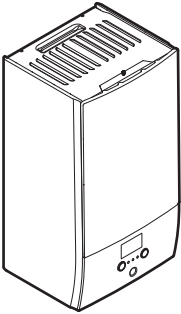




Installation manual

Daikin Altherma 3 H HT W



UTBX040E ▲ 6VJ ▼

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

Table of contents

1	About this document	2
2	Specific installer safety instructions	3
2.1	Codes and regulations.....	4
2.2	Compliance requirements for WLAN card.....	4
2.2.1	FCC.....	4
2.2.2	ISED.....	4
3	About the box	5
3.1	Indoor unit.....	5
3.1.1	To remove the accessories from the indoor unit.....	5
4	Unit installation	5
4.1	Preparing the installation site.....	5
4.1.1	Installation site requirements of the indoor unit.....	5
4.2	Opening and closing the unit.....	5
4.2.1	To open the indoor unit.....	5
4.2.2	To close the indoor unit.....	6
4.3	Mounting the indoor unit.....	6
4.3.1	To install the indoor unit.....	6
4.3.2	To connect the drain hose to the drain.....	7
5	Piping installation	7
5.1	Preparing water piping.....	7
5.1.1	To check the water volume and flow rate.....	8
5.1.2	Third-party tank requirements.....	8
5.2	Connecting water piping.....	8
5.2.1	To connect the water piping.....	8
5.2.2	To fill the water circuit.....	9
5.2.3	To protect the water circuit against freezing.....	9
5.2.4	To fill the domestic hot water tank.....	10
5.2.5	To insulate the water piping.....	10
6	Electrical installation	10
6.1	Guidelines when connecting the electrical wiring.....	11
6.2	Connections to the indoor unit.....	11
6.2.1	To connect the main power supply.....	12
6.2.2	To connect the backup heater power supply.....	13
6.2.3	To connect the shut-off valve.....	14
6.2.4	To connect the electricity meters.....	14
6.2.5	To connect the power consumption digital inputs.....	15
6.2.6	To connect the safety thermostat.....	15
6.2.7	Smart Grid.....	16
6.2.8	To connect the WLAN card (delivered as optional accessory).....	17
7	Configuration	17
7.1	Overview: Configuration.....	17
7.1.1	To access the most used commands.....	17
7.2	Configuration wizard.....	18
7.2.1	Configuration wizard: Language.....	18
7.2.2	Configuration wizard: Time and date.....	18
7.2.3	Configuration wizard: System.....	18
7.2.4	Configuration wizard: Backup heater.....	20
7.2.5	Configuration wizard: Main zone.....	20
7.2.6	Configuration wizard: Additional zone.....	21
7.2.7	Configuration wizard: Tank.....	22
7.3	Outdoor reset curve.....	22
7.3.1	What is an outdoor reset curve?.....	22
7.3.2	2-points curve.....	23
7.3.3	Slope-offset curve.....	23
7.3.4	Using outdoor reset curves.....	24
7.4	Settings menu.....	25
7.4.1	Main zone.....	25
7.4.2	Additional zone.....	25
7.4.3	Information.....	25
7.5	Menu structure: Overview installer settings.....	26

8	Commissioning	27
8.1	Checklist before commissioning.....	27
8.2	Checklist during commissioning.....	27
8.2.1	To check the minimum flow rate.....	27
8.2.2	To perform an air purge.....	28
8.2.3	To perform an actuator test run.....	28
8.2.4	To perform an operation test run.....	28
8.2.5	To perform an underfloor heating screed dry-out.....	28
9	Handover to the user	29
10	Maintenance and service	29
10.1	Maintenance safety precautions.....	29
10.2	Yearly maintenance.....	29
10.2.1	Yearly maintenance indoor unit: overview.....	29
10.2.2	Yearly maintenance indoor unit: instructions.....	29
10.3	About cleaning the water filter in case of trouble.....	30
10.3.1	To remove the water filter.....	30
10.3.2	To clean the water filter in case of trouble.....	31
10.3.3	To install the water filter.....	31
11	Disposal	31
12	Technical data	32
12.1	Piping diagram: Indoor unit.....	32
12.2	Wiring diagram: Indoor unit.....	33

1 About this document

Target audience

Authorized 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 www.daikincomfort.com. 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 www.daikincomfort.com. Use the search function 🔍 to find your model.

The latest revision of the supplied documentation is published on www.daikincomfort.com and is available via your dealer.

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

Technical engineering data

- The full set of the latest technical data is available at www.daikincomfort.com.

Online tools

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

- Daikin Altherma Xpress
 - Digital selection tool that offers quick equipment selection with the option to generate a report.
 - To access the web tool, registration on the Daikin City platform is required. For more information, see <https://althermaxpress.daikincity.com>.
- Daikin Tech Hub
 - Daikin Tech Hub supports service contractors working with Daikin products. It provides all Daikin technical and service information directly at your fingertips.
 - The mobile app can be downloaded for iOS and Android™ devices using the QR codes below. Registration for the Daikin City platform is required for full access to the app.

App Store®



Google Play™ store



App Store® is a registered trademark of Apple Inc..

Android™ and Google Play™ are trademarks of Google LLC.

2 Specific installer safety instructions

Always observe the following safety instructions and regulations.

General installation requirements



WARNING

Only personnel that have been trained to install, adjust, service, maintain or repair (hereinafter, "service") the equipment specified in this manual should service the equipment.

This equipment is NOT intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do NOT play with the equipment.

The manufacturer will NOT be responsible for any injury or property damage arising from improper supervision, service or service procedures. If you service this unit, you assume responsibility for any injury or property damage that may result. In addition, in jurisdictions that require one or more licenses to service the equipment specified in this manual, only licensed personnel should service the equipment. Improper supervision, installation, adjustment, servicing, maintenance or repair of the equipment specified in this manual, or attempting to install, adjust, service or repair the equipment specified in this manual without proper supervision or training may result in product damage, property damage, personal injury or death.



WARNING

Do NOT bypass safety devices.

Installation site (see "4.1 Preparing the installation site" [▶ 5])



WARNING

Follow the service space dimensions in this manual to install the unit correctly. See "4.1.1 Installation site requirements of the indoor unit" [▶ 5].

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



DANGER: RISK OF ELECTROCUTION



DANGER: RISK OF BURNING/SCALDING

Installing the indoor unit (see "4.3 Mounting the indoor unit" [▶ 6])



WARNING

The indoor unit installation MUST be in accordance with the instructions from this manual. See "4.3 Mounting the indoor unit" [▶ 6].

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



WARNING

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

In case of freeze protection with anti-freeze:



WARNING

Ethylene anti-freeze is toxic. If you add anti-freeze to the water, do NOT install freeze protection valves. The valves release the toxic anti-freeze when they are activated.
Possible consequence:

- Heart, kidney or liver damage in case of anti-freeze swallowing or skin contact with anti-freeze.
- Nausea, sickness and diarrhea in case of anti-freeze inhalation.



WARNING

Due to the presence of anti-freeze, the system can corrode. Uninhibited anti-freeze becomes acidic under the influence of oxygen. High temperatures and the presence of copper accelerate this process. The acidic uninhibited anti-freeze attacks metal surfaces and forms galvanic corrosion cells that cause severe damage to the system. It is therefore important to respect the following:

- A qualified water specialist has treated the water.
- Select anti-freeze with corrosion inhibitors to prevent anti-freeze oxidation and subsequent acid formation.
- Do NOT use automotive anti-freeze because these contain corrosion inhibitors with only a limited lifetime. On top of that, they also contain silicates that can foul or plug the system.
- Do NOT use galvanized pipes in anti-freeze systems because they provoke certain components in the anti-freeze's corrosion inhibitor to precipitate.

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



DANGER: RISK OF ELECTROCUTION



WARNING

Electrical wiring 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 "12.2 Wiring diagram: Indoor unit" [▶ 33].



WARNING

The installation of the product MUST comply with the latest edition of the National Electric Code.

2 Specific installer safety instructions



WARNING

Appliance shall be installed in accordance with national wiring regulations.



WARNING

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



WARNING

ALWAYS use multicore cable for power supply cables.



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.



CAUTION

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



WARNING

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



CAUTION

If the indoor unit has a separate tank with a built-in electrical booster heater, use a dedicated power circuit for the backup heater and booster heater. **NEVER** use a power circuit shared by another appliance. This power circuit **MUST** be protected with the required safety devices according to the applicable codes.



CAUTION

To guarantee the unit is properly grounded, **ALWAYS** connect the backup heater power supply and the ground cable.



INFORMATION

For details on the fuse ratings, the fuse types and the circuit breaker ratings, see "[6 Electrical installation](#)" [p 10].

Commissioning (see "[8 Commissioning](#)" [p 27])



WARNING

Commissioning **MUST** be in accordance with the instructions from this manual. See "[8 Commissioning](#)" [p 27].

2.1 Codes and regulations

This product is designed and manufactured to comply with national codes. The product shall be installed in accordance with the National Electrical Code (NFPA 70) and other required codes and regulations. Installation in accordance with such codes and / or prevailing local codes / regulations is the responsibility of the installer. The manufacturer assumes no responsibility for equipment installed in violation of any codes or regulations.

2.2 Compliance requirements for WLAN card

2.2.1 FCC

FCC ID: MG3-BRP069A78

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1 this device may not cause harmful interference, and
- 2 this device must accept any interference received, including interference that may cause undesired operation.

The FCC responsible party is Daikin Comfort Technologies Manufacturing, Inc., and may be contacted by calling (713)-861-2500, or at 19001 Kermier Rd., Waller, TX 77484. (www.daikincomfort.com)

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



CAUTION

FCC Radio Frequency Radiation Exposure statement:

- This transmitter must **NOT** be co-located or operating in conjunction with any other antenna or transmitter.
- This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated, keeping the radiator at least 7.87" (20 cm) or more away from the person's body.

2.2.2 ISED

IC: 2575A-BRP069A78

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

- 1 this device may not cause interference, and
- 2 this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient des émetteurs/récepteurs exempts de licence qui sont conformes aux RSS exempts de licence d'Innovation, Sciences et Développement économique Canada. Le fonctionnement est soumis aux deux conditions suivantes:

- 1 cet appareil ne doit pas provoquer d'interférences, et
- 2 cet appareil doit accepter toutes les interférences, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

Caution: Exposure to Radio Frequency Radiation

- 1 To comply with the Canadian RF exposure compliance requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
- 2 To comply with RSS 102 RF exposure compliance requirements, this equipment should be installed and operated, keeping the radiator at least 7.87" (20 cm) or more away from the person's body.

Attention: Exposition aux rayonnements de radiofréquences

- 1 Pour se conformer aux exigences canadiennes de conformité en matière d'exposition aux RF, cet appareil et son antenne ne doivent pas être situés au même endroit ni fonctionner conjointement avec une autre antenne ou un autre émetteur.
- 2 Pour se conformer aux exigences de conformité en matière d'exposition aux RF RSS 102, cet équipement doit être installé et utilisé en maintenant le radiateur à au moins 7,87 pouces (20 cm) ou plus du corps de la personne.

3 About the box

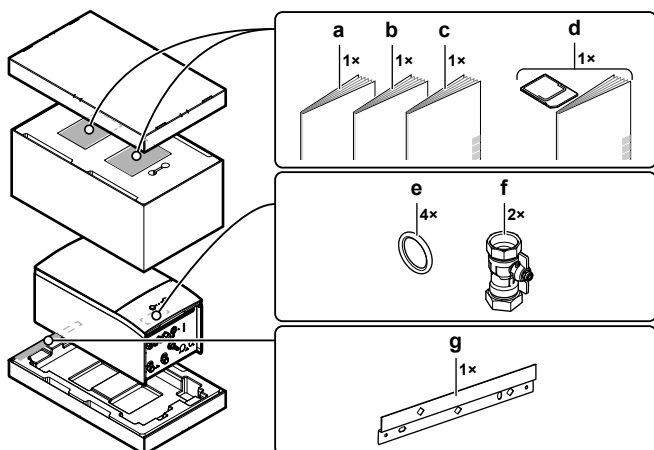
Keep the following in mind:

- Upon 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

Some accessories are located inside the unit. For more information on opening the unit, see "4.2.1 To open the indoor unit" [p.5].



- a General safety precautions
- b Indoor unit installation manual
- c Operation manual
- d WLAN card + Installation manual
- e Sealing ring for shut-off valve
- f Shut-off valve
- g Wall bracket

4 Unit installation

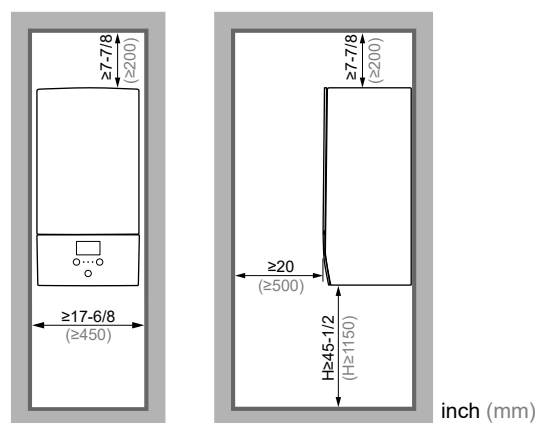
4.1 Preparing the installation site

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: 41~86°F (5~30°C)
 - Space cooling operation: 41~95°F (5~35°C)
 - Domestic hot water production: 41~95°F (5~35°C)
- Mind the measurement guidelines:

Maximum height difference between indoor unit and outdoor unit	33 ft (10 m)
Maximum height difference between domestic hot water tank and outdoor unit	33 ft (10 m)
Maximum water piping length between indoor unit and domestic hot water tank	33 ft (10 m)
Maximum distance between the 3-way valve and the indoor unit (for installations with domestic hot water tank)	10 ft (3 m)
Maximum total water piping length	164 ft (50 m)

- Mind the following spacing installation guidelines:

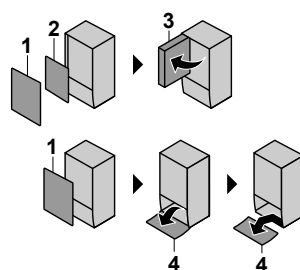


H Height measured from the bottom of the casing to the floor

4.2 Opening and closing the unit

4.2.1 To open the indoor unit

Overview

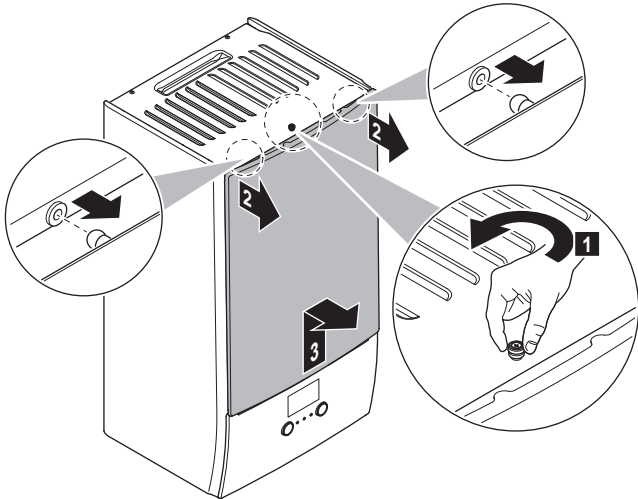


- 1 Front panel
- 2 Switch box cover
- 3 Switch box
- 4 User interface panel

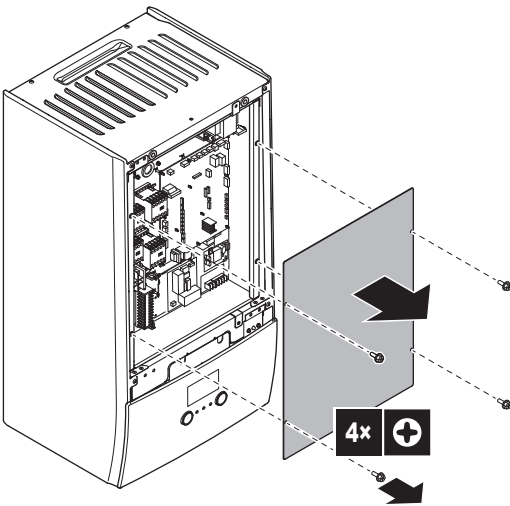
4 Unit installation

Open

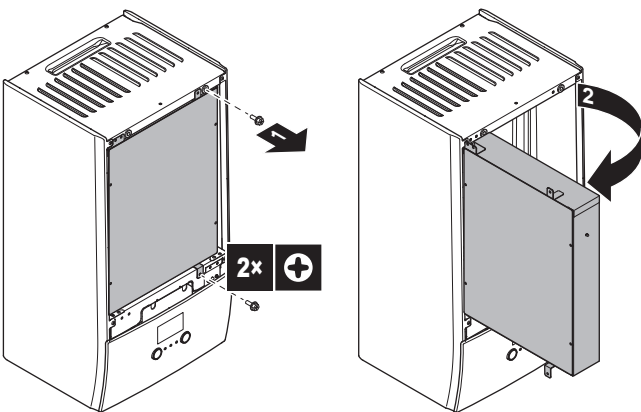
- 1 Remove the front panel.



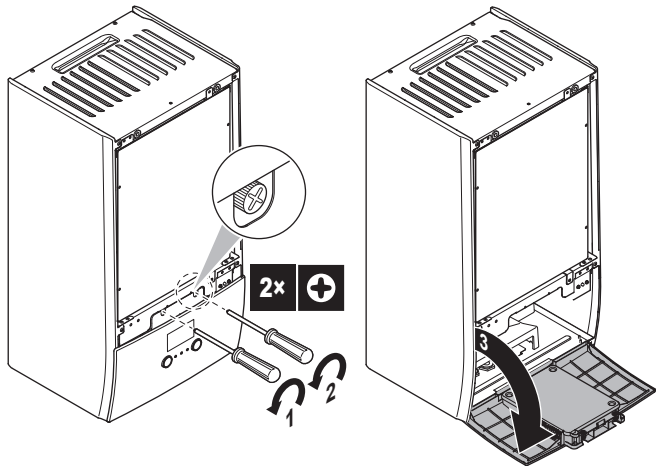
- 2 If you have to connect electrical wiring, remove the switch box cover.



- 3 If you have to do work behind the switch box, open the switch box.



- 4 If you have to do work behind the user interface panel or upload new software into the user interface, open the user interface panel.

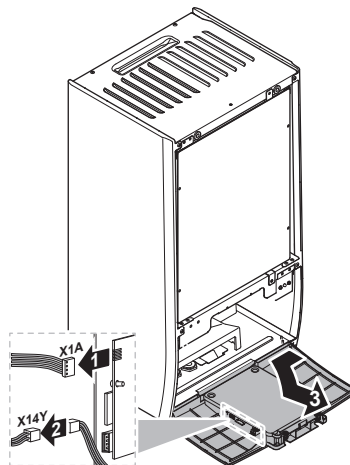


- 5 Optional: Remove the user interface panel.



NOTICE

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



4.2.2 To close the indoor unit

- 1 Reinstall the user interface panel.
- 2 Reinstall the switch box cover and close the switch box.
- 3 Reinstall the front panel.



NOTICE

When closing the indoor unit cover, make sure that the tightening torque does NOT exceed 3.0 lbf·ft (4.1 N·m).

4.3 Mounting the indoor unit

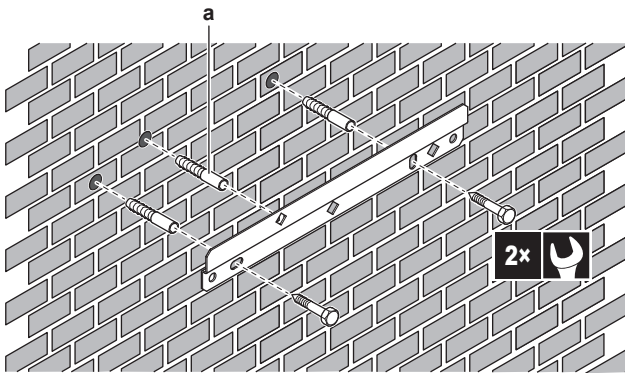


NOTICE

The appliance must be installed according to the instructions provided in the following chapter. The indoor unit should be able to withstand a load equal to three times the weight of the unit, but not exceeding 397 lb (180 kg), acting vertically downwards, applied uniformly for a minimum of 1 minute.

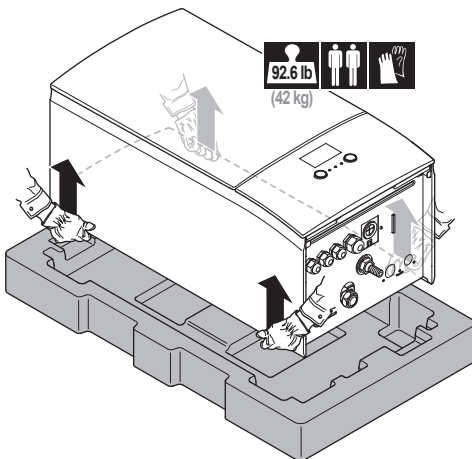
4.3.1 To install the indoor unit

- 1 Fix the wall bracket (accessory) to the wall (level) with 2x Ø5/16" (Ø8 mm) bolts.



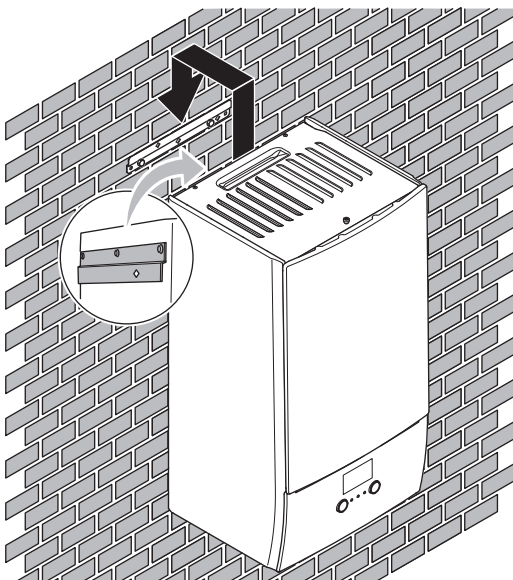
a Recommended: If you want to fix the unit to the wall from inside the unit, provide an additional screw plug.

2 Lift the unit.



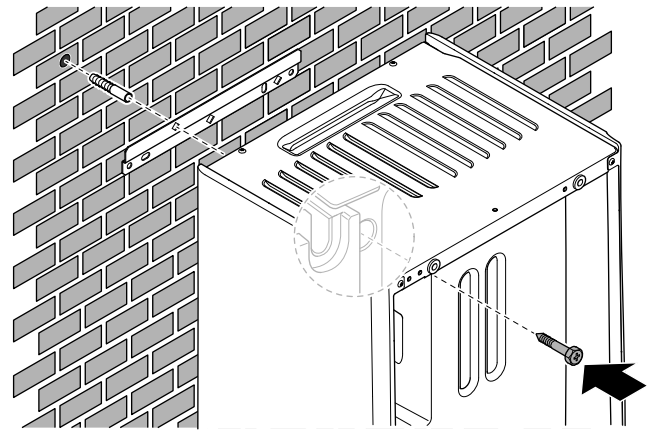
3 Attach the unit to the wall bracket:

- Tilt the top of the unit against the wall at the position of the wall bracket.
- Slide the bracket on the back of the unit over the wall bracket. Make sure the unit is fixed properly.



4 Recommended: If you want to fix the unit to the wall from inside the unit:

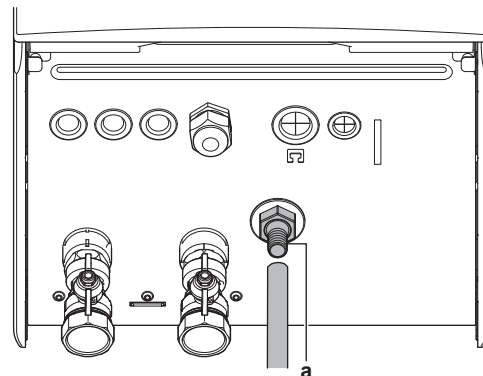
- Remove the upper front panel, and open the switch box. See "4.2.1 To open the indoor unit" [▶ 5].
- Fix the unit to the wall with an Ø5/16" (Ø8 mm) screw.



4.3.2 To connect the drain hose to the drain

Water coming from the pressure relief valve is collected in the drain pan. You must connect the drain pan to an appropriate drain according to the applicable codes.

- 1 Connect a drain tube (field supplied) to the drain pan connector as follows:



a Drain pan connector

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

5 Piping installation

5.1 Preparing water piping



NOTICE

In case of plastic pipes, please make sure they are compliant with ASTM F3253. 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.

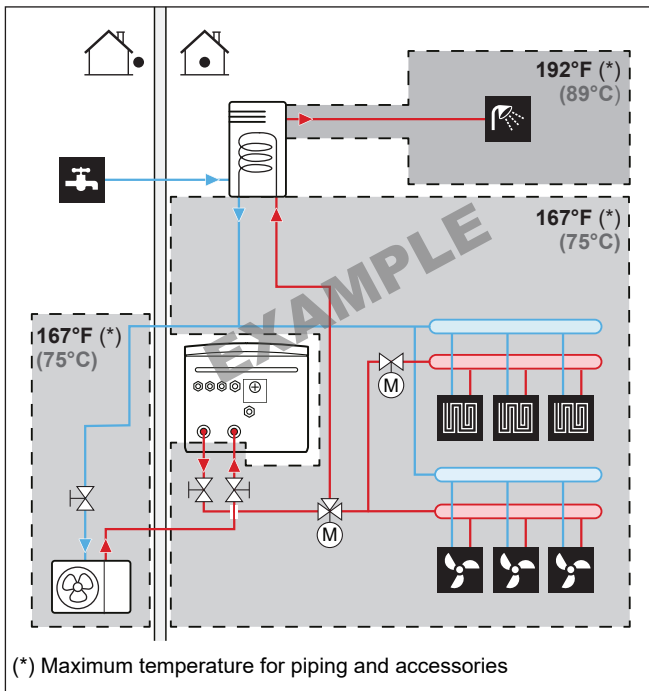
- **Water pressure – Space heating/cooling circuit.** The maximum water pressure is 43.5 PSI (3 bar) (0.3 MPa). Provide adequate safeguards in the water circuit to ensure that the maximum pressure is NOT exceeded. The minimum water pressure to operate is 14.5 PSI (1 bar) (0.1 MPa).
- **Water temperature.** 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.

5 Piping installation



5.1.1 To check the water volume and flow rate

Minimum water volume

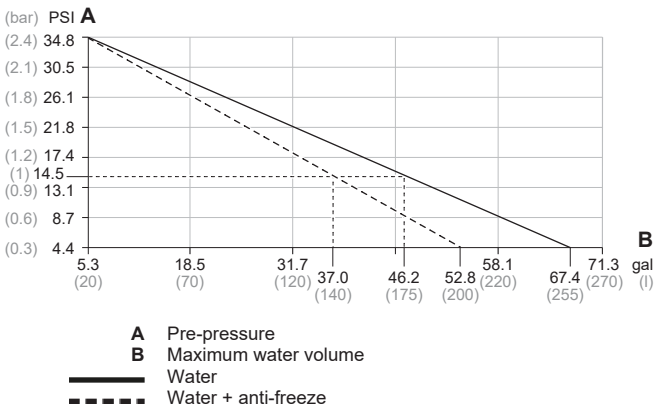
The installation needs to be made in such a way that a minimum water volume of 5.3 gal (20 liters) is always available in the space heating/cooling loop of the unit, even when the available volume towards the unit is reduced because of closure of valves (heat emitters, thermostatic valves, etc.) in the space heating/cooling circuit. The internal water volume of the outdoor unit and indoor unit is NOT considered for this minimum water volume.

Maximum water volume

NOTICE

The maximum water volume depends on whether anti-freeze is added to the water circuit. For more information on the addition of anti-freeze, refer to ["5.2.3 To protect the water circuit against freezing"](#) [p. 9].

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



Minimum flow rate

Check that the minimum flow rate in the installation is guaranteed in all conditions. This minimum flow rate is required during defrost/backup heater operation.

If operation is...	Then the minimum required flow rate is...
Cooling / heating start-up / defrost / backup heater operation	6 gal/min (22 l/min)
Domestic hot water production	7.5 gal/min (28 l/min)



NOTICE

If anti-freeze was added to the water circuit, and the temperature of the water circuit is low, the flow rate will NOT be displayed on the user interface. In this case, the minimum flow rate can be checked by way of the pump test (check that the user interface does NOT display error 7H).



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"](#) [p. 27].

5.1.2 Third-party tank requirements

In case of a third-party tank, the tank shall adhere to the following requirements:

- The heat exchanger coil of the tank is $\geq 11.3 \text{ ft}^2$ ($\geq 1.05 \text{ m}^2$).
- The tank thermistor must be located above the heat exchanger coil.
- The booster heater must be located above the heat exchanger coil.



NOTICE

Performance. Performance data for third-party tanks CANNOT be provided, and performance CANNOT be guaranteed.



NOTICE

Configuration. Configuration of a third-party tank depends on the size of the heat exchanger coil of the tank. For more information, see the installer reference guide.

5.2 Connecting water piping

5.2.1 To connect the water piping

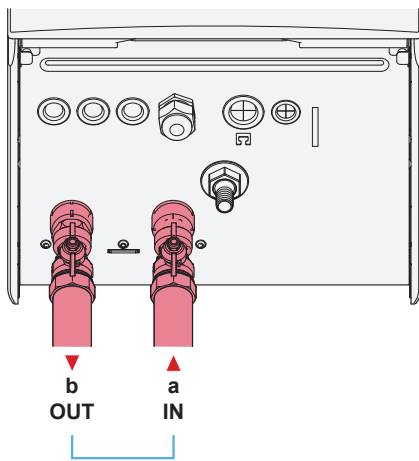


NOTICE

Do NOT use excessive force when connecting the field piping and make sure the piping is aligned properly. Deformed pipes can cause the unit to malfunction.

To facilitate service and maintenance, 2 shut-off valves are provided. Mount the shut-off valves on the water IN connection (from the outdoor unit), and on the space heating water OUT connection.

- 1 Connect the O-rings and shut-off valves to the indoor unit water connections.
- 2 Connect the outdoor unit field piping on the water IN connection (a) of the indoor unit.
- 3 Connect the space heating/cooling field piping on the space heating water OUT connection (b) of the indoor unit.



a Water IN (screw connection, 1" NPT)
b Space heating water OUT (screw connection, 1" NPT)



NOTICE

Install air purge valves at all local high points.



NOTICE

In case an optional domestic hot water tank is installed: A pressure relief valve (field supplied) with an opening pressure of maximum 145 PSI (10 bar) (1 MPa) must be installed on the domestic cold water inlet connection in accordance with the applicable codes.



NOTICE

In case an optional domestic hot water tank is installed:

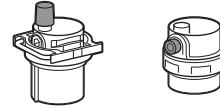
- A drain device and pressure relief device must be installed on the cold water inlet connection of the domestic hot water tank.
- To avoid back siphonage, it is recommended to install a check valve on the water inlet of the domestic hot water tank in accordance with the applicable codes. Make sure it 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 codes.
- It is recommended to install an expansion vessel on the cold water inlet in accordance with the applicable codes.
- 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.

5.2.2 To fill the water circuit

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



NOTICE



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

All automatic air purge valves **MUST** remain open after commissioning.

5.2.3 To protect the water circuit against freezing

About freeze protection

Frost can damage the system. To prevent the hydraulic components from freezing, the software is equipped with special frost protection functions such as water pipe freeze prevention that include the activation of a pump in case of low temperatures.

However, in case of a power failure, these functions cannot guarantee protection.

Do one of the following to protect the water circuit against freezing:

- Add anti-freeze to the water. Anti-freeze lowers the freezing point of the water.
- Install freeze protection valves. Freeze protection valves drain the water from the system before it can freeze. Insulate the freeze protection valves in a similar way as the water piping, but do NOT insulate the inlet and outlet (release) of these valves.



WARNING

Ethylene anti-freeze is toxic. If you add anti-freeze to the water, do NOT install freeze protection valves. The valves release the toxic anti-freeze when they are activated.

Possible consequence:

- Heart, kidney or liver damage in case of anti-freeze swallowing or skin contact with anti-freeze.
- Nausea, sickness and diarrhea in case of anti-freeze inhalation.

Freeze protection by anti-freeze

About freeze protection by anti-freeze

Adding anti-freeze to the water lowers the freezing point of water.



WARNING

Due to the presence of anti-freeze, the system can corrode. Uninhibited anti-freeze becomes acidic under the influence of oxygen. High temperatures and the presence of copper accelerate this process. The acidic uninhibited anti-freeze attacks metal surfaces and forms galvanic corrosion cells that cause severe damage to the system. It is therefore important to respect the following:

- A qualified water specialist has treated the water.
- Select anti-freeze with corrosion inhibitors to prevent anti-freeze oxidation and subsequent acid formation.
- Do NOT use automotive anti-freeze because these contain corrosion inhibitors with only a limited lifetime. On top of that, they also contain silicates that can foul or plug the system.
- Do NOT use galvanized pipes in anti-freeze systems because they provoke certain components in the anti-freeze's corrosion inhibitor to precipitate.

6 Electrical installation

NOTICE

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

Types of anti-freeze

The types of anti-freeze that can be used depend on whether the system contains a domestic hot water tank:

If...	Then...
The system contains a domestic hot water tank	Only use propylene anti-freeze ^(a)
The system does NOT contain a domestic hot water tank	You can use either propylene anti-freeze ^(a) or ethylene anti-freeze

^(a) Propylene anti-freeze, including the necessary inhibitors, classified as UPC Section 603.3.1 low hazard substances.

Required concentration of anti-freeze

The required concentration of anti-freeze depends on the lowest expected outdoor temperature, and on whether you want to protect the system from bursting or from freezing. To prevent the system from freezing, more anti-freeze is required.

Add anti-freeze according to the table below.

Lowest expected outdoor temperature	Prevent from bursting	Prevent from freezing
23°F (-5°C)	10%	15%
14°F (-10°C)	15%	25%
5°F (-15°C)	20%	35%
-4°F (-20°C)	25%	—
-13°F (-25°C)	30%	—
-22°F (-30°C)	35%	—

INFORMATION

- Protection against bursting: the anti-freeze will prevent the piping from bursting, but NOT the liquid inside the piping from freezing.
- Protection against freezing: the anti-freeze will prevent the liquid inside the piping from freezing.

NOTICE

- The required concentration might differ depending on the type of anti-freeze. ALWAYS compare the requirements from the table above with the specifications provided by the anti-freeze manufacturer. If necessary, meet the requirements set by the anti-freeze manufacturer.
- The added concentration of anti-freeze should NEVER exceed 35%.
- If the liquid in the system is frozen, the pump will NOT be able to start. Remember that if you only prevent the system from bursting, the liquid inside might still freeze.
- When water is at standstill inside the system, the system is very likely to freeze and get damaged.

Anti-freeze and the maximum allowed water volume

Adding anti-freeze to the water circuit reduces the maximum allowed water volume of the system. For more information, see the installer reference guide (topic "To check the water volume and flow rate").

Anti-freeze setting

NOTICE

If anti-freeze is present in the system, setting [E-0D] must be set to 1. If the anti-freeze setting is NOT set correctly, the liquid inside the piping can freeze.

Freeze protection by freeze protection valves

About freeze protection valves

When no anti-freeze is added to the water, you can use freeze protection valves to drain the water from the system before it can freeze.

- Install freeze protection valves (field supplied) at all lowest points of the outside field piping.
- Normally closed valves (located indoors near the piping entry/exit points) can prevent that all water from indoor piping is drained when the freeze protection valves open.

NOTICE

When freeze protection valves are installed, set the minimum cooling setpoint (default=44.6°F (7°C)) at least 3.6°F (2°C) higher than the maximum opening temperature of the freeze protection valve. If lower, freeze protection valves can open during cooling operation.

For more information, see the installer reference guide.

5.2.4 To fill the domestic hot water tank

See the installation manual of the domestic hot water tank.

5.2.5 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.

Outdoor water piping insulation

See the installation manual of the outdoor unit, or the installer reference guide.

6 Electrical installation

DANGER: RISK OF ELECTROCUTION

WARNING

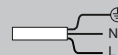
The installation of the product MUST comply with the latest edition of the National Electric Code.

WARNING

Appliance shall be installed in accordance with national wiring regulations.

WARNING

ALWAYS use multicore cable for power supply cables.



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.

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 2" (50 mm).



INFORMATION

When installing field supplied or optional cables, ensure sufficient cable length. This will make it possible to open the switch box and gain access to other components during service.

6.1 Guidelines when connecting the electrical wiring



NOTICE

We recommend using solid wires. If stranded wires are used, slightly twist the strands to consolidate the end of the conductor for either direct use in the terminal clamp or insertion in a round crimp-style terminal. Details are described in "Guidelines when connecting the electrical wiring" in the installer reference guide.

Tightening torques

Indoor unit:

Item	Tightening torque
X1M	1.81 lbf•ft ±10% (2.45 N•m ±10%)
X2M	0.65 lbf•ft ±10% (0.88 N•m ±10%)
X5M	0.65 lbf•ft ±10% (0.88 N•m ±10%)
X6M	1.81 lbf•ft ±10% (2.45 N•m ±10%)
X7M, X8M	1.81 lbf•ft ±10% (2.45 N•m ±10%)
X10M	0.65 lbf•ft ±10% (0.88 N•m ±10%)
5/32" (M4) (ground)	1.08 lbf•ft ±10% (1.47 N•m ±10%)

6.2 Connections to the indoor unit

Item	Description
Power supply (main)	See "6.2.1 To connect the main power supply" ▶ 12].
Power supply (backup heater)	See "6.2.2 To connect the backup heater power supply" ▶ 13].
Shut-off valve	See "6.2.3 To connect the shut-off valve" ▶ 14].
Electricity meters	See "6.2.4 To connect the electricity meters" ▶ 14].
Power consumption digital inputs	See "6.2.5 To connect the power consumption digital inputs" ▶ 15].
Safety thermostat	See "6.2.6 To connect the safety thermostat" ▶ 15].
Smart Grid	See "6.2.7 Smart Grid" ▶ 16].
WLAN card	See "6.2.8 To connect the WLAN card (delivered as optional accessory)" ▶ 17].

Item	Description
External room thermostat	See installation manual of external room thermostat and wiring diagram for 3rd party thermostat connection to the indoor unit.
	Wires: <ul style="list-style-type: none"> MUST comply with national wiring regulation. Only use harmonized wire providing double insulation and suitable for applicable voltage. Maximum running current: 100 mA
	For the main zone: <ul style="list-style-type: none"> [2.9] Control [2.A] External thermostat type
Heat pump convector	See installation manual of the heat pump convector.
	Wires: <ul style="list-style-type: none"> MUST comply with national wiring regulation. Only use harmonized wire providing double insulation and suitable for applicable voltage. Maximum running current: 100 mA
	For the main zone: <ul style="list-style-type: none"> [2.9] Control [2.A] External thermostat type
(in case of DHW tank) 3-way valve	See installation manual of the domestic hot water tank or third-party tank kit.
	Maximum running current: 125 mA MUST comply with national wiring regulation.
	[9.2] Domestic hot water
(in case of DHW tank) Domestic hot water tank thermistor	See installation manual of the domestic hot water tank or third-party tank kit.
	Maximum running current: 10 mA MUST comply with national wiring regulation.
	[9.2] Domestic hot water
(in case of DHW tank) Power supply for booster heater (from indoor unit to thermal protector of booster heater)	See installation manual of the domestic hot water tank.
	MUST comply with national wiring regulation.
	[9.4] Booster heater
(in case of DHW tank) Power supply for booster heater (from grid power to indoor unit)	See installation manual of the domestic hot water tank.
	Maximum running current: 13 A MUST comply with national wiring regulation.
	[9.4] Booster heater

6 Electrical installation

6.2.1 To connect the main power supply

NOTICE

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

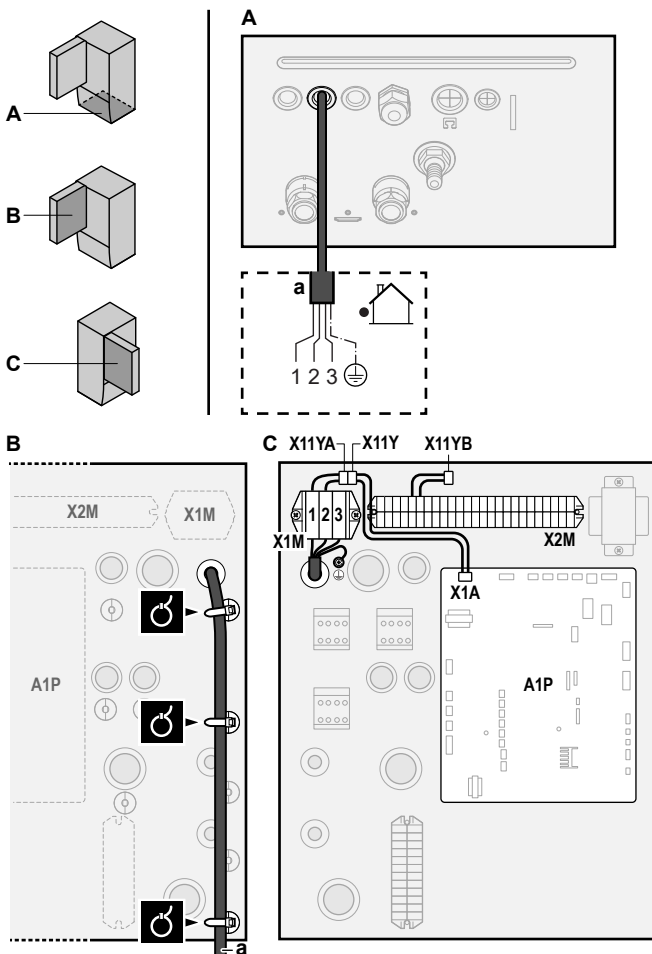
1 Open the following (see "4.2.1 To open the indoor unit" [p 5]):

1	Front panel	
2	Switch box cover	
3	Switch box	

2 Connect the main power supply.

In case of normal kWh rate power supply

Interconnection cable (= main power supply)	Wires: <ul style="list-style-type: none"> Only use harmonized wire providing double insulation and suitable for applicable voltage. 4-core cable (3+GND). Minimum 14 AWG (2.1 mm²) based on the current.

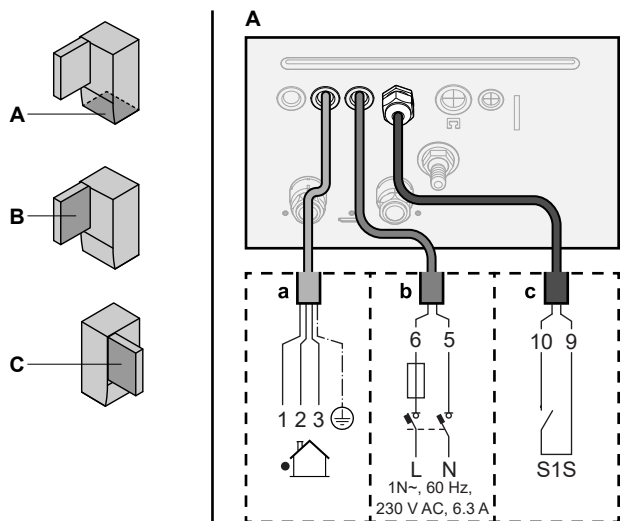


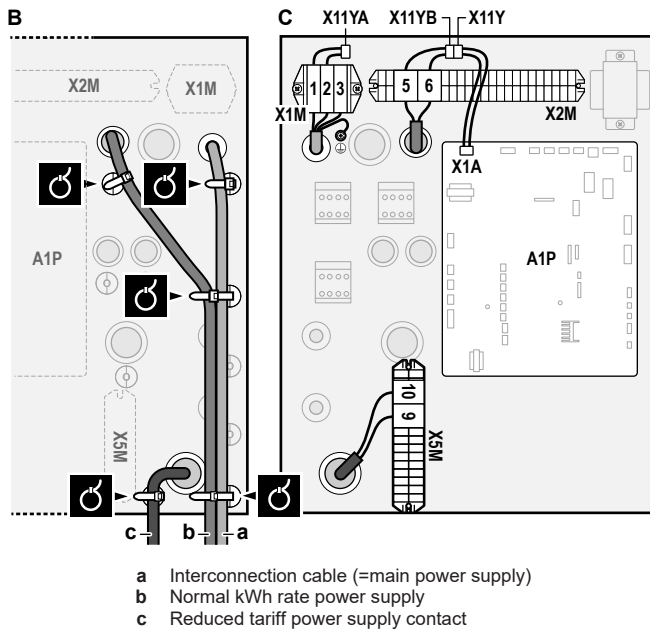
a Interconnection cable (=main power supply)

In case of reduced tariff kWh power supply

Interconnection cable (= main power supply)	Wires: <ul style="list-style-type: none"> Only use harmonized wire providing double insulation and suitable for applicable voltage. 4-core cable (3+GND). Minimum 14 AWG (2.1 mm²) based on the current.
Normal kWh rate power supply	Wires: <ul style="list-style-type: none"> MUST comply with national wiring regulation. Only use harmonized wire providing double insulation and suitable for applicable voltage. 3-core cable (2+GND). Maximum running current: 6.3 A
Reduced tariff kWh power supply contact	Wires: <ul style="list-style-type: none"> MUST comply with national wiring regulation. Only use harmonized wire providing double insulation and suitable for applicable voltage. 2-core cable. Maximum length: 164 ft (50 m). Reduced tariff kWh 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.
[9.8] Reduced tariff kWh power supply	

Connect X11Y to X11YB.





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

INFORMATION

In case of reduced tariff kWh 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 reduced tariff kWh power supply.

Separate connection to the indoor unit is required:

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

6.2.2 To connect the backup heater power supply

	Backup heater type	Power supply	Wires
	*6V	1N~ 208/230 V AC (6 kW)	2+GND
	[9.3] Backup heater		

WARNING

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

CAUTION

If the indoor unit has a separate tank with a built-in electrical booster heater, use a dedicated power circuit for the backup heater and booster heater. **NEVER** use a power circuit shared by another appliance. This power circuit **MUST** be protected with the required safety devices according to the applicable codes.

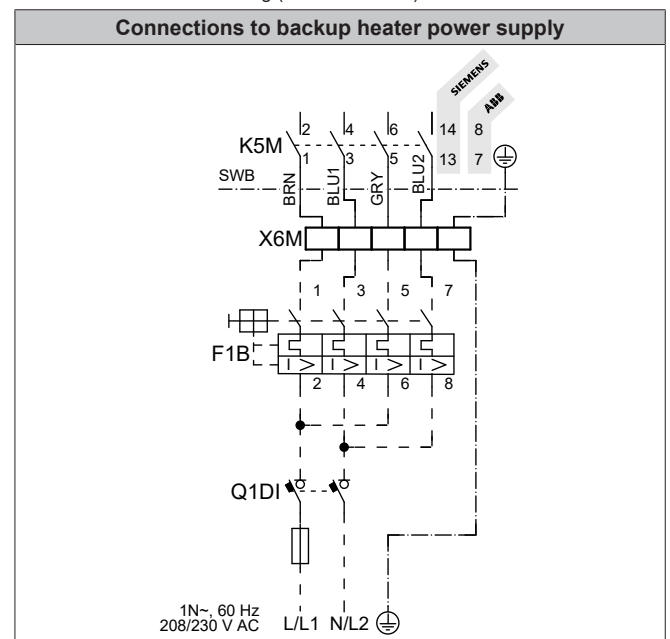
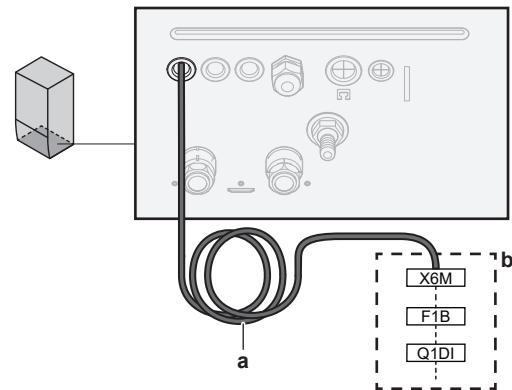
CAUTION

To guarantee the unit is properly grounded, **ALWAYS** connect the backup heater power supply and the ground cable.

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

Backup heater type	Backup heater capacity	Power supply	Maximum running current	Z _{max}
*6V	2 kW	1N~ 208/230 V	9 A	—
	4 kW	1N~ 208/230 V	17 A	0.22 Ω
	6 kW	1N~ 208/230 V	26 A	0.22 Ω

Connect the backup heater power supply as follows:

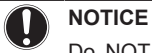


- F1B** Overcurrent fuse (field supplied). 4-pole fuse. 208/230 V – 25 A.
- K5M** Safety contactor (in the switch box)
- Q1DI** Ground leakage circuit breaker (field supplied)
- SWB** Switch box
- X6M** Terminal (field supplied)

6 Electrical installation

Component		UTBX040E
Power supply cable	MCA ^(a)	33.9 A
	Voltage	208/230 V AC
	Phase	1~
	Frequency	60 Hz
	Wire size	MUST comply with national wiring regulation.
Maximum overcurrent protection (MOP)		35 A
Ground leakage circuit breaker / residual current device		30 mA – MUST comply with national wiring regulation

^(a) MCA=Minimum circuit ampacity. Stated values are maximum values.



NOTICE

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

6.2.3 To connect the shut-off valve



INFORMATION

Shut-off valve usage example. In case of one LWT zone, 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.



Wires:

- MUST comply with national wiring regulation.
- Only use harmonized wire providing double insulation and suitable for applicable voltage.
- 2-core cable.

Maximum running current: 100 mA

24 V AC supplied by PCB



[2.D] Shut off valve

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

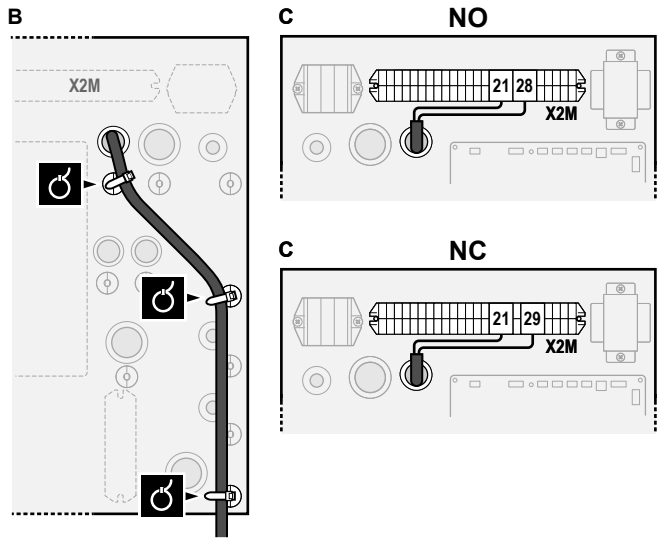
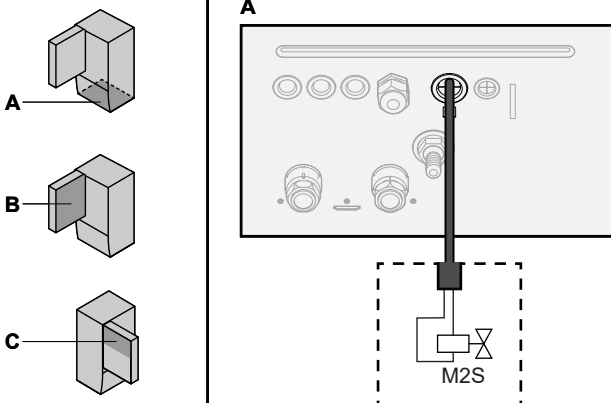
1	Front panel	
2	Switch box cover	
3	Switch box	

- 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.

6.2.4 To connect the electricity meters



Wires:

- MUST comply with national wiring regulation.
- Only use harmonized wire providing double insulation and suitable for applicable voltage.
- 2-core cable (per meter).

Electricity meters: 12 V DC pulse detection (voltage supplied by PCB)

Maximum running current: 100 mA



[9.A] Energy metering



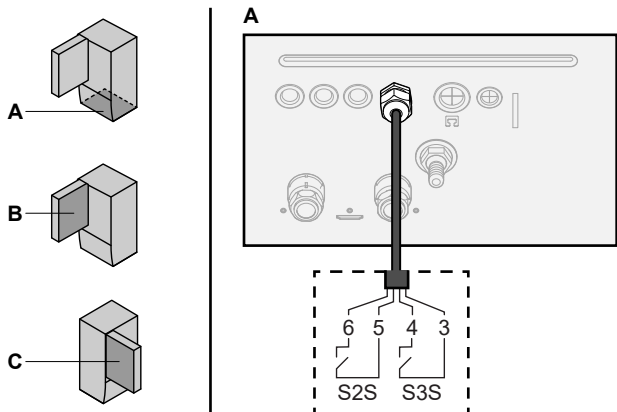
INFORMATION

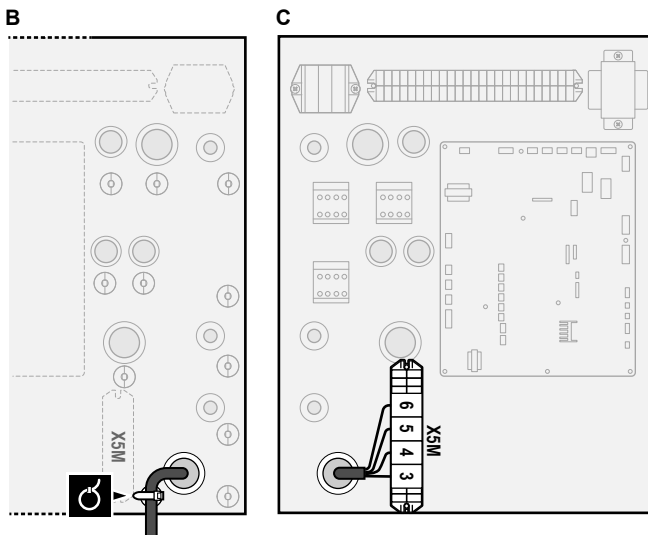
In case of an electricity meter with transistor output, check the polarity. The positive polarity MUST be connected to X5M/6 and X5M/4; the negative polarity to X5M/5 and X5M/3.

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

1	Front panel	
2	Switch box cover	
3	Switch box	

- 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.

6.2.5 To connect the power consumption digital inputs

Wires:

- MUST comply with national wiring regulation.
- Only use harmonized wire providing double insulation and suitable for applicable voltage.
- 2-core cable (per input signal).

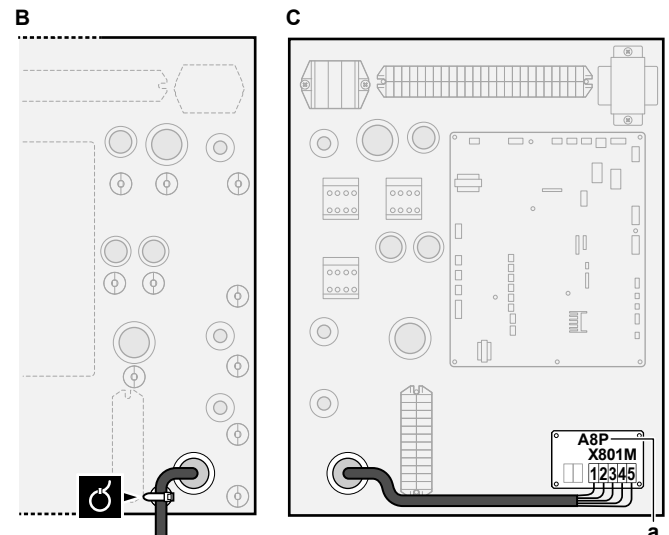
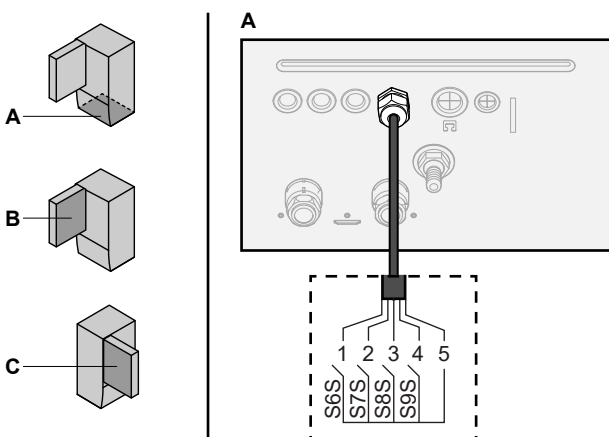
Power limitation digital inputs: 12 V DC / 12 mA detection (voltage supplied by PCB)

[9.9] Power consumption control.

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

1	Front panel	
2	Switch box cover	
3	Switch box	

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



a Installation of EGRP1AHTA is required.

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

6.2.6 To connect the safety thermostat

Note: Safety thermostat = normally closed contact.

Wires:

- MUST comply with national wiring regulation.
- Only use harmonized wire providing double insulation and suitable for applicable voltage.
- 2-core cable.

Maximum length: 164 ft (50 m)

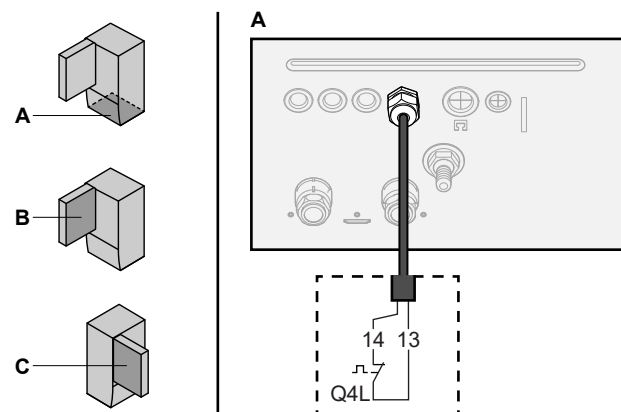
Safety thermostat contact: 16 V DC detection (voltage supplied by PCB). The voltage-free contact shall ensure the minimum applicable load of 15 V DC, 10 mA.

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

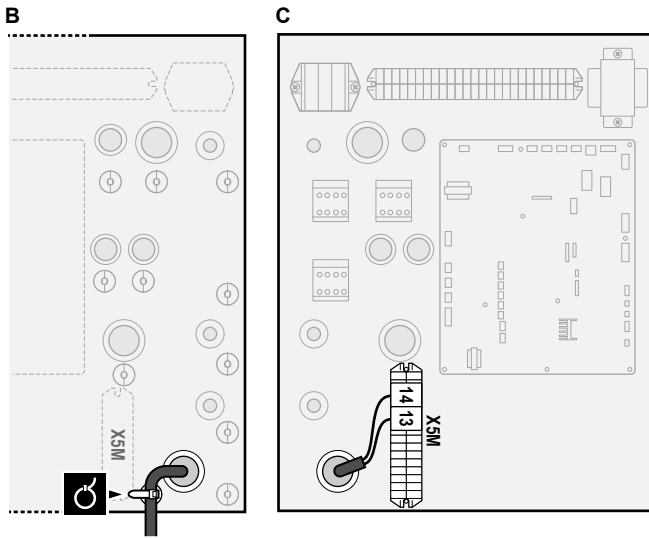
1	Front panel	
2	Switch box cover	
3	Switch box	

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

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



6 Electrical installation



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

NOTICE

Make sure to select and install the safety thermostat according to the applicable codes.

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 3.6°F/min (2°C/min).
- There is a minimum distance of 6.6 ft (2 m) between the safety thermostat and the motorized 3-way valve delivered with the domestic hot water tank.

NOTICE

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

6.2.7 Smart Grid

You can connect the indoor unit to a Smart Grid using low voltage Smart Grid contacts.

The 2 incoming Smart Grid contacts can activate the following Smart Grid modes:

Smart Grid contact		Smart Grid operation mode
1	2	
0	0	Free running
0	1	Forced off
1	0	Recommended on
1	1	Forced on

The use of a Smart Grid pulse meter is not mandatory:

If Smart Grid pulse meter is...	Then [9.8.8] Limit setting kW is...
Used ([9.A.2] Electricity meter 2 ≠ None)	Not applicable
Not used ([9.A.2] Electricity meter 2 = None)	Applicable

In case of low voltage Smart Grid contacts



Wires (Smart Grid pulse meter + low voltage Smart Grid contacts):

- MUST comply with national wiring regulation.
- Only use harmonized wire providing double insulation and suitable for applicable voltage.

Contact rating: 16 V DC

Maximum running current: 100 mA



[9.8.4]=3 (Reduced tariff kWh power supply = Smart Grid)

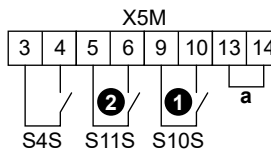
[9.8.5] Smart Grid operation mode

[9.8.6] Allow electrical heaters

[9.8.7] Enable room buffering

[9.8.8] Limit setting kW

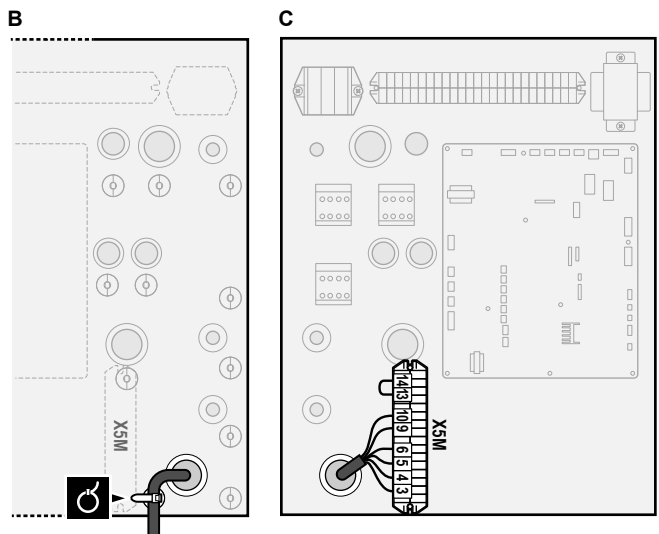
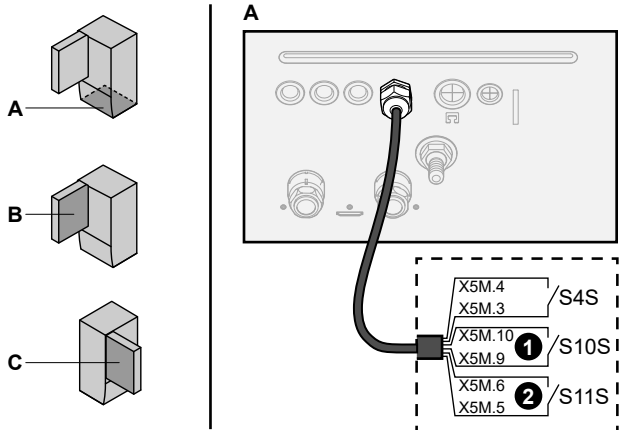
The wiring of the Smart Grid in case of low voltage contacts is as follows:



a Jumper (factory-mounted). If you also connect a safety thermostat (Q4L), replace the jumper with the safety thermostat wires.

S4S Smart Grid pulse meter
1/S10S Low voltage Smart Grid contact 1
2/S11S Low voltage Smart Grid contact 2

1 Connect the wiring as follows:

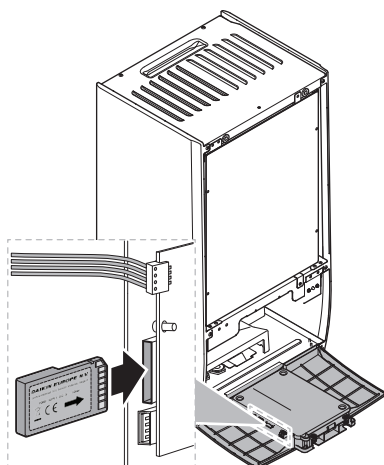


2 Fix the cables with cable ties to the cable tie mountings.

6.2.8 To connect the WLAN card (delivered as optional accessory)



- 1 Insert the WLAN card into the card slot on the user interface of the indoor unit.



For more information, see "2.2 Compliance requirements for WLAN card" [▶ 4] and the WLAN card installation manual.

7 Configuration

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 – Configuration wizard.** When you turn ON the user interface for the first time (via the unit), the configuration wizard starts to help you configure the system.
- **Restart the configuration wizard.** If the system is already configured, you can restart the configuration wizard. To restart the configuration wizard, go to Installer settings > Configuration wizard. To access Installer settings, see "7.1.1 To access the most used commands" [▶ 17].
- **Afterwards.** If necessary, you can make changes to the configuration in the menu structure or the overview settings.



INFORMATION

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

Accessing settings – Legend for tables

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

Method	Column in tables
Accessing settings via the breadcrumb in the home menu screen or the menu structure . To enable breadcrumbs, press the ? button in the home screen.	# For example: [2.9]
Accessing settings via the code in [9.1] Field settings Summary .	Code For example: [C-07]

See also:

- "To access the installer settings" [▶ 18]
- "7.5 Menu structure: Overview installer settings" [▶ 26]

7.1.1 To access the most used commands

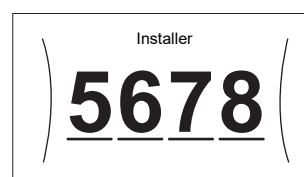
To change the user permission level

You can change the user permission level as follows:

1	Go to [B]: User profile.	
2	Enter the applicable pin code for the user permission level.	—
	• Browse through the list of digits and change the selected digit.	
	• Confirm the digit to proceed to the next digit.	
	• OR, move the cursor from left to right.	
	• Confirm the pin code and proceed.	

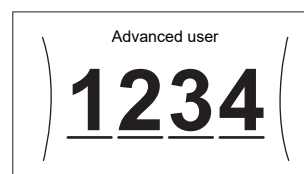
Installer pin code

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



Advanced user pin code

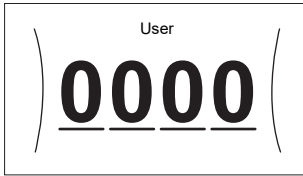
The Advanced user pin code is **1234**. Additional menu items for the user are now visible.



7 Configuration

User pin code

The User pin code is **0000**.



To access the installer settings

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

To modify an overview setting

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

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

1	Set the user permission level to Installer. See " To change the user permission level " [▶ 17].	—
2	Go to [9.]: Installer settings > Field settings Summary.	
3	Turn the left dial to select the first part of the setting and confirm by pressing the dial.	
4	Turn the left dial to select the second part of the setting	
5	Turn the right dial to modify the value from 15 to 20.	
6	Press the left dial to confirm the new setting.	
7	Press the center button to go back to the home screen.	



INFORMATION

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

When confirmed, the system will restart and recent changes will be applied.

7.2 Configuration wizard

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

Protective functions

The unit is equipped with the following protective functions:

- Room freeze protection [2-06]
- Water pipe freeze prevention [4-04]
- Tank disinfection [2-01]

The unit automatically runs the protective functions when necessary. During installation or service, this behavior is undesired. Therefore, the protective functions can be disabled. For more information, see the Installer reference guide, chapter Configuration.

7.2.1 Configuration wizard: Language

#	Code	Description
[7.1]	N/A	Language

Select the desired language in [7.1] Language :

- US English
- Español Americano
- Canadian English
- Français Canadien

7.2.2 Configuration wizard: Time and date

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



INFORMATION

By default, daylight savings time is enabled and clock format is set to 24 hours. If you want to change these settings, you can do this in the menu structure (User settings > Time/date) once the unit is initialized.

7.2.3 Configuration wizard: System

Indoor unit type

The indoor unit type is displayed, but cannot be adjusted.

Backup heater type

#	Code	Description
[9.3.1]	[E-03]	▪ 3: 6V

Domestic hot water

The following setting determines if the system can prepare domestic hot water or not, and which tank is used. Set this setting according to the actual installation.

#	Code	Description
[9.2.1]	[E-05] ^(a) [E-06] ^(a) [E-07] ^(a)	<ul style="list-style-type: none"> ▪ No DHW ▪ No tank installed. ▪ UHWS, small volume Tank with booster heater installed at the side of the tank, with a volume of 40 gal (150 l). ▪ UHWS, big volume Tank with booster heater installed at the side of the tank, with a volume of 50 gal (200 l) or 80 gal (300 l). ▪ 3rd party, small coil Third-party tank with a coil size larger than 11.3 ft² (1.05 m²). ▪ 3rd party, big coil Third-party tank with a coil size larger than 19.4 ft² (1.80 m²).

^(a) Do NOT use [E-05], [E-06] and [E-07] anymore as they are replaced by one menu structure setting [9.2.1].

In case of UHWS, we recommend using the following settings:

#	Code	Item	UHWS	
			40 gal (150 l)	50/80 gal (200/300 l)
[9.2.1]	[E-07]	Tank type	0: UHWS, small volume	3: UHWS, big volume
N/A	[4-05]	Thermistor type	0: Automatic	1: Type 1
[5.8]	[6-0E]	Maximum tank temperature	≤140°F (≤60°C)	≤158°F (≤70°C)

In case of a third-party tank, we recommend using the following settings:

#	Code	Item	Third-party tank	
			Coil ≥11.3 ft ² (≥1.05 m ²)	Coil ≥19.4 ft ² (≥1.8 m ²)
[9.2.1]	[E-07]	Tank type	7: 3rd party, small coil	8: 3rd party, big coil
N/A	[4-05]	Thermistor type	0: Automatic	1: Type 1
[5.8]	[6-0E]	Maximum tank temperature	≤140°F (≤60°C)	≤158°F (≤70°C)

Emergency

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

- When Emergency is set to Automatic and a heat pump failure occurs, the backup heater automatically takes over the heat load, and the booster heater in the optional tank takes over the domestic hot water production.
- When Emergency is set to Manual and a heat pump failure occurs, the domestic hot water heating and space heating stops. To manually recover it via the user interface, go to the Error main menu screen and confirm whether the backup heater and/or booster heater can take over the heat load or not.
- Alternatively, when Emergency is set to:
 - auto Space Heating reduced/DHW on, space heating is reduced but domestic hot water is still available.
 - auto Space Heating reduced/DHW off, space heating is reduced and domestic hot water is NOT available.
 - auto Space Heating normal/DHW off, space heating operates as normally but domestic hot water is NOT available.
 Similarly as in Manual mode, the unit can take the full load with the backup heater and/or booster heater if the user activates this via the Error main menu screen.

To keep energy consumption low, we recommend setting Emergency to auto Space Heating reduced/DHW off if the house is unattended for longer periods.

#	Code	Description
[9.5.1]	[4-06]	<ul style="list-style-type: none"> 0: Manual 1: Automatic 2: auto Space Heating reduced/DHW on 3: auto Space Heating reduced/DHW off 4: auto Space Heating normal/DHW off

i INFORMATION

The auto emergency setting can be set in the menu structure of the user interface only.

i INFORMATION

If a heat pump failure occurs and Emergency is set to Manual, the following functions will remain active even if the user does NOT confirm emergency operation:

- Room frost protection
- Underfloor heating screed dry-out
- Water pipe freeze prevention

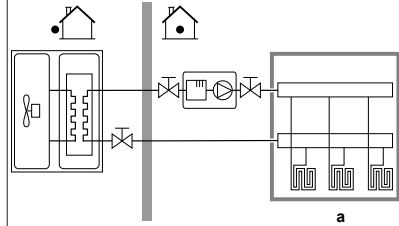
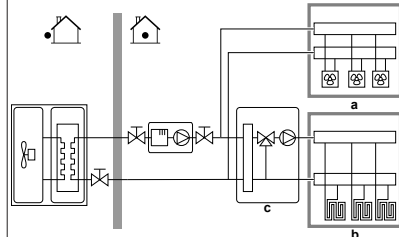
However, the disinfection function will be activated ONLY if the user confirms emergency operation via the user interface.

Number of zones

The system can supply leaving water to up to 2 water temperature zones. During configuration, the number of water zones must be set.

i INFORMATION

Mixing station. If your system layout contains 2 LWT zones, you need to install a mixing station in front of the main LWT zone.

#	Code	Description
[4.4]	[7-02]	<ul style="list-style-type: none"> 0: Single zone <p>Only one leaving water temperature zone:</p>  <p>a Main LWT zone</p>
[4.4]	[7-02]	<ul style="list-style-type: none"> 1: Dual zone <p>Two leaving water temperature zones. The main leaving water temperature zone consists of the higher load heat emitters and a mixing station to achieve the desired leaving water temperature. In heating:</p>  <p>a Additional LWT zone: Highest temperature b Main LWT zone: Lowest temperature c Mixing station</p>

! WARNING

- In case of space heating demand from both zones, the indoor unit delivers the water temperature according to the additional zone setpoint. The temperature of water to the main zone solely depends on the operation of the mixing valve station.
- The indoor unit does not guarantee water temperature according to the main zone setpoint to the underfloor heating if there is demand for space heating from both zones. This depends on the operation of the mixing valve station.

7 Configuration



NOTICE

NOT configuring the system in the following way can cause damage to the heat emitters. If there are 2 zones, it is important that in heating:

- the zone with the lowest water temperature is configured as the main zone, and
- the zone with the highest water temperature is configured as the additional zone.



NOTICE

If there are 2 zones and the emitter types are incorrectly configured, water of high temperature can be sent towards a low temperature emitter (underfloor heating). To avoid this:

- Install an aquastat/thermostatic valve to avoid too high of temperatures towards a low temperature emitter.
- Make sure you set the emitter types for the main zone [2.7] and for the additional zone [3.7] correctly in accordance with the connected emitter.



NOTICE

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

Glycol Filled system

This setting gives the installer the possibility to indicate whether the system is filled with anti-freeze or water. This is important in case anti-freeze is used to protect the water circuit against freezing. If NOT set correctly, the liquid in the piping can freeze.

#	Code	Description
N/A	[E-0D]	Glycol Filled system: Is the system filled with anti-freeze? <ul style="list-style-type: none"> 0: No 1: Yes

Capacity / Booster heater capacity

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

#	Code	Description
[9.4.1]	[6-02]	Capacity / Booster heater capacity [kW]. Only applies to domestic hot water tank with an internal booster heater. The capacity of the booster heater at nominal voltage. Range: 0~10 kW

7.2.4 Configuration wizard: Backup heater

The backup heater is adapted to be connected to most common electricity grids. If the backup heater is available, the voltage, configuration and capacity must be set on the user interface.

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

Backup heater type

#	Code	Description
[9.3.1]	[E-03]	3: 6V

Voltage

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

Configuration

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

#	Code	Description
[9.3.3]	[4-0A]	<ul style="list-style-type: none"> 0: Relay 1 1: Relay 1 / Relay 1+2 2: Relay 1 / Relay 2 3: Relay 1 / Relay 2 Emergency Relay 1+2



INFORMATION

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



INFORMATION

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



INFORMATION

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

Capacity step 1

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

Additional capacity step 2

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

7.2.5 Configuration wizard: Main zone

The most important settings for the main leaving water zone can be set here.

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.

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

#	Code	Description
[2.7]	[2-0C]	<ul style="list-style-type: none"> 0: Underfloor heating 1: Fancoil unit / Fan Convactor / AHU 2: Radiator/Baseboard

The setting of the emitter type has an influence on the space heating setpoint range and the target delta T in heating as follows:

Description	Space heating setpoint range	Target delta T in heating
0: Underfloor heating	Maximum 131°F (55°C)	Variable
1: Fancoil unit / Fan Convector / AHU	Maximum 131°F (55°C)	Variable
2: Radiator/ Baseboard	Maximum 158°F (70°C)	Fixed 50°F (10°C)



NOTICE

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

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

Example radiators: $104 - 18/2 = 95^\circ\text{F}$ ($40 - 10/2 = 35^\circ\text{C}$)

Example underfloor heating: $104 - 9/2 = 99.5^\circ\text{F}$ ($40 - 5/2 = 37.5^\circ\text{C}$)

To compensate, you can increase the outdoor reset curve target temperatures [2.5].

Control

Define how the operation of the unit is controlled.

Control	In this control...
Leaving water	unit, operation is decided based on the leaving water temperature regardless the actual room temperature and/or heating or cooling demand of the room.
External room thermostat	unit, operation is decided by the external thermostat or equivalent (e.g. heat pump convector).
Room thermostat ^(a)	unit, operation is decided based on the ambient temperature of the dedicated Daikin thermostat.

^(a) **Note:** Do not select Room thermostat control as dedicated Daikin thermostat is not available at the moment.

#	Code	Description
[2.9]	[C-07]	<ul style="list-style-type: none"> ▪ 0: Leaving water ▪ 1: External room thermostat ▪ 2: Room thermostat

Setpoint mode

Define the setpoint mode:

- Fixed: the target leaving water temperature does not depend on the outdoor ambient temperature.
- In Outdoor Reset heating, fixed cooling mode, the target leaving water temperature:
 - depends on the outdoor ambient temperature for heating
 - does NOT depend on the outdoor ambient temperature for cooling
- In Outdoor Reset mode, the target leaving water temperature depends on the outdoor ambient temperature.

#	Code	Description
[2.4]	N/A	Setpoint mode: <ul style="list-style-type: none"> ▪ Fixed ▪ Outdoor Reset heating, fixed cooling ▪ Outdoor Reset

When outdoor reset operation is active, low outdoor temperatures will result in warmer water and vice versa. During outdoor reset operation, the user can shift the water temperature up or down by a maximum of 50°F (10°C).

Schedule

Indicates if the target leaving water temperature is according to a schedule. Influence of the LWT setpoint mode [2.4] is as follows:

- In Fixed LWT setpoint mode, the scheduled actions consist of target leaving water temperatures, either preset or custom.
- In Outdoor Reset LWT setpoint mode, the scheduled actions consist of desired shift actions, either preset or custom.

#	Code	Description
[2.1]	N/A	<ul style="list-style-type: none"> ▪ 0: No ▪ 1: Yes

7.2.6 Configuration wizard: Additional zone

The most important settings for the additional leaving water zone can be set here.

Emitter type

For more info about this functionality, see ["7.2.5 Configuration wizard: Main zone" \[p 20\]](#).

#	Code	Description
[3.7]	[2-0D]	<ul style="list-style-type: none"> ▪ 0: Underfloor heating ▪ 1: Fancoil unit / Fan Convector / AHU ▪ 2: Radiator/Baseboard

Control

The control type is displayed here, but cannot be adjusted. It is determined by the control type of the main zone. For more info about the functionality, see ["7.2.5 Configuration wizard: Main zone" \[p 20\]](#).

#	Code	Description
[3.9]	N/A	<ul style="list-style-type: none"> ▪ 0: Leaving water if the control type of the main zone is Leaving water. ▪ 1: External room thermostat if the control type of the main zone is External room thermostat

Setpoint mode

For more info about this functionality, see ["7.2.5 Configuration wizard: Main zone" \[p 20\]](#).

#	Code	Description
[3.4]	N/A	<ul style="list-style-type: none"> ▪ 0: Fixed ▪ 1: Outdoor Reset heating, fixed cooling ▪ 2: Outdoor Reset

If you choose Outdoor Reset heating, fixed cooling or Outdoor Reset, the next screen will be the detailed screen with outdoor reset curves. Also see ["7.3 Outdoor reset curve" \[p 22\]](#).

Schedule

Indicates if the target leaving water temperature is according to a schedule. Also see ["7.2.5 Configuration wizard: Main zone" \[p 20\]](#).

#	Code	Description
[3.1]	N/A	<ul style="list-style-type: none"> ▪ 0: No ▪ 1: Yes

7 Configuration

7.2.7 Configuration wizard: Tank

This part only applies to systems with an optional domestic hot water tank installed.

Heat up mode

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

#	Code	Description
[5.6]	[6-0D]	Heat up mode: <ul style="list-style-type: none"> ▪ 0: Reheat only: Only reheat operation is allowed. ▪ 1: Schedule + reheat: The domestic hot water tank is heated according to a schedule and between the scheduled heat up cycles, reheat operation is allowed. ▪ 2: Schedule only: The domestic hot water tank can ONLY be heated according to a schedule.

See the operation manual for more details.



INFORMATION

Risk of space heating capacity shortage for domestic hot water tank without internal booster heater: In case of frequent domestic hot water operation, frequent and long space heating/cooling interruption will happen when selecting the following:

Tank > Heat up mode > Reheat only.

Settings for Reheat only mode

During Reheat only mode, the tank setpoint can be set on the user interface. The maximum allowed temperature is determined by the following setting:

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



WARNING

The setting should not be increased above 160°F (70°C).



CAUTION

Be aware that the domestic hot water temperature at the hot water tap will be equal to the disinfection setpoint or tank setpoint. High temperature at the hot water tap can cause scalding. To prevent this, either select lower setpoint or use a mixing valve if needed.

To set the heat pump ON differential:

#	Code	Description
[5.9]	[6-00]	Heat pump ON differential <ul style="list-style-type: none"> ▪ 4°F~72°F (2°C~40°C)

Settings for Schedule only mode and Schedule + reheat mode

Comfort setpoint

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

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

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

#	Code	Description
[5.2]	[6-0A]	Comfort setpoint: <ul style="list-style-type: none"> ▪ 86°F~[6-0E]°F (30°C~[6-0E]°C)



NOTICE

The Comfort setpoint is 112°F (45°C) by default. But it is recommended to increase the temperature according to the comfort requirements.

Eco setpoint

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

#	Code	Description
[5.3]	[6-0B]	Eco setpoint: <ul style="list-style-type: none"> ▪ 86°F~min(122,[6-0E])°F (30°C~min(50,[6-0E])°C)

Reheat setpoint

Target reheat tank temperature, used:

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

#	Code	Description
[5.4]	[6-0C]	Reheat setpoint: <ul style="list-style-type: none"> ▪ 86°F~min(122,[6-0E])°F (30°C~min(50,[6-0E])°C)

Differential (reheat differential)

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

#	Code	Description
[5.A]	[6-08]	Reheat differential <ul style="list-style-type: none"> ▪ 4°F~36°F (2°C~20°C)

7.3 Outdoor reset curve

7.3.1 What is an outdoor reset curve?

Outdoor reset operation

The unit operates 'outdoor reset' if the desired leaving water or tank temperature is determined automatically by the outdoor temperature, measured by the outdoor unit. 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

Outdoor reset operation reduces energy consumption.

Outdoor reset curve

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

Types of outdoor reset curve

There are two types of outdoor reset curves:

- 2-points curve
- Slope-offset curve

Which type of curve you use to make adjustments depends on your personal preference. See "7.3.4 Using outdoor reset curves" [p 24].

Availability

The outdoor reset curve is available for:

- Main zone - Heating
- Main zone – Cooling
- Additional zone - Heating
- Additional zone - Cooling
- Tank (not recommended, only available to installers)



INFORMATION

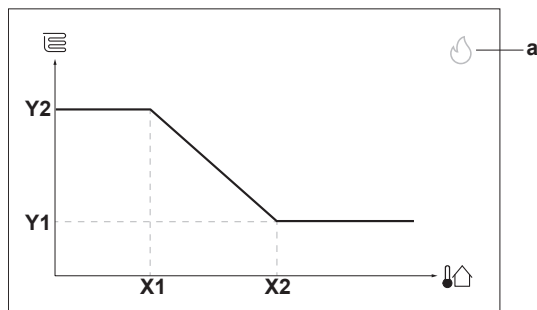
To operate outdoor reset, correctly configure the setpoint of the main zone, additional zone or tank. See "7.3.4 Using outdoor reset curves" [p 24].

7.3.2 2-points curve

Define the outdoor reset curve with these two setpoints:

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

Example



Item	Description
a	Selected outdoor reset zone: <ul style="list-style-type: none"> • 🔥: Main zone or additional zone heating • ❄️: Main zone or additional zone cooling • 🏠: Domestic hot water
X1, X2	Examples of outdoor ambient temperature
Y1, Y2	Examples of target tank temperature or leaving water temperature. The icon corresponds to the heat emitter for that zone: <ul style="list-style-type: none"> • 🏠: Underfloor heating • 📄: Fancoil unit / Fan Convactor / AHU • 🏠: Radiator/Baseboard • 🏠: Domestic hot water tank

Possible actions on this screen	
🔍⋯⊙	Go through the temperatures.
⊙⋯⊙	Change the temperature.
⊙⋯🏠	Go to the next temperature.
🏠⋯⊙	Confirm changes and proceed.

7.3.3 Slope-offset curve

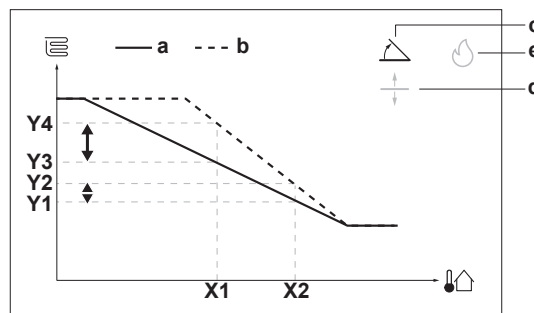
Slope and offset

Define the outdoor reset curve by its slope and offset:

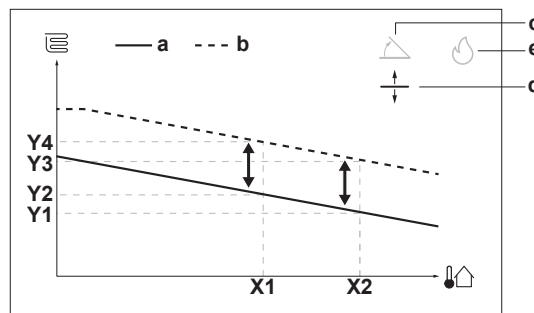
- Change the **slope** to differently increase or decrease the temperature of the leaving water for different ambient temperatures. For example, if leaving water temperature is in general fine but at low ambient temperatures too cold, raise the slope so that leaving water temperature is heated increasingly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

Examples

Outdoor reset curve when slope is selected:











Outdoor reset curve when offset is selected:



Item	Description
a	Outdoor reset curve before changes.
b	Outdoor reset curve after changes (as example): <ul style="list-style-type: none"> • When slope is changed, the new preferred temperature at X1 is unequally higher than the preferred temperature at X2. • When offset is changed, the new preferred temperature at X1 is equally higher as the preferred temperature at X2.
c	Slope
d	Offset
e	Selected outdoor reset zone: <ul style="list-style-type: none"> • 🔥: Main zone or additional zone heating • ❄️: Main zone or additional zone cooling • 🏠: Domestic hot water

7 Configuration

Item	Description
X1, X2	Examples of outdoor ambient temperature
Y1, Y2, Y3, Y4	Examples of target tank temperature or leaving water temperature. The icon corresponds to the heat emitter for that zone: <ul style="list-style-type: none"> • : Underfloor heating • : Fancoil unit / Fan Convactor / AHU • : Radiator/Baseboard • : Domestic hot water tank

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

7.3.4 Using outdoor reset curves

Configure outdoor reset curves as following:

To define the setpoint mode

To use the outdoor reset curve, you need to define the correct setpoint mode:

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

To change the type of outdoor reset curve

To change the type for all zones (main + additional) and for the tank, go to [2.E] Main zone > Outdoor Reset curve type.

Viewing which type is selected is also possible via:

- [3.C] Additional zone > Outdoor Reset curve type
- [5.E] Tank > Outdoor Reset curve type

Restriction: Only available to installers.

To change the outdoor reset curve

Zone	Go to ...
Main zone – Heating	[2.5] Main zone > Heating Outdoor Reset curve
Main zone – Cooling	[2.6] Main zone > Cooling Outdoor Reset curve
Additional zone – Heating	[3.5] Additional zone > Heating Outdoor Reset curve
Additional zone – Cooling	[3.6] Additional zone > Cooling Outdoor Reset curve
Tank	Restriction: Only available to installers. [5.C] Tank > Outdoor Reset 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 outdoor reset curve: slope-offset curve

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

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

To fine-tune the outdoor reset curve: 2-points curve

The following table describes how to fine-tune the outdoor reset 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" [p 23].

7.4 Settings menu

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

7.4.1 Main zone

External thermostat type

Only applicable in external room thermostat control.



NOTICE

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

#	Code	Description
[2.A]	[C-05]	External room thermostat type for the main zone: <ul style="list-style-type: none"> ▪ 1: 1 contact: The used external room thermostat can only send a thermo ON/OFF condition. There is no separation between heating or cooling demand. ▪ 2: 2 contacts: The used external room thermostat can send a separate heating/cooling thermo ON/OFF condition.

7.4.2 Additional zone

External thermostat type

Only applicable in external room thermostat control. For more info about the functionality, see "7.4.1 Main zone" [p 25].

#	Code	Description
[3.A]	[C-06]	External room thermostat type for the additional zone: <ul style="list-style-type: none"> ▪ 1: 1 contact ▪ 2: 2 contacts

7.4.3 Information

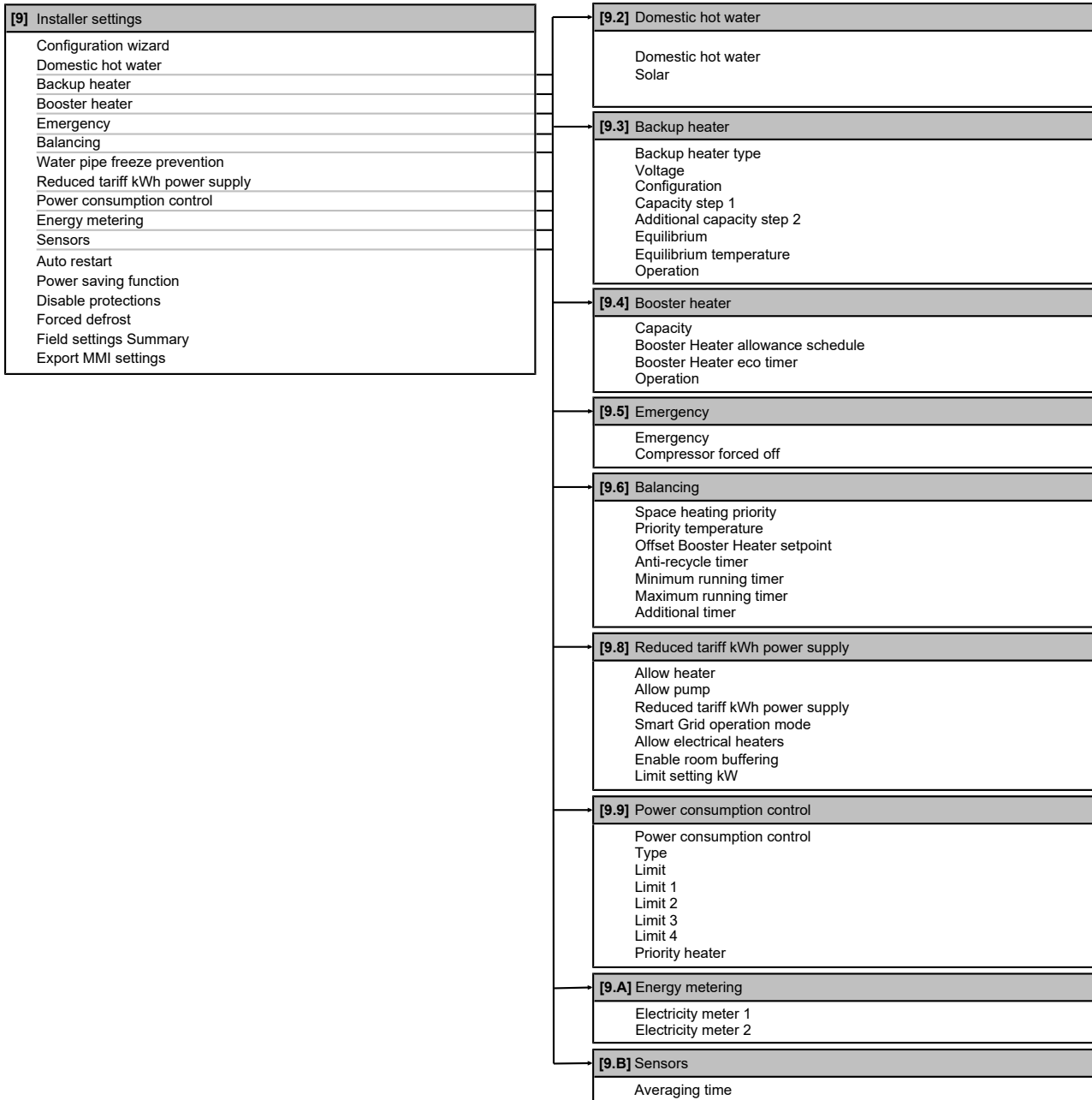
Dealer information

The installer can fill in his contact number here.

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

7 Configuration

7.5 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

i INFORMATION

During the first running period of the unit, the required power may be higher than stated on the nameplate of the unit. This phenomenon is caused by the compressor, that needs a continuous run time of 50 hours before reaching smooth operation and stable power consumption.

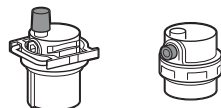
! NOTICE

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

! NOTICE

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

! NOTICE



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

All automatic air purge valves MUST remain open after commissioning.

i INFORMATION

Protective functions – "Installer-on-site mode." The software is equipped with protective functions, such as room freeze protection. The unit automatically runs these functions when necessary.

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

- **At first power-on:** The protective functions are disabled by default. After 12 hours they will be automatically enabled.
- **Afterwards:** An installer can manually disable the protective functions by setting [9.G]: Disable protections=Yes. After his work is done, he can enable the protective functions by setting [9.G]: Disable protections=No.

Also see "[Protective functions](#)" ▶ 18].

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.

<input type="checkbox"/>	Read the complete installation instructions as described in the installer reference guide .
<input type="checkbox"/>	The indoor unit is properly mounted.
<input type="checkbox"/>	The outdoor unit is properly mounted.

<input type="checkbox"/>	The following field wiring has been carried out according to this document and the applicable codes: <ul style="list-style-type: none"> ▪ 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 external room thermostat (if applicable) ▪ Between the indoor unit and the domestic hot water tank (if applicable)
<input type="checkbox"/>	The system is properly grounded and the ground terminals are tightened.
<input type="checkbox"/>	The fuses or locally installed protection devices are installed according to this document, and have NOT been bypassed.
<input type="checkbox"/>	The power supply voltage matches the voltage on the identification label of the unit.
<input type="checkbox"/>	There are NO loose connections or damaged electrical components in the switch box.
<input type="checkbox"/>	There are NO damaged components or squeezed pipes on the inside of the indoor and outdoor units.
<input type="checkbox"/>	Backup heater circuit breaker F1B (field supplied) is turned ON.
<input type="checkbox"/>	Only for tanks with built-in booster heater: Booster heater circuit breaker F2B (field supplied) is turned ON.
<input type="checkbox"/>	The correct pipe size is installed and the pipes are properly insulated.
<input type="checkbox"/>	There is NO water leak inside the indoor unit.
<input type="checkbox"/>	The shut-off valves are properly installed and fully open.
<input type="checkbox"/>	The automatic air purge valves are open.
<input type="checkbox"/>	The pressure relief valve (space heating circuit) purges water when opened. Clean water MUST come out.
<input type="checkbox"/>	The minimum water volume is guaranteed in all conditions. See "To check the water volume and flow rate" in " 5.1 Preparing water piping " ▶ 7].
<input type="checkbox"/>	(if applicable) The domestic hot water tank is filled completely.

8.2 Checklist during commissioning

<input type="checkbox"/>	To check that the minimum flow rate during backup heater/defrost operation is guaranteed in all conditions. See "To check the water volume and flow rate" in " 5.1 Preparing water piping " ▶ 7].
<input type="checkbox"/>	To perform an air purge .
<input type="checkbox"/>	To perform an actuator test run .
<input type="checkbox"/>	To perform a test run .
<input type="checkbox"/>	To perform (start) an underfloor screed dry-out (if necessary).

8.2.1 To check the minimum flow rate

1	Check the hydraulic configuration to find out which space heating loops can be closed by mechanical, electronic, or other valves.	—
2	Close all space heating loops that can be closed.	—

8 Commissioning

3	Start the pump test run (see "8.2.3 To perform an actuator test run" ▶ 28)).	—
4	Read out the flow rate ^(a) and modify the differential pressure bypass valve setting to reach the minimum required flow rate + 1/2 gal/min (2 l/min).	—

^(a) During pump test run, the unit can operate below the minimum required flow rate.

If operation is...	Then the minimum required flow rate is...
Cooling / heating start-up / defrost / backup heater operation	6 gal/min (22 l/min)
Domestic hot water production	7.5 gal/min (28 l/min)

8.2.2 To perform an air purge

Conditions: Make sure all operation is disabled. Go to [C]: Operation and turn off Space heating/cooling and Tank operation.

1	Set the user permission level to Installer. See "To change the user permission level" ▶ 17].	—
2	Go to [A.3]: Commissioning > Air purge.	
3	Select OK to confirm. Result: The air purge starts. It stops automatically when the air purge cycle is finished.	
To stop the air purge manually:		—
1	Go to Stop air purge.	
2	Select OK to confirm.	

8.2.3 To perform an actuator test run

Purpose

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

Conditions: Make sure all operation is disabled. Go to [C]: Operation and turn off Space heating/cooling and Tank operation.

1	Set the user permission level to Installer. See "To change the user permission level" ▶ 17].	—
2	Go to [A.2]: Commissioning > Actuator test run.	
3	Select a test from the list. Example: Pump.	
4	Select OK to confirm. Result: The actuator test run starts. It stops automatically when ready (±30 min).	
To stop the test run manually:		—
1	In the menu, go to Stop test run.	
2	Select OK to confirm.	

Possible actuator test runs

- Booster heater test
- Backup heater 1 test
- Backup heater 2 test
- Pump test



INFORMATION

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

- Shut off valve test
- Diverter valve test (3-way valve for switching between space heating and tank heating)

8.2.4 To perform an operation test run

Conditions: Make sure all operation is disabled. Go to [C]: Operation and turn off Space heating/cooling and Tank operation.

1	Set the user permission level to Installer. See "To change the user permission level" ▶ 17].	—
2	Go to [A.1]: Commissioning > Operation test run.	
3	Select a test from the list. Example: Heating.	
4	Select OK to confirm. Result: The test run starts. It stops automatically when ready (±30 min).	
To stop the test run manually:		—
1	In the menu, go to Stop test run.	
2	Select OK to confirm.	



NOTICE

Manual stop. During the space heating test run, the unit measures the temperature increase. If you manually stop the test run:

- **After 30 min from start**, the measurement will be successful.
- **Before 30 min from start**, the measurement might be unsuccessful.

If the measurement is successful, the logic to activate the backup heater will use a time frame tuned to your system. If not, it will use the default time frame (3 minutes).



INFORMATION

If the outdoor temperature is outside the range of operation, the unit may NOT operate or may NOT deliver the required capacity.

To monitor leaving water and tank temperatures

During test run, the correct operation of the unit can be checked by monitoring its leaving water temperature (heating/cooling mode) and tank temperature (domestic hot water mode).

To monitor the temperatures:

1	In the menu, go to Sensors.	
2	Select the temperature information.	

8.2.5 To perform an underfloor heating screed dry-out

Conditions: Make sure all operation is disabled. Go to [C]: Operation and turn off Space heating/cooling and Tank operation.

1	Set the user permission level to Installer. See "To change the user permission level" ▶ 17].	—
2	Go to [A.4]: Commissioning > Underfloor Heating screed drying-out.	
3	Set a dry-out program: go to Program and use the UFH screed dry-out programming screen.	
4	Select OK to confirm. Result: The underfloor heating screed dry-out starts. It stops automatically when done.	
To stop the test run manually:		—
1	Go to Stop Underfloor Heating screed dry-out.	
2	Select OK to confirm.	

**NOTICE**

To perform an underfloor heating screed dry-out, 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 12 hours after the first power-on.

If the screed dry-out still needs to be performed after the first 12 hours of power-on, manually disable room frost protection by setting [2-06] to "0," and KEEP it disabled until the screed dry-out has finished. Ignoring this notice will result in cracking of the screed.

**NOTICE**

For the underfloor heating screed dry-out 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 Handover to the user

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

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

10 Maintenance and service

**NOTICE**

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

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

10.1 Maintenance safety precautions



DANGER: RISK OF ELECTROCUTION



DANGER: RISK OF BURNING/SCALDING

**NOTICE: Risk of electrostatic discharge**

Before performing any maintenance or service work, touch a metal part of the unit in order to eliminate static electricity and to protect the PCB.

10.2 Yearly maintenance

10.2.1 Yearly maintenance indoor unit: overview

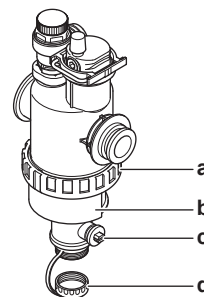
- Water pressure
- Magnetic filter/dirt separator
- Water pressure relief valve
- Pressure relief valve of the domestic hot water tank
- Switch box

10.2.2 Yearly maintenance indoor unit: instructions

Water pressure

Keep water pressure above 14.5 PSI (1 bar). If it is lower, add water.

Magnetic filter/dirt separator



- a Screw connection
- b Magnetic sleeve
- c Drain valve
- d Drain cap

The yearly maintenance of the magnetic filter/dirt separator consists of:

- Checking if both parts of the magnetic filter/dirt separator are still screwed tight (a).
- Emptying the dirt separator as follows:

- 1 Take off the magnetic sleeve (b).
- 2 Unscrew the drain cap (d).
- 3 Connect a drain hose to the bottom of the water filter so that the water and dirt can be collected in a suitable container (bottle, sink...).
- 4 Open the drain valve for a couple of seconds (c).
Result: Water and dirt will come out.
- 5 Close the drain valve.
- 6 Screw the drain cap back on.
- 7 Reattach the magnetic sleeve.
- 8 Check the pressure of the water circuit. If required, add water.

**NOTICE**

- When checking the magnetic filter/dirt separator for tightness, hold it firmly, so as NOT to apply stress to the water piping.
- Do NOT isolate the magnetic filter/dirt separator by closing the shut-off valves. To properly empty the dirt separator, sufficient pressure is required.
- To prevent dirt from remaining in the dirt separator, ALWAYS take off the magnetic sleeve.
- ALWAYS first unscrew the drain cap, and connect a drain hose to the bottom of the water filter, then open the drain valve.

10 Maintenance and service

i INFORMATION

For yearly maintenance, you do not have to remove the water filter from the unit to clean it. But in case of trouble with the water filter, you might have to remove it so that you can thoroughly clean it. Then you need to do as follows:

- ["10.3.1 To remove the water filter" \[p 30\]](#)
- ["10.3.2 To clean the water filter in case of trouble" \[p 31\]](#)
- ["10.3.3 To install the water filter" \[p 31\]](#)

Water pressure relief valve

Open the valve and check if it operates correctly. **The water may be very hot!**

Checkpoints are:

- The water flow coming from the relief valve is high enough, no blockage of the valve or in between piping is suspected.
- Dirty water coming out of the relief valve:
 - open the valve until the discharged water does NOT contain dirt anymore
 - flush the system

It is recommended to do this maintenance more frequently.

Pressure relief valve of the domestic hot water tank (field supplied)

Open the valve.

! CAUTION

Water coming out of the valve may be very hot.

- Check if nothing blocks the water in the valve or in between piping. The water flow coming from the relief valve must be high enough.
- Check if the water coming out of the relief valve is clean. If it contains debris or dirt:
 - Open the valve until the discharged water does not contain debris or dirt anymore.
 - Flush and clean the complete tank, including the piping between the relief valve and cold water inlet.

To make sure this water originates from the tank, check after a tank heat up cycle.

i INFORMATION

It is recommended to perform this maintenance more than once a year.

Switch box

- Carry out a thorough visual inspection of the switch box and look for obvious defects such as loose connections or defective wiring.
- Using an ohmmeter, check if contactors K1M, K2M, K3M and K5M (depending on your installation) operate correctly. All contacts of these contactors must be in the open position when the power is turned OFF.

! WARNING

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

10.3 About cleaning the water filter in case of trouble

i INFORMATION

For yearly maintenance, you do not have to remove the water filter from the unit to clean it. But in case of trouble with the water filter, you might have to remove it so that you can thoroughly clean it. Then you need to do as follows:

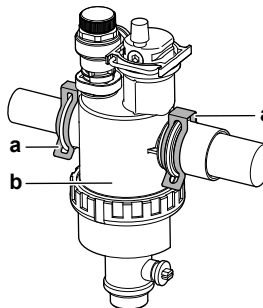
- ["10.3.1 To remove the water filter" \[p 30\]](#)
- ["10.3.2 To clean the water filter in case of trouble" \[p 31\]](#)
- ["10.3.3 To install the water filter" \[p 31\]](#)

10.3.1 To remove the water filter

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the respective circuit breaker.

- 1 The water filter is located behind the switch box. To get access to it, see ["4.2.1 To open the indoor unit" \[p 5\]](#).
["4.2.1 To open the indoor unit" \[p 5\]](#)
- 2 Close the stop valves of the water circuit.
- 3 Close the valve (if equipped) of the water circuit towards the expansion vessel.
- 4 Remove the cap on the bottom of the magnetic filter/dirt separator.
- 5 Connect a drain hose to the bottom of the water filter.
- 6 Open the valve on the bottom of the water filter to drain water from the water circuit. Collect the drained water in a bottle, sink,... using the installed drain hose.
- 7 Remove the 2 clips that fix the water filter.



- a Clip
- b Magnetic filter/dirt separator

- 8 Remove the water filter.
- 9 Remove the drain hose from the water filter.

! NOTICE

Although the water circuit is drained, some water may be spilled when removing the magnetic filter/dirt separator from the filter housing. ALWAYS clean up spilled water.

10.3.2 To clean the water filter in case of trouble

- 1 Remove the water filter from the unit. See "10.3.1 To remove the water filter" [p. 30].

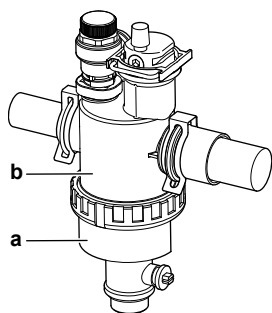
NOTICE

To protect the piping connected to the magnetic filter/dirt separator from damage, it is recommended to perform this procedure with the magnetic filter/dirt separator removed from the unit.

- 2 Unscrew the bottom of the water filter housing. Use an appropriate tool if needed.

NOTICE

Opening the magnetic filter/dirt separator is ONLY required in case of severe issues. Preferably this action is never to be done during the complete lifetime of the magnetic filter/dirt separator.

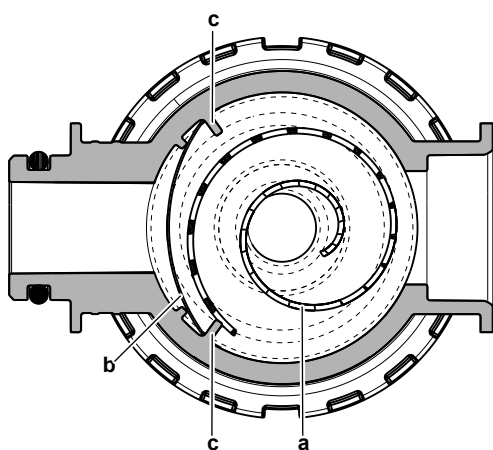


a Bottom part to be unscrewed
b Water filter housing

- 3 Remove the strainer and the rolled-up filter from the water filter housing and clean with water.
- 4 Install the cleaned rolled-up filter and strainer in the water filter housing.

INFORMATION

Correctly install the strainer in the magnetic filter/dirt separator housing using the protrusions.



a Rolled-up filter
b Strainer
c Protrusion

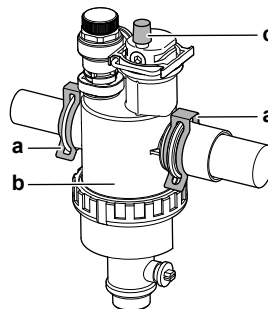
- 5 Install and properly tighten the bottom of the water filter housing.

10.3.3 To install the water filter

NOTICE

Check the condition of the O-rings and replace if needed. Apply water or silicon grease to the O-rings before installation.

- 1 Install the water filter in the correct location.



a Clip
b Magnetic filter/dirt separator
c Air purge valve

- 2 Install the 2 clips to fix the water filter to the water circuit pipes.
- 3 Make sure that the air purge valve of the water filter is in the open position.
- 4 Open the valve (if equipped) of the water circuit towards the expansion vessel.

CAUTION

Make sure to open the valve (if equipped) towards the expansion vessel, otherwise the overpressure will be generated.

- 5 Open the stop valves and add water to the water circuit if needed.

11 Disposal

NOTICE

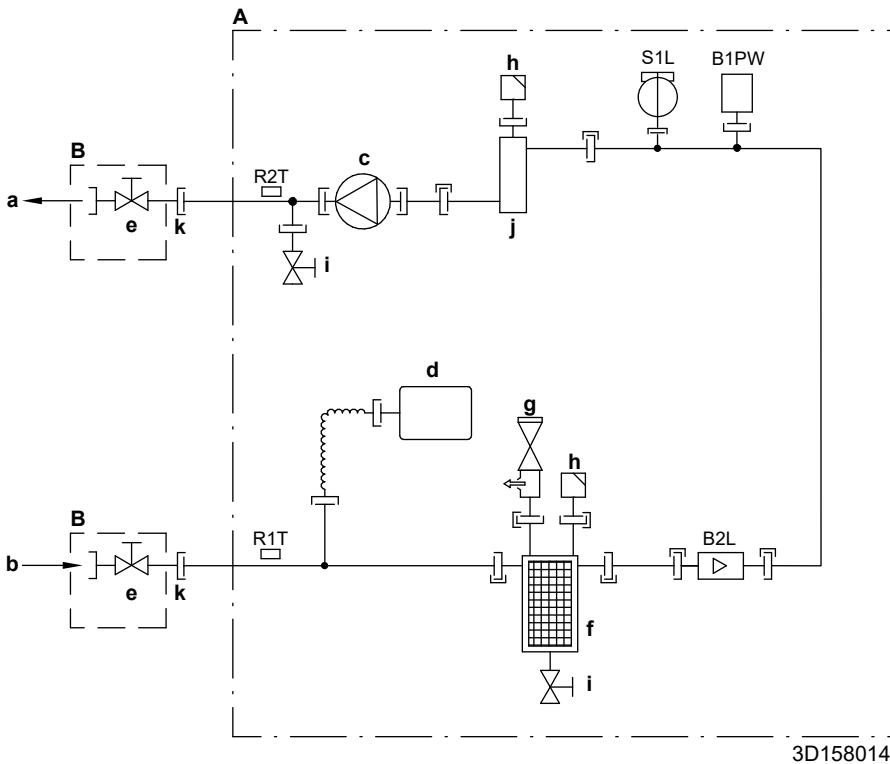
Do NOT try to dismantle the system yourself: dismantling of the system, treatment of the refrigerant, oil and other parts MUST comply with applicable codes. Units MUST be treated at a specialized treatment facility for reuse, recycling and recovery.

12 Technical data

12 Technical data

The full set of the latest technical data is available at www.daikincomfort.com.

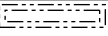
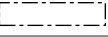
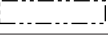
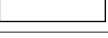
12.1 Piping diagram: Indoor unit



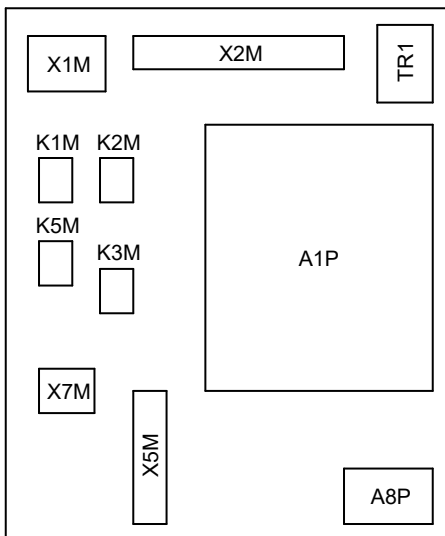
- A** Indoor unit
- B** Field installed
- a** Space heating water OUT
- b** Water IN connection 1" NPT
- c** Pump
- d** Expansion vessel
- e** Shut-off valve 1" NPT, female-female
- f** Magnetic filter/dirt separator
- g** Safety valve
- h** Air purge
- i** Drain valve
- j** Backup heater
- k** Screw connection 1" NPT
- B1PW** Space heating water pressure sensor
- B2L** Flow sensor
- R1T** Thermistor (water IN)
- R2T** Thermistor (backup heater – water OUT)
- S1L** Flow switch
- |— Screw connection
- >> Flare connection
- |— Quick coupling
- Brazed connection

12 Technical data

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
X7M, X8M	Booster heater power supply terminal
-----	Ground wiring
-----	Field supplied wiring
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/BSH should be foreseen outside the unit.	Note 1: Connection point of the power supply for the backup heater/booster heater should be foreseen outside the unit.
Backup heater power supply	Backup heater power supply
<input type="checkbox"/> 6 kW (1N~, 208 V - 230 V)	<input type="checkbox"/> 6 kW (1N~, 208 V - 230 V)
User installed options	User installed options
<input type="checkbox"/> Safety thermostat	<input type="checkbox"/> Safety thermostat
<input type="checkbox"/> Demand PCB	<input type="checkbox"/> Demand PCB
<input type="checkbox"/> WLAN cartridge	<input type="checkbox"/> WLAN card
<input type="checkbox"/> Domestic hot water tank	<input type="checkbox"/> Domestic hot water tank
Main LWT	Main leaving water temperature zone
<input type="checkbox"/> On/OFF thermostat (wired)	<input type="checkbox"/> ON/OFF thermostat (wired)
<input type="checkbox"/> Heat pump convector	<input type="checkbox"/> Heat pump convector
Add LWT	Additional leaving water temperature zone
<input type="checkbox"/> On/OFF thermostat (wired)	<input type="checkbox"/> ON/OFF thermostat (wired)
<input type="checkbox"/> Heat pump convector	<input type="checkbox"/> Heat pump convector

Position in switch box



Legend

A1P	Hydro PCB
-----	-----------

A2P	*	ON/OFF thermostat (PC=power circuit)
A3P	*	Heat pump convector
A8P	*	Demand PCB
A11P		Main PCB of the MMI (= user interface of the indoor unit)
F1B	#	Overcurrent fuse – backup heater
F2B	#	Overcurrent fuse – booster heater
F3B	#	Overcurrent fuse – main
K*M	*	Contact
M2S	#	2-way valve for cooling mode
M3S	*	3-way valve for space heating / domestic hot water
Q*DI	#	Ground leakage circuit breaker
Q2L	#	Thermal protector – booster heater
Q4L	#	Safety thermostat
R1T (A2P)	*	Ambient sensor ON/OFF thermostat
R5T (A1P)	*	Domestic hot water thermistor
S1S	#	Reduced tariff kWh power supply contact
S2S	#	Electrical meter pulse input 1
S3S	#	Electrical meter pulse input 2
S4S	#	Smart Grid feed-in
S6S~S9S	*	Digital power limitation inputs
S10S-S11S	#	Low voltage Smart Grid contact
X*A, X*Y		Connector
X*Y*, X*M		Terminal strip

* Optional
Field supplied

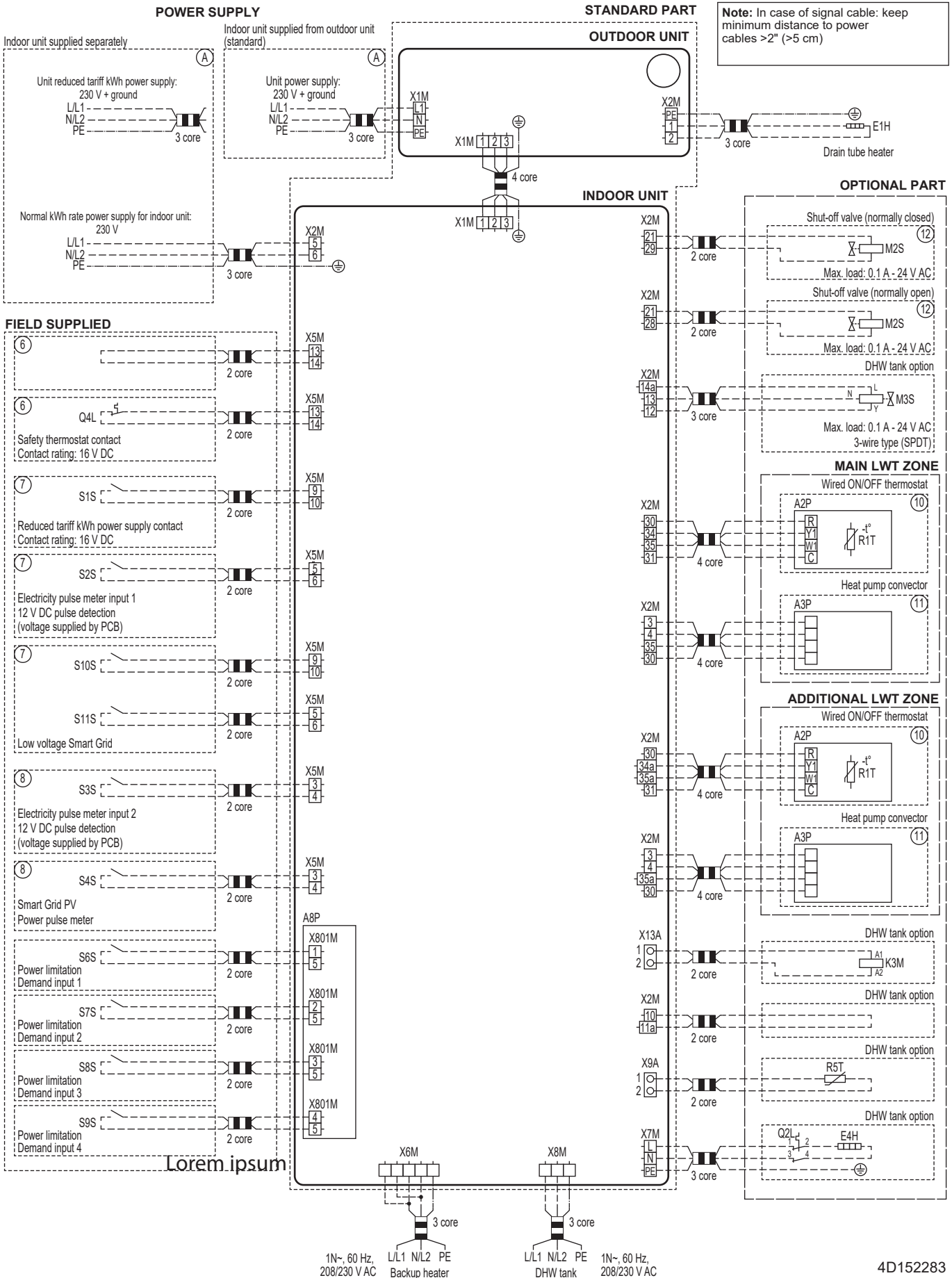
Translation of text on wiring diagram

English	Translation
(1) Main power connection	(1) Main power connection
Indoor unit supplied from outdoor	Indoor unit supplied from outdoor
Indoor unit supplied separately	Indoor unit supplied separately
Normal kWh rate power supply	Normal kWh rate power supply
Outdoor unit	Outdoor unit
Preferential kWh rate power supply contact: 16 V DC detection (voltage supplied by PCB)	Reduced tariff kWh power supply contact: 16 V DC detection (voltage supplied by PCB)
Standard	Standard
SWB	Switch box
(2) Option PCB	(2) Option PCB
ON	ON
Only for demand PCB option	Only for demand PCB option
OFF	OFF
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)
(3) External On/OFF thermostat and heat pump convector	(3) External ON/OFF thermostat and heat pump convector
Add. LWT zone	Additional leaving water temperature zone
For heat pump convector	For heat pump convector
For wired On/OFF thermostat	For wired ON/OFF thermostat
Main LWT zone	Main leaving water temperature zone
(4) Field supplied options	(4) Field supplied options
Contact rating	Contact rating

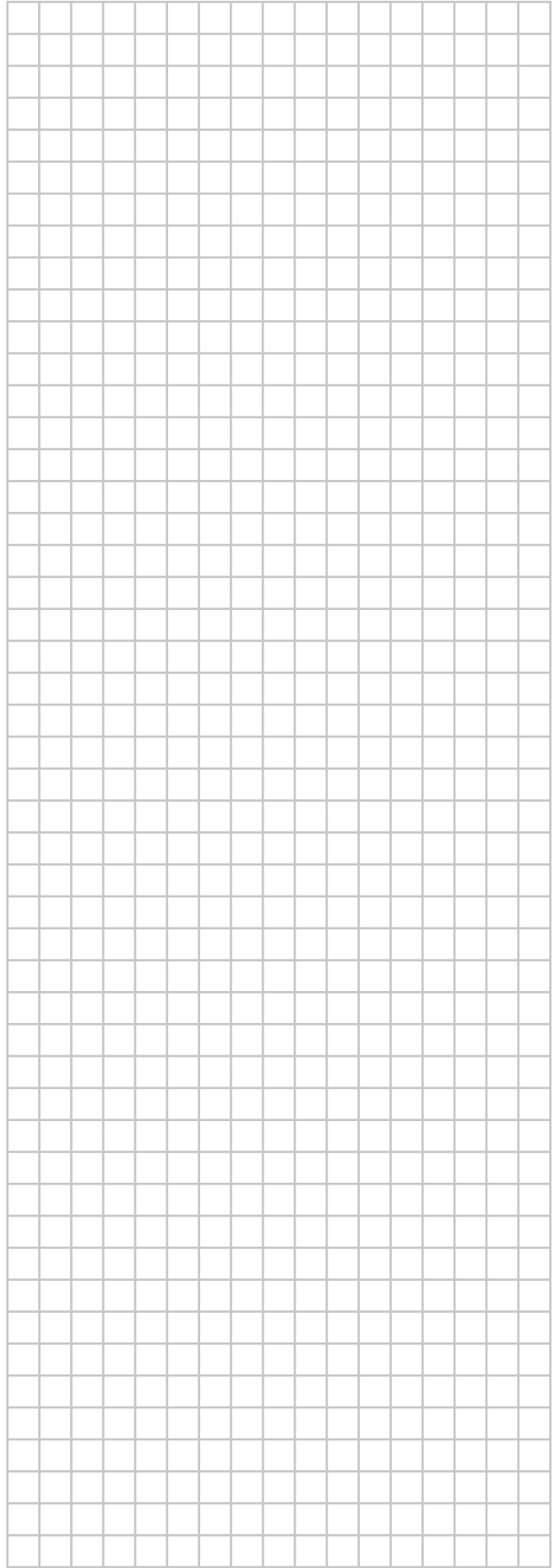
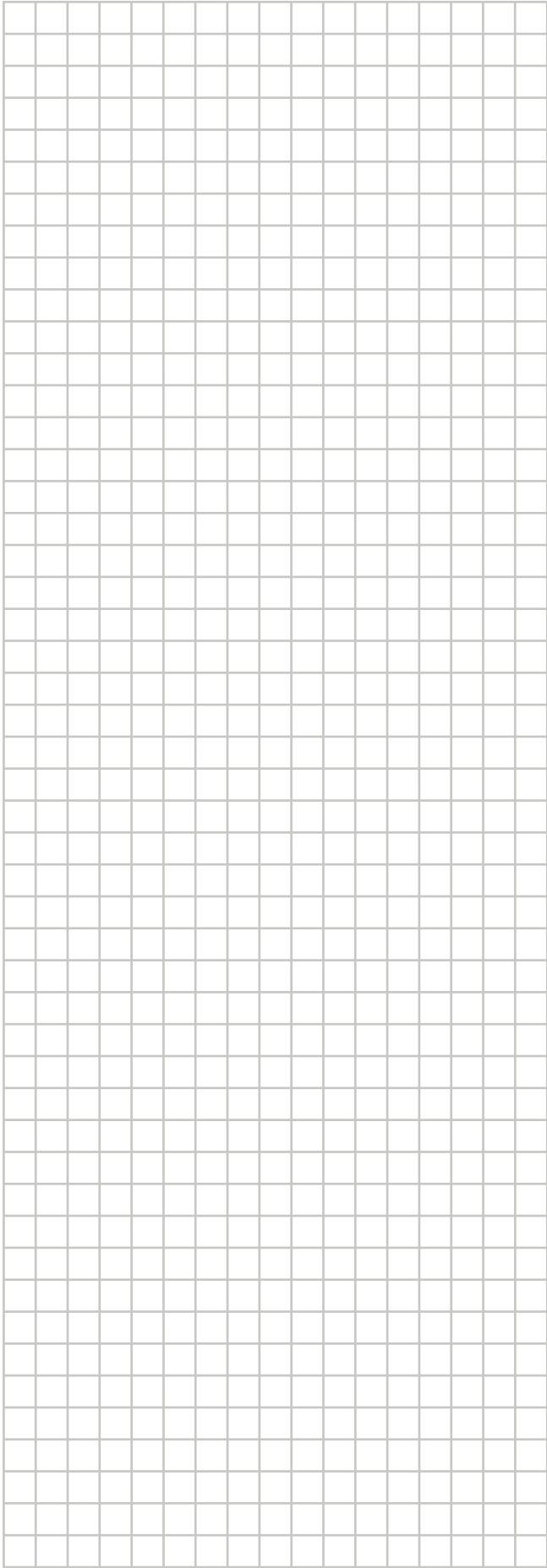
English	Translation
Electric pulse meter input	Electricity meter
For LV Smart Grid	For low voltage Smart Grid
Max. load	Maximum load
Preferential kWh rate power supply contact	Reduced tariff kWh power supply contact
Safety thermostat contact	Safety thermostat contact
Shut-off valve NC	Shut-off valve – Normally closed
Shut-off valve NO	Shut-off valve – Normally open
Smart Grid PV power pulse meter	Smart Grid photovoltaic power pulse meter
(5) Domestic hot water tank	(5) Domestic hot water tank
3 wire type SPDT	3-wire type SPDT
For DHW tank option	For DHW tank option
Max. 3 kW	Maximum 3 kW
Max. load	Maximum load
Only for DHW option	Only for DHW option
Only when DHW option is installed	Only when DHW option is installed
(6) User interface	(6) User interface
3rd generation WLAN cartridge	Third generation WLAN card
SD card	Card slot for WLAN card
(7) Backup heater power supply	(7) Backup heater power supply
4-pole fuse	4-pole fuse

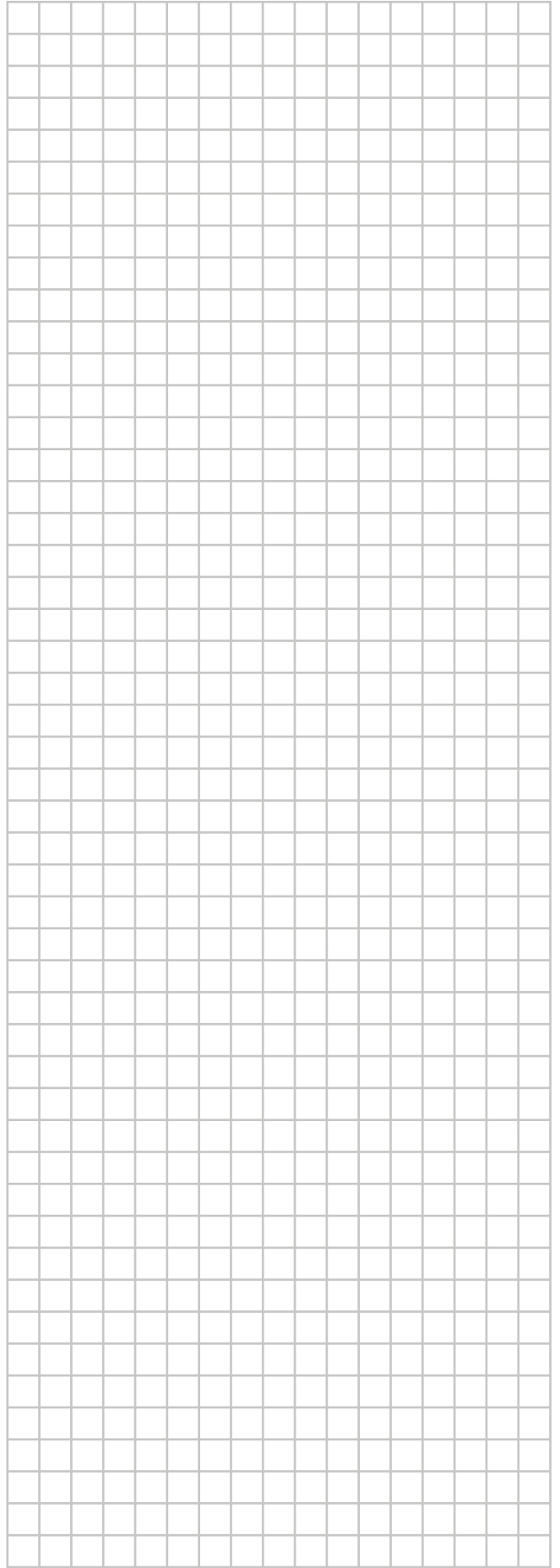
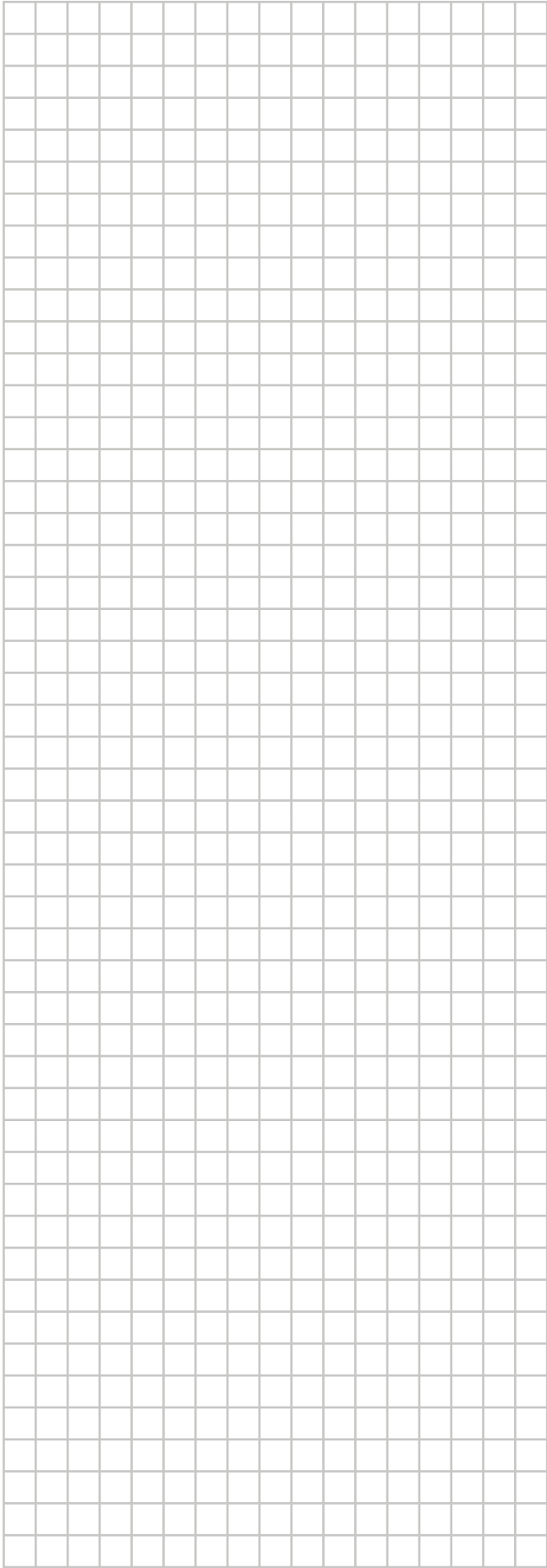
12 Technical data

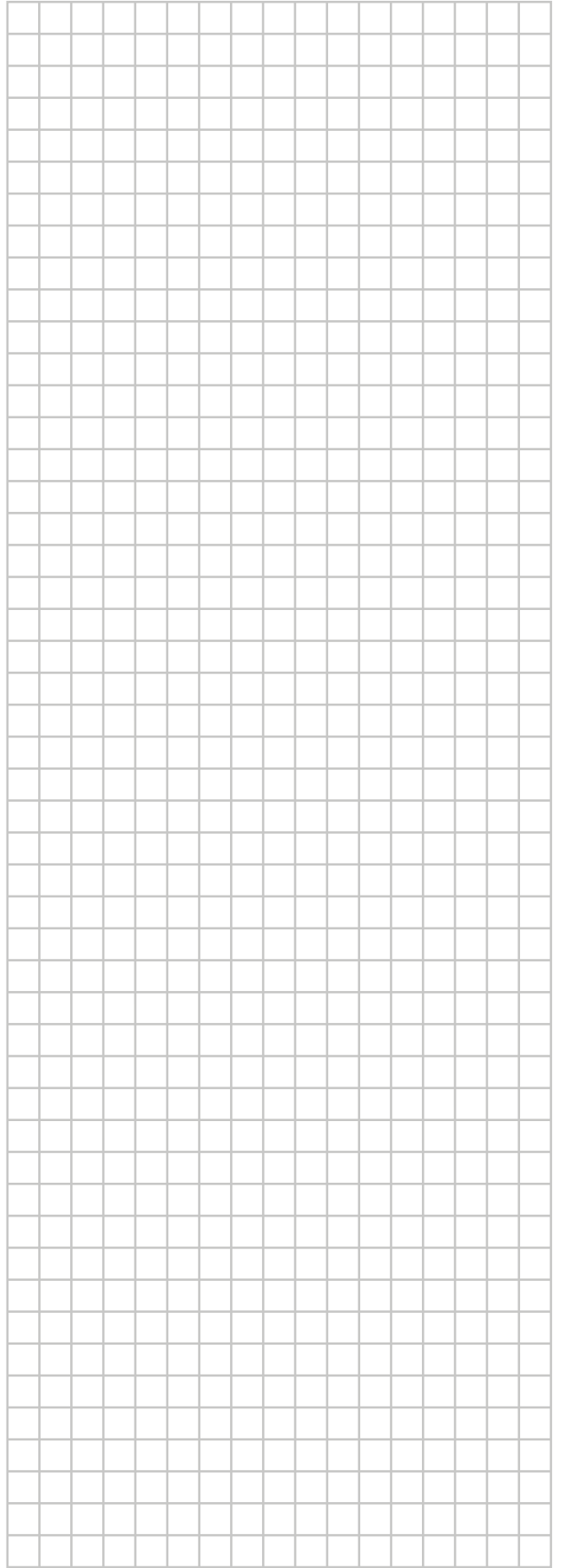
Electrical connection diagram



4D152283







RECOGNIZED
COMPONENT



Intertek



4P815178-1 0000000S

Our continuing commitment to quality products may mean a change in specifications without notice.

© 2025 Daikin Comfort Technologies Manufacturing, Inc.
19001 Kermier Rd., Waller, TX 77484

www.daikincomfort.com