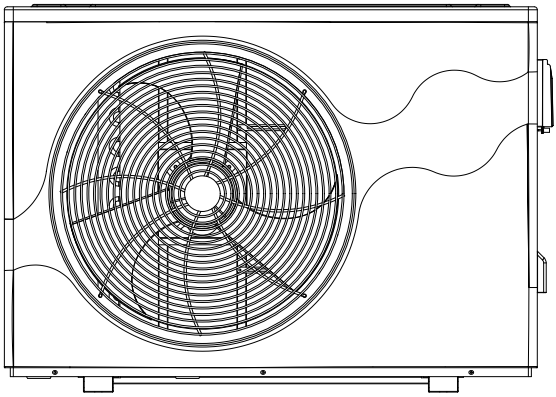
Installation&Operation Manual

Varminpool



Customer Service Email: varminpool_service@163.com

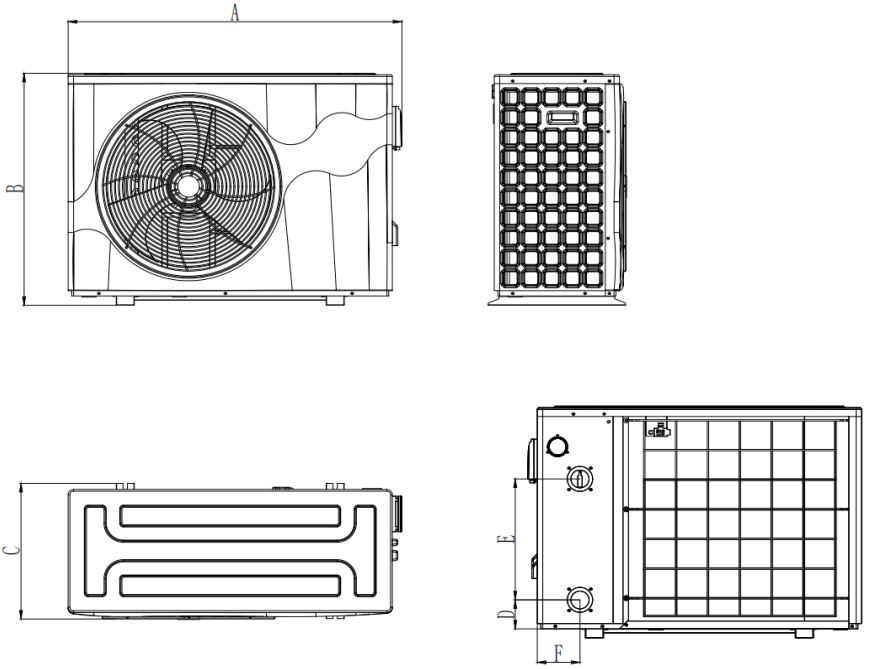
Customer Service Phone: (978) 736-6880
(Our customer service working hours are from 9 a.m. to 6 p.m. Eastern Time)

Thank you very much for purchasing our product, please keep this installation manual carefully and read this manual carefully before you install heat pump.

CATALOGUE

1.DESCRIPTION

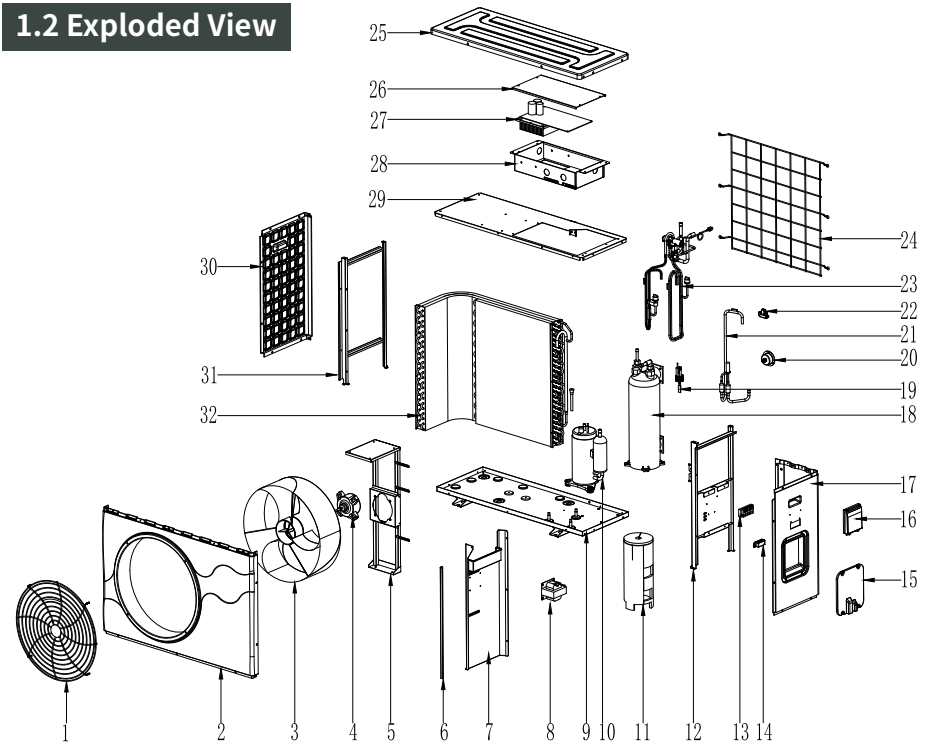
1.1 Product Dimensions



Dimensions：inch

Model	KSPF-015L1VUA5	KSPF-018L1VUA4
A	36.20	36.20
B	25.60	25.60
C	13.80	13.80
D	3.23	3.23
E	13.39	13.39
F	4.66	4.66
Water Inlet	1.5"	1.5"
Water Outlet	1.5"	1.5"

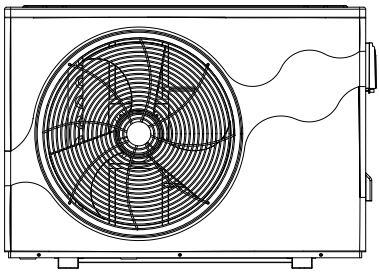
1.2 Exploded View



1.Fan Guard	9.Base Plate Assembly	17.Right Panle	25.Top Cover
2.Front Panle	10.Compressor	18.Heat Exchange	26.Electrical Box Cover
3.Fan Blade	11.Compressor Acoustic Material	19.Water Flow Switch	27.Main Board
4.Fan Motor	12.Right Panle Support	20.Pressure Gauge	28.Electrical Box
5.Fan Support	13.Terminal Block	21.EEV Assembly	29.Top Frame Assembly
6.Front Panle Support	14.Wire Fixing Clip	22.Ambient Temperature Support	30.Left Panle
7.Middle Partition Plate	15.Terminal Box Cover	23.4-way Valve	31.Left Panle Support Assembly
8.Reactor	16.Controller Waterproof Box	24.Rear Protective Net	32.Evaporator Assembly

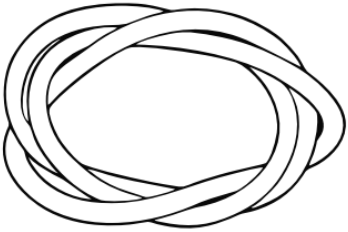
2.INSTALLATION

2.1 Package Listing

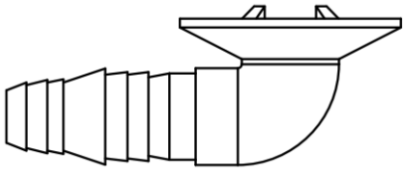


Heat Pump Unit(1 PCS)

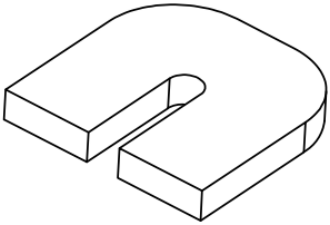
Instruction Guide(2 PCS)



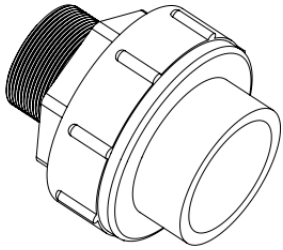
Condense Water Draining Hose(2 PCS)



Condense Water Draining Fitting(2 PCS)



Rubber Shock Absorption Pad(4 PCS)



PVC Pipe Adapter(2 PCS)

2.2 Warning

WARNING:

This heat pump uses R32 refrigerant, which is flammable.
No work on the refrigerant circuit may be performed by unauthorized personnel.
The following safety measures must be implemented before servicing or repairing the refrigerant circuit to ensure safe execution.

2.2.1 Working Procedure

1. Notify all personnel in the vicinity about the work being performed.
2. DO NOT work in confined spaces.
3. Clearly mark and secure the work area. Pay special attention to marking areas near potential ignition sources or open flames.

2.2.2 General Work Area

1. Before and during maintenance, you MUST use an appropriate refrigerant detector to verify the absence of flammable gas.
2. Ensure the leak detection system installed on the unit is:
Compatible with flammable refrigerants,Spark-free, and Sealed or intrinsically safe.

2.2.3 Refrigerant Presence Check

If any hot work on the refrigerant system or its components is required, fire extinguishing equipment must be immediately available. Place dry chemical or CO_2 fire extinguishers near the work area.

2.2.4 Fire Extinguisher Access

If hot work on the refrigerant system or its components is required, fire extinguishing equipment must be immediately available. Place dry chemical or CO_2 fire extinguishers near the work area.

2.2.5 Ignition Source Elimination

Before starting fire hazard elimination:
1. Survey the work area.
2. Display "NO SMOKING" signs prominently.

2.2.6 Ventilation Protocol

Before starting system maintenance or hot work:
1. Confirm the work area is outdoors or well-ventilated.
2. Maintain adequate ventilation throughout the operation.

2.2.7 Flammable Refrigerant System Checks

When replacing electrical components:
- Use ONLY manufacturer-approved parts to ensure compatibility and safety.
- Consult manufacturer technical support if uncertain.

varminpool_service@163.com

For systems using flammable refrigerant, perform these inspections:

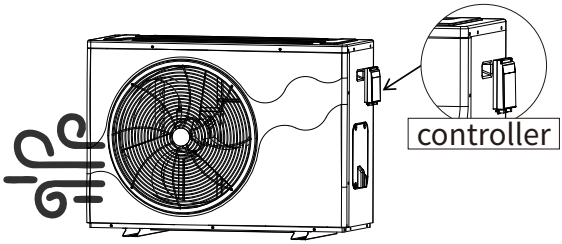
a. Confirm refrigerant charge suitability for the equipment installation room.
b. Verify ventilation openings and air vents are operational and unobstructed.
c. For indirect refrigeration circuits, inspect secondary circuits.
d. Equipment labels and safety markings MUST remain legible. Replace illegible labels.
e. Position refrigerant piping and components to avoid contact with corrosion-causing substances.

NO open flames within the unit.

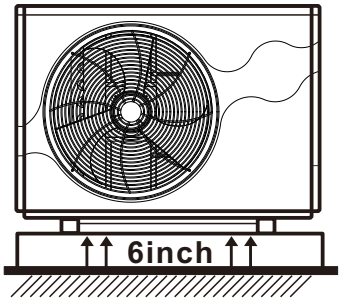
Use the heat pump in an open environment.

2.3 Installation Instruction

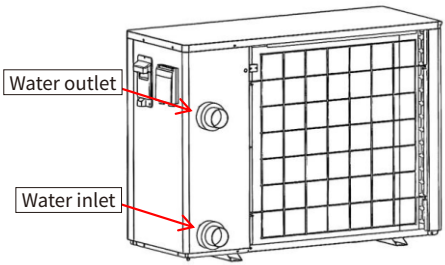
2.3.1 Heat Pump Unit Installation



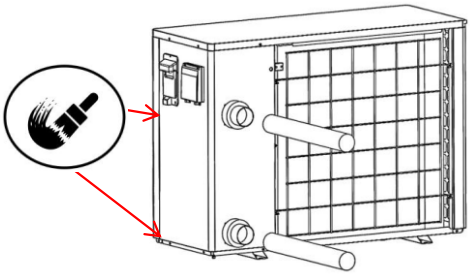
The heat pump has 25-inch of unobstructed surroundings and 60-inch of unobstructed air outlets



The heat pump shall be mounted on a 6-inch elevated base with rubber anti-vibration pads installed between all unit feet and foundation.

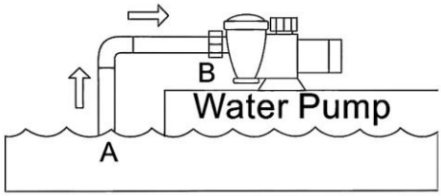


Install adapters at the inlet and outlet of the back of the heat pump.

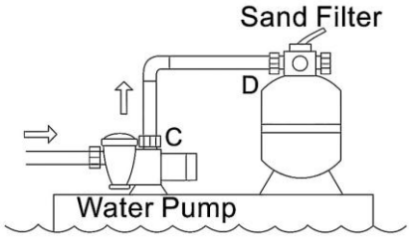


Brush the connecting tube with sealing glue and connect it to the adapter.

2.3.2 Swimming Pool System Installation

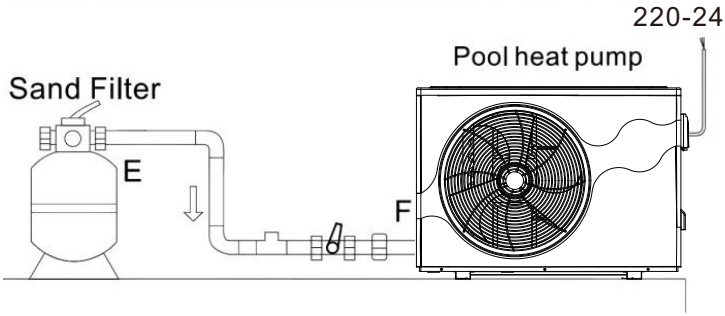


Step 1: Connect the swimming pool and water pump with a water pipe, with water flow direction A to B.

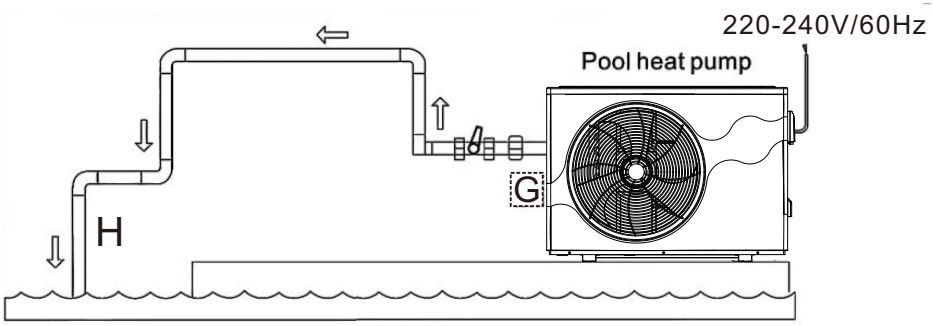


Step 2: Connect the water pump outlet to the sand filter inlet, with water flow direction C to D.

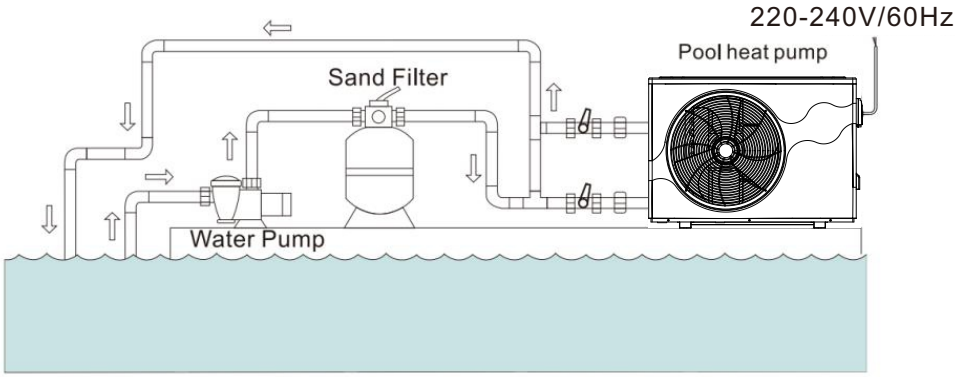
varminpool_service@163.com



Step 3: Connect the outlet of the sand filter to the inlet of the swimming pool heat pump. The direction of water flow is from E to F.



Step 4: Connect the outlet of the pool heat pump to the pool. The direction of water flow is from G to H.



As shown in the above figure, the installation has been completed.

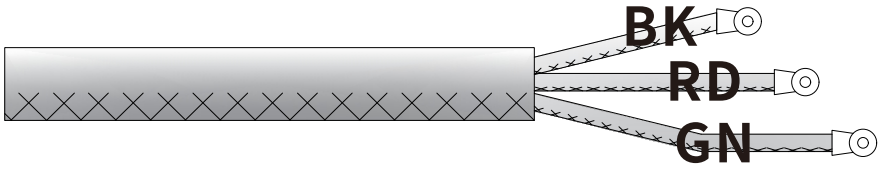
2.4 Electrical Installation

WARNING:

Please connect the heat pump to the electrical system according to the following instructions. The heat pump should be connected to D-type circuit breaker (see table-1) . Comply with the current standards and regulations of the country where the system is located.Power cables must be selected based on the unit's rated power and the cable length required for installation (see table below). Additionally, cables must be suitable for outdoor use.

Model	Power supply	Max-current	Cable diameter	Earth Leakage Circuit Breaker	FUSE
KSPF-015L1VUA5	220-240V/60Hz	17.5A	RO2V 3*12awg	25A	30A
KSPF-018L1VUA4		17.5A	RO2V 3*12awg	25A	30A

Step 1: Remove the electrical side panel with a screwdriver to access the terminal block.
Step 2: Connect the power cables to the heat pump according to the terminal labels provided with the unit (BK-L1, RD-L2, GN-G).
Step 3: Connect the power cables to the terminal block as shown in the figure below.



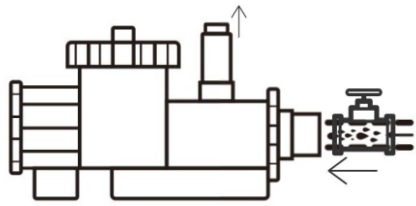
Step 4: Close the electrical side panel of the heat pump.

CAUTION: The interlock control wiring for the circulation pump.must be coordinated with the manufacturer's technicians based on the installation type.Ensure outdoor electrical components are weatherproof.

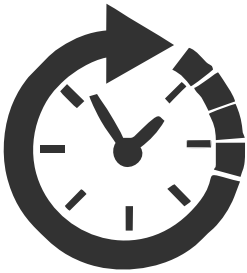
varminpool_service@163.com

2.5 Start-up And Initialization Issues

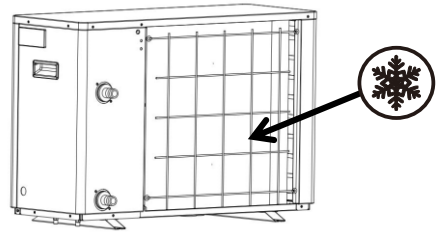
To improve swimming pool heating efficiency,adding a thermal cover is recommended.



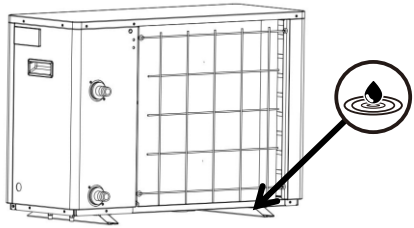
To enhance swimming pool heating efficiency,it is recommended to install a manual isolation valve on the pump suction line, with a pump flow rate maintained at 1800-2400 GPH.



The initial heating process requires 48-72 hours.Please allow normal operation during this period and refrain from turning off the unit.



Frost may form on the unit during heating operation. This is normal. The unit will automatically initiate the defrost cycle. Do not power off the unit.



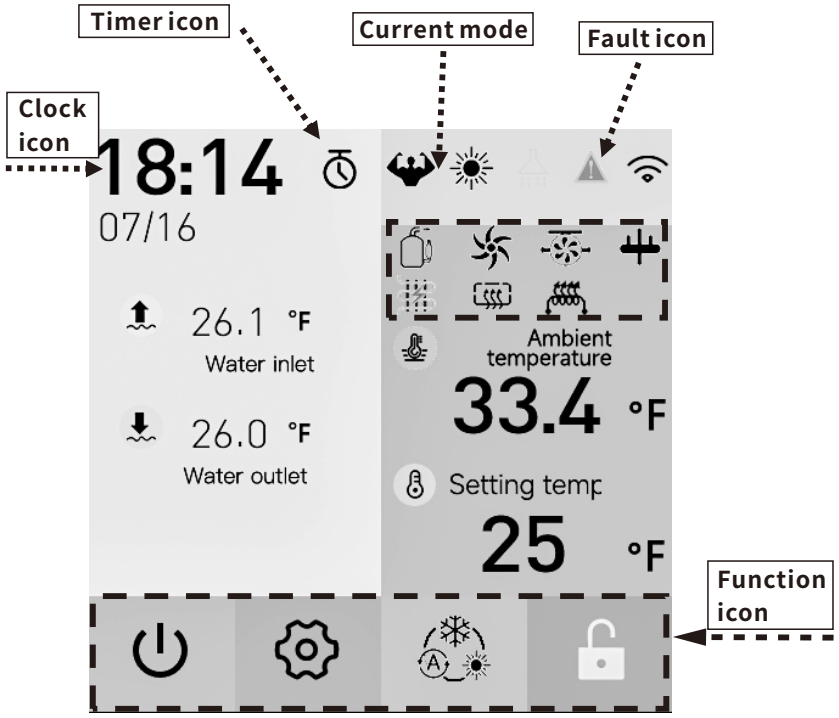
During heating operation, condensate will form.
Ensure the condensate drain line is properly connected.

Frequently Asked Questions	Root Cause Analysis	Troubleshooting Solutions
The controller displays Error Code E03	Incorrect Startup Sequence	1.Start the circulation pump first. 2. Confirm water flow from the pool return line. 3. ONLY THEN power on the heat pump.
	Water Circuit Restriction Detected	1. Verify water circuit valves are fully open. 2. Confirm normal water intake at the pool. 3. Check proper water discharge operation.
	Water Circuit Reversed Flow	Verify correct water flow direction. Refer to Section 2.3.
Frost accumulation detected on the blue evaporator of the heat pump.	Normal phenomenon	Maintain power supply - The unit features intelligent defrost control. Contact manufacturertechnical support if frost persists beyond 120 minutes.
The wired controller for no display or indicator lights immediately after power-on.	Verify no power output from the power supply unit.	Check the Power Supply Unit for abnormal conditions.
circuit breaker tripped	Installation on a shared circuit with other equipment risks over loading. Provide a dedicated branch circuit immediately.	Verify the air source heat pump connects exclusively to a dedicated circuit breaker with no other loads.
	The circuit fails to meet the unit's maximum current requirements due to undersized wiring or incompatible circuit breaker ratings.	Upgrade wiring and breaker to meet the unit's maximum current requirements
The heat pump prolong heating time and reduce heating capacity.	Heating cycles abnormally short	The initial heating period for a newly filled pool typically requires 48 to 72 hours when using a heat pump system.
	Excessive heat loss occurs in the pool due to lack of insulation, specifically from being left uncovered	Procure a high-efficiency thermal cover.
	The pump flow rate exceeds design specifications, resulting in excessive flow velocity.	Reduce the flow rate of the water pump, decrease the flow rate of the water pump, and recommend a flow rate of 1800-2400GPH.
	The environmental humidity is too high and there is frequent frosting	Place the heat pump in a dry place.
	The swimming pool is too large, but the heat pump is too small.	Be patient and reduce the pool water volume.
	The ambient temperature is too low, resulting in a decrease in the heating performance of the heat pump.	Be patient and reduce the pool water volume.
Water is overflowing from the bottom	Normal phenomenon	Inspect the water leakage location. Note that condensate forms normally during unit heating operation.

varminpool_service@163.com

3.USE

3.1 Interface Introduction



3.1.1 Icon List

NO.	Icon	Description	NO.	Icon	Description
1		Defrosting Mode	2		WIFI status
3		Heat Pump Compressor	4		Heat Pump FAN
5		Water Pump	6		4-Way valve

3.1.2 Function Icon Definition

Icon	Definition	Operation
	ON/OFF	1.Click on the button，switch on/off mode.
	Setting	1. Click to access other functional options.
	Mode switching	1.Click to select mode (as shown in Figure 3-1). 2.Click on the mode to switch.
	CHILD LOCK	1.Press the child lock button to confirm the unlock status. 2.Click again to lock the screen and prevent accidental operation.

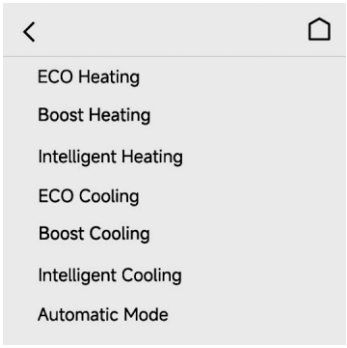
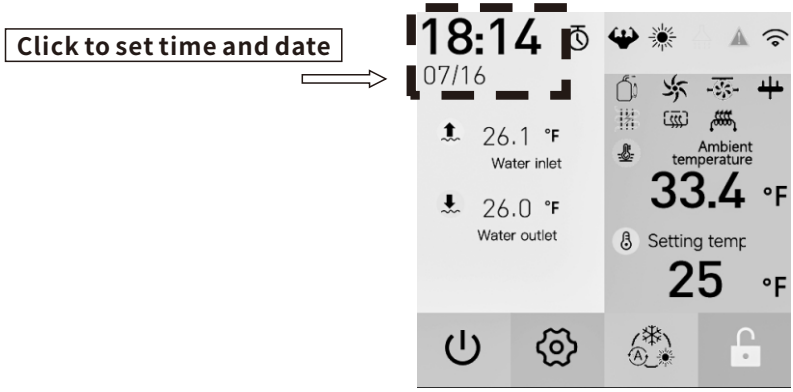


Figure 3-1

3.1.3 Time Setting

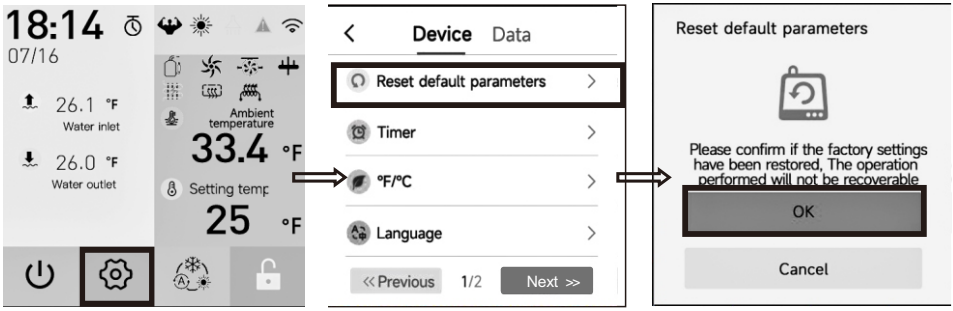
Click to enter the main interface time and set the current time.



3.2 Advanced Setting

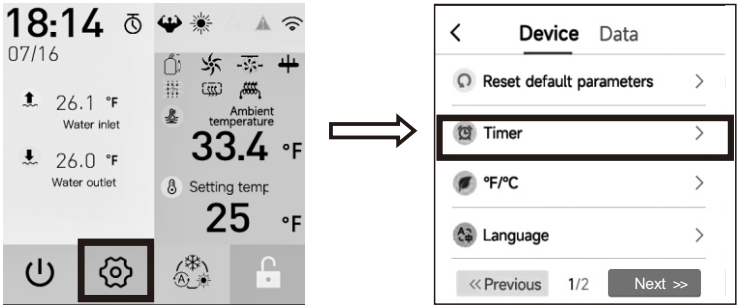
3.2.1 Reset Default Parameters

Step 1：Ensure that the heater is turned off.
Click the settings button to enter the settings interface.
Step 2：Click on“Reset default parameters”.
Step 3：Click “OK” to restore factory settings.

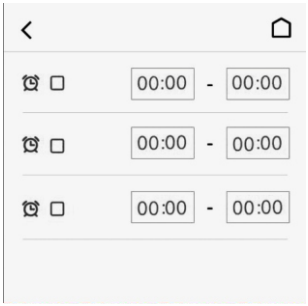


3.2.2 Timing Setting

Step 1: Click the settings button to enter the settings interface.
Step 2: Click on "Timer".



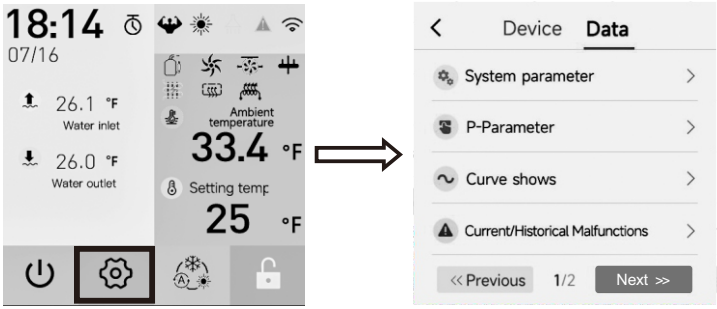
Step 3: Set the timed startup time period, check the time Period



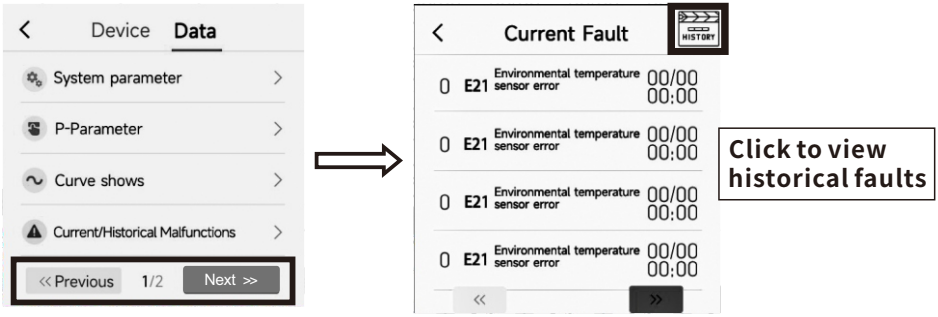
PS: If timed startup is not selected, it will be in default shutdown mode.

3.2.3 View Current/Historical Malfunctions

Step 1: Click the settings button to enter the settings interface.
Step 2: Click on "Data".



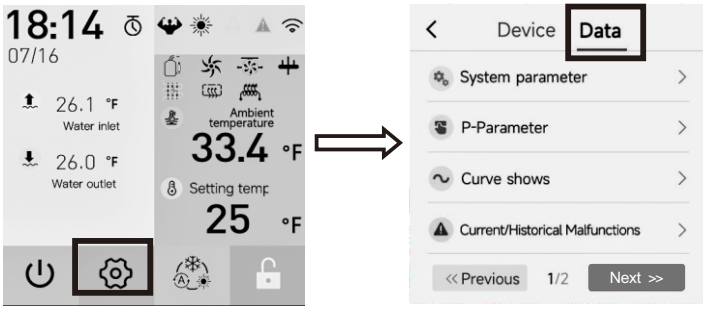
Step 3: Click on "Current/Historical Malfunctions".



varminpool_service@163.com

3.2.4 Fault Recovery

Step 1: Click the settings button to enter the settings interface.
Step 2: Click on "Data".

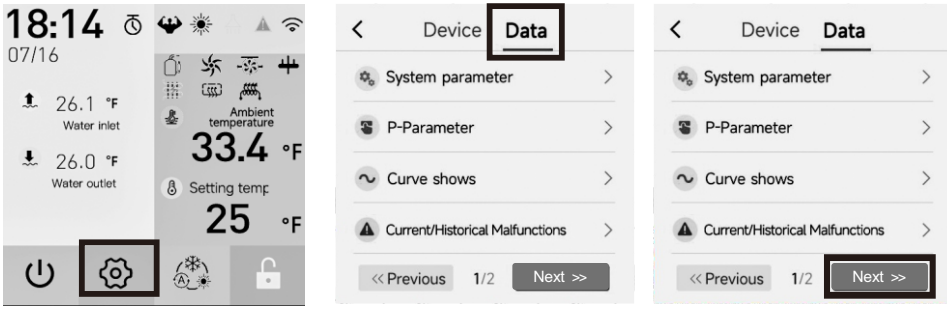


Step 3: Click "Next", then click "Fault recovery".

After the device detects a fault，the yellow alarm icon on the main interface lights up. The buzzer sounds continuously for 3 times. Clicking on it can clear the unit fault and automatically restore it.

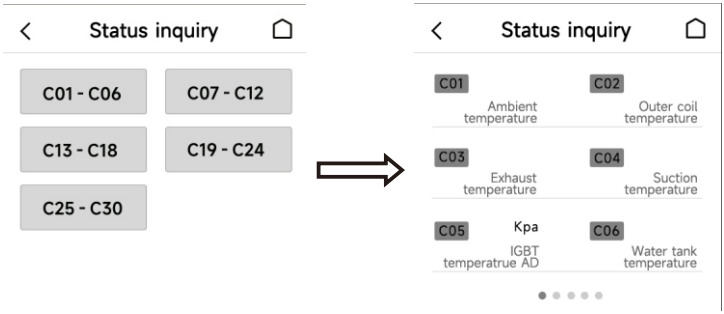
3.2.5 View Heater-Parameter

Step 1: Click the settings button to enter the settings interface.
Step 2: Click on "Data".
Step 3: Click on"Next”



Step 4: Click on "Online Unit".
Step 5: Click on "1".

Step 6: Select the corresponding number.
Step 7: View heater operating parameters.

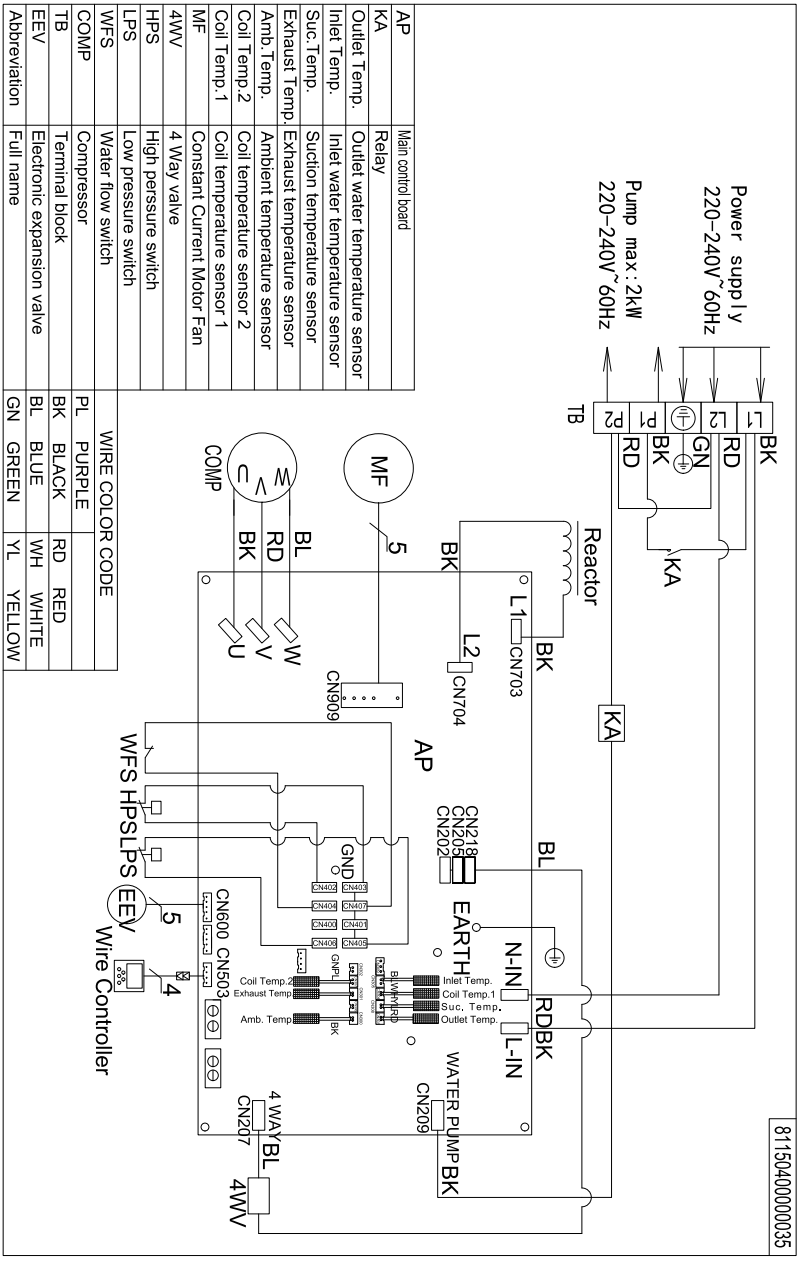


varminpool_service@163.com

4.REPAIRS

Code	Description	Reason&Solution
E03	flow failure	1.Clogged water filter. Clean water circuit. 2.Insufficient pump head. Replace pump flow . 3.Incorrect pump wiring/direction.Verify rotation and electrical connections. 4.Flow switch directional error.Align arrow with flow direction. 5.Intermittent/disconnected flow switch wiring.Secure terminal connections.
E05	high pressure protection	1. The wiring of the high-pressure switch is either loose or incorrect. 2. There is too much refrigerant in the system, fill according to the nameplate requirements. 3. The unit has no water flow or low flow rate. Check the water pump and water flow. 4. Air is introduced into the fluorine circuit system. Vacuumize and refill with refrigerant. 5. There is a blockage in the filter and throttle valve on the refrigerant side. 6. There is scaling phenomenon in the water side heat exchanger. Clean the scale.
E06	low pressure protection	1. The wiring of the low-pressure switch is either loose or incorrect. Correct the wiring. 2. Lack of refrigerant or complete leakage of refrigerant. Check for leaks and refill refrigerant. 3. The fan is damaged and the unit is severely frosted. Check the fan wiring or replace the fan. 4. The refrigerant side filter or throttle valve is clogged. Replace accessories.
E09	connection failure between control main Program board and controller	1. Verify any poor connection in the communication wiring between the Wired Controller and Main Control Board. 2. If the model of the Main Control Board and Wired Controller are incompatible, replace the Wired Controller.
E22	vast temperature variations between inlet and outlet	1. Check for blockages in the water circuit or verify normal pump operation if water flow is insufficient. 2. Reposition any loose or dislodged inlet/outlet temperature sensors.
E30	Ambient temperature too low	1. Protective shutdown activates normally when ambient temperature falls below the unit's operating range. 2. Clean or reposition the ambient temperature sensor if installed incorrectly or showing ice accumulation. 3. Adjust the ambient operating temperature range setting if configured incorrectly. 4. Normal operation resumes automatically when ambient temperature rises. No action is required.
E40	(DC voltage over)	Protective shutdown due to grid voltage fluctuations requires no manual intervention. Normal operation automatically recovers when voltage stabilizs.
E41	(DC voltage over)	Protective shutdown due to grid voltage fluctuations requires no manual intervention. Normal operation automatically recovers when voltage stabilizs.
E44	(DC voltage over)	Protective shutdown due to grid voltage fluctuations requires no manual intervention. Normal operation automatically recovers when voltage stabilizs.
E47	(DC voltage over)	Protective shutdown due to grid voltage fluctuations requires no manual intervention. Normal operation automatically recovers when voltage stabilizs.

5.SCHEMATIC DIAGRAM



Abbreviation	Full name
AP	Main control board
KA	Relay
Outlet Temp.	Outlet water temperature sensor
Inlet Temp.	Inlet water temperature sensor
Suc.Temp.	Suction temperature sensor
Exhaust Temp.	Exhaust temperature sensor
Amb.Temp.	Ambient temperature sensor
Coil Temp.2	Coil temperature sensor 2
Coil Temp.1	Coil temperature sensor 1
MF	Constant Current Motor Fan
4WV	4 Way valve
HPS	High perssure switch
LPS	Low pressure switch
WFS	Water flow switch
COMP	Compressor
TB	Terminal block
EEV	Electronic expansion valve

WIRE COLOR CODE	
PL	PURPLE
BK	BLACK
RD	RED
BL	BLUE
WH	WHITE
GN	GREEN
YL	YELLOW

varminpool_service@163.com

6. PARAMETER TABLE

Air-source Swimming Pool Heat Pump		
Model		KSPF-015L1VUA5
80℉Air 80℉ Water 63%RH	Heating capacity(Btu/h)	12960-58000
	Power input(Btu/h)	819-8530
	COP	6.60-12.20
50℉Air 80℉ Water 63%RH	Heating capacity(Btu/h)	10236-40946
	Power input(Btu/h)	1331-9418
	COP	4.80-7.10
Power supply		220-240V~ 60Hz
Max powerinput(Btu/h)		10800
Max current(A)		17.5
Setting temperature range(Heating)		46℉~104℉
Setting temperature range(Cooling)		46℉~82℉
Running(Air)temperature range		5℉~110℉
Refrigerant type/quantity (Oz)		25.4
Air side heat exchanger		Hydrophilic fin exchanger
Water side heat exchanger		Titanium tube heat exchanger
Water flow(gpm)		28.6
Net dimension L×W×H (inch)		36.2×13.8×25.6
Packing dimension L×W×H (inch)		41.1×18.5×28.9
Net weight (lbs)		110
Packing weight(lbs)		126.77
Maximum working pressure of heat exchanger		4.4 MPa
Maximum working pressure of exhaust side		2.5 MPa
Maximum working pressure of suction side		4.4 MPa
Waterproof grade		IPX4
Noise		45~56 dB (A)

Air-source Swimming Pool Heat Pump		
Model		KSPF-018L1VUA4
80℉Air 80℉ Water 63%RH	Heating capacity(Btu/h)	16378-65000
	Power input(Btu/h)	1024-10544
	COP	6.60-12.00
50℉Air 80℉ Water 63%RH	Heating capacity(Btu/h)	12966-52888
	Power input(Btu/h)	1706-11500
	COP	4.80-7.10
Power supply		220-240V~ 60Hz
Max power input(Btu/h)		10800
Max current(A)		17.5
Setting temperature range(Heating)		46℉~104℉
Setting temperature range(Cooling)		46℉~82℉
Running(Air)temperature range		5℉~110℉
Refrigerant type/quantity (Oz)		25.4
Air side heat exchanger		Hydrophilic fin exchanger
Water side heat exchanger		Titanium tube heat exchanger
Water flow(gpm)		28.6
Net dimension L×W×H (inch)		36.2×13.8×25.6
Packing dimension L×W×H (inch)		41.1×18.5×28.9
Net weight (lbs)		110
Packing weight(lbs)		126.77
Maximum working pressure of heat exchanger		4.4 MPa
Maximum working pressure of exhaust side		2.5 MPa
Maximum working pressure of suction side		4.4 MPa
Waterproof grade		IPX4
Noise		45~56 dB (A)

varminpool_service@163.com