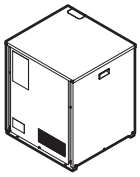
Installation and operation manual

VRV IV compressor unit for indoor installation



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Installation and operation manual
VRV IV compressor unit for indoor installation

English

Table of Contents

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 accessory bag of the compressor unit)
- **Compressor unit installation and operation manual:**
  - Installation and operation instructions
  - Format: Paper (in the accessory bag of the compressor unit)
- **Heat exchanger unit installation manual:**
  - Installation instructions
  - Format: Paper (in the accessory bag of the heat exchanger 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 them 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 spun 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 spun piping by brazing.

Any gas or oil remaining inside the stop valve may blow off the spun 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 use taped wires, extension cords, or connections from a star system. They can cause overheating, electrical shocks or fire.
- Do NOT install a phase advancing capacitor, because this unit is equipped with an inverter. A phase advancing capacitor will reduce performance and may cause accidents.

WARNING

- 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.

CAUTION

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

CAUTION

Do NOT perform the test operation while working on the indoor units.

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.

⚠ 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.

⚠ 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.

⚠ 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.

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.

CAUTION

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

4 About the system

The VRV IV heat pump for indoor installation can be used for heating/cooling applications.

WARNING

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

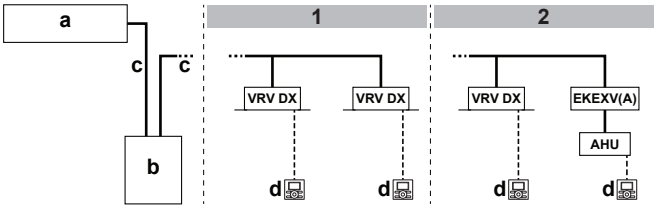
For future modifications or expansions of your system:

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.

4.1 System layout

INFORMATION

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



1	In case of VRV DX indoor units
2	In case of VRV DX indoor units combined with an air handling unit
a	Heat exchanger unit
b	Compressor unit
c	Refrigerant piping
d	User interface (dedicated depending on indoor unit type)
VRV DX	VRV direct expansion (DX) indoor unit
EKEXV(A)	Expansion valve kit
AHU	Air handling unit

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.

Specification		5 HP	8 HP
Maximum capacity	Heating	16.0 kW	25.0 kW
	Cooling	14.0 kW	22.4 kW
Outside ambient design temperature	Heating	–20~15.5°C WB	
	Cooling	–5~46°C DB	
Ambient design temperature of compressor unit and heat exchanger unit		5~35°C DB	
Maximum relative humidity around the compressor unit and heat exchanger unit	Heating	50%[a]	
	Cooling	80%[a]	

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 compressor unit, heat exchanger unit, and user interface.
- To protect the unit, turn on the main power switch 6 hours before operation.
- If the main power supply is turned off during operation, operation will restart automatically after the power turns back on again.
- When stopping the unit, the unit might still operate for a few minutes. This is not a malfunction.

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" [▸ 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.

6.2.3 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 heat exchanger unit's air cooled coil increases over time, restricting the energy transfer to the heat exchanger unit's coil. Heating capability decreases and the system needs to go into defrost operation to be able to remove frost from the heat exchanger 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 heat exchanger unit coil.

The indoor unit will indicate defrost operation on the display .

During defrost operation, ice melts and possibly evaporates. **Possible consequence:** Mist might be visible during or directly after defrost operation. This is not a malfunction.

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.

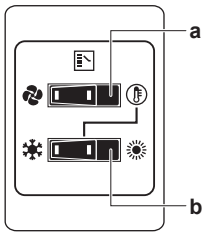
- Cooling operation
- Heating operation
- Fan only operation

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



a FAN ONLY/AIR CONDITIONING SELECTOR SWITCH

Set the switch to for fan only operation or to for heating or cooling operation.

b COOL/HEAT CHANGEOVER SWITCH

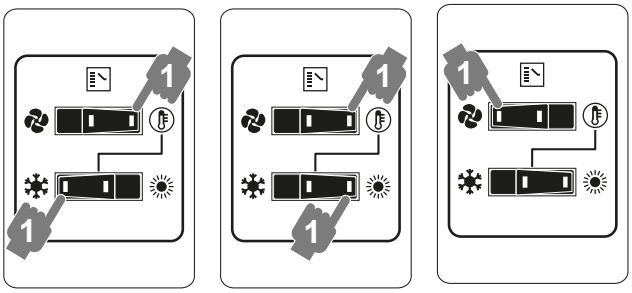
Set the switch to for cooling or to for heating

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°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" [▸ 8] 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.

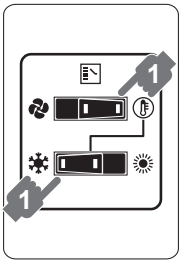
NOTICE

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" [▸ 8] 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

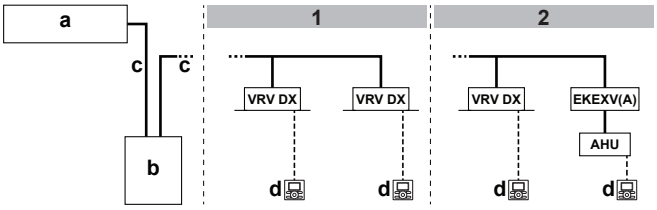
- The movable limit of the flap is changeable. Contact your dealer for details. (only for double-flow, multi-flow, corner, ceiling-suspended and wall-mounted).
- Avoid operating in the horizontal direction . It may cause dew or dust to settle on the ceiling or flap.

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.



1 In case of VRV DX indoor units
2 In case of VRV DX indoor units combined with an air handling unit
a Heat exchanger unit
b Compressor unit
c Refrigerant piping
d User interface (dedicated depending on indoor unit type)
VRV DX VRV direct expansion (DX) indoor unit
EKEXV(A) Expansion valve kit
AHU Air handling unit

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).

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.

NOTICE

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 benzine, thinner, chemical dust cloth, etc. The panel may get discoloured or the coating peeled off. If it is heavily dirty, soak a cloth in water-diluted neutral detergent, squeeze it well and wipe the panel clean. Wipe it with another dry cloth.

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 CO_2 equivalent.

Formula to calculate the quantity in CO_2 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 heat exchanger unit 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" [▶ 9] and "Maintenance" in the indoor unit manual.)
The system operates but cooling or heating is insufficient.	▪ Check if air inlet or outlet of heat exchanger unit or indoor unit is not blocked by obstacles. Remove any obstacle and make it well-ventilated. ▪ 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
A0	External protection device was activated
A1	EEPROM failure (indoor)
A3	Drain system malfunction (indoor)
A6	Fan motor malfunction (indoor)
A7	Swing flap motor malfunction (indoor)
A9	Expansion valve malfunction (indoor)
AF	Drain malfunction (indoor unit)
AH	Filter dust chamber malfunction (indoor)
AJ	Capacity setting malfunction (indoor)
C1	Transmission malfunction between main PCB and sub PCB (indoor)
C4	Heat exchanger thermistor malfunction (indoor; liquid)
C5	Heat exchanger thermistor malfunction (indoor; gas)
C9	Suction air thermistor malfunction (indoor)
CA	Discharge air thermistor malfunction (indoor)
CE	Movement detector or floor temperature sensor malfunction (indoor)
CJ	User interface thermistor malfunction (indoor)
E0	Fan or drain pump malfunction (heat exchanger unit)
E1	PCB malfunction (compressor unit)
E2	Current leakage detector was activated (compressor unit)
E3	High pressure switch was activated
E4	Low pressure malfunction (compressor unit)
E5	Compressor lock detection (compressor unit)
E9	Electronic expansion valve malfunction (compressor unit or heat exchanger unit)
F3	Discharge temperature malfunction (compressor unit)
F4	Abnormal suction temperature (compressor unit)
F6	Refrigerant overcharge detection
H3	High pressure switch malfunction
H4	Low pressure switch malfunction
H9	Ambient temperature sensor malfunction (heat exchanger unit)
J1	Pressure sensor malfunction
J2	Current sensor malfunction
J3	Discharge temperature sensor malfunction (compressor unit)
J4	Heat exchanger gas temperature sensor malfunction (heat exchanger unit)
J5	Suction temperature sensor malfunction (compressor unit)
J6	De-icing temperature sensor malfunction (heat exchanger unit)
J7	Liquid temperature sensor (after subcool HE) malfunction (compressor unit)
J9	Gas temperature sensor (after subcool HE) malfunction (compressor unit)
JA	High pressure sensor malfunction (BIPH)
JC	Low pressure sensor malfunction (BIPL)
L1	INV PCB abnormal
L4	Fin temperature abnormal
L5	Inverter PCB faulty
L8	Compressor over current detected
L9	Compressor lock (startup)
LC	Transmission compressor unit - inverter: INV transmission trouble
P1	INV unbalanced power supply voltage
P4	Fin thermistor malfunction
PJ	Heat exchanger unit capacity setting malfunction.
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/heat exchanger unit/compressor unit
U5	Abnormal user interface - indoor communication
U8	Abnormal main-sub user interface communication
U9	System mismatch. Wrong type of indoor units combined. Indoor unit malfunction. Heat exchanger unit malfunction.
UA	Connection malfunction over indoor units or type mismatch (wrong type of indoor units or heat exchanger unit)
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 all indoor units. 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 in pressed. During heating operation, when the room temperature reaches the set temperature, the compressor 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 "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.

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.

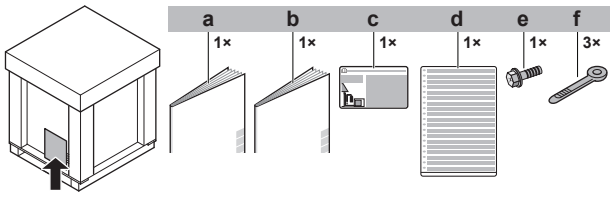
11.1 About LOOP

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 Compressor unit

11.2.1 To remove the accessories from the compressor unit

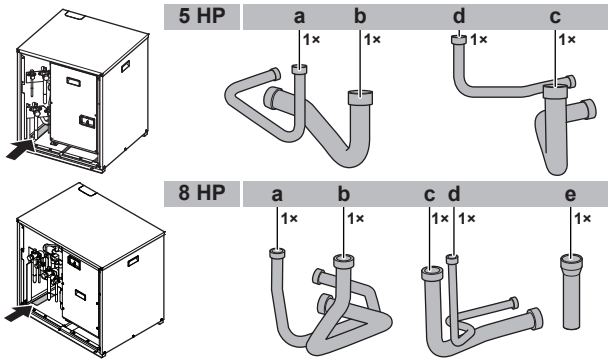
1 Remove the accessories (part 1).



a General safety precautions
b Compressor unit installation and operation manual
c Fluorinated greenhouse gases label
d Multilingual fluorinated greenhouse gases label
e Screw (only needed in case 5 HP for shield of interconnection wiring) (see "15.4 To connect the electrical wiring on the compressor unit" [▶ 25])
f Cable tie

2 Remove the service cover. See "13.2.1 To open the compressor unit" [▶ 15].

3 Remove the accessories (part 2).



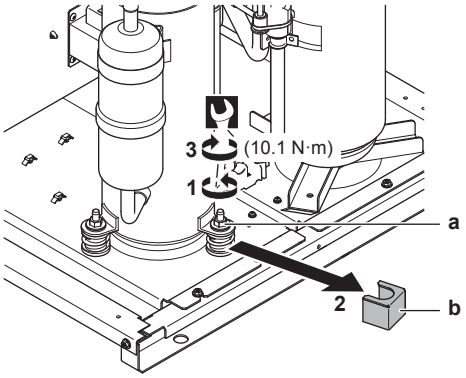
a+b	Piping accessories for circuit 1 (to the heat exchanger unit)		
		5 HP	8 HP
	a Liquid	Ø12.7 mm	Ø12.7 mm
	b Gas	Ø19.1 mm	Ø22.2 mm
c+d	Piping accessories for circuit 2 (to the indoor units)		
		5 HP	8 HP
	c Gas	Ø15.9 mm	Ø19.1 mm
	d Liquid	Ø9.5 mm	Ø9.5 mm
e	Piping adapter (Ø19.1→22.2 mm) that you need when connecting piping to the heat exchanger unit (only for 8 HP)		

11.2.2 To remove the transportation stay

Only for RKXYQ5.

NOTICE

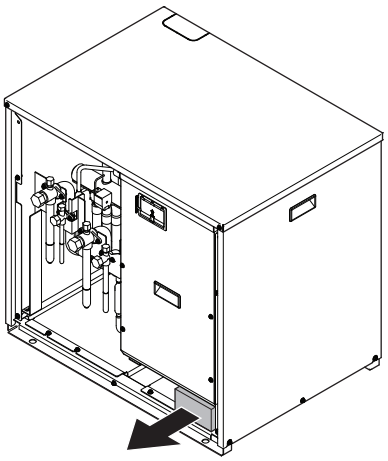
If the unit is operated with the transportation stay attached, abnormal vibration or noise may be generated.



11.2.3 To remove the transportation EPS

Only for RKXYQ8.

1 Remove the EPS. The EPS protects the unit during transport.



12 About the units and options

12.1 About the compressor unit and heat exchanger unit

The compressor unit and heat exchanger unit are intended for indoor installation and aimed for air to air heat pump applications.

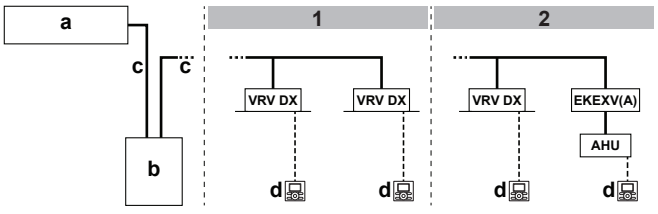
Specification		5 HP	8 HP
Maximum capacity	Heating	16.0 kW	25.0 kW
	Cooling	14.0 kW	22.4 kW
Outside ambient design temperature	Heating	–20~15.5°C WB	
	Cooling	–5~46°C DB	
Ambient design temperature of compressor unit and heat exchanger unit		5~35°C DB	
Maximum relative humidity around the compressor unit and heat exchanger unit	Heating	50%(a)	
	Cooling	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.

12.2 System layout

INFORMATION

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



1 In case of VRV DX indoor units
2 In case of VRV DX indoor units combined with an air handling unit
a Heat exchanger unit
b Compressor unit
c Refrigerant piping
d User interface (dedicated depending on indoor unit type)
VRV DX VRV direct expansion (DX) indoor unit
EKEXV(A) Expansion valve kit
AHU Air handling unit

12.3 Combining units and options

INFORMATION

Certain options may NOT be available in your country.

12.3.1 Possible options for the compressor unit and heat exchanger unit

For more possible options, see the installer and user reference guide.

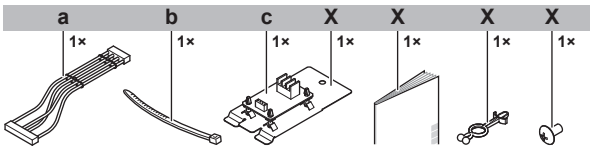
Cool/heat selector

In order to control the cooling or heating operation from a central location, the following option can be connected:

Description	5 HP	8 HP
Cool/heat selector switch	KRC19-26A	
Cool/heat selector cable	EKCHSC	—
Cool/heat selector PCB	—	BRP2A81(a)
With optional fixing box for the switch	KJB111A	

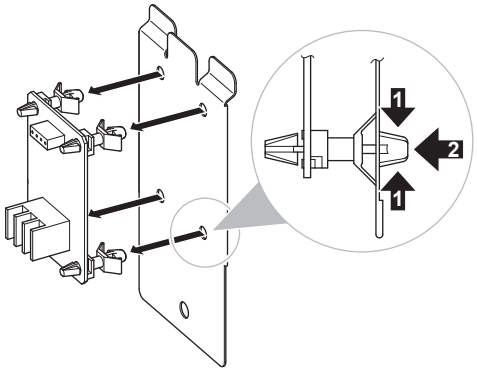
(a) To install BRP2A81, proceed as follows:

1 Check the components of BRP2A81. You do NOT need all of them.

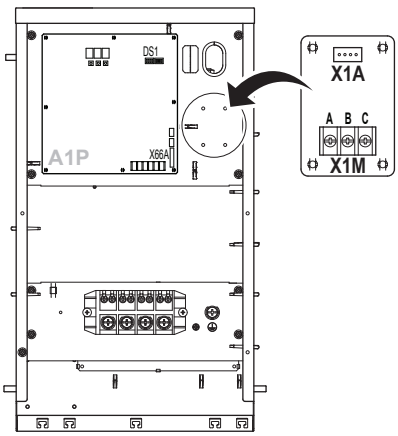


a Cable
b Cable tie
c PCB
X Not needed

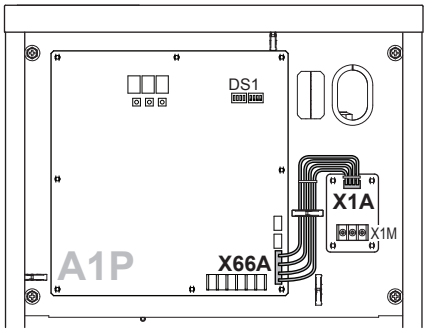
2 Remove the mounting plate from the PCB.



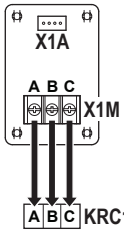
3 Mount the PCB.



4 Connect the cable.

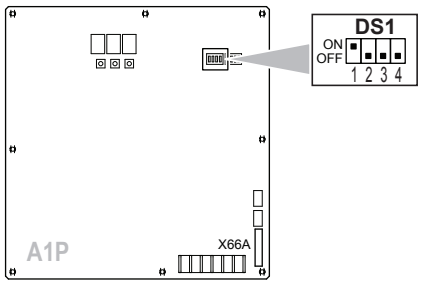


5 Connect the cool/heat selector switch. Tightening torque X1M (A/B/C): 0.53~0.63 N•m



6 Fix the cables with cable ties.

7 Turn ON the DIP switch (DS1-1).



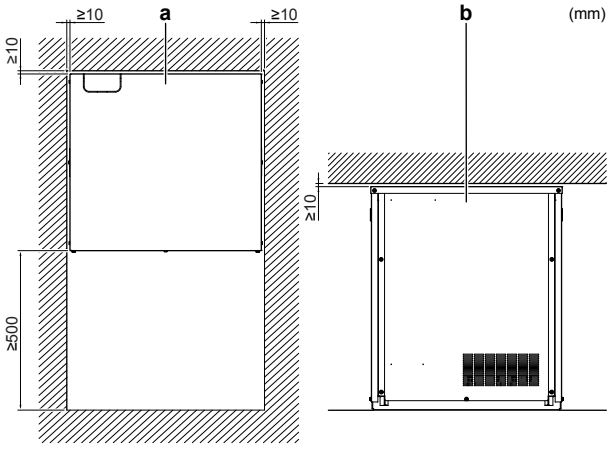
8 Perform a test run. See the "Commissioning" chapter.

13 Unit installation

13.1 Preparing the installation site

13.1.1 Installation site requirements of the compressor unit

- **Service space.** Mind the following requirements:



a Top view
b Front view

CAUTION

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

These units (compressor unit, heat exchanger unit and indoor units) are suitable for installation in a commercial and light industrial environment.

NOTICE

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

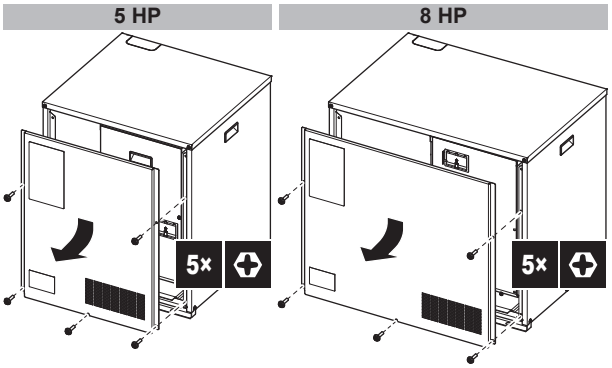
13.2 Opening the unit

13.2.1 To open the compressor unit

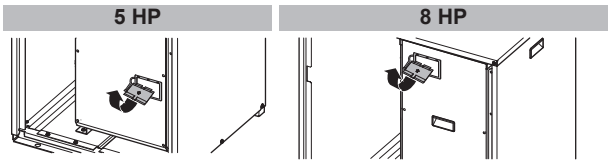
DANGER: RISK OF BURNING/SCALDING

DANGER: RISK OF ELECTROCUTION

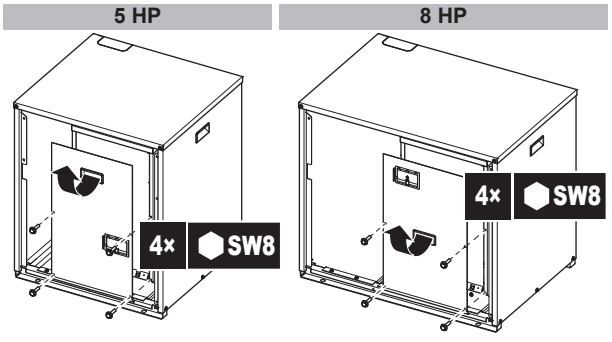
1 Remove the service cover of the compressor unit.



2 If you want to make **field settings**, remove the inspection cover.



3 If you want to connect **electrical wiring**, remove the switch box cover.



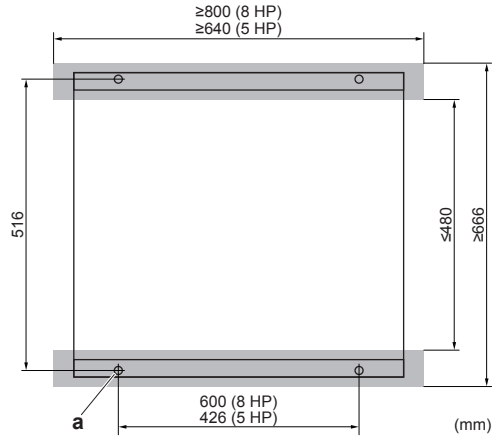
13.3 Mounting the compressor unit

13.3.1 Guidelines when installing the compressor unit

Check the strength and level of the installation ground so that the unit will not cause any operating vibration or noise. If the vibration might be transmitted to the building, use a vibration-proof rubber (field supply).

You can install the compressor unit directly on the floor or on a structure.

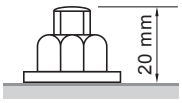
- **On the floor.** You do NOT have to fix the unit with anchor bolts.
- **On a structure.** Fix the unit securely with anchor bolts, nuts and washers (field supply) to the structure. The foundation (steel beam frame or concrete) must be larger than the grey marked area.



Minimum foundation
a Anchor point (4×)

INFORMATION

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



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
- **Piping temper grade and thickness:**

Outer diameter (Ø)	Temper grade	Thickness (t)[a]	
6.4 mm (1/4") 9.5 mm (3/8") 12.7 mm (1/2")	Annealed (O)	≥0.80 mm	
15.9 mm (5/8")	Annealed (O)	≥0.99 mm	
19.1 mm (3/4") 22.2 mm (7/8")	Half hard (1/2H)	≥0.80 mm	

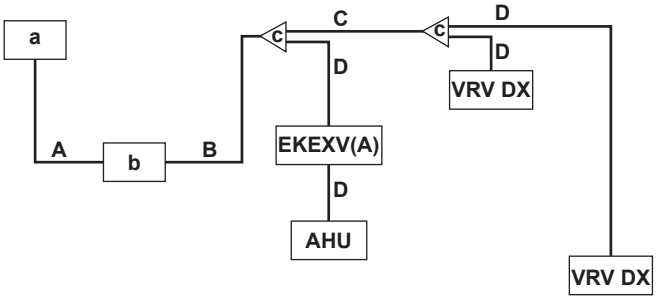
[a] Depending on the applicable legislation and the maximum working pressure of the unit (see "PS High" on the unit name plate), larger piping thickness might be required.

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

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



a Heat exchanger unit
b Compressor unit
c Refrigerant branch kit
VRV DX VRV DX indoor unit
EKEXV(A) Expansion valve kit
AHU Air handling unit
A Piping between heat exchanger unit and compressor unit
B Piping between compressor unit and (first) refrigerant branch kit (= main pipe)
C Piping between refrigerant branch kits
D Piping between refrigerant branch kit and 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" [▸ 22].

A: Piping between heat exchanger unit and compressor unit

Use the following diameters:

Compressor unit capacity type	Piping outer diameter size (mm)	
	Gas pipe	Liquid pipe
5 HP	19.1	12.7
8 HP	22.2	

B: Piping between compressor unit and first refrigerant branch kit

Use the following diameters:

Compressor unit capacity type	Piping outer diameter size (mm)			
	Gas pipe		Liquid pipe	
	Standard	Size-up	Standard	Size-up
5 HP	15.9	19.1	9.5	—
8 HP	19.1	22.2	9.5	12.7

Standard ↔ Size-up:

If		Then
The equivalent pipe length between the heat exchanger unit and the furthest indoor unit is 90 m or more	5 HP	It is **recommended to increase** the size (size-up) of the **main gas pipe** (between compressor unit and first refrigerant branch kit). If the recommended gas pipe (size-up) is not available, you must use the standard size (which might result in a small capacity decrease).
	8 HP	▪ You **must increase** the size (size-up) of the **main liquid pipe** (between compressor unit and first refrigerant branch kit). ▪ It is **recommended to increase** the size (size-up) of the **main gas pipe** (between compressor unit and first refrigerant branch kit). If the recommended gas pipe (size-up) is not available, you must use the standard size (which might result in a small capacity decrease).

C: Piping between refrigerant branch kits

Use the following diameters:

Indoor unit capacity index	Piping outer diameter size (mm)	
	Gas pipe	Liquid pipe
<150	15.9	9.5
150≤x<200	19.1	
200≤x<260	22.2	

D: 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
200	19.1	
250	22.2	

14.1.4 To select refrigerant branch kits

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

Refnet joint at first branch (counting from the compressor unit)

When using refnet joints at the first branch counted from the compressor unit side, choose from the following table in accordance with the capacity of the compressor unit. **Example:** Refnet joint c (B→C/D).

Compressor unit capacity type	Refrigerant branch kit
5 HP	KHRQ22M20TA
8 HP	KHRQ22M29T9

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 c (C→D/D).

Indoor unit capacity index	Refrigerant branch kit
<200	KHRQ22M20TA
200≤x<260	KHRQ22M29T9

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.

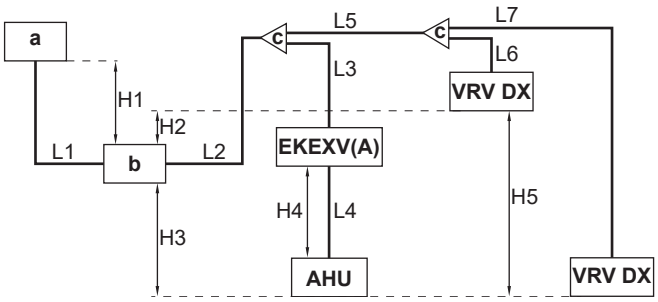
Indoor unit capacity index	Refrigerant branch kit
<260	KHRQ22M29H

INFORMATION

Maximum 8 branches can be connected to a header.

14.1.5 Refrigerant piping length and height difference

The piping lengths and height differences must comply with the following requirements.



a Heat exchanger unit
b Compressor unit
c Refrigerant branch kit
VRV DX VRV DX indoor unit
EKEXV(A) Expansion valve kit
AHU Air handling unit
H1~H5 Height differences
L1~L7 Piping lengths

Minimum and maximum piping lengths			
1	Heat exchanger unit → Compressor unit		L1≤30 m
2	Actual piping length (equivalent piping length)[(a)]		L2+L3+L4≤70 m (90 m) L2+L5+L6≤70 m (90 m) L2+L5+L7≤70 m (90 m)
3	Total piping length (x=L1+L2+L3+L4+L5+L6+L7)		
		Minimum	10 m≤x
		Maximum in case of 8 HP	x≤300 m
		Maximum in case of 5 HP	If: L1≤30 m → Then: x≤115 m If: L1≤25 m → Then: x≤120 m If: L1≤20 m → Then: x≤125 m If: L1≤15 m → Then: x≤130 m If: L1≤10 m → Then: x≤135 m If: L1≤5 m → Then: x≤140 m
4	EKEXV(A) → AHU		L4≤5 m

5	First branch kit → Indoor unit/ AHU	L3+L4≤40 m L5+L6≤40 m L5+L7≤40 m
Maximum height differences[b]		
1	Heat exchanger unit ↔ Compressor unit	H1≤10 m
2	Compressor unit ↔ Indoor unit	H2≤30 m H3≤30 m
3	EKEXV(A) ↔ AHU	H4≤5 m
4	Indoor unit ↔ Indoor unit	H5≤15 m

(a) Assume equivalent piping length of refnet joint=0.5 m and refnet header=1 m (for calculation purposes of equivalent piping length, not for refrigerant charge calculations).
(b) Either unit can be the highest unit.

14.2 Connecting the refrigerant piping

DANGER: RISK OF BURNING/SCALDING

14.2.1 Using the stop valve and service port

To handle the stop valve

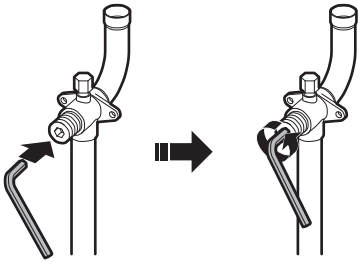
Take the following guidelines into account:

- 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 the stop valve

1 Remove the stop valve cover.

2 Insert a hexagon wrench into the stop valve and turn the stop valve counterclockwise.



3 When the stop valve cannot be turned any further, stop turning.

4 Install the stop valve cover.

Result: The valve is now open.

To fully open the Ø19.1 mm stop valve, turn the hexagonal wrench until a torque between 27 and 33 N•m is achieved.

Inadequate torque may cause leakage of refrigerant and breakage of the stop valve cap.

NOTICE

Pay attention that mentioned torque range is applicable for opening Ø19.1 mm stop valves only.

To close the stop valve

1 Remove the stop valve cover.

2 Insert a hexagon wrench into the stop valve and turn the stop valve clockwise.

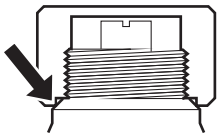
3 When the stop valve cannot be turned any further, stop turning.

4 Install the stop valve cover.

Result: The valve is now 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
Ø12.7	8.1~9.9		18.0~22.0	
Ø19.1	27.0~33.0	8 mm	22.5~27.5	

14.2.2 To remove the pinched pipes

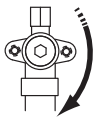
WARNING

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

Failure to observe the instructions in procedure below properly may result in property damage or personal injury, which may be serious depending on the circumstances.

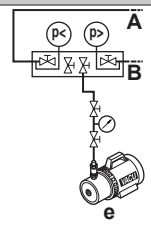
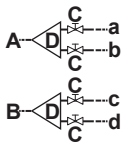
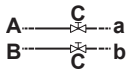
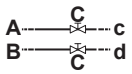
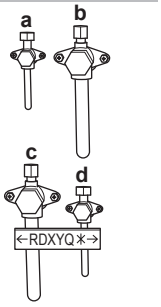
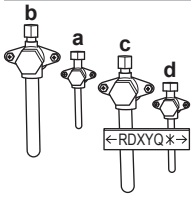
Use the following procedure to remove the pinched piping:

1 Make sure that the stop valves are fully closed.



2 Connect the vacuuming/recovery unit through a manifold to the service port of all stop valves.

You have to recover gas and oil from all 4 pinched pipes. Depending on your available tools, use method 1 (manifold with refrigerant line splitters required) or method 2.

Manifold	Connections	Compressor unit
	**Method 1:** Connect to all service ports at once.  **Method 2:** First connect to the first 2 service ports.  Then connect to the last 2 service ports. 	**5 HP**  **8 HP** 

a, b, c, d Service ports of stop valves
e Vacuuming/recovery unit
A, B, C Valves A, B and C
D Refrigerant line splitter

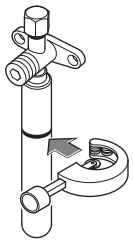
3 Recover gas and oil from the pinched piping by using a recovery unit.

CAUTION

Do NOT vent gases into the atmosphere.

4 When all gas and oil is recovered from the pinched piping, disconnect the charge hose and close the service ports.

5 Cut off the lower part of the gas and liquid stop valve pipes along the black line. Use an appropriate tool (e.g. a pipe cutter).



WARNING

NEVER remove the pinched piping by brazing.

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

6 Wait until all oil has dripped out before continuing with the connection of the field piping in case the recovery was not complete.

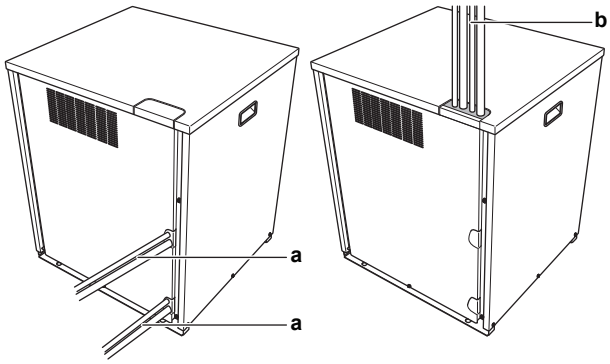
14.2.3 To connect the refrigerant piping to the compressor unit

NOTICE

- Be sure to use the supplied accessory pipes when carrying out piping work in the field.
- Be sure that the field installed piping does not touch other pipes, the bottom panel or side panel.

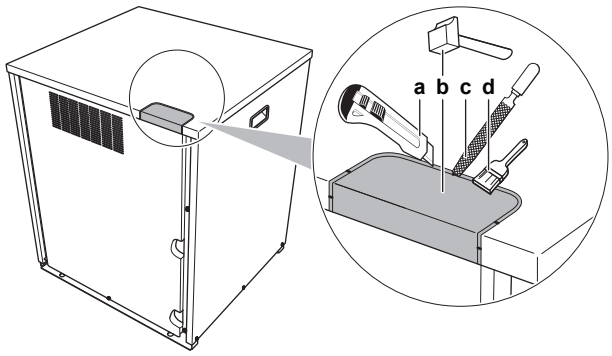
1 Remove the service cover. See "13.2.1 To open the compressor unit" [▸ 15].

2 Choose a piping route (a or b).



a To the back
b To the top

3 If you have chosen the piping route to the top:



a Cut the insulation (under the knockout hole).
b Hit on the knockout hole, and remove it.
c Remove the burrs.
d Paint the edges and areas around the edges using repair paint to prevent rusting.

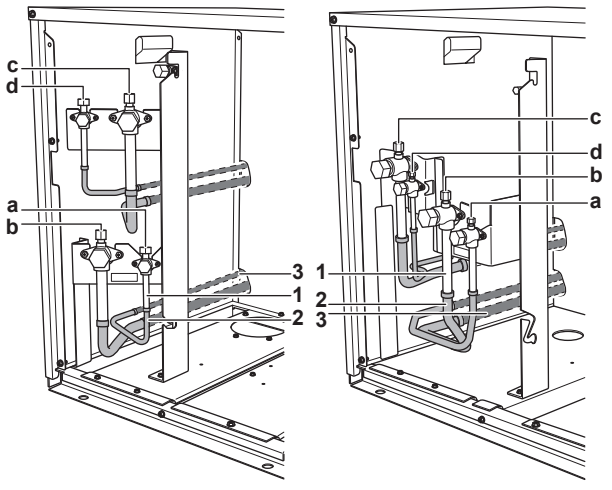
NOTICE

Precautions when making knockout holes:

- Avoid damaging the casing.
- After making the knockout holes, we recommend you 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.

4 Connect piping (by brazing) as follows:

5 HP | **8 HP**

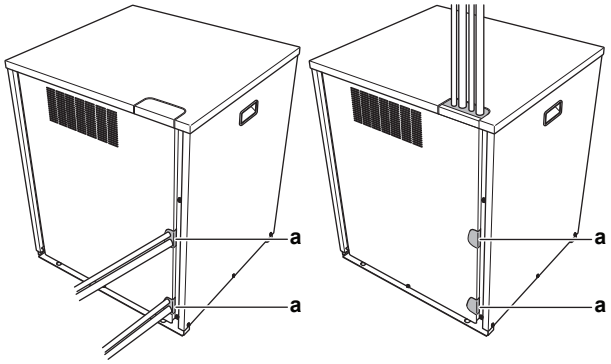


a Liquid line (circuit 1: to heat exchanger unit)

b Gas line (circuit 1: to heat exchanger unit)
c Gas line (circuit 2: to indoor units)
d Liquid line (circuit 2: to indoor units)
1 Pinched piping
2 Piping accessory
3 Field piping

5 Reattach the service cover.

6 Seal all gaps (example: a) to prevent small animals from entering the system.

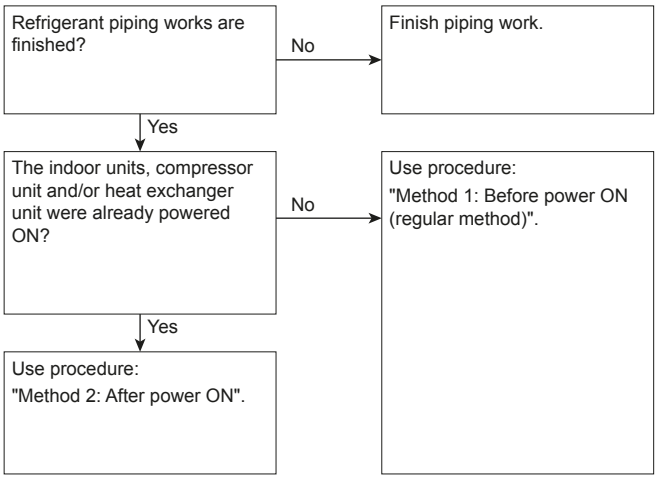


WARNING

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.

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 (compressor unit, heat exchanger unit or indoor units) are powered on.

When the units are powered on, the expansion valves will initialise. This means that they will close. Leak test and vacuum drying of field piping, heat exchanger unit and indoor units is impossible when this happens.

Therefore, there will be explained 2 methods for initial installation, leak test and vacuum drying.

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 R410A piping pathway and make it possible to perform the leak test and the vacuum drying.

NOTICE

Make sure that the heat exchanger unit and all indoor units connected to the compressor unit are powered on.

NOTICE

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

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 compressor 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 compressor 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" [▸ 20].

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" [▸ 20]).

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

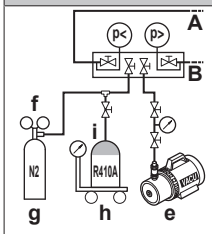
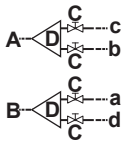
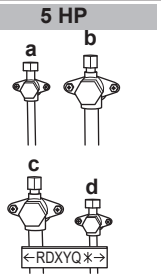
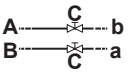
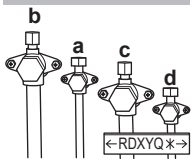
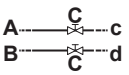
The system contains 2 refrigerant circuits:

- **Circuit 1:** Compressor unit → Heat exchanger unit
- **Circuit 2:** Compressor unit → Indoor units

You have to check both circuits (leak test, vacuuming drying). How to check depends on your available tools:

If you have a manifold…	Then
With refrigerant line splitters	You can check both circuits at once. To do so, connect the manifold via the splitters to both circuits, and check.
Without refrigerant line splitters (takes twice as long)	You have to check the circuits separately. To do so: ▪ First connect the manifold to **circuit 1**, and check. ▪ Then connect the manifold to **circuit 2**, and check.

Possible connections:

Manifold	Connections	Compressor unit
	Circuit 1 and 2 together 	5 HP 
	Only circuit 1 	8 HP 
	Only circuit 2 	

a Liquid line stop valve (circuit 1: to heat exchanger unit)
b Gas line stop valve (circuit 1: to heat exchanger unit)
c Gas line stop valve (circuit 2: to indoor units)
d Liquid line stop valve (circuit 2: to indoor units)
e Vacuum pump
f Pressure reducing valve
g Nitrogen
h Weighing scales
i Refrigerant R410A tank (siphon system)
A, B, C Valves A, B and C
D Refrigerant line splitter

Valve	Status
Valves A, B and C	Open
Liquid line and gas line stop valves (a, b, c, d)	Close

NOTICE

The connections to the indoor units and to the heat exchanger unit, and all indoor units and the heat exchanger unit itself 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 2 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 1 hour.

3 Should you fail to reach the target vacuum within 2 hours or maintain the vacuum for 1 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 compressor unit stop valves, or keep them closed. See "14.4.3 To charge refrigerant" [▶ 22] for more information.

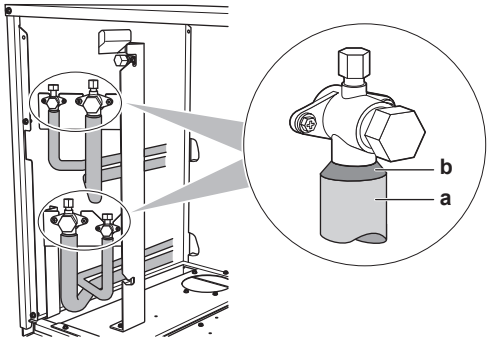
14.3.6 To insulate the refrigerant piping

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 or into the heat exchanger unit through gaps in the insulation and piping because the compressor unit is located higher than the indoor unit or higher than the heat exchanger 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 compressor unit, heat exchanger unit and indoor units are turned on, the compressor will not operate before the communication is established in a correct way between the compressor unit, heat exchanger unit and indoor units.

NOTICE

Before starting charging procedures:

- In case of 5 HP: Check if the 7-LEDs display is as normal (see "16.1.4 To access mode 1 or 2" [▶ 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" [▶ 35].
- In case of 8 HP: Check if the 7-segment display indication of the compressor unit A1P PCB is as normal (see "16.1.4 To access mode 1 or 2" [▶ 27]). If a malfunction code is present, see "19.1 Solving problems based on error codes" [▶ 35].

NOTICE

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

14.4.2 To determine the additional refrigerant amount

Formula:

$R=[(X_1\times\mathbf{Ø12.7})\times0.12+(X_2\times\mathbf{Ø9.5})\times0.059+(X_3\times\mathbf{Ø6.4})\times0.022]\times A+B$

R Additional refrigerant to be charged [in kg and rounded off to 1 decimal place]
$X_{1...3}$ Total length [m] of liquid piping size at **Øa**
A, B Parameters A and B

Parameters A and B:

Model	A	B
RKXYQ5	0.8	3.1 kg
RKXYQ8	1.0	2.6 kg

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
Ø12.7 mm	0.12	Ø12 mm	0.097

14.4.3 To charge refrigerant

Charging refrigerant consists of 2 stages:

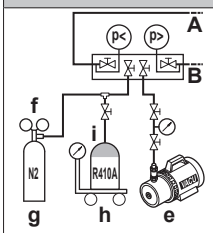
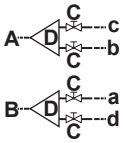
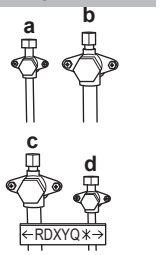
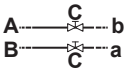
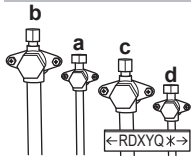
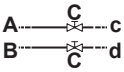
Stage	Description
Stage 1: Pre-charging	Recommended in case of larger systems. Can be skipped, but charging will take longer then.
Stage 2: Manual charging	Only necessary if the determined additional refrigerant amount is **not reached** yet by pre-charging.

Stage 1: Pre-charging

Summary – Pre-charging:	
Refrigerant bottle	Connected to the service ports of the stop valves. Which stop valves to use depends on the circuits you choose to pre-charge to: ▪ Circuits 1 and 2 together (manifold with refrigerant line splitters required). ▪ First circuit 1, then circuit 2 (or vice versa). ▪ Only circuit 1 ▪ Only circuit 2
Stop valves	Closed
Compressor	Does NOT operate

1 Connect as shown (choose one of the possible connections). Make sure that all compressor unit stop valves, as well as valve A are closed.

Possible connections:

Manifold	Connections	Compressor unit
	Circuit 1 and 2 together 	5 HP 
	Only circuit 1 	8 HP 
	Only circuit 2 	

a Liquid line stop valve (circuit 1: to heat exchanger unit)

b Gas line stop valve (circuit 1: to heat exchanger unit)
c Gas line stop valve (circuit 2: to indoor units)
d Liquid line stop valve (circuit 2: to indoor units)
e Vacuum pump
f Pressure reducing valve
g Nitrogen
h Weighing scales
i Refrigerant R410A tank (siphon system)
A, B, C Valves A, B and C
D Refrigerant line splitter

2 Open valves C (on line of B) 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:

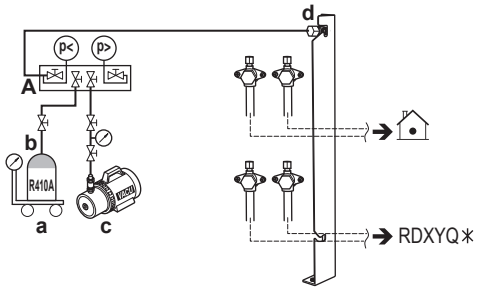
If	Then
The determined additional refrigerant amount is **reached**	Disconnect the manifold from the liquid line(s). You do not have to perform the "Stage 2" instructions.
Too much refrigerant is charged	Recover refrigerant until the determined additional refrigerant is reached. Disconnect the manifold from the liquid line(s). You do not have to perform the "Stage 2" instructions.
The determined additional refrigerant amount is **not reached** yet	Disconnect the manifold from the liquid line(s). Continue with the "Stage 2" instructions.

Stage 2: Manual charging

(= charging in the "Manual additional refrigerant charge" mode)

Summary – Manual charging:	
Refrigerant bottle	Connected to the service port for refrigerant charge. This charges to both circuits, and to the compressor unit's internal refrigerant piping.
Stop valves	Open
Compressor	Operates

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 compressor unit stop valves. At this point, valve A must remain closed!

7 Take all the precautions mentioned in "16 Configuration" [▶ 26] and "17 Commissioning" [▶ 33] into account.

8 Turn on the power of the indoor units, compressor unit and heat exchanger unit.

9 Activate setting [2-20] to start the manual additional refrigerant charge mode. For details, see "16.1.8 Mode 2: field settings" [▶ 30].

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" [▶ 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

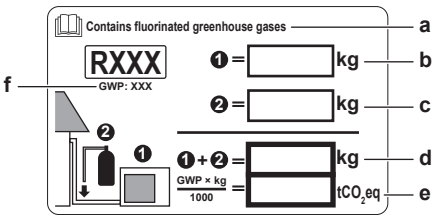
If a malfunction occurs:

- In case of 5 HP: The error code is displayed on the user interface of the indoor unit.
- In case of 8 HP: The error code is displayed on the compressor unit's 7-segments display and 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" [▶ 35].

14.4.5 To fix the fluorinated greenhouse gases label

1 Fill in the label as follows:



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 CO_2 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 CO_2 equivalent.

Formula to calculate the quantity in CO_2 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 compressor unit. There is a dedicated place for it on the wiring diagram label.

15 Electrical installation

DANGER: RISK OF ELECTROCUTION

WARNING

ALWAYS use multicore cable for power supply cables.

15.1 About electrical compliance

Only for RKXYQ8

This equipment complies with:

- **EN/IEC 61000-3-12** provided that the short-circuit power S_{sc} is greater than or equal to the minimum S_{sc} value at the interface point between the user's supply and the public system.
  - EN/IEC 61000-3-12 = European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase.
  - It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected ONLY to a supply with a short-circuit power S_{sc} greater than or equal to the minimum S_{sc} value.

Model	Minimum S_{sc} value
RKXYQ8	3329 kVA

15.2 Safety device requirements

NOTICE

When using residual current operated circuit breakers, be sure to use a high-speed type 300 mA rated residual operating current.

Power supply: Compressor unit

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.

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
RKXYQ5	13.5 A	16 A
RKXYQ8	17.4 A	20 A

- Phase and frequency: 3N~ 50 Hz
- Voltage: 380-415 V

Interconnection wiring

Interconnection line section:

Interconnection wiring	Sheathed + shielded cable (2 wires) Vinyl cords 0.75~1.25 mm² (using shielded cable for the interconenction wiring is mandatory for 5 HP, and optional for 8 HP)
Maximum wiring length (= distance between compressor unit and furthest indoor unit)	300 m
Total wiring length (= distance between compressor unit and all indoor units, and between compressor unit and heat exchanger unit)	600 m

If the total interconnection wiring exceeds these limits, it may result in communication error.

15.3 Field wiring: Overview

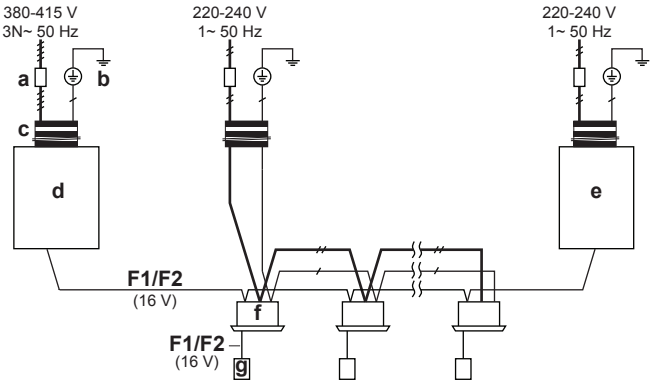
Field wiring consists of:

- Power supply (always including earth)
- Communication (= interconnection) wiring between the compressor unit, the heat exchanger unit, and the indoor units.

Example:

INFORMATION

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

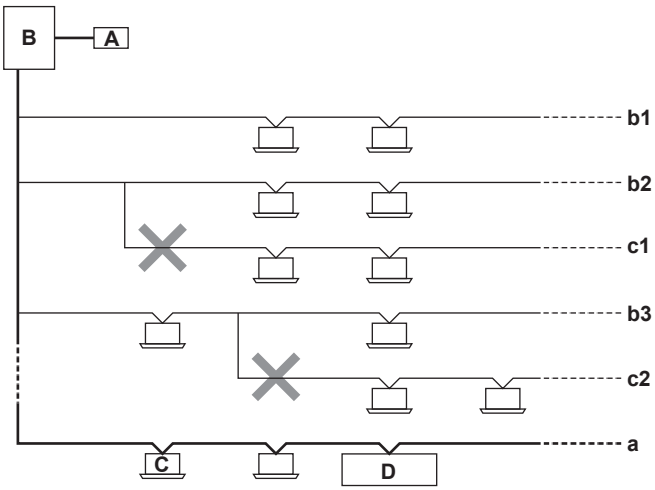


a Main switch
b Earth connection
c Power supply wiring (including earth) (sheathed cable)

F1/F2 Interconnection wiring (sheathed + shielded cable) (using shielded cable for the interconnection wiring is mandatory for 5 HP, and optional for 8 HP)
d Compressor unit
e Heat exchanger unit
f Indoor unit
g User interface

Branches

No branching is allowed after branching.



A Central user interface (etc...)
B Compressor unit
C Indoor unit
D Heat exchanger unit
a Main line. The main line is the line to which the interconnection wiring of the heat exchanger unit is connected.
b1, b2, b3 Branch lines
c1, c2 No branch is allowed after branch

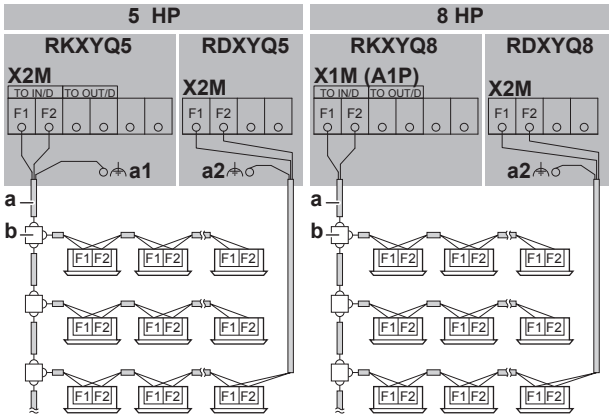
15.4 To connect the electrical wiring on the compressor unit

NOTICE

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

1 Remove the service covers of the compressor unit and the switch box.

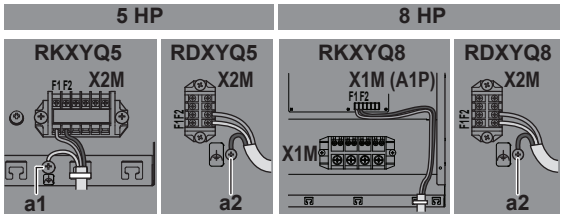
2 Connect the interconnection wiring as follows:



a Sheathed + shielded cable (2 wires) (no polarity)
a1, a2 Connection of shield to earth
b Terminal board (field supply)

NOTICE

Shielded cable. Using shielded cable for the interconnection wiring is mandatory for 5 HP, and optional for 8 HP.

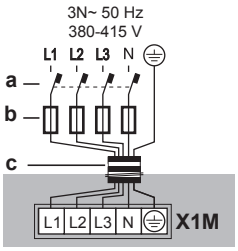


a1, a2 Earth (use the screw delivered as accessory)

When using shielded cable:

- In case of 5 HP (**a1** and **a2**): Connect the shield to the earth of the compressor unit and the heat exchanger unit.
- In case of 8 HP (only **a2**): Connect the shield only to the earth of the heat exchanger unit.

3 Connect the power supply as follows:

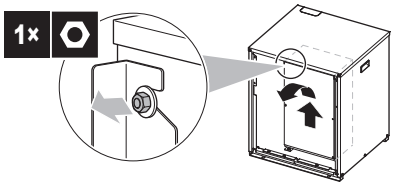


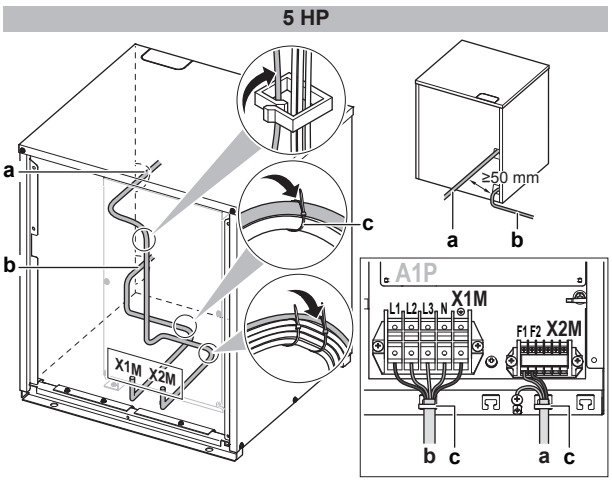
a Earth leakage circuit breaker
b Fuse
c Power supply cable

4 Route the wiring through the frame, and fix the cables (power supply and interconnection wiring) with cable ties.

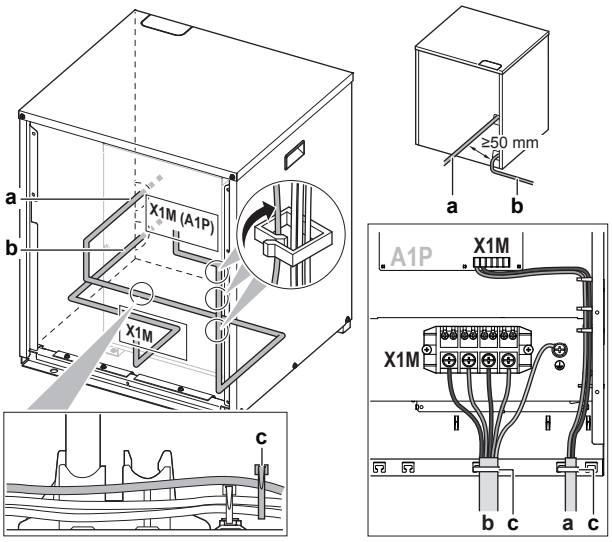
INFORMATION

To make routing the wiring easier, you can turn the switch box horizontally by loosening the screw on the left side of the switch box.





8 HP



a Interconnection wiring
b Power supply
c Cable tie

5 Reattach the service covers.

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

15.5 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 compressor 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

You can also make 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 compressor unit" [▶ 33].

Mode 1 and 2

Mode	Description
Mode 1 (monitoring settings)	Mode 1 can be used to monitor the current situation of the compressor 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., 1 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.

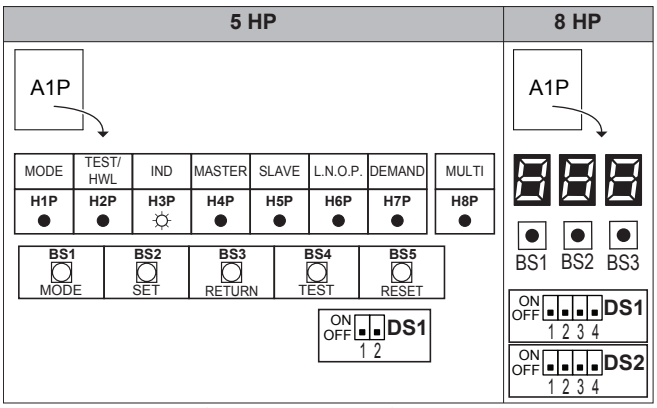
16.1.2 To access the field setting components

See "13.2.1 To open the compressor unit" [▶ 15].

16.1.3 Field setting components

The components to make field settings differ depending on the model.

Model	Field setting components
5 HP	▪ Push buttons (BS1~BS5) ▪ 7-LEDs display (H1P~H7P) ▪ H8P: LED for indication during initialisation ▪ DIP switches (DS1)
8 HP	▪ Push buttons (BS1~BS3) ▪ 7-segments display (888) ▪ DIP switches (DS1 and DS2)



ON (☼) OFF (●) Flashing (☀)

ON (8) OFF (■) Flashing (8)

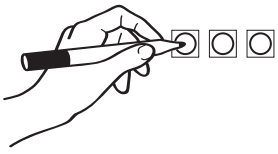
DIP switches

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

Model	DIP switch
5 HP	▪ 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.
8 HP	▪ DS1-1: COOL/HEAT selector (see "12.3.1 Possible options for the compressor unit and heat exchanger unit" [▸ 14]). OFF=not installed=factory setting ▪ DS1-2~4: NOT USED. DO NOT CHANGE THE FACTORY SETTING. ▪ DS2-1~4: 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.



The push buttons differ depending on the model.

Model	Push buttons
5 HP	▪ 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
8 HP	▪ BS1: MODE: For changing the set mode ▪ BS2: SET: For field setting ▪ BS3: RETURN: For field setting

7-LEDs display or 7-segments display

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

The display differs depending on the model.

Model	Display
5 HP	7-LEDs display: ▪ 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)
8 HP	7-segments display (888)

Example:

[H1P- 32 + 16 + 8 + 4 + 2 + 1] H1P H2P H3P H4P H5P H6P H7P	888	Description
● ● ☼ ● ● ● ● (H1P OFF)	↓ 888	Default situation
☀ ● ☼ ● ● ● ● (H1P flashing)	↓ 108	Mode 1
☼ ● ● ● ● ● ● (H1P ON)	↓ 208	Mode 2
☼ ● ● ☼ ● ● ● 0 + 0 + 8 + 0 + 0 + 0 (H2P~H7P = binary 8)	↓ 208	Setting 8 (in mode 2)
☼ ● ● ● ☀ ● ● 0 + 0 + 0 + 4 + 0 + 0 (H2P~H7P = binary 4)	↓ 104	Value 4 (in mode 2)

16.1.4 To access mode 1 or 2

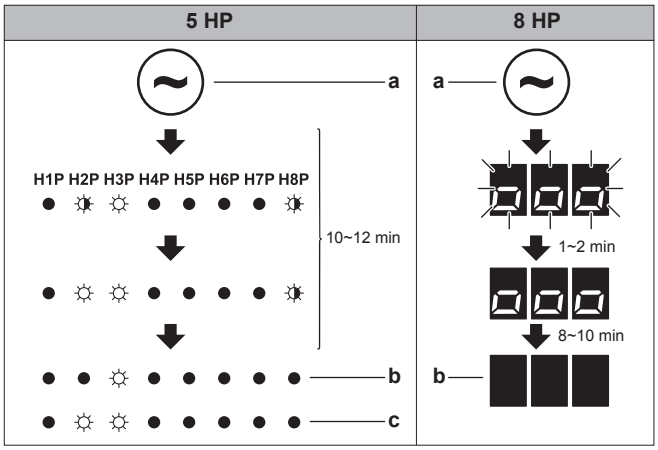
After the units are turned ON, the display goes to its default situation. From there, you can access mode 1 and mode 2.

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 compressor unit, heat exchanger unit, and all indoor units. When the communication between the compressor unit, heat exchanger unit, and indoor units is established and normal, the display indication state will be as below (default situation when shipped from factory).

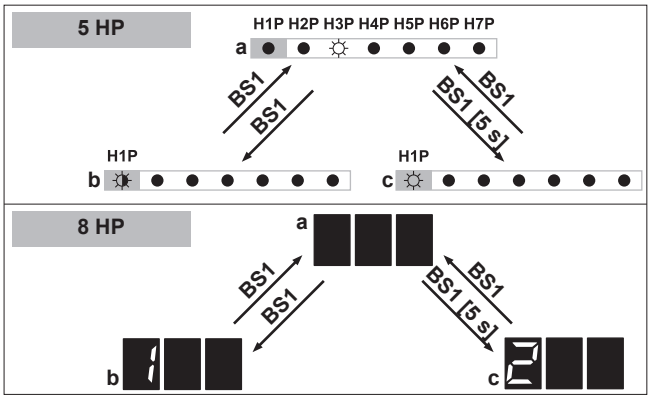


a Power ON
b Default situation
c LED indication when there is a malfunction

If the default situation is not displayed after 10~12 minutes, check the malfunction code on the indoor unit user interface (and in case of 8 HP on the compressor unit 7-segment display). 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.



a Default situation (H1P OFF)
b Mode 1 (H1P flashing)
c Mode 2 (H1P ON)
BS1 Press BS1.
BS1 [5 s] Press BS1 for at least 5 s.

INFORMATION

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

16.1.5 To use mode 1 (and default situation)

In mode 1 (and in default situation) you can read out some information. How to do this differs depending on the model.

Example: 7-LEDs display – Default situation

(in case of 5 HP)

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

(in case of 5 HP)

You can read out setting [1-5] (= the total number of connected units (heat exchanger unit + 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 units connected)	BS3 [1×] (= binary 8)
5	Quit mode 1.	BS1 [1×]

Example: 7-segments display – Mode 1

(in case of 8 HP)

You can read out setting [1-10] (= the total number of connected units (heat exchanger unit + indoor units)) as follows:

#	Action	Button/display
1	Start from the default situation.	
2	Select mode 1.	BS1 [1×]
3	Select setting 10. ("X×" depends on the setting that you want to select.)	BS2 [X×]
4	Display the value of setting 10. (there are 8 units connected)	BS3 [1×]
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. How to do this differs slightly depending on the model.

Example: 7-LEDs display – Mode 2

(in case of 5 HP)

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)
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×]

Example: 7-segments display – Mode 2

(in case of 8 HP)

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.	
2	Select mode 2.	BS1 [5 s] 
3	Select setting 8. ("X×" depends on the setting that you want to select.)	BS2 [X×] 
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. What you can read out differs depending on the model.

7-LEDs display – Default situation (H1P OFF)

(in case of 5 HP)

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 compressor unit and heat exchanger unit. ▪ 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.

	Value / Description
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 compressor unit. ▪ 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)

(in case of 5 HP)

You can read out the following information:

Setting (H1P H2P H3P H4P H5P H6P H7P)	Value / Description
[1-5] ☼ ● ● ● ☼ ● ☼ Shows the total number of connected units (heat exchanger unit + indoor units).	It can be convenient to check if the total number of units which are installed (heat exchanger unit + indoor units) match the total number of units which are recognised by the system. In case there is a mismatch, it is advised to check the communication wiring path between compressor unit and heat exchanger unit, and between compressor unit and indoor units (F1/F2 communication line).
[1-14] ☼ ● ● ☼ ☼ ☼ ● Shows the latest malfunction code.	When the latest malfunction codes were reset by accident on an indoor unit user interface, they can be checked again through this monitoring settings. For the content or reason behind the malfunction code see "19.1 Solving problems based on error codes" [▸ 35], where most relevant malfunction codes are explained. Detailed information about malfunction codes can be consulted in the service manual of this unit. To obtain more detailed information about the malfunction code, press BS2 up to 3 times.
[1-15] ☼ ● ● ☼ ☼ ☼ ☼ Shows the 2nd last malfunction code.	
[1-16] ☼ ● ☼ ● ● ● ● Shows the 3rd last malfunction code.	

7-segments display – Mode 1

(in case of 8 HP)

You can read out the following information:

Setting	Value / Description	
[1-1] Shows the status of low noise operation.	0	Unit is currently not operating under low noise restrictions.
	1	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 compressor unit and heat exchanger unit. ▪ 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.	
[1-2] Shows the status of power consumption limitation operation.	0	Unit is currently not operating under power consumption limitations.
	1	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 compressor unit. ▪ 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.	

Setting	Value / Description
[1-5] Shows the current T_e target parameter position.	For more information, see setting [2-8].
[1-6] Shows the current T_c target parameter position.	For more information, see setting [2-9].
[1-10] Shows the total number of connected units (heat exchanger unit + indoor units).	It can be convenient to check if the total number of units which are installed (heat exchanger unit + indoor units) match the total number of units which are recognised by the system. In case there is a mismatch, it is advised to check the communication wiring path between compressor unit and heat exchanger unit, and between compressor unit and indoor units (F1/F2 communication line).
[1-17] Shows the latest malfunction code.	When the latest malfunction codes were reset by accident on an indoor unit user interface, they can be checked again through this monitoring settings. For the content or reason behind the malfunction code see "19.1 Solving problems based on error codes" [▸ 35], where most relevant malfunction codes are explained. Detailed information about malfunction codes can be consulted in the service manual of this unit.
[1-18] Shows the 2nd last malfunction code.	
[1-19] Shows the 3rd last malfunction code.	
[1-40] Shows the current cooling comfort setting.	For more information, see setting [2-81].
[1-41] Shows the current heating comfort setting.	For more information, see setting [2-82].

16.1.8 Mode 2: field settings

In mode 2 you can make field settings to configure the system. The display and the settings differ depending on the model.

Model	Display	Setting/value
5 HP	H1P H2P H3P H4P H5P H6P H7P 7-LEDs display	The seven LEDs give a binary representation of the setting/value number.
8 HP	888 7-segments display	The three 7-segments show the setting/value number.

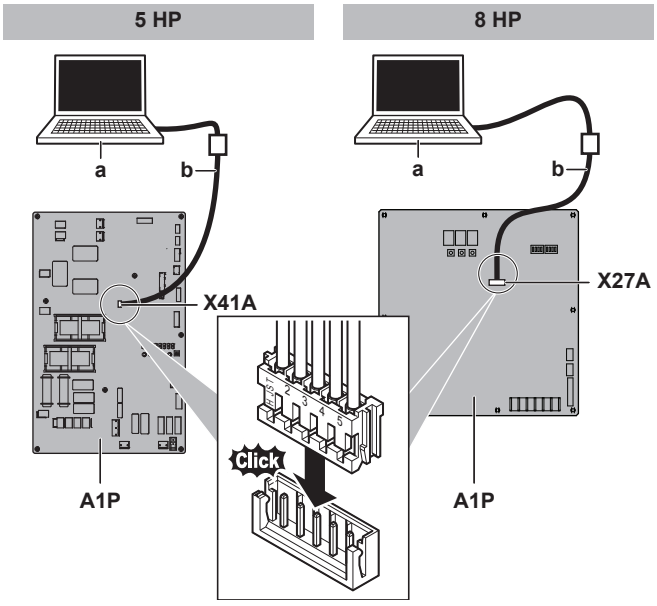
Setting	Value		
	888 (8 HP)	H1P H2P H3P H4P H5P H6P H7P (5 HP)	Description
[2-8] ☼ ● ● ☼ ● ● ● T_e target temperature during cooling operation.	0 (default)	☼ ● ● ● ● ● ● (default)	Auto
	2	☼ ● ● ● ● ◑ ●	6°C
	3	☼ ● ● ● ● ◑ ◑	7°C
	4	☼ ● ● ● ◑ ● ●	8°C
	5	☼ ● ● ● ◑ ● ◑	9°C
	6	☼ ● ● ● ◑ ◑ ●	10°C
	7	☼ ● ● ● ◑ ◑ ◑	11°C

Setting	Value			
	888 (8 HP)	H1P H2P H3P H4P H5P H6P H7P (5 HP)	Description	
[2-9] ☼ ● ● ☼ ● ● ☼ T_c target temperature during heating operation.	0 (default)	☼ ● ● ● ● ● ● (default)	Auto	
	1	☼ ● ● ● ● ● ◑	41°C	
	3	☼ ● ● ● ● ◑ ◑	43°C	
	6	☼ ● ● ● ◑ ◑ ●	46°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.	0 (default)	☼ ● ● ● ● ● ◑ (= binary 1) (default)	Deactivated.	
	1	☼ ● ● ● ● ◑ ● (= binary 2)	Activated.	
[2-15] ☼ ● ● ☼ ☼ ☼ ☼ Fan static pressure setting (in heat exchanger unit). You can set the external static pressure of the heat exchanger unit according to the ducting requirements.	0	☼ ● ● ● ● ● ●	30 Pa	
	1 (default)	☼ ● ● ● ● ● ◑ (default)	60 Pa	
	2	☼ ● ● ● ● ◑ ●	90 Pa	
	3	☼ ● ● ● ● ◑ ◑	120 Pa	
	4	☼ ● ● ● ◑ ● ●	150 Pa	
[2-16] ☼ ● ☼ ● ● ● ● Test run heat exchanger unit. When activated, the heat exchanger fans start running. This allows you to check the ducting with a running heat exchanger unit.	0 (default)	—	Deactivated.	
	1	—	Activated.	
[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.	0 (default)	☼ ● ● ● ● ● ◑ (= binary 1) (default)	Deactivated.	
	1	☼ ● ● ● ● ◑ ● (= binary 2)	Activated. 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.	
[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.	0 (default)	☼ ● ● ● ● ● ◑ (= binary 1) (default)	Deactivated.	
	1	☼ ● ● ● ● ◑ ● (= binary 2)	Activated. To stop the refrigerant recovery/vacuuming mode, push BS1 (in case of 5 HP) or BS3 (in case of 8 HP). If it 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].	0 (default)	☼ ● ● ● ● ● ● (default)	Deactivated	
	1	☼ ● ● ● ● ● ◑	Level 1	Level 3<Level 2<Level 1
	2	☼ ● ● ● ● ◑ ●	Level 2	
	3	☼ ● ● ● ● ◑ ◑	Level 3	

Setting	Value			
	888 (8 HP)	H1P H2P H3P H4P H5P H6P H7P (5 HP)	Description	
[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.	1	☼ ● ● ● ● ● ◐	Level 1	Level 3<Level 2<Level 1
	2 (default)	☼ ● ● ● ● ◐ ● (default)	Level 2	
	3	☼ ● ● ● ◐ ● ● (= binary 4)	Level 3	
[2-26] ☼ ● ☼ ☼ ● ☼ ● Low noise operation start time. This setting is used in conjunction with setting [2-22].	1	☼ ● ● ● ● ● ◐	20h00	
	2 (default)	☼ ● ● ● ● ◐ ● (default)	22h00	
	3	☼ ● ● ● ◐ ● ● (= binary 4)	24h00	
[2-27] ☼ ● ☼ ☼ ● ☼ ☼ Low noise operation stop time. This setting is used in conjunction with setting [2-22].	1	☼ ● ● ● ● ● ◐	6h00	
	2	☼ ● ● ● ● ◐ ●	7h00	
	3 (default)	☼ ● ● ● ◐ ● ● (= binary 4) (default)	8h00	
[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.	1	☼ ● ● ● ● ● ◐	60%	
	2	—	65%	
	3 (default)	☼ ● ● ● ● ◐ ● (= binary 2) (default)	70%	
	4	—	75%	
	5	☼ ● ● ● ◐ ● ● (= binary 4)	80%	
	6	—	85%	
	7	—	90%	
	8	—	95%	
[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.	—	☼ ● ● ● ● ● ◐ (= binary 1)	30%	
	1 (default)	☼ ● ● ● ● ◐ ● (= binary 2) (default)	40%	
	2	☼ ● ● ● ◐ ● ● (= binary 4)	50%	
	3	—	55%	
[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.	0 (default)	☼ ● ● ● ● ● ◐ (= binary 1) (default)	Function not active.	
	1	☼ ● ● ● ● ◐ ● (= binary 2)	Follows [2-30] setting.	
	2	☼ ● ● ● ◐ ● ● (= binary 4)	Follows [2-31] setting.	
[2-81] (in case of 8 HP) ☼ ☼ ● ☼ ● ● ☼ (= binary [2-41]) (in case of 5 HP) Cooling comfort setting. This setting is used in conjunction with setting [2-8].	0	☼ ● ● ● ● ● ●	Eco	
	1 (default)	☼ ● ● ● ● ● ◐ (default)	Mild	
	2	☼ ● ● ● ● ◐ ●	Quick	
	3	☼ ● ● ● ● ◐ ◐	Powerful	

Setting	Value		
	888 (8 HP)	H1P H2P H3P H4P H5P H6P H7P (5 HP)	Description
[2-82] (in case of 8 HP)	0	☼ ● ● ● ● ● ●	Eco
☼ ☼ ● ☼ ● ☼ ● (= binary [2-42]) (in case of 5 HP)	1 (default)	☼ ● ● ● ● ● ◑ (default)	Mild
Heating comfort setting.	2	☼ ● ● ● ● ◑ ●	Quick
This setting is used in conjunction with setting [2-9].	3	☼ ● ● ● ● ◑ ◑	Powerful

16.1.9 To connect the PC configurator to the compressor unit



a PC
b Cable (EKPCCAB*)
X27A Connector
X41A Connector
A1P Compressor unit main PCB

17 Commissioning

17.1 Precautions when commissioning

CAUTION

Do NOT perform the test operation while working on the indoor units or the heat exchanger unit.

When performing the test operation, NOT ONLY the compressor unit will operate, but the heat exchanger unit and the connected indoor units as well. Working on an indoor unit or the heat exchanger 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 compressor unit, the heat exchanger unit and the indoor units will start up. Make sure that the preparations of the heat exchanger unit and all the indoor units are finished (field piping, electrical wiring, air purge, ...). See installation manual of the indoor units for details.

17.2 Checklist before commissioning

1 After the installation of the unit, check the items listed below.

2 Close the unit.

3 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.
☐	**Transportation stay** Check that the compressor unit's transportation stay is removed.
☐	**Field wiring** Check that the field wiring has been carried out according to the instructions described in the chapter "15 Electrical installation" [▸ 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" [▸ 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.

☐	**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).
☐	**Insulation and air leaks** Make sure the unit is fully insulated and checked for air leaks. **Possible consequence:** Condensate water might drip.
☐	**Drainage** Make sure drainage flows smoothly. **Possible consequence:** Condensate water might drip.
☐	**External static pressure** Make sure the external static pressure is set. **Possible consequence:** Insufficient cooling or heating.

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 and heat exchanger unit).
- Check of the stop valves opening.
- Check of wrong piping. **Example:** Gas or liquid pipes switched.
- 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)

(in case of 5 HP)

1 Make sure all field settings you want are set; see "16.1 Making field settings" [▸ 26].

2 Turn ON the power to the compressor unit, heat exchanger unit, and the connected indoor units.

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" [▸ 27]. Push BS4 for 5 seconds or more. The unit will start test operation.

Result: The test operation is automatically carried out, the compressor 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 compressor unit 7-LEDs display.

Completion	Description
Normal completion	● ● ☼ ● ● ● ●
Abnormal completion	● ☼ ☼ ● ● ● ● Refer to "17.3.4 Correcting after abnormal completion of the test run" [▸ 35] 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 To perform a test run (7-segment display)

(in case of 8 HP)

1 Make sure all field settings you want are set; see "16.1 Making field settings" [▸ 26].

2 Turn ON the power to the compressor unit, heat exchanger unit, and the connected indoor units.

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; see "16.1.4 To access mode 1 or 2" [▶ 27]. Push BS2 for 5 seconds or more. The unit will start test operation.

Result: The test operation is automatically carried out, the compressor unit display will indicate "E01" 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
E01	Control before start up (pressure equalisation)
E02	Cooling start up control
E03	Cooling stable condition
E04	Communication check
E05	Stop valve check
E06	Pipe length check
E09	Pump down operation
E10	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 compressor unit 7-segment display.

Completion	Description
Normal completion	No indication on the 7-segment display (idle).
Abnormal completion	Indication of malfunction code on the 7-segment display. Refer to "17.3.4 Correcting after abnormal completion of the test run" [▶ 35] to take actions for correcting the abnormality. When the test operation is fully completed, normal operation will be possible after 5 minutes.

17.3.4 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:

- In case of 5 HP: The error code is displayed on the user interface of the indoor unit.
- In case of 8 HP: The error code is displayed on the compressor unit's 7-segments display and 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.

17.3.5 Operating the unit

Once the units are installed and test operation of compressor unit, heat exchanger unit and indoor units is finished, the operation of the system can start.

For operating the indoor unit, the user interface of the indoor unit should be switched ON. Refer to the indoor unit operation manual for more details.

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 can find the complete documentation at the URL mentioned earlier in this manual.
- Explain the user how to properly operate the system and what to do in case of problems.
- Show the user what to do for the maintenance of the unit.

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.

INFORMATION

If a malfunction occurs:

- In case of 5 HP: The error code is displayed on the user interface of the indoor unit.
- In case of 8 HP: The error code is displayed on the compressor unit's 7-segments display and 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.

In case of 8 HP: The error code on the compressor unit will indicate a main malfunction code and a sub code. The sub code indicates more detailed information about the malfunction code. The main code and sub code will be displayed intermittent (with an interval of 1 second). **Example:**

- Main code: E3
- Sub code: -01

19.1.1 Error codes: Overview

In case of 5 HP:

Main code	Cause	Solution
E0	▪ Heat exchanger fan malfunction. ▪ Drain pump feedback contact is open.	In the heat exchanger unit: ▪ Check connection on PCB: A1P (X15A) ▪ Check connection on terminal block (X2M) ▪ Check the fan connectors.
E3	▪ The stop valves of the compressor unit are left closed. ▪ Refrigerant overcharge	▪ Open the stop valves 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 valves of the compressor unit are left closed. ▪ Insufficient refrigerant	▪ Open the stop valves 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 Heat exchanger unit: (Y1E) - A1P (X7A) Compressor unit: (Y1E) - A1P (X22A)	Check connection on PCB or actuator.
F3	▪ The stop valves of the compressor unit are left closed. ▪ Insufficient refrigerant	▪ Open the stop valves 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.
F6	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 Heat exchanger unit: (R1T) - A1P (X16A)	Check connection on PCB or actuator.
J3	Discharge temperature sensor malfunction: open circuit / short circuit Compressor unit: (R2T) - A1P (X12A)	Check connection on PCB or actuator.
J4	Heat exchanger gas sensor malfunction Heat exchanger unit: (R2T) - A1P (X18A)	Check connection on PCB or actuator.
J5	Suction temperature sensor malfunction Compressor unit: (R3T) - A1P (X12A) Compressor unit: (R5T) - A1P (X12A)	Check connection on PCB or actuator.
J6	Coil temperature sensor malfunction Heat exchanger unit: (R3T) - A1P (X17A)	Check connection on PCB or actuator.
J7	Liquid temperature sensor (after subcool HE) malfunction Compressor unit: (R7T) - A1P (X13A)	Check connection on PCB or actuator.
J9	Gas temperature sensor (after subcool HE) malfunction Compressor unit: (R4T) - A1P (X12A)	Check connection on PCB or actuator.
JA	High pressure sensor malfunction: open circuit / short circuit Compressor unit: (BIPH) - A1P (X17A)	Check connection on PCB or actuator.
JC	Low pressure sensor malfunction: open circuit / short circuit Compressor unit: (BIPL) - A1P (X18A)	Check connection on PCB or actuator.
LC	Transmission compressor unit - inverter: INV1 transmission trouble	Check connection.
P1	INV1 unbalanced power supply voltage	Check if power supply is within range.
PJ	Heat exchanger unit capacity setting malfunction.	Check the type of heat exchanger unit. If necessary, replace the heat exchanger unit.
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.

Main code	Cause	Solution
U4	▪ No power is supplied to the compressor unit. ▪ Interconnection wiring malfunction	▪ Check if all units are powered on. ▪ Check the transmission wiring.
U9	▪ System mismatch. Wrong type of indoor units combined (R410A, R407C, RA, etc). Indoor unit malfunction ▪ Heat exchanger unit malfunction	▪ Check if other indoor units have malfunction and confirm indoor unit mix is allowed. ▪ Check the transmission wiring to the heat exchanger unit.
UA	▪ Improper type of indoor units are connected. ▪ Mismatch of compressor unit and heat exchanger unit.	▪ Check the type of indoor units that are currently connected. If they are not proper, replace them with proper ones. ▪ Check if the compressor unit and heat exchanger unit are compatible.
UF	▪ The stop valves of the compressor unit are left closed. ▪ The piping and wiring of the specified indoor unit or heat exchanger unit are not connected correctly to the compressor unit.	▪ Open the stop valves on both the gas and liquid side. ▪ Confirm that the piping and wiring of the specified indoor unit or heat exchanger unit are connected correctly to the compressor unit.

In case of 8 HP:

Main code	Sub code	Cause	Solution
E0	-02	▪ Heat exchanger fan malfunction. ▪ Drain pump feedback contact is open.	In the heat exchanger unit: ▪ Check connection on PCB: A1P (X15A) ▪ Check connection on terminal block (X2M) ▪ Check the fan connectors.
E2	-01	Earth leakage detector activated Compressor unit: (T1A) - A1P (X101A)	Restart the unit. If the problem reoccurs, contact your dealer.
	-06	No earth leakage detector detected Compressor unit: (T1A) - A1P (X101A)	Replace the earth leakage detector.
E3	-01	High pressure switch was activated Compressor unit: (S1PH) - A1P (X4A)	Check stop valve situation or abnormalities in (field) piping or airflow over air cooled coil.
	-02	▪ Refrigerant overcharge ▪ Stop valve closed	▪ Check refrigerant amount+recharge unit. ▪ Open stop valves
	-13	Stop valve closed (liquid)	Open liquid stop valve.
	-18	▪ Refrigerant overcharge ▪ Stop valve closed	▪ Check refrigerant amount+recharge unit. ▪ Open stop valves.
E4	-01	Low pressure malfunction: ▪ Stop valve closed ▪ Refrigerant shortage ▪ Indoor unit malfunction	▪ Open stop valves. ▪ Check refrigerant amount+recharge unit. ▪ Check the user interface's display or interconnection wiring between the outdoor unit and the indoor unit.
E9	-01	Electronic expansion valve malfunction (subcool) Compressor unit: (Y1E) - A1P (X21A)	Check connection on PCB or actuator.
	-47	Electronic expansion valve malfunction (main) Heat exchanger unit: (Y1E) - A1P (X7A)	Check connection on PCB or actuator.
F3	-01	Discharge temperature too high: ▪ Stop valve closed ▪ Refrigerant shortage Compressor unit: (R21T) - A1P (X29A)	▪ Open stop valves. ▪ Check refrigerant amount+recharge unit.
F6	-02	▪ Refrigerant overcharge ▪ Stop valve closed	▪ Check refrigerant amount+recharge unit. ▪ Open stop valves.
H9	-01	Ambient temperature sensor malfunction Heat exchanger unit: (R1T) - A1P (X16A)	Check connection on PCB or actuator.
J3	-16	Discharge temperature sensor malfunction Compressor unit: (R21T): open circuit - A1P (X29A)	Check connection on PCB or actuator.
	-17	Discharge temperature sensor malfunction Compressor unit: (R21T): short circuit - A1P (X29A)	Check connection on PCB or actuator.

Main code	Sub code	Cause	Solution
J4	-01	Heat exchanger gas sensor malfunction Heat exchanger unit: (R2T) - A1P (X18A)	Check connection on PCB or actuator.
J5	-01	Suction temperature sensor malfunction Compressor unit: (R3T) - A1P (X30A)	Check connection on PCB or actuator.
	-02	Suction temperature sensor malfunction Compressor unit: (R7T) - A1P (X30A)	Check connection on PCB or actuator.
J6	-01	De-icing temperature sensor malfunction Heat exchanger unit: (R3T) - A1P (X17A)	Check connection on PCB or actuator
J7	-06	Liquid temperature sensor (after subcool HE) malfunction Compressor unit: (R5T) - A1P (X30A)	Check connection on PCB or actuator.
J9	-01	Gas temperature sensor (after subcool HE) malfunction Compressor unit: (R6T) - A1P (X30A)	Check connection on PCB or actuator.
JA	-06	High pressure sensor malfunction Compressor unit: (S1NPH): open circuit - A1P (X32A)	Check connection on PCB or actuator.
	-07	High pressure sensor malfunction Compressor unit: (S1NPH): short circuit - A1P (X32A)	Check connection on PCB or actuator.
JC	-06	Low pressure sensor malfunction Compressor unit: (S1NPL): open circuit - A1P (X31A)	Check connection on PCB or actuator.
	-07	Low pressure sensor malfunction Compressor unit: (S1NPL): short circuit - A1P (X31A)	Check connection on PCB or actuator.
LC	-14	Transmission outdoor unit - inverter: INV1 transmission trouble Compressor unit: A1P (X20A, X28A, X42A)	Check connection.
P1	-01	INV1 unbalanced power supply voltage	Check if power supply is within range.
PJ	-01	Heat exchanger unit capacity setting malfunction.	Check the type of heat exchanger unit. If necessary, replace the heat exchanger unit.
U1	-01	Reversed power supply phase malfunction	Correct phase order.
	-04	Reversed power supply phase malfunction	Correct phase order.
U2	-01	INV1 voltage power shortage	Check if power supply is within range.
	-02	INV1 power phase loss	Check if power supply is within range.
U3	-03	Malfunction code: System test run not yet executed (system operation not possible)	Execute system test run.
U4	-01	Faulty wiring to Q1/Q2 or indoor - outdoor	Check (Q1/Q2) wiring. Do NOT use Q1/Q2.
	-03	Faulty wiring to Q1/Q2 or indoor - outdoor	Check (Q1/Q2) wiring. Do NOT use Q1/Q2.
	-04	System test run abnormal ending	Execute test run again.
U7	-01	Warning: faulty wiring to Q1/Q2	Check Q1/Q2 wiring. Do NOT use Q1/Q2.
	-02	Malfunction code: faulty wiring to Q1/Q2	Check Q1/Q2 wiring. Do NOT use Q1/Q2.
	-11	▪ Too many indoor units are connected to F1/F2 line ▪ Bad wiring between outdoor and indoor units	Check indoor unit amount and total capacity connected.
U9	-01	▪ System mismatch. Wrong type of indoor units combined (R410A, R407C, RA, etc). Indoor unit malfunction ▪ Heat exchanger unit malfunction	▪ Check if other indoor units have malfunction and confirm indoor unit mix is allowed. ▪ Check the interconnection wiring to the heat exchanger unit.

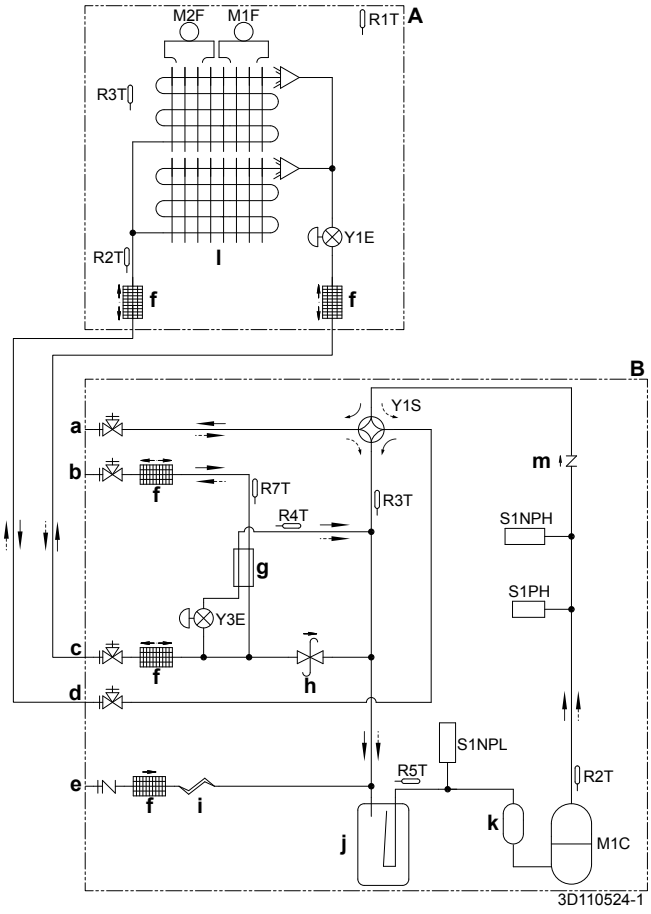
Main code	Sub code	Cause	Solution
UA	-03	More than 1 heat exchanger unit connected.	Check installation. Only 1 heat exchanger unit can be installed.
	-18	▪ Improper type of indoor units are connected. ▪ Mismatch of compressor unit and heat exchanger unit.	▪ Check the type of indoor units that are currently connected. If they are not proper, replace them with proper ones. ▪ Check if the compressor unit and heat exchanger unit are compatible.
	-21	5 HP heat exchanger unit connected.	Check installation. Connect 8 HP heat exchanger unit.
UH	-01	▪ Auto address malfunction (inconsistency) ▪ Mismatch of compressor unit and heat exchanger unit.	▪ Check if transmission wired unit amount matches with powered unit amount (by monitor mode) or wait till initialisation is finished. ▪ Check if the compressor unit and heat exchanger unit are compatible.
UF	-01	▪ Auto address malfunction (inconsistency) ▪ Mismatch of compressor unit and heat exchanger unit.	▪ Check if transmission wired unit amount matches with powered unit amount (by monitor mode) or wait till initialisation is finished. ▪ Check if the compressor unit and heat exchanger unit are compatible.
	-05	▪ The stop valves of the compressor unit are left closed. ▪ The piping and wiring of the specified indoor unit or heat exchanger unit are not connected correctly to the compressor unit.	▪ Open the stop valves on both the gas and liquid side. ▪ Confirm that the piping and wiring of the specified indoor unit or heat exchanger unit are connected correctly to the compressor 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 Piping diagram: Compressor unit and heat exchanger unit

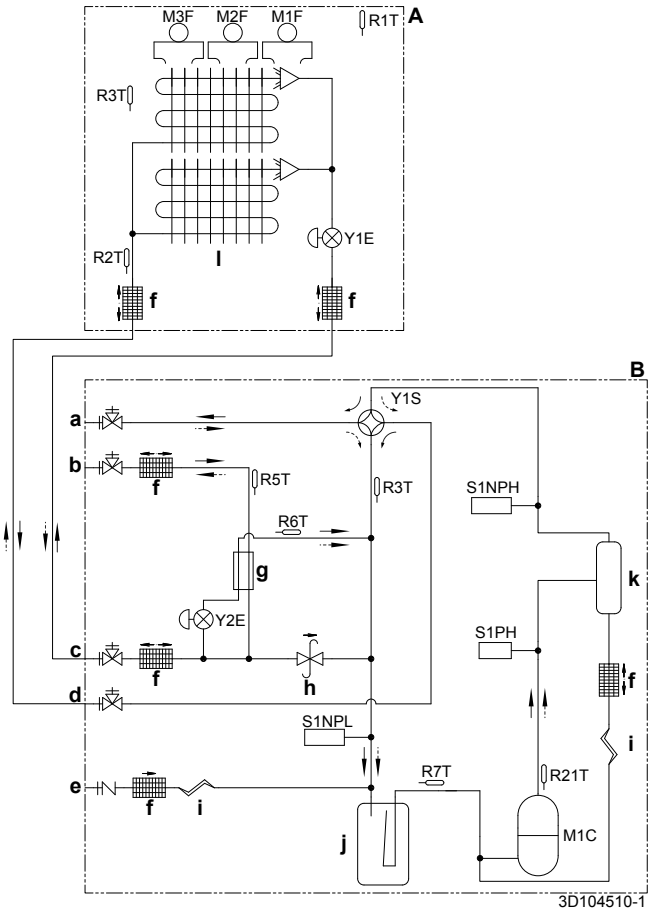
5 HP



A Heat exchanger unit
B Compressor unit
a Stop valve (gas) (circuit 2: to indoor units)

b Stop valve (liquid) (circuit 2: to indoor units)
c Stop valve (liquid) (circuit 1: to heat exchanger unit)
d Stop valve (gas) (circuit 1: to heat exchanger unit)
e Service port (refrigerant charge)
f Filter
g Subcool heat exchanger
h Pressure regulating valve
i Capillary tube
j Accumulator
k Compressor accumulator
l Heat exchanger
m Check valve
M1C Compressor
M1F, M2F Fan motor
R1T (A) Thermistor (air)
R2T (A) Thermistor (gas)
R3T (A) Thermistor (coil)
R2T (B) Thermistor (discharge)
R3T (B) Thermistor (suction accumulator)
R4T (B) Thermistor (subcool heat exchanger gas)
R5T (B) Thermistor (suction compressor)
R7T (B) Thermistor (liquid)
S1NPH High pressure sensor
S1NPL Low pressure sensor
S1PH High pressure switch
Y1E, Y3E Electronic expansion valve
Y1S Solenoid valve (4-way valve)
→ Heating
⇢ Cooling

8 HP



A Heat exchanger unit
B Compressor unit
a Stop valve (gas) (circuit 2: to indoor units)
b Stop valve (liquid) (circuit 2: to indoor units)
c Stop valve (liquid) (circuit 1: to heat exchanger unit)
d Stop valve (gas) (circuit 1: to heat exchanger unit)
e Service port (refrigerant charge)
f Filter
g Subcool heat exchanger
h Pressure regulating valve
i Capillary tube
j Accumulator
k Oil separator
l Heat exchanger
M1C Compressor
M1F~M3F Fan motor
R1T (A) Thermistor (air)
R2T (A) Thermistor (gas)
R3T (A) Thermistor (coil)
R21T (B) Thermistor (discharge)
R3T (B) Thermistor (suction accumulator)
R5T (B) Thermistor (liquid)
R6T (B) Thermistor (subcool heat exchanger gas)
R7T (B) Thermistor (suction compressor)
S1NPH High pressure sensor
S1NPL Low pressure sensor
S1PH High pressure switch
Y1E, Y2E Electronic expansion valve
Y1S Solenoid valve (4-way valve)
→ Heating
⇢ Cooling

20.2 Wiring diagram: Compressor unit

The wiring diagram is delivered with the unit, located on the switch box cover.

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 5 HP:

A1P	Printed circuit board (main)
A2P	Printed circuit board (inverter)
BS*	Push button (A1P)
C*	Capacitor (A2P)
DS1	DIP switch (A1P)
F1U, F2U	Fuse (T 31.5 A / 250 V) (A1P)
F3U, 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)
K1R	Magnetic relay (A*P)
L1R	Reactor
M1C	Motor (compressor)
M1F	Motor (fan)
PS	Switching power supply (A2P)
Q1DI	Earth leakage circuit breaker (field supply)
R*	Resistor (A2P)
R2T	Thermistor (discharge)
R3T	Thermistor (suction accumulator)
R4T	Thermistor (subcool heat exchanger gas)
R5T	Thermistor (suction compressor)
R7T	Thermistor (liquid)
R10T	Thermistor (fin)
S1NPL	Low pressure sensor
S1NPH	High pressure sensor
S1PH	High pressure switch

S*S	Cool/heat selector switch (optional)
V1R	IGBT power module (A2P)
V2R	Diode module (A2P)
X1M	Terminal strip (power supply)
X2M	Terminal strip (interconnection wiring)
X*Y	Connector
Y3E	Electronic expansion valve
Y1S	Solenoid valve (4-way valve)
Z*C	Noise filter (ferrite core)
Z*F	Noise filter (A1P)

Notes for 8 HP:

1 When using the optional adapter, refer to the installation manual of the optional adapter.

2 Refer to the installation or service manual on how to use BS1~BS3 push buttons, and DS1+DS2 DIP switches.

3 Do not operate the unit by short-circuiting protection device S1PH.

4 For connection of INDOOR-OUTDOOR F1-F2 interconnection wiring, and OUTDOOR-OUTDOOR F1-F2 interconnection wiring, refer to the service manual.

Legend for wiring diagram 8 HP:

A1P	Printed circuit board (main)
A2P	Printed circuit board (noise filter)
A3P	Printed circuit board (inverter)
A4P	Printed circuit board (cool/heat selector)
BS*	Push button (mode, set, return) (A1P)
C*	Capacitor (A3P)
DS*	DIP switch (A1P)
E1HC	Crankcase heater
F*U	Fuse (T 3.15 A / 250 V) (A1P)
F3U	Field fuse
F400U	Fuse (T 6.3 A / 250 V) (A2P)
F410U	Fuse (T 40 A / 500 V) (A2P)
F411U	Fuse (T 40 A / 500 V) (A2P)
F412U	Fuse (T 40 A / 500 V) (A2P)
HAP	Running LED (service monitor green) (A1P)
K1M	Magnetic contactor (A3P)
K*R	Magnetic relay (A*P)
L1R	Reactor
M1C	Motor (compressor)
M1F	Motor (fan)
PS	Power supply (A1P, A3P)
Q1DI	Earth leakage circuit breaker (field supply)
Q1RP	Phase reversal detect circuit (A1P)
R21T	Thermistor (M1C discharge)
R3T	Thermistor (accumulator)
R5T	Thermistor (subcool liquid pipe)
R6T	Thermistor (heat exchanger gas pipe)
R7T	Thermistor (suction)
R*	Resistor (A3P)
S1NPH	High pressure sensor
S1NPL	Low pressure sensor
S1PH	High pressure switch (discharge)
S1S	Air control switch (optional)
S2S	Cool/heat selector switch (optional)
SEG1~SEG3	7-segment display
T1A	Earth leakage detector
V1R	IGBT power module (A3P)
V2R	Diode module (A3P)
X37A	Connector (power supply for option PCB) (optional)
X66A	Connector (cool/heat selector switch) (optional)
X1M	Terminal strip (power supply)
X*A	PCB connector
X*M	Terminal strip on PCB (A*P)
X*Y	Connector
Y2E	Electronic expansion valve
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.

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Zandvoordestraat 300, B-8400 Oostende, Belgium

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