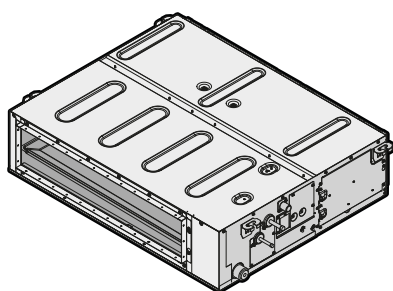




Installation and operation manual

CO₂ Conveni-Pack: indoor unit



FXSN50A2VEB
FXSN71A2VEB
FXSN112A2VEB

Installation and operation manual
CO₂ Conveni-Pack: indoor unit

English

Table of contents

1 About the documentation	3
1.1 About this document.....	3
2 Specific installer safety instructions	4
For the user	5
3 User safety instructions	5
3.1 General.....	5
3.2 Instructions for safe operation	6
4 About the system	7
4.1 System layout.....	7
5 User interface	8
6 Operation	8
6.1 Operation range	8
6.2 About operation modes	8
6.2.1 Basic operation modes	8
6.2.2 Special heating operation modes.....	9
6.3 To operate the system.....	9
7 Maintenance and service	9
7.1 Precautions for maintenance and service	9
7.2 Cleaning the air filter and air outlet.....	9
7.2.1 To clean the air outlet	9
7.2.2 To clean the air filter	9
7.3 About the refrigerant.....	10
7.3.1 About refrigerant leak detection	10
8 Troubleshooting	10
8.1 Symptoms that are NOT system malfunctions	11
8.1.1 Symptom: The system does not operate	11
8.1.2 Symptom: Dust comes out of the unit	11
8.1.3 Symptom: The units can give off odours.....	11
9 Disposal	11
For the installer	12
10 About the box	12
10.1 Indoor unit	12
10.1.1 To remove the accessories from the indoor unit.....	12
11 Unit installation	12
11.1 Preparing the installation site	12
11.1.1 Installation site requirements of the indoor unit	12
11.1.2 Additional installation site requirements for CO ₂ refrigerant.....	13
11.2 Mounting the indoor unit.....	14
11.2.1 Guidelines when installing the indoor unit.....	14
11.2.2 Guidelines when installing the ducting.....	15
11.2.3 Guidelines when installing the drain piping.....	15
11.3 Relocation	17
12 Piping installation	17
12.1 Preparing refrigerant piping	17
12.1.1 Refrigerant piping requirements.....	17
12.1.2 Refrigerant piping insulation	18
12.2 Connecting the refrigerant piping	18
12.2.1 To connect the refrigerant piping to the indoor unit	18
13 Electrical installation	18
13.1 Specifications of standard wiring components	19
13.2 To connect the electrical wiring to the indoor unit	19

13.3 To connect appropriate measures for appliances filled with CO ₂	20
14 Commissioning	20
14.1 Checklist before commissioning	20
14.2 To perform a test run.....	21
15 Configuration	21
15.1 Field setting	21
16 Technical data	22
16.1 Wiring diagram	22
16.1.1 Unified wiring diagram legend.....	22

1 About the documentation

1.1 About this document



INFORMATION

Make sure that the user has the printed documentation and ask him/her to keep it for future reference.

Target audience

Authorised installers + end users



INFORMATION

This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.



WARNING

Make sure installation, servicing, maintenance, repair and applied materials follow the instructions from Daikin and, in addition, comply with applicable legislation and are performed by qualified persons only. In Europe and areas where IEC standards apply, EN/IEC 60335-2-40 is the applicable standard.

Documentation set

This document is part of a documentation set. The complete set consists of:

- **General safety precautions:**
 - Safety instructions that you must read before installing
 - Format: Paper (in the box of the indoor unit)
- **Indoor unit installation and operation manual:**
 - Installation and operation instructions
 - Format: Paper (in the box of the indoor unit)
- **Installer and user reference guide:**
 - Preparation of the installation, good practices, reference data,...
 - Detailed step-by-step instructions and background information for basic and advanced usage
 - Format: Digital files on <http://www.daikineurope.com/support-and-manuals/product-information/>

Latest revisions of the supplied documentation may be available on the regional Daikin website or via your dealer.

The original documentation is written in English. All other languages are translations.

Technical engineering data

- A **subset** of the latest technical data is available on the regional Daikin website (publicly accessible).
- The **full set** of latest technical data is available on the Daikin Business Portal (authentication required).

2 Specific installer safety instructions

2 Specific installer safety instructions

Always observe the following safety instructions and regulations.



CAUTION

Do NOT insert fingers, rods or other objects into the air inlet or outlet. When the fan is rotating at high speed, it will cause injury.

General installation requirements



WARNING

Installation shall be done by an installer, the choice of materials and installation shall comply with the applicable legislation. In Europe, EN378 is the applicable standard.



WARNING

- Make sure to install all necessary countermeasures in case of refrigerant leakage according to standard EN378 (see "[11.1.2 Additional installation site requirements for CO₂ refrigerant](#)" [p 13]).
- Make sure to install a CO₂ leak detector (field supply) and enable the function for refrigerant leak detection (see "[15.1 Field setting](#)" [p 21]).



WARNING

Make sure installation, servicing, maintenance, repair and applied materials follow the instructions from Daikin and, in addition, comply with applicable legislation and are performed by qualified persons only. In Europe and areas where IEC standards apply, EN/IEC 60335-2-40 is the applicable standard.

Installation site (see "[11.1 Preparing the installation site](#)" [p 12])



CAUTION

Appliance NOT accessible to the general public, install it in a secured area, protected from easy access.

This unit, both indoor and outdoor, is suitable for installation in a commercial and light industrial environment.



CAUTION

Excessive concentrations of refrigerant R744 (CO₂) in a closed room can lead to unconsciousness and oxygen deficiency. Take appropriate measures.

See "[To determine the minimum number of appropriate measures](#)" [p 13].



WARNING

In case of mechanical ventilation, take care the ventilated air is exhausted to the outdoor space and NOT into another closed area.



WARNING

Install the unit ONLY in locations where the doors of the occupied space are NOT tight fitting.



WARNING

When using safety shut-off valves, make sure to install measures such as a bypassing piping with a pressure relief valve (from liquid pipe to gas pipe). When the safety shut-off valves close and no measures are installed, increased pressure may damage the liquid piping.

Installing the ducting (see "[11.2.2 Guidelines when installing the ducting](#)" [p 15])



CAUTION

- Make sure the installation of the duct does NOT exceed the setting range of the external static pressure for the unit. Refer to the technical datasheet of your model for the setting range.
- Make sure to install the canvas duct so vibrations are NOT transmitted to the duct or ceiling. Use a sound-absorbing material (insulation material) for the lining of the duct and apply vibration insulation rubber to the hanging bolts.
- When welding, make sure NOT to spatter onto the drain pan or the air filter.
- If the metal duct passes through a metal lath, wire lath or metal plate of the wooden structure, separate the duct and wall electrically.
- Install the outlet grille in a position where the airflow will not come into direct contact with people.
- Do NOT use booster fans in the duct. Use the function to adjust the fan rate setting automatically (see "[15.1 Field setting](#)" [p 21]).

Refrigerant piping installation (see "[12 Piping installation](#)" [p 17])



CAUTION

Do NOT reuse piping from previous installations.



CAUTION

Install the refrigerant piping or components in a position where they are unlikely to be exposed to any substance which may corrode components containing refrigerant, unless the components are constructed of materials that are inherently resistant to corrosion or are suitably protected against corrosion.



WARNING

- Use K65 piping for high-pressure applications with a working pressure of 120 bar or 90 bar, depending on its location in the system.
- Use K65 unions and fittings approved for a working pressure of 120 bar or 90 bar, depending on its location in the system.
- ONLY brazing is allowed for connection of pipes. No other types of connections are allowed.
- Expanding of pipes is NOT allowed.

Electrical installation (see "[13 Electrical installation](#)" [p 18])



WARNING

ALWAYS use multicore cable for power supply cables.



WARNING

- All wiring MUST be performed by an authorised electrician and MUST comply with the applicable legislation.
- Make electrical connections to the fixed wiring.
- All components procured on-site and all electrical construction MUST comply with the applicable legislation.



WARNING

- If the power supply has a missing or wrong N-phase, equipment might break down.
- Establish proper earthing. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earthing may cause electrical shock.
- Install the required fuses or circuit breakers.
- Secure the electrical wiring with cable ties so that the cables do NOT come into contact with sharp edges or piping, particularly on the high-pressure side.
- Do NOT use taped wires, stranded conductor wires, extension cords, or connections from a star system. They can cause overheating, electrical shock or fire.



WARNING

Use an all-pole disconnection type breaker with at least 3 mm between the contact point gaps that provide full disconnection under overvoltage category III.



WARNING

If the supply cord is damaged, it MUST be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

For the user

3 User safety instructions

Always observe the following safety instructions and regulations.

3.1 General



WARNING

If you are NOT sure how to operate the unit, contact your installer.



WARNING

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children SHALL NOT play with the appliance.

Cleaning and user maintenance SHALL NOT be made by children without supervision.



WARNING

To prevent electrical shocks or fire:

- Do NOT rinse the unit.
- Do NOT operate the unit with wet hands.
- Do NOT place any objects containing water on the unit.



CAUTION

- Do NOT place any objects or equipment on top of the unit.
- Do NOT sit, climb or stand on the unit.

- Units are marked with the following symbol:



This means that electrical and electronic products may NOT be mixed with unsorted household waste. Do NOT try to dismantle the system yourself: the dismantling of the system, treatment of the refrigerant, of oil and of other parts MUST be done by an authorised installer and MUST comply with applicable legislation.

Units MUST be treated at a specialised treatment facility for reuse, recycling and recovery. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health. For more information, contact your installer or local authority.

- Batteries are marked with the following symbol:



This means that the batteries may NOT be mixed with unsorted household waste. If a chemical symbol is printed beneath the symbol, this chemical symbol means that the battery contains a heavy metal above a certain concentration.

Possible chemical symbols are: Pb: lead (>0.004%).

Waste batteries MUST be treated at a specialised treatment facility for reuse. By ensuring waste batteries are disposed of correctly, you will help to prevent potential negative consequences for the environment and human health.

3 User safety instructions

3.2 Instructions for safe operation

WARNING

Do NOT modify, disassemble, remove, reinstall or repair the unit yourself as incorrect dismantling or installation may cause an electrical shock or fire. Contact your dealer.

CAUTION

If this unit is equipped with an electrically powered safety measure, such as a CO₂ refrigerant leak detector (field supply), in order to be effective, the unit must be electrically powered at all times after installation, except for short service periods.

CAUTION

- NEVER touch the internal parts of the controller.
- Do NOT remove the front panel. Some parts inside are dangerous to touch and appliance problems may happen. For checking and adjusting the internal parts, contact your dealer.

WARNING

This unit contains electrical and hot parts.

WARNING

Before operating the unit, be sure the installation has been carried out correctly by an installer.

CAUTION

It is unhealthy to expose your body to the air flow for a long time.

CAUTION

To avoid oxygen deficiency, ventilate the room sufficiently if equipment with burner is used together with the system.

CAUTION

Do NOT operate the system when using a room fumigation-type insecticide. Chemicals could collect in

the unit, and endanger the health of people who are hypersensitive to chemicals.

CAUTION

NEVER expose little children, plants or animals directly to the airflow.

WARNING

Do NOT place a flammable spray bottle near the air conditioner and do NOT use sprays near the unit. Doing so may result in a fire.

Maintenance and service (see "7 Maintenance and service" [p. 9])

WARNING: **System contains refrigerant under very high pressure.**

The system MUST be serviced by qualified persons ONLY.

CAUTION: Pay attention to the fan!

It is dangerous to inspect the unit while the fan is running.

Make sure to turn OFF the main switch before executing any maintenance task.

CAUTION

Do NOT insert fingers, rods or other objects into the air inlet or outlet. When the fan is rotating at high speed, it will cause injury.

WARNING

NEVER replace a fuse with a fuse of a wrong ampere ratings or other wires when a fuse blows out. Use of wire or copper wire may cause the unit to break down or cause a fire.

CAUTION

After a long use, check the unit stand and fitting for damage. If damaged, the unit may fall and result in injury.

CAUTION

Before accessing terminal devices, make sure to interrupt all power supply.



DANGER: RISK OF ELECTROCUTION

To clean the air conditioner or air filter, be sure to stop operation and turn all power supplies OFF. Otherwise, an electrical shock and injury may result.



WARNING

Be careful with ladders when working in high places.



WARNING

Do NOT let the indoor unit get wet.
Possible consequence: Electrical shock or fire.

About the refrigerant (see "[7.3 About the refrigerant](#)" [► 10])



WARNING

- Do NOT pierce or burn refrigerant cycle parts.
- Be aware that the refrigerant inside the system is odourless.



WARNING

The R744 refrigerant (CO₂) inside the unit is odourless, non-flammable and normally does NOT leak.

ALWAYS install a CO₂ detector according to the specifications of standard EN378.

If the refrigerant leaks in high concentrations in the room, it may have negative effects on its occupants such as asphyxiation and carbon dioxide poisoning. Ventilate the room and contact the dealer where you purchased the unit (see "[7.3.1 About refrigerant leak detection](#)" [► 10]).

Do NOT use the unit until a service person confirms that the part from which the refrigerant leaked has been repaired.

Troubleshooting (see "[8 Troubleshooting](#)" [► 10])



WARNING

Stop operation and shut OFF the power if anything unusual occurs (burning smells etc.).

Leaving the unit running under such circumstances may cause breakage, electrical shock or fire. Contact your dealer.

4 About the system



NOTICE

The appliance shall be stored so as to prevent mechanical damage.

The indoor units can be used for heating/cooling applications.



WARNING

Do NOT modify, disassemble, remove, reinstall or repair the unit yourself as incorrect dismantling or installation may cause an electrical shock or fire. Contact your dealer.



NOTICE

Do NOT use the system for other purposes. In order to avoid any quality deterioration, do NOT use the unit for cooling precision instruments, food, plants, animals, or works of art.



NOTICE

For future modifications or expansions of your system:

A full overview of allowable combinations (for future system extensions) is available in technical engineering data and should be consulted. Contact your installer to receive more information and professional advice.



CAUTION

If this unit is equipped with an electrically powered safety measure, such as a CO₂ refrigerant leak detector (field supply), in order to be effective, the unit must be electrically powered at all times after installation, except for short service periods.

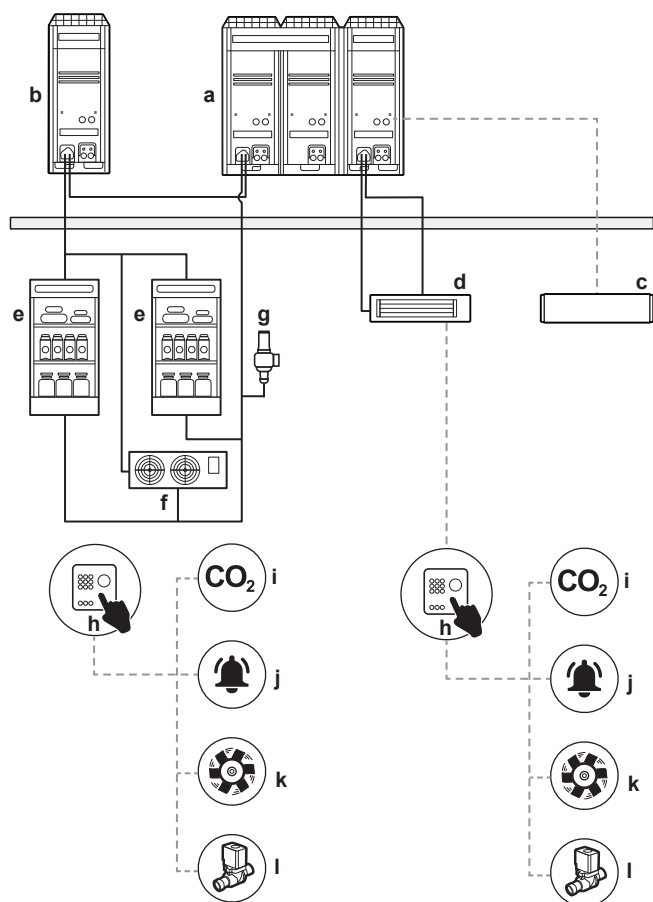
4.1 System layout



INFORMATION

The following illustration is an example and might NOT match your system layout.

5 User interface



- a Main outdoor unit (LRYEN10*)
- b Capacity up unit (LRNUN5*)
- c Communication box (BRR9B1V1)
- d Indoor unit for air conditioning
- e Indoor unit for refrigeration (showcase)
- f Indoor unit for refrigeration (blower coil)
- g Safety valve
- h CO₂ control panel
- i CO₂ detector
- j CO₂ alarm
- k CO₂ ventilator
- l Shut off valve

5 User interface



CAUTION

- NEVER touch the internal parts of the controller.
- Do NOT remove the front panel. Some parts inside are dangerous to touch and appliance problems may happen. For checking and adjusting the internal parts, contact your dealer.

This operation manual offers a non-exhaustive overview of the main functions of the system.

For more information about the user interface, see the operation manual of the installed user interface.

6 Operation

6.1 Operation range

Use the system in the following temperature and humidity ranges for safe and effective operation.

	Cooling and drying	Heating
Outdoor unit	-5~43°C DB	-20~16°C WB

	Cooling and drying	Heating
Indoor unit	14~24°C WB	15~27°C DB
Indoor humidity	≤80% ^(a)	—

^(a) To avoid condensation and water dripping out of the unit. If the temperature or the humidity is beyond these conditions, safety devices may be put in action and the air conditioner may not operate.

6.2 About operation modes



INFORMATION

Depending on the installed system, some operation modes will not be available.



- The air flow rate may adjust itself depending on the room temperature or the fan may stop immediately. This is not a malfunction.
- If the main power supply is turned off during operation, operation will restart automatically after the power turns back on again.
- **Setpoint.** Target temperature for the Cooling, Heating, and Auto operation modes.
- **Setback.** A function that keeps the room temperature in a specific range when the system is turned off (by the user, the schedule function, or the OFF timer).

6.2.1 Basic operation modes

The indoor unit can operate in various operation modes.

Icon	Operation mode
	Cooling. In this mode, cooling will be activated as required by the setpoint, or by Setback operation.
	Heating. In this mode, heating will be activated as required by the setpoint, or by Setback operation.
	Fan only. In this mode, air circulates without heating or cooling.
	Dry. In this mode, the air humidity will be lowered with a minimal temperature decrease. The temperature and fan speed are controlled automatically and cannot be controlled by the controller. Dry operation will not function if the room temperature is too low.
	Auto. In Auto mode, the indoor unit automatically switches between heating and cooling mode, as required by the setpoint.

6.2.2 Special heating operation modes

Operation	Description
Defrost	<p>To prevent a loss of heating capacity due to frost accumulation in the outdoor unit, the system will automatically switch to defrost operation.</p> <p>During defrost operation, the indoor unit fan will stop operation, and the following icon will appear on the home screen:</p>  <p>In order to protect the system, cold air may come from the indoor unit when the defrost operation starts on the outdoor unit side.</p> <p>The system will resume normal operation after approximately 6 to 8 minutes.</p>
Hot start	<p>During hot start, the indoor unit fan will stop operation, and the following icon will appear on the home screen:</p> 

6.3 To operate the system




INFORMATION

For setting of the operation mode or other settings, see the reference guide or operation manual of the user interface.

7 Maintenance and service

7.1 Precautions for maintenance and service



WARNING:  **System contains refrigerant under very high pressure.**

The system **MUST** be serviced by qualified persons **ONLY**.



NOTICE

Maintenance **MUST** be done by an authorised installer or service agent.

We recommend performing maintenance at least once a year. However, applicable legislation might require shorter maintenance intervals.



CAUTION

Do **NOT** insert fingers, rods or other objects into the air inlet or outlet. When the fan is rotating at high speed, it will cause injury.



NOTICE

NEVER inspect or service the unit by yourself. Ask a qualified service person to perform this work. However, as end user, you may clean the air filter, suction grille, air outlet and outside panels.



WARNING

NEVER replace a fuse with a fuse of a wrong ampere ratings or other wires when a fuse blows out. Use of wire or copper wire may cause the unit to break down or cause a fire.



CAUTION

After a long use, check the unit stand and fitting for damage. If damaged, the unit may fall and result in injury.



CAUTION

Before accessing terminal devices, make sure to interrupt all power supply.



DANGER: RISK OF ELECTROCUTION

To clean the air conditioner or air filter, be sure to stop operation and turn all power supplies **OFF**. Otherwise, an electrical shock and injury may result.



WARNING

Be careful with ladders when working in high places.

7.2 Cleaning the air filter and air outlet

7.2.1 To clean the air outlet



WARNING

Do **NOT** let the indoor unit get wet. **Possible consequence:** Electrical shock or fire.



NOTICE

- Do **NOT** use gasoline, benzene, thinner polishing powder or liquid insecticide. **Possible consequence:** Discoloration and deformation.
- Do **NOT** use water or air of 50°C or higher. **Possible consequence:** Discoloration and deformation.

Clean with a soft cloth. If it is difficult to remove stains, use water or a neutral detergent.

7.2.2 To clean the air filter

When to clean the air filter:

- Rule of thumb: Clean every 6 months. If the air in the room is extremely contaminated, increase the cleaning frequency.
- Depending on the settings, the user interface can display the **"Time to clean filter"** notification. Clean the air filter when the notification is displayed.
- If the dirt becomes impossible to clean, change the air filter (= optional equipment).

How to clean the air filter:



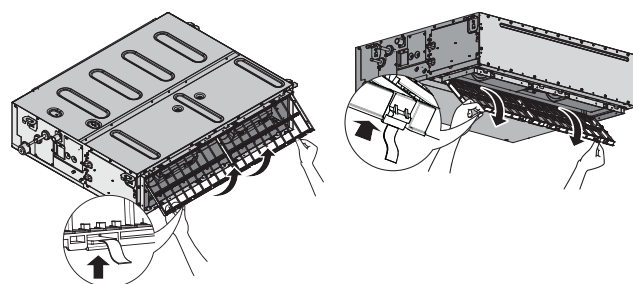
NOTICE

Do **NOT** use water of 50°C or higher. **Possible consequence:** Discoloration and deformation.

- 1 Remove the air filter.** Pull its cloth upward (in case of rear suction) or backward (in case of bottom suction).

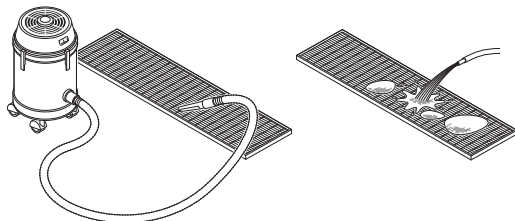
rear suction

bottom suction



8 Troubleshooting

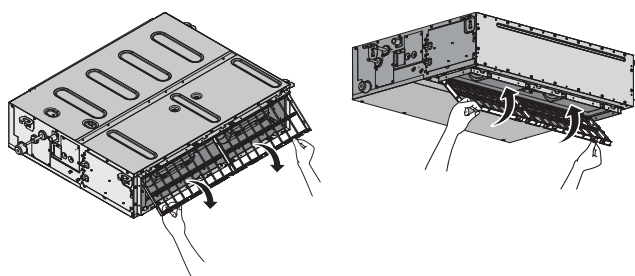
- Clean the air filter.** Use a vacuum cleaner or wash with water. If the air filter is very dirty, use a soft brush and neutral detergent.



- Dry the air filter in the shadow.**
- Re-attach the air filter.** Align the 2 hanger brackets and push the 2 clips in their place and pull the cloth if necessary.

rear suction

bottom suction



- Confirm that all hangers are fixed.
- In case of bottom suction, close the air inlet grille. In case of rear suction, close service duct opening.
- Turn ON the power.
- To remove warning screens, see the reference guide of the user interface.

7.3 About the refrigerant

This product contains refrigerant gases.

Refrigerant type: R744 (CO₂)



WARNING

- Do NOT pierce or burn refrigerant cycle parts.
- Be aware that the refrigerant inside the system is odourless.



WARNING

The R744 refrigerant (CO₂) inside the unit is odourless, non-flammable and normally does NOT leak.

ALWAYS install a CO₂ detector according to the specifications of standard EN378.

If the refrigerant leaks in high concentrations in the room, it may have negative effects on its occupants such as asphyxiation and carbon dioxide poisoning. Ventilate the room and contact the dealer where you purchased the unit (see "7.3.1 About refrigerant leak detection" [p 10]).

Do NOT use the unit until a service person confirms that the part from which the refrigerant leaked has been repaired.

7.3.1 About refrigerant leak detection

In order to detect refrigerant leaks, a CO₂ refrigerant leak detector (field supply) MUST be installed. The CO₂ refrigerant leak detector may require annual tests. For more details, see the documentation of the installed device.

In case a CO₂ refrigerant leak is detected

- the fan of the indoor unit is stopped to prevent the refrigerant from being spread,
- the user interface displays error code A0 or U9 (⚠ for the Madoka; to display error codes, refer to the reference guide of the Madoka),
- a warning sound will come from the user interface (only for Madoka with buzzer, see option list) or from another safety alarm in combination with a CO₂ refrigerant leak detector (field supply).

Actions required by the user

- Ventilate the room and immediately contact the dealer where you purchased the unit. Do NOT use the unit before the fault is fixed.

Actions required by the installer or the service person



INFORMATION

During detection of the refrigerant leakage, the contact between terminals T1 and T2 disconnects. During normal operation, the contact between terminals T1 and T2 is closed (acting as a short circuit).

- If field supplied stop-valves are NOT installed: Close the stop valves of the gas and liquid pipe on the outdoor unit.
- If field supplied shut-off valves are installed: If the refrigerant leak to the room has stopped, you can use the air conditioner for other rooms where the refrigerant leak did NOT occur.
- Locate and repair the cause of the refrigerant leak. If necessary, replace the indoor unit.
- Refill the refrigerant if needed.
- Perform manual power reset and resume operation.



NOTICE

After the refrigerant leakage is detected, the unit will send a signal at regular intervals to confirm if the CO₂ concentration is at a safe level. Even when the CO₂ concentration is at a safe level, do NOT resume operation before the fault is fixed and the refrigerant is refilled.

8 Troubleshooting

If one of the following malfunctions occur, take the measures shown below and contact your dealer.




WARNING

Stop operation and shut OFF the power if anything unusual occurs (burning smells etc.).

Leaving the unit running under such circumstances may cause breakage, electrical shock or fire. Contact your dealer.

The system MUST be repaired by a qualified service person.

Malfunction	Measure
If a safety device such as a fuse, a breaker or an earth leakage breaker frequently actuates or the ON/OFF switch does NOT function properly.	Turn OFF all main power supply switches to the unit.
If water leaks from the unit.	Stop operation.
The operation switch does NOT function properly.	Turn OFF the power supply.
If the user interface displays ⚠ or an error code.	Notify your installer and report the error code. To display error codes, see the reference guide of the user interface.

Malfunction	Measure
The user interface displays error code A0 or U9 (or ) , the fan stops and you can hear a warning sound from the user interface (in case of Madoka) or from another safety alarm in combination with a gas detection device (if installed).	A refrigerant leak may be detected (see "7.3.1 About refrigerant leak detection" ▶ 10)).

If the system does NOT operate properly except for the above mentioned cases and none of the above mentioned malfunctions is evident, investigate the system in accordance with the following procedures.

If after checking all above items, it is impossible to fix the problem yourself, contact your installer and state the symptoms, the complete model name of the unit (with manufacturing number if possible) and the installation date (possibly listed on the warranty card).

Malfunction	Measure
If the system does not operate at all.	<ul style="list-style-type: none"> Check if there is no power failure. Wait until power is restored. If a power failure occurs during operation, the system automatically restarts immediately after power is restored. Check if no fuse has blown or breaker is activated. Change the fuse or reset the breaker if necessary.
The system stops immediately after starting operation.	<ul style="list-style-type: none"> Check if air inlet or outlet of outdoor or indoor unit is not blocked by obstacles. Remove any obstacles and make sure the air can flow freely. Check if the air filter is clogged (see "7.2.2 To clean the air filter" ▶ 9)).
The system operates but cooling or heating is insufficient.	<ul style="list-style-type: none"> Check if air inlet or outlet of outdoor or indoor unit is not blocked by obstacles. Remove any obstacles and make sure the air can flow freely. Check if the air filter is clogged (see "7.2.2 To clean the air filter" ▶ 9)). Check the temperature setting. Refer to the manual of the user interface. Check if the fan speed setting is set to low speed. Refer to the manual of the user interface. Check if the air flow angle is proper. Refer to the manual of the user interface. Check for open doors or windows. Close doors and windows to prevent wind from coming in. Check if direct sunlight enters the room. Use curtains or blinds. Check if there are too many occupants in the room during cooling operation. Check if the heat source of the room is excessive. If the heat source of the room is excessive (when cooling). Cooling effect decreases if heat gain of the room is too large.

Malfunction	Measure
Operation stops suddenly. (user interface operation lamp or display blinks)	<ul style="list-style-type: none"> Check if the air filter is clogged (see "7.2.2 To clean the air filter" ▶ 9)). Check if air inlet or outlet of outdoor or indoor unit is not blocked by obstacles. Remove any obstacles, turn the breaker OFF and back ON. If the lamp or display still blinks, contact your dealer.
An abnormal function happens during operation.	<ul style="list-style-type: none"> The air conditioner may malfunction because of lightning or radio waves. Turn the breaker OFF and back ON.

8.1 Symptoms that are NOT system malfunctions

The following symptoms are NOT system malfunctions:

8.1.1 Symptom: The system does not operate

- The air conditioner does not start immediately after the ON/OFF button on the user interface is pressed. If the operation lamp lights, the air conditioner is in normal condition. It does not restart immediately because one of its safety devices actuates to prevent the air conditioner from being overloaded. The air conditioner will turn on again automatically after 3 minutes.
- The air conditioner does not start immediately after the power supply is turned on. Wait 1 minute until the microcomputer is prepared for operation.
- The air conditioner does not restart immediately when the temperature setting button is returned to its former position after pushing. It does not restart immediately because one of its safety devices actuates to prevent the air conditioner from being overloaded. The air conditioner will turn on again automatically after 3 minutes.
- The outdoor unit has stopped air conditioning (refrigeration continues). This is because the room temperature has reached the set temperature. The unit switches to fan operation. The actual operation is different from the user interface setting.
- The fan speed is different from the setting. Pressing the fan speed control button does not change the fan speed. When the room temperature reaches the set temperature in heating mode or the unit's maximum capacity is reached, the outdoor unit will stop air conditioning (refrigeration continues) and the indoor unit will operate in fan only mode (low fan speed). This is to prevent cool air from being blown directly onto anyone present in the room.

8.1.2 Symptom: Dust comes out of the unit

When the unit is used for the first time in a long time. This is because dust has gotten into the unit.

8.1.3 Symptom: The units can give off odours

The unit can absorb the smell of rooms, furniture, cigarettes, etc., and then emit it again.

9 Disposal



NOTICE

Do NOT try to dismantle the system yourself: dismantling of the system, treatment of the refrigerant, oil and other parts MUST comply with applicable legislation. Units MUST be treated at a specialised treatment facility for reuse, recycling and recovery.

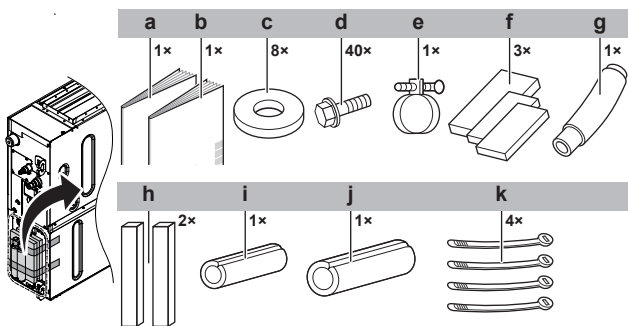
For the installer

10 About the box

10.1 Indoor unit

- At delivery, the unit **MUST** be checked for damage. Any damage **MUST** be reported immediately to the claims agent of the carrier.
- Bring the packed unit as close as possible to its final installation position to prevent damage during transport.

10.1.1 To remove the accessories from the indoor unit



- a Installation and operation manual
- b General safety precautions
- c Washers for hanger bracket
- d Screws for duct flanges
- e Metal clamp
- f Sealing pads: Large (drain pipe), medium 1 (gas pipe), medium 2 (liquid pipe)
- g Drain hose
- h Small sealing
- i Insulation piece: Small (liquid pipe)
- j Insulation piece: Large (gas pipe)
- k Tie wraps

11 Unit installation



WARNING

Installation shall be done by an installer, the choice of materials and installation shall comply with the applicable legislation. In Europe, EN378 is the applicable standard.



WARNING

- Make sure to install all necessary countermeasures in case of refrigerant leakage according to standard EN378 (see "[11.1.2 Additional installation site requirements for CO₂ refrigerant](#)" [p 13]).
- Make sure to install a CO₂ leak detector (field supply) and enable the function for refrigerant leak detection (see "[15.1 Field setting](#)" [p 21]).

11.1 Preparing the installation site

11.1.1 Installation site requirements of the indoor unit



INFORMATION

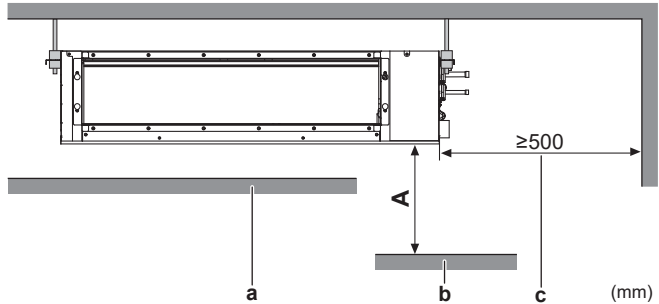
The sound pressure level is less than 70 dBA.



NOTICE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

- Spacing.** Mind the following requirements:



A Minimum distance to the floor

2.7 m to avoid accidental touching

2.5 m in case the fan is covered (e.g. false ceiling, grille, ...)

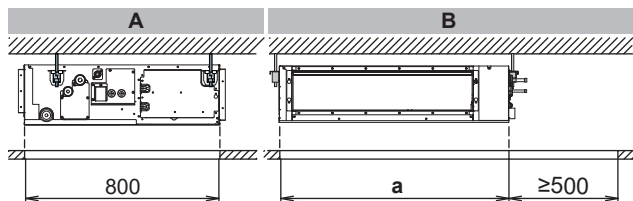
a Ceiling

b Floor surface

c Maintenance space

Service space and ceiling opening size

Make sure ceiling opening is big enough to ensure a sufficient clearance for maintenance and service.



A Side view: refrigerant piping, drain piping, control box

B Side view: air inlet

C Top view

a Ceiling opening

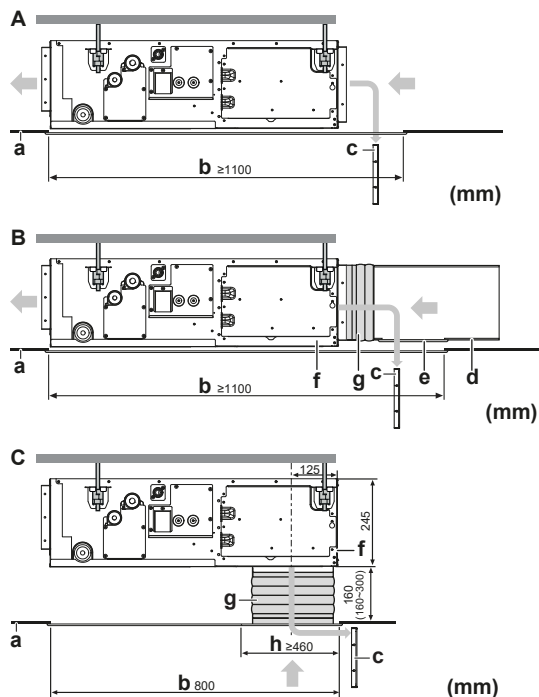
Class 50: 700 mm

Class 71: 1000 mm

Class 112: 1400 mm

b Service space

Installation options



- A Standard rear suction
- B Installation with rear canvas duct and duct service opening
- C Installation with bottom canvas duct and air inlet grill
- a Ceiling surface
- b Ceiling opening
- c Air filter removal route for air filter maintenance
- d Air inlet filter
- e Duct service opening
- f Interchangeable plate
- g Canvas connection for air inlet panel (field supply)
- h Air inlet panel (field supply) opening

INFORMATION

Some options may require additional service space. Refer to the installation manual of the used option before installation.

11.1.2 Additional installation site requirements for CO₂ refrigerant

WARNING

In case of mechanical ventilation, take care the ventilated air is exhausted to the outdoor space and NOT into another closed area.

Refrigerant basic characteristics	
Refrigerant	R744
RCL (refrigerant concentration limit)	0.072 kg/m ³
QLMV (quantity limit with minimum ventilation)	0.074 kg/m ³
QLAV (quantity limit with additional ventilation)	0.18 kg/m ³
Toxicity limit	0.1 kg/m ³
Safety class	A1

INFORMATION

For more information regarding allowable refrigerant charge and space volume calculations see the reference guide of the indoor unit.

Appropriate measures

INFORMATION

Appropriate measures are field supply. Choose and install all required appropriate measures in accordance with EN 378-3:2016.

- (natural or mechanical) ventilation
- safety shut-off valves
- safety alarm, in combination with a CO₂ refrigerant leak detector (a safety alarm alone is NOT considered an appropriate measure where occupants are restricted in their movements)
- CO₂ refrigerant leak detector

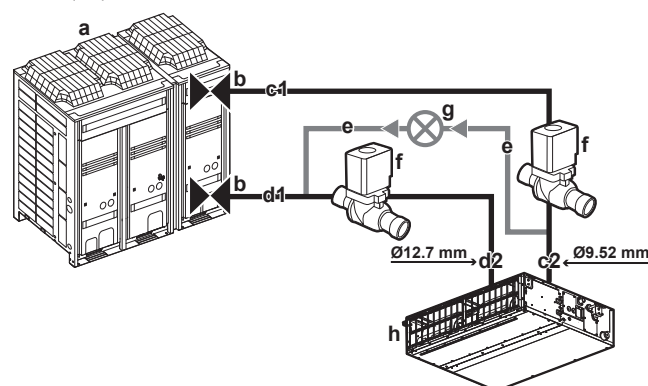
WARNING

Install the unit ONLY in locations where the doors of the occupied space are NOT tight fitting.

WARNING

When using safety shut-off valves, make sure to install measures such as a bypassing piping with a pressure relief valve (from liquid pipe to gas pipe). When the safety shut-off valves close and no measures are installed, increased pressure may damage the liquid piping.

Example: Install the bypass piping (e) with a pressure relief valve (g) leading from the liquid piping between indoor unit and the shut off valve (c2) to the gas piping between outdoor unit and the shut off valve (d1).



11-1 Installation layout example

- a Outdoor unit
- b Stop valve on the outdoor unit
- c1 Liquid piping between outdoor unit and the shut off valve
- c2 Liquid piping between indoor unit and the shut off valve
- d1 Gas piping between outdoor unit and the shut off valve
- d2 Gas piping between indoor unit and the shut off valve
- e Bypassing piping
- f Safety shut off valve
- g Pressure relief valve
- h Indoor unit

To determine the minimum number of appropriate measures

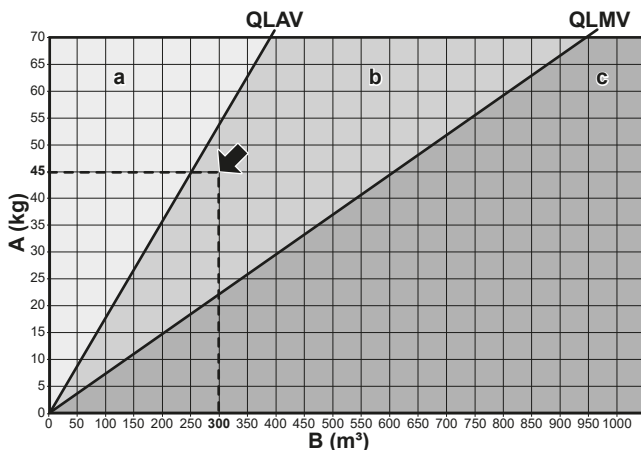
For occupancies other than on the lowest underground floor of the building

If the total refrigerant charge (kg) divided by the room volume ^(a) (m ³) is...	...the number of appropriate measures must be at least...
<QLMV	0
>QLMV and <QLAV	1
>QLAV	2

^(a) For occupied spaces with a floor area exceeding 250 m², use 250 m² as the floor area for determination of the room volume (Example: even if the room area is 300 m² and the room height is 2.5 m, calculate the room volume as 250 m²×2.5 m=625 m³)

11 Unit installation

Example: Total refrigerant charge in the system is 45 kg and room volume is 300 m³. $45/300=0.15$, which is $>QLMV$ (0.074) and $<QLAV$ (0.18), therefore install at least 1 appropriate measure in the room.



11-2 Example graph for calculation

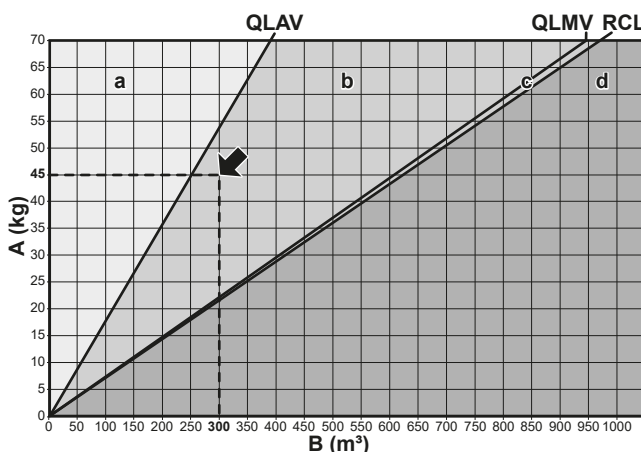
- A Refrigerant charge
- B Room volume
- a 2 appropriate measures required
- b 1 appropriate measure required
- c No measure required

For occupancies on the lowest underground floor of the building

If the total refrigerant charge (kg) divided by the room volume ^(a) (m ³) is...	...the number of appropriate measures must be at least...
$<RCL$	0
$>RCL$ and $\leq QLMV$	1
$>QLMV$ and $<QLAV$	2
$>QLAV$	Value CANNOT be exceeded!

^(a) For occupied spaces with a floor area exceeding 250 m², use 250 m² as the floor area for determination of the room volume
(**Example:** even if the room area is 300 m² and the room height is 2.5 m, calculate the room volume as 250 m² × 2.5 m = 625 m³)

Example: Total refrigerant charge in the system is 45 kg and room volume is 300 m³. $45/300=0.15$, which is $>RCL$ (0.072) and $<QLAV$ (0.18), therefore install at least 2 appropriate measures in the room.



11-3 Example graph for calculation

- A Refrigerant charge limit
- B Room volume
- a Installation is not allowed
- b 2 appropriate measures required
- c 1 appropriate measure required
- d No measure required



INFORMATION

Even if there is no refrigerating system on the lowest floor, where the largest system charge (kg) in the building divided by total volume of the lowest floor (m³) exceed the value for QLMV, provide a mechanical ventilation in accordance with EN 378-3:2016.

11.2 Mounting the indoor unit

11.2.1 Guidelines when installing the indoor unit



INFORMATION

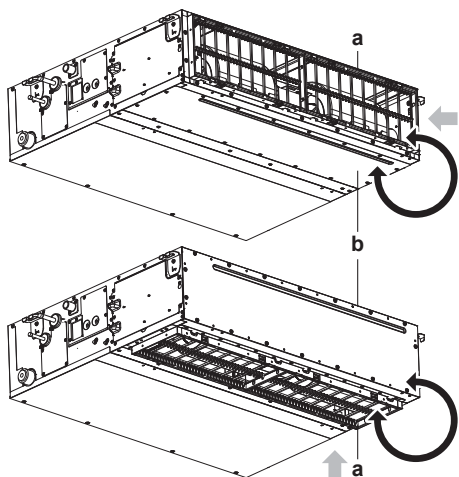
Optional equipment. When installing optional equipment, also read the installation manual of the optional equipment. Depending on the field conditions, it might be easier to install the optional equipment first.

Installation options



INFORMATION

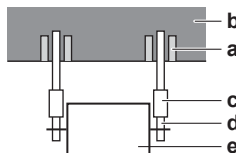
The unit can be used with bottom suction by replacing the interchangeable plate by the air filter holding plate.



- a Air filter holding plate with air filter(s)
- b Interchangeable plate

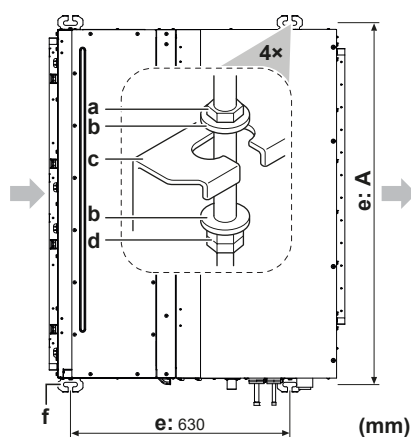
▪ **Ceiling strength.** Check whether the ceiling is strong enough to support the weight of the unit. If there is a risk, reinforce the ceiling before installing the unit.

- For existing ceilings, use anchors.
- For new ceilings, use sunken inserts, sunken anchors or other field supplied parts.



- a Anchor
- b Ceiling slab
- c Long nut or turn-buckle
- d Suspension bolt
- e Indoor unit

▪ **Suspension bolts.** Use M10 suspension bolts for installation. Attach the hanger bracket to the suspension bolt. Fix it securely using a nut and washer from the upper and lower sides of the hanger bracket.

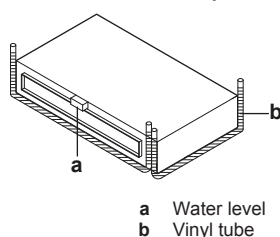


- a Nut (field supply)
- b Washer (accessories)
- c Hanger bracket
- d Double nut (field supply)
- e Suspension bolt spacing
- f Suspension bolt

11-1 Suspension bolt spacing (A)

Class	A (mm)
50	738
71	1038
112	1438

- **Level.** Make sure the unit is level at all four corners using a level or a water-filled vinyl tube.



- a Water level
- b Vinyl tube



NOTICE

Do NOT install the unit tilted. **Possible consequence:** If the unit is tilted against the direction of the condensate flow (the drain piping side is raised), the float switch might malfunction and cause water to drip.

11.2.2 Guidelines when installing the ducting

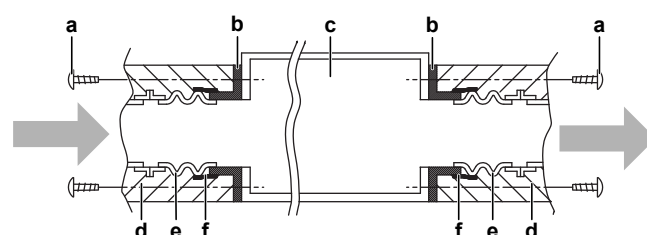


CAUTION

- Make sure the installation of the duct does NOT exceed the setting range of the external static pressure for the unit. Refer to the technical datasheet of your model for the setting range.
- Make sure to install the canvas duct so vibrations are NOT transmitted to the duct or ceiling. Use a sound-absorbing material (insulation material) for the lining of the duct and apply vibration insulation rubber to the hanging bolts.
- When welding, make sure NOT to spatter onto the drain pan or the air filter.
- If the metal duct passes through a metal lath, wire lath or metal plate of the wooden structure, separate the duct and wall electrically.
- Install the outlet grille in a position where the airflow will not come into direct contact with people.
- Do NOT use booster fans in the duct. Use the function to adjust the fan rate setting automatically (see "15.1 Field setting" ▶ 21)).

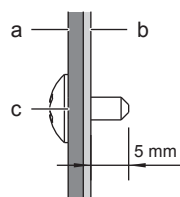
The ducting is to be field supplied.

- 1 Connect the canvas duct to the inside of the flange on both inlet and outlet sides. Connect the canvas duct using the accessory screws.
- 2 Connect the duct to the canvas duct.



- a Screws for duct flanges (accessory)
- b Flange (located on the unit)
- c Main unit
- d Insulation (field supply)
- e Canvas duct (field supply)
- f Aluminium tape (field supply)

- **Fixing screws.** When installing an air inlet duct, select fixing screws that stick out 5 mm on the inside of the flange to protect the air filter from damage during maintenance of the filter.



- a Air inlet duct
- b Inside of the flange
- c Fixing screw

- 3 Wind aluminium tape around the flange and duct connection. Make sure there are no air leaks at any other connection.
- 4 Insulate the duct to prevent condensation from forming. Use glass wool or polyethylene foam 25 mm thick.

11.2.3 Guidelines when installing the drain piping

Make sure condensation water can be evacuated properly. This involves:

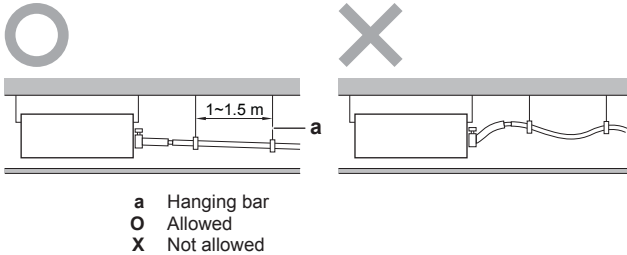
- General guidelines

11 Unit installation

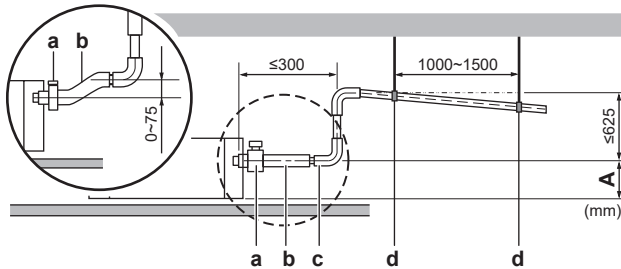
- Connecting the drain piping to the indoor unit
- Checking for water leaks

General guidelines

- Pipe length.** Keep drain piping as short as possible.
- Pipe size.** Keep the pipe size equal to or greater than that of the connecting pipe (vinyl pipe of 20 mm nominal diameter and 26 mm outer diameter).
- Slope.** Make sure the drain piping slopes down (at least 1/100) to prevent air from being trapped in the piping. Use hanging bars as shown.

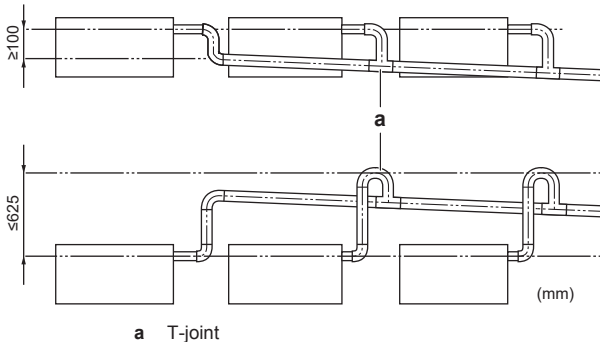


- Condensation.** Take measures against condensation. Insulate the complete drain piping in the building.
- Rising piping.** If necessary to make the slope possible, you can install rising piping.
 - Drain hose inclination: 0~75 mm to avoid stress on the piping and to avoid air bubbles.
 - Rising piping: ≤300 mm from the unit, ≤625 mm perpendicular to the unit.



- A In case of rear suction installation 231 mm
In case of installation with canvas duct (field supply) 350~530 mm
- a Metal clamp (accessory)
b Drain hose (accessory)
c Rising drain piping (vinyl pipe of 25 mm nominal diameter and 32 mm outer diameter) (field supply)
d Hanging bars (field supply)

- Combining drain pipes.** You can combine drain pipes. Make sure to use drain pipes and T-joints with the correct gauge for the operating capacity of the units.

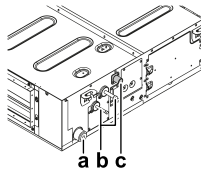


To connect the drain piping to the indoor unit



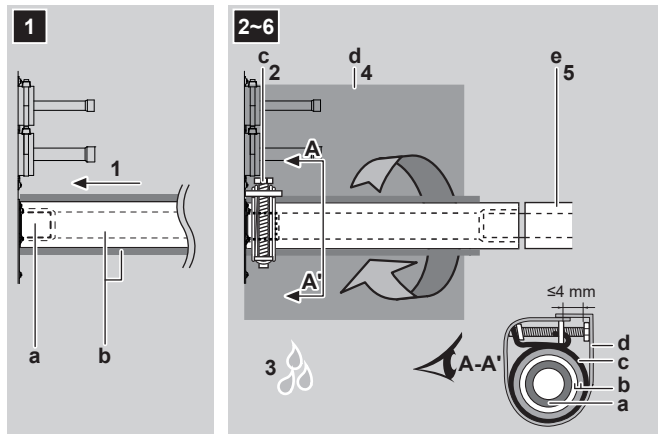
NOTICE

Incorrect connection of the drain hose might cause leaks, and damage the installation space and surroundings.



- a Drain outlet for maintenance
b Refrigerant pipes
c Drain pipe connection

- Push the drain hose as far as possible over the drain pipe connection.
- Tighten the metal clamp until the screw head is less than 4 mm from the metal clamp part.
- Check for water leaks (see ["To check for water leaks"](#) [▶ 17]).
- Wind the large sealing pad (= insulation) around the metal clamp and drain hose, and fix it with tie wraps (accessory).
- Connect the drain piping to the drain hose.



- a Drain pipe connection (attached to the unit)
b Drain hose (accessory)
c Metal clamp (accessory)
d Large sealing pad (accessory)
e Drain piping (field supply)

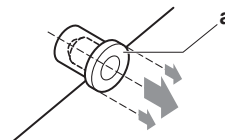


NOTICE

- Do NOT remove the drain pipe plug. Water might leak out.
- Use the drain outlet only to discharge the water before maintenance.
- Insert and remove the drain plug gently. Excessive force may deform the drain socket of the drain pan.

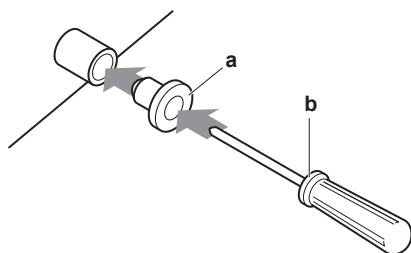
Pull out the plug.

- Do NOT wiggle the plug up and down.



Push in the plug.

- Set the plug and push it in using a Phillips screwdriver.



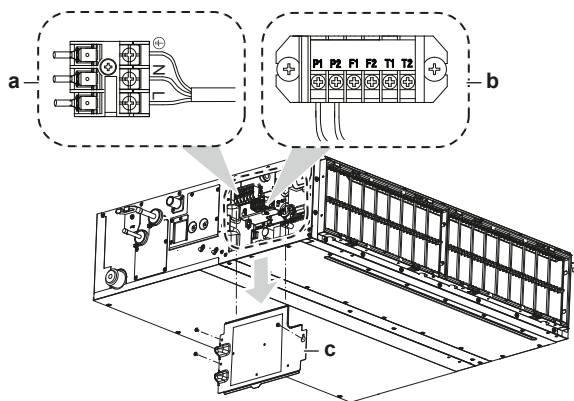
a Drain plug
b Phillips screwdriver

To check for water leaks

The procedure differs depending on whether installation of the system is already completed. When installation of the system is not yet completed, temporarily connect the user interface and power supply to the unit.

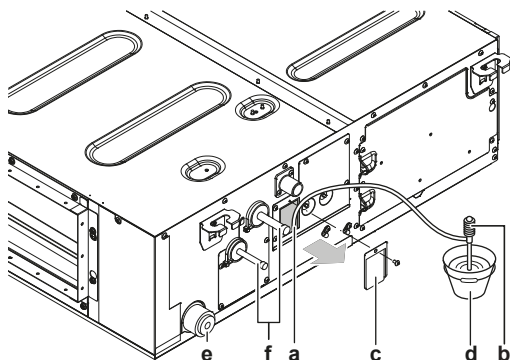
When installation of the system is not yet completed

- 1 Temporarily connect electrical wiring.
 - Remove the service cover (c).
 - Connect the power supply (a).
 - Connect the user interface (b).
 - Reattach the service cover.



a Power supply terminal block
b User interface terminal block
c Service cover with wiring diagram

- 2 Turn ON the power supply.
- 3 Start fan only operation (see the reference guide or the service manual of the user interface).
- 4 Remove the water inlet cover (1 screw).
- 5 Gradually pour approximately 1 l of water through the water inlet, and check for leaks.



a Water inlet
b Portable pump
c Water inlet cover
d Bucket (adding water through water inlet)
e Drain outlet for maintenance
f Refrigerant pipes

- 6 Turn OFF the power.

- 7 Disconnect the electrical wiring.
 - Remove the service cover.
 - Disconnect the power supply.
 - Disconnect the user interface.
 - Reattach the service cover.

When installation of the system is already completed

- 1 Start cooling operation (see the reference guide or the service manual of the user interface).
- 2 Gradually pour approximately 1 l of water through the water inlet, and check for leaks (see "When installation of the system is not yet completed" [p. 17]).

11.3 Relocation

Contact your dealer for removing and reinstalling the total unit. Moving units requires technical expertise.

12 Piping installation

12.1 Preparing refrigerant piping

12.1.1 Refrigerant piping requirements



NOTICE

Refrigerant R744 requires strict cautions for keeping the system clean and dry. Foreign materials (including mineral oils or moisture) should be prevented from getting mixed into the system.



NOTICE

The piping and other pressure-containing parts shall be suitable for refrigerant and oil. Use K65 copper-iron alloy tube system for high-pressure applications with a working pressure of 120 bar at the air conditioner side and 90 bar at the refrigeration side.

- Foreign materials inside pipes (including oils for fabrication) must be ≤30 mg/10 m.



NOTICE

If the ability to close the stop valves for field piping is wanted, the installer MUST install a pressure relief valve on the following piping:

- Outdoor unit to refrigeration indoor units: on liquid piping
- Outdoor unit to air conditioning indoor units: on liquid piping AND gas piping

Refrigerant piping diameter

Liquid piping	Gas piping
Ø9.5 mm	Ø12.7 mm

Refrigerant piping material

- **Piping material:** K65 copper-iron alloy (CuFe2P), maximum operating pressure = 120 bar
- **Piping temper grade and thickness:**

Outer diameter (Ø)	Temper grade	Thickness (t) ^(a)	
9.5 mm (3/8")	R420	≥0.65 mm	
12.7 mm (1/2")	(drawn)	≥0.85 mm	

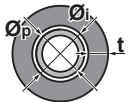
13 Electrical installation

^(a) Depending on the applicable legislation and the maximum working pressure of the unit (see "PS High" on the unit name plate), larger piping thickness might be required.

12.1.2 Refrigerant piping insulation

- Use polyethylene foam as insulation material:
 - with a heat transfer rate between 0.041 and 0.052 W/mK (0.035 and 0.045 kcal/mh°C)
 - with a heat resistance of at least 120°C
- Insulation thickness

Pipe outer diameter (Ø _p)	Insulation inner diameter (Ø _i)	Insulation thickness (t)
9.5 mm (3/8")	10~14 mm	≥10 mm
12.7 mm (1/2")	14~16 mm	≥10 mm



If the temperature is higher than 30°C and the humidity is higher than RH 80%, the thickness of the insulation materials should be at least 20 mm to prevent condensation on the surface of the insulation.

12.2 Connecting the refrigerant piping



DANGER: RISK OF BURNING/SCALDING

12.2.1 To connect the refrigerant piping to the indoor unit



CAUTION

Install the refrigerant piping or components in a position where they are unlikely to be exposed to any substance which may corrode components containing refrigerant, unless the components are constructed of materials that are inherently resistant to corrosion or are suitably protected against corrosion.

- Pipe length.** Keep refrigerant piping as short as possible.



WARNING

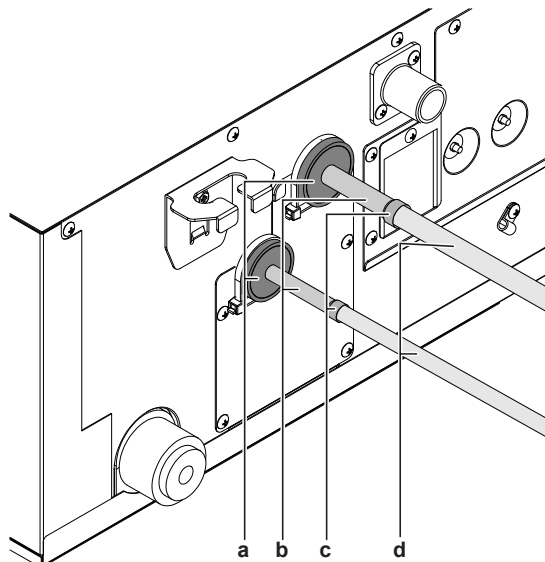
- Use K65 piping for high-pressure applications with a working pressure of 120 bar or 90 bar, depending on its location in the system.
- Use K65 unions and fittings approved for a working pressure of 120 bar or 90 bar, depending on its location in the system.
- ONLY brazing is allowed for connection of pipes. No other types of connections are allowed.
- Expanding of pipes is NOT allowed.

- Insert the field pipe into the piping on the indoor unit side.
- Connect refrigerant piping to the unit using only **brazed connections**.



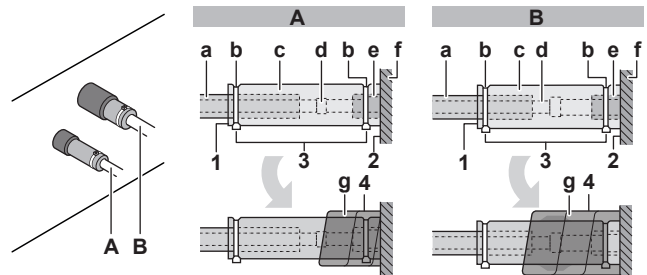
NOTICE

When brazing, place a wet cloth on the insulation attached on the unit (a) and make sure the temperature does not exceed 200°C.



- a Insulation attached on the unit
- b Piping on the indoor unit side
- c Brazed connection
- d Field piping

3 Insulate the refrigerant piping on the indoor unit as follows:



- A Liquid piping
- B Gas piping

- a Insulation material (field supply)
- b Tie wraps (accessory)
- c Insulation pieces: Large (gas pipe), small (liquid pipe) (accessory)
- d Brazed connection
- e Refrigerant pipe connection (attached to the unit)
- f Unit
- g Sealing pads: Medium 1 (gas pipe), medium 2 (liquid pipe) (accessories)

- Turn up the seams of the insulation pieces.
- Attach to the base of the unit.
- Tighten the tie wrap on the insulation pieces.
- Wrap the sealing pad from the base of the unit to the top of the brazed connection.



NOTICE

Make sure to insulate all refrigerant piping. Any exposed piping might cause condensation.

13 Electrical installation



DANGER: RISK OF ELECTROCUTION



WARNING

ALWAYS use multicore cable for power supply cables.



WARNING

Use an all-pole disconnection type breaker with at least 3 mm between the contact point gaps that provide full disconnection under overvoltage category III.


WARNING

If the supply cord is damaged, it **MUST** be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

13.1 Specifications of standard wiring components

Component		Class		
		50	71	112
Power supply cable	MCA ^(a)	1.4 A	2.0 A	2.9 A
	Voltage	220~240 V		
	Phase	1~		
	Frequency	50/60 Hz		
	Wire sizes	2.5 mm ² (3-core wire) H07RN-F (60245 IEC 66)		
Transmission wiring		0.75 to 1.25 mm ² (2-core wire)		
User interface cable		H05RN-F (60245 IEC 57) indoor↔outdoor - maximum 1000 m (total wiring length 2000 m) indoor↔user interface - maximum 500 m		
Recommended field fuse		16 A		
Residual current circuit breaker		Must comply with applicable legislation		

^(a) MCA=Minimum circuit ampacity. Stated values are maximum values (see electrical data of combination with indoor units for exact values).

13.2 To connect the electrical wiring to the indoor unit


NOTICE

- Follow the wiring diagram (delivered with the unit, located at the inside of the service cover).
- For instructions on how to connect the optional equipment, see the installation manual delivered with the optional equipment.
- Make sure the electrical wiring does NOT obstruct proper reattachment of the service cover.

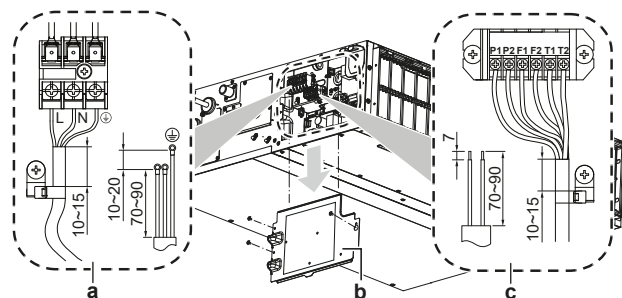
It is important to keep the power supply and the transmission wiring separated from each other. In order to avoid any electrical interference the distance between both wirings should ALWAYS be at least 50 mm.


NOTICE

Be sure to keep the power line and transmission line apart from each other. Transmission wiring and power supply wiring may cross, but may NOT run parallel.

- Remove the service cover.
- User interface cable:** Route the cable through the frame, connect the cable to the terminal block (symbols P1, P2) and fix the cable with a tie wrap.
- Transmission cable:** Route the cable through the frame, connect the cable to the terminal block (make sure the symbols F1, F2 match with the symbols on the outdoor unit), and fix the cable with a tie wrap.
- Appropriate measures (field supply):** If installation is required in accordance with "11.1.2 Additional installation site requirements for CO₂ refrigerant" [p 13], connect them to the terminal block (symbols T1, T2). See "13.3 To connect appropriate measures for appliances filled with CO₂" [p 20].

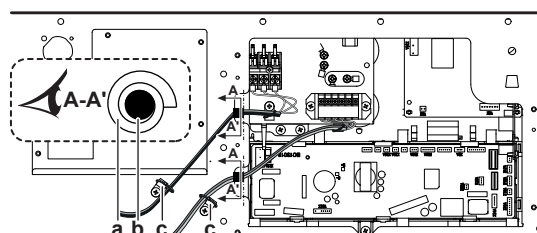
- Power supply cable:** Route the cable through the frame and connect the cable to the terminal block (L, N, earth).



- a Power supply and earth wiring
b Service cover with wiring diagram
c Transmission and user interface wiring

- Fix the cables with a tie wrap.

- Plastic clamp for tie wrap:** Pass tie wraps through the plastic clamps and fasten to fix the cables.



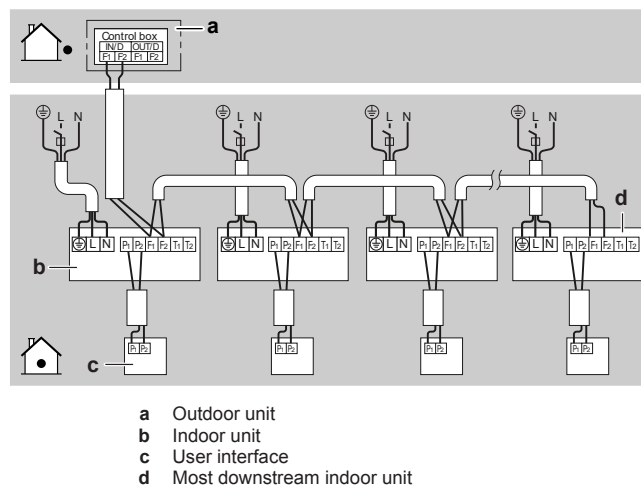
- a Small sealing (accessory)
b Wiring
c Plastic clamp for tie wrap

- Divide the small sealing (accessory) and wrap it around the cables to prevent water from entering the unit. Seal all gaps to prevent small animals from entering the system.

- Reattach the service cover.

Complete system example

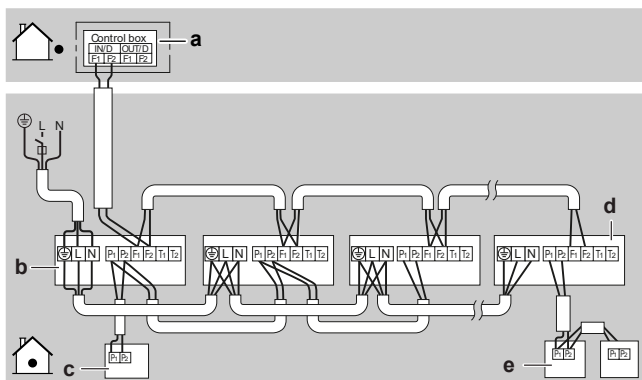
- Example:** 1 user interface controls 1 indoor unit.



- a Outdoor unit
b Indoor unit
c User interface
d Most downstream indoor unit

- Example:** Group control or use with 2 user interfaces.

14 Commissioning



- a Outdoor unit
- b Indoor unit
- c User interface (controls 3 indoor units)
- d Most downstream indoor unit
- e For use with 2 user interfaces

- **Setting master unit (Cooling/Heating masterhood).** In case of group control, connect the user interface wiring directly to the master unit. Do not connect user interfaces directly to slave units. Slave units are restricted in their operation by the master unit (e.g. 1 outdoor unit does not allow for 1 indoor unit to run in cooling operation while another runs in heating operation). For setting using the user interface, refer to the manual or reference guide of the user interface.



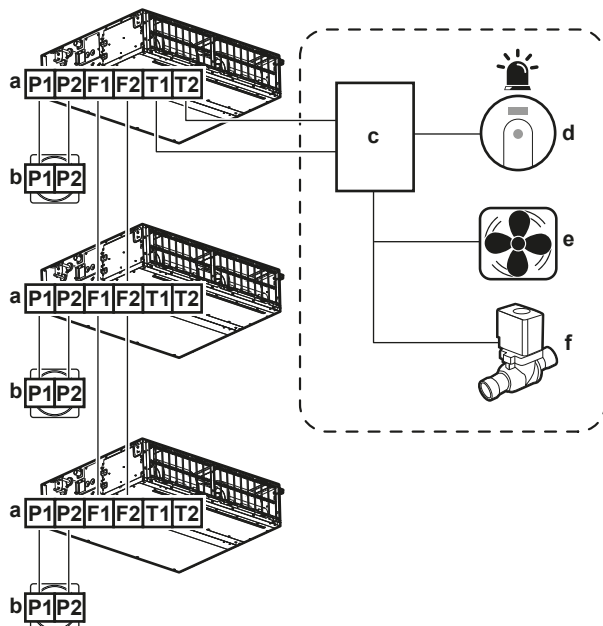
INFORMATION

In case of group control, it is not necessary to assign a group address to the indoor unit. The group address is automatically set when the power is turned on.

13.3 To connect appropriate measures for appliances filled with CO₂

Appropriate measures are field supplied. For details on how to connect wiring to the appropriate measures, refer to the documentation of the used appropriate measures.

- 1 Determine the minimum number of appropriate measures for the room in accordance with "11.1.2 Additional installation site requirements for CO₂ refrigerant" [p 13].
- 2 Connect the appropriate measures to the indoor unit terminal block, symbols T1, T2.
- 3 If the CO₂ refrigerant leak detector is installed, **enable the function for refrigerant leak detection** as described in "15.1 Field setting" [p 21].



▲ 13-1 Example of appropriate measures connection layout for one room

- a Terminal strip on the indoor unit
- b Terminal P1/P2 on the user interface
- c Control panel (field supply)
- d CO₂ refrigerant leak detector (field supply) in combination with a safety alarm (field supply)
- e Ventilation (natural or mechanical) (field supply)
- f Shut-off valves (field supply)

14 Commissioning



NOTICE

General commissioning checklist. Next to the commissioning instructions in this chapter, a general commissioning checklist is also available on the Daikin Business Portal (authentication required).

The general commissioning checklist is complementary to the instructions in this chapter and can be used as a guideline and reporting template during the commissioning and hand-over to the user.



NOTICE

ALWAYS operate the unit with thermistors and/or pressure sensors/switches. If NOT, burning of the compressor might be the result.

14.1 Checklist before commissioning

After the installation of the unit, first check the items listed below. Once all checks are fulfilled, the unit **MUST** be closed. Power-up the unit after it is closed.

<input type="checkbox"/>	You read the complete installation and operation instructions, as described in the installer and user reference guide .
<input type="checkbox"/>	The indoor unit is properly mounted.
<input type="checkbox"/>	The outdoor unit is properly mounted.
<input type="checkbox"/>	Make sure drain piping is properly installed, insulated and drainage flows smoothly. Check for water leaks. Possible consequence: Condensate water might drip.
<input type="checkbox"/>	The ducting is properly installed and insulated.

<input type="checkbox"/>	The refrigerant pipes (gas and liquid) are installed correctly and thermally insulated.
<input type="checkbox"/>	There are NO refrigerant leaks .
<input type="checkbox"/>	There are NO missing phases or reversed phases .
<input type="checkbox"/>	The system is properly earthed and the earth terminals are tightened.
<input type="checkbox"/>	The fuses or locally installed protection devices are installed according to this document, and have NOT been bypassed.
<input type="checkbox"/>	The power supply voltage matches the voltage on the identification label of the unit.
<input type="checkbox"/>	There are NO loose connections or damaged electrical components in the switch box.
<input type="checkbox"/>	There are NO damaged components or squeezed pipes on the inside of the indoor and outdoor units.
<input type="checkbox"/>	The stop valves (gas and liquid) on the outdoor unit are fully open.

14.2 To perform a test run



INFORMATION

- Perform the test run according to the instructions in the outdoor unit manual.
- The test run is only completed if there is no malfunction code displayed on the user interface or the outdoor unit 7-segment display.
- See the service manual for the complete list of error codes and a detailed troubleshooting guideline for each error.



NOTICE

Do NOT interrupt the test run.

15 Configuration

15.1 Field setting

Make the following field settings so that they correspond with the actual installation setup and with the needs of the user:

- Bottom suction or rear suction installation setting
- External static pressure setting using:
 - Automatic airflow adjustment setting
 - User interface
- Time to clean air filter
- Function for refrigerant leak detection

To set bottom suction or rear suction installation

If you have an installation with...	Then ⁽¹⁾		
	M	SW/C1	—/C2
Rear suction	13(23)	11	01
Bottom suction			02

To set automatic airflow adjustment

The automatic airflow adjustment function measures the air volume and static pressure and adjusts it towards the nominal air flow, whatever the length of duct.

- When the air conditioning unit is running in fan operation mode:

- Stop the air conditioning unit.
- Set —/C2 to 03.

Setting content:	Then ⁽¹⁾		
	M	SW/C1	—/C2
Airflow adjustment is OFF	11(21)	7	01
Press ON/OFF to return to normal operating mode.			03
Operation stops after 1 to 8 minutes.			02

If there is no change after airflow adjustment, perform the setting again.



INFORMATION

- The fan speed of the indoor unit is preset to ensure the standard external static pressure.
- To set a higher or lower external static pressure, reset the initial setting with the user interface.

User interface

Check the indoor unit setting: —/C2 of mode 11(21) must be set to 01.

Change —/C2 according to the external static pressure of the duct to be connected as in the table below.

External static pressure ⁽¹⁾					
M	SW/C1	—/C2	Class		
			50	71	112
13(23)	6	01	30	40	50
		02	—	—	—
		03	30	—	—
		04	40	40	—
		05	50	50	50
		06	60	60	60
		07	70	70	70
		08	80	80	80
		09	90	90	90
		10	100	100	100
		11	110	110	110
		12	120	120	120
		13	130	130	130
		14	140	140	140
		15	150	150	150

⁽¹⁾ Field settings are defined as follows:

- M**: Mode number – **First number**: for group of units – **Number between brackets**: for individual unit
- SW**: Setting number / **C1**: First code number
- : Value number / **C2**: Second code number
- : Default

16 Technical data

Time to clean air filter

This setting must correspond with the air contamination in the room. It determines the interval at which the **TIME TO CLEAN AIR FILTER** notification is displayed on the user interface. When using a wireless user interface, you must also set the address (see the installation manual of the user interface).

If you want an interval of... (air contamination)	Then ⁽¹⁾		
	M	SW/C1	—/C2
±2500 h (light)	10(20)	0	01
±1250 h (heavy)			02
No notification		3	02

Function for refrigerant leak detection

If the CO₂ refrigerant leak detector (field supply) is connected to the indoor unit (symbols T1, T2), setting —/C2 of mode 12(22) must be changed to 08. See "7.3.1 About refrigerant leak detection" [p. 10].

If the CO ₂ refrigerant leak detector (field supply) is...	Then ⁽¹⁾		
	M	SW/C1	—/C2
NOT installed	12(22)	1	01
Installed			08

- **2 or more user interfaces:** When using 2 or more user interfaces, one must be set to "MAIN" and the other to "SUB". For setting procedure see the installation and operation manual of the used user interface.

16 Technical data

- A **subset** of the latest technical data is available on the regional Daikin website (publicly accessible).
- The **full set** of latest technical data is available on the Daikin Business Portal (authentication required).

16.1 Wiring diagram

16.1.1 Unified wiring diagram legend

For applied parts and numbering, refer to the wiring diagram on the unit. Part numbering is by Arabic numbers in ascending order for each part and is represented in the overview below by "*" in the part code.

Symbol	Meaning	Symbol	Meaning
	Circuit breaker		Protective earth
	Connection		Protective earth (screw)
	Connector		Rectifier
	Earth		Relay connector
	Field wiring		Short-circuit connector
	Fuse		Terminal
	Indoor unit		Terminal strip
	Outdoor unit		Wire clamp

⁽¹⁾ Field settings are defined as follows:

- **M:** Mode number – **First number:** for group of units – **Number between brackets:** for individual unit
- **SW:** Setting number / **C1:** First code number
- **—:** Value number / **C2:** Second code number
- : Default

Symbol	Meaning	Symbol	Meaning
	Residual current device		

Symbol	Colour	Symbol	Colour
BLK	Black	ORG	Orange
BLU	Blue	PNK	Pink
BRN	Brown	PRP, PPL	Purple
GRN	Green	RED	Red
GRY	Grey	WHT	White
		YLW	Yellow

Symbol	Meaning
A*P	Printed circuit board
BS*	Pushbutton ON/OFF, operation switch
BZ, H*O	Buzzer
C*	Capacitor
AC*, CN*, E*, HA*, HE*, HL*, HN*, HR*, MR*_A, MR*_B, S*, U, V, W, X*A, K*R_*, NE	Connection, connector
D*, V*D	Diode
DB*	Diode bridge
DS*	DIP switch
E*H	Heater
FU*, F*U, (for characteristics, refer to PCB inside your unit)	Fuse
FG*	Connector (frame ground)
H*	Harness
H*P, LED*, V*L	Pilot lamp, light emitting diode
HAP	Light emitting diode (service monitor green)
HIGH VOLTAGE	High voltage
IES	Intelligent eye sensor
IPM*	Intelligent power module
K*R, KCR, KFR, KHuR, K*M	Magnetic relay
L	Live
L*	Coil
L*R	Reactor
M*	Stepper motor
M*C	Compressor motor
M*F	Fan motor
M*P	Drain pump motor
M*S	Swing motor
MR*, MRCW*, MRM*, MRN*	Magnetic relay
N	Neutral
n=*, N=*	Number of passes through ferrite core
PAM	Pulse-amplitude modulation
PCB*	Printed circuit board
PM*	Power module
PS	Switching power supply
PTC*	PTC thermistor

Symbol	Meaning
Q*	Insulated gate bipolar transistor (IGBT)
Q*C	Circuit breaker
Q*DI, KLM	Earth leak circuit breaker
Q*L	Overload protector
Q*M	Thermo switch
Q*R	Residual current device
R*	Resistor
R*T	Thermistor
RC	Receiver
S*C	Limit switch
S*L	Float switch
S*NG	Refrigerant leak detector
S*NPH	Pressure sensor (high)
S*NPL	Pressure sensor (low)
S*PH, HPS*	Pressure switch (high)
S*PL	Pressure switch (low)
S*T	Thermostat
S*RH	Humidity sensor
S*W, SW*	Operation switch
SA*, F1S	Surge arrester
SR*, WLU	Signal receiver
SS*	Selector switch
SHEET METAL	Terminal strip fixed plate
T*R	Transformer
TC, TRC	Transmitter
V*, R*V	Varistor
V*R	Diode bridge, Insulated-gate bipolar transistor (IGBT) power module
WRC	Wireless remote controller
X*	Terminal
X*M	Terminal strip (block)
Y*E	Electronic expansion valve coil
Y*R, Y*S	Reversing solenoid valve coil
Z*C	Ferrite core
ZF, Z*F	Noise filter



Copyright 2020 Daikin

DAIKIN INDUSTRIES CZECH REPUBLIC s.r.o.

U Nové Hospody 1/1155, 301 00 Plzeň Skvrňany, Czech Republic

DAIKIN EUROPE N.V.

Zandvoordestraat 300, B-8400 Oostende, Belgium

4P602815-1F 2021.07