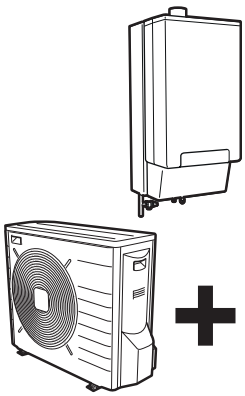
Installer reference guide

Daikin Altherma hybrid heat pump



EVLQ05+08CA
EHYHBH05AA
EHYHBH/X08AA
EHYKOMB33AA

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1 About the product



Especially for UK:

The Benchmark Scheme

Benchmark places responsibilities on both manufacturers and installers. The purpose is to ensure that customers are provided with the correct equipment for their needs, that it is installed, commissioned and serviced in accordance with the manufacturer's instructions by competent persons and that it meets the requirements of the appropriate Building Regulations. The Benchmark Checklist can be used to demonstrate compliance with Building Regulations and should be provided to the customer for future reference.

Installers are required to carry out installation, commissioning and servicing work in accordance with the Benchmark Code of Practice which is available from the Heating and Hotwater Industry Council who manage and promote the Scheme. Visit http://www.centralheating.co.uk for more information.

Approvals

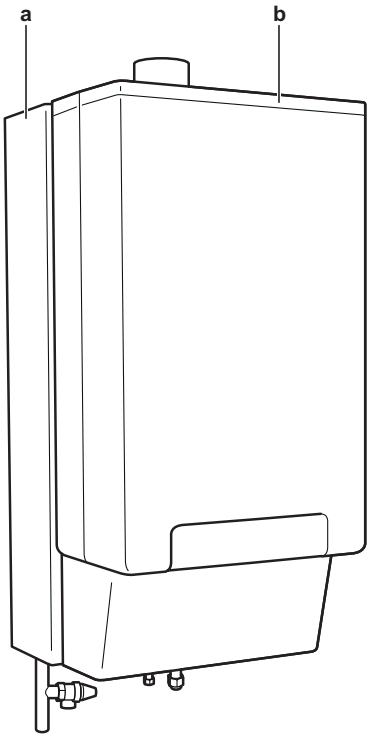
British Gas Service listing:

EHYKOMB33AA: G.C.N. 47-464-01

The product (hybrid system) combines the following 2 parts:

- heat pump module,
- gas boiler module.

The modules MUST always be installed and used together.



a Heat pump module
b Gas boiler module

2 About the documentation

2.1 About this document

Target audience

Authorised installers

Documentation set

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

Document	Contains…	Format
General safety precautions	Safety instructions that you must read before installing	Paper (in the box of the indoor unit)
Heat pump module installation manual	Installation instructions	
Gas boiler module installation manual	Installation and operation instructions	Paper (in the box of the gas boiler unit)
Outdoor unit installation manual	Installation instructions	Paper (in the box of the outdoor unit)
Installer reference guide	Preparation of the installation, technical specifications, reference data,…	Digital files on http://www.daikineurope.com/support-and-manuals/product-information/.
Addendum book for optional equipment	Additional info about how to install optional equipment	Paper (in the box of the indoor unit) 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.

3 General safety precautions

3.1 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.
- All activities described in the installation manual must be performed by an authorized installer.

3.1.1 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.

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

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.

DANGER: RISK OF EXPLOSION

Indicates a situation that could result in explosion.

DANGER: RISK OF POISONING

Indicates a situation that could result in poisoning.

WARNING: PROTECT AGAINST FROST

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

3.2 For the installer

3.2.1 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.

NOTICE

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 aluminum 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.

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.

3.2.2 Installation site

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

Module	Weight
Hybrid module	30 kg
Gas module	36 kg
Indoor part (Hybrid module + gas module)	Total weight: 66 kg

- Make sure the area is well ventilated.
- Make sure the unit is level.
- Make sure walls sensitive to heat (e.g. wood) are protected by suitable insulation.
- ONLY operate the gas boiler if a sufficient supply of combustion air is ensured. In case of a concentric air/flue gas system dimensioned according to the specifications of this manual, this is fulfilled automatically and there are no other conditions for the equipment installation room. This method of operation applies exclusively.
- This gas boiler is NOT designed for room air dependent operation.

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 bathrooms.
- In places where frost is possible. The ambient temperature around the indoor unit should be >5°C.

3.2.3 Refrigerant

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.

WARNING

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

3.2.4 Water

NOTICE

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

Avoid damages caused by deposits and corrosion. To prevent corrosion products and deposits, observe the applicable regulations of technology.

Measures for desalination, softening or hardness stabilization are necessary if the filling and top-up water have a high total hardness (>3 mmol/l–sum of the calcium and magnesium concentrations, calculated as calcium carbonate).

Using filling water and top-up water which does NOT meet the stated quality requirements can cause a considerably reduced service life of the equipment. The responsibility for this is entirely that of the user.

3.2.5 Electrical

DANGER: RISK OF ELECTROCUTION

- Turn OFF all power supply before removing the switch box cover, connecting electrical wiring or touching electrical parts.
- Disconnect the power supply for more than 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, shall be installed in the fixed wiring.

WARNING

- ONLY use copper wires.
- 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 meter away from televisions or radios to prevent interference. Depending on the radio waves, a distance of 1 meter 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.

3.2.6 Gas

The gas boiler is factory set to:

- the type of gas quoted on the type identification plate or on the setting type identification plate,
- the quitted gas pressure.

Operate the unit ONLY with the gas type and gas pressure indicated on these type identification plates.

Installation and adaptation of the gas system MUST be conducted by:

- personnel qualified for this work,
- in compliance with valid gas installation related guidelines,
- in accordance with applicable regulations of the gas supply company,
- In accordance with local and national regulations.

Boilers that use natural gas MUST be connected to a governed meter,

Boilers that use liquid petroleum gas (LPG) MUST be connected to a regulator.

The size of the gas supply pipe should under no circumstance be less than 22 mm.

The meter or regulator and pipe work to the meter MUST be checked preferably by the gas supplier. This is to ensure that the equipment works good and meets the gas flow and pressure requirements.

DANGER

If you smell gas:

- call immediately your local gas supplier and your installer,
- call the suppliers's number on the side of the LPG tank (if applicable),
- turn off the emergency control valve at the meter/ regulator,
- do NOT turn electrical switches ON or OFF,
- do NOT strike matches or smoke,
- put out naked flames,
- open doors and windows immediately,
- keep people away from the affected area.

3.2.7 Gas exhaust

Flue systems must NOT be modified or installed in any way other than as described in the fitting instructions. Any misuses or unauthorized modifications to the appliance, flue or associated components and systems could invalidate the warranty. The manufacturer accepts no liability arising from any such actions, excluding statutory rights.

It is NOT allowed to combine flue system parts purchased from different suppliers.

3.2.8 Local legislation

Local regulations for UK

It is law that all gas appliances are installed by a gas safe registered competent engineer and in accordance with the following recommendations:

- Current Gas Safety (Installation and Use) Regulations
- All current building regulations
- Building Standards (Scotland) Consolidated
- This appliance MUST be installed in accordance with the Gas (Safety and Use) Regulations, current Building Regulations, Building Standards (Scotland), I.S.813 Installation of Gas Appliances (Ireland), IEE Wiring Regulations (BS 7671), Health and Safety Document No. 635 (Electricity at Work Regulations) and Local Water Authority Bye Laws
- UK Water Regulations and Bye Laws
- Health & Safety

The installation MUST comply with the following British Standards codes of practice:

- BS 5440: Flues and Ventilation for gas appliances of rated input NOT exceeding 70 kW (Part 1 Flues)
- BS 5440: Flues and Ventilation for gas appliances of rated input NOT exceeding 70 kW (Part 2 Air Supply)
- BS 5546: 2000 Installation of gas hot water supplies for domestic pur poses.
- BS 5549: 1990 Forced circulation hot water systems.
- BS 6700: 1997 Design, Installation, testing and maintenance of services supplying hot water
- BS 6798: 2000 Specification for installation of gas fired hot water boilers of rated input NOT exceeding 70 kW
- BS 6891: 1998 Installation of low pressure gas pipe-work installation up to 35 mm (RI)
- BS 7593: 1992 Code of practice for treatment of water in heating systems
- BS 7671: 2001 Requirements for electrical installations, IEE Wiring regulations
- BS 7074: 1 Code of practice for domestic and hot water supply
- EN12828 Central heating for domestic premises

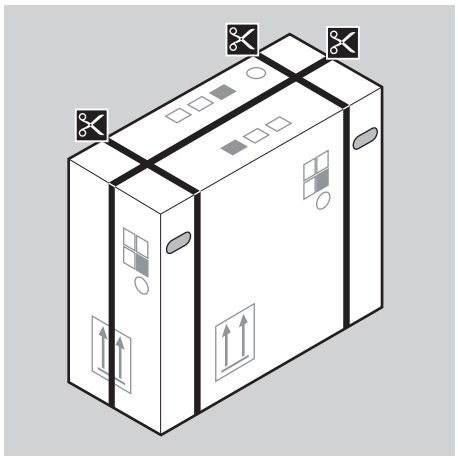
Potable water: all seals, joints and compounds (including flux and solder) and components used as part of the secondary domestic water system MUST be approved by WRAS.

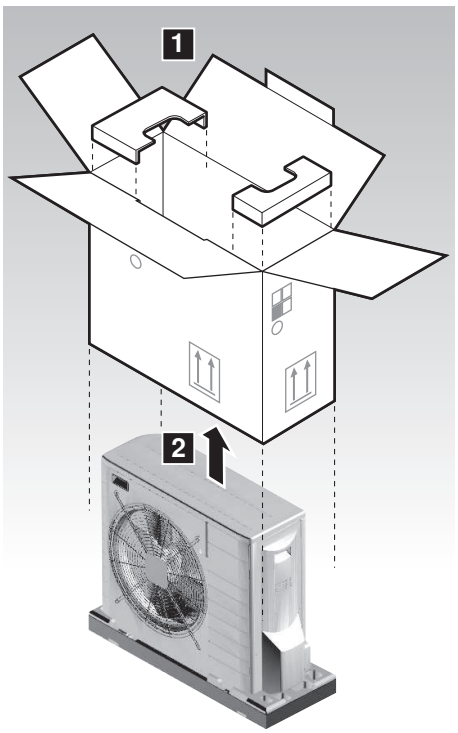
4 About the box

- 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.

4.1 Outdoor unit

4.1.1 To unpack the outdoor unit



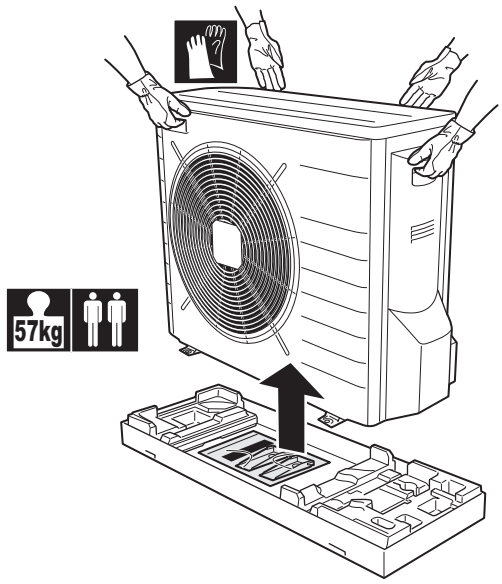


4.1.2 To remove the accessories from the outdoor unit

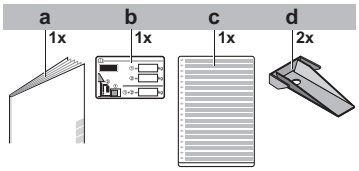
1 Lift the outdoor unit.

CAUTION

Only handle the outdoor unit as follows:



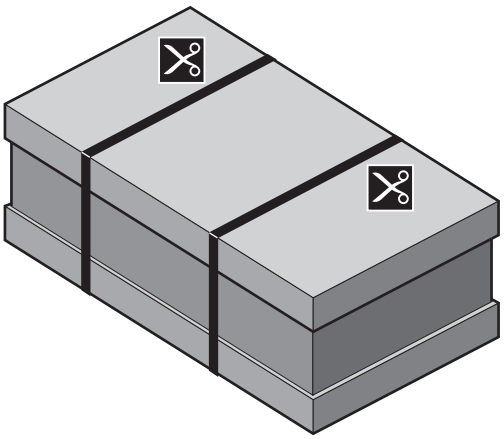
2 Remove the accessories at the bottom of the package.

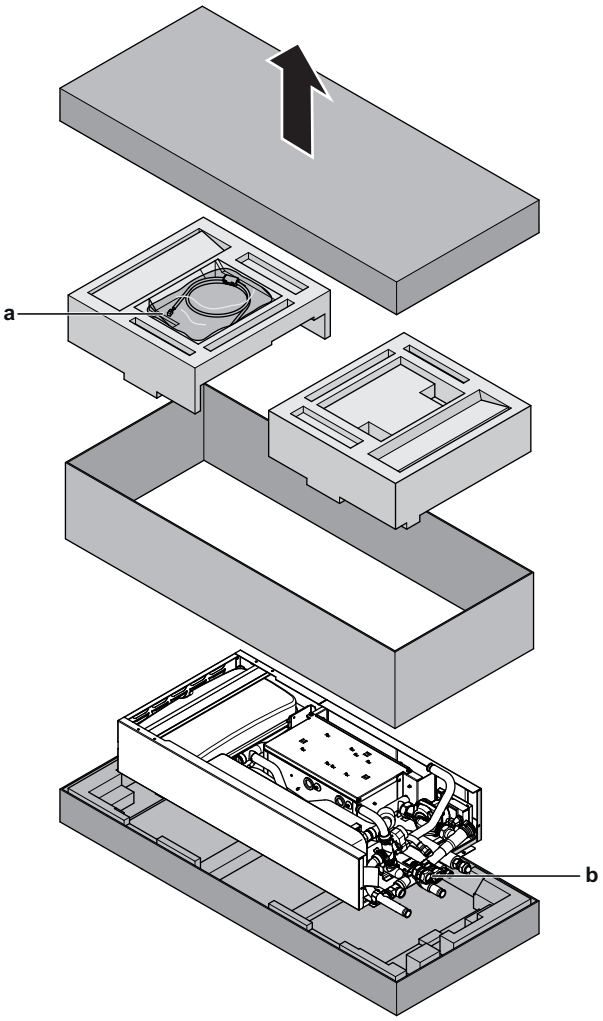


a Outdoor unit installation manual
b Fluorinated greenhouse gases label
c Multilingual fluorinated greenhouse gases label
d Unit mounting plate

4.2 Indoor unit

4.2.1 To unpack the indoor unit





a Installation manual, operation manual, addendum book for optional equipment, quick installation guide, general safety precautions, boiler communication cable
b Connection pieces for the gas boiler

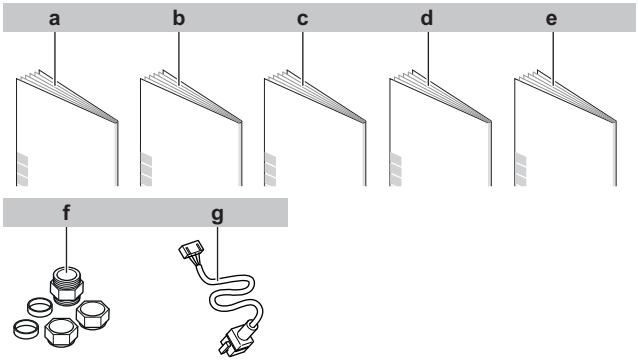
INFORMATION

Do NOT throw away the upper cardboard cover. On the outside of the cardboard cover, the installation pattern is printed.

4.2.2 To remove the accessories from the indoor unit

The installation manual, operation manual, addendum book for optional equipment, general safety precautions, quick installation guide, and boiler communication cable are located in the upper part of the box. The connection pieces for the gas boiler are attached to the water piping.

1 Remove the accessories as described in "4.2.1 To unpack the indoor unit" on page 8.

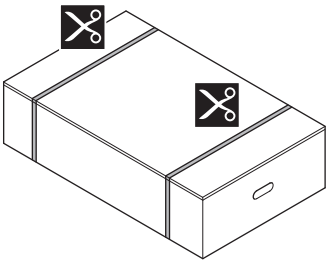


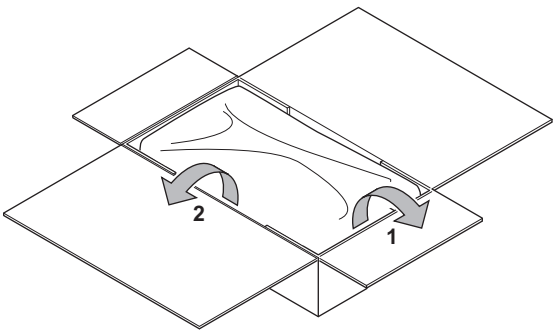
a General safety precautions
b Addendum book for optional equipment
c Indoor unit installation manual
d Operation manual
e Quick installation guide
f Connection pieces for gas boiler
g Boiler communication cable

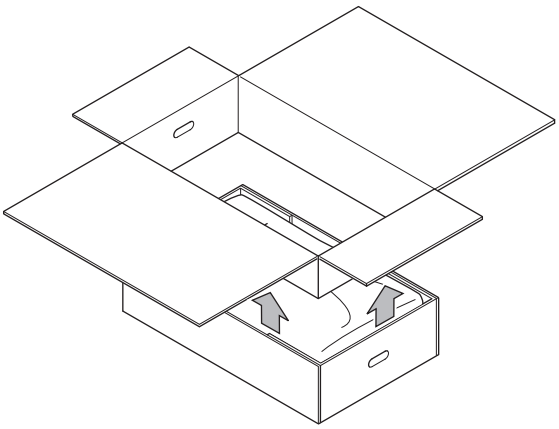
4.3 Gas boiler

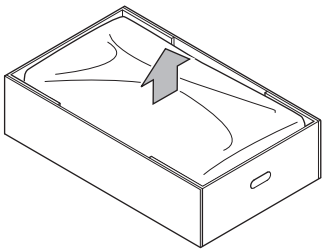
4.3.1 To unpack the gas boiler

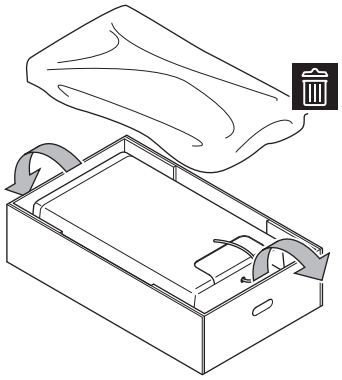
ALWAYS move the gas boiler in the original delivery packaging to its nearest installation position.

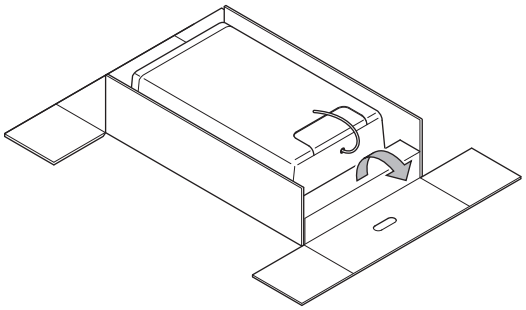










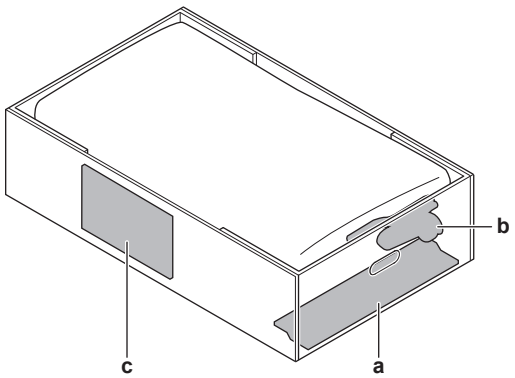


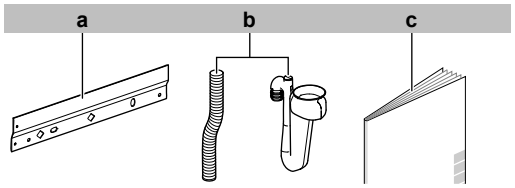
WARNING

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

4.3.2 To remove the accessories from the gas boiler

1 Remove the accessories.





a Mounting strip
b Condensate trap
c Installation manual and operation manual

5 About the units and options

5.1 Identification

NOTICE

When installing or servicing several units at the same time, make sure NOT to switch the service panels between different models.

5.1.1 Identification label: Outdoor unit

Location



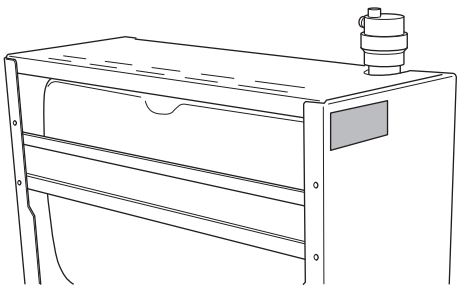
Model identification

Example: EV L Q 05 CA V3

Code	Explanation
EV	European split outdoor pair heat pump
L	Low water temperature – ambient zone: −10~−20°C
Q	Refrigerant R410A
05	Capacity class: ▪ 05=5 kW ▪ 08=8 kW
CA	Series
V3	1~, 230 V, 50 Hz

5.1.2 Identification label: Indoor unit

Location



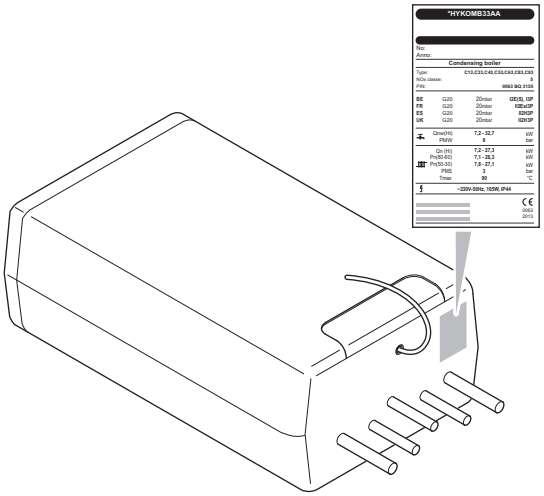
Model identification

Example: E HY HBH 05 AA V3

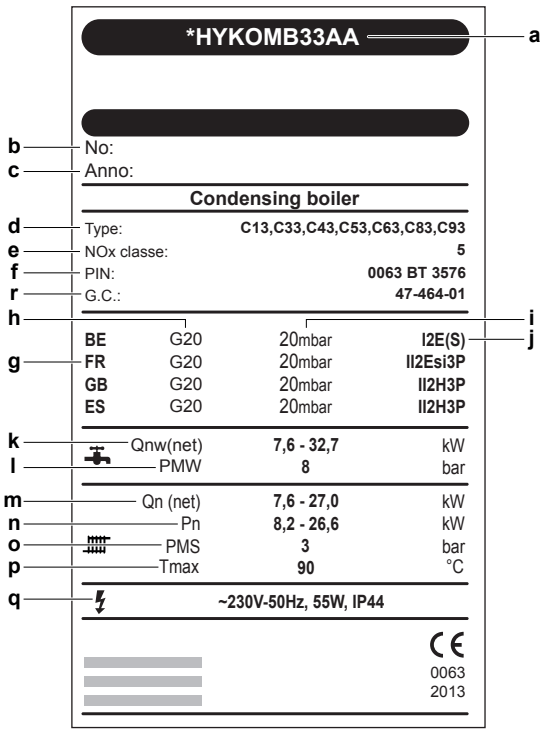
Code	Description
E	European model
HY	HY=Hybrid indoor unit
HBH	HBH=Hydrobox heating only HBX=Hydrobox heating and cooling
05	Capacity class: ▪ 05=5 kW ▪ 08=8 kW
AA	Series
V3	1~ 230 V, 50 Hz

5.1.3 Identification label: gas boiler

Location



Model identification



a Model
b Serial number
c Production year
d Appliance type
e NOx class
f PIN number
g Destination country
h Gas type

i Gas supply pressure (mbar)
j Appliance category
k Domestic hot water heat output (kW)
l Maximum domestic hot water pressure (bar)
m Heat output (space heating) (kW)
n Nominal power (kW)
o Maximum space heating pressure (bar)
p Maximum flow temperature (°C)
q Electrical supply
r GCN gas council number

5.2 Possible combinations of units and options

5.2.1 List of options for outdoor unit

Drain pan (EKDP008CA)

The drain pan is required to gather the drain from the outdoor unit. The drain pan kit consists of:

- Drain pan
- Installation brackets

For installation instructions, see the installation manual of the drain pan.

Drain pan heater (EKDPH008CA)

The drain pan heater is required to avoid freezing-up of the drain pan.

It is recommended to install this option in colder regions with possible low ambient temperatures or heavy snowfall.

For installation instructions, see the installation manual of the drain pan heater.

INFORMATION

In case the drain pan heater is used, the jumper JP_DP on the service PCB on the outdoor unit MUST be cut.

After cutting the jumper, you MUST reset the outdoor unit to activate this function.

U-beams (EKFT008CA)

The U-beams are installation brackets on which the outdoor unit can be installed.

It is recommended to install this option in colder regions with possible low ambient temperatures or heavy snowfall.

For installation instructions, see the installation manual of the outdoor unit.

5.2.2 List of options for indoor unit

User interface (EKRUCBL*)

The user interface and a possible additional user interface are available as an option.

The additional user interface can be connected:

- To have both:
  - control close to the indoor unit,
  - room thermostat functionality in the principal space to be heated.
- To have an interface containing other languages.

Following user interfaces are available:

- EKRUCBL1 contains following languages: German, French, Dutch, Italian.
- EKRUCBL2 contains following languages: English, Swedish, Norwegian, Finnish.

Languages on the user interface can be uploaded by PC software or copied from an user interface to the other.

For installation instructions, see "7.8.7 To connect the user interface" on page 36.

Room thermostat (EKRTWA, EKRTR1)

You can connect an optional room thermostat to the indoor unit. This thermostat can either be wired (EKRTWA) or wireless (EKRTR1).

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

Remote sensor for wireless thermostat (EKRTETS)

You can use a wireless indoor temperature sensor (EKRTETS) only in combination with the wireless thermostat (EKRTR1).

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

Digital I/O PCB (EKRP1HB)

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

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

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

Demand PCB (EKRP1AHTA)

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

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

Remote indoor sensor (KRCS01-1)

By default the internal user interface sensor will be used as room temperature sensor.

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

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

INFORMATION

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

Remote outdoor sensor (EKRSCA1)

By default the sensor inside the outdoor unit will be used to measure the outdoor temperature.

As an option the remote outdoor sensor can be installed to measure the outdoor temperature on another location (e.g. to avoid direct sunlight) to have an improved system behaviour.

For installation instructions, see the installation manual of the remote outdoor sensor.

INFORMATION

You can only connect either the remote indoor sensor or the remote outdoor sensor.

PC configurator (EKPCCAB*)

The PC cable makes a connection between the switch box of the indoor unit and a PC. It gives the possibility to upload different language files to the user interface and indoor parameters to the indoor unit. For the available language files, contact your local dealer.

The software and corresponding operating instructions are available on Daikin Extranet.

For installation instructions, see the installation manual of the PC cable.

Solar kit (EKSRPS3)

The solar kit is required to connect the solar application with the domestic hot water tank.

For installation, see the installation manual of the solar kit and addendum book for optional equipment.

Domestic hot water tank

The domestic hot water tank can be connected to the indoor unit for providing domestic hot water. The polypropylene tank is available in 2 types:

- EKHWP300: 300 l.
- EKHWP500: 500 l.

Use the appropriate connection kit for the tank, as described in the addendum book for optional equipment.

Connection kit for the tank (EKEPHT3H)

Use the connection kit to connect the domestic hot water tank to the indoor unit.

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

Drain pan kit (EKHYDP1)

The drain pan kit is required for heating/cooling units. It does NOT have to be used with heating only units.

For installation instructions, see the installation manual of the drain pan kit.

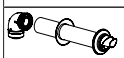
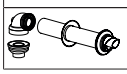
Mounting jig

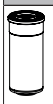
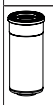
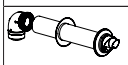
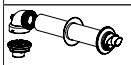
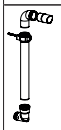
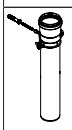
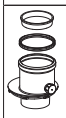
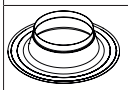
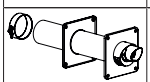
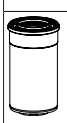
Preassembled installation set for easy installation of the hybrid. The jig can be installed before installing the unit.

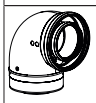
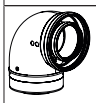
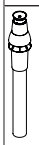
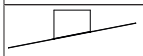
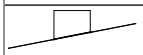
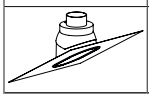
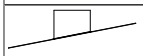
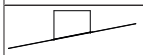
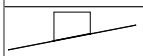
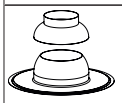
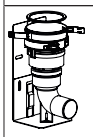
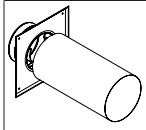
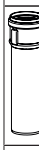
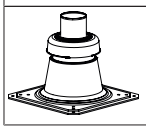
Valve kit

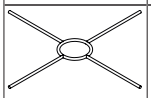
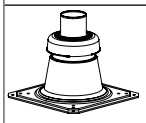
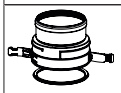
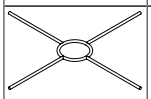
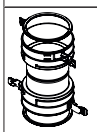
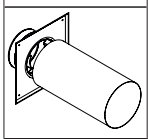
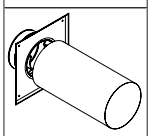
A set of valves for easy connection to field piping.

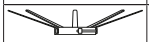
5.2.3 List of options for gas boiler

Accessories	Part number	Description
	EKFGP6837	Roof terminal PP/GLV 60/100 AR460
	EKFGS0518	Weather slate steep Pb/GLV 60/100 18°-22°
	EKFGS0519	Weather slate steep Pb/GLV 60/100 23°-17°
	EKFGP7910	Weather slate steep PF 60/100 25°-45°
	EKFGS0523	Weather slate steep Pb/GLV 60/100 43°-47°
	EKFGS0524	Weather slate steep Pb/GLV 60/100 48°-52°
	EKFGS0525	Weather slate steep Pb/GLV 60/100 53°-57°
	EKFGP1296	Weather slate flat Aluminum 60/100 0°-15°
	EKFGP6940	Weather slate flat Aluminum 60/100
	EKFGP2978	Wall terminal kit PP/GLV 60/100
	EKFGP2977	Wall terminal kit low profile PP/GLV 60/100

Accessories	Part number	Description
	EKFGP4651	Extension PP/GLV 60/100×500 mm
	EKFGP4652	Extension PP/GLV 60/100×1000 mm
	EKFGP4664	Elbow PP/GLV 60/100 30°
	EKFGP4661	Elbow PP/GLV 60/100 45°
	EKFGP4660	Elbow PP/GLV 60/100 90°
	EKFGP4667	Meas. tee with inspection panel PP/GLV 60/100
	EKFGP4631	Wall bracket Ø100
	EKFGP1292	Wall terminal Kit PP/GLV 60/100
	EKFGP1293	Wall terminal kit low profile PP/GLV 60/100
	EKFGP1294	Plume management kit 60 (UK only)
	EKFGP1295	Flue deflector 60 (UK only)
	EKFGP1284	PMK elbow 60 90 (UK only)
	EKFGP1285	PMK elbow 60 45° (2 pieces) (UK only)
	EKFGP1286	PMK extension 60 L=1000 includes bracket (UK only)
	EKHY075787	Propane set
	EKHY090717	Concentric connection set 80/125
	EKHY90707	Dual pipe conversion set
	EKHY093467	Cover plate for boiler
	EKFGW5333	Weather slate flat aluminum 80/125
	EKFGW6359	Wall terminal kit PP/GLV 80/125
	EKFGP4801	Extension PP/GLV 80/125×500 mm
	EKFGP4802	Extension PP/GLV 80/125×1000 mm
	EKFGP4814	Elbow PP/GLV 80/125 30°

Accessories	Part number	Description
	EKFGP4811	Elbow PP/ALU 80/125 45°
	EKFGP4810	Elbow PP/ALU 80/125 90°
	EKFGP4820	Inspection elbow Plus PP/ALU 80/125 90° EPDM
	EKFGP6864	Roof Terminal PP/GLV 80/125 AR300 RAL 9011
	EKFGT6300	Weather slate steep Pb/GLV 80/125 18°-22°
	EKFGT6301	Weather slate steep Pb/GLV 80/125 23°-27°
	EKFGP7909	Weather slate steep PF 80/125 25°-45° RAL 9011
	EKFGT6305	Weather slate steep Pb/GLV 80/125 43°-47°
	EKFGT6306	Weather slate steep Pb/GLV 80/125 48°-52°
	EKFGT6307	Weather slate steep Pb/GLV 80/125 53°-57°
	EKFGP1297	Weather slate flat aluminum 80/125 0°-15°
	EKFGP6368	Tee flex 100 boiler connection set 1
	EKFGP6354	Flex 100-60 + support elbow
	EKFGP6215	Tee flex 130 boiler connection set 1
	EKFGS0257	Flex 130-60 + support elbow
	EKFGP4678	Chimney connection 60/100
	EKFGP5461	Extension PP 60×500
	EKFGP5497	Chimney top PP 100 with included flue pipe

Accessories	Part number	Description
	EKFGP6316	Adapter flex-fixed PP 100
	EKFGP6337	Support bracket top inox Ø100
	EKFGP6346	Extension flex PP 100 L=10 m
	EKFGP6349	Extension flex PP 100 L=15 m
	EKFGP6347	Extension flex PP 100 L=25 m
	EKFGP6325	Connector flex-flex PP 100
	EKFGP5197	Chimney top PP 130 with included flue pipe
	EKFGS0252	Adapter flex-fixed PP 130
	EKFGP6353	Support bracket top inox Ø130
	EKFGS0250	Extension flex PP 130 L=130 m
	EKFGP6366	Connector flex-flex PP 130
	EKFGP1856	Flex kit PP Ø60-80
	EKFGP4678	Chimney connection 60/100
	EKFGP2520	Flex kit PP Ø80
	EKFGP4828	Chimney connection 80/125
	EKFGP6340	Extension Flex PP 80 L=10 m

Accessories	Part number	Description
	EKFGP6344	Extension Flex PP 80 L=15 m
	EKFGP6341	Extension Flex PP 80 L=25 m
	EKFGP6342	Extension Flex PP 80 L=50 m
	EKFGP6324	Connector-flex-flex PP 80
	EKFGP6333	Spacer PP 80-100
	EKFGP4481	Fixation Ø100

5.2.4 Possible combinations of indoor unit and outdoor unit

Indoor unit	Outdoor unit	
	EVLQ05CAV3	EVLQ08CAV3
EHYHBH05	O	—
EHYHBH08	—	O
EHYHBX08	—	O

5.2.5 Possible combinations of indoor unit and domestic hot water tank

Indoor unit	Domestic hot water tank
	EKHWP300 + EKHWP500
EHYHBH05	O
EHYHBH08	O
EHYHBX08	O

6 Preparation

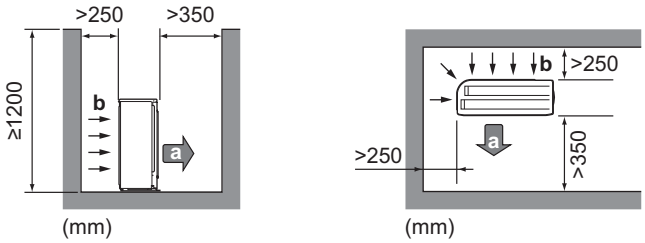
6.1 Preparing installation site

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

Choose the installation location with sufficient place for carrying the unit in and out of the site.

6.1.1 Installation site requirements of the outdoor unit

Mind the following spacing guidelines:



a Air outlet
b Air inlet

See "16.1 Dimensions and service space" on page 88 for more detailed information about spacing guidelines.

NOTICE

- Do NOT stack the units on each other.
- Do NOT hang the unit on a ceiling.

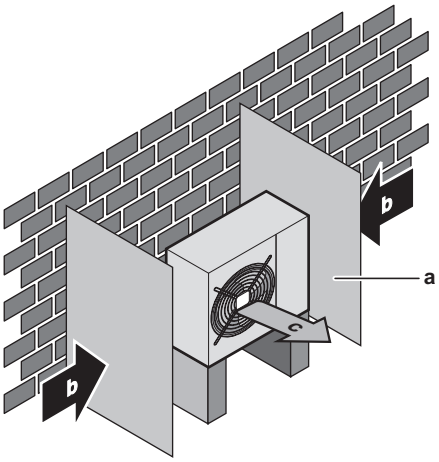
When the outdoor unit is subject to windy and/or low ambient temperatures, mind the following guidelines:

Strong winds (≥18 km/h) blowing against the outdoor unit's air outlet causes short circuit (suction of discharge air). This may result in:

- deterioration of the operational capacity;
- frequent frost acceleration in heating operation;
- disruption of operation due to decrease of low pressure;
- a broken fan (if a strong wind blows continuously on the fan, it may start rotating very fast, until it breaks).

It is recommended to install a baffle plate when the air outlet is exposed to wind.

It is recommended to install the outdoor unit with the air inlet facing the wall and NOT directly exposed to the wind.



a Baffle plate
b Prevailing wind direction
c Air outlet

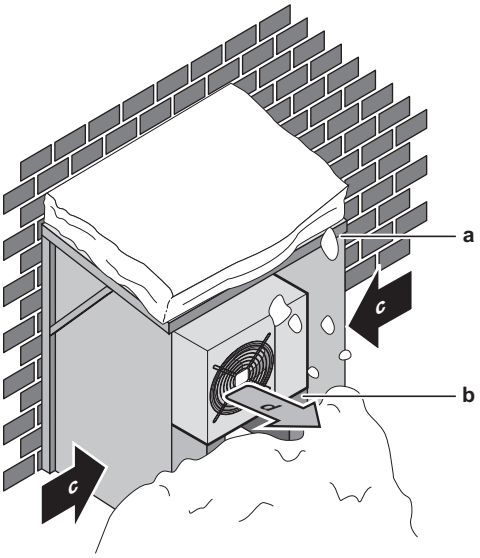
- Choose a location where the hot/cold air discharged from the unit or the operation noise, will NOT disturb anyone.
- Heat exchanger fins are sharp and injury is possible. Choose an installation location where there is no risk for injury (especially in areas where children playing).
- Sound sensitive areas (e.g. near a bedroom and the like), so that the operation noise will cause no trouble.
  Note: If the sound is measured under actual installation conditions, the measured value will be higher than the sound pressure level mentioned in Sound spectrum in the data book due to environmental noise and sound reflections.

It is NOT recommended to install the unit in the following places because it may shorten the life of the unit:

- in coastal areas or other places where the air contains high levels of salt. Corrosion may occur,
- where the voltage fluctuates a lot,
- in vehicles or vessels,
- where acidic or alkaline vapour is present.

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

Protect the outdoor unit against direct snowfall and take care that the outdoor unit is NEVER snowed up.



a Snow cover or shed
b Pedestal
c Prevailing wind direction
d Air outlet

- The unit should be installed in a way that a minimum of 15 cm free space is assured below the bottom plate of the unit at all weather conditions (e.g., heavy snowfall). It is recommended to install the unit at a minimum height of 30 cm. See "7.2 Mounting the outdoor unit" on page 21 for more details.
- 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.

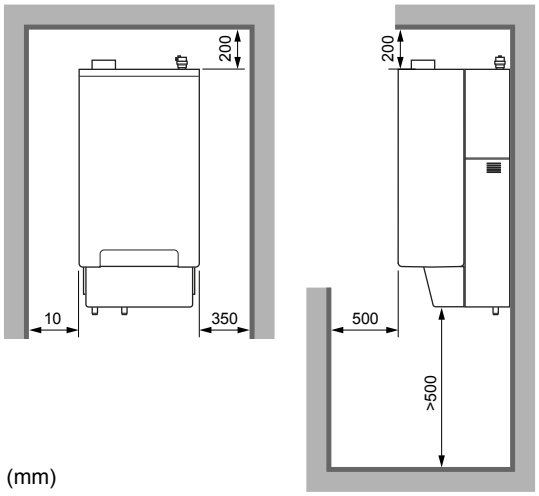
6.1.3 Installation site requirements of the indoor unit

- Mind the measurement guidelines:

Maximum refrigerant piping length between indoor unit and outdoor unit	20 m[(a)]
Minimum refrigerant piping length between indoor unit and outdoor unit	3 m
Maximum height difference between indoor unit and outdoor unit	20 m
Maximum equivalent piping length between the 3-way valve and the indoor unit (for installations with domestic hot water tank)	3 m[(b)]
Maximum equivalent piping length between the domestic hot water tank and the indoor unit (for installations with domestic hot water tank)	10 m[(b)]

(a) Check the outdoor unit installation manual.
(b) Piping diameter 0.75".

- Mind the following spacing installation guidelines:



(mm)

Do NOT install the unit in places such as:

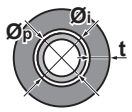
- Where there is mist of mineral oil, oil spray or vapour.
  Plastic parts may deteriorate, and cause them to fall out or water to leak.
- Sound sensitive areas (e.g. near a bedroom and the like), so that the operation noise will cause no trouble.
- The foundation must be strong enough to bear the weight of the unit. Take the weight of the unit with a domestic hot water tank full of water into account.
  Make sure, in the event of a water leak, water cannot cause any damage to the installation space and surroundings.
- In places with high humidity (max. RH=85%), for example a bathroom.
- In places where frost is possible. Ambient temperature around the indoor unit should be >5°C.
- The indoor unit is designed for indoor installation only and for ambient temperatures ranging 5~35°C in cooling mode and 5~30°C in heating mode.

6.2 Preparing refrigerant piping

6.2.1 Refrigerant piping insulation

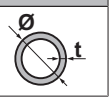
- Use polyethylene foam as insulation material:
  - with a heat transfer rate between 0.041 and 0.052 W/mK (0.035 and 0.045 kcal/mh°C)
  - with a heat resistance of at least 110°C
- Insulation thickness

Pipe outer diameter ($Ø_p$)	Insulation inner diameter ($Ø_i$)	Insulation thickness (t)
6.4 mm (1/4")	8~10 mm	10 mm
15.9 mm (5/8")	16~20 mm	13 mm



6.2.2 Refrigerant piping requirements

- Use piping with annealed temper grade, in function of the pipe diameter.
- The minimal pipe thickness should comply with applicable legislation. The minimal pipe thickness for R410A piping must be in accordance with the following table.

Pipe for…	Outer diameter (Ø)	Pipe thickness (t)	
Liquid	6.4 mm (1/4")	≥0.8 mm	
Gas	15.9 mm (5/8")	≥1.0 mm	

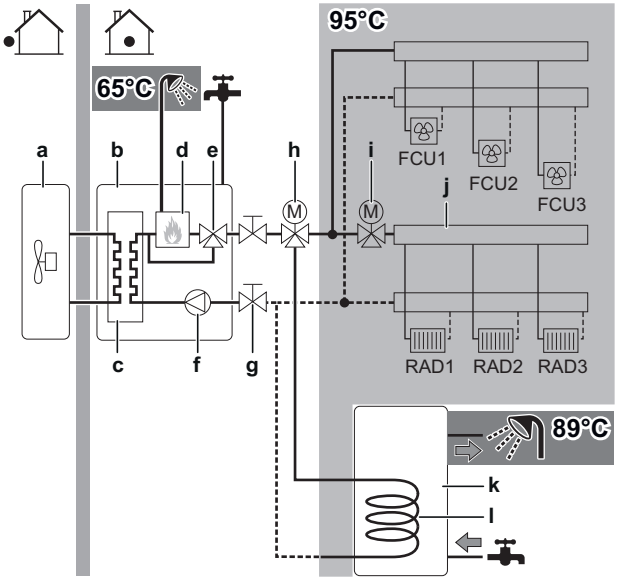
6.3 Preparing water piping

6.3.1 Water circuit requirements

- Use the indoor unit ONLY in a closed water system.
  Using the system in an open water system will lead to excessive corrosion.
- The maximum water pressure is 3 bar.
  Provide adequate safeguards in the water circuit to ensure that the maximum pressure is NOT exceeded.
- In case heat pump convectors are connected, the temperature of the water in the convectors should NOT exceed 65°C. If necessary, install a thermostatic controlled valve.
- In case underfloor heating loops are connected, install a mixing station to prevent water that is too hot from entering the underfloor heating circuit.
- All installed piping and piping accessories (valve, connections,…) must withstand the following temperatures:

INFORMATION

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



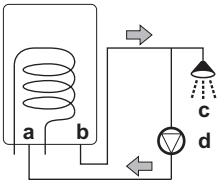
a Outdoor unit
b Indoor unit
c Heat exchanger
d Boiler
e Bypass valve
f Pump
g Shut-off valve (field supply)
h Motorised 2-way valve (field supply)
i Motorised 3-way valve (in option kit)
j Collector
k Domestic hot water tank (optional)
l Heat exchanger coil
FCU1...3 Fan coil unit (optional)
RAD1…3 Radiator

- Make all water piping connections in accordance with the applicable legislation and the outlook diagram that is delivered with the unit, respecting the water inlet and outlet.
- Do NOT use excessive force when connecting the piping. Deformation of the piping can cause malfunctioning of the unit.
- Provide drain taps at all low points of the system in order to allow complete drainage of the water circuit.
- Provide a proper drain for the pressure relief valve to avoid water coming into contact with electrical parts.
- Provide air vents at all high points of the system, which must also be easily accessible for servicing. An automatic air purge is provided in the indoor unit. Check that the air purge is NOT tightened too much, so that automatic release of air in the water circuit is possible.
- Only use materials that are compatible with water used in the system and with the materials used in the indoor unit.
- Check that all components in the field piping can withstand the water pressure and water temperature.
- 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.
- Never use Zn-coated parts in the water circuit. Because the unit's internal water circuit uses copper piping, excessive corrosion may occur.
- Only use appropriate tooling to handle brass, which is a soft material. If NOT, pipes will get damaged.
- Select the water piping diameter in relation to the required water flow and the available external static pressure of the pump. See "16 Technical data" on page 88 for the external static pressure curves of the indoor unit.
- You can find the minimum required water flow for the indoor unit operation in the following table. When the water flow is lower, flow error 7H will be displayed and the indoor unit will be stopped.

Model	Minimum water flow (l/min)
05	5
08	8

- When using a 3-way valve in the water circuit make sure that the domestic hot water circuit and the floor heating circuit is fully separated.
- When using a 2-way valve or a 3-way valve in the water circuit, the maximum change-over time of the valve must be 60 seconds.
- It is strongly recommended to install an additional filter on the heating water circuit. Especially to remove metallic particles from foul heating piping, it is advised to use a magnetic or cyclone filter, which can remove small particles. Small particles may damage the unit and will NOT be removed by the standard filter of the heat pump system.
- In case of old heating installations, it is recommended to use a dirt separator. Dirt or sediment from the heating installation can damage the unit and reduce its lifetime.
- If air, moisture or dust gets into the water 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.

- For safety reasons, it is NOT allowed to add any kind of glycol to the water circuit.
- To avoid stagnation of water, it is important that the storage capacity of the domestic hot water tank meets the daily consumption of domestic hot water.
  In cases where during longer periods of time there is no consumption of hot water, the equipment must be flushed with fresh water before usage.
  The disinfection function provided on the equipment is specified in the operation manual of the indoor unit.
- It is recommended to avoid long runs of piping between the domestic hot water tank and the hot water end point (shower, bath,…) and to avoid dead ends.
- The installation must be in compliance with the applicable legislation and may require additional hygienic installation measures.
- In accordance with the applicable legislation, it may be necessary to install thermostatic mixing valves.
- Immediately after installation, the domestic hot water tank must be flushed with fresh water. This procedure must be repeated at least once a day the first 5 consecutive days after installation.
- In accordance with the applicable legislation, it may be required to connect a recirculation pump in between the hot water end point and the recirculation connection of the domestic hot water tank.



a Recirculation connection
b Hot water connection
c Shower
d Recirculation pump

6.3.2 Formula to calculate the expansion vessel pre-pressure

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

Pg=0.3+(H/10) (bar)

6.3.3 To check the water volume

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

To make sure that the unit operates properly:

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

Minimum water volume

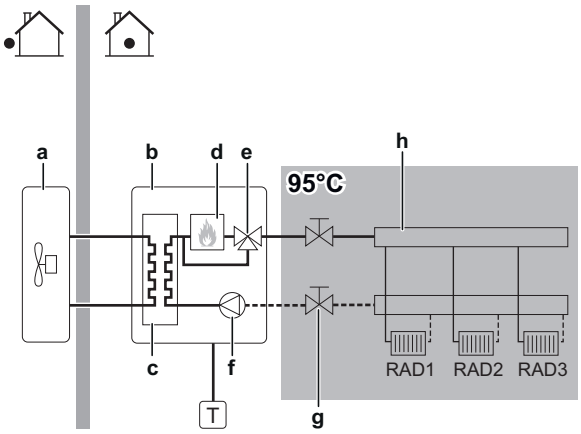
Check that the total water volume in the installation is minimum 13.5 liter, the internal water volume of the indoor unit NOT included.

INFORMATION

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

NOTICE

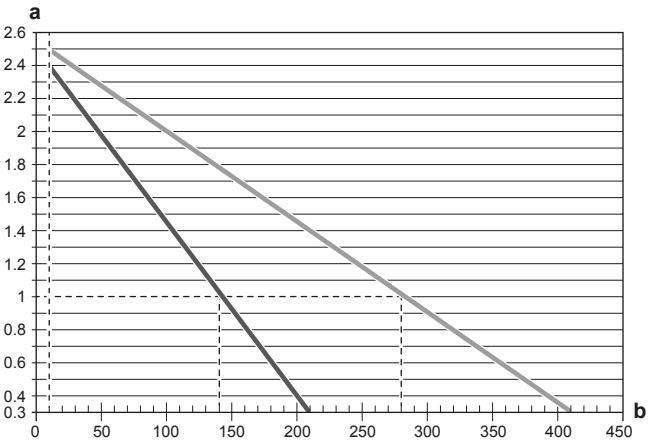
When circulation in each space heating loop is controlled by remotely controlled valves, it is important that the minimum water volume is guaranteed, even if all of the valves are closed.



a Outdoor unit
b Indoor unit
c Heat exchanger
d Backup heater
e Pump
f Shut-off valve
g Collector (field supply)
h By-pass valve (field supply)
RAD1…3 Radiator (field supply)
T1...3 Individual room thermostat (optional)
M1...3 Individual motorised valve to control loop FHL1...3 (field supply)

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)
Maximum leaving water temperature of 55°C for underfloor heating applications
Maximum leaving water temperature of 80°C for radiator applications

Example in case of an underfloor heating application: Maximum water volume and expansion vessel pre-pressure in case of 55°C

Installation height difference[(a)]	Water volume	
	≤280 l	>280 l
≤7 m	No pre-pressure adjustment is required.	Do the following: ▪ Decrease the pre-pressure. ▪ Check if the water volume does NOT exceed the maximum allowed water volume.

Installation height difference[(a)]	Water volume	
	≤280 l	>280 l
>7 m	Do the following: ▪ Increase the pre-pressure. ▪ Check if the water volume does NOT exceed the maximum allowed water volume.	The expansion vessel of the indoor unit is too small for the installation. In this case, it is recommended to install an extra vessel outside the unit.

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

Example in case of a radiator application: Maximum water volume and expansion vessel pre-pressure in case of 80°C

Installation height difference[(a)]	Water volume	
	≤140 l	>140 l
≤7 m	No pre-pressure adjustment is required.	Do the following: ▪ Decrease the pre-pressure. ▪ Check if the water volume does NOT exceed the maximum allowed water volume.
>7 m	Do the following: ▪ Increase the pre-pressure. ▪ Check if the water volume does NOT exceed the maximum allowed water volume.	The expansion vessel of the indoor unit is too small for the installation. In this case, it is recommended to install an extra vessel outside the unit.

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

6.3.4 Changing the pre-pressure of the expansion vessel

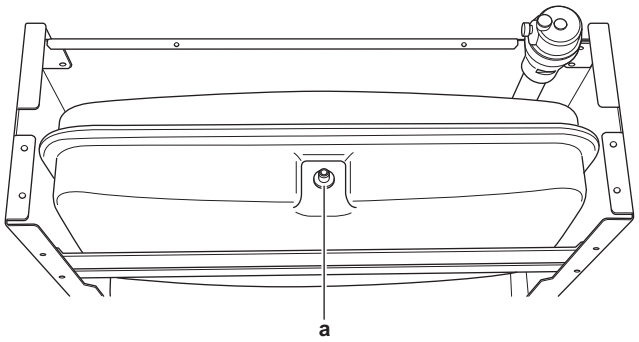
NOTICE

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 schräder valve of the expansion vessel.



a Schräder valve

6.3.5 To check the water volume: Examples

Example 1

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

No actions or adjustments are required for either underfloor heating loops or radiators.

Example 2

The indoor unit is installed at the highest point in the water circuit. The total water volume in the water circuit is 350 l. Radiators are installed, so use the graph of 80°C.

Actions:

- Because the total water volume (350 l) is more than the default water volume (140 l), the pre-pressure must be decreased.
- The required pre-pressure is:
  Pg = (0.3+(H/10)) bar = (0.3+(0/10)) bar=0.3 bar.
- The corresponding maximum water volume at 0.3 bar is 205 l. (See the graph in the chapter above).
- Because 350 l is more than 205 l, the expansion vessel is too small for the installation. Therefore install an extra vessel outside the installation.

6.4 Preparing electrical wiring

6.4.1 About preparing electrical wiring

WARNING

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

WARNING

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

WARNING

ALWAYS use multicore cable for power supply cables.

6.4.2 About preferential kWh rate power supply

Electricity companies throughout the world work hard to provide reliable electric service at competitive prices and are often authorized to bill clients at benefit rates. E.g. time-of-use rates, seasonal rates, Wärmepumpentarif in Germany and Austria, ...

This equipment allows for connection to such preferential kWh rate power supply delivery systems.

Consult with the electricity company acting as provider at the site where this equipment is to be installed to know whether it is appropriate to connect the equipment in one of the preferential kWh rate power supply delivery systems available.

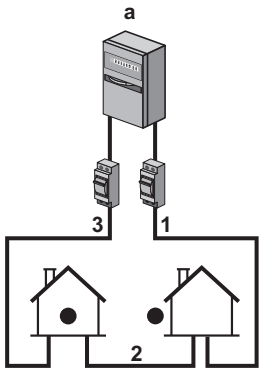
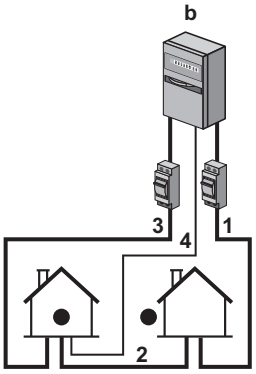
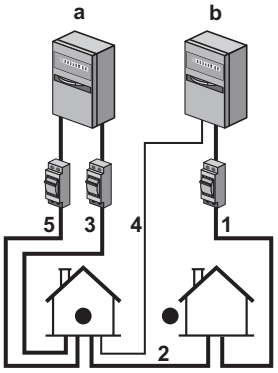
When the equipment is connected to such preferential kWh rate power supply, the electricity company is allowed to:

- interrupt power supply to the equipment for certain periods of time;
- demand that the equipment only consumes a limited amount of electricity during certain periods of time.

The indoor unit is designed to receive an input signal by which the unit switches into forced off mode. At that moment, the gas boiler can still operate to provide heating, but the outdoor unit compressor will NOT operate.

Whether the power supply is interrupted or not, the wiring to the unit is different.

6.4.3 Overview of electrical connections except external actuators

Normal power supply	Preferential kWh rate power supply	
	Power supply is NOT interrupted	Power supply is interrupted
	 During preferential kWh rate power supply activation, power supply is NOT interrupted. The outdoor unit is turned off by the control. The gas boiler can still operate. **Remark:** The electricity company must always allow the power consumption of the indoor unit.	 During preferential kWh rate power supply activation, power supply is interrupted immediately or after some time by the electricity company. In this case, the indoor unit must be powered by a separate normal power supply. The outdoor unit CANNOT operate, but the gas boiler can operate.

a Normal power supply
b Preferential kWh rate power supply
1 Power supply for outdoor unit
2 Power supply and interconnection cable to indoor unit
3 Power supply for gas boiler
4 Preferential kWh rate power supply (voltage free contact)
5 Normal kWh rate power supply (to power the indoor unit PCB in the event of power supply interruption of the preferential kWh rate power supply)

Following applies ONLY for French market: "blue ciel tarif"

In France there is a preferential kWh rate "blue ciel tarif". This rate divides the days of the year in:

- blue days (preferential electricity rate, ideal for heat pump operation),
- white days (ideal for heat pump and hybrid operation),
- and red days (high electricity rate, boiler operation preferred).

It is recommended to use the preferential kWh rate power supply contact (4) to force boiler operation during red days. Note that sometimes it is required to set the meter on such that, it only closes the contact on red days. Please refer to the manual of the applicable meter.

The indoor unit and gas boiler are NOT compatible with other combinations of contacts (e.g., closed contacts on white/blue days). Connect the indoor unit and gas boiler as follows: see illustration in column "Power supply is NOT interrupted" in table above.

6.4.4 Overview of electrical connections for external and internal actuators

Item	Description	Wires	Maximum running current
Outdoor unit and indoor unit power supply			
1	Power supply for outdoor unit	2+GND	(a)
2	Power supply and interconnection cable to indoor unit	3+GND	(g)
3	Power supply gas boiler	2+GND	(c)
4	Preferential kWh rate power supply (voltage free contact)	2	(e)
5	Normal kWh rate power supply	2	6.3 A
User interface			
6	User interface	2	(f)
Optional equipment			
7	3-way valve	3	100 mA(b)
8	Domestic hot water tank thermistor	2	(d)
9	Power supply for drain pan heater	2	(b)
10	Room thermostat	3 or 4	100 mA(b)
11	Outdoor ambient temperature sensor	2	(b)
12	Indoor ambient temperature sensor	2	(b)
13	Heat pump convector	4	100 mA(b)
Field supplied components			
14	Shut-off valve	2	100 mA(b)
15	Electricity meter	2	(b)
16	Domestic hot water pump	2	(b)
17	Alarm output	2	(b)
18	Changeover to external heat source control	2	(b)
19	Space cool/heat operation control	2	(b)
20	Power consumption digital inputs	2 (per input signal)	(b)
21	Gas meter	2	(b)

(a) Refer to name plate on outdoor unit.
(b) Minimum cable section 0.75 mm².
(c) Use the cable supplied with the boiler.
(d) The thermistor and connection wire (12 m) are delivered with the domestic hot water tank.
(e) Cable section 0.75 mm² till 1.25 mm²; maximum length: 50 m. Voltage-free contact shall ensure the minimum applicable load of 15 V DC, 10 mA.
(f) Cable section 0.75 mm² till 1.25 mm²; maximum length: 500 m. Applicable for both single user interface and dual use interface connection.
(g) Cable section 1.5 mm²; maximum length: 50 m.

NOTICE

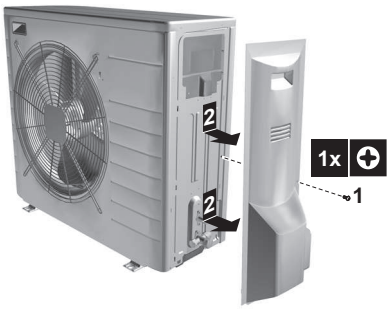
More technical specifications of the different connections are indicated on the inside of the indoor unit.

7 Installation

7.1 Opening the units

7.1.1 To open the outdoor unit

1 Remove 1 screw from the service cover.



2 Remove the service cover.

7.1.2 To open the switch box cover of the indoor unit

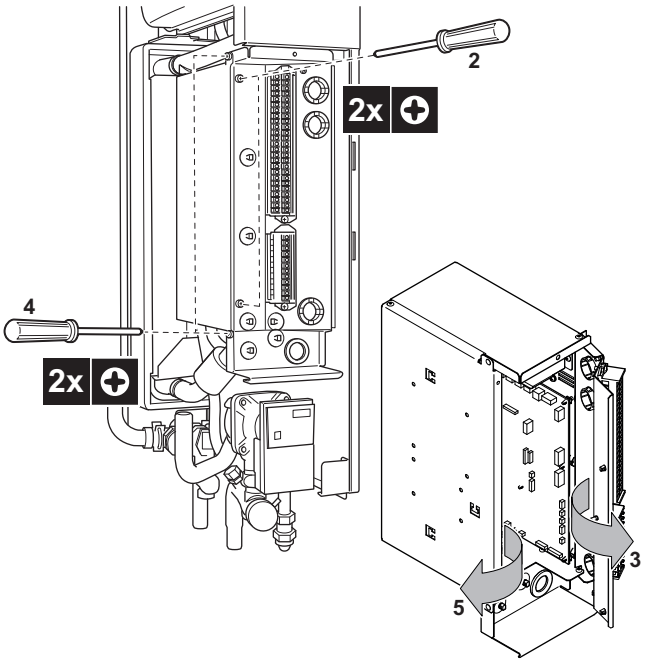
1 Remove the side panel at the right side of the indoor unit. The side panel is fixed at the bottom with 1 screw.

2 Remove the upper and lower screw on the side panel of the switch box.

3 The right panel of the switch box will open.

4 Remove the upper and lower screw on the front panel of the switch box.

5 The front panel of the switch box will open.

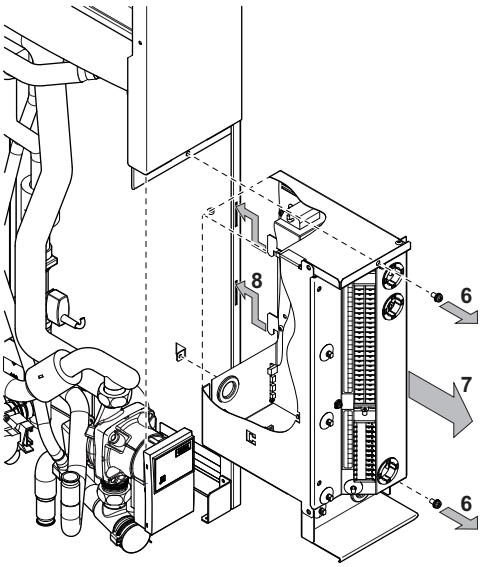


When the boiler is installed and access to the switch box is required, please follow the steps below.

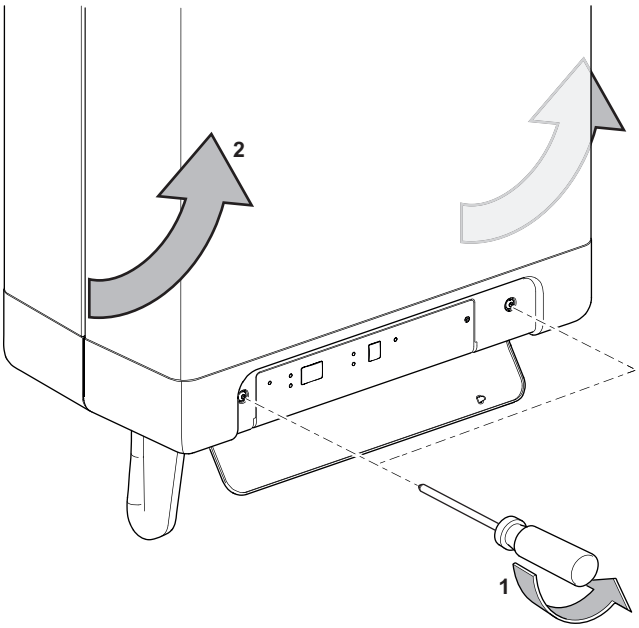
6 Remove the upper and lower screw on the side panel of the switch box.

7 Remove the switch box from the unit.

8 Hook the switch box to the side of the unit with the hooks foreseen on the switch box.



7.1.3 To open the gas boiler



1 Open the display cover.

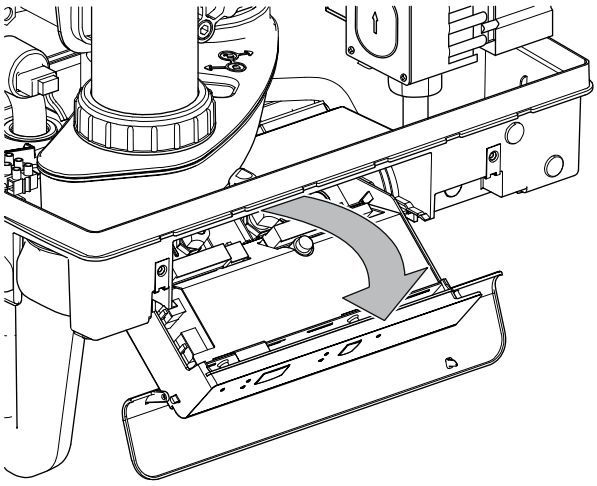
2 Unscrew both screws.

3 Tilt the front panel towards you and remove the front panel.

7.1.4 To open the switch box cover of the gas boiler

1 Open the gas boiler, see "7.1.3 To open the gas boiler" on page 21.

2 Pull the boiler controller unit forwards. The boiler controller will tip downwards to provide access.



7.2 Mounting the outdoor unit

7.2.1 To prepare the installation structure

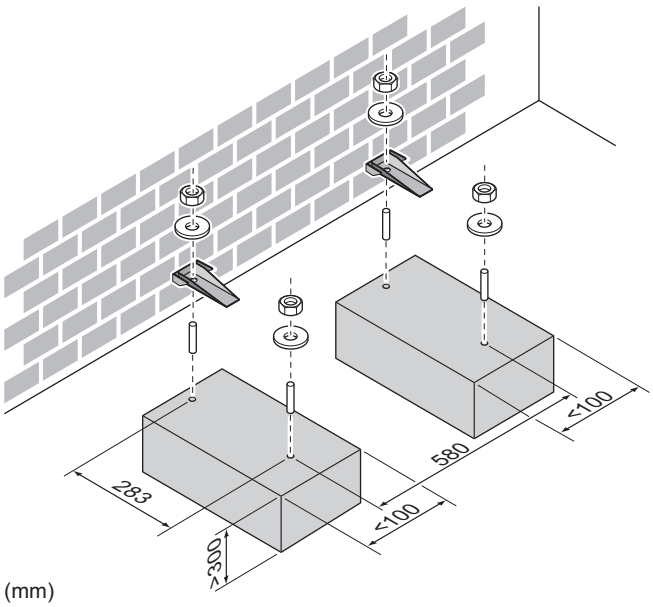
Check the strength and level of the installation ground so that the unit will not cause any operating vibration or noise.

Fix the unit securely by means of the foundation bolts in accordance with the foundation drawing.

If the unit is installed directly on the floor, prepare 4 sets of M8 or M10 anchor bolts, nuts and washers (field supply) as follows:

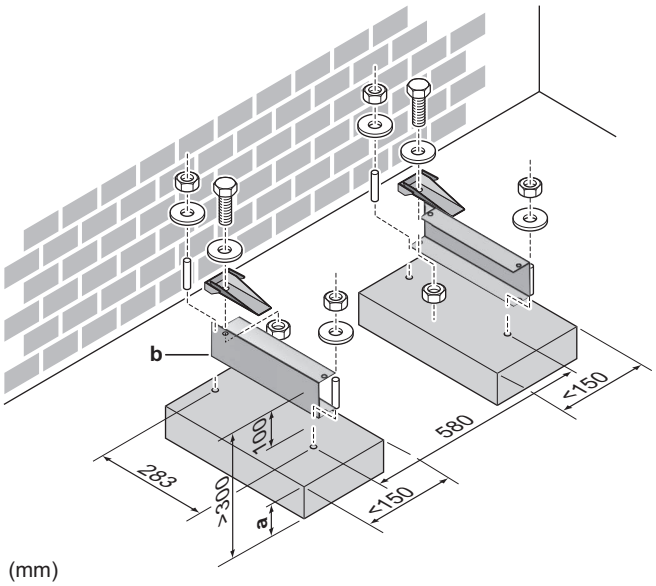
INFORMATION

The maximum height of the upper protruding part of the bolts is 15 mm.



(mm)

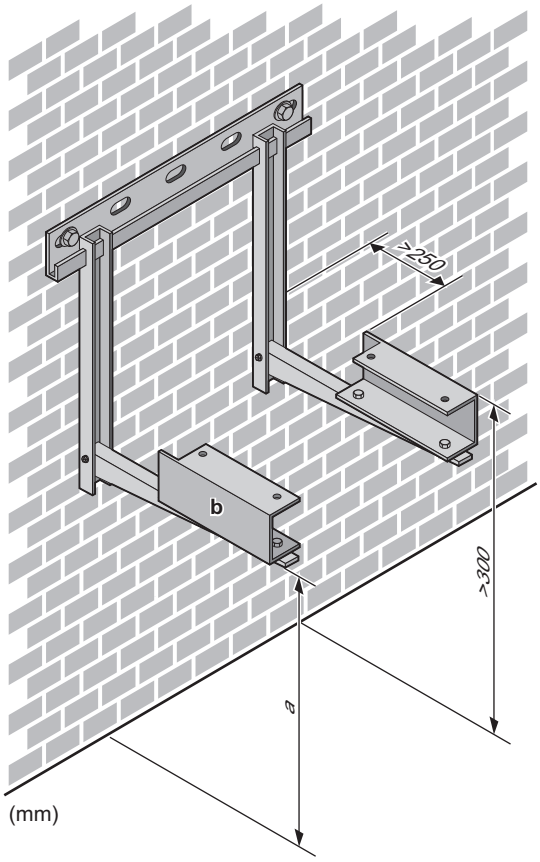
In order to guarantee good operation of the unit in areas with risk of snowfall, a minimum of 10 cm needs to be assured below the bottom plate of the unit. It is recommended to construct a pedestal with the same height as the maximum snowfall height. On this pedestal it is then recommended to install the EKFT008CA option kit to guarantee the minimum space of 10 cm below the bottom plate of the unit.



(mm)

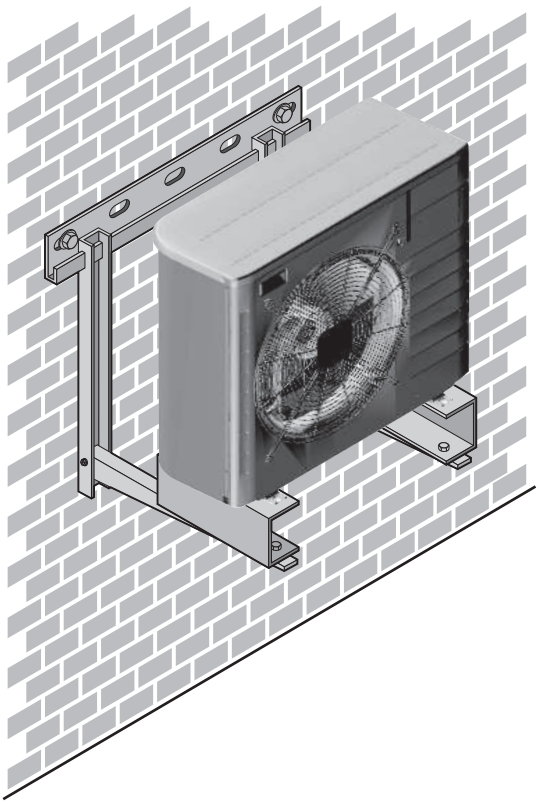
a Maximum snowfall height
b EKFT008CA option kit

If the unit is installed on brackets to the wall, it is advised to use the EKFT008CA option kit and to install the unit as follows:



(mm)

a Maximum snowfall height
b EKFT008CA option kit



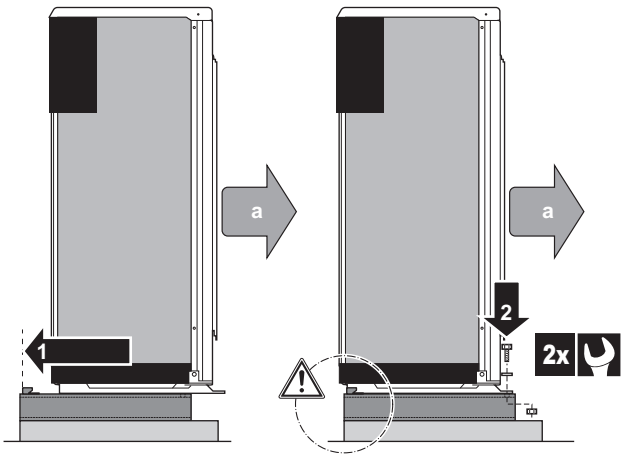
7.2.2 To install the outdoor unit

CAUTION

Do NOT remove the protective cardboard before the unit is installed properly.

1 Lift the outdoor unit as described in "4.1.2 To remove the accessories from the outdoor unit" on page 8.

2 Install the outdoor unit as follows:

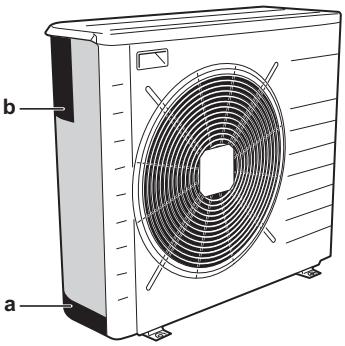


a Air outlet

NOTICE

The pedestal MUST be aligned with the backside of the U-beam.

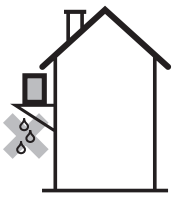
3 Remove the protective cardboard and instruction sheet.



a Protective cardboard
b Instruction sheet

7.2.3 To prepare drain work

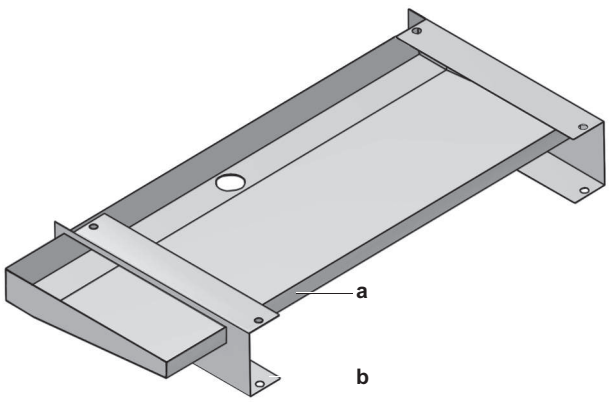
- Avoid installation places where water leaking from the unit due to a blocked drain pan, cause damage to the location.
- Make sure that condensation water can be evacuated properly.
- Install the unit on a base to make sure that there is a proper drainage in order to avoid ice accumulation.
- Prepare a water drainage channel around the foundation to drain waste water surrounding the unit.
- Avoid drain water flowing over the footpath, so that it does not become slippery in case of ambient freezing temperatures.
- If you install the unit on a frame, install a waterproof plate within 150 mm of the underside of the unit in order to prevent the invasion of water in the unit and to avoid the drain water dripping (see the following illustration).



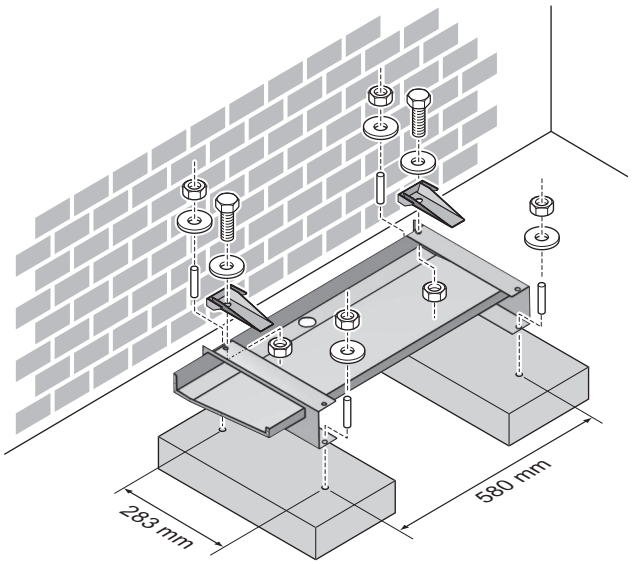
NOTICE

If the drain holes of the outdoor unit are blocked up, provide space of at least 300 mm below the outdoor unit.

An additional drain pan kit (EKDP008CA) can be used to gather the drain water. The drain pan kit consists of:



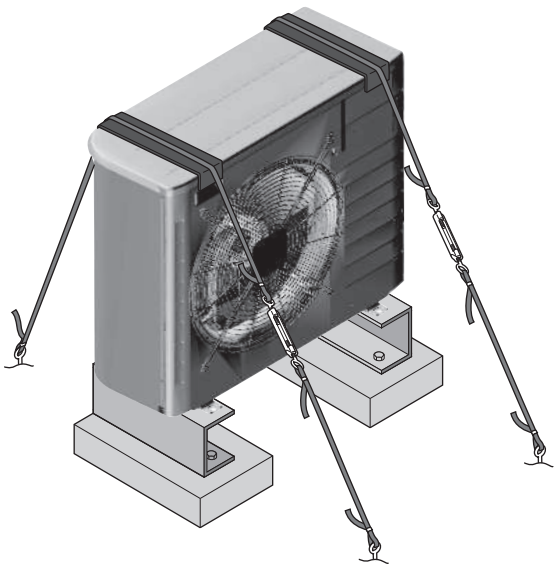
a Drain pan
b U-beams



7.2.4 To prevent the outdoor unit from falling over

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

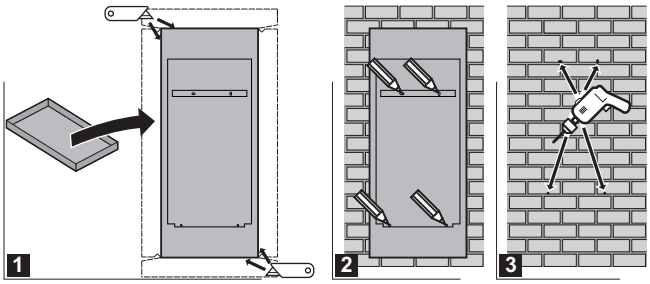
1. Prepare 2 cables as indicated in the following illustration (field supply).
2. Place the 2 cables over the outdoor unit.
3. Insert a rubber sheet between the cables and the outdoor unit to prevent the cable from scratching the paint (field supply).
4. Attach the cable's ends. Tighten those ends.



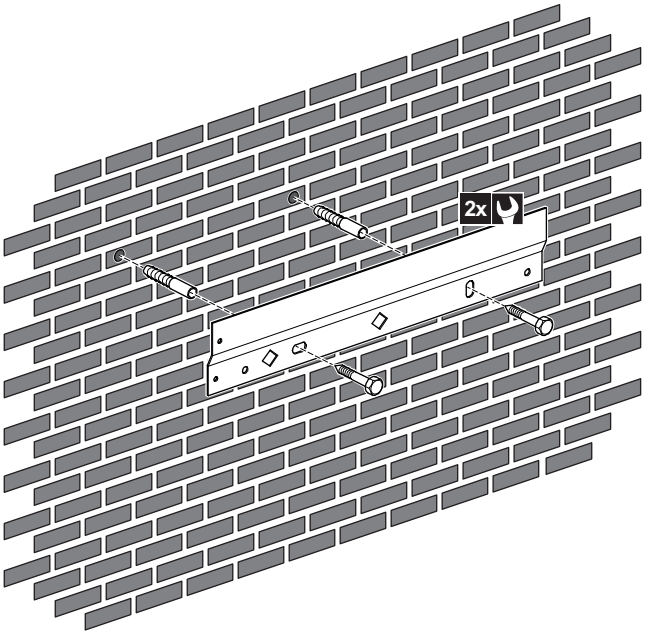
7.3 Mounting the indoor unit

7.3.1 To install the indoor unit

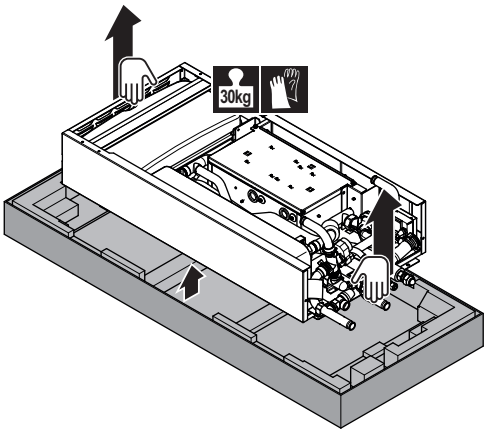
1 Put the installation pattern (see box) on the wall and follow the steps as shown below.



2 Fix the wall bracket to the wall with 2 M8 bolts.



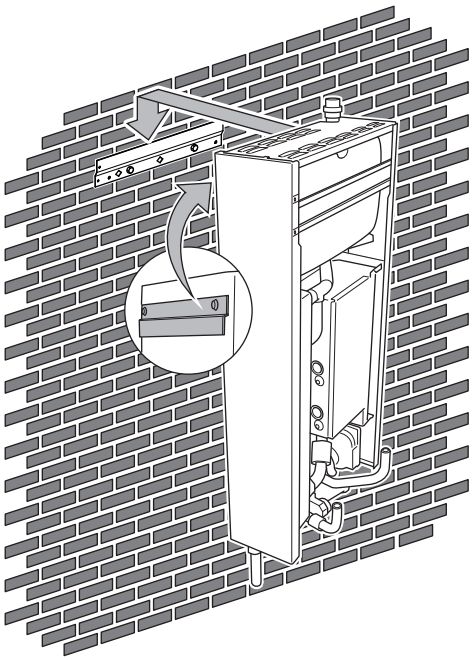
3 Lift the unit.



4 Tilt the top of the unit against the wall at the position of the wall bracket.

5 Slide the bracket on the back of the unit over the wall bracket. Make sure the unit is fixed properly. You can additionally fix the bottom side of the unit with 2 M8 bolts.

6 The unit is mounted to the wall.



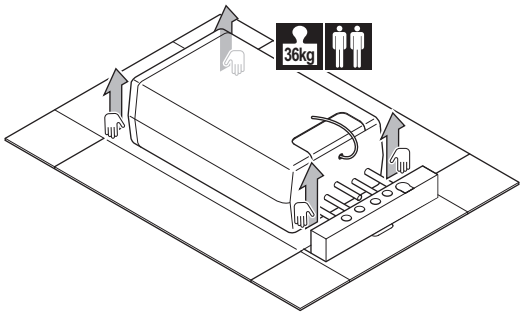
7.4 Mounting the gas boiler

INFORMATION

Removing the top plate of the indoor unit makes it easier to install the gas boiler.

7.4.1 To install the gas boiler

1 Lift the unit from the package.

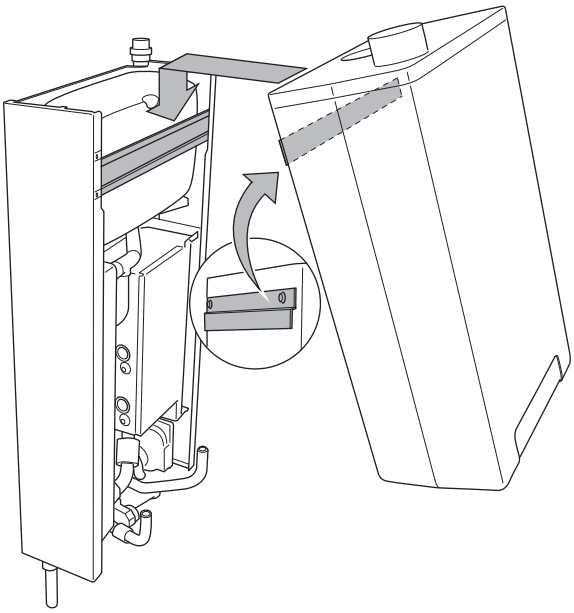


2 Remove the top plate from the indoor unit.

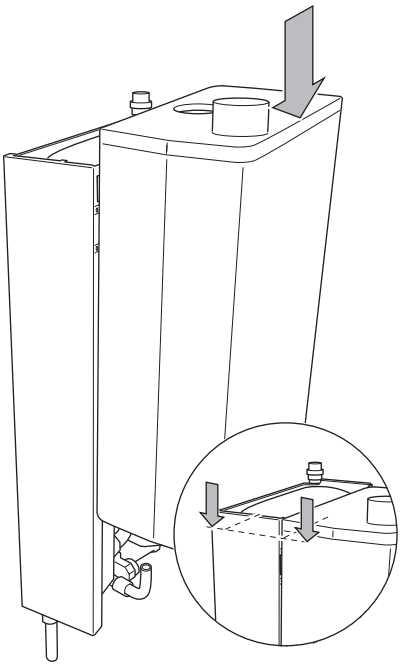
3 The bracket to mount the boiler on the heat pump module is already mounted to the backside of the gas boiler.

4 Lift the boiler. One person lifts the gas boiler on the left side (left hand on the top and right hand on the bottom) and another person lift the gas boiler on the right side (left hand on the bottom and right hand on the top).

5 Tilt the top of the unit at the position of the indoor unit mounting bracket.



6 Slide the boiler downwards to fix the boiler bracket onto the indoor unit mounting bracket.



7 Make sure the gas boiler is fixed properly and well aligned with the indoor unit.

7.4.2 To install the condensate trap

INFORMATION

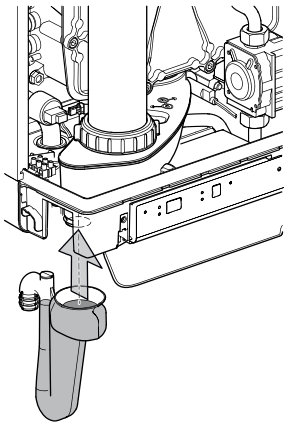
The boiler is provided with a 25 mm flexible pipe on the condensate trap.

Prerequisite: The boiler MUST be opened before installing the condensate trap.

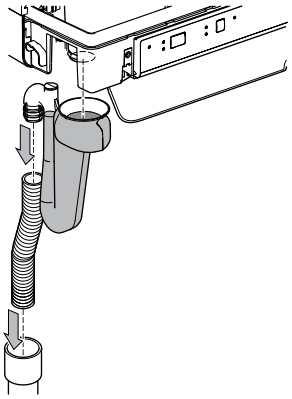
1 Fit the flexible tube (accessory) to the condensate trap outlet.

2 Fill the condensate trap with water.

3 Slide the condensate trap as far as possible upwards onto the condensate drain connector below the gas boiler.

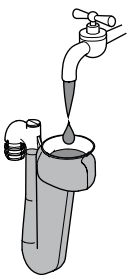


4 Connect the flexible tube (where applicable with the overflow pipe from the pressure relief valve) to the drain via an open connection.



WARNING

- ALWAYS fill the condensate trap with water and place it on the boiler before powering up the boiler. See illustration below.
- NOT placing or filling up the condensate trap may cause flue gases to come into the installation room and can lead to dangerous situations!
- In order to place the condensate trap, the front cover MUST be pulled forward or removed entirely.



NOTICE

It is recommended that any external condensate pipe is insulated and increased to Ø32 mm in order to prevent the condensate from freezing.

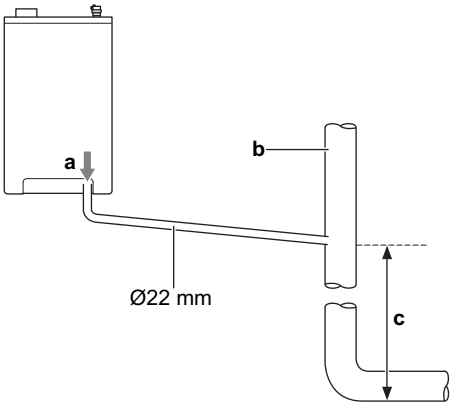
7.5 Condensate pipe work

INFORMATION

The condensate discharge system MUST be made of plastic, no other materials may be used. The discharge duct MUST have a minimum gradient of 5~20 mm/m. Condensate discharge via the gutter is NOT allowed due to risk of frost and the possible damage to the materials.

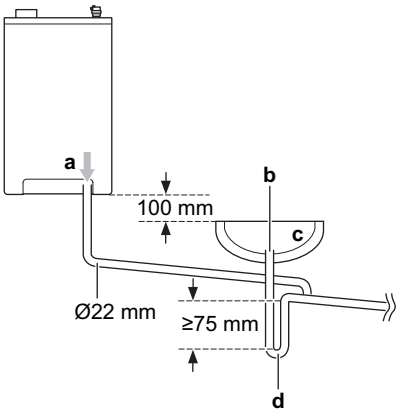
7.5.1 Internal connections

If possible, the condensate drain pipe should be routed and terminated so that the condensate drains away from the boiler under gravity to a suitable internal foul water discharge point such as an internal soil and vent stack. A suitable permanent connection to the foul waste pipe should be used.



a Condensate discharge from boiler
b Soil and vent stack
c Minimum 450 mm and up to 3 storeys

If the first option is NOT possible, an internal kitchen or bathroom waste pipe, washing machine pipe can be used. Make sure that the condensate drain pipe is connected downstream of the waste trap.

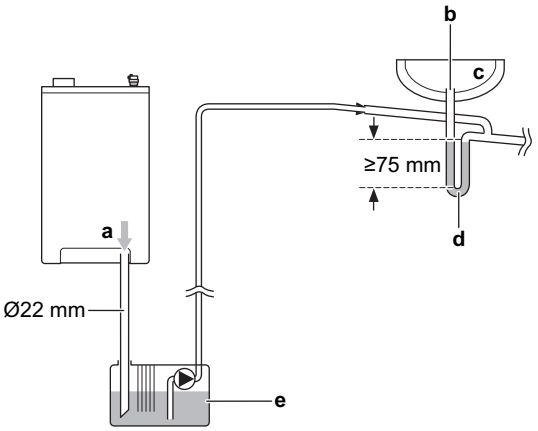


a Condensate discharge from boiler
b Soil and vent stack
c Sink or basin with integrate overflow
d 75 mm waste trap and air break

Condensate pump

Where gravity discharge to an internal termination is NOT physically possible or where very long internal runs of drainage pipe would be required to reach a suitable discharge point, condensate should be removed by using a proprietary condensate pump (field supply).

The pump outlet pipe should discharge to a suitable internal foul water discharge point such as an internal soil and vent stack, internal kitchen, bathroom waste pipe, or washing machine waste pipe. A suitable permanent connection to the foul waste pipe should be used.



a Condensate discharge from boiler
b Soil and vent stack
c Sink or basin with integrated overflow
d 75 mm waste trap and air break
e Condensate pump

7.5.2 External connections

If an externally condensate drainage pipe is used, following measures should be made to prevent freezing:

- The pipe should be run internally as far as possible before going to the outside. The pipe diameter should be increased to a minimum inner diameter of 30 mm (typically outer diameter of 32 mm) before it goes through the wall.
- The external run should be kept as short as possible, taking the most vertical route possible to the discharge point. Take into account that there are no horizontal section in which condensate might collect.
- The external pipe should be insulated. Use a suitable waterproof and weather proof insulation ("Class O" pipe insulation is suitable for this purpose).
- The use of fittings and elbows should be kept to a minimum. Any internal burrs should be removed so that the internal pipe section is as smooth as possible.

7.6 Connecting the refrigerant piping

DANGER: RISK OF BURNING

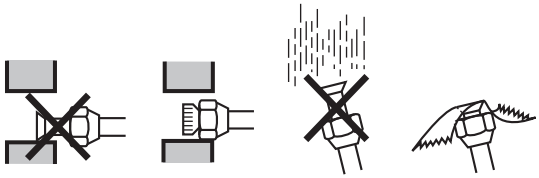
CAUTION

- Do NOT use mineral oil on flared part.
- Do NOT reuse piping from previous installations.
- NEVER install a drier to this R410A unit to guarantee its lifetime. The drying material may dissolve and damage the system.

NOTICE

Take the following precautions on refrigerant piping into account:

- Avoid anything but the designated refrigerant to get mixed into the refrigerant cycle (e.g. air).
- Only use R410A when adding refrigerant.
- Only use installation tools (e.g. manifold gauge set) that are exclusively used for R410A installations to withstand the pressure and to prevent foreign materials (e.g. mineral oils and moisture) from mixing into the system.
- Install the piping so that the flare is NOT subjected to mechanical stress
- Protect the piping as described in the following table to prevent dirt, liquid or dust from entering the piping.
- Use caution when passing copper tubes through walls (see figure below).



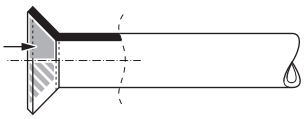
Unit	Installation period	Protection method
Outdoor unit	>1 month	Pinch the pipe
	<1 month	Pinch or tape the pipe
Indoor unit	Regardless of the period	

INFORMATION

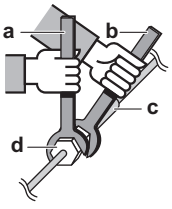
Do NOT open the refrigerant stop valve before checking the refrigerant piping. When you need to charge additional refrigerant it is recommended to open the refrigerant stop valve after charging.

Take the following guidelines into account when connecting pipes:

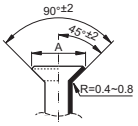
- Coat the flare inner surface with ether oil or ester oil when connecting a flare nut. Tighten 3 or 4 turns by hand, before tightening firmly.



- Always use two wrenches together when loosening a flare nut.
- Always use a spanner and torque wrench together to tighten the flare nut when connecting the piping. This to prevent nut cracking and leaks.



a Torque wrench
b Spanner
c Piping union
d Flare nut

Piping size (mm)	Tightening torque (N•m)	Flare dimensions (mm)	Flare shape (mm)
Ø6.4	15~17	8.7~9.1	
Ø15.9	63~75	19.3~19.7	

7.6.1 Pipe bending guidelines

Use a pipe bender for bending. All pipe bends should be as gentle as possible (bending radius should be 30~40 mm or larger).

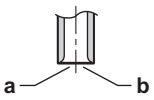
7.6.2 To flare the pipe end

CAUTION

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

1 Cut the pipe end with a pipe cutter.

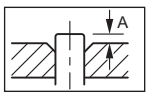
2 Remove burrs with the cut surface lacing downward so that the chips does not enter the pipe.



a Cut exactly at right angles.
b Remove burrs.

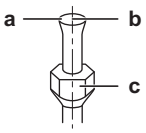
3 Remove the flare nut from the stop valve and put the flare nut on the pipe.

4 Flare the pipe. Set exactly at the position as shown in the following illustration.



		Conventional flare tool	
	Flare tool for R410A (clutch type)	Clutch type (Ridgid-type)	Wing nut type (Imperial-type)
A	0~0.5 mm	1.0~1.5 mm	1.5~2.0 mm

5 Check that the flaring is properly made.



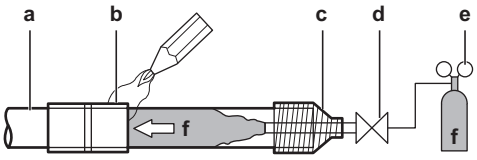
a Flare's inner surface must be flawless.
b The pipe end must be evenly flared in a perfect circle.
c Make sure the flare nut is lifted.

7.6.3 To braze the pipe end

The indoor unit and outdoor unit have flare connections. Connect both ends without brazing. If brazing should be needed, take the following into account:

- When brazing, blow through with nitrogen to prevent creation of large quantities of oxidised film on the inside of the piping. This film adversely affects valves and compressors in the refrigerating system and prevents proper operation.

- Set the nitrogen pressure to 20 kPa (just enough so it can be felt on the skin) with a pressure-reducing valve.



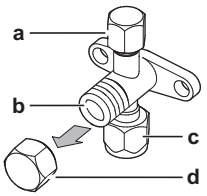
a Refrigerant piping
b Part to be brazed
c Taping
d Manual valve
e Pressure-reducing valve
f Nitrogen

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

7.6.4 To handle the stop valve

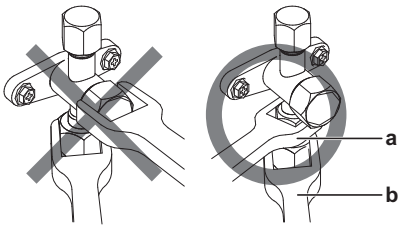
Take the following guidelines into account:

- The stop valves are factory closed.
- The following illustration shows each part required in handling the valve.



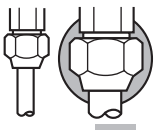
a Service port and service port cap
b Valve stem
c Field piping connection
d Stem cap

- Keep both stop valves open during operation.
- Do NOT apply excessive force to the valve stem. Doing so may break the valve body.
- Always make sure to secure the stop valve with a spanner, then loosen or tighten the flare nut with a torque wrench. Do NOT place the spanner on the stem cap, as this could cause a refrigerant leak.



a Spanner
b Torque wrench

- When it is expected that the operating pressure will be low (e.g. when cooling will be performed while the outside air temperature is low), sufficiently seal the flare nut in the stop valve on the gas line with silicon sealant to prevent freezing.

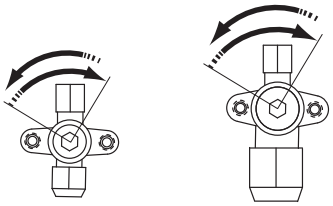


Silicon sealant, make sure there is no gap.

7.6.5 To open/close the stop valve

1 Remove the valve cover

2 Insert a hexagon wrench (liquid side: 4 mm, gas side: 6 mm) into the valve stem and turn the valve stem:



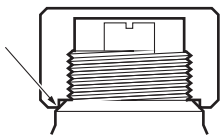
Counterclockwise to open.
Clockwise to close.

3 When the valve stem cannot be turned any further, stop turning. The valve is now opened/closed.

7.6.6 To handle the stem cap

Take the following guidelines into account:

- The stem cap is sealed where indicated with the arrow. Do NOT damage it.



- After handling the stop valve, make sure to tighten the stem cap securely.
- For the tightening torque, refer to the following table.
- Check for refrigerant leaks after tightening the stem cap.

Item	Tightening torque (N·m)
Stem cap, liquid side	13.5~16.5
Stem cap, gas side	22.5~27.5
Service port cap	11.5~13.9

7.6.7 To handle the service cap

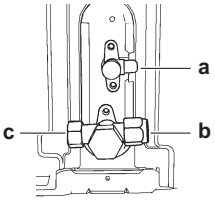
Take the following guidelines into account:

- Always use a charge hose equipped with a valve depressor pin, since the service port is a Schrader type valve.
- After handling the service port, tighten the service port cap securely. For the tightening torque, refer to the table in chapter "7.6.6 To handle the stem cap" on page 28.
- Check for refrigerant leaks after tightening the service port cap.

7.6.8 To connect the refrigerant piping to the outdoor unit

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



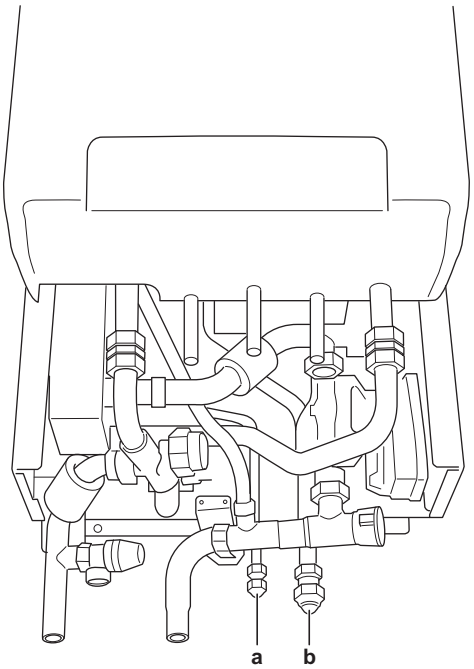


a Liquid stop valve
b Gas stop valve
c Service port

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

7.6.9 To connect the refrigerant piping to the indoor unit

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



a Refrigerant liquid connection
b Refrigerant gas connection

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

NOTICE

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

7.6.10 About checking the refrigerant piping

Checking the refrigerant piping typically consists of:

1 Checking for leaks.

2 Performing vacuum drying.

NOTICE

Use a 2-stage vacuum pump with a non-return valve that can evacuate to a gauge pressure of −100.7 kPa (5 Torr absolute).

NOTICE

Use this vacuum pump for R410A exclusively. Using the same pump for other refrigerants may damage the pump and the unit.

NOTICE

- Connect the vacuum pump to the service port of the gas stop valve.
- Make sure that the gas stop valve and liquid stop valve are firmly closed before performing the leak test or vacuum drying.

Keep in mind the following guidelines:

- The piping inside the unit has been factory tested for leaks.
- If using additional refrigerant, perform air purging from the refrigerant pipes and indoor unit using a vacuum pump. Then charge additional refrigerant.

7.6.11 To check for leaks

NOTICE

- Do NOT exceed the maximum operation pressure of 4000 kPa (40 bar).
- Only use recommended bubble test solution.

1 Charge the system with nitrogen gas up to a gauge pressure of at least 200 kPa (2 bar). It is recommended to pressurize to 3000 kPa (30 bar) in order to detect small leaks.

2 Check for leaks by applying the bubble test solution to all connections.

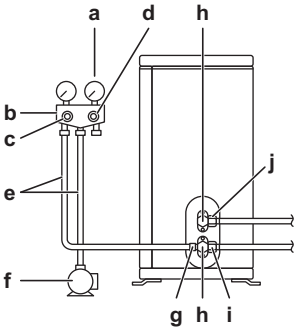
3 Discharge all nitrogen gas.

INFORMATION

After opening the stop valve, it is possible that the pressure in the refrigerant piping does NOT increase. This might be caused by e.g. the closed state of the expansion valve in the outdoor unit circuit, but does NOT present any problem for correct operation of the unit.

7.6.12 To perform vacuum drying

Connect the vacuum pump and manifold as follows:



a Pressure meter
b Gauge manifold
c Low-pressure valve (Lo)
d High-pressure valve (Hi)
e Charging hoses
f Vacuum pump
g Service port
h Valve lids
i Gas stop valve
j Liquid stop valve

1 Vacuum the system until the pressure on the manifold indicates −0.1 MPa (−1 bar).

2 Leave as is for 4-5 minutes and check the pressure:

If the pressure…	Then…
Does not change	There is no moisture in the system. This procedure is finished.
Increases	There is moisture in the system. Go to the next step.

3 Evacuate for at least 2 hours to a pressure on the manifold of −0.1 MPa (−1 bar).

4 After turning OFF the pump, check the pressure for at least 1 hour.

5 If you do NOT reach the target vacuum or cannot maintain the vacuum for 1 hour, do the following:

- Check for leaks again.
- Perform vacuum drying again.

NOTICE

Be sure to open the gas stop valve after piping installation and vacuuming. Running the system with the valve closed, the compressor may break down.

7.6.13 To determine the additional refrigerant amount

If the total liquid piping length is…	Then…
≤10 m	Do NOT add additional refrigerant.
>10 m	Add 20 g refrigerant per extra meter (above 10 m).

7.6.14 To calculate the complete recharge amount

INFORMATION

If a complete recharge is necessary, the total refrigerant charge is: the factory refrigerant charge (see unit name plate) + the determined additional amount.

7.6.15 To charge refrigerant

WARNING

- Only use R410A as refrigerant. Other substances may cause explosions and accidents.
- R410A contains fluorinated greenhouse gases covered by the Kyoto Protocol. Its global warming potential value is 1975. Do NOT vent these gases into the atmosphere.
- When charging refrigerant, always use protective gloves and safety glasses.

CAUTION

Do NOT charge the refrigerant more than the specified amount, to avoid compressor breakdown.

Other guidelines:

- Only use tools exclusively for R410A to ensure pressure resistance and to 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.

1 Connect the refrigerant cylinder to the service port.

2 Charge the additional refrigerant amount.

3 Open the gas stop valve.

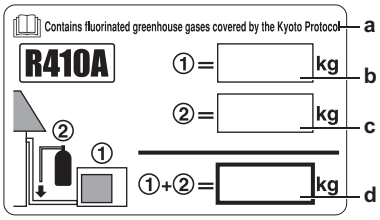
If pump down is needed in case of dismantling or relocate the system, see "14.1 To pump down" on page 86 for more details.

7.6.16 To fix the fluorinated greenhouse gases label

NOTICE

National implementation of EU regulation on certain fluorinated greenhouse gases may require to provide the appropriate official language on the unit. Therefore, an additional multilingual fluorinated greenhouse gases label is supplied with the unit.

1 Fill in the label as follows:



a From the multilingual fluorinated greenhouse gases label peal off the applicable language and stick it on top of **a**.
b Factory refrigerant charge: see unit name plate
c Additional refrigerant amount charged
d Total refrigerant charge

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

7.7 Connecting the water piping

7.7.1 Connecting the water piping of the indoor unit

To connect the water piping for space heating

NOTICE

In case of old heating installations, it is recommended to use a dirt separator. Dirt or sediment from the heating installation can damage the unit and reduce its lifetime.

NOTICE

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

NOTICE

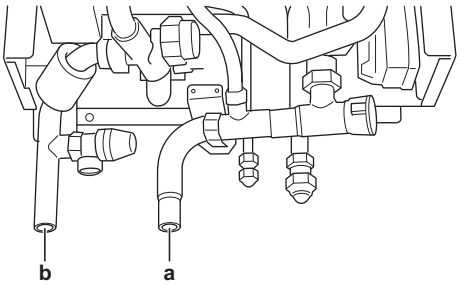
- It is recommended to install shut-off valves to space heating in and space heating out connections. Shut-off valves are field supplied. They allow service to the unit without draining the whole system.
- Foresee a drain/fill point to drain or fill the space heating circuit

NOTICEType and source of hazard

Do NOT install valves to shut down the entire emitter system (radiators, floor heating loops, fan coil units, ...) instantly if this can result in an immediate short circuit of the water flow between the outlet and the inlet of the unit (for example via a bypass valve). This may trigger an error.

1 Connect the water inlet connection (Ø22 mm).

2 Connect the water outlet connection (Ø22 mm).



a Water inlet
b Water outlet

NOTICE

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

3 In case of connection with the optional domestic hot water tank, see the installation manual of the domestic hot water tank.

NOTICE

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

7.7.2 Connecting the water piping of the gas boiler

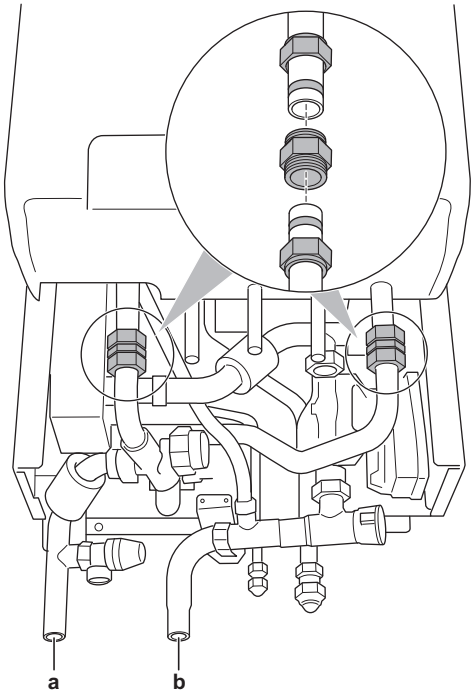
To connect the water piping for space heating

Use the straight brass fitting connections (accessory of the heat pump unit).

1 The space heating piping of the boiler will be connected to the indoor unit.

2 Install the straight brass fitting connections so that they perfectly match the connection of both modules.

3 Tighten the straight brass fitting connections.



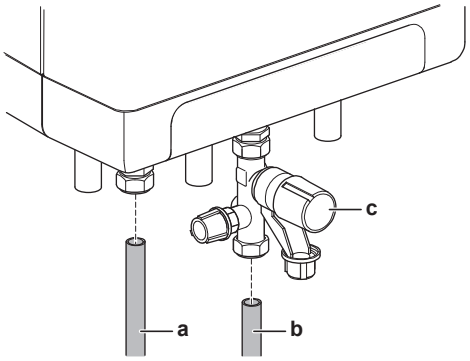
a Outlet space heating
b Inlet space heating

NOTICE

Make sure that the straight brass fitting connections are tightened thoroughly to prevent leakage. Maximum torque is 30 N·m.

To connect the water piping for domestic hot water

1 Flush the installation thoroughly to clean.



a Domestic hot water outlet
b Cold water inlet
c Pressure relief valve (field supply)

2 Install a pressure relief valve.

3 Connect the hot water connection (Ø15 mm).

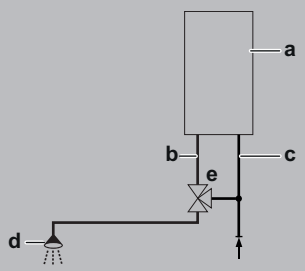
4 Connect the main cold water connection (Ø15 mm).

DANGER: RISK OF BURNING

In case of high leaving water set points for space heating (either a high fixed set point or a high weather-dependent set point at low ambient temperatures), the heat exchanger of the boiler can be very hot, for example 70°C.

Beware that in case of a tapping demand, the water can initially have this high temperature instead of the requested lower temperature, for example 50°C.

In this case, it is recommended to install a thermostatic valve to prevent scalding. This can be done according to the schematics below.



a=boiler, **b**=DHW from boiler, **c**=cold water inlet, **d**=shower, **e**=thermostatic valve (field supply)

7.7.3 To fill the space heating circuit

1 Flush the installation thoroughly to clean the circuit.

2 Connect the water supply hose to the drain point (field supply).

3 Power up the gas boiler to see the pressure indication on the boiler display.

4 Make sure that the air purge valves of the gas boiler and the heat pump module are open (at least 2 turns).

5 Fill the circuit with water until the boiler display indicates a pressure of ±2 bar (with a minimum of 0.5 bar).

6 Purge air from the water circuit as much as possible.

7 Disconnect the water supply hose from the drain point.

NOTICE

The water pressure indicated on the boiler display 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.

INFORMATION

For location of the air purge valve, see "16.2.3 Components: Indoor unit" on page 91.

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 the chapter "10 Commissioning" on page 74. This function should be used to purge the heat exchanger coil of the domestic hot water tank.

7.7.4 To fill the domestic water circuit of the gas boiler

1 Open the main tap to pressurize the hot water section.

2 Vent the exchanger and the pipe system by opening a hot water tap.

3 Leave the tap open until all air has disappeared from the system.

4 Check all connections for leaks including internal connections.

7.7.5 To fill the domestic hot water tank

For installation instructions, see the installation manual of the domestic hot water tank.

7.7.6 To insulate the water piping

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

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

7.8 Connecting the electrical wiring

DANGER: RISK OF ELECTROCUTION

INFORMATION

More information about the legend and the location of the wiring diagram of the unit can be found in "16.4 Wiring diagram" on page 96.

WARNING

ALWAYS use multicore cable for power supply cables.

7.8.1 About electrical compliance

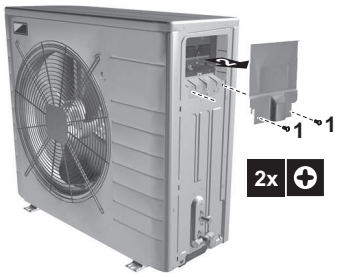
Only for EVLQ08CAV3

Equipment complying with EN/IEC 61000-3-12 (European/ International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase.).

7.8.2 To connect the electrical wiring on the outdoor unit

1 Remove the 2 switch box cover screws.

2 Remove the switch box cover.



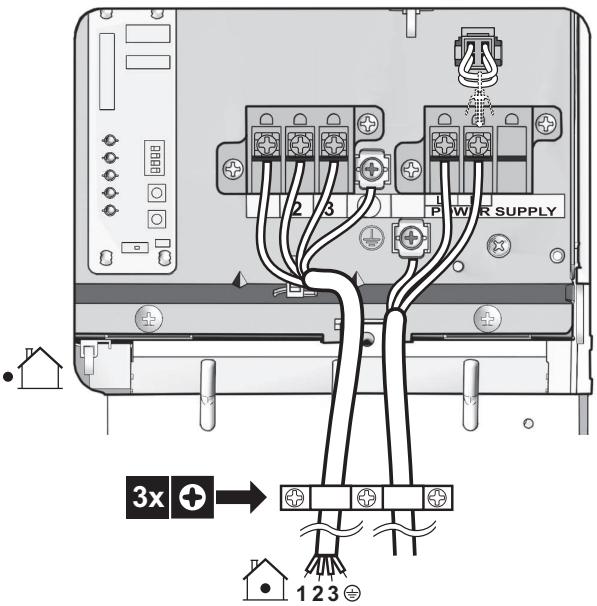
3 Strip insulation (20 mm) from the wires.



a Strip wire end to this point
b Excessive strip length may cause electrical shock or leakage.

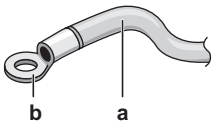
4 Open the wire clamp.

5 Connect the interconnection cable and power supply as follows:



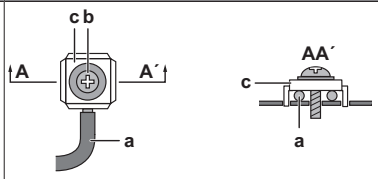
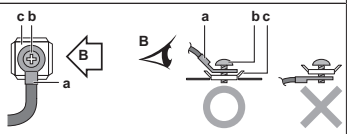
6 Install the switch box cover.

- If stranded conductor wires are being used, install a round crimp-style terminal on the tip. Place the round crimp-style terminal on the wire up to the covered part and fasten the terminal with the appropriate tool.



a Stranded conductor wire
b Round crimp-style terminal

- Use the following methods for installing wires:

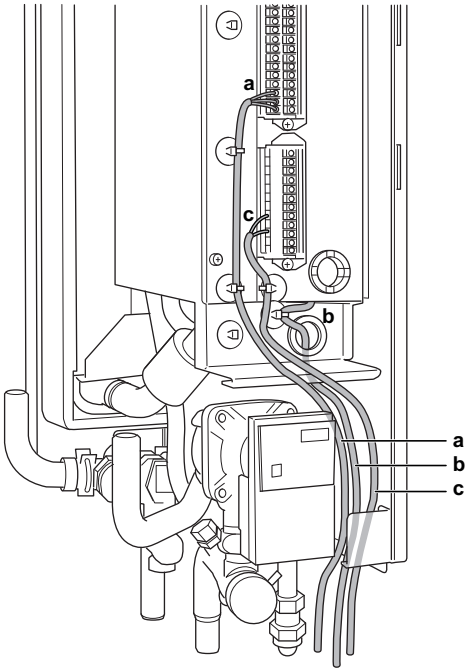
Wire type	Installation method
Single core wire	 **a** Curled single core wire **b** Screw **c** Flat washer
Stranded conductor wire with round crimp-style terminal	 **a** Terminal **b** Screw **c** Flat washer

7.8.3 To connect the electrical wiring on the indoor unit

It is recommended to install all electrical wiring to the hydro box before installing the boiler.

1 Wiring should enter the unit from the bottom.

2 Routing of the wiring inside the unit should be as follows:



INFORMATION

When installing field supply or option cables, foresee sufficient cable length. This will make it possible to remove/ reposition the switch box and gain acces to other components during service.

Routing	Possible cables (depending on unit type and installed options)
a	▪ Interconnection cable between indoor and outdoor unit ▪ Normal kWh rate power supply ▪ Preferential kWh rate power supply ▪ Heat pump convector (option) ▪ Room thermostat (option) ▪ 3-way valve (option in case of tank) ▪ Shut-off valve (field supply) ▪ Domestic hot water pump (field supply)
b	▪ Interconnection cable between indoor unit and gas boiler (see boiler manual for connection instructions)
c	▪ Outdoor ambient temperature sensor (option) ▪ User interface ▪ Indoor ambient temperature sensor (option) ▪ Electrical meter (field supply) ▪ Preferential power supply contact ▪ Gas meter (field supply)

3 Fix the cable with cable ties to the cable tie mountings to ensure strain relief and to make sure that it does NOT come in contact with the piping and sharp edges.

CAUTION

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

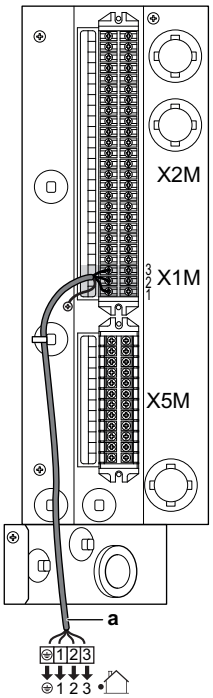
NOTICE

More technical specifications of the different connections are indicated on the inside of the indoor unit.

7.8.4 To connect the main power supply of the indoor unit

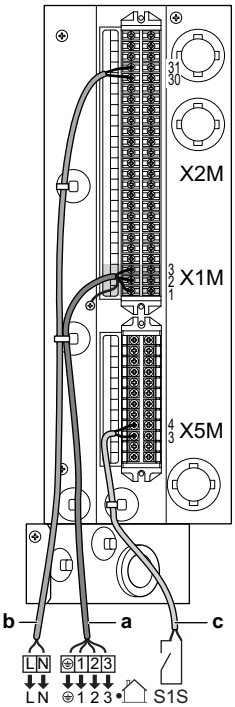
1 Connect the main power supply.

In case of normal kWh rate power supply



Legend: see illustration below.

In case of preferential kWh rate power supply



a Interconnection cable (=main power supply)
b Normal kWh rate power supply
c Preferential power supply contact

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

INFORMATION

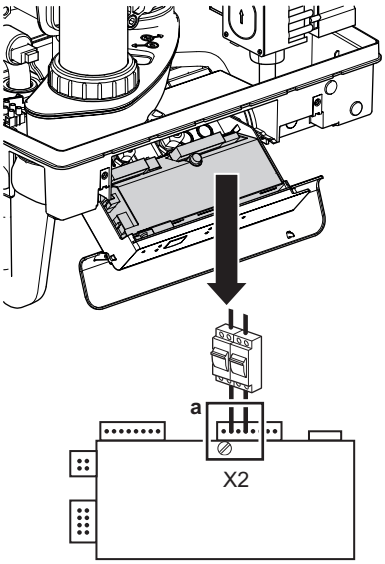
If the system is connected to a preferential kWh rate power supply, a separate normal kWh rate power supply is required. Change connector X6Y according to the wiring diagram on the inside of the indoor unit.

7.8.5 To connect the main power supply of the gas boiler

1 Connect the power supply cable of the gas boiler to a fuse (a) (L: X2-2 (BRN), N: X2-4 (BLU)).

2 Connect the earthing of the gas boiler to an earthing terminal.

Result: The gas boiler performs a test. ⍰ appears on the service display. After the test, - appears on the service display (wait mode). The pressure in bar is shown on the main display.



DANGER: RISK OF ELECTROCUTION

A fused spur or an unswitched socket MUST be located no more than 1 m from the appliance.

CAUTION

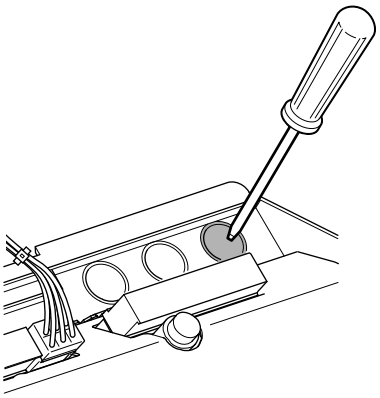
For installation in damp rooms, a fixed connection is obligatory. When working on the electrical circuit ALWAYS isolate the electric supply.

7.8.6 To connect the communication cable between gas boiler and indoor unit

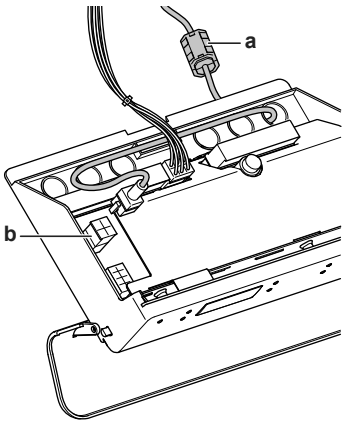
1 Open the gas boiler.

2 Open the switch box cover of the gas boiler.

3 Remove one of the bigger knockout holes on the right side of the switch box of the gas boiler.

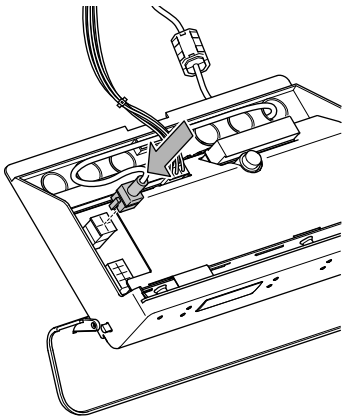


4 Put the (larger) boiler connector through the knockout hole. Fix the cable in the switch box by routing it behind the pre-mounted wires.

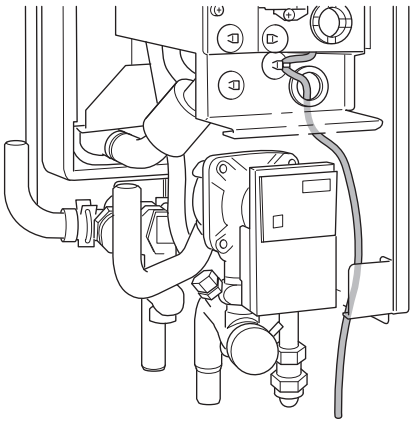


a Solenoid coil
b Connector X5

5 Plug the gas boiler connector into connector X5 of the gas boiler PCB. Make sure the solenoid coil is outside the gas boiler switch box.

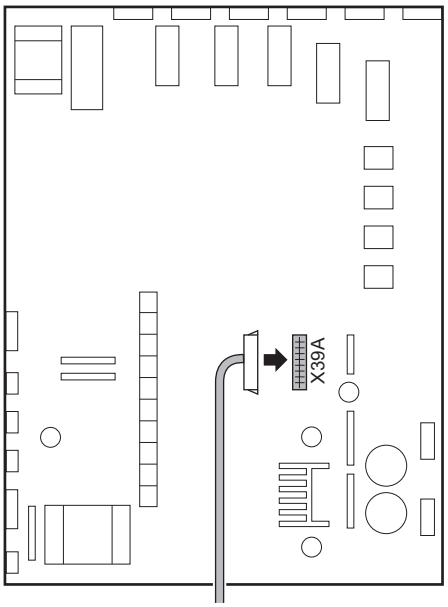


6 Route the communication cable from the gas boiler to the indoor unit as in figure below.



7 Open the switch box cover of the indoor unit.

8 Plug the indoor unit connector into X39A of the indoor unit PCB.



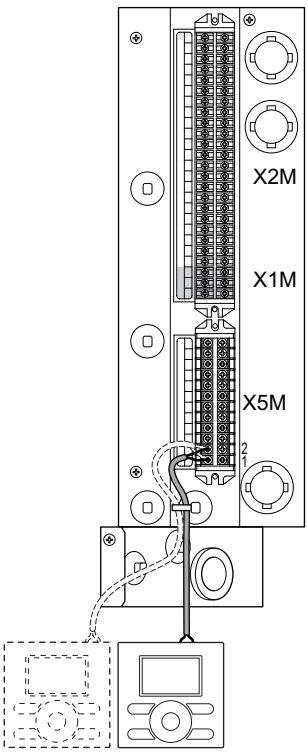
9 Close the switch box cover of the indoor unit.

10 Close the switch box cover of the gas boiler.

11 Close the gas boiler.

7.8.7 To connect the user interface

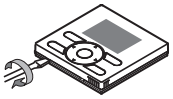
1 Connect the user interface cable to the indoor unit.



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

To fix the user interface to the wall in case of installation as room thermostat

1 Insert a screwdriver into the slots underneath the user interface and carefully separate the faceplate from the wallplate.



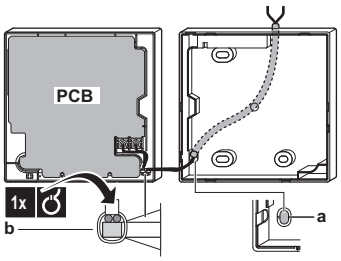
NOTICE

The PCB is mounted in the faceplate of the user interface. Be careful NOT to damage it.

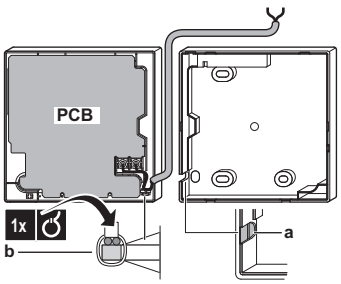
2 Fix the wallplate of the user interface to the wall.

3 Connect the wires to the user interface as shown below

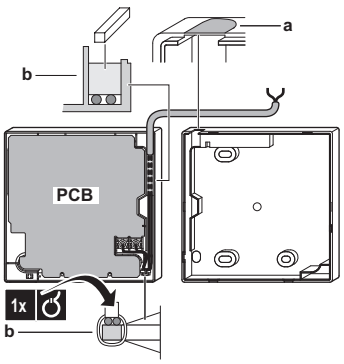
From the rear



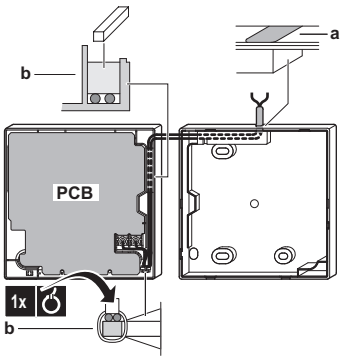
From the left



From the top



From the top center



a Notch this part for the wiring to pass through with nippers etc.

b Secure the wiring to the front part of the casing using the wiring retainer and clamp.

4 Reinstall the faceplate onto the wallplate.

NOTICE

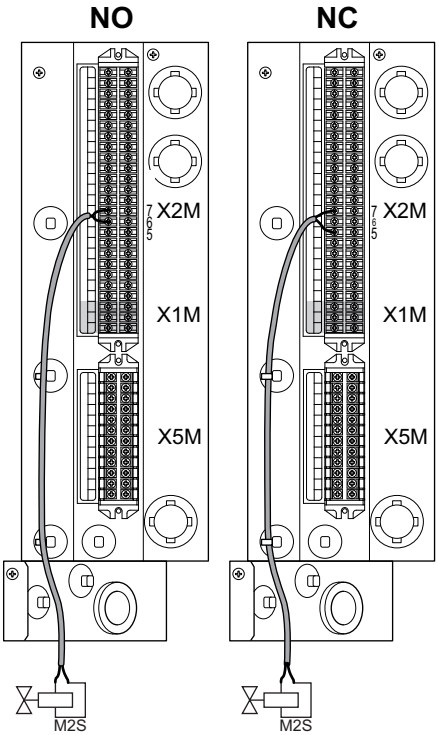
Be careful NOT to pinch the wiring when attaching the frontplate to the unit.

7.8.8 To connect the shut-off valve

1 Connect the valve control cable to the appropriate terminals as shown in the illustration below.

NOTICE

Wiring is different for a NC (normal closed) valve and a NO (normal open) valve.



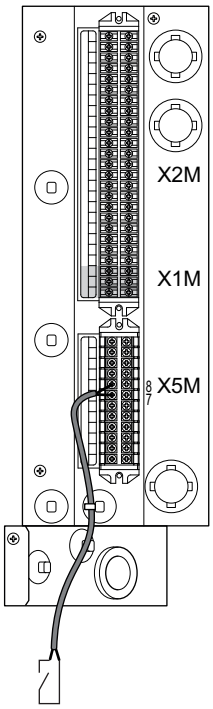
2 Fix the cable with cable ties to the cable tie mountings.

7.8.9 To connect the electrical meter

INFORMATION

In case of an electrical meter with transistor output, check the polarity. The positive polarity MUST be connected to X5M/7; the negative polarity to X5M/8.

1 Connect the electrical meters cable to the appropriate terminals as shown in the illustration below.



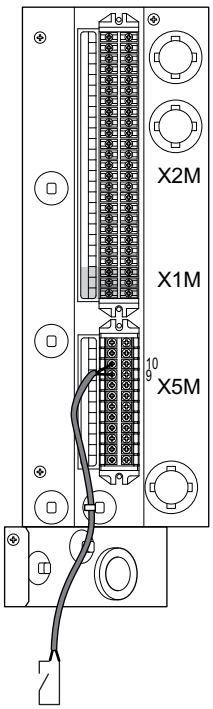
2 Fix the cable with cable ties to the cable tie mountings.

7.8.10 To connect the gas meter

INFORMATION

In case of a gas meter with transistor output, check the polarity. The positive polarity MUST be connected to X5M/9; the negative polarity to X5M/10.

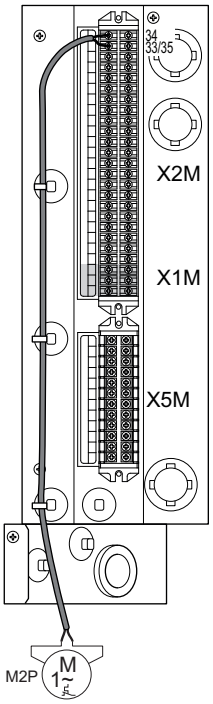
1 Connect the gas meter cable to the appropriate terminals as shown in the illustration below.



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

7.8.11 To connect the domestic hot water pump

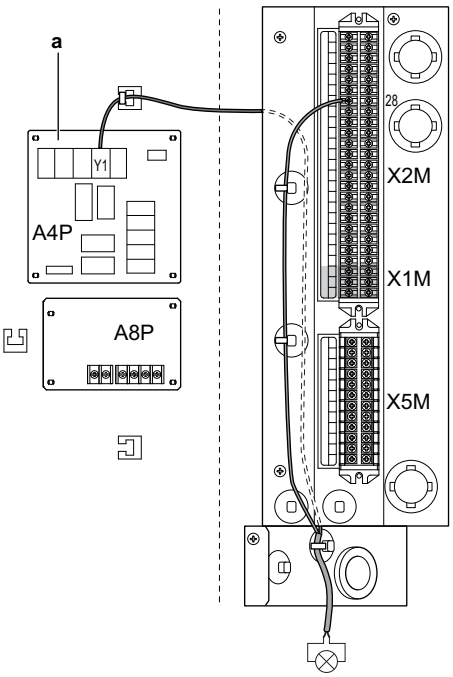
1 Connect the domestic hot water pump cable to the appropriate terminals as shown in the illustration below.



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

7.8.12 To connect the alarm output

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

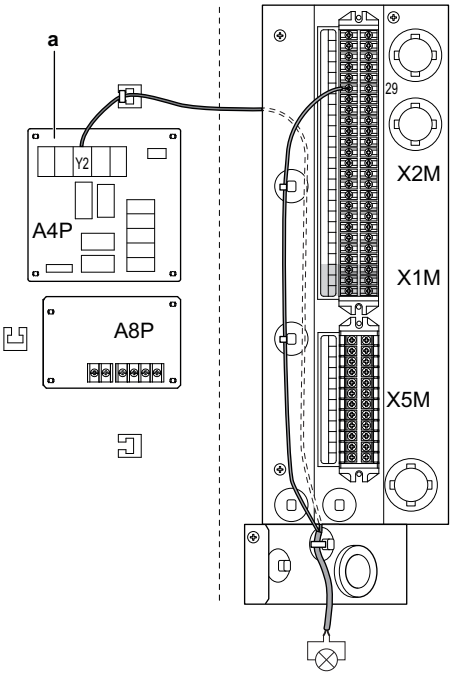


a Installation of EKRP1HB is required.

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

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

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

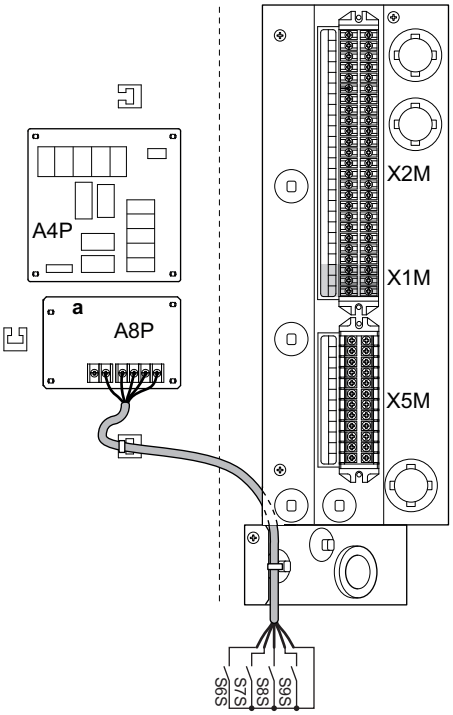


a Installation of EKRP1HB is required.

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

7.8.14 To connect the power consumption digital inputs

1 Connect the power consumption digital inputs cable to the appropriate terminals as shown in the illustration below.



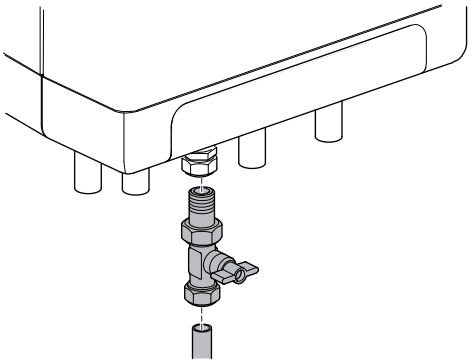
a Installation of EKRP1AHTA is required.

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

7.9 Connecting the gas piping

7.9.1 To connect the gas pipe

1 Connect a gas valve to the 15 mm gas connection of the gas boiler and connect it to the field pipe according to local regulations.



2 Install a gas mesh filter in the gas connection if the gas may be contaminated.

3 Connect the gas boiler to the gas supply.

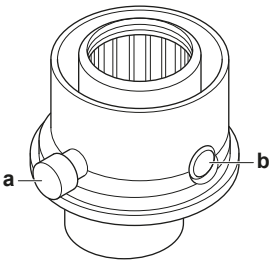
4 Check all parts for gas leaks on a pressure of maximum 50 mbar (500 mm H_2O). There may be no stress on the gas supply connection.

7.10 Connecting the boiler to the flue gas system

The gas boiler is designed ONLY for operation independent of room air.

The gas boiler is delivered with a 60/100 concentric flue gas/air intake connection. An adapter piece 80/125 concentric connection is also available.

The concentric adapter piece is equipped with a measuring point for the gas exhaust and one for the air intake.



a Gas exhaust measuring point
b Air intake measuring point

The air supply and the flue pipe can also be connected separately as a dual pipe connection. An option to change the gas boiler from a concentric to a dual pipe connection is available.

NOTICE

When installing the gas exhaust take the installation of the outdoor unit into account. Make sure the exhaust gases are not sucked into the evaporator.

When installing the gas exhaust and the air intake, take into account the serviceability of the indoor unit. When the gas exhaust/air intake goes backwards over the indoor unit, the expansion vessel cannot be accessed and, if necessary, will have to be replaced outside the unit.

7.10.1 To change the gas boiler to 80/125 concentric connection

The concentric connection can be changed from Ø60/100 to Ø80/125 by an adapter set.

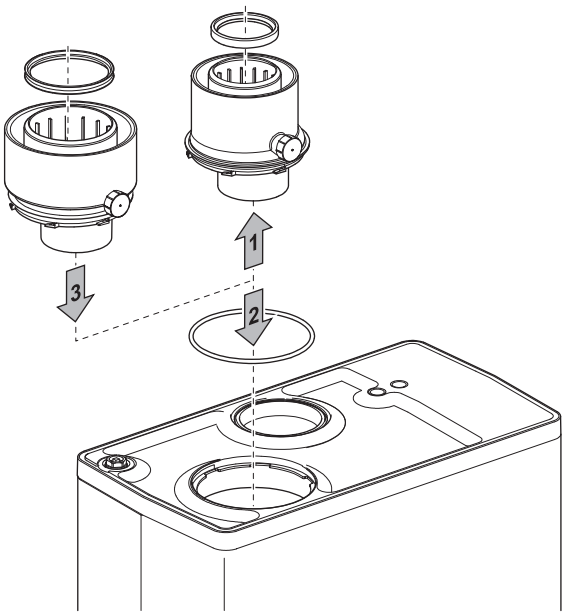
1 Remove the concentric pipe from the air supply and combustion gas pipe at the top of the gas boiler by turning counterclockwise.

2 Remove the O-ring from the concentric pipe and fit it around the flange of the concentric adapter Ø80/125.

3 Place the concentric adapter in the top of the appliance and turn it clockwise so that the measurement nipple points straight forward.

4 Fit the concentric pipe for the air supply and combustion gas flue into the adapter. The integral sealing ring ensures an airtight connection.

5 Check the connection of the internal flue pipe and the condensate collector. Make sure it is properly connected.



7.10.2 To change the 60/100 concentric connection to a dual pipe connection

The concentric connection can be changed from Ø60/100 to Ø80/125 by an adapter set.

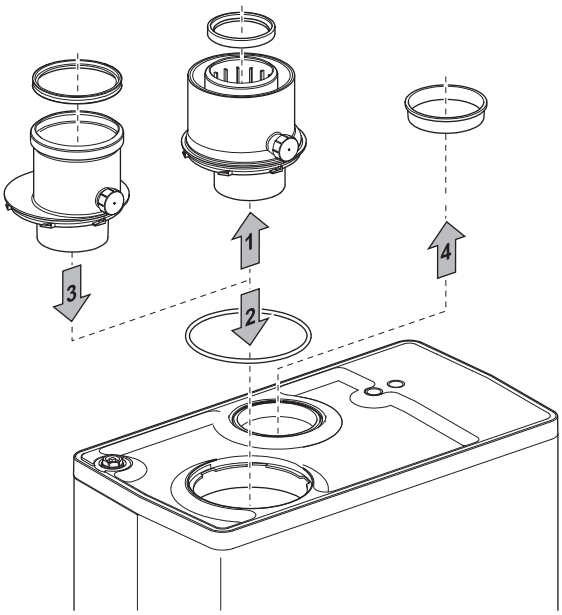
1 Remove the concentric pipe from the air supply and combustion gas pipe at the top of the gas boiler by turning counterclockwise.

2 Remove the O-ring from the concentric pipe and fit it around the flange of the dual pipe adapter Ø80.

3 Place the combustion gas connection (Ø80) in the top of the appliance and turn it clockwise so that the measurement nipple points straight forward. The integral sealing ring ensures an airtight connection.

4 Remove the lid from the air supply connection. Make sure to properly connect the air intake. Room air dependent installation is NOT allowed.

5 Check the connection of the internal flue pipe and the condensate collector. Make sure it is properly connected.



7.10.3 Calculate the total piping length

When the resistance of the flue pipe and air supply pipe increase, the appliance power will decrease. The maximum permitted reduction in power is 5%.

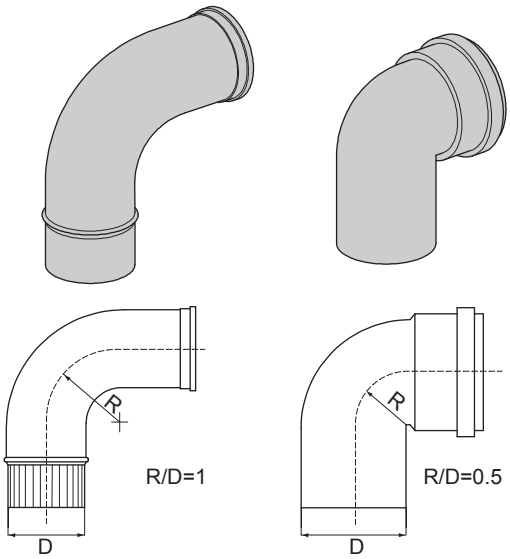
The resistance of the air supply pipe and combustion gas flue depends on:

- the length,
- the diameter,
- all components (bends, elbows,…).

The total permitted pipe length of the air supply and the combustion gas flue is indicated for each appliance category. For dual pipe connection, the indication of pipe length is based on Ø80 mm.

Equivalent length

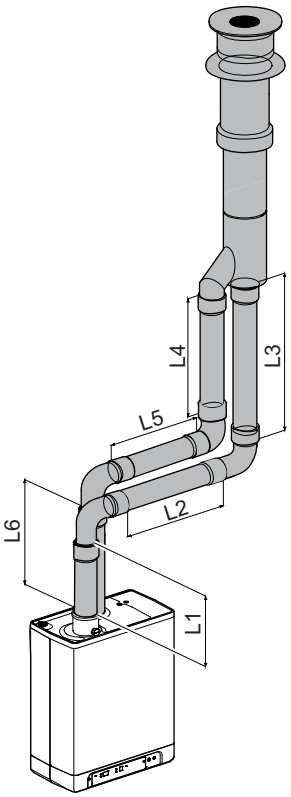
		Length
R/D=1	Bend 90°	2 m
	Bend 45°	1 m
R/D=0.5	Elbow 90°	4 m
	Elbow 45°	2 m



For a dual pipe connection, all defined lengths assume a diameter of 80 mm. In case of smaller or larger pipe diameters, the permissible pipe length is respectively smaller or larger. In case of smaller diameter, the following applies:

- Ø70: 0.59 × the permissible pipe length for Ø80
- Ø60: 0.32 × the permissible pipe length for Ø80
- Ø50: 0.15 × the permissible pipe length for Ø80

Contact the manufacturer to check the calculations for the resistance of the air supply and combustion gas flue pipe and the wall temperature at the end of the combustion gas flue pipe.



Sample calculation for dual pipe application

Pipe	Pipe length	Total pipe length
Flue pipe	L1+L2+L3+(2×2) m	13 m
Air supply	L4+L5+L6+(2×2) m	12 m

Total piping length = sum of the straight pipe lengths + sum of the equivalent pipe length of bends/elbows.

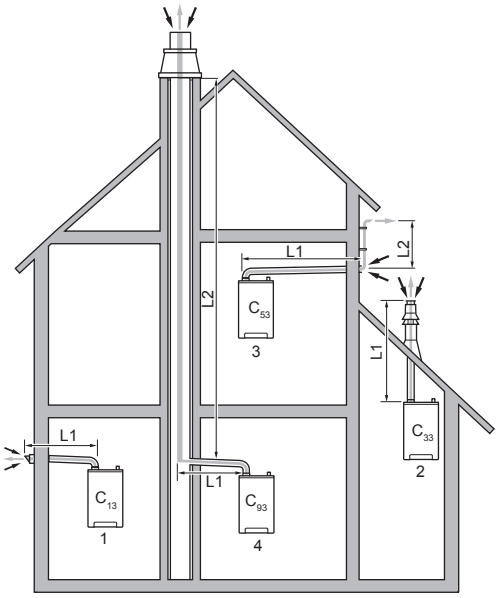
7.10.4 Appliance categories and pipe lengths

Following installation methods are supported by the manufacturer.

Single boiler installation

INFORMATION

All piping lengths in the tables below are maximum equivalent piping lengths.



The horizontal flue MUST be installed under a 3° fall towards the boiler (50 mm per meter) and MUST be supported with a minimum of 1 bracket at each meter length. Best recommended position of the bracket is just before the joint.

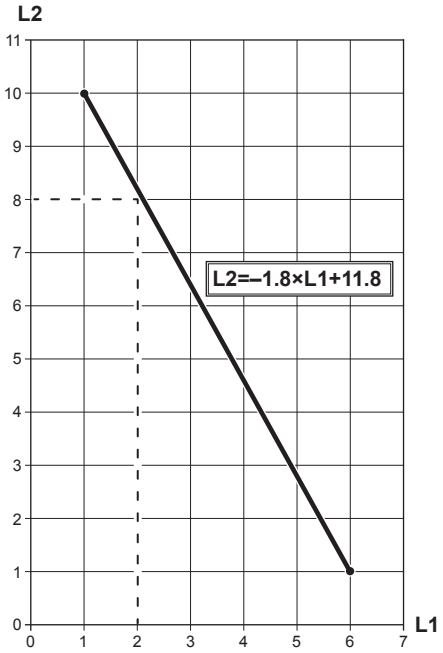
INFORMATION

Flexible flue gas lines may NOT be used in horizontal connection sections.

C_{13} (1)	C_{33} (2)	C_{13} (1)	C_{33} (2)
60/100	60/100	Twin-80	Twin-80
L1 (m)	L1 (m)	L1 (m)	L1 (m)
10	10	80	21

C_{13} (1)	C_{33} (2)	C_{93} (4)		C_{53} (3)	
80/125	80/125	80/125	80	60/100	60
L1 (m)	L1 (m)	L1 (m)	L2 (m)	L1 (m)	L2 (m)
29	29	10	25	6	1
				1	10

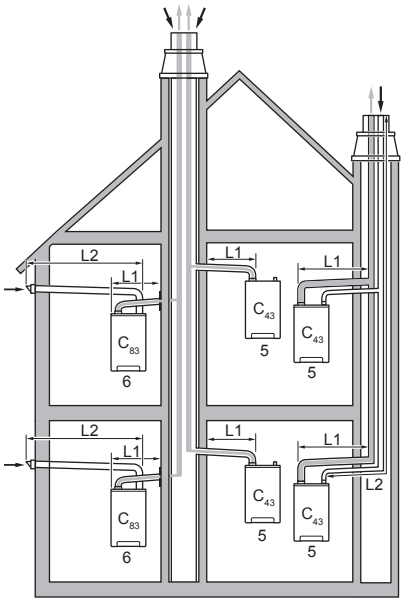
Special remark regarding C_{53}: The maximum lengths for L1 and L2 are related to each other. First determine the length of L1; then make use of the graph below to determine the maximum length of L2. For example: if the length of L1 is 2 m, L2 can maximally be 8 m long.



Multi-boiler installation

INFORMATION

All piping lengths in the tables below are maximum equivalent piping lengths.



The horizontal flue MUST be installed under a 3° fall towards the boiler (50 mm per meter) and MUST be supported with a minimum of 1 bracket at each meter length. Best recommended position of the bracket is just before the joint.

INFORMATION

Flexible flue gas lines may NOT be used in horizontal connection sections.

INFORMATION

The maximum lengths in the table below apply to each gas boiler separately.

C_{83} (6)	C_{43} (5)		
Twin-80	60/100	80/125	Twin-80
L1+L2 (m)	L1 (m)	L1 (m)	L1+L2 (m)
80	10	29	80

Special remark regarding C_{83}**:** Refer to the table below for the minimum diameters of the combined gas exhaust system.

Number of units	Minimum Ø
2	130
3	150
4	180
5	200
6	220
7	230
8	250
9	270
10	280
11	290
12	300

Special remark regarding C_{43}**:** Refer to the table below for the minimum diameters of the combined gas exhaust/air intake system.

Number of units	Concentric		Dual pipe	
	Gas exhaust	Air intake	Gas exhaust	Air intake
2	161	302	161	255
3	172	322	172	272
4	183	343	183	290
5	195	366	195	309
6	206	386	206	326
7	217	407	217	344
8	229	429	229	363
9	240	449	240	380
10	251	470	251	398
11	263	493	263	416
12	274	513	274	434
13	286	536	286	453
14	297	556	297	470
15	308	577	308	488
16	320	599	320	507
17	331	620	331	524
18	342	641	342	541
19	354	663	354	560
20	365	683	365	578

Special remark regarding C_{93}**:** The minimum inner dimensions of the chimney have to be 200×200 mm.

7.10.5 Applicable materials

Only use the materials specified in the following table.

Device category	Material	Supplier per country			
		UK	B	F	E
C_{13}	All materials	Daikin/ROTEX			
C_{33}					
C_{53}					
C_{43}	All materials	Daikin/ROTEX			
C_{63}	All materials	(a)	(b)	(a)	
C_{83}	▪ Inlet grille ▪ Main pipe ▪ Other parts	Daikin/ROTEX			
C_{93}	All materials	Daikin/ROTEX			

(a) Gas exhaust/air intake parts can be bought from the 3rd party. All parts purchased from an external supplier MUST comply with EN14471.

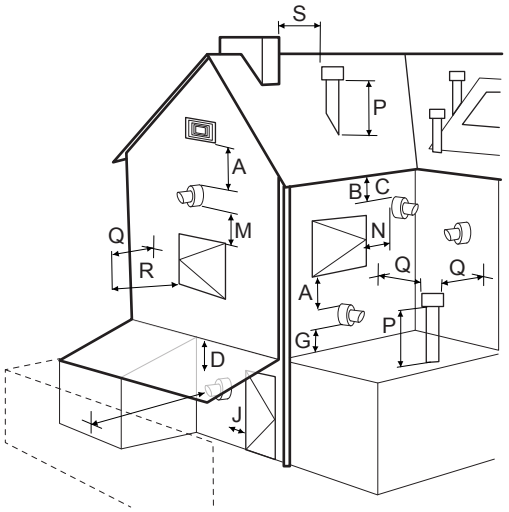
(b) NOT allowed in Belgium.

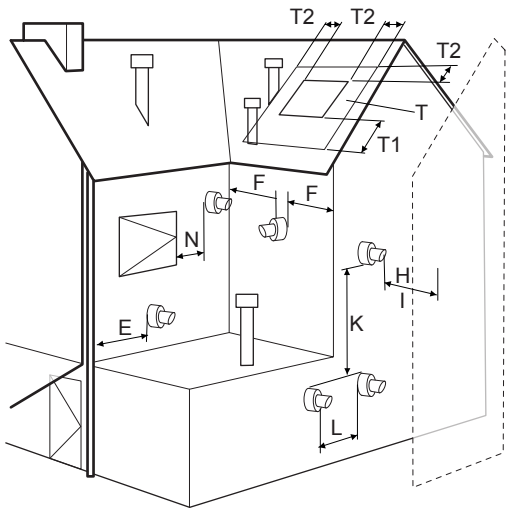
7.10.6 Flue pipe position

Especially for UK:

Only use flue products approved by the boiler manufacturer, which can be bought from the supplier of your boiler.

Refer to the field supplied accessories for all available accessories.





	Terminal position	Minimum distance (mm)
A	Directly below an open able window or other opening (e.g. air brick)	300
B	Below gutters, soil pipes or drain pipes	75
C	Below eaves	200
D	Below balconies or car front roofs	
E	From vertical drain pipes and soil pipe	150
F	From internal or external corners	300
G	Above ground, roof or balcony level	
H	From a surface facing a terminal	600
I	From a terminal discharging towards another terminal	1200
J	From an opening in a car port (e.g. door, window) into a dwelling	
K	Vertically from a terminal on the same wall	1500
L	Horizontally from a terminal on the same wall	300
M	Above an opening, air brick, opening windows, etc.	
N	Horizontally to an opening, air brick, opening windows, etc.	
P	Above roof level (to base terminal)	
Q	From an adjacent wall to flue	
R	From an adjacent opening window	1000
S	From another roof terminal	600
-	From an external boundary. Note: If the terminal is facing a boundary, it is recommended that an anti-plume kit be fitted.	
T T1 T2	Terminals adjacent to windows or openings on pitched and flat roofs: The flue should NOT penetrate this area.	 2000 600

NOTICE

The boiler manufacturer cannot be held responsible for atmospheric conditions when siting flue terminals.

CAUTION

Once the flue system has been installed and the appliance commissioned, the installer should observe the plume direction. Particular attention should be drawn to plume vapour re-entering the gas boiler via the air intake. If this occurs, it is highly possible the flue is fitted with a negative pressure area and therefore a plume management kit MUST be fitted.

7.10.7 Insulation of the gas exhaust and air intake

Condensation may occur on the outside of the pipe material when the material temperature is low and the environment temperature is high with a high humidity. Use 10 mm damp-proof insulation material when there is a risk of condensation.

7.10.8 Fitting a horizontal flue system

The 60/100 mm horizontal flue system may be extended up to a maximum length as specified in the table indicating the maximum pipe lengths. Calculate the equivalent length according to the specifications in this manual.

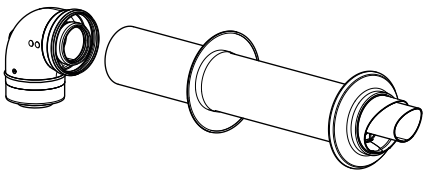
CAUTION

Read the installation manuals of the field supplied parts.

The horizontal flue MUST be installed under a 3° fall towards the boiler (50 mm per meter) and MUST be supported with a minimum of 1 bracket at each meter length. Best recommended position of the bracket is just before the joint.

INFORMATION

Flexible flue gas lines may NOT be used in horizontal connection sections.

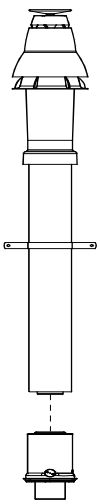


7.10.9 Fitting a vertical flue system

A vertical 60/100 mm flue kit is also available. By using additional components available from your boiler supplier, the kit can be extended up to a maximum length as specified in the table indicating the maximum pipe lengths (excluding the initial boiler connection).

CAUTION

Read the installation manuals of the field supplied parts.



7.10.10 Plume management kit

Especially for UK:

The plume management kit comprises of a 710 mm horizontal section elbow to connect the 1 m vertical condensing tube, which has a horizontal or vertical terminal dependant on your requirements. The maximum length of the horizontal flue including the terminal but excluding the initial elbow from the boiler and 1 m vertical condensing tube is 7 m.

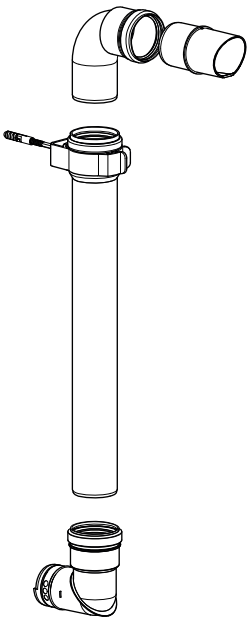
NOTICE

For each additional 90° elbow used the maximum flue length MUST be reduced by 1.5 m whilst the use of 2× 45° bends warrants a reduction of 2 m.

The horizontal part of the flue MUST be installed under a 3° fall towards the boiler (5 mm per m) and MUST be supported with a minimum of 1 bracket at each 1 m length. Best recommended position of the bracket is just before the joint.

CAUTION

- Sealing rings should ONLY be moisturized with water before use. Do NOT use soap or other detergents.
- When installing flues in voids, make sure that they are connected and fixed correctly. If in an existing situation a visual inspection is NOT possible, the boiler must NOT be commissioned and remain disconnected from the gas supply until suitable access has been realised.
- Make sure to follow the manufacturer's instructions regarding maximum length of the flue system, the appropriate flue material, correct jointing methods and the maximum distance between flue support.
- Make sure that all joints and seams are gastight and watertight.
- Make sure that the flue system has a uniform gradient back to the boiler.



7.10.11 Flues in voids

Especially for UK:

The flue system must be connected in accordance with the manufacturers instructions before firing the boiler.

The term void includes ceiling voids, floor voids, purpose built enclosures, service risers, roof spaces or any other enclosure that will restrict access to inspect the flue.

To allow visual inspection, without reliance on devices such as endoscopes, cameras and mirrors, inspection hatches must be provided along the entire length of the flue.

Hatches must be a minimum of 300 mm×300 mm and positioned with the edge of the inspection hatch to 1.5 m of any joint and at changes of direction. Bends should be viewable from both directions where the inspection hatch cannot be positioned at the bend.

Where suitable access is not provided the appliance must NOT be commissioned and must be disconnected from the gas supply.

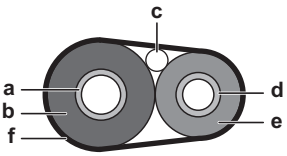
Additionally the entire flue and all flue seals must be installed in accordance with the requirements of BS5440:

- Check if the condensate trap is filled with water and correctly connected to the boiler.
- All flue joints are correctly made, unstressed and adequately supported.
- All parts of the flue can be visually inspected. Ensure suitable access where flue is positioned within voids.

7.11 Finishing the outdoor unit installation

7.11.1 To finish the outdoor unit installation

1 Insulate and fix the refrigerant piping and interconnection cable as follows:



a Gas pipe
b Gas pipe insulation
c Interconnection cable
d Liquid pipe
e Liquid pipe insulation
f Finishing tape

2 Install the service cover.

7.11.2 To close the outdoor unit

1 Close the switch box cover.

2 Close the service cover.

NOTICE

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

7.12 Finishing the indoor unit installation

7.12.1 To close the indoor unit

1 Close the switch box.

2 Mount the side plate to the unit.

3 Mount the top plate.

NOTICE

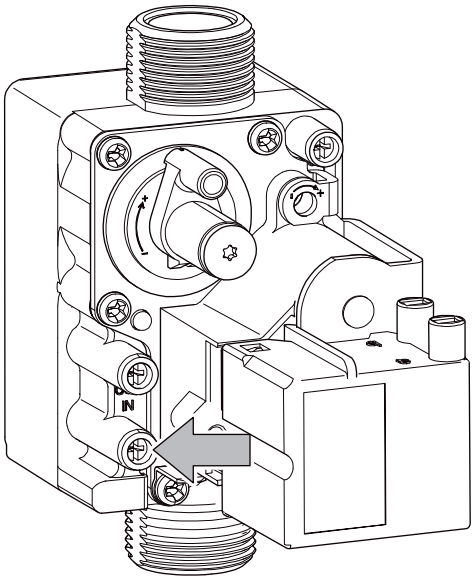
When closing the indoor unit cover, make sure that the tightening torque does NOT exceed 4.1 N•m.

Before doing the configuration of the heat pump module, make sure that the hybrid module and gas boiler are installed correctly.

7.13 Finishing the gas boiler installation

7.13.1 To purge the gas supply

1 Turn once the screw counterclockwise.



Result: Gas supply will purge air.

2 Check all connections for leakage.

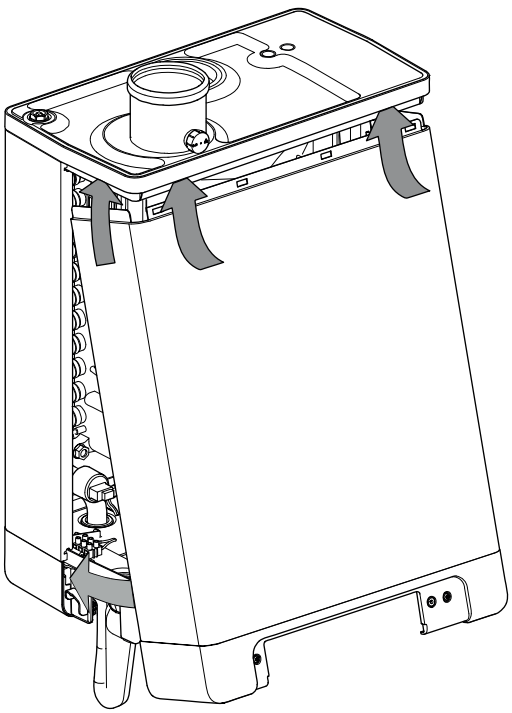
3 Check the gas supply pressure.

INFORMATION

Make sure the working inlet pressure does NOT interfere with other gas appliances installed.

7.13.2 To close the gas boiler

1 Hook the top of the front panel into the top of the gas boiler.

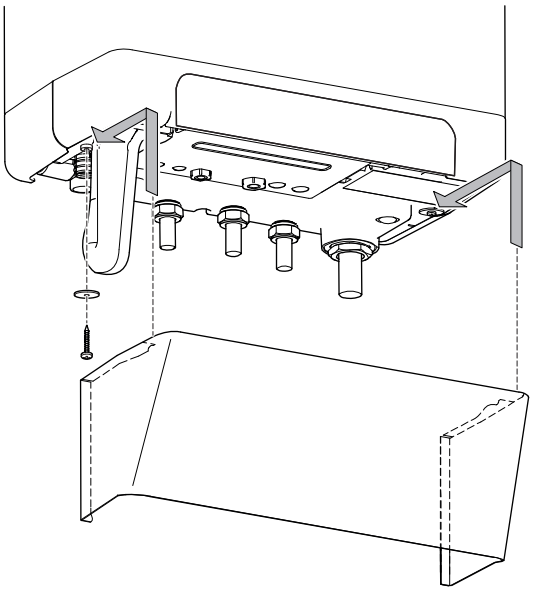


2 Tilt the bottom side of the front panel towards the gas boiler.

3 Screw both screws of the cover.

4 Close the display cover.

7.13.3 To install the cover plate



8 Configuration

8.1 Indoor unit

8.1.1 Overview: Configuration

If you do NOT configure the system correctly, it might NOT work as expected. You can configure the system with the user interface.

When you turn ON the user interface for the first time (via the indoor unit), a quick wizard starts to help you configure the system. If necessary, you can also make changes to the configuration afterwards.

The installer can prepare the configuration off-site on PC and afterwards upload the configuration to the system with the PC configurator. See "To connect the PC cable to the switch box" on page 46 for more information about the connection.

The configuration influences the following:

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

Legend for the settings tables:

- **#**: Breadcrumb in the menu structure
- **Code**: Code in the overview settings

When the installer settings are changed, the system will request to confirm. When confirmation is complete, the screen will shortly turn OFF and "busy" will be displayed for several seconds.

The most commonly used installation settings are accessible through the menu structure. Their location is mentioned by the breadcrumb indication (#). Additionally, all installer settings can also be found in "8.1.5 Menu structure: Overview installer settings" on page 66.

For access to the setting codes, see "To access the installer settings" on page 46.

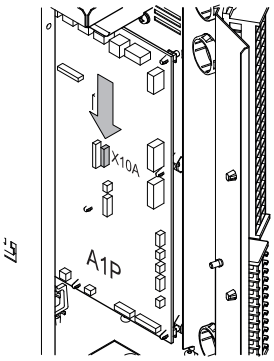
Not all settings are accessible through the menu structure. Some are only accessible through their code. Then in the table explained below, the bread crumb is set as N/A (not applicable).

To connect the PC cable to the switch box

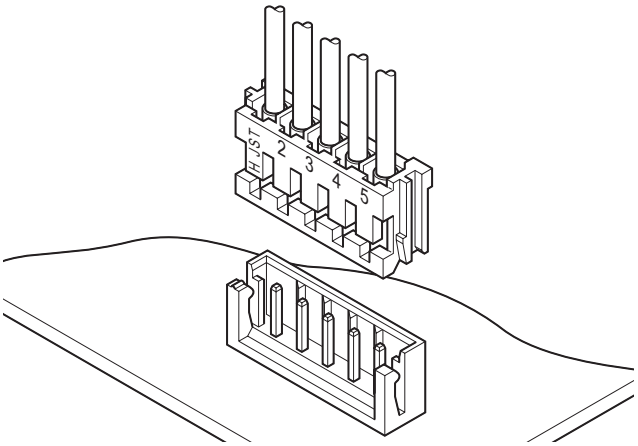
Prerequisite: The EKPCCAB* kit is required.

1 Connect the cable with USB connection to your PC.

2 Connect the plug of the cable to X10A on A1P of the switch box of the indoor unit.



3 Pay special attention to the position of the plug!



To access the most used commands

To access the installer settings

1 Set the user permission level to Installer.

2 Go to [A]: ☰ > Installer settings.

To access the overview settings

1 Set the user permission level to Installer.

2 Go to [A.8]: ☰ > Installer settings > Overview settings.

To set the user permission level to Installer

1 Go to [6.4]: ☰ > Information > User permission level.

2 Press ☰ for more than 4 seconds.

Result: 🔧 is displayed on the home pages.

3 If you do NOT press any button for more than 1 hour or press ⓘ again for more than 4 seconds, the installer permission level switches back to End user.

To switch between user permission levels (End user and Advanced end user)

1 Go to [6] or any of its submenus: ☰ > Information.

2 Press ⓘ for more than 4 seconds.

Result: The user permission level switches to Adv. end user. Additional information is displayed and "+" is added to the menu title.

3 If you do NOT press any button for more than 1 hour or press ⓘ again for more than 4 seconds, the user permission level switches back to End user.

To modify an overview setting

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

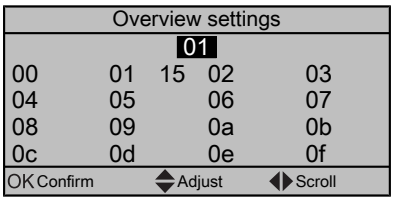
1 Go to [A.8]: > Installer settings > Overview settings.

2 Go to the corresponding screen of the first part of the setting by using the and button.

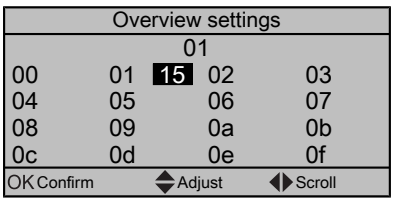
INFORMATION

An additional 0-digit is added to the first part of the setting when you access the codes in the overview settings.

Example: [1-01]: "1" will result in "**01**".

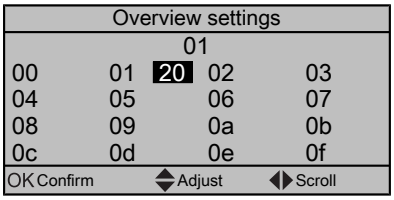


3 Go to the corresponding second part of the setting by using the and button.



Result: The value to be modified is now highlighted.

4 Modify the value by using the and button.

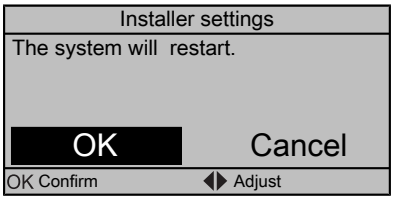


5 Push to confirm the modification of the parameter.

6 Repeat previous steps if you have to modify other settings.

7 Push the or button to leave the overview settings menu.

8 Confirm by pressing .

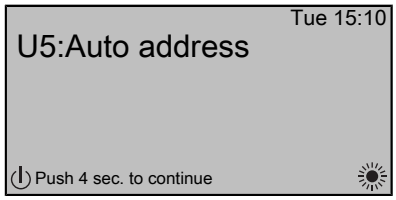


To copy the system settings from the first to the second user interface

If a second user interface is connected, the installer must first proceed below instructions for the proper configuration of the 2 user interfaces.

This procedure offers you also the possibility to copy the language set from one user interface to the other one: e.g. from EKRUCBL2 to EKRUCBL1.

1 When power is turned on for the first time, both user interfaces display:



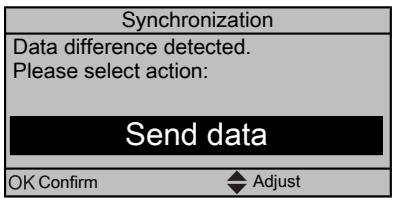
2 Push for 4 seconds on the user interface on which you want to proceed to the quick wizard. This user interface is now the main user interface.

INFORMATION

During the quick wizard, the second user interface displays Busy and will NOT be possible to operate.

3 The quick wizard will guide you.

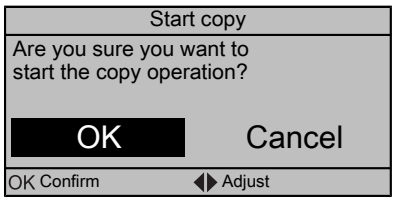
4 For proper operation of the system, the local data on the two user interfaces must be the same. If this is NOT the case, both user interfaces will display:



5 Select the required action:

- Send data: the user interface you are operating contains the correct data and the data on the other user interface will be overwritten.
- Receive data: the user interface you are operating does NOT contain the correct data and the data on the other user interface will be used to overwrite.

6 The user interface requests confirmation if you are sure to proceed.



7 Confirm the selection on the screen by pushing and all data (languages, schedules etc.) will be synchronised from the selected source user interface to the other one.

INFORMATION

- During the copying, both controllers display Busy and will NOT allow operation.
- The copy operation can take up until 90 minutes.
- It is recommended to change installer settings, or the configuration itself, on the main user interface.

8 Your system is now set to be operated by the 2 user interfaces.

To copy the language set from the first to the second user interface

See "To copy the system settings from the first to the second user interface" on page 47.

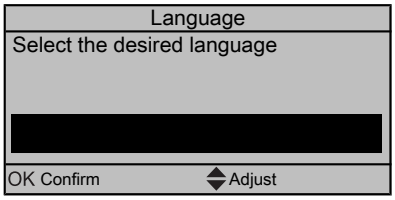
Quick wizard: Set the system layout after first power ON

After first power ON of the system, you are guided on the user interface to do initial settings:

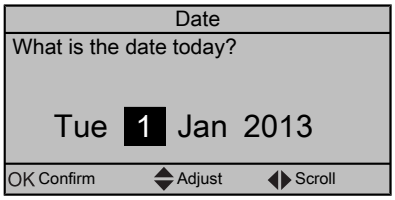
- language,
- date,
- time,
- system layout.

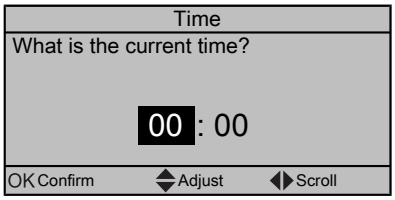
By confirming the system layout, you can proceed with the installation and commissioning of the system.

1 At power ON, the quick wizard starts as long as the system layout was NOT confirmed yet, by setting the language.

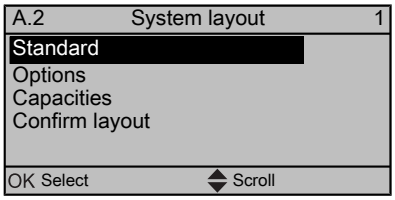


2 Set the current date and time.

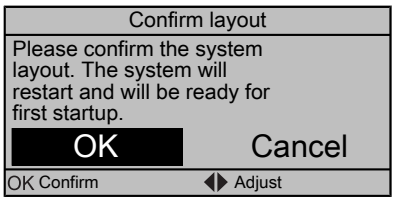




3 Set the system layout settings: Standard, Options, Capacities. For more details, see "8.1.2 Basic configuration" on page 48.



4 Confirm by pressing OK.



5 The user interface re-initialises and you can proceed the installation by setting the other applicable settings and commissioning of the system.

When the installer settings are changed, the system will request to confirm. When confirmation is complete, the screen will shortly turn OFF and "busy" will be displayed for several seconds.

8.1.2 Basic configuration

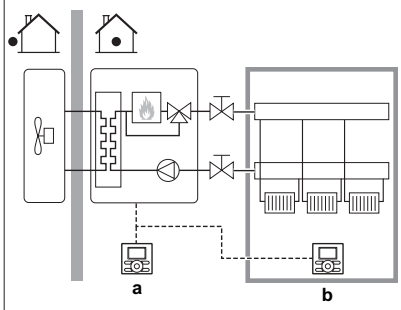
Quick wizard: Language / time and date

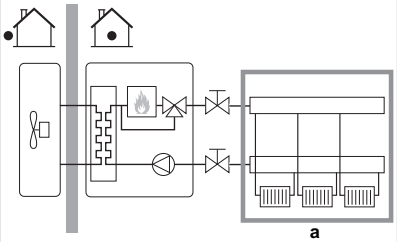
#	Code	Description
[A.1]	N/A	Language
[1]	N/A	Time and date

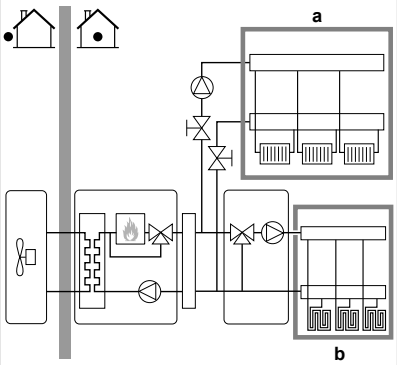
Quick wizard: Standard

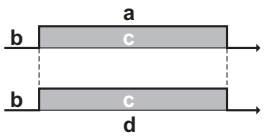
Space heating/cooling settings

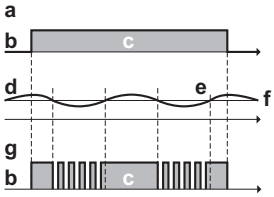
The system can heat up or cool down a space. Depending on the type of application, the space heating/cooling settings must be made accordingly.

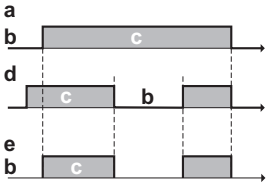
#	Code	Description
[A.2.1.7]	[C-07]	Unit temperature control: ▪ 0 (LWT control): Unit operation is decided based on the leaving water temperature regardless the actual room temperature and/or heating or cooling demand of the room. ▪ 1 (Ext RT control): Unit operation is decided by the external thermostat or equivalent (e.g. heat pump convector). ▪ 2 (RT control)(default): Unit operation is decided based on the ambient temperature of the user interface.
[A.2.1.B]	N/A	Only if there are 2 user interfaces (1 installed in the room, 1 installed at the indoor unit):  ▪ a: At unit ▪ b: In room as room thermostat User interface location: ▪ At unit: this user interface is used to control the unit. The other user interface is automatically set to In room. ▪ In room (default): this user interface acts as room thermostat. The other user interface is automatically set to At unit.

#	Code	Description
[A.2.1.8]	[7-02]	The system can supply leaving water to up to 2 water temperature zones. During configuration, the number of water zones must be set. Number of LWT zones: ▪ 0 (1 LWT zone)(default): Only 1 leaving water temperature zone. This zone is called the main leaving water temperature zone.  ▪ a: Main LWT zone continued >>

#	Code	Description
[A.2.1.8]	[7-02]	<< continuation ▪ 1 (2 LWT zones): 2 leaving water temperature zones. The zone with the lowest leaving water temperature (in heating) is called the main leaving water temperature zone. The zone with the highest leaving water temperature (in heating) is called the additional leaving water temperature zone. In practice, the main leaving water temperature zone consists of the higher load heat emitters and a mixing station is installed to achieve the desired leaving water temperature.  ▪ a: Add LWT zone ▪ b: Main LWT zone

#	Code	Description
[A.2.1.9]	[F-0D]	When the space heating/cooling control is OFF by the user interface, the pump is always OFF, unless pump operation is required due to safety precautions. When the space heating/cooling control is On, you can select the desired pump operation mode (only applicable during space heating/cooling) Pump operation mode: ▪ 0 (Continuous): Continuous pump operation, regardless of thermo ON or OFF condition. **Remark:** continuous pump operation requires more energy than sample or request pump operation.  ▪ a: Space heating/cooling control (user interface) ▪ b: OFF ▪ c: On ▪ d: Pump operation continued >>

#	Code	Description
[A.2.1.9]	[F-0D]	<< continuation ▪ 1 (Sample): The pump is ON. When there is heating or cooling demand as the leaving temperature has not reached the desired temperature yet. When thermo OFF condition occurs, the pump runs every 5 minutes to check the water temperature and demand heating or cooling if necessary. **Remark:** Sample is NOT available in extended room thermostat control or room thermostat control.  ▪ a: Space heating/cooling control (user interface) ▪ b: OFF ▪ c: On ▪ d: LWT temperature ▪ e: Actual ▪ f: Desired ▪ g: Pump operation continued >>

#	Code	Description
[A.2.1.9]	[F-0D]	<< continuation ▪ 2 (Request)(default): Pump operation based on request. **Example:** Using a room thermostat creates thermo ON/OFF condition. When there is no such demand, the pump is OFF. **Remark:** Request is NOT available in leaving water temperature control.  ▪ a: Space heating/cooling control (user interface) ▪ b: OFF ▪ c: On ▪ d: Heating demand (by ext RT or RT) ▪ e: Pump operation

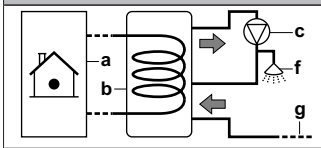
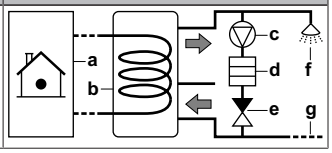
Quick wizard: Options

Domestic hot water settings

Following settings must be made accordingly.

#	Code	Description
[A.2.2.1]	[E-05]	Domestic hot water preparation: ▪ 0 (No): NOT possible ▪ 1 (Yes)(default): Possible
[A.2.2.2]	[E-06]	Domestic hot water tank installed in the system? ▪ 0 (No)(default): the domestic hot water will be produced by the boiler when there is a demand. ▪ 1 (Yes): the domestic hot water will be produced by the tank.
[A.2.2.A]	[D-02]	In case a tank is installed, the indoor unit offers the possibility to connect a field supplied domestic hot water pump (On/OFF type). Depending on the installation and configuration on the user interface, we distinguish its functionality. Prerequisite: [E-06]=1 ▪ 0 (No)(default): NOT installed ▪ 1 (Secondary rtrn): Installed for instant hot water when water is tapped. The end-user sets the operation timing (weekly schedule time) of the domestic hot water pump when it should run. Control of this pump is possible through the indoor unit. ▪ 2 (Disinf. shunt): Installed for disinfection. It runs when the disinfection function of the domestic hot water function is running. No further settings are needed. See also illustrations below.

[E-06]=1

Domestic hot water pump installed for…	
Instant hot water	Disinfection
	

a Indoor unit
b Tank
c Domestic hot water pump
d Heater element
e Non-return valve
f Shower
g Cold water

Thermostats and external sensors

#	Code	Description
[A.2.2.4]	[C-05]	Contact type main In external room thermostat control, the contact type of the optional room thermostat or heat pump convector for the main leaving water temperature zone must be set. ▪ 1 (Thermo ON/OFF): The connected external room thermostat or heat pump convector sends the heating or cooling demand by the same signal as it is connected to only 1 digital input (preserved for the main leaving water temperature zone) on the indoor unit (X2M/1). Select this value in case of a connection to the heat pump convector (FWXV). ▪ 2 (H/C request)(default): The connected external room thermostat sends separate heating and cooling demand and is therefore connected to the 2 digital input (preserved for the main leaving water temperature zone) on the indoor unit (X2M/1 and 2). Select this value in case of connection with the wired (EKRTWA) or wireless (EKRTR1) room thermostat.
[A.2.2.5]	[C-06]	Contact type add. In external room thermostat control with 2 leaving water temperature zones, the type of the optional room thermostat for the additional leaving water temperature zone must be set. ▪ 1 (Thermo ON/OFF): See Contact type main. Connected on the indoor unit (X2M/1a). ▪ 2 (H/C request)(default): See Contact type main. Connected on the indoor unit (X2M/1a and 2a).

#	Code	Description
[A.2.2.B]	[C-08]	External sensor When an optional external ambient sensor is connected, the type of the sensor must be set. ▪ 0 (No)(default): NOT installed. The thermistor in the user interface and in the outdoor unit are used for measurement. ▪ 1 (Outdoor sensor): Installed. The outdoor sensor will be used to measure the outdoor ambient temperature. **Remark:** For some functionality, the temperature sensor in the outdoor unit is still used. ▪ 2 (Room sensor): Installed. The temperature sensor in the user interface is NOT used anymore. **Remark:** This value has only meaning in room thermostat control.

Digital I/O PCB

Modification of these settings is only needed when the optional digital I/O PCB is installed. The digital I/O PCB has multiple functionality which need to be configured.

#	Code	Description
[A.2.2.6.2]	[D-07]	Solar kit Indicates if the domestic hot water tank is also heated by thermal solar panels. ▪ 0 (No)(default): NOT installed. ▪ 1 (Yes): Installed. The domestic hot water tank can –besides by the boiler– also be heated by thermal solar panels. Set this value if thermal solar panels are installed.
[A.2.2.6.3]	[C-09]	Alarm output Indicates the logic of the alarm output on the digital I/O PCB during malfunctioning. ▪ 0 (Normally open)(default): The alarm output will be powered when an alarm occurs. By setting this value, a distinction is made between malfunctioning and detection of a power failure of the unit. ▪ 1 (Normally closed): The alarm output will NOT be powered when an alarm occurs.

Alarm output logic

[C-09]	Alarm	No alarm	No power supply to unit
0 (default)	Closed output	Open output	Open output
1	Open output	Closed output	

Demand PCB

The demand PCB is used to enable the power consumption control by digital inputs.

#	Code	Description
[A.2.2.7]	[D-04]	Demand PCB Indicates if the optional demand PCB is installed. ▪ 0 (No)(default): NOT installed. ▪ 1 (Yes): Installed. Power consumption control by digital inputs is selectable in [A.6.3.1].

Energy metering

When energy metering is performed by the use of an external power or gas meter (field supply), configure the settings as described below. Select the pulse frequency output of each meter in accordance with the meter specifications. It is possible to connect a power meter and a gas meter with different pulse frequencies. When no power meter or gas meter is used, select No to indicate the corresponding pulse input is NOT used.

#	Code	Description
[A.2.2.8]	[D-08]	Optional external kWh meter 1: ▪ 0 (No)(default): NOT installed ▪ 1: Installed (0.1 pulse/kWh) ▪ 2: Installed (1 pulse/kWh) ▪ 3: Installed (10 pulse/kWh) ▪ 4: Installed (100 pulse/kWh) ▪ 5: Installed (1000 pulse/kWh)
[A.2.2.C]	[D-0A]	Optional gas meter: ▪ 0 (No)(default): NOT installed ▪ 1: Installed (1 pulse/m³) ▪ 2: Installed (10 pulse/m³) ▪ 3: Installed (100 pulse/m³)

Savings mode

The user can choose whether switching between operation modes is either economically or ecologically optimised. Set to Economical, the system will in all operating conditions select the energy source (gas or electricity) based on energy prices, resulting in a minimisation of energy costs. Set to Ecological, the heat source will be selected based on ecological parameters, resulting in a minimisation of primary energy consumption.

#	Code	Description
[A.6.7]	[7-04]	Defines whether switching between operation modes is either economically or ecologically optimised. ▪ 0 (Economical)(default): reduction of energy costs ▪ 1 (Ecological): reduction of primary energy consumption, but not necessarily energy costs

Primary energy factor

The primary energy factor indicates how many units of primary energy (natural gas, crude oil, or other fossil fuels, prior to undergoing any human-made conversions or transformations) are needed to obtain 1 unit of a certain (secondary) energy source, such as electricity. The primary energy factor for natural gas is 1. Assuming an average electricity production efficiency (including transportation losses) of 40%, the primary energy factor for electricity equals 2.5 (=1/0.40). The primary energy factor allows you to compare 2 different energy sources. In this case, the primary energy use of the heat pump is compared to the natural gas use of the gas boiler.

#	Code	Description
N/A	[7-03]	Compares the primary energy use of the heat pump with that of the boiler. 0~6, step: 0.1 (default: 2.5)

INFORMATION

The primary energy factor can always be set, but is only used in case the savings mode is set to Ecological.

Space heating/cooling control

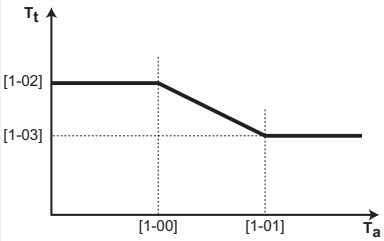
The basic required settings in order to configure the space heating/cooling of your system are described in this chapter. The weather-dependent installer settings define the parameters for the weather-dependent operation of the unit. When weather-dependent operation is active, the water temperature is determined automatically depending on the outdoor temperature. Low outdoor temperatures will result in warmer water and vice versa. During weather-dependent operation, the user has the possibility to shift up or down the target water temperature by a maximum of 10°C.

See the user reference guide and/or operation manual for more details about this function.

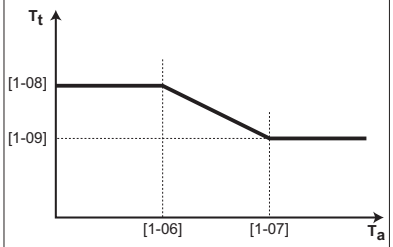
Leaving water temperature: Main zone

#	Code	Description
[A.3.1.1.1]	N/A	LWT setpoint mode: ▪ Fixed: The desired leaving water temperature is: ▪ NOT weather-dependent (i.e. does NOT depend on the outdoor ambient temperature) ▪ fixed in time (i.e., NOT scheduled) ▪ Weather dep. (default): The desired leaving water temperature is: ▪ weather-dependent (i.e. depends on the outdoor ambient temperature) ▪ fixed in time (i.e., NOT scheduled) continued >>

#	Code	Description
[A.3.1.1.1]	N/A	<< continuation ▪ Fixed/scheduled: The desired leaving water temperature is: ▪ NOT weather-dependent (i.e., does NOT depend on the outdoor ambient temperature) ▪ according a schedule. The scheduled actions consists of desired leaving water temperatures either preset or custom **Remark:** This value can only be set in leaving water temperature control. ▪ WD/scheduled: The desired leaving water temperature is: ▪ weather-dependent (i.e., does depend on the outdoor ambient temperature) ▪ according a schedule. The scheduled actions consists of desired leaving water temperatures either preset or custom **Remark:** This value can only be set in leaving water temperature control.

#	Code	Description
[A.3.1.1.3]	[1-00] [1-01] [1-02] [1-03]	Set weather-dependent heating:  ▪ T_t: Target leaving water temperature (main) ▪ T_a: Outdoor temperature continued >>

#	Code	Description
[A.3.1.1.3]	[1-00] [1-01] [1-02] [1-03]	<< continuation ▪ [1-00]: Low outdoor ambient temperature. −20°C~5°C (default: −10°C) ▪ [1-01]: High outdoor ambient temperature. 10°C~20°C (default: 15°C) ▪ [1-02]: Desired leaving water temperature when the outdoor temperature equals or drops below the low ambient temperature. Between minimum and maximum leaving water temperature (default: 60°C). **Note:** This value should be higher than [1-03] as for low outdoor temperatures warmer water is required. ▪ [1-03]: Desired leaving water temperature when the outdoor temperature equals or rises above the high ambient temperature. Between minimum and maximum leaving water temperature (default: 35°C) and limited to maximum 45°C. **Note:** This value should be lower than [1-02] as for high outdoor temperatures less warm water is required.

#	Code	Description
[A.3.1.1.4]	[1-06] [1-07] [1-08] [1-09]	Only for EHYHBX08. Set weather-dependent cooling:  ▪ T_t: Target leaving water temperature (main) ▪ T_a: Outdoor temperature continued >>

#	Code	Description
[A.3.1.1.4]	[1-06] [1-07] [1-08] [1-09]	<< continuation ▪ [1-06]: Low outdoor ambient temperature. 10°C~25°C (default: 20°C) ▪ [1-07]: High outdoor ambient temperature. 25°C~43°C (default: 35°C) ▪ [1-08]: Desired leaving water temperature when the outdoor temperature equals or drops below the low ambient temperature. Between minimum and maximum leaving water temperature 5°C~22°C (default: 22°C). **Note:** This value should be higher than [1-09] as for low outdoor temperatures less cold water suffices. ▪ [1-09]: Desired leaving water temperature when the outdoor temperature equals or rises above the high ambient temperature. Between minimum and maximum leaving water temperature 5°C~22°C (default: 18°C). **Note:** This value should be lower than [1-08] as for high outdoor temperatures colder water is required.

INFORMATION

In order to optimise comfort as well as running costs, it is recommended to choose weather-dependent setpoint operation. Set the settings carefully; they have significant influence on heat pump as well as boiler operation. Too high leaving water temperature can result in constant boiler operation.

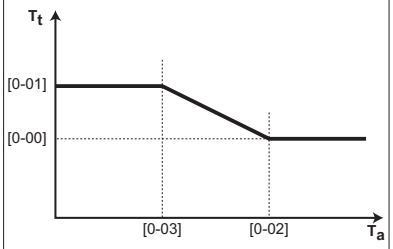
Leaving water temperature: Additional zone

Only applicable if 2 leaving water temperature zones are present.

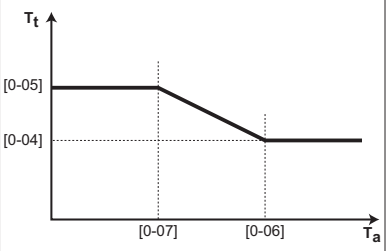
#	Code	Description

[A.3.1.2.1]	N/A	LWT setpoint mode:
		▪ Fixed: The desired leaving water temperature is:
		  ▪ NOT weather-dependent (i.e. does NOT depend on the outdoor ambient temperature)
		  ▪ fixed in time (i.e., NOT scheduled)
		▪ Weather dep. (default): The desired leaving water temperature is:
		  ▪ weather-dependent (i.e. depends on the outdoor ambient temperature)
		  ▪ fixed in time (i.e., NOT scheduled)
		continued >>

#	Code	Description
[A.3.1.2.1]	N/A	<< continuation ▪ Fixed/scheduled: The desired leaving water temperature is: ▪ NOT weather-dependent (i.e., does NOT depend on the outdoor ambient temperature) ▪ according a schedule. The scheduled actions are On or OFF. **Remark:** This value can only be set in leaving water temperature control. ▪ WD/scheduled: The desired leaving water temperature is: ▪ weather-dependent (i.e., does depend on the outdoor ambient temperature) ▪ according a schedule. The scheduled actions are On or OFF. **Remark:** This value can only be set in leaving water temperature control.

#	Code	Description
[A.3.1.2.3]	[0-00] [0-01] [0-02] [0-03]	Set weather-dependent heating:  ▪ T_t: Target leaving water temperature (main) ▪ T_a: Outdoor temperature continued >>

#	Code	Description
[A.3.1.2.3]	[0-00] [0-01] [0-02] [0-03]	<< continuation ▪ [0-03]: Low outdoor ambient temperature. −20°C~5°C (default: −10°C) ▪ [0-02]: High outdoor ambient temperature. 10°C~20°C (default: 15°C) ▪ [0-01]: Desired leaving water temperature when the outdoor temperature equals or drops below the low ambient temperature. Between minimum and maximum leaving water temperature (default: 60°C). **Note:** This value should be higher than [0-00] as for low outdoor temperatures warmer water is required. ▪ [0-00]: Desired leaving water temperature when the outdoor temperature equals or rises above the high ambient temperature. Between minimum and maximum leaving water temperature (default: 35°C and limited to 45°C). **Note:** This value should be lower than [0-01] as for high outdoor temperatures less warm water is required.

#	Code	Description
[A.3.1.2.4]	[0-04] [0-05] [0-06] [0-07]	Only for EHYHBX08. Set weather-dependent cooling:  ▪ T_t: Target leaving water temperature (main) ▪ T_a: Outdoor temperature continued >>

#	Code	Description
[A.3.1.2.4]	[0-04] [0-05] [0-06] [0-07]	<< continuation ▪ [0-07]: Low outdoor ambient temperature. 10°C~25°C (default: 20°C) ▪ [0-06]: High outdoor ambient temperature. 25°C~43°C (default: 35°C) ▪ [0-05]: Desired leaving water temperature when the outdoor temperature equals or drops below the low ambient temperature. Between minimum and maximum leaving water temperature 5°C~22°C (default: 12°C). **Note:** This value should be higher than [1-09] as for low outdoor temperatures less cold water suffices. ▪ [0-04]: Desired leaving water temperature when the outdoor temperature equals or rises above the high ambient temperature. Between minimum and maximum leaving water temperature 5°C~22°C (default: 8°C). **Note:** This value should be lower than [1-08] as for high outdoor temperatures colder water is required.

Pump control: Flow target

The hybrid module is designed to operate with a fixed flow. This means that the pump is controlled to work at a flow target set by the installer. The installer can set the flow target for:

- heat pump only operation,
- hybrid operation,
- gas boiler only operation.

#	Code	Description
N/A	[8-0B]	Target flow rate during heat pump operation. The default value is set to deliver the nominal capacity of the heat pump with a ΔT over the emitter of 5°C. Decrease this value if the room temperature is constantly higher than the desired room temperature. Increase this value if you feel discomfort in heat pump only operation. Range: 10~20 l/min ▪ For EHYHBH05: 13 l/min (default) ▪ For EHYHBH/X08: 15 l/min (default) The default values have been set to optimise comfort and performance. Take care when changing them.
N/A	[8-0C]	Target flow rate during hybrid operation. The default value is chosen the same as the target flow rate during boiler operation. Decrease this value if the room temperature is constantly higher than the desired room temperature. Increase this value if you feel discomfort in hybrid operation. Range: 10~20 l/min ▪ For EHYHBH05: 10 l/min (default) ▪ For EHYHBH/X08: 10 l/min (default) The default values have been set to optimise comfort and performance. Take care when changing them.
N/A	[8-0D]	Target flow rate during gas boiler operation. The default value is chosen to deliver the nominal capacity of the gas boiler with a ΔT over the emitter of 20°C. Decrease this value if the room temperature is constantly higher than the desired room temperature. Increase this value if you feel discomfort in gas boiler only operation. Range: 10~20 l/min ▪ For EHYHBH05: 10 l/min (default) ▪ For EHYHBH/X08: 14 l/min (default) The default values have been set to optimise comfort and performance. Take care when changing them.

Leaving water temperature: Modulation

Modulation lowers or raises the desired leaving water temperature in function of the desired room temperature and the difference between this temperature and the actual room temperature. This results in:

- stable room temperatures exactly matching the desired temperature (high comfort level),
- less On/OFF cycles (low noise level, high comfort and efficiency levels)
- as low as possible leaving water temperatures (high efficiency).

This function is only applicable in case of room thermostat control and is used to calculate the leaving water temperature. After activation, the leaving water temperature can only be read on the user interface, but not changed. Turn OFF modulation to change it. The leaving water temperature can either be a fixed setpoint, or an offset in case of weather-dependent setpoint.

#	Code	Description
[A.3.1.1.5]	[8-05]	Modulated LWT: ▪ No: disabled. **Note:** The desired leaving water temperature needs to be set on the user interface. ▪ Yes (default): enabled. **Note:** The desired leaving water temperature can only be read out on the user interface

Leaving water temperature: Emitter type

Only applicable in case of room thermostat control. Depending on the system water volume and the heat emitters type, the heat up or cool down of a space can take longer. This setting can compensate for a slow or a quick heating/cooling system during the heat up/cool down cycle.

Note: The setting of the emitter type will influence the maximum modulation of the desired leaving water temperature and the possibility for usage of the automatic cooling/heating changeover based on the indoor ambient temperature.

Therefore it is important to set this correctly.

#	Code	Description
[A.3.1.1.7]	[9-0B]	Emitter type: Reaction time of the system: ▪ Quick (default) **Example:** Small water volume, fan coils, or radiators. ▪ Slow **Example:** Large water volume, floor heating loops.

Quick heat up function

Only applicable in case of room thermostat control. The function will start up the gas boiler when the actual room temperature is 3°C lower than the desired room temperature. The large boiler capacity can boost up the room temperature quickly to the desired temperature. This can be useful after a long period of absence or after a break-down of the system.

#	Code	Description
N/A	[C-0A]	Indoor quick heat up function ▪ 0: OFF. ▪ 1 (default): On.

Domestic hot water control

Only applicable in case an optional domestic hot water tank is installed.

Configuring the desired tank temperature

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

#	Code	Description
[A.4.1]	[6-0D]	Domestic hot water Type: ▪ 0 (Reheat only): Only reheat operation is allowed. ▪ 1 (Reheat + sched.): The domestic hot water tank is heated according to a schedule and between the scheduled heatup cycles, reheat operation is allowed. ▪ 2 (Scheduled only)(default): The domestic hot water tank can ONLY be heated according to a schedule.

See "Domestic hot water control: advanced" on page 60 for more details.

Readout the desired tank temperature

The desired tank temperature is displayed on the user interface. By the following settings, you can configure the way the tank temperature is displayed:

- by its numerical value
- by an equivalent.

Use the numerical value in case the understanding of tank temperature is clear for the customer. On the user interface the customer can set the desired tank temperature per 1°C. For customers with less feeling about tank temperatures, choose display by equivalent number of people. They will set the desired tank temperature by indicating their domestic hot water consumption as a number of people.

As installer, you configure the conversion between the equivalent domestic hot water consumption per person at 1 heat-up cycle and the real desired tank temperature. Please take into account the installed tank size. Additionally, using the graphical display, the customer is made aware about the amount of consumed domestic hot water.

#	Code	Description
[A.4.3.1]	N/A	How is the tank temperature to be displayed on the user interface? ▪ As temperature (default):  ▪ As graphic: The temperature has to be displayed as available hot water for x persons. If you choose this, you also have to configure which number equals which temperature under [A.4.3.2.1]~[A.4.3.2.6]: 
[A.4.3.2.1]	N/A	1 person The absolute desired tank temperature for 1 person. 30~80°C (default: 42°C)
[A.4.3.2.2]	N/A	2 persons The increment of the desired tank temperature for 2 persons compared to 1 person. 0~20°C (default: 6°C)
[A.4.3.2.3]	N/A	3 persons The increment of the desired tank temperature for 3 persons compared to 2 persons. 0~20°C (default: 15°C)
[A.4.3.2.4]	N/A	4 persons The increment of the desired tank temperature for 4 persons compared to 3 persons. 0~20°C (default: 17°C)
[A.4.3.2.5]	N/A	5 persons The increment of the desired tank temperature for 5 persons compared to 4 persons. 0~20°C (default: 1°C)
[A.4.3.2.6]	N/A	6 persons The increment of the desired tank temperature for 6 persons compared to 5 persons. 0~20°C (default: 1°C)

INFORMATION

The real desired tank temperature is defined by the selected absolute desired tank temperature and the number of persons + selected increment value(s).

Example: 3 persons (default settings)

Real desired tank temperature=[A.4.3.2.1] + [A.4.3.2.2] + [A.4.3.2.3]

Real desired tank temperature=42+6+15=63°C.

Maximum tank temperature

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

INFORMATION

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

INFORMATION

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

#	Code	Description
[A.4.5]	[6-0E]	Maximum setpoint The maximum temperature that users can select for the domestic hot water. You can use this setting to limit the temperature at the hot water taps. The maximum temperature is NOT applicable during disinfection function. See disinfection function. ▪ [E-06]=0 (no tank installed): 40~65°C (default: 65°C) ▪ [E-06]=1 (tank installed): 40~75°C (default: 75°C)

Contact/helpdesk number

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

8.1.3 Advanced configuration/optimization

Space heating/cooling operation: advanced

Preset leaving water temperature

You can define preset leaving water temperatures:

- economic (denotes the desired leaving water temperature which results in the lowest energy consumption)
- comfort (denotes the desired leaving water temperature which results in the highest energy consumption).

Preset values make it easy to use the same value in the schedule or to adjust the desired leaving water temperature according to the room temperature (see modulation). If you later want to change the value, you ONLY have to do it in one place. Depending on whether the desired leaving water temperature is weather dependent or NOT, the desired shift values or the absolute desired leaving water temperature should be specified.

NOTICE

The preset leaving water temperatures are ONLY applicable for the main zone, as the schedule for the additional zone consists of On/OFF actions.

NOTICE

Select preset leaving water temperatures in accordance with the design and selected heat emitters to ensure the balance between desired room and leaving water temperatures.

#	Code	Description
Preset leaving water temperature for the main leaving water temperature zone in case of NOT weather dependent		
[7.4.2.1]	[8-09]	Comfort (heating) [9-01]~[9-00] (default: 45°C)
[7.4.2.2]	[8-0A]	Eco (heating) [9-01]~[9-00] (default: 40°C)
[7.4.2.3]	[8-07]	Comfort (cooling) [9-03]~[9-02] (default: 18°C)
[7.4.2.4]	[8-08]	Eco (cooling) [9-03]~[9-02] (default: 20°C)
Preset leaving water temperature (shift value) for the main leaving water temperature zone in case of weather dependent		
[7.4.2.5]	N/A	Comfort (heating) −10~+10°C (default: 0°C)
[7.4.2.6]	N/A	Eco (heating) −10~+10°C (default: −2°C)
[7.4.2.7]	N/A	Comfort (cooling) −10~+10°C (default: 0°C)
[7.4.2.8]	N/A	Eco (cooling) −10~+10°C (default: +2°C)

Temperature ranges (leaving water temperatures)

The purpose of this setting is to prevent selecting a wrong (i.e. too hot or too cold) leaving water temperature. Therefore the available desired heating temperature range and desired cooling temperature range can be configured.

NOTICE

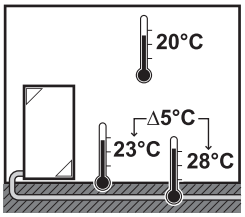
In case of a floor heating application it is important to limit the:

- maximum leaving water temperature at heating operation according to the specifications of the floor heating installation.
- the minimum leaving water temperature at cooling operation to 18~20°C to prevent condensation on the floor.

NOTICE

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

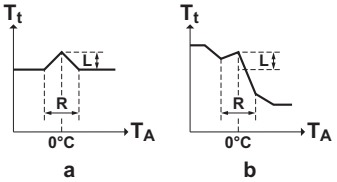
Example: Set the minimum leaving water temperature to 28°C to avoid NOT to be able to heat up the room: leaving water temperatures MUST be sufficient higher than the room temperatures (in heating).



#	Code	Description
Leaving water temperature range for the main leaving water temperature zone (= the leaving water temperature zone with the lowest leaving water temperature in heating operation and the highest leaving water temperature in cooling operation)		
[A.3.1.1.2.2]	[9-00]	Maximum temp (heating) 37~80°C (default: 80°C)
[A.3.1.1.2.1]	[9-01]	Minimum temp (heating) 15~37°C (default: 25°C)
[A.3.1.1.2.4]	[9-02]	Maximum temp (cooling) 18~22°C (default: 22°C)
[A.3.1.1.2.3]	[9-03]	Minimum temp (cooling) 5~18°C (default: 5°C)
Leaving water temperature range for the additional leaving water temperature zone (= the leaving water temperature zone with the highest leaving water temperature in heating operation and the lowest leaving water temperature in cooling operation)		
[A.3.1.2.2.2]	[9-06]	Maximum temp (heating) 37~80°C (default: 80°C)
[A.3.1.2.2.1]	[9-05]	Minimum temp (heating) 15~37°C (default: 25°C)
[A.3.1.2.2.4]	[9-08]	Maximum temp (cooling) 18~22°C (default: 22°C)
[A.3.1.2.2.3]	[9-07]	Minimum temp (cooling) 5~18°C (default: 5°C)

Leaving water temperature compensation around 0°C

In heating operation, the desired leaving water temperature is locally increased around an outdoor temperature of 0°C. This compensation can be selected when using an absolute or a weather dependent desired temperature (see illustration below). Use this setting to compensate for possible heat losses of the building due to the evaporation of melted ice or snow (e.g. in cold region countries).



a Absolute desired LWT
b Weather dependent desired LWT

#	Code	Description
N/A	[D-03]	▪ 0 (disabled) (default) ▪ 1 (enabled) L=2°C, R=4°C (−2°C<T_A<2°C) ▪ 2 (enabled) L=4°C, R=4°C (−2°C<T_A<2°C) ▪ 3 (enabled) L=2°C, R=8°C (−4°C<T_A<4°C) ▪ 4 (enabled) L=4°C, R=8°C (−4°C<T_A<4°C)

Leaving water temperature maximum modulation

ONLY applicable in room thermostat control and when modulation is enabled. The maximum modulation (=variance) on the desired leaving water temperature decided on the difference between the actual and desired room temperature, e.g. 3°C modulation means the desired leaving water temperature can be increased or lowered by 3°C. Increasing the modulation results in better performance (less On/OFF, faster heat up), but note that depending on the heat emitter, there MUST ALWAYS be a balance (refer to the design and selection of the heat emitters) between the desired leaving water temperature and the desired room temperature.

#	Code	Description
N/A	[8-06]	0~10°C (default: 5°C)

Weather dependent cooling allowance

ONLY applicable for EHYHBX. It is possible to disable weather dependent cooling, meaning the desired leaving water temperature in cooling operation does NOT depend on the outdoor ambient temperature and this regardless whether weather dependent is selected or NOT. Both for the main leaving water temperature zone as for the additional leaving water temperature zone, this can be set separately.

#	Code	Description
N/A	[1-04]	Weather dependent cooling of the main leaving water temperature zone is… ▪ 0 (disabled) ▪ 1 (enabled) (default)
N/A	[1-05]	Weather dependent cooling of the additional leaving water temperature zone is… ▪ 0 (disabled) ▪ 1 (enabled) (default)

Temperature ranges (room temperature)

ONLY applicable in room thermostat control. In order to save energy by preventing overheating or undercooling the room, you can limit the range of the room temperature, both for heating and/or cooling.

NOTICE

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

#	Code	Description
Room temp. range		
[A.3.2.1.2]	[3-06]	Maximum temp (heating) 18~30°C (default: 30°C)
[A.3.2.1.1]	[3-07]	Minimum temp (heating) 12~18°C (default: 12°C)
[A.3.2.1.4]	[3-08]	Maximum temp (cooling) 25~35°C (default: 35°C)

#	Code	Description
[A.3.2.1.3]	[3-09]	Minimum temp (cooling) 15~25°C (default: 15°C)

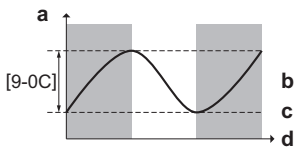
Room temperature step

ONLY applicable in room thermostat control and when the temperature is displayed in °C.

#	Code	Description
[A.3.2.4]	N/A	Room temp. step ▪ 1°C (default). The desired room temperature on the user interface is settable per 1°C. ▪ 0.5°C. The desired room temperature on the user interface is settable per 0.5°C. The actual room temperature is displayed with an accuracy of 0.1°C.

Room temperature hysteresis

ONLY applicable in case of room thermostat control. The hysteresis band around the desired room temperature is settable. Daikin advises NOT to change the room temperature hysteresis as it is set for an optimal use of the system.



a Room temperature
b Actual room temperature
c Desired room temperature
d Time

#	Code	Description
N/A	[9-0C]	1~6°C (default: 1°C)

Room temperature offset

ONLY applicable in case of room thermostat control. You can calibrate the (external) room temperature sensor. It is possible to give an offset to the room thermistor value measured by the user interface or by the external room sensor. The settings can be used to compensate for situations where the user interface or external room sensor CANNOT be installed on the ideal installation location (see installation manual and/or installer reference guide).

#	Code	Description
Room temp. offset: Offset on the actual room temperature measured on the user interface sensor.		
[A.3.2.2]	[2-0A]	−5~5°C, step 0.5°C (default: 0°C)
Ext. room sensor offset: ONLY applicable if the external room sensor option is installed and configured (see [C-08])		
[A.3.2.3]	[2-09]	−5~5°C, step 0.5°C (default: 0°C)

Room frost protection

ONLY applicable in case of room thermostat control. When the actual room temperature would drop below the room frost temperature, the unit will supply leaving water (in heating operation mode) to the heat emitters to heat up the room again.

NOTICE

Even if the room thermostat control is OFF on the user interface, room frost protection remains active.

#	Code	Description
N/A	[2-05]	Room antifrost temperature 4~16°C (default: 8°C)

Shut-off valve

ONLY applicable in case of 2 leaving water temperature zones.

The shut-off valve, which is in the main leaving water temperature zone, output is configurable.

INFORMATION

During defrost operation, the shut-off valve is ALWAYS opened.

Thermo On/OFF: the valve closes, depending on [F-0B] when there is no heating demand from the main zone. Enable this setting to:

- avoid leaving water supply to the heat emitters in the main LWT zone (through the mixing valve station) when there is request from the additional LWT zone.
- activate the On/OFF pump of the mixing valve station ONLY when there is demand.

#	Code	Description
[A.3.1.1.6.1]	[F-0B]	The shut-off valve: ▪ 0 (No)(default): is NOT influenced by heating or cooling demand. ▪ 1 (Yes): closes when there is NO heating or cooling demand.

INFORMATION

The setting [F-0B] is only valid when there is a thermostat or external room thermostat request setting (NOT in case of leaving water temperature setting).

Cooling: ONLY applicable for EHYHBX. The shut-off valve closes, depending on [F-0C] when the unit is running in cooling operation mode. Enable this setting to avoid cold leaving water through the heat emitter and the forming of condensation (e.g. under floor heating loops or radiators).

#	Code	Description
[A.3.1.1.6.2]	[F-0C]	The shut-off valve: ▪ 0 (No): is NOT influenced by changing the space operation mode to cooling. ▪ 1 (Yes)(default): closes when the space operation mode is cooling.

Operation range

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

Space heating OFF temp: When the averaged outdoor temperature raises above this value, space heating is turned OFF to avoid overheating.

#	Code	Description
[A.3.3.1]	[4-02]	14~35°C (default: 25°C) The same setting is also used in automatic heating/cooling changeover.

Space cooling On temp: ONLY applicable for EHYHBX. When the averaged outdoor temperature drops below this value, space cooling is turned OFF.

#	Code	Description
[A.3.3.2]	[F-01]	10~35°C (default: 20°C) The same setting is also used in automatic heating/cooling changeover.

Automatic heating/cooling changeover

The end-user sets the desired operation mode on the user interface: Heating, Cooling or Automatic (see also operation manual/user reference guide). When Automatic is selected, the changing of the operation mode is based on:

- Monthly allowance for heating and/or cooling: the end-user indicates on a monthly base which operation is allowed ([7.5]: both heating/cooling or heating ONLY or cooling ONLY). If the allowed operation mode changes to cooling ONLY, the operation mode changes to cooling. If the allowed operation mode changes to heating ONLY, the operation mode changes to heating.
- Averaged outdoor temperature: the operation mode will be changed in order to ALWAYS be within range determined by the space heating OFF temperature for heating and the space cooling On temperature for cooling. If the outdoor temperature drops, the operation mode switches to heating and vice versa. Note that the outdoor temperature will be time-averaged (see "8 Configuration" on page 46).

When the outdoor temperature is between the space cooling On and the space heating OFF temperature, the operation mode remains unchanged unless the system is configured in room thermostat control with one leaving water temperature zone and quick heat emitters. In that case, the operation mode will change based on:

- Measured indoor temperature: besides the heating and the cooling desired room temperature, the installer sets a hysteresis value (e.g. when in heating, this value is related to the desired cooling temperature) and an offset value (e.g. when in heating, this value is related to the desired heating temperature). Example: the desired room temperature in heating is 22°C and in cooling 24°C, with a hysteresis value of 1°C and an offset of 4°C. Changeover from heating to cooling will occur when the room temperature raises above the maximum of the desired cooling temperature added by the hysteresis value (thus 25°C) and the desired heating temperature added by the offset value (thus 26°C). Oppositely, changeover from cooling to heating will occur when the room temperature drops below the minimum of the desired heating temperature subtracted by the hysteresis value (thus 21°C) and the desired cooling temperature subtracted by the offset value (thus 20°C).
- Guard timer to prevent too frequent changing from heating to cooling and vice versa.

Changeover settings related to the outdoor temperature (ONLY when automatic is selected):

#	Code	Description
[A.3.3.1]	[4-02]	Space heating OFF temp. If the outdoor temperature raises above this value, the operation mode will change to cooling: ▪ EHYHBX: 14~35°C (default: 25°C)
[A.3.3.2]	[F-01]	Space cooling On temp. If the outdoor temperature drops below this value, the operation mode will change to heating: 10~35°C (default: 20°C)
Changeover settings related to the indoor temperature. ONLY applicable when Automatic is selected and the system is configured in room thermostat control with 1 leaving water temperature zone and quick heat emitters.		
N/A	[4-0B]	Hysteresis: Ensures that changeover is ONLY done when necessary. **Example:** the space operation mode ONLY changes from cooling to heating when the room temperature drops below the desired heating temperature subtracted by the hysteresis. 1~10°C, step 0.5°C (default: 1°C)
N/A	[4-0D]	Offset: Ensures that the active desired room temperature can be reached. Example: if heating to cooling changeover would occur below the desired room temperature in heating, this desired room temperature could never be reached. 1~10°C, step 0.5°C (default: 3°C)

Domestic hot water control: advanced

Preset tank temperatures

Only applicable when domestic hot water preparation is scheduled or scheduled + reheat.

You can define preset tank temperatures:

- storage economic
- storage comfort
- reheat

Preset values make it easy to use the same value in the schedule. If you later want to change the value, you only have to do it in 1 place (see also operation manual and/or user reference guide).

Storage comfort: When programming the schedule, you can make use of the tank temperatures set as preset values. The tank will then heat up until these setpoint temperatures have been reached. Additionally, a storage stop can be programmed. This feature puts a stop to tank heating even if the setpoint has NOT been reached. Only program a storage stop when tank heating is absolutely undesirable.

#	Code	Description
[7.4.3.1]	[6-0A]	30~[6-0E] (default: 60°C)

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

#	Code	Description
[7.4.3.2]	[6-0B]	30~50°C (default: 50°C) **Remark:** If [6-0E]<50°C then the maximum value will be [6-0E].

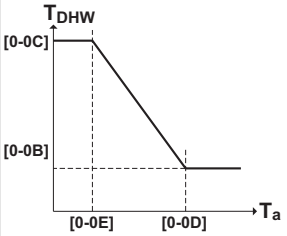
Reheat: The desired reheat tank temperature is used:

- in reheat mode or scheduled + reheat mode, as guaranteed minimum tank temperature: if the tank temperature drops below this value, the tank is heated up.
- during storage comfort, to prioritize the domestic hot water preparation. When the tank temperature raises above this value, domestic hot water preparation and space heating/cooling are executed sequentially.

#	Code	Description
[7.4.3.3]	[6-0C]	30~50°C (default: 50°C) **Remark:** If [6-0E]<50°C then the maximum value will be [6-0E].

Weather dependent

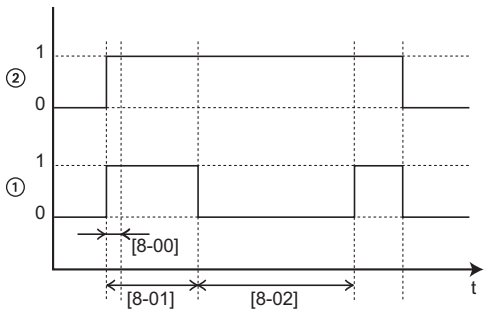
The weather dependent installer settings define the parameters for the weather dependent operation of the unit. When weather dependent operation is active the desired tank temperature is determined automatically depending on the averaged outdoor temperature: low outdoor temperatures will result in higher desired tank temperatures as the cold water tap is colder and vice versa. In case of scheduled or scheduled+reheat domestic hot water preparation, the storage comfort temperature is weather dependent (according to the weather dependent curve), the storage economic and reheat temperature are NOT weather dependent. In case of reheat only domestic hot water preparation, the desired tank temperature is weather dependent (according to the weather dependent curve). During weather dependent operation, the end-user cannot adjust the desired tank temperature on the user interface.

#	Code	Description
[A.4.6]	N/A	Desired temperature mode: ▪ Fixed (default): disabled. All desired tank temperature are NOT weather dependent. ▪ Weather dep.: enabled. In scheduled or scheduled+reheat mode, the storage comfort temperature is weather dependent. Storage economic and reheat temperatures are NOT weather dependent. In reheat mode, the desired tank temperature is weather dependent. **Note:** When the displayed tank temperature is weather dependent, it cannot be adjusted on the user interface.
[A.4.7]	[0-0E] [0-0D] [0-0C] [0-0B]	Weather-dependent curve  ▪ T_{DHW}: The desired tank temperature. ▪ T_a: The (averaged) outdoor ambient temperature ▪ [0-0E]: low outdoor ambient temperature. −20~5°C (default: −10°C) ▪ [0-0D]: high outdoor ambient temperature: 10~20°C (default: 15°C) ▪ [0-0C]: desired tank temperature when the outdoor temperature equals or drops below the low ambient temperature: 45~[6-0E] (default: 65°C) ▪ [0-0B]: desired tank temperature when the outdoor temperature equals or rises above the high ambient temperature: 35~[6-0E] (default: 55°C)

Timers for simultaneous request space and domestic hot water operation

#	Code	Description
N/A	[8-00]	Minimum running time for domestic hot water operation. During this time, space heating/cooling is NOT allowed, even when the target domestic hot water temperature has been reached. Range: 0~20 minutes (default: 5)
N/A	[8-01]	Maximum running time for domestic hot water operation. Domestic hot water heating stops even when the target domestic hot water temperature is NOT reached. ▪ When system layout = Room thermostat control: This preset value is only taken into account if there is a request for space heating or cooling. If there is NO request for space heating/cooling, the tank is heated until the setpoint has been reached. ▪ When system layout ≠ Room thermostat control: This preset value is always taken into account. Range: 5~95 minutes (default: 30)
N/A	[8-02]	Anti-recycling time. Minimum time between two cycles for domestic hot water. Range: 0~10 hours (default: 0.5) (step: 0.5 hour).

[8-02]: Anti-recycling time



1 Heat pump domestic water heating mode (1=active, 0=not active)
2 Hot water request for heat pump (1=request, 0=no request)
t Time

Disinfection

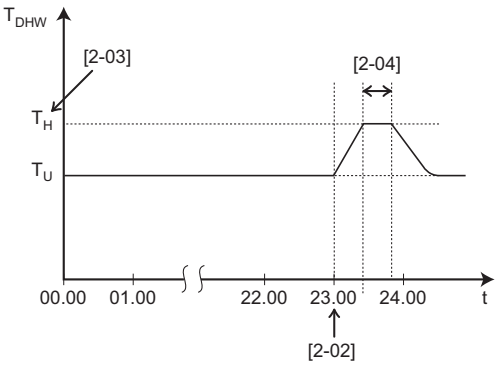
Applies only to installations with a domestic hot water tank.

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

CAUTION

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

#	Code	Description
[A.4.4.2]	[2-00]	Operation day: ▪ 0: Each day ▪ 1: Monday ▪ 2: Tuesday ▪ 3: Wednesday ▪ 4: Thursday ▪ 5: Friday (default) ▪ 6: Saturday ▪ 7: Sunday
[A.4.4.1]	[2-01]	Disinfection ▪ 0: No (default) ▪ 1: Yes
[A.4.4.3]	[2-02]	Start time: 00~23:00, step: 1:00 (default: 23:00).
[A.4.4.4]	[2-03]	Temperature target: 55~80°C (default: 70°C).
[A.4.4.5]	[2-04]	Duration Range: 5~60 minutes (default: 10 minutes)



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

WARNING

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

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

CAUTION

Be sure that the disinfection function start time [A.4.4.3] with defined duration [A.4.4.5] is NOT interrupted by possible domestic hot water demand.

INFORMATION

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

- When the Domestic hot water > Type > Reheat or Reheat + sched. is selected, it is recommended to program the start-up of the disinfection function at least 4 hours later than the last expected large hot water tapping. This start-up can be set by installer settings (disinfection function).
- When the Domestic hot water > Type > Scheduled only is selected, it is recommended to program a Storage eco 3 hours before the scheduled start-up of the disinfection function to preheat the tank.

INFORMATION

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

Heat source settings

Auto emergency

When the heat pump fails to operate, the gas boiler can serve as an emergency back-up heater and either automatically or non-automatically take over the entire heat load. When auto emergency is activated and a heat pump failure occurs, the boiler will automatically take over the heat load. When a heat pump failure occurs and auto emergency is NOT activated, the domestic hot water and space heating operations will stop and need to be recovered manually. The user interface will then ask the user to confirm whether the boiler can take over the entire heat load or not.

#	Code	Description
N/A	[4-06]	If you want the gas boiler to take over the entire heat load in case of a heat pump failure, this setting MUST be set to 1 (default: 0).
[A.5.2.1]	N/A	Defines whether in an emergency situation the gas boiler is allowed to automatically take over the entire heat load or whether manual confirmation is required. ▪ 0: Manual (default) ▪ 1: Automatic

Equilibrium temperature

Based on the ambient temperature, energy prices and the required leaving water temperature, the user interface is able to calculate which heat source can deliver the required heating capacity most efficiently. However, to maximise the energy output of the heat pump, it is possible to prevent the gas boiler from operating when the ambient temperature exceeds a certain point (e.g. 5°C). This can be useful to avoid too much gas boiler operation in case of incorrect settings. When an equilibrium temperature is set, domestic hot water operation is NEVER prohibited.

#	Code	Description
N/A	[5-00]	Defines if gas boiler operation is allowed when the ambient temperature exceeds the set equilibrium temperature during space heating operation. ▪ 0: allowed (default). ▪ 1: NOT allowed.

#	Code	Description
N/A	[5-01]	Equilibrium temp. When the ambient temperature is higher than this temperature, the gas boiler is NOT allowed to work. Only applicable if [5-00] is set to 1. Range: –15~35°C (default: 5°C)

System settings

Priorities

#	Code	Description
N/A	[C-00]	If a solar kit is installed, what has priority to heat up the tank? ▪ 0: Solar kit (default) ▪ 1: Heat pump

Auto-restart

When power returns after a power supply failure, the auto restart function reapplies the remote controller settings at the time of the power failure. Therefore, Daikin recommends to always enable the function.

If the preferential kWh rate power supply is of the type that power supply is interrupted, always enable the auto restart function. Continuous indoor unit control can be guaranteed independent of the preferential kWh rate power supply status, by connecting the indoor unit to a normal kWh rate power supply.

#	Code	Description
[A.6.1]	[3-00]	Auto restart function: ▪ 0: Disabled ▪ 1: Enabled (default)

Preferential kWh rate power supply

#	Code	Description
[A.2.1.6]	[D-01]	Connection to a preferential kWh rate power supply: ▪ 0 (default): The outdoor unit is connected to a normal power supply. ▪ 1: The outdoor unit is connected to a preferential kWh rate power supply. When the preferential kWh rate signal is sent by the electricity company, the contact will open and the unit will go in forced off mode. When the signal is released again, the voltage-free contact will close and the unit will restart operation. Therefore, always enable the auto restart function. ▪ 2: The outdoor unit is connected to a preferential kWh rate power supply. When the preferential kWh rate signal is sent by the electricity company, the contact will close and the unit will go in forced off mode. When the signal is released again, the voltage-free contact will open and the unit will restart operation. Therefore, always enable the auto restart function.

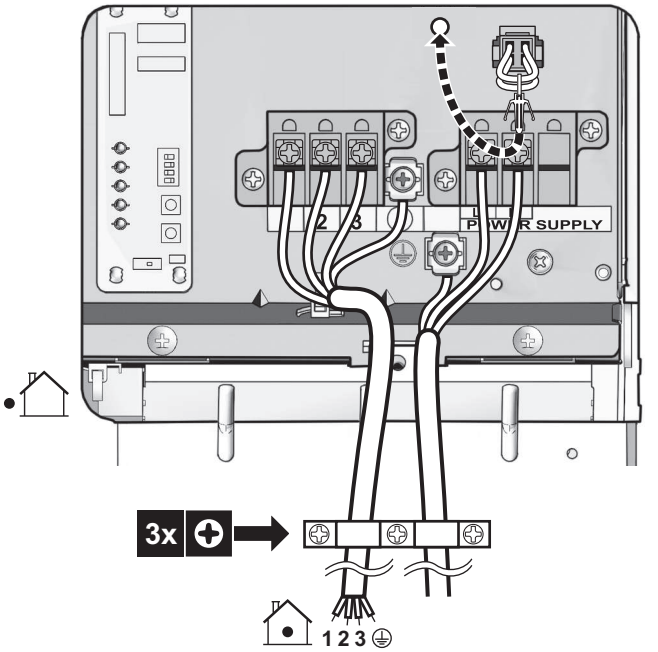
Power saving function

Defines whether the outdoor unit power supply can be interrupted (internally by indoor unit control) during stand-still conditions (no space heating/cooling by the heat pump). The final decision to allow power interruption of the outdoor unit during standstill depends on the ambient temperature, compressor conditions and minimum internal timers.

To enable the power saving function setting, [E-08] needs to be enabled on the user interface in combination with the removal of the power saving connector at the outdoor unit.

NOTICE

The power saving connector at the outdoor unit shall only be removed when the main power supply to the application is switched OFF.



#	Code	Description
N/A	[E-08]	Power saving function for outdoor unit: ▪ 0: Disabled ▪ 1 (default): Enabled

Power consumption control

Pwr consumpt. control

#	Code	Description
[A.6.3.1]	[4-08]	Mode: ▪ 0 (No limitation)(default): Disabled. ▪ 1 (Continuous): Enabled: You can set one power limitation value (in A or kW) to which the system power consumption will be limited for all the time. ▪ 2 (Digital inputs): Enabled: You can set up to four different power limitation values (in A or kW) to which the system power consumption will be limited when the corresponding digital input asks.

#	Code	Description
[A.6.3.2]	[4-09]	Type: ▪ 0 (Current): The limitation values are set in A. ▪ 1 (Power)(default): The limitation values are set in kW.
[A.6.3.3]	[5-05]	Value: Only applicable in case of full time power limitation mode. 0~50 A, step 1 A (default: 50 A)
[A.6.3.4]	[5-09]	Value: Only applicable in case of full time power limitation mode. 0~20 kW, step 0.5 kW (default: 20 kW)
Amp. limits for DI: Only applicable in case of power limitation mode based on digital inputs and based on current values.		
[A.6.3.5.1]	[5-05]	Limit DI1 0~50 A, step 1 A (default: 50 A)
[A.6.3.5.2]	[5-06]	Limit DI2 0~50 A, step 1 A (default: 50 A)
[A.6.3.5.3]	[5-07]	Limit DI3 0~50 A, step 1 A (default: 50 A)
[A.6.3.5.4]	[5-08]	Limit DI4 0~50 A, step 1 A (default: 50 A)
kW limits for DI: Only applicable in case of power limitation mode based on digital inputs and based on power values.		
[A.6.3.6.1]	[5-09]	Limit DI1 0~20 kW, step 0.5 kW (default: 20 kW)
[A.6.3.6.2]	[5-0A]	Limit DI2 0~20 kW, step 0.5 kW (default: 20 kW)
[A.6.3.6.3]	[5-0B]	Limit DI3 0~20 kW, step 0.5 kW (default: 20 kW)
[A.6.3.6.4]	[5-0C]	Limit DI4 0~20 kW, step 0.5 kW (default: 20 kW)

Average timer

The average timer corrects the influence of ambient temperature variations. The weather-dependent set point calculation is done on the average outdoor temperature.

The outdoor temperature is averaged over the selected time period.

#	Code	Description
[A.6.4]	[1-0A]	Outdoor average timer: ▪ No averaging ▪ 12 hours (default) ▪ 24 hours ▪ 48 hours ▪ 72 hours

INFORMATION

If the power saving function is activated (see [E-08]), the average outdoor temperature calculation is only possible in case the external outdoor temperature sensor is used.

Offset temperature external outdoor ambient sensor

Only applicable in case of an external outdoor ambient sensor is installed and configured.

You can calibrate the external outdoor ambient temperature sensor. It is possible to give an offset to the thermistor value. The setting can be used to compensate for situations where the external outdoor ambient sensor cannot be installed on the ideal installation location (see installation).

#	Code	Description
[A.6.5]	[2-0B]	−5~5°C, step 0.5°C (default: 0°C)

Forced defrost

You can manually start a defrost operation.

The decision to execute the manual defrost operation is made by the outdoor unit and depends on ambient and heat exchanger conditions. When the outdoor unit accepted the forced defrost operation, ♨ will be displayed on the user interface. If ♨ is NOT displayed within 6 minutes after forced defrost operation was enabled, the outdoor unit ignored the forced defrost request.

#	Code	Description
[A.6.6]	N/A	Do you want to start a defrost operation? ▪ OK ▪ Cancel

Pump operation

The pump operation field setting apply to the pump operation logic only when [F-0D]=1.

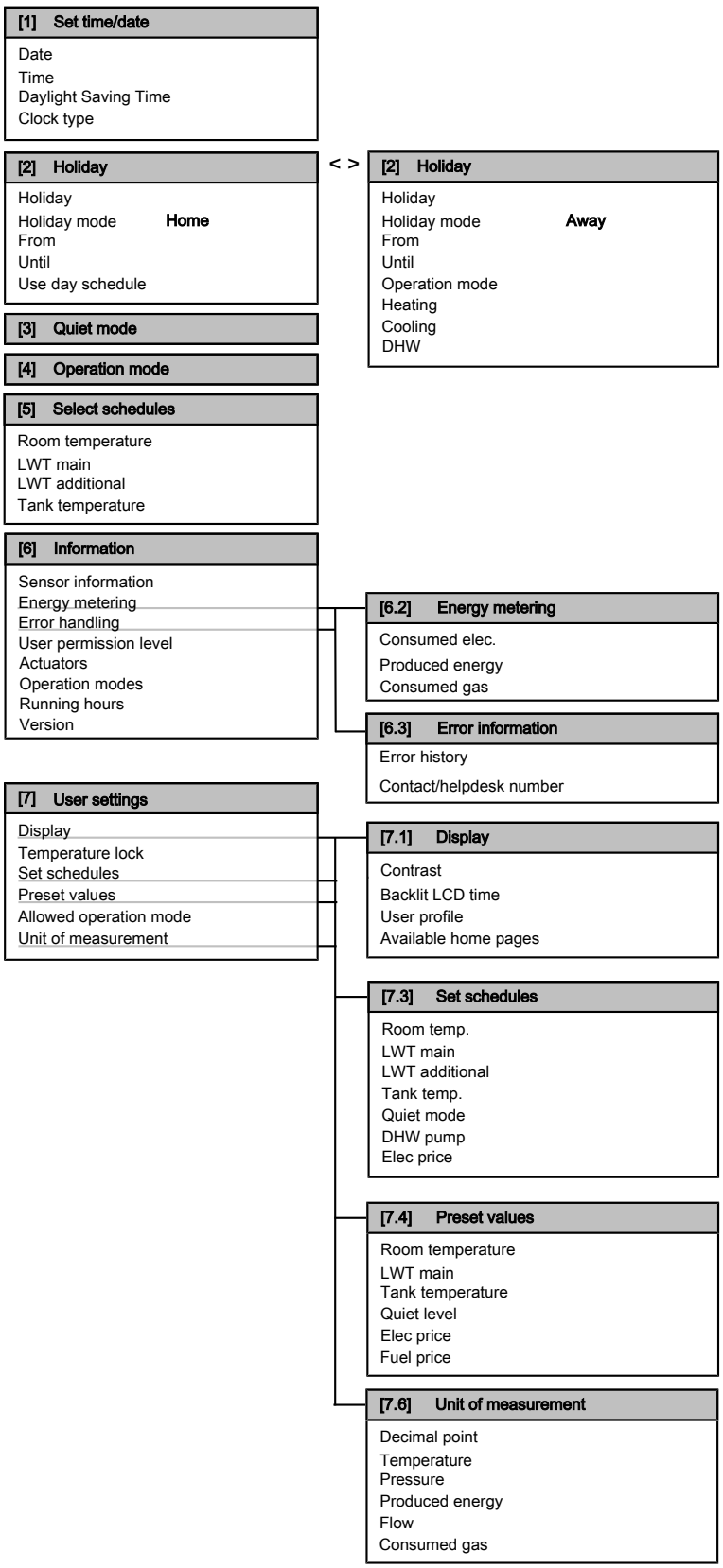
When the pump operation function is disabled the pump will stop if the outdoor temperature is higher than the value set by [4-02] or if the outdoor temperature drops below the value set by [F-01]. When the pump operation is enabled, the pump operation is possible at all outdoor temperatures.

#	Code	Description
N/A	[F-00]	Pump operation: ▪ 0 (default): Disabled if outdoor temperature is higher than [4-02] or lower than [F-01] depending on heating operation mode. ▪ 1: Possible at all outdoor temperatures.

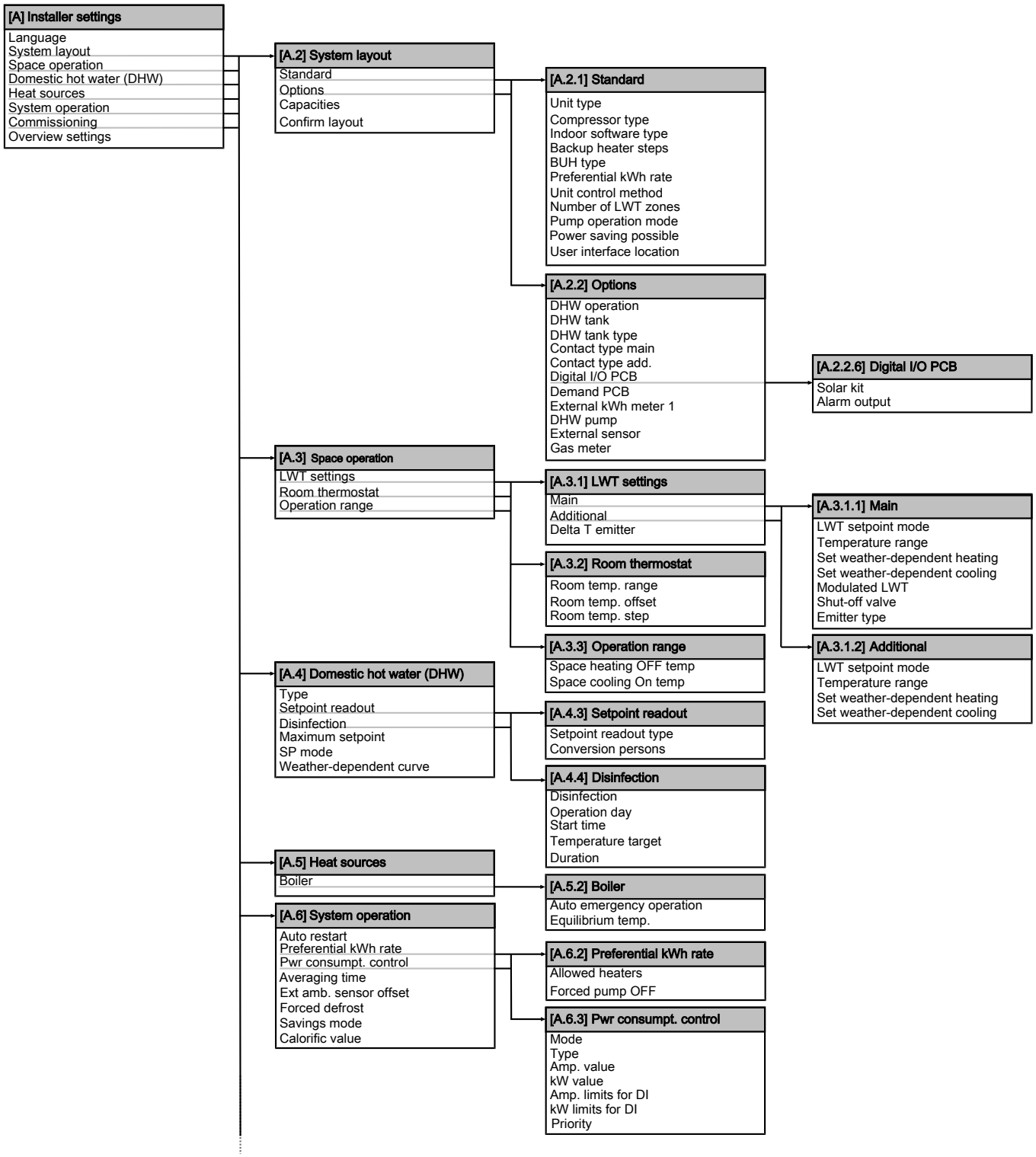
Pump operation during flow abnormality [F-09] defines whether the pump stops at flow abnormality or allow to continue operation when flow abnormality occurs. This functionality is only valid in specific conditions where it is preferable to keep the pump active when T_a <4°C (pump will be activated for 10 minutes and deactivated after 10 minutes). Daikin shall NOT be held liable for any damage resulting this functionality.

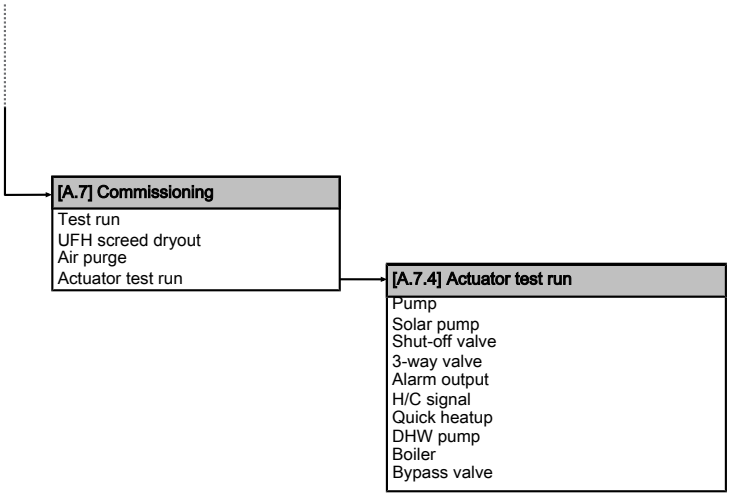
#	Code	Description
N/A	[F-09]	Pump continue operation when flow abnormality: ▪ 0 (default): Pump will be deactivated. ▪ 1: Pump will be activated when T_a <4°C (10 minutes ON – 10 minutes OFF)

8.1.4 Menu structure: Overview



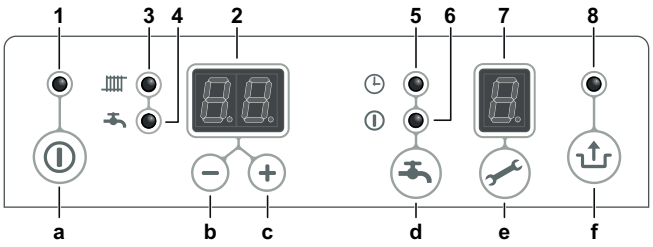
8.1.5 Menu structure: Overview installer settings




[A.7] Commissioning
Test run
UFH screed dryout
Air purge
Actuator test run
[A.7.4] Actuator test run
Pump
Solar pump
Shut-off valve
3-way valve
Alarm output
H/C signal
Quick heatup
DHW pump
Boiler
Bypass valve

8.2 Gas boiler

8.2.1 Overview: Configuration



Read out

1 On/off
2 Main display
3 Space heating operation
4 Domestic hot water operation
5 Domestic hot water comfort function eco
6 Domestic hot water comfort function on (continuous)
7 Service display
8 Flashes to indicate a fault

Operation

a On/off button
b − button
c + button
d Domestic hot water function off/eco/on
e Service button
f Reset button

8.2.2 Basic configuration

To turn on/off the gas boiler

1 Push the ⏻ button.

Result: The green LED above the ⏻ button will light up when the boiler is ON.

When the gas boiler is OFF, - is displayed on the service display to indicate that the power is ON. In this mode, the pressure in the space heating installation will also be displayed on the main display (bar).

Domestic hot water comfort function

This function can be operated with the domestic hot water comfort key (🚿). The following functions are available:

- On: The ⏻ LED lights up. The domestic hot water comfort function is switched on. The heat exchanger will be kept on temperature to assure instant delivery of hot water.
- Eco: The 🕒 LED lights up. The domestic hot water comfort function is self-learning. The appliance will learn to adapt to the pattern of use of hot tap water. For example: the temperature of the heat exchanger will NOT be maintained during the night or in case of long absence.
- Off: Both LED's are OFF. The temperature of the heat exchanger is NOT maintained. For example: It will take a while to deliver hot water to the hot water taps. If there is no need for immediate hot water delivery, the domestic hot water comfort function can be turned off.

To reset the gas boiler

Resetting is only possible when an error occurs.

Prerequisite: Flashing LED above the ↥ button and an error code on the main display.

Prerequisite: Check the meaning of the error code (see "Error codes of the gas boiler" on page 86) and resolve the cause.

1 Press ↥ to restart the gas boiler.

Maximum space heating supply temperature

See the user reference guide of the indoor unit for more details.

Domestic hot water temperature

See the user reference guide of the indoor unit for more details.

Keep hot function

The reversible heat pump features a keep hot function that keeps the heat exchanger hot continuously to prevent sweat from occurring in the gas boiler switch box.

In case of heating only models, this function can be deactivated through the parameter settings of the gas boiler.

INFORMATION

Do NOT deactivate the keep hot function if the gas boiler is connected to a reversible indoor unit. It is recommended to always deactivate the keep hot function if the gas boiler is connected to a heating only indoor unit.

Frost protection function

The boiler is equipped with an internal frost protection function that automatically operates when necessary, even if the boiler is turned off. If the heat exchanger temperature drops too low, the burner will switch on until the temperature is sufficiently high again. When frost protection is active, 7 is displayed on the service display.

To set the parameters via the service code

The gas boiler is factory set in accordance with the default settings. Take into account the remarks in the table below when changing the parameters.

1 Press simultaneously on 🔧 and ↥ until 0 appears on the main and the service display.
2 Use the + and − buttons to set 15 (service code) on the main display.
3 Press the 🔧 button to set the parameter on the service display.
4 Use the + and − buttons to set the parameter to the desired value on the service display.
5 When all settings are done, press ↥ until P appears on the service display.

Result: The gas boiler has now been reprogrammed.

INFORMATION

- Press the ⏻ button to exit the menu without storing the parameter changes.
- Press the 🔧 button to load the default settings of the gas boiler.

Parameters on the gas boiler

Parameter	Setting	Range	Default settings	Description
0	Service code	—	—	To access the installer settings, enter the service code (=15)
1	Installation type	0~3	0	▪ 0=Combi ▪ 1=Heating only + external domestic hot water tank ▪ 2=Domestic hot water only (no heating system required) ▪ 3=Heating only It is recommended not to modify this setting.
2	Space heating pump continuous	0~3	0	▪ 0=Post purge period only ▪ 1=Pump continuously active ▪ 2=Pump continuously active with MIT switch ▪ 3=Pump on with external switch This setting has no effect.
3	Maximum space heating power set	c~85%	70%	Maximum power in heating. This is a percentage of the maximum set in parameter H. We strongly recommend not modifying this setting.
4	Maximum domestic hot water power set	d~100%	100%	Maximum power in instant domestic hot water. This is a percentage of the maximum set in parameter H. Because of the 2-digit display, the highest displayable value is 99. It is however possible to set this parameter to 100% (default setting). We strongly recommend not modifying this setting.
5	Minimum supply temperature of the heat curve	10°C~25°C	15°C	Do NOT modify this setting on the boiler. Use the user interface instead.
5.	Maximum supply temperature of the heat curve	30°C~90°C	90°C	Do NOT modify this setting on the boiler. Use the user interface instead.
6	Minimum outside temperature of the heat curve	–9°C~10°C	–7°C	Do NOT modify this setting on the boiler. Use the user interface instead.
7	Maximum outside temperature of the heat curve	15°C~30°C	25°C	Do NOT modify this setting on the boiler. Use the user interface instead.
8	Space heating pump post purge period	0~15 min	1 min	Changing this setting has no effect on the operation of the unit.
9	Space heating pump post purge period after domestic hot water operation	0~15 min	1 min	Changing this setting has no effect on the operation of the unit.
A	Position 3-way valve or electric valve	0~3	0	▪ 0=Powered during space heating ▪ 1=Powered during domestic hot water ▪ 2=Powered during every heat demand (space heating, domestic hot water, eco/comfort) ▪ 3=Zone regulation
b	Booster	0~1	0	Changing this setting has no effect on the operation of the unit.
C	Step modulation	0~1	1	▪ 0=OFF during space heating operation ▪ 1=ON during space heating operation It is recommended not to modify this setting.

Parameter	Setting	Range	Default settings	Description
c	Minimal space heating rpm	23%~50%	23%	Adjustment range 23~50% (40= propane). It is recommended not to modify this setting in case of natural gas.
d	Minimal domestic hot water rpm	23%~50%	23%	Adjustment range 23~50% (40= propane). It is recommended not to modify this setting in case of natural gas.
E	Minimal supply temperature during OT demand. (OpenTherm thermostat)	10°C~16°C	40°C	Changing this setting has no effect on the operation of the unit.
E.	Reversible setting	0~1	1	This setting activates the keep hot function of the gas boiler. It is only used with reversible heat pump models and should NEVER be deactivated. It can be deactivated for heating only models (set to 0). ▪ 0=disabled ▪ 1=enabled
F	Start rpm space heating	50%~99%	50%	This is the fan rpm before heating ignition. It is recommended not to modify this setting.
F.	Start rpm domestic hot water	50%~99%	50%	This is the fan rpm before instant domestic hot water ignition. It is recommended not to modify this setting.
h	Maximum fan rpm	45~50	48	Use this parameter to set the maximum fan rpm. It is recommended not to modify this setting.
n	Set point space heating (flow temperature) during heating external domestic hot water tank	60°C~90°C	85°C	Do NOT modify this setting on the boiler. Use the user interface instead.
n.	Comfort temperature	0°C / 40°C~65°C	0°C	Temperature used for eco/comfort function. When the value is 0°C, the eco/comfort temperature is the same as the domestic hot water setpoint. Otherwise, the eco/comfort temperature is between 40°C and 65°C.
0.	Waiting time after a space heating demand from a thermostat.	0 min~15 min	0 min	Changing this setting has no effect on the operation of the unit.
o	Waiting time after a domestic hot water demand before a space heating demand is answered.	0 min~15 min	0 min	Amount of time the boiler waits before answering a space heating demand after a domestic hot water demand.
o.	Number of eco days.	1~10	3	Number of eco days.
P	Anti-cycling period during space heating operation	0 min~15 min	5 min	Minimal switch-off time in space heating operation. It is recommended not to modify this setting.

Maximum space heating power setting

The maximum space heating power setting (3) is factory set to 70%. If more or less power is required, you can change the fan rpm. The table below shows the relationship between the fan rpm and the appliance power. It is strongly recommended NOT to modify this setting.

Desired power (kW)	Setting on service display (% of max. rpm)
26.2	83
25.3	80
22.0	70
19.0	60
15.9	50

Desired power (kW)	Setting on service display (% of max. rpm)
12.7	40
9.6	30
7.0	25

Note that for the gas boiler the power during burning is increased slowly and is reduced as soon as the supply temperature is reached.

To change to a different type of gas

CAUTION

Work on gas carrying parts may ONLY be carried out by a qualified competent person. ALWAYS comply with local and national regulations. The gas valve is sealed. In Belgium it is NOT allowed to change the gas type and/or break the seal. Contact your local dealer.

If a different type of gas is connected to the appliance than that for which the appliance has been set by the manufacturer, the gas metering MUST be replaced. Conversion sets for other types of gas are available to order. See "5.2.3 List of options for gas boiler" on page 12.

1 Switch the boiler off and isolate the boiler from the mains power.

2 Close the gas tap.

3 Remove the front panel from the appliance.

4 Unscrew the coupling (a) above the gas valve and twist the gas mixing tube towards the rear (b).

5 Replace the O-ring (c) and the gas restriction (d) with the rings from the conversion set.

6 Reassemble in reverse sequence.

7 Open the gas tap.

8 Check the gas connections before the gas valve for gastightness.

9 Switch on the mains power.

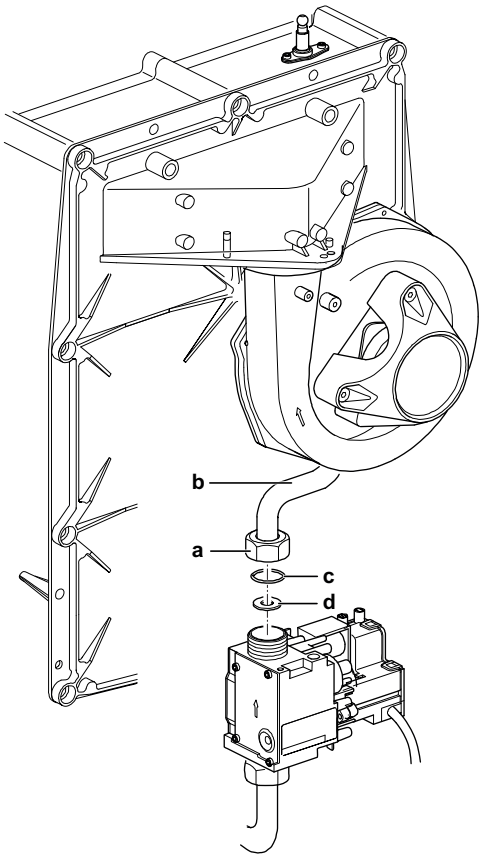
10 Check the gas connections after the gas valve for gastightness (during operation).

11 Now check the setting of the CO_2 percentage at high setting (H in display) and low setting (L in display).

12 Put a sticker indicating the new gas type on the bottom of the gas boiler, next to the nameplate.

13 Put a sticker indicating the new gas type next to the gas valve, over the existing one.

14 Put the front panel back in its place.



a Coupling
b Gas mixing tube
c O-ring
d Gas metering ring

INFORMATION

The gas boiler is configured for operation with gas type G20 (20 mbar). However, if the gas type present is G25 (25 mbar), the gas boiler can still be operated without modification.

About the carbon dioxide setting

The CO_2 setting has been set in the factory and in principle requires no adjustments. The setting can be checked by measuring the CO_2 percentage in the combustion gases. In case of possible disturbance of the adjustment, replacement of the gas valve or conversion to another gas type the adjustment must be checked and if necessary set according to the instructions below.

Always check the CO_2 percentage when the cover is open.

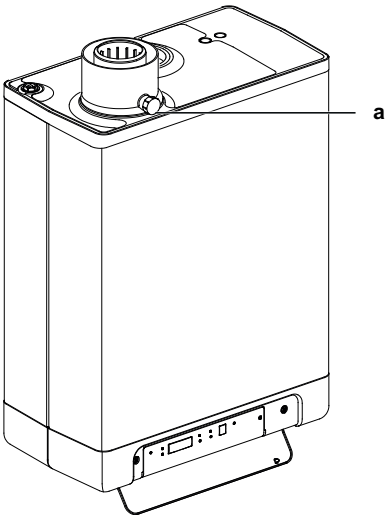
To check the carbon dioxide setting

1 Switch off the heat pump module with the user interface.

2 Switch off the gas boiler with the ⏻ button. _ appears on the service display.

3 Remove the front panel from the gas boiler.

4 Remove the sampling point (a) and insert a suitable flue gas analyser probe.



INFORMATION

Make sure the start-up procedure of the analyser is completed before inserting the probe into the sampling point.

INFORMATION

Allow the gas boiler to operate steadily. Connecting the measuring probe before stable operation can give incorrect readings. It is recommended to wait at least 30 minutes.

5 Switch on the gas boiler with the ⏻ button and create a space heating demand.

6 Select High setting by simultaneously pressing 🔧 and + twice. Capital H will appear on the service display. The user interface will display Busy. Do NOT test when lowercase h is displayed. If this is the case, press 🔧 and + again.

7 Allow readings to stabilise. Wait for at least 3 minutes and compare the CO_2 percentage with the values in the table below.

CO_2 value at maximum power	Natural gas G20	Natural gas G25 (in Belgium)	Propane P G31 (30/50 mbar)	Propane P G31 (37 mbar)
Maximum value	9.6	8.3	10.8	
Minimum value	8.6	7.3	9.8	

8 Note down the CO_2 percentage at maximum power. This is important with regard to the next steps.

CAUTION

It is NOT possible to adjust the CO_2 percentage when test program H is running. When the CO_2 percentage deviates from the values in the table above, please contact your local service department.

9 Select Low setting by simultaneously pressing 🔧 and − buttons once. L will appear on the service display. The user interface will display Busy.

10 Allow readings to stabilise. Wait for at least 3 minutes and compare the CO_2 percentage with the values in the table below.

CO_2 value at minimum power	Natural gas G20	Natural gas G25 (in Belgium)	Propane P G31 (30/50 mbar)	Propane P G31 (37 mbar)
Maximum value	(a)			
Minimum value	8.4	7.4	9.4	9.4

(a) CO_2 value at maximum power recorded at High setting.

11 If the CO_2 percentage at maximum and minimum power is within the range expressed in the tables above, the CO_2 setting of the boiler is correct. If NOT, adjust the CO_2 setting according to the instructions in the chapter below.

12 Switch off the appliance by pressing the ⏻ button and put the sampling point back in its place. Make sure it is gastight.

13 Put the front panel back in its place.

CAUTION

Work on gas carrying parts may only be carried out by a qualified competent person.

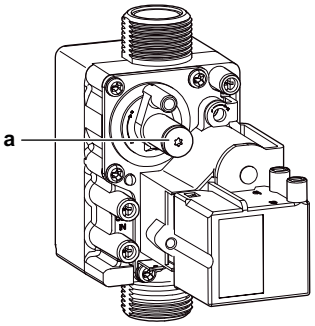
To adjust the carbon dioxide setting

INFORMATION

Only adjust the CO_2 setting when you have checked it first and are sure adjustment is necessary. No adjustment to the gas valve should be made without prior permission of your local Daikin dealer. In Belgium it is NOT allowed to adjust the gas valve and/or break its seal. Contact your dealer.

1 Remove the cap that covers the adjustment screw. In the illustration, the cover cap is already removed.

2 Turn the screw (a) to increase (clockwise) or decrease (counterclockwise) the CO_2 percentage. See the table below for the desired value.



a Adjusting screw with cover

Measured value at maximum power	Adjustment values CO_2 (%) at minimum power (front cover opened)	
	Natural gas 2H (G20, 20 mbar)	Propane 3P (G31, 30/50/37 mbar)
10.8	—	10.5±0.1
10.6		10.3±0.1
10.4		10.1±0.1
10.2		9.9±0.1
10.0		9.8±0.1
9.8		9.6±0.1
9.6	9.0±0.1	—
9.4	8.9±0.1	
9.2	8.8±0.1	
9.0	8.7±0.1	
8.8	8.6±0.1	
8.6	8.5±0.1	

3 After measuring the CO_2 percentage and adjusting the setting, put the cover cap and the sampling point back in their place. Make sure they are gastight.

4 Select High setting by simultaneously pressing 🔧 and + twice. Capital H will appear on the service display.

5 Measure the CO_2 percentage. If the CO_2 percentage still deviates from the values in the table indicating the CO_2 percentage at maximum power, contact your local dealer.

6 Press + and − simultaneously to exit the test program.

7 Put the front panel back in its place.

9 Operation

9.1 Overview: Operation

The gas boiler is a modulating, high-efficiency boiler. This means that the power is adjusted in line with the desired heat requirement. The aluminium heat exchanger has 2 separate copper circuits. As a result of the separately constructed circuits for space heating and domestic hot water, the heating and the hot water supply can operate independently, but not simultaneously.

The gas boiler has an electronic boiler controller which does the following when heating or hot water supply is required:

- starting the fan,
- opening the gas valve,
- igniting the burner,
- constantly monitoring and controlling the flame.

It is possible to use the boiler's domestic hot water circuit without connecting and filling the central heating system.

9.2 Heating

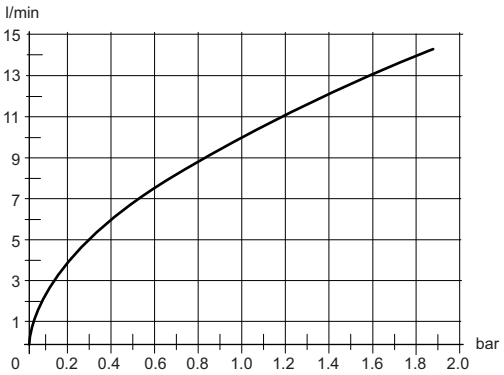
Heating is controlled by the indoor unit. The boiler will start-up the heating process when there is a request from the indoor unit.

9.3 Domestic hot water

Because supplying hot water has priority over heating, the boiler will switch to domestic hot water mode whenever there is a hot water demand. When a simultaneous heating demand occurs:

- during heat pump only operation, the heat pump will provide heat and produce domestic hot water. The boiler will be bypassed.
- during boiler only operation, and with the boiler in domestic hot water mode, space heating will NOT be provided, but domestic hot water will.
- during simultaneous heat pump and boiler operation, the heat pump will provide heat and the boiler will be bypassed and switch to domestic hot water mode and provide domestic hot water.

9.3.1 Flow resistance graph for appliance domestic hot water circuit



The minimum flow for domestic hot water operation is 2 l/min. The minimum pressure is 0.1 bar.

9.4 Operation modes

The following codes on the service display indicate the following operating modes.

- Off

The gas boiler is out of operation but is supplied with electric power. There will be no response on space heating and/or domestic hot water demands. Frost protection is active. This means that the exchanger is heated up if the water temperature in the gas boiler is too low. If applicable, the keep hot function will also be active.

If frost protection or keep hot function is activated, 7 will be displayed (heating the exchanger). In this mode, the pressure (bar) in the space heating installation can be read on the main display.

Waiting mode (blank service display)

The LED at the ① button is lit and possibly also one of the LEDs for the domestic hot water comfort function. The gas boiler is waiting for a space heating and/or domestic hot water demand.

0 Pump overrun of space heating

After each space heating operation, the pump continues to run. This function is controlled by the indoor unit.

H Boiler shutdown when the required temperature is reached

The boiler controller can temporarily stop the requested space heating demand. The burner will stop. The shutdown occurs because the requested temperature is reached. When the temperature drops too fast and the anti-cycle time has passed, the shutdown will be cancelled.

2 Self-test

The sensors check the boiler controller. During the check-up, the boiler controller does NOT perform any other tasks.

3 Ventilation

When the appliance is started, the fan goes to starting speed. When the starting speed is reached, the burner is lit. The code will also be visible when post-ventilation is taking place after the burner has stopped.

4 Ignition

When the fan has reached its starting speed, the burner is ignited by means of electric sparks. During ignition the code will be visible on the service display. If the burner does NOT ignite, a new ignition attempt occurs after 15 seconds. If after 4 ignition attempts the burner is NOT yet burning, the boiler will go into fault mode.

6 Domestic hot water operation

The domestic hot water supply has priority over space heating performed by the gas boiler. If the flow sensor detects a domestic hot water demand of more than 2 l/min, space heating by the gas boiler will be interrupted. After the fan has reached speed code and ignition is done, the boiler controller goes into domestic hot water mode.

During the domestic hot water operation, the fan speed and hence the appliance power are controlled by the gas boiler controller so that the domestic hot water temperature reaches the domestic hot water temperature setting.

The domestic hot water supply temperature must be set on the user interface of the hybrid module. See the user reference guide for more details.

7 Domestic hot water comfort function/Frost protection/Keep hot function

7 appears on the display when either the domestic hot water comfort function, the frost protection function or the keep hot function is active.

9 space heating operation

When a space heating request is received from the indoor module, the fan is started, followed by the ignition, and the space heating operation mode. During the space heating operation, the fan speed and hence the appliance power are controlled by the gas boiler controller so that the space heating water temperature reaches the desired space heating supply temperature. During the space heating operation, the requested space heating supply temperature is indicated on the operating panel.

The space heating supply temperature must be set on the user interface of the hybrid module. See the user reference guide for more details.

10 Commissioning

Especially for UK:

At the time of commissioning, complete all relevant sections of the Benchmark Checklist on the backpages of this document.

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.
- Before startup, the installation must be powered for at least 2 hours to allow the crankcase heater to operate.

10.1 Overview: Commissioning

Commissioning typically consists of the following stages:

1 Checking the "Checklist before test run".
2 Performing an air purge.
3 Performing a test run for the system.
4 If necessary, performing a test run for one or more actuators.
5 If necessary, performing an underfloor heating screed dryout.
6 Performing an air purge on the gas supply.
7 Performing a test run on the gas boiler.

10.2 Checklist before test run

Do NOT operate the system before the following checks are OK:

☐	The **indoor unit** is properly mounted.
☐	The **outdoor unit** is properly mounted.
☐	The **gas boiler** is properly mounted.
☐	The following **field wiring** has been carried out according to this document and the applicable legislation: ▪ Between the local supply panel and the indoor unit ▪ Between the indoor unit and the valves (if applicable) ▪ Between the indoor unit and the room thermostat (if applicable) ▪ Between the indoor unit and the domestic hot water tank (if applicable) ▪ Between the gas boiler and the local supply panel (only applicable in case of hybrid system)
☐	The **communication cable** between the gas boiler and the indoor unit is properly mounted.
☐	The system is properly **earthed** and the earth terminals are tightened.
☐	The **fuses** or locally installed protection devices are installed according to this document, and have not been bypassed.
☐	The **power supply voltage** matches the voltage on the identification label of the unit.
☐	There are NO **loose connections** or damaged electrical components in the switch box.
☐	There are NO **damaged components** or **squeezed pipes** on the inside of the indoor and outdoor units.
☐	There are NO **refrigerant leaks**.
☐	The **refrigerant pipes** (gas and liquid) are thermally insulated.
☐	The correct pipe size is installed and the **pipes** are properly insulated.
☐	There is NO **water leak** inside the indoor unit.
☐	There is NO **water leak** inside the gas boiler.
☐	There is NO **water leak** in the connection between the gas boiler and the indoor unit.
☐	The **shut-off valves** are properly installed and fully open (field supply).
☐	The **stop valves** (gas and liquid) on the outdoor unit are fully open.
☐	The **air purge** valve is open (at least 2 turns).
☐	The **pressure relief valve** purges water when opened.
☐	The **gas boiler** is switched ON.
☐	Setting E. is correctly set on the gas boiler. ▪ 0=for EHYHBH05 + EHYHBH08 ▪ 1=for EHYHBX08

NOTICE

Before starting up the system, the unit MUST be energised for at least 2 hours. The crankcase heater needs to heat up the compressor oil to avoid oil shortage and compressor breakdown during startup.

NOTICE

NEVER operate the unit without thermistors, burning of the compressor may result.

NOTICE

Do NOT operate the unit until the refrigerant piping is complete (when operated this way, the compressor will break).

10.3 Air purge function

When commissioning and installing the unit, it is very important to remove all air in the water circuit. When the air purge function is running, the pump operates without actual operation of the unit and the removal of air in the water circuit will start.

There are 2 modes for purging air:

- Manually: the unit will operate with a fixed pump speed (high or low), which can be set. The position of the 3-way valve for the optional domestic hot water tank as well as that of the gas boiler's bypass valve can also be set. To ensure all air will be removed, however, it is recommended NOT to adjust their custom position.
- Automatic: the pump alternates between high speed, low speed and standstill position. The position of the 3-way valve automatically alternates between that for space heating and that for domestic hot water heating. The gas boiler is continuously bypassed. To remove air from the gas boiler, perform a manual air purge on the gas boiler.

Air purge prerequisites

1 Install air purges on each part of the installation where the pipe work goes down. (For example on a tank with connections on top.)
2 Fill the circuit to ±2 bar.
3 Purge all radiators and all other air purges installed on the circuit.
4 Repeat steps 2 and 3 until purging the radiators and the other points does NOT longer lead to a pressure drop.
5 Make sure the user interface shows the home screens and that the space heating and domestic hot water demands are turned off.

When an air bubble blocks the pump and there is no flow, a 7H error can occur. In this case, stop the air purge function and restart the operation. This will cause the bubble to leave the pump. Make sure the pressure in the circuit is ±2 bar and refill if necessary.

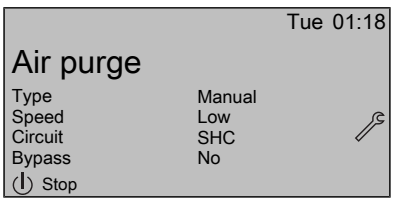
To check if the air purge function is finished, monitor the flow rate. If it stays constant when the pump is running at high or low speed, the unit is properly purged. To monitor the flow rate, go to [6.1.8].

The air purge function automatically stops after 42 minutes. Repeat the air purge function if required.

10.3.1 To perform a manual air purge

1 Set the user permission level to Installer. See "To set the user permission level to Installer" on page 46.
2 Set the air purge mode: go to [A.7.3.1] > Installer settings > Commissioning > Air purge > Type.
3 Select Manual and press OK.
4 Go to [A.7.3.4] > Installer settings > Commissioning > Air purge > Start air purge and press OK to start the air purge function.

Result: The manual air purge starts and the following screen appears.



5 Use the ◀ and ▶ buttons to scroll to Speed.
6 Use the ▲ and ▼ buttons to set the desired pump speed.

Result: Low

Result: High

7 If applicable, set the desired position of the 3-way valve. Use the ◀ and ▶ buttons to scroll to Circuit.
8 Use the ▲ and ▼ buttons to set the desired position of the 3-way valve.

Result: SHC

Result: Tank

9 Set the desired position of the bypass valve. Use the ◀ and ▶ buttons to scroll to Bypass.
10 Use the ▲ and ▼ buttons to set the desired position of the bypass valve.

Result: No (boiler not bypassed)

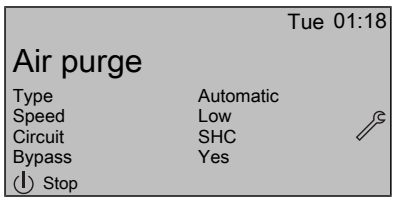
Result: Yes (boiler bypassed)

Result: The air purge function automatically stops after 42 minutes.

10.3.2 To perform an automatic air purge

1 Set the user permission level to Installer. See "To set the user permission level to Installer" on page 46.
2 Set the air purge mode: go to [A.7.3.1] > Installer settings > Commissioning > Air purge > Type.
3 Select Automatic and press OK.
4 Go to [A.7.3.4] > Installer settings > Commissioning > Air purge > Start air purge and press OK to start the air purge function.

Result: Air purging will start and the following screen will be shown.



Result: The air purge function automatically stops after 42 minutes.

10.3.3 To interrupt air purge

1 Press ⏻ and press OK to confirm the interruption of the air purge function.

10.4 To perform a test run

Prerequisite: Make sure the user interface shows the home screens and that the space heating and domestic hot water demands are turned off.

1 Go to [A.7.1]: > Installer settings > Commissioning > Test run.
2 Select a test and press OK. **Example:** Heating.
3 Select OK and press OK.

Result: The test run starts. It stops automatically when done (±30 min). To stop it manually, press ⏻, select OK and press OK.

INFORMATION

If 2 user interfaces are present, you can start a test run from both user interfaces.

- The user interface used to start the test run displays a status screen.
- The other user interface displays a "busy" screen. You cannot stop the test run as long as the "busy" screen is shown.

If the installation of the unit has been done correctly, the unit will start up during test operation in the selected operation mode. During the test mode, the correct operation of the unit can be checked by monitoring leaving water temperature (heating/cooling mode) and tank temperature (domestic hot water mode).

To monitor the temperature, go to [A.6] and select the information you want to check.

During a heating test run, the unit will start up in hybrid operation. The setpoint of the gas boiler during a heating test run is 40°C. Keep in mind the 5°C overshoot that is possible during boiler operation, especially in combination with floor heating loops.

10.5 To perform an actuator test run

Purpose of the actuator test run is to confirm the operation of the different actuators (e.g., when you select pump operation, a test run of the pump will start).

Prerequisite: Make sure the user interface shows the home screens and that the space heating and domestic hot water demands are turned off.

1. Make sure the room temperature control, the leaving water temperature control and the domestic hot water control are turned OFF via the user interface.
2. Go to [A.7.4]: ☰ > Installer settings > Commissioning > Actuator test run.
3. Select an actuator and press OK. **Example:** Pump.
4. Select OK and press OK.

Result: The actuator test run starts. It automatically stops when finished. To stop it manually, press ⏻, select OK and press OK.

10.5.1 Possible actuator test runs

- Pump test

INFORMATION

Calibration of the produced heat calculation is included in this test.

Make sure that air is purged before executing the test run. Also avoid causing disturbances in the water circuit during the test run.

- Solar pump test
- Shut-off valve test
- 3-way valve test
- Alarm output test
- Cooling/heating signal test
- Quick heat-up test
- DHW pump test
- Gas boiler test
- Bypass valve test

INFORMATION

The setpoint during a boiler test run is 40°C. Keep in mind the 5°C overshoot that is possible during boiler operation, especially in combination with floor heating loops.

10.6 Underfloor heating screed dryout

This function is used for drying out the screed of an underfloor heating system very slowly during the construction of a house. It allows the installer to program and execute this program.

Make sure the user interface shows the home screens and that the space heating and domestic hot water demands are turned off.

This function can be executed without finishing the outdoor installation. In this case, the gas boiler will perform the screed dryout and supply the leaving water without heat pump operation.

NOTICE

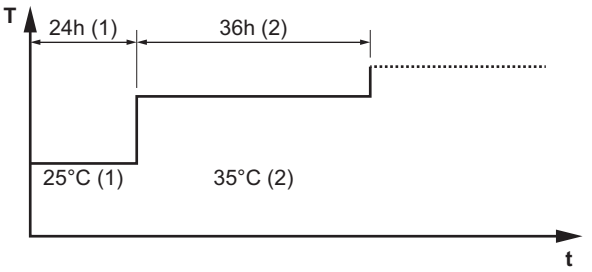
The installer is responsible for:

- contacting the screed manufacturer for the initial heating instructions to avoid cracking the screed,
- programming the underfloor heating screed dryout schedule according to the above instruction of the screed manufacturer,
- checking the proper functioning of the setup on a regular basis,
- selecting the correct program complying with the type of the used screed of the floor.

The installer can program up to 20 steps. For each step he needs to enter:

1. the duration in hours, up to 72 hours,
2. the desired leaving water temperature.

Example:



T Desired leaving water temperature (15~55°C)
t Duration (1~72 h)
(1) Action step 1
(2) Action step 2

10.6.1 To program an underfloor heating screed dryout schedule

1. Go to [A.7.2]: ☰ > Installer settings > Commissioning > UFH screed dryout > Set dryout schedule.
2. Use the ◀, ▶, ▲, and ▼ to program the schedule.
   - Use ◀ and ▶ to scroll through the schedule.
   - Use ▲ and ▼ to adjust the selection.
     If a time is selected, you can set the duration between 1 and 72 hours.
     If a temperature is selected, you can set the desired leaving water temperature between 15°C and 55°C.
3. To add a new step, select "–h" or "–" on an empty line and press ▲▼.
4. To delete a step, set the duration to "–" by pressing ▲▼.
5. Press OK to save the schedule.

INFORMATION

It is important that there is no empty step in the program. The schedule will stop when a blank step is programmed OR when 20 consecutive steps have been executed.

10.6.2 To perform an underfloor heating screed dryout

INFORMATION

Preferential kWh rate power supply cannot be used in combination with underfloor heating screed dryout.

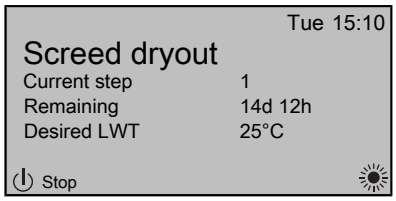
1 Go to [A.7.2]: ☰ > Installer settings > Commissioning > UFH screed dryout.

2 Set a dryout program.

3 Select Start dryout and press OK.

4 Select OK and press OK.

Result: The underfloor heating screed dryout starts and following screen will be shown. It stops automatically when done. To stop it manually, press ⏻ , select OK and press OK.



10.6.3 To readout the status of an underfloor heating screed dryout

1 Press ⌂.

2 The current step of the program, the total remaining time, and the current desired leaving water temperature will be displayed.

INFORMATION

There is limited access to the menu structure. Only the following menus can be accessed:

- Information.
- Installer settings > Commissioning > UFH screed dryout

10.6.4 To interrupt an underfloor heating screed dryout

When the program is stopped by an error, an operation switch off, or a power failure, the U3 error will be displayed on the user interface. To resolve the error codes, see "13.4 Solving problems based on error codes" on page 84. To reset the U3 error, your User permission level needs to be Installer.

1 Go to the underfloor heating screed dryout screen.

2 Press ⌂.

3 Press ⏻ to interrupt the program.

4 Select OK and press OK.

Result: The underfloor heating screed dryout program is stopped.

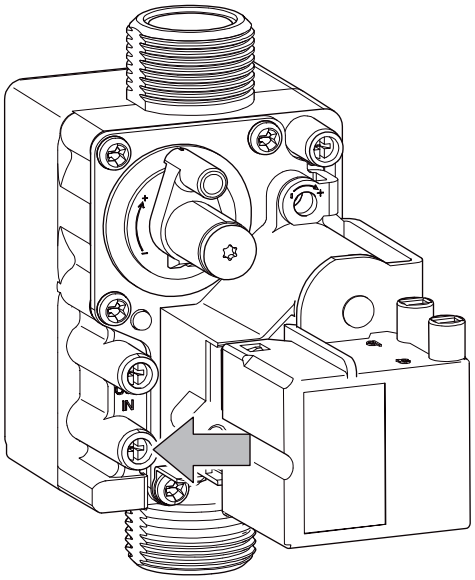
When the program is stopped due to an error, an operation switch-off, or a power failure, you can read out the underfloor heating screed dryout status.

5 Go to [A.7.2]: ☰ > Installer settings > Commissioning > UFH screed dryout > Dryout status > Stopped at and followed by the last executed step.

6 Modify and restart the execution of the program.

10.7 To perform an air purge on the gas supply

1 Connect a suitable gauge on the gas valve. Static pressure MUST be 20 mbar.



2 Select test program "H". See "10.8 To perform a test run on the gas boiler" on page 77. Static pressure MUST be 20 mbar (+ or – 1 mbar). If the working pressure is <19 mbar, the gas boiler output will be reduced and the correct combustion reading may NOT be obtained. Do NOT adjust the air and/or gas ratio. To obtain sufficient working pressure, gas supply MUST be correct.

INFORMATION

Make sure the working inlet pressure does NOT interfere with other gas appliances installed.

10.8 To perform a test run on the gas boiler

The gas boiler has a test run function. Activation of this function will result in starting the operation at a fixed fan speed, without the control functions being actuated. The safety functions remain active. The test run can be stopped by pressing + and – simultaneously or will end automatically after 10 minutes. To perform a test run, switch off the system with the user interface.

Make sure the user interface shows the home screens and that the space heating and domestic hot water demands are turned off.

There may be no error on the gas boiler or the heat pump module. During a gas boiler test run, "busy" will be displayed on the user interface.

Program	Button combination	Display
Burner ON at minimum power	and –	L
Burner ON, maximum space heating power setting	and + (1×)	h
Burner ON, maximum domestic hot water setting	and + (2×)	H
Stop test program	+ and –	Actual situation

11 Hand-over to the user

Once the test run is finished and the unit operates properly, please make sure the following is clear for the user:

- Fill in the installer setting table (in the operation manual) with the actual settings.
- Make sure that the user has the printed documentation and ask him/her to keep it for future reference. Inform the user that he can find the complete documentation on the url as earlier described in this manual.
- Explain the user how to properly operate the system and what he/she has to do in case of problems.
- Show the user what he/she has to do in relation to maintaining the unit.
- Explain the user about energy saving tips as described in the operation manual.

12 Maintenance and service

Especially for UK:

After servicing, complete the relevant Service Interval Record section of the Benchmark Checklist located on the backpages of this document.

NOTICE

Maintenance should preferably be carried out yearly by an installer or service agent.

12.1 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.

12.1.1 Opening the indoor unit

See "7.1.2 To open the switch box cover of the indoor unit" on page 20 .

12.2 Checklist for yearly maintenance of the indoor unit

Check the following at least once a year:

- Water pressure
- Water filter
- Water pressure relief valve
- Pressure relief valve of the domestic hot water tank
- Switch box

Water pressure

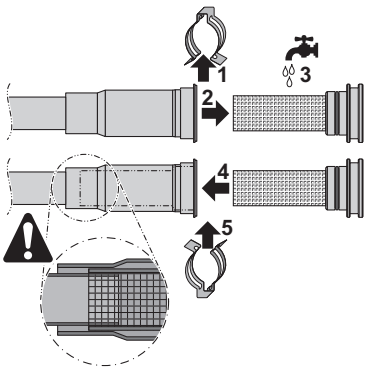
Check whether the water pressure is above 1 bar. If it is lower, add water.

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.



Water pressure relief valve

Open the valve and check if it operates correctly. **The water may be very hot!**

Checkpoints are:

- The water flow coming from the relief valve is high enough, no blockage of the valve or in between piping is suspected.
- Dirty water coming out of the relief valve:
  - open the valve until the discharged water does NOT contain dirt anymore
  - flush the system and install an additional water filter (a magnetic cyclone filter is preferable).

To make sure this water originates from the tank, check after a tank heat up cycle.

It is recommended to do this maintenance more frequently.

Relief valve of the domestic hot water tank (field supply)

Open the valve and check the correct operation. **Water may be very hot!**

Checkpoints are:

- The water flow coming from the relief valve is high enough, no blockage of the valve or in between piping is suspected.
- Dirty water coming out of the relief valve:
  - open the valve until the discharged water does not contain dirt anymore
  - flush and clean the complete tank, including the piping between the relief valve and cold water inlet.

To make sure this water originates from the tank, check after a tank heat up cycle.

It is recommended to do this maintenance more frequently.

Switch box

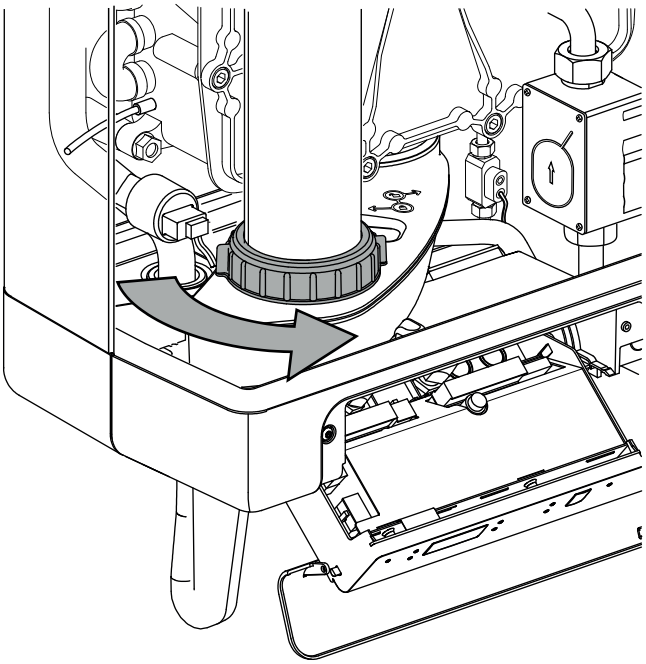
Carry out a thorough visual inspection of the switch box and look for obvious defects such as loose connections or defective wiring.

WARNING

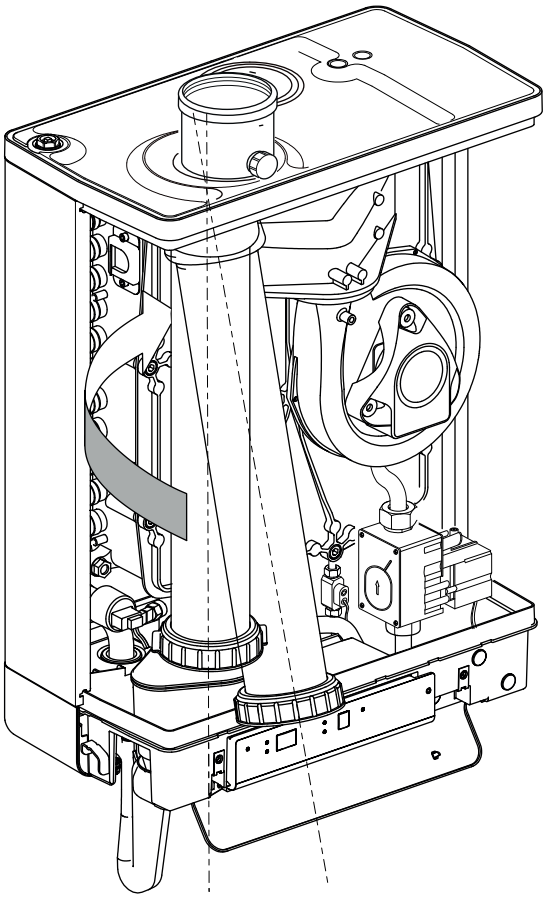
If the internal wiring is damaged, it has to be replaced by the manufacturer, its service agent or similarly qualified persons.

12.3 To disassemble the gas boiler

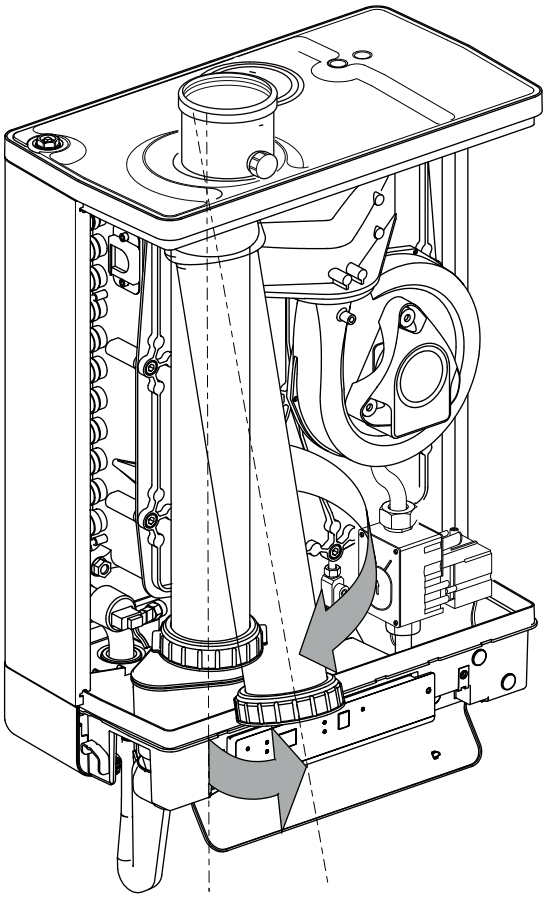
1 Turn off the appliance.
2 Turn off the main power supply of the appliance.
3 Close the gas tap.
4 Remove the front panel.
5 Wait until the appliance has cooled down.
6 Unscrew the coupling nut at the base of the flue pipe by turning counterclockwise.



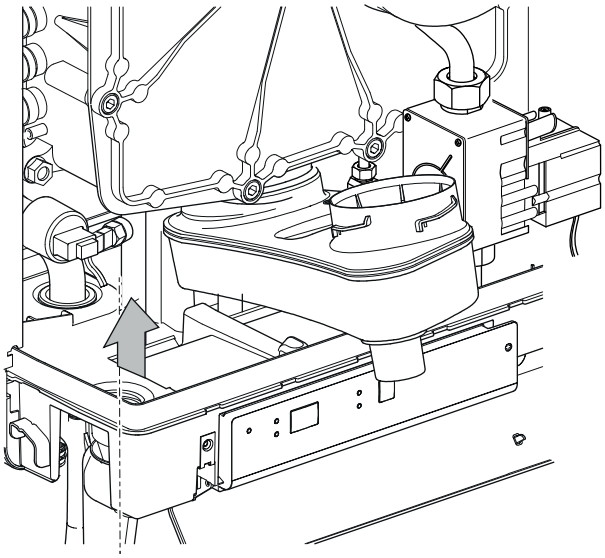
7 Slide the flue pipe upwards by turning it clockwise until the bottom of the pipe is above the condensate drain pan connection.



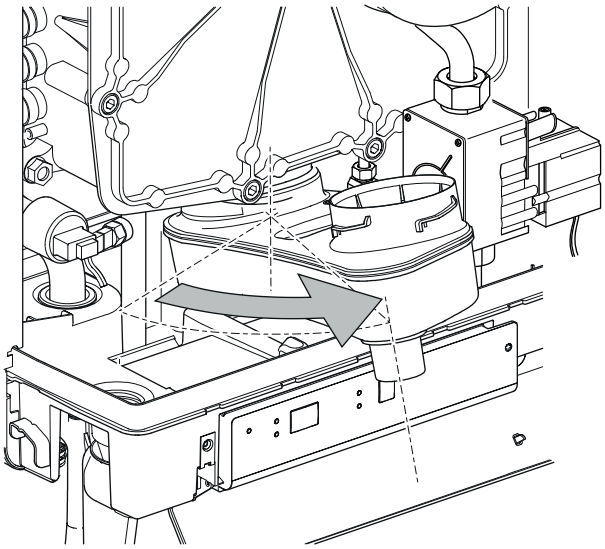
8 Pull the bottom of the pipe forwards and remove the pipe downwards by turning the pipe alternately clockwise and counterclockwise.



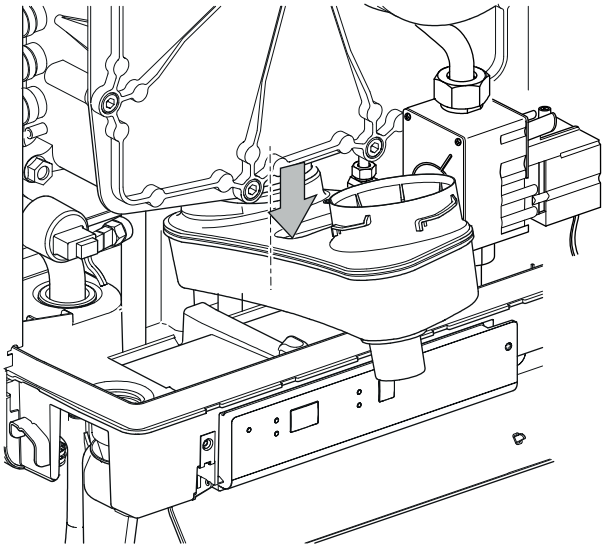
9 Lift the condensate drain pan on the left-hand side from the connection to the condensate trap.



10 Turn it to the right with the condensate trap connection over the edge of the base tray.



11 Push the backside of the condensate drain pan downwards from the connection to the heat exchanger and remove it.



12 Remove the connector from the fan and the ignition unit from the gas valve.

13 Unscrew the coupling below the gas valve.

14 Unscrew the socket head screws from the front cover and remove the socket complete with gas valve and fan to the front.

NOTICE

Make sure that the burner, insulation plate, gas valve, gas supply and fan do NOT get damaged.

12.4 To clean the inside of the gas boiler

1 Clean the heat exchanger from top to bottom with a plastic brush or compressed air.

2 Clean the underside of the heat exchanger.

3 Clean the condensate drain pan with water.

4 Clean the condensate trap with water.

12.5 To assemble the gas boiler

CAUTION

- When fitting the various seals, check them for damage, hardening, tears or hairline tears, and/or discolouration. Replace them when necessary.
- Check the position of the seals.
- Failure to fit the sensors S1 and/or S2 or to fit them correctly can result in serious damage
- Warranty will be void by NOT correctly replacing the removed parts.

1 Check the correct position of the seal around the front cover.

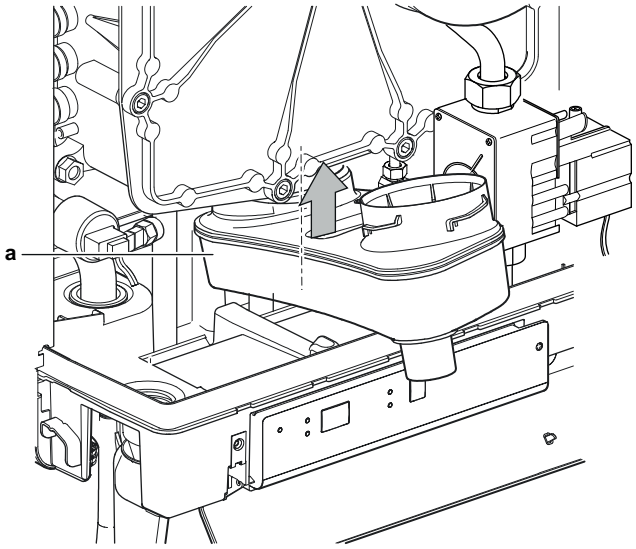
2 Place the front cover on the heat exchanger and secure by using the socket head screws plus serrated lock washers.

3 Tighten the socket head screws equally hand-tight by turning the hex key clockwise.

4 Fit the gas connection below the gas valve.

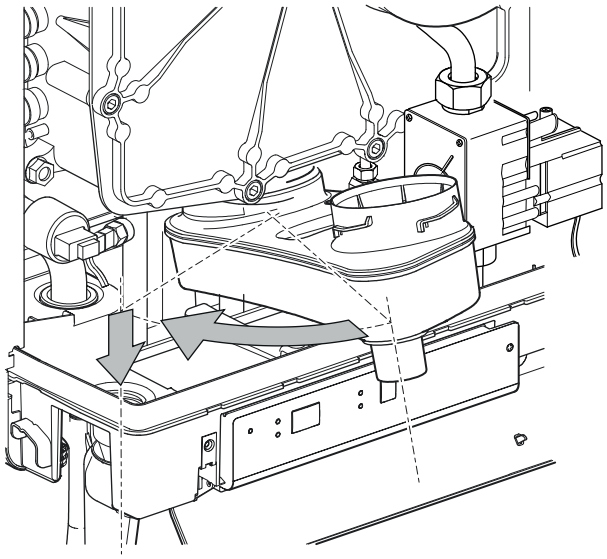
5 Fit the connector to the fan and the ignition unit to the gas valve.

6 Fit the condensate drain by sliding on the exchanger outlet stump with the condensate trap connection still in front of the base tray.



a Base tray

7 Turn the condensate drain to the left and push it downwards into the condensate trap connection. Make sure in doing this that the back of the condensate drain pan comes to rest on the lug of the back of the base tray.



8 Fill the condensate trap with water and fit it to the connection below the condensate drain pan.

9 Slide the flue pipe, turning it counterclockwise, with the top around the flue adapter into the top cover.

10 Insert the bottom into the condensate drain pan and tighten the coupling nut clockwise.

11 Open the gas tap and check the gas connections below the gas valve and on the mounting bracket for leakage.

12 Check the space heating and the water pipes for leakages.

13 Turn on the main power supply.

14 Turn on the appliance by pushing on the ⏻ button.

15 Check the front cover, the fan connection on the front cover and the flue pipe components for leakage.

16 Check the gas/air adjustment.

17 Fit the casing, tighten the 2 screws on the left and right side of the display.

18 Close the display cover.

19 Check the heating and hot water supply.

13 Troubleshooting

13.1 Overview: Troubleshooting

13.2 General guidelines

Before starting the troubleshooting procedure, carry out a thorough visual inspection of the unit and look for obvious defects such as loose connections or defective wiring.

WARNING

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

DANGER: RISK OF ELECTROCUTION

WARNING

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

DANGER: RISK OF BURNING

13.3 Solving problems based on symptoms

13.3.1 Symptom: The unit is NOT heating or cooling as expected

Possible causes	Corrective action
The temperature setting is NOT correct	Check the temperature setting on the remote controller. Refer to the operation manual.

Possible causes	Corrective action
The water flow is too low	Check and make sure that: ▪ All shut-off valves of the water circuit are completely open. ▪ The water filter is clean. Clean if necessary. ▪ There is no air in the system. Purge air if necessary. You can purge air manually (see "10.3.1 To perform a manual air purge" on page 75) or use the automatic air purge function (see "10.3.2 To perform an automatic air purge" on page 75). ▪ The water pressure is >1 bar. ▪ The expansion vessel is NOT broken. ▪ The resistance in the water circuit is NOT too high for the pump (see "16.7 ESP curve" on page 111). If the problem persists after you have conducted all of the above checks, contact your dealer. In some cases, it is normal that the unit decides to use a low water flow.
The water volume in the installation is too low	Make sure that the water volume in the installation is above the minimum required value (see "6.3.3 To check the water volume" on page 17).

13.3.2 Symptom: The compressor does NOT start (space heating)

Possible causes	Corrective action
The unit must start up out of its operation range (the water temperature is too low)	If the water temperature is too low, the unit uses the gas boiler to reach the minimum water temperature first (15°C). Check and make sure that: ▪ The power supply to the gas boiler is correctly wired. ▪ The communication cable between the gas boiler and the indoor unit is properly mounted. If the problem persists after you have conducted all of the above checks, contact your dealer.
The preferential kWh rate power supply settings and electrical connections do NOT match	This should match with the connections as explained in "6.4.1 About preparing electrical wiring" on page 18 and "7.8.4 To connect the main power supply of the indoor unit" on page 34.
The preferential kWh rate signal was sent by the electricity company	Wait for the power to return (2 hours max.).

13.3.3 Symptom: The pump is making noise (cavitation)

Possible causes	Corrective action
There is air in the system	Purge air manually (see "10.3.1 To perform a manual air purge" on page 75) or use the automatic air purge function (see "10.3.2 To perform an automatic air purge" on page 75).
The water pressure at the pump inlet is too low	Check and make sure that: ▪ The water pressure is >1 bar. ▪ The pressure sensor of the gas boiler is not broken. ▪ The expansion vessel is not broken. ▪ The pre-pressure setting of the expansion vessel is correct (see "6.3.4 Changing the pre-pressure of the expansion vessel" on page 18).

13.3.4 Symptom: The pressure relief valve opens

Possible causes	Corrective action
The expansion vessel is broken	Replace the expansion vessel.
The water volume in the installation is too high	Make sure that the water volume in the installation is below the maximum allowed value (see "6.3.3 To check the water volume" on page 17 and "6.3.4 Changing the pre-pressure of the expansion vessel" on page 18).
The water circuit head is too high	The water circuit head is the difference in height between the indoor unit and the highest point of the water circuit. If the indoor unit is located at the highest point of the installation, the installation height is considered 0 m. The maximum water circuit head is 7 m. Check the installation requirements.

13.3.5 Symptom: The water pressure relief valve leaks

Possible causes	Corrective action
Dirt is blocking the water pressure relief valve outlet	Check whether the pressure relief valve works correctly by turning the red knob on the valve counterclockwise: ▪ If you do NOT hear a clacking sound, contact your dealer. ▪ If the water keeps running out of the unit, close both the water inlet and outlet shut-off valves first and then contact your dealer.

13.3.6 Symptom: The space is NOT sufficiently heated at low outdoor temperatures

Possible causes	Corrective action
Gas boiler operation is not activated	Check and make sure that: ▪ The gas boiler is switched On and is NOT in standby mode. ▪ The communication cable between the gas boiler and the indoor unit is properly mounted. ▪ There is no error code on the gas boiler display.
The gas boiler equilibrium temperature has not been configured correctly	Increase the “equilibrium temperature” to activate gas boiler operation at a higher outdoor temperature. Go to: ▪ [A.5.2.2] > Installer settings > Heat sources > Boiler > Equilibrium temp. OR ▪ [A.8] > Installer settings > Overview settings [5-00]
Too much heat pump capacity is used for heating domestic hot water (applies only to installations with a domestic hot water tank)	Check and make sure that the “space heating priority” settings have been configured appropriately: ▪ Make sure that the “space heating priority status” has been enabled. Go to [A.8] > Installer settings > Overview settings [5-02] ▪ Increase the “space heating priority temperature” to activate backup heater operation at a higher outdoor temperature. Go to [A.8] > Installer settings > Overview settings [5-03]

13.3.7 Symptom: The pressure at the tapping point is temporarily unusual high

Possible causes	Corrective action
Failing or blocked pressure relief valve.	▪ Flush and clean the complete tank including the piping between pressure relief valve and the cold water inlet. ▪ Replace the pressure relief valve.

13.3.8 Symptom: Tank disinfection function is NOT completed correctly (AH-error)

Possible causes	Corrective action
The disinfection function was interrupted by domestic hot water tapping	Program the start-up of the disinfection function when the coming 4 hours NO domestic hot water tapping is expected.
Large domestic hot water tapping happened recently before the programmed start-up of the disinfection function	When the Domestic hot water > Type > Reheat or Reheat + sched. is selected, it is recommended to program the start-up the disinfection function at least 4 hours later than the last expected large hot water tapping. This start-up can be set by installer settings (disinfection function). When the Domestic hot water > Type > Scheduled only is selected, it is recommended to program a Storage eco 3 hours before the scheduled start-up of the disinfection function to preheat the tank.

13.3.9 Symptom: Boiler abnormality detection (HJ-11 error)

Possible causes	Corrective action
Communication cable problem	Mount the communication cable between the gas boiler and the indoor unit properly.
Boiler error	Check the boiler display for error information.

13.3.10 Symptom: Boiler/hydrobox combination abnormality

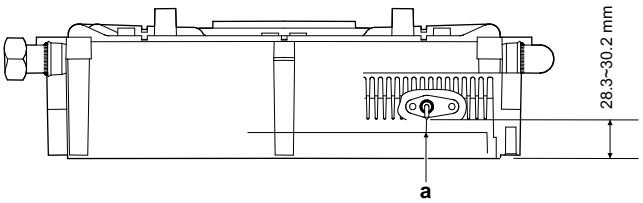
Possible causes	Corrective action
Boiler/hydrobox mismatch	Make sure that the E. setting is the following for: ▪ 0=for EHYHBH05 + EHYHBH08 ▪ 1=for EHYHBX08
Incompatibility of software	Update the boiler and hydrobox software to the latest version.

13.3.11 Symptom: The burner does NOT ignite

Possible causes	Corrective action
Gas tap is closed.	Open the gas tap.
Air in the gas tap.	Remove air from the gas pipe.
Gas supply pressure too low.	Contact the gas supply company.
No ignition.	Replace the ignition electrode.
No spark. Ignition unit on gas valve faulty.	▪ Check the cabling. ▪ Check the spark plug cap. ▪ Replace the ignition unit.
Gas/air adjustment NOT correctly set.	Check the adjustment. See "To check the carbon dioxide setting" on page 71.
Fan faulty.	▪ Check the wiring. ▪ Check the fuse. If necessary, replace the fan.
Fan dirty.	Clean the fan.
Gas valve faulty.	▪ Replace the gas valve. ▪ Re-adjust the gas valve, see "To check the carbon dioxide setting" on page 71.

13.3.12 Symptom: The burner ignites noisily

Possible causes	Corrective action
Gas supply pressure too high.	The house pressure switch may be faulty. Contact the gas company.
Incorrect ignition gap.	▪ Replace the ignition pin. ▪ Check the ignition electrode gap.
Gas/air adjustment NOT correctly set.	Check the setting. See "To check the carbon dioxide setting" on page 71.
Weak spark.	Check the ignition gap. Replace the ignition electrode. Replace the ignition unit on the gas valve.



a Spark gap (±4.5 mm)

13.3.13 Symptom: The burner resonates

Possible causes	Corrective action
Gas supply pressure too low.	The house pressure switch may be faulty. Contact the gas company.
Recirculation of combustion gasses.	Check the flue gas and the air supply.
Gas/air adjustment NOT correctly set.	Check the adjustment. See "To check the carbon dioxide setting" on page 71.

13.3.14 Symptom: No space heating by the gas boiler

Possible causes	Corrective action
Heat pump error	Check the user interface.
Communication problem with the heat pump.	Make sure the communication cable is properly installed.
Incorrect heat pump settings.	Check the settings in the heat pump manual.
The service display displays "-", the gas boiler is switched off.	Switch on the gas boiler with ⏻.
No current (24 V)	▪ Check the wiring. ▪ Check the connector X4.
The burner does NOT fire on space heating: sensor S1 or S2 faulty.	Replace sensor S1 or S2. See "Error codes of the gas boiler" on page 86.
Burner does NOT ignite.	See "13.3.11 Symptom: The burner does NOT ignite" on page 83.

13.3.15 Symptom: The power is reduced

Possible causes	Corrective action
At high rpm, the power has fallen by more than 5%.	▪ Check the appliance and flue system for fouling. ▪ Clean the appliance and flue system.

13.3.16 Symptom: Space heating does NOT reach the temperature

Possible causes	Corrective action
Weather-dependent setpoint setting is incorrect.	Check the setting on the user interface and adjust if necessary.
Temperature is too low.	Increase the space heating temperature.
No circulation in the installation.	Check whether there is circulation. At least 2 or 3 radiators MUST be open.
The boiler power has NOT been correctly set for the installation.	Adjust the power. See "Maximum space heating power setting" on page 70.
No heat transfer as a result of lime scale or fouling in the heat exchanger.	Descale or flush the heat exchanger on the space heating side.

13.3.17 Symptom: Hot water does NOT reach the temperature

Possible causes	Corrective action
Domestic hot water flow is too high.	Adjust the inlet assembly.
Temperature setting for water circuit is too low.	Set the hot water circuit on the heat pump user interface, depending on the desired temperature.
No heat transfer as a result of lime scale or fouling in the heat exchanger domestic hot water side.	Descale or flush the exchanger domestic hot water side.
Cold water temperature <10°C.	The water inlet temperature is too low.

13.4 Solving problems based on error codes

When a problem happens, an error code appears on the user interface. It is important to understand the problem and to take countermeasure before resetting the error code. This should be done by a licensed installer or by your local dealer.

This chapter gives you an overview of all error codes and the content of the error code as it appears on the user interface.

For a more detailed troubleshooting guideline for each error, please see the service manual.

13.4.1 Error codes: Overview

Error codes of the indoor unit

Error code	Detailed error code	Description
A1	00	Zero cross detection problem. Power reset required. Please contact your dealer.

Error code	Detailed error code	Description
AA	01	Backup heater overheated. Power reset required. Please contact your dealer.
UA	00	Indoor unit, outdoor unit matching problem. Power reset required.
7H	01	Water flow problem.
89	01	Heat exchanger frozen.
8H	00	Abnormal increase outlet water temperature.
8F	00	Abnormal increase outlet water temperature (DHW).
C0	00	Flow sensor/switch malfunction. Please contact your dealer.
U3	00	Under floor heating screed dryout function not completed correctly.
81	00	Leaving water temperature sensor problem. Please contact your dealer.
C4	00	Heat exchanger temperature sensor problem. Please contact your dealer.
80	00	Returning water temperature sensor problem. Please contact your dealer.
U5	00	User interface communication problem.
U4	00	Indoor/outdoor unit communication problem.
EC	00	Abnormal increase tank temperature.
HC	00	Tank temperature sensor problem. Please contact your dealer.
CJ	02	Room temperature sensor problem. Please contact your dealer.
H1	00	External temperature sensor problem. Please contact your dealer.
HJ	08	Water circuit pressure is too high.
HJ	09	Water circuit pressure is too low.
HJ	10	Water pressure sensor problem. Please contact your dealer.
HJ	11	Boiler abnormality detection Check boiler Refer to boiler manual
HJ	12	Bypass valve turning error Please contact your dealer.
89	02	Heat exchanger frozen.
A1	00	EEPROM reading error.
AH	00	Tank disinfection function not completed correctly.
89	03	Heat exchanger frozen.
UA	52	Boiler/hydrobox combination abnormality
U6	36	Boiler standby abnormality

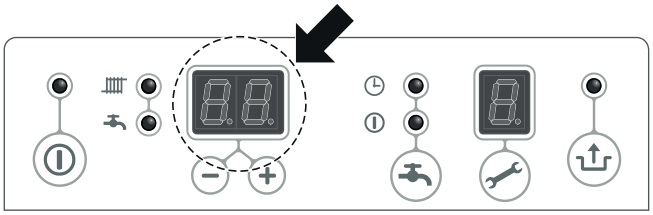
INFORMATION

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

- When the Domestic hot water > Type > Reheat or Reheat + sched. is selected, it is recommended to program the start-up of the disinfection function at least 4 hours later than the last expected large hot water tapping. This start-up can be set by installer settings (disinfection function).
- When the Domestic hot water > Type > Scheduled only is selected, it is recommended to program a Storage eco 3 hours before the scheduled start-up of the disinfection function to preheat the tank.

Error codes of the gas boiler

The controller on the gas boiler detects faults and indicates them on the display by error codes.



If the LED is flashing, the controller has detected a problem. Once the problem is rectified, the controller can be restarted by pressing the ↥ button.

Following table shows a list of error codes and the possible solutions.

Error code	Cause	Possible solution
10, 11, 12, 13, 14	Sensor fault S1	▪ Check wiring ▪ Replace S1
20, 21, 22, 23, 24	Sensor fault S2	▪ Check wiring ▪ Replace S2
0	Sensor fault after self-check	Replace S1 and/or S2
1	Temperature too high	▪ Air in installation ▪ Pump is NOT running ▪ Insufficient flow in installation ▪ Radiators are closed ▪ Pump setting is too low
2	S1 and S2 interchanged	▪ Check cable set ▪ Replace S1 and S2
4	No flame signal	▪ Gas tap is closed ▪ No or incorrect ignition gap ▪ Gas supply pressure is too low or fails ▪ Gas valve or ignition unit is NOT powered
5	Poor flame signal	▪ Condensate drain blocked ▪ Check adjustment of gas valve
6	Flame detection fault	▪ Replace ignition cable and spark plug cap ▪ Replace ignition unit ▪ Replace boiler controller
8	Incorrect fan speed	▪ Fan catching on casing ▪ Wiring between fan and casing ▪ Check wiring for poor wire contact ▪ Replace fan
29, 30	Gas valve relay fault	Replace boiler controller

14 Disposal

14.1 To pump down

In order to protect the environment, be sure to pump down in following cases:

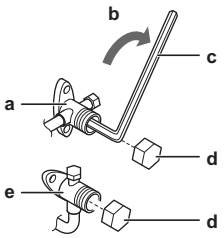
- when relocating or disposing of the unit,
- after maintenance or service to the refrigerant side of the system.

NOTICE

During pump down operation, stop the compressor before removing the refrigerant piping. If the compressor is still running and the stop valve is open during pump down, air will be sucked into the system. Compressor breakage and other injury will be the result due to abnormal pressure in the refrigerant cycle.

Pump down operation will extract all refrigerant from the system into the outdoor unit.

1. Remove the valve lid from liquid stop valve and gas stop valve.
2. Carry out the forced cooling operation.
3. After 5 to 10 minutes (after only 1 or 2 minutes in case of very low ambient temperatures (<−10°C)), close the liquid stop valve with a hexagonal wrench.
4. Check with the manifold if the vacuum is reached.
5. After 2-3 minutes, close the gas stop valve and stop forced cooling operation.

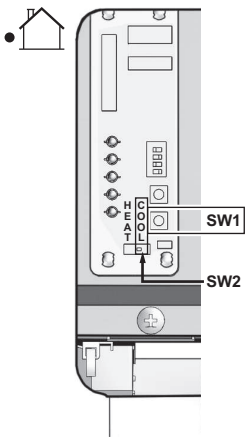


a Gas stop valve
b Closing direction
c Hexagonal wrench
d Valve lid
e Liquid stop valve

14.2 To start and stop forced cooling

Confirm that dipswitch SW2 is in COOL mode.

1. Press the forced cooling operation switch SW1 to begin forced cooling.
2. Press the forced cooling operation switch SW1 to stop forced cooling.



NOTICE

Take care that while running forced cooling operation, the water temperature remains higher than 5°C (see temperature read out of the indoor unit). You can achieve this, for example, by activating all fans of the fan coil units.

15 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.

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.

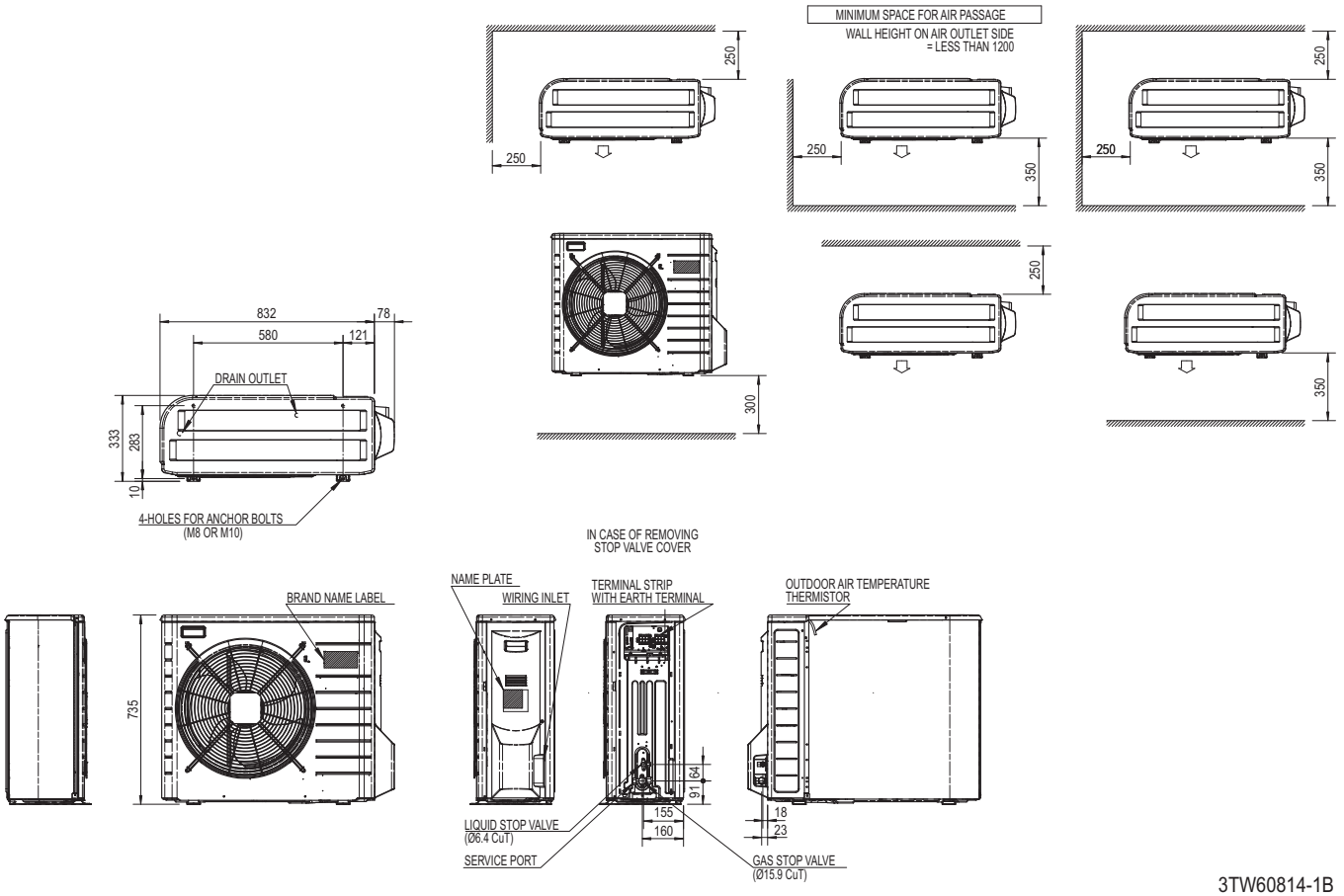
Field supply

Equipment not made by Daikin that can be combined with the product according to the instructions in the accompanying documentation.

16 Technical data

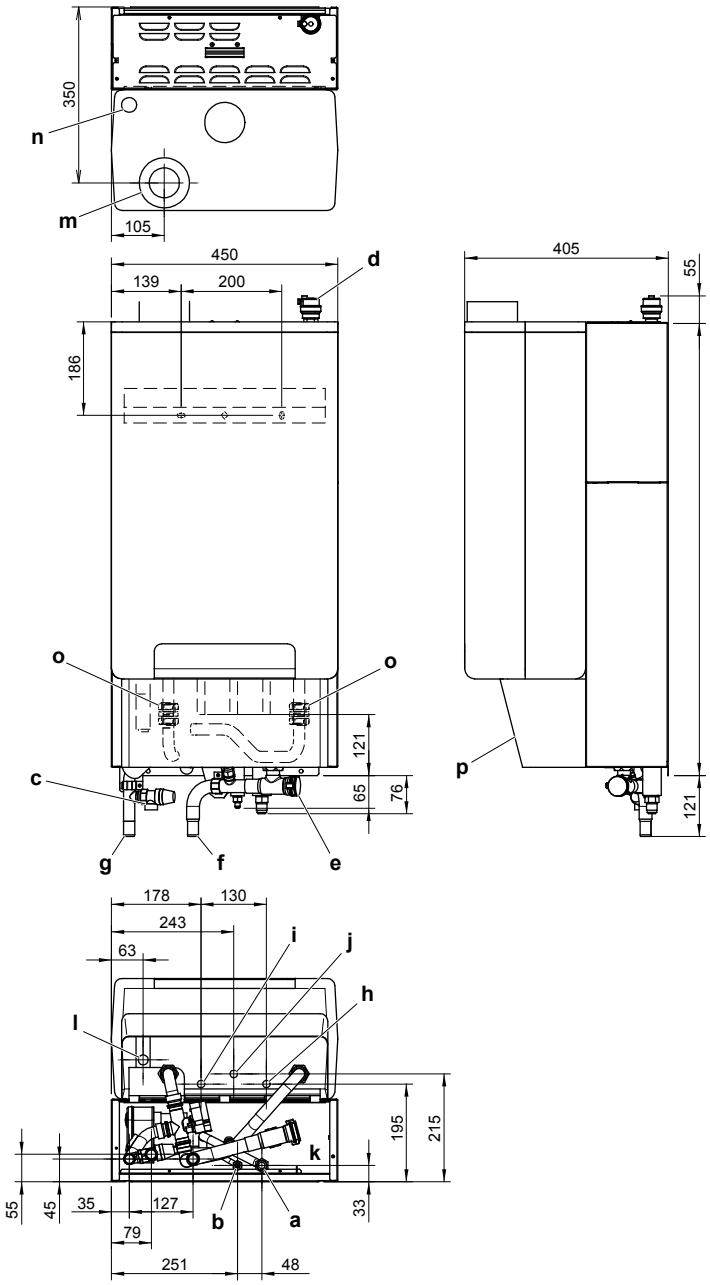
16.1 Dimensions and service space

16.1.1 Dimensions and service space: Outdoor unit



3TW60814-1B

16.1.2 Dimensions and service space: Indoor unit

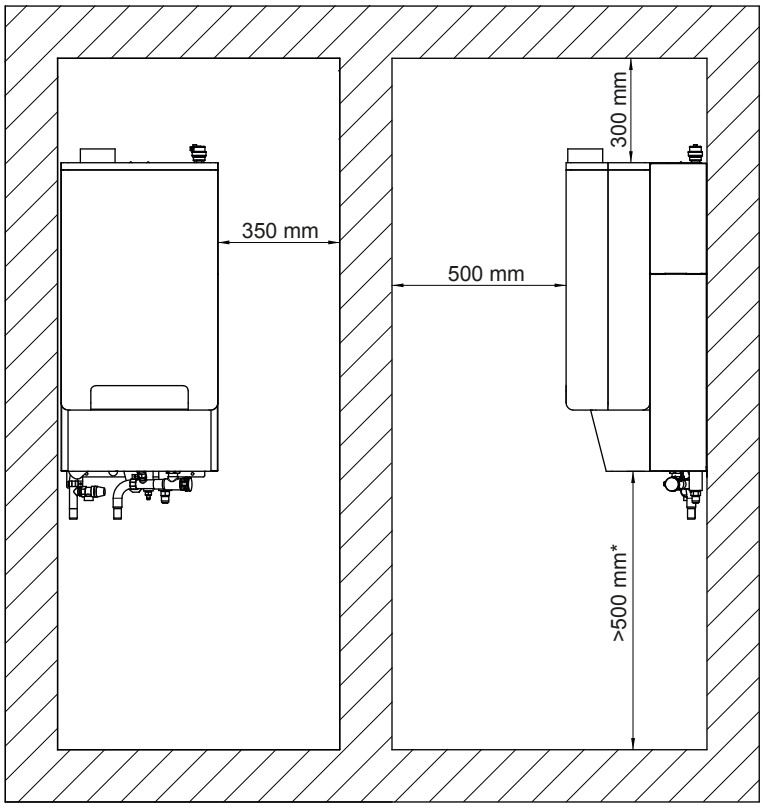


3D082233-1

- **a** Gas pipe connection Ø15.9 mm flare
- **b** Liquid pipe connection Ø6.35 mm flare
- **c** Safety valve (pressure)
- **d** Air purge (automatic)
- **e** Water filter
- **f** Water inlet connection (Ø22 mm)
- **g** Water outlet connection (Ø22 mm)
- **h** Domestic hot water inlet connection (Ø15 mm)
- **i** Domestic hot water outlet connection (Ø15 mm)
- **j** Gas connection (1/2")
- **k** Wiring intake area heat pump module
- **l** Condensate drain (Ø25 mm flexible)
- **m** Flue pipe/air supply (Ø60/100 mm concentric)
- **n** Air purge boiler (manual)
- **o** Copper clamp connection 22 mm (accessory)
- **p** Boiler cover (option)

Note: Typical field installation is according to local and national regulations.

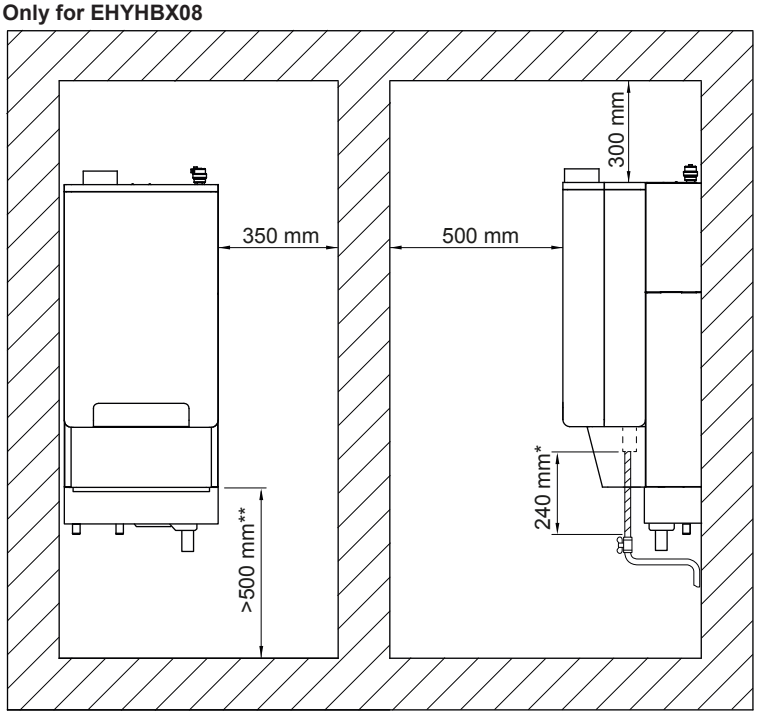
Only for EHYHBH05 + EHYHBH08



4D084025-1A

* In combination with a mounting and/or valve kit, 800 mm is required.

Only for EHYHBX08

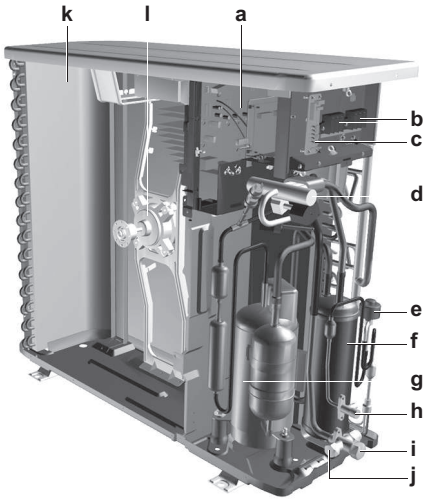


4D085926-1

* Removable piping to ensure installation and service of drain pan kit.
** In combination with a mounting and/or valve kit, 800 mm is required.

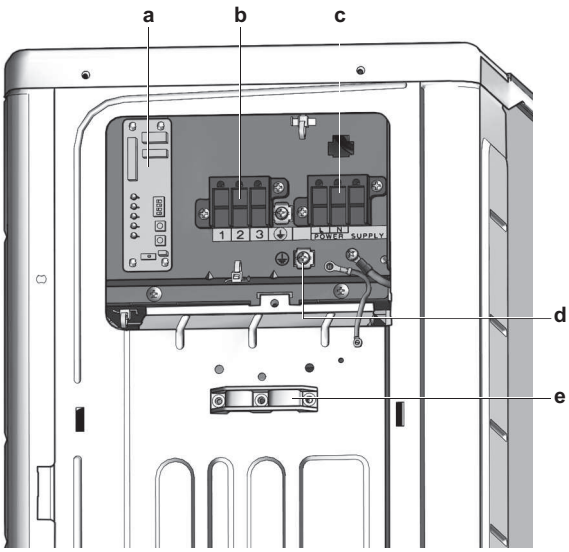
16.2 Components

16.2.1 Components: Outdoor unit



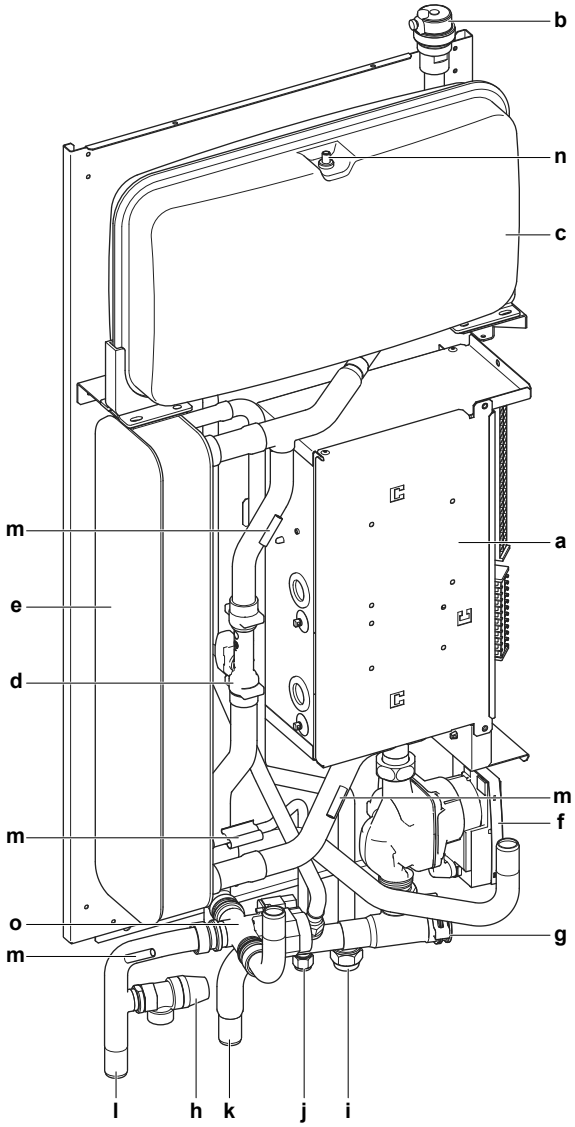
a Switch box main PCB (inverter and control PCB)
b Terminal communication and power supply
c Service PCB
d 4-way valve
e Electronic expansion valve (main)
f Accumulator
g Compressor
h Liquid stop valve
i Gas stop valve
j Service port
k Fan motor
l Heat exchanger

16.2.2 Components: Switch box (outdoor unit)



a Service PCB
b Terminal communication cable
c Terminal power supply cable
d Earth connection
e Wire clamp

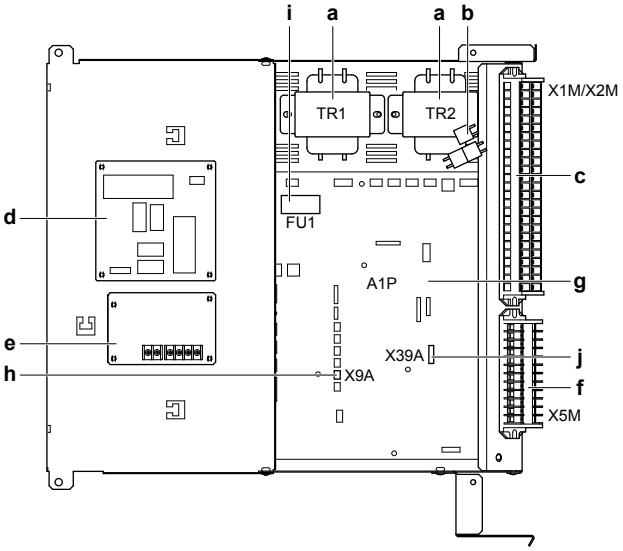
16.2.3 Components: Indoor unit



a Switch box
Contains the main electronic and electrical parts of the indoor unit.
b Air purge valve
Remaining air in the water circuit will be automatically removed via the air purge valve.
c Expansion vessel (10 l)
d Flow sensor
Gives feedback to the interface about the actual flow. Based on this information (and other), the interface adjusts the pump speed.
e Heat exchanger
f Water pump
Circulates the water in the water circuit.
g Water filter
Removes dirt from the water to prevent damage to the pump or blockage of the heat exchanger.
h Pressure relief valve
Prevents excessive water pressure in the water circuit by opening at 3 bar.
i Refrigerant gas connection R410A
j Refrigerant liquid connection R410A
k Water inlet connection
l Water outlet connection

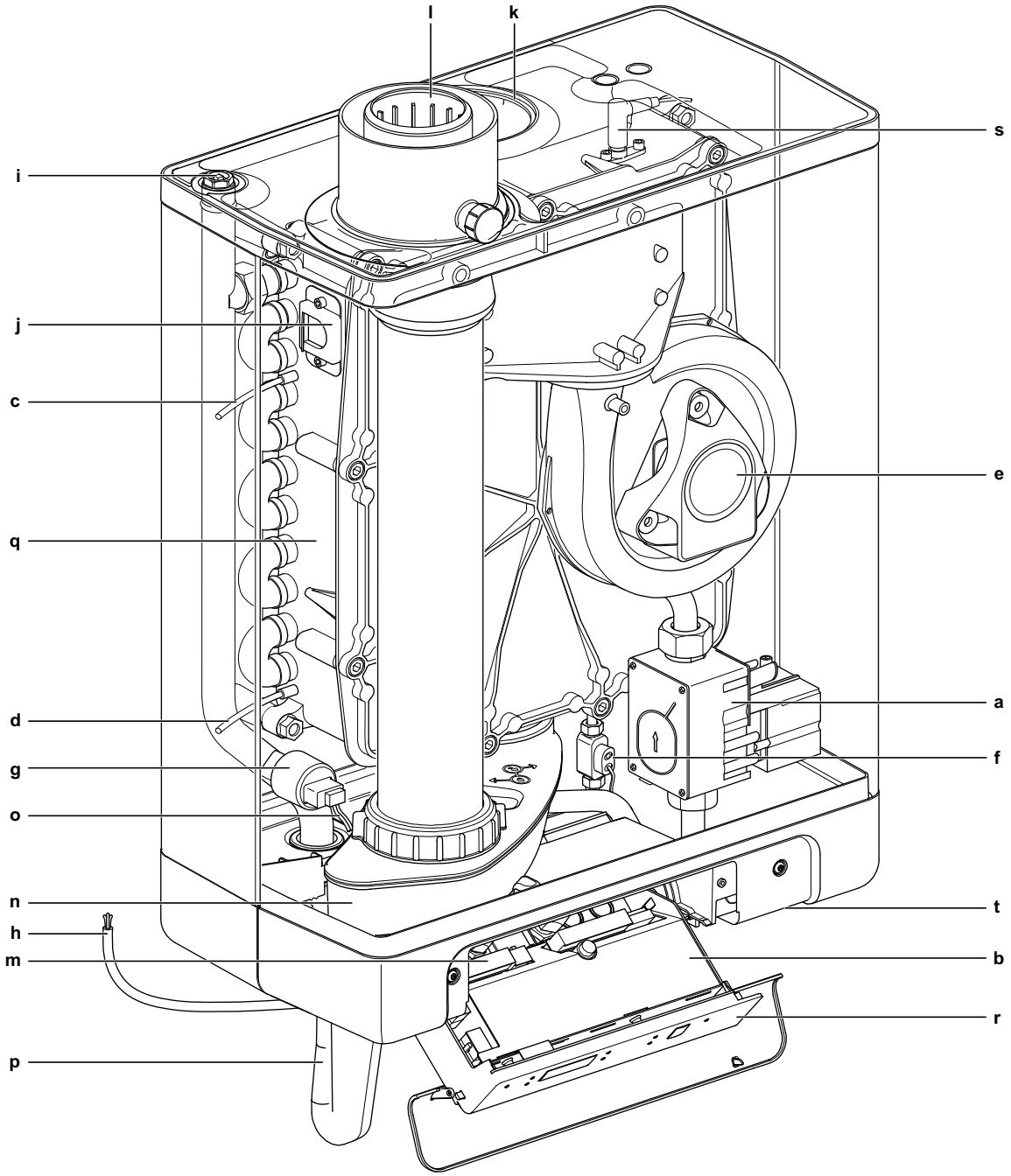
m Thermistors
Determines the water and refrigerant temperature at various points in the circuit.
n Air valve
o By-pass valve

16.2.4 Components: Switch box (indoor unit)



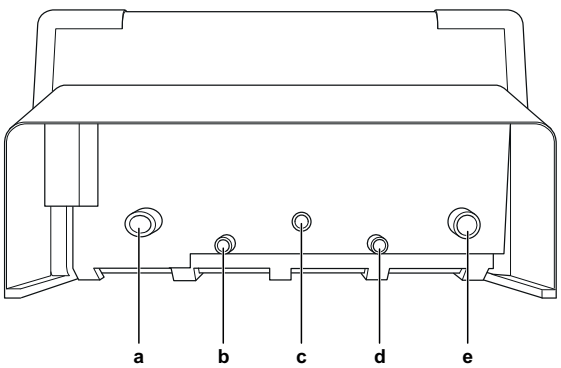
a Transformer TR1, TR2
b Connectors X6YA/X6YB/X6Y
c Terminal block X2M (high voltage)
d Digital I/O PCB A4P (only for installations with solar kit or digital I/O PCB kit)
e Demand PCB for power limitation
f Terminal block X5M (low voltage)
g Main PCB A1P
h Socket X9A, receives the thermistor connector. (Only for installations with domestic hot water tank)
i PCB fuse FU1
j Socket X39A, receives the boiler connector (communication cable)

16.2.5 Components: Gas boiler



- **a** Gas valve
- **b** Boiler control panel
- **c** Sensor S1
- **d** Sensor S2
- **e** Fan
- **f** Flow sensor
- **g** Space heating pressure sensor
- **h** Mains lead 230 V AC without plug (stripped)
- **i** Manual air bleed
- **j** Sight glass
- **k** Air supply cap
- **l** Flue pipe adapter (use ONLY in combination with the accompanying elbow in flue sets)
- **m** Connection block/terminal strip X4
- **n** Condensate drain pan
- **o** Hot water sensor S3
- **p** Condensate S3
- **q** Heat exchanger
- **r** Operating panel and read-out
- **s** Ionisation/ignition electrode
- **t** Position of data plate

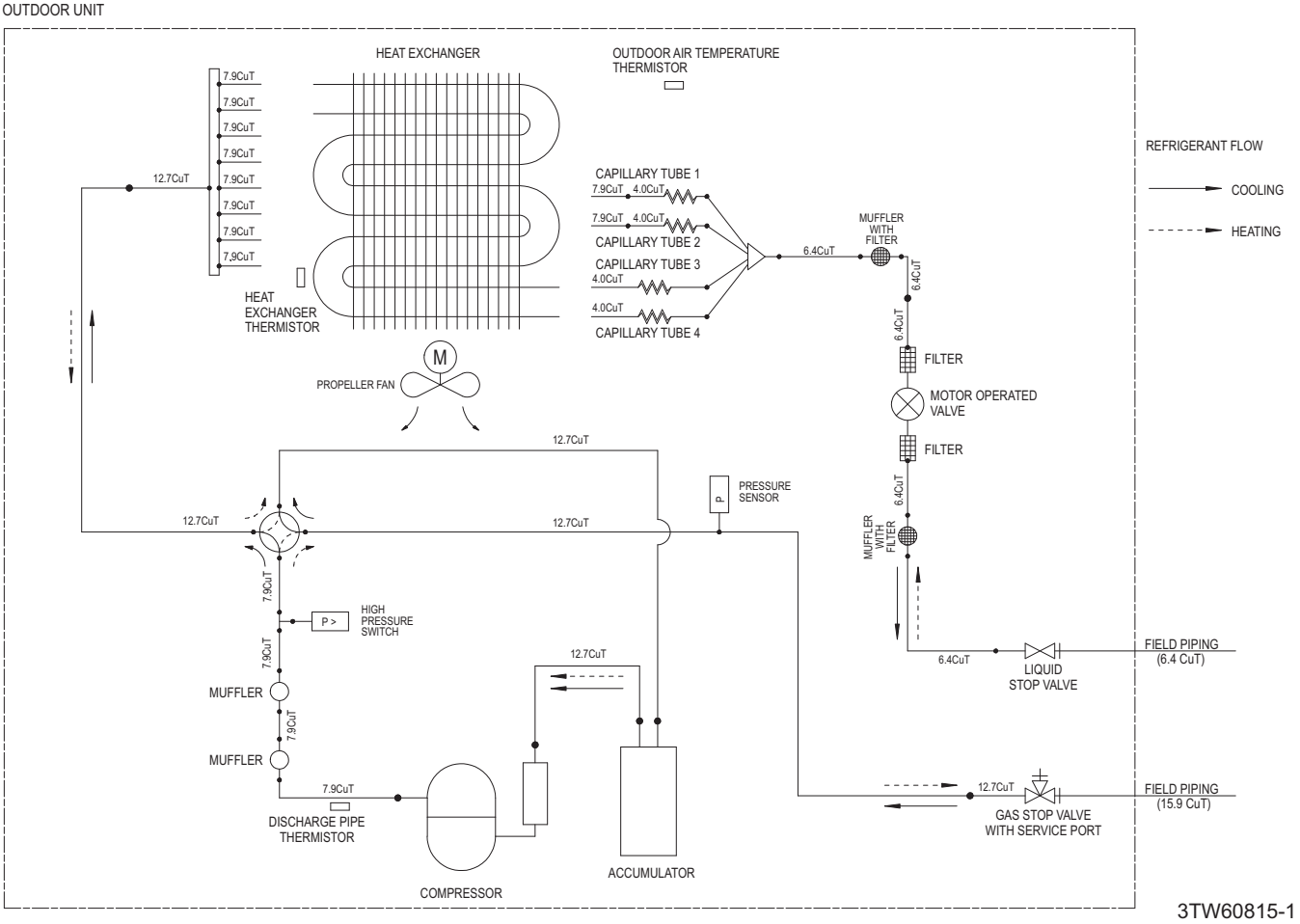
Bottom view



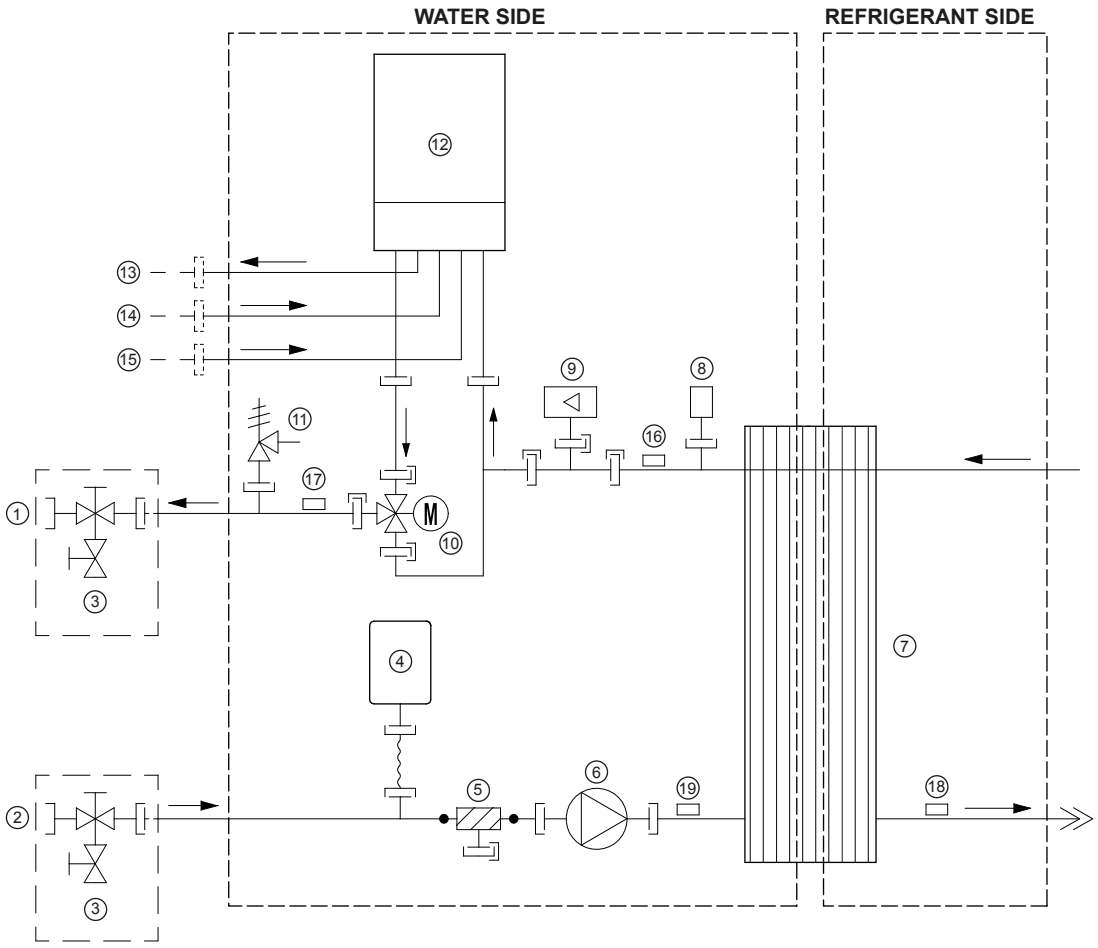
- **a** Space heating outlet
- **b** Domestic hot water outlet
- **c** Gas inlet
- **d** Domestic hot water inlet
- **e** Space heating inlet

16.3 Piping diagram

16.3.1 Piping diagram: Outdoor unit



16.3.2 Piping diagram: Indoor unit



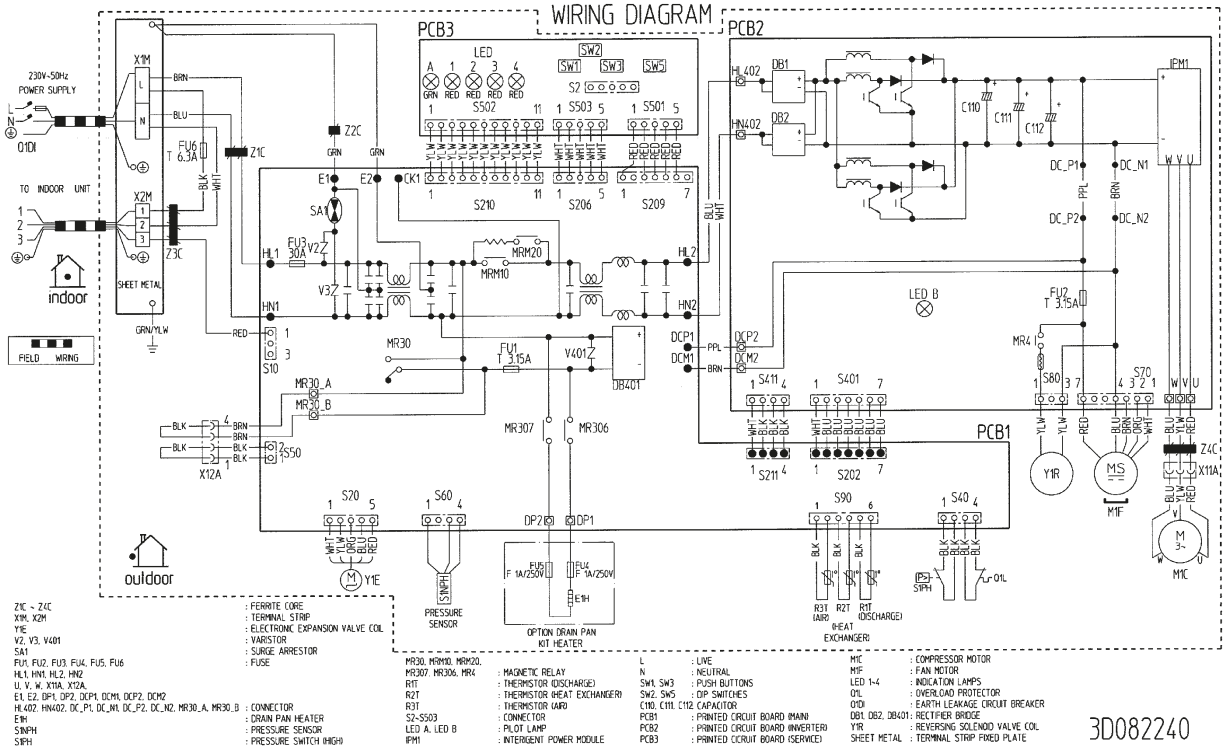
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16.4 Wiring diagram

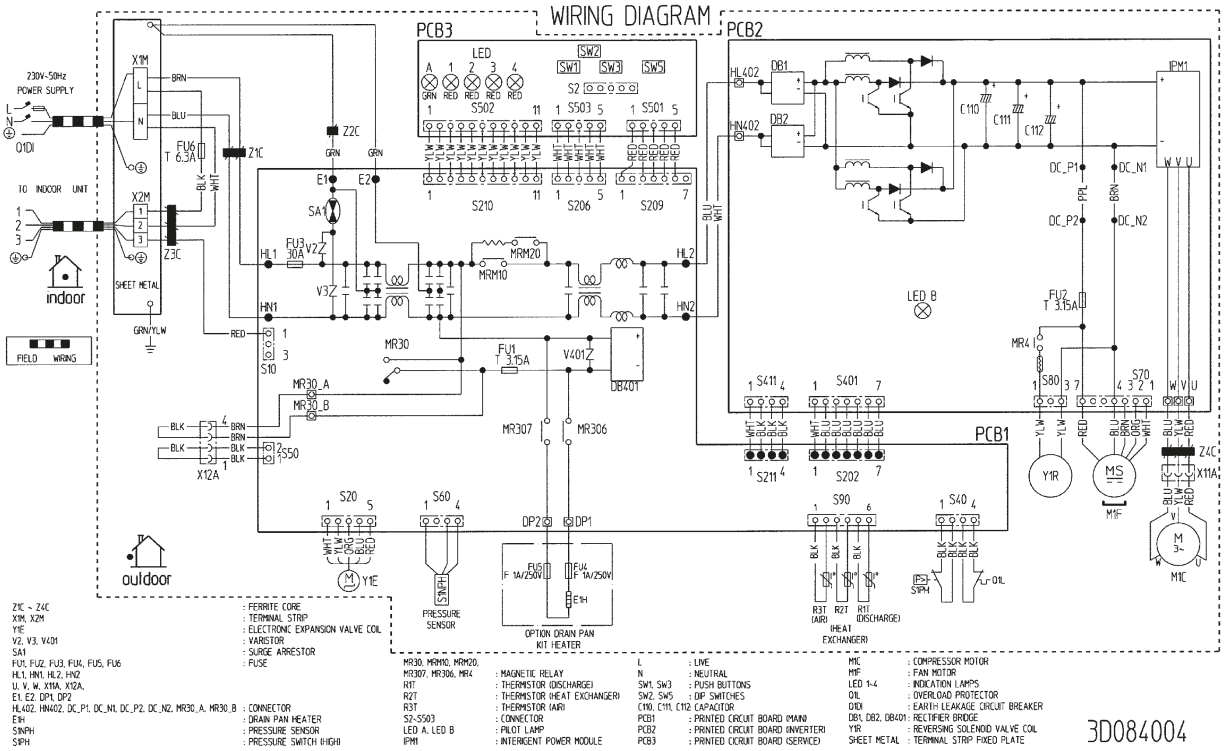
16.4.1 Wiring diagram: Outdoor unit

See the internal wiring diagram supplied with the unit (on the inside of the indoor unit switch box cover). The abbreviations used are listed below.

Only for EVLQ05CAV3



Only for EVLQ08CAV3

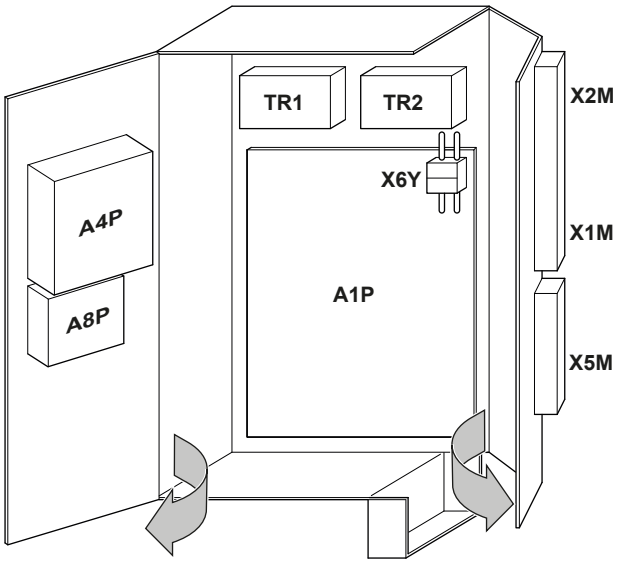


C110~C112	Capacitor
DB1, DB2, DB401	Rectifier bridge
DC_N1, DC_N2	Connector
DCM1, DCM2	Connector
DP1, DP2	Connector
DC_P1, DC_P2	Connector
DCP1, DCP2	Connector
E1, E2	Connector
E1H	Drain pan heater
FU1~FU6	Fuse
HL1, HL2, HL402	Connector
HN1, HN2, HN402	Connector
IPM1	Interigent power module
L	Live
LED 1~LED 4	Indication lamps
LED A, LED B	Pilot lamp
M1C	Compressor motor
M1F	Fan motor
MR4, MR30, MR306, MR307	Magnetic relay
MRM10, MRM20	Magnetic relay
MR30_A, MR30_B	Connector
N	Neutral
PCB1	Printed circuit board (main)
PCB2	Printed circuit board (inverter)
PCB3	Printed circuit board (service)
Q1DI	Earth leakage circuit breaker
Q1L	Overload protector
R1T	Thermistor (discharge)
R2T	Thermistor (heat exchanger)
R3T	Thermistor (air)
S1NPH	Pressure sensor
S1PH	Pressure switch (high)
S2~S503	Connector
SA1	Surge arrestor
SHEET METAL	Terminal strip fixed plate
SW1, SW3	Push buttons
SW2, SW5	DIP switches
U	Connector
V	Connector
V2, V3, V401	Varistor
W	Connector
X11A, X12A	Connector
X1M, X2M	Terminal strip
Y1E	Electronic expansion valve coil
Y1R	Reversing solenoid valve coil
Z1C~Z4C	Ferrite core
	Field wiring
	Terminal strip
	Connector
	Terminal
	Protective earth
BLK	Black
BLU	Blue
BRN	Brown
GRN	Green
ORG	Orange
PPL	Purple
RED	Red
WHT	White
YLW	Yellow

16.4.2 Wiring diagram: Indoor unit

See the internal wiring diagram supplied with the unit (on the inside of the indoor unit switch box cover). The abbreviations used are listed below.

Position in switch box



User installed options:

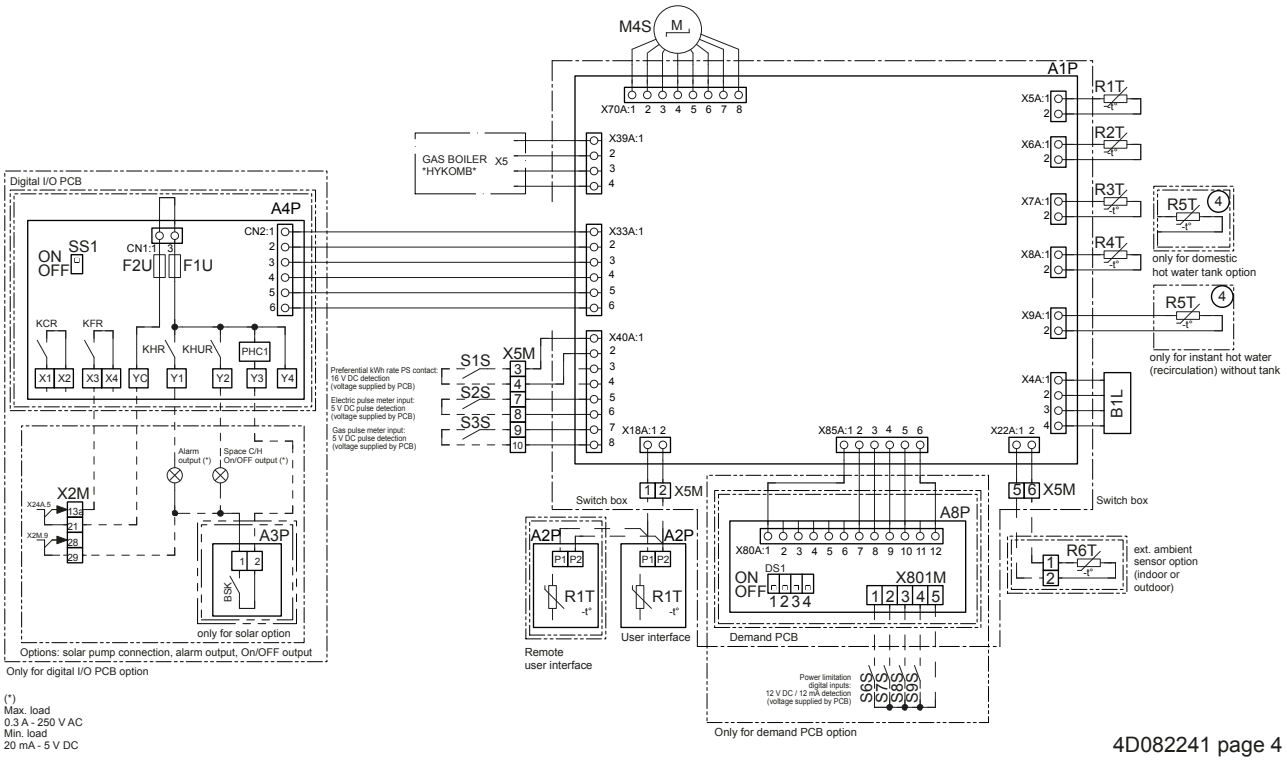
- Remote user interface
- External indoor thermistor
- Digital I/O PCB
- Demand PCB
- Domestic hot water tank
- Domestic hot water tank with solar connection
- External outdoor thermistor
- Instant domestic hot water recirculation

Main leaving water temperature:

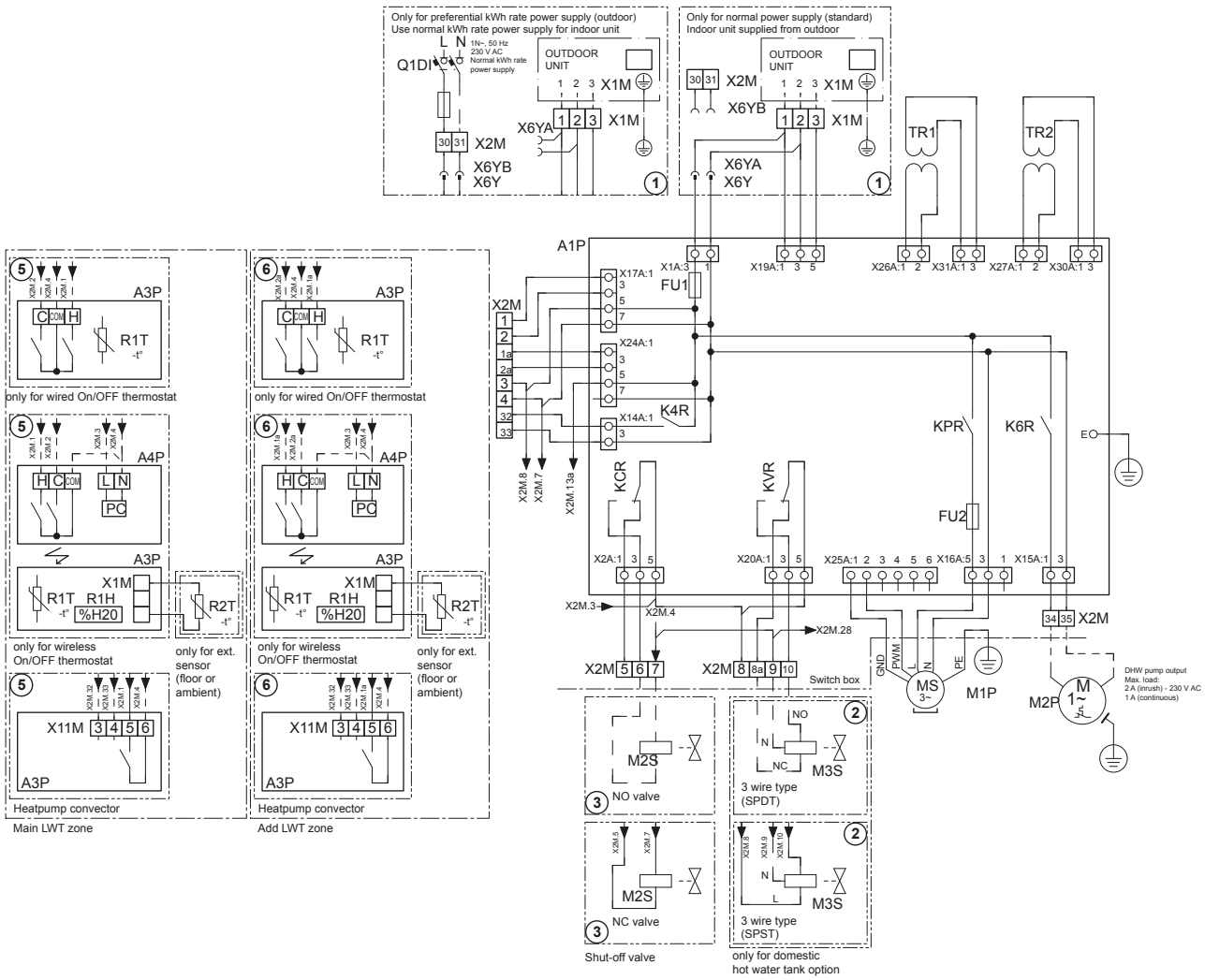
- On/OFF thermostat (wired)
- On/OFF thermostat (wireless)
- External thermistor on On/OFF thermostat (wireless)
- Heat pump convector

Additional leaving water temperature:

- On/OFF thermostat (wired)
- On/OFF thermostat (wireless)
- External thermistor on On/OFF thermostat (wireless)
- Heat pump convector

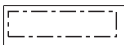
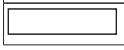


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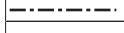
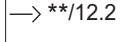
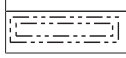


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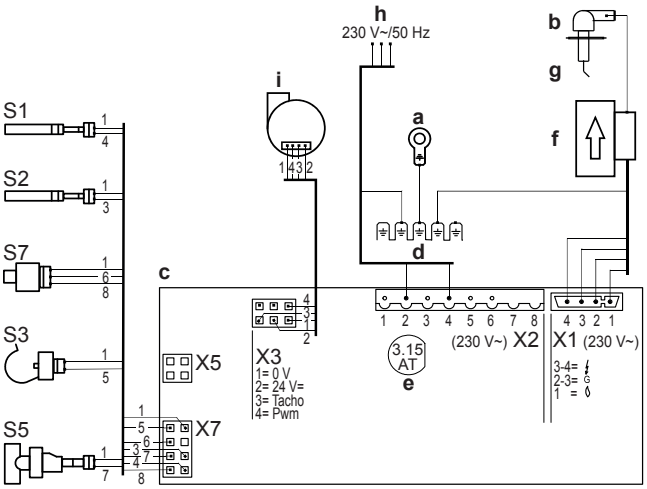
A1P		Main PCB (hydrobox)
A2P		User interface PCB
A3P	*	Solar pump station PCB
A3P	*	On/OFF thermostat
A3P	*	Heat pump convector
A4P	*	Digital I/O PCB
A4P	*	Receiver PCB (Wireless On/OFF thermostat, PC=power circuit)
A8P	*	Demand PCB
B1L		Flow sensor
DS1 (A8P)	*	DIP switch
F1U, F2U	*	Fuse 5 A 250 V for digital I/O PCB (A4P)
FU1		Fuse T 6.3 A 250 V for main PCB (A1P)
K*R		Relay on PCB
M1P		Main water supply pump
M2P	#	Domestic hot water pump
M2S	#	2-way valve for cooling mode
M3S		3-way valve for floor heating/domestic hot water tank
M4S		Bypass valve for gas boiler
PHC1	*	Optocoupler input circuit
PS		Switching power supply
Q*DI	#	Earth leakage circuit breaker
R1T (A1P)		Outlet water heat exchanger thermistor
R1T (A2P)		Ambient sensor user interface
R1T (A3P)	*	Ambient sensor On/OFF thermostat
R2T (A1P)		Outlet gasboiler thermistor
R3T (A1P)		Refrigerant liquid side thermistor
R4T (A1P)		Inlet water thermistor
R5T (A1P)	*	Domestic hot water thermistor
R6T (A1P)	*	External indoor or outdoor ambient thermistor
R1H (A3P)	*	Humidity sensor
S1S	#	Preferential kWh rate power supply contact
S2S	#	Electrical meter pulse input
S3S	#	Gas meter pulse input
S6S~S9S	#	Digital power limitation inputs
SS1 (A4P)	*	Selector switch
TR1, TR2		Power supply transformer
X*M		Terminal strip
X*Y		Connector
	* =	Optional
	# =	Field supply

	Not mounted in switch box
	Wiring depending on model
	PCB

Notes to go through before starting the unit

X1M	Indoor/outdoor communication
X2M	Field wiring terminal for AC
X5M	Field wiring terminal for DC
	Earth wiring
	Field supply
 **/12.2	Connection ** continues on page 12 column 2
①	Several wiring possibilities
	Option

16.4.3 Wiring diagram: Gas boiler



- **a** Earth connections heat exchanger
- **b** Spark plug cover
- **c** Boiler controller
- **d** Earth connections boiler controller
- **e** Fuse (3.15 A T)
- **f** Gas valve and ignition unit
- **g** Ionisation/ignition probe
- **h** Main voltage
- **i** Fan
- **S1** Flow sensor
- **S2** Return sensor
- **S3** Domestic hot water sensor
- **S5** Flow switch
- **S7** Space heating water pressure sensor
- **X1** Gas valve and ignition electrode
- **X2** Main power supply (2=l (BRN), 4=N (BLU))
- **X3** Power supply fan (230 V)
- **X5** Boiler communication cable
- **X7** Sensor connection

16.5 Technical specifications

16.5.1 Technical specifications: Outdoor unit

Nominal capacity and nominal input

		Heating only type		Reversible type
Outdoor units		**EVLQ05CAV3**	**EVLQ08CAV3**	**EVLQ08CAV3**
Indoor units		**EHYHBH05**	**EHYHBH08**	**EHYHBX08**
Condition 1[(a)]				
Heating capacity	Minimum	1.80 kW		
	Nominal	4.40 kW	7.40 kW	
	Maximum	5.12 kW	10.02 kW	
Cooling capacity	Minimum	—		2.50 kW
	Nominal	—		6.86 kW
	Maximum	—		
Heating PI	Nominal	0.87 kW	1.66 kW	
Cooling PI	Nominal	—		2.01 kW
COP	Nominal	5.04	4.45	
EER	Nominal	—		3.42
Condition 2[(b)]				
Heating capacity	Minimum	1.80 kW		
	Nominal	4.03 kW	6.89 kW	
	Maximum	4.90 kW	9.53 kW	
Cooling capacity	Minimum	—		2.50 kW
	Nominal	—		5.36 kW
	Maximum	—		
Heating PI	Nominal	1.13 kW	2.01 kW	
Cooling PI	Nominal	—		2.34 kW
COP	Nominal	3.58	3.42	
EER	Nominal	—		2.29

(a) In heating: Ambient temperature DB/WB 7°C/6°C – leaving water condenser 35°C (DT=5°C). In cooling: Ambient temperature 35°C – leaving water evaporator 18°C (DT=5°C)

(b) In heating: Ambient temperature DB/WB 7°C/6°C – leaving water condenser 45°C (DT=5°C). In cooling: Ambient temperature 35°C – leaving water evaporator 7°C (DT=5°C)

16 Technical data

Technical specifications

		Heating only type		Reversible type
Outdoor units		**EVLQ05CAV3**	**EVLQ08CAV3**	**EVLQ08CAV3**
Indoor units		**EHYHBH05**	**EHYHBH08**	**EHYHBX08**
Casing				
Colour		Ivory white		
Material		Polyester painted galvanised steel		
Dimensions				
Packing (H×W×D)		797×990×390 mm		
Unit (H×W×D)		735×832×307 mm		
Weight				
Machine weight		54 kg	56 kg	
Gross weight		57 kg	59 kg	
Packing				
Material		EPS, carton		
Weight		3 kg		
Heat exchanger				
Specifications	Length	845 mm		
	Nr. of rows	2		
	Fin pitch	1.8 mm		
	Nr. of passes	—		
	Face area	—		
	Nr. of stages	32		
Tube type		Hi-Xa(8)		
Fin	Type	WF fin		
	Treatment	Anti-corrosion treatment (PE)		
Fan				
Type		Propeller		
Quantity		1		
Air flow rate (nominal at 230 V)	Heating	45 m³/min	47 m³/min	
	Cooling	52.5 m³/min		
Discharge direction		Horizontal		
Motor	Quantity	1		
	Output	53 W		
Compressor				
Quantity		1		
Motor	Model	2YC36BXD#C	2YC45NXD#C	
	Type	Hermetically sealed swing compressor		
	Output	—		
PED				
Category of unit		I (excluded from scope of **PED** due to article 1, item 3.6 of 97/23/EC)		
Most critical part		—		
PS×V		—		
PS×DN		—		
Operation range(1)				
Heating (outdoor unit)	Minimum	–25°C DB		
	Maximum	25°C DB		
Sound level				
Nominal - Heating	Sound power	61 dBA	62 dBA	
	Sound pressure(2)	48 dBA	49 dBA	
Night quiet	Sound pressure	—		
Refrigerant				
Type		R410A		
Charge		1.45 kg	1.60 kg	
Control		Expansion valve (electronic type)		

		Heating only type		Reversible type
Outdoor units		**EVLQ05CAV3**	**EVLQ08CAV3**	**EVLQ08CAV3**
Indoor units		**EHYHBH05**	**EHYHBH08**	**EHYHBX08**
Nr. of circuits		1		
Refrigerant oil				
Type		FVC50K		
Charged volume		0.65 l	0.8 l	
Piping connections				
Liquid	Type	Flare connection		
	Diameter (OD)	Ø6.35 mm		
Gas	Type	Flare connection		
	Diameter (OD)	Ø15.9 mm		
Drain	Quantity	2		
	Type	Hole		
	Diameter (OD)	1×Ø15+1×Ø20 mm		
Piping length	Minimum	3 m		
	Maximum	20 m		
	Equivalent	—		
	Chargeless	—		
Additional refrigerant charge		0.02 kg/m IF >10 m		
Maximum height difference between outdoor unit and indoor unit		20 m		
Defrost method		Reverse cycle		
Defrost control		Sensor for outdoor heat exchanger temperature		
Capacity control method		Inverter controlled		
Standard accessories				
Item		Installation manual		
Quality		1		

(1) See operation range drawing.
(2) The sound pressure level is measured via a microphone at a certain distance from the unit. It is a relative value depending on the distance and acoustic environment. Refer to the sound spectrum drawing for more information.

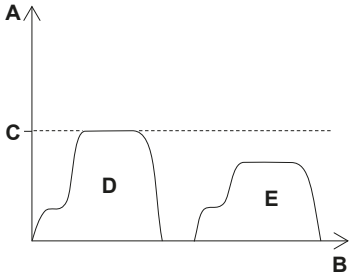
Electrical specifications

		EHYHBH05 + EHYHBH08 + EHYHBX08
Power supply		
Name		V3
Phase		1
Frequency		50 Hz
Voltage		230 V
Voltage range	Minimum	–10%
	Maximum	+10%
Current		
Nominal running current		—
Starting current		18 A(2)
Maximum running current		18 A
Z_{max}		—
Minimum S_{sc} value		Equipment complying with EN/IEC 61000-3-12(1)
Recommended fuses		20 A
Wiring connections		
For power supply	Quantity	3
	Remark	—
For connection with outdoor	Quantity	4
	Remark	Earth wire

(1) European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase.
(2) See figure A.

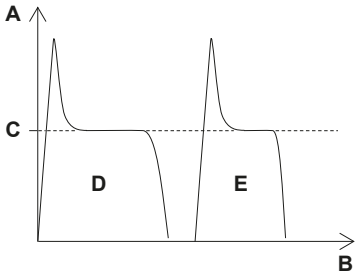
Figure A: Starting current

Daikin inverter controlled compressor starting current always less then or equal to maximal running current.



A Running current
B Time
C Maximum
D Example 1
E Example 2

Standard on/off compressor starting current to maximum running current



A Running current
B Time
C Maximum
D Example 1
E Example 2

16.5.2 Technical specifications: Indoor unit

Technical specifications

			Heating only type		Reversible type
Indoor units			**EHYHBH05**	**EHYHBH08**	**EHYHBX08**
Connected to outdoor unit			**EVLQ05CAV3**	**EVLQ08CAV3**	**EVLQ08CAV3**
Nominal input (indoor unit only)			75 W		
Casing					
Colour			White		
Material			Pre-coated sheetmetal		
Dimensions					
Packing (H×W×D)			1240×528×262		
Unit (H[1]×W×D)			902×450×164		
Weight of machine (net)			33 kg	31.2 kg	
Weight of machine (packed)			33 kg	34.4 kg	—
Packing materials					
Material			Carton/EPS/PP (straps)		
Weight			3 kg		
PED					
Category of unit			Art. 3.3(*)	Category I	
Most critical part			—	Plate heat exchanger	
	Ps*V		—	51 bar	
	Ps*DN		—		
Main components					
Pump	Type		DC motor		
	Nr. of speed		Inverter controlled		
	Nominal ESP unit	Heating[2]	51.8 kPa	19.2 kPa	
		Heating[3]	55.7 kPa	26.0 kPa	
		Cooling[7]	—		44.8 kPa
		Cooling[8]	—		26.5 kPa
	Power input		45 W		
Water side heat exchanger	Type		Brazed plated		
	Quantity		1		
	Water volume		0.9 l	1.3 l	
	Minimum water flow rate		5.0 l/min		
	Nominal water flow rate	Heating[2]	12.6 l/min	21.2 l/min	
		Heating[3]	11.5 l/min	19.8 l/min	
		Cooling[7]	—		15.4 l/min
		Cooling[8]	—		19.7 l/min
	Maximum water flow rate[4]	Heating	23.0 l/min	23.5 l/min	
	Insulation material		Elastomeric foam		
Expansion vessel	Volume		10 l		
	Maximum water pressure		3 bar		
	Pre-pressure		1 bar		
Water filter	Diameter perforations		1		
	Material		Body: copper+brass Filter element: stainless steel		
Water circuit					
Piping connections			Ø22 mm		
Safety valve			3 bar		
Manometer[6]			No		
Drain valve/fill valve			No		
Stop valves			No		
Air purge valve			Yes		

		Heating only type		Reversible type
Indoor units		**EHYHBH05**	**EHYHBH08**	**EHYHBX08**
Connected to outdoor unit		**EVLQ05CAV3**	**EVLQ08CAV3**	**EVLQ08CAV3**
Refrigerant circuit				
Gas side		Ø15.9 mm		
Liquid side		Ø6.35 mm		
Operation range(5)				
Outdoor temperature	Space heating	–25~25°C		
	Space cooling	—	—	10~43°C
Water temperature	Space heating	25~55°C		
	Space cooling	—	—	5~22°C

(1) With air purge and bottom side water connection, unit height is 1075 mm.
(2) DB/WB 7°C/6°C – leaving water condenser 35°C (DT=5°C), boiler bypassed.
(3) DB/WB 7°C/6°C – leaving water condenser 45°C (DT=5°C), boiler bypassed.
(4) Boiler bypassed.
(5) For operation range of *HYHB* and *HYKOMB33AA, see operation range drawing.
(6) For manometer, refer to boiler specifications.
(7) Ambient temperature 35°C – leaving water evaporator 7°C (DT=5°C), boiler bypassed.
(8) Ambient temperature 35°C – leaving water evaporator 18°C (DT=5°C), boiler bypassed.
(*) Excluded from scope of PED due to article 1, item 3.6 of 97/23/EC.

Electrical specifications

		EHYHBH05 + EHYHBH08 + EHYHBX08
Voltage range		
Minimum		207 V
Maximum		253 V
Wiring connections		
Communication cable to outdoor unit	Quantity of wires	4G
	Type of wires	1.5 mm²
User interface	Quantity of wires	2
	Type of wires	0.75 mm²~1.25 mm² (maximum length 500 m)
Preferential kWh rate power supply	Quantity of wires	Power: 2 Signal: 2
	Type of wires	Power: 6.3 A(1) Signal: 0.75 mm²~1.25 mm² (maximum length 500 m)
Electricity meter	Quantity of wires	2
	Type of wires	Minimum 0.75 mm² (5 V DC pulse detection)
Gas meter	Quantity of wires	2
	Type of wires	Minimum 0.75 mm² (5 V DC pulse detection)
Domestic hot water pump	Quantity of wires	2
	Type of wires	Minimum 0.75 mm² (2 A in rush, 1 A continuous)
For connection with R5T	Quantity of wires	Note(2)
	Type of wires	
For connection with R6T	Quantity of wires	2
	Type of wires	Minimum 0.75 mm²
For connection with A3P	Quantity of wires	Note(4)
	Type of wires	Note(1) and Note(3)
For connection with M2S	Quantity of wires	2
	Type of wires	Note(1) and Note(3)
For connection with M3S	Quantity of wires	3
	Type of wires	Note(1) and Note(3)
For connection with optional FWXV (demand input and output)	Quantity of wires	4
	Type of wires	100 mA, minimum 0.75 mm²

(1) Select diameter and type according to national and local regulations.
(2) Wire included in option EKEPHT3H.
(3) Voltage: 230 V / maximum current: 100 mA / minimum 0.75 mm²
(4) Depends on thermostat type, refer to the installation manual

16.5.3 Technical specifications: Gas boiler

	EHYKOMB33AA
Function	Heating only
Heat pump module	EHYHBH05
	EHYHBH08
Device category	C13, C33, C43, C53, C63, C83, C93
Destination country – Gas supply pressure	GB – G20 (20 mbar), G31 (30~37 mbar)
	FR – G20 (20 mbar), G25 (25 mbar), G31 (30 mbar)
	BE – G20 (20 mbar), G25 (25 mbar), G31 (37 mbar)
	DE – G20 (20 mbar), G25 (25 mbar), G30 (50 mbar)
	IT – G20 (20 mbar), G31 (30 mbar)
Destination country – Gas category	GB – II2H3P
	FR – II3Esi3P
	BE – II2E(s)3P
	DE – II2ELL3P
	IT – 2H3P
Gas	
Gas consumption (G20)	0.78~3.39 m^3/h
Gas consumption (G25)	0.90~3.93 m^3/h
Gas consumption (G31)	0.30~1.29 m^3/h
Nox class	5
Central heating	
Thermal load (Hi) G20 (20 mbar)	7.6~27.0 kW
Thermal load (Hi) G25 (25 mbar)	6.2~22.1 kW
Thermal load (Hi) G31 (30/50 mbar)	7.6~27.0 kW
Thermal load (Hi) G31 (37 mbar)	
Heating power space heating (80/60) G20 (20 mbar)	8.2~26.6 kW
Heating power space heating (80/60) G25 (25 mbar)	6.7~21.8 kW
Heating power space heating (80/60) G31 (30/50 mbar)	8.2~26.6 kW
Heating power space heating (80/60) G31 (37 mbar)	
Efficiency space heating (net calorific value 80/60)	98%
Efficiency space heating (net calorific value 40/30 (30%))	107%
Operation range	15~80°C
Domestic hot water	
Heating power domestic hot water	7.6~32.7 kW
Efficiency domestic hot water (net calorific value)	105%
Operation range	40~65°C
Domestic hot water flow rate (setpoint 60°C)	9 l/min
Domestic hot water flow rate (setpoint 40°C)	15 l/min
Casing	
Colour	White – RAL9010
Material	Pre-coated sheet metal
Dimensions	
Packing (H×W×D)	820×490×270 mm
Unit (H×W×D)	710×450×240 mm
Machine net weight	36 kg
Packed machine weight	37 kg
Packing material	Carton/PP (straps)
Packing material (weight)	1 kg
Main components	
Water side heat exchanger	Aluminium
Space heating water circuit	
Space heating piping connections	Ø22 mm
Piping material	Cu
Safety valve	See manual indoor unit
Manometer	Yes
Drain/fill valve	No
Stop valve	No
Air purge valve	Yes
Maximum pressure space heating circuit	3 bar
Domestic hot water circuit	
Domestic hot water piping connections	Ø15 mm
Piping material	Cu
Gas connection	Ø15 mm
Flue gas/combustion air connection	Concentric connection Ø60/100 mm
Electrical	
Power supply voltage	230 V
Power supply phase	1~
Power supply frequency	50 Hz
IP class	IP44
Maximum electrical power consumption	55 W
Electrical power consumption (standby)	2 W

GAS BOILER SYSTEM COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the boiler as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission according to the manufacturer's instructions and complete this Benchmark Commissioning Checklist will invalidate the warranty. This does not affect the customer's statutory rights.

Customer Name _____ Telephone Number _____

Adress _____

Boiler Make and Model _____

Commissioned by *(print name)* _____ Gas Safe Register Number _____

Company Name _____ Telephone Number _____

Company Adress _____

_____ Commissioning Date _____

To be completed by the customer on receipt of a Building Regulations Compliance Certificate*:

Buiding Regulations Notification Number *(if applicable)*

CONTROLS Tick the appropriate boxes

Time and Temperature Control to Heating	Room Thermostat and Programmer/Timer ☐	Programmable Room Thermostat ☐	Load/Weather Compensation ☐	Optimum Start Control ☐
Time and Temperature Control to Hot Water		Cylinder Thermostat and Programmer/Timer ☐		Combination Boiler ☐
Heating Zone Valves			Fitted ☐	Not Required ☐
Hot Water Zone Valves			Fitted ☐	Not Required ☐
Thermostatic Radiator Valves			Fitted ☐	Not Required ☐
Automatic Bypass to System			Fitted ☐	Not Required ☐
Boiler Interlock				Provided ☐

ALL SYSTEMS

The system has been flushed and cleaned in accordance with BS7593 and boiler manufacturer's instructions — Yes ☐

What system cleaner was used?

What inhibitor was used? — Quantity ☐ litres

CENTRAL HEATING MODE Measure and record:

Gas Rate	☐ m^3/hr	OR		☐	ft^3/hr
Burner Operating Pressure (if applicable)	☐ mbar	OR	Gas Inlet Pressure	☐	mbar
Central Heating Flow Temperature				☐	°C
Central Heating Return Temperature				☐	°C

COMBINATION BOILERS ONLY

Is the installation in a hard water area (above 200ppm)? — Yes ☐ No ☐

If yes, and if required by the manufacturer, has a water scale reducer been fitted? — Yes ☐ No ☐

What type of scale reducer has been fitted?

DOMESTIC HOT WATER MODE Measure and Record:

Gas Rate	☐ m^3/hr	OR		☐	ft^3/hr
Burner Operating Pressure (at maximum rate)	☐ mbar	OR	Gas inlet Pressure (at maximum rate)	☐	mbar
Cold Water Inlet Temperature				☐	°C
Hot water has been checked at all outlets			Yes ☐ Temperature	☐	°C
Water Flow Rate				☐	l/min

Condensing Boilers Only

The Condensate drain has been installed in accordance with the manufacturer's instructions and/or BS5546/BS6798 — Yes ☐

If the condensate pipe terminates externally has the pipe diameter been increased and waterproof insulation fitted? — Yes ☐

ALL INSTALLATIONS

If required by the manufacturer, record the following — CO_2 ☐ % OR CO ☐ *ppm* OR co/co_2 ratio ☐

The heating and hot water system complies with the appropriate Building Regulations — Yes ☐

The boiler and associated products have been installed and commissioned in accordance with the manufacturer's instructions — Yes ☐

The operation of the boiler and system controls have been demonstrated to and understood by the customer — Yes ☐

The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the the customer — Yes ☐

Commissioning Engineer's Signature

Customer's Signature

(To confirm satisfactory demonstration and receipt of manufacturer's literature)

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme.
A Building Regulations Compliance Certificate will then be issued to the customer.

benchmark
COLLECTIVE MARK
THE MARK OF QUALITY FOR THE INSTALLATION, COMMISSIONING AND SERVICING OF DOMESTIC HEATING AND HOT WATER SYSTEMS

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Service Record

It is recommended that your heating system is serviced regularly and that the appropriate Service Interval Record is completed.

Service Provider

Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer's instructions.

Always use the manufacturer's specified spare part when replacing controls.

Service 1 Date:
Engineer Name:
Company Name:
Telephone No.
Gas Safe Register No.
Comments:

Signature:

Service 2 Date:
Engineer Name:
Company Name:
Telephone No.
Gas Safe Register No.
Comments:

Signature:

Service 3 Date:
Engineer Name:
Company Name:
Telephone No.
Gas Safe Register No.
Comments:

Signature:

Service 4 Date:
Engineer Name:
Company Name:
Telephone No.
Gas Safe Register No.
Comments:

Signature:

Service 5 Date:
Engineer Name:
Company Name:
Telephone No.
Gas Safe Register No.
Comments:

Signature:

Service 6 Date:
Engineer Name:
Company Name:
Telephone No.
Gas Safe Register No.
Comments:

Signature:

Service 7 Date:
Engineer Name:
Company Name:
Telephone No.
Gas Safe Register No.
Comments:

Signature:

Service 8 Date:
Engineer Name:
Company Name:
Telephone No.
Gas Safe Register No.
Comments:

Signature:

Service 9 Date:
Engineer Name:
Company Name:
Telephone No.
Gas Safe Register No.
Comments:

Signature:

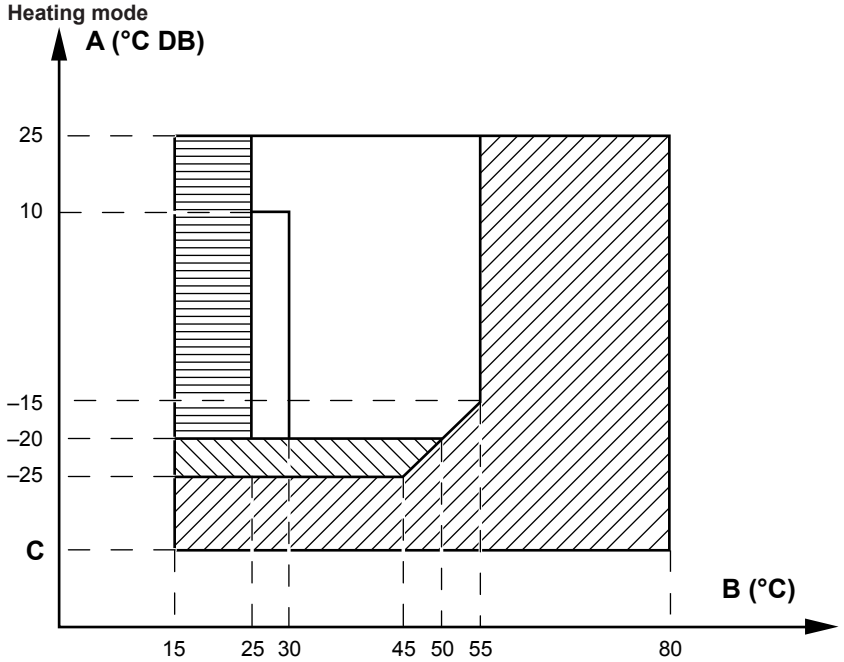
Service 10 Date:
Engineer Name:
Company Name:
Telephone No.
Gas Safe Register No.
Comments:

Signature:

16.6 Operation range

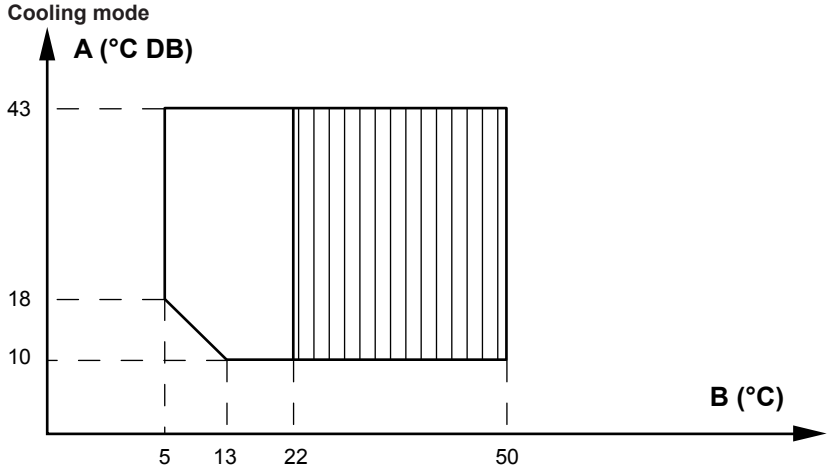
16.6.1 Operation range: Heating and cooling

Heating mode



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Cooling mode



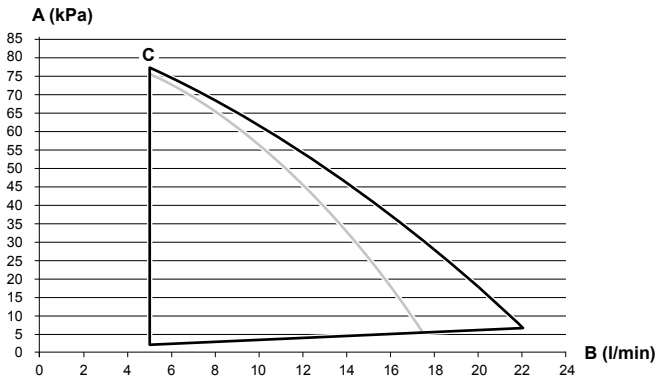
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A Outdoor temperature
B Leaving condenser water temperature
C No limit
▤ Outdoor unit operation is possible if setpoint ≥25°C.
▨ Boiler operation (maximum condenser leaving water temperature is 55°C)
▧ Operation of outdoor unit is possible, but no guarantee of capacity. (If outdoor temperature <–25°C outdoor unit will stop) (Indoor unit and boiler operation will continue)
▥ Pull down area

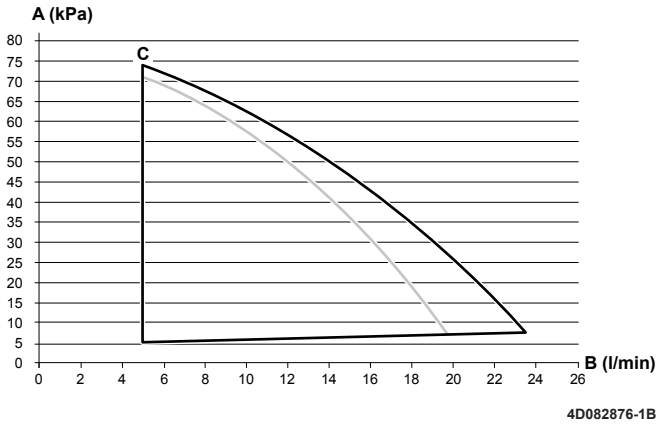
16.7 ESP curve

16.7.1 ESP curve: indoor unit

5 kW



8 kW



A External static pressure
B Water flow rate
C Minimum water flow = 5 l/min
Boiler bypassed
Boiler not bypassed

Note: Selecting a flow outside the area of operation can cause damage or malfunction of the unit. Water quality MUST be according to EN directive EC98/83EC.

Field settings table

Applicable indoor units

*HYHBH05AAV3
*HYHBH08AAV3
*HYHBX08AAV3

Notes

-



Field settings table

Breadcrumb	Field code	Setting name			Range, step **Default value**	Installer setting at variance with default value Date	 Value
User settings							
└ Preset values							
└ Room temperature							
7.4.1.1		Comfort (heating)		R/W	[3-07]~[3-06], step: A.3.2.4 **21°C**		
7.4.1.2		Eco (heating)		R/W	[3-07]~[3-06], step: A.3.2.4 **19°C**		
7.4.1.3		Comfort (cooling)		R/W	[3-09]~[3-08], step: A.3.2.4 **24°C**		
7.4.1.4		Eco (cooling)		R/W	[3-09]~[3-08], step: A.3.2.4 **26°C**		
└ LWT main							
7.4.2.1	[8-09]	Comfort (heating)		R/W	[9-01]~[9-00], step: 1°C **45°C**		
7.4.2.2	[8-0A]	Eco (heating)		R/W	[9-01]~[9-00], step: 1°C **40°C**		
7.4.2.3	[8-07]	Comfort (cooling)		R/W	[9-03]~[9-02], step: 1°C **18°C**		
7.4.2.4	[8-08]	Eco (cooling)		R/W	[9-03]~[9-02], step: 1°C **20°C**		
7.4.2.5		Comfort (heating)		R/W	-10~10°C, step: 1°C **0°C**		
7.4.2.6		Eco (heating)		R/W	-10~10°C, step: 1°C **-2°C**		
7.4.2.7		Comfort (cooling)		R/W	-10~10°C, step: 1°C **0°C**		
7.4.2.8		Eco (cooling)		R/W	-10~10°C, step: 1°C **2°C**		
└ Tank temperature							
7.4.3.1	[6-0A]	Storage comfort		R/W	30~[6-0E]°C, step: 1°C **60°C**		
7.4.3.2	[6-0B]	Storage eco		R/W	30~min(50, [6-0E]) °C, step: 1°C **50°C**		
7.4.3.3	[6-0C]	Reheat		R/W	30~min(50, [6-0E]) °C, step: 1°C **50°C**		
└ Quiet level							
7.4.4				R/W	**0: Level 1** 1: Level 2 2: Level 3		
└ Electricity price							
7.4.5.1	[C-0C] [D-0C]	High		R/W	0,00~990/kWh **20/kWh**		
7.4.5.2	[C-0D] [D-0D]	Medium		R/W	0,00~990/kWh **20/kWh**		
7.4.5.3	[C-0E] [D-0E]	Low		R/W	0,00~990/kWh **15/kWh**		
└ Fuel price							
7.4.6				R/W	0,00~990/kWh 0,00~290/MBtu **8,0/kWh**		
Installer settings							
└ System layout							
└ Standard							
A.2.1.1	[E-00]	Unit type		R/O	**3: Hybrid**		
A.2.1.2	[E-01]	Compressor type		R/O	**0: 08**		
A.2.1.3	[E-02]	Indoor software type		R/O	*HYHBH05+08: **1: Type 2** *HYHBX08: **0: Type 1**		
A.2.1.6	[D-01]	Preferential kWh rate		R/W	**0: No** 1: Active open 2: Active closed		
A.2.1.7	[C-07]	Unit control method		R/W	0: LWT control 1: Ext RT control **2: RT control**		
A.2.1.8	[7-02]	Number of LWT zones		R/W	**0: 1 LWT zone** 1: 2 LWT zones		
A.2.1.9	[F-0D]	Pump operation mode		R/W	0: Continuous 1: Sample ([C-07] = 0) **2: Request** ([C-07] ≠ 0)		
A.2.1.A	[E-04]	Power saving possible		R/O	**1: Yes**		
A.2.1.B		User interface location		R/W	0: At unit **1: In room**		
└ Options							
A.2.2.1	[E-05]	DHW operation		R/W	0: No **1: Yes**		
A.2.2.2	[E-06]	DHW tank		R/W	**0: No** 1: Yes		
A.2.2.3	[E-07]	What kind of DHW tank is installed? (Do not change)		R/W	**4**		
A.2.2.4	[C-05]	Contact type main		R/W	1: Thermo ON/OFF **2: C/H request**		
A.2.2.5	[C-06]	Contact type add.		R/W	1: Thermo ON/OFF **2: C/H request**		
A.2.2.6.2	[D-07]	Digital I/O PCB	Solar kit	R/W	**0: No** 1: Yes		
A.2.2.6.3	[C-09]	Digital I/O PCB	Alarm output	R/W	**0: Normally open** 1: Normally closed		
A.2.2.7	[D-04]	Demand PCB		R/W	**0: No** 1: Power consumption control		
A.2.2.8	[D-08]	External kWh meter 1		R/W	**0: No** 1: 0,1 pulse/kWh 2: 1 pulse/kWh 3: 10 pulse/kWh 4: 100 pulse/kWh 5: 1000 pulse/kWh		
A.2.2.A	[D-02]	DHW pump		R/W	**0: No** 1: Secondary rtrn ([E-06]=1) 2: Disinf. Shunt ([E-06]=1)		
A.2.2.B	[C-08]	External sensor		R/W	**0: No** 1: Outdoor sensor 2: Room sensor		
A.2.2.C	[D-0A]	External gas meter		R/W	**0: Not present** 1: 1 /m³ 2: 10 /m³ 3: 100 /m³		
Space operation							
└ LWT settings							

Field settings table						Installer setting at variance with default value	
Breadcrumb	Field code	Setting name			Range, step **Default value**	Date	Value
		└ Main					
A.3.1.1.1		LWT setpoint mode		R/W	0: Absolute **1: Weather dep.** 2: Abs + scheduled 3: WD + scheduled		
A.3.1.1.2.1	[9-01]	Temperature range	Minimum temp (heating)	R/W	15~37°C, step: 1°C **25°C**		
A.3.1.1.2.2	[9-00]	Temperature range	Maximum temp (heating)	R/W	37~80°C, step: 1°C **80°C**		
A.3.1.1.2.3	[9-03]	Temperature range	Minimum temp (cooling)	R/W	5~18°C, step: 1°C **5°C**		
A.3.1.1.2.4	[9-02]	Temperature range	Maximum temp (cooling)	R/W	18~22°C, step: 1°C **22°C**		
A.3.1.1.3	[1-00]	Set weather-dependent heating	Low ambient temp. for LWT main zone heating WD curve.	R/W	-20~5°C, step: 1°C **-10°C**		
A.3.1.1.3	[1-01]	Set weather-dependent heating	High ambient temp. for LWT main zone heating WD curve.	R/W	10~20°C, step: 1°C **15°C**		
A.3.1.1.3	[1-02]	Set weather-dependent heating	Leaving water value for low ambient temp. for LWT main zone heating WD curve.	R/W	[9-00]~[9-01], step: 1°C **60°C**		
A.3.1.1.3	[1-03]	Set weather-dependent heating	Leaving water value for high ambient temp. for LWT main zone heating WD curve.	R/W	[9-00]~min(45,[9-01]), step: 1°C **35°C**		
A.3.1.1.4	[1-06]	Set weather-dependent cooling	Low ambient temp. for LWT main zone cooling WD curve.	R/W	10~25°C, step: 1°C **20°C**		
A.3.1.1.4	[1-07]	Set weather-dependent cooling	High ambient temp. for LWT main zone cooling WD curve.	R/W	25~43°C, step: 1°C **35°C**		
A.3.1.1.4	[1-08]	Set weather-dependent cooling	Leaving water value for low ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C **22°C**		
A.3.1.1.4	[1-09]	Set weather-dependent cooling	Leaving water value for high ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C **18°C**		
A.3.1.1.5	[8-05]	Modulated LWT		R/W	0: No **1: Yes**		
A.3.1.1.6.1	[F-0B]	Shut-off valve	Thermo On/OFF	R/W	**0: No** 1: Yes		
A.3.1.1.6.2	[F-0C]	Shut-off valve	Cooling	R/W	0: No **1: Yes**		
A.3.1.1.7	[9-0B]	Emitter type		R/W	**0: Quick** 1: Slow		
		└ Additional					
A.3.1.2.1		LWT setpoint mode		R/W	0: Absolute **1: Weather dep.** 2: Abs + scheduled 3: WD + scheduled		
A.3.1.2.2.1	[9-05]	Temperature range	Minimum temp (heating)	R/W	15~37°C, step: 1°C **25°C**		
A.3.1.2.2.2	[9-06]	Temperature range	Maximum temp (heating)	R/W	37~80°C, step: 1°C **80°C**		
A.3.1.2.2.3	[9-07]	Temperature range	Minimum temp (cooling)	R/W	5~18°C, step: 1°C **5°C**		
A.3.1.2.2.4	[9-08]	Temperature range	Maximum temp (cooling)	R/W	18~22°C, step: 1°C **22°C**		
A.3.1.2.3	[0-00]	Set weather-dependent heating	Leaving water value for high ambient temp. for LWT add zone heating WD curve.	R/W	[9-05]~min(45,[9-06])°C, step: 1°C **35°C**		
A.3.1.2.3	[0-01]	Set weather-dependent heating	Leaving water value for low ambient temp. for LWT add zone heating WD curve.	R/W	[9-05]~[9-06]°C, step: 1°C **60°C**		
A.3.1.2.3	[0-02]	Set weather-dependent heating	High ambient temp. for LWT add zone heating WD curve.	R/W	10~20°C, step: 1°C **15°C**		
A.3.1.2.3	[0-03]	Set weather-dependent heating	Low ambient temp. for LWT add zone heating WD curve.	R/W	-20~5°C, step: 1°C **-10°C**		
A.3.1.2.4	[0-04]	Set weather-dependent cooling	Leaving water value for high ambient temp. for LWT add zone cooling WD curve.	R/W	[9-07]~[9-08]°C, step: 1°C **8°C**		
A.3.1.2.4	[0-05]	Set weather-dependent cooling	Leaving water value for low ambient temp. for LWT add zone cooling WD curve.	R/W	[9-07]~[9-08]°C, step: 1°C **12°C**		
A.3.1.2.4	[0-06]	Set weather-dependent cooling	High ambient temp. for LWT add zone cooling WD curve.	R/W	25~43°C, step: 1°C **35°C**		
A.3.1.2.4	[0-07]	Set weather-dependent cooling	Low ambient temp. for LWT add zone cooling WD curve.	R/W	10~25°C, step: 1°C **20°C**		
		└ Room thermostat					
A.3.2.1.1	[3-07]	Room temp. range	Minimum temp (heating)	R/W	12~18°C, step: A.3.2.4 **12°C**		
A.3.2.1.2	[3-06]	Room temp. range	Maximum temp (heating)	R/W	18~30°C, step: A.3.2.4 **30°C**		
A.3.2.1.3	[3-09]	Room temp. range	Minimum temp (cooling)	R/W	15~25°C, step: A.3.2.4 **15°C**		
A.3.2.1.4	[3-08]	Room temp. range	Maximum temp (cooling)	R/W	25~35°C, step: A.3.2.4 **35°C**		
A.3.2.2	[2-0A]	Room temp. offset		R/W	-5~5°C, step: 0,5°C **0°C**		
A.3.2.3	[2-09]	Ext. room sensor offset		R/W	-5~5°C, step: 0,5°C **0°C**		
A.3.2.4		Room temp. step		R/W	**0: 1 °C** 1: 0,5 °C		
		└ Operation range					
A.3.3.1	[4-02]	Space heating OFF temp		R/W	14~35°C, step: 1°C **25°C**		
A.3.3.2	[F-01]	Space cooling On temp		R/W	10~35°C, step: 1°C **20°C**		
		└ Domestic hot water (DHW)					
		└ Type					
A.4.1	[6-0D]			R/W	0: Reheat only 1: Reheat + sched. **2: Scheduled only**		
		└ Setpoint readout					
A.4.3.1		Setpoint readout type		R/W	**0: Temperature** 1: Graphical		
A.4.3.2.1		Conversion persons	1 person	R/W	30~80°C, step: 1°C **42°C**		
A.4.3.2.2		Conversion persons	2 persons	R/W	0~20°C, step: 1°C **6°C**		
A.4.3.2.3		Conversion persons	3 persons	R/W	0~20°C, step: 1°C **15°C**		
A.4.3.2.4		Conversion persons	4 persons	R/W	0~20°C, step: 1°C **17°C**		
A.4.3.2.5		Conversion persons	5 persons	R/W	0~20°C, step: 1°C **1°C**		

Field settings table						Installer setting at variance with default value	
Breadcrumb	Field code	Setting name			Range, step **Default value**	Date	Value
A.4.3.2.6		Conversion persons	6 persons	R/W	0~20°C, step: 1°C **1°C**		
		└ Disinfection					
A.4.4.1	[2-01]	Disinfection		R/W	**0: No** 1: Yes		
A.4.4.2	[2-00]	Operation day		R/W	0: Each day 1: Monday 2: Tuesday 3: Wednesday 4: Thursday **5: Friday** 6: Saturday 7: Sunday		
A.4.4.3	[2-02]	Start time		R/W	0~23 hour, step: 1 hour **23**		
A.4.4.4	[2-03]	Temperature target		R/W	55~80°C, step: 5°C **70°C**		
A.4.4.5	[2-04]	Duration		R/W	5~60 min, step: 5 min **10 min**		
		└ Maximum setpoint					
A.4.5	[6-0E]			R/W	[E-06]=1 : 40~75°C, step: 1°C **75°C** [E-06]=0 : 40~65°C, step: 1°C **65°C**		
		└ SP mode					
A.4.6		SP mode		R/W	**0: Absolute** 1: Weather dep.		
		└ Weather dependant curve					
A.4.7	[0-0B]	Weather-dependent curve	DHW setpoint for high ambient temp. for DHW WD curve.	R/W	35~[6-0E]°C, step: 1°C **55°C**		
A.4.7	[0-0C]	Weather-dependent curve	DHW setpoint for low ambient temp. for DHW WD curve.	R/W	45~[6-0E]°C, step: 1°C **65°C**		
A.4.7	[0-0D]	Weather-dependent curve	High ambient temp. for DHW WD curve.	R/W	10~20°C, step: 1°C **15°C**		
A.4.7	[0-0E]	Weather-dependent curve	Low ambient temp. for DHW WD curve.	R/W	-20~5°C, step: 1°C **-10°C**		
└ Heat sources							
		└ Boiler					
A.5.2.1		Auto emergency operation		R/W	**0: Manual** 1: Automatic		
A.5.2.2	[5-01]	Equilibrium temp.		R/W	-15~35°C, step: 1°C **5°C**		
└ System operation							
		└ Auto restart					
A.6.1	[3-00]			R/W	0: No **1: Yes**		
		└ Pwr consumpt. Control					
A.6.3.1	[4-08]	Mode		R/W	**0: No limitation** 1: Continuous 2: Digital inputs		
A.6.3.2	[4-09]	Type		R/W	0: Current **1: Power**		
A.6.3.3	[5-05]	Amp. value		R/W	0~50 A, step: 1 A **50 A**		
A.6.3.4	[5-09]	kW value		R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.6.3.5.1	[5-05]	Amp. limits for DI	Limit DI1	R/W	0~50 A, step: 1 A **50 A**		
A.6.3.5.2	[5-06]	Amp. limits for DI	Limit DI2	R/W	0~50 A, step: 1 A **50 A**		
A.6.3.5.3	[5-07]	Amp. limits for DI	Limit DI3	R/W	0~50 A, step: 1 A **50 A**		
A.6.3.5.4	[5-08]	Amp. limits for DI	Limit DI4	R/W	0~50 A, step: 1 A **50 A**		
A.6.3.6.1	[5-09]	kW limits for DI	Limit DI1	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.6.3.6.2	[5-0A]	kW limits for DI	Limit DI2	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.6.3.6.3	[5-0B]	kW limits for DI	Limit DI3	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.6.3.6.4	[5-0C]	kW limits for DI	Limit DI4	R/W	0~20 kW, step: 0,5 kW **20 kW**		
		└ Averaging time					
A.6.4	[1-0A]			R/W	0: No averaging **1: 12 hours** 2: 24 hours 3: 48 hours 4: 72 hours		
		└ Ext amb. sensor offset					
A.6.5	[2-0B]			R/W	-5~5°C, step: 0,5°C **0°C**		
		└ Savings mode					
A.6.7	[7-04]			R/W	**0: Economical** 1: Ecological		
		└ Calorific value					
A.6.B				R/W	7~40 Step: 0,1 **10,5**		
└ Overview settings							
A.8	[0-00]	Leaving water value for high ambient temp. for LWT add zone heating WD curve.		R/W	[9-05]~min(45,[9-06])°C, step: 1°C **35°C**		
A.8	[0-01]	Leaving water value for low ambient temp. for LWT add zone heating WD curve.		R/W	[9-05]~[9-06]°C, step: 1°C **60°C**		
A.8	[0-02]	High ambient temp. for LWT add zone heating WD curve.		R/W	10~20°C, step: 1°C **15°C**		
A.8	[0-03]	Low ambient temp. for LWT add zone heating WD curve.		R/W	-20~5°C, step: 1°C **-10°C**		
A.8	[0-04]	Leaving water value for high ambient temp. for LWT add zone cooling WD curve.		R/W	[9-07]~[9-08]°C, step: 1°C **8°C**		
A.8	[0-05]	Leaving water value for low ambient temp. for LWT add zone cooling WD curve.		R/W	[9-07]~[9-08]°C, step: 1°C **12°C**		
A.8	[0-06]	High ambient temp. for LWT add zone cooling WD curve.		R/W	25~43°C, step: 1°C **35°C**		
A.8	[0-07]	Low ambient temp. for LWT add zone cooling WD curve.		R/W	10~25°C, step: 1°C **20°C**		

Field settings table					Installer setting at variance with default value	
Breadcrumb	Field code	Setting name		Range, step **Default value**	Date	Value
A.8	[0-0B]	Leaving water value for high ambient temp. for DHW WD curve.	R/W	35~[6-0E]°C, step: 1°C **55°C**		
A.8	[0-0C]	Leaving water value for low ambient temp. for DHW WD curve.	R/W	45~[6-0E]°C, step: 1°C **65°C**		
A.8	[0-0D]	High ambient temp. for DHW WD curve.	R/W	10~20°C, step: 1°C **15°C**		
A.8	[0-0E]	Low ambient temp. for DHW WD curve.	R/W	-20~5°C, step: 1°C **-10°C**		
A.8	[1-00]	Low ambient temp. for LWT main zone heating WD curve.	R/W	-20~5°C, step: 1°C **-10°C**		
A.8	[1-01]	High ambient temp. for LWT main zone heating WD curve.	R/W	10~20°C, step: 1°C **15°C**		
A.8	[1-02]	Leaving water value for low ambient temp. for LWT main zone heating WD curve.	R/W	[9-00]~[9-01], step: 1°C **60°C**		
A.8	[1-03]	Leaving water value for high ambient temp. for LWT main zone heating WD curve.	R/W	[9-00]~min(45,[9-01]), step: 1°C **35°C**		
A.8	[1-04]	Weather dependent cooling of the main leaving water temperature zone.	R/W	0: Disabled **1: Enabled**		
A.8	[1-05]	Weather dependent cooling of the additional leaving water temperature zone.	R/W	0: Disabled **1: Enabled**		
A.8	[1-06]	Low ambient temp. for LWT main zone cooling WD curve.	R/W	10~25°C, step: 1°C **20°C**		
A.8	[1-07]	High ambient temp. for LWT main zone cooling WD curve.	R/W	25~43°C, step: 1°C **35°C**		
A.8	[1-08]	Leaving water value for low ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C **22°C**		
A.8	[1-09]	Leaving water value for high ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C **18°C**		
A.8	[1-0A]	What is the averaging time for the outdoor temp?	R/W	0: No averaging **1: 12 hours** 2: 24 hours 3: 48 hours 4: 72 hours		
A.8	[2-00]	When should the disinfection function be executed?	R/W	0: Each day 1: Monday 2: Tuesday 3: Wednesday 4: Thursday **5: Friday** 6: Saturday 7: Sunday		
A.8	[2-01]	Should the disinfection function be executed?	R/W	**0: No** 1: Yes		
A.8	[2-02]	When should the disinfection function start?	R/W	0~23 hour, step: 1 hour **23**		
A.8	[2-03]	What is the disinfection target temperature?	R/W	55~80°C, step: 5°C **70°C**		
A.8	[2-04]	How long must the tank temperature be maintained?	R/W	5~60 min, step: 5 min **10 min**		
A.8	[2-05]	Room antifrost temperature	R/W	4~16°C, step: 1°C **8°C**		
A.8	[2-06]	--	R/O	**1**		
A.8	[2-09]	Adjust the offset on the measured room temperature	R/W	-5~5°C, step: 0,5°C **0°C**		
A.8	[2-0A]	Adjust the offset on the measured room temperature	R/W	-5~5°C, step: 0,5°C **0°C**		
A.8	[2-0B]	What is the required offset on the measured outdoor temp.?	R/W	-5~5°C, step: 0,5°C **0°C**		
A.8	[3-00]	Is auto restart of the unit allowed?	R/W	0: No **1: Yes**		
A.8	[3-01]	--	R/W	**0**		
A.8	[3-02]	--	R/W	**1**		
A.8	[3-03]	--	R/W	**4**		
A.8	[3-04]	--	R/W	**2**		
A.8	[3-05]	--	R/W	**1**		
A.8	[3-06]	What is the maximum desired room temperature in heating?	R/W	18~30°C, step: A.3.2.4 **30°C**		
A.8	[3-07]	What is the mimimum desired room temperature in heating?	R/W	12~18°C, step: A.3.2.4 **12°C**		
A.8	[3-08]	What is the maximum desired room temperature in cooling?	R/W	25~35°C, step: A.3.2.4 **35°C**		
A.8	[3-09]	What is the minimum desired room temperature in cooling?	R/W	15~25°C, step: A.3.2.4 **15°C**		
A.8	[4-00]	--	R/O	**1**		
A.8	[4-01]	--	R/O	**0**		
A.8	[4-02]	Below which outdoor temperature is heating allowed?	R/W	14~35°C, step: 1°C **25°C**		
A.8	[4-03]	--	R/O	**3**		
A.8	[4-04]	--	R/W	**1**		
A.8	[4-05]	--	R/W	**0**		
A.8	[4-06]	--	R/W	**0**		
A.8	[4-07]	--	R/O	**1**		
A.8	[4-08]	Which power limitation mode is required on the system?	R/W	**0: No limitation** 1: Continuous 2: Digital inputs		
A.8	[4-09]	Which power limitation type is required?	R/W	0: Current **1: Power**		
A.8	[4-0B]	Automatic cooling/heating changeover hysteresis.	R/W	1~10°C, step: 0,5°C **1°C**		
A.8	[4-0D]	Automatic cooling/heating changeover offset.	R/W	1~10°C, step: 0,5°C **3°C**		
A.8	[5-00]	--	R/W	**0**		
A.8	[5-01]	What is the equilibrium temperature for the building?	R/W	-15~35°C, step: 1°C **5°C**		
A.8	[5-02]	--	R/O	**0**		
A.8	[5-03]	--	R/W	**0**		
A.8	[5-04]	--	R/W	**10**		
A.8	[5-05]	What is the requested limit for DI1?	R/W	0~50 A, step: 1 A **50 A**		
A.8	[5-06]	What is the requested limit for DI2?	R/W	0~50 A, step: 1 A **50 A**		
A.8	[5-07]	What is the requested limit for DI3?	R/W	0~50 A, step: 1 A **50 A**		

Field settings table					Installer setting at variance with default value	
Breadcrumb	Field code	Setting name		Range, step **Default value**	Date	Value
A.8	[5-08]	What is the requested limit for DI4?	R/W	0~50 A, step: 1 A **50 A**		
A.8	[5-09]	What is the requested limit for DI1?	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.8	[5-0A]	What is the requested limit for DI2?	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.8	[5-0B]	What is the requested limit for DI3?	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.8	[5-0C]	What is the requested limit for DI4?	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.8	[5-0D]	--	R/O	**1**		
A.8	[5-0E]	--	R/O	**0**		
A.8	[6-00]	The temperature difference determining the heat pump ON temperature.	R/W	2~20°C, step: 1°C **2°C**		
A.8	[6-01]	The temperature difference determining the heat pump OFF temperature.	R/W	0~10°C, step: 1°C **2°C**		
A.8	[6-02]	--	R/O	**0**		
A.8	[6-03]	--	R/O	**0**		
A.8	[6-04]	--	R/O	**0**		
A.8	[6-05]	--	R/O	**0**		
A.8	[6-06]	--	R/O	**0**		
A.8	[6-07]	--	R/W	**0**		
A.8	[6-08]	--	R/W	**5**		
A.8	[6-09]	--	R/W	**0**		
A.8	[6-0A]	What is the desired comfort storage temperature?	R/W	30~[6-0E]°C, step: 1°C **60°C**		
A.8	[6-0B]	What is the desired eco storage temperature?	R/W	30~min(50, [6-0E]) °C, step: 1°C **50°C**		
A.8	[6-0C]	What is the desired reheat temperature?	R/W	30~min(50, [6-0E]) °C, step: 1°C **50°C**		
A.8	[6-0D]	What is the desired setpoint mode in DHW?	R/W	0: Reheat only 1: Reheat + sched. **2: Scheduled only**		
A.8	[6-0E]	What is the maximum DHW temperature setpoint?	R/W	[E-06]=1 : 40~75°C, step: 1°C **75°C** [E-06]=0 : 40~65°C, step: 1°C **65°C**		
A.8	[7-00]	--	R/O	**0**		
A.8	[7-01]	--	R/O	**2**		
A.8	[7-02]	How many leaving water temperature zones are there?	R/W	**0: 1 LWT zone** 1: 2 LWT zones		
A.8	[7-03]	PE factor	R/W	0~6, step: 0,1 **2,5**		
A.8	[7-04]	Savings mode	R/W	**0: Economical** 1: Ecological		
A.8	[7-05]	--	R/O	**0**		
A.8	[8-00]	Minimum running time for domestic hot water operation.	R/W	0~20 min, step: 1 min **5 min**		
A.8	[8-01]	Maximum running time for domestic hot water operation.	R/W	5~95 min, step: 5 min **30 min**		
A.8	[8-02]	Anti-recycling time.	R/W	0~10 hour, step: 0,5 hour **0,5 hour**		
A.8	[8-03]	--	R/O	**50**		
A.8	[8-04]	--	R/O	**0**		
A.8	[8-05]	Allow modulation of the LWT to control the room?	R/W	0: No **1: Yes**		
A.8	[8-06]	Leaving water temperature maximum modulation.	R/W	0~10°C, step: 1°C **5°C**		
A.8	[8-07]	What is the desired comfort main LWT in cooling?	R/W	[9-03]~[9-02], step: 1°C **18°C**		
A.8	[8-08]	What is the desired eco main LWT in cooling?	R/W	[9-03]~[9-02], step: 1°C **20°C**		
A.8	[8-09]	What is the desired comfort main LWT in heating?	R/W	[9-01]~[9-00], step: 1°C **45°C**		
A.8	[8-0A]	What is the desired eco main LWT in heating?	R/W	[9-01]~[9-00], step: 1°C **40°C**		
A.8	[8-0B]	Target flow rate during HP mode	R/W	10~20, step: 0,5 *HYHBH05: **13** *HYHBH/X08: **15**		
A.8	[8-0C]	Target flow rate during hybrid mode	R/W	10~20, step: 0,5 **10**		
A.8	[8-0D]	Target flow rate during boiler mode	R/W	10~20, step: 0,5 *HYHBH05: **10** *HYHBH/X08: **14**		
A.8	[9-00]	What is the maximum desired LWT for main zone in heating?	R/W	37~80°C, step: 1°C **80°C**		
A.8	[9-01]	What is the mimimum desired LWT for main zone in heating?	R/W	15~37°C, step: 1°C **25°C**		
A.8	[9-02]	What is the maximum desired LWT for main zone in cooling?	R/W	18~22°C, step: 1°C **22°C**		
A.8	[9-03]	What is the mimimum desired LWT for main zone in cooling?	R/W	5~18°C, step: 1°C **5°C**		
A.8	[9-04]	--	R/O	**1**		
A.8	[9-05]	What is the mimimum desired LWT for add. zone in heating?	R/W	15~37°C, step: 1°C **25°C**		
A.8	[9-06]	What is the maximum desired LWT for add. zone in heating?	R/W	37~80°C, step: 1°C **80°C**		
A.8	[9-07]	What is the mimimum desired LWT for add. zone in cooling?	R/W	5~18°C, step: 1°C **5°C**		
A.8	[9-08]	What is the maximum desired LWT for add. zone in cooling?	R/W	18~22°C, step: 1°C **22°C**		
A.8	[9-09]	--	R/W	**5**		
A.8	[9-0A]	--	R/W	**5**		
A.8	[9-0B]	What emitter type is connected to the main LWT zone?	R/W	**0: Quick** 1: Slow		
A.8	[9-0C]	Room temperature hysteresis.	R/W	1~6°C, step: 0,5°C **1 °C**		
A.8	[A-00]	--		**0**		
A.8	[A-01]	--		**0**		
A.8	[A-02]	--		**0**		
A.8	[A-03]	--		**0**		
A.8	[A-04]	--		**0**		
A.8	[B-00]	--		**0**		
A.8	[B-01]	--		**0**		
A.8	[B-02]	--		**0**		

Field settings table					Installer setting at variance with default value	
Breadcrumb	Field code	Setting name		Range, step **Default value**	Date	Value
A.8	[B-03]	--		**0**		
A.8	[B-04]	--		**0**		
A.8	[C-00]	Domestic heating water priority.	R/W	**0: Solar priority** 1: Heat pump priority		
A.8	[C-01]	--	R/O	**0**		
A.8	[C-02]	--	R/O	**0**		
A.8	[C-03]	--	R/W	**0**		
A.8	[C-04]	--	R/O	**3**		
A.8	[C-05]	What is the thermo request contact type for the main zone?	R/W	1: Thermo ON/OFF **2: C/H request**		
A.8	[C-06]	What is the thermo request contact type for the add. zone?	R/W	1: Thermo ON/OFF **2: C/H request**		
A.8	[C-07]	What is the unit control method in space operation?	R/W	0: LWT control 1: Ext RT control **2: RT control**		
A.8	[C-08]	Which type of external sensor is installed?	R/W	**0: No** 1: Outdoor sensor 2: Room sensor		
A.8	[C-09]	What is the required alarm output contact type?	R/W	**0: Normally open** 1: Normally closed		
A.8	[C-0A]	Indoor quick heat-up function	R/W	0: Disable **1: Enable**		
A.8	[C-0C]	High electricity price decimal (Do not use)	R/W	0~7 **4**		
A.8	[C-0D]	Medium electricity price decimal (Do not use)	R/W	0~7 **4**		
A.8	[C-0E]	Low electricity price decimal (Do not use)	R/W	0~7 **4**		
A.8	[D-00]	--	R/W	**0**		
A.8	[D-01]	Contact type of preferential kWh rate PS installation?	R/W	**0: No** 1: Active open 2: Active closed		
A.8	[D-02]	Which type of DHW pump is installed?	R/W	**0: No** 1: Secondary rtrn ([E-06]=1) 2: Disinf. Shunt ([E-06]=1)		
A.8	[D-03]	Leaving water temperature compensation around 0°C.	R/W	**0: Disabled** 1: Enabled, shift 2°C (from -2 to 2°C) 2: Enabled, shift 4°C (from -2 to 2°C) 3: Enabled, shift 2°C (from -4 to 4°C) 4: Enabled, shift 4°C (from -4 to 4°C)		
A.8	[D-04]	Is a demand PCB connected?	R/W	**0: No** 1: Power consumption control		
A.8	[D-05]	--	R/O	**1**		
A.8	[D-07]	Is a solar kit connected?	R/W	**0: No** 1: Yes		
A.8	[D-08]	Is an external kWh meter used for power measurement?	R/W	**0: No** 1: 0,1 pulse/kWh 2: 1 pulse/kWh 3: 10 pulse/kWh 4: 100 pulse/kWh 5: 1000 pulse/kWh		
A.8	[D-09]	--	R/O	**0**		
A.8	[D-0A]	Gas meter	R/W	**0: Not present** 1: 1 /m³ 2: 10 /m³ 3: 100 /m³		
A.8	[D-0B]	--	R/W	**2**		
A.8	[D-0C]	High electricity price (Do not use)	R/W	0~49 **20**		
A.8	[D-0D]	Medium electricity price (Do not use)	R/W	0~49 **20**		
A.8	[D-0E]	Low electricity price (Do not use)	R/W	0~49 **15**		
A.8	[E-00]	Which type of unit is installed?	R/O	**3: Hybrid**		
A.8	[E-01]	--	R/O	**0: 08**		
A.8	[E-02]	--	R/O	*HYHBH05+08: **1: Type 2** *HYHBX08: **0: Type 1**		
A.8	[E-03]	--	R/O	**0**		
A.8	[E-04]	Is the power saving function available on the outdoor unit?	R/O	**1: Yes**		
A.8	[E-05]	Is there DHW operation installed in the system?	R/W	0: No **1: Yes**		
A.8	[E-06]	Is the domestic hot water tank installed?	R/W	**0: No** 1: Yes		
A.8	[E-07]	What kind of DHW tank is installed? (Do not change)	R/W	**4**		
A.8	[E-08]	Power saving function for outdoor unit.	R/W	0: Disabled **1: Enabled**		
A.8	[E-09]	--	R/W	**0**		
A.8	[E-0A]	--	R/O	**0**		
A.8	[F-00]	Pump operation allowed outside range.	R/W	**0: Disabled** 1: Enabled		
A.8	[F-01]	Above which outdoor temperature is cooling allowed?	R/W	10~35°C, step: 1°C **20°C**		
A.8	[F-02]	--	R/W	**3**		
A.8	[F-03]	--	R/W	**5**		
A.8	[F-04]	--	R/W	**0**		
A.8	[F-05]	--	R/W	**0**		
A.8	[F-06]	--	R/W	**0**		
A.8	[F-09]	Pump operation during flow abnormality.	R/W	**0: Disabled** 1: Enabled		
A.8	[F-0A]	--	R/W	**0**		
A.8	[F-0B]	Close shut-off valve during thermo OFF?	R/W	**0: No** 1: Yes		
A.8	[F-0C]	Close shut-off valve during cooling?	R/W	0: No **1: Yes**		
A.8	[F-0D]	What is the pump operation mode?	R/W	0: Continuous 1: Sample ([C-07] = 0) **2: Request** ([C-07] ≠ 0)		

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