

The power behind competitiveness

Delta InfraSuite Precision Cooling

RowCool

Air Cooled Type (RWD030R)

User Manual

SAVE THIS MANUAL

This manual contains important instructions and warnings that you should follow during the installation, operation, storage and maintenance of this product. Failure to heed these instructions and warnings will void the warranty.

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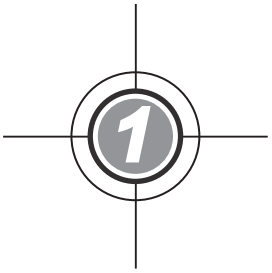
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Guide for Safe Operation

1.1 Safety Instructions

1.2 Installation Instructions

1.3 Instructions for Use

1.1 Safety Instructions

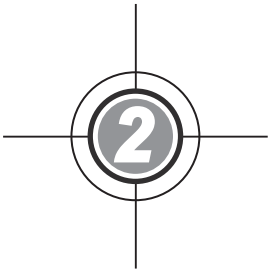
- Carefully read all chapters of the Manual before any installation, operation, or maintenance. To avoid personal injury and equipment damage, be sure to operate the product in accordance with the instructions in this Manual and the markings on the cabinet.
- When moving the equipment, the unit should only be moved by at least two people so as to guarantee safety.
- In handling or removal of the equipment, pay attention to its height and center of gravity. When using a transportation tool for handling, it must be raised from the bottom to avoid toppling.
- The unit contains moving components. Be careful to keep it away from your arms, legs, hair, clothes or jewelry so as to avoid any danger.

1.2 Installation Instructions

- The unit can be connected with a single or dual power source. Make sure the input power is disconnected before making a connection. If necessary, use a multi-meter to confirm this.
- Installation area must not have flammable objects, and the equipment must be installed on a stable floor.
- This unit is only intended for indoor use. The indoor environment must be separated from the outside air so as to avoid temperature and humidity interference. Consult the national or local regulations for separating the installation environment.
- All specifications such as connection and length of cables must be in compliance with local or national laws and regulations.

1.3 Instructions for Use

- The high voltage and high-pressure refrigerant in the equipment can cause personal injuries! The inner components may have hidden dangers and only qualified service personnel can operate the unit. Improper operation may lead to serious injury or death or equipment damage. Be sure to follow all the instructions and warnings contained in the Manual.
- When replacing the side panels or front or back doors, make sure there is no foreign matter in the cabinet.



Introduction

2.1 Product Introduction

2.2 Function and Feature

2.3 Packing List

2.4 Optional Accessories

2.5 Appearance

2.6 Components Identification

2.7 System Diagram

2.1 Product Introduction

The Delta InfraSuite RowCool Precision Cooling Unit (Refrigerant Type) adopts a parallel cabinet design and can be set in an area adjacent to a heat load. Its high cooling efficiency can create an effect of dropping temperature. The modularized design facilitates expansion or movement and can be flexibly integrated into your data center environment. With enlargement of your data centers, increased cooling needs can be met by easy re-configuration or addition of the equipment.

When installed in a data center, the untreated air will be sucked in from the rear of the cooling unit and the air, after treatment, will be released from the front of the unit to achieve the aim of cooling.

You can manage your cooling unit via a user-friendly interface. The cooling efficiency can be actively controlled by its built-in MCU and it will remind you of any abnormality via the alarm system so as to guarantee normal operation.

2.1.1 Model-number Nomenclature

The tables describe the 15-digit configuration number.

NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Model No	R	W	D	0	3	0	R	S	A	5	2	1	0	3	5

NO 1 ~ 3	**Product**	RWD	Indoor unit of RowCool DXA series
		RDA	Outdoor unit of RowCool DXA series
NO 4 ~ 6	**Capacity**	030	30kW
NO 7	**Series**	R	R Series
NO 8	**System**	S	Single
NO 9	**Type**	A	Horizontal Airflow, Top and Bottom Pipe
NO 10	**Function**	0	Single Power
		5	ATS
NO 11	**Function**	2	Gravity Drain
		3	Pump Drain
NO 12	**Filter**	1	Merv.1 Filter
NO 13 ~ 15	**Internal use**	035	Internal use

2.2 Functions & Features

- **Intelligent temperature and humidity control**

  Accurate detection and management of the data center's temperature and humidity by the built-in MCU.

- **User-friendly control interface**

  With the 10" color touch panel, users can easily set and monitor all aspects of system status.

- **DC variable frequency compressor**

  High efficiency DC variable frequency compressor.

  When the heat load changes, the compressor can change within the range of 20 — 100% correspondingly, to keep the temperature static and save energy.

- **Indoor fan**

  The high efficiency indoor EC fan makes variable air volume control reflect the change in the heat load, to reduce unnecessary energy consumption.

- **Outdoor fan**

  The high efficiency and low noise outdoor fan adjusts according to different weather conditions, in order to reduce unnecessary energy consumption and increase system stability.

- **Elastic Piping**

  The R-45 series can support upper and lower piping at the same time, to flexibly accommodate pipeline configuration in the machine room.

- **Alarm system**

  Detection of abnormality and reminding the user via a buzzer or an external dry contract device.

- **Detection of heat load temperature**

  The remote sensor enables you to keep precise track of heat load, temperature, and humidity.

- **Output and input dry contacts**

  One output and one input dry contact each for fire alarm, smoke alarm, system alarm, etc.

- **Lockable front and rear doors**

  Prevent any unauthorized operation.

- **Casters**

  For convenient movement or relocation.

- **Pressure switches**

  The compressor is automatically stopped when the pressure of the refrigerant system detected through the pressure switch is too high or too low, so the system doesn't continue operating and thus result in danger or damage.

- **Refrigerant pressure transducer**

  The pressure transducer helps forecast system status as early as possible, to prevent abnormalities.

2.3 Packing List

PAC

No.	Item	Quantity
❶	Delta InfraSuite RowCool Precision Cooling Unit	1
❷	User manual	1
❸	Key (Front doors)	2
❹	Key (Rear doors)	3
❺	Cable gland (Power input)	2
❻	Cable gland (Signal)	1
❼	Cable tie	3
❽	Stainless steel cable tie (For humidifier's water inlet)	1
❾	Stainless steel cable tie (For forced drainage)	1
❿	Snap bushing (For humidifier's water inlet)	3
⓫	Snap bushing (For Lower power feed)	2
⓬	Snap bushing	3
⓭	Snap bushing (For Lower signal port)	1
⓮	Snap bushing (For upper gas pipe)	1
⓯	Snap bushing (For upper liquid pipe)	1
⓰	M6 screw	2

Outdoor unit

No.	Item	Quantity
❶	M6 screw	32
❷	Cable tie	3

2.4 Optional Accessories

For purchase of the following optional accessories, please contact service personnel.

- **G1 (Merv 1) air filter:**

  The G1 (Merv 1) air filter is optional.

- **Humidifier:**

  An electrode or wet membrane humidifier may be configured; it provides humidity control and supports upper and lower water input modes.

- **Heater:**

  An electrical heater may be configured; it provides a good dehumidification function.

- **Remote temperature and humidity sensor:**

  Monitors the air temperature and humidity of the cold and hot signal paths or important locations in the machine room.

- **Condensed water pump:**

  The condensed water pump may be set up at the bottom of the cabinet to automatically discharge condensed water out of the unit.

- **Air deflector:**

  Can be adjusted to different angles, so that the out-going airflow may be reoriented.

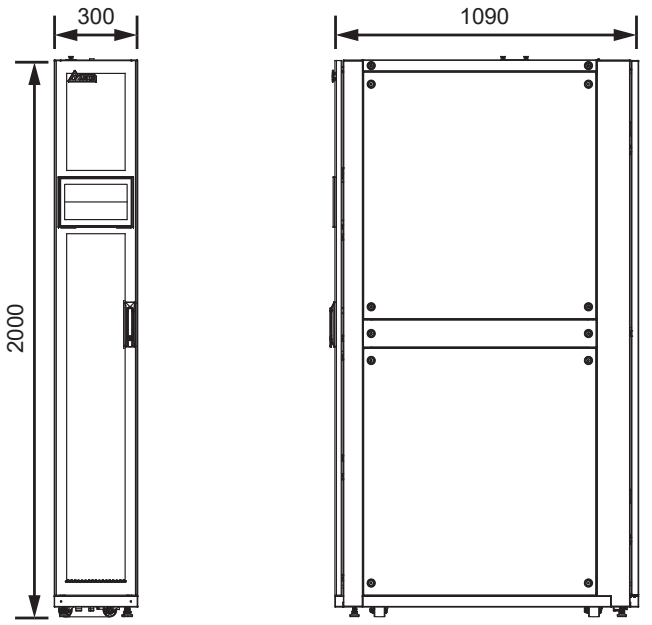
- **Leakage detection**

  A water leakage detector may be configured; it will immediately inform the user of any water leakage so as to protect the safety of the equipment.

- **Dual power source design**

  A dual power source design may be configured. This offers two input power sources, and when either one experiences a circuit break, facilitates automatic switching to the other source, thus further ensuring operational stability of the unit.

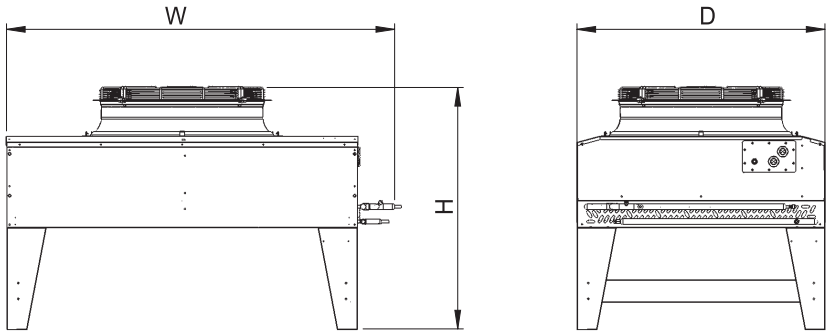
2.5 Appearance



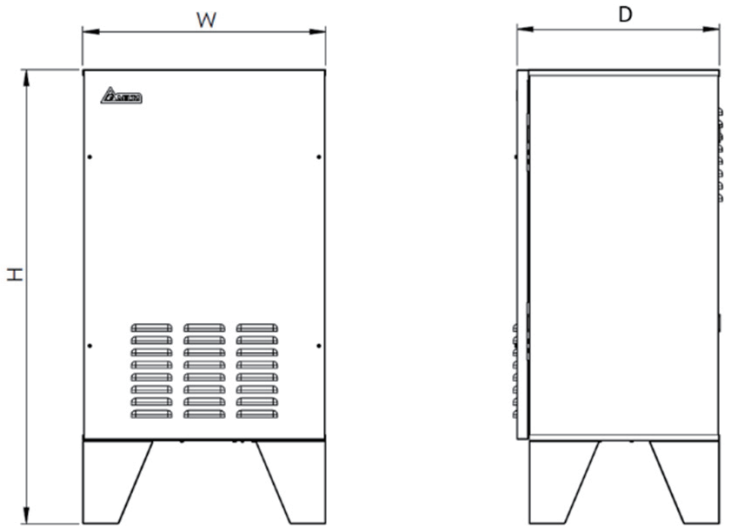
Unit: mm

(Figure 2-1: (Appearance and dimensions of the inner unit)

For RDA037 Model:



For RDA0304 Model:



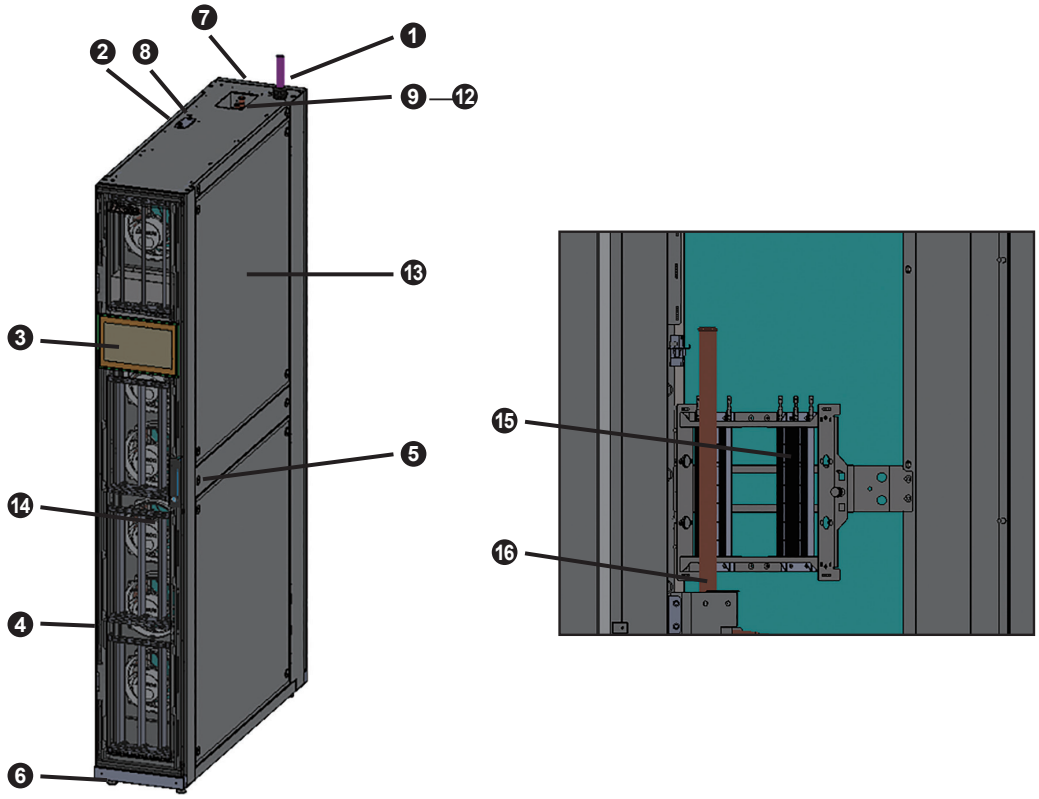
(Figure 2-2: (Outer unit appearance and dimensions)

Unit: mm

Model	Specifications		
	D	W	H
RDA037	1100	1725	1120
RDA0304	500	600	1107

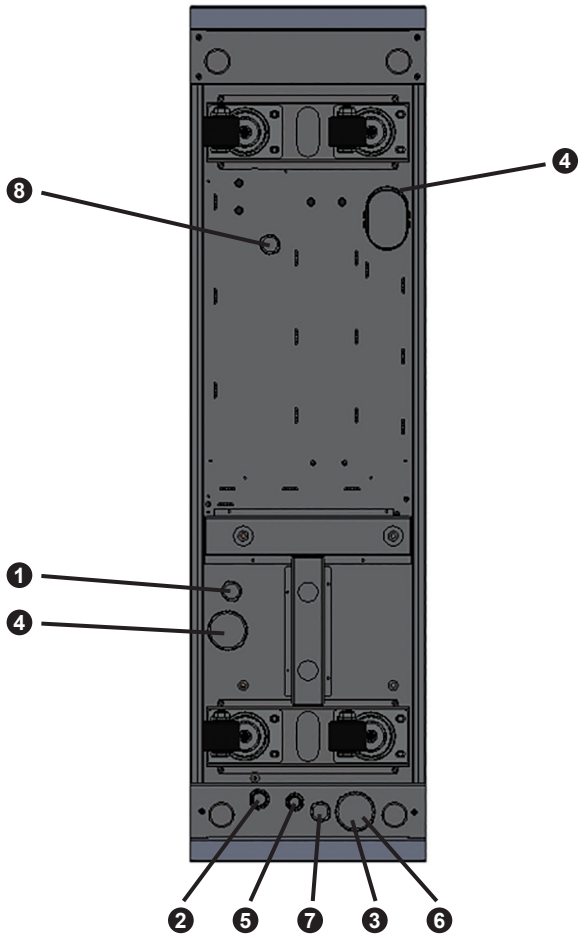
2.6 Components Identification

Indoor unit exterior



(Figure 2-3: Illustration of main external components)

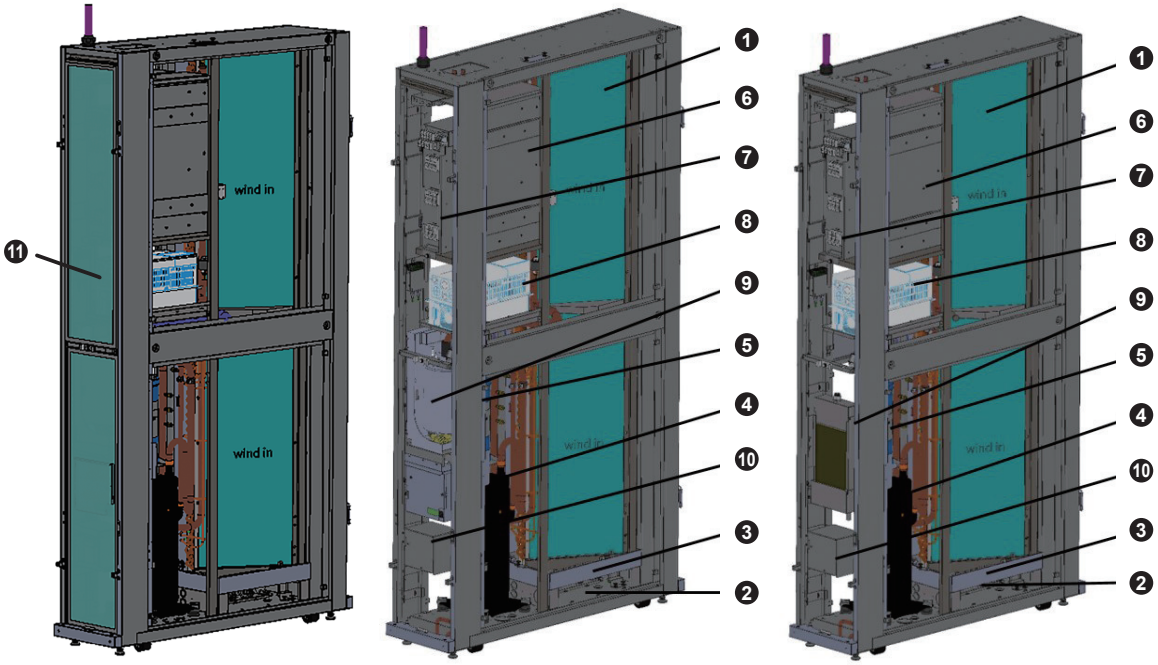
No.	Item	No.	Item
❶	In-coming power source	❾	Upper water inlet hole of humidifier
❷	Communication wiring duct	❿	Upper drain hole
❸	Touch screen monitor	⓫	Upper refrigerant inlet hole
❹	Front door	⓬	Upper refrigerant outlet hole
❺	Front door lock	⓭	Detachable side panel
❻	Leveling feet	⓮	Indoor fan
❼	Outer unit power source	⓯	Electrical heater
❽	Outer unit signal	⓰	Humidifying steam outlet pipe



(Figure 2-4: Illustration of main external components [lower view])

No.	Item	No.	Item
❶	Lower water inlet hole of humidifier	❺	Lower refrigerant inlet hole
❷	Lower refrigerant outlet hole	❻	Lower outer unit power source
❸	Lower in-coming power source	❼	Lower outer unit signal
❹	Lower gravity drain hole	❽	Water leakage detector outlet

Indoor unit interior

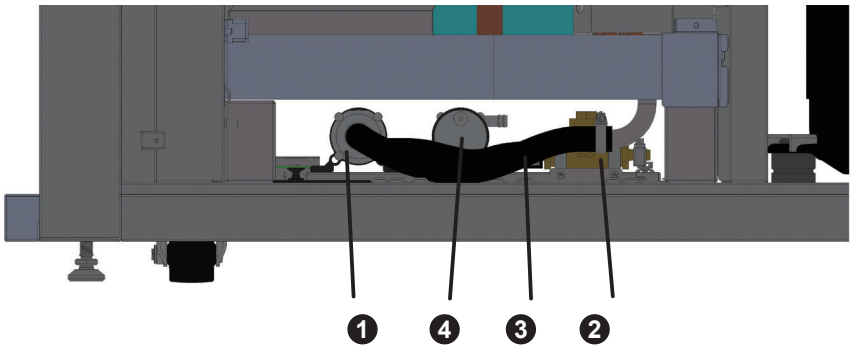


(Figure 2-5: Illustration of main internal components)

No.	Item	No.	Item
❶	Evaporator	❼	Main power board
❷	Drain pump*	❽	Inverter
❸	Water pan	❾	Humidifier*
❹	Compressor	❿	DC Choke
❺	Oil separator	⓫	Air filter
❻	Electrical box		

*Depends on model configuration

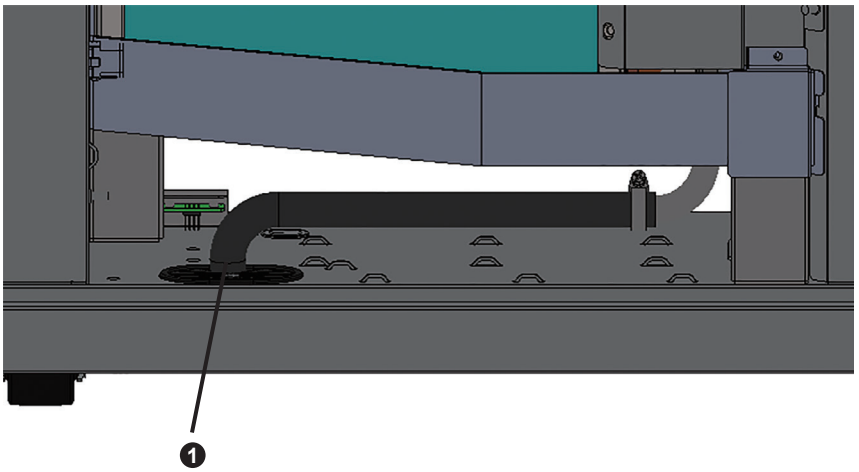
Forced drainage



(Figure 2-6: Illustration of internal components for forced drainage)

No.	Item
1	Drain pump*
2	Check valve*
3	Drain pipe
4	Humidification pump*

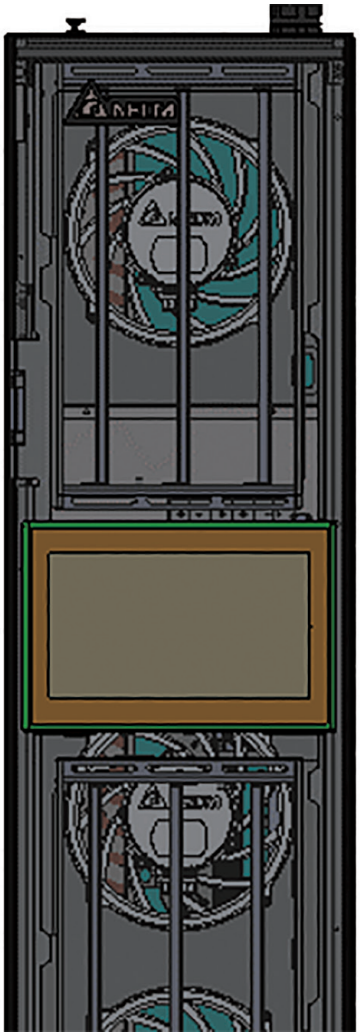
Gravity drainage

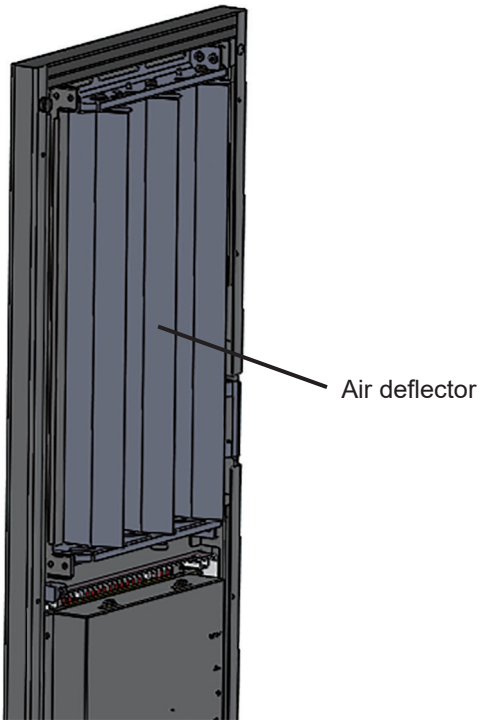


(Figure 2-7: Illustration of internal components for gravity drainage)

No.	Item
1	Drain pipe

Air deflector



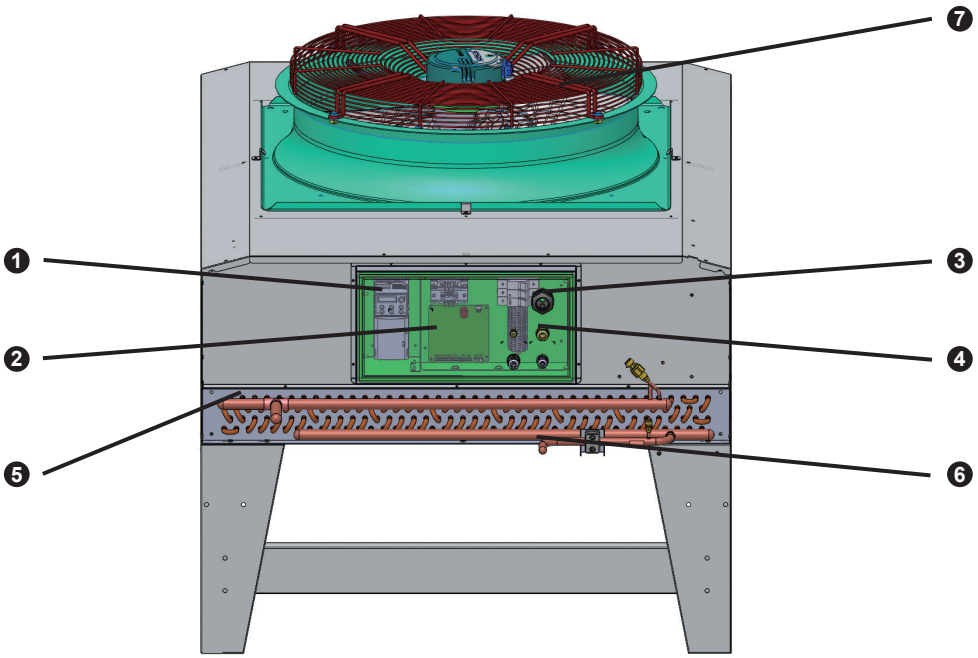


The air deflector may be adjusted to five positions to the left or to the right.

(Figure 2-8: Illustration of air deflector)

Outdoor unit

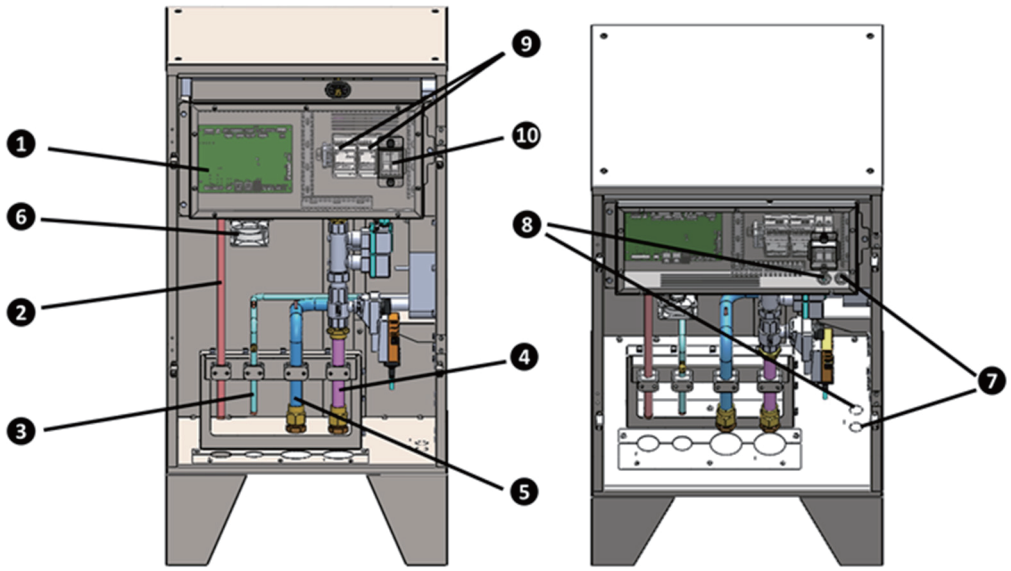
FOR RDA037 MODEL:



(Figure 2-9-1: Illustration of Outdoor unit)

No.	Item	No.	Item
❶	Inverter	❺	Refrigerant discharge pipe
❷	Control board	❻	Coolant liquid pipe
❸	In-coming power source	❼	Outdoor fan
❹	Signal hole		

FOR RDA0304 MODEL:



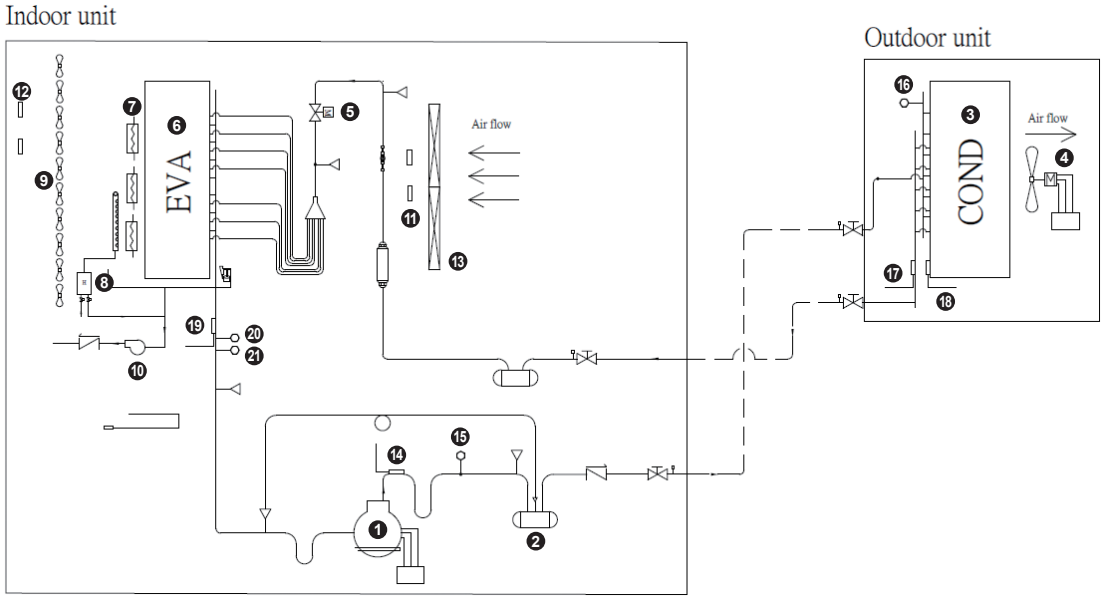
(Figure 2-9-2: Illustration of Outdoor unit)

No.	Item	No.	Item
❶	Control board	❻	Indoor fan
❷	Refrigerant air pipe	❼	Power hole
❸	Refrigerant liquid pipe	❽	Signal hole
❹	Water outlet pipe	❾	Power supply unit
❺	Water inlet pipe	❿	Breaker

2.7 System Diagram

FOR RDA037 MODEL:

Outdoor unit

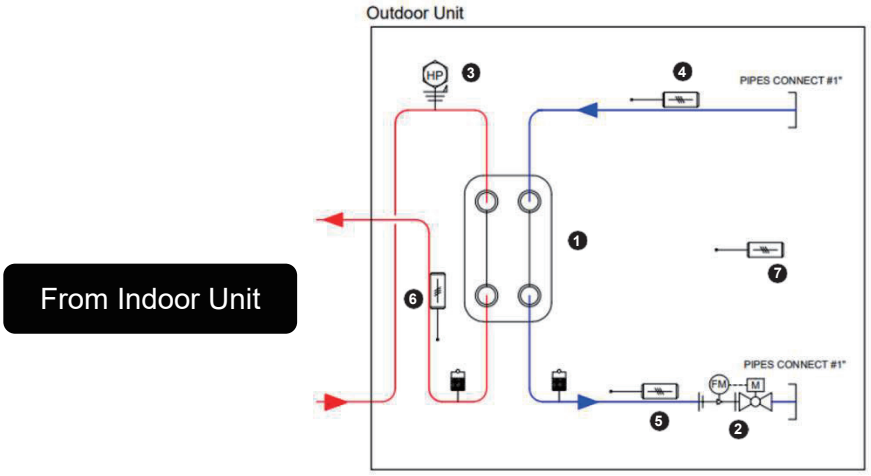


(Figure 2-10: Pipe circuit diagram)

No.	Item	No.	Item
❶	Compressor	⓬	Supply sensor
❷	Oil separator	⓭	Air filter
❸	Condenser coil	⓮	Discharge temperature sensor
❹	Outdoor fan	⓯	High pressure switch
❺	Expansion valve	⓰	Discharge pressure transducer
❻	Evaporator coil	⓱	Liquid temperature sensor
❼	Electrical heater	⓲	Ambient temperature sensor
❽	Humidifier*	⓳	Suction temperature sensor
❾	Indoor fan	⓴	Suction pressure transducer
❿	Drain pump*	㉑	Low pressure switch
⓫	Return sensor		

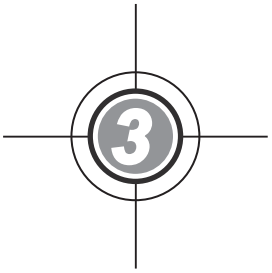
*Depends on model configuration

FOR RDA0304 MODEL:



(Figure 2-11: Pipe circuit diagram)

No.	Item	No.	Item
❶	Plate Heat Exchanger	❺	Water Outlet temperature sensor
❷	PICV	❻	Liquid temperature sensor
❸	Discharge pressure transducer	❼	Ambient temperature sensor
❹	Water inlet temperature sensor		



Installation

3.1 Installation Site

3.2 Installation of Pipeline

3.3 Connection of Cables

3.4 System Management

WARNING: Only service personnel can perform the following installation procedures. No installation, piping or handling should be performed without authorization so as to avoid equipment damage and personal injury.

WARNING: The high voltage and high-pressure refrigerant in the equipment can be fatal! The inner components have potential dangers and only qualified service personnel can perform wiring and piping.

For detailed information on installation, refer to the Installation Manual. The User Manual contents are for reference only.

3.1 Installation Site

When planning the installation site for the cooling unit, you must take the following into consideration so as to guarantee the best efficiency.

Environmental requirements: The installation site must allow the equipment to move in and out, the flooring must have sufficient bearing capacity, and there is a sufficient space for maintenance, operation, and pipe layout and repair. The indoor environment must be isolated from the outside air to avoid temperature and humidity interference. The outside humidity entry must be minimized in accordance with the local or national regulations so as to avoid the increase of operation costs due to temperature differences increasing the heat load temperature.

Please contact Delta to ensure compliance with the installation and use specifications when operating at an altitude of 1000 meters or more.

Humidity and heat source: Implement water-proof and heat insulation engineering for the indoor environment so as to isolate the outside humid hot air. NOTE: If the humidity of the installation environment exceeds the operation scope, there may be excessive coil condensation, since the standard model of this equipment is unable to humidify or dehumidify. This equipment is of the highly sensible heat design. With a low load or poor air-tightness, excessive humidity is likely; use auxiliary dehumidifying equipment in these situations.

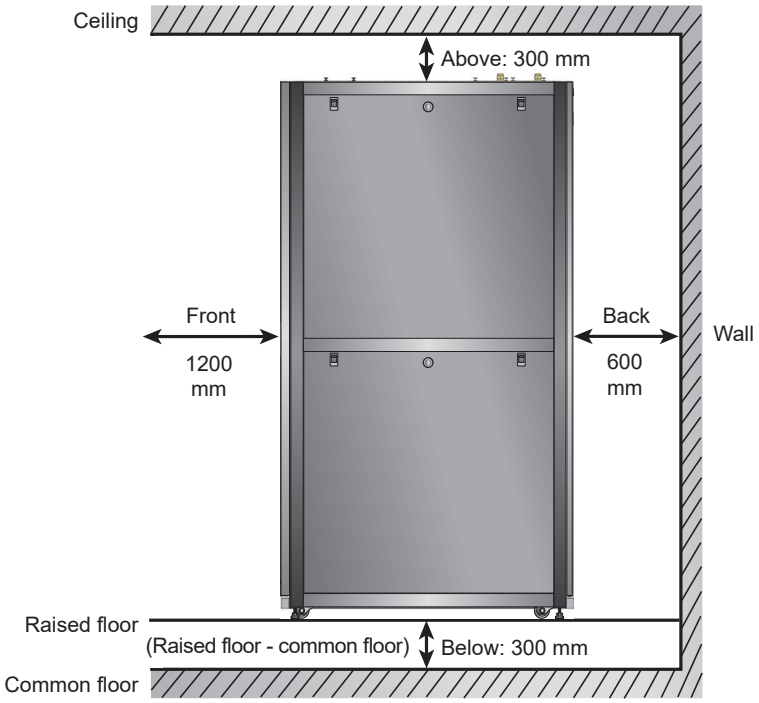
Noise impact: At a high load, the operation of this cooling unit may produce loud noise. Therefore, it is not suitable to install the unit close to offices.

Input power: In connecting the power supply, make sure that the power conforms to the rated value and the power distribution device is sufficient to satisfy the load requirement. Inspect the rated values of each unit and make sure they have been properly grounded. Do not connect more than one cooling unit to the same branch circuit or power distribution equipment.

3.1.1 Clearance zone

- **Indoor unit**

In order to facilitate maintenance, operation, and air circulation, reserve a net space around the equipment.



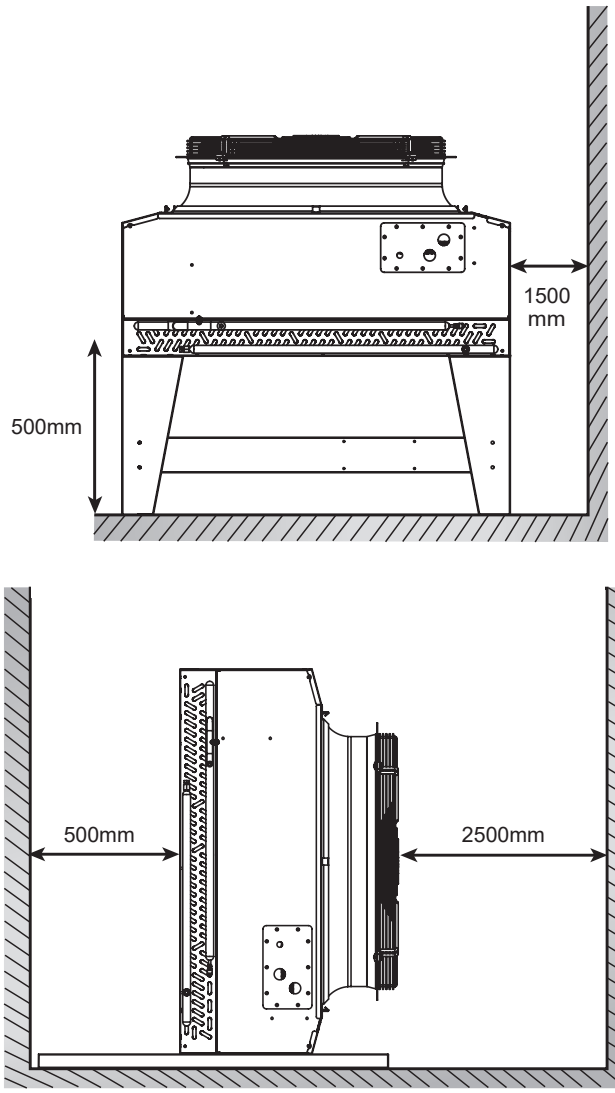
(Figure 3-1: Inner unit clearance)

It is recommended to preserve 1200 mm in the front communication aisle, 600 mm in the rear aisle, and at least 300 mm above the cabinet to facilitate wiring and piping. If lower piping is adopted, the height of the raised floor should not be lower than 300 mm. If upper piping is adopted, the equipment can be set on a common floor.

- **Outdoor unit**

FOR RDA037 MODEL:

It is suggested to preserve 2500 mm in the area above the fan.



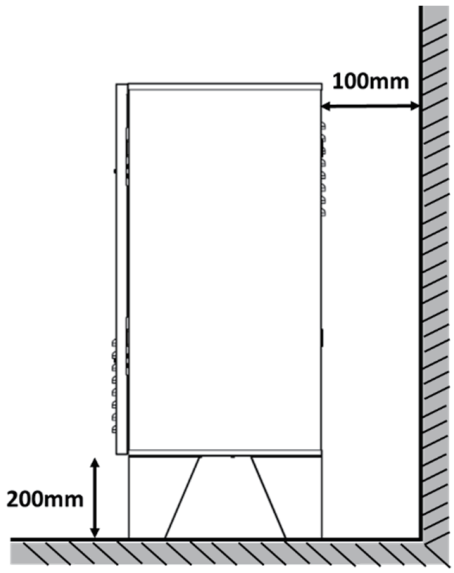
(Figure 3-2: Outer unit horizontal and vertical clearance))

It is suggested to preserve 1500 mm in the surroundings, at least 500 mm in the lower aisle, and keep the area above the fan clear.

It is suggested to preserve 1000 mm in the surroundings, at least 500 mm at the air inlet, and at least 2500 mm at the outlet of the fan.

When two outdoor units are paralleled to each other, preserve 1000 mm in between to facilitate installation and service.

FOR RDA0304 MODEL:



(Figure 3-3: Outer unit horizontal clearance)

It is suggested to preserve 100 mm in the surroundings, at least 200 mm in the lower aisle.

3.1.2 Handling



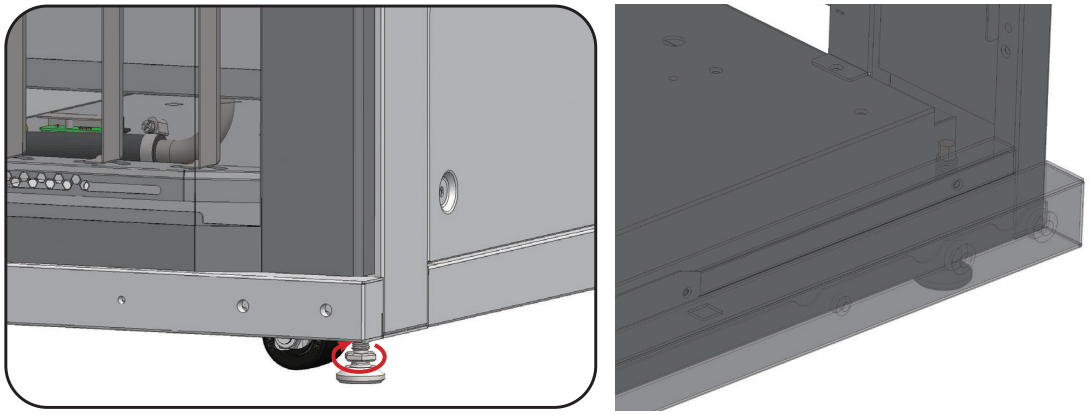
(Figure 3-4: Forklift handling)

Before moving the equipment to the installation site, plan the route according to the following instructions:

1. Make sure the passage, floor, elevator or slope on the handling route can bear the weight of the equipment and handling device, and there is a sufficient net space to avoid collisions.
2. In the case of a slope on the handling route, its inclination must not be greater than 15 degrees so as to avoid toppling the cabinet.
3. The bottom casters are only suitable for short distance movement. For long distance movement, use a handling device (such as Fig. 3-4 Forklift handling) so as to avoid damage to the casters.
4. The casters are only suitable for moving on flat surfaces. Avoid heavy falling of and moving of the unit on uneven ground, which may damage the casters or even result in toppling.
5. When moving the unit, pay attention to its height and center of gravity. At least two people working together should handle the unit so as to guarantee safety.

- **Leveling feet**

  After moving the unit into place, use a wrench to rotate clockwise the four levelers beside the casters to put them down and stable on the floor. Make sure the unit cannot slide or topple. The leveling feet may be fastened or loosened directly with a No. 8 hex wrench.



(Figure 3-5: Levelers)

WARNING: The levelers are only used for leveling the unit and cannot be used to compensate for the height difference of the floor so as to avoid toppling.

3.1.3 Positioning

After moving the unit into place and it is parallel with the adjacent cabinet, you must position it so as to ensure its stability. The following two methods can be used, depending on the installation environment:

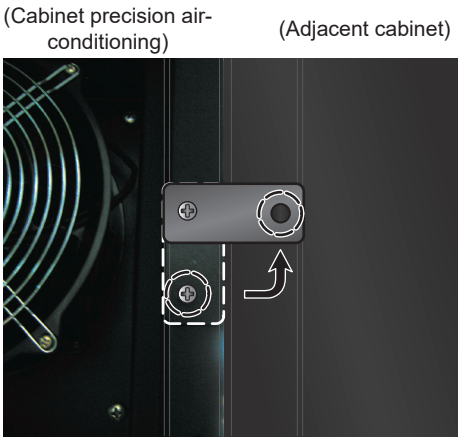
- **Cabinet fasteners**

  If the adjacent cabinets are Delta cabinets (MSR1110 and MSR2110), you may use connecting fasteners to fix the equipment. Each cooling unit is provided with four connecting fasteners (two at the front and two at the rear). You must remove the front and back doors before making the fastener connection. Refer to the following procedures:

  1. If the front door is locked, use the attached key to open it.
  2. Remove the unit's earth wire and the control panel's flat cable, raise the front door, and take it out.
  3. Use the key to unlock the rear door, remove the earth wire, raise the door, and take it out. The rear door is of the split type and, if necessary, take down both doors.

     NOTE: Put the front and rear doors that have been removed in a safe place so as to avoid any equipment damage or personal injury due to collisions.

  4. Use a screwdriver to loosen the screw below the fastener and lock it on the adjacent cabinet.
  5. Fix the front and rear (8 in all) fasteners with the adjacent cabinet.
  6. After fixing the fasteners, re-install the front and rear doors.

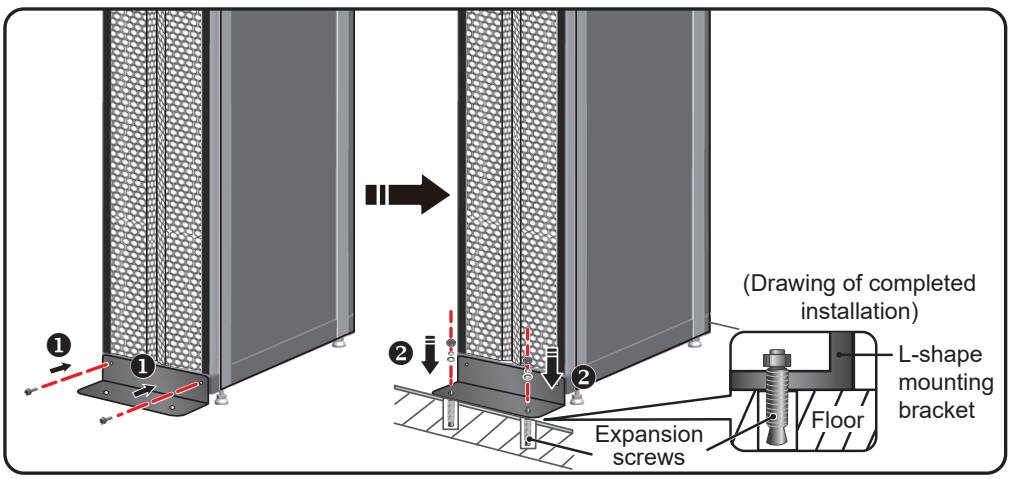


(Figure 3-6: Join the cooling unit and the adjacent cabinet together)

- **L-shape mounting bracket**

  The L-type balance support is originally used to fix the cooling unit on the pallet during transportation and can be used for ground fixing after positioning to provide extra locking force.

  1. Use two M6 screws to fix the L-type balance support below the front door (with the extruding part forward) as shown in the figure.
  2. Use expansion screws to fix the extruding end on the floor.

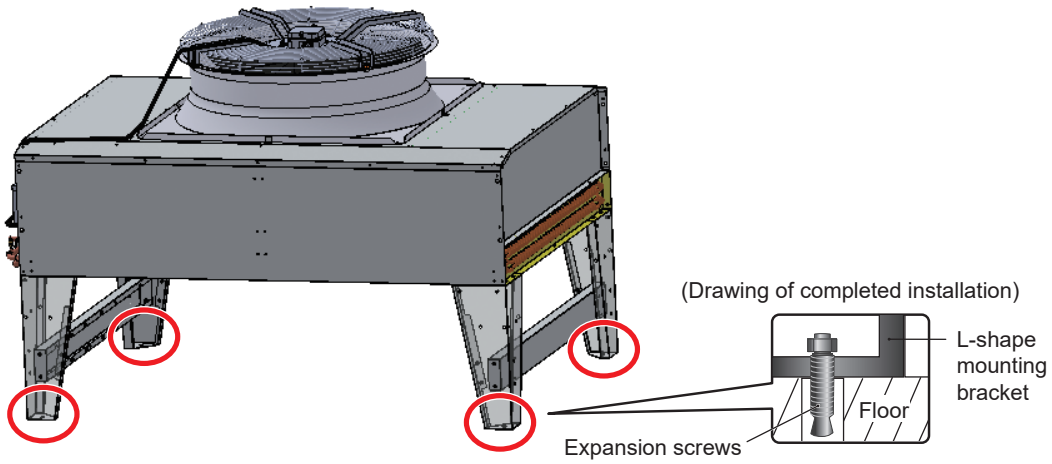


(Figure 3-7: Installation of L-type balance support)

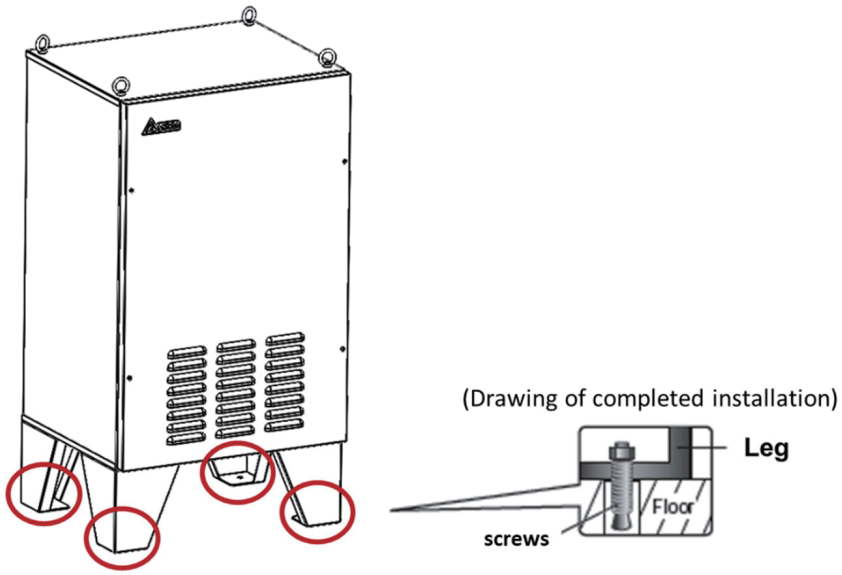
- **Outer unit stand**

FOR RDA037 MODEL:

The outer unit stand is meant to fix the cooling device onto the pallet during transport. After the unit is assembled, it is fixed to the base floor with expansion screws.

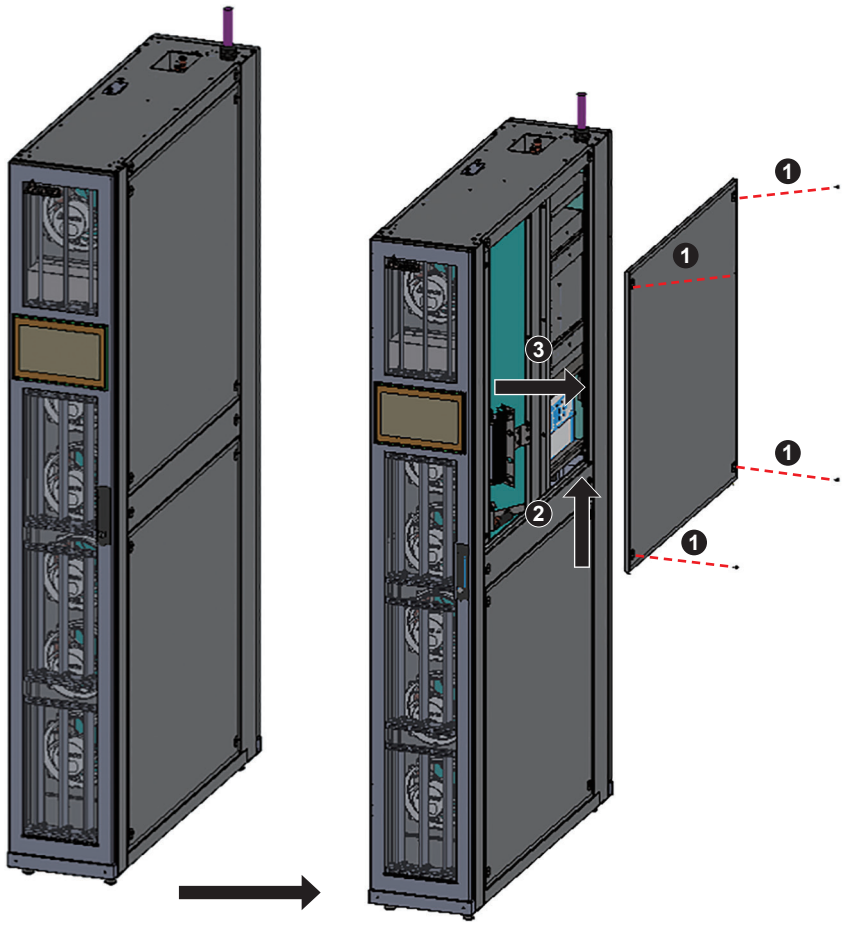


FOR RDA0304 MODEL:



(Figure 3-8: Installing the outer unit stand)

Remove side panel



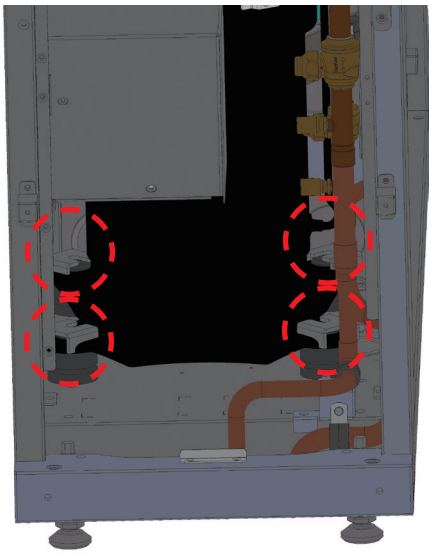
(Figure 3-9: Removing side panel)

If the side panel is locked, use a No. 2 Phillips screwdriver to remove the screws first. Hold the side panel with your hand when the screws are being removed in order to prevent the panel from falling. Then, pull outward first, then lift up, to remove the side panel.

To place the side panel back in place, align with the two lower holes. One person should support the side panel while the other person refastens the fixing screws.

3.1.4 Removal of Fixing Pieces from the Compressor

The fixing pieces for the indoor unit compressor shall be removed before the compressor starts operating. This ensures the shockproof rubber mat can help reduce the vibration during the operation of the compressor. There are 4 fixing pieces for the compressor. Fixing pieces to be removed are shown in the figure below. Screws shall be tightened back after the removal is done. The recommended locking torque is 120 ± 5 kgf-cm.

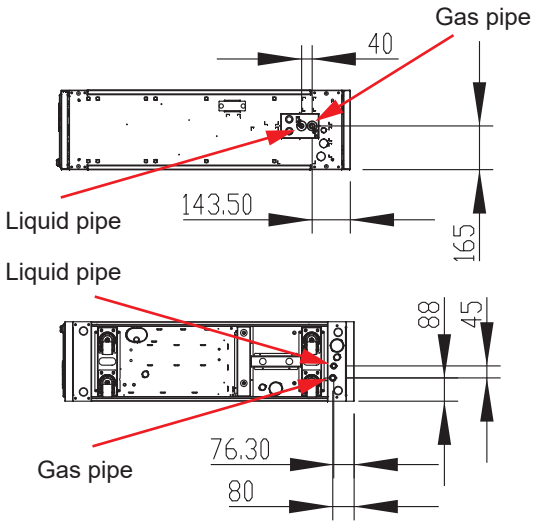


3.2 Installation of Pipeline

3.2.1 Opening hole and related locations

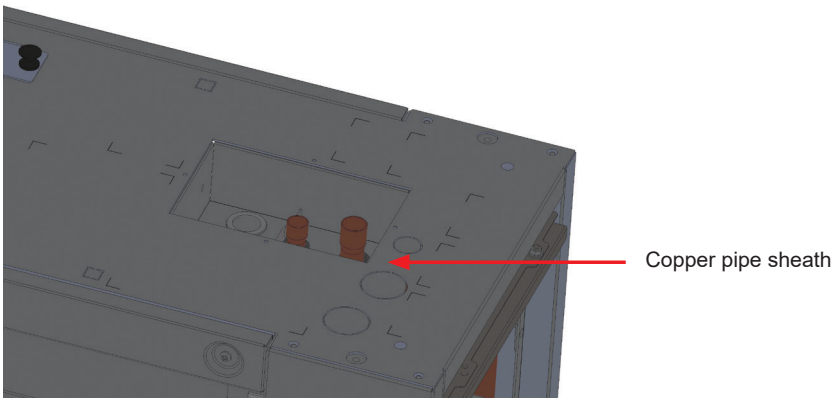
Drill holes in the raised floor or ceiling according to the piping mode (upper or lower) as shown in the following figures for pipe passing.

The upper and the lower pipelines are enclosed when the unit is ready to be shipped. After the external pipeline is installed, put on the copper sheath found in the accessory pack, in order to avoid the copper pipe being damaged.



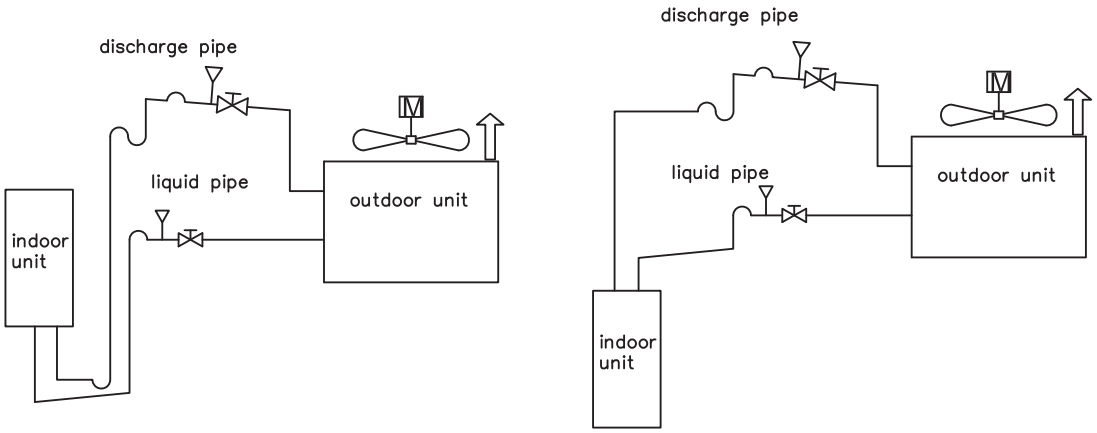
(Figure 3-10: Upper and lower piping positions and dimensions)

For refrigerant piping, it is required to remove the copper pipe cap. After the copper pipes are inserted correctly, weld in place.



(Figure 3-11: Hole diameter and positions for upper and lower piping)

3.2.2 Refrigerant piping



(Figure 3-12: Suggested external piping)

Configure external pipeline with reference to this chart. The ball valve and fill valve (hand valve) are added, respectively, to the joints between the refrigerant discharge pipe and liquid pipe and the outdoor unit (optional or to be purchased separately and installed).This facilitates system pre-vacuum, refrigerant filling, and service. First, when the inner and outer units' air and liquid pipes are connected, apply anaerobic high-temp welding and complete it within 30 minutes. For piping, it is advised that the outdoor unit not be lower than the indoor unit. The piping length may not exceed 60 M; the vertical climbing height may not exceed 15 M upwards and 6 M downwards. Every 5 M, Configure one oil trap gas pipe. There should be a slope of 4 mm height every meter of horizontal refrigerant flow direction.

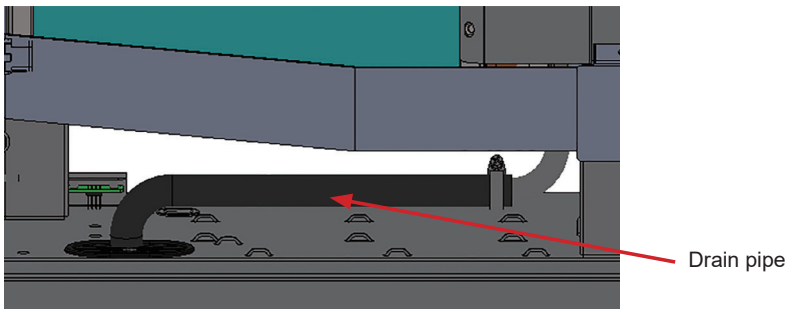
When the horizontal piping length exceeds 20 m, one reversed U-shape loop must be added every 10 m, prevent refrigeration oil backflow. The slope should be 2 mm/1000 mm.

NOTE: Support the upper pipeline. The configuration of the pipe, valves, and filters must be identical to that of the lower pipeline.

3.2.3 Water drainage piping

Gravity drainage (drainage from below only):

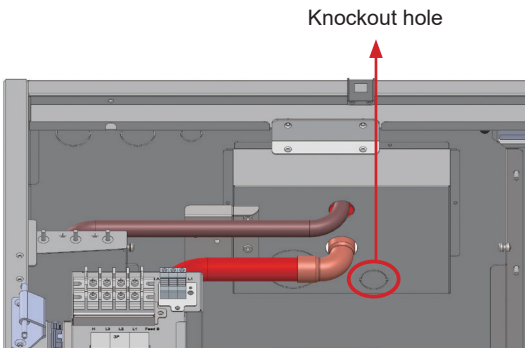
The gravity water pipe has been connected to the lower part of the cabinet at one end with an additional 1.2 M of length remaining. You must keep the drain piping really insulated, and pass the other end through the reserved hole at the bottom to drain the condensed water. The condensed water is drained by making use of the height difference of the unit. Make sure the horizontal slope between the two ends of the pipe is at least 5 degrees.



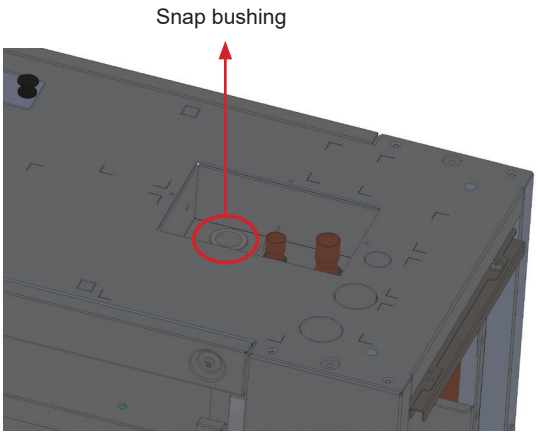
(Figure 3-13: Drain pipe illustration)

Forced Drainage (drainage from upper):

1. Use a needle-nose pliers to remove the knocking-piece for the drain pipe as shown in ***Figure 3-14-1***.
2. Take out the snap bushing in the package and install it on the inside of the knockout hole as shown in ***Figure 3-14-2***.

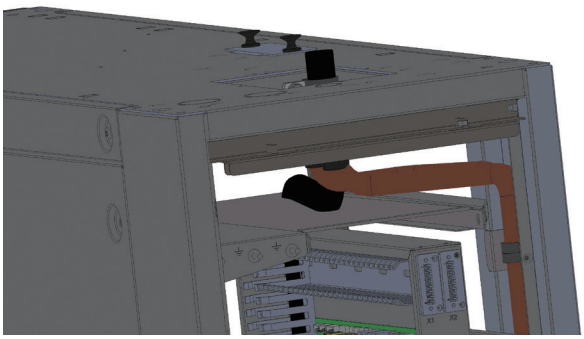


(Figure 3-14-1)

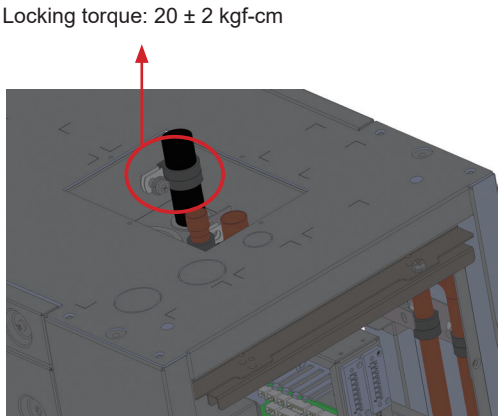


(Figure 3-14-2)

3. Take the drain pipe (***Figure 3-14-3***), pass it through the knockout hole and connect it with the drain pipe outside of the cabinet. Please note that the pipe shall not be curved, otherwise the water will not be drained. 1m of the drain pipe shall be placed outside of the cabinet.
4. After passing the drain pipe through the snap bushing, take out the stainless steel cable tie and M6 screw from the package and use them to fix the drain pipe as shown in ***Figure 3-14-4***.



(Figure 3-14-3)



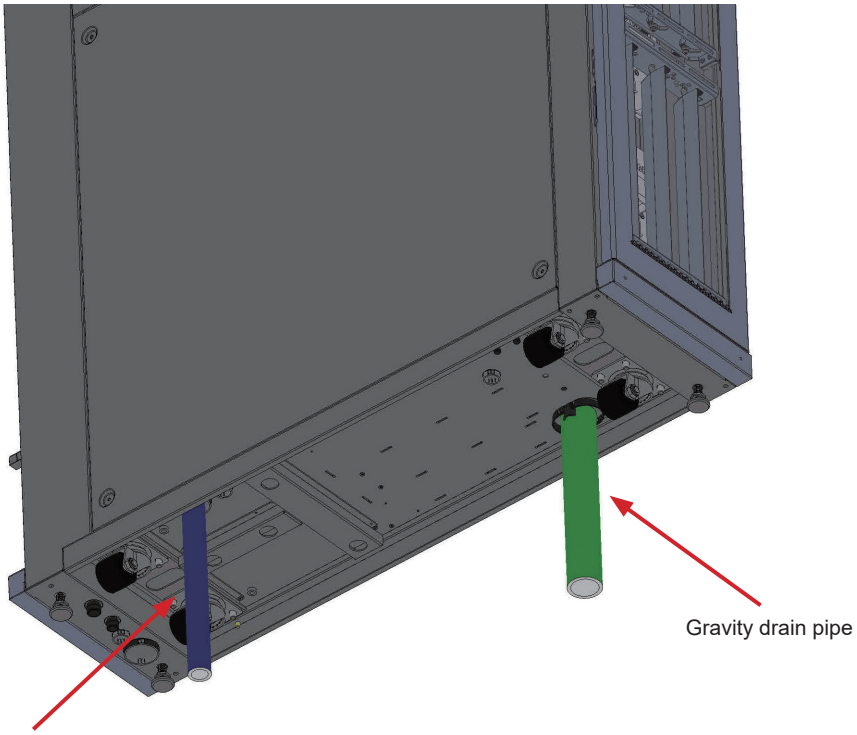
(Figure 3-14-4)

3.2.4 Humidifying water inlet piping

Humidifying water inlet pipe and drainage pump (optional):

Meanwhile, the unit may be configured with a drain pump and a humidifier and the upper or lower piping may be selected. In piping, use the connector to connect the draining system. The vertical lift of the draining system should not be higher than 4 m and the humidifying inlet water pressure should be kept at 1 - 3.5 kg/cm^2.

(Connection method)





(Figure 3-14: Illustration of pipe connection for the drain pump’s water outlet and the humidifier’s water inlet)

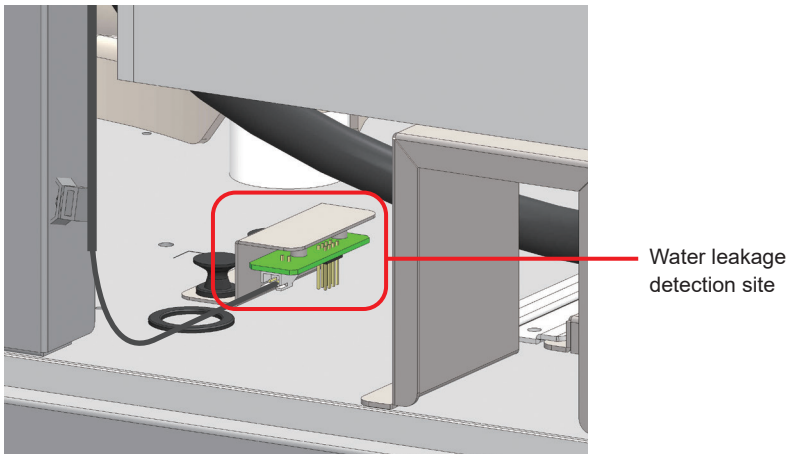
Fig. 3-14 shows how the lower drainage and the water inlet are connected. Upper connection is done in the same way. Refer to this approach for piping.

3.2.5 Installation of water leakage detector

This cooling unit is provided with a water leakage detector at the bottom of the cabinet upon delivery (see Figure 3-15). This trigger to issue an alarm when in contact with water or liquid, reminding you to take proper measures. Where there is a wider detection scope involved, this may be replaced by an optional water leakage detection line.

Installation of water leakage detection line

- Manually set the detector at the site for leakage detection, such as a low-lying place.
- If the lower piping is adopted, it is suggested to set it close to the pipeline below the raised floor.
- Pass one end of the water leakage detection line through the cabinet's lower gravity drain hole, and set the detector in the above-mentioned place.



(Figure 3-15: Installation of water leakage detector)

NOTE:

When the terminal of the water leakage detector detects water (or any other conductive liquid), the resistance variation on both ends of the terminal is used to detect and determine if there is water (or any other conductive liquid) on the floor. Therefore, the water leakage detector must be placed away from the trap or drainage on the floor.

The water leakage detection system is optional.

3.3 Connection of Cables

3.3.1 Connecting power cable

- Prior to connection, you must make sure that the external power source is disconnected.
- Prior to connection, it is required to remove the cap from the power terminal of the indoor unit and make sure that the cable is fastened before the cap is put back on.
- The power cable may be inserted from the top or from below.

WARNING:

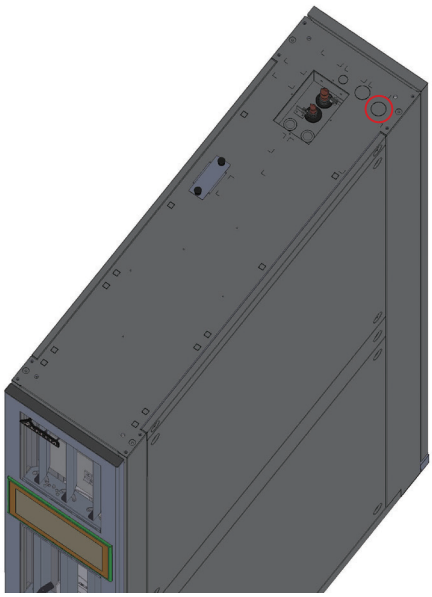
1. The input power must conform to the rated value on the equipment nameplate.
2. In locking the screws for wiring at the power terminal block, use the recommended installation torque (24 kgf-cm).
3. When installing the input power source,install the grounding line and confirm that it is effectively connected first.
4. Follow the electricity system and local laws and regulations in the relevant regions/countries, and select appropriate cable size(s).
5. Add a circuit breaker to the front of the equipment, in accordance with the maximum power consumption indicated on the nameplate of the equipment (:recommended specifications: pressure tolerance of 440 Vac and above/4 ports). In case of an overload or short circuit, this helps protect other equipment in the loop.

   Breaker: Above 32A for standard unit (cooling only); Above 32A for fully-equipped unit (including humidifying and heating).
6. If there is no wire passing through the communication wire duct at the top of the cabinet, cover the duct with the cover plate provided in the accessory package so as to avoid dust accumulation.

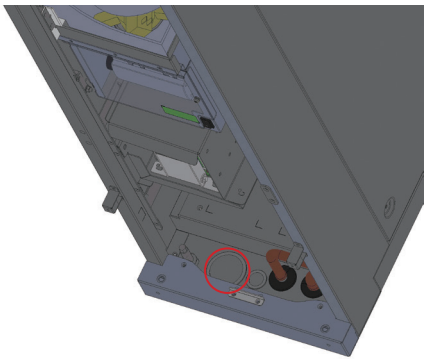
Cable size: For a standard unit (cooling-only), use 12AWG (3 mm^2) or larger cabling. For a fully-equipped unit (including humidifying and heating), use 10AWG (5 mm^2) or larger cabling.

Connecting indoor unit power cable (single power supply)

1 In the rear of the top/bottom of the indoor unit cabinet, use needle-nose pliers to remove the knocking-piece at the top/bottom of the cabinet; remove the cable gland from the accessory package and remove its nut. Rotate and tighten the cable gland on the knocking-piece, and pass the power wires through it.



Top of cabinet



Bottom of cabinet

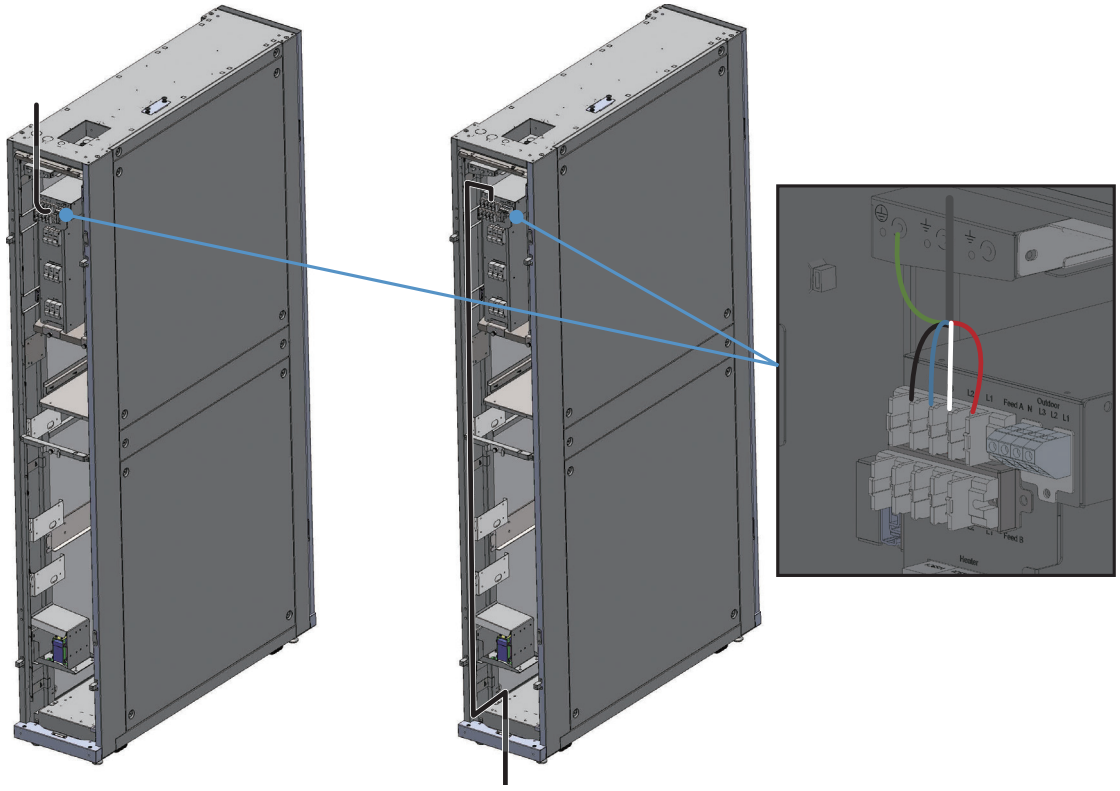
(Figure 3-16: In-coming power cable path (single power supply))

2 Pass the external cable through the cable connector to the indoor unit's Feed A terminal L1/L2/L3/N and fasten it. (Beware of the fact that, when using a single power supply, the power cable must be connected to the main circuit power source Feed A.)

3 Connect the PE line (Protective Earthling line) to the cabinet ground stud, as shown in ***Figure 3-17***. It should be securely locked to prevent the abnormal current from hurting the human body.

4 For the routing cable, use the cable tie to fasten it onto the cabinet's supporting column.

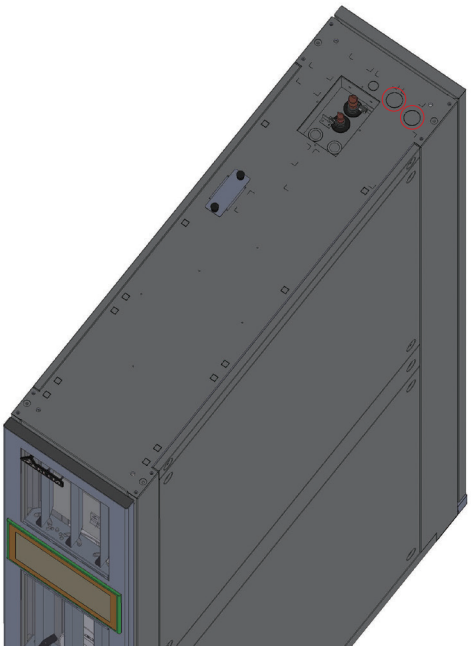
5 Fasten the cable gland.



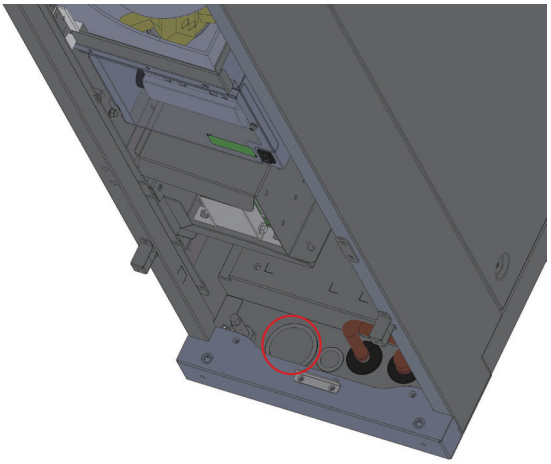
(Figure 3-17: Single power supply wiring)

Connecting the indoor unit's power cable (dual power supply)

1 In the rear of the top/bottom of the indoor unit cabinet, use needle-nose pliers to remove the knocking-piece at the top/bottom of the cabinet; remove the cable gland from the accessory package and remove its nut. Rotate and tighten the cable gland on the knocking-piece, and pass the power wires through it.



Top of cabinet



Bottom of cabinet

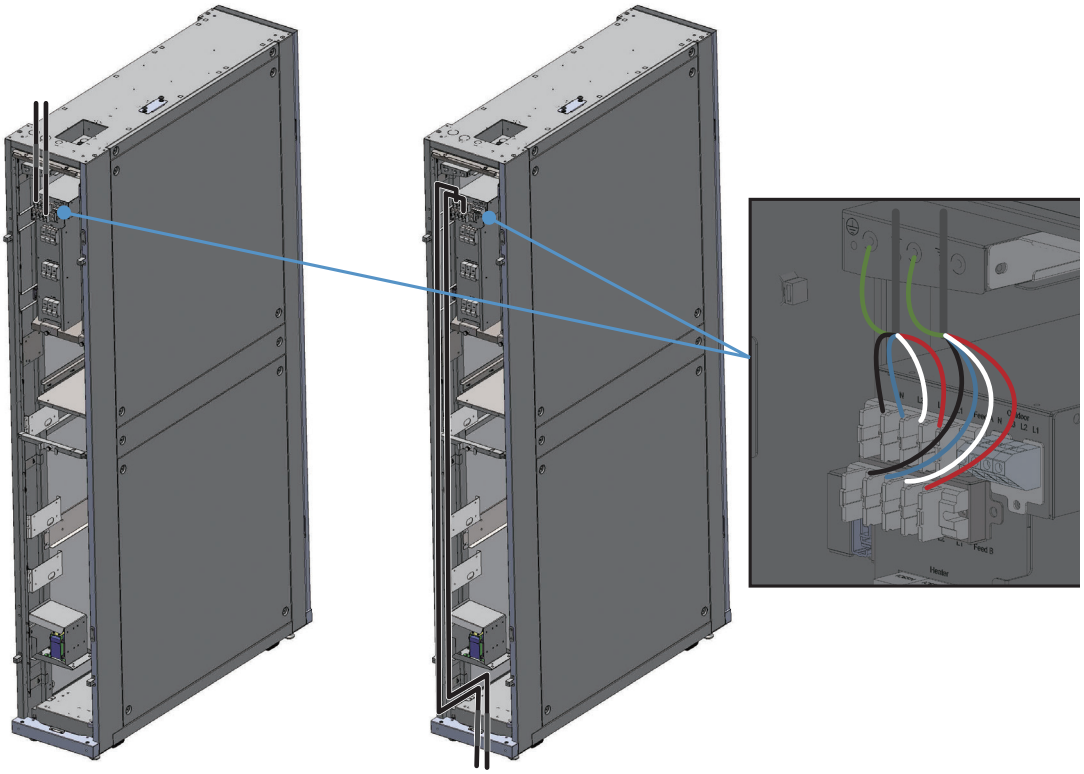
(Figure 3-18: In-coming power cable path (dual power supply))

2 Pass the external cable through the cable connector to the indoor unit's Feed A and Feed B terminal L1/L2/L3/N and fasten it. (Beware of the fact that, when using a dual power supply, you must first connect the main power source Feed A and then the backup power source Feed B.)

3 Connect the PE line to the cabinet ground stud, as shown in ***Figure 3-19***.

4 For the routing cable, use the cable tie to fasten it onto the cabinet's supporting column.

5 Fasten the cable gland.

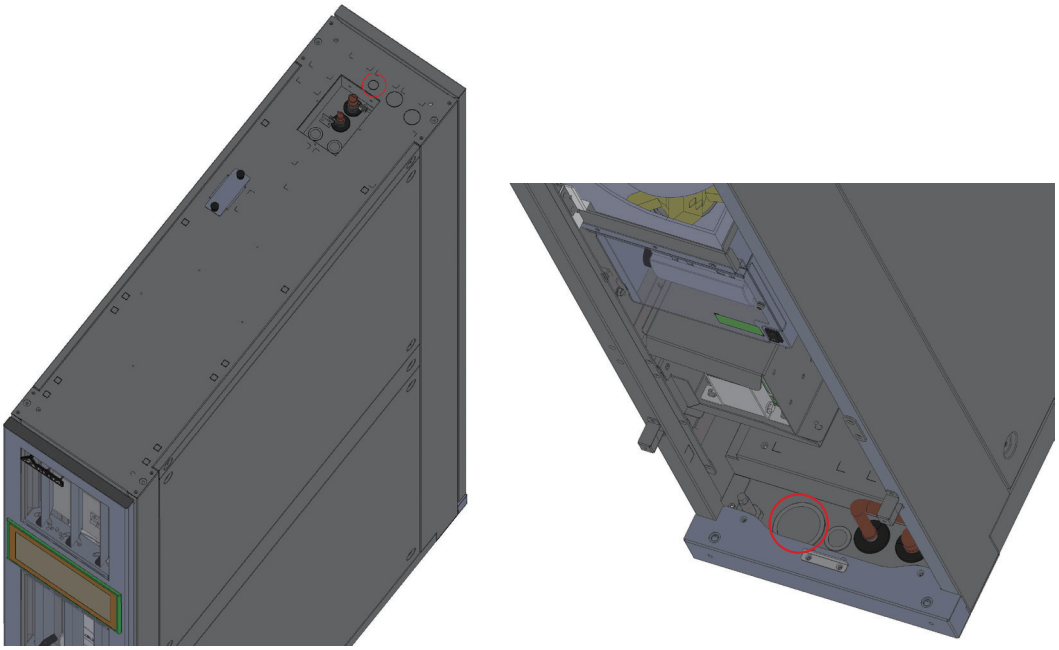


(Figure 3-19: Dual power supply wiring)

Connecting the outdoor unit's power cable

Cable size: Use cabling 16AWG (1.3 mm^2) or greater for power cables and control lines.

1 In the rear of the top/bottom of the indoor unit cabinet, use needle-nose pliers to remove the knocking-piece at the top/bottom of the cabinet; remove the cable gland from the accessory package and remove its nut. Rotate and tighten the cable gland on the knocking-piece, and pass the power wires through it.



Top of cabinet

Bottom of cabinet

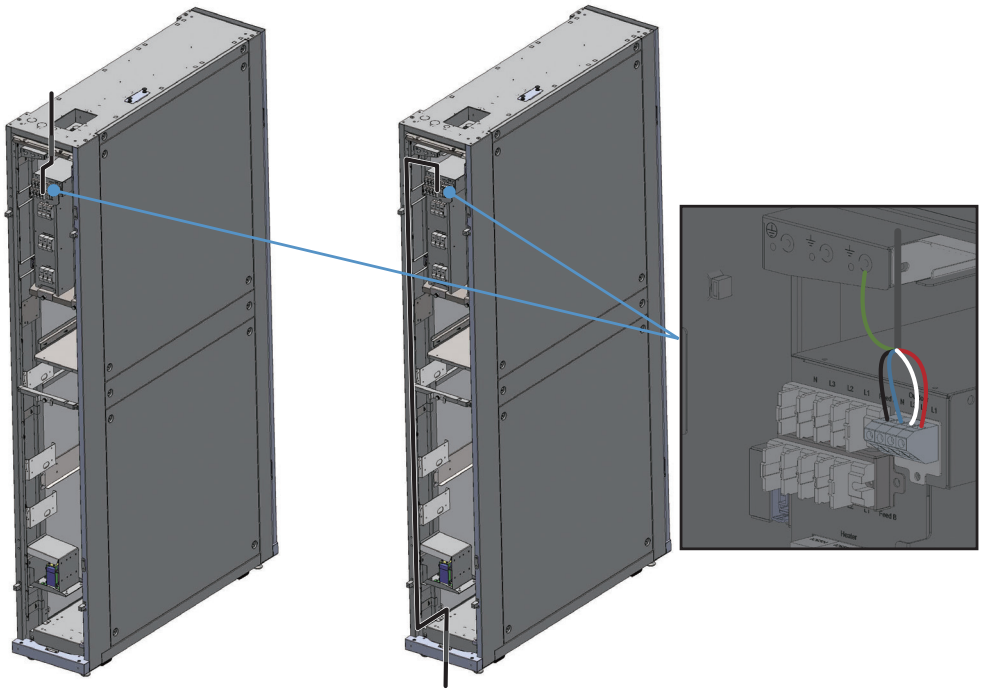
(Figure 3-20: Power cable outlet)

2 Pass the external cable and the signal cable through the cable connector to the indoor unit's Outdoor terminal L1/L2/L3/N and fasten it. (For RDA03040LN00035 use Outdoor terminal L1/N)

3 Connect the PE line to the cabinet ground stud, as shown in ***Figure 3-21***.

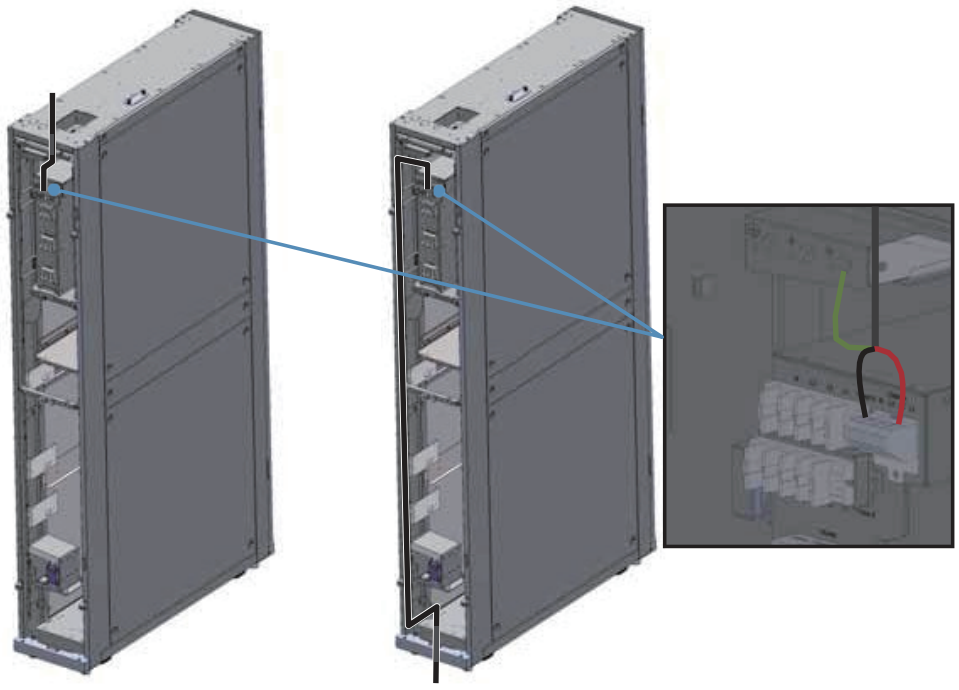
4 For the routing cable, use the cable tie to fasten it onto the cabinet's supporting column.

5 Fasten the cable gland.



Upper power feed Lower power feed

For RDA0304 Model



(Figure 3-21: Connecting the outdoor unit's power cable)

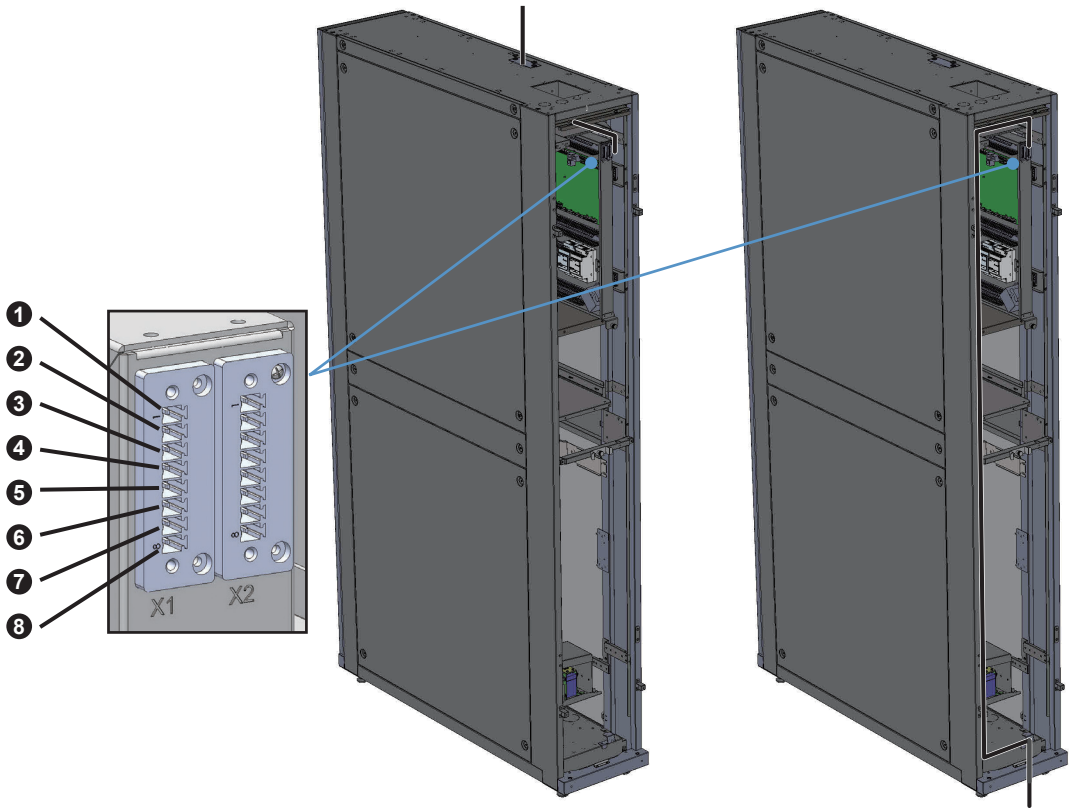
3.3.2 Connecting the signal cables

1 At the rear of the indoor unit's cabinet top, lift the signal cover; or at the bottom rear, use needle-nose pliers to remove the knocking-piece. Remove the cable gland from the accessory package and remove its nut. Rotate and tighten the cable gland on the knocking-piece, and pass the signal cable through the signal cable hole at the top or bottom of the cabinet.

2 Pass the signal cable through the cover or the cable gland, and connect the cable to the indoor unit's X1/X2 ports. (Remove the head of the terminal to be connected to. Once the cable is connected to the head, plug both together to the terminal.)

3 For the routing cable, use the cable tie to fasten it onto the cabinet's supporting column.

4 Use a lower access approach to fasten the cable gland.



(Figure 3-22: Connecting the signal cables

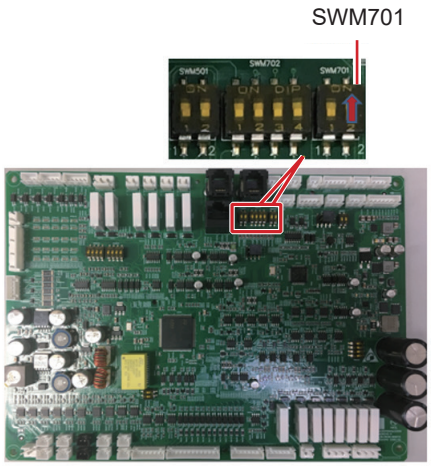
Name	No.	Function	Description
X1	❶	Communication with external unit	RS485 (1)+
	❷		RS485 (1)-
	❸	Inter-unit communication	CAN+
	❹		CAN+
	❺	Communication with outdoor unit	RS485 (2)+
	❻		RS485 (2)-
	❼	Total Alarm	Output dry contact+
	❽		Output dry contact-
X2	❶	Sensor power	12VDC
	❷		GND
	❸	Fire, smoke warning	Input dry contact (1)+
	❹		Input dry contact (1)-
	❺	Remote startup/shutdown	Input dry contact (2)+
	❻		Input dry contact (2)-
	❼	N/A	N/A
	❽	N/A	N/A

Item	Description
RS485	The RS485 port allows you to use the MODBUS protocol to connect a workstation, the outdoor unit, or power distribution device for remote use.
CAN-Link	Connects multiple cooling devices for control and utilization. CAN+ to CAN+, CAN- to CAN-.
Output dry contacts	Can connect dry contact output devices and trigger the contacts at specific events. Ports (X1) 7-8 (NO): Normally open. Connect the dry contact device to this port; the device will be triggered when an alarm event occurs (closing the circuit).

Item	Description
Input dry contacts	Ports (X2) 3-4 (NO): Normally open; for connecting fire alarm or smoke detector. When an event occurs, the dry contact device is triggered to form a short circuit. The system will record it in the Historical Event log and shut down the cooling unit. Ports (X2) 5-6 (NO): Normally open; for connecting remote switch device. When an event occurs, the dry contact device is triggered to form a short circuit. The system will record it in the Historical Event log and will stop the machine.

NOTE:

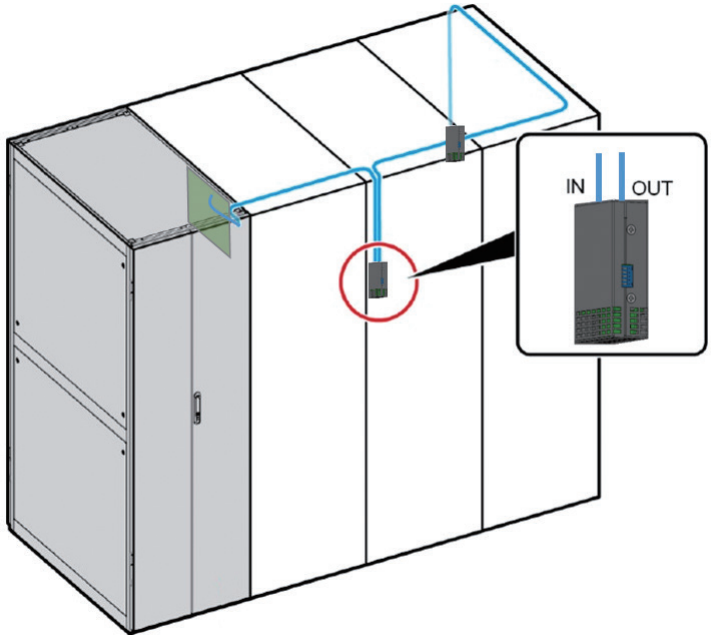
When more than two cooling units are in group control, the switch of the control board of the first and last cooling unit must be set to the On by SWM701 PIN2-3.



3.3.3 Connecting external temperature and humidity sensor

- These sensors are used to detect the temperature and humidity of the hot/cold air corridors; installation location(s) depend on on-site situation. It is suggested to place sensors where the heat source is focused in the hot air corridor, or where the amount of cold air is lacking in a cold air corridor.
- Placement at another air-conditioning outlet is prohibited. The location cannot be too far from air conditioning; this is to prevent inaccurate test results.

1 Connect the external temperature and humidity sensor and the remote temperature and humidity sensor in series, as shown in ***Figure 3-23***.

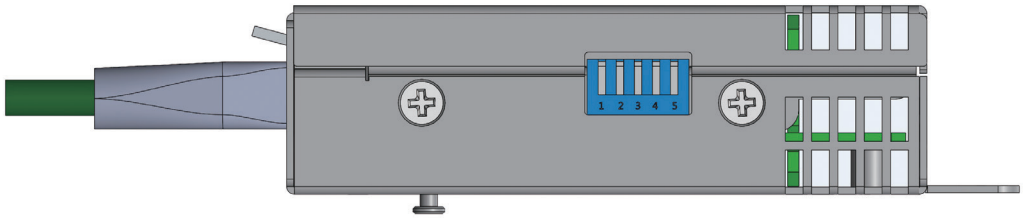


(Figure 3-23: External wiring)

NOTE:

- When the remote temperature and humidity sensor port on the main control board is connected to the external sensor, the cable must be connected to the “IN” port of the sensor, and the “OUT” port of the sensor to the “IN” port of the next sensor, sequentially in series.
- Each air conditioner can support up to 10 external temperature and humidity sensors.

2 Set up the dip switch for the temperature and humidity sensor. The sensor appears as in ***Figure 3-24***. For the specific setup method, refer to Table ***3-1*** below.



(Figure 3-24: Dip switch appearance)

Table 3-1: Instructions for operating the temperature and humidity sensor dip switch

Detection location	Addressing	Dip switch serial number				
		1	2	3	4	5
Air return	0	OFF	OFF	OFF	OFF	OFF
Air supply	1	ON	OFF	OFF	OFF	ON
Remote side	0	OFF	OFF	OFF	OFF	OFF
	1	ON	OFF	OFF	OFF	OFF
	2	OFF	ON	OFF	OFF	OFF
	3	ON	ON	OFF	OFF	OFF
	4	OFF	OFF	ON	OFF	OFF
	5	ON	OFF	ON	OFF	OFF
	6	OFF	ON	ON	OFF	OFF
	7	ON	ON	ON	OFF	OFF
	8	OFF	OFF	OFF	ON	OFF
	9	ON	OFF	OFF	ON	OFF

NOTE:

- The default temperature and humidity sensor setting is 0.
- “5” on the dip switch is the RS485 terminal resistance.
- Addressing 0~4 is Cold Aisle 1~5 ; 5~9 is Hot Aisle 1~5.

3.4 System Management

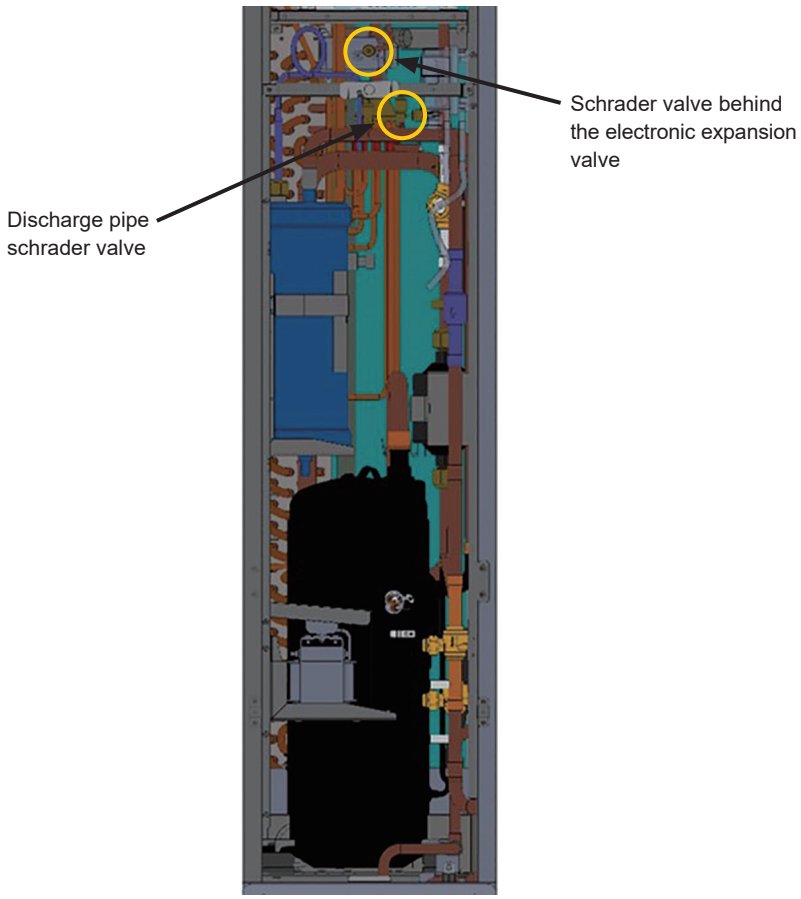
For detailed information on system management, refer to the Installation Manual. The User Manual contents are for reference only.

3.4.1 Charging Refrigeration Oil

While the compressor is compressing, the lubricant inside it will more or less be brought outside the compressor by the high pressure and high-speed refrigerant gas. Therefore, it is necessary to add refrigeration oil to the refrigerant system. Different piping lengths will require adding different amounts of refrigeration oil. For the filling rules,refer to the information provided in the Installation Manual.

3.4.2 Pressure Leak Test

After the indoor and outdoor units are connected, introduce nitrogen gas (3.0 MPa) through the ball valve behind the electronic expansion valve and the exhaust pipe schrader valve. Pressure must be retained for 24 hours without leakage.



(Figure 3-25: Schrader valve location)

3.4.3 Vacuum Pumping

After doing a pressure leak test to confirm that there is no leakage, use the schrader valve behind the electronic expansion valve and that of the discharge pipe to perform the vacuum pumping process.

During the vacuum pumping process, the electronic vacuum gauge must be used to detect the current vacuum value.

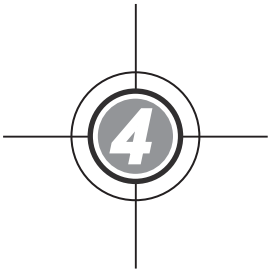
Stop vacuum pumping once the vacuum status reaches 200 Pa. Duration of vacuum pumping is no less than 2 hours.

If the vacuum status is below 200 Pa, on the other hand, inject dry nitrogen gas injected until the pressure normalizes and vacuum pumping continues. Repeat these steps until the vacuum status is below 200 Pa.

After sitting for 4 hours, if the vacuum status is below 266 Pa, then the vacuum pumping process is determined to be completed.

3.4.4 Charging Refrigerant

After confirming that the refrigerant system is free of leakage and the vacuum status meets requirements, the refrigerant (R410A) must be charged immediately. Throughout the filling process, liquid R410A must be used; the amount filled must be documented as shown on the electronic scale. Connect the schrader valve behind the electronic expansion valve and that of the discharge to R410A for pre-filling. If there is insufficient refrigerant,wait for the equipment to start and begin running, then fill additional refrigerant until the refrigerant system is in a normal state.



Initial Startup

4.1 Pre Start-up Inspection

4.2 Water Quality Requirements

4.3 Operating Temperature and Humidity

4.4 Power Supply

4.1 Pre-start Inspection

WARNING: Only qualified service personnel can carry out the installation procedures in this chapter.

WARNING: The high voltage and refrigerant in the equipment can cause personal injuries! Make sure the input power has been disconnected before the following actions.

WARNING: A startup without correctly completing ***4.1 Pre Start-up Inspection*** may lead to serious personal injury or equipment damage!

Complete all the following inspections before implementing the initial startup procedures.

Inspection List

General items	
❑	The unit has no external damage.
❑	The unit is stably fixed and close to the adjacent cabinet.
❑	All the installation procedures have been performed in accordance with the instructions in ***Chapter 3: Installation***.
❑	The pipes in and outside the cabinet have been correctly connected, and the thermal insulating layer of the pipes is free of damage and leakage.
❑	Return the front door and the back door.
Environment	
❑	The inner environment is an enclosed space and isolated from interference from outside temperature and humidity.
❑	The clearance zone surrounding the cabinet conforms to the regulation (please refer to ***3.2 Clearance zone***).
Electronic connection	
❑	The rated value of the input power conforms to that marked on the nameplate.
❑	The equipment has been properly grounded.
❑	All electronic connections are tight and stable.
❑	The remote temperature (humidity) sensors have been correctly connected and located properly.
❑	The water leakage detection line has been correctly laid.
Mechanical connection	
❑	The gas pipe and the liquid pipe are free of rupture or damage.
❑	The condensed water drain pipe has been correctly connected and keep the drain piping really insulated, led to the draining site.
❑	The fill valve and the ball valve are free of rupture or damage.
❑	The ball valves connecting the indoor and the outdoor units are all open.

4.2 Water Quality Requirements

The water quality requirements are established to minimize scale formation, corrosion and microbial growth within the system, which maintains heat transfer efficiency, ensures reliable system operation and extends equipment lifetime.

During system operation, water quality must be maintained within the specified limits listed in the table below. Regular water quality testing and evaluation should be conducted at least once every three months to ensure long-term system reliability and performance.

If test results indicate abnormal conditions or exceed the specified water quality limits, appropriate corrective actions should be taken promptly. These may include chemical water treatment, system blowdown or filtration to restore and maintain the water quality within the recommended limits.

For water quality requirements, please follow the table below.

No.	Parameter	Water
1	pH	7.0 to 9.0
2	Corrosion inhibitor (s)	Required
3	Biocide	-
4	Sulfide	< 10 ppm
5	Sulfate	< 100 ppm
6	Chloride	< 50 ppm
7	Bacteria	< 1000 CFUs/ ml
8	Total hardness (ppm as $CaCO_3$)	< 200 ppm
9	Conductivity	10 ~ 2500 μS/ cm
10	Total suspended solids	-
11	Residue after evaporation	< 500 ppm
12	Turbidity	< 20 NTU
13	Iron (mg/L)	≤ 1.0 ppm
14	Copper (mg/L)	≤1.0 ppm
15	Particle size	< 500 μm

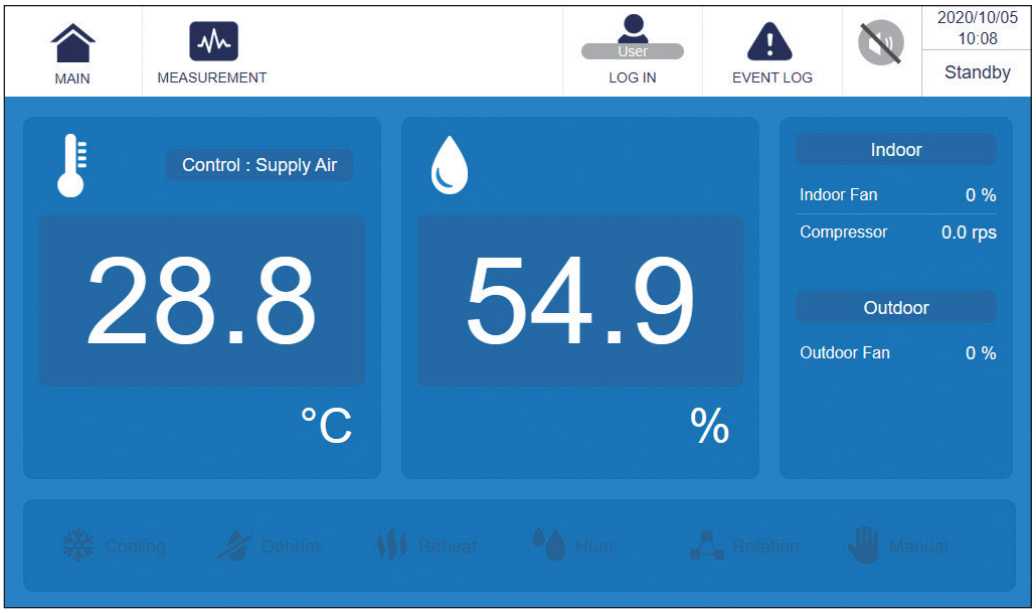
4.3 Operating Temperature and Humidity

When doing initial machine room setup, use an auxiliary de-humidifier or air conditioner to adjust the indoor temperature and humidity. With a low load or poor air-tightness, excessive humidity is likely; use auxiliary dehumidifying equipment in these situations.

WARNING: If the indoor humidity is too high, the condensing effect around the coil may lead to too much condensed water, which could cause leakage.

4.4 Power Supply

Power on the cooling unit and it will automatically enter standby mode. For the sake of safety, the fans will not automatically rotate. After the system is connected to the power feed, screens to be read appear on the touch screen monitor; the status page automatically displays.



(Figure 4-1: Status page)

For how to interpret the values shown on the status page and how to operate the status page, refer to ***5. Operation***.



Operation

5.1 Status page

5.2 Account Authority and Login

5.3 How to operate the status page

5.4 Operating settings

5.5 Startup

5.6 Inquiry of system status

5.7 Shutdown

5.8 RDA0304 unit

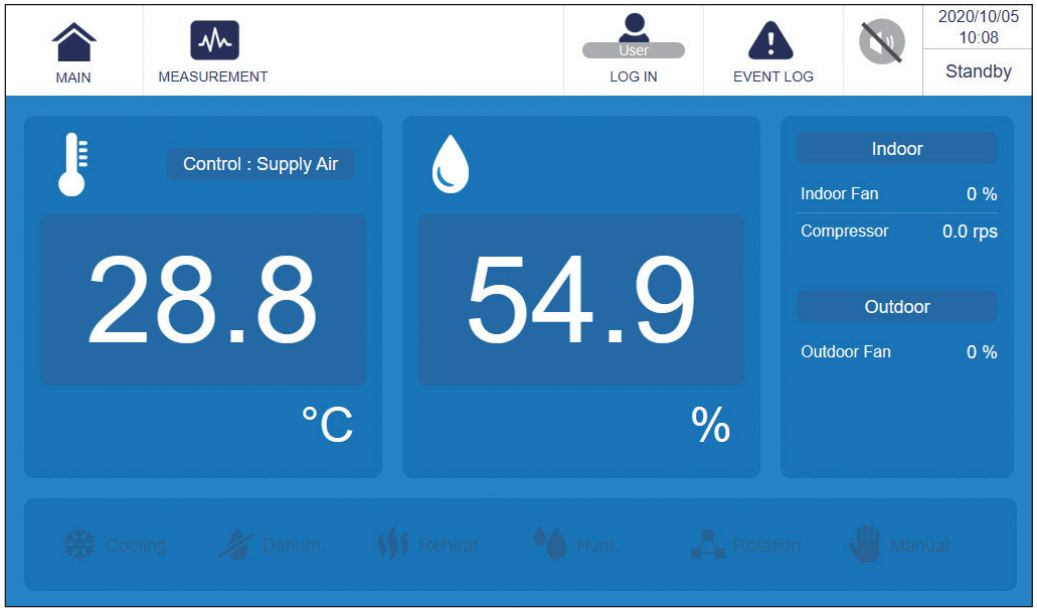
5.1 Status page

After the system is connected to the power feed, the screens to be read appear one after another on the touch screen monitor.

Screen to be read:



Once the screens to be read appear, the status page will automatically come up.



Operation may only begin after log-in.

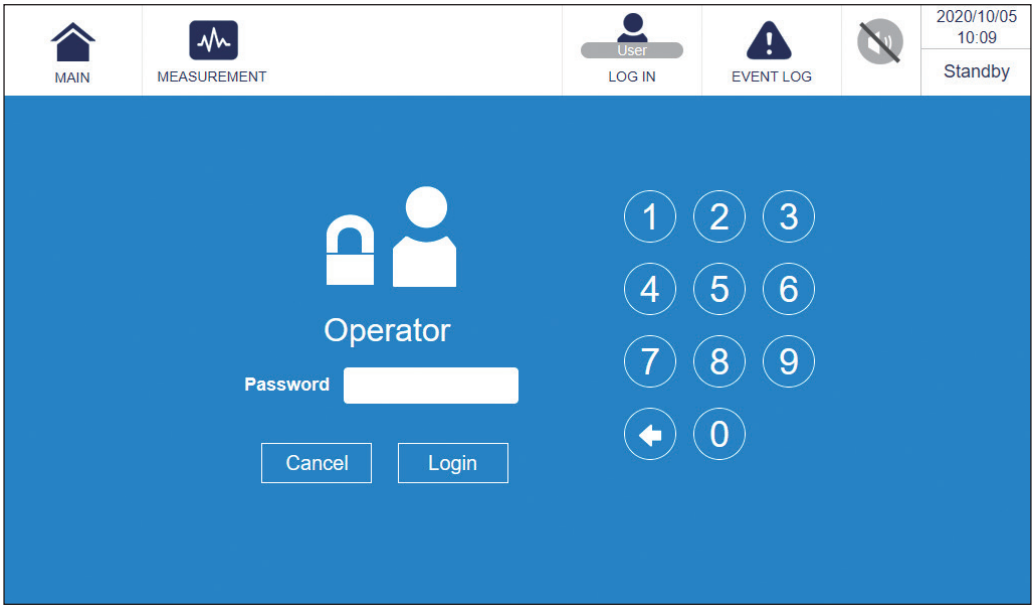
5.2 Account Authority and Login

Click on the “log-in” icon on the upper right corner of the status page to access the log-in page.

There are three operator types for operations:

Operator type	Access
User	Measurement (only some functions)
Operator	Measurement, Setup (only some functions)
Administrator	Measurement; Setup; Maintenance

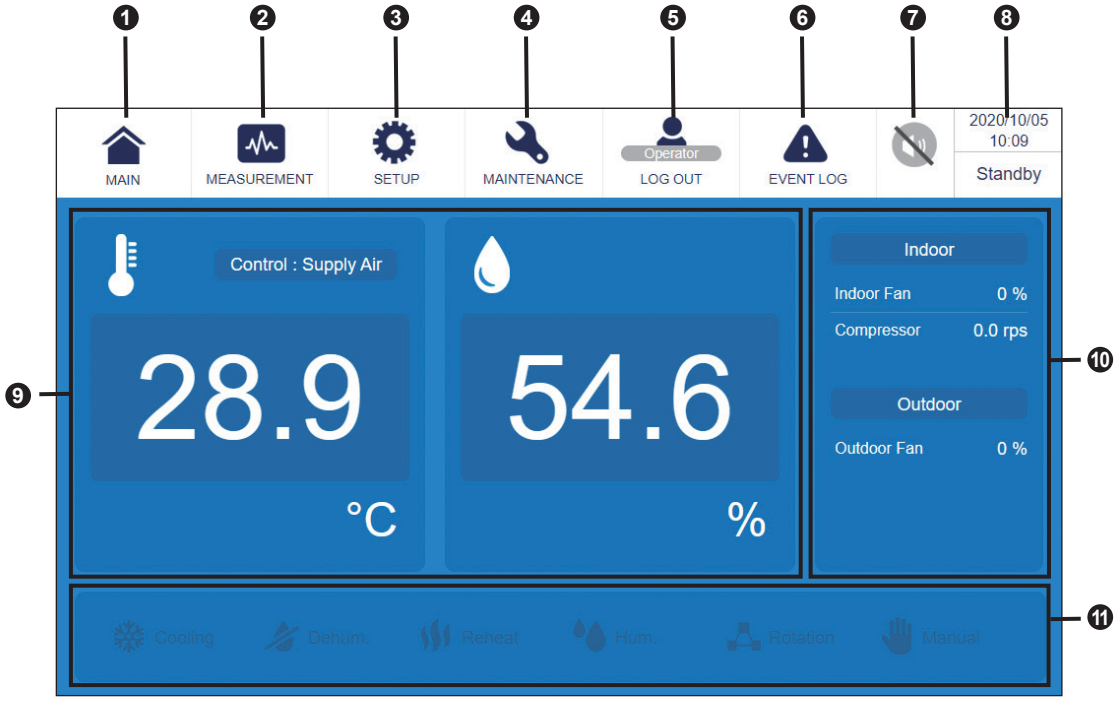
Select your operator type and enter the password, then click “Log in”; the status page will show again.



If no operation is performed for a long time after login, the login status will become invalid after the system becomes idle. If you want to re-enter the above menu, you must re-enter the password.

NOTE: To avoid unauthorized change of and access to important settings, do not disclose the administrator password. To get the administrator’s password, contact Company service personnel.

5.3 How to operate the status page



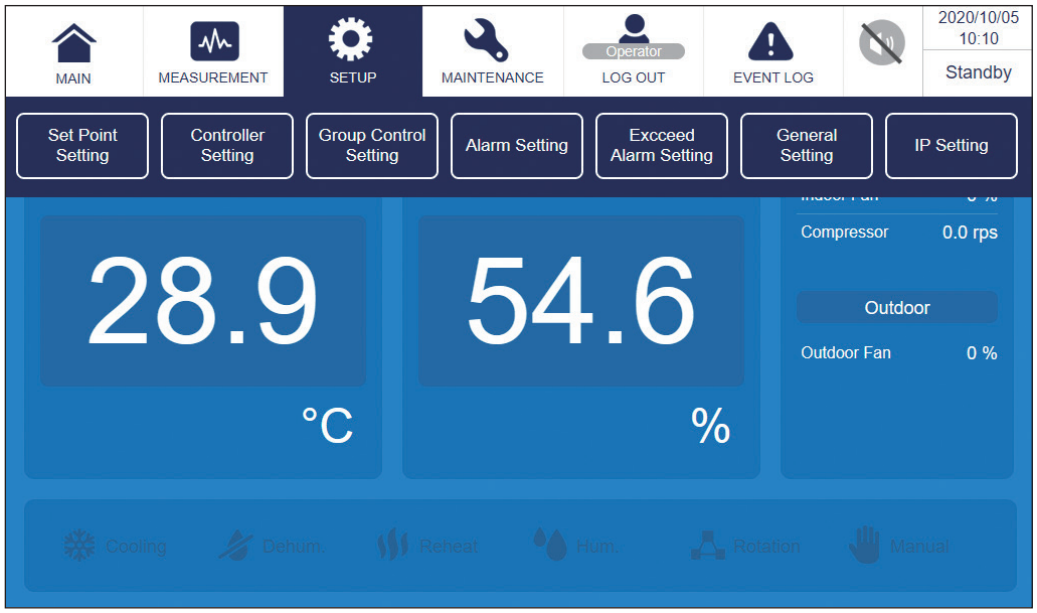
No	Item	Explanation
❶	Main Screen	Click here for start-up/shutdown operations and displaying the status page.
❷	Measurement	Click here to inquire about system status. Sub-menu: System Status, Data History
❸	Setup and Control	Click here to Control type, Controller Setting, Alarm Setting, Exceed Alarm Setting, Group Control Setting, and other functions. Sub-menu: Set Point Setting, Control type, Controller Setting, Alarm Setting, Exceed Alarm Setting, Group Control Setting, General Setting, IP setting

No	Item	Explanation
❹	Maintenance	Click here to Warning, Historical Event, Run Hours, Version, Manual Mode, Advanced Setting and other functions. Sub-menu: Warning, Historical Event, Run Hours, Version, Manual Mode, Advanced Setting, Calibration, Deploy, SNMP Setting, Clear Log.
❺	Operator log-in	Click here for operator log-in.
❻	Current warnings	Shows the number of warnings that are currently active. If there are no warnings, on the other hand, this is the Historical Event log.
❼	Buzzer	Shows whether the buzzer is currently operating or shut down. Click here to turn on or shut down the buzzer.
❽	Time	Shows the current date, time and shut down. If shut down triggered, after removing the abnormal condition, operate the standby mode or restart power to reset.
❾	Air temperature and humidity	Shows the current air temperature and humidity (select depending on control status).
❿	Component operational status	Shows the operational status of the indoor and outdoor units' components. The indoor fan operation values are average values.
⓫	Running icon	Displays the current operational status.

5.4 Operating settings

Path: Status → Setup → Set Point setting

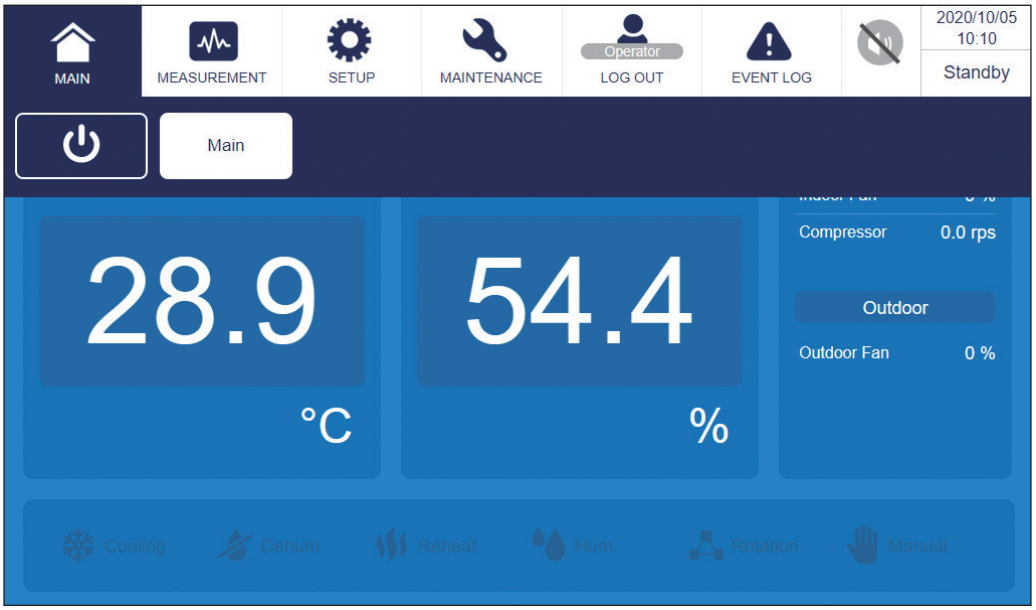
Follow the route to perform setup: Type of temperature and humidity control (Supply air / Return air /Cold Aisle /Hot Aisle); temperature control area; humidity control area Use reasonable settings.

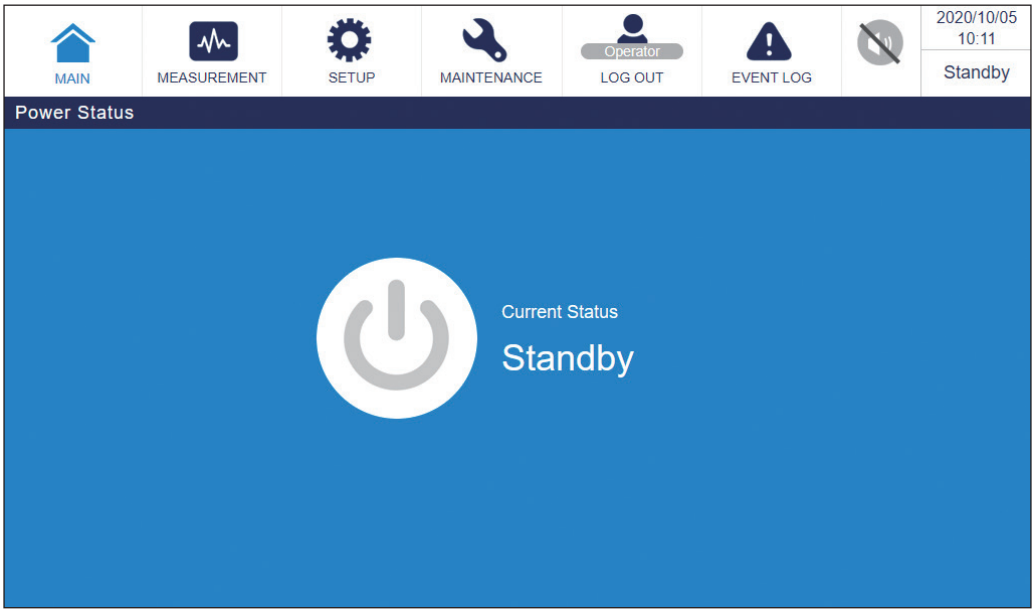




5.5 Startup

Path: Status Page → Main Screen → Power Icon





While in standby after power feed for the first time, the compressor heater will begin to warm up (for 12 hours). Do not start up or run the machine before the warm-up is over.

5.6 Inquiry of system status

5.6.1 System Status

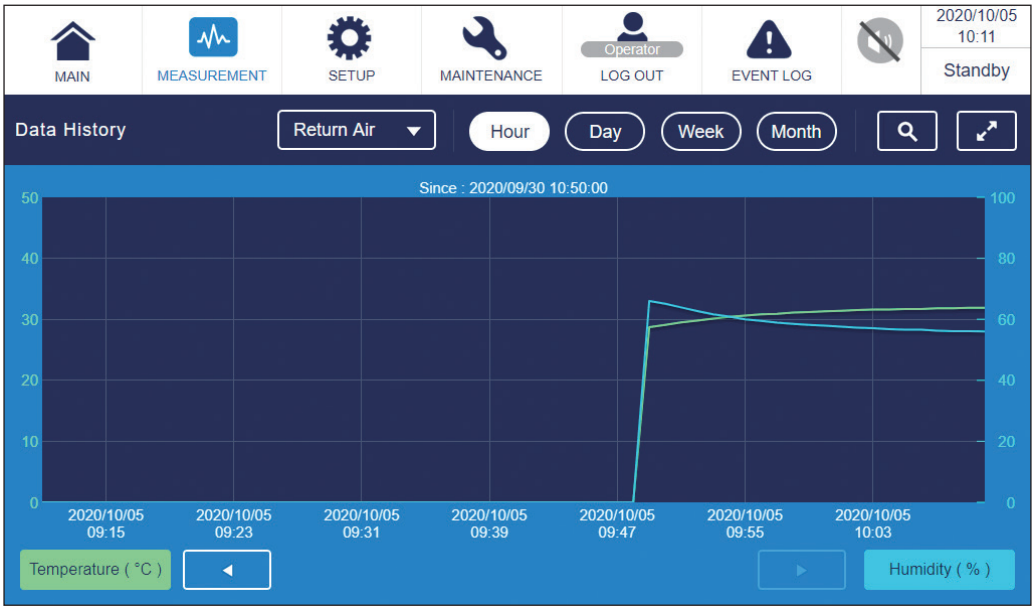
Path: Status Page → Measurement → System Status



Inquiry items available depend on logged-in operator type.

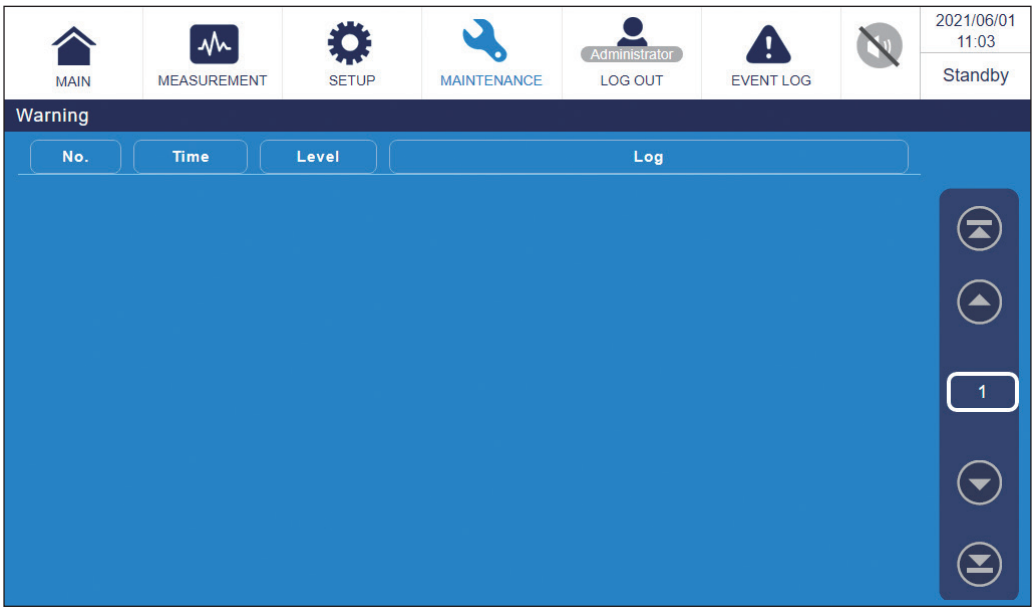
5.6.2 Data History

Path: Status Page → Measurement → Data History



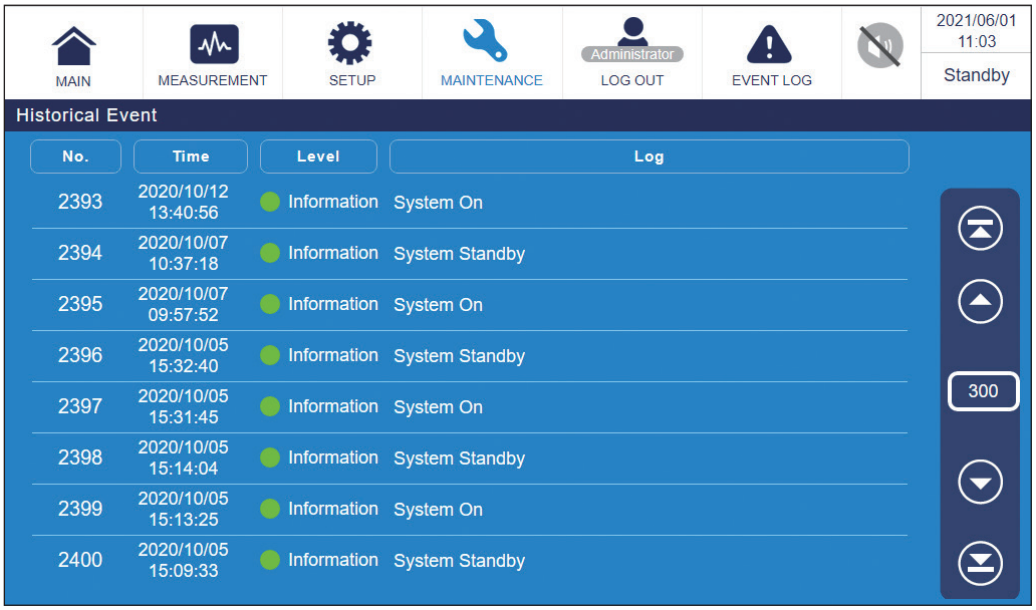
5.6.3 Warning

Path: Status Page → Maintenance Screen → Warning



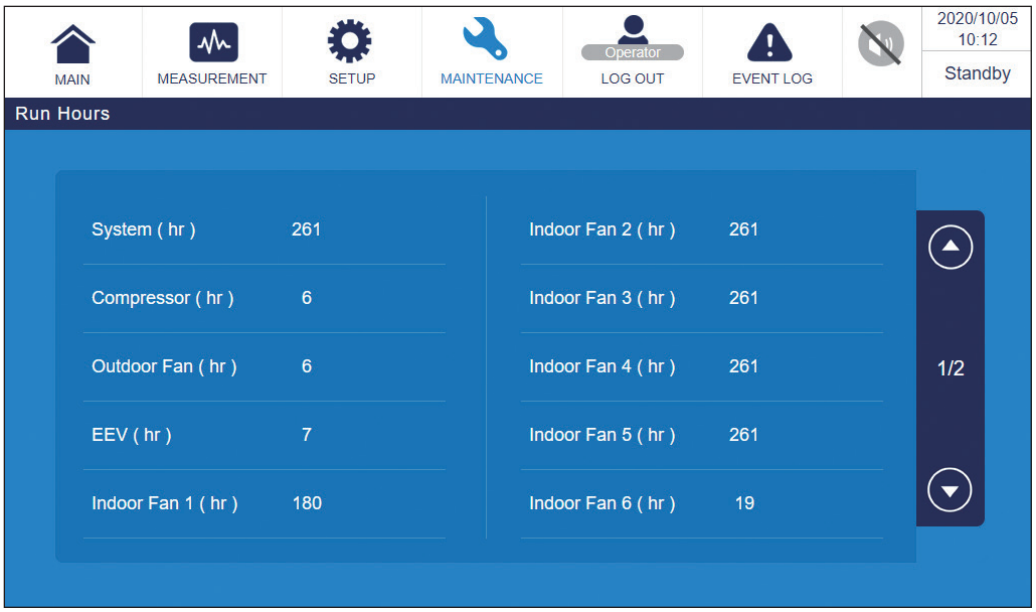
5.6.4 Historical Event

Path: Status Page → Maintenance Screen → Historical Event



5.6.5 Run Hours

Path: Status Page → Maintenance Screen → Run Hours

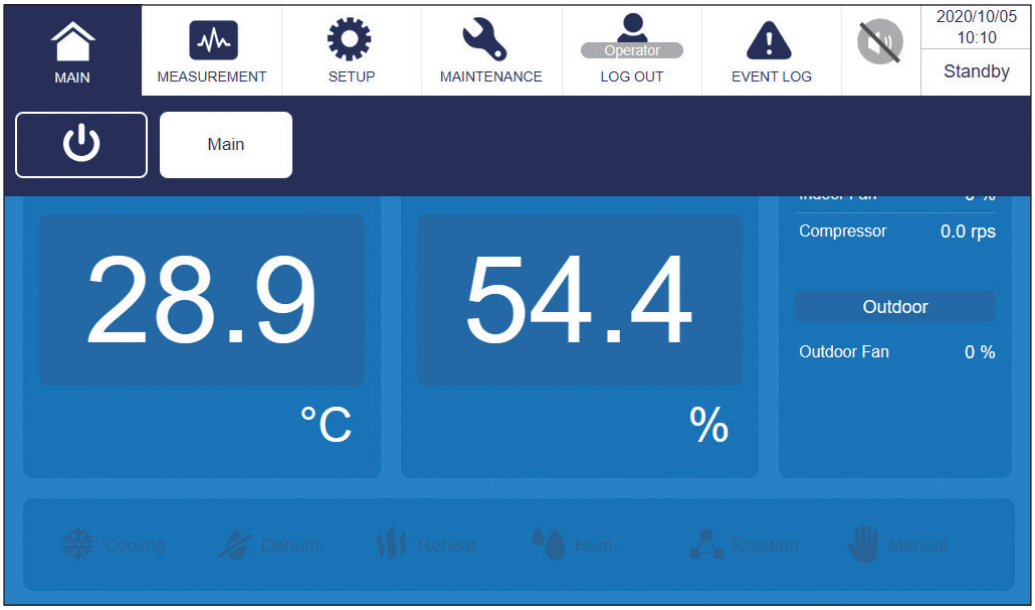


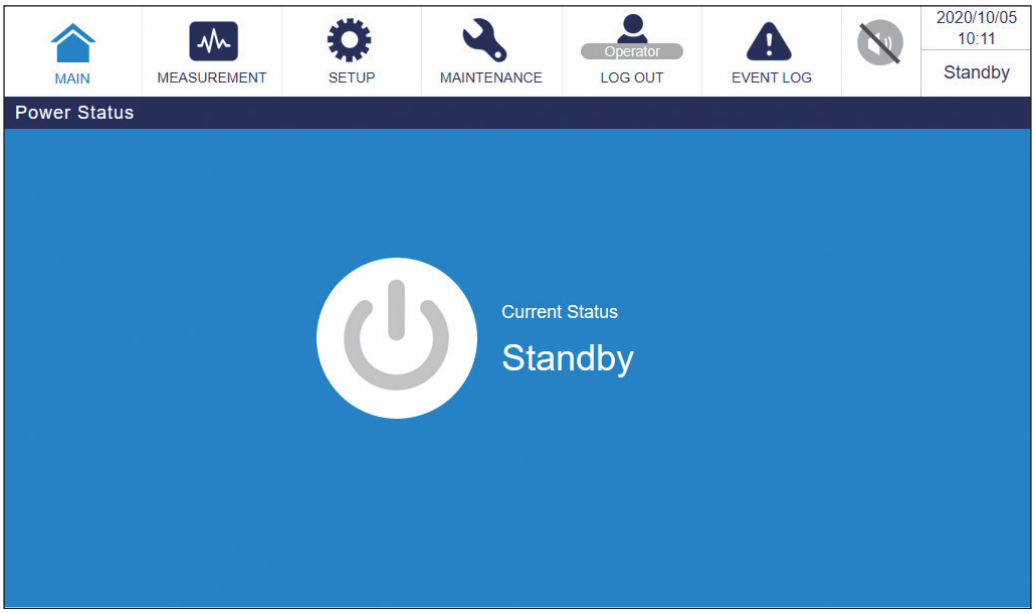
5.7 Shutdown

Path: Status Page → Main Screen → Power Icon

When clicked again during operation, the unit will begin the shut-down procedure.

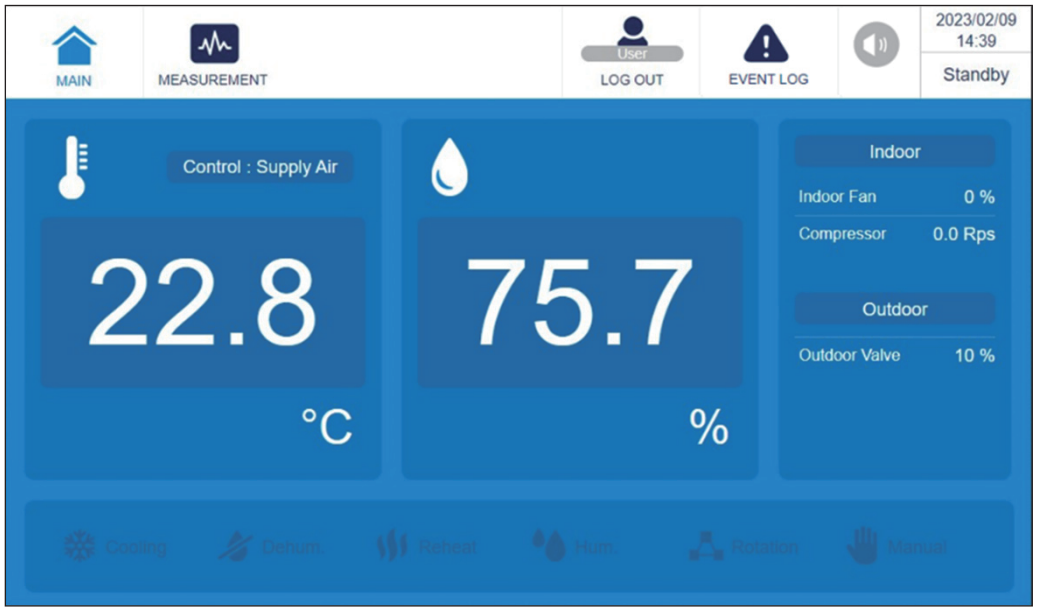
When the shutdown procedure is performed, the indoor fan will continue to operate and will be turned off after a delay of several tens of seconds.





5.8 RDA0304 unit

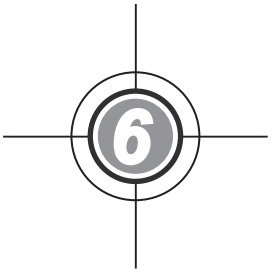
For RDA0304 model, the Outdoor valve would be displayed on the Touch panel.



The Outdoor valve, water Inlet, water outlet and flow rate can be displayed in the System Status page.




MAIN
MEASUREMENT
SETUP
MAINTENANCE
Operator
LOG OUT
EVENT LOG
2023/02/09
14:48
Standby
System Status
Air side
1/1
Return Air Temp1 (°C) 26.0
Return Air Humi (%) 66.7
Return Air Temp2 (°C) 22.8
Supply Air Temp1 (°C) 22.9
Supply Air Temp2 (°C) 22.8
Supply Air Humi (%) 80.1
Refrigerant Side
2/2
Outdoor Water Flow Rate (LPM) 0.6
System
1/2
Compressor (rps) 0
Outdoor Valve (%) 10
EEV OD (%) 0
Indoor Fan (%) 0
Reheater (%) 0
Humidifier (%) 0
Liquid Pipe Solenoid Valve 0
Input R Voltage (V) 109



Maintenance and Cleaning

6.1 Firmware Upgrade

6.2 Storage

6.3 Monthly Maintenance

6.4 Quarterly Maintenance

Periodic inspection and cleaning of the cooling unit can guarantee the equipment to operate at the best status.

The internal components such as fans and condensed water pan need periodic cleaning and inspection. This unit contains replaceable components and the cleaning and inspection of them can be done only by qualified service personnel.

6.1 Firmware Upgrade

For firmware upgrade, contact service personnel.

6.2 Storage

If you do not use this unit for long time and place it in storage, it is recommended that you wrap the unit using the original packing material and store it in a place with well controlled temperature and humidity (-15 — 65°C; 0 — 95% RH↓, non-condensing) and free of corrosion substance, accumulated dust and pollutants. Do not place the unit horizontally or deposit things in or on the cabinet.

6.3 Monthly Maintenance

Date: **Model:** **By:**

Environment inspection	
The cooling unit is installed in?	_____
Is it free of dust and surplus moisture?	❑Yes ❑No
Is the cabinet appearance perfect without damage?	❑Yes ❑No
Record the supply air temperature and humidity	_____ °C _____ %
Record the high/low pressure	_____ / _____ MPa
Record the setting point of air outlet	_____ °C _____ %
Can the air conditioning device reach the setting point?	❑Yes ❑No
Record the cooling water temperature at the water outlet	_____ °C
Internal inspection	
Is there any impurity or foreign matter in the condensed water pan or the drain pump water pan?	❑Yes ❑No
Do the air filters function well?	❑Yes ❑Needs to be replaced or cleaned
Does the water in the condensed water pipe flow smoothly?	❑Yes ❑No
Do the fans act normally and rotate without interference? (Please turn off the power if the fan needs to be repaired if it is abnormal.)	❑Yes ❑No
Does the compressor act normally, and are there discharge temperature, superheat, subcool neither too high nor too low?	❑Yes ❑No
Does the humidifier function normally?	❑Yes ❑No
Does the heater function normally?	❑Yes ❑No
Does the drainage pump function normally?	❑Yes ❑No
⚠ **Be sure to disconnect and lock the input power before making the following inspections.**	
Are the electronic joints stable and free of foreign matter?	❑Yes ❑No
Does the input power match the rated value of the cooling unit?	❑Yes ❑No
Notes: Signature: _____	

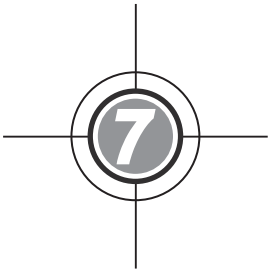
Copy this page for use during the inspection/maintenance procedures.

6.4 Quarterly Maintenance

Date: **Model:** **By:**

Clean Clean the following components and use an air gun if necessary.	
Filters (replace them if necessary)	❑Completed ❑Replaced
Front and rear doors	❑Completed
Condensed water pan	❑Completed
Condensed water pipe	❑Completed
⚠ **Be sure to disconnect and lock the input power before cleaning the following components.**	
Coil	❑Completed
Fans	❑Completed
Humidifying cylinder or wet film	❑Completed ❑Replaced
Heaters	❑Completed
Outdoor unit (coil and fan)	❑Completed
General inspections	
Does the system function normally? There is no high/low voltage alarm.	❑Yes ❑No
Does the alarm system operate normally?	❑Yes ❑No
Does the unit operate normally in all modes?	❑Yes ❑No
Does the water supply of the cooling water tower is normal	❑Yes ❑No
Notes: Signature: _____	

Copy this page for use during the inspection/maintenance procedures.



Troubleshooting

WARNING: The following troubleshooting actions can only be carried out by qualified service personnel. Unauthorized action may lead to major danger or equipment damage.

Warning	Possible cause	Elimination method
Return /Supply Air T High	The fans are old or abnormal.	Inspect fans, and change if necessary.
	The sensor detection is abnormal.	Inspect the function of the sensor and confirm the wiring is stable.
	The sensors are not correctly located.	Inspect each sensor's position.
	The heat load exceeds the cooling capacity.	Reduce the heat load or increase cooling units.
	Filter is clogged.	Replace or clean the filter.
	The coil is blocked.	Carry out the coil washing procedures.
	High-pressure is too high.	Check if the outdoor unit is running normally, and if there is any foreign matter clogging the air supply side.
	Low-pressure is too low.	Check if the filter is clogged.
	The control module is wrong.	Repair or replace the control board.
	The inverter is abnormal.	Repair the inverter.
	Condensed water is leaking.	Check condensed water drainage.
	Fire/smoke warning is triggered.	Check the external environment.
	Alarm settings are unreasonable.	Adjust alarm settings.
Return /Supply Air T Low	Heat load is low, and ambient temperature is low.	Contact service personnel.
	Alarm settings are unreasonable.	Adjust alarm settings.

Warning	Possible cause	Elimination method
Return /Supply RH High	The ambient humidity is high.	Increase air-tightness of the surrounding environment and lower ambient humidity.
	Alarm settings are unreasonable.	Adjust alarm settings.
Return /Supply RH Low	The ambient temperature is high.	Contact service personnel.
	Alarm settings are unreasonable.	Adjust alarm settings.
Supply Air Sensor T/RH abnormal	The sensor is abnormal or has bad contact.	Inspect the function of the sensor and confirm the wiring is stable.
Return Air Sensor T/RH abnormal	The sensor is abnormal or has bad contact.	Inspect the function of the sensor and confirm the wiring is stable.
Filter abnormal	The filter is clogged by foreign matter.	Replace or clean the filter.
Discharge Temp Abnormal	The sensor is abnormal or has bad contact.	Inspect the function of the sensor and confirm the wiring is stable.
Suction Temp Abnormal	The sensor is abnormal or has bad contact.	Inspect the function of the sensor and confirm the wiring is stable.
Liquid Temp Abnormal	The sensor is abnormal or has bad contact.	Inspect the function of the sensor and confirm the wiring is stable.
Ambient Temp Abnormal	The sensor is abnormal or has bad contact.	Inspect the function of the sensor and confirm the wiring is stable.
Discharge P Sensor Abnormal	The sensor is abnormal or has bad contact.	Inspect the function of the sensor and confirm the wiring is stable.
Suction P Sensor Abnormal	The sensor is abnormal or has bad contact.	Inspect the function of the sensor and confirm the wiring is stable.

Warning	Possible cause	Elimination method
High Pressure SW Protect	System management is abnormal, or outdoor environmental condition is abnormal.	Check if the outdoor unit condition is normal; also check if the refrigerant pipeline is dented or bent. If this occurs frequently, contact service personnel.
Low Pressure SW Protect	Refrigerant is leaking, or the indoor environmental condition is abnormal.	Check if the air return or air supply side of the indoor unit are clogged with foreign matter, and clear said foreign matter. Also check if the refrigerant pipeline is leaking. If the condition persists, contact service personnel.
Discharge Temp Over High	System management is abnormal	Check if there is leakage. Perform maintenance, then supplement refrigerant.
	The ambient temperature is high.	Check the ambient temperature.
	The outdoor unit is abnormal.	Check the outdoor unit.
Suction Temp Over Low	The indoor fan is abnormal.	Check the indoor fan.
	Filter drier is clogged.	Replace the Filter drier.
	Expansion valve is clogged or abnormal.	Replace the expansion valve.
	The ambient temperature is low.	Check the ambient temperature.
	Refrigerant is leaking.	Service the leak point, then supplement refrigerant.

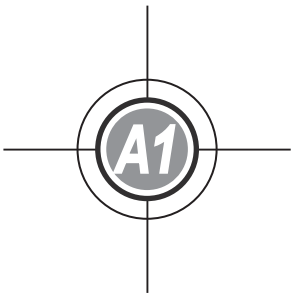
Warning	Possible cause	Elimination method
Discharge Pressure Over High	The outdoor unit is abnormal.	Check the outdoor unit.
	Too much refrigerant was refilled.	Recycle some refrigerant.
	The condenser is dirty and clogged.	Clean the condenser.
	The exhaust pressure sensor is abnormal.	Inspect the sensor function, and replace sensor if necessary.
	Low condensate water flow	Check condensate water flow supply source
Suction Pressure Over Low	The indoor fan is abnormal.	Check the indoor fan.
	Dry filter is clogged.	Replace the dry filter.
	Expansion valve is clogged or abnormal.	Replace the expansion valve.
	The ambient temperature is low.	Check the ambient temperature.
	Refrigerant is leaking.	Service the leak point, then supplement refrigerant.
Inverter Abnormal	The inverter is abnormal.	Contact service personnel.
Outdoor Fan Abnormal	The outdoor fan is abnormal.	Check the outdoor fan.
Outdoor Unit Comm Abnormal	Communication with outdoor unit is abnormal.	Check if the connector between the indoor and the outdoor units is loose and is connected correctly.
EEV Control Abnormal	The air pressure sensor is abnormal.	Inspect the functioning of the air intake pressure sensor.
	The air temperature sensor is abnormal.	Inspect the functioning of the air intake temperature sensor.
	The superheat is low.	Check if the expansion valve is normal and the resistance of the coil is normal. Is the ambient temperature too low.

Warning	Possible cause	Elimination method
Fan CH1~10 Abnormal	The # fan is abnormal or in bad contact.	Inspect if the fan is clogged by foreign matter or has failed and make sure that the connector is correctly connected.
Thermo Protect On	The over-heat protection switch is tripped.	Check if the electrical heater is connected correctly and check if the fan is functioning correctly.
Drain Pump Abnormal	The condensed water pump has failed.	Check the functioning of the condensed water pump; confirm that the condensed water pipe is correctly connected (no bending, damage or blockage), and the draining is normal. Or, replace the condensed water pump.
Leak Active	The condensed water overflows.	Observe if the water level in the condensed water pan is too high, inspect the condensed water pump, and make sure the condensed water pipe (without bending, damage or blockage) is correctly connected and the draining is normal. If upper piping is adopted, the vertical lift shall not exceed 4 M.
	The cabinet is not on a leveled base.	Use the levelers to level the cabinet.
	The thermal insulating rubber layer of pipe is damaged.	Inspect and repair the damage site.
Input Voltage abnormal	The input voltage is abnormal.	Check if the feed voltage of the unit meets the nominal value shown on the nameplate.

Warning	Possible cause	Elimination method
Input Frequency Abnormal	The input frequency is abnormal.	Check if the feed frequency of the unit meets the nominal value shown on the nameplate.
Group Comm abnormal	The CAN-Link port wiring is wrong or the unit ID is repeated.	Inspect the CAN-Link port wiring and confirm that the cooling units connected in series have independent and non-repeated IDs.
Fire	Fire or smoke detection is triggered.	Inspect the environment and troubleshoot
Smoke	Fire or smoke detection is triggered.	Inspect the environment and troubleshoot
Need Maintenance	The periodic maintenance has not been performed.	To guarantee the normal operation of the system, carry out the maintenance immediately.
Humidifier Failure alarm	No water supply on the inlet side of the humidifier.	Check the water supply and confirm that the water supply is normal.
	Humidifier abnormal.	Contact service staff.
Water Inlet T Abnormal	Water inlet temperature sensor fault	Replace the sensor with a new one.
Water outlet T Abnormal	Water outlet temperature sensor fault	Replace the sensor with a new one.
Outdoor Valve Abnormal	1. Abnormal ball valve. 2. Abnormal condensing water flow	1. Check whether the action and contact of the ball valve are good. 2. Check that the condensing water system is in good condition.

Warning	Possible cause	Elimination method
Water inlet T High	1. Condensing water from cooling tower temperature abnormal 2. The alarm setting value does not match	1. Check if the cooling tower is running 2. Check that the set values match.

When abnormality persists after troubleshooting is applied, contact service personnel.



Technical Specifications

Model	RWD030 (cooling only)	RWD030 (humidity control)	RWD030 (humidity control)
Maximum refrigerating capacity	30 kW	30 kW	30 kW
Input voltage	380~415V 3N~+G 50/60 Hz		
Maximum current	24A	29A	29A
Air Volume	5000 CMH	5000 CMH	5000 CMH
Compressor	Scroll inverter	Scroll inverter	Scroll inverter
Type refrigerant	R410A	R410A	R410A
Filter	G4	G4	G4
Electrical heater	--	3 kW	3 kW
Humidifier	--	1.5 kg/hr (wet film)	3 kg/hr (electrode)
Refrigerant piping	Refrigerant discharge pipe 5/8” Refrigerant liquid 1/2”	Refrigerant discharge pipe 5/8” Refrigerant liquid 1/2”	Refrigerant discharge pipe 5/8” Refrigerant liquid 1/2”
Dimensions (Width × Height × Depth)	300 × 2000 × 1090 mm	300 × 2000 × 1090 mm	300 × 2000 × 1090 mm
Weight	216 kg	220 kg	223 kg

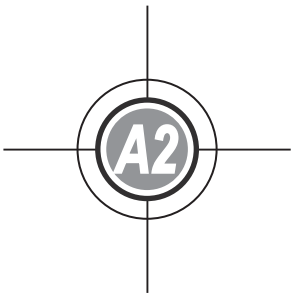
Measurement criteria for the maximum refrigerating capacity: Air return DBT 40.6°C and WBT 21.6°C for the indoor unit; air return DBT 35°C for the outdoor unit.

Ambient Operating OF Indoor Unit: DB4 ~ 40.6°C, RH30 ~ 80%.

Model	RDA037
Input voltage	380~415V 3N~+G 50/60 Hz
Maximum current	2.3A
Air Volume	12000 CMH
Dimensions (Width × Height × Depth)	1725 × 1120 × 1100 mm
Weight	110 kg

Ambient Operating OF Outdoor Unit: DB-20 ~ 40°C, RH > 5%

Model	RDA0304
Input voltage	220~240VAC~,50/60 HZ
Maximum current	0.3A
Dimensions (Width × Height × Depth)	600 × 1100 × 500 mm
Weight	73 kg
Water piping	Water inlet pipe Rc 1” Water outlet pipe Rc 1”



Warranty

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in material and workmanship within the warranty period. If the product has any failure problem within the warranty period, Seller will repair or replace the product at its sole discretion according to the failure situation. This warranty does not apply to normal wear or to damage resulting from improper installation, operation, usage, maintenance or irresistible force (i.e. war, fire, natural disaster, etc.), and this warranty also expressly excludes all incidental and consequential damages.

Maintenance service for a fee is provided for any damage out of the warranty period. If any maintenance is required, directly contact the supplier or Seller.

WARNING: The individual user must take care to determine prior to use whether the environment and the load characteristic are suitable, adequate or safe for the installation and the usage of this product. The User Manual must be carefully followed. Seller makes no representation or warranty as to the suitability or fitness of this product for any specific application.

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