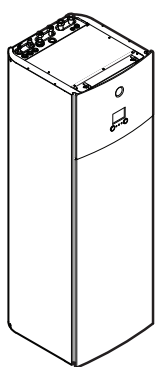


Installer reference guide

X Series - Tank (180l/230l)



<https://daikintechanicaldatahub.eu>



CHVX07S18A▲4V▼
CHVX07S23A▲4V▼

CHVX07S18A▲9W▼
CHVX07S23A▲9W▼

▲= A, B, C, ..., Z
▼= , , 1, 2, 3, ..., 9

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1 About this document

Target audience

Authorised installers

Documentation set

This document is part of a documentation set. The complete set consists of:

- **General safety precautions:**

- Safety instructions that you must read before installing
- Format: Paper (in the box of the indoor unit)

- **Operation manual:**

- Quick guide for basic usage
- Format: Paper (in the box of the indoor unit)

- **User reference guide:**

- Detailed step-by-step instructions and background information for basic and advanced usage
- Format: Digital files on <https://www.daikin.eu>. Use the search function 🔍 to find your model.

- **Installation manual – Outdoor unit:**

- Installation instructions
- Format: Paper (in the box of the outdoor unit)

- **Installation manual – Indoor unit:**

- Installation instructions
- Format: Paper (in the box of the indoor unit)

- **Installer reference guide:**

- Preparation of the installation, good practices, reference data, ...
- Format: Digital files on <https://www.daikin.eu>. Use the search function 🔍 to find your model.

- **Addendum book for optional equipment:**

- Additional info about how to install optional equipment
- Format: Paper (in the box of the indoor unit) + Digital files on <https://www.daikin.eu>. Use the search function 🔍 to find your model.

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

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

Technical engineering data

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

Online tools

In addition to the documentation set, some online tools are available for installers:

▪ Daikin Technical Data Hub

- Central hub for technical specifications of the unit, useful tools, digital resources, and more.
- Publicly accessible via <https://daikintechnicaldatahub.eu>.

▪ Daikin Cloud Service – Residential

- Online remote monitoring platform that allows HVAC professionals to monitor, fine-tune and control Daikin Residential products throughout their lifetime.
- For more information, see DCS–R (https://www.daikin.eu/en_us/service/operate_maintenance_repairs/remote_monitoring/daikin-cloud-service-residential.html)

▪ Heating Solutions Navigator

- Digital toolbox that offers a variety of tools to facilitate the installation and configuration of heating systems.
- To access the Heating Solutions Navigator, registration to the Stand By Me platform is required. For more information, see <https://professional.standbyme.daikin.eu>.

▪ Daikin e-Care

- Mobile app for installers and service technicians that allows you to register, configure and troubleshoot heating systems.
- Use the QR codes below to download the mobile app for iOS and Android devices. Registration to the Stand By Me platform is required to access the app.

App Store



Google Play



1.1 Meaning of warnings and symbols



DANGER

Indicates a situation that results in death or serious injury.



DANGER: RISK OF ELECTROCUTION

Indicates a situation that could result in electrocution.



DANGER: RISK OF BURNING/SCALDING

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



DANGER: RISK OF EXPLOSION

Indicates a situation that could result in explosion.



WARNING

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

**WARNING: FLAMMABLE MATERIAL****CAUTION**

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

**NOTICE**

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

**INFORMATION**

Indicates useful tips or additional information.

Symbols used on the unit:

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

Symbols used in the documentation:

Symbol	Explanation
	Indicates a figure title or a reference to it. Example: "▲ 1–3 Figure title" means "Figure 3 in chapter 1".
	Indicates a table title or a reference to it. Example: "■ 1–3 Table title" means "Table 3 in chapter 1".

1.2 Installer reference guide at a glance

Chapter	Description
About the documentation	What documentation exists for the installer
General safety precautions	Safety instructions that you must read before installing
Specific installer safety instructions	
About the box	How to handle the box, unpack the units and remove their accessories
About the units and options	- How to identify the units - Possible combinations of units and options
Application guidelines	Various installation setups of the system

Chapter	Description
Unit installation	What to do and know to install the system, including information on how to prepare for an installation
Piping installation	What to do and know to install the piping of the system, including information on how to prepare for an installation
Electrical installation	What to do and know to install the electrical components of the system, including information on how to prepare for an installation
Finishing the outdoor unit installation	What to do after unit installation, piping installation and electrical installation
Configuration	What to do and know to configure the system after it is installed
Commissioning	What to do and know to commission the system after it is configured
Hand-over to the user	What to give and explain to the user
Maintenance and service	How to maintain and service the units
Troubleshooting	What to do in case of problems
Disposal	How to dispose of the system
Technical data	Specifications of the system
Glossary	Definition of terms
Field settings table	Table to be filled in by the installer, and kept for future reference Note: There is also an installer settings table in the user reference guide. This table has to be filled in by the installer and handed over to the user.

2 General safety precautions

2.1 For the installer

2.1.1 General

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



DANGER: RISK OF BURNING/SCALDING

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



WARNING

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



WARNING

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



WARNING

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



WARNING

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



CAUTION

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



CAUTION

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



CAUTION

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

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

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

- Instructions for shutting down the system in case of an emergency

- Name and address of fire department, police and hospital
- Name, address and day and night telephone numbers for obtaining service

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

2.1.2 Installation site

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

Do NOT install the unit in the following places:

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

2.1.3 Refrigerant — in case of R410A or R32

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



DANGER: RISK OF EXPLOSION

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

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



WARNING

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



WARNING

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

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



WARNING

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

**WARNING**

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

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

**NOTICE**

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

**NOTICE**

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

**NOTICE**

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

**NOTICE**

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

- In case recharge is required, see the nameplate or the refrigerant charge label of the unit. It states the type of refrigerant and necessary amount.
- Whether the unit is factory charged with refrigerant or non-charged, in both cases you might need to charge additional refrigerant, depending on the pipe sizes and pipe lengths of the system.
- **ONLY** use tools exclusively for the refrigerant type used in the system, this to ensure pressure resistance and prevent foreign materials from entering into the system.
- Charge the liquid refrigerant as follows:

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

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



CAUTION

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

2.1.4 Water

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



NOTICE

Make sure water quality complies with EU directive 2020/2184.

2.1.5 Electrical



DANGER: RISK OF ELECTROCUTION

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



WARNING

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



WARNING

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

**WARNING**

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

**CAUTION**

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

**NOTICE**

Precautions when laying power wiring:



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

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

**NOTICE**

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

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

3 Specific installer safety instructions

Always observe the following safety instructions and regulations.

Installation site (see "7.1 Preparing the installation site" [▶ 36])



WARNING

Follow the service space dimensions in this manual to install the unit correctly. See "7.1.1 Installation site requirements of the indoor unit" [▶ 36].



WARNING

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



WARNING

DO NOT reuse refrigerant piping that has been used with any other refrigerant. Replace the refrigerant pipes or clean thoroughly.

Special requirements for R32 (see "7.1.2 Special requirements for R32 units" [▶ 38])



A2L

WARNING: MILDLY FLAMMABLE MATERIAL

The refrigerant inside this unit is mildly flammable.



WARNING

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



WARNING

The appliance shall be stored as follows:

- in such a way as to prevent mechanical damage.
- in a well-ventilated room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).



WARNING

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



WARNING

- Take precautions to avoid excessive vibration or pulsation to refrigeration piping.
- Protect the protection devices, piping and fittings as much as possible against adverse environmental effects.
- Provide space for expansion and contraction of long runs of piping.
- Design and install piping in refrigerating systems such as to minimise the likelihood of hydraulic shock damaging the system.

**WARNING**

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

**CAUTION**

Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak shall be detected.

Opening and closing the unit (see "7.2 Opening and closing the units" [▶ 47])

**DANGER: RISK OF ELECTROCUTION**

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

**DANGER: RISK OF ELECTROCUTION****DANGER: RISK OF BURNING/SCALDING**

Mounting the indoor unit (see "7.3 Mounting the indoor unit" [▶ 50])

**WARNING**

Fixing method of the indoor unit MUST be in accordance with the instructions from this manual. See "7.3 Mounting the indoor unit" [▶ 50].

Piping installation (see "8 Piping installation" [▶ 53])

**WARNING**

Field piping MUST be in accordance with the instructions from this manual. See "8 Piping installation" [▶ 53].

**DANGER: RISK OF BURNING/SCALDING****CAUTION**

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

**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

Some sections of the refrigerant circuit may be isolated from other sections caused by components with specific functions (e.g. valves). The refrigerant circuit therefore features additional service ports for vacuuming, pressure relief or pressurizing the circuit.

In case it is required to perform **brazing** on the unit, ensure that there is no pressure remaining inside the unit. Internal pressures need to be released with ALL the service ports indicated on the figures below opened. The location is depending on model type.



WARNING

- Only use R32 as refrigerant. Other substances may cause explosions and accidents.
- R32 contains fluorinated greenhouse gases. Its global warming potential (GWP) value is 675. Do NOT vent these gases into the atmosphere.
- When charging refrigerant, ALWAYS use protective gloves and safety glasses.

Electrical installation (see "9 Electrical installation" [▶ 67])



DANGER: RISK OF ELECTROCUTION



WARNING

Electrical wiring MUST be in accordance with the instructions from:

- This manual. See "9 Electrical installation" [▶ 67].
- The wiring diagram, which is delivered with the unit, located on the inside of the indoor unit switch box cover. For a translation of its legend, see "16.2 Wiring diagram: Indoor unit" [▶ 190].



WARNING

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



WARNING

- If the power supply has a missing or wrong N-phase, equipment might break down.
- Establish proper earthing. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earthing may cause electrical shocks.
- Install the required fuses or circuit breakers.
- Secure the electrical wiring with cable ties so that the cables do NOT come in contact with sharp edges or piping, particularly on the high-pressure side.
- Do NOT install a phase advancing capacitor, because this unit is equipped with an inverter. A phase advancing capacitor will reduce performance and may cause accidents.



WARNING

Do NOT extend the power supply or the interconnection cable by using wire connectors, wire connection clamps, taped wires, extension cords. These can cause overheating, electric shock or fire.

**WARNING**

If the supply cord is damaged, it **MUST** be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

**WARNING**

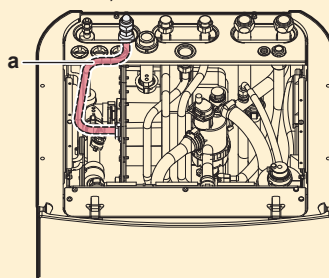
ALWAYS use multicore cable for power supply cables.

**CAUTION**

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

**WARNING**

Make sure that the electrical wiring does **NOT** touch the refrigerant gas pipe, which can be very hot.



a Refrigerant gas pipe

**WARNING**

The backup heater **MUST** have a dedicated power supply and **MUST** be protected by the safety devices required by the national wiring regulation.

**CAUTION**

To guarantee the unit is completely earthed, **ALWAYS** connect the backup heater power supply and the earth cable.

**INFORMATION**

For details on the fuse ratings, the fuse types and the circuit breaker ratings, see ["9 Electrical installation" \[▶ 67\]](#).

Configuration (see ["10 Configuration" \[▶ 84\]](#))

**CAUTION**

The disinfection function settings **MUST** be configured by the installer according to the applicable legislation.

**WARNING**

Be aware that the domestic hot water temperature at the hot water tap will be equal to the value selected in field setting [2-03] after a disinfection operation.

When the high domestic hot water temperature can be a potential risk for human injuries, a mixing valve (field supply) shall be installed at the hot water outlet connection of the domestic hot water tank. This mixing valve shall secure that the hot water temperature at the hot water tap never rise above a set maximum value. This maximum allowable hot water temperature shall be selected according to the applicable legislation.

**CAUTION**

Make sure that the disinfection function start time [5.7.3] with defined duration [5.7.5] is NOT interrupted by possible domestic hot water demand.

Commissioning (see "11 Commissioning" [▶ 158])

**WARNING**

Commissioning MUST be in accordance with the instructions from this manual. See "11 Commissioning" [▶ 158].

Maintenance and service (see "13 Maintenance and service" [▶ 169])

**DANGER: RISK OF ELECTROCUTION****DANGER: RISK OF BURNING/SCALDING****CAUTION**

Water coming out of the valve may be very hot.

**WARNING**

If the internal wiring is damaged, it has to be replaced by the manufacturer, its service agent or similarly qualified persons.

**DANGER: RISK OF BURNING/SCALDING**

The water in the tank can be very hot.

Troubleshooting (see "14 Troubleshooting" [▶ 176])

**DANGER: RISK OF ELECTROCUTION****DANGER: RISK OF BURNING/SCALDING****WARNING**

- When carrying out an inspection on the switch box of the unit, ALWAYS make sure that the unit is disconnected from the mains. Turn off the respective circuit breaker.
- When a safety device was activated, stop the unit and find out why the safety device was activated before resetting it. NEVER shunt safety devices or change their values to a value other than the factory default setting. If you are unable to find the cause of the problem, call your dealer.

**WARNING**

Prevent hazards due to inadvertent resetting of the thermal cut-out: power to this appliance MUST NOT be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly turned ON and OFF by the utility.

**WARNING**

Air purging heat emitters or collectors. Before you purge air from heat emitters or collectors, check if  or  is displayed on the home screen of the user interface.

- If not, you can purge air immediately.
- If yes, make sure that the room where you want to purge air is sufficiently ventilated. **Reason:** In case of a breakdown, refrigerant might leak into the water circuit, and subsequently into the room when you purge air from the heat emitters or collectors.

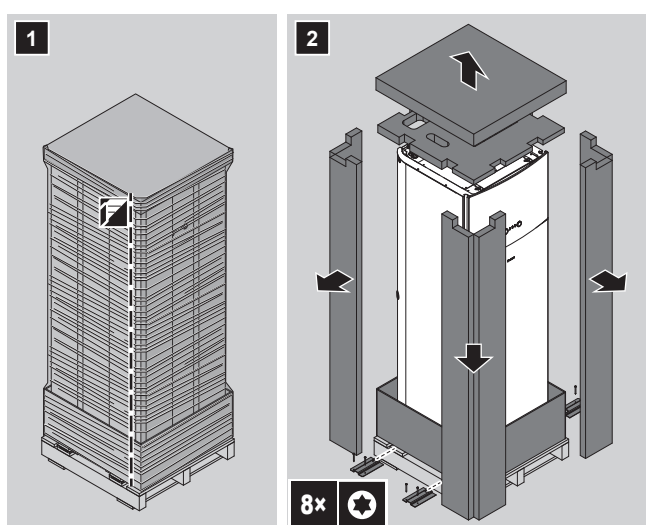
4 About the box

Keep the following in mind:

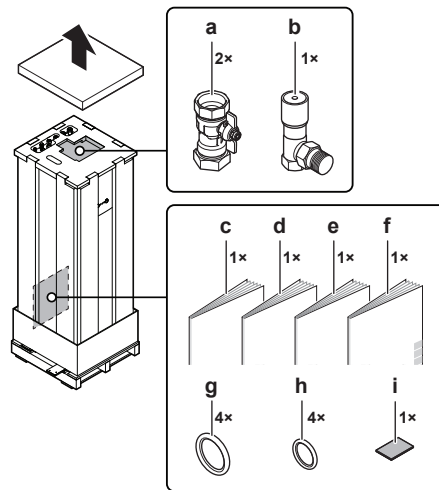
- At delivery, the unit **MUST** be checked for damage and completeness. Any damage or missing parts **MUST** be reported immediately to the claims agent of the carrier.
- Bring the packed unit as close as possible to its final installation position to prevent damage during transport.
- Prepare in advance the path along which you want to bring the unit to its final installation position.

4.1 Indoor unit

4.1.1 To unpack the indoor unit



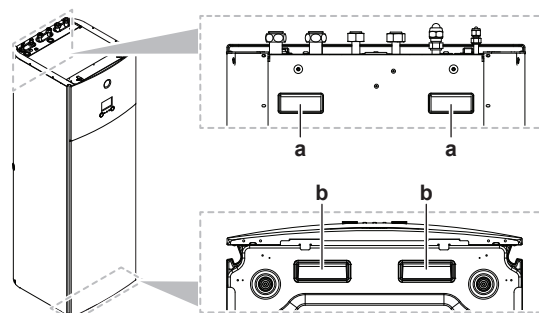
4.1.2 To remove the accessories from the indoor unit



- a** Shut-off valves for water circuit
- b** Differential pressure bypass valve
- c** General safety precautions
- d** Addendum book for optional equipment
- e** Indoor unit installation manual
- f** Operation manual
- g** Sealing rings for shut-off valves (space heating water circuit)
- h** Sealing rings for field-supplied shut-off valves (domestic hot water circuit)
- i** Sealing tape for low voltage wiring intake

4.1.3 To handle the indoor unit

Use the handles at the back and at the bottom to carry the unit.



- a** Handles at the back of the unit
- b** Handles at the bottom of the unit. Carefully tilt the unit backwards so that the handles become visible.

5 About the units and options

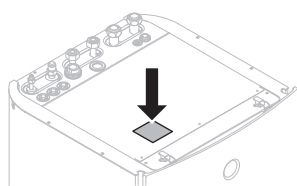
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5.2.2	Possible options for the indoor unit.....	23

5.1 Identification

5.1.1 Identification label: Indoor unit

Location



Model identification

Example: C HV X 07 S 23 AJ 4V

Code	Description
C	Residential multi compatible model
HV	Floor-standing indoor unit (refrigerant split) with integrated tank
X	Heating/cooling
07	Capacity class
S	Integrated tank material: Stainless steel
23	Integrated tank volume
AJ	Model series
4V	Backup heater model: 1~ / 230 V / 50 Hz

5.2 Combining units and options



INFORMATION

Certain options may NOT be available in your country.

5.2.1 Possible combinations of indoor unit and outdoor unit

Indoor unit	Outdoor unit	
	5XXM68A2V1B	5XXM90A2V1B
CHVX07S18	O	O
CHVX07S23	O	O

5.2.2 Possible options for the indoor unit

Room thermostat (EKRTWA, EKRTTB)

You can connect an optional room thermostat to the indoor unit. This thermostat can either be wired (EKRTWA) or wireless (EKRTTB).

For installation instructions, see the installation manual of the room thermostat and addendum book for optional equipment.

Remote sensor for wireless thermostat (EKRTETS)

You can use the remote indoor temperature sensor (EKRTETS) only in combination with the wireless thermostat (EKRTTB).

For installation instructions, see the installation manual of the room thermostat and the addendum book for optional equipment.

Digital I/O PCB (EKRP1HBAA)

The digital I/O PCB is required to provide following signals:

- Alarm output
- Space heating/cooling ON/OFF output
- Changeover to external heat source

For installation instructions, see the installation manual of the digital I/O PCB and addendum book for optional equipment.

Remote indoor sensor (KRCS01-1)

By default the internal sensor of the dedicated Human Comfort Interface (BRC1HHDA used as room thermostat) will be used as room temperature sensor.

As an option the remote indoor sensor can be installed to measure the room temperature on another location.

For installation instructions, see the installation manual of the remote indoor sensor and addendum book for optional equipment.



INFORMATION

- The remote indoor sensor can only be used in case the user interface is configured with room thermostat functionality.
- You can only connect either the remote indoor sensor or the remote outdoor sensor.

PC cable (EKPCAB4)

The PC cable makes a connection between the hydro PCB (A1P) of the indoor unit and a PC. It gives the possibility to update the hydro software and EEPROM.

For installation instructions, see:

- Installation manual of the PC cable
- ["10.1.2 To connect the PC cable to the switch box"](#) [▶ 87]

Heat pump convactor (FWX*)

For providing space heating, it is possible to use the following heat pump convectors:

- FWXV: floor-standing model
- FWXT: wall-mounted model
- FWXM: concealed model

For installation instructions, see:

- The installation manual of the heat pump convector
- The installation manual of the heat pump convector options
- The addendum book for optional equipment

LAN adapter for smartphone control (BRP069A62)

You can install this LAN adapter to control the system via a smartphone app.

For installation instructions, see the installation manual of the LAN adapter and the addendum book for optional equipment.

WLAN cartridge (BRP069A78)

You can install the wireless LAN cartridge to control the system via a smartphone app.

For installation instructions, see the installation manual of the WLAN cartridge.

WLAN module (BRP069A71)

As an alternative to the WLAN cartridge, you can install the wireless LAN module BRP069A71 to control the system via a smartphone app.

For installation instructions, see the installation manual of the WLAN module and the addendum book for optional equipment.

Bizone kit (EKMIKPOA or EKMIKPHA)

The bizone kit is required for space cooling application with underfloor cooling.

For installation instructions, see the installation manual of the bizone kit.

See also: "[Bizone kit](#)" [▶ 151]

Balancing vessel (EKMIKBVA)

The balancing vessel is required when the bizone kit is installed. The balancing vessel decouples the flow of the primary heat pump circuit from the secondary zone circuit, preventing pump interference and ensuring stable water flow.

Human Comfort Interface (BRC1HHDA) used as room thermostat

- The Human Comfort Interface (HCI) used as room thermostat can only be used in combination with the user interface connected to the indoor unit.
- The Human Comfort Interface (HCI) used as room thermostat needs to be installed in the room that you want to control.

For installation instructions, see the installation and operation manual of the Human Comfort Interface (HCI) as room thermostat, and the addendum book for optional equipment.

Daikin HomeHub (EKRHH)

Daikin Home Hub for improvement of PV self-consumption.

6 Application guidelines

In this chapter

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6.1 Overview: Application guidelines

The purpose of the application guidelines is to give a glance of the possibilities of the heat pump system.



NOTICE

- The illustrations in the application guidelines are meant for reference only, and are NOT to be used as detailed hydraulic diagrams. The detailed hydraulic dimensioning and balancing are NOT shown, and are the responsibility of the installer.
- For more information about the configuration settings to optimize heat pump operation, see "[10 Configuration](#)" [▶ 84].

This chapter contains application guidelines for:

- Setting up the space heating/cooling system
- Setting up an auxiliary heat source for space heating
- Setting up the domestic hot water tank
- Setting up the energy metering
- Setting up the power consumption control
- Setting up an external temperature sensor



NOTICE

Certain types of fan coil units –in this document referred to as "heat pump convectors"–, are able to receive input of the indoor unit operation mode (cooling or heating X2M/3 and X2M/4) and/or to send output of the heat pump convector thermostatic condition (main zone: X2M/30 and X2M/35; additional zone: X2M/30 and X2M/35a).

The application guidelines illustrate the possibility of receiving or sending digital input/output. This functionality can only be used in case the heat pump convector has such features and the signals meet following requirements:

- Output of indoor unit (input to heat pump convector): cooling/heating signal=230 V (cooling=230 V, heating=0 V).
- Input to indoor unit (output of heat pump convector): thermostat ON/OFF signal=voltage-free contact (closed contact=thermo ON, open contact=thermo OFF).

**NOTICE**

Cooling with [2.7] **Emitter type** other than underfloor heating is not allowed. If [2.7] **Emitter type** is not underfloor heating, make sure [E-02] **Unit type**=1.

6.2 Setting up the space heating/cooling system

The heat pump system supplies leaving water to heat emitters in the room.

Because the system offers a wide flexibility to control the temperature, you need to answer the following question first: which heat emitter type is used and what is the design leaving water temperature?

Once the space heating/cooling requirement is clear, we recommend to follow the setup guidelines below.

**NOTICE**

If an external room thermostat is used, the external room thermostat will control the room frost protection. However, the room frost protection is only possible if [C.2] **Space heating/cooling**=On.

**INFORMATION**

In case an external room thermostat is used and room frost protection needs to be guaranteed in all conditions, then you have to set **Emergency** [9.5.1] to one of the following:

- Automatic
- auto SH reduced/DHW on
- auto SH reduced/DHW off
- auto SH normal/DHW off

**NOTICE**

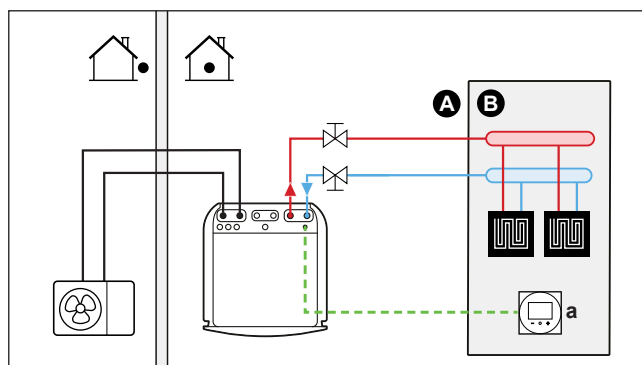
A differential pressure bypass valve can be integrated in the system. Keep in mind that this valve might not be shown on the illustrations.

**NOTICE**

If LWT or external RT control, room frost protection function should be switched OFF via [1.4.1] if not desired.

6.2.1 Underfloor heating or radiators – Wired room thermostat

Setup



- A Main leaving water temperature zone
- B One single room

- a Dedicated Human Comfort Interface (BRC1HHDA used as room thermostat)
- For more information about connecting the electrical wiring to the unit, see ["9.2 Connections to the indoor unit"](#) [► 70].
- The underfloor heating or radiators are directly connected to the indoor unit.
- The room temperature is controlled by the dedicated Human Comfort Interface (BRC1HHDA used as room thermostat).

Configuration

Setting	Value
Unit temperature control: ▪ #: [2.9] ▪ Code: [C-07]	2 (Room thermostat): Unit operation is decided based on the ambient temperature of the user interface.
Number of water temperature zones: ▪ #: [4.4] ▪ Code: [7-02]	0 (Single zone): Main

Benefits

- **Highest comfort and efficiency.** The smart room thermostat functionality can decrease or increase the desired leaving water temperature based on the actual room temperature (modulation). This results in:
 - Stable room temperature matching the desired temperature (higher comfort)
 - Less ON/OFF cycles (more quiet, higher comfort and higher efficiency)
 - Lowest possible leaving water temperature (higher efficiency)
- **Easy.** You can easily set the desired room temperature via the user interface:
 - For your daily needs, you can use preset values and schedules.
 - To deviate from your daily needs, you can temporarily overrule the preset values and schedules, or use the holiday mode.



INFORMATION

DX indoor units have two operation modes: heating and cooling.

In case of floorstanding indoor units:

- Cooling is only allowed with underfloor heating + bizon kit.
- In cooling mode, you cannot set the underfloor heating loop to a setpoint lower than 18°C.
- Cooling with fan coil unit or radiators is not allowed.

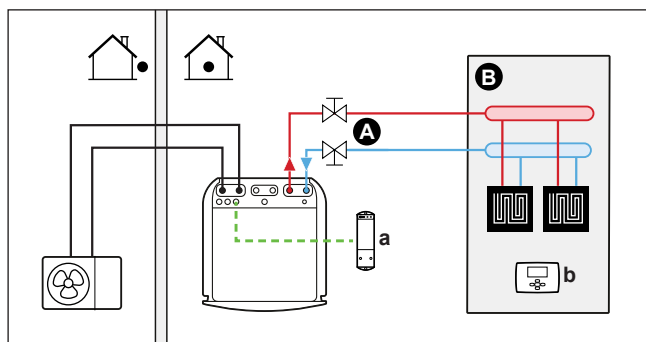


INFORMATION

To activate space cooling once the bizon kit is connected, first set [E-0B] to 2, [E-0C] to 1, [3-0D] to 1, and then change [E-02] to 0.

6.2.2 Underfloor heating or radiators – Wireless room thermostat

Setup



- A Main leaving water temperature zone
- B One single room
- a Receiver for wireless external room thermostat
- b Wireless external room thermostat

- The underfloor heating or radiators are directly connected to the indoor unit.
- The room temperature is controlled by the wireless external room thermostat (optional equipment EKRTRB).

Configuration

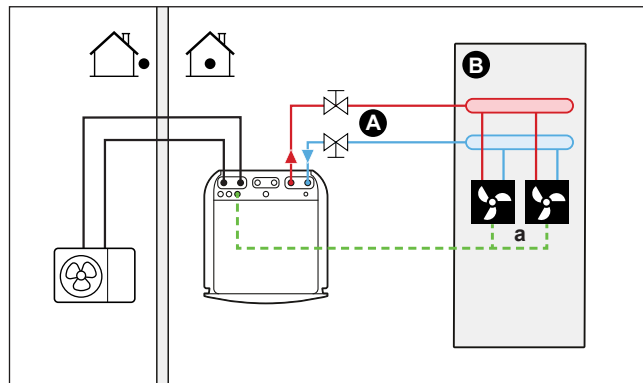
Setting	Value
Unit temperature control: ▪ #: [2.9] ▪ Code: [C-07]	1 (External room thermostat): Unit operation is decided by the external thermostat.
Number of water temperature zones: ▪ #: [4.4] ▪ Code: [7-02]	0 (Single zone): Main
External room thermostat for the main zone: ▪ #: [2.A] ▪ Code: [C-05]	1 (1 contact): When the used external room thermostat or heat pump convector can only send a thermo ON/OFF condition. No separation between heating or cooling demand.

Benefits

- **Wireless.** The Daikin external room thermostat is available in a wireless version.
- **Efficiency.** Although the external room thermostat only sends ON/OFF signals, it is specifically designed for the heat pump system.
- **Comfort.** In case of underfloor heating, the wireless external room thermostat prevents condensation on the floor during cooling operation by measuring the room humidity.

6.2.3 Heat pump convectors

Setup



- A** Main leaving water temperature zone
B One single room
a Heat pump convectors (+ controllers)

- The heat pump convectors are directly connected to the indoor unit.
- The desired room temperature is set via the controller of the heat pump convectors. There are different controllers and setups possible for the heat pump convectors. For more information, see:
 - The installation manual of the heat pump convectors
 - The installation manual of the heat pump convector options
 - The addendum book for optional equipment
- The space heating demand signal is sent to one digital input on the indoor unit (X2M/35 and X2M/30).
- The space operation mode is sent to the heat pump convectors by one digital output on the indoor unit (X2M/4 and X2M/3).
- Cooling is not allowed with heat pump convectors.

Configuration

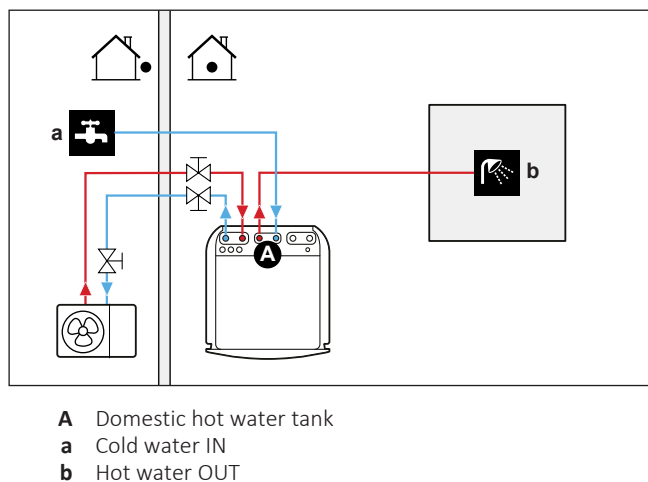
Setting	Value
Unit temperature control: ▪ #: [2.9] ▪ Code: [C-07]	1 (External room thermostat): Unit operation is decided by the external thermostat.
Number of water temperature zones: ▪ #: [4.4] ▪ Code: [7-02]	0 (Single zone): Main
External room thermostat for the main zone: ▪ #: [2.A] ▪ Code: [C-05]	1 (1 contact): When the used external room thermostat or heat pump convector can only send a thermo ON/OFF condition. No separation between heating or cooling demand.

Benefits

- **Efficiency.** Optimal energy efficiency because of the interlink function.
- **Stylish.**

6.3 Setting up the domestic hot water tank

6.3.1 System layout – Integrated DHW tank



6.3.2 Selecting the volume and desired temperature for the DHW tank

People experience water as hot when its temperature is 40°C. Therefore, the DHW consumption is always expressed as equivalent hot water volume at 40°C. However, you can set the DHW tank temperature at a higher temperature (example: 53°C), which is then mixed with cold water (example: 15°C).

Selecting the volume and desired temperature for the DHW tank consists of:

- 1 Determining the DHW consumption (equivalent hot water volume at 40°C).
- 2 Determining the volume and desired temperature for the DHW tank.

Determining the DHW consumption

Answer the following questions and calculate the DHW consumption (equivalent hot water volume at 40°C) using typical water volumes:

Question	Typical water volume
How many showers are needed per day?	1 shower = 10 min×10 l/min = 100 l
How many baths are needed per day?	1 bath = 150 l
How much water is needed at the kitchen sink per day?	1 sink = 2 min×5 l/min = 10 l
Are there any other domestic hot water needs?	—

Example: If the DHW consumption of a family (4 persons) per day is as follows:

- 3 showers
- 1 bath
- 3 sink volumes

Then the DHW consumption = (3×100 l)+(1×150 l)+(3×10 l)=480 l

Determining the volume and desired temperature for the DHW tank

Formula	Example
$V_1 = V_2 \times (T_2 - T_1) / (40 - T_1)$	If: ▪ $V_2 = 180$ l ▪ $T_2 = 54^\circ\text{C}$ ▪ $T_1 = 15^\circ\text{C}$ Then $V_1 = 280$ l
$V_2 = V_1 \times (40 - T_1) / (T_2 - T_1)$	If: ▪ $V_1 = 480$ l ▪ $T_2 = 54^\circ\text{C}$ ▪ $T_1 = 15^\circ\text{C}$ Then $V_2 = 307$ l

V_1 DHW consumption (equivalent hot water volume at 40°C)

V_2 Required DHW tank volume if only heated once

T_2 DHW tank temperature

T_1 Cold water temperature

Possible DHW tank volumes

Type	Possible volumes
Integrated DHW tank	▪ 180 l ▪ 230 l

Energy saving tips

- The heat pump itself can produce domestic hot water of maximum 55°C (lower if the outdoor temperature is low). The electrical resistance integrated in the heat pump can increase this temperature. However, this consumes more energy. We recommend to set the desired DHW tank temperature below 55°C to avoid using the electrical resistance.
- Set the **Priority schedule** to DHW to minimise the usage of the electric backup heater.
- Use a weekly schedule for your normal domestic hot water needs (ONLY in scheduled mode).
- Also, by setting the heat up action to only scheduled action, interruption to space heating/cooling operation will be limited to the specific moments where space heating/cooling demand is less important.
 - Program to heat up the DHW tank to a preset value (**Comfort** = higher DHW tank temperature) during the night, because then space heating/cooling demand is lower (example: between 22:00 and 04:00).
 - If heating up the DHW tank once at night is NOT sufficient, program to additionally heat up the DHW tank to a preset value (**Eco** = lower DHW tank temperature) during the day or the time when occupants are not present (example: between 09:00 and 15:00).
- Operate the domestic hot water system only when needed:
 - Program to turn ON the domestic hot water pump during periods of high demand (**Example:** In the morning and evening).
 - Use **Reheat only** mode and **Powerful operation** when additional hot water is required.

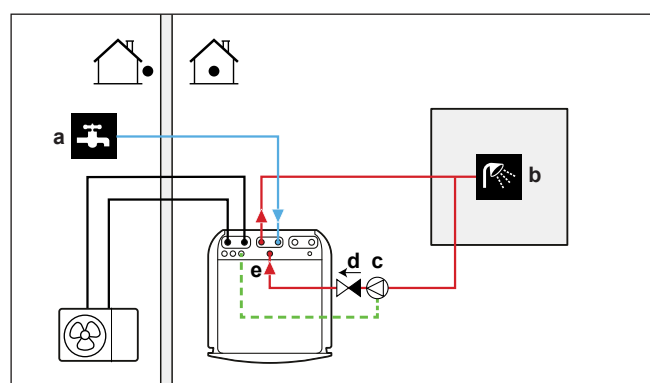
- The higher the outdoor temperature, the better the performance of the heat pump.
 - If energy prices are the same during the day and the night, we recommend to heat up the DHW tank during the day.
 - If energy prices are lower during the night, we recommend to heat up the DHW tank during the night.
- When the heat pump produces domestic hot water, depending on total heating demand and the scheduled priority setting, it might not be able to heat up a space. In case you need domestic hot water and space heating at the same time, we recommend to produce the domestic hot water during the night when there is lower space heating demand or during the time when occupants are not present.
- In case multiple indoor units are connected to the outdoor unit: when the heat pump produces domestic hot water (DHW), depending on total demand for Air Conditioning (A/C) and the scheduled priority setting, it might not be able to do both DHW and A/C at the same time. In case you need DHW and A/C at the same, we recommend to produce the domestic hot water during the night when there is lower A/C demand or during the time when occupants are not present.

6.3.3 Setup and configuration – DHW tank

- For large DHW consumptions, you can heat up the DHW tank several times during the day.
- To heat up the DHW tank to the desired DHW tank temperature, you can use the following energy sources:
 - Thermodynamic cycle of the heat pump
 - Electrical backup heater
- For more information about optimizing the energy consumption for producing domestic hot water, see ["10 Configuration"](#) [▶ 84].

6.3.4 DHW pump for instant hot water

Setup



- a Cold water IN
- b Hot water OUT (shower (field supply))
- c DHW pump (field supply)
- d Non-return valve (field supply)
- e Recirculation connection

- By connecting a DHW pump, instant hot water can be available at the tap.
- The DHW pump and the installation are field supply and the responsibility of the installer. For the electrical wiring, see ["9.2.3 To connect the domestic hot water pump"](#) [▶ 77].

- For more information about connecting the recirculation connection, see ["8.6.4 To connect the recirculation piping"](#) [► 65].

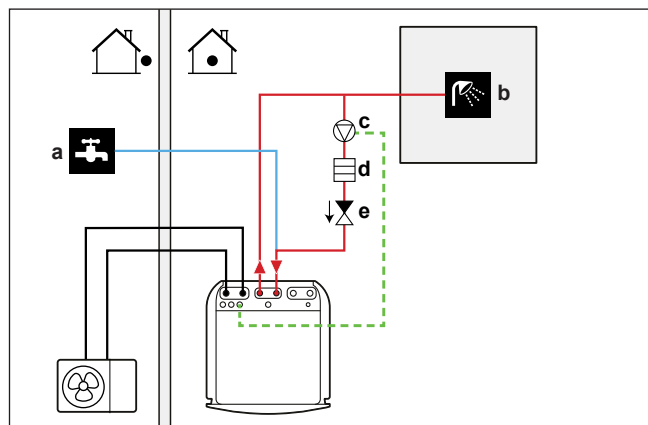
**NOTICE**

Always follow the instructions of the pump supplier when connecting a DHW pump.

Configuration

- For more information, see ["10 Configuration"](#) [► 84].
- You can program a schedule to control the DHW pump via the user interface. For more information, see the user reference guide.

6.3.5 DHW pump for disinfection

Setup

- a Cold water IN
- b Hot water OUT (shower (field supply))
- c DHW pump (field supply)
- d Heater element (field supply)
- e Non-return valve (field supply)

- The DHW pump and the installation are field supply and the responsibility of the installer. For the electrical wiring, see ["9.2.3 To connect the domestic hot water pump"](#) [► 77].
- If the applicable legislation requires a higher temperature than the maximum tank setpoint during disinfection (see [2-03] in the field settings table), you can connect a DHW pump and heater element as shown above.
- If applicable legislation requires disinfection of the water piping until the tapping point, you can connect a DHW pump and heater element (if needed) as shown above.

Configuration

The indoor unit can control DHW pump operation. For more information, see ["10 Configuration"](#) [► 84].

6.4 Setting up the energy metering

- Via the user interface, you can read out the following energy data:
 - Produced heat
 - Consumed energy

- You can read out the energy data:
 - For space heating via hydraulic heating
 - For space cooling via hydraulic cooling
 - For domestic hot water production
- You can read out the energy data:
 - Per two hours (for the last 48 hours)
 - Per day (for the last 14 days)
 - Per month (for the last 24 months)
 - Total since installation



INFORMATION

The calculated produced heat and consumed energy are an estimation, the accuracy cannot be guaranteed.

6.4.1 Produced heat



INFORMATION

The sensors used to calculate the produced heat are calibrated automatically.

- The produced heat is calculated internally based on:
 - The leaving and entering water temperature
 - The flow rate
- Setup and configuration: No additional equipment needed.

6.4.2 Consumed energy

You can use the following methods to determine the consumed energy:

- Calculating

Calculating the consumed energy

- The consumed energy is calculated internally based on:
 - The actual power input of the outdoor unit
 - The set capacity of the backup heater
 - The voltage
- Setup and configuration: To get accurate energy data, measure the capacity (resistance measurement) and set the capacity via the user interface for the backup heater (step 1).

6.5 Setting up an external temperature sensor

You can connect one external temperature sensor. It measures the indoor temperature. We recommend to use an external temperature sensor in the following cases:

Indoor ambient temperature

- In room thermostat control, the dedicated Human Comfort Interface (BRC1HHDA used as room thermostat) measures the indoor ambient temperature. Therefore, the Human Comfort Interface must be installed on a location:
 - Where the average temperature in the room can be detected
 - That is NOT exposed to direct sunlight
 - That is NOT near a heat source
 - That is NOT affected by outside air or air draught because of, for example, door opening/closing
- If this is NOT possible, we recommend to connect a remote indoor sensor (option KRCS01-1).
- Setup: For installation instructions, see the installation manual of the remote indoor sensor, and the addendum book for optional equipment.
- Configuration: Select room sensor [9.B].

7 Unit installation

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7.1 Preparing the installation site



WARNING

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

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

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



WARNING

DO NOT reuse refrigerant piping that has been used with any other refrigerant. Replace the refrigerant pipes or clean thoroughly.

7.1.1 Installation site requirements of the indoor unit

- The indoor unit is designed for indoor installation only and for the following ambient temperatures:
 - Space heating operation: 5~30°C
 - Space cooling operation: 5~35°C
 - Domestic hot water production: 5~35°C



INFORMATION

DX indoor units have two operation modes: heating and cooling.

In case of floorstanding indoor units:

- Cooling is only allowed with underfloor heating + bizone kit.
- In cooling mode, you cannot set the underfloor heating loop to a setpoint lower than 18°C.
- Cooling with fan coil unit or radiators is not allowed.

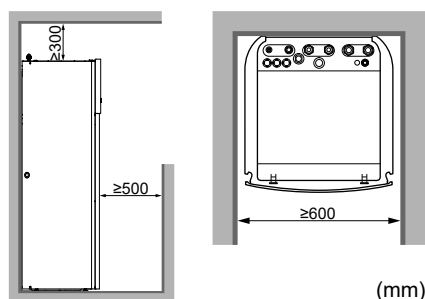
- Mind the following measurements guidelines:

Maximum refrigerant piping length ^(a) between indoor unit and outdoor unit	≤30 m
Minimum refrigerant piping length ^(a) between indoor unit and outdoor unit	3 m

^(a) Refrigerant piping length is the one-way length of liquid piping.

	Height difference outdoor-indoor	Height difference indoor-indoor
Outdoor unit installed higher than indoor unit	≤30 m	≤7.5 m
Outdoor unit installed lower than at least 1 indoor unit	≤15 m	≤15 m

- Mind the following spacing installation guidelines:



Additionally to the spacing guidelines: Because the total refrigerant charge in the system is ≥1.84 kg, the room where you install the indoor unit must also comply with the conditions described in ["7.1.3 Installation patterns"](#) [▶ 39].



INFORMATION

If you have limited installation space, do the following before installing the unit in its final position: ["7.3.3 To connect the drain hose to the drain"](#) [▶ 50]. It requires to remove one or both side panels.

- The foundation must be strong enough to bear the weight of the unit. Take the weight of the unit with a domestic hot water tank full of water into account.

Make sure, in the event of a water leak, water cannot cause any damage to the installation space and surroundings.

Do NOT install the unit in places such as:

- In places where a mineral oil mist, spray or vapour may be present in the atmosphere. Plastic parts may deteriorate and fall off or cause water leakage.
- Sound sensitive areas (e.g. near a bedroom), so that the operation noise will cause no trouble.
- In places with high humidity (max. RH=85%), for example a bathroom.
- In places where frost is possible. Ambient temperature around the indoor unit must be >5°C.

7.1.2 Special requirements for R32 units

Additionally to the spacing guidelines: Because the total refrigerant charge in the system is ≥ 1.84 kg, the room where you install the indoor unit must also comply with the conditions described in "[7.1.3 Installation patterns](#)" [▶ 39].



A2L

WARNING: MILDLY FLAMMABLE MATERIAL

The refrigerant inside this unit is mildly flammable.



WARNING

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



WARNING

The appliance shall be stored as follows:

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



WARNING

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



WARNING

- Take precautions to avoid excessive vibration or pulsation to refrigeration piping.
- Protect the protection devices, piping and fittings as much as possible against adverse environmental effects.
- Provide space for expansion and contraction of long runs of piping.
- Design and install piping in refrigerating systems such as to minimise the likelihood of hydraulic shock damaging the system.



WARNING

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



NOTICE

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



NOTICE

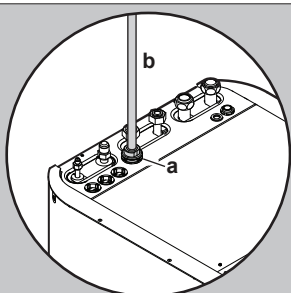
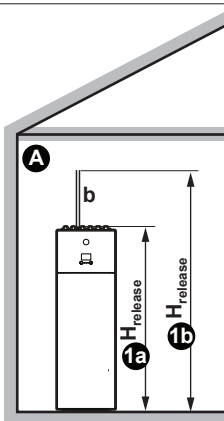
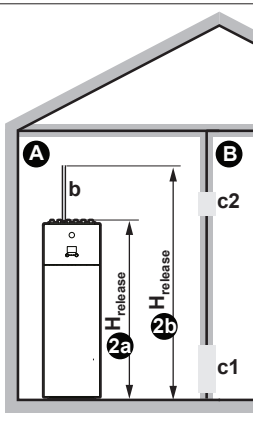
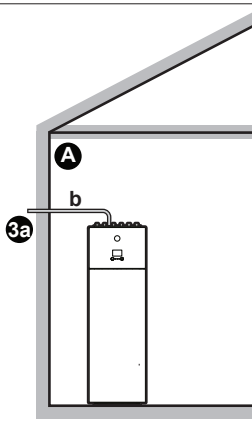
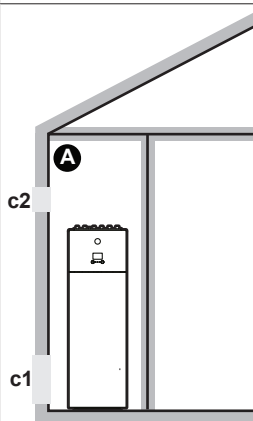
- The pipework shall be securely mounted and protected from physical damage.
- Keep the pipework installation to a minimum.

7.1.3 Installation patterns

**WARNING**

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

Depending on the type of room in which you install the indoor unit, different installation patterns are allowed:

Room type	Allowed patterns			
Living room, kitchen, garage, attic, basement, storage room	1, 2, 3			
Technical room (i.e. room that is NEVER occupied by persons)	1, 2, 3, 4			
	PATTERN 1	PATTERN 2	PATTERN 3	PATTERN 4
				
Ventilation openings	N/A	Between room A and B	N/A	Between room A and outside
Minimum floor area	Room A	Room A + Room B	N/A	N/A
Chimney	Might be needed	Might be needed	Connected to outside	N/A
Release in case of refrigerant leakage	Inside room A	Inside room A	Outside	Inside room A
Restrictions	See "PATTERN 1" [▶ 41], "PATTERN 2" [▶ 41], "PATTERN 3" [▶ 43], and "Tables for PATTERN 1, 2 and 3" [▶ 43]			See "PATTERN 4" [▶ 46]

A	Room A (= room where indoor unit is installed)
B	Room B (= adjacent room)
a	If no chimney is installed, this is the default point of release in case of refrigerant leakage. If needed, you can connect a chimney here.
b	Chimney
c1	Bottom opening for natural ventilation
c2	Top opening for natural ventilation

H_{release}	Actual release height: 1a/2a: Without chimney. From floor to top of the unit. - For 180 l units $\Rightarrow H_{\text{release}}=1.66 \text{ m}$ - For 230 l units $\Rightarrow H_{\text{release}}=1.86 \text{ m}$ 1b/2b: With chimney. From floor to top of the chimney. - For 180 l units $\Rightarrow H_{\text{release}}=1.66 \text{ m} + \text{Chimney height}$ - For 230 l units $\Rightarrow H_{\text{release}}=1.86 \text{ m} + \text{Chimney height}$
3a	Installation with chimney connected to the outside. The release height is not relevant. There are no requirements to the minimum floor area.
N/A	Not applicable

Minimum floor area / Release height:

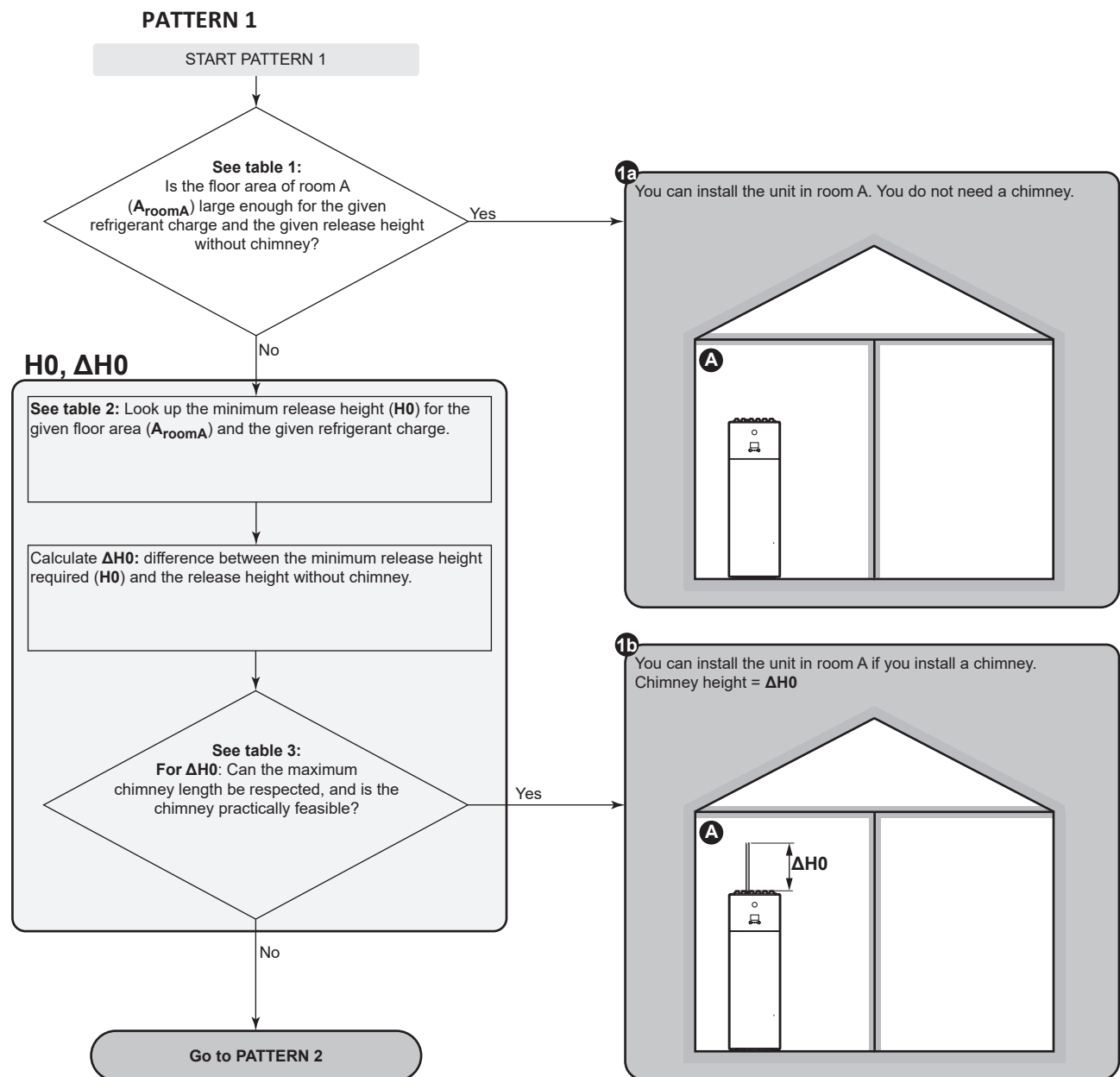
- The minimum floor area requirements depend on the release height of the refrigerant in case of a leakage. The higher the release height, the lower the minimum floor area requirements.
- The default point of release (without chimney) is at the top of the unit. To decrease the minimum floor area requirements, you can increase the release height by installing a chimney. If the chimney leads outside of the building, there are no requirements anymore to the minimum floor area.
- You can also take advantage of the floor area of the adjacent room (= room B) by providing ventilation openings between the two rooms.
- For installations in technical rooms (i.e. room that is NEVER occupied by persons), additionally to patterns 1, 2 and 3, you can also use **PATTERN 4**. For this pattern there are no requirements to the minimum floor area if you provide two openings (one at the bottom, one at the top) between the room and the outside to ensure natural ventilation. The room must be protected from frost.



WARNING

Chimney connection. When connecting a chimney, take the following into account:

- Unit's connection point for the chimney = 1" male thread. Use a compatible counterpart for the chimney.
- Make sure the connection is airtight.
- The chimney material is unimportant.

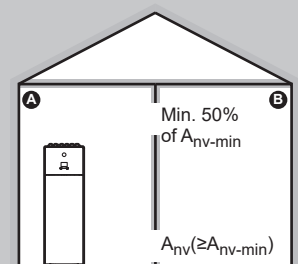


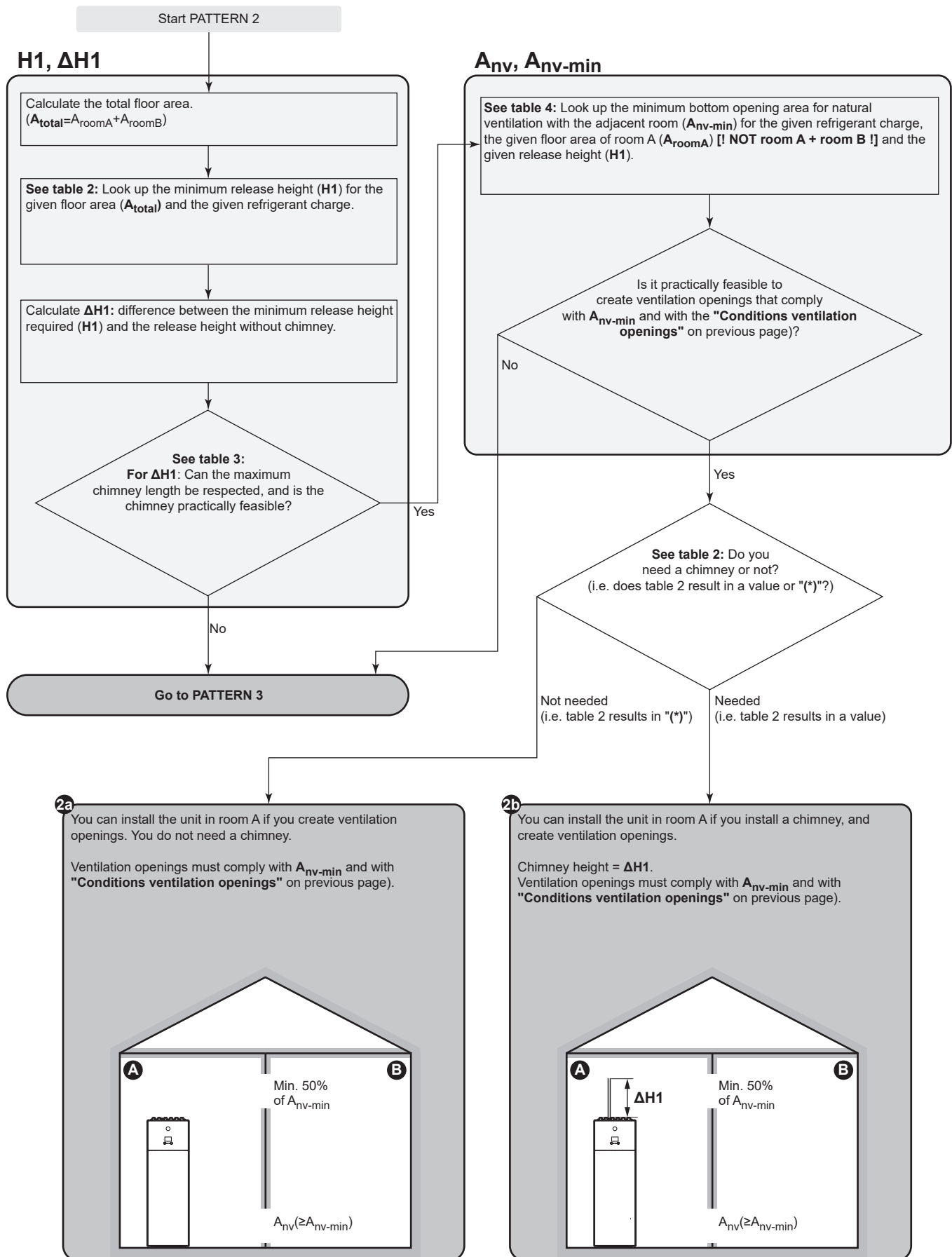
PATTERN 2

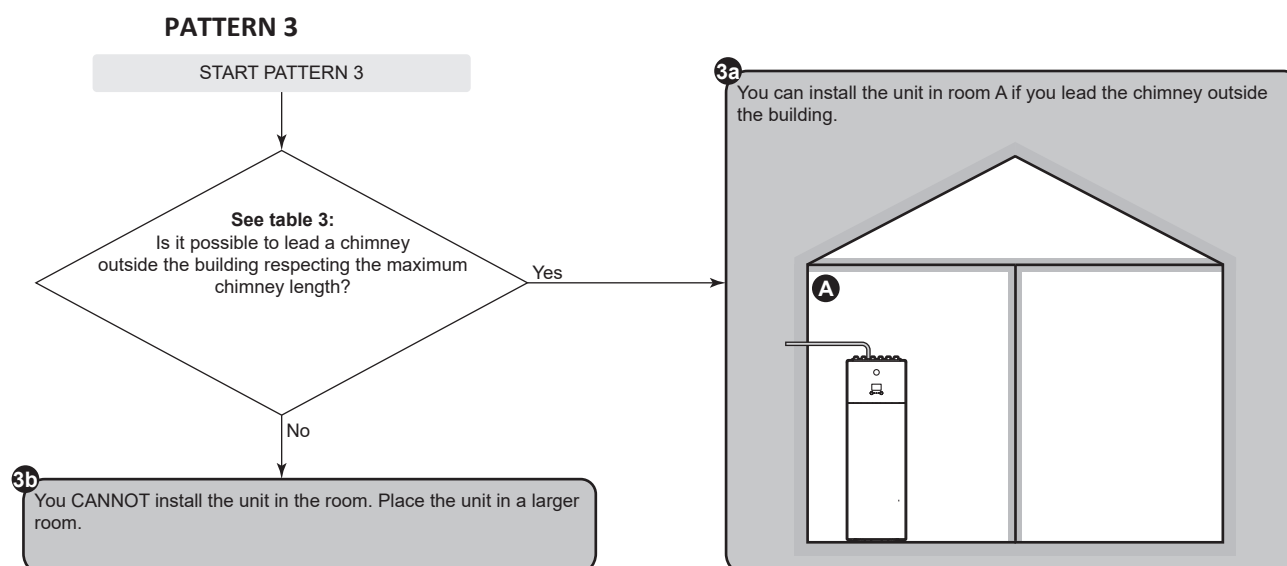
PATTERN 2: Conditions ventilation openings

If you want to take advantage of the floor area of the adjacent room, you must provide 2 openings (one at the bottom, one at the top) between the rooms to ensure natural ventilation. The openings must comply with the following conditions:

- **Bottom opening (A_{nv}):**
 - Must be a permanent opening that cannot be closed.
 - Must be completely located between 0 and 300 mm from the floor.
 - Must be $\geq A_{nv-min}$ (minimum bottom opening area).
 - $\geq 50\%$ of the required opening area A_{nv-min} must be ≤ 200 mm from the floor.
 - The bottom of the opening must be ≤ 100 mm from the floor.
 - If the opening starts from the floor, the height of the opening must be ≥ 20 mm.
- **Top opening:**
 - Must be a permanent opening that cannot be closed.
 - Must be $\geq 50\%$ of A_{nv-min} (minimum bottom opening area).
 - Must be ≥ 1.5 m from the floor.







Tables for PATTERN 1, 2 and 3

Table 1: Minimum floor area

For intermediate refrigerant charges, use the row with the higher value. **Example:** If the refrigerant charge is 1.8 kg, use the row of 2 kg.

Minimum floor area (m ²)		
Charge (kg)	Release height without chimney (m)	
	1.66 (Unit=180 l)	1.86 (Unit=230 l)
1.5	3.92	3.50
2	5.23	4.66
2.4	6.40	5.60
2.6	7.51	6.06
3	9.99	7.95
3.3	12.09	9.62

Table 2: Minimum release height

Take the following into account:

- For intermediate floor areas, use the column with the lower value. **Example:** If the floor area is 22.50 m², use the column of 20.00 m².
- For intermediate refrigerant charges, use the row with the higher value. **Example:** If the refrigerant charge is 1.8 kg, use the row of 2 kg.
- (*): The release height of the unit without chimney (for 180 l units: 1.66 m; for 230 l units: 1.86 m) is already higher than the minimum required release height. => OK (no chimney needed).

Minimum release height (m)							
Charge (kg)	Floor area (m ²)						
	2.50	5.00	10.00	15.00	20.00	25.00	30.00
1.5	2.61	(*)	(*)	(*)	(*)	(*)	(*)
2	3.47	1.74	(*)	(*)	(*)	(*)	(*)
2.4	4.17	2.08	(*)	(*)	(*)	(*)	(*)
2.6	4.52	2.26	(*)	(*)	(*)	(*)	(*)
3	5.21	2.61	1.66	(*)	(*)	(*)	(*)
3.3	5.73	2.87	1.83	(*)	(*)	(*)	(*)

Table 3: Maximum chimney length

When installing a chimney, the chimney length must be less than the maximum chimney length.

- Use the columns with the correct refrigerant charge. For intermediate refrigerant charges, use the columns with the higher value. **Example:** If the refrigerant charge is 3.0 kg, use the columns of 3.3 kg.
- For intermediate diameters, use the column with the lower value. **Example:** If the diameter is 23 mm, use the column of 22 mm.
- X: Not allowed

Maximum chimney length (m) – In case of Refrigerant charge=2.6 kg (and T=55°C)						In case of Refrigerant charge=3.3 kg (and T=55°C)				
Chimney	Inside diameter of chimney (mm)					Inside diameter of chimney (mm)				
	20 mm	22 mm	24 mm	26 mm	28 mm	20 mm	22 mm	24 mm	26 mm	28 mm
Straight pipe	46.99 m	78.61 m	123.42 m	185.02 m	267.54 m	27.35 m	46.93 m	74.81 m	113.26 m	164.87 m
1× 90° elbow	45.19 m	76.63 m	121.26 m	182.68 m	265.02 m	25.55 m	44.95 m	72.65 m	110.92 m	162.35 m
2× 90° elbow	43.39 m	74.65 m	119.10 m	180.34 m	262.50 m	23.75 m	42.97 m	70.49 m	108.58 m	159.83 m
3× 90° elbow	41.59 m	72.67 m	116.94 m	178.00 m	259.98 m	21.95 m	40.99 m	68.33 m	106.24 m	157.31 m

Table 4: Minimum bottom opening area for natural ventilation

Take the following into account:

- Use the correct table. For intermediate refrigerant charges, use the table with the higher value. **Example:** If the refrigerant charge is 1.8 kg, use the table of 2 kg.
- For intermediate floor areas, use the column with the lower value. **Example:** If the floor area is 12.50 m², use the column of 10.00 m².
- For intermediate release height values, use the row with the lower value. **Example:** If the release height is 1.90 m, use the row of 1.86 m.
- A_{nv}: Bottom opening area for natural ventilation.
- A_{nv-min}: Minimum bottom opening area for natural ventilation.
- (*): Already OK (no ventilation openings needed).

Minimum opening area for natural ventilation A _{nv} (m ²) - In case of Refrigerant charge=2.0 kg							
Release height (m)	Floor area of room A (m ²)						
	2.50	5.00	10.00	15.00	20.00	25.00	30.00
1.66	0.025	0.002	(*)	(*)	(*)	(*)	(*)
1.86	0.021	(*)	(*)	(*)	(*)	(*)	(*)
2.06	0.018	(*)	(*)	(*)	(*)	(*)	(*)
2.26	0.015	(*)	(*)	(*)	(*)	(*)	(*)
2.46	0.012	(*)	(*)	(*)	(*)	(*)	(*)
2.66	0.009	(*)	(*)	(*)	(*)	(*)	(*)
2.86	0.007	(*)	(*)	(*)	(*)	(*)	(*)
3.06	0.004	(*)	(*)	(*)	(*)	(*)	(*)

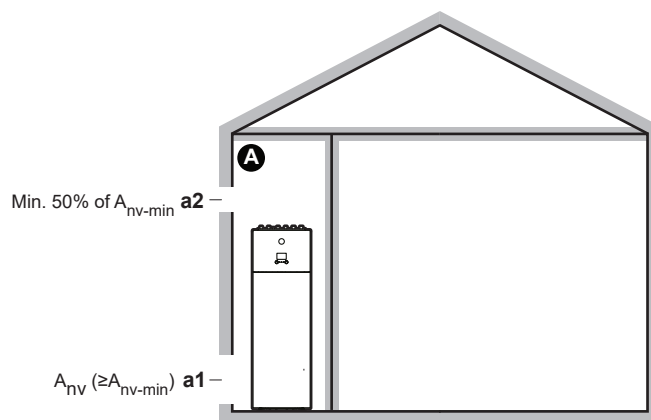
Minimum opening area for natural ventilation A _{nv} (m ²) - In case of Refrigerant charge=2.4 kg							
Release height (m)	Floor area of room A (m ²)						
	2.50	5.00	10.00	15.00	20.00	25.00	30.00
1.66	0.035	0.012	(*)	(*)	(*)	(*)	(*)
1.86	0.031	0.006	(*)	(*)	(*)	(*)	(*)
2.06	0.027	0.001	(*)	(*)	(*)	(*)	(*)
2.26	0.023	(*)	(*)	(*)	(*)	(*)	(*)
2.46	0.020	(*)	(*)	(*)	(*)	(*)	(*)
2.66	0.017	(*)	(*)	(*)	(*)	(*)	(*)
2.86	0.014	(*)	(*)	(*)	(*)	(*)	(*)
3.06	0.011	(*)	(*)	(*)	(*)	(*)	(*)

Minimum opening area for natural ventilation A _{nv} (m ²) - In case of Refrigerant charge=2.6 kg							
Release height (m)	Floor area of room A (m ²)						
	2.50	5.00	10.00	15.00	20.00	25.00	30.00
1.66	0.040	0.017	(*)	(*)	(*)	(*)	(*)
1.86	0.035	0.011	(*)	(*)	(*)	(*)	(*)
2.06	0.031	0.005	(*)	(*)	(*)	(*)	(*)
2.26	0.027	(*)	(*)	(*)	(*)	(*)	(*)
2.46	0.024	(*)	(*)	(*)	(*)	(*)	(*)
2.66	0.021	(*)	(*)	(*)	(*)	(*)	(*)
2.86	0.018	(*)	(*)	(*)	(*)	(*)	(*)
3.06	0.015	(*)	(*)	(*)	(*)	(*)	(*)

Minimum opening area for natural ventilation A_{nv} (m ²) - In case of Refrigerant charge=3.3 kg							
Release height (m)	Floor area of room A (m ²)						
	2.50	5.00	10.00	15.00	20.00	25.00	30.00
1.66	0.057	0.034	0.008	(*)	(*)	(*)	(*)
1.86	0.051	0.027	(*)	(*)	(*)	(*)	(*)
2.06	0.046	0.020	(*)	(*)	(*)	(*)	(*)
2.26	0.042	0.015	(*)	(*)	(*)	(*)	(*)
2.46	0.038	0.009	(*)	(*)	(*)	(*)	(*)
2.66	0.034	0.005	(*)	(*)	(*)	(*)	(*)
2.86	0.031	(*)	(*)	(*)	(*)	(*)	(*)
3.06	0.028	(*)	(*)	(*)	(*)	(*)	(*)

PATTERN 4

PATTERN 4 is only allowed for installations in technical rooms (i.e. room that is NEVER occupied by persons). For this pattern there are no requirements to the minimum floor area if you provide 2 openings (one at the bottom, one at the top) between the room and the outside to ensure natural ventilation. The room must be protected from frost.



A	Unoccupied room where the indoor unit is installed. Must be protected from frost.
a1	A_{nv} : Bottom opening for natural ventilation between the unoccupied room and the outside. - Must be a permanent opening that cannot be closed. - Must be above ground level. - Must be completely located between 0 and 300 mm from the floor of the unoccupied room. - Must be $\geq A_{nv-min}$ (minimum bottom opening area as specified in the table below). $\geq 50\%$ of the required opening area A_{nv-min} must be ≤ 200 mm from the floor of the unoccupied room. - The bottom of the opening must be ≤ 100 mm from the floor of the unoccupied room. - If the opening starts from the floor, the height of the opening must be ≥ 20 mm.
a2	Top opening for natural ventilation between room A and the outside. - Must be a permanent opening that cannot be closed. - Must be $\geq 50\%$ of A_{nv-min} (minimum bottom opening area as specified in the table below). - Must be ≥ 1.5 m from the floor of the unoccupied room.

 A_{nv-min} (minimum bottom opening area for natural ventilation)

The minimum bottom opening area for natural ventilation between the unoccupied room and the outside depends on the total refrigerant in the system. For intermediate refrigerant charges, use the row with the higher value. **Example:** If the refrigerant charge is 4.3 kg, use the row of 4.4 kg.

Total refrigerant charge (kg)	A_{nv-min} (dm ²)
1.5 kg	6.2 dm ²
2 kg	7.1 dm ²
2.4 kg	7.8 dm ²

Total refrigerant charge (kg)	A _{nv-min} (dm ²)
2.6 kg	8.1 dm ²
3 kg	8.8 dm ²
3.3 kg	9.2 dm ²

7.2 Opening and closing the units

7.2.1 About opening the units

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

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

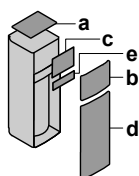


DANGER: RISK OF ELECTROCUTION

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

7.2.2 To open the indoor unit

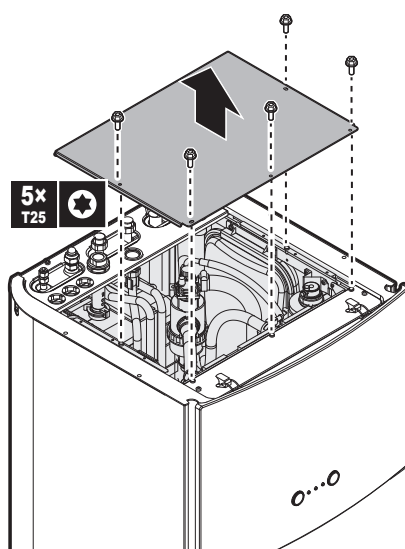
Overview



- a** Top panel
- b** User interface panel
- c** Switch box cover
- d** Front panel
- e** High voltage switch box cover

Open

- 1 Remove the top panel.

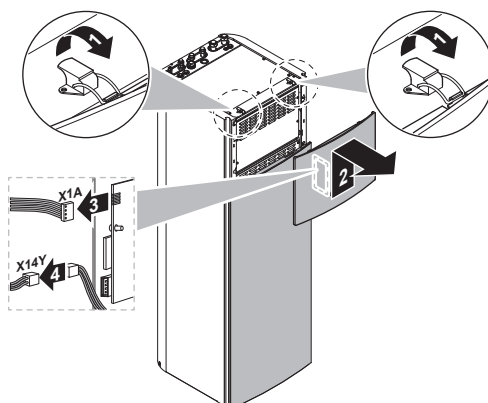


- 2 Remove the user interface panel. Open the hinges at the top and slide the top panel upwards.

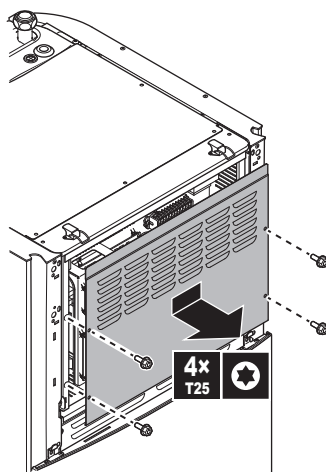


NOTICE

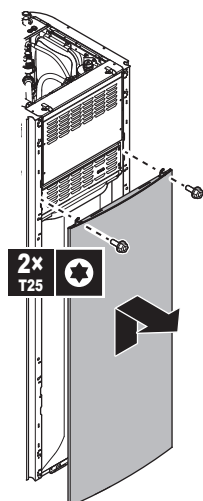
If you remove the user interface panel, also disconnect the cables from the back of the user interface panel to prevent damage.



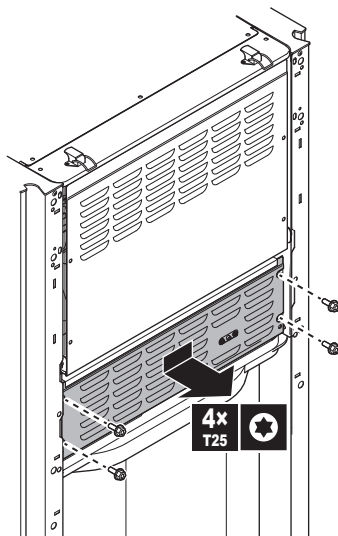
- 3 Remove the switch box cover.



- 4 If necessary, remove the front plate. This is, for example, necessary in the following cases:
 - ["7.2.3 To lower the switch box"](#) [▶ 49]
 - ["7.3.3 To connect the drain hose to the drain"](#) [▶ 50]
 - When you need access to the high voltage switch box



- 5 If you need access to the high voltage components, remove the high voltage switch box cover.

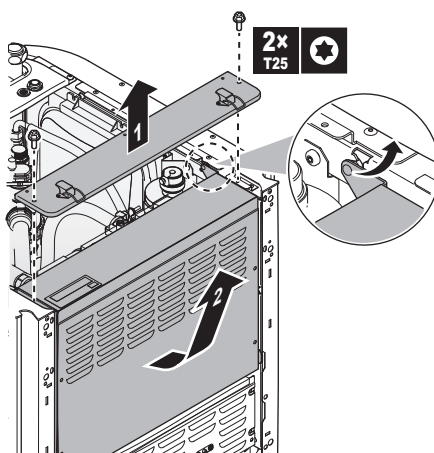


7.2.3 To lower the switch box

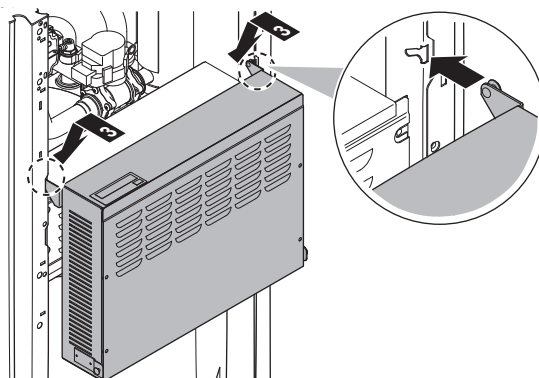
During the installation, you will need access to the inside of the indoor unit. To have easier front access, hang the switch box outside the unit, over the high voltage switch box cover.

Prerequisite: The user interface panel and front panel have been removed.

- 1 Remove the fixing plate at the top of the unit.
- 2 Tilt the switch box to the front and lift it out of its hinges.



- 3 Hang the switch box in front of the high voltage switch box cover. Use the 2 hinges located lower on the unit.





NOTICE

When routing the power supply cable, consider extra cable length to allow lower position of the printed circuit board. Fix the cable in order to avoid contact with piping when the switch box is in normal/operating position.

7.2.4 To close the indoor unit

- 1 Close the cover of the switch box.
- 2 Put the switch box back into place.
- 3 Reinstall the top panel.
- 4 Reinstall the side panels.
- 5 Reinstall the front panel.
- 6 Reconnect the cables to the user interface panel.
- 7 Reinstall the user interface panel.



NOTICE

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

7.3 Mounting the indoor unit

7.3.1 About mounting the indoor unit

When

You have to mount the outdoor and indoor unit before you can connect the refrigerant and water piping.

Typical workflow

Mounting the indoor unit typically consists of the following stages:

- 1 Connecting the drain hose to the drain.
- 2 Installing the indoor unit.

7.3.2 Precautions when mounting the indoor unit

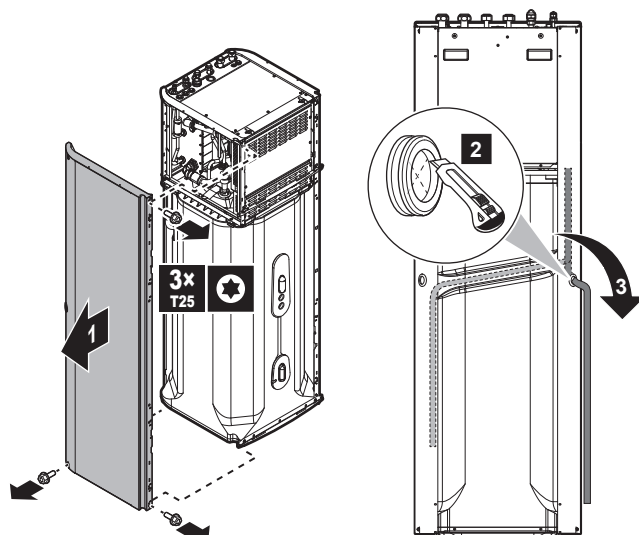
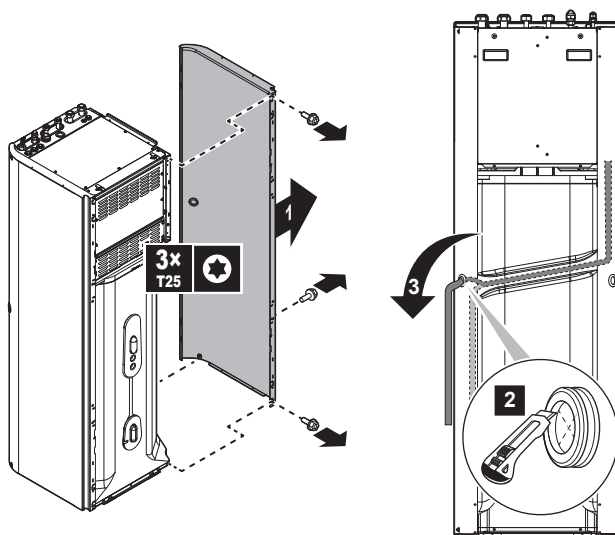
7.3.3 To connect the drain hose to the drain

Water coming from the pressure relief valve is collected in the drain pan. The drain pan is connected to a drain hose inside the unit. Connect the drain hose to an appropriate drain according to the applicable legislation. You can route the drain hose through the left or right side panel.

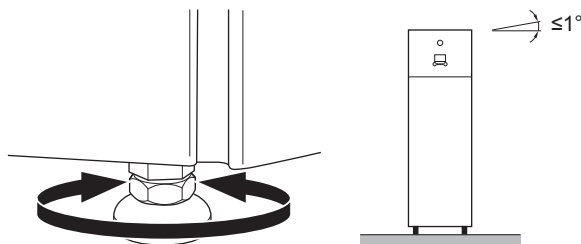
Prerequisite: The user interface panel and front panel have been removed.

- 1 Remove one of the side panels.
- 2 Cut out the rubber grommet.
- 3 Pull the drain hose through the hole.
- 4 Reattach the side panel. Ensure the water can flow through the drain tube.

It is recommended to use a tundish to collect the water.

Option 1: Through the left side panel**Option 2: Through the right side panel****7.3.4 To install the indoor unit**

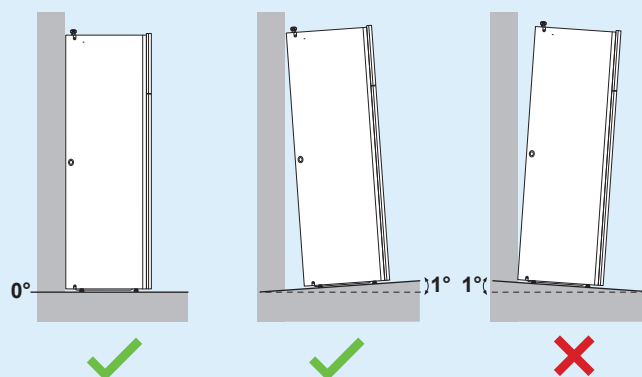
- 1** Lift the indoor unit from the pallet and place it on the floor. Also see "[4.1.3 To handle the indoor unit](#)" [▶ 21].
- 2** Connect the drain hose to the drain. See "[7.3.3 To connect the drain hose to the drain](#)" [▶ 50].
- 3** Slide the indoor unit into position.
- 4** Adjust the height of the leveling feet to compensate for floor irregularities. The maximum allowed deviation is 1°.





NOTICE

Do NOT tilt the unit forwards:



8 Piping installation

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8.1 Preparing refrigerant piping

8.1.1 Refrigerant piping requirements



INFORMATION

Also read the precautions and requirements in the ["2 General safety precautions"](#) [► 9].

Also see ["7.1.2 Special requirements for R32 units"](#) [► 38] for additional requirements.

Piping length

See ["7.1.1 Installation site requirements of the indoor unit"](#) [► 36].

Piping material

Phosphoric acid deoxidised seamless copper

Piping connections

Only flare and brazed connections are allowed. The indoor and outdoor units have flare connections. Connect both ends without brazing. If brazing should be needed, take the guidelines in the installer reference guide into account.

Flare connections

Only use annealed material.

Piping diameter

Liquid piping	Gas piping
Ø6.35 mm (1/4")	Ø15.9 mm (5/8")

Piping temper grade and thickness

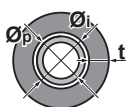
Outer diameter ($\varnothing$)	Temper grade	Thickness (t) ^(a)	
6.35 mm (1/4")	Annealed (O)	≥0.8 mm	
15.9 mm (5/8")	Annealed (O)	≥1.0 mm	

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

8.1.2 Refrigerant piping insulation

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

Pipe outer diameter ($\varnothing_p$)	Insulation inner diameter ($\varnothing_i$)	Insulation thickness (t)
6.35 mm (1/4")	7~10 mm	≥13 mm
15.9 mm (5/8")	17~20 mm	≥13 mm



If the temperature is higher than 30°C and the humidity is higher than RH 80%, the thickness of the insulation materials should be at least 20 mm to prevent condensation on the surface of the insulation.

**INFORMATION**

Refer to the installer reference guide of the outdoor unit for more information.

8.2 Connecting the refrigerant piping**8.2.1 About connecting the refrigerant piping****Before connecting the refrigerant piping**

Make sure the outdoor and indoor unit are mounted.

Typical workflow

Connecting the refrigerant piping involves:

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

8.2.2 Precautions when connecting the refrigerant piping

**INFORMATION**

Also read the precautions and requirements in the following chapters:

- "2 General safety precautions" [▶ 9]
- "8.1 Preparing refrigerant piping" [▶ 53]

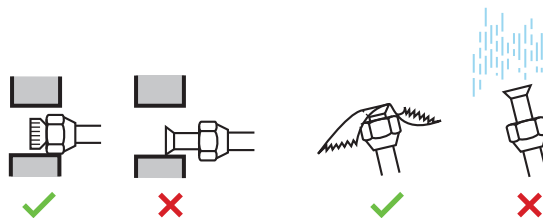
**DANGER: RISK OF BURNING/SCALDING****NOTICE**

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

**NOTICE**

Take the following precautions on refrigerant piping into account:

- Avoid anything but the designated refrigerant to get mixed into the refrigerant cycle (e.g. air).
- Only use R32 when adding refrigerant.
- Only use installation tools (e.g. manifold gauge set) that are exclusively used for R32 installations to withstand the pressure and to prevent foreign materials (e.g. mineral oils and moisture) from mixing into the system.
- Install the piping so that the flare is NOT subjected to mechanical stress.
- Do NOT leave pipes unattended at the site. If the installation is NOT done within 1 day, protect the piping as described in the following table to prevent dirt, liquid or dust from entering the piping.
- Use caution when passing copper tubes through walls (see figure below).



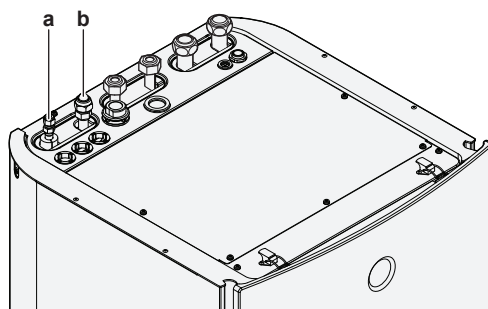
Unit	Installation period	Protection method
Outdoor unit	>1 month	Pinch the pipe
	<1 month	Pinch or tape the pipe
Indoor unit	Regardless of the period	

**INFORMATION**

Refer to the installer reference guide of the outdoor unit for more information.

8.2.3 To connect the refrigerant piping to the indoor unit

- 1 Connect the liquid stop valve from the outdoor unit to the refrigerant liquid connection of the indoor unit.



- a Refrigerant liquid connection
b Refrigerant gas connection

- 2 Connect the gas stop valve from the outdoor unit to the refrigerant gas connection of the indoor unit.



NOTICE

It is recommended that the refrigerant piping between indoor and outdoor unit is installed in a ducting or the refrigerant piping is wrapped with finishing tape.

8.3 Checking the refrigerant piping



INFORMATION

Refer to the installer reference guide of the outdoor unit for more information.

8.4 Charging refrigerant



INFORMATION

Refer to the installer reference guide of the outdoor unit for more information.

8.5 Preparing water piping



NOTICE

Make sure water quality complies with EU directive 2020/2184.

8.5.1 Water circuit requirements



INFORMATION

Also read the precautions and requirements in the "[2 General safety precautions](#)" [▶ 9].



NOTICE

In case of plastic pipes, make sure they are fully oxygen diffusion tight according to DIN 4726. The diffusion of oxygen into the piping can lead to excessive corrosion.

- **Connecting piping – Legislation.** Make all piping connections in accordance with the applicable legislation and the instructions in the "Installation" chapter, respecting the water inlet and outlet.
- **Connecting piping – Force.** Do NOT use excessive force when connecting the piping. Deformation of the piping can cause malfunctioning of the unit.
- **Connecting piping – Tools.** Only use appropriate tooling to handle brass, which is a soft material. If NOT, pipes will get damaged.
- **Connecting piping – Air, moisture, dust.** If air, moisture or dust gets into the circuit, problems may occur. To prevent this:
 - ONLY use clean pipes.
 - Hold the pipe end downwards when removing burrs.
 - Cover the pipe end when inserting it through a wall, to prevent dust and/or particles from entering the pipe.
 - Use a decent thread sealant to seal connections.
 - When using non-brass metallic piping, make sure to insulate both materials from each other to prevent galvanic corrosion.
 - Because brass is a soft material, use appropriate tooling for connecting the water circuit. Inappropriate tooling will cause damage to the pipes.
- **Closed circuit.** Use the indoor unit ONLY in a closed water system. Using the system in an open water system will lead to excessive corrosion.
- **Glycol.** For safety reasons, it is NOT allowed to add any kind of glycol to the water circuit.
- **Piping length.** It is recommended to avoid long runs of piping between the domestic hot water tank and the hot water end point (shower, bath,...) and to avoid dead ends.
- **Piping diameter.** Select the water piping diameter in relation to the required water flow and the available external static pressure of the pump. See ["16 Technical data"](#) [▶ 188] for the external static pressure curves of the indoor unit.
- **Water flow.** You can find the minimum required water flow for indoor unit operation in the following table. In all cases, this flow needs to be guaranteed. When the flow is lower, the indoor unit will stop operation and display error 7H.

Minimum required flow rate
12 l/min

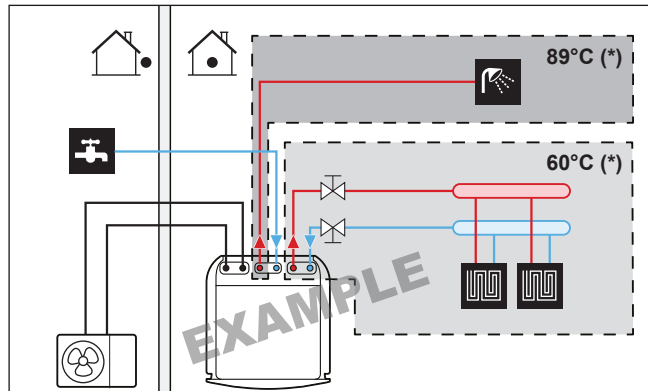
- **Field supply components – Water.** Only use materials that are compatible with water used in the system and with the materials used in the indoor unit.
- **Field supply components – Water pressure and temperature.** Check that all components in the field piping can withstand the water pressure and water temperature.
- **Water pressure – Domestic hot water.** The maximum water pressure is 10 bar (=1.0 MPa), and must be in accordance with the applicable legislation. Provide adequate safeguards in the water circuit to ensure that the maximum pressure is NOT exceeded (see ["8.6.3 To connect the water piping"](#) [▶ 63]). The minimum water pressure to operate is 1 bar (=0.1 MPa).
- **Water pressure – Space heating/cooling circuit.** The maximum water pressure is 3 bar (=0.3 MPa). Provide adequate safeguards in the water circuit to ensure that the maximum pressure is NOT exceeded. The minimum water pressure to operate is 1 bar (=0.1 MPa).

- **Water temperature.** All installed piping and piping accessories (valve, connections,...) MUST withstand the following temperatures:



INFORMATION

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

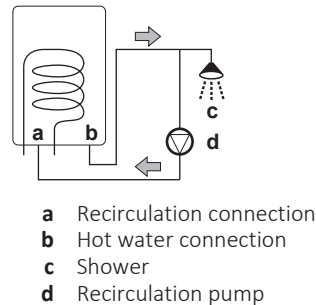


(*) Maximum temperature for piping and accessories

- **Drainage – Low points.** Provide drain taps at all low points of the system in order to allow complete drainage of the water circuit.
- **Drainage – Pressure relief valve.** Connect the drain hose properly to the drain to avoid water dripping out of the unit. See "[7.3.3 To connect the drain hose to the drain](#)" [▶ 50].
- **Air vents.** Provide air vents at all high points of the system, which must also be easily accessible for servicing. Two automatic air purges are provided in the indoor unit. Check that the air purges are NOT tightened too much, so that automatic release of air in the water circuit is possible.
- **Zn-coated parts.** NEVER use zinc coated parts in the water circuit. Because the internal water circuit of the unit uses copper piping, excessive corrosion may occur.
- **Non-brass metallic piping.** When using non-brass metallic piping, insulate the brass and non-brass properly so that they do NOT make contact with each other. This is to prevent galvanic corrosion.
- **Valve – Changeover time.** When using a 2-way valve or a 3-way valve in the water circuit, the maximum changeover time of the valve must be 60 seconds.
- **Domestic hot water tank – Capacity.** To avoid stagnation of water, it is important that the storage capacity of the domestic hot water tank meets the daily consumption of domestic hot water.
- **Domestic hot water tank – After installation.** Immediately after installation, the domestic hot water tank must be flushed with fresh water. This procedure must be repeated at least once a day the first 5 consecutive days after installation.
- **Domestic hot water tank – Standstills.** In cases where during longer periods of time there is no consumption of hot water, the equipment MUST be flushed with fresh water before usage.
- **Domestic hot water tank – Disinfection.** For the disinfection function of the domestic hot water tank, see "[10.6.5 Tank](#)" [▶ 127] and "[6.3.5 DHW pump for disinfection](#)" [▶ 33].
- **Thermostatic mixing valves.** In accordance with the applicable legislation, it may be necessary to install thermostatic mixing valves.
- **Hygienic measures.** The installation must be in compliance with the applicable legislation and may require additional hygienic installation measures.

- **Recirculation pump.** In accordance with the applicable legislation, it may be required to connect a recirculation pump in between the hot water end point and the recirculation connection of the domestic hot water tank (i.e. between **c** and **a**).

Requirement for France (Arrêté du 30/11/05): If the water volume between the tank hot water outlet and the tap point (i.e. between **b** and **c**) exceeds 3 litres, the water temperature must be maintained at or above 50°C throughout the entire distribution system.



8.5.2 Formula to calculate the expansion vessel pre-pressure

The pre-pressure (P_g) of the vessel depends on the installation height difference (H):

$$P_g = 0.3 + (H/10) \text{ (bar)}$$

8.5.3 To check the water volume and flow rate

The indoor unit has an expansion vessel of 10 litre with a factory-set pre-pressure of 1 bar.

To make sure that the unit operates properly:

- You **MUST** check the minimum and maximum water volume.
- You might need to adjust the pre-pressure of the expansion vessel.

Minimum water volume

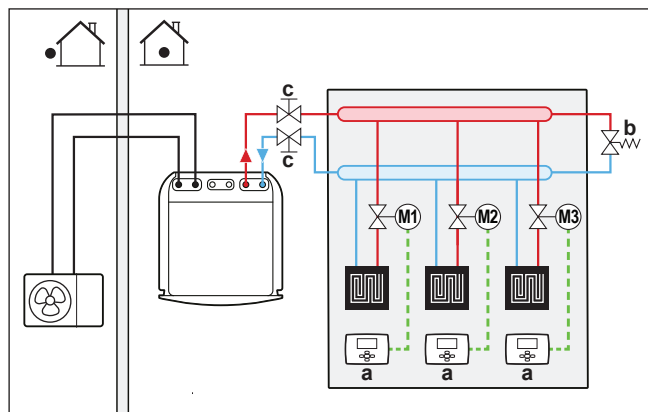
The installation needs to be made in such a way that a minimum water volume (see table below) is always available in the space heating/cooling loop of the unit, even when the available volume towards the unit is reduced because of closure of valves (heat emitters, thermostatic valves, etc.) in the space heating/cooling circuit. The internal water volume of the indoor unit is **NOT** considered for this minimum water volume.

If...	Then the minimum water volume is...
Cooling operation	10 l
Heating operation	10 l



INFORMATION

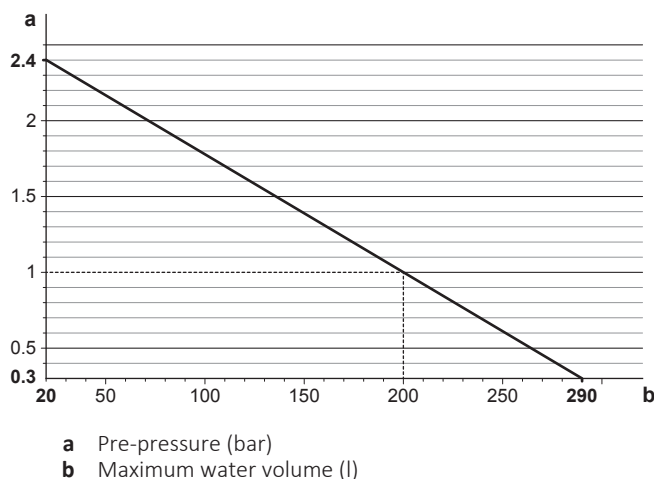
In critical processes, or in rooms with a high heat load, extra water might be required.



- a** Individual room thermostat (option)
b Differential pressure bypass valve (delivered as accessory)
c Shut-off valve (delivered as accessory)
M1...3 Individual motorised valve to control each loop (field supply)

Maximum water volume

Use the following graph to determine the maximum water volume for the calculated pre-pressure.



Example: Maximum water volume and expansion vessel pre-pressure

Installation height difference ^(a)	Water volume	
	≤200 l	>200 l
≤7 m	No pre-pressure adjustment is required.	Do the following: - Decrease the pre-pressure according to the required installation height difference. The pre-pressure should decrease by 0.1 bar for each metre below 7 m. - Check if the water volume does NOT exceed the maximum allowed water volume.

Installation height difference ^(a)	Water volume	
	≤200 l	>200 l
>7 m	Do the following: ▪ Increase the pre-pressure according to the required installation height difference. The pre-pressure should increase by 0.1 bar for each metre above 7 m. ▪ Check if the water volume does NOT exceed the maximum allowed water volume.	The expansion vessel of the indoor unit is too small for the installation. In this case, it is recommended to install an extra vessel outside the unit.

^(a) This is the height difference (m) between the highest point of the water circuit and the indoor unit. If the indoor unit is at the highest point of the installation, the installation height is 0 m.

Minimum flow rate

Check that the minimum flow rate in the installation is guaranteed in all conditions. This minimum flow rate is required during defrost/backup heater operation. For this purpose, use the differential pressure bypass valve delivered with the unit.

Minimum required flow rate
12 l/min



NOTICE

When circulation in each or certain space heating loops is controlled by remotely controlled valves, it is important that the minimum flow rate is guaranteed, even if all valves are closed. In case the minimum flow rate cannot be reached, a flow error 7H will be generated (no heating or operation).

See the recommended procedure as described in "[11.4 Checklist during commissioning](#)" [▶ 160].

8.5.4 Changing the pre-pressure of the expansion vessel



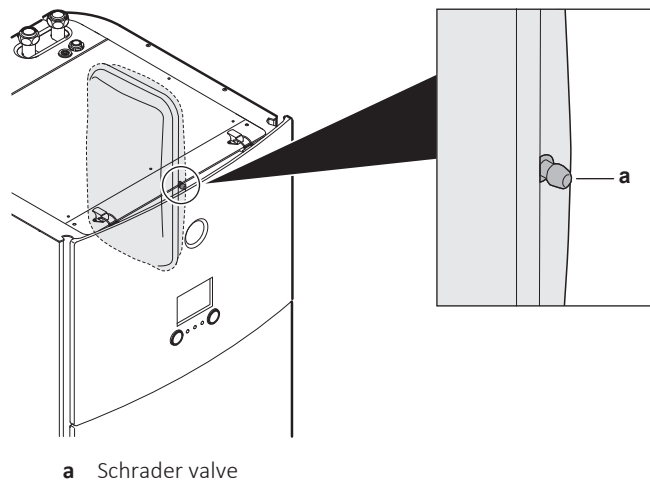
NOTICE

ONLY a licensed installer may adjust the pre-pressure of the expansion vessel.

The default pre-pressure of the expansion vessel is 1 bar. When it is required to change the pre-pressure, take following guidelines into account:

- Only use dry nitrogen to set the expansion vessel pre-pressure.
- Inappropriate setting of the expansion vessel pre-pressure will lead to malfunction of the system.

Changing the pre-pressure of the expansion vessel should be done by releasing or increasing nitrogen pressure through the Schrader valve of the expansion vessel.



a Schrader valve

8.5.5 To check the water volume: Examples

Example 1

The indoor unit is installed 5 m below the highest point in the water circuit. The total water volume in the water circuit is 100 l.

No actions or adjustments are required.

Example 2

The indoor unit is installed at the highest point in the water circuit. The total water volume in the water circuit is 250 l.

Actions:

- Because the total water volume (250 l) is more than the default water volume (200 l), the pre-pressure must be decreased.
- The required pre-pressure is:

$$P_g = (0.3 + (H/10)) \text{ bar} = (0.3 + (0/10)) \text{ bar} = 0.3 \text{ bar}$$
- The corresponding maximum water volume at 0.3 bar is 290 l. (See the graph in "Maximum water volume" [▶ 60]).
- Because 250 l is lower than 290 l, the expansion vessel is appropriate for the installation.

8.6 Connecting water piping

8.6.1 About connecting the water piping

Before connecting the water piping

Make sure the outdoor and indoor unit are mounted.

Typical workflow

Connecting the water piping typically consists of the following stages:

- 1 Connecting the water piping to the indoor unit.
- 2 Connecting the recirculation piping.
- 3 Connecting the drain hose to the drain.
- 4 Filling the water circuit.
- 5 Filling the domestic hot water tank.
- 6 Insulating the water piping.

8.6.2 Precautions when connecting the water piping

**INFORMATION**

Also read the precautions and requirements in the following chapters:

- "2 General safety precautions" [9]
- "8.5 Preparing water piping" [56]

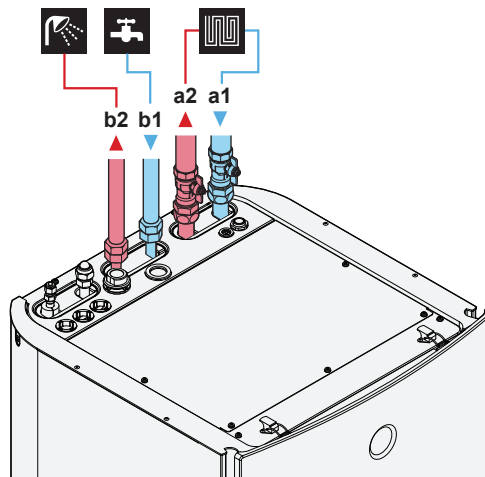
8.6.3 To connect the water piping

**NOTICE**

Do NOT use excessive force when connecting the piping. Deformation of the piping can cause malfunctioning of the unit.

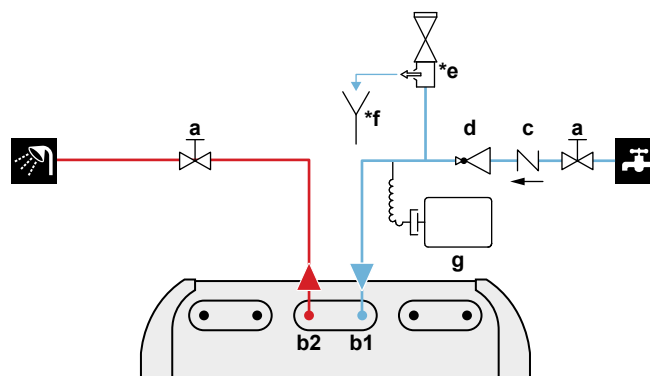
To facilitate service and maintenance, 2 shut-off valves and 1 differential pressure bypass valve are provided. Mount the shut-off valves on the space heating water inlet and space heating water outlet. To ensure the minimum flow rate (and prevent overpressure), install the differential pressure bypass valve on the space heating water outlet.

- 1 Install the shut-off valves on the space heating water pipes.
- 2 Screw the indoor unit nuts on the shut-off valve.
- 3 Connect the domestic hot water in and out pipes to the indoor unit.



- a1 Space heating/cooling – Water IN (screw connection, 1")
- a2 Space heating/cooling – Water OUT (screw connection, 1")
- b1 DHW – Cold water IN (screw connection, 3/4")
- b2 DHW – Hot water OUT (screw connection, 3/4")

- 4 Install the following components (field supply) on the cold water inlet of the DHW tank:



- a Shut-off valve (recommended)

- b1** DHW – Cold water IN (screw connection, 3/4")
- b2** DHW – Hot water OUT (screw connection, 3/4")
- c** Non-return valve (recommended)
- d** Pressure reducing valve (recommended)
- *e** Pressure relief valve (max. 10 bar (=1.0 MPa))(mandatory)
- *f** Tundish (mandatory)
- g** Expansion vessel (recommended)



NOTICE

- It is recommended to install shut-off valves to domestic cold water in and domestic hot water out connections. These shut-off valves are field supplied.
- **However, make sure there is no valve between the pressure relief valve (field supply) and the DHW tank.**
- Select valves complying to EN 1487, EN 1488, EN 1489, EN 1490 and EN 1491.



NOTICE

To avoid damage to the surroundings in case of water leakage, it is recommended to close the domestic cold water inlet shut-off valves during periods of absence.



NOTICE

A pressure relief valve (field supply) with an opening pressure of maximum 10 bar (=1 MPa) must be installed on the domestic cold water inlet connection in accordance with the applicable legislation.



NOTICE

- A drain device and pressure relief device must be installed on the cold water inlet connection of the domestic hot water cylinder.
- To avoid back siphonage, it is recommended to install a non-return valve on the water inlet of the domestic hot water tank in accordance with the applicable legislation. Make sure it is NOT between the pressure relief valve and the DHW tank.
- It is recommended to install a pressure reducing valve on the cold water inlet in accordance with the applicable legislation.
- It is recommended to install an expansion vessel on the cold water inlet in accordance with the applicable legislation.
- It is recommended to install the pressure relief valve on a higher position than the top of the domestic hot water tank. Heating of the domestic hot water tank causes water to expand and without pressure relief valve the water pressure inside the tank can rise above the tank design pressure. Also the field installation (piping, tapping points, etc.) connected to the tank is subjected to this high pressure. To prevent this, a pressure relief valve needs to be installed. The overpressure prevention depends on the correct operation of the field installed pressure relief valve. If this is NOT working correctly, overpressure will deform the tank and water leakage may occur. To confirm good operation, regular maintenance is required.

**NOTICE**

Differential pressure bypass valve (delivered as accessory). We recommend to install the differential pressure bypass valve in the space heating water circuit.

- Mind the minimum water volume when choosing the installation location of the differential pressure bypass valve (at the indoor unit, or at the collector). See ["8.5.3 To check the water volume and flow rate" \[▶ 59\]](#).
- Mind the minimum flow rate when adjusting the differential pressure bypass valve setting. See ["8.5.3 To check the water volume and flow rate" \[▶ 59\]](#) and ["11.4.1 Minimum flow rate" \[▶ 161\]](#).

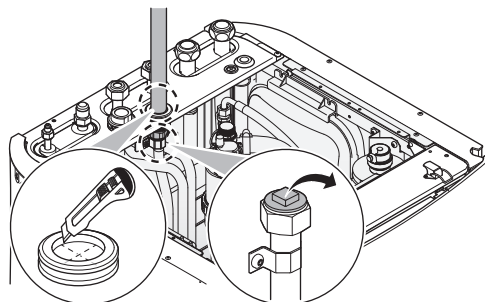
**NOTICE**

Install air purge valves at all local high points.

8.6.4 To connect the recirculation piping

Prerequisite: Only required if you need recirculation in your system.

- 1 Remove the top panel from the unit, see ["7.2.2 To open the indoor unit" \[▶ 47\]](#).
- 2 Cut out the rubber grommet on top of the unit, and remove the stop. The recirculation connector is placed below the hole.
- 3 Route the recirculation piping through the grommet and connect it to the recirculation connector.



- 4 Reattach the top panel.

8.6.5 To fill the water circuit

To fill the water circuit, use a field supply filling kit. Make sure you comply with the applicable legislation.

**NOTICE**

Pump. To prevent blocking of the pump rotor, commission the unit as quickly as possible after filling the water circuit.

**INFORMATION**

Make sure both air purge valves (one on the magnetic filter and one on the backup heater) are open.

**NOTICE**

Make sure water quality complies with EU directive 2020/2184.

8.6.6 To fill the domestic hot water tank

- 1** Open every hot water tap in turn to purge air from the system pipe work.
- 2** Open the cold water supply valve.
- 3** Close all water taps after all air is purged.
- 4** Check for water leaks.
- 5** Manually operate the field-installed pressure relief valve to ensure a free water flow through the discharge pipe.

8.6.7 To insulate the water piping

The piping in the complete water circuit **MUST** be insulated to prevent condensation during cooling operation and reduction of the heating and cooling capacity.

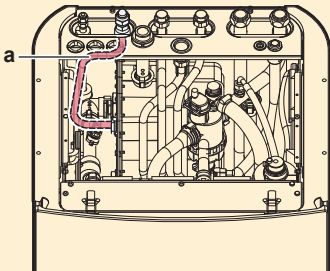
If the temperature is higher than 30°C and the humidity is higher than RH 80%, the thickness of the insulation materials should be at least 20 mm to prevent condensation on the surface of the insulation.

9 Electrical installation



WARNING

Make sure that the electrical wiring does NOT touch the refrigerant gas pipe, which can be very hot.



a Refrigerant gas pipe



WARNING

Make sure that there is sufficient slack in the electrical wiring to ensure that the switch box can be lowered for installation.

Make sure while lowering the switch box, the electrical wiring does NOT come in contact with sharp edges or hot surfaces or any piping.

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9.1 About connecting the electrical wiring

Before connecting the electrical wiring

Make sure:

- The refrigerant piping is connected and checked
- The water piping is connected

Typical workflow

Connecting the electrical wiring typically consists of the following stages:

- "9.2 Connections to the indoor unit" [▶ 70]

9.1.1 Precautions when connecting the electrical wiring



DANGER: RISK OF ELECTROCUTION



WARNING

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



WARNING

ALWAYS use multicore cable for power supply cables.



INFORMATION

Also read the precautions and requirements in the "2 General safety precautions" [► 9].



WARNING

- If the power supply has a missing or wrong N-phase, equipment might break down.
- Establish proper earthing. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earthing may cause electrical shocks.
- Install the required fuses or circuit breakers.
- Secure the electrical wiring with cable ties so that the cables do NOT come in contact with sharp edges or piping, particularly on the high-pressure side.
- Do NOT install a phase advancing capacitor, because this unit is equipped with an inverter. A phase advancing capacitor will reduce performance and may cause accidents.



CAUTION

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



NOTICE

The distance between the high voltage and low voltage cables should be at least 50 mm.



WARNING

Do NOT extend the power supply or the interconnection cable by using wire connectors, wire connection clamps, taped wires, extension cords. These can cause overheating, electric shock or fire.

9.1.2 Guidelines when connecting the electrical wiring



NOTICE

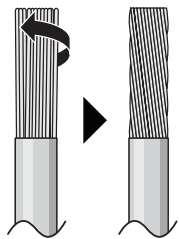
We recommend using solid (single-core) wires. If stranded wires are used, slightly twist the strands to consolidate the end of the conductor for either direct use in the terminal clamp or insertion in a round crimp-style terminal.

To prepare stranded conductor wire for installation

Method 1: Twisting conductor

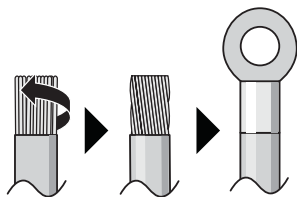
- 1 Strip insulation (20 mm) from the wires.

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



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

- 1 Strip insulation from wires and slightly twist the end of each wire.
- 2 Install a round crimp-style terminal on the end of the wire. Place the round crimp-style terminal on the wire up to the covered part and fasten the terminal with the appropriate tool.



Use the following methods for installing wires:

Wire type	Installation method
Single-core wire Or Stranded conductor wire twisted to "solid-like" connection	a Curled wire (single-core or twisted stranded conductor wire) b Screw c Flat washer
Stranded conductor wire with round crimp-style terminal	a Terminal b Screw c Flat washer ✓ Allowed ✗ NOT allowed

Tightening torques

Indoor unit:

Item	Tightening torque (N•m)
X1M	2.45 ±10%
X2M	0.88 ±10%

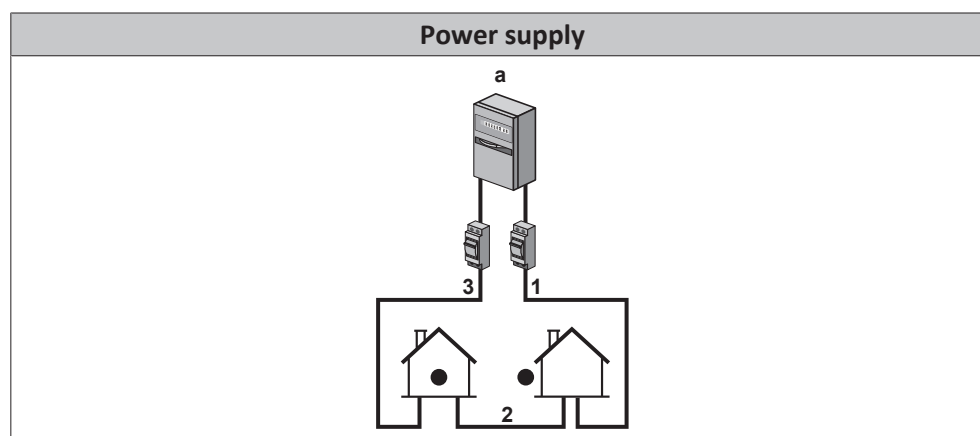
Item	Tightening torque (N•m)
X5M	0.88 ±10%
X6M	2.45 ±10%
X10M	0.88 ±10%
M4 (earth)	1.47 ±10%

9.1.3 About electrical compliance

Only for the backup heater of the indoor unit

See "9.2.2 To connect the backup heater power supply" [▶ 73].

9.1.4 Overview of electrical connections except external actuators



- a** Power supply
- 1** Power supply for outdoor unit
- 2** Power supply and interconnection cable to indoor unit
- 3** Power supply for gas boiler

9.2 Connections to the indoor unit

Item	Description
Power supply (main)	See "9.2.1 To connect the main power supply" [▶ 72].
Power supply (backup heater)	See "9.2.2 To connect the backup heater power supply" [▶ 73].
Domestic hot water pump	See "9.2.3 To connect the domestic hot water pump" [▶ 77].
Alarm output	See "9.2.4 To connect the alarm output" [▶ 78].
Space cooling/heating operation control	See "9.2.5 To connect the space cooling/heating ON/OFF output" [▶ 79].
Safety thermostat	See "9.2.6 To connect the safety thermostat" [▶ 80].
Secondary pump	See "9.2.7 To connect the secondary pump" [▶ 82].

Item	Description	
Room thermostat (wired or wireless)		See below table.
		Wires: 0.75 mm ² Maximum running current: 100 mA
		For the main zone: [2.9] Control [2.A] Ext thermostat type
Heat pump convector		There are different controllers and setups possible for the heat pump convectors. Depending on the setup, you also need to implement a relay (field supply, see addendum book for optional equipment). For more information, see: - Installation manual of the heat pump convectors - Installation manual of the heat pump convector options - Addendum book for optional equipment
		Wires: 0.75 mm ² Maximum running current: 100 mA
		For the main zone: [2.9] Control [2.A] Ext thermostat type
Remote indoor sensor		See: - Installation manual of the remote indoor sensor - Addendum book for optional equipment
		Wires: 2×0.75 mm ²
		[9.B.1]=2 (External sensor = Room) [1.7] Room sensor offset
Human Comfort Interface		See: - Installation and operation manual of the Human Comfort Interface - Addendum book for optional equipment
		Wires: 2×(0.75~1.25 mm ²) Maximum length: 500 m
		[2.9] Control [1.6] Room sensor offset

Item	Description	
LAN adapter		See: - Installation manual of the LAN adapter - Addendum book for optional equipment
		Wires: 2×(0.75~1.25 mm ²). Must be sheathed. Maximum length: 200 m
		See installation manual of the LAN adapter
WLAN cartridge		See: - Installation manual of the WLAN cartridge - Installer reference guide
		—
		[D] Wireless gateway
WLAN module		See: - Installation manual of the WLAN module - Addendum book for optional equipment - Installer reference guide
		Use the cable delivered with the WLAN module.
		[D] Wireless gateway
Bizone kit (only for space cooling with underfloor heating)		See: - Installation manual of the bizone kit - Addendum book for optional equipment
		Use the cable delivered with the bizone kit.
		[9.P] Bizone kit



for room thermostat (wired or wireless):

In case of...	See...
Wireless room thermostat	- Installation manual of the wireless room thermostat - Addendum book for optional equipment
Wired room thermostat without multi-zoning base unit	- Installation manual of the wired room thermostat - Addendum book for optional equipment

9.2.1 To connect the main power supply

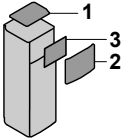


NOTICE

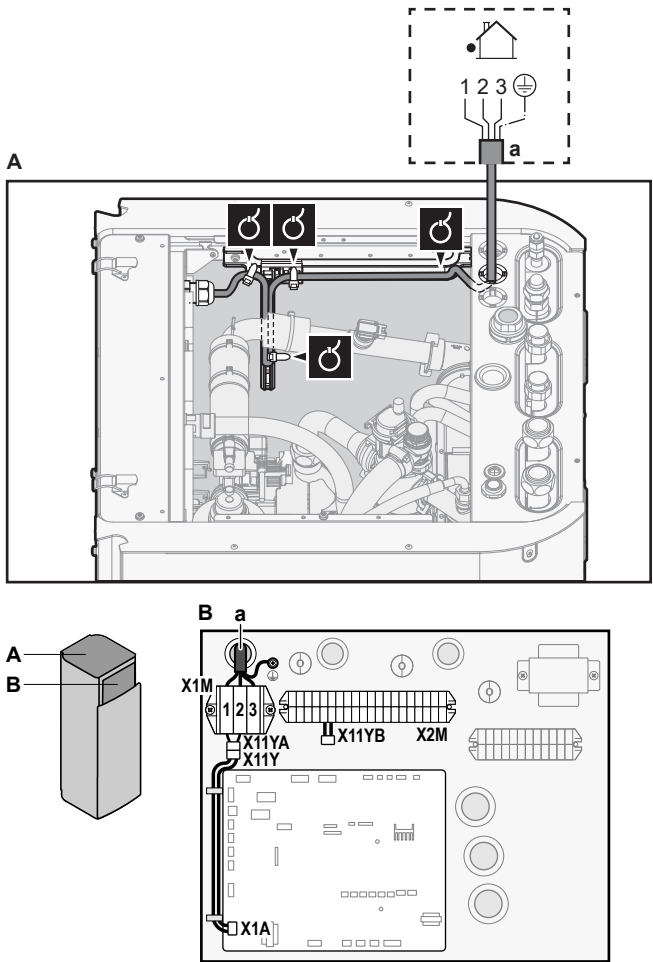
The pump is equipped with an anti-blockage safety routine. This means that the pump operates for a short period of time every 24 hours during long periods of inactivity to ensure it does not get stuck. To enable this function, the unit must be connected to the power supply all year round.

	Interconnection cable (= main power supply)	Wires: - Only use harmonised wire providing double insulation and suitable for applicable voltage. 4-core cable (3+GND). - Minimum 1.5 mm² based on the current.
	—	

1 Open the following (see "7.2.2 To open the indoor unit" [▶ 47]):

1	Top panel	
2	User interface panel	
3	Upper switch box cover	

2 Connect the main power supply.



a Interconnection cable (=main power supply)

9.2.2 To connect the backup heater power supply

	Specification of wiring components, see table below.
	[9.3] Backup heater

Power Supply of the product			
Component	Backup heater power supply model		
	4V3	4T1	9WN
Voltage	220-240 V	220-240 V	390-410 V
Power	4.5 kW	4.5 kW	9 kW
Rated current	19.6 A	11.3 A	13.0 A
Phase	1N~	3~	3N~
Frequency	50 Hz	50 Hz	50 Hz

Wiring / circuit breaker (field supplied)			
Component	Backup heater power supply		
	4V3	4T1	9WN
Power supply cable	Must comply with national wiring regulation.		
	3-core cable 2+GND	4-core cable 3+GND	5-core cable 4+GND
	Wire size based on the rated current, but not less than 2.5 mm ² .		
Recommended circuit breaker	4 pole 20 A		
Earth leakage circuit breaker / residual current device	Type B residual current breaker, compliant with the national wiring regulation must be installed in the supply line		

**WARNING**

The backup heater **MUST** have a dedicated power supply and **MUST** be protected by the safety devices required by the national wiring regulation.

**CAUTION**

To guarantee the unit is completely earthed, **ALWAYS** connect the backup heater power supply and the earth cable.

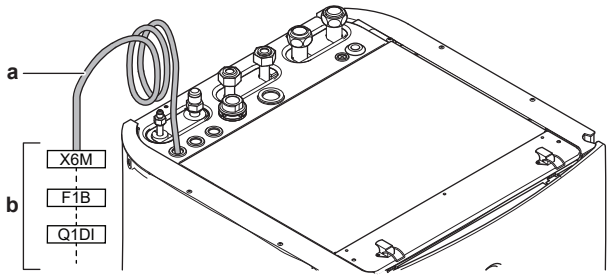
The backup heater capacity can vary, depending on the indoor unit model. Make sure that the power supply is in accordance with the backup heater capacity, as listed in the table below.

Backup heater type	Backup heater capacity	Power supply	Maximum running current	Z _{max}
*4V	4.5 kW	1N~ 230 V ^(a)	19.6 A ^{(b)(c)}	0.22 Ω
	4.5 kW	3~ 230 V ^(d)	11.3 A	—
*9W	3 kW	3N~ 400 V	4 A	—
	6 kW	3N~ 400 V	9 A	—
	9 kW	3N~ 400 V	13 A	—

^(a) 4V3

- (b) Electrical equipment complying with EN/IEC 61000-3-12 (European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase).
- (c) This equipment complies with EN/IEC 61000-3-11 (European/International Technical Standard setting the limits for voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with rated current ≤75 A) provided that the system impedance Z_{sys} is less than or equal to Z_{max} at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a system impedance Z_{sys} less than or equal to Z_{max} .
- (d) 4T1

Connect the backup heater power supply as follows:



- a Factory-mounted cable connected to the contactor of the backup heater, inside the switch box (K5M)
- b Field wiring (see table below)

Model (power supply)	Connections to backup heater power supply
*4V (4V3: 1N~ 230 V)	

Model (power supply)	Connections to backup heater power supply
*4V (4T1: 3~ 230 V)	
*9W (3N~ 400 V)	

- F1B** Overcurrent fuse (field supply). Recommended fuse: 4-pole; 20 A; curve 400 V; tripping class C.
- K5M** Safety contactor (in the lower switch box)
- Q1DI** Earth leakage circuit breaker (field supply)
- SWB** Switch box
- X6M** Terminal (field supply)



NOTICE

If the supplied cable is too short, replace it with a correctly sized field-supplied cable or extend it using suitable approved connectors. Ensure compliance with all applicable national electrical regulations.



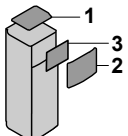
NOTICE

Do NOT cut or remove the backup heater power supply cable.

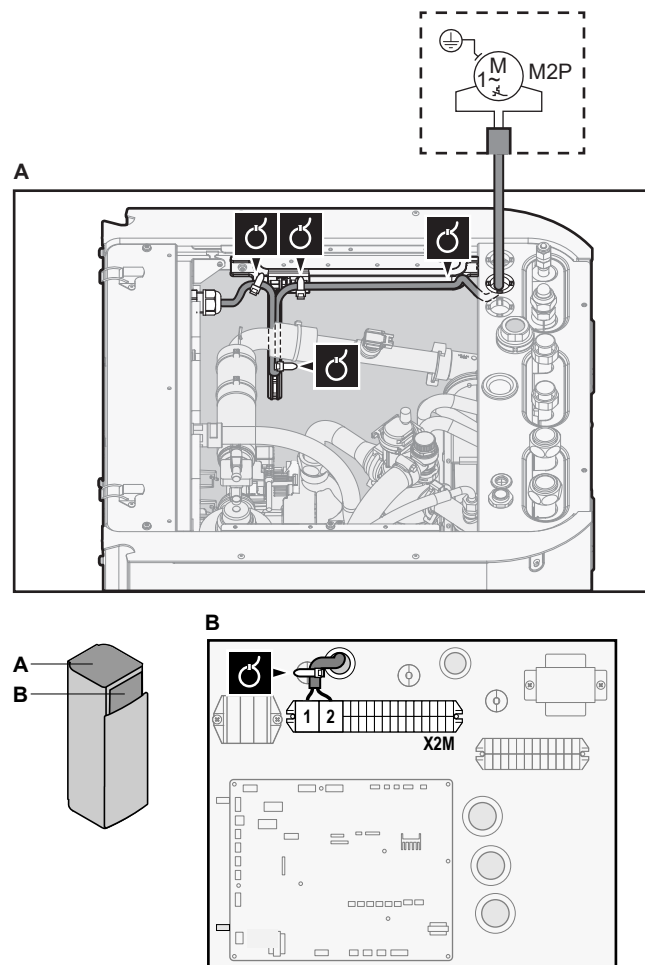
9.2.3 To connect the domestic hot water pump

	Wires: - MUST comply with national wiring regulation. - Only use harmonised wire providing double insulation and suitable for applicable voltage. 3-core cable. - Minimum 1.0 mm² based on the current. DHW pump output. Maximum load: 2 A (inrush), 230 V AC, 1 A (continuous)
	[9.2.2] DHW pump [9.2.3] DHW pump schedule

- 1 Open the following (see "7.2.2 To open the indoor unit" [▶ 47]):

1	Top panel	
2	User interface panel	
3	Upper switch box cover	

- 2 Connect the domestic hot water pump cable to the appropriate terminals as shown in the illustration below.

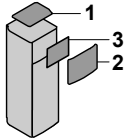


- 3 Fix the cable with cable ties to the cable tie mountings.

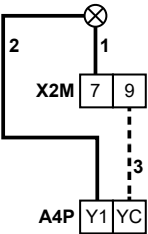
9.2.4 To connect the alarm output

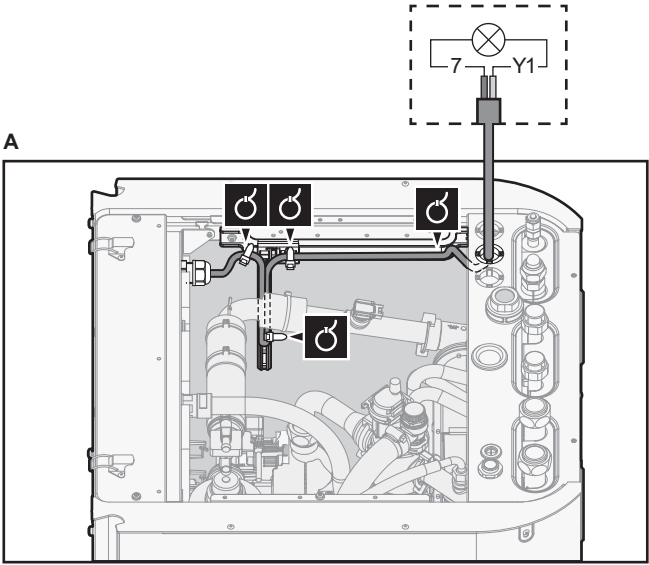
	Wires: - Only use harmonised wire providing double insulation and suitable for applicable voltage. - Wires: (2+1)×0.75 mm² Maximum load: 0.3 A, 250 V AC
	[9.D] Alarm output

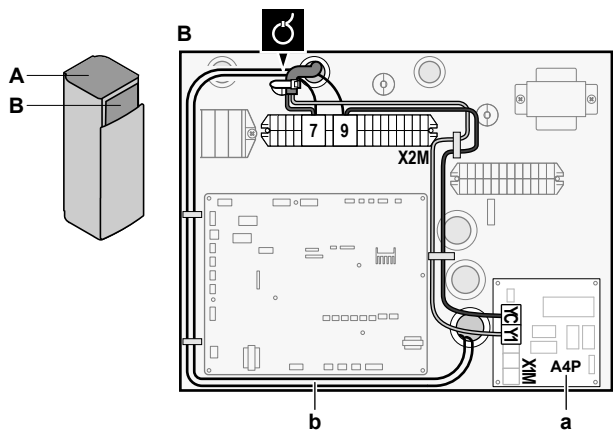
1 Open the following (see "7.2.2 To open the indoor unit" [▶ 47]):

1	Top panel	
2	User interface panel	
3	Upper switch box cover	

2 Connect the alarm output cable to the appropriate terminals as shown in the illustration below.

	1+2	Wires connected to the alarm output
	3	Wire between X2M and A4P
	A4P	Installation of EKR1HBAA is required.





- a Installation of EKR1HBAA is required.
 - b Prewiring between X2M/7+9 and Q1L (= thermal protector backup heater). Do NOT change.
- 3 Fix the cable with cable ties to the cable tie mountings.

9.2.5 To connect the space cooling/heating ON/OFF output



INFORMATION

DX indoor units have two operation modes: heating and cooling.
In case of floorstanding indoor units:

- Cooling is only allowed with underfloor heating + bizone kit.
- In cooling mode, you cannot set the underfloor heating loop to a setpoint lower than 18°C.
- Cooling with fan coil unit or radiators is not allowed.



Wires:

- Only use harmonised wire providing double insulation and suitable for applicable voltage.
- Wires: (2+1)×0.75 mm²

Maximum load: 0.3 A, 250 V AC



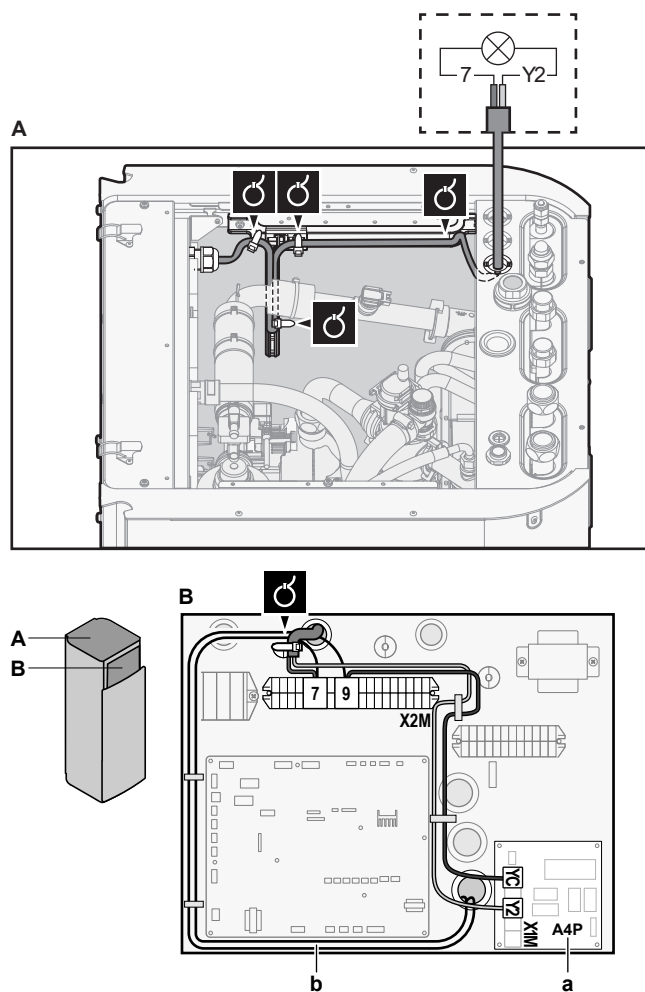
—

- 1 Open the following (see "7.2.2 To open the indoor unit" [▶ 47]):

1	Top panel	
2	User interface panel	
3	Upper switch box cover	

- 2 Connect the space cooling/heating ON/OFF output cable to the appropriate terminals as shown in the illustration below.

	1+2	Wires connected to the space cooling/heating ON/OFF output
	3	Wire between X2M and A4P
	A4P	Installation of EKR1HBAA is required.



- a Installation of EKR1HBAA is required.
- b Prewiring between X2M/7+9 and Q1L (= thermal protector backup heater). Do NOT change.

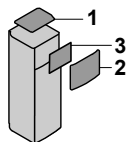
3 Fix the cable with cable ties to the cable tie mountings.

9.2.6 To connect the safety thermostat

Note: Safety thermostat = normally closed contact.

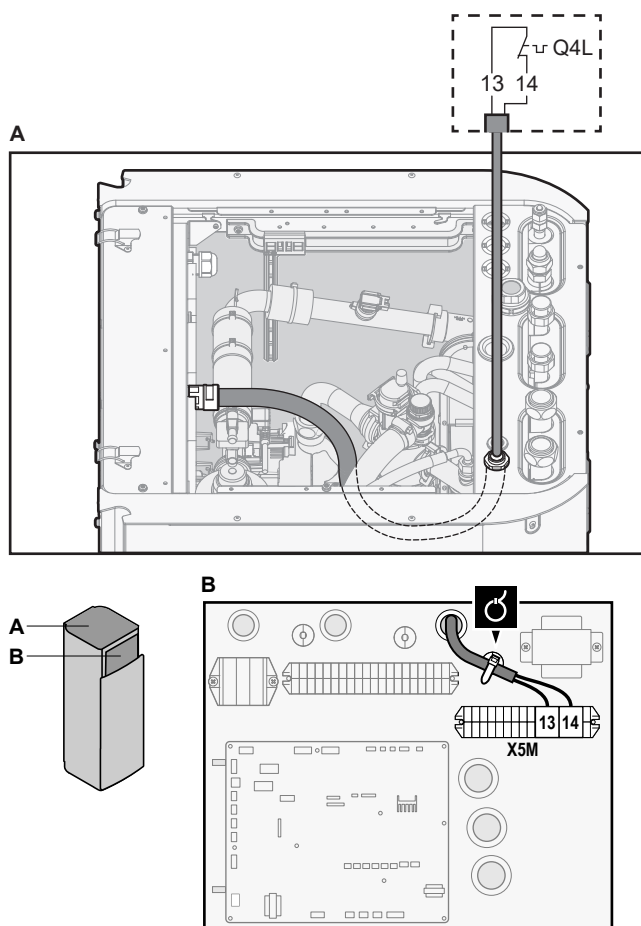
	Wires: - MUST comply with national wiring regulation. - Only use harmonised wire providing double insulation and suitable for applicable voltage. 2-core cable. - Minimum 0.75 mm² based on the current. Maximum length: 50 m Safety thermostat contact: 16 V DC detection (voltage supplied by PCB). The voltage-free contact shall ensure the minimum applicable load of 15 V DC, 10 mA.
	—

1 Open the following (see "7.2.2 To open the indoor unit" [▶ 47]):

1	Top panel	
2	User interface panel	
3	Upper switch box cover	

- 2 Connect the safety thermostat (normally closed) cable to the appropriate terminals as shown in the illustration below.

Note: The jumper wire (factory-mounted) must be removed from the respective terminals.



- 3 Fix the cable with cable ties to the cable tie mountings.



NOTICE

Make sure to select and install the safety thermostat according to the national wiring regulation.

In any case, to prevent unnecessary tripping of the safety thermostat, we recommend the following:

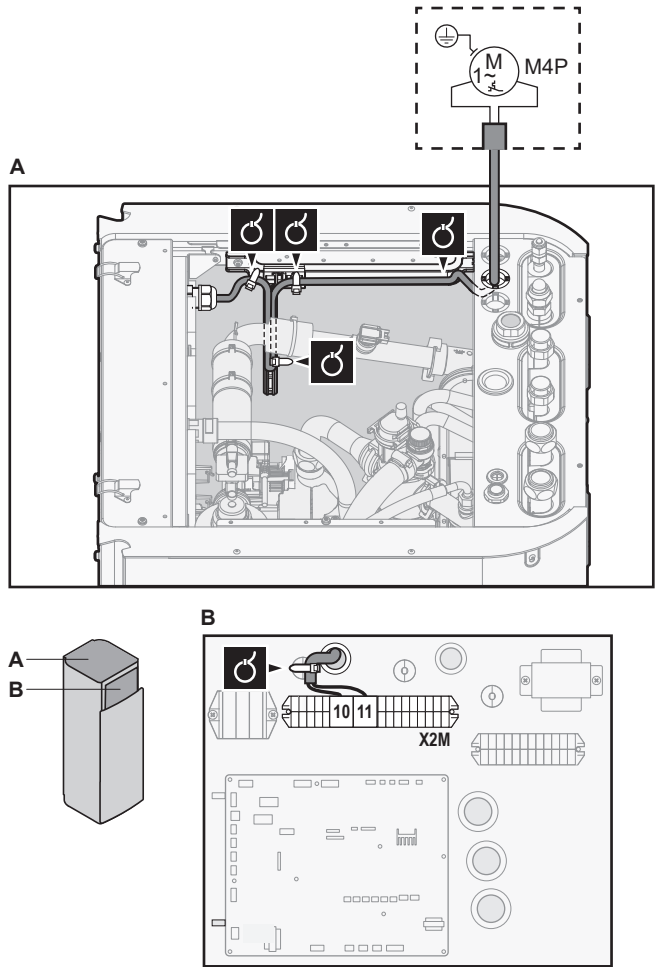
- The safety thermostat is automatically resettable.
- The safety thermostat has a maximum temperature variation rate of 2°C/min.
- There is a minimum distance of 2 m between the safety thermostat and the 3-way valve.



NOTICE

Error. If you remove the jumper (open circuit) but do NOT connect the safety thermostat, stop error 8H-03 will occur.

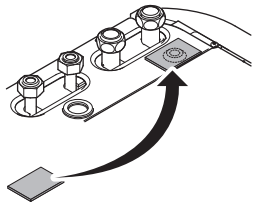
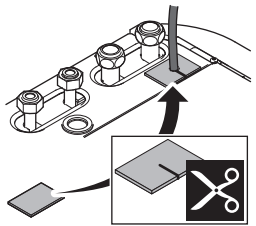
9.2.7 To connect the secondary pump



	Wires: ▪ MUST comply with national wiring regulation. ▪ Only use harmonised wire providing double insulation and suitable for applicable voltage. ▪ 3-core cable. ▪ Minimum 1.0 mm² based on the current. Secondary pump output. Maximum load: 0.3 A, 230 V AC	
	K3R	Secondary pump
	[9.S] Secondary pump or field setting [2-07] Secondary pump present = 1 For more information, see the application guidelines in the installer reference guide.	

9.3 After connecting the electrical wiring to the indoor unit

To prevent water ingress to the switch box, seal the low voltage wiring intake using the sealing tape (delivered as accessory).

Without low voltage cables	With low voltage cables
	

10 Configuration



INFORMATION

DX indoor units have two operation modes: heating and cooling.

In case of floorstanding indoor units:

- Cooling is only allowed with underfloor heating + bizone kit.
- In cooling mode, you cannot set the underfloor heating loop to a setpoint lower than 18°C.
- Cooling with fan coil unit or radiators is not allowed.

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10.1 Overview: Configuration

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

Why

If you do NOT configure the system correctly, it might NOT work as expected. The configuration influences the following:

- The calculations of the software
- What you can see on and do with the user interface

How

You can configure the system via the user interface.

- **First time – Configuration wizard.** When you turn ON the user interface for the first time (via the unit), the configuration wizard starts to help you configure the system.
- **Restart the configuration wizard.** If the system is already configured, you can restart the configuration wizard. To restart the configuration wizard, go to **Installer settings > Configuration wizard**. To access **Installer settings**, see "[10.1.1 To access the most used commands](#)" [▶ 85].
- **Afterwards.** If necessary, you can make changes to the configuration in the menu structure or the overview settings.



INFORMATION

When the configuration wizard is finished, the user interface will show an overview screen and request to confirm. When confirmed, the system will restart and the home screen will be displayed.

Accessing settings – Legend for tables

You can access the installer settings using two different methods. However, NOT all settings are accessible via both methods. If so, the corresponding table columns in this chapter are set to N/A (not applicable).

Method	Column in tables
Accessing settings via the breadcrumb in the home menu screen or the menu structure . To enable breadcrumbs, press the ? button in the home screen.	# For example: [2.9]
Accessing settings via the code in the overview field settings .	Code For example: [C-07]

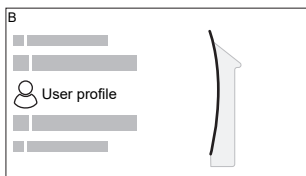
See also:

- "[To access the installer settings](#)" [▶ 86]
- "[10.8 Menu structure: Overview installer settings](#)" [▶ 157]

10.1.1 To access the most used commands

To change the user permission level

You can change the user permission level as follows:

1	Go to [B]: User profile.	
		

2	Enter the applicable pin code for the user permission level.	—
	▪ Browse through the list of digits and change the selected digit.	○...
	▪ Confirm the digit to proceed to the next digit.	○... or ...
	▪ OR, move the cursor from left to right.	...
	▪ Confirm the pin code and proceed.	...

Installer pin code

The **Installer** pin code is **5678**. Additional menu items and installer settings are now available.



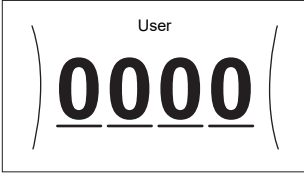
Advanced user pin code

The **Advanced user** pin code is **1234**. Additional menu items for the user are now visible.



User pin code

The **User** pin code is **0000**.



To access the installer settings

- 1 Set the user permission level to **Installer**.
- 2 Go to [9]: **Installer settings**.

To modify an overview setting

Example: Modify [1-01] from 15 to 20.

Most settings can be configured via the menu structure. If for any reason it is required to change a setting using the overview settings, then the overview settings can be accessed as follows:

1	Set the user permission level to Installer . See "To change the user permission level" [▶ 85].	—
2	Go to [9.1]: Installer settings > Overview field settings .	...

3	Turn the left dial to select the first part of the setting and confirm by pressing the dial.	
4	Turn the left dial to select the second part of the setting	
5	Turn the right dial to modify the value from 15 to 20.	
6	Press the left dial to confirm the new setting.	
7	Press the center button to go back to the home screen.	



INFORMATION

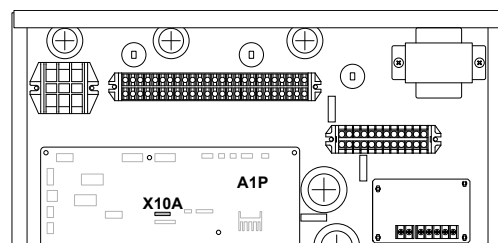
When you change the overview settings and you go back to the home screen, the user interface will show a popup screen and request to restart the system.
When confirmed, the system will restart and recent changes will be applied.

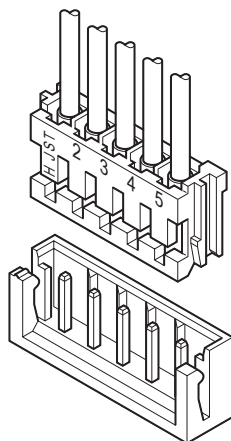
10.1.2 To connect the PC cable to the switch box

This connection between PC and hydro PCB is needed when updating the hydro software and EEPROM.

Prerequisite: The EKPCAB4 kit is required.

- 1 Connect the USB connector of the cable to your PC.
- 2 Connect the plug of the cable to X10A on A1P of the switch box of the indoor unit.



3 Pay special attention to the position of the plug!

10.2 Configuration wizard

After first power ON of the system, the user interface starts a configuration wizard. Use this wizard to set the most important initial settings for the unit to run properly. If required, you can afterwards configure more settings. You can change all these settings via the menu structure.

You can find a short overview of the settings in the configuration here. All the settings can also be adjusted in the settings menu (use the breadcrumbs).

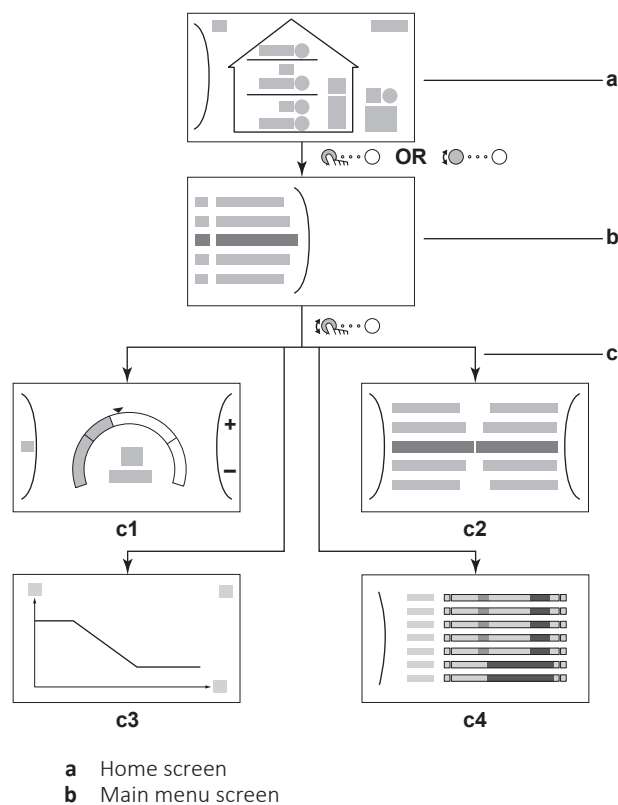
For the setting...		Refer to...
Language [7.1]		
Time/date [7.2]		—
	Hours	
	Minutes	
	Year	
	Month	
	Day	
System		"10.6.8 Installer settings" [▶ 140]
	Indoor unit type (read only)	
	Backup heater type [9.3.1]	
	Domestic hot water [9.2.1]	
	Emergency [9.5]	
Backup heater		"Backup heater" [▶ 142]
	Voltage [9.3.2]	
	Configuration [9.3.3]	
	Capacity step 1 [9.3.4]	
	Additional capacity step 2 [9.3.5] (if applicable)	

For the setting...	Refer to...
Main zone	"10.6.3 Main zone" [▶ 111]
Emitter type [2.7]	
Control [2.9]	
Setpoint mode [2.4]	
Heating WD curve [2.5] (if applicable)	
Cooling WD curve [2.6] (if applicable)	
Schedule [2.1]	
WD curve type [2.E]	
Tank	"10.6.5 Tank" [▶ 127]
Heat up mode [5.6]	
Comfort setpoint [5.2]	
Eco setpoint [5.3]	
Reheat setpoint [5.4]	
Hysteresis [5.9] and [5.A]	
Operation modes [5.G]	

10.3 Possible screens

10.3.1 Possible screens: Overview

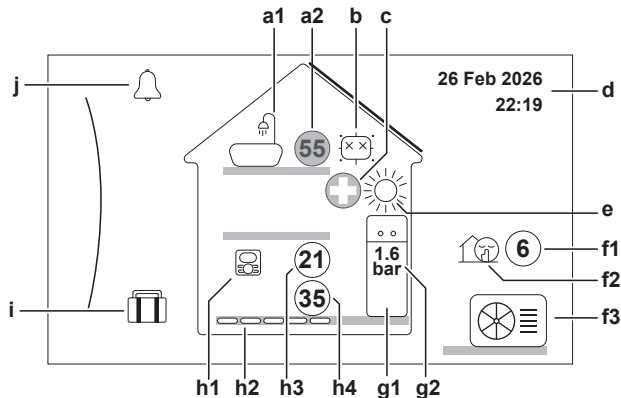
The most common screens are as follows:



- c Lower level screens:
 - c1: Setpoint screen
 - c2: Detailed screen with values
 - c3: Screen with weather-dependent curve
 - c4: Screen with schedule

10.3.2 Home screen

Press the  button to go back to the home screen. You see an overview of the unit configuration and the room and setpoint temperatures. Only symbols applicable for your configuration are visible on the home screen.



Possible actions on this screen	
	Go through the list of the main menu.
	Go to the main menu screen.
	Enable/disable breadcrumbs.

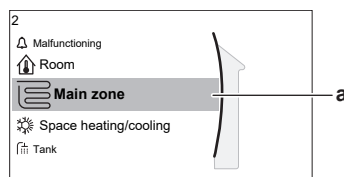
Item		Description
a	Domestic hot water	
	a1	 Domestic hot water
	a2	 Measured tank temperature ^(a)
b	Disinfection / Powerful	
		Disinfection mode active
c	Emergency	
		Heat pump failure and system operates in Emergency mode or heat pump is forced off.
d	Current date and time	
e	Space operation mode	
		Cooling
f	Outdoor / quiet mode	
	f1	 Measured outdoor temperature ^(a)
f2	Quiet mode active	
	f3	 Outdoor unit

Item	Description	
g	Indoor unit / domestic hot water tank	
g1		Floor-standing indoor unit with integrated tank
g2	1.6 bar	Water pressure
h	Main zone	
h1	Installed room thermostat type:	
		Unit operation is decided based on the ambient temperature of the dedicated Human Comfort Interface (BRC1HHDA used as room thermostat).
		Unit operation is decided by the external room thermostat (wired or wireless).
	—	No room thermostat installed or set. Unit operation is decided based on the leaving water temperature regardless of the actual room temperature and/or heating demand of the room.
h2	Installed heat emitter type:	
		Underfloor heating
		Fancoil unit
		Radiator
h3		Measured room temperature ^(a)
h4		Leaving water temperature setpoint ^(a)
i	Holiday mode	
		Holiday mode active
j	Malfunction	
		A malfunction occurred.
		See "14.4.1 To display the help text in case of a malfunction" [▶ 182] for more information.

^(a) If the corresponding operation (for example: space heating) is not active, the circle is greyed out.

10.3.3 Main menu screen

Starting from the home screen, press () or turn () the left dial to open the main menu screen. From the main menu, you can access the different setpoint screens and submenus.



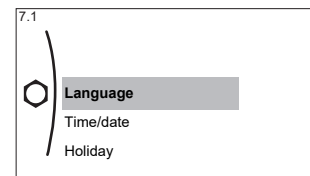
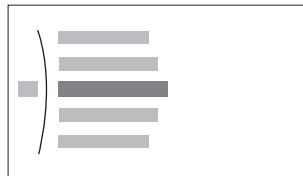
a Selected submenu

Possible actions on this screen	
	Go through the list.
	Enter the submenu.
	Enable/disable breadcrumbs.

Submenu		Description
[0]	 or  Malfunctioning	Restriction: Only displayed if a malfunction occurs. See "14.4.1 To display the help text in case of a malfunction" [▶ 182] for more information.
[1]	 Room	Restriction: Only displayed if a dedicated Human Comfort Interface (BRC1HHDA used as room thermostat) is controlling the indoor unit. Set the room temperature.
[2]	 Main zone	Shows the applicable symbol for your main zone emitter type. Set the leaving water temperature for the main zone.
[4]	 Space heating/ cooling	Shows the applicable symbol of your unit. Put the unit in heating mode or cooling mode. You cannot change the mode if cooling is not enabled by installer
[5]	 Tank	Set the domestic hot water tank temperature.
[7]	 User settings	Gives access to user settings such as holiday mode and quiet mode.
[8]	 Information	Displays data and information about the indoor unit.
[9]	 Installer settings	Restriction: Only for the installer. Gives access to advanced settings.
[A]	 Commissioning	Restriction: Only for the installer. Perform tests and maintenance.
[B]	 User profile	Change the active user profile.
[C]	 Operation	Turn heating/cooling functionality and domestic hot water preparation on or off.
[D]	 Wireless gateway	Restriction: Only displayed if a wireless LAN (WLAN) is installed. Contains settings needed when configuring the ONECTA app.

10.3.4 Menu screen

Example:



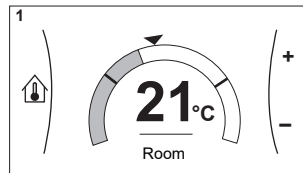
Possible actions on this screen	
	Go through the list.
	Enter the submenu/setting.

10.3.5 Setpoint screen

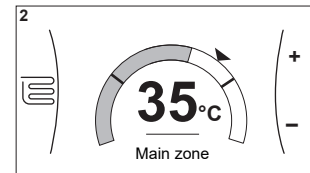
The setpoint screen is displayed for screens describing system components that need a setpoint value.

Examples

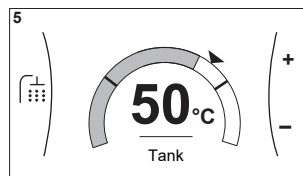
[1] Room temperature screen



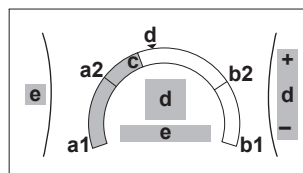
[2] Main zone screen



[5] Tank temperature screen



Explanation

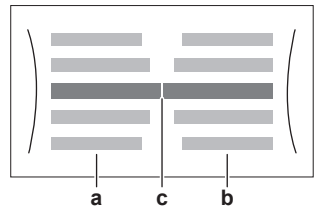


Possible actions on this screen	
	Go through the list of the submenu.
	Go to the submenu.
	Adjust and automatically apply the desired temperature.

Item	Description	
Minimum temperature limit	a1	Fixed by the unit
	a2	Restricted by the installer
Maximum temperature limit	b1	Fixed by the unit
	b2	Restricted by the installer
Current temperature	c	Measured by the unit
Desired temperature	d	Turn the right dial to increase/decrease.

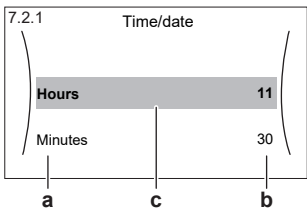
Item	Description	
Submenu	e	Turn or press the left dial to go to the submenu.

10.3.6 Detailed screen with values



a Settings
b Values
c Selected setting and value

Example:



Possible actions on this screen	
	Go through the list of settings.
	Change the value.
	Go to the next setting.
	Confirm changes and proceed.

10.4 Preset values and schedules

10.4.1 Using preset values

About preset values

For some settings in the system, you can define preset values. You only need to set these values one time, then reuse the values in other screens such as the scheduling screen. If you later want to change the value, you only have to do it in one place.

Possible preset values

You can set the following user-defined preset values:

Preset value		Where used
Tank target temperature, Operation mode , Quick mode timer	[5.2] Comfort setpoint	You can use these preset values in [5.5] Schedule (weekly schedule screen for the DHW tank) if the DHW tank mode is one of the following: ▪ Schedule only ▪ Schedule + reheat
	[5.3] Eco setpoint	
	[5.4] Reheat setpoint	The software uses this preset value if the DHW tank mode is Schedule + reheat
	[5.G] Operation mode	You can select two type of DHW operation which concerns allowance of backup heater: ▪ Efficient ▪ Quick
	[5.H] Quick mode timer	This timer is only applicable if " Quick " is chosen as the Operation mode . Three preset timer can be selected: ▪ Turbo (10 minutes) ▪ Normal (20 minutes) ▪ Economic (30 minutes)

Additional to the user-defined preset values, the system also contains some system-defined preset values that you can use when programming schedules.

Example: In [7.4.2] **User settings > Quiet > Schedule** (weekly schedule for when the unit has to use which quiet mode level), you can use the following system-defined preset values: **More quiet/Most quiet**.

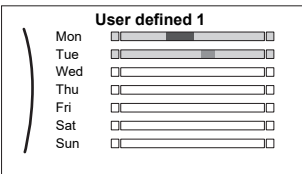
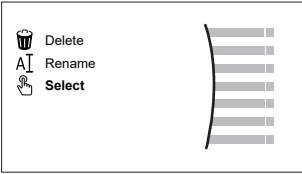
10.4.2 Using and programming schedules

About schedules

Depending on your system layout and installer configuration, schedules for multiple controls may be available.

You can...	See...
Set if a specific control needs to act according to a schedule.	" Activation screen " in " Possible schedules " [▶ 96]
Select which schedule you currently want to use for a specific control. The system contains some predefined schedules. You can:	
Consult which schedule is currently selected.	" Schedule/Control " in " Possible schedules " [▶ 96]
Select another schedule if needed.	" To select which schedule you currently want to use " [▶ 96]
Program your own schedules if the predefined schedules are not satisfactory. The actions you can program are control specific.	▪ "Possible actions" in "Possible schedules" [▶ 96] ▪ "10.4.3 Schedule screen: Example" [▶ 98]

To select which schedule you currently want to use

1	Go to the schedule for the specific control. See " Schedule/Control " in " Possible schedules " [► 96]. Example: For the schedule for the desired room temperature in heating mode, go to [1.2] Room > Heating schedule.	
2	Select the name of the current schedule. 	
3	Select Select . 	
4	Select the schedule that you currently want to use.	

Possible schedules

The table contains the following information:

- **Schedule/Control:** This column shows you where you can consult the currently selected schedule for the specific control. If needed, you can:
 - Select another schedule. See "[To select which schedule you currently want to use](#)" [► 96].
 - Program your own schedule. See "[10.4.3 Schedule screen: Example](#)" [► 98].
- **Predefined schedules:** Number of available predefined schedules in the system for the specific control. If needed, you can program your own schedule.
- **Activation screen:** For most controls, a schedule is only effective if it is activated in its corresponding activation screen. This entry shows you where to activate it.
- **Possible actions:** Actions you can use when programming a schedule. For most schedules, you can program up to 6 actions per day.

Schedule/Control	Description
[1.2] Room > Heating schedule Schedule for the desired room temperature in heating mode.	Predefined schedules: 3 Activation screen: [1.1] Schedule Possible actions: Temperatures within range.
[1.3] Room > Cooling schedule Schedule for the desired room temperature in cooling mode.	Predefined schedules: 1 Activation screen: [1.1] Schedule Possible actions: Temperatures within range.

Schedule/Control	Description
[2.2] Main zone > Heating schedule Schedule for the desired leaving water temperature for the main zone in heating mode.	Predefined schedules: 3 Activation screen: [2.1] Schedule Possible actions: - In case of weather-dependent: Shift temperatures within range. - Otherwise: Temperatures within range
[2.3] Main zone > Cooling schedule Schedule for the desired leaving water temperature for the main zone in cooling mode.	Predefined schedules: 1 Activation screen: [2.1] Schedule Possible actions: - In case of weather-dependent: Shift temperatures within range. - Otherwise: Temperatures within range
[4.2] Space heating/cooling > Operation mode schedule Schedule (per month) for when to operate the unit in heating mode and when in cooling mode.	See "To set the space operation mode" [▶ 120].
[5.5] Tank > Schedule Schedule for the domestic hot water tank temperature for your normal domestic hot water needs.	Predefined schedules: 1 Activation screen: Not applicable. This schedule is automatically activated if the DHW mode is one of the following: - Schedule only - Schedule + reheat Possible actions: Comfort: When to start heating the tank to the user-defined preset value [5.2] Comfort setpoint. Eco: When to start heating the tank to the user-defined preset value [5.3] Eco setpoint. Stop: When to stop heating the tank, even if the desired tank temperature is not reached yet. Note: In Schedule + reheat mode, the system also takes the user-defined preset value [5.4] Reheat setpoint into account.

Schedule/Control	Description
[5.F] Tank > Priority schedule Schedule for the outdoor unit to determine priority between domestic hot water tank operation and air conditioning	Predefined schedules: Domestic hot water as priority for each month Activation screen: Not applicable. This schedule is only used when more than one indoor unit (e.g. 1 tank + 1 A/C unit) connected to outdoor unit. Possible actions: ▪ DHW : If there are requests from multiple indoor units at the same time, the outdoor unit will prioritize domestic hot water production. ▪ A/C : If there are request from multiple indoor units at the same time, outdoor unit will prioritize Air Conditioning (heating/cooling) operation.
[7.4.2] User settings > Quiet > Schedule Schedule for when the unit has to use which quiet mode level.	Predefined schedules: 1 Activation screen: [7.4.1] Activation (only available to installers). Possible actions: You can use the following system-defined preset values: ▪ Off ▪ Quiet This preset is not supported for this model. Selecting this preset has no effect on operation. ▪ More quiet ▪ Most quiet See "About quiet mode" [▶ 137].

10.4.3 Schedule screen: Example

This example shows how to set a room temperature schedule in heating mode.

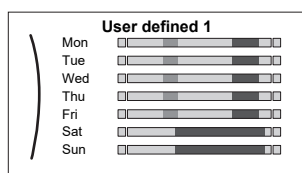


INFORMATION

The procedures to program other schedules are similar.

To program the schedule: overview

Example: You want to program the following schedule:



Prerequisite: The room temperature schedule is only available if room thermostat control is active. If leaving water temperature control is active, you can program the main zone schedule instead.

- 1 Go to the schedule.
- 2 (optional) Clear the content of the whole week schedule or the content of a selected day schedule.

- 3 Program the schedule for **Monday**.
- 4 Copy the schedule to the other weekdays.
- 5 Program the schedule for **Saturday** and copy it to **Sunday**.
- 6 Give the schedule a name.

To go to the schedule

1	Go to [1.1]: Room > Schedule.	
2	Set scheduling to Yes.	
3	Go to [1.2]: Room > Heating schedule.	

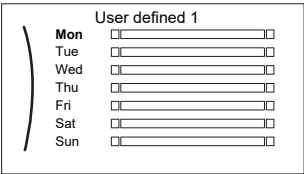
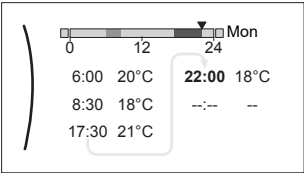
To clear the content of the week schedule

1	Select the name of the current schedule. 	
2	Select Delete . 	
3	Select OK to confirm.	

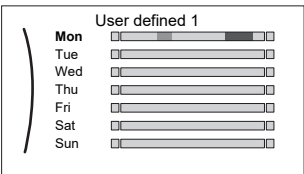
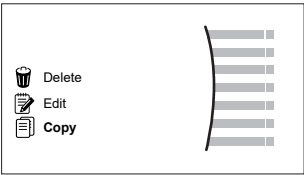
To clear the content of a day schedule

1	Select the day of which you want to clear the content. For example Friday 	
2	Select Delete . 	
3	Select OK to confirm.	

To program the schedule for Monday

1	Select Monday. 	
2	Select Edit. 	
3	Use the left dial to select an entry and edit the entry with the right dial. You can program up to 6 actions each day. On the bar, a high temperature has a darker colour than a low temperature.  Note: To clear an action, set its time as the time of the previous action.	 
4	Confirm the changes. Result: The schedule for Monday is defined. The value of the last action is valid until the next programmed action. In this example, Monday is the first day you programmed. Thus, the last programmed action is valid up to the first action of next Monday.	

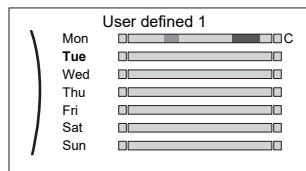
To copy the schedule to the other weekdays

1	Select Monday. 	
2	Select Copy.  Result: Next to the copied day, "C" is displayed.	

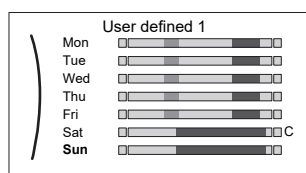
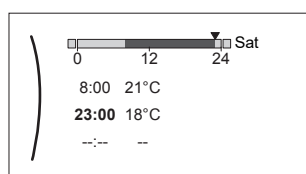
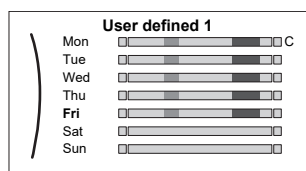
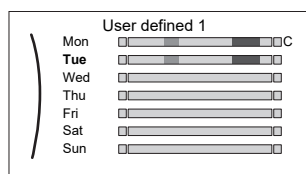
3	Select Tuesday .	
4	Select Paste .	
5	Repeat this action for all other weekdays.	—

To program the schedule for Saturday and copy it to Sunday

1	Select Saturday .	
2	Select Edit .	
3	Use the left dial to select an entry and edit the entry with the right dial.	 
4	Confirm the changes.	
5	Select Saturday .	
6	Select Copy .	
7	Select Sunday .	
8	Select Paste .	



Result:



To rename the schedule

1	Select the name of the current schedule.	
2	Select Rename .	
3	(optional) To delete the current schedule name, browse through the character list until ← is displayed, then press to remove the previous character. Repeat for each character of the schedule name.	
4	To name the current schedule, browse through the character list and confirm the selected character. The schedule name can contain up to 15 characters.	
5	Confirm the new name.	

**INFORMATION**

Not all schedules can be renamed.

Usage example: You work in a 3-shift system

If you work in a 3-shift system, you can do the following:

- 1 Program 3 room temperature schedules and give them appropriate names.
Example: EarlyShift, DayShift and LateShift
- 2 Select the schedule that you currently want to use.

10.5 Weather-dependent curve

10.5.1 What is a weather-dependent curve?

Weather-dependent operation

The unit operates 'weather-dependent' if the desired leaving water or tank temperature is determined automatically by the outdoor temperature. If the outdoor temperature drops or rises, the unit compensates instantly. Thus, the unit does not have to wait for feedback by the thermostat to increase or decrease the temperature of the leaving water or tank. Because it reacts more quickly, it prevents high rises and drops of the indoor temperature and water temperature at tap points.

Advantage

Weather-dependent operation reduces energy consumption.

Weather-dependent curve

To be able to compensate for differences in temperature, the unit relies on its weather-dependent curve. This curve defines how much the temperature of the tank or leaving water must be at different outdoor temperatures. Because the slope of the curve depends on local circumstances such as climate and the insulation of the building, the curve can be adjusted by an installer or user.

Types of weather-dependent curve

There are two types of weather-dependent curves:

- 2-points curve
- Slope-offset curve

Which type of curve you use to make adjustments, depends on your personal preference. See "[10.5.4 Using weather-dependent curves](#)" [▶ 105].

Availability

The weather-dependent curve is available for:

- Main zone - Heating
- Main zone - Cooling
- Tank (only available to installers)



INFORMATION

To operate weather-dependent, correctly configure the setpoint of the main zone or tank. See "[10.5.4 Using weather-dependent curves](#)" [▶ 105].

10.5.2 Slope-offset curve

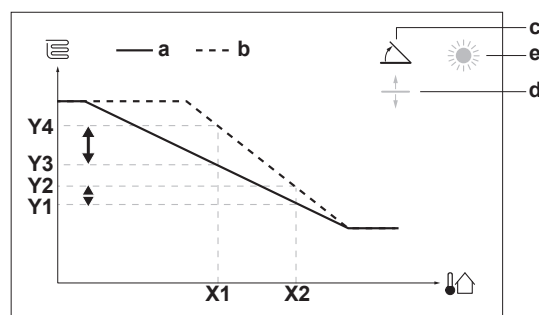
Slope and offset

Define the weather-dependent curve by its slope and offset:

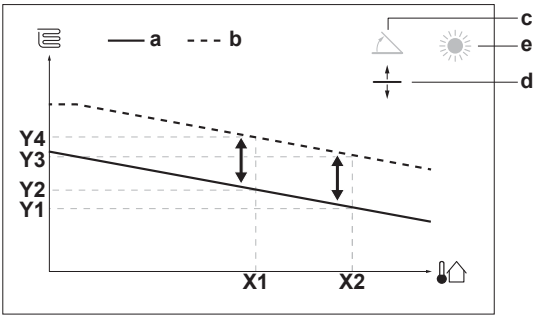
- Change the **slope** to differently increase or decrease the temperature of the leaving water for different ambient temperatures. For example, if leaving water temperature is in general fine but at low ambient temperatures too cold, raise the slope so that leaving water temperature is heated increasingly more at decreasingly lower ambient temperatures.
- Change the **offset** to equally increase or decrease the temperature of the leaving water for different ambient temperatures. For example, if leaving water temperature is always a bit too cold at different ambient temperatures, shift the offset up to equally increase the leaving water temperature for all ambient temperatures.

Examples

Weather-dependent curve when slope is selected:



Weather-dependent curve when offset is selected:



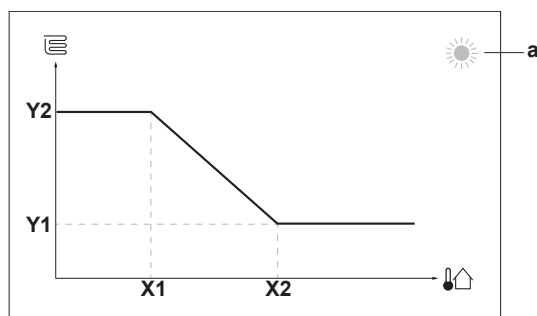
Item	Description
a	WD curve before changes.
b	WD curve after changes (as example): ▪ When slope is changed, the new preferred temperature at X1 is unequally higher than the preferred temperature at X2. ▪ When offset is changed, the new preferred temperature at X1 is equally higher as the preferred temperature at X2.
c	Slope
d	Offset
e	Selected weather-dependent zone: ▪ ☀: Main zone heating ▪ ☀❄: Main zone cooling ▪ 🏠: Domestic hot water
X1, X2	Examples of outdoor ambient temperature
Y1, Y2, Y3, Y4	Examples of desired tank temperature or leaving water temperature. The icon corresponds to the heat emitter for that zone: ▪ 🏠: Underfloor heating ▪ 🏠: Fan coil unit ▪ 🏠: Radiator ▪ 🏠: Domestic hot water tank

Possible actions on this screen	
⏏⋯○	Select slope or offset.
○⋯⦿	Increase or decrease the slope/offset.
○⋯👉	When slope is selected: set slope and go to offset. When offset is selected: set offset.
👉⋯○	Confirm changes and return to the submenu.

10.5.3 2-points curve

Define the weather-dependent curve with these two setpoints:

- Setpoint (X1, Y2)
- Setpoint (X2, Y1)

Example

Item	Description
a	Selected weather-dependent zone: ☀: Main zone heating ❄: Main zone cooling 🚿: Domestic hot water
X1, X2	Examples of outdoor ambient temperature
Y1, Y2	Examples of desired tank temperature or leaving water temperature. The icon corresponds to the heat emitter for that zone: 🛏: Underfloor heating 🌀: Fan coil unit 🔥: Radiator 🚿: Domestic hot water tank

Possible actions on this screen	
⏮⋯⋯⋯	Go through the temperatures.
⋯⋯⋯⏪	Change the temperature.
⋯⋯⋯👉	Go to the next temperature.
👉⋯⋯⋯	Confirm changes and proceed.

10.5.4 Using weather-dependent curves

Configure weather-dependent curves as following:

To define the setpoint mode

To use the weather-dependent curve, you need to define the correct setpoint mode:

Go to setpoint mode ...	Set the setpoint mode to ...
Main zone – Heating	
[2.4] Main zone > Setpoint mode	WD heating, fixed cooling OR Weather dependent
Main zone – Cooling	
[2.4] Main zone > Setpoint mode	Weather dependent
Tank	
[5.B] Tank > Setpoint mode	Restriction: Only available to installers. Weather dependent

To change the type of weather-dependent curve

To change the type for the main zone and for the tank, go to [2.E] **Main zone > WD curve type**.

Viewing which type is selected is also possible via:

- [5.E] Tank > WD curve type

Restriction: Only available to installers.

To change the weather-dependent curve

Zone	Go to ...
Main zone – Heating	[2.5] Main zone > Heating WD curve
Main zone – Cooling	[2.6] Main zone > Cooling WD curve
Tank	Restriction: Only available to installers. [5.C] Tank > WD curve



INFORMATION

Maximum and minimum setpoints

You cannot configure the curve with temperatures that are higher or lower than the set maximum and minimum setpoints for the zone or for the tank. When the maximum or minimum setpoint is reached, the curve flattens out.

To fine-tune the weather-dependent curve: slope-offset curve

The following table describes how to fine-tune the weather-dependent curve of the zone or tank:

You feel ...		Fine-tune with slope and offset:	
At regular outdoor temperatures ...	At cold outdoor temperatures ...	Slope	Offset
OK	Cold	↑	—
OK	Hot	↓	—
Cold	OK	↓	↑
Cold	Cold	—	↑
Cold	Hot	↓	↑
Hot	OK	↑	↓
Hot	Cold	↑	↓
Hot	Hot	—	↓

See "10.5.2 Slope-offset curve" [► 103].

To fine-tune the weather-dependent curve: 2-points curve

The following table describes how to fine-tune the weather-dependent curve of the zone or tank:

You feel ...		Fine-tune with setpoints:			
At regular outdoor temperatures ...	At cold outdoor temperatures ...	Y2 ^(a)	Y1 ^(a)	X1 ^(a)	X2 ^(a)
OK	Cold	↑	—	↑	—

You feel ...		Fine-tune with setpoints:			
At regular outdoor temperatures ...	At cold outdoor temperatures ...	Y2 ^(a)	Y1 ^(a)	X1 ^(a)	X2 ^(a)
OK	Hot	↓	—	↓	—
Cold	OK	—	↑	—	↑
Cold	Cold	↑	↑	↑	↑
Cold	Hot	↓	↑	↓	↑
Hot	OK	—	↓	—	↓
Hot	Cold	↑	↓	↑	↓
Hot	Hot	↓	↓	↓	↓

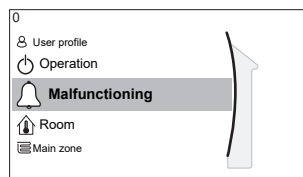
^(a) See "10.5.3 2-points curve" [▶ 104].

10.6 Settings menu

You can set additional settings using the main menu screen and its submenus. The most important settings are presented here.

10.6.1 Malfunctioning

In case of a malfunction,  or  will appear on the home screen. To display the error code, open the menu screen and go to [0] **Malfunctioning**. Press **?** for more information about the error.

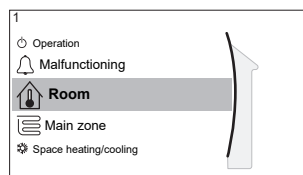


[0] **Malfunctioning**

10.6.2 Room

Overview

The following items are listed in the submenu:



[1] **Room**

 Setpoint screen

[1.1] **Schedule**

[1.2] **Heating schedule**

[1.3] **Cooling schedule**

[1.4] **Antifrost**

[1.5] **Setpoint range**

[1.6] **Room sensor offset**

[1.7] **Room sensor offset**

[1.9] **Room comfort setpoint**

Setpoint screen

Control the room temperature of the main zone via setpoint screen [1] **Room**.

See "10.3.5 Setpoint screen" [► 93].

Schedule

Indicate if the room temperature is controlled according to a schedule or not.

#	Code	Description
[1.1]	N/A	Schedule: ▪ No: Room temperature is directly controlled by the user. ▪ Yes: Room temperature is controlled by a schedule and can be modified by the user.

Heating schedule

Applicable for all models.

Define a heating schedule of the room temperature in [1.2] **Heating schedule**.

See "10.4.3 Schedule screen: Example" [► 98].

Cooling schedule

Define a cooling schedule of the room temperature in [1.3] **Cooling schedule**.

See "10.4.3 Schedule screen: Example" [► 98].

Antifrost

[1.4] **Antifrost** prevents the room from getting too cold. This setting is applicable when [2.9] **Control=Room thermostat**, but also offers functionality for leaving water temperature control and external room thermostat control. In case of the latter two, **Antifrost** can be activated by setting field setting [2-06]=1.

Room frost protection, when enabled, is not guaranteed when there is no room thermostat that can activate the heat pump. This is the case when:

- [2.9] **Control=External room thermostat** and [C.2] **Space heating/cooling=Off**, or if
- [2.9] **Control=Leaving water**.

In the above cases, **Antifrost** will heat the space heating water to a reduced setpoint when the outdoor temperature is lower than 6°C.

Main zone unit control method [2.9]	Description
Leaving water temperature control ([C-07]=0)	Room frost protection is NOT guaranteed.
External room thermostat control ([C-07]=1)	Allow for the external room thermostat to take care of room frost protection: ▪ Set [C.2] Space heating/cooling=On.
Room thermostat control ([C-07]=2)	Allow for the dedicated Human Comfort Interface (BRC1HHDA used as room thermostat) to take care of room frost protection: ▪ Set antifrost [1.4.1] Activation=Yes. ▪ Set the temperature of the antifrost function in [1.4.2] Room setpoint.

**INFORMATION**

If a U4 error occurs, room frost protection is NOT guaranteed.

**NOTICE**

If the room **Antifrost** setting is active and a U4 error occurs, the unit will automatically start the **Antifrost** function via the backup heater. If the backup heater is not allowed for room frost protection during a U4 error, the room **Antifrost** setting **MUST** be disabled.

**NOTICE**

Room frost protection. Even if you turn OFF space heating/cooling operation ([C.2]: **Operation** > **Space heating/cooling**), room frost protection operation –if enabled– can still activate. However, for leaving water temperature control and external room thermostat control, the protection is NOT guaranteed.

For more detailed information about room frost protection in relation to the applicable unit control method, see the sections below.

Leaving water temperature control ([C-07]=0)

Under leaving water temperature control, room frost protection is NOT guaranteed. However, if room antifrost [2-06] is activated, limited frost protection by the unit is possible:

If...	Then...
▪ Space heating/cooling=Off, and ▪ Outdoor ambient temperature drops below 6°C	▪ The unit will supply leaving water to the heat emitters to heat up the room again, and ▪ the temperature setpoint of the leaving water will be lowered.
▪ Space heating/cooling=On, and ▪ Operation mode=Heating	The unit will supply leaving water to the heat emitters to heat up the room according to normal logic.
▪ Space heating/cooling=On, and ▪ Operation mode=Cooling	There is no room frost protection.

External room thermostat control ([C-07]=1)

Under external room thermostat control, room frost protection is guaranteed by the external room thermostat, provided that:

- [C.2] **Space heating/cooling=On**, and
- [9.5.1] **Emergency=Automatic** or **auto SH normal/DHW off**.

However, if [1.4.1] **Antifrost** is activated, limited frost protection by the unit is possible.

In case of one leaving water temperature zone:

If...	Then...
▪ Space heating/cooling=Off, and ▪ Outdoor ambient temperature drops below 6°C	▪ The unit will supply leaving water to the heat emitters to heat up the room again, and ▪ the temperature setpoint of the leaving water will be lowered.

If...	Then...
▪ Space heating/cooling=On, and ▪ The external room thermostat is "Thermo OFF", and ▪ Outdoor temperature drops below 6°C	▪ The unit will supply leaving water to the heat emitters to heat up the room again, and ▪ the temperature setpoint of the leaving water will be lowered.
▪ Space heating/cooling=On, and ▪ The external room thermostat is "Thermo ON"	Room frost protection is guaranteed by the normal logic.

Room thermostat control ([C-07]=2)

During room thermostat control, room frost protection [2-06] is guaranteed when activated. If so, and the room temperature drops below the room antifrost temperature [2-05], the unit will supply leaving water to the heat emitters to heat up the room again.

#	Code	Description
[1.4.1]	[2-06]	Activation: ▪ 0 No: Antifrost functionality is OFF. ▪ 1 Yes: Antifrost functionality is on.
[1.4.2]	[2-05]	Room setpoint: ▪ 4°C~16°C



INFORMATION

When the dedicated Human Comfort Interface (BRC1HHDA used as room thermostat) is disconnected (because of incorrect wiring or damage of the cable), then room frost protection is NOT guaranteed.



NOTICE

If **Emergency** is set to **Manual** ([9.5.1]=0), and the unit is triggered to start emergency operation, the unit will stop and needs to be recovered manually via the user interface. To recover operation manually, go to the **Malfunctioning** main menu screen, and confirm emergency operation before starting.

Room frost protection is active even if the user does not confirm emergency operation.

Setpoint range

Only applicable in room thermostat control.

To save energy by preventing overheating or undercooling the room, you can limit the range of the room temperature for heating and/or cooling.



NOTICE

When adjusting the room temperature ranges, all desired room temperatures are also adjusted to guarantee they are between the limits.

#	Code	Description
[1.5.1]	[3-07]	Heating minimum
[1.5.2]	[3-06]	Heating maximum
[1.5.3]	[3-09]	Cooling minimum
[1.5.4]	[3-08]	Cooling maximum

Room sensor offset

Only applicable in room thermostat control.

To calibrate the (external) room temperature sensor, give an offset to the value of the room thermistor as measured by the Human Comfort Interface (BRC1HHDA used as room thermostat) or by the external room sensor. The setting can be used to compensate for situations where the Human Comfort Interface or the external room sensor cannot be installed at the ideal location.

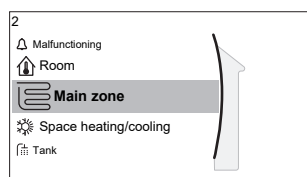
See "6.5 Setting up an external temperature sensor" [▶ 34].

#	Code	Description
[1.6]	[2-0A]	Room sensor offset (Human Comfort Interface (BRC1HHDA used as room thermostat)): Offset on the actual room temperature measured by the Human Comfort Interface. ▪ $-5^{\circ}\text{C}\sim 5^{\circ}\text{C}$, step 0.5°C
[1.7]	[2-09]	Room sensor offset (external room sensor option): Only applicable if the external room sensor option is installed and configured. ▪ $-5^{\circ}\text{C}\sim 5^{\circ}\text{C}$, step 0.5°C

10.6.3 Main zone

Overview

The following items are listed in the submenu:



[2] Main zone

Setpoint screen

[2.1] Schedule

[2.2] Heating schedule

[2.3] Cooling schedule

[2.4] Setpoint mode

[2.5] Heating WD curve

[2.6] Cooling WD curve

[2.7] Emitter type

[2.8] Setpoint range

[2.9] Control

[2.A] Ext thermostat type

[2.B] Delta T

[2.C] Modulation

[2.E] WD curve type

Setpoint screen

Control the leaving water temperature for the main zone via setpoint screen [2] **Main zone**.

See "10.3.5 Setpoint screen" [▶ 93].

**INFORMATION**

Select the leaving water temperature setpoint according to the actual operation range drawing (see <https://daikintechdatahub.eu>), in order to:

- avoid excessive backup heater usage;
- allow continuous/simultaneous space heating operation with DX units.

Schedule

Indicate if the temperature of the leaving water is defined according to a schedule or not.

Influence of the LWT setpoint mode [2.4] is as follows:

- In **Fixed** LWT setpoint mode, the scheduled actions consist of desired leaving water temperatures, either preset or custom.
- In **Weather dependent** LWT setpoint mode, the scheduled actions consist of desired shift actions, either preset or custom.

#	Code	Description
[2.1]	N/A	Schedule: ▪ 0: No ▪ 1: Yes

Heating schedule

Define a heating temperature schedule for the main zone via [2.2] **Heating schedule**.

See "10.4.3 Schedule screen: Example" [▶ 98].

Cooling schedule

Define a cooling temperature schedule for the main zone via [2.3] **Cooling schedule**.

See "10.4.3 Schedule screen: Example" [▶ 98].

Setpoint mode

Define the setpoint mode:

- **Fixed:** the desired leaving water temperature does not depend on the outdoor ambient temperature.
- In **WD heating, fixed cooling** mode, the desired leaving water temperature:
 - depends on the outdoor ambient temperature for heating
 - does NOT depend on the outdoor ambient temperature for cooling
- In **Weather dependent** mode, the desired leaving water temperature depends on the outdoor ambient temperature.

#	Code	Description
[2.4]	N/A	Setpoint mode: ▪ Fixed ▪ WD heating, fixed cooling ▪ Weather dependent

When weather dependent operation is active, low outdoor temperatures will result in warmer water and vice versa. During weather dependent operation, the user can shift the water temperature up or down by a maximum of 10°C.

Heating WD curve

Set weather-dependent heating for the main zone (if [2.4]=1 or 2):

#	Code	Description
[2.5]	[1-00] [1-01] [1-02] [1-03]	Set weather-dependent heating: Note: There are 2 methods to set the weather dependent curve. See "10.5.3 2-points curve" [▶ 104] and "10.5.2 Slope-offset curve" [▶ 103]. Both curve types require 4 field settings to be configured according to the figure below. The graph shows the relationship between Target leaving water temperature (T_t) and Outdoor temperature (T_a). The curve is defined by four parameters: [1-02] (desired leaving water temperature at low outdoor temperatures), [1-00] (low outdoor ambient temperature), [1-01] (high outdoor ambient temperature), and [1-03] (desired leaving water temperature at high outdoor temperatures). The curve is horizontal at [1-02] for $T_a < [1-00]$, slopes down linearly between [1-00] and [1-01], and is horizontal at [1-03] for $T_a > [1-01]$. ▪ T_t: Target leaving water temperature (main zone) ▪ T_a: Outdoor temperature ▪ [1-00]: Low outdoor ambient temperature. $-40^{\circ}\text{C} \sim +5^{\circ}\text{C}$ ▪ [1-01]: High outdoor ambient temperature. $10^{\circ}\text{C} \sim 25^{\circ}\text{C}$ ▪ [1-02]: Desired leaving water temperature when the outdoor temperature equals or drops below the low ambient temperature. $[9-01]^{\circ}\text{C} \sim [9-00]^{\circ}\text{C}$ Note: This value should be higher than [1-03] as for low outdoor temperatures warmer water is required. ▪ [1-03]: Desired leaving water temperature when the outdoor temperature equals or rises above the high ambient temperature. $[9-01]^{\circ}\text{C} \sim \min(45, [9-00])^{\circ}\text{C}$ Note: This value should be lower than [1-02] as for high outdoor temperatures less warm water is required.

Cooling WD curve

Set weather-dependent cooling for the main zone (if [2.4]=2):

#	Code	Description
[2.6]	[1-06] [1-07] [1-08] [1-09]	Set weather-dependent cooling: Note: There are 2 methods to set the weather dependent curve. See "10.5.3 2-points curve" [▶ 104] and "10.5.2 Slope-offset curve" [▶ 103]. Both curve types require 4 field settings to be configured according to the figure below. ▪ T_t: Target leaving water temperature (main zone) ▪ T_a: Outdoor temperature ▪ [1-06]: Low outdoor ambient temperature. 10°C~25°C ▪ [1-07]: High outdoor ambient temperature. 25°C~43°C ▪ [1-08]: Desired leaving water temperature when the outdoor temperature equals or drops below the low ambient temperature. [9-03]°C~[9-02]°C Note: This value should be higher than [1-09] as for low outdoor temperatures less cold water is required. ▪ [1-09]: Desired leaving water temperature when the outdoor temperature equals or rises above the high ambient temperature. [9-03]°C~[9-02]°C Note: This value should be lower than [1-08] as for high outdoor temperatures colder water is required.

Emitter type

Heating up or cooling down the main zone can take longer. This depends on:

- The water volume of the system
- The heater emitter type of the main zone

The setting **Emitter type** can compensate for a slow or a quick heating/cooling system during the heat up/cool down cycle. In room thermostat control, **Emitter type** influences the maximum modulation of the desired leaving water temperature, and the possibility for usage of the automatic cooling/heating changeover based on the indoor ambient temperature.

It is important to set **Emitter type** correctly and in accordance with your system layout. The target delta T for the main zone depends on it.

#	Code	Description
[2.7]	[2-0C]	Emitter type: 0: Underfloor heating 1: Fancoil unit 2: Radiator

The setting **Emitter type** influences the space heating setpoint range and the target delta T in heating as follows:

Emitter type Main zone	Space heating setpoint range [9-01]~[9-00]	Target delta T in heating [1-0B]
0: Underfloor heating	Maximum 55°C	Variable (see [2.B.1])
1: Fancoil unit	Maximum 55°C	Variable (see [2.B.1])
2: Radiator	Maximum 60°C	Fixed 8°C



NOTICE

Average emitter temperature = Leaving water temperature – (Delta T)/2

This means that for a same leaving water temperature setpoint, the average emitter temperature of radiators is lower than that of underfloor heating because of a bigger delta T.

Example radiators: $40 - 8/2 = 36^{\circ}\text{C}$

Example underfloor heating: $40 - 5/2 = 37.5^{\circ}\text{C}$

To compensate, you can:

- Increase the weather-dependent curve desired temperatures [2.5].
- Enable leaving water temperature modulation and increase the maximum modulation [2.C].

Setpoint range

To prevent a wrong (i.e. too hot or too cold) leaving water temperature for the main leaving water temperature zone, limit its temperature range.



NOTICE

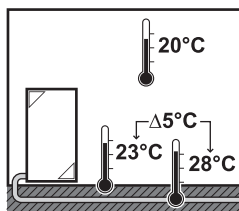
Maximum leaving water temperature for heating operation should be at least 10°C lower than the maximum allowed temperature according to the specifications of the underfloor heating installation.



NOTICE

- When adjusting the leaving water temperature ranges, all desired leaving water temperatures are also adjusted to guarantee they are between the limits.
- Always balance between the desired leaving water temperature with the desired room temperature and/or the capacity (according to the design and selection of the heat emitters). The desired leaving water temperature is the result of several settings (preset values, shift values, weather-dependent curves, modulation). As a result, too high or too low leaving water temperatures could occur which lead to overtemperatures or capacity shortage. By limiting the leaving water temperature range to adequate values (depending on the heat emitter), such situations can be avoided.

Example: In heating mode, leaving water temperatures must be sufficiently higher than the room temperatures. To avoid that the room cannot heat up as desired, set the minimum leaving water temperature to 28°C.



#	Code	Description
Leaving water temperature range for the main leaving water temperature zone (= the leaving water temperature zone with the lowest leaving water temperature in heating operation and the highest leaving water temperature in cooling operation)		
[2.8.1]	[9-01]	Heating minimum: 15°C~37°C
[2.8.2]	[9-00]	Heating maximum: [2-0C]=2 (emitter type main zone = radiator) 37°C~60°C - Else: 37°C~55°C
[2.8.3]	[9-03]	Cooling minimum: 5°C~18°C
[2.8.4]	[9-02]	Cooling maximum: 18°C~22°C

Control

Define how the operation of the unit is controlled.

Control	In this control...
Leaving water	Unit operation is decided based on the leaving water temperature regardless the actual room temperature and/or heating or cooling demand of the room.
External room thermostat	Unit operation is decided by the external thermostat or equivalent (e.g. heat pump convector).
Room thermostat	Unit operation is decided based on the ambient temperature of the dedicated Human Comfort Interface (BRC1HHDA used as room thermostat).

#	Code	Description
[2.9]	[C-07]	0: Leaving water 1: External room thermostat 2: Room thermostat

Ext thermostat type

Only applicable in external room thermostat control.



NOTICE

If an external room thermostat is used, the external room thermostat will control the room frost protection. However, the room frost protection is only possible if [C.2] Space heating/cooling=0n.

#	Code	Description
[2.A]	[C-05]	External room thermostat type for the main zone: 1: 1 contact: The used external room thermostat can only send a thermo ON/OFF condition. There is no separation between heating or cooling demand. The room thermostat is connected to only 1 digital input (X2M/35). Select this value in case of a connection to the heat pump convector (FWXV). 2: 2 contacts: The used external room thermostat can send a separate heating/cooling thermo ON/OFF condition. The room thermostat is connected to 2 digital inputs (X2M/35 and X2M/34). Select this value in case of connection to multi-zoning wired controls (see "5.2.2 Possible options for the indoor unit" [► 23]), wired room thermostats (EKRTWA) or wireless room thermostats (EKTRTB).

Leaving water temperature: Delta T

In heating for the main zone, the target delta T (temperature difference) depends on the selected emitter type for the main zone.

Delta T is the absolute value of the temperature difference between the leaving water and entering water.

The unit is designed to support underfloor loops operation. The recommended leaving water temperature for underfloor loops is 35°C. In such case, the unit will realize a temperature difference of 5°C, which means that the entering water temperature is around 30°C.

Depending on the installed type of heat emitters (radiators, heat pump convector, underfloor loops) or situation, you can change the difference between entering and leaving water temperature.

Note: The pump will regulate its flow to keep the delta T. In some special cases, the measured delta T can differ from the set value.



INFORMATION

When only the backup heater is active in heating, delta T will be controlled according to the fixed capacity of the backup heater. It is possible that this delta T is different from the selected target delta T.



INFORMATION

In heating, the target delta T will only be achieved after some operation time, when the setpoint is being reached, because of the big difference between leaving water temperature setpoint and inlet temperature at startup.



INFORMATION

If the main zone is equipped with radiators, then the target delta T that the unit will use in heating operation will be 10°C fixed.

#	Code	Description
[2.B.1]	[1-0B]	Delta T heating: A minimum temperature difference is required for proper operation of heat emitters in heating mode. ▪ If [2-0C]=2, this is fixed to 8°C ▪ Else: 3°C~10°C
[2.B.2]	[1-0D]	Delta T cooling: A minimum temperature difference is required for proper operation of heat emitters in cooling mode. ▪ 3°C~10°C

Leaving water temperature: Modulation

Only applicable in case of room thermostat control.

When using the room thermostat functionality, the customer needs to set the desired room temperature. The unit will supply hot water to the heat emitters and the room will be heated.

Additionally, also the desired leaving water temperature must be configured: if **Modulation** is enabled, the unit automatically calculates the desired leaving water temperature. These calculations are based on:

- the preset temperatures, or
- the desired weather-dependent temperatures (if weather-dependent is enabled)

Moreover, with **Modulation** enabled, the desired leaving water temperature is lowered or raised in function of the desired room temperature and the difference between the actual and the desired room temperature. This results in:

- stable room temperatures, exactly matching the desired temperature (higher comfort level)
- less on/off cycles (lower noise level, higher comfort and higher efficiency)
- water temperatures as low as possible to match the desired temperature (higher efficiency)

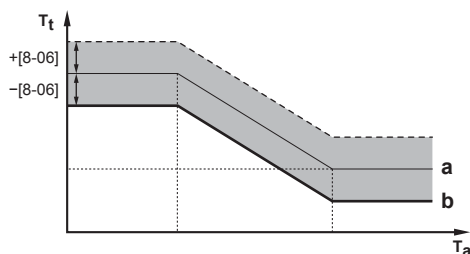
If **Modulation** is disabled, set the desired leaving water temperature via [2] **Main zone**.

#	Code	Description
[2.C.1]	[8-05]	Modulation: ▪ 0 No (disabled) ▪ 1 Yes (enabled) Note: The desired leaving water temperature can only be read out on the user interface.
[2.C.2]	[8-06]	Max modulation: ▪ 0°C~10°C This is the temperature value by which the desired leaving water temperature is increased or decreased.



INFORMATION

When leaving water temperature modulation is enabled, the weather-dependent curve needs to be set to a higher position than [8-06] plus the minimum leaving water temperature setpoint required to reach a stable condition on the comfort setpoint for the room. To increase efficiency, modulation can lower the leaving water setpoint. By setting the weather-dependent curve to a higher position, it cannot drop below the minimum setpoint. See the illustration below.



- a** Weather-dependent curve
- b** Minimum leaving water temperature setpoint required to reach a stable condition on the comfort setpoint for the room.

WD curve type

The weather-dependent curve can be defined using the **2-points** method or the **Slope-Offset** method.

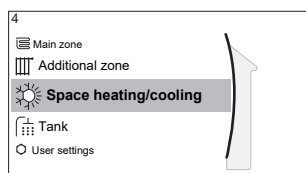
See ["10.5.3 2-points curve"](#) [▶ 104] and ["10.5.2 Slope-offset curve"](#) [▶ 103].

#	Code	Description
[2.E]	N/A	▪ 2-points ▪ Slope-Offset

10.6.4 Space heating/cooling

Overview

The following items are listed in the submenu:



[4] Space heating/cooling

- [4.1] Operation mode
- [4.2] Operation mode schedule
- [4.3] Operation range
- [4.5] Pump operation mode
- [4.6] Unit type
- [4.7] or [4.8] Pump limitation
- [4.9] Pump outside range
- [4.A] Increase around 0°C
- [4.B] Overshoot
- [4.C] Antifrost

**INFORMATION**

- Simultaneous space cooling and heating is not possible.
- When a connected air conditioner is operating in cooling mode, space heating and domestic hot water operation may be temporarily unavailable.
- When a connected air conditioner is operating in heating mode, space cooling operation is not possible.
- When the requested operation becomes available again, the unit will automatically resume operation.

About space operation modes

Your unit can be a heating or a heating/cooling model if the mixing kit is added:

- If your unit is a heating model, it can heat up a space.
- If your unit is a heating/cooling model, it can both heat up and cool down a space. You have to tell the system which operation mode to use.

To determine if a heating/cooling heat pump model is installed

1	Go to [4]: Space heating/cooling .	
2	Check if [4.1] Operation mode is listed and editable. If so, a heating/cooling heat pump model is installed.	

To tell the system which space operation to use, you can:

You can...	Location
Check which space operation mode is currently used.	Home screen
Set the space operation mode permanently.	Main menu
Restrict automatic changeover according to a monthly schedule.	

To check which space operation mode is currently used

The space operation mode is displayed on the home screen:

- When the unit is in heating mode, the icon is shown.
- When the unit is in cooling mode, the icon is shown.

The status indicator shows if the unit is currently in operation:

- When the unit is not in operation, the status indicator will show a blue pulsation with an interval of approximately 5 seconds.
- While the unit is in operation, the status indicator will light up blue constantly.

To set the space operation mode

1	Go to [4.1]: Space heating/cooling > Operation mode	
2	Select one of the following options: ▪ Heating: Only heating mode ▪ Cooling: Only cooling mode ▪ Automatic: The operation mode changes automatically between heating and cooling based on the outdoor temperature. Restricted per month according to the Operation mode schedule [4.2].	

When **Automatic** is selected, the unit switches its operation mode, based on the **Operation mode schedule** [4.2]. In this schedule, the end user indicates which operation is allowed for each month.

To restrict automatic changeover according to a schedule

Conditions: You set the space operation mode to **Automatic**.

1	Go to [4.2]: Space heating/cooling > Operation mode schedule .	
2	Select a month.	
3	For each month, select an option: ▪ Reversible: Not restricted ▪ Heating only: Restricted ▪ Cooling only: Restricted	
4	Confirm the changes.	

Example: Changeover restrictions

When	Restriction
During cold season. Example: October, November, December, January, February and March.	Heating only
During warm season. Example: June, July and August.	Cooling only
In-between. Example: April, May and September.	Reversible

The unit determines its operation mode by the outdoor temperature if:

- **Operation mode=Automatic**, and
- **Operation mode schedule=Reversible**.

The unit determines its operation mode in such a way that it will always stay within the following operation ranges:

- **Space heating off temperature**
- **Space cooling off temperature**

The outdoor temperature is time-averaged. If the outdoor temperature drops, the operation mode will switch to heating and vice versa.

If the outdoor temperature is between the **Space heating off temperature** and the **Space cooling off temperature**, the operation mode remains unchanged.

Operation range

Depending on the average outdoor temperature, the operation of the unit in space heating or space cooling is prohibited.

#	Code	Description
[4.3.1]	[4-02]	Space heating off temperature: When the averaged outdoor temperature rises above this value, space heating is turned off. ^(a) ▪ 14°C~35°C
[4.3.2]	[F-01]	Space cooling off temperature: When the averaged outdoor temperature drops below this value, space cooling is turned off. ^(a) ▪ 10°C~35°C

^(a) This setting is also used in automatic heating/cooling changeover.

Exception: If the system is configured in room thermostat control with one leaving water temperature zone and quick heat emitters, the operation mode will change based on the measured indoor temperature. Besides the desired heating/cooling room temperature, the installer sets a hysteresis value (e.g. when in heating, this value is related to the desired cooling temperature) and an offset value (e.g. when in heating, this value is related to the desired heating temperature).

Example: A unit is configured as following:

- Desired room temperature in heating mode: 22°C
- Desired room temperature in cooling mode: 24°C
- Hysteresis value: 1°C
- Offset: 4°C

Changeover from heating to cooling will occur when the room temperature rises above the maximum of the desired cooling temperature added by the hysteresis value (thus $24+1=25^{\circ}\text{C}$) and the desired heating temperature added by the offset value (thus $22+4=26^{\circ}\text{C}$).

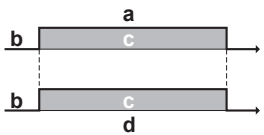
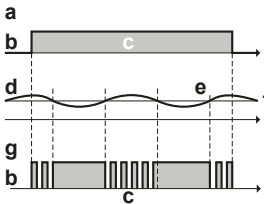
Oppositely, changeover from cooling to heating will occur when the room temperature drops below the minimum of the desired heating temperature subtracted by the hysteresis value (thus $22-1=21^{\circ}\text{C}$) and the desired cooling temperature subtracted by the offset value (thus $24-4=20^{\circ}\text{C}$).

Guard timer to prevent too frequent changing from heating to cooling and vice versa.

#	Code	Description
Changeover settings related to the indoor temperature. Only applicable when Automatic is selected and the system is configured in room thermostat control with 1 leaving water temperature zone and quick heat emitters.		
N/A	[4-0B]	Hysteresis: ensures that changeover is only done when necessary. The space operation only changes from heating to cooling when the room temperature rises above the desired cooling temperature added by the hysteresis value. ▪ Range: 1°C~10°C
N/A	[4-0D]	Offset: ensures that the active desired room temperature is always reached. In heating mode, the space operation only changes when the room temperature rises above the desired heating temperature added by the offset value. ▪ Range: 1°C~10°C

Pump operation mode

When the space heating/cooling operation is OFF, the pump is always OFF. When space heating/cooling operation is ON, you have the choice between these operation modes:

#	Code	Description
[4.5]	[F-0D]	Pump operation mode: 0 Continuous: Continuous pump operation, regardless of thermo ON or OFF condition. Remark: Continuous pump operation requires more energy than sample or request pump operation.  a Space heating/cooling control b Off c On d Pump operation
[4.5]	[F-0D]	1 Sample: The pump is ON when there is heating or cooling demand as the leaving water temperature has not yet reached the desired temperature yet. When thermo OFF condition occurs, the pump runs every 3 minutes to check the water temperature and demand heating or cooling if necessary. Remark: Sample is ONLY available in leaving water temperature control.  a Space heating/cooling control b Off c On d LWT temperature e Actual f Desired g Pump operation

#	Code	Description
[4.5]	[F-0D]	2 Request: Pump operation based on request. Example: Using a room thermostat and thermostat creates thermo ON/OFF condition. Remark: NOT available in leaving water temperature control. a Space heating/cooling control b Off c On d Heating demand (by external room thermostat or room thermostat) e Pump operation

Unit type

In this part of the menu it can be read out which type of unit is used:

#	Code	Description
[4.6]	[E-02]	Unit type: 0 Reversible 1 Heating only

Pump limitation

The pump speed limitation defines the maximum pump speed. In normal conditions, the default setting should NOT be modified. The pump speed limitation will be overruled when the flow rate is in the range of the minimum flow (error 7H).

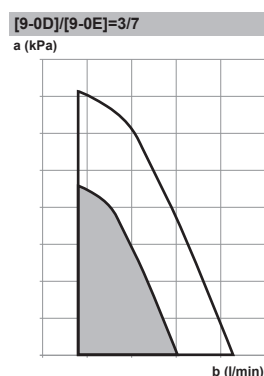
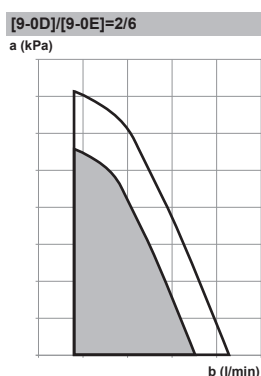
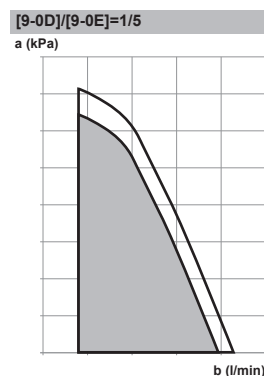
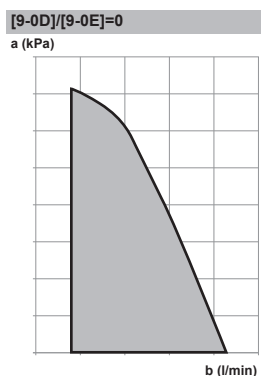
In most cases, instead of using [9-0D]/[9-0E], you can prevent flow noises by performing hydraulic balancing.

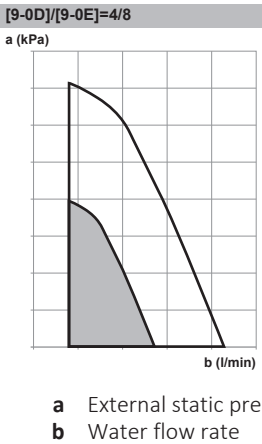
#	Code	Description
[4.7]	[9-0D]	Restriction: Only displayed when the bizon kit (EKMIKPOA or EKMIKPHA) is NOT installed. Pump limitation Possible values: see below.
[4.8.1]	[9-0E]	Restriction: Only displayed when the bizon kit (EKMIKPOA or EKMIKPHA) is installed. Pump limitation Mixed zone Possible values: see below.
[4.8.2]	[9-0D]	Restriction: Only displayed when the bizon kit (EKMIKPOA or EKMIKPHA) is installed. Pump limitation Unit Possible values: see below.

Possible values:

Value	Description
0	No limitation
1~4	General limitation. There is limitation in all conditions. The required delta T control and comfort are NOT guaranteed. 1: 90% pump speed 2: 80% pump speed 3: 70% pump speed 4: 60% pump speed
5~8	Limitation when no actuators. When there is no heating output, the pump speed limitation is applicable. When there is heating output, the pump speed is only determined by delta T in relation to the required capacity. With this limitation range, delta T is possible and the comfort is guaranteed. During sampling operation the pump runs for a short time to measure the water temperatures, which indicate if operation is required or not. 5: 90% pump speed during sampling 6: 80% pump speed during sampling 7: 70% pump speed during sampling 8: 60% pump speed during sampling

The maximum values depend on the unit type:





Pump outside range

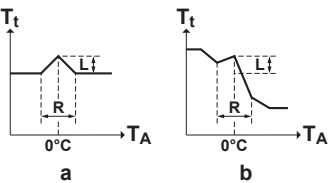
When the pump operation function is disabled the pump will stop if the outdoor temperature is higher than the value set by the **Space heating off temperature** [4-02] or if the outdoor temperature drops below the value set by the **Space cooling off temperature** [F-01]. When the pump operation is enabled, the pump operation is possible at all outdoor temperatures.

#	Code	Description
[4.9]	[F-00]	Pump operation: 0 Restricted: Disabled if outdoor temperature is higher than [4-02] or lower than [F-01] depending on heating/cooling operation mode. 1 Allowed: Possible at all outdoor temperatures.

Increase around 0°C

Use this setting to compensate for possible heat losses of the building due to the evaporation of melted ice or snow. (e.g. in cold region countries).

In heating operation, the desired leaving water temperature is locally increased around an outdoor temperature of 0°C. This compensation can be selected when using an absolute or a weather dependent desired temperature (see illustration below).



- a Absolute desired LWT
b Weather dependent desired LWT
 T_t Target leaving water temperature
 T_A Outdoor ambient temperature
L Increase
R Span

#	Code	Description
[4.A]	[D-03]	Increase around 0°C: ▪ 0: No ▪ 1: increase 2°C, span 4°C ▪ 2: increase 4°C, span 4°C ▪ 3: increase 2°C, span 8°C ▪ 4: increase 4°C, span 8°C

Overshoot

Restriction: This function is only applicable in heating mode.

This function defines how much the water temperature may rise above the desired leaving water temperature before the compressor stops. The compressor will start up again when the leaving water temperature drops below the desired leaving water temperature.

#	Code	Description
[4.B]	[9-04]	Overshoot: ▪ 1°C~4°C

Undershoot

Restriction: This function is only applicable in cooling mode during compressor startup. It is NOT applicable for stable operation.

This function defines how much the water temperature may drop below the desired leaving water temperature before the compressor stops. The compressor will start up again when the leaving water temperature rises above the desired leaving water temperature.

#	Code	Description
N/A	[9-09]	Undershoot: ▪ 1°C~18°C

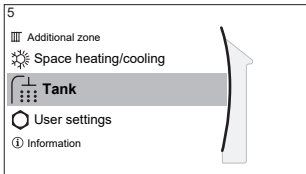
Antifrost

Antifrost [1.4] or [4.C] prevents the room from getting too cold. For more information about room frost protection, see "[10.6.2 Room](#)" [▶ 107].

10.6.5 Tank

Overview

The following items are listed in the submenu:



[5] Tank

- [5] Tank
 - [5.1] Powerful operation
 - [5.2] Comfort setpoint
 - [5.3] Eco setpoint
 - [5.4] Reheat setpoint
 - [5.5] Schedule
 - [5.6] Heat up mode
 - [5.7] Disinfection
 - [5.8] Maximum
 - [5.9] Hysteresis
 - [5.A] Hysteresis
 - [5.B] Setpoint mode
 - [5.C] WD curve
 - [5.D] Margin
 - [5.E] WD curve type
 - [5.F] Priority schedule
 - [5.G] Operation mode
 - [5.H] Quick mode timer



INFORMATION

To make tank defrost possible, we recommend a minimum tank temperature of 35°C.

Tank setpoint screen

You can set the domestic hot water temperature using the setpoint screen. For more information about how to do this, see "10.3.5 Setpoint screen" [▶ 93].

Powerful operation

You can use powerful operation to immediately start heating up the water to the preset value (Storage comfort). However, this consumes extra energy. If powerful operation is active,  will be shown on the home screen.

To activate powerful operation

Activate or deactivate **Powerful operation** as follows:

1	Go to [5.1]: Tank > Powerful operation	
2	Turn powerful operation Off or On .	

Usage example: You immediately need more hot water

If you are in the following situation:

- You already consumed most of your hot water.
- You cannot wait for the next scheduled action to heat up the DHW tank.

Then you can activate DHW powerful operation.

Advantage: The DHW tank immediately starts heating up the water to the preset value (Storage comfort).

Comfort setpoint

Only applicable when domestic hot water preparation is **Schedule only** or **Schedule + reheat**. When programming the schedule, you can make use of the comfort setpoint as a preset value. When you later want to change the storage setpoint, you only have to do it in one place.

The tank will heat up until the **storage comfort temperature** has been reached. It is the higher desired temperature when a storage comfort action is scheduled.

Additionally, a storage stop can be programmed. This feature puts a stop to tank heating even if the setpoint has NOT been reached. Only program a storage stop when tank heating is absolutely undesirable.

#	Code	Description
[5.2]	[6-0A]	Comfort setpoint: ▪ 30°C~[6-0E]°C

Eco setpoint

The **storage economic temperature** denotes the lower desired tank temperature. It is the desired temperature when a storage economic action is scheduled (preferably during day).

#	Code	Description
[5.3]	[6-0B]	Eco setpoint: ▪ 30°C~min(50,[6-0E])°C

Reheat setpoint

Desired reheat tank temperature, used:

- in **Schedule + reheat** mode, during reheat mode: the guaranteed minimum tank temperature is set by the **Reheat setpoint** minus the reheat hysteresis. If the tank temperature drops below this value, the tank is heated up.
- during storage comfort, to prioritize the domestic hot water preparation. When the tank temperature rises above this value, domestic hot water preparation and space heating/cooling are executed sequentially.

#	Code	Description
[5.4]	[6-0C]	Reheat setpoint: ▪ 30°C~min(50,[6-0E])°C

Schedule

You can set the tank temperature schedule using the schedule screen. For more information about this screen, see ["10.4.3 Schedule screen: Example"](#) ► 98].

Heat up mode

The domestic hot water can be prepared in 3 different ways. They differ from each other by the way the desired tank temperature is set and how the unit acts upon it.

#	Code	Description
[5.6]	[6-0D]	Heat up mode: 0: Reheat only: Only reheat operation is allowed. 1: Schedule + reheat: The domestic hot water tank is heated according to a schedule and between the scheduled heat up cycles, reheat operation is allowed. 2: Schedule only: The domestic hot water tank can ONLY be heated according to a schedule.

See the operation manual for more details.

Disinfection

Applies only to installations with a domestic hot water tank.

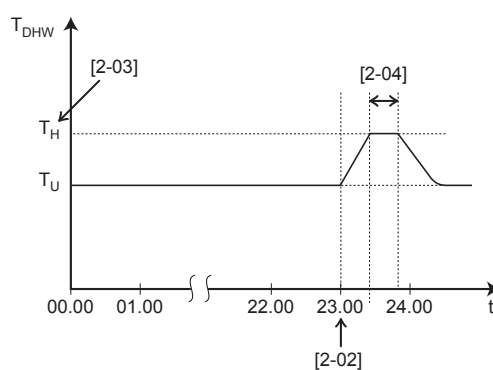
The disinfection function disinfects the domestic hot water tank by periodically heating the domestic hot water to a specific temperature.



CAUTION

The disinfection function settings MUST be configured by the installer according to the applicable legislation.

#	Code	Description
[5.7.1]	[2-01]	Activation: 0: No 1: Yes
[5.7.2]	[2-00]	Operation day: 0: Every day 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday 7: Sunday
[5.7.3]	[2-02]	Start time
[5.7.4]	[2-03]	Tank setpoint: 60°C
[5.7.5]	[2-04]	Duration: 40~60 minutes



T_{DHW} Domestic hot water temperature
 T_U User setpoint temperature
 T_H High setpoint temperature [2-03]
 t Time



WARNING

Be aware that the domestic hot water temperature at the hot water tap will be equal to the value selected in field setting [2-03] after a disinfection operation.

When the high domestic hot water temperature can be a potential risk for human injuries, a mixing valve (field supply) shall be installed at the hot water outlet connection of the domestic hot water tank. This mixing valve shall secure that the hot water temperature at the hot water tap never rise above a set maximum value. This maximum allowable hot water temperature shall be selected according to the applicable legislation.



CAUTION

Make sure that the disinfection function start time [5.7.3] with defined duration [5.7.5] is NOT interrupted by possible domestic hot water demand.



NOTICE

Disinfection mode. Even if you turn OFF tank heating operation ([C.3]: **Operation** > **Tank**), disinfection mode will remain active. However, if you turn it OFF while disinfection is running, an AH error occurs.



INFORMATION

In case of error code AH and no interruption of the disinfection function occurred due to domestic hot water tapping, following actions are recommended:

- When the **Reheat only** or **Schedule + reheat** mode is selected, it is recommended to program the start-up of the disinfection function at least 4 hours later than the last expected large hot water tapping. This start-up can be set by installer settings (disinfection function).
- When the **Schedule only** mode is selected, it is recommended to program an **Eco** action 3 hours before the scheduled start-up of the disinfection function to preheat the tank.



INFORMATION

Disinfection function is restarted in case the domestic hot water temperature drops 5°C below the disinfection target temperature within the duration time.



INFORMATION

During normal operation, the backup heater is used to raise the domestic hot water temperature to the disinfection setpoint. This can temporarily result in higher electricity consumption.

**INFORMATION**

During the tank disinfection cycle, if A/C Priority and DX Cooling operation are active, water heating is carried out by the backup heater instead of the heat pump. This can result in increased electricity consumption during the disinfection cycle.

Maximum DHW temperature setpoint

The maximum temperature that users can select for the domestic hot water. You can use this setting to limit the temperatures at the hot water taps.

**INFORMATION**

During disinfection of the domestic hot water tank, the DHW temperature can exceed this maximum temperature.

**INFORMATION**

Limit the maximum hot water temperature according to the applicable legislation.

#	Code	Description
[5.8]	[6-0E]	Maximum: The maximum temperature that users can select for the domestic hot water. You can use this setting to limit the temperature at the hot water taps. The maximum temperature is NOT applicable during disinfection function. See disinfection function.

Hysteresis (heat pump ON hysteresis)

Applicable when domestic hot water preparation is reheat only. When the tank temperature drops below the reheat temperature minus the heat pump ON hysteresis temperature, the tank heats up to the reheat temperature.

The minimum ON temperature is 20°C, even if setpoint hysteresis is smaller than 20°C.

#	Code	Description
[5.9]	[6-00]	Heat pump ON hysteresis ■ 2°C~40°C

Hysteresis (reheat hysteresis)

Applicable when domestic hot water preparation is scheduled+reheat. When the tank temperature drops below the reheat temperature minus the reheat hysteresis temperature, the tank heats up to the reheat temperature.

#	Code	Description
[5.A]	[6-08]	Reheat hysteresis ■ 2°C~20°C

Setpoint mode

#	Code	Description
[5.B]	N/A	Setpoint mode: - Fixed - Weather dependent

WD curve

When weather-dependent operation is active the desired tank temperature is determined automatically depending on the averaged outdoor temperature: low outdoor temperatures will result in higher desired tank temperatures as the cold water tap is colder and vice versa.

In case of **Schedule only** or **Schedule + reheat** domestic hot water preparation, the storage comfort temperature is weather-dependent (according to the weather-dependent curve), the storage economic and reheat temperature are NOT weather-dependent.

In case of **Reheat only** domestic hot water preparation, the desired tank temperature is weather-dependent (according to the weather-dependent curve). During weather-dependent operation, the end-user cannot adjust the desired tank temperature on the user interface. Also see "[10.5 Weather-dependent curve](#)" [▶ 102].

#	Code	Description
[5.C]	[0-0E] [0-0D] [0-0C] [0-0B]	WD curve: Note: There are 2 methods to set the weather dependent curve. See "10.5.3 2-points curve" [▶ 104] and "10.5.2 Slope-offset curve" [▶ 103] for more information about the different curve types. Both curve types require 4 field settings to be configured according to the figure below. ▪ T_{DHW}: The desired tank temperature. ▪ T_a: The (averaged) outdoor ambient temperature ▪ [0-0E]: low outdoor ambient temperature: $-40^{\circ}\text{C} \sim 5^{\circ}\text{C}$ ▪ [0-0D]: high outdoor ambient temperature: $10^{\circ}\text{C} \sim 25^{\circ}\text{C}$ ▪ [0-0C]: desired tank temperature when the outdoor temperature equals or drops below the low ambient temperature: $45^{\circ}\text{C} \sim [6-0E]^{\circ}\text{C}$ ▪ [0-0B]: desired tank temperature when the outdoor temperature equals or rises above the high ambient temperature: $35^{\circ}\text{C} \sim [6-0E]^{\circ}\text{C}$

WD curve type

There are 2 methods to define the weather-dependent curves:

- **2-points** (see "10.5.3 2-points curve" [▶ 104])
- **Slope-Offset** (see "10.5.2 Slope-offset curve" [▶ 103])

In [2.E] **WD curve type**, you can choose which method you want to use.

In [5.E] **WD curve type**, the chosen method is shown read-only (same value as in [2.E]).

#	Code	Description
[2.E] / [5.E]	N/A	▪ 0: 2-points ▪ 1: Slope-Offset

Priority Schedule

In case multiple indoor units (e.g. 1 Tank, 1 Air conditioning) This setting selects the operation that should be prioritized (can be set for each month) by the outdoor unit: Domestic hot water (DHW) or Air conditioning (A/C). Depending on the selected priority, the outdoor unit can either decide to handle both operation together (not possible if A/C is requesting cooling operation) or performing only one of the requested operation.

#	Code	Description
[5.F]	[A-00]	Priority schedule: ▪ 0: DHW ▪ 1: A/C

If DHW and A/C requests happen at the same time, the possible outcomes based on scheduled Priority settings are as follow⁽¹⁾:

If ...			The heat pump operation = ...
Which is priority?	A/C request is ...	Can outdoor unit do both? ^(a)	
DHW	Cooling	-	DHW, while A/C is put on hold
	Heating	Yes	DHW and A/C together
		No	DHW, while A/C is put on hold
A/C	Cooling	-	A/C, while DHW is by backup heater
	Heating	Yes	DHW and A/C together
		No	A/C, while DHW is by backup heater

^(a) Decided by outdoor unit.

Operation mode and Quick mode timer

During Domestic hot water (DHW) production, the backup heater allowance⁽²⁾ can be selected/limited as follows:

⁽¹⁾ *applicable when outdoor ambient temperature and tank target temperature are within operation range of outdoor unit

⁽²⁾ When ambient temperature and/or target temperature is outside the operation range of outdoor unit, backup heater is also allowed to operate. Refer to the operation range chart of the outdoor unit for more information.

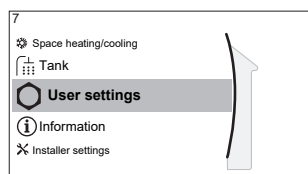
#	Code	Description
[5.G]	[A-01]	Priority schedule: 0: Efficient: Backup heater is prohibited^(a), except when outdoor unit is unable to do DHW (see Priority schedule) 1: Quick: Backup heater is allowed to assist heat pump during DHW production
[5.H]	[8-03]	When Quick is selected, the backup heater can start to assist the heat pump operation after a delay time. The delay time depends on the selected Quick mode timer : Turbo (10 minutes) Normal (20 minutes) Economic (30 minutes)

^(a) When tank disinfection is performed with **Efficient** mode, the backup heater can still start after 20 minutes to assist the heat pump.

10.6.6 User settings

Overview

The following items are listed in the submenu:



[7] User settings

[7.1] Language

[7.2] Time/date

[7.3] Holiday

[7.4] Quiet

Language

#	Code	Description
[7.1]	N/A	Language

Time/date

#	Code	Description
[7.2]	N/A	Set the local time and date



INFORMATION

By default, daylight savings time is enabled and clock format is set to 24 hours. These settings can be changed during initial configuration or via the menu structure [7.2]: **User settings > Time/date**.

Holiday

About holiday mode

During your holiday, you can use the holiday mode to deviate from your normal schedules without having to change them. While holiday mode is active, space heating/cooling operation and domestic hot water operation will be turned off. Room frost protection and disinfection operation will remain active.

Typical workflow

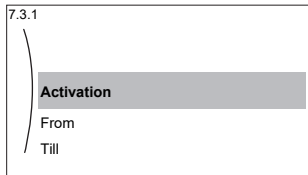
Using holiday mode typically consists of the following stages:

- 1 Activating the holiday mode.
- 2 Setting the starting date and ending date of your holiday.

To check if holiday mode is activated and/or running

If  is displayed on the home screen, holiday mode is active.

To configure the holiday

1	Activate the holiday mode.	—
	Go to [7.3.1]: User settings > Holiday > Activation. 	
	Select On.	
2	Set the first day of your holiday.	—
	Go to [7.3.2]: From.	
	Select a date.	 
	Confirm the changes.	
3	Set the last day of your holiday.	—
	Go to [7.3.3]: Till.	
	Select a date.	 
	Confirm the changes.	

Quiet

About quiet mode

You can use quiet mode to decrease the sound of the outdoor unit. However, this also decreases the heating/cooling capacity of the system. There are multiple quiet mode levels.

The installer can:

- Completely deactivate quiet mode
- Manually activate a quiet mode level
- Enable the user to program a quiet mode schedule
- Configure restrictions based on local regulations

If enabled by the installer, the user can program a quiet mode schedule.



INFORMATION

If the outdoor temperature is below zero, we recommend to NOT use the most quiet level.

To check if quiet mode is active

If  is displayed on the home screen, quiet mode is active.

To use quiet mode

1	Go to [7.4.1]: User settings > Quiet > Mode.	
2	Do one of the following:	—

If you want to...	Then...	
Completely deactivate quiet mode	Select Off . Result: The unit never runs in quiet mode. The user cannot change this.	
Manually activate a quiet mode level	Select Manual .	
	Go to [7.4.3] Level and select the applicable quiet mode level (only 'More quiet' or 'Most quiet' are applicable for this model). Example: Most quiet. Result: The unit always runs in the selected quiet mode level. The user cannot change this.	
- Enable the user to program a quiet mode schedule, AND/OR - Configure restrictions based on local regulations	Select Automatic . Result: - The user (or you) can program the schedule in [7.4.2] Schedule. For more information about scheduling, see "10.4.3 Schedule screen: Example" [▶ 98]. - You can configure restrictions in [7.4.4] Restrictions. See below. - The possible outcomes for the quiet mode differ depending on the schedule (if programmed) and the restrictions (if enabled/defined). See below.	

To configure restrictions

1	Enable the restrictions. Go to [7.4.4.1]: User settings > Quiet > Restrictions > Enable and select Yes .	
2	Define the restrictions (time + level) to be used before midday (AM): [7.4.4.2] AM Restricted time Example: From 9 a.m. to 11 a.m. [7.4.4.3] AM Restricted level Example: More quiet	

3	Define the restrictions (time + level) to be used after midday (PM): [7.4.4.4] PM Restricted time Example: From 3 p.m. to 7 p.m. [7.4.4.5] PM Restricted level Example: Most quiet	
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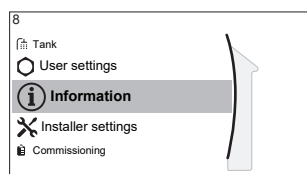
Possible outcomes when quiet mode is set to Automatic

If...			Then quiet mode =...
Restrictions enabled?	Restrictions (time + level) defined?	Schedule programmed?	
No	N/A	No	OFF
		Yes	Follows schedule
Yes	No	No	OFF
		Yes	Follows schedule
	Yes	No	Follows restriction
		Yes	During restricted time: If restricted level is stricter than scheduled level, then follows restriction. Else, follows schedule. Outside restricted time: Follows schedule.

10.6.7 Information

Overview

The following items are listed in the submenu:



[8] Information

- [8.1] Energy data
- [8.2] Malfunction history
- [8.3] Dealer information
- [8.4] Sensors
- [8.5] Actuators
- [8.6] Operation modes
- [8.7] About
- [8.8] Connection status
- [8.9] Running hours
- [8.A] Reset

Dealer information

The installer can fill in his contact number here.

#	Code	Description
[8.3]	N/A	Number that users can call in case of problems.

Reset

Reset the configuration settings stored in the MMI (user interface of the indoor unit).

Example: Energy meterings, holiday settings.

**INFORMATION**

This does not reset the configuration settings and field settings of the indoor unit.

#	Code	Description
[8.A]	N/A	Reset the MMI EEPROM to factory default

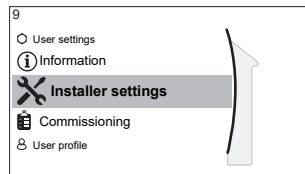
Possible read-out information

In menu...	You can read out...
[8.1] Energy data	Produced energy and consumed electricity
[8.2] Malfunction history	Malfunction history
[8.3] Dealer information	Contact/helpdesk number
[8.4] Sensors	Room temperature, outside temperature, leaving water temperature,...
[8.5] Actuators	Status/mode of each actuator Example: Unit pump ON/OFF
[8.6] Operation modes	Current operation mode Example: Defrost/oil return mode
[8.7] About	Version information about the system
[8.8] Connection status	Information about the connection status of the unit, the room thermostat and WLAN
[8.9] Running hours	Running hours of specific system components

10.6.8 Installer settings

Overview

The following items are listed in the submenu:



[9] Installer settings

- [9.1] Configuration wizard
- [9.2] Domestic hot water
- [9.3] Backup heater
- [9.5] Emergency
- [9.6] Balancing
- [9.7] Water pipe freeze prevention
- [9.A] Energy metering
- [9.B] Sensors
- [9.D] Alarm output
- [9.E] Auto restart
- [9.F] Power saving function
- [9.G] Disable protections
- [9.I] Overview field settings
- [9.N] Export MMI settings
- [9.P] Bizon kit
- [9.Q] Daikin HomeHub
- [9.S] Secondary pump

Configuration wizard

After first power ON of the system, the user interface will guide you using the configuration wizard. This way you can set the most important initial settings. This way the unit will be able to run properly. Afterwards, more detailed settings can be done via the menu structure if required.

To restart the configuration wizard, go to **Installer settings > Configuration wizard [9.1]**.

Domestic hot water

Domestic hot water

The tank type is displayed, but cannot be adjusted.

DHW pump

#	Code	Description
[9.2.2]	[D-02]	DHW pump: ▪ 0: No DHW pump: NOT installed ▪ 1: Instant hot water: Installed for instant hot water when water is tapped. The user sets the operation timing of the domestic hot water pump using the schedule. Control of this pump is possible with the user interface. ▪ 2: Disinfection: Installed for disinfection. It runs when the disinfection function of the domestic hot water tank is running. No further settings are needed.

See also:

- ["6.3.4 DHW pump for instant hot water" \[▶ 32\]](#)

- "6.3.5 DHW pump for disinfection" [► 33]

DHW pump schedule

Program a schedule for the DHW pump **(only for field supplied domestic hot water pump for secondary return)**.

Program a domestic hot water pump schedule to determine when to turn on and off the pump.

When turned on, the pump runs and makes sure hot water is instantly available at the tap. To save energy, only turn on the pump during periods of the day when instant hot water is necessary.

Backup heater

Besides the type of backup heater, the voltage, configuration and capacity must be set on the user interface.

The capacities for the different steps of the backup heater must be set for the energy metering and/or power consumption feature to work properly. When measuring the resistance value of each heater, you can set the exact heater capacity and this will lead to more accurate energy data.

Backup heater type

The backup heater is adapted to be connected to most common European electricity grids. The type of backup heater can be viewed but not changed.

#	Code	Description
[9.3.1]	[E-03]	▪ 3: 4.5V ▪ 4: 9W

Voltage

- For 4.5V model, this can be set to:
 - 230V, 1ph
 - 230V, 3ph
- For a 9W model, this is fixed to 400V, 3ph.

#	Code	Description
[9.3.2]	[5-0D]	▪ 0: 230V, 1ph ▪ 1: 230V, 3ph ▪ 2: 400V, 3ph

Configuration

The backup heater can be configured in different ways. It can be chosen to have a 1-step only backup heater or a backup heater with 2 steps. If 2 steps, the capacity of the second step depends on this setting. It can also be chosen to have a higher capacity of the second step in emergency.

#	Code	Description
[9.3.3]	[4-0A]	▪ 0: Relay 1 ▪ 1: Relay 1 / Relay 1+2 ▪ 2: Relay 1 / Relay 2 ▪ 3: Relay 1 / Relay 2 Emergency Relay 1+2

**INFORMATION**

Settings [9.3.3] and [9.3.5] are linked. Changing one setting influences the other. If you change one, check if the other is still as expected.

**INFORMATION**

During normal operation, e.g. when [4-0A]=1, the capacity of the second step of the backup heater at nominal voltage is equal to [6-03]+[6-04].

**INFORMATION**

If [4-0A]=3 and emergency mode is active, the power usage of the second step of the backup heater at nominal voltage is equal to [6-03]+[6-04].

**INFORMATION**

Only for systems with integrated domestic hot water tank: If the storage temperature setpoint is higher than 50°C, Daikin recommends NOT to disable the backup heater second step because it will have a big impact on the required time for the unit to heat up the domestic hot water tank.

Capacity step 1

#	Code	Description
[9.3.4]	[6-03]	The capacity of the first element (Relay 1) of the backup heater at nominal voltage.

Additional capacity step 2

#	Code	Description
[9.3.5]	[6-04]	The capacity of the second element (Relay 2) of the backup heater at nominal voltage.

Equilibrium

#	Code	Description
[9.3.6]	[5-00]	Equilibrium: Deactivate backup heater (or external backup heat source in case of a bivalent system) above the equilibrium temperature for space heating? 0: No 1: Yes
[9.3.7]	[5-01]	Equilibrium temperature: Outdoor temperature below which operation of the backup heater (or external backup heat source in case of a bivalent system) is allowed. Range: -15°C~35°C

**INFORMATION**

Applicable if [5-00]=1:

Above 10°C ambient temperature, the heat pump will operate until 55°C. Configuring a higher setpoint with an ambient temperature that is higher than the set equilibrium temperature will prevent the backup heater from assisting. The backup heater will ONLY assist if you increase the equilibrium temperature [5-01] to the required ambient temperature you need to reach the higher setpoint.

Operation

#	Code	Description
[9.3.8]	[4-00]	Backup heater: 0: Restricted: Backup heater operation is disabled. 1: Allowed: Backup heater operation is enabled. 2: Only DHW: Backup heater operation is enabled for domestic hot water and disabled for space heating. Do NOT use this setting in case of wall-mounted units (EHBH/X, ETBH/X, ELBH/X, EBBH/X) and monobloc units (EB/DLA, EWA/YA).



INFORMATION

When heating of the DHW by the heat pump is too slow, it may affect a comfortable operation of the space heating/cooling circuit. If so, allow the backup heater to assist during DHW operation by setting [4-00]=1 or 2.



INFORMATION

Only for systems with integrated domestic hot water tank: If backup heater operation during space heating needs to be limited but can be allowed for domestic hot water operation, then set [4-00] to 2.

SH heater take-over during AC operation

#	Code	Description
[9.3.C]	[0-09]	SH heater take-over during AC operation: 0: Not allowed: Backup heater operation is disabled. 1: Allowed: Backup heater take-over for space heating when DX heating operation is prioritized for cold draft prevention.



INFORMATION

To avoid excessive backup heater usage, it is recommended to set [0-09] to **Not allowed**.
When [0-09] is set to **Not allowed**, space heating can be temporarily on hold during certain operating conditions intended to protect the unit.

Emergency

Emergency

When the heat pump fails to operate, the backup heater can serve as an emergency heater. It then takes over the heat load either automatically or by manual interaction.

- When **Emergency** is set to **Automatic** and a heat pump failure occurs, the backup heater automatically takes over the domestic hot water production and space heating.

- When **Emergency** is set to **Manual** and a heat pump failure occurs, the domestic hot water heating and space heating stops.

To manually recover it via the user interface, go to the **Malfunctioning** main menu screen and confirm whether the backup heater can take over the heat load or not.

- Alternatively, when **Emergency** is set to:
 - **auto SH reduced/DHW on**, space heating is reduced but domestic hot water is still available.
 - **auto SH reduced/DHW off**, space heating is reduced and domestic hot water is NOT available.
 - **auto SH normal/DHW off**, space heating operates as normally but domestic hot water is NOT available.

Similarly as in **Manual** mode, the unit can take the full load with the backup heater if the user activates this via the **Malfunctioning** main menu screen.

To keep energy consumption low, we recommend to set **Emergency** to **auto SH reduced/DHW off** if the house is unattended for longer periods.

#	Code	Description
[9.5.1]	[4-06]	0: Manual 1: Automatic 2: auto SH reduced/DHW on 3: auto SH reduced/DHW off 4: auto SH normal/DHW off



INFORMATION

The auto emergency setting can be set in the menu structure of the user interface only.



INFORMATION

If a heat pump failure occurs and **Emergency** is not set to **Automatic** (setting 1), the following functions will remain active even if the user does NOT confirm emergency operation:

- Room frost protection
- Underfloor heating screed dryout

However, the disinfection function will be activated **ONLY** if the user confirms emergency operation via the user interface.

Compressor forced off

Compressor forced off mode can be activated to only allow the backup heater to provide domestic hot water and space heating. When this mode is activated:

- Heat pump operation is NOT possible
- Cooling is NOT possible

#	Code	Description
[9.5.2]	[7-06]	Activation of the Compressor forced off mode: 0: disabled 1: enabled

Balancing**Priorities**

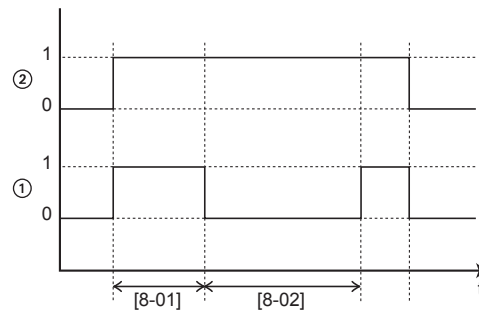
For systems with an integrated domestic hot water tank.

#	Code	Description
[9.6.1]	[5-02]	Space heating priority: Defines whether backup heater will assist the heat pump during domestic hot water operation. For optimal operation and lowest power consumption, it is strongly recommended to keep the default setting (0). If the backup heater operation is limited ([4-00]=0) and the outdoor temperature is lower than setting [5-03], the domestic hot water will not be heated with the backup heater.
[9.6.2]	[5-03]	Priority temperature: Used for calculation of anti-recycling timer. If [5-02]=1, it defines the outdoor temperature below which the backup heater will assist during domestic hot water heating. [5-01] Equilibrium temperature and [5-03] Space heating priority temperature are related to backup heater. So, you must set [5-03] equal or a few degrees higher than [5-01].
[9.6.3]	[5-04]	Offset BSH setpoint: Setpoint correction for domestic hot water temperature: setpoint correction for the desired domestic hot water temperature, to be applied at low outdoor temperature when space heating priority is enabled. The corrected (higher) setpoint will make sure that the total heat capacity of the water in the tank remains approximately unchanged, by compensating for the colder bottom water layer of the tank (because the heat exchanger coil is not operational) with a warmer top layer. Range: 0°C~20°C

Timers

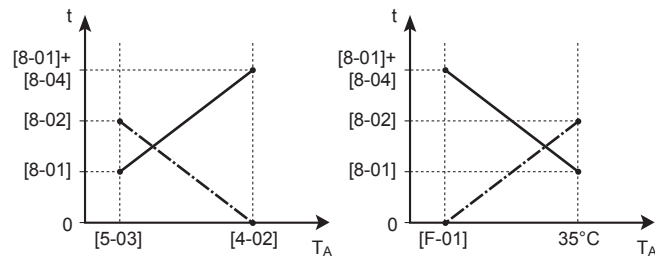
For simultaneous space and domestic hot water operation request.

[8-02]: **Anti-recycle timer**



- 1 Heat pump domestic water heating mode (1=active, 0=not active)
 2 Hot water request for heat pump (1=request, 0=no request)
 t Time

[8-04]: Additional timer at [4-02]/[F-01]



- T_A Ambient (outdoor) temperature
 t Time
 - - - - - Anti-recycle timer
 ——— Maximum running time domestic hot water

#	Code	Description
[9.6.4]	[8-02]	Anti-recycle timer: Minimum time between two cycles for domestic hot water. The actual anti-recycling time also depends on setting [8-04]. Range: 0~10 hours Remark: The minimum time is 0.5 hours even when the selected value is 0.
[9.6.5]	[8-00]	Minimum running timer: Do NOT change.
[9.6.6]	[8-01]	Maximum running timer for domestic hot water operation. Domestic hot water heating stops even when the target domestic hot water temperature is NOT reached. The actual maximum running time also depends on setting [8-04]. - When Control=Room thermostat: This preset value is only taken into account if there is a request for space heating or cooling. If there is NO request for space heating/cooling, the tank is heated until the setpoint has been reached. - When Control≠Room thermostat: This preset value is always taken into account. Range: 5~95 minutes Remark: It is NOT allowed to set [8-01] to a value below 10 minutes.

#	Code	Description
[9.6.7]	[8-04]	Additional timer: Additional running time for the maximum running time depending on the outdoor temperature [4-02] or [F-01]. Range: 0~95 minutes

Water pipe freeze prevention

Only relevant for installations with water piping outdoors. This function tries to protect outdoor water piping from freezing.

#	Code	Description
[9.7]	[4-04]	Water pipe freeze prevention: 2: Off (read only)

Sensors

External sensor

#	Code	Description
[9.B.1]	[C-08]	External sensor: When an optional external ambient sensor is connected, the type of the sensor must be set. 0 None : NOT installed. The thermistor in the dedicated Human Comfort Interface and in the outdoor unit are used for measurement. 1 Outdoor: This setting is not applicable for this model. 2 Room: Connected to PCB of the indoor unit measuring the indoor temperature. The temperature sensor in the dedicated Human Comfort Interface is NOT used anymore. Remark: This value has only meaning in room thermostat control.

Averaging time

The average timer corrects the influence of ambient temperature variations. The weather-dependent setpoint calculation is done on the average outdoor temperature.

The outdoor temperature is averaged over the selected time period.

#	Code	Description
[9.B.3]	[1-0A]	Averaging time: 0: No averaging 1: 12 hours 2: 24 hours 3: 48 hours 4: 72 hours



INFORMATION

If the power saving function is activated (see [E-08]), the average outdoor temperature calculation is only possible in case the external outdoor temperature sensor is used. See "6.5 Setting up an external temperature sensor" [▶ 34].

Alarm output

Alarm output

#	Code	Description
[9.D]	[C-09]	Alarm output: Indicates the logic of alarm output on digital I/O PCB during high level indoor unit error malfunctioning. Low level errors (caution/warning) will NOT be transmitted to alarm output. ▪ 0 Abnormal: The alarm output will be powered when an alarm occurs. By setting this value, a distinction is made between the detection of an alarm, and the detection of a power failure. ▪ 1 Normal: The alarm output will NOT be powered when an alarm occurs. See also table below (Alarm output logic).

Alarm output logic

[C-09]	Alarm	No alarm	No power supply to unit
0	Closed output	Open output	Open output
1	Open output	Closed output	

Auto restart

Auto restart

When power returns after a power supply failure, the auto restart function reapplies the user interface settings at the time of the power failure. Therefore, it is recommended to always enable the function.

#	Code	Description
[9.E]	[3-00]	Auto restart: ▪ 0: Manual ▪ 1: Automatic

Power saving function

Power saving function

Defines whether the outdoor unit power supply can be interrupted (internally by indoor unit control) during stand-still conditions (no domestic hot water demand). The final decision to allow power interruption of the outdoor unit during standstill depends on the ambient temperature, compressor conditions and minimum internal timers.

To enable the power saving function setting, [E-08] needs to be enabled on the user interface.

#	Code	Description
[9.F]	[E-08]	Power saving function for outdoor unit: ▪ 0: No ▪ 1: Yes

**INFORMATION**

To enable power/electricity saving function, the setting must be enabled in both outdoor unit and indoor unit. Refer to the installer reference guide of the outdoor unit for details about the power/electricity saving function.

Disable protections**Protective functions**

The unit is equipped with the following protective functions:

- Room antifrost [2-06]
- Tank disinfection [2-01]

#	Code	Description
[9.G]	N/A	Disable protections: ▪ 0: No ▪ 1: Yes

Overview field settings

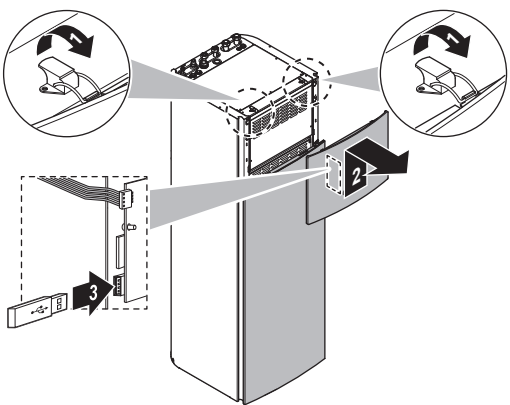
Almost all settings can be done using the menu structure. If for any reason it is required to change a setting using the overview settings, then the overview settings can be accessed in [9.I] **Overview field settings**. See "[To modify an overview setting](#)" [▶ 86].

Export MMI settings**About exporting the configuration settings**

Export the configuration settings of the unit to a USB memory stick, via the MMI (the user interface of the indoor unit). When troubleshooting, these settings can be provided to our Service department.

#	Code	Description
[9.N]	N/A	Your MMI settings will be exported to the connected storage device: ▪ Back ▪ OK

To export MMI settings

1	Open the user interface panel and insert a USB memory stick. 	—
2	On the user interface, go to [9.N] Export MMI settings .	

3	Select OK .	
4	Remove the USB memory stick and close the user interface panel.	—

Bizone kit

#	Code	Description
[9.P.1]	[E-0B]	Bizone kit installed: 0 No : The system only has a main zone and is heating only. 1 N/A 2 Yes: A bizon kit is installed in order to allow space cooling.

Daikin HomeHub

Refer to the **Daikin HomeHub** installer reference guide for more information.

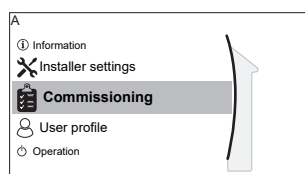
Secondary pump

#	Code	Description
[9.S]	[2-07]	Secondary pump: 0:No 1:Yes

10.6.9 Commissioning

Overview

The following items are listed in the submenu:



[A] Commissioning

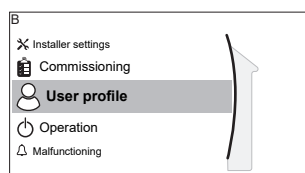
- [A.1] Operation test run
- [A.2] Actuator test run
- [A.3] Air purge
- [A.4] UFH screed dryout

About commissioning

See: "[11 Commissioning](#)" [▶ 158]

10.6.10 User profile

[B] **User profile**: See "[To change the user permission level](#)" [▶ 85].

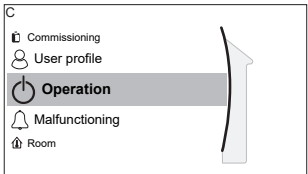


[B] User profile

10.6.11 Operation

Overview

The following items are listed in the submenu:



[C] Operation

- [C.2] Space heating/cooling
- [C.3] Tank

To enable or disable functionalities

In the operation menu, you can separately enable or disable functionalities of the unit.

#	Code	Description
[C.2]	N/A	Space heating/cooling: 0: Off 1: On
[C.3]	N/A	Tank: 0: Off 1: On

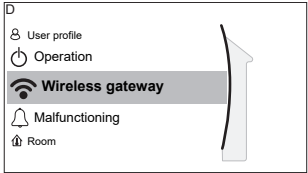
10.6.12 WLAN



INFORMATION
Restriction: WLAN settings are only visible when a WLAN cartridge or WLAN module is installed.

Overview

The following items are listed in the submenu:



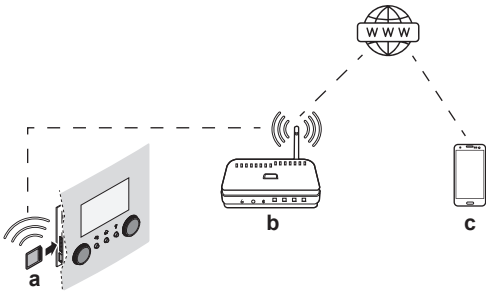
[D] Wireless gateway

- [D.1] Enable AP mode
- [D.2] Reboot
- [D.3] WPS
- [D.4] Remove from cloud
- [D.5] Home network connection
- [D.6] Cloud connection

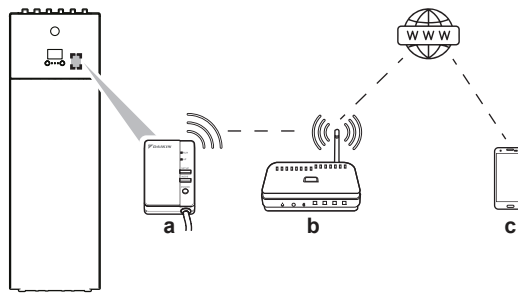
About the WLAN cartridge or WLAN module

The WLAN cartridge or WLAN module (only one of the two needed) connects the system to the internet. The user can then control the system via the ONECTA app.

This needs the following components **in case of WLAN cartridge:**



This needs the following components **in case of WLAN module:**



a	WLAN cartridge	The WLAN cartridge needs to be inserted in the user interface. See the installation manual of the WLAN cartridge.
	WLAN module	The WLAN module needs to be installed by the installer on the indoor unit (on the inside of the front panel). See: ▪ Installation manual of the WLAN module ▪ Addendum book for optional equipment
b	Router	Field supply.
c	Smartphone + app	The ONECTA app needs to be installed on the user's smartphone. See: http://www.onlinecontroller.daikineurope.com/ 

Configuration

To configure the ONECTA app, follow the in-app instructions. While doing this, the following actions and information ([D.1]~[D.6]) are needed on the user interface:

[D.1] **Enable AP mode:** Make the WLAN cartridge/module active as access point.

#	Code	Description
[D.1]	N/A	This setting generates a random SSID and key (+ QR code) needed by the ONECTA app: D.1 AP mode enabled  SSID DaikinAPXXXXX Key XYZ12345 This screen exits automatically after 10 min, or when you press  or  (and confirm): Are you sure you want to exit AP mode? Back OK

[D.2] **Reboot:** Reboot the WLAN cartridge/module.

#	Code	Description
[D.2]	N/A	Reboot the gateway: ▪ Back ▪ OK

[D.3] **WPS:** Connect the WLAN cartridge/module to the router.

#	Code	Description
[D.3]	N/A	WPS: ▪ No ▪ Yes



INFORMATION

You can only use this function if it is supported by the software version of the WLAN, and the software version of the ONECTA app.

[D.4] **Remove from cloud:** Remove the WLAN cartridge/module from the cloud.

#	Code	Description
[D.4]	N/A	Remove from cloud: ▪ No ▪ Yes

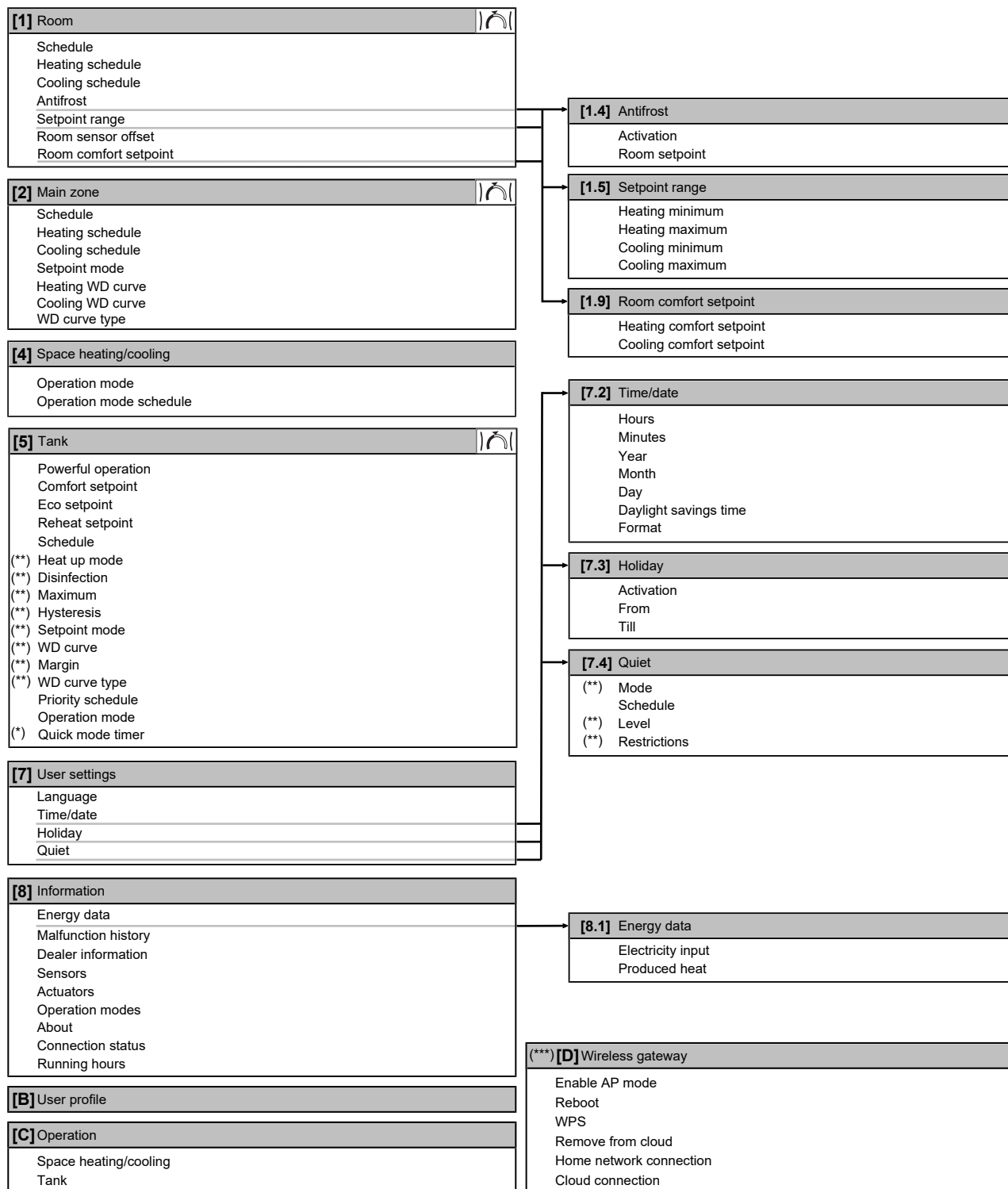
[D.5] **Home network connection:** Read out the status of the connection to the home network.

#	Code	Description
[D.5]	N/A	Home network connection: ▪ Disconnected from [WLAN_SSID] ▪ Connected to [WLAN_SSID]

[D.6] **Cloud connection:** Read out the status of the connection to the cloud.

#	Code	Description
[D.6]	N/A	Cloud connection: ▪ Not connected ▪ Connected

10.7 Menu structure: Overview user settings



Setpoint screen

(*)

Only applicable when the tank Operation Mode is Quick

(**)

Only accessible by installer

(***)

Only applicable when WLAN is installed



INFORMATION

Depending on the selected installer settings and unit type, settings will be visible/invisible.

10.8 Menu structure: Overview installer settings

[9] Installer settings		[9.2] Domestic hot water
Configuration wizard		Domestic hot water
Domestic hot water		DHW pump
Backup heater		DHW pump schedule
Emergency		
Balancing		[9.3] Backup heater
Water pipe freeze prevention		Backup heater type
Energy metering		Voltage
Sensors		Configuration
Alarm output		Capacity step 1
Auto restart		Additional capacity step 2
Power saving function		Equilibrium
Disable protections		Equilibrium temperature
Overview field settings		Operation
Export MMI settings		
Bizone kit		[9.5] Emergency
Daikin HomeHub		Emergency
Secondary pump		Compressor forced off
		[9.6] Balancing
		Space heating priority
		Priority temperature
		Offset BSH setpoint
		Anti-recycle timer
		Minimum running timer
		Maximum running timer
		Additional timer
		[9.A] Energy metering
		Electricity meter 1
		Electricity meter 2
		[9.B] Sensors
		External sensor
		Ext. amb. sensor offset
		Averaging time
		[9.P] (*) Bizone kit
		Bizone kit installed
		Bizone system type
		Main zone pump fixed PWM
		Mixing valve turning time
		[9.Q] (*) Daikin HomeHub
		Add Daikin HomeHub
		Use case selection
		TCP/IP configuration
		Modbus
		PV Solar

(*) To activate space cooling once the bizone kit is connected, first set [E-0B] to 2, [E-0C] to 1, [3-0D] to 1, and then change [E-02] to 0.



INFORMATION

Solar kit settings are shown but are NOT applicable for this unit. Settings shall NOT be used or changed.



INFORMATION

Depending on the selected installer settings and unit type, settings will be visible/invisible.

11 Commissioning



NOTICE

General commissioning checklist. Next to the commissioning instructions in this chapter, a general commissioning checklist is also available on the Daikin Library (authentication required).

The general commissioning checklist is complementary to the instructions in this chapter and can be used as a guideline and reporting template during commissioning and hand-over to the user.

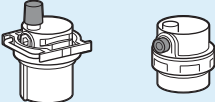


NOTICE

The pump is equipped with an anti-blockage safety routine. This means that the pump operates for a short period of time every 24 hours during long periods of inactivity to ensure it does not get stuck. To enable this function, the unit must be connected to the power supply all year round.



NOTICE



Make sure both air purge valves within the indoor unit (one on the magnetic filter and one on the backup heater) are open.

All automatic air purge valves **MUST** remain open after commissioning.



NOTICE

Pump. To prevent blocking of the pump rotor, commission the unit as quickly as possible after filling the water circuit.



INFORMATION

Protective functions – "Installer-on-site mode". The software is equipped with protective functions, such as Legionella disinfection function. The unit automatically runs this function according to its scheduled time.

During installation or service this behaviour is undesired. Therefore, the protective functions can be disabled:

- **At first power-on:** The protective functions are disabled by default. After 12 hours they will be automatically enabled.
- **Afterwards:** An installer can manually disable the protective functions by setting [9.G]: **Disable protections** = **Yes**. After his work is done, he can enable the protective functions by stating [9.G]: **Disable protections** = **No**.

Also see "Protective functions" [▶ 150].



INFORMATION

In the case of an outdoor unit and tank-only connection, the backup heater may be used instead of the heat pump during cold outdoor conditions or high initial water temperature. This can occur within the first 7 hours after the power supply is turned on to ensure reliable compressor operation.

In this chapter

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11.1 Overview: Commissioning

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

Typical workflow

Commissioning typically consists of the following stages:

- 1 Checking the "Checklist before commissioning".
- 2 Performing an air purge.
- 3 Performing a test run for the system.
- 4 If necessary, performing a test run for one or more actuators.
- 5 If necessary, performing an underfloor heating screed dryout.

11.2 Precautions when commissioning



NOTICE

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



NOTICE

ALWAYS complete the refrigerant piping of the unit before operating. If NOT, the compressor will break.



INFORMATION

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

11.3 Checklist before commissioning

- 1 After the installation of the unit, ensure that the user interface (MMI) software is version 7.11.0 or higher. If not, upgrade it and check the items listed below.
- 2 Close the unit.
- 3 Power up the unit.

☐	You read the complete installation instructions, as described in the installer reference guide .
☐	The indoor unit is properly mounted.
☐	The outdoor unit is properly mounted.

☐	The following field wiring has been carried out according to this document and the applicable legislation: - Between the local supply panel and the outdoor unit - Between indoor unit and outdoor unit - Between the local supply panel and the indoor unit - Between the indoor unit and the valves (if applicable) - Between the indoor unit and the room thermostat (if applicable)
☐	The system is properly earthed and the earth terminals are tightened.
☐	The fuses, circuit breakers, or locally installed protection devices are of the size and type specified in this document, and have NOT been bypassed.
☐	The power supply voltage matches the voltage on the identification label of the unit.
☐	There are NO loose connections or damaged electrical components in the switch box.
☐	There are NO damaged components or squeezed pipes on the inside of the indoor and outdoor units.
☐	Backup heater circuit breaker F1B (field supply) is turned ON.
☐	There are NO refrigerant leaks .
☐	The refrigerant pipes (gas and liquid) are thermally insulated.
☐	The correct pipe size is installed and the pipes are properly insulated.
☐	There is NO water leak inside the indoor unit.
☐	The shut-off valves are properly installed and fully open.
☐	The stop valves (gas and liquid) on the outdoor unit are fully open.
☐	The air purge valve is open (at least 2 turns).
☐	The following field piping on the cold water inlet of the DHW tank has been carried out according to this document and the applicable legislation: - Non-return valve - Pressure reducing valve - Pressure relief valve (and it purges clean water when opened) - Tundish - Expansion vessel
☐	The pressure relief valve (space heating circuit) purges water when opened. Clean water MUST come out.
☐	The minimum water volume is guaranteed in all conditions. See "To check the water volume and flow rate" in "8.5 Preparing water piping" [▶ 56].
☐	The domestic hot water tank is filled completely.

11.4 Checklist during commissioning

☐	To perform an air purge .
☐	To check that the minimum flow rate ⁽¹⁾ during backup heater/defrost operation is guaranteed in all conditions. See "To check the water volume and flow rate" in "8.5 Preparing water piping" [▶ 56].
☐	To perform an actuator test run .

⁽¹⁾ If the air purge is done correctly, this flow rate should be reached.

To perform a **test run**.

11.4.1 Minimum flow rate

Purpose

For a correct operating unit, it is important to check if the minimum flow rate is reached. If needed, modify the bypass valve setting.

Minimum required flow rate

12 l/min

To check the minimum flow rate

1	Check the hydraulic configuration to find out which space heating loops can be closed by mechanical, electronic, or other valves.	—
2	Close all space heating loops that can be closed.	—
3	Start the pump test run (see " 11.4.3 Actuator test run " [▶ 163]).	—
4	Read out the flow rate ^(a) and modify the bypass valve setting to reach the minimum required flow rate + 2 l/min.	—

^(a) During pump test run, the unit can operate below the minimum required flow rate.

11.4.2 Air purge function

Purpose

When commissioning and installing the unit, it is very important to remove all air in the water circuit. When the air purge function is running, the pump operates without actual operation of the unit and the removal of air in the water circuit will start.



NOTICE

Before starting the air purge, open the safety valve and check if the circuit is sufficiently filled with water. Only if water escapes the valve after opening it, you can start the air purge procedure.

Manual or automatic

There are two modes for purging air:

- Manual: You can set the pump speed to low or high. You can set the circuit (the position of the 3-way valve) to Space or Tank. Air purge must be performed for both space heating and tank (domestic hot water) circuits.
- Automatic: The unit automatically changes the pump speed and switches the position of the 3-way valve between the space heating and the domestic hot water circuit.

Typical workflow

Purging the air from the system should consist of:

- 1 Performing a manual air purge
- 2 Performing an automatic air purge

**INFORMATION**

Start by performing a manual air purge. When almost all the air is removed, perform an automatic air purge. If necessary, repeat performing the automatic air purge until you are sure that all air is removed from the system. During air purge function, pump speed limitation [9-0D] is NOT applicable.

The air purge function automatically stops after 30 minutes.

**INFORMATION**

For best results, air purge each loop separately.

To perform a manual air purge

Conditions: Make sure all operation is disabled. Go to [C]: **Operation** and turn off **Space heating/cooling** and **Tank** operation.

1	Set the user permission level to Installer . See " To change the user permission level " [▶ 85].	—
2	Go to [A.3]: Commissioning > Air purge .	
3	In the menu, set Type = Manual .	
4	Select Start air purge .	
5	Select OK to confirm. Result: The air purge starts. It stops automatically when ready.	
6	During manual operation: - You can change the pump speed. - You must change the circuit. To change these settings during the air purge, open the menu and go to [A.3.1.5]: Settings . - Scroll to Circuit and set it to Space/Tank.	
	Scroll to Pump speed and set it to Low/High.	
7	To stop the air purge manually:	—
1	Open the menu and go to Stop air purge .	
2	Select OK to confirm.	

To perform an automatic air purge

Conditions: Make sure all operation is disabled. Go to [C]: **Operation** and turn off **Space heating/cooling** and **Tank** operation.

1	Set the user permission level to Installer . See " To change the user permission level " [▶ 85].	—
2	Go to [A.3]: Commissioning > Air purge .	
3	In the menu, set Type = Automatic .	
4	Select Start air purge .	
5	Select OK to confirm. Result: The air purge starts. It stops automatically when done.	

6	To stop the air purge manually:		—
	1	In the menu, go to Stop air purge .	
	2	Select OK to confirm.	

11.4.3 Actuator test run

Purpose

Perform an actuator test run to confirm the operation of the different actuators. For example, when you select **Pump**, a test run of the pump will start.

To perform an actuator test run

Conditions: Make sure all operation is disabled. Go to [C]: **Operation** and turn off **Space heating/cooling** and **Tank** operation.

1	Set the user permission level to Installer. See " To change the user permission level " [▶ 85].	—
2	Go to [A.2]: Commissioning > Actuator test run .	
3	Select a test from the list. Example: Pump .	
4	Select OK to confirm.	
	Result: The actuator test run starts. It stops automatically when ready (± 30 min).	
	To stop the test run manually:	—
	1 In the menu, go to Stop test run .	
	2 Select OK to confirm.	

Possible actuator test runs

- Backup heater 1 test
- Backup heater 2 test
- Pump test



INFORMATION

Make sure that all air is purged before executing the test run. Also avoid disturbances in the water circuit during the test run.

- **Diverter valve** test (3-way valve for switching between space heating and tank heating)
- **Alarm output** test
- **C/H signal** test
- **DHW pump** test

11.4.4 Operation test run

Purpose

Perform test runs on the unit and monitor the leaving water and tank temperatures to check if the unit is working correctly. The following test runs should be made:

- Heating
- Cooling (if applicable)
- Tank

To perform an operation test run

Conditions: Make sure all operation is disabled. Go to [C]: **Operation** and turn off **Space heating/cooling** and **Tank** operation.

1	Set the user permission level to Installer . See "To change the user permission level" [▶ 85].	—
2	Go to [A.1]: Commissioning > Operation test run .	
3	Select a test from the list. Example: Heating .	
4	Select OK to confirm. Result: The test run starts. It stops automatically when ready (±30 min). To stop the test run manually:	
1	In the menu, go to Stop test run .	
2	Select OK to confirm.	



INFORMATION

If the outdoor temperature is outside the range of operation, the unit may NOT operate or may NOT deliver the required capacity.



INFORMATION

Under specific conditions, the compressor may remain OFF to ensure oil reliability in case the AC unit is not connected.

To monitor leaving water and tank temperatures

During test run, the correct operation of the unit can be checked by monitoring its leaving water temperature (heating/cooling mode) and tank temperature (domestic hot water mode).

To monitor the temperatures:

1	In the menu, go to Sensors .	
2	Select the temperature information.	

11.4.5 Underfloor heating screed dryout

About underfloor heating screed dryout

Purpose

The underfloor heating (UFH) screed dryout function is used for drying out the screed of an underfloor heating system during the construction of the building.



NOTICE

The installer is responsible for:

- contacting the screed manufacturer for the maximum allowed water temperature, to avoid cracking the screed,
- programming the underfloor heating screed dryout schedule according to the initial heating instructions of the screed manufacturer,
- checking the proper functioning of the setup on a regular basis,
- performing the correct program complying with the type of the used screed.

**NOTICE**

Do NOT operate DX units during underfloor heating screed dryout.

UFH screed dryout before or during installation of outdoor unit

The UFH screed dryout function can be executed without finishing the outdoor installation. In this case, the backup heater will perform the screed dryout and supply the leaving water without heat pump operation.

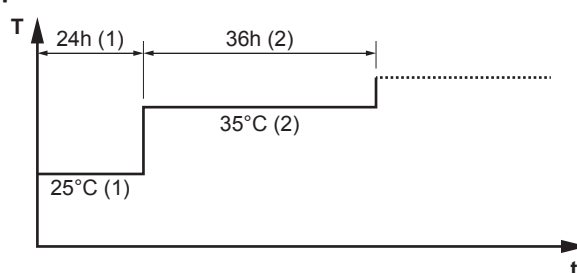
To program an underfloor heating screed dryout schedule

Duration and temperature

The installer can program up to 20 steps. For each step he needs to enter:

- 1 the duration in hours, up to 72 hours,
- 2 the desired leaving water temperature, up to 55°C.

Example:



T Desired leaving water temperature (15~55°C)

t Duration (1~72 h)

(1) Action step 1

(2) Action step 2

Steps

1	Set the user permission level to Installer . See "To change the user permission level" [▶ 85].	—
2	Go to [A.4.2]: Commissioning > UFH screed dryout > Program .	
3	Program the schedule: To add a new step, select the next empty line and change its value. To delete a step and all steps below it, decrease the duration to "—". ▪ Scroll through the schedule. ▪ Adjust the duration (between 1 and 72 hours) and temperatures (between 15°C and 55°C).	—
4	Press the left dial to save the schedule.	

To perform an underfloor heating screed dryout



INFORMATION

- If **Emergency** is set to **Manual** ([9.5.1]=0), and the unit is triggered to start emergency operation, the user interface will ask confirmation before starting. The underfloor heating screed dryout function is active even if the user does NOT confirm emergency operation.
- During underfloor heating screed dryout, pump speed limitation [9-0D] is NOT applicable.



NOTICE

For the underfloor heating screed dryout to be able to start, make sure the following settings are met:

- [4-00]=1
- [C-02]=0
- [D-01]=0
- [4-08]=0
- [4-01]≠1

Steps

Conditions: An underfloor heating screed dryout schedule has been programmed. See ["To program an underfloor heating screed dryout schedule"](#) [▶ 165].

Conditions: Make sure all operation is disabled. Go to [C]: **Operation** and turn off **Space heating/cooling** and **Tank** operation.

1	Set the user permission level to Installer . See "To change the user permission level" [▶ 85].	—
2	Go to [A.4]: Commissioning > UFH screed dryout .	
3	Select Start UFH screed dryout .	
4	Select OK to confirm. Result: The underfloor heating screed dryout starts. It stops automatically when done.	
5	To stop the underfloor heating screed dryout manually:	—
1	Open the menu and go to Stop UFH screed dryout .	
2	Select OK to confirm.	

To read out the status of an underfloor heating screed dryout

Conditions: You are performing an underfloor heating screed dryout.

1	Press the back button. Result: A graph is displayed, highlighting the current step of the screed dryout schedule, the total remaining time, and the current desired leaving water temperature.	
2	Press the left dial to open the menu structure and to:	
1	View the status of sensors and actuators.	—
2	Adjust the current program	—

To stop an underfloor heating (UFH) screed dryout

U3-error

When the program is stopped by an error or an operation switch off, the U3 error will be displayed on the user interface. To resolve the error codes, see "14.4 Solving problems based on error codes" [▶ 182].

In case of a power failure, the U3 error is not generated. When power is restored, the unit automatically restarts the latest step and continues the program.

Stop UFH screed dryout

To manually stop underfloor heating screed dryout:

1	Go to [A.4.3]: Commissioning > UFH screed dryout	—
2	Select Stop UFH screed dryout .	
3	Select OK to confirm. Result: The underfloor heating screed dryout is stopped.	

Read out UFH screed dryout status

When the program is stopped due to an error, an operation switch-off, or a power failure, you can read out the underfloor heating screed dryout status:

1	Go to [A.4.3]: Commissioning > UFH screed dryout > Status	
2	You can read out the value here: Stopped at + the step where the underfloor screed dryout was stopped.	—
3	Modify and restart the execution of the program ^(a) .	—

^(a) If the UFH screed dryout program was stopped due to a power failure and the power resumes, the program will automatically restart the last implemented step.

12 Hand-over to the user

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

- Fill in the installer setting table (in the operation manual) with the actual settings.
- Make sure that the user has the printed documentation and ask him/her to keep it for future reference. Inform the user that he/she can find the complete documentation at the URL mentioned earlier in this manual.
- Explain to the user how to properly operate the system and what to do in case of problems.
- Show the user what to do for the maintenance of the unit.
- Explain about energy saving tips to the user as described in the operation manual.

13 Maintenance and service



NOTICE

General maintenance/inspection checklist. Next to the maintenance instructions in this chapter, a general maintenance/inspection checklist is also available on the Daikin Library (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.



NOTICE

Maintenance **MUST** be done by an authorised installer or service agent.

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



NOTICE

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

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

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13.1 Maintenance safety precautions



DANGER: RISK OF ELECTROCUTION



DANGER: RISK OF BURNING/SCALDING



NOTICE: Risk of electrostatic discharge

Before performing any maintenance or service work, touch a metal part of the unit in order to eliminate static electricity and to protect the PCB.

13.2 Yearly maintenance

13.2.1 Yearly maintenance indoor unit: overview

- Water pressure
- Magnetic filter/dirt separator

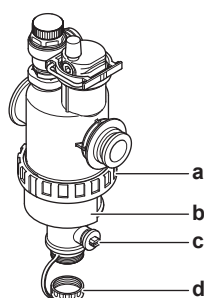
- Water pressure relief valve
- Relief valve hose
- Pressure relief valve of the domestic hot water tank
- Switch box
- Descaling
- Chemical disinfection

13.2.2 Yearly maintenance indoor unit: instructions

Water pressure

Keep water pressure above 1 bar. If it is lower, add water.

Magnetic filter/dirt separator



- a** Screw connection
- b** Magnetic sleeve
- c** Drain valve
- d** Drain cap

The yearly maintenance of the magnetic filter/dirt separator consists of:

- Checking if both parts of the magnetic filter/dirt separator are still screwed tight (a).
- Emptying the dirt separator as follows:
 - 1 Take off the magnetic sleeve (b).
 - 2 Unscrew the drain cap (d).
 - 3 Connect a drain hose to the bottom of the water filter so that the water and dirt can be collected in a suitable container (bottle, sink...).
 - 4 Open the drain valve for a couple of seconds (c).

Result: Water and dirt will come out.

 - 5 Close the drain valve.
 - 6 Screw the drain cap back on.
 - 7 Reattach the magnetic sleeve.
 - 8 Check the pressure of the water circuit. If required, add water.



NOTICE

- When checking the magnetic filter/dirt separator for tightness, hold it firmly, so as NOT to apply stress to the water piping.
- Do NOT isolate the magnetic filter/dirt separator by closing the shut-off valves. To properly empty the dirt separator, sufficient pressure is required.
- To prevent dirt from remaining in the dirt separator, ALWAYS take off the magnetic sleeve.
- ALWAYS first unscrew the drain cap, and connect a drain hose to the bottom of the water filter, then open the drain valve.

**INFORMATION**

For yearly maintenance, you do not have to remove the water filter from the unit to clean it. But in case of trouble with the water filter, you might have to remove it so that you can thoroughly clean it. Then you need to do as follows:

- "13.4.1 To remove the water filter" [▶ 173]
- "13.4.2 To clean the water filter in case of trouble" [▶ 173]
- "13.4.3 To install the water filter" [▶ 174]

Water pressure relief valve

Open the valve and check if it operates correctly. **The water may be very hot!**

Checkpoints are:

- The water flow coming from the relief valve is high enough, no blockage of the valve or in between piping is suspected.
- Dirty water coming out of the relief valve:
 - open the valve until the discharged water does NOT contain dirt anymore
 - flush the system

To make sure this water originates from the tank, check after a tank heat up cycle.

It is recommended to do this maintenance more frequently.

Pressure relief valve hose

Check whether the pressure relief valve hose is positioned appropriately to drain the water. See "7.3.3 To connect the drain hose to the drain" [▶ 50].

Pressure relief valve of the domestic hot water tank (field supply)

Open the valve.

**CAUTION**

Water coming out of the valve may be very hot.

- Check if nothing blocks the water in the valve or in between piping. The water flow coming from the relief valve must be high enough.
- Check if the water coming out of the relief valve is clean. If it contains debris or dirt:
 - Open the valve until the discharged water does not contain debris or dirt anymore.
 - Flush and clean the complete tank, including the piping between the relief valve and cold water inlet.

To make sure this water originates from the tank, check after a tank heat up cycle.

**INFORMATION**

It is recommended to perform this maintenance more than once a year.

Switch box

- Carry out a thorough visual inspection of the switch box and look for obvious defects such as loose connections or defective wiring.
- Using an ohmmeter, check if contactors K1M, K2M, K3M and K5M (depending on your installation) operate correctly. All contacts of these contactors must be in open position when the power is turned OFF.

**WARNING**

If the internal wiring is damaged, it has to be replaced by the manufacturer, its service agent or similarly qualified persons.

Descaling

Depending on water quality and set temperature, scale can deposit on the heat exchanger inside the domestic hot water tank and can restrict heat transfer. For this reason, descaling of the heat exchanger may be required at certain intervals.

Chemical disinfection

If the applicable legislation requires a chemical disinfection in specific situations, involving the domestic hot water tank, please be aware that the domestic hot water tank is a stainless steel cylinder. We recommend to use a non-chloride based disinfectant approved for use with water intended for human consumption.

**NOTICE**

When using means for descaling or chemical disinfection, make sure water quality still complies with EU directive 2020/2184.

13.3 To drain the domestic hot water tank

**DANGER: RISK OF BURNING/SCALDING**

The water in the tank can be very hot.

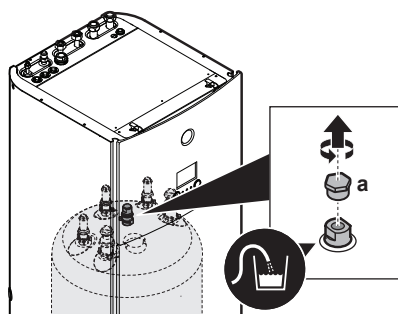
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

Prerequisite: Close the cold water supply.

Prerequisite: Open all the hot water tapping points to allow air to enter the system.

- 1 Remove the top panel, the user interface panel and the front panel.
- 2 Lower the switch box.
- 3 Remove the stop from the access point to the tank.
- 4 Use a drain hose and a pump to drain the tank via the access point.



a Access point to tank

13.4 About cleaning the water filter in case of trouble



INFORMATION

For yearly maintenance, you do not have to remove the water filter from the unit to clean it. But in case of trouble with the water filter, you might have to remove it so that you can thoroughly clean it. Then you need to do as follows:

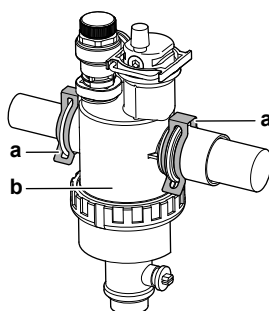
- "13.4.1 To remove the water filter" [▶ 173]
- "13.4.2 To clean the water filter in case of trouble" [▶ 173]
- "13.4.3 To install the water filter" [▶ 174]

13.4.1 To remove the water filter

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

- 1 The water filter is located behind the switch box. To get access to it, see:
 - "7.2.2 To open the indoor unit" [▶ 47]
 - "7.2.3 To lower the switch box" [▶ 49]
- 2 Close the stop valves of the water circuit.
- 3 Remove the cap on the bottom of the magnetic filter/dirt separator.
- 4 Connect a drain hose to the bottom of the water filter.
- 5 Open the valve on the bottom of the water filter to drain water from the water circuit. Collect the drained water in a bottle, sink,... using the installed drain hose.
- 6 Remove the 2 clips that fix the water filter.



- a Clip
- b Magnetic filter/dirt separator

- 7 Remove the water filter.
- 8 Remove the drain hose from the water filter.



NOTICE

Although the water circuit is drained, some water may be spilled when removing the magnetic filter/dirt separator from the filter housing. ALWAYS clean up spilled water.

13.4.2 To clean the water filter in case of trouble

- 1 Remove the water filter from the unit. See "13.4.1 To remove the water filter" [▶ 173].



NOTICE

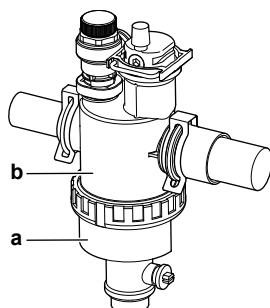
To protect the piping connected to the magnetic filter/dirt separator from damage it is recommended to perform this procedure with the magnetic filter/dirt separator removed from the unit.

- 2 Unscrew the bottom of the water filter housing. Use an appropriate tool if needed.



NOTICE

Opening the magnetic filter/dirt separator is **ONLY** required in case of severe issues. Preferably this action is never to be done during the complete lifetime of the magnetic filter/dirt separator.



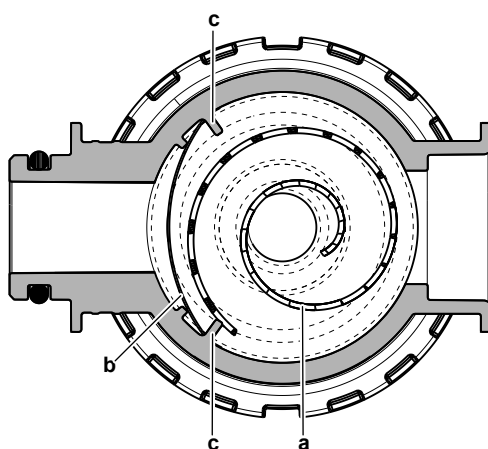
- a Bottom part to be unscrewed
- b Water filter housing

- 3 Remove the strainer and the rolled-up filter from the water filter housing and clean with water.
- 4 Install the cleaned rolled-up filter and strainer in the water filter housing.



INFORMATION

Correctly install the strainer in the magnetic filter/dirt separator housing using the protrusions.



- a Rolled-up filter
- b Strainer
- c Protrusion

- 5 Install and properly tighten the bottom of the water filter housing.

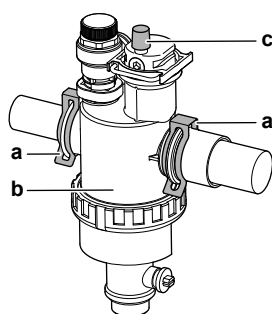
13.4.3 To install the water filter



NOTICE

Check the condition of the O-rings and replace if needed. Apply water or silicon grease to the O-rings before installation.

- 1 Install the water filter in the correct location.



- a** Clip
- b** Magnetic filter/dirt separator
- c** Air purge valve

- 2** Install the 2 clips to fix the water filter to the water circuit pipes.
- 3** Make sure that the air purge valve of the water filter is in the open position.
- 4** Open the stop valves and add water to the water circuit if needed.

14 Troubleshooting

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14.1 Overview: Troubleshooting

This chapter describes what you have to do in case of problems.

It contains information about:

- Solving problems based on symptoms
- Solving problems based on error codes

Before troubleshooting

Carry out a thorough visual inspection of the unit and look for obvious defects such as loose connections or defective wiring.

14.2 Precautions when troubleshooting



DANGER: RISK OF ELECTROCUTION



DANGER: RISK OF BURNING/SCALDING



WARNING

- When carrying out an inspection on the switch box of the unit, ALWAYS make sure that the unit is disconnected from the mains. Turn off the respective circuit breaker.
- When a safety device was activated, stop the unit and find out why the safety device was activated before resetting it. NEVER shunt safety devices or change their values to a value other than the factory default setting. If you are unable to find the cause of the problem, call your dealer.

**WARNING**

Prevent hazards due to inadvertent resetting of the thermal cut-out: power to this appliance **MUST NOT** be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly turned ON and OFF by the utility.

14.3 Solving problems based on symptoms

14.3.1 Symptom: The unit is NOT heating or cooling as expected

Possible causes	Corrective action
The temperature setting is NOT correct	Check the temperature setting on the remote controller. Refer to the operation manual.
The water flow is too low	Check and make sure that: ▪ All shut-off valves of the water circuit are completely open. ▪ The water filter is clean. Clean if necessary. ▪ There is no air in the system. Purge air if necessary. You can purge air manually (see "To perform a manual air purge" [▶ 162]) or use the automatic air purge function (see "To perform an automatic air purge" [▶ 162]). ▪ The water pressure is >1 bar. ▪ The expansion vessel is NOT broken. ▪ The resistance in the water circuit is NOT too high for the pump (see the ESP curve). If the problem persists after you have conducted all of the above checks, contact your dealer. In some cases, it is normal that the unit decides to use a low water flow.
The water volume in the installation is too low	Make sure that the water volume in the installation is above the minimum required value (see "8.5.3 To check the water volume and flow rate" [▶ 59]).

14.3.2 Symptom: Hot water does NOT reach the desired temperature

Possible causes	Corrective action
One of the tank temperature sensors is broken.	See the service manual of the unit for the corresponding corrective action.

14.3.3 Symptom: The compressor does NOT start (space heating or domestic water heating)

Possible causes	Corrective action
The compressor cannot start if the water temperature is too low. The unit will use the backup heater to reach the minimum water temperature (see operation limit), after which the compressor can start.	If the backup heater doesn't start either, check and make sure that: ▪ The power supply to the backup heater is correctly wired. ▪ The backup heater thermal protector is NOT activated. ▪ The backup heater contactors are NOT broken. If the problem persists, contact your dealer.
Domestic hot water (including disinfection) and space heating operation are scheduled to start at the same time.	Change the schedule to not start both operation modes at the same moment.

14.3.4 Symptom: The system is making gurgling noises after commissioning

Possible cause	Corrective action
There is air in the system.	Purge air from the system. ^(a)
Incorrect hydraulic balance.	To be performed by the installer: 1 Perform hydraulic balancing to assure that the flow is correctly distributed between the emitters. 2 If hydraulic balancing is not sufficient, change the pump limitation settings ([9-0D] and [9-0E] if applicable).
Various malfunctions.	Check if  or  is displayed on the home screen of the user interface. See "14.4.1 To display the help text in case of a malfunction" [▶ 182] for more information about the malfunction.

^(a) We recommend to purge air with the air purge function of the unit (to be performed by the installer). If you purge air from the heat emitters or collectors, mind the following:

**WARNING**

Air purging heat emitters or collectors. Before you purge air from heat emitters or collectors, check if  or  is displayed on the home screen of the user interface.

- If not, you can purge air immediately.
- If yes, make sure that the room where you want to purge air is sufficiently ventilated. **Reason:** In case of a breakdown, refrigerant might leak into the water circuit, and subsequently into the room when you purge air from the heat emitters or collectors.

14.3.5 Symptom: The pump is blocked

**NOTICE**

The pump is equipped with an anti-blockage safety routine. This means that the pump operates for a short period of time every 24 hours during long periods of inactivity to ensure it does not get stuck. To enable this function, the unit must be connected to the power supply all year round.

Possible causes	Corrective action
If the unit has been powered off for a long time, lime might block the rotor of the pump.	Depending on the pump type, do one of the following: - Use a Philips No. 2 screwdriver to push the deblocking screw of the rotor in (0.5 cm). Then turn the deblocking screw back and forth until the rotor is deblocked.^(a) Note: Do NOT use excessive force. - Remove the screw of the stator housing and use a screwdriver to turn back and forth the ceramic shaft of the rotor until the rotor is deblocked.^(a) Note: Do NOT use excessive force.

^(a) If you cannot deblock the rotor of the pump with this method, you will need to disassemble the pump and turn the rotor by hand.

14.3.6 Symptom: The pump is making noise (cavitation)

Possible causes	Corrective action
There is air in the system	Purge air manually (see "To perform a manual air purge" [▶ 162]) or use the automatic air purge function (see "To perform an automatic air purge" [▶ 162]).
The water pressure at the pump inlet is too low	Check and make sure that: - The water pressure is >1 bar. - The water pressure sensor is NOT broken. - The expansion vessel is NOT broken. - The pre-pressure setting of the expansion vessel is correct (see "8.5.4 Changing the pre-pressure of the expansion vessel" [▶ 61]).

14.3.7 Symptom: The pressure relief valve opens

Possible causes	Corrective action
The expansion vessel is broken	Replace the expansion vessel.

Possible causes	Corrective action
The water volume in the installation is too high	Make sure that the water volume in the installation is below the maximum allowed value (see "8.5.3 To check the water volume and flow rate" [▶ 59] and "8.5.4 Changing the pre-pressure of the expansion vessel" [▶ 61]).
The water circuit head is too high	The water circuit head is the difference in height between the indoor unit and the highest point of the water circuit. If the indoor unit is located at the highest point of the installation, the installation height is considered 0 m. The maximum water circuit head is 10 m. Check the installation requirements.

14.3.8 Symptom: The water pressure relief valve leaks

Possible causes	Corrective action
Dirt is blocking the water pressure relief valve outlet	Check whether the pressure relief valve works correctly by turning the red knob on the valve counterclockwise: ▪ If you do NOT hear a clacking sound, contact your dealer. ▪ If the water keeps running out of the unit, close both the water inlet and outlet shut-off valves first and then contact your dealer.

14.3.9 Symptom: The space is NOT sufficiently heated at low outdoor temperatures

Possible causes	Corrective action
The backup heater operation is not activated	Check the following: ▪ The backup heater operation mode is enabled. Go to: [9.3.8]: Installer settings > Backup heater > Operation [4-00] ▪ The backup heater overcurrent circuit breaker is on. If not, turn it back on. ▪ The thermal protector of the backup heater is NOT activated. If it has, check the following, and then press the reset button in the switch box: - The water pressure - Whether there is air in the system - The air purge operation

Possible causes	Corrective action
The backup heater equilibrium temperature has not been configured correctly	Increase the equilibrium temperature to activate the backup heater operation at a higher outdoor temperature. Go to: [9.3.7]: Installer settings > Backup heater > Equilibrium temperature [5-01]
There is air in the system.	Purge air manually or automatically. See the air purge function in the chapter "11 Commissioning" [▶ 158].
Too much heat pump capacity is used for heating domestic hot water	Check if the Space heating priority settings have been configured appropriately: - Make sure that the Space heating priority has been enabled. Go to [9.6.1]: Installer settings > Balancing > Space heating priority [5-02] - Increase the "space heating priority temperature" to activate backup heater operation at a higher outdoor temperature. Go to [9.6.3]: Installer settings > Balancing > Priority temperature [5-03]

14.3.10 Symptom: The pressure at the tapping point is temporarily unusually high

Possible causes	Corrective action
Failing or blocked pressure relief valve.	- Flush and clean the complete tank including the piping between pressure relief valve and the cold water inlet. - Replace the pressure relief valve.

14.3.11 Symptom: Tank disinfection function is NOT completed correctly (AH-error)

Possible causes	Corrective action
The disinfection function was interrupted by domestic hot water tapping	Program the start-up of the disinfection function when the coming 4 hours NO domestic hot water tapping is expected.

Possible causes	Corrective action
Large domestic hot water tapping happened recently before the programmed start-up of the disinfection function	If in [5.6] Tank > Heat up mode the mode Reheat only or Schedule + reheat is selected, it is recommended to program the start-up of the disinfection function at least 4 hours later than the last expected large hot water tapping. This start-up can be set by installer settings (disinfection function). If in [5.6] Tank > Heat up mode the mode Schedule only is selected, it is recommended to program a Eco action 3 hours before the scheduled start-up of the disinfection function to preheat the tank.
The disinfection operation was stopped manually: [C.3] Operation > Tank was turned off during disinfection.	Do NOT stop tank operation during disinfection.

14.4 Solving problems based on error codes

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

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



INFORMATION

See the service manual for:

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

14.4.1 To display the help text in case of a malfunction

In case of a malfunction, the following will appear on the home screen depending on the severity:

- Error
- Malfunction

You can get a short and a long description of the malfunction as follows:

1	Press the left dial to open the main menu and go to Malfunctioning . Result: A short description of the error and the error code is displayed on the screen.	
2	Press ? in the error screen. Result: A long description of the error is displayed on the screen.	?

**WARNING**

In case F3-00, there is possible risk of refrigerant leak. Contact your installer.

14.4.2 Error codes: Overview

Error codes of the unit

Error code	Description	
7H-01		Water flow problem
7H-04		Water flow problem during domestic hot water production
7H-05		Water flow problem during heating/sampling
7H-06		Water flow problem during cooling/defrost
7H-07		Water flow problem. Pump deblocking active
7H-08		Pump abnormality during operation (pump feedback)
80-00		Returning water temperature sensor problem
81-00		Leaving water temperature sensor problem
81-01		Mixed water thermistor abnormality.
81-06		Entering water temperature thermistor abnormality (indoor unit)
89-01		Heat exchanger freeze-up protection activated during defrost (error)
89-02		Heat exchanger freeze-up protection activated during heating / DHW operation. (warning)
89-03		Heat exchanger freeze-up protection activated during defrost (warning)
89-05		Heat exchanger freeze-up protection activated during cooling operation. (error)
89-06		Heat exchanger freeze-up protection activated during cooling operation. (warning)
8F-00		Abnormal increase outlet water temperature (DHW)
8H-00		Abnormal increase outlet water temperature
8H-01		Overheating/undercooling mixed water circuit
8H-02		Overheating mixed water circuit (thermostat)
8H-03		Overheating water circuit (thermostat)
A1-00		Zero cross detection problem
A5-00		OU: High pressure peak cut / freeze protection problem
AA-01		Backup heater overheated or BUH power cable not connected

Error code		Description
AH-00		Tank disinfection function not completed correctly
AJ-03		Too long DHW heat-up time required
CO-00		Flow sensor malfunction
C4-00		Heat exchanger temperature sensor problem
C5-00		Heat exchanger thermistor abnormality
CJ-02		Room temperature sensor problem
E1-00		OU: PCB defect
E2-00		Leakage current detection error
E3-00		OU: Actuation of high pressure switch (HPS)
E3-24		High pressure sensor abnormality
E4-00		Abnormal suction pressure
E5-00		OU: Overheat of inverter compressor motor
E6-00		OU: Compressor startup defect
E7-00		OU: Malfunction of outdoor unit fan motor
E8-00		OU: Power input overvoltage
E9-00		Malfunction of electronic expansion valve
EA-00		OU: Cool/heat switchover problem
EC-00		Abnormal increase tank temperature
EC-04		Tank preheating
F3-00		OU: Malfunction of discharge pipe temperature
F6-00		OU: Abnormal high pressure in cooling
FA-00		OU: Abnormal high pressure, actuation of HPS
H0-00		OU: Voltage/current sensor problem
H1-00		External temperature sensor problem
H3-00		OU: Malfunction of high pressure switch (HPS)
H4-00		Malfunction of low pressure switch
H5-00		Malfunction of compressor overload protection
H6-00		OU: Malfunction of position detection sensor
H8-00		OU: Malfunction of compressor input (CT) system
H9-00		OU: Malfunction of outdoor air thermistor
HC-00		Tank temperature sensor problem
HC-01		Second tank temperature sensor problem

Error code	Description	
HJ-10		Water pressure sensor abnormality
J3-00		OU: Malfunction of discharge pipe thermistor
J3-10		Compressor port thermistor abnormality
J5-00		Malfunction of suction pipe thermistor
J6-00		OU: Malfunction of heat exchanger thermistor
J6-07		OU: Malfunction of heat exchanger thermistor
J8-00		Malfunction of refrigerant liquid thermistor
JA-00		OU: Malfunction of high pressure sensor
JC-00		Low pressure sensor abnormality
JC-01		Evaporator pressure abnormality
L1-00		Malfunction of INV PCB
L3-00		OU: Electrical box temperature rise problem
L4-00		OU: Malfunction of inverter radiating fin temperature rise
L5-00		OU: Inverter instantaneous overcurrent (DC)
L8-00		Malfunction triggered by a thermal protection in the inverter PCB
L9-00		Prevention of compressor lock
LC-00		Malfunction in communication system of outdoor unit
P1-00		Open-phase power supply imbalance
P3-00		Abnormal direct current
P4-00		OU: Malfunction of radiating fin temperature sensor
PJ-00		Capacity setting mismatch
U0-00		OU: Shortage of refrigerant
U1-00		Malfunction by reverse phase/open-phase
U2-00		OU: Defect of power supply voltage
U3-00		Underfloor heating screed dryout function not completed correctly
U4-00		Indoor/outdoor unit communication problem
U5-00		User interface communication problem
U7-00		OU: Transmission malfunction between main CPU-INV CPU
U8-02		Connection with room thermostat lost
U8-03		No connection with room thermostat

Error code		Description
U8-04		Unknown USB device
U8-05		File malfunction
U8-06		MMI/bizone kit communication problem
U8-07		P1P2 communication error
U8-09		MMI software version {version_MMI_software} / Indoor unit [version_IU_modelname] compatibility error
U8-11		Connection with the Wireless gateway lost
UA-00		Indoor unit, outdoor unit matching problem
UF-00		Reversed piping or bad communication wiring detection.

**INFORMATION**

In case of error code AH and no interruption of the disinfection function occurred due to domestic hot water tapping, following actions are recommended:

- When the **Reheat only** or **Schedule + reheat** mode is selected, it is recommended to program the start-up of the disinfection function at least 4 hours later than the last expected large hot water tapping. This start-up can be set by installer settings (disinfection function).
- When the **Schedule only** mode is selected, it is recommended to program an **Eco** action 3 hours before the scheduled start-up of the disinfection function to preheat the tank.

**NOTICE**

When the minimum water flow is lower than described in the table below, the unit will temporarily stop operation and the user interface will display error 7H-01. After some time, this error will reset automatically and the unit will resume operation.

**INFORMATION**

When error 7H-01 occurs, you might also see 7H-08 in the malfunction list of the user interface. In this case the root cause can either be insufficient voltage towards the pump or the pump is blocked.

**INFORMATION**

If error 89-05 or 89-06 occurs, check the minimum water volume during cooling.

**INFORMATION**

Error AJ-03 is reset automatically from the moment there is a normal tank heat-up.

**INFORMATION**

If an U8-04 error occurs, the error can be reset after a successful update of the software. If the software is not successfully updated then you must make sure that your USB device has the FAT32 format.

**INFORMATION**

The user interface will display how to reset an error code.

15 Disposal

**NOTICE**

Do NOT try to dismantle the system yourself: dismantling of the system, treatment of the refrigerant, oil and other parts **MUST** comply with applicable legislation. Units **MUST** be treated at a specialised treatment facility for reuse, recycling and recovery.

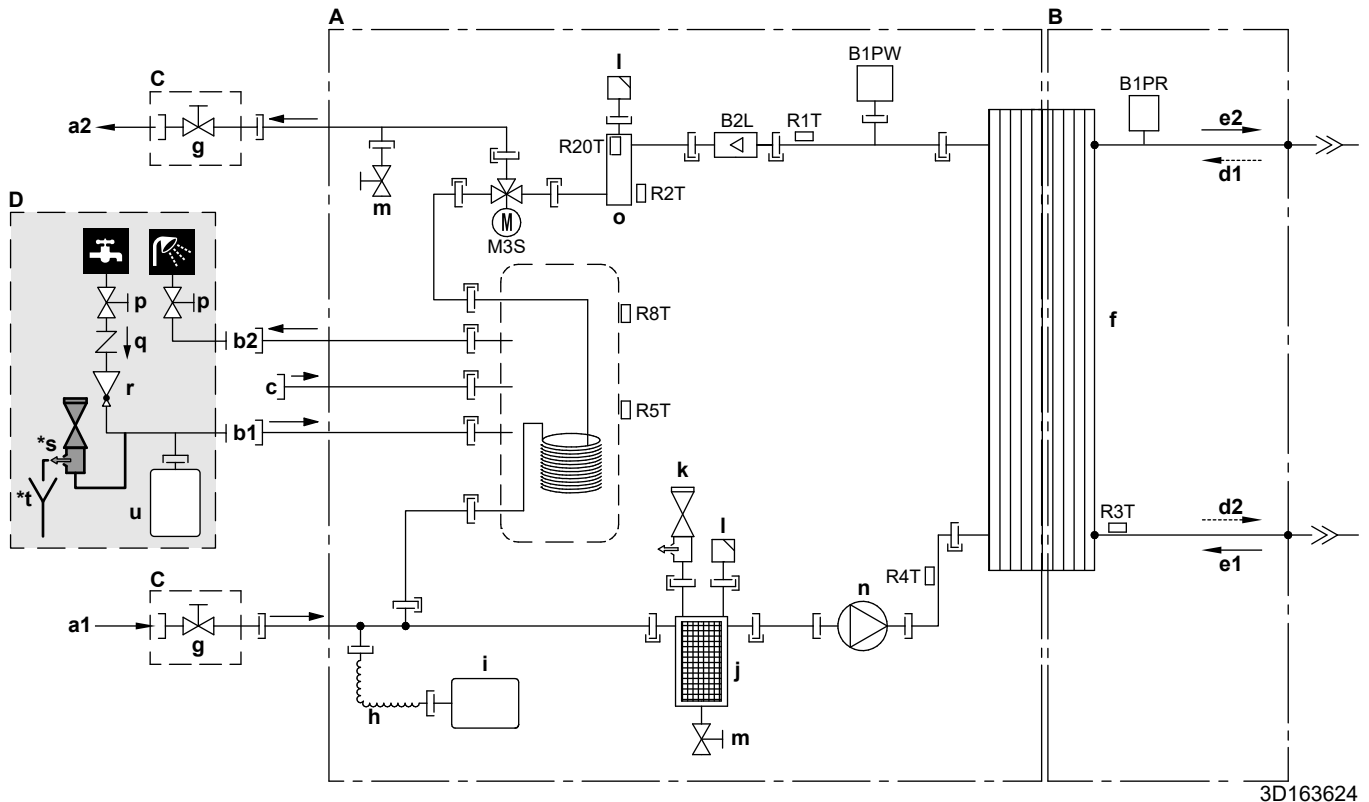
16 Technical data

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

In this chapter

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16.1 Piping diagram: Indoor unit



3D163624

- A** Water side
B Refrigerant side
C Field installed (delivered with the unit)

- D** Field supplied
a1 Space heating/cooling – Water IN (screw connection, 1")
a2 Space heating/cooling – Water OUT (screw connection, 1")
b1 DHW – Cold water IN (screw connection, 3/4")
b2 DHW – Hot water OUT (screw connection, 3/4")
c Recirculation connection
d1 Gas refrigerant IN (heating mode; condenser)
d2 Liquid refrigerant OUT (heating mode; condenser)
e1 Liquid refrigerant IN (cooling mode; evaporator)
e2 Gas refrigerant OUT (cooling mode; evaporator)
f Plate heat exchanger
g Shut-off valve for service
h Flexible pipe
i Expansion vessel
j Magnetic filter/dirt separator
k Safety valve
l Automatic air purge
m Drain valve
n Pump
o Backup heater
p Shut-off valve (recommended)

- q** Non-return valve (recommended)
r Pressure reducing valve (recommended)
***s** Pressure relief valve (max. 10 bar (=1.0 MPa)) (mandatory)
***t** Tundish (mandatory)
u Expansion vessel (recommended)

- B2L** Flow sensor
B1PR Refrigerant pressure sensor
B1PW Space heating water pressure sensor
M3S 3-way valve (space heating/domestic hot water)

Thermistors:

- R1T** Outlet water heat exchanger
R2T Outlet water backup heater
R3T Heat exchanger, liquid pipe
R4T Inlet water
R5T, R8T Tank
R20T Backup heater top

Connections:

- |— Screw connection
 —>> Flare connection
 —| Quick coupling
 —●— Brazed connection

16.2 Wiring diagram: Indoor unit

See the internal wiring diagram supplied with the unit (on the inside of the indoor unit switch box cover). The abbreviations used are listed below.

Notes to go through before starting the unit

English	Translation
Notes to go through before starting the unit	Notes to go through before starting the unit
X1M	Main terminal outdoor unit
X2M	Field terminal AC indoor unit
X5M	Field terminal DC indoor unit
X6M	Field terminal backup heater power supply
-----	Earth wiring
-----	Field supply
①	Several wiring possibilities
	Option
	Not mounted in switch box
	Wiring depending on model
	PCB
Note 1: Connection point of the power supply for the BUH should be foreseen outside the unit.	Note 1: Connection point of the power supply for the backup heater should be foreseen outside the unit.
Backup heater power supply	Backup heater power supply
☐ 4T1 (3~, 230 V, 4.5 kW)	☐ 4T1 (3~, 230 V, 4.5 kW)
☐ 4V3 (1N~, 230 V, 4.5 kW)	☐ 4V3 (1N~, 230 V, 4.5 kW)
☐ 9WN (3N~, 400 V, 9 kW)	☐ 9WN (3N~, 400 V, 9 kW)
User installed options	User installed options
☐ Remote user interface	☐ Dedicated Human Comfort Interface (BRC1HHDA used as room thermostat)
☐ Ext. indoor thermistor	☐ External indoor thermistor
☐ Ext outdoor thermistor	☐ External outdoor thermistor
☐ Safety thermostat	☐ Safety thermostat
☐ WLAN cartridge	☐ WLAN cartridge
☐ Bizone mixing kit	☐ Bizone mixing kit
Main LWT	Main leaving water temperature
☐ On/OFF thermostat (wired)	☐ ON/OFF thermostat (wired)
☐ On/OFF thermostat (wireless)	☐ ON/OFF thermostat (wireless)
☐ Ext. thermistor	☐ External thermistor
☐ Heat pump convector	☐ Heat pump convector

Position in switch box

English	Translation
Position in switch box	Position in switch box

Legend

A1P		Hydro PCB
A2P	*	ON/OFF thermostat (PC=power circuit)
A3P	*	Heat pump convector
A4P	*	Digital I/O PCB
A11P		Main PCB of the MMI (= user interface of the indoor unit)
A14P	*	Remote user interface (Human Comfort Interface)
A15P	*	Receiver PCB (wireless ON/OFF thermostat)
A20P	*	WLAN module
A30P	*	Bizone mixing kit PCB
CN* (A4P)		Connector
E1H		Backup heater element (1 kW)
E2H		Backup heater element (1.5 kW)
E3H		Backup heater element (2 kW)
F1B	#	Overcurrent fuse backup heater
F2B	#	Overcurrent fuse Main
F1T		Thermal fuse backup heater
F1U, F2U (A4P)	*	Fuse T 5 A 250 V for digital I/O PCB
J* (A20P)		Connector
K1M, K2M		Contactor backup heater
K5M		Safety contactor backup heater
K*R (A*P)		Relay on PCB
M2P	#	Domestic hot water pump
M4P	#	Secondary pump
M2S	#	Shut-Off valve Main
P* (A*P)		Connector
PC (A15P)	*	Power circuit
PHC1 (A4P)	*	Optocoupler input circuit
Q*DI	#	Earth leakage circuit breaker
Q4L	#	Safety thermostat
R1H (A2P)	*	Humidity sensor
R1T (A2P)	*	Ambient sensor ON/OFF thermostat
R1T (A14P)	*	Ambient sensor user interface
R2T (A2P)	*	External sensor (floor or ambient)

R6T	*	External indoor or outdoor ambient thermistor
S1S	#	Preferential kWh rate power supply contact
SS1 (A4P)	*	Selector switch
ST* (A30P)		Connector
X*, Y* (A4P)		Connector
X*A, X*Y, X*Y*, X*		Connector
X*H, X*HA		Connector
X*M		Terminal strip

* Optional
Field supply

Translation of text on wiring diagram

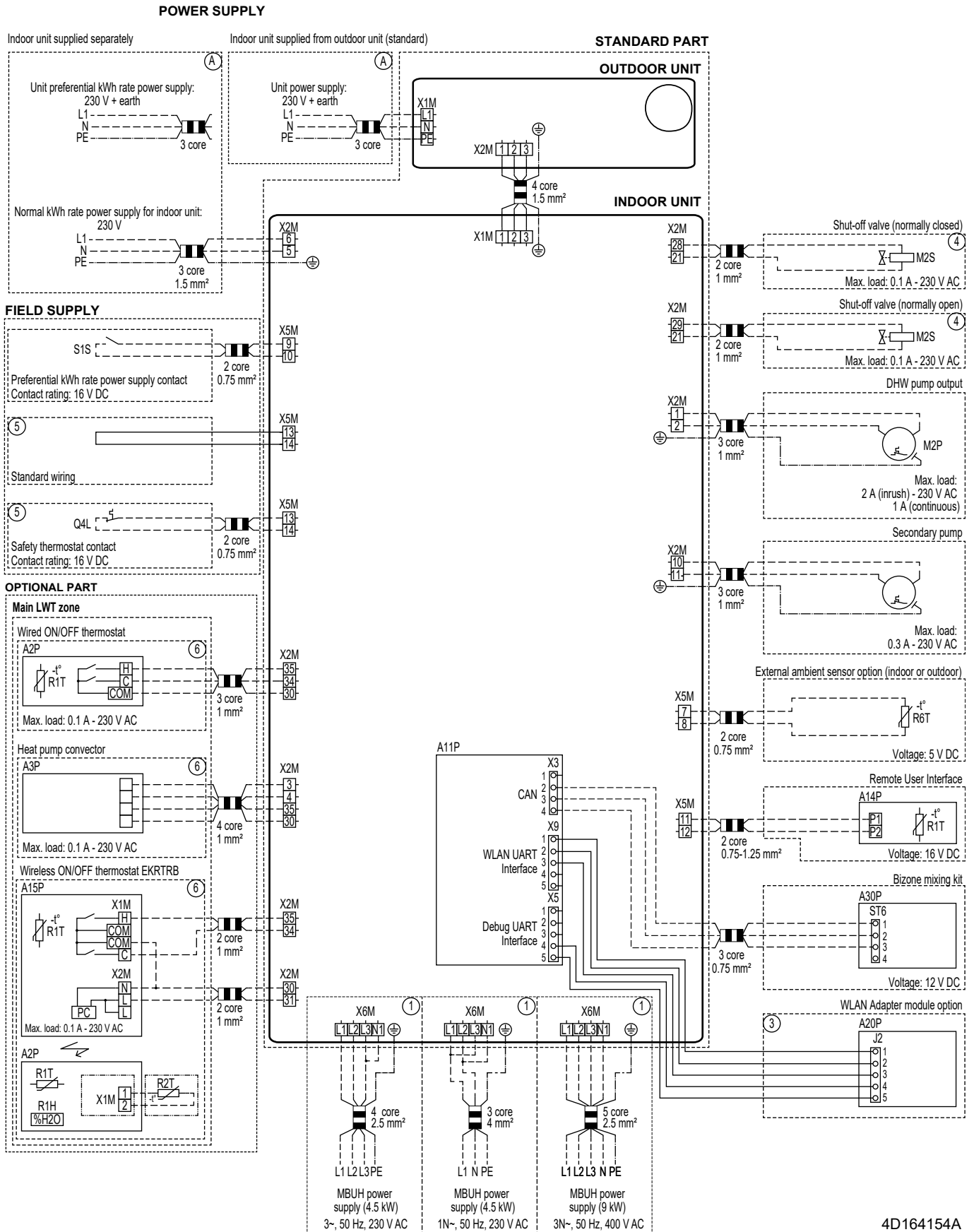
English	Translation
(1) Main power connection	(1) Main power connection
Indoor unit supplied from outdoor (standard)	Indoor unit supplied from outdoor unit (Standard)
Indoor unit supplied separately	Indoor unit supplied separately
Outdoor unit	Outdoor unit
Normal kWh rate power supply	Normal kWh rate power supply
2-pole fuse	2-Pole Fuse
(2) Backup heater power supply	(2) Backup heater power supply
4-pole fuse	4-pole fuse
Max.	Maximum
SWB	Switch box
Only for *	Only for *
(3) Ext. thermistor	(3) External thermistor
External ambient sensor option (indoor or outdoor)	External ambient sensor option (Indoor or Outdoor)
Voltage	Voltage
SWB	Switch box
(4) External On/OFF thermostats and heat pump convector	(4) External ON/OFF thermostats and heat pump convector
Main LWT zone	Main leaving water temperature zone
For wired On/Off thermostat	For wired On/Off thermostat
For heat pump convector	For heat pump convector
For wireless ON/OFF thermostat EKRTTB	For wireless ON/OFF thermostat EKRTTB
Max. load	Maximum load
SWB	Switch box
(5) Field supplied options	(5) Field supplied options
Standard wiring	Standard wiring

English	Translation
For safety thermostat	For Safety Thermostat
DHW pump	Domestic hot water pump
Secondary pump	Secondary pump
Contact rating	Contact rating
Max. load	Maximum load
DHW pump output	Domestic hot water pump output
Inrush	Inrush current
Continuous	Continuous current
SWB	Switch box
(6) User interface	(6) User interface
Remote user interface	Remote user interface (Human Comfort Interface)
SWB	Switch box
Voltage	Voltage
SD card	Card slot for WLAN cartridge
WLAN cartridge	WLAN cartridge
WLAN adapter module option	WLAN adapter module option
WLAN UART interface	WLAN UART interface
Debug UART interface	Debug UART interface
Bizone mixing kit	Bizone mixing kit
(7) Option PCBs	(7) Option PCBs
For digital I/O PCB option	For digital I/O PCB option
Alarm output	Alarm output
Space cooling/heating On/OFF output	Space cooling/heating ON/OFF output
Max. load	Maximum load
ON	ON
OFF	OFF

Electrical connection diagram

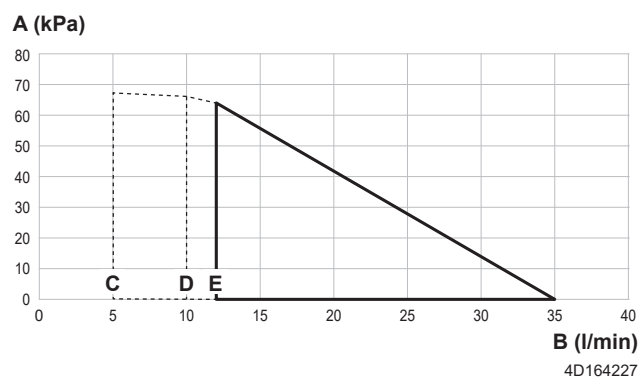
For more details, please check the unit wiring.

Note: In case of signal cable: keep minimum distance to power cables >5 cm



4D164154A

16.3 ESP curve: Indoor unit



- A** External static pressure in the space heating/cooling circuit
- B** Water flow rate through the unit in the space heating/cooling circuit
- C** Minimum water flow rate during normal operation
- D** Minimum water flow rate during cooling operation
- E** Minimum water flow rate during defrost/backup heater operation

Notes:

- Selecting a flow outside the operating area can damage the unit or cause the unit to malfunction. See also the minimum and maximum allowed water flow range in the technical specifications.
- Make sure water quality complies with EU directive 2020/2184.

17 Glossary

Dealer

Sales distributor for the product.

Authorised installer

Technical skilled person who is qualified to install the product.

User

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

Applicable legislation

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

Service company

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

Installation manual

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

Operation manual

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

Maintenance instructions

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

Accessories

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

Optional equipment

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

Field supply

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

Field settings table

Applicable indoor units

CHVX07S18A ▲ 4V ▼

CHVX07S23A ▲ 4V ▼

CHVX07S18A ▲ 9W ▼

CHVX07S23A ▲ 9W ▼

Notes

(*1) *4V*

(*2) *9W*

(*3) *18*

(*4) *23*

▲ = A, B, C, ..., Z

▼ = , , 1, 2, 3, ..., 9

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Bread-crumbs	Code	Setting name	R/W	Range / step / default value ⁽¹⁾	Changed on	Changed value
Room						
└	Antifrost					
1.4.1	[2-06]	Room frost protection	R/W	0: Disabled 1: Enabled		
1.4.2	[2-05]	Room antifrost temperature	R/W	4~16°C, step: 1°C 8°C		
└	Setpoint range					
1.5.1	[3-07]	Heating minimum	R/W	12~18°C, step: 1°C 12°C		
1.5.2	[3-06]	Heating maximum	R/W	18~30°C, step: 1°C 30°C		
1.5.3	[3-09]	Cooling minimum	R/W	15~25°C, step: 1°C 15°C		
1.5.4	[3-08]	Cooling maximum	R/W	25~35°C, step: 1°C 35°C		
Room (continued)						
1.6	[2-09]	Room sensor offset	R/W	-5~5°C, step: 0,5°C 0°C		
1.7	[2-0A]	Room sensor offset	R/W	-5~5°C, step: 0,5°C 0°C		
Main zone						
2.4		Setpoint mode		0: Fixed 1: WD heating, fixed cooling 2: Weather dependent		
└	Heating WD curve					
2.5	[1-00]	Low ambient temp. for LWT main zone heating WD curve.	R/W	-40~5°C, step: 1°C -10°C		
2.5	[1-01]	High ambient temp. for LWT main zone heating WD curve.	R/W	10~25°C, step: 1°C 15°C		
2.5	[1-02]	Leaving water value for low ambient temp. for LWT main zone heating WD curve.	R/W	[9-01]~[9-00], step: 1°C [2-0C]=0: 40°C [2-0C]=1: 45°C [2-0C]=2: 55°C		
2.5	[1-03]	Leaving water value for high ambient temp. for LWT main zone heating WD curve.	R/W	[9-01]~min(45, [9-00])°C, step: 1°C 25°C		
└	Cooling WD curve					
2.6	[1-06]	Low ambient temp. for LWT main zone cooling WD curve.	R/W	10~25°C, step: 1°C 20°C		
2.6	[1-07]	High ambient temp. for LWT main zone cooling WD curve.	R/W	25~43°C, step: 1°C 35°C		
2.6	[1-08]	Leaving water value for low ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C 22°C		
2.6	[1-09]	Leaving water value for high ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C [2-0C]=0: 18°C [2-0C]=1: 5°C [2-0C]=2: 18°C		
Main zone						
2.7	[2-0C]	Emitter type	R/W	0: Underfloor heating 1: Fancoil unit 2: Radiator		
└	Setpoint range					
2.8.1	[9-01]	Heating minimum	R/W	15~37°C, step: 1°C 25°C		
2.8.2	[9-00]	Heating maximum	R/W	[2-0C]=2: 37~70, step: 1°C 70°C [2-0C]≠2: 37~55, step: 1°C 55°C		

⁽¹⁾ Default values are displayed in **bold**.

Bread-crumbs	Code	Setting name	R/W	Range / step / default value ⁽¹⁾	Changed on	Changed value
2.8.3	[9-03]	Cooling minimum	R/O	5~18°C, step: 1°C 18°C		
2.8.4	[9-02]	Cooling maximum	R/W	18~22°C, step: 1°C 22°C		
Main zone						
2.9	[C-07]	Control	R/W	0: LWT control 1: Ext RT control 2: RT control		
2.A	[C-05]	Thermostat type	R/W	0: MMI requests (incl. quick logic) 1: 1 contact 2: 2 contacts		
└	Delta T					
2.B.1	[1-0B]	Delta T heating	R/W	[2-0C]≠2 (Radiator): 3~12°C, step: 1°C 5°C [2-0C]=2 (Radiator): 10°C		
2.B.2	[1-0D]	Delta T cooling	R/W	3~10°C, step: 1°C 5°C		
└	Modulation					
2.C.1	[8-05]	Modulation	R/W	0: No 1: Yes		
2.C.2	[8-06]	Max modulation	R/W	0~10°C, step: 1°C 5°C		
Space heating / cooling						
└	Operation range					
4.3.1	[4-02]	Space heating OFF temp	R/W	14~35°C, step: 1°C 25°C		
4.3.2	[F-01]	Space cooling OFF temp	R/W	10~35°C, step: 1°C 20°C		
Space heating / cooling (continued)						
4.5	[F-0D]	Pump operation mode	R/W	0: Continuous 1: Sample 2: Request		
4.6	[E-02]	Unit type	R/W	0: Reversible 1: Heating only		
4.7	[9-0D]	Pump speed limitation	R/W	0~8, step:1 0: No limitation 1~4: 90~60% pump speed 5~8: 90~60% pump speed during sampling 6 80% pump speed during sampling		
4.9	[F-00]	Pump outside range	R/W	0: Restricted 1: Allowed		
4.A	[D-03]	Increase around 0°C	R/W	0: No 1: increase 2°C, span 4°C 2: increase 4°C, span 4°C 3: increase 2°C, span 8°C 4: increase 4°C, span 8°C		
4.B	[9-04]	Overshoot	R/W	1~4°C, step: 1°C 2°C		
4.C	[2-06]	Room frost protection	R/W	0: Disabled 1: Enabled		
Tank						
5.2	[6-0A]	Comfort setpoint	R/W	30~[6-0E]°C, step: 1°C 60°C		
5.3	[6-0B]	Eco setpoint	R/W	30~min(50, [6-0E])°C, step: 1°C 45°C		
5.4	[6-0C]	Reheat setpoint	R/W	30~min(50, [6-0E])°C, step: 1°C 45°C		
5.6	[6-0D]	Heat up mode	R/W	0: Reheat only 1: Reheat + sched. 2: Scheduled only		
└	Disinfection					

⁽¹⁾ Default values are displayed in **bold**.

Bread-crumbs	Code	Setting name	R/W	Range / step / default value ⁽¹⁾	Changed on	Changed value
5.7.1	[2-01]	Activation	R/W	0: No 1: Yes		
5.7.2	[2-00]	Operation day	R/W	0: Each day 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday 7: Sunday		
5.7.3	[2-02]	Start time	R/W	0~23 hour, step: 1 hour 1		
5.7.4	[2-03]	Tank setpoint	R/W	60°C		
5.7.5	[2-04]	Duration	R/W	40~60 min, step: 5 min 40 min		
Tank (continued)						
5.8	[6-0E]	Maximum	R/W	40~65°C, step: 1°C 65°C		
5.9	[6-00]	Hysteresis	R/W	2~40°C, step: 1°C 8°C		
5.A	[6-08]	Hysteresis	R/W	2~20°C, step: 1°C 10°C		
5.B		Setpoint mode	R/W	0: Fixed 1: Weather dependent		
└	WD curve					
5.C	[0-0B]	Leaving water value for high ambient temp. for DHW WD curve.	R/W	35~[6-0E]°C, step: 1°C 55°C		
5.C	[0-0C]	Leaving water value for low ambient temp. for DHW WD curve.	R/W	45~[6-0E]°C, step: 1°C 60°C		
5.C	[0-0D]	High ambient temp. for DHW WD curve.	R/W	10~25°C, step: 1°C 15°C		
5.C	[0-0E]	Low ambient temp. for DHW WD curve.	R/W	-40~5°C, step: 1°C -10°C		
Tank (continued)						
5.D	[6-01]	Margin	R/W	0~10°C, step: 1°C 0°C		
5.F		Priority Schedule	R/W	DHW AC		
5.G	[A-01]	Operation mode	R/W	0: Efficient 1: Quick		
5.H	[8-03]	Quick mode timer	R/W	Turbo Normal Economic		
User settings						
└	Quiet					
7.4.1		Activation	R/W	0: OFF 1: Manual 2: Automatic		
7.4.3		Level	R/W	0: Quiet (preset not supported on this model) 1: More Quiet 2: Most Quiet		
Installer settings						
└	Configuration wizard					
	└	System				
9.1.3.2	[E-03]	BUH type	R/O	3: 4V (*1) 4: 9W (*2)		
9.1.3.3	[E-05] [E-06] [E-07]	Domestic hot water	R/O	Integrated		

⁽¹⁾ Default values are displayed in **bold**.

Bread-crumbs	Code	Setting name	R/W	Range / step / default value ⁽¹⁾	Changed on	Changed value
9.1.3.4	[4-06]	Emergency	R/W	0: Manual 1: Automatic(normal SH/DHW ON) 2: Auto red SH/DHW ON 3: Auto red SH/DHW OFF 4: SH ON/DHW OFF		
9.1.3.6	[E-0D]	Glycol filled system	R/O	0: No 1: Yes		
	L	Backup heater				
9.1.4.1	[5-0D]	Voltage	R/W	0: 230 V, 1~ (*1) 1: 230 V, 3~ (*1) 2: 400 V, 3~ (*2)		
9.1.4.2	[4-0A]	Configuration	R/W	0: 1 1: 1/1+2 2: 1/2 3: 1/2 + 1/1+2 in emergency		
9.1.4.3	[6-03]	Capacity step 1	R/W	0~31.5 kW, step: 0,5 kW 1.5 kW (*1) 3 kW (*2)		
9.1.4.4	[6-04]	Additional capacity step 2	R/W	0~31.5 kW, step: 0,5 kW 3 kW (*1) 6 kW (*2)		
	L	Main zone				
9.1.5.1	[2-0C]	Emitter type	R/W	0: Underfloor heating 1: Fancoil unit 2: Radiator		
9.1.5.2	[C-07]	Control	R/W	0: LWT control 1: Ext RT control 2: RT control		
9.1.5.3		Setpoint mode	R/W	0: Fixed 1: WD heating, fixed cooling 2: Weather dependent		
9.1.5.4		Schedule	R/W	0: No 1: Yes		
9.1.5.5		WD curve type	R/W	0: 2-points 1: Slope-Offset		
9.1.6	[1-00]	Low ambient temp. for LWT main zone heating WD curve.	R/W	-40~5°C, step: 1°C -10°C		
9.1.6	[1-01]	High ambient temp. for LWT main zone heating WD curve.	R/W	10~25°C, step: 1°C 15°C		
9.1.6	[1-02]	Leaving water value for low ambient temp. for LWT main zone heating WD curve.	R/W	[9-01]~[9-00], step: 1°C [2-0C]=0: 40°C [2-0C]=1: 45°C [2-0C]=2: 55°C		
9.1.6	[1-03]	Leaving water value for high ambient temp. for LWT main zone heating WD curve.	R/W	[9-01]~min(45, [9-00])°C, step: 1°C 25°C		
9.1.7	[1-06]	Low ambient temp. for LWT main zone cooling WD curve.	R/W	10~25°C, step: 1°C 20°C		
9.1.7	[1-07]	High ambient temp. for LWT main zone cooling WD curve.	R/W	25~43°C, step: 1°C 35°C		
9.1.7	[1-08]	Leaving water value for low ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C 22°C		
9.1.7	[1-09]	Leaving water value for high ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C [2-0C]=0: 18°C [2-0C]=1: 5°C [2-0C]=2: 18°C		
	L	Tank				
9.1.B.1	[6-0D]	Heat up mode	R/W	0: Reheat only 1: Reheat + sched. 2: Scheduled only		
9.1.B.2	[6-0A]	Comfort setpoint	R/W	30~[6-0E]°C, step: 1°C 60°C		
9.1.B.3	[6-0B]	Eco setpoint	R/W	30~min(50, [6-0E])°C, step: 1°C 45°C		

⁽¹⁾ Default values are displayed in **bold**.

Bread-crum	Code	Setting name	R/W	Range / step / default value ⁽¹⁾	Changed on	Changed value
9.1.B.4	[6-0C]	Reheat setpoint	R/W	30~min(50, [6-0E])°C, step: 1°C 45°C		
9.1.B.6	[6-08]	Reheat hysteresis	R/W	2~20°C, step: 1°C 10°C		
└	Domestic hot water					
9.2.1	[E-05] [E-06] [E-07]	Domestic hot water	R/O	Integrated		
9.2.2	[D-02]	DHW pump	R/W	0: No DHW pump 1: Instant hot water 2: Disinfection 3: Circulation 4: Circulation and disinfection		
└	Back up heater					
9.3.1	[E-03]	BUH type	R/W	3: 4V (*1) 4: 9W (*2)		
9.3.2	[5-0D]	Voltage	R/W	0: 230 V, 1~ (*1) 1: 230 V, 3~ (*1) 2: 400 V, 3~ (*2)		
9.3.3	[4-0A]	Configuration	R/W	0: 1 1: 1/1+2 2: 1/2 3: 1/2 + 1/1+2 in emergency		
9.3.4	[6-03]	Capacity step 1	R/W	0~31.5 kW, step: 0,5 kW 1.5 kW (*1) 3 kW (*2)		
9.3.5	[6-04]	Additional capacity step 2	R/W	0~31.5 kW, step: 0,5 kW 3 kW (*1) 6 kW (*2)		
9.3.6	[5-00]	Equilibrium: Deactivate backup heater (or external backup heat source in case of a bivalent system) above the equilibrium temperature for space heating?	R/W	0: No 1: Yes		
9.3.7	[5-01]	Equilibrium temperature	R/W	-15~35°C, step: 1°C 0°C		
9.3.8	[4-00]	Operation	R/W	0: Disabled 1: Enabled 2: Only DHW		
9.3.C	[0-09]	SH heater take-over during AC operation	R/W	0: Not allowed 1: Allowed		
└	Emergency					
9.5.1	[4-06]	Emergency	R/W	0: Manual 1: Automatic(normal SH/DHW ON) 2: Auto red SH/DHW ON 3: Auto red SH/DHW OFF 4: SH ON/DHW OFF		
9.5.2	[7-06]	Compressor forced off	R/W	0: Disabled 1: Enabled		
└	Balancing					
9.6.1	[5-02]	Space heating priority	R/W	0: Disabled 1: Enabled		
9.6.2	[5-03]	Priority temperature	R/W	-15~35°C, step: 1°C 0°C		
9.6.4	[8-02]	Anti-recycle timer	R/W	0~10 hour, step: 0,5 hour 0,5 hour		
9.6.5	[8-00]	Minimum running timer	R/O	0~20 min, step: 1 min 1 min		
9.6.6	[8-01]	Maximum running timer	R/W	5~95 min, step: 5 min 30 min		
9.6.7	[8-04]	Additional timer	R/W	0~95 min, step: 5 min 95 min		
Installer settings (continued)						
9.7	[4-04]	Water pipe freeze prevention	R/O	0: Continuous pump operation 1: Non continuous pump operation 2: OFF		
9.A.1	[D-08]	--		0		
└	Sensors					

⁽¹⁾ Default values are displayed in **bold**.

Bread-crumbs	Code	Setting name	R/W	Range / step / default value ⁽¹⁾	Changed on	Changed value
9.B.1	[C-08]	External sensor	R/W	0: No 1: Outdoor sensor (not applicable) 2: Room sensor		
9.B.2	[2-0B]	Ext. amb. sensor offset	R/O	-5~5°C, step: 0,5°C 0°C		
9.B.3	[1-0A]	Averaging time	R/W	0: No averaging 1: 12 hours 2: 24 hours 3: 48 hours 4: 72 hours		
Installer settings (continued)						
9.D	[C-09]	Alarm output	R/W	0: Normally open 1: Normally closed		
9.E	[3-00]	Auto restart	R/W	0: No 1: Yes		
9.F	[E-08]	Power saving function	R/W	0: Disabled 1: Enabled		
9.G		Disable protections	R/W	0: No 1: Yes		
└	Overview field settings					
9.I	[0-00]	--		25		
9.I	[0-09]	SH heater take-over during AC operation	R/W	0: Not allowed 1: Allowed		
9.I	[0-0B]	Leaving water value for high ambient temp. for DHW WD curve.	R/W	35~[6-0E]°C, step: 1°C 55°C		
9.I	[0-0C]	Leaving water value for low ambient temp. for DHW WD curve.	R/W	45~[6-0E]°C, step: 1°C 60°C		
9.I	[0-0D]	High ambient temp. for DHW WD curve.	R/W	10~25°C, step: 1°C 15°C		
9.I	[0-0E]	Low ambient temp. for DHW WD curve.	R/W	-40~5°C, step: 1°C -10°C		
9.I	[1-00]	Low ambient temp. for LWT main zone heating WD curve.	R/W	-40~5°C, step: 1°C -10°C		
9.I	[1-01]	High ambient temp. for LWT main zone heating WD curve.	R/W	10~25°C, step: 1°C 15°C		
9.I	[1-02]	Leaving water value for low ambient temp. for LWT main zone heating WD curve.	R/W	[9-01]~[9-00], step: 1°C [2-0C]=0: 40°C [2-0C]=1: 45°C [2-0C]=2: 55°C		
9.I	[1-03]	Leaving water value for high ambient temp. for LWT main zone heating WD curve.	R/W	[9-01]~min(45, [9-00])°C, step: 1°C 25°C		
9.I	[1-04]	Weather dependent cooling of the main leaving water temperature zone.	R/W	0: Disabled 1: Enabled		
9.I	[1-06]	Low ambient temp. for LWT main zone cooling WD curve.	R/W	10~25°C, step: 1°C 20°C		
9.I	[1-07]	High ambient temp. for LWT main zone cooling WD curve.	R/W	25~43°C, step: 1°C 35°C		
9.I	[1-08]	Leaving water value for low ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C 22°C		
9.I	[1-09]	Leaving water value for high ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C [2-0C]=0: 18°C [2-0C]=1: 5°C [2-0C]=2: 18°C		

⁽¹⁾ Default values are displayed in **bold**.

Bread-crum	Code	Setting name	R/W	Range / step / default value ⁽¹⁾	Changed on	Changed value
9.l	[1-0A]	What is the averaging time for the outdoor temp?	R/W	0: No averaging 1: 12 hours 2: 24 hours 3: 48 hours 4: 72 hours		
9.l	[1-0B]	What is the desired delta T in heating for the main zone?	R/W	[2-0C]≠2 (Radiator): 3~12°C, step: 1°C 5°C [2-0C]=2 (Radiator): 10°C		
9.l	[1-0D]	What is the desired delta T in cooling for the main zone?	R/W	3~10°C, step: 1°C 5°C		
9.l	[2-00]	When should the disinfection function be executed?	R/W	0: Each day 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday 7: Sunday		
9.l	[2-01]	Should the disinfection function be executed?	R/W	0: No 1: Yes		
9.l	[2-02]	When should the disinfection function start?	R/W	0~23 hour, step: 1 hour 1		
9.l	[2-03]	What is the disinfection target temperature?	R/W	60°C		
9.l	[2-04]	How long must the tank temperature be maintained?	R/W	40~60 min, step: 5 min 40 min		
9.l	[2-05]	Room antifrost temperature	R/W	4~16°C, step: 1°C 8°C		
9.l	[2-06]	Room frost protection	R/W	0: Disabled 1: Enabled		
9.l	[2-07]	Secondary pump	R/W	0: No 1: Yes		
9.l	[2-08]	--		0		
9.l	[2-09]	Adjust the offset on the measured room temperature	R/W	-5~5°C, step: 0,5°C 0°C		
9.l	[2-0A]	Adjust the offset on the measured room temperature	R/W	-5~5°C, step: 0,5°C 0°C		
9.l	[2-0B]	What is the required offset on the measured outdoor temp.?	R/O	-5~5°C, step: 0,5°C 0°C		
9.l	[2-0C]	What emitter type is connected to the main LWT zone?	R/W	0: Underfloor heating 1: Fancoil unit 2: Radiator		
9.l	[3-00]	Is auto restart of the unit allowed?	R/W	0: No 1: Yes		
9.l	[3-01]	--		0		
9.l	[3-02]	--		1		
9.l	[3-03]	--		4		
9.l	[3-04]	--		2		
9.l	[3-05]	--		1		
9.l	[3-06]	What is the maximum desired room temperature in heating?	R/W	18~30°C, step: 1°C 30°C		
9.l	[3-07]	What is the minimum desired room temperature in heating?	R/W	12~18°C, step: 1°C 12°C		

⁽¹⁾ Default values are displayed in **bold**.

Bread-crumbs	Code	Setting name	R/W	Range / step / default value ⁽¹⁾	Changed on	Changed value
9.1	[3-08]	What is the maximum desired room temperature in cooling?	R/W	25~35°C, step: 1°C 35°C		
9.1	[3-09]	What is the minimum desired room temperature in cooling?	R/W	15~25°C, step: 1°C 15°C		
9.1	[3-0A]	What is the pump model?	R/W	0: Pump model 0 1: Pump model 1		
9.1	[3-0B]	--		1		
9.1	[3-0D]	In case a bizon kit is installed, antiblockage of kit pump(s) and kit mixing valve	R/W	0: Disabled 1: Enabled		
9.1	[3-0E]	--		5		
9.1	[4-00]	What is the BUH operation mode?	R/W	0: Disabled 1: Enabled 2: Only DHW		
9.1	[4-02]	Below which outdoor temperature is heating allowed?	R/W	14~35°C, step: 1°C 25°C		
9.1	[4-04]	Water pipe freeze prevention	R/O	0: Continuous pump operation 1: Non continuous pump operation 2: OFF		
9.1	[4-05]	--		0		
9.1	[4-06]	Emergency	R/W	0: Manual 1: Automatic(normal SH/DHW ON) 2: Auto red SH/DHW ON 3: Auto red SH/DHW OFF 4: SH ON/DHW OFF		
9.1	[4-08]	--		0		
9.1	[4-0A]	Backup heater configuration	R/W	0: 1 1: 1/1+2 2: 1/2 3: 1/2 + 1/1+2 in emergency		
9.1	[4-0B]	Automatic cooling/heating changeover hysteresis.	R/W	1~10°C, step: 0,5°C 1°C		
9.1	[4-0D]	Automatic cooling/heating changeover offset.	R/W	1~10°C, step: 0,5°C 3°C		
9.1	[4-0E]	--		6		
9.1	[5-00]	Equilibrium: Deactivate backup heater (or external backup heat source in case of a bivalent system) above the equilibrium temperature for space heating?	R/W	0: No 1: Yes		
9.1	[5-01]	What is the equilibrium temperature for the building?	R/W	-15~35°C, step: 1°C 0°C		
9.1	[5-02]	Space heating priority.	R/W	0: Disabled 1: Enabled		
9.1	[5-03]	Space heating priority temperature.	R/W	-15~35°C, step: 1°C 0°C		
9.1	[5-04]	--		10		
9.1	[5-0D]	Backup heater voltage	R/W	0: 230 V, 1~ (*1) 1: 230 V, 3~ (*1) 2: 400 V, 3~ (*2)		
9.1	[5-0E]	BUH DHW thermo ON delay	R/W	0: Disable 1: Enable (variable delay HP dependent) 2: Enable (fixed delay HP dependent)		
9.1	[6-00]	The temperature difference determining the heat pump ON temperature.	R/W	2~40°C, step: 1°C 8°C		
9.1	[6-01]	The temperature difference determining the heat pump OFF temperature.	R/W	0~10°C, step: 1°C 0°C		
9.1	[6-03]	What is the capacity of the backup heater step 1?	R/W	0~31.5 kW, step: 0,5 kW 1.5 kW (*1) 3 kW (*2)		

⁽¹⁾ Default values are displayed in **bold**.

Bread-crumbs	Code	Setting name	R/W	Range / step / default value ⁽¹⁾	Changed on	Changed value
9.l	[6-04]	What is the capacity of the backup heater step 2?	R/W	0~31.5 kW, step: 0,5 kW 3 kW (*1) 6 kW (*2)		
9.l	[6-07]	--		0		
9.l	[6-08]	What is the hysteresis to be used in reheat mode?	R/W	2~20°C, step: 1°C 10°C		
9.l	[6-09]	--		0		
9.l	[6-0A]	What is the desired comfort storage temperature?	R/W	30~[6-0E]°C, step: 1°C 60°C		
9.l	[6-0B]	What is the desired eco storage temperature?	R/W	30~min(50, [6-0E])°C, step: 1°C 45°C		
9.l	[6-0C]	What is the desired reheat temperature?	R/W	30~min(50, [6-0E])°C, step: 1°C 45°C		
9.l	[6-0D]	What is the desired DHW production type?	R/W	0: Reheat only 1: Reheat + sched. 2: Scheduled only		
9.l	[6-0E]	What is the maximum DHW temperature setpoint?	R/W	40~65°C, step: 1°C 65°C		
9.l	[7-03]	--		2,5		
9.l	[7-04]	--		0		
9.l	[7-06]	Compressor forced off	R/W	0: Disabled 1: Enabled		
9.l	[7-08]	Different DHW hysteresis based on low/high DHW consumption (only applicable for Reheat only mode)	R/W	0: Disabled 1: Enabled		
9.l	[7-09]	What is the minimum pump speed during space and domestic hot water operation?	R/W	20~95%, step: 5% 20%		
9.l	[7-0B]	Main zone fixed pump PWM, in case a bizon kit is installed.	R/W	20~95%, step: 5% 95%		
9.l	[7-0C]	Time needed by the mixing valve to turn from one side to the other, in case a bizon kit is installed.	R/W	20~300 seconds, step: 5 sec 125 seconds		
9.l	[7-0D]	--		4		
9.l	[7-0E]	--		7		
9.l	[8-00]	Minimum running time for domestic hot water operation.	R/O	0~20 min, step: 1 min 1 min		
9.l	[8-01]	Maximum running time for domestic hot water operation.	R/W	5~95 min, step: 5 min 30 min		
9.l	[8-02]	Anti-recycling time.	R/W	0~10 hour, step: 0,5 hour 0,5 hour		
9.l	[8-03]	Quick mode timer	R/W	Turbo Normal Economic		
9.l	[8-04]	Additional running time for the maximum running time.	R/W	0~95 min, step: 5 min 95 min		
9.l	[8-05]	Allow modulation of the LWT to control the room temp?	R/W	0: No 1: Yes		
9.l	[8-06]	Leaving water temperature maximum modulation.	R/W	0~10°C, step: 1°C 5°C		
9.l	[8-07]	What is the desired comfort main LWT in cooling?	R/W	[9-03]~[9-02], step: 1°C 18°C		

⁽¹⁾ Default values are displayed in **bold**.

Bread-crumbs	Code	Setting name	R/W	Range / step / default value ⁽¹⁾	Changed on	Changed value
9.1	[8-08]	What is the desired eco main LWT in cooling?	R/W	[9-03]~[9-02], step: 1°C 20°C		
9.1	[8-09]	What is the desired comfort main LWT in heating?	R/W	[9-01]~[9-00], step: 1°C 35°C		
9.1	[8-0A]	What is the desired eco main LWT in heating?	R/W	[9-01]~[9-00], step: 1°C 33°C		
9.1	[8-0B]	--		13		
9.1	[8-0C]	--		10		
9.1	[8-0D]	--		16		
9.1	[9-00]	What is the maximum desired LWT for main zone in heating?	R/W	[2-0C]=2: 37~70, step: 1°C 70°C [2-0C]≠2: 37~55, step: 1°C 55°C		
9.1	[9-01]	What is the minimum desired LWT for main zone in heating?	R/W	15~37°C, step: 1°C 25°C		
9.1	[9-02]	What is the maximum desired LWT for main zone in cooling?	R/W	18~22°C, step: 1°C 22°C		
9.1	[9-03]	What is the minimum desired LWT for main zone in cooling?	R/O	5~18°C, step: 1°C 18°C		
9.1	[9-04]	Leaving water temperature overshoot temperature.	R/W	1~4°C, step: 1°C 2°C		
9.1	[9-09]	What is the allowed undershoot in cooling?	R/W	1~18°C, step: 1°C 18°C		
9.1	[9-0C]	Room temperature hysteresis.	R/W	1~6°C, step: 0,5°C 1°C		
9.1	[9-0D]	Pump speed limitation	R/W	0~8, step:1 0: No limitation 1~4: 90~60% pump speed 5~8: 90~60% pump speed during sampling 6 80% pump speed during sampling		
9.1	[9-0E]	--		6		
9.1	[C-01]	--		0		
9.1	[C-05]	What is the thermo request contact type for the main zone?	R/W	0: MMI requests (incl. quick logic) 1: 1 contact 2: 2 contacts		
9.1	[C-07]	What is the unit control method in space operation?	R/W	0: LWT control 1: Ext RT control 2: RT control		
9.1	[C-08]	Which type of external sensor is installed?	R/W	0: No 1: Outdoor sensor (not applicable) 2: Room sensor		
9.1	[C-09]	What is the required alarm output contact type?	R/W	0: Normally open 1: Normally closed		
9.1	[C-0A]	--		0		
9.1	[C-0B]	--		0		
9.1	[C-0C]	--		0		
9.1	[C-0D]	--		0		
9.1	[C-0E]	--		0		

⁽¹⁾ Default values are displayed in **bold**.

Bread-crumbs	Code	Setting name	R/W	Range / step / default value ⁽¹⁾	Changed on	Changed value
9.l	[D-02]	Which type of DHW pump is installed?	R/W	0: No DHW pump 1: Instant hot water 2: Disinfection 3: Circulation 4: Circulation and disinfection		
9.l	[D-03]	Leaving water temperature compensation around 0°C.	R/W	0: No 1: increase 2°C, span 4°C 2: increase 4°C, span 4°C 3: increase 2°C, span 8°C 4: increase 4°C, span 8°C		
9.l	[D-04]	--		0		
9.l	[D-05]	--		1		
9.l	[D-08]	--		0		
9.l	[D-0A]	--		0		
9.l	[D-0B]	--		2		
9.l	[D-0C]	--		0		
9.l	[D-0D]	--		0		
9.l	[D-0E]	--		0		
9.l	[E-00]	Which type of unit is installed?	R/O	0~5 0: LT split		
9.l	[E-01]	Which type of compressor is installed?	R/O	0		
9.l	[E-02]	What is the indoor unit software type?	R/W	0: Reversible 1: Heating only		
9.l	[E-03]	What is the number of backup heater steps?	R/W	3: 4V (*1) 4: 9W (*2)		
9.l	[E-04]	Is the power saving function available on the outdoor unit?	R/O	0: No 1: Yes		
9.l	[E-05]	Can the system prepare domestic hot water?	R/O	1: Yes		
9.l	[E-06]	Is a DHW tank installed in the system?	R/O	0: No 1: Yes		
9.l	[E-07]	What kind of DHW tank is installed?	R/O	Integrated		
9.l	[E-08]	Power saving function for outdoor unit.	R/W	0: Disabled 1: Enabled		
9.l	[E-09]	--		1		
9.l	[E-0A]	Tank volume	R/O	180 (*3) 230 (*4)		
9.l	[E-0B]	Is a bizon kit installed?	R/W	0: Not installed 1: - 2: Bizon kit installed		
9.l	[E-0C]	What bizon system type is installed?	R/W	0: Without hydraulic separator / no direct pump 1: With hydraulic separator / no direct pump 2: With hydraulic separator / with direct pump		
9.l	[E-0D]	Is glycol present in the system?	R/O	0: No 1: Yes		
9.l	[E-0E]	--		0		

⁽¹⁾ Default values are displayed in **bold**.

Bread-crumbs	Code	Setting name	R/W	Range / step / default value ⁽¹⁾	Changed on	Changed value
9.I	[F-00]	Pump operation allowed outside range.	R/W	0: Restricted 1: Allowed		
9.I	[F-01]	Above which outdoor temperature is cooling allowed?	R/W	10~35°C, step: 1°C 20°C		
9.I	[F-02]	--		3~10°C, step: 1°C 3°C		
9.I	[F-03]	--		2~5°C, step: 1°C 5°C		
9.I	[F-04]	--		0		
9.I	[F-05]	--		0		
9.I	[F-06]	--		0		
9.I	[F-07]	--		0		
9.I	[F-08]	--		0		
9.I	[F-09]	Pump operation during flow abnormality.	R/W	0: Disabled 1: Enabled		
9.I	[F-0A]	--		0		
9.I	[F-0B]	--		0		
9.I	[F-0C]	--		1		
9.I	[F-0D]	What is the pump operation mode?	R/W	0: Continuous 1: Sample 2: Request		
9.I	[F-0E]	--	R/W	20		
Bizone kit settings						
9.P.1	[E-0B]	Bizone kit installed	R/W	0: Not installed 1: - 2: Bizone kit installed		
9.P.2	[E-0C]	Bizone system type	R/W	0: Without hydraulic separator / no direct pump 1: With hydraulic separator / no direct pump 2: With hydraulic separator / with direct pump		
9.P.4	[7-0B]	Main zone pump fixed PWM	R/W	20~95%, step: 5% 95%		
9.P.5	[7-0C]	Mixing valve turning time	R/W	20~300 sec, step: 5 sec 125 sec		
9.S	[2-07]	Secondary pump	R/W	0: No 1: Yes		

⁽¹⁾ Default values are displayed in **bold**.

