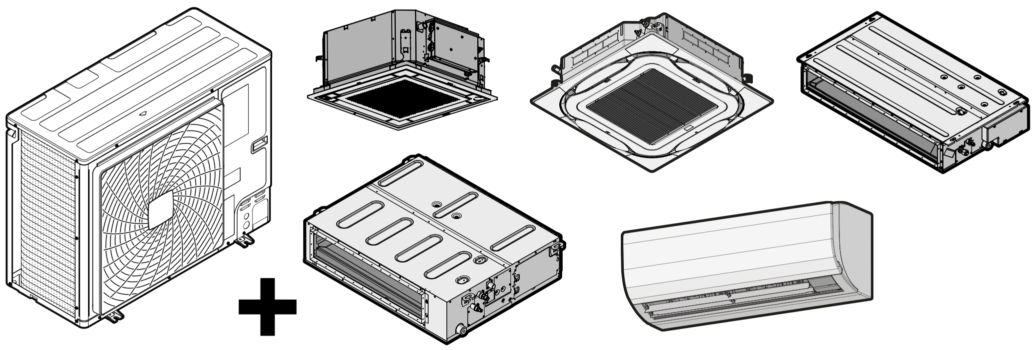
Service manual

VRV 5-S system air conditioner



RXYSA4A7V1B
RXYSA5A7V1B
RXYSA6A7V1B
RXYSA4A7Y1B
RXYSA5A7Y1B
RXYSA6A7Y1B

FXZA15~50A2VEB
FXFA20~125A2VEB
FXDA10~63A2VEB
FXSA15~140A2VEB
FXAA15~63AUV1B

Disclaimer

Version log

Version code	Description	Date
ESIE20-07	Document release	October 2020
ESIE20-07A	See below	July 2021

The following updates have been applied to the Service Manual:

- Troubleshooting – Error based troubleshooting: Trigger / Effect / Reset table of error A0-11 was updated.

Table of Contents

1 Safety precautions

The precautions described in this document cover very important topics, follow them carefully.

All activities described in the service manual must be performed by an authorized person.

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

In accordance with the applicable legislation, it might be necessary to provide a logbook with the product containing at least:

information on maintenance, repair work, results of tests, stand-by periods, ...

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

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

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

1.1 Meaning of warnings and symbols

DANGER

Indicates a situation that results in death or serious injury.

DANGER: RISK OF ELECTROCUTION

Indicates a situation that could result in electrocution.

DANGER: RISK OF BURNING/SCALDING

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

DANGER: RISK OF EXPLOSION

Indicates a situation that could result in explosion.

WARNING

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

WARNING: FLAMMABLE MATERIAL

CAUTION

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

NOTICE

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

INFORMATION

Indicates useful tips or additional information.

1.2 Dangers

DANGER: RISK OF BURNING/SCALDING

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

DANGER: RISK OF ELECTROCUTION

- Turn OFF all power supply before removing the switch box cover, connecting electrical wiring or touching electrical parts.
- Where applicable, stop the equipment's operation first and allow (refrigerant) pressure to equalize, before turning OFF the power.
- Disconnect the power supply for more than 10 minutes, and measure the voltage at the terminals of main circuit capacitors or electrical components before servicing. The voltage MUST be less than 50 V DC before you can touch electrical components. For the location of the terminals, see the wiring diagram. If the measured voltage is still higher than 50 V DC, discharge the capacitors in a safe manner by using a dedicated capacitor discharge pen to avoid possibility of sparking.
- Do NOT touch electrical components with wet hands.
- Do NOT leave the unit unattended when the service cover is removed.
- Protect electric componennts from getting wet while the service cover is opened.

1.3 Warnings

WARNING

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

WARNING

Do NOT apply any permanent inductive or capacitance loads to the circuit without ensuring that this will NOT exceed the permissible voltage and current permitted for the equipment in use.

WARNING

Make sure that the refrigerating piping and components are installed in a position where they are unlikely to be exposed to any corroding substance.

WARNING

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

WARNING

Make sure the work site environment is clean and safe to work in. Beware of spilled fluids, like water, oil or other substances.

Protect bystanders from injury and property from possible damage cause by service works.

WARNING

If any work is to be conducted on the refrigerating equipment or any associated parts which involves brazing, an appropriate dry powder or CO_2 fire extinguisher MUST be present.

When charging the unit, an appropriate dry powder or CO_2 fire extinguisher MUST be present.

WARNING

No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, MUST be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs MUST be displayed.

WARNING

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

WARNING

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

WARNING

Make sure the total refrigerant charge is in accordance with the room size in which the unit is installed: please consult the detailed instructions on charging and allowed room sizes in the installation manual.

WARNING

- NEVER mix different refrigerants or allow air to enter the refrigerant system.
- NEVER charge recovered refrigerant from another unit. Use recovered refrigerant only on the same unit where it was recovered from, or have it recycled at a certified facility.

WARNING

When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

WARNING

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

WARNING

Removal of refrigerant MUST be according to the following:

When breaking into the refrigerant circuit to make repairs, be sure to remove the refrigerant from the system first. The refrigerant charge MUST be recovered into the correct recovery cylinders.

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

- Under no circumstances, potential sources of ignition MUST be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) MUST NOT be used.
- Ensure that the detector is NOT a potential source of ignition and is suitable for the detection of R32.
- If a leak is suspected, all naked flames MUST be removed or extinguished.
- Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine MUST be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
- If a leakage of refrigerant is found which requires brazing, all of the refrigerant MUST be recovered from the system, or isolated (by means of shut-off valves) in a part of the system remote from the leak.
- Only use the electronic leak tester for R32. The old flame leak tester CANNOT be used on a system with HFC refrigerant because there is no chlorine component in the refrigerant. In case of R32 (HFC) refrigerant, any flame in contact with (leaking) refrigerant is extremely dangerous.

WARNING

- In order to prevent oxygen deficiency and R32 combustion, keep the room well-ventilated for a healthy work environment. Do NOT work in a confined space. If a refrigerant leak is detected in a confined room or an inadequately ventilated location, do NOT start the work until the area has been ventilated appropriately.
- If the work area is NOT located in the open air, make sure the work area is adequately ventilated before breaking into the system or conducting any brazing. The ventilation MUST continue to operate during the period that the work is carried out to prevent accumulation of refrigerant in the work area. The ventilation should safely disperse any released refrigerant and preferably ventilate to the open air.

WARNING

Ensure that no external live wiring is exposed while charging, recovering or purging the system. Sparks created when live wiring is short-circuited might ignite the refrigerant if it is leaked into the room while charging, recovering or purging the system.

WARNING

Ensure that the unit is properly earthed prior to conducting maintenance or service or charging the system with refrigerant. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earthing may cause electrical shock.

WARNING

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

WARNING

Make sure the markings on the unit remain visible and legible after inspection or repair work. Markings and signs that are illegible shall be corrected.

WARNING

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

WARNING

- The area MUST be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres.
- Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.
- Prior to and during work, the area MUST be checked with an appropriate refrigerant detector capable of detecting R32 refrigerant, to ensure a work environment free of refrigerant.

WARNING

- Equipment MUST be labelled stating that it has been de-commissioned and emptied of refrigerant.
- The label MUST be dated and signed.
- For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

WARNING

Before carrying out refrigerant recovery procedure, it is essential that the technician is completely familiar with the equipment and all its details. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample MUST be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

- Become familiar with the equipment and its operation.
- Isolate system electrically.
- Ensure that mechanical handling equipment is available, if required, for handling refrigerant cylinders.
- Ensure that all personal protective equipment is available and is used correctly.
- Ensure that the recovery process is supervised at all times by a competent person.
- Ensure that recovery equipment and cylinders are conform to the appropriate standards.
- If a vacuum is NOT possible, make a manifold so that refrigerant can be removed from various parts of the system.
- Make sure that cylinder is situated on the scales before recovery takes place.
- Start the recovery machine and operate in accordance with instructions.
- Do NOT overfill cylinders (no more than 60% volume liquid charge).
- Do NOT exceed the maximum working pressure of the cylinder, NOT even temporarily.
- When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed.
- Recovered refrigerant MUST NOT be charged into another refrigerating system unless it has been cleaned and checked.

WARNING

All maintenance staff and others working in the local area MUST be instructed on the nature of work being carried out.

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.

WARNING

Prior to start working on systems containing flammable refrigerant, safety checks are necessary to ensure that the risk of ignition is minimised. Therefore, some instructions should be followed.

Please refer to the service manual for more information.

WARNING

- In case refrigerant recovery is required, use the service ports at both stop valves.
- In case refrigerant recovery is required prior to repair a refrigerant leak detected by indoor unit, also use the internal service port of the outdoor unit heat exchanger.
- To remove refrigerant smoothly, prior to start the refrigerant recovery, set outdoor unit to mode 2-21, set 1 + 2 x BS3 (Return): outdoor display shows "t01", and all interfaces show "centralised lock (3 arrows to center) + operation indication ON (fan stays OFF!).
- ONLY use leak free hoses, couplings and manifolds in good working condition.
- ONLY use recovery cylinders designated and labelled to recover R32. Note that thread connection to the cylinder is counter clock.
- Always use a calibrated scale in good condition prior and during the refrigerant recovery process to determine the weight of the recovered refrigerant into the external refrigerant cylinder.
- Read the operation instructions of the recovery unit prior to connecting the recovery unit. Verify the recovery unit is suited for R32 refrigerant, check that it is in good working condition, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.
- Do NOT overfill the refrigerant cylinder, confirm with the supplier of the refrigerant cylinder about maximum filling ratio if NOT mentioned on the refrigerant cylinder itself. Generally the maximum filling amount should be limited to 60% of the maximum volume of the cylinder.
- Do NOT exceed the maximum working pressure of the refrigerant cylinder, NOT even temporarily.
- When the cylinders have been filled correctly, and the refrigerant recovery process is completed, make sure that the cylinders and the equipment are removed from site promptly and all stop valves on the equipment are (kept) closed.
- The recovered refrigerant MUST be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do NOT mix refrigerants in recovery units and especially NOT in cylinders.
- Recovered refrigerant MUST NOT be charged into another refrigerant system unless it has been cleaned and checked.

WARNING

If compressor is to be removed, ensure that the compressor has been evacuated to an acceptable level to make sure that flammable refrigerant does NOT remain within the lubricant. The evacuation process MUST be carried out prior to returning the compressor to the supplier. During the refrigerant recovery, confirm that the crankcase heater of the compressor body is energized to accelerate this process. When oil is drained from a system, it MUST be carried out safely.

1.4 Cautions

CAUTION

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

CAUTION

To avoid injury, do NOT touch the air inlet or aluminium fins of the unit.

CAUTION

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

1.5 Notices

NOTICE

- Make sure water quality complies with EU directive 2020/2184.
- Check the system for leaks after each repair/modification of the water side.
- Check drainage system(s) after repairs.
- Be careful when tilting units as water may leak.

NOTICE

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

NOTICE

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

NOTICE

- Before replacing any component in the refrigerant circuit, or at time of de-commissioning (except if after R32 leak detection indoor), please perform procedure "**refrigerant recovery when repair refrigerant component**".
- When R32 leak detection occurred, prior to start repair of the source of refrigerant leak, please perform "**refrigerant recovery prior to repair refrigerant leak indoor**".

2 General operation

VRV 5-S R32 Mini-VRV Heat-Pump system consists of:

- Outdoor unit(s)
- Indoor units
- Piping

Outdoor units

VRV 5-S R32 Mini-VRV Heat-Pump system has ONLY one type of outdoor unit casing.

TBM casing (4/5/6 HP)

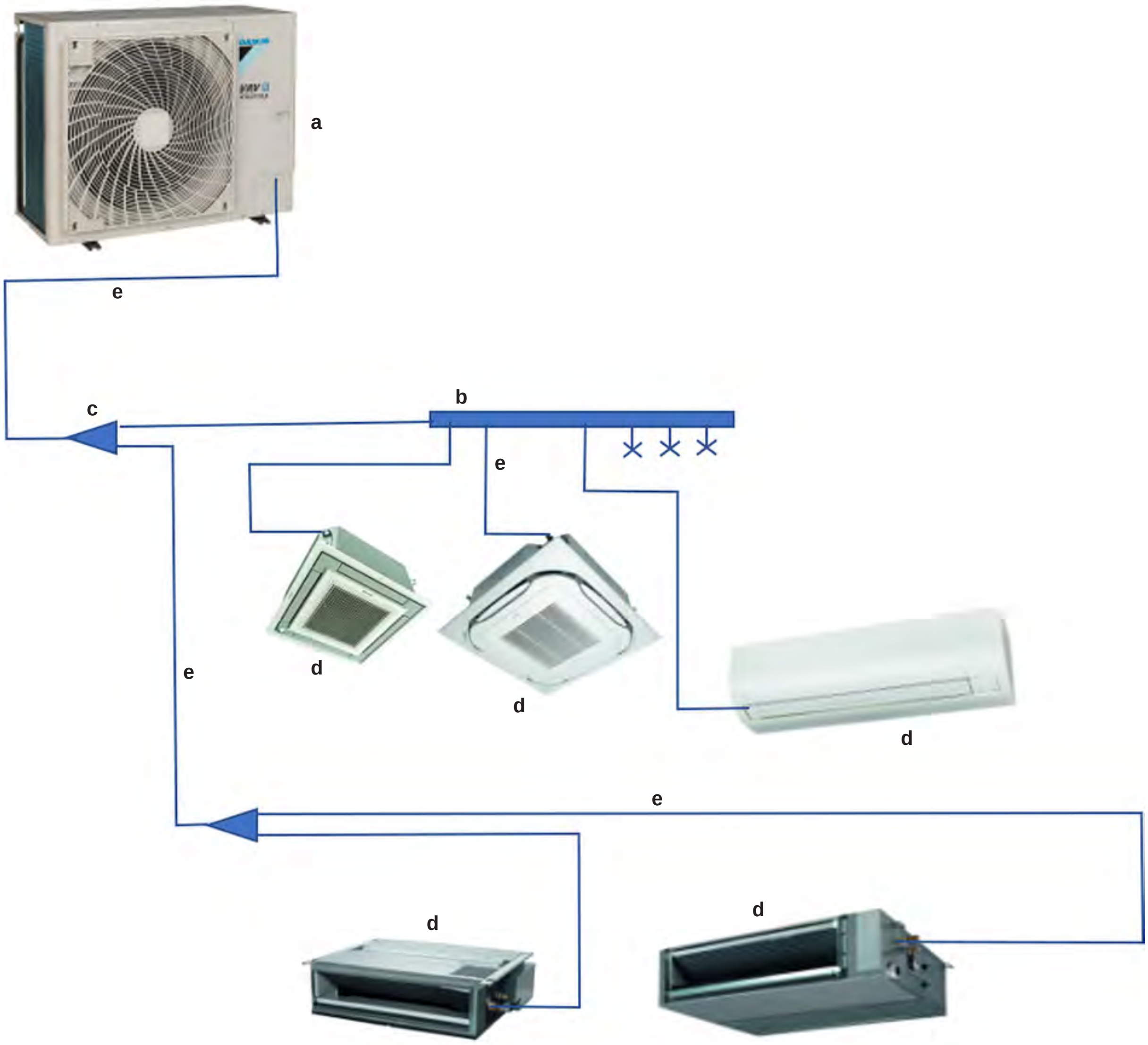

VRV 5-S R32 Mini-VRV Heat-Pump RXYSA4~6 units can ONLY be used in single combination.

RXYSA4~6 units CANNOT be used as multi units. This will result in compatibility error.

CAUTION

There is NO compatibility between R32 and R410A type refrigerant units.

- Field piping MUST be thermally insulated copper piping.
- Single branch selector unit offers ONLY 1 refrigerant circuit.
- One or more indoor units can be connected. To split the refrigerant circuit from the outdoor unit to the different indoor units, optional accessory refnets (KHRQ22M) MUST be used.
- Minimum 50% and maximum 130% of outdoor index MUST be connected to the outdoor unit.
- Outdoor unit heat exchanger is controlled via an expansion valve.
- In cooling mode, outdoor heat exchanger is set as condenser (4-way valve coil de-energized).
- In heating mode, outdoor heat exchanger is set as evaporator (4-way valve coil energized 230 V AC).

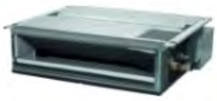


a VRV 5-S R32 Mini-VRV Heat-Pump outdoor unit
b Refnet header (KHRQ22M29H)
c Refnet joint (KHRQ22M20T)
d VRV Indoor unit for R32 refrigerant
e Refrigerant pipes (gas + liquid)

> **INFORMATION**
>
> Above illustration does NOT reflect allowed combination or compatibility. Intention is to give an overview on piping installation for different type of units.

Indoor units

VRV systems have combination limits for different types of indoor units and also limits for piping length and connection ratio for each indoor unit combination pattern. Refer to the Engineering Databook.
The list below is only for reference of compatible units. Always refer to Engineering Databook for compatibility.

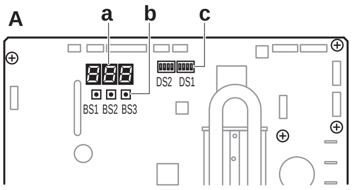
Round flow cassette FXFA		Concealed ceiling with medium ESP - FXSA	
Fully flat cassette FXZA		Wall mounted FXAA	
Concealed ceiling FXDA			

3 Troubleshooting

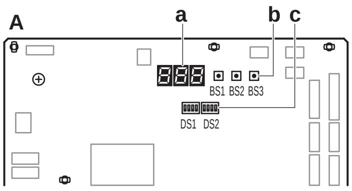
3.1 To access push buttons and 7-segment display

1 Open the outdoor unit, see "4.18 Plate work" [▶ 260].

Result: The push buttons and 7-segment display are located on A1P.



A RXYSA4~6A7V1B main PCB
a 7-segment display
b Push buttons
c DIP switches



A RXYSA4~6A7Y1B main PCB
a 7-segment display
b Push buttons
c DIP switches

2 Active error code is highlighted on the 7-segment display.

3.2 To retrieve error codes and check error history

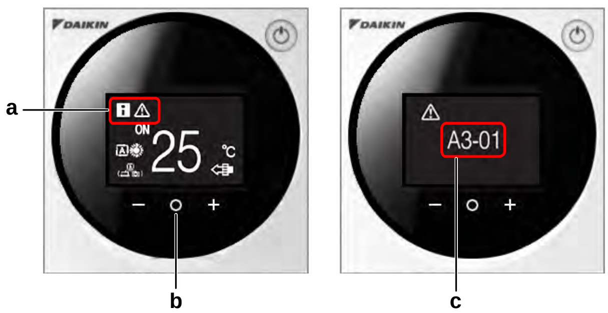
3.2.1 Via the indoor unit remote controller BRC1H

INFORMATION

Images are in English and for reference ONLY. For more details on the Madoka Assistant please refer to the BRC1H training course material which is available on the Daikin Business Portal.

To retrieve the error code

To indicate a system error, the controller displays ⚠ on the messages zone of the home screen.



a Messages zone
b Middle button ○

c Error screen

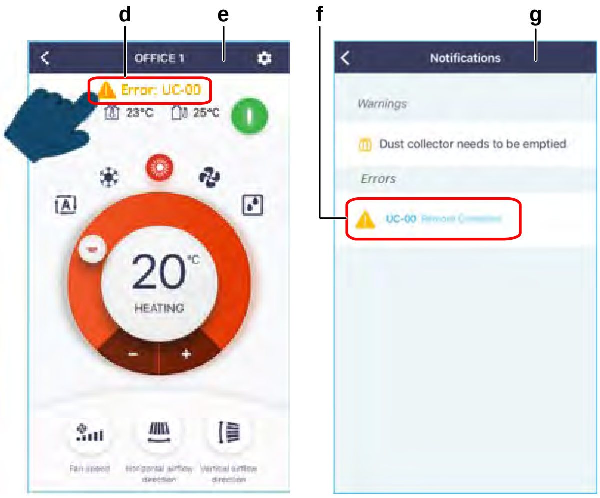
1 Press the middle button to enter the main menu from the home screen.

Result: An error screen is displayed.

2 Press the middle button to return to the home screen.

Active error codes are also accessible through the Madoka Assistant for BRC1H.

The active error is shown on the home screen.



d Active error
e Home screen
f Error(s) details
g Notifications screen

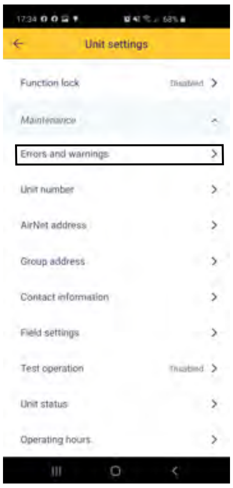
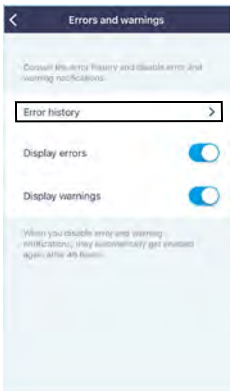
3 Tap the active error.

Result: The detail(s) of the error(s) are shown on the Notifications screen.

To check the error history

To check the error history with the Madoka Assistant for BRC1H:

#	Action	Image for reference	Result
1	Tap the settings icon.		The Unit settings screen is displayed.

#	Action	Image for reference	Result
2	Tap Errors and warnings.		The Errors and warnings screen is displayed.
3	Tap Error history.		 The Error history screen is displayed.

3.2.2 Via the outdoor unit

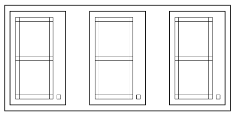
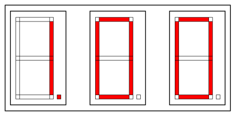
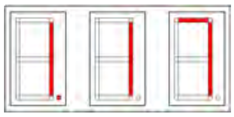
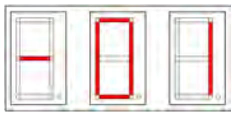
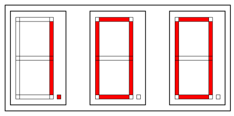
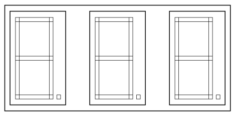
Error codes and/or retry descriptions are accessible on “Mode 1: Monitor Mode”.

The table below shows which setting shows the error codes that led to an outdoor unit forced stop and/or retry.

- When an error is generated, the unit performs a forced off until the error is retrieved.
- On retry, the system attempts to stay in operation. Depending on the type of root cause, after a certain amount of retry attempts, the unit generates an error. Retry cause is also visible as an item on the service monitoring tool.

Mode	Setting	Description
Mode 1: Monitor mode	17	Error code last forced off
	18	Error code 2nd last forced off
	19	Error code 3rd last forced off
	23	Error code last retry
	24	Error code 2nd last retry
	25	Error code 3rd last retry

Please follow the procedure described below to access the regarding error code for outdoor unit forced stop and/or retry description:

Action	Result	Display
Make sure the 7-segment display indication is as during normal operation.		
To enter "Mode 1", push the (BS1) button one time	Mode 1 is accessed.	
Push the (BS2) button as many times as the setting you want to go to.	The setting is accessed (e.g. 17, Error code last forced off)	
Press the RETURN (BS3) Button.	Malfunction/Retry item will appear on display.	
Press the SET (BS2) Button.	Detailed Malfunction/ Retry sub-code will appear on display.	
Press SET (BS2) once again to return to main Malfunction/Retry display.	Main Malfunction/Retry item will appear on display.	
Press the RETURN (BS3) Button to return to Home Screen for "Monitoring Mode".	Home Screen for "Monitoring Mode" will appear on display.	
Press the MODE (BS1) Button to return to "Normal Mode".	Back in normal mode.	

3.2.3 Via service monitoring tool

With the service monitoring tool, it is possible to monitor not only error codes but also some common retries and stepping down controls:

- Unit error
- Error code
- High pressure retry
- Low pressure retry
- Discharge pipe retry
- Inverter retry
- High pressure stepping down control
- Low pressure stepping down control
- Over current stepping down control
- Fin temperature stepping down control
- Compressor discharging stepping down control

3.3 Error based troubleshooting

3.3.1 A0-00 – External protection device activated

Trigger	Effect	Reset
T1-T2 input is ON and field setting 22-1=3.	Unit will stop operating	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check if the field setting 22-1 is correctly set according to the following wiring situations on T1-T2 of X1M terminal of the indoor unit. See "7.9 Field settings" [▶ 396]. Correct as needed.

- No wiring connected: Field setting 22-1=1
- Wiring connected to a window or door contact: Field setting 22-1=1
- Wiring connected to a remote operation switch: Field setting 22-1=2
- Wiring connected to an external protection device (fire alarm, R32 leak detection sensor,...): Field setting 22-1=3
  Possible cause: Incorrect field setting.

2 If wiring connected to T1-T2 of X1M terminal of the indoor unit, check correct connection and continuity of the wiring. See "7.2 Wiring diagram" [▶ 343].

Possible cause: Faulty or damaged wiring between T1-T2 of X1M terminal of the indoor unit and external device.

3 If wiring is connected, measure on T1-T2 of X1M terminal of the indoor unit to check for the correct functioning of the external device:

- Wiring connected to a window or door contact: Open circuit (unit continues previous operation, remote controller enabled) when window / door is closed, short-circuit (forced stop, remote controller buttons disabled) when window / door is open. Replace window / door contact if incorrect measurement.
  Possible cause: Faulty window / door contact.
- Wiring connected to a remote operation switch: Open circuit when OFF command to the unit, short-circuit when ON command to the unit. Replace remote operation switch if incorrect measurement.
  Possible cause: Faulty remote operation switch.
- Wiring connected to an external protection device (fire alarm, R32 leak detection sensor,...): Short-circuit when normal operation, open circuit (forced stop with error code A0-00) when external protection device is active. If open circuit is detected, check and eliminate the root cause why the protection device is activated. Do NOT try to run the unit until the root cause is eliminated. If NO root cause was found, protection device may be faulty. Replace as needed.
  Possible cause: Root cause of external protection device activation or faulty external protection device.

4 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

5 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.2 A0-11 – R32 leakage detection

Trigger	Effect	Reset
The R32 sensor indoor unit detected a refrigerant leak while fan of indoor unit is switched ON.	Indoor unit will stop operating after end of automatic refrigerant recovery to the outdoor unit.	▪ Power reset of the indoor unit. ▪ Set field setting 25-14-01 to 02 on the remote controller of the faulty indoor unit. ▪ Outdoor unit shows error “UA-55”. Set field setting 2-47 to 1 on the outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check the field piping for refrigerant leak. Check saturation pressure of the field piping via the liquid service port and gas stop valve.

2 If saturation pressure (gas and/or liquid) <outdoor ambient temperature, refrigerant leak is present. Perform as follows to repair the refrigerant leak:

- Recover the refrigerant, see "To recuperate the refrigerant" [▶ 320].
- Repair the field piping.
- Perform a pressure test of the field piping.
- Replace the R32 leak detection sensor of the indoor unit with error code A0-11. After replacement, indoor unit will display error code CH-10.
- Recharge the refrigerant at the outdoor unit. Consult amount sticker. See installation manual of the outdoor unit for correct refrigerant charge procedure.
- Fill in the logbook.

  Possible cause: Refrigerant leak at indoor unit side.

3 If saturation pressure (gas and/or liquid) = outdoor ambient temperature, NO refrigerant leak is present. Perform as described below.

4 Perform a check of the R32 leak detection sensor of the faulty indoor unit. See "4.20 R32 leak detection sensor" [▶ 277].

Possible cause: Faulty R32 leak detection sensor.

5 Check if any external (foreign) vapor substance influenced the functioning of the R32 leak detection sensor. Repair as needed.

Possible cause: External (foreign) vapor substance reacted with R32 leak detection sensor.

6 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.3 A0-13 – False R32 leakage detection

Trigger	Effect	Reset
The R32 sensor indoor unit detected a refrigerant leak while fan of indoor unit is switched OFF.	Indoor unit will start forced fan operation to check R32 leak detection.	Automatic reset if NO R32 leak detected during forced fan operation.
		A0-11 error will be displayed when R32 leak detected during forced fan operation.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check the field piping for refrigerant leak. Check saturation pressure of the field piping via the liquid service port and gas stop valve.

2 If saturation pressure (gas and/or liquid) <outdoor ambient temperature, refrigerant leak is present. Perform as follows to repair the refrigerant leak:

- Recover the refrigerant, see "To recuperate the refrigerant" [▶ 320].
- Repair the field piping.
- Perform a pressure test of the field piping.
- Replace the R32 leak detection sensor of the indoor unit with error code A0-11. After replacement, indoor unit will display error code CH-10.
- Recharge the refrigerant at the outdoor unit. Consult amount sticker. See installation manual of the outdoor unit for correct refrigerant charge procedure.
- Fill in the logbook.

  Possible cause: Refrigerant leak at indoor unit side.

3 If saturation pressure (gas and/or liquid) = outdoor ambient temperature, NO refrigerant leak is present. Perform as described below.

4 Perform a check of the R32 leak detection sensor of the faulty indoor unit. See "4.20 R32 leak detection sensor" [▶ 277].

Possible cause: Faulty R32 leak detection sensor.

5 Check if any external (foreign) vapor substance influenced the functioning of the R32 leak detection sensor. Repair as needed.

Possible cause: External (foreign) vapor substance reacted with R32 leak detection sensor.

6 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.4 A1-00 – Main PCB abnormality

Trigger	Effect	Reset
Data read error from EEPROM.	Unit will stop operating.	Power reset of indoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

2 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.5 A3-00 – Drain water level abnormality

Trigger	Effect	Reset
Float switch is open circuit during normal operation.	The indoor unit with this error will stop refrigerant flow (expansion valve OFF) and will resume fan operation (fan ON). All other indoor units and outdoor unit will continue operating.	Remote controller reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check the power supply to the indoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance),
- Phase missing,
- Power drop,
- Short circuit.

2. Check for excess water level in the drain pan. Empty the drain pan and correct installation of drain piping as needed. See indoor unit installation manual for more detailed information.

   Possible cause: Excess water in the drain pan and/or incorrect installation of drain piping.

3. Perform a check of the float switch. See "4.9 Float switch" [▶ 208].

   Possible cause: Faulty float switch.

4. Perform a check of the drain pump. See "4.7 Drain pump" [▶ 199].

   Possible cause: Faulty drain pump.

5. Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

   Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.6 A6-01 – Fan motor abnormality - motor lock

Trigger	Effect	Reset
Fan speed does NOT rise when PCB command fan ON.	The indoor unit that has the error will stop operating (fan OFF, expansion valve OFF) while all other indoor units and outdoor unit will continue operating for indoor units without error.	Remote controller reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Check the power supply to the indoor unit. See "5.1 Electrical circuit" [▶ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance),
   - Phase missing,
   - Power drop,
   - Short circuit.

2. Perform a check of the indoor unit fan motor. See "4.12 Indoor unit fan motor" [▶ 211].

   Possible cause: Faulty indoor unit fan motor.

For FXSA indoor units

1 Perform a check of the indoor unit fan PCB. See "4.13 Indoor unit fan PCB" [▸ 211].

Possible cause: Faulty indoor unit fan PCB.

For all other indoor units

1 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▸ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.7 A6-10 – Fan motor abnormality - overcurrent or IPM protection

Trigger	Effect	Reset
PCB detects too high current.	The indoor unit that has the error will stop operating (fan OFF, expansion valve OFF) while all other indoor units and outdoor unit will continue operating for indoor units without error.	Remote controller reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check the power supply to the indoor unit. See "5.1 Electrical circuit" [▸ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance),
- Phase missing,
- Power drop,
- Short circuit.

2 Perform a check of the indoor unit fan motor. See "4.12 Indoor unit fan motor" [▸ 211].

Possible cause: Faulty indoor unit fan motor.

For FXSA indoor units

1 Perform a check of the indoor unit fan PCB. See "4.13 Indoor unit fan PCB" [▸ 211].

Possible cause: Faulty indoor unit fan PCB.

For all other indoor units

1 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▸ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.8 A6-11 – Fan motor abnormality - position detection error

Trigger	Effect	Reset
While unit is running: actual rotation speed by Hall IC sensor on fan motor <fan step command by PCB or no position signal from Hall IC sensor.	The indoor unit that has the error will stop operating (fan OFF, expansion valve OFF) while all other indoor units and outdoor unit will continue operating for indoor units without error.	Remote controller reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check the power supply to the indoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance),
- Phase missing,
- Power drop,
- Short circuit.

2 Perform a check of the indoor unit fan motor. See "4.12 Indoor unit fan motor" [▶ 211].

Possible cause: Faulty indoor unit fan motor.

For FXSA indoor units

1 Perform a check of the indoor unit fan PCB. See "4.13 Indoor unit fan PCB" [▶ 211].

Possible cause: Faulty indoor unit fan PCB.

For all other indoor units

1 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.9 A8-01 – Fan motor abnormality - power supply abnormality

Trigger	Effect	Reset
Input voltage detected by PCB too low or too high.	The indoor unit that has the error will stop operating (fan OFF, expansion valve OFF) while all other indoor units and outdoor unit will continue operating for indoor units without error.	Remote controller reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1. Check the power supply to the indoor unit. See "5.1 Electrical circuit" [▸ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance),
   - Phase missing,
   - Power drop,
   - Short circuit.

For FXSA indoor units

1. Perform a check of the indoor unit fan PCB. See "4.13 Indoor unit fan PCB" [▸ 211].

   Possible cause: Faulty indoor unit fan PCB.

For all other indoor units

1. Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▸ 212].

   Possible cause: Faulty indoor unit main PCB.

For all indoor units

2. Perform a check of the indoor unit fan motor. See "4.12 Indoor unit fan motor" [▸ 211].

   Possible cause: Faulty indoor unit fan motor.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.10 A9-01 – Y1E Expansion valve coil abnormality

Trigger	Effect	Reset
Upon power reset, Y1E expansion valve coil is NOT detected.	Unit will stop operating.	Power reset of indoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check the power supply to the indoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance),
- Phase missing,
- Power drop,
- Short circuit.

2 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

3 Perform a check of the indoor unit expansion valve. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty expansion valve.

4 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.11 A9-02 – Y1E Expansion valve body abnormality

Trigger	Effect	Reset
Difference between gas temperature and liquid temperature too high or liquid temperature too low during cooling operation, thermostat OFF.	The indoor unit with this error will stop refrigerant flow (expansion valve OFF) and will resume fan operation (fan ON). All other indoor units and outdoor unit will continue operating.	Power reset of indoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check the power supply to the indoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance),
- Phase missing,
- Power drop,
- Short circuit.

2 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▸ 326].

Possible cause: External source may cause interference.

3 Perform a check of the indoor unit refrigerant gas thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty refrigerant gas thermistor or connector fault.

4 Perform a check of the indoor unit refrigerant liquid thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty refrigerant liquid thermistor.

5 Perform a check of the indoor unit expansion valve. See "4.8 Expansion valve" [▸ 199].

Possible cause: Faulty expansion valve.

6 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▸ 212].

Possible cause: Faulty indoor unit main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.12 AF-00 – Drain back flow

Trigger	Effect	Reset
During drain pump OFF, float switch opens, drain pump recovery operation starts for 10 minutes. When drain pump recovery restarted 5 times, error code AF-00 is displayed.	Unit will stop thermostat during drain pump recovery operation.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check for excess water level in the drain pan. Check drain connector to the common drain pipe, and make sure minimum height is respected. Empty the drain pan and correct installation of drain piping as needed. See indoor unit installation manual for more detailed information.

Possible cause: Excess water in the drain pan and/or incorrect installation of drain piping. Drain water from other operating indoor unit may run into the indoor unit with non-operating drain pump.

2 Perform a check of the float switch. See "4.9 Float switch" [▸ 208].

Possible cause: Faulty float switch.

3 Perform a check of the drain pump. See "4.7 Drain pump" [▸ 199].

Possible cause: Faulty drain pump.

4 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▸ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.13 AH-03 – Communication error between main PCB and self cleaning panel PCB

Trigger	Effect	Reset
NO communication between the indoor unit main PCB and the self-cleaning decoration panel PCB.	Unit will stop operating.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the main PCB of the self-cleaning decoration panel. See "4.24.6 Main PCB" [▸ 288].

Possible cause: Faulty main PCB of the self-cleaning decoration panel.

2 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▸ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.14 AH-04 – Dust detection sensor error

Trigger	Effect	Reset
Dust sensor faulty PCB.	Unit will stop operating.	Auto reset when dust sensor PCB normal input.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the dust sensor unit. See "4.24.4 Dust sensor unit" [▸ 288].

Possible cause: Faulty dust sensor unit.

2 Perform a check of the main PCB of the self-cleaning decoration panel. See "4.24.6 Main PCB" [▸ 288].

Possible cause: Faulty main PCB of the self-cleaning decoration panel.

3 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

4 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.15 AH-05 – Dust detection error

Trigger	Effect	Reset
Dust collection sensor deeetects abnormality in dust collector tube.	Unit will stop operating.	Auto reset when dust sensor PCB normal input.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check for the presence of a blockage in the dust collector tube. Remove the blockage and/or empty the dust collector tank as needed.

Possible cause:

- Dust remaining in the dust collector tube,
- Dust collector tank full,
- Air passage blocking plate of the drain pan was NOT removed during installation.

2 Perform a check of the dust sensor unit. See "4.24.4 Dust sensor unit" [▶ 288].

Possible cause: Faulty dust sensor unit.

3 Perform a check of the main PCB of the self-cleaning decoration panel. See "4.24.6 Main PCB" [▶ 288].

Possible cause: Faulty main PCB of the self-cleaning decoration panel.

4 Check the correct installation of the gears between the damper and damper motor. Check the status and correct installation of the damper.

Possible cause:

- Faulty gears between damper and damper motor,
- Incorrectly installed or broken damper.

5 Perform a check of the brush motor of the self-cleaning decoration panel. See "4.24.2 Brush motor" [▶ 288].

Possible cause: Faulty brush motor.

6 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

7 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.16 AH-06 – Air filter rotation error

Trigger	Effect	Reset
Status of limit switch S1C NOT changing while air filter motor is energized (minimum 10 cycles open/close when energized ±60 seconds).	Unit will stop operating.	Auto reset when limit switch functions correctly.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check if the air filter is correctly installed. Perform “manual clean” (press and hold the BS1 button of the self-cleaning panel main PCB until self-cleaning operation starts).

Possible cause: Blocked air filter.

2 Perform a check of the limit switch S1C of the self-cleaning decoration panel. See "4.24.5 Limit switch" [▶ 288].

Possible cause: Faulty limit switch.

3 Perform a check of the air filter motor of the self-cleaning decoration panel. See "4.24.1 Air filter motor" [▶ 288].

Possible cause: Faulty air filter motor.

4 Perform a check of the main PCB of the self-cleaning decoration panel. See "4.24.6 Main PCB" [▶ 288].

Possible cause: Faulty main PCB of the self-cleaning decoration panel.

5 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

6 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.17 AH-07 – Damper rotation error

Trigger	Effect	Reset
Status of limit switch S2C NOT changing while damper motor is energized (minimum 10 cycles open/close when energized ±60 seconds).	Unit will stop operating.	Auto reset when limit switch functions correctly.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check if the damper is correctly installed. Perform “manual clean” (press and hold the BS1 button of the self-cleaning panel main PCB until self-cleaning operation starts).

Possible cause: Blocked damper.

2 Perform a check of the limit switch S2C of the self-cleaning decoration panel. See "4.24.5 Limit switch" [▶ 288].

Possible cause: Faulty limit switch.

3 Perform a check of the damper motor of the self-cleaning decoration panel. See "4.24.3 Damper motor" [▶ 288].

Possible cause: Faulty damper motor.

4 Perform a check of the main PCB of the self-cleaning decoration panel. See "4.24.6 Main PCB" [▶ 288].

Possible cause: Faulty main PCB of the self-cleaning decoration panel.

5 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

6 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.18 AH-08 – Filter clean time error

Trigger	Effect	Reset
Auto filter cleaning scheduled during (continuous) operation of indoor unit. Self-cleaning ONLY possible when indoor unit is switched OFF.	Unit will stop operating.	Auto reset.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check the settings for self-cleaning. If chosen for schedules cleaning, verify date and time for self-cleaning operation is set correctly (outside the operation period of the indoor unit). See "7.9 Field settings" [▶ 396].

Possible cause:
- Automatic self-cleaning is scheduled during operation period of indoor unit,
- Wrong date and time setting.

2 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

3 Perform “manual clean” (press and hold the BS1 button of the self-cleaning panel main PCB until self-cleaning operation starts) while indoor unit is OFF.

Possible cause: Continuous operation of the indoor unit disables the automatic self-cleaning function.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.19 AH-09 – Auto self-cleaning disabled

Trigger	Effect	Reset
Auto filter cleaning automatic starting method during (continuous) operation of indoor unit. Self-cleaning ONLY possible when indoor unit is switched OFF.	Unit will stop operating.	Auto reset.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check the settings for self-cleaning. If NO scheduled cleaning (NO date and time set for self-cleaning operation), automatic starting self-cleaning MUST be possible. Make sure that automatic starting self-cleaning is enabled. See "7.9 Field settings" [▶ 396].

Possible cause: Automatic starting self-cleaning is disabled, possibly by continuous operation of indoor unit.

2 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

3 Perform “manual clean” (press and hold the BS1 button of the self-cleaning panel main PCB until self-cleaning operation starts) while indoor unit is OFF.

Possible cause: Continuous operation of the indoor unit disables the automatic self-cleaning function.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.20 AJ-01 – A1P Capacity setting error

Trigger	Effect	Reset
Capacity class CANNOT be read by indoor unit main PCB.	The indoor unit that has the error will stop operating (fan OFF, expansion valve OFF) while all other indoor units and outdoor unit will continue operating for indoor units without error.	Power reset of indoor unit.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check the power supply to the indoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance),
- Phase missing,
- Power drop,
- Short circuit.

2 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

3 Check if the correct spare part is installed for the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212]. Check that the correct capacity setting adapter is connected to X23A of the PCB.

Possible cause: Incorrect spare part PCB or incorrect capacity setting adapter.

4 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.21 AJ-02 – A1P Setting error for Y1E expansion valve

Trigger	Effect	Reset
Y1E expansion valve type CANNOT be read by PCB A1P.	The indoor unit with this error will stop refrigerant flow (expansion valve OFF) and will resume fan operation (fan ON). All other indoor units and outdoor unit will continue operating.	Power reset of indoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check the power supply to the indoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance),
- Phase missing,
- Power drop,
- Short circuit.

2 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

3 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.22 C1-01 – Communication abnormality between main PCB and fan PCB

Trigger	Effect	Reset
Communication abnormality between indoor unit main PCB and indoor unit fan PCB.	The indoor unit with this error will stop refrigerant flow (expansion valve OFF) and will resume fan operation (fan ON). All other indoor units and outdoor unit will continue operating.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Check communication wiring (insertion and continuity) on connector X3A on the indoor unit fan PCB and connector X70A on the indoor unit main PCB. See "7.2 Wiring diagram" [▶ 343].

   Possible cause: Faulty or damaged communication wiring between indoor unit fan PCB and indoor unit main PCB.

2. Perform power reset. If error is NOT resolved:

   - Perform a check of the indoor unit fan PCB. See "4.13 Indoor unit fan PCB" [▶ 211].
     Possible cause: Faulty indoor unit fan PCB.
     Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].
     Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.23 C1-02 – Communication abnormality between main PCB and option PCB

Trigger	Effect	Reset
Communication abnormality between indoor unit main PCB and option PCB ERP01A50/51.	The indoor unit with this error will stop refrigerant flow (expansion valve OFF) and will resume fan operation (fan ON). All other indoor units and outdoor unit will continue operating.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check communication wiring (insertion and continuity) on connector X40A on the indoor unit main PCB and connector X5A on the option PCB ERP01A50/51. See "7.2 Wiring diagram" [▶ 343].

Possible cause: Faulty or damaged communication wiring between indoor unit main PCB and option PCB.

2 Perform power reset. If error is NOT resolved:

- Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].
  Possible cause: Faulty indoor unit main PCB.
  Perform a check of the option PCB ERP01A50/51. See "5.3 Manufacturer components" [▶ 325].
  Possible cause: Faulty option PCB ERP01A50/51.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.24 C4-02 – Liquid thermistor short circuit

Trigger	Effect	Reset
Indoor unit liquid thermistor detected short-circuit.	The indoor unit with this error will stop refrigerant flow (expansion valve OFF) and will resume fan operation (fan ON). All other indoor units and outdoor unit will continue operating.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the indoor unit refrigerant liquid thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty refrigerant liquid thermistor.

2 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.25 C4-03 – Liquid thermistor open circuit

Trigger	Effect	Reset
Indoor unit liquid thermistor detected open circuit.	The indoor unit with this error will stop refrigerant flow (expansion valve OFF) and will resume fan operation (fan ON). All other indoor units and outdoor unit will continue operating.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1. Perform a check of the indoor unit refrigerant liquid thermistor. See "4.26 Thermistors" [▸ 297].

   Possible cause: Faulty refrigerant liquid thermistor.

2. Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▸ 212].

   Possible cause: Faulty indoor unit main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.26 C5-02 – Gas thermistor short circuit

Trigger	Effect	Reset
Indoor unit gas thermistor detected short-circuit.	The indoor unit with this error will stop refrigerant flow (expansion valve OFF) and will resume fan operation (fan ON). All other indoor units and outdoor unit will continue operating.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1. Perform a check of the indoor unit refrigerant gas thermistor. See "4.26 Thermistors" [▸ 297].

   Possible cause: Faulty refrigerant gas thermistor or connector fault.

2. Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▸ 212].

   Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.27 C5-03 – Gas thermistor open circuit

Trigger	Effect	Reset
Indoor unit gas thermistor detected open circuit.	The indoor unit with this error will stop refrigerant flow (expansion valve OFF) and will resume fan operation (fan ON). All other indoor units and outdoor unit will continue operating.	Auto reset.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Perform a check of the indoor unit refrigerant gas thermistor. See "4.26 Thermistors" [▶ 297].

   Possible cause: Faulty refrigerant gas thermistor or connector fault.

2. Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

   Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.28 C6-01 – Compatibility error between main PCB and fan PCB

Trigger	Effect	Reset
Indoor unit main PCB detected incompatible type indoor unit fan PCB.	The indoor unit that has the error will stop operating (fan OFF, expansion valve OFF) while all the other indoor units and outdoor unit will continue operating for indoor units without error.	Auto reset.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check if the correct spare part is installed for the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Incorrect spare part PCB.

2 Check if the correct spare part is installed for the indoor unit fan PCB. See "4.13 Indoor unit fan PCB" [▶ 211].

Possible cause: Incorrect spare part PCB.

3 Perform power reset. If error is NOT resolved:

- Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].
  Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.29 C9-02 – Air thermistor short circuit

Trigger	Effect	Reset
Indoor unit air thermistor detected short-circuit.	The indoor unit with this error will stop refrigerant flow (expansion valve OFF) and will resume fan operation (fan ON). All other indoor units and outdoor unit will continue operating.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the indoor unit air thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty indoor unit air thermistor.

2 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.30 C9-03 – Air thermistor open circuit

Trigger	Effect	Reset
Indoor unit air thermistor detected open circuit.	The indoor unit with this error will stop refrigerant flow (expansion valve OFF) and will resume fan operation (fan ON). All other indoor units and outdoor unit will continue operating.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the indoor unit air thermistor. See "4.26 Thermistors" [▶ 297].

   Possible cause: Faulty indoor unit air thermistor.

2. Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

   Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.31 CE-01 – No signal presence sensor

Trigger	Effect	Reset
Presence sensor connector on indoor unit main PCB interrupts data after power connected.	Unit continues operating using air return or interface sensor without control from presence sensor (without auto flap control, without energy saving options).	Auto reset when connection restored.
Indoor unit main PCB does NOT detect signal from presence sensor of the optional kit BRYQ60/140B*.		

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform power reset of the indoor unit (minimum 10 seconds OFF).

   Possible cause: Optional kit BRYQ60/140B* is connected without indoor unit power reset.

2 Check wiring (insertion and continuity) on connector X81A on the indoor unit main PCB and connector CN on the presence sensor PCB A4P of the optional kit BRYQ60/140B*. See "7.2 Wiring diagram" [▸ 343].

Possible cause: Faulty or damaged wiring between indoor unit main PCB and presence sensor PCB.

3 Connect the remote controller BRC1E52,53A* instead of BRC1H52*. In the "Maintenance menu" - "Addressed sensor display", check code 22~25 (4 quadrants). See operation manual of the remote controller for more information.

- If "10": Presence sensor connector is loose. Properly connect the connector.
- If "15": Presence sensor (optional kit BRYQ60/140B*) is connected without indoor unit power reset. Perform power reset of the indoor unit (minimum 10 seconds OFF).
- If "0": No movement detected. Wave your hand around the presence sensor, value MUST change >0 for ±2 seconds. If NOT, perform a check of the presence sensor PCB of the optional kit BRYQ60/140B*. See "4.19 Presence sensor PCB" [▸ 277].
  Possible cause: Presence sensor (optional kit BRYQ60/140B*) NOT properly connected or faulty presence sensor.

4 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▸ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.32 CE-02 – No signal floor temperature sensor

Trigger	Effect	Reset
Indoor unit main PCB does NOT detect signal from floor temperature sensor of the optional kit BRYQ60/140B*.	Unit continues operating using air return or interface sensor without connection.	Auto reset when signal detection restored.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform power reset of the indoor unit (minimum 10 seconds OFF).

Possible cause: Optional kit BRYQ60/140B* is connected without indoor unit power reset.

2 Check wiring (insertion and continuity) on connector X81A on the indoor unit main PCB and connector CN on the floor temperature sensor PCB A3P of the optional kit BRYQ60/140B*. See "7.2 Wiring diagram" [▸ 343].

Possible cause: Faulty or damaged wiring between indoor unit main PCB and floor temperature sensor PCB.

3 Connect the remote controller BRC1E** instead of BRC1H52*. In the "Maintenance menu" - "Addressed sensor display", check code 26 (floor temperature [°C]). See operation manual of the remote controller for more information.

- If "- -": Floor temperature sensor connector is loose after power connection. Properly connect the connector.
- If "00": Floor temperature sensor connector is loose prior to power connection. Properly connect the connector and perform power reset of the indoor unit (minimum 10 seconds OFF).
- If "± the same as air return thermistor" (See "Maintenance menu" - "Addressed sensor display", code 01): Normal operation. If NO normal operation, perform a check of the floor temperature sensor PCB of the optional kit BRYQ60/140B*. See "4.10 Floor temperature sensor PCB" [▸ 208].

  Possible cause: Floor temperature sensor (optional kit BRYQ60/140B*) NOT properly connected or faulty floor temperature sensor.

4 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▸ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.33 CE-03 – Fault floor temperature sensor

Trigger	Effect	Reset
Floor temperature sensor of the optional kit BRYQ60/140B* detected short-circuit.	Unit continues operating using air return or interface sensor without connection.	Auto reset when correct signal detection restored.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform power reset of the indoor unit (minimum 10 seconds OFF).

Possible cause: Optional kit BRYQ60/140B* is connected without indoor unit power reset.

2 Check wiring (insertion and continuity) on connector X81A on the indoor unit main PCB and connector CN on the floor temperature sensor PCB A3P of the optional kit BRYQ60/140B*. See "7.2 Wiring diagram" [▸ 343].

Possible cause: Faulty or damaged wiring between indoor unit main PCB and floor temperature sensor PCB.

3 Connect the remote controller BRC1E** instead of BRC1H52*. In the "Maintenance menu" - "Addressed sensor display", check code 26 (floor temperature [°C]). See operation manual of the remote controller for more information.

- If "- -": Floor temperature sensor connector is loose after power connection. Properly connect the connector.
- If "00": Floor temperature sensor connector is loose prior to power connection. Properly connect the connector and perform power reset of the indoor unit (minimum 10 seconds OFF).
- If "± the same as air return thermistor" (See "Maintenance menu" - "Addressed sensor display", code 01): Normal operation. If NO normal operation, perform a check of the floor temperature sensor PCB of the optional kit BRYQ60/140B*. See "4.10 Floor temperature sensor PCB" [▶ 208].
  Possible cause: Floor temperature sensor (optional kit BRYQ60/140B*) NOT properly connected or faulty floor temperature sensor.

4 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.34 CE-04 – High value floor temperature sensor

Trigger	Effect	Reset
From floor temperature sensor of the optional kit BRYQ60/140B* detected open circuit.	Unit continues operating using air return or interface sensor without connection.	Auto reset when correct signal detection restored.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform power reset of the indoor unit (minimum 10 seconds OFF).

Possible cause: Optional kit BRYQ60/140B* is connected without indoor unit power reset.

2 Check wiring (insertion and continuity) on connector X81A on the indoor unit main PCB and connector CN on the floor temperature sensor PCB A3P of the optional kit BRYQ60/140B*. See "7.2 Wiring diagram" [▶ 343].

Possible cause: Faulty or damaged wiring between indoor unit main PCB and floor temperature sensor PCB.

3 Connect the remote controller BRC1E** instead of BRC1H52*. In the "Maintenance menu" - "Addressed sensor display", check code 26 (floor temperature [°C]). See operation manual of the remote controller for more information.

- If "- -": Floor temperature sensor connector is loose after power connection. Properly connect the connector.
- If "00": Floor temperature sensor connector is loose prior to power connection. Properly connect the connector and perform power reset of the indoor unit (minimum 10 seconds OFF).
- If "± the same as air return thermistor" (See "Maintenance menu" - "Addressed sensor display", code 01): Normal operation. If NO normal operation, perform a check of the floor temperature sensor PCB of the optional kit BRYQ60/140B*. See "4.10 Floor temperature sensor PCB" [▶ 208].

  Possible cause: Floor temperature sensor (optional kit BRYQ60/140B*) NOT properly connected or faulty floor temperature sensor.

4 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.35 CH-01 – R32 leak detection sensor failure or disconnected

Trigger	Effect	Reset
The R32 sensor NOT connected to indoor unit main PCB.	Indoor unit will stop operating while other indoor units show error U9-02. Outdoor unit forced stop (without automatic refrigerant recovery operation).	Set field setting 25-14-01 to 02 on the remote controller of the faulty indoor unit.
R32 sensor PCB failure		

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check wiring (insertion and continuity) on connector X41A on the indoor unit main PCB and connector CN1 on the PCB of the R32 leak detection sensor. See "7.2 Wiring diagram" [▶ 343].

Possible cause: Faulty or damaged wiring between indoor unit main PCB and R32 leak detection sensor.

2 Check the error history for error code A0-11, see "3 Troubleshooting" [▶ 20]. If A0-11 is found, R32 leak detection sensor was replaced after this error and power reconnected. Check if field setting 25-14=02. Correct if needed, see "7.9 Field settings" [▶ 396].

Possible cause: R32 leak detection sensor was replaced without adjusting field setting 25-14.

3 Perform a check of the R32 leak detection sensor of the faulty indoor unit. See "4.20 R32 leak detection sensor" [▶ 277].

Possible cause: Faulty R32 leak detection sensor.

4 Check if any external (foreign) vapor substance influenced the functioning of the R32 leak detection sensor. Repair as needed.

Possible cause: External (foreign) vapor substance reacted with R32 leak detection sensor.

5 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.36 CH-02 – R32 leak detection sensor life time is exceeded

Trigger	Effect	Reset
The R32 sensor detected operation of 10 years or more.	Indoor unit will stop operating. Other indoor units and outdoor unit will continue operating.	▪ Power reset of the indoor unit. ▪ Set field setting 25-14-01 to 02 on the remote controller of the faulty indoor unit. ▪ Outdoor unit shows error "UA-55". Set field setting 2-14 to 0 on the outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check the error history to see if R32 leak detection sensor was replaced, see "3 Troubleshooting" [▶ 20]. If replaced, check if timer was reset during sensor replacement. Reset as needed.

Possible cause: R32 leak detection sensor was replaced without timer reset.

2 Check the operation time of the R32 leak detection sensor of the faulty indoor unit. If operation time is 10 years, replace the R32 leak detection sensor. See "4.20 R32 leak detection sensor" [▶ 277].

Possible cause: R32 leak detection sensor operation time reached maximum value (10 years).

3 Perform a check of the R32 leak detection sensor of the faulty indoor unit. See "4.20 R32 leak detection sensor" [▶ 277].

Possible cause: Faulty R32 leak detection sensor.

4 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.37 CH-05 – R32 leak detection sensor life time <6 months

Trigger	Effect	Reset
The R32 sensor detected operation of 9.5 years or more.	Unit will continue operating.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1. Check the error history to see if R32 leak detection sensor was replaced, see "3 Troubleshooting" [▸ 20]. If replaced, check if timer was reset during sensor replacement. Reset as needed.

   Possible cause: R32 leak detection sensor was replaced without timer reset.

2. Check the operation time of the R32 leak detection sensor of the faulty indoor unit. If operation time approaches 10 years, order a new R32 leak detection sensor and replace at the next maintenance interval.

   Possible cause: R32 leak detection sensor operation time approaches maximum value (10 years).

3. Perform a check of the R32 leak detection sensor of the faulty indoor unit. See "4.20 R32 leak detection sensor" [▸ 277].

   Possible cause: Faulty R32 leak detection sensor.

4. Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▸ 212].

   Possible cause: Faulty indoor unit main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.38 CH-10 – R32 leak detection sensor replacement to confirm

Trigger	Effect	Reset
The R32 sensor detected disconnection between indoor unit main PCB and R32 sensor.	Indoor unit will stop operating. Other indoor units and outdoor unit will continue operating.	▪ Set field setting 25-14-01 to 02 on the remote controller of the faulty indoor unit. ▪ Outdoor unit shows error "UA-55". Set field setting 2-14 to 0 on the outdoor unit.
R32 sensor replaced and power reset after error A0-11		

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Check wiring (insertion and continuity) on connector X41A on the indoor unit main PCB and connector CN1 on the PCB of the R32 leak detection sensor. See "7.2 Wiring diagram" [▶ 343].

   Possible cause: Faulty or damaged wiring between indoor unit main PCB and R32 leak detection sensor.

2. Check the error history for error code A0-11, see "3 Troubleshooting" [▶ 20]. If A0-11 is found, R32 leak detection sensor was replaced after this error and power reconnected. Check if field setting 25-14=02. Correct if needed, see "7.9 Field settings" [▶ 396].

   Possible cause: R32 leak detection sensor was replaced without adjusting field setting 25-14.

3. Perform a check of the R32 leak detection sensor of the faulty indoor unit. See "4.20 R32 leak detection sensor" [▶ 277].

   Possible cause: Faulty R32 leak detection sensor.

4. Check if any external (foreign) vapor substance influenced the functioning of the R32 leak detection sensor. Repair as needed.

   Possible cause: External (foreign) vapor substance reacted with R32 leak detection sensor.

5. Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

   Possible cause: Faulty indoor unit main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.39 CJ-02 – Remote controller air thermistor short circuit

Trigger	Effect	Reset
Remote controller air thermistor detected short-circuit.	Indoor unit will continue operating, using indoor unit air thermistor as input.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Clear the error history of the remote controller. See operation manual of the remote controller for detailed information.
2. If error is still active, replace the remote controller. See "4.23 Remote controller user interface" [▶ 286].

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.40 CJ-03 – Remote controller air thermistor open circuit

Trigger	Effect	Reset
Remote controller air thermistor detected open circuit.	Indoor unit will continue operating, using indoor unit air thermistor as input.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1. Clear the error history of the remote controller. See operation manual of the remote controller for detailed information.
2. If error is still active, replace the remote controller. See "4.23 Remote controller user interface" [▸ 286].

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.41 E1-01 – Outdoor unit main PCB A1P error

Trigger	Effect	Reset
Main PCB fails reading/ writing memory (EEPROM error).	Unit will stop operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

2. Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance >4%),
   - Power drop,
   - Short circuit.

3. Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▸ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

4 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▸ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.42 E1-02 – Outdoor unit main PCB A1P error

Trigger	Effect	Reset
Defected main PCB.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

1 Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.43 E1-11 – Outdoor unit sub PCB A2P error

Trigger	Effect	Reset
Defected sub PCB.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

1 Perform a check of the Sub PCB. See "4.25 Sub PCB" [▸ 289].

Possible cause: Faulty Sub PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.44 E3-01 – Actuation of high pressure switch

Trigger	Effect	Reset
High pressure switch opens due to high pressure >safety value, "7.6 Safety devices" [▸ 388].	Unit will stop operating.	If field setting 2-15=1 (default): When pressure drops below the reset value, via the indoor unit remote controller, cycle OFF & ON.
		If field setting 2-15=0: When pressure drops below the reset value, press BS3 on main PCB on outdoor unit, and then via indoor unit remote controller, cycle OFF & ON.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1. Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▸ 313].

   Possible cause: Closed stop valve in the refrigerant circuit.

2. Check the required space around the outdoor unit heat exchanger. See "5.4 External factors" [▸ 326].

   Possible cause: Insufficient air flow or air by-pass due to required space specifications not met.

3. Clean the outdoor heat exchanger. See "6 Maintenance" [▸ 328].

   Possible cause: Dirty outdoor heat exchanger.

4. Perform a check of the high pressure switch. See "4.11 High pressure switch" [▸ 208].

   Possible cause: Faulty high pressure switch.

5. Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

   Possible cause: Refrigerant overcharge.

6. Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▸ 313].

   Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

7. Check if the refrigerant circuit is clogged. See "5.2 Refrigerant circuit" [▸ 313].

   Possible cause: Clogged refrigerant circuit.

8. Perform a check of the condenser side expansion valve. See "4.8 Expansion valve" [▸ 199].

   Possible cause: Faulty condenser side expansion valve.

9. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.45 E3-02 – High pressure error

Trigger	Effect	Reset
High pressure control (by sensor) active due to pressure >safety value certain times within certain minutes, see "7.6 Safety devices" [▶ 388].	Unit will stop operating.	If field setting 2-15=1 (default): Via the indoor unit remote controller, cycle OFF & ON.
		If field setting 2-15=0: Press BS3 on main PCB on outdoor unit, and then via indoor unit remote controller, cycle OFF & ON.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▶ 313].

   Possible cause: Closed stop valve in the refrigerant circuit.

2. Check the required space around the outdoor unit heat exchanger. See "5.4 External factors" [▶ 326].

   Possible cause: Insufficient air flow or air by-pass due to required space specifications not met.

3. Clean the outdoor heat exchanger. See "6 Maintenance" [▶ 328].

   Possible cause: Dirty outdoor heat exchanger.

4. Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▶ 277].

   Possible cause: Faulty refrigerant high pressure sensor.

5. Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

   Possible cause: Refrigerant overcharge.

6. Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▶ 313].

   Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

7. Check if the refrigerant circuit is clogged. See "5.2 Refrigerant circuit" [▶ 313].

   Possible cause: Clogged refrigerant circuit.

8. Perform a check of the condenser side expansion valve. See "4.8 Expansion valve" [▶ 199].

   Possible cause: Faulty condenser side expansion valve.

9. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.46 E3-07 – High pressure switch reset error

Trigger	Effect	Reset
High pressure switch did not reset and it stays activated.	Unit will stop operating.	If field setting 2-15=1 (default): Via the indoor unit remote controller, cycle OFF & ON.
		If field setting 2-15=0: Press BS3 on main PCB on outdoor unit, and then via indoor unit remote controller, cycle OFF & ON.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Closed stop valve in the refrigerant circuit.

2 Perform a check of the high pressure switch. See "4.11 High pressure switch" [▸ 208].

Possible cause: Faulty high pressure switch.

3 Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.47 E3-13 – Liquid stop valve check error

Trigger	Effect	Reset
Pressure builds up quickly on test run operation.	Unit will stop test run.	Eliminate the cause, repeat test operation procedure.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Closed stop valve in the refrigerant circuit.

2 Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▸ 277].

Possible cause: Faulty refrigerant high pressure sensor.

3 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Refrigerant overcharge.

4 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

5 Check if the refrigerant circuit is clogged. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Clogged refrigerant circuit.

6 Perform a check of the condenser side expansion valve. See "4.8 Expansion valve" [▸ 199].

Possible cause: Faulty condenser side expansion valve.

7 Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.48 E3-18 – Actuation of high pressure switch during test run

Trigger	Effect	Reset
High pressure switch is activated during test run.	Unit will stop test run.	If field setting 2-15=1 (default): Via the indoor unit remote controller, cycle OFF & ON.
		If field setting 2-15=0: Press BS3 on main PCB on outdoor unit, and then via indoor unit remote controller, cycle OFF & ON.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Closed stop valve in the refrigerant circuit.

2 Perform a check of the high pressure switch. See "4.11 High pressure switch" [▸ 208].

Possible cause: Faulty high pressure switch.

3 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Refrigerant overcharge.

4 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

5 Check if the refrigerant circuit is clogged. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Clogged refrigerant circuit.

6 Perform a check of the condenser side expansion valve. See "4.8 Expansion valve" [▸ 199].

Possible cause: Faulty condenser side expansion valve.

7 Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.49 E3-20 – High pressure switch (manual reset) activated (open contact)

Trigger	Effect	Reset
High pressure switch (manual reset) opens due to high pressure >safety value, see "7.6 Safety devices" [▸ 388].	Unit will stop operating.	Manual reset via the high pressure switch (in outdoor unit).

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Closed stop valve in the refrigerant circuit.

2 Check the required space around the outdoor unit heat exchanger. See "5.4 External factors" [▸ 326].

Possible cause: Insufficient air flow or air by-pass due to required space specifications not met.

3 Clean the outdoor heat exchanger. See "6 Maintenance" [▸ 328].

Possible cause: Dirty outdoor heat exchanger.

4 Perform a check of the high pressure switch (manual reset). See "4.11 High pressure switch" [▸ 208].

Possible cause: Faulty high pressure switch (manual reset).

5 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant overcharge.

6 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

7 Check if the refrigerant circuit is clogged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Clogged refrigerant circuit.

8 Perform a check of the condenser side expansion valve. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty condenser side expansion valve.

9 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.50 E4-01 – Low pressure error

Trigger	Effect	Reset
Low pressure control (by sensor) active due to <safety value certain times within certain minutes, see "7.6 Safety devices" [▶ 388].	Unit will stop operating.	Manual reset via user interface.
		Automatic Reset when Low Pressure >reset value, see "7.6 Safety devices" [▶ 388].

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Closed stop valve in the refrigerant circuit.

2 Perform a cross-wiring check of the F1-F2 transmission wiring between the indoor units and outdoor unit. Set field setting 2-5 of the outdoor unit to 1 to start the indoor units connected to that outdoor unit on forced fan operation, see "7.9 Field settings" [▶ 396]. If any other indoor unit (that should be connected to a different outdoor unit) is operating, this indoor unit is connected to the wrong outdoor unit (cross-wired). Correct the wiring between the indoor unit(s) and outdoor unit.

Possible cause: F1-F2 transmission wiring is cross-wired with another outdoor unit system.

3 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant shortage.

4 Check for the presence of humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Humidity in the refrigerant circuit.

5 Check if the refrigerant circuit is clogged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Clogged refrigerant circuit.

6 Perform a check of the evaporator side expansion valve. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty evaporator side expansion valve.

7 Check the required space around the outdoor unit heat exchanger. See "5.4 External factors" [▶ 326].

Possible cause: Insufficient air flow or air by-pass due to required space specifications not met.

8 Clean the outdoor heat exchanger. See "6 Maintenance" [▶ 328].

Possible cause: Dirty outdoor heat exchanger.

9 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

Possible cause: Faulty refrigerant low pressure sensor.

10 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

11 Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.51 E5-01 – Compressor overload/Motor Lock Error (M1C)

Trigger	Effect	Reset
Compressor overload is detected for M1C.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Closed stop valve in the refrigerant circuit.

2 Check if the refrigerant circuit is clogged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Clogged refrigerant circuit.

3 Check if there are oil traps in the field piping. See installation manual for piping rules.

Possible cause: Compressor running without oil will draw higher current and get locked.

4 Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

5 Check liquid back issue. Check expansion valve operation. See "4.8 Expansion valve" [▶ 199].

Possible cause: Expansion valve CANNOT keep minimum superheat of 3 K while running as evaporator.

6 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant shortage.

7 Perform a check of the 4-way valve. See "4.1 4-way valve" [▶ 165].

Possible cause: Faulty 4-way valve.

8 Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty discharge pipe thermistor or connector fault.

9 Perform a check of the inverter circuit of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty inverter circuit on main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.52 E6-17 – Inverter overcurrent error

Trigger	Effect	Reset
Overcurrent on Inverter circuit of main PCB for Compressor M1C.	Unit will stop operating.	Manual reset via user interface.
Actual current value of the compressor is abnormally high compared to nominal current of the compressor for at least 30 minutes.		

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▶ 277].

Possible cause: Faulty refrigerant high pressure sensor.

2 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

Possible cause: Faulty refrigerant low pressure sensor.

3 Connect a pressure gauge to both high and low pressure service ports and read the high and low refrigerant pressure. Connect the service monitoring tool to the unit and compare the pressure values to the pressure read on the pressure gauges. In case the service monitoring tool read-out does NOT correspond with the pressures read through the pressure gauges, the main PCB needs to be replaced, see "4.15 Main PCB" [▸ 212].

4 Perform a check of the inverter circuit of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty inverter circuit on main PCB.

5 Perform a check of the compressor. See "4.4 Compressor" [▸ 181].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.53 E7-01 – Outdoor unit fan motor M1F error

Trigger	Effect	Reset
Malfunction of rotation detection for M1F. Careful, there is no rpm detection. Fan judgement is based on logic by current drawn.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Perform a check of the fan inverter circuit of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty fan inverter circuit on main PCB.

2 Check if power supply cable to fan motor is NOT loose. Check connector X106A on main PCB. See "To check the wiring of the main PCB" "4.15 Main PCB" [▸ 212]. Check wire to fan motor M1F.

Possible cause: Faulty power supply cable to fan motor M1F.

3 Perform a check of the outdoor unit fan motor M1F. See "4.17 Outdoor unit fan motor" [▸ 253].

Possible cause: Faulty outdoor unit fan motor M1F.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.54 E7-05 – Outdoor unit fan motor M1F overcurrent error

Trigger	Effect	Reset
Overcurrent detected on outdoor unit fan motor M1F.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the fan inverter circuit of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty fan inverter circuit on main PCB.

2. Perform a check of the outdoor unit fan motor M1F. See "4.17 Outdoor unit fan motor" [▶ 253].

   Possible cause: Faulty outdoor unit fan motor M1F.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.55 E7-09 – Fan inverter circuit (integrated power module) overheated

Trigger	Effect	Reset
Fan inverter circuit on main PCB is overheated.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the fan inverter circuit of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty fan inverter circuit on main PCB.

2. Check the required space around the outdoor unit heat exchanger. See "5.4 External factors" [▶ 326].

   Possible cause: Insufficient air flow or air by-pass due to required space specifications not met.

3. Clean the outdoor heat exchanger. See "6 Maintenance" [▶ 328].

   Possible cause: Dirty outdoor heat exchanger.

4. Perform a check of the inverter cooling expansion valve. See "4.8 Expansion valve" [▶ 199].

   Possible cause: Faulty inverter cooling expansion valve.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.56 E9-01 – Electronic expansion valve Y1E malfunction

Trigger	Effect	Reset
Main expansion valve Y1E malfunction.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
> When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

2. Perform a check of the main expansion valve. See "4.8 Expansion valve" [▶ 199].

   Possible cause: Faulty main expansion valve.

3. Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▶ 297].

   Possible cause: Faulty refrigerant side thermistor(s).

4. Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

   Possible cause: Faulty refrigerant low pressure sensor.

5. Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

   Possible cause: Refrigerant overcharge.

6. Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance >4%),
   - Power drop,
   - Short circuit.

7. Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

   Possible cause: External source may cause interference.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.57 E9-03 – Electronic expansion valve Y2E malfunction

Trigger	Effect	Reset
Subcool expansion valve Y2E malfunction.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

2. Perform a check of the subcool expansion valve. See "4.8 Expansion valve" [▶ 199].

   Possible cause: Faulty subcool expansion valve.

3. Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▶ 297].

   Possible cause: Faulty refrigerant side thermistor(s).

4. Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

   Possible cause: Faulty refrigerant low pressure sensor.

5. Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

   Possible cause: Refrigerant overcharge.

6. Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance >4%),
   - Power drop,
   - Short circuit.

7. Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

   Possible cause: External source may cause interference.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.58 E9-04 – Electronic expansion valve Y3E abnormality

Trigger	Effect	Reset
Inverter cooling expansion valve Y3E malfunction.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

INFORMATION

When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty main PCB.

2 Perform a check of the inverter cooling expansion valve. See "4.8 Expansion valve" [▸ 199].

Possible cause: Faulty inverter cooling expansion valve.

3 Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty refrigerant side thermistor(s).

4 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▸ 282]

Possible cause: Faulty refrigerant low pressure sensor.

5 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Refrigerant overcharge.

6 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

7 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▸ 326].

Possible cause: External source may cause interference.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.59 E9-20 – Electronic Expansion Valve (Y1E) failure

Trigger	Effect	Reset
Main expansion valve Y1E malfunction.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

2 Perform a check of the main expansion valve. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty main expansion valve.

3 Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty refrigerant side thermistor(s).

4 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

Possible cause: Faulty refrigerant low pressure sensor.

5 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant overcharge.

6 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

7 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.60 E9-23 – Electronic expansion valve (Y2E) failure

Trigger	Effect	Reset
Subcool expansion valve Y2E malfunction.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

INFORMATION

When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty main PCB.

2 Perform a check of the subcool expansion valve. See "4.8 Expansion valve" [▸ 199].

Possible cause: Faulty subcool expansion valve.

3 Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty refrigerant side thermistor(s).

4 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▸ 282]

Possible cause: Faulty refrigerant low pressure sensor.

5 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Refrigerant overcharge.

6 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

7 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▸ 326].

Possible cause: External source may cause interference.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.61 E9-26 – Electronic expansion valve (Y4E) malfunction

Trigger	Effect	Reset
Liquid injection expansion valve Y4E malfunction.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

2 Perform a check of the liquid injection expansion valve. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty expansion valve.

3 Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty refrigerant side thermistor(s).

4 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

Possible cause: Faulty refrigerant low pressure sensor.

5 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant overcharge.

6 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

7 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.62 E9-29 – Electronic expansion valve (Y5E) malfunction

Trigger	Effect	Reset
Liquid shut-off expansion valve Y5E malfunction.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

INFORMATION

When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

2. Perform a check of the Sub PCB. See "4.25 Sub PCB" [▸ 289].

   Possible cause: Faulty Sub PCB.

3. Perform a check of the liquid shut-off expansion valve. See "4.8 Expansion valve" [▸ 199].

   Possible cause: Faulty liquid shut-off expansion valve.

4. Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▸ 297].

   Possible cause: Faulty refrigerant side thermistor(s).

5. Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▸ 282]

   Possible cause: Faulty refrigerant low pressure sensor.

6. Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

   Possible cause: Refrigerant overcharge.

7. Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance >4%),
   - Power drop,
   - Short circuit.

8. Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▸ 326].

   Possible cause: External source may cause interference.

9. Check all indoor units for error code A0-11 – Detection of refrigerant leak. See "3.3 Error based troubleshooting" [▸ 24].

   Possible cause: Expansion valve closed after pump down completed because of indoor refrigerant leak detection.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.63 E9-30 – Electronic expansion valve (Y6E) malfunction

Trigger	Effect	Reset
Gas shut-off expansion valve Y6E malfunction.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

2 Perform a check of the Sub PCB. See "4.25 Sub PCB" [▶ 289].

Possible cause: Faulty Sub PCB.

3 Perform a check of the gas shut-off expansion valve. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty gas shut-off expansion valve.

4 Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty refrigerant side thermistor(s).

5 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

Possible cause: Faulty refrigerant low pressure sensor.

6 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant overcharge.

7 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

8 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

9 Check all indoor units for error code A0-11 – Detection of refrigerant leak. See "3.3 Error based troubleshooting" [▶ 24].

Possible cause: Expansion valve closed after pump down completed because of indoor refrigerant leak detection.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.64 E9-44 – Electronic expansion valve (Y3E) failure

Trigger	Effect	Reset
Inverter cooling expansion valve Y3E malfunction.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

2 Perform a check of the inverter cooling expansion valve. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty inverter cooling expansion valve.

3 Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty refrigerant side thermistor(s).

4 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

Possible cause: Faulty refrigerant low pressure sensor.

5 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant overcharge.

6 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

7 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.65 E9-48 – Electronic expansion valve (Y1E~Y4E) overcurrent error

Trigger	Effect	Reset
Expansion valve overcurrent.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty main PCB.

2 Perform a check of the following expansion valves. See "4.8 Expansion valve" [▸ 199]:

- Main expansion valve
- Subcool expansion valve
- Inverter cooling expansion valve
- Liquid injection expansion valve

Possible cause: Faulty expansion valve.

3 Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty refrigerant side thermistor(s).

4 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▸ 282]

Possible cause: Faulty refrigerant low pressure sensor.

5 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Refrigerant overcharge.

6 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

7 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▸ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.66 E9-51 – Electronic expansion valve thermal cutting error

Trigger	Effect	Reset
Expansion valve thermal cutting error.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

2 Perform a check of the Sub PCB. See "4.25 Sub PCB" [▶ 289].

Possible cause: Faulty Sub PCB.

3 Perform a check of all expansion valves. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty expansion valve.

4 Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty refrigerant side thermistor(s).

5 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

Possible cause: Faulty refrigerant low pressure sensor.

6 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant overcharge.

7 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

8 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.67 E9-54 – Electronic expansion valve defective circuit

Trigger	Effect	Reset
Expansion valve defective circuit.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

2 Perform a check of the Sub PCB. See "4.25 Sub PCB" [▶ 289].

Possible cause: Faulty Sub PCB.

3 Perform a check of all expansion valves. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty expansion valve.

4 Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty refrigerant side thermistor(s).

5 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

Possible cause: Faulty refrigerant low pressure sensor.

6 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant overcharge.

7 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

8 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.68 E9-57 – Electronic expansion valve (Y5E~Y6E) overcurrent error

Trigger	Effect	Reset
Expansion valve overcurrent.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> When the power is switched ON, the outdoor unit main PCB checks all expansion valve coil windings by current check.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty main PCB.

2 Perform a check of the Sub PCB. See "4.25 Sub PCB" [▸ 289].

Possible cause: Faulty Sub PCB.

3 Perform a check of the following expansion valves. See "4.8 Expansion valve" [▸ 199]:

- Liquid shut-off expansion valve
- Gas shut-off expansion valve
  Possible cause: Faulty expansion valve.

4 Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty refrigerant side thermistor(s).

5 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▸ 282]

Possible cause: Faulty refrigerant low pressure sensor.

6 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Refrigerant overcharge.

7 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

8 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▸ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.69 F3-01 – Compressor discharge temperature too high

Trigger	Effect	Reset
Discharge temperature >safety value certain times within certain minutes, see "7.6 Safety devices" [▶ 388].	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when discharge temperature <reset value, see "7.6 Safety devices" [▶ 388].

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▶ 313].

   Possible cause: Closed stop valve in the refrigerant circuit.

2. Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▶ 297].

   Possible cause: Faulty discharge pipe thermistor or connector fault.

3. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

4. Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

   Possible cause: Refrigerant shortage.

5. Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

   Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

6. Perform a check of the following expansion valves. See "4.8 Expansion valve" [▶ 199]:

   - Main expansion valve
   - Subcool expansion valve
   - Liquid injection expansion valve
   - Liquid shut-off expansion valve
   - Gas shut-off expansion valve

   Possible cause: Faulty expansion valve.

7. Perform a check of the Sub PCB. See "4.25 Sub PCB" [▶ 289].

   Possible cause: Faulty Sub PCB.

8. Perform a check of the expansion valve(s) of the indoor unit(s). See "4.8 Expansion valve" [▶ 199].

   Possible cause: Faulty indoor unit expansion valve.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.70 F3-23 – Compressor overload abnormality

Trigger	Effect	Reset
Compressor overload is detected.	Unit will stop operating.	Automatic reset if the unit runs for 60 seconds without error.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
> The outdoor unit main PCB ALWAYS checks the status of the compressor thermal protector for closed condition.

1. Perform a check of the compressor thermal protection. See "4.5.1 Checking procedures" [▸ 192].

   Possible cause: Faulty compressor thermal protection.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

3. Perform a check of the Sub PCB. See "4.25 Sub PCB" [▸ 289].

   Possible cause: Faulty Sub PCB.

4. Perform a check of all expansion valves. See "4.8 Expansion valve" [▸ 199].

   Possible cause: Faulty expansion valve.

5. Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▸ 297].

   Possible cause: Faulty refrigerant side thermistor(s).

6. Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▸ 282]

   Possible cause: Faulty refrigerant low pressure sensor.

7. Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

   Possible cause: Refrigerant shortage.

8. Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance >4%),
   - Power drop,
   - Short circuit.

9. Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▸ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.71 F4-01 – Wet operation caution

Trigger	Effect	Reset
Discharge superheat <10°C ($SH_{Discharge}$=$T_{Discharge}$ – $T_{condensation}$).	Unit keeps running.	Automatic reset when discharge superheat >10°C.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant overcharge.

2 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

3 Perform a check of the evaporator side expansion valve. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty evaporator side expansion valve.

4 Check for objects near the indoor unit that may block the airflow. See "5.4 External factors" [▶ 326].

Possible cause: Airflow of the indoor unit is blocked.

5 Clean the air filter of the indoor unit(s). See "6 Maintenance" [▶ 328].

Possible cause: Faulty or dirty air filter.

6 Adjust external static pressure setting for ducted type indoor units, if necessary.

7 Perform a check of the indoor unit fan motor. See "4.12 Indoor unit fan motor" [▶ 211].

Possible cause: Faulty indoor unit fan motor.

8 Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty discharge pipe thermistor or connector fault.

9 Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▶ 277].

Possible cause: Faulty refrigerant high pressure sensor.

10 Perform a check of the indoor unit air thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty indoor unit air thermistor.

11 Check all indoor units operation in heating mode. Check for room temperatures below 20°C. Check if caution disappears once rooms heat-up. If NOT, continue checking the cause of the wet operation.

Possible cause: Indoor room temperature too low when in heating mode. Too cold rooms might create more subcool resulting in wet operation.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.72 F4-02 – Wet alarm for compressor M1C

Trigger	Effect	Reset
Discharge superheat <10˚C for 90 minutes ($SH_{Discharge}=T_{Discharge} - T_{condensation}$).	Unit will stop.	Manual reset via user interface.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the suction pipe thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty suction pipe thermistor or connector fault.

2 Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty discharge pipe thermistor or connector fault.

3 Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▶ 277].

Possible cause: Faulty refrigerant high pressure sensor.

4 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant overcharge.

5 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

6 Perform a check of the evaporator side expansion valve. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty evaporator side expansion valve.

7 Check for objects near the indoor unit that may block the airflow. See "5.4 External factors" [▶ 326].

Possible cause: Airflow of the indoor unit is blocked.

8 Clean the air filter of the indoor unit(s). See "6 Maintenance" [▶ 328].

Possible cause: Faulty or dirty air filter.

9 Adjust external static pressure setting for ducted type indoor units, if necessary.

10 Perform a check of the indoor unit fan motor. See "4.12 Indoor unit fan motor" [▶ 211].

Possible cause: Faulty indoor unit fan motor.

11 Perform a check of the indoor unit air thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty indoor unit air thermistor.

12 Check all indoor units operation in heating mode. Check for room temperatures below 20°C. Check if caution disappears once rooms heat-up. If NOT, continue checking the cause of the wet operation.

Possible cause: Indoor room temperature too low when in heating mode. Too cold rooms might create more subcool resulting in wet operation.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.73 F4-08 – Wet operation error for compressor M1C

Trigger	Effect	Reset
Discharge superheat <10˚C for 90 minutes ($SH_{Discharge}=T_{Discharge} - T_{condensation}$).	Unit will stop.	Manual reset via user interface.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the suction pipe thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty suction pipe thermistor or connector fault.

2 Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty discharge pipe thermistor or connector fault.

3 Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▶ 277].

Possible cause: Faulty refrigerant high pressure sensor.

4 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant overcharge.

5 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

6 Perform a check of the evaporator side expansion valve. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty evaporator side expansion valve.

7 Check for objects near the indoor unit that may block the airflow. See "5.4 External factors" [▶ 326].

Possible cause: Airflow of the indoor unit is blocked.

8 Clean the air filter of the indoor unit(s). See "6 Maintenance" [▶ 328].

Possible cause: Faulty or dirty air filter.

9 Adjust external static pressure setting for ducted type indoor units, if necessary.

10 Perform a check of the indoor unit fan motor. See "4.12 Indoor unit fan motor" [▶ 211].

Possible cause: Faulty indoor unit fan motor.

11 Perform a check of the indoor unit air thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty indoor unit air thermistor.

12 Check all indoor units operation in heating mode. Check for room temperatures below 20°C. Check if caution disappears once rooms heat-up. If NOT, continue checking the cause of the wet operation.

Possible cause: Indoor room temperature too low when in heating mode. Too cold rooms might create more subcool resulting in wet operation.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.74 F4-14 – Indoor unit wet operation alarm

Trigger	Effect	Reset
In cooling mode on indoor Unit: $((T_{Gas\ Pipe} - (T_{Liquid\ Pipe}) <$ 2,5 °C while Indoor Expansion Valve opening < 300 pulse AND Outdoor Unit Discharge Superheat = $(T_{Discharge} - T_{condensation}) <$ 10 °C for more than 45 minutes	Unit stops Operating.	Manual reset via user interface.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Clean the air filter of the indoor unit(s). See "6 Maintenance" [▶ 328].

Possible cause: Faulty or dirty air filter.

2 Use Service Checker to find the indoor units where difference between gas pipe thermistor and liquid pipe thermistor meets the trigger condition and indoor unit expansion valve opening is lower than 300 pulses.

3 Stop these indoor units while some other indoor units are still in operation and system is in Cooling Operation. Check if the liquid pipe temperature read-out is close to evaporation temperature. Or use an expansion valve stethoscope to determine the refrigerant flow on expansion valve while expansion valve is closed.

Possible cause: If liquid pipe temperature is close to evaporation temperature or flow is detected by expansion valve stethoscope then indoor unit expansion valve is bleeding while closed. Faulty indoor unit expansion valve.

4 Perform a check of the indoor unit fan motor. See "4.12 Indoor unit fan motor" [▸ 211].

Possible cause: Faulty indoor unit fan motor.

5 Perform a check of the indoor unit air and pipe thermistors. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty thermistor.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.75 F6-01 – Refrigerant overcharge detection by high pressure sensor S1NPH

Trigger	Effect	Reset
Discharge superheat <10°C ($SH_{Discharge}=T_{Discharge} - T_{condensation}$) during test run.	Unit will stop running.	Manual reset via user interface.
Excessive subcool is detected from comparison of ambient thermistor, liquid thermistor, de-icer thermistor to saturated temperature derived from high pressure sensor S1NPH.		

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor air thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty ambient air thermistor.

2 Perform a check of the main refrigerant liquid thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty main refrigerant liquid thermistor or connector fault.

3 Perform a check of the de–icer thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty de–icer thermistor or connector fault.

4 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Refrigerant overcharge.

5 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

6 Perform a check of the evaporator side expansion valve. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty evaporator side expansion valve.

7 Check for objects near the indoor unit that may block the airflow. See "5.4 External factors" [▶ 326].

Possible cause: Airflow of the indoor unit is blocked.

8 Clean the air filter of the indoor unit(s). See "6 Maintenance" [▶ 328].

Possible cause: Faulty or dirty air filter.

9 Adjust external static pressure setting for ducted type indoor units, if necessary.

10 Perform a check of the indoor unit fan motor. See "4.12 Indoor unit fan motor" [▶ 211].

Possible cause: Faulty indoor unit fan motor.

11 Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty discharge pipe thermistor or connector fault.

12 Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▶ 277].

Possible cause: Faulty refrigerant high pressure sensor.

13 Perform a check of the indoor unit air thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty indoor unit air thermistor.

14 Check all indoor units operation in heating mode. Check for room temperatures below 20°C. Check if caution disappears once rooms heat-up. If NOT, continue checking the cause of the wet operation.

Possible cause: Indoor room temperature too low when in heating mode. Too cold rooms might create more subcool resulting in wet operation.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.76 F6-02 – Refrigerant overcharge detection during test-run

Trigger	Effect	Reset
Discharge superheat <10°C ($SH_{Discharge}=T_{Discharge} - T_{condensation}$) during test run.	Unit will stop test run.	Push BS3 (return) button once.
Excessive subcool is detected from comparison of ambient thermistor, liquid thermistor, de-icer thermistor to saturated temperature derived from high pressure sensor S1NPH.		

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor air thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty ambient air thermistor.

2 Perform a check of the main refrigerant liquid thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty main refrigerant liquid thermistor or connector fault.

3 Perform a check of the de–icer thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty de–icer thermistor or connector fault.

4 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Refrigerant overcharge.

5 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

6 Perform a check of the evaporator side expansion valve. See "4.8 Expansion valve" [▸ 199].

Possible cause: Faulty evaporator side expansion valve.

7 Check for objects near the indoor unit that may block the airflow. See "5.4 External factors" [▸ 326].

Possible cause: Airflow of the indoor unit is blocked.

8 Clean the air filter of the indoor unit(s). See "6 Maintenance" [▸ 328].

Possible cause: Faulty or dirty air filter.

9 Adjust external static pressure setting for ducted type indoor units, if necessary.

10 Perform a check of the indoor unit fan motor. See "4.12 Indoor unit fan motor" [▸ 211].

Possible cause: Faulty indoor unit fan motor.

11 Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty discharge pipe thermistor or connector fault.

12 Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▸ 277].

Possible cause: Faulty refrigerant high pressure sensor.

13 Perform a check of the indoor unit air thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty indoor unit air thermistor.

14 Check all indoor units operation in heating mode. Check for room temperatures below 20°C. Check if caution disappears once rooms heat-up. If NOT, continue checking the cause of the wet operation.

Possible cause: Indoor room temperature too low when in heating mode. Too cold rooms might create more subcool resulting in wet operation.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.77 F6-03 – Refrigerant overcharge detection by high subcool value

Trigger	Effect	Reset
Discharge superheat <10˚C ($SH_{Discharge}=T_{Discharge}-T_{condensation}$) during test run.	Unit will stop running.	Manual reset via user interface.
Excessive subcool is detected from comparison of ambient thermistor, liquid thermistor, de-icer thermistor to saturated temperature derived from high pressure sensor S1NPH.		

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor air thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty ambient air thermistor.

2 Perform a check of the main refrigerant liquid thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty main refrigerant liquid thermistor or connector fault.

3 Perform a check of the de–icer thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty de–icer thermistor or connector fault.

4 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant overcharge.

5 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

6 Perform a check of the evaporator side expansion valve. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty evaporator side expansion valve.

7 Check for objects near the indoor unit that may block the airflow. See "5.4 External factors" [▶ 326].

Possible cause: Airflow of the indoor unit is blocked.

8 Clean the air filter of the indoor unit(s). See "6 Maintenance" [▶ 328].

Possible cause: Faulty or dirty air filter.

9 Adjust external static pressure setting for ducted type indoor units, if necessary.

10 Perform a check of the indoor unit fan motor. See "4.12 Indoor unit fan motor" [▶ 211].

Possible cause: Faulty indoor unit fan motor.

11 Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty discharge pipe thermistor or connector fault.

12 Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▶ 277].

Possible cause: Faulty refrigerant high pressure sensor.

13 Perform a check of the indoor unit air thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty indoor unit air thermistor.

14 Check all indoor units operation in heating mode. Check for room temperatures below 20°C. Check if caution disappears once rooms heat-up. If NOT, continue checking the cause of the wet operation.

Possible cause: Indoor room temperature too low when in heating mode. Too cold rooms might create more subcool resulting in wet operation.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.78 H3-02 – High pressure abnormality

Trigger	Effect	Reset
High pressure switch actuation.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the high pressure switch. See "4.11 High pressure switch" [▶ 208].

Possible cause: Faulty high pressure switch.

2 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.79 H5-01 – Compressor overload failure

Trigger	Effect	Reset
Compressor overload is detected.	Unit will stop operating.	Automatic reset if the unit runs for 60 seconds without error.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> The outdoor unit main PCB ALWAYS checks the status of the compressor thermal protector for closed condition.

1 Perform a check of the compressor thermal protection. See "4.5.1 Checking procedures" [▶ 192].

Possible cause: Faulty compressor thermal protection.

2 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

3 Perform a check of the Sub PCB. See "4.25 Sub PCB" [▶ 289].

Possible cause: Faulty Sub PCB.

4 Perform a check of all expansion valves. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty expansion valve.

5 Perform a check of all refrigerant side thermistors. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty refrigerant side thermistor(s).

6 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

Possible cause: Faulty refrigerant low pressure sensor.

7 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant shortage.

8 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

9 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.80 H7-01 – Defective fan inverter circuit

Trigger	Effect	Reset
Abnormal current form detected by fan inverter circuit of main PCB during start-up of fan motor.	Unit will stop operating.	Power reset at outdoor unit.

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor unit fan motor M1F. See "4.17 Outdoor unit fan motor" [▶ 253].

Possible cause: Faulty outdoor unit fan motor M1F.

2 Perform a check of the fan inverter circuit of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty fan inverter circuit on main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.81 H7-21 – Defective fan inverter circuit

Trigger	Effect	Reset
Abnormal current form detected by fan inverter circuit of main PCB during start-up of fan motor.	Unit will stop operating.	Power reset at outdoor unit.

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the outdoor unit fan motor M1F. See "4.17 Outdoor unit fan motor" [▶ 253].

   Possible cause: Faulty outdoor unit fan motor M1F.

2. Perform a check of the fan inverter circuit of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty fan inverter circuit on main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.82 H7-22 – Defective fan inverter circuit

Trigger	Effect	Reset
Abnormal current form detected by fan inverter circuit of main PCB during start-up of fan motor.	Unit will stop operating.	Power reset at outdoor unit.

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the outdoor unit fan motor M1F. See "4.17 Outdoor unit fan motor" [▶ 253].

   Possible cause: Faulty outdoor unit fan motor M1F.

2. Perform a check of the fan inverter circuit of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty fan inverter circuit on main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.83 H9-01 – Ambient temperature thermistor R1T abnormality

Trigger	Effect	Reset
Ambient temperature thermistor R1T read-out is out of range.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when thermistor read-out is within range.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor air thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty ambient air thermistor.

2 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.84 HA-01 – Defrost fail alarm

Trigger	Effect	Reset
When outdoor unit judges defrost is not completed.	Unit keeps running.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check the required space around the outdoor unit heat exchanger. See "5.4 External factors" [▶ 326].

Possible cause: Insufficient air flow or air by-pass due to required space specifications not met.

2 Clean the outdoor heat exchanger. See "6 Maintenance" [▶ 328].

Possible cause: Dirty outdoor heat exchanger.

3 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant shortage.

4 Perform a check of the de–icer thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty de–icer thermistor or connector fault.

5 Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▶ 277].

Possible cause: Faulty refrigerant high pressure sensor.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.85 J3-16 – Discharge thermistor R21T open circuit

Trigger	Effect	Reset
Compressor (M1C) discharge thermistor R21T open circuit or out of range.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when thermistor read-out is within range.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▸ 297].

   Possible cause: Faulty discharge pipe thermistor or connector fault.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.86 J3-17 – Discharge thermistor R21T short circuit

Trigger	Effect	Reset
Compressor (M1C) discharge thermistor R21T short circuit or out of range.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when thermistor read-out is within range.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▸ 297].

   Possible cause: Faulty discharge pipe thermistor or connector fault.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.87 J3-56 – High discharge temperature

Trigger	Effect	Reset
Compressor discharge temperature (R21T) too high.	Unit keeps running.	Auto reset.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▸ 297].

   Possible cause: Faulty discharge pipe thermistor or connector fault.

2. Perform a check of the following expansion valves. See "4.8 Expansion valve" [▸ 199]:

   - Main expansion valve
   - Subcool expansion valve
   - Liquid injection expansion valve
   - Liquid shut-off expansion valve
   - Gas shut-off expansion valve
     Possible cause: Faulty expansion valve.

3. Perform a check of the expansion valve(s) of the indoor unit(s). See "4.8 Expansion valve" [▸ 199].

   Possible cause: Faulty indoor unit expansion valve.

4. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

5. Perform a check of the Sub PCB. See "4.25 Sub PCB" [▸ 289].

   Possible cause: Faulty Sub PCB.

6. Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

   Possible cause: Refrigerant shortage.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.88 J5-01 – Compressor suction thermistor R3T malfunction

Trigger	Effect	Reset
Thermistor read-out is out of range	Unit will stop operating.	Auto-reset when thermistor read-out is within range

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the suction pipe thermistor. See "4.26 Thermistors" [▶ 297].

   Possible cause: Faulty suction pipe thermistor or connector fault.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.89 J6-01 – De–icer thermistor R7T abnormality

Trigger	Effect	Reset
De-icer temperature thermistor short/open circuit or out of range.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when thermistor read-out is within range.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the de–icer thermistor. See "4.26 Thermistors" [▶ 297].

   Possible cause: Faulty de–icer thermistor or connector fault.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.90 J7-06 – Liquid thermistor R5T abnormality

Trigger	Effect	Reset
Refrigerant liquid thermistor after subcool heat exchanger short/ open circuit or out of range.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when thermistor read-out is within range.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the refrigerant liquid thermistor of the subcool heat exchanger. See "4.26 Thermistors" [▶ 297].

   Possible cause: Faulty refrigerant liquid thermistor of the subcool heat exchanger or connector fault.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.91 J8-01 – Heat exchanger liquid temperature thermistor R4T abnormality

Trigger	Effect	Reset
Refrigerant liquid thermistor R4T short/open circuit or out of range.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when thermistor read-out is within range.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the refrigerant liquid thermistor. See "4.26 Thermistors" [▶ 297].

   Possible cause: Faulty refrigerant liquid thermistor.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.92 J9-01 – Superheat thermistor R6T abnormality

Trigger	Effect	Reset
Superheat thermistor after subcool heat exchanger short/open circuit.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when thermistor read-out is within range.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Perform a check of the superheat thermistor. See "4.26 Thermistors" [▸ 297].

   Possible cause: Faulty superheat thermistor.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.93 J9-08 – Superheat thermistor R6T abnormality

Trigger	Effect	Reset
Superheat thermistor after subcool heat exchanger is out of range.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when thermistor read-out is within range.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Perform a check of the superheat thermistor. See "4.26 Thermistors" [▸ 297].

   Possible cause: Faulty superheat thermistor.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.94 JA-06 – High pressure sensor S1NPH abnormality

Trigger	Effect	Reset
High pressure sensor S1NPH read-out open circuit or out of range.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when sensor read-out is within range.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▶ 277].

   Possible cause: Faulty refrigerant high pressure sensor.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.95 JA-07 – High pressure sensor S1NPH malfunction

Trigger	Effect	Reset
High pressure sensor S1NPH read-out short circuit or out of range.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when sensor read-out is within range.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▶ 277].

   Possible cause: Faulty refrigerant high pressure sensor.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.96 JC-06 – Low pressure sensor S1NPL abnormality

Trigger	Effect	Reset
Low pressure sensor S1NPL read-out open circuit or out of range.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when sensor read-out is within range.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▸ 282]

   Possible cause: Faulty refrigerant low pressure sensor.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.97 JC-07 – Low pressure sensor S1NPL malfunction

Trigger	Effect	Reset
Low pressure sensor S1NPL read-out open circuit or out of range.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when sensor read-out is within range.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▸ 282]

   Possible cause: Faulty refrigerant low pressure sensor.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.98 L1-01 – Inverter circuit abnormality

Trigger	Effect	Reset
Main PCB detects voltage/ current errors on output waveform or current read-out.	Unit will stop operating.	Manual reset via user interface.
		Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB or wrong capacity setting.

2. Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

   Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

3. Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance >4%),
   - Power drop,
   - Short circuit.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.99 L1-02 – Inverter circuit current detection primary circuit

Trigger	Effect	Reset
Main PCB detects voltage/ current errors on output waveform or current read-out.	Unit will stop operating.	Manual reset via user interface.
		Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB or wrong capacity setting.

2. Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

   Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

3. Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance >4%),
   - Power drop,
   - Short circuit.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.100 L1-03 – Inverter circuit current detection secondary circuit

Trigger	Effect	Reset
Main PCB detects voltage/ current errors on output waveform or current read-out.	Unit will stop operating.	Manual reset via user interface.
		Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB or wrong capacity setting.

2 Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

3 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.101 L1-04 – Power transistor error on inverter circuit

Trigger	Effect	Reset
Main PCB detects voltage/ current errors on output waveform or current read-out.	Unit will stop operating.	Manual reset via user interface.
		Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB or wrong capacity setting.

2 Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

3 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.102 L1-05 – Inverter circuit hardware fault

Trigger	Effect	Reset
Main PCB detects voltage/ current errors on output waveform or current read-out.	Unit will stop operating.	Manual reset via user interface.
		Power reset at outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB or wrong capacity setting.

2 Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

3 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.103 L1-28 – Fan inverter circuit Eeprom error

Trigger	Effect	Reset
Fan inverter circuit on main PCB fails reading/ writing memory (EEPROM error).	Unit will stop operating.	Manual reset via user interface.
		Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the fan inverter circuit of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty fan inverter circuit on main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.104 L1-36 – Inverter circuit Eeprom error

Trigger	Effect	Reset
Inverter circuit on main PCB fails reading/writing memory (EEPROM error).	Unit will stop operating.	Manual reset via user interface.
		Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the inverter circuit of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty inverter circuit on main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.105 L1-47 – Inverter circuit 16 V DC abnormal

Trigger	Effect	Reset
Main PCB detects voltage/ current errors on output waveform or current read-out.	Unit will stop operating.	Manual reset via user interface.
		Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB or wrong capacity setting.

2. Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

   Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

3. Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance >4%),
   - Power drop,
   - Short circuit.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.106 L2-01 – Power supply abnormality during test run

Trigger	Effect	Reset
Main PCB detects 50 Hz zero-crossing error.	Unit stops and retries after guard timer (3 minutes) - infinite cycle.	Automatic reset when within zero-crossing interval range.
		Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> Main PCB checks L1-N on connector X1A for sinus waveform each time crossing the zero-line. Interval between each zero-crossing is 10 miliseconds when the power supply is 50 Hz.

1. Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance >4%),
   - Power drop,
   - Short circuit.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.107 L2-04 – Power supply abnormality during normal operation

Trigger	Effect	Reset
Main PCB detects 50 Hz zero-crossing error.	Unit stops and retries after guard timer (3 minutes) - infinite cycle.	Automatic reset when within zero-crossing interval range.
		Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> Main PCB checks L1-N on connector X1A for sinus waveform each time crossing the zero-line. Interval between each zero-crossing is 10 miliseconds when the power supply is 50 Hz.

1 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.108 L4-01 – Inverter circuit high fin temperature

Trigger	Effect	Reset
Thermistor located inside the power module of the inverter circuit for compressor detects a temperature higher than a certain value.	Unit will stop operating.	Manual reset via remote controller. Outdoor unit power reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

Prerequisite: Stop the unit operation via the user interface.

1. Turn OFF the respective circuit breaker.

> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

2. Check that the thermal interface grease is applied properly on the (PCB or refrigerant piping) contact surface of the heat sink. Adjust if needed.

   Possible cause: Thermal interface grease NOT applied properly on the heat sink.

3. Check if heat sink plate is correctly fixed with screws.

   Possible cause: Heat sink plate not correctly installed.

4. Check (by touching) if refrigerant is flowing through the radiant cooling refrigerant circuit. The radiant cooling refrigerant circuit should be warm if refrigerant is flowing. If no refrigerant flow, perform a check of the inverter cooling expansion valve, see "4.8 Expansion valve" [▶ 199].

   Possible cause: No refrigerant flow through the radiant cooling refrigerant circuit.

5. Perform a check of the inverter cooling expansion valve. See "4.8 Expansion valve" [▶ 199].

   Possible cause: Faulty inverter cooling expansion valve.

6. Check ambient temperature. Check if outdoor unit location temperature differs drastically.

7. Check if there is discharge air by-pass on installation location.

   Possible cause: External noise. Check further on how to eliminate external factors.

8. Perform a check of the inverter circuit of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty inverter circuit on main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.109 L4-06 – Fan inverter circuit high fin temperature

Trigger	Effect	Reset
Thermistor located inside the power module of the fan inverter circuit detects a temperature higher than a certain value.	Unit will stop operating.	Manual reset via remote controller. Outdoor unit power reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

Prerequisite: Stop the unit operation via the user interface.

1. Turn OFF the respective circuit breaker.

DANGER: RISK OF ELECTROCUTION

Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▸ 307].

2. Check that the thermal interface grease is applied properly on the (PCB or refrigerant piping) contact surface of the heat sink. Adjust if needed.

   Possible cause: Thermal interface grease NOT applied properly on the heat sink.

3. Check if heat sink plate is correctly fixed with screws.

   Possible cause: Heat sink plate not correctly installed.

4. Check (by touching) if refrigerant is flowing through the radiant cooling refrigerant circuit. The radiant cooling refrigerant circuit should be warm if refrigerant is flowing. If no refrigerant flow, perform a check of the inverter cooling expansion valve, see "4.8 Expansion valve" [▸ 199].

   Possible cause: No refrigerant flow through the radiant cooling refrigerant circuit.

5. Perform a check of the inverter cooling expansion valve. See "4.8 Expansion valve" [▸ 199].

   Possible cause: Faulty inverter cooling expansion valve.

6. Check ambient temperature. Check if outdoor unit location temperature differs drastically.

7. Check if there is discharge air by-pass on installation location.

   Possible cause: External noise. Check further on how to eliminate external factors.

8. Perform a check of the fan inverter circuit of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty fan inverter circuit on main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.110 L5-03 – Output overcurrent detection on inverter circuit

Trigger	Effect	Reset
Inverter circuit on main PCB detects overcurrent to power transistor.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Check if the refrigerant circuit is clogged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Clogged refrigerant circuit.

3 Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Closed stop valve in the refrigerant circuit.

4 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

5 Perform a check of the inverter circuit of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty inverter circuit on main PCB.

6 Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.111 L8-03 – Overcurrent on inverter circuit except start-up

Trigger	Effect	Reset
Inverter PCB circuit on main PCB detects overcurrent to compressor except on start-up.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Check if the refrigerant circuit is clogged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Clogged refrigerant circuit.

3 Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Closed stop valve in the refrigerant circuit.

4 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

5 Perform a check of the inverter circuit of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty inverter circuit on main PCB.

6 Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.112 L9-01 – Stall prevention by inverter circuit

Trigger	Effect	Reset
Inverter circuit on main PCB detects overcurrent or no rotation at start-up.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Check if the refrigerant circuit is clogged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Clogged refrigerant circuit.

3 Perform a check of the inverter circuit of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty inverter circuit on main PCB.

4 Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.113 L9-13 – Inverter circuit output phase abnormality

Trigger	Effect	Reset
When inverter circuit on main PCB detects phase loss to compressor on U, V, W.	Unit will stop operating.	Manual reset via user interface.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the inverter circuit of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty inverter circuit on main PCB.

3 Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.114 LC-01 – Transmission abnormality

Trigger	Effect	Reset
No transmission between main control and inverter circuit.	Unit will stop operating.	Automatic reset.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB or wrong capacity setting.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.115 LC-14 – Transmission abnormality control/inverter circuit

Trigger	Effect	Reset
No transmission between control and inverter circuit on main PCB.	Unit will stop operating.	Automatic reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB or wrong capacity setting.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.116 LC-19 – Transmission abnormality main/fan inverter circuit

Trigger	Effect	Reset
No transmission between main and fan inverter circuit	Unit will stop operating.	Automatic reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB or wrong capacity setting.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.117 LC-33 – Transmission abnormality main PCB/sub PCB

Trigger	Effect	Reset
No transmission between main PCB and sub PCB.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB or wrong capacity setting.

2. Perform a check of the Sub PCB. See "4.25 Sub PCB" [▶ 289].

   Possible cause: Faulty Sub PCB.

3. Check the wiring between the PCB's. See "7.2 Wiring diagram" [▶ 343].

   Possible cause: Faulty wiring between PCB's.

4. Check if the correct spare part is installed for all PCB's. See checking procedures of the specific PCB's.

   Possible cause: Wrong spare part PCB installed.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.118 LC-37 – Transmission abnormality main PCB/sub PCB

Trigger	Effect	Reset
No transmission between main PCB and sub PCB.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB or wrong capacity setting.

2. Perform a check of the Sub PCB. See "4.25 Sub PCB" [▶ 289].

   Possible cause: Faulty Sub PCB.

3. Check the wiring between the PCB's. See "7.2 Wiring diagram" [▶ 343].

   Possible cause: Faulty wiring between PCB's.

4. Check if the correct spare part is installed for all PCB's. See checking procedures of the specific PCB's.

   Possible cause: Wrong spare part PCB installed.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.119 P1-01 – Open phase or unbalanced power supply detection by inverter circuit

Trigger	Effect	Reset
Inverter circuit on main PCB detects power unbalance >4%.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the inverter circuit of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty inverter circuit on main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.120 P4-01 – Fin thermistor abnormality on inverter circuit

Trigger	Effect	Reset
Inverter circuit on main PCB detects open or short circuit or out of range on fin thermistor.	Unit will stop operating.	Manual reset via user interface.
		Automatic reset when fin temperature is within range.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the fin thermistor of the PCB. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty fin thermistor of the PCB.

1 Check the required space around the outdoor unit heat exchanger. See "5.4 External factors" [▸ 326].

Possible cause: Insufficient air flow or air by-pass due to required space specifications not met.

2 Perform a check of the inverter cooling expansion valve. See "4.8 Expansion valve" [▸ 199].

Possible cause: Faulty inverter cooling expansion valve.

3 Perform a check of the inverter circuit of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty inverter circuit on main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.121 PJ-04 – Capacity setting mismatch for inverter circuit

Trigger	Effect	Reset
Main PCB detects other type PCB than set in EEPROM or wrong dip switch setting on spare part main PCB.	Unit will stop operating.	Manual reset via user interface.
		Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check if the correct spare part is installed for the main PCB. See "4.15 Main PCB" [▶ 212]. Check dip switch setting for spare part main PCB.

Possible cause: Incorrect spare part main PCB or incorrect dip switch setting.

2 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.122 PJ-09 – Capacity setting mismatch for fan inverter circuit

Trigger	Effect	Reset
Main PCB detects other type PCB than set in EEPROM or wrong dip switch setting on spare part main PCB.	Unit will stop operating.	Manual reset via user interface.
		Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check if the correct spare part is installed for the main PCB. See "4.15 Main PCB" [▶ 212]. Check dip switch setting for spare part main PCB.

Possible cause: Incorrect spare part main PCB or incorrect dip switch setting.

2 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.123 U0 – Refrigerant shortage detection (Warning)

Trigger	Effect	Reset
This is not an error but a warning.	Unit keeps running.	Auto reset when trigger is not met.

To solve the error code

1 Refer to U0-05 or U0-06 to proceed.

3.3.124 U0-05 – Refrigerant shortage detection

Trigger	Effect	Reset
Refrigerant shortage detection during cooling.	Unit keeps running.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Closed stop valve in the refrigerant circuit.

2 Perform a check of all expansion valves. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty expansion valve.

3 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

Possible cause: Faulty refrigerant low pressure sensor.

4 Perform a check of the suction pipe thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty suction pipe thermistor or connector fault.

5 Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty discharge pipe thermistor or connector fault.

6 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

7 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant shortage.

8 Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▸ 277].

Possible cause: Faulty refrigerant high pressure sensor.

9 Perform a check of the compressor. See "4.4 Compressor" [▸ 181].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.125 U0-06 – Refrigerant shortage detection

Trigger	Effect	Reset
Refrigerant shortage detection during heating.	Unit keeps running.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Closed stop valve in the refrigerant circuit.

2 Perform a check of all expansion valves. See "4.8 Expansion valve" [▸ 199].

Possible cause: Faulty expansion valve.

3 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▸ 282]

Possible cause: Faulty refrigerant low pressure sensor.

4 Perform a check of the suction pipe thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty suction pipe thermistor or connector fault.

5 Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▸ 297].

Possible cause: Faulty discharge pipe thermistor or connector fault.

6 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

7 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▸ 313].

Possible cause: Refrigerant shortage.

8 Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▸ 277].

Possible cause: Faulty refrigerant high pressure sensor.

9 Perform a check of the compressor. See "4.4 Compressor" [▸ 181].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.126 U0-08 – Refrigerant shortage detection by high pressure sensor

Trigger	Effect	Reset
Refrigerant shortage detection.	Unit keeps running.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Closed stop valve in the refrigerant circuit.

2 Perform a check of all expansion valves. See "4.8 Expansion valve" [▶ 199].

Possible cause: Faulty expansion valve.

3 Perform a check of the refrigerant low pressure sensor. See "4.22 Refrigerant low pressure sensor" [▶ 282]

Possible cause: Faulty refrigerant low pressure sensor.

4 Perform a check of the suction pipe thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty suction pipe thermistor or connector fault.

5 Perform a check of the discharge pipe thermistor. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty discharge pipe thermistor or connector fault.

6 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

7 Check if the refrigerant circuit is correctly charged. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Refrigerant shortage.

8 Perform a check of the refrigerant high pressure sensor. See "4.21 Refrigerant high pressure sensor" [▶ 277].

Possible cause: Faulty refrigerant high pressure sensor.

9 Perform a check of the compressor. See "4.4 Compressor" [▶ 181].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.127 U1-01 – Reverse phase detection

Trigger	Effect	Reset
Main PCB detects reverse phase between L1 - L3 phases.	Forced stop.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Check the phase sequence on the mains power supply terminal, see "To check the power supply of the unit" in "5.1 Electrical circuit" [▸ 306]. Correct if needed.

   Possible cause: Incorrect phase sequence on mains power supply terminal.

2. Check if any of the phases is missing on the mains power supply terminal, see "To check the power supply of the unit" in "5.1 Electrical circuit" [▸ 306]. Correct if needed.

   Possible cause: Missing phase(s) on mains power supply terminal.

3. Check if the phase L3 is present on the power supply connector X1A on the main PCB, see "To perform a power check" in "4.15 Main PCB" [▸ 212]. Correct if needed.

   Possible cause: Missing phase L3 on main PCB power supply connector.

4. Perform a check of the fuses of the main PCB, see "4.15 Main PCB" [▸ 212].

   Possible cause: Blown fuse(s) on main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.128 U1-04 – Reverse phase detection

Trigger	Effect	Reset
Main PCB detects reverse phase between L1 - L3 phases.	Forced stop.	Power reset at outdoor unit.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check the phase sequence on the mains power supply terminal, see "To check the power supply of the unit" in "5.1 Electrical circuit" [▸ 306]. Correct if needed.

Possible cause: Incorrect phase sequence on mains power supply terminal.

2 Check if any of the phases is missing on the mains power supply terminal, see "To check the power supply of the unit" in "5.1 Electrical circuit" [▸ 306]. Correct if needed.

Possible cause: Missing phase(s) on mains power supply terminal.

3 Check if the phase L3 is present on the power supply connector X1A on the main PCB, see "To perform a power check" in "4.15 Main PCB" [▸ 212]. Correct if needed.

Possible cause: Missing phase L3 on main PCB power supply connector.

4 Perform a check of the fuses of the main PCB, see "4.15 Main PCB" [▸ 212].

Possible cause: Blown fuse(s) on main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.129 U1-16 – Open phase detection on Power supply

Trigger	Effect	Reset
Open phase detected by phase detection circuit.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the noise filter PCB. See "4.16 Noise filter PCB" [▸ 245].

Possible cause: Faulty noise filter PCB.

3 Perform a check of the inverter circuit of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty inverter circuit on main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.130 U1-19 – Hz error detection on Power Supply

Trigger	Effect	Reset
Main PCB does not detect zero-crossing for a certain duration.	Unit will stop operating.	Power reset at outdoor unit.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

INFORMATION

Main PCB checks L1-N on connector X1A for sinus waveform each time crossing the zero-line. Interval between each zero-crossing is 10 miliseconds when the power supply is 50 Hz.

1. Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance >4%),
   - Power drop,
   - Short circuit.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

3. Perform a check of the noise filter PCB. See "4.16 Noise filter PCB" [▸ 245].

   Possible cause: Faulty noise filter PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.131 U2-01 – Inverter circuit power supply abnormality - abnormal voltage

Trigger	Effect	Reset
Inverter circuit of main PCB detects DC voltage cannot reach or maintain minimum 300 V DC (for single phase units) / 500 V DC (for 3-phase units).	Unit will stop operating.	Power reset at outdoor unit.
No zero cross is detected by main PCB through at least 10 seconds.		
Abnormal voltage drop is detected by DC voltage detection circuit.		
Abnormal voltage rise is detected by over voltage detection circuit.		

To solve the error code for single phase units

INFORMATION

It is recommended to perform the checks in the listed order.

1. Check if the power supply wiring is correct. See "5.1 Electrical circuit" [▶ 306].

   Possible cause: Incorrect power supply wiring.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

To solve the error code for three phase units

1. Check if the power supply wiring is correct. See "5.1 Electrical circuit" [▶ 306].

   Possible cause: Incorrect power supply wiring.

2. Perform a check of the noise filter PCB. See "4.16 Noise filter PCB" [▶ 245].

   Possible cause: Faulty noise filter PCB.

3. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

4. Check the wiring between the PCB's. See "7.2 Wiring diagram" [▶ 343].

   Possible cause: Faulty wiring between PCB's.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.132 U2-02 – Inverter circuit power supply abnormality - phase loss

Trigger	Effect	Reset
Inverter circuit of main PCB detects DC voltage cannot reach or maintain minimum 300 V DC (for single phase units) / 500 V DC (for 3-phase units).	Unit will stop operating.	Power reset at outdoor unit.
No zero cross is detected by main PCB through at least 10 seconds.		
Abnormal voltage drop is detected by DC voltage detection circuit.		
Abnormal voltage rise is detected by over voltage detection circuit.		

To solve the error code for single phase units

INFORMATION

It is recommended to perform the checks in the listed order.

1. Check if the power supply wiring is correct. See "5.1 Electrical circuit" [▸ 306].

   Possible cause: Incorrect power supply wiring.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

To solve the error code for three phase units

1. Check if the power supply wiring is correct. See "5.1 Electrical circuit" [▸ 306].

   Possible cause: Incorrect power supply wiring.

2. Perform a check of the noise filter PCB. See "4.16 Noise filter PCB" [▸ 245].

   Possible cause: Faulty noise filter PCB.

3. Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

   Possible cause: Faulty main PCB.

4. Check the wiring between the PCB's. See "7.2 Wiring diagram" [▸ 343].

   Possible cause: Faulty wiring between PCB's.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.133 U2-03 – Inverter circuit power supply abnormality - DC circuit not charging

Trigger	Effect	Reset
Inverter circuit of main PCB detects DC voltage cannot reach or maintain minimum 300 V DC (for single phase units) / 500 V DC (for 3-phase units).	Unit will stop operating.	Power reset at outdoor unit.
No zero cross is detected by main PCB through at least 10 seconds.		
Abnormal voltage drop is detected by DC voltage detection circuit.		
Abnormal voltage rise is detected by over voltage detection circuit.		

To solve the error code for single phase units

INFORMATION

It is recommended to perform the checks in the listed order.

1. Check if the power supply wiring is correct. See "5.1 Electrical circuit" [▶ 306].

   Possible cause: Incorrect power supply wiring.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

To solve the error code for three phase units

1. Check if the power supply wiring is correct. See "5.1 Electrical circuit" [▶ 306].

   Possible cause: Incorrect power supply wiring.

2. Perform a check of the noise filter PCB. See "4.16 Noise filter PCB" [▶ 245].

   Possible cause: Faulty noise filter PCB.

3. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

4. Check the wiring between the PCB's. See "7.2 Wiring diagram" [▶ 343].

   Possible cause: Faulty wiring between PCB's.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.134 U3-02 – Test run interrupted manually

Trigger	Effect	Reset
Test run interrupted manually by user on main PCB.	Warning.	Perform test run.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Check if communication between outdoor unit and indoor units is initialised. Check field setting 1-10 for count of indoor units, see "7.9 Field settings" [▸ 396]. If less indoor units shown than expected, communication between 1 or more indoor unit(s) and outdoor unit is NOT correct. Check the F1-F2 transmission line between the indoor unit and outdoor unit, see "5.1 Electrical circuit" [▸ 306].

   Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

2. Perform a test run from the outdoor unit. See installer reference guide for more information.
3. Check the error history, see "3 Troubleshooting" [▸ 20]. Solve the error code(s) using the error based troubleshooting, see "3.3 Error based troubleshooting" [▸ 24].

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.135 U3-03 – Test run not performed yet

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Check if communication between outdoor unit and indoor units is initialised. Check field setting 1-10 for count of indoor units, see "7.9 Field settings" [▸ 396]. If less indoor units shown than expected, communication between 1 or more indoor unit(s) and outdoor unit is NOT correct. Check the F1-F2 transmission line between the indoor unit and outdoor unit, see "5.1 Electrical circuit" [▸ 306].

   Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

2. Perform a test run from the outdoor unit. See installer reference guide for more information.
3. Check the error history, see "3 Troubleshooting" [▸ 20]. Solve the error code(s) using the error based troubleshooting, see "3.3 Error based troubleshooting" [▸ 24].

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.136 U3-04 – Test run ended abnormally

Trigger	Effect	Reset
Test run ended abnormally.	Unit will NOT operate.	Restart test run.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Check for an indoor unit related error code. To solve the error, see "3.3 Error based troubleshooting" [▸ 24].
2. Check the error history, see "3 Troubleshooting" [▸ 20]. Solve the error code(s) using the error based troubleshooting, see "3.3 Error based troubleshooting" [▸ 24].
3. Check if communication between outdoor unit and indoor units is initialised. Check field setting 1-10 for count of indoor units, see "7.9 Field settings" [▸ 396]. If less indoor units shown than expected, communication between 1 or more indoor unit(s) and outdoor unit is NOT correct. Check the F1-F2 transmission line between the indoor unit and outdoor unit, see "5.1 Electrical circuit" [▸ 306].

   Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.
4. Perform a test run from the outdoor unit. See installer reference guide for more information.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.137 U3-05 – Test run aborted on initial transmission

Trigger	Effect	Reset
Test run could NOT start or abort due to transmission issues.	Unit will NOT operate.	Restart test run.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Check if communication between outdoor unit and indoor units is initialised. Check field setting 1-10 for count of indoor units, see "7.9 Field settings" [▸ 396]. If less indoor units shown than expected, communication

between 1 or more indoor unit(s) and outdoor unit is NOT correct. Check the F1-F2 transmission line between the indoor unit and outdoor unit, see "5.1 Electrical circuit" [▶ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

2 Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

3 Perform a test run from the outdoor unit. See installer reference guide for more information.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.138 U3-06 – Test run aborted on normal transmission

Trigger	Effect	Reset
Test run could NOT start or abort due to transmission issues.	Unit will NOT operate.	Restart test run.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check if communication between outdoor unit and indoor units is initialised. Check field setting 1-10 for count of indoor units, see "7.9 Field settings" [▶ 396]. If less indoor units shown than expected, communication between 1 or more indoor unit(s) and outdoor unit is NOT correct. Check the F1-F2 transmission line between the indoor unit and outdoor unit, see "5.1 Electrical circuit" [▶ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

2 Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

3 Perform a test run from the outdoor unit. See installer reference guide for more information.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.139 U3-07 – Transmission abnormality on test run

Trigger	Effect	Reset
Test run could NOT start or abort due to transmission issues.	Unit will NOT operate.	Restart test run.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Check if communication between outdoor unit and indoor units is initialised. Check field setting 1-10 for count of indoor units, see "7.9 Field settings" [▸ 396]. If less indoor units shown than expected, communication between 1 or more indoor unit(s) and outdoor unit is NOT correct. Check the F1-F2 transmission line between the indoor unit and outdoor unit, see "5.1 Electrical circuit" [▸ 306].

   Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

2. Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▸ 306].

   Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

3. Perform a test run from the outdoor unit. See installer reference guide for more information.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.140 U3-08 – Transmission abnormality on test run

Trigger	Effect	Reset
Test run could NOT start or abort due to transmission issues.	Unit will NOT operate.	Restart test run.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Check if communication between outdoor unit and indoor units is initialised. Check field setting 1-10 for count of indoor units, see "7.9 Field settings" [▸ 396]. If less indoor units shown than expected, communication between 1 or more indoor unit(s) and outdoor unit is NOT correct. Check the F1-F2 transmission line between the indoor unit and outdoor unit, see "5.1 Electrical circuit" [▸ 306].

   Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

2 Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

3 Perform a test run from the outdoor unit. See installer reference guide for more information.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.141 U4-01 – Transmission error between indoor units and outdoor unit

Trigger	Effect	Reset
Main PCB detects abnormal transmission on F1-F2 transmission line to indoor units.	Unit will stop operating.	Auto reset.
Transmission between indoor units and outdoor unit is interrupted while in initialization.		

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

3 Check field setting 1-10 to count the indoor units, see "7.9 Field settings" [▶ 396]. If less indoor units detected than it should be, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▶ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▶ 212]).

Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

4 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

5 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▶ 326].

Possible cause: External source may cause interference.

6 Set field setting 2-5 of the outdoor unit to 1 to start the indoor units connected to that outdoor unit on forced fan operation, see "7.9 Field settings" [▸ 396]. If any of these indoor units is NOT operating, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▸ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▸ 212]).

Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.142 U4-03 – Transmission error between indoor units and system

Trigger	Effect	Reset
Main PCB detects abnormal transmission on F1-F2 transmission line to indoor units.	Unit will stop operating.	Auto reset.
Transmission between indoor units and outdoor unit is interrupted while in initialization.		

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

Possible cause:

- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▸ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

3 Check field setting 1-10 to count the indoor units, see "7.9 Field settings" [▸ 396]. If less indoor units detected than it should be, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▸ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▸ 212]).

Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

4 Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty main PCB.

5 Perform a power reset. If the error disappears and is raised again after a while, check for the presence of an external source causing electrical noise. See "5.4 External factors" [▸ 326].

Possible cause: External source may cause interference.

6 Set field setting 2-5 of the outdoor unit to 1 to start the indoor units connected to that outdoor unit on forced fan operation, see "7.9 Field settings" [▸ 396]. If any of these indoor units is NOT operating, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▸ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▸ 212]).

Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

7 Check indoor units for error. See "3.3 Error based troubleshooting" [▸ 24].

Possible cause: Indoor unit on error.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.143 U4-15 – Unable to start test run

Trigger	Effect	Reset
Main PCB detects malfunction on indoor unit(s).	Test run will NOT start.	Perform test run.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Set field setting 2-5 of the outdoor unit to 1 to start the indoor units connected to that outdoor unit on forced fan operation, see "7.9 Field settings" [▸ 396]. If any of these indoor units is NOT operating, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▸ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▸ 212]).

Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

2 Check field setting 1-10 to count the indoor units, see "7.9 Field settings" [▸ 396]. If less indoor units detected than it should be, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▸ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▸ 212]).

Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

3 Perform a check of the main PCB. See "4.15 Main PCB" [▸ 212].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.144 U5-04 – Communication abnormality between indoor unit main PCB and remote controller

Trigger	Effect	Reset
Transmission abnormality between indoor unit main PCB and remote controller.	The indoor unit that has the error will stop operating (fan OFF, expansion valve OFF) while all the other indoor units and outdoor unit will continue operating for indoor units without error.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1. Check if multiple remote controllers are wired to the same indoor unit. One remote controller needs to be set to main while all other remote controllers need to be set to sub. Also check that the remote controllers are correctly wired. See installer reference guide of the remote controller for detailed information.

   Possible cause: No main remote controller set when multiple units are wired to the same indoor unit.

2. Perform a check of the remote controller. See "4.23 Remote controller user interface" [▶ 286].

   Possible cause: Faulty remote controller or faulty transmission wiring between remote controller and indoor unit.

3. If possible, switch the faulty remote controller with a remote controller from another indoor unit.

   - If error transfers to the other indoor unit, replace the remote controller. See "4.23 Remote controller user interface" [▶ 286].
     Possible cause: Faulty remote controller.
   - If error is still present on the indoor unit, Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].
     Possible cause: Faulty indoor unit main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.145 U5-06 – 1 Supervisor remote controller not connected/not set

Trigger	Effect	Reset
Supervisor remote controller NOT connected or NOT set correctly.	Indoor unit continues FAN ONLY operation while other indoor units show error U9-01. Outdoor unit stops operating.	Operation NOT allowed while abnormality continues.

To solve the error code

1 Check that the field setting is correctly set on the outdoor unit: [2-60=0] when NO supervisor remote controller connected, [2-60=1] when supervisor remote controller connected. See "7.9 Field settings" [▶ 396].

Possible cause: Faulty field setting for supervisor remote controller.

2 Check that the setting [R2-05=02] is correct and that the supervisor remote controller functions correctly. See "4.23 Remote controller user interface" [▶ 286].

Possible cause: Faulty setting or supervisor remote controller.

3 Check the communication wiring between the supervisor remote controller and the indoor unit main PCB. See "4.23 Remote controller user interface" [▶ 286].

Possible cause: Faulty communication wiring between remote controller and indoor unit.

4 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

5 Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

6 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB or wrong capacity setting.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.146 U7-01 – Transmission abnormality between systems - DTA104A61,62 error

Trigger	Effect	Reset
Communication problem between systems.	Unit will stop operating.	Auto reset when communication is normal.
Conflict in settings and configuration for DTA104A61,62.	Unit keeps running.	Auto reset when correct settings apply on DTA104A61,62.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

2 Check wiring and configuration of option DTA104A61, 62. See option handbook on Business Portal for more information.

3 Check the F1-F2 OUT transmission line between the outdoor unit main PCB and option PCB DTA104A61, 62. See "5.1 Electrical circuit" [▶ 306].

Possible cause: Faulty or interruption in transmission line between outdoor unit and option DTA104A61, 62.

4 Check that ONLY the master outdoor unit has F1-F2 IN connection. If another outdoor unit has F1-F2 IN connection, correct the installation.

5 Check if low noise operation or demand control is active without an optional DTA104A61,62 PCB. Field setting 2-12 CANNOT be set to 1 if DTA104A61,62 is not present, see "7.9 Field settings" [▶ 396].

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.147 U7-02 – Transmission abnormality between systems - DTA104A61,62 error

Trigger	Effect	Reset
Transmission error on DTA104A61,62 initialization.	Forced stop.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if multiple units are wired to the same cool/heat zone without cool/heat master set. One main PCB needs to be set cool/heat master (field setting 2-0 = 1) while all other units need to be set sub (field setting 2-0 = 2). See "7.9 Field settings" [▶ 396].

Possible cause: No cool/heat master set when multiple units are wired to the same cool/heat zone.

2 If unified cool/heat selection is NOT present, set the DTA104A61,62 cool/heat setting to IND.

3 Check wiring and configuration of option DTA104A61, 62. See option handbook on Business Portal for more information.

4 Check if low noise operation or demand control is active without an optional DTA104A61,62 PCB. Field setting 2-12 CANNOT be set to 1 if DTA104A61,62 is not present, see "7.9 Field settings" [▶ 396].

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.148 U7-11 – Excess indoor units detected on test run

Trigger	Effect	Reset
Test run detects more than allowed amount of indoor units or indoor unit total index.	Forced stop.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Check total index and total count for indoor units. See Data book on Business Portal for more information.

   Possible cause: Indoor Unit capacity connected is too high.

2. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

3. Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

   Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.149 U7-24 – Duplication of address setting on multiple DTA104A61,62 installation

Trigger	Effect	Reset
Bad configuration of option DTA104A61,62 PCB.	Forced stop.	DTA104A61,62 power reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Check wiring and configuration of option DTA104A61, 62. See option handbook on Business Portal for more information.
2. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.150 U9-01 – Other indoor unit has error

Trigger	Effect	Reset
System mismatch, non-compatible indoor units.	Forced stop.	Auto reset.
At least one other indoor unit on same F1-F2 wiring has an error.		

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1. Check the indoor units for error codes other than U9-01. See "3.3 Error based troubleshooting" [▶ 24] to solve the error code(s).
2. Check for improper combination of units. See the combination table in the Databook for more information. Change the installation with ONLY compatible type units.
3. Check field setting 1-10 to count the indoor units, see "7.9 Field settings" [▶ 396]. If less indoor units detected than it should be, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▶ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▶ 212]).

   Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).
4. Set field setting 2-5 of the outdoor unit to 1 to start the indoor units connected to that outdoor unit on forced fan operation, see "7.9 Field settings" [▶ 396]. If any of these indoor units is NOT operating, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▶ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▶ 212]).

   Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).
5. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB.
6. Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

   Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.151 U9-02 – Other system R32 leakage confirmed

Trigger	Effect	Reset
At least one other indoor unit on same F1-F2 wiring detects refrigerant leak.	Forced stop.	Automatic reset when indoor unit leak detection was reset (field setting 25-14=2).

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check the indoor units for error codes other than U9-02. See "3.3 Error based troubleshooting" [▶ 24] to solve the error code(s).

2 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

3 Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

4 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.152 UA-00 – Combination abnormality

Trigger	Effect	Reset
Combination abnormality.	Forced stop.	Power reset and only allowed combination.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Change the installation with ONLY R32 type indoor units.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.153 UA-03 – Combination abnormality - Mix of R22, R407C R410A and R32 type units detected

Trigger	Effect	Reset
Mix of R22, R407C, R410A, R32 type units detected.	Forced stop.	Power reset and only allowed combination.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Change the installation with ONLY R32 type indoor units.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.154 UA-13 – Combination abnormality - Indoor unit not compatible with outdoor unit (refrigerant type)

Trigger	Effect	Reset
R32 indoor unit detects outdoor unit operating on other refrigerant than R32.	Unit will stop operating. All other indoor units show error U9-01.	Automatic reset after re-initialization detects compatible units.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check for improper combination of units. See the combination table in the Databook for more information. Change the installation with ONLY compatible type (R32) units.

2 Check if the correct spare part is installed for the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Incorrect spare part PCB.

3 Check if the correct spare part is installed for the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Incorrect spare part main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.155 UA-15 – Combination abnormality - Outdoor unit not compatible with indoor unit (with self-cleaning panel)

Trigger	Effect	Reset
Outdoor unit NOT compatible with this indoor unit with current mounted self-cleaning decoration panel.	Unit will stop operating. All other indoor units show error U9-01.	Automatic reset after re-initialization detects compatible self-cleaning decoration panel.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check for improper combination of self-cleaning decoration panel and indoor unit. Change the indoor unit with compatible self-cleaning decoration panel.

Possible cause: Non-compatible self-cleaning decoration panel.

2 Check if the correct spare part is installed for the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Incorrect spare part PCB.

3 Check if the correct spare part is installed for the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Incorrect spare part main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.156 UA-16 – Combination abnormality - More than 18 indoor units detected on same system

Trigger	Effect	Reset
Main PCB on outdoor unit detects more than 18 indoor units on same system.	Forced stop.	Automatic reset after re-initialization detects less than 18 compatible indoor units.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Change the installation to include a maximum of 18 indoor units.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.157 UA-17 – Combination abnormality - Local setting abnormality

Trigger	Effect	Reset
Main PCB on outdoor unit detects compatibility issues.	Forced stop.	Automatic reset after re-initialization detects compatible units and normal field settings.
Main PCB detects field setting abnormality.		

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check for improper combination of units. See the combination table in the Databook for more information. Change the installation with ONLY compatible type units.

2 Check and verify the outdoor unit field settings with the default settings. See "7.9 Field settings" [▸ 396].

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.158 UA-18 – Combination abnormality - Outdoor unit not compatible with indoor units (refrigerant type)

Trigger	Effect	Reset
Main PCB on outdoor unit detects compatibility issues.	Forced stop.	Automatic reset after re-initialization detects compatible units.
Outdoor unit NOT compatible with indoor units (refrigerant type).		

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check for improper combination of units. See the combination table in the Databook for more information. Change the installation with ONLY compatible type units.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.159 UA-19 – Combination abnormality - Local set alarm

Trigger	Effect	Reset
Main PCB on outdoor unit detects compatibility issues.	Forced stop.	Automatic reset after re-initialization detects compatible units and normal field settings.
Main PCB detects field setting abnormality, local set alarm.		

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check for improper combination of units. See the combination table in the Databook for more information. Change the installation with ONLY compatible type units.

2 Check and verify the outdoor unit field settings with the default settings. See "7.9 Field settings" [▸ 396].

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.160 UA-20 – Combination abnormality - Non-compatible outdoor unit in multi-combination

Trigger	Effect	Reset
Main PCB on outdoor unit detects compatibility issues.	Forced stop.	Automatic reset after re-initialization detects compatible units.
Outdoor unit NOT compatible with multi combination.		

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Check for improper combination of units. ONLY single module configuration is possible (NO Q1-Q2 loop possible between outdoor units).

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.161 UA-21 – Combination abnormality - BPMK units detected

Trigger	Effect	Reset
Main PCB detects BPMK unit(s) on F1/F2 wiring.	Forced stop.	Automatic reset after re-initialization detects compatible units.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Check for improper combination of units. See the combination table in the Databook for more information. Change the installation with ONLY compatible type units.
2. Change the installation without BPMK units.

3.3.162 UA-38 – Combination abnormality - Altherma hydro unit detected

Trigger	Effect	Reset
Main PCB on main outdoor unit detects Altherma hydrobox on F1-F2 IN wiring.	Forced stop.	Automatic reset after re-initialization detects compatible units.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 NO Hydrobox unit is allowed in the installation. See the Databook for more information.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.163 UA-39 – Combination abnormality - Incorrect combination

Trigger	Effect	Reset
Main PCB on outdoor unit detects compatibility issues.	Forced stop.	Automatic reset after re-initialization detects compatible units.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check for improper combination of units. See the combination table in the Databook for more information. Change the installation with ONLY compatible type units.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.164 UA-50 – Combination abnormality detected

Trigger	Effect	Reset
Outdoor uint NOT compatible with BPMK or Hydrobox units.	Forced stop.	Power reset at outdoor unit.

To solve the error code

1 Hydrobox or BPMK units are not allowed in the installation. Change the installation as needed.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.165 UA-51 – Combination abnormality - hydrobox units detected

Trigger	Effect	Reset
Outdoor unit detects hydro units connected.	Forced stop.	Power reset at outdoor unit.

To solve the error code

1 Hydrobox or BPMK units are not allowed in the installation. Change the installation as needed.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.166 UA-55 – R32 pump down locked state (outdoor unit setting required)

Trigger	Effect	Reset
When an indoor unit detects refrigerant leak, it shows error code A0-11. After reset of indoor unit (field setting 25-14=2), also the outdoor unit needs to be reset.	Forced stop.	Automatic reset when outdoor lock function was reset at outdoor main PCB (field setting 2-47=1).

To solve the error code

1 Check the indoor units for error code A0-11. See "3.3 Error based troubleshooting" [▶ 24] to solve the error code(s).

2 Reset the outdoor lock function. Set the field setting 2-47=1 on the outdoor unit. See "7.9 Field settings" [▶ 396].

Possible cause: Outdoor lock function active.

3 Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

Possible cause: Faulty main PCB or wrong capacity setting.

4 Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

5 Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

Possible cause: Faulty indoor unit main PCB.

6 Perform a check of the following expansion valves. See "4.8 Expansion valve" [▶ 199]:

- Liquid shut-off expansion valve
- Gas shut-off expansion valve

Possible cause: Faulty expansion valve.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.167 UA-56 – Back-up PCB not connected/abnormality

Trigger	Effect	Reset
Power back-up PCB failure/NOT connected.	Forced stop.	Automatic reset when back-up PCB operates normally.

To solve the error code

1. Perform a check of the back-up PCB. See "4.3 Back-up PCB" [▶ 176].

   Possible cause: Faulty back-up PCB.

2. Perform a check of the Sub PCB. See "4.25 Sub PCB" [▶ 289].

   Possible cause: Faulty Sub PCB.

3. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB or wrong capacity setting.

4. Check the wiring between the PCB's. See "7.2 Wiring diagram" [▶ 343].

   Possible cause: Faulty wiring between PCB's.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.168 UA-57 – Mechanical ventilation abnormality (external input is closed)

Trigger	Effect	Reset
Mechanical ventilation abnormality (external input on X2M is closed).	Forced stop.	Operation NOT allowed while abnormality continues.

To solve the error code

1. Check if the mechanical ventilation functions correctly and repair as needed. See "5.3 Manufacturer components" [▶ 325].

   Possible cause: Faulty mechanical ventilation.

2. Check the mechanical ventilation error input signal. See "5.1 Electrical circuit" [▶ 306].

   Possible cause: Faulty mechanical ventilation error input signal.

3. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB or wrong capacity setting.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.169 UA-58 – Supervisor remote controller not connected/not set

Trigger	Effect	Reset
Supervisor remote controller NOT connected.	Indoor unit conitnues FAN ONLY operation while other indoor units show error U9-01. Outdoor unit stops operating.	Operation NOT allowed while abnormality continues.

To solve the error code

1. Check that the field setting is correctly set on the outdoor unit: [2-60=0] when NO supervisor remote controller connected, [2-60=1] when supervisor remote controller connected. See "7.9 Field settings" [▶ 396].

   Possible cause: Faulty field setting for supervisor remote controller.

2. Check that the setting [R2-05=02] is correct and that the supervisor remote controller functions correctly. See "4.23 Remote controller user interface" [▶ 286].

   Possible cause: Faulty setting or supervisor remote controller.

3. Check the communication wiring between the supervisor remote controller and the indoor unit main PCB. See "4.23 Remote controller user interface" [▶ 286].

   Possible cause: Faulty communication wiring between remote controller and indoor unit.

4. Perform a check of the indoor unit main PCB. See "4.14 Indoor unit main PCB" [▶ 212].

   Possible cause: Faulty indoor unit main PCB.

5. Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

   Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

6. Perform a check of the main PCB. See "4.15 Main PCB" [▶ 212].

   Possible cause: Faulty main PCB or wrong capacity setting.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.170 UE-00 – Communication abnormality with central controller

Trigger	Effect	Reset
Transmission abnormality with central controller.	The indoor unit that has the error will stop operating (fan OFF, expansion valve OFF) while all the other indoor units and outdoor unit will continue operating for indoor units without error.	Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

If all indoor units display error UE-00

1. Check the F1-F2 transmission line between the central controller and terminal X1M of the outdoor unit. See "5.1 Electrical circuit" [▶ 306].

   Possible cause: Faulty or interruption in transmission line between central controller and outdoor unit.

2. Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

   Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

If ONLY 1 indoor unit displays error UE-00

3. Check if the indoor unit has an assigned group address. Set a group address as needed. See installation manual of the remote controller for procedure to set group address.

   Possible cause: No group address assigned to indoor unit.

4. Perform a power reset on the central controller and check if error is resolved.
5. Using the service monitoring tools, check the communication registers.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.171 UF-01 – Wiring and piping mismatch - Auto address inconsistency on F1-F2 transmission

Trigger	Effect	Reset
Minimum 1 indoor unit fails to perform cross pipe check during test run.	Forced stop.	Perform test run.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▶ 313].

   Possible cause: Closed stop valve in the refrigerant circuit.

2. Check that the refrigerant circuit piping and wiring connections of the system are correctly installed.

   Possible cause: Refrigerant piping and/or wiring mismatch.

3. Set field setting 2-5 of the outdoor unit to 1 to start the indoor units connected to that outdoor unit on forced fan operation, see "7.9 Field settings" [▶ 396]. If any of these indoor units is NOT operating, check the

indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▶ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▶ 212]).

Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

4 Check field setting 1-10 to count the indoor units, see "7.9 Field settings" [▶ 396]. If less indoor units detected than it should be, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▶ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▶ 212]).

Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

5 Perform a check of the indoor unit pipe thermistors. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty indoor unit pipe thermistor.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.172 UF-05 – Wiring and piping mismatch - Stop valves closed or incorrect

Trigger	Effect	Reset
Minimum 1 indoor unit fails to perform cross pipe check during test run.	Forced stop.	Perform test run.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▶ 313].

Possible cause: Closed stop valve in the refrigerant circuit.

2 Check that the refrigerant circuit piping and wiring connections of the system are correctly installed.

Possible cause: Refrigerant piping and/or wiring mismatch.

3 Set field setting 2-5 of the outdoor unit to 1 to start the indoor units connected to that outdoor unit on forced fan operation, see "7.9 Field settings" [▶ 396]. If any of these indoor units is NOT operating, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▶ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▶ 212]).

Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

4 Check field setting 1-10 to count the indoor units, see "7.9 Field settings" [▶ 396]. If less indoor units detected than it should be, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▶ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▶ 212]).

Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

5 Perform a check of the indoor unit pipe thermistors. See "4.26 Thermistors" [▶ 297].

Possible cause: Faulty indoor unit pipe thermistor.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.173 UF-11 – Wiring and piping mismatch - Excess connection ratio

Trigger	Effect	Reset
Minimum 1 indoor unit fails to perform cross pipe check during test run.	Forced stop.	Perform test run.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Check that all stop valves of the refrigerant circuit are open. See "5.2 Refrigerant circuit" [▶ 313].

   Possible cause: Closed stop valve in the refrigerant circuit.

2. Check that the refrigerant circuit piping and wiring connections of the system are correctly installed.

   Possible cause: Refrigerant piping and/or wiring mismatch.

3. Set field setting 2-5 of the outdoor unit to 1 to start the indoor units connected to that outdoor unit on forced fan operation, see "7.9 Field settings" [▶ 396]. If any of these indoor units is NOT operating, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▶ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▶ 212]).

   Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

4. Check field setting 1-10 to count the indoor units, see "7.9 Field settings" [▶ 396]. If less indoor units detected than it should be, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▶ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▶ 212]).

   Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

5. Perform a check of the indoor unit pipe thermistors. See "4.26 Thermistors" [▶ 297].

   Possible cause: Faulty indoor unit pipe thermistor.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.174 UH-01 – Auto-address failure

Trigger	Effect	Reset
Main PCB detects improper combination at indoor unit side.	Forced stop.	Reset communication from main PCB.
Missing auto address of indoor unit(s) after initialization.		

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Set field setting 2-5 of the outdoor unit to 1 to start the indoor units connected to that outdoor unit on forced fan operation, see "7.9 Field settings" [▶ 396]. If any of these indoor units is NOT operating, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▶ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▶ 212]).

Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

2 Perform a communication reset of the F1-F2 transmission, see "5.1 Electrical circuit" [▶ 306].

3 Check field setting 1-10 to count the indoor units, see "7.9 Field settings" [▶ 396]. If less indoor units detected than it should be, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▶ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▶ 212]).

Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

4 Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▶ 306].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

5 Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▶ 306].

Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

6 Check for improper combination of units. See the combination table in the Databook for more information. Change the installation with ONLY compatible type units.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.175 UH-02 – Auto-address failure

Trigger	Effect	Reset
Main PCB detects improper combination at indoor unit side.	Forced stop.	Reset communication from main PCB.
Missing auto address of indoor unit(s) after initialization.		

To solve the error code

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1. Set field setting 2-5 of the outdoor unit to 1 to start the indoor units connected to that outdoor unit on forced fan operation, see "7.9 Field settings" [▸ 396]. If any of these indoor units is NOT operating, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▸ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▸ 212]).

   Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

2. Perform a communication reset of the F1-F2 transmission, see "5.1 Electrical circuit" [▸ 306].

3. Check field setting 1-10 to count the indoor units, see "7.9 Field settings" [▸ 396]. If less indoor units detected than it should be, check the indoor unit(s) that have power black-out (see "5.1 Electrical circuit" [▸ 306]) or malfunctioning PCB (see "4.14 Indoor unit main PCB" [▸ 212]).

   Possible cause: Power black-out or malfunctioning PCB on indoor unit(s).

4. Check if the power supply is conform with the regulations. See "5.1 Electrical circuit" [▸ 306].

   Possible cause:
   - Faulty or disturbance of the power supply (imbalance >4%),
   - Power drop,
   - Short circuit.

5. Check the F1-F2 transmission line between the indoor units and outdoor unit. See "5.1 Electrical circuit" [▸ 306].

   Possible cause: Faulty or interruption in transmission line between indoor units and outdoor unit.

6. Check for improper combination of units. See the combination table in the Databook for more information. Change the installation with ONLY compatible type units.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3.3.176 Overview of error codes

Error code	Description
A0-00	External protection device activated
A0-11	R32 leakage detection
A0-13	False R32 leakage detection
A1-00	Main PCB abnormality
A3-00	Drain water level abnormality
A6-01	Fan motor abnormality - motor lock
A6-10	Fan motor abnormality - overcurrent or IPM protection
A6-11	Fan motor abnormality - position detection error
A8-01	Fan motor abnormality - power supply abnormality
A9-01	Y1E Expansion valve coil abnormality
A9-02	Y1E Expansion valve body abnormality
AF-00	Drain back flow
AH-03	Communication error between main PCB and self cleaning panel PCB
AH-04	Dust detection sensor error
AH-05	Dust detection error
AH-06	Air filter rotation error
AH-07	Damper rotation error
AH-08	Filter clean time error
AH-09	Auto self-cleaning disabled
AJ-01	A1P Capacity setting error
AJ-02	A1P Setting error for Y1E expansion valve
C1-01	Communication abnormality between main PCB and fan PCB
C1-02	Communication abnormality between main PCB and option PCB
C4-02	Liquid thermistor short circuit
C4-03	Liquid thermistor open circuit
C5-02	Gas thermistor short circuit
C5-03	Gas thermistor open circuit
C6-01	Compatibility error between main PCB and fan PCB
C9-02	Air thermistor short circuit
C9-03	Air thermistor open circuit
CE-01	No signal presence sensor
CE-02	No signal floor temperature sensor
CE-03	Fault floor temperature sensor
CE-04	High value floor temperature sensor
CH-01	R32 leak detection sensor failure or disconnected

Error code	Description
CH-02	R32 leak detection sensor life time is exceeded
CH-05	R32 leak detection sensor life time <6months
CH-10	R32 leak detection sensor replacement to confirm
CJ-02	Remote controller air thermistor short circuit
CJ-03	Remote controller air thermistor open circuit
E1-01	Outdoor unit main PCB A1P error
E1-02	Outdoor unit main PCB A1P error
E1-11	Outdoor unit sub PCB A2P error
E3-01	Actuation of high pressure switch
E3-02	High pressure error
E3-07	High pressure switch reset error
E3-13	Liquid stop valve check error
E3-18	Actuation of high pressure switch during test run
E3-20	High pressure switch (manual reset) activated (open contact)
E4-01	Low pressure error
E5-01	Compressor overload/Motor Lock Error (M1C)
E6-17	Inverter overcurrent error
E7-01	Outdoor unit fan motor M1F error
E7-05	Outdoor unit fan motor M1F overcurrent error
E7-09	Fan inverter circuit (integrated power module) overheated
E9-01	Electronic expansion valve Y1E malfunction
E9-03	Electronic expansion valve Y2E malfunction
E9-04	Electronic expansion valve Y3E abnormality
E9-20	Electronic Expansion Valve (Y1E) failure
E9-23	Electronic expansion valve (Y2E) failure
E9-26	Electronic expansion valve (Y4E) malfunction
E9-29	Electronic expansion valve (Y5E) malfunction
E9-30	Electronic expansion valve (Y6E) malfunction
E9-44	Electronic expansion valve (Y3E) failure
E9-48	Electronic expansion valve (Y1E~Y4E) overcurrent error
E9-51	Electronic expansion valve thermal cutting error
E9-54	Electronic expansion valve defective circuit
E9-57	Electronic expansion valve (Y5E~Y6E) overcurrent error
F3-01	Compressor discharge temperature too high
F3-23	Compressor overload abnormality
F4-01	Wet operation caution
F4-02	Wet alarm for compressor M1C

Error code	Description
F4-08	Wet operation error for compressor M1C
F4-14	Indoor unit wet operation alarm
F6-01	Refrigerant overcharge detection by high pressure sensor S1NPH
F6-02	Refrigerant overcharge detection during test-run
F6-03	Refrigerant overcharge detection by high subcool value
H3-02	High pressure abnormality
H5-01	Compressor overload failure
H7-01	Defective fan inverter circuit
H7-21	Defective fan inverter circuit
H7-22	Defective fan inverter circuit
H9-01	Ambient temperature thermistor R1T abnormality
HA-01	Defrost fail alarm
J3-16	Discharge thermistor R21T open circuit
J3-17	Discharge thermistor R21T short circuit
J3-56	High discharge temperature
J5-01	Compressor suction thermistor R3T malfunction
J6-01	De–icer thermistor R7T abnormality
J7-06	Liquid thermistor R5T abnormality
J8-01	Heat exchanger liquid temperature thermistor R4T abnormality
J9-01	Superheat thermistor R6T abnormality
J9-08	Superheat thermistor R6T abnormality
JA-06	High pressure sensor S1NPH abnormality
JA-07	High pressure sensor S1NPH malfunction
JC-06	Low pressure sensor S1NPL abnormality
JC-07	Low pressure sensor S1NPL malfunction
L1-01	Inverter circuit abnormality
L1-02	Inverter circuit current detection primary circuit
L1-03	Inverter circuit current detection secondary circuit
L1-04	Power transistor error on inverter circuit
L1-05	Inverter circuit hardware fault
L1-28	Fan inverter circuit EEPROM error
L1-36	Inverter circuit EEPROM error
L1-47	Inverter circuit 16 V DC abnormal
L2-01	Power supply abnormality during test run
L2-04	Power supply abnormality during normal operation
L4-01	Inverter circuit high fin temperature

Error code	Description
L4-06	Fan inverter circuit high fin temperature
L5-03	Output overcurrent detection on inverter circuit
L8-03	Overcurrent on inverter circuit except start-up
L9-01	Stall prevention by inverter circuit
L9-13	Inverter circuit output phase abnormality
LC-01	Transmission abnormality
LC-14	Transmission abnormality control/inverter circuit
LC-19	Transmission abnormality main/fan inverter circuit
LC-33	Transmission abnormality main PCB/sub PCB
LC-37	Transmission abnormality main PCB/sub PCB
P1-01	Open phase or unbalanced power supply detection by inverter circuit
P4-01	Fin thermistor abnormality on inverter circuit
PJ-04	Capacity setting mismatch for inverter circuit
PJ-09	Capacity setting mismatch for fan inverter circuit
U0	Refrigerant shortage detection (Warning)
U0-05	Refrigerant shortage detection
U0-06	Refrigerant shortage detection
U0-08	Refrigerant shortage detection by high pressure sensor
U1-01	Reverse phase detection
U1-04	Reverse phase detection
U1-16	Open phase detection on Power supply
U1-19	Hz error detection on Power Supply
U2-01	Inverter circuit power supply abnormality - abnormal voltage
U2-02	Inverter circuit power supply abnormality - phase loss
U2-03	Inverter circuit power supply abnormality - DC circuit not charging
U3-02	Test run interrupted manually
U3-03	Test run not performed yet
U3-04	Test run ended abnormally
U3-05	Test run aborted on initial transmission
U3-06	Test run aborted on normal transmission
U3-07	Transmission abnormality on test run
U3-08	Transmission abnormality on test run
U4-01	Transmission error between indoor units and outdoor unit
U4-03	Transmission error between indoor units and system
U4-15	Unable to start test run

Error code	Description
U5-04	Communication abnormality between indoor unit main PCB and remote controller
U5-06	1 Supervisor remote controller not connected/not set
U7-01	Transmission abnormality between systems - DTA104A61,62 error
U7-02	Transmission abnormality between systems - DTA104A61,62 error
U7-11	Excess indoor units detected on test run
U7-24	Duplication of address setting on multiple DTA104A61,62 installation
U9-01	Other indoor unit has error
U9-02	Other system R32 leakage confirmed
UA-00	Combination abnormality
UA-03	Combination abnormality - Mix of R22, R407C, R410A and R32 type units detected
UA-13	Combination abnormality - Indoor unit not compatible with outdoor unit (refrigerant type)
UA-15	Combination abnormality - Outdoor unit not compatible with indoor unit (with self-cleaning panel)
UA-16	Combination abnormality - More than 18 indoor units detected on same system
UA-17	Combination abnormality - Local setting abnormality
UA-18	Combination abnormality - Outdoor unit not compatible with indoor units (refrigerant type)
UA-19	Combination abnormality - Local set alarm
UA-20	Combination abnormality - Non-compatible outdoor unit in multi-combination
UA-21	Combination abnormality - BPMK units detected
UA-38	Combination abnormality - Altherma hydro unit detected
UA-39	Combination abnormality - Incorrect combination
UA-50	Combination abnormality detected
UA-51	Combination abnormality - hydrobox units detected
UA-55	R32 pump down locked state (outdoor unit setting required)
UA-56	Back-up PCB not connected/abnormality
UA-57	Mechanical ventilation abnormality (external input is closed)
UA-58	Supervisor remote controller not connected/not set
UE-00	Communication abnormality with central controller
UF-01	Wiring and piping mismatch - Auto address inconsistency on F1-F2 transmission
UF-05	Wiring and piping mismatch - Stop valves closed or incorrect
UF-11	Wiring and piping mismatch - Excess connection ratio

Error code	Description
UH-01	Auto-address failure
UH-02	Auto-address failure

3.4 Symptom based troubleshooting

3.4.1 Normal operating conditions

Below items are a guideline on how to check normal operating conditions of the unit. Still, values are for reference ONLY and working conditions outside of this range do NOT necessarily address abnormalities and errors. Operating conditions are a result of several items to check together.

Item	Description	Normal value
Discharge superheat	Discharge pipe temperature – condensation temperature	25 K to 45 K

Discharge superheat = discharge pipe temperature – condensation temperature

- Discharge pipe temperature: Read out from discharge pipe thermistor R21T.
- Condensation temperature: Calculated by main PCB from the pressure read-out of the high pressure sensor.

Higher discharge superheat may result from refrigerant shortage or compressor internal by-pass.

Lower discharge superheat may result from low suction superheat which is caused by wet operation.

Item	Description	Normal value
Suction superheat	Suction temperature – evaporation temperature	5 K

Suction superheat = suction temperature – evaporation temperature

- Suction temperature: Read out from suction thermistor R3T
- Evaporation temperature: Calculated by main PCB from the pressure read-out of the low pressure sensor.

Suction superheat may be high if difference between [indoor set temperature – indoor air temperature] is too high and will result in high discharge superheat.

Suction superheat may be low if:

- Difference between [indoor set temperature – indoor air temperature] is too low
- Discharge superheat is too low (<20 K)
- Outdoor unit judges wet operation

3.4.2 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 Centralized 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 micro computer is prepared for operation.

3.4.3 Symptom: Cool/Heat cannot be changed over

- When the display shows (change-over under centralized control), it shows that this is a slave user interface.
- When the cool/heat changeover remote control switch is installed and the display shows (change-over under centralized 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.

3.4.4 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.

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

ONLY for FXFA, FXZA and FXAA units:

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

3.4.6 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.

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

- When humidity is high during cooling operation (for FXSA and FXDA: in oily and dusty places). 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.
- For FXFA, FXZA and FXAA: 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.
- For FXSA and FXDA: When the air conditioner is changed over to heating operation after defrost operation. Moisture generated by defrost becomes steam and exits.

3.4.8 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.

3.4.9 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.

3.4.10 Symptom: Noise of air conditioners (Indoor unit)

- A "zeen" sound is heard immediately after the power supply is turned on. The electronic expansion valve inside an indoor unit starts working and makes the noise. Its volume will reduce in about one minute.
- A continuous low "shah" sound is heard when the system is in cooling operation or at a stop. When the drain pump (NOT available on wall mounted IU) is in operation, this noise is heard.
- A "pishi-pishi" squeaking sound is heard when the system stops after heating operation. Expansion and contraction of plastic parts caused by temperature change make this noise.
- A low "sah", "choro-choro" sound is heard while the indoor unit is stopped. When another indoor unit is in operation, this noise is heard. In order to prevent oil and refrigerant from remaining in the system, a small amount of refrigerant is kept flowing.

3.4.11 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.

3.4.12 Symptom: Noise of air conditioners (Outdoor unit)

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

3.4.13 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.

3.4.14 Symptom: The units can give off odours

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

3.4.15 Symptom: The outdoor unit fan does not spin

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

3.4.16 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.

3.4.17 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.

3.4.18 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.

3.4.19 Symptom: Unit operation problems

Symptom	Possible failure	Root cause	Repair
Unit(s) do not operate	Unit(s) do not operate	Missing or abnormal power supply (reverse phase, missing phase, abnormal voltage…) to the outdoor unit	Check Power Supply. See "5.1 Electrical circuit" [▶ 306]
		Indoor unit(s) do not receive power supply	Check power supply to the indoor unit(s), check if HAP Led blinks, check fuse(s) on indoor unit board. Also check BPMKs in case indoor unit is of RA type.
		Mismatch of combination of outdoor unit and indoor unit	Check error codes. Check compatibility
		Out of operation range	Check operation range on databook
	All indoor units show icon blinking continuously	No Cool/Heat master is set	Select Cool/Heat Master by pressing Operating Mode button on the desired unit. The symbol will fade-away for Cool/Heat Master and will be fixed (not blinking) for the remaining indoor units
	Indoor unit(s) show icon blinking temporarily when ON button is pressed	The unit(s) are either under Centralized Control and prohibited to operate or under Forced OFF operation by T1/T2 input	Release prohibitions from central controller or check T1/T2 contact status or check indoor unit field setting for forced off
	Indoor units show fan-only mode	Transmission initialization not completed	See "To check F1-F2 transmission" [▶ 308]. Perform transmission re-initialization
			Check transmission wiring
			Check indoor unit PCBs
			Check outdoor unit main PCB, see "4.15 Main PCB" [▶ 212]
Operation sometimes stops	Power failure	A power failure consecutively more than 2 cycles may stop the air conditioner operation	Restore power supply. See "5.1 Electrical circuit" [▶ 306]

Symptom	Possible failure	Root cause	Repair
Operation stops and then restarts after 3 minutes.	Outdoor unit performing 'retry' operation	Retry mode triggered by an error	Check field setting 1-23, 1-24, 1-25 for latest retry content. See "7.9 Field settings" [▶ 396]. Refer to error code found for further troubleshooting.
Unit operates but does not cool or does not heat	Piping or wiring mismatch	Tranmission or piping problem	Correct piping, wiring
	Abnormal refrigerant amount	Outdoor unit may be overcharged or lacking refrigerant	Check refrigerant amount. See "5.2 Refrigerant circuit" [▶ 313]
	Incorrect thermistor values	Thermistors not in their location, miswiring or faulty thermistor	Check thermistors, see "4.26 Thermistors" [▶ 297]
	Incorrect expansion valve operation	Expansion valve not operating correctly	Check expansion valves. See "4.8 Expansion valve" [▶ 199]
	Cross piping/wiring among different outdoor unit systems	Indoor unit transmission line and piping is not connected to the same outdoor unit system	Correct piping, wiring

Symptom	Possible failure	Root cause	Repair
Disturbing operation noise and vibration	Faulty Inverter circuit output on main PCB	Instable output voltage from inverter circuit (on main PCB) to compressor(s)	Check Power Supply, see "5.1 Electrical circuit" [▶ 306]. Restore the power supply in conform with the requirements. Check inverter circuit on main PCB, see "4.15 Main PCB" [▶ 212]. Check compressor(s), see "4.4 Compressor" [▶ 181]
	Installation faults	Unit not installed according to installation manual	Check installation manual. Correct necessary items. Leave required space to outdoor unit for operation
	Wet operation	Liquid compression	Check thermistors. See "4.26 Thermistors" [▶ 297]. Check for refrigerant overcharge, see "5.2 Refrigerant circuit" [▶ 313]. Check expansion valves for heat exchanger that run as evaporator. Check superheat. Recover refrigerant and weigh. Charge refrigerant to the correct amount
	Flash gas on liquid piping	Expansion valve fault of refrigerant shortage	Check expansion valves for heat exchangers that run as evaporator. Check superheat. Recover refrigerant and weigh. Charge refrigerant to the correct amount

3.4.20 Other symptoms

Mode: Cooling	Low pressure	High pressure	Running current
Dirty air filters	Lower than normal	Lower than normal	Lower than normal
Air by-pass between air inlet/outlet @indoor unit	Lower than normal	Lower than normal	Lower than normal
Non condensables (i.e air) in refrigerant	Higher than normal	Higher than normal	Higher than normal
Moisture in refrigerant [*1]	Lower than normal	Lower than normal	Lower than normal
Impurities (dust, burr, ...) in refrigerant [*2]	Lower than normal	Lower than normal	Lower than normal
Refrigerant shortage	Lower than normal	Lower than normal	Lower than normal
Insufficient compression [*3]	Higher than normal	Lower than normal	Lower than normal

Mode: Heating	Low pressure	High pressure	Running current
Dirty air filters	Higher than normal	Higher than normal	Higher than normal
Air by-pass between air inlet/outlet @indoor unit	Higher than normal	Higher than normal	Higher than normal
Non condensables (i.e air) in refrigerant	Higher than normal	Higher than normal	Higher than normal
Moisture in refrigerant [*1]	Lower than normal	Lower than normal	Lower than normal
Impurities (dust, burr, ...) in refrigerant [*2]	Lower than normal	Lower than normal	Lower than normal
Refrigerant shortage	Lower than normal	Lower than normal	Lower than normal
Insufficient compression [*3]	Higher than normal	Lower than normal	Lower than normal

[*1] Water in the refrigerant freezes inside the electronic expansion valve and is basically the same phenomenon as pump-down.

[*2] Dust, burr in refrigerant clogs refrigerant filters and results with symptoms of pump-down operation.

[*3] Pressure difference between high and low pressure decreases.

4 Components

> **CAUTION**
> When replacing a component ALWAYS make sure the correct spare part for your unit is installed.

4.1 4-way valve

4.1.1 Checking procedures

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

To perform a mechanical check of the 4-way valve

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1 Remove the required plate work, see "4.18 Plate work" [▸ 260].

> **DANGER: RISK OF BURNING/SCALDING**
> The coil gets hot while energized. Wait for it to cool down.

2 Verify that the screw is firmly fixing the coil to the valve body.

3 Check if any damage or burst is present.

Is the 4-way valve coil firmly fixed and not visually damaged?	Action
Yes	Perform an electrical check of the 4-way valve, see "4.1.1 Checking procedures" [▸ 165].
No	Fix or replace the 4-way valve coil, see "4.1.2 Repair procedures" [▸ 168].

To perform an electrical check of the 4-way valve

1 First perform a mechanical check of the 4-way valve, see "4.1.1 Checking procedures" [▸ 165].

2 Unplug the 4-way valve connector from the appropriate PCB.

3 Measure the resistance of the 4-way valve coil between the pins of the 4-way valve connector.

Result: The measured value must be 1737~1743 Ω.

Is the measured value correct?	Action
Yes	Continue with the next step.
No	Replace the 4-way valve coil, see "4.1.2 Repair procedures" [▸ 168].

When outdoor temperature is mild and unit can switch between heating and cooling

> **INFORMATION**
>
> This procedure is ONLY possible when the outdoor temperature is within the temperature range for both `Heating` and `Cooling` operation mode. See the databook on Business Portal for the temperature range of the operation modes.

1. Connect the 4-way valve connector to the appropriate PCB.
2. Turn ON the power using the respective circuit breaker.
3. Activate `Heating` operation via the user interface.
4. With the 4-way valve connector connected to the PCB, measure the voltage on the 4-way valve connection of the PCB.

   Result: The measured voltage MUST be 230 V AC.
5. De-activate `Heating` and activate `Cooling` operation via the user interface.
6. Measure the voltage on the 4-way valve connection on the PCB.

   Result: The measured voltage MUST be 0 V AC.

Are the measured voltages correct?	Action
Yes	Perform a position check of the 4-way valve, see "4.1.1 Checking procedures" [▶ 165].
No	Perform a check the main PCB, see "4.15 Main PCB" [▶ 212].

When outdoor temperature does not allow the unit to run in cooling or heating mode

> **INFORMATION**
>
> Follow this procedure when the outdoor temperature is outside the temperature range for one of the operation modes (`Heating` or `Cooling`). The unit CANNOT operate in the mode for which the outdoor temperature is outside its temperature range. See the databook on Business Portal for the temperature range of the operation modes.

1. Connect the 4-way valve connector to the appropriate PCB.
2. Turn ON the power using the respective circuit breaker.
3. With the unit operating, connect the service monitoring tool to the unit and check whether the unit is operating in `Heating` or `Cooling` mode.
4. With the 4-way valve connector connected to the PCB, measure the voltage on the 4-way valve connection of the PCB. The measured voltage MUST be:
   - 230 V AC when operating in `Heating` mode
   - 0 V AC when operating in `Cooling` mode

Is the measured voltage correct?	Action
Yes	Perform a position check of the 4-way valve, see "4.1.1 Checking procedures" [▶ 165].
No	Perform a check the main PCB, see "4.15 Main PCB" [▶ 212].

To perform a position check of the 4-way valve

1 First perform an electrical check of the 4-way valve, see "4.1.1 Checking procedures" [▶ 165].

When outdoor temperature is mild and unit can switch between heating and cooling

> **INFORMATION**
>
> This procedure is ONLY possible when the outdoor temperature is within the temperature range for both `Heating` and `Cooling` operation mode. See the databook on Business Portal for the temperature range of the operation modes.

1 Activate `Heating` operation via the user interface.

> **INFORMATION**
>
> It is recommended to connect the service monitoring tool to the unit and verify the operation mode of the 4-way valve.

2 Check with a contact thermometer (or by touching) if the flow through the 4-way valve corresponds with the flow shown in the flow diagram. (See "7.3 Piping diagram" [▶ 367]).

Is the flow correct?	Action
Yes	Skip the next step of this procedure.
No	Perform the next step of this procedure.

3 Connect a manifold to one of the service ports of the refrigerant circuit and check the pressure (suction, discharge). Compare with normal operation conditions of the unit.

Refrigerant pressure correct?	Action
Yes	Replace the body of the 4-way valve, see "4.1.2 Repair procedures" [▶ 168].
No	Leaks may be found in the refrigerant circuit. Perform a pressure test of the refrigerant circuit, see "5.2.1 Checking procedures" [▶ 313].

4 De-activate `Heating` and activate `Cooling` operation via the user interface.

5 Check with a contact thermometer (or by touching) if the flow through the 4-way valve corresponds with the flow shown in the flow diagram. (See "7.3 Piping diagram" [▶ 367]).

Is the flow correct?	Action
Yes	4-way valve is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the body of the 4-way valve, see "4.1.2 Repair procedures" [▶ 168].

When outdoor temperature does not allow the unit to run in cooling or heating mode

> **INFORMATION**
>
> Follow this procedure when the outdoor temperature is outside the temperature range for one of the operation modes (`Heating` or `Cooling`). The unit CANNOT operate in the mode for which the outdoor temperature is outside its temperature range. See the databook on Business Portal for the temperature range of the operation modes.

1. With the unit operating, connect the service monitoring tool to the unit and check whether the unit is operating in `Heating` or `Cooling` mode.
2. Check with a contact thermometer (or by touching) if the flow through the 4-way valve corresponds with the flow shown in the flow diagram of the specific operation mode. (See "7.3 Piping diagram" [▶ 367]).

Is the flow correct?	Action
Yes	4-way valve is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Perform the next step of this procedure.

3. Connect a manifold to one of the service ports of the refrigerant circuit and check the pressure (suction, discharge). Compare with normal operation conditions of the unit.

Refrigerant pressure correct?	Action
Yes	Replace the body of the 4-way valve, see "4.1.2 Repair procedures" [▶ 168].
No	Leaks may be found in the refrigerant circuit. Perform a pressure test of the refrigerant circuit, see "5.2.1 Checking procedures" [▶ 313].

4.1.2 Repair procedures

To remove the 4-way valve coil

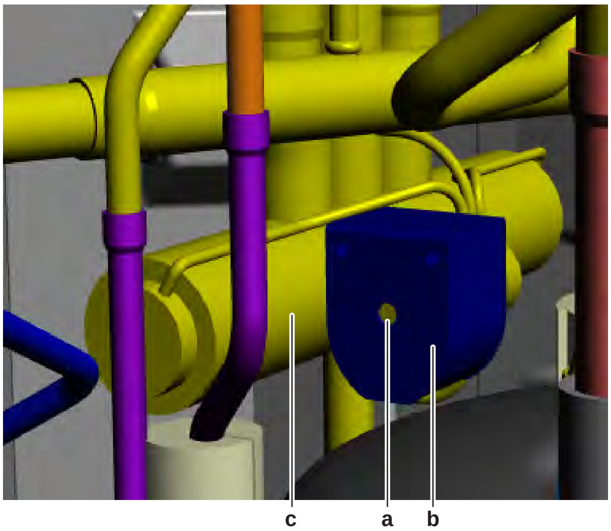
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

Prerequisite: If needed, remove any parts to create more space for the removal of the 4-way valve coil.

1. Remove the screw and remove the 4-way valve coil from the 4-way valve body.



a Screw
b 4-way valve coil
c 4-way valve body

2 Cut all tie straps that fix the 4-way valve coil harness.

3 Unplug the 4-way valve connector from the appropriate PCB.

4 To install the 4-way valve coil, see "4.1.2 Repair procedures" [▶ 168].

To remove the 4-way valve body

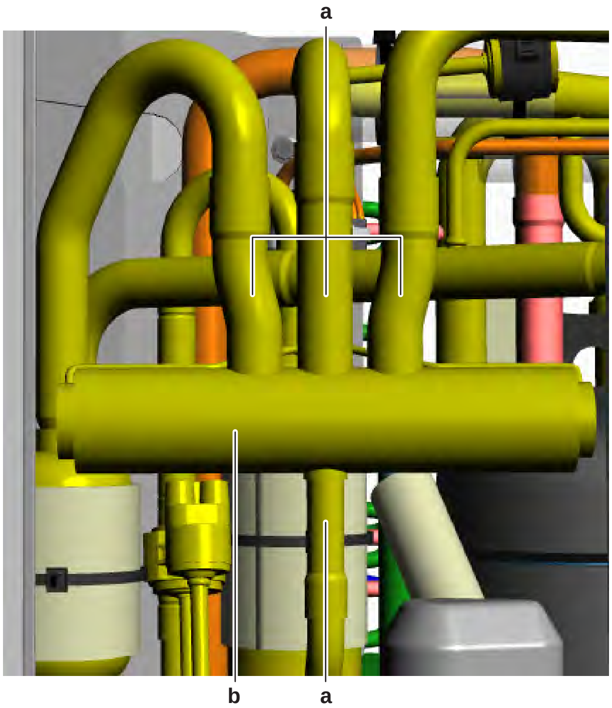
Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "5.2.2 Repair procedures" [▶ 318].

1 Remove the 4-way valve coil from the 4-way valve body, see "4.1.2 Repair procedures" [▶ 168].

2 Remove and keep the putty (if installed) and the insulation (if installed) for re-use.

3 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

4 Wrap a wet rag around the components near the 4-way valve pipes. Heat the brazing points of the 4-way valve pipes using an oxygen acetylene torch and remove the 4-way valve pipes from the refrigerant pipes using pliers.



a 4-way valve pipe
b 4-way valve

5 Stop the nitrogen supply when the piping has cooled down.

6 Remove the 4-way valve.

> **INFORMATION**
>
> It is ALSO possible to cut the component pipe(s) using a pipe cutter. Make sure to remove the remaining component pipe end(s) from the refrigerant pipes by heating the brazing point(s) of the component pipe(s) using an oxygen acetylene torch.

7 Install plugs or caps on the open pipe ends of the refrigerant piping to avoid dirt or impurities from entering the piping.

8 To install the 4-way valve body, see "4.1.2 Repair procedures" [▸ 168].

To install the 4-way valve body

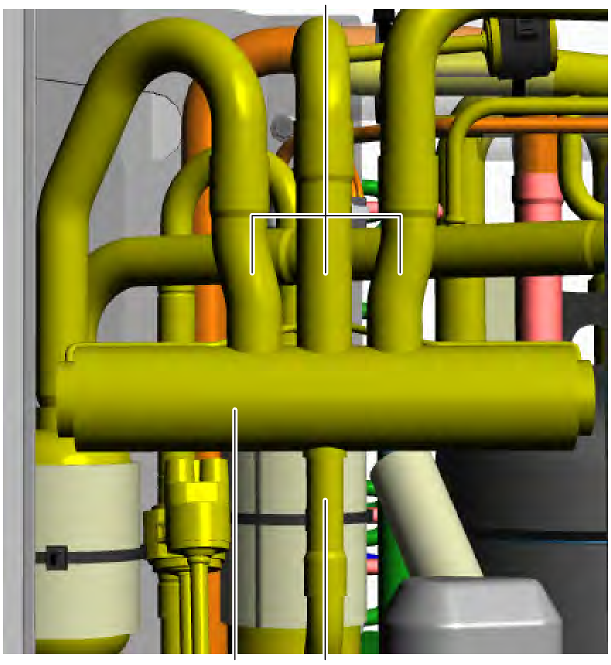
1 Remove the plugs or caps from the refrigerant piping and make sure they are clean.

2 Remove the 4-way valve coil from the spare part 4-way valve body.

3 Install the 4-way valve body in the correct location and correctly oriented. Insert the pipe ends in the pipe expansions.

4 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

5 Wrap a wet rag around the 4-way valve body and any other components near the 4-way valve and solder the 4-way valve pipes to the refrigerant pipes.



a 4-way valve pipe
b 4-way valve

CAUTION

Overheating the valve will damage or destroy it.

6 After soldering is done, stop the nitrogen supply after the component has cooled-down.

7 Install the putty (if available) and the insulation (if available) in their original location.

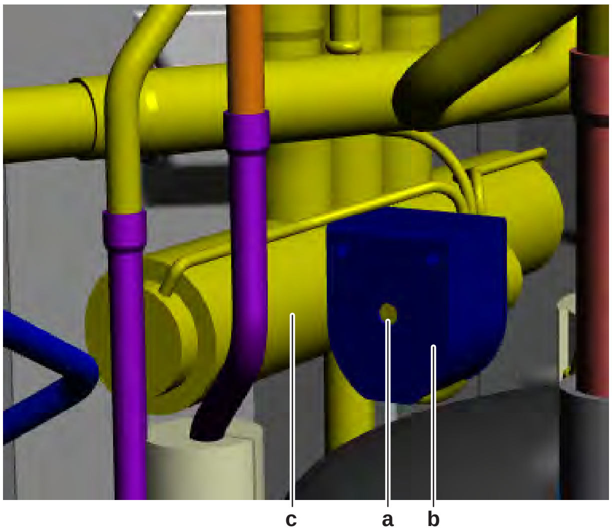
8 Install the 4-way valve coil on the 4-way valve body, see "4.1.2 Repair procedures" [▸ 168].

9 Perform a pressure test, see "5.2.1 Checking procedures" [▸ 313].

10 Add refrigerant to the refrigerant circuit, see "5.2.2 Repair procedures" [▸ 318].

To install the 4-way valve coil

1 Install the 4-way valve coil on the 4-way valve body.



a Screw
b 4-way valve coil
c 4-way valve body

2 Install and tighten the screw to fix the 4-way valve coil.

3 Route the 4-way valve coil harness towards the appropriate PCB.

4 Connect the 4-way valve connector to the appropriate PCB.

> **WARNING**
>
> When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

5 Fix the 4-way valve coil harness using new tie straps.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.2 ABC I/P PCB

4.2.1 Checking procedures

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

To perform a power check of the ABC I/P PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

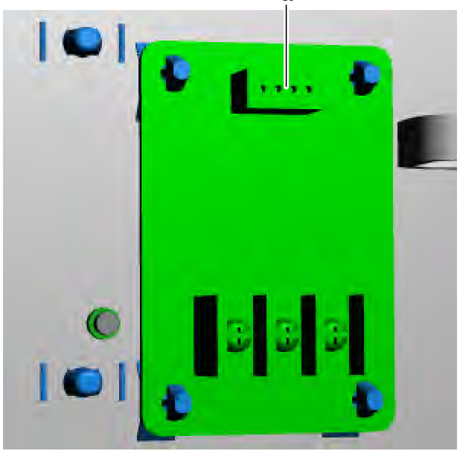
1 Access the back side of the switch box, see "4.18 Plate work" [▶ 260].

2 Visually check the PCB for damage and burnt-out components. If any damage found, replace the PCB, see "4.2.2 Repair procedures" [▶ 175].

3 Turn ON the power of the unit.

4 Measure the voltage on pins 1-4 of connector X1A when connected to the ABC I/P PCB.

Result: The measured voltage MUST be 14.5 V DC ± 10%.



a Connector X1A

Is the measured voltage correct?	Action
Yes	Return to "4.2.1 Checking procedures" [▸ 172] of the ABC I/P PCB and continue with the next procedure.
No	Continue with the next step.

5 Measure the output voltage on pins 1-5 of connector X66A of the main PCB.

Result: The measured voltage MUST be 14.5 V DC ± 10%.

Is the measured output voltage correct?	Action
Yes	Correct the wiring between the main PCB and ABC I/P PCB, see "5.1.2 Repair procedures" [▸ 311].
No	Perform a check of main PCB, see "4.15 Main PCB" [▸ 212].

To check the wiring of the ABC I/P PCB

Prerequisite: First check the power supply to the ABC I/P PCB, see "4.2.1 Checking procedures" [▸ 172].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1 Check that all wires are properly connected and that all connectors are fully plugged-in.

2 Check that no connectors or wires are damaged.

3 Check that the wiring corresponds with the wiring diagram, see "7.2 Wiring diagram" [▸ 343].

> **INFORMATION**
>
> Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "4.2.1 Checking procedures" [▶ 172] of the ABC I/P PCB and continue with the next procedure.

To perform an operation check of the ABC I/P PCB

Prerequisite: First perform all earlier checks of the ABC I/P PCB, see "4.2.1 Checking procedures" [▶ 172].

1. Disconnect all wiring from the input wiring terminal (field wiring side) X3M.
2. Turn ON the power using the respective circuit breaker.
3. Wait until initialization is completed (7-segment display on outdoor unit is OFF).
4. Set the DIP switch DS1-1 on the outdoor unit main PCB to ON position to activate the Cool/Heat selector switch input.

INFORMATION

Make sure that the wiring between the ABC I/P PCB and the input wiring terminal (field wiring side) is properly connected and NOT damaged (check continuity), see "7.2 Wiring diagram" [▶ 343].

5. Create the following situations on the input wiring terminal X3M and measure the output voltage between the appropriate pins of connector X1A on the ABC I/P PCB. Use a short transmission cable to simulate short-circuit on the input wiring terminal X3M (field wiring side):

Input wiring terminal	Input situation	Meassuring points on connector X1A	Output voltage
X3M	1-3: Open circuit	Pin 2-4	0 V DC
	1-3: Short-circuit	Pin 2-4	5 V DC
	2-3: Open circuit	Pin 3-4	0 V DC
	2-3: Short-circuit	Pin 3-4	5 V DC

Are the measured voltages correct?	Action
Yes	Return to "4.2.1 Checking procedures" [▶ 172] of the ABC I/P PCB and continue with the next procedure.
No	Replace the ABC I/P PCB, see "4.2.2 Repair procedures" [▶ 175].

To check if the correct spare part is installed

Prerequisite: First perform all earlier checks of the ABC I/P PCB, see "4.2.1 Checking procedures" [▶ 172].

1. Visit your local spare parts webbank.
2. Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

Is the correct spare part for the ABC I/P PCB installed?	Action
Yes	Return to "4.2.1 Checking procedures" [▶ 172] of the ABC I/P PCB and continue with the next procedure.
No	Replace the ABC I/P PCB, see "4.2.2 Repair procedures" [▶ 175].

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.2.2 Repair procedures

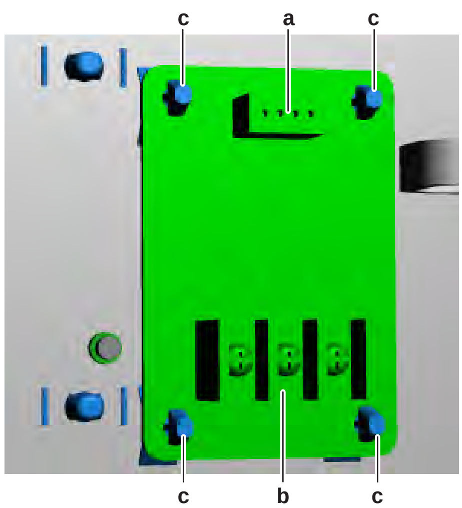
To remove the ABC I/P PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1. Remove the switch box from the unit, see "4.18 Plate work" [▶ 260].
2. Disconnect the connector X1A from the ABC I/P PCB.



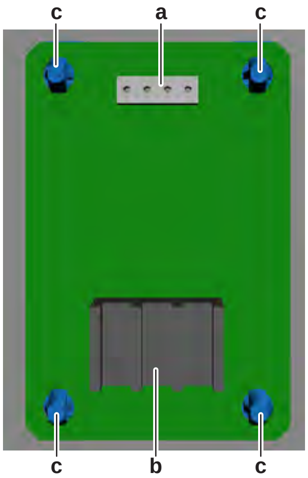
a Connector X1A
b Wiring terminal X1M
c PCB support

3. Loosen the screws and disconnect the wiring from the wiring terminal X1M on the ABC I/P PBC.
4. Carefully pull the ABC I/P PCB and unlatch the PCB supports one by one using a small pair of pliers.
5. Remove the ABC I/P PCB from the PCB mounting plate.
6. To install the ABC I/P PCB, see "4.2.2 Repair procedures" [▶ 175].

To install the ABC I/P PCB

1 Install the ABC I/P PCB in the correct location in the switch box.

2 Attach the ABC I/P PCB to the PCB supports.



a Connector X1A
b Wiring terminal X1M
c PCB support

3 Connect the wiring to the wiring terminal X1M on the ABC I/P PCB. Fix using the screws.

4 Connect the connector X1A to the ABC I/P PCB.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "4.2.1 Checking procedures" [▸ 172] of the ABC I/P PCB and continue with the next procedure.

4.3 Back-up PCB

4.3.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a power check of the back-up PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

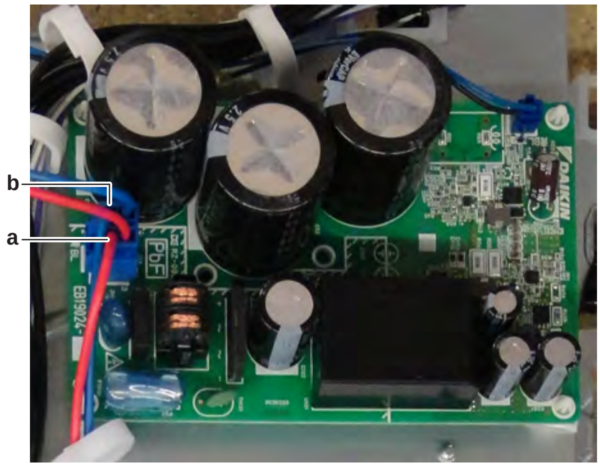
Prerequisite: Remove the required plate work, see "4.18 Plate work" [▸ 260].

1 Access the back side of the switch box, see "4.18 Plate work" [▸ 260].

2 Turn ON the power of the unit.

3 Measure the voltage between pins 1-2 of connector X1A of the back-up PCB.

Result: The measured voltage MUST be 200~240 V AC.



a Connector X1A pin 1
b Connector X1A pin 2

Is the measured voltage on the back-up PCB correct?	Action
Yes	Return to "4.3.1 Checking procedures" [▶ 176] of the back-up PCB and continue with the next procedure.
No	Continue with the next step.

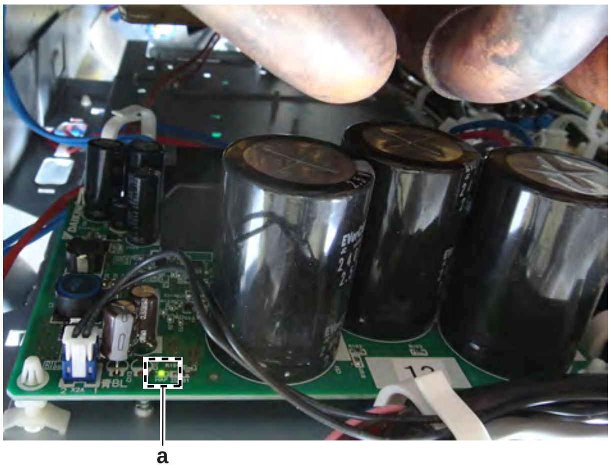
4 Check the power supply to the unit, see "5.1.1 Checking procedures" [▶ 306].

Does the unit receive power?	Action
Yes	Correct the wiring from the main power supply terminal to the back-up PCB, see "4.3.2 Repair procedures" [▶ 180].
No	Adjust the power supply to the unit, see "5.1.2 Repair procedures" [▶ 311].

To check the HAP LED of the back-up PCB

Prerequisite: First perform a power check of the back-up PCB, see "4.3.1 Checking procedures" [▶ 176].

1 Locate the HAP LED on the back-up PCB.



a HAP LED

Does the HAP LED burn continuously?	Action
Yes	Return to "4.3.1 Checking procedures" [▶ 176] of the back-up PCB and continue with the next procedure.
No	Replace the back-up PCB, see "4.3.2 Repair procedures" [▶ 180].

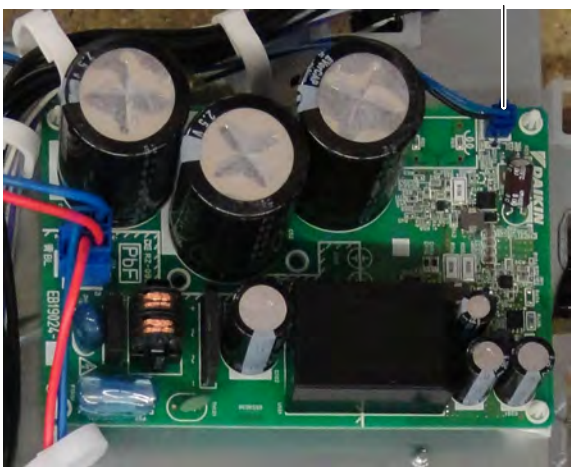
To perform an electrical check of the back-up PCB

Prerequisite: First perform all earlier checks of the back-up PCB, see "4.3.1 Checking procedures" [▶ 176].

1 Measure the voltage on connector X2A of the back-up PCB.

Result: The measurement MUST be 13.8 V DC ± 10%.

a



a Connector X2A

Is the measured voltage correct?	Action
Yes	Return to "4.3.1 Checking procedures" [▶ 176] of the back-up PCB and continue with the next procedure.
No	Replace the back-up PCB, see "4.3.2 Repair procedures" [▶ 180].

To check if the correct spare part is installed

Prerequisite: First perform all earlier checks of the back-up PCB, see "4.3.1 Checking procedures" [▶ 176].

1 Visit your local spare parts webbank.

2 Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

Is the correct spare part for the back-up PCB installed?	Action
Yes	Return to "4.3.1 Checking procedures" [▶ 176] of the back-up PCB and continue with the next procedure.
No	Replace the back-up PCB, see "4.3.2 Repair procedures" [▶ 180].

To check the wiring of the back-up PCB

Prerequisite: First perform all earlier checks of the back-up PCB, see "4.3.1 Checking procedures" [▶ 176].

Prerequisite: Stop the unit operation via the user interface.

1 Turn OFF the respective circuit breaker.

> **DANGER: RISK OF ELECTROCUTION**
>
> Wait for at least 20 minutes after the circuit breaker has been turned OFF, to be sure NO residual voltage is present on the back-up PCB. HAP LED MUST be OFF, see "To prevent electrical hazards" [▶ 307].

2 Check that all wires are properly connected and that all connectors are fully plugged-in.

3 Check that no connectors or wires are damaged.

4 Check that the wiring corresponds with the wiring diagram, see "7.2 Wiring diagram" [▶ 343].

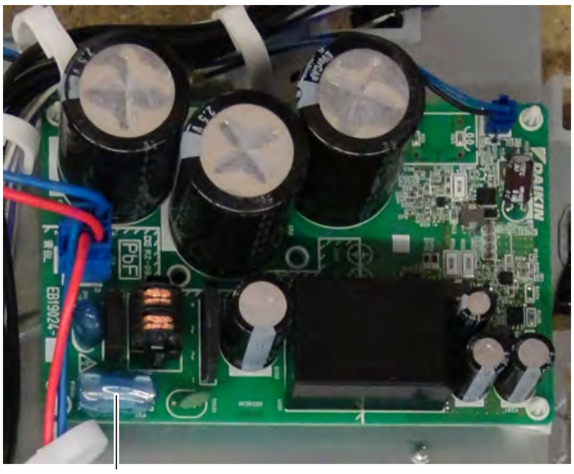
> **INFORMATION**
>
> Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "4.3.1 Checking procedures" [▶ 176] of the back-up PCB and continue with the next procedure.

To check the fuse of the back-up PCB

Prerequisite: First perform all earlier checks of the back-up PCB, see "4.3.1 Checking procedures" [▶ 176].

1 Measure the continuity of the fuse. If no continuity is measured, the fuse has blown.



a Fuse F101U

Blown fuse on the back-up PCB?	Action
Yes	Replace the back-up PCB, see "4.3.2 Repair procedures" [▶ 180].

Blown fuse on the back-up PCB?	Action
No	Return to "4.3.1 Checking procedures" [▶ 176] of the back-up PCB and continue with the next procedure.

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.3.2 Repair procedures

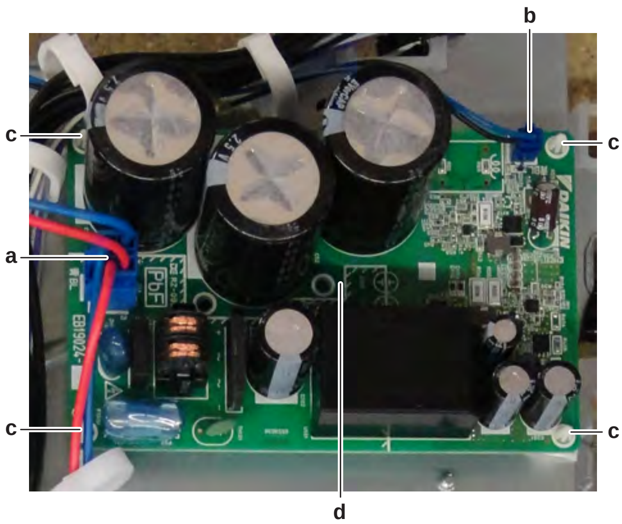
To remove the back-up PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1. Remove the switch box from the unit, see "4.18 Plate work" [▶ 260].
2. Disconnect the connectors X1A and X2A from the back-up PCB.

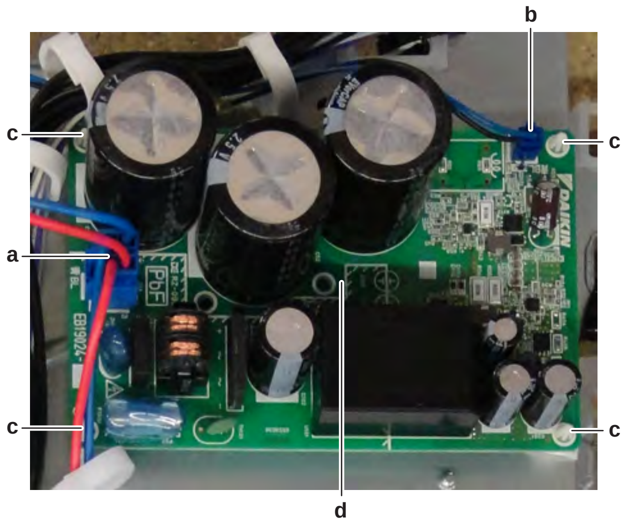


a Connector X1A
b Connector X2A
c PCB support
d Back-up PCB

3. Carefully pull the back-up PCB and unlatch the PCB supports one by one using a small pair of pliers.
4. Remove the back-up PCB from the PCB mounting plate.
5. To install the back-up PCB, see "4.3.2 Repair procedures" [▶ 180].

To install the back-up PCB

1. Install the back-up PCB in the correct location in the switch box.
2. Attach the back-up PCB to the PCB supports.



a Connector X1A
b Connector X2A
c PCB support
d Back-up PCB

3 Connect the connectors X1A and X2A to the back-up PCB.

4 Install the switch box in the unit, see "4.18 Plate work" [▶ 260].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "4.3.1 Checking procedures" [▶ 176] of the back-up PCB and continue with the next procedure.

4.4 Compressor

4.4.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform an auditive check of the compressor

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 Open the compressor insulation.

2 Turn ON the power using the respective circuit breaker.

3 Start the unit operation via the user interface.

4 Wait for - or create condition to operate the compressor.

5 Listen to the compressor when it tries to operate. Judge if a mechanical lock is present.

> **INFORMATION**
>
> If you have a multimeter with data logging functionality, record the current in 1 of the U-V-W wires at compressor start-up. If mechanical lock is present, logged current will drastically increase to a peak value and the unit will trigger an error.

> **INFORMATION**
>
> If a mechanical lock is present, also check and eliminate the root cause. Mechanical lock is most likely caused by lack of lubrication (which might be related to overheat or wet operation), failing crankcase heater (if available), impurities in the refrigerant, ….

A mechanical lock is present on the compressor?	Action
Yes	Replace the compressor, see "4.4.2 Repair procedures" [▶ 187].
No	Perform an mechanical check of the compressor, see "4.4.1 Checking procedures" [▶ 181].

To perform a mechanical check of the compressor

Prerequisite: First perform an auditive check of the compressor, see "4.4.1 Checking procedures" [▶ 181].

Prerequisite: Stop the unit operation via the user interface.

1. Turn OFF the respective circuit breaker.
2. Visually check:
   - For oil drops around the compressor. Locate and fix as needed.
   - Pipes for signs of damage. Replace pipes as needed.
3. Check that the compressor bolts are correctly fixed. Fix as needed.
4. Check that the compressor wire terminals cover is correctly installed and fixed. Correct as needed.
5. Check the compressor dampers for any damage.

a Damper

> **INFORMATION**
>
> The compressor dampers may look different.

Compressor dampers are in a good condition?	Action
Yes	Perform an electrical check of the compressor, see "4.4.1 Checking procedures" [▶ 181].
No	Replace the compressor and/or damaged dampers, see "4.4.2 Repair procedures" [▶ 187].

To perform an electrical check of the compressor

1 First perform a mechanical check of the compressor, see "4.4.1 Checking procedures" [▶ 181].

> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

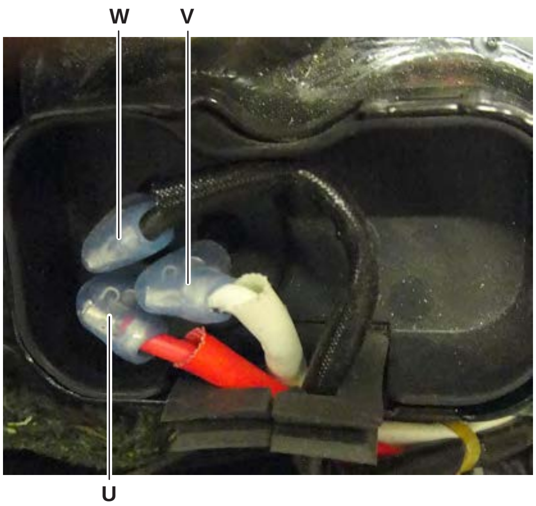
2 Remove the cover of the compressor wire terminals.

a

a Compressor wire terminals cover

3 Disconnect the Faston connectors from the compressor wire terminals U, V and W.

> **INFORMATION**
>
> Note the position of the Faston connectors on the compressor wire terminals to allow correct connection during installation.



c Wire terminal U
V Wire terminal V
W Wire terminal W

> **CAUTION**
>
> Before measuring the compressor motor windings resistance, measure the resistance of the multimeter probes by holding the probes against each other. If the measured resistance is NOT 0 Ω, this value MUST be substracted from the measured winding resistance.

4 Measure the resistance between the compressor motor windings U-V, V-W and U-W.

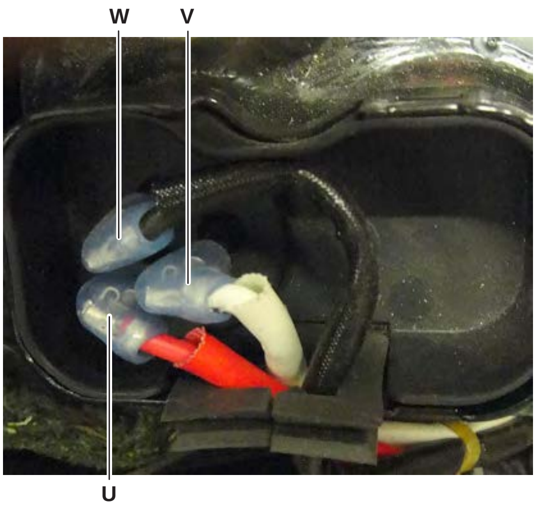
Result: All measurements MUST be approximately the same.

Unit	Compressor	Winding resistance value (at temperature of 20°C)
RXYSA4~6A7V1B	M1C	0.343 Ω ± 5%
RXYSA4~6A7Y1B	M1C	1.16 Ω ± 5%

Compressor motor winding measurements are correct?	Action
Yes	Continue with the next step.
No	Replace the compressor, see "4.4.2 Repair procedures" [▶ 187].

5 Measure the continuity of the U, V and W wires between the compressor and the PCB. If no continuity, correct as needed, see "7.2 Wiring diagram" [▶ 343].

6 Connect the Faston connectors to the compressor wire terminals U, V and W



c	Wire terminal U
V	Wire terminal V
W	Wire terminal W

7 Install the compressor insulation.

8 Turn ON the power using the respective circuit breaker.

9 Start the unit operation via the user interface.

10 Wait for – or create condition to operate the compressor.

11 Once the compressor operates, measure the U-V-W inverter voltages. All measurements MUST be the same.

Inverter voltage measurements are correct?	Action
Yes	Continue with the next step.
No	Perform a check of the appropriate PCB, see "4 Components" [▶ 165].

12 Measure the current in each phase U, V and W while compressor is operating. All measurements MUST be the same.

Compressor motor winding current measurements are correct?	Action
Yes	Perform an insulation check of the compressor, see "4.4.1 Checking procedures" [▶ 181].
No	Preventively replace the compressor, see "4.4.2 Repair procedures" [▶ 187].

To perform an insulation check of the compressor

Prerequisite: First perform an electrical check of the compressor, see "4.4.1 Checking procedures" [▶ 181].

Prerequisite: Stop the unit operation via the user interface.

1 Turn OFF the respective circuit breaker.

> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

2 Remove the cover of the compressor wire terminals.

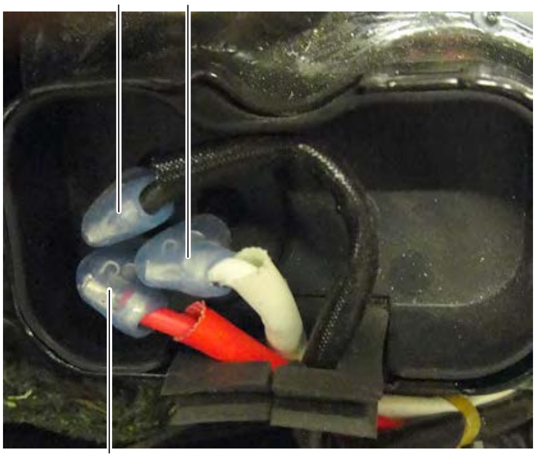
a

a Compressor wire terminals cover

3 Disconnect the Faston connectors from the compressor wire terminals U, V and W.

> **INFORMATION**
>
> Note the position of the Faston connectors on the compressor wire terminals to allow correct connection during installation.

W V



U

c Wire terminal U
V Wire terminal V
W Wire terminal W

4 Set the Megger voltage to 500 V DC or 1000 V DC.

5 Measure the insulation resistance between the following terminals. The measured insulation resistance MUST be >3 MΩ.

- U–ground,
- V–ground,
- W–ground.

Compressor insulation measurements are correct?	Action
Yes	Compressor is OK. Return to troubleshooting of the specific error and continue with the next procedure.
No	Replace the compressor, see "4.4.2 Repair procedures" [▶ 187].

4.4.2 Repair procedures

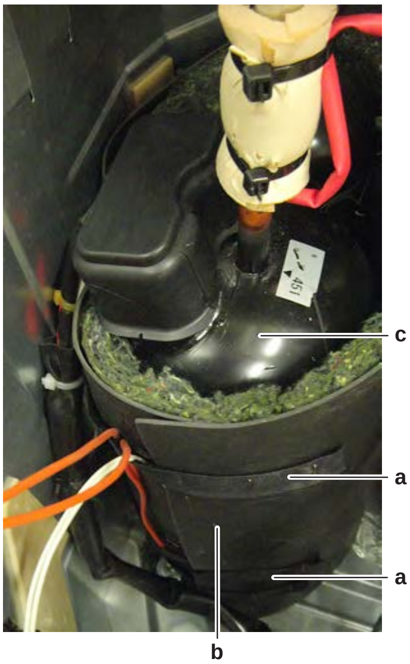
To remove the compressor insulation

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 Detach all the strips.



a Strip
b Compressor insulation
c Compressor

2 Remove the compressor insulation from the compressor.

3 To install the compressor insulation, see "4.4.2 Repair procedures" [▶ 187].

To remove the compressor

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

Prerequisite: Remove the compressor insulation.

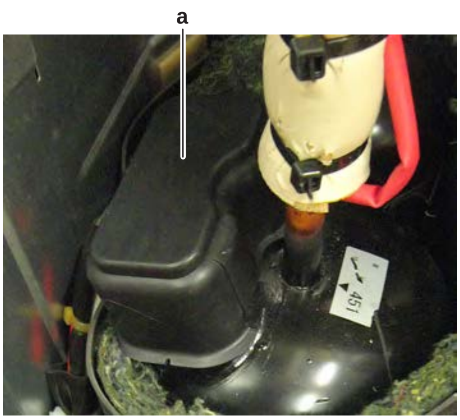
Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "5.2.2 Repair procedures" [▶ 318].

1 If needed, remove any parts to create more space for the removal of the compressor.

DANGER: RISK OF ELECTROCUTION

Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

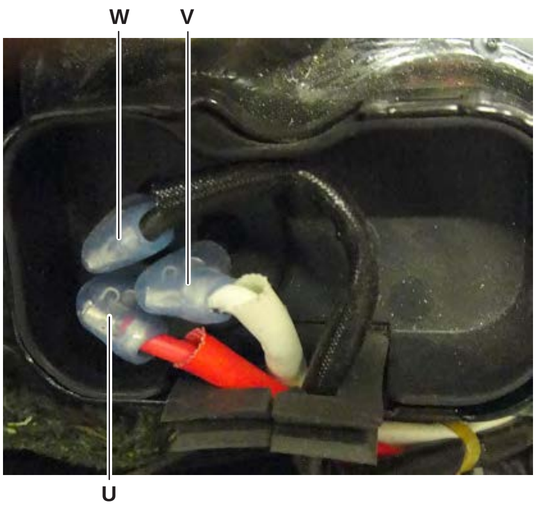
2 Remove the cover of the compressor wire terminals.



a Compressor wire terminals cover

3. Disconnect the Faston connectors from the compressor wire terminals U, V and W.

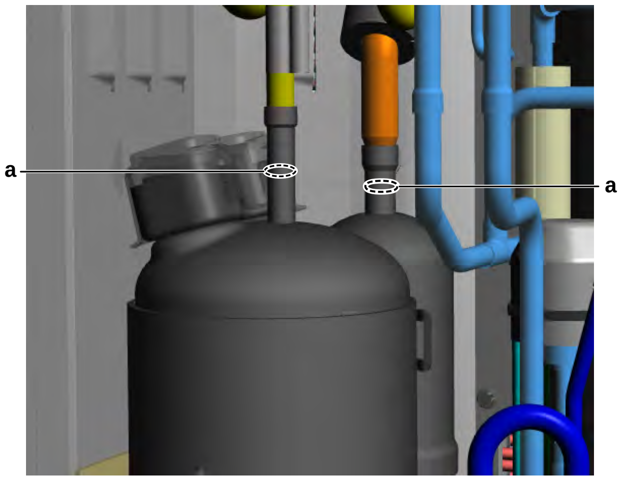
> **INFORMATION**
>
> Note the position of the Faston connectors on the compressor wire terminals to allow correct connection during installation.



c Wire terminal U
V Wire terminal V
W Wire terminal W

Remove the crankcase heater, see "To remove the crankcase heater" [▶ 198].

4. Remove the compressor thermal protector, see "To remove the compressor thermal protector" [▶ 193].
5. Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.
6. Wrap a wet rag around the components near the compressor pipes. Heat the brazing points of the compressor pipes using an oxygen acetylene torch and remove the refrigerant pipes from the compressor pipes using pliers.

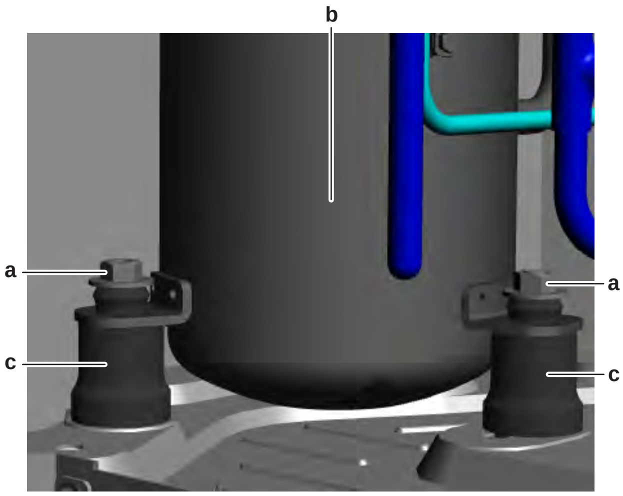


a Compressor pipe

7 Stop the nitrogen supply when the piping has cooled down.

> **INFORMATION**
>
> It is ALSO possible to cut the component pipe(s) using a pipe cutter. Make sure to remove the remaining component pipe end(s) from the refrigerant pipes by heating the brazing point(s) of the component pipe(s) using an oxygen acetylene torch.

8 Remove the nuts and bolts and remove the compressor from the unit.



a Nut
b Compressor
c Damper

9 Remove the 3 dampers from the compressor.

> **INFORMATION**
>
> The compressor dampers may look different.

10 Remove the bushings and keep them for re-use.

11 Install plugs or caps on the open pipe ends of the refrigerant piping to avoid dirt or impurities from entering the piping.

12 To install the compressor, see "4.4.2 Repair procedures" [▶ 187].

To install the compressor

1 Check the state of the dampers. Replace if worn.

2 Install the 3 dampers in the correct location on the unit.

3 Remove the plugs or caps from the refrigerant piping and make sure they are clean.

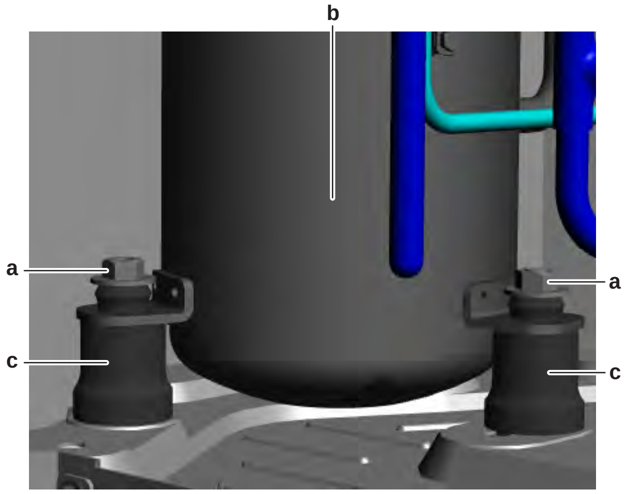
4 Remove the caps from the compressor pipes (of the new compressor).

CAUTION

The oil in the compressor is hygroscopic. Therefore remove the caps from the compressor pipes as late as possible.

5 Install the compressor on the correct location on the dampers. Properly insert the refrigerant pipes in the pipe expansions of the compressor pipes.

6 Install and tighten the bolts and nuts to fix the compressor to the dampers.



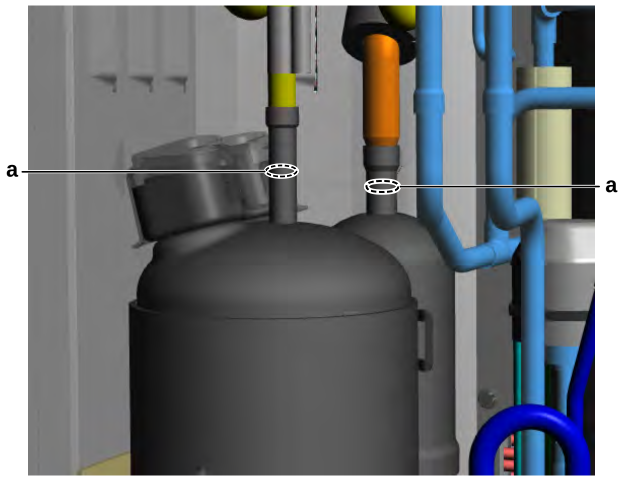
a Nut
b Compressor
c Damper

INFORMATION

The compressor dampers may look different.

7 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

8 Wrap a wet rag around the compressor pipes and any other components near the compressor and solder the compressor pipes to the refrigerant pipes.



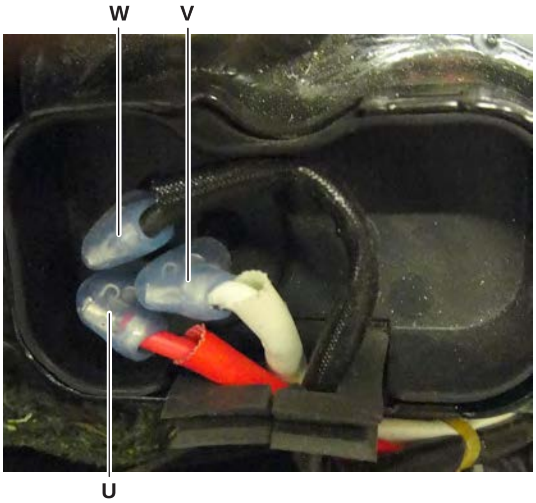
a Compressor pipe

> **CAUTION**
>
> Overheating the compressor pipes (and the oil inside the compressor pipes) will damage or destroy the compressor.

9 After soldering is done, stop the nitrogen supply after the component has cooled-down.

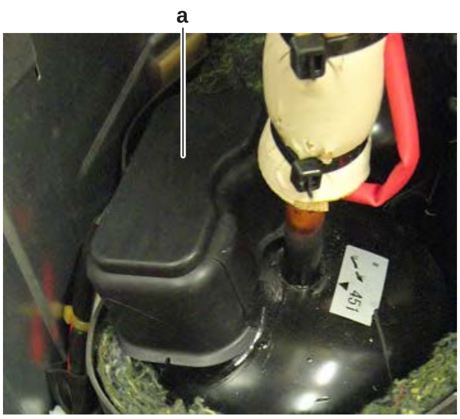
10 Install the compressor thermal protector, see "To install the compressor thermal protector" [▶ 194].

11 Connect the Faston connectors to the compressor wire terminals U, V and W



c	Wire terminal U
V	Wire terminal V
W	Wire terminal W

12 Install the cover of the compressor wire terminals.



a	Compressor wire terminals cover

Install the crankcase heater, see "To install the crankcase heater" [▶ 198]

13 Install the compressor insulation, see "4.4.2 Repair procedures" [▶ 187].

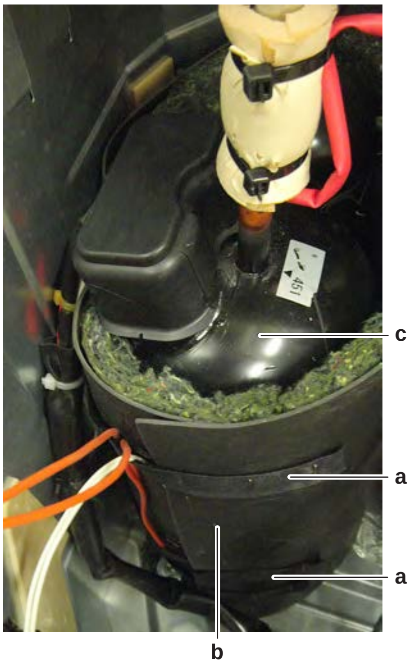
14 Perform a pressure test, see "5.2.1 Checking procedures" [▶ 313].

15 Add refrigerant to the refrigerant circuit, see "5.2.2 Repair procedures" [▶ 318].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To install the compressor insulation

1 Install the insulation around the compressor.



a Strip
b Compressor insulation
c Compressor

2 Route the compressor thermal protector and crankcase heater wiring out of the compressor insulation.

3 Attach the strips.

> **INFORMATION**
> Make sure that the insulation nicely fits around the compressor.

4.5 Compressor thermal protector

4.5.1 Checking procedures

To perform a mechanical check of the compressor thermal protector

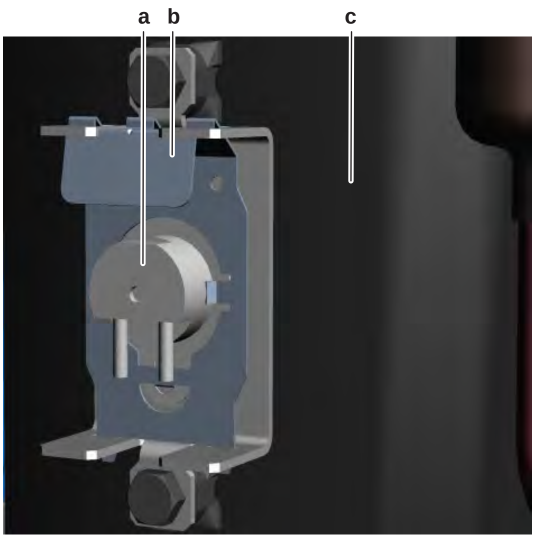
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

Prerequisite: Remove the compressor insulation.

1 Remove the compressor thermal protection with bracket from the compressor.



a Compressor thermal protector
b Bracket
c Compressor

2 If in doubt, measure the temperature of the compressor thermal protection.

Result: The temperature MUST be below 104°C.

3 Using a hot air gun, carefully heat the compressor thermal protection to slightly above 132°C (compressor thermal protection trips at 126~132°C).

> **INFORMATION**
>
> Make sure that the wiring between the compressor thermal protector connector and the connector on the PCB is properly connected and NOT damaged (check continuity), see "7.2 Wiring diagram" [▶ 343].

4 Disconnect the compressor thermal protector from the intermediate connector and measure the resistance between pins 1-2.

Result: The contact MUST be open (measured resistance = OL).

5 Let the compressor thermal protection cool down below 104°C (reset temperature is 104~116°C).

6 Again measure the resistance between the pins 1-2 of the connector of the compressor thermal protector.

Result: The contact MUST be closed (measured resistance = 0 Ω).

Does the compressor thermal protector contact open and close at the correct temperature?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the compressor thermal protector, see "4.5.2 Repair procedures" [▶ 193].

4.5.2 Repair procedures

To remove the compressor thermal protector

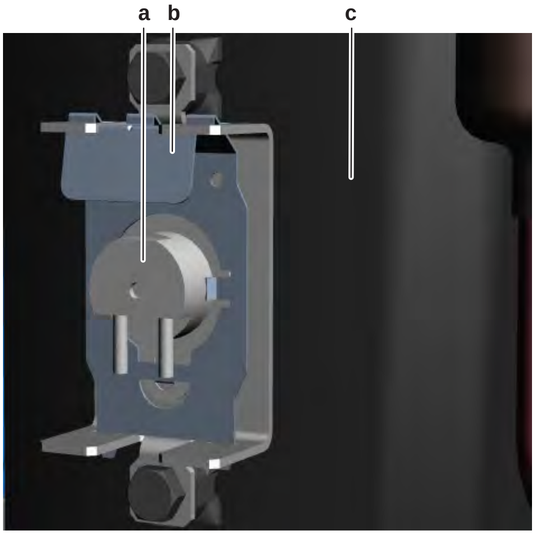
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

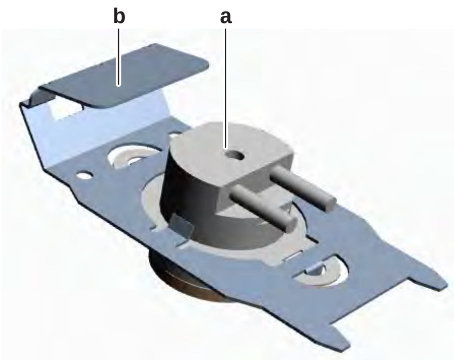
Prerequisite: Remove the compressor insulation.

1. Disconnect the intermediate connector from the compressor thermal protector.
2. Cut all tie straps that fix the compressor thermal protector wiring harness.
3. Remove the compressor thermal protector with bracket from the compressor housing.



a Compressor thermal protector
b Bracket
c Compressor

4. Separate the compressor thermal protector and the compressor thermal protector bracket.

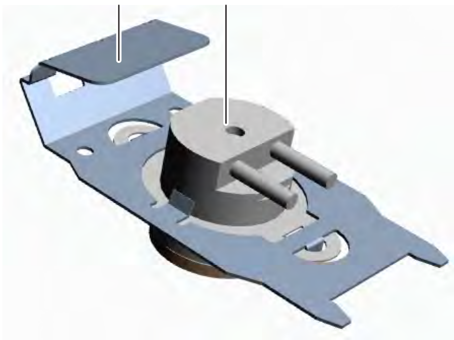


a Compressor thermal protector
b Bracket

5. To install the compressor thermal protector, see "4.4.2 Repair procedures" [▶ 187].

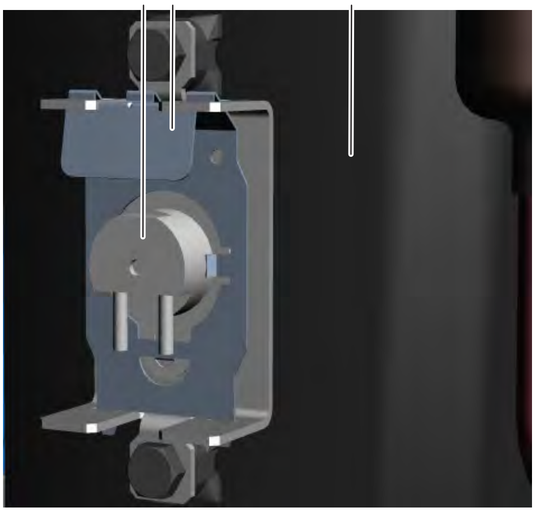
To install the compressor thermal protector

1. Install the compressor thermal protector on the compressor thermal protector bracket.



a Compressor thermal protector
b Bracket

2 Install the compressor thermal protector and bracket on the compressor housing.



a Compressor thermal protector
b Bracket
c Compressor

3 Connect the compressor thermal protector to the intermediate connector.

4 Install new tie straps to fix the compressor thermal protector wiring harness.

5 Install the compressor insulation, see "4.4.2 Repair procedures" [▶ 187].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.6 Crankcase heater

4.6.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform an electrical check of the crankcase heater

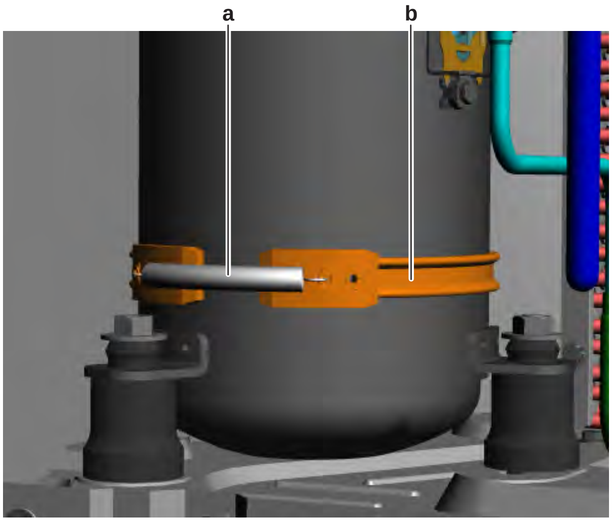
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1. Remove the required plate work, see "4.18 Plate work" [▶ 260].

> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

2. Open the compressor insulation.
3. Detach the spring that fixes the crankcase heater on the compressor.



a Spring
b Crankcase heater

4. Remove the crankcase heater from the compressor and wait for 5 minutes (until the heater element reaches ambient temperature).
5. Disconnect the crankcase heater connector from the appropriate PCB.
6. Measure the resistance on the crankcase heater connector.

   Result: The resistance MUST be 1745 Ω±7%.

Is the measured resistance correct?	Action
Yes	Continue with the next step.
No	Replace the crankcase heater, see "4.6.2 Repair procedures" [▶ 198].

> **CAUTION**
>
> If the crankcase heater is found short-circuit, do NOT connect its connector to the PCB. When the crankcase heater gets energized, it will damage the PCB.

7. Connect the crankcase heater connector to the appropriate PCB and install the crankcase heater on the compressor.
8. Turn ON the power using the respective circuit breaker.
9. Start the unit operation via the user interface.

INFORMATION

Verify that the read-out of the outdoor air thermistor, discharge thermistor and compressor body thermistor (if available) is correct.

- Measure the outdoor temperature. Use a contact thermometer to measure the other thermistor temperatures.
- Compare with the read-out via the service monitoring tool or field settings.

10 With the crankcase heater energised (compressor OFF and discharge temperature <70°C), measure the voltage on the crankcase heater connector on the PCB.

Result: The measured voltage MUST be 230 V AC.

INFORMATION

The compressor body temperature MUST raise at least 5°C before the crankcase heater is deactivated.

Is the measured voltage correct?	Action
Yes	Perform an insulation check of the crankcase heater, see "4.6.1 Checking procedures" [▸ 195].
No	Perform a check of the main PCB, see "4.15 Main PCB" [▸ 212].

To perform an insulation check of the crankcase heater

Prerequisite: First perform an electrical check of the crankcase heater, see "4.6.1 Checking procedures" [▸ 195].

Prerequisite: Stop the unit operation via the user interface.

1 Turn OFF the respective circuit breaker.

DANGER: RISK OF ELECTROCUTION

Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▸ 307].

2 Disconnect the crankcase heater connector from the appropriate PCB.

3 Set the Megger voltage to at least 500 V DC.

4 Connect the Megger ground test lead directly to the crankcase heater ground wire.

CAUTION

Do NOT connect the Megger ground test lead to any other ground wire.

5 Measure the insulation resistance between the phase and ground wire. The measured insulation resistance MUST be >1 MΩ.

Is the measured insulation resistance correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.

Is the measured insulation resistance correct?	Action
No	Replace the crankcase heater, see "4.6.2 Repair procedures" [▶ 198].

4.6.2 Repair procedures

To remove the crankcase heater

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

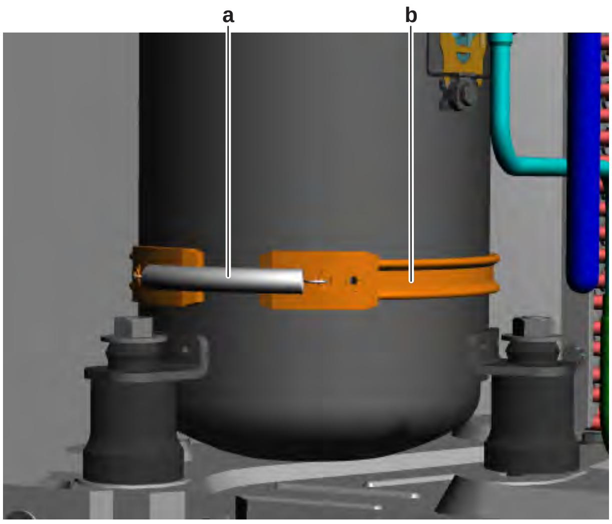
1 Remove the required plate work, see "4.18 Plate work" [▶ 260].

DANGER: RISK OF ELECTROCUTION

Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

2 Open the compressor insulation.

3 Detach the spring that fixes the crankcase heater on the compressor.



a Spring
b Crankcase heater

4 Cut all tie straps that fix the crankcase heater harness.

5 Disconnect the crankcase heater connector from the appropriate PCB.

6 To install the crankcase heater, see "4.6.2 Repair procedures" [▶ 198].

To install the crankcase heater

1 Install the crankcase heater on the compressor.

2 Attach the spring to fix the crankcase heater.

a Spring
b Crankcase heater

3 Route the crankcase heater harness towards the switch box.

4 Connect the crankcase heater connector to the appropriate PCB and install the crankcase heater on the compressor.

> **WARNING**
>
> When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

5 Fix the crankcase heater harness using new tie straps.

> **INFORMATION**
>
> Replace all cable ties that were cut during removal.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.7 Drain pump

Not available yet

4.8 Expansion valve

Procedures for indoor unit expansion valve not available yet.

4.8.1 Checking procedures

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> As there are many expansion valves, make sure the correct expansion valve is installed (spare part). Correct as needed, see "4.8.2 Repair procedures" [▶ 203].

To perform a mechanical check of the expansion valve

Prerequisite: Power OFF the unit for 3 minutes. Then turn ON the unit and listen to the expansion valve assembly. If the expansion valve does NOT make a latching sound, continue with the electrical check of the expansion valve, see "4.8.1 Checking procedures" [▶ 199].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1. Remove the expansion valve insulation and visually check:
   - For oil drops around the expansion valve. Locate and fix as necessary.
   - Pipes for signs of damage. Replace pipes as needed.
   - Coil wires for signs of damage. Replace expansion valve coil as needed. See "4.8.2 Repair procedures" [▶ 203].
2. Remove the expansion valve coil from the expansion valve body, see "4.8.2 Repair procedures" [▶ 203].
3. Slide the expansion valve magnet over the expansion valve body and gently rotate the magnet clockwise/counterclockwise to manually close/open the expansion valve.

> **INFORMATION**
>
> After the check, remove the magnet from the expansion valve body and install the expansion valve coil on the expansion valve body. Make sure that the expansion valve coil is firmly slid onto the expansion valve body.

> **INFORMATION**
>
> It is highly recommended to perform a power reset after checking the valve using a magnet.

Does the expansion valve open?	Action
Yes	Perform an electrical check of the expansion valve, see "4.8.1 Checking procedures" [▶ 199].
No	Replace the expansion valve body, see "4.8.2 Repair procedures" [▶ 203].

To perform an electrical check of the expansion valve

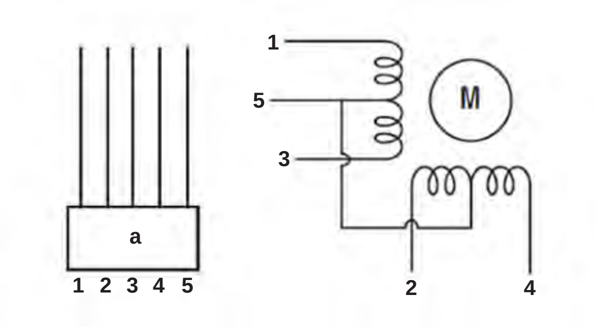
1. First perform a mechanical check of the expansion valve, see "4.8.1 Checking procedures" [▶ 199].
2. Disconnect the electrical connector of the expansion valve coil from the appropriate PCB and measure the resistance of all windings (between the pins of each phase (wire) and the common wire) using a multi meter. All measurements MUST be approximately the same.

Name	Symbol	Location (PCB)	Connector	Winding resistance
Main expansion valve	Y1E	Main	X21A	43~49 Ω
Sub-cool expansion valve	Y2E	Main	X22A	43~49 Ω
Inverter cooling expansion valve	Y3E	Main	X23A	43~49 Ω
Liquid injection expansion valve	Y4E	Main	X25A	43~49 Ω
Liquid shut-off expansion valve	Y5E	Sub	X8A	135~165 Ω
Gas shut-off expansion valve	Y6E	Sub	X9A	135~165 Ω

INFORMATION

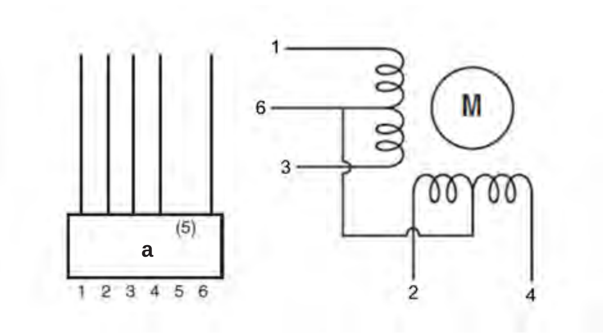
Below are shown examples of the resistance measurements in which the common wire is connected to pin 5 or to pin 6 of the expansion valve coil connector. Connections may differ according to the type of expansion valve.

- Connector pin 1-5,
- Connector pin 2-5,
- Connector pin 3-5,
- Connector pin 4-5.



a Connector

- Connector pin 1-6,
- Connector pin 2-6,
- Connector pin 3-6,
- Connector pin 4-6.



a Connector

3 Check the insulation resistance of the coil by measuring the resistance between the pins of each phase (1, 2, 3, 4) and GND on the unit.

Result: None of the measurements should be short-circuit.

> **WARNING**
>
> When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

Is the measured resistance correct?	Action
Yes	Perform an operation check of the expansion valve, see "4.8.1 Checking procedures" [▸ 199].
No	Replace the expansion valve coil, "4.8.2 Repair procedures" [▸ 203].

To perform an operation check of the expansion valve

Prerequisite: First perform an electrical check of the expansion valve, see "4.8.1 Checking procedures" [▸ 199].

1 Turn ON the power of the unit.

> **INFORMATION**
>
> When power is switched ON, PCB checks all expansion valve coil windings by current check. If winding is short or open, expansion valve error is triggered.

2 Start the unit operation via the user interface.

3 With the unit operating, connect the service monitoring tool to the unit.

4 When the expansion valve is closed according to the service monitoring tool, check the inlet and outlet of the valve with a contact thermometer or use an expansion valve stethoscope to see if refrigerant flows through the expansion valve. Check that the valve is NOT bleeding.

Result: There MUST be NO flow through the expansion valve.

5 When the expansion valve is open according to the service monitoring tool, check the inlet and outlet of the valve with a contact thermometer or use an expansion valve stethoscope to see if refrigerant flows through the expansion valve.

Result: Refrigerant MUST flow through the expansion valve.

6 Wait for the PCB to command the expansion valve to open (when closed) or to close (when open) (pulse output to expansion valve visible on service monitoring tool).

> **INFORMATION**
>
> If the PCB does NOT command the expansion valve to open or close (when it is supposed to), perform a check of the appropriate thermistors and pressure sensors (expansion valves are driven by superheat or subcool value calculated through the thermistors).

7 While in opening or closing sequence each expansion valve winding (Φ1, 2, 3, 4) is supplied with 12 V DC from the PCB. You will need a good multimeter, where its range is set to about 20 V DC, and during opening or closing sequence you may be able to measure the supply voltage for a short time. If you set the multimeter range to Auto, then most likely you may NOT read a value between switching ranges. The best way to check is to feel the movement of the valve by touching, rather than trying to measure the driving voltage.

8 When the expansion valve was commanded to close, check the inlet and outlet of the valve with a contact thermometer or use an expansion valve stethoscope to see if refrigerant flows through the expansion valve. Check that the valve is NOT bleeding.

Result: There MUST be NO flow through the expansion valve.

9 When the expansion valve was commanded to open, check the inlet and outlet of the valve with a contact thermometer or use an expansion valve stethoscope to see if refrigerant flows through the expansion valve.

Result: Refrigerant MUST flow through the expansion valve.

Is the flow through the expansion valve correct?	Action
Yes	Component is OK. Return to the troubleshooting of the specific error and continue with the next step.
No	Replace the expansion valve, see "4.8.2 Repair procedures" [▶ 203].

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.8.2 Repair procedures

To remove the expansion valve coil

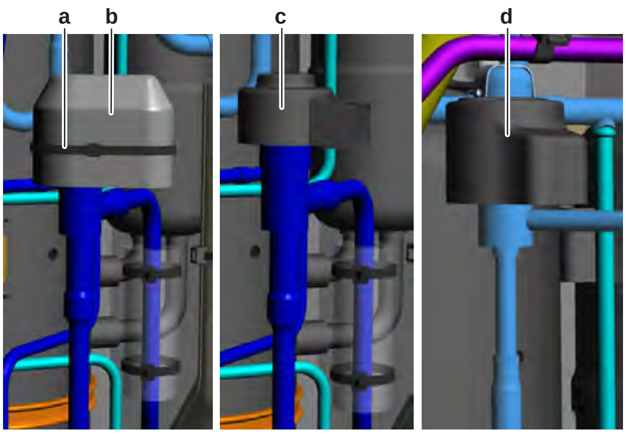
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 If needed, remove any parts or insulation to create more space for the removal.

2 For Y1E, Y3E, Y4E and Y5E: Cut the tie strap and remove the insulation cap.



a Tie strap
b Insulation cap
c Expansion valve coil (for Y5E and Y6E)
d Expansion valve coil with bracket (for Y1E~Y4E)

3 Pull the expansion valve coil to remove it from the expansion valve body.

> **INFORMATION**
>
> It may be needed to turn the expansion valve coil 1/8 turn counter clockwise to unlock it. Make sure to note the correct orientation (position) of the expansion valve coil before removal.

4 Cut all tie straps that fix the expansion valve coil harness.

5 Disconnect the expansion valve coil connector from the appropriate PCB. See "To perform an electrical check of the expansion valve" [▸ 200] for an overview of the expansion valve connectors and their locations.

6 To install the expansion valve coil, see "4.8.2 Repair procedures" [▸ 203].

To remove the expansion valve body

Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "5.2.2 Repair procedures" [▸ 318].

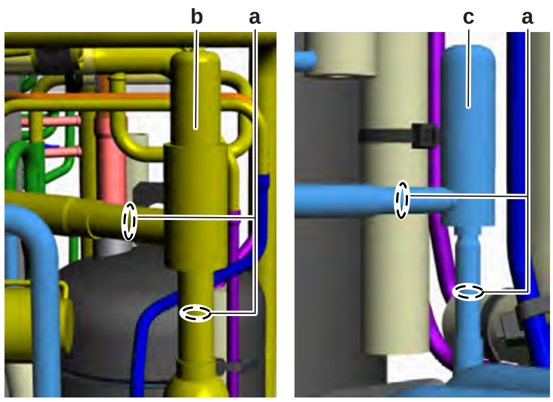
Prerequisite: If needed, remove any parts or insulation to create more space for the removal.

1 Remove the expansion valve coil, see "4.8.2 Repair procedures" [▸ 203].

2 Using a valve magnet, open the expansion valve.

3 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

4 Wrap a wet rag around the components near the expansion valve pipes. Heat the brazing points of the expansion valve pipes using an oxygen acetylene torch and remove the expansion valve pipes from the refrigerant pipes using pliers.



a Expansion valve pipe
b Expansion valve body (Y5E and Y6E)
c Expansion valve body (Y1E~Y4E)

> **INFORMATION**
>
> The expansion valve and coil can have a different configuration / layout.

5 Stop the nitrogen supply when the piping has cooled down.

6 Remove the expansion valve body.

> **INFORMATION**
>
> It is ALSO possible to cut the component pipe(s) using a pipe cutter. Make sure to remove the remaining component pipe end(s) from the refrigerant pipes by heating the brazing point(s) of the component pipe(s) using an oxygen acetylene torch.

7 Install plugs or caps on the open pipe ends of the refrigerant piping to avoid dirt or impurities from entering the piping.

8 To install the expansion valve body, see "4.8.2 Repair procedures" [▶ 203].

To install the expansion valve body

1 Remove the plugs or caps from the refrigerant piping and make sure they are clean.

2 Remove the expansion valve coil from the spare part expansion valve body.

3 Install the expansion valve body in the correct location and correctly oriented. Insert the pipe ends in the pipe expansions.

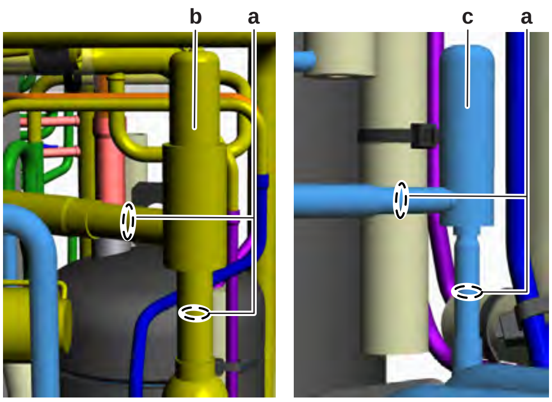
4 Open the expansion valve using a valve magnet.

5 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

6 Wrap a wet rag around the expansion valve body and any other components near the expansion valve and solder the expansion valve pipes to the refrigerant pipes.

> **CAUTION**
>
> Overheating the valve will damage or destroy it.

7 After soldering is done, stop the nitrogen supply after the component has cooled-down.



a Expansion valve pipe
b Expansion valve body (Y5E and Y6E)
c Expansion valve body (Y1E~Y4E)

8 To install the expansion valve coil, see "4.8.2 Repair procedures" [▶ 203].

9 Perform a pressure test, see "5.2.1 Checking procedures" [▶ 313].

10 Add refrigerant to the refrigerant circuit, see "5.2.2 Repair procedures" [▶ 318].

To install the expansion valve coil

1 Install the expansion valve coil on the expansion valve body.

> **INFORMATION**
>
> Turn the expansion valve coil 1/8 turn clockwise to lock it on the expansion valve body.

> **INFORMATION**
>
> The correct alignment of the expansion valve coil is ensured by dimples.

a Expansion valve coil
b Pipe

2 Route the expansion valve coil harness towards the appropriate PCB.

3 Connect the expansion valve coil connector to the appropriate PCB.

> **WARNING**
>
> When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

4 Fix the expansion valve coil harness using new tie straps.

5 Install the insulation cap on the expansion valve coil (if applicable).

Is the problem solved?	Action
Yes	No further actions required.

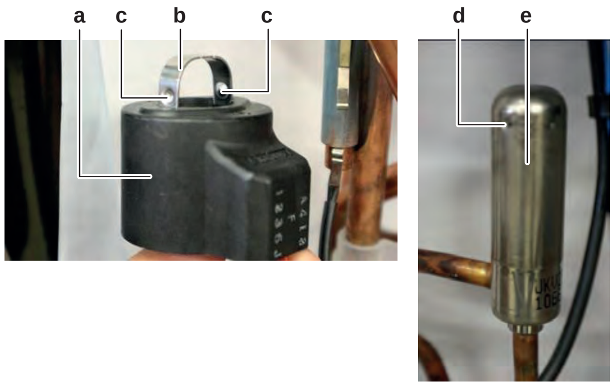
Is the problem solved?	Action
No	Return to "4.8.1 Checking procedures" [▸ 199] of the expansion valve and continue with the next procedure.

To install the expansion valve coil with bracket

1 Install the expansion valve coil on the expansion valve body.

> **INFORMATION**
>
> The expansion valve coil is equipped with a metal bracket. Fit the nipples of the metal bracket into the notches of the expansion valve body.

> **CAUTION**
>
> Make sure to install the expansion valve coil in the correct position (orientation).



a Expansion valve coil
b Metal bracket
c Nipple
d Notch
e Expanion valve body

2 Route the expansion valve coil harness towards the appropriate PCB.

3 Connect the expansion valve coil connector to the appropriate PCB.

> **WARNING**
>
> When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

4 Fix the expansion valve coil harness using new tie straps.

5 Install the insulation cap on the expansion valve coil (if applicable).

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "4.8.1 Checking procedures" [▸ 199] of the expansion valve and continue with the next procedure.

4.9 Float switch

Not available yet

4.10 Floor temperature sensor PCB

Not available yet

4.11 High pressure switch

4.11.1 Checking procedures

To perform an electrical check of the high pressure switch

Prerequisite: Stop the unit operation via the user interface.

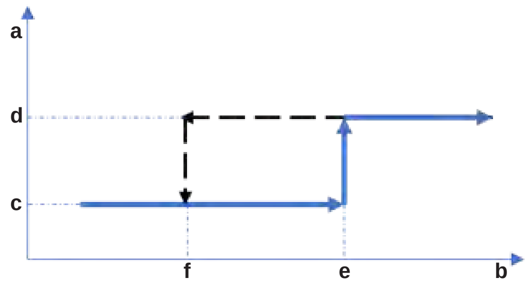
Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 Recuperate the refrigerant from the refrigerant circuit, see "5.2.2 Repair procedures" [▶ 318].

2 Fill the refrigerant circuit with nitrogen until pressurized just below operating pressure of the high pressure switch.

> **INFORMATION**
> Make sure that the reset (red) button on the S1PH–M is pressed.



a High pressure switch protection control
b Pressure
c High pressure switch closed
d High pressure switch open
e High pressure switch operating pressure
f High pressure switch reset pressure

High pressure switch	Operating pressure (MPa)	Reset pressure (MPa)
S1PH-M	4.02~4.17	3.05~3.2
S1PH-A	3.88~4.0	2.85~3.15

3 Disconnect the high pressure switch connector.

> **INFORMATION**
> Measure the continuity of all wiring between the high pressure switch and the appropriate PCB. If NO continuity is measured, repair as needed, see "7.2 Wiring diagram" [▶ 343].

4 Measure the resistance between the pins 1-2 of the high pressure switch connector.

Result: The switch MUST be closed.

5 Fill the refrigerant circuit with nitrogen until pressurized just above operating pressure of the high pressure switch.

6 Measure the resistance between the pins 1-2 of the high pressure switch connector.

Result: The switch MUST be open.

INFORMATION

If the high pressure switch was triggered open, it will stay open until the refrigerant pressure drops below the reset pressure of the high pressure switch.

7 Lower the pressure of the nitrogen in the refrigerant circuit just above reset pressure of the high pressure switch.

8 Measure the resistance between the pins 1-2 of the high pressure switch connector.

Result: The switch MUST be open.

9 Lower the pressure of the nitrogen in the refrigerant circuit just below reset pressure of the high pressure switch.

10 Press the reset (red) button on the S1PH–M.

11 Measure the resistance between the pins 1-2 of the high pressure switch connector.

Result: The switch MUST be closed.

High pressure switch connector measurements are correct?	Then
Yes	High pressure switch is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the high pressure switch, see "4.11.2 Repair procedures" [▸ 209].

4.11.2 Repair procedures

To remove the high pressure switch

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▸ 260].

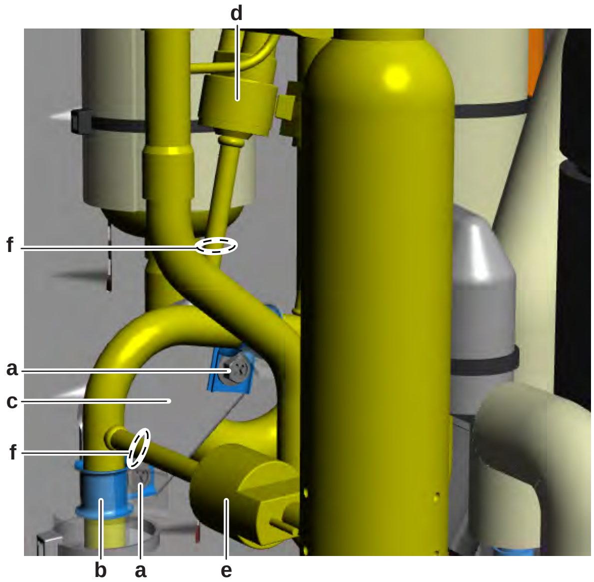
Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "5.2.2 Repair procedures" [▸ 318].

1 If needed, remove any parts to create more space for the removal of the high pressure switch.

2 Disconnect the high pressure switch connector.

3 Cut all tie straps that fix the high pressure switch harness.

4 Remove the 2 bolts and remove the 2 clamps and bracket from the refrigerant piping.



a Screw
b Clamp
c Bracket
d High pressure switch S1PH-A
e High pressure switch S1PH-M
f High pressure switch pipe

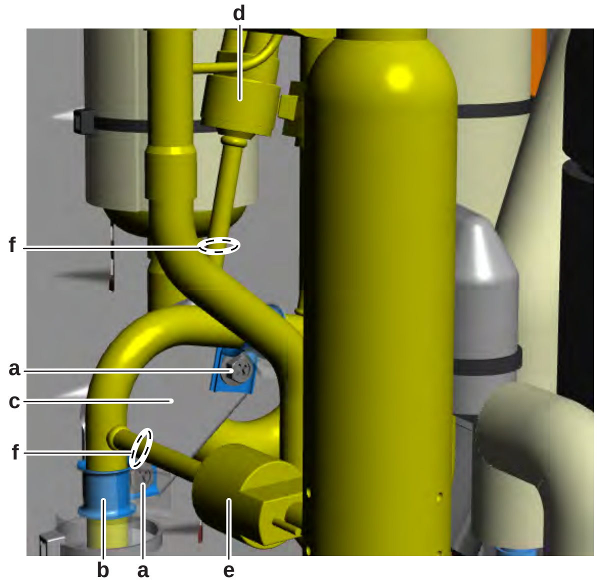
5. Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.
6. Wrap a wet rag around the components near the high pressure switch. Heat the brazing point of the high pressure switch pipe using an oxygen acetylene torch and remove the high pressure switch pipe from the refrigerant pipe using pliers.
7. Stop the nitrogen supply when the piping has cooled down.
8. Remove the high pressure switch.

> **INFORMATION**
>
> It is ALSO possible to cut the component pipe(s) using a pipe cutter. Make sure to remove the remaining component pipe end(s) from the refrigerant pipes by heating the brazing point(s) of the component pipe(s) using an oxygen acetylene torch.

9. Install a plug or cap on the refrigerant piping to avoid dirt or impurities from entering the piping.
10. To install the high pressure switch, see "4.11.2 Repair procedures" [▶ 209].

To install the high pressure switch

1. Remove the plug or cap from the refrigerant piping and make sure it is clean.
2. Install the high pressure switch in the correct location.
3. Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.
4. Wrap a wet rag around the high pressure switch and any other components near the high pressure switch and solder the high pressure switch pipe to the refrigerant pipe.



a Screw
b Clamp
c Bracket
d High pressure switch S1PH-A
e High pressure switch S1PH-M
f High pressure switch pipe

> **CAUTION**
>
> Overheating the pressure switch will damage or destroy it.

5. After soldering is done, stop the nitrogen supply after the component has cooled-down.
6. Install the bracket on the refrigerant piping using the 2 clamps. Install and tighten the 2 bolts.
7. Connect the high pressure switch connector.
8. Install new tie straps to fix the high pressure switch harness.
9. Perform a pressure test, see "5.2.1 Checking procedures" [▶ 313].
10. Add refrigerant to the refrigerant circuit, see "5.2.2 Repair procedures" [▶ 318].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.12 Indoor unit fan motor

Not available yet

4.13 Indoor unit fan PCB

Not available yet

4.14 Indoor unit main PCB

Not available yet

4.15 Main PCB

4.15.1 Single fan outdoor unit - single phase

Checking procedures

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

To perform a power check of the main PCB

Prerequisite: Stop the unit operation via the user interface.

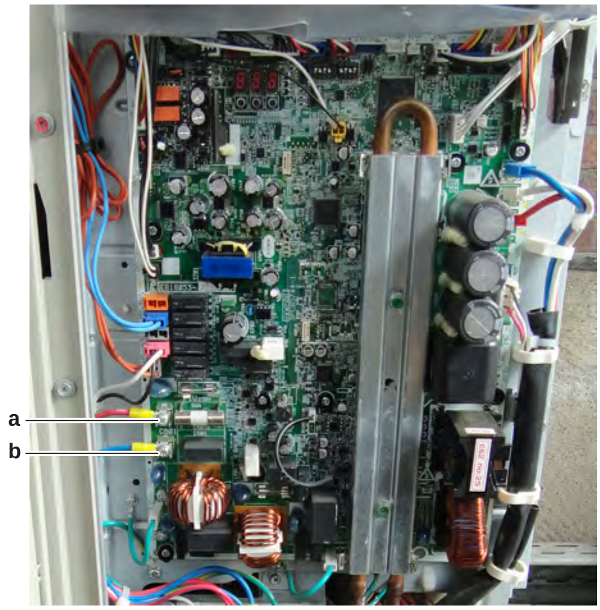
Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 Turn ON the power of the unit.

2 Measure the voltage between L-N screw connections on the main PCB.

Result: The measured voltage MUST be 230 V AC.



a L
b N

Is the measured voltage on the PCB correct?	Action
Yes	Return to "Checking procedures" [▶ 212] of the PCB and continue with the next procedure.
No	Continue with the next step.

3 Check the power supply to the unit, see "5.1.1 Checking procedures" [▶ 306].

Does the unit receive power?	Action
Yes	Correct the wiring from the main power supply terminal to the main PCB, see "Repair procedures" [▶ 221].
No	Adjust the power supply to the unit, see "5.1.2 Repair procedures" [▶ 311].

To check the LEDs of the main PCB

Prerequisite: First check the power supply to the main PCB, see "Checking procedures" [▶ 212].

1 Locate the 3 LEDs on the main PCB.

a HAP LED processor
b HBP LED inverter circuit
c HCP LED fan inverter circuit

> **INFORMATION**
>
> Make sure the correct software is available on the PCB. If NOT, update using the updater tool.

Do all LEDs blink in regular intervals (1 second ON/1 second OFF)?	Action
Yes	Return to "Checking procedures" [▶ 212] of the main PCB and continue with the next procedure.
No	Replace the main PCB, see "Repair procedures" [▶ 221].

To check if the correct spare part is installed

Prerequisite: First perform all earlier main PCB checks, see "Checking procedures" [▶ 212].

1. Visit your local spare parts webbank.
2. Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

NOTICE

Also check that the correct spare part is installed for the capacity adapter.

Is the correct spare part for the PCB installed?	Action
Yes	Return to "Checking procedures" [▶ 212] of the main PCB and continue with the next procedure.
No	Replace the main PCB, see "Repair procedures" [▶ 221].

To check the wiring of the main PCB

Prerequisite: First perform all earlier main PCB checks, see "Checking procedures" [▶ 212].

Prerequisite: Stop the unit operation via the user interface.

1. Turn OFF the respective circuit breaker.
2. Check that all wires are properly connected and that all connectors are fully plugged-in.
3. Check that no connectors or wires are damaged.
4. Check that the wiring corresponds with the wiring diagram, see "7.2 Wiring diagram" [▶ 343].

INFORMATION

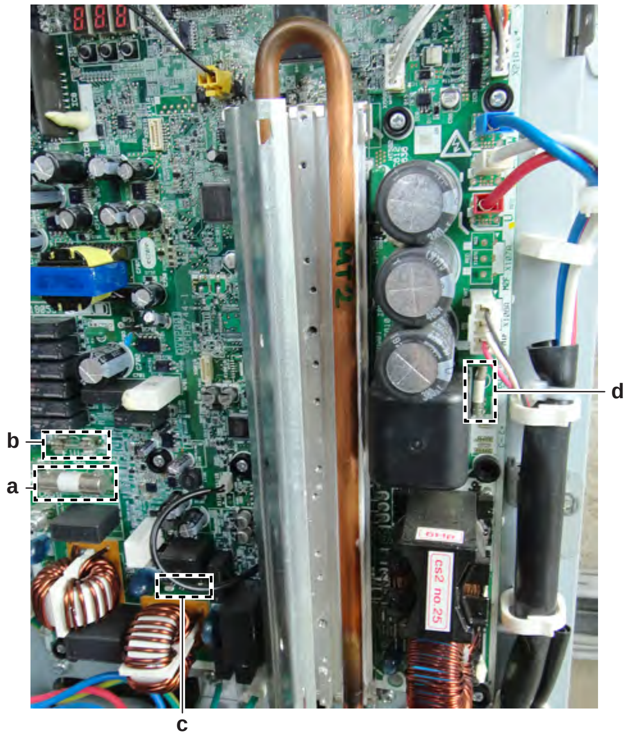
Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "Checking procedures" [▶ 212] of the PCB and continue with the next procedure.

To check the fuse of the main PCB

Prerequisite: First perform all earlier main PCB checks, see "Checking procedures" [▶ 212].

1. Measure the continuity of the fuse. If no continuity is measured, the fuse has blown.



a Fuse F1U
b Fuse F2U
c Fuse F3U
d Fuse F4U

For fuse F1U and F6U

Blown fuse on the main PCB?	Action
Yes	Replace the main PCB, see "Repair procedures" [▶ 221].
No	Return to "Checking procedures" [▶ 212] of the main PCB and continue with the next procedure.

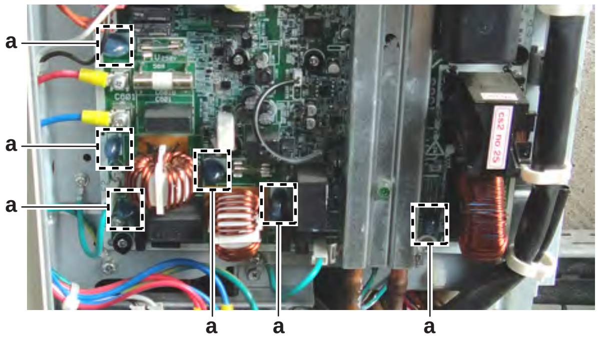
For fuse F2U and F3U

Blown fuse on the main PCB?	Action
Yes	Replace the blown fuse, see "Repair procedures" [▶ 221].
No	Return to "Checking procedures" [▶ 212] of the main PCB and continue with the next procedure.

To check the varistors of the main PCB

Prerequisite: First perform all earlier main PCB checks, see "Checking procedures" [▶ 212].

1 Measure the resistance of the varistor. If the reading is nearly infinite, the varistor is still good.



a Varistor

Any broken varistors on the main PCB?	Action
Yes	Replace the main PCB, see "Repair procedures" [▶ 238].
No	Return to "Checking procedures" [▶ 212] of the main PCB and continue with the next procedure.

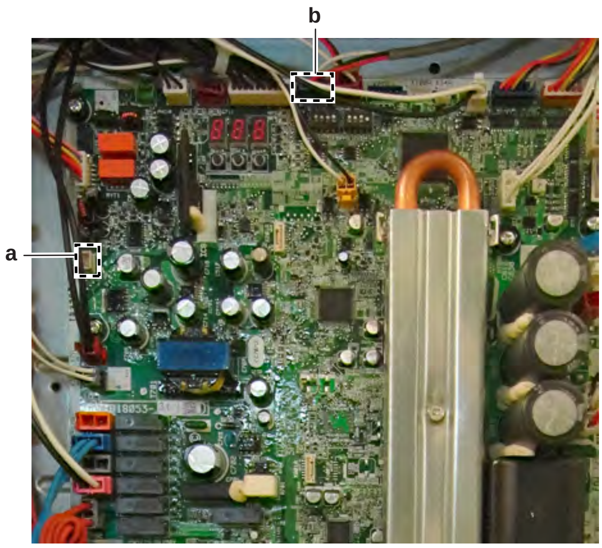
To perform an electrical check of the main PCB

Prerequisite: First perform all earlier main PCB checks, see "Checking procedures" [▶ 212].

1. Turn ON the power of the unit.
2. Measure the voltage on connector X37A on the main PCB.

   Result: The measurement MUST be 16 V DC.
3. Measure the low pressure sensor power supply voltage between pins 3-4 of connector X31A on the main PCB.

   Result: The measurement MUST be 5 V DC.



a Connector X37A
b Connector X31A

Are the measured voltages correct?	Action
Yes	Return to "Checking procedures" [▶ 212] of the main PCB and continue with the next procedure.
No	Replace the main PCB, see "Repair procedures" [▶ 221].

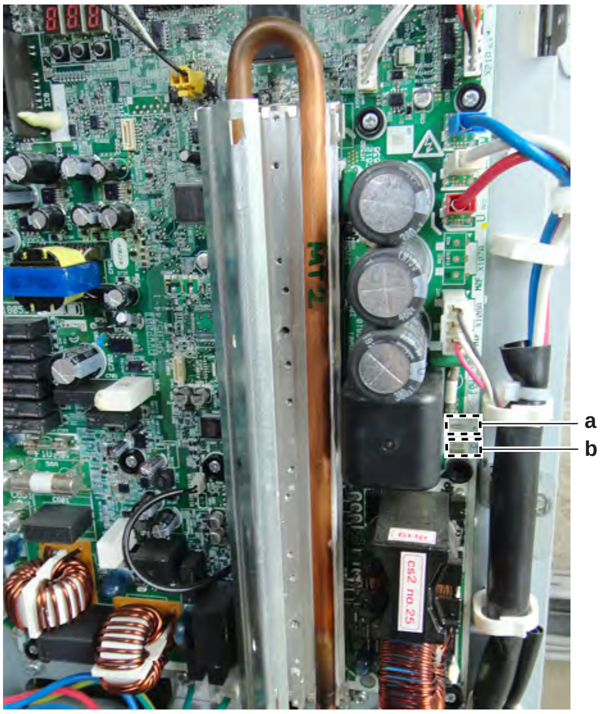
To check the rectifier voltage of the main PCB

Prerequisite: First perform all earlier main PCB checks, see "Checking procedures" [▶ 212].

1 Turn ON the power of the unit.

2 Measure the voltage on the rectifier voltage check terminals (+ and –) on the main PCB.

Result: The measured voltage MUST be approximately 324 V DC.



a + terminal
b – terminal

> **INFORMATION**
> When measuring on the front of the main PCB, make sure to locally remove the protective varnish with the test leads of the multi meter.

Is the measured rectifier voltage correct?	Action
Yes	Perform a check of the power modules, see "Checking procedures" [▶ 212].
No	Replace the main PCB, see "Repair procedures" [▶ 221].

To perform a diode module check

1 First check the rectifier voltage of the main PCB, see "Checking procedures" [▶ 212].

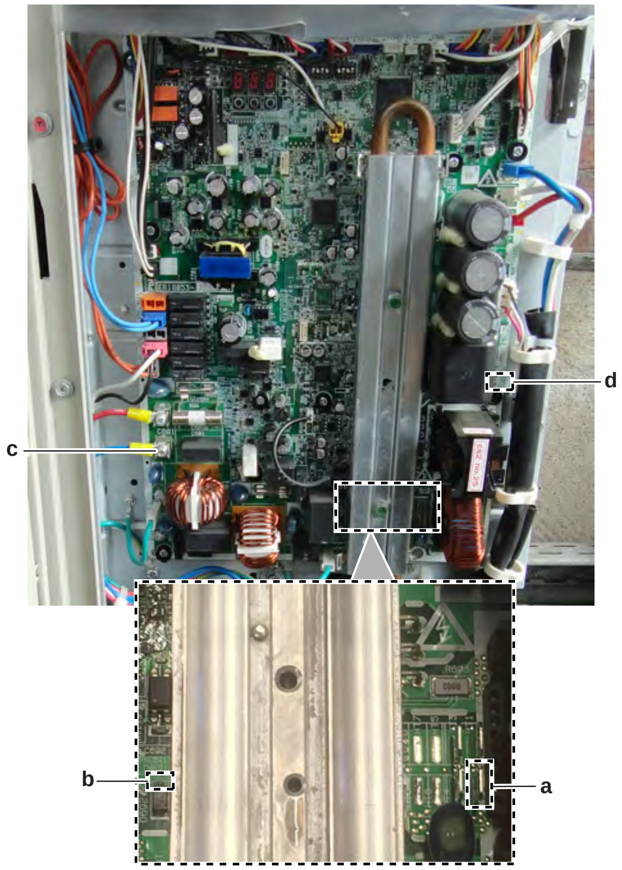
> **INFORMATION**
> If the rectifier voltage is OK, the diode module is OK. If rectifier voltage is NOT OK, replace the main PCB.
>
> Below procedure describes how to check the diode module itself.

2 Stop the unit operation via the central controller.

3 Turn OFF the respective circuit breaker.

> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▸ 307].

4 Check the diode module in reference with the image and the table below.



- **a** V DC out (+)
- **b** V AC in
- **c** V AC in
- **d** V DC out (–)

> **INFORMATION**
>
> When measuring on the front of the main PCB, make sure to locally remove the protective varnish with the test leads of the multi meter.

VDC	Com	Ref	VDC	Com	Ref
d	b	0.5 V	b	d	O.L
b	a	0.5 V	a	b	O.L
d	c	0.5 V	c	d	O.L
c	a	0.5 V	a	c	O.L

5 If the diode module is NOT OK, replace the main PCB, see "Repair procedures" [▸ 221].

To perform a power module check

Prerequisite: First check the rectifier voltage of the main PCB, see "Checking procedures" [▸ 212].

Prerequisite: Stop the unit operation via the user interface.

1 Turn OFF the respective circuit breaker.

DANGER: RISK OF ELECTROCUTION

Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▸ 307].

Power module V1R for compressor

1 Disconnect the compressor Faston connectors from the main PCB.

2 Check the power module V1R in reference with the image and the table below.

a U
b V
c W
d V DC+
e C-

INFORMATION

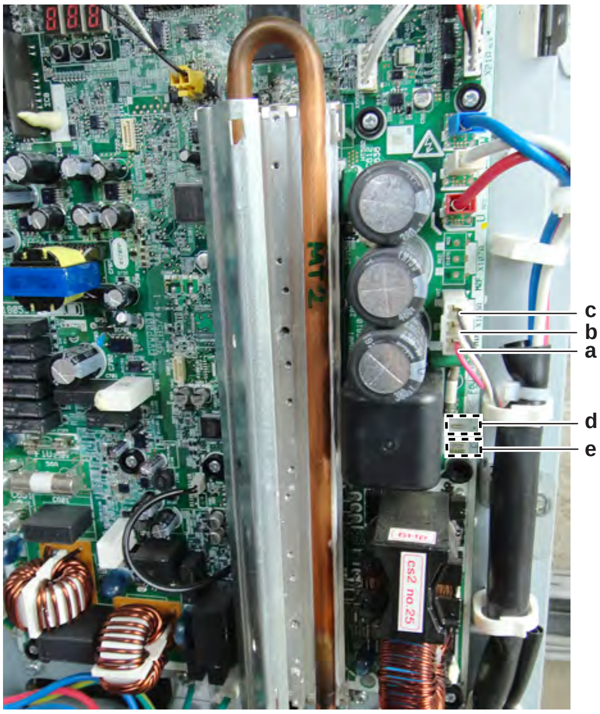
When measuring on the front of the main PCB, make sure to locally remove the protective varnish with the test leads of the multi meter.

VDC	Com	Ref	VDC	Com	Ref
U	V DC+	0.45 V	V DC+	U	O.L
V	V DC+	0.45 V	V DC+	V	O.L
W	V DC+	0.45 V	V DC+	W	O.L
C-	U	0.45 V	U	C-	O.L
C-	V	0.45 V	V	C-	O.L
C-	W	0.45 V	W	C-	O.L

Power module V2R for fan motor

1 Disconnect the fan motor connector from the main PCB.

2 Check the power module V2R in reference with the image and the table below.



a U
b V
c W
d C+
e C-

> **INFORMATION**
> When measuring on the front of the main PCB, make sure to locally remove the protective varnish with the test leads of the multi meter.

VDC	Com	Ref	VDC	Com	Ref
U	C+	0.56 V	C+	U	O.L
V	C+	0.56 V	C+	V	O.L
W	C+	0.56 V	C+	W	O.L
C-	U	0.56 V	U	C-	O.L
C-	V	0.56 V	V	C-	O.L
C-	W	0.56 V	W	C-	O.L

Are the test results OK?	Action
Yes	Power modules are OK. Return to "Checking procedures" [▶ 212] of the main PCB and continue with the next procedure.
No	Replace the main PCB, see "Repair procedures" [▶ 221].

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

Repair procedures

To correct the wiring from the main power supply terminal to the main PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1. Remove the required plate work, see "4.18 Plate work" [▶ 260].
2. Make sure that all wires are firmly and correctly connected, see "7.2 Wiring diagram" [▶ 343].
3. Check the continuity of all wires.
4. Replace any damaged or broken wires.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "Checking procedures" [▶ 212] of the PCB and continue with the next procedure.

To remove the main PCB

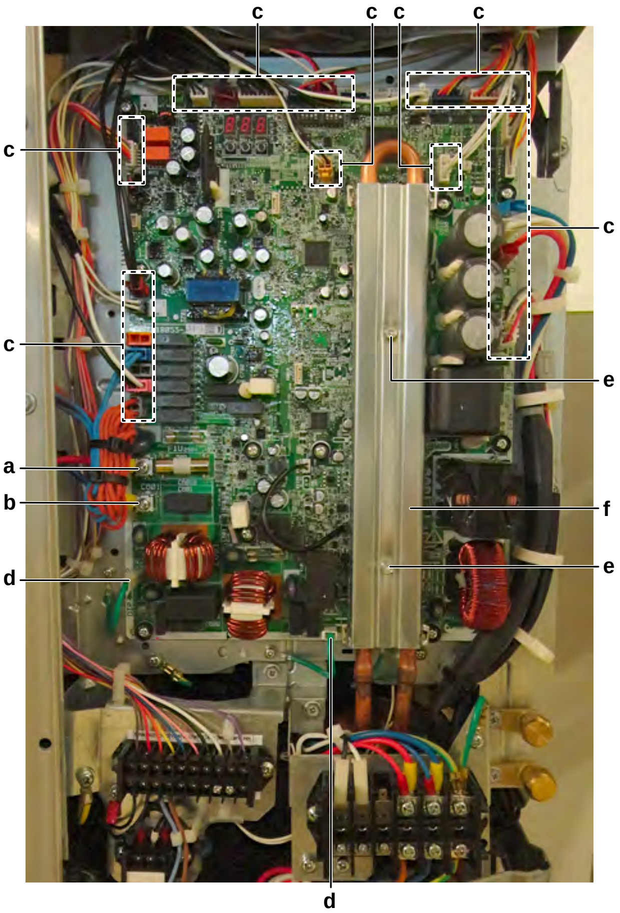
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1. Remove the required plate work, see "4.18 Plate work" [▶ 260].

> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

2. Remove (or flip over) the protective cover sheet.
3. Loosen the screws and disconnect the L and N wiring from the screw terminals on the main PCB.



a L
b N
c Connector
d Faston connector (ground wiring)
e Bolt (heat sink cover)
f Heat sink cover

4 Disconnect the indicated connectors from the main PCB.

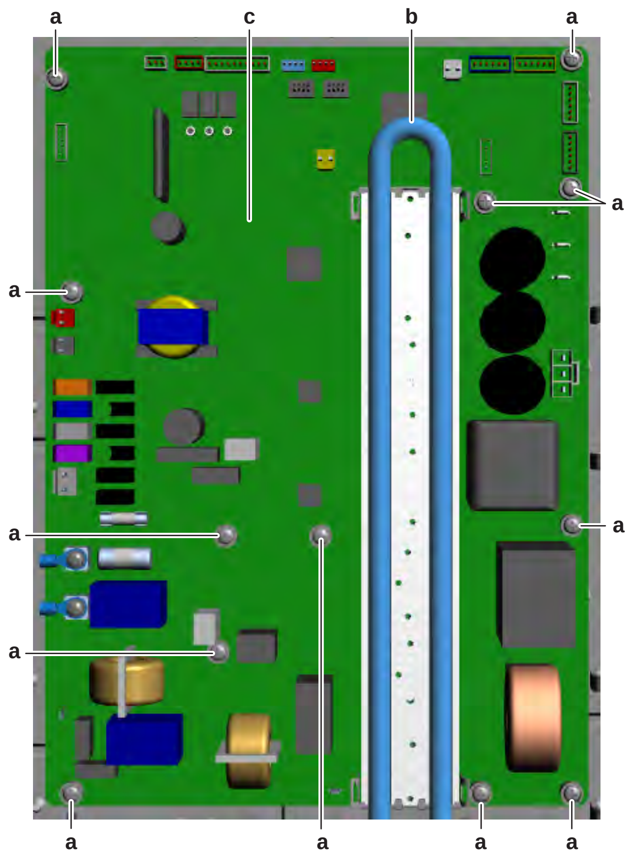
5 Unplug the 2 ground wiring Faston connectors.

6 Remove the 2 bolts from the main PCB heat sink cover.

7 Lift and pull the cover to remove it from the heat sink.

8 Carefully pull the refrigerant pipe forward to separate it from the heat sink on the switch box.

9 Remove all main PCB fixation screws and spacers and keep them for reuse.



a Fixation screw
b Refrigerant pipe
c Main PCB

10 Pull the refrigerant pipe forward and move the main PCB out.

11 Remove the bottom screw on the back of the main PCB to disconnect the ground wire.

12 To install the main PCB, see "Repair procedures" [▶ 221].

To install the main PCB

> **INFORMATION**
>
> To avoid damage to the spare part main PCB during transport, the spare part main PCB is mounted on a metal plate. Remove the main PCB from the metal plate and install it in the unit as described below.

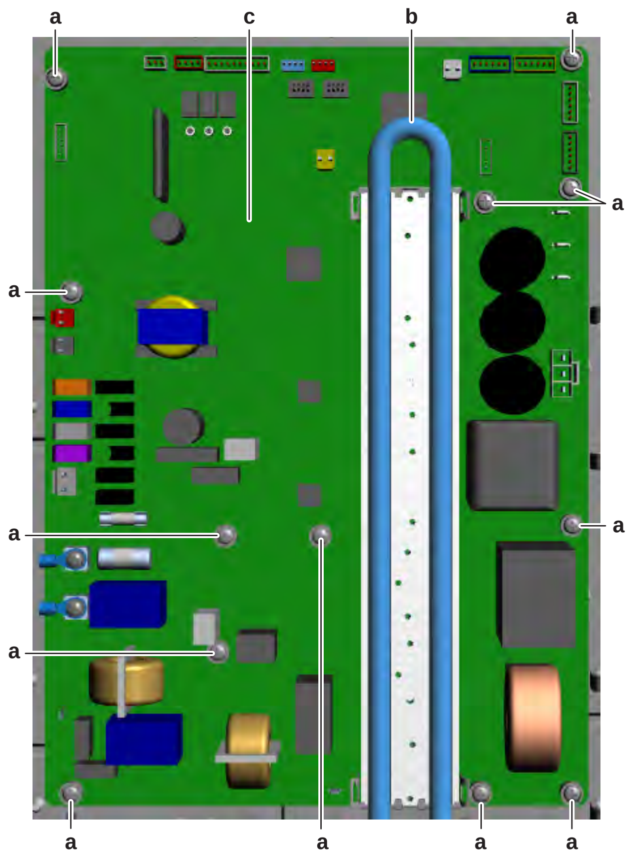
1 Use a piece of cloth to remove the old thermal interface grease and clean the refrigerant pipe.

2 Install the ground wire at the bottom back side of the main PCB. Install and tighten the screw.

3 Apply new thermal interface grease to the refrigerant pipe contact surface of the heat sink (on the main PCB). Distribute the grease as evenly as possible.

> **CAUTION**
>
> ALWAYS apply new grease on the PCB heat sink. NOT doing so may cause the PCB to fail due to insufficient cooling.

4 Carefully pull the refrigerant pipe forward and install the main PCB together with the reused spacers in the correct location on the switch box. Install and tighten the resued fixation screws.



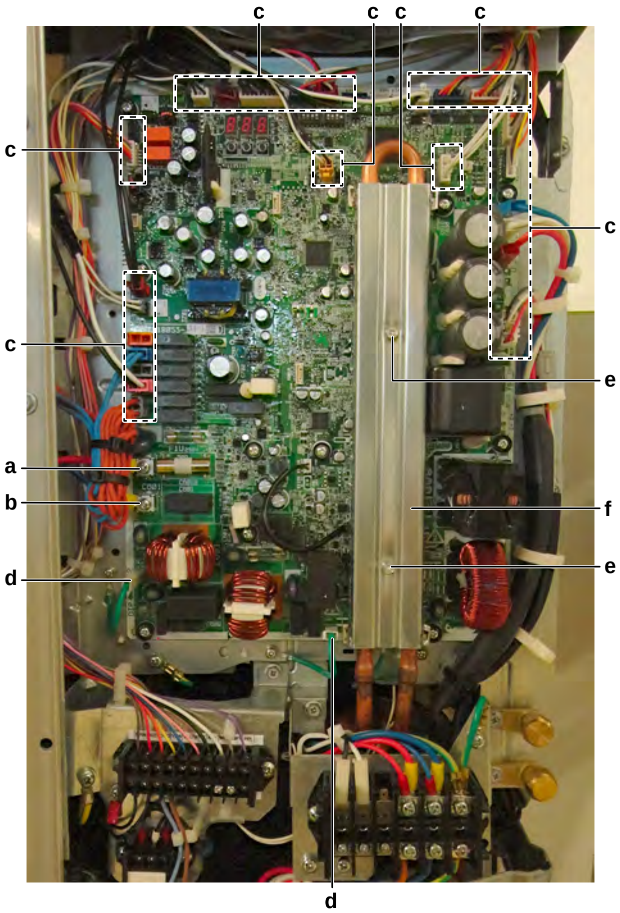
a Fixation screw
b Refrigerant pipe
c Main PCB

5 Correctly install the refrigerant pipe on the heat sink (proper contact with the thermal interface grease on the heat sink of the switch box). Install the heat sink cover.

6 Install the 2 bolts on the heat sink cover and tighten the bolts.

INFORMATION

Make sure that the refrigerant pipe is correctly installed on the main PCB heat sink. Do NOT touch the part of the refrigerant pipe that is mounted in the heat sink.



a L
b N
c Connector
d Faston connector (ground wiring)
e Bolt (heat sink cover)
f Heat sink cover

7 Plug the 2 ground wiring Faston connectors on the main PCB.

8 Connect all connectors to the main PCB.

> **WARNING**
>
> When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

9 Connect the L and N wiring to the screw terminals on the main PCB. Tighten the screws.

10 When installing a new main PCB, it needs to be defined for capacity. Otherwise, PJ error is generated.

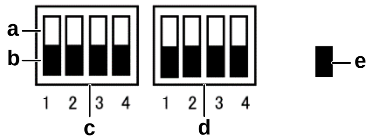
11 When installing a new main PCB, set the DIP switch settings accordingly to the model. See "Repair procedures" [▶ 221].

12 Install the protective cover sheet.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "Checking procedures" [▶ 212] of the PCB and continue with the next procedure.

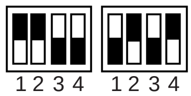
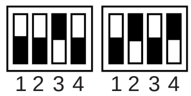
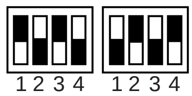
To set the DIP switches of the spare part main PCB

If a spare part main PCB is installed in your unit, the DIP switches need to be set. By default (factory settings) all switches are in off position.



a ON position
b OFF position
c DS2
d DS1
e Shows the position of a switch

1. Shut the power off.
2. Position the DIP switches for your particular model as shown in the table below.

Applicable models	Position of DIP switches	
RXYSA4_V		DS1-2, DS1-4, DS2-1 and DS2-2 are set as ON.
RXYSA5_V		DS1-2, DS1-4 and DS2-3 are set as ON.
RXYSA6_V		DS1-2, DS1-4, DS2-1 and DS2-3 are set as ON.

> **INFORMATION**
>
> Set DIP switch DS1-1 to ON ONLY in case external (optional) switch is used to select the operation mode.

3. After replacing main PCB A1P , a test run is required. Refer to Installation Manual for Test Run. If test run is not carried out successfully, U3 Error will be triggered.
4. If PJ or UA or U7 Errors are triggered after spare part main PCB A1P replacement, check the position of the switches accordingly. If the error is not solved then consult the related error code for troubleshooting.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "Checking procedures" [▶ 212] of the PCB and continue with the next procedure.

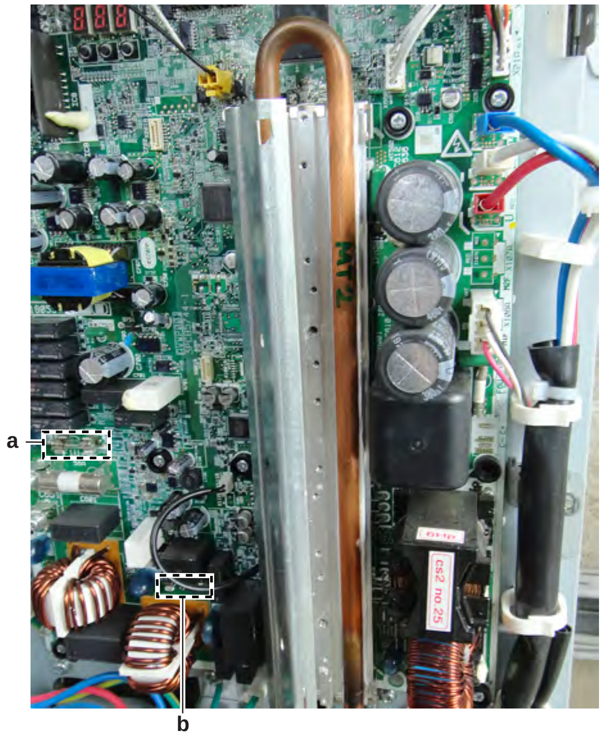
To remove a fuse of the main PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1. Remove the fuse from the PCB.



a Fuse F2U
b Fuse F3U

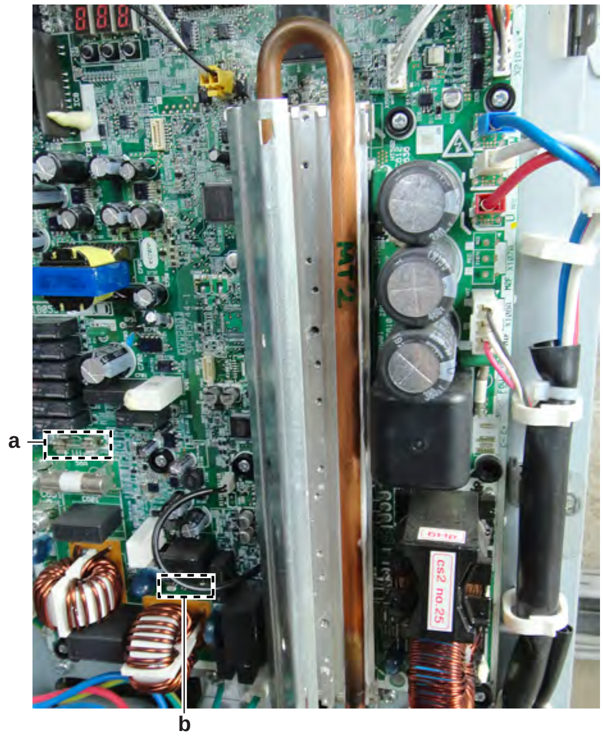
2 To install a fuse on the main PCB, see "Repair procedures" [▸ 221].

To install a fuse on the main PCB

> **WARNING**
>
> For continued protection against risk of fire, replace only with same type and rating of fuse.

1 Install the fuse on the correct location on the PCB.

> **CAUTION**
>
> Make sure the fuse is plugged-in correctly (contact with the fuse holder).



a Fuse F2U
b Fuse F3U

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "Checking procedures" [▶ 212] of the PCB and continue with the next procedure.

4.15.2 Single fan outdoor unit - three phase

Checking procedures

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

To perform a power check of the main PCB

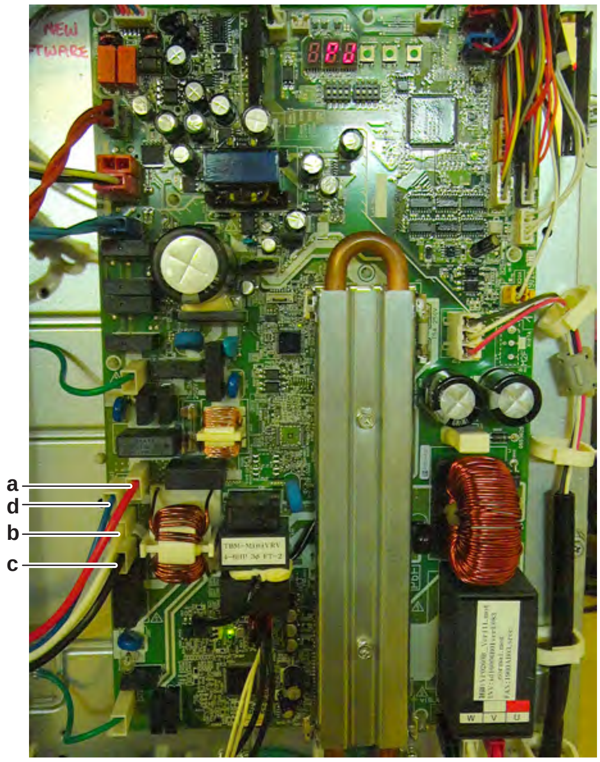
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1. Remove the required plate work, see "4.18 Plate work" [▶ 260].
2. Turn ON the power of the unit.
3. Measure the voltage between the phases L1A-L2A-L3A on the main PCB.

   Result: All measurements MUST be 400 V AC ± 10%.
4. Measure the voltage between each phase and NA on the main PCB.

   Result: The measured voltages MUST be 230 V AC ± 10%.



a L1A
b L2A
c L3A
d NA

Is the measured voltage on the PCB correct?	Action
Yes	Return to "Checking procedures" [▶ 228] of the PCB and continue with the next procedure.
No	Continue with the next step.

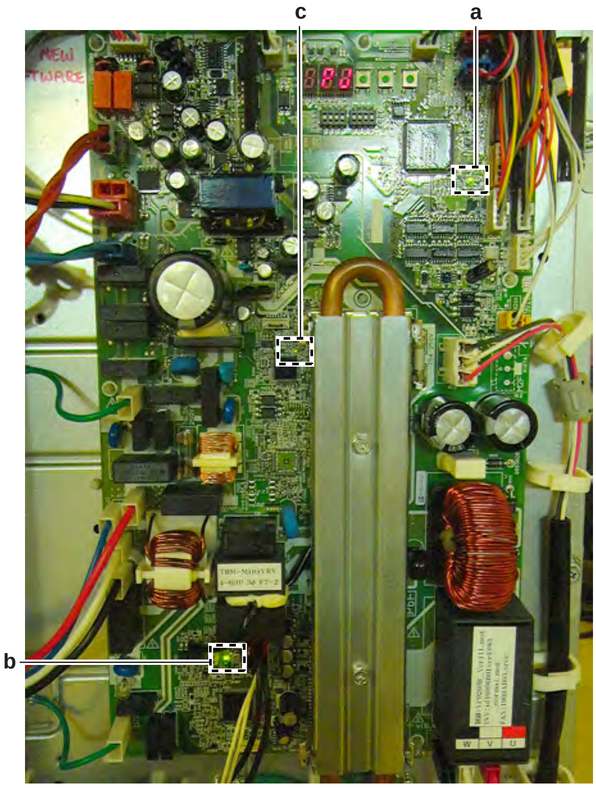
5 Perform an electrical check of the noise filter PCB, see "4.16.1 Checking procedures" [▶ 245].

Electrical check of noise filter PCB correct?	Action
Yes	Correct the wiring between the main PCB and the noise filter PCB, see "5.1.2 Repair procedures" [▶ 311].
No	Perform a check of the noise filter PCB, see "4.16.1 Checking procedures" [▶ 245].

To check the LEDs of the main PCB

Prerequisite: First check the power supply to the main PCB, see "Checking procedures" [▶ 228].

1 Locate the 3 LEDs on the main PCB.



a HAP LED processor
b HBP LED inverter circuit
c HCP LED fan inverter circuit

> **INFORMATION**
>
> Make sure the correct software is available on the PCB. If NOT, update using the updater tool.

Do all LEDs blink in regular intervals (1 second ON/1 second OFF)?	Action
Yes	Return to "Checking procedures" [▶ 228] of the main PCB and continue with the next procedure.
No	Replace the main PCB, see "Repair procedures" [▶ 238].

To check if the correct spare part is installed

Prerequisite: First perform all earlier main PCB checks, see "Checking procedures" [▶ 228].

1. Visit your local spare parts webbank.
2. Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

> **NOTICE**
>
> Also check that the correct spare part is installed for the capacity adapter.

Is the correct spare part for the PCB installed?	Action
Yes	Return to "Checking procedures" [▶ 228] of the main PCB and continue with the next procedure.
No	Replace the main PCB, see "Repair procedures" [▶ 238].

To check the wiring of the main PCB

Prerequisite: First perform all earlier main PCB checks, see "Checking procedures" [▶ 228].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1. Check that all wires are properly connected and that all connectors are fully plugged-in.
2. Check that no connectors or wires are damaged.
3. Check that the wiring corresponds with the wiring diagram, see "7.2 Wiring diagram" [▶ 343].

INFORMATION

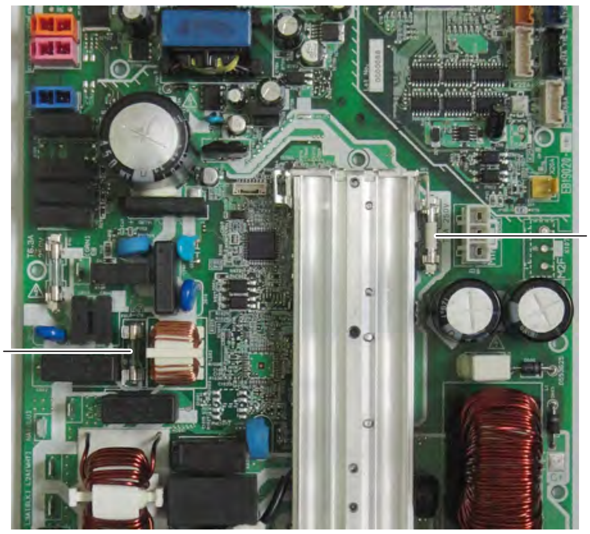
Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "Checking procedures" [▶ 228] of the PCB and continue with the next procedure.

To check the fuse of the main PCB

Prerequisite: First perform all earlier main PCB checks, see "Checking procedures" [▶ 228].

1. Measure the continuity of the fuse. If no continuity is measured, the fuse has blown.



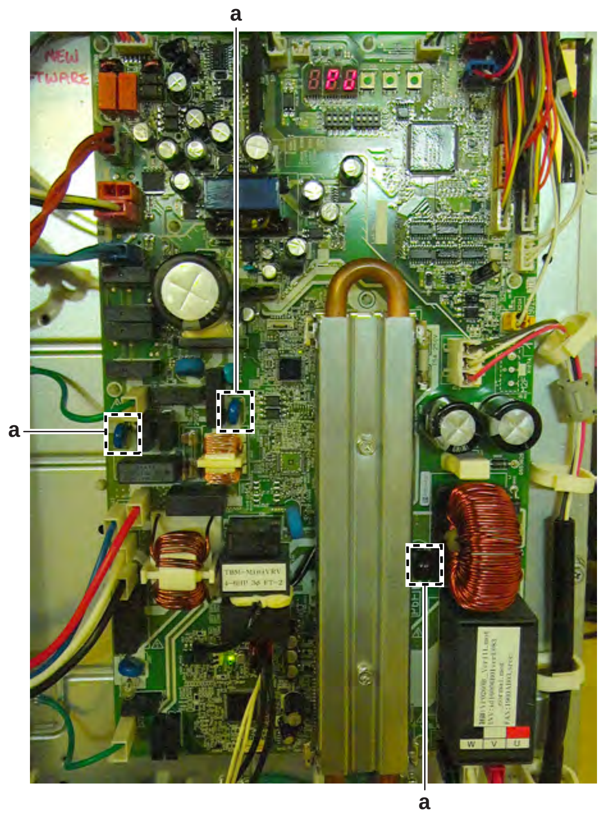
a Fuse F6U
b Fuse F7U

Blown fuse on the main PCB?	Action
Yes	Replace the blown fuse, see "Repair procedures" [▸ 238].
No	Return to "Checking procedures" [▸ 228] of the main PCB and continue with the next procedure.

To check the varistors of the main PCB

Prerequisite: First perform all earlier main PCB checks, see "Checking procedures" [▸ 228].

1. Measure the resistance of the varistor. If the reading is nearly infinite, the varistor is still good.



a Varistor

Any broken varistors on the main PCB?	Action
Yes	Replace the main PCB, see "Repair procedures" [▸ 238].
No	Return to "Checking procedures" [▸ 228] of the main PCB and continue with the next procedure.

To perform an electrical check of the main PCB

Prerequisite: First perform all earlier main PCB checks, see "Checking procedures" [▸ 228].

1. Turn ON the power of the unit.
2. Measure the voltage on connector X37A on the main PCB.

   Result: The measurement MUST be 16 V DC.

3 Measure the low pressure sensor power supply voltage between pins 3-4 of connector X31A on the main PCB.

Result: The measurement MUST be 5 V DC.

a Connector X37A
b Connector X31A

Are the measured voltages correct?	Action
Yes	Return to "Checking procedures" [▶ 228] of the main PCB and continue with the next procedure.
No	Replace the main PCB, see "Repair procedures" [▶ 238].

To check the rectifier voltage of the main PCB

Prerequisite: First perform all earlier main PCB checks, see "Checking procedures" [▶ 228].

1 Turn ON the power of the unit.

2 Measure the voltage on the rectifier voltage check terminals (+ and –) of the fan inverter circuit on the main PCB.

Result: The measured voltage MUST be approximately 324 V DC.

3 Measure the voltage on the rectifier voltage check terminals (+ and –) of the inverter circuit on the main PCB.

Result: The measured voltage MUST be approximately 560 V DC.

a + terminal of fan inverter circuit
b – terminal of fan inverter circuit
c + terminal of inverter circuit
d – terminal of inverter circuit

> **INFORMATION**
>
> When measuring on the front of the main PCB, make sure to locally remove the protective varnish with the test leads of the multi meter.

Is the measured rectifier voltage correct?	Action
Yes	Perform a check of the power modules of the main PCB, see "Checking procedures" [▶ 228].
No	Replace the main PCB, see "Repair procedures" [▶ 238].

To perform a diode module check

1 First check the rectifier voltage of the main PCB, see "4.16.1 Checking procedures" [▶ 245].

> **INFORMATION**
>
> If the rectifier voltage is OK, the diode module is OK. If rectifier voltage is NOT OK, replace the main PCB.
>
> Below procedure describes how to check the diode module itself.

2 Stop the unit operation via the central controller.

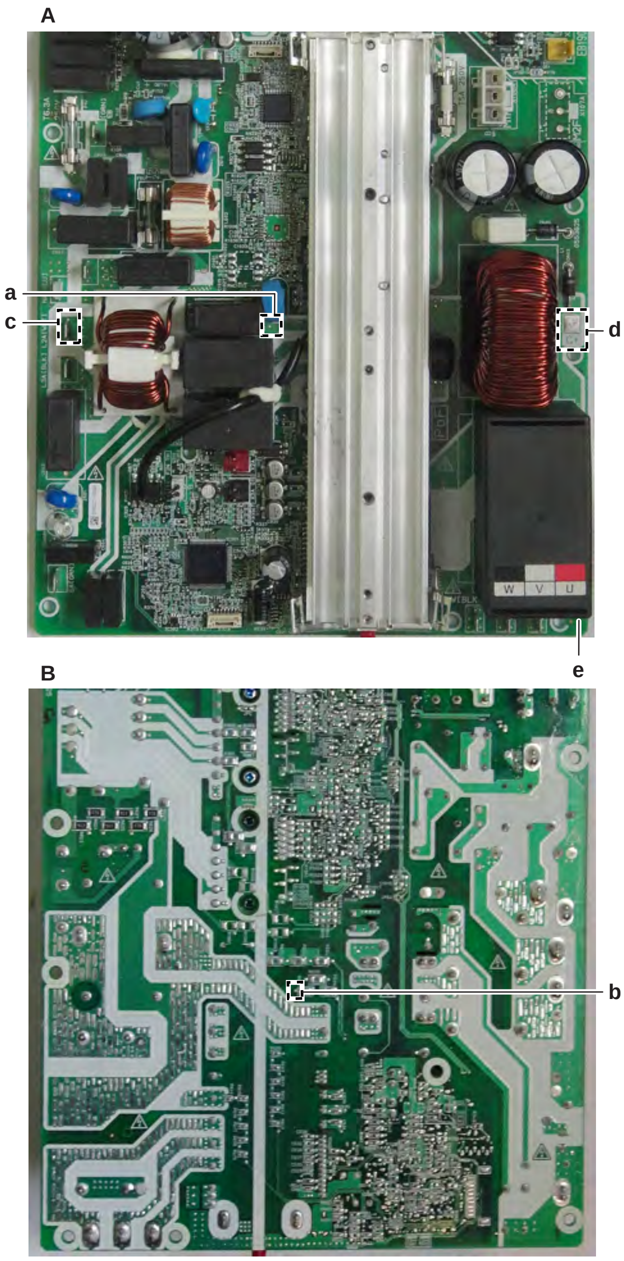
3 Turn OFF the respective circuit breaker.

> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

Diode module V3R for inverter circuit

1 Remove the main PCB, see "Repair procedures" [▶ 238]. One measuring point is ONLY accessible on the back side of the main PCB.

2 Check the diode module in reference with the image and the table below.



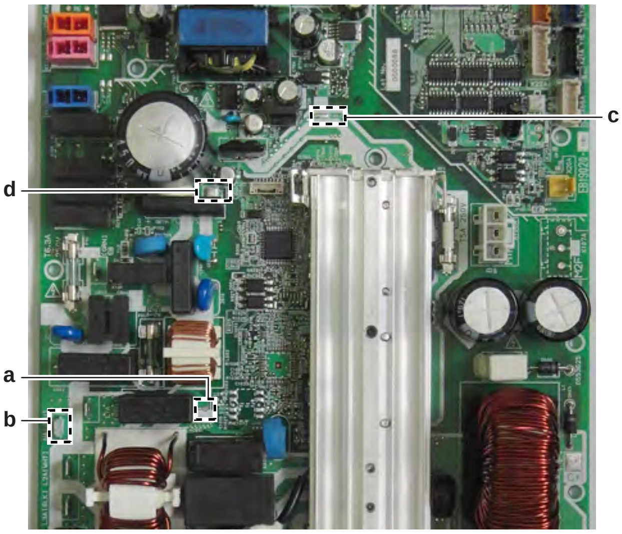
A	Front side of main PCB
B	Back side of main PCB
a	Measuring point (in)
b	Measuring point (in)
c	Measuring point (in)
d	V DC out (+)
e	V DC out (–)

> **INFORMATION**
> When measuring on the front of the main PCB, make sure to locally remove the protective varnish with the test leads of the multi meter.

VDC	Com	Ref	VDC	Com	Ref
a	d	0.46 V	d	a	O.L
b	d	0.46 V	d	b	O.L
c	d	0.46 V	d	c	O.L
e	a	0.46 V	a	e	O.L
e	b	0.46 V	b	e	O.L
e	c	0.46 V	c	e	O.L

Diode module V4R for fan inverter circuit

1 Check the diode module in reference with the image and the table below.



a V AC (in)
b V AC (in)
c V DC out (+)
d V DC out (–)

> **INFORMATION**
> When measuring on the front of the main PCB, make sure to locally remove the protective varnish with the test leads of the multi meter.

VDC	Com	Ref	VDC	Com	Ref
a	c	0.51 V	c	a	O.L
b	c	0.51 V	c	b	O.L
d	a	0.51 V	a	d	O.L
d	b	0.51 V	b	d	O.L

2 If a diode module is NOT OK, replace the main PCB, see "Repair procedures" [▶ 238].

To perform a power module check

Prerequisite: First check the rectifier voltage of the main PCB, see "Checking procedures" [▶ 228].

Prerequisite: Stop the unit operation via the user interface.

1 Turn OFF the respective circuit breaker.

DANGER: RISK OF ELECTROCUTION

Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

Power module V1R for compressor

1 Disconnect the compressor Faston connectors from the main PCB.

2 Check the power module V1R in reference with the image and the table below.

a U
b V
c W
d C+
e C-

INFORMATION

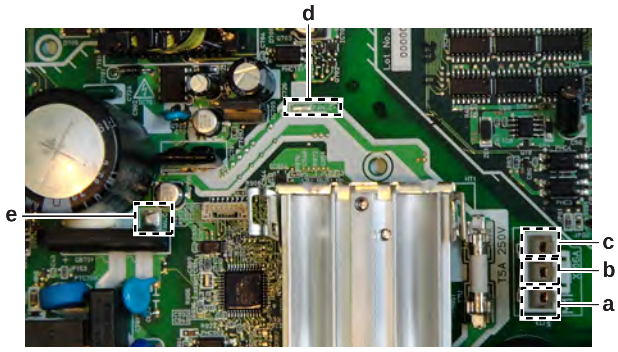
When measuring on the front of the main PCB, make sure to locally remove the protective varnish with the test leads of the multi meter.

VDC	Com	Ref	VDC	Com	Ref
U	C+	0.45 V	C+	U	O.L
V	C+	0.45 V	C+	V	O.L
W	C+	0.45 V	C+	W	O.L
C-	U	0.45 V	U	C-	O.L
C-	V	0.45 V	V	C-	O.L
C-	W	0.45 V	W	C-	O.L

Power module V2R for fan motor

1 Disconnect the fan motor connector from the main PCB.

2 Check the power module V2R in reference with the image and the table below.



a U
b V
c W
d C+
e C-

> **INFORMATION**
>
> When measuring on the front of the main PCB, make sure to locally remove the protective varnish with the test leads of the multi meter.

VDC	Com	Ref	VDC	Com	Ref
U	C+	0.56 V	C+	U	O.L
V	C+	0.56 V	C+	V	O.L
W	C+	0.56 V	C+	W	O.L
C-	U	0.56 V	U	C-	O.L
C-	V	0.56 V	V	C-	O.L
C-	W	0.56 V	W	C-	O.L

Are the test results OK?	Action
Yes	Power modules are OK. Return to "Checking procedures" [▶ 212] of the main PCB and continue with the next procedure.
No	Replace the main PCB, see "Repair procedures" [▶ 221].

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

Repair procedures

To remove the main PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1 Remove the required plate work, see "4.18 Plate work" [▶ 260].

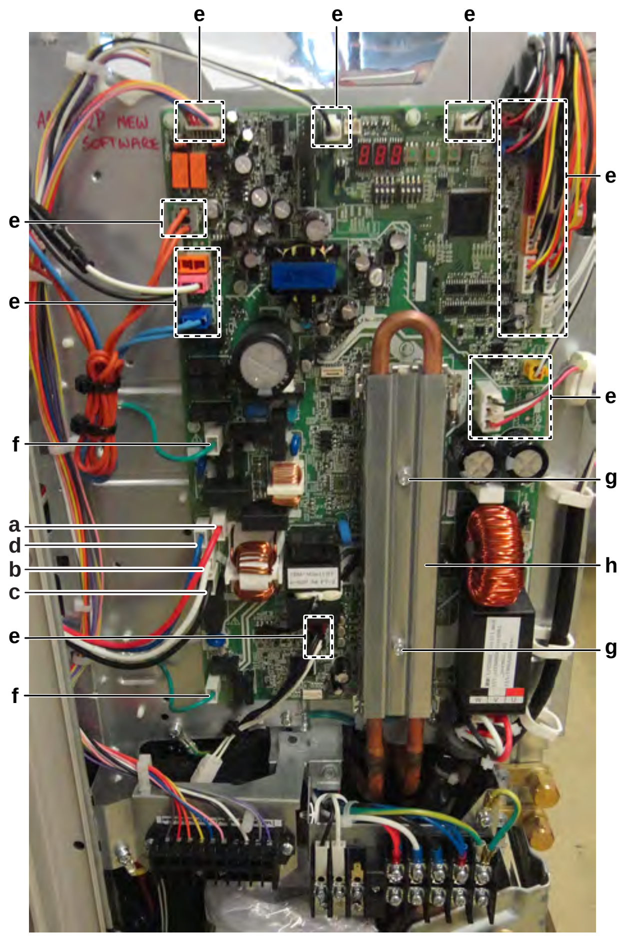
DANGER: RISK OF ELECTROCUTION

Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

2 Remove (or flip over) the protective cover sheet.

3 Unplug the compressor U, V and W Faston connectors from the main PCB.

4 Unplug the L1A, L2A, L3A and NA Faston connectors from the main PCB.



a L1A
b L2A
c L3A
d NA
e Connector
f Faston connector (ground wiring)
g Bolt (heat sink cover)
h Heat sink cover

5 Disconnect the indicated connectors from the main PCB.

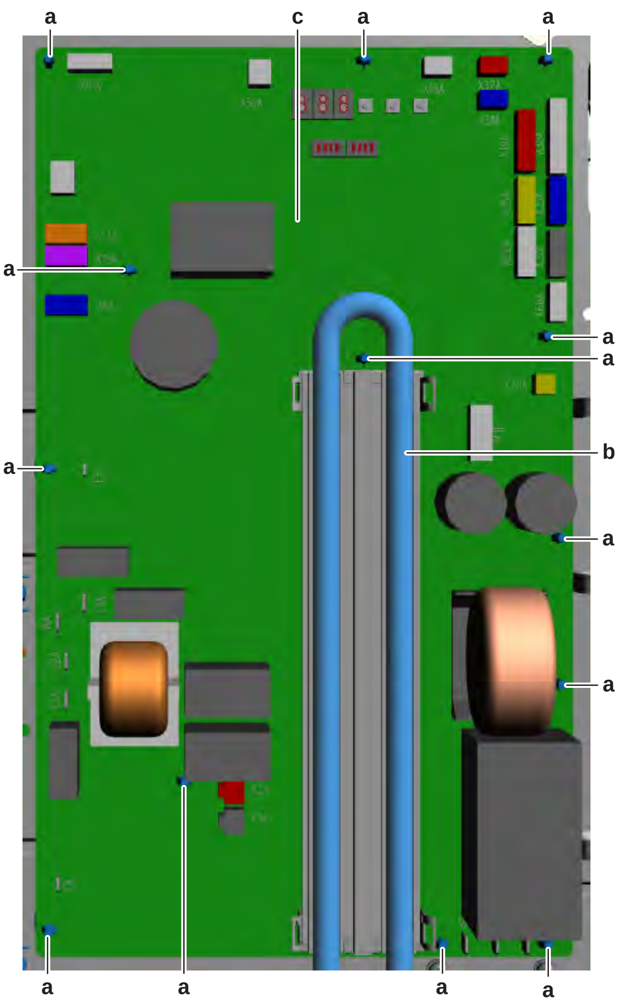
6 Unplug the 2 ground wiring Faston connectors.

7 Remove the 2 bolts from the main PCB heat sink cover.

8 Lift and pull the cover to remove it from the heat sink.

9 Carefully pull the refrigerant pipe forward to separate it from the heat sink on the switch box.

10 Carefully pull the main PCB and unlatch the main PCB supports one by one using a small pliers.



a PCB support
b Refrigerant pipe
c Main PCB

11 Pull the refrigerant pipe forward and move the main PCB out.

12 Remove the bottom screw on the back of the main PCB to disconnect the ground wire.

13 To install the main PCB, see "Repair procedures" [▶ 238].

To install the main PCB

> **INFORMATION**
>
> To avoid damage to the spare part main PCB during transport, the spare part main PCB is mounted on a metal plate. Remove the main PCB from the metal plate and install it in the unit as described below.

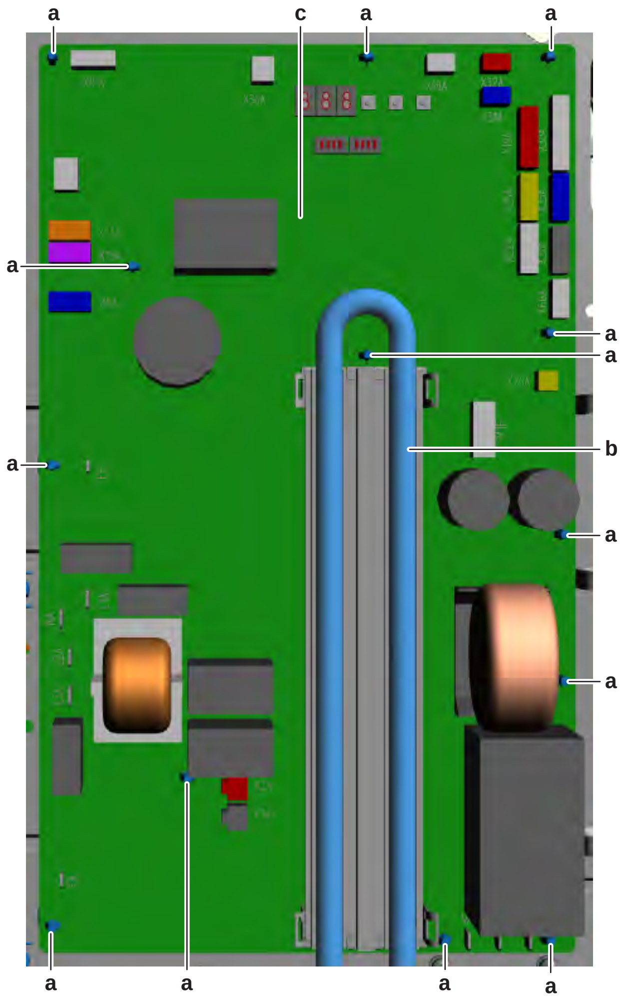
1 Use a piece of cloth to remove the old thermal interface grease and clean the refrigerant pipe.

2 Install the ground wire at the bottom back side of the main PCB. Install and tighten the screw.

3 Apply new thermal interface grease to the refrigerant pipe contact surface of the heat sink (on the main PCB). Distribute the grease as evenly as possible.

> **CAUTION**
>
> ALWAYS apply new grease on the PCB heat sink. NOT doing so may cause the PCB to fail due to insufficient cooling.

4 Carefully pull the refrigerant pipe forward and install the main PCB in the correct location on the PCB supports.



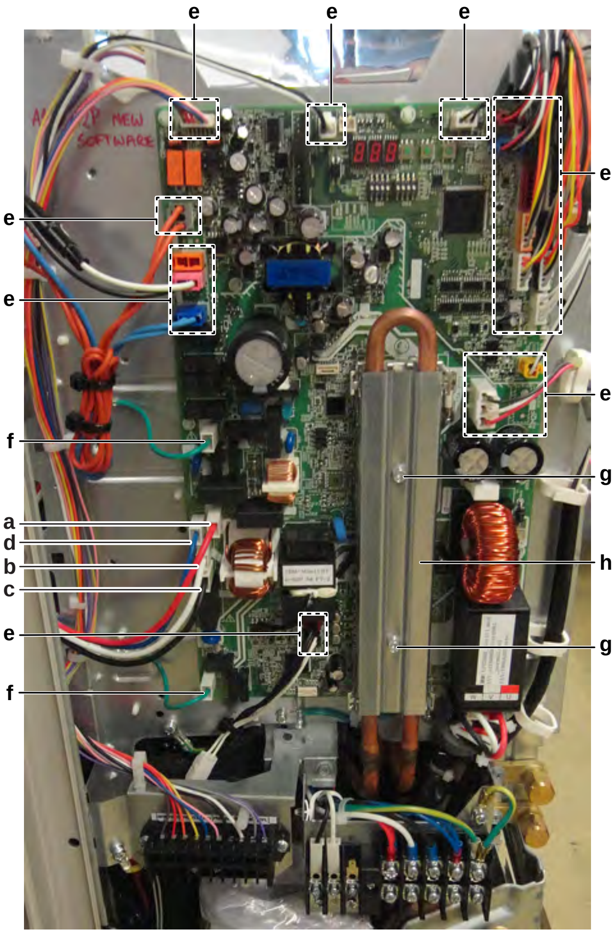
a PCB support
b Refrigerant pipe
c Main PCB

5 Correctly install the refrigerant pipe on the heat sink (proper contact with the thermal interface grease on the heat sink of the switch box). Install the heat sink cover.

6 Install the 2 bolts on the heat sink cover and tighten the bolts.

INFORMATION

Make sure that the refrigerant pipe is correctly installed on the main PCB heat sink. Do NOT touch the part of the refrigerant pipe that is mounted in the heat sink.



- **a** L1A
- **b** L2A
- **c** L3A
- **d** NA
- **e** Connector
- **f** Faston connector (ground wiring)
- **g** Bolt (heat sink cover)
- **h** Heat sink cover

7. Plug the 2 ground wiring Faston connectors on the main PCB.
8. Connect all connectors to the main PCB.

> **WARNING**
>
> When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

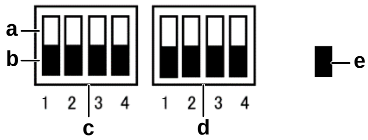
9. Plug the L1A, L2A, L3A and NA Faston connectors on the main PCB.
10. Plug the compressor U, V and W Faston connectors on the main PCB.
11. When installing a new main PCB, it needs to be defined for capacity. Otherwise, PJ error is generated.
12. When installing a new main PCB, set the DIP switch settings accordingly to the model. See "Repair procedures" [▶ 238].
13. Install the protective cover sheet.

Is the problem solved?	Action
Yes	No further actions required.

Is the problem solved?	Action
No	Return to "Checking procedures" [▶ 228] of the PCB and continue with the next procedure.

To set the DIP switches of the spare part main PCB

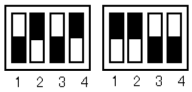
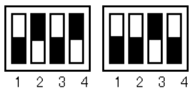
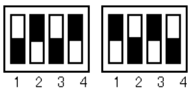
If a spare part main PCB is installed in your unit, the DIP switches need to be set. By default (factory settings) all switches are in off position.



a ON position
b OFF position
c DS1
d DS2
e Shows the position of a switch

1 Shut the power off.

2 Position the DIP switches for your particular model as shown in the table below.

Applicable models	Position of DIP switches	
RXYSA4_Y		DS1-2, DS1-4, DS2-1 and DS2-2 are set as ON.
RXYSA5_Y		DS1-2, DS1-4 and DS2-3 are set as ON.
RXYSA6_Y		DS1-2, DS1-4, DS2-1 and DS2-3 are set as ON.

INFORMATION

Set DIP switch DS1-1 to ON ONLY in case external (optional) switch is used to select the operation mode.

3 After replacing main PCB A1P , a test run is required. Refer to Installation Manual for Test Run. If test run is not carried out successfully, U3 Error will be triggered.

4 If PJ or UA or U7 Errors are triggered after spare part main PCB A1P replacement, check the position of the switches accordingly. If the error is not solved then consult the related error code for troubleshooting.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "Checking procedures" [▶ 228] of the PCB and continue with the next procedure.

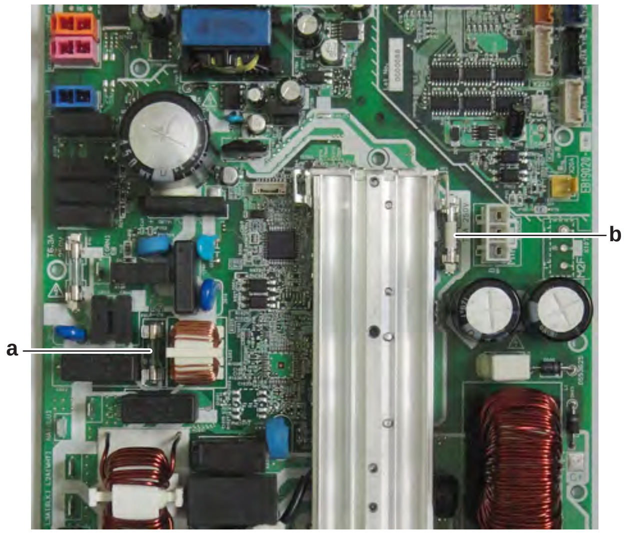
To remove a fuse of the main PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 Remove the fuse from the PCB.



- **a** Fuse F6U
- **b** Fuse F7U

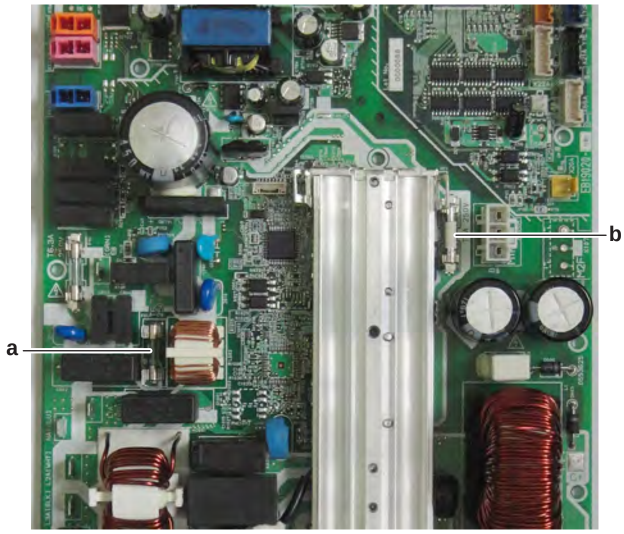
2 To install a fuse on the main PCB, see "Repair procedures" [▶ 238].

To install a fuse on the main PCB

> **WARNING**
> For continued protection against risk of fire, replace only with same type and rating of fuse.

1 Install the fuse on the correct location on the PCB.

> **CAUTION**
> Make sure the fuse is plugged-in correctly (contact with the fuse holder).



- **a** Fuse F6U
- **b** Fuse F7U

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "Checking procedures" [▶ 228] of the PCB and continue with the next procedure.

4.16 Noise filter PCB

> **INFORMATION**
>
> ONLY for RXYSA4~6A7Y1B units.

4.16.1 Checking procedures

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

To perform a power check of the noise filter PCB

Prerequisite: Stop the unit operation via the user interface.

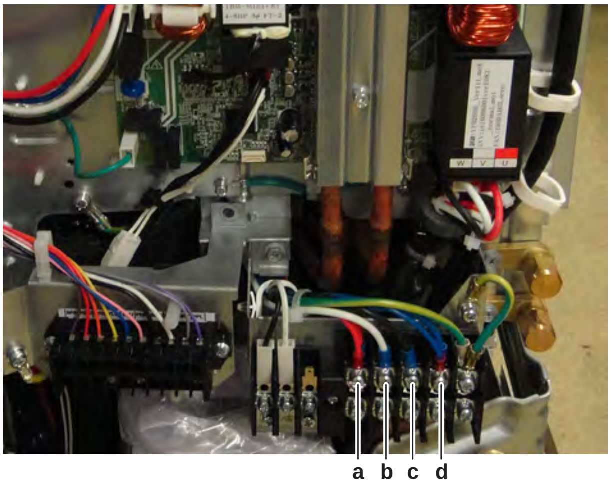
Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1. Turn ON the power of the unit.
2. Measure the voltage between the phases L1B-L2B-L3B on the main power supply terminal X1M.

   Result: All measurements MUST be 400 V AC ± 10%.
3. Measure the voltage between each phase and NB on the main power supply terminal X1M.

   Result: The measured voltages MUST be 230 V AC ± 10%.



a L1B
b L2B
c L3B
d NB

Does the noise filter PCB receive power?	Action
Yes	Return to "4.16.1 Checking procedures" [▶ 245] of the PCB and continue with the next procedure.
No	Adjust the power supply to the unit, see "5.1.2 Repair procedures" [▶ 311].

To perform an electrical check of the noise filter PCB

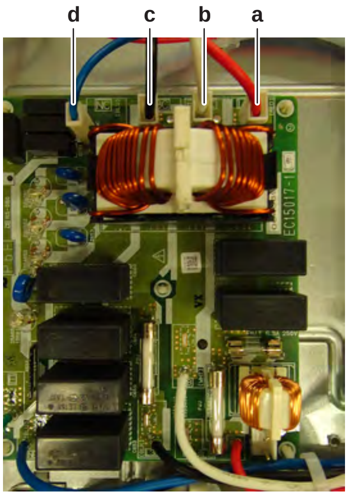
Prerequisite: First check the power supply to the noise filter PCB, see "4.16.1 Checking procedures" [▶ 245].

Prerequisite: Access the back side of the switch box, see "4.18 Plate work" [▶ 260].

1. Turn ON the power of the unit.
2. Measure the voltage between output wires L1C-L2C-L3C on the noise filter PCB.

   Result: All measurements MUST be 400 V AC ± 10%.
3. Measure the voltage between each output wire (phase) and NC on the noise filter PCB.

   Result: The measured voltages MUST be 230 V AC ± 10%.



a L1C
b L2C
c L3C
d NC

Is the output voltage on the noise filter PCB correct?	Action
Yes	Return to "4.16.1 Checking procedures" [▶ 245] of the noise filter PCB and continue with the next procedure.
No	Replace the noise filter PCB, see "4.16.2 Repair procedures" [▶ 249].

To check if the correct spare part is installed

Prerequisite: First perform all earlier checks of the noise filter PCB, see "4.16.1 Checking procedures" [▶ 245].

1. Visit your local spare parts webbank.
2. Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

Is the correct spare part for the noise filter PCB installed?	Action
Yes	Return to "4.16.1 Checking procedures" [▶ 245] of the noise filter PCB and continue with the next procedure.

Is the correct spare part for the noise filter PCB installed?	Action
No	Replace the noise filter PCB, see "4.16.2 Repair procedures" [▶ 249].

To check the wiring of the noise filter PCB

Prerequisite: First perform all earlier checks of the noise filter PCB, see "4.16.1 Checking procedures" [▶ 245].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1. Check that all wires are properly connected and that all connectors are fully plugged-in.
2. Check that no connectors or wires are damaged.
3. Check that the wiring corresponds with the wiring diagram, see "7.2 Wiring diagram" [▶ 343].

INFORMATION

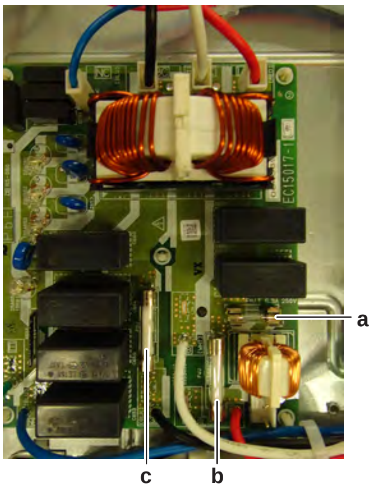
Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "4.16.1 Checking procedures" [▶ 245] of the noise filter PCB and continue with the next procedure.

To check the fuses of the noise filter PCB

Prerequisite: First perform all earlier checks of the noise filter PCB, see "4.16.1 Checking procedures" [▶ 245].

1. Measure the continuity of the fuse. If no continuity is measured, the fuse has blown.



a Fuse F1U
b Fuse F4U
c Fuse F5U

For fuses F4U and F5U

Blown fuse on the noise filter PCB?	Action
Yes	Replace the noise filter PCB, see "4.16.2 Repair procedures" [▶ 249].
No	Return to "4.16.1 Checking procedures" [▶ 245] of the noise filter PCB and continue with the next procedure.

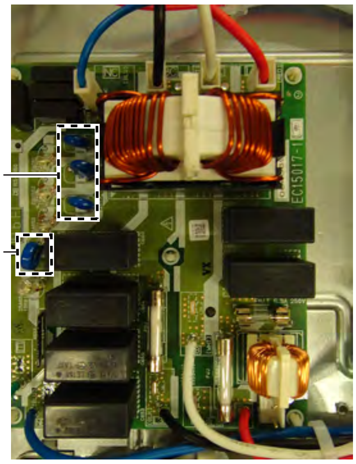
For fuse F1U

Blown fuse on the noise filter PCB?	Action
Yes	Replace the blown fuse, see "4.16.2 Repair procedures" [▶ 249].
No	Return to "4.16.1 Checking procedures" [▶ 245] of the noise filter PCB and continue with the next procedure.

To check the varistors of the noise filter PCB

Prerequisite: First perform all earlier checks of the noise filter PCB, see "4.16.1 Checking procedures" [▶ 245].

1 Measure the resistance of the varistor. If the reading is nearly infinite, the varistor is still good.



a
a

a Varistor

Any broken varistors on the noise filter PCB?	Action
Yes	Replace the noise filter PCB, see "4.16.2 Repair procedures" [▶ 249].
No	Return to "4.16.1 Checking procedures" [▶ 245] of the noise filter PCB and continue with the next procedure.

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.16.2 Repair procedures

To remove the noise filter PCB

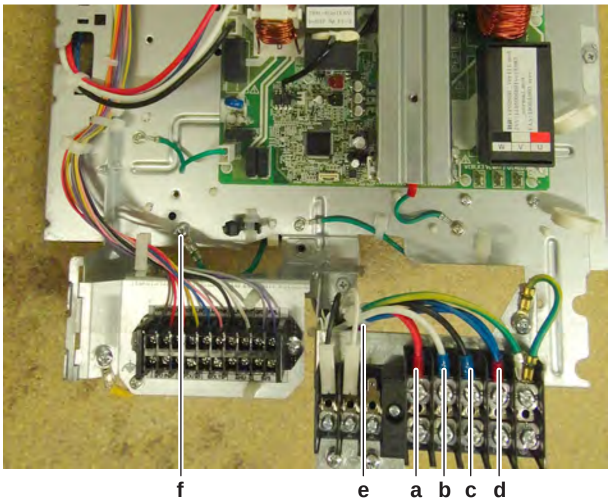
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 Remove the switch box, see "4.18 Plate work" [▶ 260].

2 Loosen the screws and disconnect the wires L1B, L2B, L3B and NB from the main power supply terminal X1M.



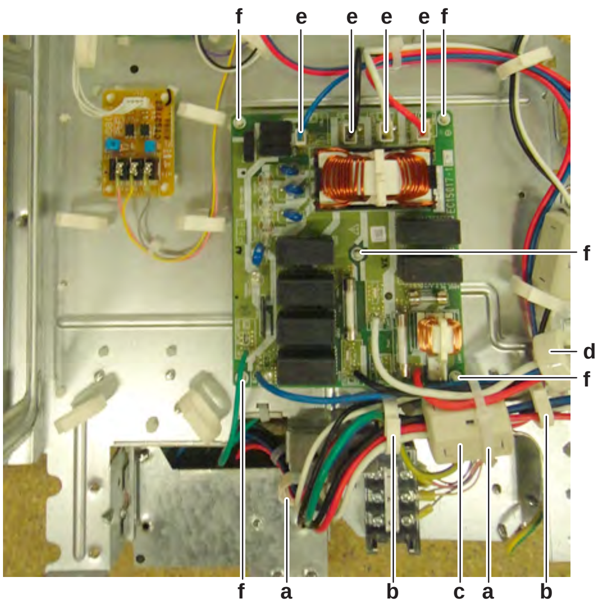
a L1B
b L2B
c L3B
d NB
e Tie strap
f Ground wire fixation screw

3 Cut the tie strap that fixes the wires.

4 Remove the screw and disconnect the ground wire from the switch box.

5 Route the wires L1B, L2B, L3B, NB and ground wire to the back side of the switch box.

6 Cut the 2 tie straps.



a Tie strap
b Wire clamp
c Ferrite core
d Second ferrite core
e Faston connector
f PCB support

7 Remove the wiring from the wire clamps.

8 Unlock the ferrite core and remove it from the wiring.

9 Route the wiring through the second ferrite core.

10 Disconnect all Faston connectors from the noise filter PCB.

11 Carefully pull the PCB at the side and unlatch the PCB supports one by one using a small pair of pliers.

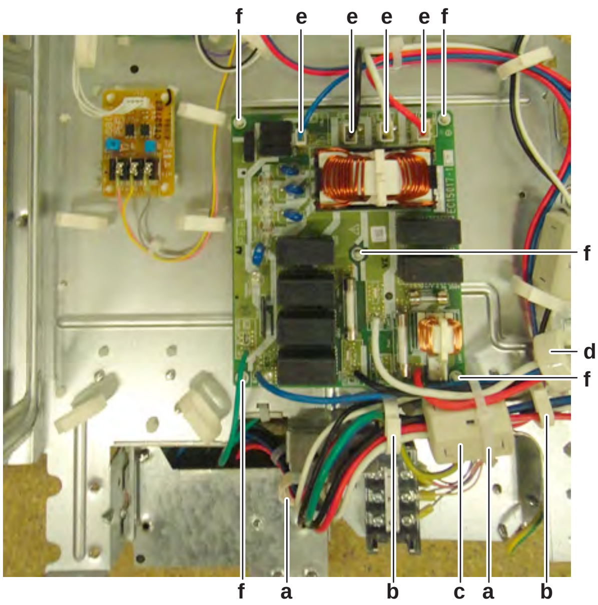
12 Remove the noise filter PCB from the switch box.

13 To install the new noise filter PCB, see "4.16.2 Repair procedures" [▶ 249].

To install the noise filter PCB

1 Install the noise filter PCB on its correct location on the back side of the switch box.

2 Install the noise filter PCB on the PCB supports.



a	Tie strap
b	Wire clamp
c	Ferrite core
d	Second ferrite core
e	Faston connector
f	PCB support

3 Connect all Faston connectors to the noise filter PCB.

4 Route the wires L1B, L2B, L3B and NB through the second ferrite core.

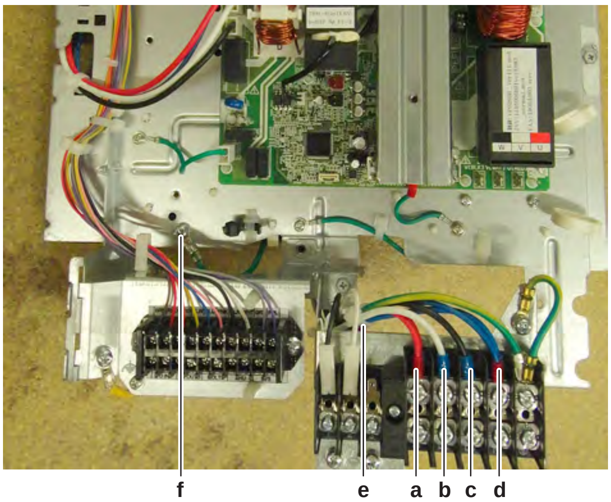
5 Install and lock the ferrite core on the wiring.

6 Route the wiring though the wire clamps.

7 Fix the wiring and ferrite core to the switch box using 2 new tie straps.

8 Route the wires L1B, L2B, L3B, NB and ground wire to the front side of the switch box.

9 Install the ground wire on the switch box. Install and tighten the screw.



a	L1B
b	L2B
c	L3B
d	NB
e	Tie strap
f	Ground wire fixation screw

10 Connect the wires L1B, L2B, L3B and NB to the main power supply terminal X1M.

11 Fix the wiring to the switch box using a new tie strap.

12 Install the switch box in the unit, see "4.18 Plate work" [▶ 260].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "4.16.1 Checking procedures" [▶ 245] of the noise filter PCB and continue with the next procedure.

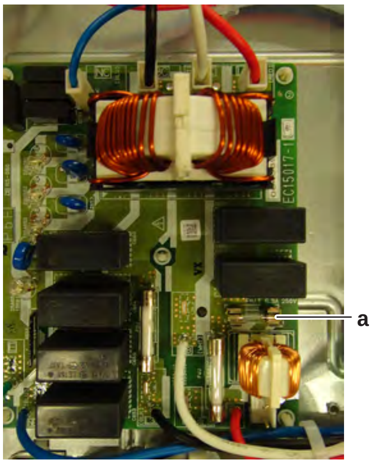
To remove a fuse of the noise filter PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 Remove the fuse from the PCB.



a Fuse F1U

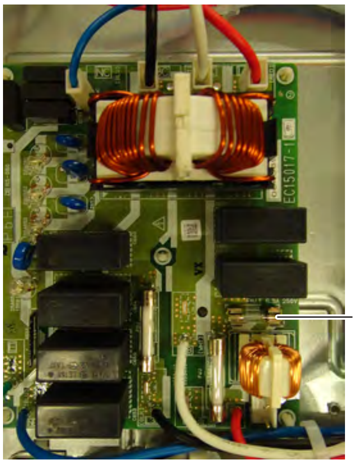
2 To install a fuse on the noise filter PCB, see "4.16.2 Repair procedures" [▶ 249].

To install a fuse on the noise filter PCB

> **WARNING**
>
> For continued protection against risk of fire, replace only with same type and rating of fuse.

1 Install the fuse on the correct location on the PCB.

> **CAUTION**
>
> Make sure the fuse is plugged-in correctly (contact with the fuse holder).



a Fuse F1U

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "4.16.1 Checking procedures" [▸ 245] of the noise filter PCB and continue with the next procedure.

4.17 Outdoor unit fan motor

4.17.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a mechanical check of the propeller fan blade assembly

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▸ 260].

1. If propeller fan blade touches the bellmouth, check if the fan motor is correctly mounted on its base, see "4.17.2 Repair procedures" [▸ 255].
2. Check the state of the propeller fan blade assembly for damage, deformations and cracks.

Is the propeller fan blade assembly damaged?	Action
Yes	Replace the propeller fan blade assembly, see "4.17.2 Repair procedures" [▸ 255].
No	Perform a mechanical check of the DC fan motor assembly, see "4.17.1 Checking procedures" [▸ 253].

To perform a mechanical check of the DC fan motor assembly

Prerequisite: First perform a mechanical check of the propeller fan blade assembly, see "4.17.1 Checking procedures" [▸ 253].

1 Visually check:
   - For any burnt-out part or wire. If found, replace the fan motor, see "4.17.2 Repair procedures" [▶ 255].
   - That fan motor fixation bolts are correctly installed and fixed. Correct as needed.

2 Manually rotate the fan motor shaft. Check that it rotates smoothly.

3 Check the friction of the DC fan motor shaft bearing.

Is the DC fan motor shaft friction normal?	Action
Yes	Perform an electrical check of the DC fan motor assembly, see "4.17.1 Checking procedures" [▶ 253].
No	Replace the DC fan motor assembly, see "4.17.2 Repair procedures" [▶ 255].

To perform an electrical check of the DC fan motor assembly

1 First perform a mechanical check of the DC fan motor assembly, see "4.17.1 Checking procedures" [▶ 253].

> **INFORMATION**
>
> Check the DC fan motor power supply (voltage) circuit on the PCB.

2 Turn ON the power of the unit.

3 Activate `Cooling` or `Heating` operation via the user interface.

4 Check the functioning of the outdoor unit fan.

Outdoor unit fan …	Action
Rotates continuously (without interruption)	DC fan motor assembly is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
Does not rotate or rotates for a short time	Continue with the next step.

5 Turn OFF the unit via the user interface.

6 Turn OFF the respective circuit breaker.

> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

7 Check that the DC fan motor connector is properly connected to the PCB.

8 Unplug the DC fan motor connector and measure the resistance between the pins 1-2, 1-3, and 2-3 of the DC fan motor connector.

   Result: All measurements MUST be 7.6 Ω±10% at 20°C.

> **INFORMATION**
>
> Winding resistance values above are given for reference. You should NOT be reading a value in kΩ or a short-circuit. Make sure that the propeller fan blade does NOT rotate, as this could affect resistance measurements.

9 Set the Megger voltage to 500 V DC or 1000 V DC.

10 Measure the insulation resistance for the motor terminals. Measurements between each phase and fan motor body (e.g. axle) MUST be >1000 MΩ.

Are the measured resistance values correct?	Action
Yes	Perform a check of the main PCB, see "4.15 Main PCB" [▸ 212].
No	Replace the DC fan motor, see "4.17.2 Repair procedures" [▸ 255].

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.17.2 Repair procedures

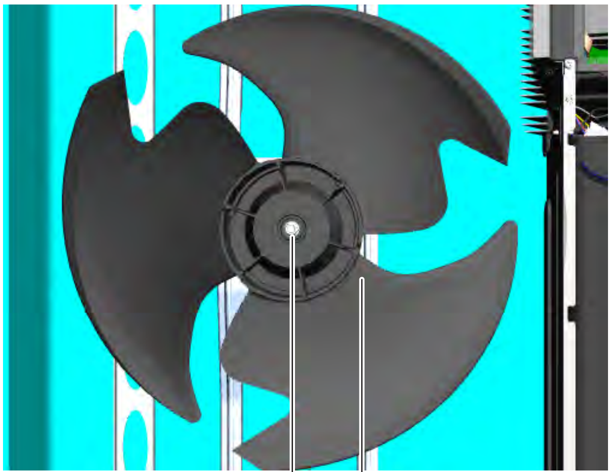
To remove the propeller fan blade assembly

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1 Remove the required plate work, see "4.18 Plate work" [▸ 260].

2 Remove the nut that fixes the propeller fan blade assembly.



a Nut
b Propeller fan blade assembly

3 Pull and remove the propeller fan blade assembly from the DC fan motor assembly.

INFORMATION

Use a pulley remover if the propeller cannot be removed manually.

4 To install the propeller fan blade assembly, see "4.17.2 Repair procedures" [▶ 255].

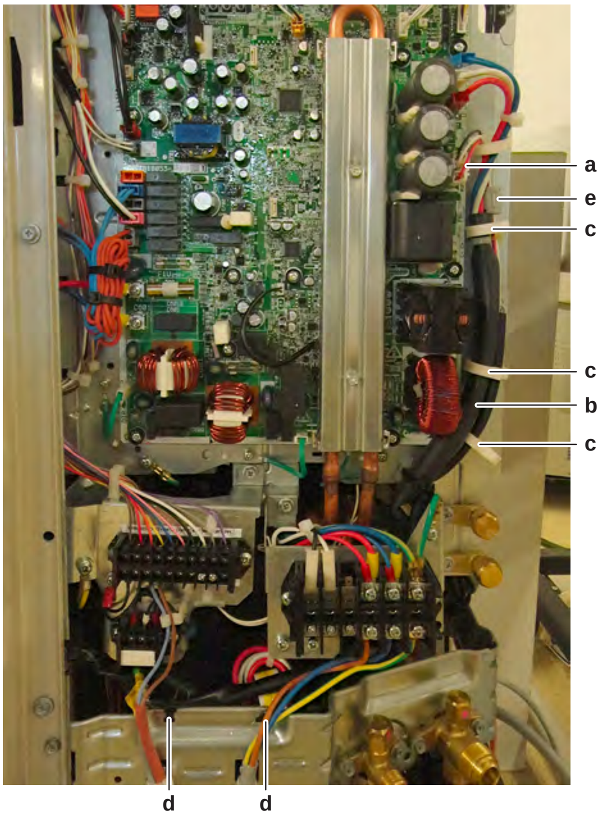
To remove the DC fan motor assembly

1 Remove the propeller fan blade assembly from the DC fan motor assembly, see "4.17.2 Repair procedures" [▶ 255].

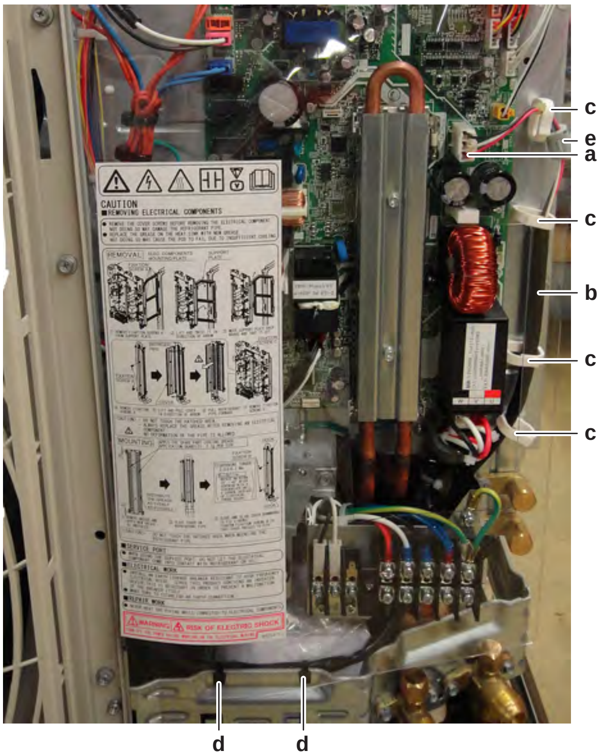
DANGER: RISK OF ELECTROCUTION

Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

2 Disconnect the DC fan motor connector X106A from the main PCB.



B



A RXYSA4~6A7V1B unit
B RXYSA4~6A7Y1B unit
a DC fan motor connector X106A
b DC fan motor harness
c Wire clamp
d Tie strap
e Ferrite core

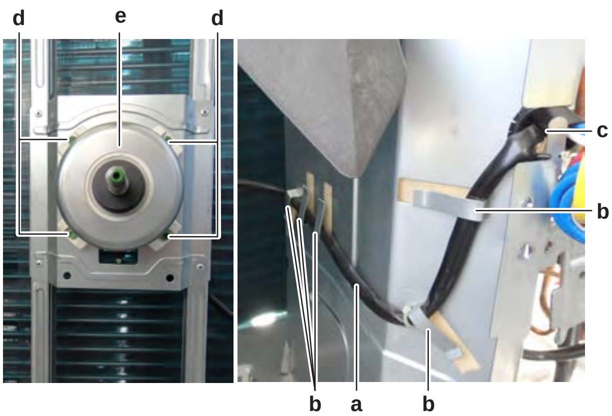
3 Remove the DC fan motor harness from the wire clamps on the left side of the main PCB.

4 Cut the 2 tie straps that fix the DC fan motor harness to the stop valves fixation plate.

5 Unlock the ferrite core to remove the DC fan motor harness from the core.

6 I applicable; cut the tie strap(s) that tie up the excessive DC fan motor harness.

7 Slightly bend the harness retainers to detach the DC fan motor harness.



a DC fan motor harness
b Harness retainer
c Opening in partition plate
d Screw
e DC fan motor assy

8 Guide the DC fan motor harness though the opening in the partition plate.

9 Remove the 4 screws that fix the DC fan motor assembly.

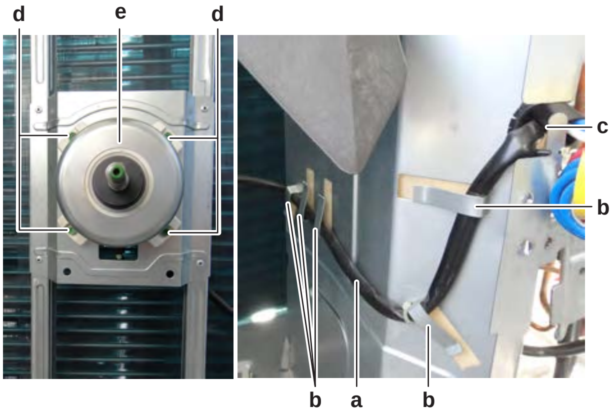
10 Remove the DC fan motor assembly from the unit.

11 To install the DC fan motor assembly, see "4.17.2 Repair procedures" [▶ 255].

To install the DC fan motor assembly

1 Install the DC fan motor assembly in the correct location.

2 Fix the DC fan motor assembly to the unit by tightening the screws.



a DC fan motor harness
b Harness retainer
c Opening in partition plate
d Screw
e DC fan motor assy

3 Route the DC fan motor harness through the opening in the partition plate.

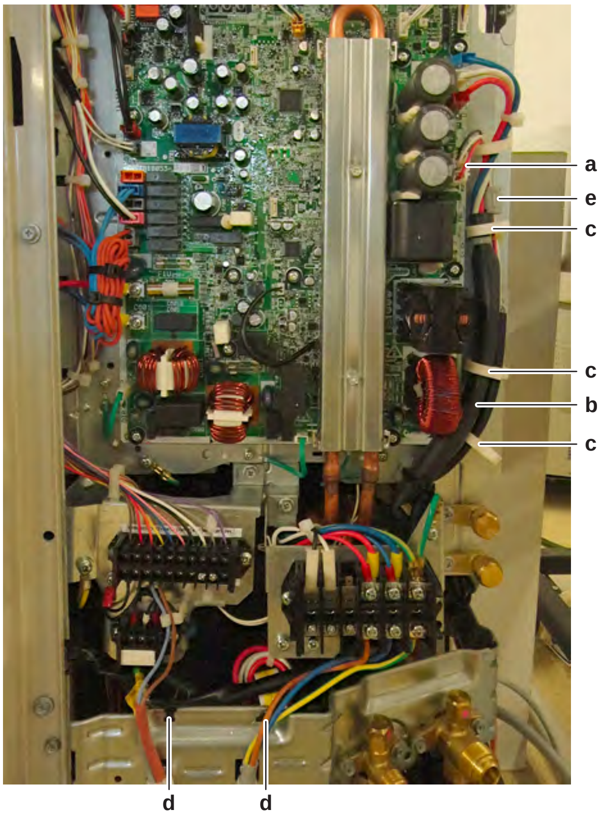
4 Route the DC fan motor harness through the harness retainers and bend the harness retainers to attach the DC fan motor harness.

CAUTION

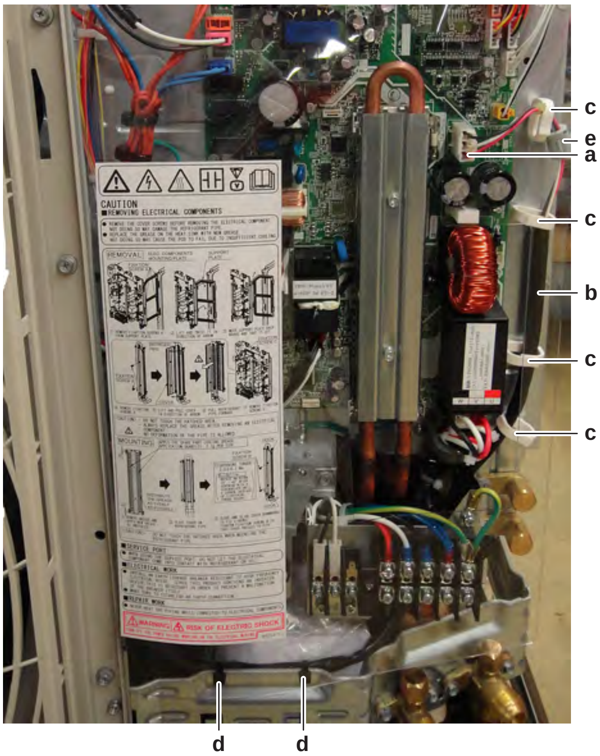
Tie up the excessive DC fan motor harness using the tie straps to avoid the harness from being cut by the propeller fan blade.

5 Route the DC fan motor harness through the ferrite core and lock the ferrite core.

A



B



A RXYSA4~6A7V1B unit
B RXYSA4~6A7Y1B unit
a DC fan motor connector X106A
b DC fan motor harness
c Wire clamp
d Tie strap
e Ferrite core

6 Route the DC fan motor harness through the wire clamps on the left side of the main PCB.

7 Connect the DC fan motor connector to the connector X106A on the main PCB.

8 Install 2 new tie straps to fix the DC fan motor harness to the stop valves fixation plate.

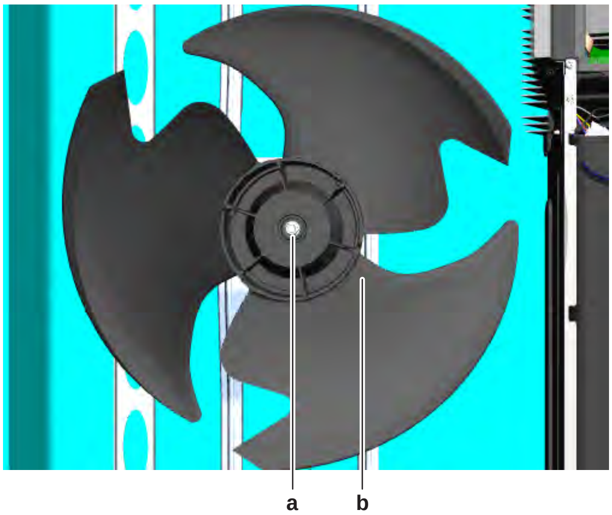
9 Install the propeller fan blade assembly, see "4.17.2 Repair procedures" [▸ 255].

To install the propeller fan blade assembly

1 Install the propeller fan blade assembly on the DC fan motor assembly.

> **CAUTION**
>
> Do NOT install a damaged propeller fan blade assembly.

2 Install and tighten the nut to fix the propeller fan blade assembly.



a Nut
b Propeller fan blade assembly

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "4.17.1 Checking procedures" [▸ 253] of the outdoor unit fan motor and continue with the next procedure.

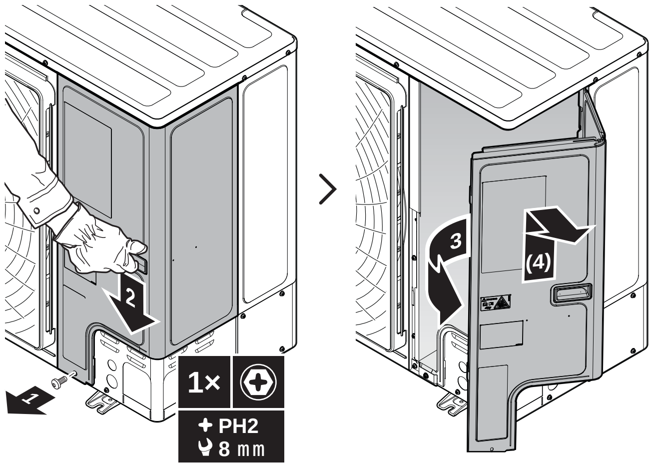
4.18 Plate work

4.18.1 Outdoor unit

To open the outdoor unit

> **DANGER: RISK OF ELECTROCUTION**

> **DANGER: RISK OF BURNING/SCALDING**



To remove the top plate

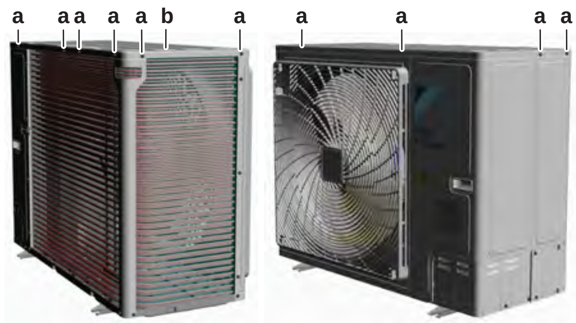
> **INFORMATION**
>
> This procedure is just an example and may differ on some details for your actual unit.

Prerequisite: Stop the unit operation via the user interface.

1 Turn OFF the respective circuit breaker.

> **DANGER: RISK OF ELECTROCUTION**
>
> Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Loosen and remove the screws that fix the top plate.



a Screw
b Top plate

3 Remove the top plate.

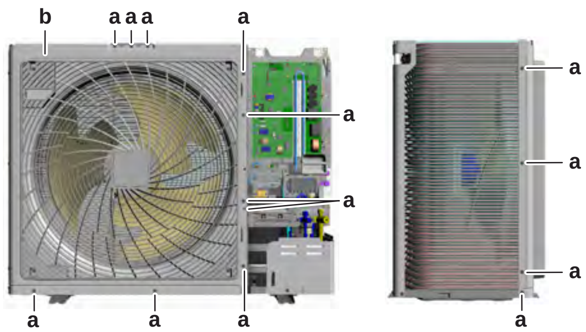
To remove the front plate

> **INFORMATION**
>
> This procedure is just an example and may differ on some details for your actual unit.

Prerequisite: Open the outdoor unit, see "4.18 Plate work" [▶ 260].

Prerequisite: Remove the top plate, see "4.18 Plate work" [▶ 260].

1 Loosen and remove the screws that fix the front plate.



a Screw
b Front plate

2 Remove the front plate.

To access the back side of the switch box

> **INFORMATION**
>
> Pictures in this procedure are for the RXYSA4~6A7Y1B unit. Procedure for RXYSA4~6A7V1B unit is similar.

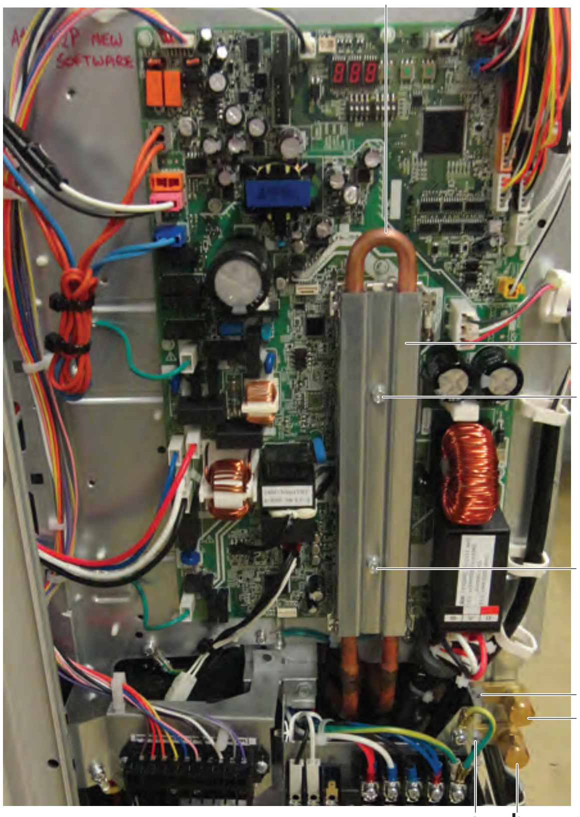
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1 Remove the required plate work, see "4.18 Plate work" [▶ 260].

> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

2 Remove the 2 bolts to disconnect the refrigerant charge port and service port from the switch box.



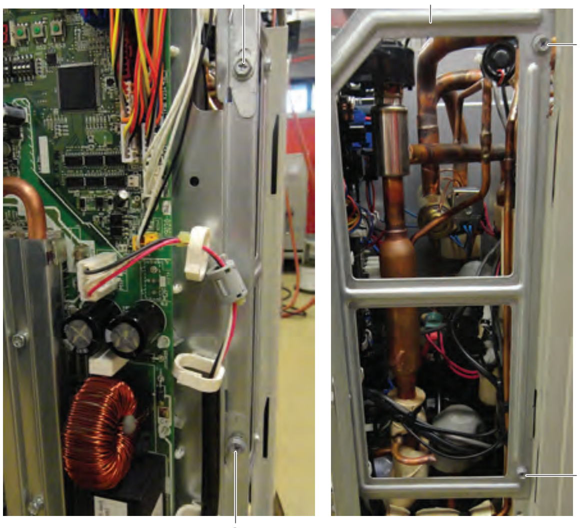
a Bolt
b Refrigerant charge port
c Service port
d Bolt (heat sink cover)
e Heat sink cover
f Refrigerant pipe

3 Remove the 2 bolts from the main PCB heat sink cover.

4 Lift and pull the cover to remove it from the heat sink.

5 Carefully pull the refrigerant pipe forward to separate it from the heat sink on the switch box.

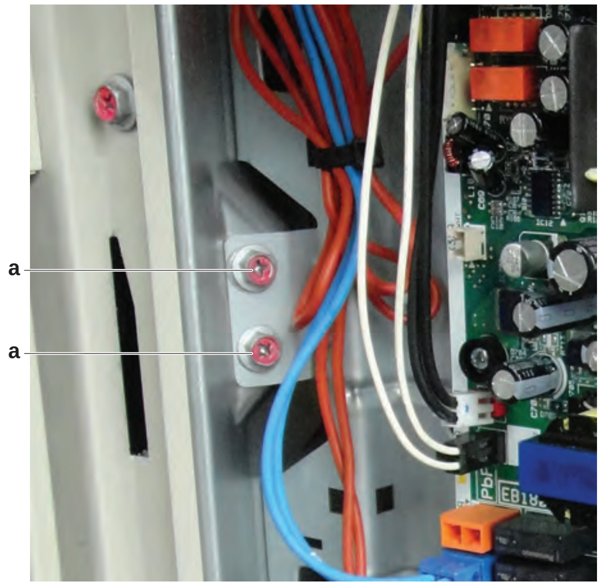
6 Remove the 4 bolts that fix the switch box supporting plate.



a Bolt
b Switch box supporting plate

7 Lift and rotate (unhook from the switch box) the switch box supporting plate from the outdoor unit.

8 Remove the 2 switch box fixation bolts.



a Fixation bolt

9 Lift the switch box to unhook it from the retainers and put the switch box aside so that the PCB's on the back side are easily accessible.

> **CAUTION**
>
> Take care that the thermal interface grease (applied on the heat sink) does NOT smear everything.

> **CAUTION**
>
> Take care NOT to damage the wiring or cables when repositioning the switch box.

To remove the switch box

RXYSA4~6A7V1B unit

Prerequisite: Stop the unit operation via the user interface.

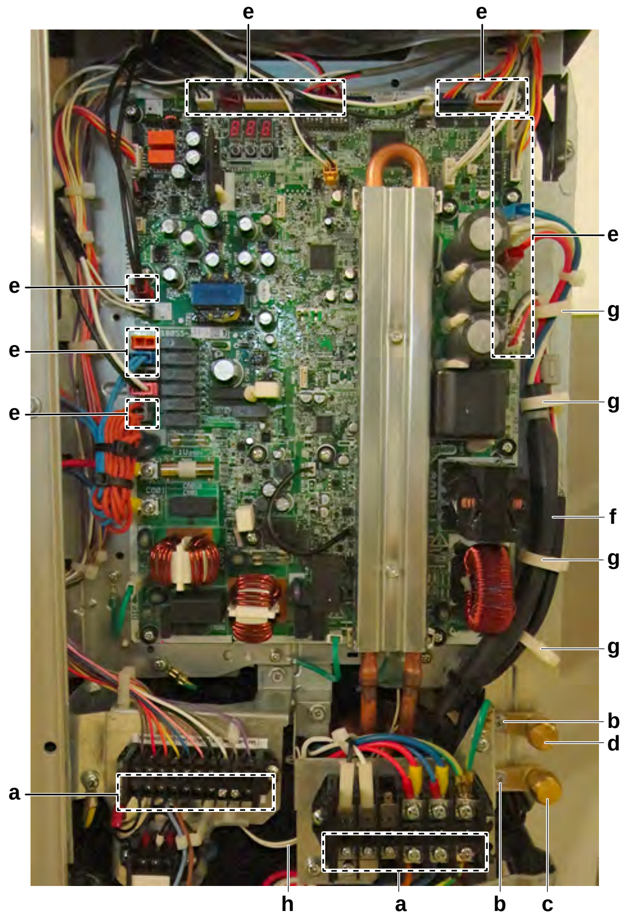
Prerequisite: Turn OFF the respective circuit breaker.

1 Remove the required plate work, see "4.18 Plate work" [▶ 260].

> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

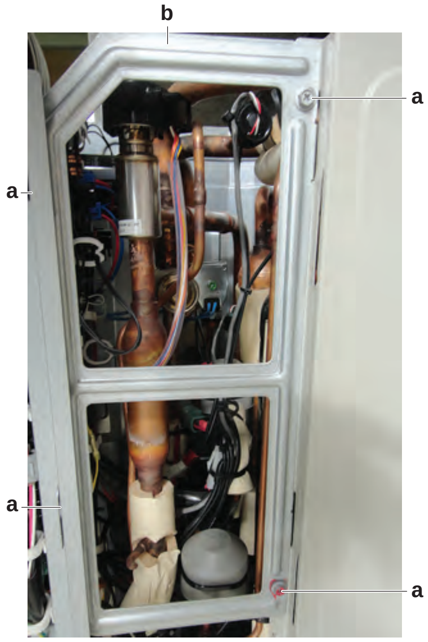
2 Remove the protective cover sheet.

3 Disconnect all field wiring (electrical power supply wiring, communication wiring, …) from the wire terminals.



a Field wiring
b Bolt
c Refrigerant charge port
d Service port
e Connector
f Compressor wiring harness + DC fan motor harness
g Wire clip
h Compressor thermal protector connector

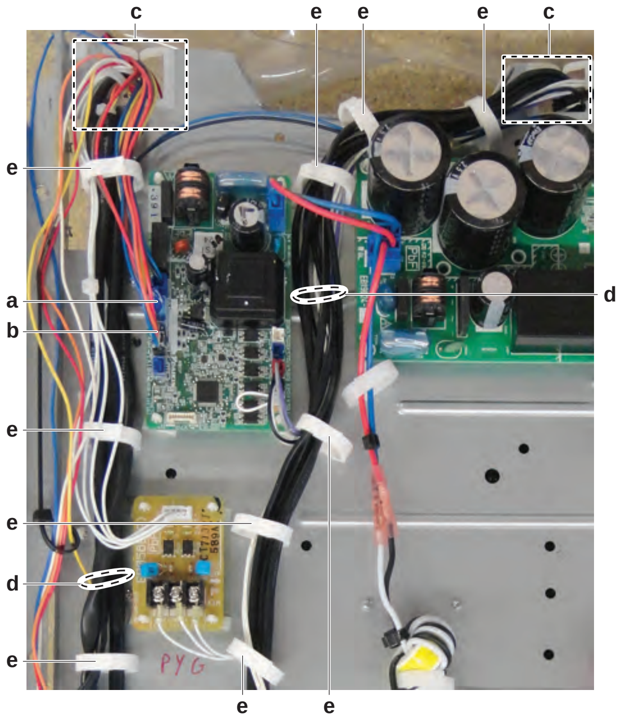
4. Remove the 2 bolts to disconnect the refrigerant charge port and service port from the switch box.
5. Disconnect the indicated connectors from the main PCB.
6. If applicable, cut the tie straps that fix the wiring on the upper left and right side of the switch box.
7. Remove the DC fan motor harness and compressor wiring harness from the wire clips and leave them aside.
8. Disconnect the compressor thermal protector connector.
9. Remove the 4 bolts that fix the switch box supporting plate.



a Bolt
b Switch box supporting plate

10 Lift and rotate (unhook from the switch box) the switch box supporting plate from the outdoor unit.

11 Disconnect the expansion valve connectors X8A and X9A from the sub PCB on the back side of the switch box.



a Connector X8A
b Connector X9A
c Wiring to be routed towards back side of switch box
d Wiring to be removed from wire clips
e Wire clip

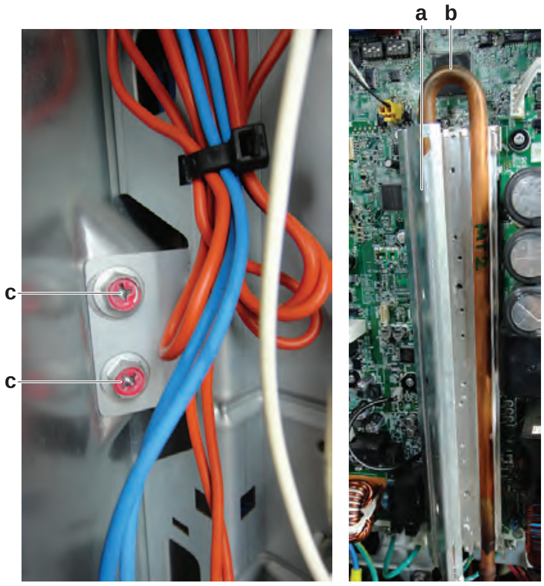
12 Route all wiring on the upper left and right side of the switch box through the holes towards the back side of the switch box.

13 Remove all wiring from the wire clips on the back side of the switch box.

> **INFORMATION**
>
> Before removing the wiring from the wire clamps, label the wiring (routing) for easier installation.

14 Remove the 2 bolts from the main PCB heat sink cover.

15 Lift and pull the cover to remove it from the heat sink.



a Heat sink cover
b Refrigerant pipe
c Fixation bolt

16 Carefully pull the refrigerant pipe forward to separate it from the heat sink on the switch box.

17 Remove the 2 switch box fixation bolts.

18 Lift the switch box to unhook it from the retainers and remove the switch box from the unit.

> **CAUTION**
>
> Take care that the thermal interface grease (applied on the heat sink) does NOT smear everything.

19 To install the switch box, see "4.18 Plate work" [▶ 260].

RXYSA4~6A7Y1B unit

Prerequisite: Stop the unit operation via the user interface.

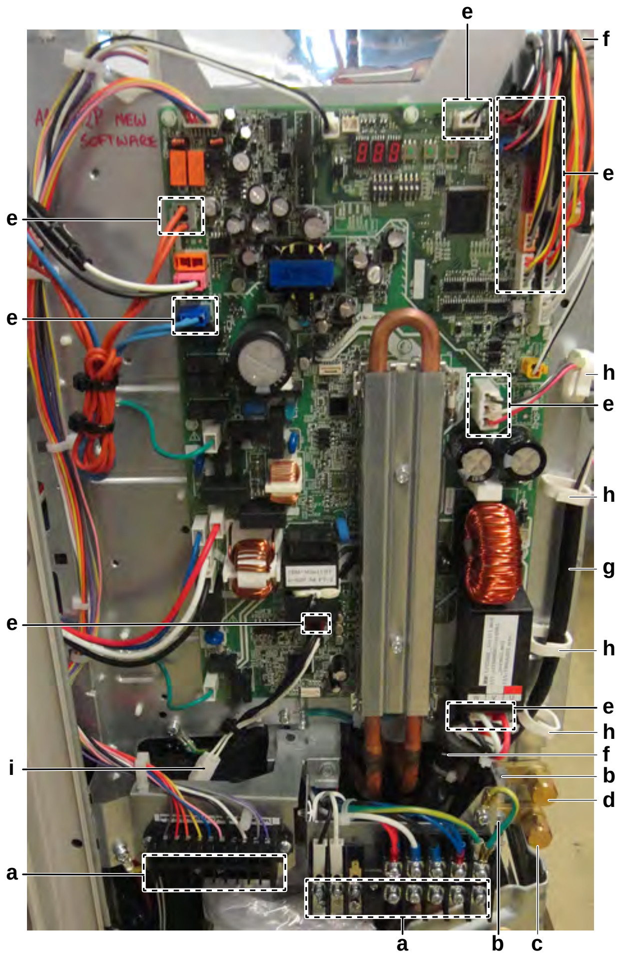
Prerequisite: Turn OFF the respective circuit breaker.

1 Remove the required plate work, see "4.18 Plate work" [▶ 260].

> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

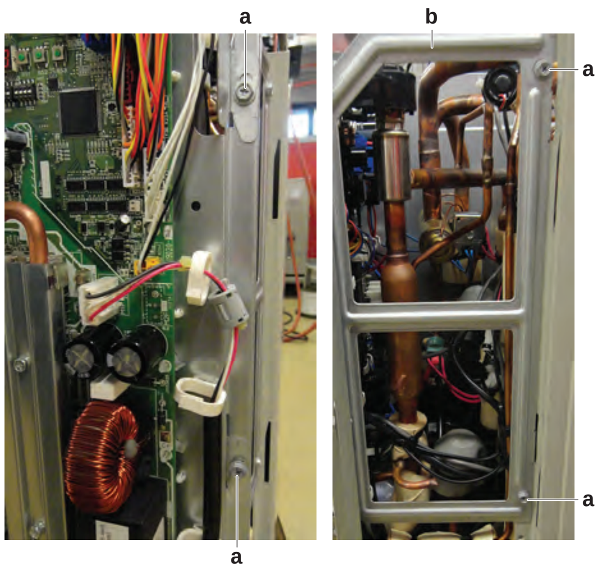
2 Remove the protective cover sheet.

3 Disconnect all field wiring (electrical power supply wiring, communication wiring, ...) from the wire terminals.



a Field wiring
b Bolt
c Refrigerant charge port
d Service port
e Connector
f Tie strap
g DC fan motor harness
h Wire clip
i Compressor thermal protector connector

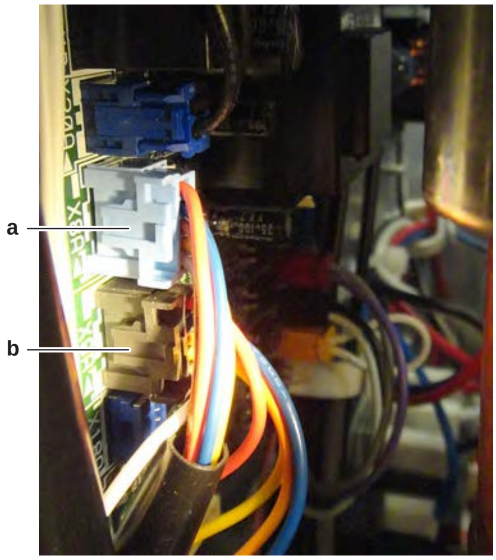
4. Remove the 2 bolts to disconnect the refrigerant charge port and service port from the switch box.
5. Disconnect the indicated connectors from the main PCB.
6. Cut the 2 tie straps.
7. Remove the DC fan motor harness from the wire clips and leave it aside.
8. Disconnect the compressor thermal protector connector.
9. Remove the 4 bolts that fix the switch box supporting plate.



a Bolt
b Switch box supporting plate

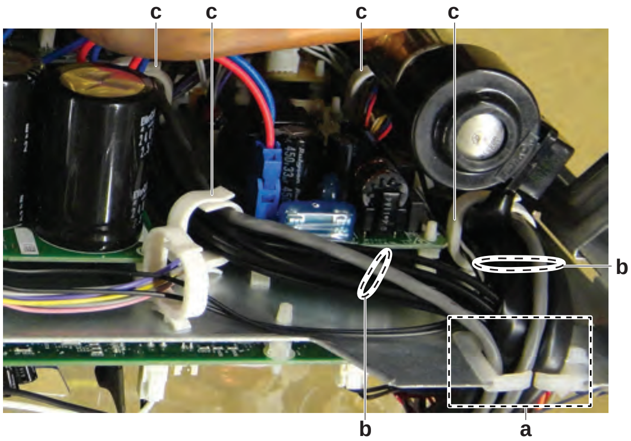
10 Lift and rotate (unhook from the switch box) the switch box supporting plate from the outdoor unit.

11 Disconnect the expansion valve connectors X8A and X9A from the sub PCB on the back side of the switch box.



a Connector X8A
b Connector X9A

12 Route all wiring on the upper left side of the switch box through the hole towards the back side of the switch box.



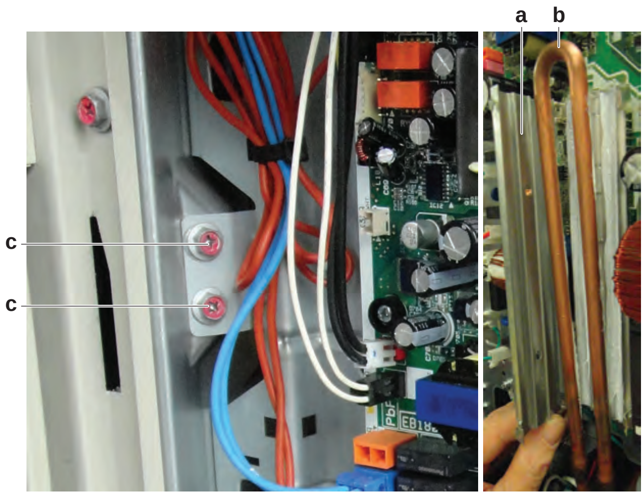
a Wiring to be routed towards back side of switch box
b Wiring to be removed from wire clips
c Wire clip

13 Remove all wiring from the wire clips on the back side of the switch box.

> **INFORMATION**
>
> Before removing the wiring from the wire clamps, label the wiring (routing) for easier installation.

14 Remove the 2 bolts from the main PCB heat sink cover.

15 Lift and pull the cover to remove it from the heat sink.



a Heat sink cover
b Refrigerant pipe
c Fixation bolt

16 Carefully pull the refrigerant pipe forward to separate it from the heat sink on the switch box.

17 Remove the 2 switch box fixation bolts.

18 Lift the switch box to unhook it from the retainers and remove the switch box from the unit.

> **CAUTION**
>
> Take care that the thermal interface grease (applied on the heat sink) does NOT smear everything.

19 To install the switch box, see "4.18 Plate work" [▶ 260].

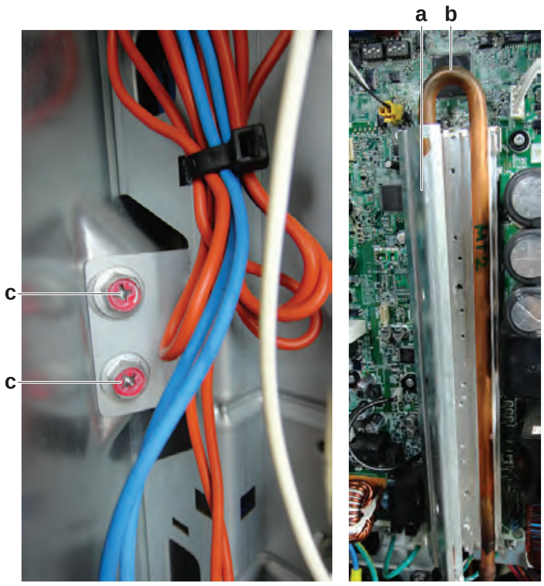
To install the switch box

RXYSA4~6A7V1B unit

1. Use a piece of cloth to remove the old thermal interface grease and clean the heat sink surface(s) and refrigerant pipe.
2. Apply new thermal interface grease to the refrigerant pipe contact surface of the heat sink (on the main PCB). Distribute the grease as evenly as possible.

> **CAUTION**
>
> ALWAYS apply new grease on the PCB heat sink. NOT doing so may cause the PCB to fail due to insufficient cooling.

3. Install the switch box on the correct location in the outdoor unit. Take the following into account:
   - Route the DC fan motor harness and compressor wiring harness (Faston connectors) in front of the switch box to easily connect it later on.
   - Guide the sheet metal plate of the refrigerant charge port and service port in front of the switch box mounting plate to correctly install and avoid pipe bending.
   - Slightly tilt the refrigerant pipe forward (±10°) and avoid that the thermal interface grease gets smeared everywhere.
   - Hook the switch box mounting plate in the support plate on the right hand side.
4. Install and tighten the 2 switch box fixation bolts.

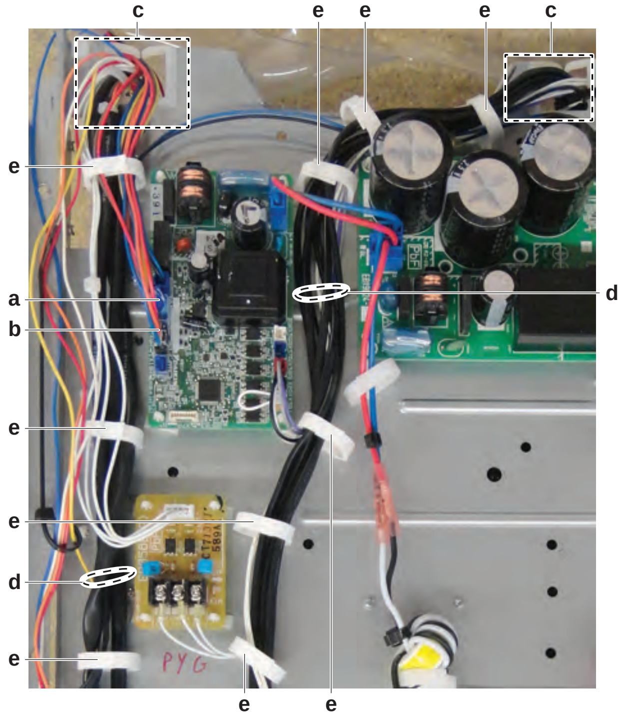


a Heat sink cover
b Refrigerant pipe
c Fixation bolt

5. Correctly install the refrigerant pipe on the heat sink (proper contact with the thermal interface grease on the heat sink of the switch box). Install the heat sink cover.
6. Install the 2 bolts on the heat sink cover and tighten the bolts.

> **INFORMATION**
>
> Make sure that the refrigerant pipe is correctly installed on the main PCB heat sink. Do NOT touch the part of the refrigerant pipe that is mounted in the heat sink.

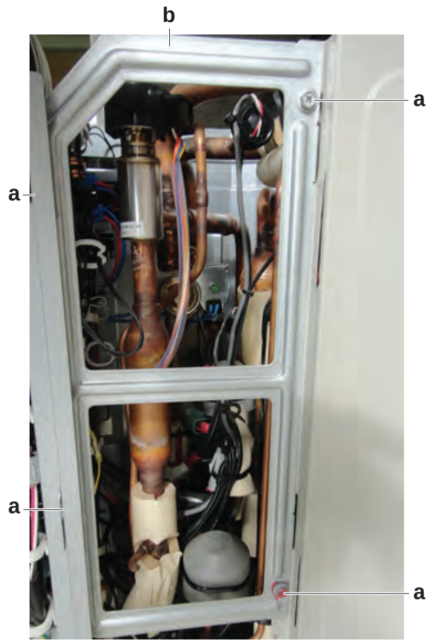
7 Route the wiring inside the wire clips on the back side of the switch box and route them through the holes (left and right upper side of switch box) towards the front of the switch box.



a Connector X8A
b Connector X9A
c Wiring to be routed through the holes towards front of switch box
d Wiring to be routed inside wire clips
e Wire clip

8 Connect the expansion valve connectors to the connectors X8A and X9A on the sub PCB.

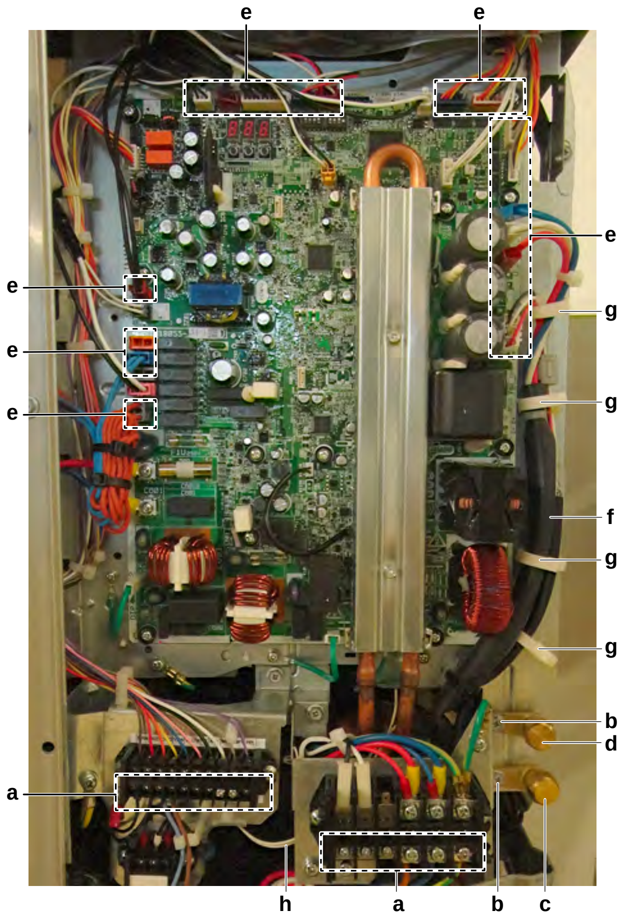
9 Install the hooks of the switch box supporting plate in the openings of the switch box.



a Bolt
b Switch box supporting plate

10 Install and tighten the 4 bolts to fix the switch box supporting plate to the unit.

11 Route the DC fan motor harness and compressor harness inside the wire clips on the left hand side of the switch box.



a	Field wiring
b	Bolt
c	Refrigerant charge port
d	Service port
e	Connector
f	Compressor wiring harness + DC fan motor harness
g	Wire clip
h	Compressor thermal protector connector

12 Connect all connectors to the main PCB.

WARNING

When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

13 Connect the compressor thermal protector.

14 If applicable, install new tie straps to fix the wiring at the upper left and right side of the switch box.

15 Install the refrigerant charge port and service port to the switch box. Install and tighten the 2 bolts.

16 Connect all field wiring (electrical power supply wiring, communication wiring, ...) to the wire terminals.

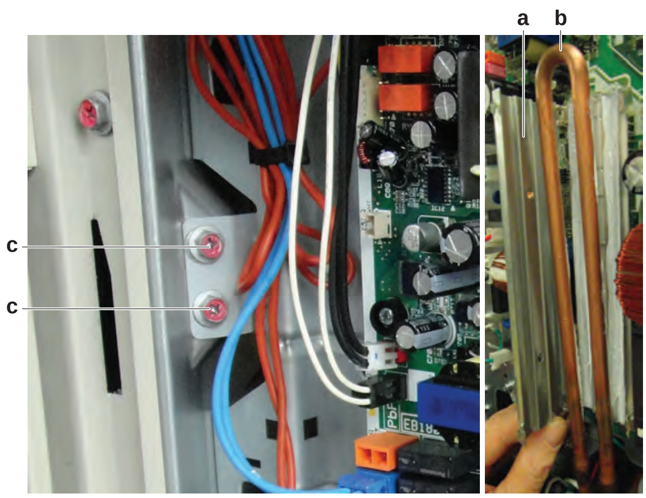
17 Install the protective cover sheet.

RXYSA4~6A7Y1B unit

1. Use a piece of cloth to remove the old thermal interface grease and clean the heat sink surface(s) and refrigerant pipe.
2. Apply new thermal interface grease to the refrigerant pipe contact surface of the heat sink (on the main PCB). Distribute the grease as evenly as possible.

> **CAUTION**
>
> ALWAYS apply new grease on the PCB heat sink. NOT doing so may cause the PCB to fail due to insufficient cooling.

3. Install the switch box on the correct location in the outdoor unit. Take the following into account:
   - Route the DC fan motor harness and compressor wiring harness (Faston connectors) in front of the switch box to easily connect it later on.
   - Guide the sheet metal plate of the refrigerant charge port and service port in front of the switch box mounting plate to correctly install and avoid pipe bending.
   - Slightly tilt the refrigerant pipe forward (±10°) and avoid that the thermal interface grease gets smeared everywhere.
   - Hook the switch box mounting plate in the support plate on the right hand side.
4. Install and tighten the 2 switch box fixation bolts.

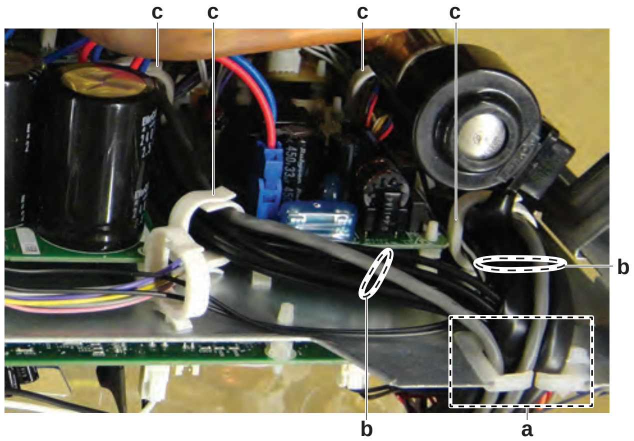


a Heat sink cover
b Refrigerant pipe
c Fixation bolt

5. Correctly install the refrigerant pipe on the heat sink (proper contact with the thermal interface grease on the heat sink of the switch box). Install the heat sink cover.
6. Install the 2 bolts on the heat sink cover and tighten the bolts.

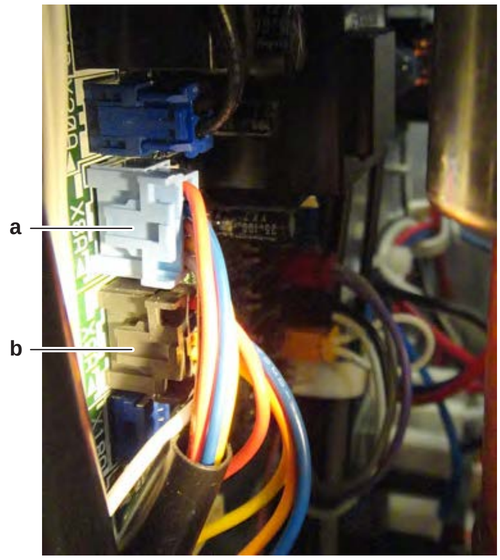
> **INFORMATION**
>
> Make sure that the refrigerant pipe is correctly installed on the main PCB heat sink. Do NOT touch the part of the refrigerant pipe that is mounted in the heat sink.

7. Route the wiring inside the wire clips on the back side of the switch box and route them through the hole (upper side of switch box) towards the front of the switch box.



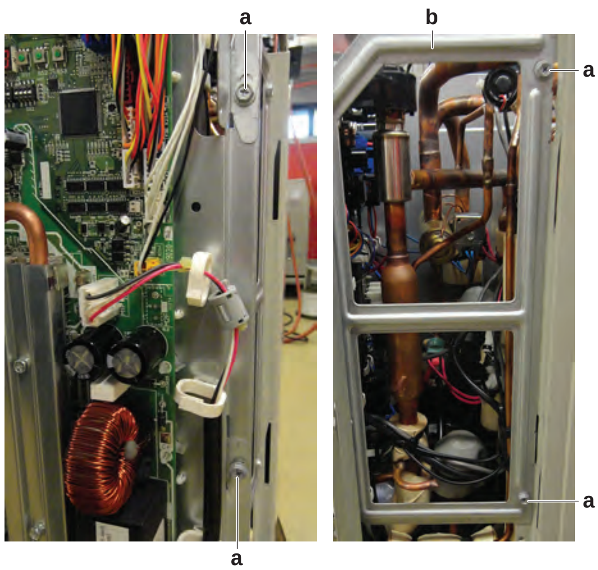
a Wiring to be routed through the hole towards front of switch box
b Wiring to be routed inside wire clips
c Wire clip

8 Connect the expansion valve connectors to the connectors X8A and X9A on the sub PCB.



a Connector X8A
b Connector X9A

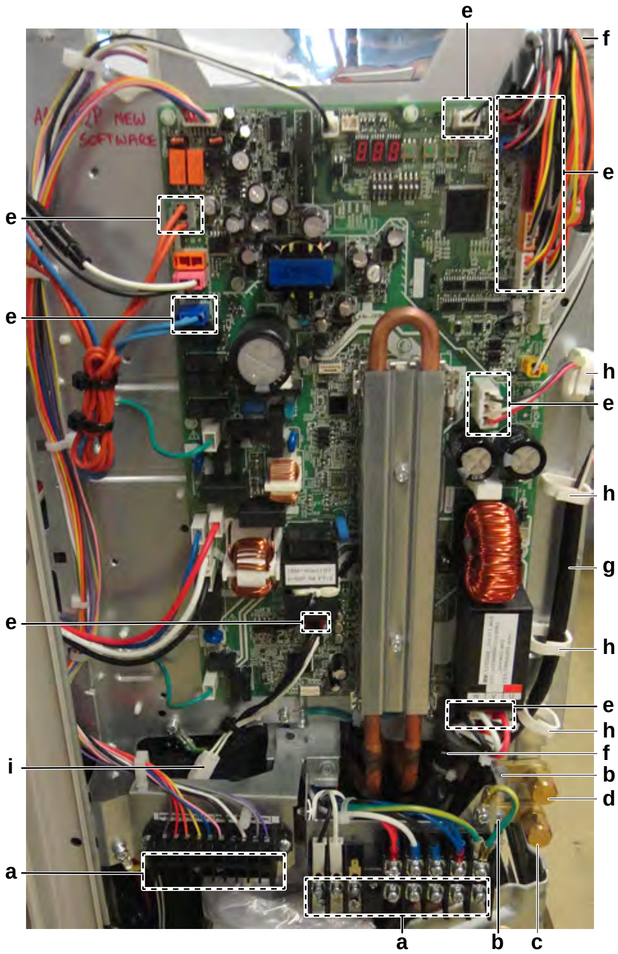
9 Install the hooks of the switch box supporting plate in the openings of the switch box.



a Bolt
b Switch box supporting plate

10 Install and tighten the 4 bolts to fix the switch box supporting plate to the unit.

11 Route the DC fan motor harness inside the wire clips on the left hand side of the switch box.



a Field wiring
b Bolt
c Refrigerant charge port
d Service port
e Connector
f Tie strap
g DC fan motor harness
h Wire clip
i Compressor thermal protector connector

12 Connect all connectors to the main PCB.

> **WARNING**
>
> When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

13 Connect the compressor thermal protector.

14 Install 2 new tie straps to fix the compressor wiring and the wiring at the upper left side of the switch box.

15 Install the refrigerant charge port and service port to the switch box. Install and tighten the 2 bolts.

16 Connect all field wiring (electrical power supply wiring, communication wiring, ...) to the wire terminals.

17 Install the protective cover sheet.

4.18.2 Indoor unit

Not available yet

4.19 Presence sensor PCB

Not available yet

4.20 R32 leak detection sensor

Not available yet

4.21 Refrigerant high pressure sensor

4.21.1 Checking procedures

To perform an electrical check of the refrigerant pressure sensor

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

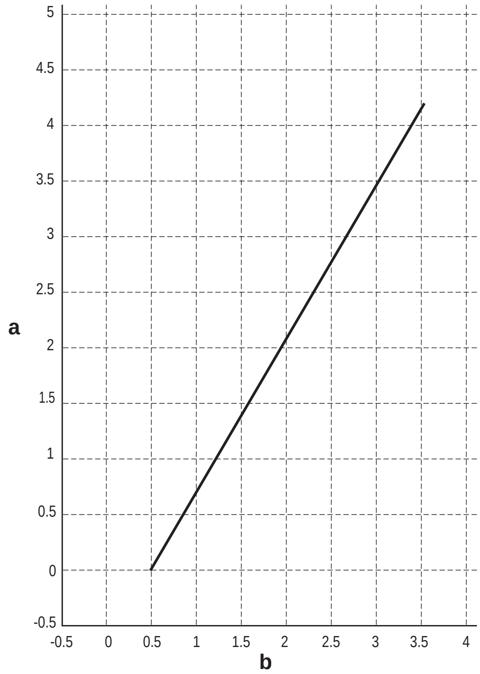
Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 Turn ON the power of the unit.

2 Connect a pressure gauge to the high pressure service port. Read the pressure.

> **INFORMATION**
>
> When the unit is operating in heating mode, the high pressure port is the gas service port. When the unit is operating in cooling (defrost) mode, the high pressure port is the service port which is connected to the refrigerant pipe between the 4-way valve and the heat exchanger.

3 Using the graphic below, determine the expected sensor output voltage based on the pressure obtained in the previous step.



a Detected pressure (MPa)
b Output voltage (V)

V (DC)	Detected pressure MPa
0.5	0.01
0.6	0.15
0.7	0.29
0.8	0.42
0.9	0.56
1.0	0.70
1.1	0.84
1.2	0.98
1.3	1.11
1.4	1.25
1.5	1.39
1.6	1.53
1.7	1.67
1.8	1.80
1.9	1.94
2.0	2.08
2.1	2.22
2.2	2.36
2.3	2.49
2.4	2.63
2.5	2.77
2.6	2.91

V (DC)	Detected pressure MPa
2.7	3.05
2.8	3.18
2.9	3.32
3.0	3.46
3.1	3.60
3.2	3.74
3.3	3.87
3.4	4.01
3.5	4.15
3.6	4.29

4 Measure the voltage on X32A: pins 1–3 (= refrigerant pressure sensor output signal).

5 Check that the measured voltage is in line with the expected voltage through the read refrigerant pressure.

INFORMATION

Connect the service monitoring tool to the unit or use field settings mode 1 (see "7.9 Field settings" [▶ 396]) to monitor the high pressure.

If the measured output voltage value matches the voltage determined through the measured pressure, but the pressure via the service monitoring tool is NOT correct, replace the appropriate PCB.

The measured voltage is inside the expected range?	Action
Yes	Refrigerant pressure sensor is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Continue with the next step.

6 Unplug the refrigerant pressure sensor connector X32A and measure the voltage (power supply) between pins 3–4 on main PCB.

Result: The measured voltage MUST be +5 V DC.

Is the measured voltage +5 V DC?	Then
Yes	Replace the refrigerant pressure sensor, see "4.21.2 Repair procedures" [▶ 279].
No	Perform a check of the main PCB, see "4.15 Main PCB" [▶ 212].

4.21.2 Repair procedures

To remove the refrigerant pressure sensor

Prerequisite: Stop the unit operation via the user interface.

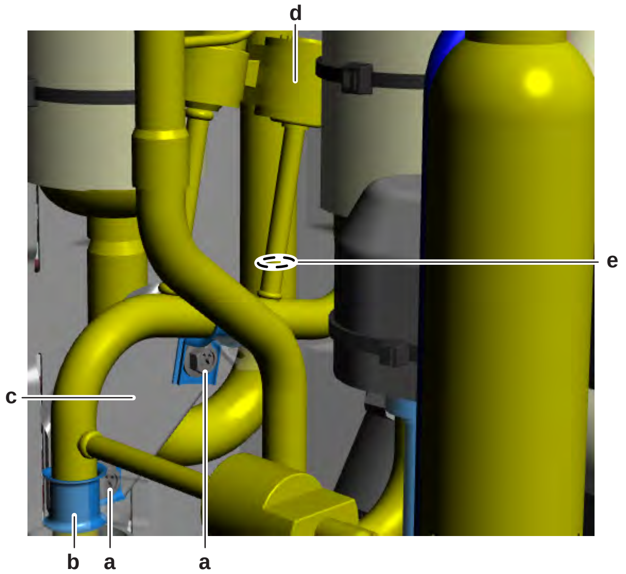
Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "5.2.2 Repair procedures" [▶ 318].

Prerequisite: If needed, remove any parts or insulation to create more space for the removal.

1 Cut all tie straps that fix the refrigerant pressure sensor harness.
2 Disconnect the refrigerant pressure sensor connector from the PCB.
3 Remove the 2 bolts and remove the 2 clamps and bracket from the refrigerant piping.
4 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.
5 Wrap a wet rag around the components near the refrigerant pressure sensor. Heat the brazing point of the refrigerant pressure sensor pipe using an oxygen acetylene torch and remove the refrigerant pressure sensor pipe from the refrigerant pipe using pliers.



a Bolt
b Clamp
c Bracket
d Refrigerant pressure sensor
e Refrigerant pressure sensor pipe

6 Stop the nitrogen supply when the piping has cooled down.
7 Remove the refrigerant pressure sensor.

> **INFORMATION**
>
> It is ALSO possible to cut the component pipe(s) using a pipe cutter. Make sure to remove the remaining component pipe end(s) from the refrigerant pipes by heating the brazing point(s) of the component pipe(s) using an oxygen acetylene torch.

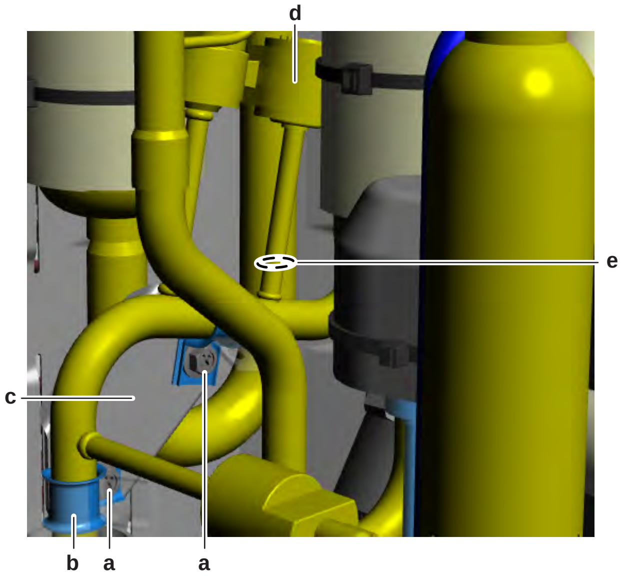
8 Install a plug or cap on the refrigerant piping to avoid dirt or impurities from entering the piping.
9 To install the refrigerant pressure sensor, see "4.21.2 Repair procedures" [▶ 279].

To install the refrigerant pressure sensor

1 Remove the plug or cap from the refrigerant piping and make sure it is clean.
2 Install the refrigerant pressure sensor in the correct location.

3 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

4 Wrap a wet rag around the refrigerant pressure sensor and any other components near the pressure sensor and solder the refrigerant pressure sensor pipe to the refrigerant pipe.



a Bolt
b Clamp
c Bracket
d Refrigerant pressure sensor
e Refrigerant pressure sensor pipe

CAUTION

Overheating the pressure sensor will damage or destroy it.

5 After soldering is done, stop the nitrogen supply after the component has cooled-down.

6 Install the bracket on the refrigerant piping using the 2 clamps. Install and tighten the 2 bolts.

7 Route the refrigerant pressure sensor harness towards the appropriate PCB.

8 Connect the refrigerant pressure sensor connector to the appropriate PCB.

9 Fix the refrigerant pressure sensor harness using new tie straps.

10 Perform a pressure test, see "5.2.1 Checking procedures" [▶ 313].

11 Add refrigerant to the refrigerant circuit, see "5.2.2 Repair procedures" [▶ 318].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.22 Refrigerant low pressure sensor

4.22.1 Checking procedures

To perform an electrical check of the refrigerant pressure sensor

Prerequisite: Stop the unit operation via the user interface.

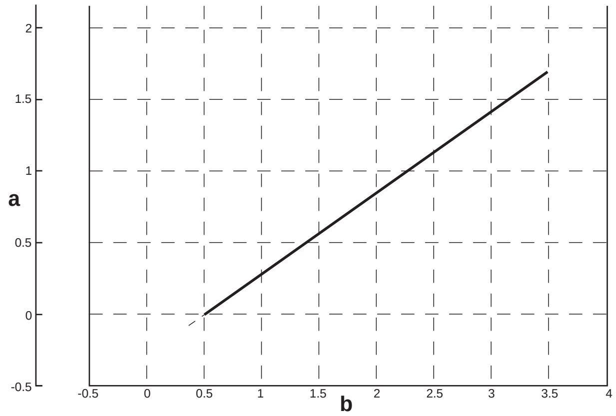
Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 Turn ON the power of the unit.

2 Connect a pressure gauge to the refrigerant charge port. Read the pressure.

3 Using the graphic below, determine the expected sensor output voltage based on the pressure obtained in the previous step.



a Detected pressure (MPa)
b Output voltage (V)

V (DC)	Detected pressure (MPa)
0.3	–0.12
0.4	–0.07
0.5	–0.01
0.6	0.05
0.7	0.10
0.8	0.16
0.9	0.22
1.0	0.28
1.1	0.33
1.2	0.39
1.3	0.45
1.4	0.50
1.5	0.56
1.6	0.62
1.7	0.67
1.8	0.73
1.9	0.79

V (DC)	Detected pressure (MPa)
2.0	0.85
2.1	0.90
2.2	0.96
2.3	1.02
2.4	1.07
2.5	1.13
2.6	1.19
2.7	1.24
2.8	1.30
2.9	1.36
3.0	1.42
3.1	1.47
3.2	1.53
3.3	1.59
3.4	1.64
3.5	1.70

INFORMATION

The refrigerant pressure sensor connector MUST be plugged into the appropriate PCB.

4 Measure the voltage on X31A: pins 2–3 (= refrigerant pressure output signal) on the main PCB.

5 Check that the measured voltage is in line with the expected voltage through the read refrigerant pressure.

INFORMATION

Connect the service monitoring tool to the unit or use field settings mode 1-43 (see "7.9 Field settings" [▸ 396]) to monitor the low pressure.

If the measured output voltage value matches the voltage determined through the measured pressure, but the pressure via the service monitoring tool is NOT correct, replace the applicable PCB.

The measured voltage is inside the expected range?	Action
Yes	Refrigerant pressure sensor is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Continue with the next step.

6 Unplug the refrigerant pressure sensor connector X31A and measure the voltage (power supply) between pins 3–4 on main PCB.

Result: The measured voltage MUST be +5 V DC.

Is the measured voltage +5 V DC?	Then
Yes	Replace the refrigerant pressure sensor, see "4.22.2 Repair procedures" [▸ 284].
No	Perform a check of the main PCB, see "4.15 Main PCB" [▸ 212].

4.22.2 Repair procedures

To remove the refrigerant pressure sensor

Prerequisite: Stop the unit operation via the user interface.

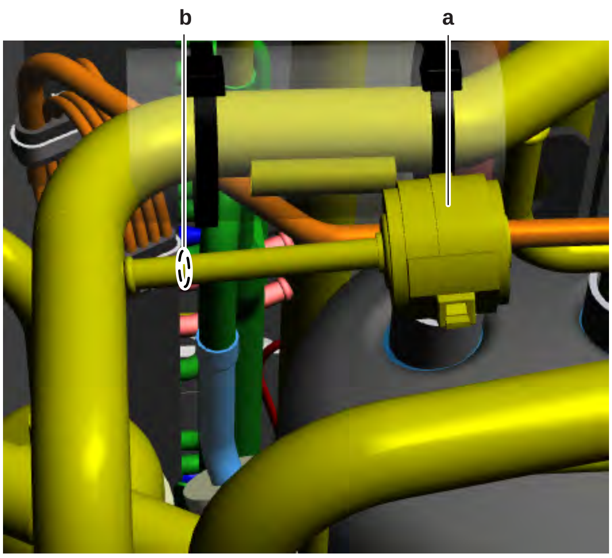
Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▸ 260].

Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "5.2.2 Repair procedures" [▸ 318].

Prerequisite: If needed, remove any parts or insulation to create more space for the removal.

1. Cut all tie straps that fix the refrigerant pressure sensor harness.
2. Disconnect the refrigerant pressure sensor connector from the PCB.
3. Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.
4. Wrap a wet rag around the components near the refrigerant pressure sensor. Heat the brazing point of the refrigerant pressure sensor pipe using an oxygen acetylene torch and remove the refrigerant pressure sensor pipe from the refrigerant pipe using pliers.



a Refrigerant pressure sensor
b Refrigerant pressure sensor pipe

5. Stop the nitrogen supply when the piping has cooled down.
6. Remove the refrigerant pressure sensor.

> **INFORMATION**
>
> It is ALSO possible to cut the component pipe(s) using a pipe cutter. Make sure to remove the remaining component pipe end(s) from the refrigerant pipes by heating the brazing point(s) of the component pipe(s) using an oxygen acetylene torch.

7 Install a plug or cap on the refrigerant piping to avoid dirt or impurities from entering the piping.

8 To install the refrigerant pressure sensor, see "4.22.2 Repair procedures" [▶ 284].

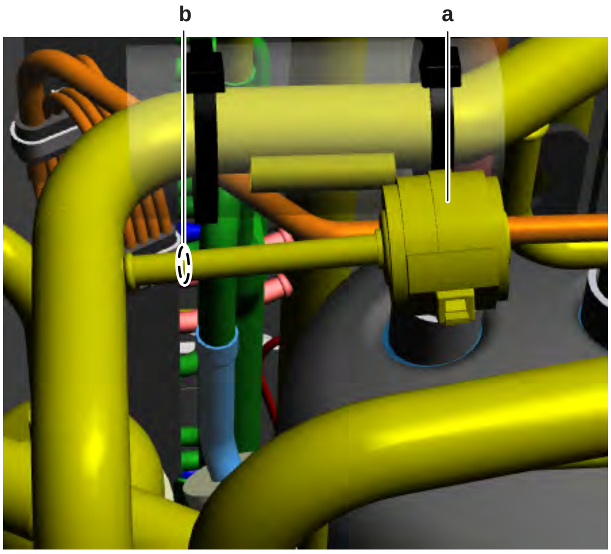
To install the refrigerant pressure sensor

1 Remove the plug or cap from the refrigerant piping and make sure it is clean.

2 Install the refrigerant pressure sensor in the correct location.

3 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

4 Wrap a wet rag around the refrigerant pressure sensor and any other components near the pressure sensor and solder the refrigerant pressure sensor pipe to the refrigerant pipe.



a Refrigerant pressure sensor
b Refrigerant pressure sensor pipe

> **CAUTION**
>
> Overheating the pressure sensor will damage or destroy it.

5 After soldering is done, stop the nitrogen supply after the component has cooled-down.

6 Route the refrigerant pressure sensor harness towards the appropriate PCB.

7 Connect the refrigerant pressure sensor connector to the appropriate PCB.

8 Fix the refrigerant pressure sensor harness using new tie straps.

9 Perform a pressure test, see "5.2.1 Checking procedures" [▶ 313].

10 Add refrigerant to the refrigerant circuit, see "5.2.2 Repair procedures" [▶ 318].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.23 Remote controller user interface

4.23.1 Checking procedures

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

To check the correct functioning of the remote controller user interface

1 Check the display for the following items:

- Pinhole, bright spot, black spot, white spot, black line, white line, foreign particle, bubble:
  The color of a small area is different from the remainder. The phenomenon does NOT change with voltage.
- Contrast variation:
  The color of a small area is different from the remainder. The phenomenon changes with voltage.
- Polarizer defect:
  Scratch, dirt, particle, bubble on polarizer or between polarizer and glass.
- Dot defect:
  The pixel appears bright or dark abnormally.
- Functional defect:
  No display, abnormal display, open or missing segment, short circuit, false viewing direction.
- Glass defect:
  Glass cracks, shaved corner of glass, surplus glass.

2 Check that information is shown correctly and can be navigated through on the display of the remote controller user interface.

3 Check that settings can be changed and saved, see "4.23.2 Repair procedures" [▶ 287].

Does the remote controller user interface function correctly?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Continue with the next step.

4 Perform a check of the communication wiring between the remote controller and the unit PCB.

Communication wiring is correct?	Action
Yes	Replace the remote controller user interface, see "4.23.2 Repair procedures" [▶ 287].
No	Correct the wiring between the remote controller and the unit PCB, see "7.2 Wiring diagram" [▶ 343].

To check the settings

1 See the relevant documentation (installer reference guide, remote controller manual, …) to check if the specific setting is correct.

Is the setting correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Adjust the specific setting see "4.23.2 Repair procedures" [▶ 287].

To check the software and EEPROM version

1 Compare the software ID and EEPROM version of the remote controller user interface and the PCB with the ones provided in the Updater Tool. Re-install the software with the Updater Tool if versions do NOT match.

Is the installed software and EEPROM version correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Re-install the software with the Updater Tool see "4.23.2 Repair procedures" [▶ 287].

To check the communication wiring between the remote controller and the unit PCB

1 Make sure that all wires between the remote controller user interface P1/P2 and the connector X30A: 5-6 on the indoor unit PCB are firmly and correctly connected, see "7.2 Wiring diagram" [▶ 343].

2 Check the continuity of all wires.

3 Replace any damaged or broken wires.

INFORMATION

Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.23.2 Repair procedures

To remove the user interface

1 See relevant manual of the user interface (remote controller) for the correct procedure.

2 To intall the user interface, see "4.23.2 Repair procedures" [▶ 287].

To install the user interface

1 See relevant manual of the user interface (remote controller) for the correct procedure.

Is the problem solved?	Action
Yes	No further actions required.

Is the problem solved?	Action
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To adjust the settings

1 See the relevant documentation (installer reference guide, remote controller manual, …) to adjust the specific setting.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To install the software

1 Install the software using the Updater Tool. See the Business Portal for more information about the Updater Tool.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.24 Self-cleaning decoration panel

4.24.1 Air filter motor

Not available yet

4.24.2 Brush motor

Not available yet

4.24.3 Damper motor

Not available yet

4.24.4 Dust sensor unit

Not available yet

4.24.5 Limit switch

Not available yet

4.24.6 Main PCB

Not available yet

4.25 Sub PCB

4.25.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a power check of the Sub PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

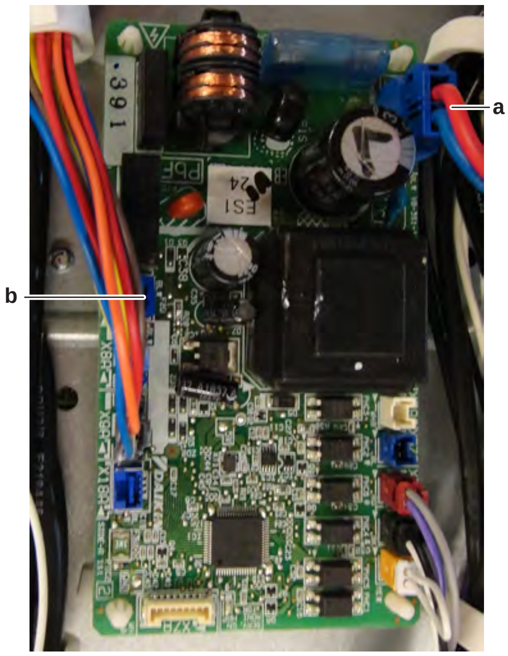
Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

Prerequisite: Access the back side of the switch box, see "4.18 Plate work" [▶ 260].

1. Visually check the PCB for damage and burnt-out components. If any damage found, replace the PCB, see "4.25.2 Repair procedures" [▶ 294].
2. Turn ON the power of the unit.
3. Measure the voltage on connector X1A of the Sub PCB.

   Result: The voltage MUST be 230 V AC±10%.
4. Measure the voltage on connector X20A of the Sub PCB.

   Result: The voltage MUST be 13.8 V DC±10%.



a Connector X1A
b Connector X20A

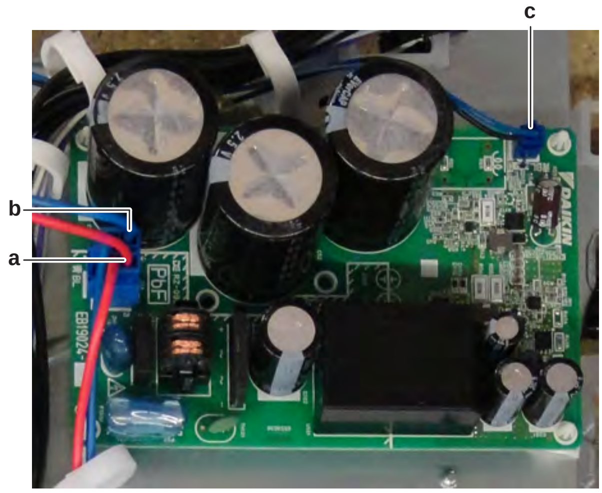
Does the Sub PCB receive power?	Action
Yes	Return to "4.25.1 Checking procedures" [▶ 289] of the sub PCB and continue with the next procedure.
No	Continue with the next step.

5. Measure the output voltage between pins 3-4 on connector X1A of the back-up PCB.

   Result: The voltage MUST be 230 V AC±10%.

6 Measure the output voltage on connector X2A of the back-up PCB.

Result: The voltage MUST be 13.8 V DC±10%.



- **a** Connector X1A pin 3
- **b** Connector X1A pin 4
- **c** Connector X2A

Is the measured output voltage correct?	Action
Yes	Correct the wiring between the back-up PCB and sub PCB, see "5.1.2 Repair procedures" [▶ 311].
No	Perform a check of the back-up PCB, see "4.3.1 Checking procedures" [▶ 176].

To check the HAP LED of the Sub PCB

Prerequisite: First perform a power check of the Sub PCB, see "4.25.1 Checking procedures" [▶ 289].

1 Locate the HAP LED on the Sub PCB.

- **a** HAP LED

Does the HAP LED blink in regular intervals (approximately 1 Hz)?	Action
Yes	Return to "4.25.1 Checking procedures" [▶ 289] of the Sub PCB and continue with the next procedure.
No	Replace the Sub PCB, see "4.25.2 Repair procedures" [▶ 294].

To perform an electrical check of the sub PCB

Prerequisite: First perform all earlier checks of the Sub PCB, see "4.25.1 Checking procedures" [▶ 289].

1. Measure the voltage on connector X2A of the sub PCB.

   Result: The measurement MUST be 13.8 V DC ± 10%.

a Connector X2A

Is the measured voltage correct?	Action
Yes	Return to "4.25.1 Checking procedures" [▶ 289] of the Sub PCB and continue with the next procedure.
No	Replace the Sub PCB, see "4.25.2 Repair procedures" [▶ 294].

To check if the correct spare part is installed

Prerequisite: First perform all earlier checks of the Sub PCB, see "4.25.1 Checking procedures" [▶ 289].

1. Visit your local spare parts webbank.
2. Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

Is the correct spare part for the Sub PCB installed?	Action
Yes	Return to "4.25.1 Checking procedures" [▶ 289] of the Sub PCB and continue with the next procedure.
No	Replace the Sub PCB, see "4.25.2 Repair procedures" [▶ 294].

To check the wiring of the Sub PCB

Prerequisite: First perform all earlier checks of the Sub PCB, see "4.25.1 Checking procedures" [▶ 289].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1. Check that all wires are properly connected and that all connectors are fully plugged-in.
2. Check that no connectors or wires are damaged.
3. Check that the wiring corresponds with the wiring diagram, see "7.2 Wiring diagram" [▶ 343].

> **INFORMATION**
>
> Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "4.25.1 Checking procedures" [▶ 289] of the Sub PCB and continue with the next procedure.

To check the fuse of the Sub PCB

Prerequisite: First perform all earlier checks of the Sub PCB, see "4.25.1 Checking procedures" [▶ 289].

1. Measure the continuity of the fuse. If no continuity is measured, the fuse has blown.

a Fuse F101U

Blown fuse on the Sub PCB?	Action
Yes	Replace the blown fuse, see "4.25.2 Repair procedures" [▸ 294].
No	Return to "4.25.1 Checking procedures" [▸ 289] of the Sub PCB and continue with the next procedure.

To check the varistor of the Sub PCB

Prerequisite: First perform all earlier checks of the Sub PCB, see "4.25.1 Checking procedures" [▸ 289].

1 Measure the resistance of the varistor. If the reading is nearly infinite, the varistor is still good.

a Varistor F1S

Varistor on Sub PCB broken?	Action
Yes	Replace the Sub PCB, see "4.25.2 Repair procedures" [▶ 294].
No	Return to "4.25.1 Checking procedures" [▶ 289] of the sub PCB and continue with the next procedure.

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.25.2 Repair procedures

To remove the Sub PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1. Remove the switch box from the unit, see "4.18 Plate work" [▶ 260].
2. Locate the Sub PCB on the back side of the switch box.
3. Disconnect all connectors from the Sub PCB.

a Connector
b Bridge connector X3A
c PCB support
d Sub PCB

4 Remove the bridge connector X3A from the sub PCB and keep it for reuse on the new spare part sub PCB.

5 Carefully pull the Sub PCB at the side and unlatch the PCB supports one by one using a small pair of pliers.

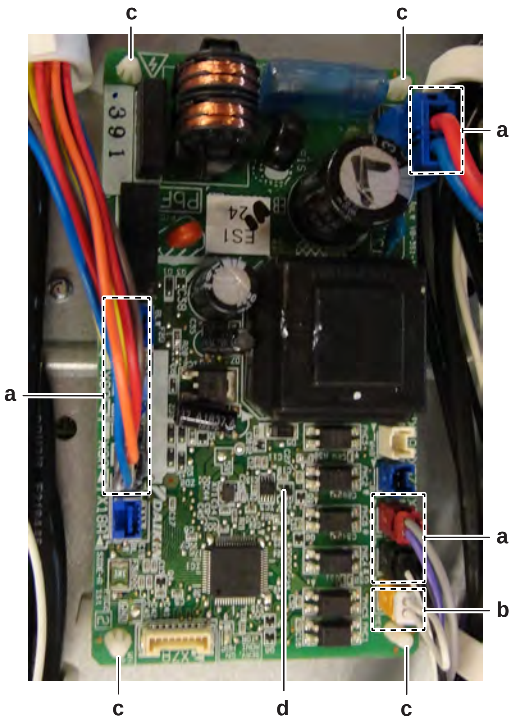
6 Remove the Sub PCB from the switch box.

7 To install the Sub PCB, see "4.25.2 Repair procedures" [▸ 294].

To install the Sub PCB

1 Install the Sub PCB on its correct location on the back side of the switch box.

2 Install the sub PCB on the PCB supports.



a Connector
b Bridge connector X3A
c PCB support
d Sub PCB

3 Install the bridge connector X3A (reuse from the old sub PCB).

4 Connect all connectors to the Sub PCB.

> **INFORMATION**
>
> Use the wiring diagram and connection diagram for correct installation of the connectors, see "7.2 Wiring diagram" [▸ 343].

> **WARNING**
>
> When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

5 Install the switch box on the unit, see "4.18 Plate work" [▸ 260].

Is the problem solved?	Action
Yes	No further actions required.

Is the problem solved?	Action
No	Return to "4.25.1 Checking procedures" [▶ 289] of the Sub PCB and continue with the next procedure.

To remove a fuse of the Sub PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 Remove the fuse from the PCB.

a

a Fuse F101U

2 To install a fuse on the Sub PCB, see "4.25.2 Repair procedures" [▶ 294].

To install a fuse on the Sub PCB

WARNING

For continued protection against risk of fire, replace ONLY with same type and rating of fuse.

1 Install the fuse on the correct location on the PCB.

CAUTION

Make sure the fuse is plugged-in correctly (contact with the fuse holder).

a Fuse F101U

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "4.25.1 Checking procedures" [▶ 289] of the Sub PCB and continue with the next procedure.

4.26 Thermistors

Procedures for indoor unit thermistors not available yet.

4.26.1 Refrigerant side thermistors

Checking procedures

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

To perform a mechanical check of the specific thermistor

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1. Locate the thermistor and remove the insulation if needed. Check that the thermistor is correctly installed and that there is thermal contact between the thermistor and the piping or ambient (for air thermistor).

Is the thermistor correctly installed (thermal contact between the thermistor and the piping)?	Action
Yes	Perform an electrical check of the specific thermistor, see "Checking procedures" [▶ 297].
No	Correctly install the thermistor, see "Repair procedures" [▶ 300].

To perform an electrical check of the specific thermistor

1 First perform a mechanical check of the thermistor, see "Checking procedures" [▶ 297].

2 Locate the thermistor.

> **INFORMATION**
>
> Remove the thermistor from its holder if not reachable with a contact thermometer.

3 Measure the temperature using a contact thermometer.

Name	Symbol	Location (PCB)	Connector (pins)	Reference (table)
Air thermistor	R1T	Main	X18A:1-3	A
Suction pipe thermistor	R3T	Main	X30A:1-2	A
Refrigerant liquid thermistor	R4T	Main	X30A:3-4	A
Subcool thermistor	R5T	Main	X30A:5-6	A
Superheat thermistor	R6T	Main	X30A:7-8	A
De-icer thermistor	R7T	Main	X30A:9-10	A
Discharge pipe thermistor	R21T	Main	X19A:1-2	B

4 Determine the thermistor resistance that matches the measured temperature.

Thermistor – Table A

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
–20	197.81	10	39.96	40	10.63	70	3.44

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
–19	186.53	11	38.08	41	10.21	71	3.32
–18	175.97	12	36.30	42	9.81	72	3.21
–17	166.07	13	34.62	43	9.42	73	3.11
–16	156.80	14	33.02	44	9.06	74	3.01
–15	148.10	15	31.50	45	8.71	75	2.91
–14	139.94	16	30.06	46	8.37	76	2.82
–13	132.28	17	28.70	47	8.05	77	2.72
–12	125.09	18	27.41	48	7.75	78	2.64
–11	118.34	19	26.18	49	7.46	79	2.55
–10	111.99	20	25.01	50	7.18	80	2.47
–9	106.03	21	23.91	51	6.91		
–8	100.41	22	22.85	52	6.65		
–7	95.14	23	21.85	53	6.41		
–6	90.17	24	20.90	54	6.65		
–5	85.49	25	20.00	55	6.41		
–4	81.08	26	19.14	56	6.18		
–3	76.93	27	18.32	57	5.95		
–2	73.01	28	17.54	58	5.74		
–1	69.32	29	16.80	59	5.14		
0	65.84	30	16.10	60	4.87		
1	62.54	31	15.43	61	4.70		
2	59.43	32	14.79	62	4.54		
3	56.49	33	14.18	63	4.38		
4	53.71	34	13.59	64	4.23		
5	51.09	35	13.04	65	4.08		
6	48.61	36	12.51	66	3.94		
7	46.26	37	12.01	67	3.81		
8	44.05	38	11.52	68	3.68		
9	41.95	39	11.06	69	3.56		

Thermistor – Table B

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
0	635.1	40	106.2	80	24.9	120	7.5
5	496.6	45	87.1	85	21.1	125	6.5
10	391	50	71.8	90	18	130	5.7
15	310	55	59.5	95	15.4	135	5
20	247.3	60	49.5	100	13.3	140	4.4
25	198.5	65	41.4	105	11.4	145	3.9
30	160.2	70	34.8	110	9.9	150	3.4
35	130.1	75	29.3	115	8.6		

5 Disconnect the thermistor connector from the appropriate PCB.

6 Measure the resistance between the appropriate pins of the thermistor connector.

7 Check that the measured resistance value matches the resistance determined through the measured temperature (earlier step in the procedure).

- E.g. R3T thermistor:
- Measured temperature with contact thermometer: 23.1°C,
- Resistance value determined through temperature (using the thermistor table A):
  Resistance at 23°C: 21.85 kΩ,
  Resistance at 24°C: 20.90 kΩ,
- Disconnect connector and measure resistance between X30A pin 1-2:
  Measured resistance: 21.8 kΩ,
- Measured resistance value is inside the range. R3T thermistor passes the check.

INFORMATION

All thermistors have a resistance tolerance of 3%.

INFORMATION

In most cases, the user interface allows to monitor the thermistors.

If the measured resistance value matches the resistance determined through the measured temperature, but the temperature for the corresponding thermistor is NOT correct on the user interface display, replace the applicable PCB.

Does the measured resistance of the thermistor match with the temperature determined resistance?	Action
Yes	Thermistor is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the specific thermistor, see "Repair procedures" [▶ 300].

Repair procedures

To remove the thermistor

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

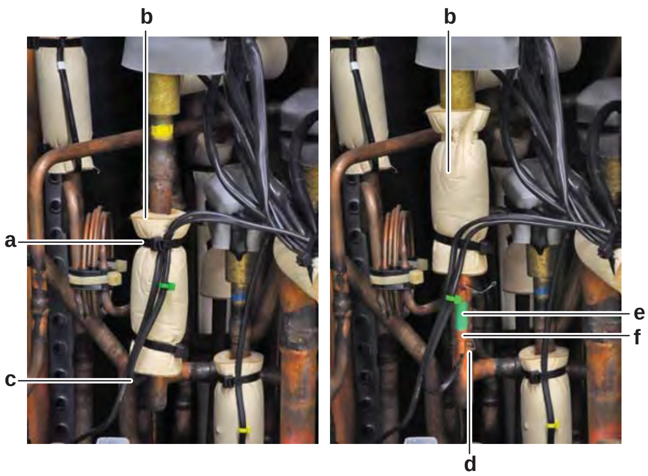
Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 Locate the thermistor that needs to be removed.

2 Remove the thermistor from the thermistor holder as follows:

- For air (ambient) thermistor:
  Open the thermistor holder and remove the thermistor from the holder.

- For refrigerant piping thermistors:
  - Cut the tie straps that fix the insulation and the thermistor wire.
  - Slide the insulation aside.
  - Pull the clip that fixes the thermistor.
  - Remove the thermistor from the thermistor holder.



a Tie strap
b Insulation
c Thermistor wire
d Clip
e Thermistor holder
f Thermistor

3 Cut all tie straps that fix the thermistor harness.

4 Disconnect the thermistor connector from the appropriate PCB.

> **INFORMATION**
>
> Some of the thermistors are wired to the same connector. See connector and pin information of the thermistors at the start of the electrical check procedure and "7.2 Wiring diagram" [▸ 343]. ALWAYS replace the complete set of thermistors wired to the same connector.

5 When removing the complete set of thermistors wired to the same connector:

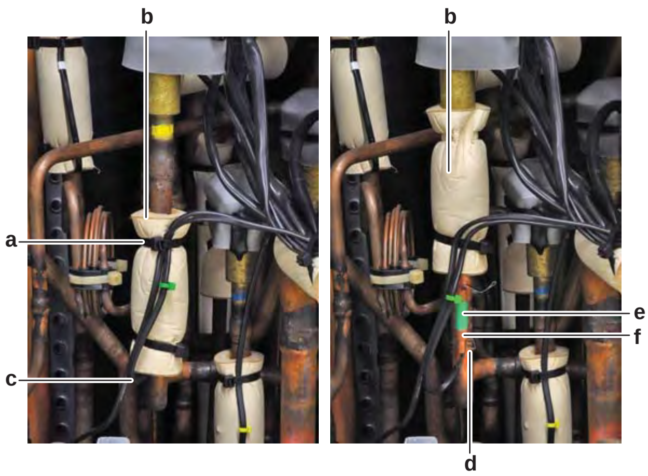
- Remove all other thermistors wired to the connector from their thermistor holder,
- Disconnect the thermistor connector,
- Remove the complete set of thermistors.

6 To install the thermistor, see "Repair procedures" [▸ 300].

To install the thermistor

1 Install the thermistor in the thermistor holder as follows:

- For air (ambient) thermistor:
  Correctly install the thermistor in the holder and close the thermistor holder.
- For refrigerant piping thermistors:
  Pull the clip and install the thermistor in the specific thermistor holder. Make sure the clip is in the correct position (blocking the thermistor).



a Tie strap
b Insulation
c Thermistor wire
d Clip
e Thermistor holder
f Thermistor

2 Route the thermistor harness towards the appropriate PCB.

3 Connect the thermistor connector to the appropriate PCB.

INFORMATION

Some of the thermistors are wired to the same connector. See connector and pin information of the thermistors at the start of the electrical check procedure and "7.2 Wiring diagram" [▶ 343]. ALWAYS replace the complete set of thermistors wired to the same connector.

4 When installing the complete set of thermistors wired to the same connector:

- Install all other thermistors wired to the connector in their thermistor holder,
- Route the thermistor harness of all thermistors towards the appropriate PCB or intermediate connector,
- Connect the thermistor connector.

WARNING

When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

5 Fix the thermistor harness using new tie straps.

6 Install the insulation around the thermistor.

7 Fix the insulation and the thermistor wire using new tie straps.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.26.2 Other thermistors

Checking procedures

To perform a mechanical check of the fin thermistor

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1 Remove the required plate work, see "4.18 Plate work" [▶ 260].

DANGER: RISK OF ELECTROCUTION

Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▶ 307].

2 Locate the thermistor. Check that the thermistor is correctly installed and that there is thermal contact between the thermistor and the heat sink.

Is the thermistor correctly installed (thermal contact between the thermistor and the heat sink)?	Action
Yes	Perform an electrical check of the specific thermistor, see "Checking procedures" [▶ 303].
No	Replace the main PCB, see "4.15 Main PCB" [▶ 212].

To perform an electrical check of the fin thermistor

Prerequisite: First perform a mechanical check of the PCB fin themistor, see "Checking procedures" [▶ 303].

1 Locate the thermistor on the appropriate heat sink.

2 Measure the temperature using a contact thermometer.

Name	Symbol	Location (PCB)	Connector (pins)	Reference (table)
Fin thermistor	R10T	Main	X111A: 1-2	A

INFORMATION

The thermistors may vary according to the specific unit.

3 Determine the thermistor resistance that matches the measured temperature.

Thermistor – Table A

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
–20	197.81	10	39.96	40	10.63	70	3.44

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
–19	186.53	11	38.08	41	10.21	71	3.32
–18	175.97	12	36.30	42	9.81	72	3.21
–17	166.07	13	34.62	43	9.42	73	3.11
–16	156.80	14	33.02	44	9.06	74	3.01
–15	148.10	15	31.50	45	8.71	75	2.91
–14	139.94	16	30.06	46	8.37	76	2.82
–13	132.28	17	28.70	47	8.05	77	2.72
–12	125.09	18	27.41	48	7.75	78	2.64
–11	118.34	19	26.18	49	7.46	79	2.55
–10	111.99	20	25.01	50	7.18	80	2.47
–9	106.03	21	23.91	51	6.91		
–8	100.41	22	22.85	52	6.65		
–7	95.14	23	21.85	53	6.41		
–6	90.17	24	20.90	54	6.65		
–5	85.49	25	20.00	55	6.41		
–4	81.08	26	19.14	56	6.18		
–3	76.93	27	18.32	57	5.95		
–2	73.01	28	17.54	58	5.74		
–1	69.32	29	16.80	59	5.14		
0	65.84	30	16.10	60	4.87		
1	62.54	31	15.43	61	4.70		
2	59.43	32	14.79	62	4.54		
3	56.49	33	14.18	63	4.38		
4	53.71	34	13.59	64	4.23		
5	51.09	35	13.04	65	4.08		
6	48.61	36	12.51	66	3.94		
7	46.26	37	12.01	67	3.81		
8	44.05	38	11.52	68	3.68		
9	41.95	39	11.06	69	3.56		

4 Measure the resistance between the appropriate connection points of the thermistor.

5 Check that the measured resistance value matches the resistance determined through the measured temperature (earlier step in the procedure). E.g. R10T thermistor:

- Measured temperature with contact thermometer: 23.1°C,
- Resistance value determined through temperature (using the thermistor table A):
  Resistance at 20°C: 25.01 kΩ,
  Resistance at 25°C: 20.0 kΩ,
- Measure resistance between X111A pin 1-2:
  Measured resistance: 23.0 kΩ,
- Measured resistance value is inside the range. R10T thermistor passes the check.

> **INFORMATION**
>
> All thermistors have a resistance tolerance of 3%.

Does the measured resistance of the thermistor match with the temperature determined resistance?	Action
Yes	Thermistor is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the specific PCB, see "4 Components" [▶ 165].

5 Third party components

5.1 Electrical circuit

5.1.1 Checking procedures

To check the power supply of the unit

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1. Check that the power supply cables and earth connection are firmly fixed to the power supply terminal X1M.
2. Measure the insulation resistance between each power supply terminal and the ground using a megger device of 500 V DC. All measurements MUST be >1MΩ. If insulation resistance is <1MΩ, earth leakage is present.
3. Turn ON the power using the respective circuit breaker.

For single phase units

4. Measure the voltage between L and N on the power supply terminal X1M. The voltage MUST be 230 V AC ± 10%.

For three-phase units

5. Measure the voltage between the phases L1-L2-L3 on the power supply terminal X1M. The voltage MUST be 400 V AC ± 10%.
6. Measure the voltage between L1 and N on the power supply terminal X1M. The voltage MUST be 230 V AC ± 10%.
7. Unbalance between the phases MUST NOT exceed 2%.

Is the measured voltage (power supply) correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Adjust the power supply, see "5.1.2 Repair procedures" [▶ 311].

To check if the power supply is conform with the regulations

1. Check that the power source is in line with the requirements described in the databook.

Is the power supply conform with the regulations?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Adjust the power supply, see "5.1.2 Repair procedures" [▶ 311].

To prevent electrical hazards

To check the rectifier voltage

Prerequisite: Stop the unit operation via the user interface.

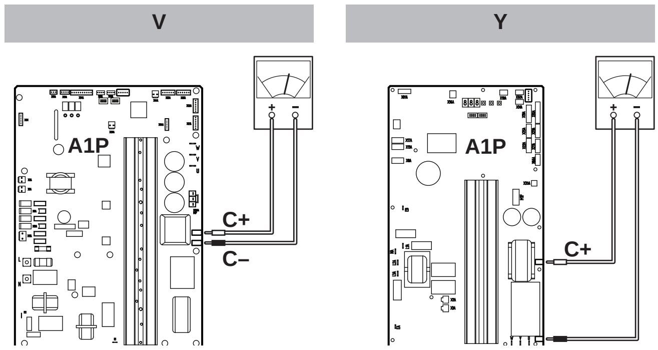
Prerequisite: Turn OFF the respective circuit breaker.

1 Do NOT open the electrical component box cover for 10 minutes after turning off the power supply.

2 Remove the required plate work, see "4.18 Plate work" [▶ 260].

> **DANGER: RISK OF ELECTROCUTION**
>
> Do NOT touch any live parts or PCB's.

3 Measure the voltage between terminals on the terminal block for power supply with a tester and confirm that the power supply is shut off. In addition, measure points as shown in the figure, with a tester and confirm that the voltage of the capacitor in the main circuit is less than 10 V DC.

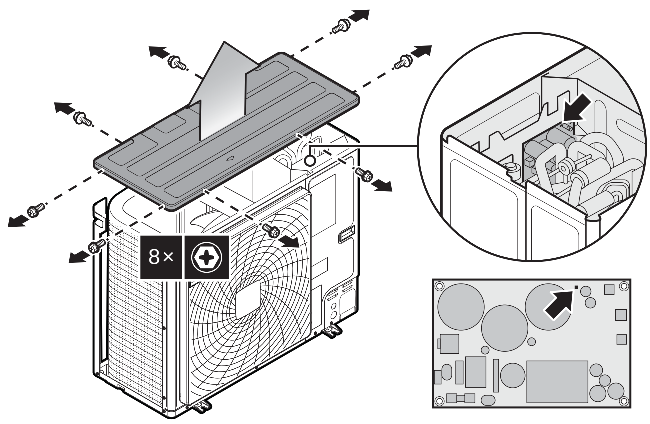


> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding.

Additional information

4 To prevent damaging the PCB, touch a non-coated metal part to eliminate static electricity before pulling out or plugging in connectors.

5 The backup PCB (A3P) at the back of the switch box mounting plate may contain residual power. Before servicing, wait for at least 20 minutes until the green indicator light on the PCB turns OFF (see illustration below).



6 Pull out junction connector X106A (A1P) for the fan motor in the outdoor unit before starting service operation on the inverter equipment. Be careful NOT to touch the live parts. (If a fan rotates due to strong wind, it may store electricity in the capacitor or in the main circuit and cause electrical shock.)

7 After the service is finished, plug the junction connector back in. Otherwise the malfunction code E7 will be displayed and normal operation will NOT be performed.

For details refer to the wiring diagram labelled on the back of the service cover.

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 and to remove the fuses from the control circuit located in the outdoor unit.

To check F1-F2 transmission

To check the F1-F2 wiring

1 Check that the wiring:

- is within installation length limits,
- is of the proper wire type,
- is of the proper wire thickness,
- is properly fixed to the terminals,
- is executed according to the installation manual, with no star connections.

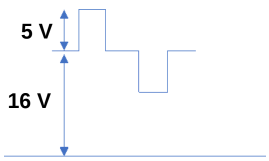
2 Check that no shielded cables are used or that shielded cables are grounded only on one side of the cable.

3 Check that F1-F2 wiring has continuity all over.

Is the wiring correctly executed, as indicated in the installation manual?	Action
Yes	Continue with the next step in this checking procedure.
No	Modify the wiring, see the installation manual.

To measure the F1-F2 transmission

F1-F2 transmission is a D3Net rectangular waveform, 16 VDC ± 5 V with 16-5V amplitude that appears on the 16V base line:



F1-F2 terminals on indoor units, outdoor units and central controllers are all possible measurement points. Use as many points as you can and take the time necessary for measurement if analyzing with an oscilloscope.

On outdoor units, measurement should be done either at F1-F2 IN or F1-F2 OUT. If the F1-F2 OUT terminal is not used, then measure at the F1-F2 IN terminal.

You can conduct the measuring with a multimeter or an oscilloscope.

To measure the F1-F2 transmission with a multimeter:

4 Set the multimeter to DC Voltage measurement.

5 Measure on the F1 and F2 terminals.

Result: 16 V DC should be read.

To measure the F1-F2 transmission with an oscilloscope:

> **INFORMATION**
>
> Ensure that probes are securely connected to F1-F2 terminals. Otherwise, distortions will be generated resulting in misinterpretation of data. It is recommended to connect temporary cables to the probes and then connect the cables to the terminals securely.

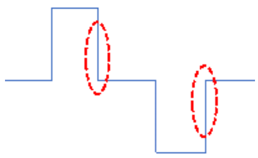
6 Measure at as many points as you can, this can help to determinate the problem.

For example: if the measurements at the indoor unit side are distorted while central controller and outdoor unit seem OK, you can suppose that the failure in transmission is related to the indoor unit side.

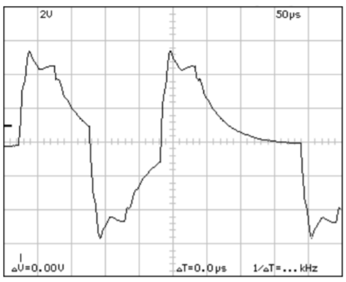
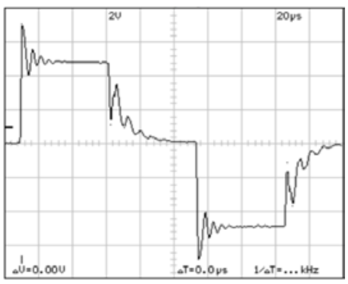
7 Set time base (horizontal) to 50 µs/div to 100 µs. Voltage axis (vertical) should be set to 2V/div to 5V. Set position properly, otherwise the data may appear outside the screen. In AC mode, which is a sampling mode in oscilloscopes, waveforms appear in the middle of the screen. So, it is recommended to use AC mode if possible.

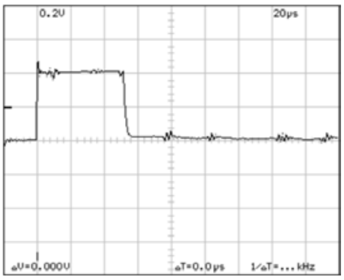
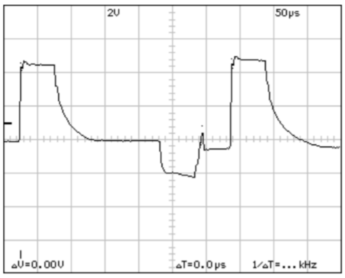
8 Set the triggering mode of the oscilloscope to "Normal". If "Auto" mode is selected, observed waveforms may be cleared instantaneously leading to misinterpretation of data.

9 Ignore very short-time pulses of 1V amplitude or less, or overshooting at the rising edge may be ignored. Focus on the shown points of the waveform below:



Examples of waveform distortions on D3Net and possible causes:

	**Rounded waveforms at falling edges.** Possible reasons: ▪ Excessive wire length, ▪ Excessive number of connected devices, ▪ Branching (star connections).
	**Ringing.** Possible reasons: ▪ Transmission wiring very close to high voltage cables, ▪ Use of multi-conductor type wires.

	**Noise.** Possible reasons: ▪ Transmission wiring very close to high voltage cables, ▪ Transmission wiring effected from external equipment causing noise.
	**Faulty Waveform.** Possible reasons: ▪ Transmission circuit failure on a PCB.

After checking and correcting possible causes of F1-F2 transmission problems, perform a communication reset (see "5.1.2 Repair procedures" [▶ 311]).

To check the mechanical ventilation error input

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1. Turn ON the power using the respective circuit breaker.
2. Start the unit operation via the user interface.
3. Let the system operate for a while.
4. Check that the mechanical ventilation functions correctly. Repair as needed.
5. Disconnect the connector X36A from the main PCB and measure the resistance between pins 1-2 on wired connector. Resistance MUST be:
   - OL (switch SFB=open) when mechanical ventilation functions correctly (=normal operation).
   - 0 Ω (switch SFB=closed) when faulty mechanical ventilation detected.

INFORMATION

Make sure that the wiring between the switch SFB and connector X36A is correctly connected and NOT damaged (check continuity). "7.2 Wiring diagram" [▶ 343].

Is the measured resistance 0 Ω (switch SFB=closed)?	Action
Yes	Continue with the next step.
No	Mechanical ventilation error input is OK.

6. Again check that the mechanical ventilation functions correctly. Repair as needed.
7. If mechanical ventilation functions correctly, check if the option PCB drives the switch SFB to the closed position.

Does the option PCB drive the switch SFB to closed position?	Action
Yes	Check for the reason why the option PCB drives the switch SFB to closed position (faulty option PCB, ...).
No	Replace the switch SFB, see "5.3.2 Repair procedures" [▶ 325].

To check the wiring between the outdoor unit and the indoor unit

1. Check that all wires are properly connected and that all connectors are fully plugged-in.
2. Check that no connectors or wires are damaged.
3. Check that the wiring corresponds with the wiring diagram, see "7.2 Wiring diagram" [▶ 343].

> **INFORMATION**
>
> Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

5.1.2 Repair procedures

To adjust the power supply

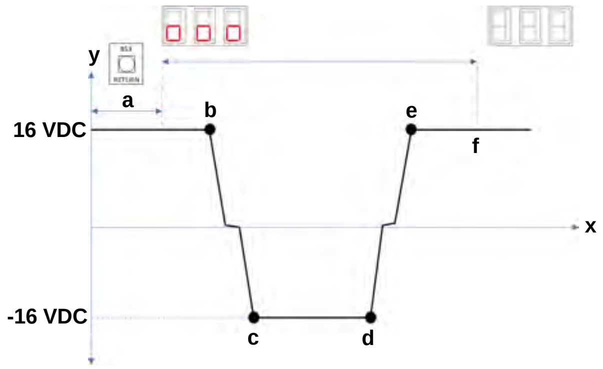
1. Make sure that the power source is in line with the requirements described in the databook.
2. Adjust the power supply within 50 Hz ± 3%.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

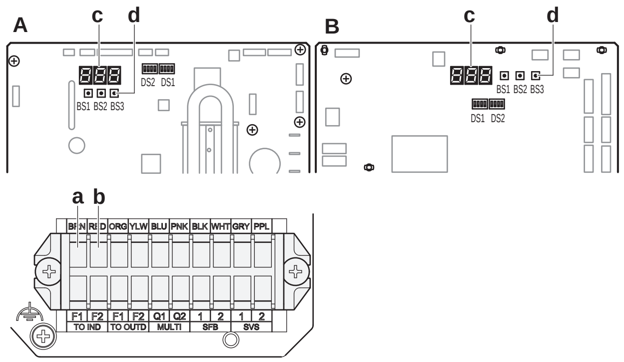
To perform a communication reset

> **NOTICE**
>
> If an indoor unit is powered OFF when communication reset is performed, the outdoor unit will delete this indoor unit information since this unit will not be identified during re-initialization. If so, this unit will not be recognized by the outdoor unit upon power restore to this indoor unit.

1. Set multimeter to V DC measurement. The example below is performed while COM-F1 and V DC-F2, the polarity will be opposite than the graph below if connected otherwise (which is not a problem).



a Y: Voltage (VDC)
b X: Time



A RXYSA4~6A7V1B unit
B RXYSA4~6A7Y1B unit
a Terminal F1
b Terminal F2
c 7-segment display
d Push button BS3

2 Push BS3 (RETURN) and hold it for 5 seconds until the 7-segment display shows "000". Then release BS3.

Result: After a while, voltage will drop to almost 0 V DC. At this stage it means that re-initialization has started.

Result: Depending on the system size, voltage will rise to 16 V DC and hit 0 V back again several times.

Result: When finished, 7-Segment Display will turn OFF. This indicates that re-initialization has completed.

The time this procedure takes, depends on the amount of indoor units.

To correct the wiring between PCB's

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1 Make sure that all wires are firmly and correctly connected, see "7.2 Wiring diagram" [▶ 343].

2 Check the continuity of all wires.

3 Replace any damaged or broken wires.

Is the problem solved?	Action
Yes	No further actions required.

Is the problem solved?	Action
No	Return to the troubleshooting of the specific error and continue with the next procedure.

5.2 Refrigerant circuit

5.2.1 Checking procedures

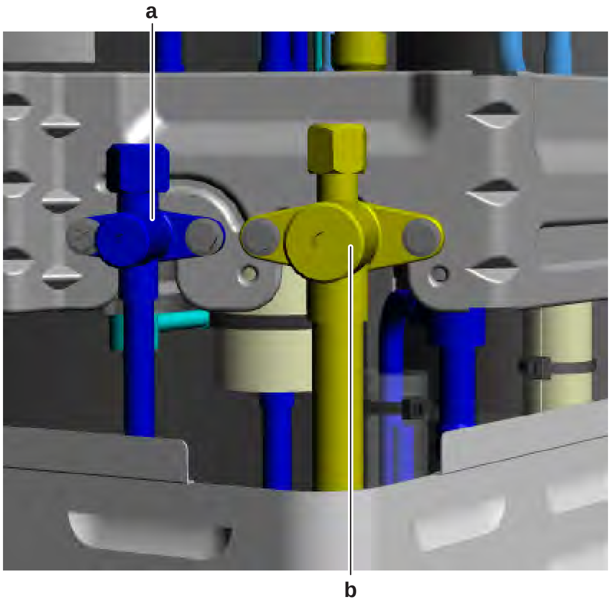
INFORMATION

It is recommended to perform the checks in the listed order.

To check if the stop valves are open

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▸ 260].

1 Remove the caps.



a Liquid stop valve
b Gas stop valve

2 Check if the stop valves are completely open.

The refrigerant circuit stop valves are open?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Open the stop valves of the refrigerant circuit, see "5.2.2 Repair procedures" [▸ 318].

To check if the refrigerant circuit is clogged

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1 Wait for the refrigerant to reach the outdoor temperature.

2 Check that all field piping is done according to the refrigeration practice and installer reference guide:

- Correct piping diameters
- Piping distance limits are followed
- NO pipes are squeezed
- NO short radius bends

3 Connect a manometer to the high pressure and low pressure service ports.

4 Turn ON the power of the unit.

5 Activate `Heating` operation via the user interface.

6 Read the pressure on the high and low pressure gauges. If the difference between high and low pressure >0.2 MPa, the refrigerant circuit might be clogged.

7 On the refrigerant liquid piping (between the indoor unit heat exchanger and the outdoor unit heat exchanger (coil)), using a contact thermometer, measure the temperature before and after every restricting device. If a big temperature difference is measured (>2.5~4K), an internal pipe obstruction may be present at this location.

INFORMATION

Focus on positions with a potential risk for clogging such as:

- Filters
- Valves
- Brazing points
- ...

INFORMATION

A bigger temperature drop before and after the expansion valve can be normal, however excessive ice is indicating a malfunction of the expansion valve or internal obstruction of the valve (dirt or ice build up in case of humidity in the system).

Temperature drop found?	Action
Yes	Replace the clogged part, see "5.2.2 Repair procedures" [▶ 318].
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To check if the refrigerant circuit is correctly charged

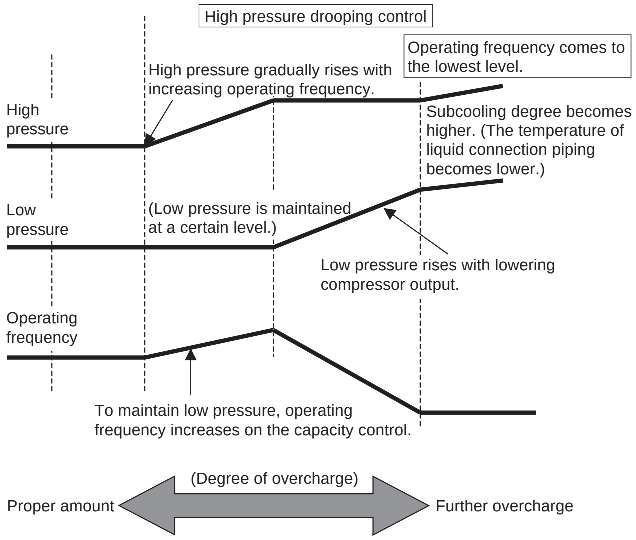
Due to the relationship to pressure control and electronic expansion valve control, the amount of refrigerant needs to be examined according to operating conditions.

Refer to the procedures shown below for correct examination.

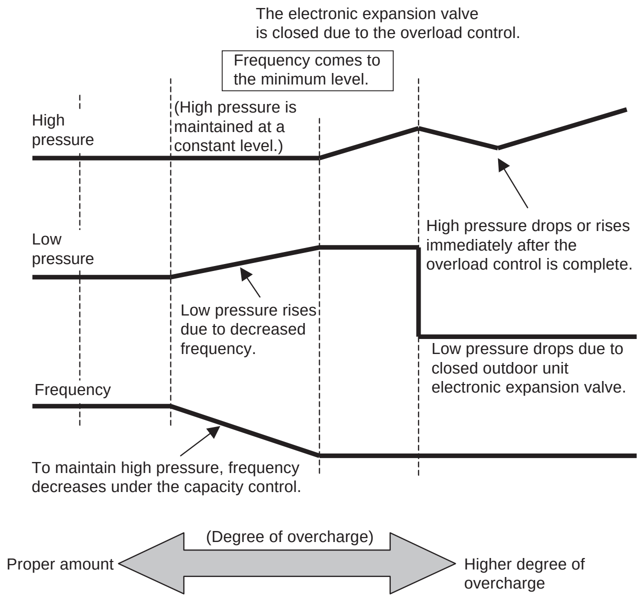
Refrigerant overcharge diagnosis

1. High pressure rises. Consequently, overload control is conducted to cause insufficient cooling capacity.
2. The superheated degree of suction gas lowers (or the wet operation is performed). Consequently, the compressor consumes more power and is noisy (before over-current relay trips).
3. The subcooling degree of refrigerant in liquid form rises (values >4~5K are NOT normal). Consequently, in heating, the temperature of discharge air through the subcooled section becomes lower.

Cooling



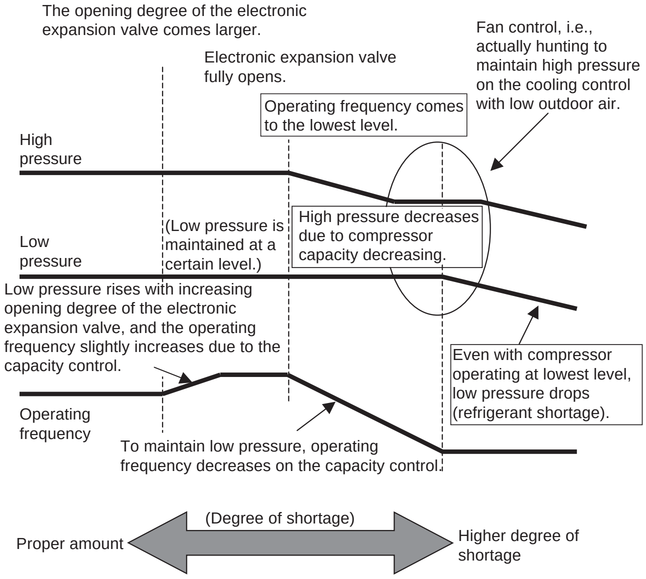
Heating



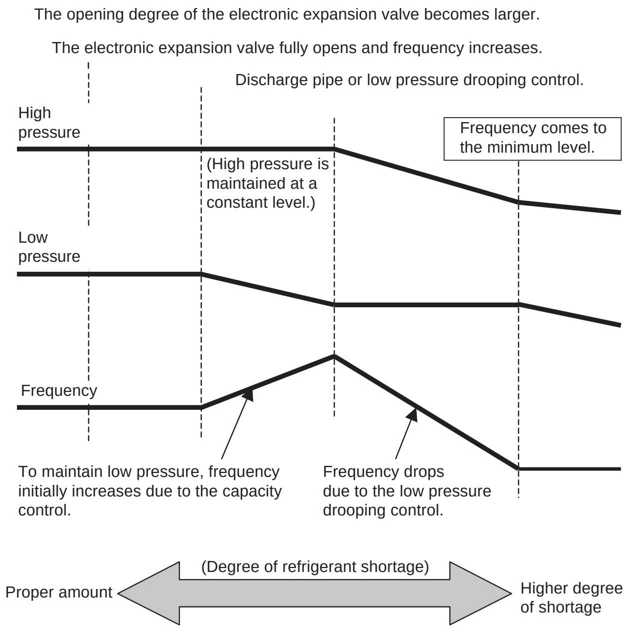
Refrigerant shortage diagnosis

1. The superheated degree of suction gas rises. Consequently, the compressor discharge gas temperature becomes higher than normal.
2. The superheated degree of suction gas rises. Consequently, the electronic expansion valve turns open more than normal or completely open for average output.
3. Low pressure drops to cause the unit not to reach cooling capacity (or heating capacity).

Cooling



Heating



Is the refrigerant circuit charged correctly?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.

Is the refrigerant circuit charged correctly?	Action
No	Add or recuperate refrigerant until correctly charged, see "5.2.2 Repair procedures" [▸ 318].

To check for non-condensables in the refrigerant circuit

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

1. Wait for the refrigerant to reach the outdoor temperature.
2. Connect a manometer to the service port.
3. Measure the pressure of the refrigerant. The measured pressure converted into saturated temperature MUST be in line with the expected pressure / saturated temperature at current ambient temperature.
4. If the measured pressure is significantly higher (>5K), non-condensables gasses are most likely present in the refrigerant.

Any non-condensables found in the refrigerant circuit?	Action
Yes	To replace the refrigerant, see "5.2.2 Repair procedures" [▸ 318].
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To perform a leak test

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

1. Perform the two leaks tests below.

To check for leaks: Vacuum leak test

1. Evacuate the system from the liquid and gas piping to –100.7 kPa (–1.007 bar) (5 Torr absolute) 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.

To check for leaks: Pressure leak test

1. Test for leaks by applying a bubble test solution to all piping connections.
2. Discharge all nitrogen gas.
3. 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 working pressure of the unit, i.e. 3.52 MPa (35,2 bar).

> **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).

Problem solved?

Any leaks found in the refrigerant circuit?	Action
Yes	Replace the leaking part of the refrigerant circuit, see "5.2.2 Repair procedures" [▶ 318].
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To check if the refrigerant field piping is conform with the regulations

1. Check if the refrigerant field piping is conform with the regulations. Adjust as needed. See installation manual for field piping specifications.

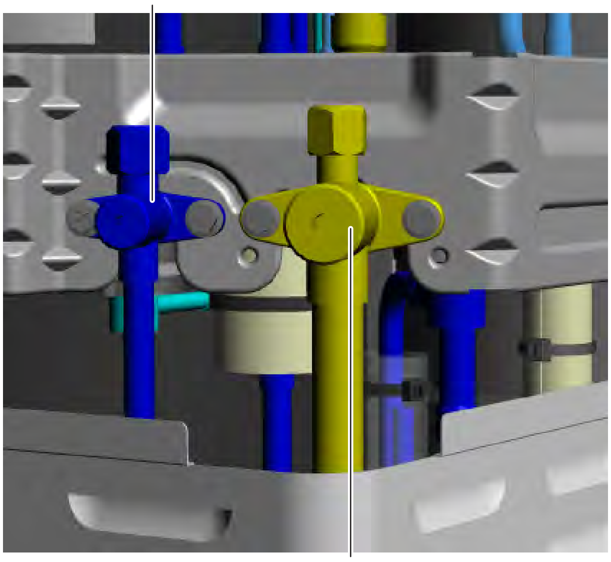
Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

5.2.2 Repair procedures

To open the stop valves of the refrigerant circuit

Prerequisite: Remove the required plate work, see "4.18 Plate work" [▶ 260].

1. Remove the caps.



a Liquid stop valve
b Gas stop valve

2 Completely open the stop valves by screwing the stop valve screw counterclockwise.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To replace the clogged/leaking part of the refrigerant circuit

1 See the correct procedure for the component that needs to be repaired. See also "Repair information" [▶ 324] for more details.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To recuperate the refrigerant

Necessary tools:

Service tool		Remark
	Refrigerant recovery unit	Compatible with the refrigerant to be recovered
	Scale	Read-out / 10 grams
	Manifold	Compatible with the refrigerant to be recovered
	Flexible hoses	Compatible with the refrigerant to be recovered
	Recovery cylinder	Compatible with the refrigerant to be recovered
	Vacuum pump	2-stage, equipped with solenoid valve

Procedure to recover all refrigerant when a refrigerant part needs to be replaced

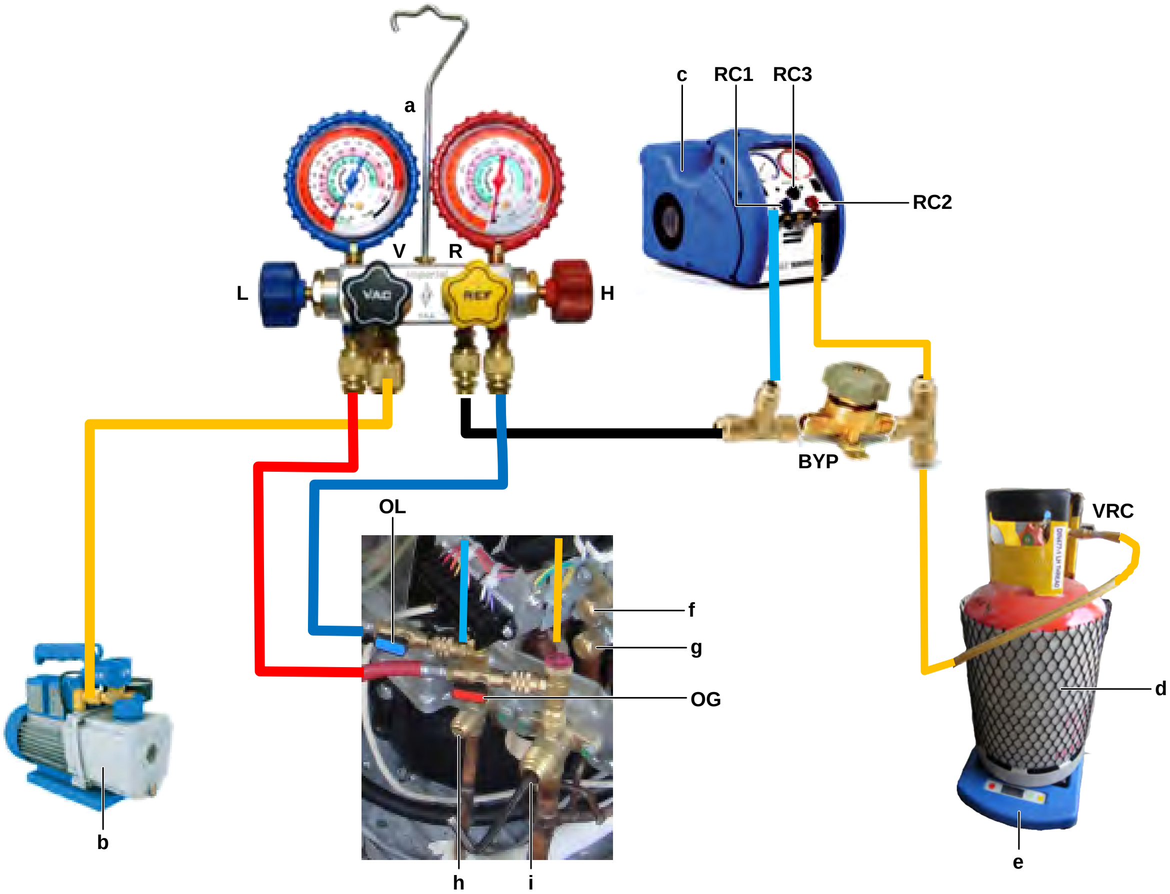
Prerequisite: Stop the unit operation via the user interface.

1 Connect the vacuum pump, manifold, recovery unit, and refrigerant recovery cylinder to the service ports of the refrigerant circuit as shown below. Make sure that the stop valves are open.

2 Activate refrigerant recovery / vacuum mode by setting field setting mode 2-21 to 1 (see "7.9 Field settings" [▶ 396]).

3 To make sure that refrigerant cycle is completely connected and there are no dead-zones because of closed expansion- or solenoid valves, entering the refrigerant recovery / vacuum mode ensures that:

- All indoor unit expansion valves get fully opened,
- Outdoor unit expansion valves (Y1E~Y4E) get fully opened.



a	Manifold
b	Vacuum pump
c	Recovery unit
d	Recovery cylinder R32
e	Scale (/10 g)
f	Service port heat exchanger
g	Service port R32 charge
h	Outdoor liquid stop valve
i	Outdoor gas stop valve
OL	Outdoor liquid service port valve
OG	Outdoor gas service port valve
L	Low pressure valve (manifold)
V	Vacuum valve (manifold)
R	Refrigerant valve (manifold)
H	High pressure valve (manifold)
BYP	By-pass valve
RC1	Recovery unit valve
RC2	Recovery unit valve
RC3	Recovery unit valve
VRC	Recovery cylinder valve

Purpose	Service port outdoor		Manifold valve					Recovery unit valve			Bottle valve	Operation	
	OL	OG	L	V	R	H	BYP	RC1	RC2	RC3	VRC	Vacuum pump	Recovery unit
Connections	C	C	C	C	C	C	C	C	C	Rec	C	N	N
Vacuuming	C	C	O	O	O	O	O	O	O	Rec	C	Y	N
End vacuuming	C	C	O	C	O	O	C	O	O	Rec	O	N	N
Recover liquid	O	O	C	C	O	O	C	1/2	O	Rec	O	N	Y
Recover gas	O	O	O	C	O	O	C	O	O	Rec	O	N	Y
Purge	O	O	C	C	C	C	C	*	O	Pur	O	N	Y
Disconnect	C	C	C	C	C	C	C	C	C	Rec	C	N	N
End recovery	In case of de-commissioning or end of repair, press button BS3 (Return).											N	N

C	Closed
O	Open
1/2	Between indication liquid and gas
*	Change inlet valve gradually to purge when pressure drops
Rec	Recovery
Pur	Purge
Y	Yes (operating)
N	No (NOT operating)

4 To add refrigerant, see "5.2.2 Repair procedures" [▸ 318].

Procedure to recover all refrigerant when indoor unit detects refrigerant leak

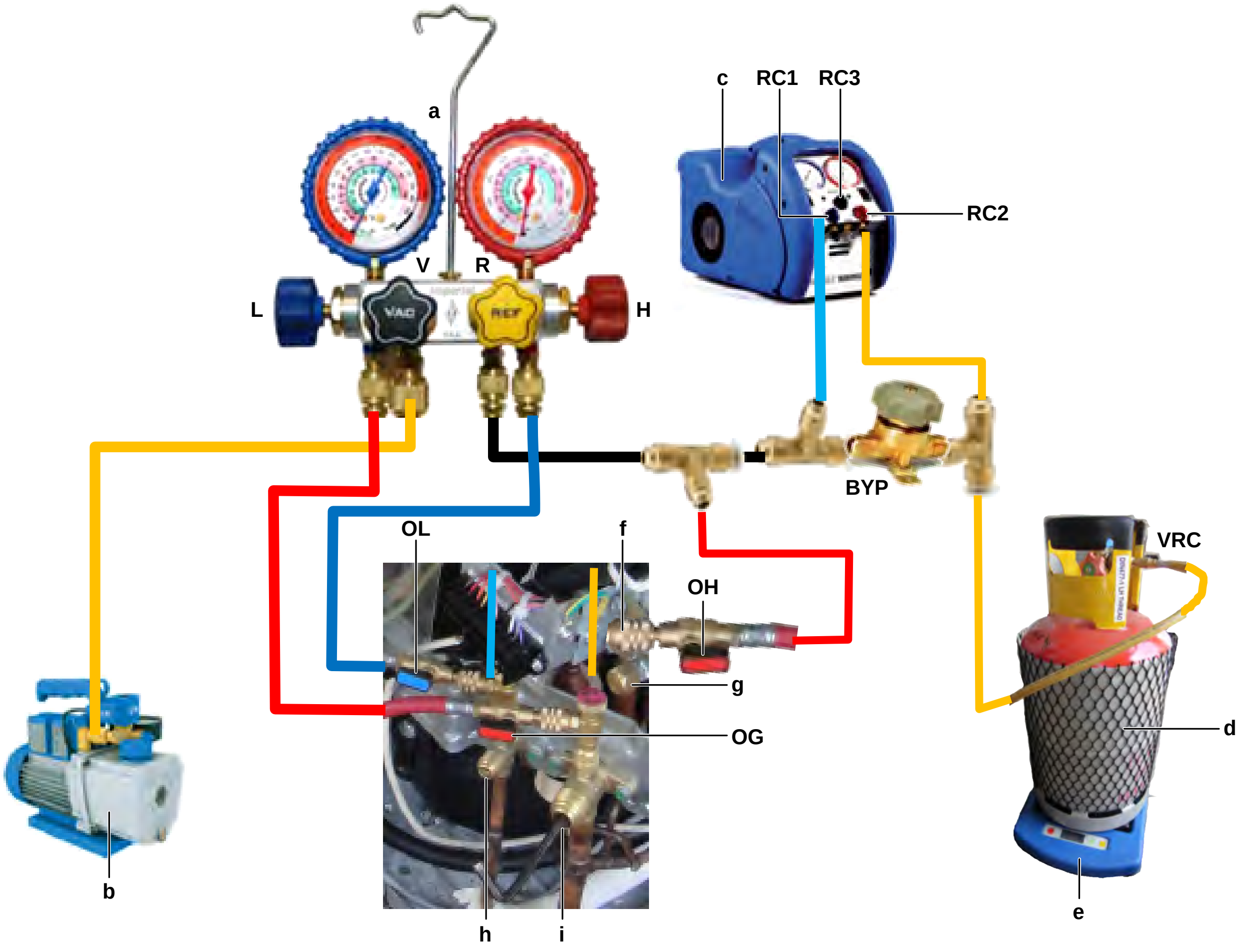
When an indoor unit detects refrigerant leak, error code A0-11 is displayed.

Outdoor unit performs automatic refrigerant recovery operation (cooontrolled by low pressure sensor). At the end, safety valves Y5E and Y6E are closed.

Prerequisite: Power OFF the indoor unit which displays the error code A0-11. Wait until the HAP LED oft he indoor unit PCB is OFF.

Prerequisite: Restore power supply to the indoor unit with error code A0-11. User interface initializes and will display error code CH-10.

1. Connect the vacuum pump, manifold, recovery unit, and refrigerant recovery cylinder to the service ports of the refrigerant circuit as shown below.
2. Activate refrigerant recovery / vacuum mode by setting field setting mode 2-21 to 1 (see "7.9 Field settings" [▸ 396]).
3. To make sure that refrigerant cycle is completely connected and there are no dead-zones because of closed expansion- or solenoid valves, entering the refrigerant recovery / vacuum mode ensures that:
   - All indoor unit expansion valves get fully opened,
   - Outdoor unit expansion valves (Y1E~Y4E) get fully opened.
   - Safety valves Y5E and Y6E stay closed to avoid refrigerant stored in the outdoor leaks to the indoor leaking point.



a Manifold
b Vacuum pump
c Recovery unit
d Recovery cylinder R32
e Scale (/10 g)
f Service port heat exchanger
g Service port R32 charge
h Outdoor liquid stop valve
i Outdoor gas stop valve
OL Outdoor liquid service port valve
OG Outdoor gas service port valve
OH Outdoor heat exchanger service port valve
L Low pressure valve (manifold)
V Vacuum valve (manifold)
R Refrigerant valve (manifold)
H High pressure valve (manifold)
BYP By-pass valve
RC1 Recovery unit valve
RC2 Recovery unit valve
RC3 Recovery unit valve
VRC Recovery cylinder valve

Purpose	Service port outdoor			Manifold valve					Recovery unit valve			Bottle valve	Operation	
	OL	OG	OH	L	V	R	H	BYP	RC1	RC2	RC3	VRC	Vacuum pump	Recovery unit
Connections	C	C	C	C	C	C	C	C	C	C	Rec	C	N	N
Vacuuming	C	C	C	O	O	O	O	O	O	O	Rec	C	Y	N
End vacuuming	C	C	C	O	C	O	O	C	O	O	Rec	O	N	N
Recover liquid	O	O	O	C	C	O	O	C	1/2	O	Rec	O	N	Y

Purpose	Service port outdoor			Manifold valve					Recovery unit valve			Bottle valve	Operation	
	OL	OG	OH	L	V	R	H	BYP	RC1	RC2	RC3	VRC	Vacuum pump	Recovery unit
Recover gas	O	O	O	O	C	O	O	C	O	O	Rec	O	N	Y
Purge	O	O	O	C	C	C	C	C	*	O	Pur	O	N	Y
Disconnect	C	C	C	C	C	C	C	C	C	C	Rec	C	N	N
End recovery	In case of de-commissioning or end of repair, press button BS3 (Return).												N	N

C	Closed
O	Open
1/2	Between indication liquid and gas
*	Change inlet valve gradually to purge when pressure drops
Rec	Recovery
Pur	Purge
Y	Yes (operating)
N	No (NOT operating)

4 To add refrigerant, see "5.2.2 Repair procedures" [▶ 318].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To add refrigerant

1 See the installer reference guide for the correct procedure.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to troubleshooting of the specific error and continue with the next procedure.

Repair information

Refrigerant piping handling

- Make sure that the applied pressure is never higher than the unit design pressure indicated on the nameplate (PS).
- Work according to the F-gas regulation and/or local regulations.
- Make sure the correct amount of refrigerant is charged after repair according to the F-gas regulation label on the unit (factory + additional where required).
- Make sure to use the appropriate equipment and tools according to the refrigerant and unit type.
- R32 can be charged in gas phase.
- Make sure to use a digital scale (no charging cylinder).

- Execute correct vacuum drying procedure after repair:
  - –0.1 MPa / –760 mm Hg / –750 Torr / –1 bar for at least 1 hour.
  - Connect the unit according to the available service ports.
  - Use related field setting where necessary to open expansion valve / solenoid valve.

Refrigerant piping repair

- Make sure to cover open pipe ends during repair so no dust or moisture can enter.
- Make sure to re-apply insulation removed during repair.
- Pipe expansion / flare making:
  - Remove any burrs on the cut surface using the correct tool such as reamer or scraper (note that excessive deburring can thin the pipe walls and cause cracking of the pipe).
  - Make sure the flare has the correct size (use a flare gauge).
  - Make sure no particles remain in the piping.
  - Apply just a drop of refrigerant oil on the inner surface of the flare.
  - Make sure the flare connection is tightened with the correct torque (torque values refer to installation manual).
- Brazing:
  - Use the correct brazing tool.
  - Use a phosphor copper filler metal (silver composition of 0 to 2%). Do not use flux material.
  - Flush the piping before brazing with nitrogen to avoid oxidation of the inside of the copper tubes (nitrogen purity ≥99.99%).

5.3 Manufacturer components

5.3.1 Checking procedures

To check the correct operation / setting of the manufacturer component

1 See the specific dealer manual to check for the correct installation, operation or setting of your component.

Does the component function correctly?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Adjust the specific component, see "5.3.2 Repair procedures" [▶ 325].

5.3.2 Repair procedures

To adjust the manufacturer component

1 See the specific dealer manual to adjust your component.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

5.4 External factors

5.4.1 Checking procedures

To check the outdoor temperature

1 The temperature ranges for the different operation modes of the unit can be found in the databook on Business Portal.

> **INFORMATION**
>
> If the outdoor temperature is outside the range of operation, the unit may NOT operate or may NOT deliver the required capacity.

Is the outdoor temperature within the operating range?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Wait for the outdoor temperature to return within the operating range.

To check for objects that may block the airflow

1 Check for the presence of object(s) near the indoor unit that may block the airflow. Remove the object(s) as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To check the required space around the outdoor unit heat exchanger

1 Check if the space around the outdoor unit heat exchanger is sufficient. See the installation manual for the required space specifications. Adjust as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To check for an external power source

1 Check for the presence of an external power source. This might cause electrical interference (electrical noise disturbance).

2 If an external power source was found, remove it.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

6 Maintenance

> **NOTICE**
>
> **General maintenance/inspection checklist.** Next to the maintenance instructions in this chapter, a general maintenance/inspection checklist is also available on the Daikin Business Portal (authentication required).
>
> The general maintenance/inspection checklist is complementary to the instructions in this chapter and can be used as a guideline and reporting template during maintenance.

6.1 Maintenance shedule

To ensure optimal availability of the unit, certain checks and inspections on the unit and the field wiring have to be carried out at regular intervals. See the checking procedures in this manual for inspection of the components mentioned below.

The intervals depend on:

- Local legislation,
- the conditions at the installation site (presence of dust, sea salt, harmful gas, oil mist, power supply fluctuation, bumps, vibration etc.),
- how the unit is operated (frequent stop and start, longer operation hours etc.),
- total running hours of the unit,
- ambient conditions (high heat and humidity load etc.)

Depending on the above mentioned factors, maintenance may be required sooner than the mentioned interval here below.

The table below also assumes a unit operation of 10 hours/day and 2500 hours/year.
Normal use of the unit is considered when a unit is not performing the stop/start cycle (Thermo OFF and then ON) more than 6 times/hour.

Component	Inspection	Maintenance
Electric Motor	1 year	20.000 hours
PCB		25.000 hours
Heat Exchanger		5 years
Sensor, Thermistor		5 years
User Interface, Switches		25.000 hours
Drain Pan		8 years
Expansion Valve		20.000 hours
Solenoid Valve		20.000 hours
Air Filter		5 years
High Efficiency Filter		1 year
Fuse		10 years
Crankcase Heater		8 years
Components under pressure		In case of corrosion
R32 leak sensor (indoor)		10 years

Also, the cleaning of air filters, heat exchangers, fan propellers, drain pans etc. has to be carried out at regular intervals, see "6.2 Maintenance procedures for outdoor units" [▸ 329] and "6.3 Maintenance procedures for indoor units" [▸ 332].

6.2 Maintenance procedures for outdoor units

6.2.1 To check the general status of the unit

Prerequisite: Switch off all the indoor units.

Prerequisite: Stop the unit operation via the user interface.

1. Turn OFF the respective circuit breaker.

> **DANGER: RISK OF ELECTROCUTION**
>
> Confirm the rectifier voltage is below 10 V DC before proceeding, see "To prevent electrical hazards" [▸ 307].

2. Clean the cover plates, see "6.2.2 To clean the cover plates" [▸ 330].
3. Check if any other equipment interferes with the operation of the outdoor unit (other device exhaust to outdoor unit heat exchanger, chimney exhaust to outdoor unit, corrosive or explosive ambient, electrical equipment such as antennas, GSM towers, etc...). Refer to the installation manual.
4. Make sure that there is sufficient air flow or no air by-pass on outdoor unit heat exchanger in cooling mode. Refer to installation manual for required space. Even after outdoor unit heat exchanger is cleaned by maintenance, if difference between ambient temperature and air inlet of outdoor unit heat exchanger is 5K or more, consider mounting an air guide at air discharge outlet of the outdoor unit.

5 Prior to cleaning, check for oil drips on the bottom plate. If found, check system for signs of refrigerant shortage, check possible leaking points and repair when necessary. Refer to Repair instructions of the component when necessary.

6 Clean the bottom plate.

7 Clean the inside of the unit.

> **NOTICE**
>
> To clean the inside of the unit:
>
> - Use water or compressed air, not warmer than 50° C.
> - Do not use any cleaning agents or chemicals.
> - Do not use pressurized water.

8 Check the general status inside the cover plates.

9 Check the visual appearance of all the components, including PCBs. Refer to component check methods if any irregularity is found.

10 Check the electrical connections. Tighten and secure the connections when necessary.

11 Check if power supply is in conform with legislation. See "To check if the power supply is conform with the regulations" [▸ 306].

12 Check and tighten the power supply wiring on the dedicated terminal.

13 Check insulation on piping and refrigerant branches. Replace or fix insulation where necessary.

14 Make sure that the water drain works properly and is not clogged or does not cause any accumulation of water.

15 Clean outdoor unit heat exchanger see "6.2.3 To clean the outdoor unit heat exchanger" [▸ 331].

16 Clean outdoor unit fan propellers.

17 Check latest error codes and latest retries, see "3.2 To retrieve error codes and check error history" [▸ 20].

18 Log the maintenance in the log-book.

After outdoor unit and indoor unit (see "6.3 Maintenance procedures for indoor units" [▸ 332]) maintenance is performed, check the system via the service monitoring tool for normal operation. See "3.4 Symptom based troubleshooting" [▸ 157].

6.2.2 To clean the cover plates

1 Clean the cover plates with a wet cloth.

> **NOTICE**
>
> To clean the plate work:
>
> - Use water or compressed air, not warmer than 50° C.
> - Do not use any cleaning agents or chemicals.
> - Do not use pressurized water.

6.2.3 To clean the outdoor unit heat exchanger

1. Straighten the hair fins.
2. Clear the outdoor unit heat exchanger from dust, leaves,... using a fin-comb or compressed air/N_2.

CAUTION

Avoid bending or damaging the hair fins of the outdoor unit heat exchanger during the cleaning process.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

6.3 Maintenance procedures for indoor units

6.3.1 To check the general status of the unit

Prerequisite: Stop the unit operation via the user interface.

1. Switch off all the indoor units.
2. Clean the outside panels, see "6.3.2 To clean the air outlet and outside panels" [▸ 333].
3. Check if any other equipment interferes with the operation of the indoor unit (other device exhaust towards indoor unit heat exchanger, oil mist, water vapour etc, corrosive or explosive ambient, electrical equipment, blocked air outlets or inlets, etc...) Refer to installation manual.
4. Make sure that there is sufficient air flow or no air by-pass on the indoor unit heat exchanger in cooling mode.
5. Check superheat for refrigerant.
Normally the expansion valve for the indoor unit is driven to keep minimum 3K of superheat.
If not, even if the filters are cleaned, it might be that:

- the heat exchanger is clogged by dust (see "6.3.3 To clean the indoor unit heat exchanger" [▸ 334]),
- an air by-pass is present,
- the fan cannot deliver discharge air due to longer supply duct,
- expansion valve is malfunctioning (see next step).

6. The best way to judge expansion valve bleeding is to operate indoor units in cooling, set the dedicated indoor unit to Fan only operation and then check refrigerant thermistors by Service Checker. Fan only operated indoor unit sets expansion valve to 0 pulse. If the gas thermistor on the indoor unit is close to evaporation temperature and does not rise to ambient temperature in time, the expansion valve is bleeding and needs to be replaced.
Once check is completed switch to other indoor unit and set the operation to Fan only and proceed in similar manner.
7. Clean the inside of the unit.

> **NOTICE**
>
> To clean the inside of the unit:
>
> - Use water or compressed air, not warmer than 50° C.
> - Do not use any cleaning agents or chemicals.
> - Do not use pressurized water.

8. Check the general status inside the cover plates.
9. Check if the drain is properly drained by pouring water in the drain pan. Check drain pan and drain piping if this is not the case.
10. Check the visual appearance of all the components. Refer to component check methods if any irregularity is found.
11. Check the flare connections and their surrounding for oil drips and signs of leaks.
12. Check the electrical connections. Tighten and secure the connections when necessary.

13 Check if power supply is in conform with legislation. See "To check if the power supply is conform with the regulations" [▸ 306].

14 Check and tighten the power supply wiring on the dedicated terminal.

15 Check the insulation on piping and refrigerant branches. Replace or fix insulation where necessary.

> **INFORMATION**
>
> Depending on the setting of parameter 20-0 on the indoor unit remote controller, a filter sign is indicated on the remote controller (or central controller if present). This indicates that the time that was set by the parameter has passed and filter cleaning is required. For more information, refer to installation manual for the indoor unit.

16 Remove and clean the air filters, see "6.3.4 To clean the air filters" [▸ 334].

17 Make sure there is a filter on the air suction line for the indoor unit. Refer to installation manual for the indoor unit.

> **INFORMATION**
>
> When air filters are not cleaned at regular intervals, dust begins to accumulate on the indoor unit heat exchanger.

18 Check the indoor unit heat exchanger and clean him if necessary, see "6.3.3 To clean the indoor unit heat exchanger" [▸ 334]. Normally this is not a required step if the unit is not exposed to oil mist alike exhaust and when filters are cleaned regularly. To clean the indoor unit heat exchanger it may be necessary to remove bottom plate, side covers, drain pan, fan propeller and fan motor to gain access to the indoor unit heat exchanger.

19 Check wireless remote controller battery (if present).

20 Log the maintenance in the log-book.

After outdoor unit and indoor unit (see "6.3 Maintenance procedures for indoor units" [▸ 332]) maintenance is performed, check the system via Service Checker for normal operation. See "3.4 Symptom based troubleshooting" [▸ 157].

6.3.2 To clean the air outlet and outside panels

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

> **NOTICE**
>
> - Do NOT use gasoline, benzene, thinner polishing powder or liquid insecticide. **Possible consequence:** Discoloration and deformation.
> - Do NOT use water or air of 50°C or higher. **Possible consequence:** Discoloration and deformation.
> - Do NOT scrub firmly when washing the blade with water. **Possible consequence:** The surface sealing peels off.

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

6.3.3 To clean the indoor unit heat exchanger

1. Straighten the hair fins.
2. Clear the indoor unit heat exchanger from dust, … using a fin-comb or compressed air/N_2.

CAUTION

Avoid bending or damaging the hair fins of the indoor unit heat exchanger during the cleaning process.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

6.3.4 To clean the air filters

FXAA

NOTICE

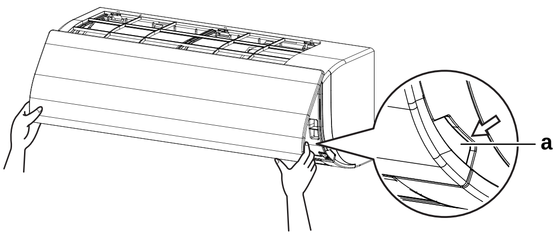
Do NOT use water of 50°C or higher. **Possible consequence:** Discoloration and deformation.

When to clean the air filter:

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

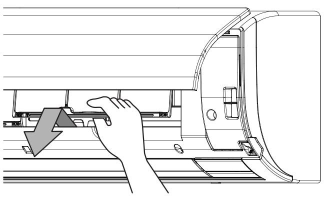
How to clean the air filter:

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

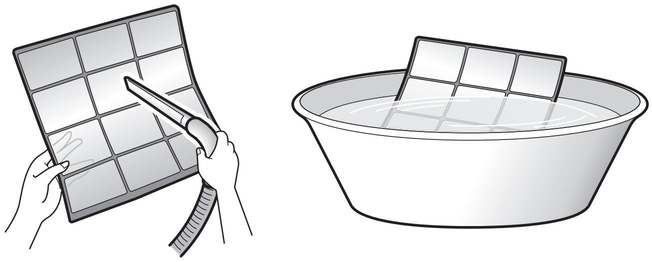


a Panel tab

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



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



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

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

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

7 Turn ON the power.

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

FXFA

When to clean the air filter:

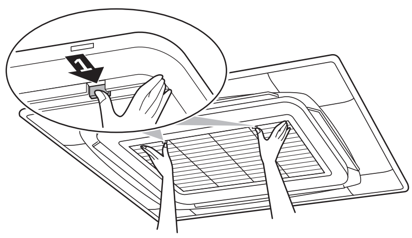
- Rule of thumb: Clean every 6 months. If the air in the room is extremely contaminated, increase the cleaning frequency.
- Depending on the settings, the user interface can display the **"Time to clean filter"** notification. Clean the air filter when the notification is displayed.
- If the dirt becomes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

How to clean the air filter:

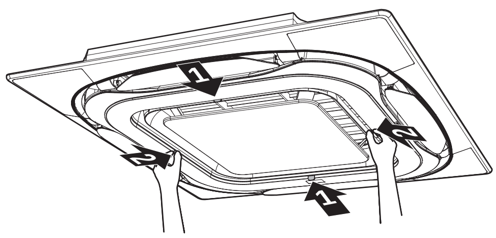
> **NOTICE**
>
> Do NOT use water of 50°C or higher. **Possible consequence:** Discoloration and deformation.

9 Open the suction grille.

Standard panel:

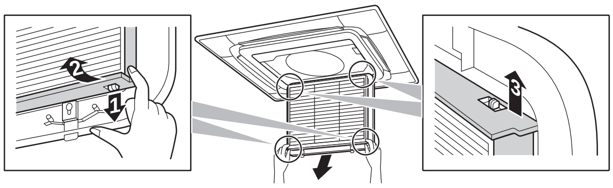


Design panel:

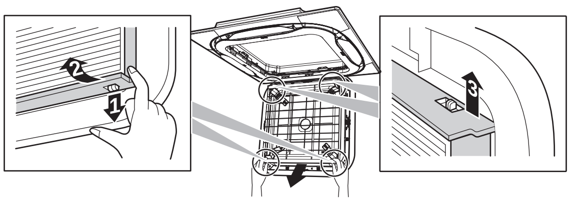


10 Remove the air filter.

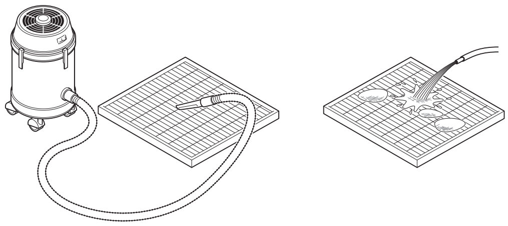
Standard panel:



Design panel:



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



12 Dry the air filter in the shadow.

13 Reattach the air filter and close the suction grille.

14 Turn ON the power.

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

FXSA

When to clean the air filter:

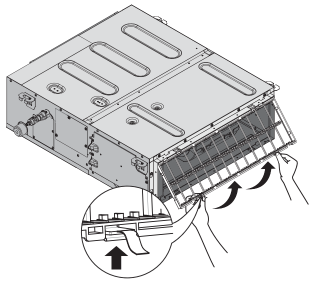
- Rule of thumb: Clean every 6 months. If the air in the room is extremely contaminated, increase the cleaning frequency.
- Depending on the settings, the user interface can display the **"Time to clean filter"** notification. Clean the air filter when the notification is displayed.
- If the dirt becomes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

How to clean the air filter:

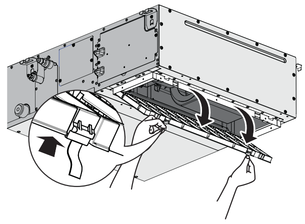
> **NOTICE**
>
> Do NOT use water of 50°C or higher. **Possible consequence:** Discoloration and deformation.

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

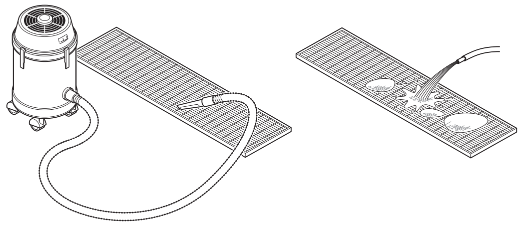
rear suction



bottom suction



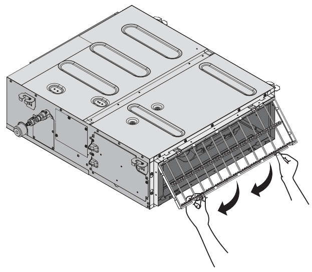
17 Clean the air filter. Use a vacuum cleaner or wash with water. If the air filter is very dirty, use a soft brush and neutral detergent.



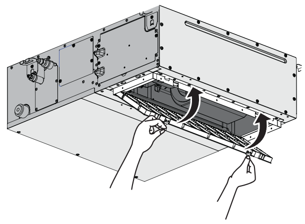
18 Dry the air filter in the shadow.

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

rear suction



bottom suction



20 Confirm that all hangers are fixed.

21 In case of bottom suction, close the air inlet grille. In case of rear suction, close service duct opening.

22 Turn ON the power.

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

FXDA

When to clean the air filter:

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

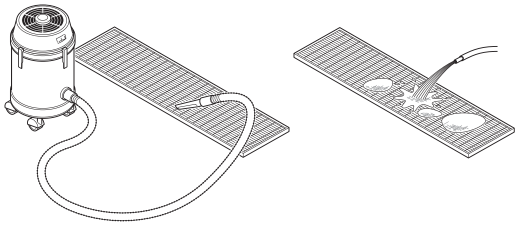
How to clean the air filter:

NOTICE

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

24 **Remove the air filter.** Push the hooks and pull the filter as shown in illustration below. (2 hooks for 10~32 class or 3 hooks for 40~63 class)

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



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

27 **Reattach the air filter.** Hook the filter behind the flap and attach the filter to the main unit while pushing down on the hooks.

28 Make sure that hooks are properly fixed.

29 Turn ON the power.

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

FXZA

When to clean the air filter:

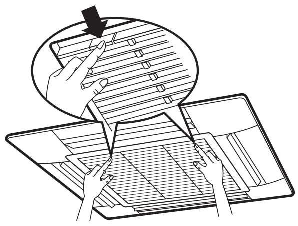
- Rule of thumb: Clean every 6 months. If the air in the room is extremely contaminated, increase the cleaning frequency.
- Depending on the settings, the user interface can display the **"Time to clean filter"** notification. Clean the air filter when the notification is displayed.
- If the dirt becomes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

How to clean the air filter:

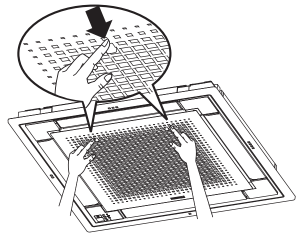
> **NOTICE**
>
> Do NOT use water of 50°C or higher. **Possible consequence:** Discoloration and deformation.

31 Open the suction grille.

BYFQ60B

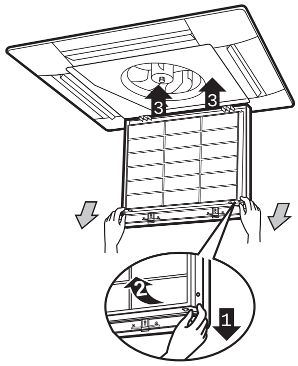


BYFQ60C

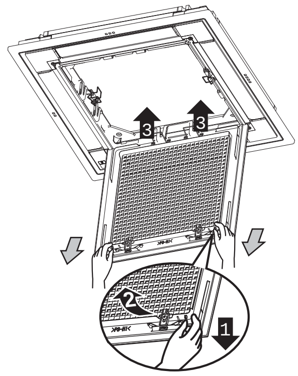


32 Remove the air filter.

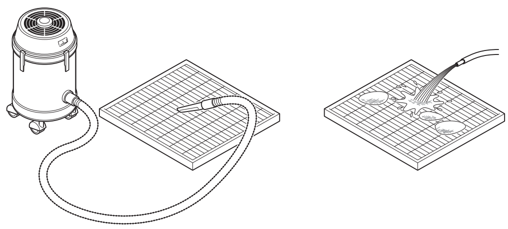
BYFQ60B



BYFQ60C



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



34 Dry the air filter in the shadow.

35 Reattach the air filter and close the suction grille.

36 Turn ON the power.

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

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

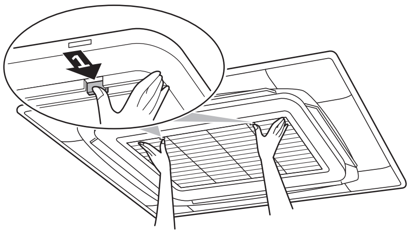
6.3.5 To clean the suction grille

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

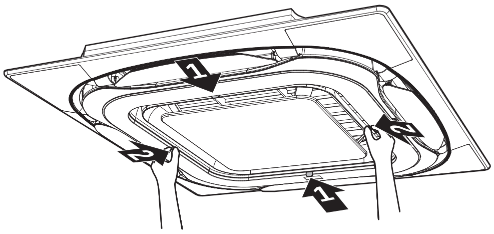
FXFA

1 Open the suction grille.

Standard panel:

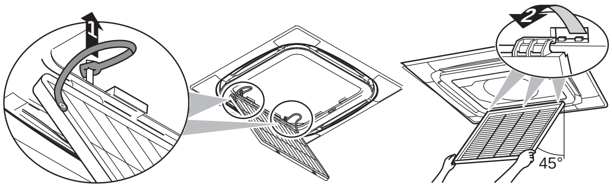


Design panel:

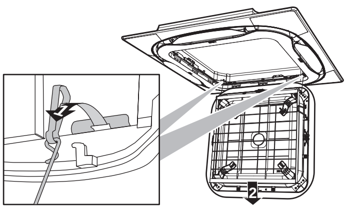


2 Remove the suction grille.

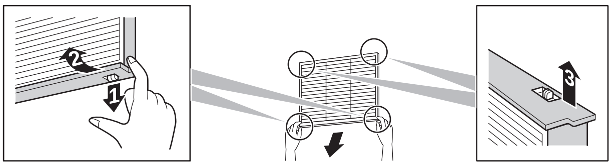
Standard panel:



Design panel:



3 Remove the air filter.



4 Clean the suction grille. Wash with a soft bristle brush, and water or neutral detergent. If the suction grille is very dirty, use a typical kitchen cleaner, leave it on for 10 min, then wash it with water.

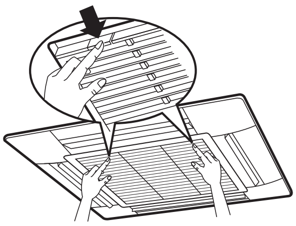
5 Reattach the air filter (step 3 in reverse order).

6 Reattach the suction grille and close it (step 2 and 1 in reverse order).

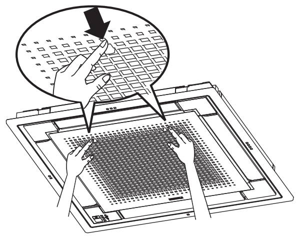
FXZA

7 Open the suction grille.

BYFQ60B

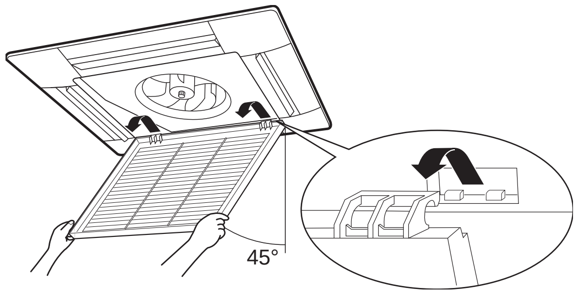


BYFQ60C

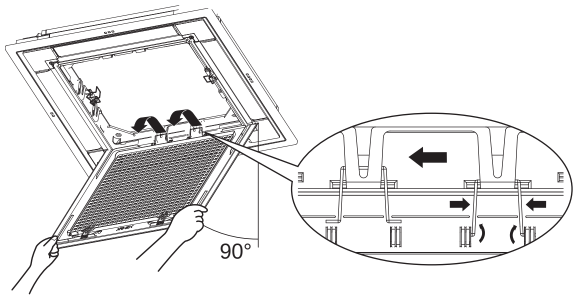


8 Remove the suction grille.

BYFQ60B

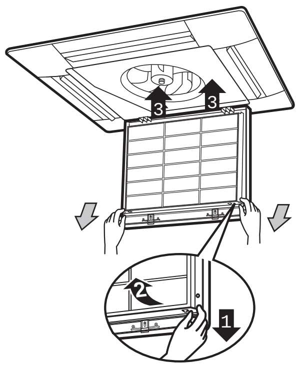


BYFQ60C

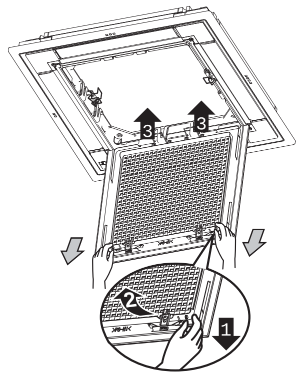


9 Remove the air filter.

BYFQ60B



BYFQ60C



10 Clean the suction grille. Wash with a soft bristle brush and water or neutral detergent. If the suction grille is very dirty, use a typical kitchen cleaner, leave it on for 10 min, then wash it with water.

11 Reattach the air filter (step 3 in reverse order).

12 Reattach the suction grille and close it (step 2 and 1 in reverse order).

7 Technical data

7.1 Detailed information setting mode

7.1.1 Detailed information setting mode: Indoor unit

See the installer reference guide on business portal for more information.

7.1.2 Detailed information setting mode: Outdoor unit

See the installer reference guide on business portal for more information.

7.1.3 Detailed information setting mode: Remote controller

See the installer reference guide on business portal for more information.

7.2 Wiring diagram

7.2.1 Wiring diagram: Outdoor unit

The wiring diagram is delivered with the unit, located at the inside of the service 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 RXYSA4~6_V:

A1P	Printed circuit board (main)
A2P	Printed circuit board (sub)
A3P	Printed circuit board (back-up)
A4P	Printed circuit board (cool/heat selector)
BS* (A1P)	Push buttons (mode, set, return, test, reset)
DS* (A1P)	DIP switch
E1H	Bottom plate heater (option)
E1HC	Crank case heater
F1U (A1P)	Fuse (M 56 A / 250 V)
F1U (A2P)	Fuse (T 3.15 A / 250 V)
F1U	Fuse (T 1.0 A / 250 V)
F2U (A1P)	Fuse (T 6.3 A / 250 V)
F3U (A1P)	Fuse (T 6.3 A / 250 V)
F6U (A1P)	Fuse (T 5.0 A / 250 V)
F101U (A3P)	Fuse (T 2.0 A / 250 V)
HAP (A1P)	Running LED (service monitor green)
K*M (A1P)	Contactor on PCB
K*R (A*P)	Relay on PCB
M1C	Motor (compressor)

M1F	Motor (fan)
PS (A*P)	Switching power supply
Q1	Overload switch
Q1DI	Earth leakage circuit breaker (field supply)
R1T	Thermistor (ambient)
R3T	Thermistor (suction)
R4T	Thermistor (liquid)
R5T	Thermistor (subcool)
R6T	Thermistor (superheat)
R7T	Thermistor (heat exchanger)
R10T	Thermistor (fin)
R21T	Thermistor (discharge)
R*T	PTC thermistor
S1NPH	High pressure sensor
S1NPL	Low pressure sensor
S1PH	High pressure switch
S1S	Air control switch (option)
S2S	Cool/heat selector switch (option)
SEG* (A1P)	7-segment display
SFB	Mechanical ventilation error input (field supply)
V1R, V2R (A1P)	IGBT power module
V3R (A1P)	Diode module
X*A	PCB connector
X*M	Terminal strip
X*Y	Connector
Y1E	Electronic expansion valve (main – EVM1)
Y2E	Electronic expansion valve (EVT)
Y3E	Electronic expansion valve (main – EVM2)
Y4E	Electronic expansion valve (EVL)
Y5E	Electronic expansion valve (EVSL)
Y6E	Electronic expansion valve (EVSG)
Y1S	Solenoid valve (4-way valve)
Y3S	Error operation output (SVEO) (field supply)
Y4S	Leak sensor output (SVS) (field supply)
Z*C	Noise filter (ferrite core)
Z*F (A*P)	Noise filter

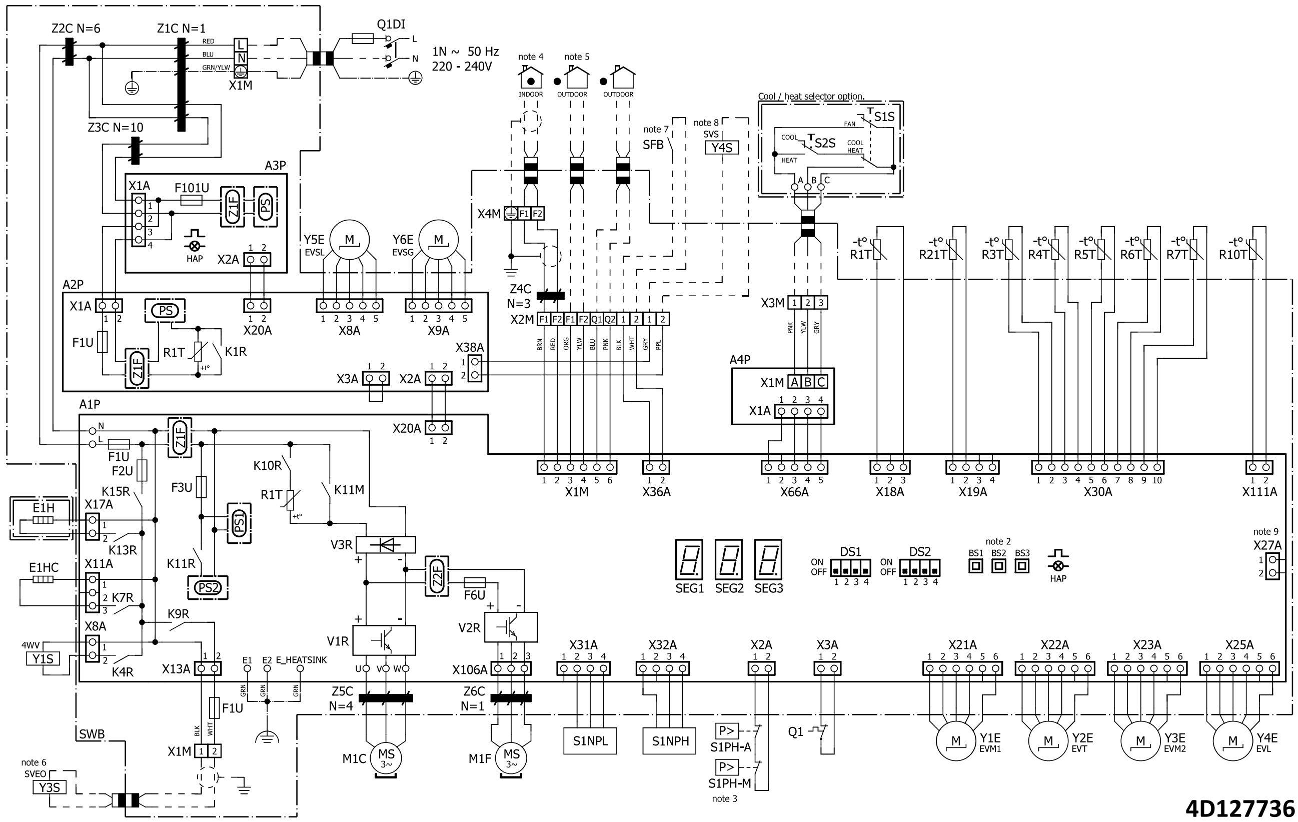
Legend for wiring diagram RXYSA4~6_Y:

A1P	Printed circuit board (main)
A2P	Printed circuit board (sub)
A3P	Printed circuit board (back-up)
A4P	Printed circuit board (cool/heat selector)
A5P	Printed circuit board (noise filter)
BS* (A1P)	Push buttons (mode, set, return, test, reset)
C* (A1P)	Capacitors
DS* (A1P)	DIP switch
E1H	Bottom plate heater (option)
E1HC	Crank case heater
F1U (A1P)	Fuse (T 6.3 A / 250 V)
F1U (A2P)	Fuse (T 3.15 A / 250 V)
F1U	Fuse (T 1.0 A / 250 V)
F6U (A1P)	Fuse (T 6.3 A / 250 V)
F7U (A1P)	Fuse (T 5.0 A / 250 V)
F101U (A3P)	Fuse (T 2.0 A / 250 V)
HAP (A1P)	Running LED (service monitor green)
K*M (A1P)	Contactor on PCB
K*R (A*P)	Relay on PCB
L1R (A*P)	Reactor
M1C	Motor (compressor)
M1F	Motor (fan)
PS (A*P)	Switching power supply
Q1	Overload switch
Q1DI	Earth leakage circuit breaker (field supply)
R* (A*P)	Resistor
R1T	Thermistor (ambient)
R3T	Thermistor (suction)
R4T	Thermistor (liquid)
R5T	Thermistor (subcool)
R6T	Thermistor (superheat)
R7T	Thermistor (heat exchanger)
R10T	Thermistor (fin)
R21T	Thermistor (discharge)
R*T	PTC thermistor
S1NPH	High pressure sensor
S1NPL	Low pressure sensor

S1PH	High pressure switch
S1S	Air control switch (option)
S2S	Cool/heat selector switch (option)
SEG* (A1P)	7-segment display
SFB	Mechanical ventilation error input (field supply)
V*D	Diode module
V1R, V2R (A1P)	IGBT power module
V3R (A1P)	Diode module
X*A	PCB connector
X*M	Terminal strip
X*Y	Connector
Y1E	Electronic expansion valve (main – EVM1)
Y2E	Electronic expansion valve (EVT)
Y3E	Electronic expansion valve (main – EVM2)
Y4E	Electronic expansion valve (EVL)
Y5E	Electronic expansion valve (EVSL)
Y6E	Electronic expansion valve (EVSG)
Y1S	Solenoid valve (4-way valve)
Y3S	Error operation output (SVEO) (field supply)
Y4S	Leak sensor output (SVS) (field supply)
Z*C	Noise filter (ferrite core)
Z*F (A*P)	Noise filter

RXYSA4~6_V units

> **INFORMATION**
>
> The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.



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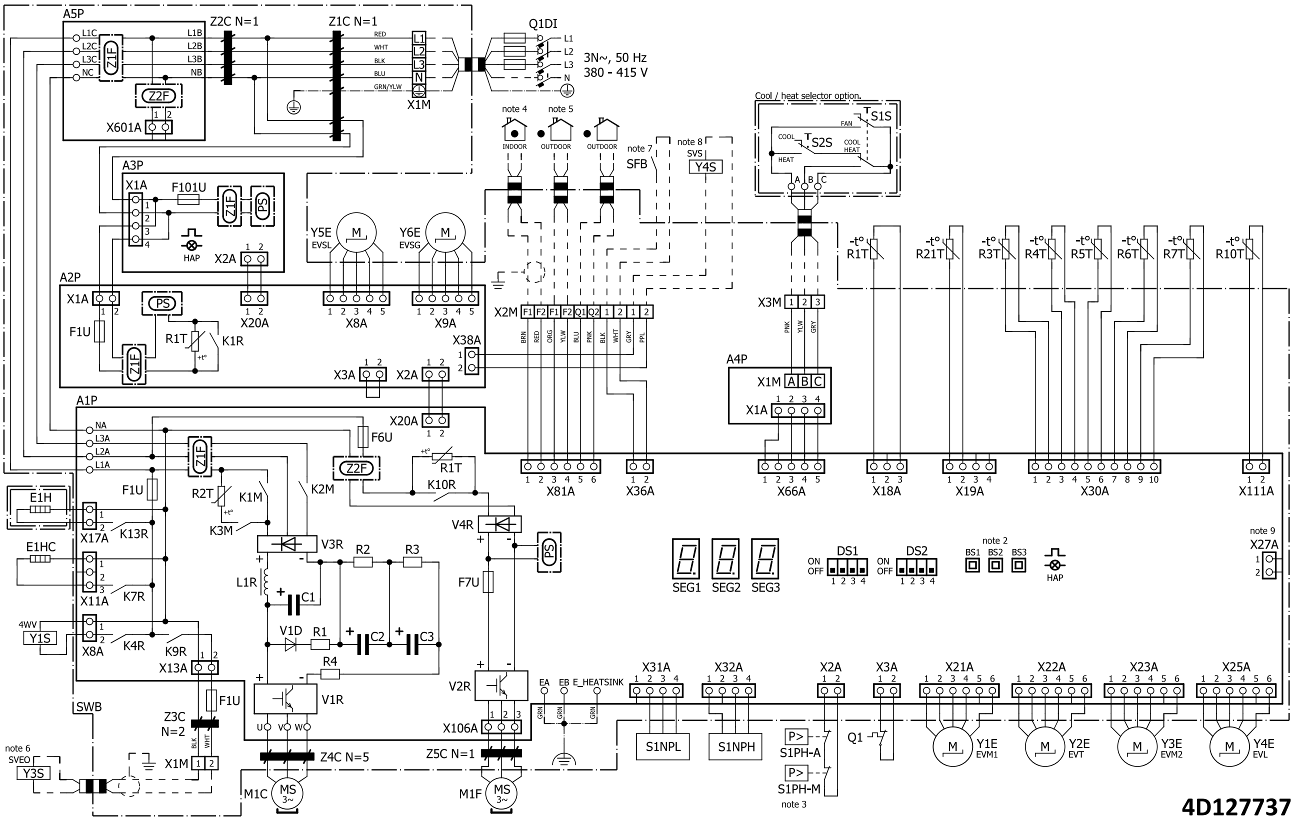
RXYSQ4~6_Y units

INFORMATION

The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.



7.2.2 Wiring diagram: Indoor unit

The wiring diagram is delivered with the unit, located inside of the outdoor unit (bottom side of the top plate).

FXZA

(1) Wiring diagram

English	Translation
Wiring diagram	Wiring diagram
Indoor	Indoor
Indoor unit	Indoor unit
Wired remote controller	Wired remote controller
Control box	Control box
Control box layout	Control box layout
Decoration panel	Decoration panel
Transmission wiring (Outdoor unit)	Transmission wiring (Outdoor unit)
Gas sensor circuit	Gas sensor circuit
White	White
Black	Black
Blue	Blue
Green	Green
Yellow	Yellow
Red	Red
Note ***	Note ***

(2) Notes

English	Translation
	Field wiring
	Terminal block
	Connector

WIRE COLOURS:

BLK : Black

RED : Red

BLU : Blue

WHT : White

YLW : Yellow

GRN: Green

BRN : Brown

PNK: Pink

GRY: Gray

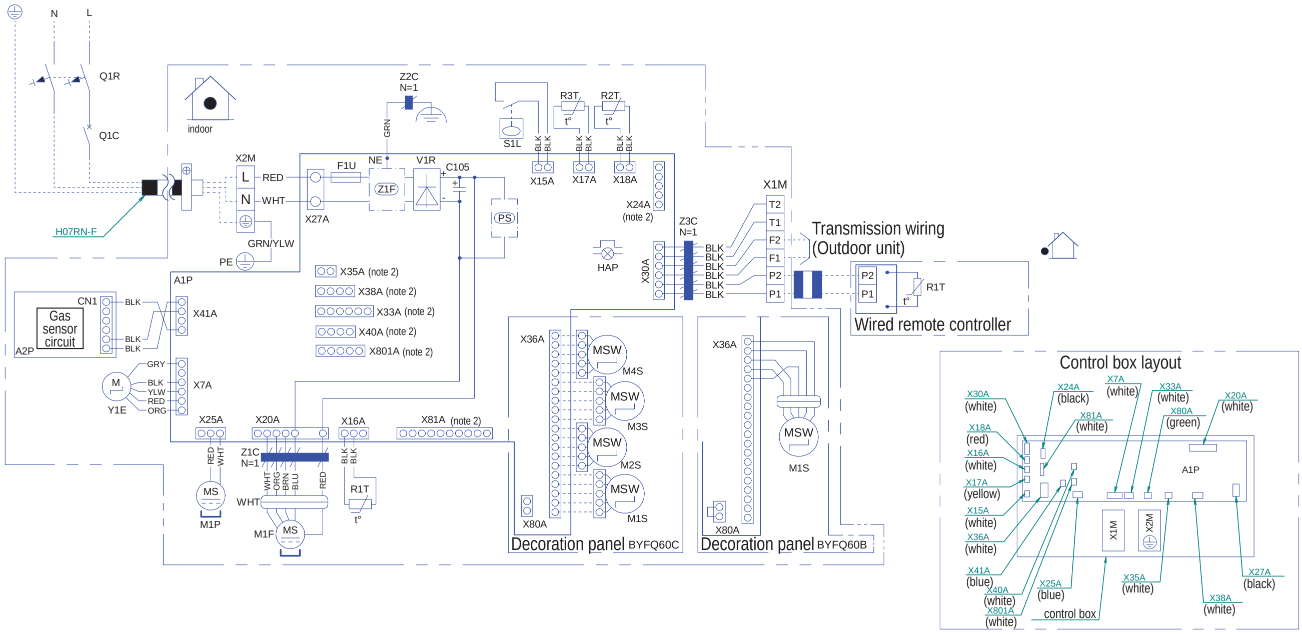
ORG: Orange

NOTES:

2. X24A, X33A, X35A, X38A, X40A, X81A, X801A are connected when optional accessories are being used, see wiring diagram of this accessory.

(3) Legend

Indoor unit	
A1P	Printed circuit board (main)
C105	Capacitor
F1U	Fuse (T, 3.15 A, 250 V)
HAP	Flashing lamp (service monitor: green)
M1P	Motor (drain pump)
M1F	Motor (indoor fan)
R1T	Thermistor (air)
R2T, R3T	Thermistor (coil)
S1L	Float switch (drain pump)
V1R	Diode bridge
X7A~X801A	Connector
X1M	Terminal block (remote controller)
X2M	Terminal block (power supply)
Z1C~Z3C	Ferrite core
Z1F	Noise filter
PS	Switching power supply
Y1E	Electronic expansion valve
Q*R	Residual current device
Q*C	Circuit breaker
NE	Noiseless earth
CN*	Gas sensor connector
A2P	Printed circuit board (gas sensor)
Wired remote controller	
R1T	Thermistor (air)
Decoration panel	
M1S~M4S	Motor (swing blade)



indoor
Transmission wiring (Outdoor unit)
Wired remote controller
Decoration panel BYFQ60C
Decoration panel BYFQ60B
Control box layout
Gas sensor circuit
control box

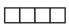
3D128234

FXFA

(1) Wiring diagram

English	Translation
Wiring diagram	Wiring diagram
Indoor unit	Indoor unit
Wired remote control	Wired remote control
Control box layout	Control box layout
Decoration panel	Decoration panel
Transmission wiring (Outdoor unit)	Transmission wiring (Outdoor unit)
Gas sensor circuit	Gas sensor circuit
White	White
Black	Black
Blue	Blue
Yellow	Yellow
Note ***	Note ***

(2) Notes

English	Translation
	Field wiring
	Terminal block
	Connector

WIRE COLOURS:

BLK : Black

RED : Red

BLU : Blue

WHT : White

YLW : Yellow

GRN: Green

BRN : Brown

PNK: Pink

GRY: Gray

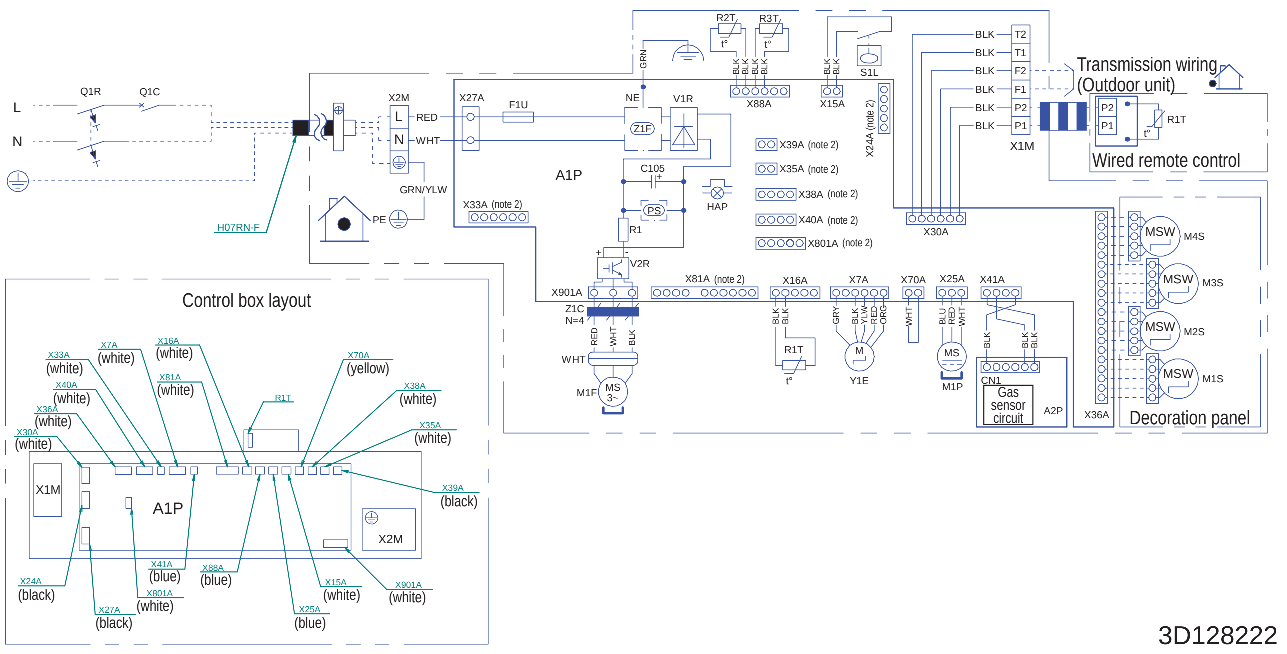
ORG: Orange

NOTES:

2. X24A, X33A, X35A, X38A, X39A, X40A, X81A, X801A are connected when optional accessories are being used, see wiring diagram of this accessory.

(3) Legend

Indoor unit	
A1P	Printed circuit board (main)
C105	Capacitor
F1U	Fuse (T, 3.15 A, 250 V)
HAP	Flashing lamp (service monitor: green)
M1P	Motor (drain pump)
M1F	Motor (indoor fan)
R1	Resistor
R1T	Thermistor (air)
R2T, R3T	Thermistor (coil)
S1L	Float switch (drain pump)
V1R	Diode bridge
V2R	IGBT power module
X7A~X901A	Connector
X1M	Terminal block (remote controller)
X2M	Terminal block (power supply)
Z1C	Ferrite core
Z1F	Noise filter
PS	Switching power supply
Y1E	Electronic expansion valve
Q*R	Residual current device
Q*C	Circuit breaker
NE	Noiseless earth
CN*	Gas sensor connector
A2P	Printed circuit board (gas sensor)
Wired remote controller	
R1T	Thermistor (air)
Decoration panel	
M1S~M4S	Motor (swing blade)


L
N
Q1R
Q1C
H07RN-F
X2M
RED
WHT
GRN/YLW
PE
X27A
F1U
NE
Z1F
V1R
A1P
C105
PS
R1
V2R
HAP
X33A (note 2)
X39A (note 2)
X35A (note 2)
X38A (note 2)
X40A (note 2)
X801A (note 2)
X24A (note 2)
R2T
R3T
X88A
X15A
S1L
X30A
X901A
Z1C
N=4
X81A (note 2)
X16A
X7A
X70A
X25A
X41A
R1T
Y1E
M1P
M1F
CN1
Gas sensor circuit
A2P
X36A
T2
T1
F2
F1
P2
P1
X1M
Transmission wiring (Outdoor unit)
Wired remote control
MSW
M4S
M3S
M2S
M1S
Decoration panel
Control box layout
X33A (white)
X7A (white)
X16A (white)
X40A (white)
X81A (white)
X36A (white)
X30A (white)
X70A (yellow)
X38A (white)
X35A (white)
X39A (black)
X24A (black)
X41A (blue)
X801A (white)
X27A (black)
X88A (blue)
X15A (white)
X25A (blue)
X901A (white)
3D128222

FXDA

(1) Wiring diagram

English	Translation
Wiring diagram	Wiring diagram
Indoor	Indoor
Indoor unit	Indoor unit
Wired remote controller	Wired remote controller
Control box	Control box
Control box layout	Control box layout
Transmission wiring (Outdoor unit)	Transmission wiring (Outdoor unit)
Gas sensor circuit	Gas sensor circuit
White	White
Black	Black
Blue	Blue
Yellow	Yellow
Red	Red
Note ***	Note ***

(2) Notes

English	Translation
	Field wiring
	Terminal block
	Connector

WIRE COLOURS:

BLK : Black

RED : Red

BLU : Blue

WHT : White

YLW : Yellow

GRN: Green

BRN : Brown

PNK: Pink

GRY: Gray

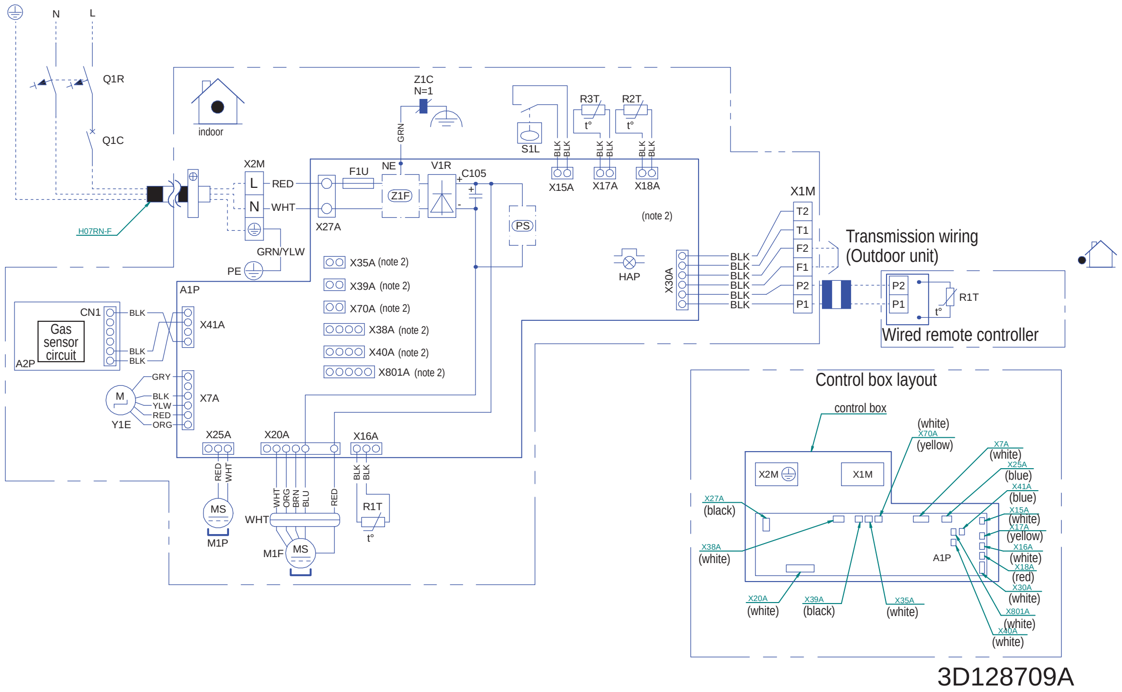
ORG: Orange

NOTES:

2. X35A, X38A, X39A, X40A, X70A, X801A are connected when optional accessories are being used, see wiring diagram of this accessory.

(3) Legend

Indoor unit	
A1P	Printed circuit board (main)
C105	Capacitor
F1U	Fuse (T, 3.15 A, 250 V)
HAP	Flashing lamp (service monitor: green)
M1P	Motor (drain pump)
M1F	Motor (indoor fan)
R1T	Thermistor (air)
R2T, R3T	Thermistor (coil)
S1L	Float switch (drain pump)
V1R	Diode bridge
X7A~X801A	Connector
X1M	Terminal block (remote controller)
X2M	Terminal block (power supply)
Z1C	Ferrite core
Z1F	Noise filter
PS	Switching power supply
Y1E	Electronic expansion valve
Q*R	Residual current device
Q*C	Circuit breaker
NE	Noiseless earth
CN*	Gas sensor connector
A2P	Printed circuit board (gas sensor)
Wired remote controller	
R1T	Thermistor (air)



Q1R
Q1C
indoor
H07RN-F
X2M
RED
WHT
GRN/YLW
PE
Z1C
N=1
GRN
F1U
NE
V1R
C105
Z1F
X27A
PS
S1L
R3T
R2T
X15A
X17A
X18A
(note 2)
HAP
X30A
X1M
T2
T1
F2
F1
P2
P1
Transmission wiring
(Outdoor unit)
R1T
Wired remote controller
A1P
X35A (note 2)
X39A (note 2)
X70A (note 2)
X38A (note 2)
X40A (note 2)
X801A (note 2)
CN1
Gas sensor circuit
A2P
X41A
X7A
Y1E
X25A
X20A
X16A
M1P
M1F
Control box layout
control box
3D128709A

FXSA20~FXSA125

(1) Wiring diagram

English	Translation
Wiring diagram	Wiring diagram
Indoor	Indoor
Indoor unit	Indoor unit
Wired remote controller	Wired remote controller
Control box	Control box
Control box layout	Control box layout
Transmission wiring (Outdoor unit)	Transmission wiring (Outdoor unit)
Gas sensor circuit	Gas sensor circuit
White	White
Black	Black
Blue	Blue
Yellow	Yellow
Red	Red
Note ***	Note ***

(2) Notes

English	Translation
	Field wiring
	Terminal block
	Connector

WIRE COLOURS:

BLK : Black

RED : Red

BLU : Blue

WHT : White

YLW : Yellow

GRN: Green

BRN : Brown

PNK: Pink

GRY: Gray

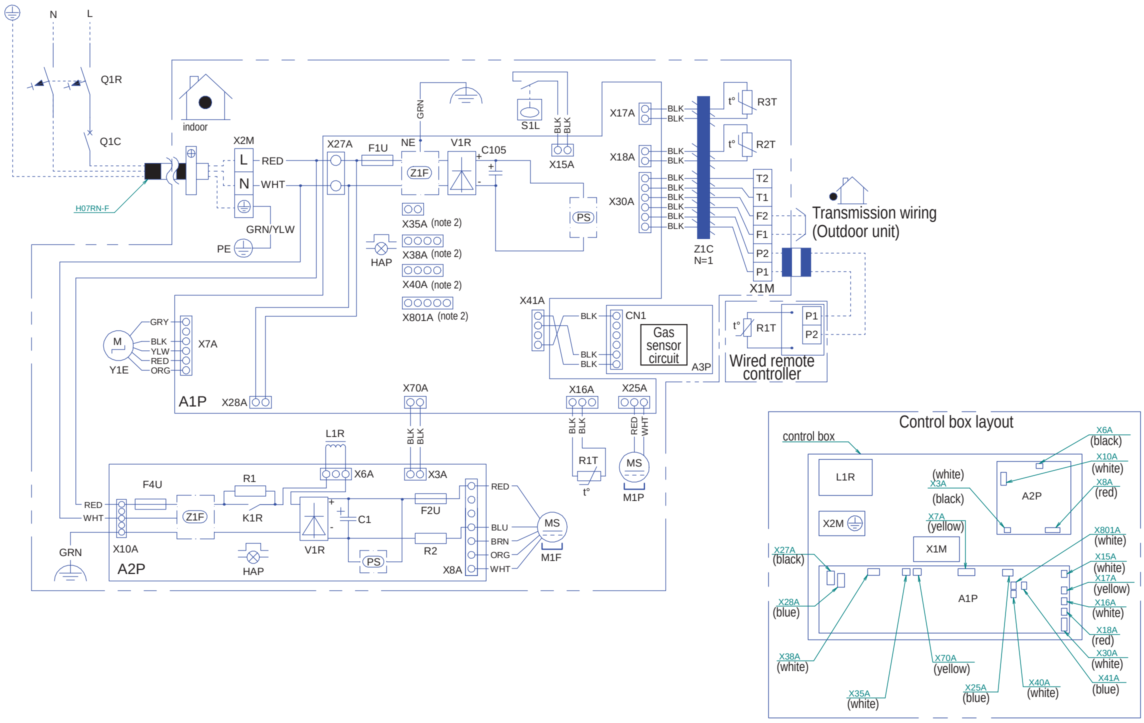
ORG: Orange

NOTES:

2. X35A, X38A, X40A, X801A are connected when optional accessories are being used, see wiring diagram of this accessory.

(3) Legend

Indoor unit	
A1P	Printed circuit board (main)
A2P	Printed circuit board (fan)
A3P	Printed circuit board (gas sensor)
C1	Capacitor
C105	Capacitor
CN*	Gas sensor connector
F1U	Fuse (T, 3.15 A, 250 V)
F2U	Fuse (T, 5 A, 250 V)
F4U	Fuse (T, 6.3 A, 250 V)
HAP	Indication lamp
K1R	Magnetic relay
L1R	Reactor
M1P	Motor (drain pump)
M1F	Motor (indoor fan)
NE	Noiseless earth
Q*R	Residual current device
Q*C	Circuit breaker
R1	Resistor
R2	Resistor (current sensor)
R1T	Thermistor (air)
R2T	Thermistor (liquid)
R3T	Thermistor (coil)
S1L	Float switch
V1R	Diode bridge
PS	Switching power supply
X1M	Terminal strip (remote controller)
X2M	Terminal strip (power supply)
X3A~X801A	Connector
Y1E	Electronic expansion valve
Z1C	Ferrite core
Z1F	Noise filter


N
L
Q1R
Q1C
H07RN-F
indoor
X2M
L
N
RED
WHT
GRN/YLW
PE
X27A
F1U
NE
GRN
Z1F
V1R
C105
S1L
BLK
X15A
PS
X35A (note 2)
X38A (note 2)
X40A (note 2)
X801A (note 2)
HAP
X17A
X18A
X30A
Z1C
N=1
R3T
R2T
T2
T1
F2
F1
P2
P1
X1M
Transmission wiring
(Outdoor unit)
X41A
CN1
Gas
sensor
circuit
A3P
R1T
Wired remote
controller
M
Y1E
GRY
BLK
YLW
RED
ORG
X7A
A1P
X28A
X70A
X16A
X25A
MS
M1P
L1R
X6A
X3A
F4U
R1
K1R
C1
F2U
R2
X10A
A2P
GRN
HAP
X8A
BLU
BRN
ORG
WHT
M1F
Control box layout
control box
L1R
X2M
X1M
A2P
A1P
X6A (black)
X10A (white)
X8A (red)
X3A (white) (black)
X7A (yellow)
X27A (black)
X28A (blue)
X38A (white)
X35A (white)
X70A (yellow)
X25A (blue)
X40A (white)
X801A (white)
X15A (white)
X17A (yellow)
X16A (white)
X18A (red)
X30A (white)
X41A (blue)

3D128710

FXSA140

(1) Wiring diagram

English	Translation
Wiring diagram	Wiring diagram
Indoor	Indoor
Indoor unit	Indoor unit
Wired remote controller	Wired remote controller
Control box	Control box
Control box layout	Control box layout
Transmission wiring (Outdoor unit)	Transmission wiring (Outdoor unit)
Gas sensor circuit	Gas sensor circuit
White	White
Black	Black
Blue	Blue
Yellow	Yellow
Red	Red
Note ***	Note ***

(2) Notes

English	Translation
	Field wiring
	Terminal block
	Connector

WIRE COLOURS:

BLK : Black

RED : Red

BLU : Blue

WHT : White

YLW : Yellow

GRN: Green

BRN : Brown

PNK: Pink

GRY: Gray

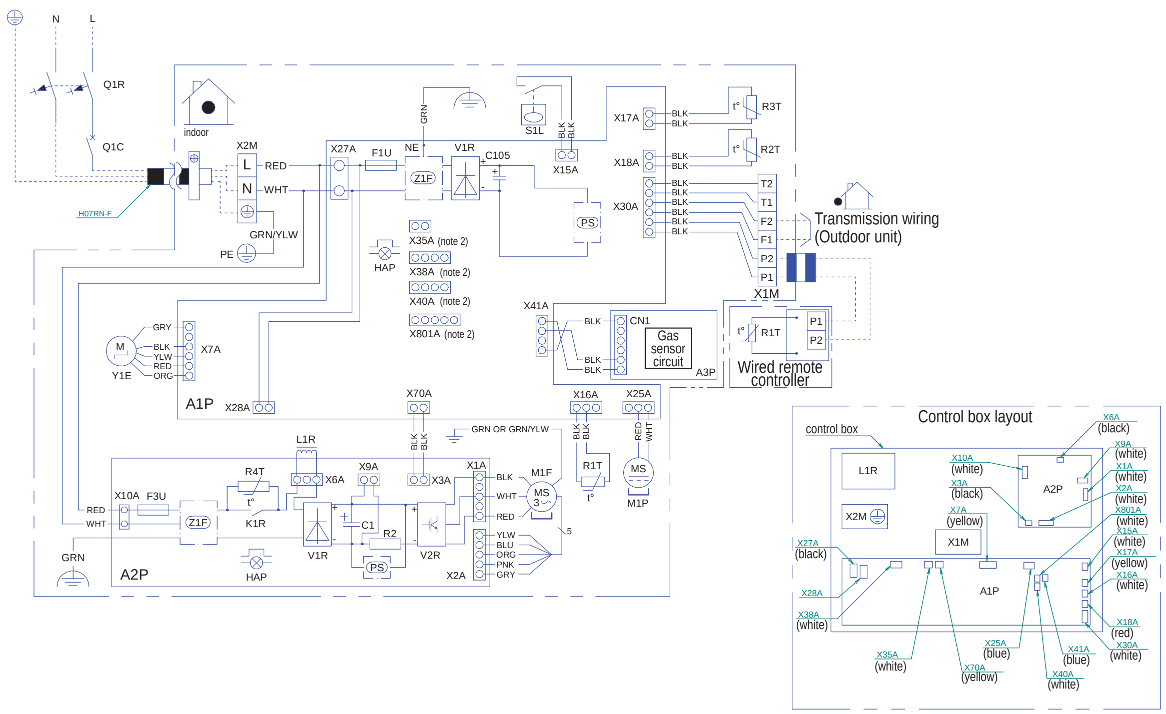
ORG: Orange

NOTES:

2. X35A, X38A, X40A, X801A are connected when optional accessories are being used, see wiring diagram of this accessory.

(3) Legend

Indoor unit	
A1P	Printed circuit board (main)
A2P	Printed circuit board (fan)
A3P	Printed circuit board (gas sensor)
C1	Capacitor
C105	Capacitor
CN*	Gas sensor connector
F1U	Fuse (T, 3.15 A, 250 V)
F3U	Fuse (T, 6.3 A, 250 V)
HAP	Indication lamp
K1R	Magnetic relay
L1R	Reactor
M1P	Motor (drain pump)
M1F	Motor (indoor fan)
NE	Noiseless earth
Q*R	Residual current device
Q*C	Circuit breaker
R2	Resistor (current sensor)
R1T	Thermistor (air)
R2T	Thermistor (liquid)
R3T	Thermistor (coil)
R4T	Thermistor NTC (current limiting)
S1L	Float switch
V1R	Diode bridge
V2R	Power module
PS	Switching power supply
X1M	Terminal strip (remote controller)
X2M	Terminal strip (power supply)
X3A~X801A	Connector
Y1E	Electronic expansion valve
Z1F	Noise filter



3D128748

FXAA

(1) Wiring diagram

English	Translation
Wiring diagram	Wiring diagram
Power supply	Power supply
Indoor	Indoor
Indoor unit	Indoor unit
Wired remote controller	Wired remote controller
Control box	Control box
Transmission wiring (Outdoor unit)	Transmission wiring (Outdoor unit)
Gas sensor circuit	Gas sensor circuit
Class ***	Class ***
Front	Front
Side	Side
Note ***	Note ***

(2) Notes

English	Translation
	Field wiring
	Terminal block
	Connector
	Short-circuit connector
	Protective earth (screw)
	Noiseless earth

WIRE COLOURS:

RED : Red

WHT : White

GRN: Green

PNK: Pink

YLW : Yellow

BLK : Black

ORG: Orange

BLU : Blue

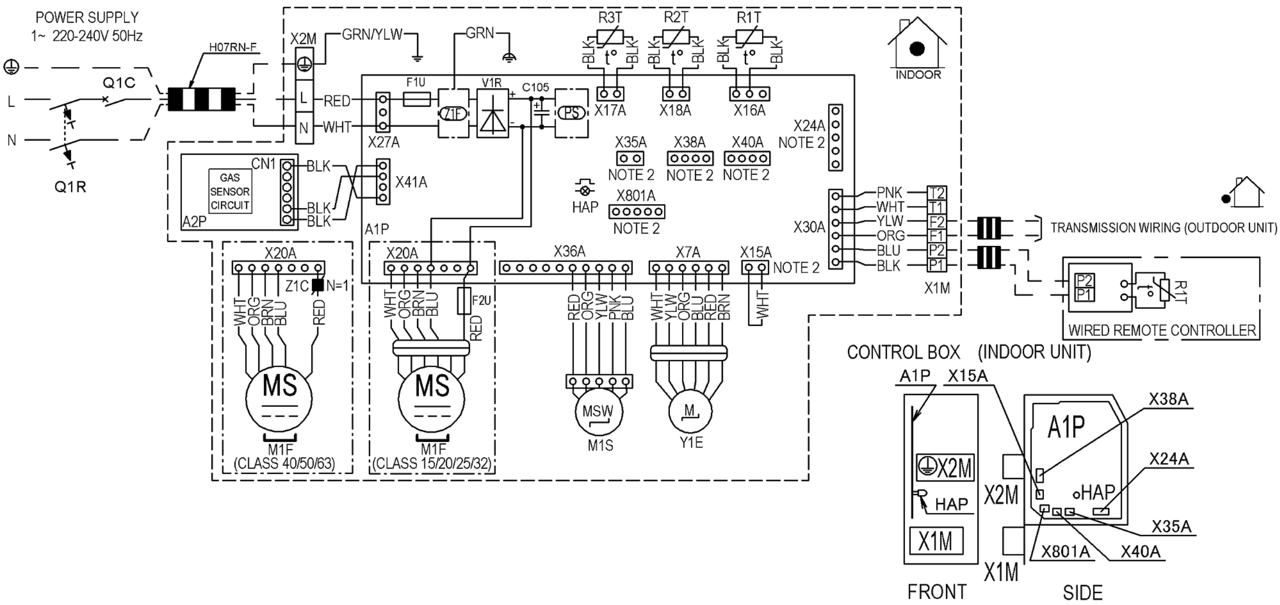
BRN : Brown

NOTES:

2. X15A, X24A, X35A, X38A, X40A and X801A are connected when the optional accessories are used.

(3) Legend

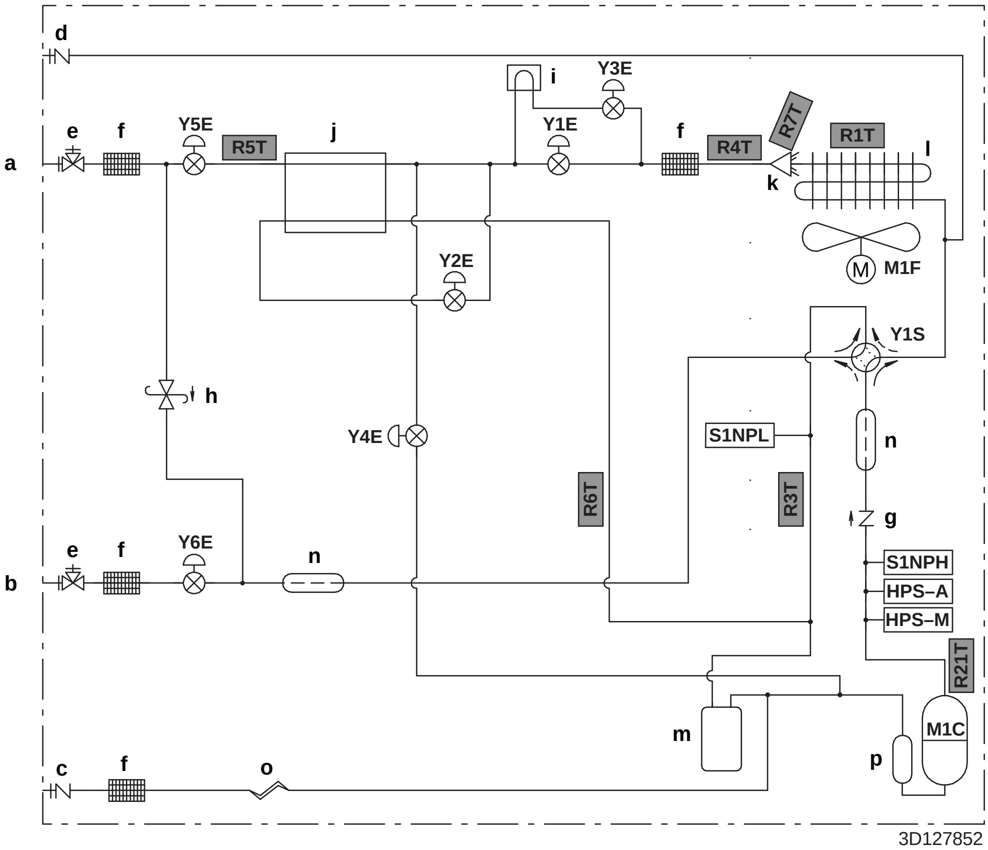
Indoor unit	
A1P	Printed circuit board
C105	Capacitor
V1R	Diode bridge
F1U	Fuse (T, 3.15 A, 250 V)
F2U	Fuse
HAP	Flashing lamp (service monitor: green)
M1F	Motor (indoor fan)
M1S	Motor (swing flap)
R1T	Thermistor (air)
R2T	Thermistor (coil liquid pipe)
R3T	Thermistor (coil gas pipe)
X1M	Terminal block (control)
X2M	Terminal block (power)
Y1E	Electronic expansion valve
PS	Switching power supply
Z1C	Ferrite core
Z1F	Noise filter
CN*	Gas sensor connector
A2P	Printed circuit board (gas sensor)
Q*R	Residual current device
Q*C	Circuit breaker
Wired remote controller	
R1T	Thermistor (air)



POWER SUPPLY
1~ 220-240V 50Hz
H07RN-F
Q1C
L
N
Q1R
X2M
GRN/YLW
GRN
RED
WHT
F1U
V1R
C105
Z1F
PS
X27A
R3T
R2T
R1T
BLK
t°
X17A
X18A
X16A
INDOOR
X24A
NOTE 2
X35A
X38A
X40A
NOTE 2
HAP
X801A
NOTE 2
X30A
PNK
WHT
YLW
ORG
BLU
BLK
T2
T1
F2
F1
P2
P1
X1M
TRANSMISSION WIRING (OUTDOOR UNIT)
WIRED REMOTE CONTROLLER
CN1
GAS SENSOR CIRCUIT
A2P
X41A
A1P
X20A
Z1C
N=1
MS
M1F
(CLASS 40/50/63)
F2U
(CLASS 15/20/25/32)
X36A
MSW
M1S
X7A
M
Y1E
X15A
CONTROL BOX (INDOOR UNIT)
A1P X15A
X38A
X24A
X35A
X40A
X801A
X2M
X1M
FRONT
SIDE

7.3 Piping diagram

7.3.1 Piping diagram: Outdoor unit



a Liquid
b Gas
c Charge port
d Service port
e Stop valve
f Refrigerant filter
g One-way valve
h Pressure relief valve
i PCB cooling
j Double tube heat exchanger
k Distributor
l Heat exchanger
m Accumulator
n Muffler
o Capillary tube
p Compressor accumulator
M1C Compressor
M1F Fan motor
HPS–A High pressure switch – automatic reset
HPS–M High pressure switch – manual reset
S1NPL Low pressure sensor
S1NPH High pressure sensor
Y1E Electronic expansion valve (main – EVM1)
Y2E Electronic expansion valve (EVT)
Y3E Electronic expansion valve (main – EVM2)
Y4E Electronic expansion valve (EVL)
Y5E Electronic expansion valve (EVSL)
Y6E Electronic expansion valve (EVSG)
Y1S 4-way valve

Thermistors:
R1T Thermistor (ambient)
R3T Thermistor (suction)
R4T Thermistor (liquid)
R5T Thermistor (subcool)
R6T Thermistor (superheat)
R7T Thermistor (heat exchanger)
R10T Thermistor (fin)
R21T Thermistor (discharge)

Refrigerant flow:
Cooling
Heating

Component functionalities

Symbol	Component	Major function
M1C	Compressor	Inverter driven dual swing hermetic compressor operates in multi-steps according to T_e for cooling and T_c for heating.
M1F	Fan motor	When outdoor coil is used as condenser, the fan is operated maintain T_c , in heating mode operates in full steps.
Y1E	Electronic expansion valve (main)	▪ Cooling mode: close when compressor rps = 0 , fully open when compressor rps >0. ▪ Heating mode: PI (proportional integral) control is applied to keep the outlet superheat degree of heat-exchanger constant. ▪ Opens when setting 2-21-1.
Y2E	Electronic expansion valve (sub-cool)	PI (proportional integral) control to keep outlet superheat on sub-cool circuit. Sub-cool circuit opens: ▪ Cooling: when indoor capacity detects shortage ▪ Heating: when discharge superheat increases. ▪ Opens when setting 2-21-1.
Y3E	Electronic expansion valve (liquid cooling inverter)	▪ Cooling: close when compressor rps = 0 , fully open when compressor rps >0. ▪ Heating: opens in function of inverter fin temperature (R10T thermistor). ▪ Opens when setting 2-21-1.
Y4E	Electronic expansion valve (liquid injection)	Opens if discharge pipe temperature raises or when setting 2-21-1.
Y5E	Motorized safety valve gas pipe outdoor <-> indoor	Default: fully open. R32 indoor leak: full closed. Keeps closed when set 2-21-1.
Y6E	Motorized safety valve liquid pipe outdoor <-> indoor	Default: fully open. R32 indoor leak: full closed. Keeps closed when set 2-21-1.
Y1S	4-way valve	Off: Cooling, heating defrost/oil return. On: Heating.
S1NPH	Pressure sensor (high)	Detects discharge pressure. In cooling: mainly to control fan speed of outdoor unit. In heating: mainly to control compressor capacity.
S1NPL	Pressure sensor (low)	Detects suction pressure. In cooling: mainly to control compressor capacity. In heating: mainly for the calculation of suction superheat.

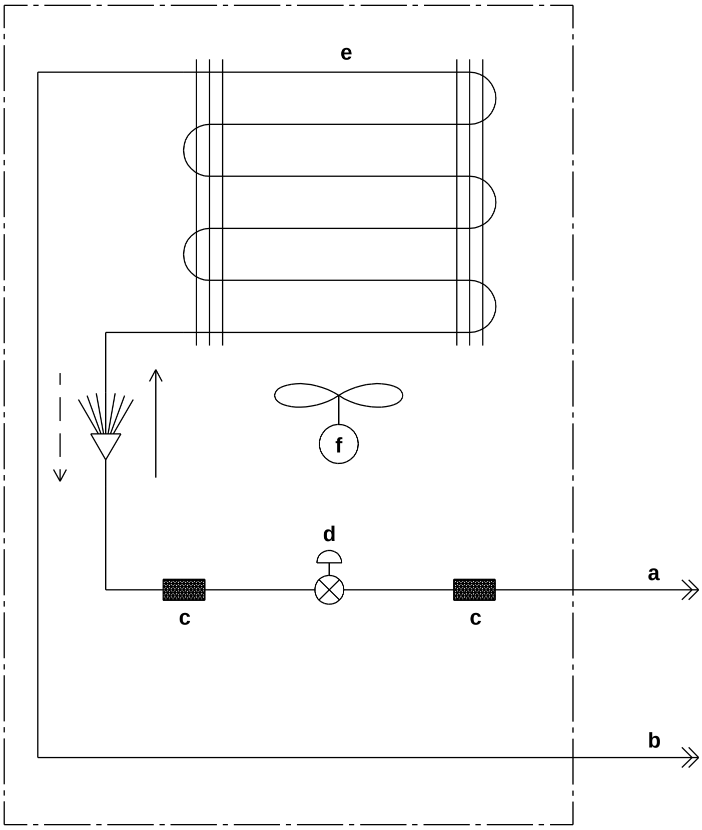
Symbol	Component	Major function
S1PH-A	Pressure switch auto reset (high, M1C discharge)	Prevents excess high pressure during malfunction. Stops operation when triggered.
S1PH-M	Pressure switch manual reset (high, M1C discharge)	Prevents excess high pressure during malfunction. Stops operation when triggered.
R1T	Thermistor (air)	Detects ambient temperature. Used for correction of discharge temperature and judging defrost condition.
R21T	Thermistor (M1C discharge)	Detects discharge temperature of the compressor
R3T	Thermistor (suction)	Used to detect pipe temperature of accumulator inlet.
R4T	Thermistor (heat exchanger, liquid)	Detects temperature of liquid between the air heat exchanger and main electronic expansion valve. Used to define sub-cool outlet heat exchanger.
R5T	Thermistor (liquid stop valve sub-cool heat exchanger)	Detects liquid pipe temperature of outdoor unit to indoor units. Mainly used to calculate sub-cool.
R6T	Thermistor (gas outlet sub-cool heat exchanger)	Detects gas temperature at outlet of the sub-cool heat exchanger to suction line. Used to keep the sub-cool heat exchanger outlet superheat default to 5°. Target superheat lowered when discharge superheat raises.
R7T	Thermistor (liquid pipe de-icer)	Detects liquid pipe temperature of outdoor heat exchanger. Used to judge defrost ON and defrost OFF operation.
R10T	Thermistor (inverter fin)	Detects suction pipe temperature.
	Liquid service port	Service port of stop valve liquid pipe to field liquid piping.
	Gas service port	Service port of stop valve gas pipe to field gas piping.
	Service port refrigerant charge	Service port to charge refrigerant during refrigerant charge function 2-20-1.
	Service port outdoor heat-exchanger	Service port to measure the pressure on outdoor heat-exchanger. Used during repair for refrigerant recovery.
	Accumulator	Serves as a storage for not-required refrigerant at partial capacity. Prevents liquid back to the compressor.
	Pressure regulating valve	During transportation, storage or stand-still, if pressure >4.0 MPa, this valve opens to balance pressure inside the unit, to prevent any equipment damage due to pressure increase.

Symbol	Component	Major function
	Double-tube heat exchanger (sub-cool heat-exchanger)	Sub-cools liquid refrigerant in cooling mode.
	Heat sink (PCB)	Cools the PCB, through cooling plate, cooled by refrigerant.

7.3.2 Piping diagram: Indoor unit

FXFA + FXZA

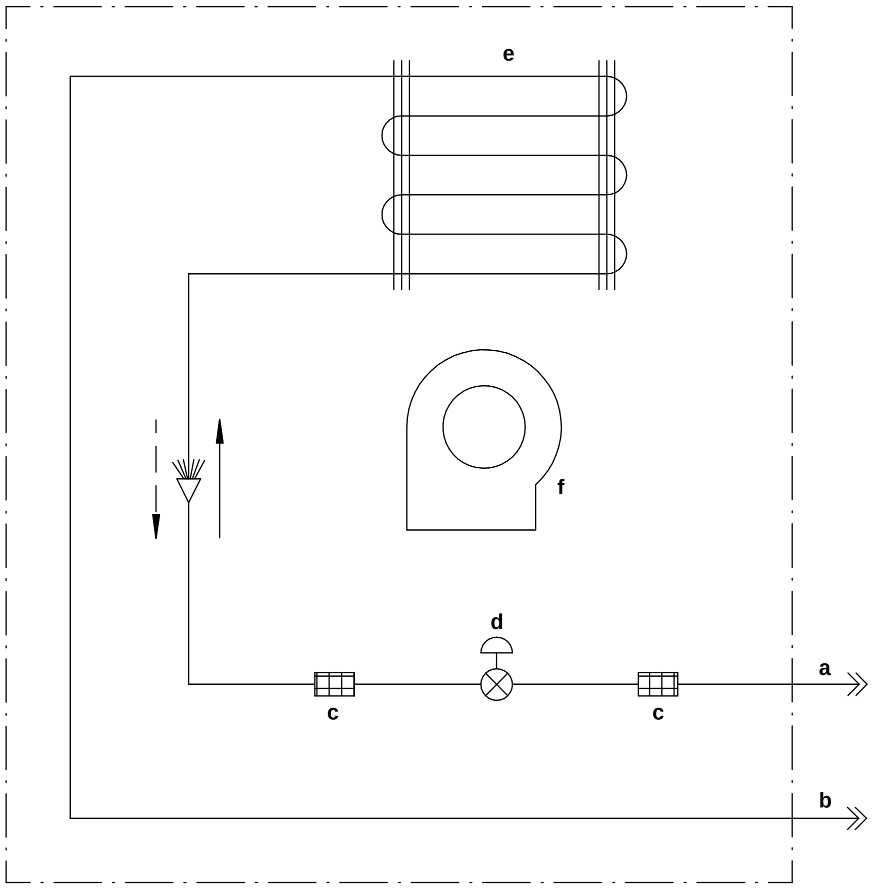
> **INFORMATION**
>
> The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.



- **a** Field piping (liquid connection)
- **b** Field piping (gas connection)
- **c** Filter
- **d** Expansion valve
- **e** Heat exchanger
- **f** Fan
- --► Heating
- —► Cooling

FXSA + FXAA

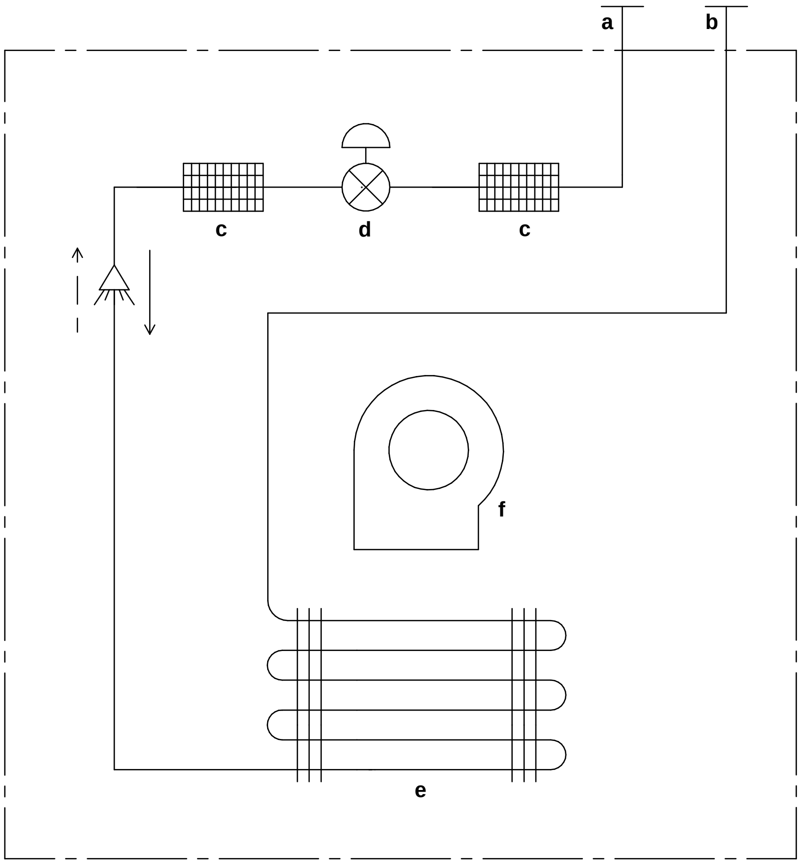
> **INFORMATION**
>
> The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.



- **a** Field piping (liquid connection)
- **b** Field piping (gas connection)
- **c** Filter
- **d** Expansion valve
- **e** Heat exchanger
- **f** Fan
- ‐‐► Heating
- ──► Cooling

FXDA

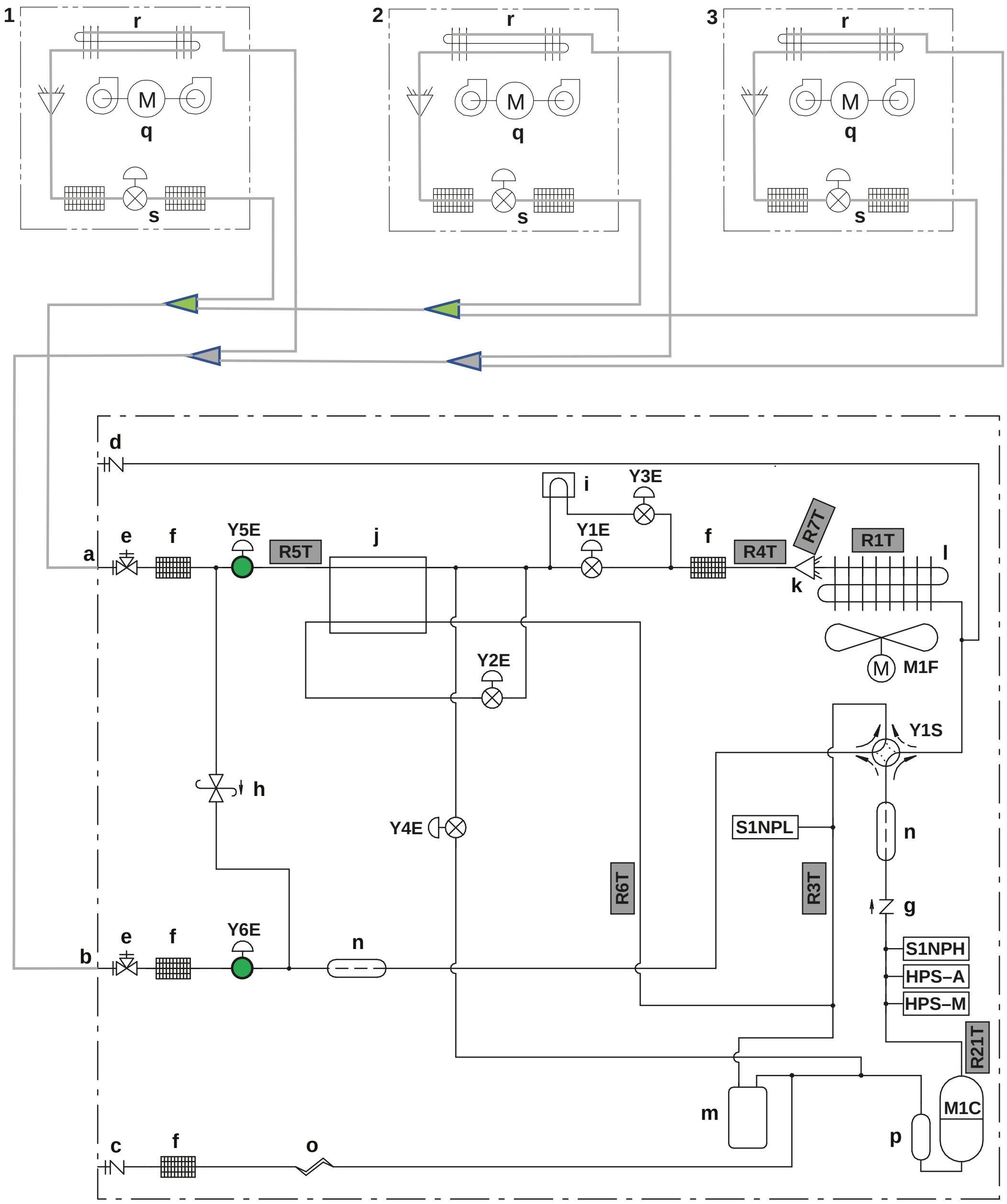
> **INFORMATION**
>
> The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.



a Field piping (liquid connection)
b Field piping (gas connection)
c Filter
d Expansion valve
e Heat exchanger
f Fan
--► Heating
—► Cooling

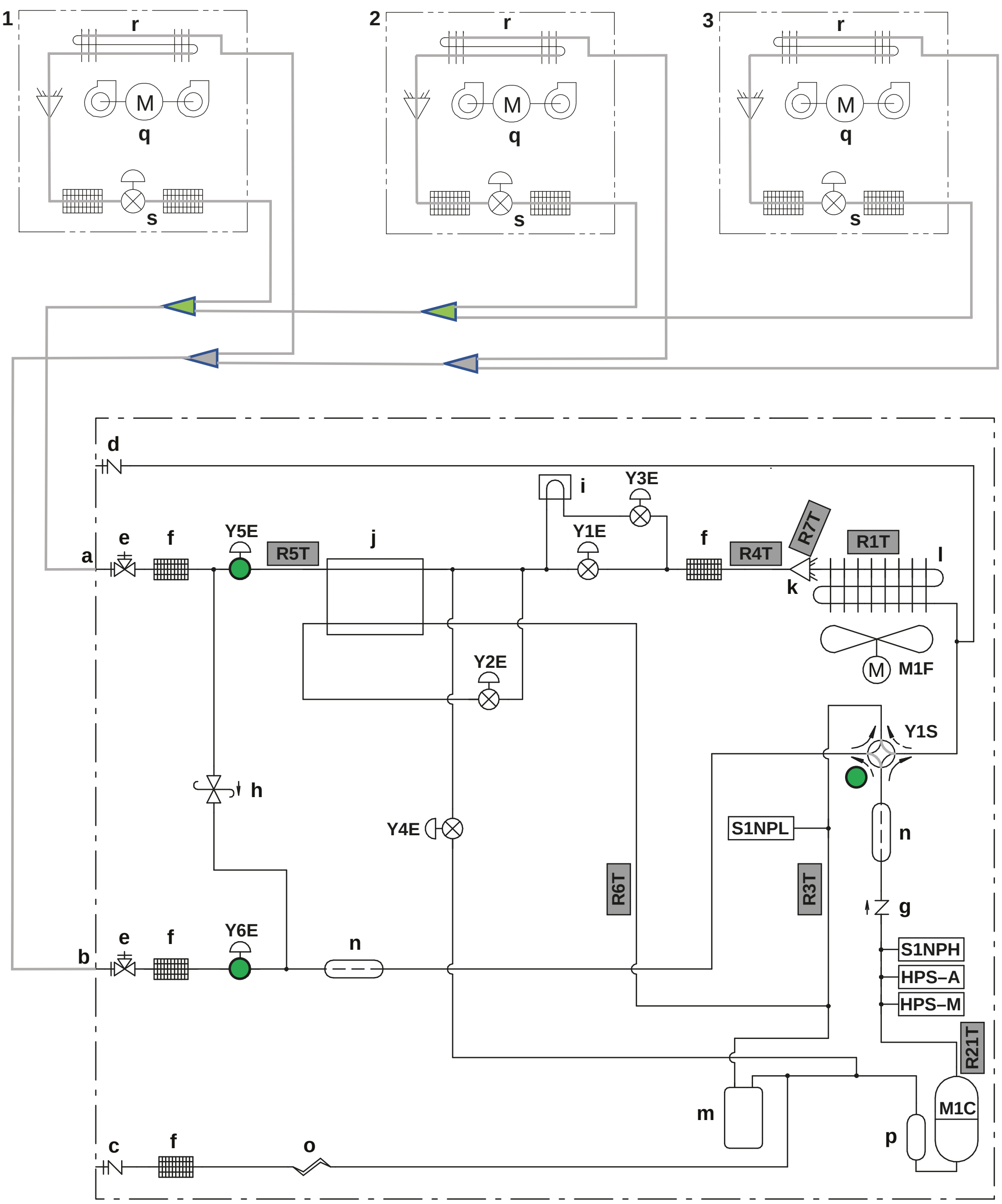
7.3.3 Refrigerant flow diagram

Cooling – Thermo OFF – normal (no R32 leak detection)



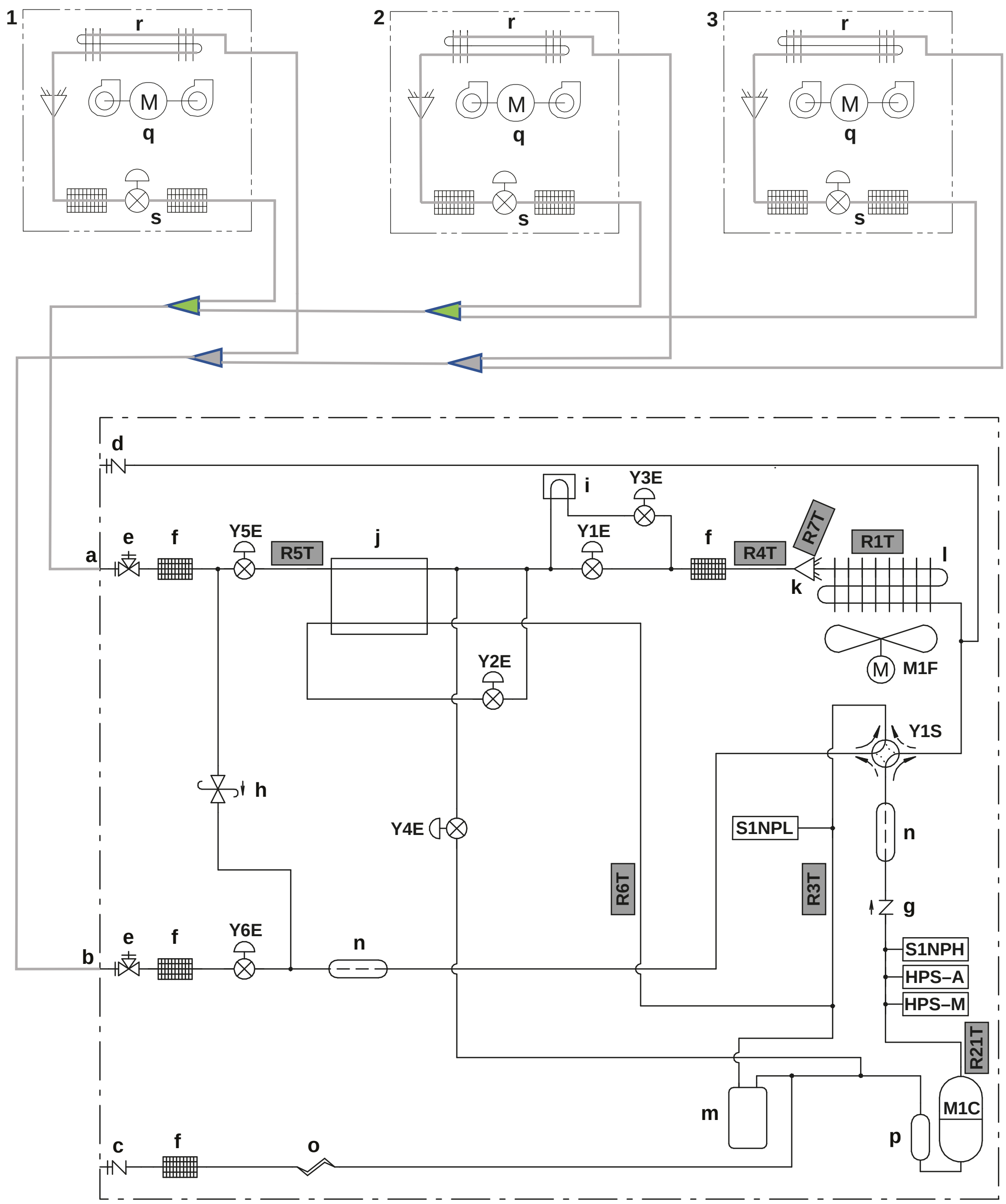
Y1E Closed (0 pulse)
Y2E Closed (0 pulse)
Y3E Closed (0 pulse)
Y4E Closed (0 pulse)
Y1S OFF
M1C 0 rps
M1F Step 0 (OFF)
Indoor unit 1: Operation ON, Thermo OFF, Fan ON, Expansion valve: closed (0 pulse)
Indoor unit 2: Operation ON, Thermo OFF, Fan OFF (set 22-6-03), Expansion valve: closed (0 pulse)
Indoor unit 3: Operation OFF, Thermo OFF, Fan OFF, Expansion valve: closed (0 pulse)

Heating – Thermo OFF



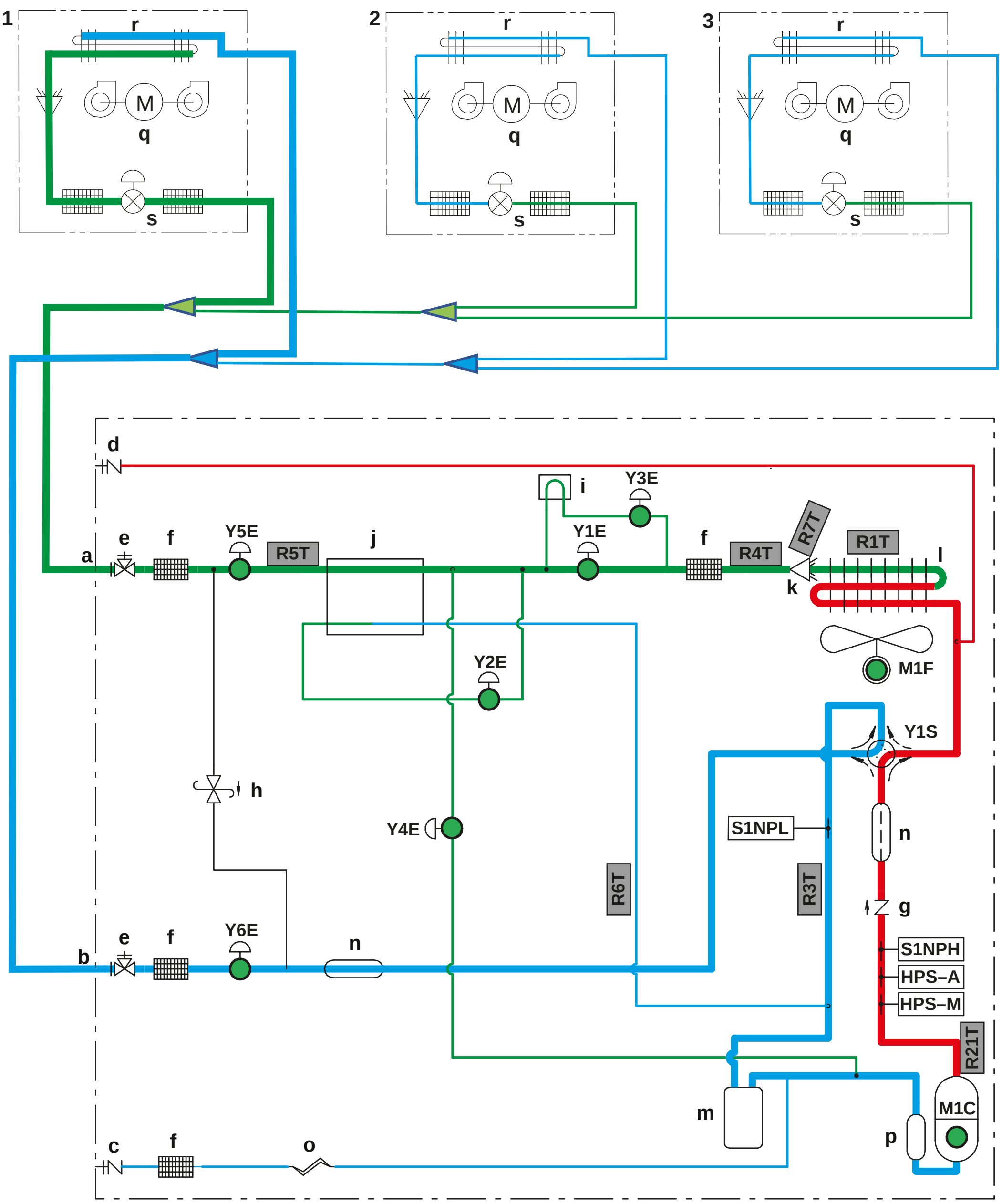
Y1E Closed (0 pulse)
Y2E Closed (0 pulse)
Y3E Closed (0 pulse)
Y4E Closed (0 pulse)
Y1S ON
M1C 0 rps
M1F Step 0 (OFF)
Indoor unit 1: Operation ON, Thermo OFF, Fan LL, Expansion valve: closed (0 pulse)
Indoor unit 2: Operation ON, Thermo OFF, Fan OFF (set 22-6-03), Expansion valve: closed (0 pulse)
Indoor unit 3: Operation OFF, Thermo OFF, Fan OFF, Expansion valve: closed (0 pulse)

Cooling – Thermo OFF – abnormal (R32 leak detection – end auto R32 recovery)



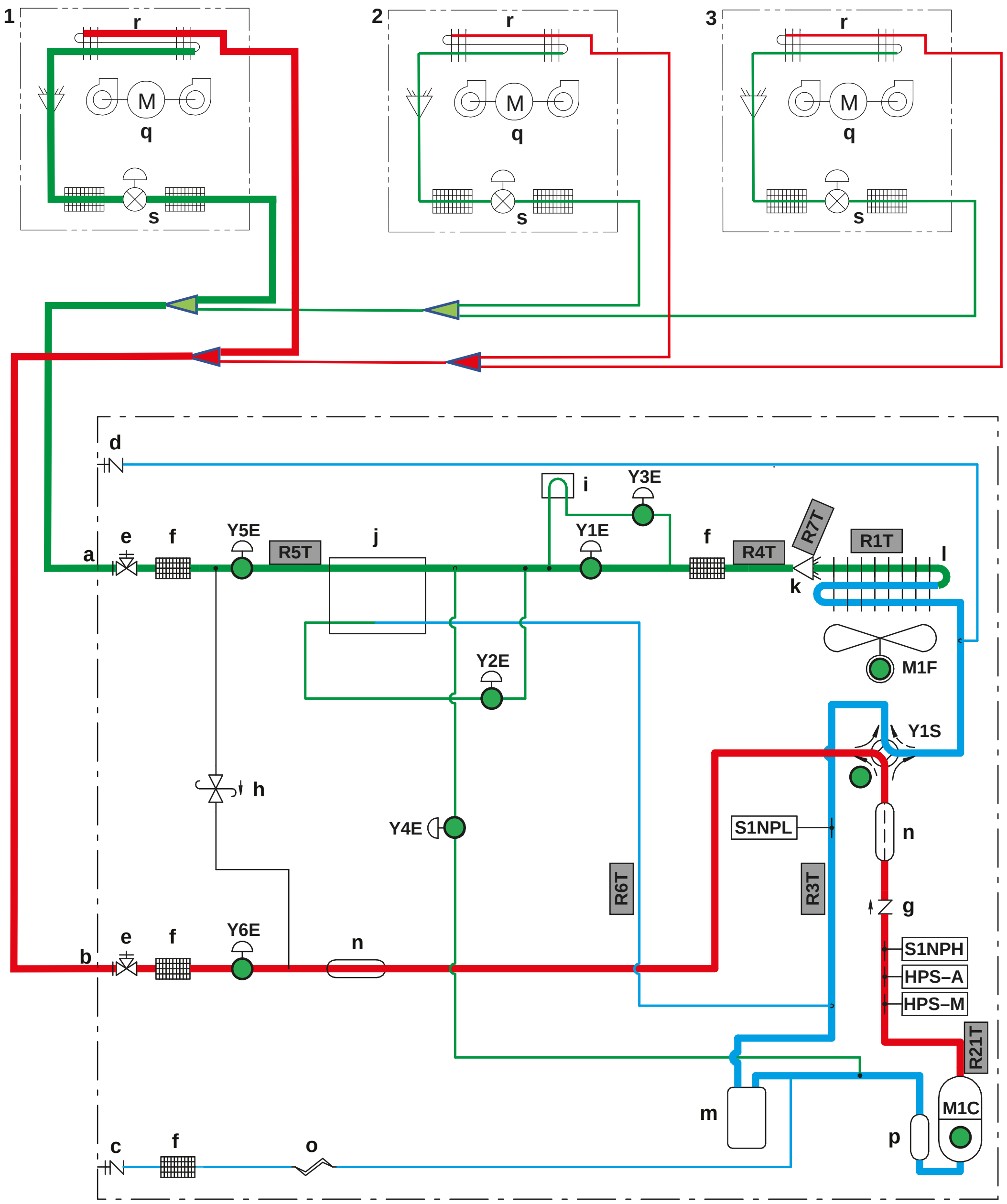
Y1E	Closed (0 pulse)
Y2E	Closed (0 pulse)
Y3E	Closed (0 pulse)
Y4E	Closed (0 pulse)
Y1S	OFF
M1C	0 rps
M1F	Step 0 (OFF)
Indoor unit 1:	Operation ON, Thermo ON, Fan ON, Expansion valve: closed (0 pulse)
Indoor unit 2:	Operation ON, Thermo OFF, Fan ON, Expansion valve: closed (0 pulse)
Indoor unit 3:	Operation OFF, Thermo OFF, Fan ON, Expansion valve: closed (0 pulse)

Cooling – Thermo ON



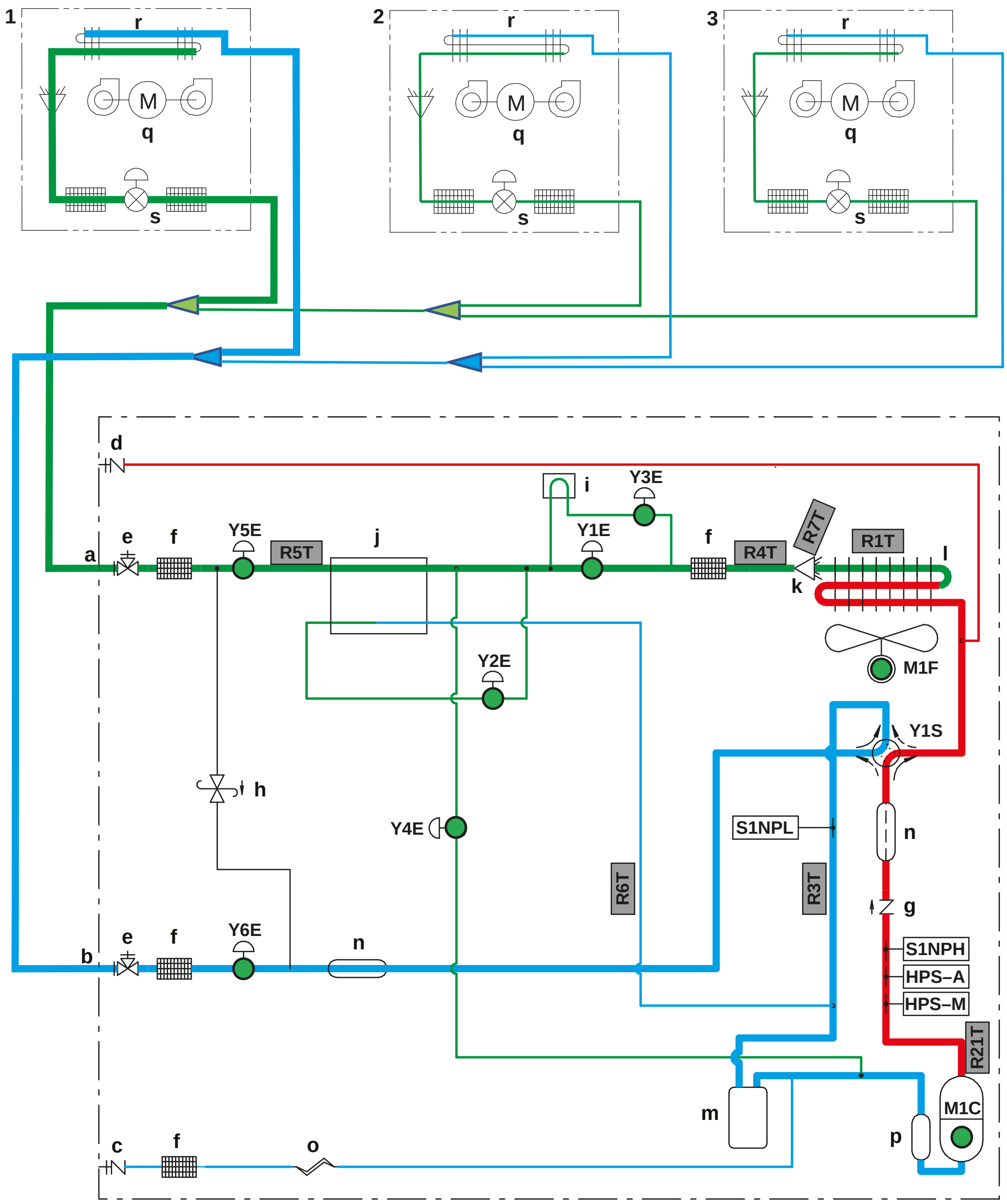
Y1E Fully open (480 pulses)
Y2E 0~480 pulses: ƒsuperheat suction 2 (R6T–Te) and subcool (Tc–R5T)
Y3E Fully open (480 pulses)
Y4E 0~480 pulses: ƒdischarge superheat (R21T–Tc)
Y1S OFF
M1C 15~max rps: ƒTe control
M1F Step 0 (OFF)~8: ƒminimum Tc control
Indoor unit 1: Operation ON, Thermo ON, Fan ON, Expansion valve: superheat (R3T–R2T)
Indoor unit 2: Operation ON, Thermo OFF, Fan OFF (set 22-6-03), Expansion valve: closed (0 pulse)
Indoor unit 3: Operation OFF, Thermo OFF, Fan OFF, Expansion valve: closed (0 pulse)

Heating – Thermo ON



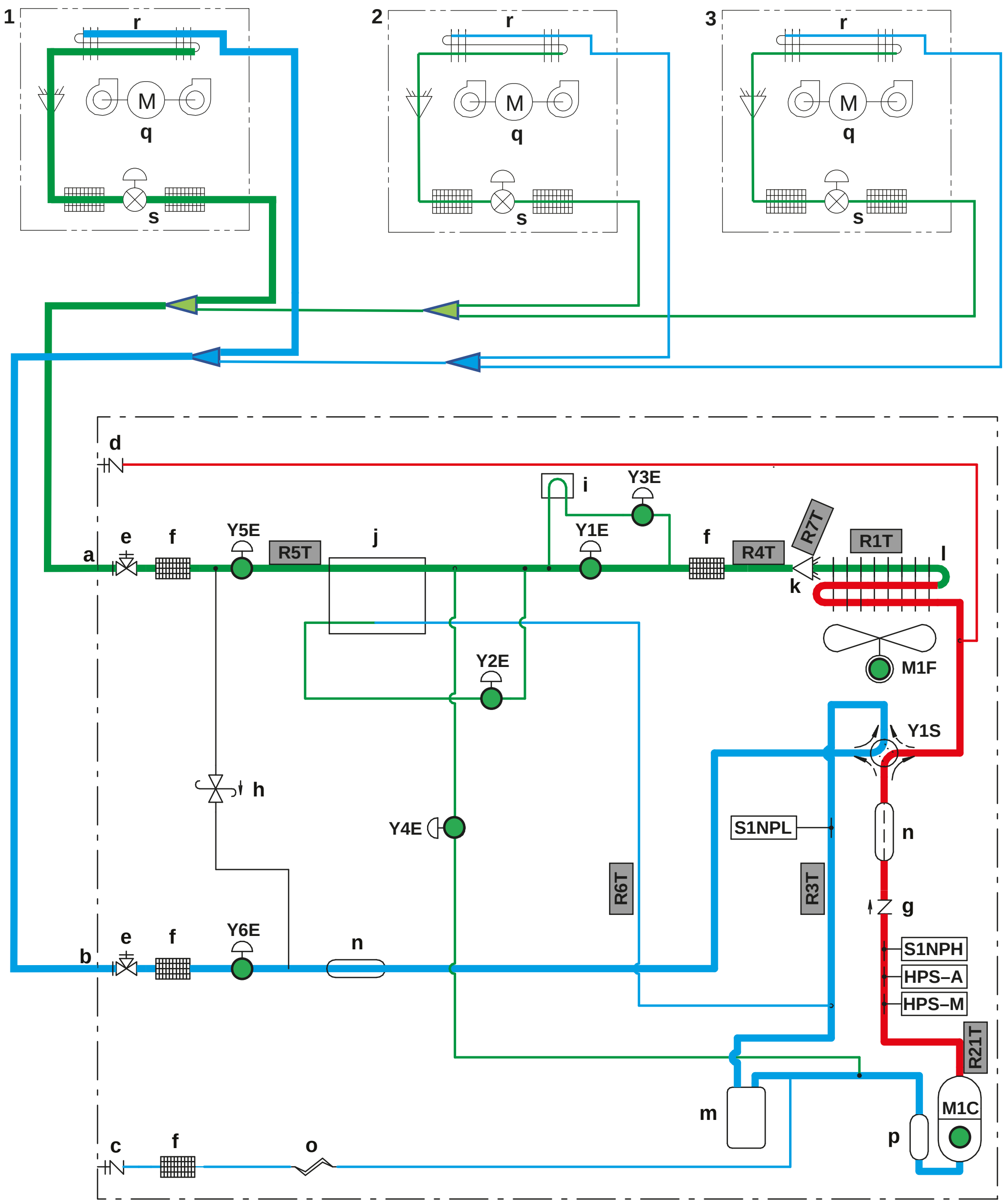
Y1E 20~480 pulses: ƒsuperheat suction 1 (R3T–Te)
Y2E 0~480 pulses: ƒsuperheat suction 2 (R6T–Te) and subcool (Tc–R5T)
Y3E 0~480 pulses: ƒR10T
Y4E 0~480 pulses: ƒdischarge superheat (R21T–Tc)
Y1S ON
M1C 15~max rps: ƒTc control
M1F Nominal step 7, capacity up: step 8, high pressure drop: step 0(OFF)
Indoor unit 1: Operation ON, Thermo ON, Fan ON, Expansion valve: subcool1 (Tc–R2T)
Indoor unit 2: Operation ON, Thermo OFF, Fan OFF (set 22-6-03), Expansion valve: subcool2 (Tc–R2T) minimum (6~12%)
Indoor unit 3: Operation OFF, Thermo OFF, Fan OFF, Expansion valve: subcool2 (Tc–R2T) minimum (6~12%)

Oil return – in cooling mode



Y1E Fully open (480 pulses)
Y2E 0~480 pulses: ƒsuperheat suction 2 (R6T–Te) and subcool (Tc–R5T)
Y3E Fully open (480 pulses)
Y4E 0~480 pulses: ƒdischarge superheat (R21T–Tc)
Y1S OFF
M1C 15~max rps: ƒTe control
M1F Step 0 (OFF)~8: ƒminimum Tc control (oil return)
Indoor unit 1: Operation ON, Thermo ON, Fan ON, Expansion valve: superheat (R3T–R2T)
Indoor unit 2: Operation ON, Thermo OFF, Fan ON, Expansion valve: superheat min (R3T–R2T) minimum (6~100%)
Indoor unit 3: Operation OFF, Thermo OFF, Fan OFF, Expansion valve: superheat min (R3T–R2T) minimum (6~100%)

Oil return – defrost



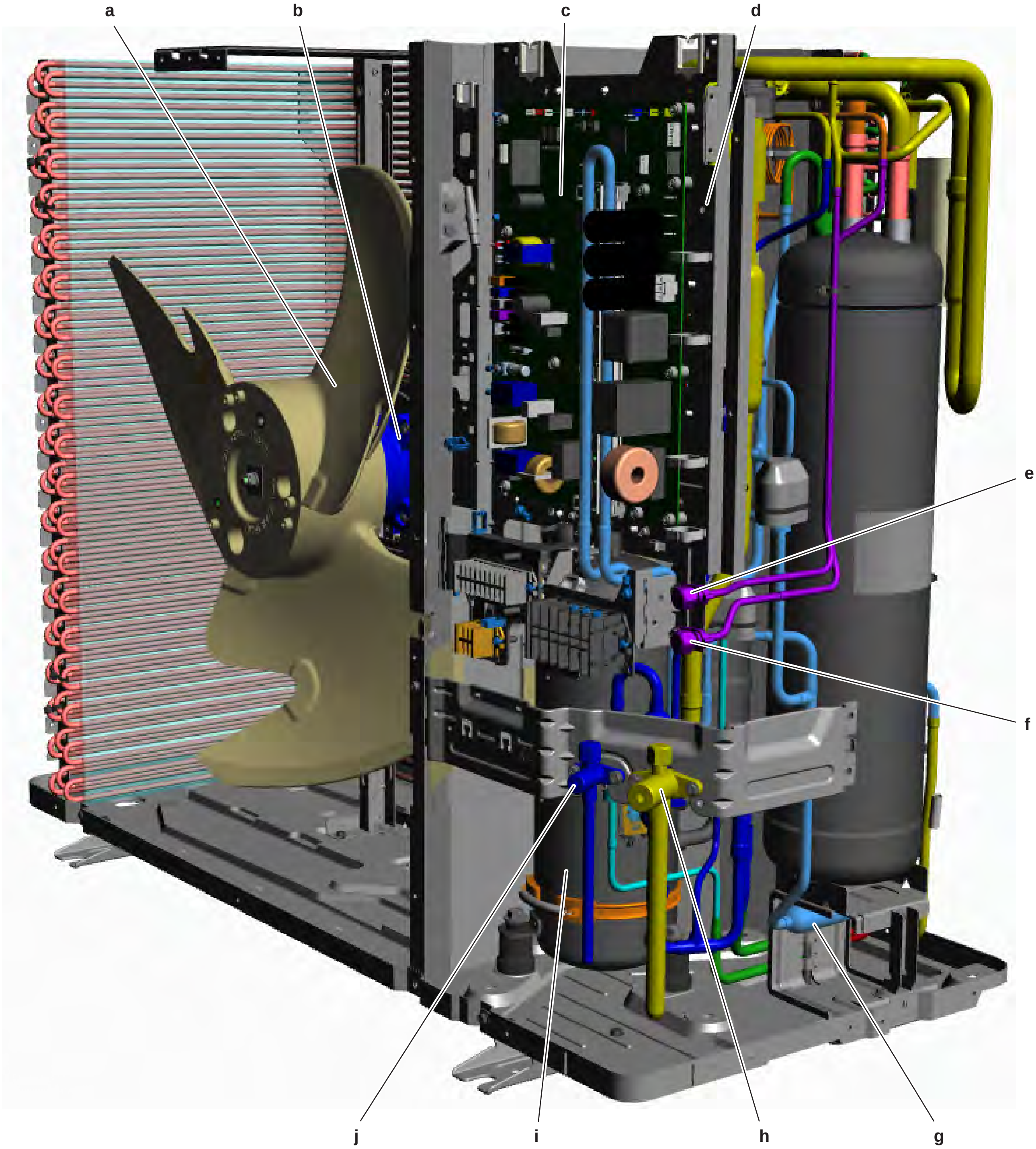
Y1E Fully open (480 pulses)
Y2E 0~480 pulses: ƒsuperheat suction 2 (R6T–Te) and subcool (Tc–R5T)
Y3E Fully open (480 pulses)
Y4E 0~480 pulses: ƒdischarge superheat (R21T–Tc)
Y1S OFF
M1C 15~max rps: ƒTe control
M1F Defrost: step 0 (OFF), oil return: step 1~8: ƒminimum Tc control
Indoor unit 1: Operation ON, Thermo ON, Fan OFF, Expansion valve: superheat min (R3T–R2T) minimum (6~100%)
Indoor unit 2: Operation ON, Thermo OFF, Fan OFF, Expansion valve: superheat min (R3T–R2T) minimum (6~100%)
Indoor unit 3: Operation OFF, Thermo OFF, Fan OFF, Expansion valve: superheat min (R3T–R2T) minimum (6~100%)

Legend

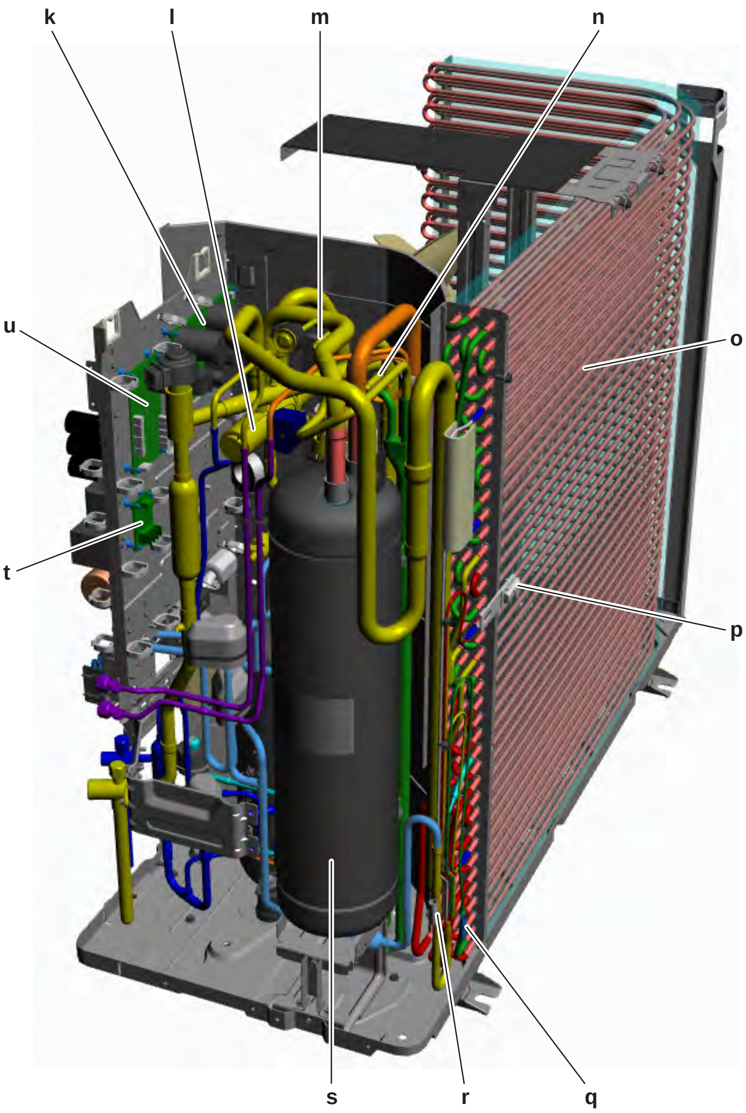
	High pressure, high temperature gas	r	Indoor unit heat exchanger
	High pressure, high temperature liquid	s	Indoor unit expansion valve Y1E
	Low pressure, low temperature gas	M1C	Compressor
●	Active component	M1F	Fan motor
1	Indoor unit 1	HPS–A	High pressure switch – automatic reset
2	Indoor unit 2	HPS–M	High pressure switch – manual reset
3	Indoor unit 3	S1NPL	Low pressure sensor
a	Liquid	S1NPH	High pressure sensor
b	Gas	Y1E	Electronic expansion valve (main – EVM1)
c	Charge port	Y2E	Electronic expansion valve (EVT)
d	Service port	Y3E	Electronic expansion valve (main – EVM2)
e	Stop valve	Y4E	Electronic expansion valve (EVL)
f	Refrigerant filter	Y5E	Electronic expansion valve (EVSL)
g	One-way valve	Y6E	Electronic expansion valve (EVSG)
h	Pressure relief valve	Y1S	4-way valve
i	PCB cooling	R1T	Thermistor (ambient)
j	Double tube heat exchanger	R3T	Thermistor (suction)
k	Distributor	R4T	Thermistor (liquid)
l	Heat exchanger	R5T	Thermistor (subcool)
m	Accumulator	R6T	Thermistor (superheat)
n	Muffler	R7T	Thermistor (heat exchanger)
o	Capillary tube	R10T	Thermistor (fin)
p	Compressor accumulator	R21T	Thermistor (discharge)
q	Indoor unit fan		

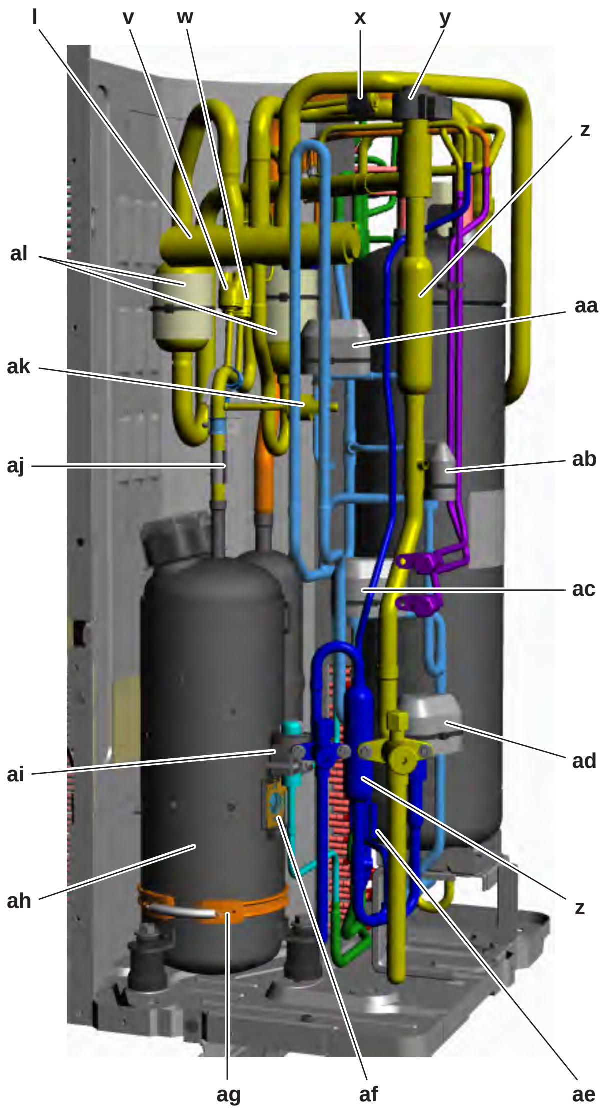
7.4 Component overview

7.4.1 Component overview: RXYSA4~6A7V1B



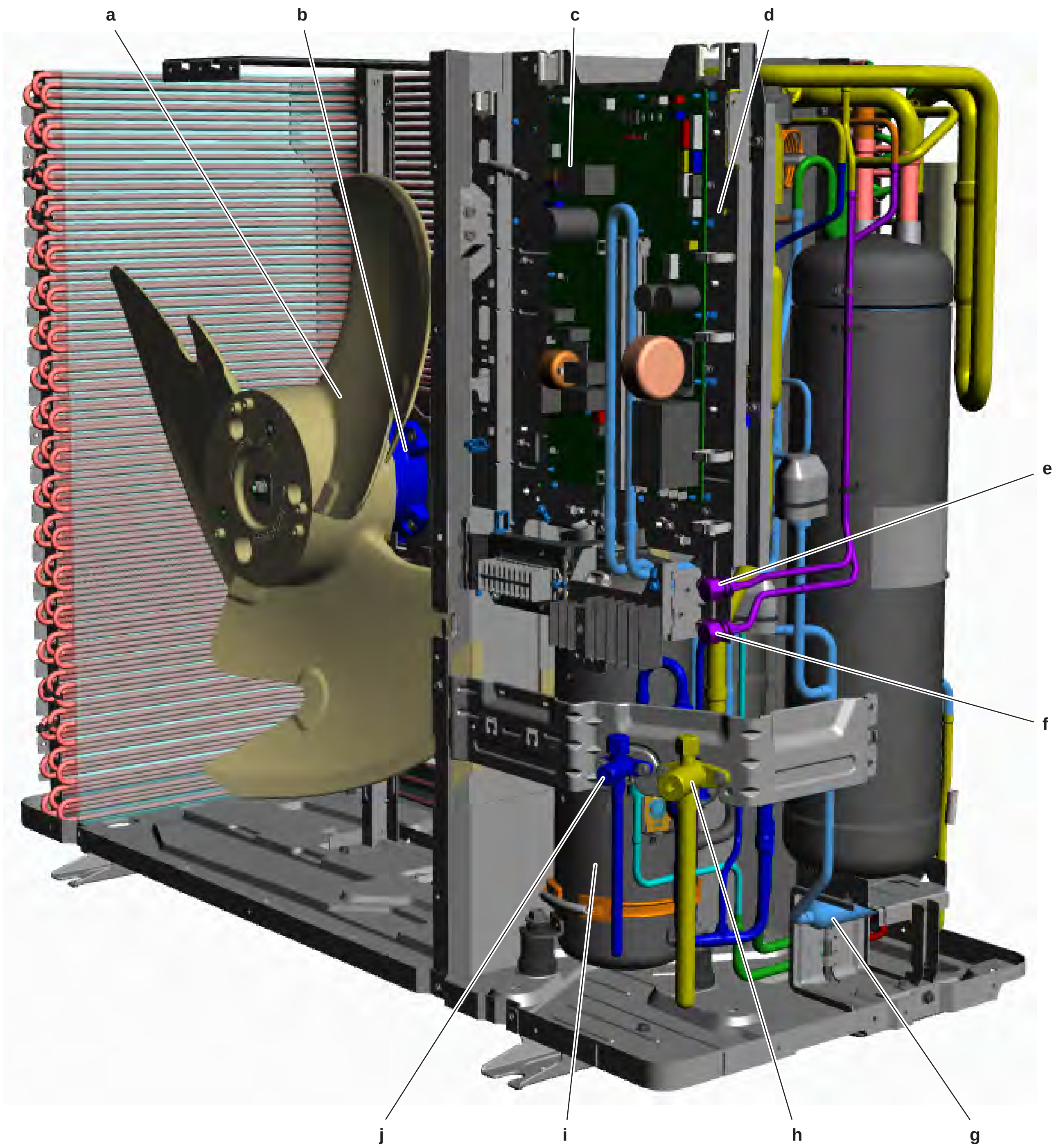
- **a** Fan
- **b** Fan motor M1F
- **c** Main PCB A1P
- **d** Switch box
- **e** Service port outdoor heat exchanger
- **f** Refrigerant charge port
- **g** Filter
- **h** Gas stop valve (with service port)
- **i** Compressor M1C
- **j** Liquid stop valve (with service port)



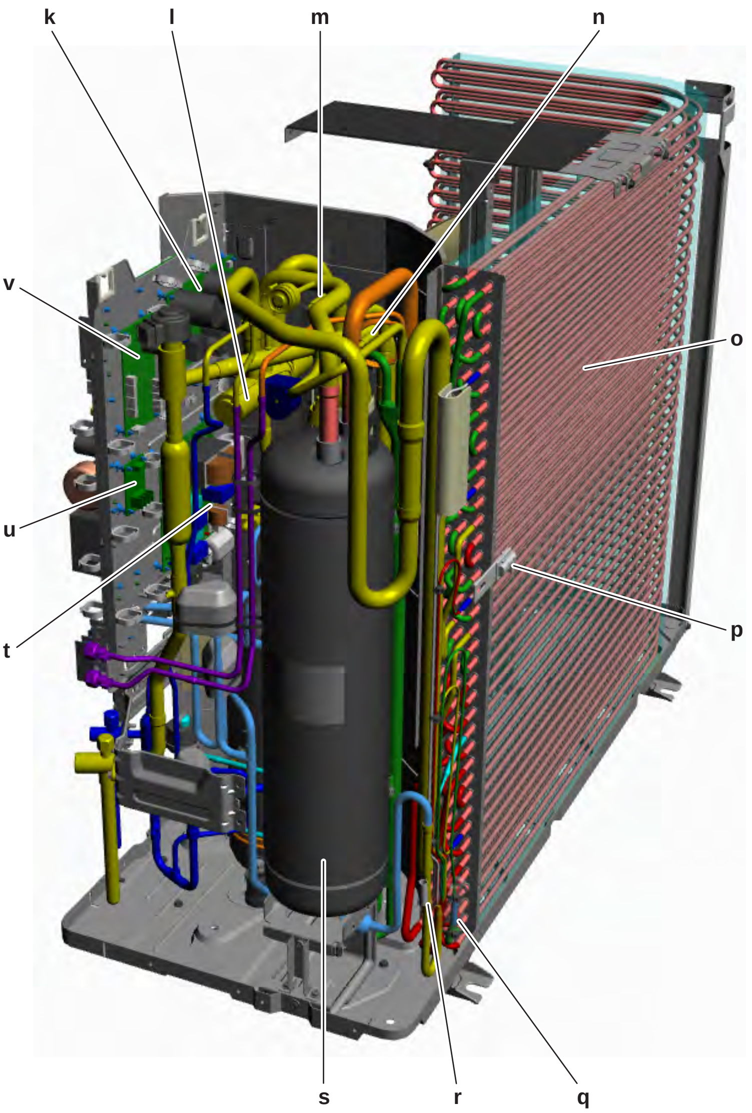


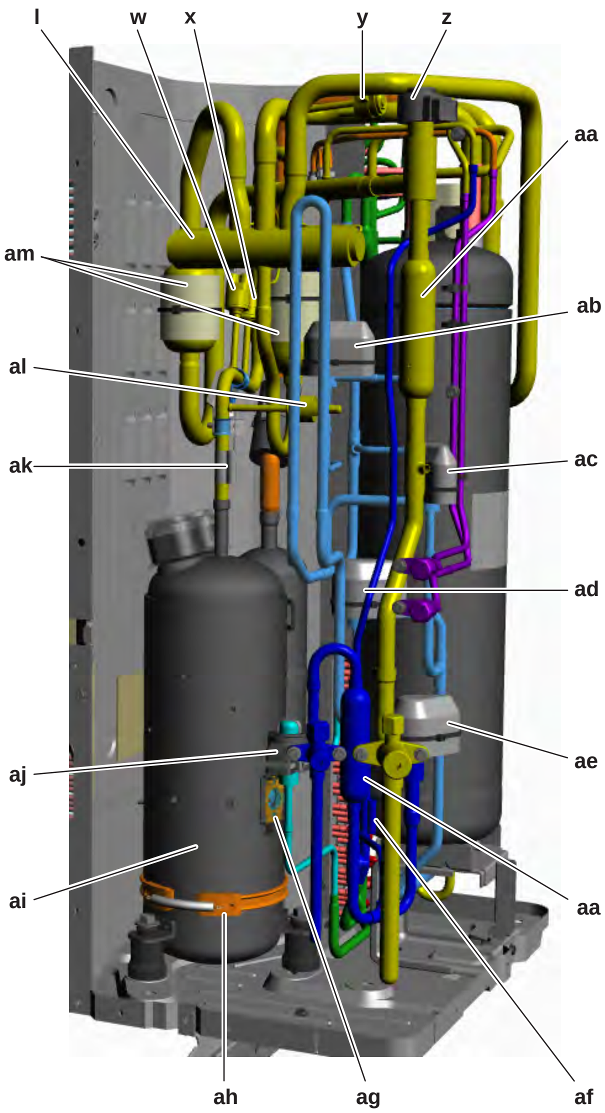
k	Back-up PCB A3P
l	4-way valve Y1S
m	Suction pipe thermistor R3T
n	Superheat thermistor R6T
o	Heat exchanger
p	Air thermistor R1T
q	De-icer thermistor R7T
r	Refrigerant liquid thermistor R4T
s	Compressor accumulator
t	ABC I/P PCB A4P
u	Sub PCB A2P
v	High pressure switch S1PH-A (automatic reset)
w	Refrigerant high pressure sensor S1NPH
x	Refrigerant low pressure sensor S1NPL
y	Gas shut-off expansion valve Y6E
z	Filter
aa	Liquid injection expansion valve Y4E
ab	Main expansion valve Y1E
ac	Inverter cooling expansion valve Y3E
ad	Liquid shut-off expansion valve Y5E
ae	Subcool thermistor R5T
af	Compressor thermal protector Q1
ag	Crankcase heater E1HC
ah	Compressor M1C
ai	Subcool expansion valve Y2E
aj	Discharge pipe thermistor R21T
ak	High pressure switch S1PH-M (manual reset)
al	Accumulator

7.4.2 Component overview: RXYSA4~6A7Y1B



- **a** Fan
- **b** Fan motor M1F
- **c** Main PCB A1P
- **d** Switch box
- **e** Service port outdoor heat exchanger
- **f** Refrigerant charge port
- **g** Filter
- **h** Gas stop valve (with service port)
- **i** Compressor M1C
- **j** Liquid stop valve (with service port)





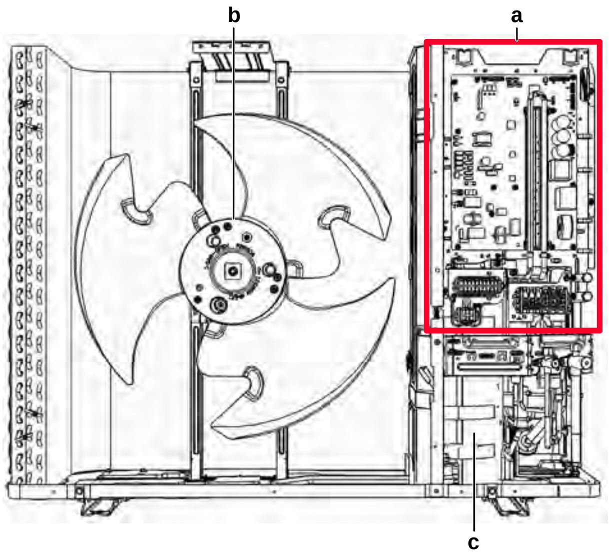
k	Back-up PCB A3P
l	4-way valve Y1S
m	Suction pipe thermistor R3T
n	Superheat thermistor R6T
o	Heat exchanger
p	Air thermistor R1T
q	De-icer thermistor R7T
r	Refrigerant liquid thermistor R4T
s	Compressor accumulator
t	Noise filter PCB A5P
u	ABC I/P PCB A4P
v	Sub PCB A2P
w	High pressure switch S1PH-A (automatic reset)
x	Refrigerant high pressure sensor S1NPH
y	Refrigerant low pressure sensor S1NPL
z	Gas shut-off expansion valve Y6E
aa	Filter
ab	Liquid injection expansion valve Y4E
ac	Main expansion valve Y1E
ad	Inverter cooling expansion valve Y3E
ae	Liquid shut-off expansion valve Y5E
af	Subcool thermistor R5T
ag	Compressor thermal protector Q1
ah	Crankcase heater E1HC
ai	Compressor M1C
aj	Subcool expansion valve Y2E
ak	Discharge pipe thermistor R21T
al	High pressure switch S1PH-M (manual reset)
am	Accumulator

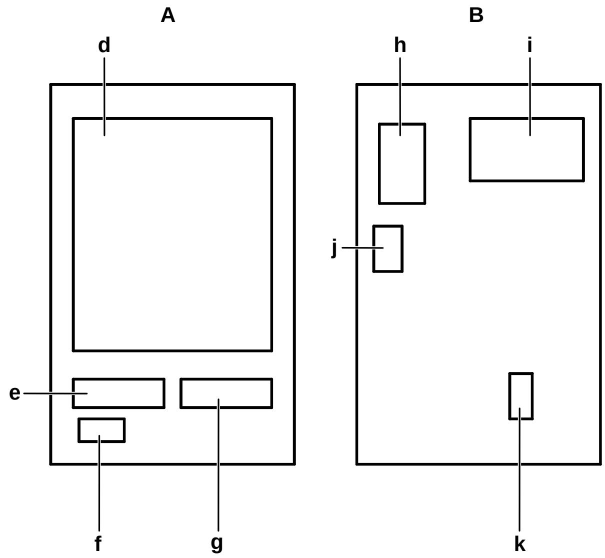
7.4.3 Component overview: Indoor unit

Not available yet.

7.5 Switchbox overview

7.5.1 Single phase outdoor units

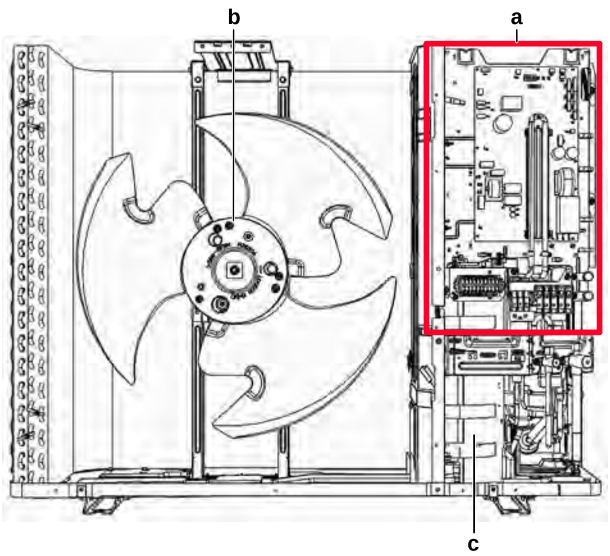


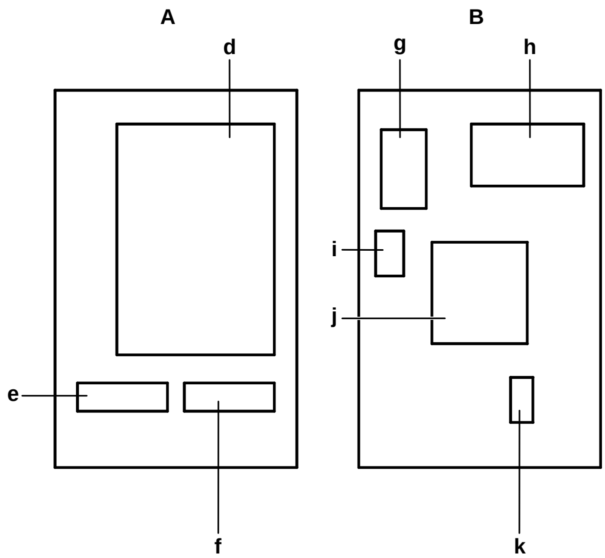


a Switchbox
b Fan motor (M1F)
c Compressor (M1C)

A Front side
B Back side
d Main PCB (A1P)
e Transmission wiring connection terminal (X2M)
f Transmission wiring (from indoor unit) connection terminal (X4M)
g Main supply connection terminal (X1M)
h Sub PCB (A2P)
i Back-up PCB (A3P)
j ABC I/P PCB (A4P)
k Cool/Heat selector switch connection terminal (X3M)

7.5.2 Three phase outdoor units





a Switchbox
b Fan motor (M1F)
c Compressor (M1C)

A Front side
B Back side
d Main PCB (A1P)
e Transmission wiring connection terminal (X2M)
f Main supply connection terminal (X1M)
g Sub PCB (A2P)
h Back-up PCB (A3P)
i ABC I/P PCB (A4P)
j Noise filter PCB (A5P)
k Cool/Heat selector switch connection terminal (X3M)

7.6 Safety devices

RXYSA4~6A7V1B units

Wiring symbol	Description	Location	Safety value	Tolerance	Error code	Characteristics	Retry data
F1U	Fuse main power input	A1P (fixed)	31.5 ACA		U4	T-type (slow)	HAP+HBP+HCP NOT blinking
F2U	Fuse output relays	A1P (holder)	6.3 ACA		LC	T-type (slow)	HAP NOT blinking
F3U	Fuse power circuits	A1P (holder)	6.3 ACA		U4	T-type (slow)	HAP+HBP+HCP NOT blinking
F6U	Fuse fan motor	A1P (fixed)	5.0 DCA		E7	T-type (slow)	
S1PH-A	High pressure switch auto-reset	A1P- X2A	Open: ≥4.0 Mpa Close: ≤3.0 Mpa	+0.00 -0.12 MPa ±0.15 Mpa	E3		No delay, no retry
					H3		Confirmed continuously for 1 minute
S1PH-M	High pressure switch manual reset	A1P -X2A	Open: ≥4.17 Mpa Close: ≤3.2 Mpa	+0.00 -0.15 MPa	E3		No delay, no retry
S1NPH	High pressure transducer	A1P - X32A	Pc >3.64 MPa	± 2%	E3	Mpa = 1.38*V-0.680	10 retries at high pressure sensor/ 30 minutes
			<0.0 or >4.3 Mpa during operaton		JA		6 start-up, no retry
S1NPL	Low pressure transducer	A1P - X31A	≥-0.05~ ≤1.7 Mpa	± 2%	E4	Mpa = 0.57*V-0.295	2 retries under normal conditions/ 100 minutes, 5 retries at startup/ 100 minutes
			<-0.05 or >1.7 Mpa during operaton		JC		6 start-up, no retry
Q1	Overload switch auto reset	A1P - X3A	Open: ≥129°C Close: ≤110°C	±3°C ±6°C	H5		

Wiring symbol	Description	Location	Safety value	Tolerance	Error code	Characteristics	Retry data
V1R	IGBT power module compressor motor	A1P (built-in)	22.1	±5%	L8		3 retries/ 60 minutes
	Compressor motor no rotation		No rotation detection		E5		3 retries/ 60 minutes
	Locked rotor current		59 ACA (U-V-W)		L5		No delay, no retry
V2R	IGBT power module fan motor	A1P (built-in)	2.6	±5%	E7		3 retries/ 60 minutes
F1U	Fuse main power	A2P (holder)	6.3 ACA			T-type (slow)	
F101U	Fuse main power	A3P (holder)	3.15 ACA			T-type (slow)	
R1T	Out of range	A1P - X18A (pin1+3)	<-47.5°C or >103.8°C		H9		
R21T	High discharge	A1P - X19A (pin1+2)	>135°C		F3		2 retries/ 100 minutes
	Out of range		<-35.2°C or >183°C		J3		
	Wet operation		Discharge superheat (R21T-Tc) <10°C Test run		F4		
	Wet operation		Discharge superheat (R21T-Tc) <10°C Normal operation		F6		
R3T	Out of range	A1P - X30A (pin1+2)	<-47.5°C or >103.8°C		J5		
R4T	Out of range	A1P - X30A (pin3+4)	<-47.5°C or >103.8°C		J8		
R5T	Out of range	A1P - X30A (pin5+6)	<-47.5°C or >103.8°C		J7		
R6T	Out of range	A1P - X30A (pin7+8)	<-47.5°C or >103.8°C		J9		
R7T	Out of range	A1P - X30A (pin9+10)	<-47.5°C or >103.8°C		J6		
R10T	Overheat inverter	A1P - X111A (pin1+2)	>84°C		L4		4 retries/ 60 minutes
	Out of range		<-47.5°C or >103.8°C		P4		

RXYSA4~6A7Y1B units

Wiring symbol	Description	Location	Safety value	Tolerance	Error code	Characteristics	Retry data
F1U	L1 fuse output relays	A1P (holder)	6.3 ACA		U4	T-type (slow)	
F6U	L2 fuse power PCB	A1P (holder)	6.3 ACA		U2	T-type (slow)	
F7U	Fuse fan motor	A1P (fixed)	5.0 ACA		E7	T-type (slow)	
S1PH-A	High pressure switch auto-reset	A1P- X2A	Open: ≥4.0 Mpa Close: ≤3.0 Mpa	+0.00 -0.12 MPa ±0.15 Mpa	E3		No delay, no retry
					H3		Confirmed continuously for 1 minute
S1PH-M	High pressure switch manual reset	A1P -X2A	Open: ≥4.17 Mpa Close: ≤3.2 Mpa	+0.00 -0.15 MPa	E3		No delay, no retry
S1NPH	High pressure transducer	A1P - X32A	Pc >3.64 MPa	± 2%	E3	Mpa = 1.38*V-0.680	10 retries at high pressure sensor/ 30 minutes
			<0.0 or >4.3 Mpa during operaton		JA		6 start-up, no retry
S1NPL	Low pressure transducer	A1P - X31A	≥-0.05~ ≤1.7 Mpa	± 2%	E4	Mpa = 0.57*V-0.295	2 retries under normal conditions/ 100 minutes, 5 retries at startup/ 100 minutes
			<-0.05 or >1.7 Mpa during operaton		JC		6 start-up, no retry
Q1	Overload switch auto reset	A1P - X3A	Open: ≥129°C Close: ≤110°C	±3°C ±6°C	H5		
V1R	IGBT power module compressor motor	A1P (built-in)	13.1	±5%	L8		3 retries/ 60 minutes
			No rotation detection		E5		3 retries/ 60 minutes
			19.6		L5		No delay, no retry
V2R	IGBT power module fan motor	A1P (built-in)	2.6	±5%	E7		3 retries/ 60 minutes
F1U	Fuse main power	A2P (holder)	6.3 ACA			T-type (slow)	

Wiring symbol	Description	Location	Safety value	Tolerance	Error code	Characteristics	Retry data
F101U	Fuse main power	A3P (holder)	3.15 ACA			T-type (slow)	
F1U	Fuse secondary circuit	A5P (holder)	6.3 ACA			T-type (slow)	
F4U, F5U	Fuse main power	A5P (fixed)	30.0 ACA			T-type (slow)	
R1T	Out of range	A1P - X18A (pin1+3)	<-47.5°C or >103.8°C		H9		
R21T	High discharge	A1P - X19A (pin1+2)	>135°C		F3		2 retries/ 100 minutes
	Out of range		<-35.2°C or >183°C		J3		
	Wet operation		Discharge superheat (R21T-Tc) <10°C Test run		F4		30 minutes continuous
	Wet operation		Discharge superheat (R21T-Tc) <10°C Normal operation		F6		30 minutes continuous
R3T	Out of range	A1P - X30A (pin1+2)	<-47.5°C or >103.8°C		J5		
R4T	Out of range	A1P - X30A (pin3+4)	<-47.5°C or >103.8°C		J8		
R5T	Out of range	A1P - X30A (pin5+6)	<-47.5°C or >103.8°C		J7		
R6T	Out of range	A1P - X30A (pin7+8)	<-47.5°C or >103.8°C		J9		
R7T	Out of range	A1P - X30A (pin9+10)	<-47.5°C or >103.8°C		J6		
R10T	Overheat inverter	A1P - X111A (pin1+2)	>84°C		L4		4 retries/ 60 minutes
	Out of range		<-47.5°C or >103.8°C		P4		

7.7 Field information report

See next page.

In case a problem occurred on the unit which could not be resolved by using the content of this service manual or in case you have a problem which could be resolved but of which the manufacturer should be notified, we advise you to contact your distributor.
To facilitate the investigation, additional information is required. Please fill out the following form before contacting your distributor.

FIELD INFORMATION REPORT

Key person information	
Name:	Company name:
Your contact details Phone number:	E-mail address:
Site address:	
Your reference:	Date of visit:

Claim information	
Title:	
Problem description:	
Error code:	Trouble date:
Problem frequency:	
Investigation steps done:	
Insert picture of the trouble.	
Current situation (solved, not solved,…):	
Countermeasures taken:	
Comments and proposals:	
Part available for return (if applicable):	

Application information
Application (house, apartment, office,…):
New project or reimbursement:
Piping layout / Wiring layout (simple schematic):

Unit / Installation information	
Model name:	Serial number:
Installation / commissioning date:	Software version user interface:
Software version outdoor PCB:	

Provide pictures of the field settings overview (viewable on the user interface).

7.8 Service tools

1. For an overview of the available service tools, check the Daikin Business Portal (authentication required).
2. Go to the tab After-sales support on the left navigation pane and select Technical support.

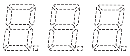
3. Click the button Service tools. An overview of the available service tools for the different products is shown. Also additional information on the service tools (instruction, latest software) can be found here.

7.9 Field settings

7.9.1 Field settings: Outdoor unit

To access mode 1 or 2

1. Check if the unit is in normal mode. If NOT in normal mode, push BS1 to return to normal mode. 7-segment display indication state will be as shown:

   Result: 

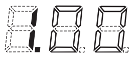
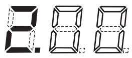
2. 7-segment display indications:

   Off

   Blinking

   On

3. BS1 is used to change the mode you want to access.

Access	Action
Mode 1	Push BS1 one time. 7-segment display indication changes to: 
Mode 2	Push BS1 for at least 5 seconds. 7-segment display indication changes to: 

INFORMATION

To access the field settings on BRC1H controller, see the installer reference guide of the specific controller and the indoor unit installer reference guide for more information.

To use mode 1

Mode 1 is used to monitor the status of the unit.

What	How
Changing and accessing the setting in mode 1	Once mode 1 is selected (push BS1 one time), you can select the wanted setting. It is done by pushing BS2. Accessing the selected setting's value is done by pushing BS3 one time.
To quit and return to the initial status	Press BS1.

Example:

Checking the content of parameter [1-10] (to know how many indoor units are connected to the system).

[A-B]=C in this case defined as: A=1; B=10; C=the value we want to know/monitor:

1. Make sure the 7-segment display indication is as during normal operation (default situation when shipped from factory). 7-segment display indications:

   Off

Blinking

On

2 Push BS1 one time.

Result: Mode 1 is accessed: 

3 Push BS2 10 times.

Result: Mode 1 setting 10 is addressed: 

4 Push BS3 one time; the value which is returned (depending on the actual field situation), is the amount of indoor units which are connected to the system.

Result: Mode 1 setting 10 is addressed and selected, return value (e.g. 15) is monitored information (15 indoor units connected to the system).

5 To leave the monitoring function, push BS1 one time.

To use mode 2

The master unit should be used to input field settings in mode 2.

Mode 2 is used to set field settings of the outdoor unit and system.

What	How
Changing and accessing the setting in mode 2	Once mode 2 is selected (push BS1 for more than 5 seconds), you can select the wanted setting. It is done by pushing BS2. Accessing the selected setting's value is done by pushing BS3 1 time.
To quit and return to the initial status	Press BS1.
Changing the value of the selected setting in mode 2	▪ Once mode 2 is selected (push BS1 for more than 5 seconds) you can select the wanted setting. It is done by pushing BS2. ▪ Accessing the selected setting's value is done by pushing BS3 1 time. ▪ Now BS2 is used to select the required value of the selected setting. ▪ When the required value is selected, you can define the change of value by pushing BS3 1 time. ▪ Press BS3 again to start operation according to the chosen value.

Example:

Checking the content of parameter [2-18] (to define the high static pressure setting of the outdoor unit's fan).

[A-B]=C in this case defined as: A=2; B=18; C=the value we want to know/change

1 Make sure the 7-segment display indication is as during normal operation (default situation when shipped from factory). 7-segment display indications:

Off

Blinking

On

2 Push BS1 for over 5 seconds.

Result: Mode 2 is accessed: 

3 Push BS2 18 times.

Result: Mode 2 setting 18 is addressed: 

4 Push BS3 1 time; the value which is returned (depending on the actual field situation), is the status of the setting. In the case of [2-18], default value is "0", which means the function is not active.

Result: Mode 2 setting 18 is addressed and selected, return value (e.g. 0) is the current setting situation.

5 To change the value of the setting, push BS2 till the required value appears on the 7-segment display indication. When achieved, define the setting value by pushing BS3 1 time. To start operation according to the chosen setting, confirm again by pushing BS3.

6 To leave the monitoring function, push BS1 1 time.

Mode 1: Field settings

In mode 1 you can monitor operation of the unit. The LEDs give a binary representation of the setting/value number.

(*) This column shows the number of times you have to push the SET button (BS2) to access the field setting.

N°(*)	Item	Display	Content	
0	Main/sub outdoor unit	1.00	-	Undefined
			0	Main unit
			1	Sub 1 unit
			2	Sub 2 unit
1	Low noise operation status	1.01	0	Not in low noise operation
			1	In low noise operation
2	Demand operation status	1.02	0	Not in demand operation
			1	In demand operation
3	Automatic back up operation status	1.03	0	Off
			1	On
4	Defrost selection set	1.04	0	Slow
			1	Normal
			2	Quick
5	Te set	1.05	0	Automatic
			1	3°C
			2	6°C
			3	7°C
			4	8°C
			5	9°C
			6	10°C
			7	11°C
6	Tc set	1.06	0	Automatic
			1	41°C
			2	42°C
			3	43°C
			4	44°C
			5	45°C
			6	46°C
			7	48°C
7	Cool/heat unified address	1.07		Possible 0 ˜ 31
8	Low noise / demand address	1.08		Possible 0 ˜ 31
9	Airnet address	1.09		Possible 0 ˜ 63
10	Number of indoor units	1.10		Shows total amount of connected indoor units on a single F1/F2 in line. Possible 0 ˜ 63

N°(*)	Item	Display	Content	
13	Number of outdoor units	1.13		Shows total amount of outdoor units connected on a single F1/F2 out line. Possible 0 ˜ 63
15	Number of units in zone	1.15		Possible 0 ˜ 63
16	Number of all indoor units	1.16		Shows total amount of indoor units of several systems if F1/F2 out is wired between systems. Possible 0 ˜ 128
17	Latest error code	1.17		Displays latest error causing forced stop (BS2 = sub code)
18	2nd latest error code	1.18		Displays 2nd latest error causing forced stop (BS2 = sub code)
19	3rd latest error code	1.19		Displays 3rd latest error causing forced stop (BS2 = sub code)
20	Software ID upper code	1.20		Use set (BS2) to view full code (8 digits total)
21	Outdoor unit capacity	1.21	0	No data
			4	4 HP
			5	5 HP
			6	6 HP
22	Software id lower code	1.22		Displays lower code for software ID (3 digits)
23	Latest retry	1.23		Displays latest reason causing retry (BS2 = sub code)
24	2nd latest retry	1.24		Displays 2nd latest reason causing retry (BS2 = sub code)
25	3rd latest retry	1.25		Displays 3rd latest reason causing retry (BS2 = sub code)
26	Number of D3Net transmission retry	1.26		Possible 0 ˜ 63
27	Number of ACCNS transmission retry	1.27		Possible 0 ˜ 63
28	Number of outdoor units on a multi system	1.28	1	Multi combination NOT possible
29	Result of last manual refrigerant leak check (NOT active)	1.29	0	Function NOT available
30	Result of 2nd last manual refrigerant leak check (NOT active)	1.30	0	Function NOT available
31	Result of 3rd last manual refrigerant leak check (NOT active)	1.31	0	Function NOT available
32	Outdoor board status judgement	1.32	0	Standart judgement
			1	Normal
			2	Abnormal
33	Number of abnormal outdoor board status judgement	1.33		Possible 0 ˜ 15
34	Remaining days until next refrigerant leak check operation	1.34	0	Off: Function NOT available

N°(*)	Item	Display	Content	
35	Result of last automatic refrigerant leak check (NOT active)	1.35	1	NOT available
36	Result of 2nd last automatic refrigerant leak check	1.36	1	NOT available
37	Result of 3rd last automatic refrigerant leak check	1.37	1	NOT available
38	Number of connected RA units	1.38	0	RA indoor unit NOT compatible
39	Number of connected HXY-A unit	1.39	0	VRV LT Hydrobox unit NOT compatible
40	Cooling comfort set	1.40		Setting by mode 2-81. Possible 0 ˜ 3
41	Heating comfort set	1.41		Setting by mode 2-82. Possible 0 ˜ 3
42	High pressure [MPa]	1.42		S1NPH high pressure sensor value
43	Low pressure [MPa]	1.43		S1NPL low pressure sensor value
44	Compressor frequency [Hz]	1.44		Frequency of compressor (Hz = rps*3)
45	Y1E main expansion valve opening pulse	1.45		Pulses/10 (0~48)
46	Compressor discharge temperature [°C]	1.46		R21T
47	NOT used	1.47		Fixed value: 183
48	NOT used	1.48		Fixed value: −35
49	NOT used	1.49		Fixed value: 183
50	Ambient temperature [°C]	1.50		R1T (outdoor ambient thermistor)
51	Accumulator inlet temperature [°C]	1.51		R3T (accumulator inlet pipe thermistor)
52	Gas temperature, subcool outlet [°C]	1.52		R6T (gas outlet liquid sub-cool heat exchanger pipe thermistor)
53	De-icing thermistor temperature [°C]	1.53		R7T (defrost thermistor)
54	Compressor operating hours	1.54		Total hours/100
55	Automatic charging completion flag (NOT active)	1.55	0	NOT available
56	Y2E opening pulse	1.56		Pulses/10 (0~48)

Mode 2: Field settings

In mode 2 you can make field settings to configure the system. The LEDs give a binary representation of the setting/value number.
(*) This column shows the number of times you have to push the SET button (BS2) to access the field setting.
(**) The bold content is the default setting.

N°(*)	Item	Display	Content(**)	
0	Cool/heat selection	2.00	0	**Individual**
			1	Master (DTA104A6* option required)
			2	Slave (DTA104A6* option required)
1	Cool/heat unified address	2.01	**0**	Possible 0-31
2	Low noise/demand address	2.02	**0**	Possible 0-31
5	Indoor unit forced fan H	2.05	**0**	**Disabled**
			1	Enabled
6	Indoor unit forced thermo ON	2.06	**0**	**Disabled**
			1	Enabled
8	Te setting	2.08	**0**	**Auto**
			1	3°C
			2	6°C
			3	7°C
			4	8°C
			5	9°C
			6	10°C
			7	11°C
9	Tc setting	2.09	**0**	**Auto**
			1	41°C
			2	42°C
			3	43°C
			4	44°C
			5	45°C
			6	46°C
			7	48°C
10	Defrost selection setting	2.10	0	Short
			1	**Normal**
			2	Long
12	Low noise/demand operation by external input	2.12	**0**	**Disabled**
			1	Enabled
13	AirNet address	2.13	**0**	Possible 0-63 (0 is not a valid airnet address)

N°(*)	Item	Display	Content(**)	
14	Additional refrigerant charge amount	2.14	**0**	NOT used
18	Outdoor unit fan high static pressure setting	2.18	**0**	**Deactivated**
			1	Activated
20	Additional refrigerant charge operation	2.20	**0**	**Off**
			1	On
21	Refrigerant recovery mode	2.21	**0**	**Off**
			1	On
22	Nighttime low noise operation level setting (combined with 2-26 and 2-27) [level1 > level2 > level3]	2.22	**0**	**Off**
			1	Level 1
			2	Level 2
			3	Level 3
25	Low noise operation level setting (if LNO triggered by external input) (combined with 2-12) [level1 > level2 > level3]	2.25	1	Level 1
			2	**Level 2**
			3	Level 3
26	Nighttime low noise operation start time setting (combined with 2-22)	2.26	1	20h00
			2	**22h00**
			3	24h00
27	Nighttime low noise operation stop time setting (combined with 2-22)	2.27	1	6h00
			2	7h00
			3	**8h00**
28	Power transistor check mode	2.28	**0**	**Off**
			1	On
29	Capacity priority in low noise operation mode	2.29	**0**	**Off**
			1	On
30	Level setting for demand control step 1	2.30	1	60%
			2	65%
			3	**70%**
			4	75%
			5	80%
			6	85%
			7	90%
			8	95%
31	Level setting for demand control step 2	2.31	**1**	**40%**
			2	50%
			3	55%

N°(*)	Item	Display	Content(**)	
32	Forced demand setting	2.32	**0**	**Off**
			1	Step 1 (2-30) on
			2	Step 2 (2-31) on
34	Forced low fan speed to thermo on indoor units if total indoor thermo on > 130% connection ratio	2.34	**0**	**Cooling and heating**
			1	Heating only
			2	Never
47	System lock (R32 leak detection indoor)	2.47	**0**	**Unlocked**
			1	Locked
52	Drainpan heater output signal	2.52	**0**	**Off**
			1	Compressor operation output at X17A
			2	Drainpan heater function activated, output at X10A
			3	Drainpan heater function activated, output at X10A
54	R32 safety measures	2.54	0	Disabled
			1	**Enabled**
60	Supervisor remote controller	2.60	**0**	**NOT present**
			1	Present
81	Cooling comfort setting	2.81	0	Eco
			1	**Mild**
			2	Quick
			3	Powerful
82	Heating comfort setting	2.82	0	Eco
			1	**Mild**
			2	Quick
			3	Powerful

7.9.2 Field settings: Indoor unit

To retrieve the field settings

Via the indoor unit remote controller BRC1H

BRC1H remote controller

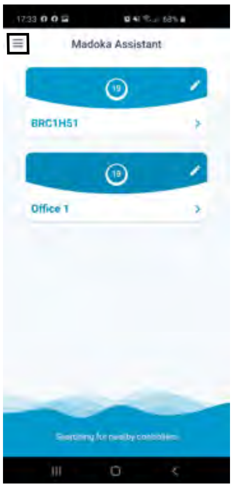
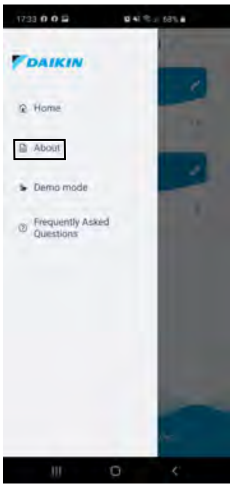
See the installer and user reference guide of the Madoka wired remote controller for correct procedure.

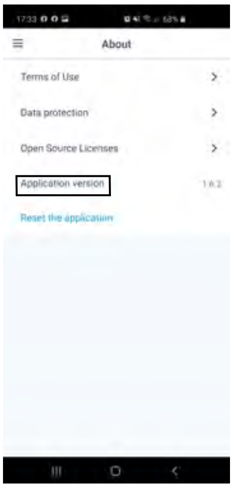
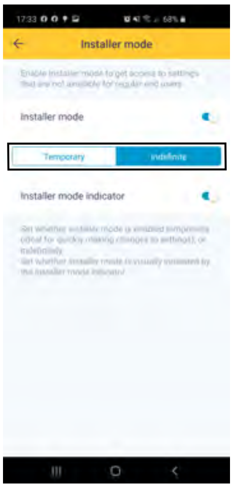
Madoka Assistant for BRC1H

> **INFORMATION**
>
> Images are in English and for reference ONLY. For more details on the Madoka Assistant please refer to the BRC1H training course material which is available on the Daikin Business Portal.

To set as installer mode

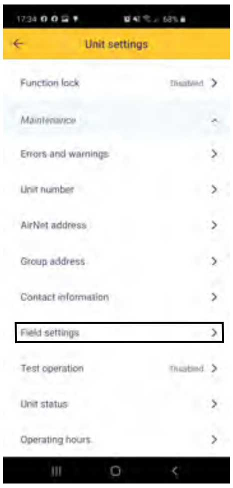
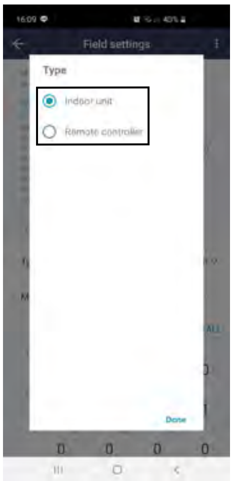
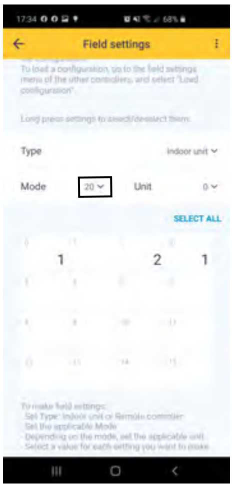
In order to retrieve the field settings, the Madoka Assistant app has to be set as installer mode. If already set as, skip to "To retrieve field settings".

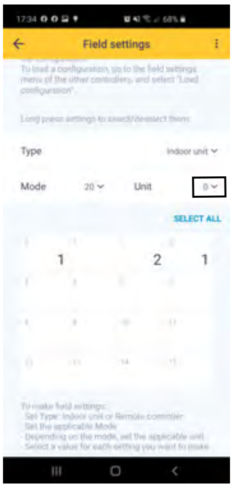
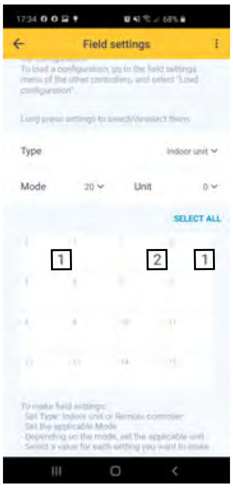
#	Action	Image	Result
1	Tap the menu icon.		The menu screen is diaplyed.
2	Tap About in the menu screen.		The About menu screen is displayed.

#	Action	Image	Result
3	Tap Application version 5 times.		Installer mode screen is displayed.
4	Select (tap) the length of time the Madoka Assistant app is set as installer mode: ▪ Temporary for 30 minutes ▪ Indefinite for unlimited time		The Madoka Assistant app is set as installer mode.

To retrieve field settings

#	Action	Image	Result
1	Tap the settings icon.		The Unit settings screen is displayed.

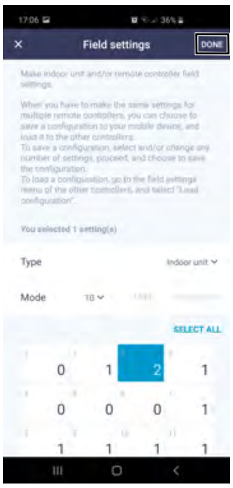
#	Action	Image	Result
2	Tap Field settings.		The Field settings screen is displayed.
3	Tap and select the type for which you want to set the field settings: ▪ Indoor unit ▪ Remote controller		Field settings can now be set for the selected type.
4	Tap and select the desired Mode No. from the drop down list.		The field setting mode is now selected.

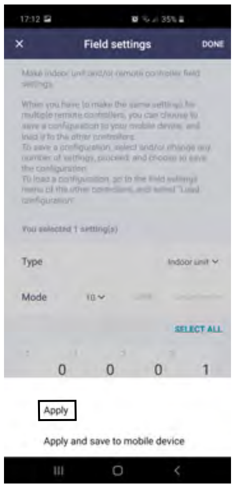
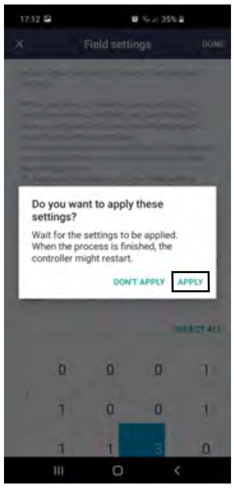
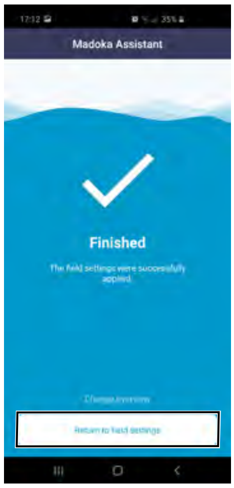
#	Action	Image	Result
5	In the case of setting per indoor unit during group control (When Mode No. such as 20, 21, 22, 23, 25 are selected), tap and select the Indoor unit No. which is required to set. In the case of group total setting, this operation is NOT needed.		▪ In the case of individual setting per indoor unit, current settings are displayed. ▪ In the case of group total setting, all of Second Code No. which may be set are displayed as "*". ▪ Second Code No. "-" means no function.
6	Tap the Second Code No. of the First Code No. to be changed. Select the desired Second Code No. Multiple identical mode number settings are available.		Field settings are now set as desired, but still need to be saved.

INFORMATION

In case of multiple settings, repeat previous steps to change the settings.

To save field settings

#	Action	Image	Result
1	Tap Done.		The screen to apply the field settings is displayed.

#	Action	Image	Result
2	Tap Apply to remote controller.		Changes are applied to the field settings.
3	Tap Apply.		Changes to the field settings are confirmed.
4	Tap Return to field settings.		Field settings are saved.

Overview of field settings for indoor units

The overview lists all possible settings for the indoor units. The availability of the setting depends on the indoor unit type, see "Field settings as per type indoor unit". **Bold content is default setting**.

See indoor unit or remote controller manuals for more detailed information to access the field settings.

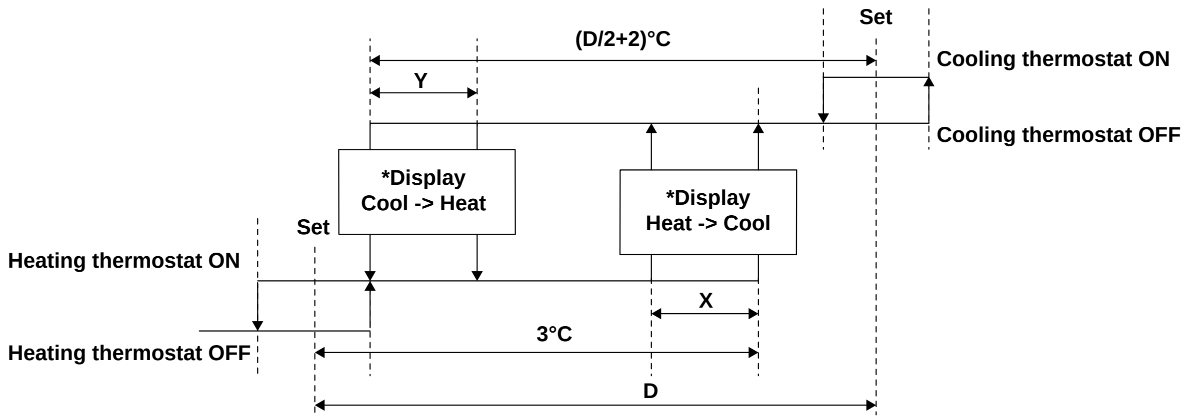
Setting	1st code	Description function	2nd code	Description setting	Note
10/20	0	Filter contamination (time between 2 filter cleaning display indications)	**01**	**Light**	Ultra-long life filter: ±10.000 hrs Long-life filter: ±2.500 hrs Standard filter: ±200 hrs
			02	Heavy	Ultra-long life filter: ±5.000 hrs Long-life filter: ±1.250 hrs Standard filter: ±100 hrs
	1	Long life filter type	**01**	**Long life filter**	Filterclass G1
			02	Ultra long life filter (option)	Filter type F6 high efficiency 64 for FXCQ, FXUQ, FXFQ, FXZQ, FXKQ, FXSQ, FXDQ, FXMQ Filter type F7 for VAM (additional filter) Filter type F8 very high efficiency 90 for FXCQ, FXFQ, FXSQ, FXMQ
			03	No maintenance filter	
			04	Oil guard filter	For installations in greasy environment
	2	Indoor thermostat sensor selection (no effect when used in conjunction with presence sensor BRYQ)	**01**	**Use both the unit sensor (or remote sensor if installed) AND the remote controller sensor.**	Note: If setting 10-6-02 + 10-2-01 or 10-2-02 or 10-2-03 are set at the same time, then setting 10-2-01,10-2-02 or 10-2-03 have priority.
			02	Use return air sensor only (or remote sensor if installed).	Note: If setting 10-6-01 + 10-2-01 or 10-2-02 or 10-2-03 are set at the same time, then setting for group connection, 10-6-01 has priority and for individual connection, 10-2-01, 10-2-02 or 10-2-03 have priority.
			03	Use remote controller sensor only.	
	3	Filter sign display	**01**	**Display**	
			02	Do not display	
	4	Filter switching	**01**	**Standard**	
			02	Oil mysterious filter	
			03	Roll oil mist filter	
	5	Remote controller thermistor visible by central control device in group wiring P1/P2	**01**	**No**	
			02	Yes	
	6	Air thermistor selection in group wiring P1/P2	**01**	**Return air thermistor (individual units)**	
			02	Thermistor designated by field setting 20-2	
	7	Absence delay detecting time (presence sensor)	**01**	**30 minutes**	
			02	60 minutes	
	8	Compensation air sensor heating	**01**	**Measurement air sensor**	
			02	Add 2°C to measurement air sensor	
	9	central control	**01**	**Accept**	
			02	Ignore	
	10	Switching time dry operation => cooling when Eco Mode is Set	01	30 minutes	
			02	60 minutes	
			03	90 minutes	
			04	**No change (keep dry keep)**	
	11	Cooling thermo OFF operation change setting	**01**	**Disabled**	
			02	Enabled	
	12	Internal clean valid invalid / Streamer control valid invalid	01	Valid/invalid at connection	
			02	Enabled/enabled at connection	
			03	**Disabled/Disabled**	
			04	Disabled / Enabled	
			05	Enable/disable	
			06	Enabled/Enabled	
	13	Not used	-		
	14	Not used	-		
	15	Not used	-		

Setting	1st code	Description function	2nd code	Description setting	Note
11/21	0	Not used	-		
	1	Not used	-		
	2	Not used	-		
	3	Fan setting of heating	**01**	**Standard**	
			02	Slight increase (* 1.05)	
			03	Increase (* 1.10)	
	4	Not used	-		
	5	Not used	-		
	6	Sensitivity presence sensor	01	High sensitive	Only when BRYQ is present
			02	Low Sensitive	
			03	**Standard**	
			04	Disable presence sensor	
	7	External static pressure setting: Automatic air flow adjustment function	**01**	**Automatic aif flow adjustment is OFF**	Then unit will refer to setting 23-6
			02	Completion of automatic airflow adjustment	Only for FXSQ, FXMQ
			03	Start of automatic airflow adjustment	1. Turn off the indoor unit 2. Set indoor unit to fan operation mode. 3. Choose desired fanspeed (L, H, HH) 4. Change setting 21-7-00 to 21-7-03 and exit setting menu 5. Activate indoor unit to start the learning function 6. Learn
	8	Compensation by floor sensor (% Air °C/ % floor °C)	01	Floor sensor disabled (100/0)	Only when BRYQ is present
			02	Air suction temperature priority (70/30)	
			03	**Standard (50/50)**	
			04	Floor temperature priority (30/70)	
	9	Correction of floor temperature (heating)	01	-4˚C	Only when BRYQ is present
			02	-2˚C	
			03	**No correction**	
			04	+2˚C	
	10	Not used	-		
	11	Not used	-		
	12	Not used	-		
	13	Not used	-		
	14	Not used	-		
	15	Not used	-		

Setting	1st code	Description function	2nd code	Description setting	Note
12/22	0	Output signal X1-X2 of the optional KRP1 PCB kit	**01**	**Indoor unit Thermo ON Output**	
			02	Option	
			03	Operation Output	
			04	Malfunction Output	
	1	External ON/OFF (T1/T2 input) = setting when forced ON/OFF is operated from outside.	**01**	**Forced OFF**	
			02	ON/OFF Operation	
			03	Emergency	
			04	Forced OFF - multi tenant	
			05	Interlocking setting A	
			05	Interlocking setting B	
	2	Thermostat differential (for set temperature button increase/decrease increments)	**01**	**1˚C**	FXFQ, FXZQ, FXCQ, FXKQ, FXUQ, FXHQ, VKM, "biddle"
			02	0,5˚C	FXSQ, FXMQ, FXAQ, FXLQ, FXNQ, FXDQ, EKEQM
	3	Fan speed Thermo OFF heating mode	**01**	**LL**	
			02	Set speed by remocon	
			03	OFF	Use ONLY in combination with optional remote sensor or when setting 10-2-03 is used.
			04	Monitoring LL	fan 6 minutes off-2 minutes LL
			05	Monitoring L	fan 6 minutes off-2 minutes L
			06	Monitoring H	fan 6 minutes off-2 minutes H
	4	Differential ("D") for automatic changeover. Temperature difference between cooling setpoint and heating setpoint in automatic mode. Differential is cooling setpoint minus heating setpoint.	**01**	**0˚C (Default when HP Outdoor)**	Example: Cooling 24˚C / Heating 24˚C (see note setting 17/27-7 and 18/28-8)
			02	1˚C	Example: Cooling 24˚C / Heating 23˚C (see note setting 17/27-7 and 18/28-8)
			03	2˚C	Example: Cooling 24˚C / Heating 22˚C (see note setting 17/27-7 and 18/28-8)
			04	**3˚C (Default when HR Outdoor)**	Example: Cooling 24˚C / Heating 21˚C (see note setting 17/27-7 and 18/28-8)
			05	**4˚C (Default when VKM)**	Example: Cooling 24˚C / Heating 20˚C (see note setting 17/27-7 and 18/28-8)
			06	5˚C	Example: Cooling 24˚C / Heating 19˚C (see note setting 17/27-7 and 18/28-8)
			07	6˚C	Example: Cooling 24˚C / Heating 18˚C (see note setting 17/27-7 and 18/28-8)
			08	7˚C	Example: Cooling 24˚C / Heating 17˚C (see note setting 17/27-7 and 18/28-8)
	5	Auto-restart after power failure	01	Disabled	Restart operation only if switched on prior to power failure.
			02	**Enabled**	
	6	Fan speed Thermo OFF cooling mode	01	LL	
			02	**Set speed by remote controller**	
			03	OFF	Use ONLY in combination with optional remote sensor or when setting 10-2-03 is used.
			04	Monitoring LL	fan 6 minutes off-2 minutes LL
			05	Monitoring L	fan 6 minutes off-2 minutes L
			06	Monitoring H	fan 6 minutes off-2 minutes H
	7	Cooling switching temperature "X" point setting	**01**	**0.0°C**	[a]
			02	0.5°C	
			03	1.0°C	
			04	1.5°C	
			05	2.0°C	
			06	2.5°C	
			07	3.0°C	
	8	Heating switching temperature "Y" point setting	**01**	**0.0°C**	
			02	0.5°C	
			03	1.0°C	
			04	1.5°C	
			05	2.0°C	
			06	2.5°C	
			07	3.0°C	

Setting	1st code	Description function	2nd code	Description setting	Note
12/22	9	Forced Cool/Heat Master	**01**	**Disabled (select by cool/heat selection button controller)**	Only when HP Outdoor
			02	Enabled (not possible by cool/heat selection button controller)	
	10	Absence confirmation time (wiring remodeling output)	01	0 minutes	
			02	5 minutes	
			03	**10 minutes**	
			04	15 minutes	
	11	Floor temperature correction TA (other than heating)	01	+4°C	
			02	+2°C	
			03	**0°C (no correction)**	
			04	–2°C	
	12	C value correction (actual floor temperature)	01	0.0 °C	
			02	0.25°C	
			03	**0.5°C**	
			04	1.0°C	
	13	Not used	-		
	14	Not used	-		
	15	Not used	-		

[a] Cooling switching temperture "X" point setting and Heating switching temperature "Y" point setting:



Setting	1st code	Description function	2nd code	Description setting	Note
13/23	0	Airflow setting (Ceiling height)	**01**	**Normal ceiling (H <2.7 m)**	Depends on indoor unit, check indoor unit installation manuals
			02	Slightly higher ceiling 2.7 m <H <3 m	
			03	High ceiling (3 m <H <3.5 m)	
	1	Selection of number airflow direction	**01**	**4 directions**	Only for BRYQ60A7
			02	3 directions	
	1	Selection of airflow direction (set when an optional blocking path kit has been installed, 4-way blow panel)	**01**	**4 directions**	Freeze-up protection will be triggered when R2T <–1°C for 10 minutes.
			02	3 directions	Freeze-up protection will be triggered when R2T <0°C for 1 minute OR R2T <1°C for 15 minutes
			03	2 directions	
	2	Swing pattern setting if 4 swing motors	**01**	**All directions, simultaneous swing**	
			02	No meaning	
			03	Synchronized swing, opposite sides	
	3	Output to flap motor	**01**	**Enabled**	When using a decoration panel for outlet
			02	Disabled	
	4	Setting of airflow direction adjustment range	01	Draft prevention	High position (10°-40°)
			02	**Standard**	Standard position (10°-65°)
			03	Ceiling soiling prevention	Low position (30°-65°)
	5	Fanspeed setting	**01**	**Standard**	Only for FXFQ, FXHQ and FXZQ
			02	level 1	
			03	level 2	
			04	level 3	
			05	level 4	
			06	level 5	
	5	External static pressure setting	**01**	**Standard (10/15 Pa)**	Only for FXDQ and FXNQ
			02	High (30/44 Pa)	
			03	Medium external static pressure	
			04	Medium external static pressure	
	6	External static pressure setting	**01**	**Normal**	
			02	High external static pressure	
			03	Low external static pressure	
	6	External static pressure setting	**01**	**30 Pa**	Only for FXMQ40
			02	50 Pa	For FXSQ, FXTQ External static pressure value based on nominal airflow rate @HH Speed Some setting values depend on the indoor unit. See indoor Unit installation manual for setting range and values.
			03	60 Pa	
			04	70 Pa	
			05	80 Pa	
			06	90 Pa	
			07	100 Pa	
			08	110 Pa	
			09	120 Pa	
			10	130 Pa	
			11	140 Pa	
			12	150 Pa	
			13	160 Pa	
			14	180 Pa	Only for FXMQ50~125
			15	200 Pa	
	7	Thermostat swing cooling thermostat-off	**01**	**set 1**	Fixed => Settings, Swing => Swing
			02	set 2	Fixed => setting, swing => P0
			03	set 3	Fixed => P0, swing => P0
			04	set 4	Fixed => Settings, Swing => Swing
			05	set 5	Fixed => Setting, Swing => P2
			06	set 6	Fixed => P2, swing => P2
			07	set 7	Fixed => Settings, Swing => Swing
	8	Not used	-		

Setting	1st code	Description function	2nd code	Description setting	Note
13/23	9	Switch timer cooling <-> heating (minutes)	**01**	**0**	
			02	1	
			03	2	
			04	3	
			05	4	
			06	5	
			07	6	
			08	7	
			09	8	
			10	9	
			11	10	
			12	15	
			13	20	
			14	25	
			15	30	
	10	Not used	-		
	11	Duct air inlet	**01**	**Rear**	
			02	Bottom	
	12	Error history switching setting	**01**	**Abnormality**	
			02	Retry	
	13	circulating air flow control	01	Disabled	
			02	**Enabled**	
	14	Circulating air flow state switching time	**01**	**Pattern 1**	
			02	Pattern 2	
			03	Pattern 3	
			04	Pattern 4	
			05	Pattern 5	
			06	Pattern 6	
			07	Pattern 7	
			08	Pattern 8	
	15	Panel type	**01**	**Standard**	
			02	Flat	
			03	Standard	
			04	Flat	

Setting	1st code	Description function	2nd code	Description setting	Note
14/24	0	Not used	-		
	1	D3gate array width detecion mode setting	01	Outdoor judgment	
			02	**Always ON**	
			03	Always OFF	
	2	Display cleaning requirement on the remote control according to number of operating hours	01	Display after 1250 hours	Only for "BEA..."
			02	Display after 2500 hours	
			03	**Display after 2500 hours**	
	3	Brush/filter check sign display presence/absence setting	**01**	**No display**	Only for "BEA..."
			02	Display after 32000 hours	
			03	Display after 48000 hours	
			04	Display after 72000 hours	
	4	Panel indicator (green)	01	ON while unit is ON or filter cleaning is ON	Only for "BEA..."
			02	ON while filter cleaning ONLY	
			03	**OFF**	
			04	ON	
	5	Self cleaning during operation	**01**	**Disabled**	Only for "BEA..."
			02	Heating only	
			03	Cooling only	
			04	Heating and cooling	
	6	Fan switching delay in hot-start	01	0 minutes (fan starts immediately)	Only for Air Curtain CAV/CYV
			02	1 minute	
			03	**3 minutes**	
			04	5 minutes	
	7	Domestic/overseas	**01**	**Overseas**	All exept Air Curtain CAV/CYV
			02	Domestic	
	7	Fan switching delay for hotstart in °C depending on the condensing temperature	01	34°C	Only for Air Curtain CAV/CYV
			02	37°C	
			03	40°C	
			04	**43°C**	
	8	Fanspeed during defrost and oil return	01	OFF	Only for Air Curtain CAV/CYV
			02	**LL**	
			03	Set speed by remocon	
	8	Auto cleaning program	01	User choice from remocon (between AUTO and schedule)	Only for "BEA..."
			02	ONLY Schedule (Auto not available in remocon settings)	
			03	12 hours automatic fixing	
			04	48 hours auto fixing	
			05	96 hours automatic fixing	
			06	**Automatic fixing 168 hours**	
			07	Not fixed automatically 168 hours	
	9	Filter movement angle setting Fan setting during cleaning	**01**	**Moving angle L Fan L**	Only for "BEA..."
			02	Moving angle S Fan L	
			03	Moving angle L Fan OFF	
			04	Moving angle S Fan OFF	
	10	Not used	-		
	11	Not used	-		
	12	Not used	-		
	13	Not used	-		
	14	Not used	-		
	15	Deodorizing filter integrated setting	**01**	**Accumulated**	
			02	Not accumulated	

Setting	1st code	Description function	2nd code	Description setting	Note
15/25	0	Drain pump operation cooling thermostat-off	01	Delay off	5 minutes off after cooling thermostat-off
			02	**Keep operation**	
	1	Humidification during Thermo OFF (heating)	**01**	**OFF**	
			02	ON	
	2	Direct duct connection to indoor unit (i.e Fresh air connection)	**01**	**Not equipped**	
			02	Equipped	Fan must be operated from indoor unit
	3	Drain pump operation if humidifier is used (heating)	**01**	**Not equipped**	
			02	Heating operation: continuous operation,	Heating stop: always ON.
			03	Heating operation: 3 minutes ON/5 minutes OFF	Heating stop: always ON.
			04	Heating operation: 3 minutes ON/5 minutes OFF,	Heating stop: 480 minutes ON/1 minute OFF
			05	Heating operation: 3 minutes ON/5 minutes OFF,	Heating stop: 120 minutes ON/1 minute OFF
			06	Heating operation: 3 minutes ON/5 minutes OFF	
	4	Filter sign	**01**	**By timer**	
			02	By external input	
	5	Independent ventilation	**01**	**Not equipped**	Only for VKM
			02	Equipped	
	5	Ventilation only	**01**	**disabled**	
			02	enabled	
	6	Independent unit	**01**	**No**	Only for VKM
			02	Yes	
	6	Cleaning only	**01**	**No**	
			02	Yes	
	7	Not used	-		
	8	Not used	-		
	9	Demand control	**01**	**Level 0**	
			02	Level 1	
			03	Level 2	
			04	Level 3	
			05	Level 4	
			06	Level 5	
			07	Level 6	
			08	Level 7	
	10	Not used	-		
	11	Not used	-		
	12	Expansion valve fully closed control	**01**	**disabled**	
			02	enabled	
	13	R32 leak safety system setting	01	Do NOT set	
			02	**enabled**	
			03	disabled max.24 hours	
	14	R32 Sensor replacement completion setting	**01**	**Normal**	
			02	Reset	
	15	External contact output setting	**01**	**disabled**	
			02	enabled	

HRV VAM-FB/J7 and VKM-GB

Setting	1st code	Description function	2nd code	Description setting	Note
17/27	0	Interval time for filter sign indication	**01**	**2500 hours**	Only for VKM
			02	1250 hours	
			03	No counting	
	1	Night time free cooling operation setting	**01**	**No free cooling possible**	Only for VKM. Free cooling starts when outdoor temperature is below indoor temperature and when minimum stop-time has expired. Ambient temperature is checked 1x per hour. (combination with setting 27-6 and 27-7)
			02	Free cooling 2 hours after unit OFF	
			03	Free cooling 4 hours after unit OFF	
			04	Free cooling 6 hours after unit OFF	
			05	Free cooling 8 hours after unit OFF	
	2	Pre-Cool/Pre-Heat function	**01**	**Disabled**	In case of group wiring (P1/P2) to VRV DX indoor: - when operation off for minimum 2 hours, - when ON command given, HRV ventilation starts delayed to limit load in the room.
			02	Enabled	
	3	Pre-cool/Pre-heat timer	**01**	**30 minutes**	
			02	45 minutes	
			03	60 minutes	
	4	Fan speed initial setting	**01**	**Normal**	Possibility to use SS1 on VKM PCB
			02	Ultra High	
	5	Direct duct connection with VRV indoor unit	**01**	**No direct duct**	VKM works independent from VRV indoor units
			02	With direct duct (Fan OFF)	The fan of the VKM stops immediately when indoor unit fan stops (remocon off, defrost, oil return and hot start)
			04	No direct duct	The fan of VKM goes to low speed when the fan of indoor unit stops (thermo off, defrost, oil return and hot start)
			06	With direct duct (Fan OFF)	The fan of VKM goes to low speed when the fan of indoor unit stops (thermo off, defrost, oil return and hot start)
			08	No direct duct (Fan OFF)	
	5	Fan speed setting when Heating Thermo OFF, Defrost and Oil Return (Cold Areas, VKM only)	**01**	**Set speed by remocon**	Only for VKM, in case independent operation. Do NOT use set 03 / 05 / 07
			02	Heating Thermo OFF: Set speed by remocon Defrost: Fan OFF / Oil Return: Fan OFF	
			04	Heating Thermo OFF: Fan Low Defrost: Fan OFF / Oil Return: Fan OFF	
			06	Heating Thermo OFF: Fan Low Defrost: Fan OFF / Oil Return: Fan OFF	
			08	Heating Thermo OFF: Set speed by remocon Defrost: Fan OFF / Oil Return: Fan OFF	
	6	Ventilation airflow setting when night time free cooling is activated	**01**	**High**	Only for VKM
			02	Ultra High	
	7	target temperature for independent night purge	01	18°C	
			02	19°C	
			03	20°C	
			04	21°C	
			05	22°C	
			07	23°C	
			08	24°C	
			09	**25°C**	
			10	26°C	
			11	27°C	
			12	28°C	
			13	30°C	
	8	Centralized zone interlock setting	**01**	**Disabled**	
			02	Enabled	
	9	Pre-heat time extension setting	**01**	**0 minutes**	
			02	30 minutes	
			03	60 minutes	
			04	90 minutes	
	10 through 15	Not used	-		

Setting	1st code	Description function	2nd code	Description setting	Note
18/28	0	External signal setting (J2-JC)	**01**	**Last Command**	
			02	Priority external command	
			03	Priority on operation	
			04	disable night time purge (forced stop)	
			05	not used	
			06	24 Ventilation	
	1	Operation ON at power ON	**01**	**Disabled**	When operation required when power on (example without BRC nor Central control used)
			02	Enabled	
	2	Auto restart after power failure	**01**	**Disabled**	
			02	Enabled	
	3	Opton BRP4A50A signal X3-X4	01	Not used	
			02	Not used	
			03	**Only heating**	
			04	Heating + Cooling	
	4	Display for ventilation mode	**01**	**Show**	Only for VKM
			02	Hide	
	5	Not used	-		
	6	Automatic ventilation mode	**01**	**Linear**	
			02	Not sued	
			03	Tap A	
			04	Tab B	
	7	Fresh air supply/ Air exhaust indication	**01**	**No indication supply**	Only for VKM
			02	No indication exhaust	
			03	Indication supply	
			04	Indication exhaust	
	8	External input terminal function selection (J1-JC)	**01**	**Fresh-up**	Fresh-up Operation
			02	Error input	Error Code 60 displayed
			03	Error input + forced stop	
			04	Forced off	
			05	Fan forced off	
			06	Air flow increase	Fan speed is increased 1 step (L -> H, H -> HH)
			07	Humidifier drain error	
	9	KRP50-2 or BRP4A50A output signal X1-X2 / X3-X4	**01**	**Operation / Humidifier**	
			02	Operation / Error	
			03	Operaton / Fan L-H-UH	
			04	Operation / Fan H-UH	
			05	24hr vent+operation / Fan operation	
			06	24 hr vent / fan operation	
			07	Humidifier / H_2O valve ON	
			08		
			09		
			10		
			11		
	10	Not used	-		
	11	Not used	-		
	12	Not used	-		
	13	Not used	-		
	14	Not used	-		
	15	Not used	-		

Setting	1st code	Description function	2nd code	Description setting	Note
19/29	0	Ventilation air flow setting	01	Low	Only for VKM
			02	Low	
			03	Low	
			04	Low	
			05	High	
			06	**High**	
	1	Low tap setting 1/xx /hr (min off, min on)	**01**	**Off**	
			02	operate 1/15 hr (28/2)	
			03	operate 1/10 hr (27/3)	
			04	Operate 1/6 (25/5)	
			05	Operate 1/4 (22,5/7,5)	
			06	Operate 1/3 (20/10)	
			07	Operate 1/2 (15/15)	
			08	Always step 1	
			09	Always step 2	
			10	Always step 3	
			11	Always step 4	
			12	Always step 5	
			13	Always step 6	
			14	Always step 7	
			15	Always step 8	
	2	Supply fan step	01	1	
			02	2	
			03	3	
			04	4	
			05	5	
			06	6	
			07	7	
			08	**8**	
			09	9	
			10	10	
			11	11	
			12	12	
			13	13	
			14	14	
			15	15	
	3	Exhaust fan step	01	1	
			02	2	
			03	3	
			04	4	
			05	5	
			06	6	
			07	7	
			08	**8**	
			09	9	
			10	10	
			11	11	
			12	12	
			13	13	
			14	14	
			15	15	

Setting	1st code	Description function	2nd code	Description setting	Note
19/29	4	forced van operation 1/xx /hr (min off, min on)	**01**	**Off**	
			02	operate 1/15 hr (28/2)	
			03	operate 1/10 hr (27/3)	
			04	Operate 1/6 (25/5)	
			05	Operate 1/4 (22,5/7,5)	
			06	Operate 1/3 (20/10)	
			07	Operate 1/2 (15/15)	
			08	Always step 1	
			09	Always step 2	
			10	Always step 3	
			11	Always step 4	
			12	Always step 5	
			13	Always step 6	
			14	Always step 7	
			15	Always step 8	
	5	Not used	-		
	6	Not used	-		
	7	Reference concentration shift for ventilation air flow control (ppm)	**01**	**0**	
			02	+200	
			03	+400	
			04	+600	
			05	-200	
			06	-400	
			07	-600	
	8	Stop ventilation by automatic ventilation/Fan residual operation	01	Enabled / Disabled	
			02	**Disabled / Disabled**	
			03	Enabled / Enabled	
			04	Disabled / Enabled	
	9	Normal ventilation tap on automatic ventilation air flow control	**01**	**Independent UH**	
			02	Independent H	
			03	VRV Control UH	
			04	VRV control H	
			05	Option CO_2 sensor	
	1A	Permanent Fresh up	**01**	**Disabled**	
			02	Enabled	

BRC1E + BRC1H

Setting	1st code	Description function	2nd code	Description setting	Note
1b	0	Permission Level	**01**	**Level 2**	On-Off, Set Temp, Delay, Min-Max Operation, Fan speed, Swing
			02	Level 3	On-Off, Set Temp, Fan Speed
	0	Quiet Mode display	**01**	**Show**	Depends on Remocon type, see installer reference guide for Remote Controller
			02	Hide	
	1	Setback function	**01**	**Not available**	Older remocons equipped Home Leave Function, basicly same as setback function but only available in Heating Mode.
			02	Available	
	2	Thermistor in remocon (only for limit operation and setback function	**01**	**Use**	
			02	Do not use	
	3	Start setback function	05	5°C	Depends on Remocon type, see installer reference guide for Remote Controller
			06	6°C	
			07	7°C	
			08	8°C	
			09	9°C	
			10	**10°C**	
			11	11°C	
			12	12°C	
			13	13°C	
			14	14°C	
			15	15°C	
	4	Stop setback function	**01**	**1K**	Depends on Remocon type, see installer reference guide for Remote Controller
			02	2K	
			03	3K	
			04	4K	
			05	5K	
	4	Error code detail	01	Without subcode	Depends on Remocon type, see installer reference guide for Remote Controller
			02	With subcode in service mode	
			03	With subcode in basic mode	
			04	**Without subcode on main screen and with subcode on error screen**	
	5	Usage of 'limited' function in combination with centralised control	**01**	**Not available**	'Limited' function = additional mode to permit keeping the temperature between a minimum and maximum value.
			02	Available	
	7	Display symbol for defrost and hot-start	**01**	**ON**	
			02	OFF	
	8	Daylight saving time	01	Not active	
			02	**Automatic**	
			03	Manual	
			04	According to central controller	
	11	Clock display in remocon	**01**	**ON**	
			02	OFF	
	13	Display method	01	Text	
			02	**Symbols**	
	14	Number of flaps that can be blocked by remocon setting	**01**	**1**	Only for FXFQ. It is strongly advised not to use setting 2,3 and 4
			02	2	
			03	3	
			04	4	
			05	None	
	15	Swing setting	**01**	**Swing can be set by remocon**	Depends on indoor unit, check indoor unit installation manuals
			02	Swing setting disabled to set by remocon	

Setting	1st code	Description function	2nd code	Description setting	Note
1c	0	Display of room temperature	01	OFF	
			02	**ON**	
	1	Which thermistor to show on remocon	01	R1T on indoor unit	For Auto-function and Setback Function
			02	**Thermistor on remocon**	
	2	Selection mode display in auto mode	01	OFF	Whether or not 'heating/cooling' is displayed during automatic mode (otherwise only 'automatic' is mentioned on remocon)
			02	**ON**	
	3	Permission Level Setting	**01**	**Level 2**	Depends on indoor unit, check indoor unit installation manuals Level2:Fan, On-Off, Mode / Level3: On-Off
			02	Level 3	
	4	Backlight of remocon	01	Permanently OFF	
			02	**ON for 30 seconds after 1st push**	Goes OFF after 20 seconds when no button pushed
			03	Always ON	
	5	Operation when bakclight is OFF	**01**	**No**	When pushing a button, first backlight is activated, function of button is not activated
			02	Yes	When pushing a button, backlight is activated and immediately function of button is activated
	6	Display of remocon	**01**	**Permanent display**	The screen always shows values
			02	Screen goes blank after 5 minutes	Touching any button re-activates screen
	7	RC prohibited backup	**01**	**Disabled**	
			02	Enabled	
	8	Switching selection when there are main and sub Remote controller	**01**	**BRC air sensor**	
			02	Air return air sensor	
	9	Sensor selection when there are Main & Sub Remocon	**01**	**Main Remocon**	Setting 1c-1 is taken into consideration of the selected remocon
			02	Sub Remocon	
	10	Sensor offset for Main Remocon	01	–3°C	Offset for temperature display Depends on Remocon type, see installer reference guide for Remote Controller
			02	–2.5°C	
			03	–2°C	
			04	–1.5°C	
			05	–1°C	
			06	–0.5°C	
			07	**0˚C**	
			08	+0.5°C	
			09	+1°C	
	11	Sensor offset for Sub Remocon	01	–3°C	Offset for temperature display Depends on Remocon type, see installer reference guide for Remote Controller
			02	–2.5°C	
			03	–2°C	
			04	–1.5°C	
			05	–1°C	
			06	–0.5°C	
			07	**0˚C**	
			08	+0.5°C	
			09	+1°C	
	12	External input BC-B1 for window contact for BRP7A option	**01**	**Do not use**	Only when BRP7A
			02	Use	
	13	External input BC-B2 for keycard contact for BRP7A option	**01**	**Do not use**	Only when BRP7A
			02	Use	
	14	ΔT primary	**01**	**1K**	
			02	2K	
			03	3K	
			04	4K	
	15	ΔT secondary	**01**	**1K**	
			02	2K	
			03	3K	
			04	4K	

Setting	1st code	Description function	2nd code	Description setting	Note
1e	0	Set temp mode changeover' visibility in the menu	**01**	**Visible in menu**	
			02	Hidden	
	1	Temperature unit selection between ˚C and ˚F	**01**	**Disabled**	From factory, unit is locked to °C
			02	Enabled	Selection visible in the menu to switch between temperature units
	2	Setback function	01	Disabled	Only for older remocons, where Home Leave function is present. Home Leave Function is basically Setback function but only in heating mode.
			02	**Enabled**	
	2	Setback Function	01	Disabled	
			02	Enabled for heating	
			03	Enabled for cooling	
			04	**Enabled for heating and cooling**	
	3	Selection set temperature in limit operation when power on/off	01	Do not keep	
			02	**Keep**	
	4	Timer setting in case central controller present	**01**	**Not visible**	To avoid conflict between timer of central controller and remocon
			02	Visible	
	5	Hour display selection between 24h and 12h	**01**	**Disabled**	From factory, unit is locked to 24h
			02	Enabled	Selection visible in the menu to switch between 24h and 12h
	6	Count-down timer	01	Hidden	
			02	**Visible in menu**	
	7	Rotation overlap time	01	30 minutes	
			02	15 minutes	
			03	**10 minutes**	
			04	5 minutes	
	8	Home screen setpoint	**01**	**Numeric**	
			02	Symbolic	
	9	Change-over' and 'Centralized' Symbol display	01	Not visible	
			02	**Visible**	
	10	Display for prohibited function when remocon is locked through centralised control	01	Key-symbol	
			02	**Text message**	
	11	Switching delay in automatic mode	01	15 minutes	
			02	30 minutes	
			03	**60 minutes**	
			04	90 minutes	
	12	Symbol view reference value (Cooling / upper)	**01**	**Fixed 10°C**	
			02	10°C+	
			03	20°C+	
			04	30°C+	
	13	Symbol view reference value (Cooling / lower)	**01**	**+1°C**	
			02	+2°C	
			03	+3°C	
			04	+4°C	
			05	+5°C	
			06	+6°C	
			07	+7°C	
			08	+8°C	
			09	+9°C	
			10	+10°C	
	14	Symbol view reference value (Heating / upper)	**01**	**Fixed 10°C**	
			02	10°C+	
			03	20°C+	
			04	30°C+	

Setting	1st code	Description function	2nd code	Description setting	Note
1e	15	Symbol view reference value (Heating / lower)	**01**	**+1°C**	
			02	+2°C	
			03	+3°C	
			04	+4°C	
			05	+5°C	
			06	+6°C	
			07	+7°C	
			08	+8°C	
			09	+9°C	
			10	+10°C	

BRC1H

Setting	1st code	Description function	2nd code	Description setting	Note
R1	0	Not used	-		
	1	Not used	-		
	2	Not used	-		
	3	Controller thermistor adjustment Cooling	00	–3°C	
			01	–2.5°C	
			02	–2°C	
			03	**–1.5°C**	
			04	–1°C	
			05	–0.5°C	
			06	0°C	
			07	+0.5°C	
			08	+1°C	
			09	+1.5°C	
			10	+2°C	
			11	+2.5°C	
			12	+3°C	
	4	Controller thermistor adjustment Heating	00	–3°C	
			01	–2.5°C	
			02	–2°C	
			03	**–1.5°C**	
			04	–1°C	
			05	–0.5°C	
			06	0°C	
			07	+0.5°C	
			08	+1°C	
			09	+1.5°C	
			10	+2°C	
			11	+2.5°C	
			12	+3°C	
	5	Controller thermistor adjustment Auto change-over	00	–3°C	
			01	–2.5°C	
			02	–2°C	
			03	**–1.5°C**	
			04	–1°C	
			05	–0.5°C	
			06	0°C	
			07	+0.5°C	
			08	+1°C	
			09	+1.5°C	
			10	+2°C	
			11	+2.5°C	
			12	+3°C	

Setting	1st code	Description function	2nd code	Description setting	Note
R1	5	Controller thermistor adjustment Fan-only	00	–3°C	
			01	–2.5°C	
			02	–2°C	
			03	**–1.5°C**	
			04	–1°C	
			05	–0.5°C	
			06	0°C	
			07	+0.5°C	
			08	+1°C	
			09	+1.5°C	
			10	+2°C	
			11	+2.5°C	
			12	+3°C	
	6	Not used	-		
	7	Home screen	00	Detailed	
			01	**Standard**	
	8	Back-light no operation timer	**00**	**5 seconds**	
			01	10 seconds	
			02	20 seconds	
	9	Status indicator faintness	00	0% - OFF	
			01	1%	
			02	2%	
			03	3%	
			04	5%	
			05	7%	
			06	9%	
			07	11%	
			08	13%	
			09	**15%**	
			10	17%	
			11	20%	
	10	Back-light faintness	00	0% - OFF	
			01	1%	
			02	2%	
			03	3%	
			04	4%	
			05	**5%**	
	11	Status indicator mode	00	Normal	
			01	Hotel setting 1	
			02	**Hotel setting 2**	
	12	Bluetooth Low Energy Advertising	00	Disable	
			01	**Enabled**	
	13	BLE advertising signal transmission	**00**	**Always ON**	
			01	Enable manually	
	14	Display of numeric comparison	**00**	**Always visible**	
			01	Fixed screen	
	15	Status display of BLE setting screen	**00**	**Disabled**	
			01	Enabled	
R2	0	Buzzer	**00**	**Disabled**	
			01	Enabled	
	1	Touch button indicator on screen	00	None	
			01	**Small**	
			02	Medium	
			03	Large	

Setting	1st code	Description function	2nd code	Description setting	Note
R2	2	Touch switch sensitivity threshold (left and center)	00	No correction	
			01	1	
			02	2	
			03	3	
			04	4	
			05	5	
			06	6	
			07	7	
			08	8	
			09	9	
			10	**10**	
			11	11	
			12	12	
			13	13	
			14	14	
			15	15	
	3	Touch switch sensitivity threshold (right and center)	00	No correction	
			01	1	
			02	2	
			03	3	
			04	4	
			05	5	
			06	6	
			07	**7**	
			08	8	
			09	9	
			10	10	
			11	11	
			12	12	
			13	13	
			14	14	
			15	15	
	4	Touch switch sensitivity threshold (left + center + right)	00	No correction	
			01	1	
			02	2	
			03	3	
			04	4	
			05	5	
			06	6	
			07	7	
			08	8	
			09	9	
			10	**10**	
			11	11	
			12	12	
			13	13	
			14	14	
			15	15	
	5	Type controller R32 safety system	**00**	**Normal mode**	Full control
			01	Only buzzer	Only sound
			02	Superviser mode	Sound + error
	6	Alarm (only if BRC1H52*)	**01**	**Enabled**	
			02	Disabled	

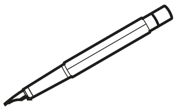
Field settings as per type of indoor unit

The overview lists the availability of the setting per indoor unit type.

Field setting						
Upper	Lower	FXAA[a]	FXDA	FXFA	FXSA	FXZA
10 (20)	0	01	01	01	01	01
	1	01	04	01	01	01
	2	01	01	02	02	02
	3	01	01	01	01	01
	4	spare				
	5	01	01	01	01	01
	6	01	01	01	01	01
	7	na	01	01	01	01
	8	na	01	01	na	01
	9	spare				
	10	na	04	04	04	04
	11	na	01	01	01	01
	12	na	na	03	na	na
	13	spare				
	14	spare				
	15	spare				
11 (21)	0	spare				
	1	spare				
	2	spare				
	3	01	01	01	na	01
	4	spare				
	5	spare				
	6	na	04	03	04	03
	7	na	na	na	01	na
	8	na	01	03	na	03
	9	na	03	03	na	03
	10	spare				
	11	spare				
	12	spare				
	13	spare				
	14	spare				
	15	spare				
12 (22)	0	01	01	01	01	01
	1	01	01	01	01	01
	2	01	02	01	01	01
	3	01	01	01	01	01
	4	01	01	01	01	01
	5	02	02	02	02	02
	6	na	02	02	02	02
	7	na	01	01	01	01
	8	na	01	01	01	01
	9	01	01	01	01	01
	10	na	03	03	03	03
	11	na	03	03	na	03
	12	na	na	03	na	na
	13	spare				
	14	spare				
	15	spare				

Field setting						
Upper	**Lower**	**FXAA[a]**	**FXDA**	**FXFA**	**FXSA**	**FXZA**
13 (23)	0	01	01	01	01	01
	1	01	na	01	na	01
	2	na	na	03	na	03
	3	01	na	na	na	01
	4	02	02	01	na	02
	5	01	01	01	01	01
	6	na	na	na	01	na
	7	01	01	04	na	01
	8	spare				
	9	01	01	01	01	01
	10	spare				
	11	na	na	na	01	na
	12	01	na	01	01	na
	13	na	na	02	na	na
	14	na	na	01	na	na
	15	na	na	01	na	na
14 (24)	0	spare				
	1	02	02	02	02	02
	2	na	na	02	na	na
	3	na	01	01	na	na
	4	na	04	03	na	na
	5	na	na	01	na	na
	6	spare				
	7	01	01	01	01	01
	8	na	02	06	na	na
	9	na	02	03	na	na
	10	na	na	01	na	na
	11	spare				
	12	spare				
	13	spare				
	14	spare				
	15	na	na	01	na	na
15 (25)	0	02	02	02	02	02
	1	01	01	01	01	01
	2	01	01	01	na	01
	3	01	01	01	01	01
	4	01	01	01	01	01
	5	01	01	01	01	01
	6	01	01	01	01	01
	7	spare				
	8	spare				
	9	01	01	01	01	01
	10	spare				
	11	spare				
	12	01	01	01	01	01
	13	02	02	02	02	02
	14	01	01	01	01	01
	15	01	01	01	01	01

[a] Field settings for FXAA NOT confirmed (sales launch 03/2021).



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