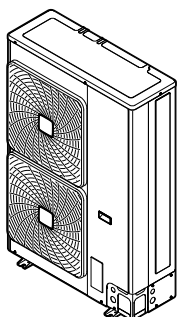




Installation and operation manual



VRV IV-S system air conditioner



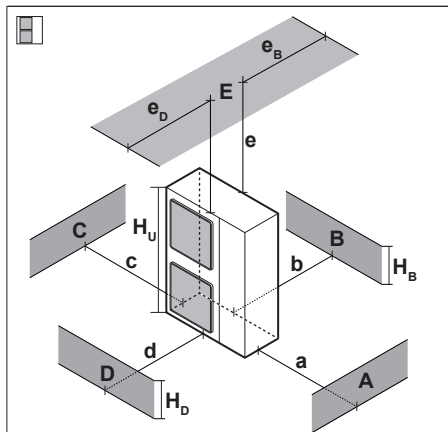
RXYSQ4T8VB ▼
RXYSQ5T8VB ▼
RXYSQ6T8VB ▼

RXYSQ4T8YB ▼
RXYSQ5T8YB ▼
RXYSQ6T8YB ▼

▼ = , , 1, 2, 3, ..., 9

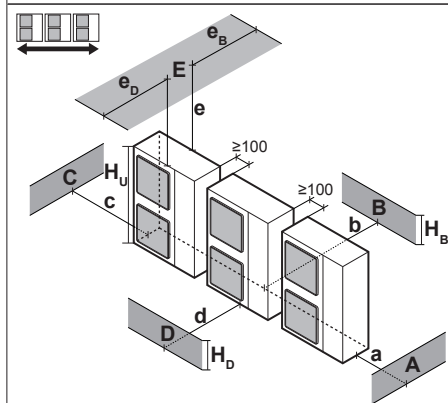
Installation and operation manual
VRV IV-S system air conditioner

English



A~E	H _B H _D H _U	(mm)						
		a	b	c	d	e	e _B	e _D
B	—		≥100					
A, B, C	—	≥100	≥100	≥100				
B, E	—		≥100			≥1000		≤500
A, B, C, E	—	≥150	≥150	≥150		≥1000		≤500
D	—				≥500			
D, E	—				≥1000	≥1000	≤500	
B, D	—		≥100		≥500			
B, D, E	H _B < H _D	H _B ≤ ½H _U	≥250		≥750	≥1000	≤500	
		½H _U < H _B ≤ H _U	≥250		≥1000	≥1000	≤500	
		H _B > H _U	⊘					
	H _B > H _D	H _D ≤ ½H _U	≥100		≥1000	≥1000		≤500
		½H _U < H _D ≤ H _U	≥200		≥1000	≥1000		≤500
	H _D > H _U	≥200		≥1700	≥1000			≤500

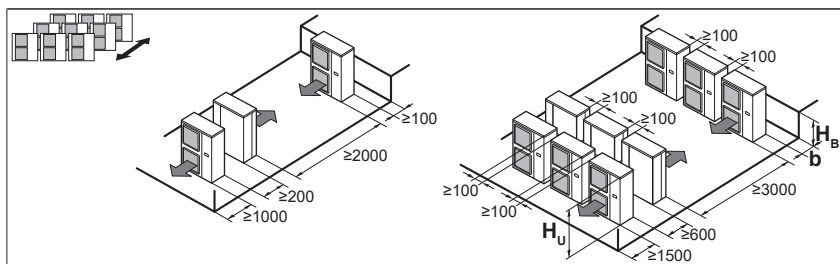
1



A, B, C	—	≥200	≥300	≥1000				
A, B, C, E	—	≥200	≥300	≥1000		≥1000		≤500
D	—				≥1000			
D, E	—				≥1000	≥1000	≤500	
B, D	H _D > H _U	≥300		≥1000				
	H _D ≤ ½H _U	≥250		≥1500				
	½H _U < H _D ≤ H _U	≥300		≥1500				
B, D, E	H _B < H _D	H _B ≤ ½H _U	≥300		≥1000	≥1000	≤500	
		½H _U < H _B ≤ H _U	≥300		≥1250	≥1000	≤500	
		H _B > H _U	⊘					
	H _B > H _D	H _D ≤ ½H _U	≥250		≥1500	≥1000		≤500
		½H _U < H _D ≤ H _U	≥300		≥1500	≥1000		≤500
	H _D > H _U	≥300		≥2200	≥1000			≤500

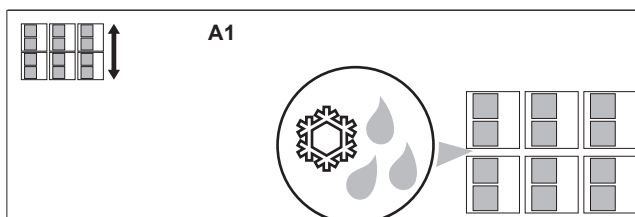
1+2

1



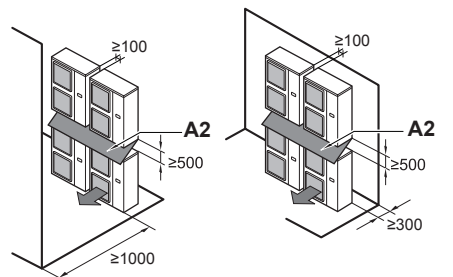
H _B H _U	b [mm]
H _B ≤ ½H _U	b ≥ 250
½H _U < H _B ≤ H _U	b ≥ 300
H _B > H _U	⊘

2



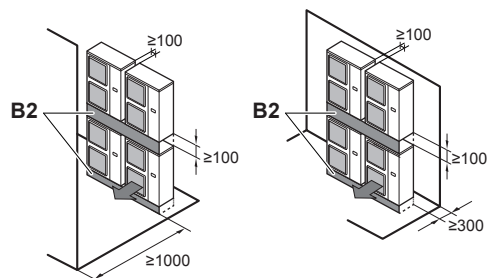
A1

A2



B1

B2



3

Table of contents

1 About the documentation	4	8.2.13 Symptom: The units can give off odours.....	13
1.1 About this document.....	4	8.2.14 Symptom: The outdoor unit fan does not spin	13
2 Specific installer safety instructions	4	8.2.15 Symptom: The display shows "88".....	13
For the user	5	8.2.16 Symptom: The compressor in the outdoor unit does not stop after a short heating operation	13
3 User safety instructions	5	8.2.17 Symptom: The inside of an outdoor unit is warm even when the unit has stopped	13
3.1 General.....	5	8.2.18 Symptom: Hot air can be felt when the indoor unit is stopped	13
3.2 Instructions for safe operation	6	9 Relocation	13
4 About the system	7	10 Disposal	13
4.1 System layout.....	7	For the installer	13
5 User interface	7	11 About the box	13
6 Operation	7	11.1 About 	13
6.1 Operation range.....	7	11.2 Outdoor unit.....	13
6.2 Operating the system	7	11.2.1 To remove the accessories from the outdoor unit.....	13
6.2.1 About operating the system	7	12 About the units and options	14
6.2.2 About cooling, heating, fan only, and automatic operation	7	12.1 About the outdoor unit	14
6.2.3 About the heating operation.....	8	12.2 System layout	14
6.2.4 To operate the system (WITHOUT cool/heat changeover remote control switch).....	8	13 Unit installation	14
6.2.5 To operate the system (WITH cool/heat changeover remote control switch).....	8	13.1 Preparing the installation site	14
6.3 Using the dry program	8	13.1.1 Installation site requirements of the outdoor unit	14
6.3.1 About the dry program	8	13.1.2 Additional installation site requirements of the outdoor unit in cold climates	14
6.3.2 To use the dry program (WITHOUT cool/heat changeover remote control switch).....	8	13.2 Opening and closing the unit.....	14
6.3.3 To use the dry program (WITH cool/heat changeover remote control switch).....	9	13.2.1 About opening the units	14
6.4 Adjusting the air flow direction.....	9	13.2.2 To open the outdoor unit.....	14
6.4.1 About the air flow flap	9	13.2.3 To close the outdoor unit	15
6.5 Setting the master user interface.....	9	13.3 Mounting the outdoor unit.....	15
6.5.1 About setting the master user interface	9	13.3.1 About mounting the outdoor unit.....	15
6.5.2 To designate the master user interface (VRV DX).....	9	13.3.2 Precautions when mounting the outdoor unit.....	15
6.5.3 To designate the master user interface (RA DX).....	10	13.3.3 To provide the installation structure.....	15
7 Maintenance and service	10	13.3.4 To install the outdoor unit.....	15
7.1 About the refrigerant.....	10	13.3.5 To provide drainage	16
7.2 After-sales service and warranty	10	13.3.6 To prevent the outdoor unit from falling over	16
7.2.1 Warranty period	10	14 Piping installation	16
7.2.2 Recommended maintenance and inspection.....	10	14.1 Preparing refrigerant piping	16
8 Troubleshooting	10	14.1.1 Refrigerant piping requirements.....	16
8.1 Error codes: Overview	11	14.1.2 Refrigerant piping material.....	16
8.2 Symptoms that are NOT system malfunctions	12	14.1.3 To select the piping size	16
8.2.1 Symptom: The system does not operate	12	14.1.4 To select refrigerant branch kits.....	17
8.2.2 Symptom: Cool/Heat cannot be changed over	12	14.2 Connecting the refrigerant piping	17
8.2.3 Symptom: Fan operation is possible, but cooling and heating do not work.....	12	14.2.1 About connecting the refrigerant piping	17
8.2.4 Symptom: The fan speed does not correspond to the setting	12	14.2.2 Precautions when connecting the refrigerant piping	18
8.2.5 Symptom: The fan direction does not correspond to the setting	12	14.2.3 Guidelines when connecting the refrigerant piping	18
8.2.6 Symptom: White mist comes out of a unit (Indoor unit).....	12	14.2.4 Pipe bending guidelines.....	18
8.2.7 Symptom: White mist comes out of a unit (Indoor unit, outdoor unit).....	12	14.2.5 To flare the pipe end	18
8.2.8 Symptom: The user interface reads "U4" or "U5" and stops, but then restarts after a few minutes	12	14.2.6 To braise the pipe end	18
8.2.9 Symptom: Noise of air conditioners (Indoor unit).....	12	14.2.7 Using the stop valve and service port.....	19
8.2.10 Symptom: Noise of air conditioners (Indoor unit, outdoor unit).....	13	14.2.8 To connect the refrigerant piping to the outdoor unit	19
8.2.11 Symptom: Noise of air conditioners (Outdoor unit)	13	14.2.9 To connect the refrigerant branching kit	20
8.2.12 Symptom: Dust comes out of the unit.....	13	14.3 Checking the refrigerant piping.....	20
		14.3.1 About checking the refrigerant piping	20
		14.3.2 Checking refrigerant piping: General guidelines	21
		14.3.3 Checking refrigerant piping: Setup.....	21
		14.3.4 To perform a leak test	21
		14.3.5 To perform vacuum drying	21
		14.3.6 To insulate the refrigerant piping	22
		14.4 Charging refrigerant.....	22
		14.4.1 Precautions when charging refrigerant	22
		14.4.2 To determine the additional refrigerant amount.....	22
		14.4.3 To charge refrigerant	22
		14.4.4 Error codes when charging refrigerant.....	23

1 About the documentation

14.4.5	To fix the fluorinated greenhouse gases label	23
15	Electrical installation	24
15.1	About electrical compliance	24
15.2	Safety device requirements	24
15.3	Field wiring: Overview	24
15.4	To connect the electrical wiring to the outdoor unit	24
15.5	To finish the interconnection wiring	26
15.6	To check the insulation resistance of the compressor	26
16	Configuration	26
16.1	Making field settings	26
16.1.1	About making field settings	26
16.1.2	To access the field setting components	27
16.1.3	Field setting components	27
16.1.4	To access mode 1 or 2	27
16.1.5	To use mode 1	28
16.1.6	To use mode 2	28
16.1.7	Mode 1 (and default situation): Monitoring settings	28
16.1.8	Mode 2: field settings	29
16.1.9	To connect the PC configurator to the outdoor unit	31
17	Commissioning	31
17.1	Precautions when commissioning	31
17.2	Checklist before commissioning	31
17.3	Checklist during commissioning	32
17.3.1	About the system test run	32
17.3.2	To perform a test run (7-LEDs display)	32
17.3.3	Correcting after abnormal completion of the test run ..	32
18	Hand-over to the user	32
19	Troubleshooting	33
19.1	Solving problems based on error codes	33
19.1.1	Error codes: Overview	33
20	Technical data	34
20.1	Service space: Outdoor unit	34
20.2	Piping diagram: Outdoor unit	35
20.3	Wiring diagram: Outdoor unit	35
21	Disposal	36

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.

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 outdoor unit)
- **Outdoor unit installation and operation manual:**
 - Installation and operation instructions
 - Format: paper (in the box of the outdoor unit)

▪ Installer and user reference guide:

- Preparation of the installation, reference data,...
- Detailed step-by-step instructions and background information for basic and advanced usage
- 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.

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).

2 Specific installer safety instructions

Always observe the following safety instructions and regulations.



WARNING

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



CAUTION

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

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



CAUTION

Excessive refrigerant concentrations in a closed room can lead to oxygen deficiency.



DANGER: RISK OF ELECTROCUTION

Do NOT leave the unit unattended when the service cover is removed.



DANGER: RISK OF BURNING/SCALDING



DANGER: RISK OF ELECTROCUTION



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

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



CAUTION

Do NOT vent gases into the atmosphere.



WARNING

Any gas or oil remaining inside the stop valve may blow off the pinched piping.

If these instructions are NOT followed correctly it may result in property damage or personal injury, which may be serious depending on the circumstances.



WARNING



NEVER remove the pinched piping by brazing.

Any gas or oil remaining inside the stop valve may blow off the pinched piping.



WARNING

- ONLY use R410A as refrigerant. Other substances may cause explosions and accidents.
- R410A contains fluorinated greenhouse gases. Its global warming potential (GWP) value is 2087.5. Do NOT vent these gases into the atmosphere.
- When charging refrigerant, ALWAYS use protective gloves and safety glasses.



CAUTION

Do NOT push or place redundant cable length into the unit.



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

- 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

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.



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 tightened before the earth wire is in case the power supply is pulled loose from the stress relief.



CAUTION

Do NOT perform the test operation while working on the indoor unit(s).

When performing the test operation, NOT ONLY the outdoor unit, but the connected indoor unit will operate as well. Working on an indoor unit while performing a test operation is dangerous.



CAUTION

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

For the user

3 User safety instructions

Always observe the following safety instructions and regulations.

3.1 General



WARNING

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



WARNING

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

Children SHALL NOT play with the appliance.

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

3 User safety instructions

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: dismantling the system, treatment of the refrigerant, of oil and of other parts MUST be done by an authorised installer and MUST comply with applicable legislation.

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

- Batteries are marked with the following symbol:



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

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

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

3.2 Instructions for safe operation

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.

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

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



CAUTION: Pay attention to the fan!

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

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



CAUTION

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



CAUTION

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



CAUTION

Do NOT touch the heat exchanger fins. These fins are sharp and could result in cutting injuries.



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.



WARNING

NEVER touch the air outlet or the horizontal blades while the swing flap is in operation. Fingers may become caught or the unit may break down.



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.



WARNING

- Do NOT modify, disassemble, remove, reinstall or repair the unit yourself as incorrect dismantling or installation may cause an electrical shock or fire. Contact your dealer.
- In case of accidental refrigerant leaks, make sure there are no naked flames. The refrigerant itself is entirely safe, non-toxic and non-combustible, but it will generate toxic gas when it accidentally leaks into a room where combustion 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.



WARNING

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

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



WARNING

- The refrigerant in the system is safe and normally does NOT leak. If the refrigerant leaks in the room, contact with a fire of a burner, a heater or a cooker may result in 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 system until a service person confirms that the portion where the refrigerant leaks is repaired.

**WARNING**

NEVER inspect or service the unit by yourself. Ask a qualified service person to perform this work.

4 About the system

The indoor unit part of this VRV IV-S heat pump system can be used for heating/cooling applications. The type of indoor unit which can be used depends on the outdoor units series.

**WARNING**

- Do NOT modify, disassemble, remove, reinstall or repair the unit yourself as incorrect dismantling or installation may cause an electrical shock or fire. Contact your dealer.
- In case of accidental refrigerant leaks, make sure there are no naked flames. The refrigerant itself is entirely safe, non-toxic and non-combustible, but it will generate toxic gas when it accidentally leaks into a room where combustion 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.

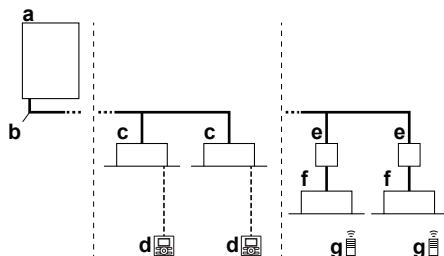
**INFORMATION**

- Combination of VRV DX and RA DX indoor units is not allowed.
- Combination of RA DX and AHU indoor units is not allowed.
- Combination of RA DX and air curtain indoor units is not allowed.

4.1 System layout

**INFORMATION**

The following figure is an example and may NOT completely match your system layout.



- a VRV IV-S Heat pump outdoor unit
- b Refrigerant piping
- c VRV direct expansion (DX) indoor unit
- d User interface (dedicated depending on indoor unit type)
- e BP box (required to connect Residential Air (RA) or Sky Air (SA) direct expansion (DX) indoor units)
- f Residential Air (RA) direct expansion (DX) indoor units
- g User interface (wireless, dedicated depending on indoor unit type)

5 User interface

**CAUTION**

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

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

Detailed information on required actions to achieve certain functions can be found in the dedicated installation and operation manual of the indoor unit.

Refer to the operation manual of the installed user interface.

6 Operation

6.1 Operation range

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

	Cooling	Heating
Outdoor temperature	-5~46°C DB	-20~21°C DB -20~15.5°C WB
Indoor temperature	21~32°C DB 14~25°C WB	15~27°C DB
Indoor humidity	≤80% ^(a)	

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

Above operation range is only valid in case direct expansion indoor units are connected to the VRV system.

Special operation ranges are valid in case of using AHU. They can be found in the installation/operation manual of the dedicated unit. Latest information can be found in the technical engineering data.

6.2 Operating the system

6.2.1 About operating the system

- Operation procedure varies according to the combination of outdoor unit and user interface.
- To protect the unit, turn on the main power switch 6 hours before operation.

6.2.2 About cooling, heating, fan only, and automatic operation

- Changeover cannot be made with a user interface whose display shows "changeover under centralised control" (refer to installation and operation manual of the user interface).
- When the display "changeover under centralised control" flashes, refer to ["6.5.1 About setting the master user interface" \[p. 9\]](#).
- The fan may keep on running for about 1 minute after the heating operation stops.
- The air flow rate may adjust itself depending on the room temperature or the fan may stop immediately. This is not a malfunction.

6 Operation

6.2.3 About the heating operation

It may take longer to reach the set temperature for general heating operation than for cooling operation.

The following operation is performed in order to prevent the heating capacity from dropping or cold air from blowing.

Defrost operation

In heating operation, freezing of the outdoor unit's air cooled coil increases over time, restricting the energy transfer to the outdoor unit's coil. Heating capability decreases and the system needs to go into defrost operation to be able to remove frost from the outdoor unit's coil. During defrost operation the heating capacity on the indoor unit side will temporarily drop until defrosting is completed. After defrosting, the unit will regain its full heating capacity.

The indoor unit will stop fan operation, the refrigerant cycle will reverse and energy from inside the building will be used to defrost the outdoor unit coil.

The indoor unit will indicate defrost operation on the display .

Hot start

In order to prevent cold air from blowing out of an indoor unit at the start of heating operation, the indoor fan is automatically stopped. The display of the user interface shows . It may take some time before the fan starts. This is not a malfunction.

6.2.4 To operate the system (WITHOUT cool/heat changeover remote control switch)

- 1 Press the operation mode selector button on the user interface several times and select the operation mode of your choice.

 Cooling operation

 Heating operation

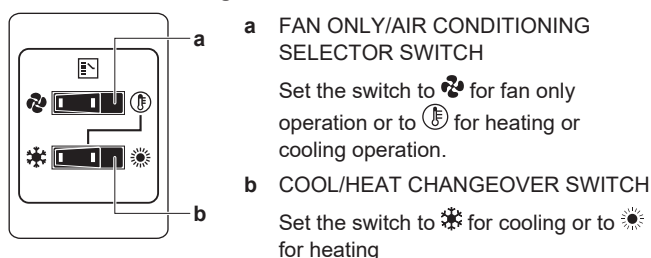
 Fan only operation

- 2 Press the ON/OFF button on the user interface.

Result: The operation lamp lights up and the system starts operating.

6.2.5 To operate the system (WITH cool/heat changeover remote control switch)

Overview of the changeover remote control switch

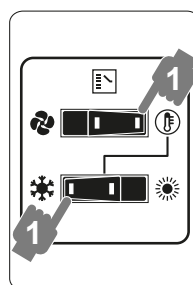


Note: In case a cool/heat changeover remote control switch is used, the position of DIP switch 1 (DS1-1) on the main PCB needs to be switched to the ON position.

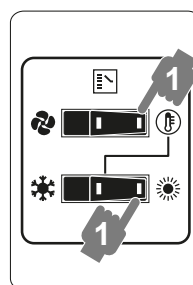
To start

- 1 Select operation mode with the cool/heat changeover switch as follows:

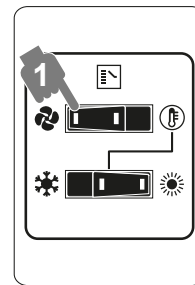
Cooling operation



Heating operation



Fan only operation



- 2 Press the ON/OFF button on the user interface.

Result: The operation lamp lights up and the system starts operating.

To stop

- 3 Press the ON/OFF button on the user interface once again.

Result: The operation lamp goes out and the system stops operating.



NOTICE

Do not turn off power immediately after the unit stops, but wait for at least 5 minutes.

To adjust

For programming temperature, fan speed and air flow direction refer to the operation manual of the user interface.

6.3 Using the dry program

6.3.1 About the dry program

- The function of this program is to decrease the humidity in your room with minimal temperature decrease (minimal room cooling).
- The micro computer automatically determines temperature and fan speed (cannot be set by the user interface).
- The system does not go into operation if the room temperature is low ($<20^{\circ}\text{C}$).

6.3.2 To use the dry program (WITHOUT cool/heat changeover remote control switch)

To start

- 1 Press the operation mode selector button on the user interface several times and select  (program dry operation).

- 2 Press the ON/OFF button of the user interface.

Result: The operation lamp lights up and the system starts operating.

- 3 Press the air flow direction adjust button (only for double-flow, multi-flow, corner, ceiling-suspended and wall-mounted). Refer to "6.4 Adjusting the air flow direction" [p 9] for details.

To stop

- 4 Press the ON/OFF button on the user interface once again.

Result: The operation lamp goes out and the system stops operating.



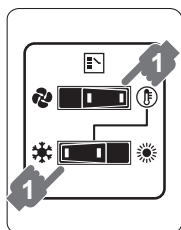
NOTICE

Do not turn off power immediately after the unit stops, but wait for at least 5 minutes.

6.3.3 To use the dry program (WITH cool/heat changeover remote control switch)

To start

- 1 Select cooling operation mode with the cool/heat changeover remote control switch.



- 2 Press the operation mode selector button on the user interface several times and select (program dry operation).
- 3 Press the ON/OFF button of the user interface.
Result: The operation lamp lights up and the system starts operating.
- 4 Press the air flow direction adjust button (only for double-flow, multi-flow, corner, ceiling-suspended and wall-mounted). Refer to "6.4 Adjusting the air flow direction" [p 9] for details.

To stop

- 5 Press the ON/OFF button on the user interface once again.

Result: The operation lamp goes out and the system stops operating.



NOTICE

Do not turn off power immediately after the unit stops, but wait for at least 5 minutes.

6.4 Adjusting the air flow direction

Refer to the operation manual of the user interface.

6.4.1 About the air flow flap

Air flow flap types:

- Double flow + multi-flow units
- Corner units
- Ceiling suspended units
- Wall-mounted units

For the following conditions, a micro computer controls the air flow direction which may be different from the display.

Cooling	Heating
▪ When the room temperature is lower than the set temperature.	▪ When starting operation. ▪ When the room temperature is higher than the set temperature. ▪ At defrost operation.
▪ When operating continuously at horizontal air flow direction. ▪ When continuous operation with downward air flow is performed at the time of cooling with a ceiling-suspended or a wall-mounted unit, the micro computer may control the flow direction, and then the user interface indication will also change.	

The air flow direction can be adjusted in one of the following ways:

- The air flow flap itself adjusts its position.
- The air flow direction can be fixed by the user.

- Automatic and desired position .



WARNING

NEVER touch the air outlet or the horizontal blades while the swing flap is in operation. Fingers may become caught or the unit may break down.



NOTICE

- The movable limit of the flap is changeable. Contact your dealer for details. (only for double-flow, multi-flow, corner, ceiling-suspended and wall-mounted).
- Avoid operating in the horizontal direction . It may cause dew or dust to settle on the ceiling or flap.

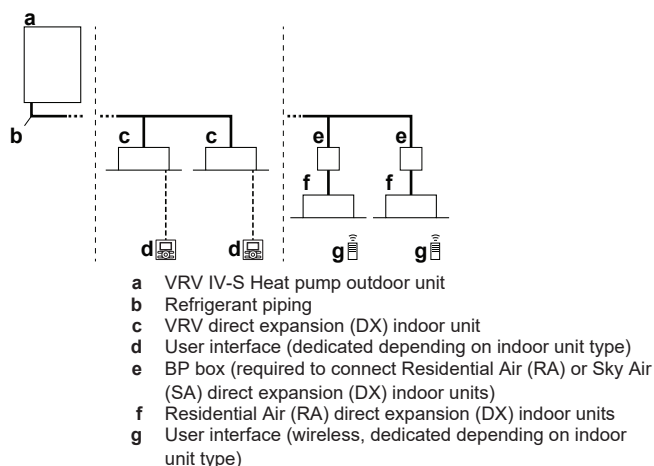
6.5 Setting the master user interface

6.5.1 About setting the master user interface



INFORMATION

The following figure is an example and may NOT completely match your system layout.



When the system is installed as shown in the figure above, it is necessary to designate one of the user interfaces as the master user interface.

The displays of slave user interfaces show (changeover under centralised control) and slave user interfaces automatically follow the operation mode directed by the master user interface.

Only the master user interface can select heating or cooling mode (cooling/heating masterhood).

6.5.2 To designate the master user interface (VRV DX)

In case only VRV DX indoor units are connected to the VRV system:

- 1 Press the operation mode selector button of the current master user interface for 4 seconds. In case this procedure was not yet performed, the procedure can be executed on the first user interface operated.

Result: The display showing (changeover under centralised control) of all slave user interfaces connected to the same outdoor unit flashes.

- 2 Press the operation mode selector button of the controller that you wish to designate as the master user interface.

Result: Designation is completed. This user interface is designated as the master user interface and the display showing (changeover under centralised control) vanishes. The displays of other user interfaces show (changeover under centralised control).

7 Maintenance and service

6.5.3 To designate the master user interface (RA DX)

In case only RA DX indoor units are connected to the VRV IV-S system:

- 1 Stop all indoor units.
- 2 When the system is not operating (all indoor units thermo OFF), you can define the master RA DX indoor unit by addressing that unit with infrared user interface (instruct thermo ON in desired mode).

The only way to change the master unit is by repeating the previous procedure. A cool/heat switchover (or opposite) is only possible by changing the operation mode of the defined master indoor unit.

7 Maintenance and service



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: Pay attention to the fan!

It is dangerous to inspect the unit while the fan is running. Make sure to turn OFF the main switch before executing any maintenance task.



CAUTION

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



CAUTION

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



WARNING

NEVER inspect or service the unit by yourself. Ask a qualified service person to perform this work.



NOTICE

Do NOT wipe the controller operation panel with benzene, 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.

7.1 About the refrigerant

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

Refrigerant type: R410A

Global warming potential (GWP) value: 2087.5



NOTICE

Applicable legislation on **fluorinated greenhouse gases** requires that the refrigerant charge of the unit is indicated both in weight and CO₂ equivalent.

Formula to calculate the quantity in CO₂ equivalent tonnes: GWP value of the refrigerant × total refrigerant charge [in kg]/1000

Contact your installer for more information.



WARNING

- The refrigerant in the system is safe and normally does NOT leak. If the refrigerant leaks in the room, contact with a fire of a burner, a heater or a cooker may result in 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 system until a service person confirms that the portion where the refrigerant leaks is repaired.

7.2 After-sales service and warranty

7.2.1 Warranty period

- This product includes a warranty card that was filled in by the dealer at the time of installation. The completed card has to be checked by the customer and stored carefully.
- If repairs to the product are necessary within the warranty period, contact your dealer and keep the warranty card at hand.

7.2.2 Recommended maintenance and inspection

Since dust collects when using the unit for several years, performance of the unit will deteriorate to some extent. As taking apart and cleaning interiors of units requires technical expertise and in order to ensure the best possible maintenance of your units, we recommend to enter into a maintenance and inspection contract on top of normal maintenance activities. Our network of dealers has access to a permanent stock of essential components in order to keep your unit in operation as long as possible. Contact your dealer for more information.

When asking your dealer for an intervention, always state:

- The complete model name of the unit.
- The manufacturing number (stated on the nameplate of the unit).
- The installation date.
- The symptoms or malfunction, and details of the defect.



WARNING

- Do NOT modify, disassemble, remove, reinstall or repair the unit yourself as incorrect dismantling or installation may cause an electrical shock or fire. Contact your dealer.
- In case of accidental refrigerant leaks, make sure there are no naked flames. The refrigerant itself is entirely safe, non-toxic and non-combustible, but it will generate toxic gas when it accidentally leaks into a room where combustion 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.

8 Troubleshooting

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



WARNING

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

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

The system MUST be repaired by a qualified service person.

Malfunction	Measure
If a safety device such as a fuse, a breaker or an earth leakage breaker frequently actuates or the ON/OFF switch does NOT properly work.	Turn OFF the main power switch.
If water leaks from the unit.	Stop the operation.
The operation switch does NOT work well.	Turn OFF the power supply.
If the user interface display indicates the unit number, the operation lamp flashes and the malfunction code appears.	Notify your installer and report the malfunction code.

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. - Check if no fuse has blown or breaker is activated. Change the fuse or reset the breaker if necessary.
If the system goes into fan only operation, but as soon as it goes into heating or cooling operation, the system stops.	- Check if air inlet or outlet of outdoor or indoor unit is not blocked by obstacles. Remove any obstacles and make sure the air can flow freely. - Check if the user interface display shows  (time to clean the air filter). (Refer to "7 Maintenance and service" [p. 10] and "Maintenance" in the indoor unit manual.)
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. - Check if the air filter is not clogged (refer to "Maintenance" in the indoor unit manual). - Check the temperature setting. - Check the fan speed setting on your user interface. - Check for open doors or windows. Close doors and windows to prevent wind from coming in. - Check if there are too many occupants in the room during cooling operation. Check if the heat source of the room is excessive. - Check if direct sunlight enters the room. Use curtains or blinds. - Check if the air flow angle is proper.

After checking all the items above, if 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.

8.1 Error codes: Overview

In case a malfunction code appears on the indoor unit user interface display, contact your installer and inform the malfunction code, the unit type, and serial number (you can find this information on the nameplate of the unit).

For your reference, a list with malfunction codes is provided. You can, depending on the level of the malfunction code, reset the code by pushing the ON/OFF button. If not, ask your installer for advice.

Main code	Contents
<i>R0</i>	External protection device was activated
<i>R1</i>	EEPROM failure (indoor)
<i>R3</i>	Drain system malfunction (indoor)
<i>R6</i>	Fan motor malfunction (indoor)
<i>R7</i>	Swing flap motor malfunction (indoor)
<i>R9</i>	Expansion valve malfunction (indoor)
<i>RF</i>	Drain malfunction (indoor unit)
<i>RH</i>	Filter dust chamber malfunction (indoor)
<i>RJ</i>	Capacity setting malfunction (indoor)
<i>C1</i>	Transmission malfunction between main PCB and sub PCB (indoor)
<i>C4</i>	Heat exchanger thermistor malfunction (indoor; liquid)
<i>C5</i>	Heat exchanger thermistor malfunction (indoor; gas)
<i>C9</i>	Suction air thermistor malfunction (indoor)
<i>CA</i>	Discharge air thermistor malfunction (indoor)
<i>CE</i>	Movement detector or floor temperature sensor malfunction (indoor)
<i>CJ</i>	User interface thermistor malfunction (indoor)
<i>E1</i>	PCB malfunction (outdoor)
<i>E3</i>	High pressure switch was activated
<i>E4</i>	Low pressure malfunction (outdoor)
<i>E5</i>	Compressor lock detection (outdoor)
<i>E7</i>	Fan motor malfunction (outdoor)
<i>E9</i>	Electronic expansion valve malfunction (outdoor)
<i>F3</i>	Discharge temperature malfunction (outdoor)
<i>F4</i>	Abnormal suction temperature (outdoor)
<i>F6</i>	Refrigerant overcharge detection
<i>H3</i>	High pressure switch malfunction
<i>H4</i>	Low pressure switch malfunction
<i>H7</i>	Fan motor trouble (outdoor)
<i>H9</i>	Ambient temperature sensor malfunction (outdoor)
<i>J1</i>	Pressure sensor malfunction
<i>J2</i>	Current sensor malfunction
<i>J3</i>	Discharge temperature sensor malfunction (outdoor)
<i>J4</i>	Heat exchanger gas temperature sensor malfunction (outdoor)
<i>J5</i>	Suction temperature sensor malfunction (outdoor)
<i>J6</i>	De-icing temperature sensor malfunction (outdoor)
<i>J7</i>	Liquid temperature sensor (after subcool HE) malfunction (outdoor)
<i>J9</i>	Gas temperature sensor (after subcool HE) malfunction (outdoor)
<i>JR</i>	High pressure sensor malfunction (S1NPH)
<i>JL</i>	Low pressure sensor malfunction (S1NPL)
<i>L1</i>	INV PCB abnormal
<i>L4</i>	Fin temperature abnormal
<i>L5</i>	Inverter PCB faulty
<i>LB</i>	Compressor over current detected
<i>L9</i>	Compressor lock (startup)
<i>LC</i>	Transmission outdoor unit - inverter: INV transmission trouble
<i>P1</i>	INV unbalanced power supply voltage
<i>P4</i>	Fin thermistor malfunction

8 Troubleshooting

Main code	Contents
PJ	Capacity setting malfunction (outdoor)
U0	Abnormal low pressure drop, faulty expansion valve
U1	Reversed power supply phase malfunction
U2	INV voltage power shortage
U3	System test run not yet executed
U4	Faulty wiring indoor/outdoor
U5	Abnormal user interface - indoor communication
U7	Faulty wiring to outdoor/outdoor
U8	Abnormal main-sub user interface communication
U9	System mismatch. Wrong type of indoor units combined. Indoor unit malfunction.
UR	Connection malfunction over indoor units or type mismatch
UC	Centralised address duplication
UE	Malfunction in communication centralised control device - indoor unit
UF	Auto address malfunction (inconsistency)
UH	Auto address malfunction (inconsistency)

8.2 Symptoms that are NOT system malfunctions

The following symptoms are NOT system malfunctions:

8.2.1 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.
- If "Under Centralised Control" is displayed on the user interface, pressing the operation button causes the display to blink for a few seconds. The blinking display indicates that the user interface cannot be used.
- The system does not start immediately after the power supply is turned on. Wait one minute until the microcomputer is prepared for operation.

8.2.2 Symptom: Cool/Heat cannot be changed over

- When the display shows  (changeover under centralised control), it shows that this is a slave user interface.
- When the cool/heat changeover remote control switch is installed and the display shows  (changeover under centralised control), this is because cool/heat changeover is controlled by the cool/ heat changeover remote control switch. Ask your dealer where the remote control switch is installed.

8.2.3 Symptom: Fan operation is possible, but cooling and heating do not work

Immediately after the power is turned on. The micro computer is getting ready to operate and is performing a communication check with the indoor unit(s). Please wait 12 minutes maximally until this process is finished.

8.2.4 Symptom: The fan speed does not correspond to the setting

The fan speed does not change even if the fan speed adjustment button is 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 even when another indoor unit is in heating operation, if the button is pressed.

8.2.5 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.

8.2.6 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.

8.2.7 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.

8.2.8 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. A power reset may help to remove this error.

8.2.9 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 continuous low "shah" sound is heard when the system is in cooling operation or at a stop. When the drain pump (optional accessories) is in operation, this noise is heard.
- 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.
- A low "sah", "choro-choro" sound is heard while the indoor unit is stopped. When another indoor unit is in operation, this noise is heard. In order to prevent oil and refrigerant from remaining in the system, a small amount of refrigerant is kept flowing.

8.2.10 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.

8.2.11 Symptom: Noise of air conditioners (Outdoor unit)

When the tone of operating noise changes. This noise is caused by the change of frequency.

8.2.12 Symptom: Dust comes out of the unit

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

8.2.13 Symptom: The units can give off odours

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

8.2.14 Symptom: The outdoor unit fan does not spin

During operation, the speed of the fan is controlled in order to optimise product operation.

8.2.15 Symptom: The display shows "88"

This is the case immediately after the main power supply switch is turned on and means that the user interface is in normal condition. This continues for 1 minute.

8.2.16 Symptom: The compressor in the outdoor unit does not stop after a short heating operation

This is to prevent refrigerant from remaining in the compressor. The unit will stop after 5 to 10 minutes.

8.2.17 Symptom: The inside of an outdoor unit is warm even when the unit has stopped

This is because the crankcase heater is warming the compressor so that the compressor can start smoothly.

8.2.18 Symptom: Hot air can be felt when the indoor unit is stopped

Several different indoor units are being run on the same system. When another unit is running, some refrigerant will still flow through the unit.

9 Relocation

Contact your dealer to remove and reinstall the entire unit. Moving units requires technical expertise.

10 Disposal

This unit uses hydrofluorocarbon. Contact your dealer when discarding this unit. It is required by law to collect, transport and discard the refrigerant in accordance with the "hydrofluorocarbon collection and destruction" regulations.

**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**11 About the box**

Keep the following in mind:

- At delivery, the unit MUST be checked for damage and completeness. Any damage or missing parts 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 in advance the path along which you want to bring the unit to its final installation position.

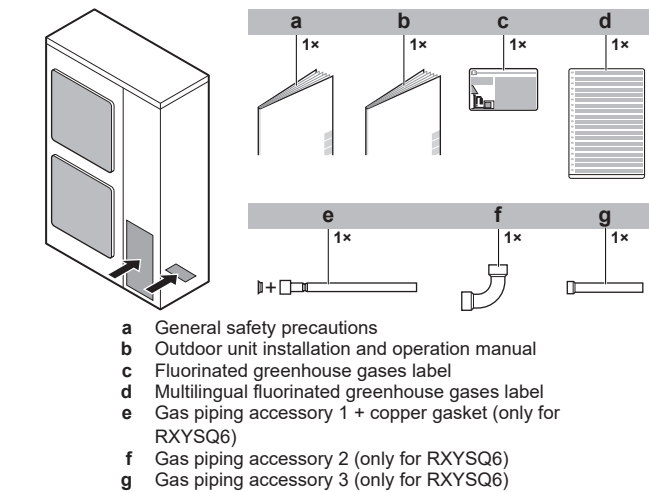
11.1 About LOOP BY DAIKIN

LOOP is part of Daikin's wider commitment to reduce our environmental footprint. With LOOP we want to create a circular economy for refrigerants. One of the actions to achieve this, is the reuse of reclaimed refrigerant in VRV units produced and sold in Europe. For more information about the countries that are in scope, visit: <http://www.daikin.eu/loop-by-daikin>.

11.2 Outdoor unit**11.2.1 To remove the accessories from the outdoor unit**

- 1 Remove the service cover. See "[13.2.2 To open the outdoor unit](#)" [p 14].
- 2 Remove the accessories.
- 3 Remove the service cover. See "[13.2.2 To open the outdoor unit](#)" [p 14].
- 4 Remove the accessories.

12 About the units and options



12 About the units and options

12.1 About the outdoor unit

This installation manual concerns the VRV IV-S, full inverter driven, heat pump system.

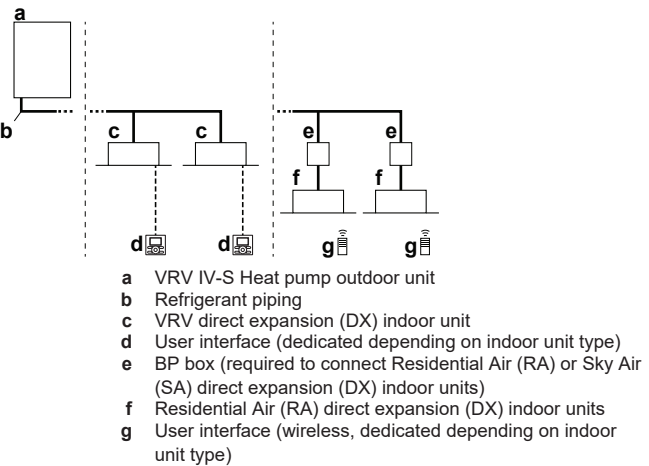
These units are intended for outdoor installation and aimed for air to air heat pump applications.

Specification		RXYSQ4~6
Capacity	Heating	14.2~18.0 kW
	Cooling	12.1~15.5 kW
Ambient design temperature	Heating	-20~15.5°C WB
	Cooling	-5~46°C DB

12.2 System layout

INFORMATION

The following figure is an example and may NOT completely match your system layout.



13 Unit installation

13.1 Preparing the installation site

13.1.1 Installation site requirements of the outdoor unit

Mind the spacing guidelines. See the "Technical data" chapter, and the figures on the inside of the front cover.

CAUTION

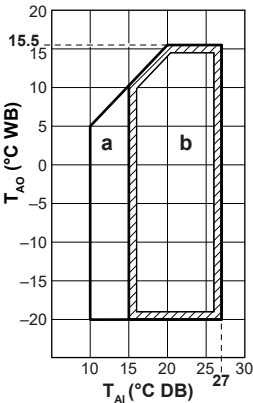
Appliance is NOT accessible to the general public. Install it in a secured area, protected from easy access.

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

13.1.2 Additional installation site requirements of the outdoor unit in cold climates

NOTICE

When operating the unit in heating in a low outdoor ambient temperature with high humidity conditions, make sure to take precautions to keep the drain holes of the unit free by using proper equipment.



a: Warming up operation range; b: Heating operation range; T_{AI}: Ambient indoor temperature; T_{AO}: Ambient outdoor temperature

If the unit is selected to operate at ambient temperatures lower than -5°C for 5 days or longer, with relative humidity levels exceeding 95%, we recommend to apply a Daikin range specifically designed for such application and/or to contact your dealer for further advice.

13.2 Opening and closing the unit

13.2.1 About opening the units

At certain times, you have to open the unit. **Example:**

- When connecting the refrigerant piping
- When connecting the electrical wiring
- When maintaining or servicing the unit

DANGER: RISK OF ELECTROCUTION

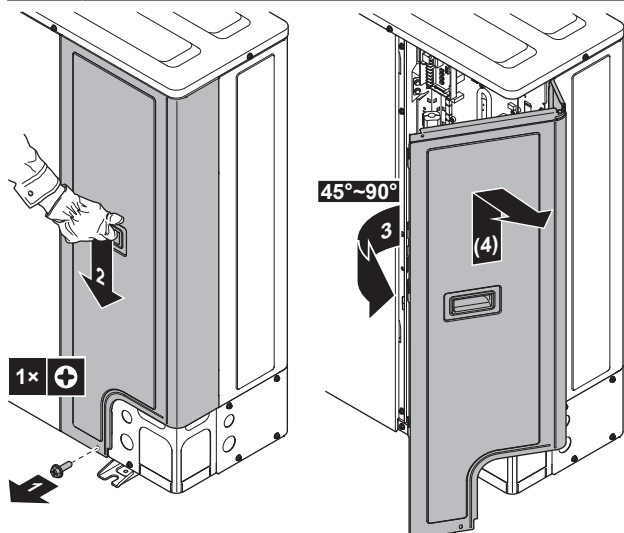
Do NOT leave the unit unattended when the service cover is removed.

13.2.2 To open the outdoor unit

DANGER: RISK OF ELECTROCUTION



DANGER: RISK OF BURNING/SCALDING

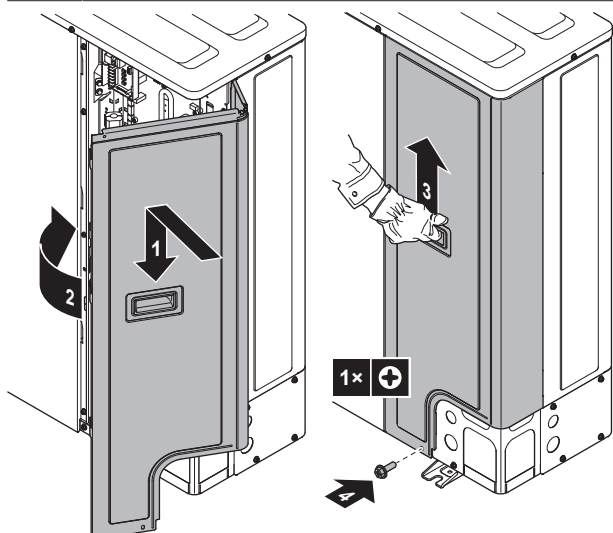


13.2.3 To close the outdoor unit



NOTICE

When closing the outdoor unit cover, make sure that the tightening torque does NOT exceed 4.1 N•m.



13.3 Mounting the outdoor unit

13.3.1 About mounting the outdoor unit

Typical workflow

Mounting the outdoor unit typically consists of the following stages:

- 1 Providing the installation structure.
- 2 Installing the outdoor unit.
- 3 Providing drainage.
- 4 Preventing the unit from falling over.

13.3.2 Precautions when mounting the outdoor unit



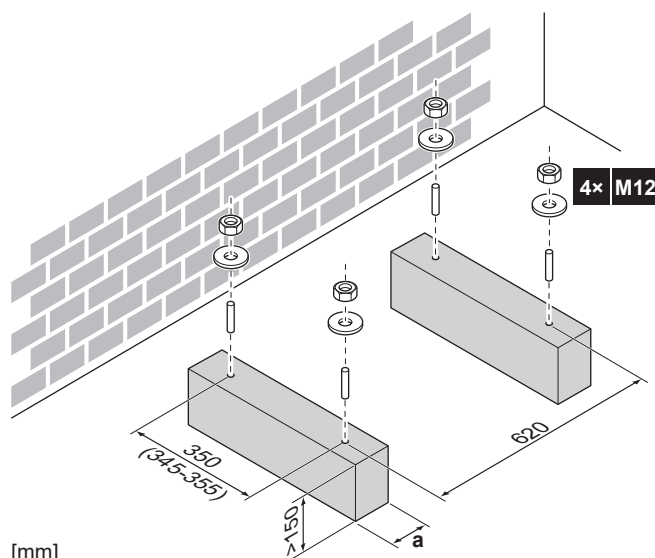
INFORMATION

Also read the precautions and requirements in the

- General safety precautions
- Chapter "13.1 Preparing the installation site" [▶ 14].

13.3.3 To provide the installation structure

Prepare four sets of anchor bolts, nuts, and washers (field supply) as follows:



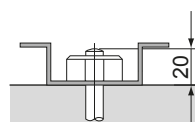
[mm]

- a Make sure not to cover the drain holes of the bottom plate of the unit.



INFORMATION

The recommended height of the upper protruding part of the bolts is 20 mm.

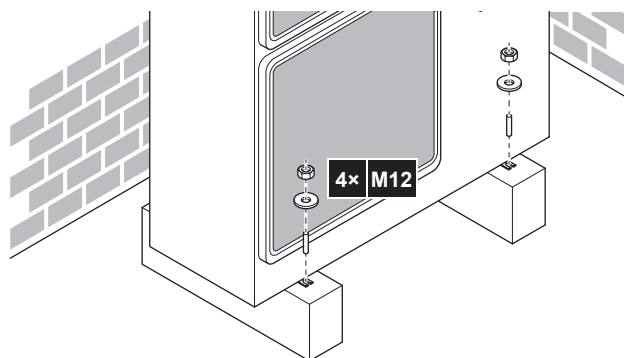


NOTICE

Fix the outdoor unit to the foundation bolts using nuts with resin washers (a). If the coating on the fastening area is stripped off, the metal can rust easily.



13.3.4 To install the outdoor unit



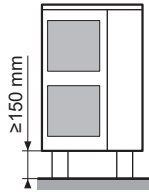
14 Piping installation

13.3.5 To provide drainage

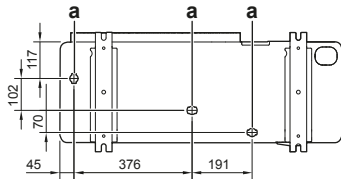


NOTICE

If drain holes of the outdoor unit are covered by a mounting base or by floor surface, raise the unit to provide a free space of more than 150 mm under the outdoor unit.



Drain holes (dimensions in mm)

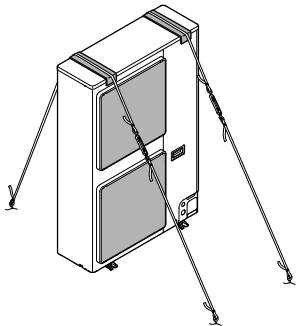


a Drain holes

13.3.6 To prevent the outdoor unit from falling over

In case the unit is installed in places where strong wind can tilt the unit, take following measure:

- 1 Prepare 2 cables as indicated in the following illustration (field supply).
- 2 Place the 2 cables over the outdoor unit.
- 3 Insert a rubber sheet between the cables and the outdoor unit to prevent the cables from scratching the paint (field supply).
- 4 Attach the ends of the cables.
- 5 Tighten the cables.



14 Piping installation

14.1 Preparing refrigerant piping

14.1.1 Refrigerant piping requirements



NOTICE

Refrigerant R410A requires strict cautions for keeping the system clean and dry. Foreign materials (including mineral oils or moisture) should be prevented from getting mixed into the system.



NOTICE

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

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

14.1.2 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)	≥ 0.80 mm	
9.5 mm (3/8")			
12.7 mm (1/2")			
15.9 mm (5/8")	Annealed (O)	≥ 0.99 mm	
19.1 mm (3/4")	Half hard (1/2H)	≥ 0.80 mm	

^(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.

14.1.3 To select the piping size

Determine the proper size using the following tables for connections to DX indoor units and AHU units (the reference figure is only for indication).



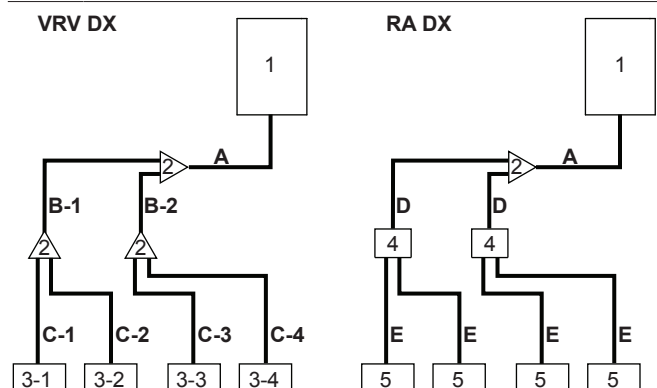
INFORMATION

- Combination of VRV DX and RA DX indoor units is not allowed.
- Combination of RA DX and AHU indoor units is not allowed.
- Combination of RA DX and air curtain indoor units is not allowed.



INFORMATION

If you install RA DX indoor units, you have to configure field setting [2-38] (= type of installed indoor units). See "16.1.8 Mode 2: field settings" [p 29].



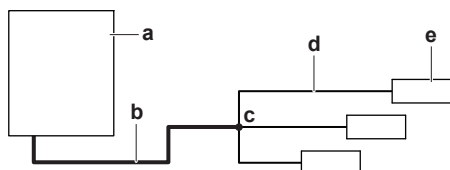
- 1 Outdoor unit
- 2 Refrigerant branch kits
- 3-1~3-4 VRV DX indoor units
- 4 BP units
- 5 RA DX indoor units
- A Piping between outdoor unit and (first) refrigerant branch kit
- B-1 B-2 Piping between refrigerant branch kits
- C-1~C-4 Piping between refrigerant branch kit and indoor unit
- D Piping between refrigerant branch kit and BP unit
- E Piping between BP unit and RA DX indoor unit

In case the required pipe sizes (inch sizes) are not available, it is also allowed to use other diameters (mm sizes), taken the following into account:

- Select the pipe size nearest to the required size.
- Use the suitable adapters for the changeover from inch to mm pipes (field supply).
- The additional refrigerant calculation has to be adjusted as mentioned in "14.4.2 To determine the additional refrigerant amount" [p 22].

A: Piping between outdoor unit and (first) refrigerant branch kit

When the equivalent pipe length between outdoor unit and the furthest indoor unit is 90 m or more (b+d), the size of the main gas pipe (b) must be increased (size-up). If the recommended gas pipe (size-up) is not available, you must use the standard size (which might result in a small capacity decrease).



- a Outdoor unit
- b Main gas pipe (increase piping size if length b+d ≥ 90 m)
- c First refrigerant branch kit
- d Piping between indoor unit and first refrigerant branch kit
- e Furthest indoor unit

Outdoor unit capacity type (HP)	Piping outer diameter size (mm)		
	Gas pipe		Liquid pipe
	Standard	Size-up	
4+5	15.9	19.1	9.5
6	19.1	22.2	

B: Piping between refrigerant branch kits

Choose from the following table in accordance with the indoor unit total capacity type, connected downstream. Do not let the connection piping exceed the refrigerant piping size chosen by the general system model name.

Indoor unit capacity index	Piping outer diameter size (mm)	
	Gas pipe	Liquid pipe
<150	15.9	9.5
150 ≤ x ≤ 182	19.1	

Example: Downstream capacity for B-1 = capacity index of unit 3-1 + capacity index of unit 3-2

C: Piping between refrigerant branch kit and indoor unit

Use the same diameters as the connections (liquid, gas) on the indoor units. The diameters of the indoor units are as follows:

Indoor unit capacity index	Piping outer diameter size (mm)	
	Gas pipe	Liquid pipe
15~50	12.7	6.4
63~140	15.9	9.5

D: Piping between refrigerant branch kit and BP unit

Total capacity index of connected indoor units	Piping outer diameter size (mm)	
	Gas pipe	Liquid pipe
15~62	12.7	6.4

Total capacity index of connected indoor units	Piping outer diameter size (mm)	
	Gas pipe	Liquid pipe
63~149	15.9	9.5
150~182	19.1	

E: Piping between BP unit and RA DX indoor unit

Indoor unit capacity index	Piping outer diameter size (mm)	
	Gas pipe	Liquid pipe
15~42	9.5	6.4
50	12.7	
60		9.5
71	15.9	

14.1.4 To select refrigerant branch kits

For piping example, refer to "14.1.3 To select the piping size" [p 16].

Refnet joint at first branch (counting from outdoor unit)

When using refnet joints at the first branch counted from the outdoor unit side, choose from the following table in accordance with the capacity of the outdoor unit. **Example:** Refnet joint A→B-1.

Outdoor unit capacity type (HP)	Refrigerant branch kit
4~6	KHRQ22M20TA

Refnet joints at other branches

For refnet joints other than the first branch, select the proper branch kit model based on the total capacity index of all indoor units connected after the refrigerant branch. **Example:** Refnet joint B-1→C-1.

Indoor unit capacity index	Refrigerant branch kit
<182	KHRQ22M20TA

Refnet headers

Concerning refnet headers, choose from the following table in accordance with the total capacity of all the indoor units connected below the refnet header.

Indoor unit capacity index	Refrigerant branch kit
<182	KHRQ22M29H



INFORMATION

Maximum 8 branches can be connected to a header.

14.2 Connecting the refrigerant piping



DANGER: RISK OF BURNING/SCALDING

14.2.1 About connecting the refrigerant piping

Before connecting the refrigerant piping

Make sure the outdoor and indoor units are mounted.

Typical workflow

Connecting the refrigerant piping involves:

- Connecting the refrigerant piping to the outdoor unit
- Connecting refrigerant branch kits
- Connecting the refrigerant piping to the indoor units (see the installation manual of the indoor units)
- Insulating the refrigerant piping

14 Piping installation

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

14.2.2 Precautions when connecting the refrigerant piping



INFORMATION

Also read the precautions and requirements in the

- General safety precautions
- Chapter "14.1 Preparing refrigerant piping" [p 16].

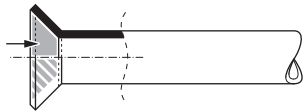


DANGER: RISK OF BURNING/SCALDING

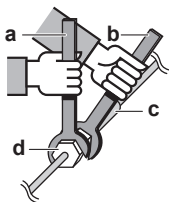
14.2.3 Guidelines when connecting the refrigerant piping

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	
Ø19.1	90~110	23.6~24.0	

14.2.4 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).

14.2.5 To flare the pipe end

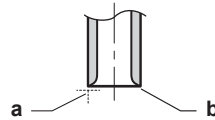


CAUTION

- 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.

- Cut the pipe end with a pipe cutter.

- 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.

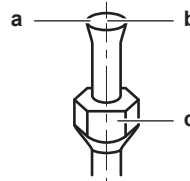
- Remove the flare nut from the stop valve and put the flare nut on the pipe.

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



	Flare tool for R410A (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

- 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.

14.2.6 To braze the pipe end



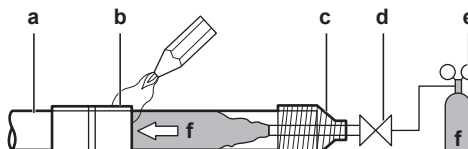
NOTICE

Precautions when connecting field piping. Add brazing material as shown in the figure.

≤Ø25.4



- When brazing, blow through with nitrogen to prevent creation of large quantities of oxidised film on the inside of the piping. This film adversely affects valves and compressors in the refrigerating system and prevents proper operation.
- Set the nitrogen pressure to 20 kPa (0.2 bar) (just enough so it can be felt on the skin) with a pressure-reducing valve.



- a Refrigerant piping
- b Part to be brazed
- c Taping
- d Manual valve
- e Pressure-reducing valve
- f Nitrogen

- Do NOT use anti-oxidants when brazing pipe joints. Residue can clog pipes and break equipment.

- Do NOT use flux when brazing copper-to-copper refrigerant piping. Use phosphor copper brazing filler alloy (BCuP), which does NOT require flux.

Flux has an extremely harmful influence on refrigerant piping systems. For instance, if chlorine based flux is used, it will cause pipe corrosion or, in particular, if the flux contains fluorine, it will deteriorate the refrigerant oil.

- ALWAYS protect the surrounding surfaces (e.g. insulation foam) from heat when brazing.

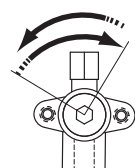
14.2.7 Using the stop valve and service port

To handle the stop valve

Take the following guidelines into account:

- The gas and liquid stop valves are factory closed.
- Make sure to keep all stop valves open during operation.
- Do NOT apply excessive force to the stop valve. Doing so may break the valve body.

To open/close the stop valve

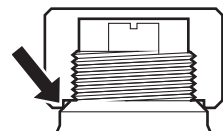


Counterclockwise to open
Clockwise to close

Result: The valve is now open/closed.

To handle the stop valve cover

- The stop valve cover is sealed where indicated by the arrow. Do NOT damage it.
- After handling the stop valve, tighten the stop valve cover securely, and check for refrigerant leaks. For the tightening torque, refer to the table below.



To handle the service port

- Always use a charge hose equipped with a valve depressor pin, since the service port is a Schrader type valve.
- After handling the service port, make sure to tighten the service port cover securely. For the tightening torque, refer to the table below.
- Check for refrigerant leaks after tightening the service port cover.

Tightening torques

Stop valve size [mm]	Tightening torque [N·m] (turn clockwise to close)			
	Shaft			
	Valve body	Hexagonal wrench	Cap (valve lid)	Service port
Ø9.5	5.4~6.6	4 mm	13.5~16.5	11.5~13.9
Ø15.9	13.5~16.5	6 mm	22.5~27.5	

14.2.8 To connect the refrigerant piping to the outdoor unit

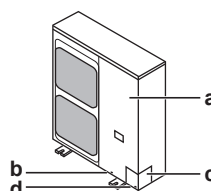


NOTICE

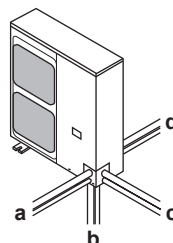
Be sure that the field installed piping does not touch other pipes, the bottom panel or side panel. Especially for the bottom and side connection, be sure to protect the piping with suitable insulation, to prevent it from coming into contact with the casing.

1 Do the following:

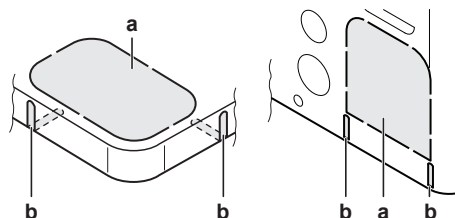
- Remove the service cover (a) with screw (b).
- Remove the piping intake plate (c) with screw (d).



2 Choose a piping route (a, b, c or d).



INFORMATION



- Punch out the knockout (a) in the bottom plate or cover plate by tapping on the attachment points with a flat head screwdriver and a hammer.
- Optionally, cut out the slits (b) with a metal saw.



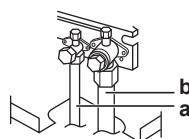
NOTICE

Precautions when making knockout holes:

- Avoid damaging the casing and underlying piping.
- After making the knockout holes, we recommend to remove the burrs and paint the edges and areas around the edges using repair paint to prevent rusting.
- When passing electrical wiring through the knockout holes, wrap the wiring with protective tape to prevent damage.

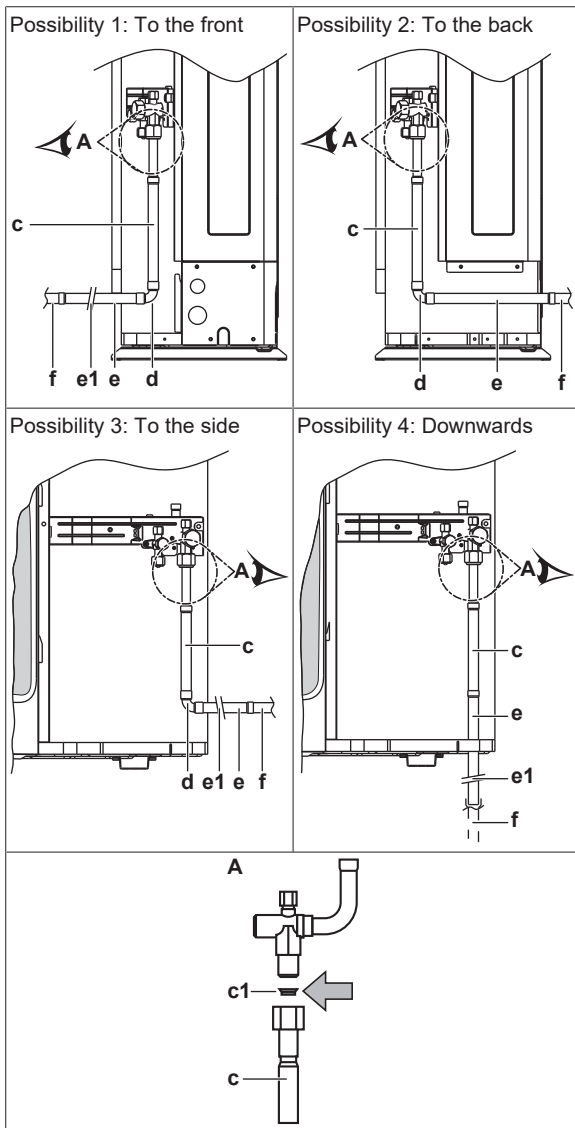
3 Do the following:

- Connect the liquid pipe (a) to the liquid stop valve.
- Connect the gas pipe (b) to the gas stop valve.



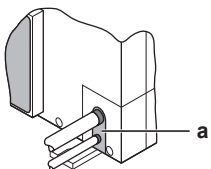
14 Piping installation

- In case of RXYSQ6: Connect the gas piping accessories (c, c1, d, e), and cut them to the required length (e1). This is necessary because the size of the gas stop valve is Ø15.9 while the piping between outdoor unit and first refrigerant branch kit is Ø19.1.



- c, c1 Gas piping accessory 1 + copper gasket (always use it)
d Gas piping accessory 2
e, e1 Gas piping accessory 3 (cut it to the required length)
f Field supply

- Reattach the service cover and the piping intake plate.
- Seal all gaps (example: a) to prevent snow and small animals from entering the system.



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.



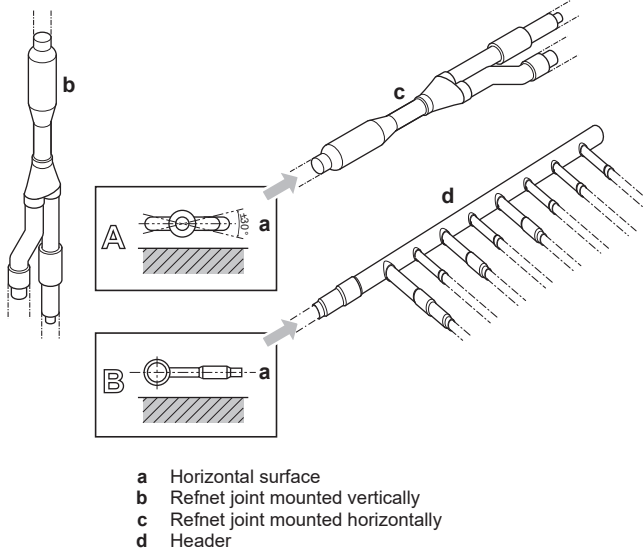
NOTICE

Make sure to open the stop valves after installing the refrigerant piping and performing vacuum drying. Running the system with the stop valves closed may break the compressor.

14.2.9 To connect the refrigerant branching kit

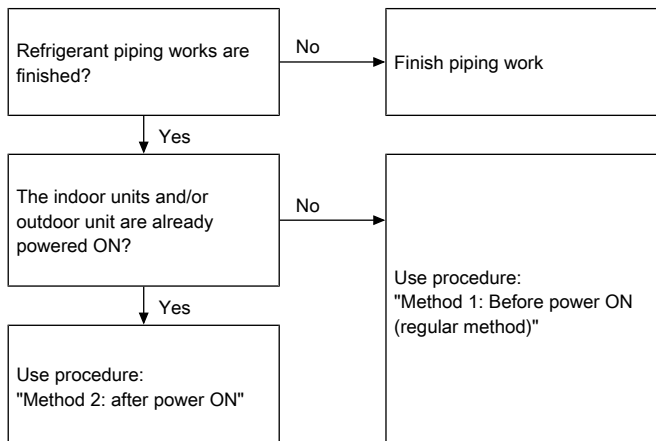
For installation of the refrigerant branching kit, refer to the installation manual delivered with the kit.

- Mount the refnet joint so that it branches either horizontally or vertically.
- Mount the refnet header so that it branches horizontally.



14.3 Checking the refrigerant piping

14.3.1 About checking the refrigerant piping



It is very important that all refrigerant piping work is done before the units (outdoor or indoor) are powered on. When the units are powered on, the expansion valves will initialise. This means that the valves will close.



NOTICE

Leak test and vacuum drying of field piping and indoor units is impossible when field expansion valves are closed.

Method 1: Before power ON

If the system has not yet been powered on, no special action is required to perform the leak test and the vacuum drying.

Method 2: After power ON

If the system has already been powered on, activate setting [2-21] (refer to "16.1.4 To access mode 1 or 2" ▶ 27). This setting will open field expansion valves to guarantee a refrigerant piping pathway and make it possible to perform the leak test and the vacuum drying.



DANGER: RISK OF ELECTROCUTION



NOTICE

Make sure that all indoor units connected to the outdoor unit are powered on.



NOTICE

Wait to apply setting [2-21] until the outdoor unit has finished the initialisation.

Leak test and vacuum drying

Checking the refrigerant piping involves:

- Checking for any leakages in the refrigerant piping.
- Performing vacuum drying to remove all moisture, air or nitrogen in the refrigerant piping.

If there is a possibility of moisture being present in the refrigerant piping (for example, water may have entered the piping), first carry out the vacuum drying procedure below until all moisture has been removed.

All piping inside the unit has been factory tested for leaks.

Only field installed refrigerant piping needs to be checked. Therefore, make sure that all the outdoor unit stop valves are firmly closed before performing leak test or vacuum drying.



NOTICE

Make sure that all (field supplied) field piping valves are OPEN (not outdoor unit stop valves!) before you start leak test and vacuuming.

For more information on the state of the valves, refer to "14.3.3 Checking refrigerant piping: Setup" ▶ 21].

14.3.2 Checking refrigerant piping: General guidelines

Connect the vacuum pump through a manifold to the service port of all stop valves to increase efficiency (refer to "14.3.3 Checking refrigerant piping: Setup" ▶ 21]).



NOTICE

Use a 2-stage vacuum pump with a non-return valve or a solenoid valve that can evacuate to a gauge pressure of -100.7 kPa (-1.007 bar).



NOTICE

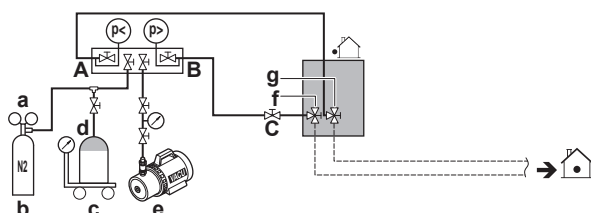
Make sure the pump oil does not flow oppositely into the system while the pump is not working.



NOTICE

Do NOT purge the air with refrigerants. Use a vacuum pump to evacuate the installation.

14.3.3 Checking refrigerant piping: Setup



- a Pressure reducing valve
- b Nitrogen
- c Weighing scales
- d Refrigerant R410A tank (siphon system)
- e Vacuum pump
- f Liquid line stop valve
- g Gas line stop valve
- A Valve A
- B Valve B
- C Valve C

Valve	Status
Valve A	Open
Valve B	Open
Valve C	Open
Liquid line stop valve	Close
Gas line stop valve	Close



NOTICE

The connections to the indoor units and all indoor units should also be leak and vacuum tested. Keep any possible (field supplied) field piping valves open as well.

Refer to the indoor unit installation manual for more details. Leak test and vacuum drying should be done before the power supply is set to the unit. If not, see also the flow chart earlier described in this chapter (see "14.3.1 About checking the refrigerant piping" ▶ 20)).

14.3.4 To perform a leak test

The leak test must satisfy the specifications of EN378-2.

Vacuum leak test

- 1 Evacuate the system from the liquid and gas piping to a gauge pressure of -100.7 kPa (-1.007 bar) for more than 2 hours.
- 2 Once reached, turn off the vacuum pump and check that the pressure does not rise for at least 1 minute.
- 3 Should the pressure rise, the system may either contain moisture (see vacuum drying below) or have leaks.

Pressure leak test

- 1 Break the vacuum by pressurising with nitrogen gas to a minimum gauge pressure of 0.2 MPa (2 bar). Never set the gauge pressure higher than the maximum operation pressure of the unit, i.e. 4.0 MPa (40 bar).
- 2 Test for leaks by applying a bubble test solution to all piping connections.
- 3 Discharge all nitrogen gas.



NOTICE

ALWAYS use a recommended bubble test solution from your wholesaler.

NEVER use soap water:

- Soap water may cause cracking of components, such as flare nuts or stop valve caps.
- Soap water may contain salt, which absorbs moisture that will freeze when the piping gets cold.
- Soap water contains ammonia which may lead to corrosion of flared joints (between the brass flare nut and the copper flare).

14.3.5 To perform vacuum drying

To remove all moisture from the system, proceed as follows:

- 1 Evacuate the system for at least two hours to a target vacuum of -100.7 kPa (-1.007 bar) (5 Torr absolute).
- 2 Check that, with the vacuum pump turned off, the target vacuum is maintained for at least one hour.

14 Piping installation

- 3 Should you fail to reach the target vacuum within 2 hours or maintain the vacuum for one hour, the system may contain too much moisture. In that case, break the vacuum by pressurising with nitrogen gas to a gauge pressure of 0.05 MPa (0.5 bar) and repeat steps 1 to 3 until all moisture has been removed.
- 4 Depending on whether you want to immediately charge refrigerant through the refrigerant charge port or first pre-charge a portion of refrigerant through the liquid line, either open the outdoor unit stop valves, or keep them closed. See ["14.4.3 To charge refrigerant" \[p 22\]](#) for more information.

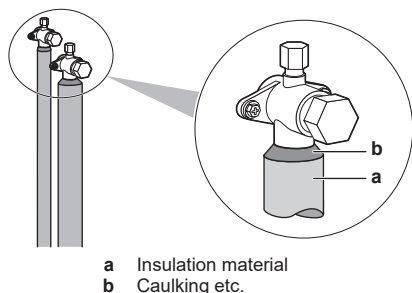
14.3.6 To insulate the refrigerant piping

After finishing the leak test and vacuum drying, the piping must be insulated. Take into account the following points:

- Make sure to insulate the connection piping and refrigerant branch kits entirely.
- Be sure to insulate the liquid and gas piping (for all units).
- Use heat resistant polyethylene foam which can withstand a temperature of 70°C for liquid piping and polyethylene foam which can withstand a temperature of 120°C for gas piping.
- Reinforce the insulation on the refrigerant piping according to the installation environment.

Ambient temperature	Humidity	Minimum thickness
≤30°C	75% to 80% RH	15 mm
>30°C	≥80% RH	20 mm

- If there is a possibility that condensation on the stop valve might drip down into the indoor unit through gaps in the insulation and piping because the outdoor unit is located higher than the indoor unit, this must be prevented by sealing up the connections. See below figure.



a Insulation material
b Caulking etc.

14.4 Charging refrigerant

14.4.1 Precautions when charging refrigerant



WARNING

- ONLY use R410A as refrigerant. Other substances may cause explosions and accidents.
- R410A contains fluorinated greenhouse gases. Its global warming potential (GWP) value is 2087.5. Do NOT vent these gases into the atmosphere.
- When charging refrigerant, ALWAYS use protective gloves and safety glasses.



NOTICE

If the power of some units is turned off, the charging procedure cannot be finished properly.



NOTICE

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



NOTICE

If operation is performed within 12 minutes after the indoor and outdoor unit(s) are powered on, the compressor will not operate before the communication is established in a correct way between outdoor unit(s) and indoor unit(s).



NOTICE

Before starting charging procedures, check if the 7-LEDs display is as normal (see ["16.1.4 To access mode 1 or 2" \[p 27\]](#)), and there is no malfunction code on the user interface of the indoor unit. If a malfunction code is present, see ["19.1 Solving problems based on error codes" \[p 33\]](#).



NOTICE

Make sure all connected indoor units are recognised (setting [1-5]).



NOTICE

Close the front panel before any refrigerant charge operation is executed. Without the front panel attached the unit cannot judge correctly whether it is operating properly or not.



NOTICE

In case of maintenance and the system (outdoor unit+field piping+indoor unit(s)) does not contain any refrigerant any more (e.g., after refrigerant reclaim operation), the unit has to be charged with its original amount of refrigerant (refer to the nameplate on the unit) and the determined additional refrigerant amount.

14.4.2 To determine the additional refrigerant amount



INFORMATION

For final charge adjustment in a test laboratory, contact your dealer.



INFORMATION

Note down the amount of additional refrigerant that is calculated here, for later use on the additional refrigerant charge label. See ["14.4.5 To fix the fluorinated greenhouse gases label" \[p 23\]](#).

Formula:

$$R = [(X_1 \times 0.059) + (X_2 \times 0.022)]$$

R Additional refrigerant to be charged [in kg and rounded off to 1 decimal place]

X_{1,2} Total length [m] of liquid piping size at Øa

Metric piping. When using metric piping, replace the weight factors in the formula by the ones from the following table:

Inch piping		Metric piping	
Piping	Weight factor	Piping	Weight factor
Ø6.4 mm	0.022	Ø6 mm	0.018
Ø9.5 mm	0.059	Ø10 mm	0.065

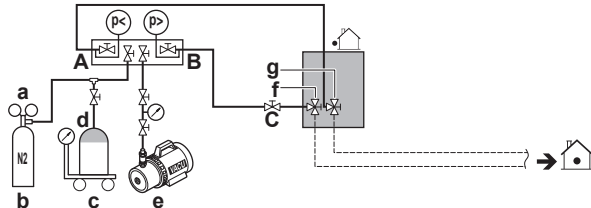
14.4.3 To charge refrigerant

To speed up the refrigerant charging process, it is in case of larger systems recommended to first pre-charge a portion of refrigerant through the liquid line before proceeding with the manual charging. It can be skipped, but charging will take longer then.

Pre-charging refrigerant

Pre-charging can be done without compressor operation, by connecting the refrigerant bottle to the service port of the liquid stop valve.

- 1 Connect as shown. Make sure that all outdoor unit stop valves, as well as valve A are closed.



- a Pressure reducing valve
- b Nitrogen
- c Weighing scales
- d Refrigerant R410A tank (siphon system)
- e Vacuum pump
- f Liquid line stop valve
- g Gas line stop valve
- A Valve A
- B Valve B
- C Valve C

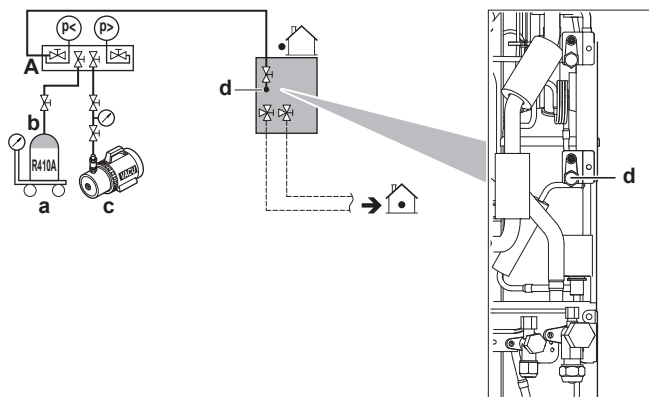
- 2 Open valves C and B.
- 3 Pre-charge refrigerant until the determined additional refrigerant amount is reached or pre-charging is not possible anymore, and then close valves C and B.
- 4 Do one of the following:

If	Then
The determined additional refrigerant amount is reached	Disconnect the manifold from the liquid line. You do not have to perform the "Charging refrigerant (in manual additional refrigerant charge mode)" instructions.
Too much refrigerant is charged	Recover refrigerant. Disconnect the manifold from the liquid line. You do not have to perform the "Charging refrigerant (in manual additional refrigerant charge mode)" instructions.
The determined additional refrigerant amount is not reached yet	Disconnect the manifold from the liquid line. Continue with the "Charging refrigerant (in manual additional refrigerant charge mode)" instructions.

Charging refrigerant (in manual additional refrigerant charge mode)

The remaining additional refrigerant charge can be charged by operating the outdoor unit by means of the manual additional refrigerant charge mode.

- 5 Connect as shown. Make sure valve A is closed.



- a Weighing scales
- b Refrigerant R410A tank (siphon system)
- c Vacuum pump

- d Refrigerant charge port
- A Valve A



NOTICE

The refrigerant charging port is connected to the piping inside the unit. The unit's internal piping is already factory charged with refrigerant, so be careful when connecting the charge hose.

- 6 Open all outdoor unit stop valves. At this point, valve A must remain closed!
- 7 Take all the precautions mentioned in "16 Configuration" [p. 26] and "17 Commissioning" [p. 31] into account.
- 8 Turn on the power of the indoor units and outdoor unit.
- 9 Activate setting [2-20] to start the manual additional refrigerant charge mode. For details, see "16.1.8 Mode 2: field settings" [p. 29].

Result: The unit will start operation.



INFORMATION

The manual refrigerant charge operation will automatically stop within 30 minutes. If charging is not completed after 30 minutes, perform the additional refrigerant charging operation again.



INFORMATION

- When a malfunction is detected during the procedure (e.g., in case of closed stop valve), a malfunction code will be displayed. In that case, refer to "14.4.4 Error codes when charging refrigerant" [p. 23] and solve the malfunction accordingly. Resetting the malfunction can be done by pushing BS3. You can restart the "Charging" instructions.
- Aborting the manual refrigerant charge is possible by pushing BS3. The unit will stop and return to idle condition.

- 10 Open valve A.
- 11 Charge refrigerant until the remaining determined additional refrigerant amount is added, and then close valve A.
- 12 Press BS3 to stop the manual additional refrigerant charge mode.



NOTICE

Make sure to open all stop valves after (pre-) charging the refrigerant.

Operating with the stop valves closed will damage the compressor.



NOTICE

After adding the refrigerant, do not forget to close the lid of the refrigerant charging port. The tightening torque for the lid is 11.5 to 13.9 N·m.

14.4.4 Error codes when charging refrigerant



INFORMATION

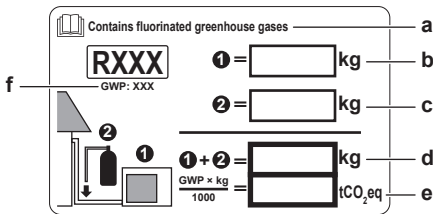
If a malfunction occurs, the error code is displayed on the user interface of the indoor unit.

If a malfunction occurs, close valve A immediately. Confirm the malfunction code and take corresponding action, "19.1 Solving problems based on error codes" [p. 33].

14.4.5 To fix the fluorinated greenhouse gases label

- 1 Fill in the label as follows:

15 Electrical installation



- a If a multilingual fluorinated greenhouse gases label is delivered with the unit (see accessories), peel off the applicable language and stick it on top of a.
- b Factory refrigerant charge: see unit name plate
- c Additional refrigerant amount charged
- d Total refrigerant charge
- e **Quantity of fluorinated greenhouse gases** of the total refrigerant charge expressed as tonnes CO₂ equivalent.
- f GWP = Global Warming Potential



NOTICE

Applicable legislation on **fluorinated greenhouse gases** requires that the refrigerant charge of the unit is indicated both in weight and CO₂ equivalent.

Formula to calculate the quantity in CO₂ equivalent tonnes: GWP value of the refrigerant × total refrigerant charge [in kg] / 1000

Use the GWP value mentioned on the refrigerant charge label.

- 2 Fix the label on the inside of the outdoor unit near the gas and liquid stop valves.

15 Electrical installation



DANGER: RISK OF ELECTROCUTION



WARNING

ALWAYS use multicore cable for power supply cables.

15.1 About electrical compliance

Only for RXYSQ4~6_V

Equipment complying with 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.).

15.2 Safety device requirements

Power supply wiring

The power supply must be protected with the required safety devices, i.e. a main switch, a slow blow fuse on each phase and an earth leakage protector in accordance with the applicable legislation.

In the power supply line, ALWAYS install a residual current device (RCD) with an instantaneous action. The installed RCD MUST comply with the national wiring regulation.

Selection and sizing of the wiring should be done in accordance with the applicable legislation based on the information mentioned in the table below.

Model	Minimum circuit ampacity	Recommended fuses	Power supply
RXYSQ4_V	29.1 A	32 A	1~ 50 Hz
RXYSQ5_V			220-240 V
RXYSQ6_V			
RXYSQ4_Y	14.1 A	16 A	3N~ 50 Hz
RXYSQ5_Y			380-415 V
RXYSQ6_Y			

Transmission wiring

Transmission wiring specification and limits ^(a)	
Vinyl cords with 0.75 to 1.25 mm ² sheath or cables (2-core wires)	
Maximum number of branches for unit-to-unit cabling	9
Maximum wiring length (distance between outdoor and furthest indoor unit)	300 m
Total wiring length (sum of distances between outdoor and all indoor units)	600 m

^(a) If the total interconnection wiring exceeds these limits, communication errors might occur.

15.3 Field wiring: Overview

Field wiring consists of:

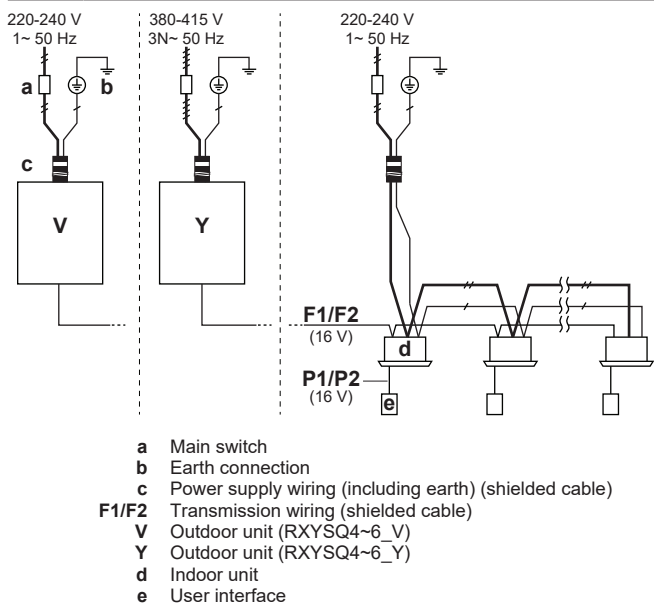
- power supply (including earth),
- Interconnection wiring between communication box and outdoor unit,
- RS-485 interconnection wiring between communication box and monitoring system.

Example:



INFORMATION

The following figures are examples and may NOT completely match your system layout.



- a Main switch
- b Earth connection
- c Power supply wiring (including earth) (shielded cable)
- F1/F2 Transmission wiring (shielded cable)
- V Outdoor unit (RXYSQ4~6_V)
- Y Outdoor unit (RXYSQ4~6_Y)
- d Indoor unit
- e User interface

15.4 To connect the electrical wiring to the outdoor 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.

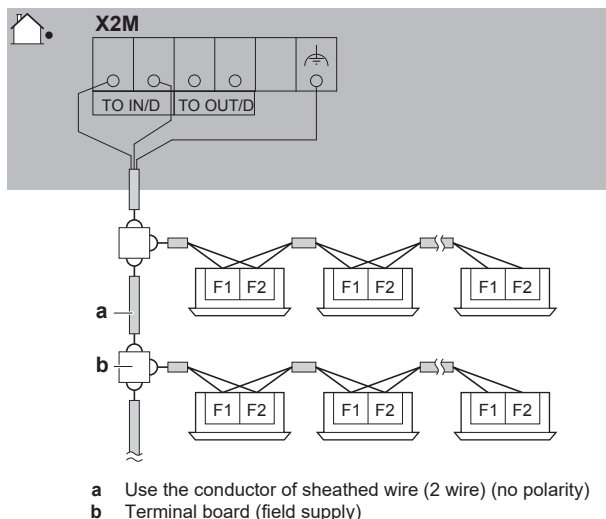


NOTICE

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

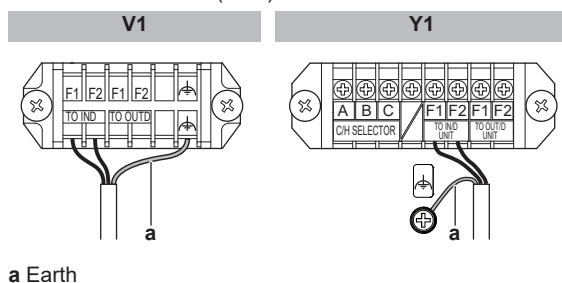
- 1 Remove the service cover.

2 Connect the transmission wiring as follows:

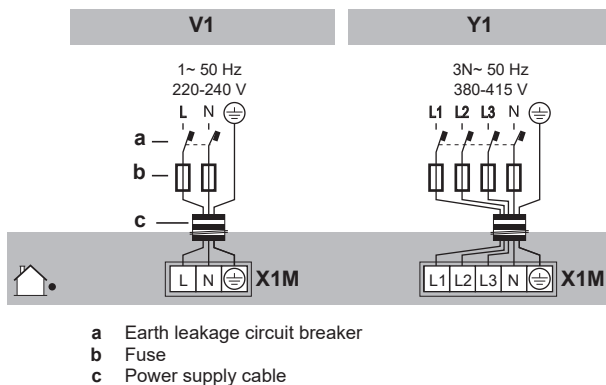


NOTICE

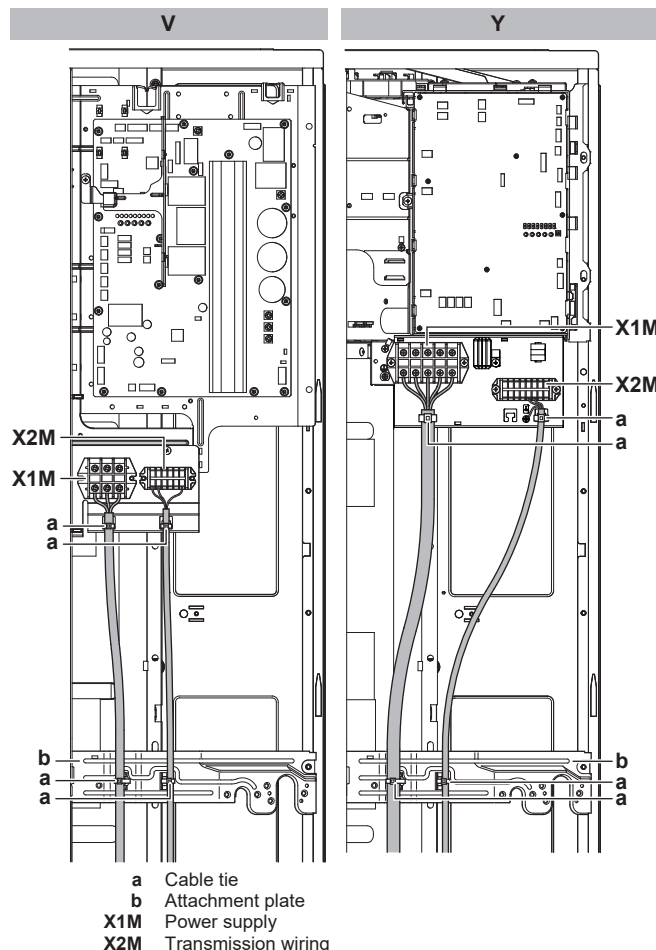
You must use shielded wire and connect the earth to the transmission terminal (X2M).



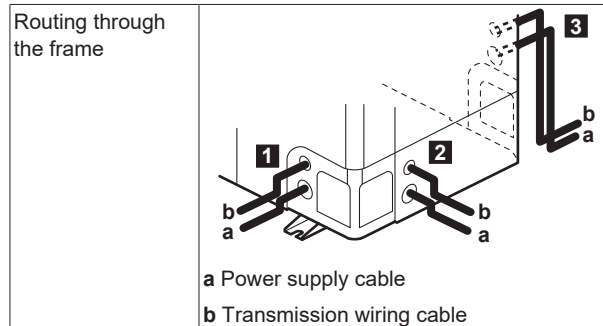
3 Connect the power supply as follows:



4 Fix the cables (power supply and transmission wiring) with cable ties.



5 Route the wiring through the frame and connect it to it.

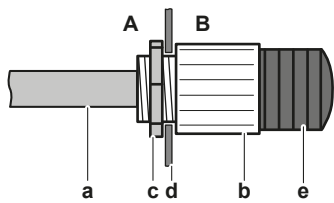


16 Configuration

Connecting to the frame

When cables are routed from the unit, a protection sleeve for the conduits (PG insertions) can be inserted at the knockout hole.

When you do not use a wire conduit, protect the wires with vinyl tubes to prevent the edge of the knockout hole from cutting the wires.



A Inside of the outdoor unit
B Outside of the outdoor unit
a Wire
b Bush
c Nut
d Frame
e Hose

NOTICE

Precautions when making knockout holes:

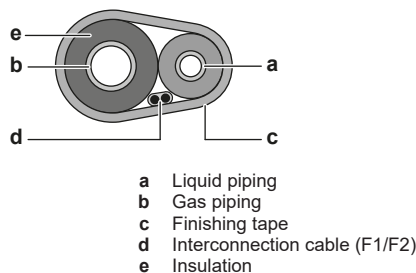
- Avoid damaging the casing and underlying piping.
- After making the knockout holes, we recommend to remove the burrs and paint the edges and areas around the edges using repair paint to prevent rusting.
- When passing electrical wiring through the knockout holes, wrap the wiring with protective tape to prevent damage.

6 Reattach the service cover.

7 Connect an earth leakage circuit breaker and fuse to the power supply line.

15.5 To finish the interconnection wiring

After installing the interconnection wiring, wrap it along with the onsite refrigerant piping using finishing tape, as shown in the illustration below.



15.6 To check the insulation resistance of the compressor

NOTICE

If, after installation, refrigerant accumulates in the compressor, the insulation resistance over the poles can drop, but if it is at least 1 MΩ, then the unit will not break down.

- Use a 500 V mega-tester when measuring insulation.
- Do NOT use a mega-tester for low voltage circuits.

1 Measure the insulation resistance over the poles.

If	Then
≥1 MΩ	Insulation resistance is OK. This procedure is finished.
<1 MΩ	Insulation resistance is not OK. Go to the next step.

2 Turn ON the power and leave it on for 6 hours.

Result: The compressor will heat up and evaporate any refrigerant in the compressor.

3 Measure the insulation resistance again.

16 Configuration

DANGER: RISK OF ELECTROCUTION

INFORMATION

It is important that all information in this chapter is read sequentially by the installer and that the system is configured as applicable.

16.1 Making field settings

16.1.1 About making field settings

To configure the heat pump system, you must give input to the outdoor unit's main PCB (A1P). This involves the following field setting components:

- Push buttons to give input to the PCB
- A display to read feedback from the PCB
- DIP switches (only change the factory settings if you install a cool/heat selector switch).

Field settings are defined by their mode, setting and value. Example: [2-8]=4.

PC configurator

For VRV IV-S heat pump system it is alternatively possible to make several commissioning field settings through a personal computer interface (for this, option EKPCCAB* is required). The installer can prepare the configuration (off-site) on PC and afterwards upload the configuration to the system.

See also: "16.1.9 To connect the PC configurator to the outdoor unit" [p. 31].

Mode 1 and 2

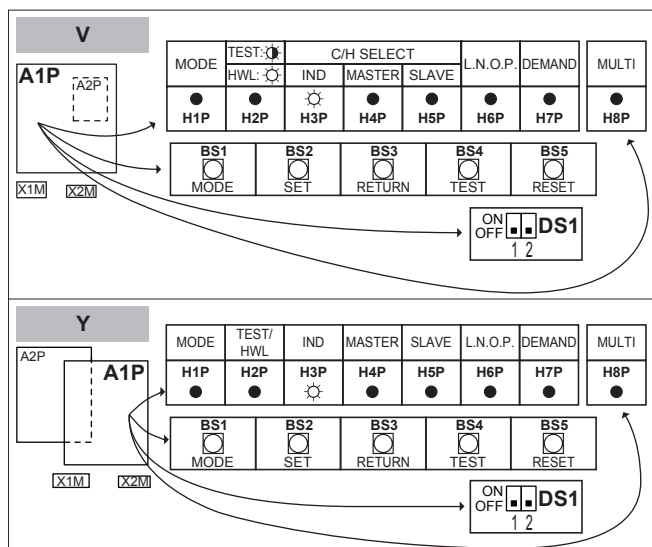
Mode	Description
Mode 1 (monitoring settings)	Mode 1 can be used to monitor the current situation of the outdoor unit. Some field setting contents can be monitored as well.
Mode 2 (field settings)	Mode 2 is used to change the field settings of the system. Consulting the current field setting value and changing the current field setting value is possible. In general, normal operation can be resumed without special intervention after changing field settings. Some field settings are used for special operation (e.g., one time operation, recovery/vacuuming setting, manual adding refrigerant setting, etc.). In such a case, it is required to abort the special operation before normal operation can restart. It will be indicated in below explanations.

16.1.2 To access the field setting components

See "13.2.2 To open the outdoor unit" [▶ 14].

16.1.3 Field setting components

The components to make field settings are as follows:



DS1 DIP switches
BS1~BS5 Push buttons
H1P~H7P 7-LEDs display
H8P LED for indication during initialisation
ON (☀) OFF (●) Flashing (☀*)

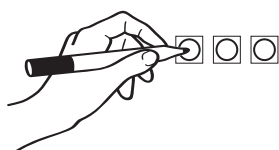
DIP switches

Only change the factory settings if you install a cool/heat selector switch.

DS1-1	COOL/HEAT selector (refer to the manual of the cool/heat selector switch). OFF=not installed=factory setting
DS1-2	NOT USED. DO NOT CHANGE THE FACTORY SETTING.

Push buttons

Use the push buttons to make the field settings. Operate the push buttons with an insulated stick (such as a closed ball-point pen) to avoid touching live parts.



BS1 MODE: For changing the set mode
BS2 SET: For field setting
BS3 RETURN: For field setting
BS4 TEST: For test operation
BS5 RESET: For resetting the address when the wiring is changed or when an additional indoor unit is installed

7-LEDs display

The display gives feedback about the field settings, which are defined as [Mode-Setting]=Value.

H1P Shows the mode
H2P~H7P Shows the settings and values, represented in binary code
H8P NOT used for field settings, but used during initialisation

Example:

[H1P- 32 + 16 + 8 + 4 + 2 + 1] H1P H2P H3P H4P H5P H6P H7P	Description
☀ ● ● ● ● ● ● (H1P OFF)	Default situation

[H1P- 32 + 16 + 8 + 4 + 2 + 1] H1P H2P H3P H4P H5P H6P H7P	Description
☀ ● ● ● ● ● ● (H1P flashing)	Mode 1
☀ ● ● ● ● ● ● (H1P ON)	Mode 2
☀ ● ● ● ● ● ● 0 + 0 + 8 + 0 + 0 + 0 (H2P~H7P = binary 8)	Setting 8 (in mode 2)
☀ ● ● ● ● ● ● 0 + 0 + 0 + 4 + 0 + 0 (H2P~H7P = binary 4)	Value 4 (in mode 2)

16.1.4 To access mode 1 or 2

After the units are turned ON, the display goes to its default situation. From there, you can access mode 1 and mode 2.

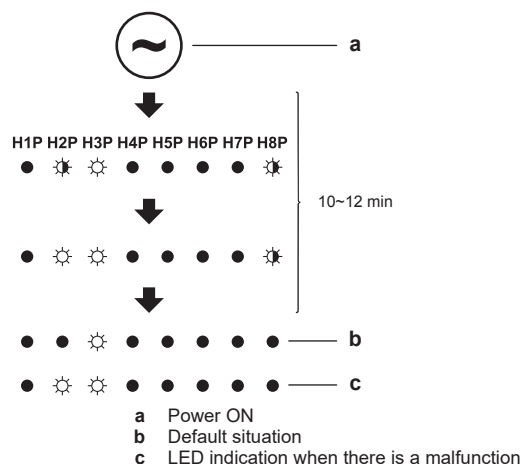
Initialisation: default situation



NOTICE

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

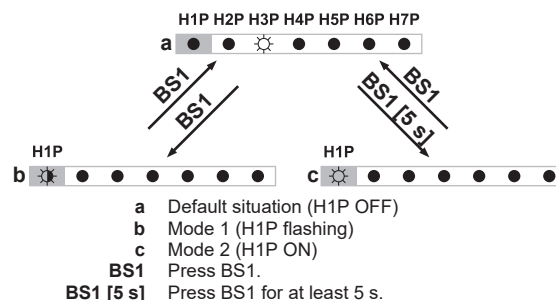
Turn on the power supply of the outdoor unit and all indoor units. When the communication between indoor units and outdoor unit is established and normal, the display indication state will be as below (default situation when shipped from factory).



If the default situation is not displayed after 10~12 minutes, check the malfunction code on the indoor unit user interface. Solve the malfunction code accordingly. First, check the communication wiring.

Switching between modes

Use BS1 to switch between the default situation, mode 1 and mode 2.



INFORMATION

If you get confused in the middle of the process, press BS1 to return to the default situation.

16 Configuration

16.1.5 To use mode 1

In mode 1 (and in default situation) you can read out some information.

Example: 7-LEDs display – Default situation

You can read out the status of low noise operation as follows:

#	Action	Button/display
1	Make sure the LEDs are showing the default situation.	H1P H2P H3P H4P H5P H6P H7P  (H1P OFF)
2	Check the status of LED H6P.	 H6P OFF: Unit is currently not operating under low noise restrictions.  H6P ON: Unit is currently operating under low noise restrictions.

Example: 7-LEDs display – Mode 1

You can read out setting [1-5] (= the total number of connected indoor units) as follows:

#	Action	Button/display
1	Start from the default situation.	H1P H2P H3P H4P H5P H6P H7P 
2	Select mode 1.	 BS1 [1×]
3	Select setting 5. ("X" depends on the setting that you want to select.)	 BS2 [X×] (= binary 5)
4	Display the value of setting 5. (there are 8 indoor units connected)	 BS3 [1×] (= binary 8)
5	Quit mode 1.	 BS1 [1×]

16.1.6 To use mode 2

In mode 2 you can make field settings to configure the system.

Example: 7-LEDs display – Mode 2

You can change the value of setting [2-8] (= T_e target temperature during cooling operation) to 4 (= 8°C) as follows:

#	Action	Button/display
1	Start from the default situation.	H1P H2P H3P H4P H5P H6P H7P 
2	Select mode 2.	 BS1 [5 s]
3	Select setting 8. ("X" depends on the setting that you want to select.)	 BS2 [X×] (= binary 8)

#	Action	Button/display
4	Select value 4 (= 8°C). a: Display the current value. b: Change to 4. ("X" depends on the current value, and the value that you want to select.) c: Enter the value in the system. d: Confirm. The system starts operating according to the setting.	a BS3 [1×]  b BS2 [X×]  c BS3 [1×]  d BS3 [1×] 
5	Quit mode 2.	BS1 [1×] 

16.1.7 Mode 1 (and default situation): Monitoring settings

In mode 1 (and in default situation) you can read out some information.

7-LEDs display – Default situation (H1P OFF)

You can read out the following information:

	Value / Description
H6P	Shows the status of low noise operation.
OFF	 Unit is currently not operating under low noise restrictions.
ON	 Unit is currently operating under low noise restrictions.
	Low noise operation reduces the sound generated by the unit compared to nominal operating conditions. Low noise operation can be set in mode 2. There are two methods to activate low noise operation of the outdoor unit system. - The first method is to enable an automatic low noise operation during night time by field setting. The unit will operate at the selected low noise level during the selected time frames. - The second method is to enable low noise operation based on an external input. For this operation an optional accessory is required.
H7P	Shows the status of power consumption limitation operation.
OFF	 Unit is currently not operating under power consumption limitations.
ON	 Unit is currently operating under power consumption limitation.
	Power consumption limitation reduces the power consumption of the unit compared to nominal operating conditions. Power consumption limitation can be set in mode 2. There are two methods to activate power consumption limitation of the outdoor unit system. - The first method is to enable a forced power consumption limitation by field setting. The unit will always operate at the selected power consumption limitation. - The second method is to enable power consumption limitation based on an external input. For this operation an optional accessory is required.

7-LEDs display – Mode 1 (H1P flashing)

You can read out the following information:

Setting (H1P H2P H3P H4P H5P H6P H7P)	Value / Description
[1-5]	It can be convenient to check if the total number of indoor units which are installed match the total number of indoor units which are recognised by the system. In case there is a mismatch, it is advised to check the communication wiring path between outdoor and indoor units (F1/F2 communication line).
Shows the total number of connected indoor units.	

Setting (H1P H2P H3P H4P H5P H6P H7P)	Value / Description
[1-14]	When the latest malfunction codes were reset by accident on an indoor unit user interface, they can be checked again through this monitoring settings.
Shows the latest malfunction code.	
[1-15]	For the content or reason behind the malfunction code see "19.1 Solving problems based on error codes" [p. 33] , where most relevant malfunction codes are explained. Detailed information about malfunction codes can be consulted in the service manual of this unit.
Shows the 2nd last malfunction code.	
[1-16]	To obtain more detailed information about the malfunction code, press BS2 up to 3 times.
Shows the 3rd last malfunction code.	

16.1.8 Mode 2: field settings

In mode 2 you can make field settings to configure the system. The LEDs give a binary representation of the setting/value number.

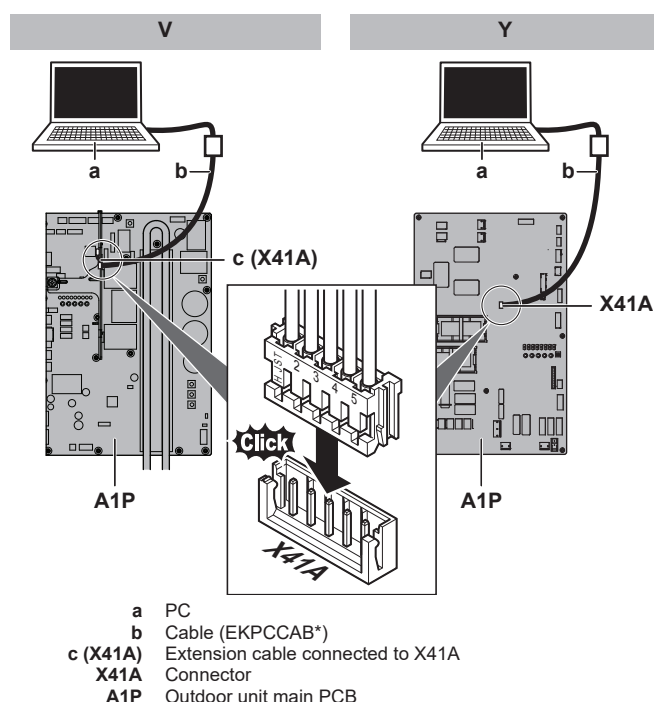
Setting H1P H2P H3P H4P H5P H6P H7P (= binary)	Value	
	H1P H2P H3P H4P H5P H6P H7P	Description
[2-8] T _e target temperature during cooling operation.		6°C
		Auto
	(default)	
		8°C
		9°C
		10°C
[2-9] T _e target temperature during heating operation.		11°C
	(default)	Auto
		46°C
		43°C
[2-12] Enable the low noise function and/or power consumption limitation via external control adaptor (DTA104A61/62). If the system needs to be running under low noise operation or under power consumption limitation conditions when an external signal is sent to the unit, this setting should be changed. This setting will only be effective when the optional external control adaptor (DTA104A61/62) is installed in the indoor unit.		Deactivated.
	(default)	
[2-18] Fan high static pressure setting. In order to increase the static pressure the outdoor unit fan is delivering, this setting should be activated. For details about this setting, see technical specifications.		Activated.
	(default)	Deactivated.
[2-20] Manual additional refrigerant charge. In order to add the additional refrigerant charge amount in a manual way (without automatic refrigerant charging functionality), following setting should be applied.		Activated.
	(default)	Deactivated. To stop the manual additional refrigerant charge operation (when the required additional refrigerant amount is charged), push BS3. If this function was not aborted by pushing BS3, the unit will stop its operation after 30 minutes. If 30 minutes was not sufficient to add the needed refrigerant amount, the function can be reactivated by changing the field setting again.

16 Configuration

Setting H1P H2P H3P H4P H5P H6P H7P (= binary)	Value	
	H1P H2P H3P H4P H5P H6P H7P	Description
[2-21]  ●  ●  ●  ● Refrigerant recovery/vacuuming mode. In order to achieve a free pathway to reclaim refrigerant out of the system or to remove residual substances or to vacuum the system it is necessary to apply a setting which will open required valves in the refrigerant circuit so the reclaim of refrigerant or vacuuming process can be done properly.	 ● ● ● ● ● ● ●  (default)	Deactivated.
	 ● ● ● ● ● ● ●  ●	Activated. To stop the refrigerant recovery/vacuuming mode, push BS1. If BS1 is not pushed, the system will remain in refrigerant recovery/vacuuming mode.
[2-22]  ●  ●  ●  ● Automatic low noise setting and level during night time. By changing this setting, you activate the automatic low noise operation function of the unit and define the level of operation. Depending on the chosen level, the noise level will be lowered. The start and stop moments for this function are defined under setting [2-26] and [2-27].	 ● ● ● ● ● ● ● (default)	Deactivated
	 ● ● ● ● ● ● ● 	Level 1
	 ● ● ● ● ● ● ●  ●	Level 2
	 ● ● ● ● ● ● ●  ● 	Level 3
[2-25]  ●  ●  ● ●  ● Low noise operation level via the external control adaptor. If the system needs to be running under low noise operation conditions when an external signal is sent to the unit, this setting defines the level of low noise that will be applied. This setting will only be effective when the optional external control adaptor (DTA104A61/62) is installed and the setting [2-12] was activated.	 ● ● ● ● ● ● ● 	Level 1
	 ● ● ● ● ● ● ●  ●	Level 2
	 ● ● ● ● ● ● ●  ● ●	Level 3
[2-26]  ●  ●  ●  ● Low noise operation start time. This setting is used in conjunction with setting [2-22].	 ● ● ● ● ● ● ● 	20h00
	 ● ● ● ● ● ● ●  ●	22h00
	 ● ● ● ● ● ● ●  ● ●	24h00
[2-27]  ●  ●  ●  ● Low noise operation stop time. This setting is used in conjunction with setting [2-22].	 ● ● ● ● ● ● ● 	6h00
	 ● ● ● ● ● ● ●  ●	7h00
	 ● ● ● ● ● ● ●  ● ●	8h00
	 ● ● ● ● ● ● ● 	(default)
[2-30]  ●  ●  ●  ● Power consumption limitation level (step 1) via the external control adaptor (DTA104A61/62). If the system needs to be running under power consumption limitation conditions when an external signal is sent to the unit, this setting defines the level power consumption limitation that will be applied for step 1. The level is according to the table.	 ● ● ● ● ● ● ● 	60%
	 ● ● ● ● ● ● ●  ●	70%
	 ● ● ● ● ● ● ●  ● ●	80%
[2-31]  ●  ●  ●  ● Power consumption limitation level (step 2) via the external control adaptor (DTA104A61/62). If the system needs to be running under power consumption limitation conditions when an external signal is sent to the unit, this setting defines the level power consumption limitation that will be applied for step 2. The level is according to the table.	 ● ● ● ● ● ● ● 	30%
	 ● ● ● ● ● ● ●  ●	40%
	 ● ● ● ● ● ● ●  ● ●	50%
[2-32]  ●  ● ● ● ● ● ● Forced, all time, power consumption limitation operation (no external control adaptor is required to perform power consumption limitation). If the system always needs to be running under power consumption limitation conditions, this setting activates and defines the level power consumption limitation that will be applied continuously. The level is according to the table.	 ● ● ● ● ● ● ● 	Function not active.
	 ● ● ● ● ● ● ●  ●	Follows [2-30] setting.
	 ● ● ● ● ● ● ●  ● ●	Follows [2-31] setting.
[2-38]  ●  ● ●  ●  ● Type of indoor units After changing this setting, you have to power OFF the system, wait for 20 s, and then power ON again. If not, the setting will not be processed and malfunction codes might occur.	 ● ● ● ● ● ● ● 	VRV DX indoor units installed
	 ● ● ● ● ● ● ●  ●	RA DX indoor units installed

Setting	Value						
	H1P	H2P	H3P	H4P	H5P	H6P	H7P
[2-41] ☀️ ● ● ● ● ● ● ●	☀️	●	●	●	●	●	●
Cooling comfort setting. This setting is used in conjunction with setting [2-8].	☀️	●	●	●	●	●	☀️
	(default)						
	☀️	●	●	●	●	☀️	●
	☀️	●	●	●	●	☀️	☀️
[2-42] ☀️ ● ● ● ● ● ● ●	☀️	●	●	●	●	●	●
	☀️	●	●	●	●	●	☀️
	(default)						
	☀️	●	●	●	●	☀️	●
Heating comfort setting. This setting is used in conjunction with setting [2-9].	☀️	●	●	●	●	☀️	☀️
	☀️	●	●	●	●	☀️	☀️

16.1.9 To connect the PC configurator to the outdoor unit



17 Commissioning

17.1 Precautions when commissioning



CAUTION

Do NOT perform the test operation while working on the indoor unit(s).

When performing the test operation, NOT ONLY the outdoor unit, but the connected indoor unit will operate as well. Working on an indoor unit while performing a test operation is dangerous.



NOTICE

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

During test operation, the outdoor unit and the indoor units will start up. Make sure that the preparations of all indoor units are finished (field piping, electrical wiring, air purge, ...). See installation manual of the indoor units for details.

17.2 Checklist before commissioning

- After the installation of the unit, check the items listed below.
- Close the unit.
- Power up the unit.

☐	You have read the complete installation and operation instructions described in the installer and user reference guide .
☐	Installation Check that the unit is properly installed, to avoid abnormal noises and vibrations when starting up the unit.
☐	Field wiring Check that the field wiring has been carried out according to the instructions described in the chapter "15 Electrical installation" [p. 24], according to the wiring diagrams and according to the applicable national wiring regulation.
☐	Power supply voltage Check the power supply voltage on the local supply panel. The voltage MUST correspond to the voltage on the nameplate of the unit.
☐	Earth wiring Be sure that the earth wires have been connected properly and that the earth terminals are tightened.
☐	Insulation test of the main power circuit Using a megatester for 500 V, check that the insulation resistance of 2 MΩ or more is attained by applying a voltage of 500 V DC between power terminals and earth. NEVER use the megatester for the interconnection wiring.
☐	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 "15.2 Safety device requirements" [p. 24]. Be sure that neither a fuse nor a protection device has been bypassed.
☐	Internal wiring Visually check the switch box and the inside of the unit for loose connections or damaged electrical components.
☐	Pipe size and pipe insulation Be sure that correct pipe sizes are installed and that the insulation work is properly executed.
☐	Stop valves Be sure that the stop valves are open on both liquid and gas side.
☐	Damaged equipment Check the inside of the unit for damaged components or squeezed pipes.

18 Hand-over to the user

☐	Refrigerant leak Check the inside of the unit on refrigerant leakage. If there is a refrigerant leak, try to repair the leak. If the repair is unsuccessful, call your local dealer. Do not touch any refrigerant which has leaked out from refrigerant piping connections. This may result in frostbite.
☐	Oil leak Check the compressor for oil leakage. If there is an oil leak, try to repair the leak. If the repairing is unsuccessful, call your local dealer.
☐	Air inlet/outlet Check that the air inlet and outlet of the unit is NOT obstructed by paper sheets, cardboard, or any other material.
☐	Additional refrigerant charge The amount of refrigerant to be added to the unit shall be written on the included "Added refrigerant" plate and attached to the rear side of the front cover.
☐	Installation date and field setting Be sure to keep a record of the installation date on the sticker on the rear of the front panel according to EN60335-2-40 and keep record of the contents of the field setting(s).

17.3 Checklist during commissioning

☐	To perform a test run .
--------------------------	--------------------------------

17.3.1 About the system test run



NOTICE

Make sure to carry out the test run after the first installation. Otherwise, the malfunction code **U3** will be displayed on the user interface and normal operation or individual indoor unit test run cannot be carried out.

The procedure below describes the test operation of the complete system. This operation checks and judges following items:

- Check of wrong wiring (communication check with indoor units).
- Check of the stop valves opening.
- Judgement of piping length.

Abnormalities on indoor units cannot be checked for each unit separately. After the test operation is finished, check the indoor units one by one by performing a normal operation using the user interface. Refer to the indoor unit installation manual for more details concerning the individual test run.



INFORMATION

- It may take 10 minutes to achieve a uniform refrigerant state before the compressor starts.
- During the test operation, the refrigerant running sound or the magnetic sound of a solenoid valve may become loud and the display indication may change. These are not malfunctions.

17.3.2 To perform a test run (7-LEDs display)

- 1 Make sure all field settings you want are set; see ["16.1 Making field settings"](#) [p 26].
- 2 Turn ON the power to the outdoor unit and the connected indoor unit(s).



NOTICE

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

- 3 Make sure the default (idle) situation is existing (H1P is OFF); see ["16.1.4 To access mode 1 or 2"](#) [p 27]. Push BS4 for 5 seconds or more. The unit will start test operation.

Result: The test operation is automatically carried out, the outdoor unit H2P flashes and the indication "Test operation" and "Under centralised control" will display on the user interface of indoor units.

Steps during the automatic system test run procedure:

Step	Description
● ● ● ● ● ● ● ●	Control before start up (pressure equalisation)
● ● ● ● ● ● ● ●	Cooling start up control
● ● ● ● ● ● ● ●	Cooling stable condition
● ● ● ● ● ● ● ●	Communication check
● ● ● ● ● ● ● ●	Stop valve check
● ● ● ● ● ● ● ●	Pipe length check
● ● ● ● ● ● ● ●	Pump down operation
● ● ● ● ● ● ● ●	Unit stop



INFORMATION

During the test operation, it is not possible to stop the unit operation from a user interface. To abort the operation, press BS3. The unit will stop after ±30 seconds.

- 4 Check the test operation results on the outdoor unit 7-LEDs display.

Completion	Description
Normal completion	● ● ● ● ● ● ● ●
Abnormal completion	● ● ● ● ● ● ● ● Refer to "17.3.3 Correcting after abnormal completion of the test run" [p 32] to take actions for correcting the abnormality. When the test operation is fully completed, normal operation will be possible after 5 minutes.

17.3.3 Correcting after abnormal completion of the test run

The test operation is only completed if there is no malfunction code displayed. In case of a displayed malfunction code, perform correcting actions as explained in the malfunction code table. Carry out the test operation again and confirm that the abnormality is properly corrected.



INFORMATION

If a malfunction occurs, the error code is displayed on the user interface of the indoor unit.



INFORMATION

Refer to the installation manual of the indoor unit for detailed malfunction codes related to indoor units.

18 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.

19 Troubleshooting

19.1 Solving problems based on error codes

In case of a displayed malfunction code, perform correcting actions as explained in the malfunction code table.

After correcting the abnormality, press BS3 to reset the malfunction code and retry operation.

19.1.1 Error codes: Overview

In case other error codes appear, contact your dealer.

Main code	Cause	Solution
E3	- The stop valve of an outdoor unit is left closed. - Refrigerant overcharge	- Open the stop valve on both the gas and liquid side. - Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.
E4	- The stop valve of an outdoor unit is left closed. - Insufficient refrigerant	- Open the stop valve on both the gas and liquid side. - Check if the additional refrigerant charge has been finished correctly. Recalculate the required amount of refrigerant from the piping length and add an adequate amount of refrigerant.
E9	Electronic expansion valve malfunction (Y1E) - A1P (X21A) (Y3E) - A1P (X22A)	Check connection on PCB or actuator.
F3	- The stop valve of an outdoor unit is left closed. - Insufficient refrigerant	- Open the stop valve on both the gas and liquid side. - Check if the additional refrigerant charge has been finished correctly. Recalculate the required amount of refrigerant from the piping length and add an adequate amount of refrigerant.
F5	Refrigerant overcharge	Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.
H9	Ambient temperature sensor malfunction (R1T) - A1P (X11A)	Check connection on PCB or actuator.
J3	Discharge temperature sensor malfunction (R2T): open circuit / short circuit - A1P (X12A)	Check connection on PCB or actuator.
J5	Suction temperature sensor malfunction (R3T) - A1P (X12A) (R5T) - A1P (X12A)	Check connection on PCB or actuator.
J6	Liquid temperature sensor (coil) malfunction (R4T) - A1P (X12A)	Check connection on PCB or actuator.
J7	Liquid temperature sensor (after subcool HE) malfunction (R7T) - A1P (X13A)	Check connection on PCB or actuator.
J9	Gas temperature sensor (after subcool HE) malfunction (R6T) - A1P (X13A)	Check connection on PCB or actuator.
JR	High pressure sensor malfunction (S1NPH): open circuit / short circuit - A1P (X17A)	Check connection on PCB or actuator.
JC	Low pressure sensor malfunction (S1NPL): open circuit / short circuit - A1P (X18A)	Check connection on PCB or actuator.
LC	Transmission outdoor unit - inverter: INV1 / FAN1 transmission trouble	Check connection.
P1	INV1 unbalanced power supply voltage	Check if power supply is within range.
U1	Reversed power supply phase malfunction	Correct phase order.
U2	Insufficient supply voltage	Check if the supply voltage is supplied properly.
U3	Malfunction code: System test run not yet executed (system operation not possible)	Execute system test run.



INFORMATION

If a malfunction occurs, the error code is displayed on the user interface of the indoor unit.



INFORMATION

If a malfunction occurs, the error code is displayed on the outdoor unit's 7-segments display and on the user interface of the indoor unit.

20 Technical data

Main code	Cause	Solution
U4	No power is supplied to the outdoor unit.	Check if the power wiring for the outdoor unit is connected correctly.
U7	Faulty wiring to Q1/Q2	Check Q1/Q2 wiring.
U9	System mismatch. Wrong type of indoor units combined (R410A, R407C, RA, etc) Indoor unit malfunction	Check if other indoor units have malfunction and confirm indoor unit mix is allowed.
UR	Improper type of indoor units are connected.	Check the type of indoor units that are currently connected. If they are not proper, replace them with proper ones.
UH	Incorrect interconnections between units.	Connect interconnections F1 and F2 of the connected BP unit correctly to the outdoor unit's PCB (TO BP UNIT). Make sure that the communication with the BP unit is enabled.
UF	- The stop valve of an outdoor unit is left closed. - The piping and wiring of the specified indoor unit are not connected correctly to the outdoor unit.	- Open the stop valve on both the gas and liquid side. - Confirm that the piping and wiring of the specified indoor unit are connected correctly to the outdoor unit.

20 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).

20.1 Service space: Outdoor unit

When mounting units side by side, the piping route must be to the front, to the back or downwards. In this case the piping route to the side is not possible.

When mounting the units side by side and routing the piping to the back, you must keep a distance of ≥ 250 mm between the units (instead of ≥ 100 mm as shown on the figures below).

Single unit | Single row of units

See "figure 1" [p. 2] on the inside of the front cover of this manual.

- A,B,C,D Obstacles (walls/baffle plates)
- E Obstacle (roof)
- a,b,c,d,e Minimum service space between the unit and obstacles A, B, C, D and E
- e_B Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle B
- e_D Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle D

- H_U Height of the unit
- H_B, H_D Height of obstacles B and D
- 1 Seal the bottom of the installation frame to prevent discharged air from flowing back to the suction side through the bottom of the unit.
- 2 Maximum two units can be installed.
-  Not allowed

Multiple rows of units

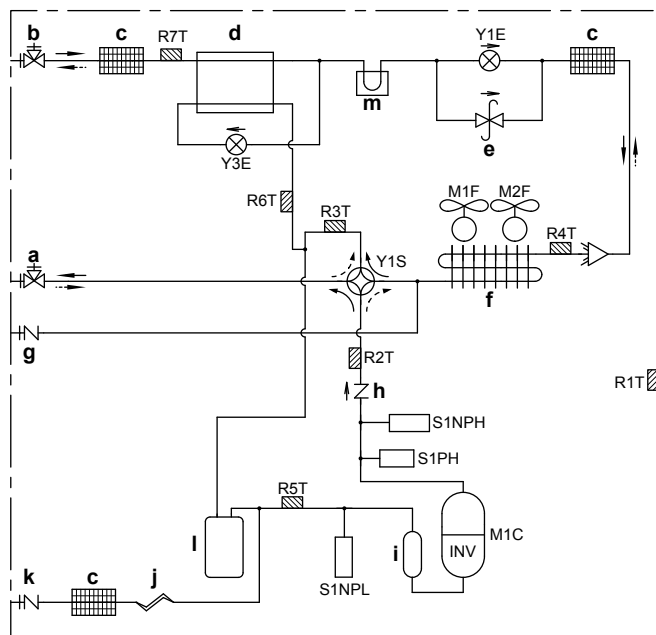
See "figure 2" [p. 2] on the inside of the front cover of this manual.

Stacked units (max. 2 levels)

See "figure 3" [p. 2] on the inside of the front cover of this manual.

- A1=>A2 (A1) If there is danger of drainage dripping and freezing between the upper and lower units...
(A2) Then install a **roof** between the upper and lower units. Install the upper unit high enough above the lower unit to prevent ice buildup at the upper unit's bottom plate.
- B1=>B2 (B1) If there is no danger of drainage dripping and freezing between the upper and lower units...
(B2) Then it is not required to install a roof, but **seal the gap** between the upper and lower units to prevent discharged air from flowing back to the suction side through the bottom of the unit.

20.2 Piping diagram: Outdoor unit



- a Stop valve (gas)
- b Stop valve (liquid)
- c Filter (3×)
- d Subcool heat exchanger
- e Pressure regulating valve
- f Heat exchanger
- g Service port (high pressure)
- h Check valve
- i Compressor accumulator
- j Capillary tube
- k Service port (refrigerant charge)
- l Accumulator
- m Heat sink PCB (only for RXYSQ4~6_V)
- M1C Compressor
- M1F-M2F Fan motor
- R1T Thermistor (air)
- R2T Thermistor (discharge)
- R3T Thermistor (suction 1)
- R4T Thermistor (heat exchanger)
- R5T Thermistor (suction 2)
- R6T Thermistor (subcool heat exchanger)
- R7T Thermistor (liquid pipe)
- S1NPH High pressure sensor
- S1NPL Low pressure sensor
- S1PH High pressure switch
- Y1E Electronic expansion valve (main)
- Y3E Electronic expansion valve (subcool heat exchanger)
- Y1S Solenoid valve (4-way valve)
- Heating
- Cooling

20.3 Wiring diagram: Outdoor unit

The wiring diagram is delivered with the unit, located at the inside of the service cover.

Notes for RXYSQ4~6_V:

- Symbols (see below).
- For X37A refer to the installation manual of the option.
- Refer to the installation or service manual on how to use BS1~BS5 push buttons, and DS1-1 and DS1-2 DIP switches.
- Do not operate the unit by short-circuiting protection device S1PH.
- Refer to the installation manual for indoor-outdoor transmission F1-F2 wiring.
- When using the central control system, connect outdoor-outdoor transmission F1-F2.

Notes for RXYSQ4~6_Y:

- Symbols (see below).
- For X37A refer to the installation manual of the option.
- Refer to the installation or service manual on how to use BS1~BS4 push buttons, and DS1-1 and DS1-2 DIP switches.
- Do not operate the unit by short-circuiting protection device S1PH.
- Refer to the installation manual for indoor-outdoor transmission F1-F2 wiring.
- When using the central control system, connect outdoor-outdoor transmission F1-F2.

Symbols:

- X1M Main terminal
- Earth wiring
- 15 Wire number 15
- Field wire
- Field cable
- **/12.2 Connection ** continues on page 12 column 2
- ① Several wiring possibilities

- Option
- Not mounted in switch box
- Wiring depending on model
- PCB

Legend for wiring diagram RXYSQ4~6_V:

- A1P Printed circuit board (main)
- A2P Printed circuit board (filter)
- A3P Printed circuit board (cool/heat selector) (option)
- BS Push buttons (mode, set, return, test, reset) (A1P)
- C1 Capacitor (A1P)
- DS1 DIP switch (A1P)
- F1U Fuse (T 56 A / 250 V) (A2P)
- F3U, F4U Fuse (T 6.3 A / 250 V) (A2P)
- F6U Fuse (T 5.0 A / 250 V) (A1P)
- H*P LED (service monitor orange) (A1P)
- HAP Running LED (service monitor green) (A1P)
- HBP Frequency LED (service monitor green) (A1P)
- K11M Magnetic contactor (A1P)
- K*R Magnetic relay (A1P)
- L*R Reactor (A1P)
- M1C Motor (compressor)
- M1F Motor (upper fan)
- M2F Motor (lower fan)
- PS Switching power supply (A1P)
- Q1DI Earth leakage circuit breaker (field supply)
- R* Resistor (A1P)
- R1T Thermistor (air)
- R2T Thermistor (discharge)
- R3T Thermistor (suction 1)
- R4T Thermistor (heat exchanger)

21 Disposal

R5T	Thermistor (suction 2)
R6T	Thermistor (subcool heat exchanger)
R7T	Thermistor (liquid pipe)
FINTH	Thermistor (fin)
S1NPH	High pressure sensor
S1NPL	Low pressure sensor
S1PH	High pressure switch
S1S	Air control switch (option)
S2S	Cool/heat selector switch (option)
V1R	IGBT power module (A1P)
V2R	Diode module (A1P)
V*T	Insulated gate bipolar transistor (IGBT) N-channel (A1P)
V*D	Diode (A1P)
X*A	PCB connector
X*M	Terminal strip
X*Y	Connector
X37A	Connector (power supply for option PCB)
Y1E	Electronic expansion valve (main)
Y3E	Electronic expansion valve (subcool heat exchanger)
Y1S	Solenoid valve (4-way valve)
Z*C	Noise filter (ferrite core)
Z*F (A*P)	Noise filter

Legend for wiring diagram RXYSQ4~6_Y:

A1P	Printed circuit board (main)
A2P	Printed circuit board (inverter)
BS*	Push buttons (mode, set, return, test, reset) (A1P)
C*	Capacitor (A2P)
DS1	DIP switch (A1P)
F1U, F2U	Fuse (T 31.5 A / 500 V) (A1P)
F1U	Fuse (T 5.0 A / 250 V) (A2P)
F3U, F4U, F5U	Fuse (T 6.3 A / 250 V) (A1P)
H*P	LED (service monitor orange) (A1P)
HAP	Running LED (service monitor green) (A*P)
K1M	Magnetic contactor (A2P)
K*R	Magnetic relay (A*P)
L1R	Reactor
M1C	Motor (compressor)
M1F	Motor (upper fan)
M2F	Motor (lower fan)
PS	Switching power supply (A2P)
Q1DI	Earth leakage circuit breaker (field supply)
R*	Resistor (A2P)
R1T	Thermistor (air)
R2T	Thermistor (discharge)
R3T	Thermistor (suction 1)
R4T	Thermistor (heat exchanger)
R5T	Thermistor (suction 2)
R6T	Thermistor (subcool heat exchanger)
R7T	Thermistor (liquid pipe)
R10T	Thermistor (fin)
S1NPH	High pressure sensor
S1NPL	Low pressure sensor

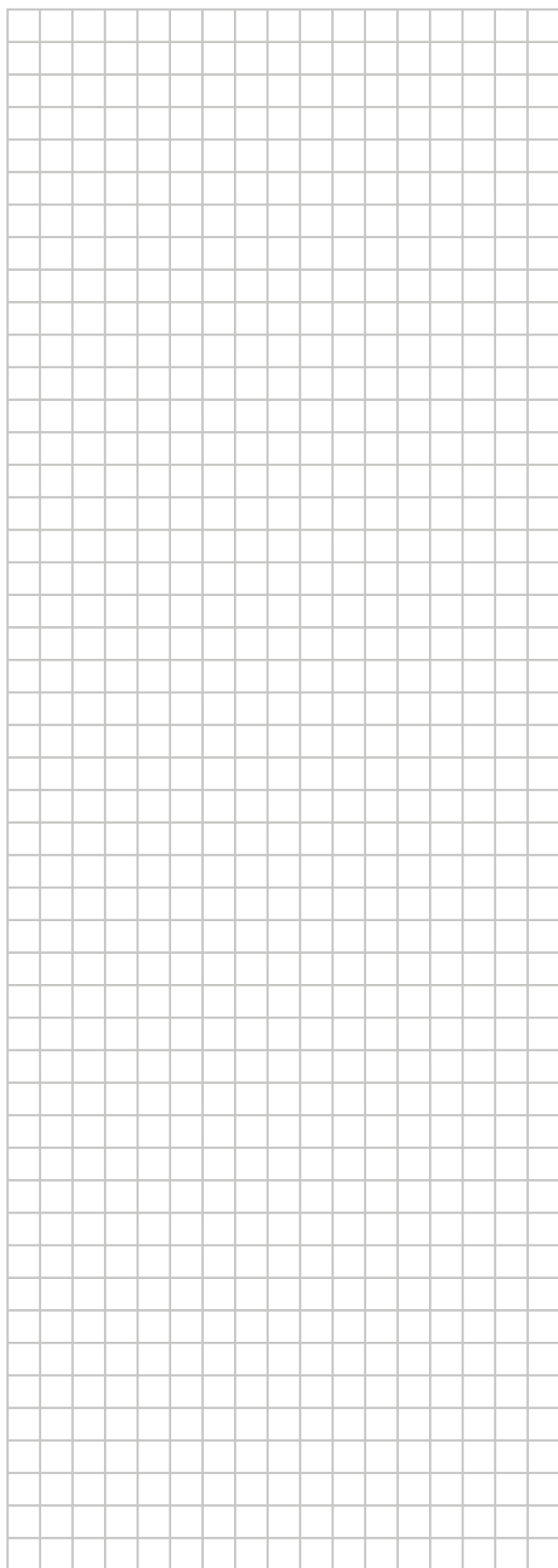
S1PH	High pressure switch
S1S	Air control switch (option)
S2S	Cool/heat selector switch (option)
V1R	IGBT power module (A2P)
V2R, V3R	Diode module (A2P)
X*A	PCB connector
X*M	Terminal strip
X*Y	Connector
X37A	Connector (power supply for option PCB)
Y1E	Electronic expansion valve (main)
Y3E	Electronic expansion valve (subcool heat exchanger)
Y1S	Solenoid valve (4-way valve)
Z*C	Noise filter (ferrite core)
Z*F	Noise filter

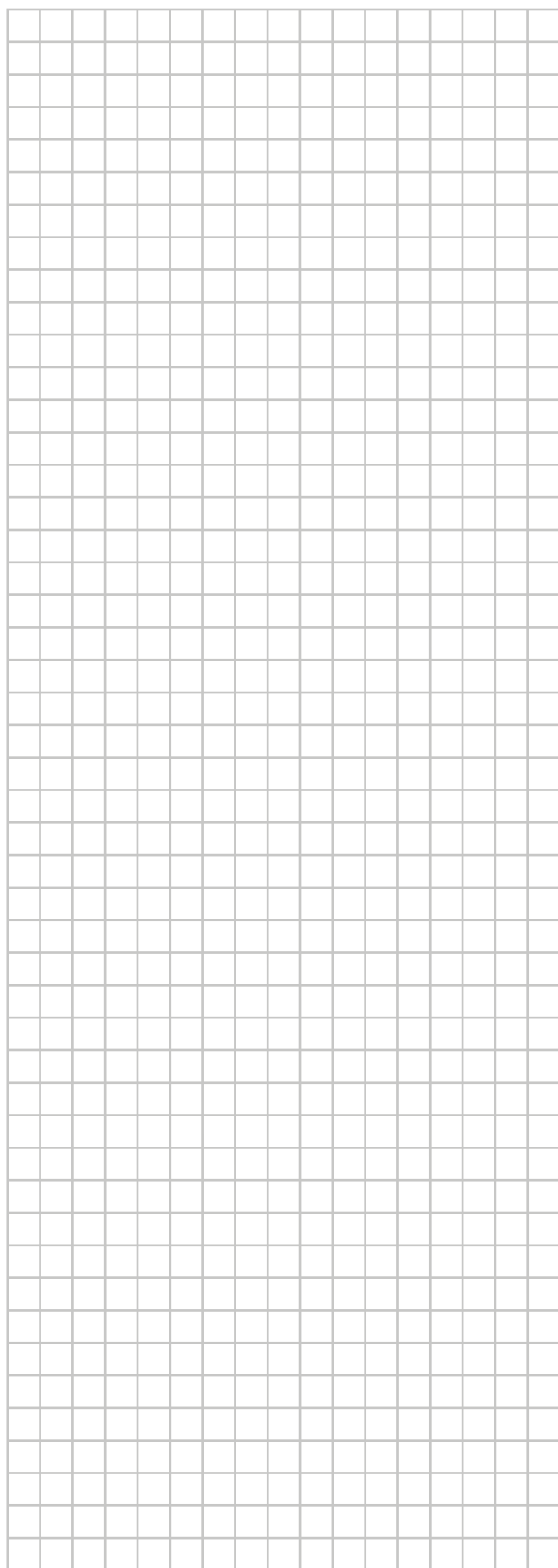
21 Disposal

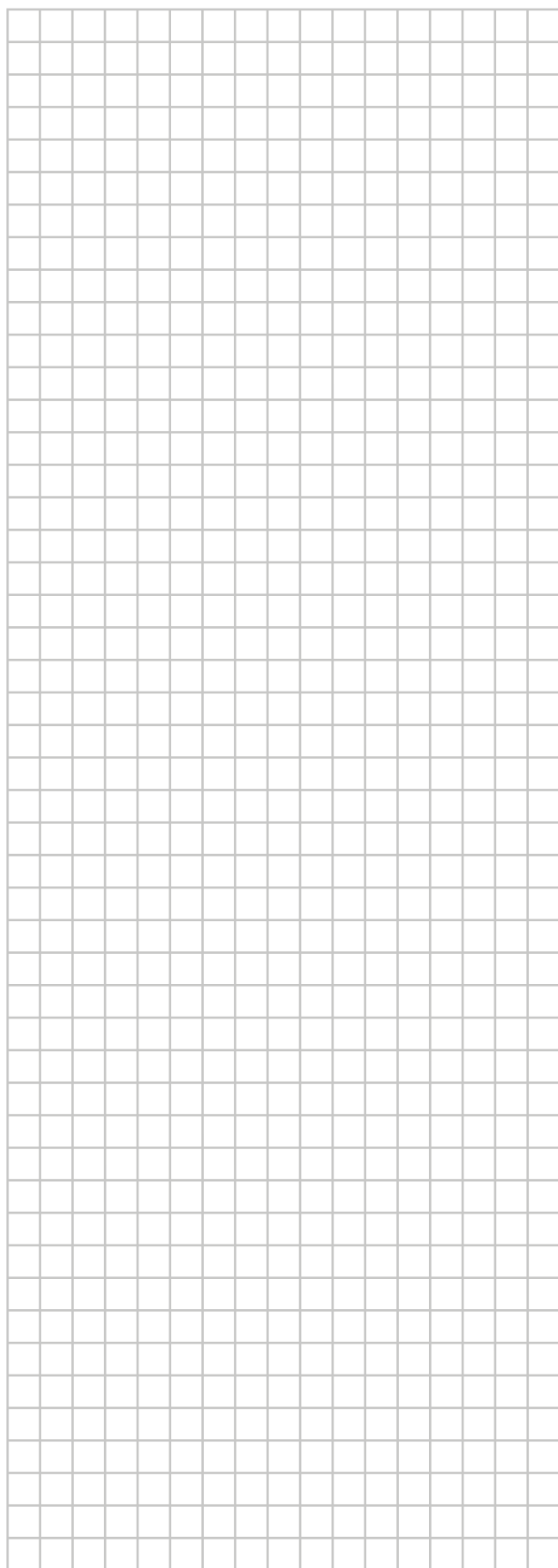


NOTICE

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.







ERC



4P482275-1 C 00000000

Copyright 2017 Daikin

DAIKIN EUROPE N.V.

Zandvoordestraat 300, B-8400 Oostende, Belgium

4P482275-1C 2025.11