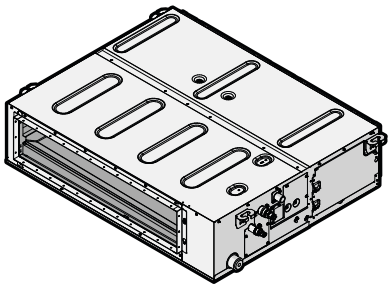
Installer reference guide

Split system air conditioners



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ADEA35A2VEB
ADEA50A2VEB
ADEA60A2VEB
ADEA71A2VEB
ADEA100A2VEB
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1 About the documentation

1.1 About this document

WARNING

Make sure installation, servicing, maintenance, repair and applied materials follow the instructions from Daikin (including all documents listed in “Documentation set”) 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.

INFORMATION

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

Target audience

Authorised installers

INFORMATION

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

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 manual:**
  - Installation instructions
  - Format: Paper (in the box of the indoor unit)
- **Installer reference guide:**
  - Preparation of the installation, good practices, reference data,…
  - Format: Digital files on https://www.daikin.eu. Use the search function to find your model.

The latest revision of the supplied documentation is published on the regional Daikin website and is available via your dealer.

Scan the QR code below to find the full documentation set and more information about your product on the Daikin website.

ADEA-A

FBA-A(9)

The original instructions are written in English. All other languages are translations of the original instructions.

Technical engineering data

- A **subset** of the latest technical data is available on the regional Daikin website (publicly accessible).

- The **full set** of the latest technical data is available on the Daikin Business Portal (authentication required).

1.1.1 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. **Example:** "1–3 Figure title" means "Figure 3 in chapter 1".
	Indicates a table title or a reference to it. **Example:** "1–3 Table title" means "Table 3 in chapter 1".

2 General safety precautions

2.1 For the installer

2.1.1 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 unless otherwise specified.

WARNING

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

WARNING

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

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

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.

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.

2.1.2 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.

Instructions for equipment using R32 refrigerant

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 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

- Take precautions to avoid excessive vibration or pulsation to refrigeration piping.
- Protect the protection devices, piping and fittings as much as possible against adverse environmental effects.
- Provide space for expansion and contraction of long runs of piping.
- Design and install piping in refrigerating systems such as to minimise the likelihood of hydraulic shock damaging the system.
- Mount the indoor equipment and pipes securely and protect them to avoid accidental rupture of equipment or pipes in case of events such as moving furniture or reconstruction activities.

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 (m²).
- 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.

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 the installation between parts of the refrigerant system shall be accessible for maintenance purposes.

Installation space requirements

WARNING

If appliances contain R32 refrigerant, the floor area of the room in which the appliances are installed, operated and stored MUST be larger than the minimum floor area defined in table below A (m^2). This applies to:

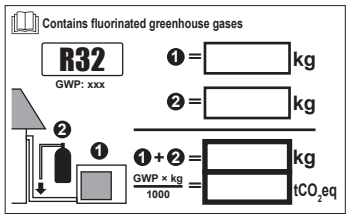
- Indoor units **without** a refrigerant leakage sensor; in case of indoor units **with** refrigerant leakage sensor, consult the installation manual
- Outdoor units installed or stored indoors (e.g. winter garden, garage, machinery room)

NOTICE

- The pipework shall be securely mounted and guarded protected from physical damage.
- Keep the pipework installation to a minimum.

To determine the minimum floor area

1 Determine the total refrigerant charge in the system (= factory refrigerant charge ❶ + ❷ additional refrigerant amount charged).

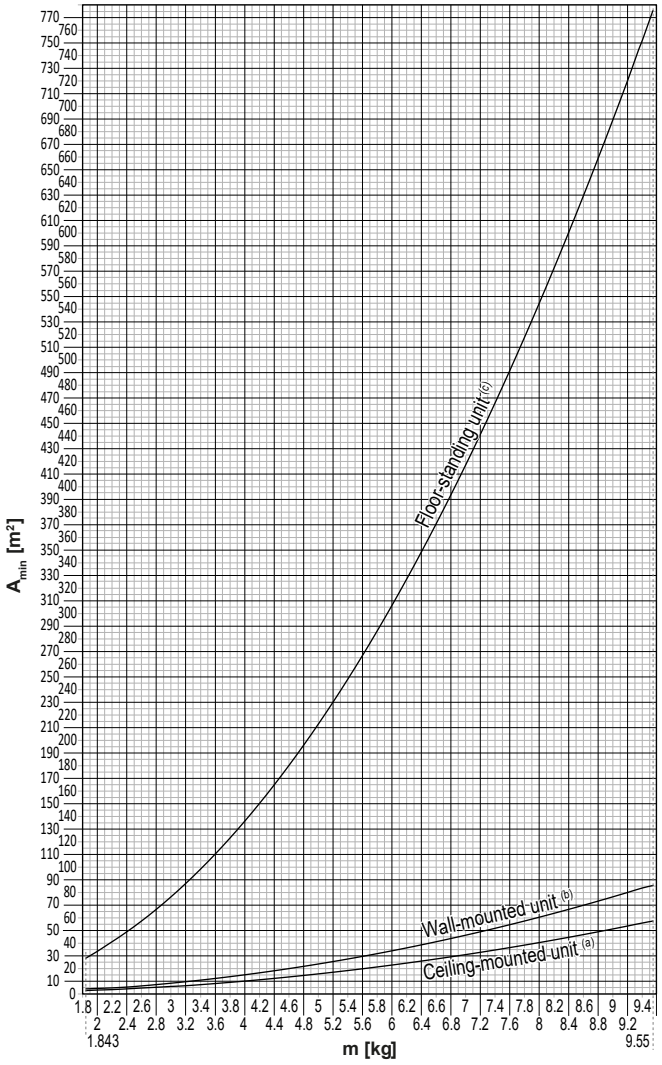


2 Determine which graph or table to use.

- For indoor units: Is the unit ceiling-mounted, wall-mounted or floor-standing?
- For outdoor units installed or stored indoors, this depends on the installation height:

If the installation height is…	Then use the graph or table for…
<1.8 m	Floor-standing units
1.8≤x<2.2 m	Wall-mounted units
≥2.2 m	Ceiling-mounted units

3 Use the graph or table to determine the minimum floor area.



Ceiling-mounted unit(a)		Wall-mounted unit(b)		Floor-standing unit(c)	
m (kg)	A_{min} (m²)	m (kg)	A_{min} (m²)	m (kg)	A_{min} (m²)
≤1.842	—	≤1.842	—	≤1.842	—
1.843	3.64	1.843	4.45	1.843	28.9
2.0	3.95	2.0	4.83	2.0	34.0
2.2	4.34	2.2	5.31	2.2	41.2
2.4	4.74	2.4	5.79	2.4	49.0
2.6	5.13	2.6	6.39	2.6	57.5
2.8	5.53	2.8	7.41	2.8	66.7
3.0	5.92	3.0	8.51	3.0	76.6
3.2	6.48	3.2	9.68	3.2	87.2
3.4	7.32	3.4	10.9	3.4	98.4
3.6	8.20	3.6	12.3	3.6	110
3.8	9.14	3.8	13.7	3.8	123
4.0	10.1	4.0	15.1	4.0	136
4.2	11.2	4.2	16.7	4.2	150
4.4	12.3	4.4	18.3	4.4	165
4.6	13.4	4.6	20.0	4.6	180
4.8	14.6	4.8	21.8	4.8	196
5.0	15.8	5.0	23.6	5.0	213
5.2	17.1	5.2	25.6	5.2	230
5.4	18.5	5.4	27.6	5.4	248
5.6	19.9	5.6	29.7	5.6	267
5.8	21.3	5.8	31.8	5.8	286
6.0	22.8	6.0	34.0	6.0	306
6.2	24.3	6.2	36.4	6.2	327
6.4	25.9	6.4	38.7	6.4	349
6.6	27.6	6.6	41.2	6.6	371
6.8	29.3	6.8	43.7	6.8	394
7.0	31.0	7.0	46.3	7.0	417
7.2	32.8	7.2	49.0	7.2	441
7.4	34.7	7.4	51.8	7.4	466
7.6	36.6	7.6	54.6	7.6	492
7.8	38.5	7.8	57.5	7.8	518
8	40.5	8	60.5	8	545
8.2	42.6	8.2	63.6	8.2	572
8.4	44.7	8.4	66.7	8.4	601
8.6	46.8	8.6	69.9	8.6	629
8.8	49.0	8.8	73.2	8.8	659
9	51.3	9	76.6	9	689
9.2	53.6	9.2	80.0	9.2	720
9.4	55.9	9.4	83.6	9.4	752
9.55	57.7	9.55	86.2	9.55	776

m Total refrigerant charge in the system
A_{min} Minimum floor area
(a) Ceiling-mounted unit (= Ceiling-mounted unit)
(b) Wall-mounted unit (= Wall-mounted unit)
(c) Floor-standing unit (= Floor-standing unit)

2.1.3 Refrigerant — in case of R410A or R32

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

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

During tests, NEVER pressurise 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.

WARNING

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

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.

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.

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.

NOTICE

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

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

- Whether the unit is factory charged with refrigerant or non-charged, in both cases you might need to charge additional refrigerant, depending on the pipe sizes and pipe lengths of the system.
- 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 (i.e., the cylinder is marked with "Liquid filling siphon attached")	Charge with the cylinder upright. 
A siphon tube is NOT present	Charge with the cylinder upside down. 

- 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.

2.1.4 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 national wiring regulations.
- 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 or incorrect earthing 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.

WARNING

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

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.

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 (including all documents listed in “Documentation set”) 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 "6 Unit installation" [▸ 20])

WARNING

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

WARNING

Do NOT install the air conditioner at any place where flammable gas may leak out. If the gas leaks out and stays around the air conditioner, a fire may break out.

CAUTION

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

This unit is suitable for installation in a commercial, light industrial, household and residential environment.

WARNING

For units using the R32 refrigerant it is necessary to keep any required ventilation openings clear of obstructions.

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.

WARNING

Do NOT install operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater) in the ductwork.

CAUTION

- Make sure the installation of the duct does NOT exceed the setting range of the external static pressure for the unit. Refer to the technical datasheet of your model for the setting range.
- Make sure to install the canvas duct so vibrations are NOT transmitted to the duct or ceiling. Use a sound-absorbing material (insulation material) for the lining of the duct and apply vibration insulation rubber to the hanging bolts.
- When welding, make sure NOT to spatter onto the drain pan or the air filter.
- If the metal duct passes through a metal lath, wire lath or metal plate of the wooden structure, separate the duct and wall electrically.
- Install the outlet grille in a position where the airflow will not come into direct contact with people.
- Do NOT use booster fans in the duct. Use the function to adjust the fan rate setting automatically (see "10 Configuration" [▸ 47]).

Refrigerant piping installation (see "7 Piping installation" [▸ 31])

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.

WARNING: FLAMMABLE MATERIAL

The R32 refrigerant (if applicable) in this unit is mildly flammable. Refer to the outdoor unit specifications for the type of refrigerant to be used.

Electrical installation (see "8 Electrical installation" [▸ 37])

WARNING

ALWAYS use multicore cable for power supply cables.

WARNING

- All wiring MUST be performed by an authorised electrician and MUST comply with the national wiring regulation.
- 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 shocks.
- 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 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 provides 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.

WARNING

Do NOT extend the power supply or the interconnection cable by using wire connectors, wire connection clamps, taped wires, extension cords.

These can cause overheating, electric shock or fire.

4 About the box

4.1 Indoor unit

WARNING: FLAMMABLE MATERIAL

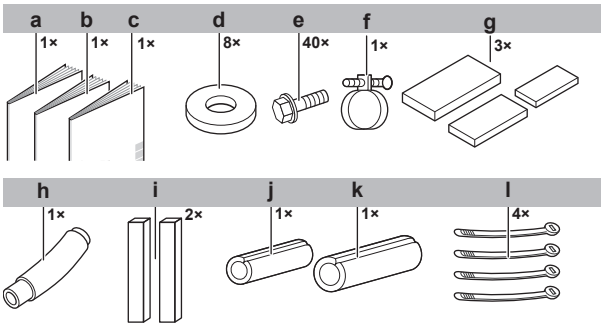
The R32 refrigerant (if applicable) in this unit is mildly flammable. Refer to the outdoor unit specifications for the type of refrigerant to be used.

4.1.1 To unpack and handle the unit

Use a sling of soft material or protective plates together with a rope when lifting the unit in order to avoid damage or scratches to the unit.

1 Lift the unit by holding on to the hanger brackets without exerting any pressure on other parts, especially on refrigerant piping, drain piping and other resin parts.

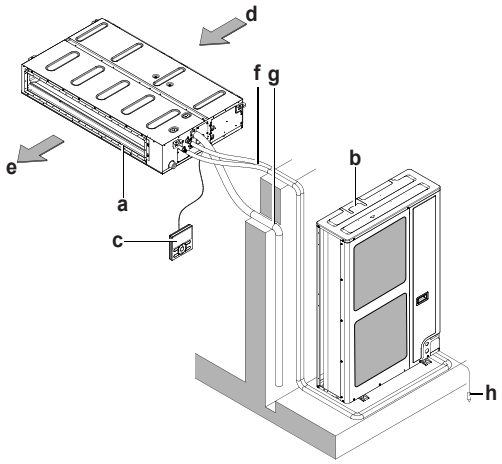
4.1.2 To remove the accessories from the indoor unit



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

5 About the units and options

5.1 System layout



a Indoor unit
b Outdoor unit
c User interface
d Suction air
e Discharge air
f Refrigerant piping + interconnection cable
g Drain pipe
h Earth wiring

5.2 Combining units and options

INFORMATION

Certain options may NOT be available in your country.

5.2.1 Possible options for the indoor unit

Make sure you have the following mandatory options:

- User interface: Wired or wireless

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.

6 Unit installation

WARNING

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

6.1 Preparing the installation site

Choose an installation location with sufficient space to transport the unit in and out of the 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.

- Provide sufficient space around the unit for servicing and air circulation.

WARNING

Do NOT install the air conditioner at any place where flammable gas may leak out. If the gas leaks out and stays around the air conditioner, a fire may break out.

6.1.1 Installation site requirements of the indoor unit

INFORMATION

Also read the general installation site requirements. See the "2 General safety precautions" [▸ 7] 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 is suitable for installation in a commercial, light industrial, household and residential environment.

WARNING

For units using the R32 refrigerant it is necessary to keep any required ventilation openings clear of obstructions.

NOTICE

Do NOT place objects that should NOT get wet below the unit. Condensation on the unit or refrigerant pipes, or drain blockage may cause dripping. **Possible consequence:** Objects under the unit can get dirty or damaged.

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 interference of other equipment and use conduit tubes for power and interconnection lines.

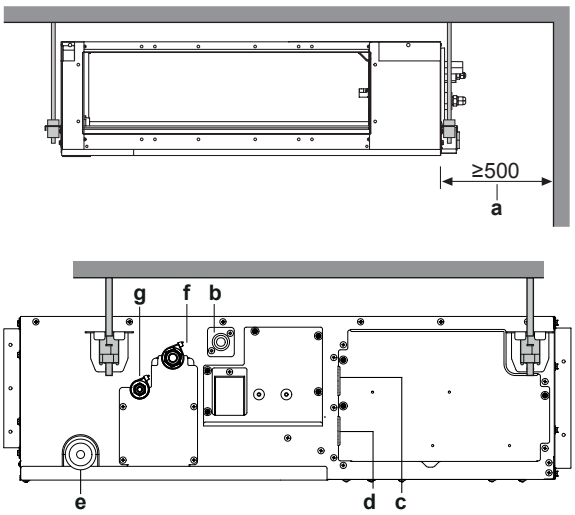
- **Fluorescent lights**. When installing a wireless remote control (user interface) in a room with fluorescent lights, mind the following to avoid interference:
  - Install the wireless remote control (user interface) as close as possible to the indoor unit.
  - Install the indoor unit as far as possible from the fluorescent lights.

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.

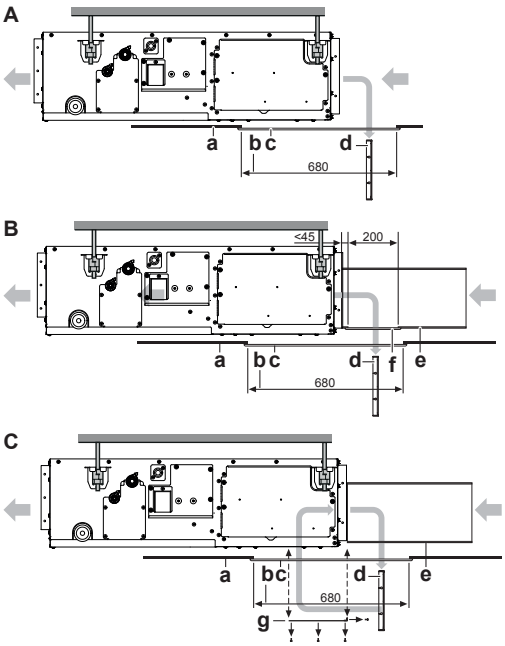
It is NOT recommended to install the unit in the following places because it may shorten the life of the unit:

- Where the voltage fluctuates a lot
- In vehicles or vessels
- Where acidic or alkaline vapour is present
- Ensure that in the event of a water leak, no damage occurs to the installation space or its surroundings.
- Choose a location where the operation noise or the hot/cold air discharged from the unit will not disturb anyone and the location is selected according the applicable legislation.
- **Air flow.** Make sure nothing blocks the air flow.
- **Drainage.** Make sure condensation water can be evacuated properly.
- **Ceiling insulation**. When conditions in the ceiling exceed 30°C and a relative humidity of 80%, or when fresh air is inducted into the ceiling, then additional insulation is required (minimum 10 mm thickness, polyethylene foam).
- **Protective guards.** Make sure to install protective guards on the suction and discharge side to prevent somebody from touching the fan blades or heat exchanger.
- Use **suspension bolts** for installation.
- **Spacing**. Mind the following requirements:



a Service space
b Drain pipe
c Power supply wiring port
d Transmission wiring port
e Maintenance drain outlet
f Gas pipe
g Liquid pipe

- **Installation options:**



A Standard rear suction
B Installation with rear duct and duct service opening
C Installation with rear duct, no duct service opening "6.2.2 Guidelines when installing the indoor unit" [▸ 23]
a Ceiling surface
b Ceiling opening
c Service access panel (field supply)
d Air filter
e Air inlet filter
f Duct service opening
g Interchangeable plate

6.2 Mounting the indoor unit

6.2.1 Precautions when mounting the indoor unit

INFORMATION

Also read the precautions and requirements in the following chapters:

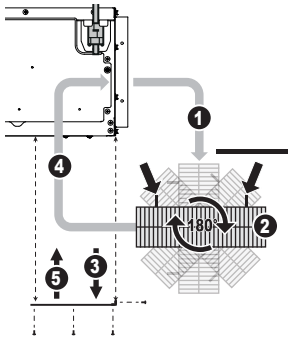
- General safety precautions
- Preparation

6.2.2 Guidelines when installing the indoor unit

INFORMATION

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

- **In case of installation with duct, but no duct service opening.** Modify the position of the air filters.



1 Remove the air filter(s) from the outside of the unit.

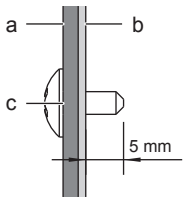
2 Rotate the filter – cloth straps MUST be facing up.

3 Remove the interchangeable plate.

4 Insert the filter flat through the front intake side, short side first. The plastic grid must face inside. Cloth straps MUST be on top and pulled inside the unit.

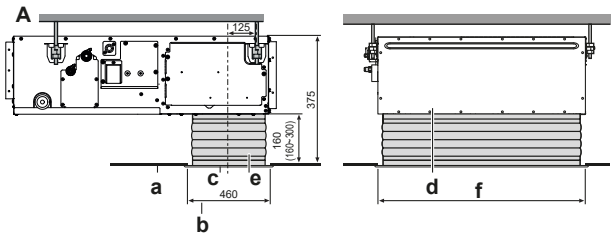
5 Reinstall the interchangeable plate.

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



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

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

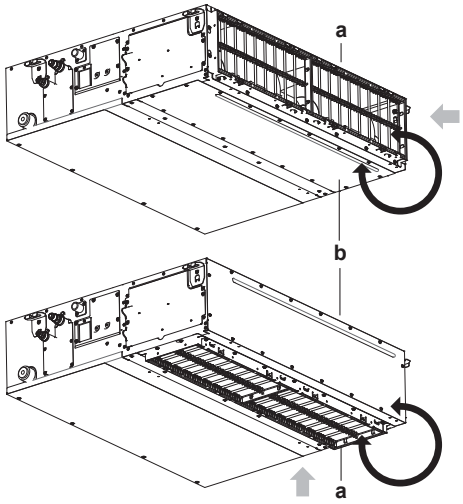


Class	f (mm)
35+50	760
60+71	1060
100~140	1460

A Mounting the air inlet with a canvas connection
a Ceiling surface
b Ceiling opening
c Air inlet panel (field supply)
d Indoor unit (back side)
e Canvas connection for air inlet panel (field supply)

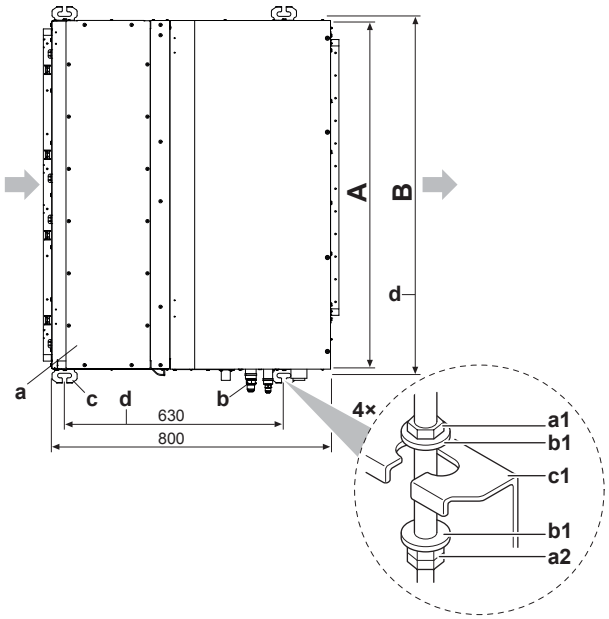
INFORMATION

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



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

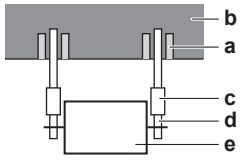
- **Suspension bolts.** Use M10 suspension bolts for installation. Attach the hanger bracket to the suspension bolt. Fix it securely using a nut and washer from the upper and lower sides of the hanger bracket.
- **Ceiling opening size.** Make sure the ceiling opening is within the following limits:



Class	A (mm)	B (mm)
35+50	700	738
60+71	1000	1038
100~140	1400	1438

a1 Nut (field supply)
a2 Double nut (field supply)
b1 Washer (accessories)
c1 Hanger bracket (attached to the unit)
a Indoor unit
b Pipe
c Hanger bracket pitch (suspension)
d Suspension bolt spacing

- **Installation example:**



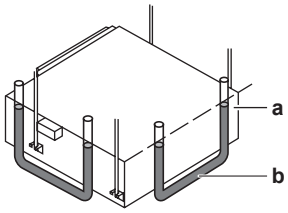
a Anchor
b Ceiling slab
c Long nut or turn-buckle
d Suspension bolt
e Indoor unit

- **Install the unit temporarily.**

6 Attach the hanger bracket to the suspension bolt.

7 Fix it securely.

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



a Water level
b Vinyl tube

8 Tighten the upper nut.

NOTICE

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

6.2.3 Guidelines when installing the ducting

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 (m²).
- 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.

WARNING

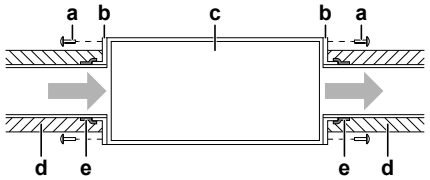
Do NOT install operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater) in the ductwork.

CAUTION

- Make sure the installation of the duct does NOT exceed the setting range of the external static pressure for the unit. Refer to the technical datasheet of your model for the setting range.
- Make sure to install the canvas duct so vibrations are NOT transmitted to the duct or ceiling. Use a sound-absorbing material (insulation material) for the lining of the duct and apply vibration insulation rubber to the hanging bolts.
- When welding, make sure NOT to spatter onto the drain pan or the air filter.
- If the metal duct passes through a metal lath, wire lath or metal plate of the wooden structure, separate the duct and wall electrically.
- Install the outlet grille in a position where the airflow will not come into direct contact with people.
- Do NOT use booster fans in the duct. Use the function to adjust the fan rate setting automatically (see "10 Configuration" [▶ 47]).

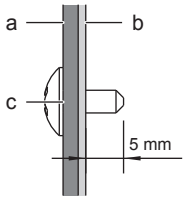
The ducting is to be field supplied.

- **Air inlet side.** Attach the duct and intake-side flange (field supply). For connecting the flange, use screws (accessory).



a Connection screw (accessory)
b Flange (field supply)
c Main unit
d Insulation (field supply)
e Aluminium tape (field supply)

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



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

- **Filter.** Be sure to attach an air filter inside the air passage on the intake side. Use an air filter with dust collecting efficiency ≥50% (gravimetric method).
- **Air outlet side.** Connect the duct according to the inside dimension of the outlet-side flange.
- **Air leaks.** Wind aluminium tape around the intake side flange and duct connection. Make sure there are no air leaks at any other connection.
- **Insulation.** Insulate the duct to prevent condensation from forming. Use glass wool or polyethylene foam 25 mm thick.

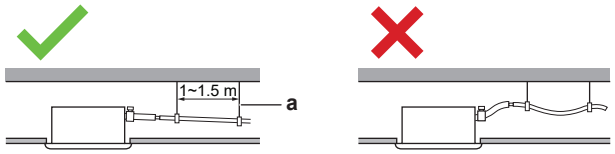
6.2.4 Guidelines when installing the drain piping

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

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

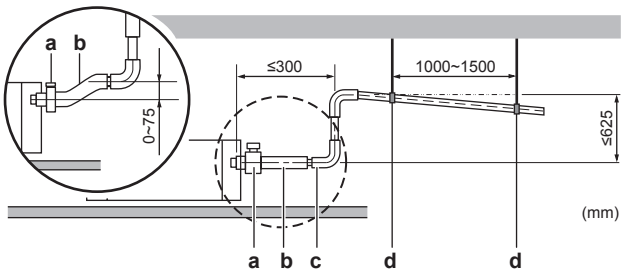
General guidelines

- **Drain pump.** For this "high lift type", the drainage sounds will be reduced when the drain pump is installed in a higher location. Recommended height is 300 mm.
- **Pipe length.** Keep drain piping as short as possible.
- **Pipe size.** Keep the pipe size equal to or greater than that of the connecting pipe (vinyl pipe of 25 mm nominal diameter and 32 mm outer diameter).
- **Slope.** Make sure the drain piping slopes down (at least 1/100) to prevent air from being trapped in the piping. Use hanging bars as shown.



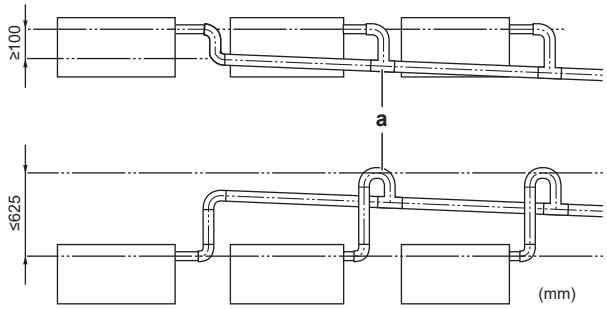
a Hanging bar
✓ Allowed
✗ Not allowed

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



a Metal clamp (accessory)
b Drain hose (accessory)
c Rising drain piping (vinyl pipe of 25 mm nominal diameter and 32 mm outer diameter) (field supply)
d Hanging bars (field supply)

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

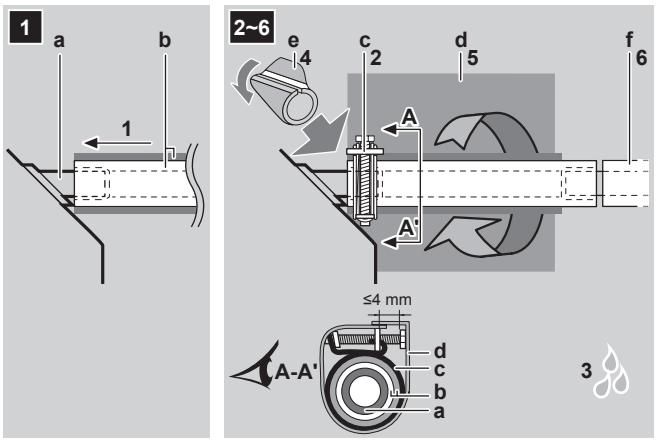


a T-joint

To connect the drain piping to the indoor unit

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

1. Push the drain hose as far as possible over the drain pipe connection.
2. Tighten the metal clamp until the screw head is less than 4 mm from the metal clamp part.
3. Check for water leaks (see "To check for water leaks" [▸ 29]).
4. Install the insulation piece (drain pipe).
5. Wind the large sealing pad (= insulation) around the metal clamp and drain hose, and fix it with cable ties.
6. Connect the drain piping to the drain hose.



a Drain pipe connection (attached to the unit)

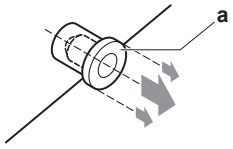
b Drain hose (accessory)
c Metal clamp (accessory)
d Large sealing pad (accessory)
e Insulation piece (drain pipe) (accessory)
f Drain piping (field supply)

NOTICE

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

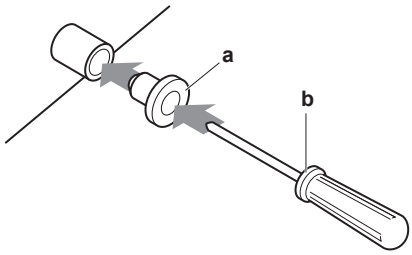
Pull out the plug.

- Do NOT wiggle the plug up and down.



Push in the plug.

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



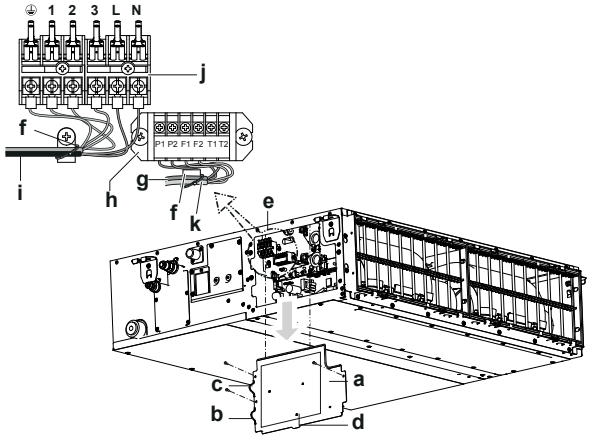
a Drain plug
b Philips screwdriver

To check for water leaks

The procedure differs depending on whether electrical wiring is already finished. When electrical wiring is not finished yet, you need to temporarily connect the user interface and power supply to the unit.

When electrical wiring is not finished yet

1. Temporarily connect electrical wiring.
2. Remove the switch box cover (a).
3. Connect the single-phase power supply (50 Hz, 230 V) to connections No. 1 and No. 2 on the terminal block for power supply and earth.
4. Reattach the switch box cover (a).

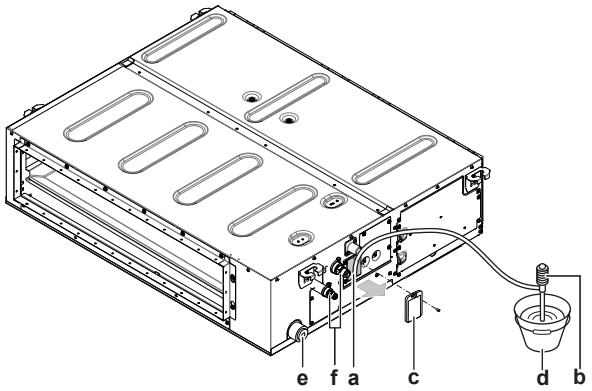


a Switch box cover
b Transmission wiring port
c Power supply wiring port
d Wiring diagram
e Switch box
f Plastic clamp
g User interface wiring
h Terminal board for unit transmission wiring
i Power supply wiring
j Power supply terminal board
k Transmission wiring between units

5 Turn ON the power.

6 Start cooling operation (see "9.3 To perform a test run" [▸ 44]).

7 Gradually pour approximately 1 l of water through the air discharge outlet, and check for leaks.



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

8 Turn OFF the power.

9 Disconnect the electrical wiring.

10 Remove the control box cover.

11 Disconnect the power supply and earth.

12 Reattach the control box cover.

When electrical wiring is already finished

1 Start cooling operation.

2 Gradually pour approximately 1 l of water through the air discharge outlet, and check for leaks.

7 Piping installation

In this chapter

7.1 Preparing refrigerant piping

7.1.1 Refrigerant piping requirements

NOTICE

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

INFORMATION

Also read the precautions and requirements in the "2 General safety precautions" [▶ 7].

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

Refrigerant piping diameter

For piping connection of the indoor unit, use the following piping diameters:

	Pipe outer diameter (mm)	
Class	**Liquid pipe**	**Gas pipe**
35	Ø6.4	Ø9.5
50+60	Ø6.4	Ø12.7
71~140	Ø9.5	Ø15.9

Refrigerant piping material

Piping material

Phosphoric acid deoxidised seamless copper

Flare connections

Only use annealed material.

Piping temper grade and thickness

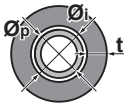
Outer diameter (Ø)	Temper grade	Thickness (t)[a]	
6.4 mm (1/4")	Annealed (O)	≥0.8 mm	
9.5 mm (3/8")			
12.7 mm (1/2")			
15.9 mm (5/8")			

[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.

7.1.2 Refrigerant piping insulation

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

Pipe outer diameter ($Ø_p$)	Insulation inner diameter ($Ø_i$)	Insulation thickness (t)
6.4 mm (1/4")	8~10 mm	≥10 mm
9.5 mm (3/8")	10~14 mm	≥13 mm
12.7 mm (1/2")	14~16 mm	≥10 mm
15.9 mm (5/8")	16~20 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.

7.2 Connecting the refrigerant piping

7.2.1 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 outdoor unit
- Connecting the refrigerant piping to the indoor unit
- Insulating the refrigerant piping

- Keeping in mind the guidelines for:
  - Pipe bending
  - Flaring pipe ends
  - Brazing
  - Using the stop valves

7.2.2 Precautions when connecting the refrigerant piping

INFORMATION

Also read the precautions and requirements in the following chapters:

- "2 General safety precautions" [▶ 7]
- "7.1 Preparing refrigerant piping" [▶ 31]

DANGER: RISK OF BURNING/SCALDING

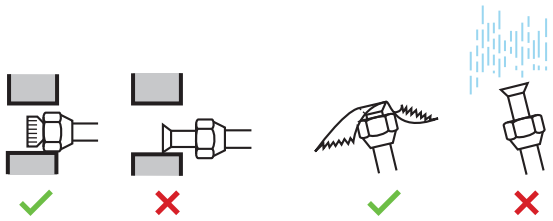
NOTICE

- Do NOT use mineral oil on flared part.
- NEVER install a drier to this unit to guarantee its lifetime. The drying material may dissolve and damage the system.
- Use the flare nut fixed to the main unit.
- To prevent gas leakage, apply refrigeration oil only to the inside of the flare. Use refrigeration oil for R32/R410A.
- Do NOT reuse joints.

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 or R410A when adding refrigerant. Refer to the outdoor unit specifications for the type of refrigerant to be used.
- Only use installation tools (e.g. manifold gauge set) that are exclusively used for R32 or R410A 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.
- Do NOT leave pipes unattended at the site. If the installation is NOT done within 1 day, 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	

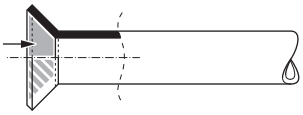
NOTICE

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.

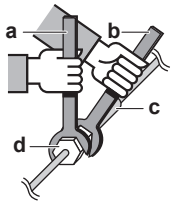
7.2.3 Guidelines when connecting the refrigerant piping

Take the following guidelines into account when connecting pipes:

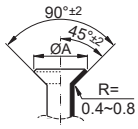
- Coat the flare inner surface with ether oil or ester oil when connecting a flare nut. Tighten 3 or 4 turns by hand, before tightening firmly.



- 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	
Ø15.9	62~75	19.3~19.7	

7.2.4 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).

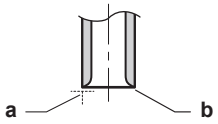
7.2.5 To flare the pipe end

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.

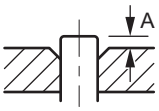
2 Remove burrs with the cut surface facing down so that the chips do NOT enter the pipe.



a Cut exactly at right angles.
b Remove burrs.

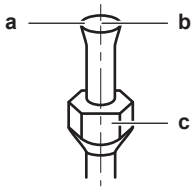
3 Remove the flare nut from the stop valve and put the flare nut on the pipe.

4 Flare the pipe. Set exactly at the position as shown in the following figure.



	Flare tool for R410A or 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.

7.2.6 To connect the refrigerant piping to the indoor unit

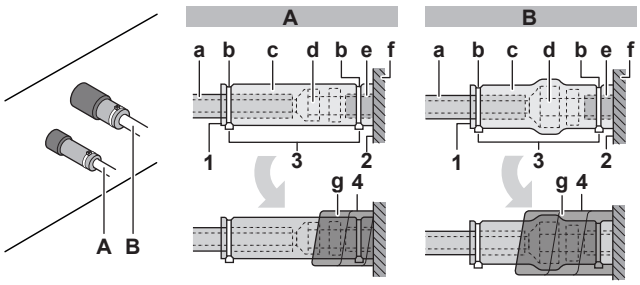
CAUTION

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: FLAMMABLE MATERIAL

The R32 refrigerant (if applicable) in this unit is mildly flammable. Refer to the outdoor unit specifications for the type of refrigerant to be used.

- **Pipe length**. Keep refrigerant piping as short as possible.
- **Flare connections**. Connect refrigerant piping to the unit using flare connections.
- **Insulation**. Insulate the refrigerant piping on the indoor unit as follows:



A Liquid piping
B Gas piping

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

1 Turn up the seams of the insulation pieces.
2 Attach to the base of the unit.
3 Tighten the tie wrap on the insulation pieces.
4 Wrap the sealing pad from the base of the unit to the top of the flare nut.

NOTICE

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

8 Electrical installation

In this chapter

8.1 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.

8.1.1 Precautions when connecting the electrical wiring

DANGER: RISK OF ELECTROCUTION

WARNING

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

WARNING

ALWAYS use multicore cable for power supply cables.

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.

INFORMATION

Also read the precautions and requirements in the following chapters:

- General safety precautions
- Preparation

8.1.2 Guidelines when connecting the electrical wiring

NOTICE

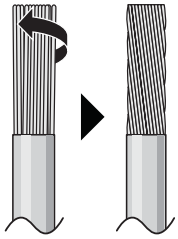
We recommend using solid (single-core) wires. If stranded wires are used, slightly twist the strands to consolidate the end of the conductor for either direct use in the terminal clamp or insertion in a round crimp-style terminal.

To prepare stranded conductor wire for installation

Method 1: Twisting conductor

1 Strip insulation (20 mm) from the wires.

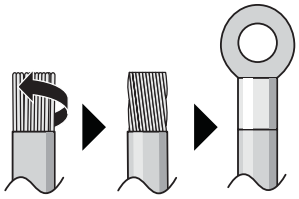
2 Slightly twist the end of the conductor to create a "solid-like" connection.



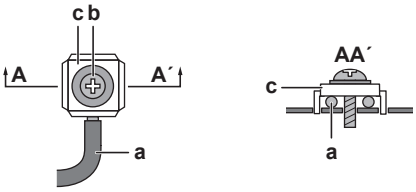
Method 2: Using round crimp-style terminal (recommended)

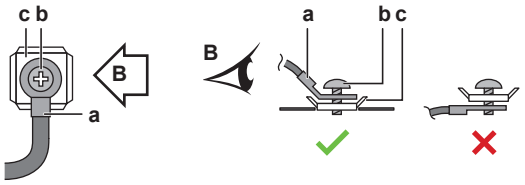
1 Strip insulation from wires and slightly twist the end of each wire.

2 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.



Use the following methods for installing wires:

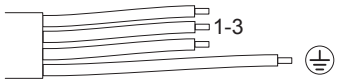
Wire type	Installation method
Single-core wire Or Stranded conductor wire twisted to "solid-like" connection	 **a** Curled wire (single-core or twisted stranded conductor wire) **b** Screw **c** Flat washer

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

Tightening torques

Wiring	Screw size	Tightening torque (N•m)
Interconnection cable (indoor↔outdoor)	M4	1.18~1.44
User interface cable	M3.5	0.79~0.97

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



8.1.3 Specifications of standard wiring components

Component		Class			
		35+50	60+71	100	125+140
Power supply cable	MCA[(a)]	1.4 A	1.3 A	3.5 A	3.9 A
	Voltage	220~240 V			
	Phase	1~			
	Frequency	50/60 Hz			
	Wire sizes	Must comply with applicable legislation			
Interconnection cable		Minimum cable section of 2.5 mm² and applicable for 220~240 V			
User interface cable		Vinyl cord with 0.75 to 1.25 mm² sheath or cables (2 core wires) Maximum 500 m			
Recommended field fuse		16 A			
Residual current device / Earth leakage circuit breaker		For units with a separate power supply line, ALWAYS install a residual current device (RCD) with an instantaneous action. The installed RCD MUST comply with the national wiring regulation.			

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

8.2 To connect the electrical wiring to the indoor unit

WARNING

Do NOT extend the power supply or the interconnection cable by using wire connectors, wire connection clamps, taped wires, extension cords.

These can cause overheating, electric shock or fire.

NOTICE

- Follow the wiring diagram (delivered with the unit, located on the switch box cover).
- Make sure the electrical wiring does NOT obstruct proper reattachment of the service cover.

It is important to keep the power supply and the interconnection 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 interconnection line apart from each other. Interconnection wiring and power supply wiring may cross, but may NOT run parallel.

1 Remove the service cover.

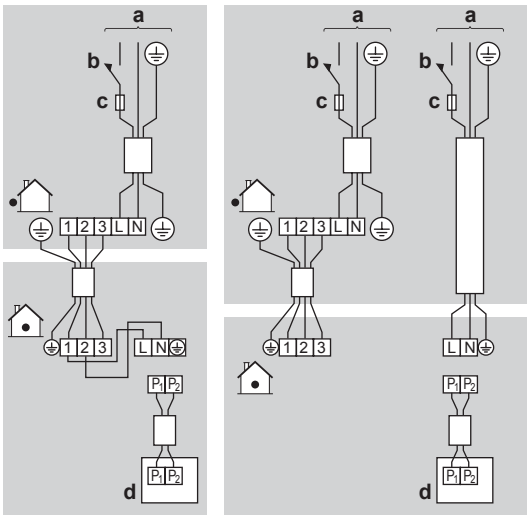
2 **User interface cable**: Route the cable through the frame, connect the cable to the terminal block, and fix the cable with a cable tie.

3 **Interconnection cable** (indoor↔outdoor): Route the cable through the frame, connect the cable to the terminal block (make sure the numbers match with the numbers on the outdoor unit, and connect the earth wire), and fix the cable with a cable tie.

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

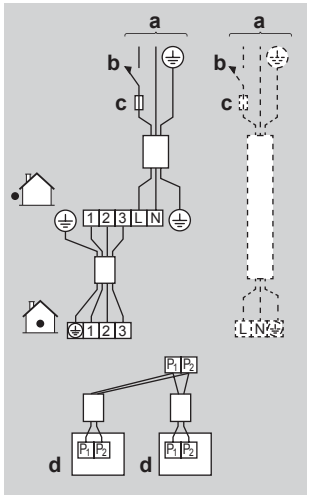
5 Reattach the service cover.

- **When using 1 user interface with 1 indoor unit.**

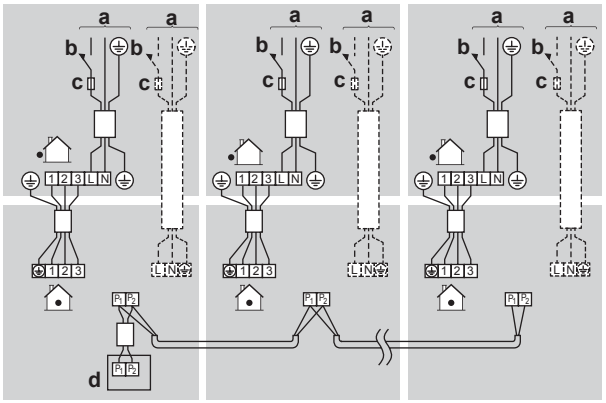


- **When using 2 user interfaces**[1]

[1] Dashed line represents separate power supply.



- **When using group control**[1]



a Power supply
b Main switch
c Fuse
d User interface

- **Master unit:** Be sure to connect the wiring when combining with a simultaneously operating multi-type in group control.

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

- Use separate power supply only in case of following combination:

1×FBA35A + RXS35L or RXM35M
2×FBA35A + RZAG71N7Y1B
3×FBA35A + RZAG100N7Y1B or RZAG71N7Y1B
4×FBA35A + RZAG125/140N7Y1B or RZAG100N7Y1B
2×FBA50A + RZAG100N7Y1B or RZAG71N7Y1B
3×FBA50A + RZAG125/140N7Y1B or RZAG100N7Y1B
4×FBA50A + RZQ200C or RZA200D
2×FBA60A + RR100/125B or RQ100/125B or RZAG125N7Y1B
3×FBA60A + RZQ200C or RZA200D
4×FBA60A + RZQ200C or RZA250D

[1] Dashed line represents separate power supply.

1×FBA71A + RZAG71N7Y1B
2×FBA71A + RR100/125B or RQ100/125B or RZAG140N7Y1B or RZAG125N7Y1B or RZAG100N7Y1B
3×FBA71A + RZQ200C or RZA200D
1×FBA100A + RZAG100N7Y1B or RZAG71N7Y1B
2×FBA100A + RZQ200C or RZA200D
1×FBA125A + RZAG125N7Y1B
2×FBA125A + RZQ200C or RZA250D
1×FBA140A + RZAG140N7Y1B or RZAG125N7Y1B or RZAG100N7Y1B

- **EN/IEC 61000-3-12** provided that the short-circuit power S_{sc} is greater than or equal to the minimum S_{sc} value at the interface point between the user's supply and the public system.
  - EN/IEC 61000-3-12 = European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase.
  - It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected ONLY to a supply with a short-circuit power S_{sc} greater than or equal to the minimum S_{sc} value.
- If the combination of units is one from table below, a separate power supply can be used. Not necessary to consult with distribution network operator as long as local requirements for installation exist.
- If there is requirement to use common power supply for the units from the table below, the connection of units complies with **EN/IEC 61000-3-12**.
- Ensure that equipment is connected only to a supply with a short-circuit power S_{sc} greater than or equal to S_{sc} in table below.

	FBA[(a)]						
Combination	**35**	**50**	**60**	**71**	**100**	**125**	**140**
RZQG71L	2 (—)	—	—	1 (—)	—	—	—
RZQG100L	3 (2.31)	2 (1.30)	—	—	1 (0.73)	—	—
RZQG125L	4 (3.33)	3 (2.32)	2 (2.05)	—	—	1 (0.74)	—
RZQG140L	4 (3.33)	3 (2.32)	—	2 (2.05)	—	—	1 (0.74)
RZQSG71L	2 (1.10)	—	—	1 (1.22)	—	—	—
RZQSG100L	2 (1.65)	2 (—)	—	—	1 (—)	—	—
RZQSG125L	4 (3.33)	3 (2.32)	2 (2.05)	—	—	1 (0.74)	—
RZQSG140L	4 (3.33)	3 (2.32)	—	2 (2.05)	—	—	1 (0.74)

[a] Number of connected indoor units (S_{sc} [MVA]).

If the S_{sc} value is NOT mentioned (—) in the table for the used combination, use the common power supply.

If the S_{sc} value is mentioned in the table, both the common power supply or a separate power supply can be used.

9 Commissioning

9.1 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.

9.2 Checklist before commissioning

☐	You read the complete installation instructions, as described in the **installer reference guide**.
☐	The **indoor units** are properly mounted.
☐	In case a wireless user interface is used: The **indoor unit decoration panel** with infrared receiver is installed.
☐	The **outdoor unit** is properly mounted.
☐	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.
☐	**Fuses, circuit breakers, or protection devices** Check that the fuses, circuit breakers, or the locally installed protection devices are of the size and type specified in the chapter "8.1.3 Specifications of standard wiring components" [▸ 39]. Be sure that neither a fuse nor a protection device has been bypassed.
☐	There are NO **loose connections** or damaged electrical components in the switch box.
☐	The **insulation resistance** of the compressor is OK.
☐	There are NO **damaged components** or **squeezed pipes** on the inside of the indoor and outdoor units.
☐	There are NO **refrigerant leaks**.
☐	The correct pipe size is installed and the **pipes** are properly insulated.
☐	The **stop valves** (gas and liquid) on the outdoor unit are fully open.

9.3 To perform a test run

This task is only applicable when using the BRC1E52 or BRC1E53 user interface. When using any other user interface, see the installation manual or service manual of the user interface.

NOTICE

Do NOT interrupt the test run.

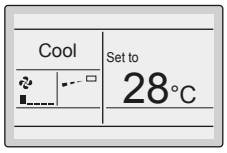
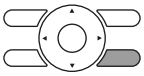
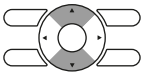
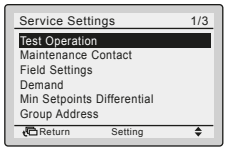
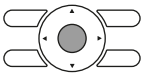
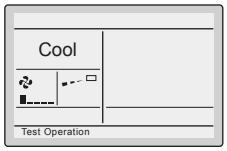
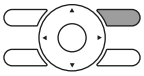
INFORMATION

Backlight. To perform an ON/OFF action on the user interface, the backlight does not need to be lit. For any other action, it needs to be lit first. The backlight is lit for ±30 seconds when you press a button.

1 Perform introductory steps.

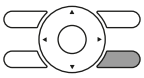
#	Action
1	Open the liquid stop valve and gas stop valve by removing the cap and turning counterclockwise with a hex wrench until it stops.
2	Close the service cover to prevent electric shocks.
3	Turn ON power for at least 6 hours before starting operation to protect the compressor.
4	On the user interface, set the unit to cooling operation mode.

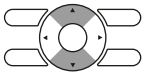
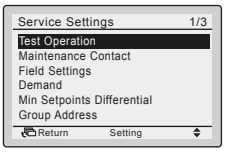
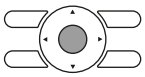
2 Start the test run

#	Action	Result
1	Go to the home menu.	
2	Press at least 4 seconds. 	The Service Settings menu is displayed.
3	Select Test Operation. 	
4	Press. 	Test Operation is displayed on the home menu. 
5	Press within 10 seconds. 	Test run starts.

3 Check operation for 3 minutes.

4 Stop the test run.

#	Action	Result
1	Press at least 4 seconds. 	The Service Settings menu is displayed.

#	Action	Result
2	Select Test Operation. 	
3	Press. 	The unit returns to normal operation, and the home menu is displayed.

9.4 Error codes when performing a test run

If the installation of the outdoor unit has NOT been done correctly, the following error codes may be displayed on the user interface:

Error code	Possible cause
Nothing displayed (the currently set temperature is not displayed)	▪ The wiring is disconnected or there is a wiring error (between power supply and outdoor unit, between outdoor unit and indoor units, between indoor unit and user interface). ▪ The fuse on the outdoor or indoor unit PCB has blown.
E3, E4 or L8	▪ The stop valves are closed. ▪ The air inlet or air outlet is blocked.
E7	There is a missing phase in case of three-phase power supply units. **Note:** Operation will be impossible. Turn OFF the power, recheck the wiring, and switch two of the three electrical wires.
L4	The air inlet or air outlet is blocked.
U0	The stop valves are closed.
U2	▪ There is a voltage imbalance. ▪ There is a missing phase in case of three-phase power supply units. **Note:** Operation will be impossible. Turn OFF the power, recheck the wiring, and switch two of the three electrical wires.
U4 or UF	The inter-unit branch wiring is not correct.
UA	The outdoor and indoor unit are incompatible.

10 Configuration

10.1 Field setting

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

- External static pressure setting using:
  - Airflow automatic adjustment setting
  - User interface
- Airflow rate when thermostat control is OFF
- Time to clean air filter
- Simultaneous operation system individual settings
- Computerised control (forced OFF and ON/OFF operation)

Setting: External static pressure

INFORMATION

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

Settings for external static pressure can be achieved in 2 ways:

- Using the airflow automatic adjustment function
- Using the user interface

To set external static pressure by airflow automatic adjustment function

NOTICE

- Do NOT adjust the dampers during the fan only operation for airflow automatic adjustment.
- For the external static pressure higher than 100 Pa, do NOT use airflow automatic adjustment function.
- If the ventilation paths have been changed, perform the airflow automatic adjustment again.

- Test run MUST be done with a dry coil, run the unit for 2 hours with fan only to dry the coil.
- Check if the power supply wiring, duct, air filter are properly attached. If the closing damper is installed in the unit, make sure it is open.
- If there is more than one air inlet and outlet, adjust the dampers so that the airflow rate of each air inlet and outlet is conform with the designed airflow rate.

1. Operate the unit in **fan only mode** prior to using the airflow automatic adjustment function.
2. **Stop** the air conditioning unit.
3. **Set the value** number **C2/—** to 03 for **M** 11(21) and **C1/SW** 7.
4. **Start** the air conditioning unit.

Result: The operation lamp lights up and the unit starts the fan operation for airflow automatic adjustment.

5 After airflow automatic adjustment is finished (air conditioning unit will stop) check if the value number **C2/—** is set to 02. If there is no change, perform the setting again.

Setting content:	Then[1]		
	M	C1/SW	C2/—
Airflow adjustment is OFF	11(21)	7	01
Completion of automatic airflow adjustment			02
Start of automatic airflow adjustment			03

To set external static pressure by the user interface

Check the indoor unit setting: the value number **C2/—** must be set to 01 for **M** 13(23) and **C1/SW** 6.

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

External static pressure[1]									
M	C1/SW	C2/—	Class						
			35	50	60	71	100	125	140
13(23)	6	01	30	30	30	30	40	50	50
		02	—	—	—	—	—	—	—
		03	30	30	30	30	—	—	—
		04	40	40	40	40	40	—	—
		05	50	50	50	50	50	50	50
		06	60	60	60	60	60	60	60
		07	70	70	70	70	70	70	70
		08	80	80	80	80	80	80	80
		09	90	90	90	90	90	90	90
		10	100	100	100	100	100	100	100
		11	110	110	110	110	110	110	110
		12	120	120	120	120	120	120	120
		13	130	130	130	130	130	130	130
		14	140	140	140	140	140	140	140
		15	150	150	150	150	150	150	150

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 / **C1**: First code number
- —: Value number / **C2**: Second code number
- ▭: Default

If you want			Then[1]		
	Outdoor unit		M	C1/SW	C2/—
	General	2MX/3MX/ 4MX/5MX			
During cooling operation	LL[2]		12 (22)	6	01
	Setup volume[2]				02
	OFF				03
	Monitoring 1[2]				04
	Monitoring 2[2]				05
During heating operation	LL[2]	Monitoring 1[2]	12 (22)	3	01
	Setup volume[2]	Monitoring 2[2]			02
	OFF				03
	Monitoring 1[2]				04
	Monitoring 3[2]				05

Setting: Time to clean air filter

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

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

- **2 user interfaces:** When using 2 user interfaces, one must be set to "MAIN" and the other to "SUB".

Setting: Individual setting in a simultaneous operation system

> **INFORMATION**
> This function is for SkyAir outdoor units (**Example:** RZAG) only.

We recommend using the optional user interface to set the slave unit.

Perform the following steps:

1 Change the second code number to 02 to perform individual setting on the slave unit.

[1] Field settings are defined as follows:
- **M**: Mode number – **First number**: for group of units – **Number between brackets**: for individual unit
- **SW**: Setting number / **C1**: First code number
- —: Value number / **C2**: Second code number
- ▭: Default

[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 using the fan speed button on the user interface.
- **Monitoring 1, 2, 3**: The fan is OFF, but runs for a short time every 6 minutes to detect the room temperature by **LL** (Monitoring 1), **Setup volume** (Monitoring 2) or **L** (Monitoring 3).

If you want to set the slave unit as...	Then[1]		
	M	C1/ SW	C2/—
Unified setting	21(11)	01	01
Individual setting			02

2 Perform field setting for the master unit.

3 Turn off the main power supply switch.

4 Disconnect the remote controller from the master unit and connect it to the slave unit.

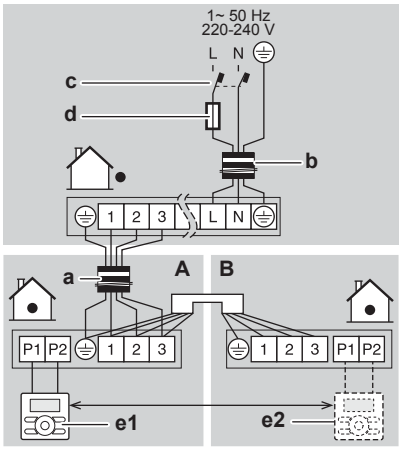
5 Change to individual setting.

6 Perform field setting for the slave unit.

7 Turn off the main power supply or, in case of more slave units, repeat the previous steps for all slave units.

8 Disconnect the user interface from the slave unit and reconnect it to the master unit.

It is not necessary to rewire the remote controller from the master unit if the optional user interface is used. (However, remove the wires attached to the user interface terminal board of the master unit)



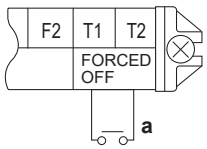
A Master unit
B Slave unit
a Interconnection cable
b Power supply cable
c Earth leakage circuit breaker
d Fuse
e1 Main user interface
e2 Optional user interface

Setting: Computerised control (forced OFF and ON/OFF operation)

Wire specifications and how to perform wiring

Connect input from outside to terminals T1 and T2 of the terminal block for user interface (there is no polarity).

[1] Field settings are defined as follows:
- **M**: Mode number – **First number**: for group of units – **Number between brackets**: for individual unit
- **SW**: Setting number / **C1**: First code number
- —: Value number / **C2**: Second code number
- ▭: Default



a Input A

Wire specification	
Wire specification	Sheathed vinyl cord or cable (2 wire)
Gauge	0.75~1.25 mm^2
External terminal	Contact that can ensure the minimum applicable load of 15 V DC, 10 mA.

Actuation

Forced OFF	ON/OFF operation	Input from protection device
Input ON stops operation (impossible by user interface)	Input OFF → ON: Turns the unit ON	Input ON enables control by user interface
Input OFF enables control by user interface	Input ON → OFF: Turns the unit OFF	Input OFF stops operation: Triggers A0 error code

How to select FORCED OFF and ON/OFF OPERATION

1 Turn on the power and then use the user interface to select operation.

2 Change setting:

If you want…	Then[1]		
	M	C1/SW	C2/—
Forced OFF	12 (22)	1	01
ON/OFF operation			02
Input from protection device			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 / **C1**: First code number
- —: Value number / **C2**: Second code number
- ▒: Default

11 Hand-over to the user

Once the test run is finished and the unit operates properly, 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/she can find the complete documentation at the URL mentioned earlier in this manual.
- Explain to 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.

12 Troubleshooting

12.1 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

12.1.1 Error codes: Overview

In case other error codes appear, contact your dealer.

Code	Description
A0	External protection device activated
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
A8	Malfunction of power supply or AC input overcurrent
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 fan motor sensor or fan control driver
C9	Malfunction of suction air thermistor
CA	Malfunction of discharge air thermistor
CJ	Room temperature thermistor in remote controller abnormality

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.

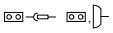
14 Technical data

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

14.1 Wiring diagram

14.1.1 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
			Noiseless earth
			Protective earth (screw)
	Connection		Rectifier
	Connector		Relay connector
	Earth		Short-circuit connector
	Field wiring		Terminal
	Fuse		Terminal strip
	Indoor unit		Wire clamp
	Outdoor unit		Heater
	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
SKY BLU	Sky blue	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

15 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.

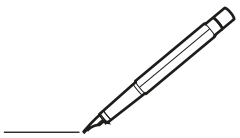
Operation manual
Instruction manual specified for a certain product or application, explaining how to operate it.

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.



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