

Wiring Central Unit Manual

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1 Preface

- In order to provide the customers with high quality, strong reliability and good versatility product, wiring central unit is produced by strict design and manufacture standards. This manual includes all the necessary information about installation, debugging, discharging and maintenance. Please read this manual carefully before you open or maintain the unit.

The manufacture of this product will not be held responsible if someone is injured or the unit is damaged, as a result of improper installation, debugging, unnecessary maintenance which is not in line with this manual.

The unit must be installed by qualified personnel.

- It is vital that the below instructions are adhered to at all times to keep the warranty.
 - The unit can only be opened or repaired by qualified installer or an authorised dealer.
 - Maintenance and operation must be carried out according to the recommended time and frequency, as stated in this manual.
 - Use genuine standard spare parts only.

- **Wiring Central Unit Introduction**

All electrical wiring and components are integrated within a Wiring Central Unit, effectively simplifying the wiring process during installation and maintenance of the entire system. The Wiring Central Unit is placed indoors, facilitating operation, inspection and testing.

2 Safety

To prevent the users and others from the harm of this unit, and avoid damage on the unit or other property, and use the heat pump properly, please read this manual carefully and understand the following information correctly.

Mark Notes

Mark	Meaning
 WARNING	A wrongoperation may leadto death orheavy injury on people.
 ATTENTION	A wrongoperation may leadto harm onpeople or loss of material.

Icon notes

Icon	Meaning
	Prohibition. What isprohibited will beneaby this icon
	Compulsory implement. The listed actionneed to be taken.
	ATTENTION (include WARNING) Please pay attention to what is indicated.

Warning

Installation	Meaning
 Professional installer	The heat pump must be installed by qualified personals, to avoid improper installation which can lead to water leakage, electrical shock or fire.
 Earthing is required	Please make sure that the unit and power connection have good earthing, otherwise may cause electrical shock.

Operation	Meaning
 PROHIBITION	DO NOT put fingers or others into the fans and evaporator of the unit, otherwise harm may be occurred.
 Shut off the power	When there is something wrong or strange smell, the power supply need to be shut off to stop the unit. Continue to run may cause electrical short or fire.

Move and repair	Meaning
 Entrust	When the heat pump need to be moved or installed again, please entrust dealer or qualified person to carry it out. Improper installation will lead to water leakage, electrical shock, injury or fire.
 Entrust	It is prohibited to repair the unit by the user himself, otherwise electrical shock or fire may be occur.
 Prohibit	When the heat pump need to be repaired, please entrust dealer or qualified person to carry it out. Improper movement or repair on the unit will lead to water leakage, electrical shock, injury or fire.



Do not use means to accelerate the defrosting process or to clean, Other than those recommended by the manufacturer.

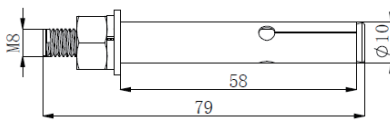
The appliance shall be stored in a room and install in the environment without continuously operating or potential ignition sources (for example: open flames, an operating gas appliance or an operating electric heater or Electric Spark or hot object)

ATTENTION

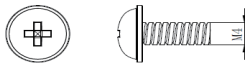
Installation	Meaning
 Installation Place	The unit CANNOT be installed near the flammable gas. Once there is any leakage of the gas, fire can be occur.
 Fix the unit	Make sure that the basement of the heat pump is strong enough, to avoid any decline or fall down of the unit
 Need circuit breaker	Make sure that there is circuit breaker for the unit, lack of circuit breaker can lead to electrical shock or fire.

Operation	Meaning
 Check the installation basement	Please check the installation basement in a period (one month), to avoid any decline or damage on the basement, which may hurt people or damage the unit
 Switch off the power	Please switch off the powerfor clean ormaintenance.
 Prohibition	It is prohibited to use copper or iron as fuse. The right fuse must be fixed by electrician for the heat pump.
 Prohibition	It is prohibited to spray the flammable gas to the heat pump, as it may cause fire.

3 Packing List



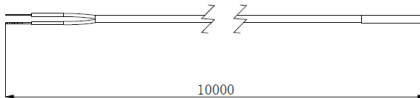
M8 Expansion Bolts *6



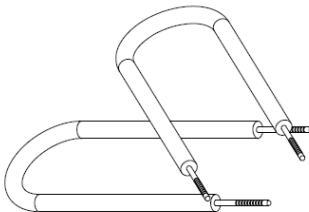
M4 Bolts *2



Cable Ties *15



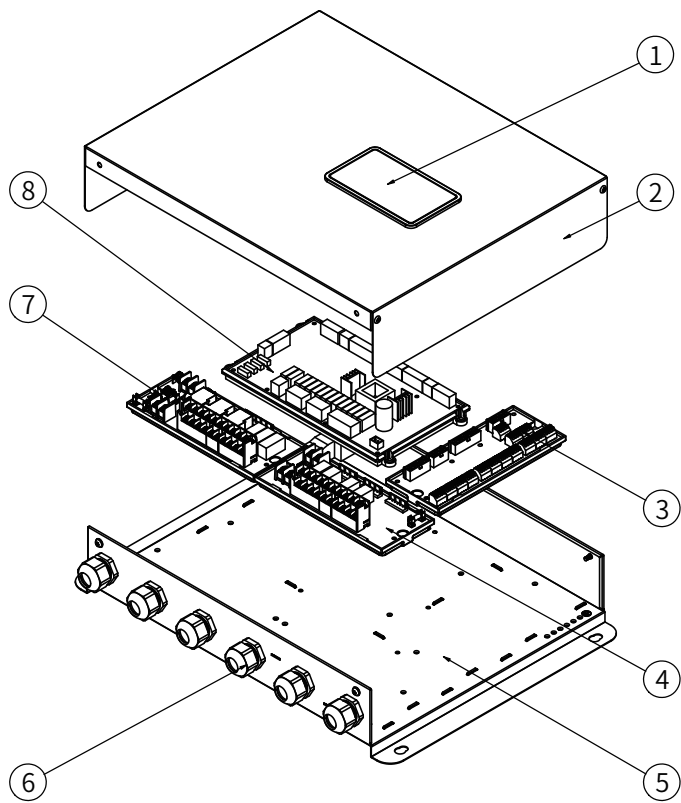
Thermistors *5



Short Jumper Wires *2

4 Installation

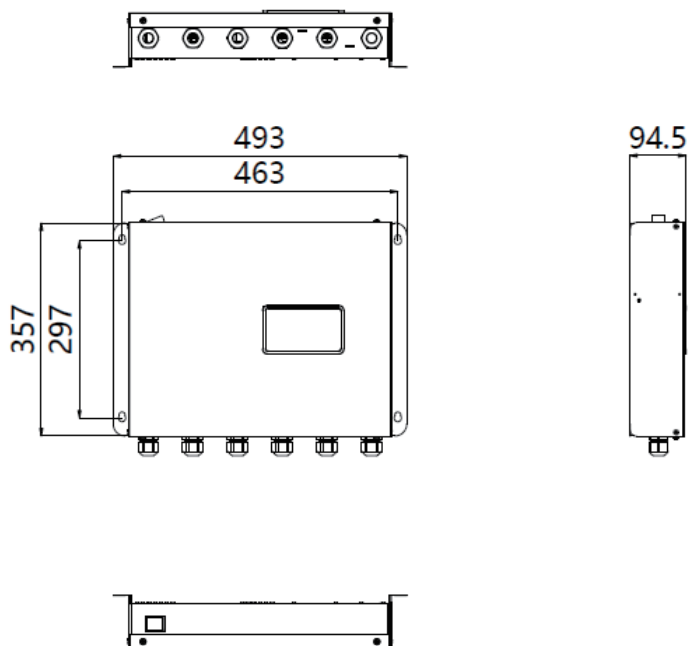
4.1 Structural Diagram



Code	Name	Code	Name
①	Controller	⑤	Terminal Box Bottom Plate
②	Terminal Box Cover	⑥	Waterproof Cable Gland
③	Adapter Board - MXL479	⑦	Adapter Board - MXL475
④	Adapter Board - MXL474	⑧	Mainboard

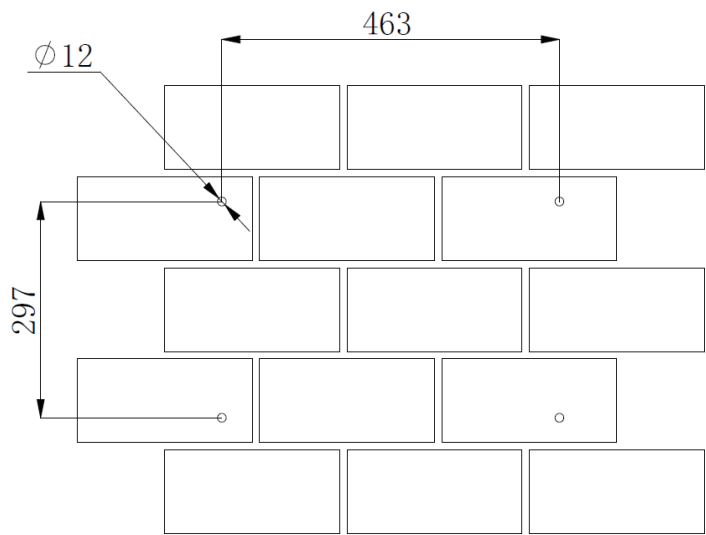
4.2 Installation Guide

4.2.1 Dimension

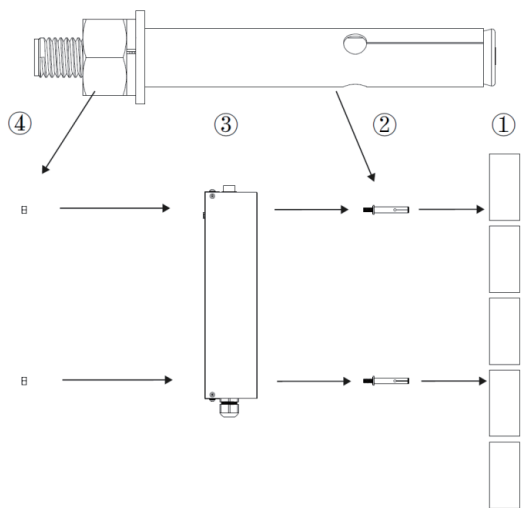


4.2.2 Installation Steps

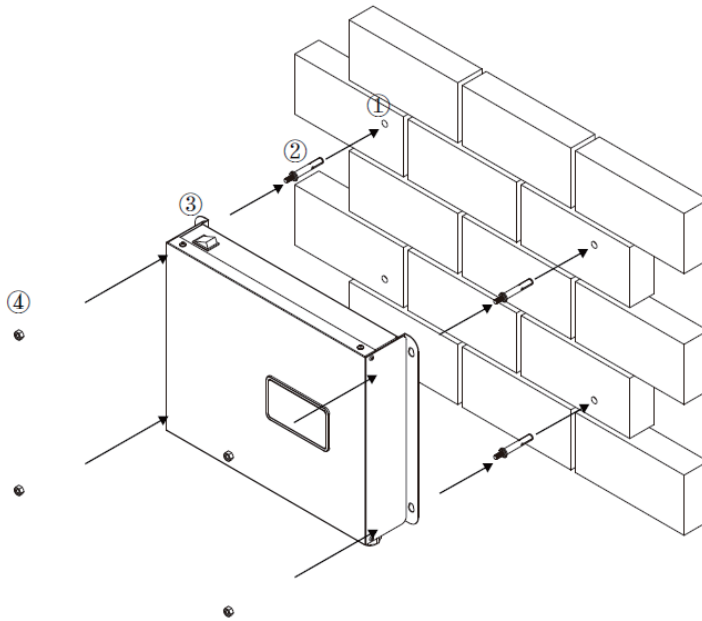
Step 1: Drill four $\phi 12$ round holes in suitable positions on the wall, with a spacing of 463*297 between them.



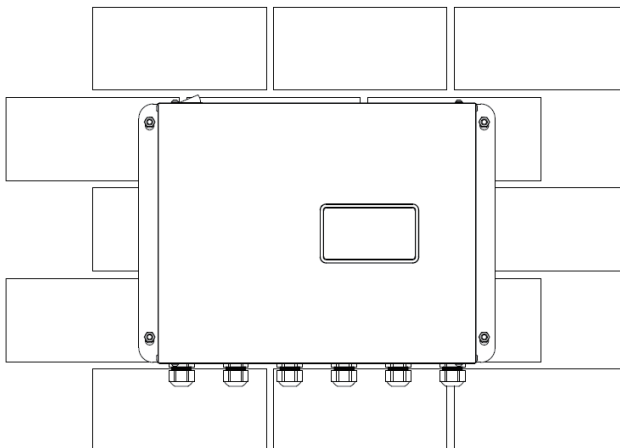
Step 2: Insert the expansion bolts into the round holes, tighten the nuts, and make sure the expansion parts are securely anchored inside the wall. Remove the nuts.



Step 3: Place the terminal box in the corresponding position.

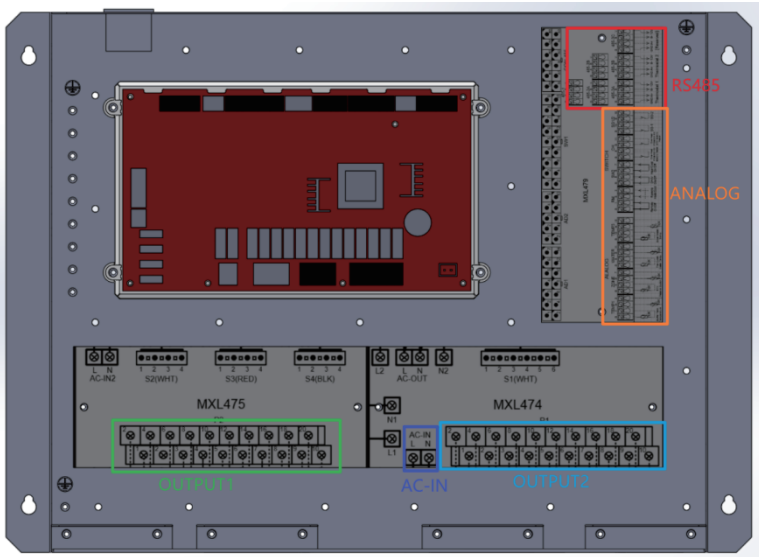


Step 4: Tighten the nuts to secure the terminal box in place.



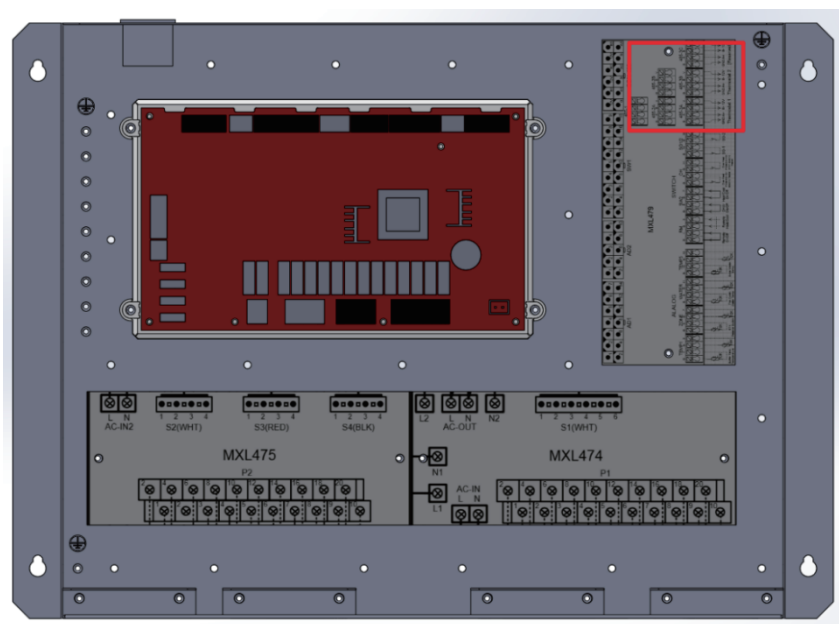
4.3 Wire Connection

4.3.1 Mainboard Layout and Wiring Positions



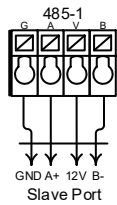
- 1. Communication Wiring Area:** Connect various RS485 communication devices, including centralized control ports, external device ports, and thermostat ports, all marked as RS485;
- 2. Low Voltage Wiring Area:** Connect temperature sensors and passive switch contacts. The temperature sensor area supports 10K thermistors with a B value of 3435. The passive switch contact area supports signals with a maximum voltage of 5V. Located and labeled as ANALOG;
- 3. High Voltage Wiring Area:** Connect to high-voltage load output ports, labeled as OUTPUT1 and OUTPUT2;
- 4. Main Power Input Area:** Supports 230V mains power input, labeled as AC-IN.

4.3.2 RS485 Interface



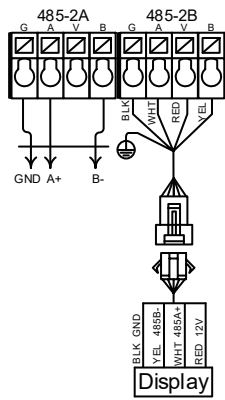
● 485-1

Control Port, incorporating a straightforward control protocol. Through this protocol, basic control functions such as turning the heat pump on/off, selecting modes, adjusting operating power, etc., can be easily managed. It also allows for retrieving partial operational statuses and faults of the unit. Therefore, it can be used as a simple centralized control protocol. For detailed communication protocols, please refer to the maintenance manual.



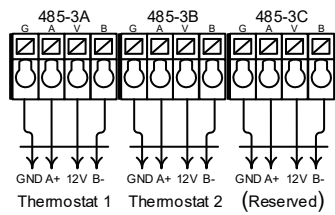
● 485-2A, 485-2B

The 485-2A port serves as the communication interface between the terminal box and the heat pump, while the 485-2B port is designated for communication between the heat pump and the color screen.



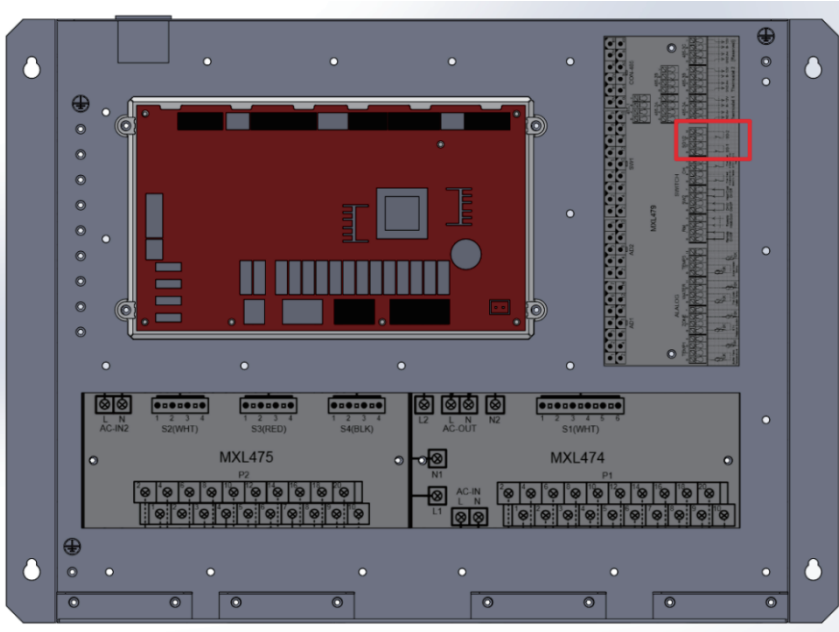
● 485-3A, 485-3B, 485-3C (Reserved)

When utilizing zone control and in "Thermostat Mode," the thermostat can be connected to this port. Zone 1 thermostat connects to 485-3A, Zone 2 thermostat connects to 485-3B, and 485-3C port is reserved.



5 Installation and Debugging

5.1 SG Ready



● Parameter Configuration

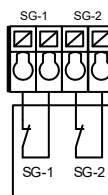
Configure SG01 parameters based on the actual number of contacts supported by the external controller. For detailed parameter configurations, refer to the maintenance manual.

● Low Voltage Wiring

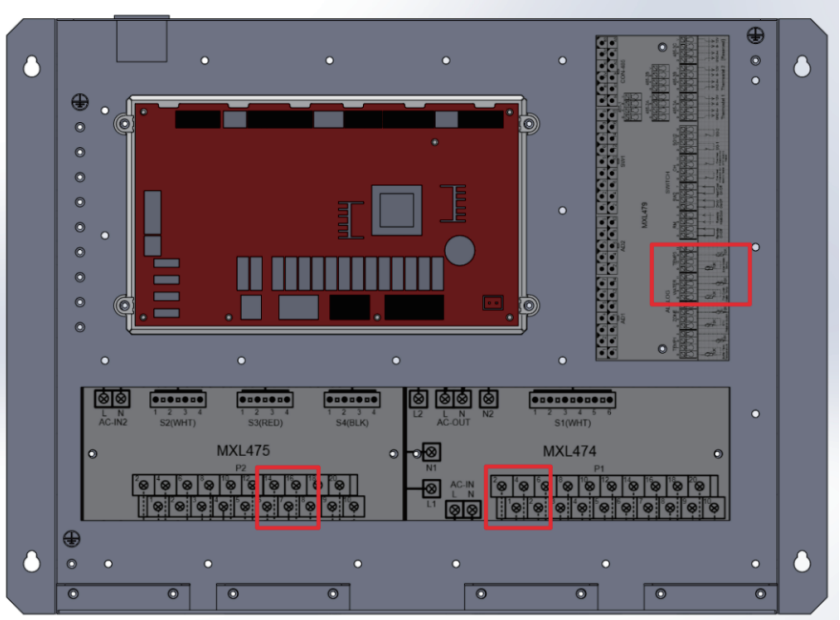
If the SG Ready function is enabled, connect the passive switch contact signals based on the actual number of contacts supported by the external controller. This signal controls the heat pump to enter different Running Modes;

If the external controller supports a single contact mode, connect to the SG2 port;

If the external controller supports a dual contact mode, connect to both the SG1 and SG2 ports.

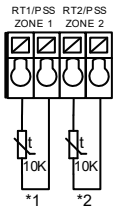


5.2 Zone Control

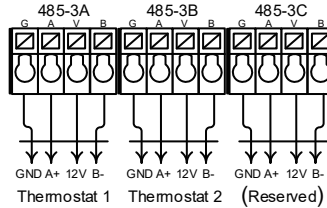


● Zone Control

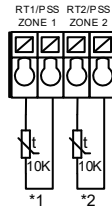
(1) If configuring Z01=1/2/3, it indicates Sensor Mode. Based on the actual zone activation, connect the room temperature for Zone 1 and Zone 2 as needed.



(2) If configuring Z01=4/5/6, it indicates Thermostat Mode, compatible with our independently developed 4-inch Diwen capacitive screen thermostat. Based on the actual zone activation, connect the corresponding thermostat to 485-3A/485-3B ports as needed.



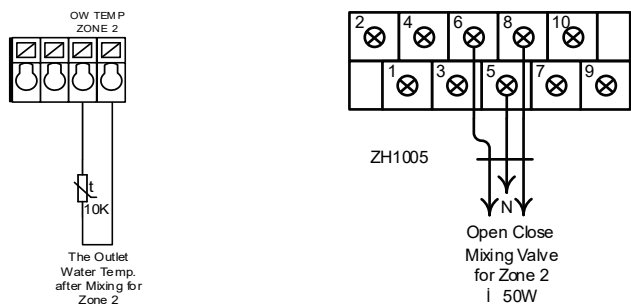
(3) If configuring Z01=7/8/9, it indicates Passive Switch Signal, compatible with other thermostats on the market that support passive switch contact output. In this case, connect the passive switch contacts for Zone 1 and Zone 2 as needed.



● Zone 2 Mixing Valve

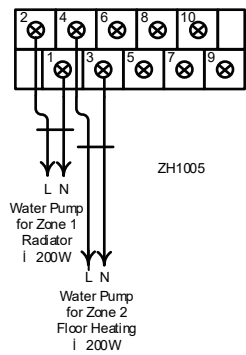
(1) Supports impulse-type mixing valves, controlling the valve proportion through the on/off signals (two 230V active contact signals) and their energized time. Configure "Valve Open Time (Z09)" and "Valve Close Time (Z10)" based on the mixing valve manual (different specifications and models may vary). Refer to the maintenance manual for detailed parameter configuration methods.

(2) When using the Zone 2 mixing valve, it is necessary to simultaneously connect the Zone 2 mixing valve temperature sensor.



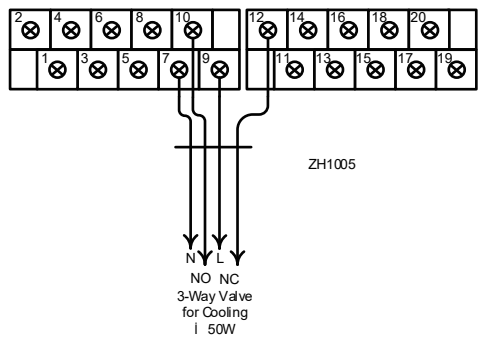
● Zone Secondary Water Pump

If only Zone 1 is enabled, connect Zone 1 water pump;
If only Zone 2 is enabled, connect Zone 2 water pump and Zone 2 mixing valve;
If both Zone 1 and Zone 2 are enabled simultaneously, connect Zone 1 water pump and Zone 2 water pump.

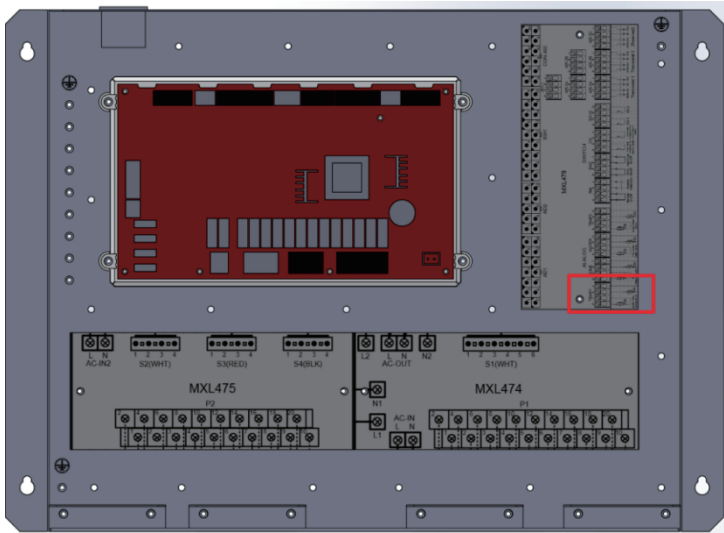


● Cooling Three-Way Valve

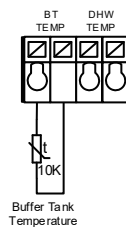
This port is for control signals. It is powered during the cooling mode and loses power in other modes.



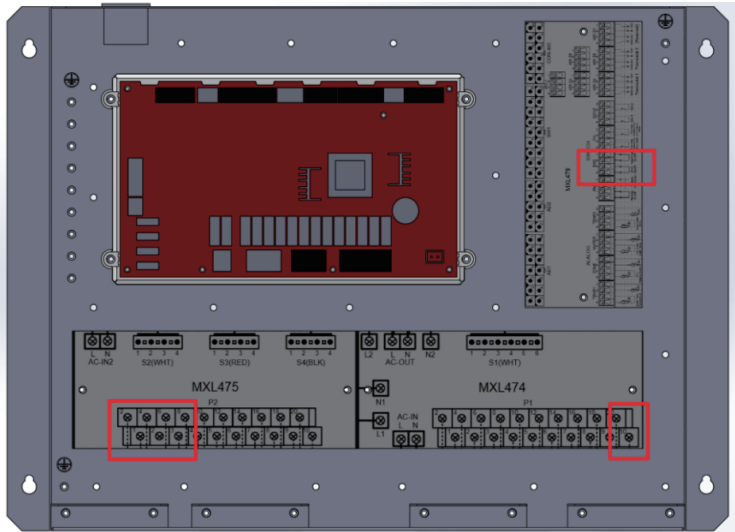
5.3 Buffer tank



If the project has a buffer water tank and requires temperature control to start and stop the heat pump, it is necessary to connect the temperature sensor for the buffer water tank. After connecting this sensor, configure H25 as "Buffer Water Tank" control so that the heat pump can start and stop based on the buffer water tank temperature. Refer to the maintenance manual for detailed instructions.



5.4 Electric Heating



● High Voltage Wiring

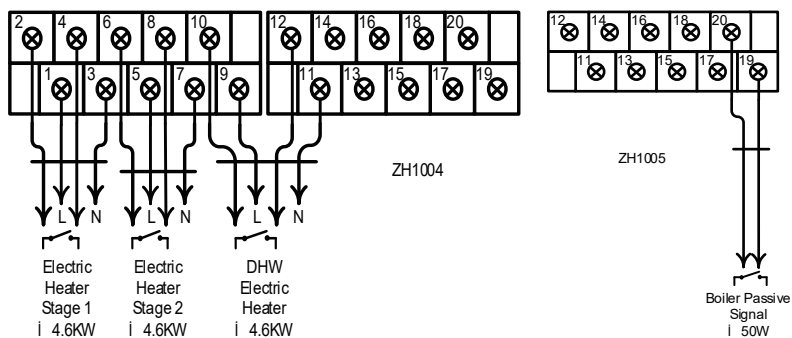
Based on the actual number of electric heating elements, configure the electric heating level parameters, and determine the electric heating wiring port locations.

H18=1: Only one electric heating level (Level 1), connect the electric heating to stage 1.

H18=2: Only one electric heating level (Level 2), connect the lower-power electric heating to stage 1, and the higher-power electric heating to stage 2.

H18=3: Supports both electric heating levels (Level 1 and Level 2), connect the lower-power electric heating to stage 1, and the higher-power electric heating to stage 2.

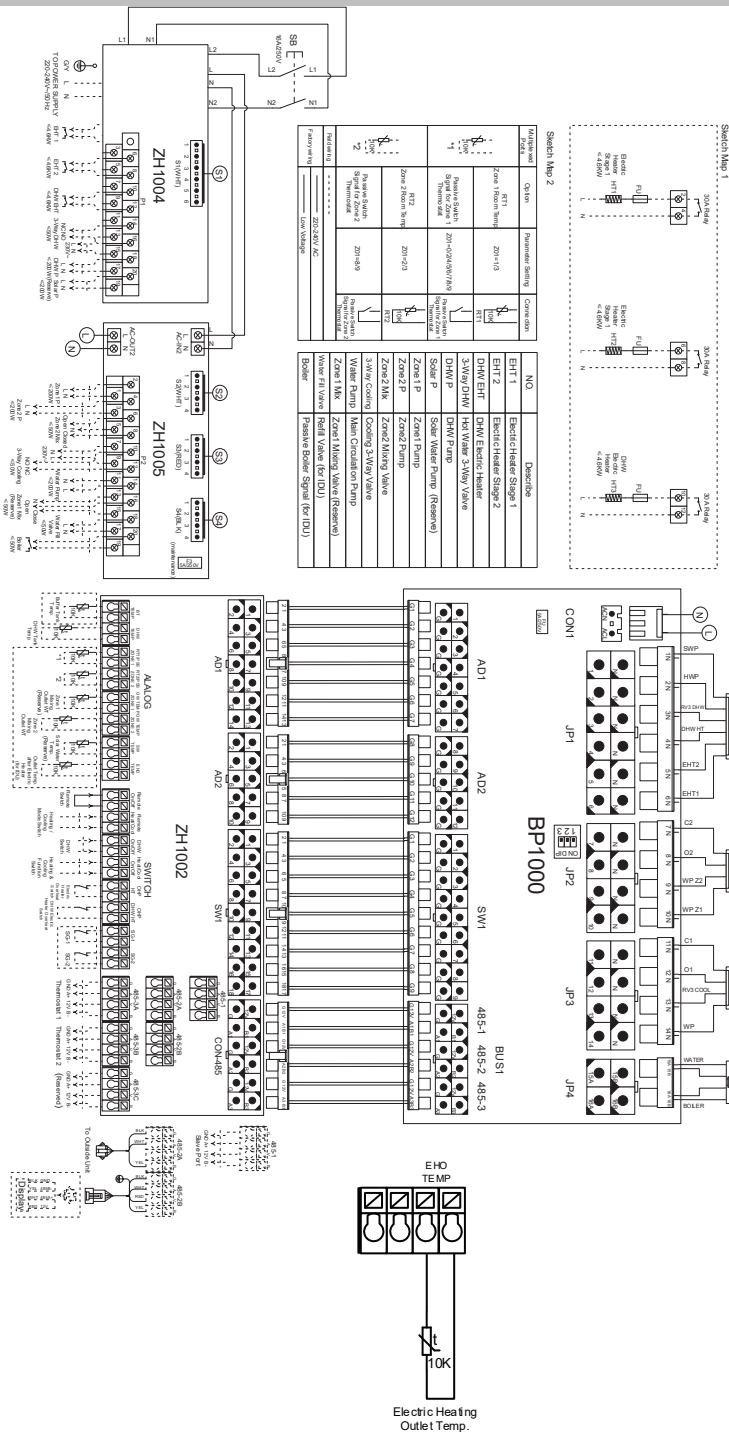
Electric heating can be directly connected to the terminal box for power, but an external fuse is required. The boiler serves only as a passive switch contact output. When any of the electric heating levels 1, electric heating level 2, or hot water tank electric heating is activated, the boiler outputs a passive switch contact closure signal.



● Low Voltage Wiring

Electric Heating Outlet Temperature (optional)

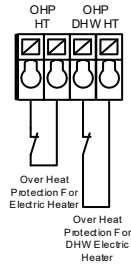
When the water system is equipped with electric heating, it is recommended to connect this temperature sensor to detect the outlet temperature of the water circuit electric heating.



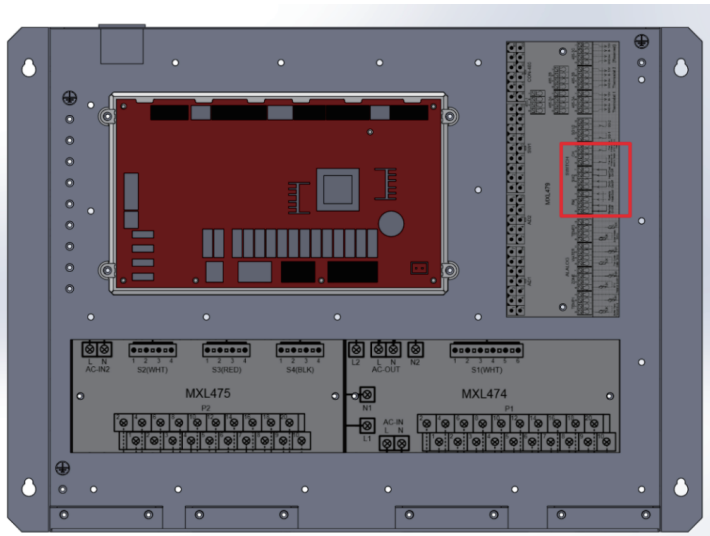
Electric Heating Overload Switch, Hot Water Tank Electric Heating Overload Switch (optional)

The factory default is to use a short-circuit switch with wires. If you need the controller to report an alarm during electric heating overload, you can remove the existing short-circuit switch and connect the overload switch.

If there is no overload switch, it is necessary to keep the short-circuit switch with wires. Otherwise, the controller will report an electric heating overload fault, and electric heating will not be able to start.



5.5 Remote Control

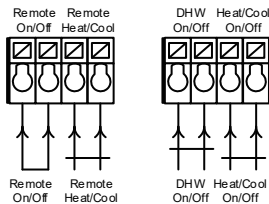


● Emergency Switch

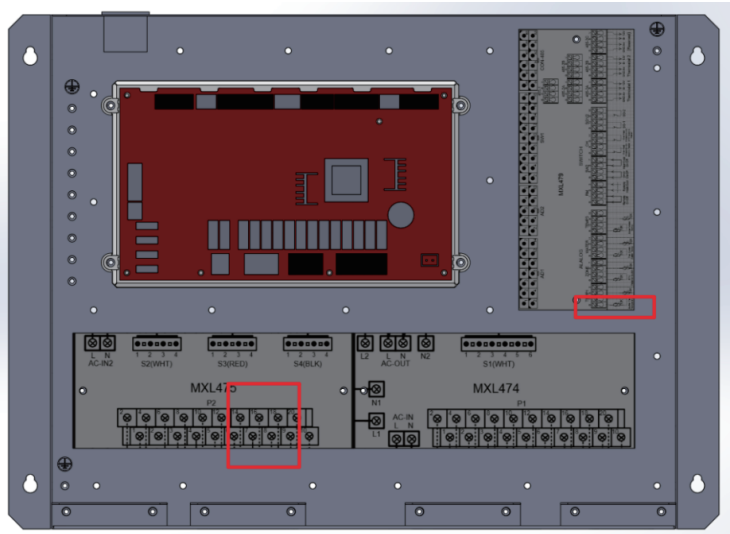
The factory default is to short-circuit this switch, used for remote control of the heat pump on/off. If using this port for remote control of the heat pump on/off, it also needs to be set to slave mode (refer to the maintenance manual for setup instructions).
Even if remote control of on/off is not required through this port, the short-circuit switch with wires must be retained; otherwise, the heat pump will not start.

● Air Conditioning Mode Switch, Hot Water Switch, Air Conditioning Switch

If remote control of the heat pump operating mode is needed through passive switch contacts, connect the three switches mentioned above and set them to slave mode (refer to the maintenance manual for setup instructions).



5.6 Hot Water Mode

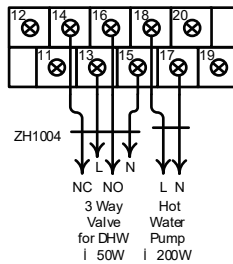


● Domestic Hot Water Pump

When the hot water function is enabled, it is necessary to connect the domestic hot water pump.

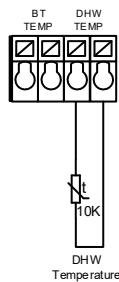
● Hot Water Three-Way Valve

When the hot water function is enabled, connect the hot water three-way valve to control the direction of water flow on the hot water side and the heating side. Users should connect it based on the type of hot water three-way valve (normally open or normally closed) and the actual installation requirements of the project.

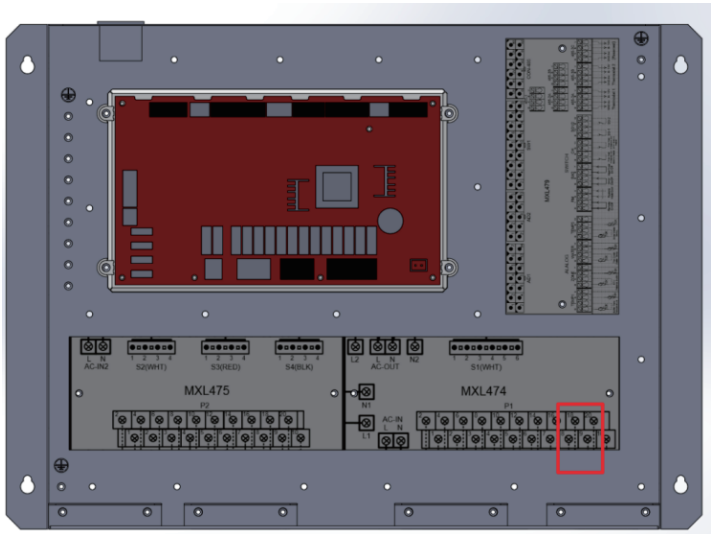


● Hot Water Tank Temperature Sensor

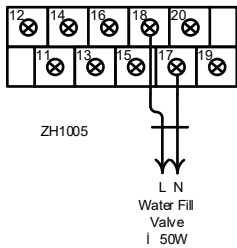
The factory default is to short-circuit a 6.8K resistor. Before connecting the temperature sensor, this resistor must be removed. If using the hot water mode, connect this temperature sensor. In the hot water mode, the heat pump starts and stops based on the temperature of the hot water tank.



5.7 Pipeline Makeup Water Valve



If the main board's timed makeup water function is required, it is necessary to connect to this port and configure the P13/P14 parameters (refer to the maintenance manual). When the mainboard determines that makeup water is needed, the makeup water valve will open; otherwise, it will remain closed.



6. Testing

6.1 Enabling Communication between the Main Board and Terminal Box

Set parameter H30 to 3. Refer to the maintenance manual for the configuration method.

6.2 Testing the High Voltage Load Port Outputs

Utilize the "Manual Control" function on the remote controller to systematically inspect each output port. Verify whether the output ports can function correctly. For detailed instructions, refer to the maintenance manual.

7. Troubleshooting

Fault Names	Causes of Faults	Solution
Communication Failure Between Main Board and Third-Generation Indoor Unit	1.Wiring Error, Incorrect Wiring Sequence 2.Incorrect Port Connection 3.Port Damage 4.Strong Electrical Interference	1.According to the circuit diagram, check if the A-B-GND ports are wired incorrectly. 2.According to the circuit diagram, check if it is connected to 485-2A. 3.Swap 485-2A/485-2B ports and check if communication is successful. 4.During the wiring process, avoid crossing communication lines with high-voltage lines.
Communication Failure Between Main Board and Thermostat	1.Incorrect Heat Pump Parameter Settings 2. Wiring Error, Incorrect Port Connection Strong 3.Electrical Interference	1.Check the parameters, ensure Z01 is set to 4/5/6. 2.According to the circuit diagram, check the wiring. The thermostat should be connected to 485-3A or 485-3B. 3.During the wiring process, avoid crossing communication lines with high-voltage lines.

When there is a communication failure between the main board and the wiring central unit, the actions for high-voltage load faults are as follows:

Load	Action
Solar Water Pump (Reserved)	Stay on
Domestic Hot Water Circulation Pump	Stay on
Hot Water Three-Way Valve	Stay on
Independent Electric Heating for Hot Water Tank	Forced shutdown
Secondary Heating Belt	Forced shutdown
Primary Heating Belt	Forced shutdown
Zone 2 Mixing Valve C	The expansion valve aperture remains unchanged
Zone 2 Mixing Valve O	The expansion valve aperture remains unchanged
Zone 2 Water Pump	Stay on
Zone 1 Water Pump	Stay on
Cooling Three-Way Valve	Stay on
Main Circulation Water Pump	Forced power-on
Pipeline Makeup Water Valve	Forced shutdown
Gas Boiler	Forced shutdown