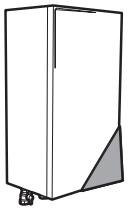
ROTEX

Installation manual

ROTEX HPSU low temperature Bi-bloc



RHBH04CB
RHBH08CB
RHBH11CB
RHBH16CB
RHBX04CB
RHBX08CB
RHBX11CB
RHBX16CB

Installation manual
ROTEX HPSU low temperature Bi-bloc

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 felelősségé 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 tālák 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:

RHBH04CB3V, RHBH08CB9W, RHBH11CB9W, RHBH16CB9W,
RHBX04CB3V, RHBX08CB9W, RHBX11CB9W, RHBX16CB9W,

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 skladní 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 следвайки клаузите на:
22 laikantis nuostatų, pateikiamų:
23 ievērojot prasības, kas noteiktas:
24 održiavajúc ustanovenia:
25 bunun koşullarına uygun olarak:

Low Voltage 2014/35/EU
Electromagnetic Compatibility 2014/30/EU *

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 muutettuina.
14 v platném znění.
15 Smjernice, kako je izmijenjeno.
16 irányelv(ek) és módosításaik rendelkezéseit.
17 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.025H1/08-2014
<B>	DEKRA (NB0344)
<C>	2082543.0551-QUA/EMC

ROTEX Heating Systems GmbH
Langwiesenstraße 10 · D-74363 Güglingen

Georg Blümel
Managing Director
1st of April 2016

ROTEX

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 indoor unit)
- **Indoor unit installation manual:**
  - Installation instructions
  - Format: Paper (in the box of the indoor unit)
- **Outdoor unit installation manual:**
  - Installation instructions
  - Format: Paper (in the box of the outdoor unit)
- **Installer reference guide:**
  - Preparation of the installation, 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 indoor 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.

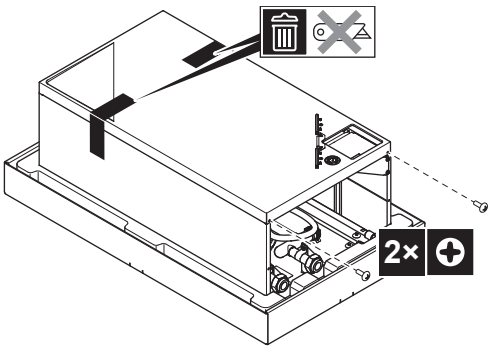
2 About the box

2.1 Indoor unit

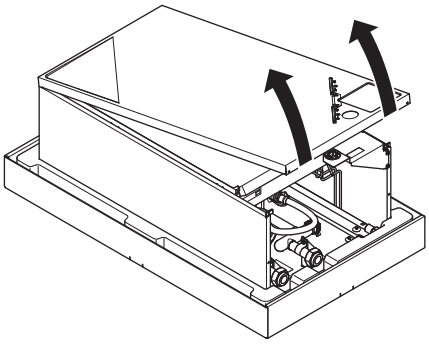
2.1.1 To remove the accessories from the indoor unit

The general safety precautions, the indoor unit installation manual, the operation manual and the addendum book for optional equipment are located in the upper part of the box. Follow the procedure below to remove the other accessories.

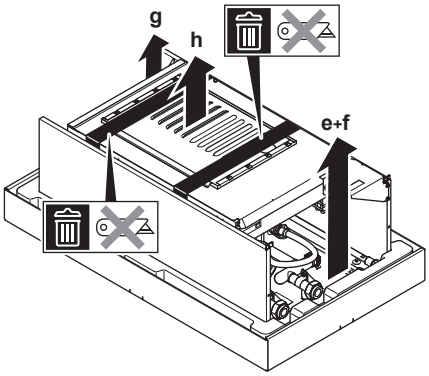
1 Remove the tape.

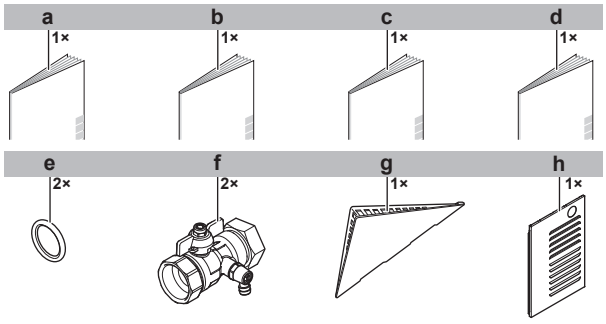


2 Tilt the bottom side of the front panel upwards and remove it.



3 Remove the accessories.





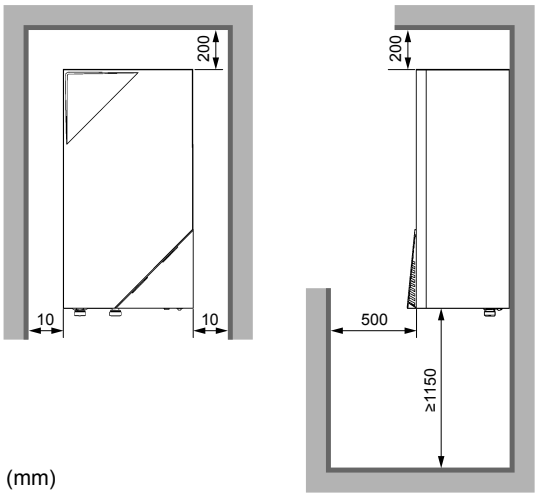
a General safety precautions
b Addendum book for optional equipment
c Indoor unit installation manual
d Operation manual
e Sealing ring for shut-off valve
f Shut-off valve
g User interface cover
h Top plate of indoor unit

3 Preparation

3.1 Preparing installation site

3.1.1 Installation site requirements of the indoor unit

- Mind the following spacing installation guidelines:



(mm)

- The indoor unit is designed for indoor installation only and for ambient temperatures ranging from 5~35°C.

3.2 Preparing water piping

NOTICE

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

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 10 litre for RHBH/X04+08 and 20 litre for RHBH/X11+16, the internal water volume of the indoor unit NOT included.

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

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 during defrost/backup heater operation	
04+08 models	12 l/min
11+16 models	15 l/min

See the recommended procedure as described in "6.2 Checklist during commissioning" on page 19.

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 and indoor unit power supply			
1	Power supply for outdoor unit	2+GND or 3+GND	(a)
2	Power supply and interconnection cable to indoor unit	3	(c)
3	Power supply for backup heater	See table below.	—
4	Preferential kWh rate power supply (voltage free contact)	2	(e)
5	Normal kWh rate power supply	2	6.3 A
User interface			
6	User interface	2	(f)
Optional equipment			
7	3-way valve	3	100 mA(b)
8	Power supply for booster heater and thermal protection (from indoor unit)	4+GND	(c)
9	Power supply for booster heater (to indoor unit)	2+GND	13 A
10	Domestic hot water tank thermistor	2	(d)
11	Power supply for bottom plate heater	2	(b)
12	Room thermostat	3 or 4	100 mA(b)
13	Outdoor ambient temperature sensor	2	(b)
14	Heat pump convector	4	100 mA(b)
Field supplied components			
15	Shut-off valve	2	100 mA(b)
16	Electricity meter	2 (per meter)	(b)
17	Domestic hot water pump	2	(b)
18	Alarm output	2	(b)
19	Changeover to external heat source control	2	(b)
20	Space cool/heat operation control	2	(b)
21	Power consumption digital inputs	2 (per input signal)	(b)
22	Safety thermostat	2	(e)

(a) Refer to name plate on outdoor unit.
(b) Minimum cable section 0.75 mm².
(c) Cable section 2.5 mm².
(d) The thermistor and connection wire (12 m) are delivered with the domestic hot water tank.
(e) Cable section 0.75 mm² till 1.25 mm²; maximum length: 50 m. Voltage-free contact shall ensure the minimum applicable load of 15 V DC, 10 mA.
(f) Cable section 0.75 mm² till 1.25 mm²; maximum length: 500 m. Applicable for both single user interface and dual user interface connection.

NOTICE

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

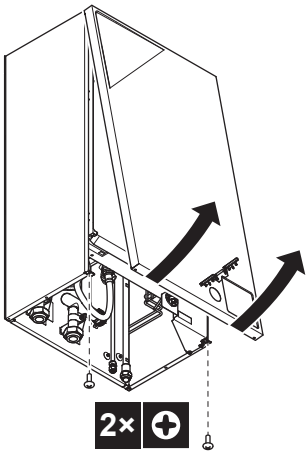
Backup heater type	Power supply	Required number of conductors
*3V	1× 230 V	2+GND
*9W	1× 230 V	2+GND + 2 bridges
	3× 230 V	3+GND + 1 bridge
	3× 400 V	4+GND

4 Installation

4.1 Opening the units

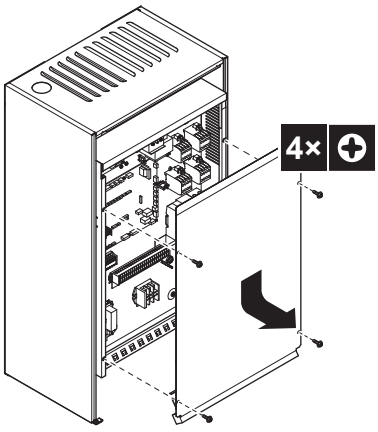
4.1.1 To open the indoor unit

1 Loosen and remove the 2 screws that fix the front panel.



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

4.1.2 To open the switch box cover of the indoor unit



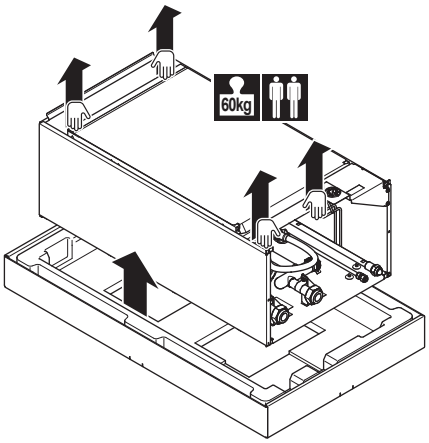
4.2 Mounting the indoor unit

4.2.1 To install the indoor unit

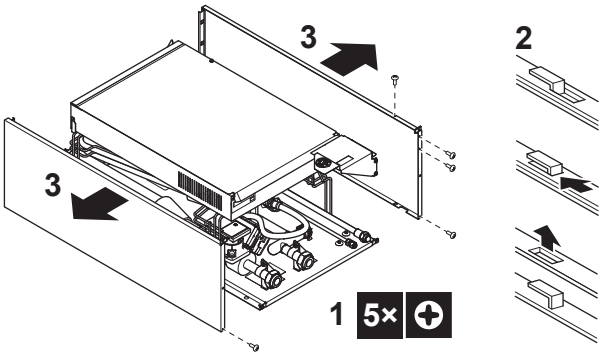
CAUTION

Do NOT grasp the piping to lift the indoor unit.

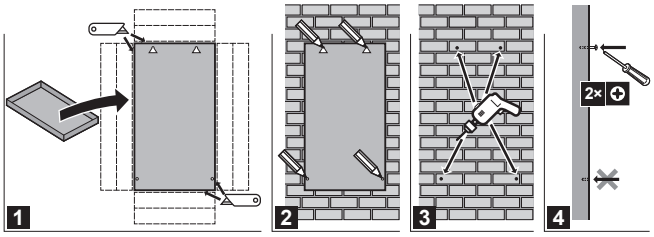
1 Lift the unit from the package.



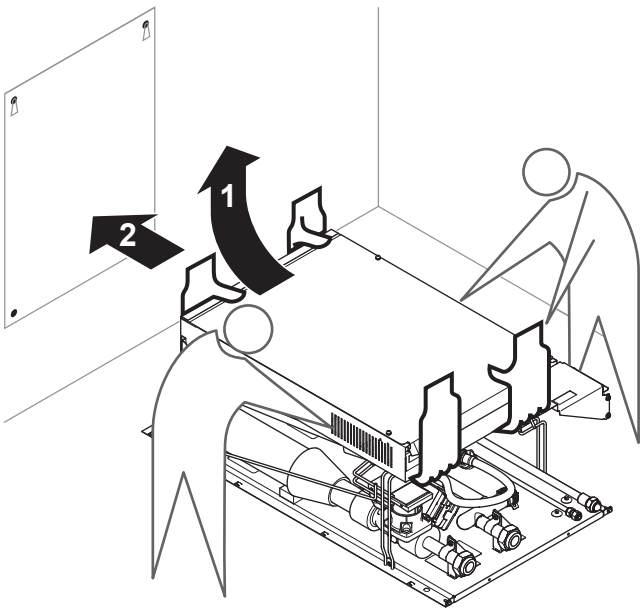
2 Remove the 4 screws from the bottom of the unit. Unhook and remove the side plates.



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

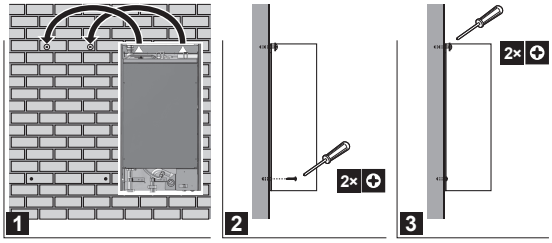


4 Lift the unit.

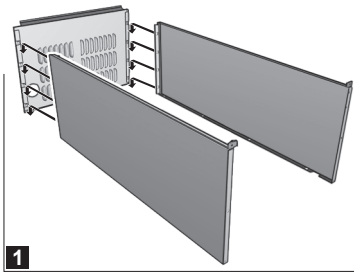


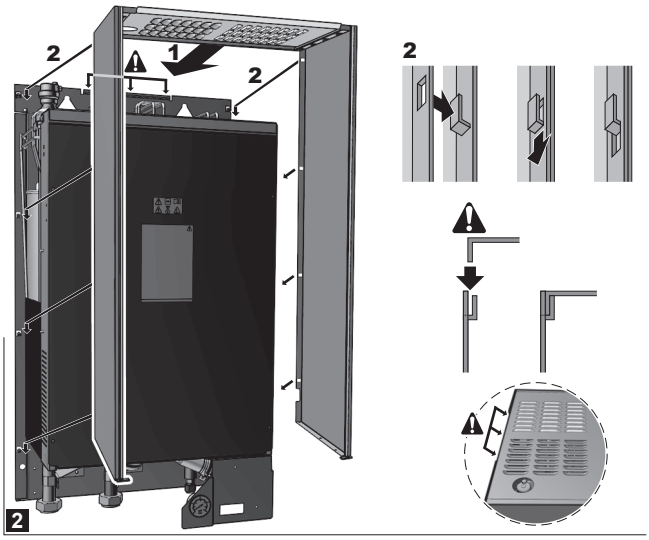
5 Tilt the top of the unit against the wall at the position of the 2 inserted screws.

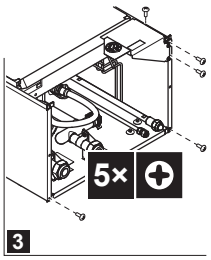
6 Hook the unit against the wall.



7 Assemble the unit.







4.2.2 To install the drain pan kit

If a drain pan kit (EKHBDPCA2) is required, install it before connecting the refrigerant and water pipes and the electrical wiring.

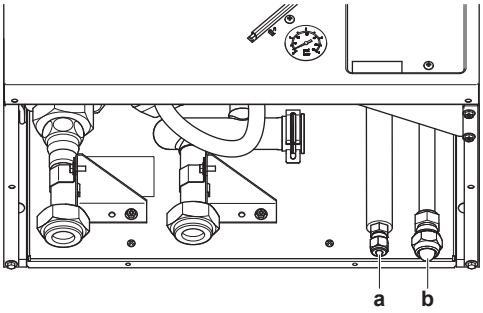
To install, see the installation manual of the drain pan kit.

4.3 Connecting the refrigerant piping

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

4.3.1 To connect the refrigerant piping to the indoor unit

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



a Refrigerant liquid connection
b Refrigerant gas connection

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

4.4 Connecting the water piping

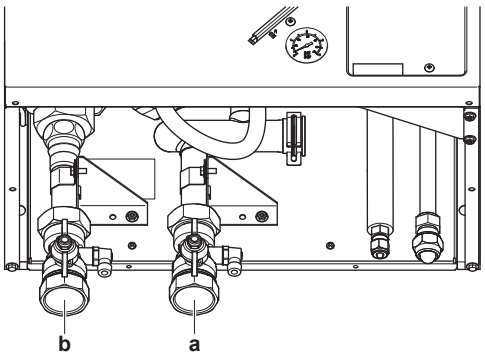
4.4.1 To connect the water piping

NOTICE

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

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.

1 Install the shut-off valves on the water pipes.



a Water inlet
b Water outlet

2 Screw the indoor unit nuts on the shut-off valves.

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

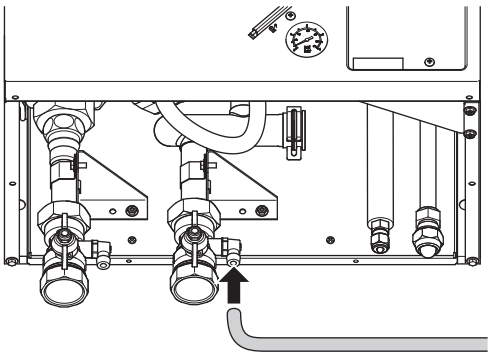
4 In case of connection with the optional domestic hot water tank, see the installation manual of the domestic hot water tank.

NOTICE

Install air purge valves at all local high points.

4.4.2 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 Make sure that the automatic air purge valve is open (at least 2 turns).

4 Fill the circuit with water until the manometer 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 19.

6 Close the drain and fill valve.

7 Disconnect the water supply hose from the drain and fill valve.

4.4.3 To fill the domestic hot water tank

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

4.4.4 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.

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.

4.5 Connecting the electrical wiring

DANGER: RISK OF ELECTROCUTION

WARNING

ALWAYS use multicore cable for power supply cables.

4.5.1 About electrical compliance

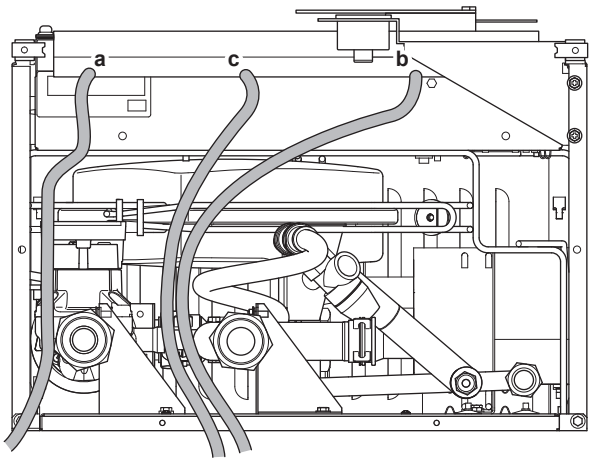
See "4.5.4 To connect the backup heater power supply" on page 9.

4.5.2 To connect the electrical wiring on the indoor unit

1 To open the indoor unit, see "4.1.1 To open the indoor unit" on page 5.

2 Wiring should enter the unit from the bottom.

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



INFORMATION

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

Routing	Possible cables (depending on unit type and installed options)
a Low voltage	▪ Preferential power supply contact ▪ User interface ▪ Domestic hot water tank thermistor (option) ▪ Power consumption digital inputs (field supply) ▪ Outdoor ambient temperature sensor (option) ▪ Electrical meters (field supply) ▪ Safety thermostat (field supply)
b High voltage power supply	▪ Interconnection cable ▪ Normal kWh rate power supply ▪ Preferential kWh rate power supply ▪ Power supply for backup heater ▪ Power supply for bottom plate heater (option) ▪ Power supply for booster heater (to indoor unit) ▪ Power supply for booster heater and thermal protection (from indoor unit)
c High voltage control signal	▪ Heat pump convector (option) ▪ Room thermostat (option) ▪ 3-way valve ▪ Shut-off valve (field supply) ▪ Domestic hot water pump (field supply) ▪ Alarm output ▪ Changeover to external heat source control ▪ Space heat/cool operation control

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

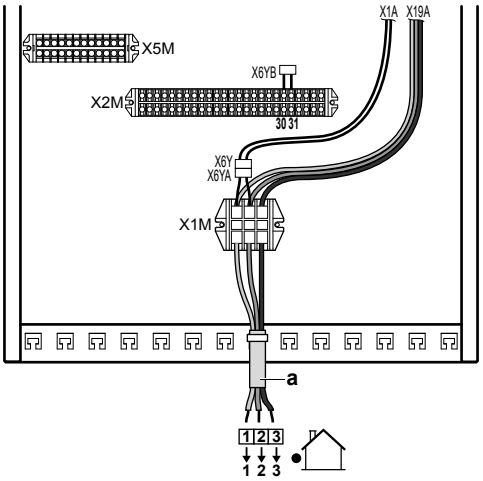
CAUTION

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

4.5.3 To connect the main power supply

1 Connect the main power supply.

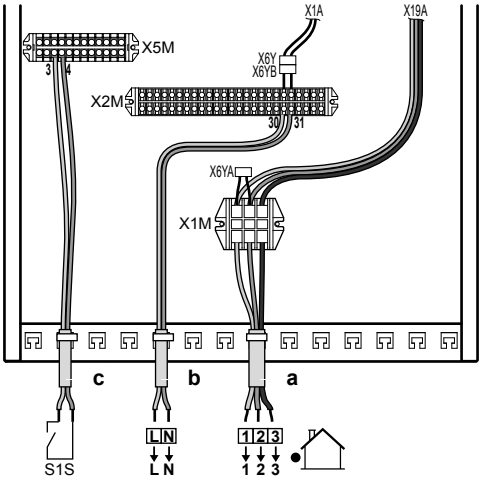
In case of normal kWh rate power supply



Legend: see illustration below.

In case of preferential kWh rate power supply

Connect X6Y to X6YB.



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

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

INFORMATION

In case of preferential kWh rate power supply, connect X6Y to X6YB. The necessity of separate normal kWh rate power supply to indoor unit (b) X2M30/31 depends on the type of preferential kWh rate power supply.

Separate connection to the indoor unit is required:

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

INFORMATION

The preferential kWh rate power supply contact is connected to the same terminals (X5M/3+4) as the safety thermostat. It is only possible for the system to have EITHER preferential kWh rate power supply OR a safety thermostat.

4.5.4 To connect the backup heater power supply

CAUTION

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

CAUTION

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

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

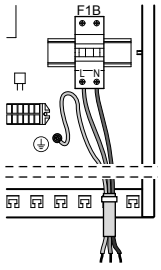
Backup heater type	Backup heater capacity	Power supply	Maximum running current	$Z_{max}(\Omega)$
*3V	3 kW	1~ 230 V	13 A	—
*9W	3 kW	1~ 230 V	13 A	—
	6 kW	1~ 230 V	26 A(a)(b)	—
	6 kW	3~ 230 V	15 A	—
	6 kW	3N~ 400 V	8.6 A	—
	9 kW	3N~ 400 V	13 A	—

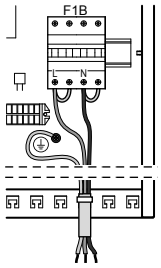
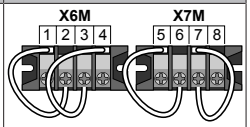
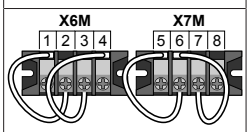
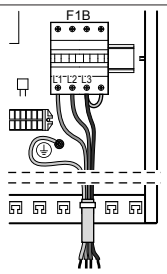
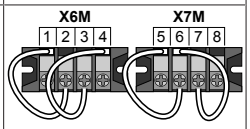
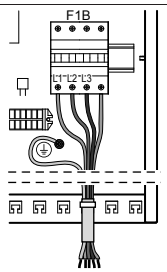
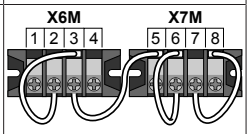
(a) Equipment complying with EN/IEC 61000-3-12 (European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase.).

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

1 Connect the backup heater power supply. For *3V models, a double-pole fuse is used for F1B. For *9W models, a 4-pole fuse is used for F1B.

2 If required, modify the connections on terminals X6M and X7M.

Backup heater type	Connections to backup heater power supply	Connections to terminals
3 kW 1~ 230 V (*3V)		—

Backup heater type	Connections to backup heater power supply	Connections to terminals
3 kW 1~ 230 V (*9W)		
6 kW 1~ 230 V (*9W)		
6 kW 3~ 230 V (*9W)		
6 kW 3N~ 400 V (*9W) 9 kW 3N~ 400 V (*9W)		

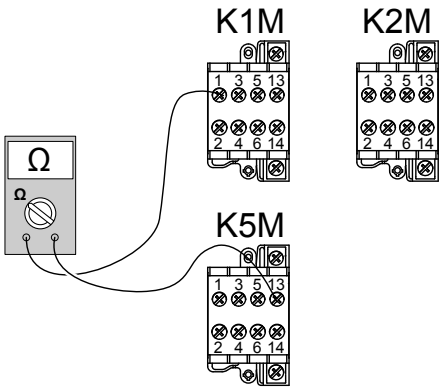
3 Fix the cable with cable ties to the cable tie mountings.

4 Configure the user interface for the respective power supply. See "5.2.2 Quick wizard: Standard" on page 14.

During connection of the backup heater, miswiring is possible. To detect possible miswiring, it is highly recommended to measure the resistance value of the heater elements. Depending on the different backup heater types, following resistance values (see table below) should be measured. ALWAYS measure the resistance on the contactor clamps K1M, K2M, and K5M.

		3 kW 1~ 230 V	6 kW 1~ 230 V	6 kW 3~ 230 V	6 kW 3N~ 400 V	9 kW 3N~ 400 V
K1M/1	K5M/13	52.9Ω	52.9Ω	52.9Ω	∞	∞
	K1M/3	∞	∞	∞	105.8Ω	105.8Ω
	K1M/5	∞	∞	∞	105.8Ω	105.8Ω
K1M/3	K1M/5	26.5Ω	26.5Ω	26.5Ω	105.8Ω	105.8Ω
K2M/1	K5M/13	∞	26.5Ω	26.5Ω	∞	∞
	K2M/3	∞	∞	∞	52.9Ω	52.9Ω
	K2M/5	∞	∞	∞	52.9Ω	52.9Ω
K2M/3	K2M/5	52.9Ω	52.9Ω	52.9Ω	52.9Ω	52.9Ω
K1M/5	K2M/1	∞	∞	∞	∞	∞

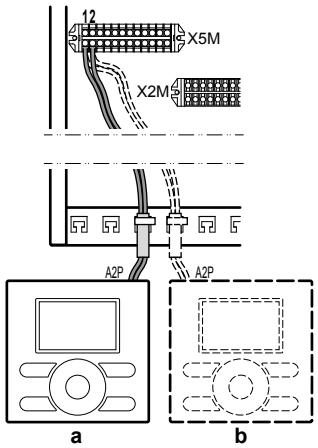
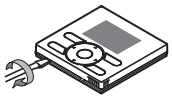
Example measure resistance between K1M/1 and K5M/13:

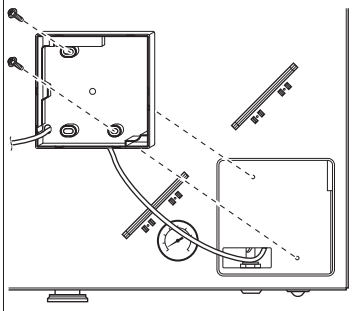


4.5.5 To connect the user interface

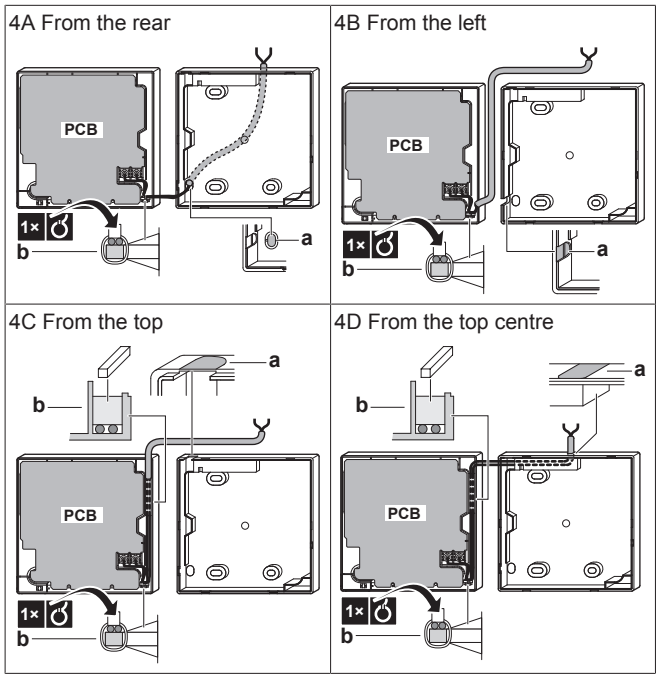
- If you use 1 user interface, you can install it at the indoor unit (for control close to the indoor unit), or in the room (when used as room thermostat).
- If you use 2 user interfaces, you can install 1 user interface at the indoor unit (for control close to the indoor unit) + 1 user interface in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

The procedure differs slightly depending on where you install the user interface.

#	At the indoor unit	In the room
1	Connect the user interface cable to the indoor unit. Fix the cable with cable ties to the cable tie mountings.  **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. 	

#	At the indoor unit	In the room
3	Use the 2 screws in the accessory bag to fix the wallplate of the user interface to the sheet metal of the unit. Be careful NOT to distort the shape of the backside of the user interface by overtightening the mounting screws. 	Fix the wallplate of the user interface to the wall.
4	Connect as shown in 4A.	Connect as shown in 4A, 4B, 4C or 4D.
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).



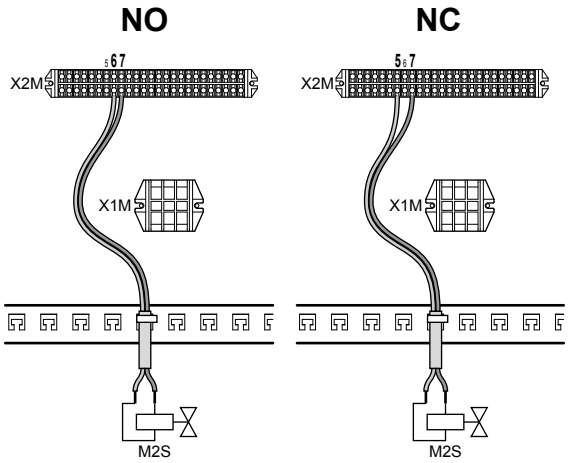
a Notch this part for the wiring to pass through with nippers etc.
b Secure the wiring to the front part of the casing using the wiring retainer and clamp.

4.5.6 To connect the shut-off valve

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

NOTICE

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



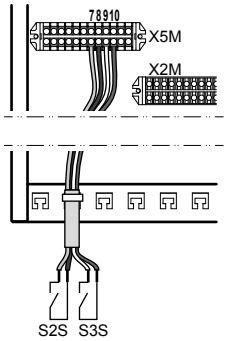
2 Fix the cable with cable ties to the cable tie mountings.

4.5.7 To connect the electrical meters

INFORMATION

In case of an electrical meter with transistor output, check the polarity. The positive polarity MUST be connected to X5M/7 and X5M/9; the negative polarity to X5M/8 and X5M/10.

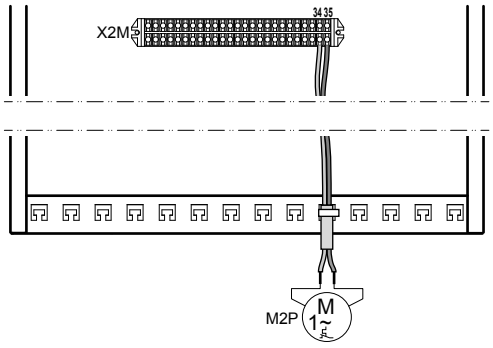
1 Connect the electrical meters cable to the appropriate terminals as shown in the illustration below.



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

4.5.8 To connect the domestic hot water pump

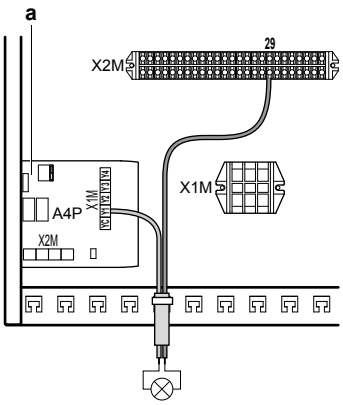
1 Connect the domestic hot water pump cable to the appropriate terminals as shown in the illustration below.



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

4.5.9 To connect the alarm output

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

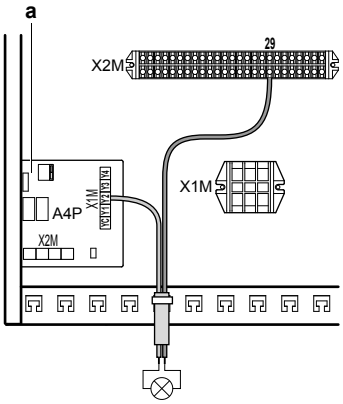


a Installation of EKRP1HB is required.

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

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

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

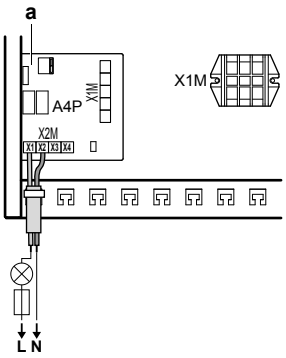


a Installation of EKRP1HB is required.

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

4.5.11 To connect the changeover to external heat source

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

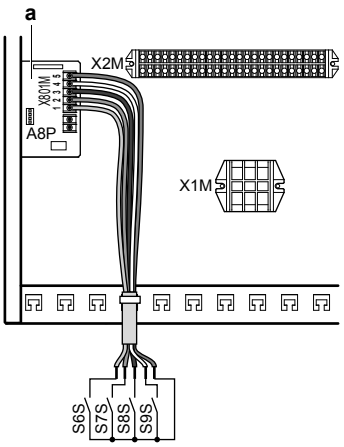


a Installation of EKRP1HB is required.

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

4.5.12 To connect the power consumption digital inputs

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

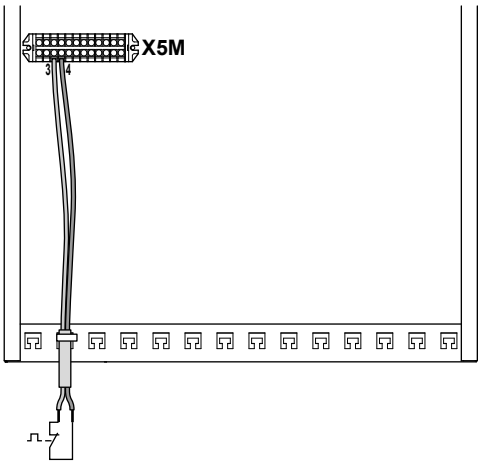


a Installation of EKRP1AHTA is required.

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

4.5.13 To connect the safety thermostat (normal closed contact)

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



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

NOTICE

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

In any case, to prevent unnecessary tripping of the safety thermostat, it is recommended that …

- … the safety thermostat is automatically resettable.
- … the safety thermostat has a maximum temperature variation rate of 2°C/min.
- … there is a minimum distance of 2 m between the safety thermostat and the motorised 3-way valve delivered with the domestic hot water tank.

INFORMATION

After it is installed, do NOT forget to configure the safety thermostat. Without configuration, the indoor unit will ignore the safety thermostat contact.

INFORMATION

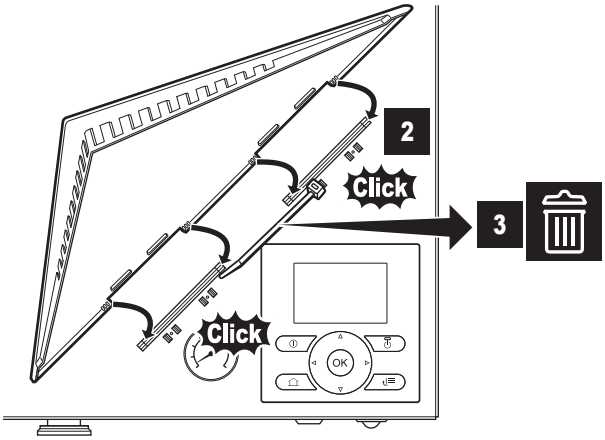
The preferential kWh rate power supply contact is connected to the same terminals (X5M/3+4) as the safety thermostat. It is only possible for the system to have EITHER preferential kWh rate power supply OR a safety thermostat.

4.6 Finishing the indoor unit installation

4.6.1 To fix the user interface cover to the indoor unit

1 Make sure that the front panel is removed from the indoor unit. See "4.1.1 To open the indoor unit" on page 5.

2 Plug the user interface cover into the hinges.



3 Mount the front panel to the indoor unit.

4.6.2 To close the indoor unit

1 Close the switch box cover.

2 Reinstall the front panel.

NOTICE

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

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 13
- "5.3 Menu structure: Overview installer settings" on page 18

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.

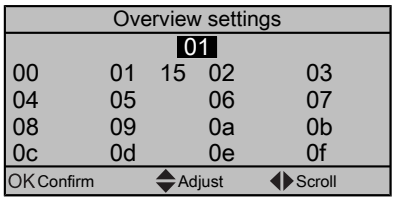
1 Go to [A.8]: > Installer settings > Overview settings.

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

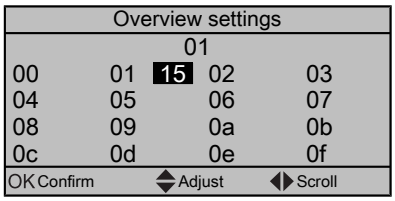
INFORMATION

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".

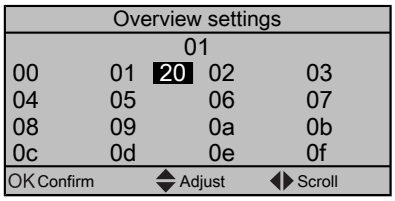


3 Go to the corresponding second part of the setting by using the ◀ and ▶ button.



Result: The value to be modified is now highlighted.

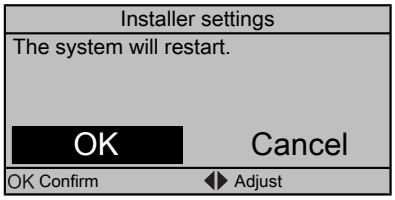
4 Modify the value by using the ▲ and ▼ button.



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

Backup heater configuration (only for *9W model)

#	Code	Description
[A.2.1.5]	[5-0D]	BUH type: ▪ 1 (1P,(1/1+2)): 6 kW 1~ 230 V (*9W) ▪ 3 (3P,(1/1+2)): 6 kW 3~ 230 V (*9W) ▪ 4 (3PN,(1/2)): 6 kW 3N~ 400 V (*9W) ▪ 5 (3PN,(1/1+2)): 9 kW 3N~ 400 V (*9W)

Backup heater relay setting

Relay setting	Backup heater operation	
	If backup heater step 1 is active:	If backup heater step 2 is active:
1/1+2	Relay 1 ON	Relays 1+2 ON
1/2	Relay 1 ON	Relay 2 ON

Space heating/cooling settings

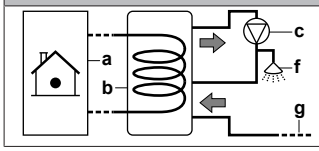
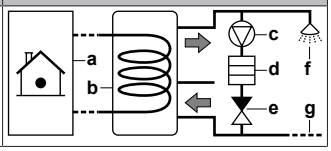
#	Code	Description
[A.2.1.7]	[C-07]	Unit temperature control: ▪ 0 (LWT control): Unit operation is decided based on the leaving water temperature. ▪ 1 (Ext RT control): Unit operation is decided by the external thermostat. ▪ 2 (RT control): Unit operation is decided based on the ambient temperature of the user interface.
[A.2.1.B]	N/A	Only if there are 2 user interfaces: User interface location: ▪ At unit ▪ In room
[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.

5.2.3 Quick wizard: Options

Domestic hot water settings

#	Code	Description
[A.2.2.1]	[E-05]	DHW operation: Can the system prepare domestic hot water? ▪ 0 (No): NOT installed ▪ 1 (Yes): Installed
[A.2.2.3]	[E-07]	DHW tank type: ▪ 0 (Type 1): Tank with booster heater installed at the side of the tank. Default for RHBH/X. ▪ 1 (Type 2): N/A. Range: 0~6. However, values 2~6 are not applicable for this setting. If the setting is set to 6, an error code will appear and the system will NOT operate.

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

INFORMATION

The correct domestic hot water default settings becomes only applicable when domestic hot water operation is activated ([E-05]=1).

Thermostats and external sensors

NOTICE

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

#	Code	Description
[A.2.2.4]	[C-05]	External room thermostat for the **main** zone: ▪ 1 (Thermo ON/OFF): When the used external room thermostat or heat pump convector can only send a thermo ON/OFF condition. 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.
[A.2.2.5]	[C-06]	External room thermostat for the **additional** zone: ▪ 0: N/A ▪ 1 (Thermo ON/OFF): When the used external room thermostat or heat pump convector can only send a thermo ON/OFF condition. 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.

#	Code	Description
[A.2.2.B]	[C-08]	External sensor: ▪ 0 (No): NOT installed. ▪ 1 (Outdoor sensor): Connected to PCB measuring the outdoor temperature. ▪ 2 (Room sensor): NOT applicable.

Digital I/O PCB

#	Code	Description
[A.2.2.6.1]	[C-02]	External backup heater source: ▪ 0 (No): None ▪ 1 (Bivalent): Gas, oil boiler ▪ 2: N/A ▪ 3: N/A
[A.2.2.6.3]	[C-09]	Alarm output on optional EKRP1HB PCB: ▪ 0 (Normally open): The alarm output will be powered when an alarm occurs. By setting this value, a distinction is made between the detection of an alarm, and the detection of a power failure. ▪ 1 (Normally closed): The alarm output will NOT be powered when an alarm occurs. See also table below (Alarm output logic).
[A.2.2.6.4]	[F-04]	Bottom plate heater ▪ 0 (No): NOT installed ▪ 1 (Yes): Installed

Alarm output logic

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

Demand PCB

#	Code	Description
[A.2.2.7]	[D-04]	Demand PCB Only applicable for RHBH/X04+08. Indicates if the optional demand PCB is installed. ▪ 0 (No) ▪ 1 (Pwr consmp ctrl)

Energy metering

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

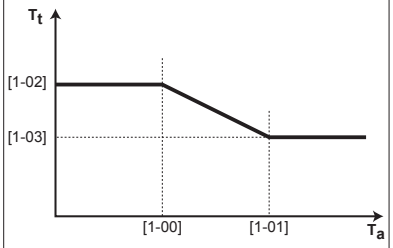
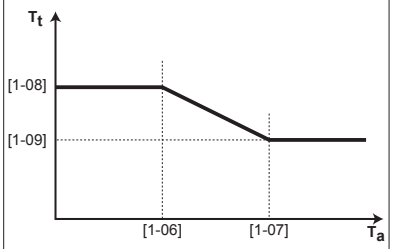
#	Code	Description
[A.2.2.9]	[D-09]	Optional external kWh meter 2: ▪ 0 (No): NOT installed ▪ 1: Installed (0.1 pulse/kWh) ▪ 2: Installed (1 pulse/kWh) ▪ 3: Installed (10 pulse/kWh) ▪ 4: Installed (100 pulse/kWh) ▪ 5: Installed (1000 pulse/kWh)

5.2.4 Quick wizard: Capacities (energy metering)

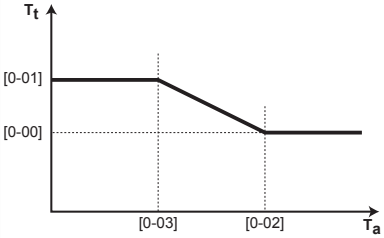
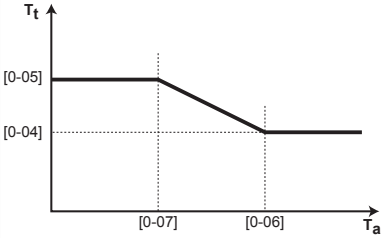
#	Code	Description
[A.2.3.1]	[6-02]	Booster heater capacity [kW]
[A.2.3.6]	[6-07]	Bottom plate heater capacity [W]

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)
[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
[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

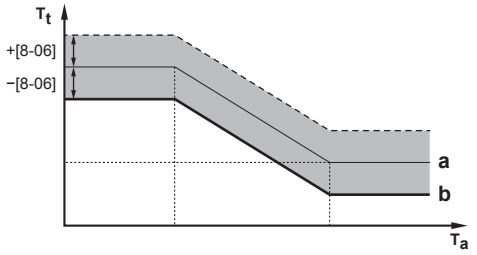
#	Code	Description
[A.3.1.3.1]	[9-09]	Heating: required temperature difference between entering and leaving water. In case a minimum temperature difference is required for the good operation of the heat emitters in heating mode.
[A.3.1.3.2]	[9-0A]	Cooling: required temperature difference between entering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

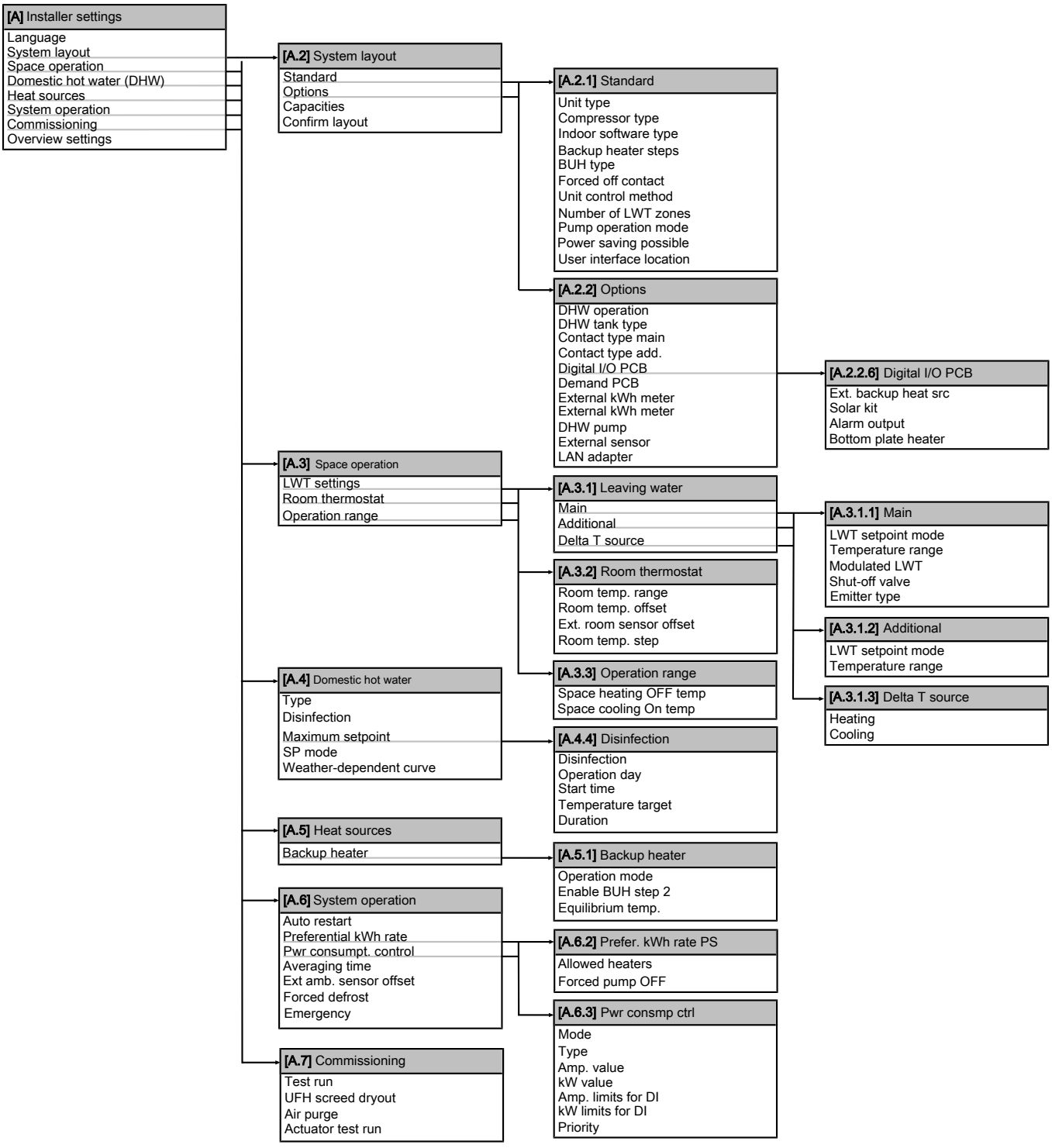
INFORMATION

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

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

INFORMATION

Depending on the selected installer settings, 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:

☐	You read the complete installation instructions, as described in the **installer reference guide**.
☐	The **indoor unit** is properly mounted.
☐	The **outdoor unit** is properly mounted.
☐	The following **field wiring** has been carried out according to this document and the applicable legislation: ▪ Between the local supply panel and the outdoor unit ▪ Between indoor unit and outdoor unit ▪ Between the local supply panel and the indoor unit ▪ Between the indoor unit and the valves (if applicable) ▪ Between the indoor unit and the room thermostat (if applicable) ▪ Between the indoor unit and the domestic hot water tank (if applicable) ▪ Between the gas boiler and the local supply panel (only applicable in case of hybrid system)
☐	The system is properly **earthed** and the earth terminals are tightened.
☐	The **fuses** or locally installed protection devices are installed according to this document, and have not been bypassed.
☐	The **power supply voltage** matches the voltage on the identification label of the unit.
☐	There are NO **loose connections** or damaged electrical components in the switch box.
☐	There are NO **damaged components** or **squeezed pipes** on the inside of the indoor and outdoor units.
☐	Depending on the backup heater type, **backup heater circuit breaker** F1B on the switch box is turned ON.
☐	Only for tanks with built-in booster heater: The **booster heater circuit breaker** F2B on the switch box is turned ON.
☐	There are NO **refrigerant leaks**.
☐	The **refrigerant pipes** (gas and liquid) are thermally insulated.
☐	The correct pipe size is installed and the **pipes** are properly insulated.
☐	There is NO **water leak** inside the indoor unit.
☐	The **shut-off valves** are properly installed and fully open.
☐	The **stop valves** (gas and liquid) on the outdoor unit are fully open.
☐	The **air purge** valve is open (at least 2 turns).
☐	The **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. 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

☐	The **minimum flow rate** during backup heater/defrost operation 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 check the minimum flow rate

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

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

3 Start the pump test run operation (see "6.2.4 To perform an actuator test run" on page 20).

4 Go to [6.1.8]: ☰ > Information > Sensor information > Flow rate to check the flow rate. During pump test run operation, the unit can operate below this minimum required flow rate.

Bypass valve foreseen?	
Yes	**No**
Modify the bypass valve setting to reach the minimum required flow rate + 2 l/min	In case the actual flow rate is below the minimum flow rate, modifications at the hydraulic configuration are required. Increase the space heating loops that can NOT be closed or install a pressure-controlled bypass valve.

Minimum required flow rate during defrost/backup heater operation	
04+08 models	12 l/min
11+16 models	15 l/min

6.2.2 To perform an air purge

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

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

2 Set the type.

3 Select Start air purge and press OK.

4 Select OK and press OK.

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

6.2.3 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 13.

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

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

4 Select OK and press OK.

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

INFORMATION

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

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

6.2.4 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 13.

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
- Bottom plate heater test
- Bivalent signal test
- Alarm output test
- Cooling/heating signal test
- Quick heat-up test
- Circulation pump test

6.2.5 To perform an underfloor heating screed dryout

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

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

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

2 Set a dryout program.

3 Select Start dryout and press OK.

4 Select OK and press OK.

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

NOTICE

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

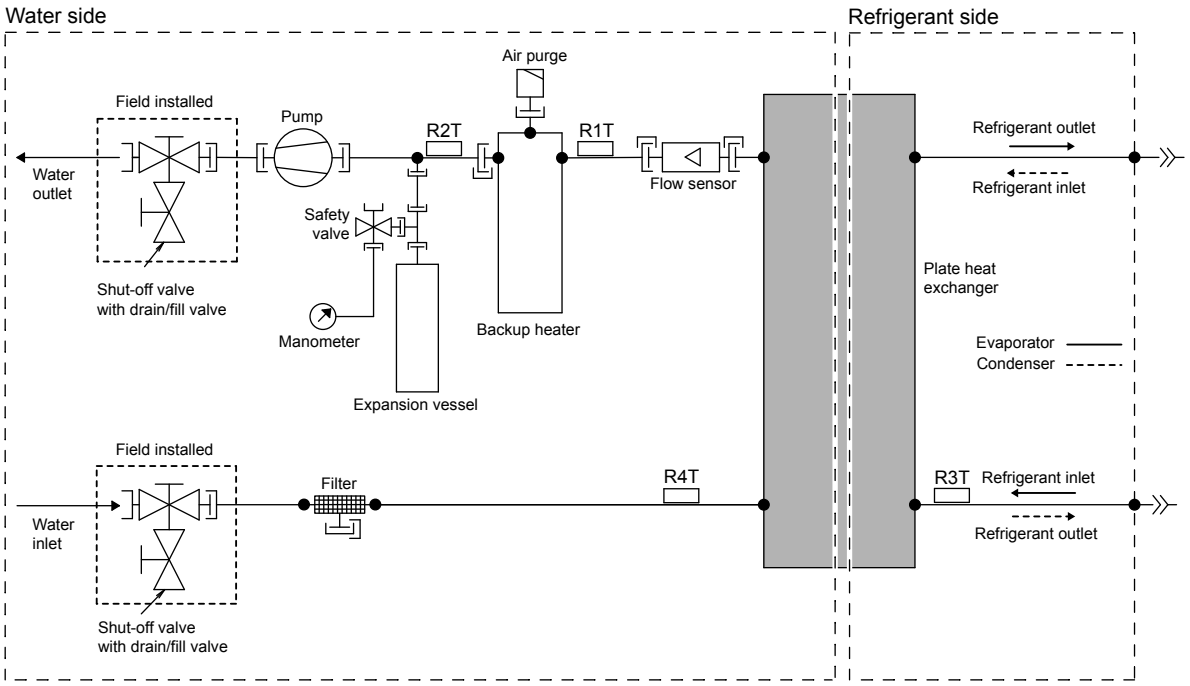
Once the test run is finished and the unit operates properly, please make sure the following is clear for the user:

- 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 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.

8 Technical data

8.1 Piping diagram: Indoor unit



LEGEND			
Check valve		Screw connection	
Flare connection		Quick coupling	
Spinned pipe		Flange connection	
Pinched pipe		Brazed connection	

Thermistor	Description
R4T	Inlet water thermistor
R3T	Refrigerant liquid side thermistor
R2T	Outlet water backup heater thermistor
R1T	Outlet water heat exchanger thermistor

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8.2 Wiring diagram: Indoor unit

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

Notes to go through before starting the unit

English	Translation
Notes to go through before starting the unit	Notes to go through before starting the unit
X1M	Main terminal
X2M	Field wiring terminal for AC
X5M	Field wiring terminal for DC
X6M, X7M	Backup heater terminal
X4M	Booster heater terminal
—·—·—·—	Earth wiring
15	Wire number 15
– – – – – – –	Field supply
—> **/12.2	Connection ** continues on page 12 column 2
①	Several wiring possibilities
	Option
	Not mounted in switch box
	Wiring depending on model
	PCB
Backup heater configuration (only for *9W)	Backup heater configuration (only for *9W)
☐ 3V3 (1N~, 230 V, 3 kW)	☐ 3V3 (1N~, 230 V, 3 kW)
☐ 6V3 (1N~, 230 V, 6 kW)	☐ 6V3 (1N~, 230 V, 6 kW)
☐ 6WN (3N~, 400 V, 6 kW)	☐ 6WN (3N~, 400 V, 6 kW)
☐ 9WN (3N~, 400 V, 9 kW)	☐ 9WN (3N~, 400 V, 9 kW)
☐ 6T1 (3~, 230 V, 6 kW)	☐ 6T1 (3~, 230 V, 6 kW)
User installed options	User installed options
☐ Bottom plate heater	☐ Bottom plate heater
☐ Domestic hot water tank	☐ Domestic hot water tank
☐ Domestic hot water tank with solar connection	☐ Domestic hot water tank with solar connection
☐ Remote user interface	☐ Remote user interface
☐ Ext. indoor thermistor	☐ External indoor thermistor
☐ Ext outdoor thermistor	☐ External outdoor thermistor
☐ Digital I/O PCB	☐ Digital I/O PCB
☐ Demand PCB	☐ Demand PCB
☐ Solar pump and control station	☐ Solar pump and control station
Main LWT	Main leaving water temperature
☐ On/OFF thermostat (wired)	☐ On/OFF thermostat (wired)
☐ On/OFF thermostat (wireless)	☐ On/OFF thermostat (wireless)
☐ Ext. thermistor	☐ External thermistor
☐ Heat pump convector	☐ Heat pump convector
Add LWT	Additional leaving water temperature
☐ On/OFF thermostat (wired)	☐ On/OFF thermostat (wired)
☐ On/OFF thermostat (wireless)	☐ On/OFF thermostat (wireless)
☐ Ext. thermistor	☐ External thermistor
☐ Heat pump convector	☐ Heat pump convector

Position in switch box

English	Translation
Position in switch box	Position in switch box

Legend

A1P		Main PCB
A2P		User interface PCB
A3P	*	Solar pump station PCB
A3P	*	On/OFF thermostat (PC=power circuit)
A3P	*	Heat pump convector
A4P	*	Digital I/O PCB
A4P	*	Receiver PCB (Wireless On/OFF thermostat)
A5P		Anode driver PCB
A8P	*	Demand PCB
B1L		Flow sensor
BSK (A3P)	*	Solar pump station relay
DS1 (A8P)	*	DIP switch
E1A		Electrical anode
E1H		Backup heater element (1 kW)
E2H		Backup heater element (2 kW)
E3H		Backup heater element (3 kW)
E4H	*	Booster heater (3 kW)
F1B		Overcurrent fuse backup heater
F2B	*	Overcurrent fuse booster heater
F1T		Thermal fuse backup heater
F1U, F2U (A4P)	*	Fuse 5 A 250 V for digital I/O PCB
FU1 (A1P)		Fuse T 6.3 A 250 V for PCB
K1M, K2M		Contactor backup heater
K3M	*	Contactor booster heater
K5M		Safety contactor backup heater (only for *9W)
K*R (A1P, A4P)		Relay on PCB
M1P		Main supply pump
M2P	#	Domestic hot water pump
M2S	#	2-way valve for cooling mode
M3S	(*)	3-way valve for floor heating/domestic hot water
PC (A4P)		Power circuit
PHC1 (A4P)	*	Optocoupler input circuit
Q*DI	#	Earth leakage circuit breaker
Q1L		Thermal protector backup heater
Q2L	*	Thermal protector booster heater
R1H (A3P)	*	Humidity sensor
R1T (A1P)		Outlet water heat exchanger thermistor
R1T (A2P)		Ambient sensor user interface
R1T (A3P)	*	Ambient sensor On/OFF thermostat
R2T (A1P)		Outlet backup heater thermistor
R2T (A3P)	*	External sensor (floor or ambient)
R3T		Refrigerant liquid side thermistor
R4T		Inlet water thermistor
R5T	(*)	Domestic hot water thermistor
R6T	*	External indoor or outdoor ambient thermistor
S1S	#	Preferential kWh rate power supply contact

S2S	#	Electrical meter pulse input 1
S3S	#	Electrical meter pulse input 2
S4S	#	Safety thermostat
S6S~S9S	#	Digital power limitation inputs
SS1 (A4P)	*	Selector switch
TR1		Power supply transformer
CN1-2, X*A		Connector
X1H, X*Y		
X*M		Terminal strip

*: Optional
(*): Optional for RHBH/X
#: Field supply

Colours

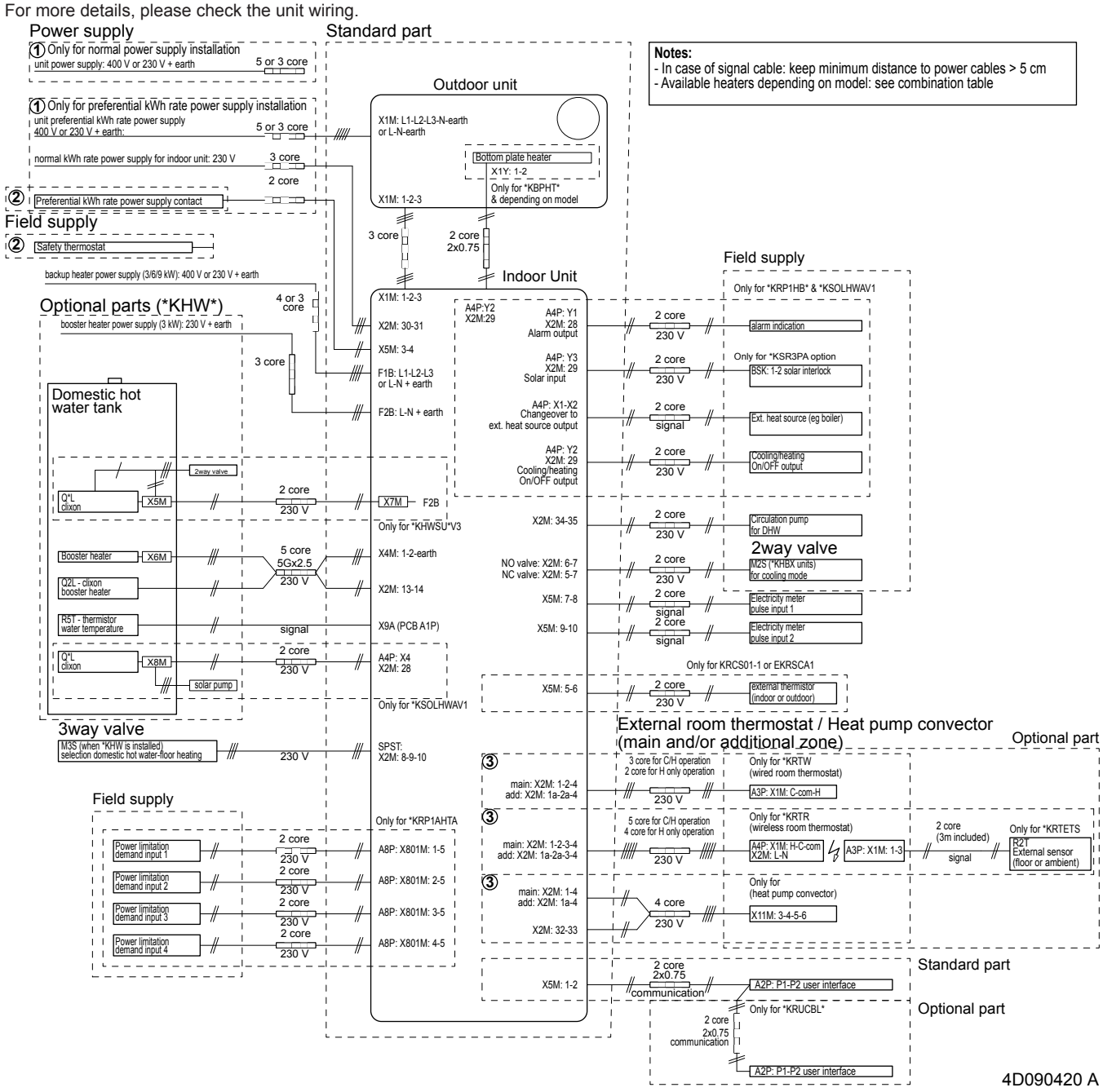
BLK	Black
BRN	Brown
GRY	Grey
RED	Red

Translation of text on wiring diagram

English	Translation
(1) Main power connection	(1) Main power connection
For preferential kWh rate power supply	For preferential kWh rate power supply
Indoor unit supplied from outdoor	Indoor unit supplied from outdoor
Normal kWh rate power supply	Normal kWh rate power supply
Only for normal power supply (standard)	Only for normal power supply (standard)
Only for preferential kWh rate power supply (outdoor)	Only for preferential kWh rate power supply (outdoor)
Outdoor unit	Outdoor unit
Preferential kWh rate power supply contact: 16 V DC detection (voltage supplied by PCB)	Preferential kWh rate power supply contact: 16 V DC detection (voltage supplied by PCB)
Use normal kWh rate power supply for indoor unit	Use normal kWh rate power supply for indoor unit
(2) Backup heater power supply	(2) Backup heater power supply
Only for ***	Only for ***
(3) User interface	(3) User interface
Only for remote user interface option	Only for remote user interface option
Switch box	Switch box
(4) Domestic hot water tanks	(4) Domestic hot water tanks
3 wire type SPST	3 wire type SPST
Booster heater power supply	Booster heater power supply
Only for ***	Only for ***
Only for wall-mounted models	Only for wall-mounted models
Switch box	Switch box
(5) Ext. thermistor	(5) External thermistor
Switch box	Switch box
(6) Field supplied options	(6) Field supplied options
12 V DC pulse detection (voltage supplied by PCB)	12 V DC pulse detection (voltage supplied by PCB)
230 V AC supplied by PCB	230 V AC supplied by PCB
Continuous	Continuous current
DHW pump output	Domestic hot water pump output
DHW pump	Domestic hot water pump
Electrical meters	Electrical meters
For safety thermostat	For safety thermostat
Inrush	Inrush current
Max. load	Maximum load
Normally closed	Normally closed
Normally open	Normally open
Safety thermostat contact: 16 V DC detection (voltage supplied by PCB)	Safety thermostat contact: 16 V DC detection (voltage supplied by PCB)
Shut-off valve	Shut-off valve
SWB	Switch box
(7) Option PCBs	(7) Option PCBs
Alarm output	Alarm output
Changeover to ext. heat source	Changeover to external heat source
If no bottom plate heater	If no bottom plate heater
Max. load	Maximum load
Min. load	Minimum load
Only for bottom plate heater	Only for bottom plate heater
Only for demand PCB option	Only for demand PCB option
Only for digital I/O PCB option	Only for digital I/O PCB option
Only for solar pump station	Only for solar pump station
Options: bottom plate heater OR On/OFF output	Options: bottom plate heater OR On/OFF output
Options: ext. heat source output, solar pump connection, alarm output	Options: external heat source output, solar pump connection, alarm output
Outdoor unit	Outdoor unit
Power limitation digital inputs: 12 V DC / 12 mA detection (voltage supplied by PCB)	Power limitation digital inputs: 12 V DC / 12 mA detection (voltage supplied by PCB)
Refer to operation manual	Refer to operation manual
Solar pump connection	Solar pump connection
Space C/H On/OFF output	Space cooling/heating On/OFF output
Switch box	Switch box
To bottom plate heater	To bottom plate heater
(8) External On/OFF thermostats and heat pump convector	(8) External On/OFF thermostats and heat pump convector
Additional LWT zone	Additional leaving water temperature zone
Main LWT zone	Main leaving water temperature zone
Only for external sensor (floor/ ambient)	Only for external sensor (floor or ambient)
Only for heat pump convector	Only for heat pump convector
Only for wired thermostat	Only for wired thermostat
Only for wireless thermostat	Only for wireless thermostat

Electrical connection diagram

For more details, please check the unit wiring.



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