T compressor only	°C	
Electric Data	Power Supply	Ph-V-Hz
	Additional E-Heater	W
	Max. current (included E-Heater)	A
Refrigerant	Type (GWP) ⁴	R134a (1430)
	Quantity	kg
	Tons of equivalent CO ₂	t
Compressor	-	
Dimensions	Units Ø x H	mm
	Net weight	kg
Average sound pressure level	dB(A)	
Tank	Tank material	-
	DHW Hydraulic connections	(" - DN)
	Solar Coil Hydraulic connections	(" - DN)
	Titanium anode with alarm led	-
	Maximum operating pressure	bar
Air intake	Operating range	°C
	Air flow (with duct)	m ³ /h
	Available static pressure	Pa
	Air ducting - Diameter	mm
	Air ducting - Max Length	m

¹ Conditions: air intake 20°C DB (15°C WB), water inlet 15°C / outlet 55°C

² Test according to EN16147; air 7°C

³ Directive 2009/125/CE - ERP EU n. 814/2013 (TUV Sud Certification for all Models)

⁴ Refrigerant leakage contributes to climate change. If released into the atmosphere, refrigerants with a lower global warming potential (GWP) contribute less to global warming than those with a higher GWP. This appliance contains a refrigerant fluid with a GWP of 1430. If 1 kg of this refrigerant fluid were released into the atmosphere, therefore, the impact on global warming would be 1430 times higher than 1 kg of CO₂, for a period of 100 years. In no case should the User try to intervene on the refrigerant circuit or disassemble the Product. If necessary, always contact qualified personnel.

TEMPERATURE SENSOR R-T CONVERSION TABLE for T1,T2,T3,T4,T5

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

TEMPERATURE SENSOR R-T CONVERSION TABLE

Only use for the solar temp sensor (T6)

R 25=50K Ω \pm 1.0% B 25/50 = 3950K \pm 1.0%

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



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