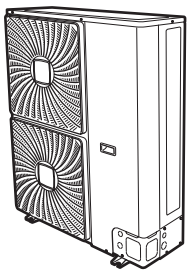
DAIKIN

altherma

Installation manual

Outdoor unit for air to water heat pump



ERHQ011BAV3
ERHQ014BAV3
ERHQ016BAV3

ERHQ011BAW1
ERHQ014BAW1
ERHQ016BAW1

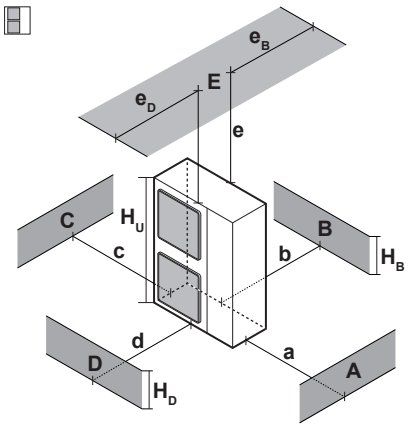
ERLQ011CAV3
ERLQ014CAV3
ERLQ016CAV3

ERLQ011CAW1
ERLQ014CAW1
ERLQ016CAW1

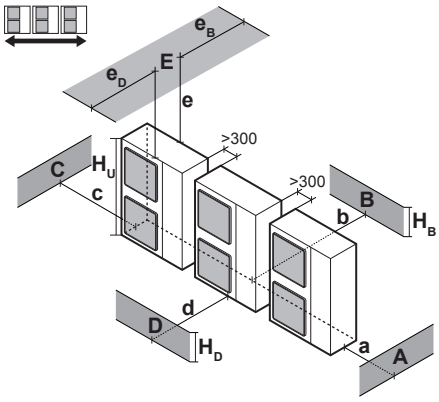
Installation manual
Outdoor unit for air to water heat pump

English

ERHQ



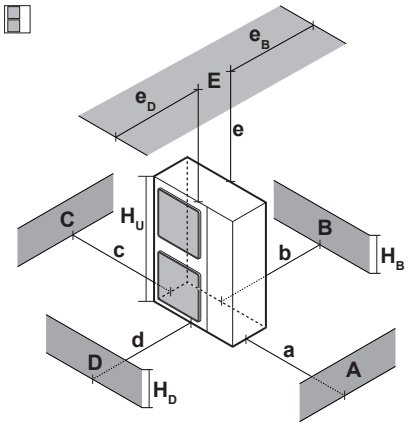
A~E	H_B H_D H_U		(mm)							
			a	b	c	d	e	e_B	e_D	
B	—			≥100						
A, B, C	—		≥100	≥100	≥100					
B, E	—			≥100			≥1000		≤500	
A, B, C, E	—		≥150	≥150	≥150		≥1000		≤500	
D	—					≥500				
D, E	—					≥500	≥1000	≤500		
B, D	—			≥100		≥500				
B, D, E	$H_B<H_D$	$H_B≤½H_U$		≥250		≥750	≥1000	≤500		1
		$½H_U<H_B≤H_U$		≥250		≥1000	≥1000	≤500		
		$H_B>H_U$	⊘							
	$H_B>H_D$	$H_D≤½H_U$		≥100		≥1000	≥1000		≤500	
		$½H_U<H_D≤H_U$		≥200		≥1000	≥1000		≤500	
		$H_D>H_U$	⊘							



A, B, C	—		≥200	≥300	≥1000					
A, B, C, E	—		≥200	≥300	≥1000		≥1000		≤500	
D	—					≥1000				
D, E	—					≥1000	≥1000	≤500		
B, D	$H_B<H_D$	—		≥300		≥1000				
	$H_B>H_D$	$H_D≤½H_U$		≥250		≥1500				
		$½H_U<H_D≤H_U$		≥300		≥1500				
B, D, E	$H_B<H_D$	$H_B≤½H_U$		≥300		≥1000	≥1000	≤500		1
		$½H_U<H_B≤H_U$		≥300		≥1250	≥1000	≤500		
		$H_B>H_U$	⊘							
	$H_B>H_D$	$H_D≤½H_U$		≥250		≥1500	≥1000		≤500	1+2
		$½H_U<H_D≤H_U$		≥300		≥1500	≥1000		≤500	
		$H_D>H_U$	⊘							

1

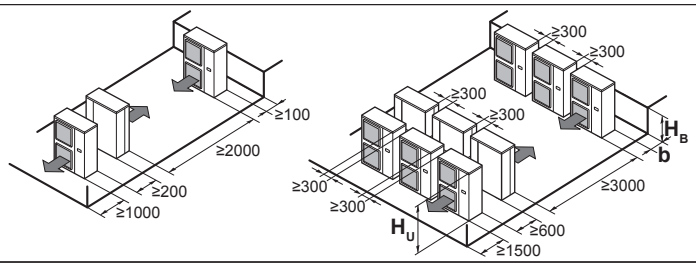
ERLQ



A~E	H_B H_D H_U		(mm)							
			a	b	c	d	e	e_B	e_D	
B	—			≥200						
A, B, C	—		≥200	≥200	≥200					
B, E	—			≥200			≥1000		≤500	
A, B, C, E	—		≥300	≥300	≥300		≥1000		≤500	1
D	—					≥500				
D, E	—					≥500	≥1000	≤500		
B, D	—			≥200		≥500				
B, D, E	$H_B<H_D$	$H_B≤½H_U$		≥350		≥750	≥1000	≤500		
		$½H_U<H_B≤H_U$		≥350		≥1000	≥1000	≤500		
		$H_B>H_U$	⊘							
	$H_B>H_D$	$H_D≤½H_U$		≥200		≥1000	≥1000		≤500	
		$½H_U<H_D≤H_U$		≥300		≥1000	≥1000		≤500	
		$H_D>H_U$	⊘							
⊘										

2

ERHQ



H_B H_U	b (mm)
$H_B≤½H_U$	b≥250
$½H_U<H_B≤H_U$	b≥300
$H_B>H_U$	⊘

ERLQ ⊘

3

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

Daikin Europe N.V.

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:

ERHQ011BAW1, ERHQ014BAW1, ERHQ016BAW1,
ERHQ011BAV3, ERHQ014BAV3, ERHQ016BAV3,
ERLQ011CAW1, ERLQ014CAW1, ERLQ016CAW1,
ERLQ011CAV3, ERLQ014CAV3, ERLQ016CAV3,

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 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 v 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>	**DAIKIN.TCF.021F13/09-2009** **DAIKIN.TCF.021F19/06-2010**
<B>	**KEMA (NB0344)**
<C>	**2024351-QUA/EMC02-4565**

3PW57793-1

DAIKIN



Jean-Pierre Beuselinck
General Manager
Ostend, 16th of August 2010

DAIKIN EUROPE N.V.
Zandvoordestraat 300, B-8400 Oostende, Belgium

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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, technical specifications, good practices, reference data,…
  - Format: Digital files on http://www.daikineurope.com/support-and-manuals/product-information/
- **Addendum book for optional equipment:**
  - Additional info about how to install optional equipment
  - Format: Paper (in the box of the indoor unit) + Digital files on http://www.daikineurope.com/support-and-manuals/product-information/

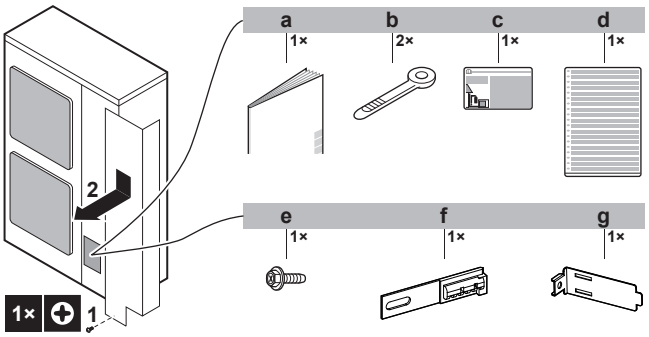
Latest revisions of the supplied documentation may be available on the regional Daikin website or via your dealer.

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

2 About the box

2.1 Outdoor unit

2.1.1 To remove the accessories from the outdoor unit



a Outdoor unit installation manual
b Cable tie
c Fluorinated greenhouse gases label
d Multilingual fluorinated greenhouse gases label
e Screw (only for ERLQ)
f Thermistor fixing plate (spare) (only for ERLQ)
g Thermistor fixture (only for ERLQ)

3 Preparation

3.1 Preparing installation site

3.1.1 Installation site requirements of the outdoor unit

Mind the spacing guidelines. See the "Technical data" chapter, and the figures on the inside of the front cover.

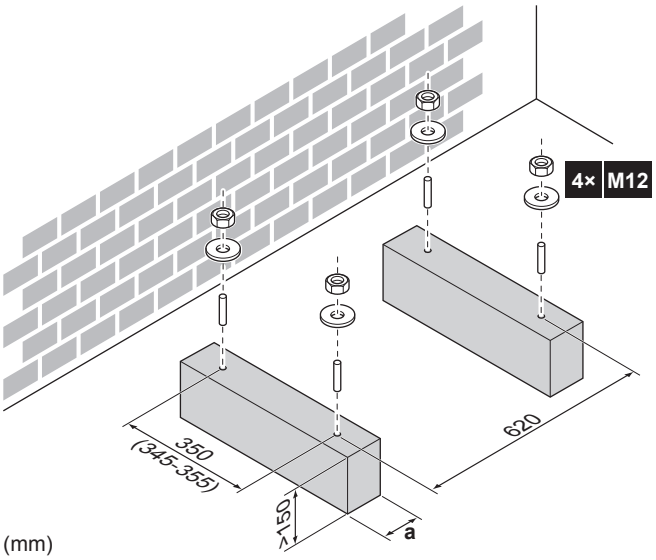
The outdoor unit is designed for outdoor installation only, and for ambient temperatures ranging 10~43°C in cooling mode and –25~25°C in heating mode.

4 Installation

4.1 Mounting the outdoor unit

4.1.1 To provide the installation structure

Prepare 4 sets of anchor bolts, nuts and washers (field supply) as follows:

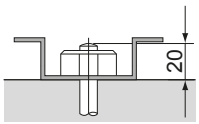


(mm)

a Make sure not to cover the drain holes.

INFORMATION

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

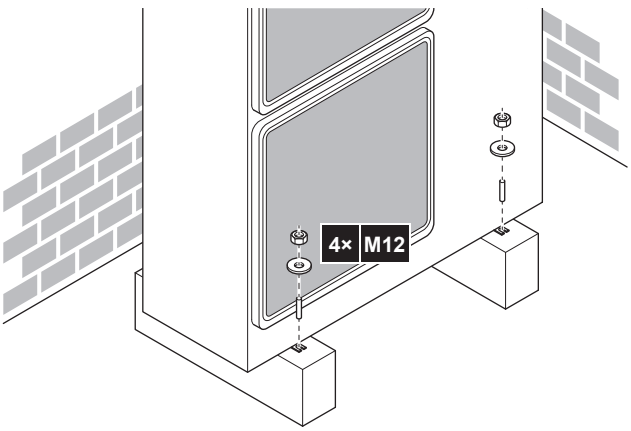


NOTICE

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



4.1.2 To install the outdoor unit



4.1.3 To provide drainage

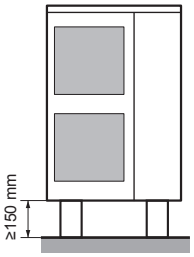
Make sure that condensation water can be evacuated properly.

INFORMATION

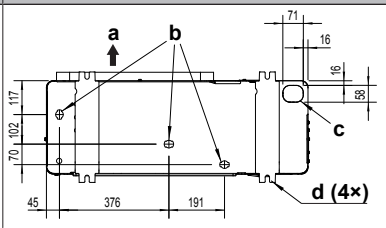
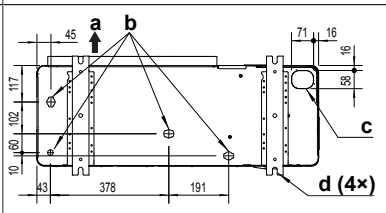
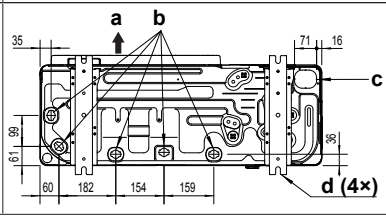
You can use the optional drain plug kit (EKDK04) (only for ERHQ).

NOTICE

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



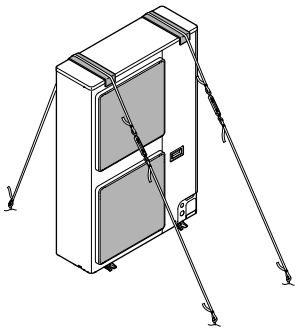
Drain holes

Model	Bottom view (mm)
ERHQ_V3	
ERHQ_W1	
ERLQ	

a Discharge side
b Drain holes
c Knockout hole (piping intake - downwards route)
d Anchor points

4.1.4 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.



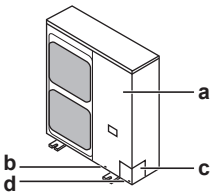
4.2 Connecting the refrigerant piping

DANGER: RISK OF BURNING

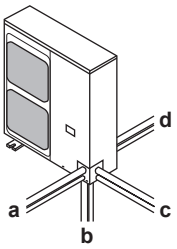
4.2.1 To connect the refrigerant piping to the outdoor unit

1 Do the following:

- Remove the service cover (a) with screw (b).
- Remove the piping intake plate (c) with screw (d).

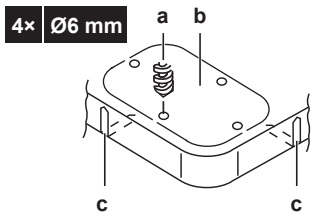


2 Choose a piping route (a, b, c or d).



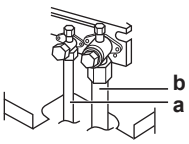
3 If you have chosen the downwards piping route:

- Drill (a, 4×) and remove the knockout hole (b).
- Cut out the slits (c) with a metal saw.



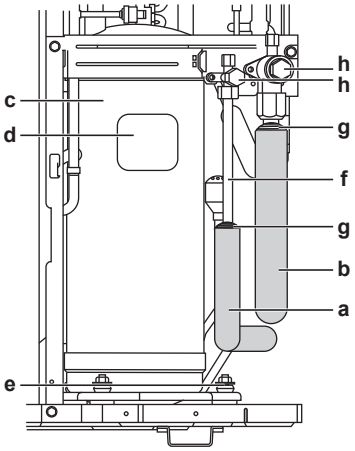
4 Do the following:

- Connect the liquid pipe (a) to the liquid stop valve.
- Connect the gas pipe (b) to the gas stop valve.



5 Do the following:

- Insulate the liquid piping (a) and the gas piping (b).
- Make sure the piping and piping insulation do NOT touch the compressor (c), the compressor terminal cover (d), and the compressor bolts (e). If the liquid pipe insulation might touch the compressor terminal cover, adjust the height of the insulation (f=no insulation around the compressor terminal cover (d)).
- Seal the insulation ends (sealant etc.) (g).



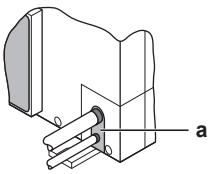
6 If the outdoor unit is installed above the indoor unit, cover the stop valves (h, see above) with sealing material to prevent condensed water on the stop valves from moving to the indoor unit.

NOTICE

Any exposed piping might cause condensation.

7 Reattach the service cover and the piping intake plate.

8 Seal all gaps (example: a) to prevent snow and small animals from entering the system.



WARNING

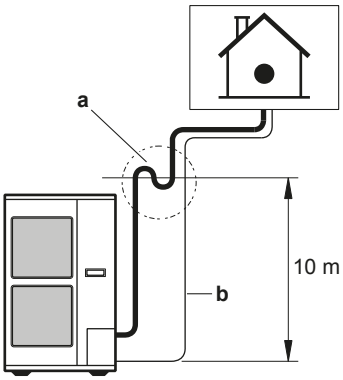
Provide adequate measures to prevent that the unit can be used as a shelter by small animals. Small animals that make contact with electrical parts can cause malfunctions, smoke or fire.

NOTICE

Make sure to open the stop valves after installing the refrigerant piping and performing vacuum drying. Running the system with the stop valves closed may break the compressor.

4.2.2 To determine if oil traps are required

If oil flows back into the outdoor unit's compressor, this might cause liquid compression or deterioration of oil return. Oil traps in the rising gas piping can prevent this.

If	Then
The indoor unit is installed higher than the outdoor unit	Install an oil trap every 10 m (height difference).  **a** Rising gas piping with oil trap **b** Liquid piping
The outdoor unit is installed higher than the indoor unit	Oil traps are NOT required.

4.3 Checking the refrigerant piping

4.3.1 To check for leaks

NOTICE

Do NOT exceed the unit's maximum working pressure (see "PS High" on the unit name plate).

NOTICE

Make sure to use a recommended bubble test solution from your wholesaler. Do not use soap water, which may cause cracking of flare nuts (soap water may contain salt, which absorbs moisture that will freeze when the piping gets cold), and/or lead to corrosion of flared joints (soap water may contain ammonia which causes a corrosive effect between the brass flare nut and the copper flare).

1 Charge the system with nitrogen gas up to a gauge pressure of at least 200 kPa (2 bar). It is recommended to pressurize to 3000 kPa (30 bar) in order to detect small leaks.

2 Check for leaks by applying the bubble test solution to all connections.

3 Discharge all nitrogen gas.

4.3.2 To perform vacuum drying

1 Vacuum the system until the pressure on the manifold indicates −0.1 MPa (−1 bar).

2 Leave as is for 4-5 minutes and check the pressure:

If the pressure…	Then…
Does not change	There is no moisture in the system. This procedure is finished.
Increases	There is moisture in the system. Go to the next step.

3 Evacuate for at least 2 hours to a pressure on the manifold of −0.1 MPa (−1 bar).

4 After turning OFF the pump, check the pressure for at least 1 hour.

5 If you do NOT reach the target vacuum or cannot maintain the vacuum for 1 hour, do the following:

- Check for leaks again.
- Perform vacuum drying again.

NOTICE

Make sure to open the stop valves after installing the refrigerant piping and performing vacuum drying. Running the system with the stop valves closed may break the compressor.

4.4 Charging refrigerant

4.4.1 To determine the additional refrigerant amount

If the total liquid piping length is…	Then…
≤10 m	Do NOT add additional refrigerant.
>10 m	R=(total length (m) of liquid piping–10 m)×0.054 R=Additional charge (kg)(rounded in units of 0.1 kg)

INFORMATION

Piping length is the one way length of liquid piping.

4.4.2 To charge refrigerant

WARNING

- Only use R410A as refrigerant. Other substances may cause explosions and accidents.
- R410A contains fluorinated greenhouse gases. Its global warming potential (GWP) value is 2087.5. Do NOT vent these gases into the atmosphere.
- When charging refrigerant, always use protective gloves and safety glasses.

Prerequisite: Before charging refrigerant, make sure the refrigerant piping is connected and checked (leak test and vacuum drying).

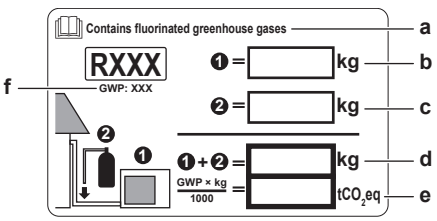
1 Connect the refrigerant cylinder to both the service port of the gas stop valve and the service port of the liquid stop valve.

2 Charge the additional refrigerant amount.

3 Open the stop valves.

4.4.3 To fix the fluorinated greenhouse gases label

1 Fill in the label as follows:



a If a multilingual fluorinated greenhouse gases label is delivered with the unit (see accessories), peel off the applicable language and stick it on top of **a**.
b Factory refrigerant charge: see unit name plate
c Additional refrigerant amount charged
d Total refrigerant charge
e **Greenhouse gas emissions** of the total refrigerant charge expressed as tonnes CO_2-equivalent
f GWP = Global warming potential

NOTICE

In Europe, the **greenhouse gas emissions** of the total refrigerant charge in the system (expressed as tonnes CO_2-equivalent) is used to determine the maintenance intervals. Follow the applicable legislation.

Formula to calculate the greenhouse gas emissions: GWP value of the refrigerant × Total refrigerant charge [in kg] / 1000

2 Fix the label on the inside of the outdoor unit near the gas and liquid stop valves.

4.5 Connecting the electrical wiring

DANGER: RISK OF ELECTROCUTION

WARNING

ALWAYS use multicore cable for power supply cables.

NOTICE

For applications with preferential kWh rate power supply:

The interruption of the outdoor unit power supply may not be more than 2 hours to guarantee optimised startup conditions for the compressor.

4.5.1 About electrical compliance

ERHQ_V3

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.).

ERLQ_V3

Equipment complying with:

- **EN/IEC 61000-3-11** 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.
  - 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.
  - 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}.
- **EN/IEC 61000-3-12** provided that the short-circuit power S_{sc} is greater than or equal to the minimum S_{sc} value at the interface point between the user's supply and the public system.
  - 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.
  - 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 short-circuit power S_{sc} greater than or equal to the minimum S_{sc} value.

Model	Z_{max}	Minimum S_{sc} value
ERLQ011CAV3	0.22 Ω	525 kVA
ERLQ014CAV3		
ERLQ016CAV3		

ERLQ_W1

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.).

4.5.2 Specifications of standard wiring components

Component		V3		W1	
		ERHQ	ERLQ	ERHQ	ERLQ
Power supply cable	MCA[(a)]	31.9 A	34.2 A	13.5 A	16.3 A
	Voltage	230 V		400 V	
	Phase	1~		3N~	
	Frequency	50 Hz			
	Wire sizes	Must comply with applicable legislation			
Interconnection cable		Minimum cable section of 2.5 mm² and applicable for 230 V			
Recommended field fuse		32 A	40 A	20 A	
Earth leakage circuit breaker		Must comply with applicable legislation			

(a) MCA=Minimum circuit ampacity. Stated values are maximum values (see electrical data of combination with indoor units for exact values).

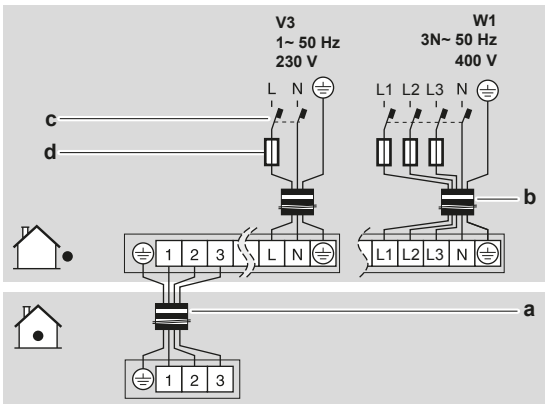
4.5.3 To connect the electrical wiring on the outdoor unit

NOTICE

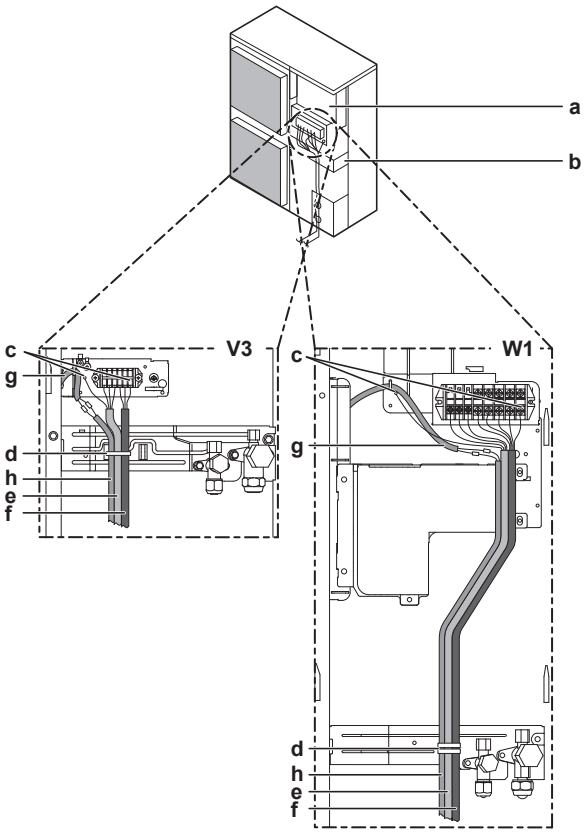
- Follow the wiring diagram (delivered with the unit, located at the inside of the service cover).
- Make sure the electrical wiring does NOT obstruct proper reattachment of the service cover.

1 Remove the service cover.

2 Connect the interconnection cable and power supply as follows:



a Interconnection cable
b Power supply cable
c Earth leakage circuit breaker
d Fuse



a Switch box
b Stop valve attachment plate
c Earth
d Cable tie
e Interconnection cable
f Power supply cable

Only if bottom plate heater is installed (option for ERHQ):

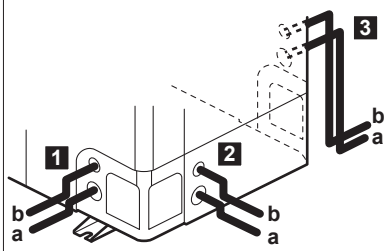
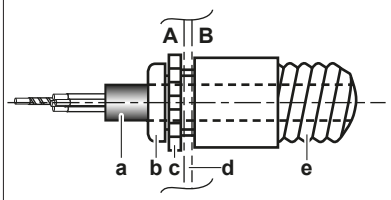
g Bottom plate heater cable
h Power supply cable of the bottom plate heater (from the indoor unit)

INFORMATION

ERLQ units control the bottom plate heater internally (field wiring NOT required).

3 Fix the cables (power supply, interconnection cable and power supply of the bottom plate heater (if applicable)) with a cable tie to the stop valve attachment plate.

4 Route the wiring through the frame and connect it to it.

Routing through the frame	Choose one of the 3 possibilities:  **a** Power supply, earth wiring, and bottom plate heater wire (if applicable) **b** Interconnection cable
Connecting to the frame	When cables are routed from the unit, a protection sleeve for the conduits (PG insertions) can be inserted at the knockout hole. When you do not use a wire conduit, protect the wires with vinyl tubes to prevent the edge of the knockout hole from cutting the wires.  **A** Inside of the outdoor unit **B** Outside of the outdoor unit **a** Wire **b** Bush **c** Nut **d** Frame **e** Hose

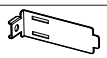
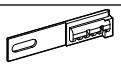
5 Reattach the service cover.

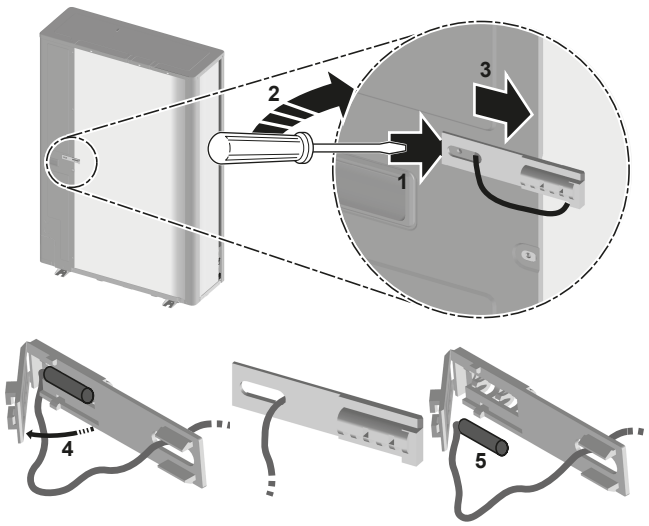
6 Connect an earth leakage circuit breaker and fuse to the power supply line.

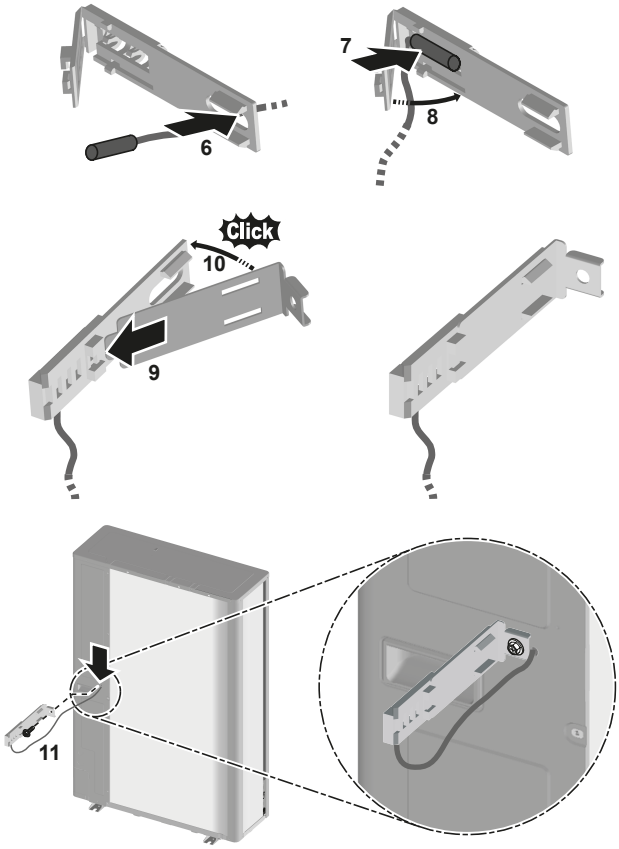
4.5.4 To reposition the air thermistor on the outdoor unit

This task is only required for ERLQ.

Required accessories:

	Thermistor fixture. Use the one from the accessory bag.
	Thermistor fixing plate. Reuse the one attached to the unit. If necessary, you can use the spare one from the accessory bag.

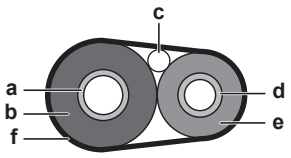




4.6 Finishing the outdoor unit installation

4.6.1 To finish the outdoor unit installation

1 Insulate and fix the refrigerant piping and interconnection cable as follows:



a Gas pipe
b Gas pipe insulation
c Interconnection cable
d Liquid pipe
e Liquid pipe insulation
f Finishing tape

2 Install the service cover.

5 Starting up the outdoor unit

See the indoor unit installation manual for configuration and commissioning of the system.

6 Technical data

Latest information can be found in the technical engineering data.

6.1 Service space: Outdoor unit

Single unit (▯) | Single row of units (⟷)

ERHQ:

See figure 1 on the inside of the front cover.

A,B,C,D	Obstacles (walls/baffle plates)
E	Obstacle (roof)
a,b,c,d,e	Minimum service space between the unit and obstacles A, B, C, D and E
e_B	Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle B
e_D	Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle D
H_U	Height of the unit
H_B,H_D	Height of obstacles B and D
1	Seal the bottom of the installation frame to prevent discharged air from flowing back to the suction side through the bottom of the unit.
2	Maximum two units can be installed.
⃠	Not allowed

ERLQ:

See figure 2 on the inside of the front cover.

A,B,C,D	Obstacles (walls/baffle plates)
E	Obstacle (roof)
a,b,c,d,e	Minimum service space between the unit and obstacles A, B, C, D and E
e_B	Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle B
e_D	Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle D
H_U	Height of the unit
H_B,H_D	Height of obstacles B and D
1	Recommended to prevent exposure to wind and snow.
⃠	Not allowed

Multiple rows of units (▯▯▯)

See figure 3 on the inside of the front cover.

6.2 Wiring diagram

6.2.1 Wiring diagram: Outdoor unit

The wiring diagram is delivered with the unit, located at the inside of the service cover.

Notes:

1 This wiring diagram applies only to the outdoor unit.
2 Symbols (see below).
3 Symbols (see below).
4 Refer to the option manual for connecting wiring to X6A and X77A.
5 Refer to the wiring diagram sticker (on the back of the service cover) for how to use the BS1~BS4 and DS1 switches.
6 When operating, do not short-circuit protective device S1PH.
7 Colours (see below).
8 Refer to the service manual for instructions on how to set the selector switches (DS1). The factory setting of all switches is OFF.
9 Symbols (see below).

Symbols:

L	Live
N	Neutral
	Field wiring
	Terminal strip
	Connector
	Connector
	Connection
	Protective earth (screw)
	Noiseless earth
	Terminal
	Option
	Wiring dependent on model

Colours:

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

Legend:

A1P~A4P	Printed circuit board
BS1~BS4	Push button switch
C1~C4	Capacitor
DS1	DIP switch
E1H	Bottom plate heater
E1HC	Crankcase heater
F1U~F8U (ERHQ_V3 + ERLQ_V3)	▪ F1U, F3U, F4U: Fuse (T 6.3 A / 250 V) ▪ F6U: Fuse (T 5.0 A / 250 V) ▪ F7U, F8U: Fuse (F 1.0 A / 250 V)
F1U~F9U (ERHQ_W1 + ERLQ_W1)	▪ F1U, F2U: Fuse (31.5 A / 500 V) ▪ F3U~F6U: Fuse (T 6.3 A / 250 V) ▪ F7U: Fuse (T 5.0 A / 250 V) ▪ F8U, F9U: Fuse (F 1.0 A / 250 V)
H1P~H7P (A2P) (ERHQ_V3 + ERLQ_V3)	Light-emitting diode (service monitor orange) H2P: ▪ Prepare, test: Flickering ▪ Malfunction detection: Light up
H1P~H7P (A1P) (ERHQ_W1 + ERLQ_W1)	Light-emitting diode (service monitor orange)
HAP (A1P) (ERHQ_V3 + ERLQ_V3)	Light-emitting diode (service monitor green)
HAP (A1P, A2P) (ERHQ_W1 + ERLQ_W1)	Light-emitting diode (service monitor green)
K1M, K2M (ERHQ_W1 + ERLQ_W1)	Magnetic contactor
K1R~K4R	Magnetic relay
K10R, K11R (ERHQ_V3 + ERLQ_V3)	Magnetic relay
L1R~L4R	Reactor
M1C	Motor (compressor)
M1F	Motor (upper fan)
M2F	Motor (lower fan)
PS	Switching power supply
Q1DI	Earth leakage circuit breaker (field supply)
R1~R4	Resistor
R1T	Thermistor (air)
R2T	Thermistor (discharge)
R3T	Thermistor (suction)
R4T	Thermistor (heat exchanger)
R5T	Thermistor (heat exchanger middle)
R6T	Thermistor (liquid)
R7T (ERHQ_W1 + ERLQ_W1)	Thermistor (fin)
R10T (ERHQ_V3 + ERLQ_V3)	Thermistor (fin)
RC (ERHQ_V3 + ERLQ_V3)	Signal receiver circuit
S1NPH	Pressure sensor
S1PH	High pressure switch
TC (ERHQ_V3 + ERLQ_V3)	Signal transmission circuit
V1R (ERHQ_V3 + ERLQ_V3)	Power module
V1R, V2R (ERHQ_W1 + ERLQ_W1)	Power module
V2R, V3R (ERHQ_V3 + ERLQ_V3)	Diode module
V3R (ERHQ_W1 + ERLQ_W1)	Diode module

V1T	Insulated gate bipolar transistor (IGBT)
(ERHQ_V3 + ERLQ_V3)	
X1M	Terminal strip (power supply)
X1Y	Connector (option for ERHQ: bottom plate heater)
X6A	Connector (option)
X77A	Connector (option)
(ERHQ_W1 + ERLQ_W1)	
Y1E	Expansion valve (main)
Y3E	Expansion valve (injection)
(ERLQ)	
Y1S	Solenoid valve (4-way valve)
Y3S	Solenoid valve (injection)
(ERHQ_W1)	
Y3S	Solenoid valve (hot gas pass)
(ERLQ)	
Z1C~Z9C	Noise filter
Z1F~Z4F	Noise filter







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