



Installation manual

Daikin Altherma – Backup heater

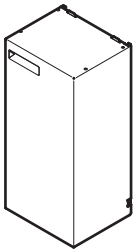


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1 About the documentation

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)
- **Backup heater installation manual:**
 - Installation instructions
 - Format: Paper (in the box of the backup heater)
- **Installer reference guide:**
 - Preparation of the installation, good practices, reference data,...
 - Format: Digital files on <http://www.daikineurope.com/support-and-manuals/product-information/>

- **Addendum book for optional equipment:**
 - Additional info about how to install optional equipment
 - Format: Paper (in the box of the 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 Backup heater

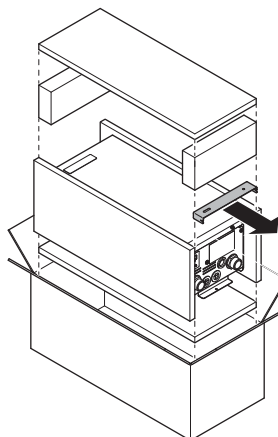


NOTICE

The backup heater is an option and can only be used in combination with EHBH_CBV and EHVH_S_CBV indoor units.

2.1.1 To remove the accessories from the backup heater

- 1 Remove the wall bracket from the box.



3 Preparation

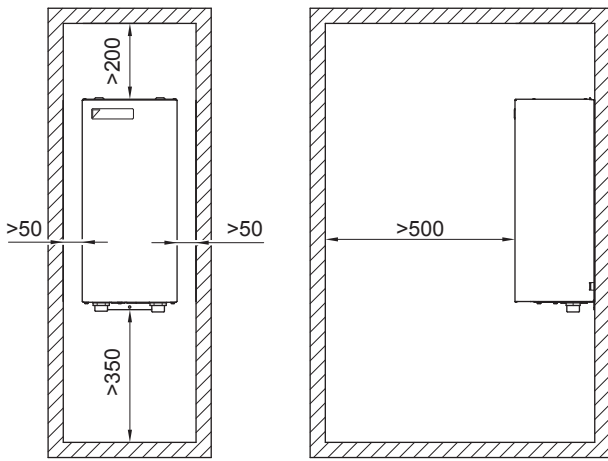
3.1 Preparing installation site

3.1.1 Installation site requirements of the backup heater

- Mind the measurement guidelines:

Maximum distance between the backup heater and the indoor unit	10 m
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- Mind the following spacing installation guidelines:



- The backup heater is designed to be wall-mounted in indoor locations only. Make sure the installation surface is a flat and vertical non-combustible wall.
- The backup heater is designed to operate in ambient temperatures ranging from 5~30°C.

3.2 Preparing water piping

When installing the backup heater in the system, make sure the required minimum water flow rate is guaranteed at all times. For more information, refer to the installation manual of the indoor unit.

3.3 Preparing electrical wiring

3.3.1 Overview of electrical connections for external and internal actuators

Item	Description	Wires	Maximum running current
Power supply			
1	Backup heater power supply	See table below.	—
Interconnection cable			
1	Backup heater thermistor	2	(a)
2	Backup heater thermal protector	2	(b)
	Backup heater connection	3	

(a) Minimum cable section: 0.75 mm²; maximum length: 10 m.
 (b) Minimum cable section: 1.50 mm²; maximum length: 10 m.

Backup heater	Power supply	Wires
*6W	1× 230 V	2+GND + 2 bridges
	3× 400 V	4+GND



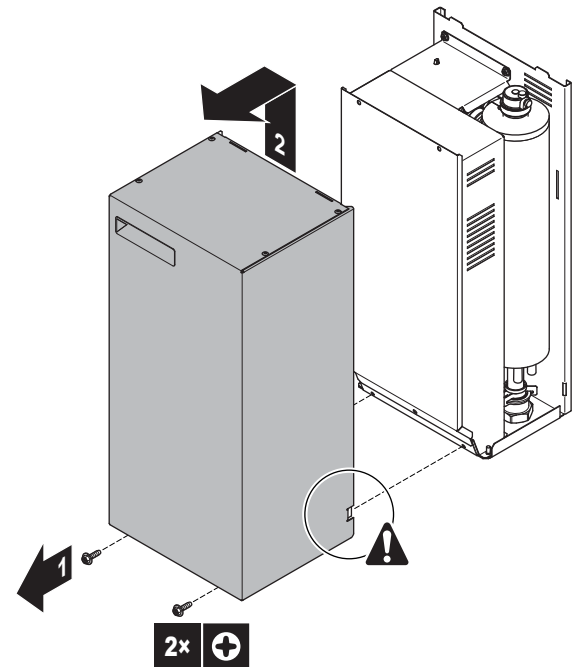
NOTICE

More technical specifications of the different connections are indicated on the inside of the backup heater.

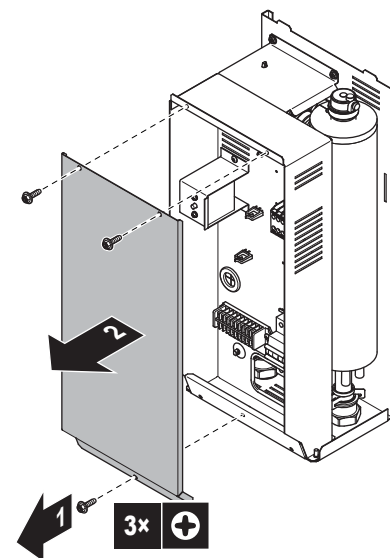
4 Installation

4.1 Opening the units

4.1.1 To open the backup heater



4.1.2 To open the switch box cover of the backup heater

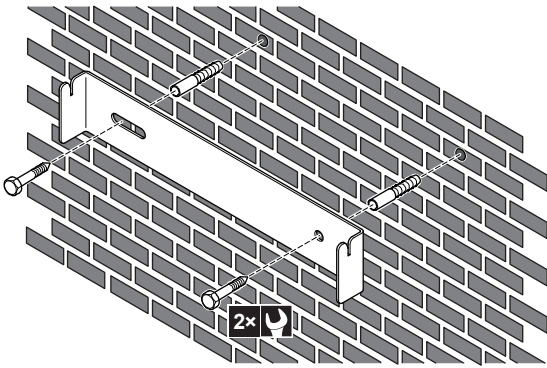


4.2 Mounting the backup heater

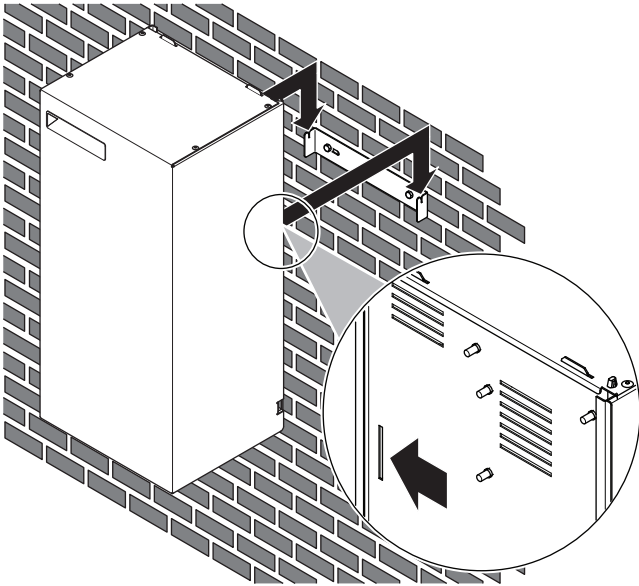
4.2.1 To install the backup heater

- 1 Fix the wall bracket to the wall with M5 screws.

4 Installation



2 Hang the backup heater onto the wall bracket.



- 3 Mark the position of the hole at the bottom of the backup heater.
- 4 Remove the backup heater from the wall bracket.
- 5 Drill a hole for the bottom screw and insert a plug.
- 6 Hang the backup heater onto the wall bracket. Make sure it is fixed properly.
- 7 Fix the bottom of the backup heater to the wall with an M5 screw.

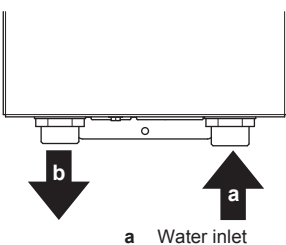
4.3 Connecting the water piping

4.3.1 To connect the water piping to the backup heater

NOTICE

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

- 1 Connect the water piping (field supply) to the water in- and outlet of the backup heater.



a Water inlet

b Water outlet

INFORMATION

Inside the backup heater, an automatic air purge valve is installed. For instructions on how to perform an air purge, refer to the "Commissioning" chapter of the installation manual of the indoor unit.

4.4 Connecting the electrical wiring

DANGER: RISK OF ELECTROCUTION

WARNING

ALWAYS use multicore cable for power supply cables.

4.4.1 To connect the electrical wiring on the backup heater

Routing	Cables
a Low voltage	Interconnection cable (backup heater thermistor)
b High voltage	<ul style="list-style-type: none"> Backup heater power supply Interconnection cable (backup heater thermal protector + backup heater connection)

- 1 Insert the wiring from the bottom of the backup heater.
- 2 Inside the backup heater, route the wiring as follows:

Backup heater type	Routing
*6W	<p>a Low voltage wiring b High voltage wiring</p>

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

NOTICE

The distance between the high voltage and low voltage cables should be at least 50 mm.

4.4.2 To connect the backup heater power supply

CAUTION

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

WARNING

The backup heater MUST have a dedicated power supply and MUST be protected by the safety devices required by the applicable legislation.

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

Backup heater type	Power supply	Backup heater capacity	Maximum running current	$Z_{max}(\Omega)$
*6W	1~ 230 V	3 kW	13 A	—
		6 kW	26 A ^{(a)(b)}	—
	3N~ 400 V	3 kW	4.3 A	—
		6 kW	8.6 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. A 4-pole fuse is used for F1B.
- 2 If required, modify the connection on terminal X14M.

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

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

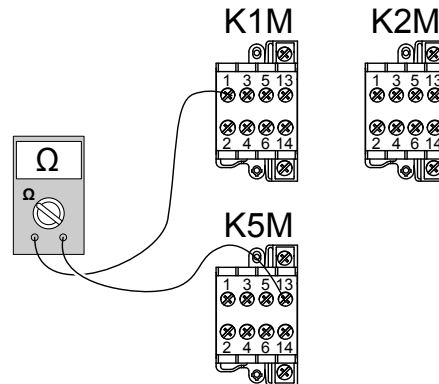
i INFORMATION

For more information on the backup heater types, and for how to configure the backup heater, refer to the "Configuration" chapter of the installation manual of the indoor unit.

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.

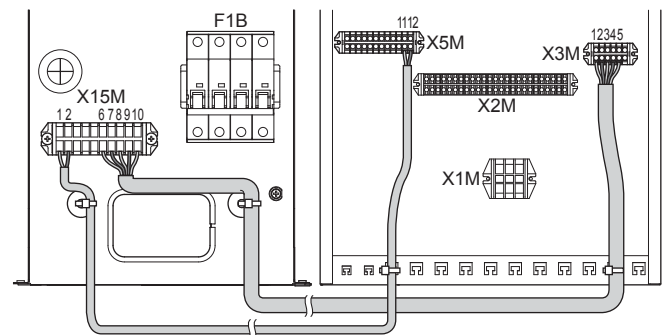
		3/6 kW 1~ 230 V	3/6 kW 3N~ 400 V
K1M/1	K5M/13	52.9Ω	∞
	K1M/3	105.8Ω	105.8Ω
	K1M/5	158.7Ω	105.8Ω
K1M/3	K1M/5	52.9Ω	105.8Ω
	K2M/1	26.5Ω	∞
K2M/3	K2M/5	∞	52.9Ω
	K2M/5	∞	52.9Ω
K2M/3	K2M/5	52.9Ω	52.9Ω
K1M/5	K2M/1	132.3Ω	∞

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



4.4.3 To connect the backup heater to the indoor unit

- 1 Connect backup heater terminals X15M/1+2 to indoor unit terminals X5M/11+12.
- 2 Connect backup heater terminals X15M/6+7+8+9+10 to indoor unit terminals X3M/1+2+3+4+5.



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

! NOTICE

The distance between the high voltage and low voltage cables should be at least 50 mm.

i INFORMATION

- For details about the connections, refer to the wiring diagram.
- Use multi-core cables.

5 Starting up the system

For instructions on how to configure and commission the system, and hand it over to the user, refer to the installation manual of the indoor unit.

6 Technical data

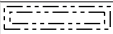
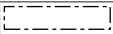
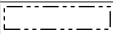
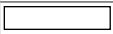
6 Technical data

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 Wiring diagram: Backup heater

See the internal wiring diagram supplied with the unit (on the inside of the backup heater 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
X14M, X15M	Main terminal
-----	Earth wiring
15	Wire number 15
-----	Field supply
①	Several wiring possibilities
	Option
	Switch box
	Wiring depending on model
	PCB
Optional backup heater configuration (only for EKLBUEHCB6W1)	Optional backup heater configuration (only for EKLBUEHCB6W1)
<input type="checkbox"/> 1N~, 230 V, 6 kW	<input type="checkbox"/> 1N~, 230 V, 6 kW
<input type="checkbox"/> 3N~, 400 V, 6 kW	<input type="checkbox"/> 3N~, 400 V, 6 kW

Position in switch box

English	Translation
Position in switch box	Position in switch box

Legend

E1H	Backup heater element (1 kW)
E2H	Backup heater element (2 kW)
F1B	Overcurrent fuse backup heater
F1T	Thermal fuse backup heater
F1U	Fuse
K1M	Contactor backup heater (step 1)
K2M	Contactor backup heater (step 2)
K5M	Safety contactor backup heater (only for *6W)
Q3DI	# Earth leakage circuit breaker
Q1L	Thermal protector backup heater
R2T	Outlet backup heater thermistor
X*M	Terminal strip
#	= Field supply

Translation of text on wiring diagram

English	Translation
BUH option	Backup heater option
Indoor unit	Indoor unit



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