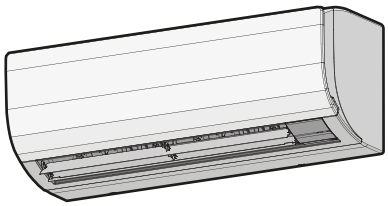
Installer and user reference guide

# VRV system air conditioner



FXAA15AUV1B
FXAA20AUV1B
FXAA25AUV1B
FXAA32AUV1B
FXAA40AUV1B
FXAA50AUV1B
FXAA63AUV1B

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# 1 About the documentation

## 1.1 About this document

### 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 General safety precautions

## 2.1 About the documentation

- The original documentation is written in English. All other languages are translations.
- The precautions described in this document cover very important topics, follow them carefully.
- The installation of the system, and all activities described in the installation manual and in the installer reference guide MUST be performed by an authorised installer.

### 2.1.1 Meaning of warnings and symbols

**DANGER**

Indicates a situation that results in death or serious injury.

**DANGER: RISK OF ELECTROCUTION**

Indicates a situation that could result in electrocution.

**DANGER: RISK OF BURNING/SCALDING**

Indicates a situation that could result in burning/scalding because of extreme hot or cold temperatures.

**DANGER: RISK OF EXPLOSION**

Indicates a situation that could result in explosion.

**WARNING**

Indicates a situation that could result in death or serious injury.

**WARNING: FLAMMABLE MATERIAL**

**CAUTION**

Indicates a situation that could result in minor or moderate injury.

**NOTICE**

Indicates a situation that could result in equipment or property damage.

**INFORMATION**

Indicates useful tips or additional information.

Symbols used on the unit:

| Symbol | Explanation |
|---|---|
|  | Before installation, read the installation and operation manual, and the wiring instruction sheet. |
|  | Before performing maintenance and service tasks, read the service manual. |
|  | For more information, see the installer and user reference guide. |
|  | The unit contains rotating parts. Be careful when servicing or inspecting the unit. |

Symbols used in the documentation:

| Symbol | Explanation |
|---|---|
|  | Indicates a figure title or a reference to it.<br>**Example:** "1–3 Figure title" means "Figure 3 in chapter 1". |
|  | Indicates a table title or a reference to it.<br>**Example:** "1–3 Table title" means "Table 3 in chapter 1". |

## 2.2 For the installer

### 2.2.1 General

If you are NOT sure how to install or operate the unit, contact your dealer.

**DANGER: RISK OF BURNING/SCALDING**

- Do NOT touch the refrigerant piping, water piping or internal parts during and immediately after operation. It could be too hot or too cold. Give it time to return to normal temperature. If you must touch it, wear protective gloves.
- Do NOT touch any accidental leaking refrigerant.

**WARNING**

Improper installation or attachment of equipment or accessories could result in electrical shock, short-circuit, leaks, fire or other damage to the equipment. Only use accessories, optional equipment and spare parts made or approved by Daikin.

**WARNING**

Make sure installation, testing and applied materials comply with applicable legislation (on top of the instructions described in the Daikin documentation).

**CAUTION**

Wear adequate personal protective equipment (protective gloves, safety glasses,...) when installing, maintaining or servicing the system.

**WARNING**

Tear apart and throw away plastic packaging bags so that nobody, especially children, can play with them. Possible risk: suffocation.

**WARNING**

Provide adequate measures to prevent that the unit can be used as a shelter by small animals. Small animals that make contact with electrical parts can cause malfunctions, smoke or fire.

**CAUTION**

Do NOT touch the air inlet or aluminium fins of the unit.

**CAUTION**

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

**NOTICE**

Works executed on the outdoor unit are best done under dry weather conditions to avoid water ingress.

In accordance with the applicable legislation, it might be necessary to provide a logbook with the product containing at least: information on maintenance, repair work, results of tests, stand-by periods,...

Also, at least, following information MUST be provided at an accessible place at the product:

- Instructions for shutting down the system in case of an emergency
- Name and address of fire department, police and hospital
- Name, address and day and night telephone numbers for obtaining service

In Europe, EN378 provides the necessary guidance for this logbook.

### 2.2.2 Installation site

- Provide sufficient space around the unit for servicing and air circulation.
- Make sure the installation site withstands the weight and vibration of the unit.
- Make sure the area is well ventilated. Do NOT block any ventilation openings.
- Make sure the unit is level.

Do NOT install the unit in the following places:

- In potentially explosive atmospheres.
- In places where there is machinery that emits electromagnetic waves. Electromagnetic waves may disturb the control system, and cause malfunction of the equipment.
- In places where there is a risk of fire due to the leakage of flammable gases (example: thinner or gasoline), carbon fibre, ignitable dust.
- In places where corrosive gas (example: sulphurous acid gas) is produced. Corrosion of copper pipes or soldered parts may cause the refrigerant to leak.

### 2.2.3 Refrigerant — in case of R410A or R32

If applicable. See the installation manual or installer reference guide of your application for more information.

**NOTICE**

Make sure refrigerant piping installation complies with applicable legislation. In Europe, EN378 is the applicable standard.

**NOTICE**

Make sure the field piping and connections are NOT subjected to stress.

**WARNING**

During tests, NEVER pressurize the product with a pressure higher than the maximum allowable pressure (as indicated on the nameplate of the unit).

**WARNING**

Take sufficient precautions in case of refrigerant leakage. If refrigerant gas leaks, ventilate the area immediately. Possible risks:

- Excessive refrigerant concentrations in a closed room can lead to oxygen deficiency.
- Toxic gas might be produced if refrigerant gas comes into contact with fire.

**DANGER: RISK OF EXPLOSION**

**Pump down – Refrigerant leakage.** If you want to pump down the system, and there is a leak in the refrigerant circuit:

- Do NOT use the unit's automatic pump down function, with which you can collect all refrigerant from the system into the outdoor unit. **Possible consequence:** Self-combustion and explosion of the compressor because of air going into the operating compressor.
- Use a separate recovery system so that the unit's compressor does NOT have to operate.

**WARNING**

ALWAYS recover the refrigerant. Do NOT release them directly into the environment. Use a vacuum pump to evacuate the installation.

**NOTICE**

After all the piping has been connected, make sure there is no gas leak. Use nitrogen to perform a gas leak detection.

**NOTICE**

- To avoid compressor breakdown, do NOT charge more than the specified amount of refrigerant.
- When the refrigerant system is to be opened, refrigerant MUST be treated according to the applicable legislation.

**WARNING**

Make sure there is no oxygen in the system. Refrigerant may only be charged after performing the leak test and the vacuum drying.

**Possible consequence:** Self-combustion and explosion of the compressor because of oxygen going into the operating compressor.

- In case recharge is required, see the nameplate of the unit. It states the type of refrigerant and necessary amount.

- The unit is factory charged with refrigerant and depending on pipe sizes and pipe lengths some systems require additional charging of refrigerant.
- Only use tools exclusively for the refrigerant type used in the system, this to ensure pressure resistance and prevent foreign materials from entering into the system.
- Charge the liquid refrigerant as follows:

| If | Then |
|---|---|
| A siphon tube is present<br>(i.e., the cylinder is marked with "Liquid filling siphon attached") | Charge with the cylinder upright.<br>  |
| A siphon tube is NOT present | Charge with the cylinder upside down.<br>  |

- Open refrigerant cylinders slowly.
- Charge the refrigerant in liquid form. Adding it in gas form may prevent normal operation.

**CAUTION**

When the refrigerant charging procedure is done or when pausing, close the valve of the refrigerant tank immediately. If the valve is NOT closed immediately, remaining pressure might charge additional refrigerant. **Possible consequence:** Incorrect refrigerant amount.

### 2.2.4 Electrical

**DANGER: RISK OF ELECTROCUTION**

- Turn OFF all power supply before removing the switch box cover, connecting electrical wiring or touching electrical parts.
- Disconnect the power supply for more than 10 minutes, and measure the voltage at the terminals of main circuit capacitors or electrical components before servicing. The voltage MUST be less than 50 V DC before you can touch electrical components. For the location of the terminals, see the wiring diagram.
- Do NOT touch electrical components with wet hands.
- Do NOT leave the unit unattended when the service cover is removed.

**WARNING**

If NOT factory installed, a main switch or other means for disconnection, having a contact separation in all poles providing full disconnection under overvoltage category III condition, MUST be installed in the fixed wiring.

**WARNING**

- ONLY use copper wires.
- Make sure the field wiring complies with the applicable legislation.
- All field wiring MUST be performed in accordance with the wiring diagram supplied with the product.
- NEVER squeeze bundled cables and make sure they do NOT come in contact with the piping and sharp edges. Make sure no external pressure is applied to the terminal connections.
- Make sure to install earth wiring. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earth may cause electrical shock.
- Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance.
- Make sure to install the required fuses or circuit breakers.
- Make sure to install an earth leakage protector. Failure to do so may cause electrical shock or fire.
- When installing the earth leakage protector, make sure it is compatible with the inverter (resistant to high frequency electric noise) to avoid unnecessary opening of the earth leakage protector.

**CAUTION**

- When connecting the power supply: connect the earth cable first, before making the current-carrying connections.
- When disconnecting the power supply: disconnect the current-carrying cables first, before separating the earth connection.
- The length of the conductors between the power supply stress relief and the terminal block itself must be as such that the current-carrying wires are tautened before the earth wire is in case the power supply is pulled loose from the stress relief.

**NOTICE**

Precautions when laying power wiring:

- Do NOT connect wiring of different thicknesses to the power terminal block (slack in the power wiring may cause abnormal heat).
- When connecting wiring which is the same thickness, do as shown in the figure above.
- For wiring, use the designated power wire and connect firmly, then secure to prevent outside pressure being exerted on the terminal board.
- Use an appropriate screwdriver for tightening the terminal screws. A screwdriver with a small head will damage the head and make proper tightening impossible.
- Over-tightening the terminal screws may break them.

Install power cables at least 1 m away from televisions or radios to prevent interference. Depending on the radio waves, a distance of 1 m may not be sufficient.

**WARNING**

- After finishing the electrical work, confirm that each electrical component and terminal inside the electrical components box is connected securely.
- Make sure all covers are closed before starting up the unit.

**NOTICE**

Only applicable if the power supply is three-phase, and the compressor has an ON/OFF starting method.

If there exists the possibility of reversed phase after a momentary black out and the power goes on and off while the product is operating, attach a reversed phase protection circuit locally. Running the product in reversed phase can break the compressor and other parts.

# 3 Specific installer safety instructions

Always observe the following safety instructions and regulations.

## General

**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.

## Unit installation (see "16 Unit installation" [▸ 49])

**WARNING**

The appliance shall be stored in a room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).

**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**

For walls containing a metal frame or a metal board, use a wall embedded pipe and wall cover in the feed-through hole to prevent possible heat, electrical shock, or fire.

## Refrigerant piping installation (see "17 Piping installation" [▸ 61])

**CAUTION**

Piping MUST be installed according to instructions given in "17 Piping installation" [▸ 61]. Only mechanical joints (e.g. braze+flare connections) that are compliant with the latest version of ISO14903 can be used.

**CAUTION**

- Do NOT use mineral oil on flared part.
- Do NOT reuse piping from previous installations.
- NEVER install a drier to this R32 unit to guarantee its lifetime. The drying material may dissolve and damage the system.

**CAUTION**

- Incomplete flaring may cause refrigerant gas leakage.
- Do NOT re-use flares. Use new flares to prevent refrigerant gas leakage.
- Use flare nuts that are included with the unit. Using different flare nuts may cause refrigerant gas leakage.

**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.

## Electrical installation (see "18 Electrical installation" [▸ 67])

**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 in 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.
- Do NOT install a phase advancing capacitor, because this unit is equipped with an inverter. A phase advancing capacitor will reduce performance and may cause accidents.

**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.

**CAUTION**

- Each indoor unit has to be connected to a separate user interface. Only a safety system compatible remote controller can be used as the user interface. See technical data sheet for remote controller compatibility (e.g. BRC1H52/82*).
- The user interface has to be put in the same room as the indoor unit. For details, please refer to the installation and operation manual of the user interface.

## 3.1 Instructions for equipment using R32 refrigerant

**WARNING: MILDLY FLAMMABLE MATERIAL**

The refrigerant inside this unit is mildly flammable.

**WARNING**

- Do NOT pierce or burn.
- Do NOT use means to accelerate the defrosting process or to clean the equipment, other than those recommended by the manufacturer.
- Be aware that R32 refrigerant does NOT contain an odour.

**WARNING**

The appliance shall be stored so as to prevent mechanical damage and in a well-ventilated room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater) and have a room size as specified below.

**WARNING**

Make sure installation, servicing, maintenance and repair comply with instructions from Daikin and with applicable legislation (for example national gas regulation) and are executed only by authorised persons.

**WARNING**

If one or more rooms are connected to the unit using a duct system, make sure:

- there are no operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater) in case the floor area is less than the minimum floor area A ($m^2$).
- no auxiliary devices, which may be a potential ignition source, are installed in the duct work (example: hot surfaces with a temperature exceeding 700°C and electric switching device);
- only auxiliary devices approved by the manufacturer are used in the duct work;
- air inlet AND outlet are connected directly to the same room by ducting. Do NOT use spaces such as a false ceiling as a duct for the air inlet or outlet.

**NOTICE**

- Precautions shall be taken to avoid excessive vibration or pulsation to refrigeration piping.
- Protection devices, piping and fittings shall be protected as far as possible against adverse environmental effects.
- Provision shall be made for expansion and contraction of long runs of piping.
- Piping in refrigerating systems shall be designed and installed such as to minimise the likelihood of hydraulic shock damaging the system.
- The indoor equipment and pipes shall be securely mounted and guarded such that accidental rupture of equipment or pipes cannot occur from events such as moving furniture or reconstruction activities.

**CAUTION**

Do NOT use potential sources of ignition in searching for or detection of refrigerant leaks.

**NOTICE**

- Do NOT re-use joints and copper gaskets which have been used already.
- Joints made in installation between parts of refrigerant system shall be accessible for maintenance purposes.

### 3.1.1 Installation space requirements

**CAUTION**

The total refrigerant charge in the system cannot exceed the requirements for minimum floor area of the smallest room that is served. For minimum floor area requirements for indoor units, see the installation and operation manual of the outdoor unit.

**WARNING**

This appliance contains R32 refrigerant. For the minimum floor area of the room in which the appliance is stored refer to installation and operation manual of the outdoor unit.

**NOTICE**

- Pipework shall be protected from physical damage.
- Installation of pipework shall be kept to a minimum.

# For the user

# 4 User safety instructions

Always observe the following safety instructions and regulations.

## 4.1 General

**WARNING**

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

**WARNING**

Children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge can only use this appliance if they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.

Children MUST NOT play with the appliance.

Cleaning and user maintenance MUST NOT be carried out 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 authorized installer and must comply with applicable legislation.

Units must be treated at a specialized 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 specialized 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.

## 4.2 Instructions for safe operation

**WARNING**

- Do NOT modify, disassemble, remove, reinstall or repair the unit yourself as incorrect dismantling or installation may cause an electric shock or fire. Contact your dealer.
- In case of accidental refrigerant leaks, make sure there are no naked flames. The refrigerant itself is entirely safe, non-toxic and mildly flammable, but it will generate toxic gas when it accidentally leaks into a room where combustible air from fan heaters, gas cookers, etc. is present. Always have qualified service personnel confirm that the point of leakage has been repaired or corrected before resuming operation.

**CAUTION**

This unit is equipped with electrically powered safety measures, such as a refrigerant leak detector. 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**

- ALWAYS use a user interface to adjust the angle of the flap. When the flap is swinging and you move it forcibly by hand, the mechanism will break.
- Be careful when adjusting the louvers. Inside the air outlet, a fan is rotating at high speed.

**CAUTION**

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

**WARNING**

Do NOT place objects below the indoor and/or outdoor unit that may get wet. Otherwise condensation on the unit or refrigerant pipes, air filter dirt or drain blockage may cause dripping, and objects under the unit may get dirty or damaged.

**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 "10 Maintenance and service" [▸ 32])**

**CAUTION: Pay attention to the fan!**

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

Be 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 electric shock and injury may result.

**WARNING**

Be careful with ladders when working in high places.

**CAUTION**

Turn off the unit before cleaning the air outlet, exterior, front panel and air filter.

**WARNING**

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

About the refrigerant (see "10.5 About the refrigerant" [▸ 35])

**WARNING: MILDLY FLAMMABLE MATERIAL**

The refrigerant inside this unit is mildly flammable.

**WARNING**

The appliance shall be stored in a room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).

**WARNING**

- Do NOT pierce or burn refrigerant cycle parts.
- Do NOT use cleaning materials or means to accelerate the defrosting process other than those recommended by the manufacturer.
- Be aware that the refrigerant inside the system is odourless.

**WARNING**

The refrigerant inside the unit is mildly flammable, but normally does NOT leak. If the refrigerant leaks in the room and comes in contact with fire from a burner, a heater, or a cooker, this may result in fire, or the formation of a harmful gas.

Turn off any combustible heating devices, ventilate the room, and contact the dealer where you purchased the unit.

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

**WARNING**

It is necessary to replace the sensor after every detection or at the end of the lifetime. Authorized person only MUST replace the sensor.

Troubleshooting (see "11 Troubleshooting" [▸ 38])

**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, electric shock or fire. Contact your dealer.

# 5 About the system

**WARNING**

- Do NOT modify, disassemble, remove, reinstall or repair the unit yourself as incorrect dismantling or installation may cause an electric shock or fire. Contact your dealer.
- In case of accidental refrigerant leaks, make sure there are no naked flames. The refrigerant itself is entirely safe, non-toxic and mildly flammable, but it will generate toxic gas when it accidentally leaks into a room where combustible air from fan heaters, gas cookers, etc. is present. Always have qualified service personnel confirm that the point of leakage has been repaired or corrected before resuming operation.

**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.

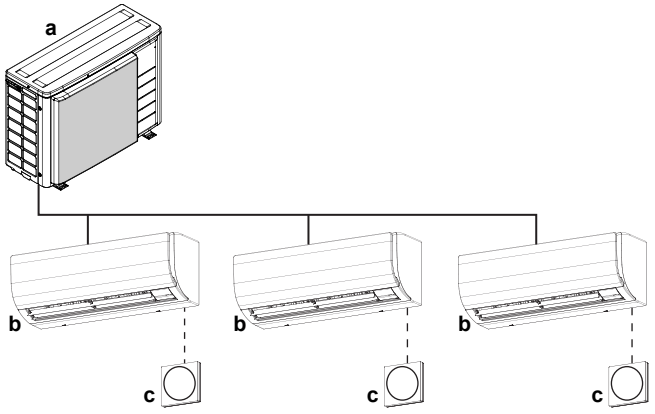
**CAUTION**

This unit is equipped with electrically powered safety measures, such as a refrigerant leak detector. In order to be effective, the unit must be electrically powered at all times after installation, except for short service periods.

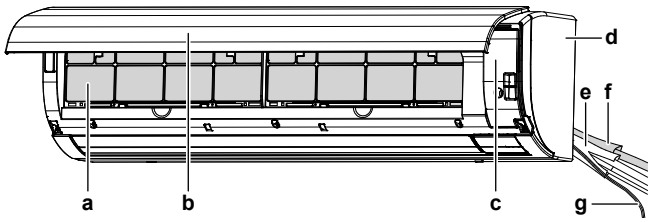
## 5.1 System layout

**INFORMATION**

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




**a** Outdoor unit
**b** Indoor unit
**c** User interface




**a** Air filter
**b** Front panel
**c** Service cover
**d** Front grille
**e** Refrigerant pipes
**f** Drain Hose
**g** Electrical wiring

## 5.2 Information requirements for fan coil units

| Item | Symbol | Value | Unit |
|---|---|---|---|
| Cooling capacity (sensible) | $P_{rated,c}$ | A | kW |
| Cooling capacity (latent) | $P_{rated,c}$ | B | kW |
| Heating capacity | $P_{rated,h}$ | C | kW |
| Total electric power input | $P_{elec}$ | D | kW |
| Sound power level (per speed setting, if applicable) | $L_{WA}$ | E | dB |
| Contact details:<br>DAIKIN INDUSTRIES CZECH REPUBLIC s.r.o. U Nové Hospody 1/1155, 301 00 Plzeň Skvrňany, Czech Republic | | | |

| | A | B | C | D | E |
|---|---|---|---|---|---|
| FXAA15 | 1.2 | 0.5 | 1.9 | 0.03 | 51 |
| FXAA20 | 1.5 | 0.7 | 2.5 | 0.03 | 52 |
| FXAA25 | 1.9 | 0.9 | 3.2 | 0.03 | 53 |
| FXAA32 | 2.5 | 1.1 | 4.0 | 0.04 | 55 |
| FXAA40 | 3.1 | 1.4 | 5.0 | 0.03 | 55 |
| FXAA50 | 3.9 | 1.7 | 6.3 | 0.04 | 58 |
| FXAA63 | 5.1 | 2.0 | 8.0 | 0.06 | 63 |

# 6 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.

**NOTICE**

Do NOT wipe the controller operation panel with benzine, thinner, chemical dust cloth, etc. The panel may get discoloured or the coating peeled off. If it is heavily dirty, soak a cloth in water-diluted neutral detergent, squeeze it well and wipe the panel clean. Wipe it with another dry cloth.

**NOTICE**

NEVER press the button of the user interface with a hard, pointed object. The user interface may be damaged.

**NOTICE**

NEVER pull or twist the electric wire of the user interface. It may cause the unit to malfunction.

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.

# 7 Before operation

**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.

**NOTICE**

Be sure to turn ON the power 6 hours before operation in order to have power running to the crankcase heater and to protect the compressor.

This operation manual is for the following systems with standard control. Before initiating operation, contact your dealer for the operation that corresponds to your system type and mark. If your installation has a customised control system, ask your dealer for the operation that corresponds to your system.

# 8 Operation

## 8.1 Operation range

**INFORMATION**

For the operation limits see the technical data of the connected outdoor unit.

## 8.2 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).

### 8.2.1 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.<br>The temperature and fan speed are controlled automatically and cannot be controlled by the controller.<br>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. |

### 8.2.2 Special heating operation modes

| Operation | Description |
|---|---|
| **Defrost** | To prevent a loss of heating capacity due to frost accumulation in the outdoor unit, the system will automatically switch to defrost operation.<br>During defrost operation, the indoor unit fan will stop operation, and the following icon will appear on the home screen:<br>  <br>The system will resume normal operation after approximately 6 to 8 minutes. |
| **Hot start** | During hot start, the indoor unit fan will stop operation, and the following icon will appear on the home screen:<br>  |

### 8.2.3 Airflow direction

**When.** Adjust the airflow direction as desired.

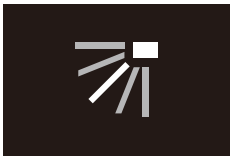
**What.** The system directs the airflow differently, depending on the user selection.

**CAUTION**

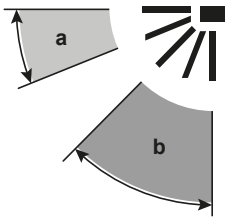
- ALWAYS use a user interface to adjust the angle of the flap. When the flap is swinging and you move it forcibly by hand, the mechanism will break.
- Be careful when adjusting the louvers. Inside the air outlet, a fan is rotating at high speed.

#### 1 Vertical airflow

The following vertical airflow directions can be set by the user interface:

| Direction | Screen |
|---|---|
| **Fixed position**. The indoor unit blows air in 1 of 5 fixed positions. |  |
| **Swing**. The indoor unit alternates between the 5 positions. |  |

**Note:** Recommended position of the horizontal blades (flaps) varies according to the operation mode.




**a** Cooling operation
**b** Heating operation

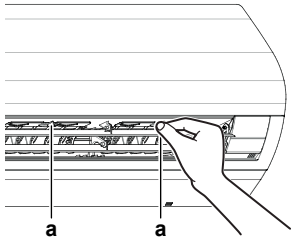
> **INFORMATION**
>
> For setting procedure of the vertical airflow direction, see the reference guide or the manual of the used user interface.

**2 Horizontal airflow**

- Horizontal airflow: by manually adjusting position of the vertical blades (louvers).

**To adjust the louvers (vertical blades)**

1. Adjust horizontal blades using the user interface so you can easily access the knobs on the vertical blades.
2. Hold knobs and move them down slightly.
3. Adjust left or right to the desired position while holding the knobs.




**a** Knobs

> **INFORMATION**
>
> When the unit is installed in a corner of a room, the direction of the louvers should be facing away from the wall. Efficiency will drop if a wall blocks the air.

## 8.3 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.

# 9 Energy saving and optimum operation

**CAUTION**

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

**WARNING**

Do NOT place objects below the indoor and/or outdoor unit that may get wet. Otherwise condensation on the unit or refrigerant pipes, air filter dirt or drain blockage may cause dripping, and objects under the unit may get dirty or damaged.

**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.

Observe the following precautions to ensure the system operates properly.

- Prevent direct sunlight from entering a room during cooling operation by using curtains or blinds.
- Make sure the area is well ventilated. Do NOT block any ventilation openings.
- Ventilate often. Extended use requires special attention to ventilation.
- Keep doors and windows closed. If the doors and windows remain open, air will flow out of your room causing a decrease in the cooling or heating effect.
- Be careful NOT to cool or heat too much. To save energy, keep the temperature setting at a moderate level.
- NEVER place objects near the air inlet or the air outlet of the unit. Doing so may cause a reduced heating/cooling effect or stop operation.
- When the display shows  (time to clean the air filter), clean the filters (see "10.2.3 To clean the air filter" [▸ 34]).
- Condensation may form if the humidity is above 80% or if the drain outlet gets blocked.
- Adjust the air outlet properly and avoid direct air flow to room inhabitants.

# 10 Maintenance and service

## 10.1 Precautions for maintenance and service

**NOTICE**

Maintenance MUST be done by an authorized installer or service agent.

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

**CAUTION: Pay attention to the fan!**

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

Be 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.

**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 outlet, exterior, front panel and air filter.

**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 electric shock and injury may result.

**WARNING**

Be careful with ladders when working in high places.

Following symbols may occur on the indoor unit:

| Symbol | Explanation |
|---|---|
|  | Measure the voltage at the terminals of main circuit capacitors or electrical components before servicing. |

## 10.2 Cleaning the unit

**CAUTION**

Turn off the unit before cleaning the air outlet, exterior, front panel and air filter.

### 10.2.1 To clean the air outlet and exterior

**WARNING**

Do NOT let the indoor unit get wet. **Possible consequence:** Electric 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.
- Do NOT scrub firmly when washing the blade with water. **Possible consequence:** The surface sealing peels off.

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

### 10.2.2 To clean the front panel

**WARNING**

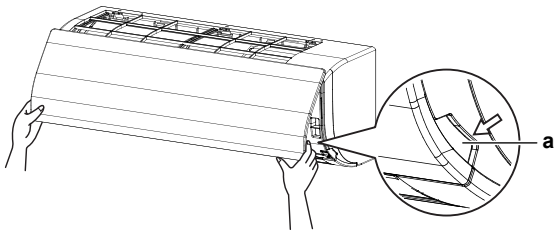
Do NOT let the indoor unit get wet. **Possible consequence:** Electric shock or fire.

**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.

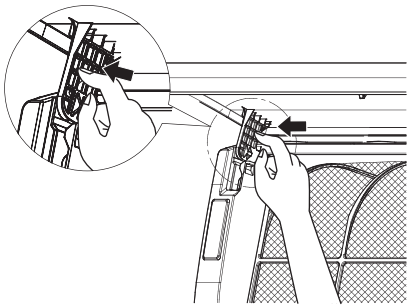
You can remove the front panel to clean it.

1 Open the front panel. Hold the front panel by the panel tabs on both sides and open until the panel stops.




**a** Panel tab

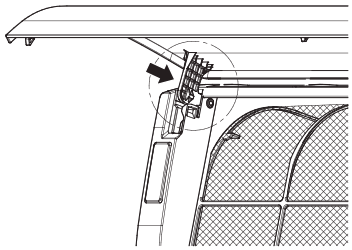
2 Remove the front panel by pushing hooks on either side of the front panel towards the side of the unit and remove the panel.



3 Clean the front panel. Wipe it with a soft cloth soaked in water by using only neutral detergent.

4 Wipe panel with a dry soft cloth and let it dry up in the shade.

5 Attach the front panel. Align the hooks of the front panel with the slots and push them all the way in.



6 Close the front panel slowly.

### 10.2.3 To clean the air filter

**NOTICE**

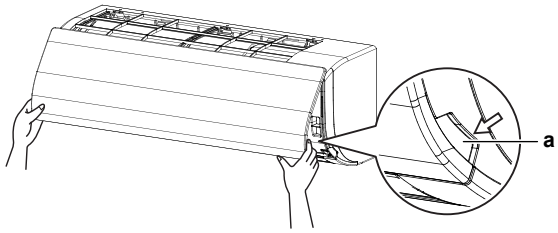
Do NOT use water of 50°C or higher. **Possible consequence:** Discoloration and deformation.

**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).

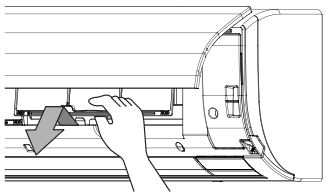
**How to clean the air filter**:

1 **Open the front panel.** Hold the front panel by the panel tabs on both sides and open until the panel stops.

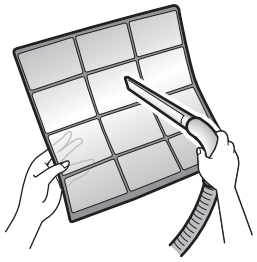


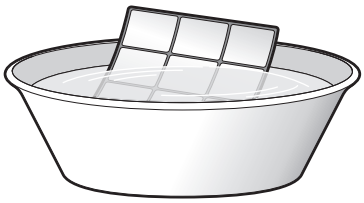

**a** Panel tab

2 **Remove the air filter.** Push up the tab in the center of the air filter slightly then pull the air filter out in a downward direction.



3 **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.





4 **Dry the air filter in the shadow.**

5 **Reattach the air filter.** Replace the air filter as it was.

6 **Close the front panel.** Hold the front panel by the panel tabs on both sides and close it slowly.

7 Turn ON the power.

8 To remove warning screens, see the reference guide of the user interface.

## 10.3 Maintenance before a long stop period

E.g., at the end of the season.

- Let the indoor units run in fan only operation for about half a day in order to dry the interior of the units.
- Clean air filters and casings of indoor units (see "10.2 Cleaning the unit" [▸ 33]).
- Remove the batteries from the user interface (if applicable).

## 10.4 Maintenance after a long stop period

E.g., at the beginning of the season.

- Check and remove everything that might be blocking inlet and outlet vents of indoor units and outdoor units.
- Clean air filters and casings of indoor units (see "10.2 Cleaning the unit" [▸ 33]).
- Insert batteries in the user interface (if applicable).

## 10.5 About the refrigerant

This product contains fluorinated greenhouse gases. Do NOT vent gases into the atmosphere.

Refrigerant type: R32

Global warming potential (GWP) value: 675

**NOTICE**

Applicable legislation on **fluorinated greenhouse gases** requires that the refrigerant charge of the unit is indicated both in weight and $CO_2$ equivalent.

**Formula to calculate the quantity in $CO_2$ equivalent tonnes:** GWP value of the refrigerant × total refrigerant charge [in kg] / 1000

Please contact your installer for more information.

**WARNING: MILDLY FLAMMABLE MATERIAL**

The refrigerant inside this unit is mildly flammable.

**WARNING**

The appliance shall be stored in a room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).

**WARNING**

- Do NOT pierce or burn refrigerant cycle parts.
- Do NOT use cleaning materials or means to accelerate the defrosting process other than those recommended by the manufacturer.
- Be aware that the refrigerant inside the system is odourless.

**WARNING**

The refrigerant inside the unit is mildly flammable, but normally does NOT leak. If the refrigerant leaks in the room and comes in contact with fire from a burner, a heater, or a cooker, this may result in fire, or the formation of a harmful gas.

Turn off any combustible heating devices, ventilate the room, and contact the dealer where you purchased the unit.

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

### 10.5.1 About the refrigerant leakage sensor

**WARNING**

It is necessary to replace the sensor after every detection or at the end of the lifetime. Authorized person only MUST replace the sensor.

**NOTICE**

Functionality of the safety measures are periodically automatically checked. In case of malfunction, error code will display on the user interface.

**NOTICE**

The R32 refrigerant leakage sensor is a semiconductor detector which may incorrectly detect substances other than R32 refrigerant. Avoid using chemical substances (e.g. organic solvents, hair spray, paint) in high concentrations, in the close proximity of the indoor unit because this may cause misdetection of the R32 refrigerant leakage sensor.

**INFORMATION**

Lifetime of the sensor is 10 years. The user interface displays error "**CH-05**" 6 months before the end of the sensor lifetime and error "**CH-02**" after the end of the sensor lifetime. For more information refer to the reference guide of the user interface and contact you dealer.

### In case of detection when the unit is standby

When the detection occurs when the unit is standby, "false detection check" will occur.

**False detection check**

1 Unit starts fan operation on the lowest setting.

2 User interface displays error code "**A0-13**", emits alarm sound and status indicator is blinking.

3 Sensor checks if refrigerant leakage or misdetection occurred.

- If refrigerant leakage is NOT detected, **Result:** system returns to normal operation after approximately 2 minutes.
- If refrigerant leakage is detected, **Result:**

1 User interface displays error "**A0-11**", emits alarm sound and status indicator is blinking.

2 Contact your dealer immediately. For more information, see the installation manual of the outdoor unit.

### In case of detection when the unit is turned on

1 User interface displays error "**A0-11**", emits alarm sound and status indicator is blinking.

2 Contact your dealer immediately. For more information, see the installation manual of the outdoor unit.

**INFORMATION**

To stop alarm of the user interface see the reference guide of the user interface.

**INFORMATION**

The minimum airflow during normal operation or during the refrigerant leakage detection is always >240 $m^3/h$.

# 11 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, electric 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 circuit breaker or a residual current device 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 ⚠. | Notify your installer and report the error code. To display an error code see the reference guide of the user interface. |

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.

| Malfunction | Measure |
|---|---|
| If the system does not operate at all. | ▪ Check if there is no power failure. Wait until power is restored. If power failure occurs during operation, the system automatically restarts immediately after power is restored.<br>▪ Check if no fuse has blown or breaker is activated. Change the fuse or reset the breaker if necessary. |

| Malfunction | Measure |
|---|---|
| The system operates but cooling or heating is insufficient. | ▪ 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.<br>▪ Check if the air filter is not clogged (see "10.2.3 To clean the air filter" [▶ 34]).<br>▪ Check the temperature setting.<br>▪ Check the fan speed setting on your user interface.<br>▪ Check for open doors or windows. Close doors and windows to prevent wind from coming in.<br>▪ Check if there are too many occupants in the room during cooling operation. Check if the heat source of the room is excessive.<br>▪ Check if direct sunlight enters the room. Use curtains or blinds.<br>▪ Check if the air flow angle is proper. |

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).

## 11.1 Symptoms that are NOT system malfunctions

The following symptoms are NOT system malfunctions:

### 11.1.1 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 system is in normal condition. To prevent overloading of the compressor motor, the air conditioner starts 5 minutes after it is turned ON again in case it was turned OFF just before. The same starting delay occurs after the operation mode selector button was used.
- The system does not start immediately after the power supply is turned on. Wait one minute until the micro computer is prepared for operation.

### 11.1.2 Symptom: The fan speed does not correspond to the setting

The fan speed does not change even if the fan speed adjustment button in pressed. During heating operation, when the room temperature reaches the set temperature, the outdoor unit goes off and the indoor unit changes to whisper fan speed. This is to prevent cold air blowing directly on occupants of the room. The fan speed will not change if the button is pressed.

### 11.1.3 Symptom: The fan direction does not correspond to the setting

The fan direction does not correspond with the user interface display. The fan direction does not swing. This is because the unit is being controlled by the micro computer.

### 11.1.4 Symptom: White mist comes out of a unit (Indoor unit)

- When humidity is high during cooling operation. If the interior of an indoor unit is extremely contaminated, the temperature distribution inside a room becomes uneven. It is necessary to clean the interior of the indoor unit. Ask your dealer for details on cleaning the unit. This operation requires a qualified service person.
- Immediately after the cooling operation stops and if the room temperature and humidity are low. This is because warm refrigerant gas flows back into the indoor unit and generates steam.

### 11.1.5 Symptom: White mist comes out of a unit (Indoor unit, outdoor unit)

When the system is changed over to heating operation after defrost operation. Moisture generated by defrost becomes steam and is exhausted.

### 11.1.6 Symptom: The user interface reads "U4" or "U5" and stops, but then restarts after a few minutes

This is because the user interface is intercepting noise from electric appliances other than the air conditioner. The noise prevents communication between the units, causing them to stop. Operation automatically restarts when the noise ceases.

### 11.1.7 Symptom: Noise of air conditioners (Indoor unit)

- A "zeen" sound is heard immediately after the power supply is turned on. The electronic expansion valve inside an indoor unit starts working and makes the noise. Its volume will reduce in about one minute.
- A "pishi-pishi" squeaking sound is heard when the system stops after heating operation. Expansion and contraction of plastic parts caused by temperature change make this noise.

### 11.1.8 Symptom: Noise of air conditioners (Indoor unit, outdoor unit)

- A continuous low hissing sound is heard when the system is in cooling or defrost operation. This is the sound of refrigerant gas flowing through both indoor and outdoor units.
- A hissing sound which is heard at the start or immediately after stopping operation or defrost operation. This is the noise of refrigerant caused by flow stop or flow change.

### 11.1.9 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.

### 11.1.10 Symptom: The units can give off odours

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

# 12 Relocation

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

# 13 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

# 14 About the box

## 14.1 Overview: About the box

This chapter describes what you have to do after the box with the indoor unit is delivered on-site.

It contains information about:

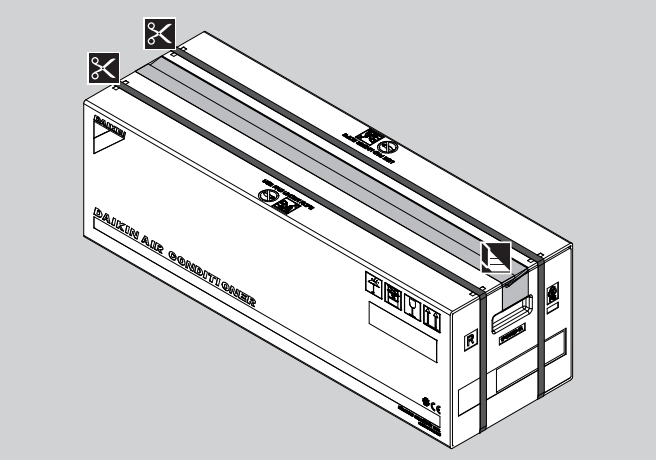
- Unpacking and handling the unit
- Removing the accessories from the unit

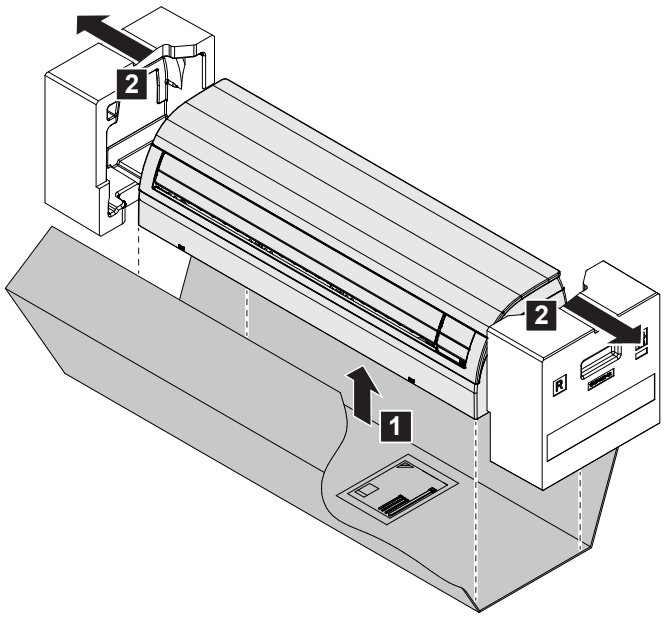
Keep the following in mind:

- 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.
- Prepare the path along which you want to bring the unit inside in advance.

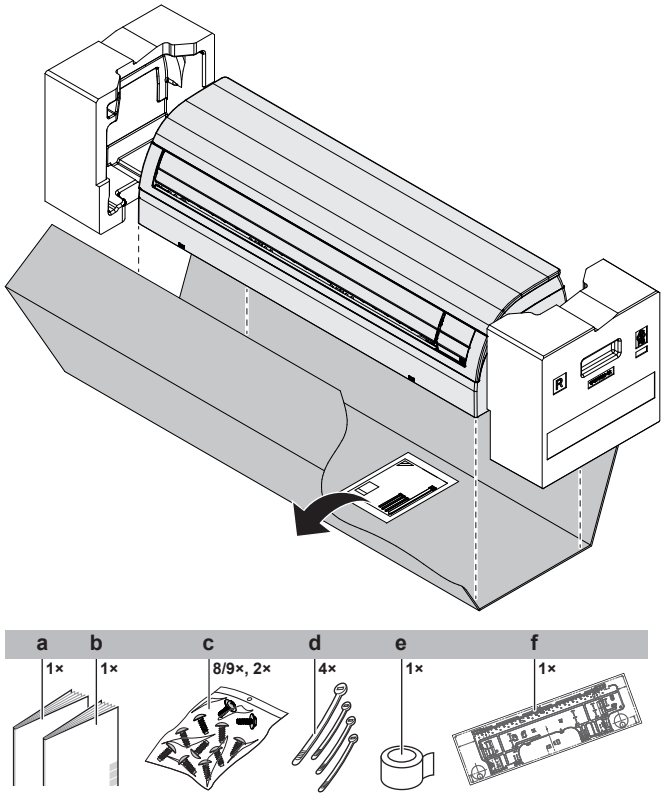
## 14.2 Indoor unit

### 14.2.1 To unpack the indoor unit






### 14.2.2 To remove the accessories from the indoor unit






**a** Installation and operation manual
**b** General safety precautions
**c** Screw pack: M4×25L (8× for FXAA15~32, 9× for FXAA40~63), 2× M4×12L
**d** Tie wraps (1 large, 3 small)
**e** Insulation tape
**f** Paper pattern for installation

# 15 About the units and options

## In this chapter



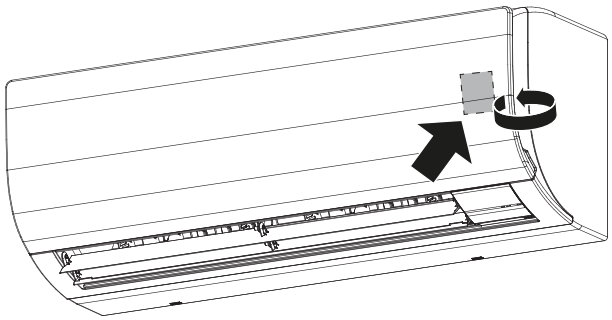
## 15.1 Identification

**NOTICE**

When installing or servicing several units at the same time, make sure NOT to switch the service panels between different models.

### 15.1.1 Identification label: Indoor unit

**Location**



## 15.2 About the indoor unit

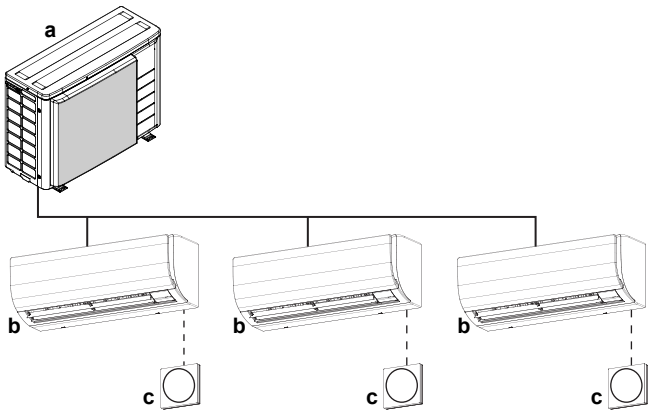
**INFORMATION**

For the operation limits see the technical data of the connected outdoor unit.

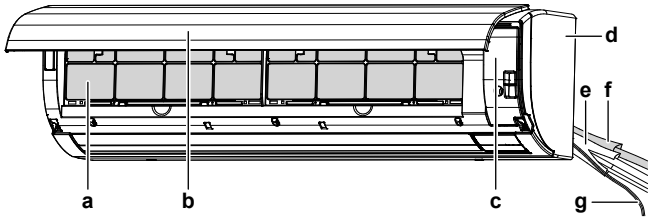
## 15.3 System layout

**INFORMATION**

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




**a** Outdoor unit
**b** Indoor unit
**c** User interface




**a** Air filter
**b** Front panel
**c** Service cover
**d** Front grille
**e** Refrigerant pipes
**f** Drain Hose
**g** Electrical wiring

## 15.4 Combining units and options

**INFORMATION**

Certain options might not be available in your country.

### 15.4.1 Possible options for the indoor unit

Make sure you have the following mandatory options:

- User interface: Only a safety system compatible remote controller can be used. See technical data sheet for remote controller compatibility (e.g. BRC1H52/82*)

**Note:** The user interface will generate a visible and audible warning sign in case of refrigerant leakage detection. E.g. the BRC1H52* remote controllers can generate an alarm of 65 dB (sound pressure, measured at 1 m distance of the alarm). Sound data is available in the technical data sheet of the remote controller. The alarm should always be 15 dB louder than the background noise of the room. In case of higher background noise we recommend to use an external alarm (field supply) to connect to the optional output PCB of the indoor unit. This field supply alarm has to be mounted in every room where an indoor unit is installed.

**CAUTION**

- Each indoor unit has to be connected to a separate user interface. Only a safety system compatible remote controller can be used as the user interface. See technical data sheet for remote controller compatibility (e.g. BRC1H52/82*).
- The user interface has to be put in the same room as the indoor unit. For details, please refer to the installation and operation manual of the user interface.

- Optional output PCB (to provide output for external device): The PCB will trigger in case of leak detection, sensor fails or when sensor is disconnected. For exact model name see option list of the indoor unit. For more information about this option, refer to the installation manual of the optional output PCB.

**INFORMATION**

All possible options are mentioned in the option list of the indoor unit. For more information about an option, refer to the installation and operation manual of the option.

# 16 Unit installation

## In this chapter



## 16.1 Preparing the installation site

Do NOT install the unit in places often used as work place. In case of construction works (e.g. grinding works) where a lot of dust is created, the unit MUST be covered.

Choose an installation location with sufficient space for carrying the unit in and out of the site.

Avoid installation in an environment with a lot of organic solvents such as ink and siloxane.

**WARNING**

The appliance shall be stored in a room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).

### 16.1.1 Installation site requirements of the indoor unit

**INFORMATION**

Also read the general installation site requirements. See the ""2 General safety precautions" [▶ 6]" chapter.

**INFORMATION**

The sound pressure level is less than 70 dBA.

**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.

Do NOT install the unit in the following places:

- In places where a mineral oil mist, spray or vapour may be present in the atmosphere. Plastic parts may deteriorate and fall off or cause water leakage.

It is NOT recommended to install the unit in the following places because it may shorten the life of the unit:

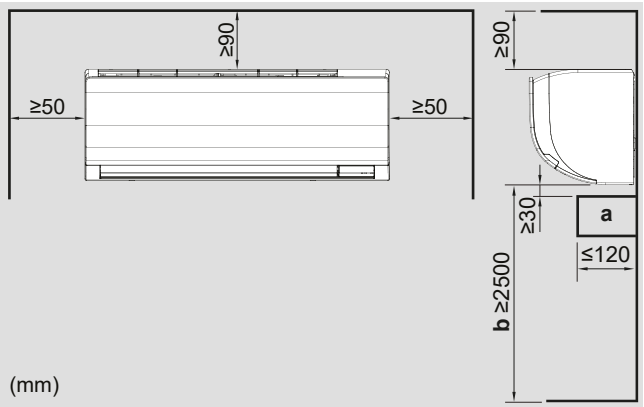
- Where the voltage fluctuates a lot
- In vehicles or vessels
- Where acidic or alkaline vapour is present

**NOTICE**

The equipment described in this manual may cause electronic noise generated from radio-frequency energy. The equipment complies to specifications that are designed to provide reasonable protection against such interference. However, there is no guarantee that interference will not occur in a particular installation.

It is therefore recommended to install the equipment and electric wires in such a way that they keep a proper distance from stereo equipment, personal computers, etc.

- In places with weak reception, keep distances of 3 m or more to avoid electromagnetic disturbance of other equipment and use conduit tubes for power and transmission lines.
- Take care that in the event of a water leak, water cannot cause any damage to the installation space and surroundings.
- Choose a location where the operation noise or the hot/cold air discharged from the unit will not disturb anyone.
- **Wall insulation**. When conditions in the wall exceed 30°C and a relative humidity of 80%, or when fresh air is inducted into the wall, then additional insulation is required (minimum 10 mm thickness, polyethylene foam).
- **Wall strength.** Check whether the wall is strong enough to support the weight of the unit. If there is a risk, reinforce the wall before installing the unit.
- **Air flow.** Make sure nothing blocks the air flow.
- **Drainage.** Make sure condensation water can be evacuated properly.
- **Paper pattern for installation** (accessory). When selecting the installation location, use the paper pattern. It contains the dimensions of the unit and the required wall opening.
- **Spacing**. Mind the following requirements:




**a** Obstruction
**b** Minimum distance to the floor

**NOTICE**

NEVER mount the indoor unit directly on the wall. Use the attached mounting plate for installation.

### Minimum floor area requirements

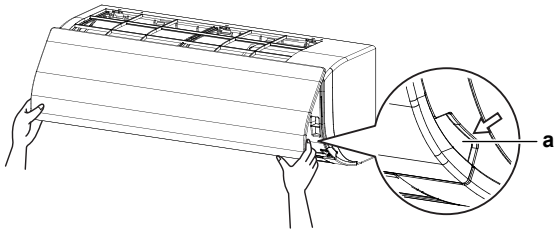
**CAUTION**

The total refrigerant charge in the system cannot exceed the requirements for minimum floor area of the smallest room that is served. For minimum floor area requirements for indoor units, see the installation and operation manual of the outdoor unit.

## 16.2 Opening and closing the unit

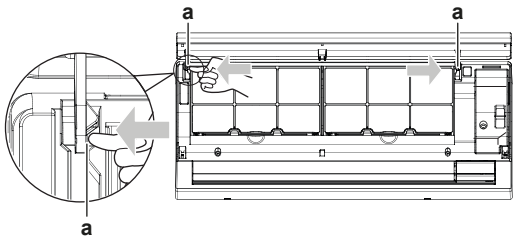
### 16.2.1 To remove the front panel

1. Open the front panel. Hold the front panel by the panel tabs on both sides and open until the panel stops.




**a** Panel tabs

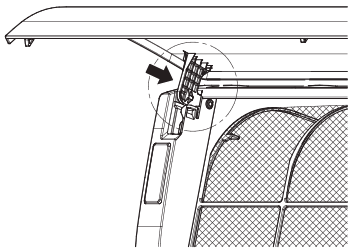
2. Remove the front panel by pushing hooks on either side of the front panel towards the side of the unit and remove the panel. Or remove it by sliding the front panel either to the left or right and pulling it forward.




**a** Panel hook

### 16.2.2 To re-install the front panel

1. To attach the front panel, align the hooks of the front panel with the slots and push them all the way in.



2. Close the front panel slowly.

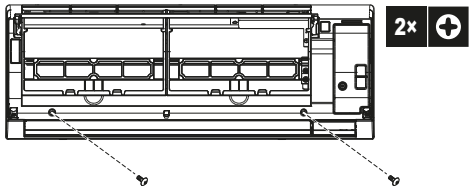
### 16.2.3 To remove the front grille

**CAUTION**

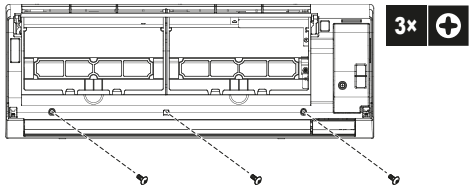
Wear adequate personal protective equipment (protective gloves, safety glasses,...) when installing, maintaining or servicing the system.

1. Remove the front panel("16.2.1 To remove the front panel" [▸ 51]).
2. Remove the screws.

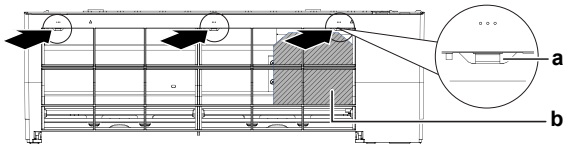
- 2 for FXAA15~32




- 3 for FXAA40~63

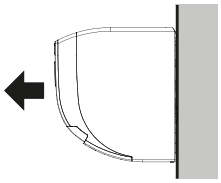



3. Push down the 3 upper hooks marked with a symbol with 3 circles in the direction of the arrows. Remove cardboard between the filter and the heat exchanger.




**a** Hook
**b** Cardboard

4. Making sure not to catch the horizontal flaps, remove the front grille by pulling in the direction of the arrow.

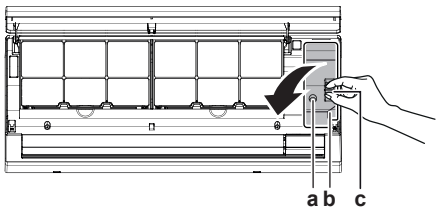


### 16.2.4 To re-install the front grille

1. Install the front grille and firmly engage the 3 upper hooks.
2. Install the screws back (2 for FXAA15~32 and 3 for FXAA40~63).
3. Re-install front panel ("16.2.2 To re-install the front panel" [▸ 51]).

### 16.2.5 To open the service cover

1. Remove 1 screw from the service cover.
2. Pull out the service cover horizontally away from the unit.




**a** Service cover screw
**b** Service cover
**c** Handle

### 16.2.6 To close the service cover

**1** Place the service cover to its original place on the unit.

**2** Install 1 screw back on the service cover.

## 16.3 Mounting the indoor unit

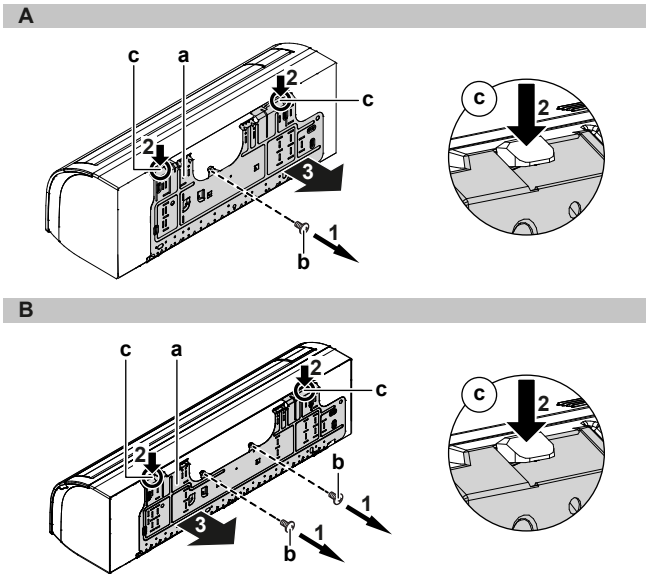
In this chapter



### 16.3.1 To install the mounting plate

**1** Remove the mounting plate from the unit.

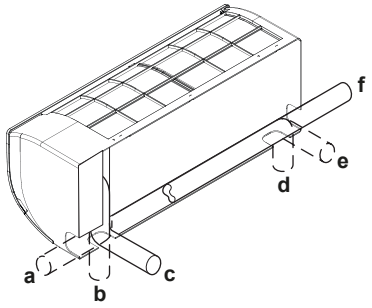
- Remove one screw from FXAA15~32 or 2 screws from FXAA40~63.
- Push the knobs in the direction of the arrow.
- Remove the mounting plate.




**A** FXAA15~32
**B** FXAA40~63
**a** Mounting plate
**b** Screw
**c** Knob

2 Use the paper pattern for installation (accessory).

3 Choose position for piping (for bottom or side piping see "16.3.3 To remove the pipe port cover" [▸ 56]):




**a** Right piping
**b** Bottom-right piping
**c** Back-right piping
**d** Bottom-left piping
**e** Back-left piping
**f** Left piping

4 Attach the mounting plate on the wall and install it temporarily.

5 Level the mounting plate (use tabs on the mounting plate).

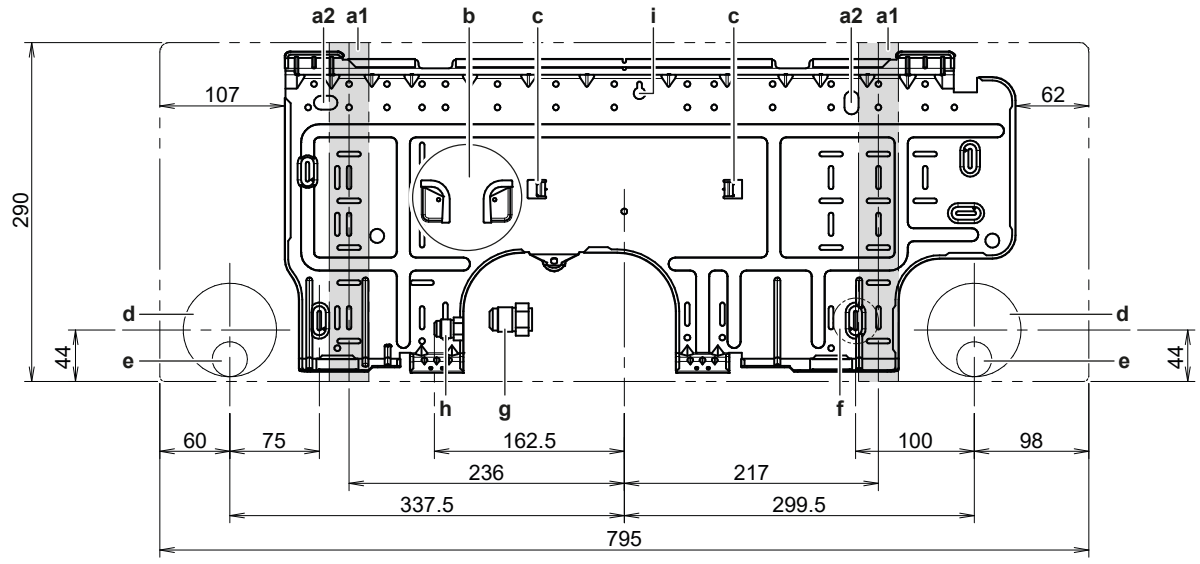
6 Mark the centers of the drilling points on the wall using a tape measure. Position the end of tape measure at symbol "▷".

7 Finish the installation by securing the mounting plate on the wall:

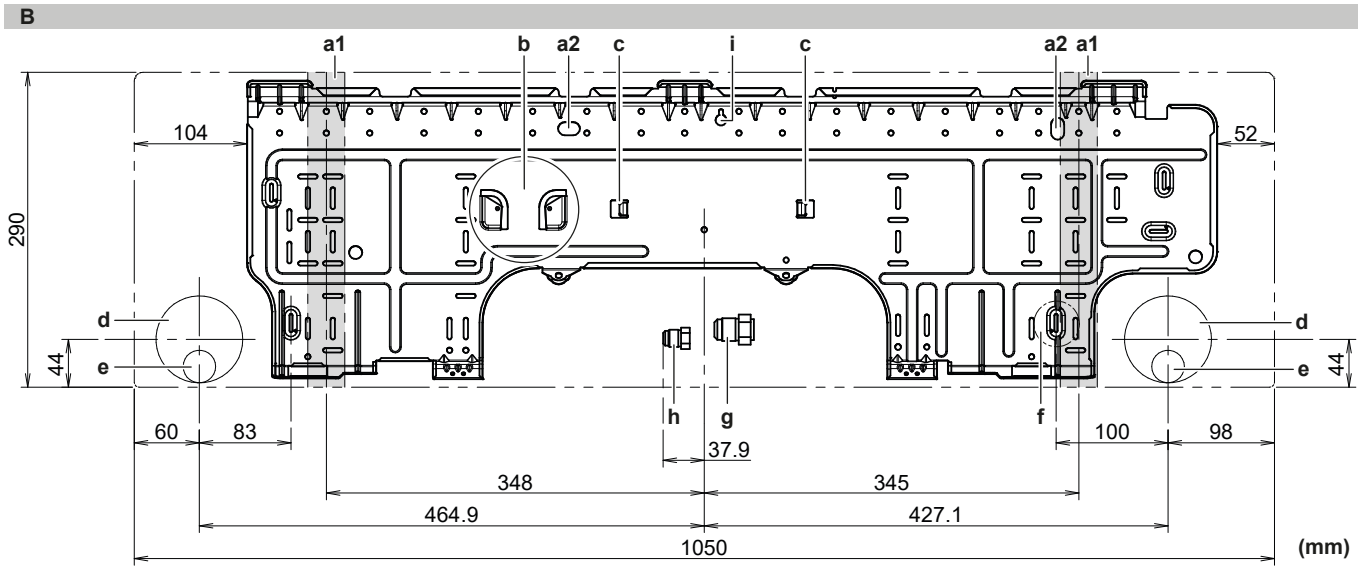
- When using M4×25L screws (accessory): use 8 screws for FXAA15~32 or 9 screws for FXAA40~63. Install evenly at least 4 screws on each side.
- When using bolts (**Example:** for concrete wall): use M8~M10 bolts (field supply) one for each side.

> **INFORMATION**
> The removed pipe port cover can be kept in the mounting plate pocket.

**A**




(mm)




**A** Paper pattern for installation with mounting plate for FXAA15~32
**B** Paper pattern for installation with mounting plate for FXAA40~63
**a1** Recommended fixation location
**a2** Recommended fixing spots
**b** Pocket for the pipe port cover
**c** Tabs for placing a spirit level
**d** Through-the-wall hole Ø80 mm
**e** Drain hose position
**f** Position for the tape measure at symbol "▷"
**g** Gas pipe end
**h** Liquid pipe end
**i** Temporary fixing hole

### 16.3.2 To drill a wall hole

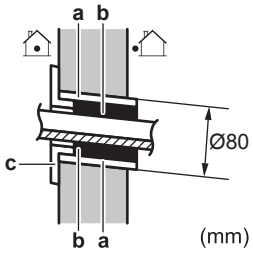
**CAUTION**

For walls containing a metal frame or a metal board, use a wall embedded pipe and wall cover in the feed-through hole to prevent possible heat, electrical shock, or fire.

**NOTICE**

Be sure to seal the gaps around the pipes with sealing material (field supply), in order to prevent water leakage.

1. Drill a 80 mm large feed-through hole in the wall with a downward slope towards the outside.
2. Insert a wall embedded pipe into the hole.
3. Insert a wall cover into the wall pipe.



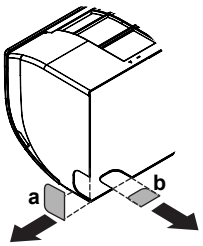

**a** Wall embedded pipe (field supply)
**b** Putty (field supply)
**c** Wall hole cover (field supply)

4. After completing wiring, refrigerant piping and drain piping, do NOT forget to seal the gap with putty.

### 16.3.3 To remove the pipe port cover

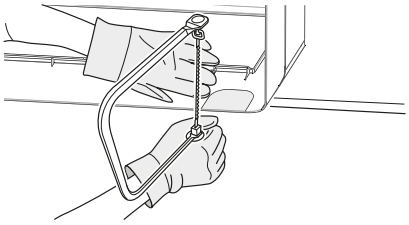
**INFORMATION**

To connect the piping on right-side, right-bottom, left-side or left-bottom, the pipe port cover MUST be removed.

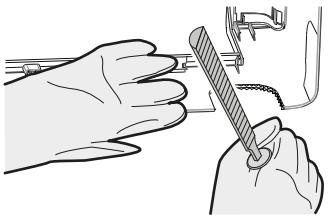



**a** Cut off for side piping
**b** Cut off for bottom piping

1. Remove the front grille ("16.2.3 To remove the front grille" [▸ 52]).
2. Cut off the pipe port cover from inside the front grille using a coping saw.



3. Remove any burrs along the cut section using a half round needle file.

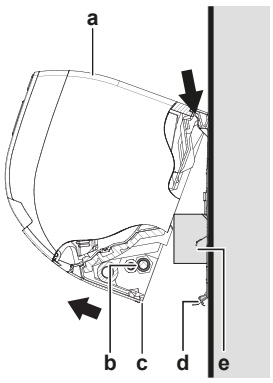


**NOTICE**

Do NOT use nippers to remove the pipe port cover, as this would damage the front grille.

### 16.3.4 To hook the unit on the mounting plate

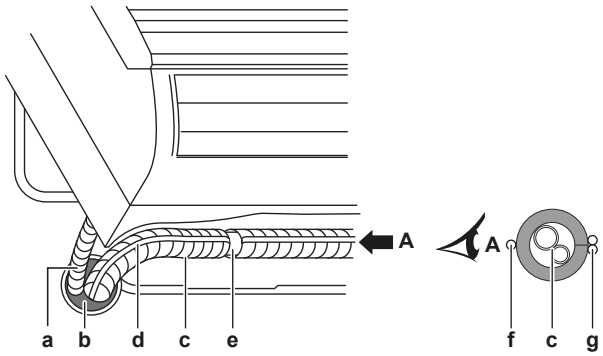
1. Remove the front panel ("16.2.1 To remove the front panel" [▸ 51]).
2. Set the indoor unit on the mounting plate hooks. Use the "△" marks as a guide.
3. Place piece of packing material for support.




**a** Front grille
**b** Refrigerant piping
**c** Tab 2×
**d** Mounting plate (accessory)
**e** Piece of packing material

### 16.3.5 To pass the pipes through the wall hole

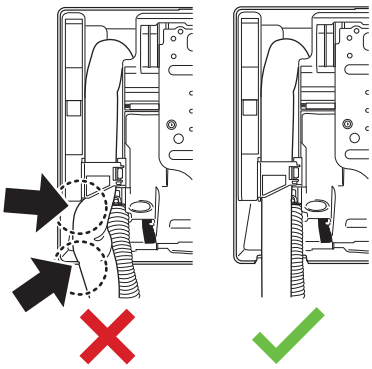
1. Connect the drain piping "16.3.6 To provide drainage" [▸ 58], the refrigerant piping "17 Piping installation" [▸ 61] and the electrical wiring "18 Electrical installation" [▸ 67].
2. Shape the refrigerant pipes along the pipe path marking on the mounting plate.
3. Fix the electrical wiring and the refrigerant pipes together using vinyl tape (field supply).




**a** Drain hose
**b** Wall hole
**c** Refrigerant piping
**d** Electrical wiring
**e** Vinyl tape (field supply)
**f** Power supply wiring
**g** Transmission wiring and user interface wiring

**NOTICE**

- Do NOT bend refrigerant pipes.
- Do NOT push the refrigerant pipes onto the bottom frame or the front grille.



4 Pass the drain hose and refrigerant pipes through the wall hole.

5 When the complete installation is finished (drain piping "16.3.6 To provide drainage" [▸ 58], the refrigerant piping "17 Piping installation" [▸ 61] and the electrical wiring "18 Electrical installation" [▸ 67]), fix the indoor unit on the mounting plate "19.1 To fix the unit on the mounting plate" [▸ 72].

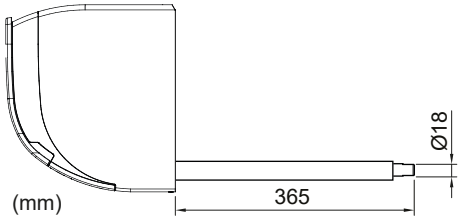
### 16.3.6 To provide drainage

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

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

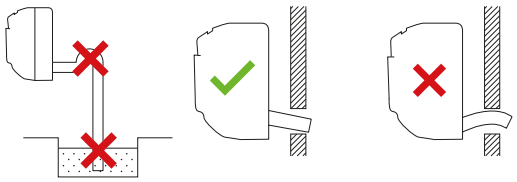
**General guidelines**

- **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 with nominal Ø13 mm).

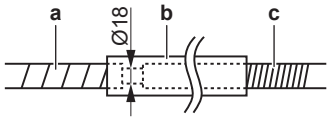



**NOTICE**

- Install the drain hose with a downward slope.
- Traps are NOT permitted.
- Do NOT put the end of the hose in water.

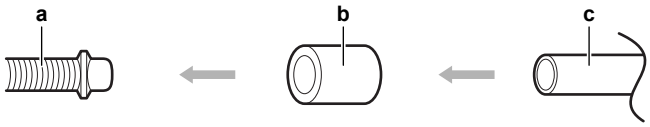


- **Drain hose extension.** When extending the drain hose, use a field supplied extension hose with nominal Ø13 mm. Do NOT forget to use a heat insulation tube on the indoor section of the extension hose.



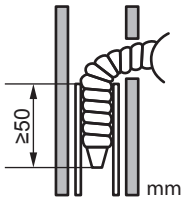

**a** Drain hose supplied with the indoor unit
**b** Heat insulation tube (field supply)
**c** Extension drain hose (field supply)

- **Rigid polyvinyl chloride pipe.** When connecting a rigid polyvinyl chloride pipe (nominal Ø13 mm) directly to the drain hose as with embedded piping work, use a field supplied drain socket (nominal Ø13 mm).




**a** Drain hose supplied with the indoor unit
**b** Drain socket with nominal Ø13 mm (field supply)
**c** Rigid polyvinyl chloride pipe (field supply)

- **Insert the drain hose in the drain pipe** as shown in the following figure, so it will NOT be pulled out of the drain pipe.

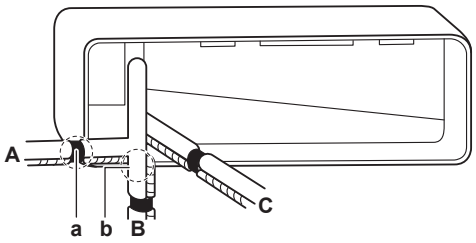



- **Condensation.** Take measures against condensation. Insulate the complete drain piping in the building.

**To connect the piping on right side, right-back, or right-bottom**

> **INFORMATION**
> The factory default is right-side piping. For left-side piping, remove the piping from the right side and install it on the left side.

1. Attach the drain hose with adhesive vinyl tape to the bottom of the refrigerant pipes.
2. Wrap the drain hose and the refrigerant pipes together using insulation tape.




**A** Right-side piping
**B** Right-bottom piping
**C** Right-back piping
**a** Remove the pipe port cover here for right side piping
**b** Remove the pipe port cover here for right-bottom piping

**To connect the piping on left side, left-back, or left-bottom**

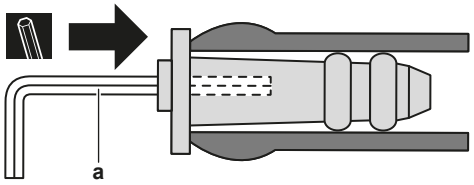
> **INFORMATION**
> The factory default is right-side piping. For left-side piping, remove the piping from the right side and install it on the left side.

1 Remove the insulation fixing screw on the right side and remove the drain hose.

2 Remove the drain plug on the left side and attach it to the right side.

**NOTICE**

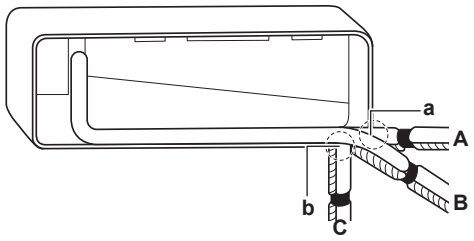
Do NOT apply lubricating oil (refrigerant oil) to the drain plug when inserting it. The drain plug may deteriorate and cause drain leakage from the plug.




**a** 4 mm hexagonal wrench

3 Insert the drain hose on the left side and do not forget to tighten it with the fixing screw; otherwise water leakage may occur.

4 Attach the drain hose to the refrigerant piping bottom side using adhesive vinyl tape.

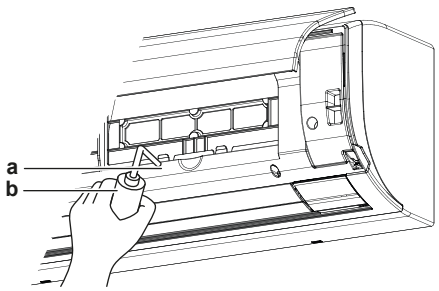



**A** Left-side piping
**B** Left-back piping
**C** Left-bottom piping
**a** Remove the pipe port cover here for left-side piping
**b** Remove the pipe port cover here for left-bottom piping

### To check for water leaks

1 Remove the air filters (see "10.2.3 To clean the air filter" [▸ 34]).

2 Gradually pour approximately 1 l of water in the drain pan, and check for water leaks.




**a** Drain pan
**b** Plastic container

3 Reattach the air filters (see "10.2.3 To clean the air filter" [▸ 34]).

# 17 Piping installation

## In this chapter



## 17.1 Preparing refrigerant piping

### 17.1.1 Refrigerant piping requirements

**INFORMATION**

Also read the precautions and requirements in the "2 General safety precautions" [▸ 6].

**CAUTION**

Piping MUST be installed according to instructions given in "17 Piping installation" [▸ 61]. Only mechanical joints (e.g. braze+flare connections) that are compliant with the latest version of ISO14903 can be used.

**NOTICE**

The piping and other pressure-containing parts shall be suitable for refrigerant. Use phosphoric acid deoxidised seamless copper for refrigerant.

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

**Refrigerant piping diameter**

For piping connections of the indoor unit use the following piping diameters:

| Class | Pipe outer diameter (mm) | |
|---|---|---|
| | Liquid pipe | Gas pipe |
| 15~32 | Ø6.4 | Ø9.5 |
| 40~63 | | Ø12.7 |

**Refrigerant piping material**

- **Piping material:** Phosphoric acid deoxidised seamless copper.
- **Flare connections:** Only use annealed material.
- **Piping temper grade and thickness:**

| Outer diameter (Ø) | Temper grade | Thickness (t)[a] | |
|---|---|---|---|
| 6.4 mm (1/4") | Annealed (O) | ≥0.8 mm |  |
| 9.5 mm (3/8") | | | |
| 12.7 mm (1/2") | | | |

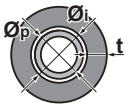


[a] Depending on the applicable legislation and the maximum working pressure of the unit (see "PS High" on the unit name plate), larger piping thickness might be required.

### 17.1.2 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

| | | |
|---|---|---|
| **6.4 mm (1/4")** | 8~10 mm | **≥10 mm** |
| **9.5 mm (3/8")** | 12~15 mm | **≥13 mm** |
| **12.7 mm (1/2")** | 14~16 mm | **≥13 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.

## 17.2 Connecting the refrigerant piping

### 17.2.1 About connecting the refrigerant piping

**Before connecting the refrigerant piping**

Make sure the outdoor and indoor unit are mounted.

**Typical workflow**

Connecting the refrigerant piping involves:

- Connecting the refrigerant piping to the indoor unit
- Connecting the refrigerant piping to the outdoor unit
- Insulating the refrigerant piping
- Keeping in mind the guidelines for:
  - Pipe bending
  - Flaring pipe ends
  - Using the stop valves

### 17.2.2 Precautions when connecting the refrigerant piping

**INFORMATION**

Also read the precautions and requirements in the following chapters:

- "2 General safety precautions" [▶ 6]
- "17.1 Preparing refrigerant piping" [▶ 61]

**DANGER: RISK OF BURNING/SCALDING**

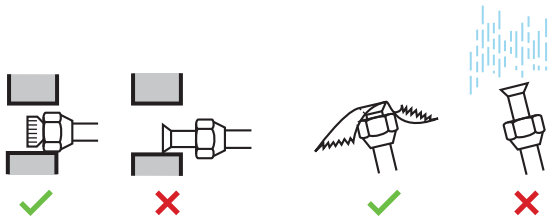
**CAUTION**

- Do NOT use mineral oil on flared part.
- Do NOT reuse piping from previous installations.
- NEVER install a drier to this R32 unit to guarantee its lifetime. The drying material may dissolve and damage the system.

**NOTICE**

Take the following precautions on refrigerant piping into account:

- Avoid anything but the designated refrigerant to get mixed into the refrigerant cycle (e.g. air).
- Only use R32 when adding refrigerant.
- Only use installation tools (e.g. manifold gauge set) that are exclusively used for R32 installations to withstand the pressure and to prevent foreign materials (e.g. mineral oils and moisture) from mixing into the system.
- Install the piping so that the flare is NOT subjected to mechanical stress.
- Protect the piping as described in the following table to prevent dirt, liquid or dust from entering the piping.
- Use caution when passing copper tubes through walls (see figure below).



| Unit | Installation period | Protection method |
|---|---|---|
| Outdoor unit | >1 month | Pinch the pipe |
| | <1 month | Pinch or tape the pipe |
| Indoor unit | Regardless of the period | |

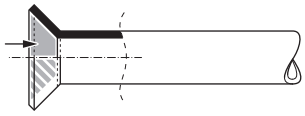
**INFORMATION**

Do NOT open the refrigerant stop valve before checking the refrigerant piping. When you need to charge additional refrigerant it is recommended to open the refrigerant stop valve after charging.

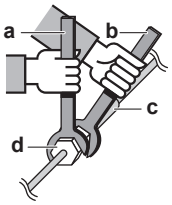
### 17.2.3 Guidelines when connecting the refrigerant piping

Take the following guidelines into account when connecting pipes:

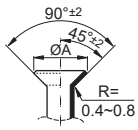
- Coat the flare inner surface with ether oil or ester oil when connecting a flare nut. Tighten 3 or 4 turns by hand, before tightening firmly.



- ALWAYS use 2 wrenches together when loosening a flare nut.
- ALWAYS use a spanner and torque wrench together to tighten the flare nut when connecting the piping. This to prevent nut cracking and leaks.




**a** Torque wrench
**b** Spanner
**c** Piping union
**d** Flare nut

| Piping size (mm) | Tightening torque (N•m) | Flare dimensions (A) (mm) | Flare shape (mm) |
|---|---|---|---|
| Ø6.4 | 15~17 | 8.7~9.1 |  |
| Ø9.5 | 33~39 | 12.8~13.2 | |
| Ø12.7 | 50~60 | 16.2~16.6 | |



### 17.2.4 Pipe bending guidelines

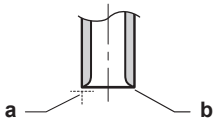
Use a pipe bender for bending. All pipe bends should be as gentle as possible (bending radius should be 30~40 mm or larger).

### 17.2.5 To flare the pipe end

**CAUTION**

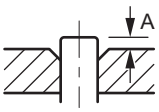
- Incomplete flaring may cause refrigerant gas leakage.
- Do NOT re-use flares. Use new flares to prevent refrigerant gas leakage.
- Use flare nuts that are included with the unit. Using different flare nuts may cause refrigerant gas leakage.

1. Cut the pipe end with a pipe cutter.
2. Remove burrs with the cut surface facing down so that the chips do NOT enter the pipe.



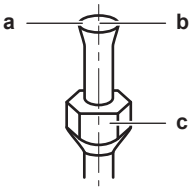

**a** Cut exactly at right angles.
**b** Remove burrs.

3. Remove the flare nut from the stop valve and put the flare nut on the pipe.
4. Flare the pipe. Set exactly at the position as shown in the following figure.




| | Flare tool for R32 (clutch type) | Conventional flare tool | |
|---|---|---|---|
| | | Clutch type (Ridgid-type) | Wing nut type (Imperial-type) |
| A | 0~0.5 mm | 1.0~1.5 mm | 1.5~2.0 mm |

**5** Check that the flaring is properly made.




**a** Flare's inner surface MUST be flawless.
**b** The pipe end MUST be evenly flared in a perfect circle.
**c** Make sure the flare nut is fitted.

### 17.2.6 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.

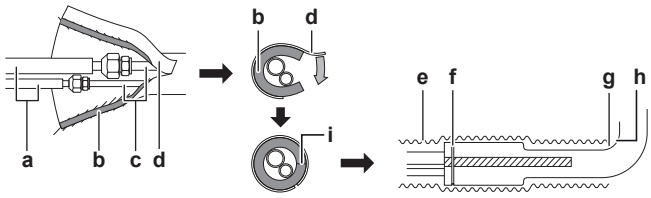
**WARNING: MILDLY FLAMMABLE MATERIAL**

The refrigerant inside this unit is mildly flammable.

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

**1** **Flare connections**. Connect refrigerant piping to the unit using flare connections.

**2** **Insulation**. Insulate the refrigerant piping, the insulating tape should be wrapped from the L-shaped bend all the way to the end inside the unit as follows:




**a** Field piping
**b** Indoor unit piping insulation tubing
**c** Indoor unit piping
**d** Insulating tubing tape
**e** Insulating tape (accessory)
**f** Large tie wrap (accessory)
**g** Beginning of wrapping
**h** L-shaped bend
**i** Insulation tubing seam (make sure there are no gaps in the insulation tubing seam)

**NOTICE**

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

# 18 Electrical installation

## In this chapter



## 18.1 About connecting the electrical wiring

### Typical workflow

Connecting the electrical wiring typically consists of the following stages:

1. Making sure the power supply system complies with the electrical specifications of the units.
2. Connecting the electrical wiring to the outdoor unit.
3. Connecting the electrical wiring to the indoor unit.
4. Connecting the main power supply.

### 18.1.1 Precautions when connecting the electrical wiring

**DANGER: RISK OF ELECTROCUTION**

**WARNING**

ALWAYS use multicore cable for power supply cables.

**INFORMATION**

Also read the precautions and requirements in the "2 General safety precautions" [▸ 6].

**INFORMATION**

Also read "18.1.3 Specifications of standard wiring components" [▸ 69].

**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 in 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.
- Do NOT install a phase advancing capacitor, because this unit is equipped with an inverter. A phase advancing capacitor will reduce performance and may cause accidents.

**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.

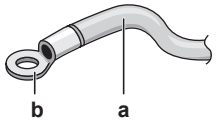
**WARNING**

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.

### 18.1.2 Guidelines when connecting the electrical wiring

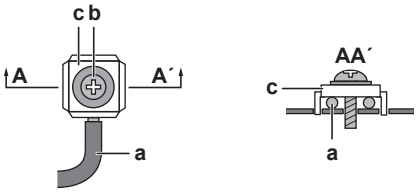
Keep the following in mind:

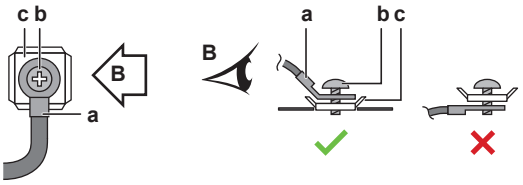
- If stranded conductor wires are used, install a round crimp-style terminal on the end of the wire. Place the round crimp-style terminal on the wire up to the covered part and fasten the terminal with the appropriate tool.




**a** Stranded conductor wire
**b** Round crimp-style terminal

- Use the following methods for installing wires:

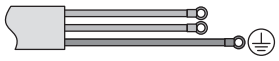
| Wire type | Installation method |
|---|---|
| Single-core wire |  <br>**a** Curled single-core wire<br>**b** Screw<br>**c** Flat washer |

| Wire type | Installation method |
|---|---|
| Stranded conductor wire with round crimp-style terminal |  <br>**a** Terminal<br>**b** Screw<br>**c** Flat washer<br>✓ Allowed<br>✕ NOT allowed |

### Tightening torques

| Wiring | Screw size | Tightening torque (N•m) |
|---|---|---|
| Power supply cable | M4 | 1.08~1.32 |
| Transmission cable (indoor↔outdoor) | M3.5 | 0.79~0.97 |
| User interface cable | | |

- The earth wire between the wire retainer and the terminal must be longer than the other wires.



## 18.1.3 Specifications of standard wiring components

| Component | | Class | | | |
|---|---|---|---|---|---|
| | | 15+20 | 25~40 | 50 | 63 |
| Power supply cable | MCA[(a)] | 0.3 A | 0.4 A | 0.5 A | 0.6 A |
| | Voltage | 220~240 V | | | |
| | Phase | 1~ | | | |
| | Frequency | 50 Hz | | | |
| | Wire sizes | 1.5 mm² (3-core wire)<br>H07RN-F (60245 IEC 66) | | | |
| Transmission wiring | | 0.75 to 1.25 mm² (2-core wire)<br>H05RN-F (60245 IEC 57) | | | |
| User interface cable | | | | | |
| Maximum allowable length of field wiring | | User interface - ≤ 500 m | | | |
| Recommended field fuse | | 6 A | | | |
| Residual current device | | Must comply with applicable legislation | | | |

[(a)] MCA=Minimum circuit ampacity. Stated values are maximum values (see electrical data of indoor unit for exact values).

## 18.2 To connect the electrical wiring to the indoor unit

**NOTICE**

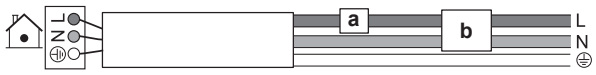
- Follow the wiring diagram (delivered with the unit, located at the inside of the service cover).
- For instructions on how to connect the optional equipment, see the installation manual delivered with the optional equipment.
- Make sure the electrical wiring does NOT obstruct proper reattachment of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

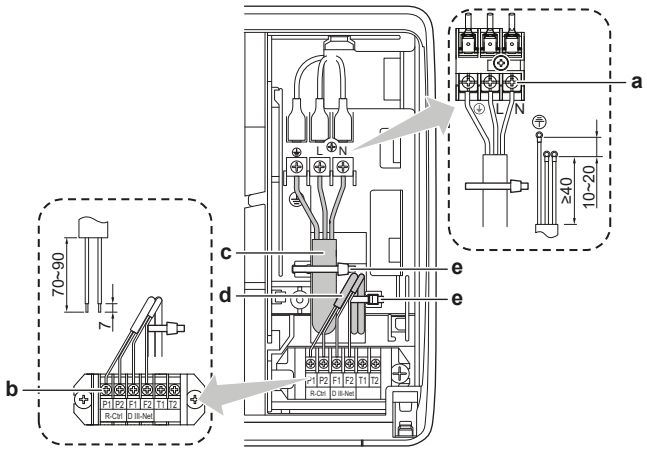
Be sure to keep the power line and transmission line apart from each other. Transmission wiring and power supply wiring may cross, but may NOT run parallel.

1. Remove the service cover (see "16.2.5 To open the service cover" [▸ 52]).
2. **User interface cable**: Connect the cable to the terminal block (symbols P1, P2).
3. **Transmission cable**: Connect the cable to the terminal block (make sure the symbols F1, F2 match with the symbols on the outdoor unit).
4. Fix user interface cable together with the transmission cable with a tie wrap (accessory).
5. **Power supply cable**: Connect the cable to the terminal block (L, N, earth).



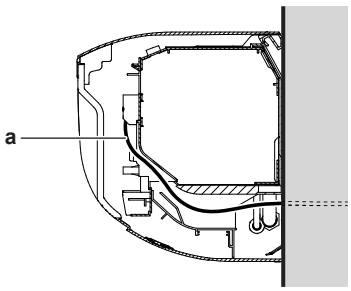

**a** Circuit breaker
**b** Residual current device

6. Seal all gaps with a sealing material (field supply) to prevent small animals from entering the system.
7. Reattach the service cover (see "16.2.6 To close the service cover" [▸ 53]).




**a** Power supply wiring terminal
**b** Transmission and user interface wiring terminal
**c** Power supply wiring
**d** Transmission and user interface terminal wiring
**e** Small tie wraps 2× (accessory)

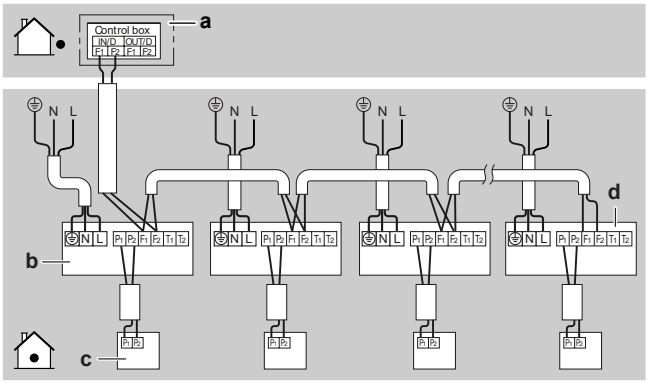
Electrical wiring route:




**a** Electrical wiring

## Complete system example

1 user interface controls 1 indoor unit.




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

**NOTICE**

Group control connection is NOT allowed.

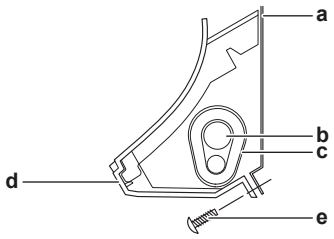
**CAUTION**

- Each indoor unit has to be connected to a separate user interface. Only a safety system compatible remote controller can be used as the user interface. See technical data sheet for remote controller compatibility (e.g. BRC1H52/82*).
- The user interface has to be put in the same room as the indoor unit. For details, please refer to the installation and operation manual of the user interface.

# 19 Finishing the indoor unit installation

## 19.1 To fix the unit on the mounting plate

1. Remove the piece of packing material.
2. Press the bottom frame of the unit with both hands to set it on the bottom hooks of the mounting plate. Make sure that the wires do NOT get squeezed or caught anywhere.
3. Press the bottom edge of the indoor unit with both hands until it is firmly caught by the mounting plate hooks.
4. Secure the indoor unit to the mounting plate using 2 indoor unit fixing screws M4×12L (accessory).




**a** Mounting plate (accessory)
**b** Refrigerant piping
**c** Insulation tape
**d** Bottom frame
**e** Screw M4×12L (2 pieces from accessory)

5. Re-install the front grille ("16.2.4 To re-install the front grille" [▸ 52]).
6. Re-install the front panel ("16.2.2 To re-install the front panel" [▸ 51]).

# 20 Commissioning

## In this chapter



## 20.1 Overview: Commissioning

This chapter describes what you have to do and know to commission the system after it is installed.

### Typical workflow

Commissioning typically consists of the following stages:

1 Checking the "Checklist before commissioning".
2 Performing a test run for the system.

## 20.2 Precautions when commissioning

**INFORMATION**

During the first running period of the unit, the required power may be higher than stated on the nameplate of the unit. This phenomenon is caused by the compressor, that needs a continuous run time of 50 hours before reaching smooth operation and stable power consumption.

**NOTICE**

Before starting up the system, the unit MUST be energised for at least 6 hours to avoid compressor breakdown during startup.

**NOTICE**

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

**NOTICE**

**Cooling operation mode**. Perform the test run in cooling operation mode so that stop valves failing to open can be detected. Even if the user interface was set to heating operation mode, the unit will run in cooling operation mode during 2-3 minutes (although the user interface will display the heating icon), and then automatically switch to heating operation mode.

## 20.3 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.

| | |
|---|---|
| ☐ | You read the complete installation and operation instructions, as described in the **installer and user reference guide**. |

| | |
|---|---|
| ☐ | The **indoor unit** is properly mounted. |
| ☐ | The **outdoor unit** is properly mounted. |
| ☐ | Make sure **drain piping** is properly installed, insulated and drainage flows smoothly. Check for water leaks.<br>**Possible consequence:** Condensate water might drip. |
| ☐ | The **refrigerant pipes** (gas and liquid) are installed correctly and thermally insulated. |
| ☐ | There are NO **refrigerant leaks**. |
| ☐ | There are NO **missing phases** or **reversed phases**. |
| ☐ | The system is properly **earthed** and the earth terminals are tightened. |
| ☐ | The **fuses** or locally installed protection devices are installed according to this document, and have NOT been bypassed. |
| ☐ | The **power supply voltage** matches the voltage on the identification label of the unit. |
| ☐ | There are NO **loose connections** or damaged electrical components in the switch box. |
| ☐ | There are NO **damaged components** or **squeezed pipes** on the inside of the indoor and outdoor units. |
| ☐ | The **stop valves** (gas and liquid) on the outdoor unit are fully open. |

## 20.4 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.

# 21 Configuration

## 21.1 Field setting

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

- Airflow rate increase mode
- Air volume when thermostat control is OFF
- Time to clean air filter
- Thermostat sensor selection
- Thermostat differential changeover (if remote sensor is used)
- Differential for automatic changeover
- Auto-restart after power failure

**INFORMATION**

- The connection of optional accessories to the indoor unit might cause changes to some field settings. For more information, see the installation manual of the optional accessory.
- Following setting are only applicable when using the BRC1H52* user interface. When using any other user interface, see the installation manual or service manual of the user interface.

### Setting: Airflow rate increase mode

This setting must correspond with the needs of the user. It is possible to raise set airflow (HIGH and LOW) from the field. Change the value number (—) as shown in the table below.

| If you want airflow... | Then[1] | | |
|---|---|---|---|
| | M | SW | — |
| Standard | 13 (23) | 0 | 01 |
| A little increased | | | 02 |
| Increased | | | 03 |

### Setting: Air volume when thermostat control is OFF

This setting must correspond with the needs of the user. It determines the fan speed of the indoor unit during thermostat OFF condition.

**1** If you have set the fan to operate, set the air volume speed:

[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
- —: Value number
- ▭: Default

| If you want... | | Then[1] | | |
|---|---|---|---|---|
| | | M | SW | — |
| During thermostat OFF at cooling operation | LL[2] | 12 (22) | 6 | 01 |
| | Setup volume[2] | | | 02 |
| | OFF[a] | | | 03 |
| | Monitoring 1[2] | | | 04 |
| | Monitoring 2[2] | | | 05 |
| During thermostat OFF at heating operation | LL[2] | 12 (22) | 3 | 01 |
| | Setup volume[2] | | | 02 |
| | OFF[a] | | | 03 |
| | Monitoring 1[2] | | | 04 |
| | Monitoring 2[2] | | | 05 |

[a] Only use in combination with optional remote sensor or when setting **M** 10 (20), **SW** 2, — 3 is used.

### Setting: Time to clean air filter

This setting must correspond with the air contamination in the room. It determines the interval at which **"Time to clean filter"** notification is displayed on the user interface.

| If you want an interval of... (air contamination) | Then[1] | | |
|---|---|---|---|
| | M | SW | — |
| ±200 h (light) | 10 (20) | 0 | 01 |
| ±100 h (heavy) | | | 02 |
| Notification ON | | 3 | 01 |
| Notification OFF | | | 02 |

### Setting: Thermostat sensor selection

This setting must correspond with how/if the remote controller thermostat sensor is used.

| When the remote controller thermostat sensor is... | Then[1] | | |
|---|---|---|---|
| | M | SW | — |
| Used in combination with indoor unit thermistor | 10 (20) | 2 | 01 |
| Not used (indoor unit thermistor only) | | | 02 |
| Used exclusively | | | 03 |

[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
- —: Value number
- : Default

[2] Fan speed:
- **LL**: Low fan speed (set during thermostat OFF)
- **L**: Low fan speed (set by the user interface)
- **Setup volume**: The fan speed corresponds to the speed the user has set (low, medium, high) using the fan speed button on the user interface.
- **Monitoring 1, 2**: The fan is OFF, but runs for a short time every 6 minutes to detect the room temperature by **LL** (Monitoring 1) or by **L** (Monitoring 2).

### Setting: Thermostat differential changeover (if remote sensor is used)

If the system contains a remote sensor, set the increase/decrease increments.

| If you want to change increments to… | Then[1] | | |
|---|---|---|---|
| | M | SW | — |
| 1°C | 12 (22) | 2 | 01 |
| 0.5°C | | | 02 |

### Setting: Differential for automatic changeover

Set temperature difference between cooling setpoint and heating setpoint in automatic mode (availability depends on the system type). Differential is cooling setpoint minus heating setpoint.

| If you want to set the temperature difference value to… | Then[1] | | |
|---|---|---|---|
| | M | SW | — |
| 0°C | 12 (22) | 4 | 01 |
| 1°C | | | 02 |
| 2°C | | | 03 |
| 3°C | | | 04 |
| 4°C | | | 05 |
| 5°C | | | 06 |
| 6°C | | | 07 |
| 7°C | | | 08 |

### Setting: Auto-restart after power failure

Depending on the needs of the user, you may disable/enable the automatic restart after a power failure.

| If you want auto-restart after power failure… | Then[1] | | |
|---|---|---|---|
| | M | SW | — |
| Disabled | 12 (22) | 5 | 01 |
| Enabled | | | 02 |

[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
- —: Value number
- ▒: Default

# 22 Hand-over to the user

Once the test run is finished and the unit operates properly, please make sure the following is clear for the user:

- Make sure that the user has the printed documentation and ask him/her to keep it for future reference. Inform the user that he can find the complete documentation at the URL mentioned earlier in this manual.
- Explain the user how to properly operate the system and what to do in case of problems.
- Show the user what to do for the maintenance of the unit.

# 23 Troubleshooting

## 23.1 Solving problems based on error codes

If the unit runs into a problem, the user interface displays an error code. It is important to understand the problem and to take measures before resetting an error code. This should be done by a licensed installer or by your local dealer.

This chapter gives you an overview of most possible error codes and their descriptions as they appear on the user interface.

**INFORMATION**

See the service manual for:

- The complete list of error codes
- A more detailed troubleshooting guideline for each error

### 23.1.1 Error codes: Overview

In case other error codes appear, contact your dealer.

| Code | Description |
|---|---|
| A0-11 | The R32 sensor has detected a refrigerant leak |
| A0/CH | Safety system error (leak detection) |
| CH-01 | R32 sensor malfunction |
| CH-02 | R32 sensor end of lifetime |
| CH-05 | 6 months before the R32 sensor end of lifetime |
| A1 | Malfunction of indoor unit PCB |
| A3 | Drain level control system abnormality |
| A4 | Malfunction of freezing protection |
| A5 | High pressure control in heating, freeze-up protection control in cooling |
| A6 | Malfunction of fan motor |
| A7 | Malfunction of swing flap motor |
| A8 | Malfunction of power supply or AC input overcurrent |
| A9 | Malfunction of electronic expansion valve |
| AF | Malfunction of a humidifier system |
| AH | Malfunction of dust collector of air cleaner |
| AJ | Malfunction of capacity setting (Indoor unit PCB) |
| C1 | Failure of transmission (between indoor unit PCB and sub PCB) |
| C4 | Malfunction of liquid pipe thermistor for heat exchanger |
| C5 | Malfunction of gas pipe thermistor for heat exchanger |
| C6 | Malfunction of gas pipe thermistor for heat exchanger |
| C9 | Malfunction of suction air thermistor |
| CA | Malfunction of discharge air thermistor |

| Code | Description |
|---|---|
| C J | Room temperature thermistor in remote controller abnormality |

# 24 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.

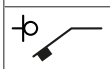
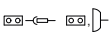
# 25 Technical data

- 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).

## 25.1 Wiring diagram

### 25.1.1 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 |
|  | 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 |

| Symbol | Meaning |
|---|---|
| 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 |
| Q* | Insulated gate bipolar transistor (IGBT ) |
| Q*C | Circuit breaker |
| Q*DI, KLM | Earth leak circuit breaker |
| Q*L | Overload protector |

| Symbol | Meaning |
|---|---|
| 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 |

# 26 Glossary

**Dealer**
Sales distributor for the product.

**Authorised installer**
Technical skilled person who is qualified to install the product.

**User**
Person who is owner of the product and/or operates the product.

**Applicable legislation**
All international, European, national and local directives, laws, regulations and/or codes that are relevant and applicable for a certain product or domain.

**Service company**
Qualified company which can perform or coordinate the required service to the product.

**Installation manual**
Instruction manual specified for a certain product or application, explaining how to install, configure and maintain it.

**Operation manual**
Instruction manual specified for a certain product or application, explaining how to operate it.

**Maintenance instructions**
Instruction manual specified for a certain product or application, which explains (if relevant) how to install, configure, operate and/or maintain the product or application.

**Accessories**
Labels, manuals, information sheets and equipment that are delivered with the product and that need to be installed according to the instructions in the accompanying documentation.

**Optional equipment**
Equipment made or approved by Daikin that can be combined with the product according to the instructions in the accompanying documentation.

**Field supply**
Equipment NOT made by Daikin that can be combined with the product according to the instructions in the accompanying documentation.

EAC



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