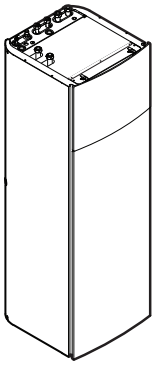
Installation manual

Daikin Altherma 3 R F



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▲= A, B, C, …, Z
▼= , , 1, 2, 3, …, 9

Installation manual
Daikin Altherma 3 R F

English

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1 About this document

INFORMATION

This unit is a heating only model. Therefore, all references to cooling in this document are NOT applicable.

Target audience

Authorised installers

Documentation set

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

- **General safety precautions:**
  - Safety instructions that you must read before installing
  - Format: Paper (in the box of the indoor unit)
- **Operation manual:**
  - Quick guide for basic usage
  - Format: Paper (in the box of the indoor unit)
- **User reference guide:**
  - Detailed step-by-step instructions and background information for basic and advanced usage
  - Format: Digital files on https://www.daikin.eu. Use the search function to find your model.
- **Installation manual – Outdoor unit:**
  - Installation instructions
  - Format: Paper (in the box of the outdoor unit)
- **Installation manual – Indoor unit:**
  - Installation instructions
  - Format: Paper (in the box of the indoor unit)
- **Installer reference guide:**
  - Preparation of the installation, good practices, reference data, …
  - Format: Digital files on https://www.daikin.eu. Use the search function to find your model.
- **Addendum book for optional equipment:**
  - Additional info about how to install optional equipment
  - Format: Paper (in the box of the indoor unit) + Digital files on https://www.daikin.eu. Use the search function to find your model.

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

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

Technical engineering data

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

Online tools

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

- **Heating Solutions Navigator**
  - Digital toolbox that offers a variety of tools to facilitate the installation and configuration of heating systems.
  - To access Heating Solutions Navigator, registration to the Stand By Me platform is required. For more information, see https://professional.standbyme.daikin.eu.
- **Daikin e-Care**
  - Mobile app for installers and service technicians that allows you to register, configure and troubleshoot heating systems.
  - The mobile app can be downloaded for iOS and Android devices using the QR codes below. Registration to the Stand By Me platform is required to access the app.

App Store Google Play

2 Specific installer safety instructions

INFORMATION

This unit is a heating only model. Therefore, all references to cooling in this document are NOT applicable.

Always observe the following safety instructions and regulations.

Installation site (see "4.1 Preparing the installation site" [▶ 4])

WARNING

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

WARNING

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

WARNING

Follow the service space dimensions in this manual for correct installation of the unit. See "4.1.1 Installation site requirements of the indoor unit" [▶ 5].

Special requirements for R32 (see "Special requirements for R32" [▶ 5])

WARNING

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

WARNING

The appliance shall be stored so as to prevent mechanical damage and in a well-ventilated room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).

WARNING

Make sure installation, servicing, maintenance and repair comply with instructions from Daikin and with applicable legislation and are executed ONLY by authorised persons.

Opening and closing the unit (see "4.2 Opening and closing the unit" [▶ 5])

DANGER: RISK OF ELECTROCUTION

DANGER: RISK OF BURNING/SCALDING

Mounting the indoor unit (see "4.3 Mounting the indoor unit" [▶ 7])

WARNING

Fixing method of the indoor unit MUST be in accordance with the instructions from this manual. See "4.3 Mounting the indoor unit" [▶ 7].

Piping installation (see "5 Piping installation" [▶ 7])

WARNING

The field piping method MUST be in accordance with the instructions from this manual. See "5 Piping installation" [▶ 7].

Electrical installation (see "6 Electrical installation" [▶ 10])

DANGER: RISK OF ELECTROCUTION

WARNING

Electrical wiring connection method MUST be in accordance with the instructions from:

- This manual. See "6 Electrical installation" [▶ 10].
- The wiring diagram, which is delivered with the unit, located on the inside of the indoor unit switch box cover. For a translation of its legend, see "10.2 Wiring diagram: Indoor unit" [▶ 30].

WARNING

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

WARNING

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

WARNING

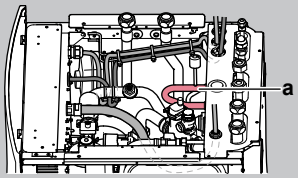
ALWAYS use multicore cable for power supply cables.

CAUTION

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

WARNING

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



a Refrigerant gas pipe

WARNING

The backup heater MUST have a dedicated power supply and MUST be protected by the safety devices required by the applicable legislation.

CAUTION

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

INFORMATION

Details of type and rating of fuses, or rating of circuit breakers are described in "6 Electrical installation" [▸ 10].

Commissioning (see "8 Commissioning" [▸ 26])

WARNING

Commissioning method MUST be in accordance with the instructions from this manual. See "8 Commissioning" [▸ 26].

WARNING

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

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

3 About the box

INFORMATION

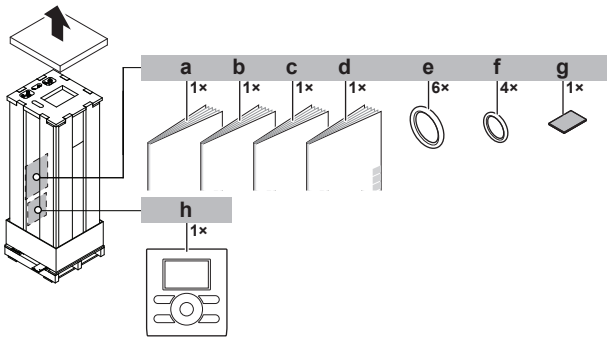
This unit is a heating only model. Therefore, all references to cooling in this document are NOT applicable.

Keep the following in mind:

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

3.1 Indoor unit

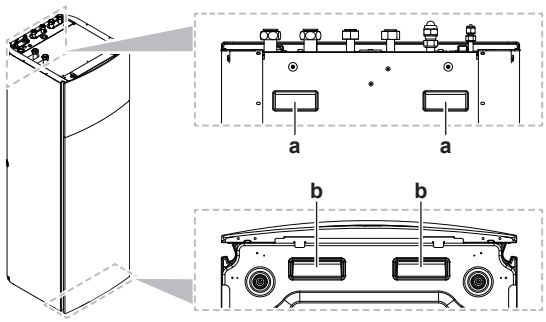
3.1.1 To remove the accessories from the indoor unit



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

3.1.2 To handle the indoor unit

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



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

4 Unit installation

INFORMATION

This unit is a heating only model. Therefore, all references to cooling in this document are NOT applicable.

4.1 Preparing the installation site

NOTICE

This unit is designed for operation on 2 temperature zones:

- underfloor heating in the **main zone**, this is the zone with the **lowest water temperature**,
- radiators in the **additional zone**, this is the zone with the **highest water temperature**.

WARNING

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

WARNING

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

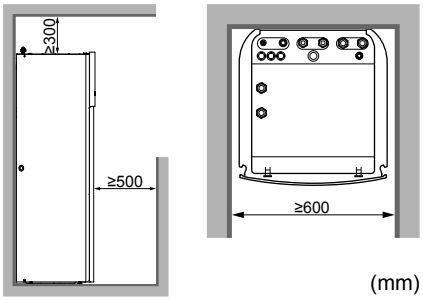
4.1.1 Installation site requirements of the indoor unit

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

Maximum refrigerant piping length[(a)] between indoor unit and outdoor unit	20 m
Minimum refrigerant piping length[(a)] between indoor unit and outdoor unit	3 m
Maximum height difference between indoor unit and outdoor unit	20 m

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

- Mind the following spacing installation guidelines:



(mm)

INFORMATION

If you have limited installation space, do the following before installing the unit in its final position: "4.3.2 To connect the drain hose to the drain" [▶ 7]. It requires to remove one or both side panels.

NOTICE

When the temperature in multiple rooms is controlled by 1 thermostat, do NOT place a thermostatic valve on the emitter in the room where the thermostat is installed.

Special requirements for R32

The total refrigerant charge in the system is ≤1.842 kg, so the system is NOT subjected to any requirements to the installation room. However, mind the following requirements and precautions:

WARNING

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

WARNING

The appliance shall be stored so as to prevent mechanical damage and in a well-ventilated room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).

WARNING

Make sure installation, servicing, maintenance and repair comply with instructions from Daikin and with applicable legislation and are executed ONLY by authorised persons.

NOTICE

- Protect pipework from physical damage.
- Keep the pipework installation to a minimum.

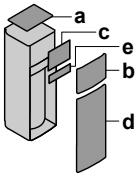
NOTICE

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

4.2 Opening and closing the unit

4.2.1 To open the indoor unit

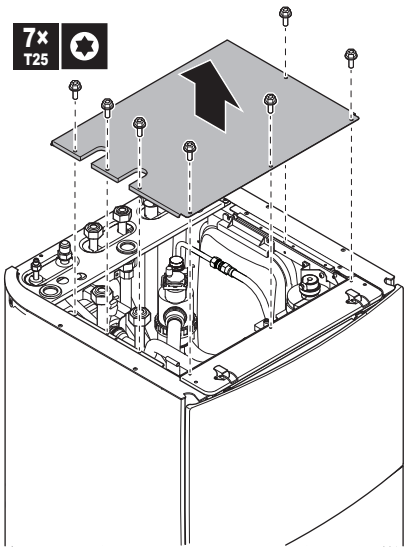
Overview



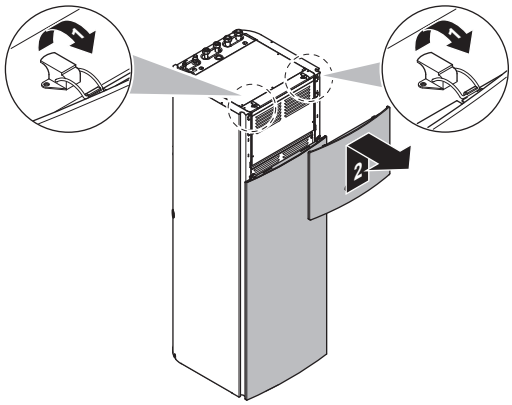
a Top panel
b Upper front panel
c Switch box cover
d Front panel
e High voltage switch box cover

Open

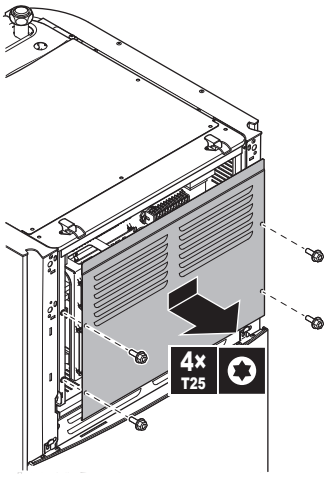
1 Remove the top panel.



2 Remove the upper front panel. Open the hinges at the top and slide the top panel upwards.

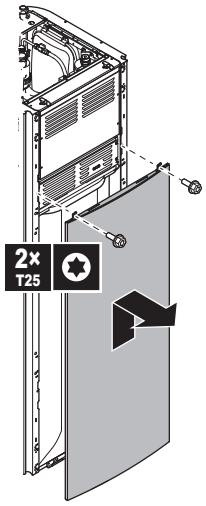


3 Remove the switch box cover.

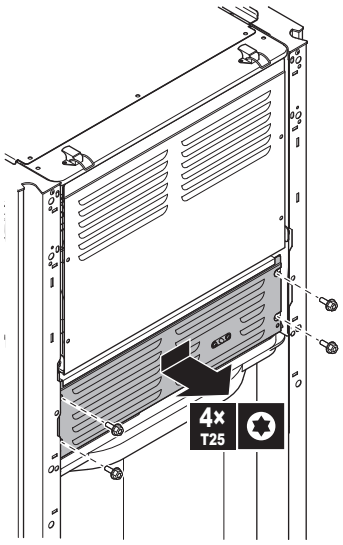


4 If necessary, remove the front plate. This is, for example, necessary in the following cases:

- "4.2.2 To lower the switch box on the indoor unit" [▶ 6]
- "4.3.2 To connect the drain hose to the drain" [▶ 7]
- When you need access to the high voltage switch box



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



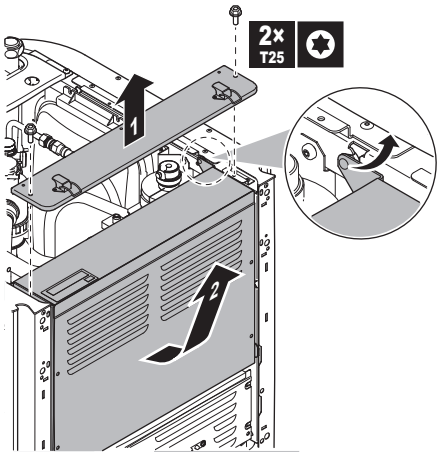
4.2.2 To lower the switch box on the indoor unit

During the installation, you will need access to the inside of the indoor unit. To have easier front access, put the switch box lower on the unit as follows:

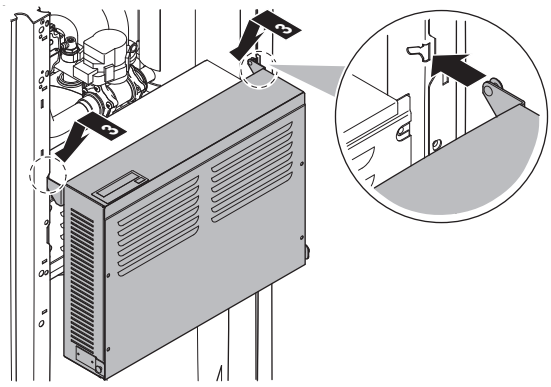
Prerequisite: The upper front panel and front panel have been removed.

1 Remove the fixing plate at the top of the unit.

2 Tilt the switch box to the front and lift it out of its hinges.



3 Place the switch box lower on the unit. Use the 2 hinges located lower on the unit.



4.2.3 To close the indoor unit

1 Close the cover of the switch box.

2 Put the switch box back into place.

3 Reinstall the top panel.

4 Reinstall the side panels.

5 Reinstall the front panel.

6 Reinstall the upper front panel.

NOTICE

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

4.3 Mounting the indoor unit

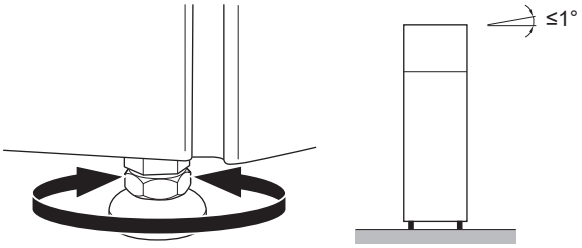
4.3.1 To install the indoor unit

1 Lift the indoor unit from the pallet and place it on the floor. Also see "3.1.2 To handle the indoor unit" [▶ 4].

2 Connect the drain hose to the drain. See "4.3.2 To connect the drain hose to the drain" [▶ 7].

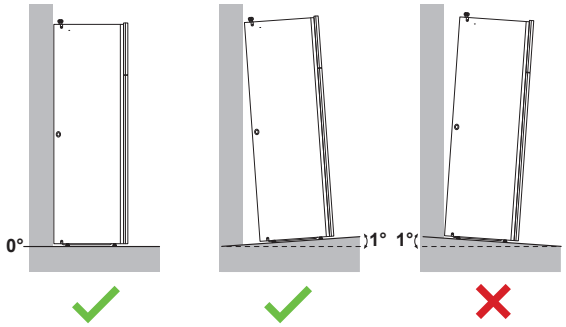
3 Slide the indoor unit into position.

4 Adjust the height of the leveling feet to compensate for floor irregularities. The maximum allowed deviation is 1°.



NOTICE

Do NOT tilt the unit forwards:



4.3.2 To connect the drain hose to the drain

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

1 Remove one of the side panels.

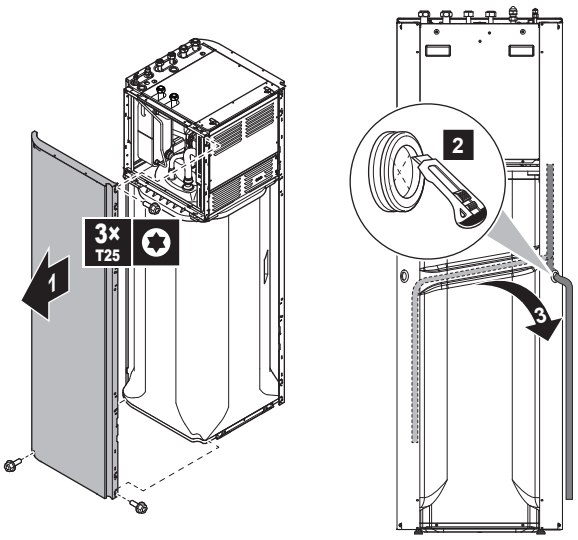
2 Cut out the rubber grommet.

3 Pull the drain hose through the hole.

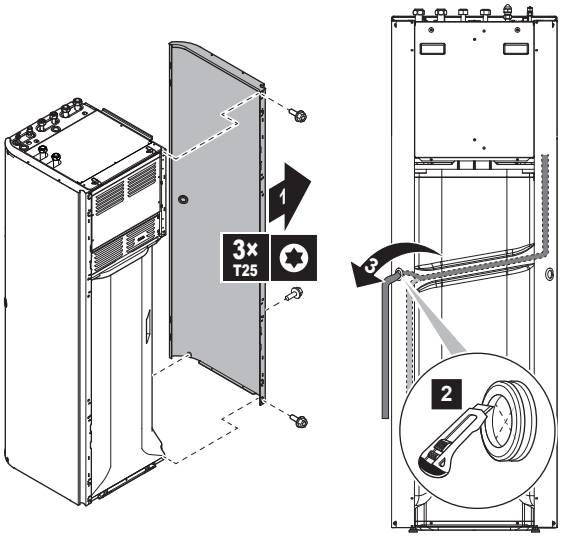
4 Reattach the side panel. Ensure the water can flow through the drain tube.

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

Option 1: Through the left side panel



Option 2: Through the right side panel



5 Piping installation

INFORMATION

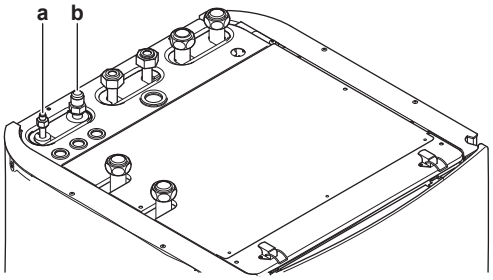
This unit is a heating only model. Therefore, all references to cooling in this document are NOT applicable.

5.1 Connecting refrigerant piping

See the installation manual of the outdoor unit for all guidelines, specifications and installation instructions.

5.1.1 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.

5.2 Preparing water piping

NOTICE

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

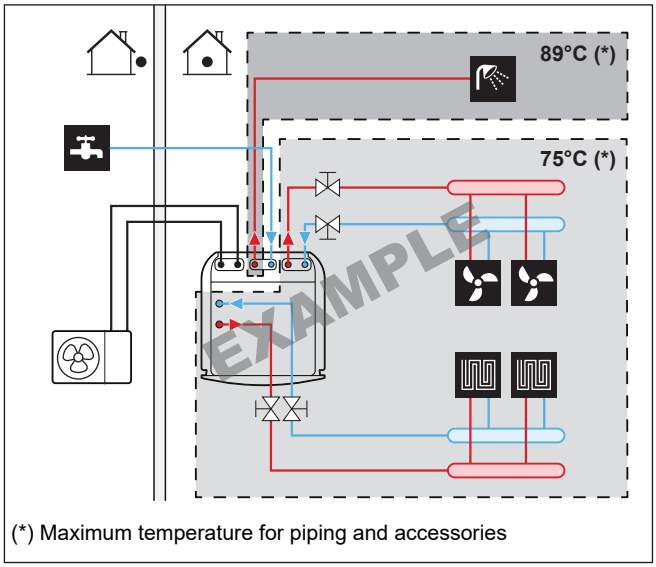
NOTICE

Water circuit requirements. Make sure to comply with the water pressure and water temperature requirements below. For additional water circuit requirements, see the installer reference guide.

- **Water pressure – Domestic hot water.** The maximum water pressure is 10 bar (=1.0 MPa), and must be in accordance with the applicable legislation. Provide adequate safeguards in the water circuit to ensure that the maximum pressure is NOT exceeded (see "5.3.1 To connect the water piping" [▸ 8]). The minimum water pressure to operate is 1 bar (=0.1 MPa).
- **Water pressure – Space heating/cooling circuit.** The maximum water pressure is 3 bar (=0.3 MPa). Provide adequate safeguards in the water circuit to ensure that the maximum pressure is NOT exceeded. The minimum water pressure to operate is 1 bar (=0.1 MPa).
- **Water temperature.** All installed piping and piping accessories (valve, connections,…) MUST withstand the following temperatures:

INFORMATION

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



(*) Maximum temperature for piping and accessories

5.2.1 To check the water volume and flow rate

Minimum water volume

There are no requirements for the minimum water volume.

Minimum flow rate

Check that the minimum flow rate in the installation is guaranteed in all conditions on each zone separately. This minimum flow rate is required during defrost operation. For this purpose, it is recommended to use a differential pressure bypass valve (field supply).

Minimum required flow rate
12 l/min

NOTICE

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

See the installer reference guide for more information.

See the recommended procedure as described in "8.2 Checklist during commissioning" [▸ 26].

5.3 Connecting water piping

5.3.1 To connect the water piping

NOTICE

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

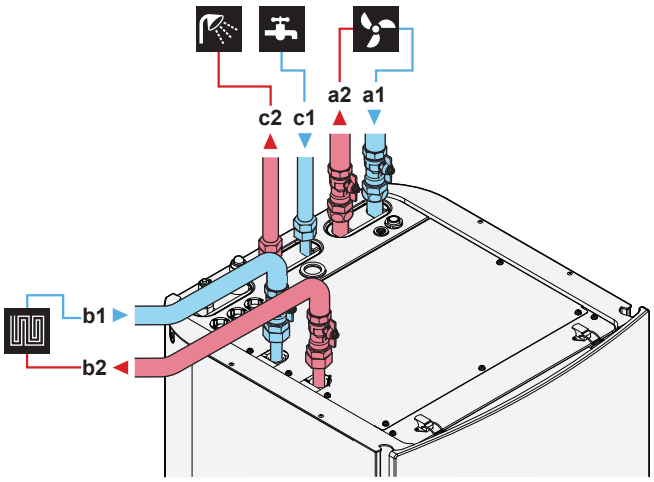
NOTICE

This unit is designed for operation on 2 temperature zones:

- underfloor heating in the **main zone**, this is the zone with the **lowest water temperature**,
- radiators in the **additional zone**, this is the zone with the **highest water temperature**.

1 Connect the space heating water in and out pipes to the indoor unit.

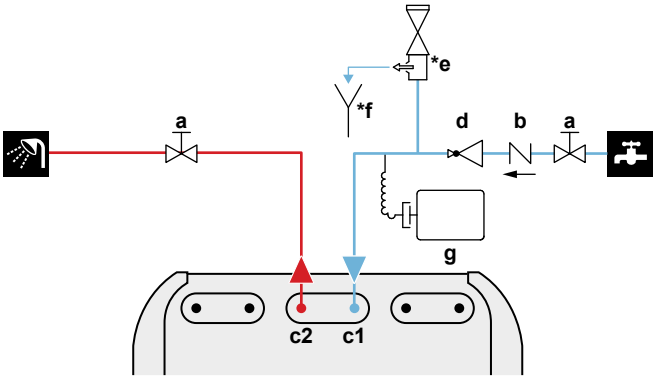
2 Connect the domestic hot water in and out pipes to the indoor unit.



a1 Additional zone – Space heating/cooling – Water IN (screw connection, 1")
a2 Additional zone – Space heating/cooling – Water OUT (screw connection, 1")

b1 Main zone – Space heating/cooling – Water IN (screw connection, 1")
b2 Main zone – Space heating/cooling – Water OUT (screw connection, 1")
c1 DHW – Cold water IN (screw connection, 3/4")
c2 DHW – Hot water OUT (screw connection, 3/4")

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



a Shut-off valve (recommended)
b Non-return valve (recommended)
c1 DHW – Cold water IN (screw connection, 3/4")
c2 DHW – Hot water OUT (screw connection, 3/4")
d Pressure reducing valve (recommended)
***e** Pressure relief valve (max. 10 bar (=1.0 MPa)) (mandatory)
***f** Tundish (mandatory)
g Expansion vessel (recommended)

NOTICE

- It is recommended to install shut-off valves on the space heating/cooling water in and out connections, as well as on the domestic cold water in and domestic hot water out connections. These shut-off valves are field supplied.
- **However, make sure there is no valve between the pressure relief valve (field supply) and the DHW tank.**

NOTICE

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

NOTICE

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

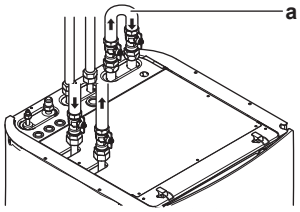
NOTICE

Differential pressure bypass valve (field supply). We recommend to install a differential pressure bypass valve in the space heating water circuit. Mind the minimum flow rate when adjusting the differential pressure bypass valve setting.

NOTICE

If you install this unit as a single-zone application, then:

Setup. Install a bypass between the space heating water inlet and outlet of the additional zone (=direct zone). Do NOT interrupt the water flow by closing the shut-off valves.



a Bypass

Configuration. Set field setting [7-02]=0 (`Number of LWT zones = 1 LWT zone`).

NOTICE

Install air purge valves at all local high points.

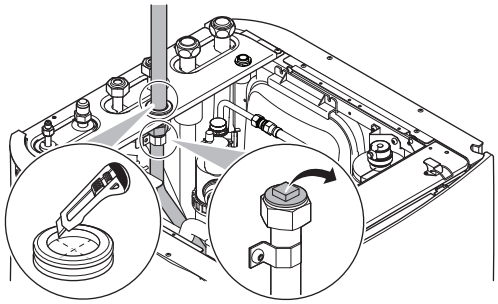
5.3.2 To connect the recirculation piping

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

1 Remove the top panel from the unit, see "4.2.1 To open the indoor unit" [▶ 5].

2 Cut out the rubber grommet on top of the unit, and remove the stop. The recirculation connector is placed below the hole.

3 Route the recirculation piping through the grommet and connect it to the recirculation connector.



4 Reattach the top panel.

5.3.3 To fill the water circuit

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

INFORMATION

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

5.3.4 To fill the domestic hot water tank

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

5.3.5 To insulate the water piping

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

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

6 Electrical installation

INFORMATION

This unit is a heating only model. Therefore, all references to cooling in this document are NOT applicable.

DANGER: RISK OF ELECTROCUTION

WARNING

ALWAYS use multicore cable for power supply cables.

CAUTION

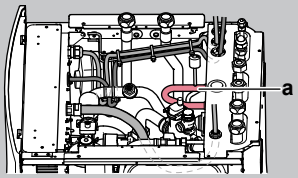
Do NOT push or place redundant cable length into the unit.

NOTICE

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

WARNING

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



a Refrigerant gas pipe

6.1 About electrical compliance

Only for the backup heater of the indoor unit

See "6.3.2 To connect the backup heater power supply" [▸ 12].

6.2 Guidelines when connecting the electrical wiring

Tightening torques

Indoor unit:

Item	Tightening torque (N•m)
M4 (X1M, X2M, X5M)	1.2~1.5
M4 (earth)	1.2~1.5

6.3 Connections to the indoor unit

Item	Description
Power supply (main)	See "6.3.1 To connect the main power supply" [▸ 11].
Power supply (backup heater)	See "6.3.2 To connect the backup heater power supply" [▸ 12].
User interface	See "6.3.3 To connect the user interface" [▸ 13].
Shut-off valve	See "6.3.4 To connect the shut-off valve" [▸ 14].
Electricity meters	See "6.3.5 To connect the electricity meters" [▸ 14].
Domestic hot water pump	See "6.3.6 To connect the domestic hot water pump" [▸ 15].
Alarm output	See "6.3.7 To connect the alarm output" [▸ 15].
Space cooling/heating operation control	See "6.3.8 To connect the space cooling/heating ON/OFF output" [▸ 16].
Power consumption digital inputs	See "6.3.10 To connect the power consumption digital inputs" [▸ 17].
Safety thermostat	See "6.3.11 To connect the safety thermostat (normally closed contact)" [▸ 17].

Item	Description
Room thermostat (wired or wireless)	See below table.
	Wires for wired room thermostat: (3 for cooling/heating operation; 2 for heating only operation)×0.75 mm² Wires for wireless room thermostat: (5 for cooling/heating operation; 4 for heating only operation)×0.75 mm² Maximum running current: 100 mA
	For the main zone: ▪ [A.2.1.7] `Unit control method` ▪ [A.2.2.4] `Contact type main` For the additional zone: ▪ [A.2.2.5] `Contact type add.`
Heat pump convector	There are different controllers and setups possible for the heat pump convectors. For more information, see: ▪ Installation manual of the heat pump convectors ▪ Installation manual of the heat pump convector options ▪ Addendum book for optional equipment
	Wires: 4×0.75 mm² Maximum running current: 100 mA
	For the main zone: ▪ [A.2.1.7] `Unit control method` ▪ [A.2.2.4] `Contact type main` For the additional zone: ▪ [A.2.2.5] `Contact type add.`
Remote outdoor sensor	See: ▪ Installation manual of the remote outdoor sensor ▪ Addendum book for optional equipment
	Wires: 2×0.75 mm²
	[A.2.2.B]=1 (`External sensor=Outdoor sensor`) [A.6.5] `Ext amb. sensor offset` [A.6.4] `Averaging time`
Remote indoor sensor	See: ▪ Installation manual of the remote indoor sensor ▪ Addendum book for optional equipment
	Wires: 2×0.75 mm²
	[A.2.2.F.5]=2 (`External sensor=Room sensor`) [A.3.2.3] `Ext. room sensor offset`

Item	Description
LAN adapter	See: ▪ Installation manual of the LAN adapter ▪ Addendum book for optional equipment
	Wires: 2×(0.75~1.25 mm²). Must be sheathed. Maximum length: 200 m
	See "LAN adapter – System requirements" [▸ 11].

for room thermostat (wired or wireless):

In case of…	See…
Wireless room thermostat	▪ Installation manual of the wireless room thermostat ▪ Addendum book for optional equipment
Wired room thermostat without multi-zoning base unit	▪ Installation manual of the wired room thermostat ▪ Addendum book for optional equipment
Wired room thermostat with multi-zoning base unit	▪ Installation manual of the wired room thermostat (digital or analogue) + multi-zoning base unit ▪ Addendum book for optional equipment ▪ In this case: ▪ You need to connect the wired room thermostat (digital or analogue) to the multi-zoning base unit ▪ You need to connect the multi-zoning base unit to the outdoor unit ▪ For cooling/heating operation, you also need to implement a relay (field supply, see addendum book for optional equipment)

LAN adapter – System requirements

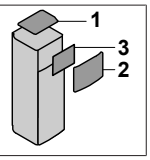
The requirements posed on the Daikin Altherma system depend on the LAN adapter application/system layout (app control):

Item	Requirement
LAN adapter software	It is recommended to ALWAYS keep the LAN adapter software up-to-date.
Unit control method	On the user interface, make sure to set [A.2.1.7]=2 (`Unit control method` = `RT control`)

6.3.1 To connect the main power supply

1 Open the following (see "4.2.1 To open the indoor unit" [▸ 5]):

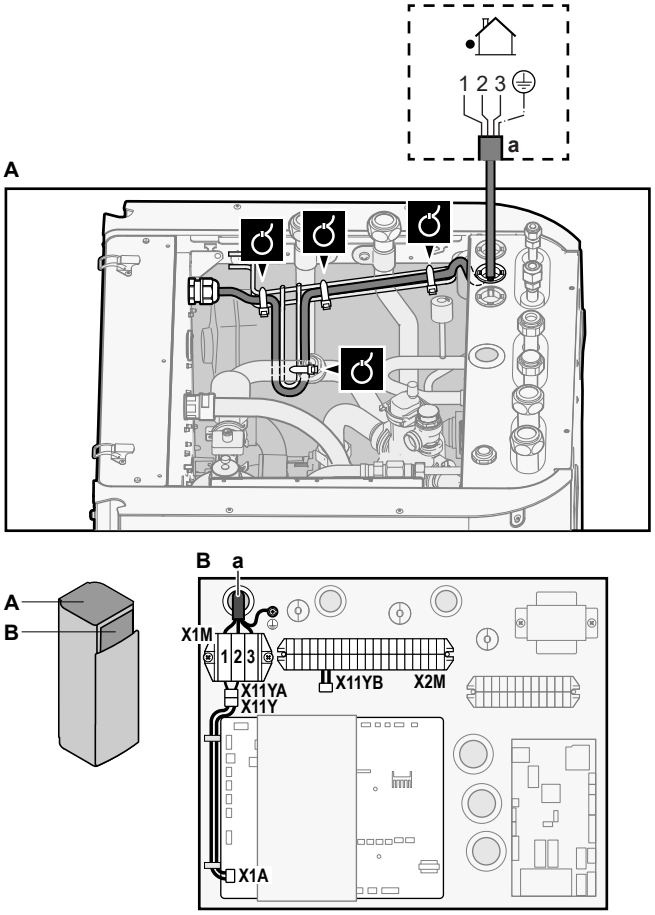
1	Top panel
2	Upper front panel
3	Upper switch box cover



2 Connect the main power supply.

In case of normal kWh rate power supply

	Interconnection cable (= main power supply)	Wires: (3+GND)×1.5 mm²
	—	

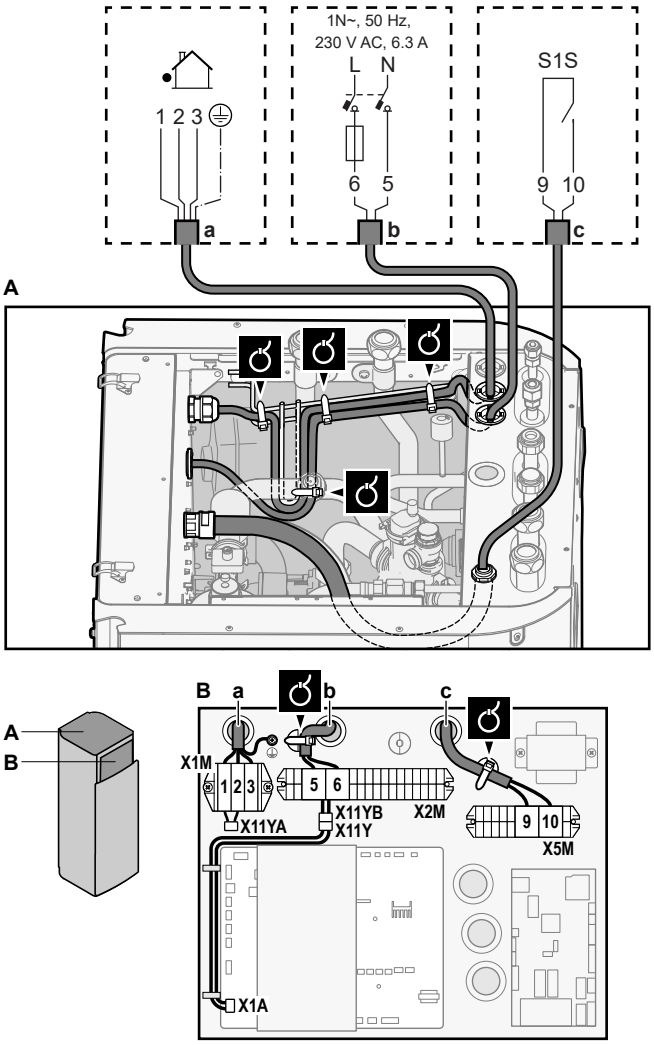


a Interconnection cable (=main power supply)

In case of preferential kWh rate power supply

	Interconnection cable (= main power supply)	Wires: (3+GND)×1.5 mm²
	Normal kWh rate power supply	Wires: 1N Maximum running current: 6.3 A
	Preferential kWh rate power supply contact	Wires: 2×(0.75~1.25 mm²) Maximum length: 50 m. Preferential kWh rate power supply contact: 16 V DC detection (voltage supplied by PCB). The voltage-free contact shall ensure the minimum applicable load of 15 V DC, 10 mA.
	[A.2.2.E.3] `Preferential kWh rate`	

Connect X11Y to X11YB.



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

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

INFORMATION

In case of preferential kWh rate power supply, connect X11Y to X11YB. The necessity of separate normal kWh rate power supply to indoor unit (b) X2M/5+6 depends on the type of preferential kWh rate power supply.

Separate connection to the indoor unit is required:

- if preferential kWh rate power supply is interrupted when active, OR
- if no power consumption of the indoor unit is allowed at the preferential kWh rate power supply when active.

INFORMATION

The preferential kWh rate power supply contact is connected to the same terminals (X5M/9+10) as the safety thermostat for the additional zone. It is only possible for the system to have EITHER preferential kWh rate power supply OR a safety thermostat for the additional zone.

6.3.2 To connect the backup heater power supply

	Backup heater type	Power supply	Wires
	*3V	1N~ 230 V	2+GND

—

WARNING

The backup heater MUST have a dedicated power supply and MUST be protected by the safety devices required by the applicable legislation.

CAUTION

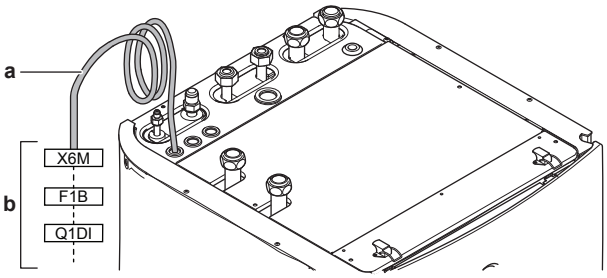
To guarantee the unit is completely earthed, ALWAYS connect the backup heater power supply and the earth cable.

Make sure that the power supply is in accordance with the backup heater capacity, as listed in the table below.

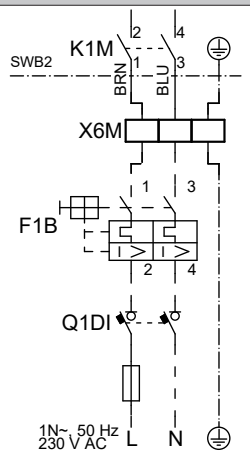
Backup heater type	Backup heater capacity	Power supply	Maximum running current	Z_{max}
*3V	3 kW	1N~ 230 V	13 A[(a)]	0.34 Ω

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

Connect the power supply of the backup heater as follows:



a Factory-mounted cable connected to the contactor of the backup heater, inside the switch box (K1M)
b Field wiring (see table below)

Model (power supply)	Connections to backup heater power supply
*3V (1N~ 230 V)	

F1B Overcurrent fuse (field supply). Recommended fuse: 2-pole; 16 A; curve 400 V; tripping class C.
K1M Contactor (in the lower switch box)
Q1DI Earth leakage circuit breaker (field supply)
SWB Switch box
X6M Terminal (field supply)

NOTICE

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

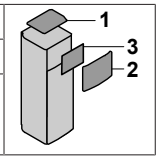
6.3.3 To connect the user interface

- If you use 1 user interface, you can install it at the indoor unit (for control close to the indoor unit), or in the room (when used as room thermostat).
- If you use 2 user interfaces, you can install 1 user interface at the indoor unit (for control close to the indoor unit) + 1 user interface in the room (used as room thermostat).

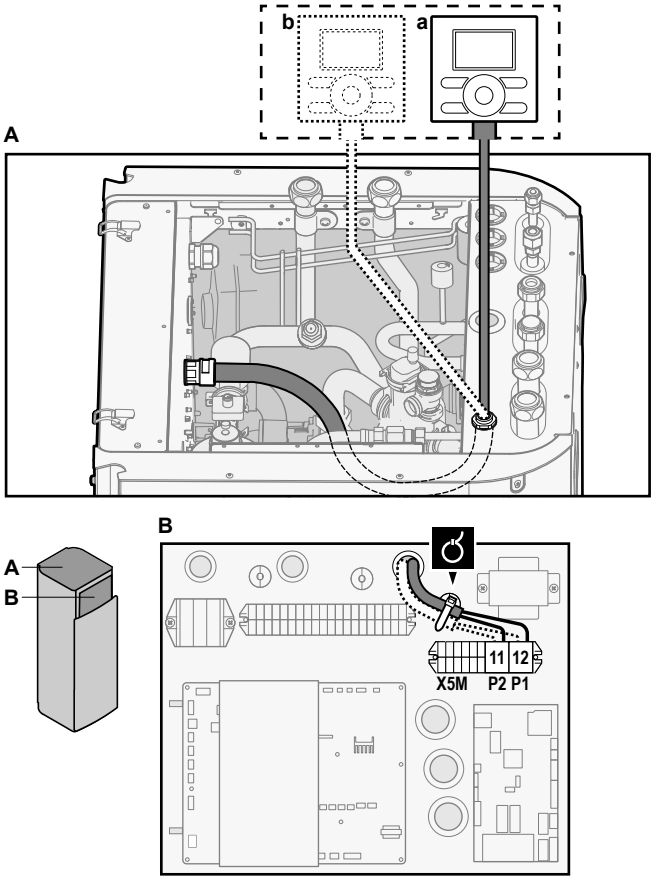
	Wires: 2 (per user interface)×(0.75~1.25 mm²) Maximum length: 200 m
	[A.2.1.7] `Unit control method` [A.2.1.B] `User interface location` [A.3.2.2] `Room temp. offset`

1 Open the following (see "4.2.1 To open the indoor unit" [▶ 5]):

1	Top panel
2	Upper front panel
3	Upper switch box cover

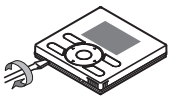


2 Connect the user interface cable to the indoor unit. Fix the cable with cable ties to the cable tie mountings.



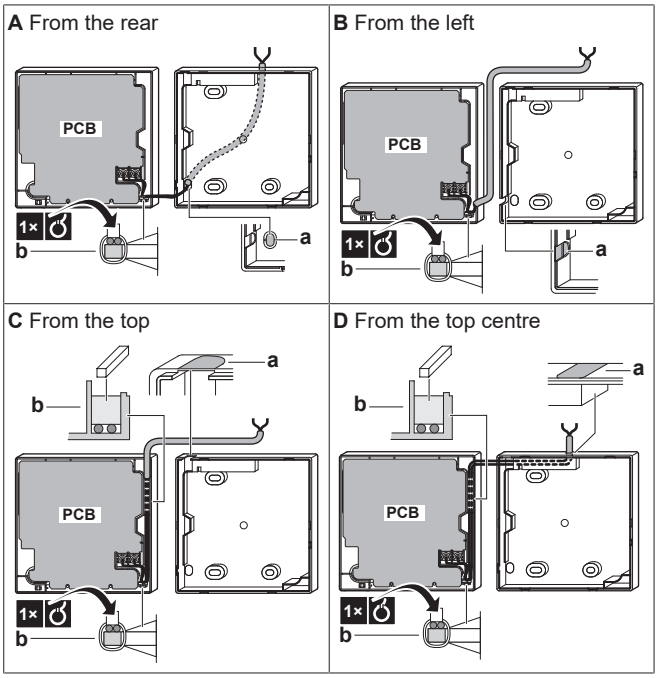
a Main user interface: Required for operation. Delivered with the unit as accessory.
b Optional user interface

3 Insert a screwdriver into the slots underneath the user interface and carefully separate the faceplate from the wallplate. The PCB is mounted in the faceplate of the user interface. Be careful NOT to damage it.



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

5 Connect as shown in A, B, C or D:



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.

6 Reinstall the faceplate onto the wallplate. Be careful NOT to pinch the wiring when attaching the frontplate to the unit.

6.3.4 To connect the shut-off valve

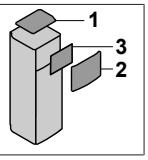
INFORMATION

Shut-off valve usage example. In case of two LWT zones, and a combination of underfloor heating and heat pump convectors, install a shut-off valve before the underfloor heating to prevent condensation on the floor during cooling operation. In this case, the main zone cooling setpoint will not be adjustable. The cooling setpoint for the heat pump convectors can be adjusted via the additional zone setpoint screen.

	Wires: 2×0.75 mm² Maximum running current: 100 mA 230 V AC supplied by PCB
	[A.3.1.1.6] `Shut-off valve`

1 Open the following (see "4.2.1 To open the indoor unit" [▶ 5]):

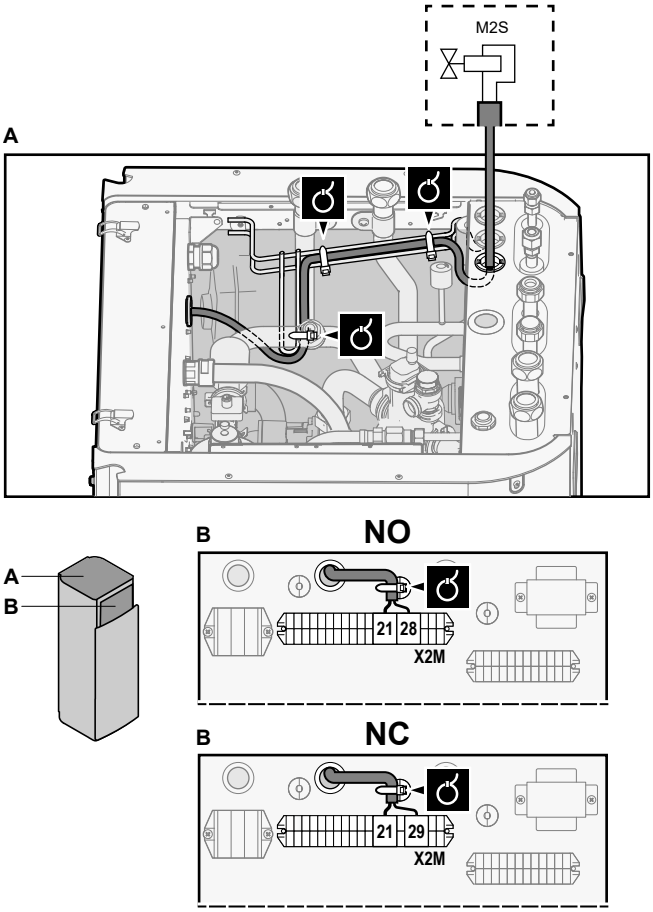
1	Top panel
2	Upper front panel
3	Upper switch box cover



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

NOTICE

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



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

6.3.5 To connect the electricity meters

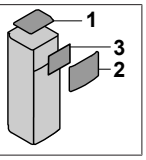
	Wires: 2 (per meter)×0.75 mm² Electricity meters: 12 V DC pulse detection (voltage supplied by PCB)
	[A.2.2.8] `External kWh meter` (meter 1) [A.2.2.9] `External kWh meter` (meter 2)

INFORMATION

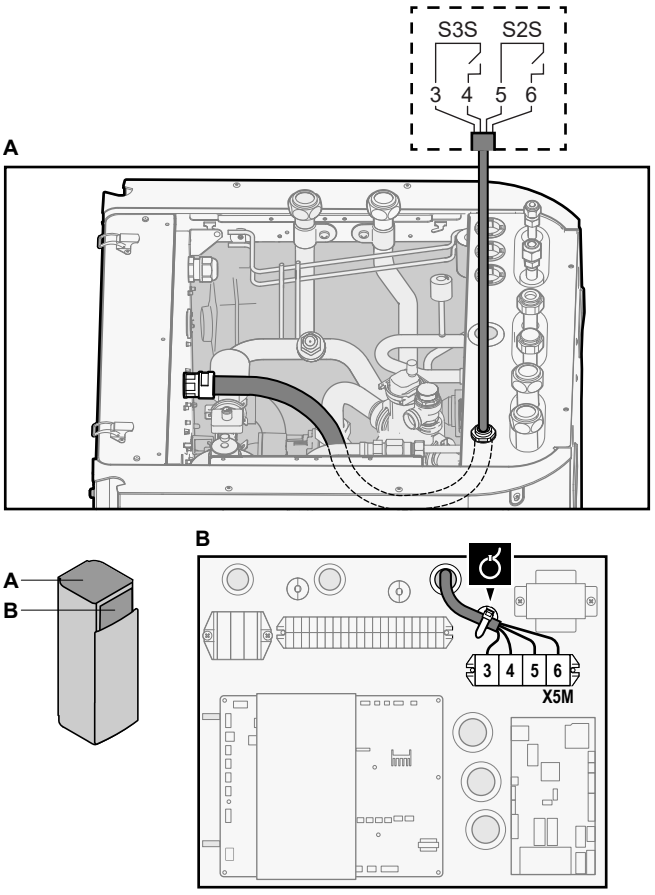
In case of an electricity meter with transistor output, check the polarity. The positive polarity MUST be connected to X5M/6 and X5M/4; the negative polarity to X5M/5 and X5M/3.

1 Open the following (see "4.2.1 To open the indoor unit" [▶ 5]):

1	Top panel
2	Upper front panel
3	Upper switch box cover



2 Connect the electricity meters cable to the appropriate terminals as shown in the illustration below.



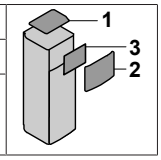
3 Fix the cable with cable ties to the cable tie mountings.

6.3.6 To connect the domestic hot water pump

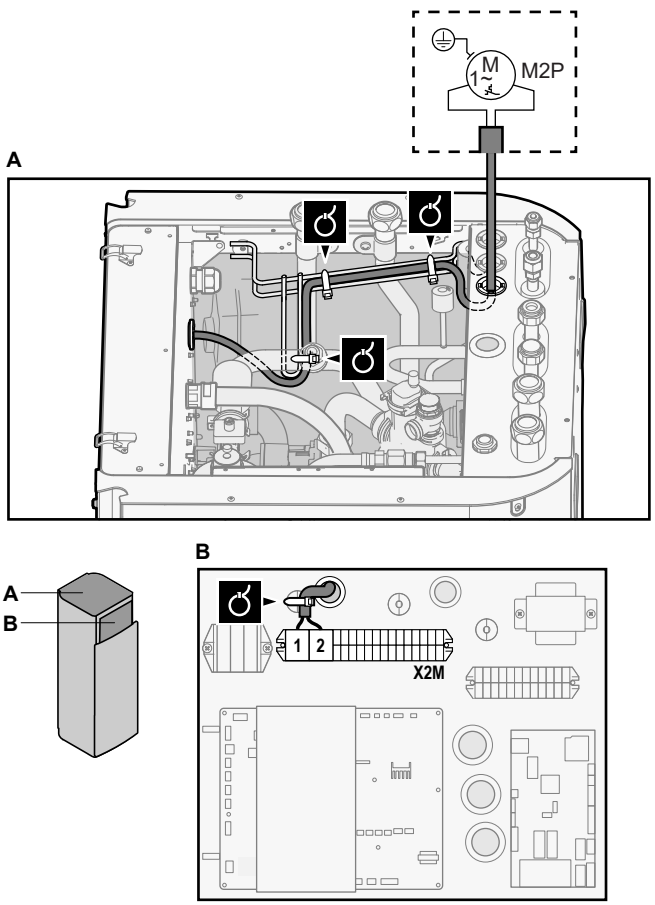
	Wires: (2+GND)×0.75 mm² DHW pump output. Maximum load: 2 A (inrush), 230 V AC, 1 A (continuous)
	[A.2.2] `Options` > [A.2.2.A] `DHW pump` [7.3] `Set schedules` > [7.3.7] `DHW pump`

1 Open the following (see "4.2.1 To open the indoor unit" [▶ 5]):

1	Top panel
2	Upper front panel
3	Upper switch box cover



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



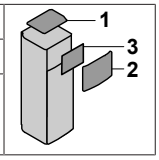
3 Fix the cable with cable ties to the cable tie mountings.

6.3.7 To connect the alarm output

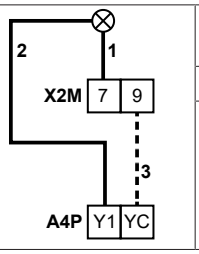
	Wires: (2+1)×0.75 mm² Maximum load: 0.3 A, 250 V AC
	[A.2.2.6.3] `Alarm output`

1 Open the following (see "4.2.1 To open the indoor unit" [▶ 5]):

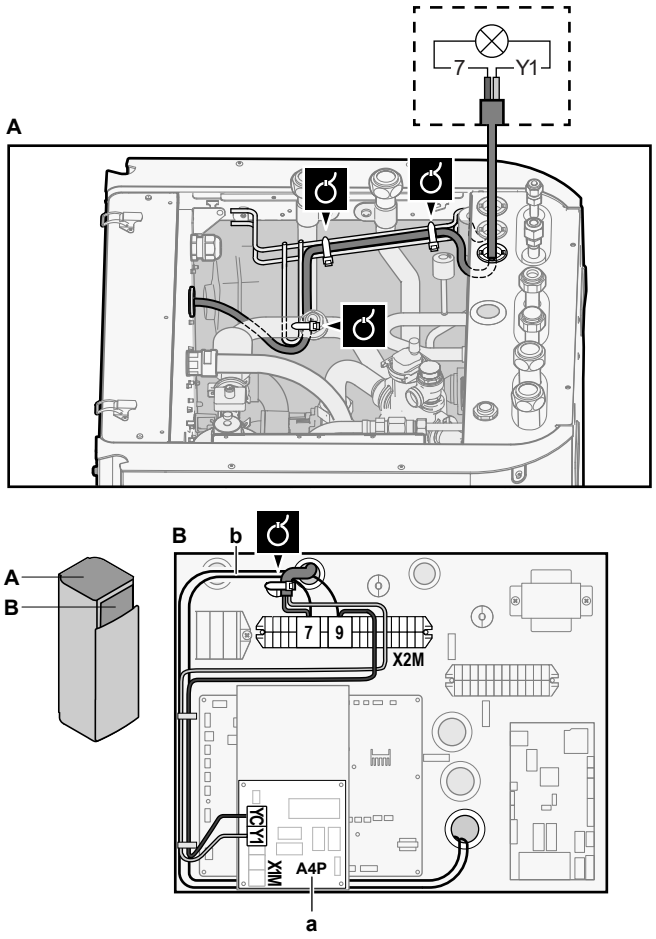
1	Top panel
2	Upper front panel
3	Upper switch box cover



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



1+2	Wires connected to the alarm output
3	Wire between X2M and A4P
A4P	Installation of EKRP1HBAA is required.



a Installation of EKRP1HBAA is required.
b Prewiring between X2M/7+9 and Q1L (= thermal protector backup heater). Do NOT change.

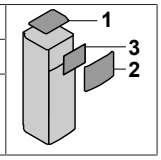
3 Fix the cable with cable ties to the cable tie mountings.

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

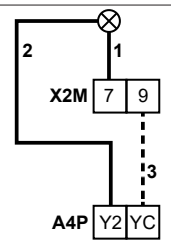
	Wires: (2+1)×0.75 mm² Maximum load: 0.3 A, 250 V AC
	—

1 Open the following (see "4.2.1 To open the indoor unit" [▶ 5]):

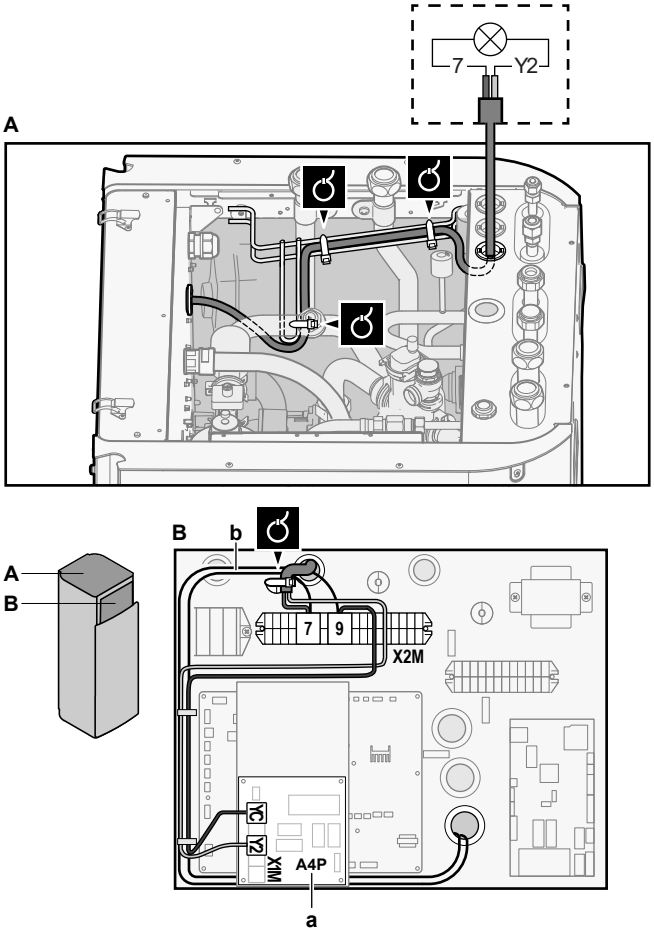
1	Top panel
2	Upper front panel
3	Upper switch box cover



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



1+2	Wires connected to the space cooling/heating ON/OFF output
3	Wire between X2M and A4P
A4P	Installation of EKRP1HBAA is required.



a Installation of EKRP1HBAA is required.
b Prewiring between X2M/7+9 and Q1L (= thermal protector backup heater). Do NOT change.

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

6.3.9 To connect the changeover to external heat source

INFORMATION

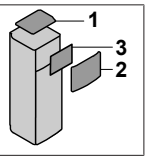
Bivalent is only possible in case of 1 leaving water temperature zone with:

- room thermostat control, OR
- external room thermostat control.

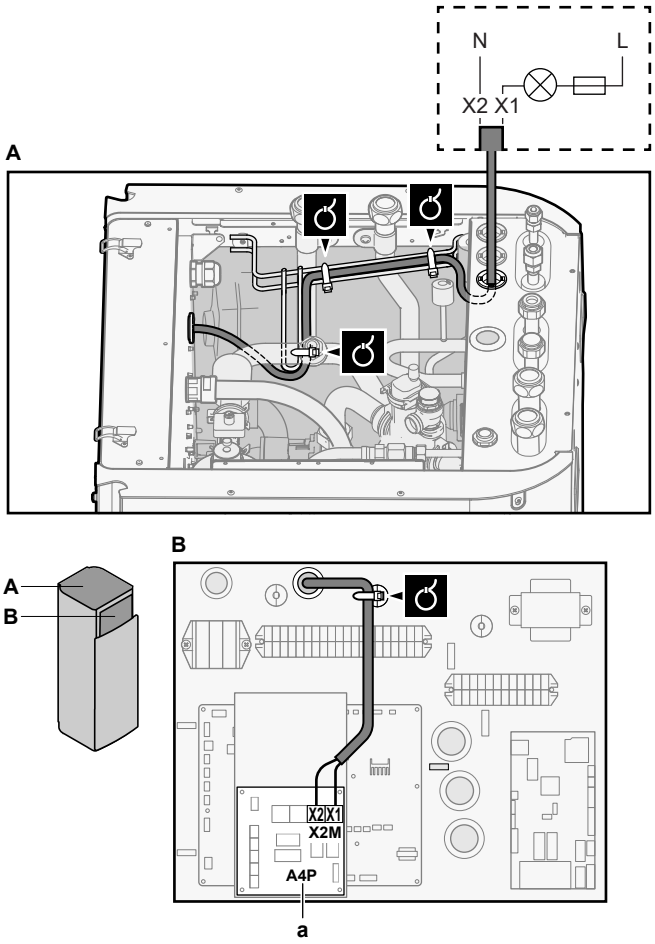
	Wires: 2×0.75 mm² Maximum load: 0.3 A, 250 V AC Minimum load: 20 mA, 5 V DC
	[A.2.2.6.1] `Ext. backup heat src`

1 Open the following (see "4.2.1 To open the indoor unit" [▶ 5]):

1	Top panel
2	Upper front panel
3	Upper switch box cover



2 Connect the changeover to external heat source cable to the appropriate terminals as shown in the illustration below.



a Installation of EKRP1HBAA is required.

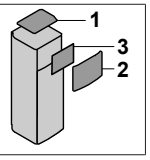
3 Fix the cable with cable ties to the cable tie mountings.

6.3.10 To connect the power consumption digital inputs

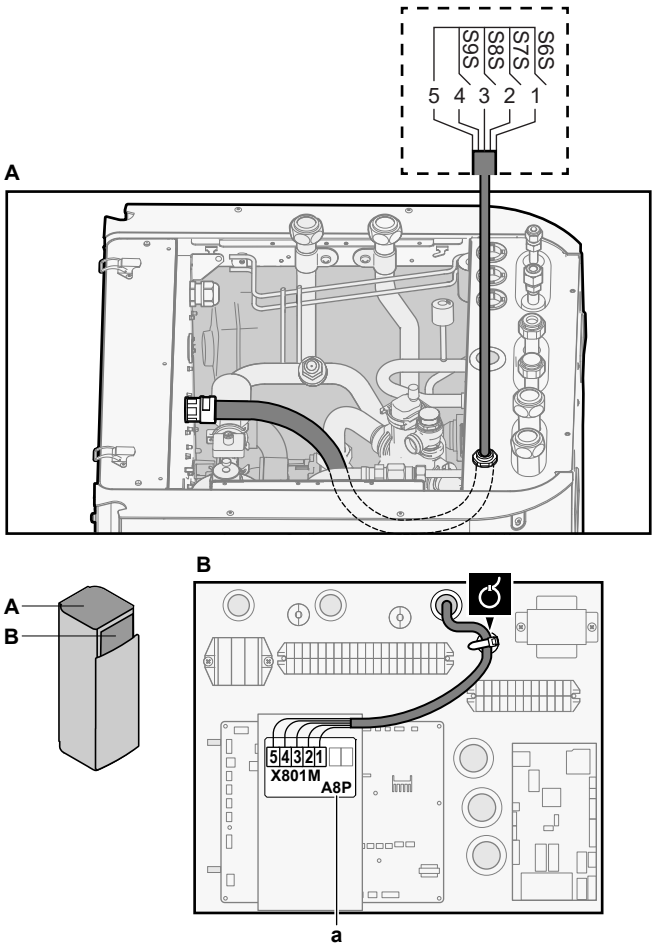
	Wires: 2 (per input signal)×0.75 mm² Power limitation digital inputs: 12 V DC / 12 mA detection (voltage supplied by PCB)
	[A.6.3] `Pwr consumpt. control`

1 Open the following (see "4.2.1 To open the indoor unit" [▶ 5]):

1	Top panel
2	Upper front panel
3	Upper switch box cover



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



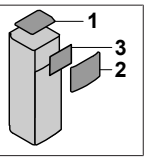
a Installation of EKRP1AHTA is required.

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

6.3.11 To connect the safety thermostat (normally closed contact)

1 Open the following (see "4.2.1 To open the indoor unit" [▶ 5]):

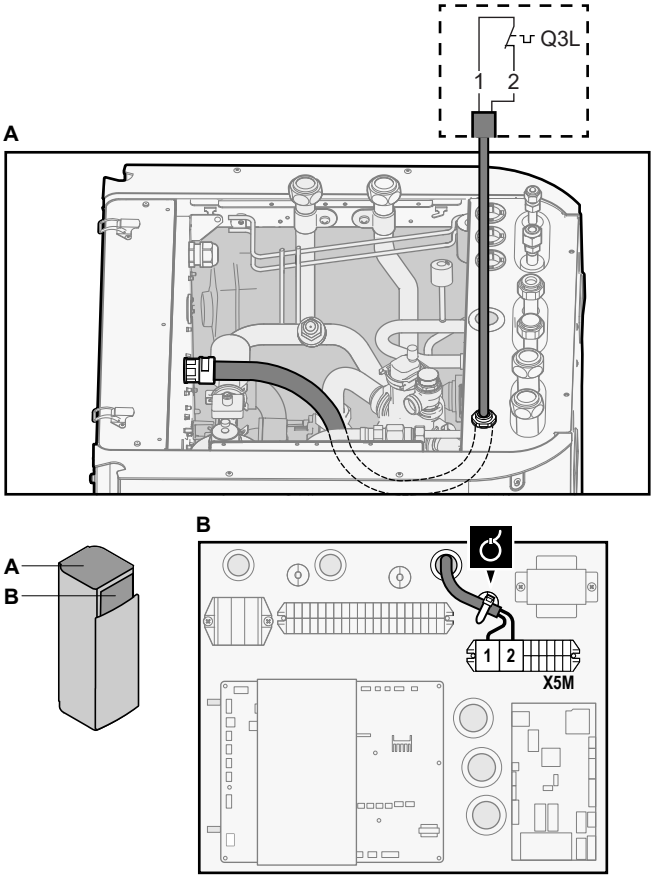
1	Top panel
2	Upper front panel
3	Upper switch box cover



Main zone

	Wires: 2×0.75 mm²
	—

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



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

INFORMATION

Installation of a safety thermostat (field supply) is required for the main zone, otherwise the unit will NOT operate.

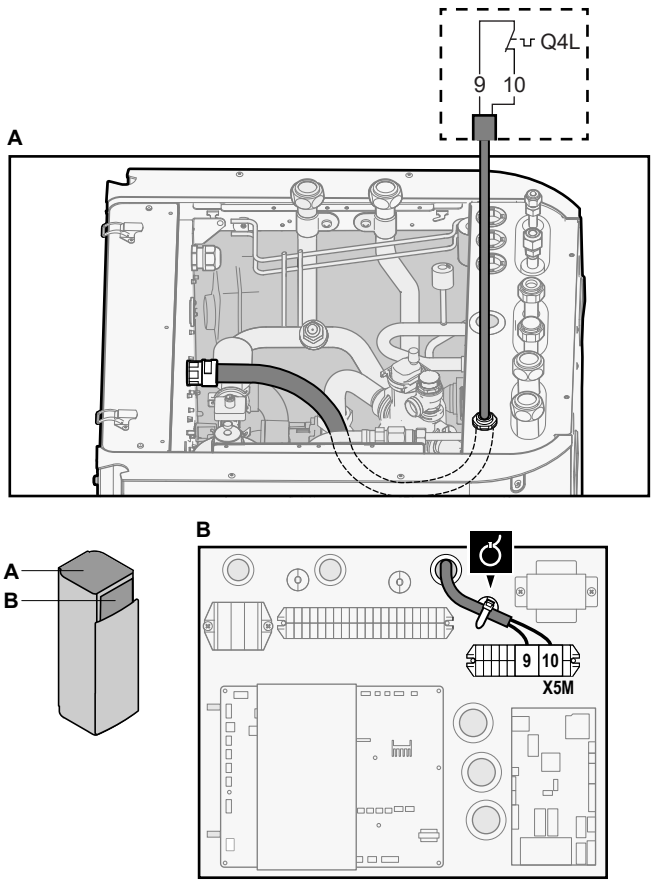
NOTICE

A safety thermostat MUST be installed on the main zone to avoid too high water temperatures in this zone. The safety thermostat is typically a thermostatically controlled valve with a normally closed contact. When the water temperature in the main zone is too high, the contact will open and the user interface will show a 8H-02 error. ONLY the main pump will stop.

Additional zone

	Wires: 2×0.75 mm² Maximum length: 50 m Safety thermostat contact: 16 V DC detection (voltage supplied by PCB). The voltage-free contact shall ensure the minimum applicable load of 15 V DC, 10 mA.
	[A.2.1.6]=3 (`Forced off contact` = `Thermostat`)

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



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

NOTICE

Make sure to select and install the safety thermostat for the additional zone according to the applicable legislation.

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

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

INFORMATION

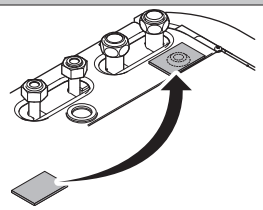
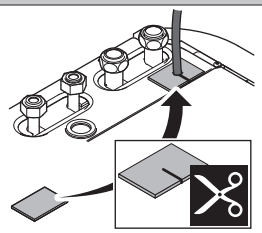
ALWAYS configure the safety thermostat for the additional zone after it is installed. Without configuration, the indoor unit will ignore the safety thermostat contact.

INFORMATION

The preferential kWh rate power supply contact is connected to the same terminals (X5M/9+10) as the safety thermostat for the additional zone. It is only possible for the system to have EITHER preferential kWh rate power supply OR a safety thermostat for the additional zone.

6.4 After connecting the electrical wiring to the indoor unit

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

Without low voltage cables	With low voltage cables
	

7 Configuration

INFORMATION

This unit is a heating only model. Therefore, all references to cooling in this document are NOT applicable.

7.1 Overview: Configuration

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

NOTICE

This chapter explains only the basic configuration. For more detailed explanation and background information, see the installer reference guide.

Why

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

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

How

You can configure the system via the user interface.

- **First time – Quick wizard.** 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.
- **Afterwards.** If necessary, you can make changes to the configuration afterwards.

INFORMATION

When the installer settings are changed, the user interface will request to confirm. When confirmed, the screen will shortly turn OFF and "busy" will be displayed for several seconds.

Accessing settings – Legend for tables

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

Method	Column in tables
Accessing settings via the breadcrumb in the **menu structure**.	**#** For example: [A.2.1.7]
Accessing settings via the code in the **overview settings**.	**Code** For example: [C-07]

See also:

- "To access the installer settings" [▶ 19]
- "7.4 Menu structure: Overview installer settings" [▶ 25]

7.1.1 To change the user permission level

Default user permission level

The default user permission level is `End user`.

To set the user permission level to End user

1 Press ⓘ for more than 4 seconds.

Result: Your user permission level is now `End user`. The user interface displays the default home page.

To set the user permission level to Advanced end user

1 Go to the main menu or any of its submenus: ☰.

2 Press ⓘ for more than 4 seconds.

Result: Your user permission level is now `Adv. end user`. The user interface displays additional information and a "+" is added to the menu title. The user permission level stays in `Adv. end user` until manually set otherwise.

To set the user permission level to Installer

Prerequisite: Your user permission level is `Adv. end user`.

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

2 Press ☰ for more than 4 seconds.

Result: Your user permission level is now `Installer`. The home pages display 🔧.

INFORMATION

The `Installer` permission level switches automatically back to `End user` in the following cases:

- If you press ⓘ again for more than 4 seconds, or
- If you do NOT press any button for more than 1 hour

7.1.2 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 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 (in this example [**1**-01]) 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 "**0**1".

Overview settings				
		01		
00	01	15	02	03
04	05		06	07
08	09		0a	0b
0c	0d		0e	0f
OK Confirm		▲▼ Adjust		◀▶ Scroll

3 Go to the corresponding second part of the setting (in this example [1-**01**]) by using the ◀ and ▶ button.

Overview settings				
		01		
00	01	15	02	03
04	05		06	07
08	09		0a	0b
0c	0d		0e	0f
OK Confirm		Adjust		Scroll

Result: The value to be modified is now highlighted.

4 Modify the value by using the ▲ and ▼ button.

Overview settings				
		01		
00	01	20	02	03
04	05		06	07
08	09		0a	0b
0c	0d		0e	0f
OK Confirm		Adjust		Scroll

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

6 Push OK to confirm the modification of the parameter.

7 At installer settings menu, press OK to confirm the settings.

Installer settings		
The system will restart.		
OK		Cancel
OK Confirm	Adjust	

Result: The system will restart.

7.2 Basic configuration

7.2.1 Quick wizard: Language / time and date

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

7.2.2 Quick wizard: Standard

Space heating/cooling settings

#	Code	Description
[A.2.1.7]	[C-07]	Unit temperature control: ▪ 0 (`LWT control`): Unit operation is decided based on the leaving water temperature. This applies to both temperature zones. ▪ 1 (`Ext RT control`): Unit operation is decided by the external thermostat. This applies to both temperature zones. ▪ 2 (`RT control`): Unit operation for the main temperature zone is decided based on the ambient temperature of the user interface. The additional temperature zone is controlled by the external thermostat.
[A.2.1.B]	N/A	Only if there are 2 user interfaces: User interface location: ▪ `At unit` ▪ `In room` (controlling the main zone)
[A.2.1.8]	[7-02]	Number of water temperature zones: ▪ 0 (`1 LWT zone`): Main ▪ 1 (`2 LWT zones`): Main + additional
[A.2.1.9]	[F-0D]	Pump operation: This is applicable for both zones ▪ 0 (`Continuous`): Continuous pump operation, regardless of thermo ON or OFF condition. ▪ 1 (`Sample`): When thermo OFF condition occurs, the pump runs every 5 minutes and the water temperature is checked. If the water temperature is below target, unit operation can start. ▪ 2 (`Request`): Pump operation based on request. **Example:** Using a room thermostat and thermostat creates thermo ON/OFF condition.

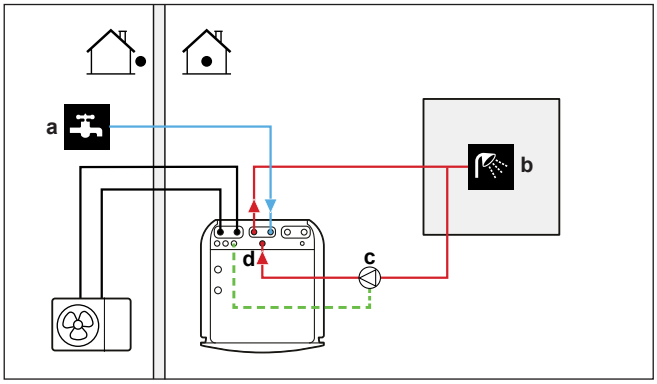
7.2.3 Quick wizard: Options

Domestic hot water settings

#	Code	Description
[A.2.2.1]	[E-05]	`DHW operation`: `Can the system prepare domestic hot water?` ▪ 0 (`No`): NOT installed ▪ 1 (`Yes`): Installed
[A.2.2.3]	[E-07]	`DHW tank type`: ▪ 1 (`Type 2`): The backup heater will also be used for domestic hot water heating. Range: 0~6. **Note:** Values 0 and 2~6 are not applicable for this setting. Moreover, if the setting is set to 6, an error code will appear and the system will NOT operate.
[A.2.2.A]	[D-02]	Domestic hot water pump: ▪ 0 (`No`): NOT installed ▪ 1 (`Secondary rtrn`): Installed for instant hot water ▪ 2 (`Disinf. shunt`): Installed for disinfection See also illustrations below.

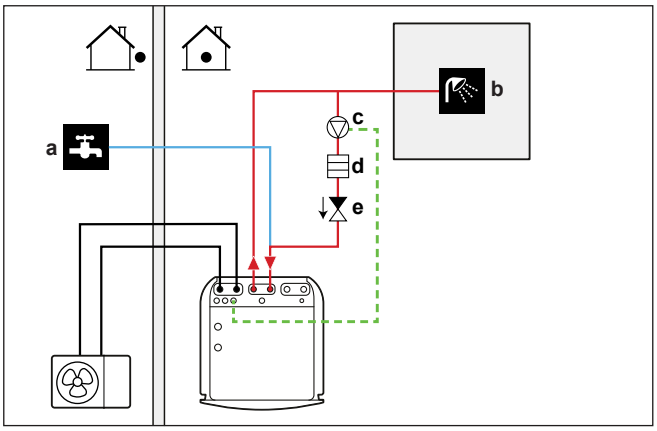
Domestic hot water pump installed for …

… instant hot water



a Cold water
b Shower
c Domestic hot water pump
d Recirculation connection

… disinfection



a Cold water
b Shower
c Domestic hot water pump
d Heater element
e Non-return valve

Thermostats and external sensors

NOTICE

If an external room thermostat is used, the external room thermostat will control the room frost protection. However, the room frost protection is only possible if the leaving water temperature control on user interface of the unit is turned ON.

#	Code	Description
[A.2.2.4]	[C-05]	External room thermostat for the **main** zone: ▪ 1 (`Thermo ON/OFF`): When the used external room thermostat or heat pump convector can only send a thermo ON/OFF condition. ▪ 2 (`H/C request`): When the used external room thermostat can send a separate heating/cooling thermo ON/OFF condition.
[A.2.2.5]	[C-06]	External room thermostat for the **additional** zone: ▪ 0: N/A ▪ 1 (`Thermo ON/OFF`): When the used external room thermostat or heat pump convector can only send a thermo ON/OFF condition. ▪ 2 (`H/C request`): When the used external room thermostat can send a separate heating/cooling thermo ON/OFF condition.
[A.2.2.B]	[C-08]	External sensor: ▪ 0 (`No`): NOT installed. ▪ 1 (`Outdoor sensor`): Connected to PCB measuring the outdoor temperature. ▪ 2 (`Room sensor`): Connected to PCB measuring the indoor temperature.

Digital I/O PCB

#	Code	Description
[A.2.2.6.1]	[C-02]	External backup heater source: ▪ 0 (`No`): None ▪ 1 (`Bivalent`): Gas, oil boiler ▪ 2: N/A ▪ 3: N/A
[A.2.2.6.2]	[D-07]	Solar pump station kit: ▪ 0 (`No`): NOT installed ▪ 1 (`Yes`): Installed
[A.2.2.6.3]	[C-09]	Alarm output on optional EKRP1HBAA PCB: ▪ 0 (`Normally open`): The alarm output will be powered when an alarm occurs. By setting this value, a distinction is made between the detection of an alarm, and the detection of a power failure. ▪ 1 (`Normally closed`): The alarm output will NOT be powered when an alarm occurs. Also see table below:Alarm output logic.
[A.2.2.6.4]	[F-04]	Bottom plate heater ▪ 0 (`No`): NOT installed ▪ 1 (`Yes`): Installed

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

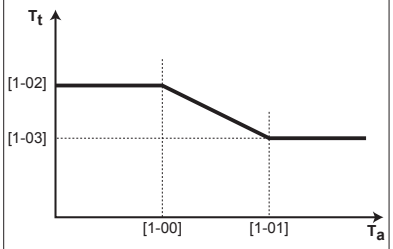
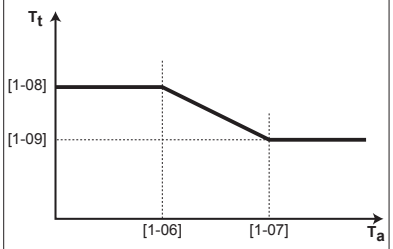
#	Code	Description
[A.2.2.7]	[D-04]	`Demand PCB` Indicates if the optional demand PCB is installed. ▪ 0 (`No`) ▪ 1 (`Pwr consmp ctrl`)

Energy metering

#	Code	Description
[A.2.2.8]	[D-08]	Optional external kWh meter 1: ▪ 0 (`No`): 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.2.2.9]	[D-09]	Optional external kWh meter 2: ▪ 0 (`No`): 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`)

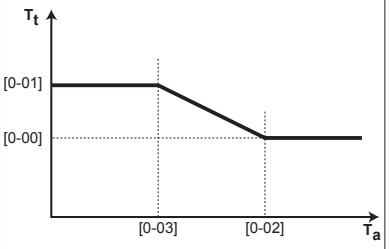
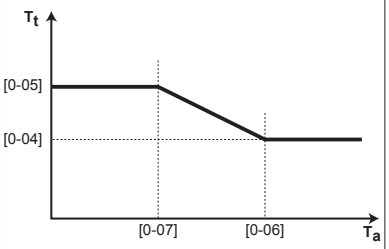
7.2.4 Space heating/cooling control

Leaving water temperature: Main zone

#	Code	Description
[A.3.1.1.1]	N/A	Select the setpoint mode of the leaving water temperature. `LWT setpoint mode`: ▪ 0 (`Fixed`): Absolute ▪ 1 (`Weather dep.`): Weather-dependent ▪ 2 (`Fixed/scheduled`): Absolute + scheduled (only if `Unit control method=LWT control`) ▪ 3 (`WD/scheduled`): Weather-dependent + scheduled (only if `Unit control method=LWT control`)
[7.7.1.1]	[1-00] [1-01] [1-02] [1-03]	If you selected weather-dependent curve as a setpoint mode, adjust the curve to your needs.[a] `Set weather-dependent heating`:  ▪ T_t: Target leaving water temperature (main) ▪ T_a: Outdoor temperature
[7.7.1.2]	[1-06] [1-07] [1-08] [1-09]	If you selected weather-dependent curve as a setpoint mode, adjust the curve to your needs.[a] `Set weather-dependent cooling`:  ▪ T_t: Target leaving water temperature (main) ▪ T_a: Outdoor temperature

[a] Also see "7.3 Weather-dependent curve" [▶ 23].

Leaving water temperature: Additional zone

#	Code	Description
[A.3.1.2.1]	N/A	Select the setpoint mode of the leaving water temperature. `LWT setpoint mode`: ▪ 0 (`Fixed`): Absolute ▪ 1 (`Weather dep.`): Weather-dependent ▪ 2 (`Fixed/scheduled`): Absolute + scheduled (only if `Unit control method=LWT control`) ▪ 3 (`WD/scheduled`): Weather-dependent + scheduled (only if `Unit control method=LWT control`)
[7.7.2.1]	[0-00] [0-01] [0-02] [0-03]	If you selected weather-dependent curve as a setpoint mode, adjust the curve to your needs.[a] `Set weather-dependent heating`:  ▪ T_t: Target leaving water temperature (additional) ▪ T_a: Outdoor temperature
[7.7.2.2]	[0-04] [0-05] [0-06] [0-07]	If you selected weather-dependent curve as a setpoint mode, adjust the curve to your needs.[a] `Set weather-dependent cooling`:  ▪ T_t: Target leaving water temperature (additional) ▪ T_a: Outdoor temperature

[a] Also see "7.3 Weather-dependent curve" [▶ 23].

Leaving water temperature: Delta T source

The Delta T is the required temperature difference between entering and leaving water. This applies to both temperature zones. Change the value of Delta T if another minimum temperature difference is required for the good operation of the heat emitters in heating or cooling mode.

#	Code	Description
[A.3.1.3.1]	[1-0B]	Delta T for heating Range: 3°C~10°C
[A.3.1.3.2]	[1-0D]	Delta T for cooling Range: 3°C~10°C

Leaving water temperature: Modulation

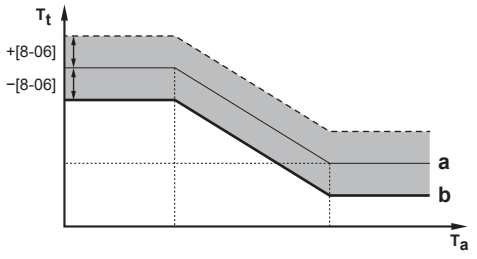
To allow better matching of the heat pump capacity with the actual required capacity, enable the leaving water temperature modulation. If modulation is enabled, the unit calculates the leaving water temperature according to the difference between desired and actual room temperature. As a result, the heat pump will have less start/stop cycles and thus operate more economical.

If modulation is enabled, you can also set the maximum modulation of the leaving water temperature. The maximum modulation is the value by which the desired leaving water temperature is increased or lowered.

#	Code	Description
[A.3.1.1.5]	[8-05]	Modulated LWT: ▪ 0 (No): Disabled ▪ 1 (Yes): Enabled
N/A	[8-06]	Maximum modulation: Range: 0°C~10°C

INFORMATION

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



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

Leaving water temperature: Emitter type

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

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

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

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

#	Code	Description
[A.3.1.1.7]	[2-0C]	Emitter type ▪ 0: Underfloor heat ▪ 1: Fancoil unit ▪ 2: Radiator

7.2.5 Domestic hot water control

#	Code	Description
[A.4.1]	[6-0D]	Domestic hot water Type: ▪ 0 (Reheat only): Only reheat operation is allowed. ▪ 1 (Reheat + sched.): Same as 2, but between the scheduled heatup cycles, reheat operation is allowed. ▪ 2 (Scheduled only): The domestic hot water tank can ONLY be heated according to a schedule.
[A.4.5]	[6-0E]	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.

INFORMATION

There is a risk of space heating (or cooling) capacity shortage/comfort problem when selecting [6-0D]=0 ([A.4.1] Domestic hot water Type=Reheat only).

In case of frequent domestic hot water operation, frequent and long space heating interruption will happen.

7.2.6 Contact/helpdesk number

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

7.3 Weather-dependent curve

7.3.1 What is a weather-dependent curve?

Weather-dependent operation

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

Advantage

Weather-dependent operation reduces energy consumption.

Weather-dependent curve

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

Availability

The weather-dependent curve is available for:

- Main zone - Heating
- Main zone - Cooling
- Additional zone - Heating
- Additional zone - Cooling
- Tank

INFORMATION

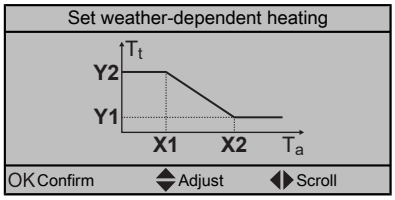
To operate weather-dependent, correctly configure the setpoint of the main zone, additional zone or tank. See "7.3.3 Using weather-dependent curves" [▶ 24].

7.3.2 2-points curve

Define the weather-dependent curve with these 2 setpoints:

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

Example



X1, X2 Examples of outdoor ambient temperature
Y1, Y2 Examples of desired tank temperature or leaving water temperature

7.3.3 Using weather-dependent curves

Configure weather-dependent curves as following:

To define the setpoint mode

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

Go to setpoint mode …	Set the setpoint mode to …
Main zone – Heating/Cooling	
[A.3.1.1.1] `Main > LWT setpoint mode`	`Weather dep.` OR `WD/ scheduled`
Additional zone – Heating/Cooling	
[A.3.1.2.1] `Additional > LWT setpoint mode`	`Weather dep.` OR `WD/ scheduled`
Tank	
[A.4.6] `Domestic hot water (DHW) > SP mode`	`Weather dep.`

To change the weather-dependent curve

Zone	Go to …
Main zone – Heating	[7.7.1.1]`Main > Set weather-dependent heating`
Main zone – Cooling	[7.7.1.2] `Main > Set weather-dependent cooling`
Additional zone – Heating	[7.7.2.1]`Additional > Set weather-dependent heating`
Additional zone – Cooling	[7.7.2.2] `Additional > Set weather-dependent cooling`
Tank	[A.4.7] `Domestic hot water (DHW) > Weather-dependent curve`

INFORMATION

Maximum and minimum setpoints

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

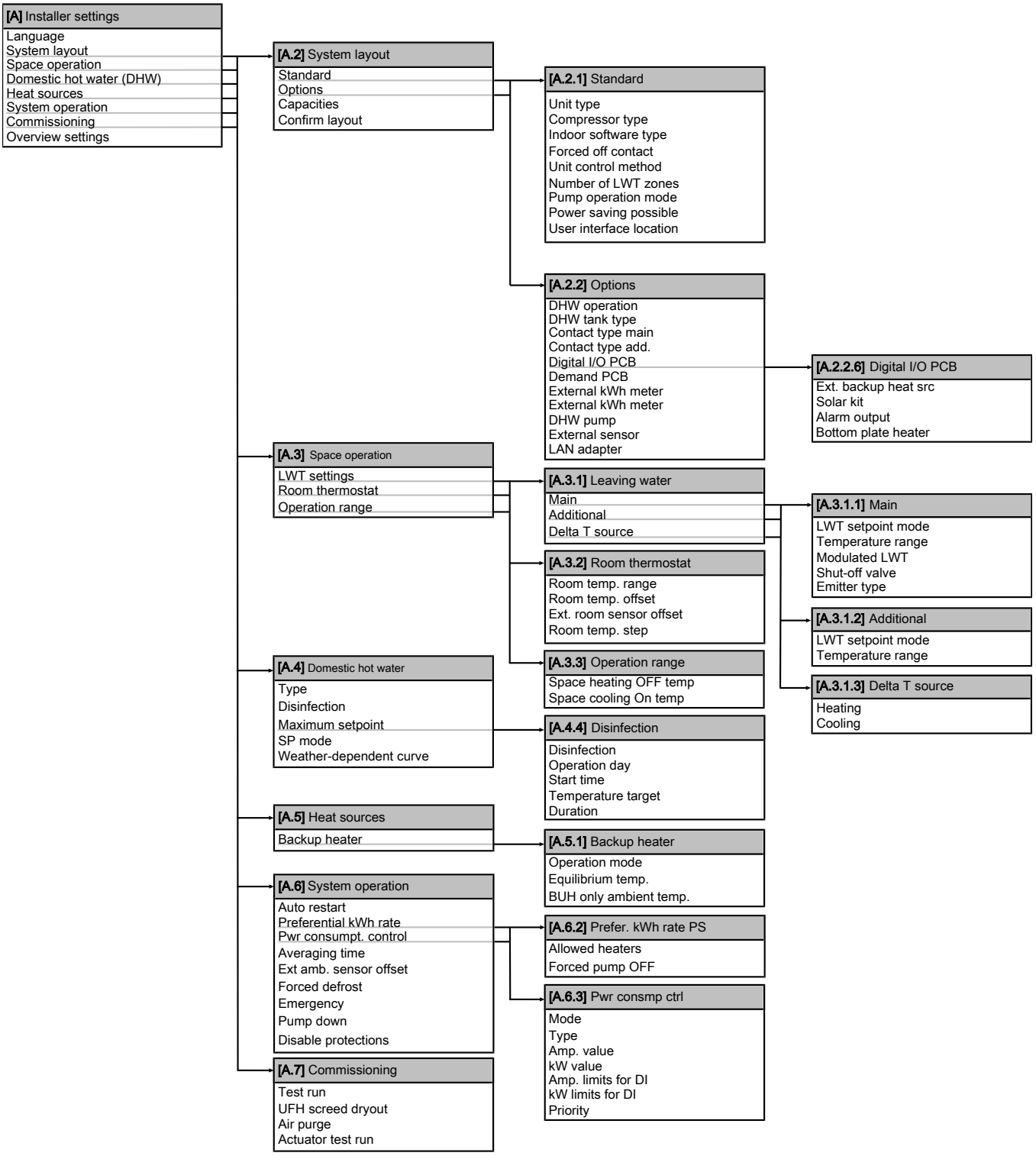
To fine-tune the weather-dependent curve

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

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

[(a)] See "7.3.2 2-points curve" [▶ 24].

7.4 Menu structure: Overview installer settings



INFORMATION

Solar kit settings are shown but are NOT applicable for this unit. Settings shall NOT be used or changed.

INFORMATION

Depending on the selected installer settings and unit type, settings will be visible/invisible.

8 Commissioning

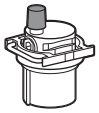
INFORMATION

This unit is a heating only model. Therefore, all references to cooling in this document are NOT applicable.

NOTICE

ALWAYS operate the unit with thermistors and/or pressure sensors/switches. If NOT, burning of the compressor might be the result.

NOTICE




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

All automatic air purge valves MUST remain open after commissioning.

INFORMATION

Protective functions – "Installer-on-site mode". The software is equipped with protective functions, such as room antifrost. The unit automatically runs these functions when necessary. (If the user interface home pages are off, the unit will not operate automatically.)

During installation or service this behaviour is undesired. Therefore, the protective functions can be disabled:

- **At first power-on:** The protective functions are disabled by default. After 36 h they will be automatically enabled.
- **Afterwards:** An installer can manually disable the protective functions by setting [A.6.D]: `Disable protections=On`. After his work is done, he can enable the protective functions by setting [A.6.D]: `Disable protections=OFF`.

8.1 Checklist before commissioning

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

2 Close the unit.

3 Power up the unit.

☐	You read the complete installation instructions, as described in the **installer reference guide**.
☐	The **indoor unit** is properly mounted.
☐	The **outdoor unit** is properly mounted.
☐	The following **field wiring** has been carried out according to this document and the applicable legislation: ▪ Between the local supply panel and the outdoor unit ▪ Between indoor unit and outdoor unit ▪ Between the local supply panel and the indoor unit ▪ Between the indoor unit and the valves (if applicable) ▪ Between the indoor unit and the room thermostat (if applicable)
☐	The system is properly **earthed** and the earth terminals are tightened.
☐	The **fuses** 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.
☐	**Backup heater circuit breaker** F1B (field supply) is turned ON.
☐	There are NO **refrigerant leaks**.
☐	The **refrigerant pipes** (gas and liquid) are thermally insulated.
☐	The correct pipe size is installed and the **pipes** are properly insulated.
☐	There is NO **water leak** inside the indoor unit.
☐	The **shut-off valves** are properly installed and fully open.
☐	The **stop valves** (gas and liquid) on the outdoor unit are fully open.
☐	The **air purge** valve is open (at least 2 turns).
☐	The following **field piping** on the cold water inlet of the DHW tank has been carried out according to this document and the applicable legislation: ▪ Non-return valve ▪ Pressure reducing valve ▪ Pressure relief valve (and it purges clean water when opened) ▪ Tundish ▪ Expansion vessel
☐	The **pressure relief valve** (space heating circuit) purges water when opened. Clean water MUST come out.
☐	The **minimum water volume** is guaranteed in all conditions. See "To check the water volume and flow rate" in "5.2 Preparing water piping" [▶ 8].
☐	The **domestic hot water tank** is filled completely.

8.2 Checklist during commissioning

☐	The **minimum flow rate** during backup heater/defrost operation is guaranteed in all conditions. See "To check the water volume and flow rate" in "5.2 Preparing water piping" [▶ 8].
☐	To perform an **air purge**.
☐	To perform a **test run**.
☐	To perform an **actuator test run**.
☐	**Underfloor screed dryout function** The underfloor screed dryout function is started (if necessary).

8.2.1 To check the minimum flow rate

Mandatory procedure for the additional zone

1 Confirm according to the hydraulic configuration which space heating loops can be closed due to mechanical, electronic, or other valves.

2 Close all space heating loops that can be closed (see previous step).

3 Start the pump test run operation (see "8.2.4 To perform an actuator test run" [▶ 27]).

4 Go to [6.1.8]: ☰ > Information > Sensor information > Flow rate to check the flow rate. During pump test run operation, the unit can operate below this minimum required flow rate that is needed during defrost/backup heater operation.

Recommended procedure for the main zone

5 Confirm according to the hydraulic configuration which space heating loops can be closed due to mechanical, electronic, or other valves.

6 Close all space heating loops that can be closed (see previous step).

7 Create a thermo request on the main zone only.

8 Wait 1 minute until the unit is stabilized.

9 If the additional pump is still assisting (the green LED on the right hand sided pump is ON), increase the flow until the additional pump is NOT assisting anymore (LED is OFF).

10 Go to [6.1.8]: ☰ > Information > Sensor information > Flow rate to check the flow rate.

Minimum required flow rate
12 l/min

8.2.2 To perform an air purge

Prerequisite: Make sure that the leaving water temperature home page, room temperature home page, and domestic hot water home page are turned OFF.

1 Go to [A.7.3]: ☰ > Installer settings > Commissioning > Air purge.

2 Set the type.

3 Select Start air purge and press OK.

4 Select OK and press OK.

Result: The air purge starts. It stops automatically when done. To stop it manually, press ⏻, select OK and press OK.

INFORMATION

When air purging in automatic mode, the first air purge is always for the main zone, the second started air purge is always for the additional zone. To air purge the domestic hot water tank circuit, set Circuit=DHW at the start of the manual air purge of the main zone or additional zone.

Air purging heat emitters or collectors

We recommend to purge air with the unit's air purge function (see above). However, if you purge air from the heat emitters or collectors, mind the following:

WARNING

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

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

8.2.3 To perform a test run

INFORMATION

The test run only applies to the additional temperature zone.

Prerequisite: Make sure that the leaving water temperature home page, room temperature home page, and domestic hot water home page are turned OFF.

1 Set the user permission level to Installer. See "To set the user permission level to Installer" [▶ 19].

2 Go to [A.7.1]: ☰ > Installer settings > Commissioning > Test run.

3 Select a test and press OK. **Example:** Heating.

4 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 use the user interface as long as the "busy" screen is shown.

8.2.4 To perform an actuator test run

Perform an actuator test run to confirm the operation of the different actuators. For example, when you select Pump, a test run of the pump will start.

Prerequisite: Make sure that the leaving water temperature home page, room temperature home page, and domestic hot water home page are turned OFF.

1 Set the user permission level to Installer. See "To set the user permission level to Installer" [▶ 19].

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.

Possible actuator test runs

- Backup heater (step 1) test
- Pump test

INFORMATION

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

- Solar pump test
- Shut-off valve test
- 3-way valve test
- Bivalent signal test
- Alarm output test
- H/C signal (heating/cooling signal) test
- Quick heatup test
- DHW pump test

8.2.5 To perform an underfloor heating screed dryout

Prerequisite: Make sure there is only 1 user interface connected to your system to perform an underfloor heating screed dryout.

Prerequisite: Make sure that the leaving water temperature home page, room temperature home page, and domestic hot water home page are turned OFF.

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. It stops automatically when done. To stop it manually, press ⏻, select `OK` and press OK.

NOTICE

To perform an underfloor heating screed dryout, room frost protection needs to be disabled ([2-06]=0). By default, it is enabled ([2-06]=1). However, due to the "installer-on-site" mode (see "Commissioning"), room frost protection will be automatically disabled for 36 hours after the first power-on.

If the screed dryout still needs to be performed after the first 36 hours of power-on, manually disable room frost protection by setting [2-06] to "0", and KEEP it disabled until the screed dryout has finished. Ignoring this notice will result in cracking of the screed.

NOTICE

For the underfloor heating screed dryout to be able to start, make sure the following settings are met:

- [4-00]=1
- [C-02]=0
- [D-01]=0
- [4-08]=0
- [4-01]≠1

9 Hand-over to the user

Once the test run is finished and the unit operates properly, make sure the following is clear for the user:

- Fill in the installer setting table (in the operation manual) with the actual settings.
- Make sure that the user has the printed documentation and ask him/her to keep it for future reference. Inform the user that he can find the complete documentation at the URL mentioned earlier in this manual.
- Explain the user how to properly operate the system and what to do in case of problems.
- Show the user what to do for the maintenance of the unit.
- Explain the user about energy saving tips as described in the operation manual.

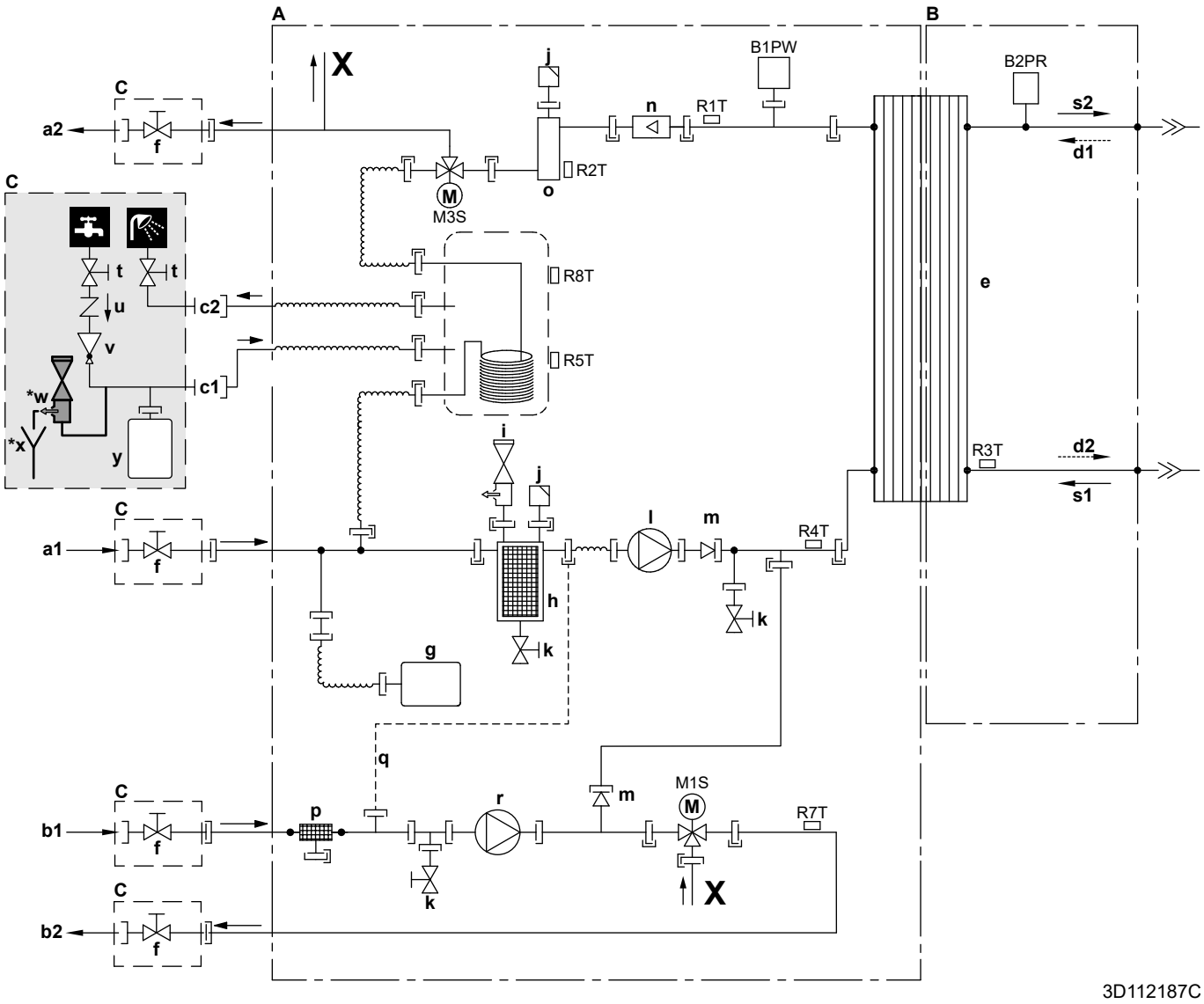
10 Technical data

INFORMATION

This unit is a heating only model. Therefore, all references to cooling in this document are NOT applicable.

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

10.1 Piping diagram: Indoor unit



3D112187C

A Water side
B Refrigerant side
C Field supplied
a1 Space heating water IN (additional/direct zone)
a2 Space heating water OUT (additional/direct zone)
b1 Space heating water IN (main/mixed zone)
b2 Space heating water OUT (main/mixed zone)
c1 Domestic hot water: cold water IN
c2 Domestic hot water: hot water OUT
d1 Gas refrigerant IN (heating mode; condenser)
d2 Liquid refrigerant OUT (heating mode; condenser)
e Plate heat exchanger
f Shut-off valve for service (if equipped)
g Expansion vessel
h Magnetic filter/dirt separator
i Safety valve
j Air purge
k Drain valve
l Pump (additional zone/direct zone)
m Check valve
n Flow sensor
o Backup heater
p Water filter (main/mixed zone)
q Capillary tube
r Pump (main/mixed zone)
s1 Liquid refrigerant IN (cooling mode; evaporator)
s2 Gas refrigerant OUT (cooling mode; evaporator)

t Shut-off valve (recommended)
u Non-return valve (recommended)
v Pressure reducing valve (recommended)
***w** Pressure relief valve (max. 10 bar (=1.0 MPa))(mandatory)
***x** Tundish (mandatory)
y Expansion vessel (recommended)

B1PW Space heating water pressure sensor
B2PR Refrigerant pressure sensor
M1S 3-way valve (mixing valve for the main/mixed zone)
M3S 3-way valve (space heating/domestic hot water)

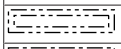
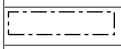
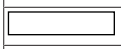
Thermistors:
R1T Heat exchanger – water OUT
R2T Backup heater – water OUT
R3T Liquid refrigerant
R4T Heat exchanger – water IN
R5T, R8T Tank
R7T Main/mixed zone – water OUT

Connections:
Screw connection
Flare connection
Quick coupling
Brazed connection

10.2 Wiring diagram: Indoor unit

See the internal wiring diagram supplied with the unit (on the inside of the indoor unit switch box cover). The abbreviations used are listed below.

Notes to go through before starting the unit

English	Translation
Notes to go through before starting the unit	Notes to go through before starting the unit
X1M	Main terminal
X2M	Field wiring terminal for AC
X5M	Field wiring terminal for DC
X6M	Backup heater power supply terminal
—·—·—·—	Earth wiring
– – – – – – –	Field supply
①	Several wiring possibilities
	Option
	Not mounted in switch box
	Wiring depending on model
	PCB
Note 1: Connection point of the power supply for the BUH should be foreseen outside the unit.	Note 1: Connection point of the power supply for the backup heater should be foreseen outside the unit.
Backup heater power supply	Backup heater power supply
☐ 3V (1N~, 230 V, 3 kW)	☐ 3V (1N~, 230 V, 3 kW)
User installed options	User installed options
☐ LAN adapter	☐ LAN adapter
☐ Remote user interface	☐ Optional user interface
☐ Ext. indoor thermistor	☐ External indoor thermistor
☐ Ext outdoor thermistor	☐ External outdoor thermistor
☐ Digital I/O PCB	☐ Digital I/O PCB
☐ Demand PCB	☐ Demand PCB
☐ Safety thermostat	☐ Safety thermostat
Main LWT	Main leaving water temperature
☐ On/OFF thermostat (wired)	☐ ON/OFF thermostat (wired)
☐ On/OFF thermostat (wireless)	☐ ON/OFF thermostat (wireless)
☐ Ext. thermistor	☐ External thermistor
☐ Heat pump convector	☐ Heat pump convector
Add LWT	Additional leaving water temperature
☐ On/OFF thermostat (wired)	☐ ON/OFF thermostat (wired)
☐ On/OFF thermostat (wireless)	☐ ON/OFF thermostat (wireless)
☐ Ext. thermistor	☐ External thermistor
☐ Heat pump convector	☐ Heat pump convector

Position in switch box

English	Translation
Position in switch box	Position in switch box

Legend

A1P		Main PCB
A2P	*	ON/OFF thermostat (PC=power circuit)
A3P	*	Heat pump convector
A4P	*	Digital I/O PCB
A5P		Bizone PCB
A6P		Current loop PCB
A8P	*	Demand PCB
A10P		Main user interface PCB
A13P	*	LAN adapter
A14P	*	Optional user interface PCB
A15P	*	Receiver PCB (wireless ON/OFF thermostat)
CN* (A4P)	*	Connector
DS1 (A8P)	*	DIP switch
F1B	#	Overcurrent fuse backup heater
F1U, F2U (A4P)	*	Fuse 5 A 250 V for digital I/O PCB
K1M		Contactor backup heater
K6M		Relay 3-way valve bypass
K7M		Relay 3-way valve flow
K*R (A4P)		Relay on PCB
M2P	#	Domestic hot water pump
M2S	#	2-way valve for cooling mode
PC (A15P)	*	Power circuit
PHC1 (A4P)	*	Optocoupler input circuit
Q1L		Thermal protector backup heater
Q3L, Q4L	#	Safety thermostat
Q*DI	#	Earth leakage circuit breaker
R1H (A2P)	*	Humidity sensor
R1T (A2P)	*	Ambient sensor ON/OFF thermostat
R2T (A2P)	*	External sensor (floor or ambient)
R6T	*	External indoor or outdoor ambient thermistor
S1S	#	Preferential kWh rate power supply contact
S2S	#	Electrical meter pulse input 1
S3S	#	Electrical meter pulse input 2
S6S~S9S	*	Digital power limitation inputs
SS1 (A4P)	*	Selector switch
TR1		Power supply transformer
X6M	#	Backup heater power supply terminal strip
X*, X*A, X*Y, Y*		Connector
X*M		Terminal strip

* Optional
\# Field supply

Translation of text on wiring diagram

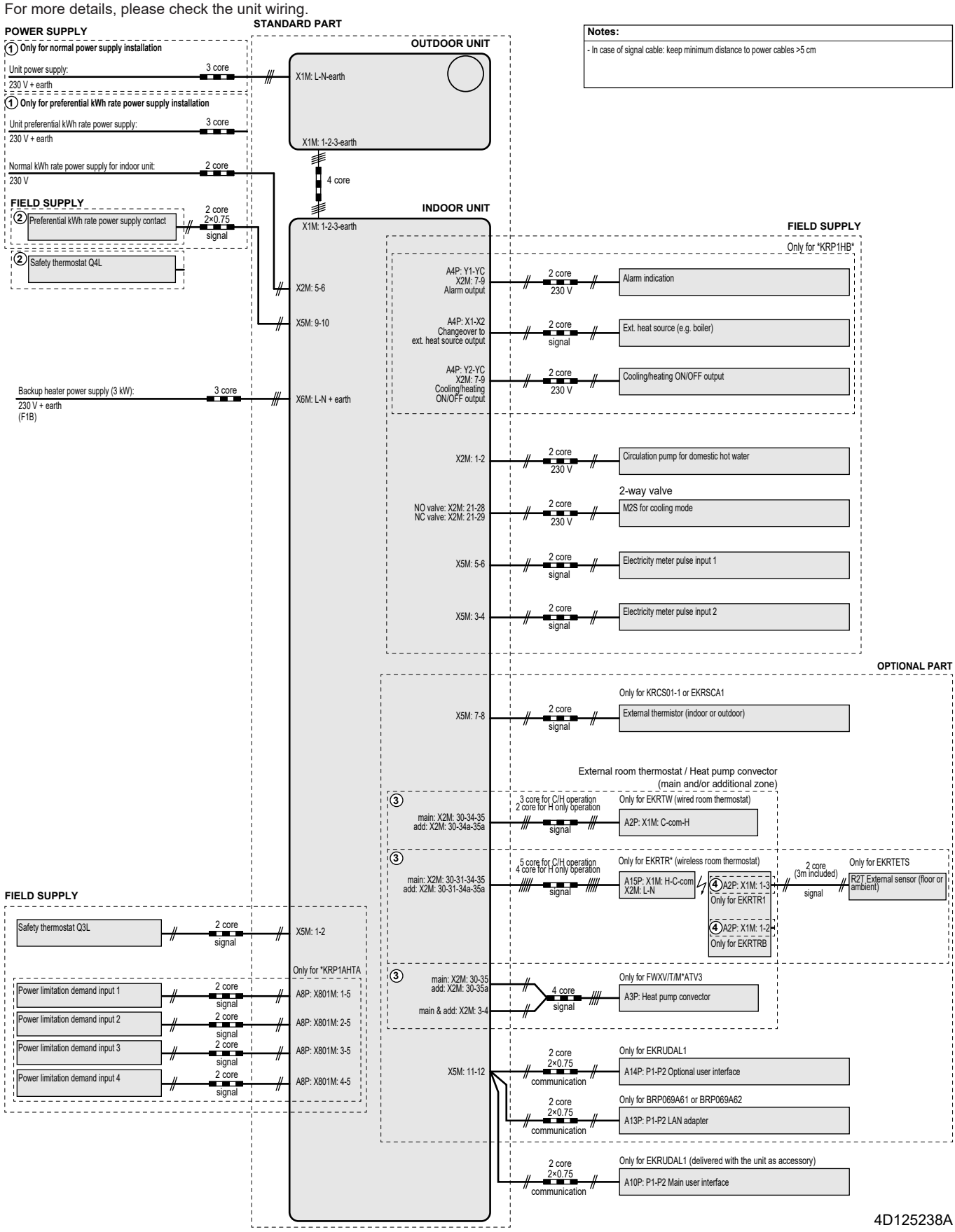
English	Translation
(1) Main power connection	(1) Main power connection
For preferential kWh rate power supply	For preferential kWh rate power supply
Indoor unit supplied from outdoor	Indoor unit supplied from outdoor
Normal kWh rate power supply	Normal kWh rate power supply
Only for normal power supply (standard)	Only for normal power supply (standard)
Only for preferential kWh rate power supply (outdoor)	Only for preferential kWh rate power supply (outdoor)
Outdoor unit	Outdoor unit
Preferential kWh rate power supply contact: 16 V DC detection (voltage supplied by PCB)	Preferential kWh rate power supply contact: 16 V DC detection (voltage supplied by PCB)

English	Translation
SWB	Switch box
Use normal kWh rate power supply for indoor unit	Use normal kWh rate power supply for indoor unit
(2) Backup heater power supply	(2) Backup heater power supply
(3) User interface	(3) User interface
Only for LAN adapter	Only for the LAN adapter
Only for remote user interface	Only for the main/optional user interface
(5) Ext. thermistor	(5) External thermistor
SWB	Switch box
(6) Field supplied options	(6) Field supplied options
12 V DC pulse detection (voltage supplied by PCB)	12 V DC pulse detection (voltage supplied by PCB)
230 V AC supplied by PCB	230 V AC supplied by PCB
Continuous	Continuous current
DHW pump output	Domestic hot water pump output
DHW pump	Domestic hot water pump
Electrical meters	Electrical meters
For safety thermostat	For safety thermostat
Inrush	Inrush current
Max. load	Maximum load
Normally closed	Normally closed
Normally open	Normally open
Safety thermostat	Safety thermostat
Safety thermostat contact: 16 V DC detection (voltage supplied by PCB)	Safety thermostat contact: 16 V DC detection (voltage supplied by PCB)
Shut-off valve	Shut-off valve
SWB	Switch box

English	Translation
(7) Option PCBs	(7) Option PCBs
Alarm output	Alarm output
Changeover to ext. heat source	Changeover to external heat source
Max. load	Maximum load
Min. load	Minimum load
Only for demand PCB option	Only for demand PCB option
Only for digital I/O PCB option	Only for digital I/O PCB option
Options: ext. heat source output, alarm output	Options: external heat source output, alarm output
Options: On/OFF output	Options: ON/OFF output
Power limitation digital inputs: 12 V DC / 12 mA detection (voltage supplied by PCB)	Power limitation digital inputs: 12 V DC / 12 mA detection (voltage supplied by PCB)
Space C/H On/OFF output	Space cooling/heating ON/OFF output
SWB	Switch box
(8) External On/OFF thermostats and heat pump convector	(8) External ON/OFF thermostats and heat pump convector
Additional LWT zone	Additional leaving water temperature zone
Main LWT zone	Main leaving water temperature zone
Only for external sensor (floor/ ambient)	Only for external sensor (floor or ambient)
Only for heat pump convector	Only for heat pump convector
Only for wired On/OFF thermostat	Only for wired ON/OFF thermostat
Only for wireless On/OFF thermostat	Only for wireless ON/OFF thermostat

Electrical connection diagram

For more details, please check the unit wiring.



Notes:

- In case of signal cable: keep minimum distance to power cables >5 cm

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