ECOPOWER INVERTER SWIMMING POOL HEAT PUMP

Installation and Maintenance Instruction Manual

ECOPOWER INVERTER 9

ECOPOWER INVERTER 12

ECOPOWER INVERTER 14

CONTENTS

Dear Sir:

In order to use this machine safely, please read this INTRUCTION MANUAL carefully before using and installation. Heat pump water heater is a professional machine, it may cause damage or hazard when wrong installed, it should be installed by a competent person in accordance with the relevant standards for the country of use.

WARNING:

ELECTRICAL POWER MUST BE SWITCHED OFF
BEFORE STARTING ANY WORK ON JUNCTION BOXES

1. **Before installing the heat pump, please ensure that the electrical supply corresponds to the specification indicated on the unit's rating label before proceeding with the connection in accordance with the wiring diagram supplied. Please check carefully on the rating label and the wiring diagrams that pasted on each heat pump unit.**

2. **The unit must be EARTHED to avoid any risks caused by insulation defects. It is forbidden to start any work on the electrical components without switching off the electrical supply to the unit. Electric leakage switch protection device MUST be installed.**

3. **It is forbidden to start any work on the electrical components if water or high humidity is present on the installation site.**

4. **When the unit is being connected, ensure that no impurities are introduced into the pipe work and the water circuits.**

5. **All maintenance or repairment of the heat pump must be performed by competent technicians.**

6. **Gas leakage test must be done before and after installation.**

7. **To prevent any damage to the fan or any accidents, it is forbidden to put your fingers or any other objects into the air outlet. Kids or children should be kept away from the heat pump.**

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

FEATURES

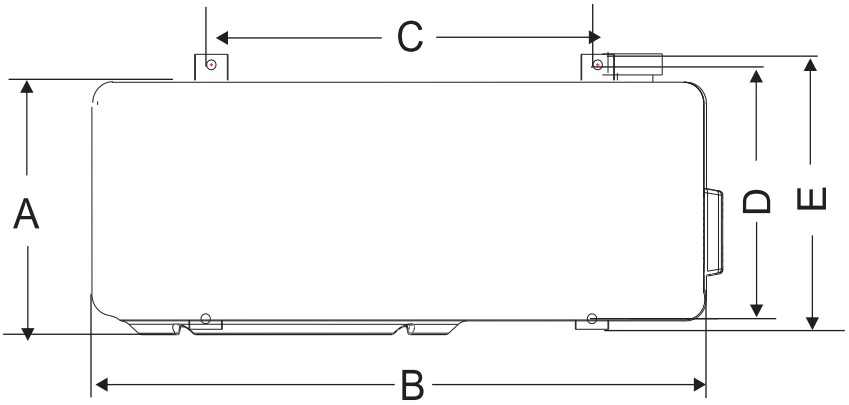
- ECOPOWER inverter heat pump use environmentally friendly refrigerant R32 which also provides one of the highest energy efficiency ratings in the industry. Compressor frequency changes according to outdoor environ mental condition and the users' demands from the system.
- LCD wire control panel for easy setting and control.
- Special vibration absorbers on the compressor allow operation of the system with ultra low noise from both the indoor and outdoor units, only for small unit
- Operational indicators allow the users to monitor the system working status.
- Microprocessor is programmed to allow operation under wide range of input voltages from 220V~240V and soft starting with lower current draw at each compressor start-up.
- Auto-restart function keeps all settings in memory and automatically resumes the operation after a power failure.
- Compressor crank heating belts and outdoor heat exchanger heating belts are available for extreme Nordic conditions, enabling the unit to work in very low ambient temperatures with much lessened defrost frequencies. Both these optional heaters are electronically controlled based on the outdoor ambient temperatures and a sophisticated logic.
- Self learning defrost logic constantly monitors the defrosting requirements and automatically adjusts the intervals
- Titanium tube in shell heat exchanger is made with latest technology-- inner grooved tubing, which extending the area of heat exchange in a more compact coil , and therefore increased the operational efficiency

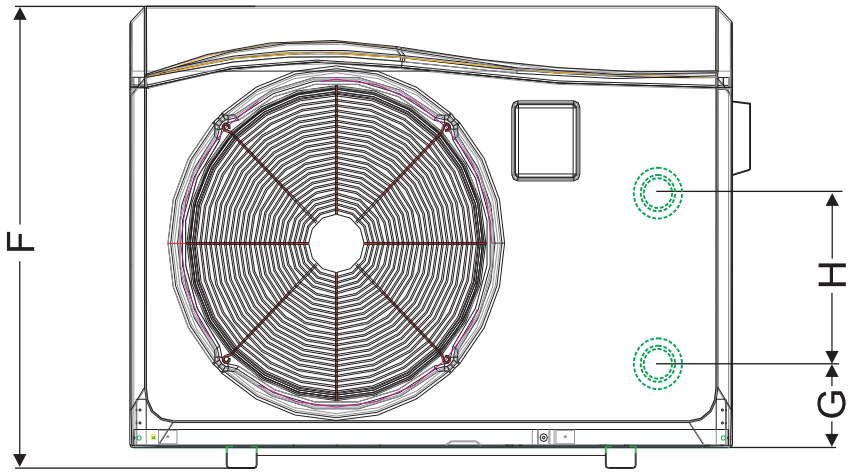
Performance Data

Modelo	Unidad	ECOPOWER INVERTER 9	ECOPOWER INVERTER 12	ECOPOWER INVERTER 14
Clasificación de Capacidad de Calefacción	W	3.6-11	4.7-13	6.3-15
	BTU/h	12280-37520	16030-44340	21480-51160
Clasificación de Capacidad de Enfriamiento	W	2.3-5.7	2.8-6.6	3.4-6.86
	BTU/h	7847~19448	9553~22519	11600~23406
Rango de Calefacción	°C	15-40	15-40	15-40
Rango de Enfriamiento	°C	8~30	8~30	8~30
Potencia de Entrada de Calefacción	KW	0.45-2	0.59-2.5	0.70-2.78
Potencia de Entrada de Enfriamiento	KW	0.61-2.50	0.76-3.0	0.90-2.68
Calefacción Corriente de Arranque	A	2.2-9.3	2.5-11.2	3.2-12.5
Enfriamiento Corriente de Arranque	A	2.8-11.4	3.4-14.5	4.2-12
COP	W/W	5.5-8	5.2-8	5.4-9
EER	W/W	2.3-3.7	2.2-3.7	2.5-3.7
Aliemtanción de Energía	V/PH/Hz	220/1/50	220/1/50	220/1/50
Tipo de Compresor		DC Inverter	DC Inverter	DC Inverter
Número de Compresores		1	1	1
N° Motor Ventilador		1	1	1
Entrada Motor Ventilador	W	50	50	50
Velocidad de Ventilador	RPM	900	850	850
Ruido	dB(A)	45	50	<55
Conexiones de Agua	pulgadas	1.5	1.5	1.5
Volumen Flujo de Agua	m3/h	2.9-4.4	3.7-5.6	4.3-6.5
Caída Presión de Agua	Kpa	3.2	3.3	3.5
Peso	Kg	65	82	89

Measuring conditions:
Heating:dry bulb 26.7℃, wet bulb 22.5℃, water inlet 26℃ .
cooling:dry bulb 35℃, wet bulb 24℃, water inlet 29℃ .

The dimension for air source heat pump water heater



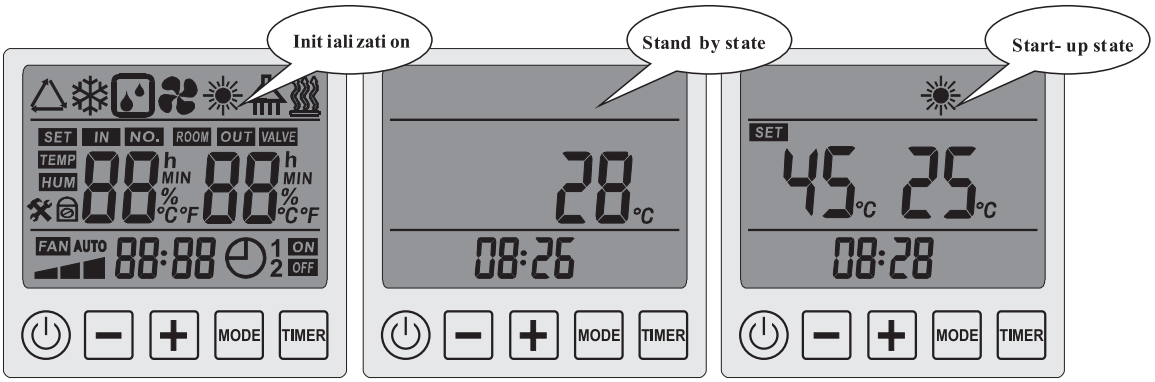


Measure: mm

Model / Size	ECOPOWER INVERTER 9	ECOPOWER INVERTER 12	ECOPOWER INVERTER 14
A	387	394	394
B	972	978	978
C	580	615	615
D	359	366	366
E	389	396	396
F	627	712	712
G	85	83	83
H	250	250	250

3.Wire controller operation guide

The functions of the wire controller



◎ Under start-up state, LCD screen left side displays the water inlet setting temperature, right side displays the actual water inlet temperature ; Under stand-by state, LCD maininterface only displays the actual water inlet temperature on the right side .

◎ Under start-up state, LCD screen displays heating or cooling symbol; Stand-by state , LCD screen does not display heating or cooling symbol ; Defrosting state, heating symbol flashes.

◎ When setting the time of Timer On / Timer Off , LCD screen displays timer symbol “ON""OFF".

1). Definition of LCD Controller Buttons.

◎ " ⏻ "**for ON /OFF and Return**

- When the main interface is not locked, press " ⏻ " and hold for 3seconds to turn on or turn off the heat pump.
- After entering parameter or clock setting, press " ⏻ " once to return to main interface.

◎ " MODE "**for Different Mode**

- Press " MODE " once to switch the working mode. Continuously press this button , the modes circularly switches as follow.

Heating ☀ ⟷ Cooling ❄

◎ " + "&" − "**for Up and Down**

- Under start-up state, press " + " or " − " to set the target temperature of the current mode .
- Press" − "and " + "/ " − "to query the parameters.

1). Definition of LCD Controller Buttons.

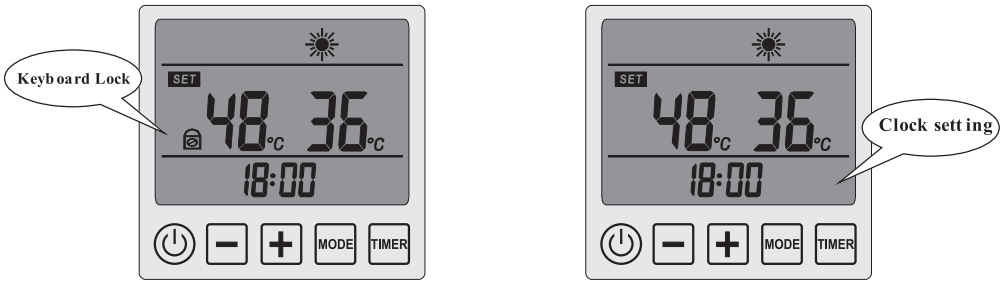
◎ " TIMER "**for Timer**

- Press " TIMER " once to enter Clock setting, meanwhile press " + " / " − " to adjust the time.
- Long press " TIMER " for 3 seconds to enter the setting of Timer On and Timer Off (Totally you may set 2 sets of different Timer On and Timer Off), and press " + " / " − " may change the time, details see Timer On/Off setting.

2). Wire Controller Operation

◎ **Keyboard Lock & Unlock**

- In default state, long press " + " and " − " for 3 seconds at the same time, vibrator "bee" once, the keyboard will be locked.
  In the state of Locked, long press " + " and " − " for 3 seconds at the same time, vibrator "bee" once, the keyboard will be unlocked.



◎ **Clock Setting**

- In the main interface, press " TIMER " once, to enter clock setting interface, at this moment, the hour time for clock setting shows and flashes.
- Press " + " and " − " can set the hour time for clock.
- After setting hour time, press " TIMER " once, then only minute time shows and flashes, then you can press " + " and " − " to set the minute time for the clock.
- After setting the minute time, press " TIMER " once to confirm and save all the setting to current live clock time, meanwhile to exit the setting interface and return the main interface.

◎ **Forced defrosting**

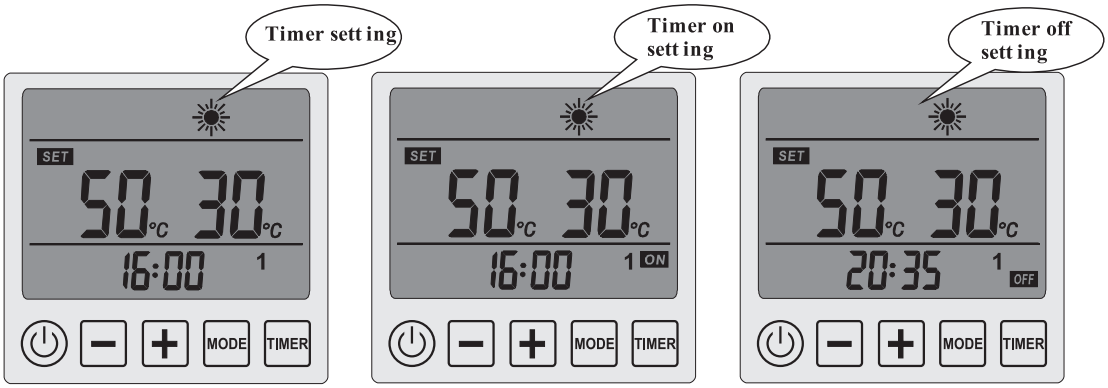
- In the stand-by state, press " MODE " and " − " to enter the forced defrosing mode. When entering defrosting, it flashes and displays " ☀ ".

◎ **Frequency mode switch**

- In the start-up state, long press " MODE " for 5 seconds to switch frequency modes: silent(◴), smart(AUTO)and powerful(🛠) modes.

2). Wire Controller Operation

◎ Timer On & Timer Off Setting



- In the main interface, long press " TIMER " for 3 seconds to switch among 2 sets of Timer setting.

- After entering the Timer On setting interface, press " TIMER " once to enter current Timer On setting interface, at this moment, the hour time of clock shows and flashes, press " + " or " − " to roll up or down to set/adjust the Timer On hour time.

- After setting hour time for the Timer, press " TIMER " once, only minute of the clock shows and flashes, then press " + " or " − " to roll up or down to set the timer on minute.

- After setting the minutes, press " TIMER " once to confirm and save all the Timer On setting, and s witch to Timer Off setting interface. At this moment, the hour of clock shows and flashes, press " + " or " − " to roll up or down to set the Timer Off hour.

- After setting Timer Off hour, press " TIMER " once, only minute of the clock shows and flashes, then press " + " or " − " to roll up and down to set the timer Off minute.

- After setting the Timer Off Minutes, press " TIMER " once, to confirm and save all the setting for Timer On/Off and return to 2 sets Timer switching interface.

- In the Timer setting interface, press " MODE " once to switch 2 sets Timer settings.

- In the Timer setting interface, long press " MODE " for 3 seconds to cancel this Timer On / Timer Off function.

2). Wire Controller Operation

◎ System Parameter & Status Inquiry

● In the main interface, long press " [−] " for 3 seconds to enter the unit status parameter query, press " [+] " or " [−] " can check each parameter status, and press " ⏻ " to exit the parameter query.

State	State content	Range	Default value	Remark
01	Water inlet temperature sensor	-30～99℃	Actual testing value	
02	Water outlet temperature sensor	-30～99℃	Actual testing value	
03	Ambient temperature sensor	-30～99℃	Actual testing value	
04	Exhaust temperature sensor	0～125℃	Actual testing value	
05	Gas suction temperature sensor	-30～99℃	Actual testing value	
06	Coil temperature sensor	-30～99℃	Actual testing value	
07	Heat exchanger water outlet temperature sensor	-30～99℃	Actual testing value	
08	Actual steps for main EEV.		Actual testing value	
09	Actual steps for enthalpy increasing EEV.		Reserve	
10	Compressor current		Actual testing value	
11	Heat sink temperature		Actual testing value	
12	DC bus voltage value		Actual testing value	
13	Actual speed of compressor		Actual testing value	
14	DC fan 1 speed		Reserve	
15	DC fan 2 speed		Reserve	

◎ System Parameter setting

● In the main interface, long press " MODE " and " [+] " for 5 seconds to query the setting parameters, then press " [+] " or " [−] " to query the system setting parameters.
In the interface of parameter setting, press " MODE " once, then press " [+] " or " [−] " to adjust the current system parameter setting value, then press" MODE " to confirm.
Press " ⏻ " to exit and return to the main interface.

2). Wire Controller Operation

◎ System Parameter setting

Digit	Meaning	Range	Default	Adjust(yes/no)
P01	Return difference temperature	1~18℃		Adjusted by technicians
P02	Cooling set temperature	8~35℃		yes
P03	Heating set temperature	5~40℃		yes
P04	Inlet water temperature compensation	-5~15℃		Adjusted by technicians
P05	Defrosting cycle	20~90MIN		Adjusted by technicians
P06	Defrost inlet temperature	-9~-1℃		Adjusted by technicians
P07	Defrosting time	5~20MIN		Adjusted by technicians
P08	Defrost exit temperature	1~40℃		Adjusted by technicians
P09	Temperature difference between defrosting ambient and coil	0~15℃		Adjusted by technicians
P10	Ambient temperature for defrosting	0~20℃		Adjusted by technicians
P11	Action cycle of main electronic expansion valve	20~90S		Adjusted by technicians
P12	Smart and powerful target superheat	-5~10℃		Adjusted by technicians
P13	Exhaust temperature regulated by main electronic expansion valve	70~125℃		Adjusted by technicians
P14	Defrost electronic expansion valve opening	2~45 (*10)		Adjusted by technicians
P15	Minimum opening of main electronic expansion valve	5~15 (*10)		Adjusted by technicians
P16	Main electronic expansion valve mode selection	0:manual / 1:auto		Adjusted by technicians
P17	Manual steps of main electronic expansion valve	2~45 (*10)		Adjusted by technicians
P18	Cooling target superheat	-5~10℃		Adjusted by technicians
P19	Manual steps of auxiliary valve	2~45 (*10)		Adjusted by technicians
P20	Working mode of cooling electronic expansion valve	0 / 1		Adjusted by technicians
P21	Working mode of water pump 1:water pump keep running even set point temp reached and heat pump in stand by mode. 2:water pump automatically turns off after compressor stop for 30s. 3:water pump runs 3 minutes every 20 minutes after compressor stops	1 /2 / 3		Adjusted by technicians
P22	Working mode of DC fan	0:auto / 1:manual		Adjusted by technicians
P23	Manual wind speed of DC fan	0~99 (*10)		Adjusted by technicians
P24	Electric heating opening ambient temperature	-20~20℃		Adjusted by technicians
P25	Defrosting electric heating function	0:no / 1:yes		Adjusted by technicians
P26	Low ambient temperature protection valve	0~-30℃		Adjusted by technicians

4. Maintenance

- To check the water supply device often. You should avoid the condition of no water or air entering into system, or that will influence unit's performance and reliability. You should clear the water filter regularly to avoid unit's damage by filter' jam.
- There should be dry, sanitary and ventilation around the unit. To clean the side condenser regularly for good heating exchanging and saving energy.
- To check the power supply and cable connection often, to see if there is abnormal action or bad smell about the electrical component. If yes, Contact Installer immediately.
- Please discharge all water in the water pump and water system lest freeze the water pump or water system.You should discharge the water at the bottom of water pump if the units will stop for long time. And you should check the units thoroughly and fill the system with water fully before power on the units again.

5.Malfunction and solution

Malfunction	Wire Controller display	Reason	Solution
Water flow switch failure	E03	No water / little water in water system	Check the water flow volume, water pump is failure or not.
Anti-freeze protection(The first time freezing protection in winter)	E04	Ambient temperature too low	
Anti-freeze protection(The second time freezing protection in winter)	E04	Water temperature too low and ambient temperature too low	
System high pressure protection	E05	The system protection was failure	Check each protection point of system
System low pressure protection	E06	The system protection was failure	Check each protection point of system
Communication failure	E09	Wire controller and the PCB connection failure	Check the wire connection
Communication failure of frequency conversion module	E10	Drive plate and the PCB connection failure	Check the connecting wire
Compressor air exhaust temp too high protection	E12	Compressor air exhaust temperature too high	Check water flow and gas pressure
Water inlet temp sensor failure	E15	The sensor is open or short circuit	Check or change the sensor
Coil1 temp sensor failure	E16	The sensor is open or short circuit	Check or change the sensor
Exhaust temp sensor failure	E18	The sensor is open or short circuit	Check or change the sensor
DC fan 1 failure	E19	DC fan stall or no feedback	Check DC fan circuit
Abnormal protection of frequency conversion module	E20		
Ambient temp sensor failure	E21	The sensor is open or short circuit	Check or change the sensor
DC fan 2 failure	E22	DC fan stall or no feedback	Check DC fan circuit
Low temperature protection of cooling water outlet	E23	Water flow volume is not enough	Check the water flow volume, or water system is jammed or not
Water outlet temp sensor failure	E27	The sensor is open or short circuit	Check or change the sensor
CT over current protection	E28		
Gas suction temp sensor failure	E29	The sensor is open or short circuit	Check or change the sensor
Over temperature protection of heating water outlet	E32		
Coil high temperature protection	E33		
Heat exchanger water outlet temp sensor failure	E42	The sensor is open or short circuit	Check or change the sensor

5.Malfunction and solution

◎ E20 fault will display the following fault serial number at the same time, and switch the fault code every 3 seconds; Among them, NO.1~128 faults are preferentially displayed, and NO.257~384 faults will be displayed only when NO.1~128 faults occur. If two or more faults with the same priority occur at the same time, the serial number accumulation will be displayed. For example, if faults No.16 and NO.32 occur at the same time, display 48.

Serial number	Malfunction	Reason	Solution
1	IPM over current	IPM module problem	Replace the frequency conversion module
2	Abnormal compressor synchronization	Compressor failure	Replace the compressor
4	Reserve		
8	Lack of compressor output phase	The compressor wiring is broken and has poor contact	Check the input circuit of the compressor
16	Low DC bus voltage	The input voltage is too low, PFC module failure	Check the input voltage, Replace the frequency conversion module
32	High DC bus voltage	The input voltage is too high, PFC module failure	Replace the frequency conversion module
64	Heat sink temperature too high	Main engine fan failure, air duct blockage	Check the fan and air duct
128	Heat sink temperature failure	Fan heat sheet sensor short circuit or open circuit fault	Replace the frequency conversion module
257	Communication failure	The frequency conversion module does not receive the command from the PCB	Check the communication connection between the PCB and the frequency conversion module
258	AC input phase loss	Input phase loss(three-phase module valid)	Check the input circuit
260	AC input over current	Input three-phase unbalance (three-phase module valid)	Check the input three-phase voltage
264	AC input voltage too low	Input voltage too low	Check the input voltage
272	High pressure failure	Compressor high pressure failure (reserved)	
288	IPM over temperature	The unit fan failure, air duct blockage	Check the fan and air duct
320	Compressor peak current too high	The line current of the compressor is too large, and the driver does not match the compressor	Replace the frequency conversion module
384	PFC module over temperature	PFC module temperature too high	Detect the PFC module

Inspection before use
A. Check installation of the whole machine and the pipe connections according to the pipe connecting drawing;

B. Check the electric wiring according to the electric wiring diagram and earthing connection;

C. Make sure that the main machine power switch is off;
D. Check the temperature setting;
E. Check the air inlet and outlet.

Trial
A. The user must “Start the Water circulation Pump before the heat pump and Turn off the Heat pump before the water circulation pump”, or the heat pump will be damaged;

B. The user should start the heat pump, check for any leakage of water; and then set suitable temperature in the thermostat, and then switch on power supply;

C. In order to protect the swimming pool heater, the machine is equipped with a time lag starting function, when starting the machine, the blower will run 1 minutes earlier than the compressor;

D. After the swimming pool heater starts up, check for any abnormal noise from the machine.

Precautions

A. Set proper temperature in order to get comfortable water temperature to avoid overheating or overcooling;

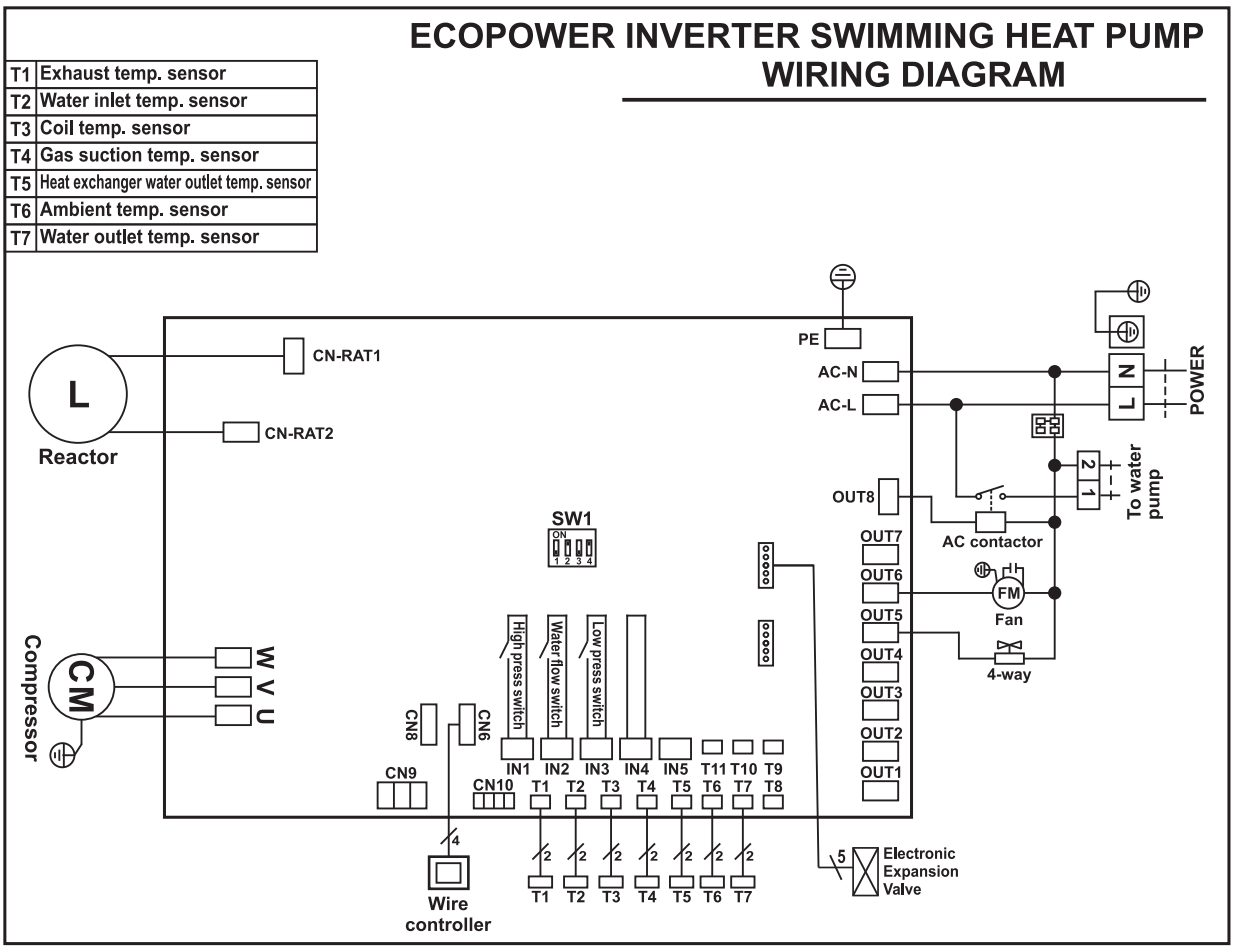
B. Please don’t stack substances that can block air flow near inlet or outlet area, or the efficiency of the heater will be reduced or even stopped;C. Please don’t put hands into outlet of the swimming pool heater, and don’t remove the screen of the fan at any time;
D. If there are abnormal conditions such as noise, smell, smoke and electrical leakage, please switch off the machine immediately and contact the local dealer. Don’t try to repair it yourself;

E. Don’t use or stock combustible gas or liquid such as thinners, paint and fuel to avoid fire;

F. In order to optimize the heating effect, please install heat preservation insulation on pipes between swimming pool and the heater. During running period of the swimming pool heater, please use a recommended cover on the swimming pool;

G. Connecting pipes of the swimming pool and the heater should be =10m, or the heating effect of the heater cannot be ensured;
H. This series of machines can achieve high efficiency under air temperature of +15?~+25?.

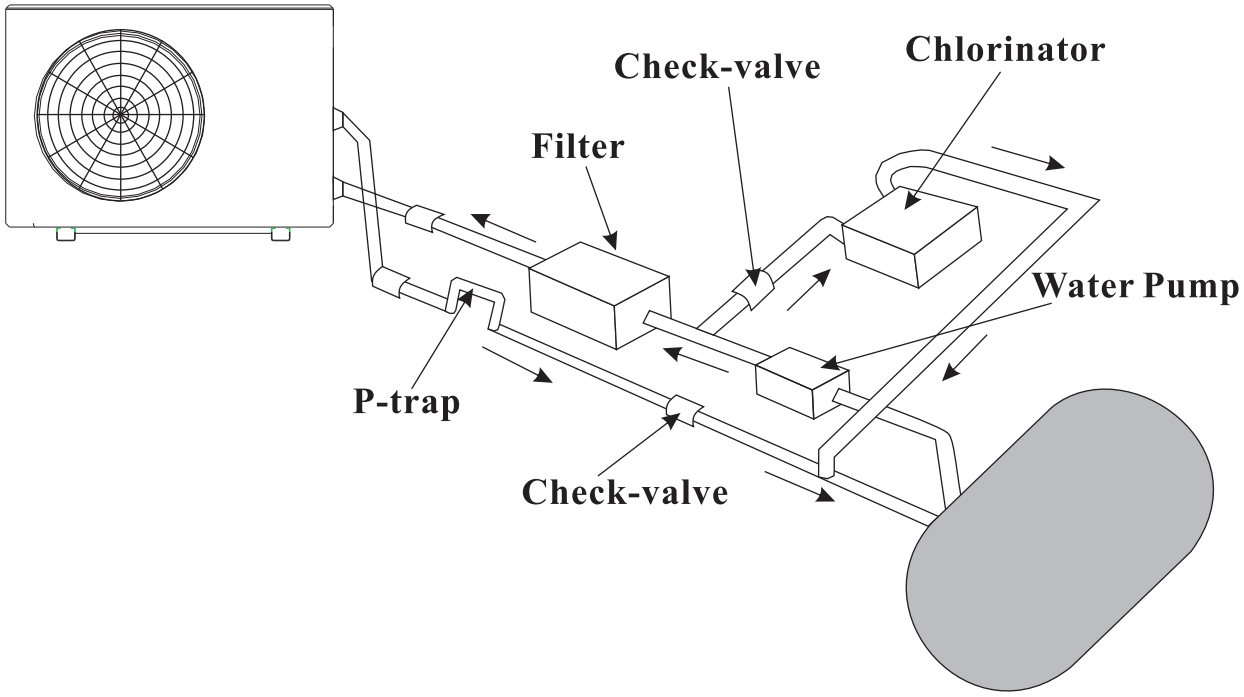
6. Wiring diagram



Attachment 2

The Installation about Heat Pump & Chlorinator

Pressure-type Chlorinator or Brominator



Maintenance

Heat pump water heater is a high automatic equipment, please perform regular inspection termly. If the unit can be long-term and efficiently maintenance, the operating reliability and service life will have an unexpected increase.

1.Check the water supply device and discharge often. You should avoid the condition lack of water or air entering the system, as this will affect performance and reliability of the unit. You should clean the pool/spa filter regularly to prevent damage to the filter. unit as a result of dirt from the clogged filter.

2,The area around the unit must be dry, clean and well ventilated. Clean the exchanger side heating periodically to maintain good heat exchange and save Energy .

3.The operating pressure of the cooling system should only be repaired by a technician certificate .

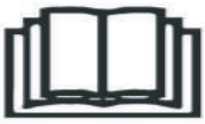
4.Check the power and cable connection often. In the event that the unit starts to work abnormally, please turn it off and contact the technical personnel skilled.

5.Discharge all the water from the water pump and water system so that freezing of the water in the pump water system does not occur. You must discharge the water in the bottom of the water pump if the unit will not be used for a long period of time.

6.You must check the unit thoroughly and fill the system with water completely before using it before re-strat the heat pump which not use for a long period of time.

7.Before starting work on systems containing flammable refrigerants, make the necessary security checks that are necessary to ensure that the risk of contact is minimum.

PARA MAS INFORMACION O DESCARGAR ESTE
MANUAL DE FORMA DIGITAL ESCANEA EL CODIGO QR O INGRESA A LA PAGINA
https://www.dunnerpool.cl/manuales-y-videos/



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