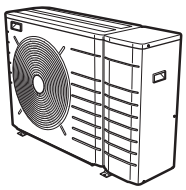
ROTEX

Installation manual

ROTEX HPSU low temperature monobloc



RBLQ05CAV3
RBLQ07CAV3

RDLQ05CAV3
RDLQ07CAV3

Installation manual
ROTEX HPSU low temperature monobloc

English

CE - DECLARATION-OF-CONFORMITY
CE - KONFORMITÄTSERKLÄRUNG
CE - DECLARATION-DE-CONFORMITE
CE - CONFORMITEITSVERKLARING

CE - DECLARACION-DE-CONFORMIDAD
CE - DICHIARAZIONE-DI-CONFORMITA
CE - ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ

CE - DECLARAÇÃO-DE-CONFORMIDADE
CE - ЗАЯВЛЕНИЕ-О-СООТВЕТСТВИИ
CE - OVERENSSTEMMELSESERKLÆRING
CE - FÖRSÄKRAN-OM-ÖVERENSTÄMMELSE

CE - ERKLÆRING OM-SAMSVAR
CE - ILMOITUS-YHDENMUKAISUUDESTA
CE - PROHLÁŠENÍ-O-SHODĚ

CE - IZJAVA-O-USKLAĐENOSTI
CE - MEGFELELŐSÉGI-NYILATKOZAT
CE - DEKLARACJA-ZGODNOŚCI
CE - DECLARAŢIE-DE-CONFORMITATE

CE - IZJAVA O SKLADNOSTI
CE - VASTAVUSDEKLARATSIOON
CE - ДЕКЛАРАЦИЯ-ЗА-СЪОТВЕТСТВИЕ

CE - ATITIKTIES-DEKLARACIJA
CE - ATBILSTĪBAS-DEKLARĀCIJA
CE - VYHLÁSENIE-ZHODY
CE - UYGUNLUK-BEYANI

ROTEX

01 (GB) declares under its sole responsibility that the equipment to which this declaration relates:
02 (D) erklärt auf seine alleinige Verantwortung daß die Ausrüstung für die diese Erklärung bestimmt ist:
03 (F) déclare sous sa seule responsabilité que l'équipement visé par la présente déclaration:
04 (NL) verklaart hierbij op eigen exclusieve verantwoordelijkheid dat de apparatuur waarop deze verklaring betrekking heeft:
05 (E) declara bajo su única responsabilidad que el equipo al que hace referencia la declaración:
06 (I) dichiara sotto la propria responsabilità che gli apparecchi a cui è riferita questa dichiarazione:
07 (GR) δηλώνει με αποκλειστική της ευθύνη ότι ο εξοπλισμός στον οποίο αναφέρεται η παρούσα δήλωση:
08 (P) declara sob sua exclusiva responsabilidade que os equipamentos a que esta declaração se refere:
09 (RUS) заявляет, исключительно под свою ответственность, что оборудование, к которому относится настоящее заявление:
10 (DK) erklærer under eneansvarlig, at udstyret, som er omfattet af denne erklæring:
11 (S) deklarerar i egenskap av huvudansvarig, att utrustningen som berörs av denna deklaration innebär att:
12 (N) erklærer et fullstendig ansvar for at det utstyr som berøres av denne deklarasjon innebærer at:
13 (FIN) ilmoittaa yksinomaan omalla vastuullaan, että tämän ilmoituksen tarkoittamat laitteet
14 (CZ) prohlašuje ve své plné odpovědnosti, že zařízení, k němuž se toto prohlášení vztahuje:
15 (HR) izjavljuje pod isključivo vlastitom odgovornošću da oprema na koju se ova izjava odnosi:
16 (H) teljes felelőssége tudatában kijelenti, hogy a berendezések, melyekre e nyilatkozat vonatkozik:
17 (PL) deklaruje na własną i wyłączną odpowiedzialność, że urządzenia, których ta deklaracja dotyczy:
18 (RO) declară pe proprie răspundere că echipamentele la care se referă această declaraţie:
19 (SLO) z vso odgovornostjo izjavlja, da je oprema naprav, na katero se izjava nanaša:
20 (EST) kinnitab oma täielikul vastutusel, et käesoleva deklaratsiooni alla kuuluv varustus:
21 (BG) декларира на своя отговорност, че оборудването, за което се отнася тази декларация:
22 (LT) visiška savo atsakomybe skelbia, kad įranga, kuriai taikoma ši deklaracija:
23 (LV) ar pilnu atbildību apliecina, ka tālāk aprakstītās iekārtas, uz kurām attiecas šī deklarācija:
24 (SK) vyhlasuje na vlastnú zodpovednosť, že zariadenie, na ktoré sa vzťahuje toto vyhlásenie:
25 (TR) tamamen kendi sorumluluğunda olmak üzere bu bildirinin ilgili olduğu donanımının aşağıdaki gibi olduğunu beyan eder:

RBLQ05CAV3, RBLQ07CAV3,
RDLQ05CAV3, RDLQ07CAV3,

01 are in conformity with the following standard(s) or other normative document(s), provided that these are used in accordance with our instructions:
02 der/den folgenden Norm(en) oder einem anderen Normdokument oder -dokumenten entspricht/entsprechen, unter der Voraussetzung, daß sie gemäß unseren Anweisungen eingesetzt werden:
03 sont conformes à la/aux norme(s) ou autre(s) document(s) normatif(s), pour autant qu'ils soient utilisés conformément à nos instructions:
04 conform de volgende norm(en) of één of meer andere bindende documenten zijn, op voorwaarde dat ze worden gebruikt overeenkomstig onze instructies:
05 están en conformidad con la(s) siguiente(s) norma(s) u otro(s) documento(s) normativo(s), siempre que sean utilizados de acuerdo con nuestras instrucciones:
06 sono conformi al(i) seguente(i) standard(s) o altro(i) documento(i) a carattere normativo, a patto che vengano usati in conformità alle nostre istruzioni:
07 είναι σύμφωνα με το(α) ακόλουθο(α) πρότυπο(α) ή άλλο έγγραφο(α) κανονισμών, υπό την προϋπόθεση ότι χρησιμοποιούνται σύμφωνα με τις οδηγίες μας:
08 estão em conformidade com a(s) seguinte(s) norma(s) ou outro(s) documento(s) normativo(s), desde que estes sejam utilizados de acordo com as nossas instruções:
09 соответствуют следующим стандартам или другим нормативным документам, при условии их использования согласно нашим инструкциям:
10 overholder følgende standard(er) eller andet/andre retningsgivende dokument(er), forudsat at disse anvendes i henhold til vore instrukser:
11 respektive utrustning är utförd i överensstämmelse med och följer följande standard(er) eller andra normgivande dokument, under förutsättning att användning sker i överensstämmelse med våra instruktioner:
12 respektive utstyr er i overensstemmelse med følgende standard(er) eller andre normgivende dokument(er), under forutsetning av at disse brukes i henhold til våre instrukser:
13 vastaavat seuraavien standardien ja muiden ohjeellisten dokumenttien vaatimuksia edellyttäen, että niitä käytetään ohjeidemme mukaisesti:
14 za předpokladu, že jsou využívány v souladu s našimi pokyny, odpovídají následujícím normám nebo normativním dokumentům:
15 u skladu sa slijedećim standardom(ima) ili drugim normativnim dokumentom(ima), uz uvjet da se oni koriste u skladu s našim uputama:
16 megfelelnek az alábbi szabvány(ok)nak vagy egyéb irányadó dokumentum(ok)nak, ha azokat előírás szerint használják:
17 spełniają wymogi następujących norm i innych dokumentów normalizacyjnych, pod warunkiem że używane są zgodnie z naszymi instrukcjami:
18 sunt în conformitate cu următorul (următoarele) standard(e) sau alt(e) document(e) normativ(e), cu condiţia ca acestea să fie utilizate în conformitate cu instrucţiunile noastre:
19 skladni z naslednjimi standardi in drugimi normativi, pod pogojem, da se uporabljajo v skladu z našimi navodili:
20 on vastavuses järgmis(t)e standardi(te)ga või teiste normatiivsete dokumentidega, kui neid kasutatakse vastavalt meie juhenditele:
21 съответстват на следните стандарти или други нормативни документи, при условие, че се използват съгласно нашите инструкции:
22 atitinka žemiau nurodytus standartus ir (arba) kitus norminius dokumentus su sąlyga, kad yra naudojami pagal mūsų nurodymus:
23 tad, ja lietoti atbilstoši ražotāja norādījumiem, atbilst sekojošiem standartiem un citiem normatīviem dokumentiem:
24 sú v zhode s nasledovnou(ými) normou(ami) alebo iným(i) normatívnym(i) dokumentom(ami), za predpokladu, že sa používajú v súlade s našim návodom:
25 ürünün, talimatlarımıza göre kullanılması koşuluyla aşağıdaki standartlar ve norm belirten belgelerle uyumludur:

EN60335-2-40,

01 following the provisions of:
02 gemäß den Vorschriften der:
03 conformément aux stipulations des:
04 overeenkomstig de bepalingen van:
05 siguiendo las disposiciones de:
06 secondo le prescrizioni per:
07 με τήρηση των διατάξεων των:
08 de acordo com o previsto em:
09 в соответствии с положениями:
10 under iagttagelse af bestemmelserne i:
11 enligt villkoren i:
12 gitt i henhold til bestemmelsene i:
13 noudattaen määräyksiä:
14 za dodržení ustanovení předpisu:
15 prema odredbama:
16 követi a(z):
17 zgodnie z postanowieniami Dyrektyw:
18 în urma prevederilor:
19 ob upoštevanju določb:
20 vastavalt nõuetele:
21 съгласно клаузите на:
22 laikantis nuostatų, pateikiamų:
23 ievērojot prasības, kas noteiktas:
24 održiavajúc ustanovenia:
25 bunun koşullarına uygun olarak:

Low Voltage 2006/95/EC
Electromagnetic Compatibility 2004/108/EC *

01 Directives, as amended.
02 Direktiven, gemäß Änderung.
03 Directives, telles que modifiées.
04 Richtlijnen, zoals geamendeerd.
05 Directivas, según lo enmendado.
06 Direttive, come da modifica.
07 Οδηγιών, όπως έχουν τροποποιηθεί.
08 Directivas, conforme alteração em.
09 Директив со всеми поправками.
10 Direktiver, med senere ændringer.
11 Direktiv, med företagna ändringar.
12 Direktiver, med foretatte endringer.
13 Direktiivejä, sellaisina kuin ne ovat
14 muutettuina.
15 v platném znění.
16 Smjernice, kako je izmijenjeno.
17 irányelv(ek) és módosításaik rendelkezéseit. z późniejszymi poprawkami.
18 Directivelor, cu amendamentele respective.
19 Direktive z vsemi spremembami.
20 Direktiivid koos muudatustega.
21 Директиви, с техните изменения.
22 Direktyvose su papildymais.
23 Direktīvās un to papildinājumos.
24 Smernice, v platnom znení.
25 Değiştirilmiş halleriyle Yönetmelikler.

01 **Note*** as set out in **<A>** and judged positively by **<B>** according to the **Certificate <C>**.
02 **Hinweis*** wie in **<A>** aufgeführt und von **<B>** positiv beurteilt gemäß **Zertifikat <C>**.
03 **Remarque*** tel que défini dans **<A>** et évalué positivement par **<B>** conformément au **Certificat <C>**.
04 **Bemerk*** zoals vermeld in **<A>** en positief beoordeeld door **<B>** overeenkomstig **Certificaat <C>**.
05 **Nota*** como se establece en **<A>** y es valorado positivamente por **<B>** de acuerdo con el **Certificado <C>**.
06 **Nota*** delineato nel **<A>** e giudicato positivamente da **<B>** secondo il **Certificato <C>**.
07 **Σημείωση*** όπως καθορίζεται στο **<A>** και κρίνεται θετικά από το **<B>** σύμφωνα με το **Πιστοποιητικό <C>**.
08 **Nota*** tal como estabelecido em **<A>** e com o parecer positivo de **<B>** de acordo com o **Certificado <C>**.
09 **Примечание*** как указано в **<A>** и в соответствии с положительным решением **<B>** согласно **Свидетельству <C>**.
10 **Bemærk*** som anført i **<A>** og positivt vurderet af **<B>** i henhold til **Certifikat <C>**.
11 **Information*** enligt **<A>** och godkänts av **<B>** enligt **Certifikatet <C>**.
12 **Merk*** som det fremkommer i **<A>** og gjennom positiv bedømmelse av **<B>** ifølge **Sertifikat <C>**.
13 **Huom*** jotka on esitetty asiakirjassa **<A>** ja jotka **<B>** on hyväksynyt **Sertifikaatin <C>** mukaisesti.
14 **Poznámka*** jak bylo uvedeno v **<A>** a pozitivně zjištěno **<B>** v souladu s **osvědčením <C>**.
15 **Napomena*** kako je izloženo u **<A>** i pozitivno ocijenjeno od strane **<B>** prema **Certifikatu <C>**.
16 **Megjegyzés*** a(z) **<A>** alapján, a(z) **<B>** igazolta a megfelelést, a(z) **<C>** **tanúsítvány** szerint.
17 **Uwaga*** zgodnie z dokumentacją **<A>**, pozytywną opinią **<B>** i **Świadectwem <C>**.
18 **Notă*** aşa cum este stabilit în **<A>** şi apreciat pozitiv de **<B>** în conformitate cu **Certificatul <C>**.
19 **Opomba*** kot je določeno v **<A>** in odobreno s strani **<B>** v skladu s **certifikatom <C>**.
20 **Märkus*** nagu on näidatud dokumendis **<A>** ja heaks kiidetud **<B>** järgi vastavalt **sertifikaadile <C>**.
21 **Забележка*** както е изложено в **<A>** и оценено положително от **<B>** съгласно **Сертификата <C>**.
22 **Pastaba*** kaip nustatyta **<A>** ir kaip teigiamai nuspręsta **<B>** pagal **Sertifikatą <C>**.
23 **Piezīmes*** kā norādīts **<A>** un atbilstoši **<B>** pozitīvajam vērtējumam saskaņā ar **sertifikātu <C>**.
24 **Poznámka*** ako bolo uvedené v **<A>** a pozitívne zistené **<B>** v súlade s **osvedčením <C>**.
25 **Not*** **<A>**'da belirtildiği gibi ve **<C>** **Sertifikasına** göre **<B>** tarafından olumlu olarak değerlendirildiği gibi.

<A>	**TCF.025H08/04-2015**
<B>	**DEKRA (NB0344)**
<C>	**2082543.0551-QUA/EMC**

ROTEX Heating Systems GmbH
Langwiesenstraße 10 · D-74363 Güglingen

Georg Blümel
Managing Director
2nd of November 2015

ROTEX

3P403988-6D

Table of Contents

1 About the documentation

1.1 About this document

Target audience

Authorised installers

Documentation set

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

- **General safety precautions:**
  - Safety instructions that you must read before installing
  - Format: Paper (in the box of the 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, technical specifications, good practices, reference data,…
  - Format: Digital files on the ROTEX homepage
- **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 the ROTEX homepage

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

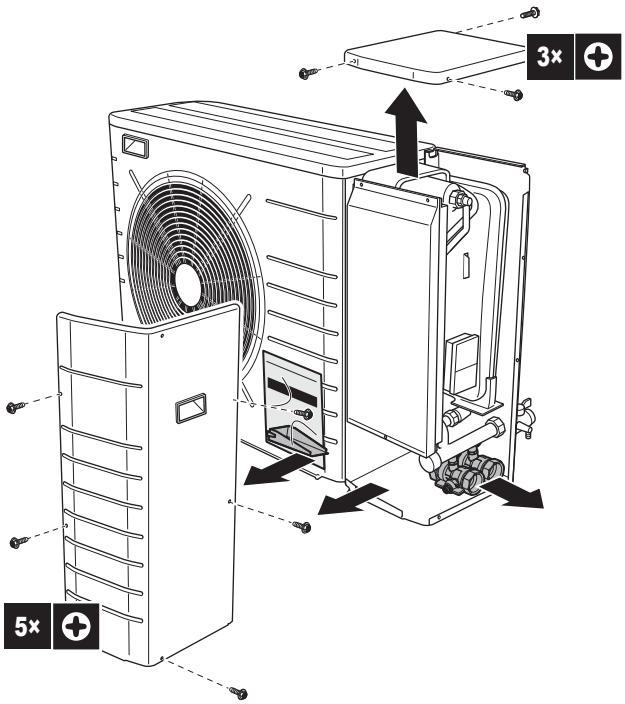
The original documentation is written in English. All other languages are translations.

2 About the box

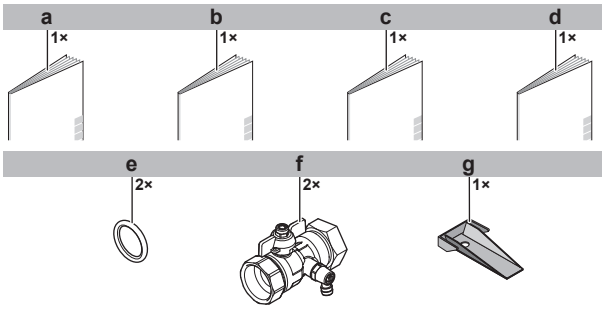
2.1 Outdoor unit

2.1.1 To remove the accessories from the outdoor unit

1 Open the outdoor unit.



2 Remove the accessories.



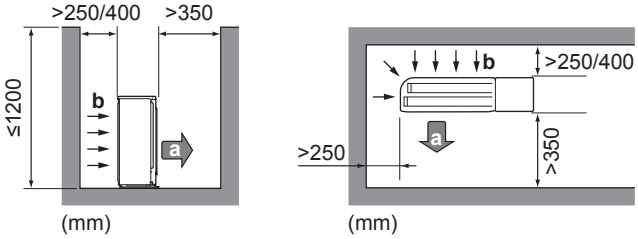
a General safety precautions
b Addendum book for optional equipment
c Outdoor unit installation manual
d Operation manual
e Sealing ring for shut-off valve
f Shut-off valve
g Unit mounting plate

3 Preparation

3.1 Preparing installation site

3.1.1 Installation site requirements of the outdoor unit

Mind the following spacing guidelines:



a Air outlet
b Air inlet

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.

If the system contains a domestic hot water tank, meet the following requirements:

Maximum allowable distance between outdoor unit and …	Distance
domestic hot water tank	10 m
3-way valve	10 m

The outdoor unit is designed for outdoor installation only, and for ambient temperatures ranging 10~43°C in cooling mode, –25~25°C in space heating mode, and –25~35°C in domestic hot water operation mode.

3.2 Preparing water piping

3.2.1 To check the water volume and flow rate

Minimum water volume

If	Then
The system contains a backup heater	The minimum water volume is 10 l[(a)]
The system does NOT contain a backup heater	The minimum water volume is 20 l[(a)]

(a) The internal water volume of the outdoor unit NOT included.

NOTICE

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

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/operation).

See the installer reference guide for more information.

Minimum required flow rate	
05+07 models	12 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	Domestic hot water pump	2	(c)
6	Space heating/cooling operation control (or shut-off valve)	2	(e)
Interconnection cable			
7	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.

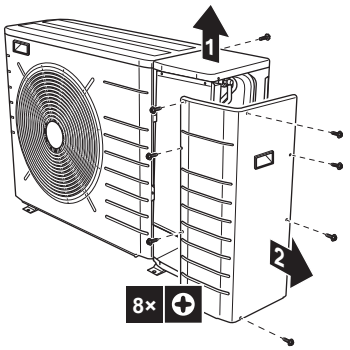
4 Installation

4.1 Opening the units

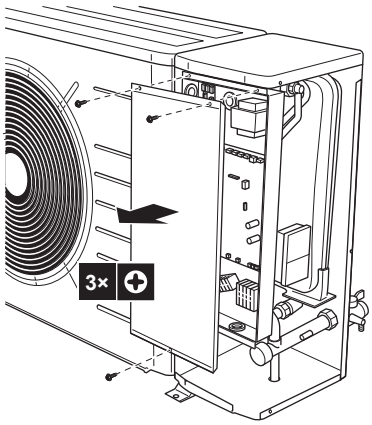
4.1.1 To open the outdoor unit

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

INFORMATION

For information on the available options, contact your dealer.

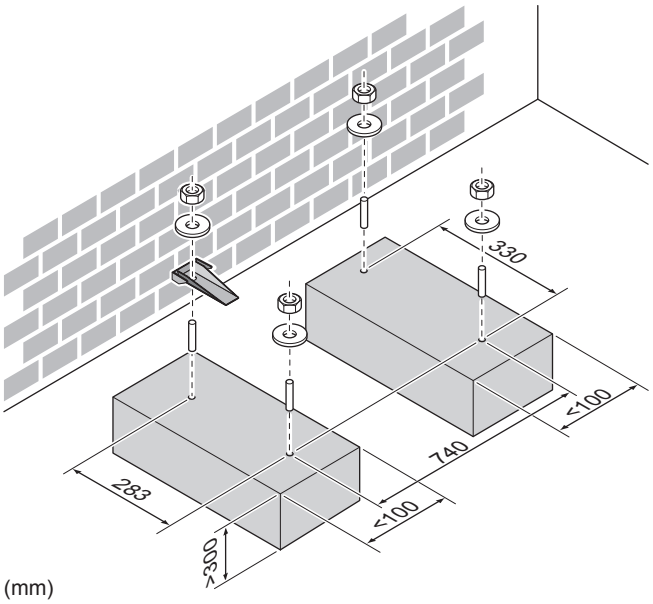
If the unit is installed directly on the floor, prepare 4 sets of M8 or M10 anchor bolts, nuts and washers (field supply) as follows:

INFORMATION

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

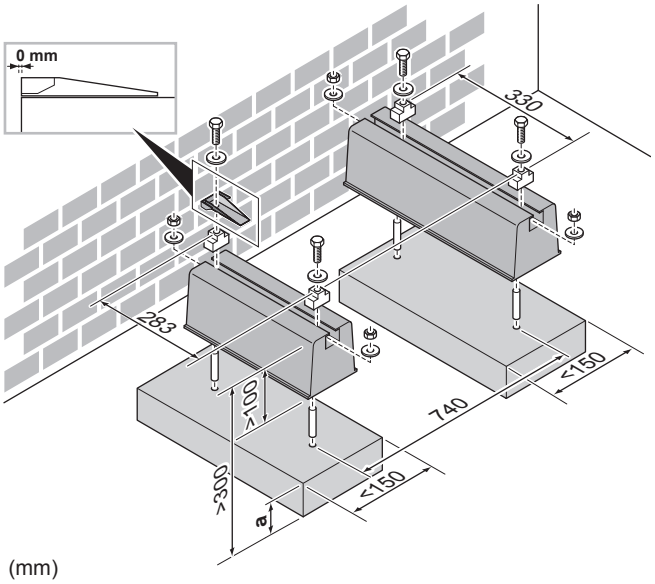
NOTICE

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.



(mm)

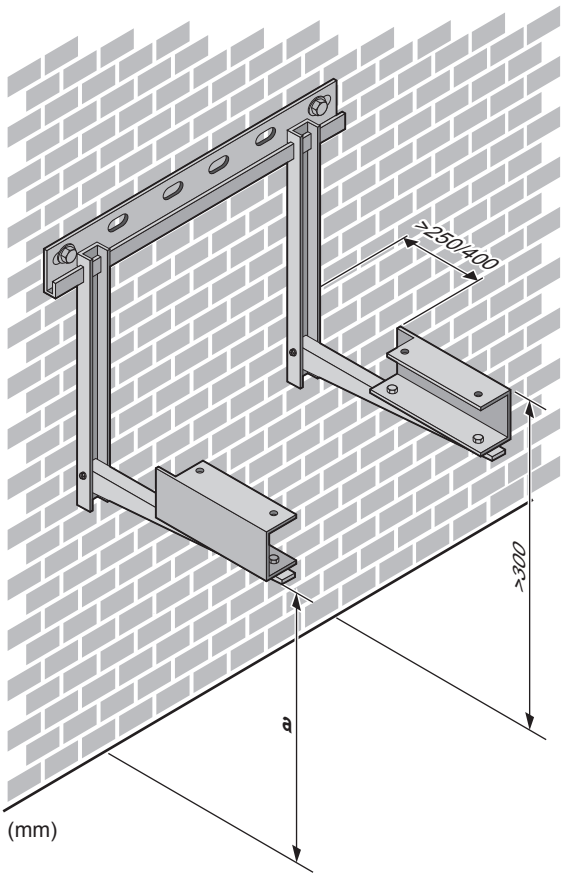
In any case, provide at least 300 mm of free space below the unit. Additionally, make sure the unit is positioned at least 100 mm above the maximum expected level of snow.



(mm)

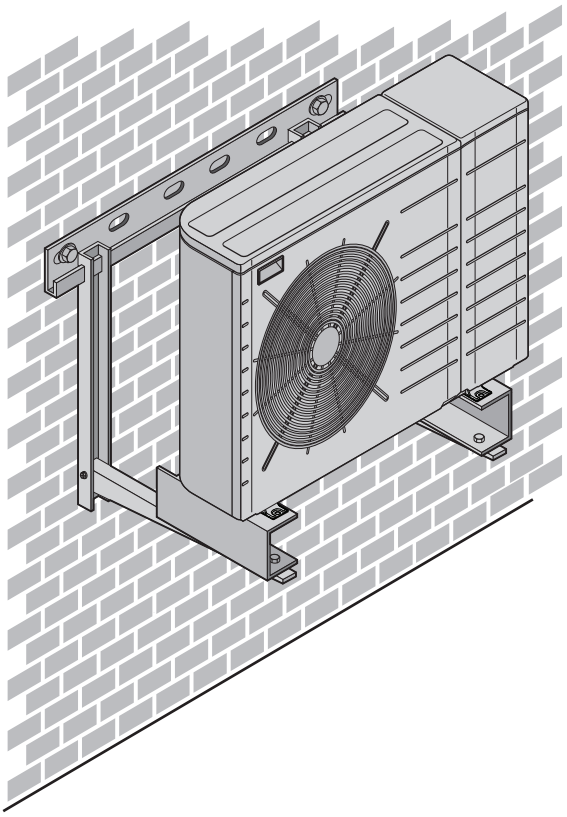
a Maximum snowfall height

It is possible to install the unit on brackets to the wall:



(mm)

a Maximum snowfall height

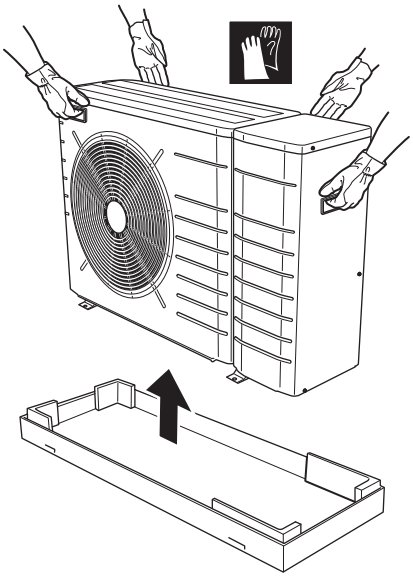


4.2.2 To install the outdoor unit

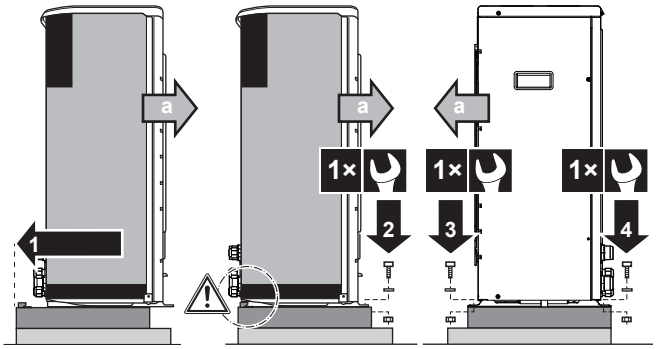
CAUTION

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

1 Lift the outdoor unit.



2 Install the outdoor unit as follows:

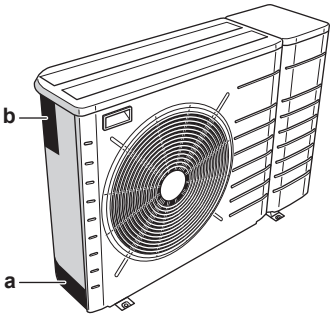


a Air outlet

NOTICE

Properly align the unit. Make sure the backside of the unit does NOT protrude.

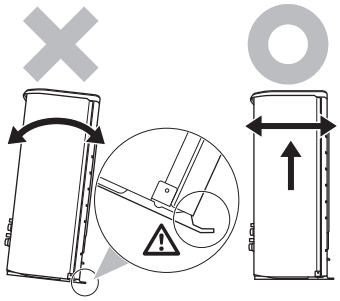
3 Remove the protective cardboard and instruction sheet.



a Protective cardboard
b Instruction sheet

NOTICE

To prevent damage to the supporting feet, do NOT tilt the unit sideways in any way:



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

For information on the available options, contact your dealer.

NOTICE

Provide at least 300 mm of free space below the unit. Additionally, make sure the unit is positioned at least 100 mm above the expected level of snow.

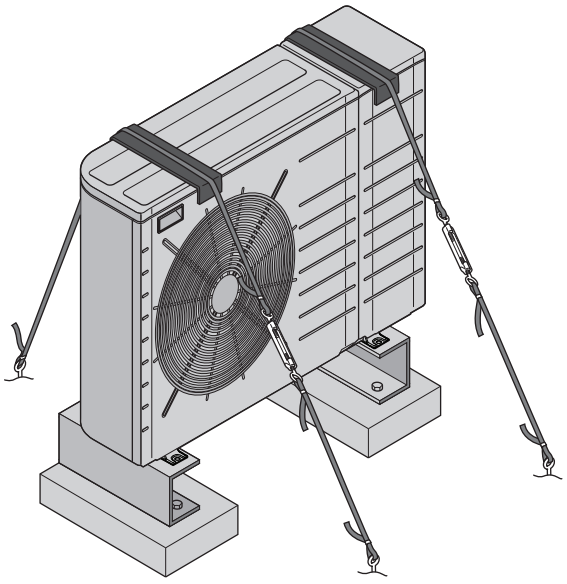
4.2.4 To prevent the outdoor unit from falling over

1 Prepare 2 cables as indicated in the following illustration (field supply).

2 Place the 2 cables over the outdoor unit.

3 Insert a rubber sheet between the cables and the outdoor unit to prevent the cable from scratching the paint (field supply).

4 Attach the cable's ends. Tighten those ends.



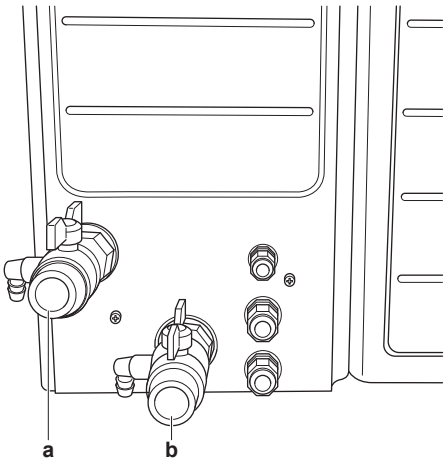
4.3 Connecting the water piping

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 water inlet and on the 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.



a Water inlet
b Water outlet

1 Screw the outdoor unit nuts on the shut-off valves.

2 Connect the field piping on the shut-off valves.

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

NOTICE

- Install a manometer in the system.
- Install air purge valves at all local high points.

4.3.2 To protect the water circuit against freezing

Frost can damage the system. To prevent the hydraulic components from freezing, the software is equipped with special frost protection functions, that include the activation of pump, internal heaters, and/or backup heater operation in case of low temperatures.

However, in case of a power failure, these functions cannot guarantee protection. It is therefore recommended to add glycol to the water circuit. The required concentration 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.

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.

Lowest expected outdoor temperature	Prevent from bursting	Prevent from freezing
–5°C	10%	15%
–10°C	15%	25%
–15°C	20%	35%
–20°C	25%	—
–25°C	30%	—

NOTICE

- 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 types of glycol 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 glycol[(a)]
The system does NOT contain a domestic hot water tank	You can use either propylene glycol[(a)] or ethylene glycol

(a) 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

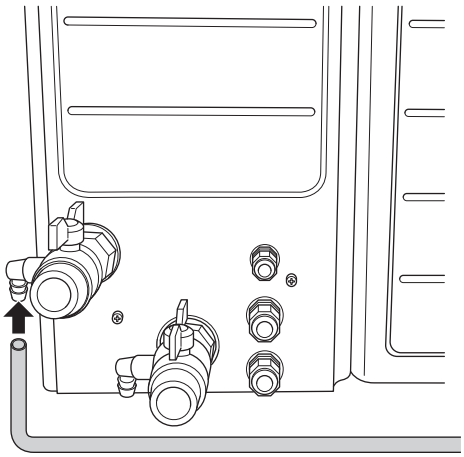
Due to presence of glycol, corrosion of the system is possible. Uninhibited glycol will turn acidic under the influence of oxygen. This process is accelerated by the presence of copper and high temperatures. The acidic uninhibited glycol attacks metal surfaces and forms galvanic corrosion cells that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

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 λ=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

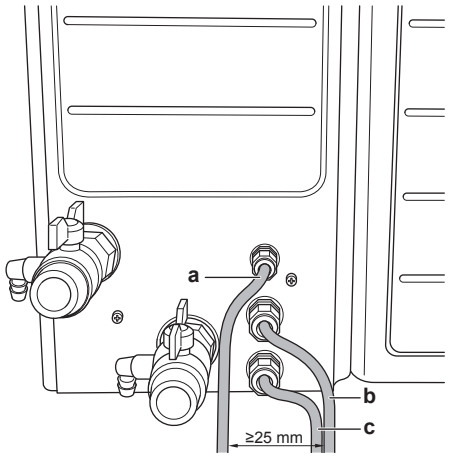
WARNING

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 5.

2 Insert the wiring from the back of the unit:



a Low voltage
b High voltage
c Main power supply

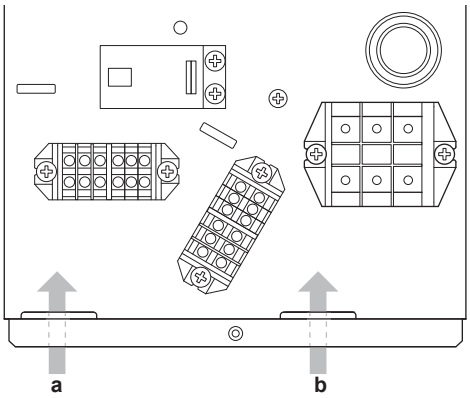
NOTICE

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	▪ User interface ▪ Interconnection cable to control box RKCB07CAV3 ▪ Remote outdoor sensor (option)

Routing	Possible cables (depends on the installed options)
b High voltage	▪ Normal kWh rate power supply ▪ Preferential kWh rate power supply ▪ Heat pump convector (option) ▪ Shut-off valve (field supply) ▪ Domestic hot water pump (field supply) ▪ Space heat/cool operation control
c Main power supply	▪ Main power supply

3 Inside the unit, route the wiring as follows:



a Low voltage wiring
b High voltage wiring + main power supply

4 Make sure that the cable does NOT come in contact with sharp edges.

5 Install the switch box cover.

INFORMATION

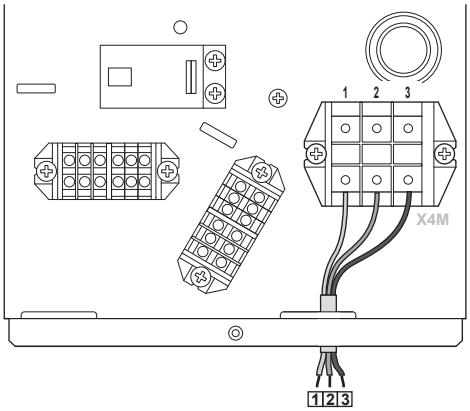
When installing field supply or option cables, foresee sufficient cable length. This will make it possible to remove/reposition the switch box and gain acces to other components during service.

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.



1 GND
2 L
3 N

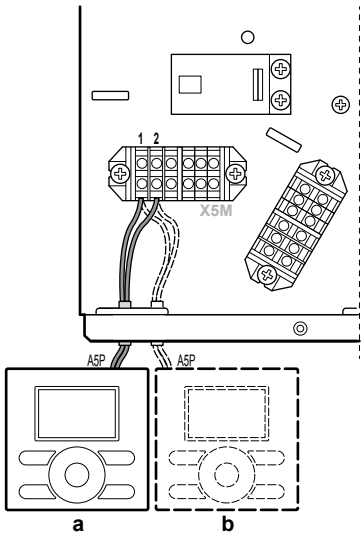
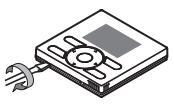
4.4.3 To connect the user interface

INFORMATION

- If control box RKCB07CAV3 is NOT part of the system, connect the user interface directly to the outdoor unit.
- If control box RKCB07CAV3 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.

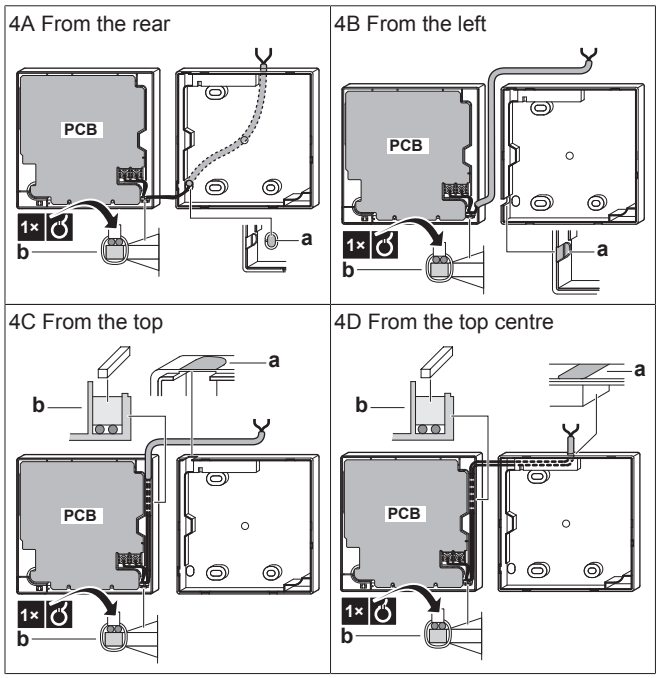
INFORMATION

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	Connect the user interface cable to the outdoor unit.  **a** Main user interface[a] **b** Optional user interface
2	Insert a screwdriver into the slots underneath the user interface and carefully separate the faceplate from the wallplate. The PCB is mounted in the faceplate of the user interface. Be careful NOT to damage it. 
3	Fix the wallplate of the user interface to the wall.
4	Connect as shown in 4A, 4B, 4C or 4D.

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

(a) The main user interface is required for operation, but has to be ordered separately (mandatory option).



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

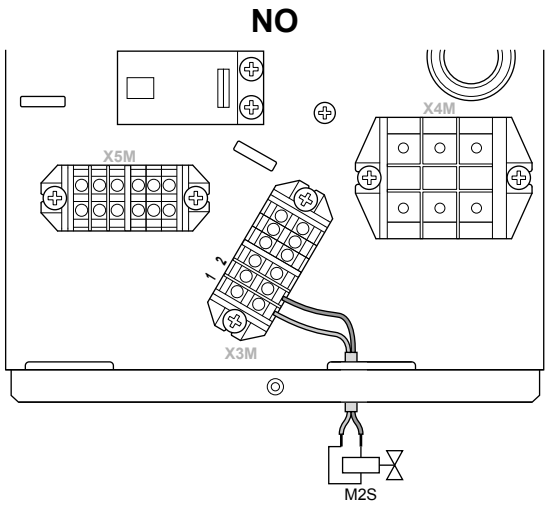
b Secure the wiring to the front part of the casing using the wiring retainer and clamp.

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.

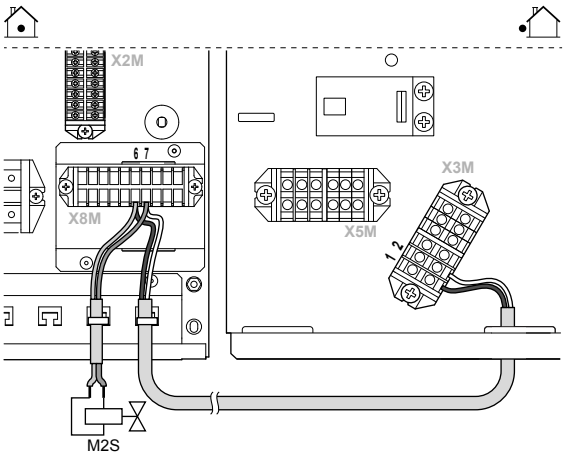
NOTICE

Only connect NO (normal open) valves.



INFORMATION

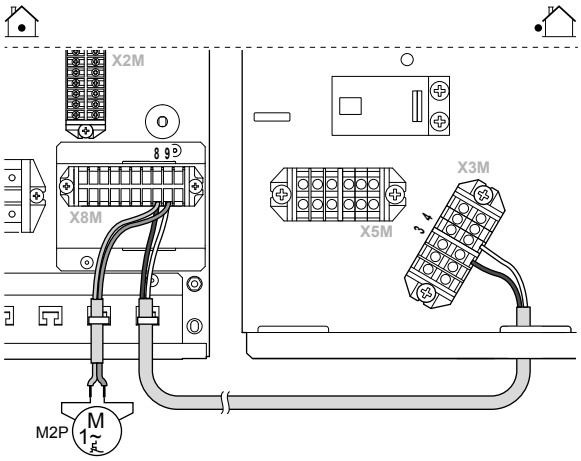
By default, the shut-off valve is to be connected to the outdoor unit. However, if control box RKCB07CAV3 is present in the system, you can also connect it to the control box. To do this, connect outdoor unit terminals X3M/1+2 to control box terminals X8M/6+7, and then connect the shut-off valve to control box terminals X8M/6+7.



4.4.5 To connect the domestic hot water pump

1 Connect outdoor unit terminals X3M/3+4 to the bottom side of terminals X8M/8+9 of control box RKCB07CAV3.

2 Connect the cable of the domestic hot water pump to the bottom side of control box terminals X8M/8+9.



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.

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
- "5.3 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.

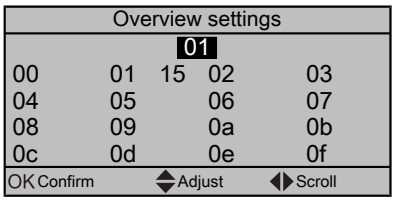
1 Go to [A.8]: > Installer settings > Overview settings.

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

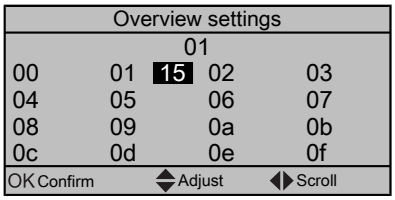
INFORMATION

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

Example: [1-01]: "1" will result in "**0**1".

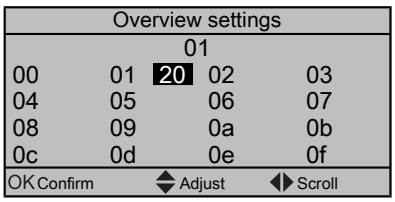


3 Go to the corresponding second part of the setting by using the and button.



Result: The value to be modified is now highlighted.

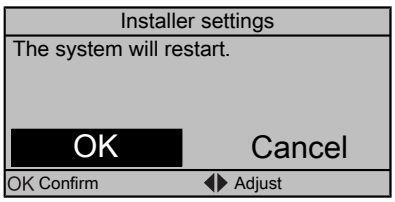
4 Modify the value by using the and button.



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

6 Push OK to confirm the modification of the parameter.

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



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

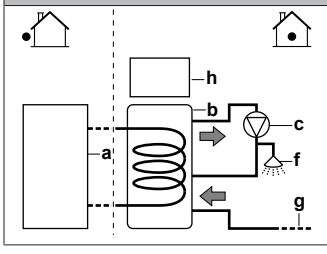
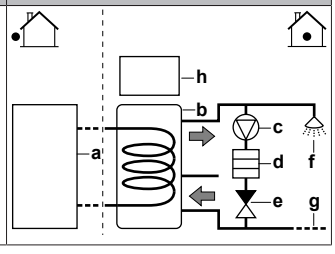
Space heating/cooling settings

#	Code	Description
[A.2.1.7]	[C-07]	Unit temperature control: ▪ 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.
[A.2.1.8]	[7-02]	Number of water temperature zones: ▪ 0 (1 LWT zone): Main ▪ 1 (2 LWT zones): Main + additional
[A.2.1.9]	[F-0D]	Pump operation: ▪ 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: ▪ At unit ▪ In room
[A.2.1.C]	[E-0D]	Glycol present: ▪ 0 (No)(default) ▪ 1 (Yes)

5.2.3 Quick wizard: Options

External domestic hot water pump

#	Code	Description
[A.2.2.A]	[D-02]	Domestic hot water pump: ▪ 0 (No): NOT installed ▪ 1 (Secondary rtrn): Installed for instant hot water ▪ 2 (Disinf. shunt): Installed for disinfection See also illustrations below.

Domestic hot water pump installed for…	
Instant hot water	Disinfection
	

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

Remote outdoor sensor

#	Code	Description
[A.2.2.B]	[C-08]	External sensor (outdoor): ▪ 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 RK2CB07CAV3.

INFORMATION

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

Control box RKCB07CAV3

#	Code	Description
[A.2.2.E.1]	[E-03]	Backup heater steps: ▪ 0 (default) ▪ 1 ▪ 2
[A.2.2.E.2]	[5-0D]	BUH type: ▪ 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:

- RKMBUHCA3V3: 1~ 230 V - 3 kW backup heater
- RKMBUHCA9W1: Unified backup heater

Backup heater RKMBUHCA3V3 can only be configured to be a 3V3 backup heater. Unified backup heater RKMBUHCA9W1 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
- 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 RKMBUHCA3V3 and RKMBUHCA9W1), 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.4]	[E-05]	DHW operation: Can the system prepare domestic hot water? ▪ 0 (No): NOT installed ▪ 1 (Yes): Installed

#	Code	Description
[A.2.2.E.5]	[C-05]	External room thermostat for the **main** zone: ▪ 1 (Thermo ON/OFF): When the used external room thermostat or heat pump convector can only send a thermo ON/OFF condition. 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. If there are two zones (main +additional), then only Thermo ON/OFF is possible.
[A.2.2.E.6]	[C-06]	External room thermostat for the **additional** zone: ▪ 0: N/A ▪ 1 (Thermo ON/OFF): When the used external room thermostat or heat pump convector can only send a thermo ON/OFF condition. No separation between heating or cooling demand. ▪ 2: N/A If there are two zones (main +additional), then only Thermo ON/OFF is possible.

Option box RK2CB07CAV3

#	Code	Description
[A.2.2.F.1]	[C-02]	External backup heater source: ▪ 0 (No): None ▪ 1 (Bivalent): Gas boiler , oil boiler ▪ 2: N/A ▪ 3: N/A
[A.2.2.F.2]	[C-09]	Alarm output ▪ 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: ▪ 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.4]	[D-09]	Optional external kWh meter 2: ▪ 0 (No): NOT installed ▪ 1: Installed (0.1 pulse/kWh) ▪ 2: Installed (1 pulse/kWh) ▪ 3: Installed (10 pulse/kWh) ▪ 4: Installed (100 pulse/kWh) ▪ 5: Installed (1000 pulse/kWh)

#	Code	Description
[A.2.2.F.5]	[C-08]	External sensor (indoor): ▪ 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 RK2CB07CAV3.

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: ▪ 0 (No) ▪ 1 (Yes)

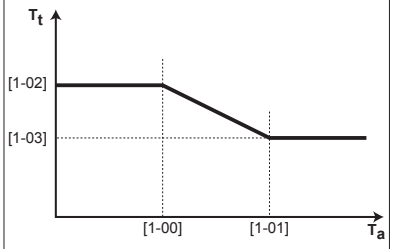
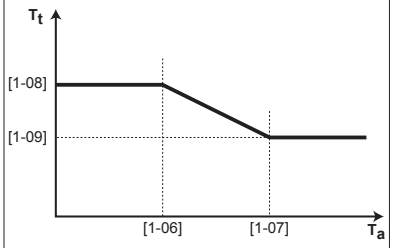
5.2.4 Quick wizard: Capacities (energy metering)

#	Code	Description
[A.2.3.1]	[6-02]	Booster heater capacity [kW]
[A.2.3.2]	[6-03]	Backup heater capacity (step 1) [kW]
[A.2.3.3]	[6-04]	Backup heater capacity (step 2) [kW]

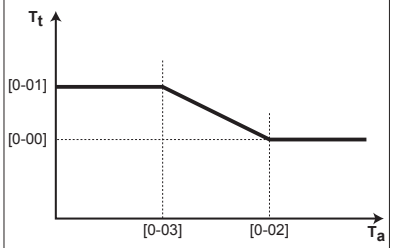
5.2.5 Space heating/cooling control

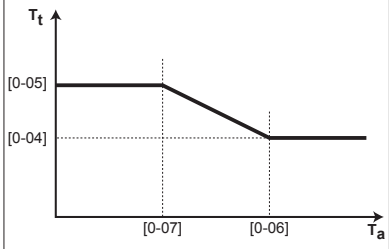
Leaving water temperature: Main zone

#	Code	Description
[A.3.1.1.1]	N/A	Set point mode: ▪ 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)

#	Code	Description
[7.7.1.1]	[1-00] [1-01] [1-02] [1-03]	Weather-dependent curve (heating):  ▪ T_t: Target leaving water temperature (main) ▪ T_a: Outdoor temperature
[7.7.1.2]	[1-06] [1-07] [1-08] [1-09]	Weather-dependent curve (cooling):  ▪ T_t: Target leaving water temperature (main) ▪ T_a: Outdoor temperature

Leaving water temperature: Additional zone

#	Code	Description
[A.3.1.2.1]	N/A	Set point mode: ▪ 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)
[7.7.2.1]	[0-00] [0-01] [0-02] [0-03]	Weather-dependent curve (heating):  ▪ T_t: Target leaving water temperature (additional) ▪ T_a: Outdoor temperature

#	Code	Description
[7.7.2.2]	[0-04] [0-05] [0-06] [0-07]	Weather-dependent curve (cooling):  ▪ T_t: Target leaving water temperature (additional) ▪ T_a: Outdoor temperature

Leaving water temperature: Delta T source

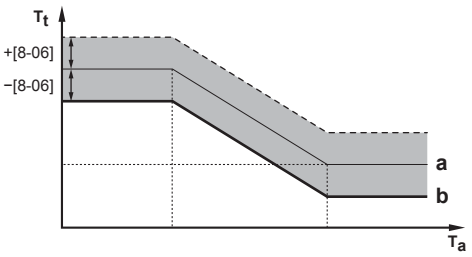
#	Code	Description
[A.3.1.3.1]	[9-09]	Heating: required temperature difference between entering and leaving water. In case a minimum temperature difference is required for the good operation of the heat emitters in heating mode.
[A.3.1.3.2]	[9-0A]	Cooling: required temperature difference between entering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



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

Leaving water temperature: Emitter type

#	Code	Description
[A.3.1.1.7]	[9-0B]	Reaction time of the system: ▪ 0: Quick. **Example:** Small water volume and fan coils. ▪ 1: Slow. **Example:** Large water volume, floor heating loops. 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.

5.2.6 Domestic hot water control

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

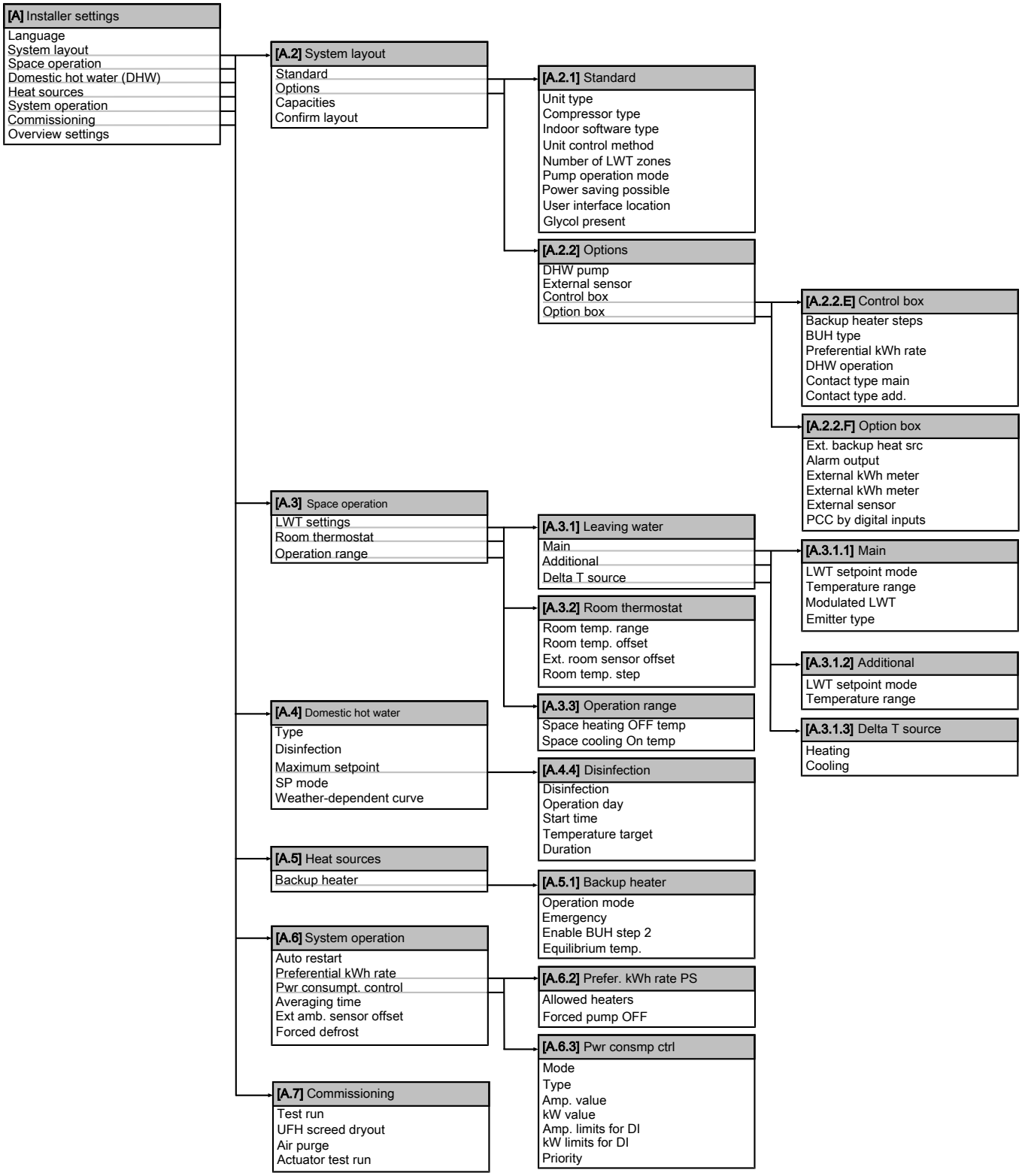
INFORMATION

There is a risk of space heating (cooling) capacity shortage/comfort problem (in case of frequent domestic hot water operation, frequent and long space heating/cooling interruption will happen) when selecting [6-0D]=0 ([A.4.1] Domestic hot water Type=Reheat only) in case of a domestic hot water tank without an internal booster heater.

5.2.7 Contact/helpdesk number

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

5.3 Menu structure: Overview installer settings



INFORMATION

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

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

Do NOT operate the system before the following checks are OK. Depending on the system layout, not all components may be available.

☐	You read the complete installation instructions, as described in the **installer reference guide**.
☐	The **outdoor unit** is properly mounted.
☐	The **control box** is properly mounted.
☐	The **option box** is properly mounted.
☐	The **backup heater** is properly mounted.
☐	The following **field wiring** has been carried out according to the available documentation and the applicable legislation: ▪ 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 ▪ Between the control box and the domestic hot water tank
☐	The system is properly **earthed** and the earth terminals are tightened.
☐	The **fuses** or locally installed protection devices are installed according to this document, and have not been bypassed.
☐	The **power supply voltage** matches the voltage on the identification label of the unit.
☐	There are NO **loose connections** or damaged electrical components in the switch box.
☐	There are NO **damaged components** or **squeezed pipes** on the inside of the outdoor unit.
☐	Depending on the backup heater type, **backup heater circuit breaker** F1B (on the switch box of the backup heater) is turned ON.
☐	Only for tanks with built-in booster heater: **Booster heater circuit breaker** F2B (on the switch box of the control box) is turned ON.
☐	The correct pipe size is installed and the **pipes** are properly insulated.
☐	There are no **water leaks** inside the outdoor unit.
☐	The **shut-off valves** are properly installed and fully open.
☐	The **pressure relief valve** purges water when opened.
☐	The **minimum water volume** is guaranteed in all conditions. See "To check the water volume" in "3.2 Preparing water piping" on page 4.

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 too. To enable automatic operation and the protective functions, set [4-0E] to "0".

12 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

☐	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 4.
☐	To perform an **air purge**.
☐	To perform a **test run**.
☐	To perform an **actuator test run**.
☐	**Underfloor screed dryout function** The underfloor screed dryout function is started (if necessary).

6.2.1 To perform an air purge

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

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

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.

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.
- For the location of the manual air purge valve, see "Components: Outdoor unit" in the installer reference guide.
- If the system contains a backup heater, also use the air purge valve of the backup heater. For the location of this valve, refer to "Components: Backup heater" in the installer reference guide.
- 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, room temperature home page, and domestic hot water home page are turned OFF.

1. Set the user permission level to Installer. See "To set the user permission level to Installer" 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.

INFORMATION

When starting up the system in a cold climate, and NO backup heater kit (RKMBUHCA3V3 or RKMBUHCA9W1) 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.

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, room temperature home page, and domestic hot water home page are turned OFF.

1. Set the user permission level to Installer. See "To set the user permission level to Installer" on page 12.
2. Make sure the room temperature control, the leaving water temperature control and the domestic hot water 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

- Booster heater test
- Backup heater (step 1) test
- Backup heater (step 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.

- 2-way valve test
- 3-way valve test
- Bivalent signal test
- Alarm output test
- Cooling/heating signal test
- Quick heat-up 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, room temperature home page, and domestic hot water home page are turned OFF.

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

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

NOTICE

To perform an underfloor heating screed dryout, room frost protection needs to be disabled ([2-06]=0). By default, it is enabled ([2-06]=1). However, due to the "installer-on-site" mode (see "Checklist before commissioning"), room frost protection will be automatically disabled for 12 hours after the first power-on.

If the screed dryout 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 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 on the url as earlier described 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 in relation to maintaining the unit.
- 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 OK for more than 5 seconds.

3 Select a function and press OK.

4 Select Lock or Unlock, and press OK.

To activate or deactivate button lock

1 Press ⌂ to go to one of the home pages.

2 Press OK for more than 5 seconds.

8 Technical data

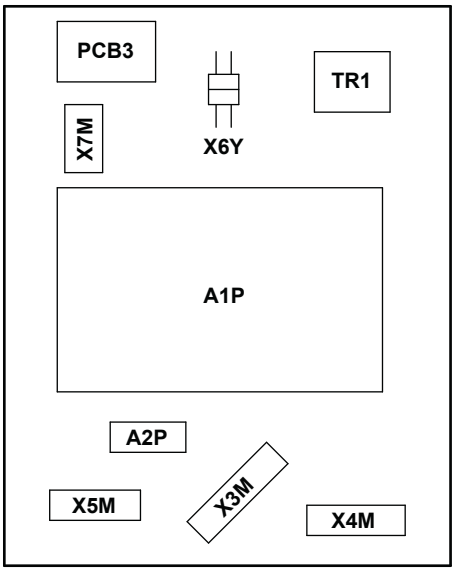
Latest information can be found in the technical engineering data.

8.1 Wiring diagram

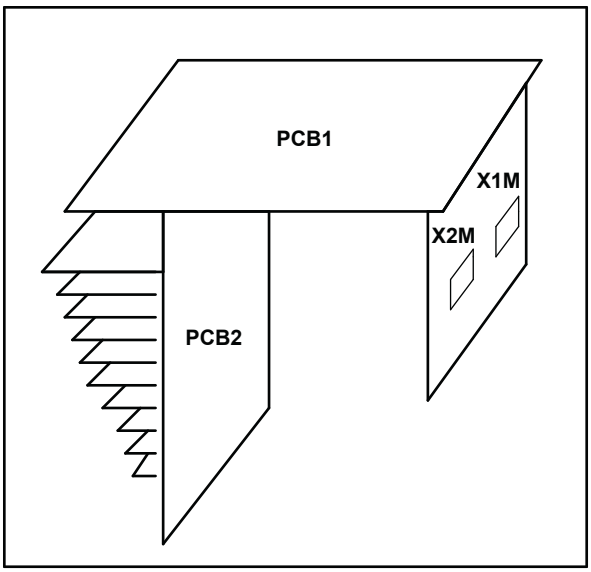
8.1.1 Wiring diagram: Outdoor unit

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.

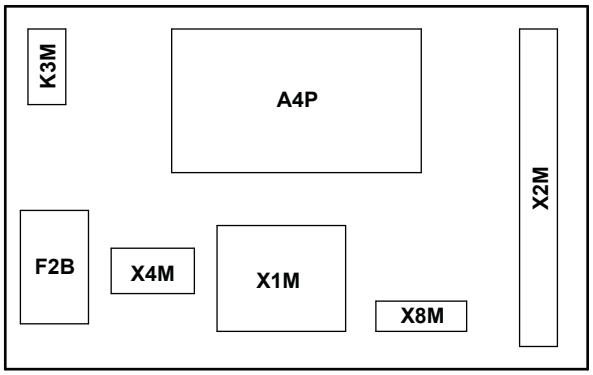
Position in switch box (hydro switch box)



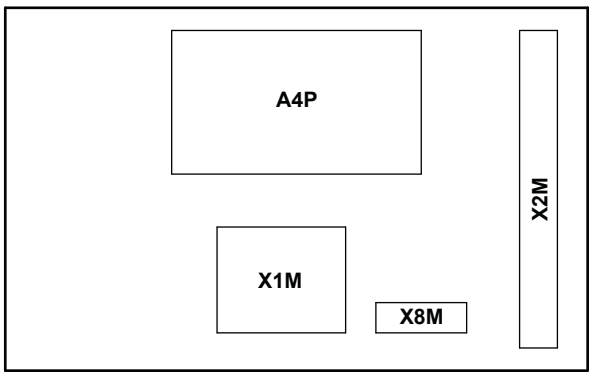
Position in compressor switch box



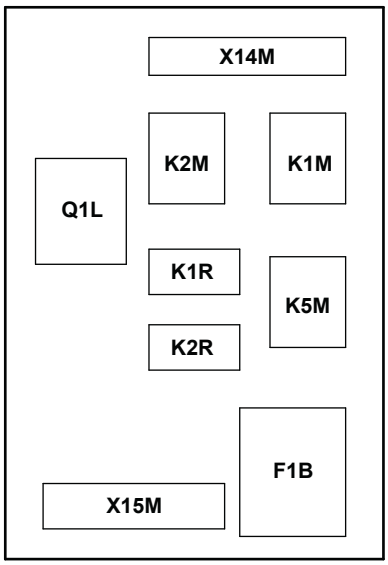
Position in control box



Position in option box



Position in backup heater kit



8 Technical data

User installed options:

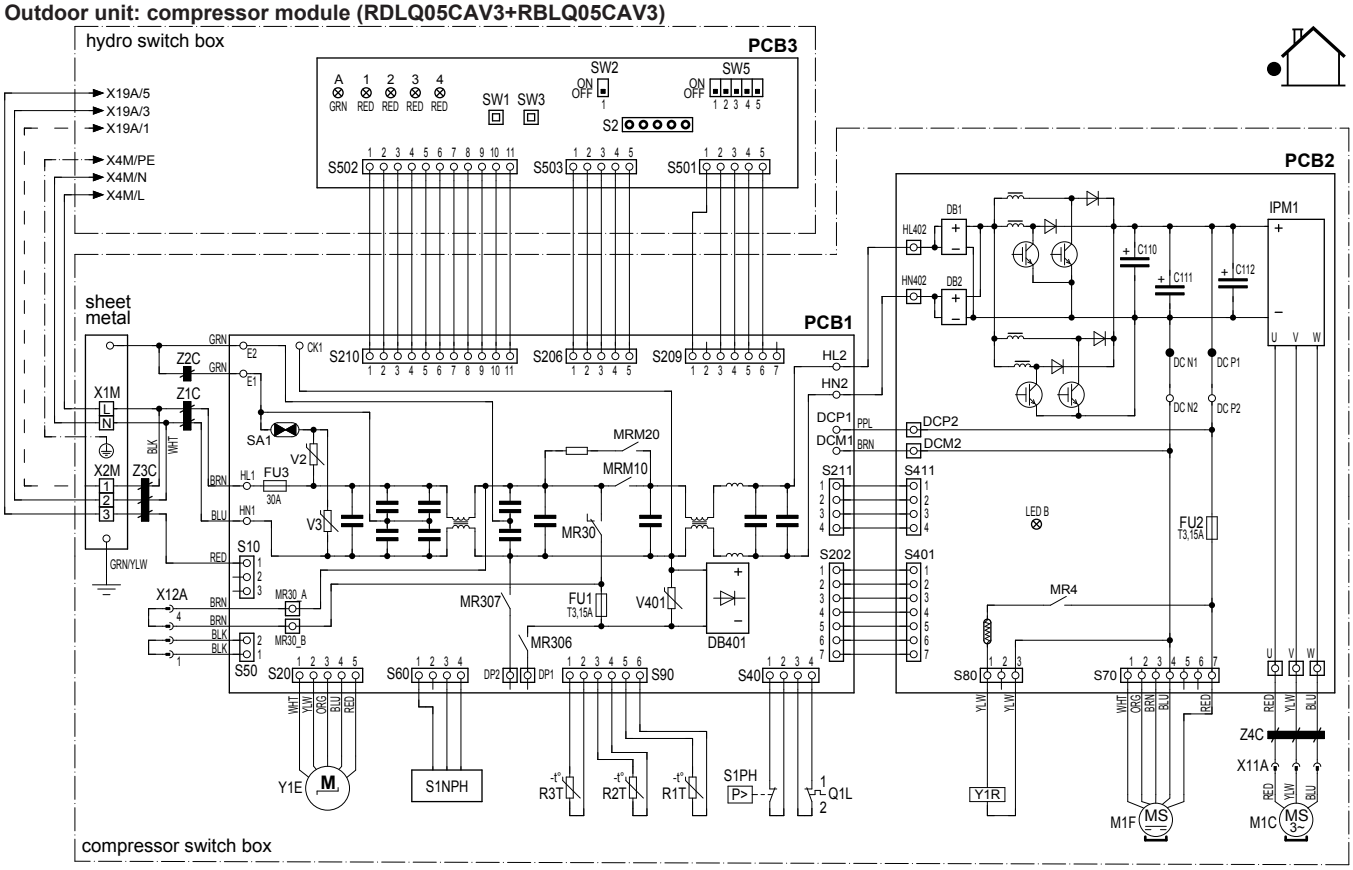
- ☐ Remote user interface
- ☐ External outdoor thermistor
- ☐ Control box
  - ☐ Domestic hot water tank
  - ☐ Backup heater option

    Backup heater configuration (only for *9W)
    - ☐ 6V3 (1N~, 230 V, 6 kW)
    - ☐ 6WN (3N~, 400 V, 6 kW)
    - ☐ 9WN (3N~, 400 V, 9 kW)

  Main leaving water temperature:
  - ☐ On/OFF thermostat (wired)
  - ☐ On/OFF thermostat (wireless)
    - ☐ External thermistor
  - ☐ Heat pump convector

  Additional leaving water temperature:
  - ☐ On/OFF thermostat (wired)
  - ☐ On/OFF thermostat (wireless)
    - ☐ External thermistor
  - ☐ Heat pump convector
- ☐ Option box
  - ☐ External indoor ambient thermistor

Outdoor unit: compressor module (RDLQ05CAV3+RBLQ05CAV3)



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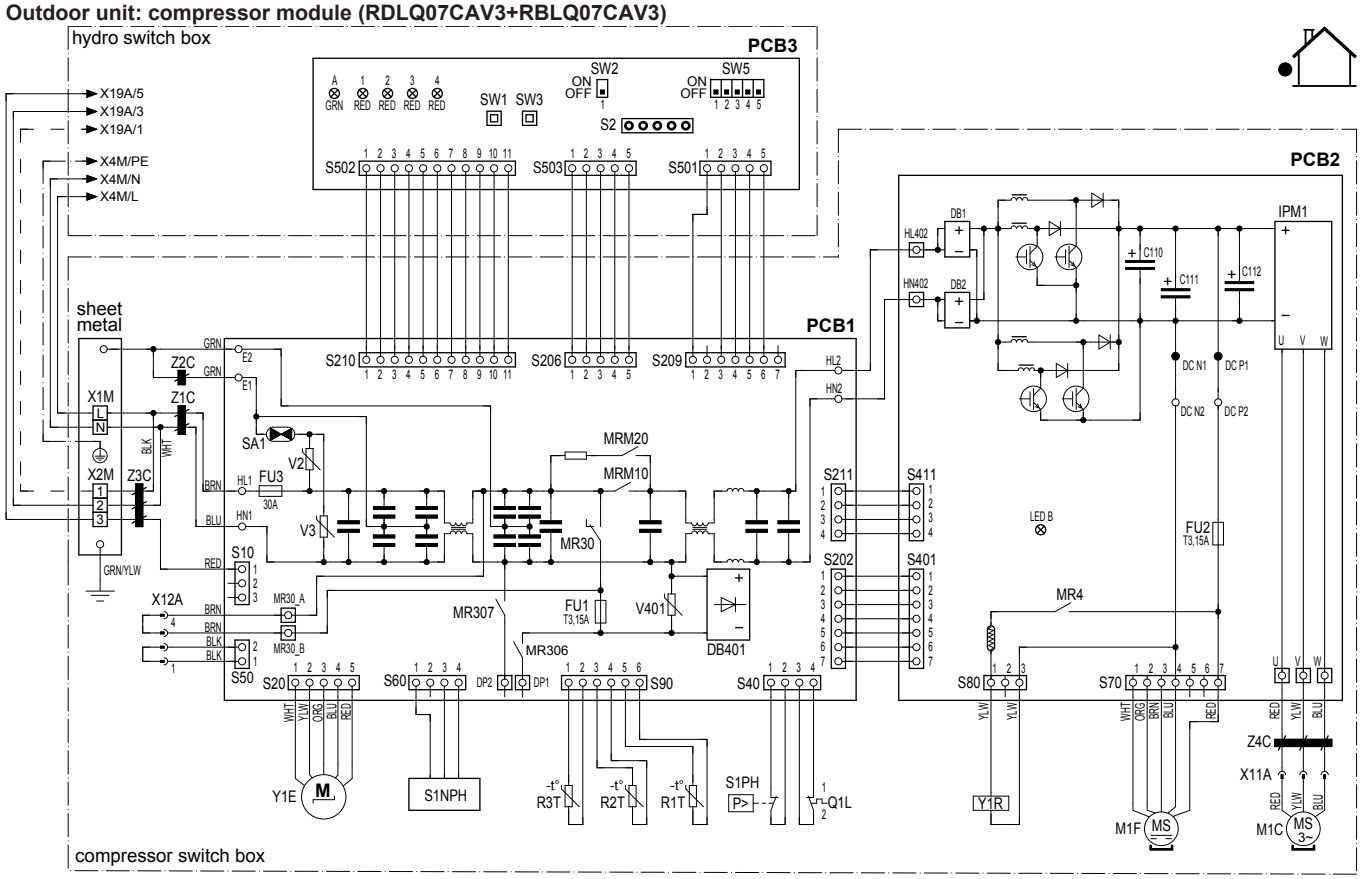
Outdoor unit: compressor module (RDLQ07CAV3+RBLQ07CAV3)



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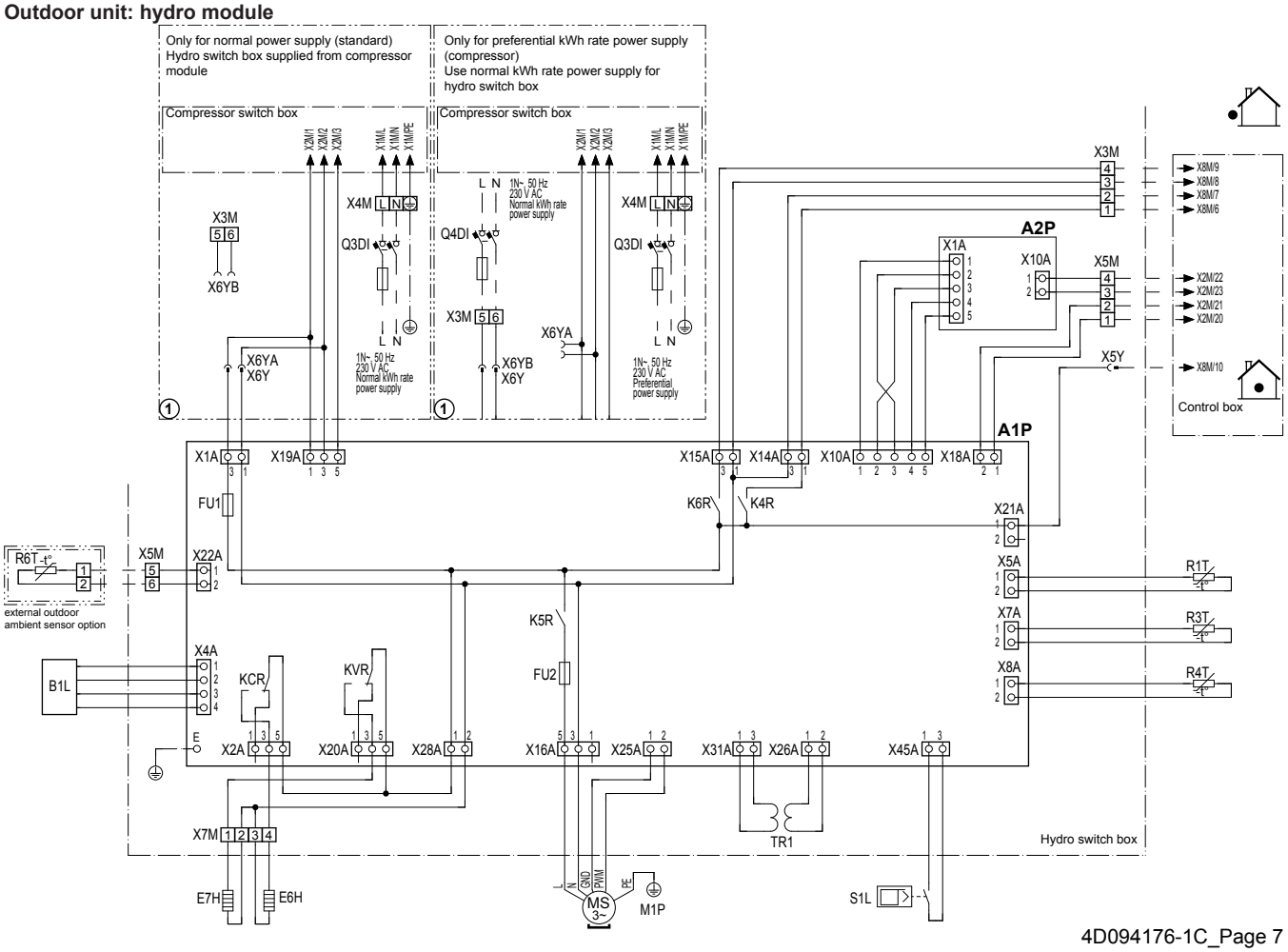
Outdoor unit: hydro module



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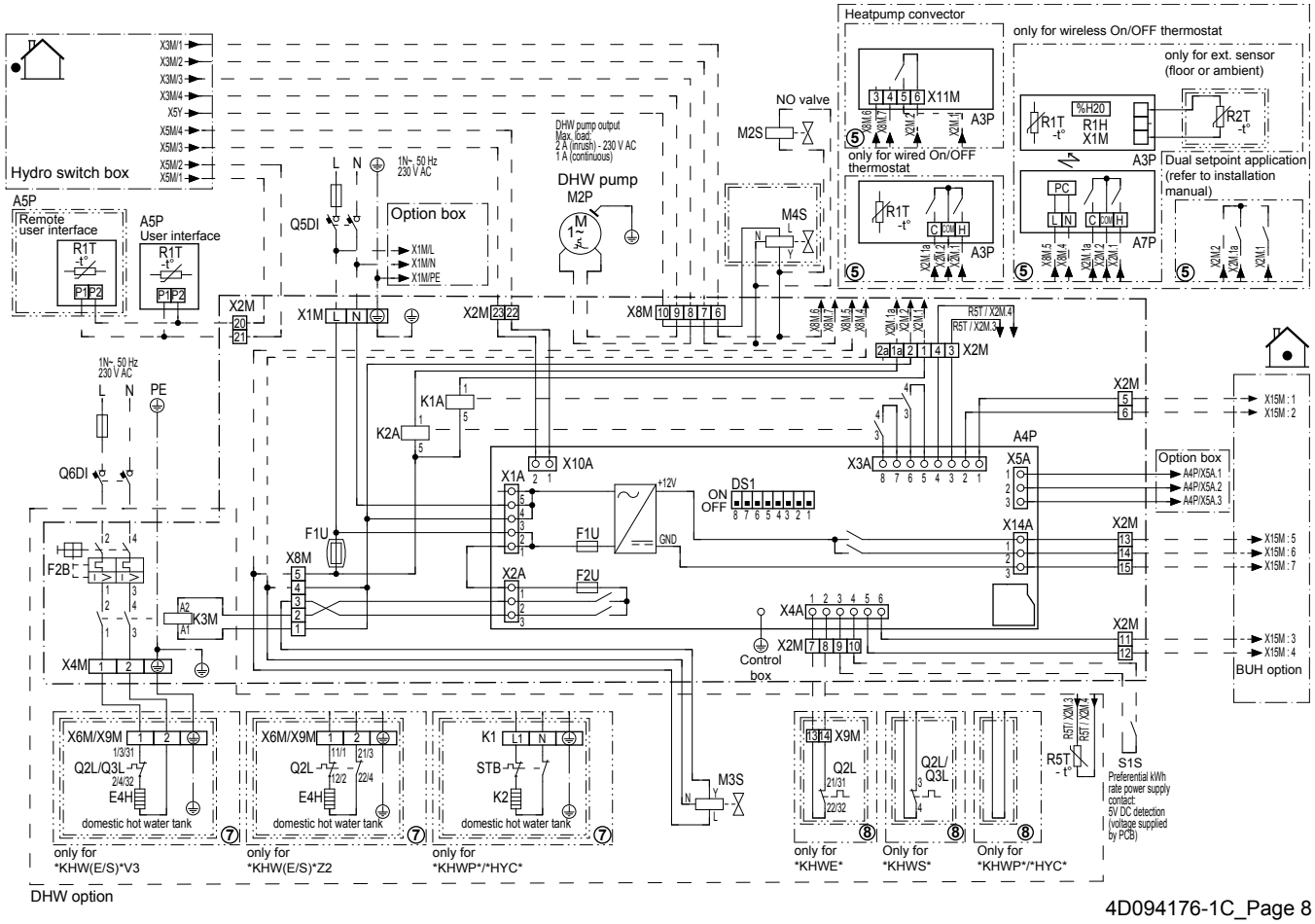
Control box



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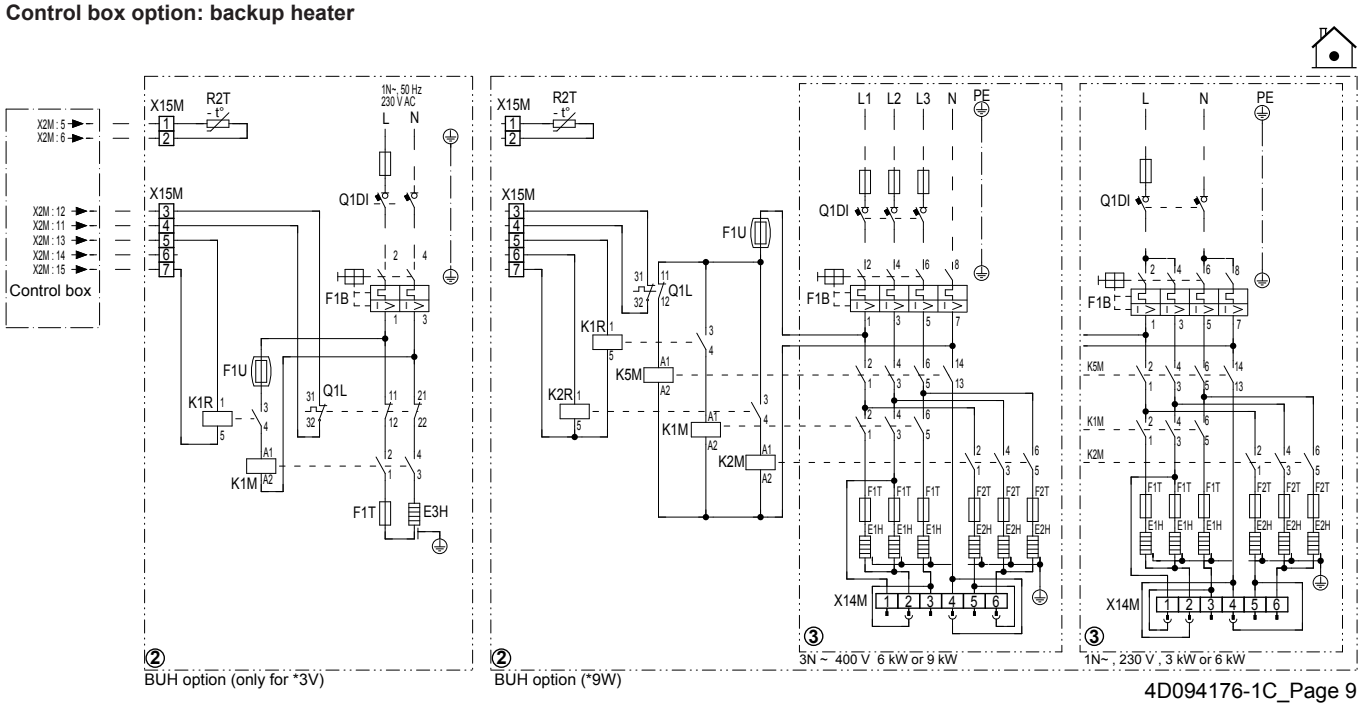
Control box option: backup heater



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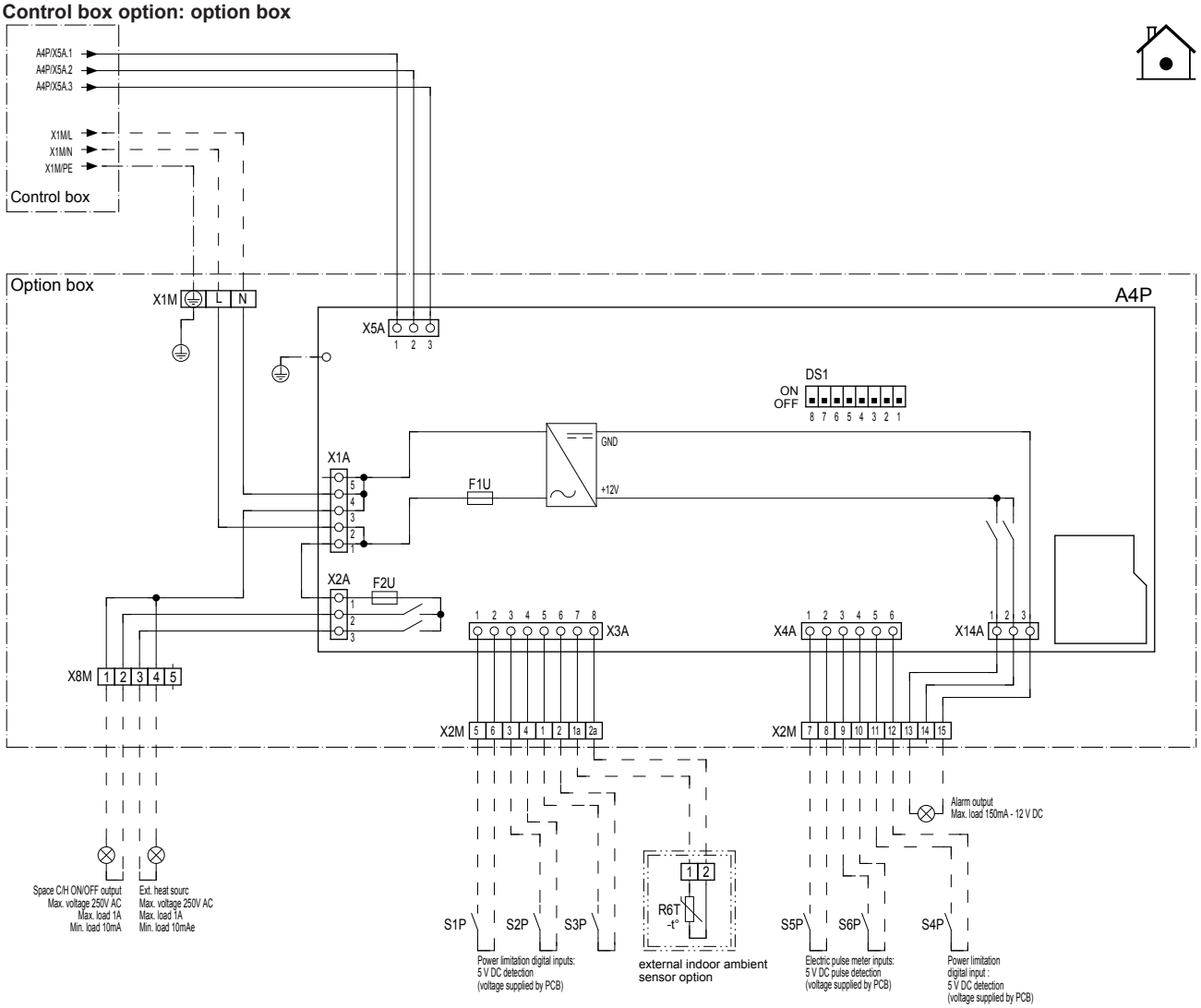
Control box option: option box



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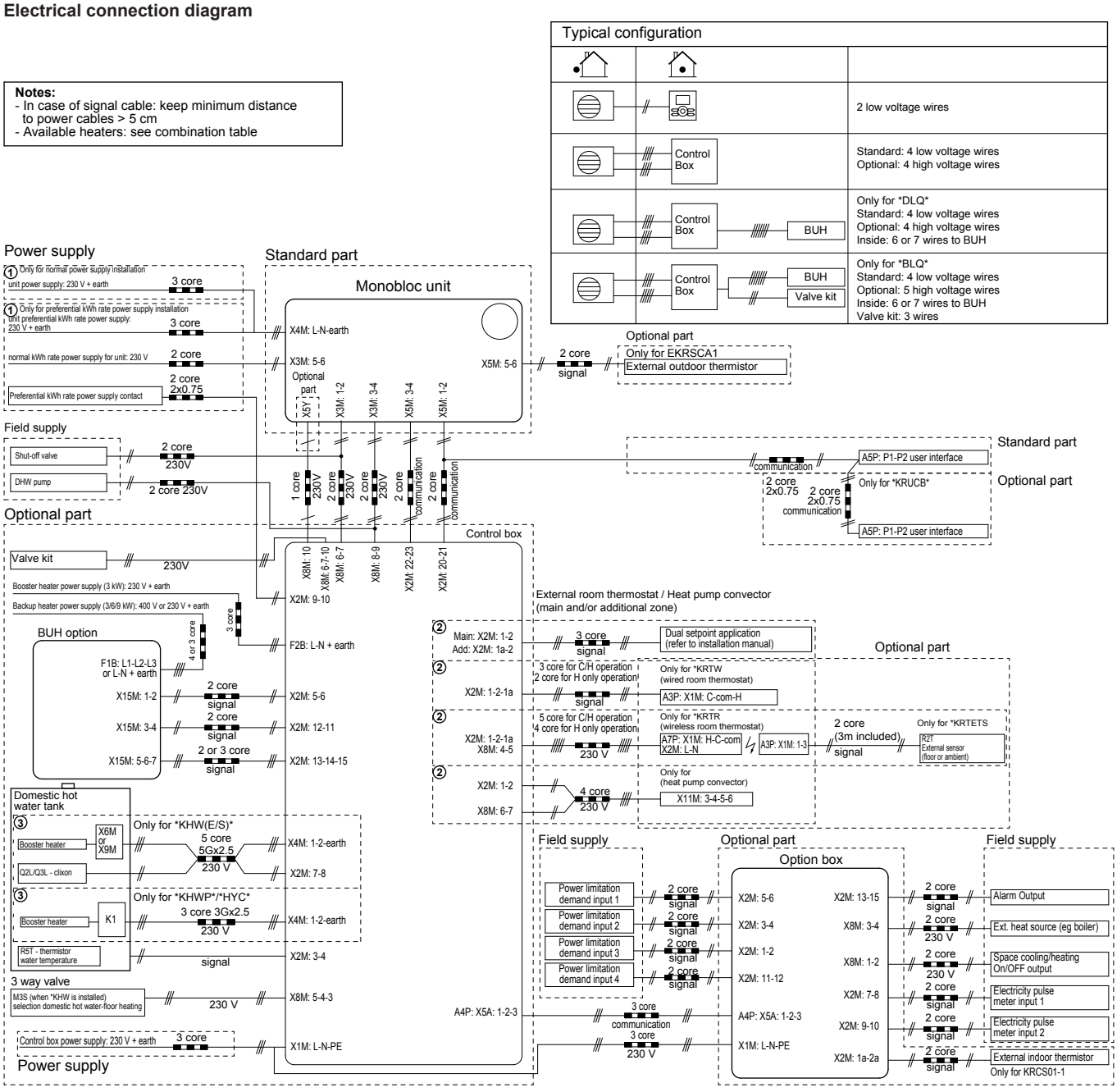
A1P		Main PCB
A2P		Current loop PCB
A3P	*	On/OFF thermostat (PC=power circuit)
A3P	*	Heat pump convector
A4P	*	Extension PCB (control, optional)
A5P		User interface PCB
A7P	*	Receiver PCB (wireless On/OFF thermostat)
B1L		Flow sensor
C110~C112		Capacitor
DB1, DB2, DB401		Rectifier bridge
DS1 (A4P)	*	DIP switch
E1H		Backup heater element (1 kW)
E2H		Backup heater element (2 kW)
E3H		Backup heater element
E4H		Booster heater (3 kW)
E6H		Plate heat exchanger heater tape
E7H		Expansion vessel heater
F1B	*	Overcurrent fuse backup heater
F2B	*	Overcurrent fuse booster heater
F1T, F2T	*	Thermal fuse backup heater
F1U (A4P)		Fuse T 2 A 250 V
F2U (A4P)		Fuse T 2 A 250 V for 3-way valve
FU1 (A1P)		Fuse T 6.3 A 250 V
FU2 (A1P)		Fuse T 6.3 A 250 V
K1	*	Terminal strip
K2	*	Booster heater
FU1, FU3 (PCB1)		Fuse
FU2 (PCB2)		Fuse
IPM1		Intelligent power module
K1A		Relay for heating
K2A		Relay for cooling
K1M	*	Contactor backup heater (step 1)
K2M	*	Contactor backup heater (step 2)
K3M	*	Contactor booster heater
K5M	*	Safety contactor backup heater (only for *9W)
K1R	*	Backup heater relay (step 1)
K2R	*	Backup heater relay (step 2)
K*R		Relay on PCB
LED 1~LED 4		Indication lamp
LED A, LED B		Pilot lamp
M1C		Compressor motor
M1F		Fan motor
M1P		Main supply pump

M2P	#	Domestic hot water pump
M2S	#	Shut-off valve
M3S		3-way valve for domestic hot water
M4S	*	Valve kit
MR30_A, DP1, E1, MR30_B, DP2, E2, DC_P1, DC_P2, DCP1, DC_N1, DC_N2, HN402, HL402, DCP2, DCM1, DCM2		Connector
MRM*, MR30, MR4, MR306, MR307		Magnetic relay
PCB2		Inverter PCB
PCB3		Service PCB
Q*DI	#	Earth leakage circuit breaker
Q1L	*	Thermal protector backup heater
Q1L (PCB1)		
Q2L/Q3L	*	Thermal protector booster heater
R1T (A1P)		Outlet water heat exchanger thermistor
R1T (A3P)	*	Ambient sensor On/OFF thermostat
R1T (A5P)		Ambient sensor user interface
R1T (PCB1)		Thermistor (discharge)
R2T	*	Outlet backup heater thermistor
R2T (A3P)	*	External sensor (floor or ambient)
R2T (PCB1)		Thermistor (heat exchange)
R3T (A1P)		Refrigerant liquid side thermistor
R3T (PCB1)		Thermistor (air)
R1H (A3P)	*	Humidity sensor
R4T (A1P)		Inlet water thermistor
R5T	*	Domestic hot water thermistor
R6T (A1P)	*	External outdoor ambient thermistor
R6T (A4P)	*	External indoor ambient thermistor
S1L		Flow switch
S1S	#	Preferential kWh rate power supply contact
SA1		Surge arrestor
S1NPH		Pressure sensor
S1P~S4P	#	Digital power limitation inputs
S1PH		Pressure switch (high)
S2~S503		Connector
S5P+S6P	#	Electrical meters
SHEET METAL		Terminal strip fixed plate
STB	*	Thermal protector booster heater
SW1, SW3		Push buttons
SW2, SW5		DIP switches
TR1		Power supply transformer
V2, V3, V401		Varistor
X*M		Terminal strip
X*Y		Connector
Y1E		Electronic expansion valve coil
Y1R		Reversing solenoid valve coil
Z1C~Z4C		Ferrite core
	* =	Optional
	# =	Field supply
BLK		Black
BLU		Blue
BRN		Brown
GRN		Green
GRY		Grey
ORG		Orange
PPL		Purple
RED		Red
WHT		White
YLW		Yellow

Notes to go through before starting the unit

English	Translation
X4M	Main terminal
—·—·—·—	Earth wiring
15	Wire number 15
– – – – – – –	Field supply
①	Several wiring possibilities
	Option
	Not mounted in switch box
	Wiring depending on model
	PCB

Electrical connection diagram



ROTEX

(D) **ROTEX Heating Systems GmbH**
Langwiesenstraße 10 · D-74363 Güglingen
Fon +49(7135)103-0 · Fax +49(7135)103-200
e-mail info@rotex.de www.rotex.de

(GB) **ROTEX** products distributed in the United Kingdom by:
DAIKIN AIRCONDITIONING UK Ltd.
The Heights, Brooklands, Weybridge, Surrey KT 13 ONY
Tel. +44 845 645 641 9000 · Fax +44 845 641 9009
www.daikin.co.uk

(I) In Italia i prodotti **ROTEX** sono commercializzati tramite:
DAIKIN AIRCONDITIONING ITALY S.p.A.
Sede operativa
Via Milano, 6 - 20097 San Donato Milanese MI-Italy
Tel. +39 02 51619.1 · Fax +39 02 51619222
e-mail info@rotexitalia.it · www.rotexitalia.it
Numero verde ROTEX 800-886699

(F) **ROTEX** Représenté en France par:
ROTEX Heating Systems SARL
1, rue des Artisans · F-68280 Sundhoffen
Tel. +33 (0)3 89 21 74 70 · Fax +33 (0)3 89 21 74 74
e-mail info@rotex.fr · www.rotex.fr

(B) **ROTEX**
Vertegenwoordigd in België door:
Représenté en Belgique par:
DAIKIN AIRCONDITIONING BELGIUM NV
Avenue Franklin 1B · B-1300 Wavre
Tel. +32 (0)10 23 72 23 · Fax +32 (0)10 24 49 10
e-mail info@daikin.be · www.daikin.be

(E) En España los productos **ROTEX** se comercializan por:
DAIKIN AIRCONDITIONING SPAIN
Calle Labastida 2 · E-28034 Madrid
Tel. +34 91 334 5600 · Fax +34 91 334 5630
e-mail marketing@daikin.es · www.daikin.es

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