

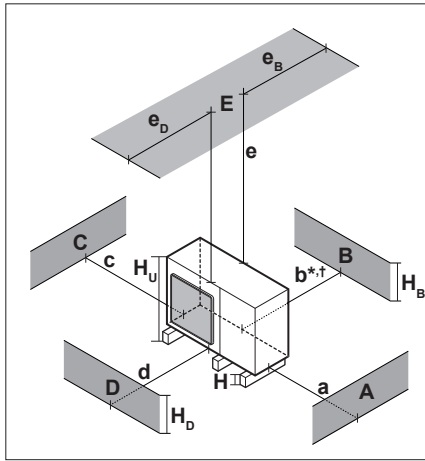
Packaged air-cooled
water chillers and
packaged air to water
heat pumps

Installation manual

EWAQ006BAVP
EWAQ008BAVP
EWYQ006BAVP
EWYQ008BAVP

Refrigerant: R410A

Code	4P492755-1C
Date	June 2018



A~E	H_B H_D H_U	(mm)								
		a	b^*	b^\dagger	c	d	e	e_B	e_D	H
A, B, C	—	≥ 100	≥ 250	≥ 400	≥ 100					≥ 150
A, B, C, E	—	≥ 150	≥ 250	≥ 400	≥ 150		≥ 1000		≤ 500	≥ 150
D	—					≥ 500				≥ 150
D, E	—					≥ 500	≥ 1000	≤ 500		≥ 150
B, D	$H_D < H_U$		≥ 250	≥ 400		≥ 500				≥ 150
B, D, E	$H_D < H_U$ & $H_B > H_U$		≥ 250	≥ 400		≥ 1000	≥ 1000		≤ 500	≥ 150
	$H_D > H_U$ & $H_B < H_U$		≥ 250	≥ 400		≥ 1000	≥ 1000	≤ 500		≥ 150



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1 About the documentation

1.1 About this document

Target audience

Authorised installers



INFORMATION

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

Documentation set

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

- **General safety precautions:**
 - Safety instructions that you must read before installing
 - Format: Paper (in the box of the outdoor unit)
- **Outdoor unit installation manual:**
 - Installation instructions
 - Format: Paper (in the box of the outdoor unit)
- **Control box installation manual:**
 - Installation instructions
 - Format: Paper (in the box of the control box)
- **Option box installation manual:**
 - Installation instructions
 - Format: Paper (in the box of the option box)
- **Backup heater installation manual:**
 - Installation instructions
 - Format: Paper (in the box of the backup heater)
- **Installer reference guide:**
 - Preparation of the installation, good practices, reference data,...
 - Format: Digital files on <http://www.daikineurope.com/support-and-manuals/product-information/>
- **Addendum book for optional equipment:**
 - Additional info about how to install optional equipment
 - Format: Paper (in the box of the outdoor unit) + Digital files on <http://www.daikineurope.com/support-and-manuals/product-information/>
- **Instruction sheet for valve kit:**
 - Instructions for the integration of valve kit EKMBHBP1
 - Format: Paper (in the box of the outdoor unit)
- **Installation manual for bottom plate heater:**
 - Instructions for the integration of bottom plate heater EKBP140L7
 - Format: Paper (in the box of the outdoor unit)



INFORMATION: ABOUT THE CONTROL BOX, OPTION BOX, AND BACKUP HEATER INSTALLATION MANUALS

EWAQ006+008BAVP and EWYQ006+008BAVP systems do NOT support domestic hot water and heat pump convector functionalities. In the installation manual of the control box, option box, and backup heater, therefore any reference to "domestic hot water", "domestic hot water tank", "booster heater", and "heat pump convector", may be disregarded.

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

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

Technical engineering data

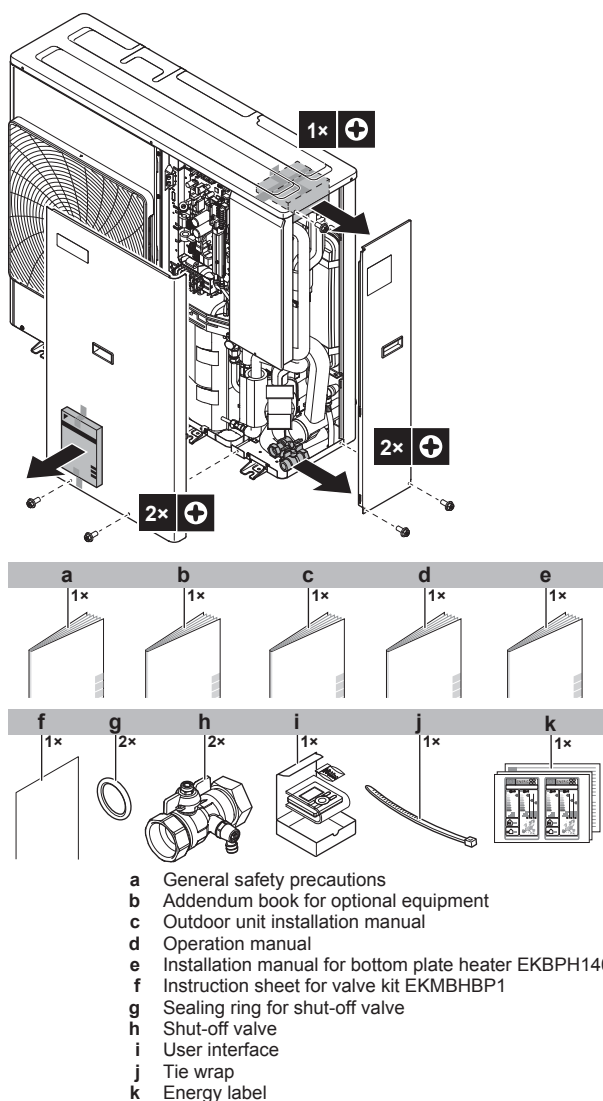
- A **subset** of the latest technical data is available on the regional Daikin website (publicly accessible).
- The **full set** of latest technical data is available on the Daikin extranet (authentication required).

2 About the box

2.1 Outdoor unit

2.1.1 To remove the accessories from the outdoor unit

- 1 Open the outdoor unit. See "4.1.1 To open the outdoor unit" on page 6.
- 2 Remove the accessories.



i INFORMATION

The installation manual for bottom plate heater EKBPH140L7 only applies in case bottom plate heater EKBPH140L7 is part of the system. If so, do NOT take into account the installation manual delivered with the bottom plate heater; it is overruled by the one delivered with the outdoor unit.

i INFORMATION

The instruction sheet for valve kit EKMBHBP1 only applies in case valve kit EKMBHBP1 is part of the system. If so, do NOT take into account the instruction sheet delivered with the valve kit; it is overruled by the one delivered with the outdoor unit.

3 Preparation

3.1 Preparing the installation site

3.1.1 Installation site requirements of the outdoor unit

Mind the spacing guidelines. See figure 1 on the inside of the front cover.

The symbols can be interpreted as follows:

- A, C** Left side and right side obstacles (walls/baffle plates)
- B** Suction side obstacle (wall/baffle plate)
- D** Discharge side obstacle (wall/baffle plate)
- E** Top side obstacle (roof)
- a, b, c, d, e** Minimum service space between the unit and obstacles A, B, C, D and E
- *** If shut-off valves are NOT installed on the unit
- †** If shut-off valves are installed on the unit
- e_B** Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle B
- e_D** Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle D
- H_U** Height of the unit including the installation structure
- H_B, H_D** Height of obstacles B and D
- H** Height of installation structure below the unit

i INFORMATION

If shut-off valves are installed on the unit, provide a minimum space of 400 mm at the air inlet side. If shut-off valves are NOT installed on the unit, provide a minimum space of 250 mm.

Do NOT install the unit in sound sensitive areas (e.g. near a bedroom), so that the operation noise will cause no trouble.

Note: If the sound is measured under actual installation conditions, the measured value might be higher than the sound pressure level mentioned in "Sound spectrum" in the data book due to environmental noise and sound reflections.

i INFORMATION

The sound pressure level is less than 70 dBA.

The outdoor unit is designed for outdoor installation only, and for ambient temperatures ranging 10~46°C in cooling mode and -15~25°C in heating mode.

3.2 Preparing water piping

3.2.1 To check the water volume and flow rate

Minimum water volume

Check that the total water volume in the installation is minimum 20 l, the internal water volume of the outdoor unit NOT included.

4 Installation

NOTICE

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

Minimum flow rate

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

NOTICE

If glycol 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.

Minimum required flow rate	
006+008 models	20 l/min

See the recommended procedure as described in "6.2 Checklist during commissioning" on page 18.

3.3 Preparing electrical wiring

3.3.1 Overview of electrical connections for external and internal actuators

Item	Description	Wires	Maximum running current
Outdoor unit power supply			
1	Power supply for outdoor unit	2+GND	(a)
2	Normal kWh rate power supply	2	6.3 A
User interface			
3	User interface	2	(b)
Optional equipment			
4	Remote outdoor sensor	2	(c)
Field-supplied components			
5	Space heating/cooling operation control (or shut-off valve)	2	(e)
Interconnection cable			
6	Interconnection cable between outdoor unit and control box	2	(d)

- (a) Refer to name plate on outdoor unit.
 (b) Cable section 0.75 mm² till 1.25 mm²; maximum length: 500 m. Applicable for both single user interface and dual user interface connection.
 (c) Minimum cable section 0.75 mm².
 (d) Cable section 0.75 mm² till 1.25 mm²; maximum length: 20 m.

- (e) If valve kit EKMBHBP1 is part of the system, then the required cable section is 0.75 mm². If valve kit EKMBHBP1 is NOT part of the system, then the minimum required cable section is 0.75 mm².

NOTICE

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

INFORMATION

From the control box installation manual (same chapter), disregard the following items:

- 9 – 3-way valve
- 10 – Power supply for booster heater and thermal protection (from control box)
- 11 – Power supply for booster heater (to control box)
- 12 – Domestic hot water tank thermistor
- 13 – Heat pump convector

4 Installation

4.1 Opening the units

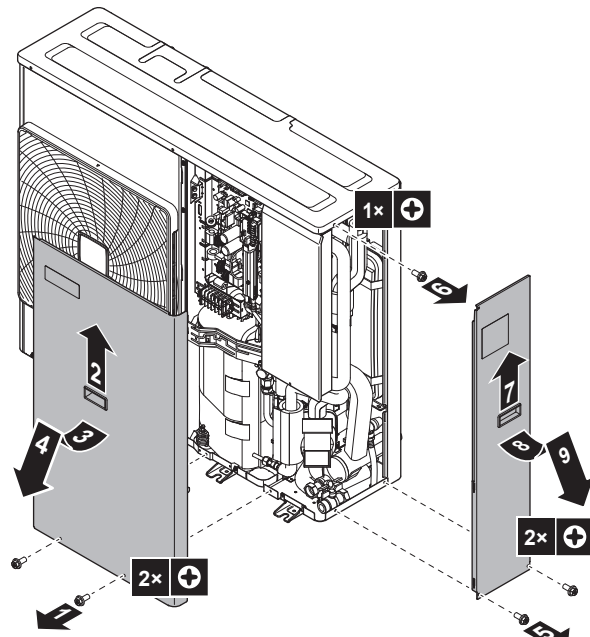
4.1.1 To open the outdoor unit



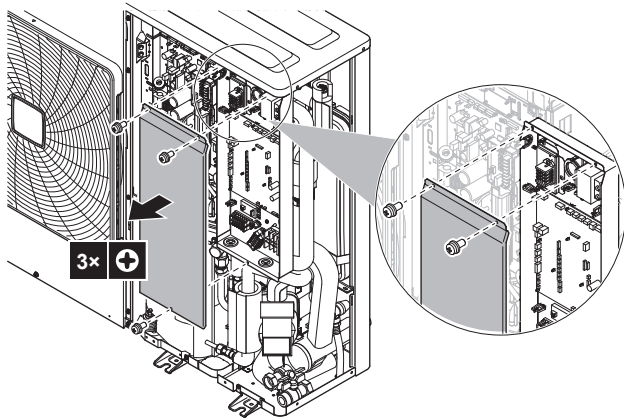
DANGER: RISK OF ELECTROCUTION



DANGER: RISK OF BURNING



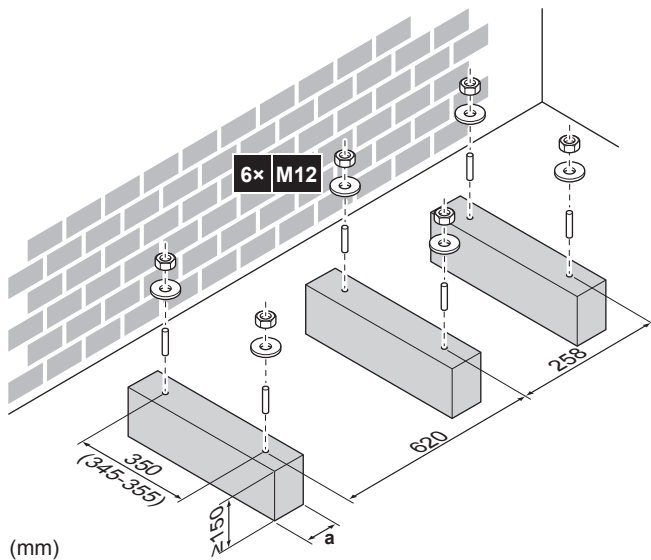
4.1.2 To open the switch box cover of the outdoor unit



4.2 Mounting the outdoor unit

4.2.1 To provide the installation structure

Prepare 6 sets of anchor bolts, nuts and washers (field supply) as follows:



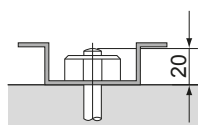
(mm)

a Make sure not to cover the drain holes.



INFORMATION

The recommended height of the upper protruding part of the bolts is 20 mm.

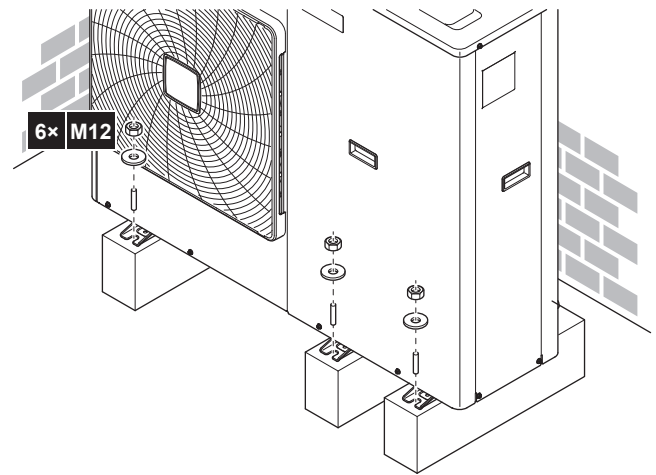


NOTICE

Fix the outdoor unit to the foundation bolts using nuts with resin washers (a). If the coating on the fastening area is stripped off, the nuts rust easily.



4.2.2 To install the outdoor unit



4.2.3 To provide drainage

Make sure that condensate can be evacuated properly. When the unit is in cooling mode, condensate may also form in the hydro part. When providing drainage, therefore make sure to cover the entire unit.



NOTICE

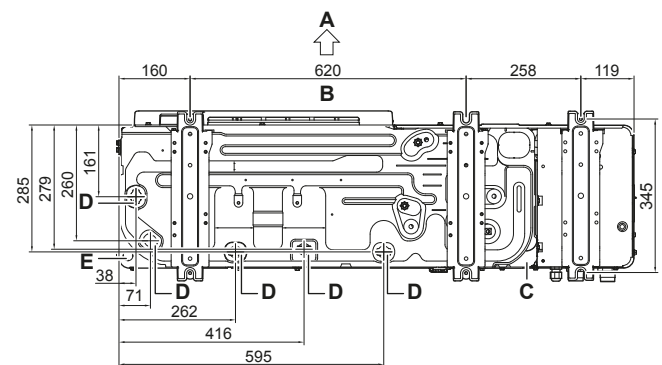
If the unit is installed in a cold climate, take adequate measures so that the evacuated condensate CANNOT freeze.



INFORMATION

If necessary, you can use a drain plug kit (field supply) to prevent drain water from dripping.

Drain holes (dimensions in mm)

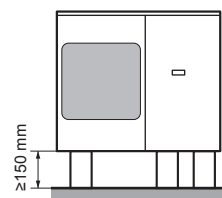


- A Discharge side
- B Distance between anchor points
- C Bottom frame
- D Drain holes
- E Knockout hole for snow



NOTICE

If drain holes of the outdoor unit are covered by a mounting base or by floor surface, raise the unit to provide a free space of more than 150 mm under the outdoor unit.

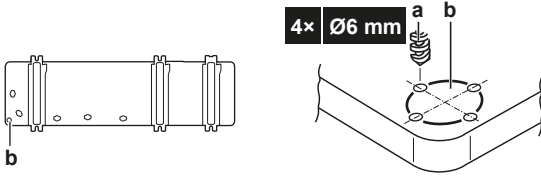


Snow

In regions with snowfall, snow might build up and freeze between the heat exchanger and the external plate. This might decrease the operating efficiency. To prevent this:

4 Installation

- 1 Drill (a, 4×) and remove the knockout hole (b).

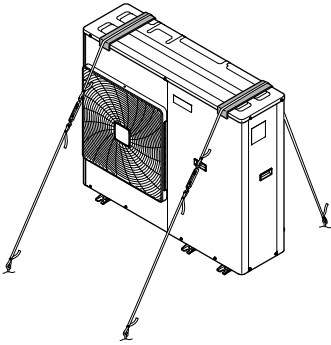


- 2 Remove the burrs, and paint the edges and areas around the edges using repair paint to prevent rusting.

4.2.4 To prevent the outdoor unit from falling over

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

- 1 Prepare 2 cables as indicated in the following illustration (field supply).
- 2 Place the 2 cables over the outdoor unit.
- 3 Insert a rubber sheet between the cables and the outdoor unit to prevent the cables from scratching the paint (field supply).
- 4 Attach the ends of the cables and tighten them.



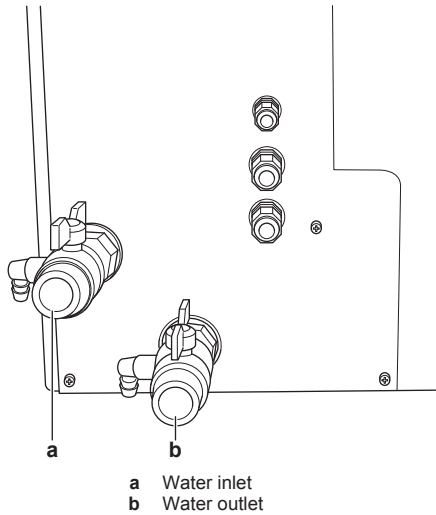
4.3 Connecting the water piping

4.3.1 To connect the water piping

NOTICE

Do NOT use excessive force when connecting the piping. Deformation of the piping can cause malfunctioning of the unit. Make sure that the tightening torque does NOT exceed 30 N•m.

To facilitate service and maintenance, 2 shut-off valves are provided. Mount the valves on the space heating water inlet and space heating water outlet. Mind their position: the integrated drain valves will only drain the side of the circuit on which they are located. To be able to only drain the unit, make sure the drain valves are positioned between the shut-off valves and the unit.



- 1 Screw the outdoor unit nuts on the shut-off valves.
- 2 Connect the field piping on the shut-off valves.



NOTICE

Install a manometer in the system.



NOTICE

Install air purge valves at all local high points.

4.3.2 To protect the water circuit against freezing

Frost can damage the system. For this reason, if negative ambient temperatures are expected, make sure the water circuit is sufficiently protected against freezing. Freeze protection is model-dependent. Either add glycol to the water circuit, or provide the outdoor field piping with heater tape, according to the table below.

If then
Standard model (no -H- in the model name)	Add glycol to the water circuit, according to the instructions below. In this way, you protect the internal water piping, as well as the outdoor field piping.
Heater tape model (-H- in the model name)	The internal water piping is factory-equipped with heater tape and additional insulation, this to prevent it from freezing. To prevent the outdoor field piping from freezing, provide it with sufficient insulation or heater tape (field supply), according to the instructions below.

Heater tape (field supply)

- 1 Install heater tape to the outdoor field piping.
- 2 Provide external power supply for the heater tape.



NOTICE

- For the internal heater tape to operate, the power to the unit MUST be ON. For this reason, during cold periods, never disconnect the power, nor turn off the main switch.
- In case of a power failure, power to the heater tape (both internal and external) will be aborted and the water circuit will NOT be protected. To guarantee a full protection, it is always possible to add glycol to the water circuit, even when installing heater tape to the outdoor field piping.

Glycol

The required concentration of glycol 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 glycol is required. Add glycol according to the table below.

i INFORMATION

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

! NOTICE

In case of reversible systems (heating+cooling), ALWAYS protect the piping and plate heat exchanger from freezing.

! NOTICE

In case the lowest expected outdoor temperature is not mentioned in the table, select the worst case value.

Example: If the lowest expected outdoor temperature is -10°C , add 35% of glycol to the system.

Lowest expected outdoor temperature	Prevent from bursting ^(a)	Prevent from freezing
-8°C	15%	20%
-15°C	20%	35%

(a) For cooling-only systems only. In case of reversible systems (heating+cooling), ALWAYS prevent the piping and plate heat exchanger from freezing.

! NOTICE

- It is the responsibility of the installer to add the correct glycol percentage, depending on the expected ambient temperatures.
- The addition of glycol applies to BOTH cooling-only models (EWAQ006+008BAVP) AND reversible models (EWYQ006+008BAVP), and is independent of cooling or heating operation.
- The required concentration might differ depending on the type of glycol. ALWAYS compare the requirements from the table above with the specifications provided by the glycol manufacturer. If necessary, meet the requirements set by the glycol manufacturer.
- The added concentration of glycol should NEVER exceed 35%.
- If the liquid in the system is frozen, the pump will NOT be able to start. Mind that if you only prevent the system from bursting, the liquid inside might still freeze.
- In case of a power supply failure or pump failure, and NO glycol was added to the system, drain the system.
- When water is at standstill inside the system, the system is very likely to freeze and get damaged.

The following types of glycol are allowed:

- Ethylene glycol;**
- Propylene glycol,** including the necessary inhibitors, classified as Category III according to EN1717.

! WARNING

Ethylene glycol is toxic.

! NOTICE

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

! NOTICE

- If overpressure occurs, the system will release some of the liquid through the pressure relief valve. If glycol was added to the system, take adequate measures so as to safely recover it.
- In any case, make sure that the flexible hose of the pressure relief valve is ALWAYS free to release pressure. Prevent water from staying and/or freezing up inside the hose.

! WARNING

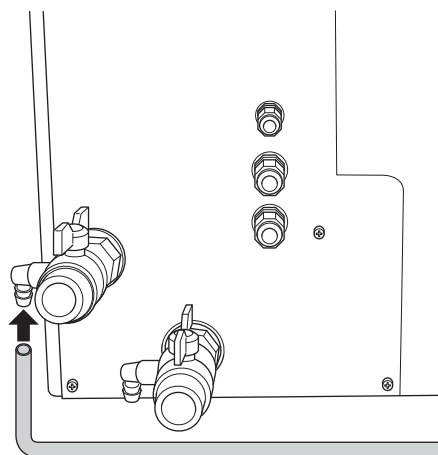
Due to presence of glycol, corrosion of the system is possible. Uninhibited glycol will turn acidic under the influence of oxygen. This process is accelerated by the presence of copper and high temperatures. The acidic uninhibited glycol attacks metal surfaces and forms galvanic corrosion cells that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

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

Adding glycol to the water circuit reduces the maximum allowed water volume of the system. For more information, refer to the chapter "To check the water volume and flow rate" in the installer reference guide.

4.3.3 To fill the water circuit

- 1 Connect the water supply hose to the drain and fill valve.



- 2 Open the drain and fill valve.
- 3 If an automatic air purge valve was installed, make sure it is open.
- 4 Fill the circuit with water until the manometer (field supply) indicates a pressure of ± 2.0 bar.

4 Installation

- 5 Purge as much air as possible from the water circuit. For instructions, see "6 Commissioning" on page 18.
- 6 Refill the circuit until the pressure is ± 2.0 bar.
- 7 Repeat steps 5 and 6 until no more air is purged and there are no more pressure drops.
- 8 Close the drain and fill valve.
- 9 Disconnect the water supply hose from the drain and fill valve.

4.3.4 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.

To prevent the freezing of the outdoor water piping during winter time, the thickness of the sealing material **MUST** be at least 13 mm (with $\lambda=0.039$ W/mK).

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

During winter, protect the water piping and shut-off valves against freezing by adding heat tape (field supply). If the outdoor temperature can drop below -20°C and no heat tape is used, it is recommended to install the shut-off valves indoors.

4.4 Connecting the electrical wiring



DANGER: RISK OF ELECTROCUTION

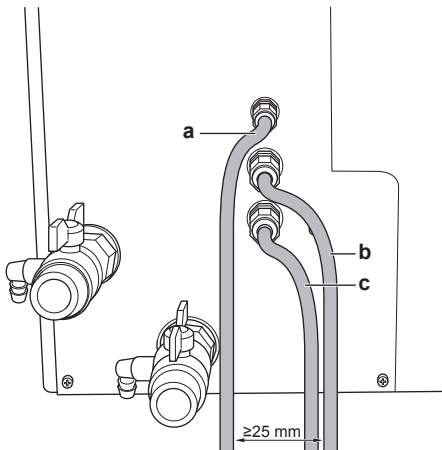


WARNING

ALWAYS use multicore cable for power supply cables.

4.4.1 To connect the electrical wiring on the outdoor unit

- 1 Remove the switch box cover. See "4.1.1 To open the outdoor unit" on page 6.
- 2 Insert the wiring at the back of the unit:



- a Low voltage cable
- b High voltage cable
- c Power supply cable



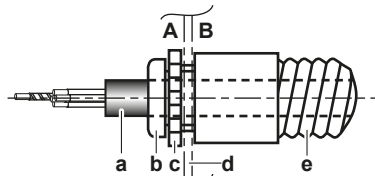
NOTICE

The distance between the high voltage and low voltage cables should be at least 25 mm.

Routing	Possible cables (depends on the installed options)
a Low voltage	<ul style="list-style-type: none"> ▪ User interface ▪ Interconnection cable to control box EKCB07CAV3 ▪ Remote outdoor sensor (option)
b High voltage	<ul style="list-style-type: none"> ▪ Normal kWh rate power supply ▪ Preferential kWh rate power supply ▪ Shut-off valve (field supply) ▪ Space heat/cool operation control
c Main power supply	<ul style="list-style-type: none"> ▪ Main power supply

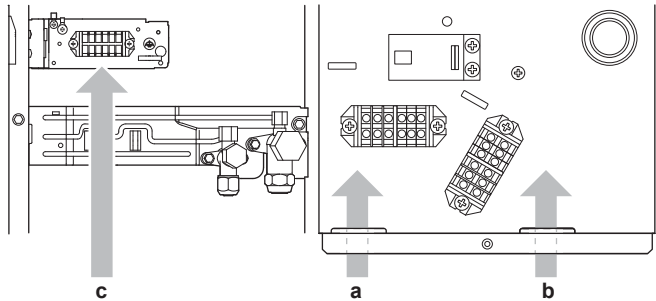
A protection sleeve for the conduits (PG insertions) can be inserted at the knockout holes.

When you do not use a protection sleeve, protect the wires with vinyl tubes to prevent the edge of the knockout hole from cutting the wires.



- A Inside of the outdoor unit
- B Outside of the outdoor unit
- a Wire
- b Bush
- c Nut
- d Frame
- e Hose

- 3 Inside the unit, route the wiring as follows:



- a Low voltage wiring
- b High voltage wiring
- c Power supply cable

- 4 Make sure that the cable does NOT come in contact with sharp edges or hot gas piping.
- 5 Install the switch box cover.



INFORMATION

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

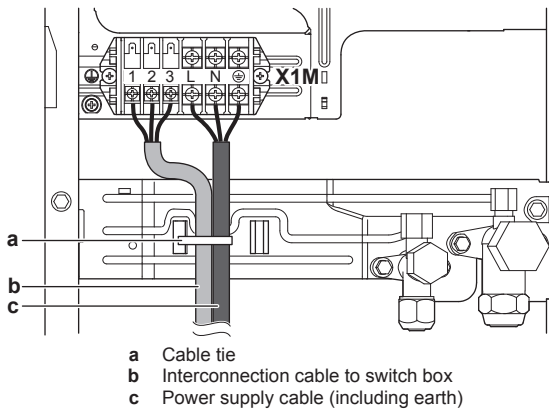


CAUTION

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

4.4.2 To connect the main power supply

- 1 Connect the main power supply as follows:



4.4.3 To connect the user interface

i INFORMATION

- If control box EKCB07CAV3 is NOT part of the system, connect the user interface directly to the outdoor unit.
- If control box EKCB07CAV3 is part of the system, you can also connect the user interface to the control box. To do this, connect the user interface to control box terminals X2M/20+21, and then connect the control box to the outdoor unit by connecting X2M/20+21 to outdoor unit terminals X5M/1+2.

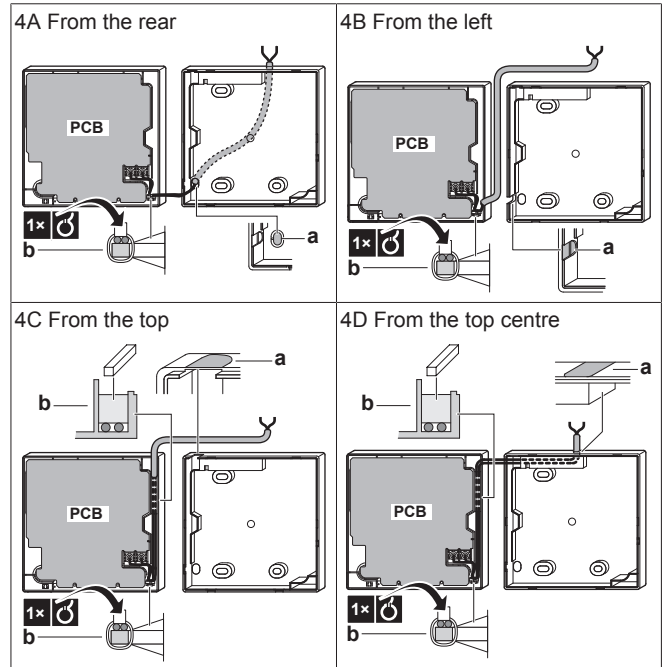
i INFORMATION

For details on how to connect the user interface to the control box, refer to the installer reference guide or the installation manual of the control box.

#	Action
1	<p>Connect the user interface cable to the outdoor unit.</p> <p>a Main user interface^(a) b Optional user interface</p>
2	<p>Insert a screwdriver into the slots underneath the user interface and carefully separate the faceplate from the wallplate.</p> <p>The PCB is mounted in the faceplate of the user interface. Be careful NOT to damage it.</p>
3	Fix the wallplate of the user interface to the wall.
4	Connect as shown in 4A, 4B, 4C or 4D.

#	Action
5	<p>Reinstall the faceplate onto the wallplate.</p> <p>Be careful NOT to pinch the wiring when attaching the frontplate to the unit.</p>

(a) The main user interface is required for operation. It is delivered with the unit as accessory.



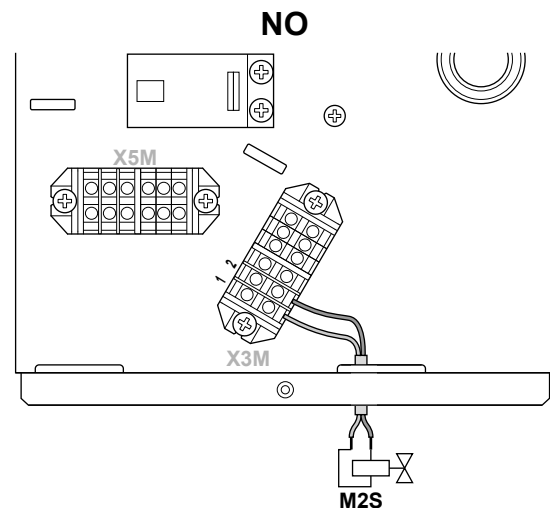
- a Notch this part for the wiring to pass through with nippers etc.
- b Secure the wiring to the front part of the casing using the wiring retainer and clamp.

4.4.4 To connect the shut-off valve

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

! NOTICE

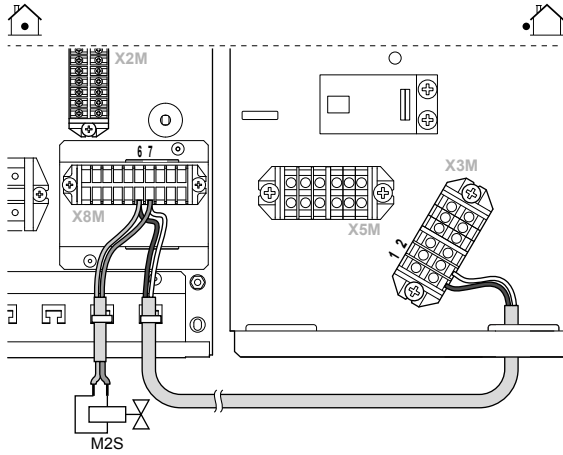
Only connect NO (normal open) valves.



5 Configuration

i INFORMATION

By default, the shut-off valve is to be connected to the outdoor unit. However, if control box EKCB07CAV3 is present in the system, you can also connect it to the control box. To do this, connect outdoor unit terminals X3M/1+2 to control box terminals X8M/6+7, and then connect the shut-off valve to control box terminals X8M/6+7.



5 Configuration

5.1 Overview: Configuration

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

! NOTICE

The explanation about the configuration in this chapter gives you ONLY basic explanations. For more detailed explanation and background information, see the installer reference guide.

Why

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

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

How

You can configure the system via the user interface.

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

i INFORMATION

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

Accessing settings – Legend for tables

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

Method	Column in tables
Accessing settings via the breadcrumb in the menu structure .	#
Accessing settings via the code in the overview settings .	Code

See also:

- "To access the installer settings" on page 12
- "5.4 Menu structure: Overview installer settings" on page 17

5.1.1 To access the most used commands

To access the installer settings

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

To access the overview settings

- 1 Set the user permission level to Installer.
- 2 Go to [A.8]: > Installer settings > Overview settings.

To set the user permission level to Installer

- 1 Set the user permission level to Adv. end user.
- 2 Go to [6.4]: > Information > User permission level.
- 3 Press for more than 4 seconds.
Result: is displayed on the home pages.
- 4 If you do NOT press any button for more than 1 hour or press again for more than 4 seconds, the installer permission level switches back to End user.

To set the user permission level to Advanced end user

- 1 Go to the main menu or any of its submenus: .
- 2 Press for more than 4 seconds.

Result: The user permission level switches to Adv. end user. Additional information is displayed and "+" is added to the menu title. The user permission level will stay in Adv. end user until set otherwise.

To set the user permission level to End user

- 1 Press for more than 4 seconds.

Result: The user permission level switches to End user. The user interface will return to the default home screen.

To modify an overview setting

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

- 1 Go to [A.8]: > Installer settings > Overview settings.
- 2 Go to the corresponding screen of the first part of the setting by using the and button.

i INFORMATION

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

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

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



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



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

Result: The value to be modified is now highlighted.

- 4 Modify the value by using the  and  button.

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

- 5 Repeat previous steps if you have to modify other settings.
6 Push  to confirm the modification of the parameter.
7 At installer settings menu, press  to confirm the settings.

Installer settings	
The system will restart.	
	
OK Confirm Adjust	

Result: The system will restart.

5.2 Basic configuration

5.2.1 Quick wizard: Language / time and date

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

5.2.2 Quick wizard: Standard

Space heating/cooling settings

#	Code	Description
[A.2.1.7]	[C-07]	Unit temperature control: <ul style="list-style-type: none"> 0 (LWT control): Unit operation is decided based on the leaving water temperature. 1 (Ext RT control): Unit operation is decided by the external thermostat. 2 (RT control): Unit operation is decided based on the ambient temperature of the user interface.

#	Code	Description
[A.2.1.9]	[F-0D]	Pump operation: <ul style="list-style-type: none"> 0 (Continuous): Continuous pump operation, regardless of thermo ON or OFF condition. 1 (Sample): When thermo OFF condition occurs, the pump runs every 5 minutes and the water temperature is checked. If the water temperature is below target, unit operation can start. 2 (Request): Pump operation based on request. Example: Using a room thermostat and thermostat creates thermo ON/OFF condition.
[A.2.1.B]	N/A	Only if there are 2 user interfaces: User interface location: <ul style="list-style-type: none"> At unit In room
[A.2.1.C]	[E-0D]	Glycol present: <ul style="list-style-type: none"> 0 (No)(default) 1 (Yes)

5.2.3 Quick wizard: Options

Remote outdoor sensor

#	Code	Description
[A.2.2.B]	[C-08]	External sensor (outdoor): <ul style="list-style-type: none"> 0 (No): NOT installed. 1 (Outdoor sensor): Remote outdoor sensor, connected to the outdoor unit. 2 (Room sensor): Remote indoor sensor, connected to option box EK2CB07CAV3.



INFORMATION

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

Control box EKCB07CAV3

#	Code	Description
[A.2.2.E.1]	[E-03]	Backup heater steps: <ul style="list-style-type: none"> 0 (default) 1 2
[A.2.2.E.2]	[5-0D]	BUH type: <ul style="list-style-type: none"> 1 (1P,(1/1+2)): 6 kW 1~ 230 V (default) 4 (3PN,(1/2)): 6 kW 3N~ 400 V (*9W) 5 (3PN,(1/1+2)): 9 kW 3N~ 400 V (*9W)

The system allows for the connection of 2 types of backup heater kits:

- EKMBUHCA3V3: 1~ 230 V - 3 kW backup heater
- EKMBUHCA9W1: Unified backup heater

Backup heater EKMBUHCA3V3 can only be configured to be a 3V3 backup heater. Unified backup heater EKMBUHCA9W1 can be configured in 4 ways:

- 3V3: 1~ 230 V, 1 step of 3 kW
- 6V3: 1~ 230 V, 1st step = 3 kW, 2nd step = 3+3 kW

5 Configuration

- 6W1: 3N~ 400 V, 1st step = 3 kW, 2nd step = 3+3 kW
- 9W1: 3N~ 400 V, 1st step = 3 kW, 2nd step = 3+6 kW

To configure the backup heater (both EKMBUHCA3V3 and EKMBUHCA9W1), combine settings [E-03] and [5-0D]:

Backup heater configuration	[E-03]	[5-0D]
3V3	1	1 (1P,(1/1+2))
6V3	2	1 (1P,(1/1+2))
6W1	2	4 (3PN,(1/2))
9W1	2	5 (3PN,(1/1+2))

#	Code	Description
[A.2.2.E.5]	[C-05]	External room thermostat for the main zone: <ul style="list-style-type: none"> • 1 (Thermo ON/OFF): When the used external room thermostat can only send a thermo ON/OFF condition. No separation between heating or cooling demand. • 2 (H/C request): When the used external room thermostat can send a separate heating/cooling thermo ON/OFF condition.

Option box EK2CB07CAV3

#	Code	Description
[A.2.2.F.1]	[C-02]	External backup heater source: <ul style="list-style-type: none"> • 0 (default – read only)
[A.2.2.F.2]	[C-09]	Alarm output <ul style="list-style-type: none"> • 0 (Normally open): The alarm output will be powered when an alarm occurs. • 1 (Normally closed): The alarm output will NOT be powered when an alarm occurs. This installer setting allows for a distinction between the detection of an alarm, and the detection of a power failure. See also table below (Alarm output logic).
[A.2.2.F.3]	[D-08]	Optional external kWh meter 1: <ul style="list-style-type: none"> • 0 (No): NOT installed • 1: Installed (0.1 pulse/kWh) • 2: Installed (1 pulse/kWh) • 3: Installed (10 pulse/kWh) • 4: Installed (100 pulse/kWh) • 5: Installed (1000 pulse/kWh)
[A.2.2.F.4]	[D-09]	Optional external kWh meter 2: <ul style="list-style-type: none"> • 0 (No): NOT installed • 1: Installed (0.1 pulse/kWh) • 2: Installed (1 pulse/kWh) • 3: Installed (10 pulse/kWh) • 4: Installed (100 pulse/kWh) • 5: Installed (1000 pulse/kWh)

#	Code	Description
[A.2.2.F.5]	[C-08]	External sensor (indoor): <ul style="list-style-type: none"> • 0 (No): NOT installed. • 1 (Outdoor sensor): Remote outdoor sensor, connected to the outdoor unit. • 2 (Room sensor): Remote indoor sensor, connected to option box EK2CB07CAV3.



INFORMATION

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

#	Code	Description
[A.2.2.F.6]	[D-04]	PCC by digital inputs: <ul style="list-style-type: none"> • 0 (No) • 1 (Yes)

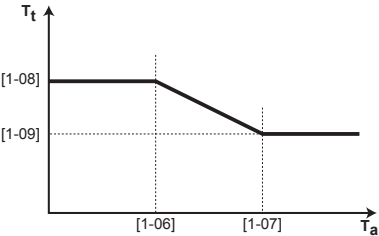
5.2.4 Quick wizard: Capacities (energy metering)

#	Code	Description
[A.2.3.2]	[6-03]	Backup heater capacity (step 1) [kW]
[A.2.3.3]	[6-04]	Backup heater capacity (step 2) [kW]

5.2.5 Space heating/cooling control

Leaving water temperature: Main zone

#	Code	Description
[A.3.1.1.1]	N/A	Set point mode: <ul style="list-style-type: none"> • 0 (Fixed): Absolute • 1 (Weather dep.): Weather-dependent • 2 (Fixed/scheduled): Absolute + scheduled (only for leaving water temperature control) • 3 (WD/scheduled): Weather-dependent + scheduled (only for leaving water temperature control)
[7.7.1.1]	[1-00] [1-01] [1-02] [1-03]	Weather-dependent curve (heating): <div style="text-align: center;"> </div> <ul style="list-style-type: none"> • T_t: Target leaving water temperature (main) • T_a: Outdoor temperature

#	Code	Description
[7.7.1.2]	[1-06] [1-07] [1-08] [1-09]	Weather-dependent curve (cooling):  <ul style="list-style-type: none"> • T_t: Target leaving water temperature (main) • T_a: Outdoor temperature

Leaving water temperature: Delta T source

#	Code	Description
[A.3.1.3.1]	[9-09]	Heating: required temperature difference between entering and leaving water. In case a minimum temperature difference is required for the good operation of the heat emitters in heating mode.
[A.3.1.3.2]	[9-0A]	Cooling: required temperature difference between entering and leaving water. In case a minimum temperature difference is required for the good operation of the heat emitters in cooling mode.

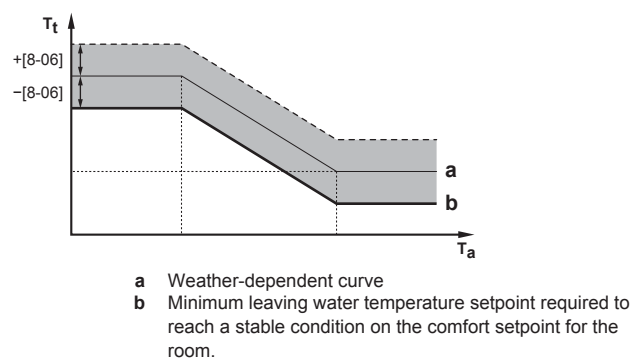
Leaving water temperature: Modulation

#	Code	Description
[A.3.1.1.5]	[8-05]	Leaving water temperature modulation: <ul style="list-style-type: none"> • 0 (No): Disabled • 1 (Yes): Enabled. The leaving water temperature is calculated according to the difference between desired and actual room temperature. This allows better matching of the heat pump capacity to actual required capacity and results in less start/stop cycles of the heat pump and more economic operation.
N/A	[8-06]	Leaving water temperature maximum modulation: 0°C~10°C (default: 3°C) Requires modulation to be enabled. This is the value by which the desired leaving water temperature is increased or lowered.



INFORMATION

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



Leaving water temperature: Emitter type

#	Code	Description
[A.3.1.1.7]	[9-0B]	Reaction time of the system: <ul style="list-style-type: none"> • 0: Quick. Example: Small water volume and fan coils. • 1: Slow. Example: Large water volume, floor heating loops. <p>Depending on the system water volume and the heat emitters type, the heat up or cool down of a space can take longer. This setting can compensate for a slow or a quick heating/cooling system by adjusting the unit capacity during the heat up/cool down cycle.</p>

5.2.6 Contact/helpdesk number

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

5.3 Advanced configuration/ optimization

5.3.1 Space heating/cooling operation: advanced

Temperature ranges (leaving water temperatures)

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



NOTICE

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

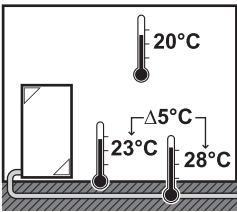
- maximum leaving water temperature at heating operation according to the specifications of the floor heating installation.
- the minimum leaving water temperature at cooling operation to 18~20°C to prevent condensation on the floor.

5 Configuration

NOTICE

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

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



#	Code	Description
Leaving water temperature range for the main leaving water temperature zone		
[A.3.1.1.2.2]	[9-00]	Maximum temp (heating) 37°C~55°C (default: 55°C)
[A.3.1.1.2.1]	[9-01]	Minimum temp (heating) 15°C~37°C (default: 25°C)
[A.3.1.1.2.4]	[9-02]	Maximum temp (cooling) 18°C~22°C (default: 22°C)
[A.3.1.1.2.3]	[9-03]	Minimum temp (cooling) 5°C~18°C (default: 5°C)

NOTICE

If the system does NOT contain a backup heater, then do NOT set [9-01] (Minimum temp (heating)) lower than 25°C.

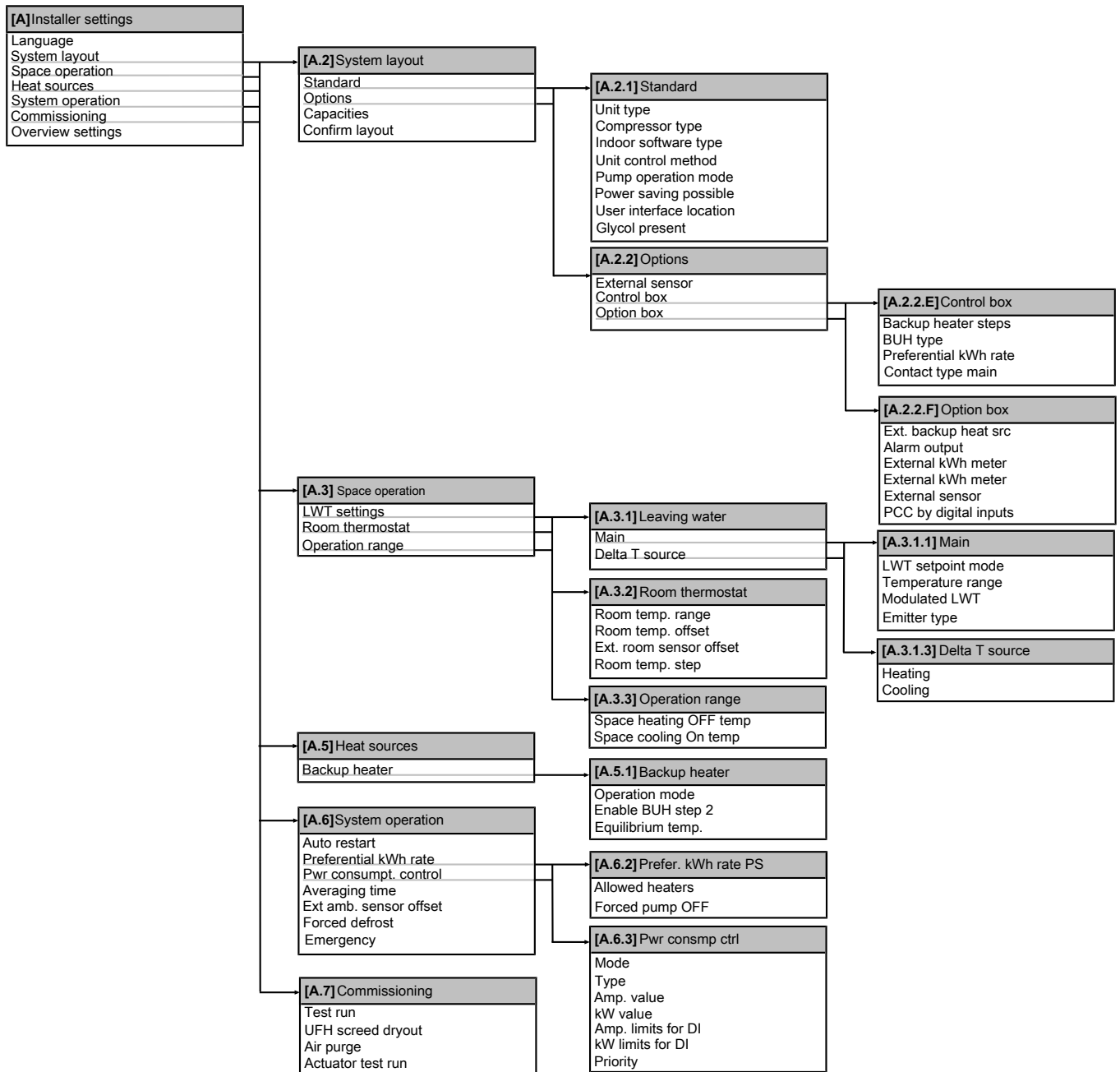
Water pipe freeze prevention

#	Code	Description
N/A	[4-04]	<ul style="list-style-type: none"> 0 (Intermittent pump operation): Protection enabled. 1 (Continuous pump operation): Protection enabled. 2 (No protection): Protection disabled.

NOTICE

If negative ambient temperatures are expected, do NOT disable this function.

5.4 Menu structure: Overview installer settings

**INFORMATION**

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

6 Commissioning

6 Commissioning



NOTICE

NEVER operate the unit without thermistors and/or pressure sensors/switches. Burning of the compressor might result.

6.1 Checklist before commissioning

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

Depending on the system layout, not all components may be available.

<input type="checkbox"/>	You read the complete installation instructions, as described in the installer reference guide .
<input type="checkbox"/>	The outdoor unit is properly mounted.
<input type="checkbox"/>	The control box is properly mounted.
<input type="checkbox"/>	The option box is properly mounted.
<input type="checkbox"/>	Only if you use the optional backup heater: The backup heater is properly mounted.
<input type="checkbox"/>	The following field wiring has been carried out according to the available documentation and the applicable legislation: <ul style="list-style-type: none"> ▪ Between the local supply panel and the outdoor unit ▪ Between the outdoor unit and the control box ▪ Between the control box and the option box ▪ Between the control box and the backup heater ▪ Between the local supply panel and the control box ▪ Between the local supply panel and the option box ▪ Between the outdoor unit and the valves ▪ Between the control box and the room thermostat
<input type="checkbox"/>	The system is properly earthed and the earth 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 outdoor unit.
<input type="checkbox"/>	Only if you use the optional backup heater: Depending on the backup heater type, backup heater circuit breaker F1B (on the switch box of the backup heater) is turned ON.
<input type="checkbox"/>	The correct pipe size is installed and the pipes are properly insulated.
<input type="checkbox"/>	There are no water leaks inside the outdoor unit.
<input type="checkbox"/>	The shut-off valves are properly installed and fully open.
<input type="checkbox"/>	The pressure relief valve purges water when opened.
<input type="checkbox"/>	The minimum water volume is guaranteed in all conditions. See "To check the water volume" in " 3.2 Preparing water piping " on page 5.



The **water circuit is properly protected against freezing**, according to the instructions set out in To protect the water circuit against freezing.



If **glycol** was added to the system, confirm the correct glycol concentration, and check if glycol setting [E-0D]=1.



NOTICE

- Make sure glycol setting [E-0D] matches the liquid inside the water circuit (0=water only, 1=water+glycol). If the glycol setting is NOT set correctly, the liquid inside the piping can freeze.
- When glycol is added to the system, but the glycol concentration is lower than prescribed, the liquid inside the piping can still freeze.



INFORMATION

The software is equipped with an "installer-on-site" mode ([4-0E]), that disables automatic operation by the unit. At first installation, setting [4-0E] is by default set to "1", meaning automatic operation is disabled. All protective functions are then disabled. If the user interface home pages are off, the unit will NOT operate automatically. To enable automatic operation and the protective functions, set [4-0E] to "0".

36 hours after the first power-on, the unit will automatically set [4-0E] to "0", ending "installer-on-site" mode and enabling the protective functions. If – after first installation – the installer returns to the site, the installer has to set [4-0E] to "1" manually.

6.2 Checklist during commissioning

<input type="checkbox"/>	The minimum flow rate is guaranteed in all conditions. See "To check the water volume and flow rate" in " 3.2 Preparing water piping " on page 5.
<input type="checkbox"/>	To perform an air purge .
<input type="checkbox"/>	To perform a test run .
<input type="checkbox"/>	To perform an actuator test run .
<input type="checkbox"/>	Underfloor screed dryout function The underfloor screed dryout function is started (if necessary).

6.2.1 To perform an air purge

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

- 1 Go to [A.7.3]: > Installer settings > Commissioning > Air purge.
- 2 Set the type.
- 3 Select Start air purge and press **OK**.
- 4 Select OK and press **OK**.



NOTICE

The outdoor unit is equipped with a manual air purge valve. The air purge procedure requires manual action.



NOTICE


When purging air with the manual air purge valve of the unit, collect any fluid that might leak out of the valve. If this fluid is NOT collected, it might drip on internal components and damage the unit.


i INFORMATION

- To purge air, use all air purge valves present in the system. This includes the manual air purge valve of the outdoor unit, as well as any field-supplied valves.
- If the system contains a backup heater, also use the air purge valve of the backup heater.
- If the system contains valve kit EKMBHBP1, it is required to – during the air purge – manually switch the position of the valve kit's 3-way valve by turning its knob, this to prevent air from remaining in the bypass. For more information, refer to the instruction sheet of the valve kit.

6.2.2 To perform a test run

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

- 1 Set the user permission level to Installer. See ["To set the user permission level to Installer" on page 12](#).
- 2 Go to [A.7.1]:  > Installer settings > Commissioning > Test run.
- 3 Select a test and press **OK**. **Example:** Heating.
- 4 Select OK and press **OK**.

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

i INFORMATION

When starting up the system in a cold climate, and NO backup heater kit was installed, it may be required to start up with a small water volume. To do this, gradually open the heat emitters. As a result, the water temperature will gradually rise. Monitor the inlet water temperature ([6.1.6] in the menu structure) and make sure it does NOT drop below 15°C.


i INFORMATION

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

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

6.2.3 To perform an actuator test run

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

- 1 Set the user permission level to Installer. See ["To set the user permission level to Installer" on page 12](#).
- 2 Make sure room temperature control and leaving water temperature control are turned OFF via the user interface.
- 3 Go to [A.7.4]:  > Installer settings > Commissioning > Actuator test run.
- 4 Select an actuator and press **OK**. **Example:** Pump.
- 5 Select OK and press **OK**.

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

Possible actuator test runs

- Backup heater (step 1) test
- Backup heater (step 2) test
- Pump test

i INFORMATION


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


- 2-way valve test
- Alarm output test
- Cooling/heating signal test
- Circulation pump test

6.2.4 To perform an underfloor heating screed dryout

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

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

- 1 Go to [A.7.2]:  > Installer settings > Commissioning > UFH screed dryout.
- 2 Set a dryout program.
- 3 Select Start dryout and press **OK**.
- 4 Select OK and press **OK**.

Result: The underfloor heating screed dryout starts. It stops automatically when done. To stop it manually, press , select OK and press **OK**.

! NOTICE

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

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

! NOTICE

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

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

7 Hand-over to the user

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

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

7 Hand-over to the user

- Explain the user about energy saving tips as described in the operation manual.





7.1 About locking and unlocking

If required, it is possible to lock the buttons of the main user interface, making it impossible for the user to operate it. For the user to be able to change setpoint temperatures, the simplified user interface or an external room thermostat is then required.



You can use the following locking modes:

- Function lock: Locks a specific function to prevent people from changing its settings.
- Button lock: Locks all buttons to prevent users from changing settings.

To activate or deactivate a function lock

- 1 Press  to go to the menu structure.
- 2 Press  for more than 5 seconds.
- 3 Select a function and press .
- 4 Select Lock or Unlock, and press .

To activate or deactivate button lock

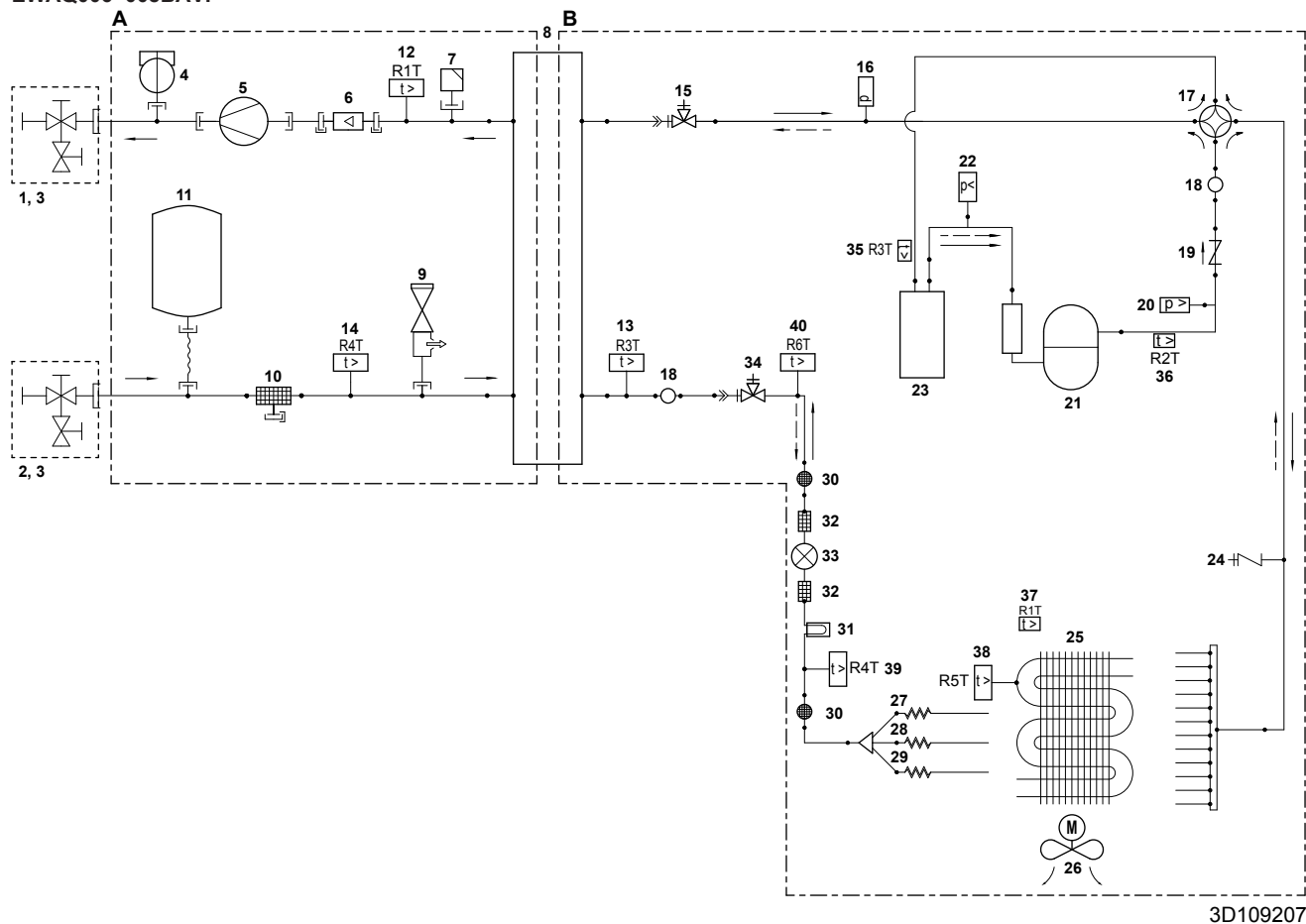
- 1 Press  to go to one of the home pages.
- 2 Press  for more than 5 seconds.

8 Technical data

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

8.1 Piping diagram: Outdoor unit

EWAQ006+008BAVP

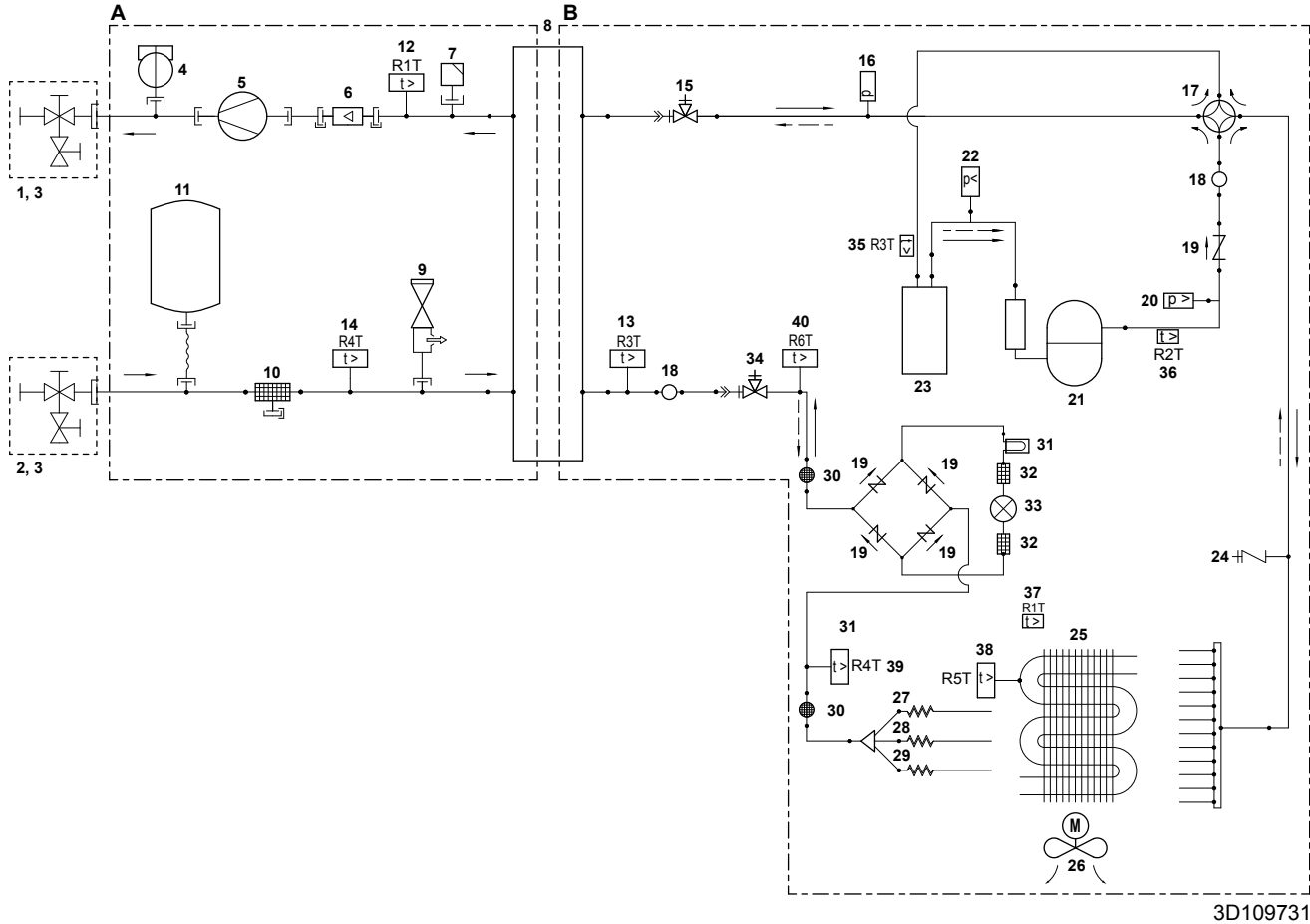


- | | | | |
|----|--|----|--|
| 1 | Outlet | 24 | Service port 5/16" flare |
| 2 | Inlet | 25 | Heat exchanger |
| 3 | Shut-off valve with drain/fill valve | 26 | Propeller fan |
| 4 | Flow switch | 27 | Capillary tube 1 |
| 5 | Pump | 28 | Capillary tube 2 |
| 6 | Flow sensor | 29 | Capillary tube 3 |
| 7 | Air purge | 30 | Muffler with filter |
| 8 | Plate heat exchanger | 31 | Inverter PCB heat sink |
| 9 | Safety valve | 32 | Refrigerant filter |
| 10 | Water filter | 33 | Motor-operated valve |
| 11 | Expansion vessel | 34 | Liquid stop valve with service port |
| 12 | R1T - Outlet water heat exchanger thermistor | 35 | R3T Thermistor (suction) |
| 13 | R3T - Refrigerant liquid side thermistor | 36 | R2T - Discharge pipe thermistor |
| 14 | R4T - Inlet water thermistor | 37 | R1T - Outdoor air temperature thermistor |
| 15 | Gas stop valve with service port | 38 | R5T - Heat exchanger thermistor |
| 16 | Pressure sensor | 39 | R4T - Thermistor (heat exchanger, liquid pipe) |
| 17 | 4-way valve | 40 | R6T - Thermistor (liquid) |
| 18 | Muffler | A | Water side |
| 19 | Check valve | B | Refrigerant side |
| 20 | High pressure switch | | Field installed |
| 21 | Compressor | | Refrigerant flow - cooling |
| 22 | Low pressure switch | | Refrigerant flow - heating |
| 23 | Accumulator | | |

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- 1 Outlet
- 2 Inlet
- 3 Shut-off valve with drain/fill valve
- 4 Flow switch
- 5 Pump
- 6 Flow sensor
- 7 Air purge
- 8 Plate heat exchanger
- 9 Safety valve
- 10 Water filter
- 11 Expansion vessel
- 12 R1T - Outlet water heat exchanger thermistor
- 13 R3T - Refrigerant liquid side thermistor
- 14 R4T - Inlet water thermistor
- 15 Gas stop valve with service port
- 16 Pressure sensor
- 17 4-way valve
- 18 Muffler
- 19 Check valve
- 20 High pressure switch
- 21 Compressor
- 22 Low pressure switch
- 23 Accumulator
- 24 Service port 5/16" flare
- 25 Heat exchanger
- 26 Propeller fan
- 27 Capillary tube 1
- 28 Capillary tube 2
- 29 Capillary tube 3
- 30 Muffler with filter
- 31 Inverter PCB heat sink
- 32 Refrigerant filter
- 33 Motor-operated valve
- 34 Liquid stop valve with service port
- 35 R3T Thermistor (suction)
- 36 R2T - Discharge pipe thermistor
- 37 R1T - Outdoor air temperature thermistor
- 38 R5T - Heat exchanger thermistor
- 39 R4T - Thermistor (heat exchanger, liquid pipe)
- 40 R6T - Thermistor (liquid)

A Water side
B Refrigerant side

Field installed

Refrigerant flow - cooling
Refrigerant flow - heating

8.2 Wiring diagram: Outdoor unit

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

Outdoor unit: compressor module

Legend:

A1P	Printed circuit board (main)
A2P	Printed circuit board
BS1~BS4 (A2P)	Push-button switch
C1~C3 (A1P)	Capacitor
DS1 (A2P)	DIP switch
E1H	Bottom plate heater (optional)
F1U (A1P)	Fuse T 6.3 A 250 V
F2U (A1P)	Fuse T 31.5 A 250 V
F6U (A1P)	Fuse T 3.15 A 250 V
F7U, F8U	Fuse F 1 A 250 V (optional)
H1P~H7P (A2P)	Light-emitting diode (service monitor is orange)
HAP (A1P)	Light-emitting diode (service monitor is green)
K1R (A1P)	Magnetic relay (Y1S)
K11M (A1P)	Magnetic contactor
K2R, K10R, K13R~K15R (A1P)	Magnetic relay
L1R	Reactor
M1C	Compressor motor
M1F	Fan motor
PS (A1P)	Switching power supply
Q1DI	Earth leakage circuit breaker (30 mA) (field supply)
R1T	Thermistor (air)
R2, R4~R6 (A1P)	Resistor
R2T	Thermistor (discharge)
R3T	Thermistor (suction)
R4T	Thermistor (heat exchanger)
R5T	Thermistor (heat exchanger middle)
R6T	Thermistor (liquid)
R7T~R9T (A1P)	Thermistor (positive temperature coefficient)
RC (A1P)	Signal receiver circuit
S1NPH	Pressure sensor
S1PH	High pressure switch
S1PL	Low pressure switch
TC (A1P)	Signal transmission circuit
V1D~V3D (A1P)	Diode
V1R (A1P)	IGBT power module
V2R (A1P)	Diode module
V1T, V2T (A1P)	Insulated gate bipolar transistor (IGBT)
X1M	Terminal strip
Y1E	Electronic expansion valve
Y1S	Solenoid valve (4-way valve)
Z1C~Z6C	Noise filter (ferrite core)
Z1F~Z3F (A1P)	Noise filter
LA, NA, HR1~HR4, U, V, W, X*A (A1P, A2P)	Connector

Symbols:

L	Live
N	Neutral
⋮-■-■-■-⋮	Field wiring
□□□□	Terminal strip
⊞	Connector
⊞	Connector
•	Connection
⊞	Protective earth (screw)
⊞	Noiseless earth
○	Terminal
⋮-⋮-⋮-⋮	Option
⋮-⋮-⋮-⋮	Wiring dependent on model

Colours:

BLK	Black
BLU	Blue
BRN	Brown
GRN	Green
ORG	Orange
RED	Red
WHT	White
YLW	Yellow

Outdoor unit: hydro module

English	Translation
(1) Connection diagram	(1) Connection diagram
Outdoor	Outdoor
Hydro switch box	Hydro switch box
Compressor switch box	Compressor switch box
Only for normal power supply (standard)	Only for normal power supply (standard)
Hydro switch box supplied from compressor module	Hydro switch box supplied from compressor module
Normal kWh rate power supply	Normal kWh rate power supply
Only for preferential kWh rate power supply (compressor)	Only for preferential kWh rate power supply (compressor)
Use normal kWh rate power supply for hydro switch box	Use normal kWh rate power supply for hydro switch box
NO valve	Normal open valve
Indoor	Indoor
Control box	Control box
External outdoor ambient sensor option	External outdoor ambient sensor option
(2) Hydro switch box layout	(2) Hydro switch box layout
(3) Notes	(3) Notes
X4M	Main terminal
⋮-⋮-⋮-⋮	Earth wiring
15	Wire number 15
⋮-⋮-⋮-⋮	Field supply
①	Several wiring possibilities
⋮-⋮-⋮-⋮	Option

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English	Translation
	Wiring depending on model
	Switch box
	PCB
(4) Legend	
A1P	Printed circuit board (main) (compressor)
A1P	Main PCB (hydro)
A2P	Printed circuit board (compressor)
A2P	Current loop PCB (hydro)
M2S	# Shut-off valve
Q*DI	# Earth leakage circuit breaker
R6T	* External outdoor ambient sensor option
TR1	Power supply transformer
X*M	Terminal strip
X*A, X*Y	Connector

*: Optional
#: Field supply

Control box

English	Translation
(1) Connection diagram	(1) Connection diagram
Option box	Option box
BUH option	Backup heater option
Preferential kWh rate power supply contact: 5 V DC detection (voltage supplied by PCB)	Preferential kWh rate power supply contact: 5 V DC detection (voltage supplied by PCB)
Hydro switch box	Hydro switch box
Control box	Control box
NO valve	Normal open valve
Only for wired On/OFF thermostat	Only for wired On/OFF thermostat
Only for wireless On/OFF thermostat	Only for wireless On/OFF thermostat
Only for ext. sensor (floor or ambient)	Only for external sensor (floor or ambient)
(2) Notes	
X1M	Main terminal
	Earth wiring
	Wire number 15
	Field supply
①	Several wiring possibilities
	Option
	Wiring depending on model
	Switch box
	PCB
(3) Control switch box layout	
(4) Legend	
A3P	* On/OFF thermostat (PC=power circuit)
A4P	* Extension PCB (control, optional)
A5P	User interface PCB
A7P	* Receiver PCB (wireless On/OFF thermostat)
K1A	Relay for heating

English	Translation
K2A	Relay for cooling
M2S	# Shut-OFF valve
M4S	* Valve kit
R1H (A3P)	* Humidity sensor
PC (A7P)	Power circuit
Q*DI	# Earth leakage circuit breaker
R1T (A3P)	* Ambient sensor On/OFF thermostat
R2T	* External sensor (floor or ambient)
S1S	# Preferential kWh rate power supply contact
X*A, X*Y	Connector
X*M	Terminal strip

*: Optional
#: Field supply

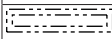

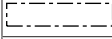

Control box option: backup heater

English	Translation
(1) Connection diagram	(1) Connection diagram
BUH option	Backup heater option
Control box	Control box
Only for ***	Only for ***
(2) Notes	
	Earth wiring
	Wire number 15
	Field supply
①	Several wiring possibilities
	Option
	Wiring depending on model
	Switch box
	PCB
(3) BUH kit switch box	
(4) Legend	
F1B	Overcurrent fuse backup heater
K1M	Contactora backup heater (step 1)
K1R	Relay backup heater (step 1)
K2M	Contactora backup heater (step 2) (only for *9W)
K2R	Relay backup heater (step 2) (only for *9W)
K5M	Safety contactora backup heater (only for *9W)
Q*DI	# Earth leakage circuit breaker
Q1L	Thermal protector backup heater
R2T	Outlet backup heater thermistor
X*M	Thermistor strip

*: Optional
#: Field supply

Control box option: option box

English	Translation
(1) Connection diagram	(1) Connection diagram
Control box	Control box
Option box	Option box
Indoor	Indoor
Alarm output	Alarm output

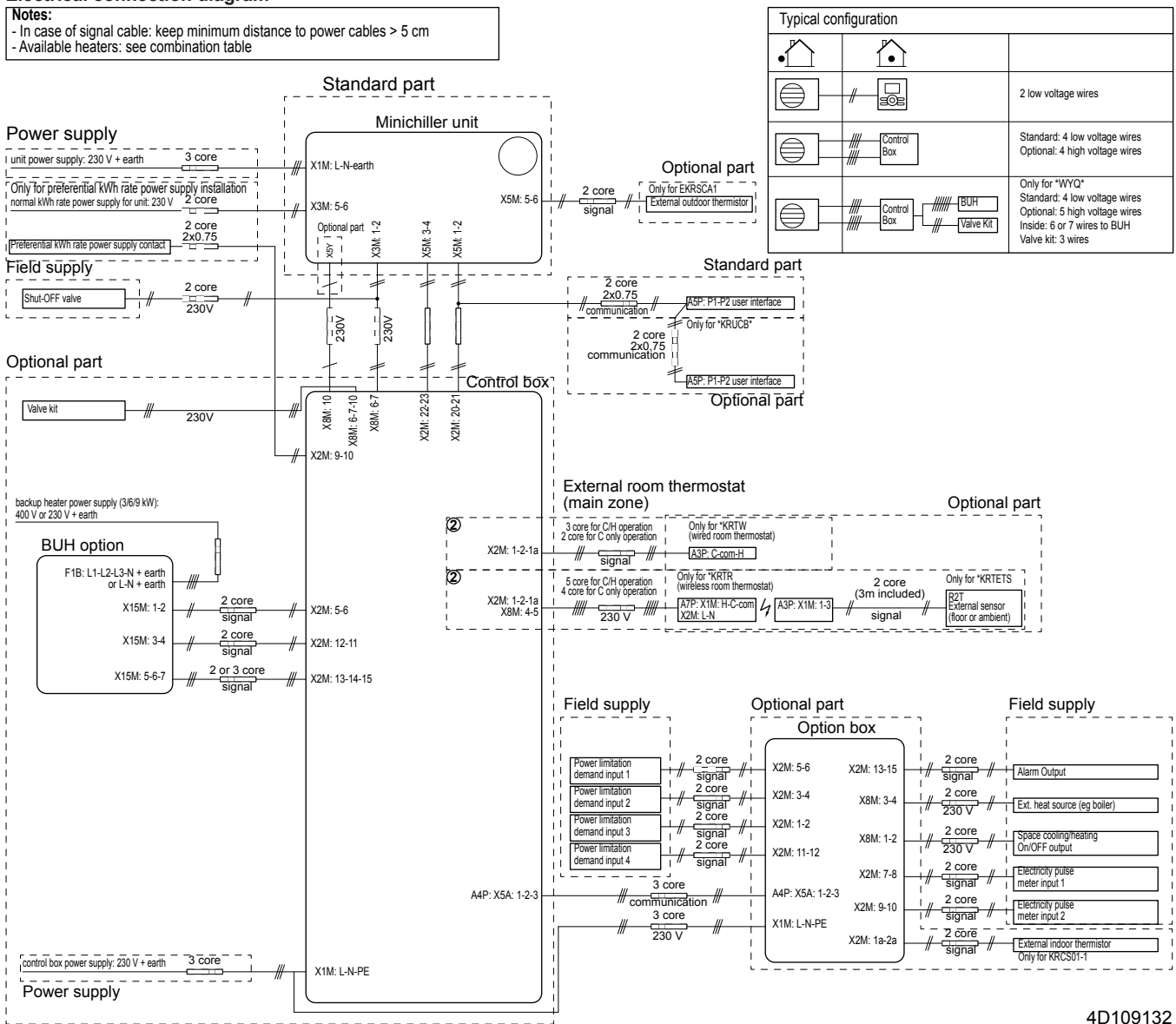
English	Translation
Space C/H On/OFF output	Space cooling/heating On/OFF output
Max. voltage	Maximum voltage
Max. load	Maximum load
Min. load	Minimum load
Ext. heat source	External heat source
Power limitation digital inputs: 5 V DC detection (voltage supplied by PCB)	Power limitation digital inputs: 5 V DC detection (voltage supplied by PCB)
External indoor ambient sensor option	External indoor ambient sensor option
Electric pulse meter inputs: 5 V DC pulse detection (voltage supplied by PCB)	Electric pulse meter inputs: 5 V DC pulse detection (voltage supplied by PCB)
(2) Legend	
A4P	Extension PCB (control, optional)
R6T	* External indoor ambient sensor option
S1P	# Digital power limitation input 1
S2P	# Digital power limitation input 2
S3P	# Digital power limitation input 3
S4P	# Digital power limitation input 4
S5P-S6P	# Electrical meters
X*A	Connector
X*M	Terminal strip
(3) Notes	
X1M	Main terminal
-----	Earth wiring
15	Wire number 15
-----	Field supply
①	Several wiring possibilities
	Option
	Wiring depending on model
	Switch box
	PCB
(4) Option switch box layout	

*: Optional
#: Field supply

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Electrical connection diagram

Notes:
 - In case of signal cable: keep minimum distance to power cables > 5 cm
 - Available heaters: see combination table



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