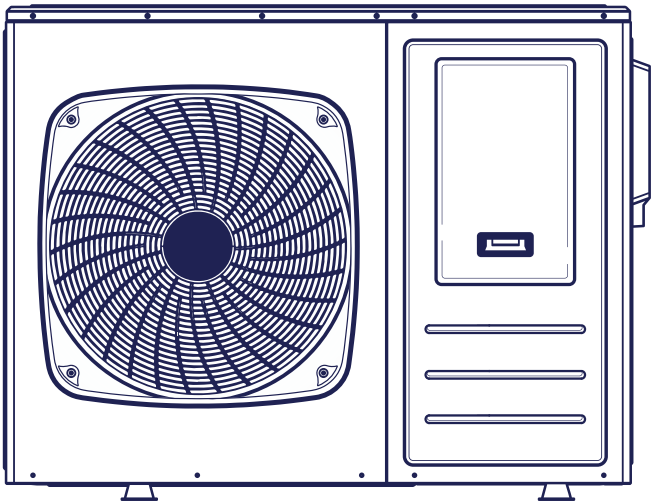
# Kwikpump Water Heater

## Installation and Warranty Manual



Kwikpump Water Heater

DC

Full DC Inverter

'16'

Multi Unit Connection

'5'

COP

**Model:**

HP-013
HP-024
HP-040
HP-085

**www.kwikot.com**

KWIKOT

powered by Haier

# Contents



This product is to be installed and maintained by trained persons. Please do not change any settings without contacting the manufacturer first, failure to adhere may invalidate the warranty.

# Safety Precautions (Please Read Before Use)

When the machine emits abnormal odors such as burning, it should be stopped and powered off immediately, and after-sales personnel should be contacted for inspection to avoid malfunctions or fires. Unauthorized personnel are strictly prohibited from disassembling or repairing the unit. Air source heat pump water heaters belong to Class I electrical appliances, so please pay attention to electrical safety when using them!

**Warning: Important Instructions for the Use of Environmentally Friendly Refrigerant R32**

1. Please carefully read the instruction manual before installation and use.
2. Do not puncture or ignite. The refrigerant used is the environmentally friendly R32.
3. This product should not be discarded or scrapped at will. If necessary, please contact Haier after-sales personnel to obtain the correct disposal method. When [the appliance is in a certain state], the refrigerant in the system needs to be recovered, and the refrigerant must be released when it is returned to the factory for after-sales service.
4. The appliance should be stored in a room without a continuous working ignition source (e.g., open flame, lit gas appliances, operating electric heaters).
5. When installing, repairing, cleaning or relocating the appliance, please contact Haier after-sales personnel. Before repairing the refrigeration system, the refrigerant in the system needs to be removed. Non-professionals are prohibited from operating.
6. Other methods should not be used to accelerate the defrosting process or clean frosted components, except for those recommended by the manufacturer.

## Warning:

1. It is prohibited to charge oxygen, acetylene, or other flammable and toxic gases for leak detection or airtightness tests, as these gases are extremely dangerous and may cause explosions. It is recommended to use oxygen-free nitrogen for such tests.
2. Do not touch or adjust the safety devices inside the unit. Touching or adjusting these devices may lead to serious accidents.
3. It is prohibited to open the maintenance cover of the unit without cutting off the power supply of the main circuit.

4. It is prohibited to install the unit in an environment with high oil mist, flammable gas, salt spray, or harmful gas (such as sulfur vapor).
5. It is prohibited to use refrigerants or refrigeration oils of incorrect types and models, otherwise it may lead to accidents such as fires or explosions.
6. Do not touch the high-temperature parts of the compressor and refrigerant lines, otherwise, it may cause burns.
7. Do not connect power cords for other purposes in series to the unit to avoid causing a fire.
8. It is prohibited to directly power on after privately removing the terminals of the electric heating main control board, otherwise it may lead to serious electric shock accidents.
9. If a refrigerant leak occurs, please turn off the unit, extinguish all open flames in the vicinity, and immediately contact the local dealer or service provider.
10. Before performing wiring work or regular inspections, turn off the main power switch of the unit for more than 3 minutes, and ensure that the unit's fan has stopped rotating; do not close the switch to supply power until all wiring work is completed to prevent electric shock accidents.
11. The heat pump unit belongs to Class I electrical appliances and must ensure reliable grounding. The yellow-green double-colored wire of the unit is the grounding wire. Do not connect the grounding wire to the following places: water pipes, gas pipes, sewage pipes, or other places considered unreliable by professionals. Improper grounding may lead to electric shock.
12. Users must install an air switch and a residual current device (RCD) at the power supply end that can cut off the power of the entire system, and each RCD must be regularly and effectively tested (testing can be performed by pressing the test button on the RCD); after the electrical appliances are installed and before power is applied, a leakage test must be conducted.Test to ensure its safety; otherwise, in the event of an accident, it may lead to electric shock or fire.
13. Do not insert hands or any foreign objects into the air grille to avoid injury or damage to the unit.
14. The appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety;

15. Children should be supervised to ensure they do not play with this appliance.
16. If the power supply cord is damaged, to avoid danger, it must be replaced by the manufacturer, its service agency, or a similar professional.
17. Preventive measures shall be taken to avoid excessive vibration or pulsation of the refrigeration piping.
18. Protective devices, pipes, and fittings shall be protected as much as possible to avoid the effects of adverse environments, such as the risk of water accumulation and freezing in overflow pipes, or the risk of accumulation of contaminants and debris.
19. Measures should be taken for the long-term expansion and contraction of pipelines during operation.
20. The design and installation of the refrigeration system piping should minimize the possibility of hydraulic shock damaging the system.
21. Solenoid valves shall be properly installed in the pipeline to avoid hydraulic shock, and liquid refrigerant shall not be blocked unless sufficient pressure relief measures are provided.
22. Steel pipes and components shall be protected by anti-rust coatings before coming into contact with any insulating materials to prevent corrosion.
23. The maximum altitude at which this product can be used is 3700m.
24. Fixed cables need to be protected with an insulation sheath with a temperature resistance exceeding 105°C.
25. This product is prohibited from being installed near flammable and explosive items or used in similar environments.
26. When personnel leave the site, please turn off the power.
27. When the product exhibits abnormal noise, abnormal odor, abnormal high temperature, or malfunctions, please immediately stop using it, turn off the switch, and disconnect the power.source.
28. If a household appliance is charged with flammable refrigerant, in case of an abnormal situation, natural ventilation measures should be taken first before turning off the switch to avoid the accumulation of flammable refrigerant.
29. The total rated current value of household appliances connected to an extension cord power outlet shall not exceed the rated current value of the original fixed socket or circuit.
30. Users shall not change the setting values of low-voltage circuit breakers or residual current operated protective devices by themselves.
31. "Do not replace the fuses of household appliances and power supplies with ordinary conductors or fuses exceeding the specified current capacity.

## Current Capacity - Refrigerant Addition

1. When connecting the units, use a vacuum pump to evacuate the pipeline.
2. If gas leakage occurs during use, all refrigerant must be recovered, the leak point must be repaired, then vacuum must be re-evacuated, and finally refilling must be carried out according to the specified value on the nameplate.
3. Do not inject refrigerants other than those specified on the nameplate, otherwise it may lead to abnormal system pressure and cause personal injury.
4. Refrigerant charge shall be filled according to the requirements of the nameplate gas charge and the additional gas charge for extended connection pipes, and additional gas injection is not allowed. When the connecting pipe is longer than 5m, the refrigerant should be supplemented at a rate of 20g/m, with the maximum supplementary amount not exceeding 200g.

## Unit Installation Section

1. Please install according to the instructions in the manual, and use the parts provided with the unit or the specified parts; otherwise, it may cause accidents such as water leakage, electric shock, fire, refrigerant leakage, etc.
2. Please install the unit in a location capable of withstanding its weight, ensuring that the unit is firmly fixed to avoid major accidents or damage such as the unit tipping over or falling due to typhoons, earthquakes, etc.
3. Do not install in places where flammable gases may leak. In case of gas leakage and accumulation around the machine, it may cause accidents such as fire and explosion.
4. This product should be installed outdoors. The installation location should be well-ventilated, with sufficient intake air space , no obstacles at the air inlet and outlet, and the unit's exhaust should not affect neighbors. Try to choose a location where heavy snow does not fall in winter, and be sure to prevent snow accumulation. The unit can be installed on a platform or under a snow shield to avoid snow accumulation on the machine.
5. 5. Please ensure the space required for inspection and maintenance operations. Insufficient space may cause operators to fall. When installing outdoor units on rooftops or at heights, to prevent personnel from falling, please install permanent ladders or handrails on the access routes, and operators must take safety measures.
6. 6. Ensure that the inlet pressure of tap water is not less than 0.05 MPa and the maximum pressure does not exceed 0.6 MPa. The maximum working pressure of the heat pump unit does not exceed 0.6 MPa.
7. The maximum working water temperature on the water side shall not exceed 65°C, and the minimum working water temperature shall not be lower than 3°C.

8. For details on the ambient temperature range for unit operation, refer to the nameplate markings.
9. The installation space dimensions of the product are shown in the installation diagram.
10. The product shall be fixed to the installation foundation using expansion bolts through the base feet of the main unit.

## Electrical Related

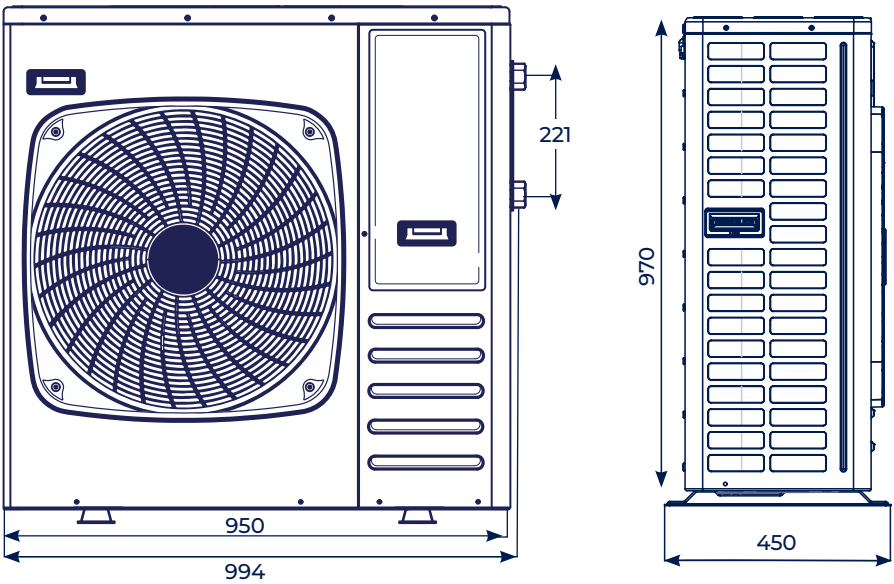
1. A dedicated power supply line shall be provided. Wiring shall be carried out by personnel with electrical qualifications in accordance with the wiring rules specified in national standards.
2. Wiring should be connected using the specified cables, with the terminal connection parts firmly fixed. External forces on the cables should not be transferred to them. Improper connection and fixation may lead to accidents such as overheating and fire. The sharp edges of wire and pipe holes need to be protected to avoid cutting the cables.
3. Wiring should maintain the correct shape, not bulge upwards, and should be installed securely. Do not let the electrical box cover, outer panel, etc. pinch the wires. Improper installation may cause accidents such as overheating and fire.
4. Connect the power cord and ground wire to the terminal block inside the unit's electrical box. The live wire and neutral wire must not be reversed; otherwise, it may cause damage to the computer board or even lead to a fire.
5. Power cords shall be routed through wire troughs or conduits to avoid contact with refrigerant pipes, steel plate edges, and electrical components. Otherwise, the wires may be damaged, and in severe cases, it may lead to a fire.
6. When the power cord is connected to the unit's electrical box, a rubber or plastic protective sleeve must be used to prevent it from being scratched by the edges of the sheet metal; the wiring of the terminal block should be secure, without arcing, and the ground wire of the power cord should be 30mm longer than the current-carrying wire.
7. Before starting the unit, please check whether the power supply used is consistent with the power supply required on the nameplate, and confirm whether the connections of the electrical wires and water system pipelines are correct to prevent accidents such as water leakage, electric shock, or fire.
8. Protect electrical wires and electrical components to prevent damage from rats and other small animals. If not protected, rats may chew through unprotected ones. Device. In severe cases, it may lead to a fire. If the power cord is damaged, to avoid danger, it must be handled by the manufacturer, its Replaced by professionals from the maintenance department or similar departments.

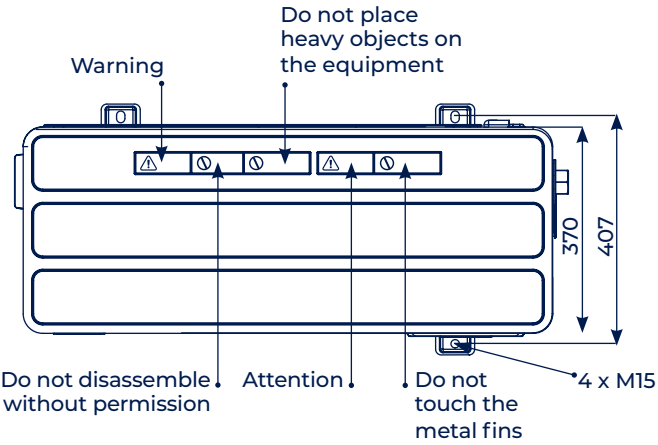
# 1. Product Information

## 1.1 Product Components

### 1.1.1 Unit Outline Schematic

**HP-013 Part Names and Dimensions (Unit: mm)**



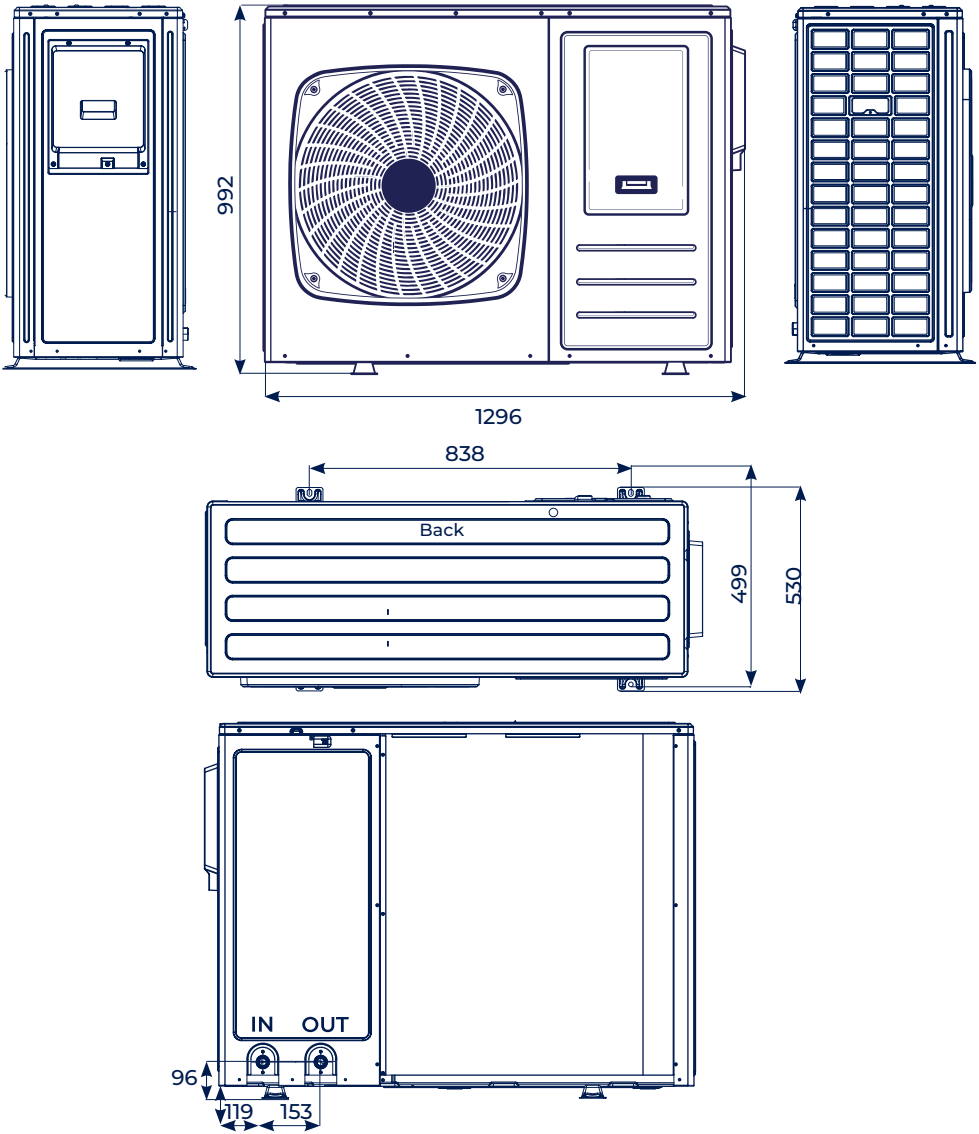



# 1. Product Information

## 1.1 Product Components

### 1.1.2 Unit Outline Schematic

**HP-024 Part Names and Dimensions (Unit: mm)**

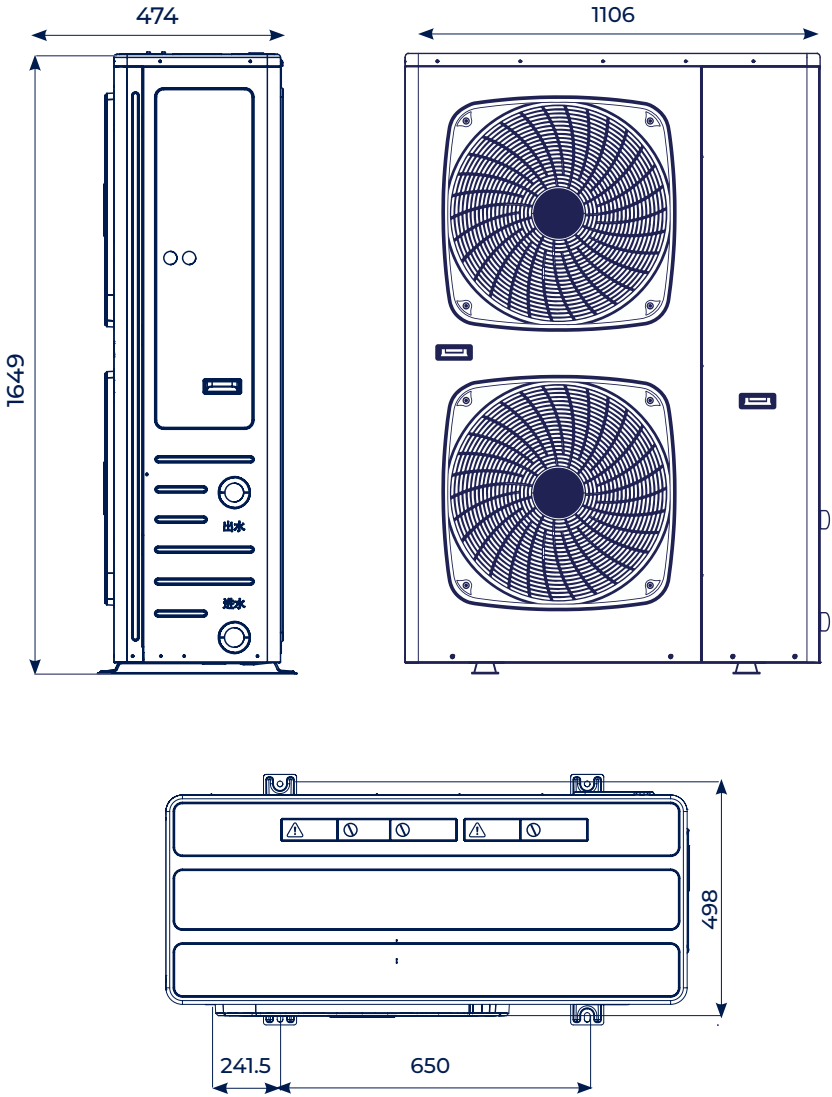


# 1. Product Information

## 1.1 Product Components

### 1.1.3 Unit Outline Schematic

**HP-040 Part Names and Dimensions (Unit: mm)**

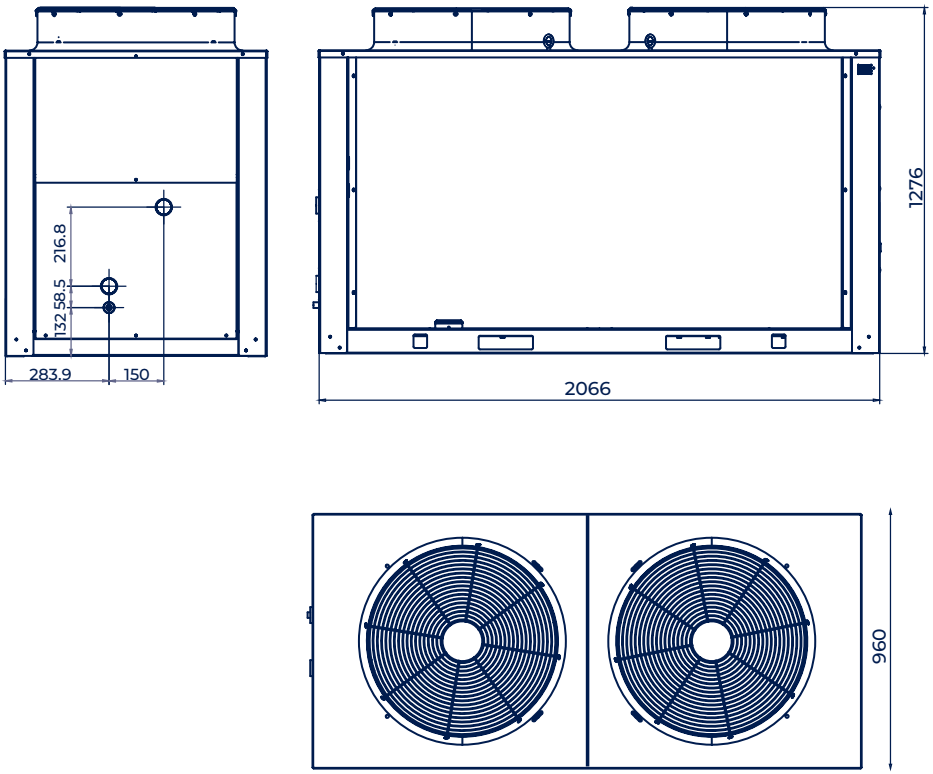


# 1. Product Information

## 1.1 Product Components

### 1.1.4 Unit Outline Schematic

**HP-085 Part Names and Dimensions (Unit: mm)**



## 1.2 Specification Tables

### HP-013 Specification table

| | | | |
|---|---|---|---|
| Model | HP-013 | | |
| Heating Condition 1 | Rated Heating Capacity (A20W55) | kW | 13 |
| | Rated Heating Power | kW | 2.74 |
| Heating Condition 2 | Heating Capacity (A7W55) | kW | 10 |
| | Heating Power | kW | 2.45 |
| Maximum Input Power | | kW | 3.55 |
| Maximum Input Current | | A | 16.5 |
| Net Weight / Gross Weight | | kg | Refer to the Label on the Packaging Box |
| Power Supply | | | 220-240V |
| Refrigerant | Name | | R32 |
| | Refrigerant Charge | kg | 1.3 |
| Compressor | Type | | Hermetic Rotary Type |
| | Quantity | Unit | 1 |
| Fan | Type | | Axial Fan |
| | Quantity | Unit | 1 |
| | Air Outlet Mode | | Side Air Outlet |
| Water System | Minimum Water Pump Flow Rate | m'/h | 1.72 |
| | Recommended Water Flow Rate | m'/h | 2.236 |
| | Water Pressure Drop | kPA | 65 |
| | Water Inlet / Outlet | male | G1" External Thread |
| Noise Levels | | dB(A) | 58 |
| Dimensions | | mm | 994*450*970 |

## 1.2 Specification Tables

### HP-024 Specification table

| | | | |
|---|---|---|---|
| Model | HP-024 | | |
| Heating Condition 1 | Rated Heating Capacity (A20W55) | kW | 24 |
| | Rated Heating Power | kW | 4.86 |
| Heating Condition 2 | Heating Capacity (A7W55) | kW | 18 |
| | Heating Power | kW | 4.36 |
| Maximum Input Power | | kW | 9 |
| Maximum Input Current | | A | 14 |
| Net Weight / Gross Weight | | kg | Refer to the Label on the Packaging Box |
| Power Supply | | | 380V 3N~50 |
| Refrigerant | Name | | R32 |
| | Refrigerant Charge | kg | 1.6 |
| Compressor | Type | | Hermetic Rotary Type |
| | Quantity | Unit | 1 |
| Fan | Type | | Axial Fan |
| | Quantity | Unit | 1 |
| | Air Outlet Mode | | Side Air Outlet |
| Water System | Minimum Water Pump Flow Rate | m'/h | 3.1 |
| | Recommended Water Flow Rate | m'/h | 4.1 |
| | Water Pressure Drop | PA | 110 |
| | Water Inlet / Outlet | Male | G1" External Thread |
| Noise Levels | | dB(A) | 56 |
| Dimensions | | mm | 1296*530*992 |

## 1.2 Specification Tables

### HP-040 Specification table

| | | | |
|---|---|---|---|
| Model | HP-040 | | |
| Heating Condition 1 | Rated Heating Capacity (A20W55) | kW | 40 |
| | Rated Heating Power | kW | 8.61 |
| Heating Condition 2 | Heating Capacity (A7W55) | kW | 31.5 |
| | Heating Power | kW | 7.98 |
| Maximum Input Power | | kW | 13 |
| Maximum Input Current | | A | 23 |
| Net Weight / Gross Weight | | kg | Refer to the Label on the Packaging Box |
| Power Supply | | | 380V 3N~50 |
| Refrigerant | Name | | R32 |
| | Refrigerant Charge | kg | 2.7 |
| Compressor | Type | | Hermetic Rotary Type |
| | Quantity | Unit | 1 |
| Fan | Type | | Axial Fan |
| | Quantity | Unit | 2 |
| | Air Outlet Mode | | Side Air Outlet |
| Water System | Minimum Water Pump Flow Rate | m'/h | 5.5 |
| | Recommended Water Flow Rate | m'/h | 6.9 |
| | Water Pressure Drop | PA | 80 |
| | Water Inlet / Outlet | Male | G1" External Thread |
| Noise Levels | | dB(A) | 59 |
| Dimensions | | mm | 1132*468*1650 |

## 1.2 Specification Tables

### HP-085 Specification table

| | | | |
|---|---|---|---|
| Model | HP-085 | | |
| Heating Condition 1 | Rated Heating Capacity (A20W55) | kW | 85 |
| | Rated Heating Power | kW | 18.01 |
| Heating Condition 2 | Heating Capacity (A7W55) | kW | 64 |
| | Heating Power | kW | 17.2 |
| Maximum Input Power | | kW | 38 |
| Maximum Input Current | | A | 60 |
| Net Weight / Gross Weight | | kg | Refer to the Label on the Packaging Box |
| Power Supply | | | 380V 3N~50 |
| Energy Efficiency Grade | | | Grade 1 |
| Refrigerant | Name | | R410A |
| | Refrigerant Charge | kg | 8 |
| Compressor | Type | | Fully enclosed vortex type |
| | Quantity | Unit | 1 |
| Fan | Type | | Axial Fan |
| | Quantity | Unit | 2 |
| | Air Outlet Mode | | Top out wind |
| | Single Fan Airflow | m'/h | 12750 |
| Water System | Minimum Water Pump Flow Rate | m'/h | 11 |
| | Recommended Water Flow Rate | m'/h | 14.62 |
| | Water Pressure Drop | PAm | 65 |
| | Water Inlet / Outlet | Flange | DN50 flange |
| Noise Levels | | dB(A) | 68 |
| Dimensions | | mm | 2066*960*1276 |

# 2. Usage Instructions

## 2.1. User Instructions

1. Upon receiving the unit, please immediately inspect the exterior for any damage, verify that the unit model matches your purchase, and ensure all included accessories are complete.
2. To ensure proper installation, usage, and future maintenance, please read this manual carefully beforehand.
3. After completing the unit installation, verify all connections before powering on the unit.
4. During initial start-up, the pipeline must be purged of air to prevent abnormal operation.
5. After normal operation, regular cleaning and maintenance are essential to ensure unit longevity and reliable performance.
6. If the unit is not used during winter, drain all water from the system pipeline and the unit's coaxial heat exchanger to prevent freezing damage
7. Due to design improvements, content may be updated without prior notice.

## 2.2 Safety Precautions

1. Before operating the unit, carefully read this manual and follow the instructions for correct operation.
2. Pay special attention to the meanings of the following two symbols:

| Safety instructions (to be followed at any time) | |
|---|---|
|  | **Warning:** Indicates improper operation may result in serious injury or death. |
|  | **Caution:** Indicates improper operation may result in injury or property damage. |

# 2. Usage Instructions

## 2.2 Safety Precautions

**Warning**

1. Install the unit in a location capable of supporting its operating weight. Insufficient strength may cause the unit to fall, resulting in personal injury or death.
2. The installation site must support the weight of a fully filled water tank. Insufficient load-bearing capacity may cause the unit to fall, resulting in personal injury or death.
3. Do not store or use flammable, explosive, or toxic materials near the unit.
4. In case of malfunction (e.g., burning smell), immediately shut off the unit's power and contact the dealer. Do not insert fingers or objects into the air outlet.
5. Do not start or stop the unit by plugging or unplugging the power cord.
6. Do not modify or repair the unit. For relocation, contact the dealer or a professional installer.
7. System design and installation must be performed by qualified professionals in compliance with relevant laws, regulations, and this manual. If installed improperly, it may cause accidents such as water leakage, electric shock, or fire.

**Caution**

1. Before starting the unit, check whether the power supply matches the requirements on the nameplate, and confirm that the wiring and water system piping connections are correct to prevent accidents such as water leakage, electric shock, or fire.
2. The heat pump unit is a Class I electrical appliance and must be reliably grounded to avoid electric shock hazards.
3. After electrical installation, conduct a leakage current test to ensure safety.
4. Once the unit is started, it must run for at least 6min before shutdown; otherwise, the unit's lifespan may be affected. Do not manually start and stop the unit frequently.
5. Do not operate the unit with wet hands or allow children to operate the unit. Before Cleaning the unit, turn off the main power supply.
6. Do not expose the unit directly to water or humid environments where corrosion 'is high.

# 2. Usage Instructions

7. In winter, when outdoor temperatures are low, do not cut off the power after shut-down to ensure the normal operation of the unit's antifreeze function. Where there is a high risk of corrosion the unit should be treated with 'Bluchem' or similar.
8. In case of a power outage or prolonged non-use of the unit, drain all water from the unit, water tank, and pipes.
9. Water quality standards applicable to the unit: SANS 241

## 2.3. Installation Instructions

### 2.3.1 Packing List (HP-013, HP-024, HP-040, HP-085)

| Master Unit | User Manual | Rubber Pad | Wired Controller | Multi-Unit Connection Signal Cable A | Multi-Unit Connection Signal Cable B |
|---|---|---|---|---|---|
| 1 | 1 | 4 | 1 | 1 | 1 |

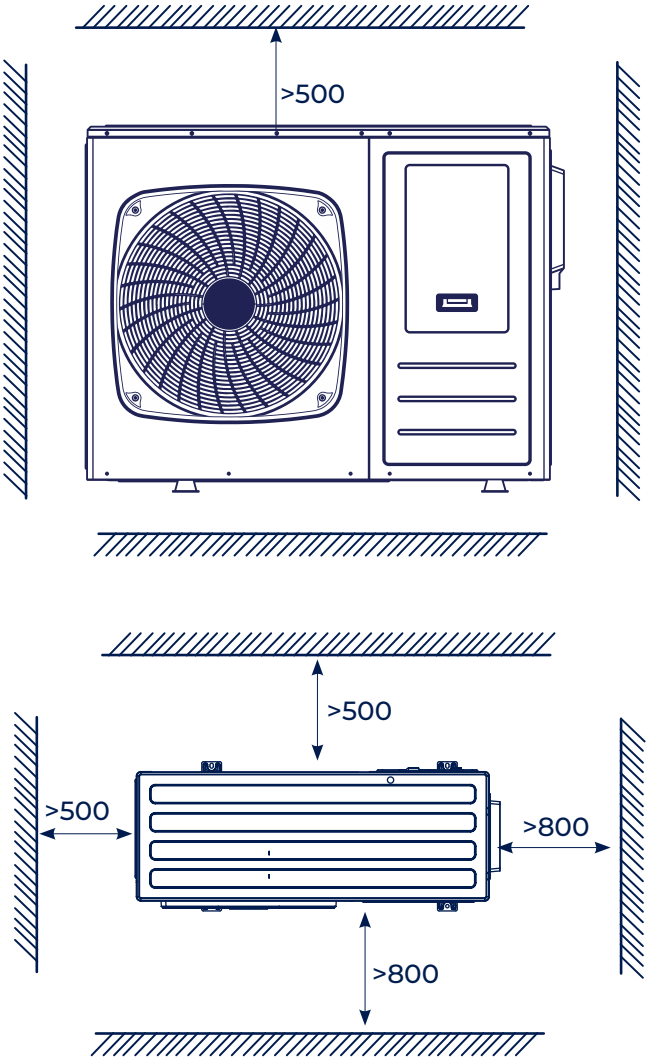
# 2. Usage Instructions

### 2.3.2 Unit Installation and Precautions

**Model: HP-013 and HP-24**

Unit Installation and Precautions

Unit Installation Space (Unit: mm)




The installation diagram is for reference only. Please refer to the actual unit and its functions!

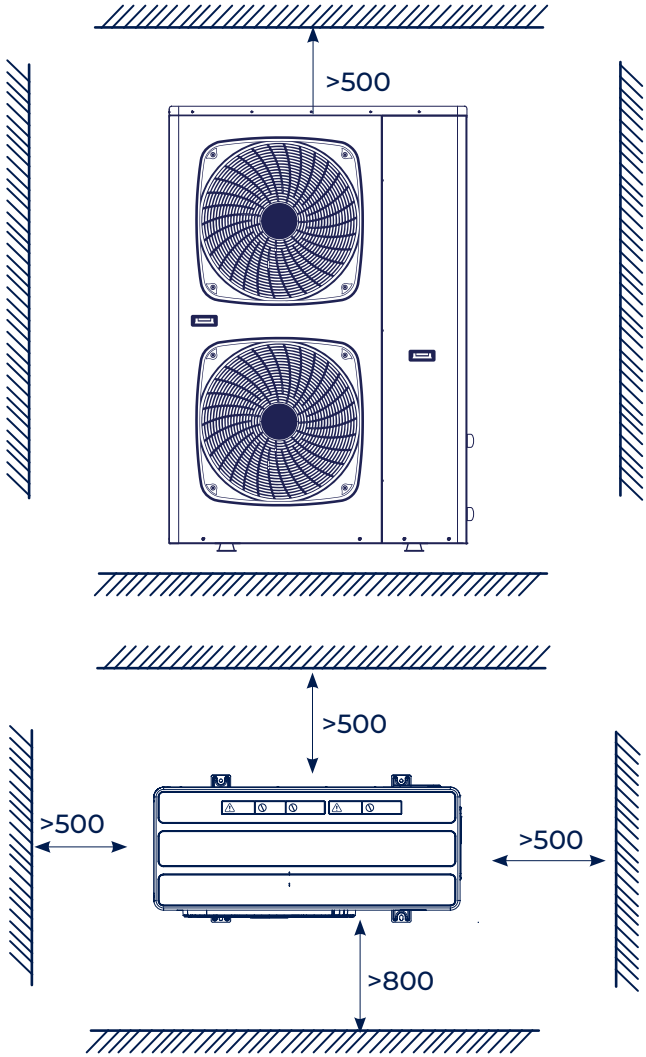
# 2. Usage Instructions

### 2.3.2 Unit Installation and Precautions

**Model: HP-040**

Unit Installation and Precautions

Unit Installation Space (Unit: mm)




The installation diagram is for reference only. Please refer to the actual unit and its functions!

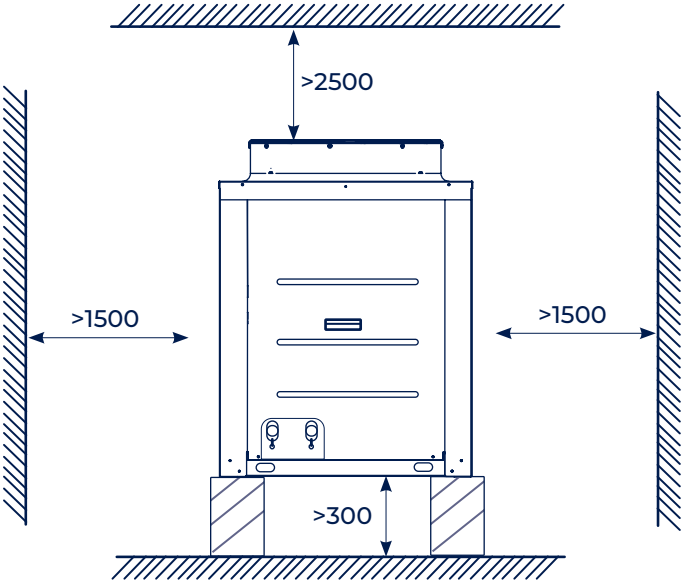
# 2. Usage Instructions

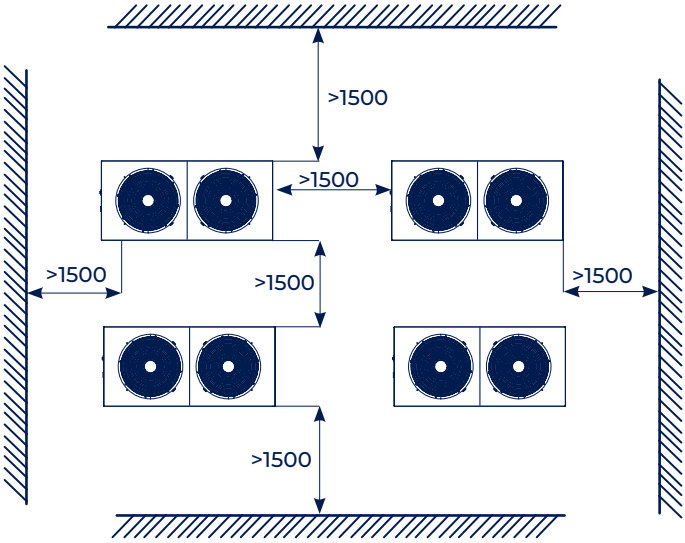
### 2.3.2 Unit Installation and Precautions

**Model: HP-085**

Unit Installation and Precautions

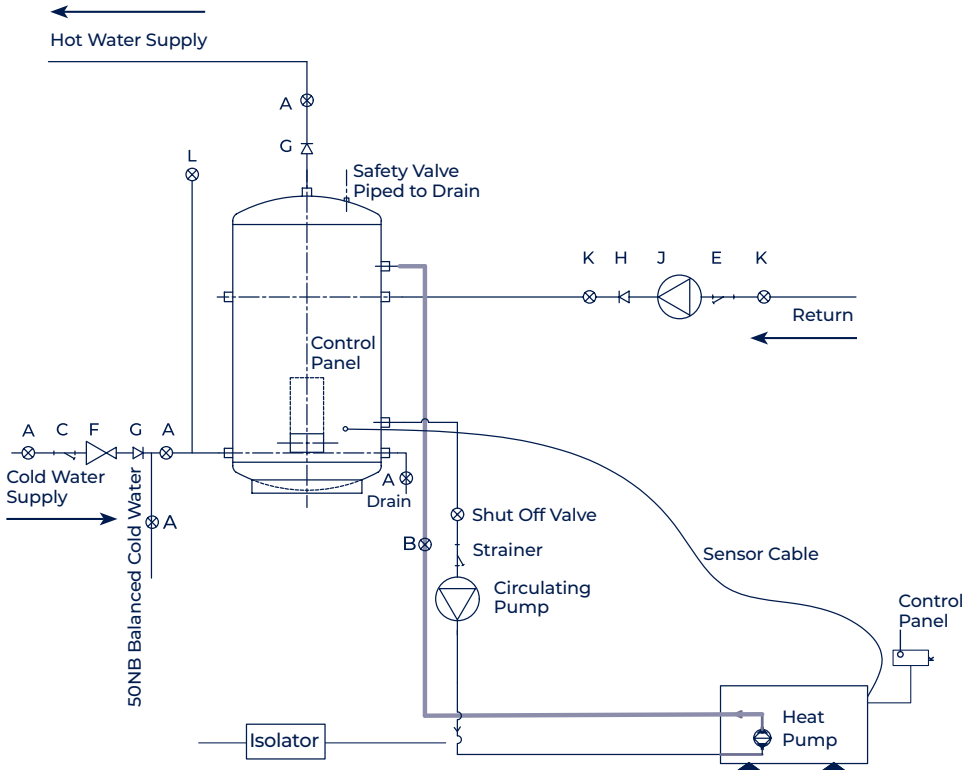
Unit Installation Space (Unit: mm)



# 2. Usage Instructions

### 2.3.3 Non-modular water supply system: Single-unit hot water system




- Shut Off Valve
- None Return Valve
- Circulating Pump
- Strainer
- Pressure Reducing Valve

A 50NB Shut Of Valve x 5
B 32NB Shut of Valve x 6
C 50NB Strainer x 1
D 32NB Strainer x 1
E 25NB Strainer x 2
F 50NB Pressure Reducing Valve
G 50NB Non Return Valve x 2
H 25NB Non Return Valve x 2
I 25NB/6 Circulating Pump x 2
J 32NB/8 Circulating Pump x 1
K 25NB Shut Of Valve x 4
L 25NB Expansion Relief Valve x 1

# 2. Usage Instructions

### 2.3.4 Electrical Installation and Precautions

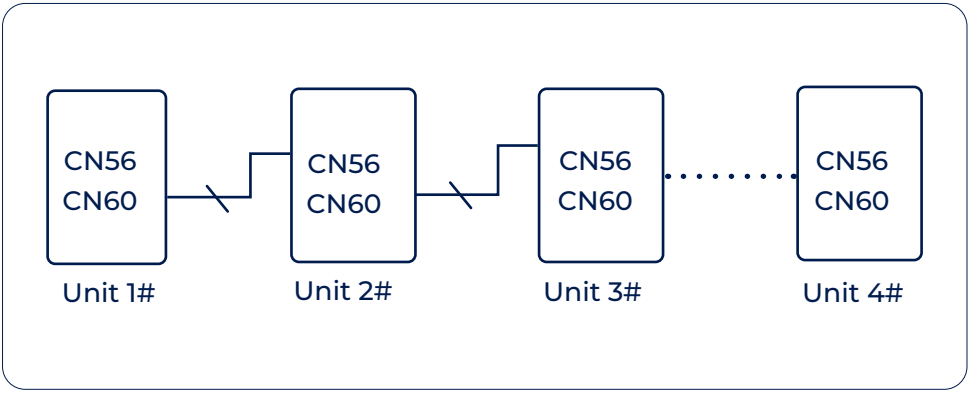
**Selection of Auxiliary Electric Heater Capacity**

The installation of auxiliary heat sources for air-source heat pump water heater systems shall comply with the following principles:

1. Areas where the average temperature of the coldest month in winter is not less than 10°C may omit auxiliary electric heaters;
2. Areas where the average temperature of the coldest month in winter is less than 10°C but not less than 0°C should install auxiliary electric heaters;
3. Areas where the average temperature of the coldest month in winter is below 0°C must install auxiliary electric heaters.

**Single Unit or Parallel Connection Diagram**

For modular multi-unit connection, the wired controller must be connected to the master unit, while slave units should not have wired controllers; For modular multi-unit connection, communication cables between master and slave units must be connected in a daisy-chain configuration as shown below;




For modular multi-unit connection, the circulation pump and auxiliary electric heater must be connected to the master unit's main board;
Communication cables must use 4*0.75mm² twisted-pair wires;
Maximum of 16 units can be connected.

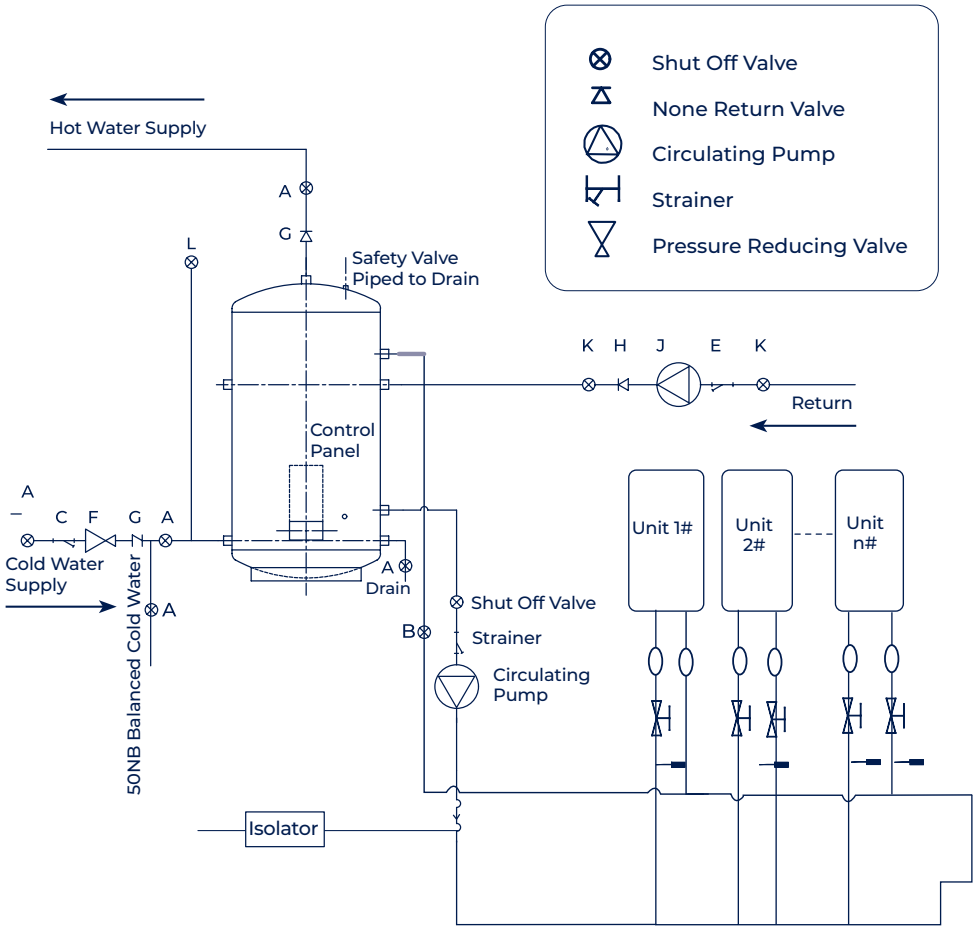
# Preparations Before Electrical Wiring

1. Ensure that the power supply voltage is within the range of ±10% of the unit's rated voltage, which can be found on the unit's nameplate or electronic manual. The power supply must use a dedicated circuit, and the power supply line must be equipped with an air switch of sufficient capacity. The air switch should have both magnetic and thermal tripping functions to ensure protection against both short circuits and overloads;
2. Ensure that the power supply capacity is sufficient. Otherwise, during startup, low voltage may cause the compressor to fail to start, and high voltage may cause the main board to burn out.
3. Ensure that the electrical components (main power switch, circuit breaker, wires, conduits, and terminals, etc.) used on-site have been appropriately selected based on the current data, and ensure that the components comply with national electrical standards;
4. The power cord must use copper wire and must comply with the requirements of IEC60245.
5. This unit has no power cord or plug. A disconnection device must be added to the fixed circuit, and it must be a full-pole disconnection with a contact disconnection distance of at least 3mm. A residual current device (RCD) must be installed in the fixed circuit at the power supply end, and each RCD must be regularly and effectively tested (testing can be performed by pressing the test button on the RCD). Power supply section: For AC220V equipment, L should be connected to the live wire, N should be connected to the neutral wire, and  should be connected to the ground wire; for three-phase electrical machines, R, S, and T should be connected to the corresponding terminal block positions, N should be connected to the neutral wire, and  should be connected to the ground wire. The positions must not be connected incorrectly, the wire sequence must be ensured to be correct, the connection must be reliable, and there should be no internal short circuit. Incorrect connection may lead to a fire. The power cord connection method is Y connection.
6. When this equipment needs to be externally connected to auxiliary electric heating or a water pump, a disconnecting device must be added to the fixed circuit, which can simultaneously disconnect this equipment and the auxiliary electric heating or water pump. When performing equipment inspection or maintenance, the main disconnecting device needs to be disconnected to avoid the risk of electric shock caused by equipment that has not been disconnected in the circuit.

1. The power cord must use copper wire and should use neoprene-sheathed flexible cable, with its specification being at least No. 57 wire as specified in IEC60245 for ordinary neoprene-sheathed flexible cable. The recommended wire diameter for copper power cords is shown in the following table, and the wire diameter can also be selected by referring to the corresponding model's electronic manual; if the power cord length is >15m or the power cord is made of other materials, the cross-sectional area of the power cord should be appropriately increased to avoid malfunctions caused by overloading; the specific wiring method can be found in the accompanying wiring diagram.

# 2. Usage Instructions

### 2.3.5 Modular Water Supply System: Multi-unit hot water system




| | |
|---|---|
| A 50NB Shut Of Valve x 5 | G 50NB Non Return Valve x 2 |
| B 32NB Shut of Valve x 6 | H 25NB Non Return Valve x 2 |
| C 50NB Strainer x 1 | I 25NB/6 Circulating Pump x 2 |
| D 32NB Strainer x 1 | J 32NB/8 Circulating Pump x 1 |
| E 25NB Strainer x 2 | K 25NB Shut Of Valve x 4 |
| F 50NB Pressure Reducing Valve | L 25NB Expansion Relief Valve x 1 |

## 2.4 Model and Parallel unit number selection

**Master Control Board Address DIP (SW1) Diagram**

| DIP | Address | | | | Unit | Description |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | | |
| SW1 Address DIP | On | On | On | On | 1# | Switch lever toward ON = ON, opposite = OFF |
| | Off | On | On | On | 2# | |
| | On | Off | On | On | 3# | |
| | Off | Off | On | On | 4# | |
| | On | On | Off | On | 5# | |
| | Off | On | Off | On | 6# | |
| | On | Off | Off | On | 7# | |
| | Off | Off | Off | On | 8# | |
| | On | On | On | Off | 9# | |
| | Off | On | On | Off | 10# | |
| | On | Off | On | Off | 11# | |
| | Off | Off | On | Off | 12# | |
| | On | On | Off | Off | 13# | |
| | Off | On | Off | Off | 14# | |
| | On | Off | Off | Off | 15# | |
| | Off | Off | Off | Off | 16# | |

**Master Control Board Address DIP (SW1) Diagram**

| DIP | DIP 1 | DIP 2 | DIP 3 | DIP 4 | Model |
|---|---|---|---|---|---|
| SW2 | On | On | On | On | HP-024 |
| SW2 | On | On | On | On | HP-040 |
| SW2 | On | On | On | On | HP-085 |

## 2.5 Electrical Power Requirements

**Master Control Board Address DIP (SW1) Diagram**

| Model | Power Type | Minimum Wire Cross-Section (mm²) | | | | | Circuit Breaker Capacity (A) | Fuse Specification (A/VAC) |
|---|---|---|---|---|---|---|---|---|
| HP-013 | 220-240V 1N-50Hz | L | N | PE | | | 63 | 6.3/250 |
| | | 4 | 4 | 4 | | 4 | | |
| HP-024 | 380V 3N~50Hz | U | V | W | N | PE | 20 | 10/250 |
| | | 4 | 4 | 4 | 4 | 4 | | |
| HP-040 | 380V 3N~50Hz | U | V | W | N | PE | 63 | 6.3/250 |
| | | 6 | 6 | 6 | 6 | 6 | | |
| HP-085 | 380V 3N~50Hz | U | V | W | N | PE | 80 | 10/250 |
| | | 10 | 10 | 10 | 2.5 | 10 | | |

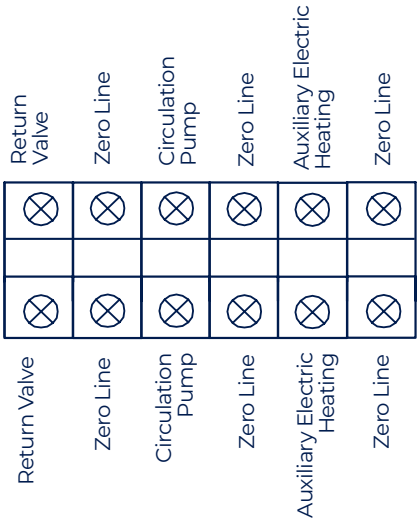
**Electrical Power Requirements**

- The circuit breaker and power specifications in the table are based on the unit's maximum power (maximum current);
- The wire gauge specifications assume an ambient temperature of 40°C and cable operating temperature of 90°C (multicore copper cable compliant with national standard YZW rubber-sheathed flexible cable). Adjust according to national standards if conditions differ;
- If power cable length exceeds 15 meters, increase wire cross-section to prevent overload faults;
- The yellow-green wire is the grounding wire.

- If the power cord is damaged, it must be replaced by the manufacturer, maintenance department, or similarly qualified personnel to avoid hazards.
- Installation must comply with national wiring regulations. Power cables must be routed through conduits or cable trays;
- 2. The power supply must use the rated voltage and be dedicated to the air-conditioning unit;
- When connecting power cables to the unit's electrical box, use rubber or plastic protective gloves to prevent damage from sheet metal edges;
- Power cables must meet the manual's specifications. Damaged power or connection cables must be replaced immediately with specialised cables;
- Users must install a main circuit breaker and leakage protector at the power supply end. Each leakage protector must be tested regularly (use the test key on the device).

### 2.5.1 External Controls Wiring Connections

**Main Boards HP-013**



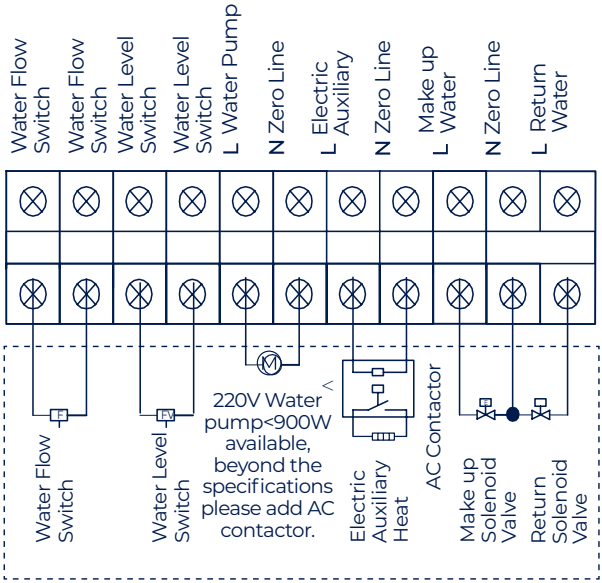

**Terminal Block**

**CN20:** Water Tank Temperature-Sensing Bulb

**CN8:** User-Side Temperature-Sensing Bulb

### 2.5.1 External Controls Wiring Connections

**Main Boards: HP-024 and HP-040**




**Terminal Block**

**CN19:** Total Inlet Water Temperature-Sensing Bulb
Water Tank Temperature-Sensing Bulb

**CN22:** Total Outlet Water Temperature-Sensing Bulb User-Side Temperature-Sensing Bulb

**Notes:**

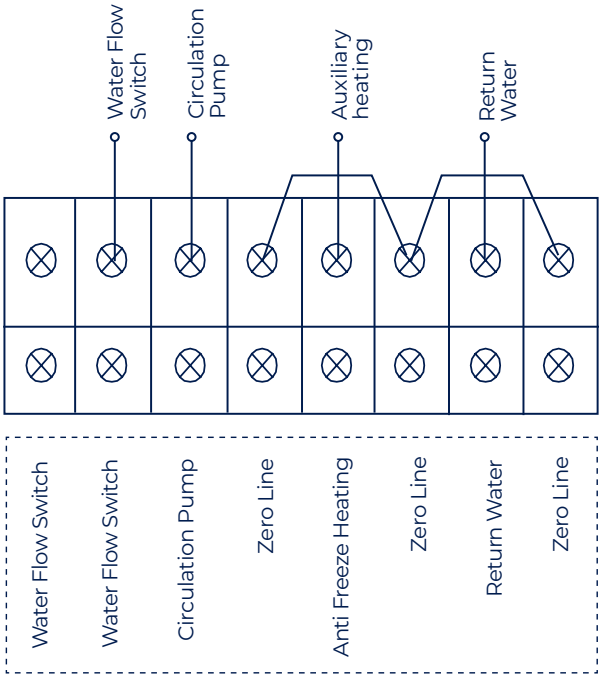
The circulation pump, auxiliary heating, freeze protection heating, and return water are only control signal output switches. During engineering installation, AC contactors must be added to control the pump and heaters.

1. During engineering installation, a water flow switch must be installed on the main pipeline, with its wires connected to terminals 1 and 2 respectively.
2. When the remote switch is closed, the unit will start according to the control logic, and the on/off key on the wired controller will be disabled. When the remote switch is opened, the unit will shut down according to the control logic, and the on/off key on the wired controller will resume normal function.

### 2.5.1 External Controls Wiring Connections

1. For hot water mode, install the water tank temperature-sensing bulb and user-side temperature-sensing bulb, connecting them to terminals CN19 and CN22 on the mainboard respectively. For heating mode, if two or more modules of units are connected, install the total inlet and outlet water temperature-sensing bulbs, connecting them to terminals **CN19** and **CN22** on the mainboard.
2. The total inlet water (water tank) temperature-sensing bulb and total outlet water (user-side) temperature-sensing bulb are not included with the unit. These temperature-sensing bulbs are sold together with the wired controller under purchase code.

**Main Boards HP-085**




User-Side Mounting Wiring

Main Boards HP-085

**Terminal Block**

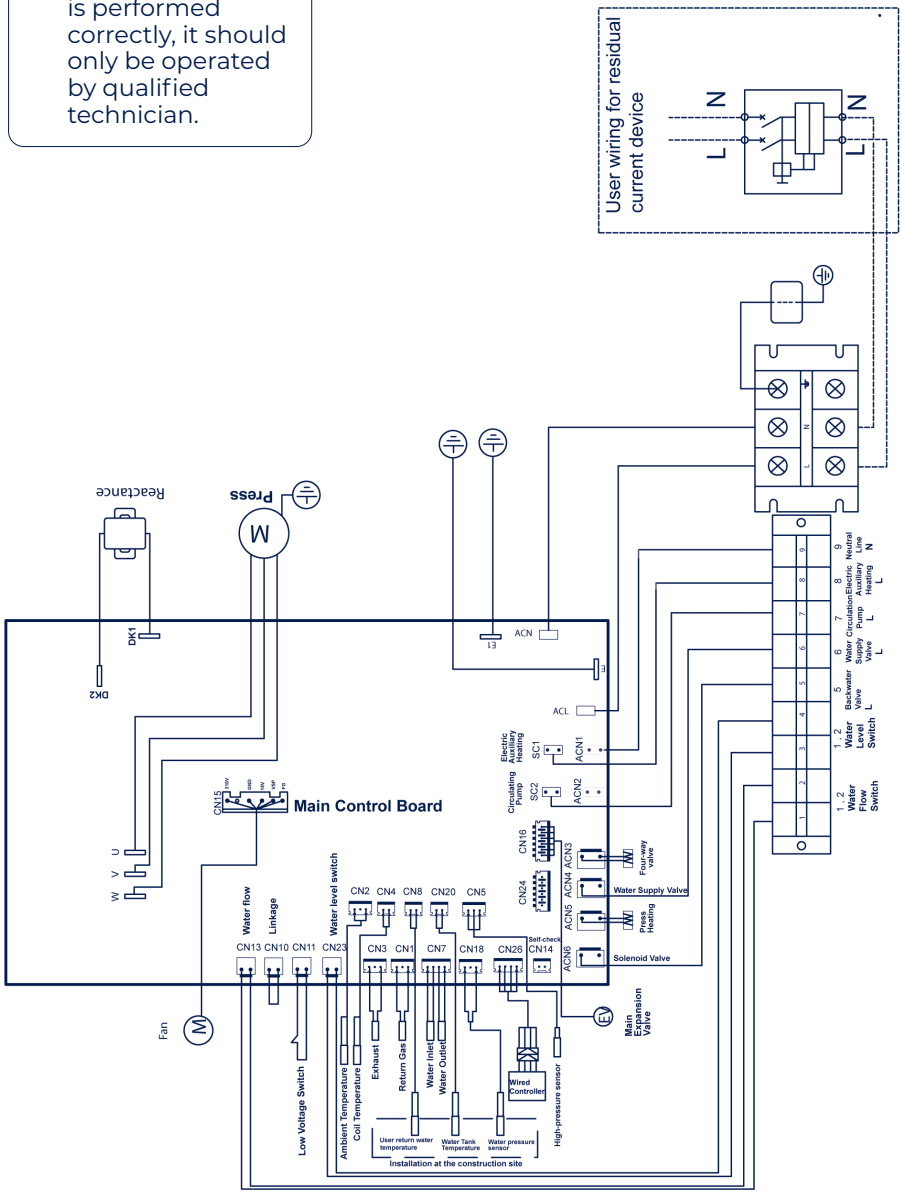
**CN18:** Total Inlet Water Temperature-Sensing Bulb Water Tank Temperature-Sensing Bulb

**CN17:** Total Outlet Water Temperature-Sensing Bulb User-Side Temperature-Sensing Bulb

## 2.5.2 Circuit Diagrams

### HP013 - Electrical Wiring Diagram

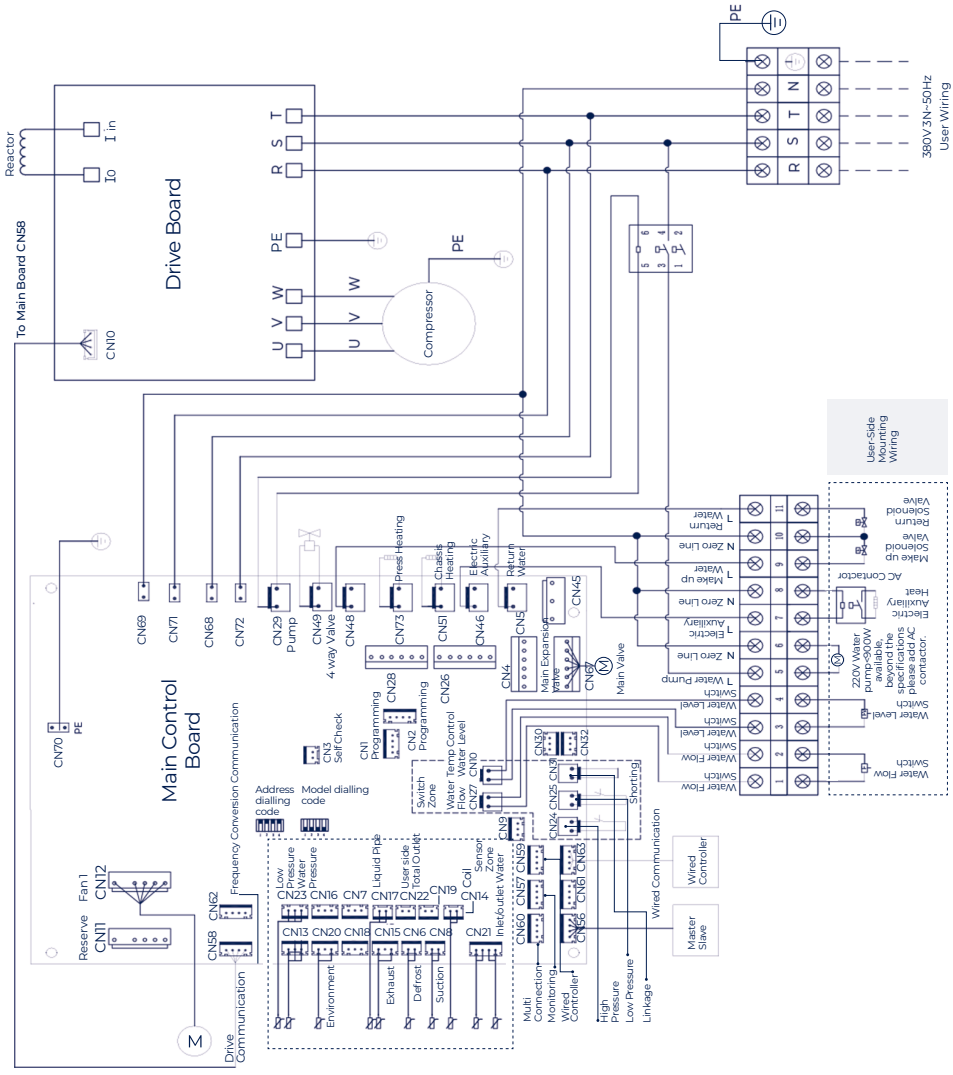
Note: To ensure that start-up is performed correctly, it should only be operated by qualified technician.



## 2.5.2 Circuit Diagrams

### HP024 - Electrical Wiring Diagram

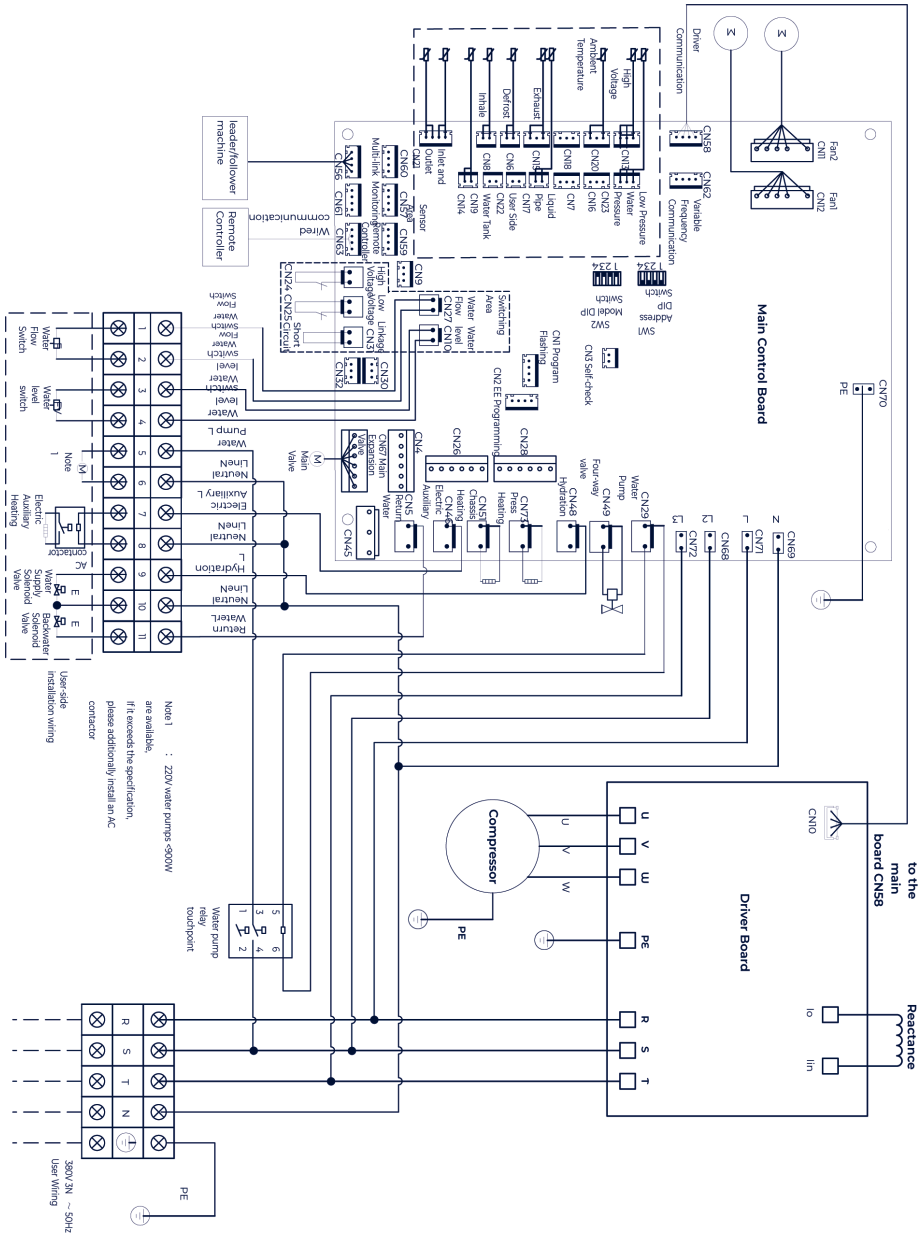
**Note:** To ensure that start-up is performed correctly, it should only be operated by qualified technician.



## 2.5.2 Circuit Diagrams

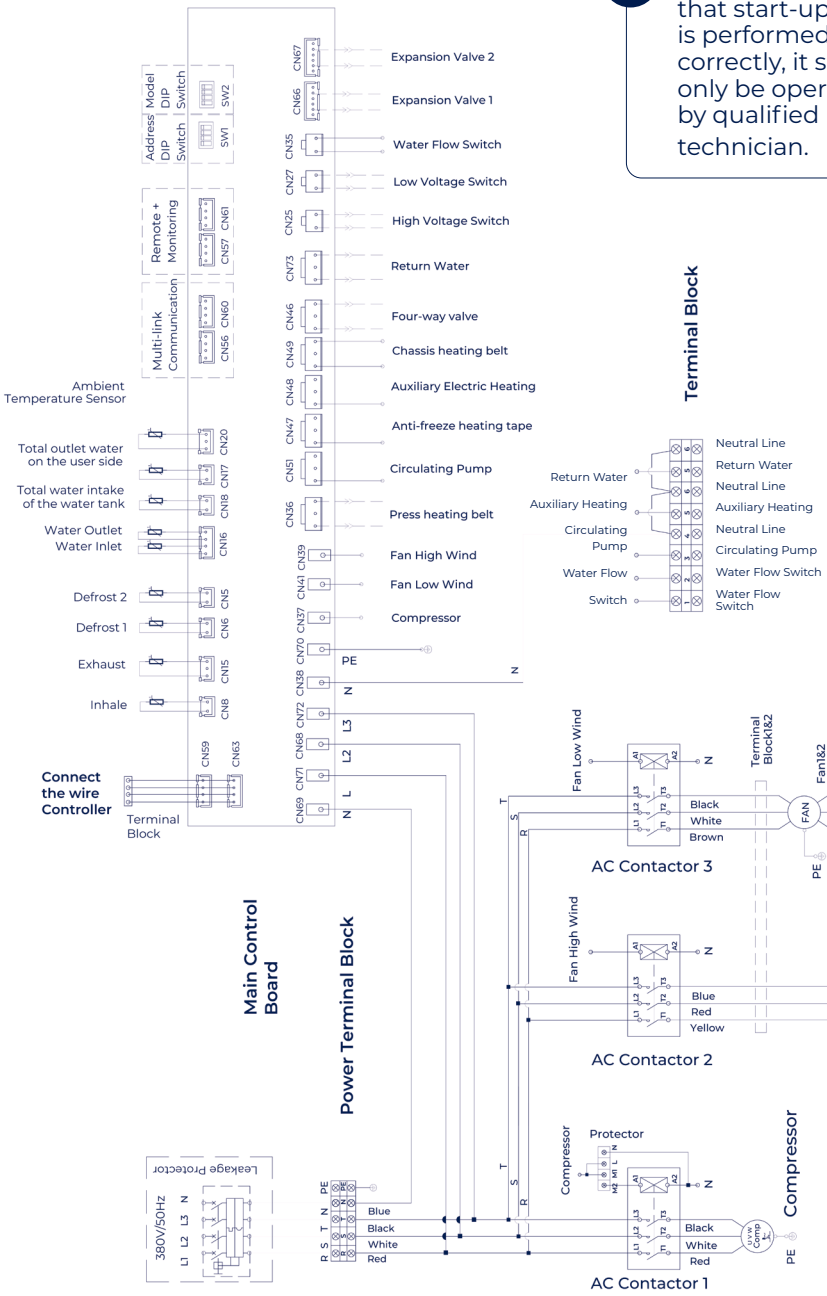
### HP040 - Electrical Wiring Diagram

**Note:** To ensure that start-up is performed correctly, it should only be operated by qualified technician.



## 2.5.2 Circuit Diagrams

### HP085 - Electrical Wiring Diagram




**Note:** To ensure that start-up is performed correctly, it should only be operated by qualified technician.

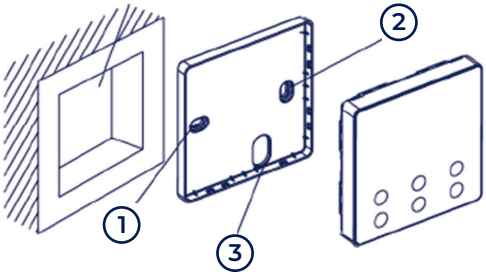
### 2.5.3 Wired Controller Installation

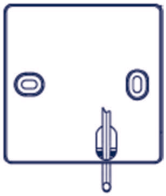
1. Wall-mounted installation method: First, use a flat-head screwdriver to separate the display panel wired controller base from the controller housing via the slots at the bottom of the wired controller. Then, secure the controller housing base to the wall using screw holes 1 and 2. Finally, snap the controller housing onto the base according to the corresponding alignment.
2. Flush-mounted installation method: First, separate the display panel wired controller base from the controller housing using the same method. Secure the controller housing base inside an 86-type junction box using screw holes 1 and 2. Route the control wires through wire hole 3 into the pre-installed conduit inside the 86- type junction box. Finally, snap the controller housing onto the base according to the corresponding alignment.

**Note:**

The flush-mounted junction box must be pre-installed in the wall before decoration.

**Wired Controller**



## 2.6 Functions

### 2.6.1 Unit Commissioning and Operation

| Pre-Operation Checks | | |
|---|---|---|
| **No.** | **Check Item** | **Remarks** |
| 1 | Is the unit securely installed? | |
| 2 | Are there any obstructions at the unit's air inlet/outlet? | |
| 3 | Has the water system been leak-tested? | |
| 4 | Has the water system been cleaned? | |
| 5 | Has the filter been cleaned? | |
| 6 | Is drainage unobstructed? | |
| 7 | Is the water pipe insulation intact? | |
| 8 | Has air been purged from the water-side piping? | |
| 9 | Are all valves in the water-side piping in the correct position? | |
| 10 | Is the grounding wire properly connected? | |
| 11 | Does the power voltage meet the unit's requirements? | |
| 12 | Does the leakage protector function correctly? | |

## 2.6 Functions

### 2.6.1 Unit Commissioning and Operation

**During trial operation:**

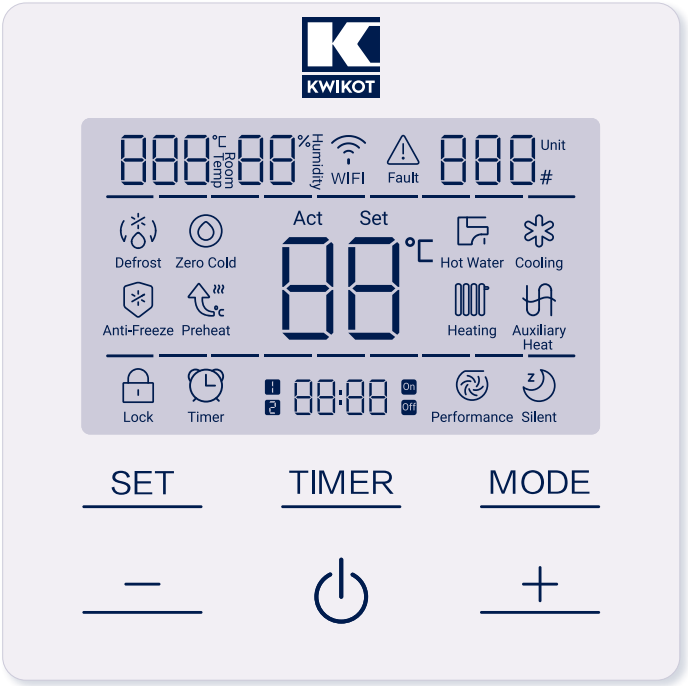
Control the unit via the wired controller and check the following items (if any faults occur, refer to the unit manual for troubleshooting and resolution):

| No. | Check Item | Remarks |
|---|---|---|
| 1 | Do all wired controller keys function normally? | |
| 2 | Does the input voltage meet the unit's requirements? | |
| 3 | Is the outlet water temperature normal? | |
| 4 | Are there any abnormal vibrations or noises during operation? | |

**Caution:**

1. After commissioning, provide system training to the owner, instructing them on basic operations and necessary maintenance to ensure they understand the unit's fundamentals.
2. After powering on, the water pump should run smoothly. If operation is unstable and the pressure gauge needle fluctuates significantly, air remains in the water system. Purge the air completely before restarting.
3. If abnormal noises occur after the compressor starts, shut down the unit immediately for inspection.
4. After the trial operation is completed, the filters in the pipeline must be cleaned before putting the unit into normal operation. The filters should be disassembled and cleaned regularly (recommended every 6 to 12 months) to ensure the normal operation of the unit.
5. As the unit adopts a fully enclosed scroll compressor, the power phase sequence must be correct, and prolonged reverse operation is not allowed.

## 2.6.2 Wired Controller



### 2.6.3 Icons

| | |
|---|---|
|   | **Icons**<br>• **Number of Connected Units Icon**: Displays the number of connected units and the machine number (displays “01” for a single unit; for multiple units, displays the actual number, e.g., “03” for three connected units; when checking parameters of a specific unit, e.g., the second unit, it displays “02#”). |
|  | • **Heat Pump Operation Icon**: Illuminates after pressing the power key and displays dynamically when the compressor is running. |
|  | • **Time/Timer Icon**: Displays the current time and timer settings. |
|  | • **Set/Actual Temperature Icon**: Displays the set temperature and actual temperature. |
|   | • **Room Temperature Icon**: Displays the ambient temperature at the wired controller’s location. |
|  | • **Defrost Icon**: Illuminates when the unit is performing defrosting. |
|  | • **Zero Cold Water Icon**: Illuminates when the unit is performing zero cold water circulation. |
|  | • **Hot Water Icon**: Illuminates when the unit is in hot water mode. |

| | |
|---|---|
|  | • **Auxiliary Heating Icon**: Illuminates when auxiliary heating is activated. |
|   | • **Wi-Fi Icon:** Stays lit when the mobile app is successfully bound, allowing APP control. |
|  | • **Timer Icon**: Illuminates when the timer function is enabled. |
|  | • **Lock Status Icon:** Illuminates when the wired controller is locked. |
|  | • **Performance Icon**: Illuminates when the performance mode is active. |
|  | • **Silent Mode Icon**: Illuminates when silent mode is activated. |

### 2.6.4 User Settings

1. **Power On/Off Key**
   After turning off the machine, only the clock, actual water temperature, and the number of connection units icon are displayed. After turning on the machine, additional icons for the working mode, working status, set water temperature, and actual water temperature are displayed. When the power is on, pressing the **“On/Off”** key will immediately turn on the machine if it is off, and vice versa.
2. **Clock Setting**
   While powered off, press and hold the “Set” key for 6s to enter the function menu. Use the **“+”** or **“–”** keys to select “Fun00”, then press **“Set”** to enter the clock setting interface. The hour digits will flash – adjust them using **“+”** or **“–”,** then press **“Set”**. The minute digits will then flash – adjust using **“+”** or **“–”**, then press **“Set”** to confirm.
3. **“+” and “–” Keys**
   When the machine is on, you can adjust the water temperature. To adjust the water temperature, simply press the **“+”** or **“–”** key on the main interface to reach the desired temperature. If there is no key operation for 6s, the flashing will stop, the water temperature setting will be exited, and it will return to the main interface. The water temperature can be adjusted within a certain range.
4. **Timer Key**
   Pressing the **“Timer”** key is ineffective when the machine is off; This unit can set 9 groups of timers. When the machine is on, pressing the **“Timer”** key enters the timer setting state for power on/off. At this point, you can use the **“Set”**, **“+”**, and **“–”** keys to set the timer power on/off.
5. **Mode Key**

**For example, the setting method for Timer 1 on/off:**

- Press the “Timer” key when the machine is on, the timer icon lights up and flashes to display 01, entering the Timer 1 setting state;
- Press the **“Set”** key, 01 stays lit, **“On”** flashes, entering the setting state for Timer 1 “On”; at this point, press the **“Set”** key to adjust the hour digit, after adjusting, press the “Set” key to confirm and enter the minute setting state for Timer 1 “On”; at this point, the minute digit flashes, use

**“+”** or **“–”** to adjust the minute digit, and press the **“Set”** key to confirm and enter the setting state for Timer 1 “**Off”**;“

- **Off”** lights up, the hour digit flashes, use **“+”** or **“–”** to adjust the hour digit, after adjusting, press the **“Set”** key to confirm and enter the minute setting state for Timer 1 **“Off”;**
- At this point, the minute digit flashes, use **“+”** or **“–”** to adjust the minute digit. After adjusting, press the **“Set”** key to confirm.
- Press the **“Timer”** key to enter the setting state for Timer 2, and so on. When the machine is on, pressing and holding the **“Timer”** key for 6s clears all timers, all timer time points and temperatures are set to 0, the timer is disabled, and goes off. All timers are valid for daily circulation and remain effective unless you press and hold the **“Timer”** key for 6s or switch modes, which clears all timers. The timer settings are saved even after a power outage, and the previous timer settings will automatically resume after power is restored. After completing the timer settings, disable the timer, and go off.
  When the machine is on and the display interface is showing, pressing and holding the mode key for 5s will sequentially switch the mode display icons. The selected icon will stay lit, and the mode will be enabled. This unit can only light up “Heat Pump Hot Water”

**6. Setting Key**

In the off state, the wired controller is on the main interface. Press and hold the **“Setting”** key for 6s, the buzzer will beep once, and the parameter setting interface will be entered. The first three “8”s in the upper left corner display **“Fun”**, and the last two “8”s display the parameter number. The corresponding parameter value is displayed at the clock position, and the unit number is displayed in the upper right corner. Switch to the corresponding parameter by pressing the **“+”** and **“–”** keys.

If you want to change the parameter on the current display interface, press the **“Setting”** key again to enter the setting interface for that parameter. At this point, the parameter value will flash, and you can set the value by pressing the **“+”** and **“–”** keys. After setting, press the **“Setting”** key to save the settings.

Pressing any key other than “+”, “–”, or “Setting” will exit the menu directly, and the corresponding settings will not be retained. If there is no key operation for 60s, the system will automatically exit to the main interface.

### 2.6.4 User Settings

#### 7. System Parameter Function Settings

The parameters of each subsystem can be configured through the wired controller connected to the master unit. Parameters are directly written to the master control board of each subsystem, allowing configuration of any system. While the unit is powered on, press and hold the “Set” and “Mode” keys for 6s. The first two “8”s in the top-left corner of the wired controller will display “HS”, while the last two “8”s will show the parameter number. The corresponding parameter value is displayed in the clock area, and the unit number followed by “#” is shown in the top-right corner. Use the “+” and “–” keys to navigate to the desired parameter.

In the system parameter setting mode, press the “Timer” key to switch between System 1 and System 2. System 1 is displayed as “01#” in the top-right corner, while System 2 is displayed as “01#”. For multi-unit connection system parameter settings, press the “Mode” key to switch unit numbers and configure parameters for other units. Press the “Set” key to confirm the selection. The parameter value in the clock area will flash, allowing adjustment via the “+” and “–” keys. Press “Set” again to save the setting.

**Example: Manual Defrost**

While the unit is powered on, press and hold **“Set”** and **“Mode”** for 6s. The first two **“8”**s in the top-left corner display **“HS”,** and the last two **“8”**s show parameter number **“01”**. Press **“Mode”** to switch unit numbers and “Timer” to toggle between System 1 and System 2. After selection, press **“Set”** to confirm the parameter value will flash. Adjust the value to **“1”** using **“+”** or **“–”**, then press **“Set”** to save. The unit will enter forced manual defrost mode, and the defrost icon on the main interface will illuminate. (Pressing the power key exits the setting interface without initiating forced defrost.) While the unit is powered on, press and hold **“Mode”** and **“+”** for 6s to enter the unit operation parameter query. Refer to the code table below for details.

**System Parameter Setting List Table**

| Display Number | Parameter Name | Clock Setting |
|---|---|---|
| 1 | Manual Defrost | 0: Off; 1: On (can control any system)<br>Default: 0 |
| 2 | / | / |

## 8. Return Water Function

The unit supports up to 9 scheduled return water timers. While the unit is powered on, press the **“Set”** key to enter the return water timer setting mode. Use the **“Set”**, **“+”**, and **“–”** keys to configure the return water schedule.

**Scheduled Return Water Time Setting Method:**

When the unit is powered off and the wired controller is on the main interface, press and hold the **“Set”** key for 6s to enter the function viewing interface.:
Press the **“+”** or **“–”** key to select “Fun28”, then press the **“Set”** key. “88:88” will flash and display **“01”** (indicating Return Water Timer 1 is being set).

Press the **“Set”** key to confirm. **“01”** will remain lit while “On” flashes, entering the setting state for Return Water Timer 1 **“On”.** Press the “Set” key to adjust the hour digits. After adjustment, press “Set” to confirm and enter the minute setting state for Return Water Timer 1 “On”. The minute digits will flash-adjust them using **“+”** or **“–”**, then press “Set” to confirm and enter the setting state for Return Water Timer 1 **“Off”**. **“Off”** will light up, and the hour digits of " 88:88" will flash. Adjust the hour digits using **“+”** or **“–”.**
After adjustment, press **“Set”** to confirm and enter the minute setting state for Return Water Timer 1 **“Off”**. The minute digits will flash - adjust them using **“+”** or **“–”**. After adjustment, press the **“Set”** key to confirm. Press the **“Timer”** key to enter the setting state for Return Water Timer 2, and so on.

**Scheduled Return Water Time Deactivation:**
When the unit is powered off, press the **“Set”** key and switch to **“Fun28”** using the **“+”** or **“–”** key. Then press and hold the **“Timer”** and **“+”** keys for 6s to deactivate the scheduled return water function.

**Note:**
After scheduled return water is set, it can only be queried and deactivated through the menu.
After scheduled return water is set, the scheduled time period will only take effect when the unit is powered on.

**Return Water Temperature Setting:**

When the unit is powered off and the wired controller is on the main interface, press and hold the **“Set”** key for 6s to enter the function viewing interface. Use the **“+”** or **“–”** key to select **“Fun29”**, then press the **“Set”** key.

### 2.6.4 User Settings

The main display area will show **“35”** flashing. Adjust **“35”** to the “desired value” using the **“+”** or **“-”** key, then press **“Set”** to confirm.

**Return Water Pump Interval Time Setting:**

When the unit is powered off and the wired controller is on the main interface, press and hold the **“Set”** key for 6s to enter the function viewing interface. Use the **“+”** or **“-”** key to select **“Fun30”**, then press the **“Set”** key. The main display area will show **“12”** flashing. Adjust **“12”** to the “desired value” using the **“+”** or **“-”** key, then press **“Set”** to confirm, completing the return water pump interval time setting.

**Return Water Pump Duration Setting:**

When the unit is powered off and the wired controller is on the main interface, press and hold the **“Set”** key for 6s to enter the function viewing interface. Use the **“+”** or **“-”** key to select **“Fun31”**, then press the **“Set”** key. The main display area will show **“06”** flashing. Adjust “06” to the “desired value” using the **“+”** or **“-”** key, then press **“Set”** to confirm.

**Return Water Function Setting:**

When the unit is powered off and the wired controller is on the main interface, press and hold the **“Set”** key for 6s to enter the function viewing interface. Use the **“+”** or **“-”** key to select **“Fun32”**, then press the **“Set”** key. The main display area will show **“01”** flashing. Adjust **“01”** to **“00”** using the **“+”** or **“-”** key, then press “Set” to confirm, turning off the zero cold water function.

## 9. Fault Inquiry

### 9.1 Current Fault Display and Inquiry

The unit supports up to 9 scheduled return water timers. While the When a fault occurs, the buzzer will not alarm. If a fault occurs in the on state, and the installation is not modular, the main display area will directly show the fault code, and the top right corner of the wired controller will flash **“01#”** to display the fault code. If there are multiple faults, they will be displayed alternately in sequence. For modular installation, the top right corner of the wired controller will flash **“**#”** for system one and “-**#” for system two, with the middle two digital tubes flashing the fault code.

For multi-connection units in a multi-unit system, faults will be displayed

alternately in sequence. In the double 8 fault display state, press and hold the **“Setting”** key for 6s to hide the double 8 fault display, with only the top right corner **“#”** flashing. In this state, all functions of the wired controller are effective. Pressing the **on/off** key will restore the double 8 fault display.

### 9.2 Historical Fault Display and Inquiry

In the on/off state, press and hold the **“+”** and “-” keys for 6s, the buzzer will beep once, entering the historical fault inquiry function. The top left corner will display **“Err”** with the first three “8”s, and the last two **“8”**s will display the sequence number. If no fault has occurred, the main display area will show **“E0”**. If a fault has occurred, it will display the fault unit number and **“#”**, with a **“-”** added before system two faults.

The main display area will show the fault code, and the clock area will display the date and time of the fault occurrence at 3-second intervals, starting from the most recent fault. Pressing the **“+”** or **“-”** key can be used to inquire about faults sequentially. A single unit can inquire about 10 faults, and can record a total of 80 faults for 8 multi-connection units. If there is no operation for 60s after the inquiry or if the on/off key is pressed, the fault inquiry function will be exited. After entering the fault inquiry function, pressing and holding the **“+”** and **“-”** keys for 6s again will clear the historical fault codes.

In a multi-connection unit, during the historical fault inquiry state, press the **“Mode”** key to switch between unit numbers to inquire about the historical faults of other units. The historical faults of this unit will be retained and will not overwrite the historical faults of other models.

**When a fault occurs during system operation, the fault code will be displayed in the main display area of the controller.**

**On the next page, Fault Codes are as follows:**

### 2.6.5 Operating Parameters

| Usage Instructions | | | | |
|---|---|---|---|---|
| **Fault Code** | **Type** | **Alarm Content** | **Remarks** | **Reset** |
| F3 | System | Compressor Discharge Temperature Overheat Protection | Insufficient refrigerant, refrigerant pipe blockage, expansion valve detachment | Reset by re-powering or switching on / off |
| F7 | System | System Low Refrigerant Protection | | Automatic recovery after fault elimination |
| F9 | System | System Low Pressure Switch Protection | | Reset by Re-powering or switching on / off |
| E8 | System | System High Pressure Switch Protection | System Blockage, water circuit blockage, excessive refrigerant, electronic expansion valve failure | Automatic Recovery after fault Elimination |
| UA | System | Discharge Overheat Too Low Protection | | |
| UB | Sensor | Auxiliary Heater Overload Protection | | |

### 2.6.5 Operating Parameters

| Usage Instructions | | | | |
|---|---|---|---|---|
| **Fault Code** | **Type** | **Alarm Content** | **Remarks** | **Reset** |
| U2 | Sensor | Low Pressure Sensor Fault | Sensor disconnection short circuit, unconnected, wrong connection | Automatic Recovery after fault Elimination |
| U5 | Sensor | High Pressure Sensor Fault | | |
| L3 | Sensor | Outlet Water Temperature Sensor Fault | | |
| L4 | Sensor | Economiser Inlet Temperature Sensor Fault | | |
| L5 | Sensor | Economiser Outlet Temperature Sensor Fault | | |
| H5 | Sensor | Total Return Water Fault | | |
| H6 | Sensor | Total Outlet Water Fault | | |
| H2 | Sensor | Refrigerant Liquid Pipe Temperature Sensor Fault | | |
| F5 | Sensor | Outdoor Coil Outlet (Defrost) Temperature Sensor Overheat | Temperature sensor damage, wrong connection | |
| FF | Sensor | Medium Pressure Switch Fault | Medium pressure switch wire break, damage | |

### 2.6.5 Operating Parameters

| Usage Instructions | | | | |
|---|---|---|---|---|
| **Fault Code** | **Type** | **Alarm Content** | **Remarks** | **Reset** |
| EE | Sensor | User-side Temperature Sensor Fault | Sensor disconnection, short circuit damage | Automatic Recovery after fault elimination |
| EF | Sensor | Condenser (Coil) Temperature Sensor Fault | Sensor disconnection, short circuit, unconnected, wrong connection | |
| Ed | Sensor | Suction Temperature Sensor Fault | | |
| Eb | Sensor | Inlet Water Temperature Sensor Fault | | |
| E6 | Sensor | Compressor Discharge Temperature Sensor Fault | | |
| E9 | Sensor | Indoor Temperature Sensor Fault | | |
| E5 | Sensor | Defrost (Evaporator Outlet) Temperature Sensor Fault | | |
| E4 | Sensor | Outdoor Ambient Temperature Sensor Fault | | |
| E3 | Sensor | Water Tank Temperature Sensor Fault | | |
| E2 | Sensor | Water Temperature Overheat Protection | Temperature sensor damage, wrong connection | |
| U7 | Sensor | Water Temperature Sensor Drift | Temperature sensor damage | |

### 2.6.5 Operating Parameters

| Usage Instructions | | | | |
|---|---|---|---|---|
| **Fault Code** | **Type** | **Alarm Content** | **Remarks** | **Reset** |
| U8 | Sensor | User-side Temperature Sensor Fault | Temperature sensor damage | Automatic Recovery after fault elimination |
| UC | Sensor | Water Temperature Inversion Protection | Temperature sensor damage, wrong connection | |
| U0 | Fan | Fan Out of Step | Fan motor abnormal, fan blade stuck | Reset by Re-powering or Switching on/off |
| U1 | Fan | Fan Phase Loss/Three-phase Imbalance | Fan motor abnormal | Automatic Recovery after fault Elimination |
| L7 | Fan | Fan 1 Feedback Fault | Fan motor wire break, wrong wiring, fan motor abnormal, fan blade stuck | |
| L6 | Fan | Fan 2 Feedback Fault | | |
| Hb | Fan | Fan Bus Overvoltage Protection | | |
| HC | Fan | Temperature sensor damage | | |
| H7 | Fan | Fan Bus Hardware Overcurrent Protection | | |
| H8 | Fan | Fan Inverter-side Software Overcurrent Protection | | |
| H9 | Fan | Fan IPM Abnormal Protection (F0)/IPM Module Temperature Sensor Fault | | Reset by Re-powering or Switching on/off |

### 2.6.5 Operating Parameters

| Usage Instructions | | | | |
|---|---|---|---|---|
| **Fault Code** | **Type** | **Alarm Content** | **Remarks** | **Reset** |
| HF | Fan | Fan Drive Communication Fault | Fan Inverter-side Current Sampling Circuit Abnormal | Automatic Recovery after Fault Elimination |
| Hd | Drive Board | Fan Drive Communication Fault | | |
| HA | Drive Board | Fan IPM Module Overheat | | |
| PF | Drive Board | Input Instant Overcurrent or Short Circuit Protection | Input Voltage Abnormal, Overload Operation | Reset by Re-powering or Switching on/off |
| Pd | Drive Board | Drive Module Input Overcurrent | | |
| PC | Drive Board | Heat Sink Sensor Fault | Heat Sink Sensor Abnormal | |
| Pb | Drive Board | Out of Step Detection (ID Mismatch) | Master Control Board and Drive Board Mismatch | |
| PA | Drive Board | Control Board Power Abnormal or Compressor Phase Loss | Compressor Wiring Abnormal, Input Voltage Abnormal | |
| P8 | Drive Board | Drive Module Current/ Voltage Sampling Circuit Fault | Drive Board Sampling Circuit Damage | |
| P6 | Drive Board | DC Bus Overvoltage Protection | Input Voltage Abnormal | |
| P5 | Drive Board | DC Bus Undervoltage Protection | | |
| P3 | Drive Board | IPM Module Heat Sink Overheat Protection | Fan Motor Abnormal, Vent Blockage | |

### 2.6.5 Operating Parameters

| Usage Instructions | | | | |
|---|---|---|---|---|
| **Fault Code** | **Type** | **Alarm Content** | **Remarks** | **Reset** |
| P1 | Drive Board | Output Short Circuit Protection or Output Instant Overcurrent | Overload Operation, Compressor Abnormal | Reset by Re-powering or switching on/off |
| P0 | Power Supply | Three-phase Power Phase Loss Protection | Input Voltage Abnormal | |
| LF | Power Supply | Three-phase Power Abnormal Protection | Input Voltage Abnormal | |
| LE | Water Circuit Abnormal | Inlet/Outlet Water Temperature Difference Overheat Protection | Water Pump Mismatch, Water System Clogged | |
| LA | Water Circuit Abnormal | Flow Switch Fault | Water Pump Fault, Water System Leakage | Reset by Repowering or switching on/off |
| P7 | Communication Problem | Drive Module No Communication | Communication Error, Disconnection, Wrong Wiring | Automatic Recovery after fault elimination |
| F0 | Communication Problem | Wi-Fi Pairing Failure | Wi-Fi Module Fault | |
| EC | Communication Problem | Outdoor Unit No Communication (No Communication Between Main Boards in Multi-system) | Address DIP Setting Error, Disconnection, Wrong Wiring | |
| EA | Communication Problem | Memory Chip Fault | Address DIP Setting Error | |

### 2.6.5 Operating Parameters

| Usage Instructions | | | | |
|---|---|---|---|---|
| **Fault Code** | **Type** | **Alarm Content** | **Remarks** | **Reset** |
| E7 | Communication Problem | Module Quantity Setting Error | Address DIP Setting Error | Automatic Recovery after fault Elimination |
| P4 | Compressor | Output Overload, Overcurrent or Three-phase Imbalance | Input Voltage Imbalance | |
| H4 | Compressor | Startup Failure and Out of Step H4 | Compressor Wear or Seizure | Reset by Re-powering or switching on/off |
| F6 | Compressor | Compressor Overcurrent Protection | Overload Operation, Compressor Abnormal | |
| L8 | Water Pump | Water Pump Overload Protection | Water Pump Operation Abnormal | Automatic Recovery after fault Elimination |
| P2 | Drive Board | Compressor Inverter-side Software Overcurrent Protection | Overload Operation, Compressor Abnormal | Reset by Re-powering or Switching on/off |

Note:

This list is only for querying fault descriptions when faults occur and does not indicate that the unit has all the fault displays.

**Notes:**

1. The heating shutdown temperature is the maximum outlet water/water tank temperature for compressor protection under the current ambient temperature.

2. During heating, if the set temperature is higher than the shutdown temperature, the compressor will turn off and the auxiliary electric heating will activate when the actual outlet water/water tank temperature ≥ shutdown temperature.

3. During heating, the compressor will only activate when the actual outlet water temperature < (shutdown temperature - 2) and the actual outlet water temperature < (set temperature - 4 - 5). Otherwise, only the auxiliary electric heating will operate. (Where “4” is the differential setting adjustable via parameter No. 01 on the wired controller, and “5” is Tmax, which can be checked via parameter No. 35 on the wired controller.)

# 3. Technical settings

**Do not change any of the below settings below. Contact the manufacturer.**

| Unit Settings Table | | | |
|---|---|---|---|
| **Display Number** | **Parameter Name** | **Clock Setting** | |
| 00 | Clock Setting | Set Current Time | |
| 1 | Stop Hysteresis Setting (T Hysteresis) | 2°C - 15°C (Default 4°C) | |
| 2 | Return Water / Outlet Water / Water Tank Temperature Control Selection | 0/1/2 (0 - return water, 1 - outlet water, 2 - water tank, default 1) | |
| 3 | On/Off Memory Function Setting | 1 (default function enabled) | 0 (Function Off) |
| 4 | Manual Circulation Pump On | 1 (Function enabled, automatically turns off after 1 hour) | 0 (default function off)" |
| 5 | Manual Electric Auxiliary On | Need to confirm whether the description 1 (Function Enabled) | 0 (Default Function Off) |
| 6 | Forced Defrost On | Capable of setting 1–16 units to start forced defrost, press the setting key to enter forced defrost, press other keys to not enter forced defrost. | |
| 7 | Defrost Cycle | 30 ~ 120 min, Default 50 min | |

### 3. Technical settings

**Do not change any of the below settings below. Contact the manufacturer.**

| Unit Settings Table | | | |
|---|---|---|---|
| **Display Number** | **Parameter Name** | **Clock Setting** | |
| 8 | Defrost Operation Time | 5 min ~ 15 min, default 10 min | |
| 9 | Electric heating activation ambient temperature | Ambient temperature setting for electric heating activation, -25 to 20°C, default -20°C | |
| 10 | Anti-freeze Temperature Setting | 3°C to 10°C (default 3°C) | |
| 11 | Water Pump Operation Mode | 0 (default standby with pump running continuously) 1 (function enabled, pump turns off during standby) 2 (intermittent operation, pump turns on for 5 minutes every 5 minutes during standby, see pump parameter settings) | |
| 12 | / | / | / |
| 13 | Test Mode | 0 (default function turned off) 1...50 corresponds to the test mode content. After entering the test mode, the wire controller is in the main interface, and the first two" 8s "in the upper left corner display" CS ", and the last two" 8s "display" 01 "~" 50 ". During the test mode, the fault code should be displayed normally | |
| 14 | Compressor Maximum Operating Frequency | 50Hz~120Hz | Default 120Hz |
| 15 | Restore Factory Settings | 0 (Default, do not restore factory settings or restoration completed) | 1 (Restore Factory Settings) |

### 3. Technical settings

**Do not change any of the below settings below. Contact the manufacturer.**

| Unit Settings Table | | | |
|---|---|---|---|
| **Display Number** | **Parameter Name** | **Clock Setting** | |
| 16* | Model Selection | 0 - Heat/Cool Mode<br>1-Heating Only (B5) | Default value depends on the project. Note: For heating-only models, the refrigerant gas/ liquid pipe temperature sensors are removed. All refrigerant control-related functions in the specifications are cancelled. |
| 17 | Start Hysteresis Setting | Default 2°C (1°C-5°C adjustable) | |
| 18 | Set Temperature - Reference Temperature | Default 10°C (5°C-15°C adjustable) | |
| 19* | Snow protection | 1 (default function on) | 0 (function off) |
| 20* | Electrically heated opening water temperature parameters | 35°C to 60°C, default 40°C | |
| 21 | Electric Heating Close Water Temperature Parameter | 40°C to 70°C, default 55°C | |
| 22 | Cooling Inlet/Outlet Water Temperature Difference Initial Value | Default 5°C (0°C-15°C adjustable) | |
| 23 | Heating Inlet/Outlet Water Temperature Difference Initial Value | Default 5°C (0°C-15°C adjustable) | |

### 3. Technical settings

**Dont change any of the below settings below. Contact the manufacturer.**

**Unit Settings Table**

| Display Number | Parameter Name | Clock Setting | |
|---|---|---|---|
| 24* | Sensor Control Method | 1 (Temperature sensor control) | 0 (Default: pressure sensor control) |
| 25* | Constant Temperature Function Setting | 1 (Default: function enabled) | 0 (Function disabled) |
| 26 | Water Flow Switch Method | 0 (Shared, not included with machine, field installation) | |
| 27 | Modbus Address Setting | Default 1, adjustable 0-255 | |
| 28* | Return Water Timer Setting | Default 0, adjustable 1-9 | |
| 29* | Return Water Temperature Setting | Return water activation temperature adjustable 20°C - 50°C, default 35°C | |
| 30* | Return Water Pump Interval Time Setting | Return water pump interval time adjustable 3min~60min, default 12min | |
| 31* | Return Water Pump Duration Setting | Return water pump interval time adjustable 3min~30min, default 6min | |
| 32* | Return Water Function Setting | 1 (default function on) | 0 (function off) |
| 33* | Humidity Sensor Setting | 1 (default function on) | 0 (function off) |
| 34* | Water Flow Sensor | 1 (function on) | 0 (default function off) |
| 35* | Preheating Function | 1 (default function on) | 0 (function off) |
| 36* | Water drainage function | 1 (function on) | 2 (default function off) |
| 37* | Variable water temperature energy saving function | 1 (default function on) | 0 (function off) |

### 3. Technical settings

| Unit Settings Table | | Dont change any of the below settings below. Contact the manufacturer | |
|---|---|---|---|
| **Display Number** | **Parameter Name** | **Clock Setting** | |
| 38 | Water Pump Run Time | Water pump energy saving mode adjustable 1min~20min, default 5min | |
| 39 | Water Pump Stop Time | Water pump energy saving mode adjustable 1min~20min, default 5min | |
| 40 | Compressor Warm-up Time | Adjustable 3~72, default 12 (12 represents 120min) | |
| 41 | Display Mode | 1 (Only display set temperature) | 2 (Default: display set temperature and actual temperature) |
| 42 | Stop Mode | 1 (Default: differential shutdown) | 2 (Shutdown immediately upon reaching temperature) |
| 43* | Frost Exit Temperature Correction | 0°C-20°C, default 0°C | |
| 44 | Silent Control Mode | 0 (Default: Off) | 1 (Level 1 Silent) |
| | | 2 (Level 2 Silent) | 3 (Level 3 Silent) |
| 45* | Secondary Pump Delayed Disconnect Time | 0min-120min, default 0min | |
| 46* | Zero Cooling Water Pump Turn-On Time | 0S-60S, default 20S | |
| 47* | Zero Cooling Water Pump Turn-On Time | 0min-360min, default 60min | |
| 48* | Secondary Water Temperature Function | 0 (Default: disabled) | |
| 49* | Auxiliary Electric Heating Function | 0 (Default: off) | 1 (Function enabled) |
| 50* | Refrigeration end selection | 0 (default fan control); 1 (floor heating); 2 (Radiator); 3 (Air disk + floor); 4 (Wind disk + radiator); 5 (floor + heater + RF1in); 6 (air disk + floor + radiator); 7 (No application) | |

### 3. Technical settings

| Unit Settings Table | | Dont change any of the below settings below. Contact the manufacturer | |
|---|---|---|---|
| **Display Number** | **Parameter Name** | **Clock Setting** | |
| 51* | Heating Terminal Selection | 0 (Fan coil); 1 (Default: floor heating); 2 (Radiator); 3 (Fan coil + floor heating); 4 (Fan coil + radiator); 5 (Floor heating + radiator); 6 (Fan coil + floor heating + radiator); 7 (No application) | |
| 52* | Hot Water Terminal Selection | 0 (Default: no hot water function) | 1 (Hot water function available) |
| 53* | Heating Water Temperature Adaptive Function | 0 (Default: disabled) | 1 (Enabled) |
| 54* | Cooling Water Temperature Adaptive Function | 0 (Default: disabled) | 1 (Enabled) |
| 55* | Cooling + Hot Water Mode Priority | Balanced operation is 0, cooling priority is 1, hot water priority is 2, default 0 | |
| 56* | Heating + Hot Water Mode Priority | Balanced operation is 0, heating priority is 1, hot water priority is 2, default 0 | |
| 57* | ECO Operation Mode | 0 = Off, 1 = Hot Water On, 2 = Heating On, 3 = Cooling On, 4 = Heating + Hot Water On, 5 = Cooling + Hot Water On (Default: 0) | |
| 58* | Hot Water Storage Temperature | Default: 65°C (Effective when ECO signal is active) | |
| 59* | Heating Storage Temperature | Default: 55°C (Effective when ECO signal is active) | |
| 60* | Cooling Storage Temperature | Default: 10°C (Effective when ECO signal is active) | |
| 61* | Domestic Water Tank Electric Heating Control | 0 = Auto, 1 = Rapid Heating (Default: 0) | |
| 62* | Secondary Target Water Temperature Tsub | 20°C-25°C, default 20°C | |
| 63* | Set Current Day of the Week | 1 (Mon); 2 (Tue); 3 (Wed); 4 (Thu); 5 (Fri); 6 (Sat); 7 (Sun) | |
| 64* | Defrost Exit Detection Time Correction | 0-20s (Default: 0s) | |

### 3. Technical settings

**Do not change any of the below settings below. Contact the manufacturer.**

**Unit Settings Table**

| Display Number | Parameter Name | Clock Setting | |
|---|---|---|---|
| 65* | ECO Mode Selection | 0 (Default: off), 1 (Time-of-use electricity), 2 (Smart grid), 3 (Photovoltaic) | |
| 66 | Test Mode Frequency | Default Frequency: 0Hz (Range: 0-120Hz)Reset to zero upon exiting test mode | |
| 67 | Defrost Method | 0 (Default: Defrost Mode) | 1 (Switch Defrost Mode) |
| 68* | Floor Heating Maximum Water Temperature | 25°C-70°C, default 50°C | |
| 69* | Floor Cooling Minimum Water Temperature | 10°C-25°C, default 12°C | |
| 70* | Hot Water Differential | 0°C-20°C, default 4°C | |
| 71 | Water Pump Operation Mode in Heating Mode | 0 (Default: Keep the water pump running during standby); 1 (Function ON: Turn off the water pump during standby); 2 (Intermittent ON: During standby, turn on the water pump for 5min every 5min. Refer to water pump parameter settings) | |
| 72 | Water Pump Operation Mode in Cooling Mode | 0 (Default: Keep the water pump running during standby); 1 (Function ON: Turn off the water pump during standby); 2 (Intermittent ON: During standby, turn on the water pump for 5min every 5min. Refer to water pump parameter settings) | |
| 73 | Water Pump Operation Mode in Hot Water Mode | 1 (Default: Keep the water pump running during standby); 1 (Function ON: Turn off the water pump during standby); 2 (Intermittent ON: During standby, turn on the water pump for 5min every 5min. Refer to water pump parameter settings) | |
| 74 | Secondary Circulating Water Pump Control | 0 (Default: secondary pump), 1 (Primary booster pump) | |
| 75* | SG ready Function Selection | 0 (Default: SG ready function),1 (External heat source feedback signal) | |

### 3. Technical settings

**Do not change any of the below settings below. Contact the manufacturer.**

| Unit Settings Table | | |
|---|---|---|
| **Display Number** | **Parameter Name** | **Clock Setting** |
| 76* | Setting Year | Adjustable 00-99 (Default: 23, representing the last two digits of the year 2000) |
| 77* | Setting Month | Adjustable 1-12 (Default: 1) |
| 78* | Setting Day | Adjustable 1-31 (Default: 1) |
| 79* | Fan Speed Upper Limit | 500-700 |
| 80* | Defrost Operating Frequency | 50Hz-60Hz |
| 81* | Auxiliary Valve Maximum Opening | 200step-480step |
| 82* | Remote On/Off | 0 (Off), 1 (On) |
| 83* | Forced Defrost | 0 (Default: no forced defrost), 1 (Forced defrost) |
| 84* | Room Temperature Set point | Adjustable from 16°C to 32°C, default 26°C |
| 85* | Zone 1 Room Water Temperature Correction Coefficient | Disable, 0-1, Increment 0.1 (Default: disable) |
| 86* | Zone 1 Heating Outlet Water Control Method | Disable, 0-1, Increment 0.1 (Default: disable) |
| 87* | Zone 1 Heating Outlet Water Control Method | Fixed, OTC Point (Default) |
| 88* | Zone 1 Cooling Outlet Water Control Method | Fixed (Default), OTC Point |
| 89* | Zone 2 Heating Outlet Water Control Method | Fixed, OTC Point (Default) |

### 3. Technical settings

**Do not change any of the below settings below. Contact the manufacturer.**

| Unit Settings Table | | |
|---|---|---|
| **Display Number** | **Parameter Name** | **Clock Setting** |
| 90* | Zone 2 Cooling Outlet Water Control Method | Fixed (Default), OTC Point |
| 91* | Zone 1 OTC Heating Calculated Water Temperature Offset | -8-8 (Default: 0) |
| 92* | Zone 2 OTC Heating Calculated Water Temperature Offset | -8-8 (Default: 0) |
| 93* | Zone 1 OTC Cooling Calculated Water Temperature Offset | -5-5 (Default: 0) |
| 94* | Zone 2 OTC Cooling Calculated Water Temperature Offset | -5-5 (Default: 0) |
| 95* | Zone 1 Heating Start Differential | -5-10 (Default: 4°C) |
| 96* | Zone 1 Heating Stop Differential | -5-10 (Default: 4°C) |
| 97* | Zone 1 Cooling Start Differential | -5-10 (Default: 4°C) |
| 98* | Zone 1 Cooling Start Differential | -5-10 (Default: 4°C) |
| 99* | Zone 2 Heating Start Differential | -5-10 (Default: 2°C) |
| 100* | Zone 2 Heating Stop Differential | -5-10 (Default: 4°C) |
| 101* | Zone 2 Cooling Start Differential | -5-10 (Default: 4°C) |
| 102* | Zone 2 Cooling Stop Differential | -5-10 (Default: 2°C) |
| 103* | Auxiliary Heater 1 Validity | Valid (Default) / Invalid |

### 3. Technical settings

**Do not change any of the below settings below. Contact the manufacturer.**

**Unit Settings Table**

| Display Number | Parameter Name | Clock Setting |
|---|---|---|
| 104* | Auxiliary Heater 1 Start Differential | 1-10 (Default: 3°C) |
| 105* | Auxiliary Heater 1 Start Delay Time | 5-90min (Default: 30min) |
| 106* | Auxiliary Heater 2 Start Differential | 1-10(Default: 5°C) |
| 107* | Auxiliary Heater 2 Start Delay Time | 10-120min, Unlimited (Default: 25min) |
| 108* | Water Pump Heating/ Cooling Operation Mode | Fixed Speed / Fixed Temperature (Default: Fixed Speed) |
| 109* | Space Heating/Cooling Water Pump Speed | 50-100% (Default: 100%, Increment 5%) |
| 110* | DHW Water Pump Speed | 50-100% (Default: 100%, Increment 5%) |
| 111 | Interlock | 0 (Default: valid), 1 (Valid in cooling only), 2 (Invalid in both heating and cooling) |
| 112* | One-Touch Performance Mode | 0 (Default: off), 1 (On) |
| 113* | Water Replenishment Method Selection | 0 (Default: level switch control), 1 (Pressure sensor control) |
| 114* | Water Replenishment Timer Function Switch | 0 (Default: off) , 1 (Function enabled) |
| 115* | Manual Water Replenishment Function | 0 (Default: off) , 1 (Function enabled) |
| 116* | Water Replenishment by Temperature Function | 0 (Default: off) , 1 (Function enabled) |

### 3. Technical settings

**Do not change any of the below settings below. Contact the manufacturer.**

| Unit Settings Table | | |
|---|---|---|
| **Display Number** | **Parameter Name** | **Clock Setting** |
| 117* | Target Water Level Height | Adjustable 20%-100% (Default: 80%) |
| 118* | 100% Water Level Height Setting | Adjustable 0cm-255cm (Default: 50cm) |
| 119* | Water Replenishment Start Water Tank Temperature | Adjustable 30°C-50°C (Default: 35°C) |
| 120* | Forced Water Replenishment Target Level | Adjustable 20%~100% (Default: 20%) |

**Note:** Items marked with " * " indicate that the models covered in this manual do not support this function.

# 4. Operating Parameters

| Unit Operating Parameter Comparison Table | |
|---|---|
| **Query Code** | **Corresponding Parameter** |
| 1 | Communication Protocol Version Number |
| 2 | Outlet Water Temperature Sensor |
| 3 | Inlet Water Temperature Sensor |
| 4 | Outdoor Ambient Temperature Sensor Temperature |
| 5 | Suction Temperature Sensor Temperature |
| 6 | Outdoor Coil Temperature Sensor Temperature |
| 7 | Exhaust Temperature Sensor Temperature |
| 8 | Water Tank Temperature Sensor Temperature |
| 9 | Defrost Temperature Sensor Temperature |
| 10 | Refrigerant Gas Pipe Temperature Sensor Temperature (Reserved) |
| 11 | Refrigerant Liquid Pipe Temperature Sensor Temperature |
| 12 | Fan 1 Speed |
| 13 | Fan 2 Speed |
| 14 | Main Electronic Expansion Valve Opening |
| 15 | Compressor Frequency |

## 4. Operating Parameters

| Unit Operating Parameter Comparison Table | |
|---|---|
| **Query Code** | **Corresponding Parameter** |
| 16* | Client Return Water Temperature Sensor Temperature (Reserved) |
| 17 | User Set Temperature |
| 18* | (Reserved) |
| 19 | Economizer Air Inlet Sensor Temperature |
| 20 | Economizer Air Outlet Sensor Temperature |
| 21 | Auxiliary Electronic Expansion Valve Opening |
| 22 | Total Return Water Temperature Sensor Temperature |
| 23 | Total Outlet Water Temperature Sensor Temperature |
| 24 | High Pressure Sensor |
| 25 | Low Pressure Sensor |
| 26 | Water Flow Switch |
| 27 | High Pressure Switch |
| 28 | Low Pressure Switch |
| 29* | Water Pump Feedback |

## 4. Operating Parameters

| Unit Operating Parameter Comparison Table | |
|---|---|
| **Query Code** | **Corresponding Parameter** |
| 30* | Remote Switch |
| 31 | Interlock Switch |
| 32 | Cooling Electronic Expansion Valve |
| 33* | Heating Electronic Expansion Valve (Reserved) |
| 34* | Jet Electronic Expansion Valve (Reserved) |
| 35 | Tmax (Maximum Inlet/Outlet Temperature Difference) |
| 36* | Pressure Relief Switch |
| 37 | Compressor Current |
| 38* | Ambient Relative Humidity |
| 39* | Flow Rate Sensor Value |
| 40 | Bus Voltage |
| 41 | Crankcase Heating |
| 42 | Circulating Water Pump |
| 43 | Chassis Heating |
| 44 | Four-Way Valve |

## 4. Operating Parameters

| Unit Operating Parameter Comparison Table | |
|---|---|
| **Query Code** | **Corresponding Parameter** |
| 45* | Compressor Overload |
| 46* | Auxiliary Heat Overload |
| 47* | System Middle Coil |
| 48* | Input Current |
| 49 | Input Voltage |
| 50 | Frequency Limit Status (1. Input Current Limit; 2. Output Current Limit; 3. High Pressure Limit; 4. High Air Exhaust Temperature Frequency Limit; 5. Outlet Water Temperature Limit; 6. Excessive Inlet/Outlet Water Temperature Difference Limit; 7. Low Voltage Limit; 8. High IPM Temperature Limit) |
| 51 | Fan Voltage Real-Time Value |
| 52 | Fan Voltage Initial Value |
| 53* | Maximum Water Level Height Hmax (Displays Specific Value), Project-Specific Number for Master Control Board |
| 54 | Water Level Switch (Displays 0/1) |
| 55 | Return Water Solenoid Valve (Displays 0/1) |
| 56 | Makeup Water Solenoid Valve (Displays 0/1) |
| 57 | Project-Specific Number for Master Control Board |
| 58 | Program Version Number for Master Control Board |

## 4. Operating Parameters

| Unit Operating Parameter Comparison Table | |
|---|---|
| **Query Code** | **Corresponding Parameter** |
| 59 | Project-Specific Number for Display Board |
| 60 | Program Version Number for Display Board |

# 5. After-Sales Service

## 5.1 Troubleshooting and Repair Operation

### 5.1.1 Fault Codes

When a fault occurs during system operation, the main display area of the display will show a fault code. The fault codes are as follows:

| Fault Codes | | | |
|---|---|---|---|
| **Code** | **Fault Description** | **Code** | **Fault Description** |
| -- | Locked State | U5 | High Pressure Sensor Fault |
| E2 | Outlet Water Over-temperature Alarm | U7 | Water Temperature Sensor Drift |
| E3 | Water Tank Temperature-Sensing Bulb Fault | U8 | Coil Temperature Sensor Drift |
| E4 | Outdoor Ambient Temperature-Sensing Bulb | U9 | Module Quantity Setting Error |
| E5 | Defrost Tube Temperature-Sensing Bulb Fault | UA | Discharge Overheat Too Low Protection |
| E6 | Discharge Temperature-Sensing Bulb Fault | Ub | Auxiliary Heater Overload Protection |
| E7 | Communication Fault Between Wired Controller and Unit | UC | Water Temperature Inversion Protection |
| E8 | High Pressure Protection | P0 | Phase Loss Protection |
| | | | |

### 5.1.1 Fault Codes

When a fault occurs during system operation, the main display area of the display will show a fault code. The fault codes are as follows:

| Fault Codes | | | |
|---|---|---|---|
| **Code** | **Fault Description** | **Code** | **Fault Description** |
| E9 | Ambient Temperature Protection | P1 | Compressor Inverter-side Hardware Overcurrent Protection / Compressor IPM Abnormal Protection |
| EA | Memory Chip E2 Fault | P2 | Compressor Inverter-side Software Overcurrent Protection |
| Eb | Module Return Water Temperature-Sensing Bulb Fault | P3 | Compressor IPM Module Over-temperature / Under-temperature Protection |
| EC | Inter-module Communication Fault | P4 | Compressor Three-phase Imbalance Protection |
| Ed | Suction Temperature-Sensing Bulb Fault | P5 | Compressor Bus Undervoltage Protection |
| EF | Coil Temperature-Sensing Bulb Fault | P6 | Compressor Drive Communication Fault |

### 5.1.1 Fault Codes

| Fault Codes | | | |
|---|---|---|---|
| **Code** | **Fault Description** | **Code** | **Fault Description** |
| F1 | Four-way Valve Reversal Fault | P8 | Compressor Inverter-side Current Sampling Circuit Abnormal Protection |
| | | | Compressor PFC Current Sampling Circuit Abnormal Protection |
| | | | Compressor EEPROM Fault |
| F3 | Discharge High-temperature Protection | PA | Compressor Phase Loss Protection |
| | | | Drive Input Power Abnormal Fault |
| | | | Excessive Power Fluctuation Protection |
| F6 | Compressor Overcurrent Protection | PC | Drive Sensor Fault |
| F7 | Refrigerant Leakage Protection / Low Refrigerant Protection | PD | Compressor PFC Overload Protection |
| FF | Pressure Relief Switch Fault | H2 | Mid-coil / Liquid Pipe Temperature Sensor Fault |
| L3 | Module Outlet Water Temperature-Sensing Bulb Fault | H4 | Compressor Startup Failure Protection / Compressor Out-of-step Protection |
| L4 | Economizer Inlet Gas Temperature-Sensing Bulb Fault | H5 | Total Return Water Temperature-Sensing Bulb Fault |
| L5 | Economizer Outlet Gas Temperature Sensor Fault | H6 | Total Outlet Water Temperature-Sensing Bulb Fault |
| L6 | Fan 2 Feedback Fault | H7 | Fan Bus Hardware Overcurrent Protection |

### 5.1.1 Fault Codes

| Fault Codes | | | |
|---|---|---|---|
| **Code** | **Fault Description** | **Code** | **Fault Description** |
| L7 | Fan 1 Feedback Fault | H8 | Fan Inverter-side Software Overcurrent rotection |
| L8 | Water Pump Overload Protection | H9 | Fan IPM Abnormal Protection / IPM Module Temperature Sensor Fault |
| LA | Water Flow Switch Protection | HA | Fan IPM Module Overheat |
| LE | Excessive Inlet/Outlet Water Temperature Difference Protection | Hb | Fan Bus Overvoltage Protection |
| LF | Three-phase Power Phase Sequence Protection | HC | Fan Bus Undervoltage Protection |
| U0 | Fan Out-of-step Protection | HD | Fan Drive Communication Fault |
| U1 | Fan Phase Loss Protection / Threephase Imbalance Protection | HF | Fan Inverter-side Current Sampling Circuit Abnormal |
| U2 | Low Pressure Sensor Fault | | |

**Notes:**

- This table is only for querying fault descriptions when faults occur and does not indicate that the unit has all the fault displays.
- When in a fault-locked state, pressing the power on/off key can clear the locked state.

### 5.1.2 Fault Analysis Table

| Fault Analysis Table | | |
|---|---|---|
| **Common faults** | **Causes** | **Solutions** |
| Compressor fails to start | A. Compressor motor burnout | Inspect and replace compressor if faulty |
| | B. Compressor seizure (damage or part obstruction) | Replace compressor |
| | C. Circuit break | Check fuse and connection points to identify break cause |
| | D. Fuse blown | Replace fuse |
| | E. Low voltage | Check power supply |
| | F. Power supply issue | Verify phase sequence connection |
| Excessive fan noise | A. Loose fan mounting bolts | Retighten fan mounting bolts |
| | B. Fan blades contacting fins or other obstructions | Identify cause and adjust |
| | C. Unstable fan operation | Replace fan |
| | D. Fan reverse rotation | Immediately power off and check fan wiring |
| Excessive compressor noise | A. Liquid refrigerant entering compressor causing liquid slugging | For liquid slugging, check expansion valve failure and loose temperature-sensing bulb, then repair |
| | B. Internal compressor component damage | Replace compressor |
| | C. Insufficient refrigeration oil | Replace compressor |

### 5.1.2 Fault Analysis Table

| Fault Analysis Table | | |
|---|---|---|
| **Common faults** | **Causes** | **Solutions** |
| Water pump not operating or abnormal operation | A. Power failure or wiring fault | Identify cause and repair |
| | B. Relay fault | Replace relay |
| | C. Air in water pipes | Purge air |
| | D. Poor water pump start after system drainage | Rotate water pump shaft manually |
| Fan not operating | A. Capacitor failure | Replace capacitor |
| | B. Loose fan mounting screws | Tighten mounting screws |
| | C. Fan motor burnout | Replace motor |
| | D. Contactor damage | Replace contactor |
| Compressor starts then stops | A. High pressure protection | Refer to high pressure protection troubleshooting |
| | B. Low pressure protection | Refer to low pressure protection troubleshooting |
| | C. Water pressure protection | Refer to water pressure protection troubleshooting |
| | D. Discharge protection | Refer to discharge protection troubleshooting |
| | E. Overheat protection | Refer to overheat protection troubleshooting |
| | F. Compressor temperature protection | Leak test and recharge refrigerant |
| | G. Overcurrent relay trip | Check power supply |

### 5.1.2 Fault Analysis Table

| Fault Analysis Table | | |
|---|---|---|
| **Common faults** | **Causes** | **Solutions** |
| Poor water heating performance | A. Insufficient refrigerant | Leak test and recharge refrigerant |
| | B. Filter clogged | Replace filter |
| | C. Water pipe blockage | Clean pipes and filters |
| | D. Poor water system insulation | Improve insulation |
| | E. Poor heat exchange at unit evaporator | Check unit air intake/ exhaust |
| Low water flow protection | A. Flow switch fault | Replace water pressure switch |
| | B. Insufficient system water flow | Clean water filter and purge air from system |
| Excessive discharge pressure | A. Excessive refrigerant | Remove excess refrigerant |
| | B. Non-condensable gas in refrigerant system | Purge non-condensable gas |
| | C. Insufficient water flow | Check water system and increase flow |
| Insufficient suction pressure | A. Drier filter clogged | Replace drier filter |
| | B. Insufficient refrigerant | System leak test and repair |
| | C. Excessive pressure drop through heat exchanger | Check expansion valve opening |

# 5. After-Sales Service

## 5.2 Cleaning and Maintenance

### 5.2.1 Daily Operations and Maintenance

1. All safety protection devices within the unit have been set before the product leaves the factory. Users should not adjust or remove them to avoid damaging the unit.

2. When starting the unit for the first time or after a long period of power disconnection (more than one day), the power supply to the unit should be connected in advance to ensure at least 12h of preheating time, to avoid damage caused by forced compressor start.

3. Do not place objects on the unit or accessories. Maintain dry, clean and well-ventilated surroundings. When the evaporator fins are heavily covered with dust, they should be cleaned promptly to prevent affecting the unit's performance or causing the unit to shut down for protection.

4. Regularly clean the filters in the water system to avoid blockages that could cause the unit to shut down for protection or become damaged, and frequently check whether the water system's water replenishment device is functioning normally.

5. When ambient temperature is below freezing in winter, never cut off power supply to avoid failure of freeze protection.

6. When the unit is not used for extended periods, drain all water from the unit, pipes and storage water tank to prevent freezing damage.

7. Avoid frequent manual start/stop operations. Do not arbitrarily close manual water system valves during operation.

8. Frequently inspect the working condition of each component of the unit, check for oil contamination at the pipe joints and charging valves inside the unit, and ensure there is no refrigerant leakage.

9. For faults beyond user's repair capability, immediately contact our authorised local service center or Haier customer service for timely maintenance.

**Cleaning of the Evaporator**

The unit uses an air-cooled finned heat exchanger, typically operated outdoors. After a period of operation, it is inevitable that the fins will become clogged with dust and other debris, affecting their heat exchange efficiency, reducing heating performance, and increasing

energy consumption. Therefore, under normal circumstances, the finned heat exchanger should be cleaned after 6-12 months of operation. If the surrounding environment is heavily polluted, the cleaning cycle should be shortened.

**Cleaning method:**

1. Disconnect the unit's power supply.

2. Use high-pressure gas to repeatedly flush the fins in the opposite direction of the heat exchanger's air intake. The flushing direction should be perpendicular to the fins to prevent them from bending.

3. High-pressure water can also be used for cleaning. When using high-pressure water, control the water pressure to prevent the fins from bending and protect the electrical components. If there is oily matter on the fins, use water mixed with a neutral detergent for rinsing.

4. A vacuum cleaner combined with a nylon brush can also be used to clean the dust and debris from the surface of the heat exchanger.5. The cleaning is considered effective when the original colour of the fins is visible or when the water running down the fins is clear.

## 6. To Validate the Warranty (Please register online)

**Kwikot (Haier) SA Pty Ltd** warrants that its Kwikpump Water Heaters are free from manufacturing defects. This is the only warranty given by Kwikot in respect of its Kwikpump Water Heaters

Kwikot gives no other warranty or representations, unless where explicitly implied in writing by authorized Kwikot personnel. No amendments or additions to the warranty shall be binding on Kwikot. Kwikot makes no warranty or representation in respect of the installation of heat pump water heaters. Claims in respect of the heat pump water heaters must be referred to the applicable installer, who shall be solely liable under any installation warranties given.

The installer is liable to advise the end user whether the respective heat pump water heater purchased is fit for purpose in the environment it is intended to be used and the correct size water heater is to be recommended for the end users required usage.

The two year warranty covers the heat pump water heater only and does not cover any other part or parts used in the installation, which may become damaged as a consequence of the failure or defect of the heat pump water heater. A weather cover is recommended to be installed in cases where the heat pump water heater is expected to be exposed to the elements.

Kwikot will repair, or at its own discretion, replace the faulty part with a new or re-manufactured one. The three year warranty period will be calculated from the date of installation of the original heat pump water heater, provided that the Certificate of Conformity (COC) or any additional documentation of proof of the installation is furnished.

If Kwikot carries out repairs or replacements, the warranty will not start afresh or be extended, irrespective of how many repairs or replacements are carried out.Components removed during warranty repairs, will remain the property of Kwikot.

Warranties are applicable only in South Africa, Namibia, Botswana, Swaziland and Lesotho and are subject to heat pump water heaters being used for water, which is of the quality equivalent to water supplied by authorities in Metropolitan areas in South Africa.

Damage due to freezing is not covered under warranty.
Please see manual for more information on protecting the unit.

**A warranty will only be honoured if:**

a. The applicable warranty is still in force/valid.
b. The Kwikpump Water Heaters is installed, used and maintained in accordance with Kwikot specifications and instructions.
c. Where applicable, all other products used in the installation must comply with SANS. Non-compliant SANS products will result in forfeiting the warranty.

# Notes

## Notes

www.kwikot.com

KWIKOT
powered by Haier

## Support

**Warranty and Service Support**
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**Serial Code:**
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