

VARMEKS
HEAT PUMPS

VARM BOOST SERIES

HEAT PUMPS USER MANUAL

8 - 11 - 15 - 22 kW



PLEASE READ AND STRICTLY FOLLOW ALL SAFETY INSTRUCTIONS.
KEEP THIS MANUAL IN A SAFE PLACE FOR FUTURE REFERENCE.

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IMPORTANT SAFETY PRECAUTIONS

Important Notice:

This manual provides installation and operational guidelines for the DC Inverter Air Source Heat Pump. For any inquiries related to this equipment, please consult the dealer.

Important Notice to Installer: This manual contains essential information pertaining to the installation, operation, and safe utilization of this product. This information should be provided to the owner and/or operator of this equipment or left in proximity to the heat pump following installation.

Attention Users: This manual contains essential information to aid you in the operation and maintenance of this heat pump. Please retain it for future reference.

⚠ CAUTION – Prior to installing this product, please read and adhere to all warnings and instructions provided with the product.

Neglecting to adhere to safety warnings and instructions may lead to severe injury, fatality, or property damage.

Codes and Standards

The DC Inverter Air Source Heat Pump must be installed in compliance with local building and installation codes set forth by the relevant authority. All local codes take precedence over national regulations. In the absence of local codes, consult the most recent edition of the National Electrical Code (NEC) as outlined in your local authority's Electrical Code (CEC) for installation guidance.



Risk of Electric Shock or Electrocution.

The electrical supply for this product must be installed by a licensed or certified electrician in compliance with the National Electrical Code and all relevant local codes and ordinances. Improper installation poses an electrical hazard that can result in death or serious injury to heat pump users, installers, or others due to electric shock, and may also lead to property damage. Please read and adhere to the specific instructions provided in this manual.

⚠ CAUTION – To minimize the risk of injury, do not permit children to use this product unless they are under constant supervision.

Consumer Information and Safety

DC Inverter Air Source Heat Pumps are engineered and produced to provide numerous years of safe and dependable service when installed, operated, and maintained in accordance with the guidelines outlined in this manual and the installation standards referenced in subsequent sections. Throughout the manual, safety warnings and

Warnings are indicated by the symbol "⚠". Please ensure that you read and adhere to all warnings and precautions.

Heat Pump Energy Efficiency Recommendations

If you do not intend to use hot water for prolonged durations, you may turn off the heat pump or reduce the temperature setting on the control by a few degrees to decrease energy consumption.

We present the following recommendations to assist you in conserving energy and reducing the operational costs of your heat pump while maintaining your comfort.

The recommended maximum water temperature is 60°C.

For optimal energy efficiency, it is advisable to operate the heat pump during daylight hours when the ambient temperature is elevated.

3. Whenever feasible, install the heat pump in a well-ventilated outdoor location, shielding it from wind, rain, and snow. When practical, we advise employing protective measures to mitigate the risk of freezing and icing.

General Installation Guidelines

Installation and servicing must be conducted by a qualified installer or service representative and must adhere to all national, state, and local regulations and/or safety standards.

This DC Inverter Air Source Heat Pump is specifically engineered for domestic hot water and residential heating. Installation and servicing must be conducted by a qualified installer or technician and must adhere to all national, state, and local regulations and/or safety standards.

Chapter 1

Introduction Product Synopsis

DC Inverter Air Source Heat Pumps extract heat from the surrounding air to heat water, delivering high-temperature hot water of up to 70°C. This distinctive high-temperature heat pump is extensively utilized for residential heating. Equipped with cutting-edge technology, the heat pump functions efficiently in ambient temperatures as low as -20°C.

With elevated output temperatures reaching 60°C, it is compatible with standard-sized radiator systems without requiring additional expansion. In comparison to conventional oil or LPG boilers, the DC Inverter heat pump generates up to 50% less CO₂ emissions and achieves an 80% reduction in operating costs.

Our heat pumps are not only exceptionally efficient but also user-friendly and safe.

General Characteristics

1. Reduced operating costs and enhanced efficiency are achieved through a high coefficient of performance (COP) of up to 5, resulting in lower operating expenses compared to traditional ASHP technology. An immersion heater is not necessary.
2. Decreased capital expenditures Effortless installation
3. Elevated comfort levels. A high storage temperature guarantees enhanced availability of hot water.

4. No potential hazards, including flammable materials, gas poisoning, explosions, fires, or electric shocks, are present as seen in other heating systems.
5. Integrated digital controller for regulating the desired water temperature.
6. Durable and corrosion-resistant composite cabin, capable of withstanding harsh climatic conditions.
7. The HIGHLY compressor delivers outstanding performance, exceptional energy efficiency, durability, and quiet operation.
8. The self-diagnostic control panel monitors and troubleshoots heat pump operations to guarantee safe and reliable functionality.
9. Sophisticated digital controller featuring an intuitive interface and blue LED backlighting.
10. The isolated electrical compartment effectively prevents internal corrosion and extends the lifespan of the heat pump.
11. The heat pump is capable of functioning in ambient air temperatures as low as -20°C.

Chapter 2:

Installation

The following overview outlines the procedure for installing the DC Inverter Air Source Heat Pump.

Note: Prior to installing this product, please read and adhere to all warnings and instructions. Installation of the heat pump should be conducted solely by a qualified service professional.

Materials Required for Installation

The following items are mandatory and must be supplied by the installer for all heat pump installations:

Plumbing fixtures.

2. Level surface to ensure adequate drainage.

3. Ensure that an appropriate electrical supply line is provided. Consult the rating plate on the heat pump for electrical specifications, paying particular attention to the specified current rating. A junction box is not necessary for the heat pump; connections are made within the electrical compartment of the unit.

It is advisable to utilize PVC piping for the electrical supply line.

If the water pressure is insufficient, employ a booster pump to enhance water flow.

6. A filter is necessary at the water inlet.

7. Plumbing must be insulated to minimize heat loss.

For improved serviceability, we recommend the installation of shut-off valves on both the inlet and outlet water connections.

Technical Specifications

VARM BOOST SERIES TECHNICAL DATA

Varmeks Model	8 kW	11 kW	15 kW	22 kW
Heating Mode – Ambient Temperature (DB/WB): 7/6 °C, Water Temperature (In/Out): 30/35 °C				
Heating Capacity Range (kW)	3.3-8.3	4.5-11.4	5.9-14.8	8.8-22.0
Heating Power Input Range (kW)	0.64-2.18	0.85-2.95	1.13-3.83	1.68-5.77
	3.81-5.17	3.86-5.29	3.86-5.22	3.81-5.24
DHW Mode – Ambient Temperature (DB/WB): 7/6 °C, Water Temperature (In/Out): 35/55 °C				
Heating Capacity Range (kW)	3.7-7.4	5.2-10.2	6.6-13.2	7.8-17.6
Heating Power Input Range (kW)	0.79-2.10	1.10-2.87	1.41-3.73	1.67-5.01
	3.52-4.69	3.55-4.71	3.54-4.67	3.51-4.66
Heated Water Output (L/H)	159	219	283	377
Cooling Mode – Ambient Temperature (DB/WB): 35/24 °C, Water Temperature (In/Out): 12/7 °C				
Cooling Capacity Range (kW)	2.4-5.8	3.3-8.2	4.3-10.8	6.2-15.3
Cooling Power Input Range (kW)	0.79-2.19	1.08-3.07	1.39-3.99	1.99-5.60
	2.65-3.04	2.67-3.06	2.71-3.10	2.73-3.12
Space Heating (According to EN14825:2022) – Average Climate – Water Outlet 35 °C				
Nominal Heat Output (kW)	5.82	7.89	9.95	14.05
Seasonal Heating Efficiency (η _s)	182.7%	181.0%	182.9%	184.6%
Seasonal COP (SCOP)	4.64	4.6	4.65	4.69
Noise Level @1 m (dB(A))	44	43	45	45
Sound Power Level (dB(A))	58	57	59	60
Space Heating (According to EN14825:2022) – Average Climate – Water Outlet 55 °C				
Nominal Heat Output (kW)	5.59	8.7	9.23	13.47
Seasonal Heating Efficiency (η _s)	136.0%	137.0%	131.9%	138.9%
Seasonal COP (SCOP)	3.48	3.5	3.37	3.55
Noise Level @1 m (dB(A))	44	47	46	46
Sound Power Level (dB(A))	58	61	60	62
Power Supply	230V/1Ph/50-60Hz	230V/1Ph/50-60Hz	230V/1Ph/50-60Hz	380V/3Ph/50-60Hz
Max. Power Input (kW)	3.1	4.1	5.2	7.6
Max. Current (A)	14.2	18.8	23.8	14.3
Fuse or Circuit Breaker (A)	20	25	32	20
Cable Cross-Section (mm ²)	2.5	4	6	4
Pipe Diameter (mm)	DN25	DN25	DN25	DN25
Water Flow Rate (m ³ /h)	1.43	1.96	2.55	3.78
Net Weight (kg)	112	120	138	170
Unit Dimensions (W*D*H) (mm)	1080*460*820	1080*460*960	1080*480*1060	1080*480*1372
IP Rating (Protection Level)	IPX4	IPX4	IPX4	IPX4
Anti-Electric Shock Rating	I	I	I	I
Refrigerant	R290/1.0kg	R290/0.95kg	R290/1.45kg	R290/1.4kg
Compressor	HIGHLY	HIGHLY	HIGHLY	HIGHLY
Water Pump	SHIMGE	SHIMGE	SHIMGE	SHIMGE

Test Conditions
Operation ambient temp(°C): -25~43 °C / Operating water temp(°C): 20~60 °C (DHW) / Operating water temp(°C): 20~70 °C (Heating) / Operating water temp(°C): 7~35 °C (Cooling)
Technical data are nominal values under standard test conditions. Actual performance may vary. Varmeks reserves the right to change specifications without notice.

Note: The aforementioned design and specifications are subject to modification without prior notice for the purpose of product enhancement. For comprehensive specifications of the units, please consult the nameplate affixed to the units.

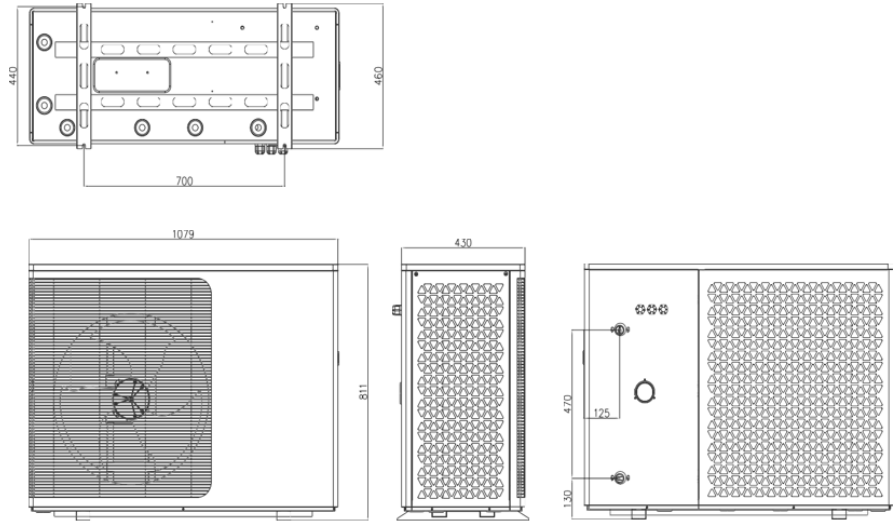
Proper installation is crucial to guarantee safe operation. The specifications for heat pumps are:

1. Specifications for essential connections.
2. On-site assembly (if necessary).
3. Suitable field placement and areas.
4. Adequate electrical wiring.
5. Sufficient water flow.

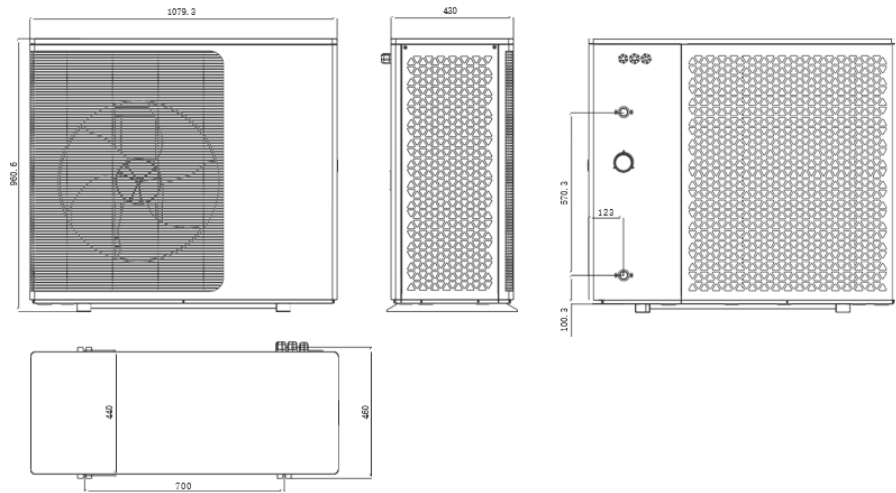
This guide offers the essential information required to fulfill these criteria. Carefully examine all application and installation procedures prior to commencing the installation.

Dimensions: Unit: Millimeters

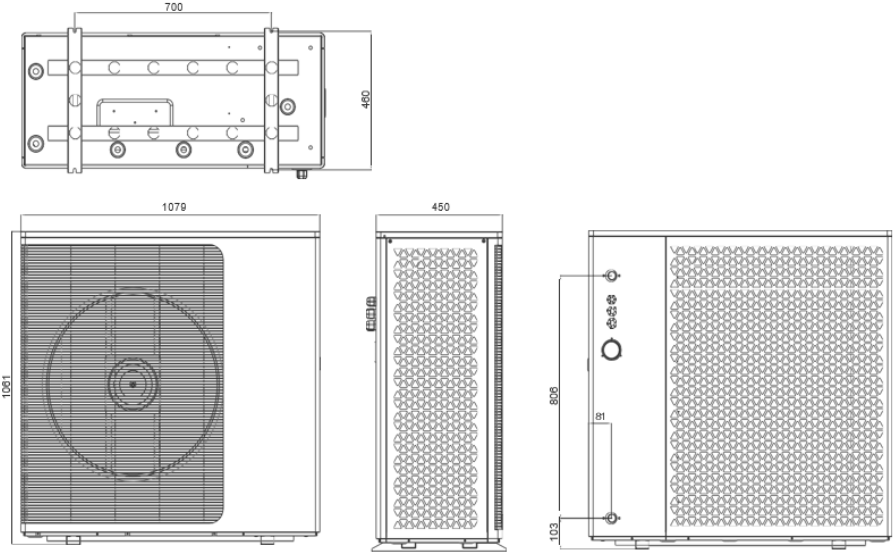
VM-0MB1402008



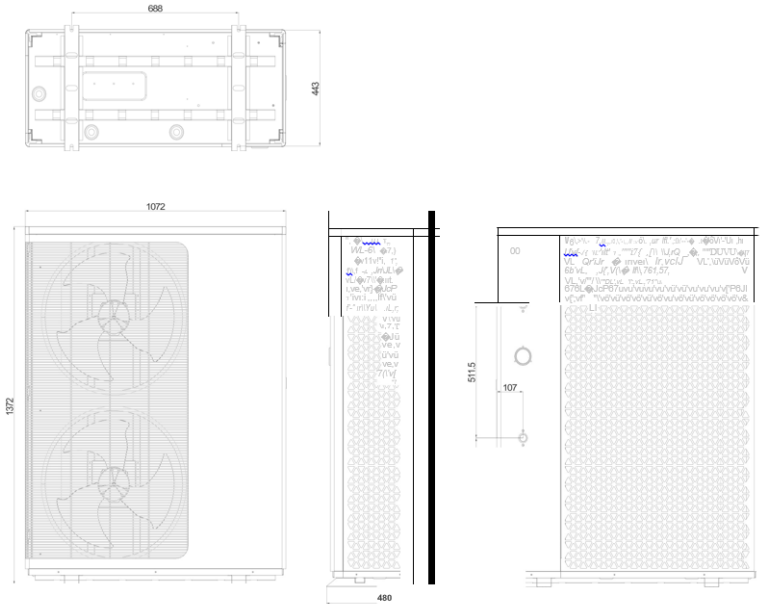
VM-0MB1402011



VM-OMB1402015

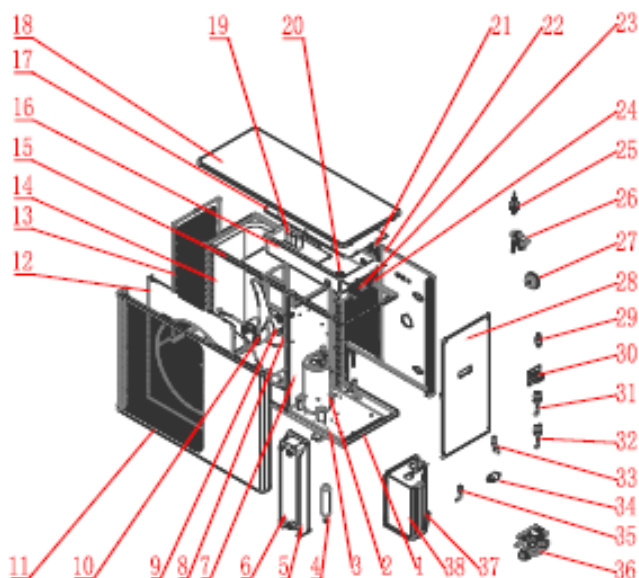


VM-OMB1402022 - VM-OMB3402022



Overview

VM-0MB1402008 - VM-0MB1402011



No - Replacement

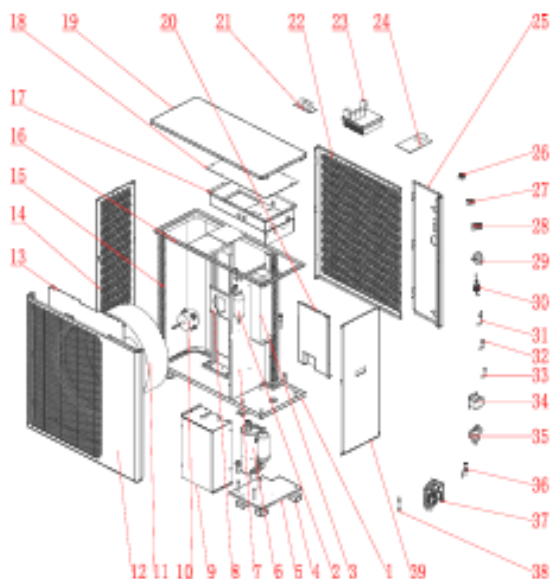
- 1 Sub-Base
- 2 Compressors
- 3 Vibration platform
- Four liquid storage tanks
- 5 Plate support bracket
- 6 Plate heat exchanger
- 7 Middle-distance compositions
- 8 Motor brackets
- 9 Motor
- 10 fan blades
- 11 You panel
- 12 Airflow control panel
- 13 Left (grid)
- 14 Evaporators
- 15 Upper frame
- 16 electrical enclosures
- 17 Electrical enclosure cover
- 18 Upper panel
- 20 Transfer terminal block

No Spare Parts

- 21 Rear (grille)
- 22 Rear side panel
- 23 Terminal block
- 24 Junction box
- 25 Water flow switch
- 26 four-way valve
- 27 Pressure gauge
- 28 Right-side panel
- 29 Dryer filter
- 30 Reactance
- 31 High-Pressure Switch
- 32 Low Pressure Switch
- 33 Electronic Expansion Valve
- 34 Filter
- 35 Needle Valve
- 36 Water Pump
- 37 Compressor cover 1
- 38 Compressor Cover 2

Overview

VM-0MB1402015



No Spare Parts

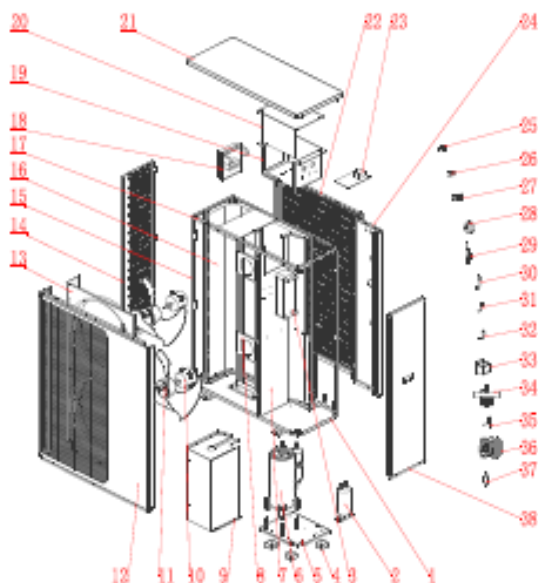
- 1 Sub-base
- 2 Liquid storage tanks
- 3 Plate heat exchanger
- 4 Rubber pads
- 5 Vibration platform
- 6 Compressors
- 7 Middle-distance compositions
- 8 Motor brackets
- 9 Handcuffs
- 10 Motor
- 11 fan blades
- 12 You panel
- 13 Airflow control panel
- 14 Left (grid)
- 15 Evaporators
- 16 Upper frame
- 17 Electrical enclosure
- 18 Electrical enclosure cover
- 19 Upper panel
- 20 Handcuffs

No Spare Parts

- 21 Filter cards
- 22 Rear (grille)
- 23 Driver card
- 24 Control card
- 25 Rear side panel
- 26 Transfer terminal block
- 27 Transfer terminal block
- 28 Transfer terminal block
- 29 Pressure gauge
- 30 Water flow sensor
- 31 Needle Valve
- 32 High-Pressure Switch
- 33 Low-Pressure Switch
- 34 Reactors
- 35 four-way valve
- 36 Electronic Expansion Valve
- 37 Water pump
- 38 Check valve
- 39 Right-side panel

Overview

VM-0MB3402022



No Spare Parts

- 1 Sub-base
- 2 Liquid storage tanks
- 3 Plate heat exchanger
- 4 Rubber pads
- 5 Vibration platform
- 6 Compressors
- 7 Middle-distance compositions
- 8 Motor brackets
- 9 Handcuffs
- 10 Motor
- 11 fan blades
- 12 You panel
- 13 Hoods
- 14 Left (grid)
- 15 Posts / Supports
- 16 Evaporators
- 17 Upper frame
- 18 Driver card
- 19 Electrical enclosure
- 20 Electrical box cover

No Spare Parts

- 21 Upper panel
- 22 Rear (grille)
- 23 Control card
- 24 Rear side panel
- 25 Transfer terminal block
- 26 Transfer terminal block
- 27 Transfer terminal block
- 28 Pressure gauge
- 29 Water flow switch
- 30 Needle Valve
- 31 High-Pressure Switch
- 32 Low Pressure Switch
- 33 Reactors
- 34 four-way valve
- 35 Electronic Expansion Valve
- 36 Water Pump
- 37 Check valve
- Right-side panel

Installation Location

⚠ NOTICE!

1. Avoid installing the heat pump in proximity to hazardous materials and locations.
2. Avoid installing the heat pump beneath steeply sloped roofs lacking gutters, as this may result in rainwater mixed with debris entering the unit.
3. Position the heat pump on a level, gently sloping surface, such as concrete or manufactured slabs. This will facilitate adequate drainage of condensation and rainwater from the unit's base. Ideally, the floor should be at the same elevation as or slightly elevated above the filter system or equipment. Avoid installing the heat pump in proximity to hazardous materials or areas.

Installation Specifications

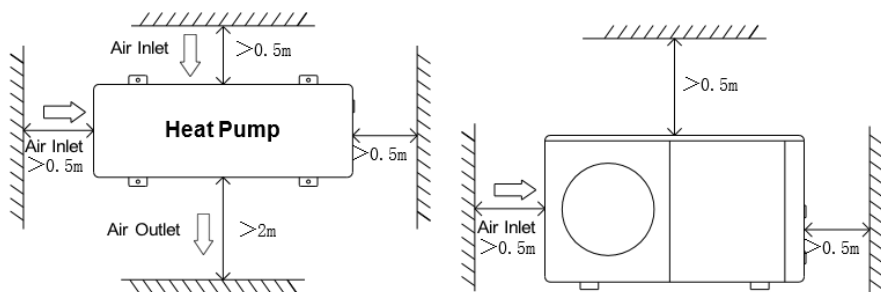
All criteria in the subsequent sections represent minimum clearances. Nevertheless, each installation must be assessed with consideration of local conditions, including the proximity and height of walls as well as nearness to public areas. The heat pump should be situated to permit clearance on all sides for maintenance and inspection.

The installation area for the heat pump must be adequately ventilated, and the air inlet and outlet should remain unobstructed.

The installation site must possess adequate drainage and be constructed on a stable foundation.

Do not install the unit in locations where contaminants such as corrosive gases (chlorine or acid), dust, sand, and leaves may accumulate.

4. To facilitate maintenance and troubleshooting, it is essential that no obstacles are positioned within 1 meter horizontally around the unit. Additionally, there should be no obstructions within 2 meters vertically above the unit to ensure proper air ventilation. (See Figure 1)



5. The heat pump must be installed with shock-absorbing bushings to mitigate vibration and/or imbalance.
6. While the controller is waterproof, it is advisable to avoid direct sunlight and high temperatures. Additionally, the heat pump should be positioned in a location where the controller is easily visible.
7. Plumbing pipes must be installed with suitable supports to avert potential damage from vibration. Water pressure should be sustained above 196 kPa; otherwise, a booster pump should be installed.
The permissible operating voltage range must fall within $\pm 10\%$ of the nominal voltage.
The heat pump unit must be properly grounded to ensure safety.

Drainage and Condensation

Condensation develops on the evaporator during the operation of the unit and is expelled at a consistent rate determined by the ambient air temperature and humidity. Increased humidity in the surrounding environment results in greater condensation formation. The base of the unit functions as a reservoir for collecting rainwater and condensation. It is essential to ensure that the drain holes at the bottom of the unit remain unobstructed by debris.

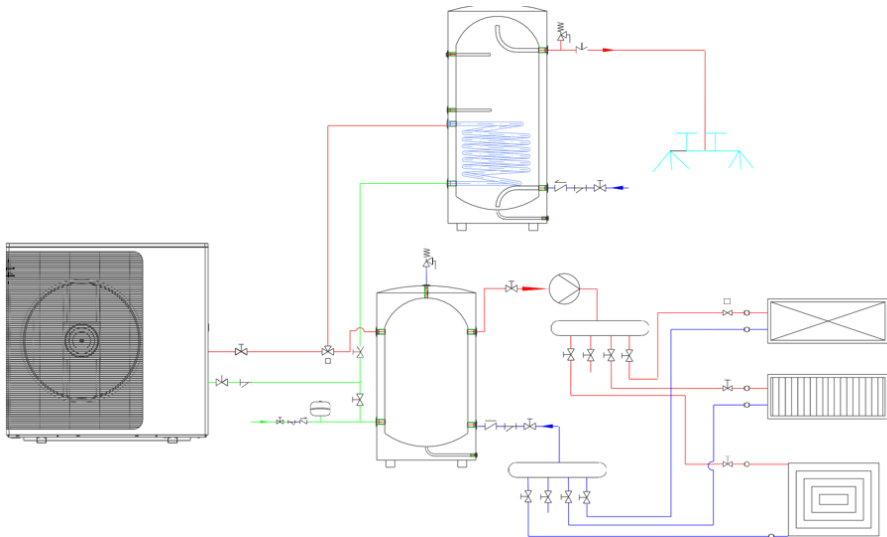
Recommended Installation Techniques

The DC Inverter Heat Pump offers both heating and cooling capabilities, as well as domestic hot water. Space heating is facilitated through underfloor heating loops and radiators, while space cooling is achieved via fan coil units. Domestic hot water is sourced from a tank connected to the heat pump.

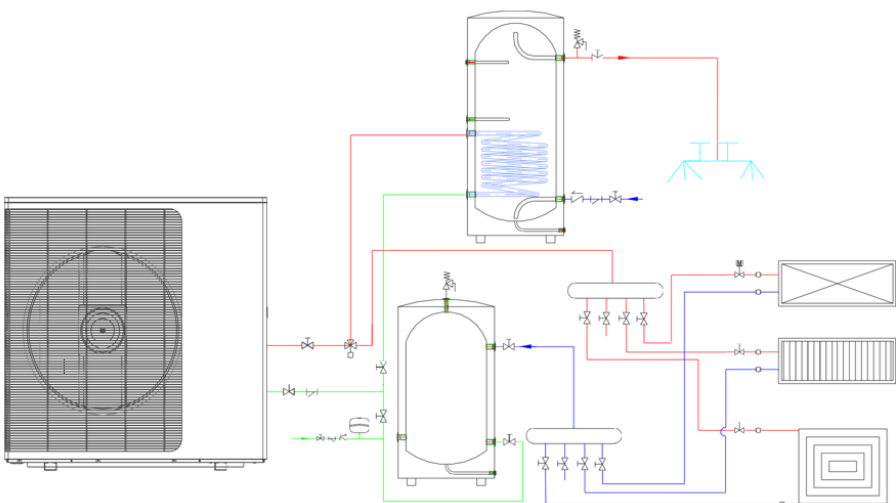
DC Inverter Heat Pump featuring an integrated main circulation pump. During installation, technicians are required to connect the heat pump to various components, including a buffer tank for space heating and cooling, as well as a storage water tank for domestic hot water. Additional external components, such as a safety valve, water charging valve, and a three-way valve, are also necessary. A temperature sensor must be incorporated into the storage water tank. Furthermore, an auxiliary electric heater capable of receiving a control signal from the heat pump may be installed in either the DHW tank or the buffer tank.

1. Refer to Figures 2 and 3 for the system installation diagram.
2. 3-way valve: The 3-way valve opens for domestic hot water mode and closes for underfloor heating or cooling.
3. When heating (or cooling) and domestic hot water have not reached the set temperature, priority is given to hot water.
4. The coil hot water tank for domestic use must be specially customized.
5. The heat exchange capacity of the coil must be equal to or greater than the nominal heating capacity of the heat pump.
6. The unit is supplied ready for operation and pre-charged with R290 refrigerant.
7. R290 refrigerant is flammable and explosive. Installation in areas with existing or potential ignition sources is strictly prohibited.

Schematic representation of the secondary circuit installation



Schematic diagram for loop configuration



Water Connections

Water Connections on the Heat Pump: It is advisable to install Quick Connect fittings on the water inlet and outlet connections. Stainless steel or PPR piping is preferred for heat pump installation. Connections to the heat pump's water inlet and outlet can be achieved using stainless steel or PPR pipe fittings.

⚠ CAUTION - Verify that flow requirements and tap water turnover rates can be sustained with the addition of heat pumps and plumbing constraints.

Plumbing Installation Specifications

1. When the water pressure surpasses 490 kPa, please lower it to below 294 kPa by utilizing a pressure-reducing valve.
 2. Every component linked to the unit should be connected using a loose connection method and equipped with an intermediate valve.
 3. Ensure that all plumbing is installed correctly, followed by conducting a water leak and pressure test.
- All pipelines and pipe fittings must be insulated to mitigate heat loss.
5. Install a drain valve at the lowest point of the system to facilitate drainage during freezing conditions (winterization).
 6. Install a check valve on the water outlet connection to prevent back siphonage when the water pump ceases operation.
- Pipes should be installed in a horizontal orientation to minimize back pressure.
8. Minimize the use of elbows (90-degree connections). If a higher flow rate is necessary, install a bypass valve.

Electrical Connections

⚠ Warning - Risk of electric shock or electrocution.

Before commencing the installation of the heat pump, verify that all high-voltage circuits are disconnected. Contact with these circuits can lead to fatal or severe injuries to users, installation personnel, or others due to electric shock, and may also result in property damage.

⚠ Caution - Prior to servicing the heat pump, label all wiring to avoid disconnection errors. Wiring mistakes may result in improper and hazardous operation. After completing the service, verify and confirm correct functionality.

Power source

1. If the supply voltage is excessively low or high, it may result in damage and/or unstable operation of the heat pump unit due to elevated inrush currents during start-up.
2. The minimum starting voltage must exceed 90% of the rated voltage. The permissible operating voltage range should fall within $\pm 10\%$ of the rated voltage.
3. Verify that the cable specifications align with the precise requirements for the specific installation. The distance from the installation site to the mains power source will influence the cable gauge. Adhere to local electrical codes when choosing cables, circuit breakers, and isolator switches.

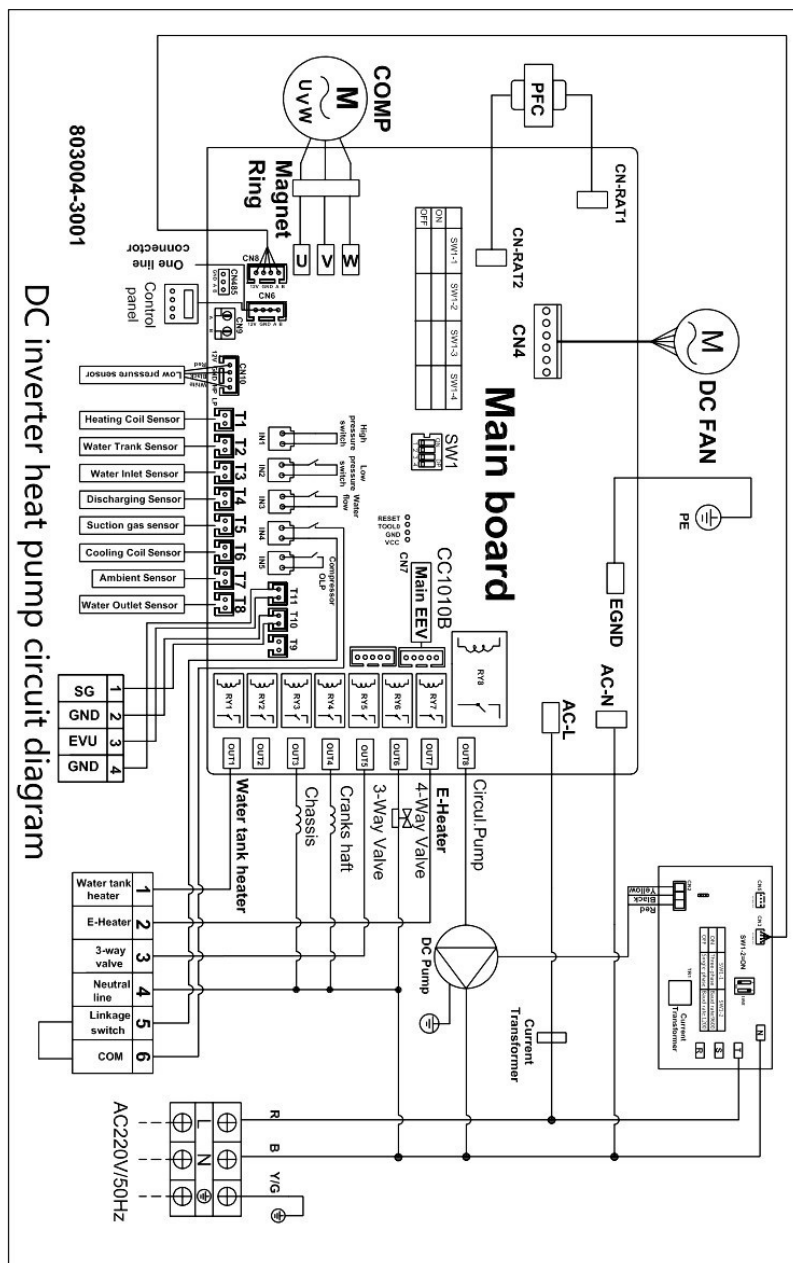
Grounding and Overcurrent Protection

To prevent electric shock in the event of a leak from the unit, install the heat pump in accordance with local electrical standards.

1. Do not frequently interrupt the voltage supply to the heat pump, as this may shorten the unit's lifespan.
2. When installing overcurrent protection, ensure that the correct current rating is applied for this specific installation.
3. If an auxiliary heater requires control by the heat pump controller, the relay (or power) of the auxiliary heater must be connected to the appropriate output of the controller.

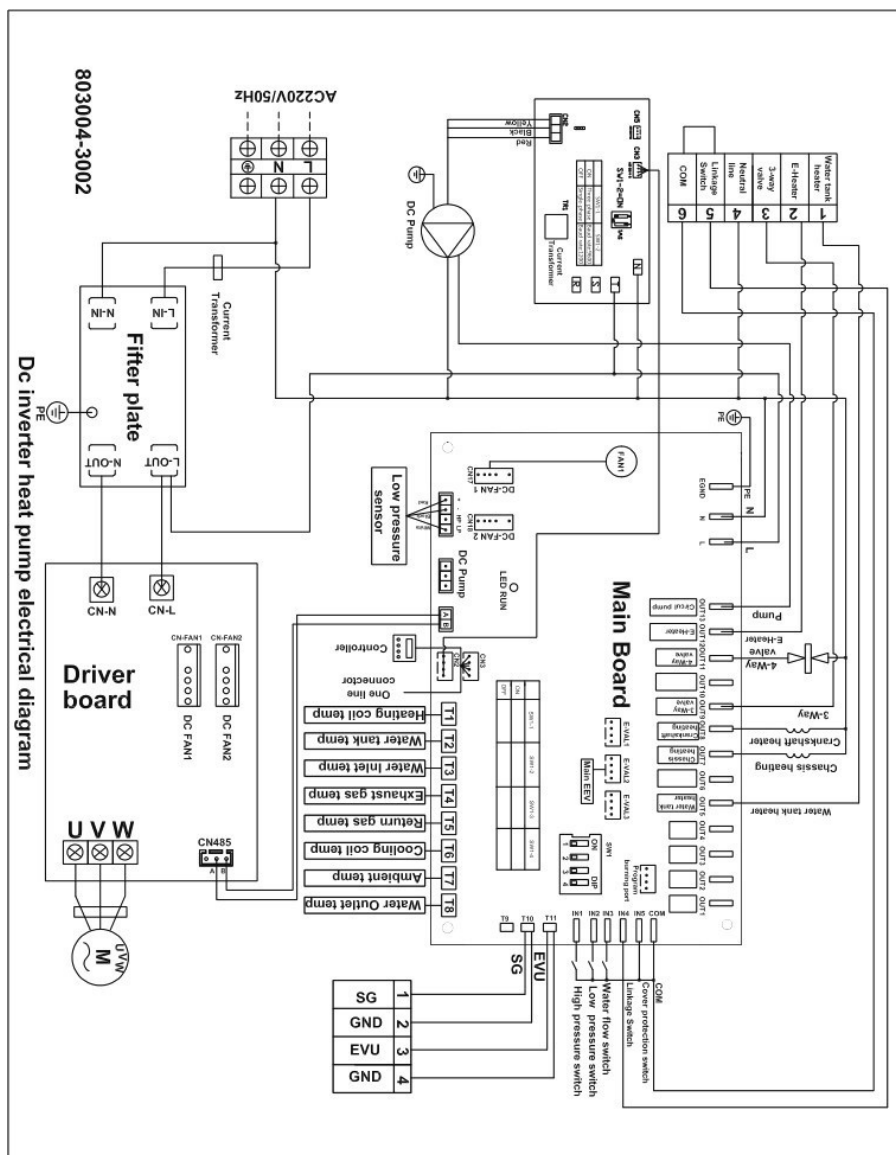
Single-phase system (VM-0MB1402008/VM-0MB1402011)

Single-phase system (VM-0MB1402008/VM-0MB1402011)



Single-phase system (VM-0MB1402015)

Single-phase system (VM-0MB1402015)

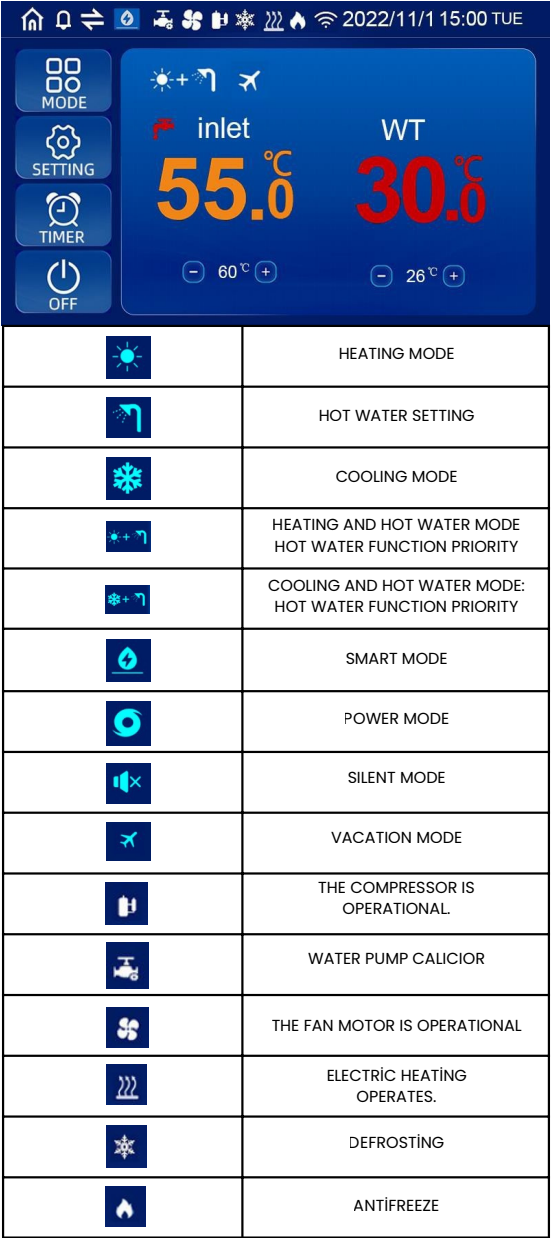


Three-phase system (VM-0MB3402015/VM-0MB3402022)



Chapter 3: Heat Pump Operation

Control Panel



2. Button Descriptions

BUTTON	PLANT	FUNCTION
	Open – Close	Activate or deactivate the heat pump.
	Against	Alter the operational mode of the heat pump.
	Timer	Configure the timer switch and designate the working days.
	Settings	query execution parameters, verification and configuration of system parameters, error code logs, Wi-Fi connectivity, etc.
	Temperature setting one	Temperature settings for hot water, heating, and cooling modes only (inlet and outlet water temperatures are displayed on the interface).
	Temperature setting 2	In hot water + heating or hot water + cooling mode, the left side indicates the temperature setting for heating and cooling, while the right side denotes the temperature setting for hot water (main interface).
	Temperature setting 2	The temperature gauge displays the inlet water temperature on the left and the water tank temperature on the right.
	Situation	Verify the operational parameters of the heat pump.
	Mistakes	Document the most recent error codes.
	Wi-Fi	Wi-Fi configuration
	User specifications	Verify and modify the user parameters of the heat pump.
	Manufacturing specifications	Verify and modify the factory settings (We do not advise altering the factory parameters).
	Execute the curve	Examine the operational curves for inlet and outlet water, as well as the power consumption curves.
	System specifications	Verify the version details of the system board and the remote control software.
	Language	Language selection

3. Cable Controller Functionality

3.1. HEAT PUMP INITIATION / TERMINATION

In the main interface, press and hold the "ON/OFF" button for one second, and the "Startup Confirmation" pop-up window will appear. Once the startup is confirmed, the mode icon will be visible in the startup state, but it will not be shown in the shutdown state.



3.2 ESTABLISH THE TARGET WATER TEMPERATURE

In single mode (cooling only, heating only, hot water only), use the "+" and "-" buttons on the main interface to adjust the desired temperature. In dual mode (heating + hot water, cooling + hot water), utilize the "+" and "-" buttons on the left side of the main interface to set the required heating and cooling temperatures, and the "+" and "-" buttons on the right side to adjust the desired hot water temperature.



3.3 WORKING MODE CONFIGURATION/WORKING MODE SELECTION

In the main interface, press and hold the "MODE" key for one second to access the selection interface for working mode, frequency mode, and holiday mode. From there, choose the desired working mode (parameter setting model) and frequency mode for the unit.

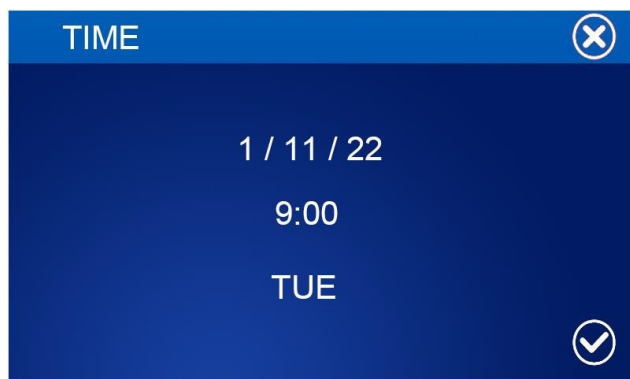


Click "MODE" in the Settings interface to access the Working mode selection interface. Description of Working modes: In Normal mode, the Heat pump can be set to Smart, Powerful, or Quiet working states.

Holiday mode description: When activated, this mode allows the heat pump to operate solely in heating mode at the designated Holiday Target temperature.

3.4 WHEN AYARI

In the main interface, press the designated key to access the clock setting interface. When you select the date (Year/Month/Day column) or time (Hour:Minute column), the keyboard will appear for value entry. To toggle from Monday to Sunday, press the weekday (Weekday column) button. To save and exit, press the CONFIRM button; to exit without saving, press the CANCEL button.



3.5 TIMER SCHEDULE

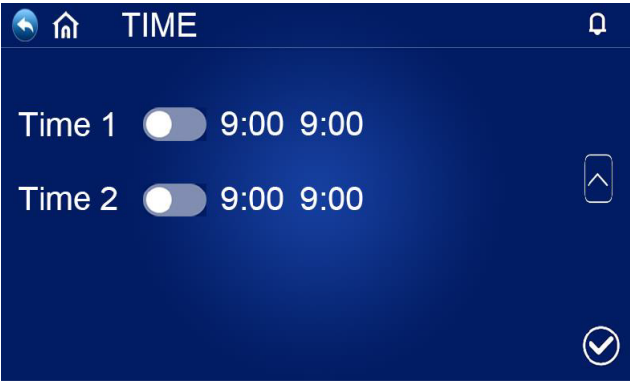
In the primary interface, select the TIMER button to enter the timing settings screen. In the WEEK column, users can designate the specific weekdays on which the timer will operate. When the Weekday button changes to white (from MON to SUN), the timer activates for that day. Conversely, when the Weekday button appears gray, the timer deactivates for that day.

In the TIMER column, users may configure up to four pairs of timers. When the on time matches the off time for a given timer, that timer becomes invalid.



Tranquil Moments

Click "M" in the "SET TIME" interface to enter the scheduled mute interface. The unit will function in Quiet Mode throughout the designated quiet period.



3.6 PROCESS PARAMETER INQUIRY

Click the "SETTINGS" button in the main interface to access the settings menu. Next, click the "UNIT STATUS" button to navigate to the unit list interface, select the appropriate unit to enter the "Parameter Query," and review the heat pump's operating status. The status table is as follows:

SLAVE DEVICE SELECT		
1# Unit	☒	2# Unit
4# Unit	☐	5# Unit
7# Unit	☐	8# Unit

Forced defrost: In the unit selection interface of the query state, press and hold the relevant unit number to access the forced defrost selection interface for that unit. When "Yes" is selected, the designated unit will enter forced defrost mode.

1

Defrost manual?

No

Yes

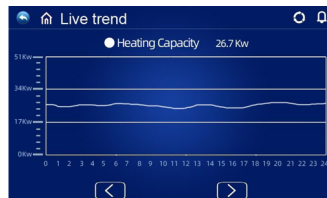
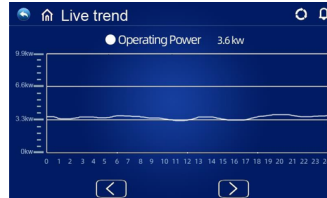
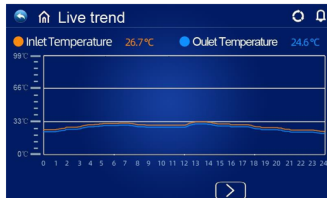
Working Parameters Table

Code	Description	Note
1	Inlet water temperature	-30~99°C
2	Outlet water temperature	-30~99°C
3	Ambient temperature	-30~99°C
4	Exhaust gas temperature	0~125°C
5	Return gas temperature	-30~99°C
6	Evaporator coil temperature	-30~99°C
7	Economizer inlet temperature	-30~99°C
8	Economizer outlet temperature	-30~99°C
9	Cooling coil temperature	-30~99°C
10	Water tank temperature	-30~99°C
11	Main expansion valve opening	
12	Auxiliary expansion valve opening	
13	Compressor current	
14	Compressor suction temperature	
15	Compressor target frequency	
16	Compressor actual frequency	
17	Low pressure gauge reading (R290)	Real time data (Bar)
18	Low pressure return temperature	
19	DC fan 1 speed	

21	EEV control signal	
22	AC power supply signals	
23		
24	DC bus voltage value	
25	Heating Capacity	
26	Current water flow Volume	
27	Current of the whole machine	
28	Income	
29	Power Ratio	
30	COP(EER)	
31	Target rotation speed of DC water pump	
32	DC pump speed	

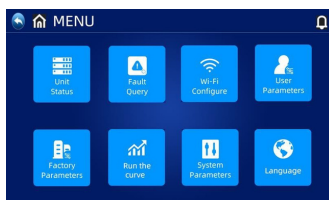
3.7 Examine the energy consumption curve.

To access the settings interface, select the "SETTINGS" button in the main interface. Next, click "Run curve" to enter the energy consumption curve interface. Utilize the buttons at the bottom of the interface to toggle between the "temperature curve," "working power curve," and "COP curve." Additionally, you can view the "heating capacity," "<" "daily power consumption curve," ">" "monthly power consumption curve," and "annual power consumption curve."



USER PARAMETERS REQUEST AND CONFIGURATIONS

Click "SETTINGS" in the main interface to enter the settings interface, then select "USER PARAMETERS" to access the parameter query and configurations. The subsequent lists include the code, description, range, and default value.



User Parameters Inventory

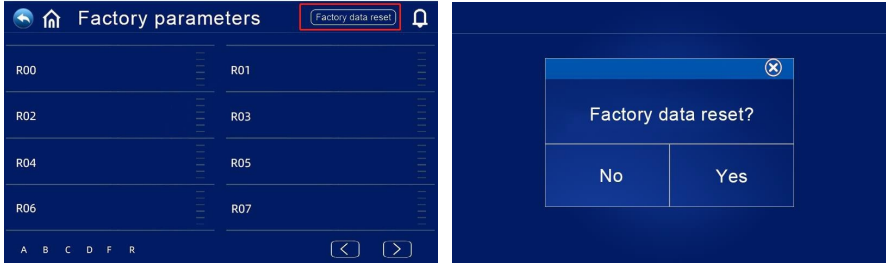
Code	Definition	Adjustable Range	Default
P01	Temperature differential between return water and cooling setpoint.	2°C~18°C	2°C
P02	Temperature differential between return water and target hot water temperature	2°C~18°C	5°C
P03	Hot water temperature setting.	28°C~70°C	50°C
P04	Cooling setpoint temperature.	7°C~30°C	12°C
P05	Heating temperature setting.	15°C~70°C	35°C
P06	Exhaust gas temperature protection set too high (TP4)	50°C~125°C	120°C
P07	Exhaust gas recovery temperature setting excessively high (tp0)	50°C~125°C	93°C
P08	Water temperature regulation	-5°C~15°C	(inlet/outlet water and water reservoir)
P09	Thawing frequency	30~120HZ	70Hz
P10	Thawing duration	20MIN~90MIN	45MIN
P11	Defrost inlet temperature	-15°C~-1°C	-3°C
P12	Thawing duration	5MIN~20MIN	8MIN
P13	Defrost outlet temperature	1°C~40°C	15°C

P14	Temperature differential between defrost medium and evaporator coil 1	0°C~15°C	5°C
P15	Temperature differential between defrost medium and evaporator coil 2	0°C~15°C	5°C
P16	Ambient temperature for defrosting	0°C~20°C	17°C
P17	High-temperature disinfection cycle duration	0~30 days When set to 0, the disinfection function is disabled.	0
P18	Initiation time for high-temperature disinfection	0~23:00	23
P19	Duration of elevated temperature disinfection	0~90 min	30
P20	High-temperature disinfection setting temperature	0~90°C	70°C
P21	Setting the heat pump temperature for high-temperature disinfection	40~70°C	65°C
	Celsius to Fahrenheit conversion	0 Celsius/1 Fahrenheit	0
P22	Facilitating the automatic modification of the heating target temperature.	0~1 (0 indicates inactivity, 1 indicates activity) (applicable solely in heating mode)	0
P23	Heating compensation temperature setting (ambient temperature)	0~40	23
P24	Target temperature compensation coefficient	1~30 (1 corresponds to 0.1)	6
P25	Frequency operating mode of the compressor following constant temperature.	0-Reduce frequency following stabilization of temperature. Reduce frequency once a stable temperature is achieved.	0

P26	Ambient temperature for initiating electric heating	-20~20℃	0
P27	Water tank electric heating initiation time	0~60 min	30
F01	Heat Pump Functionality	1 Heating only 2 Climate Control 3 Isitma+DHW 4 Heating, Cooling, and Domestic Hot Water Systems	4
F02	Status of the circulation pump after the target temperature has been achieved.	0 Interval 1 Continuous 2 Maintain a consistent temperature	1
F03	The circulation pump operates in an on-off cycle once the designated temperature is attained.	1~120min	30 (OFF 30 minutes ON 3 minutes)
F04	DC circulation pump operation mode	0 No start 1 Automatic 2 Manuel	1
F05	DC circulation pump calibration cycle	10~100S	60
F06	DC water pump manual control	10~100%	50
F08	Minimum speed of direct current circulation pump	10~100%	60
P28	Digital modules	1~8	1
P29	Control address	1~255	1
S1	Smart grid characteristics	No, Yes	No
S2	SG working hours	0~600 minutes	180 minutes

Restore factory settings

In the upper right corner of the R interface, there exists a parameter reset button. Click this button to activate the parameter reset confirmation option. If "Yes" is selected, the factory default value will be reinstated.



High-Temperature Antisepsis Function: (When The Hot Water Option is Selected)

The High Temperature Antisepsis cycle occurs every 7 days (P17).

When transitioning to high-temperature antisepsis, it will be necessary to activate the electric heater in the water tank.

During the antisepsis process, when the water tank temperature exceeds 65 °C (the adjustable maximum temperature), the compressor will remain inactive, and only the electric heating will operate. Conversely, when the water tank temperature is at or below 60°C, both the compressor and the electric heater will function.

When the water tank temperature reaches or exceeds 70°C (P20) and the preservation temperature is maintained for 30 minutes (P19), terminate the high-temperature antisepsis.

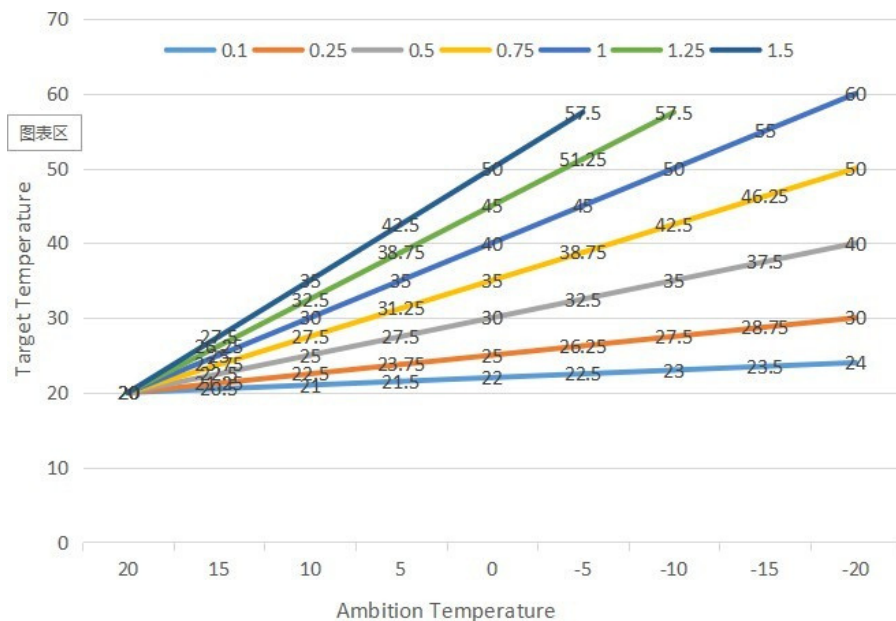
Upon initiating the High Temperature Antisepsis program, if the temperature of the hot water tank does not attain 70°C within 1 hour, it will be necessary to exit the High Temperature Antisepsis program.

Target Temperature Automatic Adjustment Principle (Low Heating Mode)

In heating mode, the desired temperature can be automatically adjusted based on the ambient temperature.

Input conditions: When parameter P22 equals 1, the automatic adjustment mode for the heating target temperature is activated.

The formula for calculating the heating target temperature is $Pset \text{ (heating target temperature)} = 20 + (P24/10) * (P23 - \text{current ambient temperature})$.



The distinct curves illustrated above correspond to different values of P24. (When P24=1, the actual value is 0.1.) The designated temperature range for automatic temperature adjustment is 20-70°C.

Water Tank Auxiliary Electric Heater

Starting Conditions

(All of the following conditions must be met simultaneously)

In Domestic Hot Water (DHW) Mode:

1. The compressor operates according to parameter P27 for 30 minutes.
2. There is an active hot water demand, and the water tank temperature $\leq 70\text{ }^{\circ}\text{C}$.
3. The circulation pump is operating.

Exit (Shutdown) Conditions

(Only one of the following conditions is sufficient)

1. The heat pump is operating in cooling mode or DHW mode, but there is no demand for hot water or constant temperature control.
2. A fault warning occurs in the water tank temperature sensor.
3. During defrost, forced defrost, or secondary antifreeze operation, the electric heater will automatically start.
4. In the case of a high-pressure fault, low-pressure fault, exhaust temperature detection fault, or over-exhaust protection, the system stops.
5. If the compressor is locked or cannot start, the electric heater will automatically engage after 5 minutes.

Auxiliary Electric Heater for Space Heating

Activation Conditions:

- The unit is in heating mode.
- The ambient temperature $< P26\text{ (}0\text{ }^{\circ}\text{C)}$, or the ambient temperature sensor is faulty.
- There is an active heating demand.
- The inlet water temperature $\leq$ (Heating Set Temperature P05 - Restart Differential P01).
- When these conditions are met and the circulation pump is running, the electric heater will be activated.

Deactivation Conditions:

The electric heater will turn off when any of the following occur:

- No heating demand exists.
- The system is operating in cooling mode or DHW constant-temperature mode.
- There is a fault or alarm in the inlet water temperature sensor.
- The ambient temperature $\geq (P26 + 1\text{ }^{\circ}\text{C})$.
- A water-flow fault occurs.
- The circulation pump is turned off.

SMART GRID

When the smart grid function parameter is activated ($S01 = 1$), the heat pump engages the smart grid function.

SMART GRID		
Operating Status	SG	EVU
Increased Operation	ON	ON
Normal Operation	ON	OFF
Reduced Operation	OFF	OFF

1) When both the SG signal and EVU signal are ON, and the domestic hot water (DHW) mode is set as active, the heat pump will prioritize the DHW mode, and the DHW set temperature will rise to 70 °C.

If the water tank temperature < 69 °C, the TBH (water heater tank) is ON;

if the water tank temperature ≥ 70 °C, the TBH is OFF.

2) When the SG signal is OFF and the EVU signal is ON, and the DHW mode is set as active and enabled, the heat pump will also prioritize the DHW mode.

If the water tank temperature < (P03 - P02), the TBH is ON;

if the water tank temperature $\geq (P03 + 2)$, the TBH is OFF.

3) When the SG signal is active and the EVU signal is inactive, the unit operates normally.

4) When both the SG signal and EVU signal are OFF, the unit does not operate in DHW mode, and TBH is invalid; the disinfection function is also disabled.

For cooling/heating operation, the maximum runtime equals the SG operating time, after which the unit will shut down automatically.

*** TBH: Water heater tank**

General Operating Guide:

Initial Start Precautions

Initial Boot and Operational Status Assessments

1. Power matching the specification indicated on the product label must be supplied.
2. Unit electrical connections: Verify that the power supply wiring route and connections are appropriate; ensure that the ground wire is correctly connected; confirm that the water pump and other associated devices are properly connected.
3. Water pipe and connections: The water pipe and its connections should be rinsed two or three times to guarantee cleanliness and the absence of any contaminants.
4. Inspect the water system: If the water supply is adequate and free of air, ensure that there are no leaks present.
5. For the initial boot or restart following an extended malfunction, verify that the crankcase has been opened and heated for a minimum of 12 hours (with the local loop temperature at zero). Begin by starting the water pump, followed by the fan, and then the compressor; this sequence will ensure the unit operates smoothly.
6. Operational assessments (Utilizing the subsequent data to evaluate the unit's normal functioning) Once the unit is operating normally, verify the following item:
 - a. Inlet and outlet water temperatures.
 - b. Lateral circulation water flow
 - c. Electric current for compressor and fan operation
 - d. Elevated and diminished pressure values during heating.

 **CAUTION** — Refrain from using this heat pump if any electrical component is compromised.

If it comes into contact with water, promptly contact a qualified service technician to inspect the heat pump.

 **CAUTION** — Ensure that all objects are kept clear of the heat pump. Obstructing airflow may damage the unit and void the warranty.

User Manual:

Rights and Responsibilities

1.1 To guarantee service during the warranty period, the unit must be installed and repaired exclusively by our professional server and technology team. Any violation of this requirement resulting in loss or damage will absolve our company of liability. Upon receipt of the product, inspect the cargo for any damage and verify that all components are present. Should you find any damage or missing parts, please inform the seller in writing.

2. User Guide

2.1 All safety protection devices have been integrated into the unit prior to leaving the factory; do not adjust them independently.

2.2 The unit contains an adequate supply of refrigerant and lubricating oil. Do not attempt to refill or replace them independently. Should refilling be necessary due to leakage, please consult the quantity specified on the nameplate (if the refrigerant requires recharging, re-vacuuming is essential).

2.3 The external water pump must be connected to the unit's connection points; otherwise, various "water shortage" alarms may be triggered.

2.4 Regularly clean the water system in accordance with the maintenance guidelines.

2.5 Implement measures to prevent freezing when the ambient temperature falls below zero during winter.

Security Measures

A. The user must not install the unit independently. Ensure that installation is carried out by an authorized dealer or qualified installation company; otherwise, safety accidents may occur, and the unit's performance may be adversely affected.

B. During installation or operation, verify that the power supply is compatible with the unit's electrical requirements.

C. A residual current circuit breaker (RCCB) must be installed on the unit's main power switch. The power cable must meet the unit's power requirements and comply with national standards and local fire & safety regulations.

D. The unit must be properly grounded. Do not operate the unit without a grounding connection. It is strictly forbidden to connect the ground wire to the neutral wire or the water pump.

E. The main power switch of the unit should be installed at a height above 1.4 meters (to prevent access by children), thereby avoiding potential hazards caused by accidental operation.

F. Hot water above 52 °C can cause injury; mix hot and cold water before use.

G. If the unit has been exposed to water, contact the factory or service provider. The unit can only be used again after proper maintenance.

H. Do not insert any tools or objects into the fan guard, as the fan is dangerous (special attention should be paid to children).

I. Do not operate the unit when the fan guard is removed.

J. To prevent electric shock or fire, do not store or use flammable gases or liquids such as thinner, oil paint, or gasoline near the unit. Do not splash water or other liquids onto the unit, and do not touch the device with wet hands.

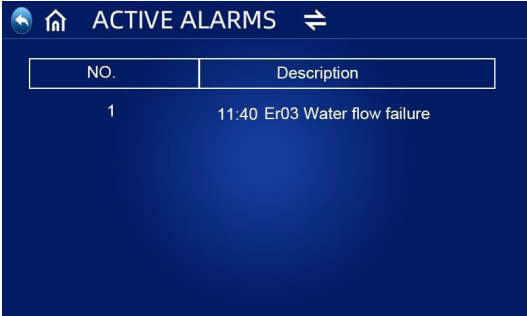
K. Do not adjust switches, valves, controllers, or internal settings unless you are authorized service personnel or a company technician.

L. If the safety protection device frequently activates, contact the factory or your local distributor.

Chapter 4: General Maintenance

Controller Error Codes

In the event of a malfunction in the heat pumps, the error code and description will be presented on the main interface, and the incident will be logged in the FAULTY column within the SETTING interface.



The subsequent Common Error Codes will be presented on the control panel:

Error Codes	Error or Protection Definition
Er 03	Water flow disruption
Er 04	Antifreeze during winter
Er 05	High-pressure fault
Er 06	Low-pressure anomaly
Er 09	Communication breakdown
Er 10	Communication failure of the frequency conversion module (an alarm is activated when communication between the external board and the driver board is interrupted)
	Excessive exhaust temperature protection
Er 14	Failure of the water tank temperature sensor
Er 15	Failure of the water inlet temperature sensor
Er 16	Failure of the evaporator coil temperature sensor
Er 18	Exhaust temperature anomaly

Er 20	Anomalous safeguarding of the frequency conversion module
Er 21	Failure of the ambient temperature sensor
Er 23	Cooling outlet water temperature overcooling safeguard
Er 26	Heat sink temperature malfunction
Er 27	Failure of the outlet water temperature sensor
Er 29	Return of gas temperature sensor malfunction
Er 32	Protection against excessive outlet water temperature due to high heating.
Er 33	The coil temperature is excessively elevated.
Er 34	The temperature of the frequency conversion module is excessively elevated.
Er 42	Failure of the cooling coil temperature sensor
Er 62	Economizer inlet temperature error
Er 63	Economizer outlet temperature malfunction
Er 64	DC fan 1 malfunction
Er 66	DC fan 2 malfunction
Er 67	Failure of the low-pressure switch
Er 68	High-pressure switch malfunction
Er 69	Low-pressure protection
Er 70	High-pressure protection

When an Error 20 occurs within the system, detailed error codes ranging from 1 to 348 are presented below. Codes 1 to 128 belong to the first category and are displayed initially, while codes 257 to 384 are classified as the second category and are shown only if errors 1 to 128 do not occur. In instances where two or more errors from the same category arise simultaneously, the cumulative sum of the error numbers is displayed. For instance, if errors 16 and 32 occur concurrently, the error code 48 (16+32=48) will be shown.

Comprehensive error code list for Er 20:

Error Code	Name	Explanation	Proposed solution
1	IPM Overcurrent	IPM Module concern	Replace the inverter unit.
2	synchronous compressor anomaly	Compressor malfunction	Replace the compressor.
4	separated	--	--
8	absence of compressor output phase	Disconnected compressor wiring or inadequate contact	Verifying the compressor input circuit
16	DC bus voltage deficiency	Input voltage is insufficient, PFC module malfunction.	Verify input voltage, replace module.
32	DC bus high voltage	Excessive input voltage, PFC module malfunction.	Replace the inverter unit.
64	Radiator overheating.	Main unit fan motor malfunction, air duct obstruction	Examine the fan motor and air duct.
128	Radiator temperature discrepancy	Radiator sensor short circuit or open circuit malfunction	Replace the inverter unit.
257	communication failure	The inverter module is not receiving commands from the main controller.	Inspect the communication cables connecting the main controller to the inverter module. Inspect the communication cables connecting the main controller to the inverter module.
258	No AC input phase.	No input phase (The three-phase module is effective)	Control input circuitry
260	AC input overcurrent	Three-phase unbalance input (three-phase module is operational)	Control input three-phase voltage
264	AC input low voltage	Input low voltage	Verify input voltage
272	Compressor High-Pressure Malfunction	Compressor high-pressure fault (isolated)	
288	IPM extremely elevated temperature	Main unit fan motor malfunction, air duct obstruction	Examine the fan motor and air duct.
320	The peak current of the compressor is excessively high.	Compressor line current is excessively high; the drive program is incompatible with the compressor.	Replace the inverter unit.
384	PFC module thermal overload	PFC module temperature excessively elevated	

Client Oversight

We recommend that heat pumps undergo regular inspections, especially after unusual weather conditions. For your inspection, the following basic guidelines are advised:

- 1.Ensure that the front of the unit remains accessible for future maintenance.
- 2.Ensure that the upper and surrounding areas of the heat pump are free from all debris.
- 3.Regularly prune all plants and shrubs, and keep them—especially above the fan—away from the heat pump.
- 4.Prevent lawn irrigation systems from spraying water onto the heat pump; this prevents corrosion and damage.
- 5.Always make sure that the grounding wire is correctly connected.
- 6.To protect the heat pump and maintain clean, healthy water, ensure the filter is regularly serviced.
- 7.Regularly check the cables of power and electrical components to ensure they are operating normally.
- 8.All safety protection devices are factory set; do not change these settings. If any changes are required, contact an authorized installer or service provider.
- 9.If the heat pump is installed under a roof without gutters, make sure all necessary precautions are taken to prevent the unit from becoming excessively flooded.
- 10.Do not use this heat pump if any electrical component has come into contact with water. Contact an authorized installer or service provider.
- 11.If an increase in power consumption is not caused by colder weather conditions, consult your local authorized installer or service provider.
- 12.If the heat pump will not be used for a long period, turn off the device and disconnect it from the main power supply.

Troubleshooting

Utilize the troubleshooting information provided below to diagnose issues with your DC Inverter heat pump.

WARNING — RISK OF ELECTRIC SHOCK OR LIFE THREATENING DUE TO ELECTRICITY.



Before commencing the installation of the heat pump, verify that all high-voltage circuits are disconnected. Contact with these circuits can lead to fatal or severe injuries to users, installation personnel, or others due to electric shock, and may also result in property damage.

Do not open any component of the heat pump, as this may cause electric shock.

- 1.Ensure that your hands and hair are kept away from the fan blades to avoid the risk of injury.
- 2.If you do not have sufficient knowledge about your heater:
3. a) Do not attempt to adjust or service the unit without consulting your authorized installer or service provider.
4. b) Before operating, servicing, or adjusting the device, please read the entire installation and/or user manual.

IMPORTANT: Before performing any maintenance or repair on the DC Inverter heat pump, disconnect the main power supply.

Care

Essential Considerations for Maintenance Activities

The water filter must be cleaned regularly to maintain water purity and prevent damage resulting from filter clogging.

All safety protection devices are pre-set prior to leaving the factory and must not be altered by the user. We accept no liability for any damage to the unit resulting from user-initiated modifications.

The unit's environment must be maintained in a clean, dry, and well-ventilated condition. Regular cleaning of the heat exchanger's exterior (every 1–2 months) will enhance heat exchange efficiency and conserve energy.

The water supply and air bleed mechanism within the water system should be inspected regularly. The ingress of air into the system can result in diminished water circulation or circulation issues, adversely affecting the unit's cooling and heating efficiency as well as its operational reliability.

The unit's electrical power and wiring should undergo regular inspections. Verify that the wiring is secure and that the electrical components are operating normally. Any irregularities should be addressed through repair or replacement. The unit must be properly grounded.

All components must be inspected routinely during unit operation. Verify that the operating pressure of the refrigeration system is within normal limits. Examine the pipe connections and gas charging valve for any oily residue. Ensure that there are no refrigerant leaks present in the refrigeration system.

Avoid stacking items around the unit, as this may impede air intake and exhaust. The vicinity of the unit should remain clean, dry, and well-ventilated.

If the unit is to remain unused for an extended duration following a period of operation, the water within the system must be drained, the power supply disconnected, and the unit covered. It should only be reactivated once the water system has been fully replenished, the unit has undergone a comprehensive inspection, and it has been electrically heated for a minimum of six hours.

Attention:

- The unit must possess a dedicated power supply. The voltage range should be maintained within $\pm 10\%$. The switch must be an automatic air switch, and the specified electric current must be 1.5 times the operating current. Phase loss protection is required. Knife switches must not be utilized for the unit.
- The unit must be heated by applying electricity for a minimum of 12 hours prior to the commencement of each season.
- When cooling-only models are not in operation for prolonged durations during winter, it is essential to drain all water; failure to do so may result in damage to the pipes and the unit due to freezing.
- When heating-only models are not in operation for extended periods during winter, it is essential that the main controller and the unit remain continuously powered and are not turned off to avoid frost damage.
- The heat pump switch should not be operated frequently; it may be turned on and off no more than four times per hour.
- The electrical panel must be safeguarded against moisture.
- Washing the DC inverter air source heat pump with water is prohibited, as it may result in electric shock or other accidents.

Common Mistakes and Troubleshooting

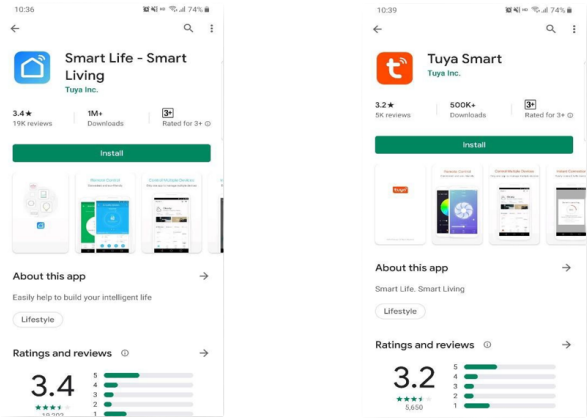
If the user experiences any issues during the operation of the unit, they should contact professional maintenance personnel to diagnose the problem. Maintenance personnel can consult the table to assist in troubleshooting the issue.

Error Status	Potential Cause	Solution
Heat pump malfunctioning	Power outage; faulty wiring; blown fuse; tripped thermal overload protector; excessively low pressure.	Deactivate the power switch, inspect the power supply, identify and rectify the issue; replace the blown fuse; measure the voltage and current.
The water pump is operational; however, there is no circulation of water, or the pump is producing excessive noise.	Insufficient water in the system; air present in the system; not all valves are fully open; the filter is dirty and obstructed.	Inspect the system feed device and replenish water; purge air from the system; open the water system valves; and clean the water filter.
Insufficient heating capacity	Insufficient refrigerant; inadequate thermal insulation in the water system; obstructed dry filter; ineffective heat dissipation in the air heat exchanger; inadequate water flow.	Inspect for leaks and replenish refrigerant; enhance the thermal insulation of the water system; replace the desiccant filter; clean the air exchanger; and maintain the water filter.
Compressor malfunctioning	Power failure; faulty compressor contactor; loose wiring; activated compressor overheat protection; excessive outlet water temperature; inadequate water flow; tripped compressor overload protector.	Identify and rectify the cause of the power failure; replace the compressor contactor; repair the loose connection; assess the unit pressure and exhaust temperature; adjust the outlet water temperature; clean the water filter and purge the air from the system; verify the operating current and test the overload protector.
The compressor operates, but it is excessively loud.	Liquid refrigerant enters the compressor; the internal components of the compressor are compromised; voltage is insufficient.	Verify the operation of the expansion valve; replace the compressor; assess the supply voltage.
The fan is malfunctioning.	The screws securing the fan are loose; the fan motor is defective; the contactor is malfunctioning.	Tighten screws; replace the fan motor; replace the contactor.
The compressor is operational, yet the heat pump is not providing heat.	All refrigerant has been depleted; the compressor is defective; the compressor is functioning in reverse phase.	Inspect for leaks and recharge refrigerant; replace the compressor; rectify the phase sequence of the compressor.
Low water flow safeguard	Inadequate water flow within the system; malfunctioning water switch.	Clean the water filter and release air from the system; inspect the water switch and replace it if needed.

Chapter 5 Wi-Fi Connection and Operation

Download Application

Please navigate to the “Google Play Store” or “Apple App Store” and search for “Smart Life” or “Tuya Smart,” then proceed to download the application. Refer to the figures below.



WIFI Connection Method: Bluetooth Mode:

Step 1:

By default, a connection can be established within 10 seconds of initial power-on; after this period, establishing a connection necessitates button presses. (The 10-second interval allows Wi-Fi to transition into low power consumption mode.) To manually enter smart deployment mode, select “SMART MODE” or “AP MODE” in the Wi-Fi interface of the wired controller, then click “Add Device” to access smart deployment mode. The “” icon on the home screen will flash, indicating that the mobile phone can commence network configuration.



After three minutes, the network configuration status will conclude, the “” icon will cease flashing, and the Wi-Fi module will disconnect from the network. To reconfigure the network, you must click the “Add Device” button in the Wi-Fi interface once more.

Step 2:

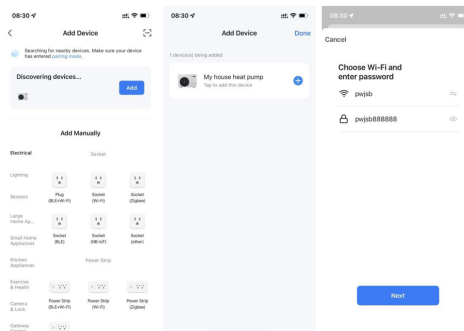
Activate the Bluetooth functionality on the phone.

Activate your phone's Wi-Fi and connect to the designated Wi-Fi hotspot. The Wi-Fi hotspot should have normal internet connectivity. For instance, connect to the Wi-Fi hotspot "123456789," as illustrated in the image below.



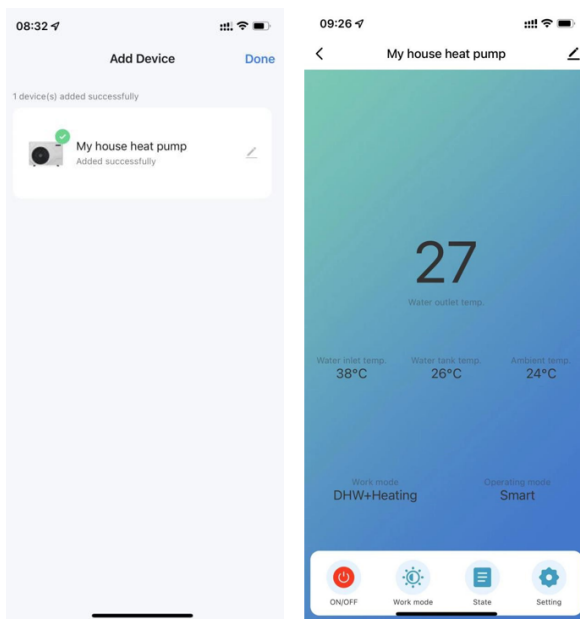
Step 3

- Open the "Smart Life" application, log in, and navigate to the home screen.
- Click the "+" icon in the upper right corner or select the "Add Device" option on the screen.
- The screen will display "Discovering devices..." Click "Add."
- Access the "Add Device" interface.
- Click the "+" symbol once more.
- On the Network Selection screen, choose Wi-Fi.
- Please input the correct Wi-Fi password and confirm.
- Click "Next" to initiate the Wi-Fi pairing process.



Step 4

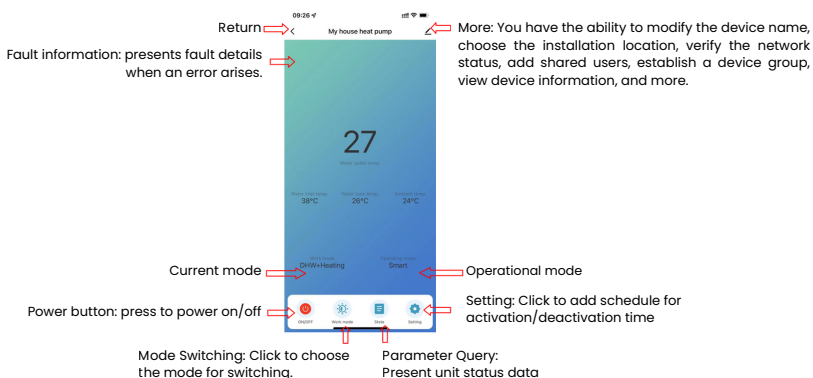
Upon successful connection, the system will display the message "Added successfully," indicating that the network configuration is complete. Click the "Done" button to access the home page.



Utilization of Software Functions Interface Introduction

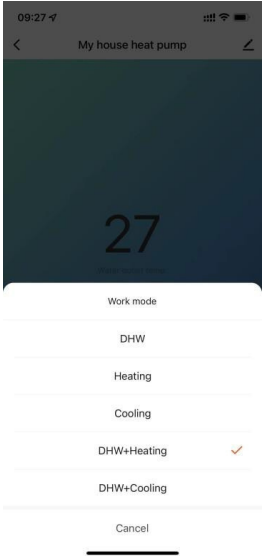
Upon successful pairing of the device, you will access the operation page for "My House Heat Pump" (the device name is subject to change).

To access the operation page of the relevant device, click on "My House Heat Pump" within the "All Devices" section on the main screen of the Smart Life application.



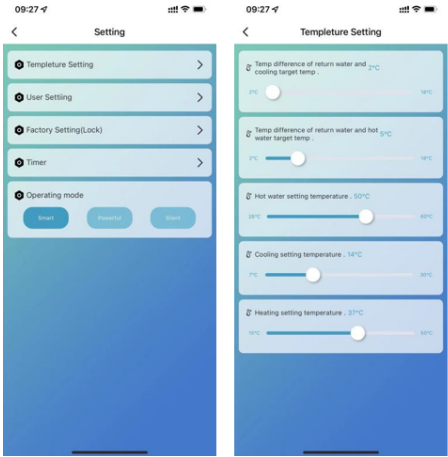
Mode Configuration:

You can alter the mode by selecting "Work Mode" on the device's primary operation screen.
The mode selection interface will appear on the screen (as illustrated in the figure below).
To select the desired mode, simply click on it.

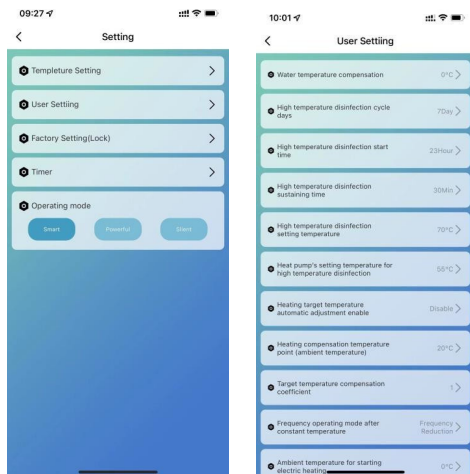


Water Temperature Regulation

By selecting "Water Temp. Setting" in the Settings interface, you can specify the desired temperature (Desired Temp.) and the return temperature difference (Return Difference Temperature).



User Configuration



High-Temperature Antiseptic Function

When the hot water function is activated, the high-temperature germicidal cycle occurs every seven days. This function is deactivated when the selection is set to 0. Upon initiating the high-temperature germicidal operation, the boiler's electric heater is forcibly engaged.

During the antiseptic procedure:

If the boiler temperature exceeds 60°C (the maximum temperature that can be set), the compressor will remain inactive, and only the electric heater will be engaged.

If the boiler temperature is $\leq 55^{\circ}\text{C}$, both the compressor and the electric heater will operate.

When the boiler temperature reaches or exceeds 70°C and maintains a level of at least 65°C for 30 minutes, the high-temperature germicidal action is complete.

Following the initiation of the high-temperature germicidal process, if the hot water tank temperature fails to reach 65°C within one hour, the program will be forcibly terminated.

Target Temperature Automatic Adjustment Algorithm (In Heating Mode)

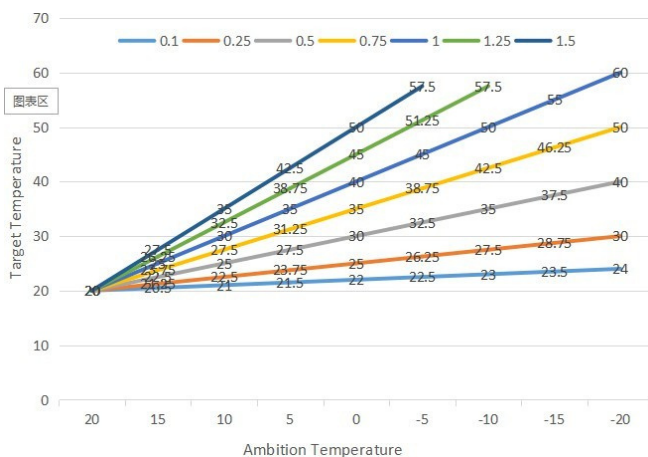
In heating mode, the desired temperature can be automatically modified based on the surrounding temperature.

Entry Criteria:

In the parameters, the automatic adjustment mode for the heating target temperature must be activated.

Heating Target Temperature Calculation Formula:

$$\text{Pset (Heating target temperature)} = 20^{\circ}\text{C} + (\text{Target temperature compensation coefficient} \div 10) \times (\text{Heating compensation temperature point} - \text{Current ambient temperature})$$



Target Temperature Compensation Coefficient

The various curves depicted above illustrate distinct values of the target temperature compensation coefficient.

(When the target temperature compensation coefficient equals 1, the actual value is 0.1.) The target temperature range for automatic temperature adjustment is 20–70 °C.

Boiler (Water Tank) Auxiliary Electric Heater

Start Conditions (all the following conditions must be met concurrently) Hot water mode is activated.

The compressor operated for the boiler's electric heating initiation duration: 30 minutes.

There is a demand for hot water, and the tank temperature is $\leq 70^{\circ}\text{C}$.

The circulation pump is currently operational.

Exit (Stop) Conditions (any of the following suffices)

The heat pump is in the process of discontinuing electric heating due to the operational conditions of cooling mode or hot water mode.

There is no demand for hot water, nor is fixed temperature control activated.

The boiler temperature sensor is experiencing a malfunction or alarm.

Exceptional Conditions

During defrosting, forced defrosting, or secondary frost protection, the electric heating must be activated.

If the compressor is locked and cannot be initiated due to a high-pressure fault, low-pressure fault, exhaust temperature detection fault, or excessive exhaust protection stop, the electric heating system will activate in place of the compressor after a duration of 5 minutes.

Exceptional Conditions

- During defrosting, forced defrosting, or secondary frost protection, the electric heating must be activated.
- If the compressor is locked and cannot be initiated due to a high-pressure fault, low-pressure fault, exhaust temperature detection fault, or excessive exhaust protection stop, the electric heating system will activate in place of the compressor after a duration of 5 minutes.

Conditions for Activating Auxiliary Electric Heaters for Space Heating

The heating mode is currently activated.

1. Ambient temperature is below the electric heating start threshold (0 °C) or there is a fault in the ambient temperature sensor.
2. A heating request has been initiated, and the inlet water temperature is less than or equal to the heating set temperature (P05) minus the restart difference (P01).
3. The circulation pump is operational.
4. When the aforementioned conditions are satisfied, the electric heater is engaged.

Closing Conditions (fulfilled upon the occurrence of any of the following)

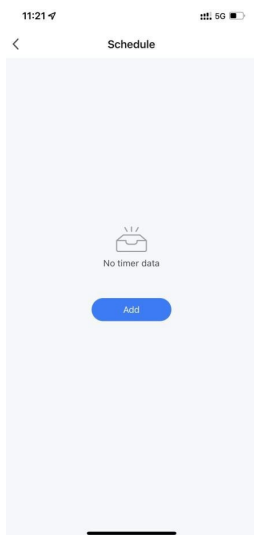
Cooling or Hot Water Mode.

1. There is no heating demand, nor is fixed temperature control engaged.
2. Inlet water temperature sensor malfunction/alarm.
3. Ambient temperature > 0°C + 1°C (electric heating initiates with a +1°C hysteresis relative to ambient temperature).
4. Water flow disruptions.
5. The circulation pump is inactive.
6. The electric heater will deactivate upon the occurrence of any of the aforementioned conditions.

Timer Configuration

Select "Timing" in the Settings interface to access the timer configuration.

To create a new timer, click on Add Timer.

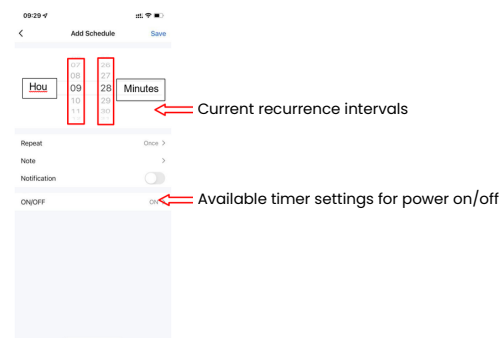


Timer Configuration

⦿ In the timer settings screen, adjust the timer duration by scrolling the hour and minute values up or down.

⦿ Configure the repeat week and On/Off status.

⦿ Click the Save button located in the upper right corner. (Refer to the figure below)



Power Consumption Curve Visualization

You can access the power consumption curve screen by selecting “Power Statistics Module” in the Settings interface.



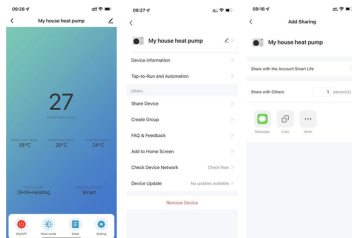
Device Sharing

⦿ To share the paired device, the individual sharing it should follow the steps outlined below.

⦿ Upon successful completion of the sharing process, the shared contact will appear in the list.

To remove the shared contact, press and hold the selected user, and the delete interface will appear; then click “Delete.”

⦿ The procedural steps in the sharing interface are as follows:



⦿ Input the account of the individual with whom you wish to share and click “Done.”

⦿ Upon successful completion of the sharing process, the account of the newly added individual will appear in the achievement list.

The individual with whom the sharing occurs can view the device transferred to him/her; he/she can operate and control the device by clicking on it.

Device Disengagement

⦿ Remove through Application

Select the upper right corner of the device's main operation screen to access the Device Details interface.

From this point, select the “Remove Device” option.

This will enable the device to enter smart network configuration mode.

At this moment, the corresponding indicator light will remain steady, and the device can be reconfigured within a 3-minute window.

If it surpasses 3 minutes, the network deployment mode will be terminated.

Exclusions from Warranty Coverage

The following situations are not covered by the warranty and do not entitle the manufacturer, importer, or seller to provide free repair or replacement:

1. Damage occurring after delivery: Malfunctions caused by external factors such as transportation, impact, collision, falling, breakage, scratching, or exposure to chemicals.
 - The delivery form is filled out to record the physical condition of the product at the time of delivery. If visible damage detected during delivery is not noted on the form, it is assumed that such external physical damage occurred after delivery.
2. Improper storage and unsuitable environmental conditions: Storage or failure to protect the device in unsuitable temperature, humidity, dust, or environmental conditions.
3. Electrical faults: Damage caused by high or low voltage, sudden fluctuations, incorrect wiring connections, and lack of grounding.
4. Water-related problems: Blockages and malfunctions caused by the water used in the device being excessively calcareous, sedimentary, or dirty.
5. Incorrect use: Pouring cold water into the device while it is hot or operating the device without water; also, malfunctions caused by use contrary to the user manual.
6. Installation deficiencies: Malfunctions caused by the absence of fuses or grounding in the electrical installation or the use of non-standard installations.
7. External factors: Natural disasters (earthquakes, floods, flash floods, lightning strikes), fire, or other force majeure events.
8. Unauthorized intervention: Malfunctions caused by repairs, gas refills, electrical connection changes, removal/installation, or interventions performed by unauthorized personnel.
9. Non-original parts: Damage caused by the use of spare parts, accessories, refrigerants, or chemicals not approved by the manufacturer.
10. Installation errors: Malfunctions caused by installation contrary to the manufacturer's instructions (incorrect piping, lack of insulation, drainage errors, incorrect positioning of the outdoor unit, etc.).
11. Failure to perform periodic maintenance: Performance decline or malfunctions resulting from failure to perform regular maintenance and cleaning as recommended by the manufacturer.
12. Unauthorized setting changes: Malfunctions resulting from changes to the control panel, mode, parameters, or software settings by persons other than authorized service personnel.
13. Use outside of limits: Operating the device outside of its design limits (heating at very low outdoor temperatures, cooling at excessively high temperatures, incorrect water flow or pressure).
14. Freezing-related malfunctions: Freezing and related damage resulting from shutting down the device during winter months or failing to drain the water circuit.

Important Points for Customers to Note Regarding Warranty

Please pay attention to the following points:

1. During installation and use of the device, ensure that you follow the instructions in the installation and user manual.
2. If you encounter any malfunction or problem, do not attempt to fix it yourself; contact our authorized service center directly.
3. Keep your warranty certificate, along with the service form issued by the service center when the device was first put into operation, and a copy of the device invoice in a safe place.

WARRANTY CERTIFICATE	
Manufacturer's Name: Address: Phone: Fax: Email: Authorized Signature: Company Seal:	Seller Company Name: Address: Phone: Fax: Email: Invoice Date and Number: Delivery Date and Location: Authorized Signature: Company Seal:
The Product	
Type: Brand: Model:	Warranty Period: Maximum Repair Period: Label and Serial Number:
Warranty Terms	
1. The warranty period begins on the date the goods are delivered to the consumer and applies for 2 years. The warranty certificate may be issued on paper or via a durable data storage medium. Upon the consumer's request, the certificate must be provided in writing on paper. 2. All parts of the goods are covered by the warranty without any distinction. 3. If the goods are found to be defective, the consumer may exercise one of the following options under Article 11 of Law No. 6502 on the Protection of Consumers: A) Withdrawal from the contract, B) Requesting a reduction in the sale price, C) Free repair, D) Replacement of the goods with non-defective goods. 4. When the consumer exercises their right to free repair, the seller is obligated to repair or have the goods repaired without charging for labor, parts, or any other fees. The consumer may exercise this right against the seller, manufacturer, or importer. These parties are jointly liable to the consumer and cannot transfer their liability to each other. 5. Even if the consumer exercises their right to free repair: • If the product malfunctions again within the warranty period, • The maximum time specified for repair is exceeded, • The authorized service center, seller, manufacturer, or importer reports that the product cannot be repaired, the consumer may request a refund, a price reduction proportional to the defect, or replacement of the product with a defect-free equivalent. The seller cannot refuse this request; the seller, manufacturer, and importer are responsible for fulfilling the request. 6. The maximum repair period for the goods is 20 business days. This period begins: • During the warranty period, on the date the defect is reported to the authorized service center or seller, • Outside the warranty period, on the date the goods are delivered to the authorized service center. If the defect cannot be repaired within 10 business days, the manufacturer or importer must provide the consumer with a similar product free of charge until the repair process is completed. For goods that malfunction within the warranty period, the repair period is added to the warranty period. 7. Defects resulting from use of the product contrary to the user manual are excluded from the warranty. 8. Products or parts replaced under warranty are covered only for the remaining warranty period of the purchased product. 9. Whether the defect is due to misuse is determined by an authorized service station or, if no authorized service station is available, by the seller, importer, or manufacturer, in that order, within the maximum repair period, based on a report. A copy of this report is provided to the consumer. 10. Consumers may submit their complaints and objections to consumer arbitration boards or consumer courts.	

VARMEKS

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