



# **RESIDENTIAL SWIMMING POOL HEAT PUMP SERIES USER MANUAL**

Please read this manual carefully before using and keep it in a safe place.



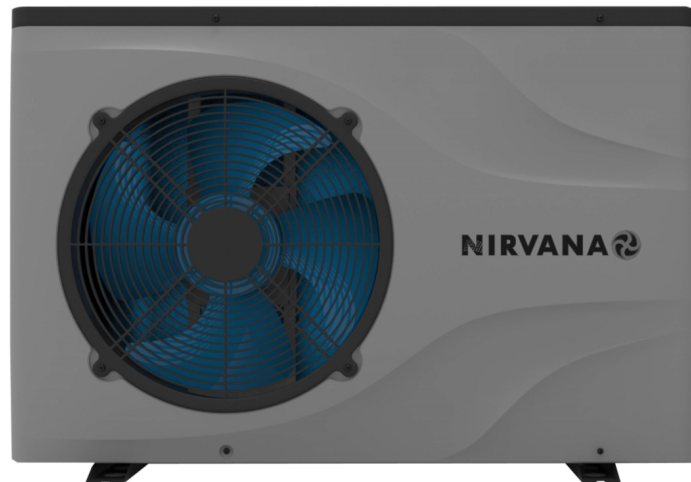
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## I. Unit Parameters

### 1. Appearance



### 2. Statement

To keep users under safe working condition and property safety, please follow the instructions below.

- Wrong operation may result in injury or damage;
- Please install the unit in compliance with local laws, regulations and standards;
- Confirm power voltage and frequency;
- The unit is only used with grounding sockets;
- Independent switch must be offered with the unit.

### 3. The following safety factors need to be considered:

- Please read the following warnings before installation;
- Be sure to check the details that need attention, including safety factors;
- After reading the installation instructions, be sure to save them for future reference.

#### **⚠ Warning**

- Make sure that the unit is installed safely and reliably.
- If the unit is not secure or not installed, it may cause damage. The minimum support weight required for installation is 29.8psi.

- If the unit was installed in a closed area or limited space, please consider the size of room and ventilation to prevent suffocation caused by refrigerant leakage.
- Use a specific wire and fasten it to terminal block so that the connection will prevent pressure from being applied to parts.
- Wrong wiring will cause fire.

Please connect power wire accurately according to wiring diagram on the manual to avoid burnout of the unit or fire.

- Be sure to use correct material during installing.

Wrong parts or wrong materials may result in fire, electric shock, or falling of the unit.

- Install on the ground safely, please read installation instructions.

Improper installation may result in fire, electric shock, falling of the unit, or water leaking.

- Use professional tools for doing electrical work.

If power supply capacity is insufficient or circuit is not completed, it may cause fire or electric shock.

- The unit must have grounding device.

If power supply does not have grounding device, be sure not to connect the unit.

- The unit should be only removed and repaired by professional technician.

Improper movement or maintenance of the unit may cause water leakage, electric shock, or fire. Please find a professional technician to do.

- Don't unplug or plug power during operation. It may cause fire or electric shock.

- Don't touch or operate the unit when your hands are wet. It may cause fire or electric shock.

- Don't place heaters or other electrical appliances near the power wire. It may cause fire or electric shock.

- The water must not be poured directly from the unit. Do not let water to permeate into the electrical components.

#### 4. ⚠ Warning

- **Do not install the unit in a location where there may be flammable gas.**
- **If there is flammable gas around the unit, it will cause explosion.**

According to the instruction to carry out drainage system and pipeline work. If drainage system or pipeline is defective, water leakage will occur. And it should be disposed immediately to prevent other household products from getting wet and damage.

- **Do not clean the unit while power is on. Turn off power before cleaning the unit. If not it may result in injury from a high-speed fan or electric shock.**
- **Stop operating the unit once there is a problem or a fault code.**

Please turn off power and stop running the unit. Otherwise it may cause electric shock or fire.

- **Be careful when the unit is not packed or not installed.**

Pay attention to sharp edges and fins of heat exchanger.

- **After installation or repair, please confirm refrigerant is not leaking.**

If refrigerant is not enough, the unit will not work properly.

- **The installation of external unit must be flat and firm.**

Avoid abnormal vibration and noise.

- **Don't put your fingers into fan and evaporator.**

High speed running fan will result in serious injury.

- **This device is not designed for people who is physically or mentally weak (including children) and who does not have experience and knowledge of heating and cooling system. Unless it is used under direction and supervision of professional technician, or has received training on the using of this unit. Children must use it under supervision of**

**an adult to ensure that they use the unit safely. If power wire is damaged, it must be replaced by a professional technician to avoid danger.**

## **II. System Specification**

### **1. Specification**

Model		NE55
Ambient Temperature: (DB/WB) 80.6°F/71.2°F; Water Inlet Temperature: 80°F.	Heating capacity (Btu/h)	52888
	Power input (Btu/h)	8814
	COP	6.0
Ambient Temperature: (DB/WB) 50°F/44.3°F; Water Inlet Temperature: 80°F.	Heating capacity (Btu/h)	38216
	Power input (Btu/h)	9554
	COP	4.0
Power supply(V/Ph/Hz)		208-230V/60Hz
Max power input (Btu/h)		13989
Max current(A)		23
Setting temperature range (Heating)		59°F~104°F
Running temperature range		23°F~104°F
Refrigerant type		R410A
Air side heat exchanger		Hydrophilic fin exchanger
Water side heat exchanger		Titanium tube heat exchanger
Water flow (gpm)		23.8
Net dimension LxWxH (inch)		39.2*15.2*25.9
Net weight (lbs)		134.5
Noise level dB(A)		≤48
Water proof level		IPX4
Water pipe connection (Inlet/Outlet)		G1-1/2"

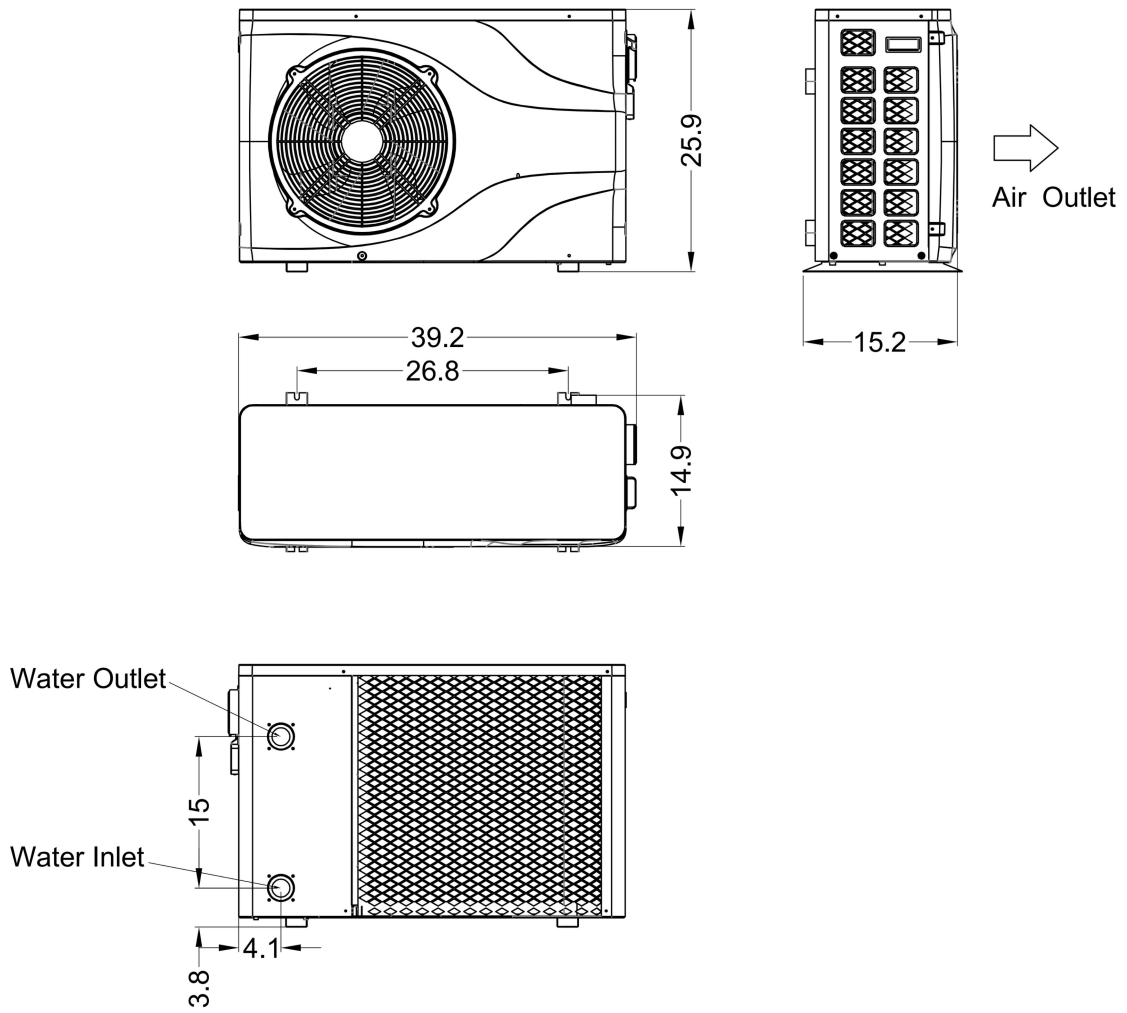
The technical specification of our heat pumps is provided for information purpose only. We reserve the right to make change without notice in advance.

- Noise at 39.4 inches comply with Directives EN ISO 3741 and EN ISO 354
- Calculate according to an in-ground private swimming pool covered with bubble

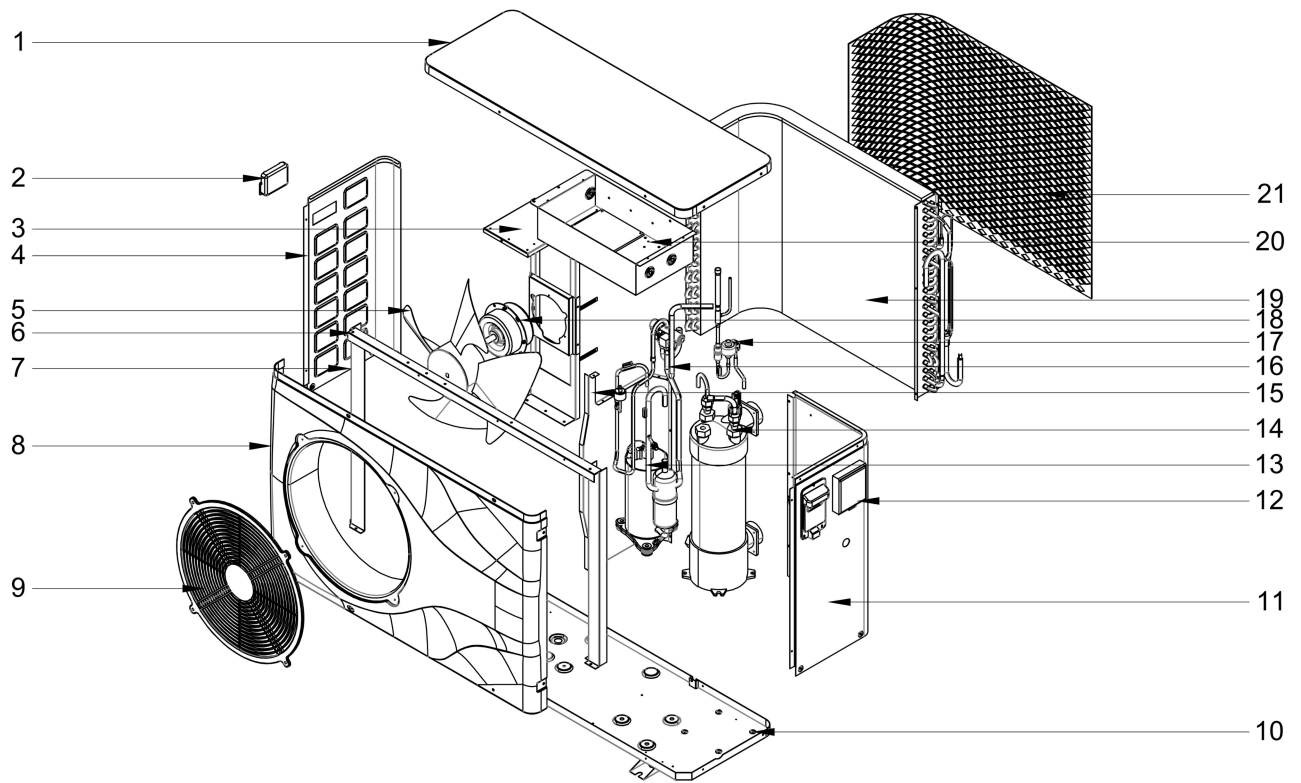


## 2. Unit Dimensions

Model: NE55



### 3. Explosion View



1	Top cover	8	Front plate	15	Middle plate
2	Left handle	9	Fan motor cover	16	Pipe component
3	Motor support	10	Chassis	17	EEV
4	Left plate	11	Right plate	18	Fan motor
5	Fan blade	12	Wire controller	19	High efficiency finned heat exchanger
6	Fixed plate 1	13	Compressor	20	Electrical box
7	Fixed plate 2	14	Titanium heat exchanger	21	Back net

### **III. Installation Instructions**

WARNING: Installation must be carried out by a qualified engineer.

This section is provided for information purpose only and must be checked and adapted if necessary according to actual installation condition.

#### **1. Pre-Requirements**

Needed equipment for installation of heat pump:

Suitable power supply cable for unit's power.

A by-pass kit and an assembly of PVC tube, stripper, PVC adhesive and sandpaper.

A set of wall plug and expansion screw.

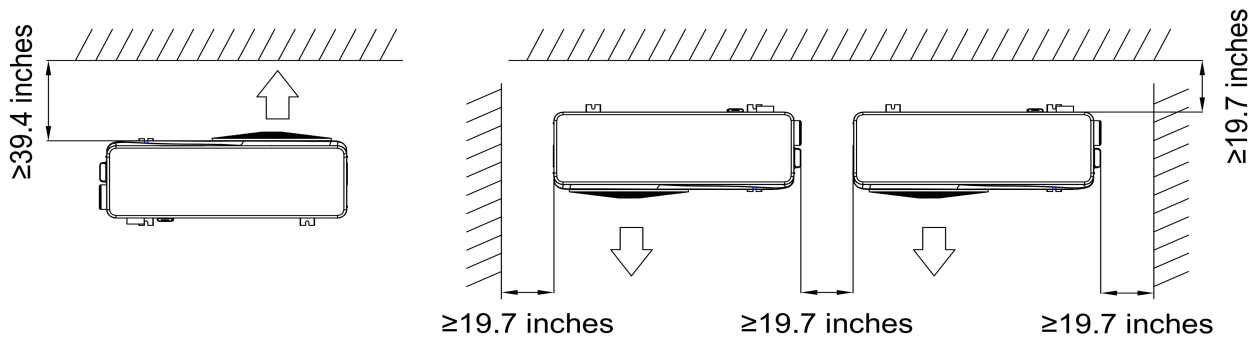
We recommend to use flexible PVC pipe in order to reduce transmission of vibration.

Suitable fastening studs may be used to raise unit.

#### **2. Location**

Please comply with the following rules about heat pump location choosing.

1. The unit's location must be convenient for operation and maintenance in the future.
2. It must be installed and fixed on flat concrete floor. The floor is stable to support the weight of the unit.
3. A water drainage device must be provided close to the unit in order to protect the area where it is installed.
4. If necessary, mounting pads could be used to support the weight of unit.
5. Confirm the unit is under well-ventilated condition; air outlet port is not facing to the windows of nearby buildings and the outlet air can not be returned. In addition, provide enough space around the unit for repair and maintenance.
6. The unit must not be installed in an area exposed to oil, flammable gases, corrosive products, sulphurous compounds or close to high frequency equipment.
7. To prevent mud splashes, do not install the unit near road or track.
8. To avoid noise to neighbours, please make sure the unit is installed in less noise sensitivity area or good sound isolation area.
9. Keep the unit as far as possible away from children.

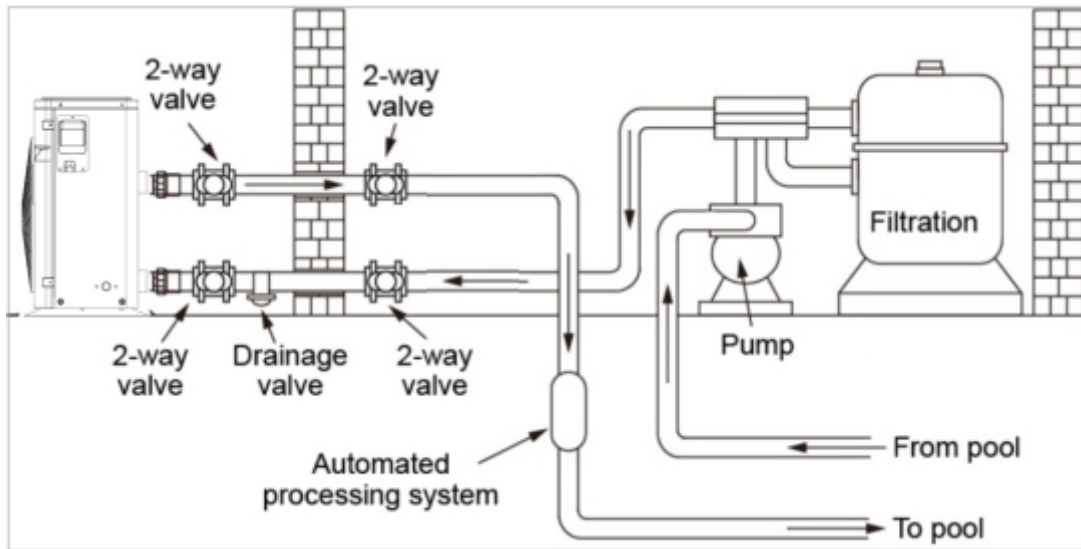


Anything could not be placed within at least 39.4 inches in front of heat pump.

Leave at least 19.7 inches of empty space around the sides and rear of heat pump.

Do not put any stuff on or in front of heat pump!

### 3. Installation Layout



The filter must be cleaned regularly to ensure that water in the system is clean and avoid blocking of filter. It is necessary that drainage valve is fixed on the lower water pipe. If the unit is not running during winter months, please disconnect power supply and let out drain water from unit through drainage valve. If ambient temperature of running unit is below  $0^{\circ}\text{C}$ , please keep water pump running.

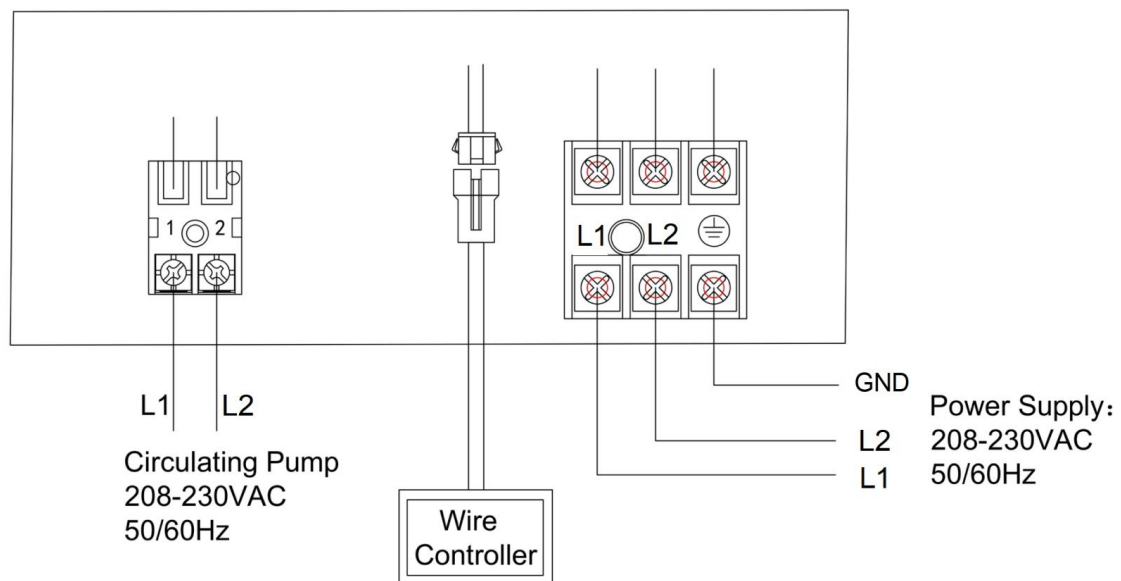
#### 4. Electrical Connection

##### Power Supply Wires Size

Model	Power Supply Wires		
	Electricity Supply	Cable Diameter	Specification
NE-F150SP/R3216-PA	208-230V/60Hz	selected by electrician	selected by electrician

**⚠ WARNING: Power supply of heat pump must be disconnected before any operation.**

- Please comply with the following instruction to connect heat pump.
- **Step 1: Detach electrical side panel by a screwdriver to access electrical terminal block.**
- **Step 2: Insert cable into heat pump unit port.**
- **Step 3: Connect power supply cable to terminal block according to the diagram below.**



**Note:**

When the power of water pump is more than 800W, please connect the external contactor.

## IV. Running Test

### 1. Inspection Before Running Test

a. Running test can begin after completing all installation;

b. Before running test, confirm below items and write  $\surd$  in block;

- Correct unit installation
- Power supply voltage is the same as unit rated voltage
- Correct piping and wiring
- Air inlet & outlet port of unit is unblocked
- Drainage and venting is unblocked and no water leaking
- Leakage protector is working
- Piping insulation is working
- Ground wire is connected correctly

c. All wiring and piping should be connected well and carefully checked, then fill water tank with water before power is switched on;

d. Emptying all air within pipes and water tank, press “on-off” button on control panel to run the unit at setting temperature;

e. Items need to be checked during running test:

- ◆ During the first running, unit current is normal or not;
- ◆ Each function button on control panel is normal or not;
- ◆ Display screen is normal or not;
- ◆ Are there any leakage in the whole heating circulation system ;
- ◆ Condensate drain is normal or not;
- ◆ Are there any abnormal sound or vibration during running.

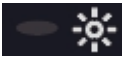
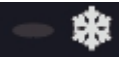
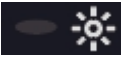
### 2. Control Function Description

1) LED wire controller






Control Panel Appearance



## 2) Basic icons

- When in heating mode,  lights up.
- When in cooling mode,  lights up.
- When in defrosting mode,  flashes.
- When the unit is on, it displays error code if there is an error, it displays water inlet temperature if there are no errors.
- When the unit is off, it displays error code if there is an error, it displays current time if there are no errors.

## 3) Operation instructions of buttons

-  ON/OFF button  
Press this button briefly in other interface to return to the main interface.  
Press this button in the main interface to turn on/off unit.
-  MODE button  
When the unit is on, press this button briefly to switch modes: heating mode, cooling mode, automatic mode.
-  UP button  
When the unit is on, press this button in the main interface to turn up the temperature.  
Press this button to adjust the rise when adjusting parameters.
-  DOWN button  
When the unit is on, press this button in the main interface to turn down the temperature.  
Press this button to adjust the drop when adjusting parameters.  
When the unit is off, press this button for 5s to switch between Fahrenheit and Celsius.
-  TIMER ON button  
Press this button briefly in the main interface to enter the Timer ON time setting. The four digital fields flash at the same time, and the timer on indicator flashes. Press this button again to enter the hour setting of Timer ON setting. When the hour part of digital tube flashes, press the UP or DOWN button for

numerical adjustment; Press this button again to enter the minute setting. When the minute part of digital tube flashes, press the UP or DOWN button for numerical adjustment. Press this button or the ON/OFF button to exit after completion.

➤  **TIMER OFF button**

Press this button briefly in the main interface to enter the Timer OFF time setting. The four digital fields flash at the same time, and the timer off indicator flashes. Press this button again to enter the hour setting of Timer OFF setting. When the hour part of digital tube flashes, press the UP or DOWN button for numerical adjustment; Press this button again to enter the minute setting. When the minute part of digital tube flashes, press the UP or DOWN button for numerical adjustment. Press this button or the ON/OFF button to exit after completion.

➤  **CLOCK button**

Press this button on the main interface to enter the clock setting. The four digital fields flash at the same time. The clock indicator flashes. Press this button again to enter the hour setting of current time. The digital tube flashes in minutes. Press the UP or DOWN button for numerical adjustment. Press this button or the ON/OFF button to exit after completion.

When setting the timing time, press this button to cancel the timing and return to the main interface. The corresponding timing indicator will be off.



### 3. System protection/Trouble shooting

Protection/Error Code	Description	Trouble shooting
P3	Water Inlet Temp. Sensor Failure	Check the connection, change the sensor if necessary.
P4	Water Outlet Temp. Sensor Failure	Check the connection, change the sensor if necessary.
P1	Coil Temp. Sensor Failure	Check the connection, change the sensor if necessary.
P7	Ambient Temp. Sensor Failure	Check the connection, change the sensor if necessary.
P2	Exhaust Temp. Sensor Failure	Check the connection, change the sensor if necessary.
E4	System High Pressure Failure	1. Detect the inlet/outlet water temperature. 2. Clean the water exchanger or water filter. 3. Replace the high pressure switch.
PL	Water Flow Failure	Check water flow /switch, change the switch if necessary.
P6	Excessive Temperature Difference of Water Inlet and Water Outlet	Check whether the water flow meets the requirement of nameplate.
E3	High Exhaust Temperature Protection	1. Check whether the refrigerant of the system is leaked. If the refrigerant leaks, repair the leak point and vacuum it again, then charge the refrigerant according to the type and weight of the refrigerant on the nameplate. 2. Replace exhaust temperature sensor. 3. Replace PCB control board.
P8	Excessive Low Temp of Water Outlet When Cooling	No need to deal with, it's the protection function
PC	Winter Level 1 Frost Protection	No need to deal with, it's the protection function
PC	Winter Level 2 Frost Protection	No need to deal with, it's the protection function

E8	Communication Failure	<p>(Available for remote controller ONLY)</p> <p>1.Check if the communication connection wire between display and PCB is well . 2.Change or mend the wire if necessary .</p> <p>Check the PCB or display. If damaged, Change the corresponding part .</p>
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## V. Maintenance

- You should check the water supply system regularly to avoid the air entering into water system and occurrence of low water flow, it would reduce the performance and reliability of the heat pump.
- Clean your pools and filtration system regularly to avoid the damage of the unit because of a dirty or clogged filter.
- Discharge the water from the bottom of the water pump if the heat pump will stop running for a long time (specially in winter).
- On any other moment, check the water flow to confirm there is enough water before the unit starts to run again.
- After the unit is conditioned in winter, it is preferred to cover the unit with the special winter heat pump cover

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