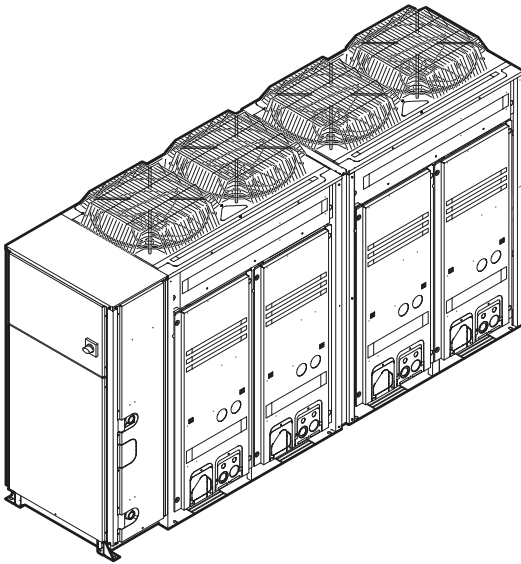


DAIKIN



Installer and user reference guide

Packaged air-cooled water chiller



EWAQ016CAW
EWAQ021CAW
EWAQ025CAW
EWAQ032CAW
EWAQ040CAW
EWAQ050CAW
EWAQ064CAW

EWYQ016CAW
EWYQ021CAW
EWYQ025CAW
EWYQ032CAW
EWYQ040CAW
EWYQ050CAW
EWYQ064CAW

Installer and user reference guide
Packaged air-cooled water chiller

English

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1 General safety precautions

1.1 About the documentation

- The original documentation is written in English. All other languages are translations.
- The precautions described in this document cover very important topics, follow them carefully.
- The installation of the system, and all activities described in the installation manual and the installer reference guide must be performed by an authorised installer.




1.1.1 Meaning of warnings and symbols

	DANGER Indicates a situation that results in death or serious injury.
	DANGER: RISK OF ELECTROCUTION Indicates a situation that could result in electrocution.
	DANGER: RISK OF BURNING Indicates a situation that could result in burning 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.

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.

1.2 For the user

- If you are not sure how to operate the unit, contact your installer.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.



WARNING

To prevent electric shocks or fire:

- Do NOT rinse the unit.
- Do NOT operate the unit with wet hands.
- Do NOT place any objects containing water on the unit.



NOTICE

- Do NOT place any objects or equipment on top of the unit.
- Do NOT sit, climb or stand on the unit.
- Units are marked with the following symbol:



This means that electrical and electronic products may not be mixed with unsorted household waste. Do NOT try to dismantle the system yourself: the dismantling of the system, treatment of the refrigerant, of oil and of other parts must be done by an authorized installer and must comply with applicable legislation. Units must be treated at a specialized treatment facility for reuse, recycling and recovery. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health. For more information, contact your installer or local authority.

- Batteries are marked with the following symbol:



This means that the batteries may not be mixed with unsorted household waste. If a chemical symbol is printed beneath the symbol, this chemical symbol means that the battery contains a heavy metal above a certain concentration. Possible chemical symbols are: Pb: lead (>0.004%). Waste batteries must be treated at a specialized treatment facility for reuse. By ensuring waste batteries are disposed of correctly, you will help to prevent potential negative consequences for the environment and human health.

1 General safety precautions

1.3 For the installer

1.3.1 General

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



NOTICE

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



WARNING

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



CAUTION

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



WARNING

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



DANGER: RISK OF BURNING

- 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

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

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



NOTICE

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



NOTICE

Works executed on the outdoor unit are best done under dry weather conditions to avoid water ingress.



CAUTION

For use of units in applications with schedule timer mode, it is advised to foresee a delay of 10 to 15 minutes for signalling the alarm in case the schedule timer is exceeded. The unit may stop for several minutes during normal operation for "defrosting of the unit" or when in "thermostat-stop" operation.

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

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

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

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

1.3.2 Installation site

- Provide sufficient space around the unit for servicing and air circulation.
- Make sure the installation site withstands the unit's weight and vibration.
- 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.

1.3.3 Refrigerant

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



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.



WARNING

During tests, NEVER pressurize 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 may be produced if refrigerant gas comes into contact with fire.



DANGER: RISK OF EXPLOSION

Pump down – Refrigerant leakage. If you want to pump down the system, and there is a leakage 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

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



NOTICE

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



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.



WARNING

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

- In case re-charge is required, refer to the nameplate of the unit. It states the type of refrigerant and necessary amount.
- The unit is factory charged with refrigerant and depending on pipe sizes and pipe lengths some systems require additional charging of refrigerant.
- 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.

1.3.4 Brine

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



WARNING

The selection of the brine MUST be in accordance with the applicable legislation.



WARNING

Take sufficient precautions in case of brine leakage. If brine leaks, ventilate the area immediately and contact your local dealer.



WARNING

The ambient temperature inside the unit can get much higher than that of the room, e.g. 70°C. In case of a brine leak, hot parts inside the unit can create a hazardous situation.



WARNING

The use and installation of the application MUST comply with the safety and environmental precautions specified in the applicable legislation.

1.3.5 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 98/83 EC.

1.3.6 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 1 minute, 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.

2 About the documentation



WARNING

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



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 below.



- 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 metre away from televisions or radios to prevent interference. Depending on the radio waves, a distance of 1 metre may not be sufficient.



WARNING

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



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.

2 About the documentation

2.1 About this document



INFORMATION

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

Target audience

Authorised installers + end users



INFORMATION

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

Documentation set

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

- **General safety precautions:**
 - Safety instructions that you must read before installing
 - Format: Paper (in the box of the outdoor unit)
- **Outdoor unit installation and operation manual:**
 - Installation and operation instructions
 - Format: Paper (in the box of the outdoor unit)
- **Installer and user reference guide:**
 - Preparation of the installation, reference data,...
 - Detailed step-by-step instructions and background information for basic and advanced usage
 - Format: Digital files on <http://www.daikineurope.com/support-and-manuals/product-information/>

Latest revisions of the supplied documentation may be available on the regional Daikin website or via your dealer.

The original documentation is written in English. All other languages are translations.

Technical engineering data

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

For the installer

3 About the box

3.1 Overview: About the box

This chapter describes what you have to do after the box with the outdoor unit is delivered on-site.

It contains information about:

- Unpacking and handling the outdoor unit
- Removing the accessories from the unit

Keep the following in mind:

- At delivery, the unit must be checked for damage. Any damage must be reported immediately to the carrier's claims agent.
- Bring the packed unit as close as possible to its final installation position to prevent damage during transport.
- When handling the unit, take into account the following:

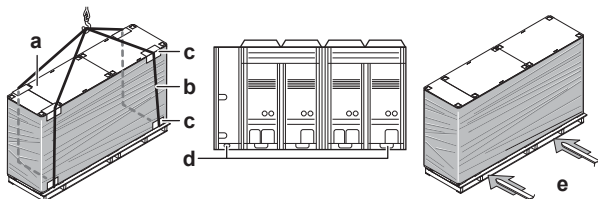


Fragile, handle the unit with care.



Keep the unit upright in order to avoid compressor damage.

- Prepare the path along which you want to bring the unit inside in advance.
- Lift the unit preferably with a crane and 2 belts of at least 8 m long as shown in the figure below. Always use protectors to prevent belt damage and pay attention to the position of the unit's centre of gravity.



- a Packaging material
- b Belt sling
- c Protector
- d Opening
- e Forklift



NOTICE

Use a belt sling of ≤ 20 mm wide that adequately bears the weight of the unit.

- A forklift can only be used for transport as long as the unit remains on its pallet as shown above.

3.2 Outdoor unit

3.2.1 To unpack the outdoor unit

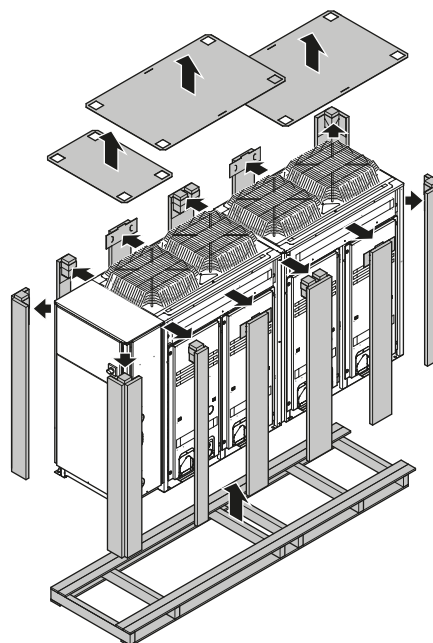
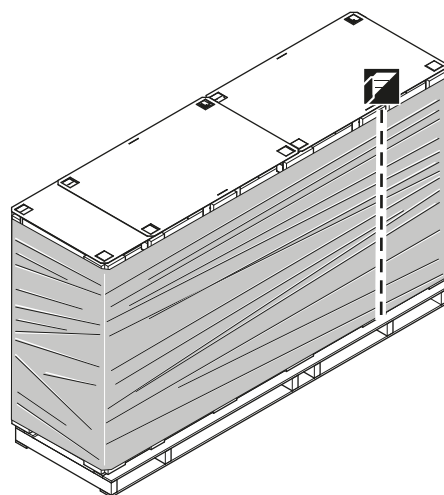
Remove the packaging material from the unit:

- Take care not to damage the unit when removing the shrink foil with a cutter.
- Remove the 4 bolts fixing the unit to its pallet.



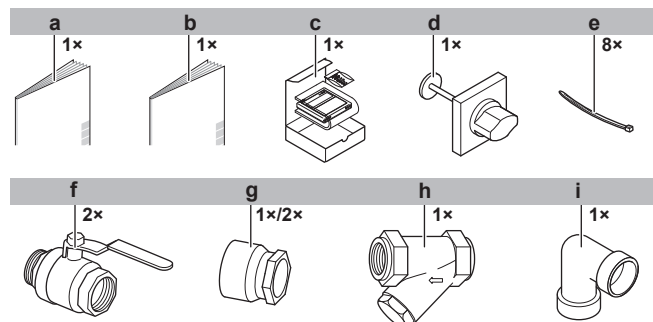
WARNING

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



3.2.2 To remove the accessories from the outdoor unit

Make sure that all accessories are available in the unit.



- a General safety precautions
- b Installation manual and operation manual (panel 3)
- c Remote controller (panel 3)
- d Main switch handle (panel 1)
- e Tie wraps (panel 3)
- f Shut-off valves (panel 3)

4 About the units and options

- g Threaded connection (panel 3) (1× for EWAQ +EWYQ016~032, 2× for EWAQ+EWYQ040~064)
- h Filter (panel 3)
- i Elbow (panel 3)

4 About the units and options

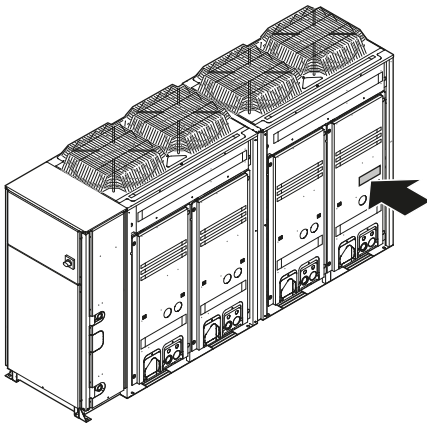
4.1 Overview: About the units and options

This chapter contains information about:

- Identification of the outdoor unit
- Where the outdoor unit fits in the system layout
- With which indoor units and options you can combine the outdoor units

4.2 Identification label: Outdoor unit

Location



Model identification

Example: EW A Q 016 CA W P —H—

Code	Explanation
EW	Chiller
A/Y	A=Air-to-water cooling-only model Y=Air-to-water heat pump model
Q	Refrigerant R410A
016	Capacity class
CA	Model series
W	Power supply: 3P, 400 V
P/H	Complete hydraulic package
N	Basic hydraulic package
—H—	Depends on option

4.3 About the outdoor unit

This installation manual concerns the packaged air-cooled water chiller. The unit is intended for outdoor installation and can be combined with fan coil units for air conditioning purposes, or it can be used for supplying water for process cooling applications.

The units are available in 7 standard sizes with nominal capacities ranging from 16.8 to 63 kW. All sizes are available as cooling only unit (EWAQ) and as heat pump unit (EWYQ: cooling/heating).

The unit is designed to work in heating mode at ambient temperatures from -15°C to 35°C and in cooling mode at ambient temperatures from -15°C to 43°C .

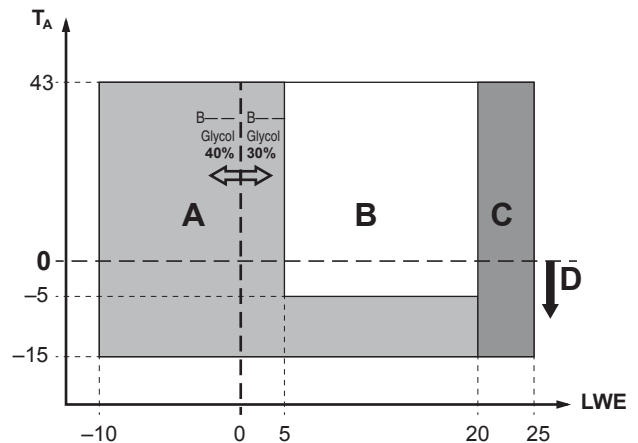
The main components are the compressor, the air heat exchanger, and the water heat exchanger.

The compressor circulates refrigerant into the heat exchangers.

- In cooling mode, the refrigerant transports the heat taken from the water heat exchanger to the air heat exchanger where the heat is released to the air.
- In heating mode, the refrigerant transports the heat taken from the air heat exchanger to the water heat exchanger where the heat is released to the water.

4.4 Operation range

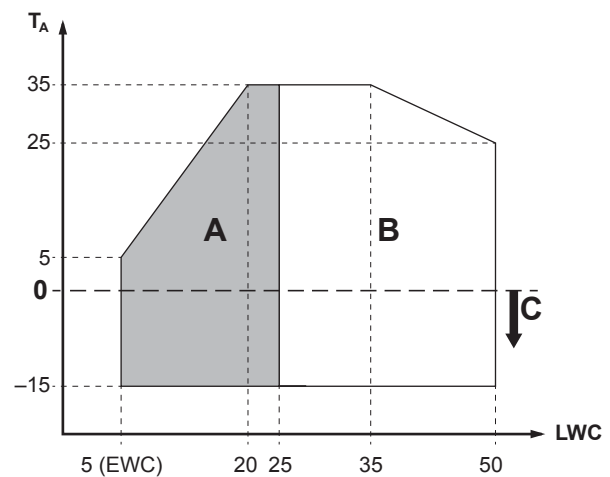
Cooling



- T_A Ambient temperature ($^{\circ}\text{C DB}$)
- LWE Leaving water evaporator temperature ($^{\circ}\text{C}$)
- OPB Option B—
- A Optional water + glycol operation range
- B Standard water operation range
- C Pull down area
- D Protect the system against freezing by installing an optional water piping heater tape or by filling up the system with a glycol solution.

Glycol Glycol

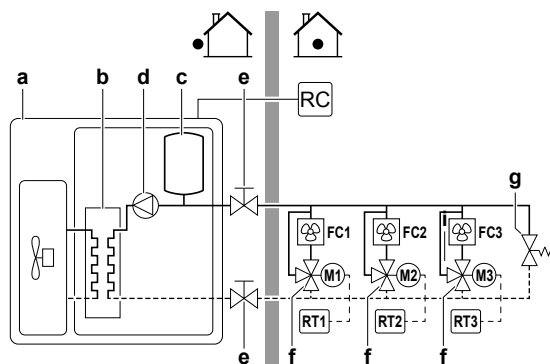
Heating



- T_A Ambient temperature ($^{\circ}\text{C DB}$)
- LWC Leaving water condenser temperature ($^{\circ}\text{C}$)
- EWC Entering water condenser temperature ($^{\circ}\text{C}$)
- A Pull up area
- B Standard water operation range
- C Protect the system against freezing by installing an optional water piping heater tape or by filling the system with a glycol solution.

Glycol Glycol

4.5 System layout



- a Outdoor unit
- b Plate heat exchanger
- c Expansion vessel
- d Pump
- e Shut-off valve
- f Motorized valve
- g Bypass valve
- FC1...3 Fancoil unit (field supply)
- RC Remote controller
- RT1...3 Room thermostat

4.6 Combining units and options

4.6.1 About combining units and options

This packaged air-cooled water chiller can be combined with fan coil units and is intended for R410A use only.

4.6.2 Possible options for the outdoor unit



INFORMATION

Refer to the technical engineering data for the latest option names.

Factory mounted options	Description
Hydraulic package (N)	N (standard) contains flow switch, filter, shut-off valves, pressure ports, drain/fill valve.
Hydraulic package (P)	Identical to N plus pump, expansion vessel, safety valve, pressure gauge.
High static pump (H)	Identical to P but allows operation in applications with high pressure drops inside the hydraulic system.
Water piping heater tape (—H—)	The water piping heater tape warms up to prevent freezing of water inside the unit during winter while the unit is at a standstill.
Low temperature cooling (B— —)	Allows to cool glycol solution (ethylene/propylene glycol + water) down to -10°C .
Low temperature cooling + water piping heater tape (BH—)	Combination of the above 2 options.

Optional kits that are ordered with the unit will be delivered in a separate box together with their specific manuals.

Remote controller (EKRUHTB)

A second remote controller to control the unit from 2 locations.

Demand PCB (EKRP1AHTA)

To enable the power saving consumption control by digital inputs you must install the demand PCB.

The demand PCB is used to remotely

- switch the unit on/off,
- select cooling/heating,
- select thermo on/off.

For installation instructions, see the installation manual of the demand PCB and addendum book for optional equipment.

Electronic gauge kit (BHGP26A1)

To monitor pressures in the refrigerant system.

External control adaptor (DTA104A62)

To instruct specific operation with an external input coming from a central control, the external control adaptor can be used. Instructions (group or individual) can be given for low noise operation and power consumption limitation operation.

5 Preparation

5.1 Overview: Preparation

This chapter describes what you have to do and know before going on-site.

It contains information about:

- Preparing the installation site
- Preparing the water piping
- Preparing the electrical wiring

5.2 Preparing installation site

5.2.1 Installation site requirements of the outdoor unit

- Provide sufficient space around the unit for servicing and air circulation.
- Make sure the installation site withstands the unit's weight and vibration.
- Make sure the unit is level.
- Select a place where rain can be avoided as much as possible.
- Select the location of the unit in such a way that the sound generated by the unit does not disturb anyone, and the location is selected according the applicable legislation.

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.
- 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.

5 Preparation

NOTICE

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

CAUTION

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

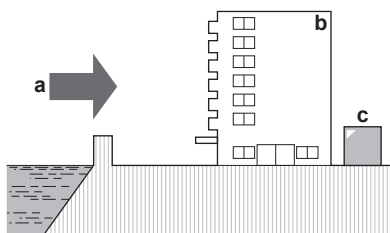
This unit is suitable for installation in a commercial and light industrial environment.

- When installing, take strong winds, typhoons or earthquakes into account, improper installation may result in the unit turning over.
- Take care that in the event of a water leak, water cannot cause any damage to the installation space and surroundings.
- Be sure that the air inlet of the unit is not positioned towards the main wind direction. Frontal wind will disturb the operation of the unit. If necessary, use a screen to block the wind.
- Ensure that water cannot cause any damage to the location by adding water drains to the foundation and prevent water traps in the construction.

Seaside installation. Make sure the outdoor unit is NOT directly exposed to sea winds. This is to prevent corrosion caused by high levels of salt in the air, which might shorten the life of the unit.

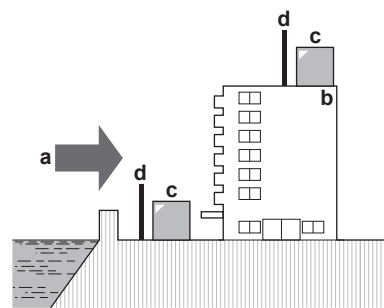
Install the outdoor unit away from direct sea winds.

Example: Behind the building.



If the outdoor unit is exposed to direct sea winds, install a windbreaker.

- Height of windbreaker $\geq 1.5 \times$ height of outdoor unit
- Mind the service space requirements when installing the windbreaker.



- a Sea wind
- b Building
- c Outdoor unit
- d Windbreaker

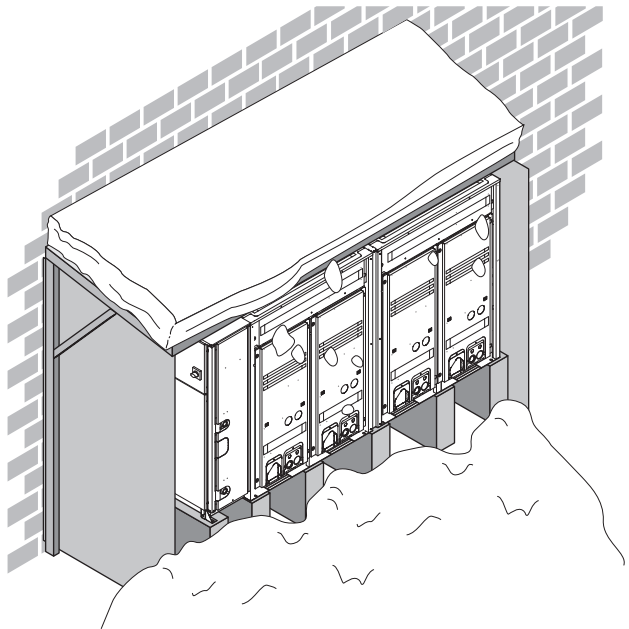
5.2.2 Additional installation site requirements of the outdoor unit in cold climates

NOTICE

When operating the unit in a low outdoor ambient temperature, be sure to follow the instructions described below.

- To prevent exposure to wind and snow, install a baffle plate on the air side of the outdoor unit:

In heavy snowfall areas it is very important to select an installation site where the snow will NOT affect the unit. If lateral snowfall is possible, make sure that the heat exchanger coil is NOT affected by the snow. If necessary, install a snow cover or shed and a pedestal.



INFORMATION

For instructions on how to install the snow cover, contact your dealer.

NOTICE

When installing the snow cover, do NOT obstruct the air flow of the unit.

5.3 Preparing water piping

5.3.1 Water circuit requirements

INFORMATION

Also read the precautions and requirements in the "General safety precautions" chapter.

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 entering the pipe.
 - Use a decent thread sealant to seal connections.

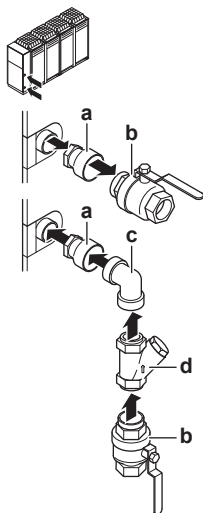
NOTICE

If glycol is present in the system, make sure the thread sealant used is resistant to glycol.

- **Closed circuit.** Use the outdoor unit ONLY in a closed water system. Using the system in an open water system will lead to excessive corrosion.
- **Water flow.** You can find the minimum required water flow in the following table. In all cases, this flow needs to be guaranteed. When the flow is lower, operation will stop and error *RE* will be displayed.

Capacity class	Minimum required flow rate
016+021+025	23 l/min
032	36 l/min
040+050	46 l/min
064	72 l/min

- **Field supply components – Water pressure and temperature.** Check that all components in the field piping can withstand the water pressure and water temperature.
- **Drainage – Low points.** Provide drain taps at all low points of the system in order to allow complete drainage of the water circuit.
- **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 to prevent galvanic corrosion.
- **Shut-off valves.** Two shut-off valves are delivered with the unit. Install them as shown in the following figure.



- a Adapter piece (on the inlet only in case of EWAQ +EWYQ040~064)
- b Shut-off valve
- c Bend
- d Filter

NOTICE

Before mounting the bend, attach the filter to it.

NOTICE

If the bend is not used during installation, replace it with an extension (5 cm long for a 1¼" filter, and 6 cm long for a 2" filter) to ensure proper cleaning operation of the filter.

NOTICE

Be sure to install the filter properly. Failure to install or incorrect installation will damage the plate heat exchanger permanently.

- **Drain taps.** Drain taps must be provided at all low points of the system to permit complete drainage of the circuit. A drain valve is provided inside the unit.
- **Air vents.** Provide air vents at all high points of the system, which must also be easily accessible for servicing. An automatic air purge valve is provided inside the unit. Check that this air purge valve is NOT tightened too much, so that automatic release of air from the water circuit is possible. Refer to field setting [E-04] in "7.2.9 Field settings on the remote controller" on page 23.
- **Water pressure.** Take care that the components installed in the field piping can withstand the water pressure (maximum 3 bar + static pressure of the pump). Refer to "12.8 ESP curve: Outdoor unit" on page 39.

WARNING

- For correct operation of the system, a regulating valve must be installed in the water system. The regulating valve is to be used to regulate the water flow in the system (field supply).
- Selecting a flow outside the curves can cause malfunction or damage to the unit. Also refer to the Technical specifications.

- The maximum water piping temperature is 50°C according to safety device setting.
- Always use materials which are compatible with the water used in the system and with the materials used in the unit. (The unit piping fittings are made of brass, the plate heat exchangers are made of stainless steel 316 plates brazed together with copper and the optional pump housing is made of cast iron.)
- Select the piping diameter in relation to the required water flow and available external static pressure (ESP) of the pump. See the following table for the recommended water piping diameter.

Capacity class	Water piping diameter
016~032	1-1/4"
040~064	2"

NOTICE

It is strongly recommended to install an additional filter on the water circuit. Especially to remove metallic particles from the field water piping, it is advised to use a magnetic or cyclone filter which can remove small particles. Small particles can damage the unit and will not be removed by the standard filter of the unit.

5.3.2 Formula to calculate the expansion vessel pre-pressure

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

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

5.3.3 To check the water volume and expansion vessel pre-pressure

The unit has an expansion vessel of 12 litre with a default pre-pressure of 1 bar.

5 Preparation

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

Cooling only model	Minimum total water volume (l)
016~032	33
040~064	66

Heat pump model	Minimum total water volume (l)
016~025	76
032	110
040+050	152
064	220



INFORMATION

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



INFORMATION

The temperature step difference can be modified using settings [A-02] and [F-00]. This has an impact on the minimum water volume required when the unit operates in cooling.

By default, the unit is set to have a water temperature difference of 3.5 K which allows it to operate with the minimum volume mentioned in the previous table. However, if a smaller temperature differential is set, as in the case of process cooling applications where temperature fluctuations must be avoided, a larger minimum water volume will be required.

To ensure proper operation of the unit when changing the values of setting [F-00] (for cooling mode), the minimum water volume has to be corrected. If this volume exceeds the range allowed in the unit, an additional expansion vessel or a buffer tank must be installed in the field piping.

Example:

To illustrate the impact on the system when modifying the setting [F-00], we will consider a unit with a minimum allowable water volume of 66 l. The unit is installed 5 m below the highest point in the water circuit and is charged with 30% of ethylene glycol.

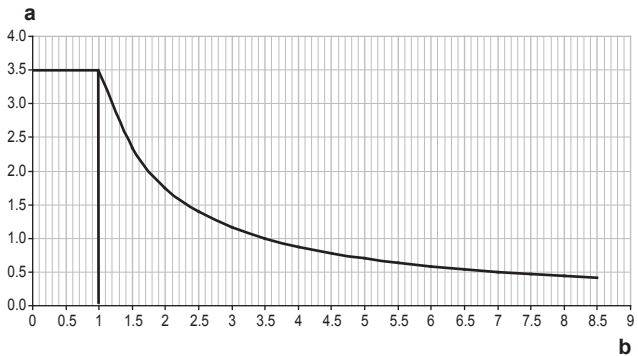
Assuming that the setting [F-00] is changed from 5°C (default value) to 0°C. From the below table we see that 5°C corresponds to a temperature differential of 3.5 K and 0°C to 1 K, which is actually the lowest value we can set.

[F-00] value (°C)	Temperature differential (K)
0	1
1	1.5
2	2
3	2.5
4	3
5	3.5
6	4
7	4.5
8	5
9	5.5
10	6
11	6.5
12	7
13	7.5

[F-00] value (°C)	Temperature differential (K)
14	8
15	8.5

The water volume correction factor according to the curve shown in the below graph is 3.5; this means that the minimum volume will be 3.5 times larger.

Correction factor curve for minimum water volume



- a Water volume correction factor
b Temperature differential (K)

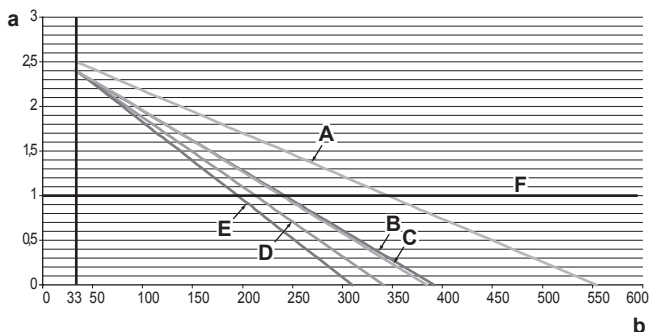
When multiplying 64 l by the correction factor, we get 224 l, which will be the minimum water volume allowed in the installation if a temperature differential of 1 K is used.

Now it is very important to check that for the height difference of the system, the volume in the system is less than the maximum allowed value at that pre-pressure (Pg). If we take a look at the ethylene glycol concentration curve of 30%, for 1 bar of pre-pressure the maximum volume allowed is 240 l.

The total volume in the system will definitely be larger after adding the internal volume of the unit. In this case, some pre-pressure can be applied or an additional expansion vessel or buffer tank must be installed in the field piping.

Maximum water volume

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



- a Pre-pressure (bar)
b Maximum water volume (l) (water or water + glycol)
A System without glycol
B System with 30% ethylene glycol
C System with 40% ethylene glycol
D System with 30% propylene glycol
E System with 40% propylene glycol
F Default

If the total water volume in the entire circuit exceeds the maximum allowed water volume (see graph), an additional expansion vessel must be installed in the field piping.

The default value of pre-pressure (Pg) is for a height difference of 7 m.

If the height difference of the system is lower than 7 m AND the volume in the system is less than the maximum allowed value at that pre-pressure (Pg) (see graph), then NO pre-pressure (Pg) adjustment is required.

5.3.4 Changing the pre-pressure of the expansion vessel



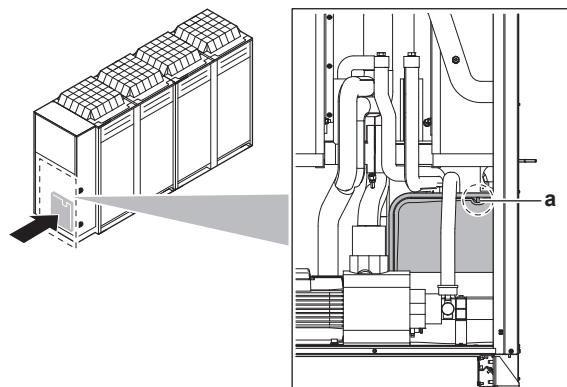
NOTICE

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

When changing the default pre-pressure of the expansion vessel (1 bar) is required, 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

5.3.5 To check the water volume: Examples

Example 1

The unit is installed 5 m below the highest point in the water circuit. The total water volume in the water circuit is 250 l.

No actions or adjustments are required.

Example 2

The unit is installed at the highest point in the water circuit. The total water volume in the water circuit (no glycol used) is 420 l.

Actions:

- Because the total water volume (420 l) is more than the default water volume (340 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 is approximately 490 l (see graph).
- Because 420 l is lower than 490 l, the expansion vessel is appropriate for the installation.

5.4 Preparing electrical wiring

5.4.1 About electrical compliance

This equipment complies with:

- EN/IEC 61000-3-11 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.
- 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 $\leq 75 \text{ A}$.
- 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} .
- EN/IEC 61000-3-12 provided that the short-circuit power S_{sc} is greater than or equal to the minimum S_{sc} value at the interface point between the user's supply and the public system.
- EN/IEC 61000-3-12 = European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current $> 16 \text{ A}$ and $\leq 75 \text{ A}$ per phase.
- It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power S_{sc} greater than or equal to the minimum S_{sc} value.

Model	$Z_{\text{max}}(\Omega)$	Minimum S_{sc} value (kVA)
EWAQ/EWYQ016	—	1016
EWAQ/EWYQ021	0.27	820
EWAQ/EWYQ025	0.27	821
EWAQ/EWYQ032	0.24	874
EWAQ/EWYQ040	0.25	1639
EWAQ/EWYQ050	0.25	1630
EWAQ/EWYQ064	0.22	1747

5.4.2 Cable requirements

Item	Cable bundle	Description	Required number of conductors	Maximum running current
1	PS	Power supply	4+GND	^(b)
2	LV	Standard remote controller (F1/F2)	2	^(c)
3	LV	Secondary remote controller (F1/F2) ^(a)	2	^(c)
4	LV	Thermostat ON/OFF signal ^(a)	2	^(c)
5	LV	Thermostat cooling/heating signal ^(a)	2	^(c)
6	LV	Operation ON signal ^(a)	2	^(c)
7	LV	Operation OFF signal ^(a)	2	^(c)
8	HV	Cooling/heating output	2	0.3 A
9	HV	Operation ON/OFF output	2	0.3 A
10	HV	Error output	2	0.3 A
11	HV	Water piping heater output	2	1 A
12	HV	Pump ON/OFF output	2	0.3 A ^(d)

- (a) Optional
 (b) Refer to the nameplate on the unit or to the technical data book.
 (c) Minimum cable section 0.75 mm².
 (d) Only for models with pump (EWAQ*CAW(P/H)* and EWYQ*CAW(P/H)* units).
- PS Power supply
 LV Low voltage
 HV High voltage

5.4.3 Safety device requirements

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

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

6 Installation



INFORMATION

Multi units are standard combinations.

Model	Recommended fuses
EWAQ/EWYQ016	25 A
EWAQ/EWYQ021	32 A
EWAQ/EWYQ025	32 A
EWAQ/EWYQ032	40 A
EWAQ/EWYQ040	50 A
EWAQ/EWYQ050	63 A
EWAQ/EWYQ064	80 A



NOTICE

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

6 Installation

6.1 Overview: Installation

This chapter describes what you have to do and know on-site to install the system.

Typical workflow

Installation typically consists of the following stages:

- Mounting the outdoor unit
- Connecting the water piping
- Connecting the electrical wiring

6.2 Opening the units

6.2.1 To open the outdoor unit

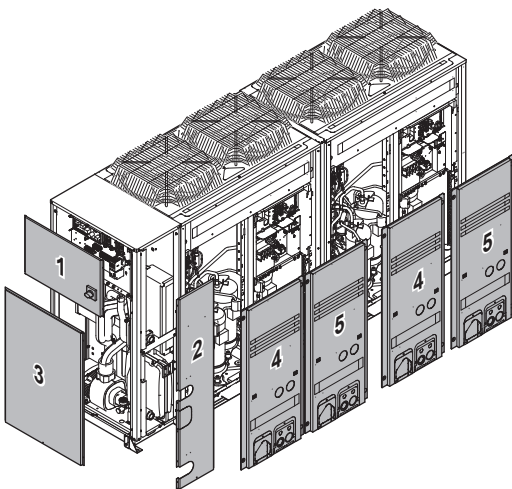


DANGER: RISK OF ELECTROCUTION



DANGER: RISK OF BURNING

To gain access to the unit, front plates need to be opened as follows:



Panel	
1	Electrical parts of the hydro module
2	Hydro module (side panel)
3	Hydro module (front panel)

Panel	
4	Outdoor module (left panel)
5	Outdoor module (right panel)

Once the front plates open, the electrical component box can be accessed. See ["6.2.2 To open the electrical component box of the outdoor unit"](#) on page 14.

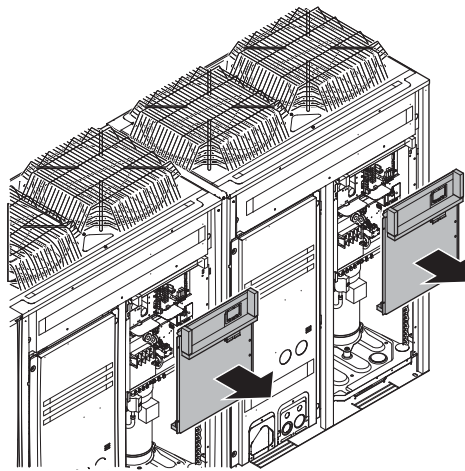
For service purposes, the pushbuttons on the main PCB need to be accessed. To access these pushbuttons, the electrical component box cover does not need to be opened. See ["7.2.3 To access the field setting components"](#) on page 21.

6.2.2 To open the electrical component box of the outdoor unit



NOTICE

Do NOT apply excessive force when opening the electronic component box cover. Excessive force can deform the cover, resulting in entering of water to cause equipment failure.



6.3 Mounting the outdoor unit

6.3.1 About mounting the outdoor unit

When

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

Typical workflow

Mounting the outdoor unit typically consists of the following stages:

- 1 Providing the installation structure.
- 2 Installing the outdoor unit.
- 3 Providing drainage.
- 4 Protecting the unit against snow and wind by installing a snow cover and baffle plates. See ["Preparing installation site"](#) in ["5 Preparation"](#) on page 9.

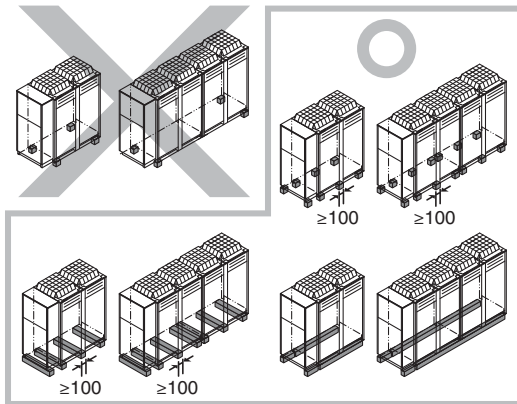
6.3.2 To provide the installation structure

Make sure the unit is installed level on a sufficiently strong base to prevent vibration and noise.



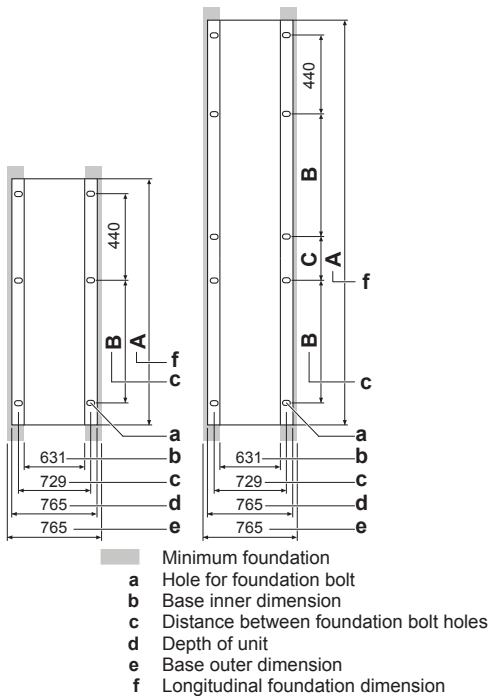
NOTICE

When the installation height of the unit needs to be increased, do NOT use stands to only support the corners.



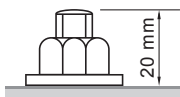
X Not allowed
O Allowed (* = preferred installation)

- The height of the foundation must at least be 150 mm from the floor. In heavy snowfall areas, this height should be increased, depending on the installation place and condition.
- The preferred installation is on a solid longitudinal foundation (steel beam frame or concrete). The foundation must be larger than the grey marked area.



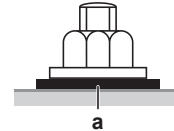
kW	A	B	C
16~25	1340	792	—
32	1650	1102	—
40+50	2320	792	192
64	2940	1102	192

- Fasten the unit in place using four foundation bolts M12. It is best to screw in the foundation bolts until their length remains 20 mm above the foundation surface.



NOTICE

- Prepare a water drainage channel around the foundation to drain waste water from around the unit. During heating operation and when the outdoor temperatures are negative, the drained water from the outdoor unit will freeze up. If the water drainage is not taken care of, the area around the unit might be very slippery.
- When installed in a corrosive environment, use a nut with plastic washer (a) to protect the nut tightening part from rust.



6.3.3 Precautions when mounting the outdoor unit

INFORMATION

Also read the precautions and requirements in the following chapters:

- General safety precautions
- Preparation

6.4 Connecting the water piping

6.4.1 About connecting the water piping

Before connecting the water piping

Make sure the outdoor unit is mounted.

Typical workflow

Connecting the water piping typically consists of the following stages:

- 1 Connecting the water piping of the outdoor unit.
- 2 Filling the water circuit.
- 3 Protecting the water circuit against freezing (addition of glycol).
- 4 Insulating the water piping.

6.4.2 Precautions when connecting the water piping

INFORMATION

Also read the precautions and requirements in the following chapters:

- General safety precautions
- Preparation

To connect the water piping

Water connections must be made in accordance with all applicable legislations and the outlook drawing delivered with the unit, respecting the water inlet and outlet.

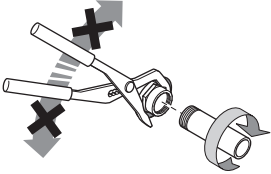
NOTICE

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

If dirt gets in the water circuit, problems may occur. Therefore, always take into account the following when connecting the water circuit:

6 Installation

- Use clean pipes only.
- Hold the pipe end downwards when removing burrs.
- Cover the pipe end when inserting it through a wall so that no dust and dirt enter.
- Use a good thread sealant for the sealing of the connections. The sealing must be able to withstand the pressures and temperatures of the system; it must also be resistant to the used glycol in the water.
- When using non-brass metallic piping, make sure to insulate both materials from each other to prevent galvanic corrosion.
- Make sure to provide a proper drain for the pressure relief valve.
- Because brass is a soft material, use appropriate tooling for connecting the water circuit. Inappropriate tooling will cause damage to the pipes.



- For correct operation of the system, a regulating valve must be installed in the water system. The regulating valve is to be used to regulate the water flow in the system (field supply).

6.4.3 To fill the water circuit

- 1 Connect the water supply to the drain and fill valve.
- 2 Make sure the automatic air purge valve is open (at least 2 turns).
- 3 Fill with water until the pressure gauge indicates a pressure of approximately 2.0 bar. Remove air in the circuit as much as possible using the air purge valves (refer to field setting [E-04] in "7.2.9 Field settings on the remote controller" on page 23).

NOTICE

- Air in the water circuit can cause malfunctioning. During filling, it may not be possible to remove all the air from the circuit. Remaining air will be removed through the automatic air purge valves during the initial operating hours of the system. Additional filling with water afterwards may be required.
- To purge the system, use the special function as described in "8 Commissioning" on page 28.

NOTICE

The water pressure indicated on the manometer will vary depending on the water temperature (higher pressure at higher water temperature).

However, at all times water pressure shall remain above 1 bar to avoid air entering the circuit.

NOTICE

Make sure water quality complies with EU directive 98/83 EC.

INFORMATION

The unit may dispose of some excessive water through the pressure relief valve.

NOTICE

In case of a power supply failure or pump failure, and NO glycol was added to the system, drain the system. When water is at standstill inside the system, the system is very likely to freeze and get damaged.

6.4.4 To protect the water circuit against freezing

Frost can damage the system. For this reason, if negative ambient temperatures are expected, make sure the water circuit is sufficiently protected against freezing.

Heater tape (optional)

A heater tape is wound around the piping to protect vital parts of the hydraulic system inside the unit.

This heater tape will only protect internal parts of the unit. It can not protect field installed parts outside the unit.

Field heater tapes must be provided by the installer.

NOTICE

In case of a power failure or if the power supply is disconnected during winter, the optional heater tape cannot protect the unit from freezing. If a power failure can happen at times the unit is unattended, if the power supply is disconnected during winter, or if you did not select this option, it is recommended to add glycol to the water system.

Glycol

Refer to field setting [8-04] in "7.2.9 Field settings on the remote controller" on page 23.

INFORMATION

The concentrations mentioned in the table below will prevent the piping from bursting, but will not prevent the liquid in the piping from freezing.

Depending on the expected lowest outdoor temperature, make sure the water system is filled with a weight concentration of glycol as mentioned in the following table.

Minimum outdoor temperature	Ethylene glycol	Propylene glycol
-5°C	10%	15%
-10°C	15%	20%
-15°C	20%	35%

WARNING

Ethylene glycol is toxic.

NOTICE

The above mentioned concentrations are applicable only when the unit is at a standstill.

CAUTION

- In case of over-pressure when using glycol, be sure to connect the safety valve to a drain pan in order to recover the glycol. Connecting a drain pipe is not required if no glycol is used. The discharged water is then drained via the bottom of the unit.
- Using more than 40% glycol will damage the unit.

**WARNING**

Due to presence of glycol, corrosion of the system is possible. Uninhibited glycol will turn acidic under the influence of oxygen. This process is accelerated by the presence of copper and high temperatures. The acidic uninhibited glycol attacks metal surfaces and forms galvanic corrosion cells that cause severe damage to the system. Therefore it is important that:

- the water treatment is correctly executed by a qualified water specialist,
- a glycol with corrosion inhibitors is selected to counteract acids formed by the oxidation of glycols,
- no automotive glycol is used because their corrosion inhibitors have a limited lifetime and contain silicates which can foul or plug the system,
- galvanized pipes are NOT used in glycol systems since the presence may lead to the precipitation of certain components in the glycol's corrosion inhibitor.

**NOTICE**

Glycol absorbs water from its environment. Therefore do NOT add glycol that has been exposed to air. Leaving the cap off the glycol container causes the concentration of water to increase. The glycol concentration is then lower than assumed. As a result, the hydraulic components might freeze up after all. Take preventive actions to ensure a minimal exposure of the glycol to air.

See also "8.4 Final check" on page 29.

6.4.5 To insulate the water piping

The complete water circuit, inclusive all piping, must be insulated to prevent condensation during cooling operation and reduction of the heating and cooling capacity as well as prevention of freezing of the outside water piping during winter time. The thickness of the insulation materials must be at least 13 mm with $\lambda=0.039$ W/mK in order to prevent freezing of the outside water piping at ambient temperature of -15°C .

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.

6.5 Connecting the electrical wiring

6.5.1 Precautions when connecting electrical wiring

**DANGER: RISK OF ELECTROCUTION****WARNING**

All field wiring and components must be installed by a licensed electrician and must comply with the applicable legislation.

**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 applicable legislation.
- All field wiring must be performed in accordance with the wiring diagram supplied with the product.
- NEVER squeeze bundled cables and make sure they do not come in contact with the piping and sharp edges. Make sure no external pressure is applied to the terminal connections.
- Make sure to install earth wiring. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earth may cause electrical shock.
- Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance.
- Make sure to install the required fuses or circuit breakers.
- Make sure to install an earth leakage protector. Failure to do so may cause electric 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.

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

**WARNING**

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

**NOTICE**

Do NOT operate the unit until the refrigerant piping is complete. Running the unit before the piping is ready will break the compressor.

**NOTICE**

If the power supply has a missing or wrong N-phase, equipment will break down.

**NOTICE**

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.

**NOTICE**

NEVER remove a thermistor, sensor, etc., when connecting power wiring and transmission wiring. (If operated without thermistor, sensor, etc., the compressor may break down.)

6 Installation

NOTICE

- The reversed phase protection detector of this product only functions when the product starts up. Consequently reversed phase detection is not performed during normal operation of the product.
- The reversed phase protection detector is designed to stop the product in the event of an abnormality when the product is started up.
- Replace 2 of the 3 phases (L1, L2, and L3) during reverse-phase protection abnormality.

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.

6.5.2 Field wiring: Overview

Field wiring consists of power supply (always including earth) and indoor-outdoor communication (= transmission) wiring.

- Most field wiring on the unit is to be made on the terminal blocks inside the electrical component boxes. To gain access to the terminal blocks, remove the electrical component box service panel. See "6.2 Opening the units" on page 14.
- Cable tie mountings are provided at the wiring entries of the electrical component box.

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

6.5.3 About the electrical wiring

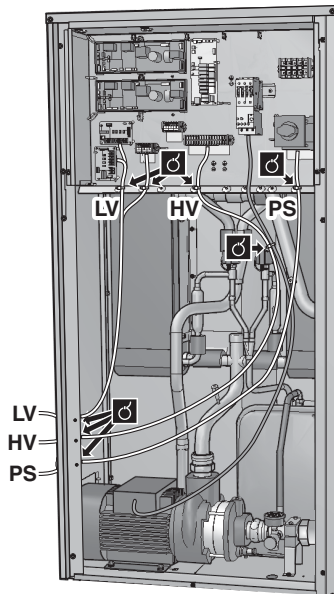
It is important to keep the power supply and the transmission wiring separated from each other. In order to avoid any electrical interference the distance between both wiring should always be at least 25 mm.

NOTICE

- Be sure to keep the power line and transmission line apart from each other. Transmission wiring and power supply wiring may cross, but may not run parallel.
- Transmission wiring and power supply wiring may not touch internal piping (except the inverter PCB cooling pipe) in order to avoid wire damage due to high temperature piping.
- Firmly close the lid and arrange the electrical wires so as to prevent the lid or other parts from coming loose.

Maximum remote controller wiring length: 500 m

6.5.4 To route and fix the power supply

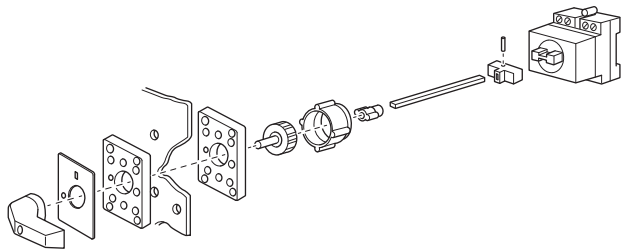


PS Power supply
HV High voltage
LV Low voltage

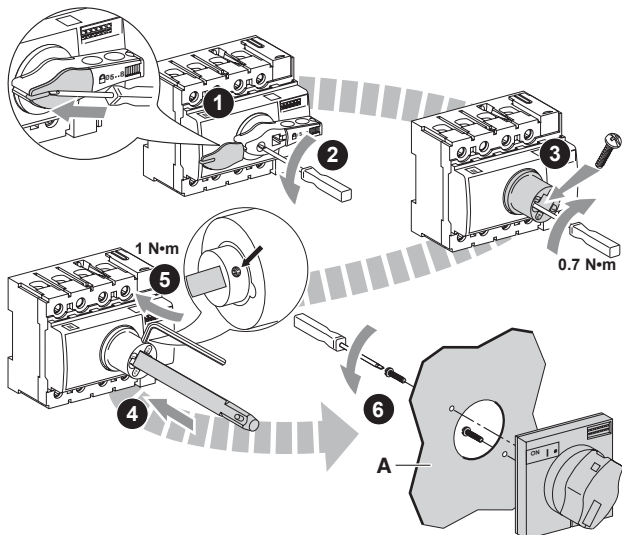
6.5.5 To install the main switch handle

Open panel 1 and mount the main switch handle parts. The handle of the main switch is mounted on panel 1.

EWAQ+EWYQ016~032



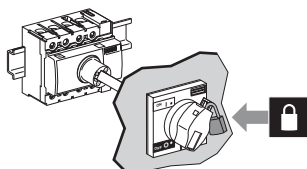
EWAQ+EWYQ040~064



NOTICE

When the main switch is in the OFF position, it is possible to lock the main switch using a suitable padlock. See the figure below.

Keep in mind that in this case the padlock needs to be opened and removed before it is possible to turn the main switch to the ON position.



6.5.6 To connect the power supply and transmission cables

- 1 Open the electrical component box cover.
- 2 Using the appropriate cable, connect the power supply and communication cable(s) to the appropriate terminals as shown on the wiring diagram.
- 3 Fix the cables with cable ties to the cable tie mountings to ensure strain relief and to make sure that they do not come in contact with the piping and sharp edges. Never squeeze bundled cables.
- 4 Close the electrical component box cover.

6.5.7 To install the remote controller

The unit comes with a remote controller offering a user-friendly way to set up, use and maintain the unit. Before operating the remote controller, follow this installation procedure.

Wire specification	Value
Type	2 wire
Section	0.75~1.25 mm ²
Maximum length	500 m

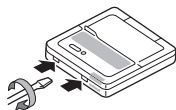
NOTICE

The wiring for connection is NOT included.

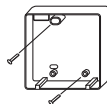
NOTICE

The accessory remote controller MUST be mounted indoors.

- 1 Insert a slotted screwdriver into the slots in the rear part of the remote controller, and remove the front part of the remote controller.

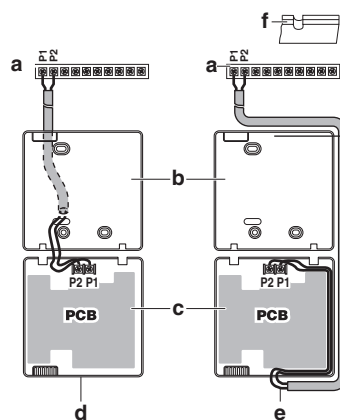


- 2 Fasten the remote controller on a flat surface.

**NOTICE**

Be careful NOT to distort the shape of the lower part of the remote controller by overtightening the mounting screws.

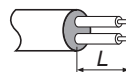
- 3 Connect the terminals of the remote controller and the terminals inside the unit (P1 to P1, P2 to P2) as shown in the figure.



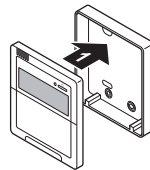
- a Unit
- b Rear part of the remote controller
- c Front part of the remote controller
- d Wired from the rear
- e Wired from the top
- f Use nippers to notch the part for the wiring to pass through

NOTICE

- When wiring, run the wiring away from the power supply wiring in order to avoid receiving electric noise (external noise).
- Peel the shield for the part that has to pass through the inside of the remote controller case (L).



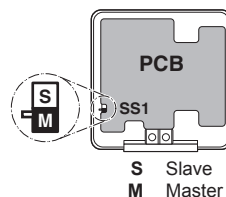
- 4 Reattach the upper part of the remote controller, starting with the clips at the bottom.

**CAUTION**

Do NOT pinch the wiring when attaching.

If, in addition to the standard remote controller, an optional remote controller (EKRUHTB) is installed as well:

- 5 Connect the electrical wires of both remote controllers as described.
- 6 Select a master and a slave remote controller using the SS1 selector switch.



- S Slave
- M Master

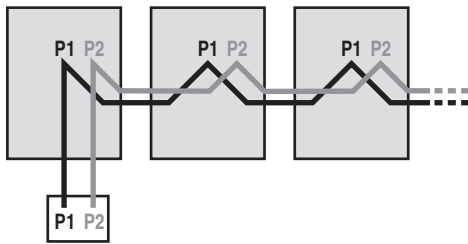
INFORMATION

Only the remote controller set as master can be used as a room thermostat.

7 Configuration

i INFORMATION

For multi unit control, connect the remote controller to the unit as instructed above. For all other units to be controlled by this controller, connect P1 of the previous unit to P1 of the next unit, P2 of the previous unit to P2 of the next unit, etc.



This is limited to 16 PCBs, with EWAQ+EWYQ016~032 counting as 1 PCB, and EWAQ+EWYQ040~064 as 2 PCBs.

6.5.8 To install optional equipment

For the installation of optional equipment, refer to the installation manual which is delivered with the optional equipment or the addenda delivered with this unit.

7 Configuration

7.1 Overview: Configuration

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

It contains information about:

- Making field settings
- Switching between cooling and heating

i INFORMATION

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

⚠ DANGER: RISK OF ELECTROCUTION

7.2 Making field settings

7.2.1 About making field settings

i INFORMATION

The LEDs and buttons are located in the outdoor module (not in the hydro module).

Making settings is done via the master unit.

Next to making field settings it is also possible to confirm the current operation parameters of the unit.

Pushbuttons and DIP switches

Item	Description
Pushbuttons	By operating the pushbuttons it is possible to: <ul style="list-style-type: none"> • Change the mode. • Perform field settings (demand operation, low noise, etc).

Item	Description
DIP switches	<ul style="list-style-type: none"> • DS1 (1): COOL/HEAT selector • DS1 (2~4): NOT USED. DO NOT CHANGE THE FACTORY SETTING. • DS2 (1~4): NOT USED. DO NOT CHANGE THE FACTORY SETTING.

See also:

- ["7.2.2 Field setting components" on page 20](#)
- ["7.2.3 To access the field setting components" on page 21](#)

Mode 1 and 2

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

See also:

- ["7.2.4 To access mode 1 or 2" on page 21](#)
- ["7.2.5 To use mode 1" on page 21](#)
- ["7.2.6 To use mode 2" on page 21](#)
- ["7.2.7 Mode 1: Monitoring settings" on page 22](#)
- ["7.2.8 Mode 2: Field settings" on page 22](#)

To continue the configuration of the system, it is required to give some input to the PCB of the unit. This chapter will describe how manual input is possible by operating the pushbuttons/DIP switches on the PCB and reading the feedback from the LEDs.

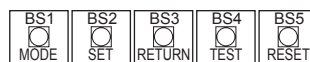
i INFORMATION

If you get confused in the middle of the process, push BS1. Then it returns to setting mode 1 (H1P is off).

7.2.2 Field setting components

The components to make field settings are as follows:

MODE	TEST:	C/H SELECT				L.N.O.P.	DEMAND	MULTI
	HWL:	IND	MASTER	SLAVE				
H1P	H2P	H3P	H4P	H5P	H6P	H7P	H8P	



BS1~BS5 Pushbuttons
H1P~H8P LEDs
ON OFF Flashing

Pushbuttons

Use the pushbuttons to make the field settings.

- BS1 MODE: For changing the set mode
- BS2 SET: For field setting
- BS3 RETURN: For field setting
- BS4 Not used
- BS5 Not used

LEDs

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

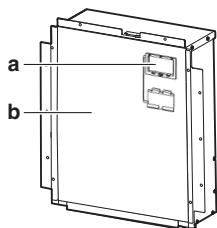
- H1P** Shows the mode
- H2P~H7P** Shows the settings and values, represented in binary code
- H8P** NOT used for field settings, but used during initialisation

Example:

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

7.2.3 To access the field setting components

Remove the inspection cover to carry out field settings.



Operate the switches and pushbuttons with an insulated stick (such as a closed ball-point pen) to avoid touching of live parts.



Make sure to re-attach the inspection cover into the electrical component box cover after the job is finished.

NOTICE

Make sure that all outside panels, except for the service cover on the electrical component box, are closed while working.

Close the lid of the electrical component box firmly before turning on the power.

7.2.4 To access mode 1 or 2

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

Initialisation: default situation

NOTICE

Be sure to turn on the power 6 hours before operation in order to have power running to the crankcase heater and to protect the compressor.

Turn on the power supply of the outdoor unit, and turn on the external operation switch. After initialisation, the display indication state will be as below (default situation when shipped from factory).

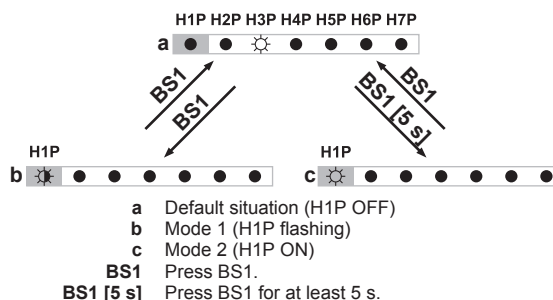
	H1P H2P H3P H4P H5P H6P H7P H8P	
Single unit	● ● ● ● ● ● ● ●	
Multi-unit	Left unit (master)	● ● ● ● ● ● ● ●
	Right unit (slave)	● ● ● ● ● ● ● ●

If the default situation is not displayed after 10~12 minutes, check the malfunction code. Solve the malfunction code accordingly.

The HAP LED flashes to indicate normal microcomputer operation.

Switching between modes

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



INFORMATION

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

7.2.5 To use mode 1

Mode 1 is used to monitor the status of the unit.

What	How
Accessing monitoring mode 1	Once mode 1 is selected (push BS1 one time), you can select the wanted setting. It is done by pushing BS2.
To quit and return to the initial status	Press BS1.

7.2.6 To use mode 2

The master unit should be used to input field settings in mode 2.

Mode 2 is used to set field settings of the outdoor unit and system.

What	How
Changing and accessing the setting in mode 2	Once mode 2 is selected (push BS1 for more than 5 seconds), you can select the wanted setting. It is done by pushing BS2. Accessing the selected setting's value is done by pushing BS3 1 time.
To quit and return to the initial status	Press BS1.
Changing the value of the selected setting in mode 2	<ul style="list-style-type: none"> Once mode 2 is selected (push BS1 for more than 5 seconds) you can select the wanted setting. It is done by pushing BS2. Accessing the selected setting's value is done by pushing BS3 1 time. Now BS2 is used to select the required value of the selected setting. When the required value is selected, you can define the change of value by pushing BS3 1 time. Press BS3 again to start operation according to the chosen value.

7 Configuration

7.2.7 Mode 1: Monitoring settings













In mode 1 (and in default situation) you can read out the following information:

Value / Description	
H2P	Shows the present operation state.
OFF	● ● ● ● ● ● ● ● Normal operation state.
ON	● ● ● ● ● ● ● ● Abnormal operation state.
FLASHING	● ● ● ● ● ● ● ● Under preparation or under test preparation
H6P	Shows the status of low noise operation.
OFF	● ● ● ● ● ● ● ● Unit is currently not operating under low noise restrictions.
ON	● ● ● ● ● ● ● ● Unit is currently operating under low noise restrictions.
<p>Low noise operation reduces the sound generated by the unit compared to nominal operating conditions.</p> <p>Low noise operation can be set in mode 2. There are two methods to activate low noise operation of the compressor unit and heat exchanger unit.</p> <ul style="list-style-type: none"> The first method is to enable an automatic low noise operation during night time by field setting. The unit will operate at the selected low noise level during the selected time frames. The second method is to enable low noise operation based on an external input. For this operation an optional accessory is required. 	

Value / Description	
H7P	Shows the status of power consumption limitation operation.
OFF	● ● ● ● ● ● ● ● Unit is currently not operating under power consumption limitations.
ON	● ● ● ● ● ● ● ● Unit is currently operating under power consumption limitation.
<p>Power consumption limitation reduces the power consumption of the unit compared to nominal operating conditions.</p> <p>Power consumption limitation can be set in mode 2. There are two methods to activate power consumption limitation of the compressor unit.</p> <ul style="list-style-type: none"> The first method is to enable a forced power consumption limitation by field setting. The unit will always operate at the selected power consumption limitation. The second method is to enable power consumption limitation based on an external input. For this operation an optional accessory is required. 	

7.2.8 Mode 2: Field settings

Press the BS2 button to make field settings to configure the system. The LEDs give a binary representation of the setting/value number.

Setting H1P H2P H3P H4P H5P H6P H7P (= binary)	Value	
	H1P H2P H3P H4P H5P H6P H7P	Description
 Fan high static pressure setting. In order to increase the static pressure the outdoor unit fan is delivering, this setting should be activated.	 (default)	Deactivated.
		Activated.
 Automatic low noise setting and level during night time. By changing this setting, you activate the automatic low noise operation function of the unit and define the level of operation. Depending on the chosen level, the noise level will be lowered.	 (default)	Deactivated
		Level 1
		Level 2
		Level 3
 Low noise operation level via the external control adaptor. If the system needs to be running under low noise operation conditions when an external signal is sent to the unit, this setting defines the level of low noise that will be applied. This setting will only be effective when the optional external control adaptor (DTA104A62) is installed and setting [2-12] was activated.	 (default)	Level 1
		Level 2
		Level 3

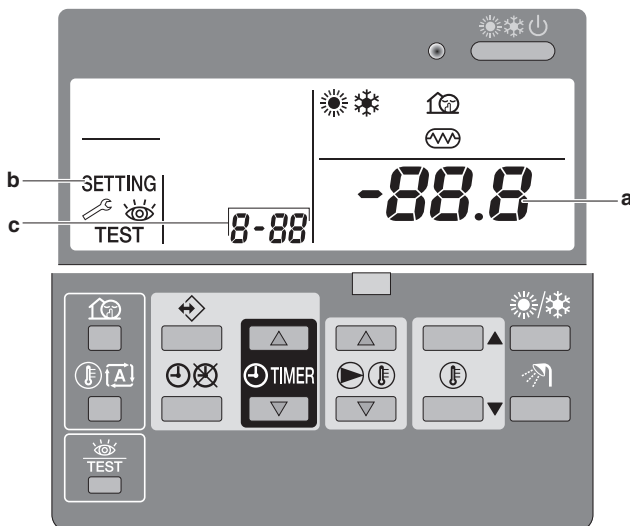
Setting	Value									
	H1P	H2P	H3P	H4P	H5P	H6P	H7P	Description		
Power consumption limitation level via the external control adaptor (DTA104A62) If the system needs to be running under power consumption limitation conditions when an external signal is sent to the unit, this setting defines the level power consumption limitation that will be applied. The level is according to the table.	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	Level 1	Level 3<Level 2<Level 1	
	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●		Level 2
	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●		Level 3
Enable the low noise function and/or power consumption limitation via the external control adaptor (DTA104A62). If the system needs to be running under low noise operation or under power consumption limitation conditions when an external signal is sent to the unit, this setting should be changed. This setting will only be effective when the optional external control adaptor (DTA104A62) is installed in the indoor unit.	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	Deactivated.		
	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	☀ ● ● ● ● ● ● ● ●	Activated.	

7.2.9 Field settings on the remote controller

The user can change the field settings using the remote controller.

Each field setting is assigned a 3-digit number or code, e.g. [5-03], which is indicated on the remote controller display. The first digit [5] is the 'first code' or field setting group. The second and third digit [03] together are the 'second code'.

See "7.2.9 Field settings on the remote controller" on page 23 for an overview of all field settings and default values.



- 1 Press **TEST** for a minimum of 5 seconds to enter the field setting mode.

Result: SETTING (c), the current selected field setting code 8-88 (b) and the set value -88.8 (a) are displayed.

- 2 Press **▶◀▲** to select the appropriate field setting first code.
- 3 Press **▶◀▲** to select the appropriate field setting second code.

	Master	Slave	Permission level 2	Permission level 3
Operation ON/OFF	✓	✓	✓	✓
Setting the leaving water temperature	✓	✓	✓	—
Setting the room temperature	✓	✓	✓	✓
Quiet mode ON/OFF	✓	✓	—	—
Weather dependent setpoint operation ON/OFF	✓	✓	✓	—
Setting the clock	✓	✓	—	—
Programming the schedule timer	✓	—	—	—
Schedule timer operation ON/OFF	✓	—	✓	✓

- 4 Press **◀▲** and **▶▼** to change the value of the selected field setting.
- 5 Press **⊗/⊕** to save the new value.
- 6 Repeat the previous steps to change other field settings as required.
- 7 When finished, press **TEST** to exit the field setting mode.

i INFORMATION

- Changes made to a specific field setting are only stored when **⊗/⊕** is pressed. Navigating to a new field setting code or pressing **TEST** will discard any changes.
- Field settings are grouped by their first code, e.g. field settings [0-00]; [0-01]; [0-02]; [0-03] are defined as "Group 0". When different values are changed within the same group, pressing **⊗/⊕** will save all the values changed within this group.

i INFORMATION

- Before shipping, the set values have been set as shown in "7.2.9 Field settings on the remote controller" on page 23.
- When exiting the field setting mode, "88" may be displayed on the remote controller LCD while the unit initializes itself.

[0] Remote control setup

[0-00] User permission level

The user permission level defines which buttons and functions are available for the user. By default no level is defined, so all buttons and functions are operable.

[0-00]	Description
2	Permission level 2
3	Permission level 3

7 Configuration

	Master	Slave	Permission level 2	Permission level 3
Field settings	✓	—	—	—
Error code display	✓	✓	✓	✓
Test operation	✓	✓	—	—

After entering the field setting, the selected permission level must be enabled by simultaneously pressing \odot \blacktriangle and \ominus \blacktriangledown , immediately followed by simultaneously pressing \odot and \ominus . Keep all 4 buttons pressed for at least 5 seconds. Note that no indication on the remote controller is given. After the procedure the blocked buttons will not be available anymore.

Deactivating the selected permission level is done in the same way.

[0-01] Room temperature compensation value

If necessary, it is possible to adjust some thermistor value of the unit by a correction value. This can be used as countermeasure for thermistor tolerances or capacity shortage.

The compensated temperature (= measured temperature plus compensation value) is then used to control the system and will be displayed in the temperature read-out mode. See also field setting [9] in this chapter for compensation values for leaving water temperature.

[0-02]

This setting is not applicable.

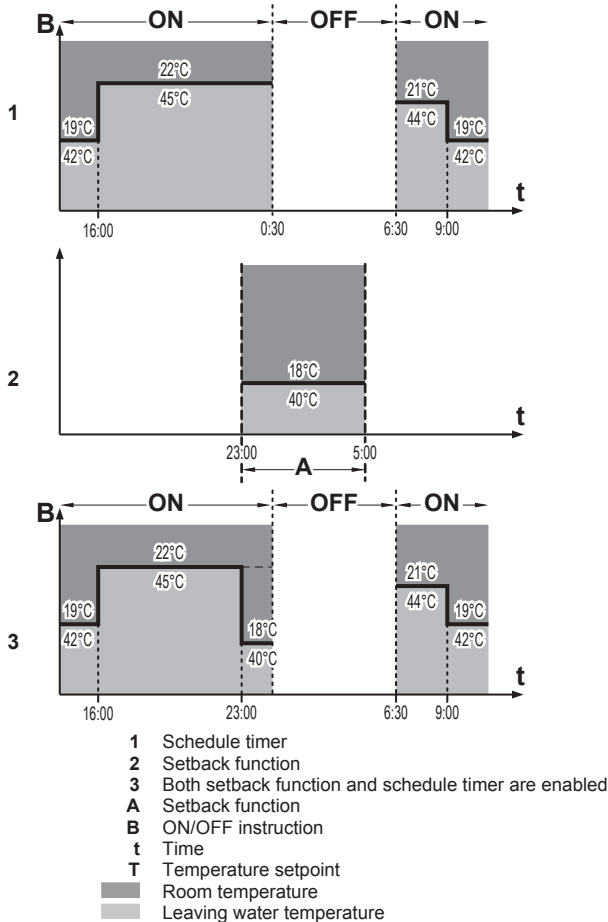
[0-03] Status

Defines whether the ON/OFF instruction can be used in the schedule timer for space heating.

[0-03]	Description
0	Space heating schedule timer based on ON/OFF instruction.
1 (default)	Space heating schedule timer based on temperature setpoint.

Space heating based on ON/OFF instruction	
During operation	When the schedule timer switches space heating OFF, the controller will be switched off (operation LED will stop working).
Press \odot	<p>The schedule timer for space heating will stop (when active at that moment) and will start again at the next scheduled ON function.</p> <p>The "last" programmed command overrides the "preceding" programmed command and will remain active until the "next" programmed command occurs.</p> <p>Example: imagine the actual time is 17:30 and actions are programmed at 13:00, 16:00 and 19:00. The "last" programmed command (16:00) overruled the "previous" programmed command (13:00) and will remain active until the "next" programmed command (19:00) occurs.</p> <p>So in order to know the actual setting, you should consult the last programmed command (this may date from the day before).</p> <p>The controller is switched off (operation LED off), but the schedule timer icon remains on.</p>
Press \odot/\ominus	<p>The schedule timer for space heating and the quiet mode stops and will not start again.</p> <p>The schedule timer icon is not displayed any more.</p>

- Operation example: Schedule timer based on ON/OFF instruction. When the setback function (see field setting [2]) is enabled, the setback operation will have priority over the scheduled action in the schedule timer if ON instruction is active. If OFF instruction is active this will have priority over the setback function. At any time the OFF instruction will have the highest priority.

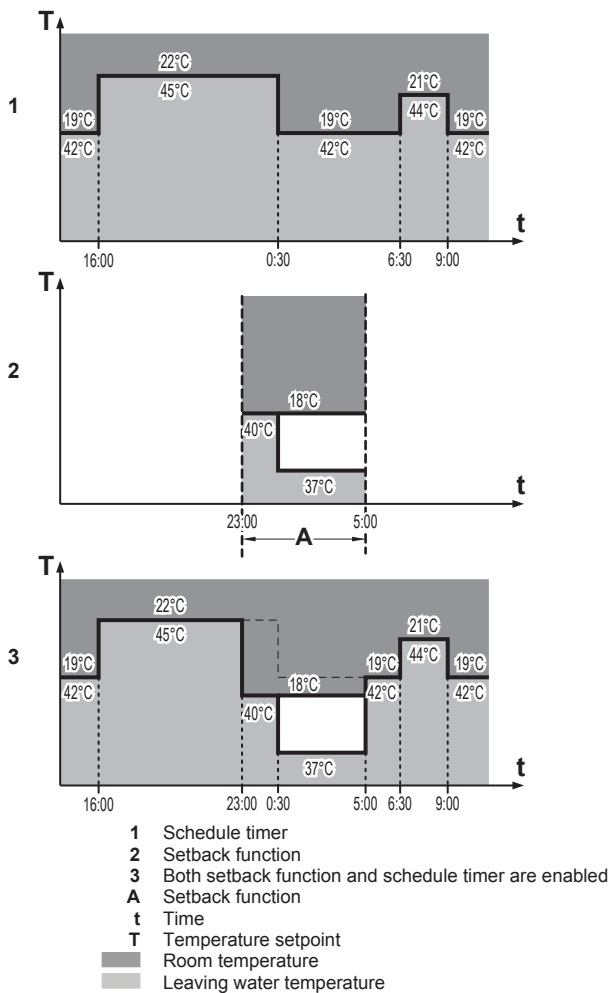


Space heating based on temperature setpoint ^(a)	
During operation	During schedule timer operation the operation LED is lit continuously.
Press \odot	<p>The schedule timer for space heating stops and will not start again.</p> <p>The controller is switched off (operation LED off).</p>
Press \odot/\ominus	<p>The schedule timer for space heating and the quiet mode stops and will not start again.</p> <p>The schedule timer icon is not displayed any more.</p>

(a) For leaving water temperature and/or room temperature

- Operation example: Schedule timer based on temperature setpoint

When the setback function (see field setting [2]) is enabled, the setback operation will have priority over the scheduled action in the schedule timer.



[0-04] Status

Defines whether the ON/OFF instruction can be used in the schedule timer for cooling.

This is the same as for space heating [0-03], but the setback function is not available.

[1] Settings are not applicable

[2] Automatic setback function

i INFORMATION

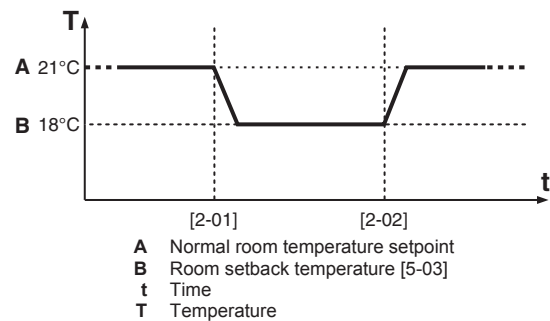
This function is available for heat pump units operating in heating mode ONLY. It does NOT exist for cooling.

The setback function provides the possibility to lower the room temperature. It can be activated e.g. during the night, because temperature demands during night and day are not the same.

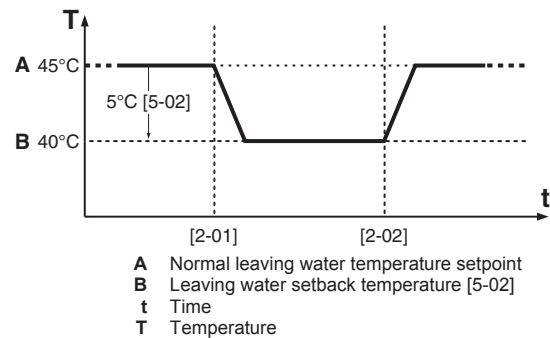
i INFORMATION

- The setback function is enabled by default.
- The setback function can be combined with the automatic weather dependent setpoint operation.
- Setback function is an automatic daily scheduled function.

Setback configured for room temperature control



Setback configured for leaving water temperature control



See field setting [5] in this chapter for temperature setpoints.

[2-00] Status

[2-00]	Description
0	The setback function is disabled.
1	The setback function is enabled.

[2-01] Start time

Time at which setback is started.

[2-02] Stop time

Time at which setback is stopped.

[3] Weather dependent setpoint

i INFORMATION

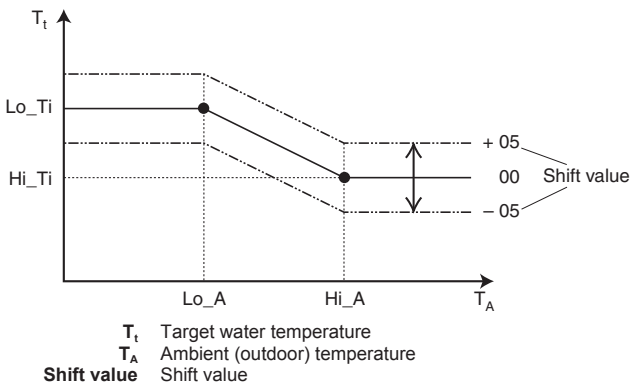
This function is available for heat pump units operating in heating mode ONLY. It does NOT exist for cooling.

When weather dependent operation is active, the leaving water temperature is determined automatically depending on the outdoor temperature: colder outdoor temperatures will result in warmer water and vice versa. The unit has a floating setpoint. Activating this operation will result in a lower power consumption than use with a manually fixed leaving water setpoint.

During weather dependent operation, the user has the possibility to shift up or down the target water temperature by a maximum of 5°C. This "Shift value" is the temperature difference between the temperature setpoint calculated by the controller and the real setpoint. E.g. a positive shift value means that the real temperature setpoint will be higher than the calculated setpoint.

It is advised to use the weather dependent setpoint because it adjusts the water temperature to the actual needs for space heating. It will prevent the unit from switching too much between thermo ON operation and thermo OFF operation when using the remote controller room thermostat or external room thermostat.

7 Configuration



[3-00] Low ambient temperature (Lo_A)

Low outdoor temperature.

[3-01] High ambient temperature (Hi_A)

High outdoor temperature.

[3-02] Setpoint at low ambient temperature (Lo_Ti)

The target outgoing water temperature when the outdoor temperature equals or drops below the low ambient temperature (Lo_A).

Lo_Ti should be higher than Hi_Ti, as warmer water is required for colder outdoor temperatures.

[3-03] Setpoint at high ambient temperature (Hi_Ti)

The target outgoing water temperature when the outdoor temperature equals or rises above the high ambient temperature (Hi_A).

Hi_Ti should be lower than Lo_Ti, as less warm water suffices for warmer outdoor temperatures.



INFORMATION

If the value of [3-03] is mistakenly set higher than the value of [3-02], the value of [3-03] will always be used.

[4] Settings are not applicable

[5] Automatic setback

[5-00]

This setting is not applicable.

[5-01]

This setting is not applicable.

[5-02] Leaving water setback temperature

[5-03] Room setback temperature

[5-04]

This setting is not applicable.

[6] Option setup

[6-01] External room thermostat option

If an optional external room thermostat is installed, its operation must be enabled by this field setting.

The external room thermostat only gives an ON/OFF signal to the heat pump based on the room temperature. Because it does not give continuous feedback information to the heat pump, it is supplementary to the remote controller room thermostat function. To have a good control of the system and avoid frequent ON/OFF it is advised to use the automatic weather dependent setpoint operation.

[6-01]	Description
0 (default)	External room thermostat not installed.

[6-01]	Description
1	External room thermostat input 1 = heating operation ON (1)/OFF (0). External room thermostat input 2 = cooling operation ON (1)/OFF (0).
2	External room thermostat input 1 = operation ON (1)/OFF (0). External room thermostat input 2 = cooling (1)/heating (0).

[7] Option setup

[7-00] Forced pump operation

[7-00]	Description
0	The pump performs intermittent sampling during thermo off conditions. This setting is often used when the unit is controlled by a room thermostat.
1 (default)	The pump continues operation during thermo off conditions.

[8] Option setup

[8-00] Remote controller temperature control

[8-00]	Description
0 (default)	The unit operates in leaving water temperature control.
1	The unit operates in room temperature control. This means that the remote controller is used as a room thermostat, so the remote controller can be placed in the living room to control the room temperature.

Note: When the unit is operated in room temperature control (by remote controller or external room thermostat option), room temperature has priority over leaving water setpoint.

[8-01]

This setting is not applicable.

[8-03]

This setting is not applicable.

[8-04] Freeze-up prevention

Freeze-up prevention will be activated by starting up the pump to circulate the water, and if the leaving or return water temperature is $<5^{\circ}\text{C}$ for 5 minutes, the unit will start up in heating mode to prevent too low temperatures.

The freeze-up prevention is only active when the unit is in thermo OFF condition.

The option can be enabled when there is no optional heater tape or glycol in the system and when heat can be used from an application.

[8-04]	Description
0 (default)	No freeze-up prevention
1	Freeze-up prevention level 1 (outdoor temperature $<4^{\circ}\text{C}$ and leaving or return water temperature $<7^{\circ}\text{C}$)
2	Freeze-up prevention level 2 (outdoor temperature $<4^{\circ}\text{C}$)

[9] Automatic temperature compensation

If necessary, it is possible to adjust some thermistor value of the unit by a correction value. This can be used as countermeasure for thermistor tolerances or capacity shortage.

The compensated temperature (= measured temperature plus compensation value) is then used to control the system and will be displayed in the temperature read-out mode.

[9-00] Leaving water temperature compensation value for heating operation**[9-01] Leaving water thermistor auto corrective function**

This function will take into account the outdoor ambient conditions and correct the measured value which will be used for the logic.

E.g. when the ambient temperature is high during cooling mode, the logic will correct the measured value of the leaving water thermistor to a lower value to take into account influence of high ambient temperatures in the measurement.

[9-02]

This setting is not applicable.

[9-03] Leaving water temperature compensation value for cooling operation**[9-04]**

This setting is not applicable.

[A] Option setup**[A-00]**

This setting is not applicable.

[A-01]

This setting is not applicable.

[A-02] Return water temperature undershoot value

This setting makes it possible to set the allowable undershoot when operating the unit during heating THERMO ON/OFF condition.

The unit will go in THERMO ON only if the return water temperature (RWT) goes below the setpoint minus the differential temperature:

Thermo ON: $RWT < \text{Setpoint} - ((A-02)/2) + 1$

The setting [A-02] has a variability range from 0 to 15 and the step is 1 degree. The default value is 5, meaning that the differential temperature default value is 3.5.

[A-03] Leaving water temperature overshoot/undershoot value

This setting makes it possible to set the allowable overshoot (heating)/undershoot (cooling) when operating the unit during leaving water control.

[A-04] Glycol concentration setting

This setting is only applicable for units with a low temperature cooling option.

When changing this setting, the freeze prevention parameters will be changed in relation with the glycol concentration.

[A-04]	Description
0	30% glycol, minimum leaving water=0°C
1	40% glycol, minimum leaving water=-10°C

**CAUTION**

Glycol concentrations lower than the set parameter will cause the fluid to freeze.

[b] Settings are not applicable**[C] Leaving water temperature limits**

This setting is used to limit the selectable leaving water temperature on the remote controller.

[C-00] Maximum leaving water setpoint in heating operation**[C-01] Minimum leaving water setpoint in heating operation****[C-02] Maximum leaving water setpoint in cooling operation****[C-03] Minimum leaving water setpoint in cooling operation**

This depends on field setting [A-04].

[C-04]

This setting is not applicable.

[d] Settings are not applicable**[E] Service mode****[E-00]**

This setting is not applicable.

[E-01]

This setting is not applicable.

[E-02]

This setting is not applicable.

[E-03]

This setting is not applicable.

[E-04] Pump only operation (air purge function)

When installing and commissioning the unit it is very important to remove all air from the water circuit.

This field setting operates the pump to improve air removal from the unit without actually operating the unit. The pump will run for 10 minutes, stop 2 minutes, etc.

[E-04]	Description
0 (default)	Normal operation of the unit
1	Automatic air purge operation during 108 minutes
2	Automatic air purge operation during 48 minutes

[F] Option setup**[F-00] Return water temperature overshoot value**

This setting makes it possible to set the allowable overshoot when operating the unit during cooling THERMO ON/OFF condition.

The unit will go in THERMO ON only if the return water temperature (RWT) goes above the setpoint plus the differential temperature:

Thermo ON: $RWT < \text{Setpoint} + ((F-00)/2) + 1$

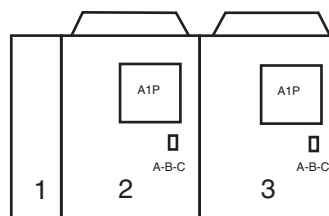
The setting [F-00] has a variability range from 0 to 15 and the step is 1 degree. The default value is 5, meaning that the differential temperature default value is 3.5.

7.3 Switching between cooling and heating

Switching the unit between cooling and heating can be done in 2 different ways. This will depend on how the temperature is controlled, i.e. based on room temperature or based on leaving water temperature.

If the unit control is based on room temperature (external room thermostat or remote controller room thermostat), switching between cooling and heating is done through the remote controller by pushing the cooling/heating button.

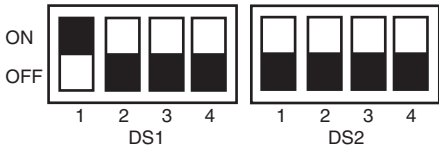
If the unit control is based on leaving water temperature, we suggest using the ABC terminals on the outdoor unit (heat pump units only). The location of the terminals is shown in the following figure.



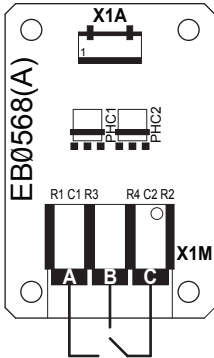
- 1 Hydrobox
- 2 Master unit (left unit)

8 Commissioning

3 Slave unit (right unit) if multi-system



- 1 Set DS1 on the outdoor master unit A1P PCB to the ON position.
- 2 Press BS5 for 5 seconds to re-initialise communication of the module.
 - Cooling: voltage free contact between terminals A and C is open
 - Heating: voltage free contact between terminals A and C is closed



INFORMATION

Thermostat input has priority over leaving water temperature setpoint.

It is possible that the leaving water temperature becomes lower than the setpoint if the unit is controlled by room temperature.

8 Commissioning

8.1 Overview: Commissioning

After installation and once the field settings are defined, the installer is obliged to verify correct operation. Therefore a test run must be performed according to the procedures described below.

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

Commissioning typically consists of the following stages:

- 1 Checking the "Checklist before commissioning".
- 2 Performing a test run.
- 3 If necessary, correcting errors after abnormal completion of the test run.
- 4 Operating the system.

8.2 Precautions when commissioning



DANGER: RISK OF ELECTROCUTION



DANGER: RISK OF BURNING



CAUTION

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

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



CAUTION

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



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.



NOTICE

Be sure to turn on the power 6 hours before operation in order to have power running to the crankcase heater and to protect the compressor.

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

8.3 Checklist before commissioning

After the installation of the unit, first check the following items. Once all below checks are fulfilled, the unit must be closed, only then can the unit be powered up.

<input type="checkbox"/>	You read the complete installation and operation instructions, as described in the installer and user reference guide .
<input type="checkbox"/>	Installation Check that the unit is properly installed, to avoid abnormal noises and vibrations when starting up the unit.
<input type="checkbox"/>	Field wiring Be sure that the field wiring has been carried out according to the instructions described in the chapter " 6.5 Connecting the electrical wiring " on page 17, according to the wiring diagrams and according to the applicable legislation.
<input type="checkbox"/>	Power supply voltage Check the power supply voltage on the local supply panel. The voltage must correspond to the voltage on the identification label of the unit.
<input type="checkbox"/>	Earth wiring Be sure that the earth wires have been connected properly and that the earth terminals are tightened.
<input type="checkbox"/>	Insulation test of the main power circuit Using a megatester for 500 V, check that the insulation resistance of 2 MΩ or more is attained by applying a voltage of 500 V DC between power terminals and earth. Never use the megatester for the transmission wiring.
<input type="checkbox"/>	Fuses, circuit breakers, or protection devices Check that the fuses, circuit breakers, or the locally installed protection devices are of the size and type specified in the chapter " 5.4.3 Safety device requirements " on page 13. Be sure that neither a fuse nor a protection device has been bypassed.

<input type="checkbox"/>	Internal wiring Visually check the electrical component box and the inside of the unit on loose connections or damaged electrical components.
<input type="checkbox"/>	Pipe size and pipe insulation Be sure that correct pipe sizes are installed and that the insulation work is properly executed.
<input type="checkbox"/>	The air purge valve is open (at least 2 turns).
<input type="checkbox"/>	Shut-off valves Be sure that the shut-off valves are correctly installed and fully open.
<input type="checkbox"/>	Filter Make sure that the filter is installed correctly.
<input type="checkbox"/>	Damaged equipment Check the inside of the unit on damaged components or squeezed pipes.
<input type="checkbox"/>	Water leak Check the inside of the unit for water leakage. If there is a water leak, try to repair the leak. If the repair is unsuccessful, close the water inlet and outlet shut-off valves and call your local dealer.
<input type="checkbox"/>	Installation date and field setting Be sure to keep record of the installation date on the sticker on the rear of the upper front panel according to EN60335-2-40 and keep record of the contents of the field setting(s).
<input type="checkbox"/>	Schedule timer form Fill out the form at the very end of this document. When programming the schedule timer, this form can help you define the required actions for each day.



NOTICE

Operating the system with closed valves will damage the pump.

Once all checks are fulfilled, the unit must be closed, only then can the unit be powered up. When the power supply to the unit is turned on, "88" is displayed on the remote controller during its initialization, which may take up to 30 seconds. During this process, the remote controller cannot be operated.

8.4 Final check

Before switching on the unit, read the following recommendations:

- When the complete installation and all necessary settings have been carried out, be sure that all panels of the unit are closed. If this is not the case, inserting your hand through the remaining openings can cause serious injury due to electrical and hot parts inside the unit.
- The service panel of the electrical component box may only be opened by a licensed electrician for maintenance purposes.



DANGER: RISK OF ELECTROCUTION

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



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 48 hours before reaching smooth operation and stable power consumption.

8.5 Checklist handover to the user

Mark the following actions when the installation is finished and the test run is complete.

<input type="checkbox"/>	Complete the model fill-in for each unit
<input type="checkbox"/>	Ensure the user has a printed version of the installation and operation manual.
<input type="checkbox"/>	Explain to the user what system is installed on site.
<input type="checkbox"/>	Explain to the user how to properly operate the system and what to do in case of problems.
<input type="checkbox"/>	Show the user what has to be done in relation to maintenance of the unit.

8.6 To complete the model fill-in

Complete the following fill-in for each unit:

Place of Installation:	
Model name (see nameplate of unit):	
Optional equipment:	
Date:	
Signature:	
Your product was installed by:	

9 Maintenance and service



NOTICE

Maintenance MUST be done by an authorized installer or service agent.

We recommend performing maintenance at least once a year. However, applicable legislation might require shorter maintenance intervals.



NOTICE

In Europe, the **greenhouse gas emissions** of the total refrigerant charge in the system (expressed as tonnes CO₂-equivalent) is used to determine the maintenance intervals. Follow the applicable legislation.

Formula to calculate the greenhouse gas emissions:
GWP value of the refrigerant × Total refrigerant charge [in kg] / 1000

9.1 Overview: Maintenance and service

This chapter contains information about:

- Preventing electrical hazards when maintaining and servicing the system
- The refrigerant recovery operation

10 Troubleshooting

9.2 Maintenance safety precautions



DANGER: RISK OF ELECTROCUTION



DANGER: RISK OF BURNING



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.



WARNING

- Before carrying out any maintenance or repair activity, always switch off the circuit breaker on the supply panel, remove the fuses or open the protection devices of the unit.
- Do not touch live parts for 10 minutes after the power supply is turned off because of high voltage risk.
- Please note that some sections of the electric component box are hot.
- Make sure you do not touch a conductive section.
- Do not rinse the unit. This may cause electric shocks or fire.

9.3 Checklist for yearly maintenance of the outdoor unit

Check the following at least once a year:

- Pressure relief valve hose (if present)
- Water pressure relief valve
- Electrical component box

- Water pressure
- Water filter
- Glycol concentration and pH-value

Pressure relief valve hose

Check whether the pressure relief valve hose is positioned appropriately to drain the water.

Water pressure relief valve

Turn the red knob on the valve counter-clockwise and check if it operates correctly:

- If you do not hear a clacking sound, contact your local dealer.
- In case the water keeps running out of the unit, close both the water inlet and outlet shut-off valves first and then contact your local dealer.

Switch box

Carry out a thorough visual inspection of the switch box and look for obvious defects such as loose connections or defective wiring.



WARNING

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

Water pressure

Check whether the water pressure is above 1 bar. If it is lower, add water.

Water filter

Clean the water filter.



NOTICE

Handle the water filter with care. Do NOT use excessive force when you reinsert the water filter so as NOT to damage the water filter mesh.

10 Troubleshooting

10.1 Overview: Troubleshooting

This chapter describes what you have to do in case of problems.

It contains information about:

- Solving problems based on error codes

10.2 Error codes: Overview

Main code	Cause	Solution
<i>R1</i>	Failure writing memory (EEPROM error)	Contact your local dealer.
<i>RE</i>	Water circuit malfunction	<ul style="list-style-type: none"> • Check that water flow is possible (open all valves in the circuit). • Force clean water through the unit.
<i>R9</i>	R410A expansion valve error (K11E/K12E)	<ul style="list-style-type: none"> • Check wiring connections. • Contact your local dealer.
<i>RE</i>	Water system warning	<ul style="list-style-type: none"> • Check filter. • Make sure all valves are open. • Contact your local dealer.
<i>RJ</i>	Capacity error	Contact your local dealer.
<i>C1</i>	Bad ACS communication	Contact your local dealer.
<i>C4</i>	R410A liquid thermistor error (R13T/R23T)	<ul style="list-style-type: none"> • Check wiring connections. • Contact your local dealer.
<i>C9</i>	Returning water thermistor error (R12T/R22T)	<ul style="list-style-type: none"> • Check wiring connections. • Contact your local dealer.

Main code	Cause	Solution
<i>E R</i>	Heating leaving water thermistor error (R11T/R12T)	<ul style="list-style-type: none"> ▪ Check wiring connections. ▪ Contact your local dealer.
<i>E J</i>	Remote controller thermostat thermistor error	Contact your local dealer.
<i>E 3</i>	High pressure error (SENP/S1PH)	<ul style="list-style-type: none"> ▪ Check that the circuit does not contain any air. ▪ Check that water flow is possible (open all valves in the circuit). ▪ Check that the water filter is not blocked. ▪ Check that all refrigerant stop valves are open. ▪ Contact your local dealer.
<i>E 4</i>	Low pressure error (SENPL)	Contact your local dealer.
<i>J 7</i>	R410A suction thermistor error (R14T/R24T)	<ul style="list-style-type: none"> ▪ Check wiring connections. ▪ Contact your local dealer.
<i>U 1</i>	Reversed power supply phase malfunction	Correct phase order.
<i>U 2</i>	Insufficient supply voltage	<ul style="list-style-type: none"> ▪ Check wiring connections. ▪ Contact your local dealer.
<i>U B</i>	Two main remote controllers are connected (when using two remote controllers)	Check that SS1 of one controller is set to MAIN, and the other one to SUB. Turn the power supply off, and then back on.
<i>U R</i>	Type connection problem	<ul style="list-style-type: none"> ▪ Wait until initialization between the outdoor module and the hydro module is completed (wait at least 12 minutes after power ON). ▪ Contact your local dealer.
<i>U H</i>	Address error	Contact your local dealer.

11 Disposal



NOTICE

Do not try to dismantle the system yourself: the 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.

12 Technical data

12 Technical data

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

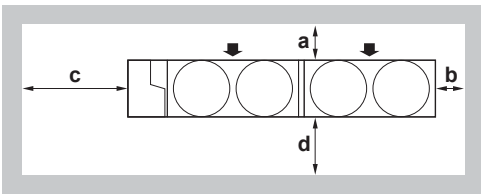
12.1 Overview: Technical data

This chapter contains information about:

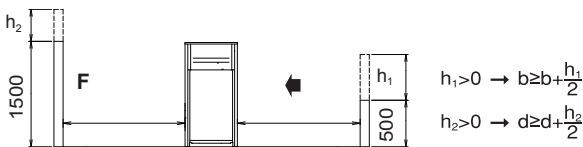
- Service space
- Piping diagram
- Wiring diagram
- Field settings
- ESP curves

12.2 Service space: Outdoor unit

Make sure the space around the unit is adequate for servicing and the minimum space for air inlet and air outlet is available (refer to the figure below and choose one of the possibilities).



A+B+C+D	
Possibility 1	Possibility 2
$a \geq 300$ mm	$a \geq 500$ mm
$b \geq 100$ mm	$b \geq 500$ mm
$c \geq 500$ mm	$c \geq 500$ mm
$d \geq 500$ mm	$d \geq 500$ mm



(mm)

- **ABCD** Sides along the installation site with obstacles
- **F** Front side
- **➡** Suction side

- If the location of the installation is in a cold climate, then dimensions **a** and **b** above should be >500 mm to avoid accumulation of ice in between the outdoor units.

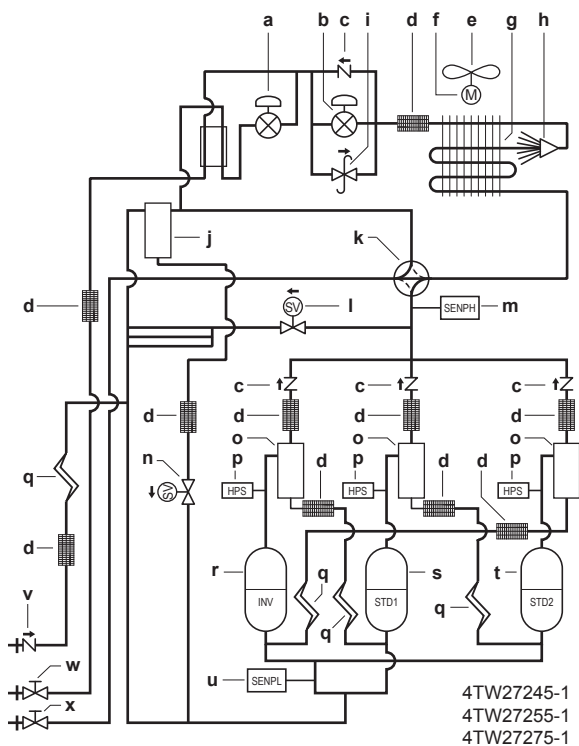


INFORMATION

Further specifications can be found in the technical engineering data.

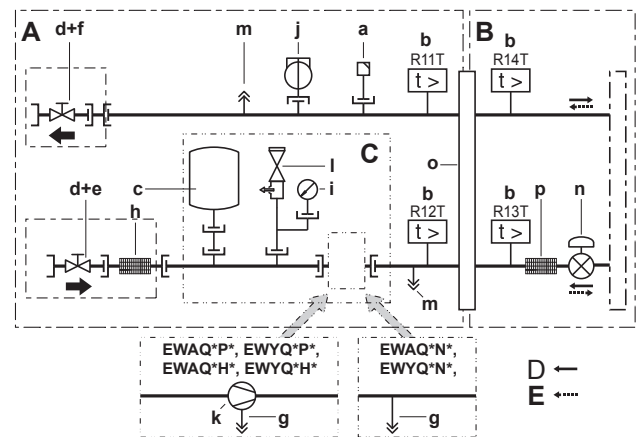
12.3 Piping diagram: Outdoor module

Piping diagram: Outdoor module



- a Electronic expansion valve, subcooling (Y2E)
- b Electronic expansion valve, main (Y1E)
- c Check valve
- d Filter
- e Fan
- f Fan motor (M1F, M2F)
- g Heat exchanger
- h Distributor
- i Pressure regulating valve
- j Accumulator
- k 4-way valve, heat exchanger (Y3S)
- l Solenoid valve, main (Y1S)
- m High pressure sensor (SENPH)
- n Solenoid valve (Y2S)
- o Oil separator
- p High pressure switch
- q Capillary tube
- r Compressor (INV)
- s Compressor (STD1)
- t Compressor (STD2)
- u Low pressure sensor (SENPL)
- v Service port, refrigerant charge
- w Stop valve, liquid pipe
- x Stop valve, gas pipe

Piping diagram: Hydro module



- a Air purge valve
- b Temperature sensors (R11T, R12T, R13T, R14T)
- c Expansion vessel (12 l)
- d Shut-off valve (field installed)
- e Water inlet connection
- f Water outlet connection
- g Drain port
- h Water filter
- i Pressure gauge
- j Flow switch
- k Pump
- l Safety valve
- m Check valve
- n Electronic expansion valve
- o Heat exchanger
- p Filter
- A Water side
- B Refrigerant side
- C Only for models with a pump
- D Refrigerant flow in cooling mode
- E Refrigerant flow in heating mode

12 Technical data

12.4 Wiring diagram: Outdoor unit

Refer to the wiring diagram sticker on the outdoor module. The abbreviations used are listed below:



INFORMATION

The wiring diagram on the outdoor module is only for the outdoor module. For the hydro module or optional electrical components, refer to the wiring diagram of the hydro module.

A1P~A8P	Printed circuit board (main, sub 1, sub 2, noise filter, inverter, fan, current sensor)
BS1~BS5	Pushbutton switch (mode, set, return, test, reset)
C1, C63, C66	Capacitor
E1HC, E2HC	Crankcase heater
F1U	Fuse (DC 650 V, 8 A)
F1U	Fuse (250 V, 3.15 A, T)
F1U,F2U	Fuse (250 V, 3.15 A, T)
F5U	Field fuse
F400U	Fuse (250 V, 6.3 A, T)
H1P~H8P	Pilot lamp
H2P	Under preparation or in test operation when blinking
H2P	Malfunction detection when light up
HAP	Pilot lamp (service monitor - green)
K1, K3	Magnetic relay
K1R	Magnetic relay (K2M, Y4S)
K2, K4	Magnetic contactor (M1C)
K2R	Magnetic relay (Y5S)
K3R	Magnetic relay (Y1S)
K4R	Magnetic relay (Y8S)
K5R	Magnetic relay (Y2S)
K5R	Magnetic relay (for option)
K6R	Magnetic relay (Y8S)
K7R, K8R	Magnetic relay (E1HC, E2HC)
K11R	Magnetic relay (Y3S)
L1R	Reactor
M1C, M2C	Motor (compressor)
M1F, M2F	Motor (fan)
PS	Switching power supply
Q1DI	Earth leakage protector (field supply)
Q1RP	Phase reversal detection circuit
R10	Resistor
R50, R59	Resistor
R90	Resistor (current sensor)
R95	Resistor (current limiting)
R1T	Thermistor (air, fin)
R2T~R15T	Thermistor (H/E gas 1, H/E de-icer 1, sub cool H/E gas 1, sub cool H/E liquid, H/E liquid 1, suction 1, liquid 1, suction 2, H/E gas 2, H/E de-icer 2, sub cool H/E gas 2, liquid 2, H/E liquid 2)
R31T, R32T	Thermistor (discharge) (M1C, M2C)
S1NPH	Pressure sensor (high)
S1NPL	Pressure sensor (low)
S1PH~S3PH	Pressure switch (high)

SD1	Safety devices input
T1A	Current sensor
V1R	Diode bridge
V1R, V1R	Power module
X1A~X9A	Connector
X1M	Terminal strip (power supply)
X1M	Terminal strip (control)
Y1E~Y5E	Electronic expansion valve (main 1, sub cool 1, main 2, charge, sub cool 2)
Y1S~Y10S	Solenoid valve (RMTG, 4 way valve-H/E gas 1, RMTL, hot gas, EV bypass 1, RMTT, RMTO, 4 way valve-H/E gas 2, EV bypass 2)
Z1C~Z10C	Noise filter (ferrite core)
Z1F	Noise filter (with surge absorber)
L1,L2,L3	Live
N	Neutral
⋮	Field wiring
□□□□	Terminal strip
⊗	Connector
○	Terminal
⏚	Protective earth (screw)
BLK	Black
BLU	Blue
BRN	Brown
GRN	Green
GRY	Grey
ORG	Orange
PNK	Pink
RED	Red
WHT	White
YLW	Yellow

Hydro module

A1P	Main printed circuit board (master)
A2P	Remote controller printed circuit board
A3P	Control printed circuit board
A4P	Demand printed circuit board (optional)
A5P	Main printed circuit board (slave)
A6P	Demand printed circuit board (optional)
A7P	Remote controller printed circuit board (optional)
C1~C3	Filter capacitor
E1H	Electrical component box heater
E2H	Plate heat exchanger heater (PHE1)
E3H	Plate heat exchanger heater (PHE2)
E4H	Water piping heater
E5H	Expansion vessel heater
F1, F2	Fuse (250 V, 5 A, F)
F1U (A*P)	Fuse (250 V, 3.15 A, T)
HAP	Printed circuit board LED
K11E	Electronic expansion valve (PHE1)
K21E	Electronic expansion valve (PHE2)

K1P	Pump contactor	S1F	Flow switch (PHE1)
K1S	Pump overcurrent relay	S2F	Flow switch (PHE2)
K*R (A3P)	Printed circuit board relay	S1M	Main switch
M1P	Pump	S1S	Thermostat ON/OFF input (field supply)
PS (A*P)	Switching power supply	S2S	Thermostat cooling/heating selection (field supply)
Q1DI	Earth leakage circuit breaker (field supply)	S3S	Operation ON input (field supply)
Q1T	Thermostat for expansion vessel heater	S4S	Operation OFF input (field supply)
R11T	Leaving water thermistor (PHE1)	SS1 (A1P, A5P)	Selector switch (emergency)
R12T	Returning water thermistor (PHE1)	SS1 (A2P)	Selector switch (master/slave)
R13T	Refrigerant liquid thermistor (PHE1)	SS1 (A7P)	Selector switch (master/slave) (optional)
R14T	Refrigerant gas thermistor (PHE1)	V1C, V2C	Ferrite core noise filter
R21T	Leaving water thermistor (PHE2)	X1M~X4M	Terminal strip
R22T	Returning water thermistor (PHE2)	X801M (A*P)	Printed circuit board terminal strip (control)
R23T	Refrigerant liquid thermistor (PHE2)	Z1F, Z2F (A*P)	Noise filter
R24T	Refrigerant gas thermistor (PHE2)		

12.5 Technical specifications: Outdoor unit





INFORMATION

For technical and electrical details, see technical engineering data.

12 Technical data

12.6 Field settings on the remote controller – overview

1st code	2nd code	Setting name	Date	Value	Date	Value	Default value	Range	Step	Unit	☼	☼
0	Remote control setup											
	00	User permission level					2	2~3	1	—	✓	✓
	01	Room temperature compensation value					0	-5~5	0.5	°C	✓	✓
	02	Not applicable. Do not change the default value.					1	—	—	—	—	—
	03	Status: space heating schedule timer mode (Method 1=1 / Method 2=0)					1 (ON)	0/1	—	—	—	✓
	04	Status: space cooling schedule timer mode (Method 1=1 / Method 2=0)					1 (ON)	0/1	—	—	✓	—
1	Settings are not applicable											
	00	Not applicable. Do not change the default value.					1	—	—	—	—	—
	01	Not applicable. Do not change the default value.					1:00	—	—	—	—	—
	02	Not applicable. Do not change the default value.					0	—	—	—	—	—
	03	Not applicable. Do not change the default value.					15:00	—	—	—	—	—
2	Automatic setback function											
	00	Status: setback operation					1 (ON)	0/1	—	—	—	✓
	01	Setback operation start time					23:00	0:00~23:00	1:00	hour	—	✓
	02	Setback operation stop time					5:00	0:00~23:00	1:00	hour	—	✓
3	Weather dependent setpoint											
	00	Low ambient temperature (Lo_A)					-10	-20~5	1	°C	—	✓
	01	High ambient temperature (Hi_A)					15	10~20	1	°C	—	✓
	02	Setpoint at low ambient temperature (Lo_Ti)					40	25~80	1	°C	—	✓
	03	Setpoint at high ambient temperature (Hi_Ti)					25	-20~5	1	°C	—	✓
4	Settings are not applicable											
	00	Not applicable. Do not change the default value.					1	—	—	—	—	—
	01	Not applicable. Do not change the default value.					Fri	—	—	—	—	—
	02	Not applicable. Do not change the default value.					23:00	—	—	—	—	—
5	Automatic setback and disinfection setpoint											
	00	Not applicable. Do not change the default value.					70	—	—	—	—	—
	01	Not applicable. Do not change the default value.					10	—	—	—	—	—
	02	Leaving water setback temperature					5	0~10	1	°C	—	✓
	03	Room setback temperature					18	17~23	1	°C	—	✓
	04	Not applicable. Do not change the default value.					1	—	—	—	—	—
6	Option setup											
	01	Optional room thermostat installed					0	0~2	—	—	✓	✓
7	Option setup											
	00	Forced pump operation					1 (ON)	0/1	—	—	✓	✓
8	Option setup											
	00	Remote controller temperature control					0 (OFF)	0/1	—	—	✓	✓
	01	Not applicable. Do not change the default value.					1	—	—	—	—	—
	03	Not applicable. Do not change the default value.					1	—	—	—	—	—
	04	Status: freeze-up prevention					0	0~2	1	—	✓	✓
9	Automatic temperature compensation											
	00	Leaving water temperature compensation value (heating)					0	-2~2	0.2	°C	—	✓
	01	Leaving water thermistor auto corrective function					1 (ON)	0/1	1	—	✓	✓
	02	Not applicable. Do not change the default value.					0	—	—	—	—	—
	03	Leaving water temperature compensation value (cooling)					0	-2~2	0.2	°C	✓	—
	04	Not applicable. Do not change the default value.					0	—	—	—	—	—
A	Option setup											
	00	Not applicable. Do not change the default value.					0	—	—	—	—	—
	01	Not applicable. Do not change the default value.					0	—	—	—	—	—
	02	Allowable undershoot value for return water					5	0~15	1	°C	—	✓
	03	Allowable overshoot value for leaving water					3	1~5	0.5	°C	✓	✓
	04	Ethylene glycol concentration					0	0~1	1	—	✓	✓
b	Settings are not applicable											
	00	Not applicable. Do not change the default value.					35	—	—	—	—	—
	01	Not applicable. Do not change the default value.					45	—	—	—	—	—
	02	Not applicable. Do not change the default value.					1	—	—	—	—	—
	03	Not applicable. Do not change the default value.					70	—	—	—	—	—
	04	Not applicable. Do not change the default value.					70	—	—	—	—	—
C	Leaving water temperature limits											
	00	Setpoint: heating leaving water maximum temperature					50	37~50	1	°C	—	✓
	01	Setpoint: heating leaving water minimum temperature					25	25~37	1	°C	—	✓
	02	Setpoint: cooling leaving water maximum temperature					20	18~22	1	°C	✓	—
	03	Setpoint: cooling leaving water minimum temperature					5	Q ⁽⁰⁾ ~18	1	°C	✓	—
	04	Not applicable. Do not change the default value.					0	—	—	—	—	—

1st code	2nd code	Setting name	Date	Value	Date	Value	Default value	Range	Step	Unit		
d		Settings are not applicable										
	00	Not applicable. Do not change the default value.					10	—	—	—	—	—
	01	Not applicable. Do not change the default value.					30	—	—	—	—	—
	02	Not applicable. Do not change the default value.					15	—	—	—	—	—
	03	Not applicable. Do not change the default value.					15	—	—	—	—	—
	04	Not applicable. Do not change the default value.					40	—	—	—	—	—
E		Service mode										
	00	Not applicable. Do not change the default value.					0	—	—	—	—	—
	01	Not applicable. Do not change the default value.					0	—	—	—	—	—
	02	Not applicable. Do not change the default value.					0	—	—	—	—	—
	03	Not applicable. Do not change the default value.					1	—	—	—	—	—
	04	Pump only operation/Air purge					0	0~25	1	—	✓	✓
F		Settings are not applicable.										
	00	Allowable overshoot value for return water					5	0~15	1	°C	✓	—
	01	Not applicable. Do not change the default value.					0	—	—	—	—	—
	02	Not applicable. Do not change the default value.					1	—	—	—	—	—
	03	Not applicable. Do not change the default value.					10	—	—	—	—	—
	04	Not applicable. Do not change the default value.					50	—	—	—	—	—

(a) See field setting [C-03] in "7.2.9 Field settings on the remote controller" on page 23.

12 Technical data

12.7 Field settings on the outdoor module

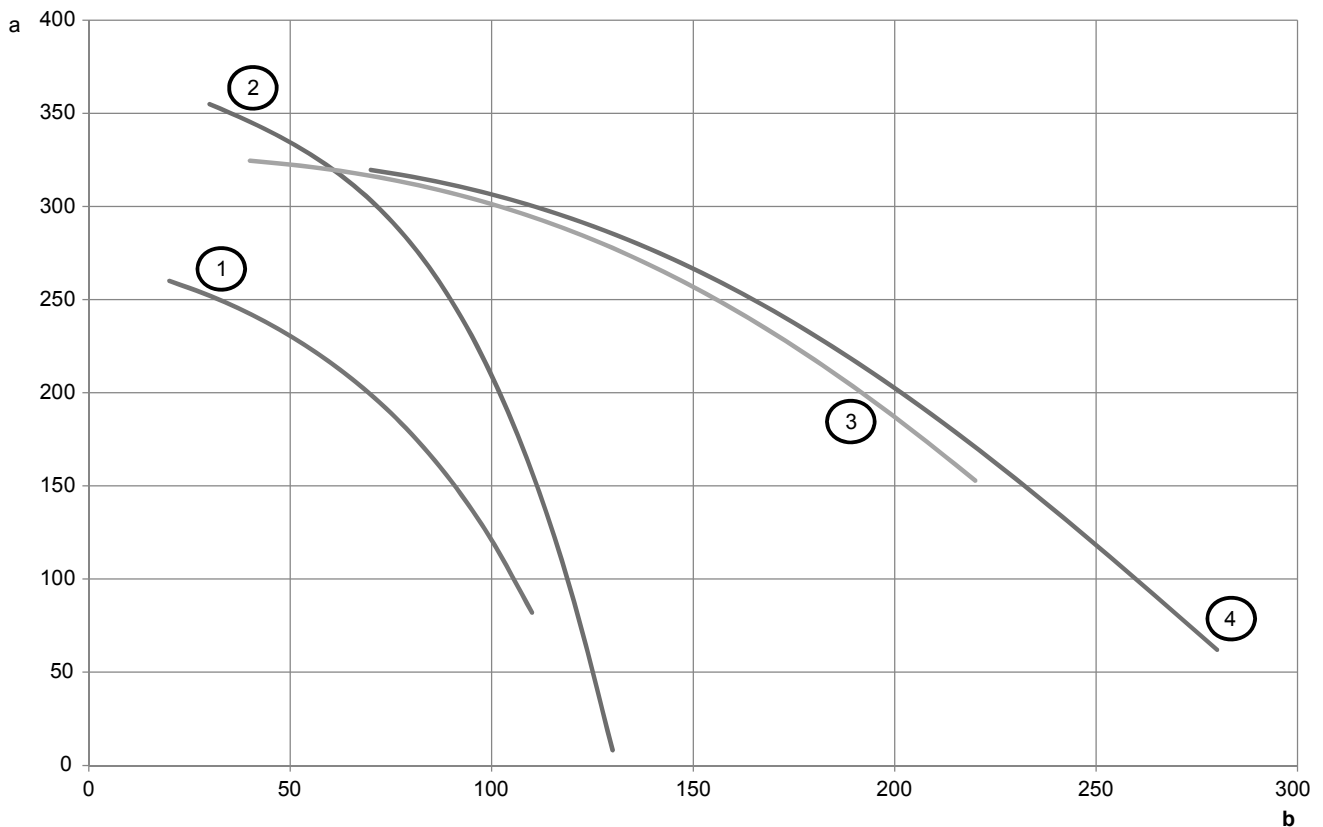
Technical specifications

Setting no.	Setting contents	H1P H2P H3P H4P H5P H6P H7P						Contents	H1P H2P H3P H4P H5P H6P H7P							Factory setting	Selected condition	Date	
		H1P	H2P	H3P	H4P	H5P	H6P		H7P	H1P	H2P	H3P	H4P	H5P	H6P				H7P
12	Low noise/demand setting via external control adapter	☀ ● ● ☀ ☀ ● ●							NO	☀ ● ● ● ● ● ☀							✓		
									YES	☀ ● ● ● ● ☀ ●									
18	High static pressure setting	☀ ● ☀ ● ● ☀ ●							OFF	☀ ● ● ● ● ● ☀							✓		
									ON	☀ ● ● ● ● ☀ ●									
22	Automatic night-time low noise setting	☀ ● ☀ ● ☀ ☀ ●							OFF	☀ ● ● ● ● ● ●							✓		
									Level 1 (outdoor fan with step 6 or lower)	☀ ● ● ● ● ● ☀									
									Level 2 (outdoor fan with step 5 or lower)	☀ ● ● ● ● ☀ ●									
									Level 3 (outdoor fan with step 4 or lower)	☀ ● ● ● ● ☀ ☀									
25	Low noise setting via external control adapter	☀ ● ☀ ☀ ● ● ☀							Level 1 (outdoor fan with step 6 or lower)	☀ ● ● ● ● ● ☀									
									Level 2 (outdoor fan with step 5 or lower)	☀ ● ● ● ● ☀ ●							✓		
									Level 3 (outdoor fan with step 4 or lower)	☀ ● ● ● ● ☀ ●									
30	Demand setting via external control adapter	☀ ● ☀ ☀ ☀ ☀ ●							60% demand	☀ ● ● ● ● ● ☀									
									70% demand	☀ ● ● ● ● ☀ ●							✓		
									80% demand	☀ ● ● ● ● ☀ ●									

12.8 ESP curve: Outdoor unit

Note: A flow error will occur when the minimum water flow rate is not reached.

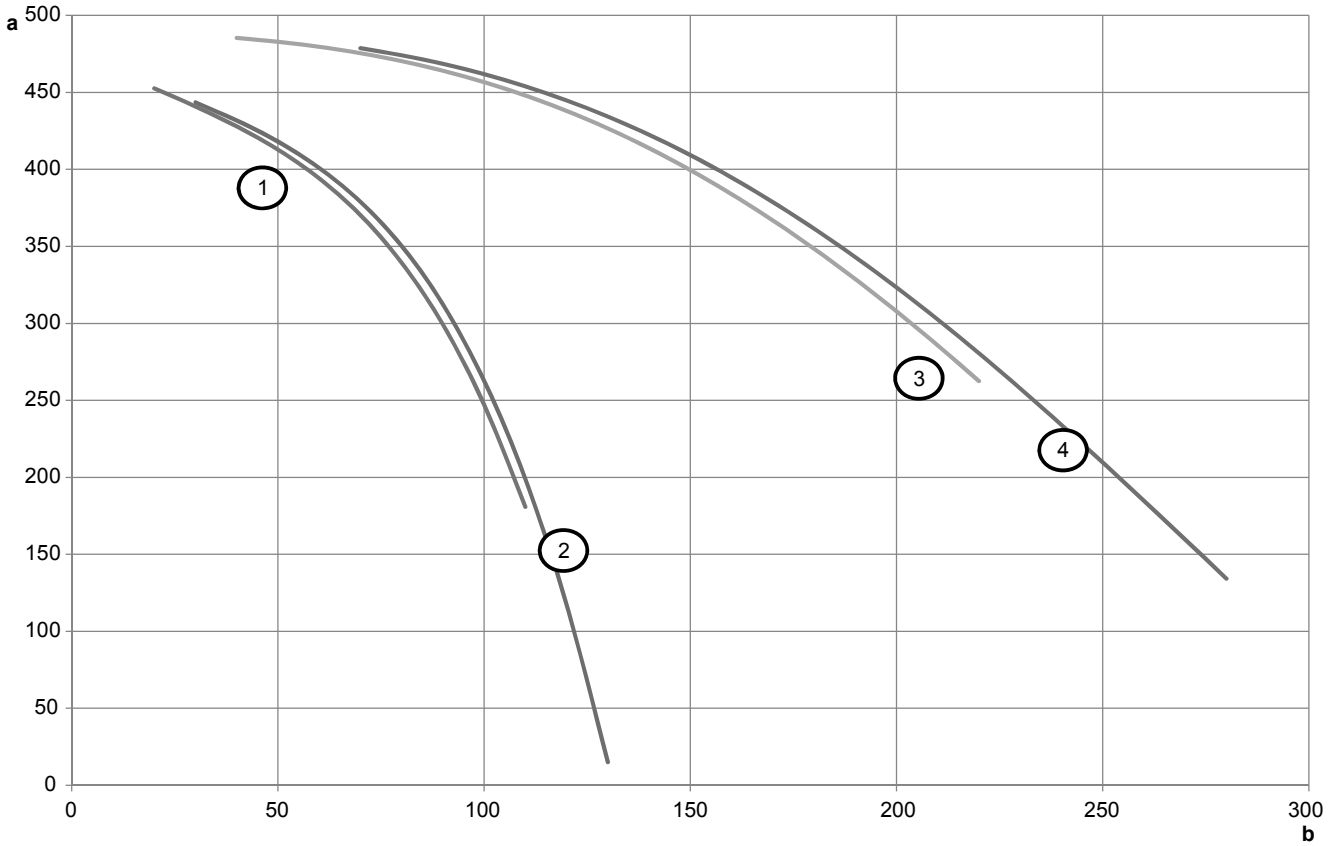
Units with a standard pump installed (EWAQ/EWYQ*CAWP)



- a** External static pressure (kPa)
- b** Water flow (l/min)
- 1** EWAQ/EWYQ016~025CAWP
- 2** EWAQ/EWYQ032CAWP
- 3** EWAQ/EWYQ040~050CAWP
- 4** EWAQ/EWYQ064CAWP

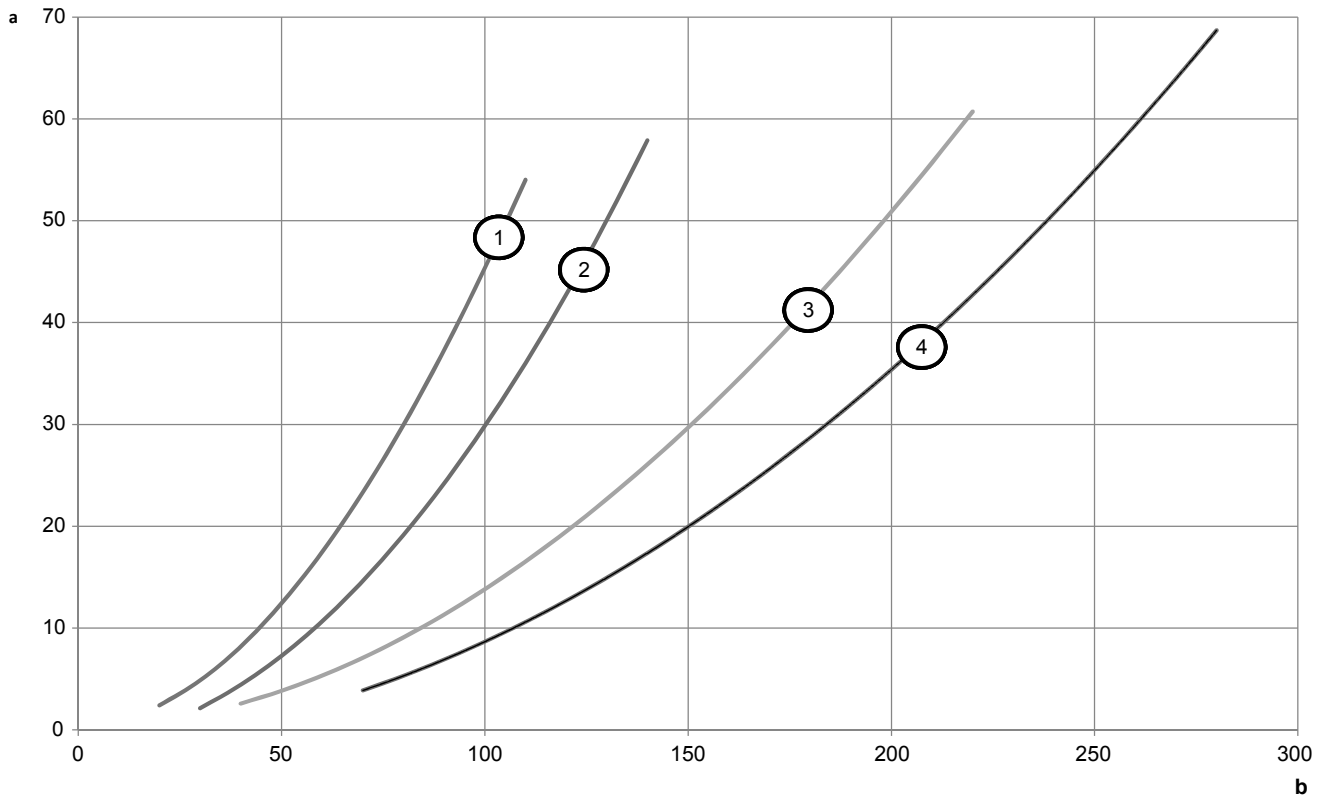
12 Technical data

Units with an optional high static pump installed (EWAQ/EWYQ*CAWH)



- a** External static pressure (kPa)
- b** Water flow (l/min)
- 1** EWAQ/EWYQ016~025CAWH
- 2** EWAQ/EWYQ032CAWH
- 3** EWAQ/EWYQ040~050CAWH
- 4** EWAQ/EWYQ064CAWH

Units without pump (EWAQ/EWYQ*CAWN)



- a Pressure drop (kPa)
- b Water flow (l/min)
- 1 EWAQ/EWYQ016~025CAWN
- 2 EWAQ/EWYQ032CAWP
- 3 EWAQ/EWYQ040~050CAWN
- 4 EWAQ/EWYQ064CAWN

13 About the system

For the user

13 About the system

NOTICE

For future modifications or expansions of your system:

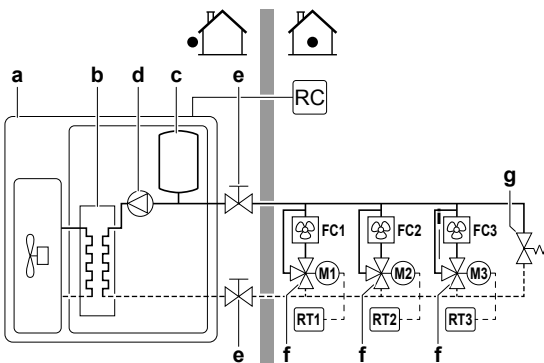
A full overview of allowable combinations (for future system extensions) is available in technical engineering data and should be consulted. Contact your installer to receive more information and professional advice.

This small inverter chiller can be combined with fan coil units for air conditioning purposes, or it can be used for supplying water for process cooling applications.

13.1 System layout

Your small inverter chiller can be one of following models:

Model	Description
EWAQ	Air-to-water cooling only model.
EWYQ	Air-to-water heat pump model.



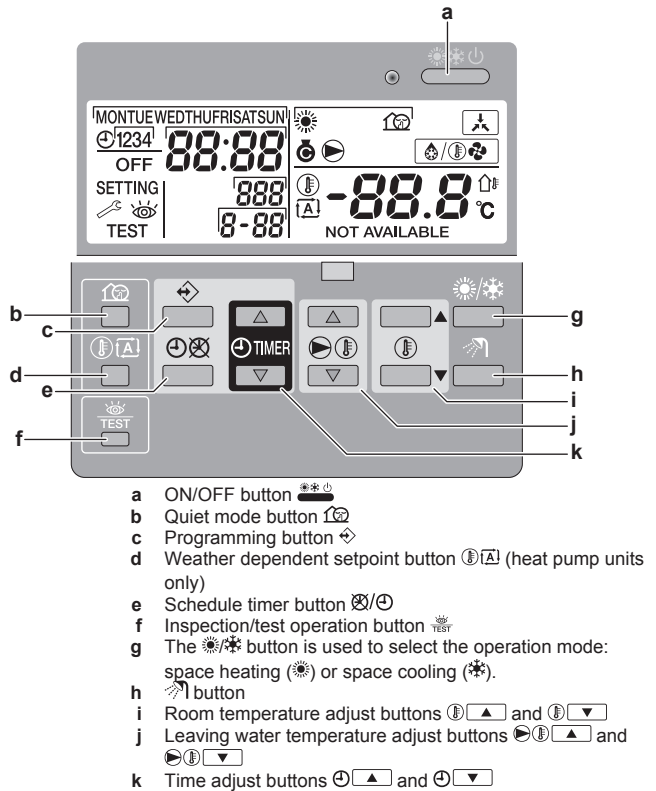
- a Outdoor unit
- b Plate heat exchanger
- c Expansion vessel
- d Pump
- e Shut-off valve
- f Motorized valve
- g Bypass valve
- FC1...3 Fancoil unit (field supply)
- RC Remote controller
- RT1...3 Room thermostat

14 User interface

CAUTION

NEVER touch the internal parts of the controller.

Do NOT remove the front panel. Some parts inside are dangerous to touch and appliance problems may happen. For checking and adjusting the internal parts, contact your dealer.



Icon	Description
	Operation LED Lit during space heating operation. Blinks if a malfunction occurs. When the LED is off, space heating is inactive while the other operation modes can still be active.
	Heating mode
	Cooling mode
	Quiet mode
	External control The unit is working in a forced operation. As long as this icon is displayed, the remote controller cannot be operated.
	The compressor in the unit of the installation is active.
	The circulation pump is active.
	Defrost/start up mode (heat pump units only)
	Flashes to display the outdoor ambient temperature.
	Weather dependent setpoint (heat pump units only) The controller will adapt the leaving water temperature setpoint automatically, based on the outdoor ambient temperature.
	The actual room temperature or room temperature setpoint are shown. Also displayed when the temperature setpoint is set in schedule timer programming mode. See "16.3.5 Other operation modes" on page 46 for more information.
-88.8°	Current temperature of the installation, either leaving water temperature or actual room temperature. When changing the room temperature setpoint, the setpoint will flash for 5 seconds and then return to the actual room temperature.

Icon	Description
NOT AVAILABLE	A non-installed option is addressed or a function is not available. An unavailable function can mean insufficient permission level or can mean that a slave remote controller is used (see "7.2.9 Field settings on the remote controller" on page 23).
MON TUE WED THU FRI SAT SUN	Current day of the week. When reading or programming the schedule timer, the indicator shows the set day.
88:88	Current time. When reading or programming the schedule timer, the clock display shows the action time.
☺	The schedule timer is enabled.
1234	Programming actions for each day of the schedule timer.
OFF	The OFF action is selected when programming the schedule timer.
SETTING	Field setting mode
🔧	Inspection required. Consult your dealer.
👁️	Inspection required. Consult your dealer.
TEST	Test mode.
888	This is an error code; for service purposes only. Refer to the error code list in "10.2 Error codes: Overview" on page 30 .
8-88	Code from the field settings list. Refer to "7.2.9 Field settings on the remote controller" on page 23 .

15 Before operation



WARNING

This unit contains electrical and hot parts.



WARNING

Before operating the unit, be sure the installation has been carried out correctly by an installer.



CAUTION

It is not good for your health to expose your body to the air flow for a long time.



CAUTION

To avoid oxygen deficiency, ventilate the room sufficiently if equipment with burner is used together with the system.



CAUTION

Do NOT operate the system when using a room fumigation-type insecticide. Chemicals could collect in the unit, and endanger the health of people who are hypersensitive to chemicals.

16 Operation

16.1 Operation range

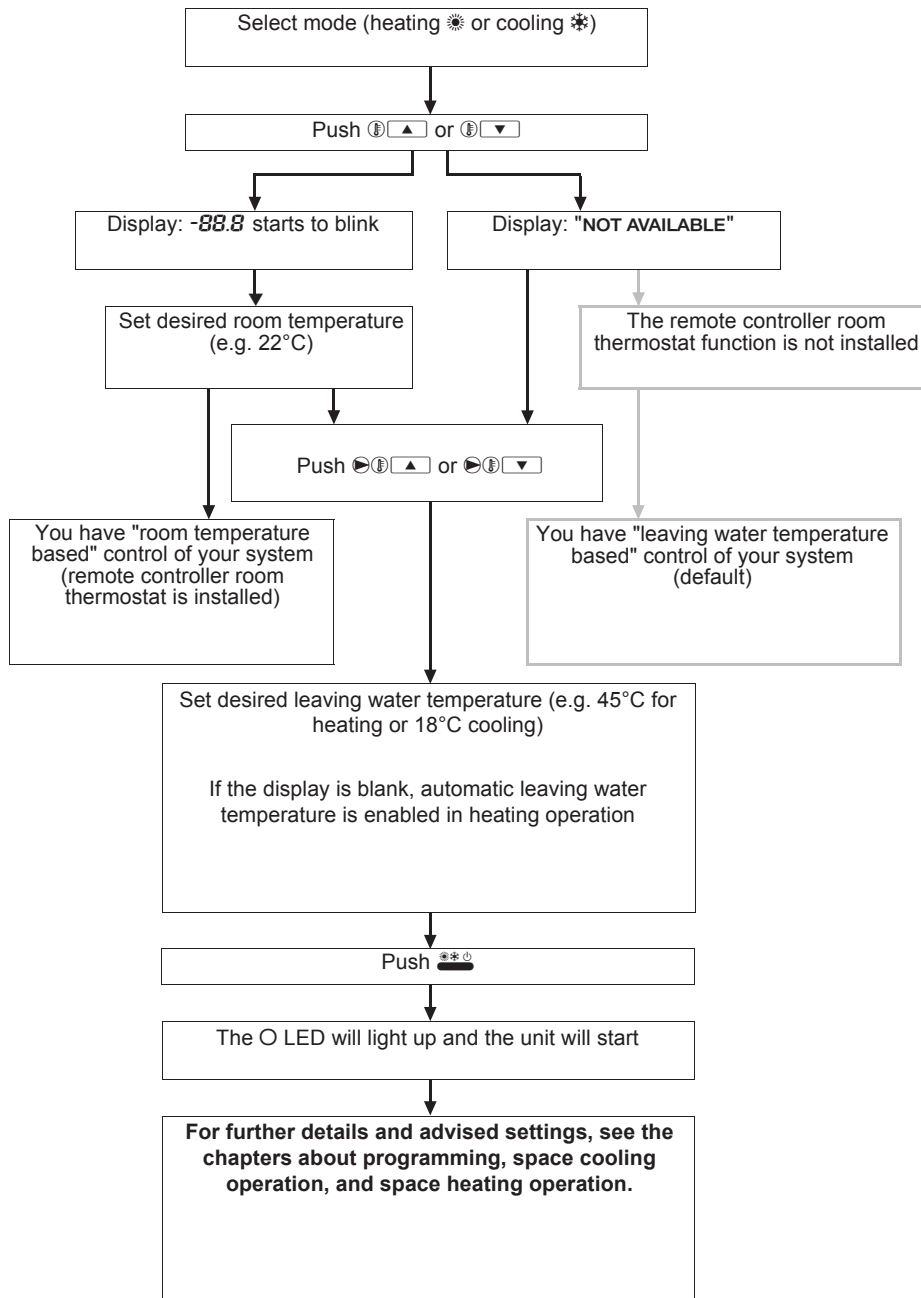
Use the system in the following temperature ranges for safe and effective operation.

	Cooling	Heating
Outdoor temperature	-15~43°C DB	-15~35°C DB

16.2 Quick start-up

The flow chart shows the steps required for starting up space cooling/heating and allows the user to start up the system before reading the entire manual.

See ["16.3 Operating the system" on page 44](#) for more detailed information.



16.3 Operating the system

16.3.1 About the clock



INFORMATION

- The clock must be set manually. Adjust the setting when switching from summertime to wintertime and vice versa.
- The clock cannot be adjusted if the controller is set to permission level 2 or 3 (see field setting [0-00] in "7.2.9 Field settings on the remote controller" on page 23).
- A power failure of more than 2 hours will reset the clock and the day of the week. The schedule timer will continue operation, but with a disordered clock. Correct the clock and the day of the week.

To set the clock

- 1 Hold down the [Power] button for 5 seconds.
Result: The clock read-out and the day of week indicator start flashing.
- 2 Press the [Up] or [Down] button to increase/decrease the time by 1 minute. Keep the button pressed to increase/decrease the time by 10 minutes.
- 3 Press the [Temp Up] or [Temp Down] button to display the previous or next day of the week.
- 4 Press the [Power] button to confirm the current set time and day of the week.
- 5 Press the [Power] button to cancel this procedure without saving.
Result: If no button is pressed for 5 minutes, the clock and day of the week will return to their previous setting.

16.3.2 About operating the system

If the main power supply is turned off during operation, operation will restart automatically after the power turns back on again.

16.3.3 Space cooling operation

Space cooling can be controlled in 2 different ways:


- based on room temperature
- based on leaving water temperature (default)


To switch space cooling on/off using room temperature control



In this mode, cooling will be activated as required by the room temperature setpoint. The setpoint can be set manually or through the schedule timer.

INFORMATION

- When using room temperature control, space cooling operation based on room temperature will have priority over leaving water control.
- It is possible that the leaving water temperature becomes higher than the setpoint if the unit is controlled by room temperature.



- 1 Press  to switch space cooling (❄) on/off.

Result: ❄ and the corresponding actual room temperature setpoint appear on the display. The operation LED  lights up.

- 2 Set the desired room temperature using  and . For setup of the schedule timer function, see ["16.3.6 Schedule timer" on page 46](#).


INFORMATION


Temperature range for cooling: 16°C~32°C (room temperature)



- 3 Select the leaving water temperature which you want to be used to cool down your system using  and . For detailed information, see ["To switch space cooling on/off using leaving water temperature control" on page 45](#).

To switch space cooling on/off using leaving water temperature control

In this mode, cooling will be activated as required by the water temperature setpoint. The setpoint can be set manually or through the schedule timer.

- 1 Press  to switch space cooling (❄) on/off.

Result: ❄ and the corresponding actual room temperature setpoint appear on the display. The operation LED  lights up.

- 2 Set the desired leaving water temperature using  and . In case the unit has the low temperature cooling option, lower leaving water temperatures (<5°C) are possible, depending on the glycol concentration setting. For more information, see field setting [9] in ["7.2.9 Field settings on the remote controller" on page 23](#).

INFORMATION

Temperature range for cooling: 5°C~20°C (leaving water temperature) (-10°C~20°C when glycol is used).

For setup of the schedule timer function, see ["To program space cooling" on page 48](#), ["To program space heating" on page 49](#), and ["To program quiet mode" on page 49](#).

INFORMATION

- When an external room thermostat is installed, the thermo ON/OFF is determined by the external room thermostat. The remote controller is then operated in the leaving water control mode and is not functioning as a room thermostat.
- The remote controller ON/OFF status always has priority over the external room thermostat!

INFORMATION

Setback operation and weather dependent setpoint are not available in the cooling mode.

16.3.4 Space heating operation

Space heating is available for heat pump units only.

Space heating can be controlled in 2 different ways:

- based on room temperature
- based on leaving water temperature (default)


To switch space heating on/off using room temperature control


Room temperature control



In this mode, heating will be activated as required by the room temperature setpoint. The setpoint can be set manually or through the schedule timer.

INFORMATION

- When using room temperature control, space heating operation based on room temperature will have priority over leaving water control.
- It is possible that the leaving water temperature becomes higher than the setpoint if the unit is controlled by room temperature.



- 1 Press  to switch space heating (🔥) on/off.

Result: 🔥 and the corresponding actual room temperature setpoint appear on the display. The operation LED  lights up.

- 2 Set the desired room temperature using  and . In order to avoid overheating, space heating cannot be used when the outdoor ambient temperature rises above a certain temperature (see ["16.1 Operation range" on page 43](#)). For setup of the schedule timer function, see ["16.3.6 Schedule timer" on page 46](#).

INFORMATION


Temperature range for heating: 16°C~32°C (room temperature)

- 3 Select the leaving water temperature which you want to be used to heat up your system using  and . For detailed information, see ["To switch space heating on/off using leaving water temperature control" on page 46](#).

Automatic setback function

For the automatic setback function settings, see field setting [2] in ["7.2.9 Field settings on the remote controller" on page 23](#).









INFORMATION

-  flashes during setback operation.
- While room temperature setback function is active, leaving water setback operation is also performed (see "To switch space cooling on/off using leaving water temperature control" on page 45).
- Do not to set the setback value too low, especially during colder periods (e.g. winter time). It is possible that the room temperature cannot be reached (or it will take much longer) because of the big temperature difference.

The setback function provides the possibility to lower the room temperature. It can be activated e.g. during the night, because temperature demands during night and day are not the same.

To switch space heating on/off using leaving water temperature control

In this mode, heating will be activated as required by the water temperature setpoint. The setpoint can be set manually or through the schedule timer.

- 1 Press  to switch space heating () on/off.
Result:  and the corresponding actual room temperature setpoint appear on the display. The operation LED  lights up.
- 2 Set the desired leaving water temperature using   and  . In order to avoid overheating, space heating cannot be used when the outdoor ambient temperature rises above a certain temperature (see "16.1 Operation range" on page 43).

INFORMATION

Temperature range for heating: 25°C~50°C (leaving water temperature)








For setup of the schedule timer function, see "16.3.6 Schedule timer" on page 46.

INFORMATION

- When an external room thermostat is installed, the thermo ON/OFF is determined by the external room thermostat. The remote controller is then operated in the leaving water control mode and is not functioning as a room thermostat.
- The remote controller ON/OFF status always has priority over the external room thermostat!






Weather dependent setpoint operation

For the automatic setback function settings, see field setting [2] in "7.2.9 Field settings on the remote controller" on page 23.

- 3 Press  1 time to select weather dependent setpoint operation (or 2 times when the remote controller room thermostat function is used).
Result:  appears on the display as well as the shift value. The shift value is not shown if it is 0.
 - 4 Set the shift value using   and  .
- Result:**  will be displayed as long as the weather dependent setpoint operation is enabled.

INFORMATION

Range for shift value: -5°C~+5°C

- 5 Press  to deactivate weather dependent setpoint operation.
- 6 Set the leaving water temperature using   and  .

INFORMATION


During this operation, instead of showing the water temperature setpoint, the controller shows the shift value which can be set by the user.

Automatic setback function

For the automatic setback function settings, see field setting [2] in "7.2.9 Field settings on the remote controller" on page 23.

16.3.5 Other operation modes

Start up operation

During start up,  on the display means that the heat pump is still starting up.

Defrost operation ()

INFORMATION






This function is available for heat pump units ONLY.

In space heating operation, freezing of the outdoor heat exchanger may occur due to low outdoor temperature. If this risk occurs, the system goes into defrost operation. It reverses the cycle and takes heat from the water system to prevent freezing of the outdoor system. After a maximum of 15 minutes of defrost operation, the system returns to space heating operation. Space heating operation is not possible during defrost operation.

















Quiet mode operation ()

Quiet mode operation means that the unit works at reduced compressor speed so that the noise produced by the unit drops. This implies that it will take longer until the required temperature setpoint is reached. Beware of this when a certain level of heating is required indoors.

There are 3 different levels of quiet mode operation. The desired quiet mode is set through a field setting.

- 1 Press  to activate quiet mode operation.
Result:  appears on the display. If the controller is set to permission level 2 or 3 (see "7.2 Making field settings" on page 20), the  button cannot be used.
- 2 Press  again to deactivate quiet mode operation.
Result:  disappears from the display.

The actual temperatures can be displayed on the remote controller.

- 3 Press  for 5 seconds.
Result: The leaving water temperature is displayed (, , and  blink).
- 4 Press   and   to display:
 - The entering water temperature ( and  blink, and  flashes slowly).
 - The indoor temperature ( and  blink).
 - The outdoor temperature ( and  blink).
- 5 Press  again to leave this mode. If no button is pressed, the remote controller leaves the display mode after 10 seconds.

16.3.6 Schedule timer

Press  to enable or disable the schedule timer (.

Four actions per day can be programmed, making a total of 28 actions per week.

The schedule timer can be programmed in 2 different ways:

- based on the temperature setpoint (leaving water temperature and room temperature)
- based on the ON/OFF instruction.

The programming method is set in the field settings. See "7.2 Making field settings" on page 20. Before programming, fill out the form at the very end of this document. This form can help you define the required actions for each day.

i INFORMATION

- When power is restored after a power failure, the auto restart function reapplies the remote controller settings at the time of the power failure (if the power was interrupted for less than 2 hours). It is therefore recommended to leave the auto restart function enabled.
- As the programmed schedule is time driven, it is essential to set the clock and the day of the week correctly. See "16.3.1 About the clock" on page 44.
- Schedule timer actions will only be executed when the schedule timer is enabled (⊕ visible on the display)!
- The programmed actions are not stored according to their time of execution, but according to the time of programming, i.e. action number 1 is the action that was programmed first, even though it may be executed after other programmed action numbers.
- If 2 or more actions are programmed for the same day and at the same time, only the action with the lowest action number will be executed.

! CAUTION

For use of units in applications with schedule timer mode, it is advised to foresee a delay of 10 to 15 minutes for signalling the alarm in case the schedule timer is exceeded. The unit may stop for several minutes during normal operation for "defrosting of the unit" or when in "thermostat-stop" operation.

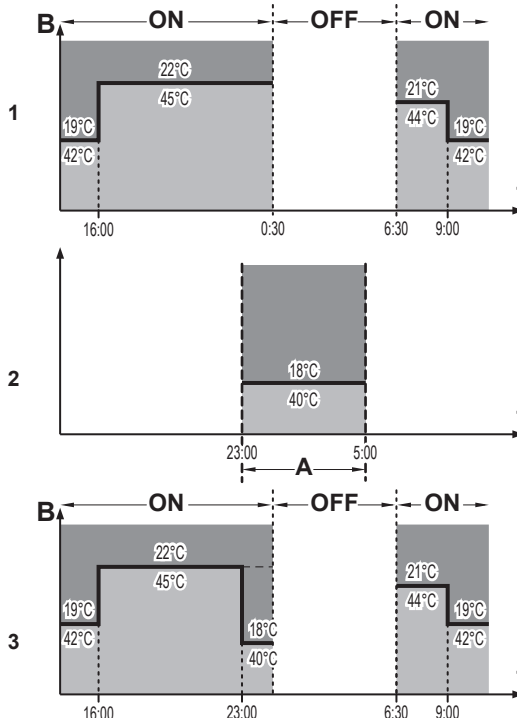
Space heating

[0-03] Status

Defines whether the ON/OFF instruction can be used in the schedule timer for space heating.

Space heating based on ON/OFF instruction	
During operation	When the schedule timer switches space heating OFF, the controller will be switched off (operation LED will stop working).
Press **⏸	<p>The schedule timer for space heating will stop (when active at that moment) and will start again at the next scheduled ON function.</p> <p>The "last" programmed command overrules the "preceding" programmed command and will remain active until the "next" programmed command occurs.</p> <p>Example: imagine the actual time is 17:30 and actions are programmed at 13:00, 16:00 and 19:00. The "last" programmed command (16:00) overruled the "previous" programmed command (13:00) and will remain active until the "next" programmed command (19:00) occurs.</p> <p>So in order to know the actual setting, you should consult the last programmed command (this may date from the day before).</p> <p>The controller is switched off (operation LED off), but the schedule timer icon remains on.</p>
Press ⊗/⊕	<p>The schedule timer for space heating and the quiet mode stops and will not start again.</p> <p>The schedule timer icon is not displayed any more.</p>

- Operation example: Schedule timer based on ON/OFF instruction. When the setback function (see field setting [2]) is enabled, the setback operation will have priority over the scheduled action in the schedule timer if ON instruction is active. If OFF instruction is active this will have priority over the setback function. At any time the OFF instruction will have the highest priority.



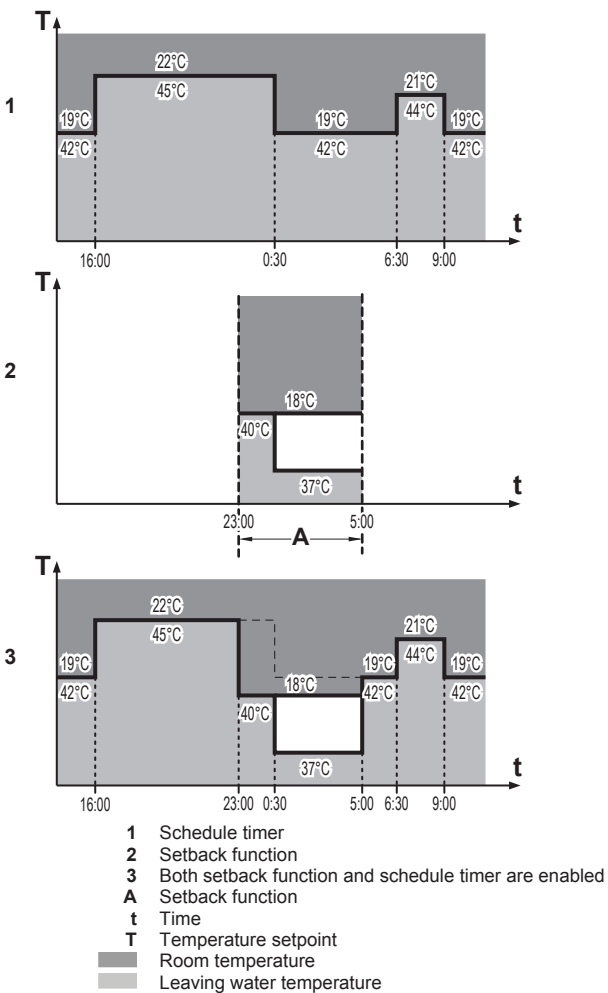
Space heating based on temperature setpoint ^(a)	
During operation	During schedule timer operation the operation LED is lit continuously.
Press **⏸	<p>The schedule timer for space heating stops and will not start again.</p> <p>The controller is switched off (operation LED off).</p>
Press ⊗/⊕	<p>The schedule timer for space heating and the quiet mode stops and will not start again.</p> <p>The schedule timer icon is not displayed any more.</p>

(a) For leaving water temperature and/or room temperature

- Operation example: Schedule timer based on temperature setpoint

When the setback function (see field setting [2]) is enabled, the setback operation will have priority over the scheduled action in the schedule timer.

16 Operation



i INFORMATION

Space heating based on temperature setpoint is enabled by default, so only temperature shifts are possible (no ON/OFF instruction).

Space cooling

[0-04] Status

Defines whether the ON/OFF instruction can be used in the schedule timer for cooling.

This is the same as for space heating [0-03], but the setback function is not available.

i INFORMATION

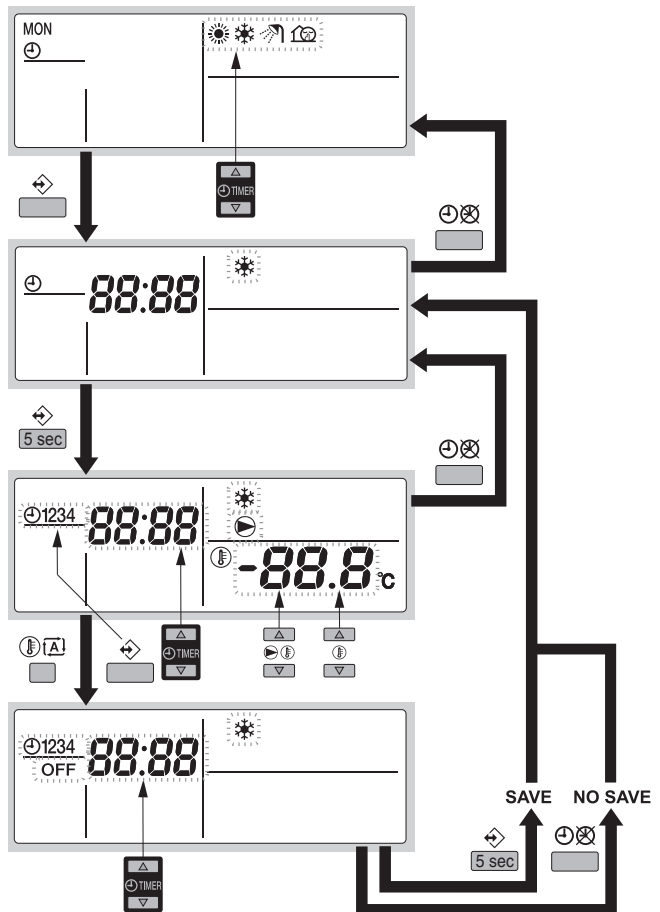
Space cooling based on temperature setpoint is enabled by default, so only temperature shifts are possible (no ON/OFF instruction).

Quiet mode

See "To program quiet mode" on page 49.

Switch the mode on or off at a scheduled time. Four actions can be programmed per day. These actions are repeated daily.

To program space cooling



i INFORMATION

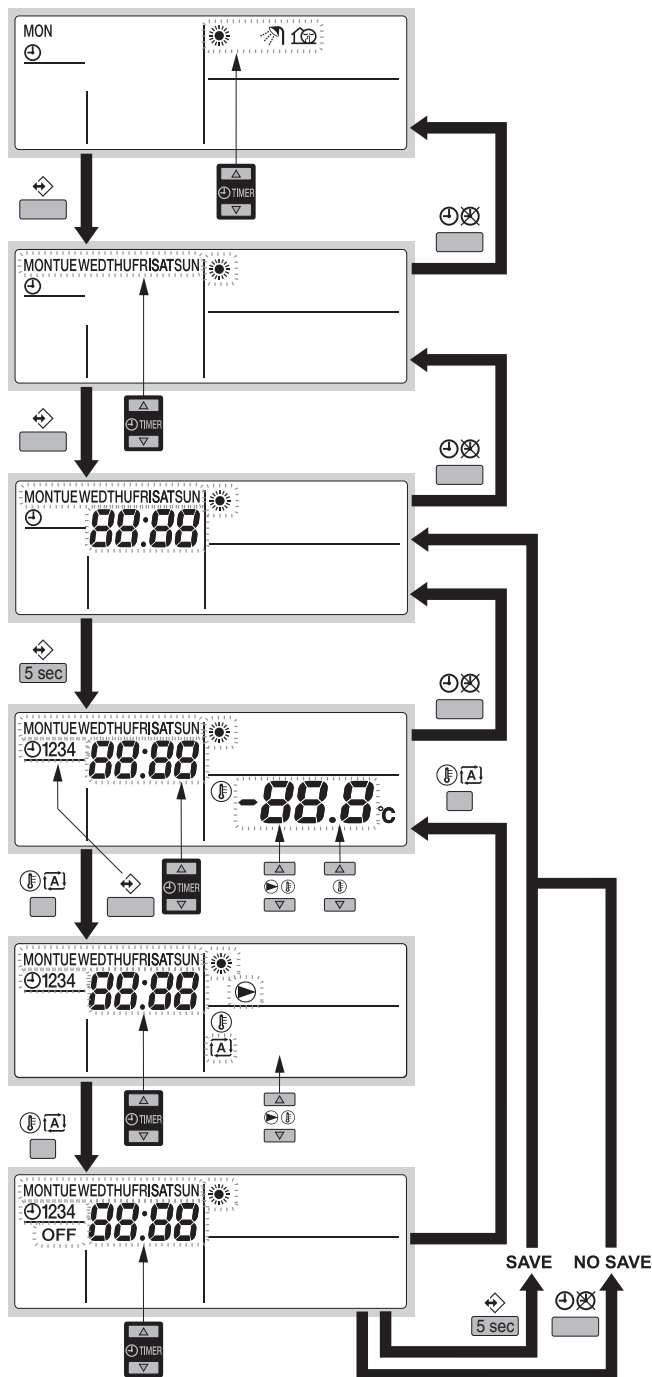
Press TIMER to return to previous steps in the programming procedure without saving modified settings.

- Press TIMER to enter the programming/consulting mode.
- Select the operation mode you would like to program using TIMER and TIMER .
Result: The actual mode is blinking.
- Press TIMER to confirm the selected mode.
Result: The time is blinking.
- Consult the action(s) using TIMER and TIMER .
- Hold down TIMER for 5 seconds to program the detailed actions.
Result: The first programmed action appears.
- Select the action number you would like to program or to modify using TIMER .
- Set the correct action time using TIMER and TIMER .
- Set the leaving water temperature using TIMER and TIMER .
- Set the room temperature using TIMER and TIMER .
- Select OFF using TIMER to switch cooling and the remote controller off.
- Repeat this procedure to program the other actions.
Result: When all actions have been programmed, make sure that the display shows the highest action number you would like to save.
- Press TIMER for 5 seconds to store the programmed actions.

Result: If \diamond is pressed when action number 3 is displayed, actions 1, 2 and 3 are stored, but action 4 is deleted. You automatically return to step 6. Press \boxtimes/\odot several times to return to previous steps in this procedure and finally return to normal operation.

13 You automatically return to step 6; start again to program the following day.

To program space heating



i INFORMATION

Press \boxtimes/\odot to return to previous steps in the programming procedure without saving modified settings.

- 1 Press \diamond to enter the programming/consulting mode.
- 2 Select the operation mode you would like to program using $\odot\blacktriangle$ and $\odot\blacktriangledown$.

Result: The actual mode is blinking.

- 3 Press \diamond to confirm the selected mode.

Result: The actual day is blinking.

- 4 Select the day you would like to consult or to program using $\odot\blacktriangle$ and $\odot\blacktriangledown$.

Result: The selected day is blinking.

- 5 Press \diamond to confirm the selected day.
- 6 Hold down \diamond for 5 seconds to program the detailed actions.

Result: The first programmed action of the selected day appears.

- 7 Select the action number you would like to program or to modify using \diamond .

- 8 Set the correct action time using $\odot\blacktriangle$ and $\odot\blacktriangledown$.
- 9 Set the leaving water temperature using $\blacktriangleright\text{B}\blacktriangle$ and $\blacktriangleright\text{B}\blacktriangledown$.
- 10 Set the room temperature using $\text{B}\blacktriangle$ and $\text{B}\blacktriangledown$.

- 11 Press $\text{B}\blacktriangle$ to select:
 - OFF: to switch heating and the remote controller off.
 - A : to select automatic temperature calculation for leaving water temperature

- 12 Set the appropriate shift value using $\blacktriangleright\text{B}\blacktriangle$ and $\blacktriangleright\text{B}\blacktriangledown$. For more information about weather dependent setpoint, see "16.3.6 Schedule timer" on page 46.

- 13 Repeat this procedure to program the other actions of the selected day.

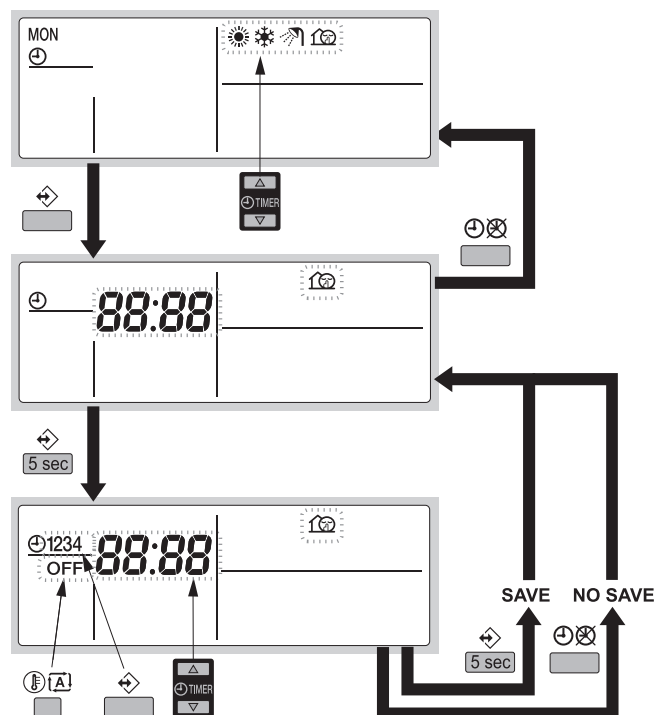
Result: When all actions have been programmed, make sure that the display shows the highest action number you would like to save.

- 14 Press \diamond for 5 seconds to store the programmed actions.

Result: If \diamond is pressed when action number 3 is displayed, actions 1, 2 and 3 are stored, but action 4 is deleted. You automatically return to step 6. Press \boxtimes/\odot several times to return to previous steps in this procedure and finally return to normal operation.

- 15 You automatically return to step 6; start again to program the following day.

To program quiet mode



16 Operation



INFORMATION

Press $\text{⏏}/\text{⏏}$ to return to previous steps in the programming procedure without saving modified settings.

- 1 Press ⏏ to enter the programming/consulting mode.
- 2 Select the operation mode you would like to program using $\text{⏏}\text{▲}$ and $\text{⏏}\text{▼}$.
Result: The actual mode is blinking.
- 3 Press ⏏ to confirm the selected mode.
- 4 Consult the action(s) using $\text{⏏}\text{▲}$ and $\text{⏏}\text{▼}$.
- 5 Hold down ⏏ for 5 seconds to program the detailed actions.
Result: The first programmed action appears.
- 6 Select the action number you would like to program or to modify using ⏏ .
- 7 Set the correct action time using $\text{⏏}\text{▲}$ and $\text{⏏}\text{▼}$.
- 8 Select or deselect OFF as an action using $\text{⏏}\text{⏏}$.
- 9 Repeat this procedure to program the other actions of the selected mode.
Result: When all actions have been programmed, make sure that the display shows the highest action number you would like to save.
- 10 Press ⏏ for 5 seconds to store the programmed actions.
Result: If ⏏ is pressed when action number 3 is displayed, actions 1, 2 and 3 are stored, but action 4 is deleted. You automatically return to step 6. Press $\text{⏏}/\text{⏏}$ several times to return to previous steps in this procedure and finally return to normal operation.
- 11 You automatically return to step 6; start again to program the following day.

To consult programmed actions



INFORMATION

Press $\text{⏏}/\text{⏏}$ to return to previous steps in the consulting procedure.

- 1 Press ⏏ to enter the programming/consulting mode.
- 2 Select the operation mode you would like to consult using $\text{⏏}\text{▲}$ and $\text{⏏}\text{▼}$.
Result: The actual mode is blinking.
- 3 Press ⏏ to confirm the selected mode.
Result: The actual day is blinking.
- 4 Select the day you would like to consult using $\text{⏏}\text{▲}$ and $\text{⏏}\text{▼}$.
Result: The selected day is blinking.
- 5 Press ⏏ to confirm the selected day.
Result: The first programmed action of the selected day appears.
- 6 Consult the other programmed actions of that day using $\text{⏏}\text{▲}$ and $\text{⏏}\text{▼}$.
Result: This is called the readout mode. Empty program actions (e.g. 4) are not displayed. Press $\text{⏏}/\text{⏏}$ several times to return to previous steps in this procedure and finally return to normal operation.

Schedule timer tips and tricks

To program the next day(s)

- 1 After confirming the programmed actions of a specific day, press $\text{⏏}/\text{⏏}$ once.
Result: You can now select another day using $\text{⏏}\text{▲}$ and $\text{⏏}\text{▼}$ and restart consulting and programming.

To copy programmed actions to next day

In space heating program it is possible to copy all programmed actions of a specific day to the next day (e.g. copy all programmed actions from "MON" to "TUE").

- 2 Press ⏏ .
Result: The actual mode is blinking.
- 3 Select the mode you want to program using $\text{⏏}\text{▲}$ and $\text{⏏}\text{▼}$.
Result: The selected mode is blinking. You can leave programming by pressing $\text{⏏}/\text{⏏}$.
- 4 Press ⏏ to confirm the selected mode.
Result: The actual day is blinking.
- 5 Select the day you would like to copy to the next day using $\text{⏏}\text{▲}$ and $\text{⏏}\text{▼}$.
Result: The selected day is blinking. Press $\text{⏏}/\text{⏏}$ to return to step 2.
- 6 Press ⏏ and $\text{⏏}/\text{⏏}$ simultaneously for 5 seconds.
- 7 After 5 seconds the display will show the next day (e.g. "TUE" if "MON" was selected first). This indicates that the day has been copied.
- 8 Press $\text{⏏}/\text{⏏}$ to return to step 2.

To delete one or more programmed actions

Deleting one or more programmed actions is done at the same time as storing the programmed actions.

When all actions for one day have been programmed, make sure that the display shows the highest action number you would like to save. Pressing ⏏ for 5 seconds stores all actions except those with a higher action number than the one that is displayed.

Example: Pressing ⏏ when action number 3 is displayed, stores actions 1, 2 and 3, but deletes action 4.

To delete a mode

- 1 Press ⏏ .
Result: The actual mode is blinking.
- 2 Select the mode you want to delete using $\text{⏏}\text{▲}$ and $\text{⏏}\text{▼}$.
Result: The selected mode is blinking.
- 3 Press ⏏ and $\text{⏏}/\text{⏏}$ simultaneously for 5 seconds to delete the selected mode.

To delete a day of the week

- 1 Press ⏏ .
Result: The actual mode is blinking.
- 2 Select the mode you want to delete using $\text{⏏}\text{▲}$ and $\text{⏏}\text{▼}$.
Result: The selected mode is blinking.
- 3 Press ⏏ to confirm the selected mode.
Result: The actual day is blinking.
- 4 Select the day you would like to delete using $\text{⏏}\text{▲}$ and $\text{⏏}\text{▼}$.
Result: The selected day is blinking.
- 5 Press ⏏ and $\text{⏏}/\text{⏏}$ simultaneously for 5 seconds to delete the selected day.

16.3.7 Operating the optional demand PCB

An optional PCB EKR1AHTA can be connected to the unit and be used to remotely control the unit.

The 3 inputs allow:

- remote switching between cooling and heating
- remote thermo on/off
- remote unit on/off

For more details about this option kit, refer to the wiring diagram of the unit.



INFORMATION

The signal (voltage free) must take at least 50 ms.

See also field setting [6-01] in "7.2.9 Field settings on the remote controller" on page 23 for setting the function of your preference.

16.3.8 Operating the optional external control adapter

An optional control adapter PCB DTA104A62 can be connected to the unit and be used to remotely control 1 or more units.

By short-circuiting contacts on the option kit PCB, you can:

- reduce capacity to about 70%,
- reduce capacity to about 40%,
- force thermo off,
- capacity save (fan low speed turn, compressor frequency control).

For more details about this option kit, refer to a separate instruction that is delivered with the unit.

16.3.9 Operating the optional remote controller

If besides the main remote controller the optional remote controller is installed as well, the main remote controller (master) can access all settings while the second remote controller (slave) can not access schedule settings and parameter settings.

Refer to the installation manual for more details.

17 Maintenance and service



WARNING

Never replace a fuse with a fuse of a wrong ampere ratings or other wires when a fuse blows out. Use of wire or copper wire may cause the unit to break down or cause a fire.



CAUTION

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



CAUTION

Pay attention to the fan.

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

Be sure to turn off the main switch before executing any maintenance task.



CAUTION

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

Water pressure

Check whether the water pressure is above 1 bar. If it is lower, add water.

17.1 About the refrigerant

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

Refrigerant type: R410A

Global warming potential (GWP) value: 2087.5



NOTICE

In Europe, the **greenhouse gas emissions** of the total refrigerant charge in the system (expressed as tonnes CO₂-equivalent) is used to determine the maintenance intervals. Follow the applicable legislation.

Formula to calculate the greenhouse gas emissions:
GWP value of the refrigerant × Total refrigerant charge [in kg] / 1000

Please contact your installer for more information.



WARNING

The refrigerant in the system is safe and normally does not leak. If the refrigerant leaks in the room, contact with a fire of a burner, a heater or a cooker may result in a harmful gas.

Turn off any combustible heating devices, ventilate the room and contact the dealer where you purchased the unit.

Do not use the system until a service person confirms that the portion where the refrigerant leaks is repaired.

17.2 After-sales service and warranty

17.2.1 Warranty period

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

17.2.2 Recommended maintenance and inspection

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

When asking your dealer for an intervention, always state:

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

17.2.3 Recommended maintenance and inspection cycles

Be aware that the mentioned maintenance and replacement cycles do not relate to the warranty period of the components.

18 Troubleshooting

Component	Inspection cycle	Maintenance cycle (replacements and/or repairs)
Electric motor	1 year	20,000 hours
PCB		25,000 hours
Heat exchanger		5 years
Sensor (thermistor, etc.)		5 years
User interface and switches		25,000 hours
Drain pan		8 years
Expansion valve		20,000 hours
Solenoid valve		20,000 hours

The table assumes the following conditions of use:

- Normal use without frequent starting and stopping of the unit. Depending on the model, we recommend not starting and stopping the machine more than 6 times/hour.
- Operation of the unit is assumed to be 10 hours/day and 2,500 hours/year.

NOTICE

- The table indicates main components. Refer to your maintenance and inspection contract for more details.
- The table indicates recommended intervals of maintenance cycles. However, in order to keep the unit operational as long as possible, maintenance work may be required sooner. Recommended intervals can be used for appropriate maintenance and inspection fees. Depending on the content of the maintenance and inspection contract, inspection and maintenance cycles may in reality be shorter than listed.

18 Troubleshooting

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

WARNING





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

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

The system must be repaired by a qualified service person:

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

If the system does not properly operate except for the above mentioned cases and none of the above mentioned malfunctions is evident, investigate the system according to the following procedures.

Malfunction	Measure
The remote controller display is blank.	<ul style="list-style-type: none"> Check if there is no power failure. Wait until power is restored. If power failure occurs during operation, the system automatically restarts immediately after power is restored. Check if no fuse has blown or breaker is activated. Change the fuse or reset the breaker if necessary. Check if the benefit kWh rate power supply is active.
An error code is displayed on the remote controller.	Consult your local dealer. Refer to "10.2 Error codes: Overview" on page 30 for a detailed list of error codes.
The schedule timer works, but the programmed actions are executed at the wrong time.	Check if the clock and the day of the week are set correctly, and correct if necessary.
The schedule timer is programmed, but does not work.	In case  is not displayed, push  to enable the schedule timer.
Capacity shortage.	Consult your local dealer.
Temperature values on the remote controller are displayed in °F instead of in °C.	To switch the display between °C and °F, push  and  simultaneously for 5 seconds. The default temperature display is in °C.

If after checking all above items, it is impossible to fix the problem yourself, contact your installer and state the symptoms, the complete model name of the unit (with manufacturing number if possible) and the installation date (possibly listed on the warranty card).

18.1 Error codes: Overview

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

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

19 Relocation

Contact your dealer for removing and reinstalling the total unit. Moving units requires technical expertise.

20 Disposal

This unit uses hydrofluorocarbon. Contact your dealer when discarding this unit.

NOTICE

Do not try to dismantle the system yourself: the 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.

21 Glossary

Dealer

Sales distributor for the product.

Authorized 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.

