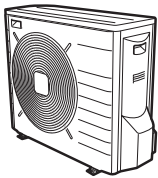




Installation manual

Daikin Altherma – Low temperature split outdoor unit



ERLQ004CAV3
ERLQ006CAV3
ERLQ008CAV3

Installation manual
Daikin Altherma – Low temperature split outdoor unit

English

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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, 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.

Technical engineering data

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

2 About the box

2.1 Outdoor unit

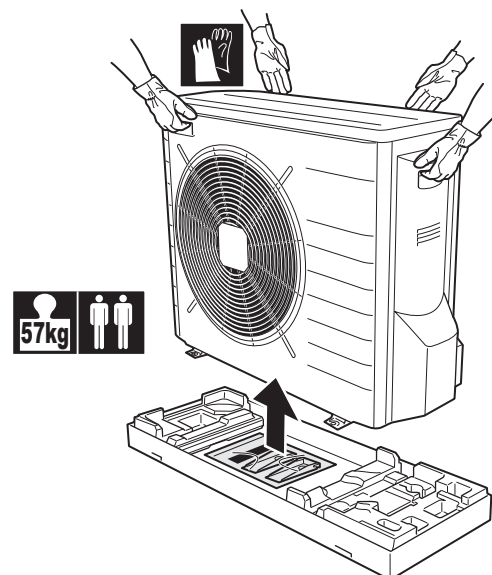
2.1.1 To remove the accessories from the outdoor unit

- 1 Lift the outdoor unit.

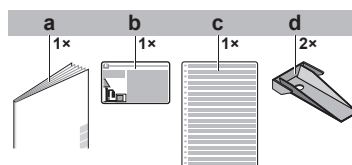


CAUTION

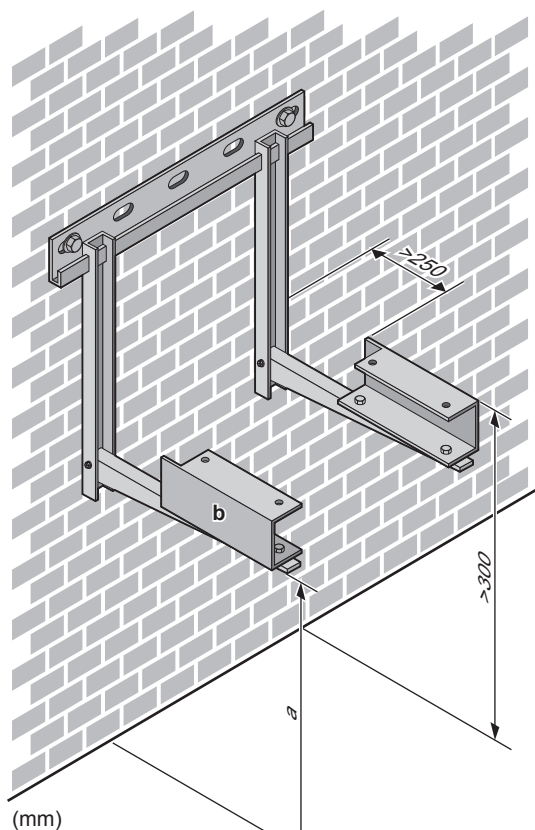
Only handle the outdoor unit as follows:



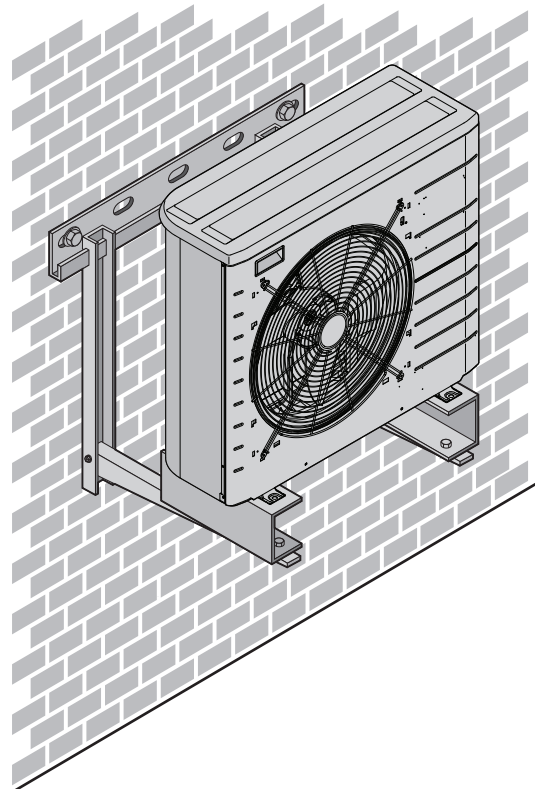
- 2 Remove the accessories at the bottom of the package.



- a Outdoor unit installation manual
- b Fluorinated greenhouse gases label
- c Multilingual fluorinated greenhouse gases label
- d Unit mounting plate

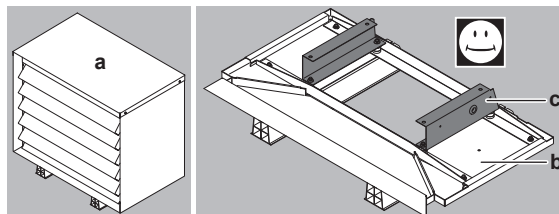


a Maximum snowfall height
b EKFT008CA option kit



INFORMATION

If you install the U-beams in combination with the low sound cover (EKLN08A1), different installation instructions apply for the U-beams. See the installation manual of the low sound cover.



a Low sound cover
b Bottom parts of the low sound cover
c U-beams

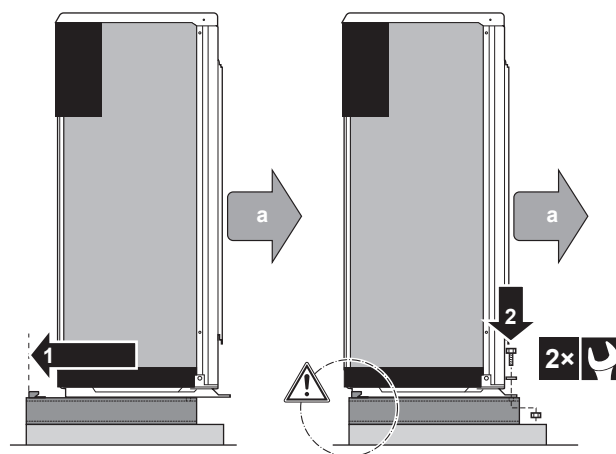
4.2.2 To install the outdoor unit



CAUTION

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

- 1 Lift the outdoor unit as described in "2.1.1 To remove the accessories from the outdoor unit" on page 3.
- 2 Install the outdoor unit as follows:



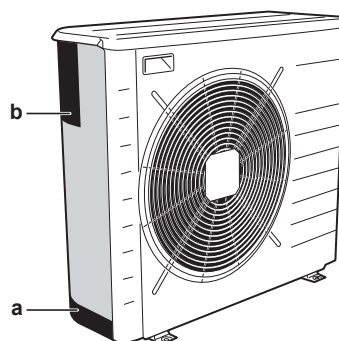
a Air outlet



NOTICE

The pedestal **MUST** be aligned with the backside of the U-beam.

- 3 Remove the protective cardboard and instruction sheet.



a Protective cardboard
b Instruction sheet

4.2.3 To provide drainage

Make sure that condensation water can be evacuated properly.

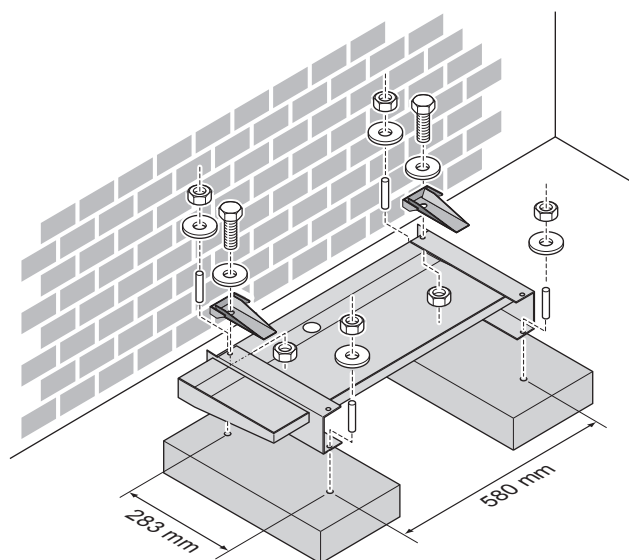
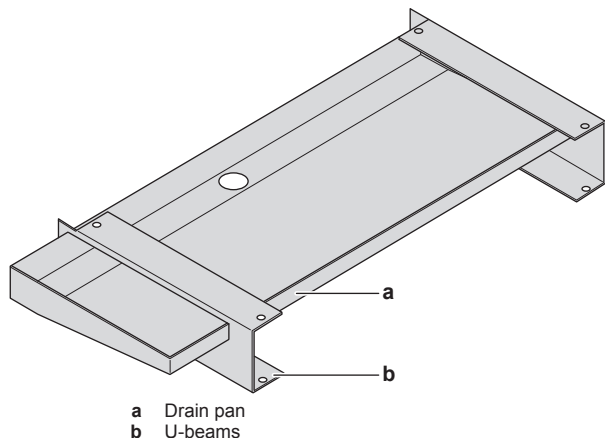
4 Installation



NOTICE

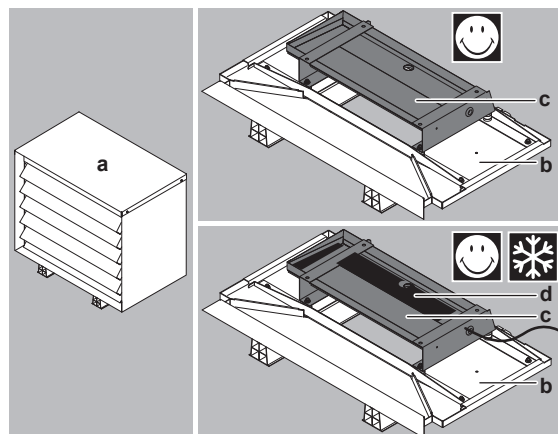
If the drain holes of the outdoor unit are blocked up, provide space of at least 300 mm below the outdoor unit.

An additional drain pan kit (EKDP008CA) can be used to gather the drain water. The drain pan kit consists of:



INFORMATION

If you install the drain pan kit (with or without drain pan heater) in combination with the low sound cover (EKLN08A1), different installation instructions apply for the drain pan kit. See the installation manual of the low sound cover.



a Low sound cover

b Bottom parts of the low sound cover

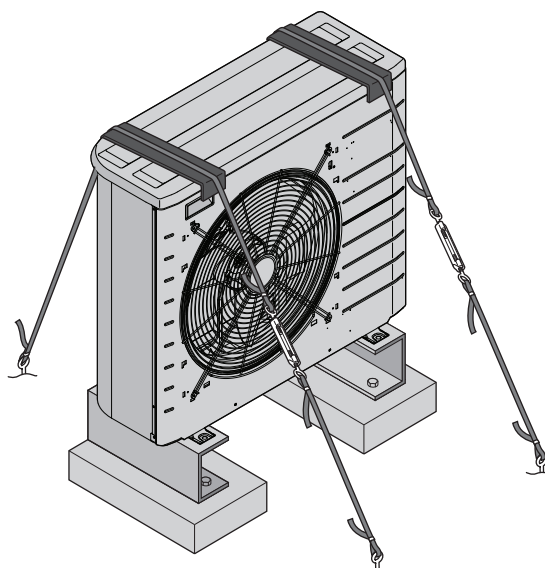
c Drain pan kit

d Drain pan heater

4.2.4 To prevent the outdoor unit from falling over

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

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



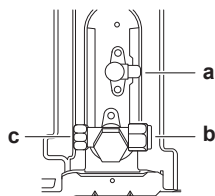
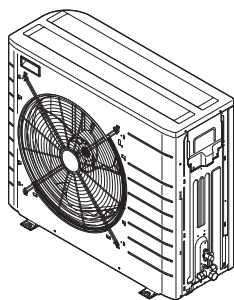
4.3 Connecting the refrigerant piping



DANGER: RISK OF BURNING

4.3.1 To connect the refrigerant piping to the outdoor unit

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



- a Liquid stop valve
- b Gas stop valve
- c Service port

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



NOTICE

It is recommended that the refrigerant piping between indoor and outdoor unit is installed in a ducting or the refrigerant piping is wrapped with finishing tape.

4.4 Checking the refrigerant piping

4.4.1 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.

4.4.2 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.

If the pressure...	Then...
Increases	There is moisture in the system. Go to the next step.

- 3 Vacuum the system for at least 2 hours to a manifold pressure of -0.1 MPa (-1 bar).
- 4 After turning the pump OFF, 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

Be sure to open the gas stop valve after piping installation and vacuuming. Running the system with the valve closed, the compressor may break down.

4.5 Charging refrigerant

4.5.1 To determine the additional refrigerant amount

If the total liquid piping length is...	Then...
≤10 m	Do NOT add additional refrigerant.
>10 m	$R = (\text{total length (m) of liquid piping} - 10 \text{ m}) \times 0.020$ $R = \text{Additional charge (kg) (rounded in units of 0.1 kg)}$



INFORMATION

Piping length is the one-way length of liquid piping.

4.5.2 To charge additional refrigerant



WARNING

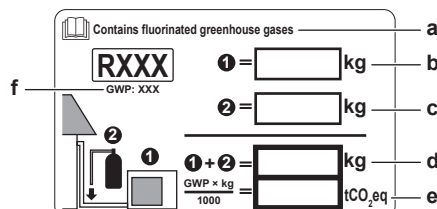
- Only use R410A as refrigerant. Other substances may cause explosions and accidents.
- R410A contains fluorinated greenhouse gases. Its global warming potential (GWP) value is 2087.5. Do NOT vent these gases into the atmosphere.
- When charging refrigerant, always use protective gloves and safety glasses.

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

- 1 Connect the refrigerant cylinder to the service port.
- 2 Charge the additional refrigerant amount.
- 3 Open the gas stop valve.

4.5.3 To fix the fluorinated greenhouse gases label

- 1 Fill in the label as follows:



5 Starting up the outdoor unit

- 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 CO₂ equivalent
- f GWP = Global warming potential



NOTICE

In Europe, the **greenhouse gas emissions** of the total refrigerant charge in the system (expressed as tonnes CO₂ 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.

4.6 Connecting the electrical wiring



DANGER: RISK OF ELECTROCUTION

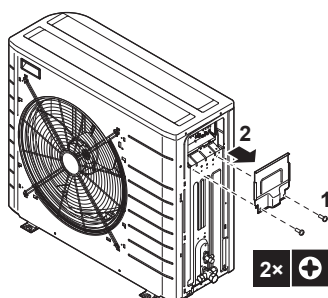


WARNING

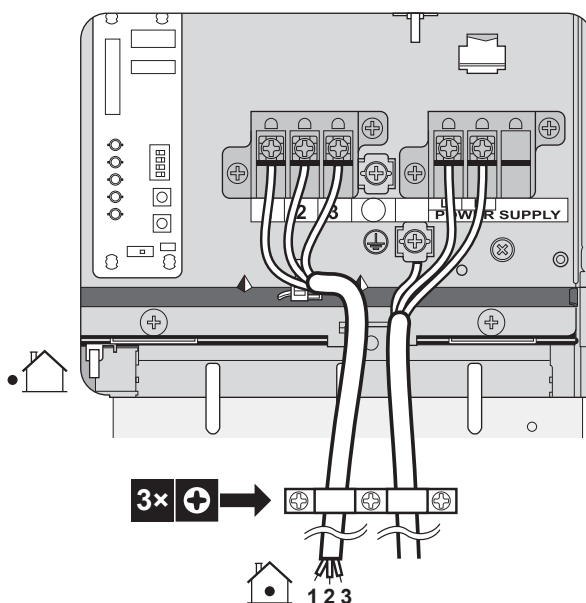
ALWAYS use multicore cable for power supply cables.

4.6.1 To connect the electrical wiring on the outdoor unit

- 1 Remove the 2 switch box cover screws.
- 2 Remove the switch box cover.



- 3 Open the wire clamp.
- 4 Connect the interconnection cable and power supply as follows:

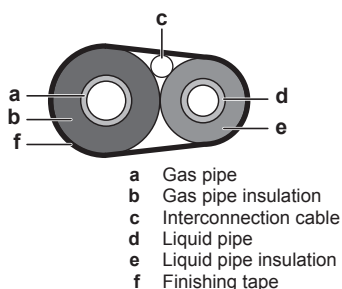


- 5 Install the switch box cover.

4.7 Finishing the outdoor unit installation

4.7.1 To finish the outdoor unit installation

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



- 2 Install the service cover.

5 Starting up the outdoor unit

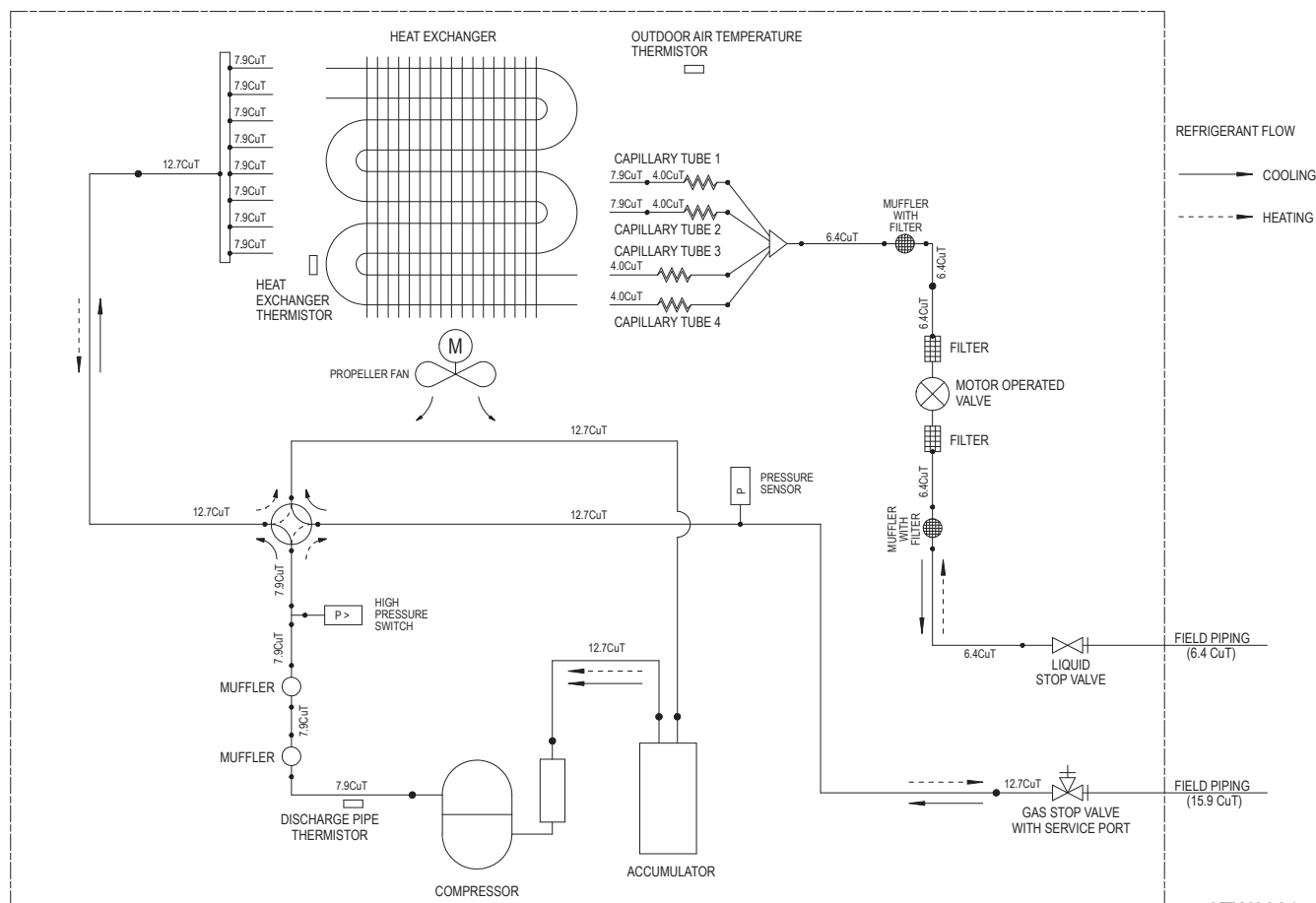
See the indoor unit installation manual for configuration and commissioning of the system.

6 Technical data

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

6.1 Piping diagram: Outdoor unit

OUTDOOR UNIT



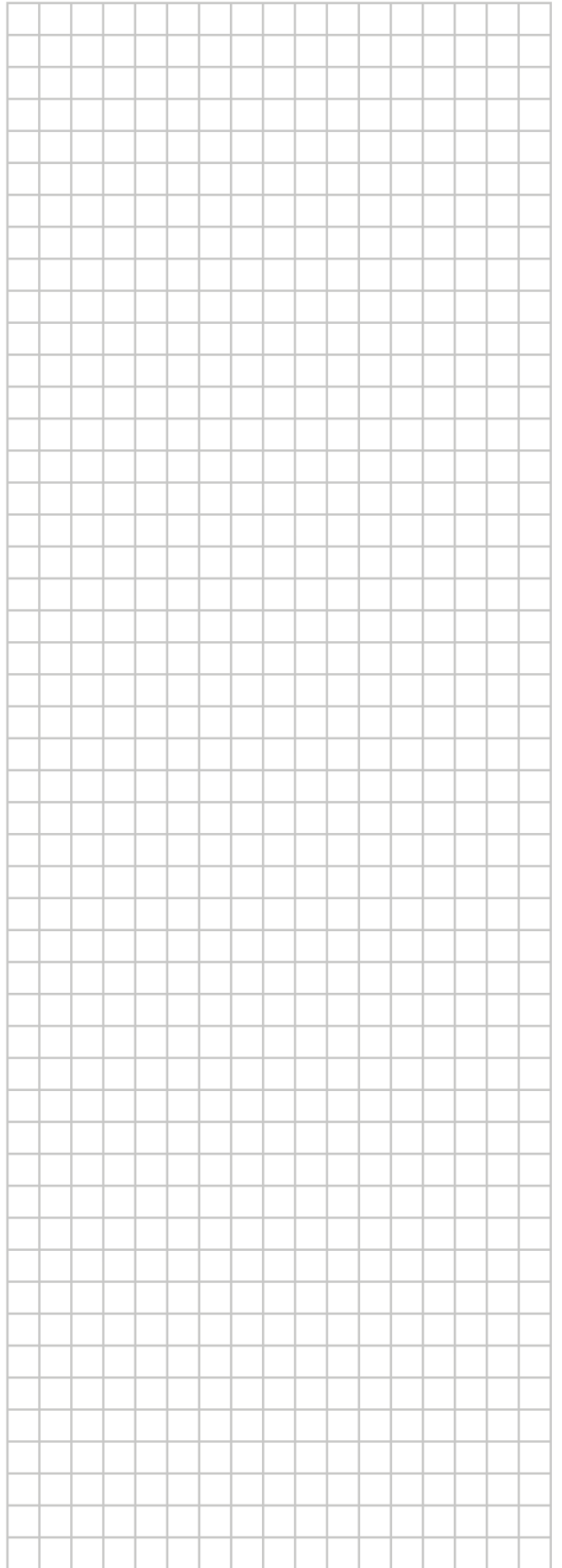
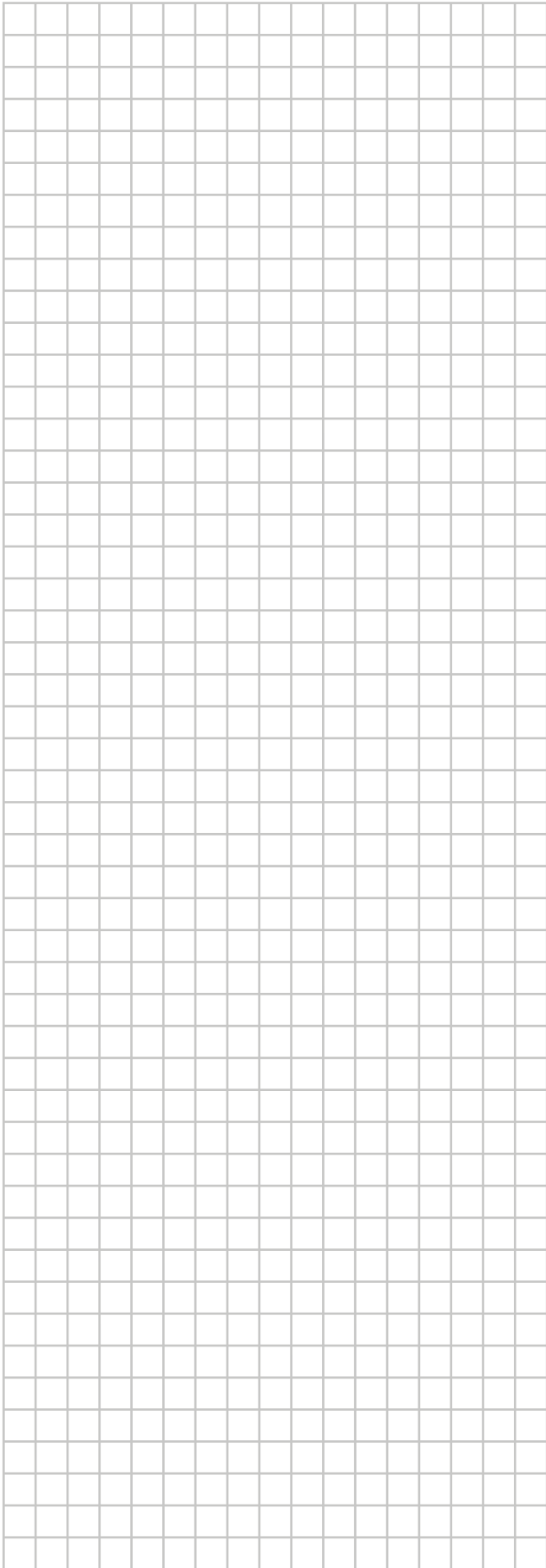
6.2 Wiring diagram: Outdoor unit

See the internal wiring diagram supplied with the unit (on the inside of the top plate). The abbreviations used are listed below.

C110~C112	Capacitor	MR30_A, MR30_B	Connector
DB1, DB2, DB401	Rectifier bridge	N	Neutral
DC_N1, DC_N2	Connector	PCB1	Printed circuit board (main)
DC_P1, DC_P2	Connector	PCB2	Printed circuit board (inverter)
DCP1, DCP2,	Connector	PCB3	Printed circuit board (service)
DCM1, DCM2	Connector	Q1DI	Earth leakage circuit breaker
DP1, DP2	Connector	Q1L	Overload protector
E1, E2	Connector	R1T	Thermistor (discharge)
E1H	Drain pan heater	R2T	Thermistor (heat exchanger)
FU1~FU5	Fuse	R3T	Thermistor (air)
HL1, HL2, HL402	Connector	S1NPH	Pressure sensor
HN1, HN2, HN402	Connector	S1PH	High pressure switch
IPM1	Intelligent power module	S2~S503	Connector
L	Live	SA1	Surge arrestor
LED 1~LED 4	Indication lamps	SHEET METAL	Terminal strip on fixed plate
LED A, LED B	Pilot lamp	SW1, SW3	Push buttons
M1C	Compressor motor	SW2, SW5	DIP switches
M1F	Fan motor	U	Connector
MR30, MR306,	Magnetic relay	V	Connector
MR307, MR4		V2, V3, V401	Varistor
MRM10, MRM20	Magnetic relay	W	Connector

6 Technical data

X11A, X12A	Connector
X1M, X2M	Terminal strip
Y1E	Electronic expansion valve coil
Y1R	Reversing solenoid valve coil
Z1C~Z4C	Ferrite core
--■ ■ ■--	Field wiring
□ □ □ □	Terminal strip
⊠	Connector
—○—	Terminal
⏏	Protective earth
BLK	Black
BLU	Blue
BRN	Brown
GRN	Green
ORG	Orange
PPL	Purple
RED	Red
WHT	White
YLW	Yellow



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