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INVERTER POOL HEAT PUMP USER MANUAL

This manual contains critical information regarding safety, operation, maintenance, and storage. To prevent severe personal injury or property damage, read and fully understand all instructions and safety precautions prior to installation or use. Improper operation may result in personal injury or equipment damage.

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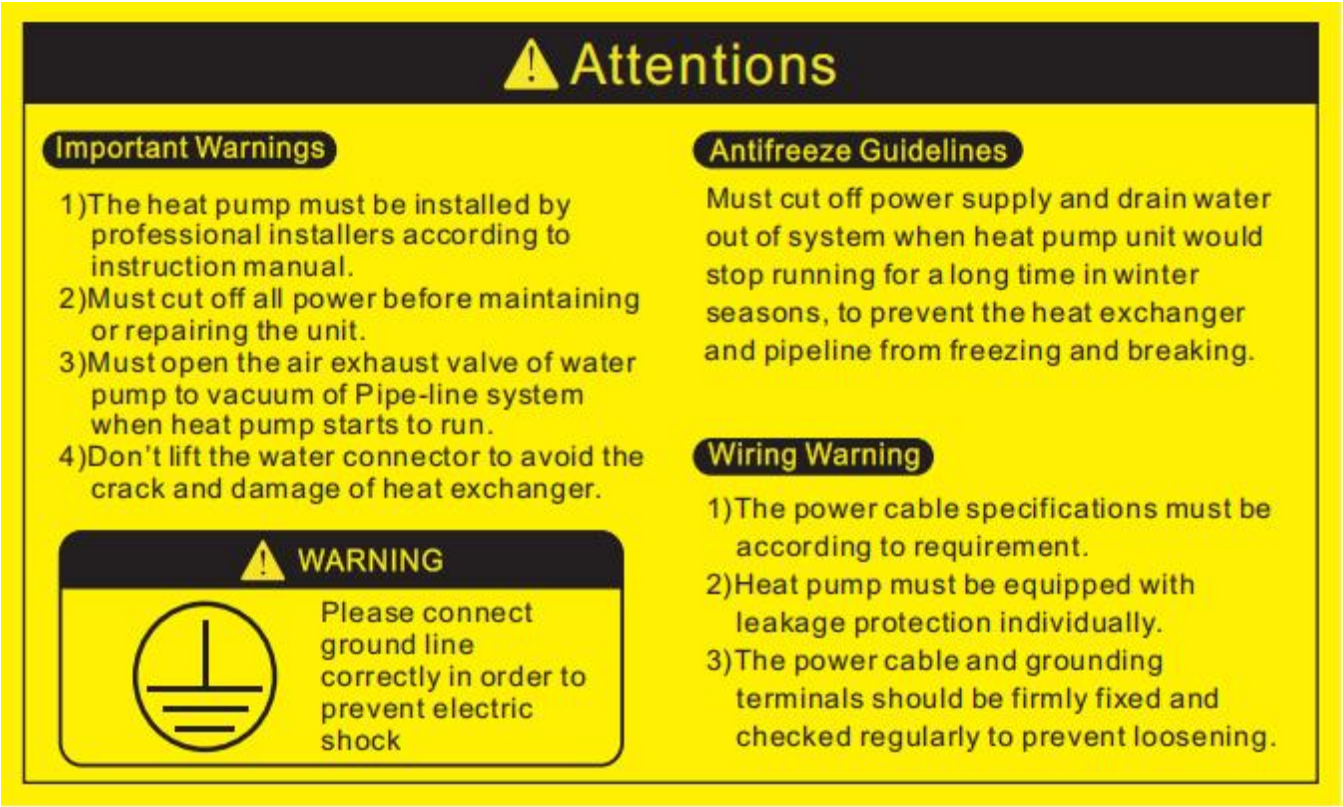
SAFETY GUIDELINES

1. SAFETY GUIDELINES

1.1 IMPORTANT: RETAIN THIS MANUAL FOR FUTURE REFERENCE

This manual contains critical information regarding safety, operation, maintenance, and storage. To prevent severe personal injury or property damage, **read and fully understand all instructions and safety precautions prior to installation or use.** Improper operation may result in personal injury or equipment damage.

Note: Illustrations in this manual are for reference only. The actual product may vary due to enhancements or model specifications. Refer to the actual product for precise details. Design and specifications are subject to change without notice.



To ensure the safety of personnel and property, strictly adhere to the following directives:

1. **Compliance:** Ensure all installations comply with local codes, regulations, and standards. Only a qualified technician should install, remove, or service the unit.
2. **Power Supply:** Verify that the power supply matches the specified voltage and frequency of the unit.
3. **Grounding:** The unit must be reliably grounded before use; failure to do so may result in serious injury or death.

SAFETY GUIDELINES

4. **Safe Handling:** Refrain from handling the unit with wet hands to prevent electric shock. Avoid connecting or disconnecting the power while the unit is in operation.
5. **Dedicated Circuit:** This unit requires a dedicated branch circuit. A dedicated HACR-rated (Heating, Air Conditioning, and Refrigeration) circuit breaker is required for this installation.
6. **Leakage Protection:** A certified Class A Ground Fault Circuit Interrupter (GFCI) must be installed and securely connected to prevent electric shock or fire.
7. **Emergency Protocol:** Read all product labels carefully. In the event of abnormalities —including unusual noise, odors, smoke, excessive heat, or electrical leakage —**immediately disconnect the power**. Promptly contact our Service Center for repairs. In case of fire, alert local emergency services and ensure a dry powder or CO2 fire extinguisher is nearby.
8. **Winterizing:** when the unit is running at an ambient temperature below 32℉, **DO NOT** disconnect the power supply. The unit requires constant power to activate its automatic anti-freeze protection, which runs the compressor or water pump to prevent system damage. If the heat pump is decommissioned during winter, use a wrench to unscrew the drainage cap on the side of the unit (see figure below) and drain all water completely.

Note: Some models have removed the drainage port due to upgrades; the water inside the unit can be drained directly through the water inlet and outlet.

This prevents freezing and expansion, which can lead to internal pipe bursts and severe system damage. **Do not use unapproved methods** (like open flames) to accelerate defrosting.

9. **Water Flow**: Never operate the unit without verified water flow. The pool pump must be active and circulating water through the heat pump during operation.
10. **Pump Strainer:** To prevent debris from damaging the system, install a **pump strainer**

(hair/lint collector) upstream of the water pump. Alternatively, use a pump with an integrated strainer basket.

11. **Sand Filter: A sand filter** must be installed downstream of the water pump to remove fine impurities and ensure clear water flows into the heat pump.

1.2 CAUTIONARY NOTES

1. Installation & Environment

- **Foundation Requirements:** Ensure the unit is mounted on a **level, solid, and secure surface**. An improperly secured unit poses a risk of falling, excessive vibration, or structural damage.
- **Materials:** Always utilize appropriate, high-quality installation materials. Using incorrect components can result in fire or the unit dropping.
- **Grounding:** The unit must be reliably grounded. **NEVER** connect the grounding wire to gas pipes, water pipes, lightning conductors, or telephone lines, as this creates a severe risk of explosion or fatal electric shock.
- **Physical Safety:** Handle the unit cautiously when unpacked. Beware of the **sharp edges and fins** on the heat exchanger to avoid cuts.
- **Ventilation Safety**:
  - In confined spaces, ensure adequate airflow to prevent **suffocation** in the event of a refrigerant leak.
  - **Keep Hands Clear**: Do not reach into the ventilation openings. High-speed fan blades and electrical hazards are present. Failure to comply may result in severe personal injury.
- **Drainage Management:** Follow all guidelines for drainage pipes. Faulty systems must be fixed immediately to avoid water damage to nearby property.
- **Refrigerant Awareness(R32)**: This unit utilizes R32, an eco-friendly and energy-efficient refrigerant with a low Global Warming Potential (GWP). Please note that R32 is classified as a mildly flammable refrigerant. Keep the installation area clear of open flames, sparks, or other ignition sources during operation or maintenance. **No Smoking** signs should be displayed.
- **Explosive Risks:** Do not place the unit in areas with explosive or flammable gases to avoid explosion risks.

2. Chemical Safety

SAFETY GUIDELINES

- **Chemical Balance**: All chemical feeding systems or salt chlorinators must be installed **downstream** of the heat pump. A check valve is required to prevent concentrated chemicals from backflowing and corroding the heat exchanger.

3. Electrical Precision

- Always utilize professional-grade tools for all electrical work. Turn off the unit before cleaning or servicing.
- All wiring must strictly adhere to the provided **Wiring Diagram** to prevent component burnout or fire.
- Cables must be securely fastened to the **terminal blocks** so there is no pulling or tension on the wire connections. This prevents the wires from becoming loose over time.

4. Supervision

For safety purposes, this appliance is not intended for unsupervised use by individuals (including children) who may require additional assistance to operate it safely. Children should be closely supervised to ensure they do not play with the unit or its controls.

5. Refrigerant Information (R32)

This appliance utilizes **R32 refrigerant**, a leading solution in high-efficiency cooling technology.

- **Safety Profile**: R32 is a mildly flammable (A2L class), odorless gas. While it poses a low ignition risk under normal conditions, it should be kept away from open flames and extreme heat. Under standard operational parameters, R32 is stable and safe for residential use.
- **Environmental Impact**: R32 is an eco-friendly choice with **Zero Ozone Depletion Potential (ODP)** and a significantly lower **Global Warming Potential (GWP)** compared to conventional refrigerants.
- **Energy Efficiency**: Due to its superior thermodynamic properties, R32 delivers high energy performance with a smaller charge volume, making the unit more efficient and compact.

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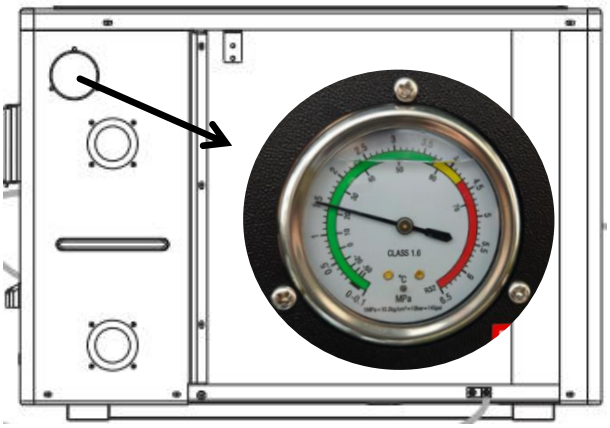
UNPACKING INSPECTION

2. UNPACKING INSPECTION

Upon delivery, please follow these steps to inspect the unit. If any discrepancies or damage are found, do not proceed with installation and contact our Service Center immediately.

2.1 Check Pressure: Observe the pressure gauge on the back of the unit (see figure below). The reading should be between **1.0 and 2.0 MPa**. If the pressure is outside this range, there is a risk of refrigerant leakage; please contact our Service Center before installation. (During operation, pressure gauge readings will fluctuate based on the unit's current running status; this is normal and expected behavior.)



2.2 Product Verification: After unpacking, verify that the unit is free from physical damage and that the **model, color, and quantity** exactly match your order specifications.

2.3 Check Accessories: Cross-reference all included accessories with the **"Packing List"** provided below. Ensure all components are present and undamaged.

UNPACKING INSPECTION

	ITEM NO.	COMPONENT	QUANTITY
Upper Half	①	1.5" (48.3mm) PVC Pipe Converter *[Pre-installed on the unit]*	2
	②	1.25"&1.5" Hose Adapter & Hose Clamp	2
	③	1.5" Adapter Conversion Kit	2
	④	Teflon tape	2
Lower Half	⑤	Insulation Mats	4
	⑥	Condensate Pipe (2m)	1
	⑦	Condensate Pipe Connector	1
Protection	⑧	UV-resistant & Waterproof Cover	1
Guide	⑨	User Manual	1

2.4 Removing the Pallet: Use a wrench and screwdriver to unscrew the four shipping bolts from the support feet (see figures below).Carefully remove the heat pump from the shipping pallet.

UNPACKING INSPECTION

2.5 Additional Tools Required for Installation (Not Included)

Category	Tools	Purpose
General Tools	Wrench	Used to remove the heat pump from the pallet and to install/replace inlet & outlet adapters.
	Screwdriver	Used to remove the unit from the pallet and secure the heat pump to the foundation.
	Expansion Bolts	Used to securely mount the heat pump onto a concrete base.
Electrical	HACR-rated Circuit Breaker & GFCI	Provides electrical safety protection against overloads and ground faults.
	#8 AWG Bare Copper Wire	Used for system grounding and bonding.
	Power Cable(Size based on heat pump model)	To connect the main power supply to the heat pump.
	Wire Strippers	Used to strip power cables for electrical connections.
Plumbing	1.5" PVC Pipe or Flexible Hose	Used to connect the heat pump to the pool water circulation system.
	PVC Adhesive & Sandpaper	Used to prep pipe joints and complete the sealed bonding of water pipes.

2.6 System Specification

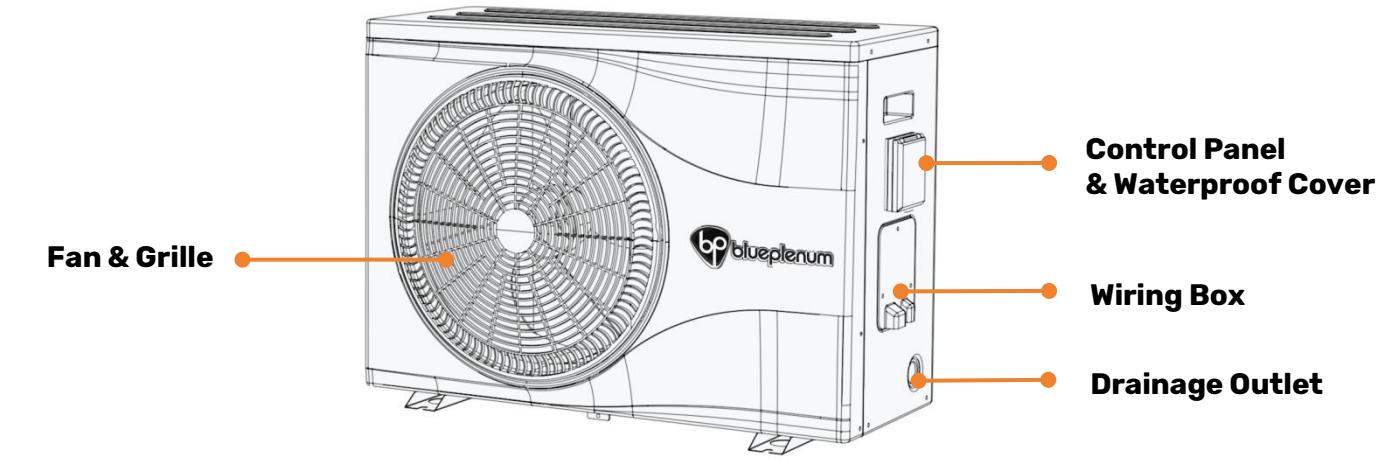
Model	Flow Pro 48	Flow Pro 58	Flow Max 80	Flow Max 107
Heating Specification				
Heating Capacity A80°F/ W80°F/Humid. 80% Max./Min.	48000/17000 BTU/H	58000/22000 BTU/H	80000/30000 BTU/H	107000/45000 BTU/H
Heating Power Input Max./Min.	2.07/0.3KW	2.49/0.4KW	3.43/0.53KW	4.61/0.82KW
COP A80°F/W80°F/ Humid. 80%	6.8-16.2	6.8-16.2	6.8-16.2	6.8-16.2
Heating Capacity A59°F/ W80°F/Humid. 70% Max./Min.	35000/12000 BTU/H	45000/16000 BTU/H	63000/23000 BTU/H	79000/36000 BTU/H
Heating Power Input Max./Min	2.28/0.45KW	2.92/0.61KW	4.08/0.86KW	5.12/1.35KW
COP A59°F/W80°F/ Humid. 70%	4.5-7.8	4.5-7.8	4.5-7.8	4.5-7.8
Cooling Specification				
Cooling Capacity A95°F/ W85°F/Humid.70% Max./Min.	20130/12283 BTU/H	25181/15354 BTU/H	25249/17811 BTU/H	26102/24157 BTU/H
Cooling Power Input	1.55/0.54KW	1.94/0.67KW	1.95/0.78KW	2.01/1.06KW

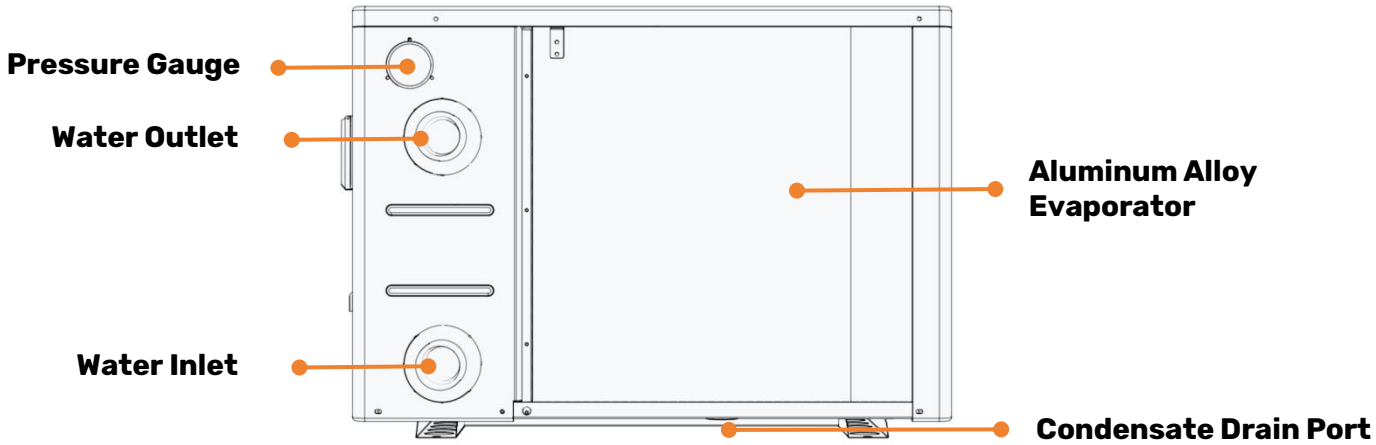
UNPACKING INSPECTION

Model	Flow Pro 48	Flow Pro 58	Flow Max 80	Flow Max 107
Max./Min				
ERR A95°F/W85°F/ Humid.70%	3.8-6.7	3.8-6.7	3.8-6.7	3.8-6.7
General Specification				
Current	12.6A	16.2A	22.9A	30A
Power Supply	208V-240V/1PH/60Hz			
Advised Pool Volume (with pool cover)	13900gal	16800gal	22000gal	28000gal
Advised Pool Volume (without pool cover)	10600gal	13000gal	18000gal	24000gal
Operating Air Temperature	5-109°F			
Heating Water Temperature	47-104°F			
Cooling Water Temperature	47-83°F			
Recommended Flow Rate	22GPM	32GPM	44GPM	59GPM
Noise (33ft)	46db	48db	50db	52db
Compressor	Rotary (Mitsubishi)			
Heating Exchanger	TITANIUM HEAT EXCHANGER			
Casing	ABS			
Water Resistance Class	IPX4			
Refrigerant	R32 /1.74lbs (27.9oz)	R32/1.87lbs (30oz)	R32/2.54lbs (40.6oz)	R32/2.87lbs (46oz)
Refrigerant CO2 Equivalent	0.53t	0.57t	0.78t	0.88t
Net Unit Size (L/W/H)	35.3" x 15.7" x 25.4"in	35.3" x 15.7" x 25.4"in	41.6" x 17.5" x 29.1"in	41.6" x 17.5" x 29.1"in
Carton Size (L/W/H)	39.0" x 17.1" x 30.3"in	39.0" x 17.1" x 30.3"in	45.1*18.1*34.6in	45.1*18.1*34.6in
Net Weight	95.3lbs	105.5 lbs	155.3 lbs	185.0 lbs
Gross Weight	131.5lbs	141.7lbs	200.8lbs	230.5lbs

UNPACKING INSPECTION

2.7 Pool Heat Pump Overview





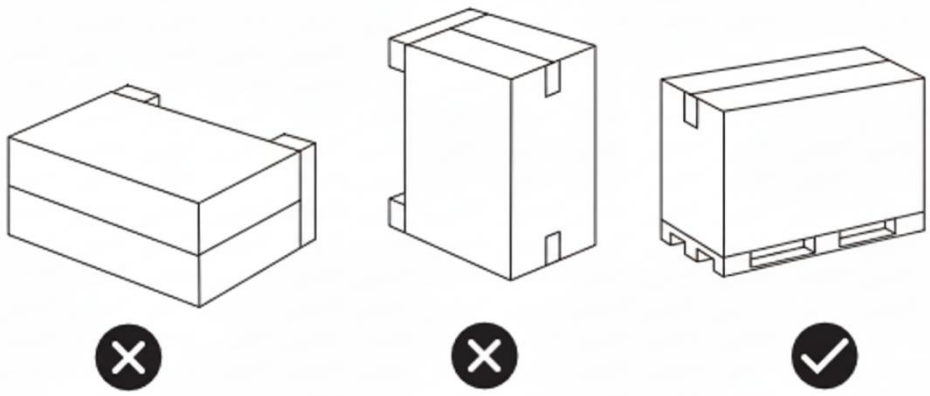
INSTALLATION

3. INSTALLATION

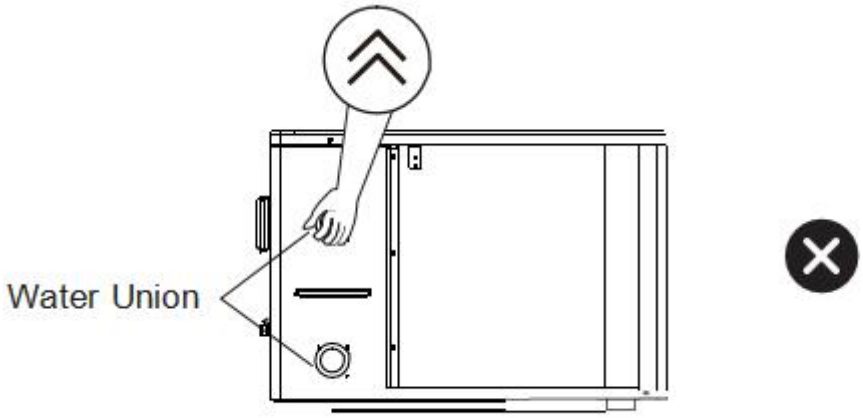
Professional Installation Required: This heat pump must be installed by a **licensed and qualified professional** to ensure operational safety and prevent equipment damage. The instructions provided are for **general reference only** and must be adapted to meet local codes and specific site conditions.

3.1 HANDLING AND TRANSPORT

1. **Transport & Placement:** Transport the unit as close to the installation site as possible before unpacking.
2. **Verticality:** The heat pump must be kept in an upright position at all times during storage and transportation. The inclination angle must **not exceed 45°**. Never store or move the unit horizontally to prevent damage to the compressor and refrigeration system.



3. **Lifting Restriction:** Never lift the heat pump by the water unions or the heat exchanger, as this will cause severe internal damage.



4. **No Stacking:** Do not place or store any items on top of the unit.

5. **Casing Protection:** Do not grip the air outlet grille on the casing, as it is susceptible to deformation.
6. **Fan Safety:** Keep hands and foreign objects away from the fan blades at all times to avoid injury or mechanical failure.

3.2 INSTALLATION SITE SELECTION

To ensure the safety, efficiency, and longevity of the heat pump, please strictly adhere to the following site selection guidelines:

1. **Environmental Constraints**

- **Hazardous Materials:** Avoid installation near flammable, explosive, or volatile materials.
- **Corrosive & Chemical Exposure:** Do not install in areas with high concentrations of mineral oil, oil mist, salt spray, or sulfur gases. These substances can lead to component degradation and coil erosion.
- **Power & Signal Stability:** Avoid locations with severe voltage fluctuations. Maintain a minimum clearance of 9.8ft from equipment emitting strong electromagnetic radiation (e.g., high-frequency towers) to prevent control interference.
- **Severe Weather:** Avoid areas prone to extreme conditions such as typhoons, heavy snow drifts, or frequent lightning.

2. **Social & Safety Considerations**

- **Traffic & Noise:** Do not install near high-traffic roads to prevent mud splashes and reduce noise interference.
- **Neighborhood & Safety:** Position the unit to minimize noise disturbances to nearby residents. Ensure the installation is out of reach of children and pets for safety.

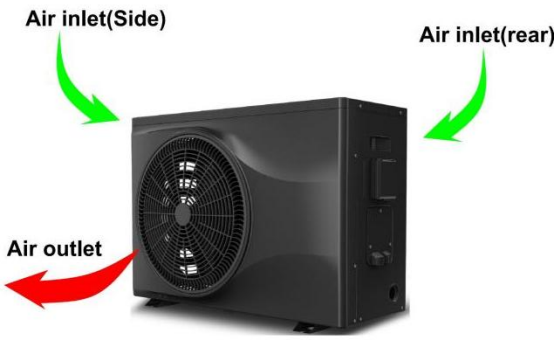
3. **Location and Spatial Requirements**

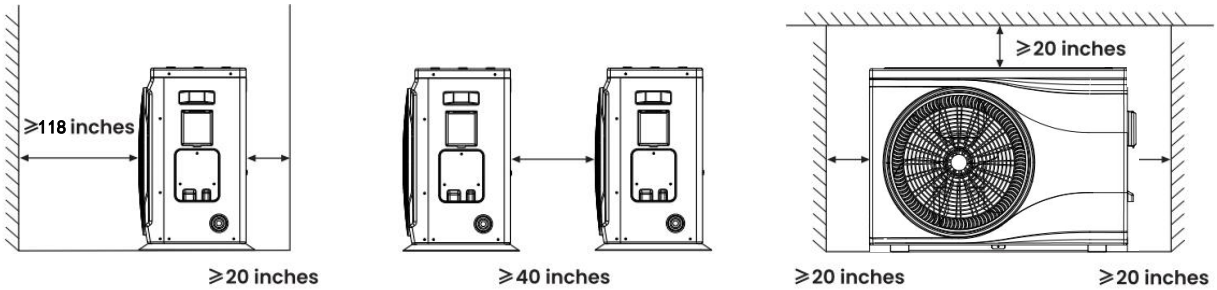
- **Accessibility:** The site must be easily accessible for effortless operation and regular maintenance, providing ample space around the unit.
- **Foundation:** Install the unit on a stable, level, and reinforced concrete surface capable of supporting its weight. If necessary, raise the unit using robust mounting pads designed to sustain its weight.
- **Drainage:** Position the unit near an effective water drainage system to prevent potential water damage to the surrounding area.

INSTALLATION

- **Ventilation & Airflow:** Ensure the site is well-ventilated with no risk of exhaust air recirculation. Air outlets must not be directed toward nearby windows.

The air inlet or outlet ports are shown in the following figure, carefully following these installation requirements ensures optimal performance, extends the unit's longevity, and maintains a safe operating environment for your system:





- **Front Discharge:** Ensure a minimum of **118 inches (3000 mm)** of unobstructed space in front of the unit to prevent air recirculation.
- **Side-by-Side Installation:** When installing multiple units, maintain a minimum lateral clearance of **40 inches (1000 mm)** between each unit.
- **Rear and Side Intake:** Provide at least **20 inches (500 mm)** of free space on the back and both sides of the unit to ensure unimpeded airflow to the evaporator.
- **Top Clearance:** Keep the area above the heat pump completely clear of any objects or overhangs to allow for vertical heat dissipation and unobstructed airflow.

INSTALLATION

3.3 PRE-INSTALLATION CHECKLIST

To ensure a smooth and professional installation, please verify the following conditions and ensure all necessary equipment is prepared:

1. Preliminary Verification

[ ]Equipment Inspection: Confirm the model, quantity, and specifications match your order. Inspect the **casing, evaporator fins, and ports** for transport damage, and verify all included accessories against the packing list.

[ ]Space & Ventilation: Ensure the site has sufficient clearance for maintenance and that air inlets/outlets are dry, well-ventilated, and unobstructed.

[ ]Structural Foundation: Confirm the mounting surface or foundation is level and has the load-bearing capacity to support the unit's full operational weight.

2. Electrical Compliance

[ ]Bonding & Grounding: All electrical connections must meet **NEC (National Electrical Code)** and local standards. Prepare a **#8 AWG bare copper wire** for bonding. This is mandatory for user safety and to prevent galvanic corrosion of the unit's metal chassis.

[ ]Power Supply: Voltage, frequency, and capacity must match the unit's nameplate. Ensure power cables and wire diameters meet the following specifications:

Model	Specification				
	Power Supply	Max Current	MCA	MOP (Breaker)	Wire Gauge (Copper)
Flow Pro 58	208V-240V/60 Hz	16.2A	22A	30A	12 AWG
Flow Max 80		22.9A	32A	45A	10 AWG
Flow Max 107		30A	41A	50A	8 AWG

[ ] Protection:A dedicated **HACR-rated (Heating, Air Conditioning, and Refrigeration) circuit breaker** and a certified **GFCI (Ground Fault Circuit Interrupter)** are prepared according to local standards.

***3.* Required Materials (Not Included)**

Please note that the following items are required for installation but are not included in the package:

[ ] Hydraulic Kit: A bypass kit and PVC tubing, along with necessary accessories such as PVC adhesive, wire strippers,and sandpaper.

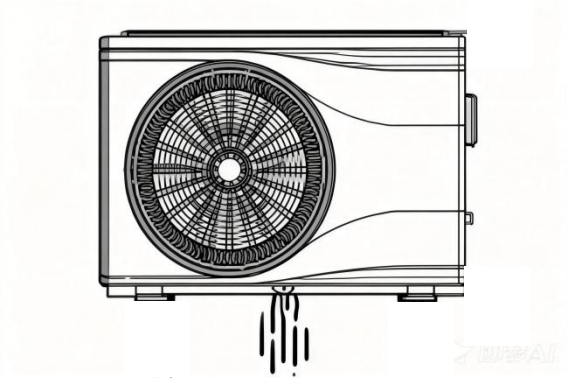
[ ] Mounting Hardware: Suitable expansion bolts or anchor screws are ready to secure the unit firmly to the foundation.

[ ] Elevation & Drainage: Sturdy fasteners and mounting pads to elevate the unit, allowing adequate space for condensation drainage.

INSTALLATION

3.4 CONDENSATE DRAINAGE INSTALLATION

NOTE: Condensation is not a leak. As the evaporator cools the air, moisture will naturally form on the fins and drain from the unit. In humid conditions, this may result in a significant volume of water runoff. This is typical for all high-efficiency heat pumps.

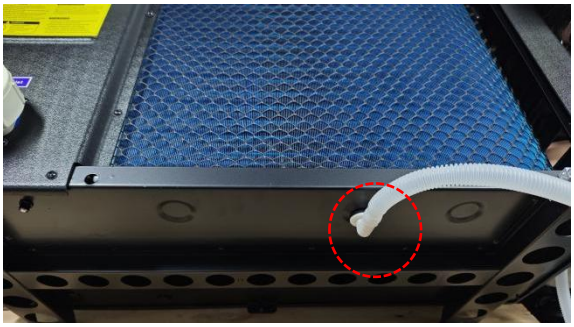


In heating mode, the unit will produce condensate. Ensure proper drainage by installing discharge pipes to direct water to a designated drainage point. Raise the installed heat pump at least **4 inches** off the ground using durable, water–resistant supports.

1. Assemble the condensate pipe(⑥) and condensate pipe connector(⑦).

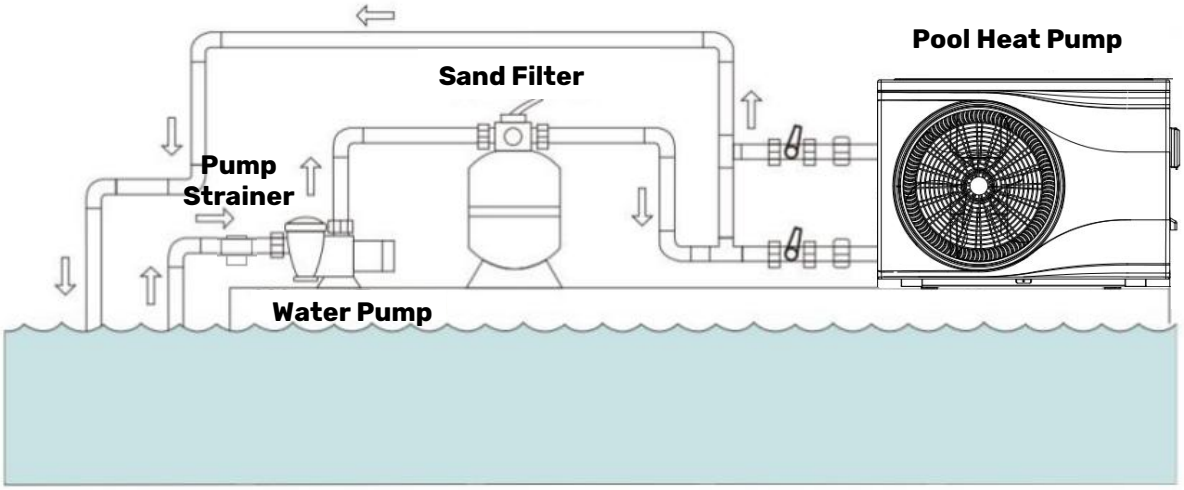
Note: The condensation drain pipe has different diameters at each end. Please insert the connector into the narrower end.

2. Connect the condensate pipe to the bottom drain hole.



INSTALLATION

3.5 PLUMBING INSTALLATION



Note: This diagram is for illustrative purposes only. Actual installation may vary depending on local codes and specific site requirements.

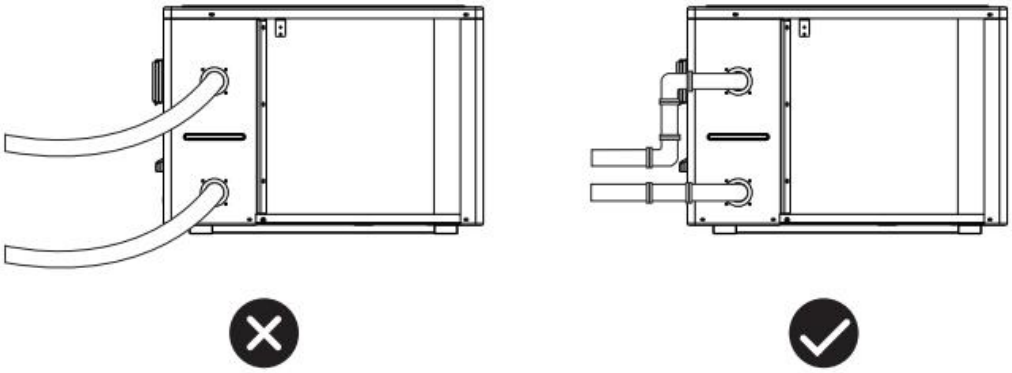
1. Foundation & Mounting

- Place insulation mats between the support feet and the foundation during installation. This helps to dampen noise and vibration while slightly elevating the unit.
- The heat pump must be secured to a solid concrete foundation using masonry bolts prior to the plumbing installation(see figure below). This ensures stability and prevents excessive vibration or movement during operation.

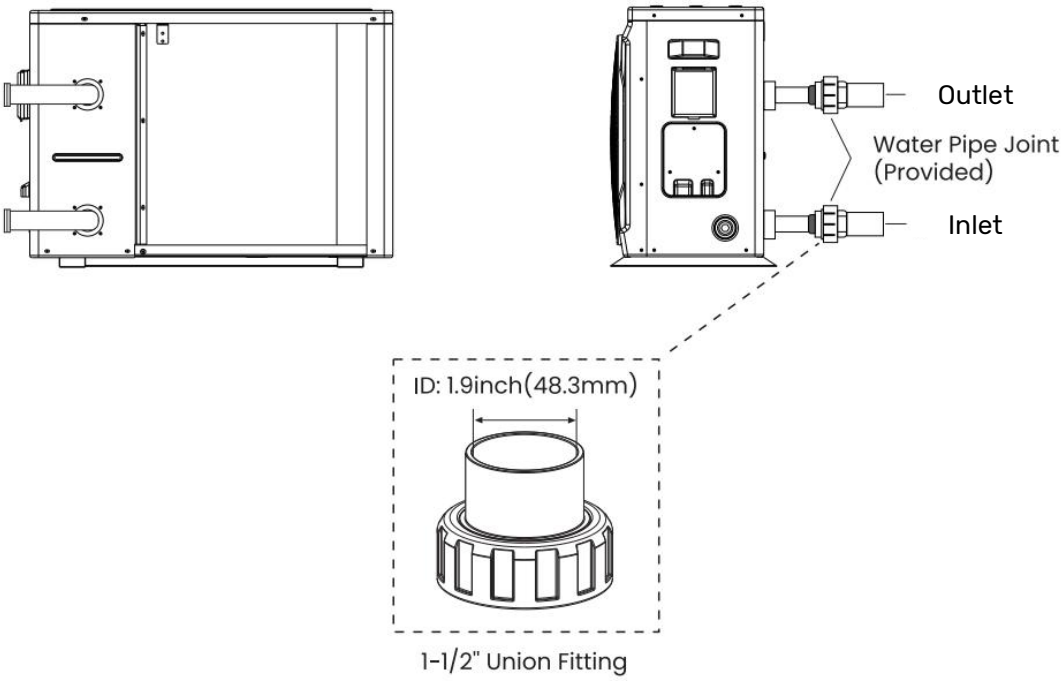
2. Hydraulic System

- **Plumbing Configurations**
  - **Standard Installations (Small Pools)**: For systems with 3/4 HP pumps or smaller using 1-1/2" PVC or flexible hoses, a bypass is generally not required. Connect the water line IN at the bottom and OUT at the top.
  - **High-Flow Systems (Large Pools):** For systems with 1.5 HP pumps or larger and 2-inch plumbing, **a bypass system** must be installed to regulate flow and protect

the heat pump. Only connect the water inlets and outlets using rigid PVC pipes as flexible pipes may not support the water pressure.



- **Selection of Pipe Diameter:**

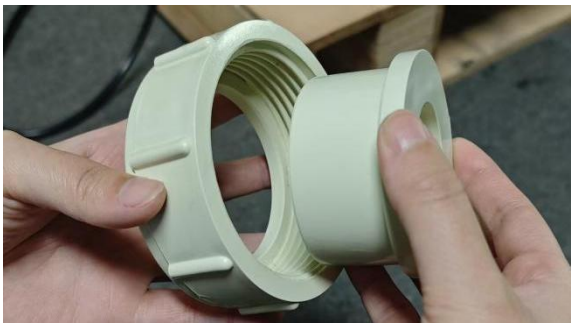


- To maximize heating efficiency, the heat pump should be installed as close to the pool as safety regulations allow. Keep pipe runs short to minimize heat loss; the total distance should not exceed 30 feet.

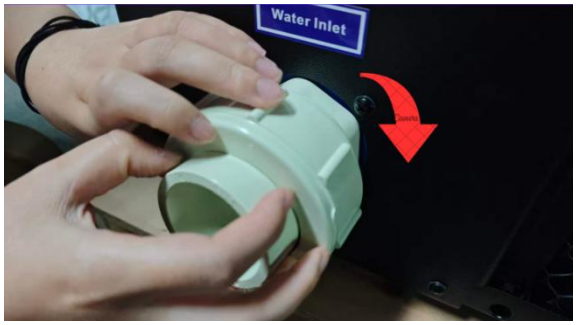
INSTALLATION

- **Plumbing Instructions**

1. Unscrew and remove the caps from the **Inlet** and **Outlet** water connectors.

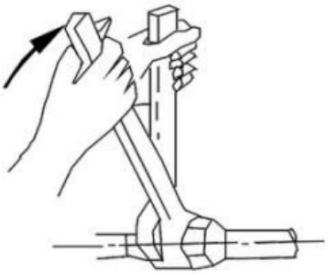


2. Take the 1.9" (internal diameter) pipe adapters from the accessories box and place them into the connector caps.



3. Screw the assembly back onto the **Inlet** and **Outlet** ports.

4. Apply a layer of PVC adhesive to the exterior of your PVC pipe, then firmly insert it into the water union.



5. Secure the connections using a double-wrench technique: one to stabilize the port and the other to tighten. Do not allow the heat pump's internal pipes to rotate during installation.

6. Completion: Apply the same installation method to both inlet and outlet connections.

INSTALLATION

- **Connector Replacement (Optional)**

If your pipe dimensions do not match the unit's connectors, we offer the following conversion solutions:

1. Unscrew and remove the caps from the **Inlet** and **Outlet** water connectors.

2. Rotate and remove the PVC pipe connectors from the inlet and outlet ports.

3. Thread and tighten the 1.25"&1.5" hose adapter(②) or 1.5" hose adapter(③)using a **wrench**. (Note: Apply pipe glue or Teflon tape to the threaded connections to ensure a leak-proof seal if a rubber gasket is not provided.)

4. Insert the hose onto the connector, slide the hose clamp over it, and tighten the handle to secure the hose in place.

Extended Reading: *The choice of water pump and filters setup can affect your heat pump's overall performance and heating efficiency.*

- **Water Pump:** A separate water pump is required to circulate water through the heat pump.
  - **Selection of water pump:** Water Flow Volume of water pump=1.2 * heat pump Water Flow Volume.

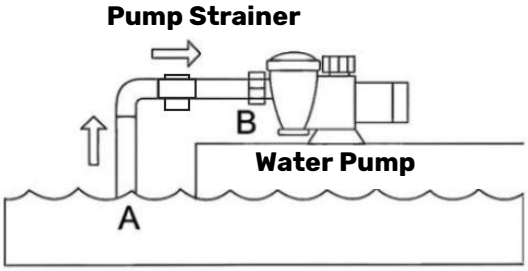
Model	Rated Water Flow	
	Heat Pump	Water Pump
Flow Pro 58	32GPM	39GPM
Flow Max 80	44GPM	53GPM
Flow Max 107	59GPM	71GPM

- **Filters:**

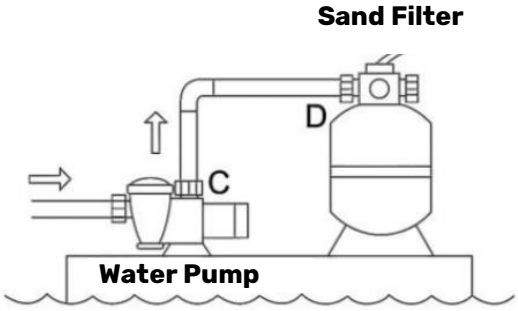
INSTALLATION

- To prevent debris from damaging the system, install a **pump strainer** (hair/lint collector) upstream of the water pump. Alternatively, use a pump with an integrated strainer basket.
- A **sand filter** must be installed downstream of the water pump to remove fine impurities and ensure clear water flows into the heat pump.
- Regularly clean the pool filter to prevent debris buildup and maintain optimal flow.

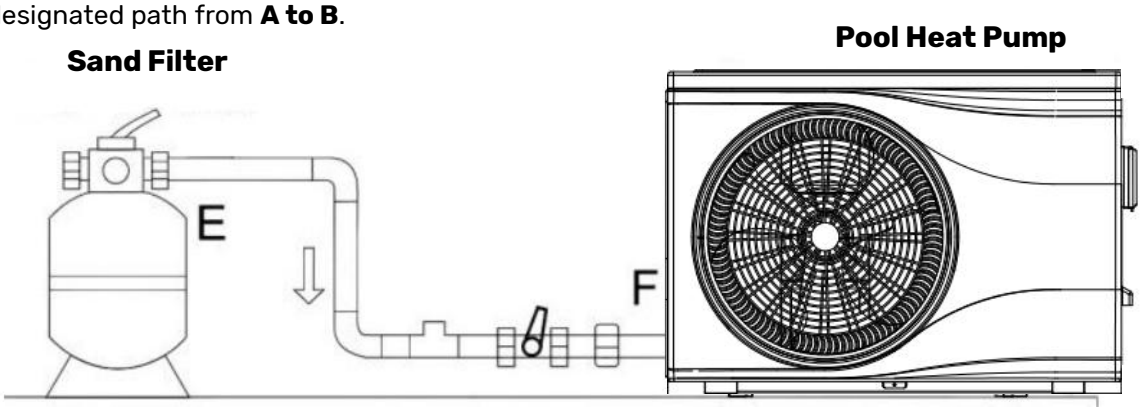
- **Pool System Installation:**



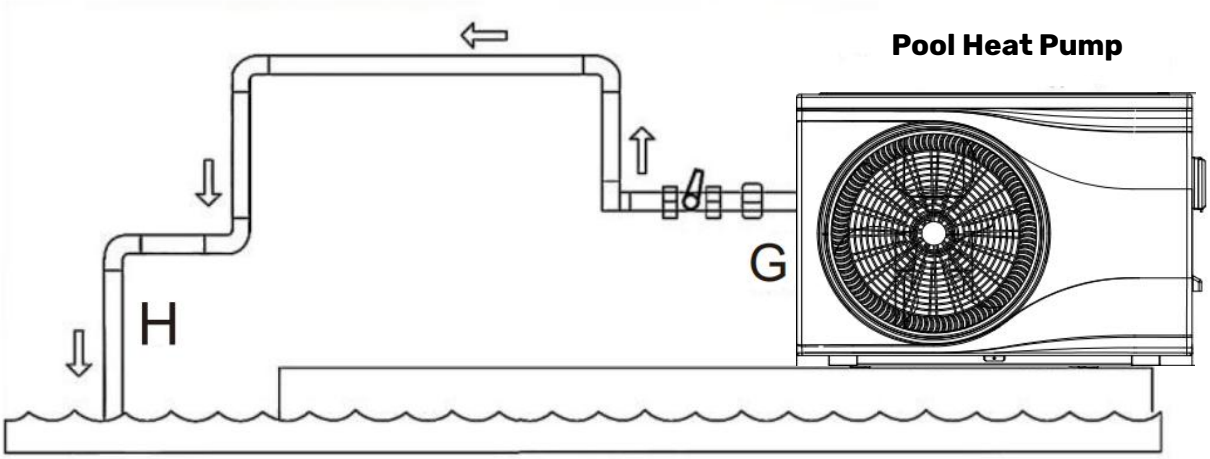
1. Water Inlet Connection: Connect the pool outlet to the **Pump Strainer**, then route it to the **Water Pump inlet** using dedicated piping. Ensure the water flow follows the designated path from **A to B**.



2. Filtration Connection: Connect the Water Pump outlet to the Sand Filter inlet. The water flow direction must follow the path from **C to D**.

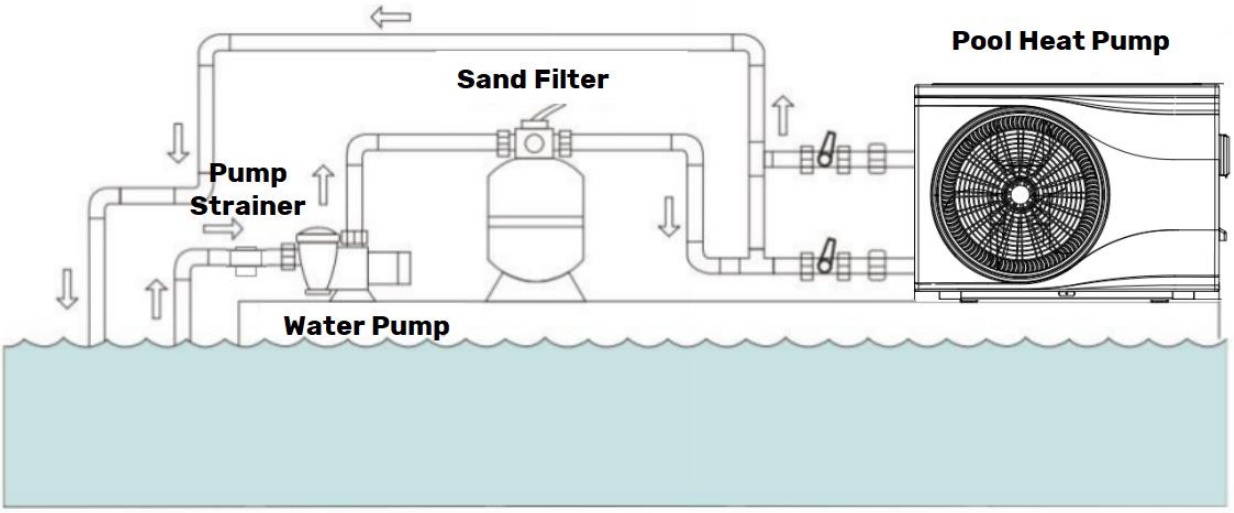


3. Heat Pump Inlet Connection: Connect the Sand Filter outlet to the Inlet port of the Heat Pump (typically located at the bottom). The water flow direction must follow the path from **E to F**.



4. Return Line Connection: Connect the Outlet port of the Heat Pump (typically located at the top) back to the pool's return inlet. The water flow direction follows the path from **G to H.**

INSTALLATION



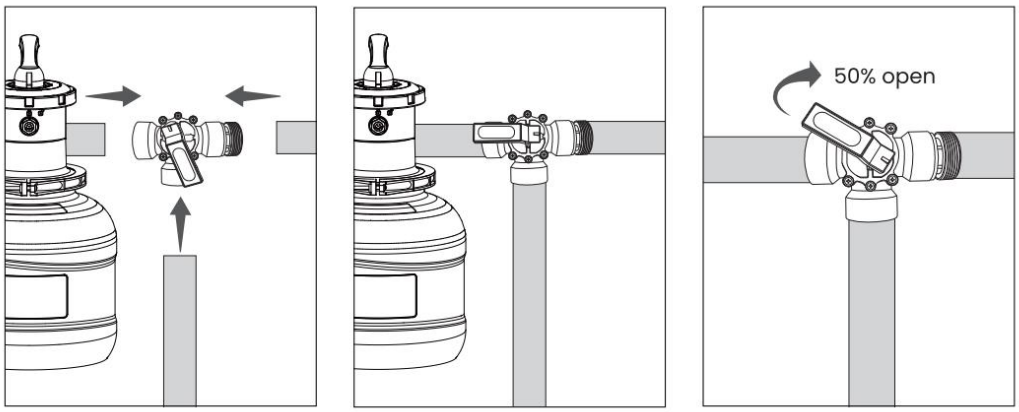
5. Completion: Ensure all connections are secured with PVC adhesive and checked for leaks before operating the system.

- **Bypass Valve Adjustment**

  If a bypass is installed, optimize heating efficiency as follows:

  - Step 1: Set the bypass valve to **50%** open.
  - Step 2: Gradually adjust the valve to the lowest flow rate that does not trigger a **E03 "Water Flow Protection"** error.
  - Temperature Differential : The difference between Inlet and Outlet water should be 1–5°F. If the difference exceeds 5°F, increase the water flow through the heat pump.

Higher water flow does not equate to more heat. BluePlenum heat pumps are engineered to operate within a specific flow rate range to ensure optimal heat transfer, maximum efficiency, and long-term system reliability.



INSTALLATION

3.6 ELECTRICAL INSTALLATION

1. Electrical Setup Requirements:

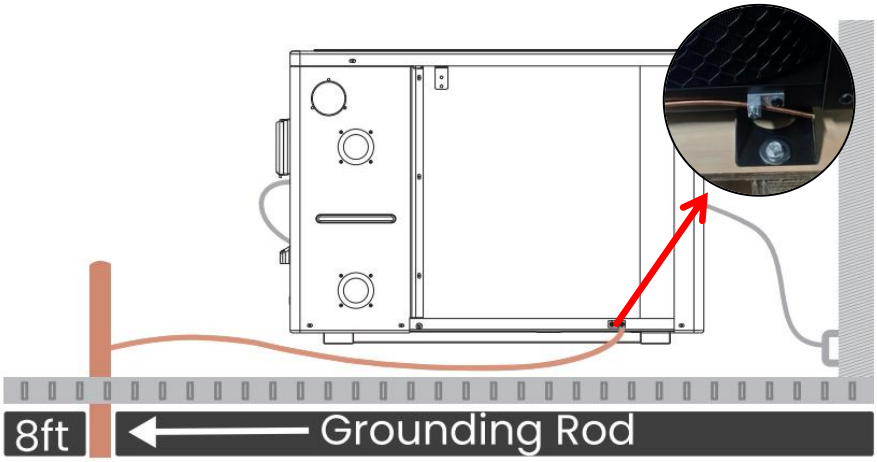
To ensure safe operation and compliance with the **National Electrical Code (NEC)** and all applicable local codes, the unit must be connected by a **licensed electrician** according to the following specifications:

- **GFCI Protection:** The main power supply must be protected by a Class A Ground Fault Circuit Interrupter (GFCI). This is a mandatory safety requirement for all swimming pool equipment to prevent electrical shock.
- **Circuit Breaker:** Use a dedicated HACR-rated (Heating, Air Conditioning, and Refrigeration) circuit breaker. This type is designed to handle the high inrush current during compressor startup without nuisance tripping.
- **Field Wiring:** All field wiring must be copper and sized according to the unit's Minimum Circuit Ampacity (MCA). Use outdoor-rated, sunlight-resistant conduit and wire as required by local codes.
- **Power Supply:** Voltage, frequency, and capacity must match the unit's nameplate. Ensure power cables and wire diameters meet the following specifications:

Model	Specification				
	Power Supply	Max Current	MCA	MOP (Breaker)	Wire Gauge (Copper)
Flow Pro 58	208V-240V/60 Hz	16.2A	22A	30A	12 AWG
Flow Max 80		22.9A	32A	45A	10 AWG
Flow Max 107		30A	41A	50A	8 AWG

- **Bonding:** The unit must be properly bonded to the pool's bonding grid using a solid copper wire (**minimum 8 AWG**) connected to the bonding lug on the chassis.

INSTALLATION

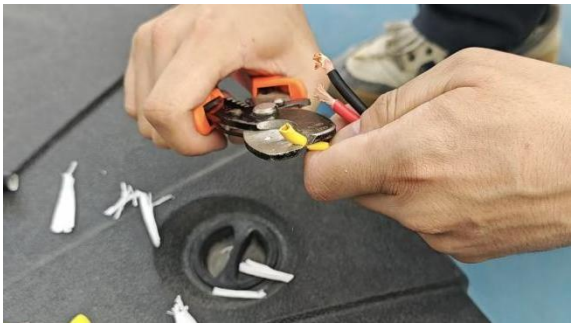


- **Emergency Disconnect:** For public installations, an emergency shut-off switch must be installed within sight of the heat pump, per NEC 680 requirements.

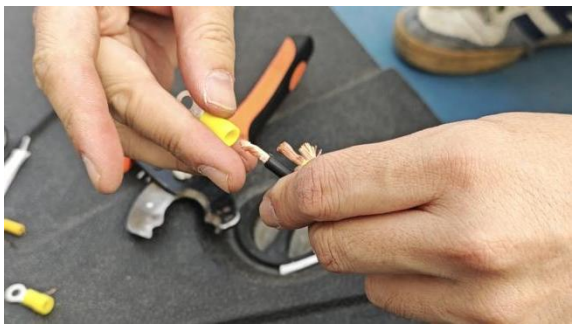
WARNING: DISCONNECT and LOCK OUT all power sources to the heat pump before attempting any installation, service, or maintenance. Failure to do so can result in severe personal injury or death.

2. Electrical Connection

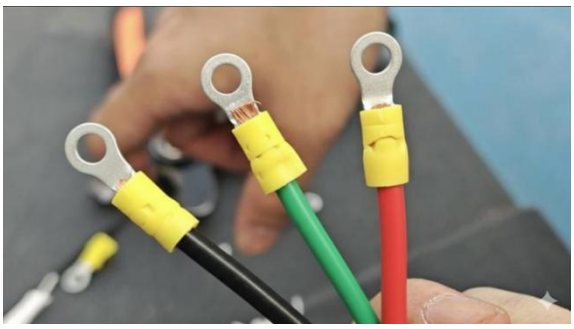
1. Remove the outer cable jacket of your cable to expose the inner conductors. Be careful not to nick the inner wire insulation.



2. Strip insulation from each wire end.

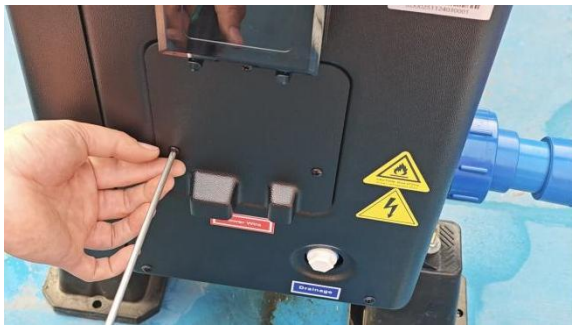


3. Slide ring terminals onto the bare copper strands. Use a crimping tool to secure the terminal to the wire.



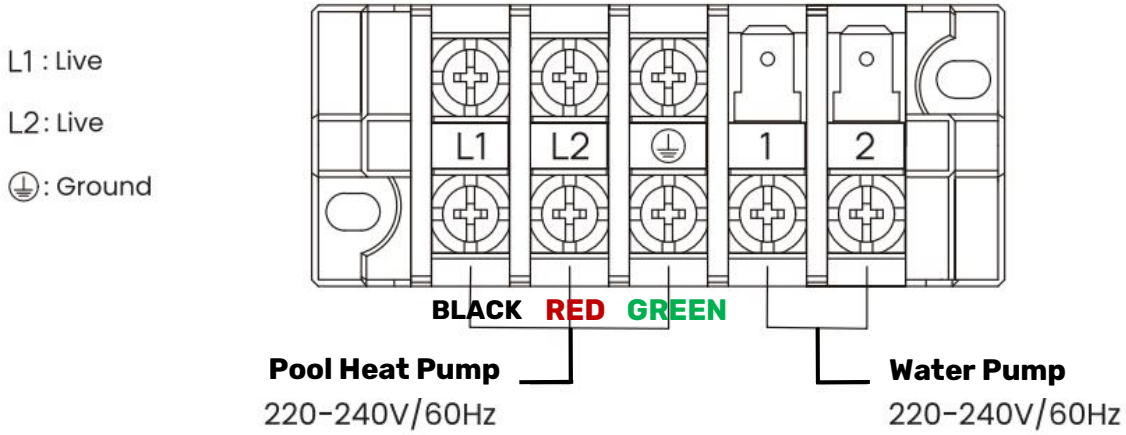
4. Pull gently to ensure a tight connection with no exposed copper.

INSTALLATION



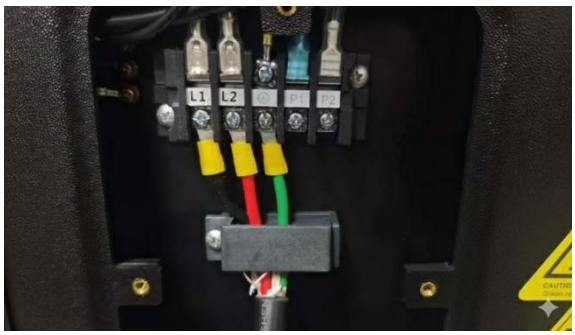
5. Remove the **electrical access panel** on the side of the unit with a screwdriver to access the terminal block.

6. Loosen the screws on terminals to prepare for wire insertion.



7. Connect the power supply cable to the terminal block according to the diagram above. **The water pump can be connected to P1, P2 and ground terminals based on actual requirements(only support 208-240V water pumps).**

Both the water pump and the heat pump share the same grounding terminal. When the water pump is connected to the heat pump, starting the unit will activate the water pump first. The heat pump will only begin operation once water circulation is detected.



8. Position the cable under the strain relief clamp and tighten the screws to prevent wire movement.

9. Reinstall the electrical access panel and tighten all screws.

3.7 POST-INSTALLATION TESTING

1. Safety and Operational Checks

INSTALLATION

- **Live Components:** Confirm no live electrical components are exposed during startup, maintenance, or drainage.
- **Grounding:** Verify the integrity of the equipment grounding system.

2. Pre-Operational Inspection

- **Installation:** Confirm the unit is installed on a level, stable surface per instructions.
- **Power Supply:** Verify the supply voltage matches the unit's nameplate rating 208V-240V/1PH/60Hz.
- **Connections:** Inspect all plumbing and electrical connections for tightness and proper fit.
- **Airflow:** Ensure air intake and exhaust ports are completely unobstructed.
- **Drainage:** Confirm the condensate drainage system is clear and leak-free.
- **Protection:** Verify the leakage protector (GFCI) are functional.
- **Ground Wire:** Ensure the ground wire is securely bonded to the grounding terminal.

3. Startup and Trial Procedure

- **Preparation:** Conduct a final inspection of all wiring and plumbing. Ensure the pool system is filled with water before applying power. Never operate the unit without water flow.
- **System Priming & Air Purge:** Before using the unit for the first time, follow the instructions below based on your installation type:
  - **Option A: If the water pump is wired directly to the heat pump terminals.** Power on the controller, navigate to the **Function Menu**, and select **"User Functions."** Choose **" Water Circuit Emptying "** to bleed air from the system before starting the heat pump(*For more detailed instructions, please refer to the "CONTROL PANEL OPERATION" section*). Once activated, the water pump will run first to prime the system. This function will automatically turn off once the heat pump begins operation.
  - **Option B: If the water pump and heat pump have separate power supplies.** First, turn on the water pump and let it run for **20 minutes** to ensure all trapped air is purged from the plumbing. Once the water flow is steady and the air is fully removed, you may then power on the heat pump.
- **Power On:** press the **ON/OFF button** on the control panel to run the unit at the set

temperature.

- **Performance Monitoring:** During the initial run, monitor the following:
  - **Control Panel:** Verify the touch screen is highly responsive and the display functions correctly.
  - **Leakage:** Inspect the entire heating circulation system for leaks.
  - **Condensate:** Verify that condensate water is draining properly.
  - **Vibration:** Listen for any unusual noises or excessive vibrations.

4. End Trial Procedure

- **Power Off:** Press the **ON/OFF button** on the control panel or Tuya Smart APP to turn off the unit.
- **Capacitor Discharge:** Turn off the main breaker and wait at least 5 minutes. Ensure all capacitors are fully discharged to avoid electrical shock or sparking.

CONTROL PANEL OPERATION

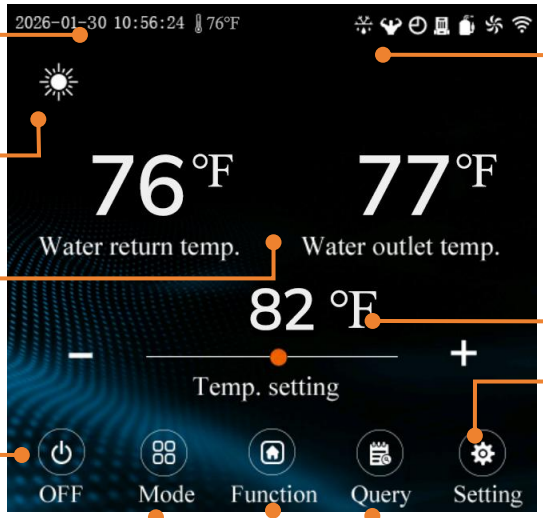
4. CONTROL PANEL OPERATION

Note: BluePlenum pool heat pump features a side-mounted **4-inch TFT color** control panel, providing an intuitive, smartphone-like interface. **Always close the waterproof cover after use to prevent water damage and ensure long-lasting performance.**

4.1 Welcome Page

The "Welcome" page appears for three seconds during startup, then will enter the homepage. The screen turns off after two minutes of inactivity; simply touch the screen to wake it.

4.2 Homepage



Status Bar 1
- Current Date &Time
- Ambient Temperature

Status Bar 3
- Operation Mode

Status Bar 2
- Device Status (Compressor/Fan/Water Pump)
- Wi-Fi Connectivity

Inlet/Outlet Temperature
- Real-time Inlet/Outlet Water Temp.

Target Temperature
- Set Target Water Temp.

Setting Button
- System & Display Settings

ON/OFF Button

Mode Button
- Select Operation Mode

Function Button
- User Settings
- Wi-Fi Configuration

Query Button
- Running Status Inquiry
- Fault Logs

CONTROL PANEL OPERATION

4.3 Icon Legend

- **Mode Icons**

ICON	FUNCTION	DESCRIPTION
	Heating Mode	Unit is in heating mode.
	Cooling Mode	Unit is in cooling mode.
	Auto Mode	Unit automatically switches between heating and cooling to maintain the set temperature.

- **Alerts**

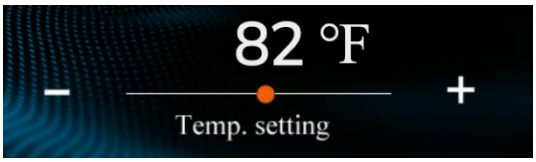
ICON	FUNCTION	DESCRIPTION
	Error	Flashes to indicate a system error. Tap for details.

- **Operation Status**

ICON	FUNCTION	DESCRIPTION
	Defrosting	Unit is in defrost mode.
	Quiet Mode	Unit is operating at a reduced noise level.
	Boost Mode	Unit is operating at high-performance level.
	Timer	Indicates the timer function is active.
	Water Pump	Indicates the water pump is running.
	Compressor	Indicates the compressor is running.
	Fan	Indicates the fan is running.
	Wi-Fi Status	Indicates a successful Wi-Fi connection.

4.4 Temperature Setting

- **Manual Adjustment:** Use the "+" and "-" buttons on the homepage to set your desired temperature for the selected mode.
- **Slider Control:** For quicker adjustments, drag the temperature slider to fine-tune the setting for the current mode.



4.5 Power On/Off

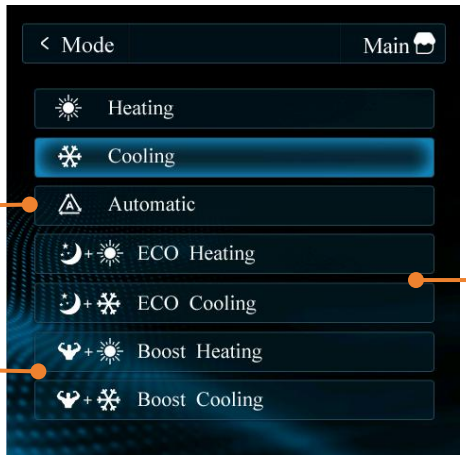
CONTROL PANEL OPERATION

- **Operation**: Press the **ON/OFF button** " " to turn the controller on or off.
- **Status Indicator:** The display will show **"ON"** when the unit is active and **"OFF"** when it is in standby.

4.6 Mode Menu

- **Select Modes:** While the screen is active, press the Mode button " " on homepage to open the mode selection screen.
- **Back to Homepage** (Available on all screens): Tap the **Main icon** " " in the upper-right corner to return to the homepage.

Auto Mode
(Constant Temperature Mode)
- Automatically switches between heating and cooling to maintain the set temperature.



ECO Heating/Cooling Mode
- A low-power, quiet operation mode designed to maintain water temperature once the set temperature is nearly reached.

Boost Heating/Cooling Mode
- Operates at maximum power for fast heating or cooling.
- Ideal for initial startup or when the water temperature needs a significant adjustment.

4.7 Function Menu

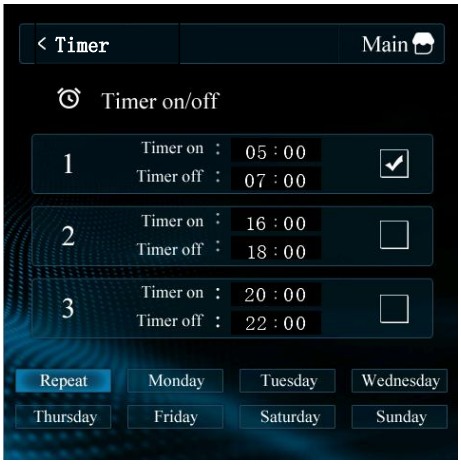
Access the system settings by tapping the Function button " " on the homepage.

- **User Functions:** Select " User Functions " to manage specific maintenance tasks

ICON	FUNCTION	DESCRIPTION
	Forced Defrosting	Manually initiate defrosting. (Note: The system also

		defrosts automatically based on environmental conditions).
	Water Circuit Emptying	Use this function to bleed air from the system before starting the heat pump. Once activated, the water pump will run first to prime the system. This function will automatically turn off once the heat pump begins operation.

- **Timer:** Access the " Timer " from the settings menu to set timer to automate your heat pump's operation.
  - **Daily Scheduling:** Select " Repeat " to apply the same schedule every day. Once set, tap the " ✓ " button next to the time slot and the unit will follow this schedule automatically.
  - **Weekly Scheduling:**
    1) Weekly Customization: Choose any day (Monday–Sunday) to set unique operating times for each day of the week.
    2) Setting the Time: Select your desired time slot and enter the start and end times. Tap the " ✓ " button and press "Enter" to save your schedule.



Note: Automatic On/Off schedules can be set on both the control panel and the mobile app. Please be aware that these two schedules **do not synchronize**; however, the heat pump will execute commands from both sources simultaneously.

Example Scenario: If your Control Panel is scheduled for **6:00 PM – 8:00 PM** and your App is scheduled for **5:00 PM – 9:00 PM**, the unit will operate as follows:
5:00 PM: The unit receives an "On" command from the App and begins operation.
6:00 PM: The unit receives an "On" command from the Control Panel and remains running.
8:00 PM: The unit receives an "Off" command from the Control Panel and stops working.
9:00 PM: The unit receives an "Off" command from the App and remains off.
The unit runs from **5:00 PM – 8:00 PM.** We recommend using the Tuya Smart APP to manage all timer settings.

CONTROL PANEL OPERATION

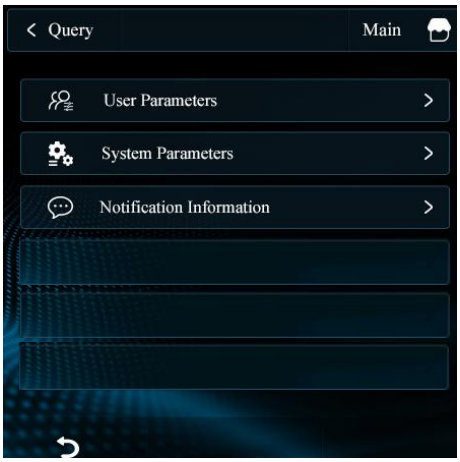
- **WIFI Network:** Access the " " from the settings menu. Connect the unit to your local Wi-Fi network to enable remote control through the mobile app, allowing you to manage your heat pump from anywhere.
  - **Smart Network Configuration:** Choose this for automatic Wi-Fi setup.
  - **AP Network Configuration:** Select this to configure the access point settings manually.
  - **Note:** Both options require a **2.4 GHz** Wi-Fi network for a stable connection.

For more detailed remote control instructions, please refer to the "APP CONTROL" section.

- **Factory Functions:** These functions are not intended for daily use; they are reserved for troubleshooting by our **technical support team**. Please only access these settings under the direct guidance of **our staff**.

4.8 Query Menu

Tap the **Query button** " " on the Home screen to view system data.

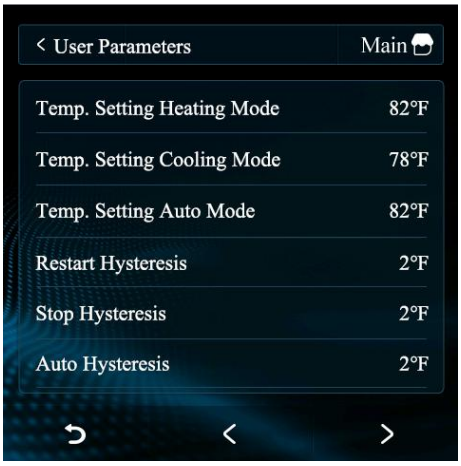


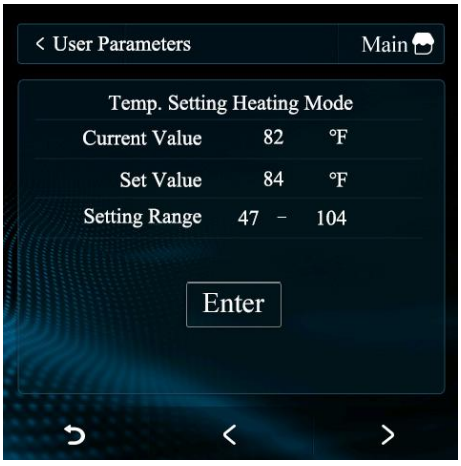
CONTROL PANEL OPERATION

- **User Parameters:** Tap the " User Parameters " to enter the user settings interface. Here, you can customize the default temperature for each mode and configure water pump cycle parameters(optional) to suit your personal preferences.

■ **Adjusting Settings:**

1) Select the specific parameter you wish to modify to open the editing screen.
2) Input the new value using the on-screen keyboard.
3) Press "Enter" once to confirm the value, and press "Enter" again to save your changes.
4) Tap the Back button " " in the bottom-left corner to return to the previous page.





■ **User Parameter Definitions:**

Parameter	Definition	Range
Temp. Setting Heating Mode	Default target temperature in heating mode.	47-104°F
Temp. Setting Cooling Mode	Default target temperature in cooling mode.	47-83°F
Temp. Setting Auto Mode	Default target temperature in auto mode.	47-104°F
Restart Hysteresis (Temperature Differential)	This parameter determines the temperature deviation required for the unit to restart after reaching its target. It prevents frequent cycling and protects the compressor: 1) **In Heating Mode:** If set to 2°F, the unit will remain on standby until the pool water cools by 2°F below your target temperature before turning back on. 2) **In Cooling Mode:** If set to 2°F, the unit will restart only after the pool water temperature rises 2°F above your target temperature.	2-36°F
Stop Hysteresis (Over-temperature Offset)	This parameter defines the temperature "overshoot" allowed before the unit stops, ensuring the water temperature is fully stabilized: 1) **In Heating Mode:** If set to 1°F, the unit will continue running until the pool water	2-36°F

	reaches 1°F above your target temperature before shutting down. 2) **In Cooling Mode:** If set to 1°F, the unit will continue running until the pool water reaches 1°F below your target temperature before shutting down.	
Auto Hysteresis (Mode Switching Buffer)	This setting determines the temperature threshold for the unit to switch between heating and cooling when operating in "Auto" mode: 1) **To Start Cooling:** If set to 3°F, the unit will only switch to cooling mode once the water temperature rises 3°F above your target setpoint. 2) **To Start Heating:** If set to 3°F, the unit will only switch to heating mode once the water temperature drops 3°F below your target setpoint. 3) **Note:** This buffer prevents the system from "fighting itself" by constantly switching back and forth between modes.	2-36°F

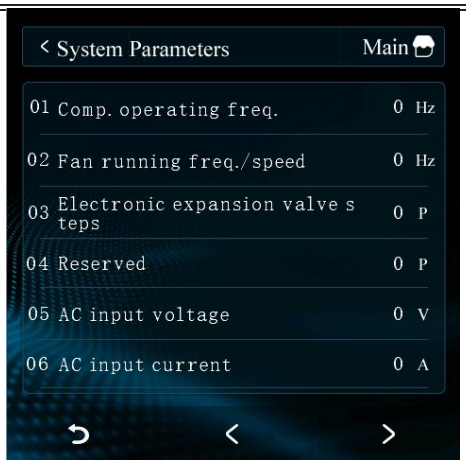
To save electricity, the water pump will pause once the target temperature is reached. The **Constant-Temp Pump Run Cycle** determines how often the water pump wakes up to check the water temperature, while the **Constant-Temp Pump Run Time** sets how long the pump runs during each check.

Note: The two parameters only apply when the water pump is wired directly to the heat pump terminals.

Parameter	Definition	Range
Constant-Temp Pump Run Cycle (Sampling Interval)	The time interval between automatic pump starts to check the pool water temperature.	10-120min
Constant-Temp Pump Run Time (Sampling Duration)	The duration for which the water pump operates during each temperature check.	1-10min

- **System Parameters:** Tap the " System Parameters " to enter the System Parameters interface. Here, you can view the real-time operating data and system parameters for different operation modes. Use the "<" and ">" buttons to navigate through the pages.

CONTROL PANEL OPERATION

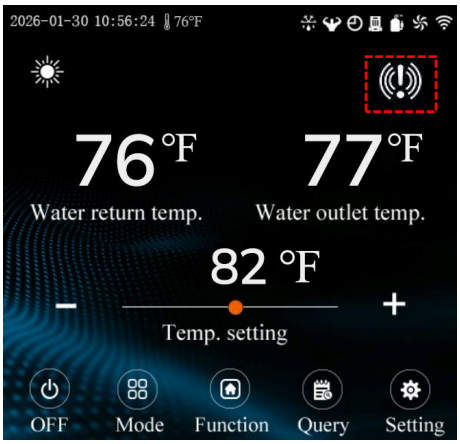


■ System Parameters

No	Parameter	Display Range
1	Comp. Operating Freq.	Measured Value
2	Fan running freq./speed	Measured Value
3	Electronic expansion valve step	Measured Value
5	AC Input Voltage	Measured Value
6	AC Input Current	Measured Value
7	Comp. Phase Current	Measured Value
8	Comp. IPM Temp.	Measured Value
11	Ambient Temp.	Measured Value
12	Outer Coil Temp.	Measured Value
13	Inner Coil Temp.	Measured Value
14	Return Air Temp.	Measured Value
15	Exhaust Air Temp.	Measured Value
16	Water Return Temp.	Measured Value
17	Water Outlet Temp.	Measured Value
20	Unit Tooling Number	Measured Value
23	Inverter Driver manufacturer	Measured Value
31	Four-way Valve	Measured Value
33	High Pressure Switch	Measured Value
34	Low Pressure Switch	Measured Value
35	Water Flow Switch	Measured Value
36	Linkage Switch	Measured Value
37	EVU Switch	Measured Value
38	SG Switch	Measured Value
39	SG Status	Measured Value

- **Notification Information:** Tap the " Notification information " to enter the Fault Information interface. Select " Fault record " to view a detailed history of system errors and faults. To delete all stored fault records, press the " Clear Record " button.

- **Fault Indicator:** When a fault occurs, the error icon " " on the main screen will flash. You can tap the icon directly to access the Fault Information screen and view specific error details.



Note: For detailed error codes and troubleshooting, please refer to the "Troubleshooting" section later in this manual.

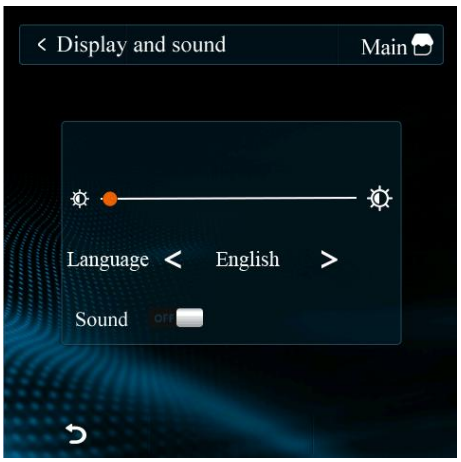
4.9 Settings Menu

Tap the **Settings button** " " on the home screen to to manage your display preferences.

CONTROL PANEL OPERATION

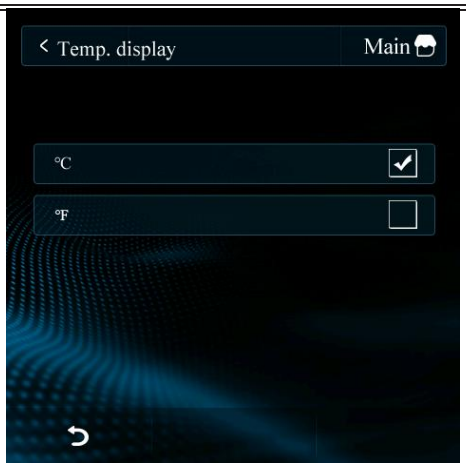
- **Date & Time :** From the Settings menu, select "**Date & Time**" to adjust the system date and time. Use the on-screen keyboard to enter the current year, month, and day, then press "**Enter**" to save your changes.

- **Display and Sound:** Navigate to **"Display and Sound"** within the Settings menu. Here, you can adjust the screen brightness using the slider and toggle the system sound on or off using the corresponding buttons.



- **Temperature Display:** Tap the "☑" to switch between temperature units (℃&℉).

CONTROL PANEL OPERATION



- **Factory Parameters:** These parameters are not intended for daily use; they are reserved for troubleshooting by our **technical support team**. Please only check these parameters under the direct guidance of **our staff**.

- **Restore Factory Settings:** Follow the prompts to reset the unit to its original factory defaults.

- **About:** Select **"About"** to check the control panel and motherboard version information.

APP CONTROL

5. APP CONTROL

5.1 PREPARATION BEFORE CONNECTING

1. Ensure your Wi-Fi router supports a 2.4GHz frequency band (5GHz is not supported).
2. **Note:** Most 5GHz routers can be configured to a 2.4GHz band or a dual-band mode.
3. Verify that your Wi-Fi network name and password are correct.
4. Confirm that your smartphone or tablet is connected to a 2.4GHz network.
5. Download the "Tuya Smart" app from the App Store (iOS) or Google Play (Android).

Tuya Inc. is the official integrated chip provider and IoT partner for BluePlenum Smart Inverter pool heat pumps. By leveraging the Tuya Smart App, we provide a seamless remote connection, allowing you to control and monitor your pool's temperature from anywhere in the world.

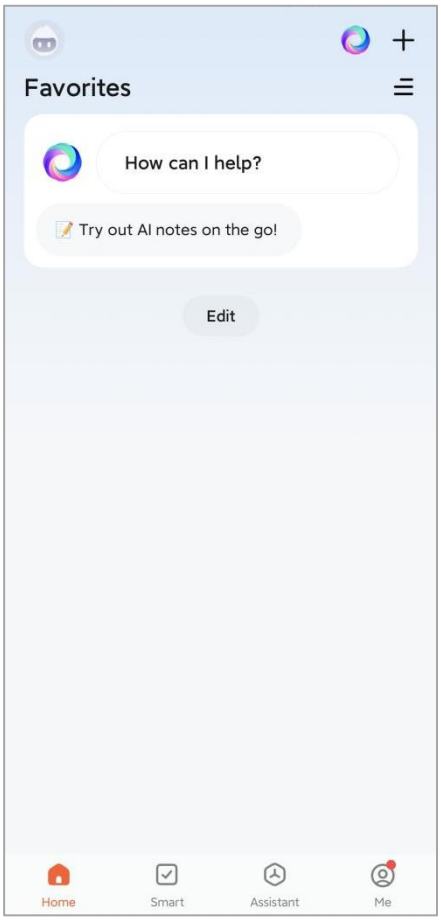
Tuya Smart App

APP CONTROL

5.2 LAUNCH THE TUYA SMART APP

1. Open the Tuya Smart app on your mobile device.
2. Register a new account using your email address or mobile phone number.
3. Log in to your account to proceed with the setup.

Login Screen



Main Dashboard

APP CONTROL

5.3 PAIRING METHOD

1. Control Panel Preparation

- **Step 1:** On the home screen, tap the **"Function"** icon to open the operation menu.
- **Step 2:** Select **"WIFI Network"** from the list of user functions.
- **Step 3:** Tap the **"Smart Network Configuration"** mode.
- **Step 4:** Confirm that the Wi-Fi icon on the control panel screen is **flashing rapidly**, indicating it is ready to pair.

Step 1

Step 2

Step 3

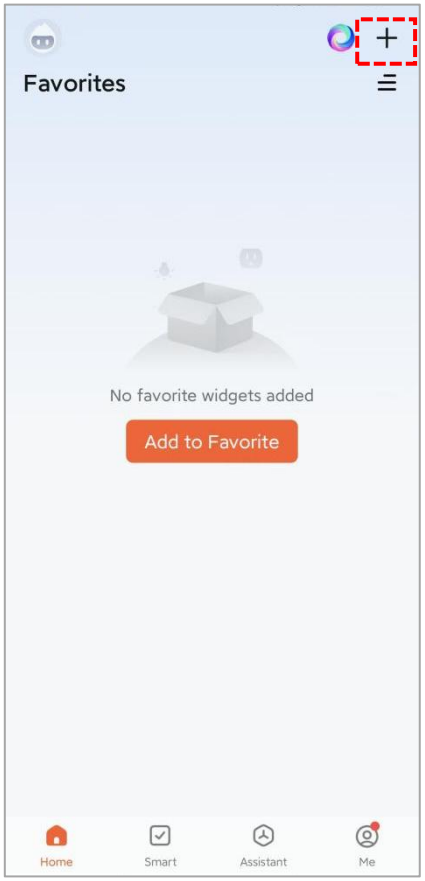
Step 4

APP CONTROL

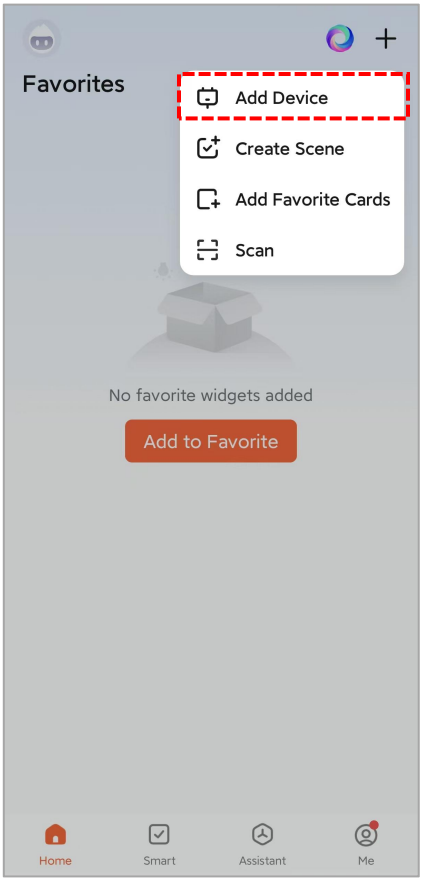
2. Automatic Connection (Recommend)

Note: We strongly recommend using this **Automatic Connection** method for the easiest setup. If the automatic process fails, please refer to the Manual Connection section or contact customer service for technical support.

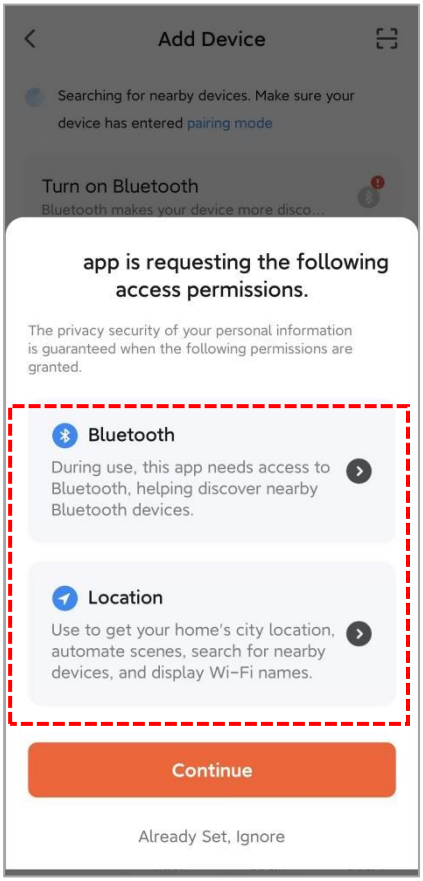
- **Open the App:** Launch the **Tuya Smart** app and ensure you are on the **Main Dashboard**.
- **Near the Unit:** For a successful pairing, please stand next to the heat pump with your mobile device.
- **Add Device:** Tap the **"+" icon** in the top-right corner and select the **"Add Device"** button.
- **Grant Permissions:** When prompted, grant the app permission to access **Bluetooth** and **Location Services**. These are required to discover and connect to your heat pump.



Open Tuya Smart



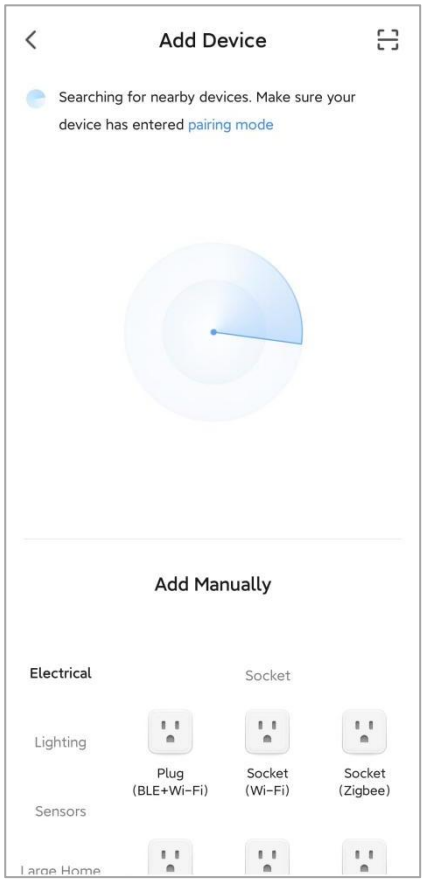
Add Device



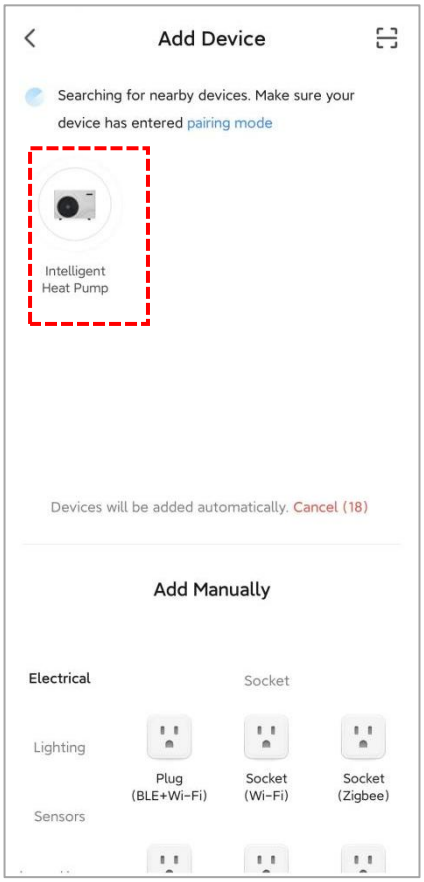
Grant Permissions

APP CONTROL

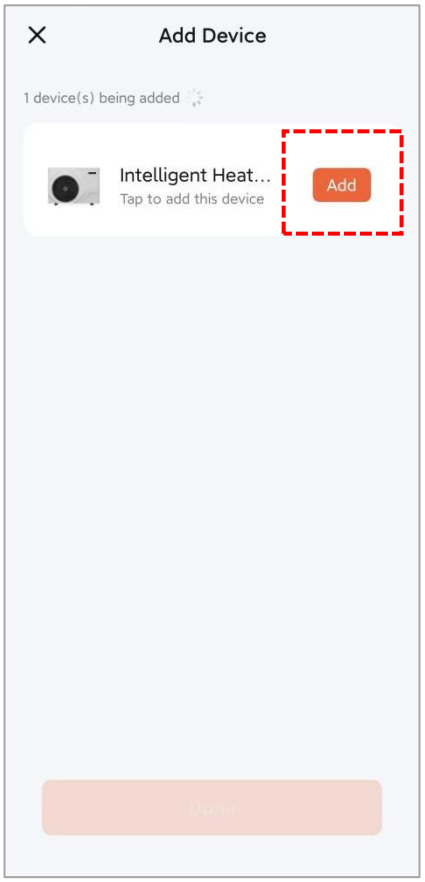
- **Automatic Search:** Ensure Bluetooth is enabled on your phone. The app will automatically begin scanning for nearby equipment.
- **Connect:**
  - Once your heat pump is detected, tap the **"Intelligent Heat Pump"** icon.
  - Tap the **"Add"** button next to the device icon.
- **Finalize Setup:** Follow the remaining on-screen prompts and tap **"Next"** to complete the pairing process.



Automatic Search

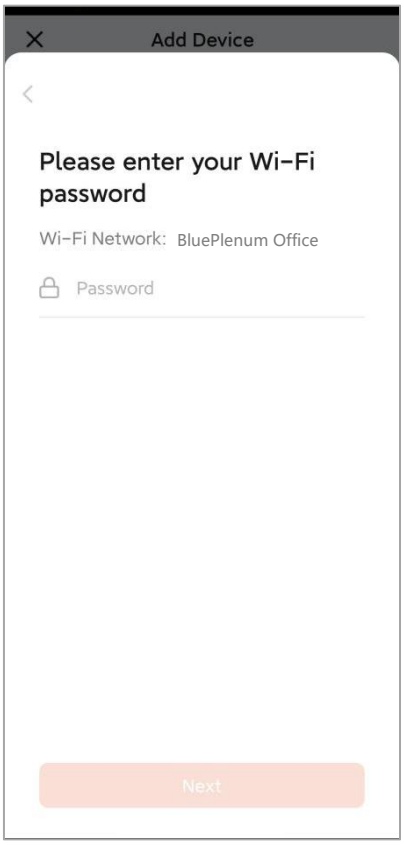


Tap Unit Icon

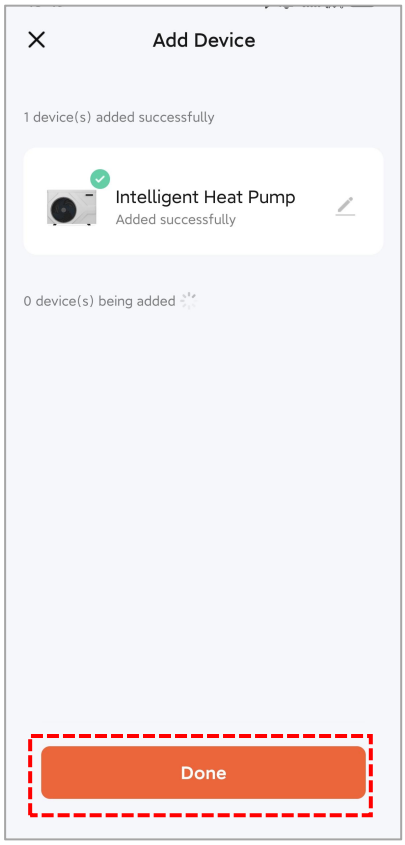


Tap Add Button

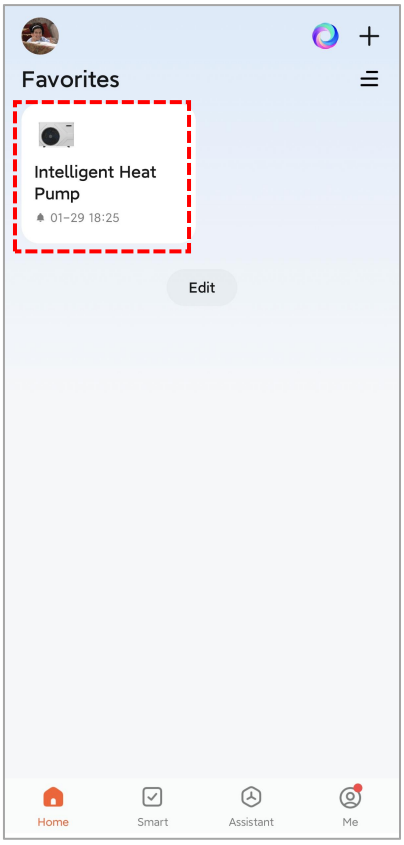
APP CONTROL



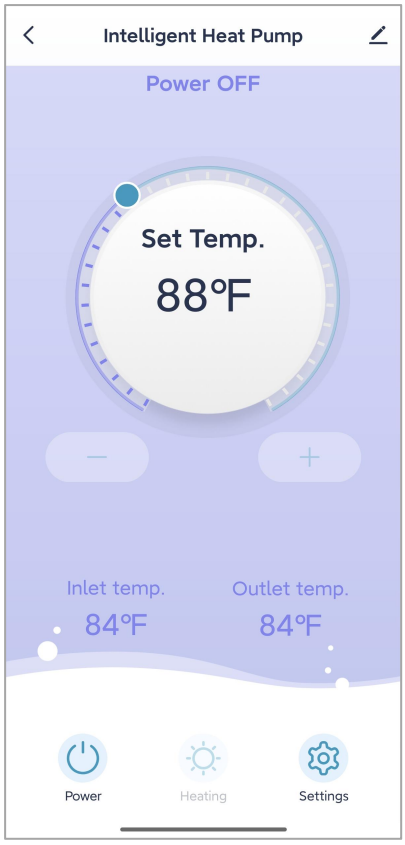
Choose Wi-Fi



Tap Done Button



Pairing Successful



Enter Control Dashboard

APP CONTROL

3. Manual Connection (Optional)

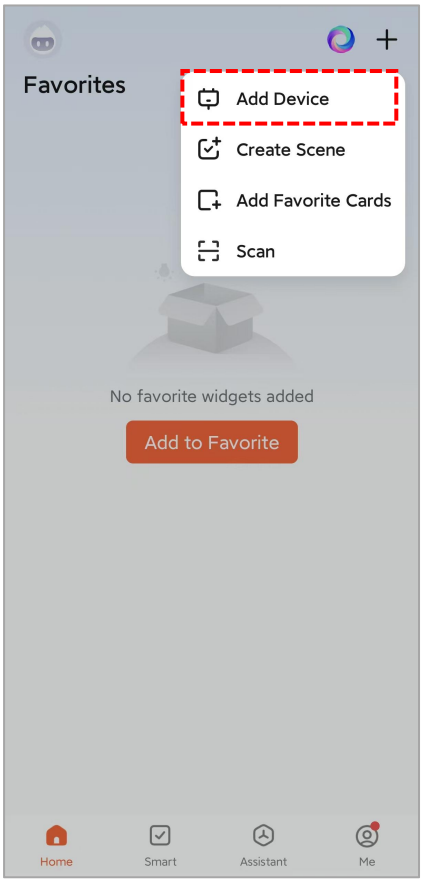
- **Wi-Fi Mode**

(1) On the control panel:

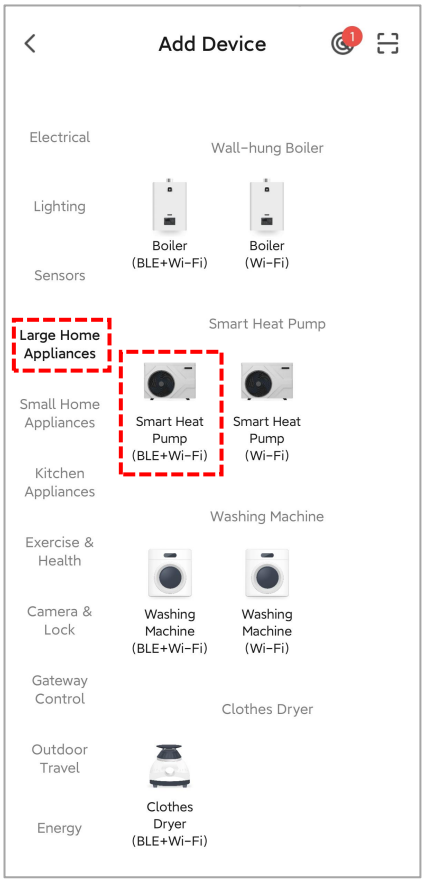
- Tap **"Function"** on the main screen.
- Select **"WIFI Network"** to enter the configuration menu and choose **"Smart Network Configuration"** .

(2) On the Tuya Smart app:

- Launch the **Tuya Smart** app and ensure you are on the **Main Dashboard**.
- For a successful pairing, please **stand next to** the heat pump with your mobile device.
- Tap the **"+" icon** in the top-right corner and select the **"Add Device"** button.
- Select **"Large Home Appliances"** and then tap **"Smart Heat Pump (BLE+Wi-Fi)."**
- Verify the Wi-Fi icon on the control panel is flashing rapidly and that **"Wi-Fi Mode"** is displayed in the upper-right corner. Then, tap the **"Confirm the indicator is blinking"** button in the app to proceed.



Add Device

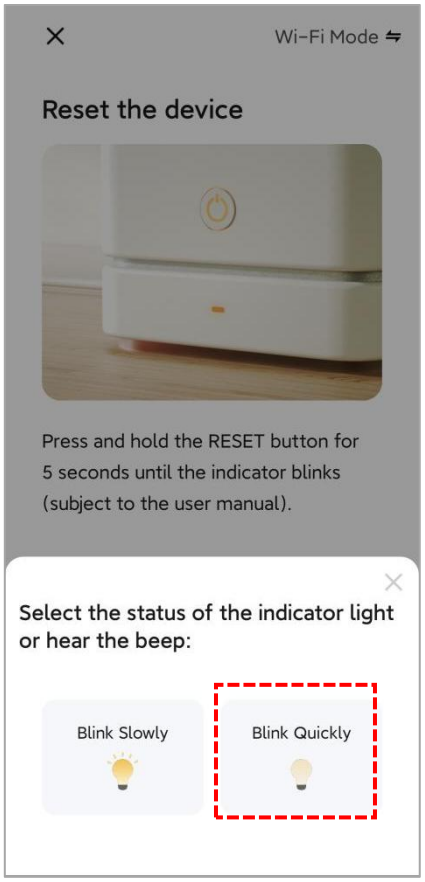


Enter "Large Home Appliance"

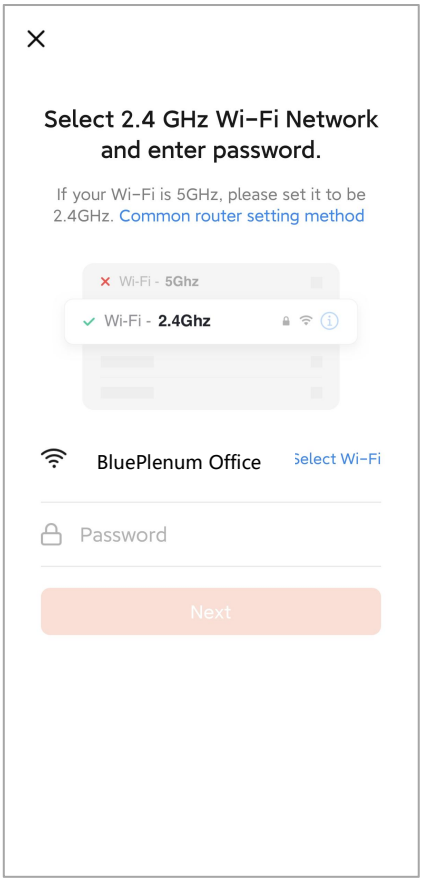
Tap Confirm Button

APP CONTROL

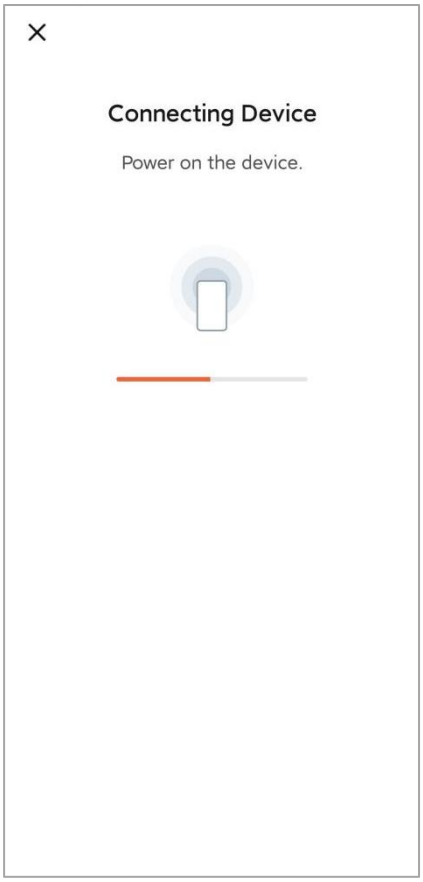
- Tap the **"Blink Quickly"** button.
- Enter your Wi-Fi password and wait for the device to pair. Follow the remaining on-screen prompts to complete the setup.



Choose "Blink Quickly"

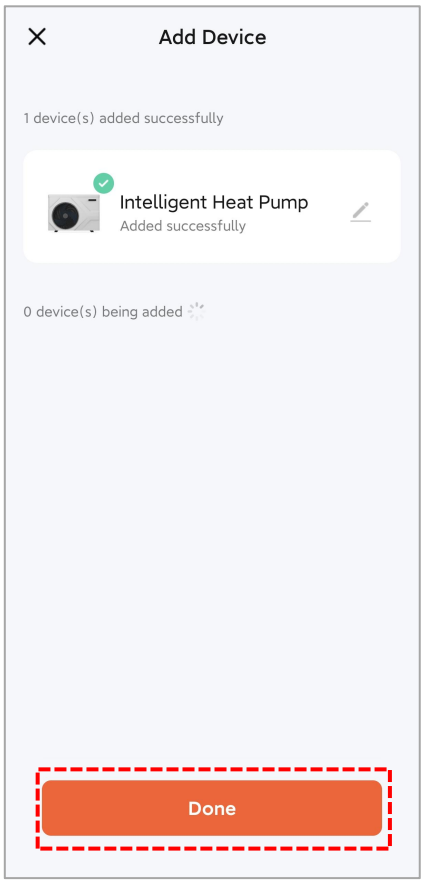


Enter Wi-Fi Password



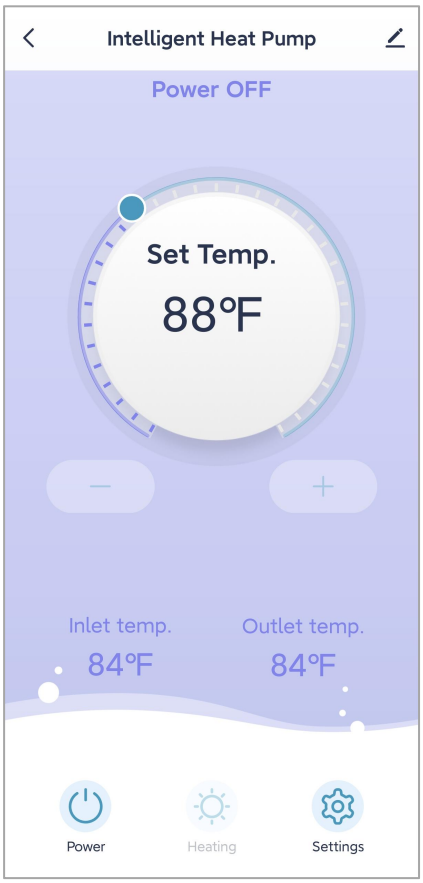
Connecting

APP CONTROL



Tap Done Button

Pairing Successful



Enter Control Dashboard

- **Bluetooth**

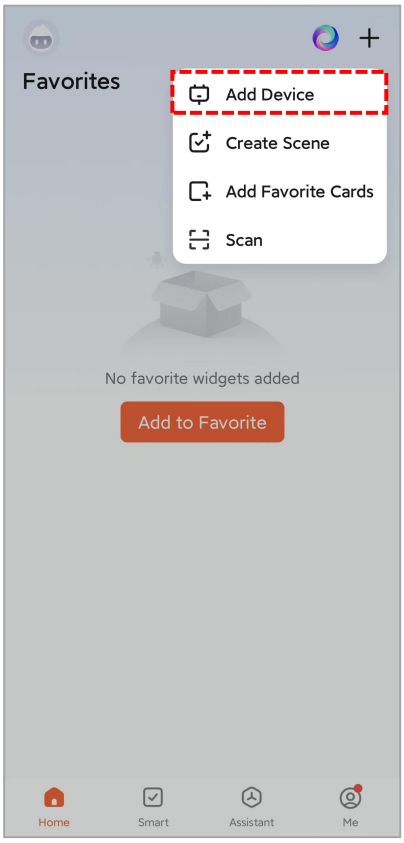
(1) On the control panel:

- Tap **"Function"** on the main screen.
- Select **"WIFI Network"** to enter the configuration menu and choose **"Smart Network Configuration"** .

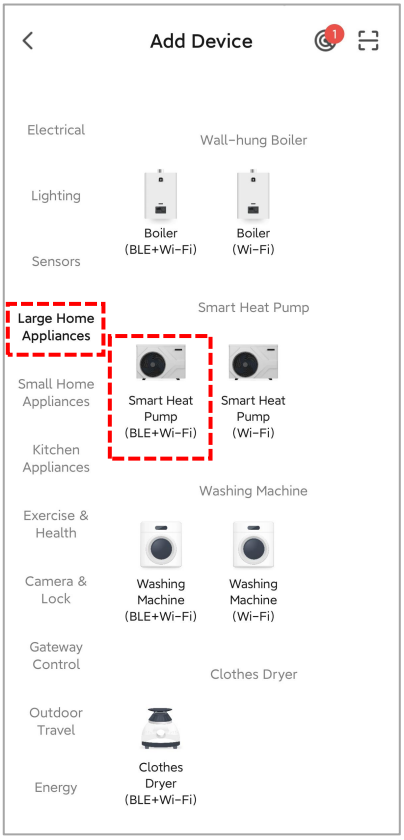
(2) On the Tuya Smart app:

- Launch the **Tuya Smart** app and ensure you are on the **Main Dashboard**.
- For a successful pairing, please **stand next to** the heat pump with your mobile device.
- Tap the **"+" icon** in the top-right corner and select the **"Add Device"** button.
- Select **"Large Home Appliances"** and then tap **"Smart Heat Pump (BLE+Wi-Fi)."**
- Verify the Wi-Fi icon on the control panel is flashing rapidly and that **"Bluetooth"** is displayed in the upper-right corner.
- Check the **"Confirm the indicator is blinking"** and tap the **"Next"** button.
- Enter your Wi-Fi password and wait for the device to pair. Follow the remaining on-screen prompts to complete the setup.

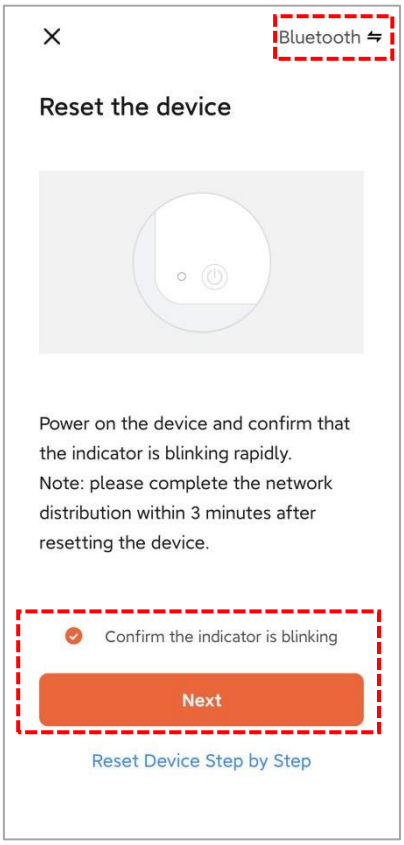
APP CONTROL



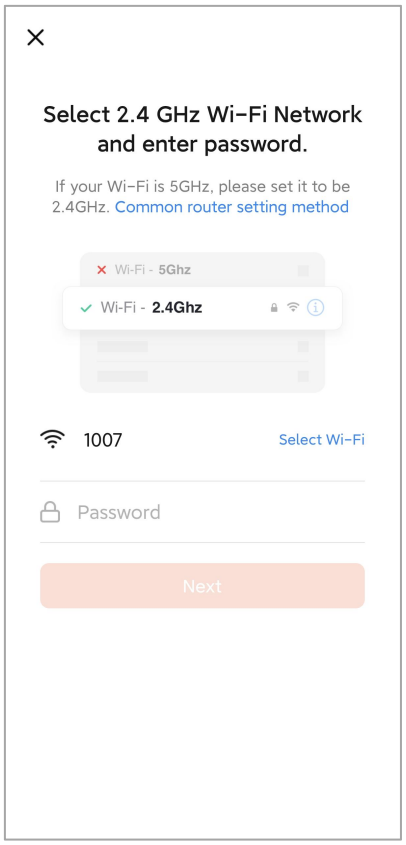
Add Device



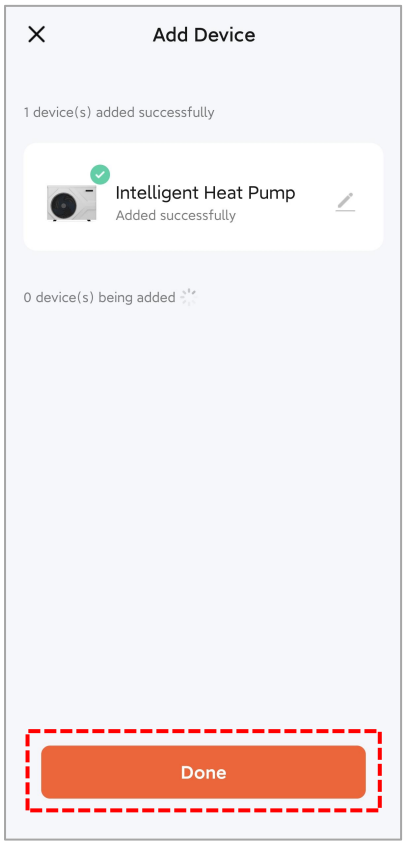
Enter "Large Home Appliance"



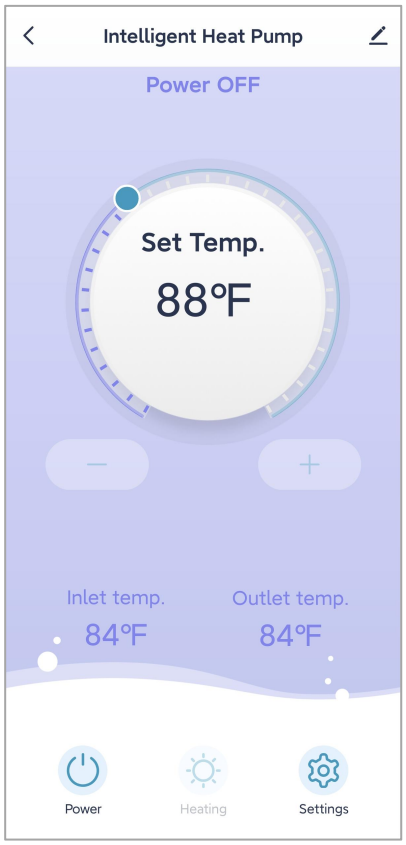
Tap Next Button



Enter Wi-Fi Password



Tap Done Button

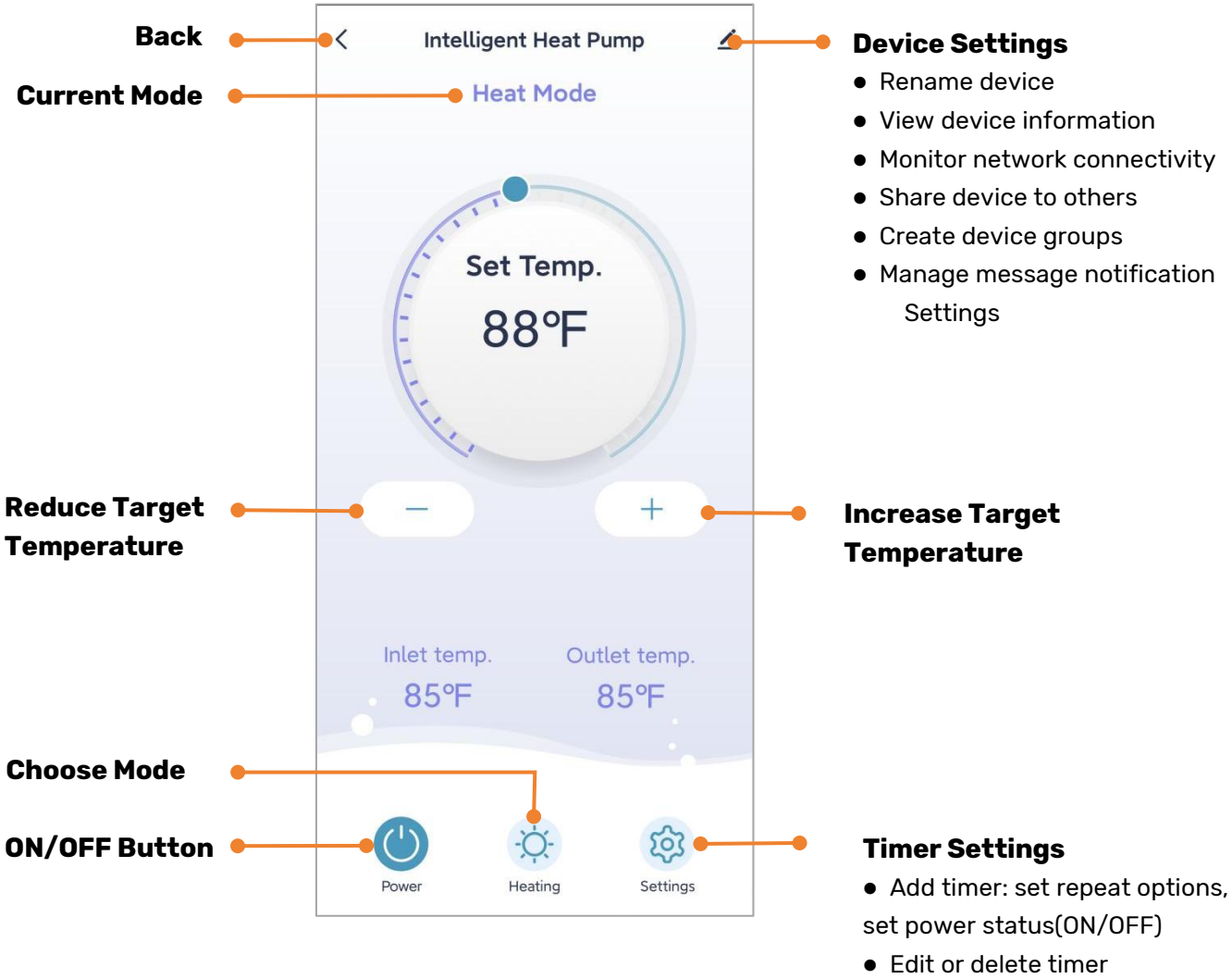


Enter Control Dashboard

APP CONTROL

5.4 TUYA SMART APP FUNCTIONS

Open the Tuya Smart app and tap the **"Intelligent Heat Pump"** icon to access the main control dashboard.



Note: Automatic On/Off schedules can be set on both the control panel and the mobile app. Please be aware that these two schedules **do not synchronize**; however, the heat pump will execute commands from both sources simultaneously.

Example Scenario: If your Control Panel is scheduled for **6:00 PM – 8:00 PM** and your App is scheduled for **5:00 PM – 9:00 PM**, the unit will operate as follows:
5:00 PM: The unit receives an "On" command from the App and begins operation.
6:00 PM: The unit receives an "On" command from the Control Panel and remains running.
8:00 PM: The unit receives an "Off" command from the Control Panel and stops working.
9:00 PM: The unit receives an "Off" command from the App and remains off.
The unit runs from **5:00 PM – 8:00 PM.** We recommend using the Tuya Smart APP to manage all timer settings.

TROUBLESHOOTING

6. TROUBLESHOOTING

	Error Code	Analysis	Troubleshooting
1	**E03 Water Flow Protection**	**1. Low water flow** 1.1 The water system is blocked. 1.2 Water pump is not suitable. 1.3 Water pipe is small. 1.4 The water flow switch is stuck and cannot be reset.	**1. Low water flow** 1.1 Clean or replace the blocked part. 1.2 Change the pump according to the water flow and water head. 1.3 Change the water pipe. 1.4 Reset the water flow switch manually.
		2. No water flow 2.1 The valve is not open. 2.2 The water pump is not working. 2.3 Water pump failure.	**2. No water flow** 2.1 Open the valve. 2.2 Turn on the pump. 2.3 Need to replace the water pump.
		3. The connection between water flow switch and main board is poor.	3. Reconnect the water flow switch cable.
		4. The water flow switch is installed wrong.	4. Install the water flow switch in the correct way.
		5. Water flow switch failure.	5. Need to replace the water flow switch.
		6. Main board failure.	6. Need to replace the motherboard.
2	**E05 High Pressure Protection**	**1. Poor condensing** 1.1 Water temperature is too high (over range operation). **1.2 Low water flow** 1.2.1 The valve in water system is not open. 1.2.2 Waterway blockage, may appear in the heat exchanger or valve part. 1.2.3 Improper water pump selection. 1.2.4 The water pump is broken .	**1. Poor condensing** 1.1 Operate within the allowable range. **1.2 Low water flow** 1.2.1 Open the valve. 1.2.2 Clean the blocked part or replace it . 1.2.3 Change the pump according to the water flow and water head. 1.2.4 Replace the water pump.
		2.Loose wiring or poor connection of high pressure switch.	2. Reconnect the wire.
		3.There is something wrong with high pressure switch.	3. Replace the high pressure switch.
		4.Main board is broken.	4. Replace the main board.
		5. Refrigerant system error.	5.Contact the after-sales service center and have it sent back for repair.
3	**E06 Low Pressure Protection**	**1. Poor evaporation effect** 1.1 Improper installation position. 1.2 Dust, foreign body blockage on the fin heat exchanger, etc. 1.3 Fan failure causes abnormal air inlet.	**1. Poor evaporation effect** 1.1 Readjust the position, the distance of the heat pump from the wall should not be too close. 1.2 Clean up the dust and dirty matter on the fin heat exchanger. 1.3 Replace the fan.
		2. The connection between low pressure switch and main board is poor.	2. Reconnect the low pressure switch cable.
		3.There is something wrong with low pressure switch	3. Replace the low pressure switch.
		4. Main board is broken.	4. Replace the main board.
		5. Refrigerant system error.	5.Contact the after-sales service center and have it sent back for repair.
4	**E09 Communication fault**	1.The connection between wire controller and main board is poor.	1. Reconnect the wire controller cable.
		2. Communication wire and strong electricity wire put together, resulting in power interference communication.	2. Communication wire is placed separately from the strong electricity wire.
		3.Control panel fault.	3. Replace the control panel.
		4. Main board fault.	4. Replace the main board.
5	**E12 Exhaust Temperature too high protection**	**1. Low water flow** 1.1 The water system is blocked. 1.2 Water pump is not suitable. 1.3 Water pipe is small. 1.4 The water flow switch is stuck and cannot be reset.	**1. Low water flow** 1.1 Clean or replace the blocked part. 1.2 Change the pump according to the water flow and water head. 1.3 Change the water pipe. 1.4 Reset the water flow switch manually.
		2. No water flow 2.1 The valve is not open. 2.2 The water pump is not working. 2.3 Water pump failure.	**2. No water flow** 2.1 Open the valve. 2.2 Turn on the pump. 2.3 Need to replace the water pump.
		3.Temp.sensor fault.	3.Need to replace the T3 temp.sensor.
		4.Water flow switch fault.	4.Need to replace the water flow switch.
		5.Leakage happen,and refrigerant is not enough .	5.Repair the leakage,and refill the refrigerant according to the nameplate.

TROUBLESHOOTING

	Error Code	Analysis	Troubleshooting
6	**E15 T4 Water inlet temperature sensor fault**	1. The connection between the temp. sensor and the main board is poor.	1.Reconnect the T4 temp.sensor cable.
		2. Temp. sensor fault.	2.Replace the T4 temp.sensor.
		3.The sensor resistance on the main board fault.	3.Replace the main board.
7	**E16 T7 Internal coil temperature sensor fault**	1. The connection between the temp. sensor and the main board is poor.	1.Reconnect the T7 temp.sensor cable.
		2. Temp. sensor fault.	2.Replace the T7 temp.sensor.
		3.The sensor resistance on the main board fault.	3.Replace the main board.
8	**E18 T3 Exhaust temperature sensor fault**	1. The connection between the temp. sensor and the main board is poor.	1.Reconnect the T3 temp.sensor cable.
		2. Temp. sensor fault.	2.Replace the T3 temp.sensor.
		3.The sensor resistance on the main board fault.	3.Replace the main board.
9	**E21 T1 Ambient temperature sensor fault**	1. The connection between the temp. sensor and the main board is poor.	1.Reconnect the T1 temp.sensor cable.
		2. Temp. sensor fault.	2.Replace the T1 temp.sensor.
		3.The sensor resistance on the main board fault.	3.Replace the main board.
10	**E29 T2 Suction temperature sensor fault**	1. The connection between the temp. sensor and the main board is poor.	1.Reconnect the T2 temp.sensor cable.
		2. Temp. sensor fault.	2.Replace the T2 temp.sensor.
		3.The sensor resistance on the main board fault.	3.Replace the main board.
11	**E38 Fan Failure**	1.Power fluctuation. If the power is cut off, it will be restored within 30 seconds.	1.Turn off the power switch and wait for at least one minute before reconnecting the power.
		2. Fault or loosening of the connection line between the fan and the PCB	2.Check the connection of the wiring or replace the wiring.
		3.The PCB has malfunctioned.	3.Replace the main board.
		4.The fan motor has malfunctioned.	4.Replace the fan motor.
12	**E88 Drive feedback failure**	1.There are abnormalities in the power input and voltage.	1.Make sure the current and voltage inputs are normal.
		2. The PCB is damaged.	2.Replace the main board.
		3.Compressor malfunction.	3.Contact the after-sales service center and have it sent back for repair.

MAINTENANCE

7. MAINTAINANCE

Warning: RISK OF ELECTRICAL SHOCK. Always disconnect the power supply before performing any maintenance or cleaning to ensure personal safety.

7.1 WINTERIZING

To protect your investment during freezing temperatures, please follow these essential steps:

- **Drain All Water:** Thoroughly drain the unit to prevent internal freezing. Ice expansion can cause **irreversible structural damage** and may void your warranty.
  - **Pro Tip:** Loosen the water inlet and outlet unions with a wrench and remove the drainage cap(see figure below) to allow all residual water to escape. This is critical for protecting the titanium heat exchanger.

Note: Some models have removed the drainage port due to upgrades; the water inside the unit can be drained directly through the water inlet and outlet.

- **Clear Condensation Drains:** Ensure all condensation drainage paths are unobstructed. If ambient temperatures drop below 41°F (5°C), remove the **rubber drain plug** to ensure proper drainage and prevent ice buildup.
- **Install Protective Cover:** Use our **heavy-duty, UV-resistant, and waterproof** cover to shield the unit from snow, debris, and harsh winter elements. **Note: Ensure the power is off and the unit is dry before covering.**

7.2 ROUTINE CLEANING PROCEDURES

Keep your heat pump running efficiently with these regular maintenance steps:

MAINTENANCE

- **Exterior Care:** Wipe the outer casing with a soft, damp cloth. Do not use detergents, abrasive cleaners, or harsh chemicals, as these may damage the protective finish.
- **Evaporator Coil:** The evaporator located at the rear of the unit must be kept clear of debris. Use a vacuum with a soft brush attachment to gently remove dust and leaves without bending the fins.
- **Filtration System:** Regularly inspect and clean the pool filters. A clogged filtration system restricts water flow and can cause the unit to malfunction or shut down.
- **Clear Airflow:** During extreme weather, ensure the air intake and exhaust outlets are free of ice, snow, or debris to maintain proper airflow and performance.

7.3 ANNUAL INSPECTIONS

- **Comprehensive Safety Check:** Full inspection of all mechanical components and safety controls.
- **Electrical Audit:** Verify the integrity and tightness of all electrical connections and wiring.
- **Startup Analysis:** Test all startup components and run cycles to ensure operational stability.
- **Refrigerant & Pressure Check:** Monitor refrigerant levels and system pressure. If levels are low or leaks are detected, a certified technician must handle the repairs.
- **Winter Protection:** Utilize our **heavy-duty, UV-resistant, and waterproof** cover during the off-season to protect against the elements.
- **Pre-Season Restart:** Always verify adequate water flow through the system before restarting the unit for the season to prevent dry-firing or damage.

WARRANTY

8. WARRANTY

8.1 TWO-YEAR WARRANTY

BluePlenum warrants its products to the original retail purchaser to be free from defects in material and workmanship, under normal use and service, for a period of **two (2) years** from the date of purchase. This limited warranty is subject to the terms and conditions outlined below.

1. During the warranty period, BluePlenum will, at its discretion:

- **Local Service Centers & Free Remote Technical Support**
- Ship replacement parts **at no cost**
- Replace the entire unit if it is determined to be **non-operational due to a manufacturing defe ct**

2. Warranty service is primarily conducted through **remote diagnosis**—including video calls, photo reviews, and system data analysis. **For free hands-on support, local service centers are available (headquartered in California)**; please contact us for a complete list of authorized service addresses.

3. Coverage: This warranty covers the repair or replacement of any components verified to be defective in materials or workmanship under normal use and service.

4. To ensure proper performance and warranty coverage, the product must be:

- Installed according to the **BluePlenum installation manual**
- Used with proper electrical supply, plumbing, and water flow
- Maintained in accordance with normal pool equipment practices

5. This limited warranty **does not** cover issues caused by:

- Improper installation, wiring, plumbing, or voltage mismatch
- Use outside the recommended operating conditions
- Freeze damage, flood damage, lightning, or other acts of nature
- Water chemistry imbalance, corrosion, scale buildup, or debris blockage
- Unauthorized modification, misuse, or neglect

6. This warranty covers **parts and product replacement only.**
It does not include:

- Labor, installation, removal, or re-installation costs
- Shipping costs outside the continental United States
- Consequential or incidental damages

7. How to Obtain Warranty Service:
To initiate a claim, please contact our support team at **support@blueplenum.com** or visit our website at **https://www.blueplenum.com/pages/contact** to submit a formal service request.

WARRANTY

8. Post-Warranty Support:

Even beyond the warranty period, BluePlenum is here for you. If you encounter any issues with your product, our dedicated support team is ready to provide expert guidance and practical solutions to keep your system running smoothly.

> **NOTE**: In no event shall BluePlenum's liability exceed the original purchase price of the product. For the most current warranty terms and updates, please visit our website or contact our support team directly. BluePlenum is committed to delivering exceptional after-sales service to ensure your total satisfaction.

Service Item	First 2 Years	After 2 Years
Online Technical Support	**FREE** (Video calls / Data review)	**FREE** (Video calls / Data review)
Local Service Center Support	**FREE** (Authorized locations)	FREE Support; parts/consumables may apply
Replacement Parts	**FREE**	Charged at cost
Shipping Costs	**FREE** (Covered by BluePlenum)	Covered by Customer

*If you are unsure whether an issue is covered, please contact **our support team**.We are always ha ppy to help you find **the most practical and fair solution**.*

Official Store

Email Us

PDF (EN & ES Version)

Tutorial Video

Website: https://www.blueplenum.com
Email: support@blueplenum.com
Customer Service Opening Hours: 24/7/365
Tech Support Opening Hours:
PDT (-7): 6 PM - 7AM, Sunday Afternoon - Friday Morning
MDT (-6): 7 PM - 8 AM, Sunday Afternoon - Friday Morning
CDT (-5): 8 PM - 9 AM. Sunday Afternoon - Friday Morning
EDT (-4): 9 PM - 10 AM. Sunday Afternoon - Friday Morning
HKT (+8): 9 AM - 10 PM, Monday Morning- Friday Afternoon

FCC Warnning:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection againstharmful interference in a residential installation. This equipment generates, uses and can radiateradio frequency energy and, if not installed and used in accordance with the instructions, maycause harmful interference to radio communications. However, there is no guarantee thatinterference will not occur in a particular installation. If this equipment does cause harmfulinterference to radio or television reception, which can be determined by turning the equipmentoff and on, the user is encouraged to try to correct the interference by one or more of thefollowing measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1)This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.