GREE
Change for life

Versati II+
MONOBLOC TYPE

# Air-to-water Heat Pump Monobloc Versati

## Unit Installation

GREE ELECTRIC APPLIANCES, INC.OF ZHUHAI

# CONTENTS

# 1 Precautions for Field Instalaltion

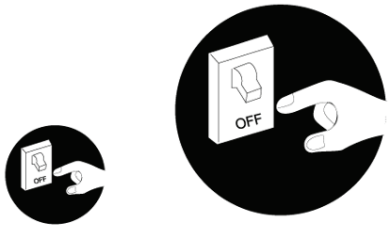
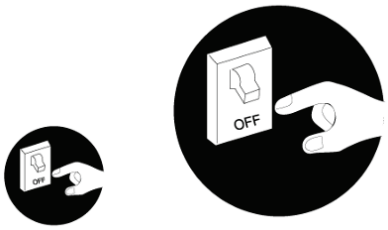
(1). The installation of unit must be in accordance with national and local safety codes.

(2). Installation quality will directly affect the normal use of air conditioner unit. The user is prohibited from installation by himself. Please contact your dealer after buying this machine.Professional installation workers will provide installation and test services according to installation manual.

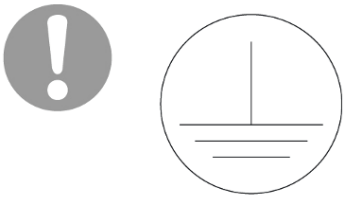
(3). Do not connect to power until all installation work is completed.

# 2 Safety Considerations

Pease read the following contents carefully before operating.

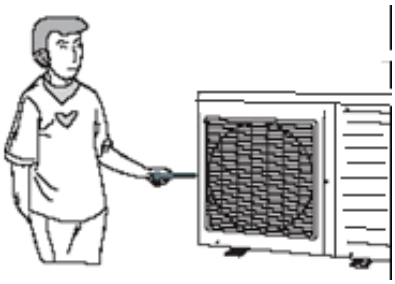
<table>
<tr><th colspan="3">WARNING</th></tr>
<tr>
<td>■ Once abnormality like burning smell occurs, please cut off the power supply immediately and then contact with service center.<br>  <br><br>If the abnormality still exists, the unit may be damaged and electric shock or fire may result.</td>
<td>■ Don't operate the unit with wet hand.<br>  <br>Otherwise, it may cause electric shock.</td>
<td>■ Before installation,please see if the voltage of local place accords with that on nameplate of unit and capacity of power supply, power cord or socket is suitable for input power of this unit.<br>  </td>
</tr>
<tr>
<td>■ Special circuit must be adopted for power supply to prevent fire.<br>  <br>Do not use octopus multipurpose plug or mobile terminal board for wire connection.</td>
<td>■ Be sure to pull out the power plug and drain the indoor unit and water tank when unit is not in use for a long time.<br>  <br><br>Otherwise, the accumulated dust may cause overheating,fire or freeze of water tank or coaxial heater exchanger in winter.</td>
<td>■ Never damage the electric wire or use the one which is not specified.<br>  <br>Otherwise, it may cause overheating or fire.</td>
</tr>
<tr>
<td>■ Before cleaning please cut off the power supply.<br>  <br><br>Otherwise, it may cause electric shock or damage.</td>
<td>■ The power supply must adopt special circuit with leakage switch and enough capacity.</td>
<td>■ User can not change power cord socket without prior consent. Wiring working must be done by professionals. Ensure good earthing and don't change earthing mode of unit.</td>
</tr>
</table>

■ **Earthing: the unit must be earthed reliably ! The earthing wire should connect with special device of buildings.**



If not, please ask the qualified personnel to install.
Furthermore, don't connect earth wire to gas pipe, water pipe, drainage pipe or any other improper places which professional does not recognize.

■ **Never insert any foreign matter into uint to avoid damage . And never insert your hands into the air outlet of the unit.**



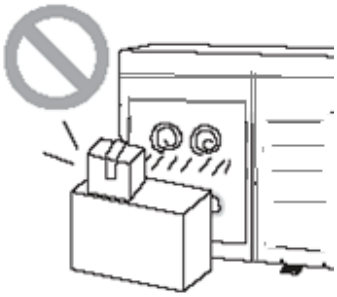
■ **Don't attempt to repair the unit by yourself.**

Improper repair may cause electric shock or fire, so you should contact the service center to repair.

■ **Don't step on the top of the unit or place anything on it.**

There is the danger of fall of things or people.

■ **Never block the air inlet and outlet of unit.**

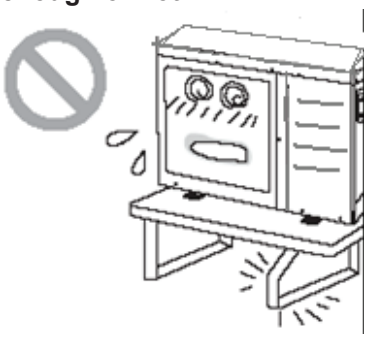


It may reduce efficiency or cause stop of the unit and even fire.

■ **Keep pressurized spray, gas holder and so on away from the unit above 1m .**


It may cause fire or explosion.

■ **Please note whether the installation stand is firm enough or not.**

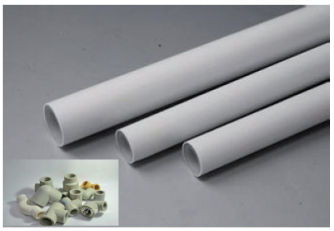


If damaged, it may cause fall of the unit and injury of people.

■ **Unit should be installed at the place with good ventilation to save energy.**

■ **When there is not water in water tank, never power the unit on to run.**

## 3 Filed Supplied Pipes and Valves

| Name | Picture | Usage |
|---|---|---|
| Water Filter |  | It is used to remove foreign matters in the waterway. |
| 2-way Valve |  | It is used to switch waterways between underfloor system and the FCU. |
| 3-way Valve |  | It is used to switch waterways of hot water inside the water tank and circulation water inside the main unit. |
| Bypass Valve |  | It is used to balance the water pressure. |
| Water Trap |  | It is used to distribute water. |
| Pipe and Pipe Joint |  | It is used to connect the water pipes. |
| Cut-off Valve |  | It is used to cut off or get through the waterway. |

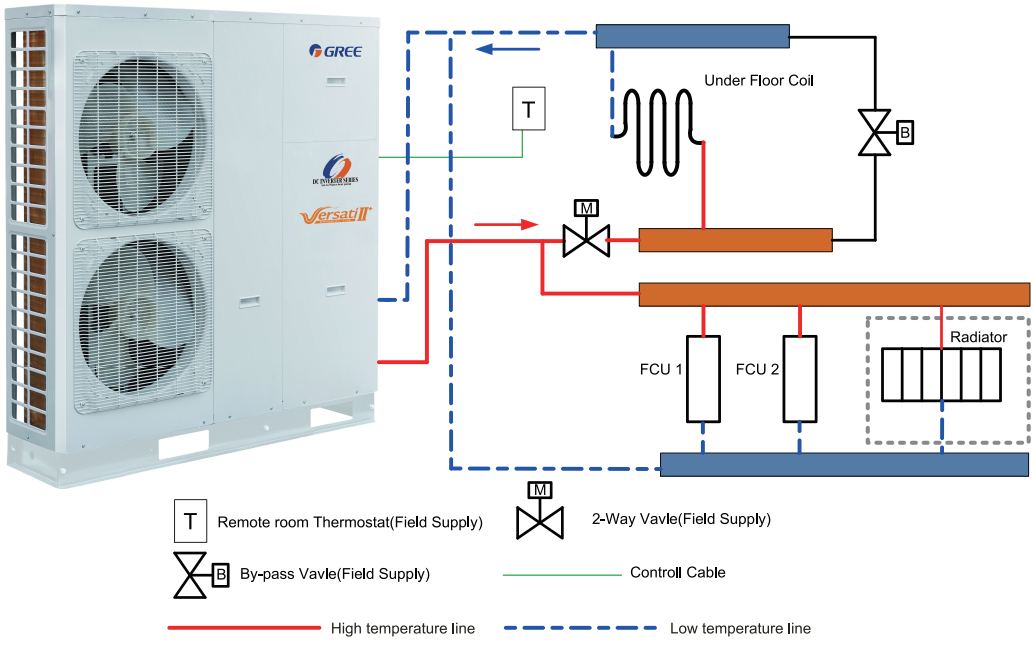
# 4 Service Tools

| Name | Picture |
|---|---|
| Spanner |  |
| Screw Driver |  |
| Pliers |  |
| Tube Tongs |  |

# 5 Instalaltion Instructions

## 5.1 Installation Examples

**CASE 1: Connecting Heat Emitters for Heating and Cooling(Under floor loop,Fan Coil Unit,and Radiator)**



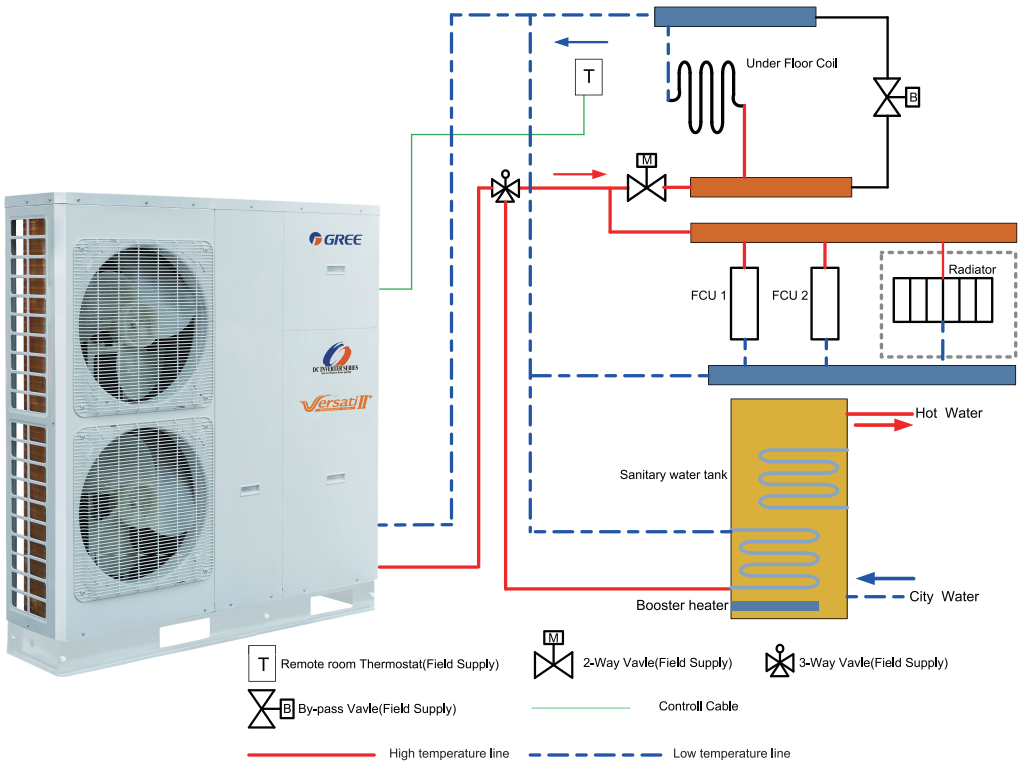

Note:

① The two-way valve is very important to prevent dew condensation on the floor and Radiator while cooling mode;

② Type of thermostat and specification should be complied with installation of this manual;

③ The Bypass valve must be installed to secure enough water flow rate, and should be installed at the collector;

**CASE 2: Connecting Sanitary Water Tank**

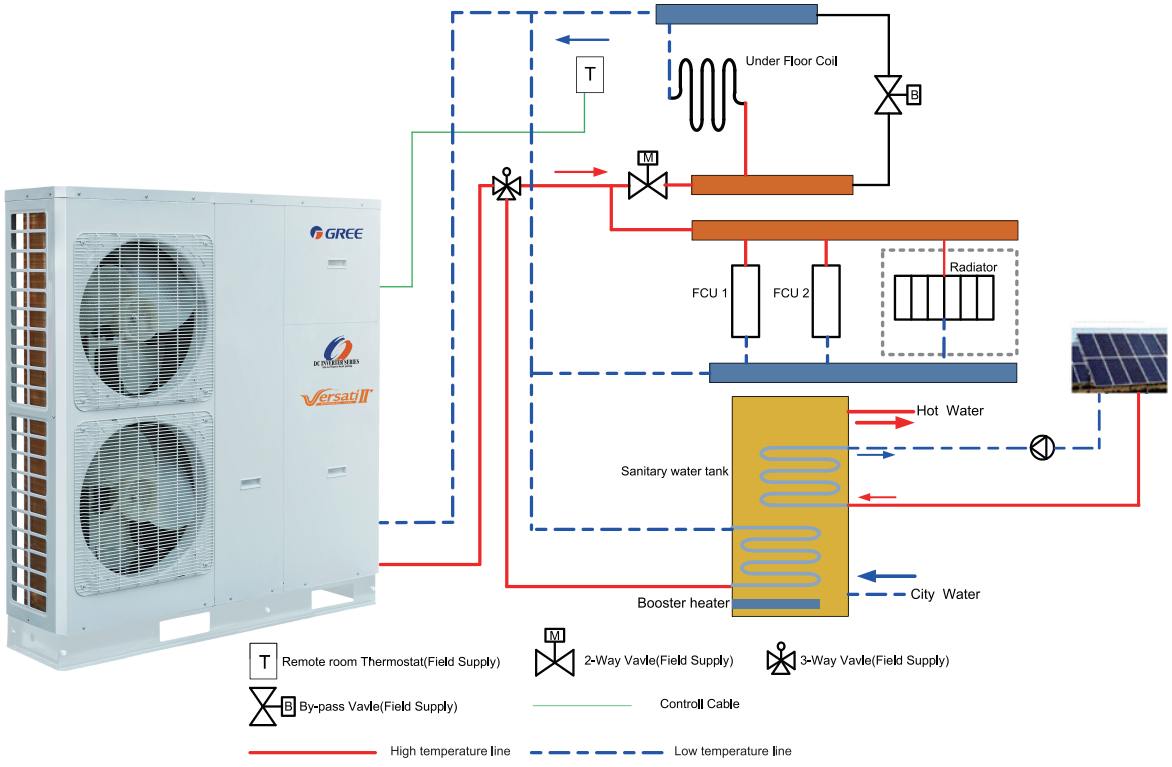



Note:

① In this case, three-way valve should be installed and should be complied with installation of this manual;

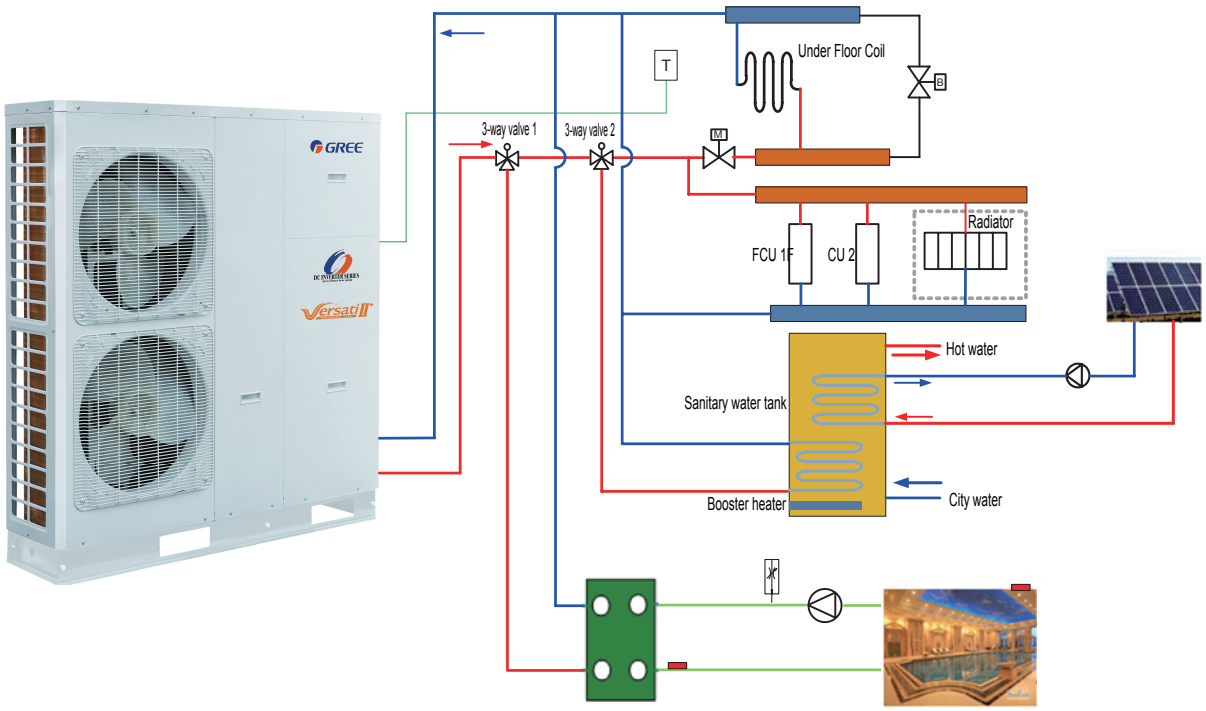
② Sanitary water tank should be equipped with internal electric heater to secure enough heat energy in the very cold days;

**CASE 3 : Connecting Solar thermal system**




Two-way valve is very important to prevent dew condensation on the floor and Radiator while cooling mode.

**CASE 4 : Connecting Swimming pool system**




**Notes:**

1)Two-way valve is very important to prevent dew condensation on the floor and Radiator while cooling mode.

2) 3-Way valve 1 is controlled by user,while the pool pump is actived, 3-Way valve 1 switches to pool loop;while the pool pump is shuted down,3-Way valve 1 switches to under floor/FCU loop.

3) 3-Way valve 2 is automatic controlled by monobloc unit,while running water heating mode,3-Way valve 2 switches to water tank loop;while running cooling/heating mode,3-Way valve 2 switches to under floor/FCU loop.

## 5.2 Pre-Installation

(1). Installation of the unit must be in accordance with national and local safety codes.

(2). Installation quality will directly affect the normal use of the air conditioner unit. The user is prohibited from installation by himself. Please contact your dealer after buying this machine.Professional installation workers will provide installation and test services according to the installation manual.

(3). Do not connect to power supply until all installation work is completed.

## 5.3 Selection of Installatio Location

(1). The monobloc unit must be installed on a firm and solid support.

(2). Avoid placing the monobloc unit under window or between two constructions, hence to prevent normal operating noise from entering the room.

(3). Air flow at inlet and outlet shall not be blocked.

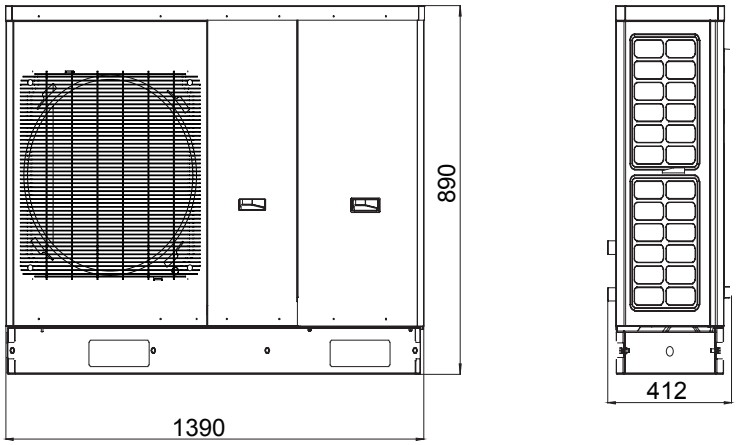
(4). Install at a well-ventilated place, so that the machine can absorb and discharge sufficient air.

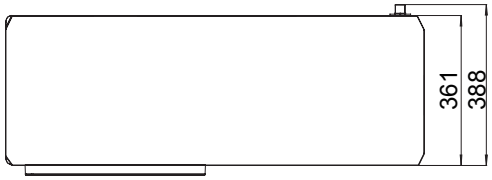
(5). Do not install at a place where flammable or explosive goods exist or a place subject to severe dust, salty fog and polluted air.

## 5.4 Installation and Service Space

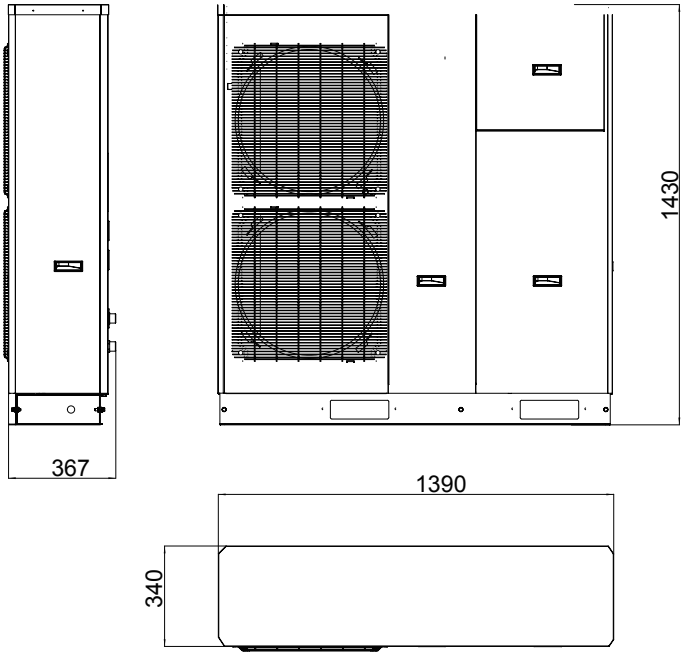
### 5.4.1 Outline Dimension of the Monobloc Unit

(1) GRS-CQ8.0Pd/NaC-K,GRS-CQ10Pd/NaC-K

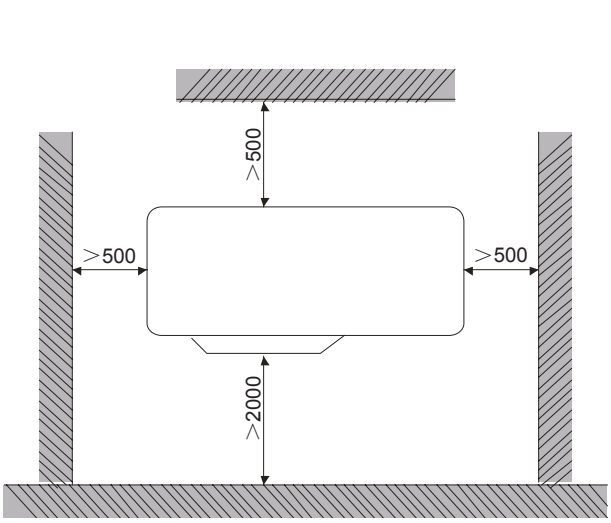


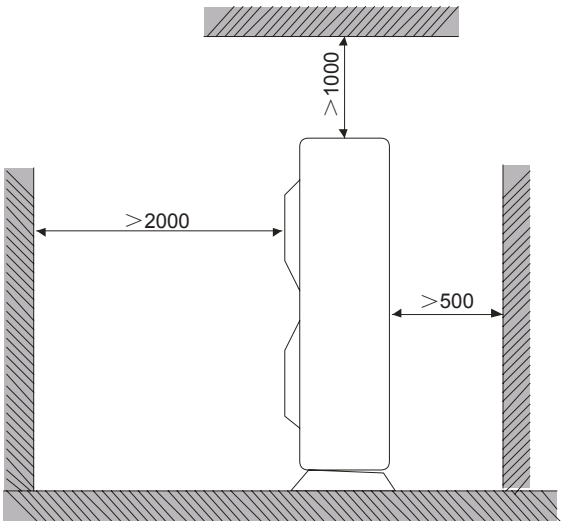




(2) GRS-CQ12Pd/NaC-M,GRS-CQ14Pd/NaC-M




**5.4.2 Space Requirements for Installation**



## 5.5 Installation of the Main Unit

(1) When moving the monob unit, it is necessary to adopt 2 pieces of long enough rope to hand the unit from 4 directions. Included angle between the rope when hanging and moving must be 40° below to prevent center of the unit from moving.

(2) The monobloc unit should be installed on concrete base that is 10cm height.

(3) Requirements on installation space dimension of unit's bodies are shown in following drawing.

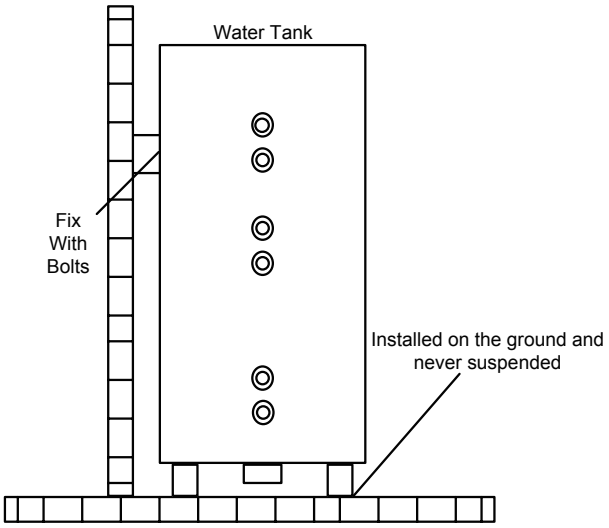
(4) The monobloc unit must be lifted by using designated lifting hole. Take care to protect the unitduring lift. To avoid rusting, do not knock the metal parts.

## 5.6 Installation of the Water Tank

### 5.6.1 Installation Measure

The water tank should keep a horizontal distance of 5 meters and a vertical distance of 3 meters with the main unit. It allowed to be installed in the room.

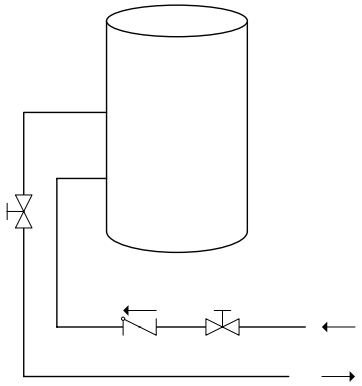
The standing type water tank must be installed erectly on the ground/floor and never be suspended. Installation place must be firm enough and the water tank should be fixed on the wall with bolts to avoid vibration, as shown in the following figure. During installation, weight of the water tank should be taken into consideration.




The minimum clearance between the water tank and any combustible object must be 500mm.

The water pipe, hot water joint and floor drain should be equipped for the water replenishment, hot water supply and drainage of the water tank respectively.

Connection of the inlet/outlet waterway: connect the safety check valve attached with the unit (with the arrow on it pointing at the water tank) to the water inlet of the water tank with the PPR pipe according to the following figure and seal with seal tape. The other end of the safety check valve should connect with the water tap. The hot water pipe should be connected to the water outlet of the water tank also with the PPR pipe.



**Note**

For safe use of water, water outlet/inlet of water tank must connect with a certain length of PPR pipe, L ≥70×R2 (cm, R is inside radius of the pipe). Moreover, heat preservation should be conducted and metal pipe

cannot be used. For the first use, water tank must be full of water before the power is on.

**5.6.2 Connection between the Main Unit and the Water Tank**

(1) If connection between the water tank and the monobloc unit should go through the wall, drill a hole φ70 for pass of circulating water pipe.

(2) Preparation of pipelines: circulating water outlet/inlet pipe must be hot water pipe and PPR pipe with nominal outer diameter of dn25 and S2.5 series (wall thickness of 4.2mm) are recommended. Cooling water inlet pipe and hot water outlet pipe of water tank should also be hot water pipe and PPR pipe with nominal outer diameter of dn20 and S2.5 series (wall thickness of 3.4mm) are recommended. If other insulated pipes are adopted, refer to the above dimensions for outer diameter and wall thickness.

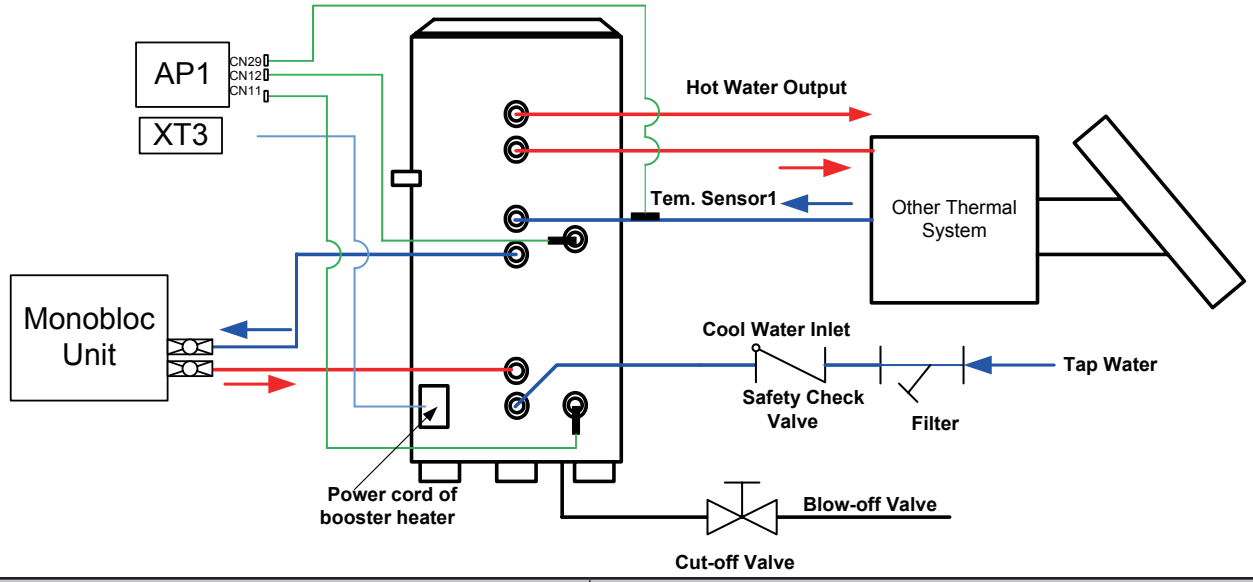
(3) Installation of circulating water inlet/outlet pipes: connect the water inlet of the unit with circulating outlet of water tank and water outlet of unit with circulating inlet of water tank.

(4) Installation of water inlet/outlet pipes of the water tank: safety check valve, filter and cut-off valve must be installed for the water inlet pipe according to the installation sketch of the unit. At least a cut-off valve is needed for the water outlet pipe.

(5) Installation of blow-off pipes at the bottom of water tank: connect a piece of PPR pipe with drainage outlet to floor drain. A cut-off valve must be installed in the middle of the drainage pipe and at the place where it is easy to be operated by the users.

(6) After connection of all waterway pipelines, perform the leakage test firstly. After that, bind up the water pipes, water temp sensor and wires with wrapping tapes attached with the unit.

(7) Refer to Installation Sketch of the Unit for details.




| Description | Joint pipe thread |
|---|---|
| Circulating water inlet/outlet of main unit | 1″Male BSP |
| Cooling water inlet of water tank | 1/2″Female BSP |
| Circulating water inlet/outlet of water tank | 3/4″Female BSP |
| Hot water outlet of water tank | 1/2″Female BSP |

**Notes**

①Distance between monobloc unit and water tank should not exceed 5m levelly and 3m vertically. If higher, please contact with us. Water tank on lower and main unit on higher side is recommended.

② Prepare the materials according to the above joints dimension. If cut-off valve is installed outside the room, PPR pipe is recommended to avoid freeze damage.

③ Waterway pipelines can't be installed until water heater unit is fixed. Do not let dust and other sundries enter into pipeline system during installation of connection pipes.

④After connection of all waterway pipelines, perform leakage test firstly. After that, perform heat preservation

of waterway system; meanwhile, pay more attention to valves and pipe joints. Ensure enough thickness of insulated cotton. If necessary, install heating device for pipeline to prevent the pipeline from freezing.

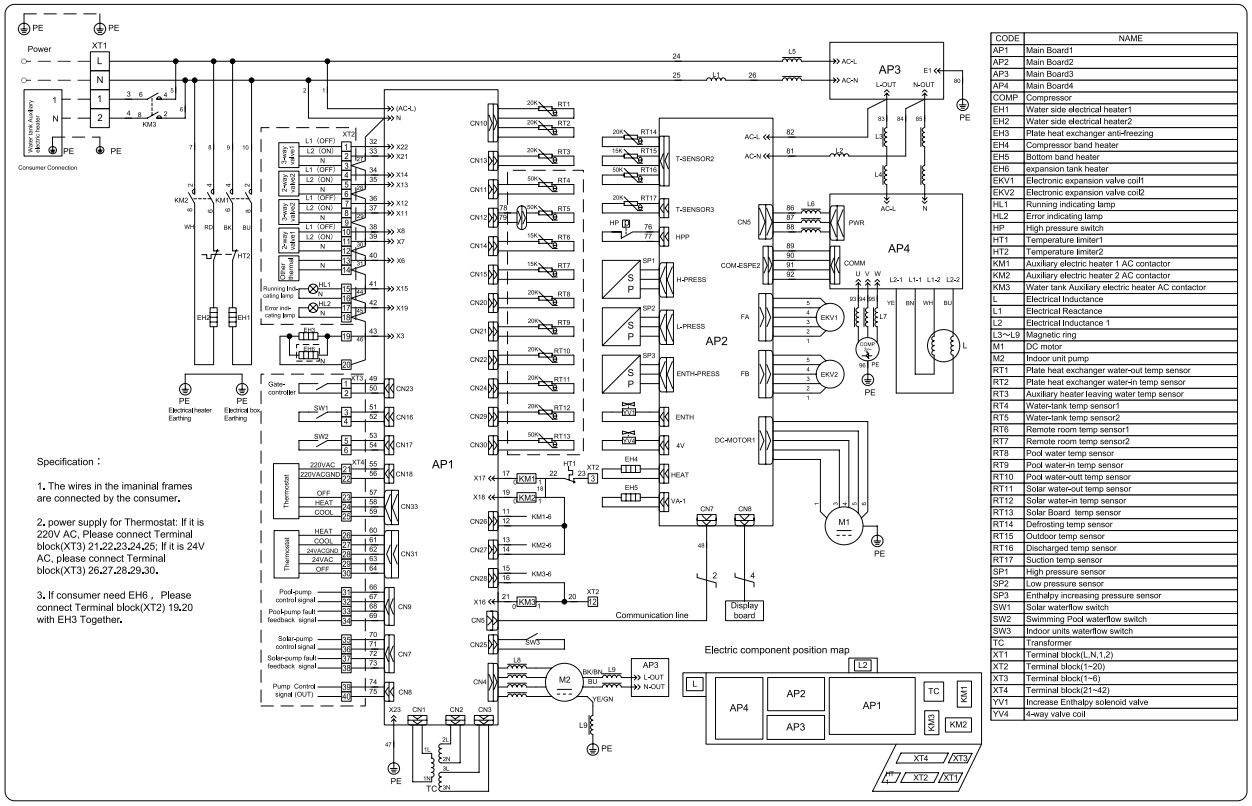
⑤Hot water supplied from insulated water tank depends on pressure of water tap, so there must be supply of tap water.

⑥During using, the cut-off valve of cooling water inlet of water tank should be kept normally on.

## 5.7 Electric Wiring

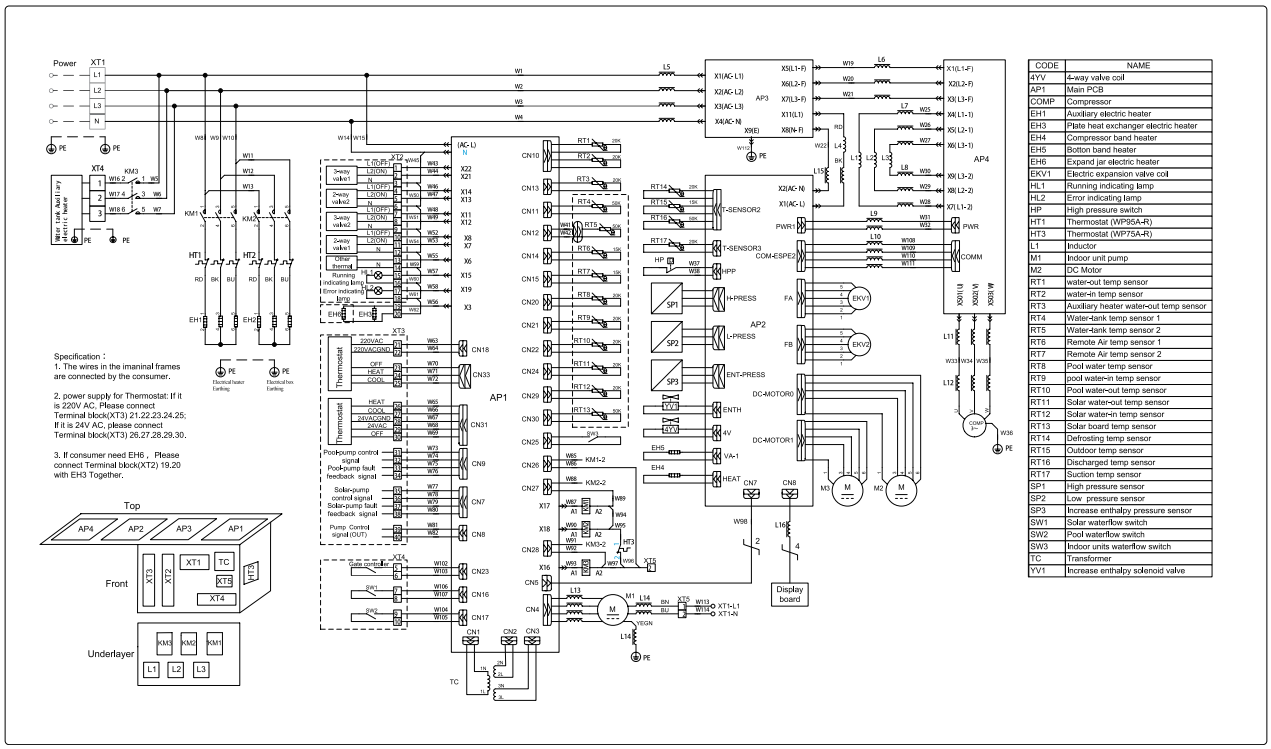
### 5.7.1 Wiring Diagram of the Monobloc Unit

◆ GRS-CQ8.0Pd/NaC-K, GRS-CQ10Pd/NaC-K




| CODE | NAME |
|---|---|
| AP1 | Main Board1 |
| AP2 | Main Board2 |
| AP3 | Main Board3 |
| AP4 | Main Board4 |
| COMP | Compressor |
| EH1 | Water side electrical heater1 |
| EH2 | Water side electrical heater2 |
| EH3 | Plate heat exchanger anti-freezing |
| EH4 | Compressor band heater |
| EH5 | Bottom band heater |
| EH6 | expansion tank heater |
| EKV1 | Electronic expansion valve coil1 |
| EKV2 | Electronic expansion valve coil2 |
| HL1 | Running indicating lamp |
| HL2 | Error indicating lamp |
| HP | High pressure switch |
| HT1 | Temperature limiter1 |
| HT2 | Temperature limiter2 |
| KM1 | Auxiliary electric heater 1 AC contactor |
| KM2 | Auxiliary electric heater 2 AC contactor |
| KM3 | Water tank Auxiliary electric heater AC contactor |
| L | Electrical Inductance |
| L1 | Electrical Reactance |
| L2 | Electrical Inductance 1 |
| L3~L9 | Magnetic ring |
| M1 | DC motor |
| M2 | Indoor unit pump |
| RT1 | Plate heat exchanger water-out temp sensor |
| RT2 | Plate heat exchanger water-in temp sensor |
| RT3 | Auxiliary heater leaving water temp sensor |
| RT4 | Water-tank temp sensor1 |
| RT5 | Water-tank temp sensor2 |
| RT6 | Remote room temp sensor1 |
| RT7 | Remote room temp sensor2 |
| RT8 | Pool water temp sensor |
| RT9 | Pool water-in temp sensor |
| RT10 | Pool water-outt temp sensor |
| RT11 | Solar water-out temp sensor |
| RT12 | Solar water-in temp sensor |
| RT13 | Solar Board temp sensor |
| RT14 | Defrosting temp sensor |
| RT15 | Outdoor temp sensor |
| RT16 | Discharged temp sensor |
| RT17 | Suction temp sensor |
| SP1 | High pressure sensor |
| SP2 | Low pressure sensor |
| SP3 | Enthalpy increasing pressure sensor |
| SW1 | Solar waterflow switch |
| SW2 | Swimming Pool waterflow switch |
| SW3 | Indoor units waterflow switch |
| TC | Transformer |
| XT1 | Terminal block(L,N,1,2) |
| XT2 | Terminal block(1~20) |
| XT3 | Terminal block(1~6) |
| XT4 | Terminal block(21~42) |
| YV1 | Increase Enthalpy solenoid valve |
| YV4 | 4-way valve coil |

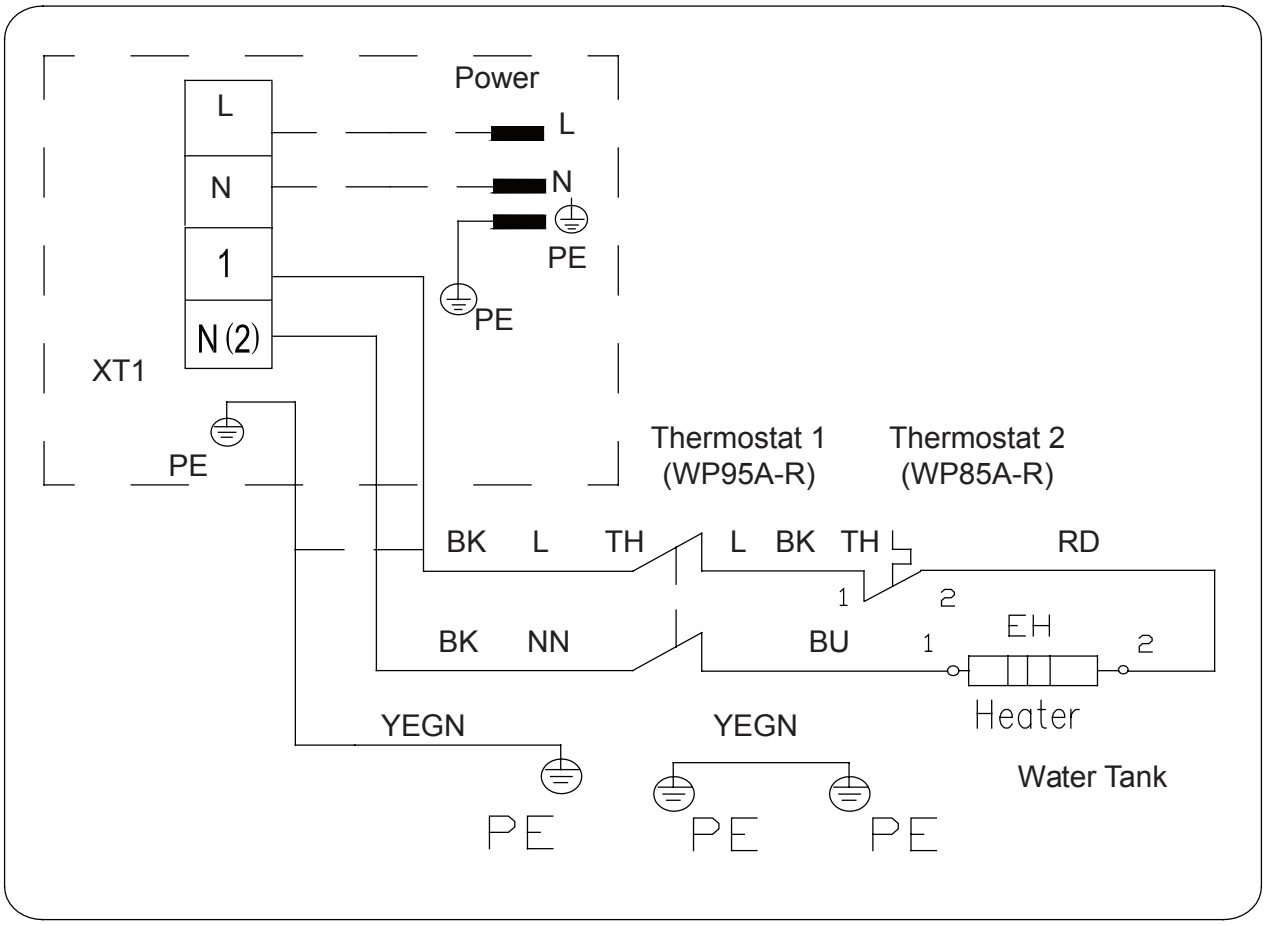
◆ GRS-CQ12Pd/NaC-M, GRS-CQ14Pd/NaC-M



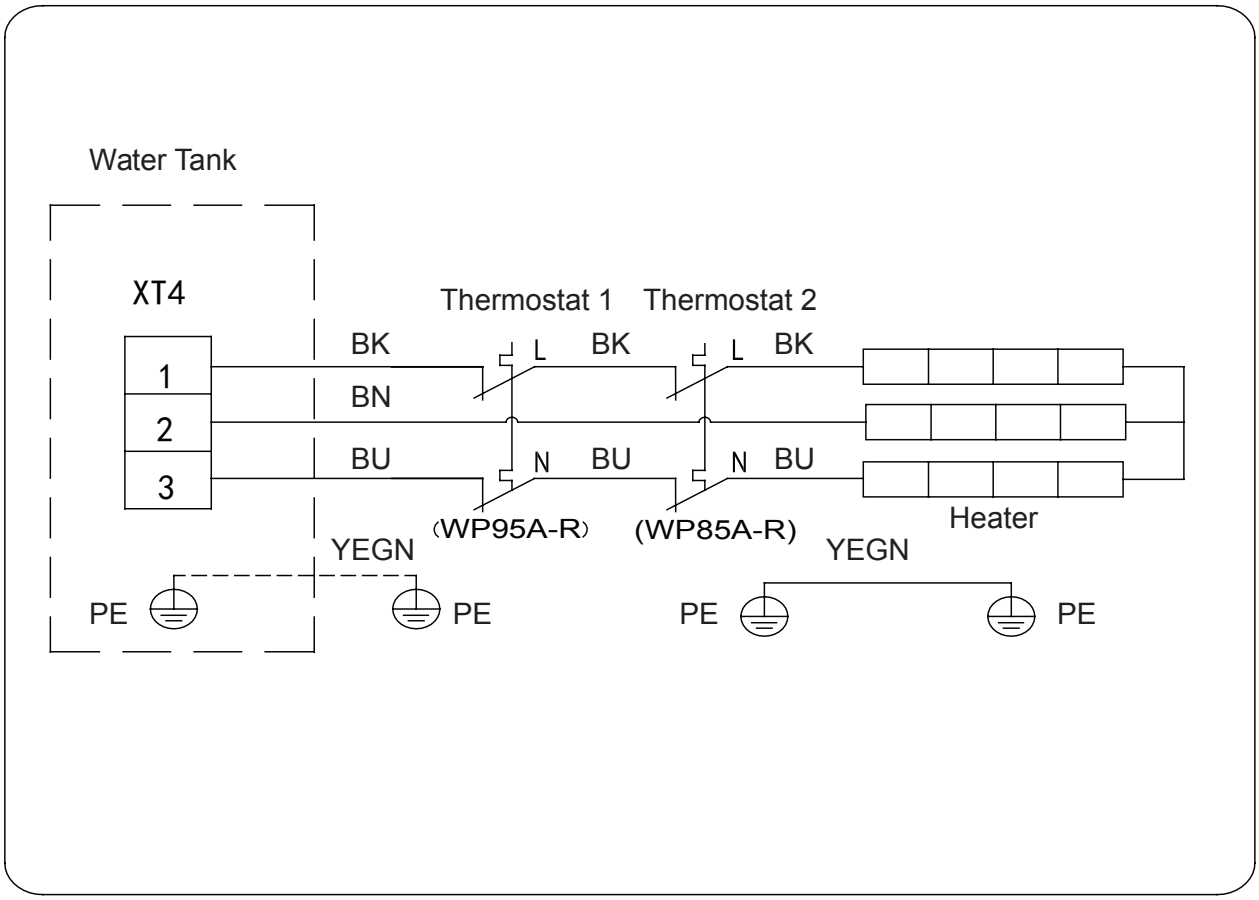

| CODE | NAME |
|---|---|
| 4YV | 4-way valve coil |
| AP1 | Main PCB |
| COMP | Compressor |
| EH1 | Auxiliary electric heater |
| EH3 | Plate heat exchanger electric heater |
| EH4 | Compressor band heater |
| EH5 | Botton band heater |
| EH6 | Expand jar electric heater |
| EKV1 | Electric expansion valve coil |
| HL1 | Running indicating lamp |
| HL2 | Error indicating lamp |
| HP | High pressure switch |
| HT1 | Thermostat (WP95A-R) |
| HT3 | Thermostat (WP75A-R) |
| L1 | Inductor |
| M1 | Indoor unit pump |
| M2 | DC Motor |
| RT1 | water-out temp sensor |
| RT2 | water-in temp sensor |
| RT3 | Auxiliary heater water-out temp sensor |
| RT4 | Water-tank temp sensor 1 |
| RT5 | Water-tank temp sensor 2 |
| RT6 | Remote Air temp sensor 1 |
| RT7 | Remote Air temp sensor 2 |
| RT8 | Pool water temp sensor |
| RT9 | pool water-in temp sensor |
| RT10 | Pool water-out temp sensor |
| RT11 | Solar water-out temp sensor |
| RT12 | Solar water-in temp sensor |
| RT13 | Solar board temp sensor |
| RT14 | Defrosting temp sensor |
| RT15 | Outdoor temp sensor |
| RT16 | Discharged temp sensor |
| RT17 | Suction temp sensor |
| SP1 | High pressure sensor |
| SP2 | Low pressure sensor |
| SP3 | Increase enthalpy pressure sensor |
| SW1 | Solar waterflow switch |
| SW2 | Pool waterflow switch |
| SW3 | Indoor units waterflow switch |
| TC | Transformer |
| YV1 | Increase enthalpy solenoid valve |

**5.7.2 Wiring Diagram of the Water Tank**

◆ Single Phase

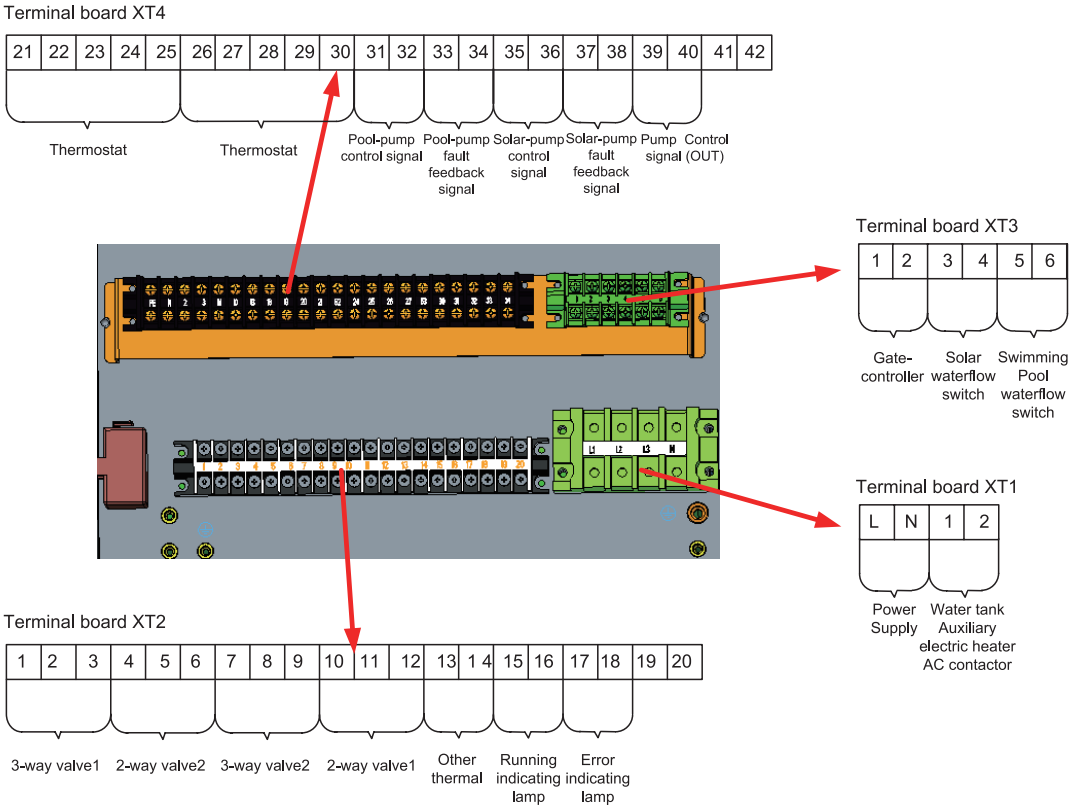



◆ Three Phase

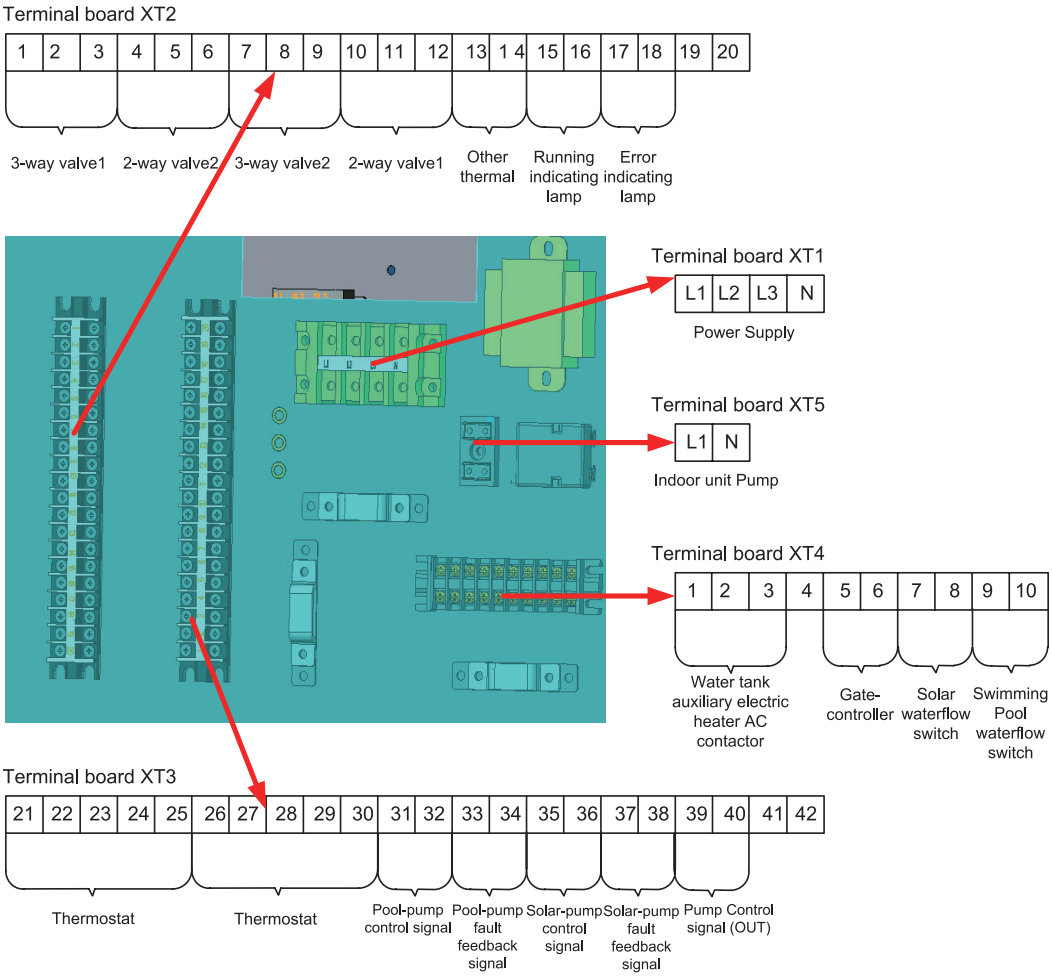


### 5.7.3 Wiring of the Terminal Board

- GRS-CQ8.0Pd/NaC-K,GRS-CQ10Pd/NaC-K

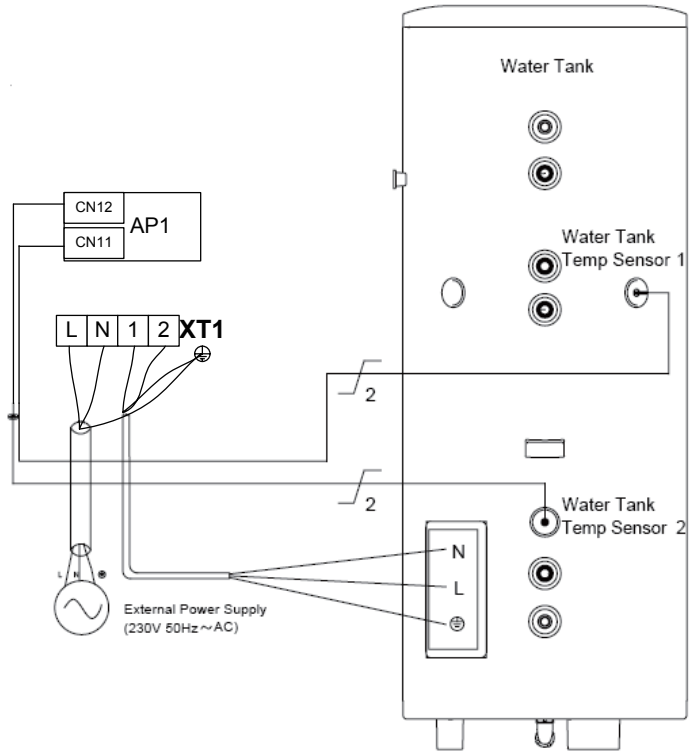



- GRS-CQ12Pd/NaC-M, GRS-CQ14Pd/NaC-M

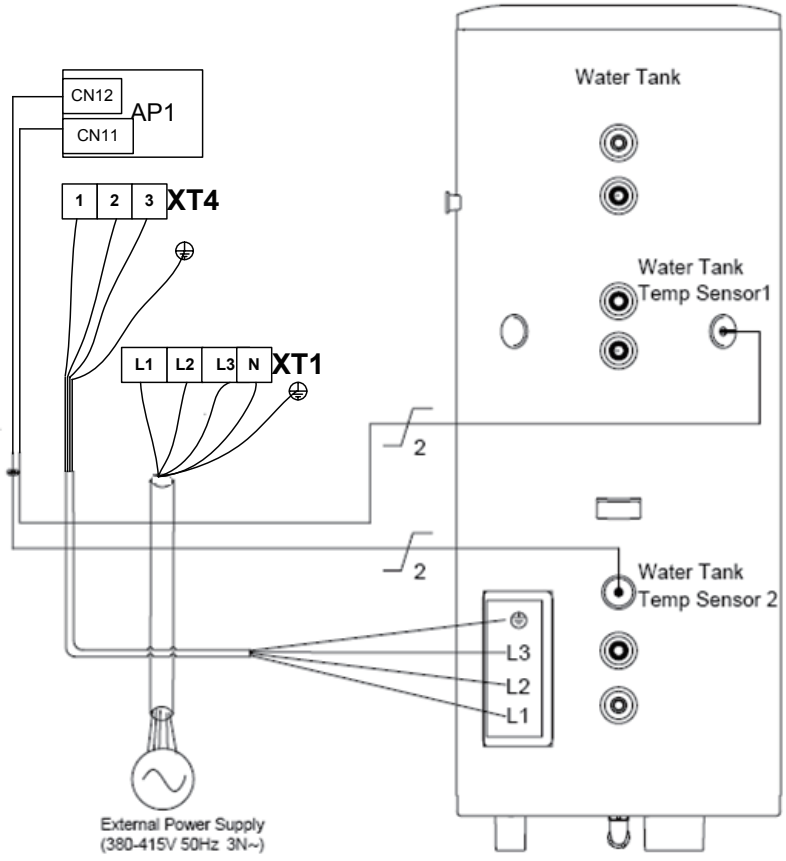


### 5.7.4 External Wiring

◆ GRS-CQ8.0Pd/NaC-K, GRS-CQ10Pd/NaC-K




◆ GRS-CQ12Pd/NaC-M, GRS-CQ14Pd/NaC-M




### 5.7.5 Wiring of the 2-Way Valve

There are two 2-way valve,the 2-way valve 1 is available and the 2-way vavle is reserved.The 2-way valve 1 is required to control water flow for cooling operation. The role of 2-way valve 1 is to cut off water flow into the underfloor loop when the fan coil unit is equipped for cooling operation.

General Information

| Type | Power | Operating Mode | Supported |
|---|---|---|---|
| NO 2-wire | 230V 50Hz ~AC | Closing water flow | Yes |
| | | Opening water flow | Yes |
| NC 2-wire | 230V 50Hz ~AC | Closing water flow | Yes |
| | | Opening water flow | Yes |

(1) Normal Open type. When electric power is NOT supplied, the valve is open. (When electric power is supplied, the valve is closed.)

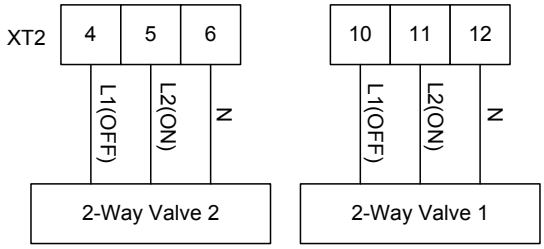
(2) Normal Closed type. When electric power is NOT supplied, the valve is closed. (When electric power is supplied, the valve is open.)

How to Wire 2-Way Valve:

Follow steps below to wire the 2-way valve.

Step 1. Uncover the front cover of the unit and open the control box.

Step 2. Find the terminal block and connect wires as below.




**⚠ WARING!**

① Normal Open type should be connected to wire (ON) and wire (N)for valve closing in cooling mode.

② Normal Closed type should be connected to wire (OFF) and wire (N)for valve closing in cooling mode.

(ON) : Line signal (for Normal Open type) from PCB to 2-way valve

(OFF) : Line signal (for Normal Closed type) from PCB to 2-way valve

(N) : Neutral signal from PCB to 2-way valve

The 2-way value 2 is reserved without any control program. At the field installation, it should be wired at the terminal board of the 2-way valve 1.

**5.7.6 Wiring of the 3-Way Valve**

There are two 3-way valve, the 3-way valve 1 is reserved and the 3-way valve 2 is available.The 3-way valve 2 is required for the sanitary water tank. Its role is flow switching between the under floor heating loop and the water tank heating loop.

General Information

| Type | Power | Operating Mode | Supported |
|---|---|---|---|
| SPDT 3-wire | 230V 50Hz ~AC | Selecting “Flow A” between “Flow A” and “Flow B” | Yes |
| | | Selecting “Flow B” between “Flow B” and “Flow A” | Yes |

(1) SPDT = Single Pole Double Throw. Three wires consist of Live1 (for selecting (for selecting Flow B), and Neutral (for common).

(2) Flow A means 'water flow from the monobloc unit to under floor water circuit'.

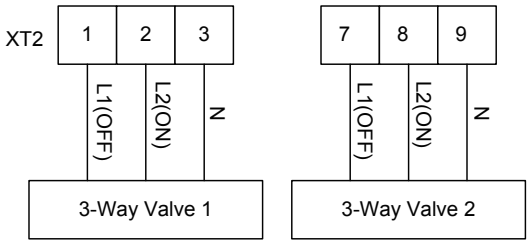
(3) Flow B means 'water flow from the monobloc unit to sanitary water tank'.

Follow steps below to wire the 3-way valve:

Follow below procedures Step 1 ~ Step 2.

Step 1. Uncover front cover of the unit and open the control box.

Step 2. Find terminal block and connect wire as below.



**WARING!**

① The 3-way valve should select water tank loop when electric power is supplied to wire (OFF) and wire (N).

② The 3-way valve should select under floor loop when electric power is supplied to wire (ON) and wire (N).

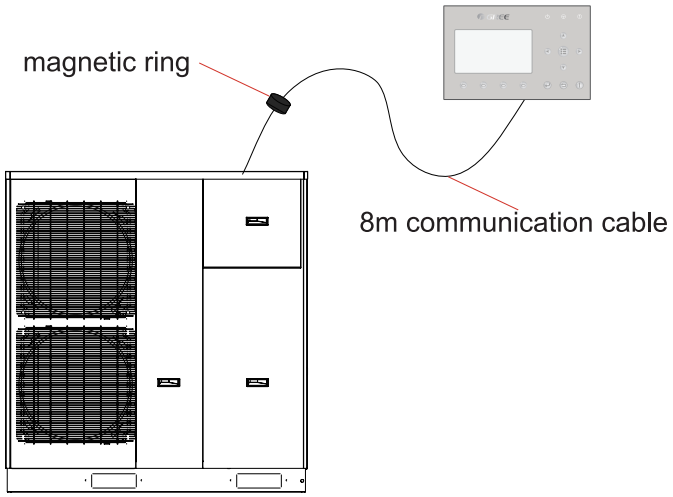
(ON): Line signal (Water tank heating) from the main board to the 3-way valve

(OFF): Line signal (Under floor heating) from the main board to the 3-way valve

(N): Neutral signal from the main board to the 3-way valve

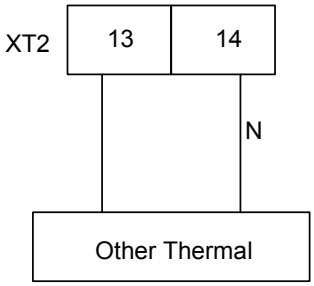
### 5.7.7 Wired Controller

Wired controller wiring guidance:




### 5.7.8 Wiring of Other Auxiliary Heat Sources

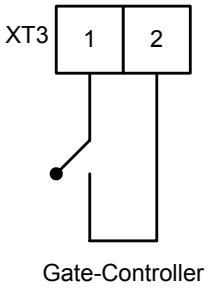
Other auxiliary heat sources are allowed for the equipment and controlled in such a way that the mainboard will output 230V when outdoor temperature is lower than the set point for startup of the auxiliary heat source.



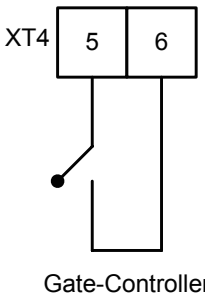

### 5.7.9 Wiring of the Gate-Controller

If there is gate control function,installation guide follow as:

◆ GRS-CQ8.0Pd/NaC-K,GRS-CQ10Pd/NaC-K



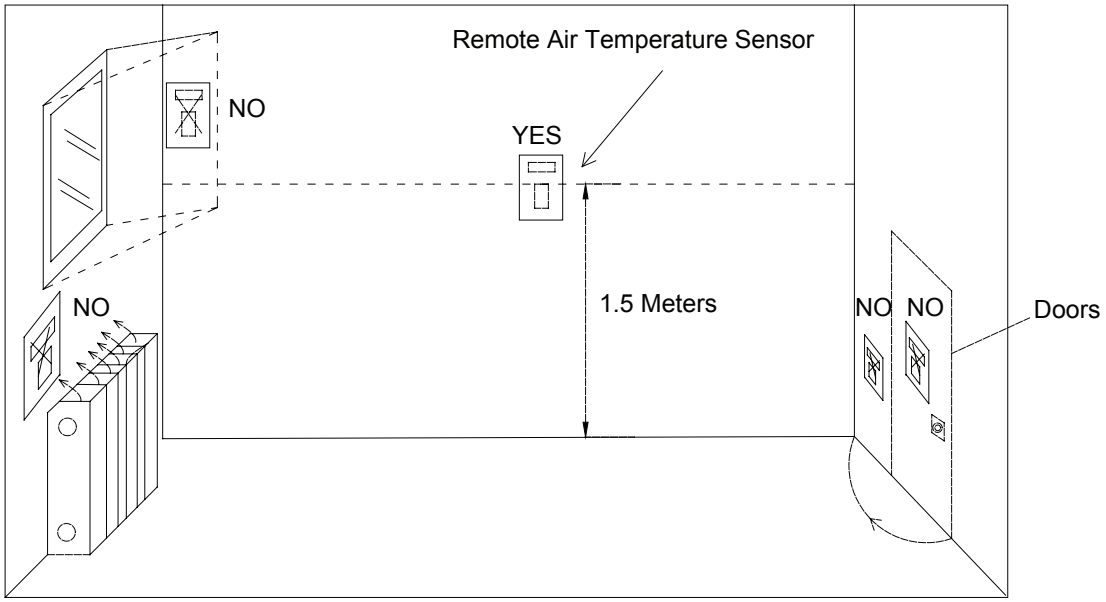

◆ GRS-CQ12Pd/NaC-M,GRS-CQ14Pd/NaC-M

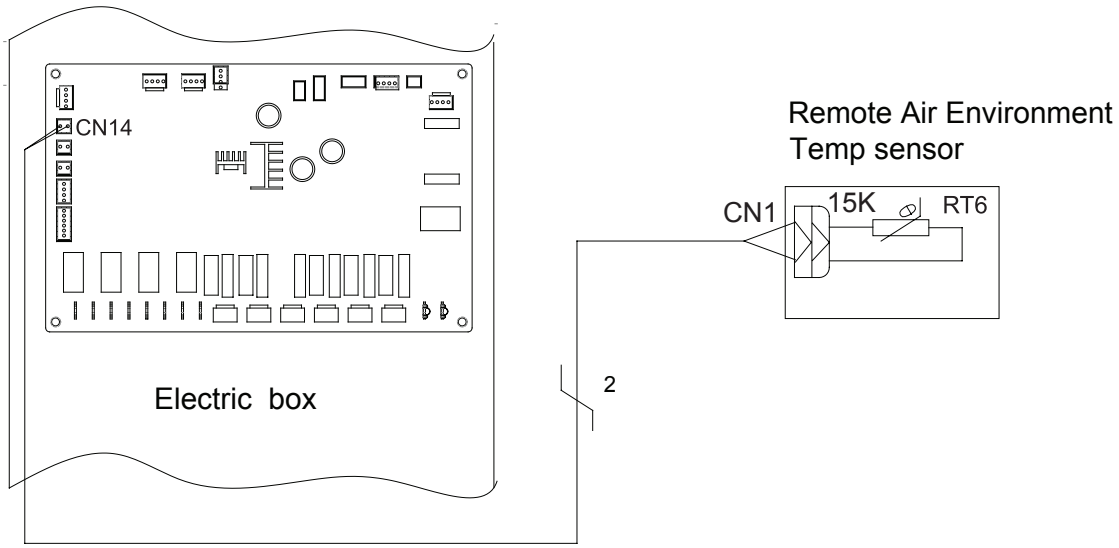


### 5.7.10 Wiring of the Remote Air Temperature Sensor

Front side

Back side




**Notes**

①Distance between the monobloc unit and the remote air temperature senor should be less than 15 meter due to length of the connection cable of remote air temperature sensor;

②Height from floor is approximately 1.5 meter;

③Remote air temperature sensor cannot be located where the area may be hidden when door is open;

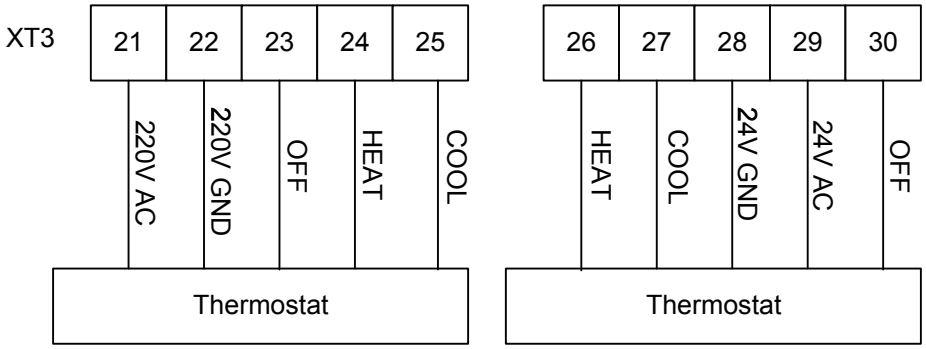
④Remote air temperature sensor cannot be located where external thermal influence may be applied;

⑤Remote air temperature sensor should be installed where space heating is mainly applied;

⑥After the remote air temperature sensor is installed, it should be set to “With” through the wired controller so as to set the remote air temperature to the control point.

**5.7.10 Wiring of the Thermostat**

Installation of the thermostat is very similar to that of the remote air temperature sensor.




**How to Wire Thermostat**

(1) Uncover the front cover of the monobloc unit and open the control box.

(2) Identify the power specification of the thermostat, if it is 230V , find terminal block XT3 asNO.21~25; Otherwise, if it is 24V, find terminal block XT3 as NO.26~30;

(3) If it is the heating/cooling thermostat, please connect wire as per the figure above;

**⚠CAUTION!**

① Never use 230V AC and 24V AC thermostat at the same time, otherwise, it will cause short circuit and power cut-off by the circuit breaker;

② Setting temperature by the thermostat(heating or cooling) should be within the temperature range of the product ;

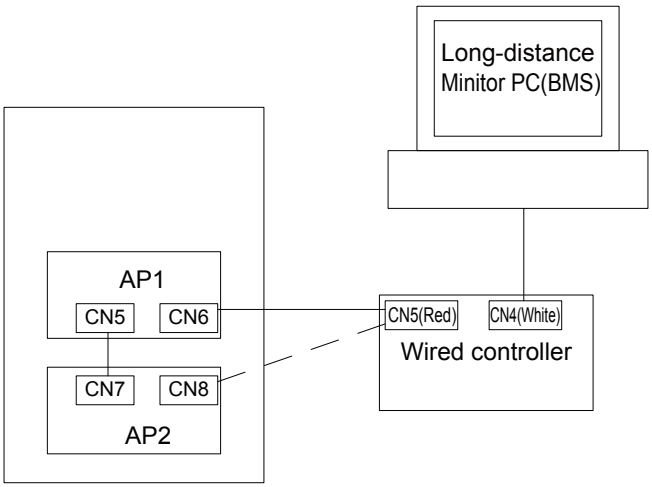
③ For other constrains, please refer to previous pages about the remote air temperature sensor;

④ Do not connect external electric loads. Wire L and N should be used only for the electric thermostat.

⑤ Never connect external electric loads such as valves, fan coil units, etc. If connected, the mainboard of the indoor unit can be seriously damaged.

⑥ Installation of the thermostat is very similar to that of the remote air temperature sensor.

**5.7.11 Wiring of the Control**




**Notes**

①The wired controller can be connected to the terminal of AP1 CN6 or AP2 CN 8 through the four-wire communication line.

②AP1 (CN 5) and AP2 (CN 7) have been connected with the communication line (three-wire communication line before delivery.

③The remote monitoring device can be connected to the CN4 of the wired controller through a four-wire communication line.

# 6 Commissioning and Trial Run

## 6.1 Check before startup

For safety of users and unit, the unit must be started up for check before debugging. The procedures are as below:

| The following items shall be performed by qualified repair persons. | | |
|---|---|---|
| Confirm together with the sales engineer, dealer, installing contractor and customers for the following items finished or to be finished. | | |
| **No.** | **Confirmation of Installation** | √ |
| 1 | If the contents of Application for Installation of this Unit by Installer are real. If not, debugging will be refused. | □ |
| 2 | Is there written notice in which amendment items are shown in respect of unqualified installation? | □ |
| 3 | Are Application for Installation and Debugging list filed together? | □ |
| **No.** | **Pre-check** | √ |
| 1 | Is appearance of the unit and internal pipeline system ok during conveying, carrying or installation? | □ |
| 2 | Check the accessories attached with the unit for quantity, package and so on. | □ |
| 3 | Make sure there is drawings in terms of electricity, control, design of pipeline and so on. | □ |
| 4 | Check if installation of the unit is stable enough and there is enough space for operation and repair. | □ |
| 5 | Completely test refrigerant pressure of each unit and perform leakage detection of the unit. | □ |
| 6 | Is the water tank installed stably and are supports secure when the water tank is full? | □ |
| 7 | Are heat insulating measures for the water tank, outlet/inlet pipes and water replenishing pipe proper? | □ |
| 8 | Are the nilometer of water tank, water temperature indicator, controller, manometer, pressure relief valve and automatic discharge valve etc. installed and operated properly? | □ |
| 9 | Does power supply accord with the nameplate? Do power cords conform to applicable requirements? | □ |
| 10 | Is power supply and control wiring connected properly according to wiring diagram? Is earthing safe? Is each terminal stable? | □ |
| 11 | Are connection pipe, water pump, manometer, thermometer, valve etc. are installed properly? | □ |
| 12 | Is each valve in the system open or closed according to requirements? | □ |
| 13 | Confirm that the customers and inspection personnel of Part A are at site. | □ |
| 14 | Is Installation Check-up Table completed and signed by the installation contractor? | □ |
| Attention: If there is any item marked with ×, please notify the contractor. Items listed above are just for reference. | | |

| Confirmed Items after pre-checking | |
|---|---|
| | **General Evaluation: Debugging** □ **Amendment** □ |
| | Judge the following items (if there is not any filling, qualification will be regarded.) |
| | a: Power supply and electric control system b: Loading calculation |
| | c: Heating problems of Unit d: Noise problem |
| | e: Pipeline problem f: Others |
| | Normal debugging work can't be performed unless all installation items are qualified. If there is any problem, it must be solved firstly. The installer will be responsible for all costs for delay of debugging and re-debugging incurred by any problem which is not solved immediately. |
| | Submit schedule of amending reports to installer. |
| | Is the written amending report which should be signed after communication provided to installer? |
| | Yes ( ) No ( ) |

## 6.2 Test run

Test run is testing whether the unit can run normally via preoperation. If the unit cannot run normally, find and solve problems until the test run is satisfactory. All inspections must meet the requirements before performing the test run. Test run should follow the content and steps of the table below:

| The following procedure should be executed by experience and qualified maintenance men. | |
|---|---|
| **No.** | **Start up the pretest procedure** |
| Notice: before test, ensure that all power must be cut off, including the far- end power switch, otherwise, it may cause casualty. | |
| **1** | Ensure that the compressor of the unit is preheated for 8h. |
| ⚠Caution: heat the lubricating oil at least 8h in advance to prevent refrigerant from mixing with the lubricating oil, which may cause damage to the compressor when starting up the unit. | |
| **2** | Check whether the oil temperature of the compressor is obviously higher than the outdoor ambient temperature. |
| ⚠Caution: if the oil temperature of the compressor is obviously higher than the outdoor ambient temperature, it means that the heating tape of compressor is damaged. In that case, the compressor will be damaged easily. Therefore, repair the heating tape before using the unit. | |
| **3** | Check whether the phase sequence of the main power supply is correct. If not, correct the phase sequence firstly. |
| ⚠Recheck the phase sequence before start-up to avoid reverse rotation of the compressor which may damage the unit. | |
| **4** | Apply the universal electric meter to measure the insulation resistance between each phase and earth as well as between phases. |
| ⚠Caution: defective earthing may cause electric shock. | |
| **No.** | **Ready to start** |
| **1** | Cut off all temporary power supply, resume all the insurance and check the electricity for the last time. |
| | Check the power supply and voltage of the control circuit; _____V must be ±10% within the range of rated operating power. |
| **No.** | **Start up the unit** |
| **1** | Check all the conditions needed to start up the unit: oil temperature, mode, required load etc. |
| **2** | Start up the unit, and observe the operation of compressor, electric expanding valve, fan motor and water pump etc. |
| | Note: the unit will be damaged under abnormal running state. Do not operate the unit in states of high pressure and high current. |
| Others: | |

| | |
|---|---|
| **Items for acceptance after debugging** | Estimation or suggestion on the general running situation: good, modify |
| | Identify the potential problem (nothing means the installation and debugging are in accordance with the requirements.) |
| | a. problem of power supply and electric control system:<br>b. problem of load calculation: |
| | c. refrigerant system:<br>d. noise problem: |
| | e. problem of indoor and piping system:<br>h. other problems: |
| | During operation, it is needed to charge for the maintenance due to non-quality problems such as incorrect installation and maintenance. |
| | **Acceptance** |
| | Is the user trained as required? Please sign. Yes( ) No( ) |

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