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Draft 0.1

Service Manual

Daikin Altherma LT-CB

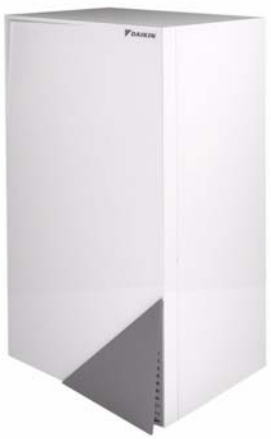
ERLQ04-08CAV3

ERHQ11-16BAV3/W1 **ERLQ11-16CAV3/W1**

EHV(X/H)04-16CB3V/9W **EHB(X/H)04-16CB3V/9W**









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Part 1. Introduction

1. Version log

Version history.

Version code	Description	Date
Draft 0.1	Preliminary release	09/04/2015

2. Safety precautions

The precautions described in this document cover very important topics, follow them carefully.

All activities described in the service manual must be performed by an authorized person.

If you are not sure how to install, operate or service the unit, contact your dealer.

In accordance with the applicable legislation, it might be necessary to provide a logbook with the product containing at least: information on maintenance, repair work, results of tests, stand-by periods, …

Also, at least, following information must be provided at an accessible place at the product:

- Instructions for shutting down the system in case of an emergency
- Name and address of fire department, police and hospital
- Name, address and day and night telephone numbers for obtaining service

In Europe, EN378 provides the necessary guidance for this logbook.

2.1. Meaning of symbols

	**WARNING** Indicates a situation that could result in death or serious injury.
	**WARNING: RISK OF ELECTROCUTION** Indicates a situation that could result in electrocution.
	**WARNING: RISK OF BURNING** Indicates a situation that could result in burning because of extreme hot or cold temperatures.
	**WARNING: RISK OF EXPLOSION** Indicates a situation that could result in explosion.
	**WARNING: RISK OF POISONING** Indicates a situation that could result in poisoning.
	**CAUTION** Indicates a situation that could result in equipment or property damage.

INFORMATION

Indicates useful tips or additional information.

2.2. Warnings

WARNING

Improper installation or attachment of equipment or accessories could result in electric shock, short-circuit, leaks, fire or other damage to the equipment. Only use accessories, optional equipment and spare parts made or approved by Daikin.

WARNING

Make sure installation, testing and applied materials comply with applicable legislation (on top of the instructions described in the Daikin documentation).

WARNING

Make sure the work site environment is clean and safe to work in. Beware of spilled fluids, like water, oil or other substances. Protect bystanders from injury and property from possible damage cause by service works.

WARNING

Wear adequate personal protective equipment (protective gloves, safety glasses,…) when installing, maintaining or servicing the system.

WARNING

Tear apart and throw away plastic packaging bags so that nobody, especially children, can play with them. Possible risk: suffocation.

WARNING

Do NOT touch the air inlet or aluminium fins of the unit.

WARNING

- Do NOT place any objects or equipment on top of the unit.
- Do NOT sit, climb or stand on the unit.

WARNING

During tests, NEVER pressurize the product with a pressure higher than the maximum allowable pressure (as indicated on the nameplate of the unit).

WARNING

- Never mix different refrigerants or allow air to enter the refrigerant system.
- Never charge recovered refrigerant from another unit. Use recovered refrigerant only on the same unit where it was recovered from, or have it recycled at a certified facility.

WARNING: RISK OF BURNING

- Do NOT touch the refrigerant piping, water piping or internal parts during and immediately after operation. It could be too hot or too cold. Give it time to return to normal temperature. If you must touch it, wear protective gloves.
- Do NOT touch any accidental leaking refrigerant.



WARNING

Always recover the refrigerants. Do NOT release them directly into the environment. Use a recovery pump to evacuate the installation.

Take sufficient precautions in case of refrigerant leakage. If refrigerant gas leaks, ventilate the area immediately.

Possible risks:

- Excessive refrigerant concentrations in a closed room can lead to oxygen deficiency.
- Toxic gas may be produced if refrigerant gas comes into contact with fire.

Where applicable, pump down the system and close the service valve, before leaving the site if leak was not repaired, to avoid further leaking of the refrigerant.



WARNING: RISK OF ELECTROCUTION

- Turn OFF all power supply before removing the switch box cover, connecting electrical wiring or touching electrical parts. Where applicable, stop the equipment's operation first and allow (refrigerant) pressure to equalize, before turning OFF the power. Disconnect the power supply for more than 1 minute, and measure the voltage at the terminals of main circuit capacitors or electrical components before servicing. The voltage must be less than 50 V DC before you can touch electrical components. For the location of the terminals, refer to "Wiring diagrams" on page 258.
- Do NOT touch electrical components with wet hands.
- Do NOT leave the unit unattended when the service cover is removed.
- Protect electric components from getting wet while the service cover is opened.



WARNING

- Only use copper wires.
- All field wiring must be performed in accordance with the wiring diagram and installation manual supplied with the product.
- If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires may cause an electrical shock, excessive heat generation or fire.
- Secure all terminal connections and provide proper routing for cables, both inside and outside the switchbox.
- NEVER squeeze bundled cables and make sure they do not come in contact with the piping and sharp edges.
- Make sure no external pressure is applied to the terminal connections.
- Make sure to check the earth wiring. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Improper earth wiring may cause electrical shock.
- Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance.
- Make sure to check the required fuses and/or circuit breakers before starting works.



WARNING

- After finishing the electrical work, confirm that each electrical component and terminal inside the electrical components box is connected securely.
- Make sure all covers are closed before starting the unit again.

2.3. Cautions



CAUTION

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.



CAUTION

- Make sure water quality complies with EU directive 98/83 EC.
- Check the system for leaks after each repair/modification of the water side.
- Check drainage system(s) after repairs.
- Be careful when tilting units as water may leak.

2.4. Information

INFORMATION

Make sure refrigerant piping installation complies with applicable legislation. In Europe, EN378 is the applicable standard.

INFORMATION

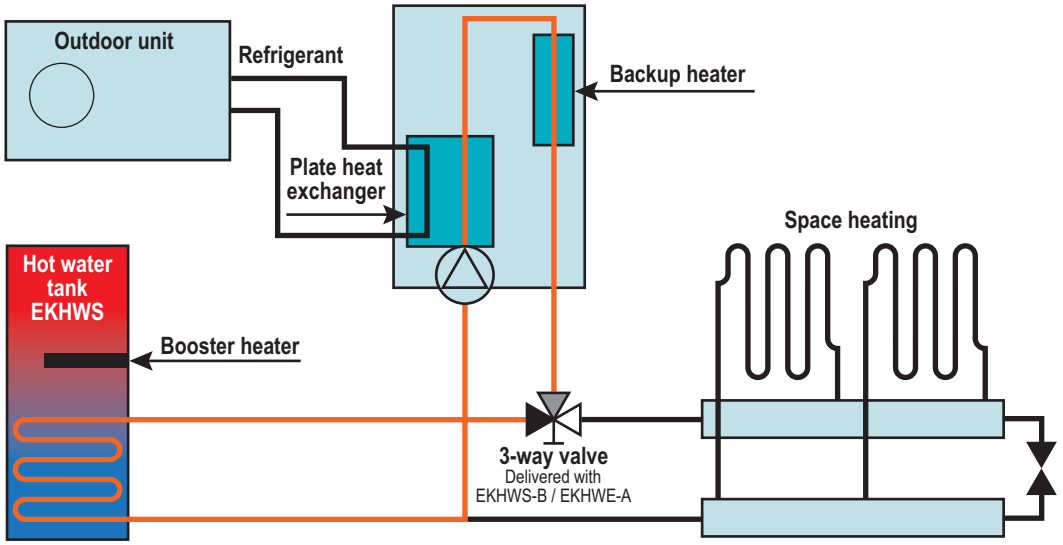
Make sure the field piping and connections are not subjected to stress.

3. General operation of Daikin Altherma low temperature heat pump

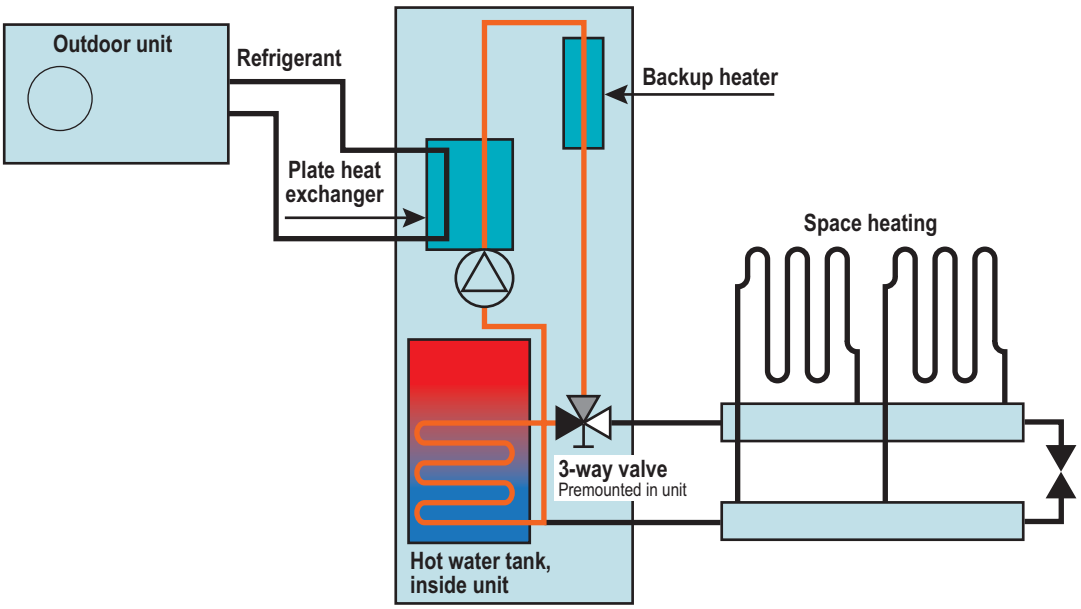
The total Daikin Altherma low temperature heat pump consists out of 2 loops: refrigerant and water.

A plate heat exchanger transmits the heat from the refrigerant to the water, which is then, depending on the position of the 3-way valve, used for space heating or domestic hot water.

Wall hung unit (with optional domestic hot water tank):



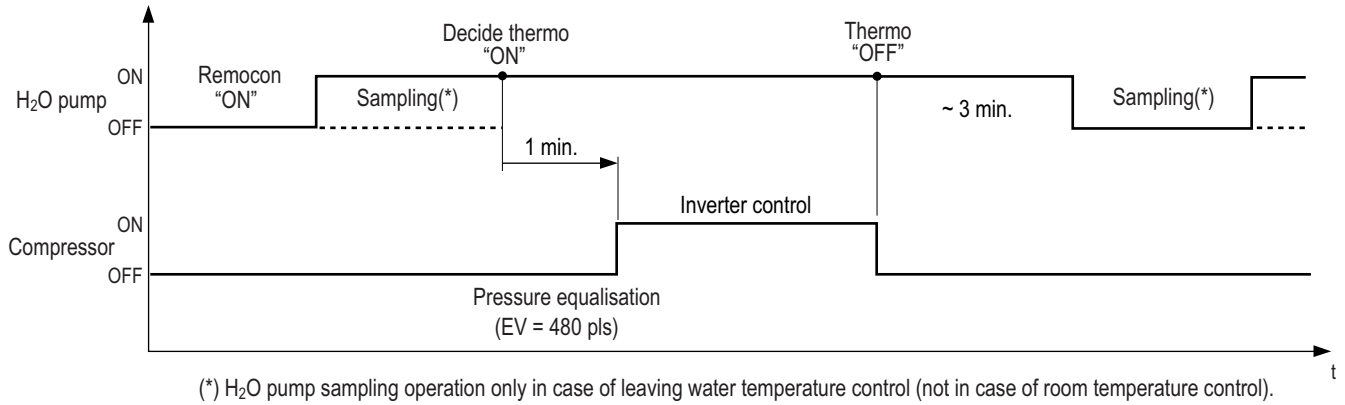
Integrated unit (with integrated domestic hot water tank):



In the refrigerant circuit, there is a compressor which will increase the pressure and thus increase the temperature of the refrigerant before it's being exchanged with water in the plate heat exchanger. A water pump ensures flow in the water circuit.

Operation range can be found back in the engineering data book. The requested water temperatures for space heating and domestic hot water are delivered by the heat pump operation and, were/when necessary, by assistance of the backup heater (for space heating and in case of an integrated indoor unit, both for space heating and domestic hot water) or the booster heater (for domestic hot water in case of a wall hung indoor unit).

When the unit starts operation, following behaviour occurs:



(*) H_2O pump sampling operation only in case of leaving water temperature control (not in case of room temperature control).

When space heating thermo ON is decided and pump is working on ΔT control (default 5°C):

- The inverter water pump will gradually adjust its speed to reach and maintain the required delta T (this is the water temperature difference between the leaving water and entering water (adjustable by setting)).
- The inverter compressor (after pressure equalisation) will gradually adjust its speed to reach and maintain the required water temperature.

When the domestic hot water function is activated, the 3-way valve will switch over to the domestic hot water tank and space heating side is closed. Domestic hot water and space heating cannot be active simultaneously. The 3-way valve will switch back to space heating when domestic hot water setpoint is reached or when running timers are finished (refer to the Installer Reference Guide for more details).

When the unit receives a thermo OFF signal:

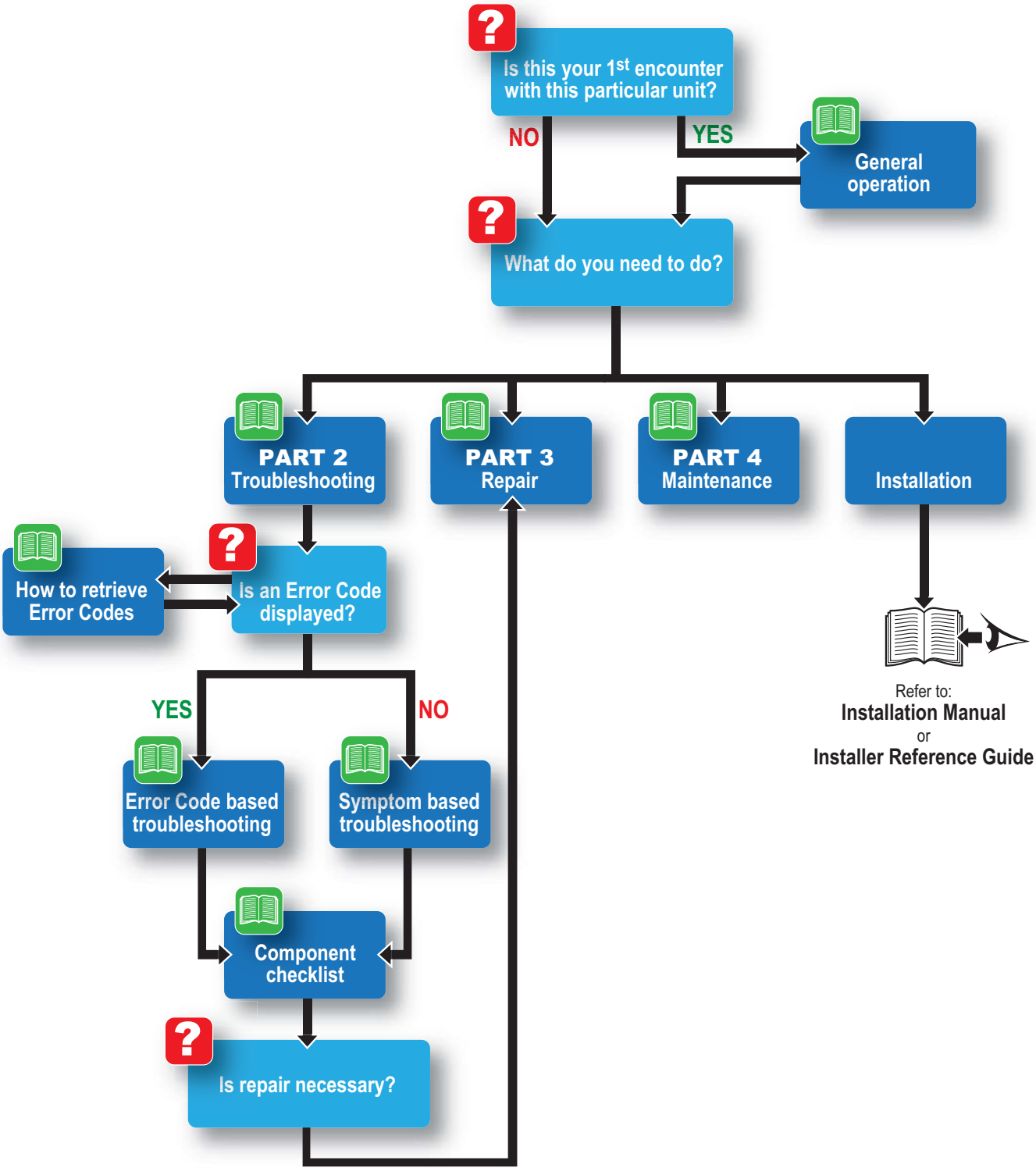
- The compressor will stop its operation.
- The water pump will operate for some more minutes and eventually stop or start sampling.

4. How to use this book

4.1. Interactive information flow

This Daikin product Service Manual is intended for professional use only. The actions described hereafter, are only to be performed by qualified and certified persons, taking into account the safety precautions mentioned in this manual and the local regulations as well.

By following the diagram below, the reader can find the relevant information related to his/her task. The digital (pdf) version of this book allows direct page access through all active links. When Adobe Acrobat Reader is used, the <Alt> + <Back Arrow> keys can be used to return to the previously viewed page.



4.2. Parts of the book

This Daikin product Service Manual is intended for professional use only. The actions described hereafter, are only to be performed by qualified and certified persons, taking into account the safety precautions mentioned in this manual and the local regulations as well.

As can be observed from the Table of Contents, this manual is split up into several chapters:

4.2.1. The introduction chapter

The chapter "Introduction" on page 13 includes the safety precautions, this topic and the general operation description of the product(s) this manual refers to.

4.2.2. The troubleshooting chapter

The chapter "Troubleshooting" on page 21 not only deals with the methods to recognize and resolve occurring error codes; it also describes the methods how to solve a problem that does not immediately trigger an error code. Such problems are referred to as 'symptom based'. Both the error code based and symptom based troubleshooting tables, indicate possible causes, the necessary checks and in case required, how to repair. The possible causes have been sorted to probability of occurrence and speed of execution.

4.2.3. The repair chapter

The chapter "Repair" on page 115 handles the removal and replacement of the major components in the product and discusses cleaning methods as well if applicable, such as for filters. Where applicable, refrigerant handling precautions are mentioned for certain actions; please consider these carefully for your own safety.

4.2.4. The maintenance chapter

The chapter "Maintenance" on page 249 of this manual describes the maintenance intervals and procedures to be performed on the product. Remember that a well maintained product, is a more reliable and efficient product.

4.2.5. Appendices

Finally, the service manual provides in chapter "Appendix" on page 253 valuable reference data such as piping/wiring diagrams, field settings overview and a checklist to be filled in when you need to escalate an issue to your dealer.

4.3. Contact information

This manual has been made with much care and effort. Use it in your daily jobs, as it has been made for you.

Despite our efforts, there is always a chance some cleric or other mistake has been made during the creation of this manual. We kindly ask you to send the found mistakes, or remarks for improvement, to the no-reply email address servicemanual@daikineurope.com.

Part 2. Troubleshooting

This part contains the following chapters:

1. Error codes 21
2. Error code based troubleshooting.....27
3. Symptom based troubleshooting 47
4. Component checklist Floorstanding - Wall hung..... 62

1. Error codes

1.1. How to retrieve error codes

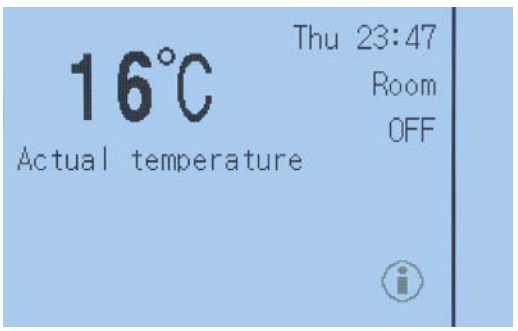
When a problem happens, an error code appears on the user interface. It is important to understand the problem and to take countermeasure before resetting the error code.

For LT-CB, there are 3 types of troubleshooting codes:

1. Error: a severe problem, system will preventively shut down to prevent further breakdown and the error code will be displayed on the user interface where it is visible for the end user. Installer should be notified to come on site and repair the problem. All errors are listed in the Error History [6.3.1] which is only visible when in installer level.

2. Warning: not a severe problem but might lead to an error in case it occurs a number of times within a certain time frame. The system will not stop but the i-symbol (information) will be blinking. All warnings are listed in the Warning History [6.3.3] which is only visible when in installer level.

3. Caution: not a severe problem but a sort of alert that the unit will start monitoring a certain event, which might over time result in an error or a warning. Cautions are not listed.

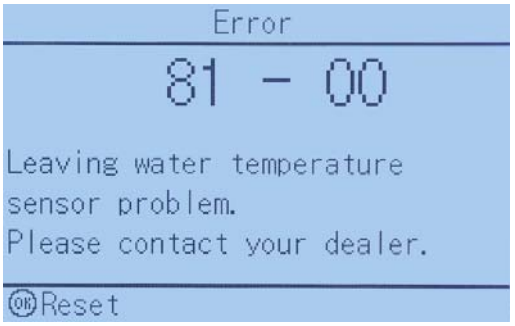


You can see the error code / warning by pressing the i-button.



Now you can read the error code / warning and a short indication about the problem.

If an error is present, it will immediately be displayed on the user interface screen: for more information about troubleshooting, refer to "Error code based troubleshooting" on page 27.

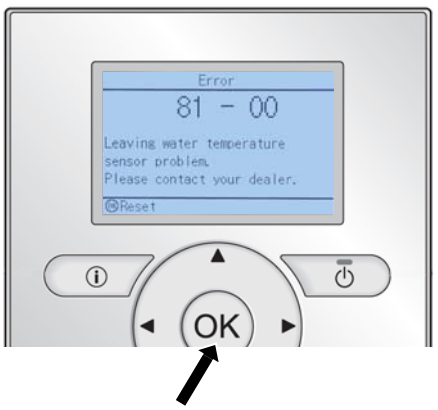


1.2. How to reset error codes

When the problem is solved, you can reset the error by pushing the OK-button unless otherwise mentioned on the screen.

INFORMATION

For U3 error for example, you need to be in installer mode to reset.



1.3. History of error codes and warnings

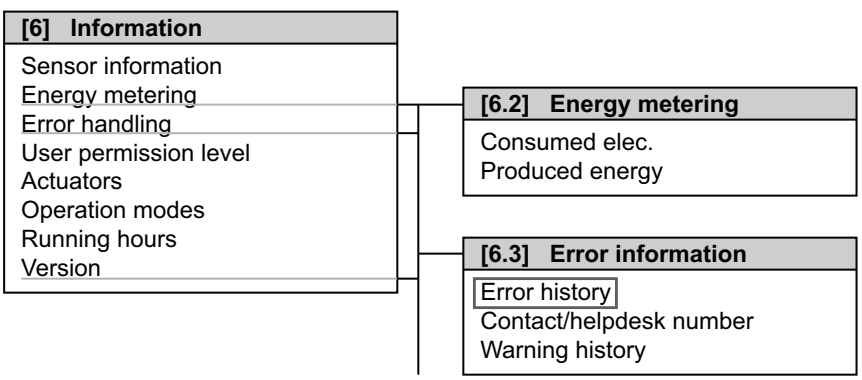
There are 3 ways to retrieve the (history of) error codes:

1. Through the indoor unit (user interface).

   The user interface can remember up to 20 error codes.

   They are split up in an error history list (which only lists errors) and a warning history list (which lists warnings and some cautions). Both lists are always visible when in installer level. End user will only see error history in case the error occurs so he can inform the installer.

   They can be found on the following location:



2. Troubleshooting by LED on the outdoor PCB (A1P) (only for 16 class).

   The following diagnosis can be conducted by turning on the power switch and checking the LED indication on the printed circuit board of the outdoor unit.

   ☼ : LED on / ● : LED off / ◑ : LED blinks / — : Not used for diagnosis

LED detection		Description
HAP	H1P	
(Green)	(Red)	
◑	●	Normal
☼	—	Faulty outdoor unit PCB (Information 1)
●	—	Power supply abnormality, or faulty outdoor unit PCB (Information 2)
◑	☼	Activation of protection device (Information 3)

INFORMATION

1. Turn off the power switch, and turn it on again after 5 seconds or more. Check the error condition, and diagnose the problem.
2. Turn off the power switch. After 5 seconds or more, disconnect the connection wire (2). Then turn on the power switch. If the HAP on the outdoor unit PCB flashes after about 10 seconds, the hydro PCB A1P is faulty.
3. Also check for open phase.

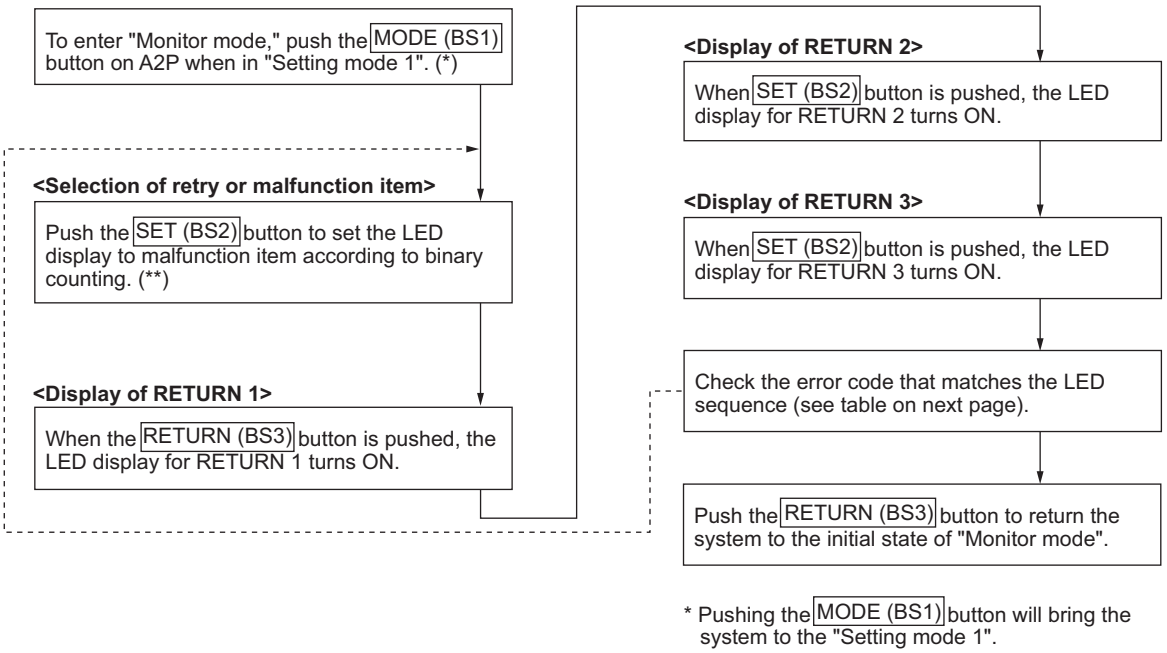
INFORMATION

The error detection monitor continues to indicate the previously generated error until the power switch is turned off.

Be sure to turn off the power switch after inspection.

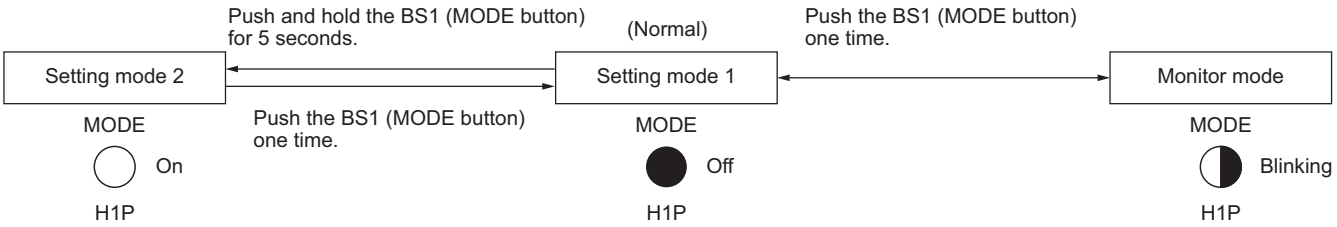
3. Troubleshooting by LED on the outdoor service PCB (A2P) (only for 16 class).

   Take the following steps to check contents of malfunction:



Procedure for changing mode

(*) Using the MODE button, the modes can be changed as follows.



(**)

	HAP	H1P	H2P	H3P	H4P	H5P	H6P	H7P
LED-status:	☼	☼	☼	☼	☼	☼	☼	☼
Binary counting: value:		64	32	16	8	4	2	1
Setting item: 14= latest error=		☼	●	●	☼	☼	☼	●
15= previous error=		☼	●	●	☼	☼	☼	☼
16= 2 before=		☼	●	☼	●	●	●	●

☼: ON ●: OFF ◑: BLINK

Malfunction code	Contents of retry or malfunction		1								2								3							
			HAP	H1P	H2P	H3P	H4P	H5P	H6P	H7P	HAP	H1P	H2P	H3P	H4P	H5P	H6P	H7P	HAP	H1P	H2P	H3P	H4P	H5P	H6P	H7P
C4	Indoor heat exchanger thermistor		◑	◑	☼	●	●	●	◑	●	◑	◑	☼	●	●	◑	●	●	◑	◑	☼	☼	●	●	●	●
E1	Faulty outdoor PC board		◑	◑	●	☼	●	●	◑	◑	◑	◑	☼	●	●	●	●	◑	◑	◑	☼	☼	●	●	●	●
E3	Abnormal high pressure										◑	◑	☼	●	●	●	◑	◑	◑	◑	☼	☼	●	●	●	●
E4	Abnormal low pressure										◑	◑	☼	●	●	◑	●	●	◑	◑	☼	☼	●	●	●	●
E5	Compressor motor lock										◑	◑	☼	●	●	◑	●	◑	◑	◑	☼	☼	●	●	●	●
E7	Abnormal outdoor fan motor	DC motor 1 lock									◑	◑	☼	●	●	◑	◑	◑	◑	◑	☼	☼	●	●	●	◑
		DC motor 2 lock																	◑	◑	☼	☼	●	●	◑	●
		Abnormal inverter transmission																	◑	◑	☼	☼	●	●	◑	◑
E9	Abnormal electronic expansion valve	Disconnected electronic expansion valve connector									◑	◑	☼	●	◑	●	●	◑	◑	◑	☼	☼	●	●	●	◑
		Malfunction due to wet conditions																	◑	◑	☼	☼	●	●	◑	●
F3	Abnormal discharge pipe temperature	Abnormal discharge pipe temperature	◑	◑	●	☼	●	◑	●	◑	◑	◑	☼	●	●	●	◑	◑	◑	◑	☼	☼	●	●	●	◑
		Disconnected discharge pipe thermistor																	◑	◑	☼	☼	●	●	◑	●
H3	Abnormal high pressure switch		◑	◑	●	☼	●	◑	●	●	◑	◑	☼	●	●	●	◑	◑	◑	◑	☼	☼	●	●	●	●
H9	Abnormal outdoor air thermistor										◑	◑	☼	●	◑	●	●	◑	◑	◑	☼	☼	●	●	●	●
J1	Abnormal pressure sensor		◑	◑	●	☼	●	◑	◑	●	◑	◑	☼	●	●	●	●	◑	◑	◑	☼	☼	●	●	●	●
J3	Abnormal discharge pipe thermistor										◑	◑	☼	●	●	●	◑	◑	◑	◑	☼	☼	●	●	●	●
J5	Abnormal suction pipe thermistor										◑	◑	☼	●	●	◑	●	◑	◑	◑	☼	☼	●	●	●	●
J6	Abnormal heat exchanger distributor pipe thermistor										◑	◑	☼	●	●	◑	◑	●	◑	◑	☼	☼	●	●	●	●
J7	Abnormal intermediate heat exchanger thermistor										◑	◑	☼	●	●	◑	◑	◑	◑	◑	☼	☼	●	●	●	●
J8	Abnormal liquid pipe thermistor										◑	◑	☼	●	◑	●	●	●	◑	◑	☼	☼	●	●	●	●
L1	PC board failure		◑	◑	●	☼	●	◑	◑	◑	◑	◑	☼	●	●	●	●	◑	◑	◑	☼	☼	●	●	●	●
L4	Elevated radiation fin temperature										◑	◑	☼	●	●	◑	●	●	◑	◑	☼	☼	●	●	●	●
L5	Compressor instantaneous overcurrent										◑	◑	☼	●	●	◑	●	◑	◑	◑	☼	☼	●	●	●	●
L8	Compressor overload										◑	◑	☼	●	◑	●	●	●	◑	◑	☼	☼	●	●	●	●
L9	Compressor lock										◑	◑	☼	●	◑	●	●	◑	◑	◑	☼	☼	●	●	●	●
LC	Abnormal transmission (between the control and the inverter)										◑	◑	☼	●	◑	◑	●	●	◑	◑	☼	☼	●	●	●	●
P1	Unbalanced power supply voltage		◑	◑	●	☼	◑	●	●	●	◑	◑	☼	●	●	●	●	◑	◑	◑	☼	☼	●	●	●	●
P4	Abnormal radiation fin thermistor										◑	◑	☼	●	●	◑	●	●	◑	◑	☼	☼	●	●	●	●
PJ	Faulty capacity setting										◑	◑	☼	●	◑	◑	●	◑	◑	◑	☼	☼	●	●	●	●
U0	Abnormal gas shortage	Gas shortage warning	◑	◑	●	☼	◑	●	●	◑	◑	◑	☼	●	●	●	●	●	◑	◑	☼	☼	●	●	●	◑
		Abnormal gas shortage																	◑	◑	☼	☼	●	●	◑	●
U2	Abnormal power supply voltage	Inverter undervoltage and overvoltage									◑	◑	☼	●	●	●	◑	●	◑	◑	☼	☼	●	●	●	◑
		SP-PAM overvoltage																	◑	◑	☼	☼	●	●	◑	●
U4	Abnormal transmission (between indoor and outdoor units)										◑	◑	☼	●	●	◑	●	●	◑	◑	☼	☼	●	●	●	●
UA	Faulty field setting switch										◑	◑	☼	●	◑	●	◑	●	◑	◑	☼	☼	●	●	●	●
UF	Improper piping and improper communication wiring														◑	◑	◑	◑	◑	◑	☼	☼	●	●	●	●

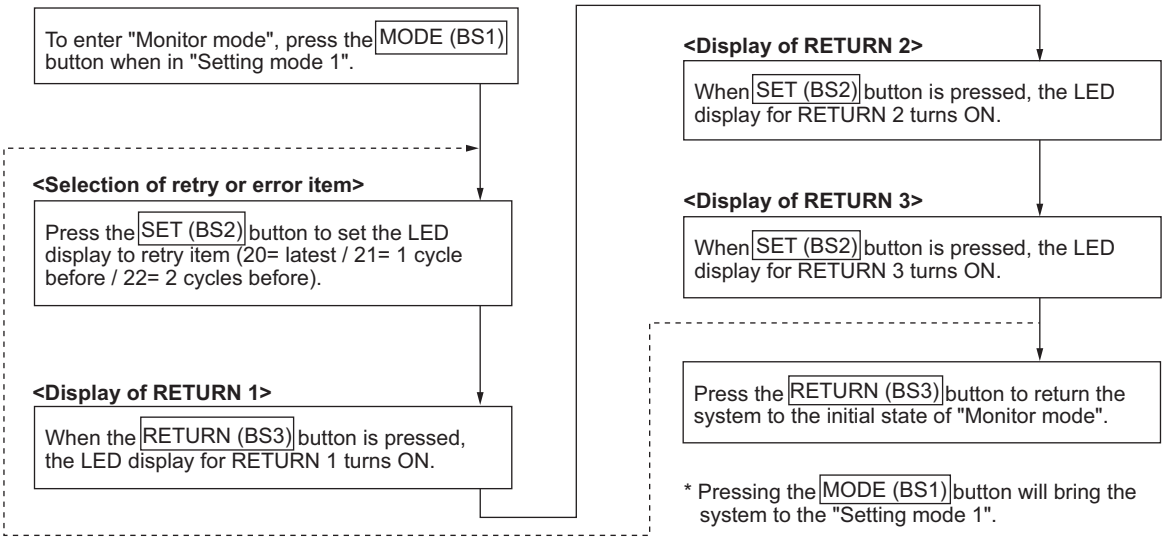
1.4. Content of retry (only for 16 class)

Through the outdoor PCB, the content of retry can be determined.

Here, you can find the errors which are being created before they are being displayed on the user interface.

Content of retry goes back up to 3 retries.

Take the following steps to check contents of retry and error.



Data display (1)

Display contents	LED display						
	H1P	H2P	H3P	H4P	H5P	H6P	H7P
In normal operation	◑	●	●	●	●	●	●
In oil return operation	◑	●	●	●	●	●	◑

Data display (2)

Display contents	LED display						
	H1P	H2P	H3P	H4P	H5P	H6P	H7P
GSHP	◑	●	●	●	◑	◑	◑

Data display (3)

Display contents	LED display						
	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Normal (not in stepping-down operation)	◑	●	●	●	●	●	◑
Low pressure stepping-down	◑	●	●	●	●	◑	●
High pressure stepping-down	◑	●	●	●	●	◑	◑
Inverter discharge pipe stepping-down	◑	●	●	●	◑	●	●
Inverter current stepping-down	◑	●	●	●	◑	●	◑
Radiation fin temperature stepping-down	◑	●	●	●	◑	◑	●
Inverter stepping-down	◑	●	●	●	◑	◑	◑
Overall current stepping-down	◑	●	●	◑	●	●	●
Other stepping-down	◑	●	●	◑	●	●	◑

2. Error code based troubleshooting

Overview of error codes:

"AA" – Booster or back up heater safety error 27
"AC" – Booster heater thermal protector is open (only for EHB*) 28
"AH" – Disinfection operation error 28
"AJ" – Domestic hot water heat duration is too long (warning) 29
"A1" – Hydro PCB A1P abnormality 29
"A5" – Freeze-up prevention 29
"CJ-02" – User interface room temperature error 30
"C0" – Flow sensor error 30
"C4" – Refrigerant liquid thermistor R3T (A1P) abnormality 30
"EC" – Domestic hot water temperature error 30
"E1" – Outdoor unit PCB abnormality 31
"E3" – High pressure abnormality 31
"E4" – Actuation of sensor (low pressure) 32
"E5" – Compressor motor lock 32
"E7" – Malfunction of outdoor unit fan motor 33
"E9" – Expansion valve abnormality 33
"F3" – Discharge pipe temperature control 34
"HC" – Domestic hot water temperature error 34
"H1" – Optional temperature sensor error (indoor ambient) 34
"H3" – High pressure switch system abnormality 35
"H9" – Outdoor air thermistor (R1T) abnormality 35
"J1" – Pressure sensor abnormality 35
"J3" – Discharge thermistor abnormality 35
"J5" – Suction thermistor (R3T) abnormality 36
"J6" – Heat exchanger thermistor (R4T) abnormality 36
"J7" – Malfunction of intermediate heat exchanger thermistor 36
"J8" – Malfunction of liquid pipe thermistor 36
"LC" – Transmission system abnormality 37
"L1" – Outdoor main PCB abnormality 37
"L4" – Radiation fin temperature abnormality 37
"L5" – Output overcurrent detection 38
"L8" – Electronic thermal overload 38
"L9" – Stall prevention (time lag) 39
"P1" – Open phase or power supply voltage imbalance 39
"P4" – Inverter radiation fin thermistor (R10T/R7T) error 39
"PJ" – Defective capacity setting 40
"UA" – PCB combination error 40
"U0" – Refrigerant shortage 41
"U1" – Reverse phase or open phase 41
"U2" – Power supply voltage abnormality 41
"UF" – Malfunction of transmission between hydrobox and outdoor unit or gas shortage 42
"U3-00" – Abnormal stop of underfloor heating dry-out scheduled operation 42
"U4" – Defective indoor-outdoor transmission 43
"U5-00" – Transmission error between user interface and hydro PCB A1P 43
"7H-01" – Water flow abnormality 44
"8F" – Backup heater outlet water temperature error during domestic hot water operation 45
"8H" – Backup heater outlet water temperature error 45
"80" – R4T entering water thermistor abnormality 45
"81" – Leaving water thermistor R1T abnormality 46
"89-01" – Plate heat exchanger freeze-up error 46
"89-02" – Plate heat exchanger freeze-up warning during space heating / DHW production 46
"89-03" – Plate heat exchanger warning during defrost 46

2.1. "AA" – Booster or back up heater safety error

Trigger	Effect	Reset
Thermal protector Q1L (integrated) or Q2L (wall hung) is activated (temp > 90°C).	Unit will stop operating.	Power reset + reset via user interface + pressing the button on the Q1L/Q2L (if activated).

Possible cause	Check	Corrective action
Air in water circuit / backup heater.	Check if all air purge valves are open. Check if air purge valves are installed on all highest points of the field installed water circuit.	Purge air out of unit and field supplied water system and backup heater. Refer to the Installer Reference Guide.
Increased water temperature by external heat source.	Check if another heat source is installed on the same water circuit.	Correct hydraulic field circuit. Refer to the Installer Reference Guide.
Faulty thermal protector Q1L (integrated), Q2L (wall hung) / hydro PCB A1P.	Check thermal protector backup heater Q1L (see page 72) or Q2L.	Replace thermal protector backup heater Q1L (see page 137 or page 167) or hydro PCB A1P (see page 127 or page 160) or thermal protector Q2L.
Faulty thermistor R2T (after backup heater) / hydro PCB A1P.	Check thermistor R2T (see page 66).	Replace thermistor R2T (see page 149 or page 176) or hydro PCB A1P (see page 127 or page 160).
Faulty thermistor R1T (leaving water) / hydro PCB A1P.	Check thermistor R1T (see page 66).	Replace thermistor R1T (ee page 149 or page 176) or hydro PCB A1P (see page 127 or page 160).
Faulty backup heater assy / hydro PCB A1P.	Check backup heater (see page 62).	Replace the faulty components (backup heater (see page 133 or page 163) or hydro PCB A1P (see page 127 or page 160).

Faulty booster heater / hydro PCB A1P.	Check booster heater (see page 65).	Replace the faulty components (booster heater, see Installer reference guide of the water tank) or hydro PCB A1P (see page 127 or page 160).

2.2. "AC" – Booster heater thermal protector is open (only for EHB*)

Trigger	Effect	Reset
Booster heater temperature rises above 85°C which causes activation of thermal protector Q2L (EKHWS**B3V3/EKHWSU**B3V3).	Unit will immediately stop operation.	Manual reset.
Booster heater temperature rises above 85°C which causes activation of thermal protector Q3L (EKHWS**Z2).	Unit will stop operation at 91°C.	Manual reset.
Booster heater temperature rises above 89°C which causes activation of thermal protector Q3L (EKHWE**A3V3/Z2).	Unit will immediately stop operation.	Manual reset.

Possible cause	Check	Corrective action
Wrong settings.	Check settings related to hot water tank (is tank connected and is booster heater used).	Correct settings according to Installer Reference Guide.
Tank clixon Q2L tripped.	Check if relay K3M is open.	Reset the tank clixon.
Incorrect parameter of solar pump station.	Check maximum tank temperature of solar pump station.	Set maximum tank temperature to a reasonable value.

2.3. "AH" – Disinfection operation error

Trigger	Effect	Reset
Disinfection setpoint is not reached or not kept for requested time.	Unit will continue operating.	Auto-reset when next disinfection is completed.

Possible cause	Check	Corrective action
Large hot water quantity has been tapped during / before disinfection.	Check when the disinfection is scheduled (schedule it when there is little chance that water will be tapped so that the disinfection can finish in time).	Adjust schedule timer and/or related settings. Refer to the Installer Reference Guide.
Backup heater is restricted during disinfection.	Check the backup heater settings [2-00] till [2-04]. Refer to the Installer Reference Guide.	Adjust related settings. Refer to the Installer Reference Guide.
Faulty water tank thermistor R5T / hydro PCB A1P.	Check thermistor R5T (see page 66).	Replace thermistor R5T (see page 149 or page 176) or hydro PCB A1P (see page 127 or page 160).
Tank setting not OK.	Check settings regarding tank (e.g. [E-06]; [E-07]).	Change settings.
Backup heater not allowed.	Check setting backup heater (e.g. [4-00]).	Change settings.

2.4. “AJ” – Domestic hot water heat duration is too long (warning)

Trigger	Effect	Reset
DHW heat-up > 6 hours.	Unit switches to space heating for 3 hours.	Not available.

Possible cause	Check	Corrective action
Faulty backup heater.	Check backup heater.	Replace backup heater.
Faulty power supply.	Check power supply.	Correct power supply.
Blown fuse.	Check fuses on PCB's.	Replace fuses.
Too large DHW consumption.		Lower DHW consumption.
Faulty 3-way valve.	Check 3-way valve.	Replace 3-way valve.
Leaking field installed DHW tap.	Check installation.	Fix the leak.
Backup heater not allowed.	Check setting backup heater (e.g. [4-00]).	Change settings of backup heater.

2.5. “A1” – Hydro PCB A1P abnormality

Trigger	Effect	Reset
Hydro PCB A1P detects EEPROM is abnormal.	Unit will stop operating.	Via power reset + via user interface.

Possible cause	Check	Corrective action
Faulty hydro PCB A1P.	Check if the alive led is blinking in regular intervals.	If not blinking in regular intervals, replace the hydro PCB A1P (see page 127 or page 160).

2.6. “A5” – Freeze-up prevention

Trigger	Effect	Reset
Heat exchanger thermistor R1T measures temperature below 0°C, 15 times in 300 min.	Unit will stop.	Via user interface.
Condensing temperature reaches a temperature of 59,5°C, 15 times in 300 min.		

Possible cause	Check	Corrective action
Refrigerant circuit is clogged.	Check for possible blockage (blockage can be checked by measuring the refrigerant/pipe temperature. Sudden drop in temperature could indicate a blockage (Remark: this is not valid for the expansion valve)).	
Faulty expansion valve.	Check expansion valve.	Replace expansion valve.
Faulty thermistor.	Check thermistors.	Replace thermistor.

2.7. “CJ-02” – User interface room temperature error

Trigger	Effect	Reset
Room temperature thermistor of user interface detects an abnormal value (open or short circuit).	Unit will keep operating.	Auto-reset.

Possible cause	Check	Corrective action
Faulty room thermistor of user interface.	Check room thermistor read out value via the user interface and compare with actual room temperature.	Replace user interface or replace hydro PCB A1P (see page 127 or page 160).

2.8. “C0” – Flow sensor error

Trigger	Effect	Reset
Flow sensor still detects a water flow after 45 seconds when pump has stopped.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Water flow caused by external pump.	Check if another (external) pump is installed on the same water circuit.	Correct hydraulic field circuit. Refer to the Installer Reference Guide.
Faulty flow sensor / hydro PCB A1P.	Check flow sensor (see page 74).	Replace flow sensor (see page 131 or page 162) or replace hydro PCB A1P (see page 127 or page 160). If flow sensor failed due to contamination, check for source of contamination and consider to install an additional water filter.

2.9. “C4” – Refrigerant liquid thermistor R3T (A1P) abnormality

Trigger	Effect	Reset
Thermistor detects an abnormal value (open or short circuit).	Unit will stop operating.	Auto-reset when problem is solved.

Possible cause	Check	Corrective action
Faulty refrigerant liquid thermistor R3T (A1P) / hydro PCB A1P.	Check thermistor R3T (see page 66).	Replace thermistor R3T (see page 149 or page 176) or hydro PCB A1P (see page 127 or page 160).

2.10. “EC” – Domestic hot water temperature error

Trigger	Effect	Reset
R5T (A1P) (water tank thermistor) detects temperature above 89°C.	Unit will continue operating.	Auto-reset when trouble is solved.

Possible cause	Check	Corrective action
Increased water temp by external heat source (solar panel).	Check if another heat source is installed on the same water circuit.	Correct hydraulic field circuit. Refer to the Installer Reference Guide.
Faulty water tank thermistor R5T / hydro PCB A1P.	Check thermistor R5T (see page 66).	Replace thermistor R5T (see page 149 or page 176) or hydro PCB A1P (see page 160).

2.11. “E1” – Outdoor unit PCB abnormality

Trigger	Effect	Reset
Outdoor main PCB detects that EEPROM is abnormal.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Faulty outdoor main PCB.	Check if the alive led is blinking in regular intervals.	If not blinking in regular intervals, replace the outdoor main PCB.
External factor (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after awhile).	Check for source which could cause electrical interference.	

2.12. “E3” – High pressure abnormality

Trigger	Effect	Reset
1. High pressure switch opens due to pressure > 41,7 bar. 2. High pressure control (HP > 38 bar) occurs 16 times within 300 minutes.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Refrigerant overcharge.	Check for refrigerant overcharge.	Charge the correct refrigerant amount.
Humidity in refrigerant (ice formation in expansion valve).	Check for humidity in the refrigerant.	In case of suspicion of humidity recover, vacuum and recharge with virgin refrigerant.
Non condensables in refrigerant.	Check for non condensables in refrigerant.	In case of suspicion of non condensables recover, vacuum and recharge with virgin refrigerant.
Refrigerant circuit is clogged.	Check for possible blockage (blockages can be checked by measuring the refrigerant/pipe temperature. Sudden drop in temperature could indicate a blockage (remark: this is not valid for the expansion valve).	
Faulty pressure sensor / outdoor main PCB.	Check pressure sensor (see page 85 or page 102).	Replace the pressure sensor (see page 202 or page 238) or outdoor main PCB (see page 187 or page 216 or page 220).
Faulty high pressure switch / outdoor main PCB (not for ERL/HQ 3 phase) / outdoor inverter PCB (for ERL/HQ 3 phase).	Check high pressure switch (see page 87 or page 104). Check outdoor inverter PCB (for ERL/HQ 3 phase) (see page 92).	Replace the high pressure switch (see page 201 or page 237) or the outdoor inverter PCB (see page 190 or page 217 or) or the main PCB (not for ERL/HQ 3 phase) (see page 220).
Stop valve is closed.	Check if stop valve is open.	Open stop valve.

2.13. “E4” – Actuation of sensor (low pressure)

Trigger	Effect	Reset
When pressure is below 1,2 bar for 5 minutes.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Stop valve is closed.	Check if stop valve is open.	Open stop valve.
Bad contact through pressure sensor cable.	Check if pressure sensor connector X17A is properly connected to the outdoor PCB board A1P.	Connect or replace sensor cable.
Faulty pressure sensor / outdoor main PCB.	Check the pressure sensor (see page 85 or page 102.)	Replace the pressure sensor (see page 202 or page 238) or outdoor main PCB (see page 187 or page 216 or page 220).
Abnormal drop of low pressure, caused by inadequate refrigerant, abnormal refrigerant piping system or faulty electronic expansion valve.	Check for possible blockage.	

2.14. “E5” – Compressor motor lock

Trigger	Effect	Reset
The motor rotor does not rotate when the compressor is energized.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Refrigerant circuit is clogged (HP - LP > 0,26 MPa).	Check for possible blockage (blockages can be checked by measuring the refrigerant/pipe temperature. Sudden drop in temperature could indicate a blockage (remark: this is not valid for the expansion valve)).	
Faulty compressor.	Check compressor (see page 82 or page 100).	Replace compressor and also investigate reason of breakdown, (see page 195 or page 230). Check expansion valve operation (liquid back issue). Check refrigerant shortage (overheated issue) -> check for leak.
Stop valve is closed.	Check if stop valve is open.	Open stop valve.
Compressor wiring is wrong.	Check wiring.	Correct wiring.
Faulty inverter voltage output.	Check if inverter output voltages have same amplitude.	Replace outdoor inverter PCB (see page 190 or page 217 or page 220).
Compressor turned off too fast.		Wait for guard timer to pass (3 min).

2.15. “E7” – Malfunction of outdoor unit fan motor

Trigger	Effect	Reset
When for 16 times, the fan runs with speed less than a specified one for 15 seconds or more when the fan motor running conditions are met.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Malfunction of fan motor.	1. Check if harness between fan motor and outdoor inverter PCB is well connected?	Connect wire harness.
	2. Check fan motor.	See result check.
Malfunction of outdoor inverter PCB.	Check outdoor inverter PCB.	See result check.
Blowout of fuse.	Check fuse (for ERH/LQ011-016*V3: F6U on outdoor PCB A1P, for ERH/LQ011-016*W1: F7U on outdoor inverter PCB).	Replace fuse.
For ERL/HQ-W1* only: faulty connector X191A.	Check connector X191A (L4R - reactor inverter M1F - M2F) on outdoor inverter PCB.	Replace outdoor inverter PCB.

2.16. “E9” – Expansion valve abnormality

Trigger	Effect	Reset
1. No continuity of expansion valve. 2. Minimum expansion valve opening and suction superheat < 4 K and discharge superheat < 5 K.	Unit will stop operating.	Via user interface (power reset might be necessary in case no common power supply was cause).

Possible cause	Check	Corrective action
No common power supply after power on.	Check power supply.	
Faulty expansion valve.	Check expansion valve (see page 88 or page 106).	Replace expansion valve (see page 205, page 240 or page 243).
Faulty thermistor R2T, R3T, R4T on outdoor main PCB.	Check thermistors R2T, R3T, R4T (see page 79 or page 97).	Replace thermistors R2T, R3T, R4T (see page 194 or page 228) or outdoor main PCB (see page 187 or page 216 or page 220).
Faulty pressure sensor / outdoor main PCB.	Check pressure sensor (see page 85 or page 102).	Replace the pressure sensor (see page 202 or page 238) or outdoor main PCB (see page 187 or page 216 or page 220).
Wet operation.	Check for wet operation. (Wet operation can be detected by checking the suction superheat. If the suction superheat is 0°C then liquid refrigerant is returning to the compressor.)	In case wet operation was detected confirm the cause: • Refrigerant overcharge. • Faulty expansion valve.
External factor (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after awhile).	Check for source which could cause electrical interference.	

2.17. “F3” – Discharge pipe temperature control

Trigger	Effect	Reset
1. Discharge temperature > 110°C for 15 minutes. 2. Discharge temperature > 125°C.	Unit will stop operating.	Via user interface -> only possible when below 95°C.

Possible cause	Check	Corrective action
Refrigerant shortage (incorrect charge / leakage blockage).	Check for refrigerant shortage. Perform leak test.	Repair the leak and charge the correct amount of refrigerant (check nameplate).
Faulty thermistor R2T / outdoor main PCB.	Check thermistor R2T (see page 79 or page 97).	Replace thermistor R2T (see page 194 or page 228) or outdoor main PCB (see page 187 or page 216 or page 220).
Faulty compressor.	Check compressor (see page 82 or page 100).	Replace compressor and also investigate reason of breakdown, (see page 195 or page 230). Check expansion valve operation (liquid back issue). Check refrigerant shortage (overheated issue) -> check for leak.
Faulty expansion valve.	Check expansion valve.	Replace expansion valve.

2.18. “HC” – Domestic hot water temperature error

Trigger	Effect	Reset
R5T (hydro PCB A1P) detects abnormal value (open or short circuit).	Unit will keep operating.	Auto reset when problem is solved.

Possible cause	Check	Corrective action
Faulty water tank thermistor R5T / hydro PCB A1P.	Check thermistor R5T (see page 66).	Replace thermistor R5T (see page 149) or hydro PCB A1P (see page 127).

2.19. “H1” – Optional temperature sensor error (indoor ambient)

Trigger	Effect	Reset
Optional thermistor detects an abnormal value (open or short circuit).	Unit will keep operating.	Auto reset when problem is solved.

Possible cause	Check	Corrective action
Faulty option thermistor R6T / hydro PCB A1P.	Check thermistor R6T (see page 66).	Replace thermistor R6T (see page 149) or hydro PCB A1P (see page 127).

2.20. “H3” – High pressure switch system abnormality

Trigger	Effect	Reset
High pressure switch is activated when compressor is off.	Unit stops operating.	Via user interface.

Possible cause	Check	Corrective action
Faulty high pressure switch / outdoor main PCB (not for ERL/HQ 3 phase) / outdoor inverter PCB (for ERL/HQ 3 phase).	Check high pressure switch (see page 87 or page 104). Check outdoor inverter PCB (for ERL/HQ 3 phase) (see page 92).	Replace the high pressure switch (see page 201 or page 237) or the outdoor inverter PCB (see page 190 or page 217 or) or the main PCB (not for ERL/HQ 3 phase) (see page 220).
Stop valve is closed.	Check if stop valve is open.	Open stop valve.

2.21. “H9” – Outdoor air thermistor (R1T) abnormality

Trigger	Effect	Reset
Thermistor detects an abnormal value (open or short circuit).	Unit stops operating.	Auto-reset when problem is solved.

Possible cause	Check	Corrective action
Faulty outdoor air thermistor R1T / outdoor main PCB.	Check thermistor R1T (see or page 79 or page 97).	Replace thermistor R1T (see page 194 or page 228) or outdoor main PCB (see page 187 or page 216 or page 220).

2.22. “J1” – Pressure sensor abnormality

Trigger	Effect	Reset
Pressure sensor detects an abnormal value for 3 minutes (> 4,5 MPa or < -0,05 MPa).	Unit stops operating.	Auto-reset.

Possible cause	Check	Corrective action
Faulty pressure sensor / outdoor main PCB.	Check pressure sensor (see page 87 or page 104).	Replace the pressure sensor (see page 202 or page 237) or outdoor main PCB (see page 187 or page 216 or page 220).

2.23. “J3” – Discharge thermistor abnormality

Trigger	Effect	Reset
Discharge thermistor detects an abnormal value (open or short circuit).	Unit stops operating.	Auto-reset when problem is solved.

Possible cause	Check	Corrective action
Faulty discharge thermistor (R2T) / outdoor main PCB.	Check thermistor R2T (see page 79 or page 97).	Replace thermistor R2T (see page 194 or page 228) or outdoor main PCB (see page 187 or page 216 or page 220).

2.24. "J5" – Suction thermistor (R3T) abnormality

Trigger	Effect	Reset
Suction thermistor detects an abnormal value (open or short circuit).	Unit stops operating.	Auto-reset when problem is solved.

Possible cause	Check	Corrective action
Faulty suction thermistor (R3T) / outdoor main PCB.	Check suction thermistor R3T (see page 79 or page 97).	Replace suction thermistor R3T (see page 194 or page 228) or outdoor main PCB (see page 187 or page 216 or page 220).

2.25. "J6" – Heat exchanger thermistor (R4T) abnormality

Trigger	Effect	Reset
Heat exchanger refrigerant inlet thermistor detects an abnormal value (open or short circuit).	Unit stops operating.	Auto-reset when problem is solved.

Possible cause	Check	Corrective action
Faulty heat exchanger thermistor (R4T) / outdoor main PCB.	Check thermistor R4T (see page 79 or page 97).	Replace thermistor R4T (see page 194 or page 228) or outdoor main PCB (see page 187 or page 216 or page 220).

2.26. "J7" – Malfunction of intermediate heat exchanger thermistor

Trigger	Effect	Reset
Intermediate heat exchanger thermistor detects an abnormal value (open or short circuit).	Unit stops operating.	Auto-reset when problem is solved.

Possible cause	Check	Corrective action
Faulty intermediate heat exchanger thermistor (R5T) / outdoor main PCB.	Check thermistor R5T (see page 79 or page 97).	Replace thermistor R5T (see page 194 or page 228) or outdoor main PCB (see page 187 or page 216 or page 220).

2.27. "J8" – Malfunction of liquid pipe thermistor

Trigger	Effect	Reset
Liquid pipe thermistor detects an abnormal value (open or short circuit).	Unit stops operating.	Auto-reset when problem is solved.

Possible cause	Check	Corrective action
Faulty intermediate heat exchanger thermistor (R6T) / outdoor main PCB.	Check thermistor R6T (see page 79 or page 97).	Replace thermistor R6T (see page 194 or page 228) or outdoor main PCB (see page 187 or page 216 or page 220).

2.28. "LC" – Transmission system abnormality

Trigger	Effect	Reset
No transmission between outdoor main PCB and outdoor inverter PCB.	Unit stops operating.	Auto-reset.

Possible cause	Check	Corrective action
Internal wiring is not OK.	Check if wiring between PCB's is correct (refer to wiring diagram).	Correct wiring.
Faulty outdoor main PCB.	Check if the alive led is blinking in regular intervals.	If not blinking in regular intervals, replace the outdoor main PCB (see page 187 or page 216 or page 220).
Faulty outdoor inverter PCB.	Check outdoor inverter PCB (see page 92 or page 110).	If faulty replace outdoor inverter PCB (see page 190 or page 217 or page 220).
External factor (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after awhile).	Check for source which could cause electrical interference.	

2.29. "L1" – Outdoor main PCB abnormality

Trigger	Effect	Reset
Outdoor main PCB detects current / voltage errors.	Unit will stop operating.	Via user interface (power reset might be required).

Possible cause	Check	Corrective action
Power supply is not OK -> imbalance > 10%.	Check power supply for voltage fluctuations (> 10%).	Voltage fluctuations should be less than 10%.
Compressor wiring is not OK.	Check connection of the compressor UVW wiring (see page 258).	Correct the UVW wiring (see page 258).
Faulty outdoor main PCB.	Check if the alive led is blinking in regular intervals.	If not blinking in regular intervals, replace the outdoor main PCB (see page 187 or page 216 or page 220).
External factor (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after awhile).	Check for source which could cause electrical interference.	

2.30. "L4" – Radiation fin temperature abnormality

Trigger	Effect	Reset
Outdoor inverter PCB detects fin temperature above 88°C.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Bad mechanical connection heat sink to outdoor inverter PCB.	Check connection between heat sink and outdoor inverter PCB.	Restore connection between heat sink and outdoor inverter PCB.
Faulty thermistor R10T or R7T / outdoor main PCB. R10T: ERH/LQ-V3* = single phase R7T: ERH/LQ-W1* = three phase	Check thermistor R10T or R7T (see page 79 or page 97).	Replace thermistor R10T or R7T (see page 228) or outdoor main PCB (see page 187 or page 216 or page 220).
Refrigerant shortage (incorrect charge / leakage).	Check for refrigerant shortage. Perform leak test.	If required repair the leak and charge the correct amount of refrigerant.

2.31. “L5” – Output overcurrent detection

Trigger	Effect	Reset
Outdoor inverter PCB detects overcurrent to power transistor.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Refrigerant circuit is clogged.	Check for possible blockage (blockages can be checked by measuring the refrigerant/pipe temperature. Sudden drop in temperature could indicate a blockage (remark: this is not valid for the expansion valve)).	
Power supply is not OK (voltage drop).	Check power supply for voltage dips.	
Faulty compressor.	Check compressor (see page 82 or page 100).	Replace compressor (see page 195 or page 230).
Faulty outdoor inverter PCB.	Check outdoor inverter PCB (page 92 or page 110).	Replace outdoor inverter PCB (see page 190 or page 217 or page 220).
Refrigerant is contaminated.		Replace refrigerant.

2.32. “L8” – Electronic thermal overload

Trigger	Effect	Reset
When compressor overload (except during startup) is detected.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Refrigerant circuit is clogged.	Check for possible blockage (blockages can be checked by measuring the refrigerant/pipe temperature. Sudden drop in temperature could indicate a blockage (remark: this is not valid for the expansion valve)).	
Refrigerant overcharge.	Check for refrigerant overcharge.	Charge the system with correct refrigerant charge.
Faulty compressor.	Check compressor (see page 82 or page 100).	Replace compressor (see page 195 or page 230).
Faulty outdoor inverter PCB.	Check outdoor inverter PCB (see page 92 or page 110).	Replace outdoor inverter PCB (see page 190 or page 217 or page 220).

2.33. “L9” – Stall prevention (time lag)

Trigger	Effect	Reset
Outdoor inverter PCB detects compressor overload at start up.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Refrigerant circuit is clogged.	Check for possible blockage (blockages can be checked by measuring the refrigerant/pipe temperature. Sudden drop in temperature could indicate a blockage (remark: this is not valid for the expansion valve)).	
Refrigerant condition is not OK (HP - LP > 0,2 MPa at start up).	Check refrigerant condition.	
Faulty compressor.	Check compressor (see page 82 or page 100).	Replace compressor (see page 195 or page 230).
Faulty outdoor inverter PCB.	Check outdoor inverter PCB (see page 92 or page 110).	Replace outdoor inverter PCB (see page 190 or page 217 or page 220).

2.34. “P1” – Open phase or power supply voltage imbalance

Trigger	Effect	Reset
Outdoor inverter PCB detects incorrect power supply.	Unit will stop operating.	Auto-return.

Possible cause	Check	Corrective action
Power supply is not OK -> open phase.	Check the power supply.	
Power supply is not OK -> imbalance > 10% (rated power supply: 400 V).	Check power supply for voltage fluctuations (> 10%).	Voltage fluctuations should be less than 10%.
Faulty outdoor inverter PCB (ERH/LQ-W1).	Check outdoor inverter PCB (see page 92 or page 110).	Replace outdoor inverter PCB (see page 190 or page 217 or page 220).
Faulty outdoor main PCB (ERH/LQ-V1).	Check outdoor main PCB.	Replace outdoor main PCB (see page 187 or page 216 or page 220).
Missing phase for 3 phase units.	Check power supply.	Fix power supply.

2.35. “P4” – Inverter radiation fin thermistor (R10T/R7T) error

Trigger	Effect	Reset
Thermistor R10T/R7T detects an abnormal value (open or short circuit). R10T: ERH/LQ-V3 = single phase R7T: ERH/LQ-W1 = three phase	Unit will stop operating.	Auto-reset when problem is solved.

Possible cause	Check	Corrective action
Faulty inverter heat sink thermistor R10T/R7T. R10T: ERH/LQ-V3 = single phase R7T: ERH/LQ-W1 = three phase	Check thermistor R10T/R7T (see page 79 or page 97). R10T: ERH/LQ-V3 R7T: ERH/LQ-W1	Replace thermistor R10T/R7T (see page 228). R10T: ERH/LQ-V3 R7T: ERH/LQ-W1
Faulty outdoor inverter PCB (ERH/LQ-W1).	Check outdoor inverter PCB (see page 92 or page 110).	Replace outdoor inverter PCB.
Faulty outdoor main PCB (ERH/LQ-V3).	Check outdoor main PCB.	Replace outdoor main PCB.

2.36. “PJ” – Defective capacity setting

Trigger	Effect	Reset
Outdoor main PCB detects a defective capacity in EEPROM.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Positions of PCB dip switches are not OK.	Check if dip switches are set to default (OFF) position.	
Faulty outdoor main PCB.	Check if the alive led is blinking in regular intervals.	If not blinking in regular intervals, replace the outdoor main PCB.
Capacity adapter is missing or not correct installed (ERL/HQ11-16*).	Check capacity adapter.	Correct capacity adapter installation.

2.37. “UA” – PCB combination error

Trigger	Effect	Reset
System detects combination mismatch between outdoor main PCB and hydro PCB A1P or outdoor inverter PCB.	Unit will stop operating.	Auto-reset.

Possible cause	Check	Corrective action
Wrong unit combination.	Check combination database.	Correct installation.
Wrong field setting for compressor type.	Check setting [E-01].	Check setting [E-01] to correct value.
Faulty outdoor inverter PCB.	Check if the correct spare part PCB was installed.	Replace outdoor inverter PCB when required (see page 190 or page 217 or page 220).
Faulty outdoor main PCB.	Check if the correct spare part PCB was installed.	Replace outdoor main PCB when required (see page 187 or page 216 or page 220).
Faulty hydro PCB A1P.	Check if the correct spare part PCB was installed.	Replace hydro PCB A1P when required (see page 160).

2.38. “U0” – Refrigerant shortage

Trigger	Effect	Reset
1. Outdoor main PCB detects maximum opening expansion valve and discharge superheat > 50°C for 5 minutes. 2. 4 times a secondary current drop for 5 minutes (unit goes thermo off after every drop).	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Refrigerant shortage (incorrect charge / leakage).	Check for refrigerant shortage. Perform leak test.	If required repair the leak and charge the correct amount of refrigerant.
Refrigerant circuit is clogged.	Check for possible blockage (blockages can be checked by measuring the refrigerant/pipe temperature. Sudden drop in temperature could indicate a blockage (remark: this is not valid for the expansion valve)).	
Faulty expansion valve.	Check expansion valve (see page 88 or page 106).	Replace expansion valve (see page 205 or page 239 or page 242) or outdoor main PCB (see page 187 or page 216 or page 220).
Faulty pressure sensor / outdoor main PCB.	Check pressure sensor (see page 85 or page 102).	Replace the pressure sensor (see page 202 or page 238) or outdoor main PCB (see page 187 or page 216 or page 220).

2.39. “U1” – Reverse phase or open phase

Trigger	Effect	Reset
Outdoor main PCB detects incorrect power supply.	Unit will stop operating.	Via user interface + power reset.

Possible cause	Check	Corrective action
Power supply is not OK -> open phase.	Check power supply.	
Power supply is not OK -> reverse phase.	Check power supply.	Change two phases with each other.
Faulty outdoor main PCB.	Check if the correct spare part outdoor main PCB was installed.	Replace outdoor main PCB when required (see page 187 or page 216 or page 220).

2.40. “U2” – Power supply voltage abnormality

Trigger	Effect	Reset
Outdoor inverter PCB detects an abnormal power supply (drop or peak).	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Power supply is not OK -> imbalance > 10%.	Check power supply for voltage fluctuations (> 10%).	Voltage fluctuations should be less than 10%.
Power supply is not OK -> reverse phase.	Check power supply.	Change two phases with each other.
Faulty outdoor inverter PCB.	Check outdoor inverter PCB (see page 92 or page 110).	Replace outdoor inverter PCB (see page 190 or page 217 or page 220).

2.41. "UF" – Malfunction of transmission between hydrobox and outdoor unit or gas shortage

Trigger	Effect	Reset
When the interunit wiring between indoor and outdoor unit is incorrect or, when for 20 minutes during compressor operation: A: R2T - R1T < 4°C, and B: R2T - Te (or Tc during heating operation) > 14°C (24°C during heating operation)	Unit stops operating.	Auto-reset when problem is solved.

Possible cause	Check	Corrective action
Faulty wiring between indoor and outdoor unit.	Check wiring between indoor and outdoor unit (refer to wiring diagram).	Correct wiring.
Refrigerant shortage (incorrect charge / leakage).	Check for refrigerant shortage. Perform a leak test.	If required, repair the leak and charge the correct amount of refrigerant.
Refrigerant circuit is clogged.	Check for possible blockage (blockages can be checked by measuring the refrigerant/pipe temperature. Sudden drop in temperature could indicate a blockage (remark: this is not valid for the expansion valve)).	

2.42. "U3-00" – Abnormal stop of underfloor heating dry-out scheduled operation

Trigger	Effect	Reset
Screed dry-out program was interrupted.	Unit will stop UFH dry-out schedule.	Via user interface -> only possible in "installer" level.

Possible cause	Check	Corrective action
User interface has been turned off.	Check user interface.	Restart screed dry out program. Refer to the Installer Reference Guide.
Power failure.	Check power supply.	Restart screed dry out program. Refer to the Installer Reference Guide.
No heat source detected.	Check backup heater.	Restart screed dry out program. Refer to the Installer Reference Guide.

2.43. “U4” – Defective indoor-outdoor transmission

Trigger	Effect	Reset
Hydro PCB A1P detects abnormal transmission to outdoor main PCB for a certain time.	Unit will stop operation.	Auto-reset.

Possible cause	Check	Corrective action
Power supply is not OK -> imbalance > 10%.	Check power supply for voltage fluctuations (> 10%).	Voltage fluctuations should be less than 10%.
Wiring between outdoor main PCB and hydro PCB A1P is not OK.	Check the wiring (refer to the wiring diagram).	Correct the wiring.
Faulty outdoor main PCB.		Replace outdoor main PCB (see page 187 or page 216 or page 220).
Faulty hydro PCB A1P.		Replace hydro PCB A1P (see page 160).
External factor (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after awhile).	Check for source which could cause electrical interference.	

2.44. “U5-00” – Transmission error between user interface and hydro PCB A1P

Trigger	Effect	Reset
Hydro PCB A1P detects abnormal transmission to user interface for a certain time.	Unit will stop operation.	Auto-reset.

Possible cause	Check	Corrective action
Both user interfaces are set to the same "user interface location" (in room / at unit) (only applicable when 2 user interfaces are connected to 1 unit).	Check setting [A.2.1.B] on both user interfaces.	Correct user interface location via setting [A.2.1.B].
Faulty user interface.		Replace user interface.
Faulty hydro PCB A1P.		Replace hydro PCB A1P (see page 160).
External factor (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after awhile).	Check for source which could cause electrical interference.	

2.45. “7H-01” – Water flow abnormality

Trigger	Effect	Reset
During normal operation: water flow < 5 or 7 l/min for 15 seconds.	Unit will stop operating.	Via user interface.
During defrost and backup heater operation: water flow < 12 or 15 l/min for 15 seconds.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Closed valve in water circuit.	Check if all valves are open.	Adjust / open valve.
Water pressure is too low.	Check the water pressure on the pressure gauge.	Increase water pressure till ~ 2 bar. Refer to the Installer Reference Guide. Check for possible water leak.
Air in water circuit / unit.	Check if all air purge valves are open. Check if air purge valves are installed on all highest points of the field installed water circuit.	Purge air out of unit and field supplied water system and backup heater. Refer to the Installer Reference Guide.
Static pressure of water circuit is too high.	Check the system design and determine static pressure of the water circuit (for each loop).	Correct hydraulic field circuit (e.g. use of balancing bottle). Refer to the Installer Reference Guide or to the Data Book (for pump characteristics).
Water filter is blocked.	Check water filter.	Clean water filter (see page 129 or page 160). Check water quality and possible source of dirt.
Faulty 3-way valve (integrated / EKSWW(U) / EKHWS(U) / EKHWE).	Check 3-way valve (see page 76).	Replace 3-way valve (see page 144) and (see page 146).
Faulty shut off valve or tank thermostat Q2L (EKSWWU / EKHWSU).	Check shut off valve and Q2L (see page 65).	Replace 3-way valve.
Faulty flow sensor / hydro PCB A1P.	Check flow sensor (see page 74).	Replace flow sensor (see page 131) or replace hydro PCB A1P (see page 160). If flow sensor failed due to contamination, check for source of contamination and consider to install an additional water filter.
Faulty water pump / hydro PCB A1P.	Check water pump (see page 68).	Replace water pump (see page 140) or replace hydro PCB A1P. If flow sensor failed due to contamination, check for source of contamination and consider to install an additional water filter.
No by-pass installed.	Check by-pass settings (refer to Installer Reference Guide).	Install by-pass.
Settings of by-pass are wrong.	Check by-pass settings (refer to Installer Reference Guide).	Change settings.
TIP: Check if problem also happens in short water circuit (for example domestic hot water circuit).		

2.46. "8F" – Backup heater outlet water temperature error during domestic hot water operation

Trigger	Effect	Reset
R2T (hydro PCB A1P) detects temperature above 75°C during domestic hot water operation.	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Increased water temp by external heat source.	Check if another heat source is installed on the same water circuit.	Correct hydraulic field circuit. Refer to the Installer Reference Guide.
Faulty thermistor R2T / hydro PCB A1P.	Check thermistor R2T (see page 66).	Replace thermistor R2T (see page 149) or hydro PCB A1P (see page 160).
Faulty backup heater contactors (sticking) or hydro PCB A1P.	Check backup heater control contactors (see page 63).	Replace the contactor(s).

2.47. "8H" – Backup heater outlet water temperature error

Trigger	Effect	Reset
R2T (A1P) (thermistor after backup heater) detects temperature above 65°C (SPH) or 75°C (DHW).	Unit will stop operating.	Via user interface.

Possible cause	Check	Corrective action
Increased water temp by external heat source.	Check if another heat source is installed on the same water circuit.	Correct hydraulic field circuit. Refer to the Installer Reference Guide.
Faulty thermistor R2T / hydro PCB A1P.	Check thermistor R2T (see page 66).	Replace thermistor R2T (see page 149 or page 176) or hydro PCB A1P (see page 160).
Faulty backup heater contactors (sticking) K1M, K2M or hydro PCB A1P.	Check backup heater control contactors K1M, K2M (see page 63).	Replace the contactor(s) or hydro PCB A1P (see page 160).

2.48. "80" – R4T entering water thermistor abnormality

Trigger	Effect	Reset
Thermistor detects an abnormal value (open or short circuit).	Unit will stop operating.	Auto-reset when problem is solved.

Possible cause	Check	Corrective action
Faulty entering water thermistor R4T (A1P) / hydro PCB A1P.	Check thermistor R4T (see page 66).	Replace thermistor R4T (see page 149 or page 176) or hydro PCB A1P (see page 160).

2.49. "81" – Leaving water thermistor R1T abnormality

Trigger	Effect	Reset
Thermistor detects an abnormal value (open or short circuit).	Unit will stop operating.	Auto-reset when problem is solved.

Possible cause	Check	Corrective action
Faulty leaving water thermistor R1T / hydro PCB A1P.	Check thermistor R1T (see page 66).	Replace thermistor R1T (see page 149) or hydro PCB A1P (see page 160).

2.50. "89-01" – Plate heat exchanger freeze-up error

Trigger	Effect	Reset
When warning 89-02 (Tc < 0°C during space heating) occurs 3 times (with less than 30 minutes between each abnormality).	Unit stops operating.	Manual reset.
When warning 89-03 (Te < x°C during defrost) occurs 3 times (with less than 30 minutes between each abnormality).	Unit stops operating.	Manual reset.

Possible cause	Check	Corrective action
Faulty heat exchanger thermistor.	Check hydrobox heat exchanger thermistor (see page 66).	Replace thermistor (see page 149).
Faulty hydro PCB A1P.	Check hydro PCB A1P.	Replace hydro PCB A1P (see page 160).

2.51. "89-02" – Plate heat exchanger freeze-up warning during space heating / DHW production

Trigger	Effect	Reset
Tc is below 0°C during space heating.	Unit will continue operation.	Auto-reset when problem is solved.
Warning might result to 89-01 error if it occurs 3 times.		
R3T (liquid refrigerant) < or = 0°C during space heating or DHW.		Unit will stop and restart when problem is solved.

Possible cause	Check	Corrective action
Faulty 4-way valve.	Check 4-way valve.	Replace 4-way valve.

2.52. "89-03" – Plate heat exchanger warning during defrost

Trigger	Effect	Reset
Te is too low during defrost.	Defrost cycle is interrupted but unit will continue operation.	Auto-reset when problem is solved.
Warning might result to 89-01 error if it occurs 3 times.		
R2T measures < 6°C during defrost.	Units stops after guard timer of compressor.	PHE outlet temperature increases, automatic restart.

Possible cause	Check	Corrective action
Faulty outlet thermistor R2T.	Check thermistor.	Replace thermistor.

3. Symptom based troubleshooting

By deeply analysing the system's components and logic, Daikin offers enhanced symptom based troubleshooting. To provide the best troubleshooting efficiency, the related root cause categories for each symptom are ranked. The following ranking is used: software control functions, end user related, parameter settings, installation related, component (mechanical or electrical) issues and system design related. This ranking was obtained by a combination of checking speed and the probability of occurrence.

Overview of symptom based error situations:

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Capacity shortage - Space heating 49
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The system does not start/operate 52
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Compressor related 58
Pump related 60
User interface (no or strange display) 60

3.1. Capacity shortage - General

Valid for both space heating and domestic hot water capacity shortage.

INFORMATION

In case of unit capacity shortage a special capacity boost setting [A-03] can be activated to increase the maximum compressor frequency from 148 Hz to 193 Hz (unit capacity increase from 10 to 12 kW).

Possible failures	Root cause	Check	Corrective action
Root cause category: software control			
Compressor (M1C) frequency limited - high discharge temperature protection function active.	In case the discharge temperature is higher than 105°C the compressor frequency will be reduced. When the discharge temperature is lower than 105°C the frequency can increase again.	Activation of the protection function can be caused by various reasons, therefore we recommend to check the following: • Check refrigerant charge • Check expansion valve for correct operation (see page 88 or page 106) and check suction thermistor (see page 79 or page 97). • Check discharge thermistor (see page 79 or page 97).	Based on the diagnosis execute one of the following actions: • Correct the refrigerant charge. • Replace expansion valve (see page 203 or page 240 or page 243) or suction thermistor (see page 194 or page 228). • Replace discharge thermistor (see page 194 or page 228).
Compressor (M1C) frequency limited - high pressure protection function active.	In case high pressure is higher than 38 barg the compressor frequency will be reduced. When the pressure drops below 36 barg the compressor frequency can increase again.	Activation of the protection function can be caused by various reasons, therefore we recommend to check the following: • Check pressure sensor (see page 85 or page 102). • Check high pressure side plate type heat exchanger (see page 70) for good water flow and heat exchange. • Check the refrigerant charge.	Based on the diagnosis execute one of the following actions: • Replace pressure sensor (see page 202 or page 238). • Optimize the water flow through the high pressure side plate type heat exchanger. • Correct the refrigerant charge.

Possible failures	Root cause	Check	Corrective action
Compressor (M1C) frequency limited - suction pipe superheat protection function active.	This protection control activates when suction superheat is > 10°C and expansion valve is fully open (480 pulse). Unit returns to normal operation when suction superheat is < 4°C. Remark: check the suction superheat by measuring the suction temperature (with contact thermometer) before the compressor and comparing with the saturated evaporation temperature.	Activation of the protection function can be caused by various reasons, therefore we recommend to check the following: • Check refrigerant charge. • Check expansion valve for correct operation (see page 88 or page 106) and check suction thermistor (see page 79 or page 97). • Check the refrigerant circuit for blockages.	Based on the diagnosis execute one of the following actions: • Correct the refrigerant charge. • Replace expansion valve (see page 203 or page 240 or page 243) or suction thermistor (see page 194 or page 228). • Remove detected blockages from the refrigerant circuit.
Root cause category: end user			
Space heating or domestic hot water operation is not activated on the user interface.		Confirm if space heating operation or domestic hot water operation is activated on user interface.	Activate space heating or domestic hot water operation on the user interface.
Root cause category: parameter (setting)			
Displayed date/time is wrong - schedules not correctly executed.	• Not set date/time after initial startup. • No power supply for more than 48 hours.	Check date/setting and content of schedules.	Set date/time according to operation manual instructions.
Displayed date/time is wrong - schedules not correctly executed.	Daylight Saving Time not set correctly.	Check Daylight Saving Time settings.	Set Daylight Saving Time according to operation manual.
Schedules not activated.	Schedules were not confirmed (refer to schedule settings).	Check schedules on the user interface.	Set schedule according to user reference guide.
Holiday setting active.	Holiday setting is activated in the user interface.	Check holiday settings.	Set holiday settings correctly.
Backup heater operation disabled.	Setting backup heater operation mode [4-00] is set to 0 (disable).	Check setting [4-00].	Change setting [4-00] to 1.
Second step (6 kW) of the backup heater is not allowed.	Setting "enable backup heater step 2" [4-07] is set to 0 (not allowed).	Check setting [4-07].	Change setting [4-07] to 1.
Backup heater equilibrium point was set too low.	Setting "equilibrium temperature" [5-01] was set too low.	Check setting [5-01].	Change setting [5-01] to 0 or higher to more quickly allow backup heater operation.
Root cause category: installation			
PHE condenser (partial) blockage.	Dirty water (particles).	• Check water flow rate registered by flow sensor. • Check plate heat exchanger (see page 70) for blockage.	• If required replace the plate heat exchanger. • Check the water quality.
3-way valve bypass between domestic hot water and space heating.	3-way valve incorrectly mounted.	Check the 3-way valve (see page 76).	Correct the position of the 3-way valve (see page 144 and page 146).
Water filter blocked.	Dirty water.	• Check water filter. • Check water quality.	• Clean the water filter (see page 129 or page 160). • Check the water quality.
Air in the water circuit.	Not enough air purged.	• Check if all air purge valves are open • Check if air purge valves are installed on all highest points of the field installed water circuit	Purge air out of unit and field supplied water system and backup heater.

Possible failures	Root cause	Check	Corrective action
Water circuit (partially) blocked.	Dirty water.	Check water circuit (unit + field) for blockages.	Remove possible blockages and check the water quality.
Root cause category: component - mechanical			
Refrigerant shortage.	• Refrigerant leakage. • Incorrectly charged.	• Check refrigerant charge • Pressure test the system to check for leakage.	If required, repair the leak and charge the correct refrigerant amount.
Air Purge blocked - air trapped in water system.	Component failure.	Check air purge valve.	Replace air purge valve.
Root cause category: component - electrical			
Pressure sensor (S1NPH) - higher pressure measured than actual.	Deviation of pressure sensor (higher value measured than actual).	Check pressure sensor (see page 85 or page 102).	Replace pressure sensor (see page 202 or page 238).
Discharge thermistor - higher temperature measured than actual.	Deviation of thermistor (higher temperature measured than actual).	Check discharge thermistor (see page 79 or page 97).	Replace discharge thermistor (see page 194 or page 228) or replace PCB (see page 127).
Expansion valve incorrect control - superheat too high.	• Faulty suction thermistor. • Faulty expansion valve control.	• Check suction thermistor (see page 79 or page 97). • Check the expansion valve (see page 88 or page 106).	Replace suction thermistor (see page 194 or page 228) or replace expansion valve (see page 203 or page 240 or page 243).
Backup heater 3/6 kW not working.	Component failure.	Check backup heater (see page 62).	Replace backup heater (see page 133 or page 163).
Deviation of backup heater outlet thermistor will influence the backup heater control.	• Deviation of thermistor (higher temperature measured than actual). • Bad contact between sensor and pipe.	Check backup heater outlet thermistor (see page 66).	Replace backup heater outlet thermistor (see page 149 or page 176) or PCB A1P (see page 187 or page 216 or page 220).
Flow sensor deviation - flow measured higher than actual.	Component failure.	Check the flow sensor (see page 74).	Replace the flow sensor (see page 131 or page 162).
3-way valve blocked.	Component failure.	Check the 3-way valve (see page 76).	Replace the 3-way valve (see page 144 and page 146).

3.2. Capacity shortage - Space heating

INFORMATION

Refer to "Capacity shortage - General" on page 47 for an overview of the general causes (both for space heating and domestic hot water) which can lead to capacity shortage.

Possible failures	Root cause	Check	Corrective action
Root cause category: end user			
Too low leaving water temperature setpoint.	User set too low leaving water temperature setpoint by schedule or manual operation.	Check leaving water setpoint.	Adapt leaving water setpoint. (Remark: check the weather dependent settings (relation outdoor temperature - setpoint) in case weather dependent control is activated.)
Too low space heating setpoint on room thermostat.	User set too low room setpoint by schedule or manual operation.	Check room thermostat setpoint.	Adapt room thermostat setpoint. (Remark: check the weather dependent settings (relation outdoor temperature - setpoint) in case weather dependent control is activated.)

Possible failures	Root cause	Check	Corrective action
Space heating not activated.		Check if space heating is activated.	
Root cause category: parameter (setting)			
External room thermostat used with setting [A.2.1.7] on value 2 (= RT control).	Wrong setting of [A.2.1.7] - unit control method.	Check setting [A.2.1.7].	Adjust setting to match application - refer to installers reference guide.
Backup heater operation disabled (setting [4-00] is set to 0).	Setting backup heater operation mode [4-00] is set to 2 (only domestic hot water).	Check setting [4-00].	Change setting [4-00] to 1.
Setting domestic hot water operation mode [6-0D] not set optimally.	Setting domestic hot water operation mode [6-0D] is set to 0 (reheat only). This will cause the system to work too frequently in domestic hot water operation and less in space heating.	Check setting [6-0D].	It is advisable to set to factory setting (reheat + schedule) and program the schedule to heat the domestic hot water during periods of no space heating required.
Root cause category: installation			
3-way valve does not switch correctly between space heating connection and domestic hot water connection.	3-way valve incorrectly mounted.	Check the 3-way valve (see page 76).	Correct the position of the 3-way valve (see page 144 and page 146).
Root cause category: component - electrical			
3-way valve blocked.	Component failure.	Check the 3-way valve (see page 76).	Replace the 3-way valve (see page 144 and page 146).
Root cause category: system design			
Water circuit - requested capacity too high.	Incorrect system selection.	Check required capacity by heat load calculation. Refer to the capacity tables in the engineering data book to know max. system capacity at indicated conditions.	Adapt system design.
Water circuit - water volume too big.	• Long water piping. • Too many heating emitters.	Check required capacity by heat load calculation. Refer to the capacity tables in the engineering data book to know max. system capacity at indicated conditions.	Adapt system design.
Water circuit - pressure drop too big.	• Too small water piping. • Too long water piping. • Too many heating emitters.	Compare the pressure drop of the total system with the water pump characteristics (refer to check of water pump). Decreased water flow will cause a drop in capacity.	Adapt system design.

3.3. Capacity shortage - Domestic hot water operation

INFORMATION

Refer to "Capacity shortage - General" on page 47 for an overview of the general causes (both for space heating and domestic hot water) which can lead to capacity shortage.

Possible failures	Root cause	Check	Corrective action
Root cause category: end user			
Too low domestic hot water setpoint.	User set too low domestic hot water setpoint by schedule or manual operation.	Check domestic hot water tank set temperature in combination with boiler volume and hot water usage.	Adapt domestic hot water setpoint (e.g. 50-55°C). (Remark: check the weather dependent settings (relation outdoor temperature - setpoint) in case weather dependent control is activated.)
Domestic hot water not activated.		Check if domestic hot water heating is activated.	
Root cause category: parameter (setting)			
Setting domestic hot water operation mode [6-0D] not set optimally.	Setting domestic hot water operation mode [6-0D] is set to 2 (scheduled only).	Check setting [6-0D].	In case schedule only is used assure that the programmed schedule is inline with the timings hot water is required. Adapt the schedules when necessary.
Root cause category: installation			
3-way valve does not switch correctly between space heating connection and domestic hot water connection.	3-way valve incorrectly mounted.	Check the 3-way valve (see page 76).	Correct the position of the 3-way valve (see page 144 and page 146).
Root cause category: component - electrical			
3-way valve blocked.	Component failure.	Check the 3-way valve (see page 76).	Replace the 3-way valve (see page 144 and page 146).
Deviation of tank thermistor.	Tank thermistor measures a higher temperature than actual (component failure).	Check tank thermistor (see page 66).	Replace tank thermistor (see page 149).

3.4. The system does not start/operate

Possible failures	Root cause	Check	Corrective action
Root cause category: software control			
Thermostat ON conditions for space heating are not met.	Thermostat ON conditions for space heating are not met.	Confirm thermostat on conditions depending on the unit control method (setting C-07): • Setting -1: External room thermostat indicates by contact when to start/stop. • Setting -2: Room thermostat control => compare setpoint with room thermistor value. Thermo on: room temperature = setpoint - (hysteresis/2). Thermo off = room temperature + (hysteresis/2). For setting of hysteresis refer to setting 9-0C. • Setting -3: Leaving water temperature control => Thermo on: leaving water temperature = setpoint. Thermo off: leaving water temperature -1,5°C.	Change setpoint if required.
Thermostat ON conditions for domestic hot water operation are not met.	Thermostat ON conditions for domestic hot water operation are not met.	Confirm thermostat on conditions depending on the selected domestic hot water (DHW) control type (setting [6-0D]): 1. Reheat only: In case reheat setpoint is 55°C or lower: domestic hot water will go thermo off when reheat setpoint (setting [6-0C]) is reached. Domestic hot water will go thermo on when reheat setpoint (setting [6-0C]) -10°C is reached. In case reheat setpoint is higher than 55°C: domestic hot water will go thermo off when reheat setpoint (setting [6-0C])+ (setting [7-00]) is reached. Domestic hot water will go thermo on when reheat setpoint (setting [6-0C]) - (setting [7-01]) is reached. 2. Schedule only: domestic hot water will go thermo off when setpoint (setting [6-0A] or [6-0B]) is reached. Domestic hot water will only go thermo on at time of schedule demand. 3. Schedule + reheat combination of 1) and 2).	Change setpoint if required.
Out of operation range (ambient temperature above 35°C).	Ambient temperature higher than 35°C.	No action - unit cannot operate when ambient temperature is above 35°C.	
Root cause category: end user			
Space heating or domestic hot water operation is not activated on the user interface.		Confirm if space heating operation or domestic hot water operation is activated on user interface.	Activate space heating or domestic hot water operation on the user interface.
Root cause category: parameter (setting)			
Displayed date/time is wrong - schedules not correctly executed.	• Not set date/time after initial startup. • No power supply for more than 48 hours.	Set date/time according to operation manual instructions.	Set date/time according to operation manual instructions.

Possible failures	Root cause	Check	Corrective action
Displayed date/time is wrong - schedules not correctly executed.	Daylight Saving Time not set correctly.	Check Daylight Saving Time settings.	Set Daylight Saving Time according to operation manual.
Incorrect setting of unit control method (setting [C-07]).	Incorrect setting of unit control method (setting [C-07]) (leaving water control, room thermostat control, ext. room thermostat control).	Check if setting [C-07] (leaving water control, room thermostat control, ext. room thermostat control) is in set according to the application.	
Incorrect setting of user interface location (user menu [A.2.1.B]).	Incorrect setting of user interface location (user menu [A.2.1.B]) (at unit/in room).	Check if setting of user interface location (user menu [A.2.1.B]) (at unit/in room) is set correctly.	
Incorrect setting of space heating OFF temperature (setting [4-02]).	Incorrect setting of space heating OFF temperature (setting [4-02]).	Check if setting space heating OFF temperature (setting [4-02]) is correct (keep at 35°C).	
Preferential kWh rate power supply settings and electrical connections do not match.	Preferential kWh rate power supply settings and electrical connections do not match.	Check preferential kWh rate power supply settings and electrical connections (see installer reference guide).	
Root cause category: component - electrical			
Hydro PCB A1P not operational.	• No power supply. • Faulty transformer TR1. • PCB malfunction.	• Confirm if a small green led is blinking in regular intervals. • Confirm power supply towards PCB A1P. • Check good operation of transformer TR1.	• Re-establish power to PCB. Replace Hydro PCB A1P (see page 160) in case power supply and transformer TR1 are OK but led is not blinking.
Reactor coil (L1R/L2R/L3R) broken.	Component problem.	Check continuity of the reactor coil.	Replace the reactor coil in case faulty.
Root cause category: hardware			
Cooling/heating operation starts, but stops immediately.	• Refrigerant overcharge. • Mixing of air in refrigerant system.	Check refrigerant.	After vacuum drying, charge correct amount of refrigerant.

3.5. Inaccurate temperature control (for both domestic hot water and space heating operation)

Possible failures	Root cause	Check	Corrective action
Root cause category: parameter (setting)			
Incorrect setting of unit control method (setting [C-07]).	Incorrect setting of unit control method (setting [C-07]) (leaving water control, room thermostat control, ext. room thermostat control).	Check if setting [C-07] (leaving water control, room thermostat control, ext. room thermostat control) is in set according to the application.	Adjust setting to match application.
Incorrect setting of user interface location (user menu [A.2.1.B]).	Incorrect setting of user interface location (user menu [A.2.1.B]) (at unit/in room).	Check if setting of user interface location (user menu [A.2.1.B]) (at unit/in room) is set correctly.	Adjust setting to match application.
Incorrect setting of pump operation mode (continuous, sample, request) (setting [F-0D]).	Incorrect setting.	Confirm setting [F-0].	Adjust setting [F-0] if required. (Factory setting: [F-0]=1).
Root cause category: installation			

Possible failures	Root cause	Check	Corrective action
User interface - thermostat sensor value not representing room temperature.	Bad location of thermostat sensor (external influence) in case of room thermostat control (setting [C-07]=2).	Check if user interface is mounted in the correct position to measure the correct room temperature.	Correct the position of the user interface for more accurate room temperature measurement.
Root cause category: component - electrical			
Leaving water thermistor deviation causes incorrect temperature control.	• Deviation of thermistor (lower temperature measured than actual). • Bad contact between sensor and pipe.	Check leaving water thermistor (see page 66).	Replace leaving water thermistor (see page 176) or hydro PCB A1P (see page 160).
Deviation of domestic hot water tank thermistor. (Remark: only valid for inaccurate domestic hot water temperature control.)	• Deviation of thermistor. • Bad contact between sensor and pipe.	Check thermistor DHW tank thermistor (see page 66).	Replace DHW tank thermistor (see page 176) or hydro PCB A1P (see page 160).
User interface (A2P) - thermostat sensor has incorrect reading of room temperature.	Deviation of user interface room temperature sensor.	Compare temperature measured by user interface with actual room temperature.	In case of deviation the room temperature offset can be adjusted through setting [2-0A].

3.6. Water leakage or water release via the water pressure relieve valve

Possible failures	Root cause	Check	Corrective action
Root cause category: installation			
Drain connection of water safety valve leaking.	Bad connection between unit drain pipe and field drain pipe.	Check the drain connection of the water safety valve.	Correct the drain connection if required.
Drain of bottom drain plate not well connected.	Bad connection of bottom drain plate and field drain connection.	Check the drain connection between the bottom drain plate and the field drain.	Correct the drain connection if required.
Leakage of drain valve.	Valve not completely closed.	Check if drain valve is closed.	Close the drain valve.
Root cause category: component - mechanical			
Expansion vessel not pressurized.	Component failure.	Check expansion vessel.	Replace expansion vessel (see page 143 or page 172).
Safety valve blocked.	Component failure.	Check safety valve.	Replace safety valve (see page 139 or page 169).
Safety valve leaking.	Component failure.	Check safety valve.	Replace safety valve (see page 139 or page 169).
Leakage of drain valve.	Component failure.	Check drain valve.	Replace drain valve.
Domestic hot water tank leakage.	Component failure.	Check tank visually for leakages.	Repair leakages. If not possible, complete unit has to be replaced.
Air Purge leakage.	Component failure.	Check air purge valve for leakages.	Replace air purge valve.

3.7. Power consumption too high

Possible failures	Root cause	Check	Corrective action
Root cause category: end user			
Too high domestic hot water setpoint.	User set too high domestic hot water setpoint by schedule or manual operation.	Check domestic hot water tank set temperature; avoid electric heater use.	Adapt domestic hot water set-point (e.g. 50-55°C).
Too high leaving water temperature setpoint.	User set too high leaving water temperature setpoint by schedule or manual operation.	Check leaving water setpoint.	Adapt leaving water setpoint (e.g. < 55°C will reduce backup heater operation).
Too high space heating set-point on room thermostat.	User set too high room set-point by schedule or manual operation.	Check room thermostat set-point.	Adapt room thermostat set-point.
Root cause category: parameter (setting)			
Too high leaving water temperature (LWT) - weather dependent.	Incorrect weather dependent setting --> too high LWT limit set [A.3.1.1.3] [A.3.1.2.3].	Check LWT high limit in weather dependent (setting [1-03]).	Adapt high LWT limit for weather dependent heating (setting [1-03]).
User interface thermostat used with setting [A.2.1.7] on value 1 (= external thermostat control).	Wrong setting of [A.2.1.7] - unit control method.	Check setting [A.2.1.7].	Adjust setting to match application - refer to installers reference guide.
Pump keeps running all the time during space heating operation.	Wrong setting of [A.2.1.9] - pump operation.	Check pump operation mode setting [F-0D].	Change setting [F-0D] from continuous operation (value 0) to Sample (1) or Request (2). Refer to installer reference guide for applicable value.
Setting disinfection operation day [2-00] was set to 0 (each day).	Setting disinfection operation day [2-00] was set to 0 (each day).	Check setting [2-00].	Adjust setting if necessary.
Unit is running in emergency operation and is using backup heater only. [4-06] is set to 1.	Unit is running in emergency operation and is using backup heater only. [4-06] is set to 1.	Check setting [4-06].	Adjust setting if necessary.
Backup heater equilibrium point was set too high.	Setting "equilibrium temperature" [5-01] was set too high.	Check setting [5-01].	Change setting [5-01] to less quickly allow backup heater operation.
Setting domestic hot water operation mode [6-0D] not set optimally.	Setting domestic hot water operation mode [6-0D] is set to 0 (reheat only). This will cause the system to work too frequently in domestic hot water operation and less in space heating.	Check setting [6-0D] in combination with the re-heat setpoint [6-0C].	It is advisable to set to factory setting (reheat + schedule) and program the schedule to heat the domestic hot water during periods of no space heating required.
Root cause category: component - electrical			
Deviation of backup heater outlet thermistor will influence the backup heater control.	• Deviation of backup heater outlet thermistor (lower temperature measured than actual). • Bad contact between sensor and pipe.	Check backup heater outlet thermistor (see page 66).	If required replace backup heater outlet thermistor (see page 149 or page 176) or PCB A1P (see page 160).
Root cause category: system design			
Water circuit - requested capacity too high causing the system always to run at full capacity.	Incorrect system selection.	Check required capacity by heat load calculation. Refer to the capacity tables in the engineering data book to know max. system capacity at indicated conditions.	Adapt system design.

3.8. Increased sound level - water pump

Possible failures	Root cause	Check	Corrective action
Root cause category: installation			
Water filter blocked.	Dirty water.	• Check water filter. • Check water quality.	Clean the water filter (see page 129 or page 160).
Air in the water circuit.	Not enough air purged.	• Check if all air purge valves are open. • Check if air purge valves are installed on all highest points of the field installed water circuit.	Purge air out of unit and field supplied water system and backup heater.
Water pressure too low.	• Water pressure not checked during filling. • Air was purged from the water system after filling. • Leakage.	Check water pressure.	Adjust water pressure if required (1 - 2 barg).
Water circuit partially blocked.	Obstruction in the water system.	Check water circuit for blockages.	Remove possible blockages and check the water quality.
Root cause category: component - mechanical			
Water pump mechanical problem.	Internal pump friction.	Check water pump (see page 68).	Replace water pump (see page 140 or page 169).
Air Purge blocked - air trapped in water system.	Component failure.	Check air purge valve.	Replace air purge valve.

3.9. Increased sound level - compressor

Possible failures	Root cause	Check	Corrective action
Root cause category: parameter (setting)			
Capacity boost setting [A-03] activated.	Capacity boost setting [A-03] is set to 1. Compressor can run at 193 Hz instead of 148 Hz. Unit will deliver 12 kW instead of 10 kW. Due to the higher rotation frequency the compressor will make more noise.	Check setting [A-03].	
Root cause category: component - mechanical			
Compressor increased bearing friction/bearing failure.	• Bad lubrication of compressor internal rotating parts. • Compressor at end of lifetime.	No checks possible.	Replace compressor.
Unit produces (loud) noise or shakes.	• Refrigerant overcharge. • Mixing of air in refrigerant system. • Refrigerant undercharge.	Check refrigerant.	After vacuum drying, charge correct amount of refrigerant.
Root cause category: component - electrical			
Expansion valve incorrect control - superheat too low.	• Faulty suction thermistor. • Faulty low pressure liquid thermistor. • Faulty expansion valve control.	• Check suction and low pressure liquid thermistors (see page 79 or page 97). • Check the expansion valve (see page 88 or page 106).	If required replace thermistors (see page 194 or page 228) or replace expansion valve (see page 205 or page 240 or page 243).

3.10. Tapping water related

3.10.1. High water pressure at tapping point

Possible failures	Root cause	Check	Corrective action
Root cause category: component - mechanical			
Safety valve water side blocked.	Component failure.	Check safety valve.	If required, replace safety valve (see page 139 or page 169).
Field installed pressure reducing valve problem.	• Pressure reducing valve (to reduce pressure of the main water supply) not installed. • Pressure reducing valve problem.	Check water system pressure before and after the water pressure reducing valve.	Install or replace water pressure reducing valve.

3.10.2. Tapping water has white colour

Possible failures	Root cause	Check	Corrective action
Root cause category: installation			
Extreme formation of anode residue.	Water quality and composition of the water (chlorides, conductivity) can lead to accelerated reduction of the anode in the tank and aluminiumhydroxides will be formed on the bottom of the tank. (Remark: a not well controlled water softener can cause an increased amount of chlorides in the water.)	Visual check for aluminiumhydroxide residue is only possible with endoscope.	• Drain and flush the tank to remove the aluminiumhydroxides. • Check correct setting of field supplied water softener (in case installed).

3.10.3. Bad odour from tapping water

Possible failures	Root cause	Check	Corrective action
Root cause category: installation			
Water circuit - bad odour of supply water.	Bad quality/contamination of supply water.	Check the water quality (odour/contamination) at cold domestic water inlet.	Assure that quality of entering water is OK.

3.11. Compressor related

3.11.1. Compressor does not start

Possible failures	Root cause	Check	Corrective action
Root cause category: software control			
Compressor does not start because water loop temperature is too low.	Special software control activated - Water loop temperature is too low (< 24°C) causing only the backup heater to operate. Compressor will start when water temperature reaches 24°C or more.	Normal unit operation - no specific countermeasure required.	
Compressor guard timer active.	Compressor guard timer active. Once compressor has stopped it takes 180 seconds before it can restart.	Normal unit operation - no specific countermeasure required.	
Root cause category: component - electrical			
Power cables (U, V, W) incorrectly connected to compressor.	Wrong assembly during repair.	Confirm that the U, V, W wiring is correctly connected. Refer to wiring diagram for an indication how to connect correctly.	Correct the UVW wiring (see page 258).

3.11.2. Compressor does not increase frequency

Possible failures	Root cause	Check	Corrective action
Root cause category: software control			
Compressor frequency limited - high discharge temperature protection function active.	In case the discharge temperature is higher than 105°C the compressor frequency will be reduced. When the discharge temperature is lower than 105°C the frequency can increase again.	Activation of the protection function can be caused by various reasons, therefore we recommend to check the following: • Check refrigerant charge. • Check expansion valve for correct operation (see page 88 or page 106) and check suction thermistor (see page 79 or page 97). • Check discharge thermistor (see page 79 or page 97).	Based on the diagnosis execute one of the following actions: • Correct the refrigerant charge (total charge: 1.8 kg) • Replace expansion valve (see page 205 or page 240 or page 243) or suction thermistor (see page 194 or page 228). • Replace discharge thermistor (see page 194 or page 228).
Compressor frequency limited - high pressure protection function active.	In case high pressure is higher than 38 barg the compressor frequency will be reduced. When the pressure drops below 36 barg the compressor frequency can increase again.	Activation of the protection function can be caused by various reasons, therefore we recommend to check the following: • Check pressure sensor (see page 85 or page 102) • Check high pressure side plate type heat exchanger for (see page 70) good water flow and heat exchange • Check the refrigerant charge	Based on the diagnosis execute one of the following actions: • Replace pressure sensor (see page 202 or page 238) • Optimize the water flow through the high pressure side plate type heat exchanger • Correct the refrigerant charge (total charge: 1.8 kg)
Compressor frequency limited.	Inverter control active - target water leaving temperature (target sat. high pressure) reached.	Check if saturated high pressure temperature is within range to heat up the water to the required temperature.	

Possible failures	Root cause	Check	Corrective action
Compressor frequency limited - suction pipe superheat protection function active.	This protection control activates when suction superheat is > 10°C and expansion valve is fully open (480 pulse). Unit returns to normal operation when suction superheat is < 4°C. Remark: check the suction superheat by measuring the suction temperature (with contact thermometer) before the compressor and comparing with the saturated evaporation temperature.	Activation of the protection function can be caused by various reasons, therefore we recommend to check the following: • Check refrigerant charge • Check expansion valve for correct operation (see page 88 or page 106) and check suction thermistor (see page 79 or page 97). • Check the refrigerant circuit for blockages.	Based on the diagnosis execute one of the following actions: • Correct the refrigerant charge (total charge: 1.8 kg) • Replace expansion valve (see page 205 or page 240 or page 243) or suction thermistor (see page 194 or page 228) • Remove detected blockages from the refrigerant circuit
Root cause category: installation			
PHE condenser (water side) (partial) blockage.	Dirty water (particles).	• Check water flow rate registered by flow sensor. • Check water side plate type heat exchanger for blockage (see page 70).	• If required replace the water plate type heat exchanger see page 153 or page 178). • Check the water quality.
Root cause category: component - mechanical			
Limited heat exchange between refrigerant loop and heat sink inverter could result in high inverter temperatures and limited compressor frequency.	• Bad contact between refrigerant loop and inverter heat sink. • Lack of refrigerant.	Check contact between refrigerant loop and inverter PCB heat sink.	
Root cause category: component - electrical			
Discharge thermistor - higher temperature measured than actual.	Deviation of thermistor (higher temperature measured than actual).	Check discharge thermistor (see page 79 or page 97).	Replace discharge thermistor (see page 194 or page 228) or hydro PCB A1P (see page 160).
Heat sink inverter thermistor - deviation.	Deviation of thermistor (higher temperature measured than actual).	Check heat sink inverter thermistor (see page 79 or page 97).	Replace heat sink inverter thermistor (see page 194 or page 228) or hydro PCB A1P (see page 160).
Expansion valve incorrect control - superheat too high.	• Faulty suction thermistor. • Faulty low pressure liquid thermistor. • Faulty expansion valve control.	• Check suction thermistor (see page 79 or page 97). • Check the expansion valve (see page 88 or page 106).	Replace suction thermistor (see page 194 or page 228) or replace expansion valve (see page 203 or page 240 or page 243).

3.12. Pump related

3.12.1. Water pump behaviour

Possible failures	Root cause	Check	Corrective action
Root cause category: software control			
Unexpected water pump behaviour	Water pump software control	Water pump start/stop conditions: • During space heating or domestic hot water off: the pump is off • During space heating or domestic hot water on: pump operation depends on setting [F-0D] (continuous, sample or request) Remark: in domestic hot water operation the pump starts later than the compressor to avoid that the tank is cooled down by the cold water loop.	
Root cause category: parameter (setting)			
Incorrect setting of pump operation mode (continuous, sample, request) (setting [F-0D])	Incorrect setting	Confirm setting [F-0]	Adapt setting [F-0] if required (factory setting: [F-0]=1)

3.13. User interface (no or strange display)

Possible failures	Root cause	Check	Corrective action
Root cause category: component - electrical			
Hydro PCB A1P not operational	• No power supply • Faulty transformer • PCB malfunction	• Confirm if a small green led is blinking in regular intervals • Confirm power supply towards hydro PCB A1P • Check good operation of transformer	• Re-establish power to hydro PCB A1P • Replace hydro PCB A1P (see page 160) in case power supply and transformer are OK but led is not blinking
Reactor coil (L1R/L2R/L3R) broken	Component problem	Check continuity of the reactor coil	Replace the reactor coil in case faulty
P1P2 transmission cable broken/short-circuit		Check P1P2 cable (16 VDC on BRC terminals and cable continuity)	Repair P1/P2 cable if required
User interface failure		Replace user interface	

3.14. Outdoor unit is iced up (defrost problem)

Possible failures	Root cause	Check	Corrective action
Root cause category: hardware			
General ice build-up.			Outdoor unit installation must be protected from weather (wind, snow, ...). Refer to Installer Reference Guide for correct installation.
Ice build-up on the outdoor unit.	• Clogged drain holes. • Snow on the OU. • Ice building up on the casing.	Ice is not in direct contact with fins.	• Unclog drain holes or remove any scraps that can be used for ice to build up. • Remove ice.
Defrost operation malfunction.	Not enough defrost power: shortage of refrigerant.	• Check refrigerant charge. • Check for leaks.	• Replace refrigerant. • Fix leaks.
Ice build-up at entry spot of refrigerant.	Refrigerant shortage.	• Check refrigerant charge. • Check for leaks.	• Replace refrigerant. • Fix leaks.
Partial ice up of coil.	Partial refrigerant blockage.	Check refrigerant circuit.	Replace part where blockage occurs.
	Dirty coil.	Check if coil is dirty.	Clean coil.
	Bad weather conditions.	Unit is not powerful enough to defrost due to too strong wind, snow, ...	Outdoor unit installation must be protected from weather (wind, snow, ...). Refer to Installer Reference Guide for correct installation.

4. Component checklist Floorstanding - Wall hung

Overview of component checklists:

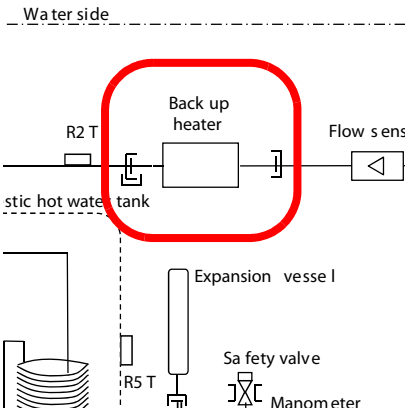
Backup heater E1H, E2H, E3H 62
Booster heater E4H 65
Thermistors 66
Water pump M1P 68
Plate type heat exchanger 70
Thermal protector backup heater Q1L 72
Water flow sensor B1L 74
3-way valve M3S (Floorstanding only) 76

4.1. Backup heater E1H, E2H, E3H

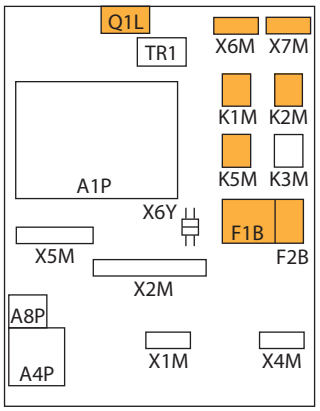
Technical specification	Description
The 2-stage backup heater is composed of heater E1H (3 x 1 kW) and E2H (3 x 2 kW) or E3H (1 x 3 kW).	The backup heater is used to assist the heat pump system to heat the water for space heating and domestic hot water operation.

Location

Piping diagram

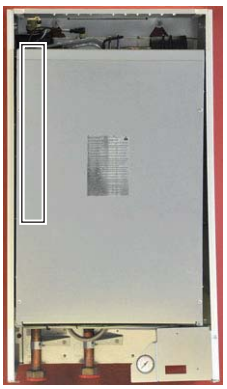


Switch box



Unit





Check procedure

Mechanical check

Not applicable

Preliminary check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121 or "Removing the front panel" on page 155.
4. Remove the switch box cover, refer to "Removing the switch box cover" on page 123 or "Removing the switch box cover" on page 157.
5. Check circuit breaker F1B/F2B; reset circuit breaker F1B/F2B if it has tripped.
6. Check thermal protector backup heater Q1L; reset thermal protector backup heater Q1L if it has tripped.

INFORMATION

If F1B/F2B or Q1L trip again, it is required to determine the root cause of the problem because something is overloading the electrical circuit or creating a short circuit.

Electrical check

INFORMATION

If 1 or more checks fail, replace the backup heater.

4.1.1. Overall power circuit check

1. Power the Daikin Altherma LT-CB.
2. Activate “Installer level” on the user interface, refer to “Installer Level Settings” on the user interface are available in the Installer Reference Guide, paragraph To access the most used commands.
3. Select Actuator test run A.7.4.
   - Activate BUH step 1.
   - Activate BUH step 2.
4. Check the status of backup heater step 1/2 in Menu 6.5 (Actuators); status must be:
   - 6.5.3 BUH step 1 = ON
   - 6.5.4 BUH step 2 = ON
5. Measure the voltage:
   - Check if field installed circuit breaker Q1D1 tripped.
   - Check if the overcurrent fuse F1B or F2B of the backup heater tripped.
   - Check the thermal protector Q1L of the backup heater.
   - Check contactors K1M, K2M & K5M (if used).
   - Example:

     Measure the voltages between connectors K1M 2-4/4-6/6-2 before K1M.
     All voltages must be 400VAC +/- 10% (3 phase) or 230VAC +/- 10% (1 phase).

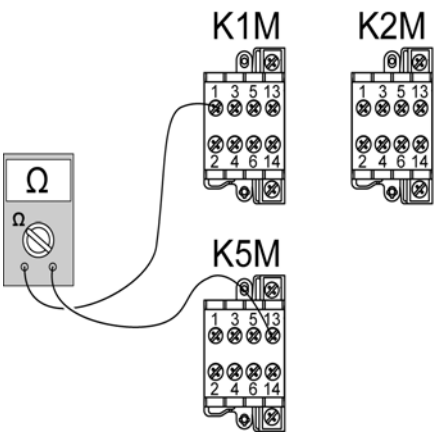
     Repeat this action for K1M 1-3/3-5/1-5.
     If measurements are OK before K1M and wrong after K1M, replace K1M.

   - Between K1M 2 - 4, K1M 4 - 6 and K1M 2 - 6; all voltages must be 400 VAC ±10%.
   - If voltages are OK on pins 2 - 4 - 6 but not on pins 1 - 3 - 5, replace K1M.

4.1.2. Resistance check

1. Measure the backup heater resistance (tolerance = ±10%).

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



4.1.3. Isolation check

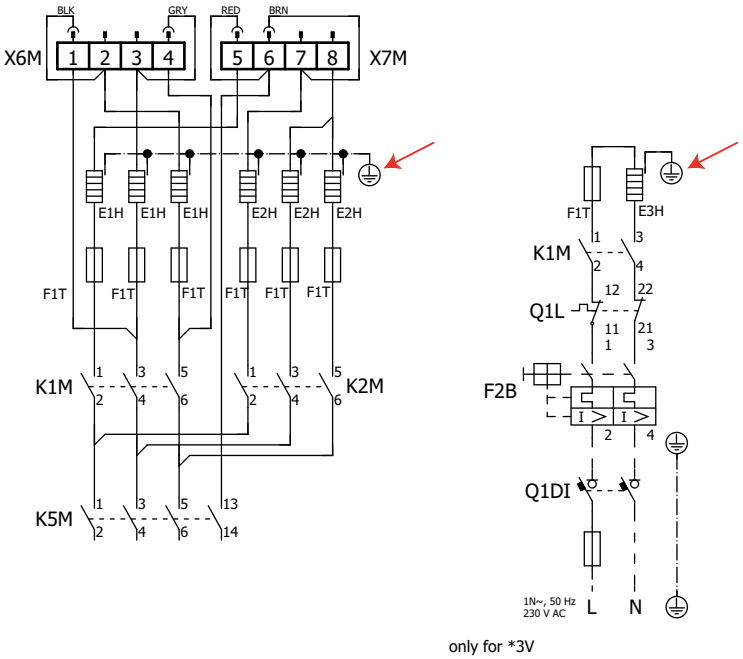
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.

> **CAUTION**
> To prevent damage to the unit, F1B or F2B, K1M, K2M and K5M (if installed) must be OPENED before using a Megger.

3. Open circuit breakers K1M & K2M, K5M (if installed).
4. Set the Megger voltage to 500 VAC.

> **CAUTION**
> Do not connect the Megger ground test lead to a another grounding wire.

5. Connect the Megger ground test lead directly to the backup heater ground wire (see red arrow below).



only for *3V

6. Measure the leak current between
   - K1M 1 - earth
     (single phase)

   or

   - K1M 1- earth
   - K1M 3- earth
   - K1M 5- earth
   - K2M 1- earth
   - K2M3 - earth
   - K2M5 - earth
     (three phase)

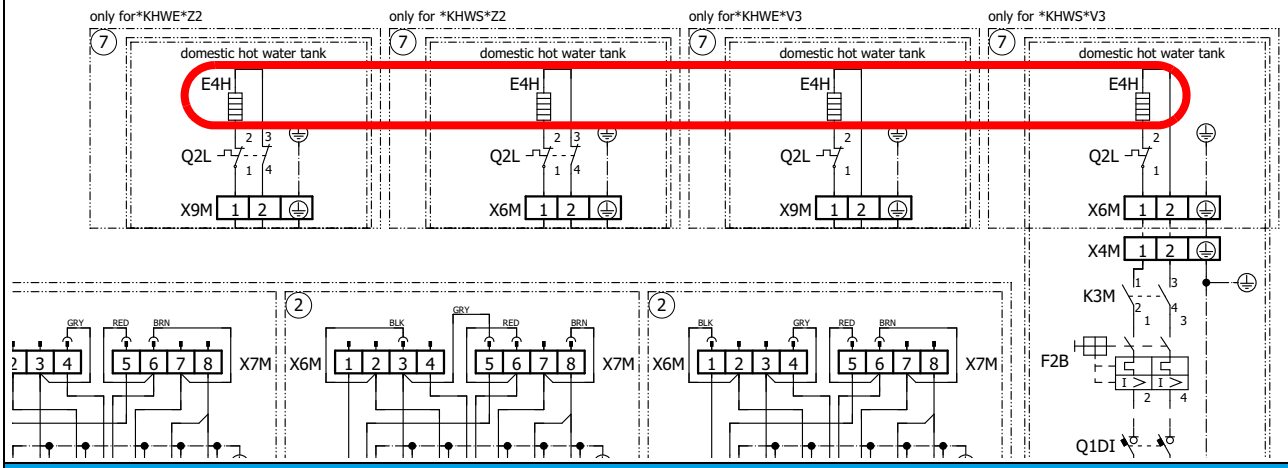
7. The measured insulation resistance must exceed 3 MΩ; if not, replace the backup heater, refer to "Replacing the backup heater" on page 133 or "Replacing the backup heater" on page 163.

4.2. Booster heater E4H

Technical specification	Description
The booster heater is a single element heater.	The booster heater is used to assist the heat pump system to heat the domestic hot water.

Location

Wiring diagram



Check procedure

Mechanical check

Not applicable

Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Remove the switch box cover, refer to "Removing the switch box cover" on page 123.
5. Check electrical connections of the tank. Refer to “Installation manual of the tank”.
6. Check if contactor K3M has tripped.
7. Power the daikin altherma LT-CB and activate domestic hot water.
8. Check if contactor K3M has tripped.
9. Measure the voltage on connector X21A pin 1 - neutral and measure the voltage on X21A pin 3 - neutral, if no 230 VAC is present in both measurements, clixon Q2L tripped. -> reset Q2L.

INFORMATION

If Q2L trips again, it is required to determine the root cause of the problem because something is overloading the electrical circuit or creating a short circuit.

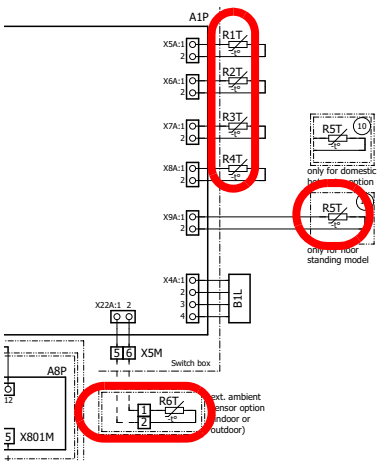
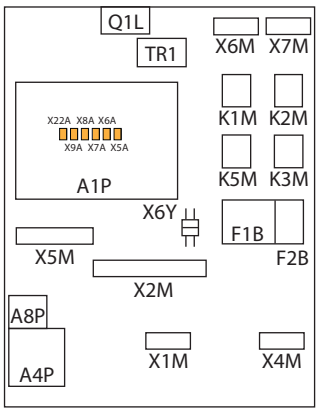
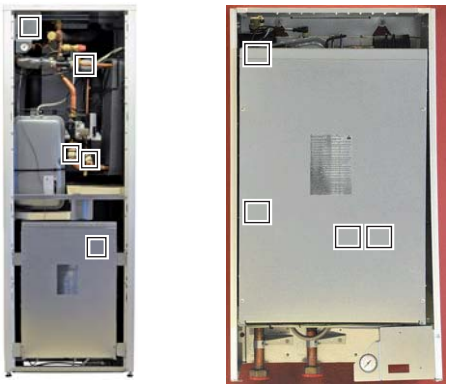
INFORMATION

If 1 or more checks fail, replace the booster heater.

4.3. Thermistors

Technical specification	Description
2 different types of thermistors are used; the resistance vs. temperature characteristic for each type is shown in Table 2-3 on page 81.	The thermistors are used to measure the temperature at multiple locations inside the Daikin Altherma LT-CB. The measured temperatures are processed by the A1P board.

Location

Wiring diagram	Switch box	Unit
		

Check procedure

Mechanical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Locate the thermistor and check if thermal contact with the piping or ambient is ensured.

Electrical check

INFORMATION

If a thermistor check fails, replace the thermistor.

The Table 2-1 on page 67 must be used to compare the measured resistance with the correct resistance for the measured temperature with a contact thermometer.

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121 or "Removing the front panel" on page 155.
4. Remove the switch box cover, refer to "Removing the switch box cover" on page 123 or "Removing the switch box cover" on page 157.
5. From the Table 2-1 on page 67, select the thermistor that must be checked.
6. Measure the temperature of the thermistor using a contact thermometer.
7. Unplug the connector from the appropriate PCB and measure the resistance between the pins listed in Table 2-1 on page 67.
   - Compare the measured resistance with the range determined by the lower and higher temperature in Table 2-3 on page 81.

8. If the measured resistance does not match the listed value, the thermistor must be replaced, refer to "Replacing a thermistor" on page 149 or "Replacing a thermistor" on page 176.

INFORMATION

All thermistors have a tolerance of 5%.

E.g. thermistor R4T (A1P):

- Measured temperature with contact thermometer: 23.1°C.
- Unplug the sensor and measure the resistance between X8A: 1-2: 21.86 kΩ.
- The resistance values are defined by Table 2-3 on page 81:
  - Resistance at 23°C: 21.85 kΩ.
  - Resistance at 24°C: 20.90 kΩ.
- The measured value 21.86 kΩ is inside the range, thermistor R4T (A1P) passes the check.

INFORMATION

The user interface “6.1. Sensor Information” allows to monitor most thermistors.

If the measured resistance of the thermistor matches the temperature measured with the contact thermometer but the temperature for the corresponding thermistor is not correct on the user interface display, replace PCB A1P (see "Replacing the A1P PCB in the switch box" on page 127 or "Replacing the A1P PCB in the switch box" on page 160).

Table 2-1: Thermistors

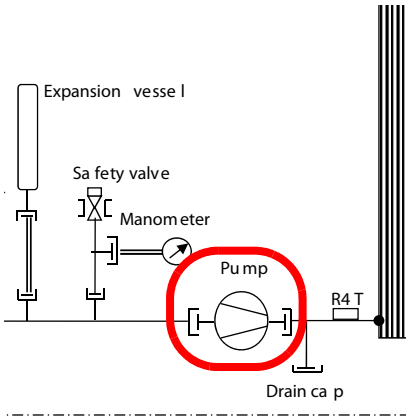
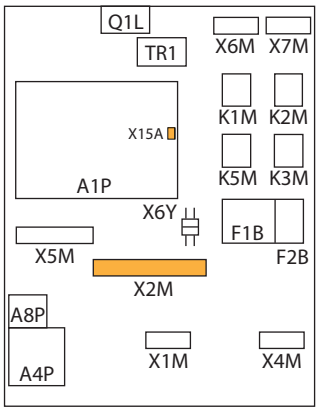
Thermistor	Processed on PCB	Connector: pin	Type	Description
R1T ()	A1P	X5A: 1-2	1	Outlet water after PHE
R1T (A2P)	A2P	X5M: 1-2	1	Ambient sensor user interface
R2T	A1P	X6A: 1-2	1	Outlet water after backup heater
R3T	A1P	X7A: 1-2	1	Refrigerant liquid
R4T	A1P	X8A: 1-2	1	Inlet water
R5T(*)	A1P	X9A: 1-2	2	Domestic hot water tank
R6T*	A1P	X5M: 5-6	1	External indoor or outdoor ambient

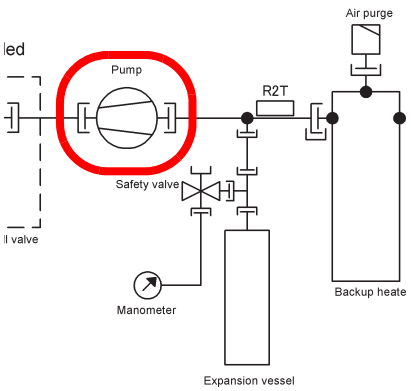
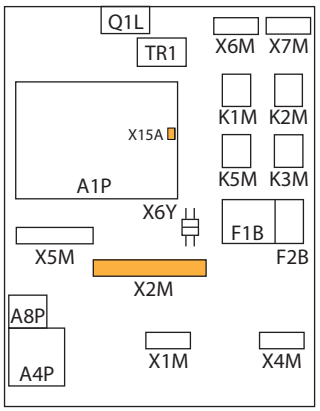
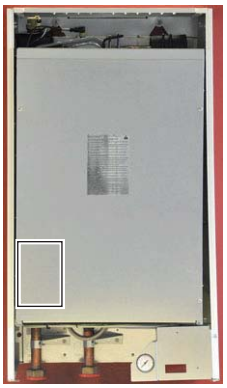
* = optional, (*) = optional for HV, standard for HB,

4.4. Water pump M1P

Technical specification	Description
The water pump M1P is an inverter driven, variable speed pump (inverter signal from PCB A9P, connector X25A).	The water pump M3P circulates the water in the water circuit.

Location

Piping diagram	Switch box	Unit
		

Piping diagram	Switch box	Unit
		

Check procedure

Mechanical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121 or "Removing the front panel" on page 155.
4. Drain the water circuit, refer to "Draining the water circuit" on page 124 or "Draining the water circuit" on page 157.
5. Relocate the switch box, refer to "Relocating the switch box" on page 159 (EHB(X/H)04-16CB3V/9W only).
6. Remove the 4 screws that fix the pump motor to the pump house.
7. Separate the pump motor from the pump house.
8. Inspect the rotor and check that it rotates smoothly.
9. After water pump assembly and filling the water circuit, check pump for leaks.
   - Replace the seal if the water pump leaks.

Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121 or "Removing the front panel" on page 155.
4. Power the Daikin Altherma LT-CB.
5. Activate “Installer level” on the user interface, refer to “Installer Level Settings” on the user interface are available in the Installer Reference Guide, paragraph To access the most used commands.
6. Select Actuator test run A.7.4.
7. Activate the water pump (A.7.4.6).
8. Check the LED on the water pump, it must light green.

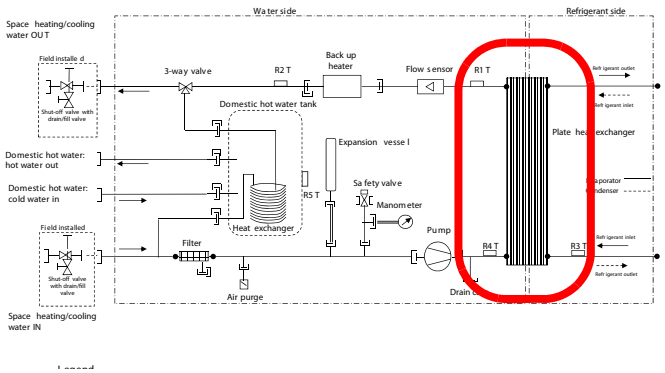
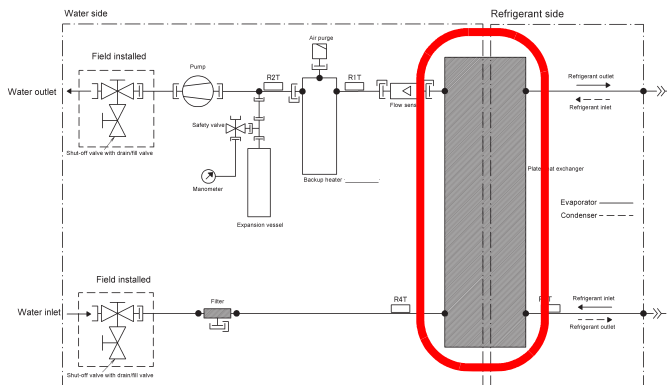
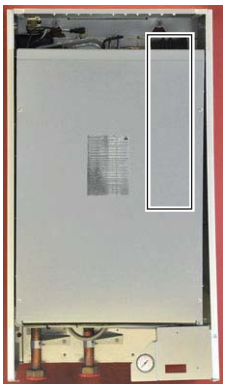
LED Status	Meaning	Diagnostic	Cause	Corrective action
Lights green	Pump in operation	Pump runs according to its setting	-	-
Blinks green (fast)	PWM model	Pump in stand-by	Normal operation	-
Blinks red/green	Pump in operation but stopped	Pump will restart after fault is solved	Undervoltage U < 160 V or overvoltage U > 230 V	Check voltage supply 195 V < U < 253 V
			Module overheating: motor temperature too high	Check water and ambient temperature
			Too hot water of external circuit entering the system	Check external circuit water temperature.
Blinks red	Pump malfunction	Pump stopped (blocked)	Pump does not restart automatically due to permanent failure	Replace pump
Off	No power supply	No voltage present on electronics.	Pump is not connected to power supply	Check pump wiring
			LED is broken	Check if pump is running
			Pump electronics malfunctioning	Replace pump

9. If the LED does not light:
   - Check fuse FU1 on A1P, replace if blown.
   - Measure the voltage at X15A: pin 3 - 5 on A1P PCB, the voltage must be 230 VAC ±10%, if not, replace A1P.
   - Measure the voltage at X2M: pin 34 - 35, the voltage must be 230 VAC ±10%, if not, check wiring between X15A on PCB A1P and X2M.
10. Replace the water pump M1P, refer to "Replacing the water pump" on page 140 or "Replacing the water pump" on page 169.

4.5. Plate type heat exchanger

Technical specification	Description
The plate type heat exchanger uses metal plates to transfer heat between two fluids. This improves the heat exchange as the fluids are exposed to a much larger surface compared to conventional heat exchangers. This facilitates the transfer of heat, increasing the speed of the temperature change.	The plate type heat exchanger transfers the heat from the refrigerant circuit to the water circuit.

Location

Piping diagram	Unit
	
	

Check procedure

Obstruction check (indication of possible blockage)

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121 or "Removing the front panel" on page 155.
4. Relocate the switch box, refer to "Relocating the switch box" on page 159 (wall hung only).
5. Power the Daikin Altherma LT-CB and activate domestic hot water or space heating and wait 15 minutes.
6. Activate “Installer level” on the user interface, refer to “Installer Level Settings” on the user interface are available in the Installer Reference Guide, To access the most used commands.
7. Check the saturated high pressure value and its corresponding temperature on the manifold and compare it with the temperature displayed for R1T (Leaving water (PHE)) on the user interface (6.1.5).
8. A temperature difference of 5 to 10°C is acceptable; if the temperature difference exceeds 10°C, the heat exchanger’s efficiency is too low and could indicate partial blockage.

Leak test

Check 1

1. Check the water manometer; raised water pressure indicates a refrigerant leak in the plate type heat exchanger.

Check 2

1. Visually check the plate type heat exchanger for water leakage.
2. In case there is an indication of a possible leakage, perform a leak test.

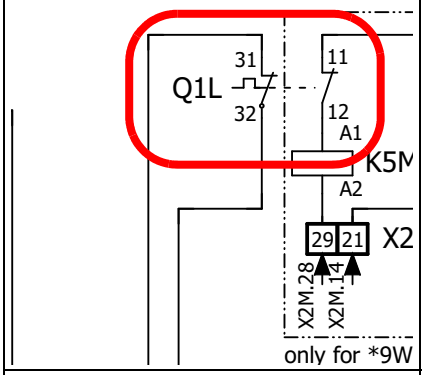
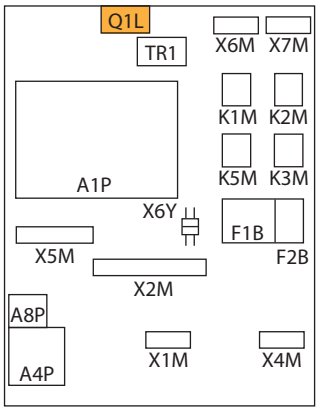
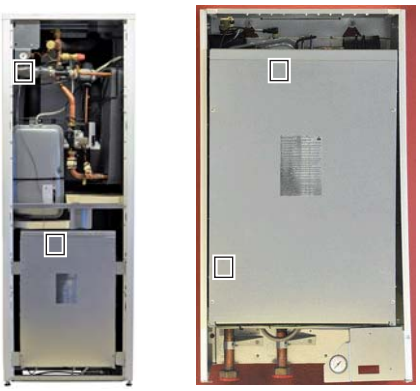
Check 3

1. Connect a manifold to the low and high pressure service ports.
2. Recover the refrigerant.
3. Refer to the nameplate for the correct charge. If less than the indicated charge is recovered, a pressure test must be performed.
4. Pressurize the refrigerant circuit with Nitrogen at 40 bar.
5. Check the pressure after 30 minutes.
6. Decrease of nitrogen pressure and increase of water pressure indicates a leak of the plate type heat exchanger.

4.6. Thermal protector backup heater Q1L

Technical specification	Description
The thermal protector backup heater Q1L is triggered if the temperature exceeds 92°C. The thermal protector backup heater Q1L will cut power supply to the backup heater to prevent the water circuit from overheating.	The thermal protector backup heater Q1L is a safety component that protects the water circuit against overtemperature.

Location

Wiring diagram	Switch box	Unit
		

Check procedure

Mechanical check

Visual check

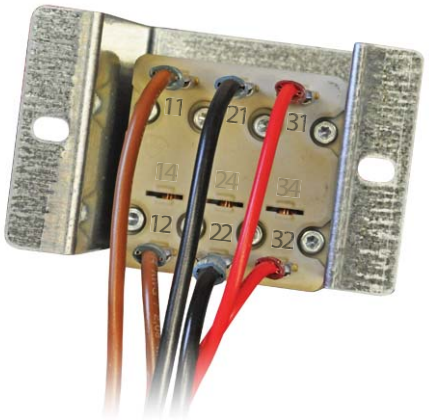
1. If thermal protector backup heater Q1L has tripped, press the red button to reset thermal protector backup heater Q1L.

Functional check

1. If required, check the thermal protector backup heater Q1L trip temperature by submerging the sensor in water.
2. Heat the water and measure the temperature of the water. The thermal protector backup heater Q1L must trip at approximately 92°C.

Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121 or "Removing the front panel" on page 155.
4. Relocate the switch box, refer to "Relocating the switch box" on page 159 (EHB(X/H)04-16CB3V/9W only).
5. Loosen and remove the 2 screws that fix the thermal protector backup heater bracket.
6. Disconnect the wiring from the thermal protector backup heater Q1L.



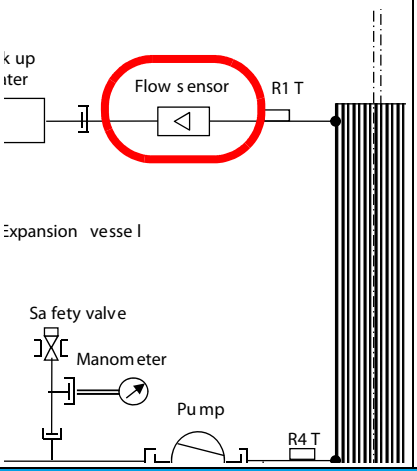
7. Measure the circuit breakers between Q1L terminals 11 - 12, Q1L terminals 21 - 22 and Q1L terminals 31 - 32, all circuit breakers must be closed.
8. If one or more measurements fail, replace the thermal protector backup heater Q1L, refer to "Replacing the thermal protector backup heater" on page 137.

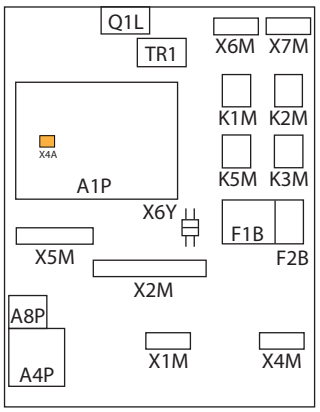
4.7. Water flow sensor B1L

Technical specification	Description
The water flow sensor output signal versus flow is shown in the graph below.	The water flow sensor measures the flow in the water circuit.

Location

Piping diagram	Switch box	Unit







Check procedure

Electrical check

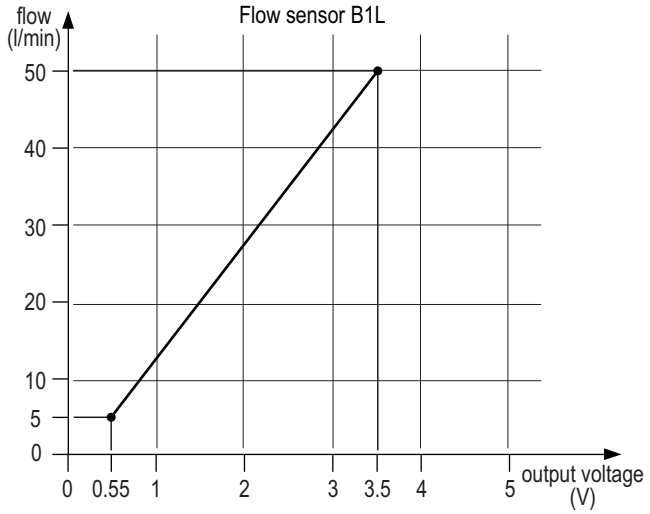
1. Power the Daikin Altherma LT-CB.
2. Activate “Installer level” on the user interface, refer to “Installer Level Settings” on the user interface are available in the Installer Reference Guide, paragraph To access the most used commands.
3. On the user interface, select Actuator test run A.7.4.
4. On the user interface, activate the water pump (A.7.4.6).
5. On the user interface, select Flow Rate 6.1.8.
6. The displayed flow rate must be between 5 and 40 l/minute.

INFORMATION

The flow sensor B1L connector must be plugged into X4A on PCB A1P.



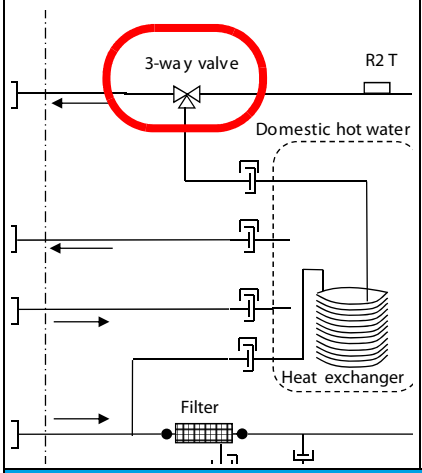
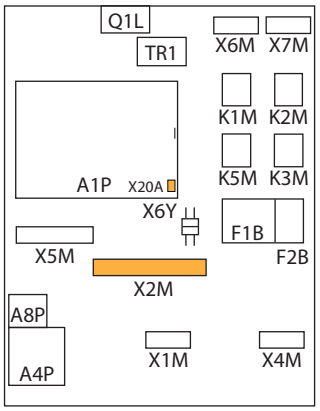
7. If the measured voltage is outside the expected range replace water flow sensor B1L, refer to "Replacing the water flow sensor" on page 131; if the measured voltage does not correspond with the displayed flow on the user interface, replace PCB A1P, refer to "Replacing the A1P PCB in the switch box" on page 127.



4.8. 3-way valve M3S (Floorstanding only)

Technical specification	Description
The 3-way valve is driven by a 230 VAC motor. Motor and valve can be replaced separately.	The 3-way valve is used to circulate the water in the water circuit through the domestic hot water tank or through the space heating circuit.

Location

Piping diagram	Switch box	Unit
		

Check procedure

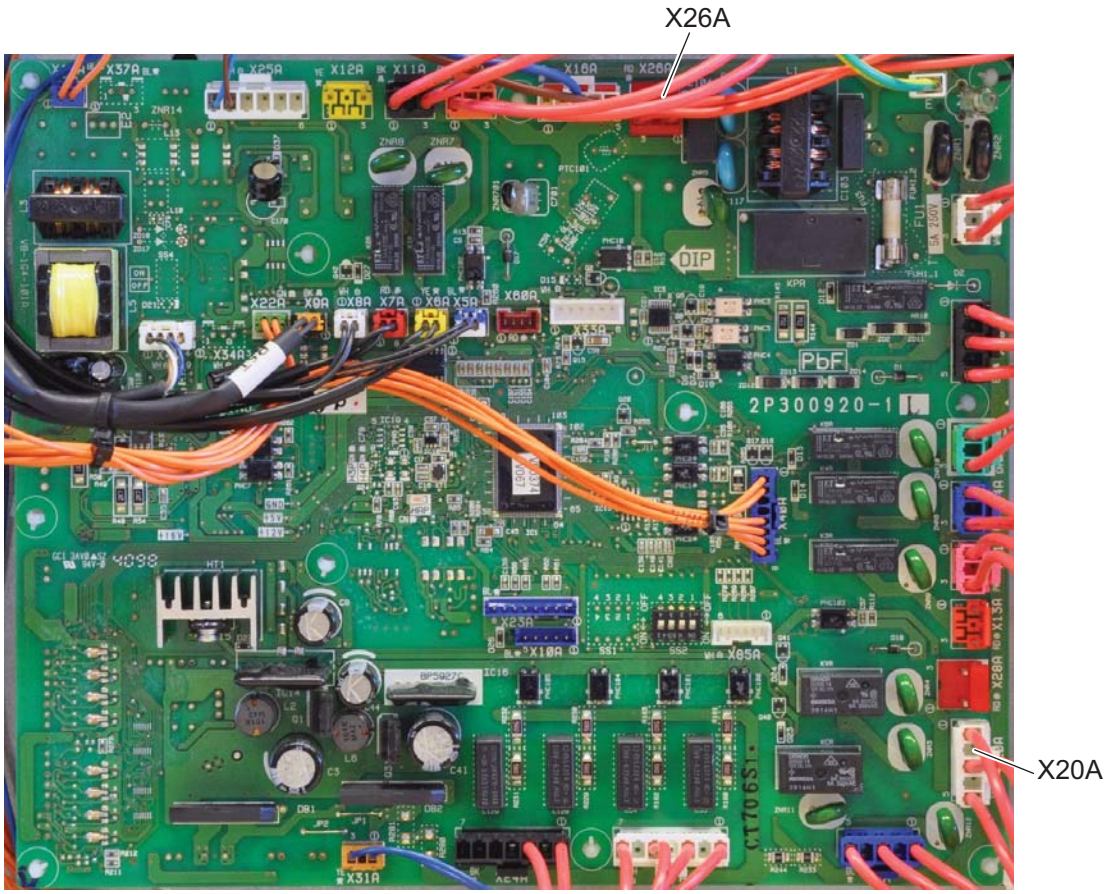
Mechanical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top panel, refer to "Removing the top panel" on page 122.
4. Check that the knob is fully pressed (= motor control).
5. Check that the knob is either in domestic hot water or space heating position but not in an intermediate position.

Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Remove the switch box cover, refer to "Removing the switch box cover" on page 123.
5. Power the Daikin Altherma LT-CB and activate domestic hot water.
6. Measure the voltage between X26A: pin 1-3 on PCB A1P; if no 230 VAC is present:
   - check fuse FU1 on PCB A1P, replace if blown,
   - Check the voltage between X19A: pin 1-3; if no 230 VAC present, check main power supply on X1M.
   - Check the voltage between X1A: pin 1-3; if no 230 VAC present, check main power supply on X1M.
   - If 230 VAC is present on X19A: pin 1-3 and 1A: pin 1-3, replace PCB A1P, refer to "Replacing the A1P PCB in the switch box" on page 127.
7. Measure the voltage on connector X26A: pin 3 and X20A: pin 3 on PCB A1P; if no 230 VAC is present, replace PCB A1P, refer to "Replacing the A1P PCB in the switch box" on page 127.

8. Using a contact thermometer, measure the temperature at the 3-way valve Domestic Hot Water exit and at the Space Heating exit; the Domestic Hot Water exit must have the same temperature as the 3-way valve input, the Space Heating exit must have a much lower temperature.



9. Activate Space Heating.

10. Measure the voltage on connector X26A: pin 3 and X20A: pin 1 on PCB A1P; if no 230 VAC is present, replace PCB A1P, refer to "Replacing the A1P PCB in the switch box" on page 127.

11. Using a contact thermometer, measure the temperature at the 3-way valve Domestic Hot Water exit and at the Space Heating exit; the Space Heating exit must have the same temperature as the 3-way valve input, the Domestic Hot Water exit must have a much lower temperature.

12. If one or both checks above are not OK, remove the 3-way valve motor from the 3-way valve.

13. Set the 3-way valve manually in the Domestic Hot Water position.

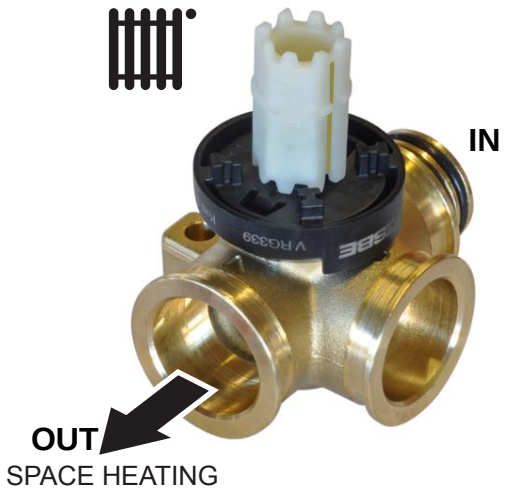
14. Using a contact thermometer, measure the temperature at the 3-way valve Domestic Hot Water exit and at the Space Heating exit; the Domestic Hot Water exit must have the same temperature as the 3-way valve input, the Space Heating exit must have a much lower temperature.

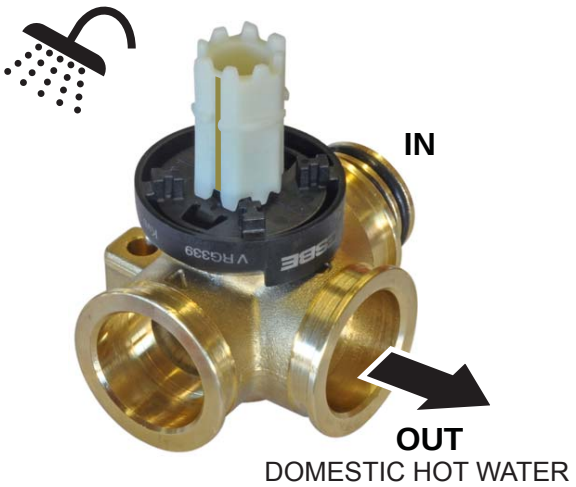
15. Set the 3-way valve manually in the Space Heating position.

16. Using a contact thermometer, measure the temperature at the 3-way valve Domestic Hot Water exit and at the Space Heating exit; the Domestic Hot Water exit must have the same temperature as the 3-way valve input, the Space Heating exit must have a much lower temperature.

17. If one or both checks above are not OK, the 3-way valve body must be replaced, refer to "Replacing the 3-way valve body" on page 146.

18. If both checks above are OK, the 3-way valve motor must be replaced, refer to "Replacing the 3-way valve motor" on page 144.


IN
OUT
SPACE HEATING


IN
OUT
DOMESTIC HOT WATER

5. Component checklist Small (04-08 kW) Outdoor Unit

5.1. Required tools for component check

Figure 1 - Required tools for component check



1. Magnet (tool part N° 9950038)
2. Inverter analyzer (tool part N° 1368521)

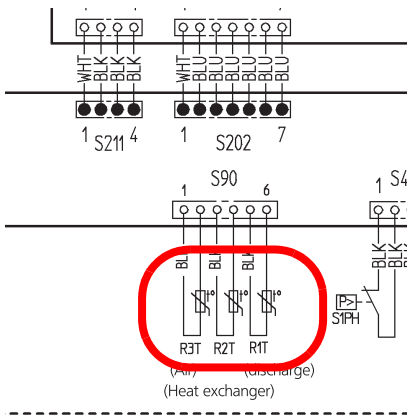
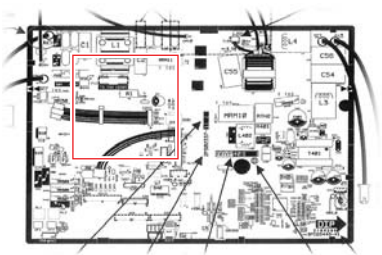
Overview of component checklists:

Thermistors 79
Compressor M1C 82
Muffler 84
Pressure sensor S1NPH 85
High pressure switch S1PH 87
Electronic expansion valve Y1E 88
4-way valve Y1R 90
Inverter PCB2 92
Fan motor 94

5.2. Thermistors

Technical specification	Description
A single type of thermistor is used; the resistance vs. temperature characteristics shown in Table 2-2 on page 80.	The thermistors are used to measure the temperature at multiple locations inside the Daikin Altherma LT-CB. The measured temperatures are processed by the PCB1 Main board.

Location

Wiring diagram	PCB1	Unit
		

Check procedure

Mechanical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Locate the thermistor and check if thermal contact with the piping or ambient is ensured.

Electrical check

INFORMATION

If a thermistor check fails, replace the thermistor.

The Table 2-2 on page 80 must be used to compare the measured resistance with the correct resistance for the measured temperature with a contact thermometer.

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front plate assembly" on page 182.
4. From the Table 2-2 on page 80, select the thermistor that must be checked.
5. Measure the temperature of the thermistor using a contact thermometer.
6. Unplug the connector from the appropriate PCB and measure the resistance between the pins listed in Table 2-3 on page 81.
   - Compare the measured resistance with the range determined by the lower and higher temperature in Table 2-3 on page 81.
7. If the measured resistance does not match the listed value, the thermistor must be replaced, refer to "Replacing a thermistor" on page 194.

INFORMATION

All thermistors have a tolerance of 5%.

E.g. thermistor R3T:

- Measured temperature with contact thermometer: 23.1°C.
- Unplug the sensor and measure the resistance between S90: 1-2: 21.86 kΩ.
- The resistance values are defined by Table 2-3 on page 81:
  - Resistance at 23°C: 21.85 kΩ.
  - Resistance at 24°C: 20.90 kΩ.
- The measured value 21.86 kΩ is inside the range, thermistor R3T passes the check.

INFORMATION

The user interface “6.1. Sensor Information” allows to monitor most thermistors.

If the measured resistance of the thermistor matches the temperature measured with the contact thermometer but the temperature for the corresponding thermistor is not correct on the user interface display, replace PCB A1P (see "Replacing the PCB1 main" on page 187).

Table 2-2: Thermistors ERLQ04-08

Thermistor	Processed on PCB	Connector: pin	Description
R1T	PCB1	S90:5-6	Discharge
R2T	PCB1	S90:3-4	Heat exchanger
R3T	PCB1	S90:1-2	Air

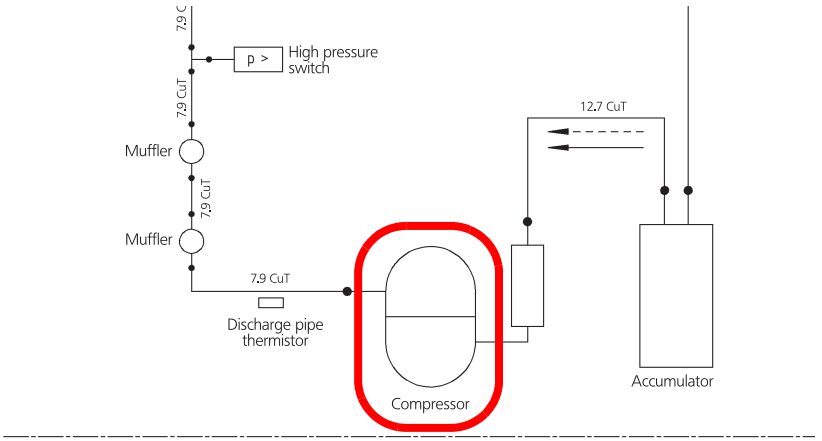
Table 2-3: Thermistor resistance / temperature characteristics

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
-20	197.81	0	65.84	20	25.01	40	10.63	60	4.87
-19	186.53	1	62.54	21	23.91	41	10.21	61	4.70
-18	175.97	2	59.43	22	22.85	42	9.81	62	4.54
-17	166.07	3	56.49	23	21.85	43	9.42	63	4.38
-16	156.80	4	53.71	24	20.90	44	9.06	64	4.23
-15	148.10	5	51.09	25	20.00	45	8.71	65	4.08
-14	139.94	6	48.61	26	19.14	46	8.37	66	3.94
-13	132.28	7	46.26	27	18.32	47	8.05	67	3.81
-12	125.09	8	44.05	28	17.54	48	7.75	68	3.68
-11	118.34	9	41.95	29	16.80	49	7.46	69	3.56
-10	111.99	10	39.96	30	16.10	50	7.18	70	3.44
-9	106.03	11	38.08	31	15.43	51	6.91	71	3.32
-8	100.41	12	36.30	32	14.79	52	6.65	72	3.21
-7	95.14	13	34.62	33	14.18	53	6.41	73	3.11
-6	90.17	14	33.02	34	13.59	54	6.65	74	3.01
-5	85.49	15	31.50	35	13.04	55	6.41	75	2.91
-4	81.08	16	30.06	36	12.51	56	6.18	76	2.82
-3	76.93	17	28.70	37	12.01	57	5.95	77	2.72
-2	73.01	18	27.41	38	11.52	58	5.74	78	2.64
-1	69.32	19	26.18	39	11.06	59	5.14	79	2.55
								80	2.47

5.3. Compressor M1C

Technical specification	Description
Compressor name: 2YC63PXD#C. Type: inverter driven, double swing.	The compressor M1C compresses the refrigerant in the refrigerant circuit.

Location

Piping diagram	Unit
	

Check procedure

Preliminary check

1. Check if the unit is grounded.
2. Check if the stop valve is open.

Mechanical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Open the compressor insulation.
6. Check the condition of the compressor dampers and piping.

Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Open the compressor insulation.
6. Switch on the unit and measure the U,V,W inverter voltages. All voltages must be identical, if not, replace the inverter PCB2, refer to "Replacing the PCB2 inverter" on page 190.

7. Switch off the Daikin Altherma LT-CB via the user interface.

8. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.

> **INFORMATION**
>
> Note the position of the cables on the compressor wire terminals to allow identical wiring during reinstallation.

9. Disconnect the Faston connectors U, V and W from the compressor.

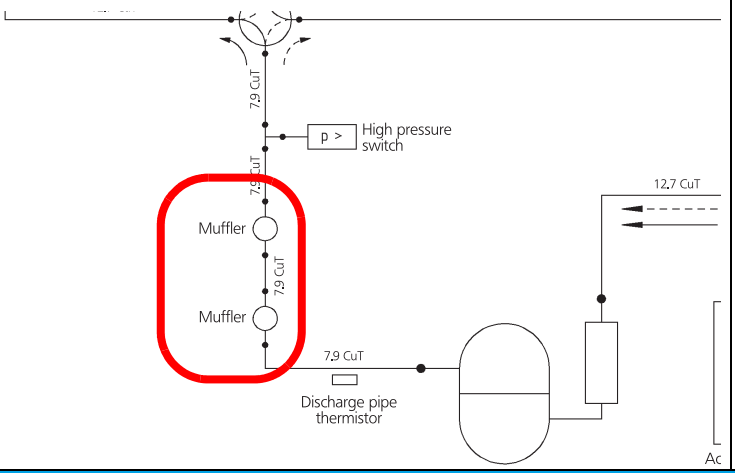
10. Measure the compressor motor windings U-V, V-W and U-W; all measurements must read 1.7 Ω.

11. Megger the compressor using 500 or 1000 V DC, the insulation must be higher than 3 MΩ.

12. Replace the compressor if the windings and/or insulation measurements fail, refer to "Replacing the compressor" on page 195.

13. Run the compressor and measure the current in each phase; the current for each phase should be identical and between 4 and 7 A. When the current exceeds 10 A during normal operation, it could indicate internal wear of the compressor. In that case it can be decided to preventively replace the compressor, refer to "Replacing the compressor" on page 195.

5.4. Muffler

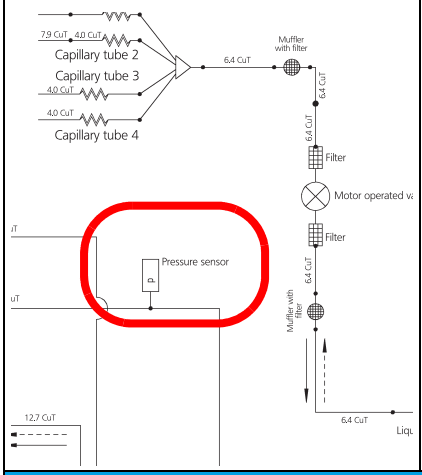
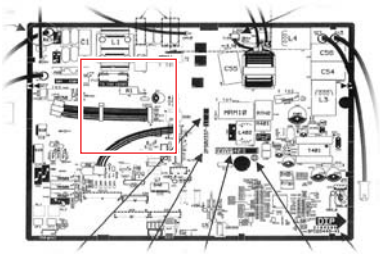
Technical specification	Description
-	The muffler breaks up the pressure pulses which create noise.
Location	
Piping diagram	**Unit**
	
Check procedure	
Mechanical check	

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Remove the compressor insulation.
6. Power the outdoor unit and activate space heating or domestic hot water.
7. After the compressor has been running for 5 minutes, measure the temperature before and after the muffler.
8. If a temperature difference above 3°C is measured over the muffler, it indicates the muffler is obstructed and must be replaced.

5.5. Pressure sensor S1NPH

Technical specification	Description
The pressure sensor S1NPH is an analog pressure sensor.	The pressure sensor S1NPH measures the pressure in the high pressure section of the refrigerant circuit.

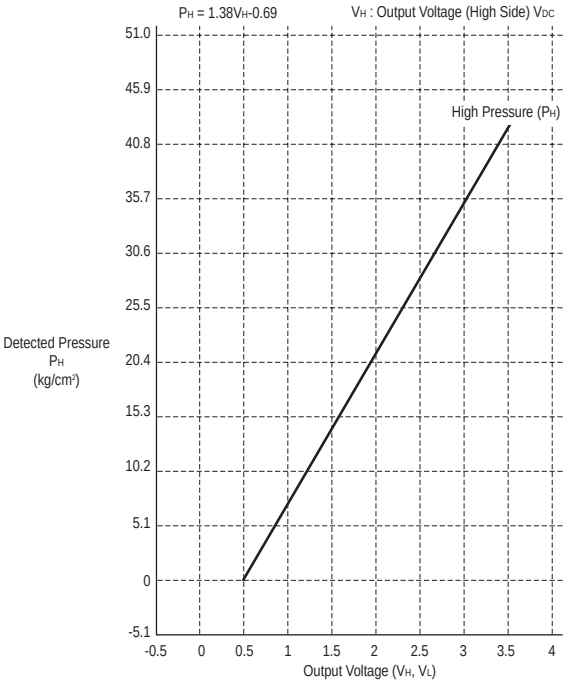
Location

Piping diagram	PCB1	Unit
		

Check procedure

Electrical check

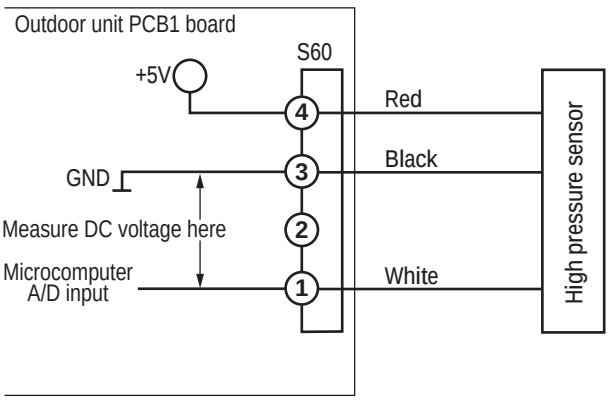
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Open the compressor insulation.
6. Connect a pressure gauge to the high pressure service port and read the pressure.
7. From the graph below, determine the expected sensor output signal.



8. Power the Daikin Altherma LT-CB.

> **INFORMATION**
>
> The pressure sensor connector must be plugged into X60A on PCB1.

9. Measure the voltage across connector X60A: pin 1-3; compare the measured voltage with the expected voltage.



10. In case no voltage is measured across connector X60A: pin 1-3; do following checks:

11. Is PCB1 powered?, if not check power supply.

12. Is connector S60 plugged in PCB1?, if not plug in S60.

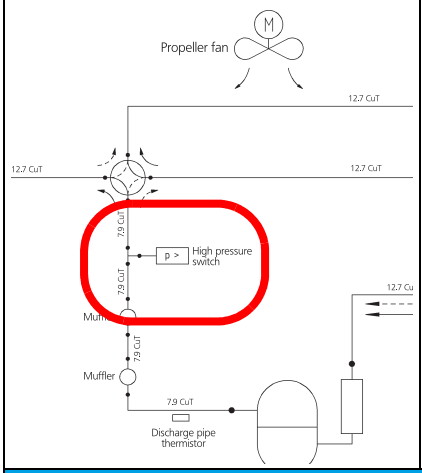
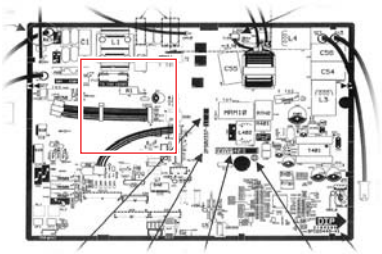
13. Is 5 VDC measured across connector S60: pin 4-3?, if not replace PCB1, refer to "Replacing the PCB1 main" on page 187.

    - In case all 3 checks above are OK but still no voltage is measured between X17: pin 1-3, replace the pressure sensor S1NPH, refer to "Replacing the pressure sensor S1NPH" on page 202.

5.6. High pressure switch S1PH

Technical specification	Description
The high pressure switch S1PH has a normally closed contact. If the pressure exceeds 41.7 (+0 / - 1) bar the contact will open; if the pressure drops below 32 (±2) bar the contact will close.	The high pressure switch S1PH is a safety component that stops the compressor if overpressure is detected in the refrigerant circuit.

Location

Piping diagram	PCB1	Unit
		

Check procedure

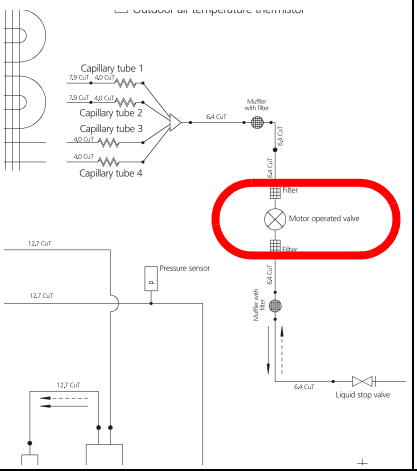
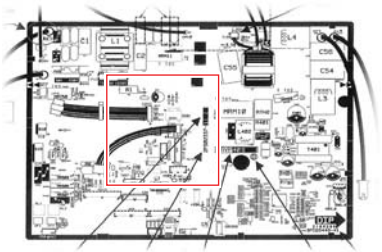
Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Open the compressor insulation.
6. Disconnect the connector S40 from PCB1.
7. Recover the refrigerant.
8. Pressurize the refrigerant circuit at 41.7 bar with nitrogen.
9. Measure the switch contacts between S40: pin 1 and 2; the switch must be open.
10. Replace the high pressure switch S1PH if the contact is not open, refer to "Replacing the high pressure switch S1PH" on page 201".
11. Lower the refrigerant circuit pressure to 30 bar.
12. Measure the switch contacts between S40: pin 1 and 2; the switch must be closed.
13. Replace the high pressure switch S1PH if the contact is not closed, refer to "Replacing the high pressure switch S1PH" on page 201.

5.7. Electronic expansion valve Y1E

Technical specification	Description
The expansion valve Y1E has a hermetically sealed body with a slide-on stepping motor drive coil (480 pulses from fully closed to fully open position).	The motorized expansion valve is used: • To control the flow. Depending on location, trigger point is superheat or sub-cool. • To stop flow completely when closing (equivalent 0 pulses).

Location

Piping diagram	PCB1	Unit
		

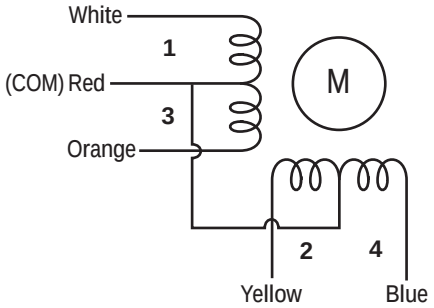
Check procedure

Blockage check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Remove the electromagnet from the expansion valve Y1E.
6. Slide the magnet (tool part N° 9950038) and gently rotate the magnet to manually operate the expansion valve Y1E clockwise (closing) and counterclockwise (opening).
7. If it is not possible to open the expansion valve Y1E with the magnet, the expansion valve Y1E is blocked and the expansion valve Y1E body must be replaced, refer to "Replacing the expansion valve Y1E" on page 205.

Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Disconnect the connector S20 from PCB1.
6. Measure the 4 electromagnet windings S20: red - white, red orange, red - yellow and red - blue. All windings must read 46 Ω +/- 4Ω.

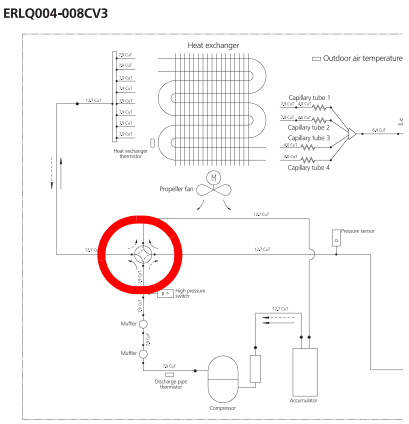
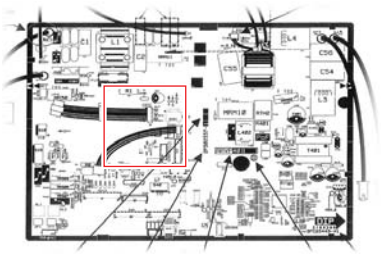


7. If one or more winding measurements fail, replace the expansion valve Y1E electromagnet, refer to "Replacing the expansion valve Y1E motor" on page 203.

5.8. 4-way valve Y1R

Technical specification	Description
-	The 4-way valve directs the super heated refrigerant discharged from the compressor to the indoor heat exchanger in case of heating operation or to the outdoor heat exchanger in case of defrosting and cooling operation.

Location

Piping diagram	PCB1	Unit
		

Check procedure

Mechanical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Loosen the screw and remove the coil from the 4-way valve, refer to "Replacing the 4-way valve coil" on page 199.
6. Unplug connector S80 from the PCB2 inverter board.
7. Switch on the Daikin Altherma LT-CB via the user interface, start cooling operation on the user interface.

   If the temperature after the plate type heat exchanger drops, proceed with step 8.

   If the temperature after the plate type heat exchanger rises, the 4-way valve is stuck in heating position, replace the 4 way valve, refer to "Replacing the 4-way valve" on page 199.

   If the temperature after the plate type heat exchanger does not rise, check the refrigerant pressure by connecting a manifold to one of the service ports.
   - If no pressure is measured, perform a pressure test and fix the leaks.
   - If pressure is measured, the 4-way valve is stuck in the middle, confirm by determining the position of the 4-way valve as described below and replace the 4-way valve, refer to "Replacing the 4-way valve" on page 199.

> **CAUTION - RISK OF LIQUID ENTERING THE COMPRESSOR**
>
> To prevent damage to the compressor the step below must only be done once.

8. While listening to the 4-way valve, place a round permanent magnet on the core of the solenoid valve. If you do not hear the 4-way valve switching, it must be replaced, refer to "Replacing the 4-way valve" on page 199.

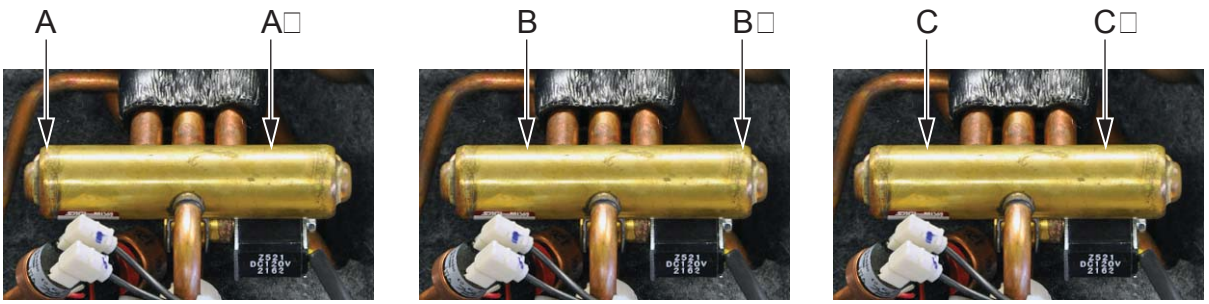
Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Switch on the Daikin Altherma LT-CB via the user interface, start heating operation.
6. Measure the voltage on connector S80: pin1 - 3. If the measured voltage does not range 220-240 VAC, unplug connector S80 and measure the voltage directly on the PCB2 connector S80: pin1 - 3.
   - If the voltage, measured directly on the PCB does not range 220-240 VAC, replace PCB1, refer to "Replacing the PCB1 main" on page 187.
   - If the voltage, measured directly on the PCB does range 220-240 VAC, replace the 4-way valve coil, refer to "Replacing the 4-way valve coil" on page 199.
7. Unplug connector S80 from the PCB2 and measure the resistance of the 4-way valve coil. If the measured resistance does not range 1000 - 2000 Ω, replace the 4-way valve coil, refer to "Replacing the 4-way valve" on page 199.
8. Switch on the Daikin Altherma LT-CB via the user interface, start cooling operation on the user interface.

   If the temperature after the plate type heat exchanger rises, the control of the 4-way valve is wrong, update the software.

Determine the position of the 4-way valve

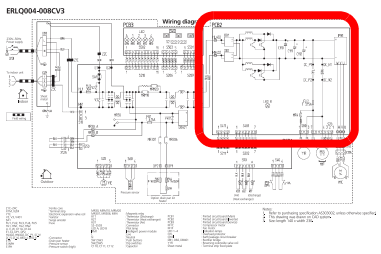
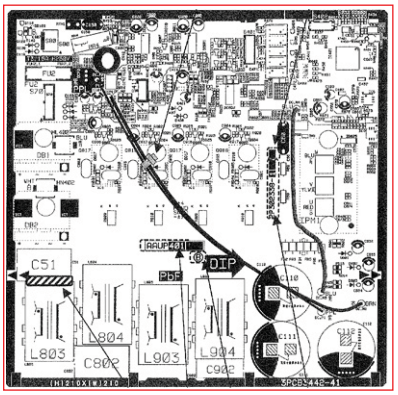
1. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
2. Slide a magnet over the front and the rear of the 4-way valve body and sense the attraction of the magnet to determine the valve position.
3. If the magnet is attracted in positions A,A' or B-B', the 4-way valve is OK; if the magnet is attracted in positions C,C' the 4-way valve must be replaced, "Replacing the 4-way valve" on page 199.



5.9. Inverter PCB2

Technical specification	Description
The inverter PCB2 is a 400 V 3 phase inverter.	The inverter PCB2 drives the compressor motor and powers the DC fan motor.

Location

Wiring diagram	PCB2	Unit
		

Check procedure

Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Remove the stop valve cover assembly, refer to "Removing the stop valve cover assembly" on page 182.
6. Remove the shield plate, refer to "Removing the right side plate assembly" on page 183.
7. Open the compressor insulation, refer to "Removing the compressor sound insulation" on page 184.
8. Remove the terminal cover.

WARNING: RISK OF ELECTROCUTION

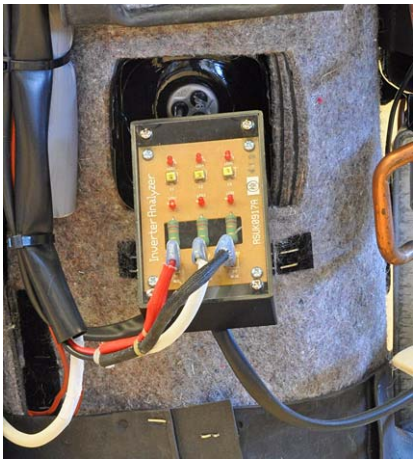
The smoothing capacitor must discharge below 10 VDC before removing the compressor wiring.

9. Measure the voltage on S70: pin 7 - 4 and wait until it drops below 10 VDC.

INFORMATION

Note the position of the cables on the compressor wire terminals to allow identical wiring during reinstallation.

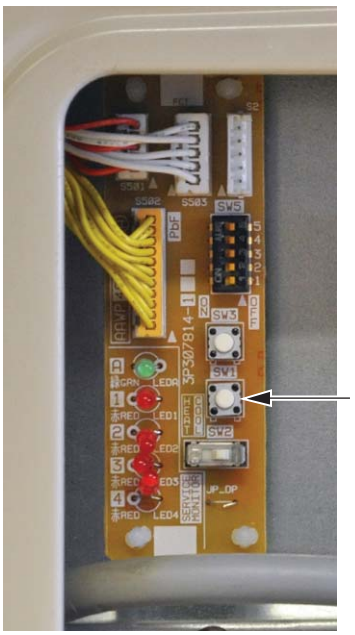
10. Disconnect the compressor wires and connect the compressor wires to the Inverter Analyzer (SPP number 1368521).



11. Power the Daikin Altherma LT-CB.

> **WARNING**
>
> Electrical shock hazard. Do not touch life wires.

12. Locate SW1 on the PCB3 service.



13. Press SW1 for 5 seconds to activate the inverter test.
14. Check that all leds on the Inverter Analyzer are lit; if not, replace the inverter board, refer to "Replacing the PCB2 inverter" on page 190.
15. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
16. Wait a few minutes and confirm that the LED's on the inverter analyzer are off.
17. Disconnect the inverter analyzer from the U V W wiring.

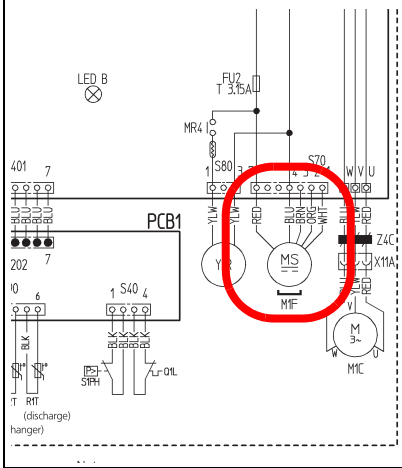
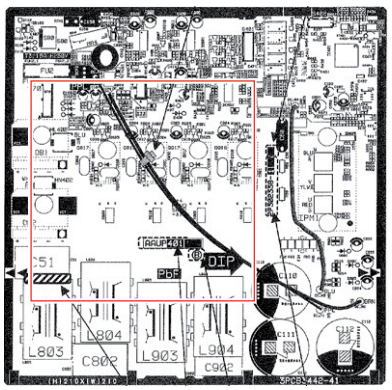
> **CAUTION**
>
> When wiring the compressor, observe UV W as indicated on the compressor.

18. Re-connect the U V W leads to the compressor.

5.10. Fan motor

Technical specification	Description
The motor has a single connector for DC power and the rotation counter feed back from the integrated pulse generator (4 pulses/revolution).	The fan motor runs on a fixed speed to supply the required air flow rate.

Location

Wiring diagram	PCB2	Unit
		

Check procedure

Mechanical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Check the state of the propeller, replace the propeller if damaged, deformed, cracked or broken, refer to "Replacing the propeller fan blade assembly" on page 186.
6. Check the motor friction, only perform electrical check if motor runs with low friction. Replace fan motor if friction is abnormal, refer to "Replacing the DC fan motor assembly" on page 187.

Electrical check

General

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Check fuse FU2 on PCB2, replace if blown.
6. Check if connector S70 is plugged into PCB2.
7. Power the outdoor unit.
8. Check power supply on X1M, the measured voltage must be 180 - 240 VAC.

Fan does not rotate

1. Confirm via D-checker that fan gets on ON signal.

2. Measure the voltage on S70: pin 4 - 7.
   If the measured voltage does not equal 300 VDC +/- 30 VDC, disconnect S70 and check the inverter PCB2, refer to "Inverter PCB2" on page 92.
   If the inverter PCB2 check is OK, replace the fan motor, refer to "Replacing the DC fan motor assembly" on page 187.
   If the inverter PCB2 check is not OK, replace the inverter PCB2, refer to "Inverter PCB2" on page 92.

3. Measure the voltage on S70: pin 4 - 3.
   If the measured voltage does not equal 15 VDC, disconnect S70 and measure again on the PCB connector.
   If the voltage measured on the PCB connector equals 15 VDC, replace the fan motor, refer to "Replacing the DC fan motor assembly" on page 187.
   If the voltage measured on the PCB connector does not equal 15 VDC, replace the inverter PCB2, refer to "Inverter PCB2" on page 92.

Fan rotates for a short time

1. Confirm via D-checker that fan gets on ON signal.

2. Measure the voltage on S70: pin 4 - 7.
   If the measured voltage does not equal 300 VDC +/- 30 VDC, disconnect S70 and check the inverter PCB2, refer to "Inverter PCB2" on page 92.
   If the inverter PCB2 check is OK, replace the fan motor, refer to "Replacing the DC fan motor assembly" on page 187.
   If the inverter PCB2 check is not OK, replace the inverter PCB2, refer to "Inverter PCB2" on page 92.

3. Measure the voltage on S70: pin 4 - 3.
   If the measured voltage does not equal 15 VDC, disconnect S70 and measure again on the PCB connector.
   If the voltage measured on the PCB connector equals 15 VDC, replace the fan motor, refer to "Replacing the DC fan motor assembly" on page 187.
   If the voltage measured on the PCB connector does not equal 15 VDC, replace the inverter PCB2, refer to "Inverter PCB2" on page 92.

4. Measure the voltage on S70: pin 4 - 2.
   If the voltage measured equals 0 VDC, replace the inverter PCB2, refer to "Inverter PCB2" on page 92.
   If the voltage measured is between 0 - 10 VDC, replace the fan motor, refer to "Replacing the DC fan motor assembly" on page 187.

5. Switch off the unit via the user interface.

6. Manually revolve the fan propeller slowly 1 turn (in about 4 seconds) and check that 4 pulses of 5 VDC are measured on S70: pin 2 - 1.
   If no pulses are detected, replace the fan motor, refer to "Replacing the DC fan motor assembly" on page 187.
   If pulses are detected, replace the PCB1 main, refer to "Replacing the PCB1 main" on page 187.

6. Component checklist Big (11-16 kW) Outdoor Unit

6.1. Required tools for component check

Figure 2 - Required tools for component check



1. Magnet (tool part N° 9950038)	2. Inverter analyzer (tool part N° 1368521)

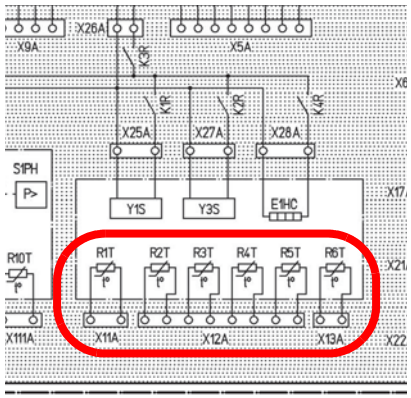
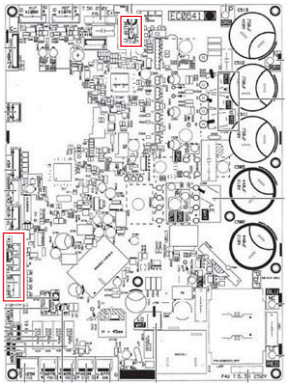
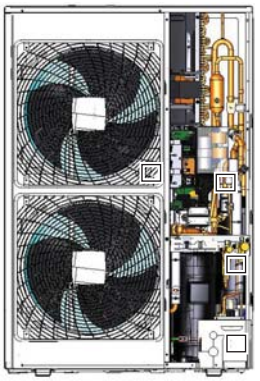
Overview of component checklists:

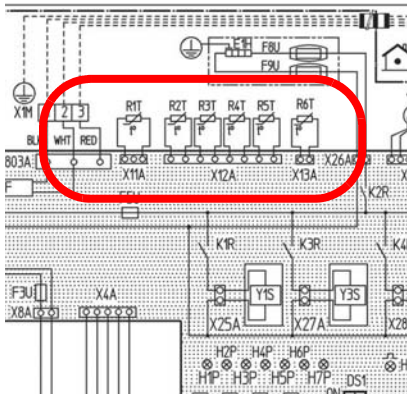
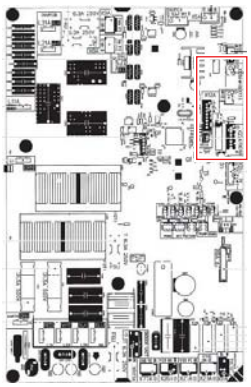
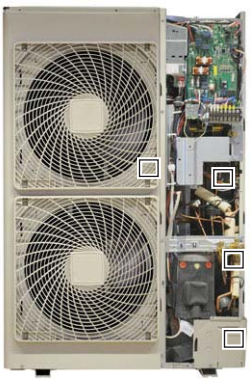
Thermistors....97
Compressor M1C....100
Muffler....101
Pressure sensor S1NPH....102
High pressure switch S1PH....104
Electronic expansion valves Y1E/Y3E....106
4-way valve Y1R....108
Inverter PCB A1P (single phase/A2P three phase)....110
Fan motors M1F, M2F....113

6.2. Thermistors

Technical specification	Description
2 different types of thermistors are used; the resistance vs. temperature characteristic for each type is shown in Table 2-3 on page 81.	The thermistors are used to measure the temperature at multiple locations inside the Daikin Altherma LT-CB. The measured temperatures are processed by the PCB1 Main board.

Location

Wiring diagram single phase	PCB A1P	Unit (single phase)
		

Wiring diagram three phase	PCB A1P	Unit (three phase)
		

Check procedure

Mechanical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
4. Locate the thermistor and check if thermal contact with the piping or ambient is ensured.

Electrical check

INFORMATION

If a thermistor check fails, replace the thermistor.

The Table 2-4 on page 98 must be used to compare the measured resistance with the correct resistance for the measured temperature with a contact thermometer.

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.

3. Remove the front panel, refer to "Removing the front plate (2)" on page 208.
4. From the Table 2-4 on page 98, select the thermistor that must be checked.
5. Measure the temperature of the thermistor using a contact thermometer.
6. Unplug the connector from the appropriate PCB and measure the resistance between the pins listed in Table 2-5 on page 99.
   - Compare the measured resistance with the range determined by the lower and higher temperature in Table 2-5 on page 99.
7. If the measured resistance does not match the listed value, the thermistor must be replaced, refer to "Replacing a thermistor" on page 228.

INFORMATION

All thermistors have a tolerance of 5%.

E.g. thermistor R4T (A1P):

- Measured temperature with contact thermometer: 23.1°C.
- Unplug the sensor and measure the resistance between X8A: 1-2: 21.86 kΩ.
- The resistance values are defined by Table 2-5 on page 99:
  - Resistance at 23°C: 21.85 kΩ.
  - Resistance at 24°C: 20.90 kΩ.
- The measured value 21.86 kΩ is inside the range, thermistor R4T (A1P) passes the check.

INFORMATION

The user interface “6.1. Sensor Information” allows to monitor most thermistors.

If the measured resistance of the thermistor matches the temperature measured with the contact thermometer but the temperature for the corresponding thermistor is not correct on the user interface display, replace PCB A1P (see "Replacing PCB A1P" on page 216 or "Replacing PCB A1P (1~ ERLQ011-016CV3 only)" on page 220).

Table 2-4: Thermistors ERHQ11-16

Thermistor	Processed on PCB	Connector: pin	Type	Description
R1T	A1P	X11A:1-3	1	Ambient air thermistor
R2T	A1P	X12A: 1-2	1	Discharge pipe thermistor
R3T	A1P	X12A: 3-4	1	Suction pipe thermistor
R4T	A1P	X12A: 5-6	1	Heat exchanger thermistor
R5T	A1P	X12A: 7-8	1	Intermediate heat exchanger thermistor
R6T	A1P	X13A: 1-2	1	Liquid pipe thermistor
R10T	A1P	X111A: 1-2	2	Power module fin thermistor ERHQ V3* / ERLQ V3*
R7T	A2P	X111A: 1-2	2	Power module fin thermistor ERHQ W1* / ERLQ W1*

* = optional

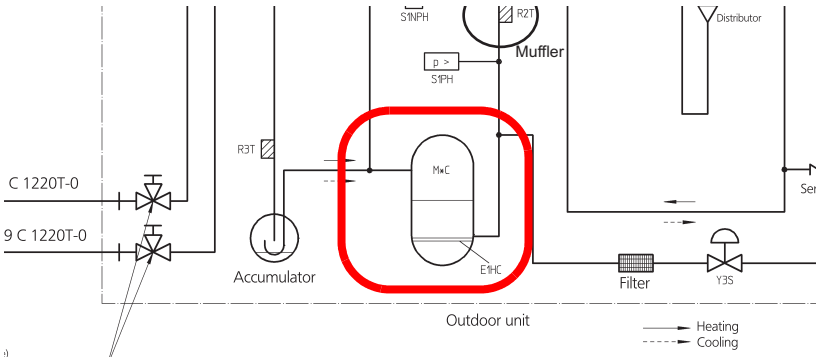
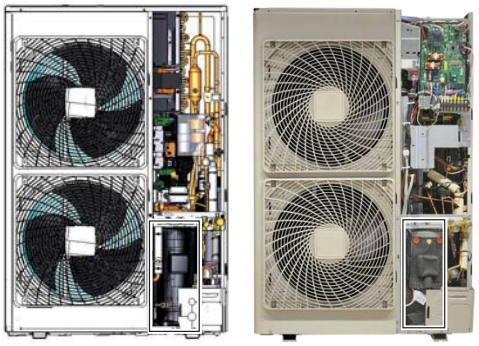
Table 2-5: Thermistor resistance / temperature characteristics

T °C	A (kΩ)	B (kΩ)
-20	197.81	192.08
-19	186.53	181.16
-18	175.97	170.94
-17	166.07	161.36
-16	156.80	152.38
-15	148.10	143.96
-14	139.94	136.05
-13	132.28	128.63
-12	125.09	121.66
-11	118.34	115.12
-10	111.99	108.96
-9	106.03	103.18
-8	100.41	97.73
-7	95.14	92.61
-6	90.17	87.79
-5	85.49	83.25
-4	81.08	78.97
-3	76.93	74.94
-2	73.01	71.14
-1	69.32	67.56
0	65.84	64.17
1	62.54	60.96
2	59.43	57.94
3	56.49	55.08
4	53.71	52.38
5	51.09	49.83
6	48.61	47.42
7	46.26	45.14
8	44.05	42.98
9	41.95	40.94
10	39.96	39.01
11	38.08	37.18
12	36.30	35.45
13	34.62	33.81
14	33.02	32.25
15	31.50	30.77
16	30.06	29.37
17	28.70	28.05
18	27.41	26.78
19	26.18	25.59

T °C	A (kΩ)	B (kΩ)
20	25.01	24.45
21	23.91	23.37
22	22.85	22.35
23	21.85	21.37
24	20.90	20.45
25	20.00	19.56
26	19.14	18.73
27	18.32	17.93
28	17.54	17.17
29	16.80	16.45
30	16.10	15.76
31	15.43	15.10
32	14.79	14.48
33	14.18	13.88
34	13.59	13.31
35	13.04	12.77
36	12.51	12.25
37	12.01	11.76
38	11.52	11.29
39	11.06	10.84
40	10.63	10.41
41	10.21	10.00
42	9.81	9.61
43	9.42	9.24
44	9.06	8.88
45	8.71	8.54
46	8.37	8.21
47	8.05	7.90
48	7.75	7.60
49	7.46	7.31
50	7.18	7.04
51	6.91	6.78
52	6.65	6.53
53	6.41	6.53
54	6.65	6.53
55	6.41	6.29
56	6.18	6.06
57	5.95	5.84
58	5.74	5.43
59	5.14	5.05

A (kΩ)	B (kΩ)
60	4.87
61	4.70
62	4.54
63	4.38
64	4.23
65	4.08
66	3.94
67	3.81
68	3.68
69	3.56
70	3.44
71	3.32
72	3.21
73	3.11
74	3.01
75	2.91
76	2.82
77	2.72
78	2.64
79	2.55
80	2.47

6.3. Compressor M1C

Technical specification	Description
Compressor name: 2YC63PXD#C. Type: inverter driven, double swing.	The compressor M1C compresses the refrigerant in the refrigerant circuit.
Location	
Piping diagram	**Unit**
	
Check procedure	

Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
4. Open the compressor sound insulation, refer to "Removing the compressor sound insulation" on page 211.

INFORMATION

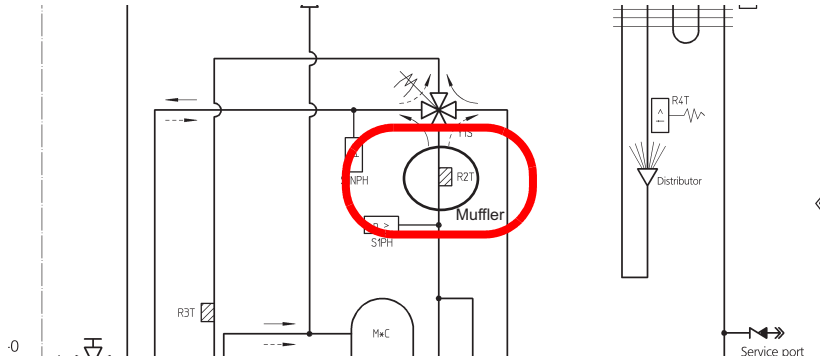
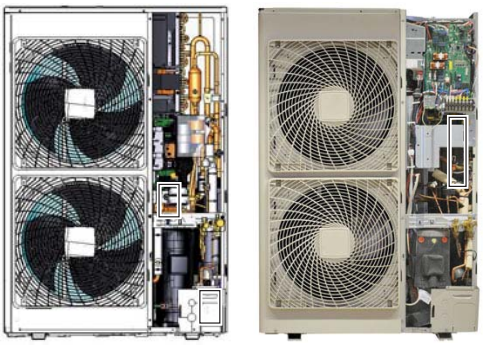
Note the position of the cables on the compressor wire terminals to allow identical wiring during reinstallation.

5. Disconnect the connectors U, V and W from the compressor.
6. Measure the compressor motor windings U-V, V-W and U-W; all measurements must read 1.7 Ω.
7. Megger the compressor using 500 or 1000 V DC, the insulation must be higher than 3 MΩ.
8. Replace the compressor if the windings and/or insulation measurements fail.
9. Run the compressor and measure the current in each phase; the current for each phase should be identical and between 4 and 7 A. When the current exceeds 10 A during normal operation, it could indicate internal wear of the compressor. In that case it can be decided to preventively replace the compressor, refer to "Replacing the compressor" on page 230.

6.4. Muffler

Technical specification	Description
-	The muffler breaks up the pressure pulses which create noise

Location

Piping diagram	Unit
	

Check procedure

Mechanical check

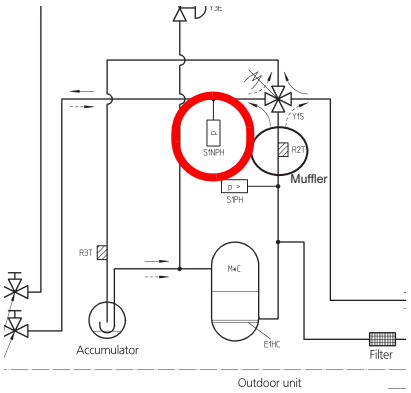
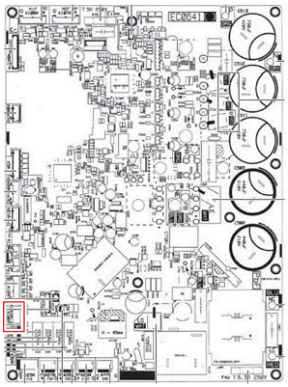
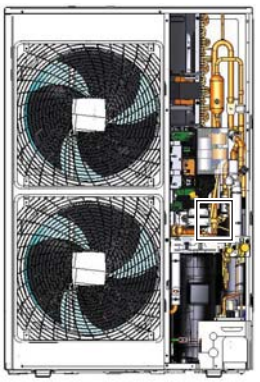
> **INFORMATION**
>
> Depending on the configuration (ERLQ/ERHQ, singe/three phase), more mufflers may be installed.

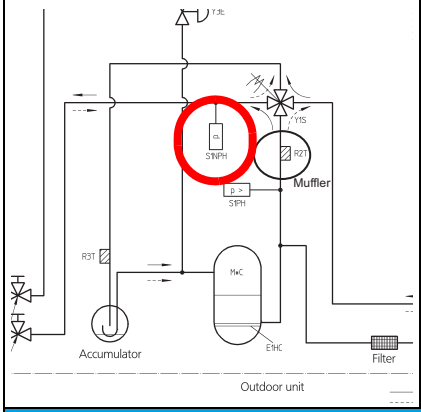
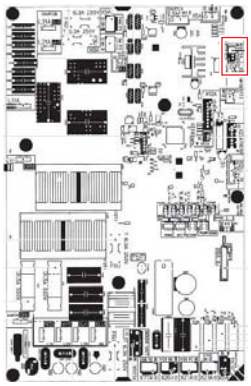
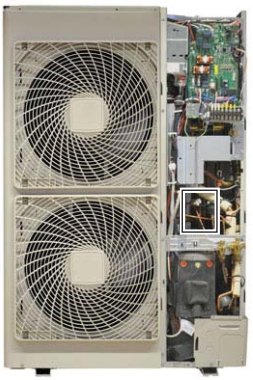
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
4. Remove the compressor insulation.
5. Power the outdoor unit and activate space heating or domestic hot water.
6. After the compressor has been running for 5 minutes, measure the temperature before and after the muffler.
7. If a temperature difference above 3°C is measured over the muffler, it indicates the muffler is obstructed and must be replaced.

6.5. Pressure sensor S1NPH

Technical specification	Description
The pressure sensor S1NPH is an analog pressure sensor.	The pressure sensor S1NPH measures the pressure in the high pressure section of the refrigerant circuit.

Location

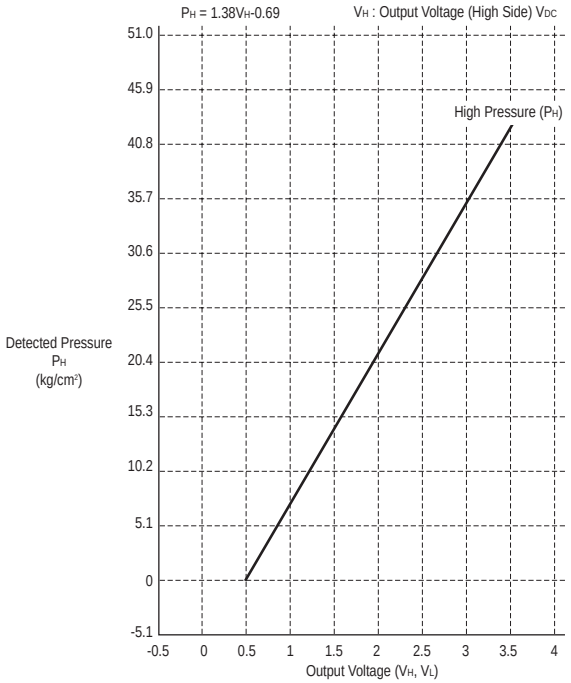
Piping diagram	PCB A1P	Unit (single phase)
		

Piping diagram	PCB A1P	Unit (three phase)
		

Check procedure

Electrical check

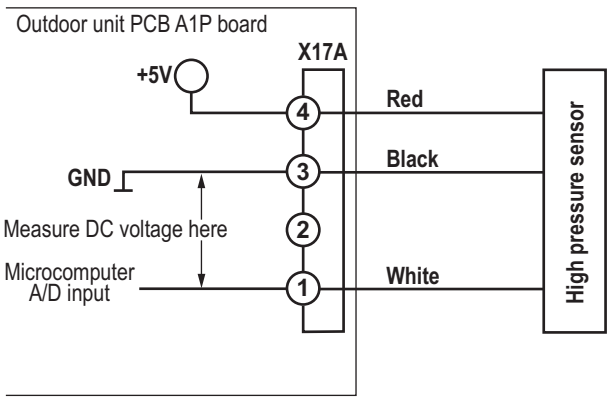
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
4. Connect a pressure gauge to the high pressure service port and read the pressure.
5. From the graph below, determine the expected sensor output signal.



6. Power the Daikin Altherma LT-CB.

> **INFORMATION**
>
> The pressure sensor connector must be plugged into X17A on PCB A09P.

7. Measure the voltage across connector X17A: pin 1-3; compare the measured voltage with the expected voltage.



8. In case no voltage is measured across connector X17A: pin 1-3; do following checks:

9. Is PCB A09P powered?, if not check power supply.

10. Is connector X17A plugged in PCB A1P?, if not plug in X17A.

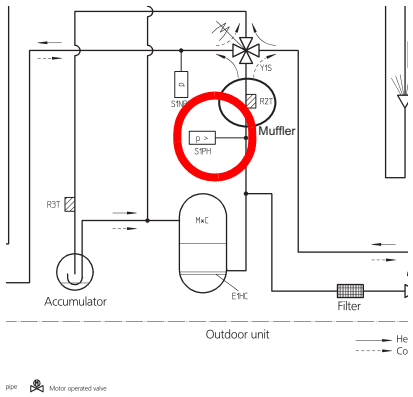
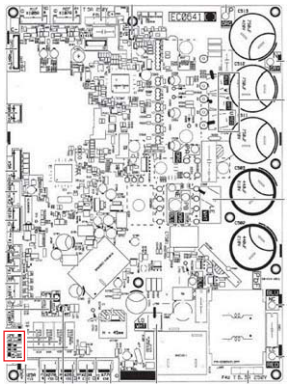
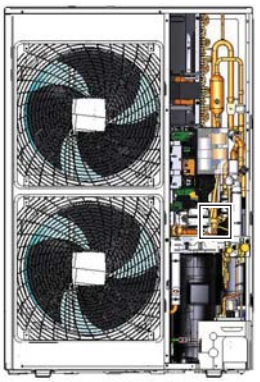
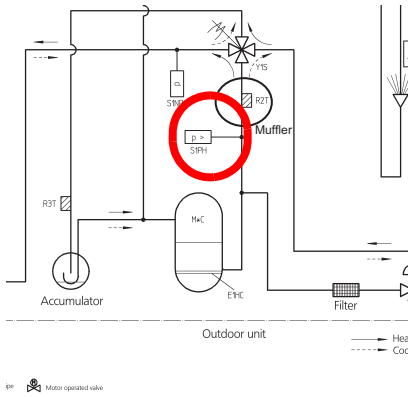
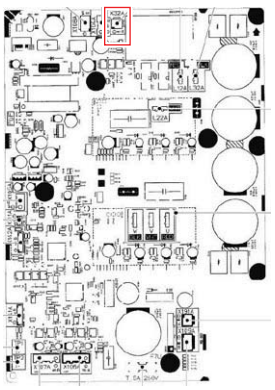
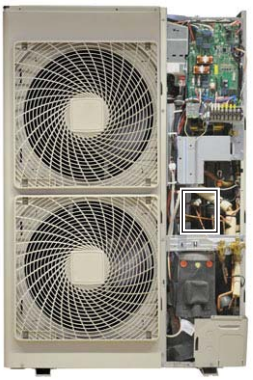
11. Is 5 VDC measured across connector X17A: pin 1-3?, if not replace PCB A1P.

    - In case all 3 checks above are OK but still no voltage is measured between X17: pin 1-3, replace the pressure sensor B1PH, refer to "Replacing the pressure sensor S1NPH" on page 202.

6.6. High pressure switch S1PH

Technical specification	Description
The high pressure switch S1PH has a normally closed contact. If the pressure exceeds 41.7 (+0 / - 1) bar the contact will open; if the pressure drops below 32 (±2) bar the contact will close.	The high pressure switch S1PH is a safety component that stops the compressor if overpressure is detected in the refrigerant circuit.

Location

Piping diagram	PCB A1P	Unit (single phase)
		
Piping diagram	**PCB A2P**	**Unit (three phase)**
		

Check procedure

Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
4. Open the compressor insulation.
5. Disconnect the Faston connectors from the pressure switch S1PH.
6. Recover the refrigerant.
7. Pressurize the refrigerant circuit at 41.7 bar with nitrogen.
8. Measure the high pressure switch S1PH contacts; the switch must be open.
9. Replace the high pressure switch S1PH if the contact is not open, refer to "Replacing the high pressure switch S1PH" on page 237".
10. Lower the refrigerant circuit pressure to 30 bar.

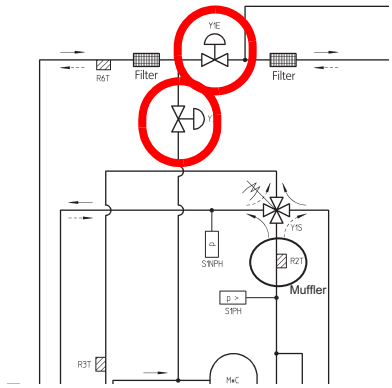
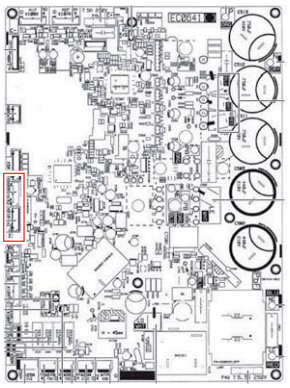
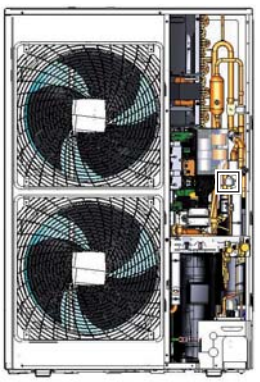
11. Measure the high pressure switch S1PH contacts; the switch must be closed.

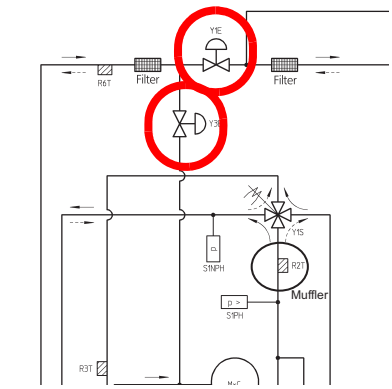
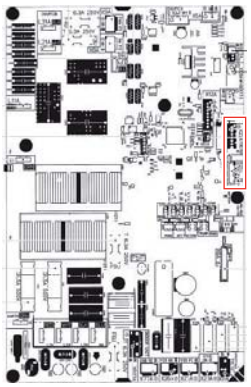
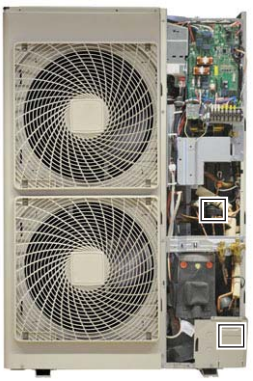
12. Replace the high pressure switch S1PH if the contact is not closed, refer to "Replacing the high pressure switch S1PH" on page 237.

6.7. Electronic expansion valves Y1E/Y3E

Technical specification	Description
The expansion valves Y1E/Y3E have a hermetically sealed body with a slide-on stepping motor drive coil (480 pulses from fully closed to fully open position).	The motorized expansion valves are used: • To control the flow. Depending on location, trigger point is superheat or sub-cool. • To stop flow completely when closing (equivalent 0 pulses).

Location

Piping diagram	PCB A1P	Unit (single phase)
		

Piping diagram	PCB A1P	Unit (three phase)
		

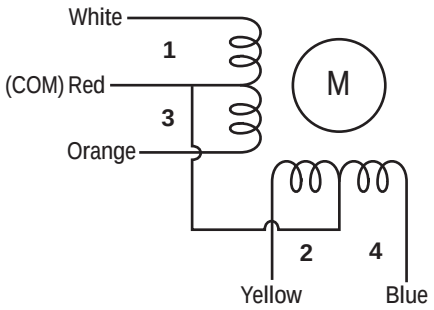
Check procedure

Blockage check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
4. Remove the electromagnet from the expansion valve Y1E/Y3E.
5. Slide the magnet (tool part N° 9950038) and gently rotate the magnet to manually operate the expansion valve Y1E/Y3E clockwise (closing) and counterclockwise (opening).
6. If it is not possible to open the expansion valve Y1E/Y3E with the magnet, the expansion valve Y1E/Y3E is blocked and the expansion valve Y1E/Y3E body must be replaced, refer to "Replacing the expansion valve Y1E" on page 240/"Replacing the expansion valve Y3E" on page 243.

Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
4. Disconnect the connector X21A/X22A from PCB A1P.
5. Measure the 4 electromagnet windings X21A/C22A: red - white, red orange, red - yellow and red - blue. All windings must read 45 Ω.

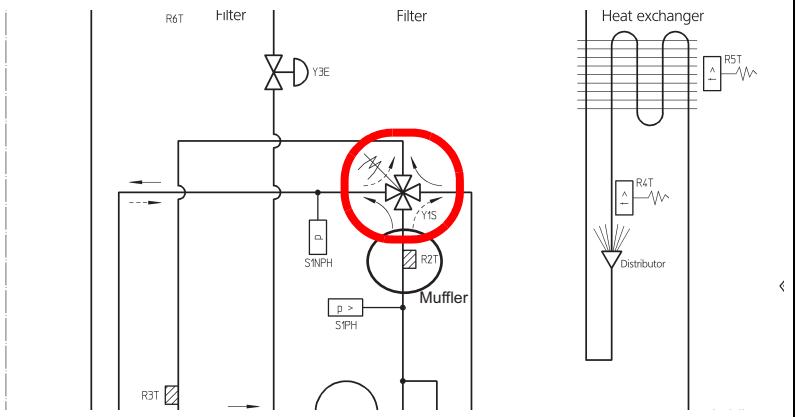
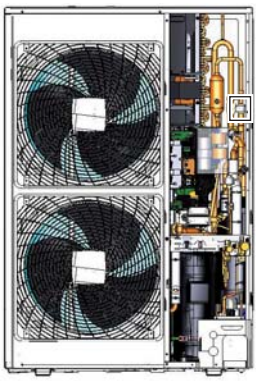


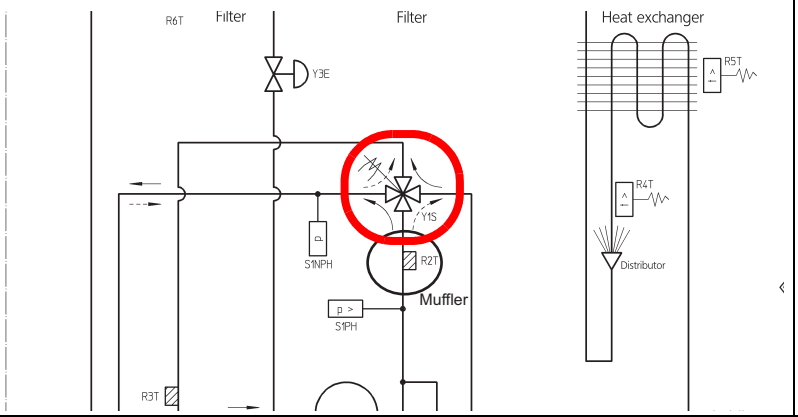
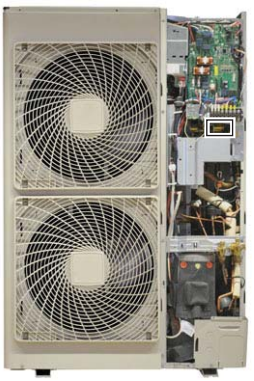
6. If one or more winding measurements fail, replace the expansion valve Y1E/Y3E electromagnet, refer to "Replacing the expansion valve Y1E motor" on page 239/"Replacing the expansion valve Y3E motor" on page 242.

6.8. 4-way valve Y1R

Technical specification	Description
-	The 4-way valve directs the super heated refrigerant discharged from the compressor to the indoor heat exchanger in case of heating operation or to the outdoor heat exchanger in case of defrosting and cooling operation.

Location

Piping diagram	Unit (single phase)
	

Piping diagram	Unit (three phase)
	

Check procedure

Mechanical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
4. Loosen the screw and remove the coil from the 4-way valve, refer to "Replacing the 4-way valve coil" on page 199.
5. Unplug connector S80 from the PCB2 inverter board.
6. Switch on the Daikin Altherma LT-CB via the user interface, start cooling operation on the user interface.

   If the temperature after the plate type heat exchanger drops, proceed with step 8.

   If the temperature after the plate type heat exchanger rises, the 4-way valve is stuck in heating position, replace the 4 way valve, refer to "Replacing the 4-way valve" on page 199.

   If the temperature after the plate type heat exchanger does not rise, check the refrigerant pressure by connecting a manifold

to one of the service ports.
- If no pressure is measured, perform a pressure test and fix the leaks.
- If pressure is measured, the 4-way valve is stuck in the middle, confirm by determining the position of the 4-way valve as described below and replace the 4-way valve, refer to "Replacing the 4-way valve" on page 199.

CAUTION - RISK OF LIQUID ENTERING THE COMPRESSOR

To prevent damage to the compressor the step below must only be done once.

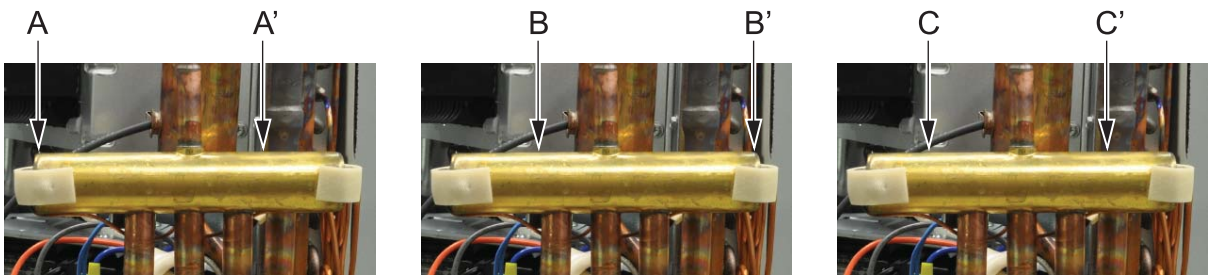
7. While listening to the 4-way valve, place a round permanent magnet on the core of the solenoid valve. If you do not hear the 4-way valve switching, it must be replaced, refer to "Replacing the 4-way valve" on page 199.

Electrical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
4. Switch on the Daikin Altherma LT-CB via the user interface, start heating operation.
5. Measure the voltage on connector S80: pin1 - 3. If the measured voltage does not range 220-240 VAC, unplug connector S80 and measure the voltage directly on the PCB2 connector S80: pin1 - 3.
   - If the voltage, measured directly on the PCB does not range 220-240 VAC, replace PCB1, refer to "Replacing PCB A1P" on page 216.
   - If the voltage, measured directly on the PCB does range 220-240 VAC, replace the 4-way valve coil, refer to "Replacing the 4-way valve Y1S" on page 245 or "Replacing the 4-way valve Y1S (1~ ERLQ011-016CV3 only)" on page 247.
6. Unplug connector S80 from the PCB2 and measure the resistance of the 4-way valve coil. If the measured resistance does not range 1000 - 2000 Ω, replace the 4-way valve coil, refer to "Replacing the 4-way valve Y1S coil" on page 244 or "Replacing the 4-way valve Y1S coil (1~ ERLQ011-016CV3 only)" on page 247.
7. Switch on the Daikin Altherma LT-CB via the user interface, start cooling operation on the user interface.
   - If the temperature after the plate type heat exchanger rises, the control of the 4-way valve is wrong, update the software.

Determine the position of the 4-way valve

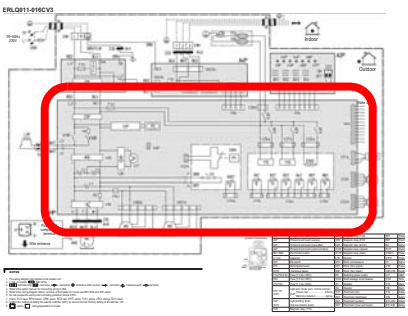
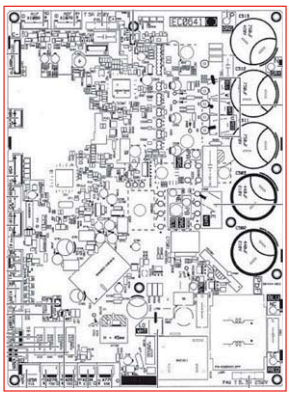
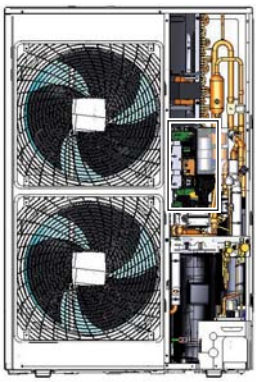
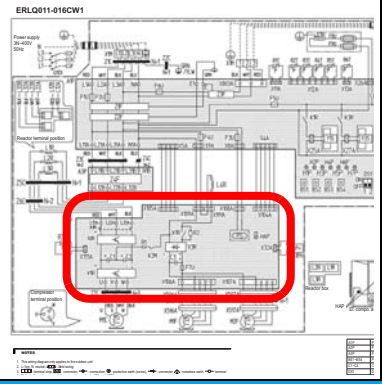
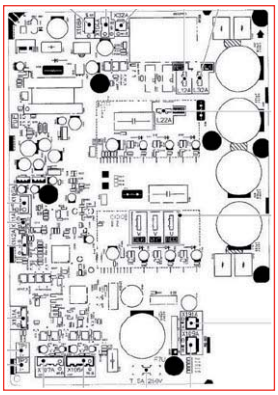
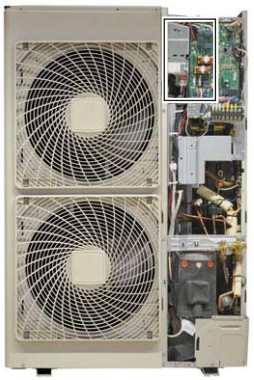
1. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
2. Slide a magnet over the front and the rear of the 4-way valve body and sense the attraction of the magnet to determine the valve position.
3. If the magnet is attracted in positions A,A' or B-B', the 4-way valve is OK; if the magnet is attracted in positions C,C' the 4-way valve must be replaced, "Replacing the 4-way valve Y1S" on page 245 or "Replacing the 4-way valve Y1S (1~ ERLQ011-016CV3 only)" on page 247.



6.9. Inverter PCB A1P (single phase/A2P three phase)

Technical specification	Description
The inverter PCB A1P is a 400 V 3 phase inverter.	The inverter PCB A1P drives the compressor.

Location

Wiring diagram single phase	PCB A1P	Unit
		
Wiring diagram three phase	**PCB A2P**	**Unit**
		

Check procedure

Electrical check

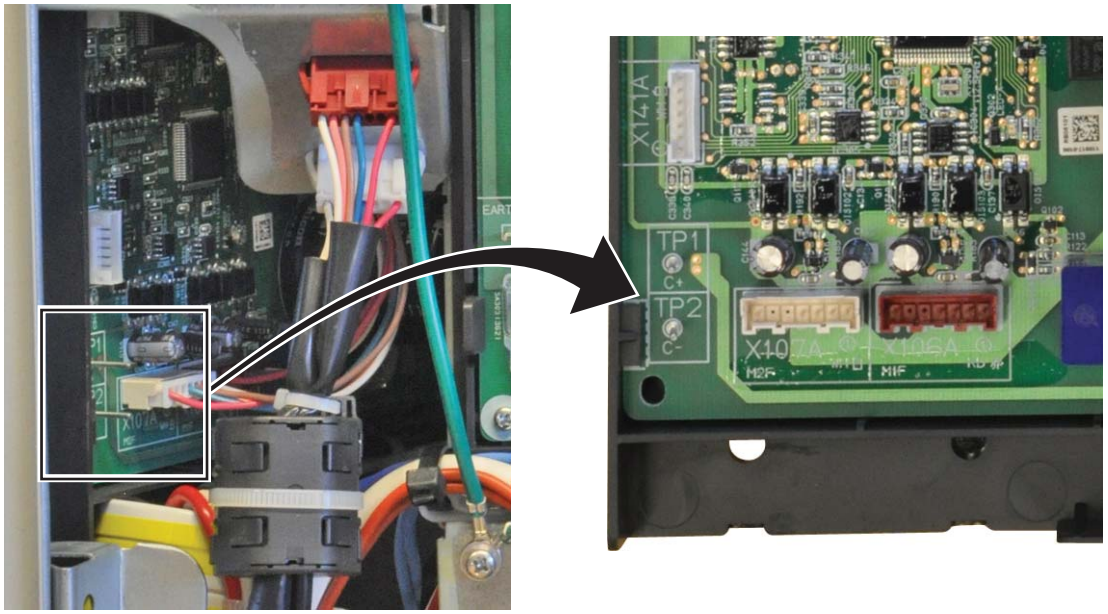
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
4. Open the compressor insulation, refer to "Removing the compressor sound insulation" on page 211.



WARNING: RISK OF ELECTROCUTION

The smoothing capacitor must discharge below 10 VDC before removing the compressor wiring.

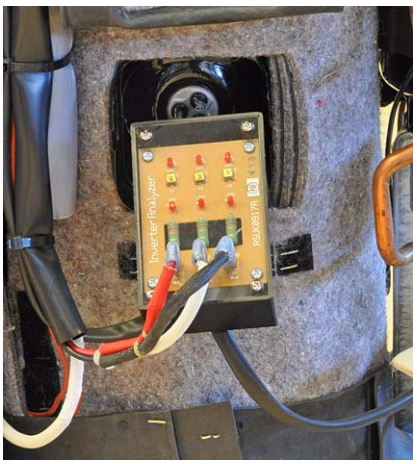
5. Measure the voltage on TP1&TP2 on PCB A2P (3 phase version only) or smoothing capacitor C4 (single phase version only) and wait until it drops below 10 VDC.



INFORMATION

Note the position of the cables on the compressor wire terminals to allow identical wiring during reinstallation.

6. Disconnect the compressor wires and connect the compressor wires to the Inverter Analyzer (SPP number 1368521).



7. Power the Daikin Altherma LT-CB.

WARNING

Electrical shock hazard. Do not touch life wires.

8. Locate the LEDS on inverter PCB A1P (3 phase version) or on the service PCB A2P (single phase version):

LED status
● OFF
○ ON
◎ Blink

	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Normal	●	●	●	●	●	●	●

9. press and hold BS1

for 5 seconds, *LED status (entered monitor mode)*



10. press BS2 twice, *LED status (after pressing BS2 twice)*



press BS3 once, *LED status (after pressing BS3)*



press BS2 once, *LED status (after pressing BS2)*



press BS3 once, *LED status (after pressing BS3)*



press BS3 once. *LED status (after pressing BS3)*

11. Check that all leds on the Inverter Analyzer are lit; if not, replace the inverter board, refer to "Replacing PCB A1P" on page 216 or "Replacing PCB A1P (1~ ERLQ011-016CV3 only)" on page 220.
12. Switch off the Daikin Altherma LT-CB via the user interface.
13. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
14. Confirm that LED's on the inverter analyzer stopped blinking and wait for 10 seconds, while the capacitors discharge.
15. Switch off the main power to the unit.
16. Disconnect the inverter analyzer from the U V W wiring.

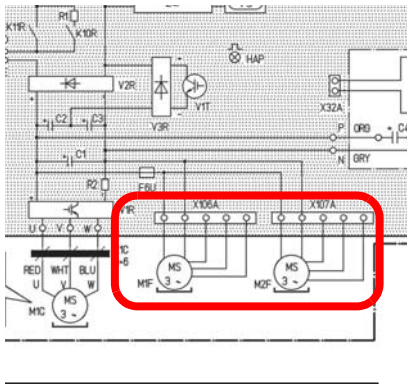
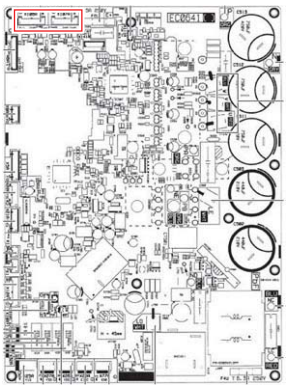
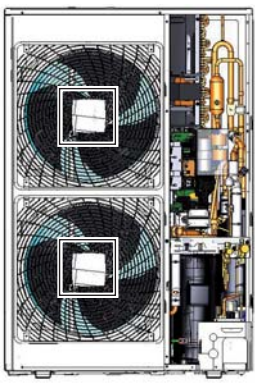
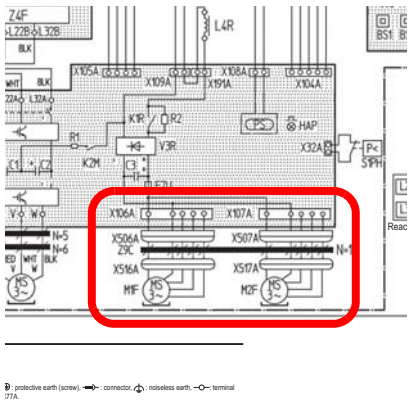
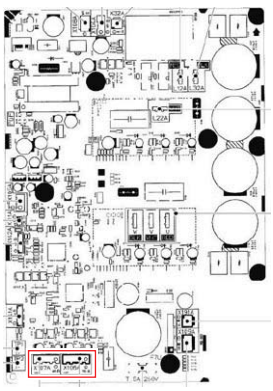
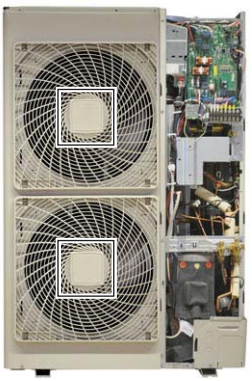
	**CAUTION** When wiring the compressor, observe UV W as indicated on the compressor.

17. Re-connect the U V W leads to the compressor.

6.10. Fan motors M1F, M2F

Technical specification	Description
The motor has a single connector for DC power and the rotation counter feed back from the integrated pulse generator (4 pulses/revolution).	The fan motor runs on a fixed speed to supply the required air flow rate.

Location

Wiring diagram single phase	PCB A1P	Unit
		
Wiring diagram three phase	**PCB A2P**	**Unit**
		

Check procedure

Mechanical check

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the air discharge grill of the appropriate fan, refer to "Replacing the propeller fan" on page 213.
4. Check the state of the propeller, replace the propeller if damaged, deformed, cracked or broken, refer to "Replacing the propeller fan blade assembly" on page 186.
5. Check the motor friction, only perform electrical check if motor runs with low friction. Replace fan motor if friction is abnormal, refer to "Replacing the DC fan motor assembly" on page 187.

Electrical check

General

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.

4. Check fuse FU6 on PCB A1P (1 phase) of FU7 on PCB A2P (3 phase), replace if blown.

5. Check if connectors X106A and X107A are plugged into PCB A1P (1 phase) of FU7 on PCB A2P (3 phase).

6. Check if connector X516A is plugged into X506A (3 phase version only).

7. Check if connector X517A is plugged into X507A (3 phase version only).

8. Power the outdoor unit.

9. Check power supply on X1M, the measured voltage from L1/L2/L3 - neutral must be 180 - 240 VAC.

Fan does not rotate

1. Confirm via D-checker that fan gets on ON signal.

2. Measure the voltage on X106A/X107A: pin 4 - 7.
   If the measured voltage does not equal 300 VDC +/- 30 VDC, disconnect X106A/X107A and check the inverter PCB (A1P for single phase, A2P for three phase), refer to "Inverter PCB A1P (single phase/A2P three phase)" on page 110.
   If the inverter PCB check is OK, replace the fan motor, refer to "Replacing the fan motor" on page 214.
   If the inverter PCB check is not OK, replace the inverter PCB, refer to "Replacing PCB A1P" on page 216 or "Replacing PCB A1P (1~ ERLQ011-016CV3 only)" on page 220.

3. Measure the voltage on X106A/X107A: pin 4 - 3.
   If the measured voltage does not equal 15 VDC, disconnect X106A/X107A and measure again on the inverter PCB connector (A1P for single phase, A2P for three phase).
   If the voltage measured on the PCB connector equals 15 VDC, replace the fan motor, refer to "Replacing the fan motor" on page 214.
   If the voltage measured on the PCB connector does not equal 15 VDC, replace the inverter PCB, refer to refer to "Replacing PCB A1P" on page 216 or "Replacing PCB A1P (1~ ERLQ011-016CV3 only)" on page 220.

Fan rotates for a short time

1. Confirm via D-checker that fan gets on ON signal.

2. Measure the voltage on X106A/X107A: pin 4 - 7.
   If the measured voltage does not equal 300 VDC +/- 30 VDC, disconnect X106A/X107A and check the inverter PCB (A1P for single phase, A2P for three phase), refer to "Inverter PCB A1P (single phase/A2P three phase)" on page 110.
   If the inverter PCB check is OK, replace the fan motor, refer to "Replacing the fan motor" on page 214.
   If the inverter PCB check is not OK, replace the inverter PCB, refer to refer to "Replacing PCB A1P" on page 216 or "Replacing PCB A1P (1~ ERLQ011-016CV3 only)" on page 220.

3. Measure the voltage on X106A/X107A: pin 4 - 3.
   If the measured voltage does not equal 15 VDC, disconnect X106A/X107A and measure again on the PCB connector.
   If the voltage measured on the PCB connector equals 15 VDC, replace the fan motor, refer to "Replacing the fan motor" on page 214.
   If the voltage measured on the PCB connector does not equal 15 VDC, replace the inverter PCB, refer to refer to "Replacing PCB A1P" on page 216 or "Replacing PCB A1P (1~ ERLQ011-016CV3 only)" on page 220.

4. Measure the voltage on X106A/X107A: pin 4 - 2.
   If the voltage measured equals 0 VDC, replace the inverter PCB, refer to "Replacing PCB A1P" on page 216 or "Replacing PCB A1P (1~ ERLQ011-016CV3 only)" on page 220.
   If the voltage measured is between 0 - 10 VDC, replace the fan motor, refer to "Replacing the fan motor" on page 214.

5. Switch off the unit via the user interface.

6. Manually revolve the fan propeller slowly 1 turn (in about 4 seconds) and check that 4 pulses of 5 VDC are measured on X106A/X107A: pin 2 - 1.
   If no pulses are detected, replace the fan motor, refer to "Replacing the fan motor" on page 214.
   If pulses are detected, replace the PCB A1P (refer to "Replacing PCB A1P" on page 216 or "Replacing PCB A1P (1~ ERLQ011-016CV3 only)" on page 220.

Part 3. Repair

1. General Repair procedures

Refrigerant handling procedures 115
Pipe work procedures 119
Products 120
Tools 120

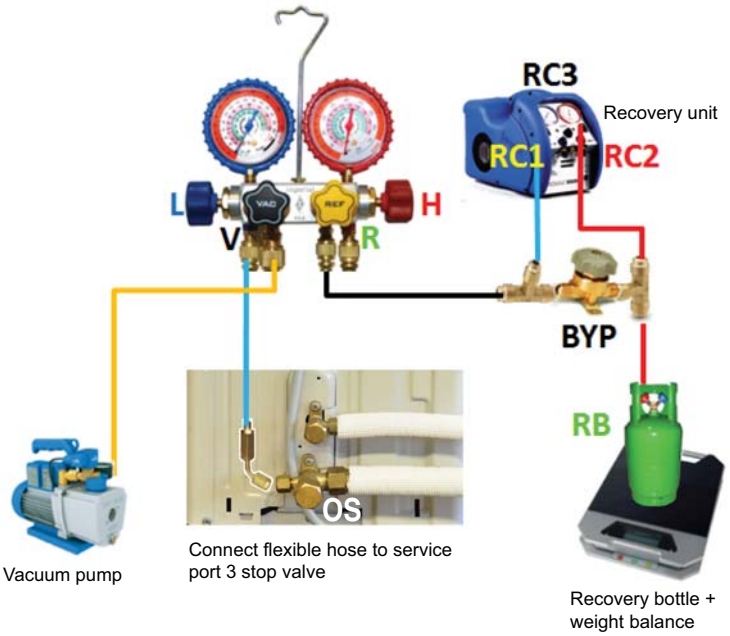
1.1. Refrigerant handling procedures

- Make sure the applied pressure is never higher than the unit design pressure as indicated on the nameplate.
- Work according the F-gas regulation and/or local regulations.
- Make sure the correct amount (factory + additional where required) of refrigerant is charged after repair.
- Make sure to use the appropriate equipment and tools according to the refrigerant and unit type.
- Charge non-azeotropic refrigerant (e.g. R-410A) always in a liquid state.
- Make sure to use a digital scale (no charging cylinder).
- Execute correct vacuum drying procedure after repair work:
  - -0,1 MPa / -760 mmHg / -750 Torr for at least 1 hour.
  - Use both gas and liquid pipe connection.
  - Use related field setting where necessary.

1.1.1. Refrigerant recovery

1.1.1.1 Small Outdoor unit ERLQ04-08CAV3

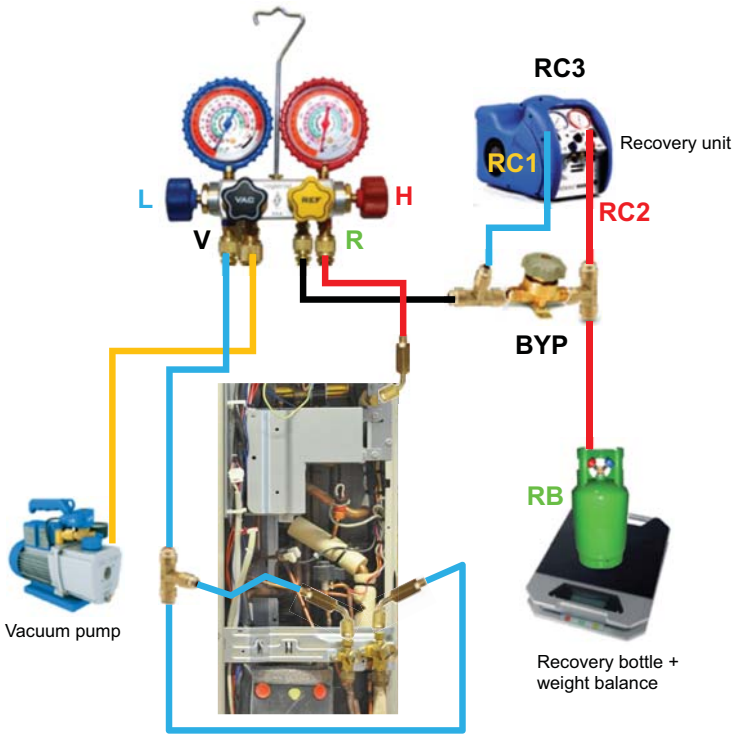
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Manually open the expansion valve (located on the outdoor unit).
3. Connect the vacuum pump, manifold, recovery unit and refrigerant bottle to the serviceport as shown below.



	Service port outdoor	Valve manifold				Valve recovery unit			Valve bottle	Operate	
Purpose	OS	L	V	H	BYP	RC1	RC2	RC3	RB	VP	RU
Connections	C	C	C	C	C	C	C	Rec	C	×	×
Vacuuming	C	O	O	O	O	O	O	Rec	C	✓	×
End vacuuming	C	O	C	O	C	O	O	Rec	O	×	×
Recover liquid	O	C	O	O	C	1/2	O	Rec	O	×	✓
Recover gas	O	C	O	O	C	O	O	Rec	O	×	✓
Purge	C	C	C	C	C	*	O	Pur	O	×	✓
Disconnect	C	C	C	C	C	C	C	Rec	C	×	×
OS= outdoor suction, C= closed, O= open, BYP= Bypass, RC1/2/3= Recovery unit Connection 1/2/3, 1/2: between indication “liquid” & “gas”, Rec= recovery, Pur: purge, VP= vacuum pump, RU= recovery unit, * Change Inlet valve RC1 gradually to “purge” when pressure drops											

1.1.1.2 Large Outdoor unit ERLQ11-16CAV3/W1, ERHQ11-16BAV3/W1

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Manually open the expansion valve (located on the outdoor unit).
3. Connect the vacuum pump, manifold, recovery unit and refrigerant bottle to the serviceport as shown below.



	Service port outdoor			Valve manifold					Valve recovery unit			Valve bottle	Operate	
Purpose	1	2	3	L	V	H	R	BYP	RC1	RC2	RC3	RB	VP	RU
Connections	C	C	C	C	C	C	C	C	C	C	Rec	C	×	×
Vacuuming	C	C	C	O	O	O	C	O	O	O	Rec	C	✓	×
End vacuuming	C	C	C	O	C	O	C	C	O	O	Rec	O	×	×
Recover liquid	O	C	O	C	O	O	O	C	1/2	O	Rec	O	×	✓
Recover gas	C	O	O	C	O	O	O	C	O	O	Rec	O	×	✓
Purge	C	C	C	C	C	C	C	C	*	O	Pur	O	×	✓
Disconnect	C	C	C	C	C	C	C	C	C	C	Rec	C	×	×
OS= outdoor suction, C= closed, O= open, BYP= Bypass, RC1/2/3= Recovery unit Connection 1/2/3, 1/2: between indication “liquid” & “gas”, Rec= recovery, Pur: purge, VP= vacuum pump, RU= recovery unit, * Change Inlet valve RC1 gradually to “purge” when pressure drops														

1.1.2. Refrigerant pump down

This unit is equipped with an automatic pump down operation which will collect all refrigerant from the field piping and hydro-box in the outdoor unit. To protect the environment, make sure to perform the following pump down operation when relocating or disposing of the unit.

INFORMATION

The outdoor unit is equipped with a low pressure sensor to protect the compressor by switching it off.
Never short-circuit the low pressure sensor during pump down operation!

1.1.2.1 Small Outdoor unit ERLQ04-08CAV3

1. Remove the valve lid from liquid stop valve and gas stop valve.
2. Carry out forced cooling operation by pressing SW3 on the service PCB.
3. After 5-10 min (after only 1-2 min in case of very low Ta < -10°C), close the liquid stop valve with a hexagonal wrench.
4. Check on the manifold if vacuum is reached.
5. After 2-3 minutes, close gas stop valve and stop forced cooling operation by pressing forced cooling operation switch SW3 on the service PCB again.

1.1.2.2 Large Outdoor unit ERLQ11-16CAV3/W1, ERHQ11-16BAV3/W1

1. Stop space and DHW demand (all screens of user interface OFF) and select Max pump speed via Actuator test run (A.7.4.6).
2. Switch-OFF / ON the power supply of the outdoor unit.
3. Activate "pump down/forced defrost" on outdoor service PCB via BS4, press for at least 5 seconds.
4. The compressor and outdoor fan will start automatically.
5. Request space heating via remote controller on hydro-box asap, in order to activate the circulation pump (prevent PHE freeze-up) and allow backup heater operation if required.
6. a. Forced defrost can be stopped by pressing BS4 on outdoor PCB.

   b. Once operation stops (after 3 to 5 minutes), close the liquid and the gas stop valve.
7. Pump down is now finished. U4 may be displayed on the remote controller, this is not a malfunction.
8. After "pump down/forced defrost" is finished or stopped, keep the circulation pump running for at least 5 minutes.
9. Switch-OFF the power supply of the outdoor unit.

NOTE

- Make sure that the water temperature and volume is sufficient to perform the "pump down/forced defrost" operation.
- Make sure to re-open both stop valves before restart operation of the unit.
- After a finished or stopped pump down, the unit will perform a test run at first operation (same as during commissioning).
- On the ERLQ*CA* models, the circulation pump will run automatically (step 5 not needed).
- During forced cooling, water temperature should remain higher than 5°C, to avoid freeze-up of the hydrobox heat exchanger. (Recommended forced pump operation during pump down).
- Forced defrost can also be enabled through setting A.6.6. on the user interface.

1.2. Pipe work procedures

- Make sure to cover open pipe ends during work so no dust or moisture can enter.
- Make sure to re-apply insulation removed during repair.
- Pipe expansion / flare making:
  - Remove any burrs on the cut surface and use correct tool such as reamer or scraper (note that excessive deburring can thin the pipe walls and cause cracking of the pipe).
  - Make sure the flare has the correct size (use a flare gauge).
  - Make sure no particles remain in the piping.
  - Apply refrigerant oil on the inner surface of the flare.
  - Make sure the flare connection is tightened with the correct torque (torque values refer to installation manual).
- Brazing:
  - Use correct brazing tool.
  - Use a phosphor copper filler metal (silver composition of 0 to 2%). Do not use flux material.
  - Use nitrogen replacement in order to prevent oxide film from forming (nitrogen purity ≥ 99,99%).
  - Do not stop the nitrogen gas until the refrigerant piping has completely cooled down.

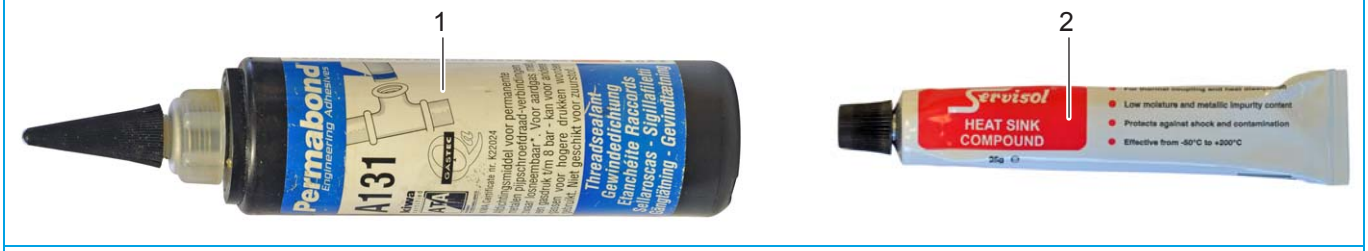
1.3. Products

1.3.1. Required products when servicing the Daikin Altherma LT-CB

Some Daikin Altherma LT-CB parts are sealed and must be sealed again after replacement. Only use the same thread sealant (1) whenever required.

When replacing R10T it might be necessary to apply some heat sink compound (2).

Figure 3 - Required products



1. Thread sealant (Permabond A131, local supply)
2. Heat sink compound (Part number 999308P)

1.4. Tools

1.4.1. Required special tooling when servicing the Daikin Altherma LT-CB

Daikin strongly recommends to use special tools to avoid damage to the equipment or to facilitate the replacement of certain spare parts.

Figure 4 - Required tools



1. Cooling clamp
2. Pliers wrench (Knipex 86 03 300 or equivalent)
3. Pliers wrench (Knipex 87 05 300 or equivalent)
4. Welding blanket

2. Unit specific repair procedures FLOORSTANDING

2.1. Unit specific procedures

Removing the front panel....121
Removing the top panel....122
Removing the switch box cover....123
Draining the water circuit....124
Air purge of the space heating circuit....125
Draining the domestic hot water tank....125

2.1.1. Removing the front panel

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.

WARNING

The front panel is heavy. Be careful not to jam your fingers when opening the unit.

3. Loosen and remove the 2 screws (1) at the bottom of the unit that fix the front panel (2).
4. Press the retractable pin (3) to unlock the front panel (2).

CAUTION

When sliding the front panel, be careful not to bend the front panel fingers.

5. Slide the front panel downwards and remove it from the unit.

Figure 5 - Removing the front panel



1. Screw
2. Front panel
3. Retractable pin

2.1.2. Removing the top panel

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Loosen and remove the 4 screws (1) that fix the top panel.
4. Lift and remove the top panel (2) from the Daikin Altherma LT-CB.

Figure 6 - Removing the top panel



1. Screw
2. Top panel

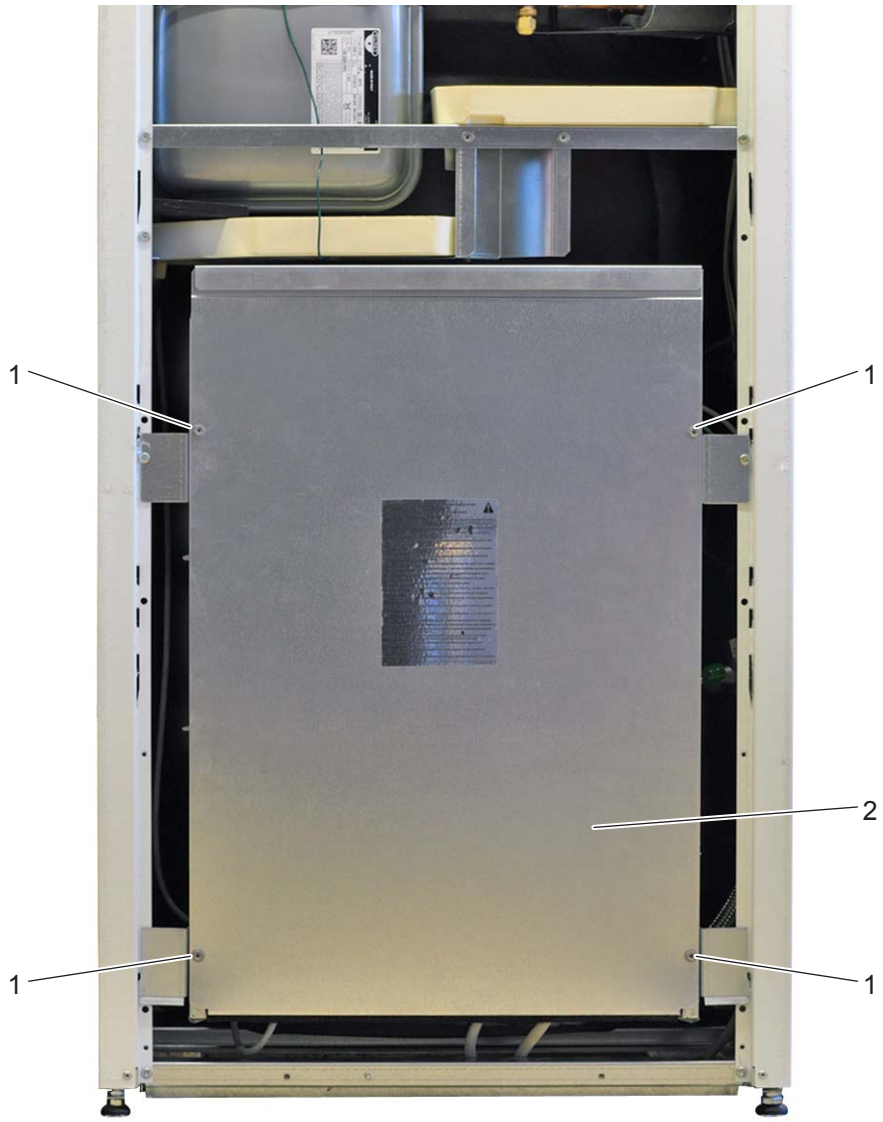
2.1.3. Removing the switch box cover

WARNING

Electrical shock hazard. Remove power from the Daikin Altherma LT-CB before removing the switch box cover. Do not touch terminals.

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Loosen and remove the 4 screws (1) that fix the switch box cover (2).
5. Remove the switch box cover (2) from the Daikin Altherma LT-CB.

Figure 7 - Removing the switch box cover



1. Screw
2. Switch box cover

2.1.4. Draining the water circuit

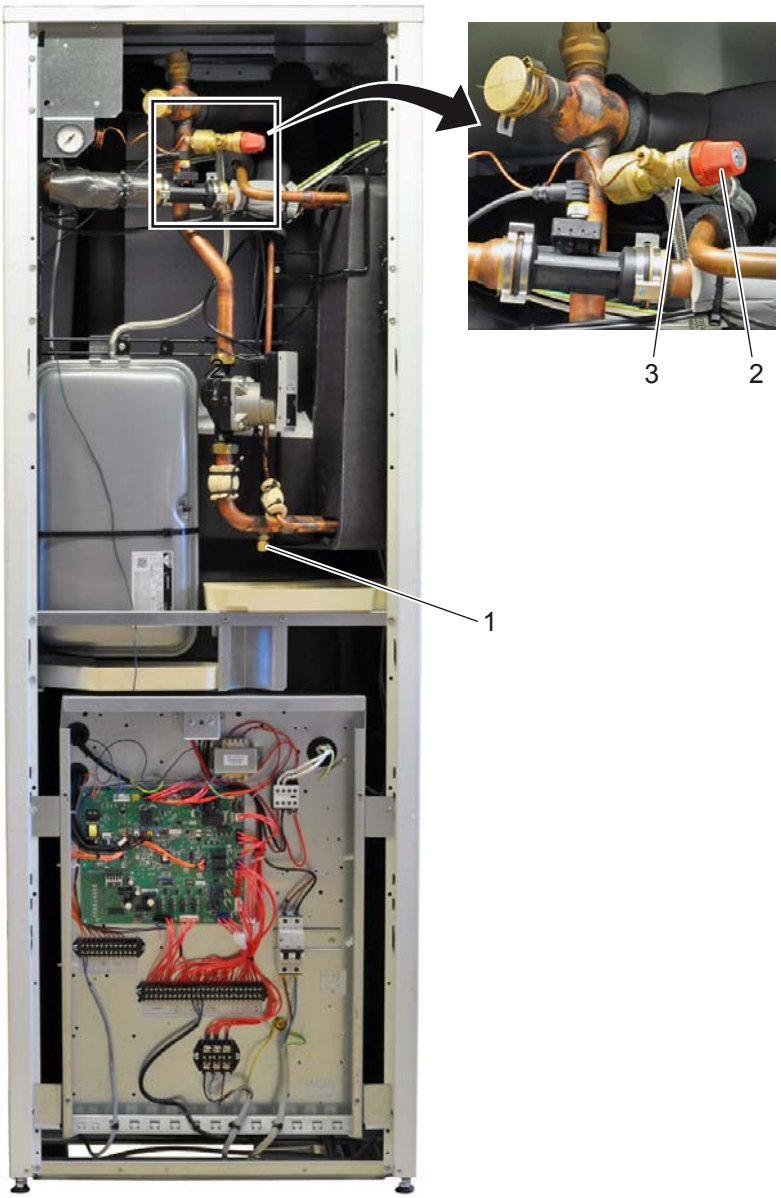
2.1.4.1 Procedure

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Close the field supplied water shut off valve.
4. Remove the front panel, refer to "Removing the front panel" on page 121.

	**WARNING: RISK OF BURNING** The water inside the water circuit can be hot.

5. Open the drain valve (1).
6. Turn the red knob (2) of the pressure relief valve (3) to allow air to enter into the water circuit.

Figure 8 - Draining the water circuit



1. Drain valve
2. Red knob
3. Pressure relief valve

2.1.5. Air purge of the space heating circuit

To perform an air purge of the space heating circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB installer reference guide.

2.1.6. Draining the domestic hot water tank

INFORMATION

The hot water tanks has a capacity of 180 to 260 litre.

2.1.6.1 Procedure

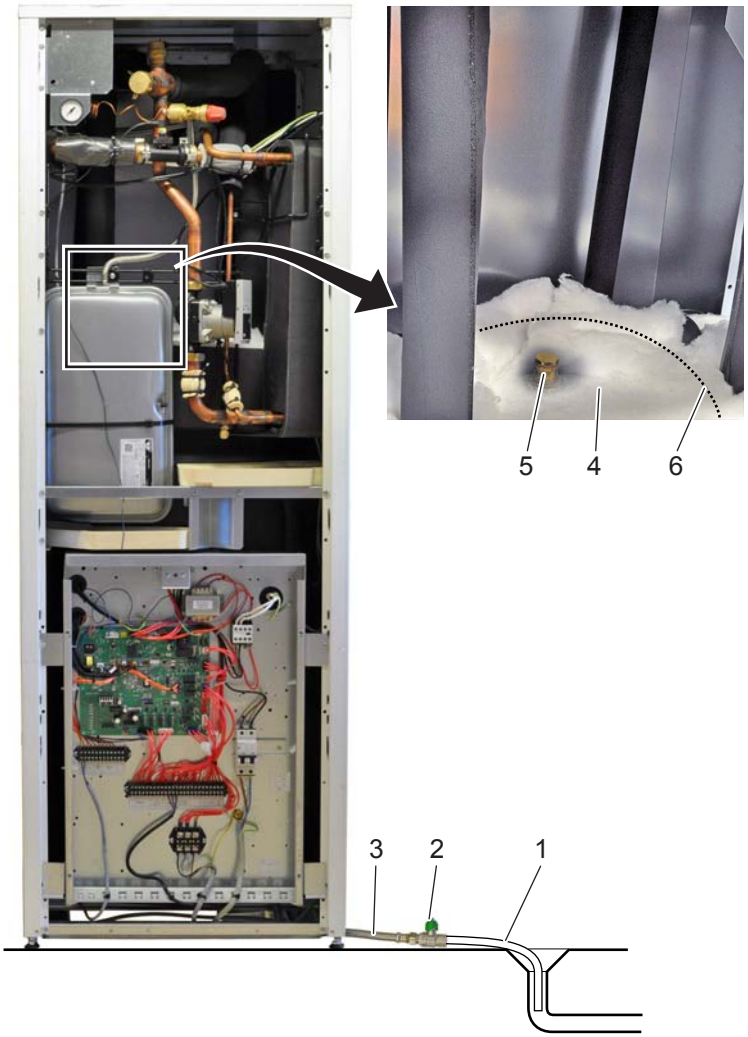
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Close the field supplied water shut off valve.
4. Remove the front panel, refer to "Removing the front panel" on page 121.

WARNING: RISK OF BURNING

The water inside the hot water tank can be hot.

5. Connect a hose (1) to the drain hose (3).
6. Place the end of the hose (1) in a drain.
7. Open the drain valve (2) on the drain hose (3).
8. Put aside the hot water tank insulation (4) and loosen (but do not remove) the nut (5) to allow air to enter into the hot water tank (6).

Figure 9 - Draining the domestic hot water tank



1. Hose
2. Drain valve
3. Drain hose
4. Hot water tank insulation
5. Nut
6. Hot water tank

2.2. Parts replacement procedures

Overview of parts replacement procedures:

Replacing the A1P PCB in the switch box 127
Cleaning the water filter 129
Replacing the water flow sensor 131
Replacing the backup heater 133
Replacing the thermal protector backup heater 137
Replacing the water pressure relief valve 139
Replacing the water pump 140
Replacing the expansion vessel 143
Replacing the 3-way valve motor 144
Replacing the 3-way valve body 146
Replacing the manometer 148
Replacing a thermistor 149
Replacing the plate type heat exchanger 153

2.2.1. Replacing the A1P PCB in the switch box



WARNING

Electrical shock hazard. Remove power from the Daikin Altherma LT-CB before removing the switch box cover.

Do not touch terminals.

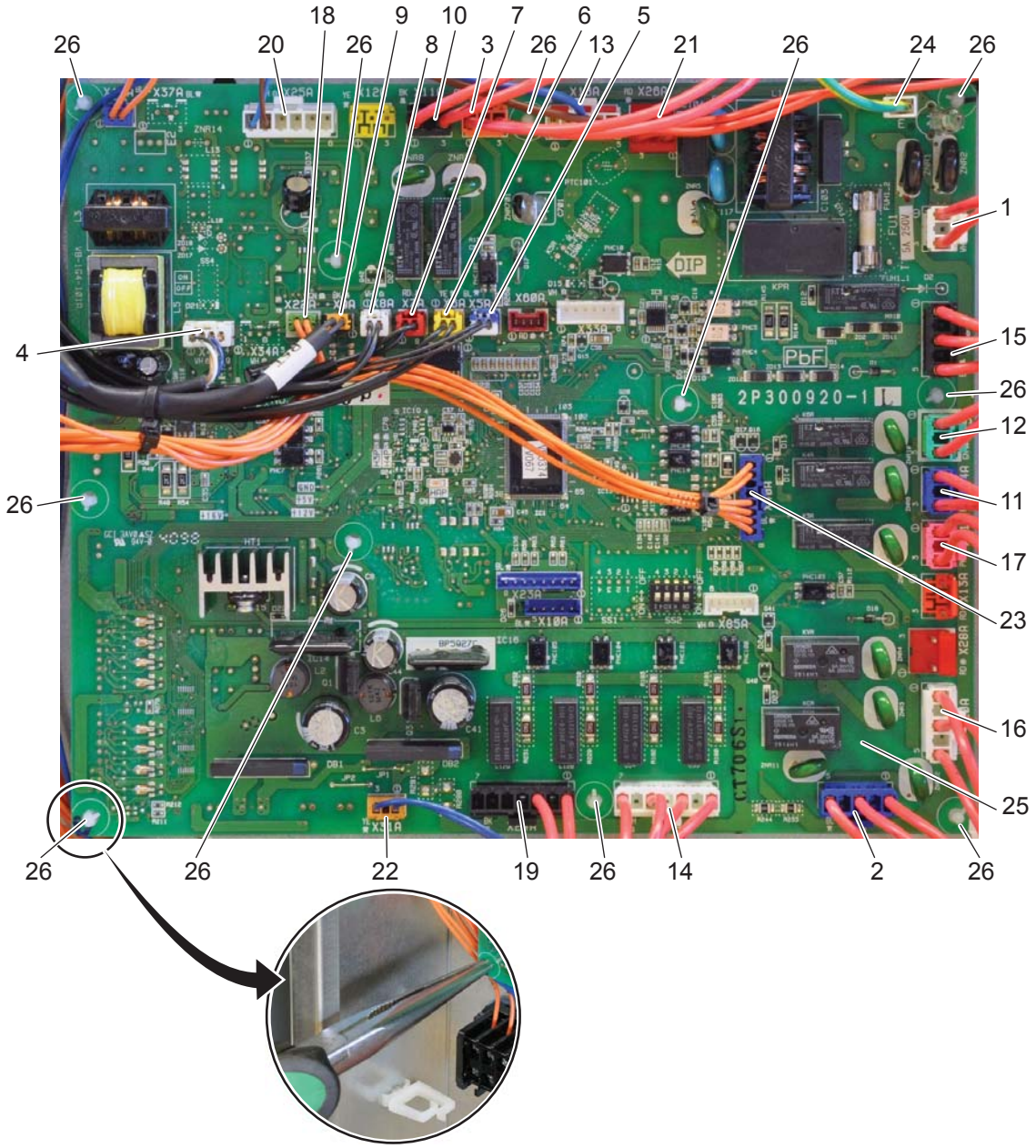
2.2.1.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Remove the switch box cover, refer to "Removing the switch box cover" on page 123.

Removal

1. Unplug connectors X1A (1), X2A (2), X3A (3), X4A (4), X5A (5), X6A (6), X7A (7), X8A (8), X9A (9), X11A (10), X11A (10), X14A (11), X15A (12), X16A (13), X17A (14), X19A (15), X20A (16), X21A (17), X22A (18), X22A (19), X25A (20), X26A (21), X31A (22), X40A (23) and the ground wire (24) from the A1P PCB (25).
2. Carefully pull the A1P PCB (25) and unlatch the 11 pcb supports (26) one by one using a small pliers.
3. Remove the A1P PCB (25).

Figure 10 - Replacing the A1P PCB



1. X1A	10. X11A	19. X24A
2. X2A	11. X14A	20. X25A
3. X3A	12. X15A	21. X26A
4. X4A	13. X16A	22. X31A
5. X5A	14. X17A	23. X40A
6. X6A	15. X19A	24. Ground wire
7. X7A	16. X20A	25. A1P PCB
8. X8A	17. X21A	26. PCB support
9. X9A	18. X22A	

Installation

1. Proceed in reverse order.

2.2.2. Cleaning the water filter

2.2.2.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Partially drain the water circuit, refer to "Draining the water circuit" on page 124.

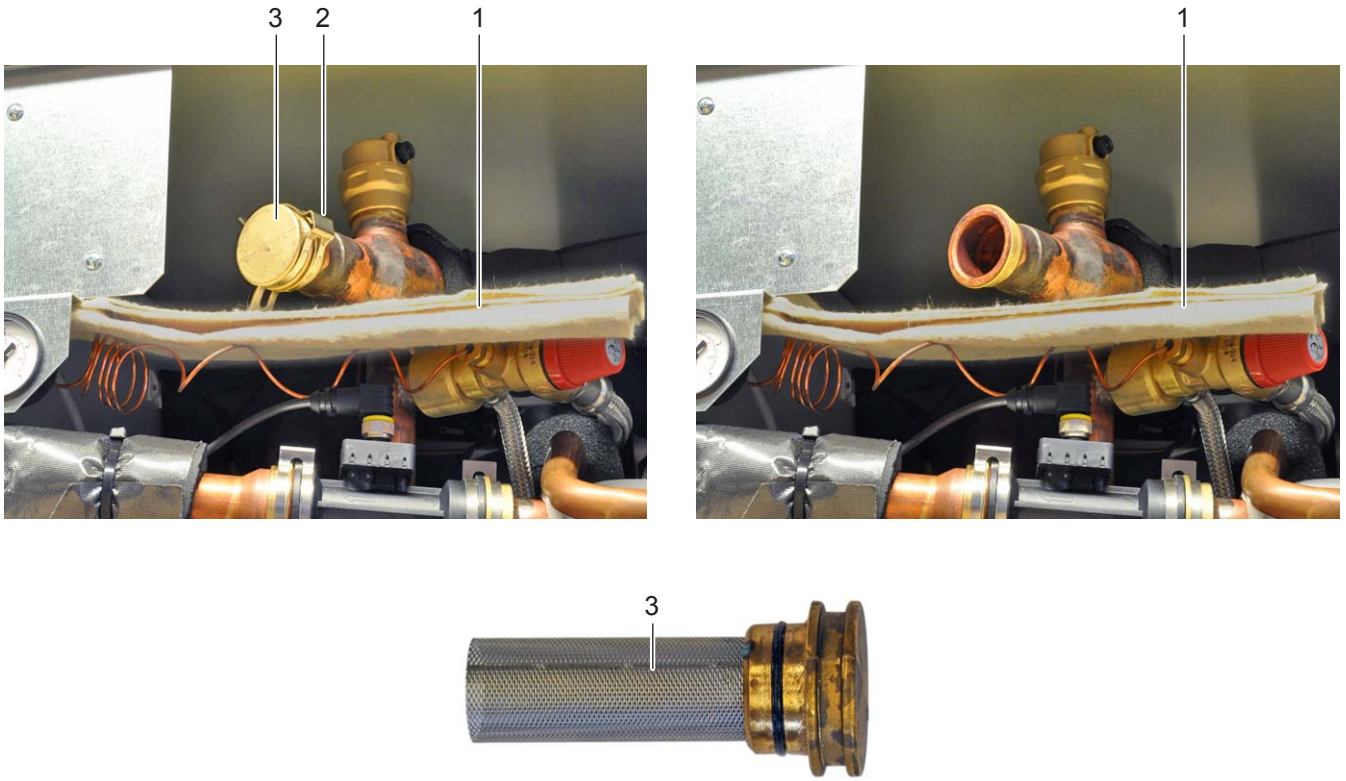
2.2.2.2 Procedure

Removal

> **CAUTION**
>
> Although the water circuit is partially drained, some water may be spilled when removing the water filter. Always wipe off spilled water.

1. Place a cloth (1) under the water filter (3).
2. Remove the clip (2) that fixes the water filter (3).
3. Pull the water filter (3) to remove it from the filter housing.
4. Clean the water filter (3) with water and a soft brush.

Figure 11 - Cleaning the water filter



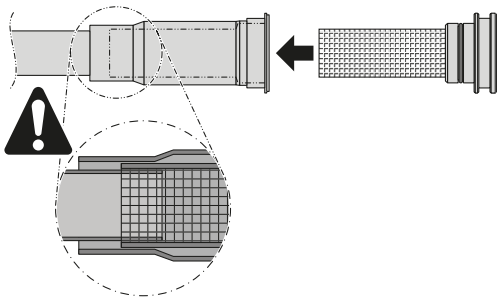
1. Cloth
2. Clip
3. Water filter

Installation

⚠	**CAUTION** Apply some Molykote 111 silicone-based compound to the O-ring before installation.

⚠	**CAUTION** Handle the water filter with care. Do NOT use excessive force when you reinsert the water filter so as NOT to damage the mesh.

Figure 12 - Water filter installation



1. Proceed in reverse order.
2. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
3. Purge the water circuit, refer to “Air purge function on the space heating circuit “in the Daikin LT-CB Installer reference guide.

2.2.3. Replacing the water flow sensor

2.2.3.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Partially drain the water circuit, refer to "Draining the water circuit" on page 124.

2.2.3.2 Procedure

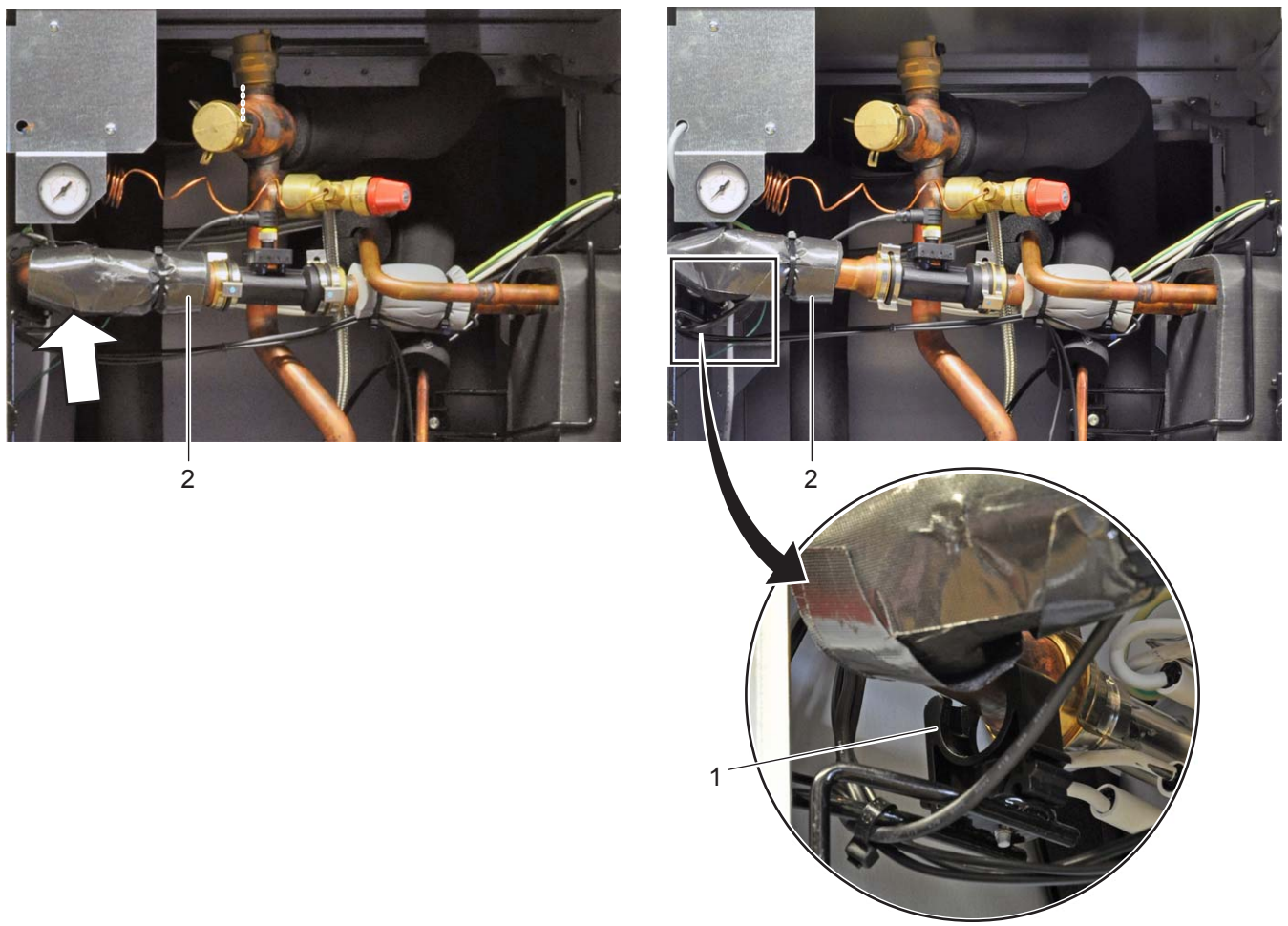
Removal

INFORMATION

To improve the manoeuvrability of the piping connecting the water flow sensor, the piping will be removed from the pipe clamp.

1. Carefully press the water pipe (2) upwards to remove it from the pipe clamp (1).

Figure 13 - Removing the water pipe from the pipe clamp



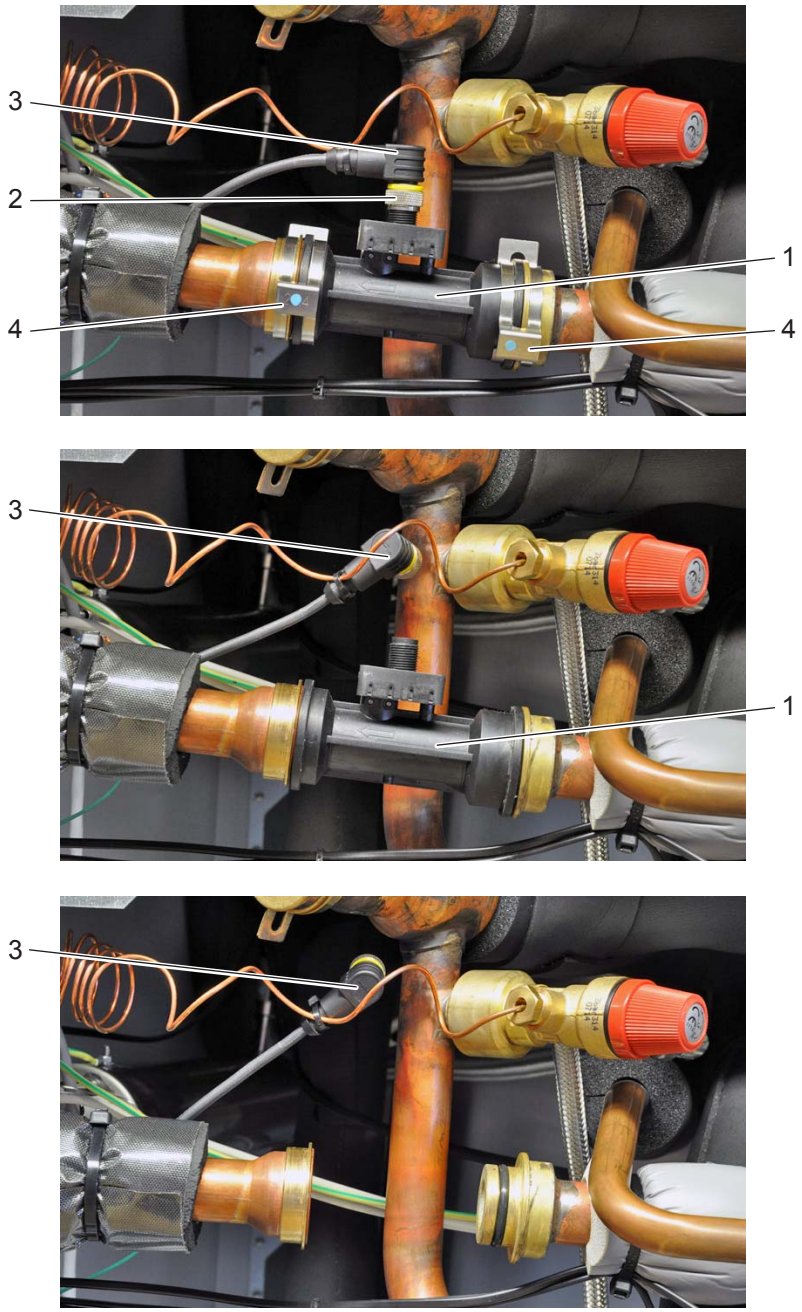
1. Pipe clamp
2. Pipe

2. Loosen the water flow sensor connector nut (2).
3. Unplug the water flow sensor connector (3).
4. Remove the 2 clips (4) that fix the water flow sensor (1).

5. Remove the water flow sensor (1).

6. Wipe off any spilled water.

Figure 14 - Replacing the water flow sensor



1. Water flow sensor
2. Water flow sensor connector nut
3. Water flow sensor connector
4. Clip

7. Cut all tie wraps that fix the flow sensor harness.

8. Unplug X4A from A1P and guide the flow sensor harness out of the switch box.

9. Remove the flow sensor harness.

Installation

> **CAUTION**
> Apply some Molykote 111 silicone-based compound to the O-rings before installation.

> **INFORMATION**
> Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.
2. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
3. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

2.2.4. Replacing the backup heater

2.2.4.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Remove the top panel, refer to "Removing the top panel" on page 122.
5. Remove the switch box cover, refer to "Removing the switch box cover" on page 123.
6. Drain the water circuit, refer to "Draining the water circuit" on page 124.

2.2.4.2 Procedure

Removal

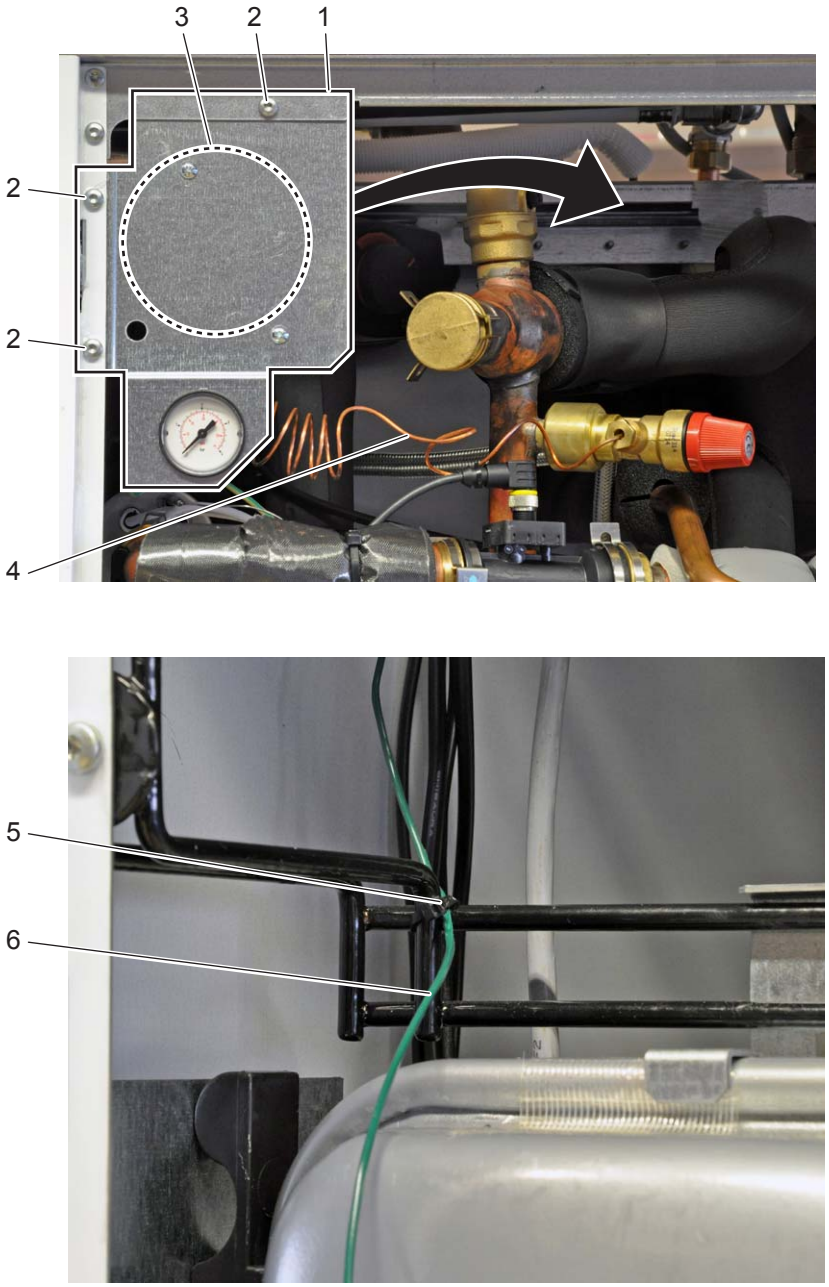
> **INFORMATION**
> To improve the accessibility of the backup heater, the manometer support plate will be detached from the frame.

1. Loosen and remove the 3 screws (2) that fix the manometer bracket (1).

> **CAUTION**
> - Be careful when moving the manometer support aside, the manometer is still connected by means of the capillary (4).

2. Move the manometer bracket (1) away from the backup heater (3).
3. Cut the tie wrap (5) that fixes the thermal protector backup heater capillary (6)

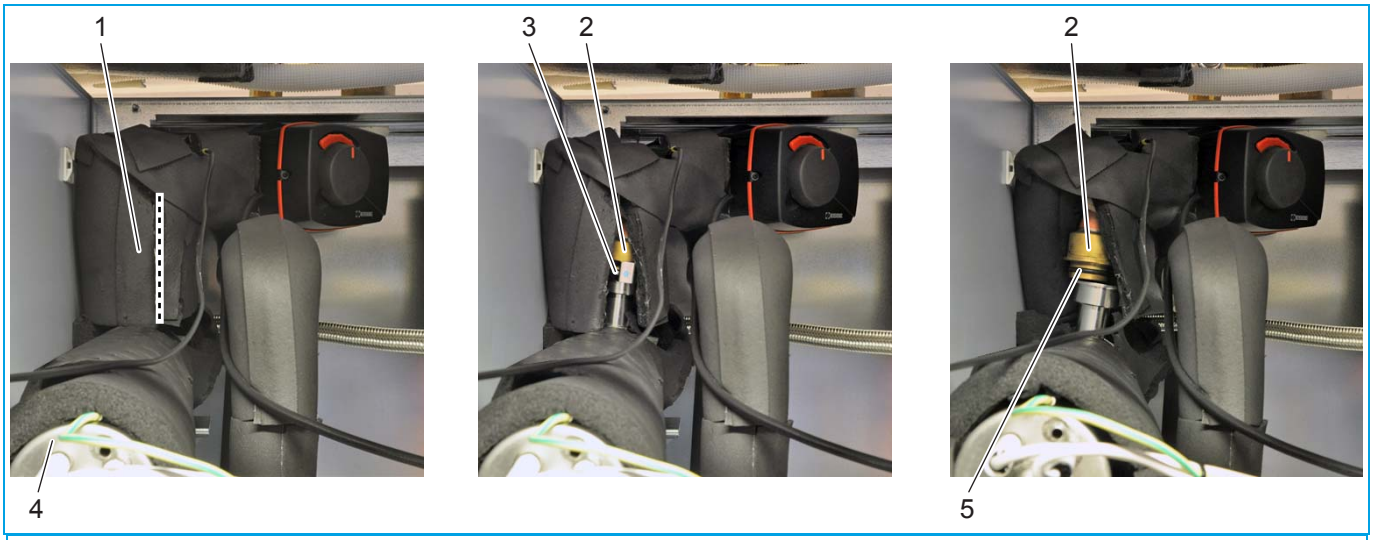
Figure 15 - Removing the manometer bracket - 1



1. Manometer bracket
2. Screw
3. Backup heater (behind user interface mounting plate)
4. Manometer capillary
5. Tie wrap
6. Thermal protector backup heater capillary

4. Cut the insulation (1) that covers the rear backup heater coupling (2).
5. Open the insulation (1) and remove the clip (3) from the backup heater coupling (2).
6. Separate the backup heater (4) from the rear backup heater coupling (2).

Figure 16 - Removing the backup heater - 2



1. Insulation
2. Rear backup heater coupling
3. Clip
4. Backup heater
5. O-ring

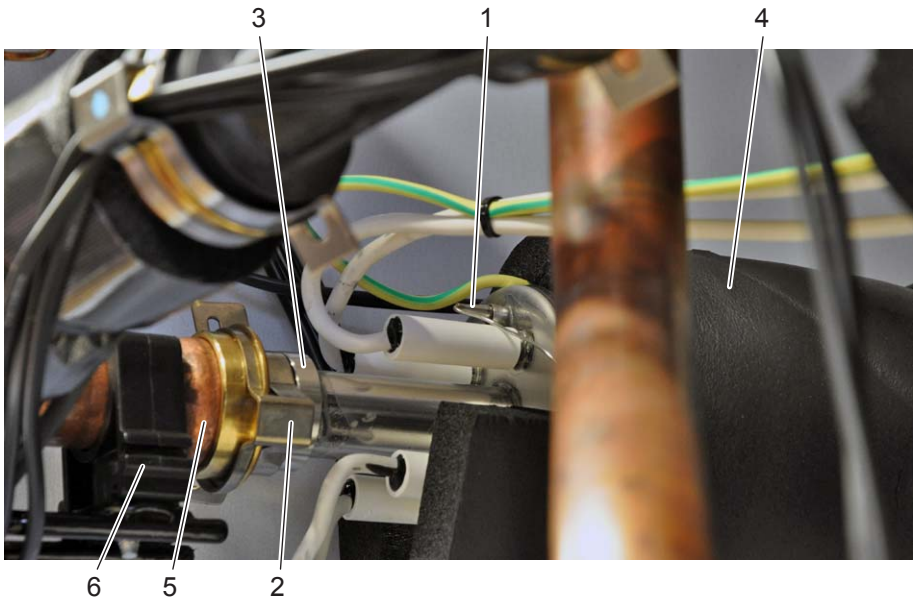
7. Remove the thermal protector backup heater (1) from the backup heater (4).
8. Remove the clip (2) from the front backup heater coupling (3).

INFORMATION

To improve the manoeuvrability of the backup hater, the backup heater piping will be removed from the pipe clamp.

9. Remove the pipe (5) from the pipe clamp (6).
10. Separate the backup heater (4) from the front backup heater coupling (3).

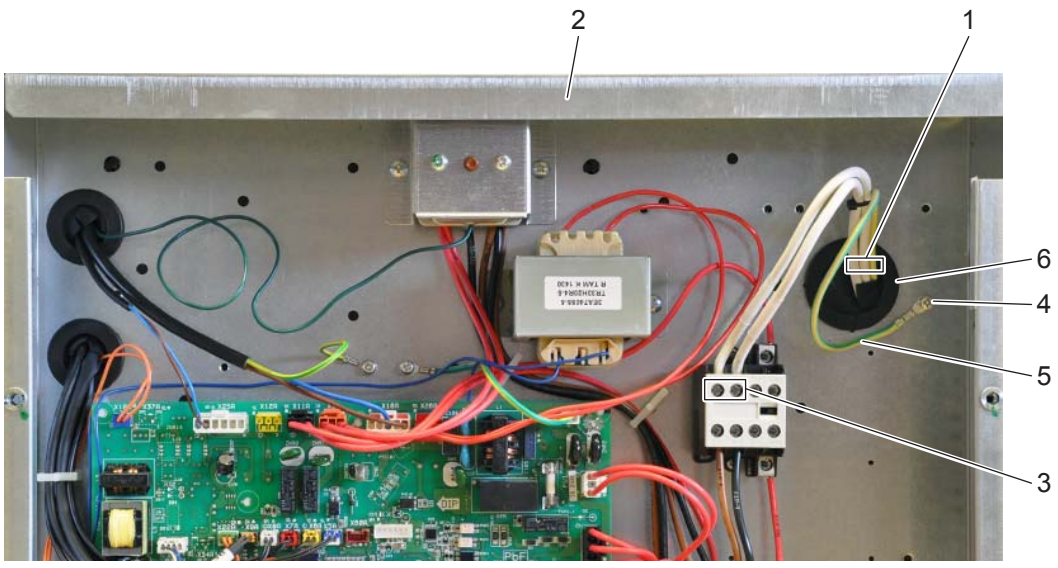
Figure 17 - Removing the backup heater - 3



1. Thermal protector backup heater
2. Clip
3. Front backup heater coupling
4. Backup heater
5. Pipe
6. Pipe clamp

11. Loosen the wire terminals (3) and remove the backup heater wiring (1).
12. Loosen and remove the screw (4) that fixes the backup heater ground wire (5).
13. Remove the backup heater wiring (1) through the grommet (6).
14. Cut all tie wraps that fix the backup heater wiring (1).
15. While guiding the backup heater wiring (1), remove the backup heater from the Daikin Altherma LT-CB.

Figure 18 - Removing the backup heater - 4



1. Backup heater wiring
2. Switch box
3. Wire terminals
4. Screw
5. Backup heater ground wire
6. Grommet

Installation

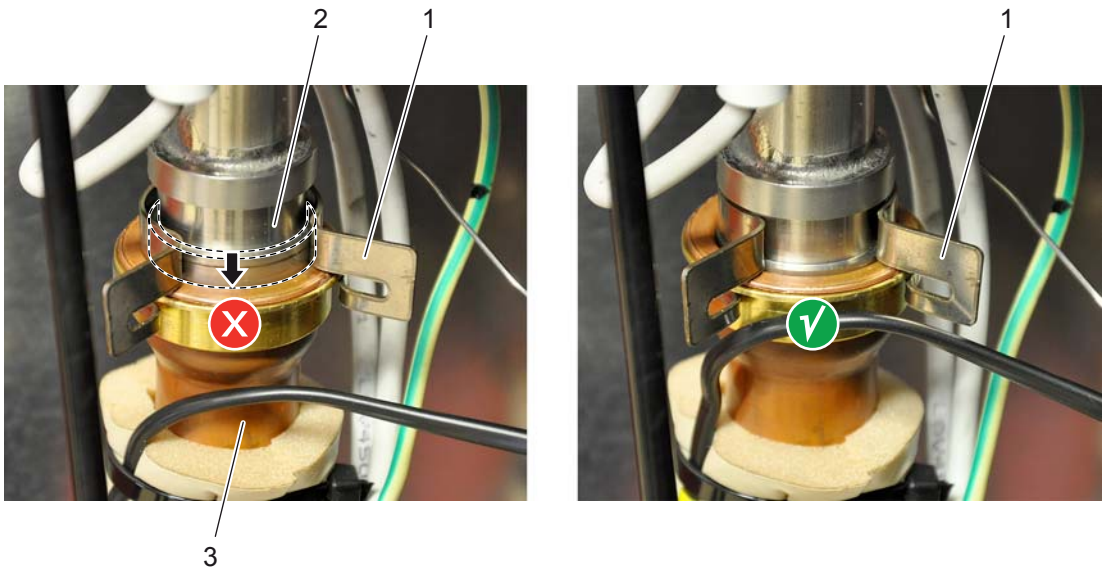
> **INFORMATION**
>
> Take care not to damage the backup heater insulation during installation.
> The backup heater wire must be reattached to the rear of the switch box.
> Replace all tie wraps that were cut during removal.
> Restore all insulation.

> **CAUTION**
>
> Apply some Molykote 111 silicone-based compound to the O-rings before installation.

> **CAUTION**
>
> Do not forget to insert the thermal protector backup heater into the backup heater.

1. Proceed in reverse order.
2. Before installing the clip (1), make sure the backup heater pipe (2) is fully inserted into the backup heater coupling (3).

Figure 19 - Clip position



1. Clip
2. Backup heater pipe
3. Backup heater coupling

3. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
4. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

2.2.5. Replacing the thermal protector backup heater

2.2.5.1 Preliminary actions

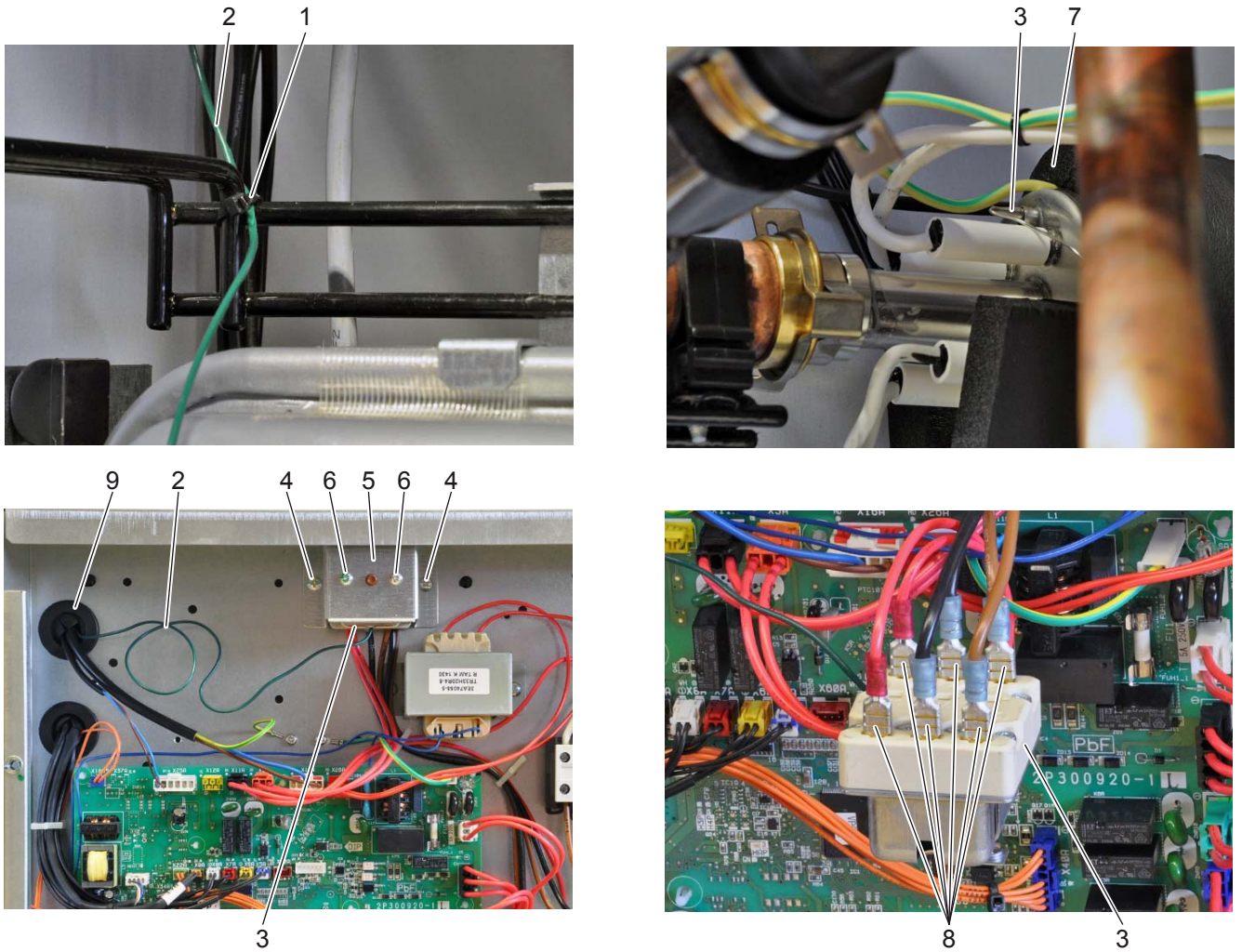
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Remove the switch box cover, refer to "Removing the switch box cover" on page 123.

2.2.5.2 Procedure

Removal

1. Cut the tie wrap (1) that fixes the thermal protector backup heater capillary (2) to the chassis.
2. Pull the thermal protector backup heater (3) out of the backup heater (7).
3. Loosen and remove the 2 screws (4) that fix the thermal protector backup heater bracket (5).
4. Loosen and remove the 2 screws (6) that fix the thermal protector backup heater (3).
5. Remove the wiring from the wire terminals (8) of the thermal protector backup heater (3).
6. Remove the thermal protector backup heater (3) while guiding the capillary (2) through the grommet (9).

Figure 20 - Replacing the thermal protector backup heater



1. Tie wrap
2. Thermal protector backup heater capillary
3. Thermal protector backup heater
4. Screw
5. Thermal protector backup heater bracket
6. Screw
7. Backup heater
8. Wire terminal
9. Grommet

Installation

1. Proceed in reverse order.

2.2.6. Replacing the water pressure relief valve

2.2.6.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Drain the water circuit, refer to "Draining the water circuit" on page 124.

2.2.6.2 Procedure

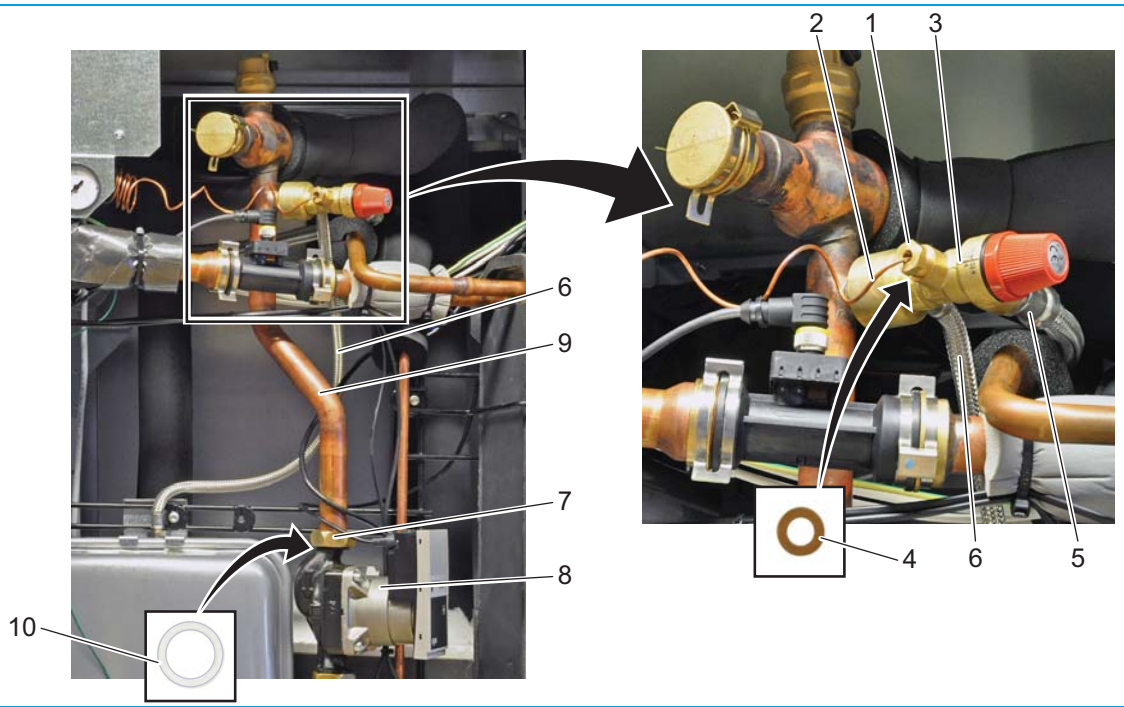
Removal

1. Loosen and remove the nut (1) that fixes the manometer capillary (2) to the water pressure relief valve (3).
2. Remove the seal (4) from the manometer connection.
3. Loosen and remove the water drain hose (5).
4. Loosen and remove the expansion vessel hose (6).

> **INFORMATION**
>
> To improve the manoeuvrability of the water pressure relief valve, the upper nut of the water pump valve will be removed.

5. Completely loosen the upper nut (7) of the water pump (8).
6. Remove the pipe (9) from the water pump, be careful not to loose the seal (10).
7. Screw the water pressure relief valve (3) from the pipe (9).
8. Remove the glue remainder from the threads of the water drain hose (5) and expansion vessel hose (6) with a scraper and a brush.

Figure 21 - Replacing the water pressure relief valve - 1



1. Nut
2. Manometer capillary
3. Water pressure relief valve
4. Seal
5. Water drain hose
6. Expansion vessel hose
7. Nut
8. Water pump
9. Pipe
10. Seal

Installation

> **CAUTION**
> If damaged, replace the seals (4, 10).

1. Proceed in reverse order.
2. Make sure that the pressure relief valve and the water drain hose are reinstalled in their original position.
3. Apply thread sealant (Permabond A131, local supply) to the threads of the water drain hose (5) and expansion vessel hose (6).
4. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
5. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

2.2.7. Replacing the water pump

2.2.7.1 Preliminary actions

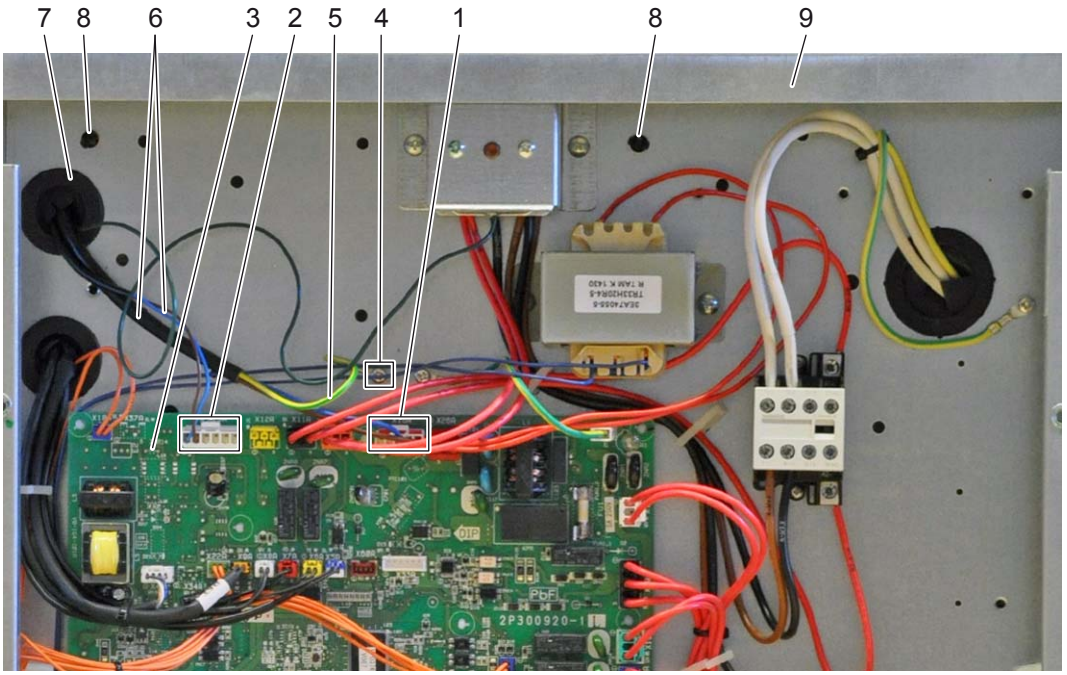
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Remove the switch box cover, refer to "Removing the switch box cover" on page 123.
5. Drain the water circuit, refer to "Draining the water circuit" on page 124.

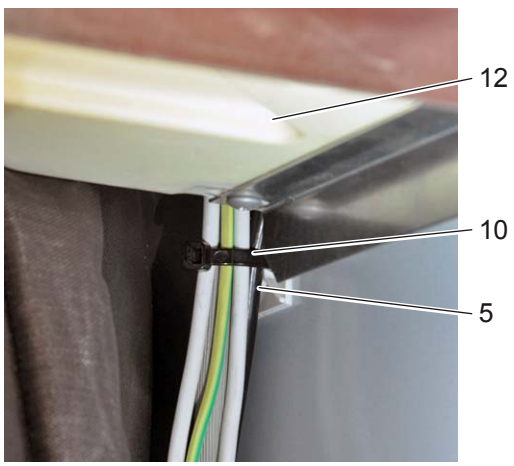
2.2.7.2 Procedure

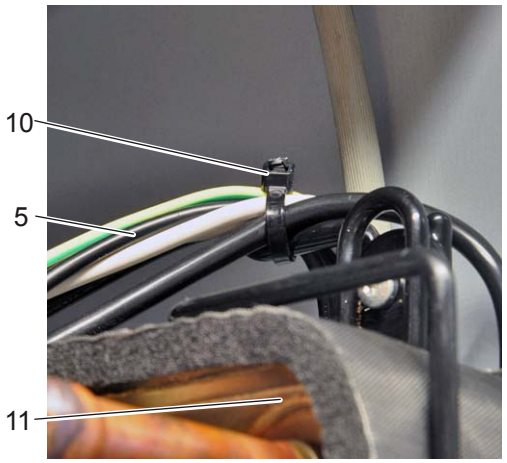
Removal

1. Unplug connector X16A (1) and X25A (2) from the A1P PCB (3).
2. Loosen and remove the screw (4) that fixes the water pump ground wire (5).
3. Guide the water pump wires (6) through the grommet (7).
4. Detach the 2 cable clamps (8) that fix the water pump wires (6) to the rear of the switch box (9).
5. Cut the tie wrap (10) that fixes the water pump wires (6) above the plate type heat exchanger (11).
6. Cut the tie wrap (10) that fixes the water pump wires (6) below the drain pan (12).

Figure 22 - Replacing the water pump - 1



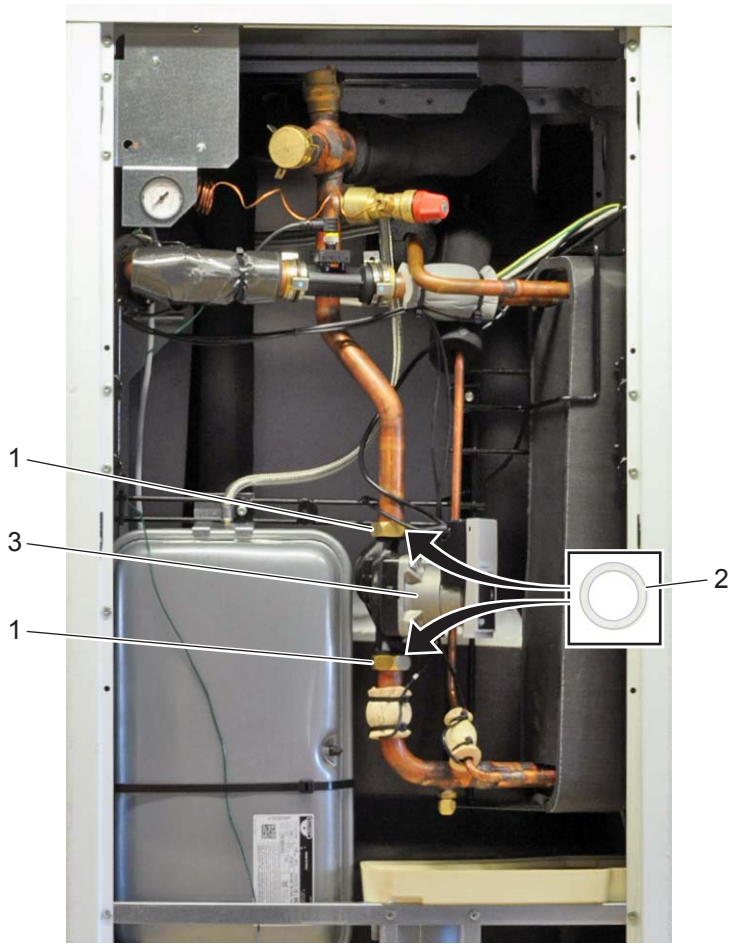




1. X16A
2. X25A
3. A1 PCB
4. Screw
5. Water pump ground wire
6. Water pump wire
7. Grommet
8. Cable clamp
9. Switch box
10. Tie wrap
11. Plate type heat exchanger
12. Drain pan

7. Loosen the nuts (1) that fix the water pump (3).
8. Remove the water pump (3).
9. Remove the seals (2) from the nuts (1).
10. Remove the water pump wires from behind the switch box.
11. Carefully remove the water pump (3) from the Daikin Altherma LT-CB.

Figure 23 - Replacing the water pump - 2



1. Nut
2. Seal
3. Water pump

Installation

1. Proceed in reverse order.
2. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
3. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

2.2.8. Replacing the expansion vessel

2.2.8.1 Preliminary actions

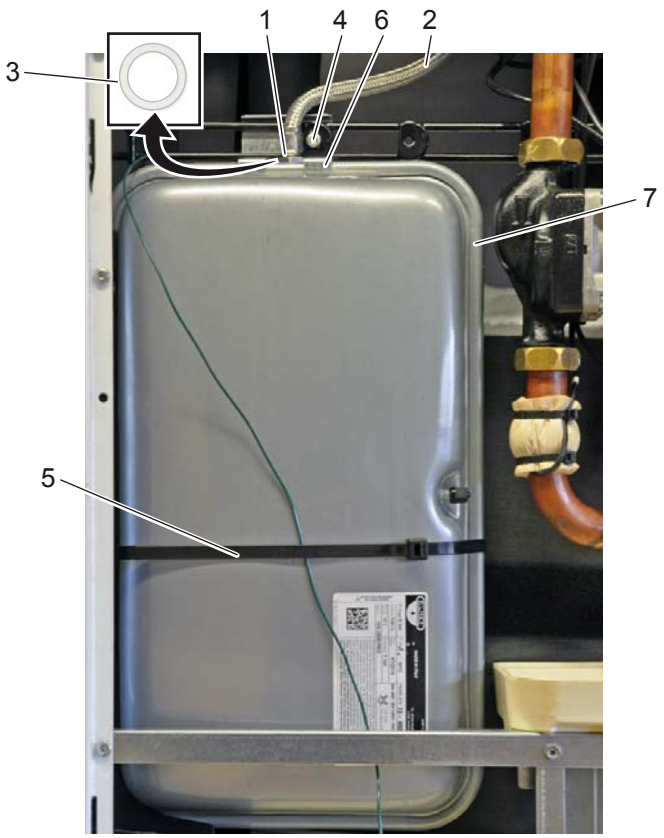
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Drain the water circuit, refer to "Draining the water circuit" on page 124.

2.2.8.2 Procedure

Removal

1. Loosen the nut (1) that fixes the flexible hose (2).
2. Remove the seal (3) form the nut (1).
3. Loosen and remove the screw (4) that fixes the expansion vessel support (6).
4. Remove the expansion vessel support (6).
5. Cut the tie wrap (5).
6. Lift the expansion vessel (7) and remove it.

Figure 24 - Replacing the expansion vessel



1. Nut
2. Flexible hose
3. Seal
4. Screw
5. Tie wrap
6. Expansion vessel support
7. Expansion vessel

Installation

	**CAUTION** If damaged, replace the seal (3).

	**CAUTION** If required, adjust the pressure of the water expansion vessel; refer to “Formula to calculate the expansion vessel pre-pressure” in the Installer Reference Guide.

1. Proceed in reverse order.
2. Fill the circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
3. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

2.2.9. Replacing the 3-way valve motor

2.2.9.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Remove the switch box cover, refer to "Removing the switch box cover" on page 123.

2.2.9.2 Procedure

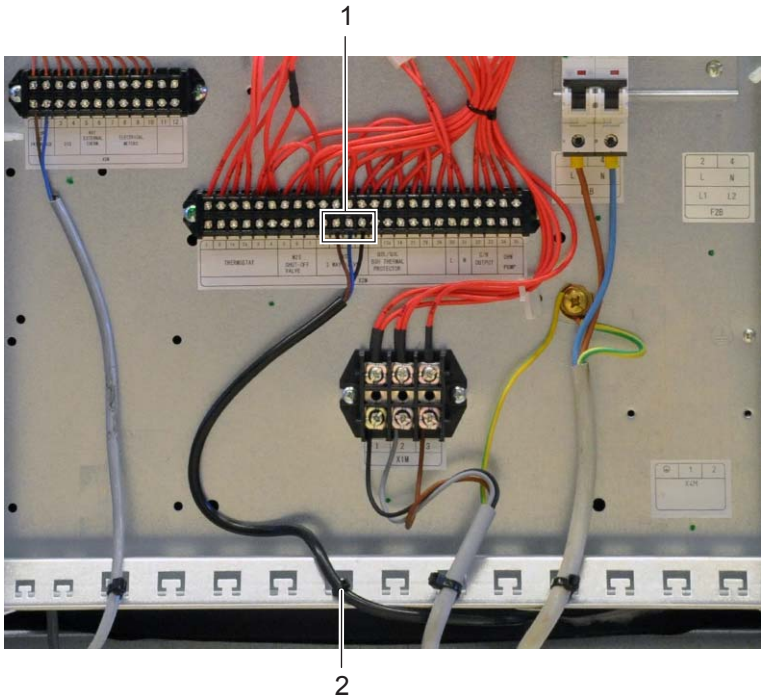
Removal

	**INFORMATION** The 3-way valve motor is replaced together with the 3-way valve wire.

	**INFORMATION** For the wall hung model, the 3-way valve wire terminals are X2M-8 (brown), X2M-9 (blue) and X2M-10 (black)

1. Loosen the wire terminals X2M-8a (brown), X2M-9 (blue) and X2M-10 (black) (1).
2. Cut the tie wrap (2).
3. Follow the 3-way valve motor wire and cut all tie wraps.

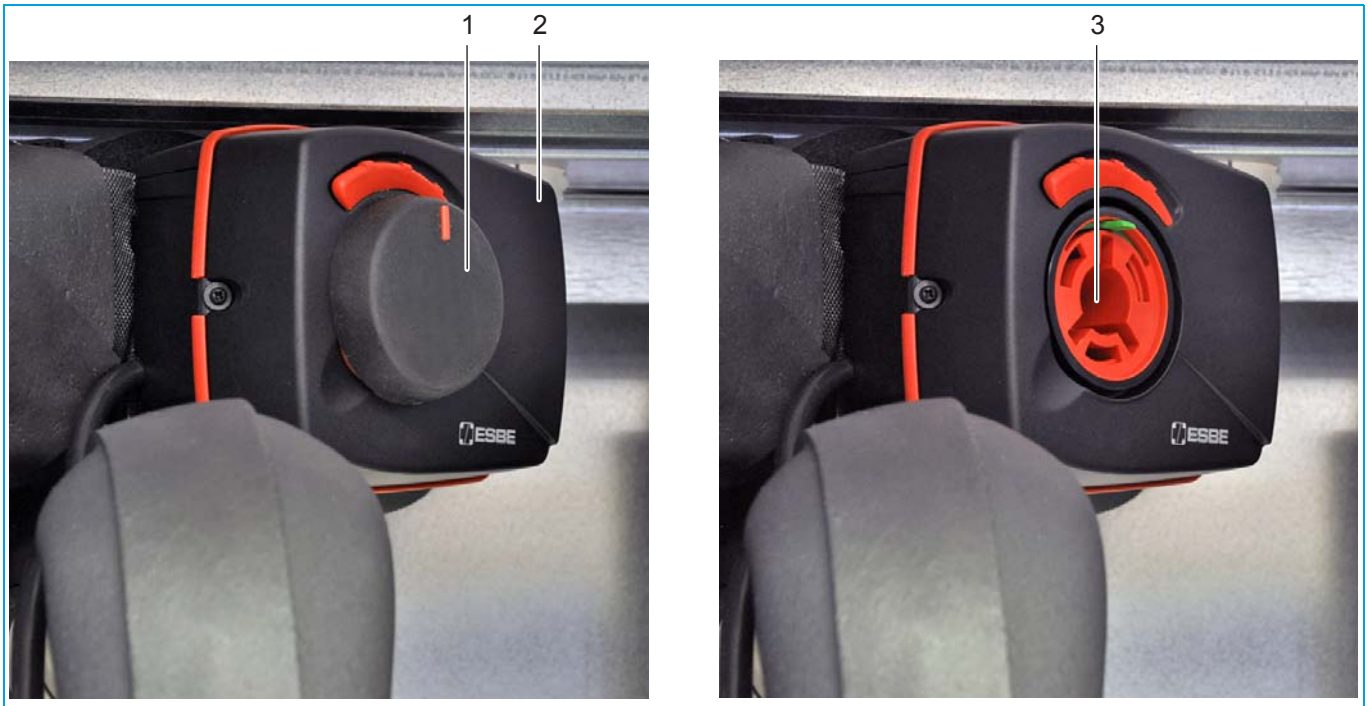
Figure 25 - Replacing the 3-way valve motor - 1



1. X2M-8a/9/10
2. Tie wrap

4. Pull the 3-way valve knob (1) to remove it from the 3-way valve motor (2).
5. Loosen the screw (3).
6. Remove the 3-way valve motor (2) from the 3-way valve body.

Figure 26 - Replacing the 3-way valve motor - 2



1. 3-way valve knob
2. 3-way valve motor
3. Screw

Installation

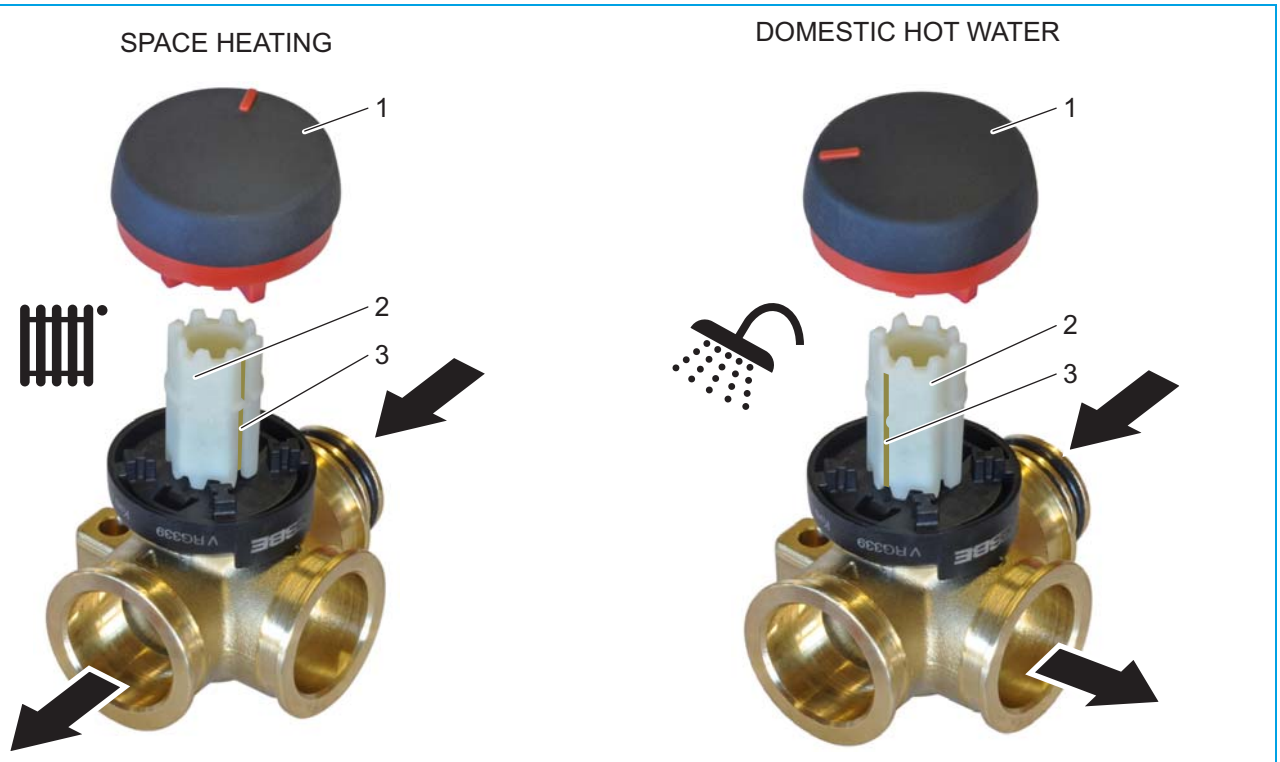
CAUTION

When mounting the 3-way valve motor on the 3-way valve body, the 3-way valve axle must be aligned with the 3-way valve motor.

The 3-way valve motor is shipped with the control knob in the centre position.

1. Check the position of the notch (3) in the 3-way valve axle (2).
2. If required, manually adjust the 3-way valve axle (2) to align the notch with the 3-way valve motor.
3. Proceed in reverse order.
4. Fill the domestic hot water circuit.

Figure 27 - Replacing the 3-way valve motor - 4



1. 3-way valve knob
2. 3-way valve axle
3. Notch

2.2.10. Replacing the 3-way valve body

2.2.10.1 Preliminary actions

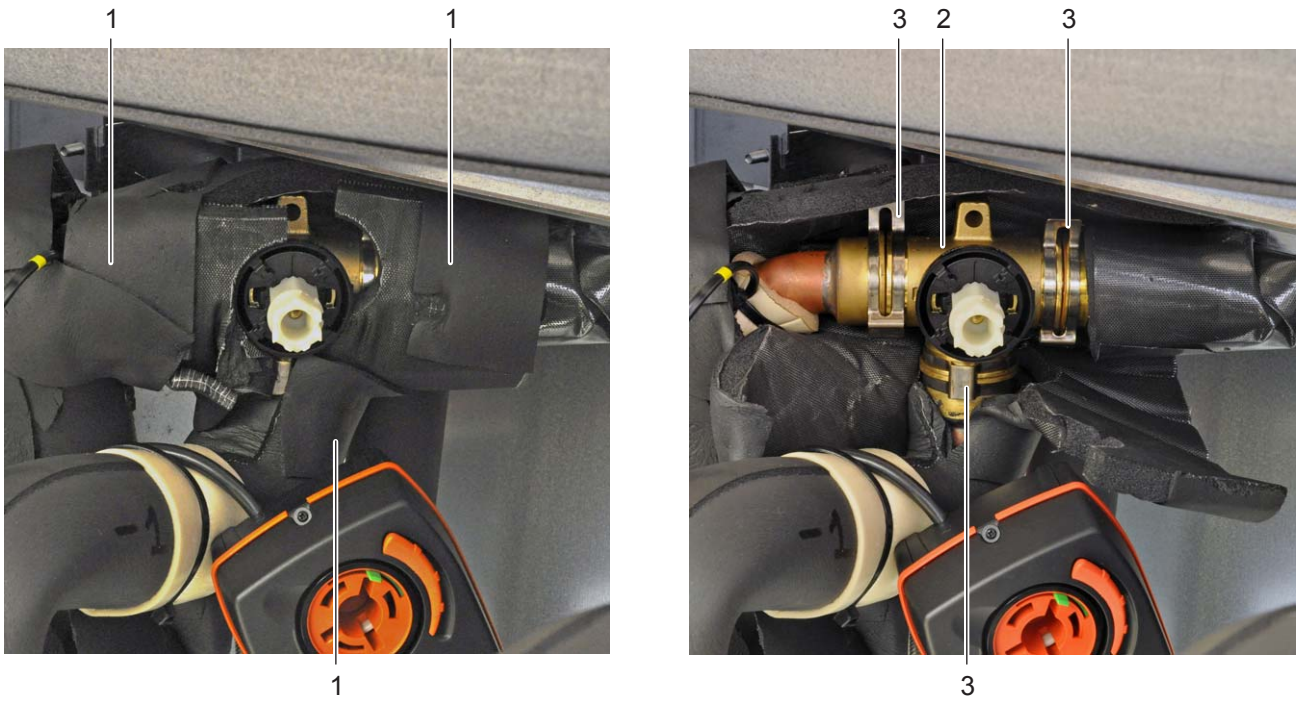
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Remove the top panel, refer to "Removing the top panel" on page 122.
5. Drain the water circuit, refer to "Draining the water circuit" on page 124.
6. Separate the 3-way valve motor from the 3-way valve, refer to "Replacing the 3-way valve motor" on page 144.

2.2.10.2 Procedure

Removal

1. Remove the insulation (1) that covers the 3-way valve body (2).
2. Remove the 3 clips (3) from the 3-way valve body (2).
3. Remove the 3-way valve body (2).

Figure 28 - Replacing the 3-way valve body



1. Insulation
2. 3-way valve body
3. Clip

Installation

> **CAUTION**
> Apply some Molykote 111 silicone-based compound to the O-rings before installation.

> **CAUTION**
> When installing the 3-way valve motor on the 3-way valve, refer to Installation of "Replacing the 3-way valve motor" on page 144.

1. Proceed in reverse order.
2. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
3. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

2.2.11. Replacing the manometer

2.2.11.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Drain the water circuit, refer to "Draining the water circuit" on page 124.

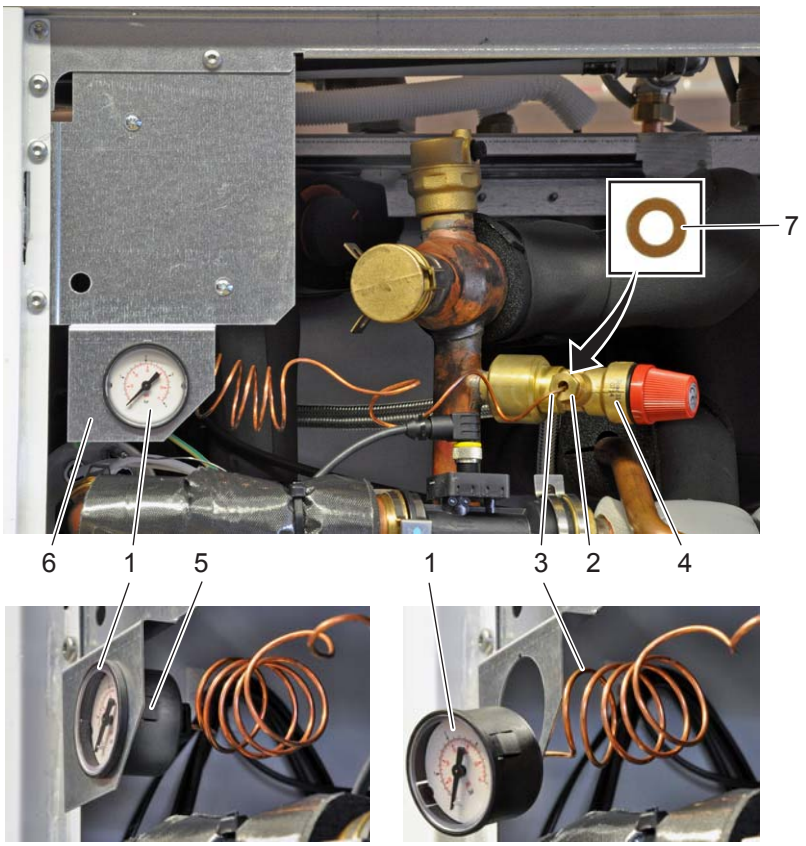
2.2.11.2 Procedure

Removal

> **CAUTION**
> The capillary connection is sealed by a copper seal; when removing the manometer capillary from the pressure relieve valve, make sure not to lose the copper seal.

1. Loosen and remove the nut (2) that fixes the manometer capillary (3) to the water pressure relief valve (4).
2. Remove the seal (7) from the manometer connection.
3. While pressing the latches (5), remove the manometer (1) from the manometer support (6).
4. Guide the manometer capillary (3) through the opening in the manometer support (6).

Figure 29 - Replacing the manometer - 1



1. Manometer
2. Nut
3. Manometer capillary
4. Water pressure relief valve
5. Latch
6. Manometer support
7. Seal

Installation

1. Proceed in reverse order.
2. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
3. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

2.2.12. Replacing a thermistor

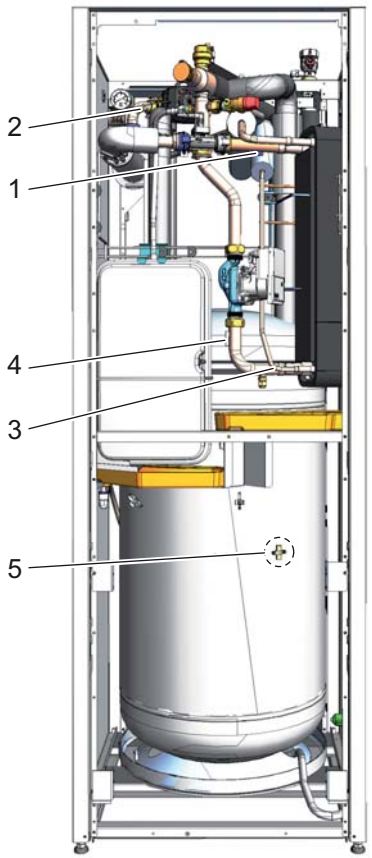
2.2.12.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Remove the switch box cover, refer to "Removing the switch box cover" on page 123.

2.2.12.2 Procedure

The position of the thermistors is illustrated in "Thermistor location" on page 149.

Figure 30 - Thermistor location



1. R1T (outlet water after PHE)
2. R2T (outlet water after backup heater)
3. R3T (refrigerant liquid)
4. R4T (inlet water)
5. R5T (domestic hot water tank)

Thermistor	Processed on PCB	Connector: pin	Access Information
R1T (outlet water after PHE)	A1P	X5A: 1-2	See below
R1T (A2P) (outlet water after backup heater)	A1P	X5M: 1-2	See below
R2T (outlet water after backup heater)	A1P	X6A: 1-2	See below
R2T* external sensor (floor or ambient)	A1P		-
R3T (refrigerant liquid)	A1P	X7A: 1-2	See below
R4T (inlet water)	A1P	X8A: 1-2	See below
R5T (domestic hot water tank)	A1P	X9A: 1-2	See "Procedure for R5T" on page 151
R6T* External indoor or outdoor ambient	A1P	X5M: 5-6	-

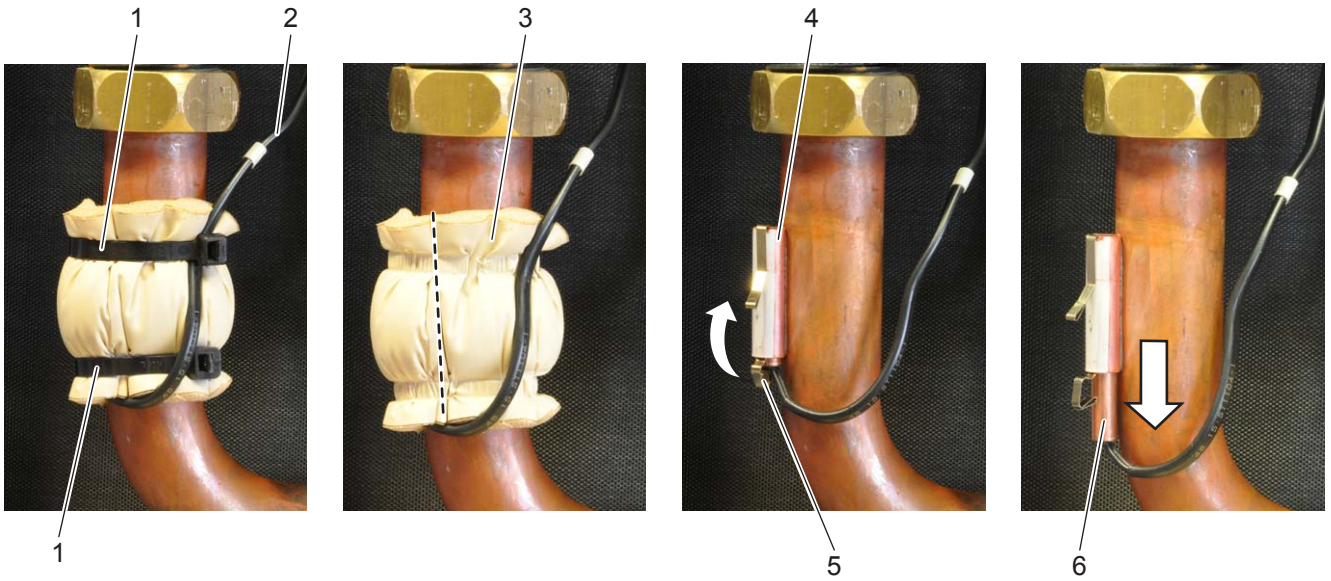
* = optional

Removal

The procedure below, showing the replacement of a thermistor, can be used for all thermistors except R5T.

1. Cut the tie wraps (1) that fix the insulation (3) and the thermistor wire (2).
2. Cut the insulation (3) and remove it.
3. Pull the clip (5) that fixes the thermistor (6).
4. Remove the thermistor (6) from the thermistor holder (4).

Figure 31 - Replacing a thermistor - 1



1. Tie wrap
2. Thermistor wire
3. Insulation
4. Thermistor holder
5. Clip
6. Thermistor

Installation

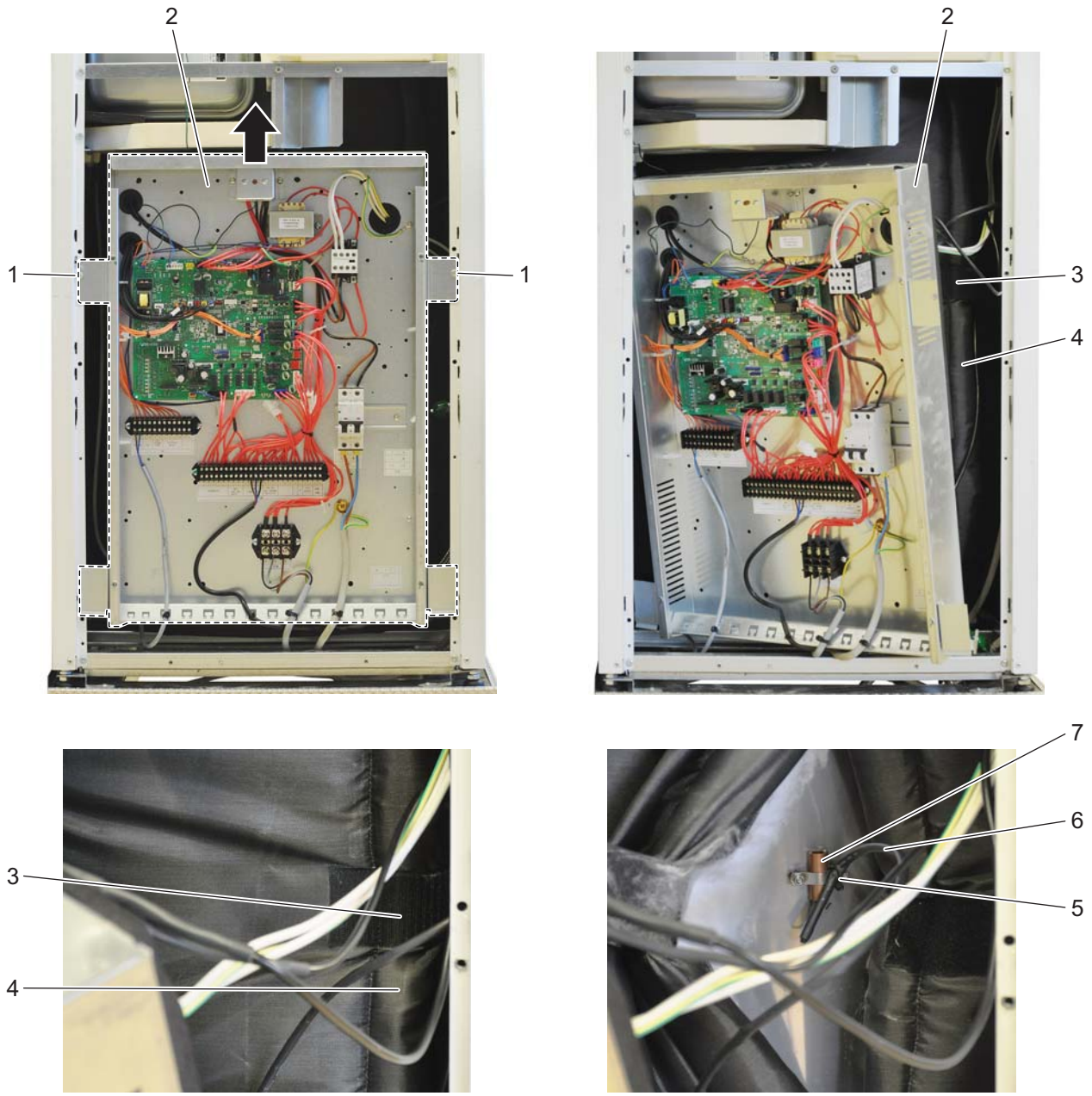
> **INFORMATION**
>
> Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

2.2.12.3 Procedure for R5T

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Loosen the 2 screws (1) that fix the switch box (2).
5. Lift and tilt the switch box (2) to detach it and place it on the bottom of the unit.
6. Pull the Velcro strip (3) to open the hot water tank insulation (4).
7. Cut the tie wrap (5) that fixes the thermistor wire (6).
8. Remove thermistor R5T.

Figure 32 - Replacing thermistor R5T



1. Screw
2. Switch box
3. Velcro strip
4. Hot water tank insulation
5. Tie wrap
6. Thermistor wire
7. Thermistor R5T

2.2.13. Replacing the plate type heat exchanger

2.2.13.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Remove the top panel, refer to "Removing the top panel" on page 122.
5. Pump down the refrigerant, refer to "Refrigerant pump down" on page 118.
6. Connect a nitrogen hose to the outdoor suction service port.
7. Attach a hose with core-depressor to allow the release of the nitrogen.

2.2.13.2 Procedure

1. Cut the tie wraps (8) and remove the R1T, R3T and R4T insulation (2,3,4).
2. Remove the thermistors from their supports, refer to "Replacing a thermistor" on page 149.
3. Using a pipe cutter, cut the 4 plate type heat exchanger pipes (5).
4. Loosen and remove the 2 screws (6) that fix the plate type heat exchanger bracket (7).
5. Remove the plate type heat exchanger bracket (7).
6. Remove the plate type heat exchanger (1).

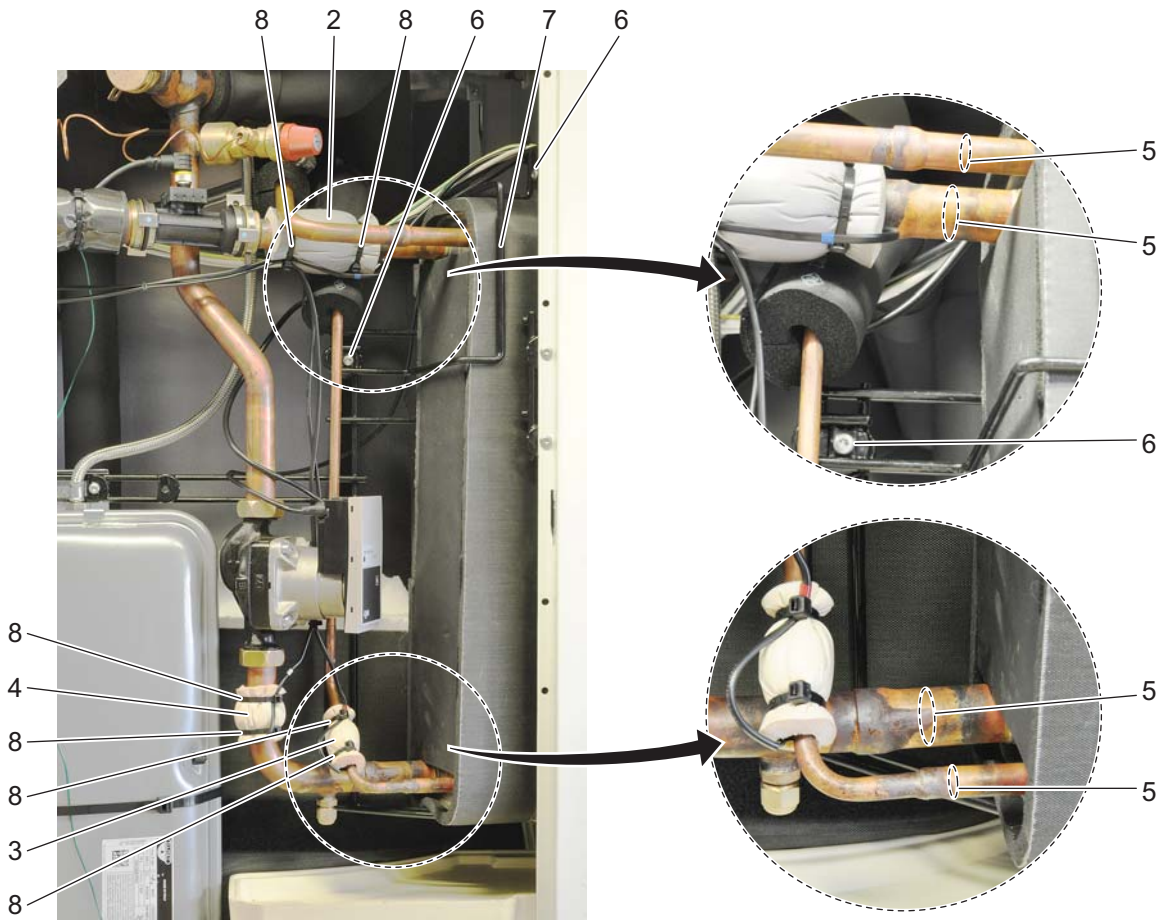


CAUTION

The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

7. Supply nitrogen to the piping circuit.
8. Heat the 4 plate type heat exchanger pipes (5) using an oxygen acetylene torch.
9. When the solder is liquid, remove the 4 plate type heat exchanger pipes (5).
10. Cut the nitrogen supply when the piping has cooled down.

Figure 33 - Replacing the plate type heat exchanger



1. Plate type heat exchanger
2. R1T insulation
3. R3T insulation
4. R4T insulation
5. Plate type heat exchanger pipe
6. Screw
7. Bracket
8. Tie wrap

Installation

1. Install a new plate type heat exchanger.

> **CAUTION**
> Overheating the plate type heat exchanger will damage or destroy it.

2. Cover the plate type heat exchanger with a wet cloth to prevent overheating.
3. Braze the plate type heat exchanger.
4. Proceed in reverse order.

3. Unit specific repair procedures WALL HUNG

3.1. Unit specific procedures

Overview of parts replacement procedures:

Removing the front panel....155	Air purge of the space heating circuit....157
Removing the top panel....156	Removing the switch box cover....157
Removing the side panels....156	Relocating the switch box....159
Draining the water circuit....157	

3.1.1. Removing the front panel

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Loosen and remove the 2 screws (1) at the bottom of the unit that fix the front panel (2).

CAUTION

When sliding the front panel, be careful not to bend the front panel fingers.

4. Slide the front panel upwards and remove it from the unit.

Figure 34 - Removing the front panel

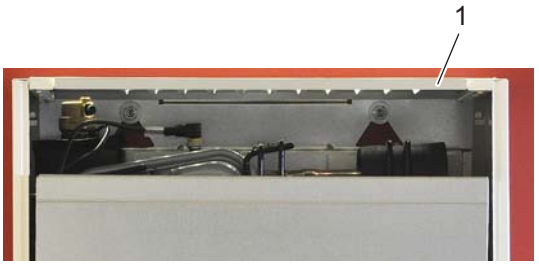


1. Screw
2. Front panel

3.1.2. Removing the top panel

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to"Removing the front panel" on page 155.
4. Pull the top panel (1) from the Daikin Altherma LT-CB.

Figure 35 - Removing the top panel



1. Top panel

3.1.3. Removing the side panels

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 155.
4. Remove the top panel, refer to"Removing the top panel" on page 156.
5. Disconnect the manometer from the pressure relief valve, refer to "Replacing the manometer" on page 174.
6. Loosen and remove the screw (1) at the left rear bottom that fixes the left panel (2).
7. Loosen and remove the screw (1) at the right rear bottom that fixes the right panel (3).

CAUTION

When sliding a side panel, be careful not to bend the front panel fingers.

8. Lift the left panel (2) and remove it from the unit.
9. Lift the right panel (3) and remove it from the unit.

Figure 36 - Removing the side panels



1. Screw
2. Left panel
3. Right panel

3.1.4. Draining the water circuit

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Drain the water circuit by means of the field installed water shut off valve.

3.1.5. Air purge of the space heating circuit

To perform an air purge of the space heating circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB installer reference guide.

3.1.6. Removing the switch box cover

WARNING

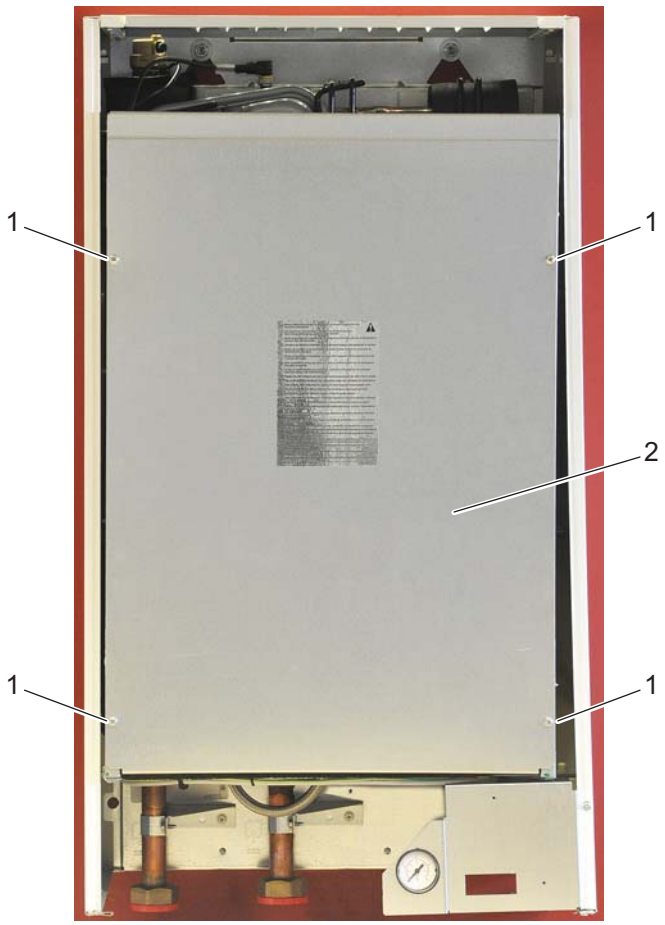
Electrical shock hazard. Remove power from the Daikin Altherma LT-CB before removing the switch box cover.
Do not touch terminals.

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 155.

4. Loosen and remove the 4 screws (1) that fix the switch box cover (2).

5. Remove the switch box cover (2) from the Daikin Altherma LT-CB.

Figure 37 - Removing the switch box cover



1. Screw	2. Switch box cover

3.1.7. Relocating the switch box

INFORMATION

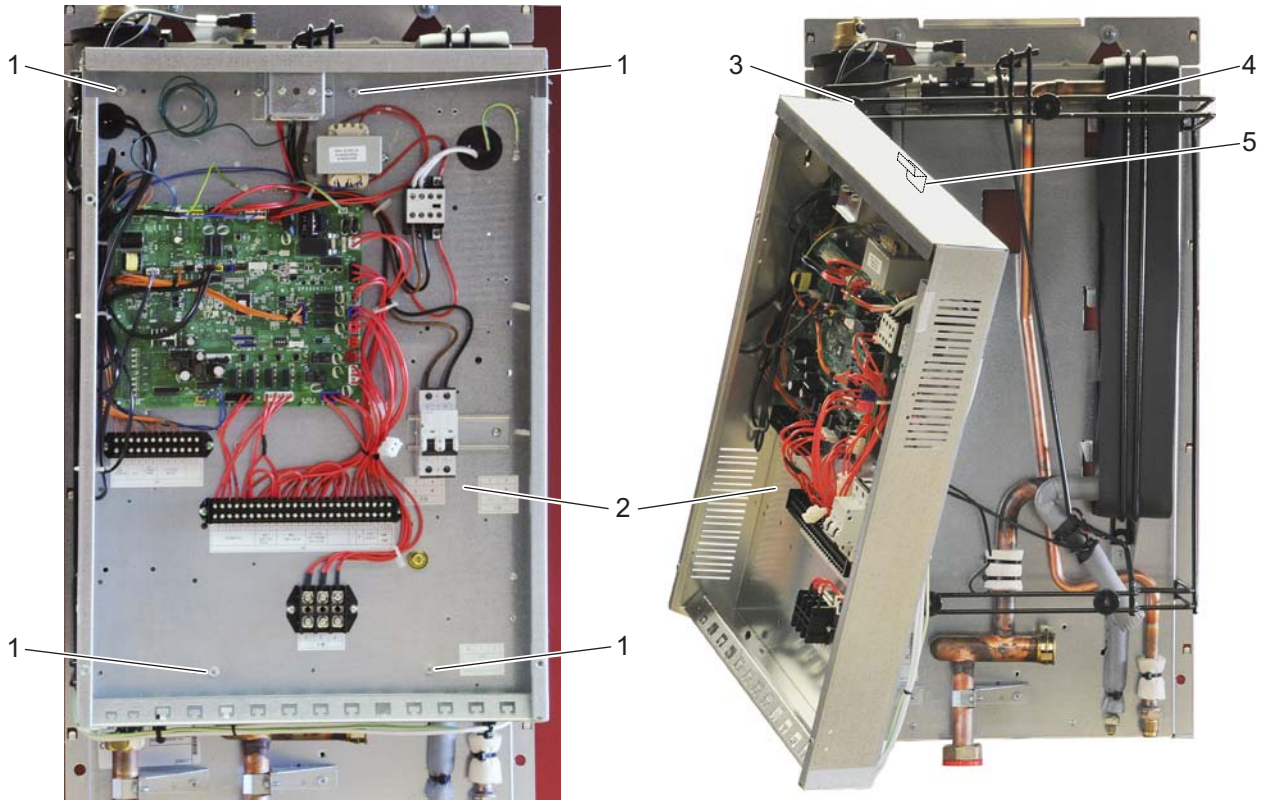
The switch box must be relocated to gain access to the plate type heat exchanger.

The switch box remains attached to the frame by a tie wrap.

1. Loosen and remove the 4 screws (1) that fix the switch box (2).

2. Lift the switch box (2) about 2 cm and unhook it from the wire frame (4), then slowly release it until it is held by the tie wrap (3) or cut the tie wrap (3) and attach the switch box (2) to the wire frame (4) with the hook (5).

Figure 38 - Relocating the switch box



1. Screw
2. Switch box
3. Tie wrap
4. Wire frame
5. Hook

3.2. Parts replacement procedures

Overview of parts replacement procedures:

Replacing the A1P PCB in the switch box....160
Cleaning the water filter....160
Replacing the water flow sensor....162
Replacing the backup heater....163
Replacing the thermal protector backup heater....167
Replacing the water pressure relief valve....169
Replacing the water pump....169
Replacing the expansion vessel....172
Replacing the manometer....174
Replacing a thermistor....176
Replacing the plate type heat exchanger....178

3.2.1. Replacing the A1P PCB in the switch box



WARNING

Electrical shock hazard. Remove power from the Daikin Altherma LT-CB before removing the switch box cover.

Do not touch terminals.

The replacement of the A1PCB is identical to the replacement described in "Replacing the A1P PCB in the switch box" on page 127.

3.2.2. Cleaning the water filter

3.2.2.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 155.
4. Partially drain the water circuit, refer to "Draining the water circuit" on page 157.

3.2.2.2 Procedure

Removal

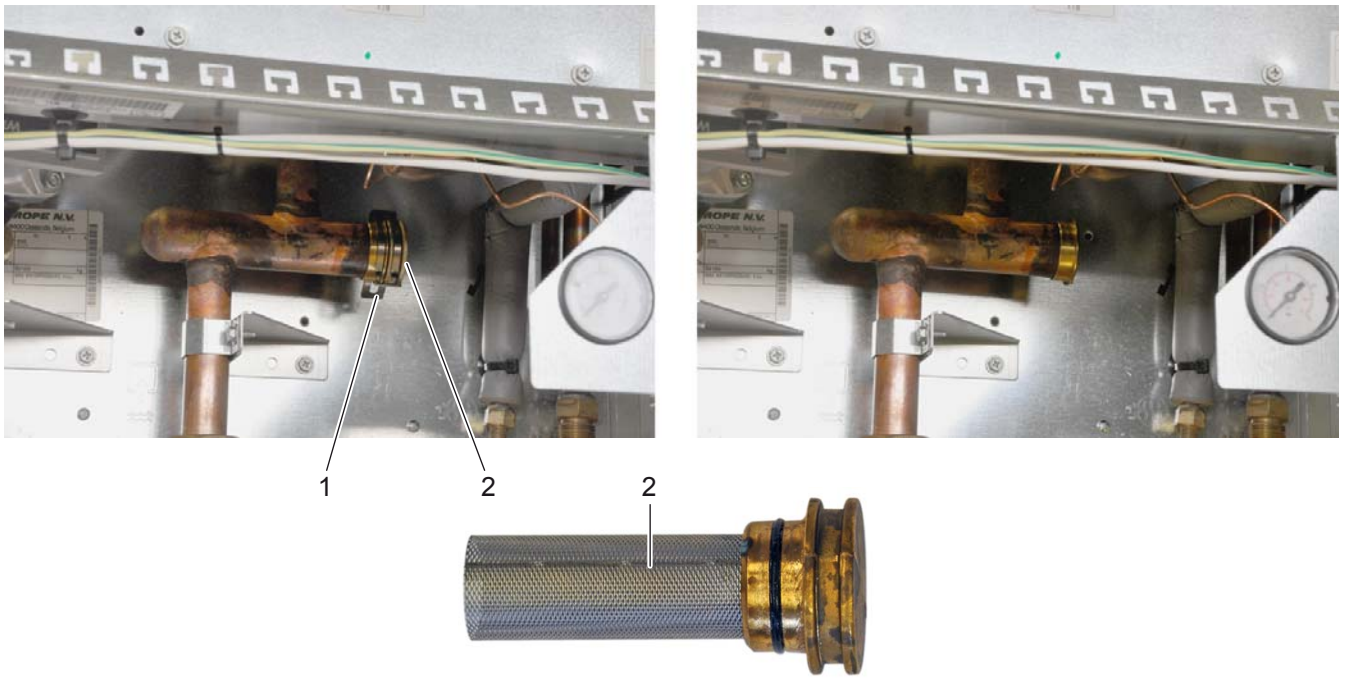


CAUTION

Although the water circuit is partially drained, some water may be spilled when removing the water filter. Always wipe off spilled water.

1. Remove the clip (1) that fixes the water filter (2).
2. Pull the water filter (2) to remove it from the filter housing.
3. Clean the water filter (2) with water and a soft brush.

Figure 39 - Cleaning the water filter



1. Clip	2. Water filter

Installation

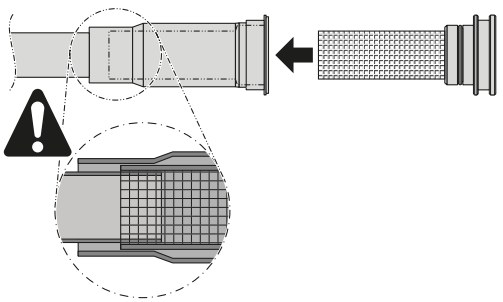
CAUTION

Apply some Molykote 111 silicone-based compound to the O-ring before installation.

CAUTION

Handle the water filter with care. Do NOT use excessive force when you reinsert the water filter so as NOT to damage the mesh.

Figure 40 - Water filter installation



1. Proceed in reverse order.
2. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
3. Purge the water circuit, refer to “Air purge function on the space heating circuit“ in the Daikin LT-CB Installer reference guide.

3.2.3. Replacing the water flow sensor

3.2.3.1 Preliminary actions

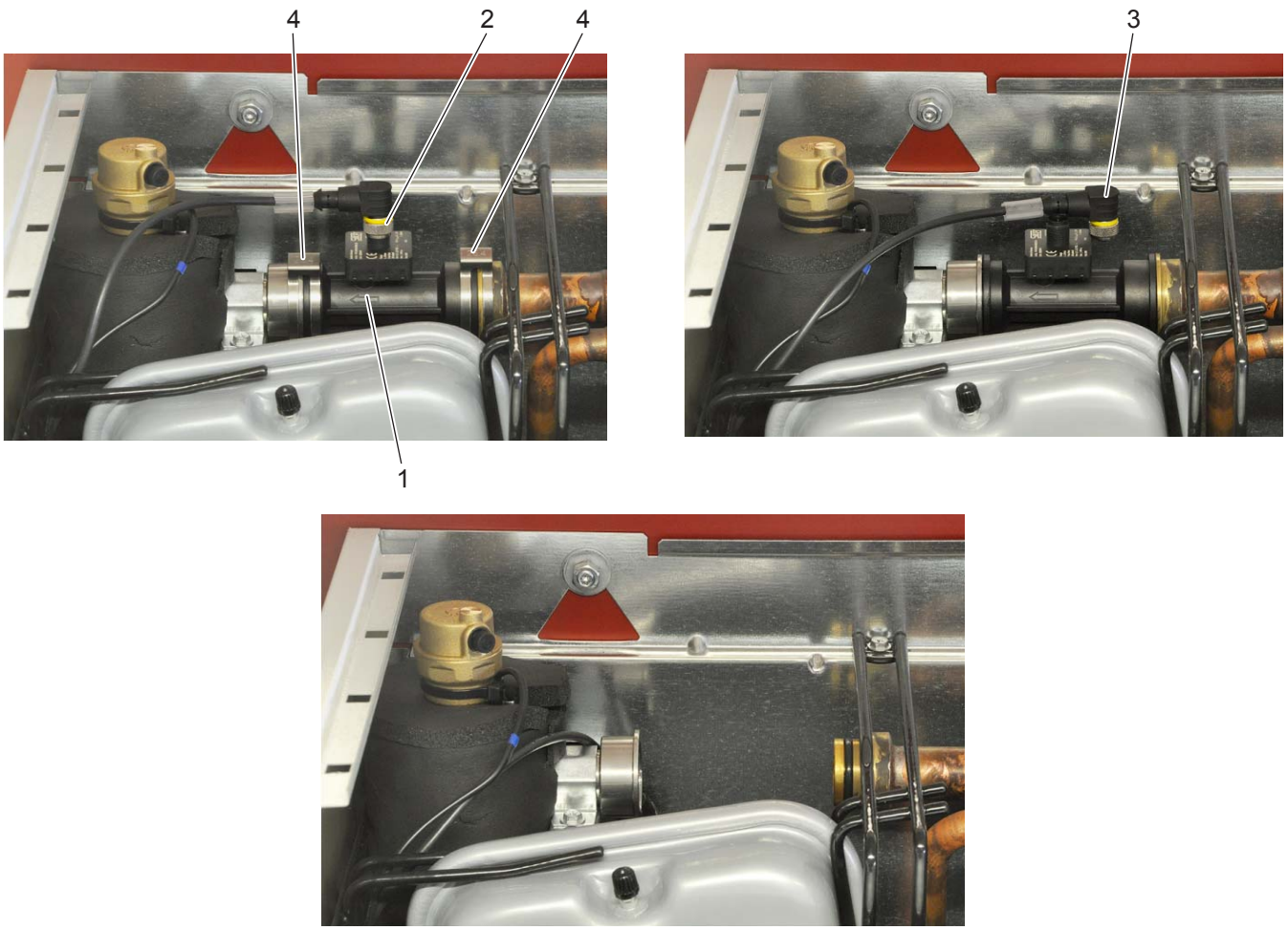
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 121.
4. Remove the top panel, refer to "Removing the top panel" on page 122.
5. Partially drain the water circuit, refer to "Draining the water circuit" on page 124.

3.2.3.2 Procedure

Removal

1. Loosen the water flow sensor connector nut (2).
2. Unplug the water flow sensor connector (3).
3. Remove the 2 clips (4) that fix the water flow sensor (1).
4. Remove the water flow sensor (1).
5. Wipe off any spilled water.

Figure 41 - Replacing the water flow sensor



1. Water flow sensor	3. Water flow sensor connector
2. Water flow sensor connector nut	4. Clip

6. Cut all tie wraps that fix the flow sensor harness.
7. Unplug X4A from A1P and guide the flow sensor harness out of the switch box.
8. Remove the flow sensor harness.

Installation

> **CAUTION**
> Apply some Molykote 111 silicone-based compound to the O-rings before installation.

> **INFORMATION**
> Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.
2. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
3. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

3.2.4. Replacing the backup heater

3.2.4.1 Preliminary actions

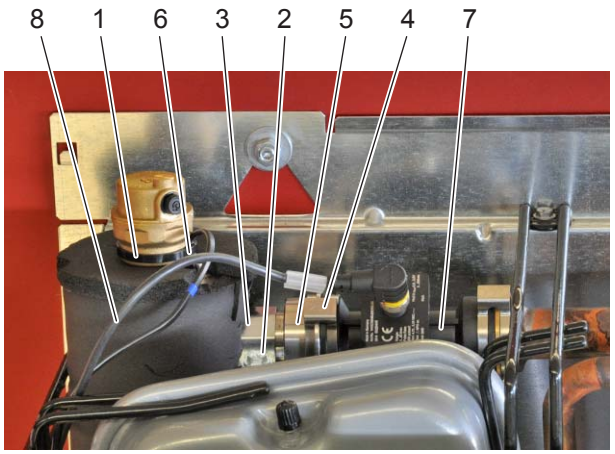
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the side panels, refer to "Removing the side panels" on page 156.
4. Remove the switch box cover, refer to "Removing the switch box cover" on page 157.
5. Drain the water circuit, refer to "Draining the water circuit" on page 157.
6. Remove the thermal protector backup heater, refer to steps 1 and 2 "Replacing the thermal protector backup heater" on page 167

3.2.4.2 Procedure

Removal

1. Cut the tie wrap (1).
2. Loosen and remove the screw (2) that locks the clamp (3).
3. Remove the clip (4) from the top backup heater coupling (5).
4. Remove thermistor R2T (6) from the backup heater (8).
5. Separate the top backup heater coupling (5) from the water flow sensor (7).

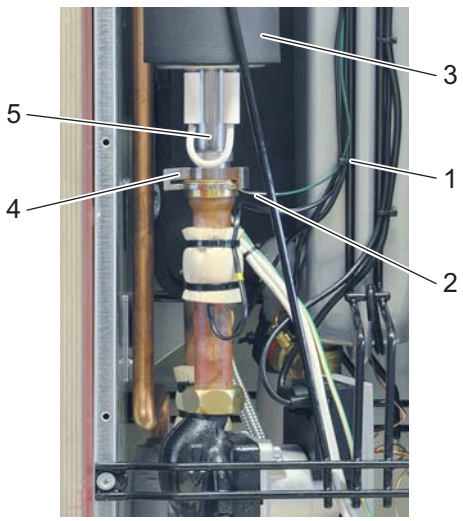
Figure 42 - Removing the backup heater - 1



1. Tie wrap
2. Screw
3. Clamp
4. Clip
5. Top backup heater coupling
6. Thermistor R2T
7. Water flow sensor
8. Backup heater

6. Cut the tie wrap (1).
7. Remove the clip (4) from the bottom backup heater coupling (5).
8. Separate the backup heater (4) from the bottom backup heater coupling (5).
9. Lift the backup heater (3) and remove the thermal protector backup heater (2) from the backup heater (3).

Figure 43 - Removing the backup heater - 2

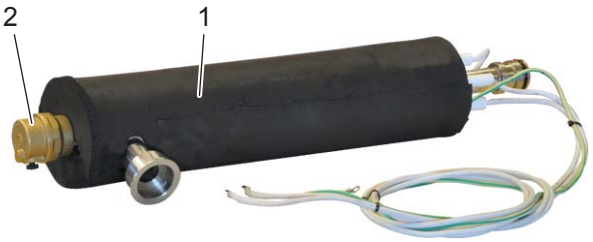


1. Tie wrap
2. Thermal protector backup heater
3. Backup heater
4. Clip
5. Bottom backup heater coupling

10. Loosen and remove the air purge valve (2) from the backup heater (1).

11. Remove the glue remainder from the threads of the air purge valve (2) with a scraper and a brush.

Figure 44 - Removing the backup heater - 3



1. Backup heater
2. Air purge valve

12. Cut the tie wraps at the 3 cable clamps (1) that fix the backup heater wiring (2) to the switch box (3).

13. Loosen the wire terminals (4) and remove the backup heater wiring (2).

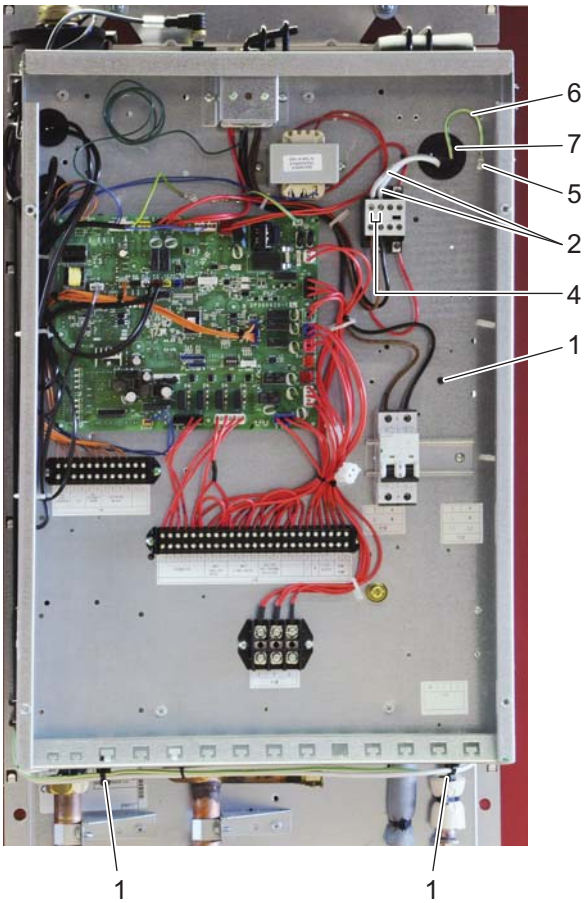
14. Loosen and remove the screw (5) that fixes the backup heater ground wire (6).

15. Remove the backup heater wiring (2) through the grommet (7).

16. Cut all tie wraps (not illustrated) that fix the backup heater wiring (2).

17. While guiding the backup heater wiring (2), remove the backup heater from the Daikin Altherma LT-CB.

Figure 45 - Removing the backup heater - 4



1. Cable clamp
2. Backup heater wiring
3. Switch box
4. Wire terminals
5. Screw
6. Backup heater ground wire
7. Grommet

Installation

INFORMATION

The spare backup heater is not insulated. It must be insulated before it can be installed in the Daikin Altherma LT-CB.
The backup heater wire must be reattached to the rear of the switch box.
Replace all tie wraps that were cut during removal.
Restore all insulation.

CAUTION

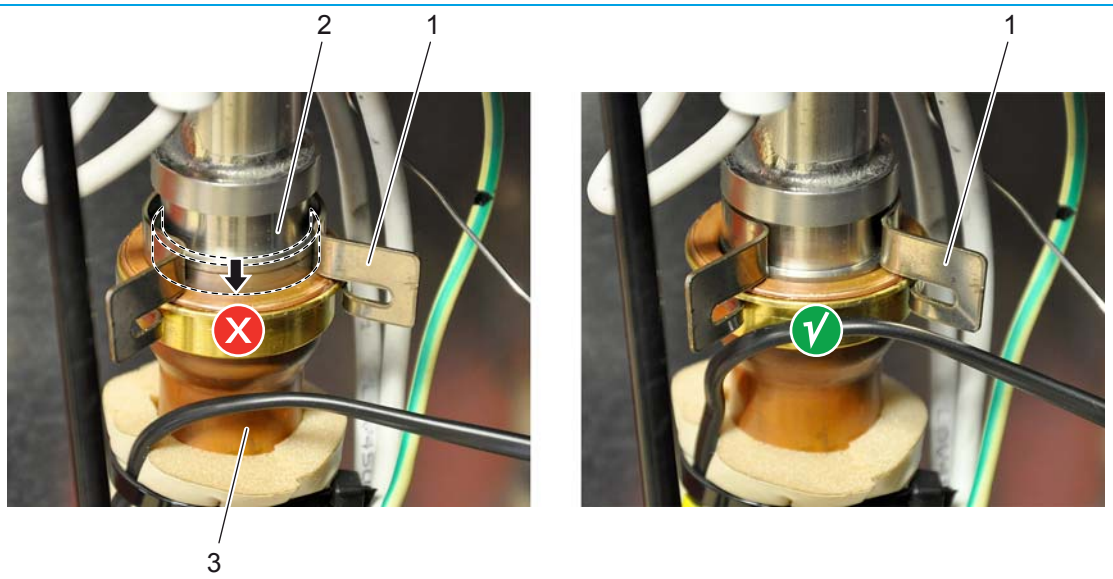
Apply some Molykote 111 silicone-based compound to the O-rings before installation.

CAUTION

Do not forget to insert the thermal protector backup heater into the backup heater.

1. Proceed in reverse order.
2. Apply thread sealant (Permabond A131, local supply) to the threads of the air purge valve.
3. Before installing the clip (1), make sure the backup heater pipe (2) is fully inserted into the backup heater coupling (3).

Figure 46 - Clip position



1. Clip
2. Backup heater pipe
3. Backup heater coupling

4. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
5. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

3.2.5. Replacing the thermal protector backup heater

3.2.5.1 Preliminary actions

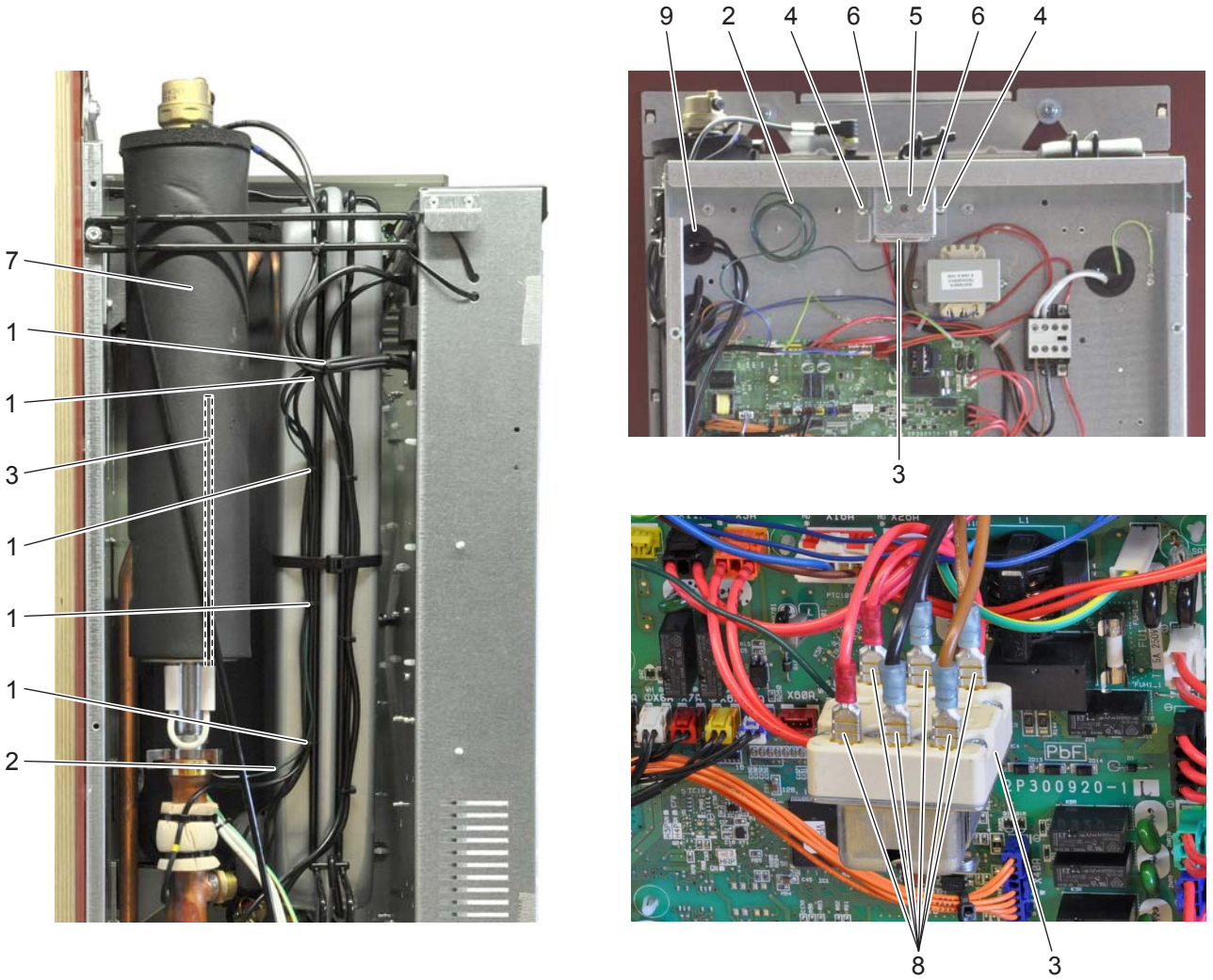
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 155.
4. Remove the left panel, refer to "Removing the side panels" on page 156.
5. Remove the switch box cover, refer to "Removing the switch box cover" on page 157.

3.2.5.2 Procedure

Removal

1. Cut the tie wraps (1) that fix the thermal protector backup heater capillary (2).
2. Pull the thermal protector backup heater (3) out of the backup heater (7).
3. Loosen and remove the 2 screws (4) that fix the thermal protector backup heater bracket (5).
4. Loosen and remove the 2 screws (6) that fix the thermal protector backup heater (3).
5. Remove the wiring from the wire terminals (8) of the thermal protector backup heater (3).
6. Remove the thermal protector backup heater (3) while guiding the capillary (2) through the grommet (9).

Figure 47 - Replacing the thermal protector backup heater



1. Tie wrap
2. Thermal protector backup heater capillary
3. Thermal protector backup heater
4. Screw
5. Thermal protector backup heater bracket
6. Screw
7. Backup heater
8. Wire terminal
9. Grommet

Installation

CAUTION

Apply some Molykote 111 silicone-based compound to the O-rings before installation.

INFORMATION

Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

3.2.6. Replacing the water pressure relief valve

3.2.6.1 Preliminary actions

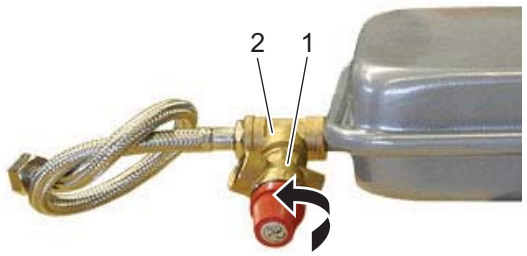
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the expansion vessel, refer to "Replacing the expansion vessel" on page 172.

3.2.6.2 Procedure

Removal

1. Loosen and remove the water pressure relief valve (1) from the T-joint (2).
2. Remove the glue remainder from the threads of the T-joint (2) with a scraper and a brush.

Figure 48 - Replacing the water pressure relief valve



1. Water pressure relief valve
2. T-joint

Installation

1. Proceed in reverse order.
2. Apply thread sealant (Permabond A131, local supply) to the threads of the pressure relief valve (1).
3. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
4. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

3.2.7. Replacing the water pump

3.2.7.1 Preliminary actions

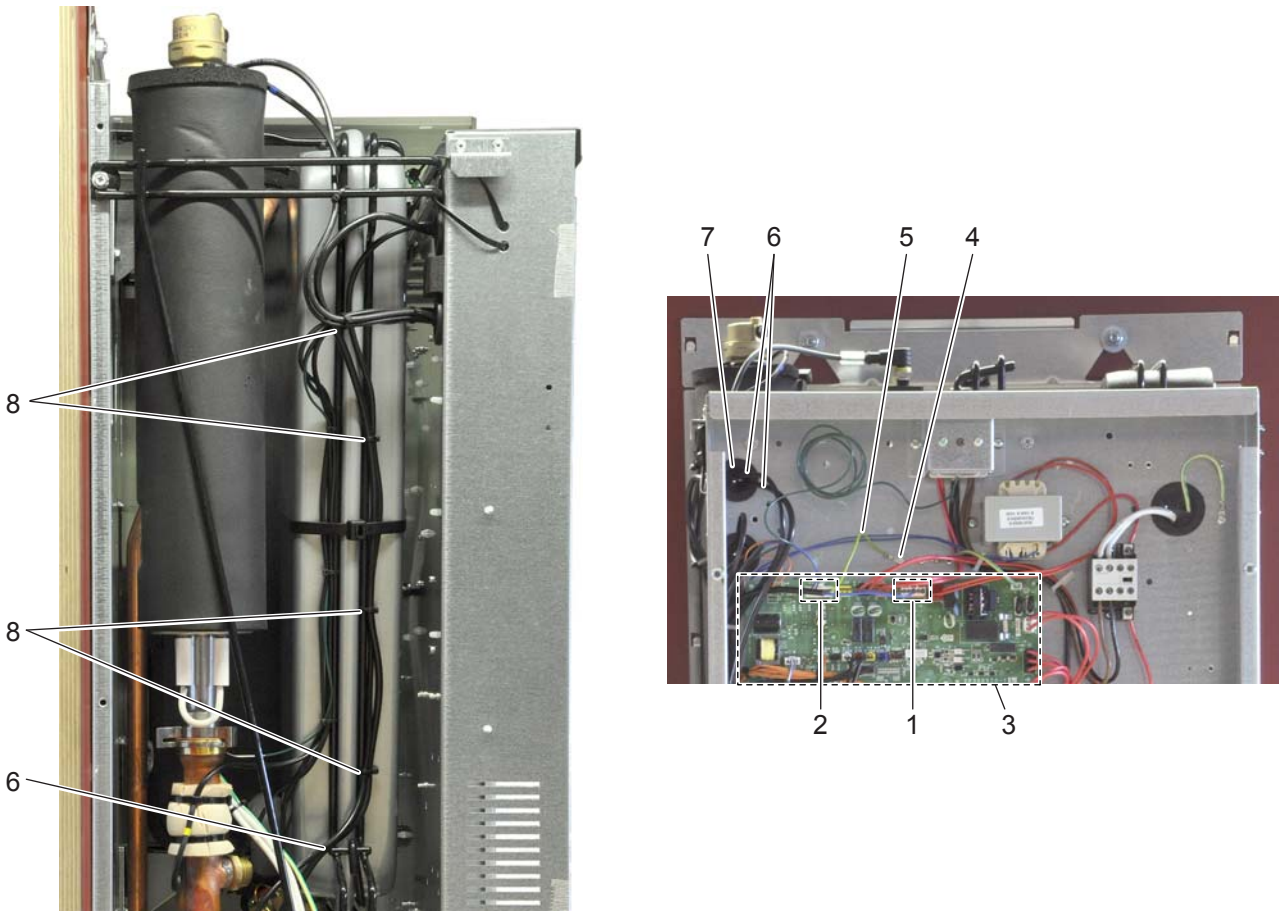
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 155.
4. Remove the top panel, refer to "Removing the top panel" on page 156.
5. Remove the left panel, refer to "Removing the side panels" on page 156.
6. Remove the switch box cover, refer to "Removing the switch box cover" on page 157.
7. Drain the water circuit, refer to "Draining the water circuit" on page 157.

3.2.7.2 Procedure

Removal

1. Unplug connector X16A (1) and X25A (2) from the A1P PCB (3).
2. Loosen and remove the screw (4) that fixes the water pump ground wire (5).
3. Guide the water pump wires (6) through the grommet (7).
4. Cut the 4 tie wraps (8) that fix the water pump wires (6).

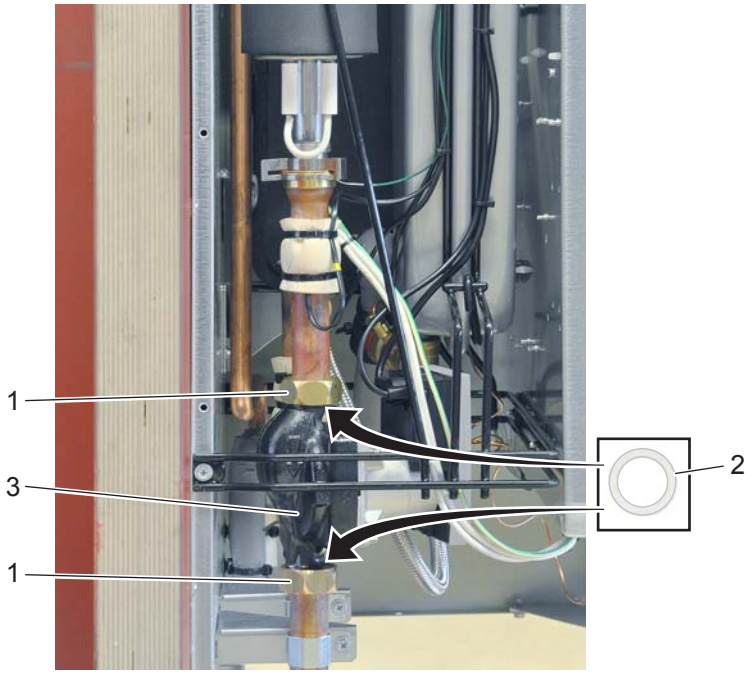
Figure 49 - Replacing the water pump - 1



1. X16A	5. Water pump ground wire
2. X25A	6. Water pump wires
3. A1 PCB	7. Grommet
4. Screw	8. Tie wrap

5. Loosen the nuts (1) that fix the water pump (3).
6. Remove the water pump (3).
7. Remove the seals (2) from the nuts (1).
8. Remove the water pump wires from behind the switch box.
9. Carefully remove the water pump (3) from the Daikin Altherma LT-CB.

Figure 50 - Replacing the water pump - 2



1. Nut
2. Seal
3. Water pump

Installation

INFORMATION

Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.
2. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
3. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

3.2.8. Replacing the expansion vessel

3.2.8.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 155.
4. Remove the top panel, refer to "Removing the top panel" on page 156.
5. Remove the left panel, refer to "Removing the side panels" on page 156.
6. Drain the water circuit, refer to "Draining the water circuit" on page 157.

3.2.8.2 Procedure

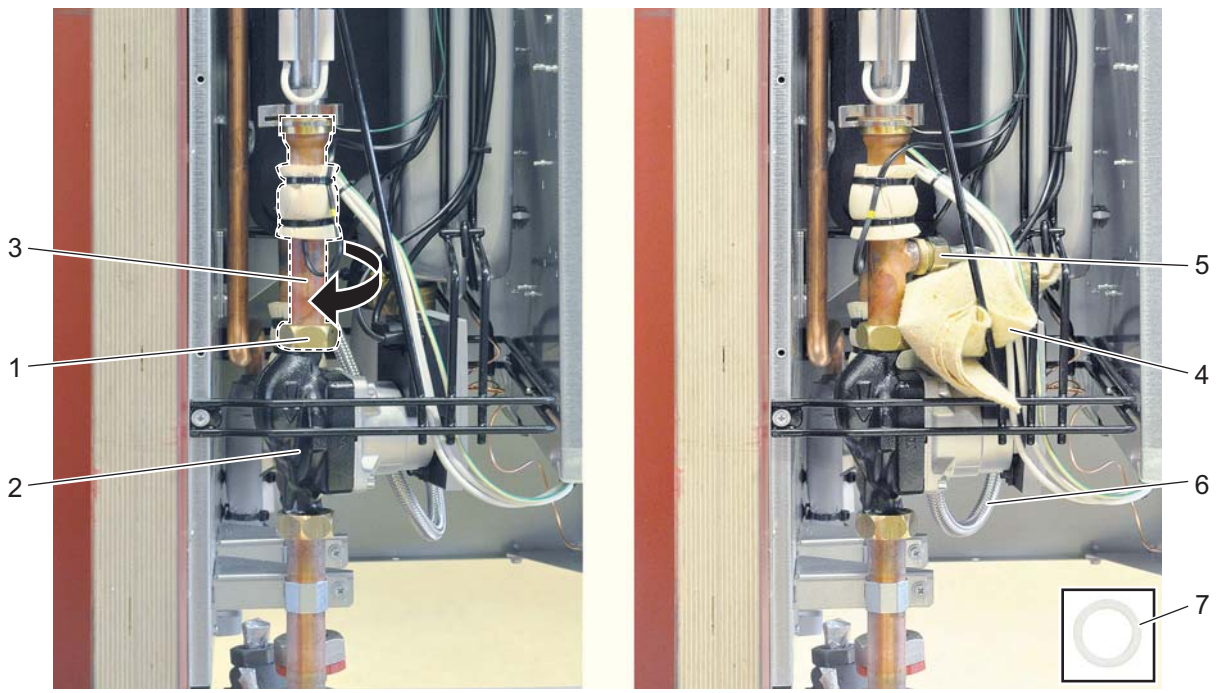
Removal

INFORMATION

The upper nut of the water pump will be loosened to improve the accessibility of the flexible hose.

1. Loosen the nut (1) that fixes the T-coupling (3) to the water pump (2).
2. Turn the T-coupling (3) to make the nut (4) more accessible.
3. Place a cloth (5) under the nut (4).
4. Remove the nut (4) that fixes the flexible hose (6).
5. Remove the seal (7) form the nut (4).

Figure 51 - Replacing the expansion vessel - 1



1. Nut
2. Water pump
3. T-coupling
4. Nut
5. Cloth
6. Flexible hose
7. Seal
8.

INFORMATION

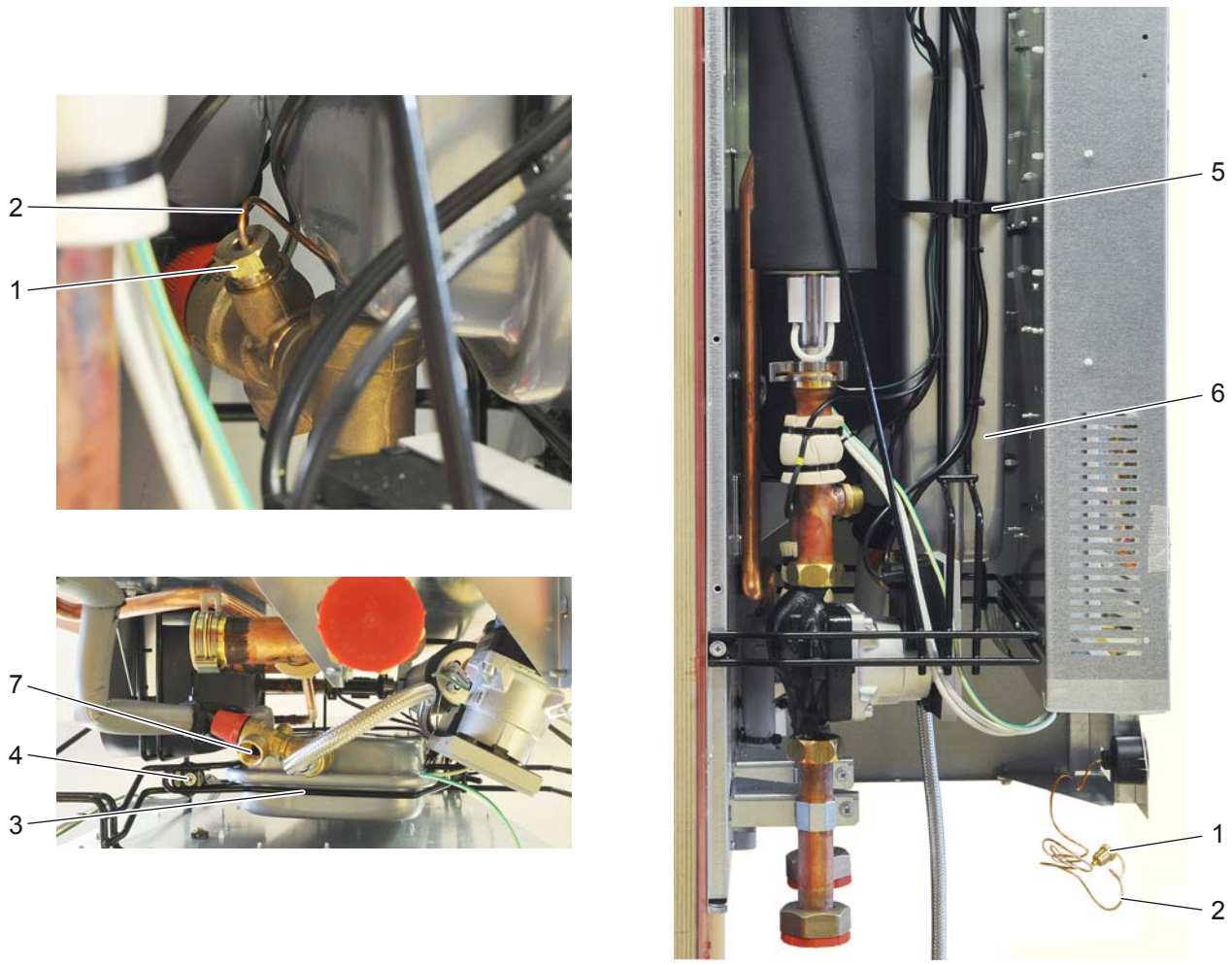
The expansion vessel must be lowered to be removed; the manometer capillary will be disconnected from the water pressure relief valve to improve the manoeuvrability of the expansion vessel.

CAUTION

The capillary connection is sealed by a copper seal; when removing the manometer capillary from the pressure relieve valve, make sure not to lose the copper seal.

6. Remove the nut (1) that fixes the manometer capillary (2).
7. Carefully put the manometer capillary (2) aside.
8. Loosen and remove the field supplied drain hose (7).
9. Loosen the screw (4) that fixes the expansion vessel support (3).
10. Remove the expansion vessel support (3).
11. Cut the tie wrap (5).
12. Lower the expansion vessel (6) and remove it.

Figure 52 - Replacing the expansion vessel - 2



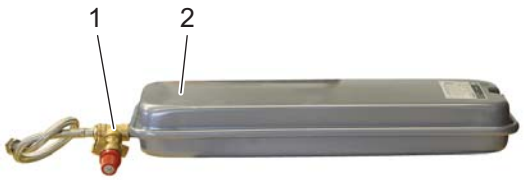
1. Nut
2. Manometer capillary
3. Expansion vessel support
4. Screw
5. Tie wrap
6. Expansion vessel
7. Field supplied drain hose (not installed)

	CAUTION Note the orientation of the pressure relief valve, it must be reinstalled in the same orientation

13. Loosen and remove the T-coupling (1) from the expansion vessel (2).

14. Remove the glue remainder from the threads of the T-coupling (1) with a scraper and a brush.

Figure 53 - Replacing the expansion vessel - 3



1. T-coupling
2. Expansion vessel

Installation

	CAUTION If damaged, replace the seal for the flexible hose.

	CAUTION If required, adjust the pressure of the water expansion vessel.

	INFORMATION Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.
2. Fill the circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
3. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

3.2.9. Replacing the manometer

3.2.9.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 155.
4. Remove the top panel, refer to "Removing the top panel" on page 156.
5. Remove the left panel, refer to "Removing the side panels" on page 156.
6. Drain the water circuit, refer to "Draining the water circuit" on page 157.

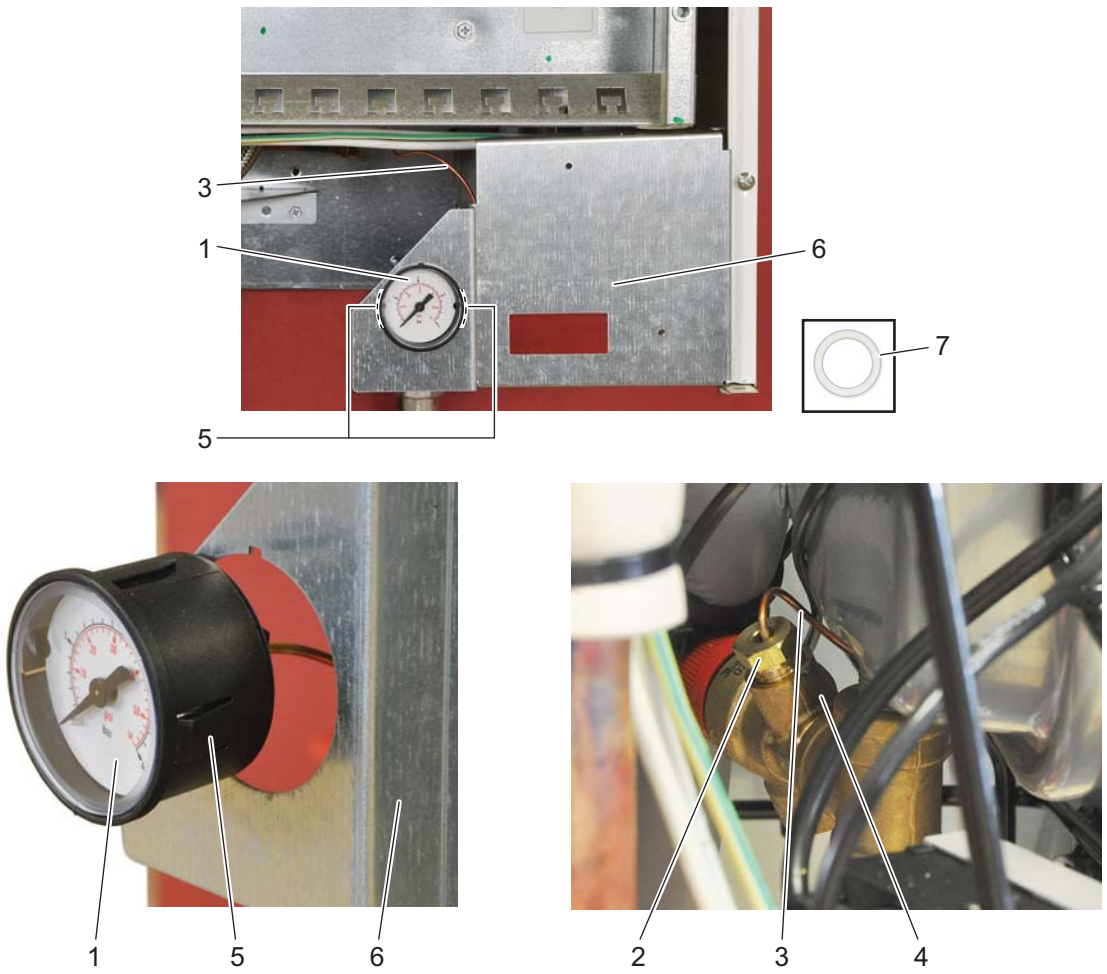
3.2.9.2 Procedure

Removal

> **CAUTION**
>
> The capillary connection is sealed by a copper seal; when removing the manometer capillary from the pressure relieve valve, make sure not to lose the copper seal.

1. Loosen and remove the nut (2) that fixes the manometer capillary (3) to the water pressure relief valve (4).
2. Remove the seal (7) from the manometer connection.
3. While pressing the latches (5), remove the manometer (1) from the manometer support (6).
4. Guide the manometer capillary (3) through the opening in the manometer support (6).

Figure 54 - Replacing the manometer - 1



1. Manometer
2. Nut
3. Manometer capillary
4. Water pressure relief valve
5. Latch
6. Manometer support
7. Seal

Installation

1. Proceed in reverse order.
2. Fill the water circuit, refer to “To fill the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.
3. Purge the water circuit, refer to “Air purge function on the space heating circuit” in the Daikin Altherma LT-CB Installer reference guide.

3.2.10. Replacing a thermistor

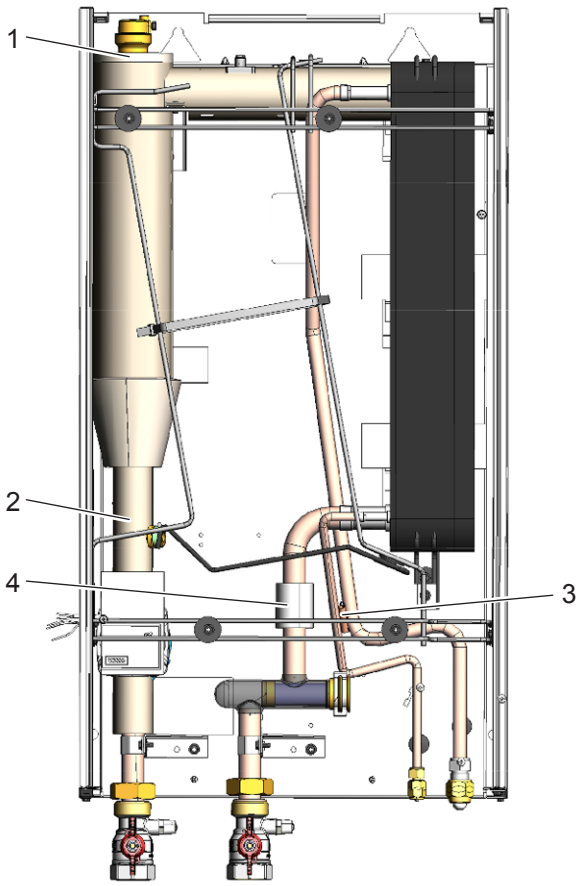
3.2.10.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 155.
4. Remove the side panels, refer to "Removing the side panels" on page 156.
5. Remove the switch box cover, refer to "Removing the switch box cover" on page 157.

3.2.10.2 Procedure

The position of the thermistors is illustrated in "Thermistor location" on page 176.

Figure 55 - Thermistor location



1. R1T (outlet water after PHE)
2. R2T (outlet water after backup heater)
3. R3T (refrigerant liquid)
4. R4T (inlet water)

Thermistor	Processed on PCB	Connector: pin	Access Information
R1T (outlet water after PHE)	A1P	X5A: 1-2	"Procedure for R1T" on page 178
R1T (A2P)	A1P	X5M: 1-2	See below
R2T (outlet water after backup heater)	A1P	X6A: 1-2	See below
R2T* external sensor (floor or ambient)	A1P		-
R3T (refrigerant liquid)	A1P	X7A: 1-2	See below
R4T (inlet water)	A1P	X8A: 1-2	See below
R6T* External indoor or outdoor ambient	A1P	X5M: 5-6	-

* = optional

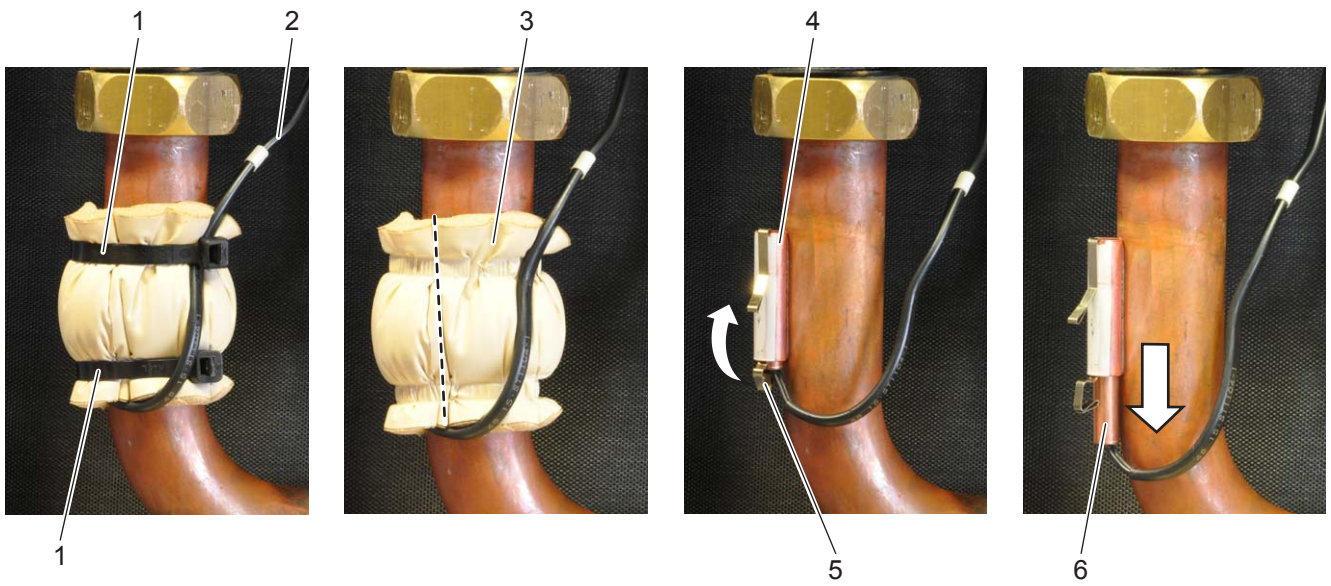
Replacement

Removal

The procedure below can be used for all thermistors except R1T ("Procedure for R1T" on page 178).

1. Cut the tie wraps (1) that fix the insulation (3) and the thermistor wire (2).
2. Cut the insulation (3) and remove it.
3. Pull the clip (5) that fixes the thermistor (6).
4. Remove the thermistor (6) from the thermistor holder (4).

Figure 56 - Replacing a thermistor - 1



1. Tie wrap
2. Thermistor wire
3. Insulation
4. Thermistor holder
5. Clip
6. Thermistor

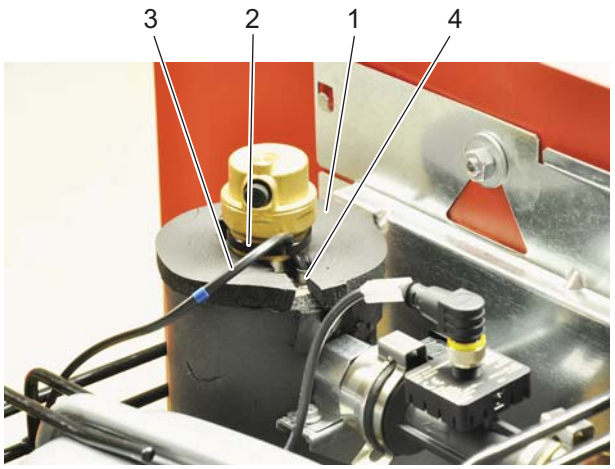
Installation

1. Proceed in reverse order.

3.2.10.3 Procedure for R1T

1. Remove the front panel, refer to "Removing the front panel" on page 155.
2. Remove the left panel, refer to "Removing the side panels" on page 156.
3. Cut the tie wrap (1) that fixes the thermistor wire (2).
4. Remove thermistor R1T (3) from the backup heater (4).

Figure 57 - Replacing thermistor R1T



1. Tie wrap	3. Thermistor R1T
2. Thermistor wire	4. Backup heater

3.2.11. Replacing the plate type heat exchanger

3.2.11.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front panel" on page 155.
4. Remove the top panel, refer to "Removing the top panel" on page 156.
5. Remove the side panels, refer to "Removing the side panels" on page 156.
6. Remove the switch box cover, refer to "Removing the switch box cover" on page 157.
7. Pump down the refrigerant, refer to "Refrigerant pump down" on page 118.
8. Connect a nitrogen hose to the outdoor suction service port.
9. Attach a hose with core-depressor to allow the release of the nitrogen.
10. Relocate the switch box, refer to "Relocating the switch box" on page 159.

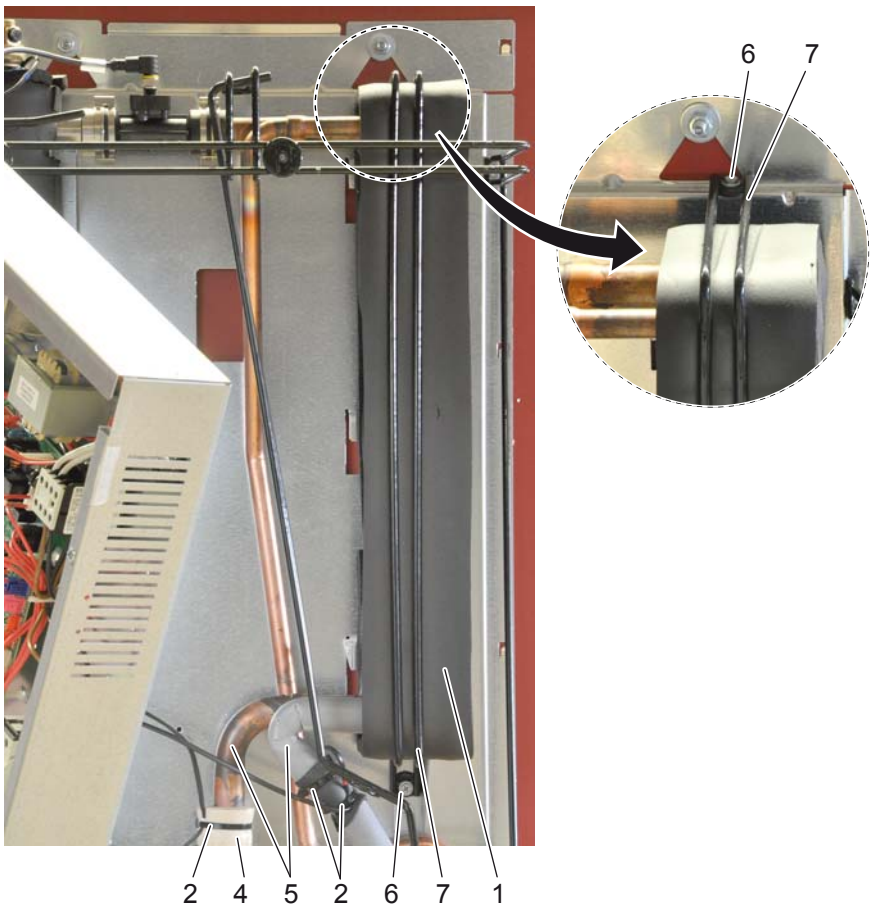
3.2.11.2 Procedure

1. Cut the tie wraps (2) and remove the R3T and R4T insulation (3,4).
2. Remove the thermistors from their supports, refer to "Replacing a thermistor" on page 149.
3. Using a pipe cutter, cut the 4 plate type heat exchanger pipes (5).
4. Loosen and remove the 2 screws (6) that fix the plate type heat exchanger bracket (7).
5. Remove the plate type heat exchanger bracket (7).
6. Remove the plate type heat exchanger (1).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

7. Supply nitrogen to the piping circuit.
8. Heat the 4 plate type heat exchanger pipes (5) using an oxygen acetylene torch.
9. When the solder is liquid, remove the 4 plate type heat exchanger pipes (5).
10. Cut the nitrogen supply when the piping has cooled down.

Figure 58 - Replacing the plate type heat exchanger - 2



1. Plate type heat exchanger
2. Tie wrap
3. R3T insulation
4. R4T insulation
5. Plate type heat exchanger pipe
6. Screw
7. Bracket

Installation

> **INFORMATION**
> Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

> **CAUTION**
> Overheating the plate type heat exchanger will damage or destroy it.

2. Cover the plate type heat exchanger with a wet cloth to prevent overheating.

4. Unit specific repair procedures Small (04-08 kW) Outdoor Unit

4.1. Unit specific refrigerant and water procedures

Overview of parts replacement procedures:

Removing the top plate 181
Removing the front plate assembly 182
Removing the right side plate assembly 183
Removing the compressor sound insulation 186

4.1.1. Removing the top plate

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Loosen and remove the screw (1) that fixes the top plate (2) to the heat exchanger.
4. Loosen and remove the 2 screws (3) that fix the top plate (2) to the right side plate assembly.
5. Loosen and remove the screw (4) that fixes the top plate (2) to the front plate assembly.
6. Lift the top plate (2) and remove it from the unit.

CAUTION

When installing the top plate assembly, the screw (1) is the shortest screw.

Figure 59 - Removing the top plate



1. Screw
2. Top plate
3. Screw
4. Screw

4.1.2. Removing the front plate assembly

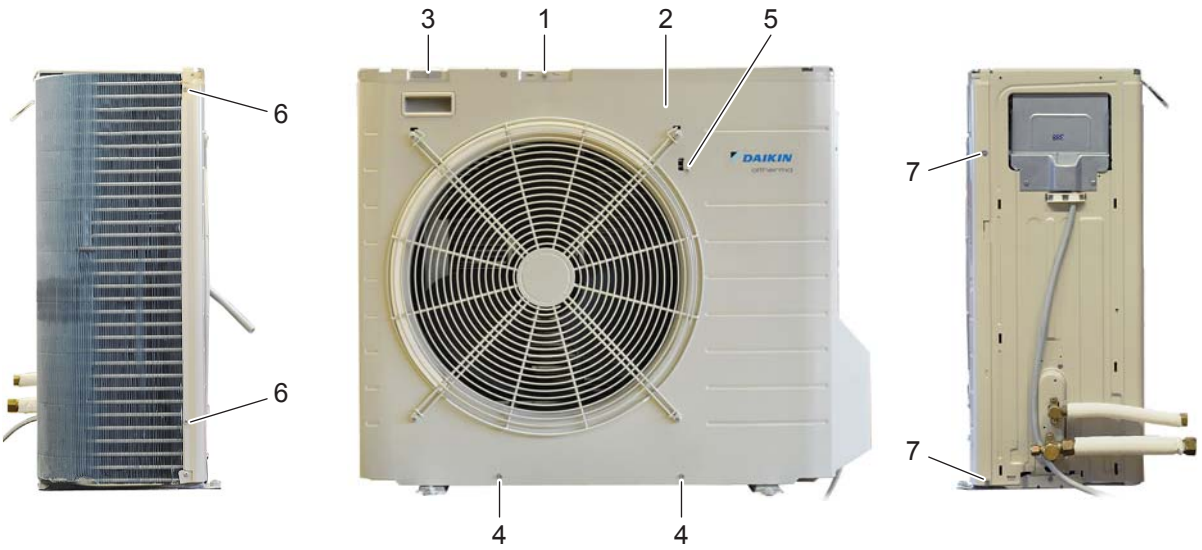
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Loosen and remove the screw (1) that fixes the front plate assembly (2) to the fan motor stand assembly.
5. Loosen and remove the screw (3) that fixes the front plate assembly (2) to the top plate support.
6. Loosen and remove the 2 screws (4) that fix the front plate assembly (2) to the bottom frame.

CAUTION

The screw (5) must be reinstalled in the same position.

7. Loosen and remove the screw (5) that fixes the front plate assembly (2) to the partition plate assembly.
8. Loosen and remove the 2 screws (6) that fix the front plate assembly (2) to the heat exchanger.
9. Loosen and remove the 2 screws (6) that fix the front plate assembly (2) to the right side plate assembly.
10. Lift the front plate assembly (2) and remove it from the unit.

Figure 60 - Removing the front plate assembly



1. Screw	4. Screw
2. Front plate assembly	5. Screw
3. Screw	6. Screw

4.1.3. Removing the stop valve cover assembly

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Loosen and remove the screws (1) that fixes the stop valve cover assembly (2).
4. Lift and remove the stop valve cover assembly (2) from the Daikin Altherma GBS.

Figure 61 - Removing the stop valve cover assembly



1. Screw	2. Stop valve cover assembly

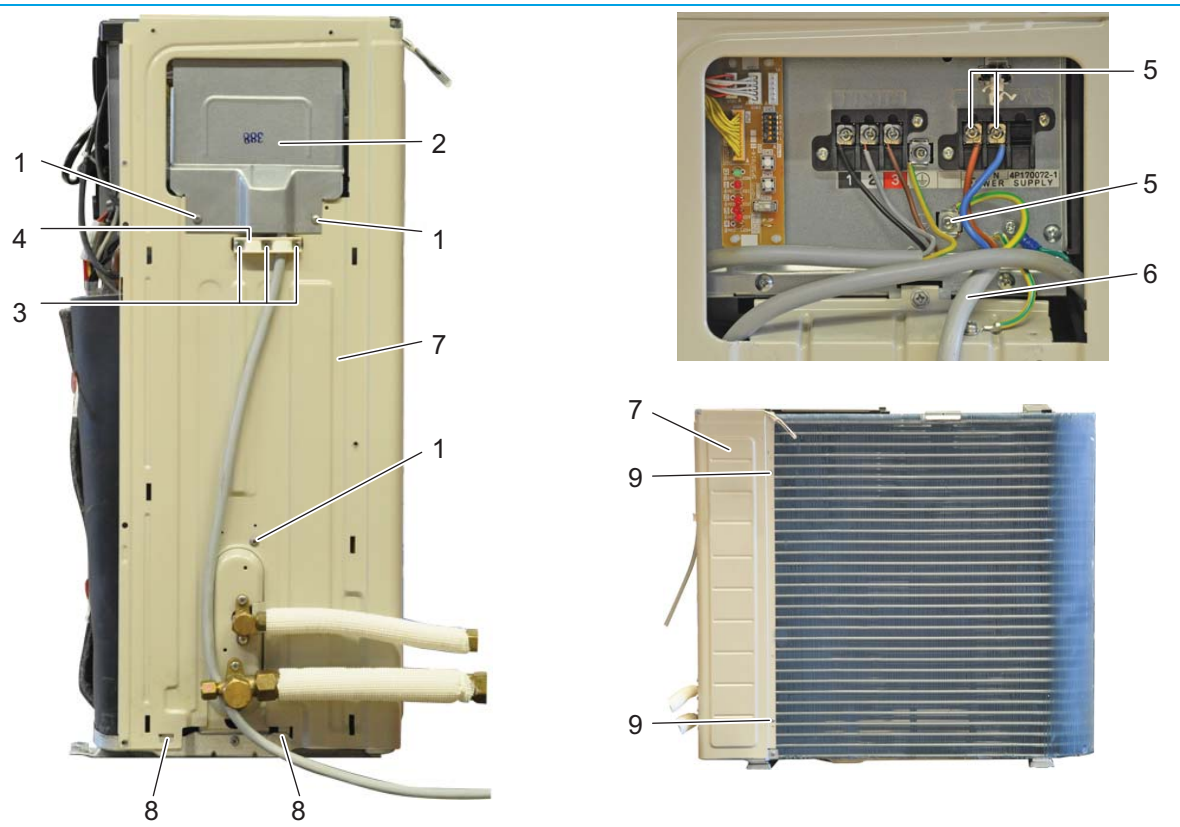
4.1.4. Removing the right side plate assembly

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate" on page 181.
4. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
5. Loosen and remove the 2 screws (1) that fix the shield plate (2).
6. Loosen and remove the 3 screws (3) that fix the wire clamp (4).
7. Loosen the 3 wire terminals (5) and remove the power cable (6).
8. Loosen and remove the 2 screws (9) that fix the wire clamp (7).
9. Lift and remove the right side plate assembly (7) from the Daikin Altherma GBS.

CAUTION

When installing the right side plate assembly, check the correct positioning of the 2 fingers (8).

Figure 62 - Removing the right side plate assembly



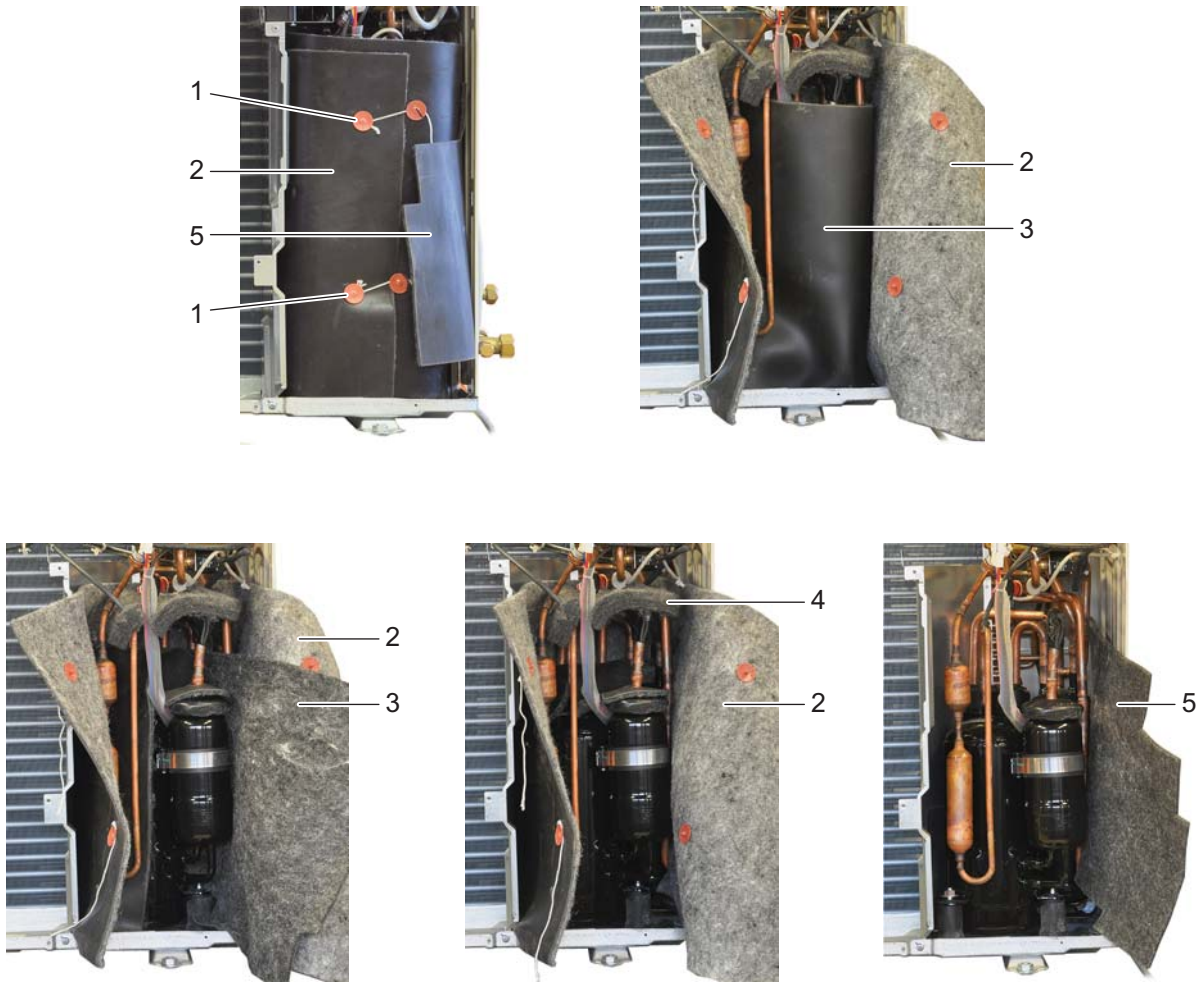
1. Screw
2. Shield plate
3. Screw
4. Wire clamp
5. Wire terminal
6. Power cable
7. Right side plate assembly
8. Finger
9. Screw

4.1.5. Removing the compressor sound insulation

Removal

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
4. Untie the strings (1) and open the sound insulation (sleeve) (2).
5. Open the sound insulation (inner) (3).
6. Remove the sound insulation (inner) (3).
7. Remove the sound insulation (sleeve) (2).
8. Remove the sound insulation (top) (4).
9. Remove the sound insulation (back) (5).

Figure 63 - Removing the compressor sound insulation



1. String
2. Sound insulation (sleeve)
3. Sound insulation (inner)
4. Sound insulation (top)
5. Sound insulation (back)

4.2. Parts replacement procedures

Overview of parts replacement procedures:

Replacing the propeller fan blade assembly....186
Replacing the DC fan motor assembly....187
Replacing the PCB1 main....187
Replacing the PCB2 inverter....190
Replacing the switch box....192
Replacing a thermistor....194
Replacing the compressor....195
Replacing the accumulator assembly....197
Replacing the 4-way valve coil....199
Replacing the 4-way valve....199
Replacing the high pressure switch S1PH....201
Replacing the pressure sensor S1NPH....202
Replacing the expansion valve Y1E motor....203
Replacing the expansion valve Y1E....205

4.2.1. Replacing the propeller fan blade assembly

4.2.1.1 Preliminary actions

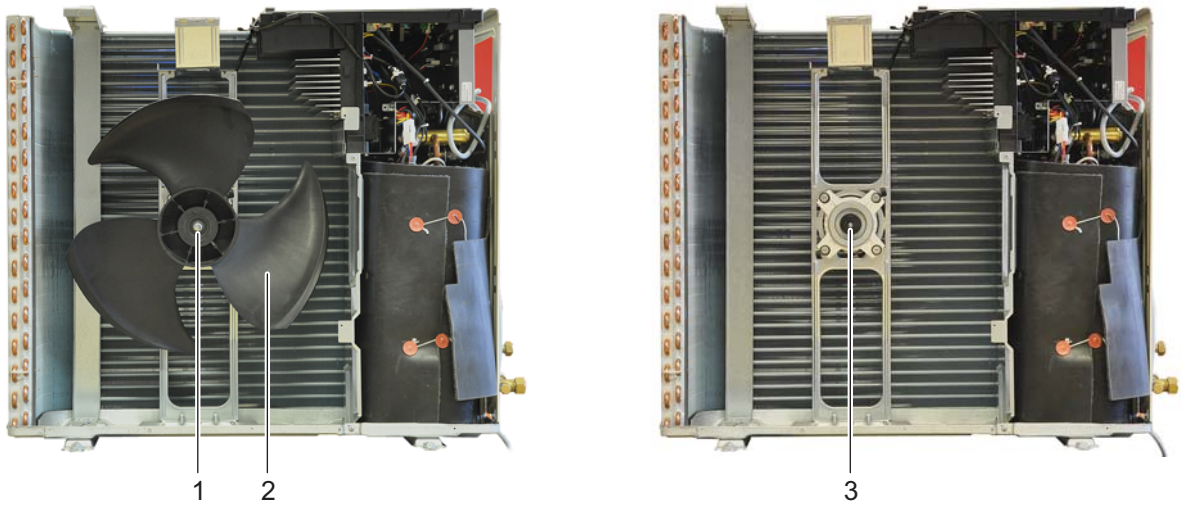
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.

4.2.1.2 Procedure

Removal

1. Remove the nut (1) that fixes the propeller fan blade assembly (2).
2. Pull the propeller fan blade assembly (2) from the fan motor assembly (3).

Figure 64 - Removing the propeller fan blade assembly



1. Nut
2. Propeller fan blade assembly
3. Fan motor assembly

Installation

CAUTION

Do not install a damaged propeller.

1. Proceed in reverse order.

4.2.2. Replacing the DC fan motor assembly

4.2.2.1 Preliminary actions

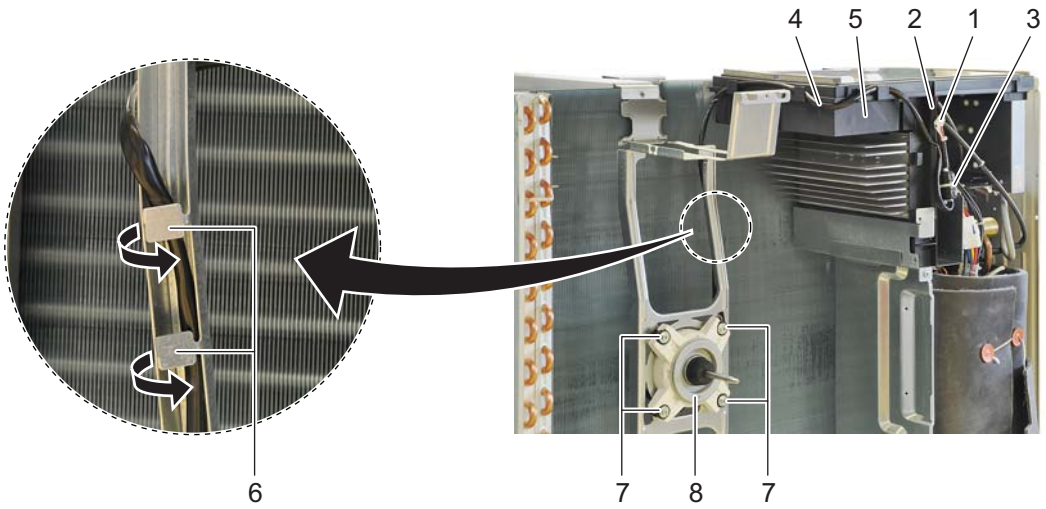
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the propeller fan blade assembly, refer to "Replacing the propeller fan blade assembly" on page 186.

4.2.2.2 Procedure

Removal

1. Unplug S70 (1) from PCB2 (2).
2. Unlock the ferrite bead (3).
3. Release the fan motor assembly harness (4) from the electrical component box (5).
4. Slightly bend the harness retainers (6) to release the fan motor assembly harness (4).
5. Loosen and remove the 4 screws (7) that fix the DC fan motor assembly (8).
6. Remove the DC fan motor assembly (8).

Figure 65 - Removing the DC fan motor assembly



1. S70	5. Electrical component box
2. PCB2	6. Harness retainer
3. Ferrite bead	7. Screw
4. Fan motor assembly harness	8. Fan motor assembly

Installation

1. Proceed in reverse order.

4.2.3. Replacing the PCB1 main

4.2.3.1 Preliminary actions

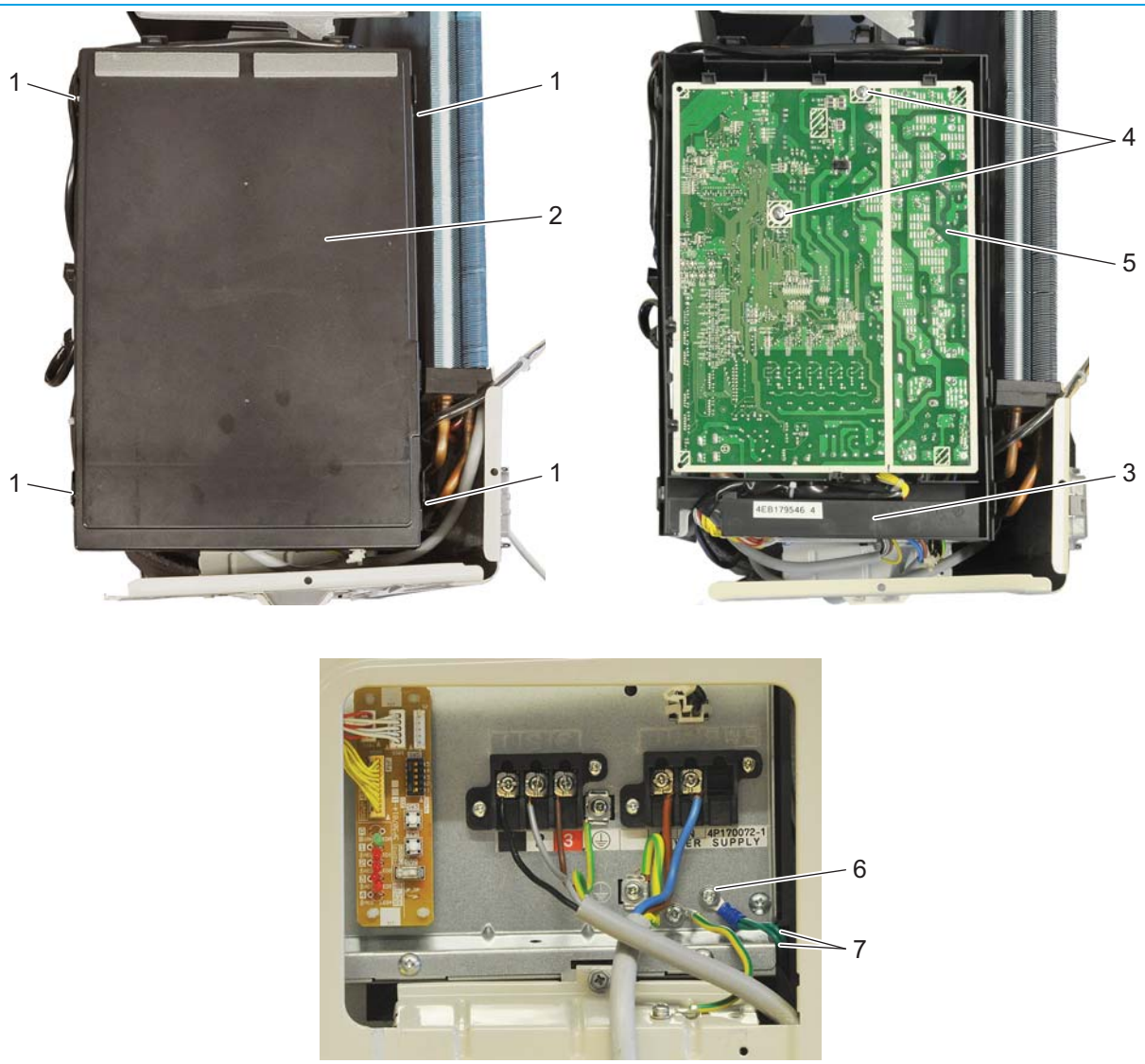
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.

4.2.3.2 Procedure

Removal

1. Unlock the 4 latches (1) and remove the electrical component box cover (2) from the electrical component box (3).
2. Loosen and remove the 2 screws (4) that fix the PCB assembly main (5).
3. Loosen and remove the screw (6) that fixes ground wires E1, E2 (7).

Figure 66 - Removing the PCB assembly main - 1

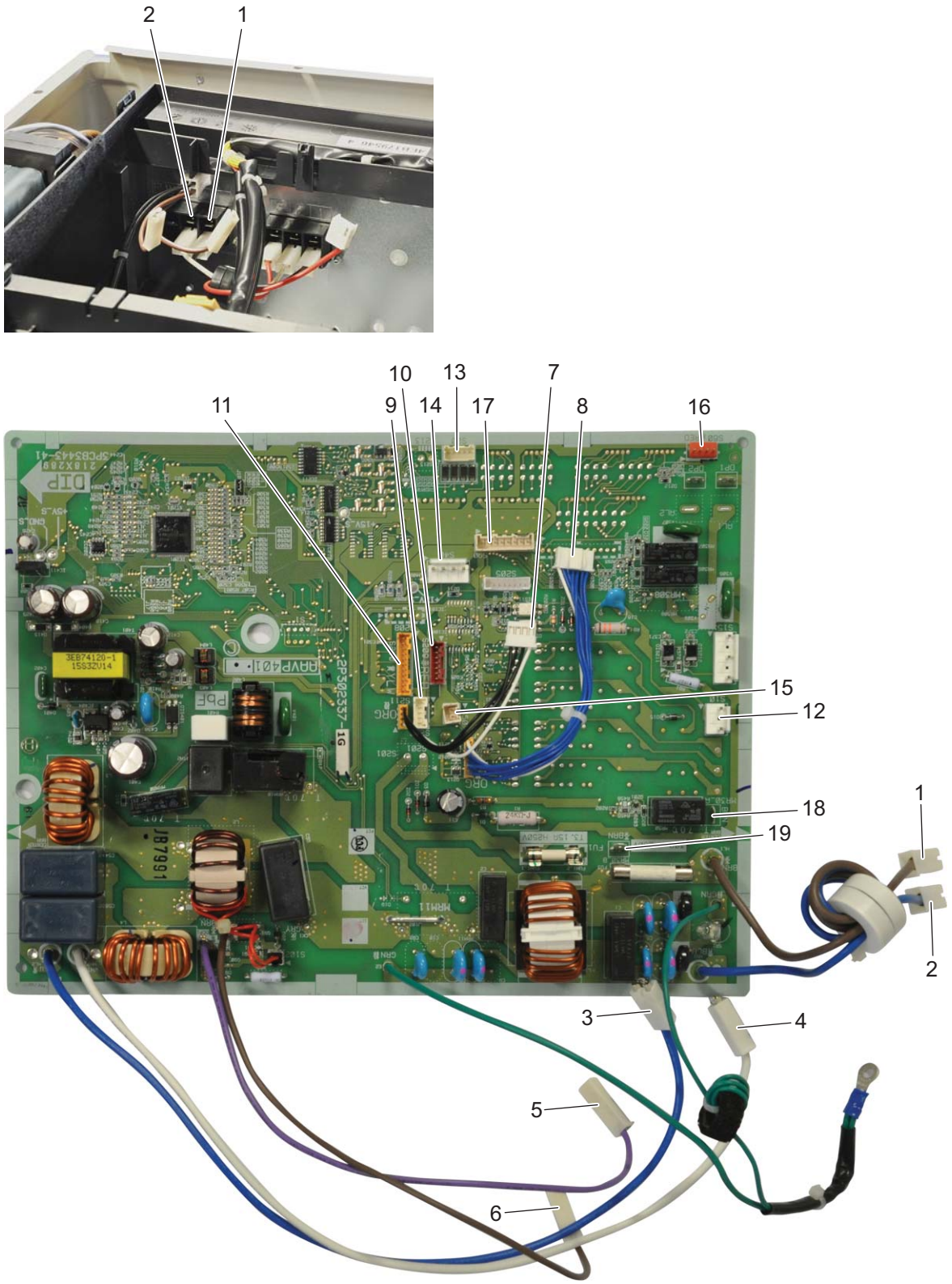


1. Latch
2. Electrical component box cover
3. Electrical component box
4. Screw
5. PCB assembly main
6. Screw
7. Ground wires E1, E2

4. Unplug Faston plugs X1M-L (1) and X1M-N (2).
5. Unplug Faston plugs HL402 (3) and HN402 (4) from the PCB2 inverter.
6. Unplug Faston plugs DCP2 (5) and DCM2 (6) from the PCB2 inverter.
7. Unplug connectors S411 (7) and S401 (8), from the PCB2 inverter.
8. Unplug connectors S206 (9), S209 (10), S210 (11), S10 (12), S20 (13), S40 (14), S50 (15), S60 (16), S90 (17), MR30_A (18) and MR30_B (19) from the PCB assembly main (5).

9. Remove the PCB assembly main (5).

Figure 67 - Removing the PCB assembly main - 2



1. X1M-L	5. DCP2	9. S206	13. S20	17. S90
2. X1M-N	6. DCM2	10. S209	14. S40	18. MR30_A
3. HL402	7. S411	11. S210	15. S50	19. MR30_B
4. HN402	8. S401	12. S10	16. S60	

Installation

1. Proceed in reverse order.

4.2.4. Replacing the PCB2 inverter

4.2.4.1 Preliminary actions

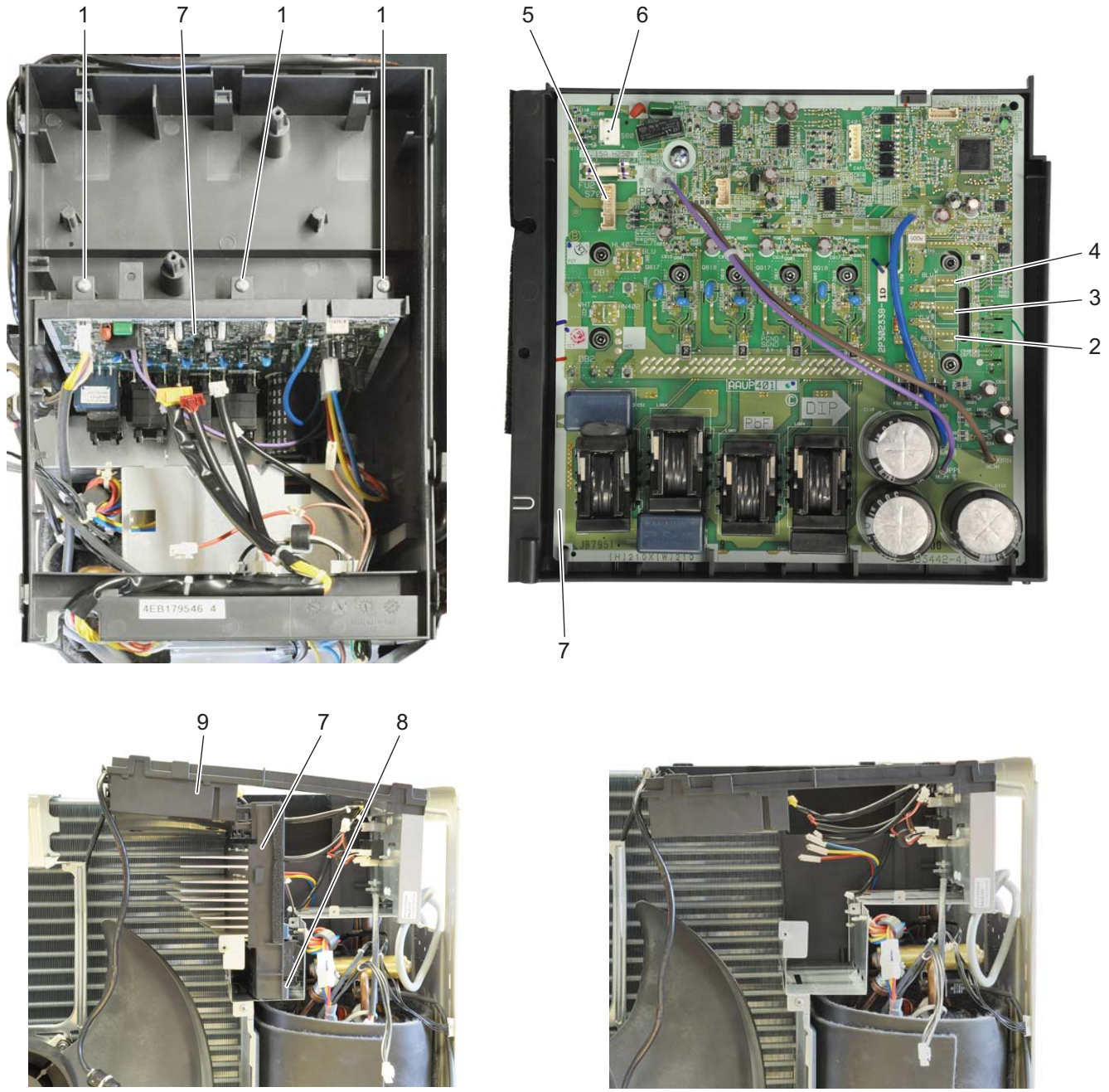
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the PCB assembly main, refer to "Replacing the PCB1 main" on page 187.

4.2.4.2 Procedure

Removal

1. Loosen and remove the 3 screws (1).
2. Unplug Faston plugs U (2), V (3) and W (4) from the PCB2 assembly inverter (7).
3. Unplug connectors S70 (5) and S80 (6) from the PCB2 assembly inverter (7).
4. Loosen and remove the screw (8).
5. Slightly lift the electrical component box cover assembly (9) and remove the PCB2 assembly (7).

Figure 68 - Removing the PCB assembly inverter - 2



1. Screw
2. U
3. V
4. W
5. S70
6. S80
7. PCB2 assembly inverter
8. Screw
9. Electrical component box cover assembly

Installation

1. Proceed in reverse order.

4.2.5. Replacing the switch box

4.2.5.1 Preliminary actions

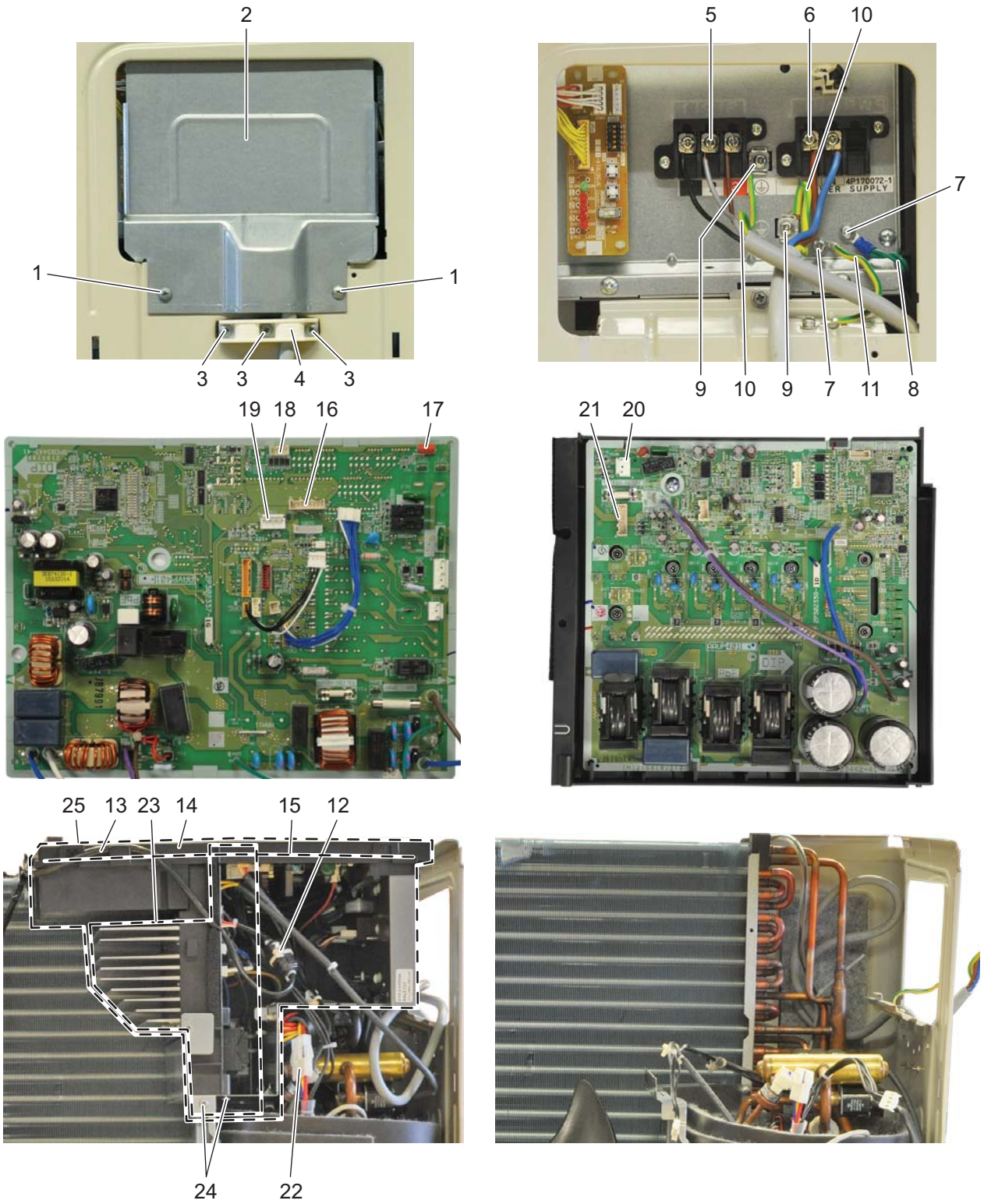
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 182.
4. Remove the stop valve cover assembly, refer to "Removing the stop valve cover assembly" on page 182

4.2.5.2 Procedure

Removal

1. Loosen and remove the 2 screws (1) that fix the shield plate (2).
2. Loosen and remove the 3 screws (3) that fix the wire clamp (4).
3. Remove the wring from X2M (5) and X1M(6).
4. Loosen and remove the screw (7) that fixes the ground wires E1,E2 (8).
5. Loosen and remove the screw (7) that fixes the chassis ground wire (11).
6. Loosen and remove the 2 screws (9) that fix the 2 power cables ground wires (10).
7. Detach the cable clamp on the compressor wires located at the ferrite core (12).
8. Detach the cable clamps for the fan motor wire, the thermistors (2x) and the pressure sensor.
9. Release the fan motor assembly harness (13) from the electrical component box (14).
10. Unplug connectors S40 (19), S90 (16), S60 (17), S20 (18) from the PCB assembly main (15).
11. Unplug connectors S80 (20), S70 (21) from the PCB assembly inverter (23).
12. Unplug Faston plugs U, V, W (22) (compressor cable).
13. Loosen and remove the 2 screws (24) that fix the switch box (5).
14. Pull the switch box to remove it from the unit.

Figure 69 - Removing the switch box



1. Screw
2. Shield plate
3. Screw
4. Cable clamp
5. X2M
6. X1M
7. Screw
8. Ground wires E1,E2
9. Screw
10. Power cables ground wires
11. Chassis ground wire
12. Ferrite core
13. Fan motor assembly harness
14. Electrical component box
15. PCB assembly main
16. S90
17. S60
18. S20
19. S40
20. S80
21. S70
22. U, V, W
23. PCB2 assembly inverter
24. Screw
25. Switch box

Installation

> **INFORMATION**
> Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

4.2.6. Replacing a thermistor

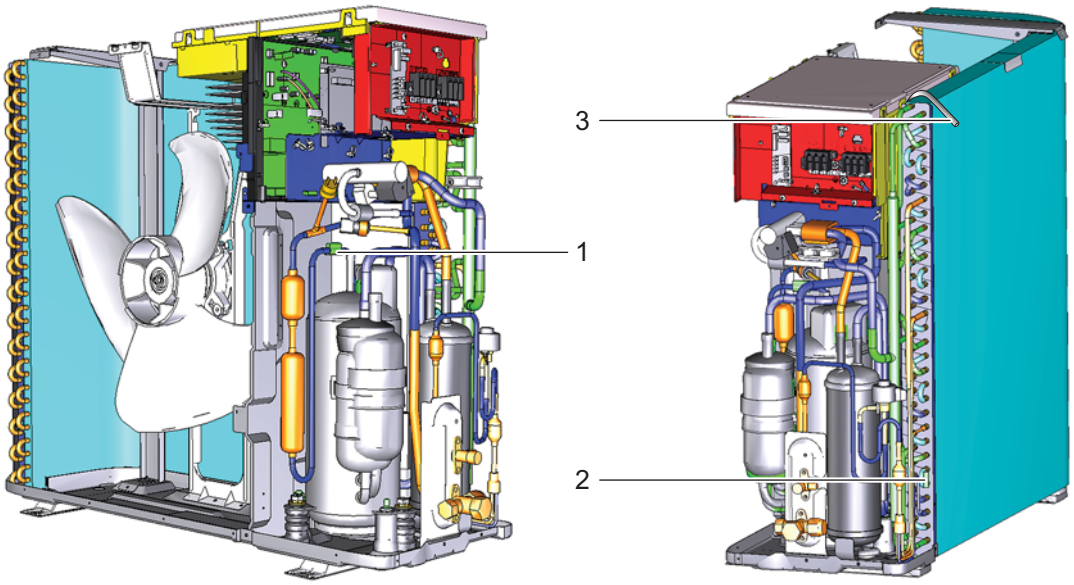
4.2.6.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front panel, refer to "Removing the front plate assembly" on page 182.

4.2.6.2 Procedure

The position of the thermistors is illustrated in "Thermistor location" on page 149.

Figure 70 - Thermistor location



1. R1T
2. R2T
3. R3T

Thermistor	Processed on PCB	Connector: pin	Access Information
R1T (discharge)	PCB1	S90: 5-6	Remove compressor sound insulation (top).
R2T (heat exchanger)	PCB1	S90: 3-4	Remove right side plate assembly, "Removing the right side plate assembly" on page 183.
R3T (air)	PCB1	S90: 1-2	-

4.2.7. Replacing the compressor

4.2.7.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the switch box, refer to "Replacing the switch box" on page 192.
5. Remove the compressor sound insulation, refer to "Removing the compressor sound insulation" on page 184.
6. Connect a nitrogen hose to the outdoor suction service port.
7. Attach a hose with core-depressor to allow the release of the nitrogen.

4.2.7.2 Procedure

Removal

1. Loosen and remove the 2 screws (1) that fix the partition plate assembly (2).
2. Remove the partition plate assembly (2).
3. Remove the terminal cover (3) and unplug the compressor wiring (4).
4. Using a pipe cutter, cut the compressor pipes (5) below the soldered joint.
5. Loosen and remove the 3 nuts (6) that fix the compressor (7).
6. Remove the compressor (7).
7. Remove the dampers (9) with bushings (10) from the compressor (7).
8. Recuperate the putty (8).

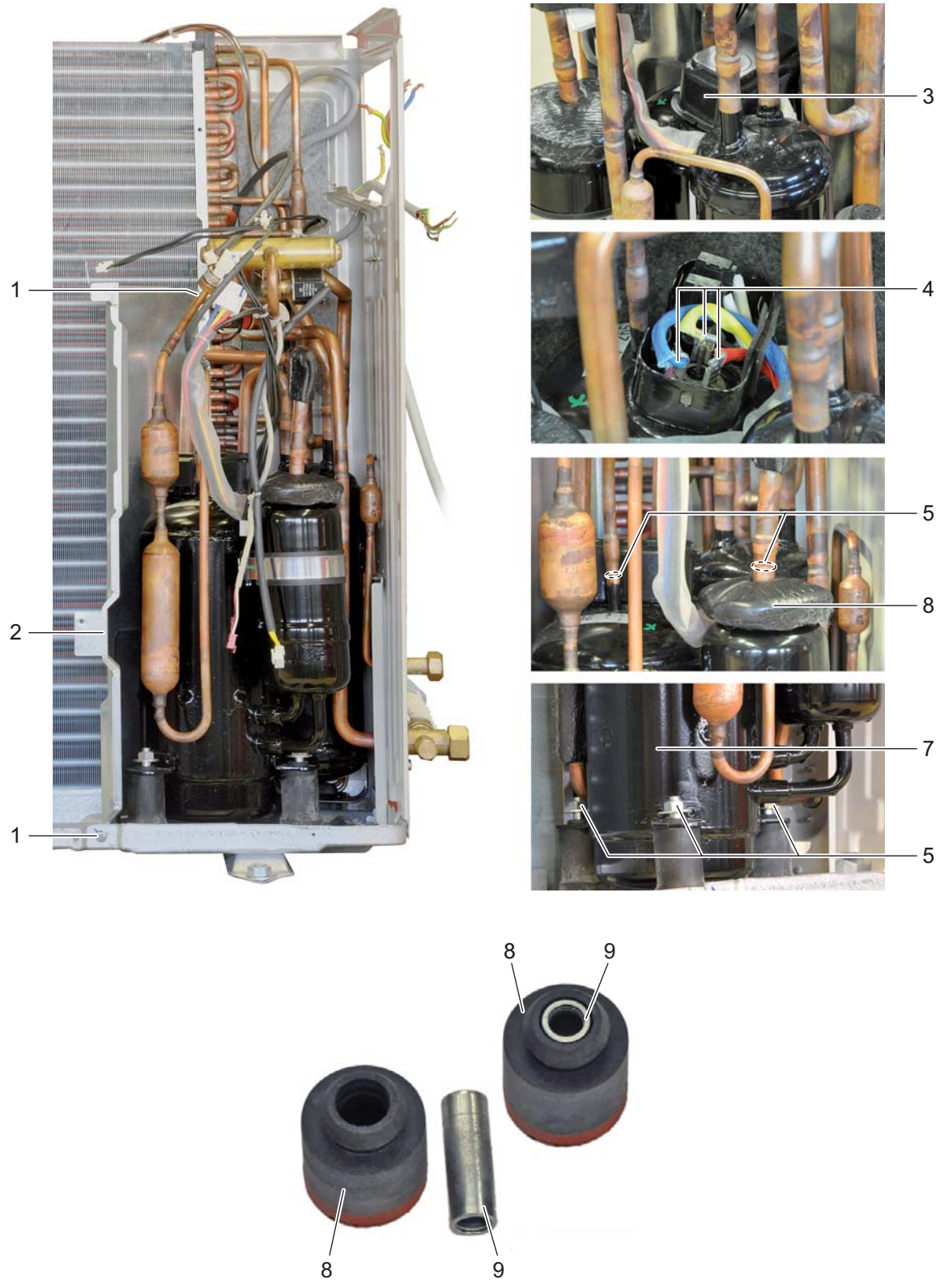


CAUTION

The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

9. Supply nitrogen to the piping circuit.
10. Heat the 2 compressor pipes (5) using an oxygen acetylene torch.
11. When the solder is liquid, remove the 2 compressor pipes (5).
12. Cut the nitrogen supply when the piping has cooled down.

Figure 71 - Removing the compressor



1. Screw
2. Partition plate assembly
3. Terminal cover
4. Compressor wiring
5. Compressor pipe
6. Nut
7. Compressor
8. Putty
9. Dampers
10. Bushing

Installation

> **CAUTION**
> The oil in the compressor is hygroscopic. Remove the caps from the compressor piping as late as possible.

> **INFORMATION**
> Before installing a new compressor, determine the cause of the compressor failure and take all required corrective actions.

> **INFORMATION**
> If the dampers are worn, replace the dampers. The bushings inside the dampers are recuperated for use with the new dampers.

> **INFORMATION**
> Install the putty on the compressor.
> Install the compressor sound insulation in the same location.

1. Check damper status, replace when worn.
2. First install the 3 (new) dampers (without the bushings) on the new compressor.
3. Install the 3 bushings in the dampers.
4. When installing the new compressor, remove the caps from the compression pipe and the suction pipe as late as possible.
5. When soldering the compressor pipes, cover the compressor pipes with a wet cloth to prevent overheating the compressor (and the oil in the compression pipe).
6. Proceed in reverse order.

4.2.8. Replacing the accumulator assembly

4.2.8.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the switch box, refer to "Replacing the switch box" on page 192.
5. Remove the compressor sound insulation, refer to "Removing the compressor sound insulation" on page 184.
6. Remove the right side plate assembly, refer to "Removing the right side plate assembly" on page 183.
7. Connect a nitrogen hose to the outdoor suction service port.
8. Attach a hose with core-depressor to allow the release of the nitrogen.

4.2.8.2 Procedure

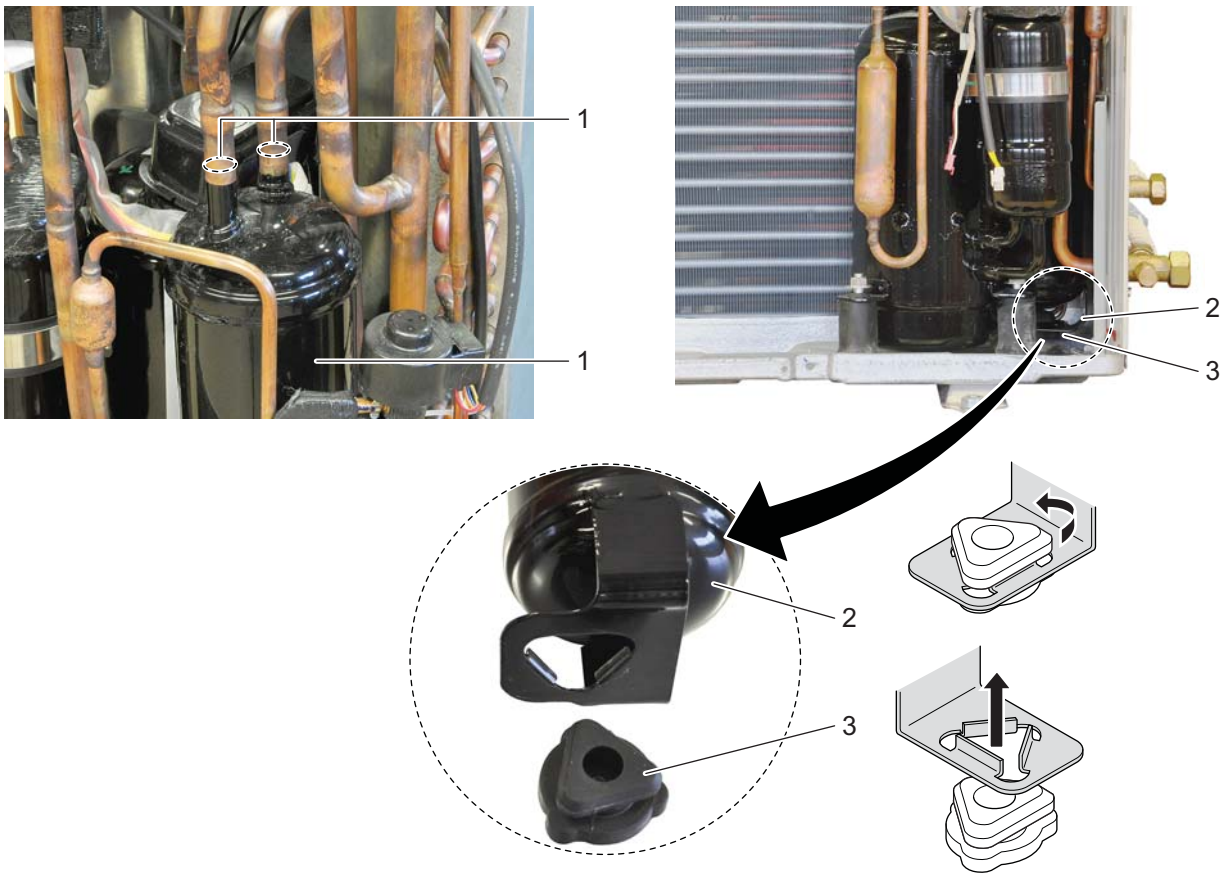
Removal

1. Cut the accumulator pipes (1) below the soldered joint.
2. Turn and remove the accumulator assembly (2) from the accumulator cushion rubber (3).
3. Remove the accumulator assembly (2).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

4. Supply nitrogen to the piping circuit.
5. Heat the 2 accumulator assembly pipes (1) using an oxygen acetylene torch.
6. When the solder is liquid, remove the 2 accumulator assembly pipes (1).
7. Cut the nitrogen supply when the piping has cooled down.

Figure 72 - Removing the accumulator assembly



1. Accumulator assembly pipes
2. Accumulator assembly
3. Accumulator cushion rubber

Installation

1. Proceed in reverse order.

4.2.9. Replacing the 4-way valve coil

4.2.9.1 Preliminary actions

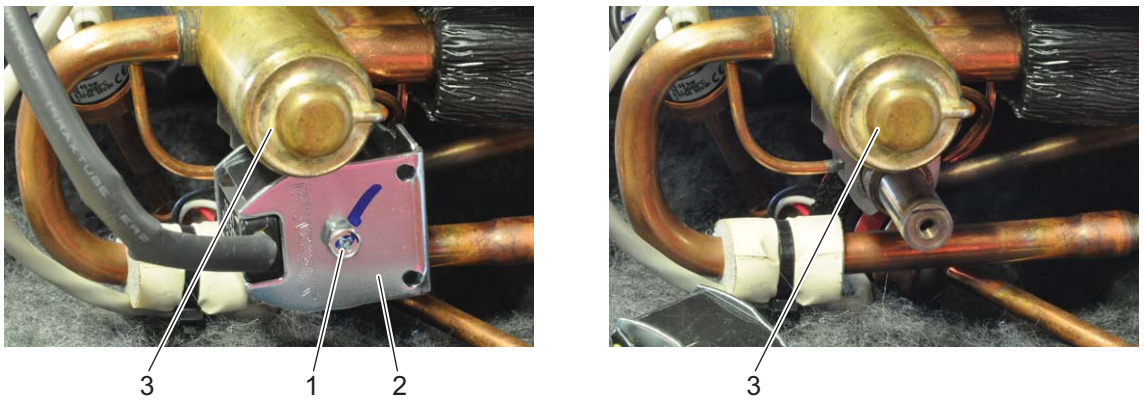
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.

4.2.9.2 Procedure

Removal

1. Loosen and remove the screw (1) that fixes the 4-way valve coil (3).
2. Cut the tie wraps that fix the 4-way valve coil wiring.
3. Unplug connector S80 from the PCB2 inverter board.

Figure 73 - Removing the 4-way valve coil



1. Screw 2. Tie wrap	3. 4-way valve coil

Installation

1. Proceed in reverse order.

4.2.10. Replacing the 4-way valve

4.2.10.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the switch box, refer to "Replacing the switch box" on page 192.
5. Remove the compressor sound insulation, refer to "Removing the compressor sound insulation" on page 184.
6. Connect a nitrogen hose to the outdoor suction service port.
7. Attach a hose with core-depressor to allow the release of the nitrogen.

4.2.10.2 Procedure

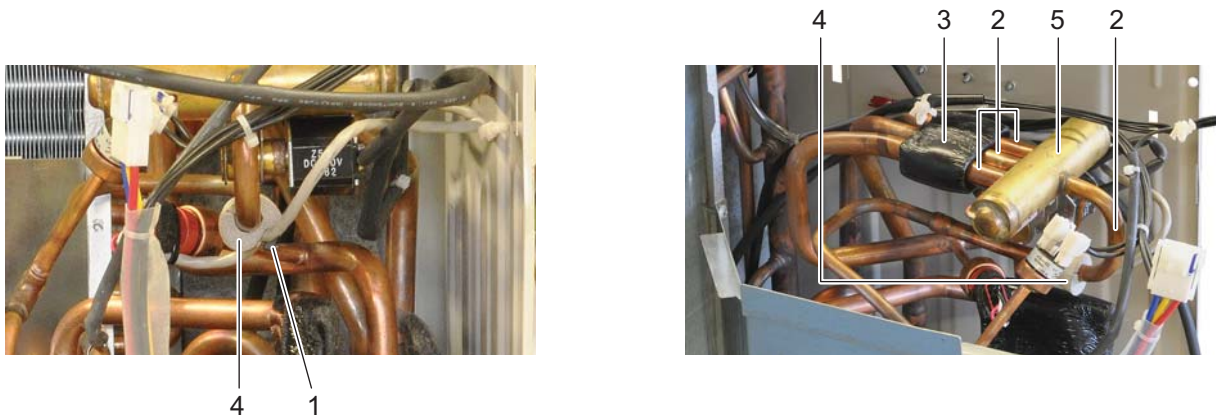
Removal

1. Cut the tie wrap (1).
2. Cut the 4-way valve pipes (2).
3. Remove the 4-way valve (5).
4. Recuperate the putty (3).
5. Recuperate the insulation (4).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

6. Supply nitrogen to the piping circuit.
7. Using an oxygen acetylene torch, heat a solder connection of the 4-way valve (5).
8. When the solder material is liquid, pull the 4-way valve pipe (5).
9. Repeat steps 7 and 8 for the 3 remaining 4-way valve pipes (5).
10. Cut the nitrogen supply when the piping has cooled down.

Figure 74 - Removing the 4-way valve



1. Tie wrap
2. 4-way valve pipe
3. Putty
4. Insulation
5. 4-way valve

Installation

> **WARNING**
> Overheating the 4-way valve will damage or destroy it.

1. Wrap a wet rag around the 4-way valve (5).

> **INFORMATION**
> Install the putty on the 4-way valve.
> Install the compressor sound insulation in the same location.

2. Proceed in reverse order.

4.2.11. Replacing the high pressure switch S1PH

4.2.11.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the switch box, refer to "Replacing the switch box" on page 192.
5. Connect a nitrogen hose to the outdoor suction service port.
6. Attach a hose with core-depressor to allow the release of the nitrogen.

4.2.11.2 Procedure

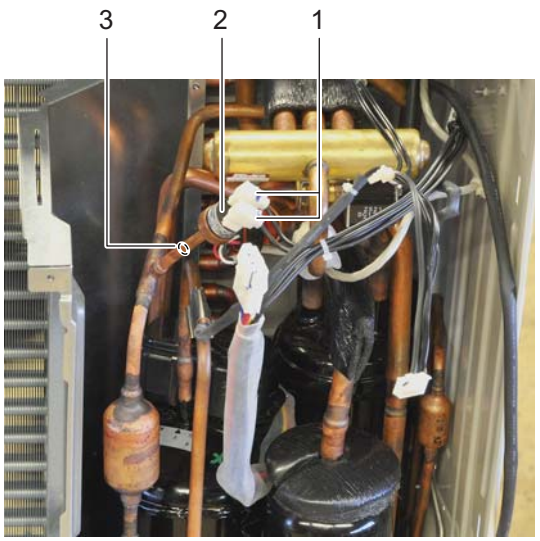
Removal

1. Remove the connectors (1) from the high pressure switch (2).
2. Using a pipe cutter, cut the pressure sensor pipe (3).
3. Remove the high pressure switch (2).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

4. Supply nitrogen to the piping circuit.
5. Heat the high pressure switch pipe (3) using an oxygen acetylene torch.
6. When the solder is liquid, remove the high pressure switch pipe (3).
7. Cut the nitrogen supply when the piping has cooled down.

Figure 75 - Removing the high pressure switch S1PH



1. Connector
2. High pressure switch S1PH
3. High pressure switch pipe

Installation

	**WARNING** Overheating the high pressure switch will damage or destroy it.

1. Wrap a wet rag around the high pressure switch (2).
2. Proceed in reverse order.

4.2.12. Replacing the pressure sensor S1NPH

4.2.12.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the switch box, refer to "Replacing the switch box" on page 192.
5. Remove the compressor sound insulation, refer to "Removing the compressor sound insulation" on page 184.
6. Connect a nitrogen hose to the outdoor suction service port.
7. Attach a hose with core-depressor to allow the release of the nitrogen.

4.2.12.2 Procedure

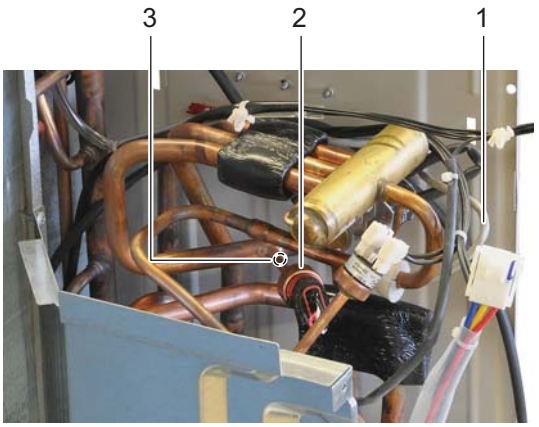
Removal

1. Cut the tie wrap that fixes the pressure sensor S1NPH cable (1).
2. Using a pipe cutter, cut the pressure sensor S1NPH pipe (3).
3. Remove the pressure sensor S1NPH (2).

	**CAUTION** The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

4. Supply nitrogen to the piping circuit.
5. Heat the pressure sensor S1NPH pipe (3) using an oxygen acetylene torch.
6. When the solder is liquid, pull the pressure sensor S1NPH pipe (3).
7. Cut the nitrogen supply when the piping has cooled down.

Figure 76 - Removing the pressure sensor S1NPH



1. Pressure sensor S1NPH cable
2. Pressure sensor S1NPH
3. Pressure sensor S1NPH pipe

Installation

WARNING

Overheating the pressure sensor S1NPH (2) will damage or destroy it.

1. Wrap a wet rag around the pressure sensor S1NPH (2).
2. Proceed in reverse order.

4.2.13. Replacing the expansion valve Y1E motor

4.2.13.1 Preliminary actions

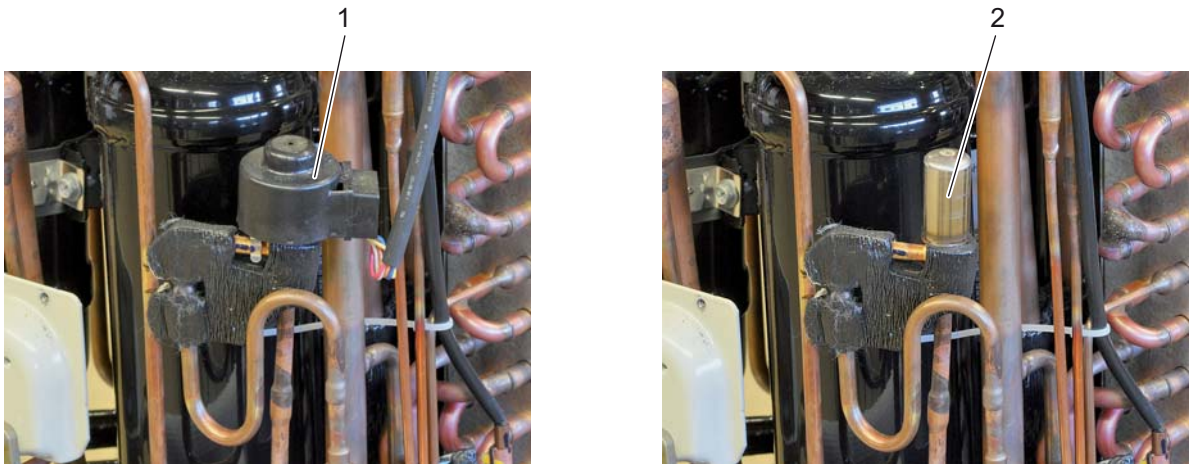
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the right side plate assembly, refer to "Removing the right side plate assembly" on page 183.

4.2.13.2 Procedure

Removal

1. Remove the expansion valve motor (1) from the expansion valve Y1E (2).
2. Unplug connector S20 from PCB1.
3. Cut all tie wraps that fix the expansion valve motor (1) wiring.

Figure 77 - Removing the expansion valve Y1E motor



1. Expansion valve motor
2. Expansion valve Y1E

Installation

INFORMATION

Replace all tie wraps that were cut during removal.

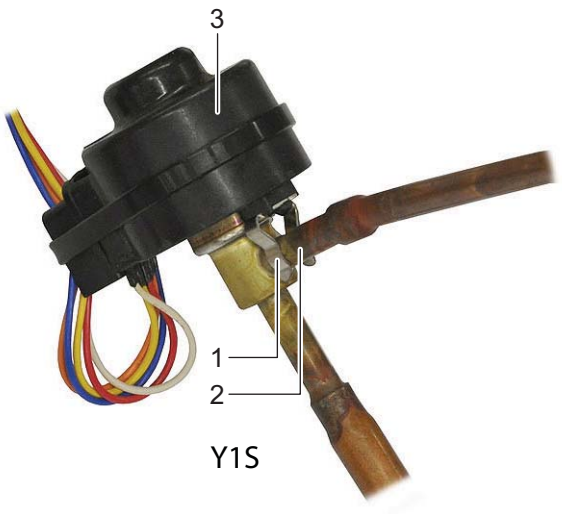
1. Proceed in reverse order.

INFORMATION

The expansion valve Y1S motor (3) is equipped with a pipe retention clip (1). The pipe retention clip (1) must be placed over the pipe (2) to lock the expansion valve Y1S motor (3).

2. When installing the expansion valve Y1S motor (3), lock it on the expansion valve.

Figure 78 - Locking the expansion valve Y1E motor



1. Pipe retention clip
2. Pipe
3. Expansion valve Y1S motor

4.2.14. Replacing the expansion valve Y1E

4.2.14.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the expansion valve motor, refer to "Replacing the expansion valve Y1E motor" on page 203.
4. Connect a nitrogen hose to the outdoor suction service port.
5. Attach a hose with core-depressor to allow the release of the nitrogen.

4.2.14.2 Procedure

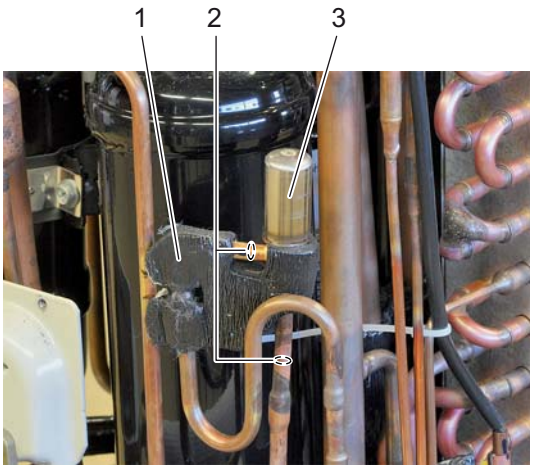
Removal

1. Recuperate the putty (1).
2. Using a pipe cutter, cut the expansion valve pipes (2).
3. Remove the expansion valve Y1E (3).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

4. Supply nitrogen to the piping circuit.
5. Heat the expansion valve Y1E pipes (2) using an oxygen acetylene torch.
6. When the solder is liquid, remove the expansion valve Y1E pipes (2).
7. Cut the nitrogen supply when the piping has cooled down.

Figure 79 - Removing the expansion valve Y1E



1. Putty
2. Expansion valve Y1E pipe
3. Expansion valve Y1E

Installation

	**WARNING** Overheating the expansion valveY1E will damage or destroy it.

1. Wrap a wet rag around the expansion valve Y1E (3).

	**INFORMATION** Install the putty on the expansion valve piping.

2. Proceed in reverse order.

5. Unit specific repair procedures Big (11-16 kW) Outdoor Unit

5.1. Unit specific refrigerant and water procedures

Overview of parts replacement procedures:

Removing the top plate assembly....207	Removing the piping cover (rear)....210
Removing the front plate (2)....208	Removing the right side plate....210
Removing the front plate assembly....208	Removing the compressor sound insulation....211
Removing the cover....209	

5.1.1. Removing the top plate assembly

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Loosen and remove the 8 screws (1) that fix the top plate assembly(2).
4. Lift the top plate assembly (2) and remove it from the unit.

Figure 80 - Removing the top plate assembly

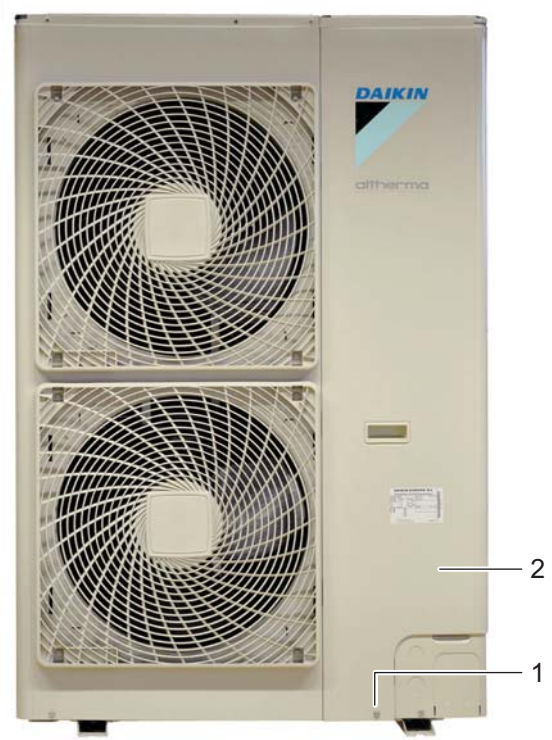


1. Screw
2. Top panel

5.1.2. Removing the front plate (2)

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate assembly" on page 207.
4. Loosen and remove the screw (1) that fixes the front plate (2) (2).
5. Lift the front plate (2) (2) and remove it from the unit.

Figure 81 - Removing the front plate (2)



1. Screw
2. Front plate (2)

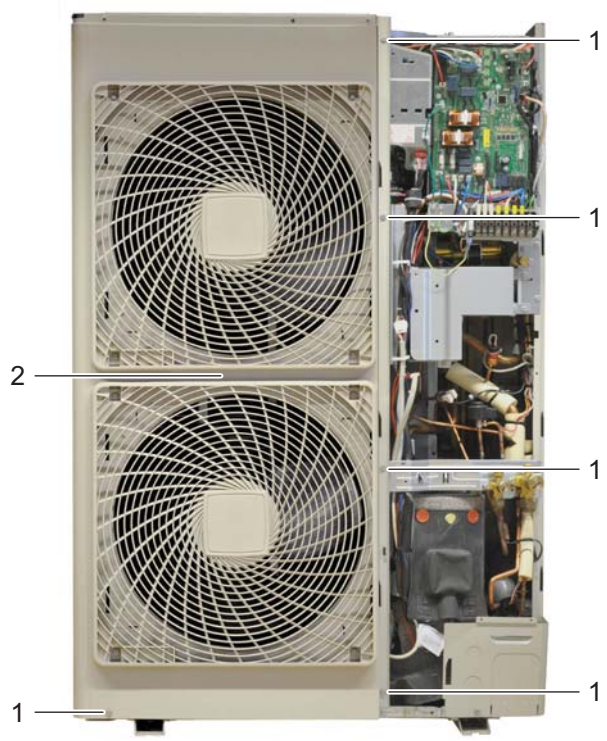
5.1.3. Removing the front plate assembly

INFORMATION

The front plate assembly includes:
- front plate assembly,
- air discharge grill (x2),
- bell mouth (2x)

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate assembly" on page 207.
4. Loosen and remove the 5 screws (1) that fixes the front plate assembly (2).
5. Lift the front plate assembly (2) and remove it from the unit.

Figure 82 - Removing the front plate assembly



1. Screw	2. Front plate assembly

5.1.4. Removing the cover

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate assembly" on page 207.
4. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
5. Loosen and remove the screw (1) that fixes the cover (2).
6. Remove the cover (2) from the unit.

Figure 83 - Removing the cover



1. Screw	2. Cover

5.1.5. Removing the piping cover (rear)

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate assembly" on page 207.
4. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
5. Loosen and remove the screw (1) that fixes the cover (2).
6. Remove the cover (2) from the unit.

Figure 84 - Removing the piping cover (rear)

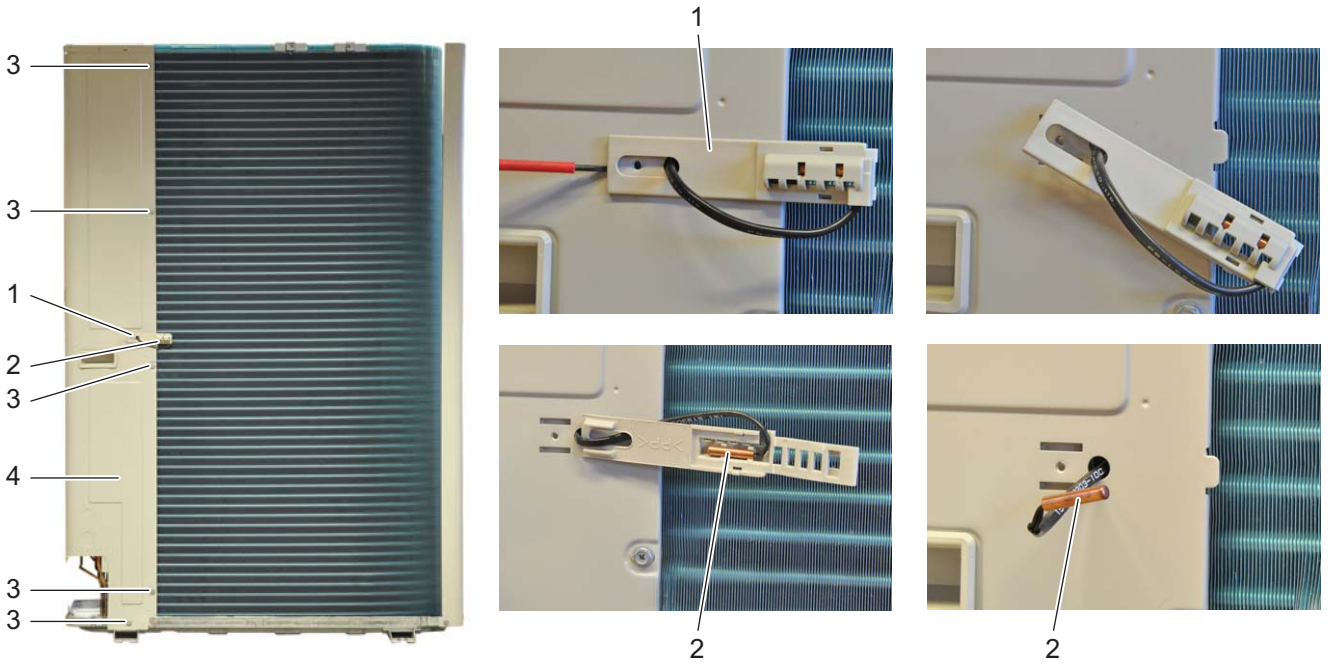


1. Screw
2. Cover

5.1.6. Removing the right side plate

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the top plate, refer to "Removing the top plate assembly" on page 207.
4. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
5. Loosen the thermistor fixing plate (2).
6. Remove thermistor R1T (1) from the thermistor fixing plate (2).
7. Remove the thermistor fixing plate (2).
8. Guide the thermistor R1T (1) into the unit.
9. Loosen and remove the 5 screws (3) that fix the right side plate (4).
10. Remove the right side plate (4) from the unit.

Figure 85 - Removing the right side plate



1. Thermistor R1T
2. Thermistor fixing plate
3. Screw
4. Right side plate

5.1.7. Removing the compressor sound insulation

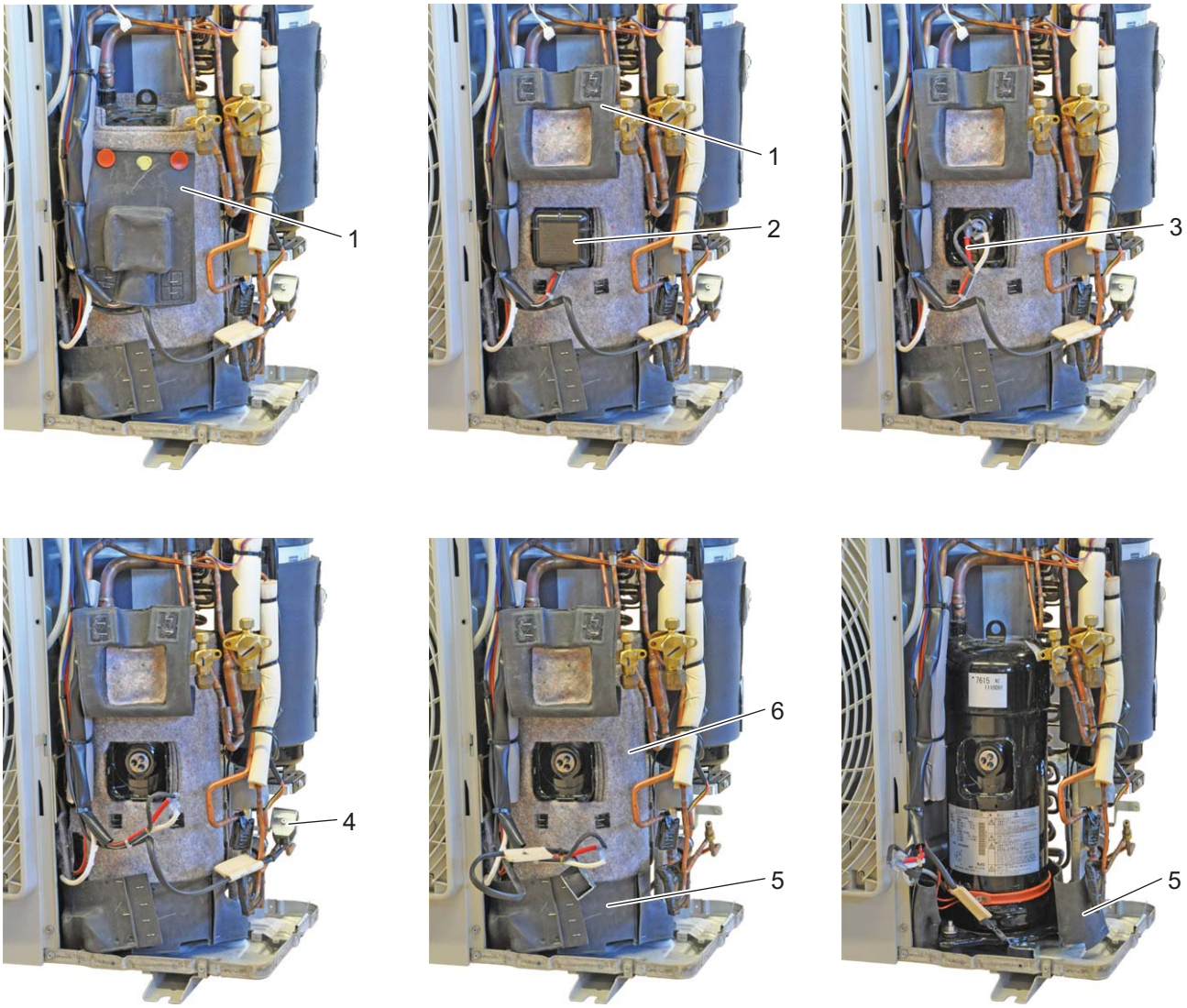
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
4. Remove the cover, refer to "Removing the cover" on page 209.
5. Remove the piping cover (rear), refer to "Removing the piping cover (rear)" on page 210.
6. Remove the cover, refer to "Removing the cover" on page 209.
7. Remove the right side plate, refer to "Removing the right side plate" on page 210.
8. Flip the junction box sound insulation (1).
9. Using a flat screwdriver, remove the terminal cover (2).
10. Unplug the compressor wiring (3).
11. Remove solenoid valve Y3S coil (4), refer to "Replacing the solenoid valve Y3S coil" on page 234.

INFORMATION

DO NOT REMOVE the compressor foot cover (6)

12. Detach the velcro strip and remove the compressor sound insulation (5).

Figure 86 - Removing the compressor sound insulation



1. Junction box sound insulation
2. Terminal cover
3. Compressor wiring
4. Solenoid valve coil
5. Compressor sound insulation
6. Compressor foot cover

5.2. Parts replacement procedures

Overview of parts replacement procedures:

Replacing the propeller fan 213
Replacing the fan motor 214
Replacing PCB A1P 216
Replacing PCB A2P 217
Replacing the switch box (1~ ERLQ011-016CV3 only) 219
Replacing PCB A1P (1~ ERLQ011-016CV3 only) 220
Replacing PCB A3P (1~ ERLQ011-016CV3 only) 224
Replacing PCB A4P (1~ ERLQ011-016CV3 only) 226
Replacing the capacitor C4 (1~ ERLQ011-016CV3 only) 227
Replacing a thermistor 228
Replacing the crankcase heater 229
Replacing the compressor 230
Replacing the accumulator assembly 233
Replacing the solenoid valve Y3S coil 234
Replacing the solenoid valve Y3S 236
Replacing the high pressure switch S1PH 237
Replacing the pressure sensor S1NPH 238
Replacing the expansion valve Y1E motor 239
Replacing the expansion valve Y1E 240
Replacing the expansion valve Y3E motor 242
Replacing the expansion valve Y3E 243
Replacing the 4-way valve Y1S coil 244
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Replacing the 4-way valve Y1S coil (1~ ERLQ011-016CV3 only) 247
Replacing the 4-way valve Y1S (1~ ERLQ011-016CV3 only) 247

5.2.1. Replacing the propeller fan

5.2.1.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.

5.2.1.2 Procedure

Removal

1. Loosen and remove the 4 nuts (1) that fix the air discharge grill (2).
2. Remove the nut (3) that fixes the propeller fan (4).
3. Pull the propeller fan blade assembly (2) from the fan motor (5).

Figure 87 - Removing the propeller fan



1. Nut
2. Air discharge grill
3. Nut
4. Propeller fan
5. Fan motor

Installation

> **CAUTION**
> Do not install a damaged propeller.

1. Proceed in reverse order.

5.2.2. Replacing the fan motor

5.2.2.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 208.
4. Remove the propeller fan, refer to "Replacing the propeller fan" on page 213.

5.2.2.2 Procedure

Removal

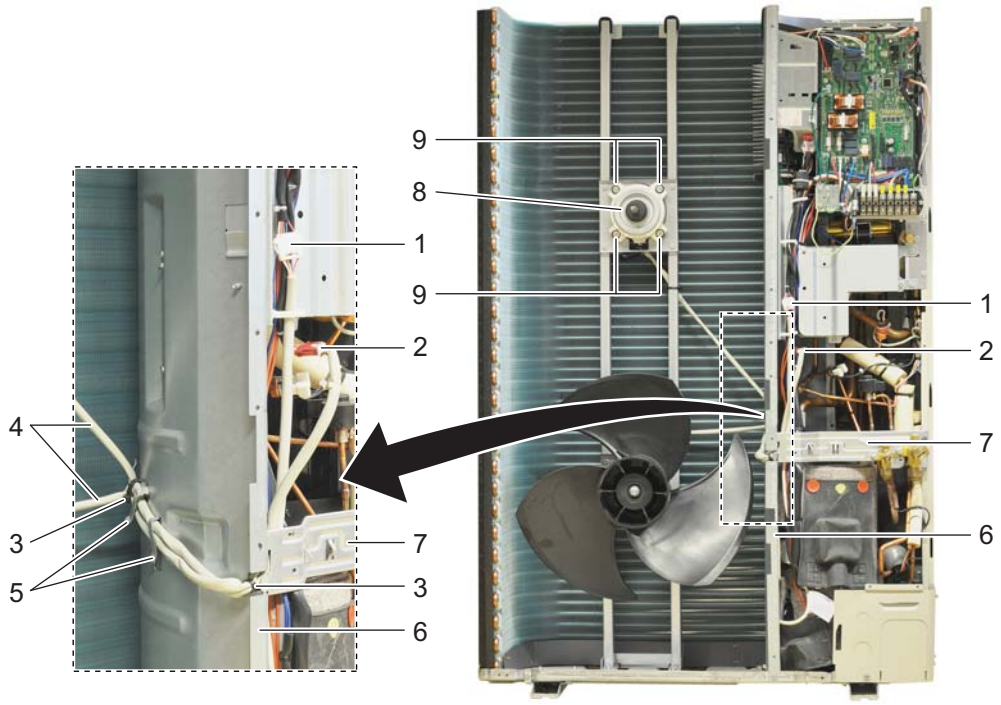
1. Disconnect the fan connector (1 or 2).
2. Cut the tie wraps (3)
3. Remove the fan motor cable (4) from the cable clamps (5).

4. Guide the fan motor cable (4) through the opening between the partition plate (6) and the stop valve mounting plate (7).

5. Loosen and remove the 4 screws (9) that fix the fan motor (8).

6. Remove the fan motor (8) from the unit.

Figure 88 - Removing the fan motor



1. Upper fan motor connector X516A
2. Lower fan motor connector X517A
3. Tie wrap
4. Fan motor cable
5. Cable clamp
6. Partition plate
7. Stop valve mounting plate
8. Fan motor
9. Screw

Installation

1. Proceed in reverse order.

5.2.3. Replacing PCB A1P

5.2.3.1 Preliminary actions

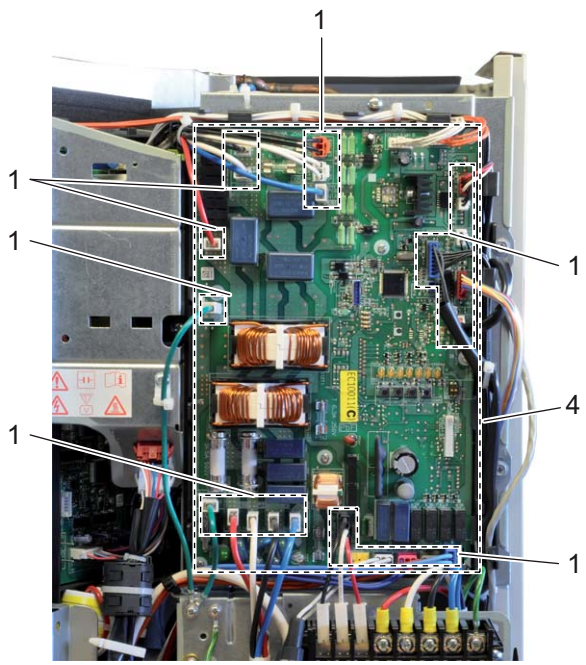
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.

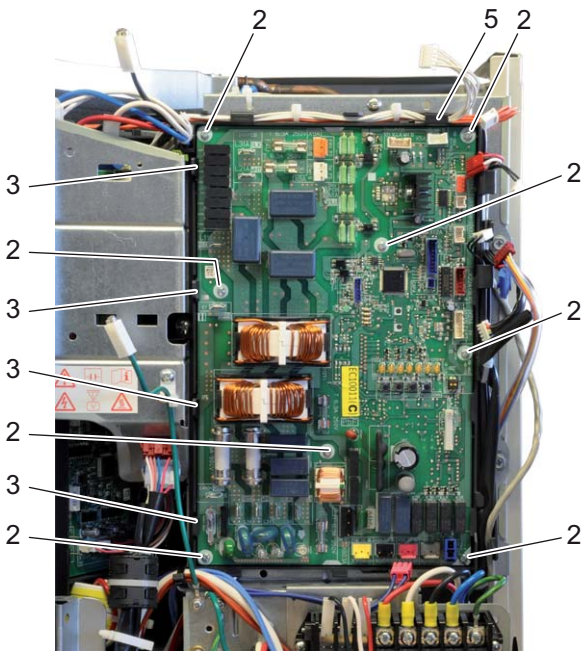
5.2.3.2 Procedure

Removal

1. Unplug all connectors (1) from the A1P PCB (4).
2. Loosen and remove the 8 screws (2) that fix the A1P PCB (4).
3. Unlock the PCB brackets (3).
4. Remove the A1P PCB (4) from the PCB mounting plate (5).

Figure 89 - Removing PCB A1P





1. Connector
2. Screw
3. PCB bracket
4. A1P PCB
5. PCB mounting plate

Installation

1. Proceed in reverse order.

5.2.4. Replacing PCB A2P

5.2.4.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.

5.2.4.2 Procedure

Removal

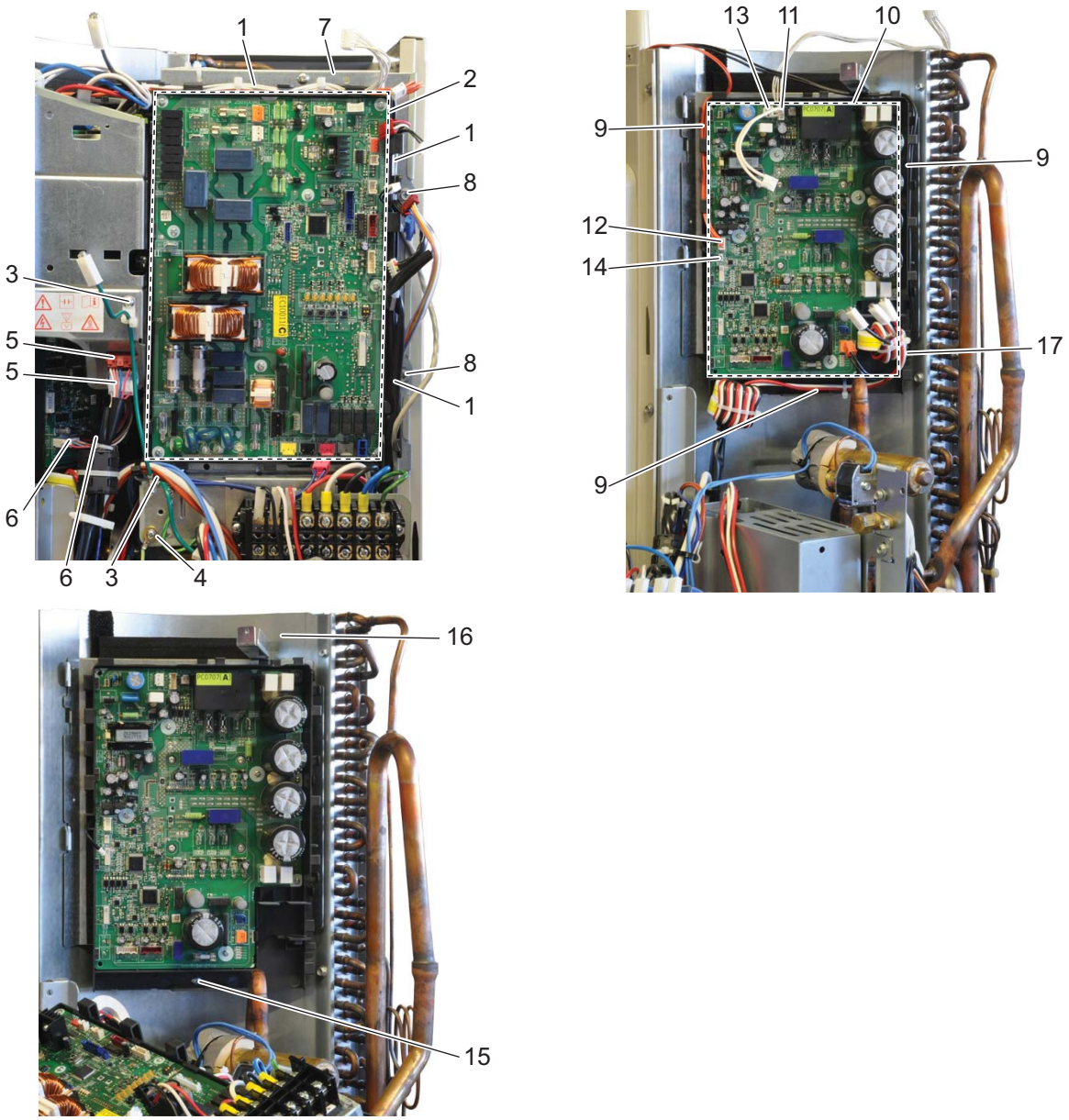
> **INFORMATION**
>
> Do not remove the PCB in the next step, only unplug the connectors.

1. Unplug all connectors (1) from the A1P PCB, refer to step (1) of "Replacing PCB A1P" on page 216.
2. Remove the cable booms (1) that surround the A1P PCB (2).
3. Loosen and remove the 2 screws (3) that fix cable clamps.
4. Loosen and remove the screw (4) that fixes the ground wire.
5. Disconnect the 2 fan connectors X506A, X507A (5)
6. Disconnect the 2 fan connectors X106A, X107A (6)
7. Loosen and remove the 2 screws (8) that fix the A1P PCB mounting plate (7).
8. Remove the right side plate assembly, refer to "Removing the right side plate assembly" on page 183.
9. Unplug connectors X32A, X191A and X109A from the A2P PCB.
10. Unplug Faston connectors L12A, L22A, L32A, U, V and W from the A2P PCB (10).
11. Cut the tie wraps at the rear of the A1P PCB mounting plate (7) to improve the manoeuvrability of the A1P PCB mounting plate (7).

> **CAUTION**
>
> The A1P PCB is still wired to the unit but will be removed and must be placed on a support (e.g. small table) in front of the unit.

12. Lift the A1P PCB mounting plate (7) and place it on a support.
13. Unplug connectors X104A (11), X105A (12), X108A (13) and X111 (14) from A2P PCB (10)
14. Cut the 4 tie wraps that fix the compressor cable (17).
15. Remove the cable booms (9) that surround the A2P PCB (10).
16. Loosen and remove the screw (15) that fixes the A2P PCB (10) to the A2P PCB mounting plate (16).
17. Remove the A2P PCB (10) from the A2P PCB mounting plate (16).

Figure 90 - Removing PCB A2P



1. Cable boom
2. A1P PCB
3. Screw
4. Screw
5. X506A, X507A
6. X106A, X107A
7. A1P PCB mounting plate
8. Screw
9. Cable boom
10. A2P PCB
11. X104 A
12. X105A
13. X 108A
14. X 111A
15. Screw
16. A2P PCB mounting plate
17. Compressor cable

Installation

INFORMATION

Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

5.2.5. Replacing the switch box (1~ ERLQ011-016CV3 only)

5.2.5.1 Preliminary actions

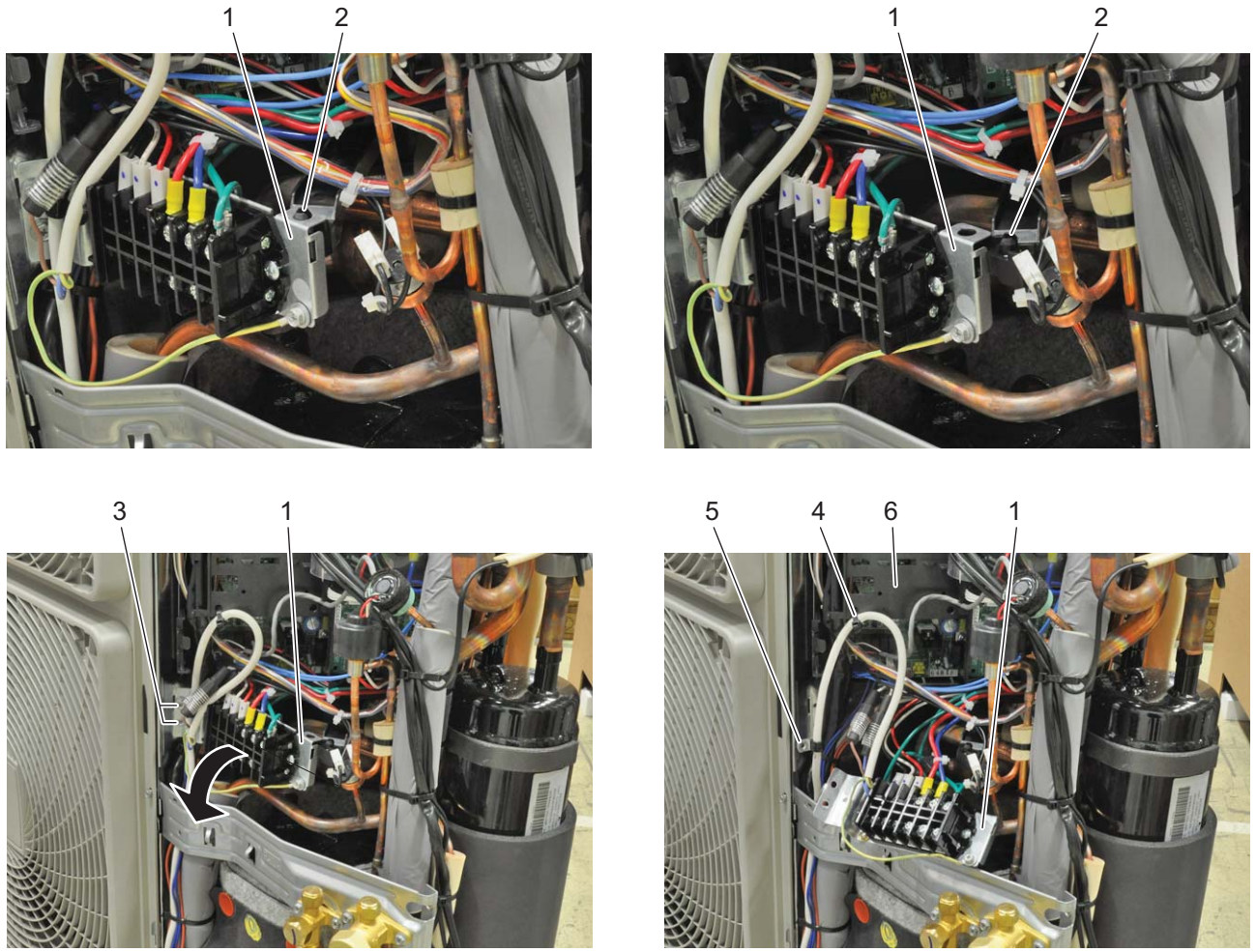
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2), refer to "Removing the front plate (2)" on page 208.
4. Remove the right side plate, refer to "Removing the right side plate" on page 210.

5.2.5.2 Procedure

Removal

1. Lift the terminal mounting plate (1) to detach it from the locking pin (2).
2. Loosen and remove the 2 screws (3) that fix the terminal mounting plate (1) and the cable clamp (5).
3. Cut the tie wrap (6).
4. Turn over the terminal mounting plate (1) to improve the switch box (4) accessibility.

Figure 91 - Loosening the wire terminal support (1~ ERLQ011-016CV3 only)



1. Terminal mounting plate
2. Locking pin
3. Screw
4. Switch box
5. Cable clamp
6. Tie wrap

5. Disconnect connectors X2A, X6A (optional), X11A, X12A, X13A, X17A, X21A, X22A, X25A, X27A, X28A, X32A, X106A, X107A, X111A and Faston connectors U,V,W.

6. Loosen and remove the screw (1) that fixes the switch box (2) .

7. Lift and remove the switch box from the unit.

Figure 92 - Removing the switch box (1~ ERLQ011-016CV3 only)



1. Screw
2. Switch box

Installation

> **INFORMATION**
>
> Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

5.2.6. Replacing PCB A1P (1~ ERLQ011-016CV3 only)

> **INFORMATION**
>
> When removing the switch box as described in "Replacing the switch box (1~ ERLQ011-016CV3 only)" on page 219, most of the sensor and valves wiring illustrated in figure 93 on page 221 and figure 94 on page 222 will already be removed.

5.2.6.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.

2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.

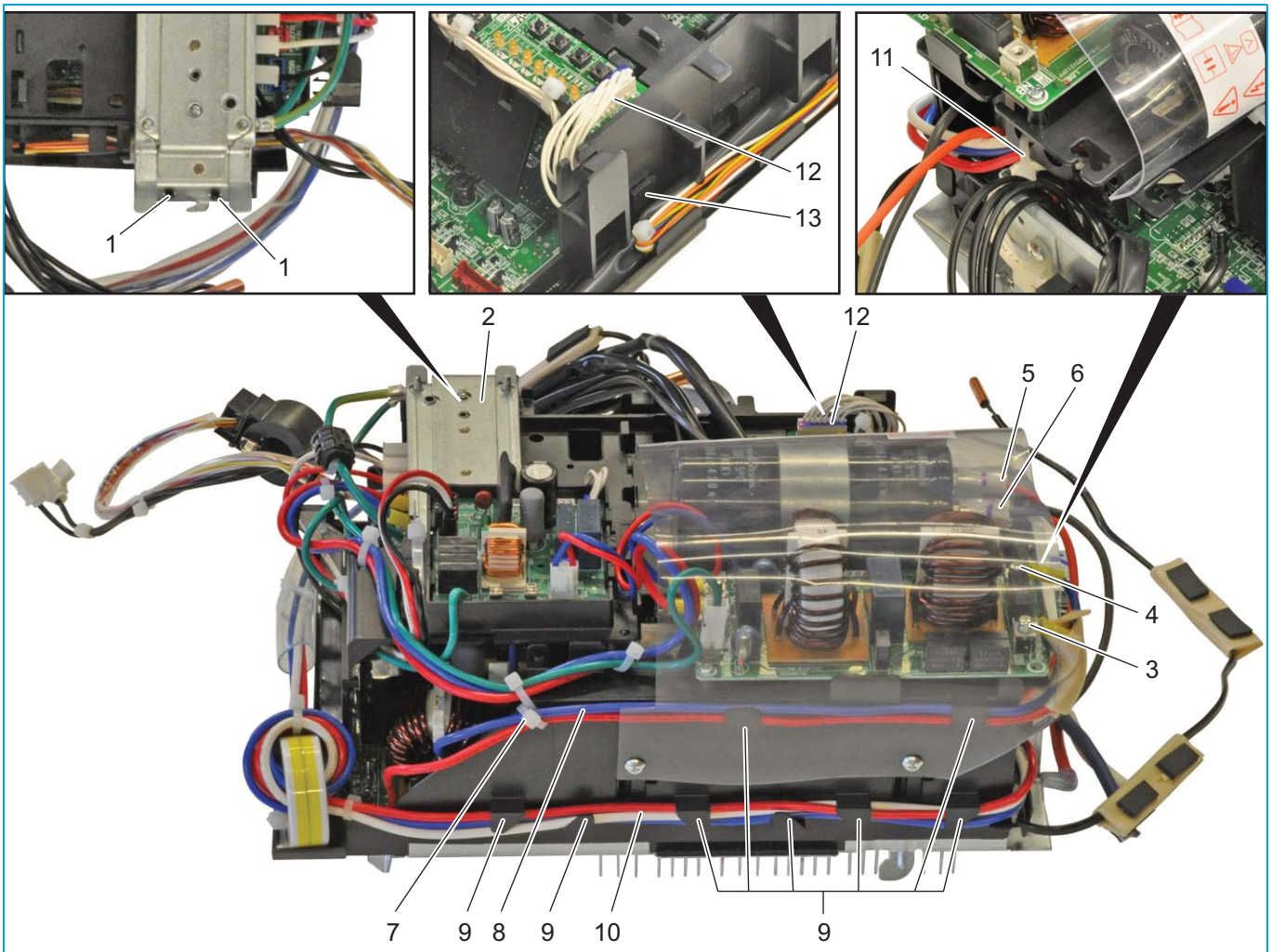
3. Remove the switch box, refer to "Replacing the switch box (1~ ERLQ011-016CV3 only)" on page 219.

5.2.6.2 Procedure

Removal

1. Press the 2 latches (1) and lift the wire terminal support (2) to detach it.
2. Turn over the terminal mounting plate (2).
3. Loosen the wires terminals LB (3) and NB (4).
4. Unplug the Faston connectors (5, 6).
5. Cut the tie wrap (7) and remove the blue and red wiring (8) from the cable guides (9).
6. Remove the compressor wiring (10) from the 6 cable guides (9).
7. Cut the tie wrap (11).
8. Unplug the connectors X205A (12) and X9A (13).

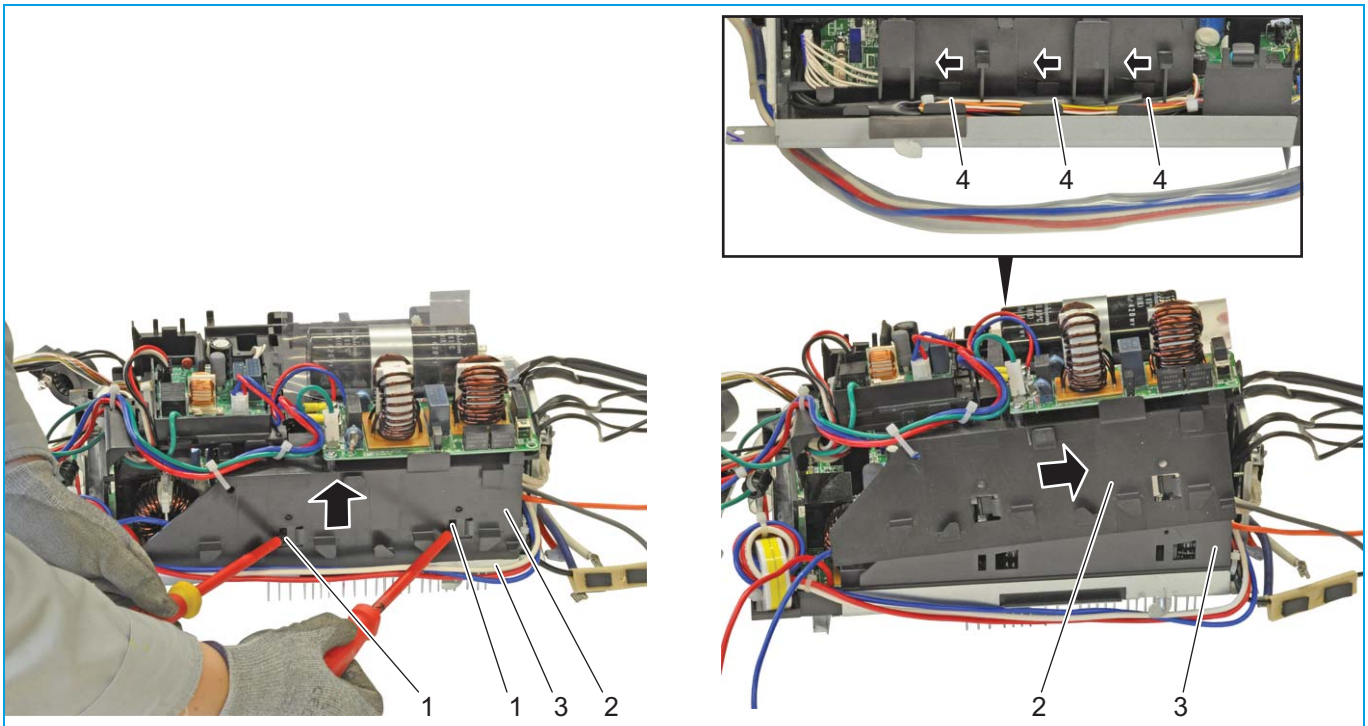
Figure 93 - Removing the A1P PCB - 1 (1~ ERLQ011-016CV3 only)



1. Latch
2. Terminal mounting plate
3. LB
4. NB
5. Faston connector with orange wire (+)
6. Faston connector with grey wire (-)
7. Tie wrap
8. Red and blue wiring
9. Cable guides
10. Compressor wiring
11. Tie wrap
12. X205A
13. X9A

9. Insert 2 flat screwdrivers into the slots (1) and unlatch the upper (2) and lower (3) assemblies.
10. Slightly lift the upper assembly (2) to detach it from the lower assembly (3).
11. Slide the upper assembly (2) to right to release the 3 hooks (4).
12. Remove the upper assembly (2) from the lower assembly (3).

Figure 94 - Removing the A1P PCB -2 (1~ ERLQ011-016CV3 only)



1. Slot
2. Upper assembly
3. Lower assembly
4. Hook

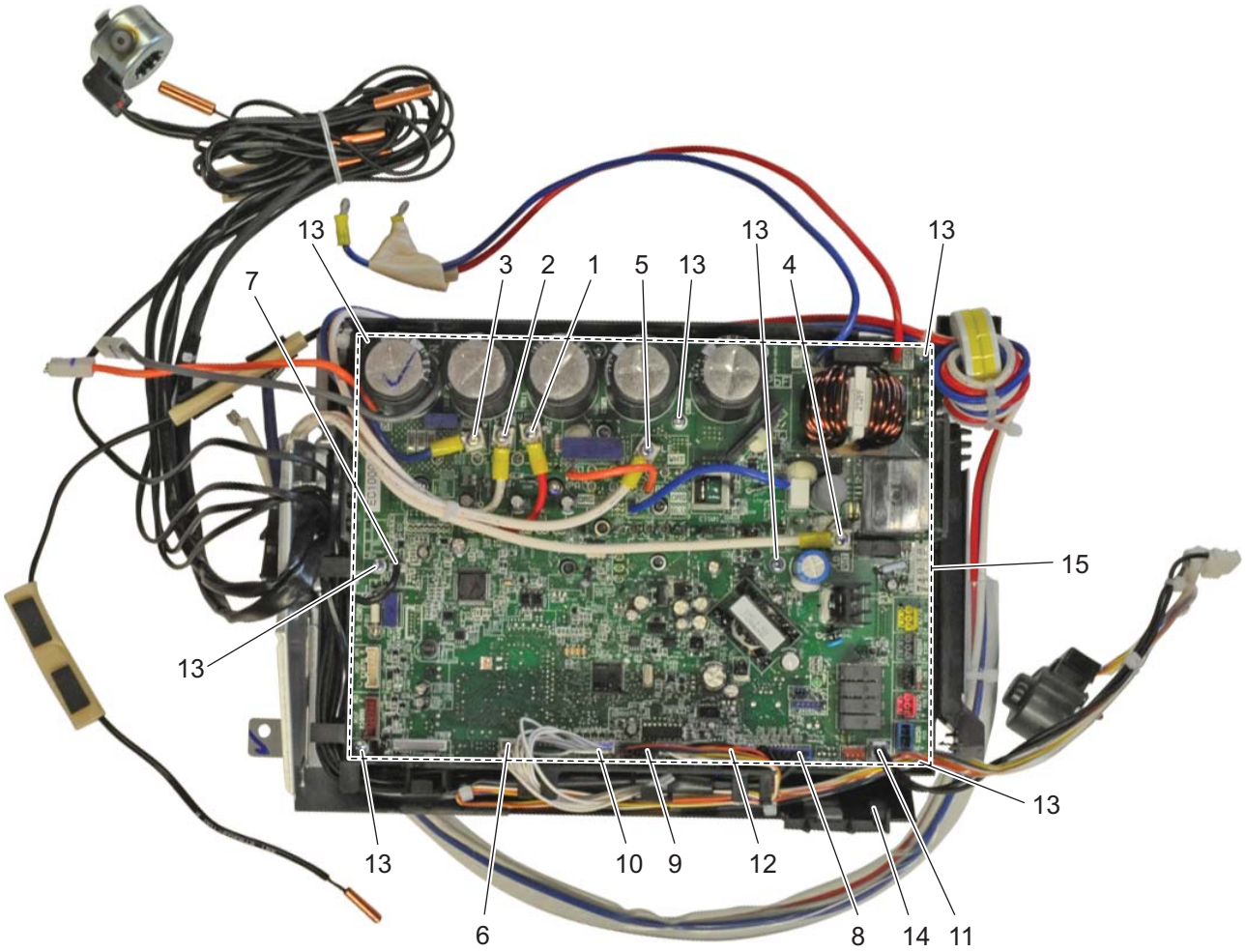
INFORMATION

When removing the switch box as described in "Replacing the switch box (1~ ERLQ011-016CV3 only)" on page 219, most of the sensor and valves wiring illustrated in figure 95 on page 223 will already be removed.

Some of the steps listed below could be redundant.

13. Loosen and remove the screws from the wire terminals U (1), V (2), W (3), LD (4), LE (5); remove the wires from the terminals.
14. Disconnect connectors X5A (6), X11 (7), X12A (8), X21 (9), X22A (10), X32 (11),and X111A (12).
15. Loosen the wires terminals NA (6), LA (7), LB (8) and NB (9).
16. Loosen and remove the 7 screws (13) that fix the A1P PCB (15) to the PCB mounting plate (14).
17. Remove the A1P PCB (15).

Figure 95 - Removing the A1P PCB -3 (1~ ERLQ011-016CV3 only)



1. Wire terminal U
2. Wire terminal V
3. Wire terminal W
4. Wire terminal LD
5. Wire terminal LE
6. X5A
7. X11A
8. X12A
9. X21A
10. X22A
11. X32A
12. X111A
13. Screw
14. PCB mounting plate
15. A1P PCB

Installation

1. Proceed in reverse order.

5.2.7. Replacing PCB A3P (1~ ERLQ011-016CV3 only)

5.2.7.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the switch box, refer to "Replacing the switch box (1~ ERLQ011-016CV3 only)" on page 219.

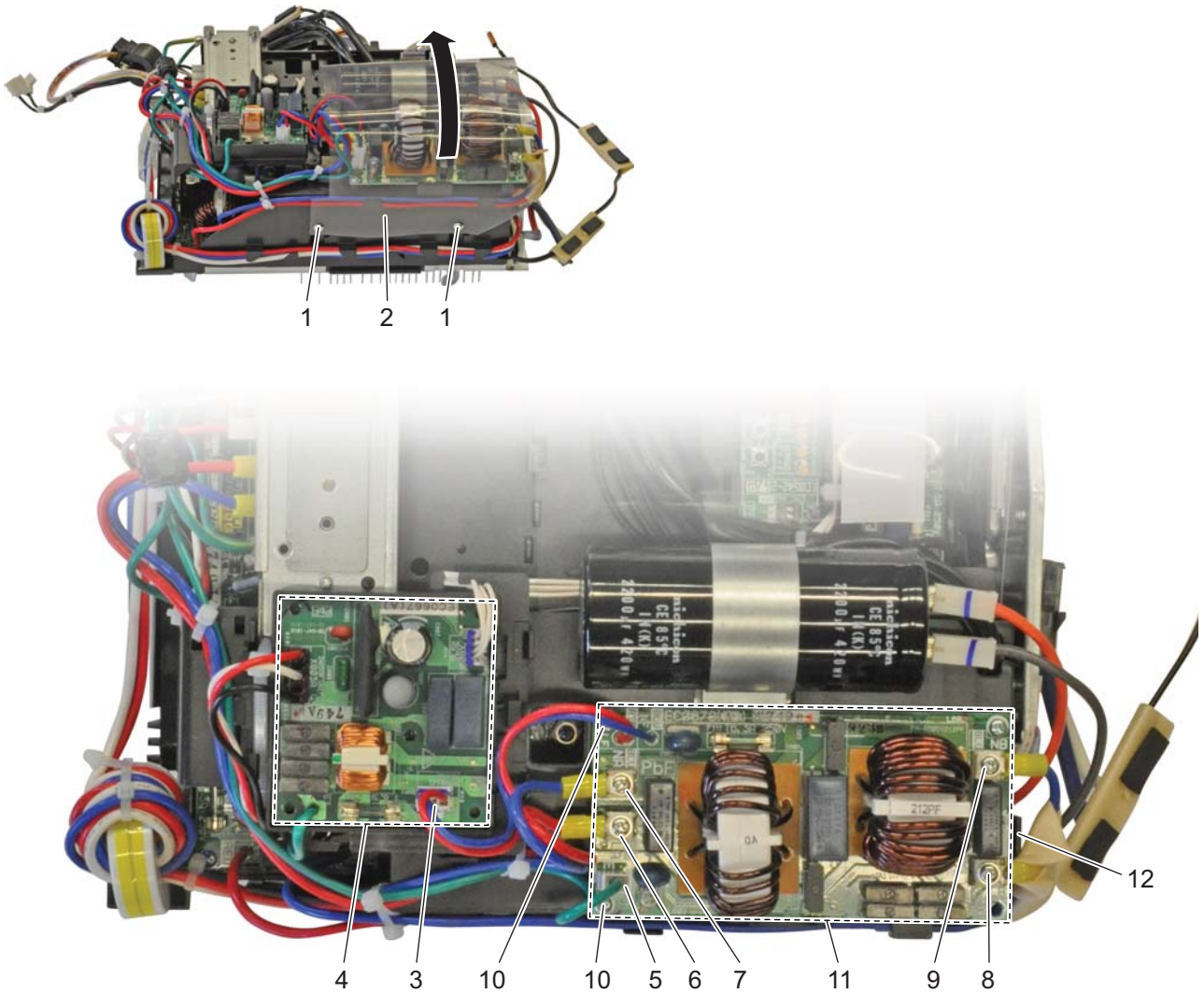
5.2.7.2 Procedure

Removal

> **INFORMATION**
>
> When removing the switch box as described in "Replacing the switch box (1~ ERLQ011-016CV3 only)" on page 219, most of the sensor and valves wiring illustrated in figure 96 on page 225 will already be removed.
>
> Some of the steps listed below could be redundant.

1. Loosen and remove the 2 screws (1) that fix the insulation sheet (2).
2. Turn over the the insulation sheet (2).
3. Disconnect connector X801A (3) on pcb A4P (4).
4. Disconnect Faston connector E (5).
5. Loosen the wires terminals NA (6), LA (7), LB (8) and NB (9).
6. Loosen and remove the 3 screws (10) that fix the pcb A3P (11).
7. Pull the latch (12) to release and remove the pcb A3P (11).

Figure 96 - Removing the A3P PCB (1~ ERLQ011-016CV3 only)



1. Screw	7. LA
2. Insulation sheet	8. LB
3. X801A	9. NB
4. A4P PCB	10. Screw
5. Faston connector E	11. A3P PCB
6. NA	12. Latch

Installation

1. Proceed in reverse order.

5.2.8. Replacing PCB A4P (1~ ERLQ011-016CV3 only)

5.2.8.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the switch box, refer to "Replacing the switch box (1~ ERLQ011-016CV3 only)" on page 219.

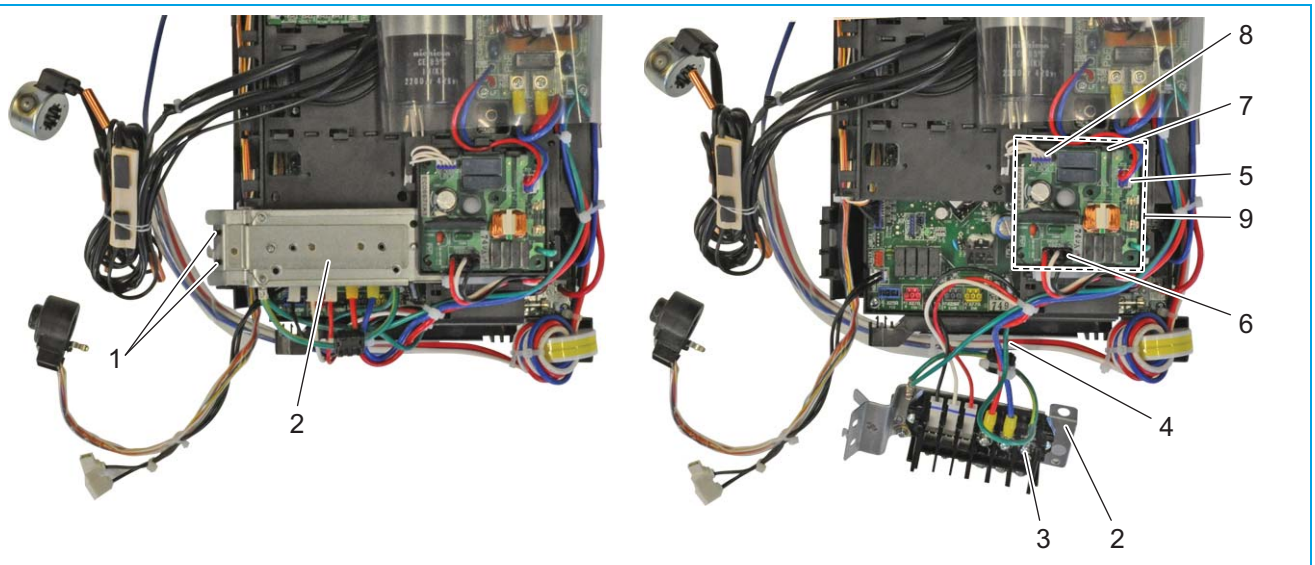
5.2.8.2 Procedure

Removal

> **INFORMATION**
>
> When removing the switch box as described in "Replacing the switch box (1~ ERLQ011-016CV3 only)" on page 219, most of the sensor and valves wiring illustrated in figure 97 on page 226 will already be removed.
>
> Some of the steps listed below could be redundant.

1. Press the 2 latches (1) and lift the wire terminal support (2) to detach it.
2. Turn over the wire terminal support (2).
3. Loosen the wire terminal (3) and remove the ground wire (4) from A4P.
4. Disconnect connectors X801A (5), X803A (6), and X809A (7).
5. Pull the 2 latches (8) to release and remove the A4P PCB (9).

Figure 97 - Removing the A4P PCB (1~ ERLQ011-016CV3 only)



1. Latch	6. X803A
2. Wire terminal support	7. X809A
3. Wire terminal	8. Latch
4. Ground wire	9. A4P PCB
5. X801A	

Installation

1. Proceed in reverse order.

5.2.9. Replacing the capacitor C4 (1~ ERLQ011-016CV3 only)

5.2.9.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the switch box, refer to "Replacing the switch box (1~ ERLQ011-016CV3 only)" on page 219.
4. Remove the A3P PCB, refer to "Replacing PCB A3P (1~ ERLQ011-016CV3 only)" on page 224.

5.2.9.2 Procedure

Removal

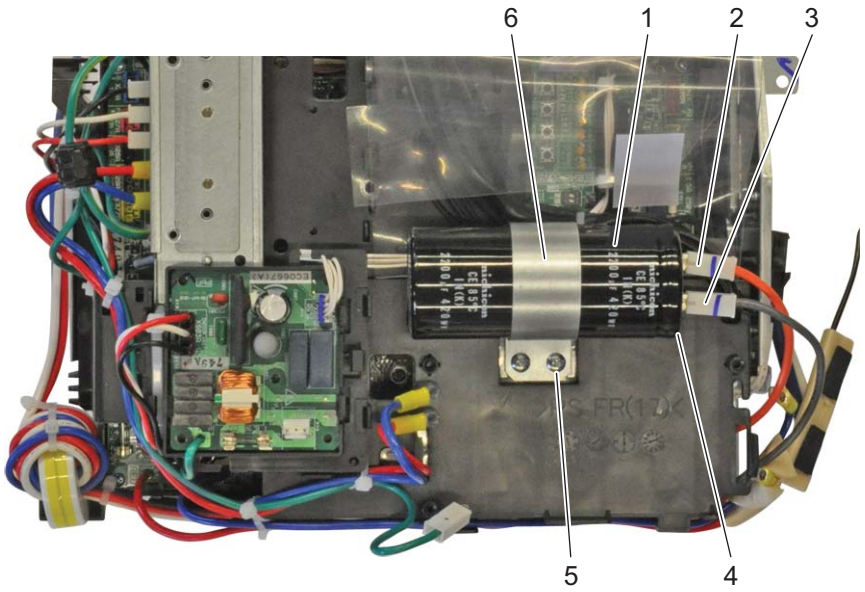
⚠	**WARNING: HIGH VOLTAGE, RISK OF ELECTROCUTION** Capacitor C4 must be discharged (voltage below 10 V) before removal.

1. Using a multimeter, measure the voltage on the Faston connectors (2, 3) of capacitor C4 (1).

⚠	**WARNING: HIGH VOLTAGE, RISK OF ELECTROCUTION** DO NOT PROCEED until the voltage of capacitor C4 has dropped below 10 V.

2. Loosen and remove the 2 screws (5) that fix the capacitor fixing band(6).
3. Unplug the Faston connectors (2, 3).
4. Remove the capacitor (1) from the capacitor clamp (6).

Figure 98 - Removing the capacitor C4



1. Capacitor C4
2. Faston connector with orange wire (+)
3. Faston connector with grey wire (-)
4. Negative terminal indication
5. Screws
6. Capacitor fixing band

Installation

WARNING: RISK OF BURST

Do no polarise capacitor C4 in reverse direction. If polarised in reverse direction, capacitor C4 could burst.

1. Connect the Faston connector with grey wire (3) to the terminal closest to the negative terminal indication (4).
2. Connect the Faston connector with orange wire (2) to the opposite terminal.
3. Proceed in reverse order.

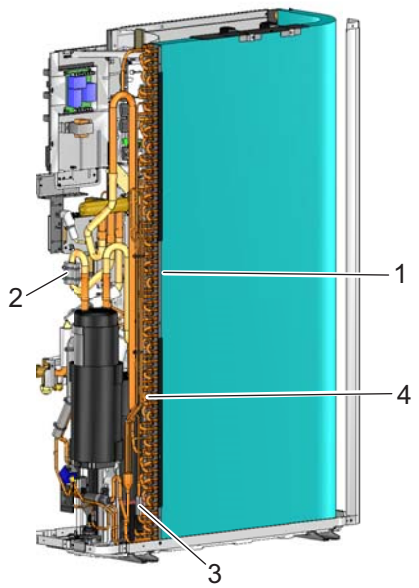
5.2.10. Replacing a thermistor

5.2.10.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the right side plate, refer to "Removing the right side plate" on page 210.

5.2.10.2 Procedure

Figure 99 - Thermistor location

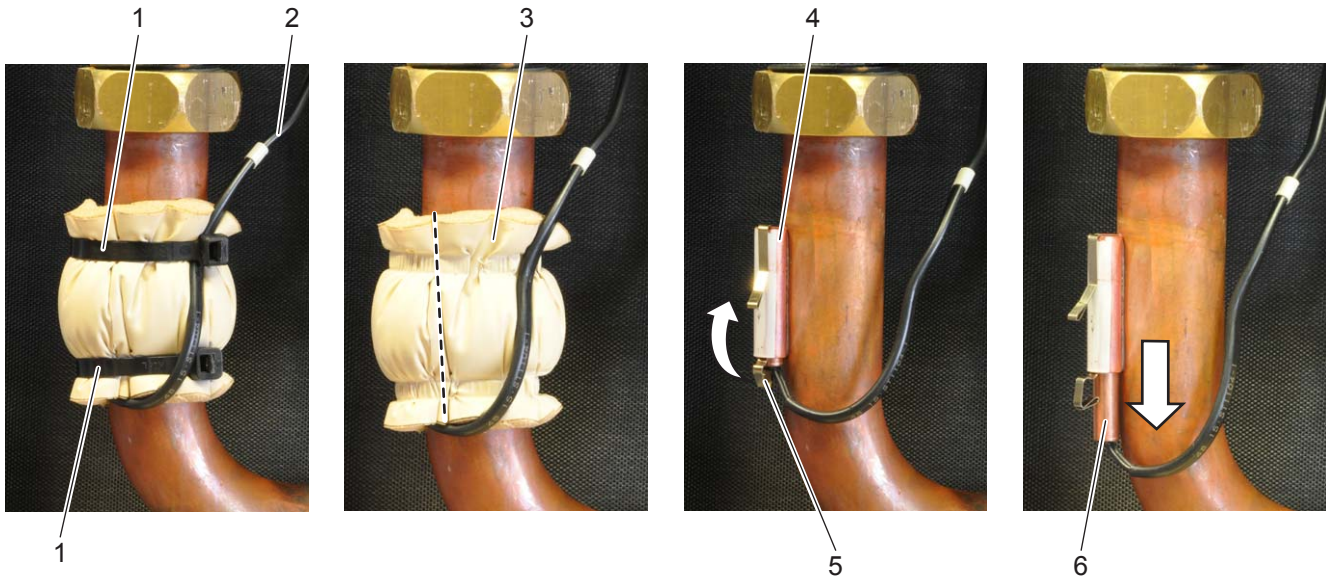


1. R1T
2. R2T
3. R4T
4. R5T

Thermistor	Processed on PCB	Connector: pin	Access Information
R1T (air)	A1P	X11A: 1-2	-
R2T (discharge)	A1P	X12A: 1-2	-
R3T (suction)	A1P	X12A: 3-4	-
R4T (heat exchanger)	A1P	X12A: 5-6	-
R5T (heat exchanger middle)	A1P	X12A: 7-8	-
R6T(liquid)	A1P	X13A: 1-2	-
R7T (fin)	A1P	X111A: 1-2	-

1. Cut the tie wraps (1) that fix the insulation (3) and the thermistor wire (2).
2. Cut the insulation (3) and remove it.
3. Pull the clip (5) that fixes the thermistor (6).
4. Remove the thermistor (6) from the thermistor holder (4).

Figure 100 - Replacing a thermistor



1. Tie wrap
2. Thermistor wire
3. Insulation
4. Thermistor holder
5. Clip
6. Thermistor

Installation

1. Proceed in reverse order.

5.2.11. Replacing the crankcase heater

5.2.11.1 Preliminary actions

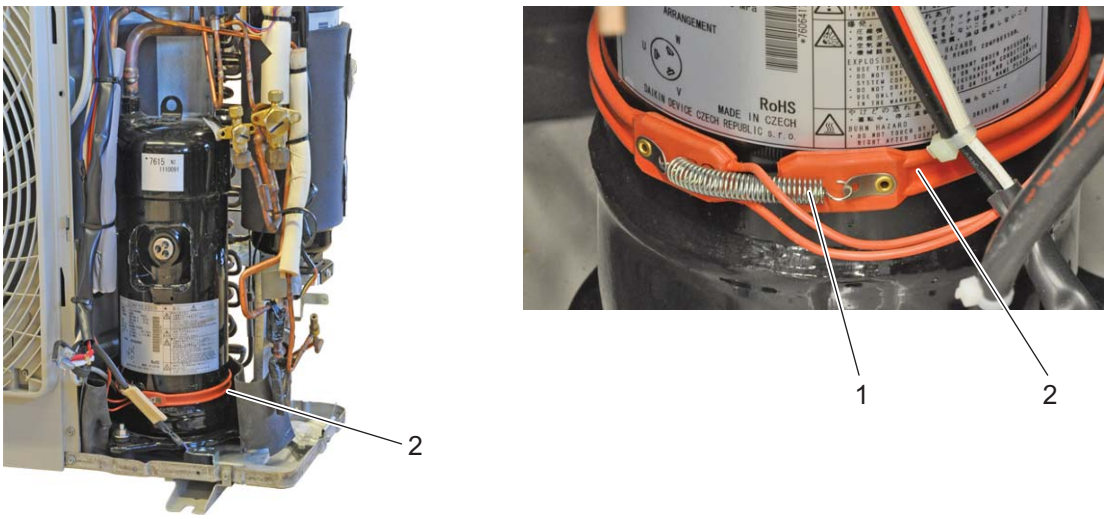
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the compressor sound insulation, refer to "Removing the compressor sound insulation" on page 211.

5.2.11.2 Procedure

Removal

1. Unplug connector X28 on A1P.
2. Detach the spring (1) that fixes the crankcase heater (2) on the compressor.
3. Cut the tie wraps that fix the crankcase heater wiring.
4. Remove the crankcase heater.

Figure 101 - Removing the crankcase heater



1. Spring
2. Crankcase heater

Installation

> **INFORMATION**
> Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

5.2.12. Replacing the compressor

5.2.12.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the compressor sound insulation, refer to "Removing the compressor sound insulation" on page 211.

> **INFORMATION**
> Only remove the crankcase heater, do not remove the crankcase heater electrical wiring in the next step.

5. Remove the crankcase heater from the compressor, refer to "Replacing the crankcase heater" on page 229.
6. Remove the lower propeller fan, refer to "Replacing the propeller fan" on page 213.
7. Connect a nitrogen hose to the outdoor suction service port.
8. Attach a hose with core-depressor to allow the release of the nitrogen.

5.2.12.2 Procedure

Removal

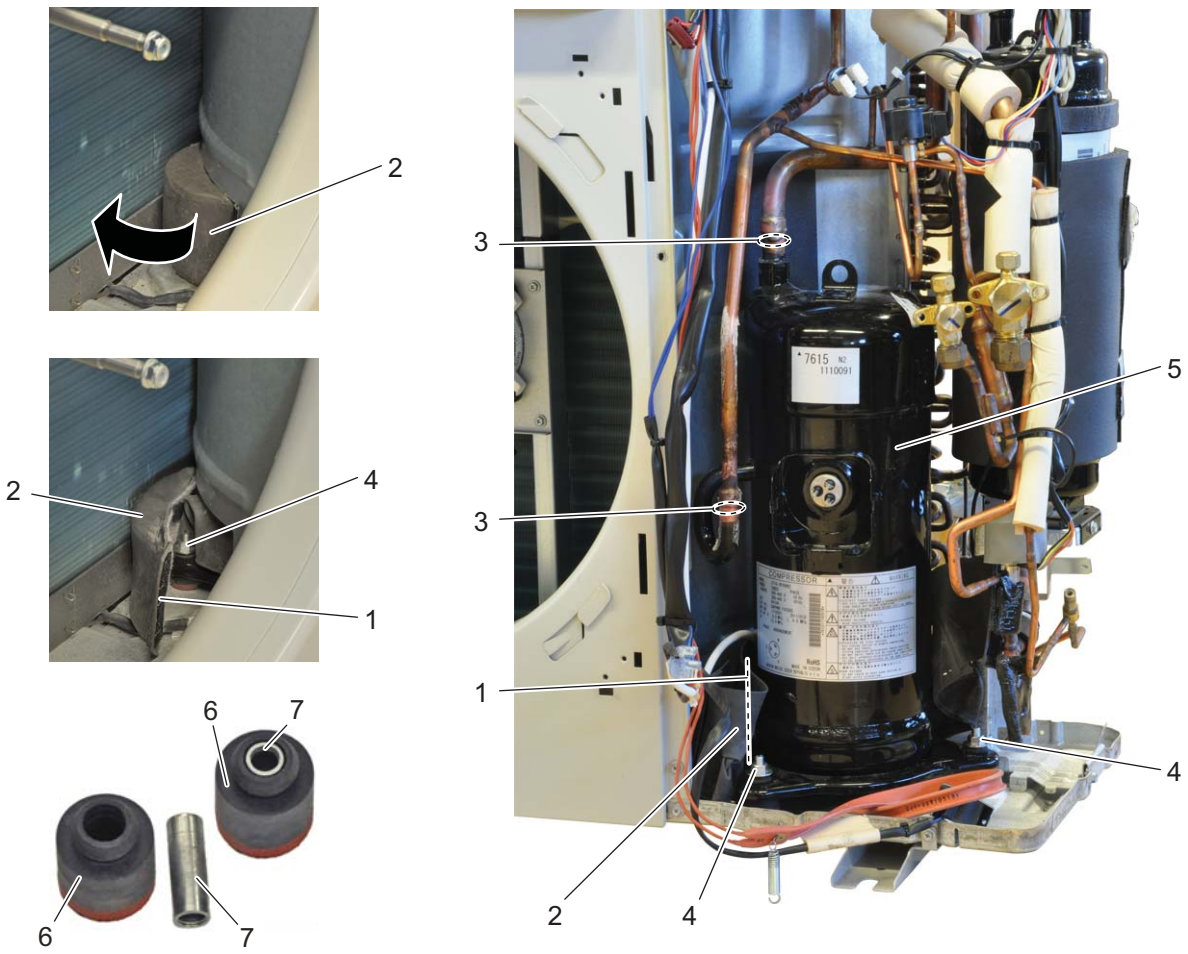
1. Detach the velcro strip (1) on the compressor foot cover (2).
2. Pull the compressor foot cover (2) to access the nut
3. Cut the compressor pipes (3) below the soldered joint.

4. Loosen and remove the 3 nuts (4) that fix the compressor (5).
5. Remove the compressor (5).
6. Remove the dampers (6) with bushings (7) from the compressor (5).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

7. Supply nitrogen to the piping circuit.
8. Heat the 2 compressor pipes (3) using an oxygen acetylene torch.
9. When the solder is liquid, remove the 2 compressor pipes (5).
10. Cut the nitrogen supply when the piping has cooled down.

Figure 102 - Removing the compressor



1. Velcro strip
2. Compressor foot cover
3. Compressor pipe
4. Nut
5. Compressor
6. Damper
7. Bushing

Installation

> **CAUTION**
> The oil in the compressor is hygroscopic. Remove the caps from the compressor piping as late as possible.

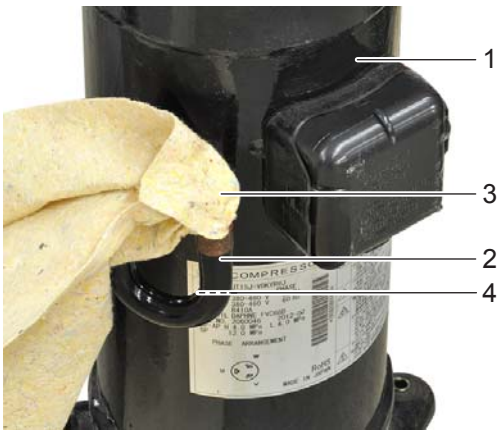
> **INFORMATION**
> Before installing a new compressor, determine the cause of the compressor failure and take all required corrective actions.

> **INFORMATION**
> If the dampers are worn, replace the dampers. The bushings inside the dampers are recuperated for use with the new dampers.

> **INFORMATION**
> Install the compressor sound insulation in the same location.

1. Check damper status, replace when worn.
2. First install the 3 (new) dampers (without the bushings) on the new compressor.
3. Install the 3 bushings in the dampers.
4. When installing the new compressor, remove the caps from the compression pipe and the suction pipe as late as possible.
5. Insert a lint-free cloth (3) into the compression pipe (2) to lower the oil in the compression pipe to the indicated oil level (4).

Figure 103 - Installing a new compressor - 2



1. Compressor
2. Compression pipe
3. Lint-free cloth
4. Oil level

6. When soldering the compressor pipes, cover the compressor pipes with a wet cloth to prevent overheating the compressor (and the oil in the compression pipe).
7. Proceed in reverse order.

5.2.13. Replacing the accumulator assembly

5.2.13.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the front plate (2) assembly, refer to "Removing the front plate (2)" on page 208.
5. Remove the right side plate, refer to "Removing the right side plate" on page 210.
6. Remove the cover, refer to "Removing the cover" on page 209.
7. Remove the piping cover (rear), refer to "Removing the piping cover (rear)" on page 210.
8. Connect a nitrogen hose to the outdoor suction service port.
9. Attach a hose with core-depressor to allow the release of the nitrogen.

5.2.13.2 Procedure

Removal

1. Cut the accumulator pipes (1) below the soldered joint.
2. Cut and remove the insulation (2) from the accumulator assembly (4).
3. Loosen and remove the screw (5) that fixes the accumulator assembly (4) to the accumulator mounting plate (3).
4. Slide and lift the accumulator assembly (4) to remove it from the accumulator mounting plate (3).
5. Supply nitrogen to the piping circuit.

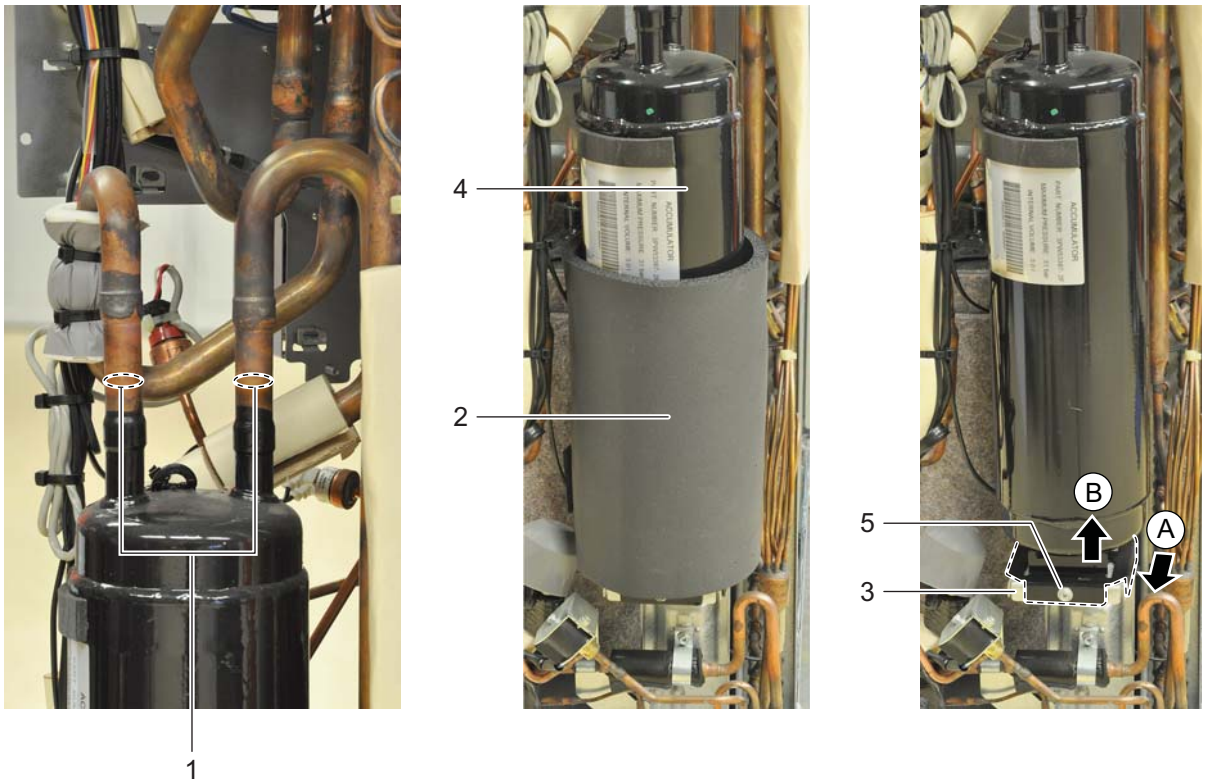


CAUTION

The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

6. Heat the 2 accumulator assembly pipes (1) using an oxygen acetylene torch.
7. When the solder is liquid, remove the 2 accumulator assembly pipes (1).
8. Cut the nitrogen supply when the piping has cooled down.

Figure 104 - Removing the accumulator



1. Accumulator assembly pipes
2. Insulation
3. Accumulator mounting plate
4. Accumulator assembly
5. Screw

Installation

1. Proceed in reverse order.

5.2.14. Replacing the solenoid valve Y3S coil

5.2.14.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2) assembly, refer to "Removing the front plate (2)" on page 208.
4. Remove the right side plate, refer to "Removing the right side plate" on page 210.
5. Remove the cover, refer to "Removing the cover" on page 209.
6. Remove the piping cover (rear), refer to "Removing the piping cover (rear)" on page 210.

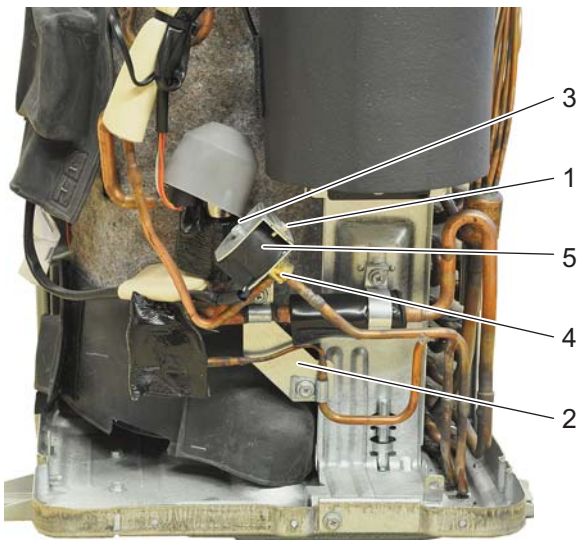
5.2.14.2 Procedure

Removal

> **CAUTION**
> The screws (1) and (3) have a different thread.

1. Loosen and remove the screw (1) that fixes the solenoid valve Y3S coil (4) to the bracket (2).
2. Loosen and remove the screw (3) that fixes the solenoid valve Y3S coil (4) to the solenoid valve Y3S (5).
3. Remove the solenoid valve Y3S coil (4) from the solenoid valve Y3S (5).
4. Cut tie wraps that fix the solenoid valve Y3S coil (4) wiring.
5. Unplug connector X27A from the A1P PCB.

Figure 105 - Removing the solenoid valve Y3S coil



1. Screw
2. Bracket
3. Screw
4. Solenoid valve Y3S coil
5. Solenoid valve Y3S

Installation

> **CAUTION**
> The screws (1) and (3) have different thread/lengths, only reinstall in the same location.

> **INFORMATION**
> Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

5.2.15. Replacing the solenoid valve Y3S

5.2.15.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the solenoid valve Y3S coil, refer to "Replacing the solenoid valve Y3S coil" on page 234.
5. Connect a nitrogen hose to the outdoor suction service port.
6. Attach a hose with core-depressor to allow the release of the nitrogen.

5.2.15.2 Procedure

Removal

1. Cut the solenoid valve Y3S pipes (1).
2. Remove the solenoid valve Y3S (2).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

3. Supply nitrogen to the piping circuit.
4. Using an oxygen acetylene torch, heat the solder connections of the solenoid valve Y3S pipes (1).
5. When the solder material is liquid, pull the solenoid valve pipes (1).
6. Cut the nitrogen supply when the piping has cooled down.

Figure 106 - Removing the solenoid valve Y3S



1. Solenoid valve Y3S pipe
2. Solenoid valve Y3S

Installation

> **WARNING**
> Overheating the solenoid valve Y3S (2) will damage or destroy it.

1. Wrap a wet rag around the solenoid valve Y3S (2).
2. Proceed in reverse order.

5.2.16. Replacing the high pressure switch S1PH

5.2.16.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the front plate (2) assembly, refer to "Removing the front plate (2)" on page 208.
5. Connect a nitrogen hose to the outdoor suction service port.
6. Attach a hose with core-depressor to allow the release of the nitrogen.

5.2.16.2 Procedure

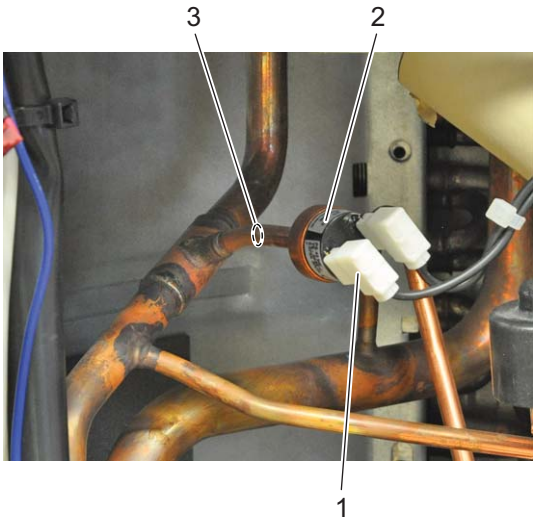
Removal

1. Unplug the Faston connectors (1) on the high pressure switch S1PH (2).
2. Cut the high pressure switch S1PH pipe (3).
3. Unplug connector X32A from the A2P board.
4. Remove the high pressure switch S1PH (2).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

5. Supply nitrogen to the piping circuit.
6. Heat the pressure sensor S1PH pipe (3) using an oxygen acetylene torch.
7. When the solder is liquid, pull the pressure sensor S1PH pipe (3).
8. Cut the nitrogen supply when the piping has cooled down.

Figure 107 - Removing the high pressure switch S1PH



1. Faston connector
2. High pressure switch S1PH
3. High pressure switch S1PH pipe

Installation

> **WARNING**
> Overheating the pressure sensor S1PH (2) will damage or destroy it.

1. Wrap a wet rag around the pressure sensor S1PH (2).
2. Proceed in reverse order.

5.2.17. Replacing the pressure sensor S1NPH

5.2.17.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Connect a nitrogen hose to the outdoor suction service port.
5. Attach a hose with core-depressor to allow the release of the nitrogen.

5.2.17.2 Procedure

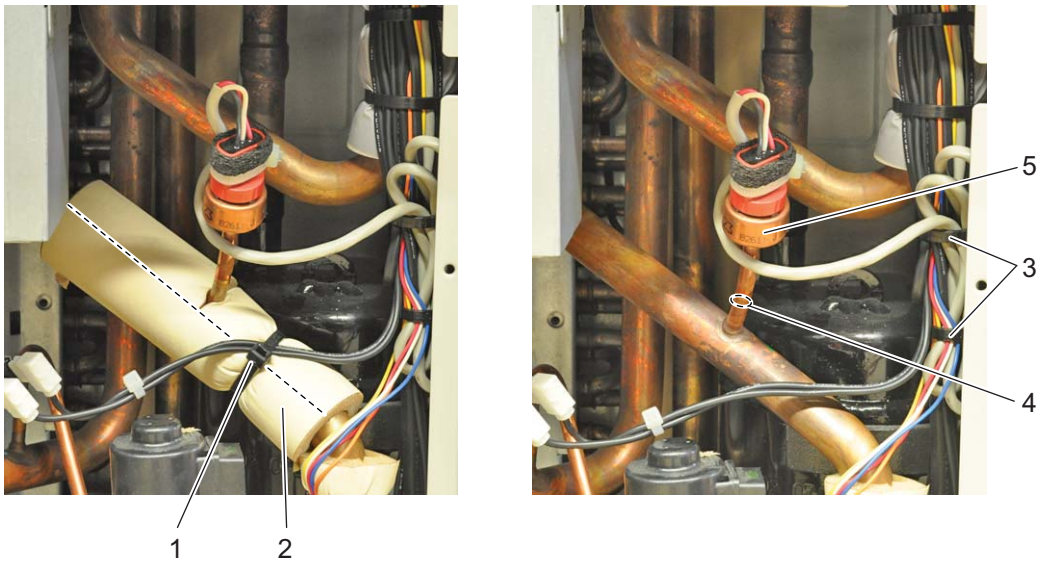
Removal

1. Cut the tie wrap (1) that fixes the high pressure switch S1PH cable.
2. Cut and remove the insulation (2).
3. Cut the pressure sensor S1NPH pipe (3).
4. Unplug connector X17A from the A1P board.
5. Remove the pressure sensor S1NPH (4).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

6. Supply nitrogen to the piping circuit.
7. Heat the pressure sensor S1NPH pipe (3) using an oxygen acetylene torch.
8. When the solder is liquid, pull the pressure sensor S1NPH pipe (3).
9. Cut the nitrogen supply when the piping has cooled down.

Figure 108 - Removing the pressure sensor S1NPH



1. Tie wrap	3. Pressure sensor S1NPH pipe
2. Insulation	4. Pressure sensor S1NPH

Installation

WARNING

Overheating the pressure sensor S1NPH (4) will damage or destroy it.

INFORMATION

Replace the insulation and all tie wraps that were cut during removal.

1. Wrap a wet rag around the pressure sensor S1NPH (3).
2. Proceed in reverse order.

5.2.18. Replacing the expansion valve Y1E motor

5.2.18.1 Preliminary actions

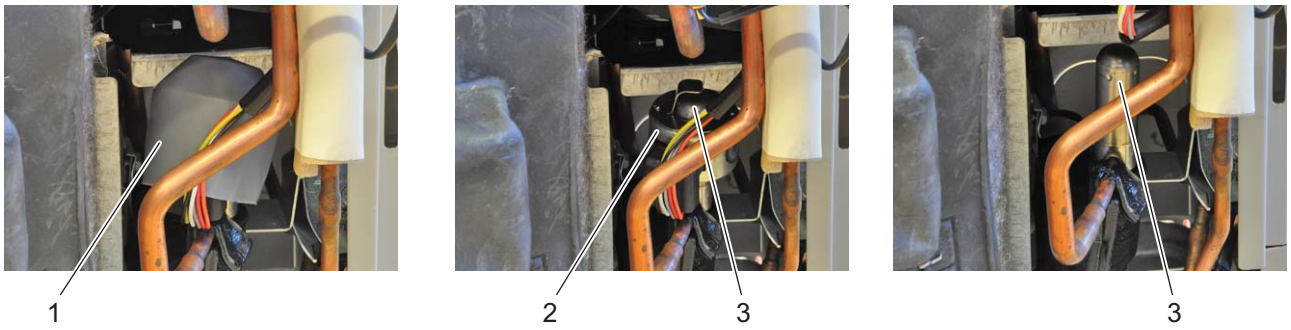
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2) assembly, refer to "Removing the front plate (2)" on page 208.

5.2.18.2 Procedure

Removal

1. Remove the soft cover (1).
2. Turn the expansion valve Y1E motor (2) 1/8th turn counter clockwise to unlock it.
3. Remove the expansion valve Y1E motor (2) from the expansion valve Y1E (3).
4. Cut all tie wraps that fix the expansion valve Y1E motor (1) wiring.
5. Unplug connector X21A from the A1P board.

Figure 109 - Removing the expansion valve Y1E motor



1. Soft cover
2. Expansion valve Y3E motor
3. Expansion valve Y1E

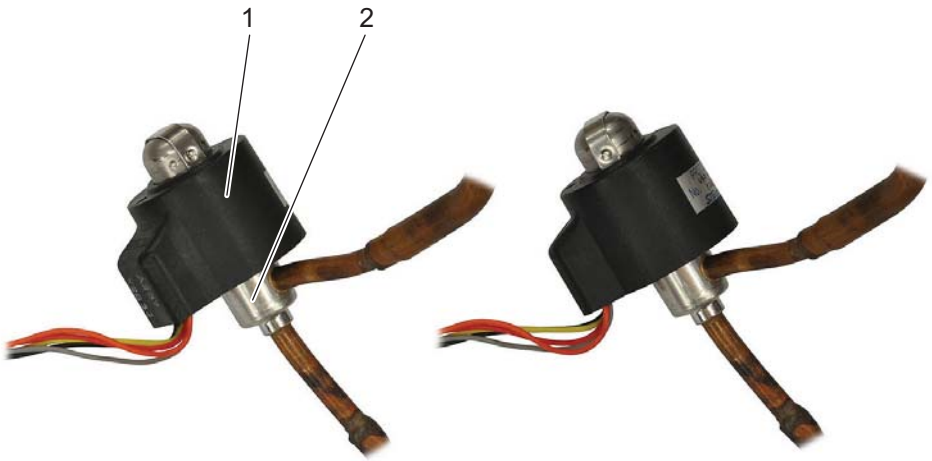
Installation

INFORMATION

Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.
2. When installing the expansion valve motor (1), lock it on the expansion valve (2).

Figure 110 - Locking the expansion valve Y1E motor



1. Expansion valve Y1E motor
2. Expansion valve Y1E

5.2.19. Replacing the expansion valve Y1E

5.2.19.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the expansion valve Y1E motor, refer to "Replacing the expansion valve Y1E motor" on page 239.
5. Remove the solenoid valve Y3S coil, refer to "Replacing the solenoid valve Y3S coil" on page 234
6. Connect a nitrogen hose to the outdoor suction service port.

7. Attach a hose with core-depressor to allow the release of the nitrogen.

5.2.19.2 Procedure

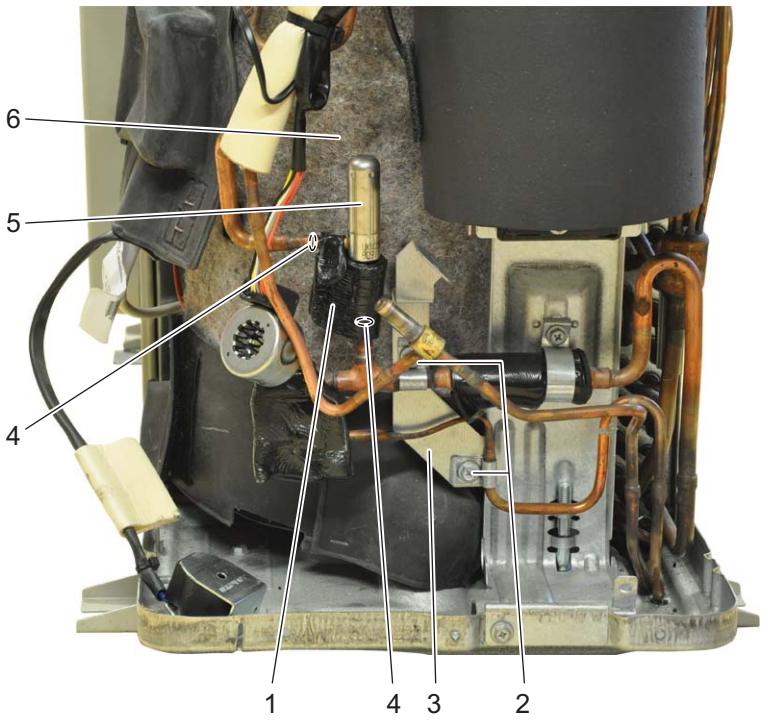
Removal

1. Recuperate the putty (1).
2. Loosen and remove the 2 screws (2) that fix the bracket (3).
3. Remove the bracket (3)
4. Cut the 2 expansion valve Y1E pipes (4).
5. Remove the expansion valve Y1E (5).
6. Insert a welding blanket between the expansion valve Y1E pipes (4) and the compressor sound insulation (6).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

7. Supply nitrogen to the piping circuit.
8. Using an oxygen acetylene torch, heat the 2 expansion valve Y1E pipes (4).
9. When the solder material is liquid, pull the expansion valve Y1E pipes (4).
10. Cut the nitrogen supply when the piping has cooled down.

Figure 111 - Removing the expansion valve Y1E



1. Putty	4. Expansion valve Y1E pipe
2. Screw	5. Expansion valve Y1E
3. Bracket	6. Compressor sound insulation

Installation

> **WARNING**
> Overheating the expansion valve Y1E (2) will damage or destroy it.

1. Wrap a wet rag around the expansion valve Y1E (2).

> **INFORMATION**
> Install the putty on the expansion valve Y1E (2).

2. Proceed in reverse order.

5.2.20. Replacing the expansion valve Y3E motor

5.2.20.1 Preliminary actions

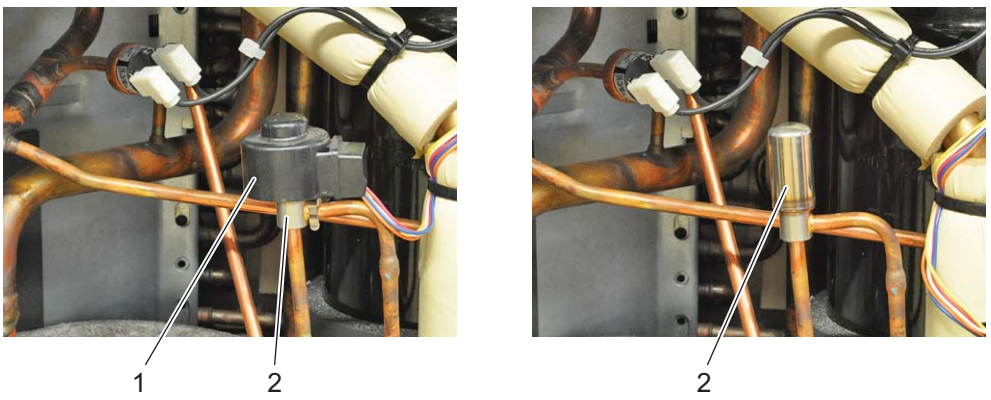
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2) assembly, refer to "Removing the front plate (2)" on page 208.

5.2.20.2 Procedure

Removal

1. Remove the expansion valve Y3E motor (1) from the expansion valve Y3E (2).
2. Cut all tie wraps that fix the expansion valve Y3E motor (1) wiring.
3. Unplug connector X22A from the A1P board.

Figure 112 - Removing the expansion valve Y3E motor



1. Expansion valve Y3E motor
2. Expansion valve Y3E

Installation

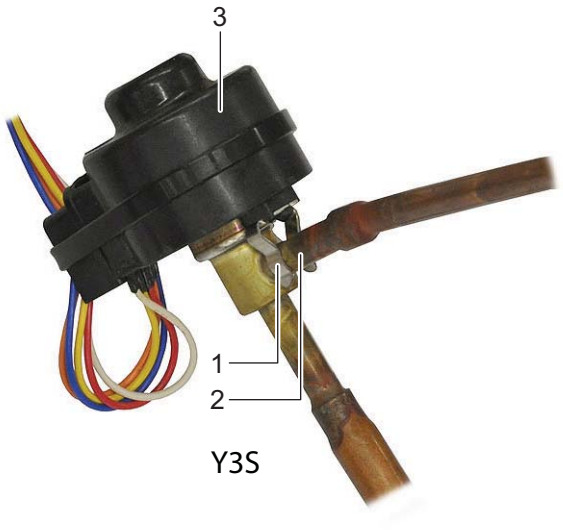
> **INFORMATION**
>
> Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

> **INFORMATION**
>
> The expansion valve Y3E motor (3) is equipped with a pipe retention clip (1). The pipe retention clip (1) must be placed over the pipe (2) to lock the expansion valve Y3E motor (3).

2. When installing the expansion valve Y3E motor (3), lock it on the expansion valve.

Figure 113 - Locking the expansion valve Y3E motor



1. Pipe retention clip
2. Pipe
3. Expansion valve Y3E motor

5.2.21. Replacing the expansion valve Y3E

5.2.21.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the expansion valve Y3E motor, refer to "Replacing the expansion valve Y3E motor" on page 242.
5. Connect a nitrogen hose to the outdoor suction service port.
6. Attach a hose with core-depressor to allow the release of the nitrogen.

5.2.21.2 Procedure

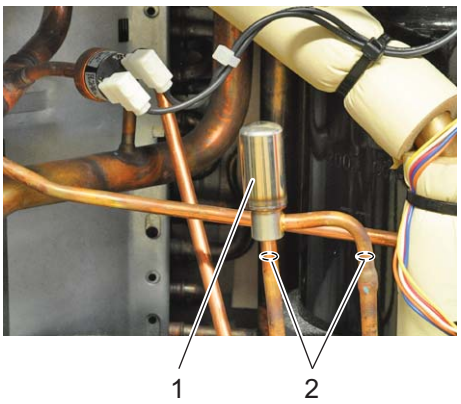
Removal

1. Cut the 2 expansion valve pipes (1).
2. Remove the expansion valve Y3E (2).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

3. Supply nitrogen to the piping circuit.
4. Using an oxygen acetylene torch, heat the 2 expansion valve Y3E pipes (1).
5. When the solder material is liquid, pull the expansion valve Y3E pipes (1).
6. Cut the nitrogen supply when the piping has cooled down.

Figure 114 - Removing the expansion valve Y3E



1. Expansion valve Y3E pipe
2. Expansion valve Y3E

Installation

> **WARNING**
> Overheating the expansion valve Y3E (2) will damage or destroy it.

1. Wrap a wet rag around the expansion valve Y3E (2).

> **INFORMATION**
> Install the putty on the expansion valve Y3E (2).

2. Proceed in reverse order.

5.2.22. Replacing the 4-way valve Y1S coil

5.2.22.1 Preliminary actions

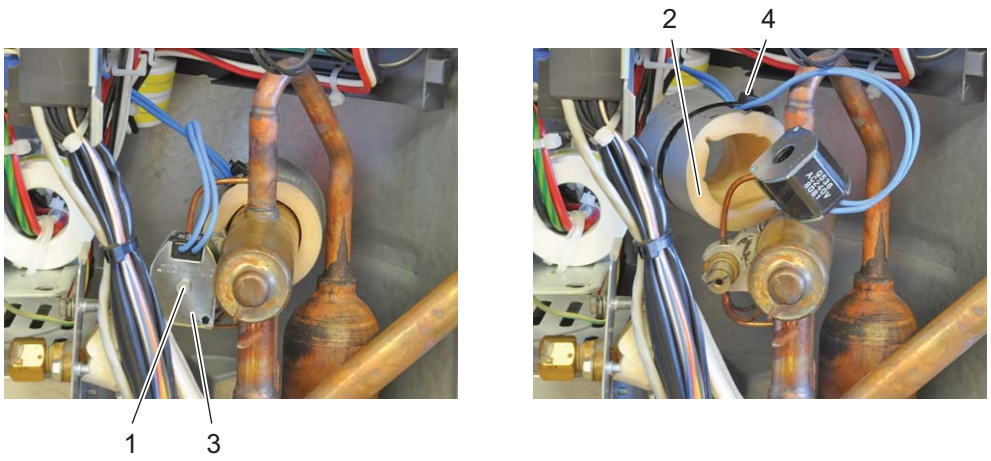
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2) assembly, refer to "Removing the front plate (2)" on page 208.

5.2.22.2 Procedure

Removal

1. Loosen and remove the screw (1) that fixes the 4-way valve coil (3).
2. Remove the insulation (2).
3. Cut the tie wrap (4).
4. Unplug connector X25A from the A1P board.
5. Remove the 4-way valve coil (3).

Figure 115 - Removing the 4-way valve coil



1. Screw	3. 4-way valve coil
2. Insulation	4. Tie wrap

Installation

> **INFORMATION**
> Replace the insulation and all tie wraps that were cut during removal.

1. Proceed in reverse order.

5.2.23. Replacing the 4-way valve Y1S

5.2.23.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the 4-way valve Y1S coil, refer to "Replacing the 4-way valve Y1S coil" on page 244.
5. Connect a nitrogen hose to the outdoor suction service port.
6. Attach a hose with core-depressor to allow the release of the nitrogen.

5.2.23.2 Procedure

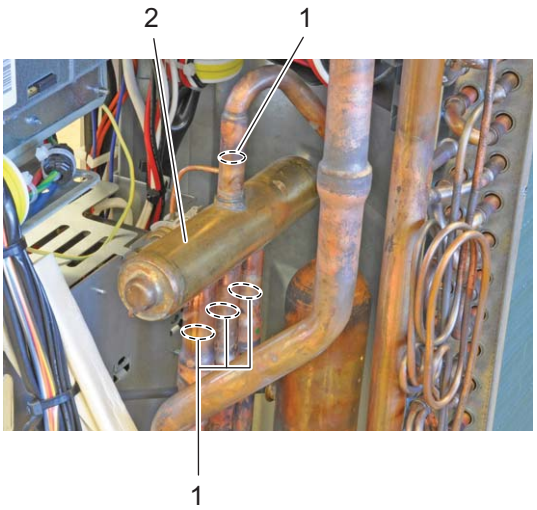
Removal

1. Cut the 4-way valve pipes (1).
2. Remove the 4-way valve (2).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

3. Supply nitrogen to the piping circuit.
4. Using an oxygen acetylene torch, heat a solder connection of the 4-way valve (2).
5. When the solder material is liquid, pull the 4-way valve pipe (1).
6. Repeat steps 4 and 5 for the 3 remaining 4-way valve pipes (1).
7. Cut the nitrogen supply when the piping has cooled down.

Figure 116 - Removing the 4-way valve Y1S



1. 4-way valve pipe
2. 4-way valve

Installation

> **WARNING**
> Overheating the 4-way valve will damage or destroy it.

1. Wrap a wet rag around the 4-way valve (2).

> **INFORMATION**
> Install the putty on the 4-way valve.
> Install the compressor sound insulation in the same location.

2. Proceed in reverse order.

5.2.24. Replacing the 4-way valve Y1S coil (1~ ERLQ011-016CV3 only)

5.2.24.1 Preliminary actions

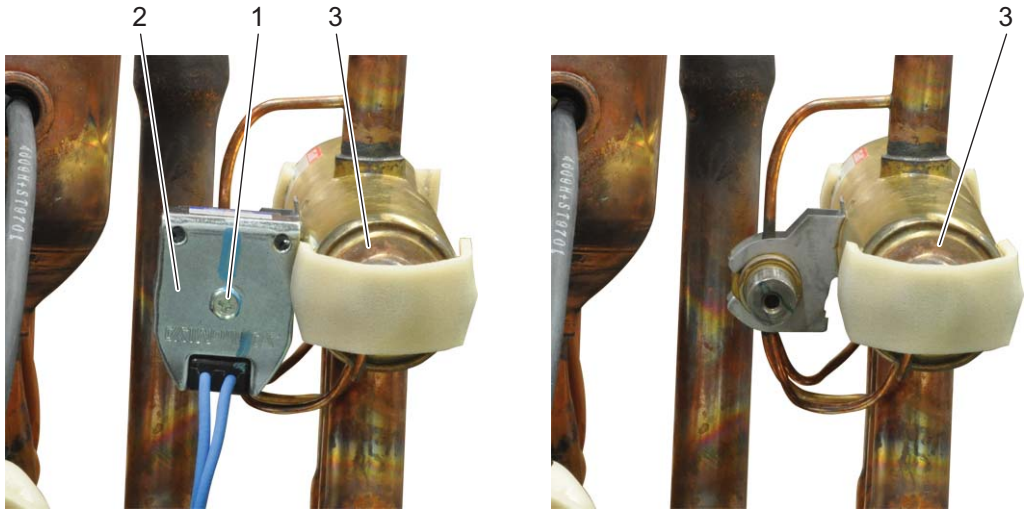
1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Remove the front plate (2) assembly, refer to "Removing the front plate (2)" on page 208.

5.2.24.2 Procedure

Removal

1. Loosen and remove the screw (1) that fixes the 4-way valve coil (2).
2. Cut the tie wraps that fix the 4-way valve coil (2) wire.
3. Unplug connector X25A from the A1P board.
4. Remove the 4-way valve coil (2) from the 4-way valve (3).

Figure 117 - Removing the 4-way valve coil (1~ ERLQ011-016CV3 only)



1. Screw
2. 4-way valve coil
3. 4-way valve

Installation

> **INFORMATION**
> Replace the insulation and all tie wraps that were cut during removal.

1. Proceed in reverse order.

5.2.25. Replacing the 4-way valve Y1S (1~ ERLQ011-016CV3 only)

5.2.25.1 Preliminary actions

1. Switch off the Daikin Altherma LT-CB via the user interface.
2. Switch off the Daikin Altherma LT-CB with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Refrigerant recovery" on page 116.
4. Remove the 4-way valve Y1S coil, refer to "Replacing the 4-way valve Y1S coil (1~ ERLQ011-016CV3 only)" on page 247.

5. Connect a nitrogen hose to the outdoor suction service port.

6. Attach a hose with core-depressor to allow the release of the nitrogen.

5.2.25.2 Procedure

Removal

1. Cut the 4-way valve pipes (1).

2. Remove the 4-way valve (2).

> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

3. Supply nitrogen to the piping circuit.

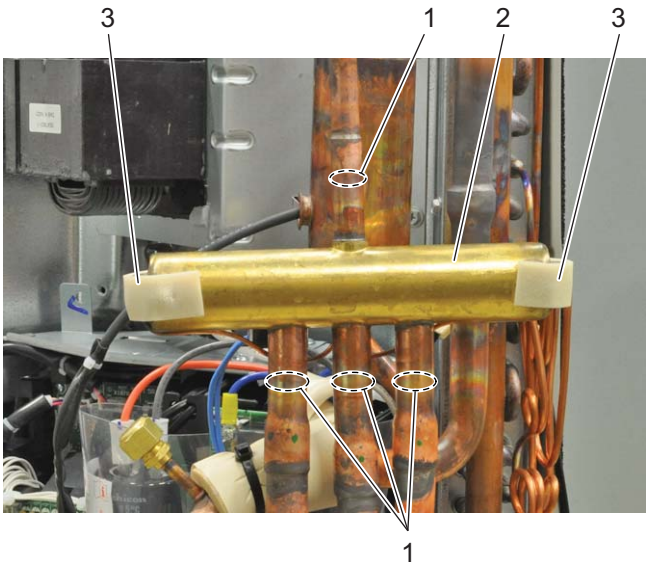
4. Using an oxygen acetylene torch, heat a solder connection of the 4-way valve (2).

5. When the solder material is liquid, pull the 4-way valve pipe (1).

6. Repeat steps 4 and 5 for the 3 remaining 4-way valve pipes (1).

7. Cut the nitrogen supply when the piping has cooled down.

Figure 118 - Removing the 4-way valve Y1S (1~ ERLQ011-016CV3 only)



1. 4-way valve pipe
2. 4-way valve
3. Insulation

Installation

> **WARNING**
> Overheating the 4-way valve will damage or destroy it.

1. Wrap a wet rag around the 4-way valve (2).

2. Install new insulation (3) on the 4-way valve (2).

3. Proceed in reverse order.

Part 4. Maintenance

1. Yearly maintenance intervals and procedures

Following items should be checked on the product at least once a year:

- Fluid pressure of Space Heating circuit
- Relief valve hose
- Pressure relief valve of Space Heating circuit
- Pressure relief valve of Domestic Hot Water tank
- Filters
- Draining of the Domestic Hot Water tank
- Anode
- Descaling and chemical disinfection
- Switch box
- Domestic hot water tank booster heater (in case non-integrated tank)

2. Maintenance procedures

WARNING

Before performing any maintenance, power off the unit.

INFORMATION

After all checks are made, make sure the water and brine circuits are filled properly again and fluid pressures are okay (1 - 2 bar).

The following procedures describe how to perform the maintenance on each items.

2.1. Checking fluid pressure of Space Heating circuit

Actions	Remarks
Check if fluid pressure between 1 and 2 bar.	Manometer is located under grey flap on front panel.
If pressure < 1 bar, add fluid.	Do not add to over 2 bar.

2.2. Checking the pressure relief valve hose

Actions	Remarks
Check whether the pressure relief valve hose is positioned appropriately to drain the water.	

2.3. Checking the pressure relief valve of Space Heating circuit

Actions	Remarks
Open the valve and check the correct operation: • If the fluid flow is high, no blockage is suspected. • If the fluid flow is low or contains debris or dirt: • Open the valve until fluid is without dirt. • Flush the system and install an additional water filter.	A magnetic cyclone filter is to be preferred.
Make sure to check the water pressure again after this check as it might have dropped. When below 1 bar, add fluid.	Do not exceed 2 bar.



WARNING

Discharged fluid may be very hot!

2.4. Checking the relief valve of the Domestic Hot Water tank - field supply

Actions	Remarks
Open the valve and check the correct operation: • If the fluid flow is high, no blockage is suspected. • If the fluid flow is low or contains debris or dirt: • Open the valve until fluid is without dirt. • Flush and clean the tank and piping between relief valve and cold water inlet.	Make sure that all taps and air vent are open, otherwise the tank might be sucked vacuum and the water will not move.



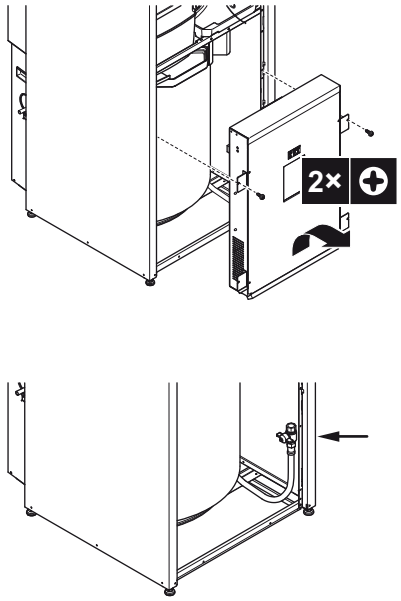
WARNING

Discharged fluid may be very hot!

2.5. Checking the filters of Space Heating circuit

Actions	Remarks
Refer to 'Cleaning the water filter' on page 129 or 'Cleaning the water filter' on page 160.	

2.6. Draining the Domestic Hot Water tank

Actions	Remarks
• Open the front panel. • The drain hose is located at the right side of the unit. Cut the tie wraps or tape and bring the flexible drain hose forward. 	• Make sure that all taps and air vent are open, otherwise the tank might be sucked vacuum and the water will not be fully drained.

2.7. Anode

Actions	Remarks
No maintenance or replacement required.	

2.8. Descaling and chemical disinfection

Actions	Remarks
• Depending on water quality and set temperature, scale can deposit on the heat exchanger inside the domestic hot water tank and can restrict heat transfer. For this reason, descaling of the heat exchanger may be required at certain intervals. • If the applicable legislation requires a chemical disinfection in specific situations, involving the domestic hot water tank, please be aware that the domestic hot water tank is a stainless steel cylinder containing an aluminium anode. We recommend to use a non-chloride based disinfectant approved for use with water intended for human consumption.	When using means for descaling or chemical disinfection, it must be ensured that the water quality remains compliant with EU directive 98/83 EC.

2.9. Checking the Switch box

Actions	Remarks
• Using an ohmmeter, check for correct operation of contactors K1M, K2M, K3M, K4M and K5M (applications with domestic hot water tank only). • All contacts of these contactors must be in open position when the power is turned OFF. • Carry out a thorough visual inspection of the switch box and look for obvious defects such as loose connections or defective wiring.	Refer to "Component checklist Floorstanding - Wall hung" on page 62.

2.10. Domestic hot water tank booster heater

Actions	Remarks
• Remove lime build-up on the booster heater to extend its life span, especially in regions with hard water. Applies only to installations with a separate, non-integrated tank. • Drain the domestic hot water tank. • Remove the booster heater from the tank. • Immerse the heater in a bucket (or similar) with lime-removing product for 24 hours.	Refer to "Draining the Domestic Hot Water tank" on page 251. Refer to “"Booster heater E4H" on page 65.

2.11. Backup heater insulation cover

Actions	Remarks
• Check that the backup heater insulation cover is fastened highly around the vessel.	Refer to"Backup heater E1H, E2H, E3H" on page 62.

2.12. Domestic hot water tank

Actions	Remarks
• See installation manual tank.	Applicable models: • EKHWS(U)150-300B3V3/Z2 • EKHWE150-300AV3/Z2 • EKHWP300-500B

Part 5. Appendix

1. Field settings

For more information, refer to table on next pages.

Figure 119 - Field settings table

Field settings table

Breadcrumb	Field code	Setting name			Range, step **Default value**	Installer setting at variance with default value Date	Value
User settings							
└ Preset values							
└ Room temperature							
7.4.1.1		Comfort (heating)		R/W	[3-07]~[3-06], step: A.3.2.4 **21°C**		
7.4.1.2		Eco (heating)		R/W	[3-07]~[3-06], step: A.3.2.4 **19°C**		
7.4.1.3		Comfort (cooling)		R/W	[3-08]~[3-09], step: A.3.2.4 **24°C**		
7.4.1.4		Eco (cooling)		R/W	[3-08]~[3-09], step: A.3.2.4 **26°C**		
└ LWT main							
7.4.2.1	[8-09]	Comfort (heating)		R/W	[9-01]~[9-00], step: 1°C **35°C**		
7.4.2.2	[8-0A]	Eco (heating)		R/W	[9-01]~[9-00], step: 1°C **33°C**		
7.4.2.3	[8-07]	Comfort (cooling)		R/W	[9-03]~[9-02], step: 1°C **18°C**		
7.4.2.4	[8-08]	Eco (cooling)		R/W	[9-03]~[9-02], step: 1°C **20°C**		
7.4.2.5		Comfort (heating)		R/W	-10~10°C, step: 1°C **0°C**		
7.4.2.6		Eco (heating)		R/W	-10~10°C, step: 1°C **-2°C**		
7.4.2.7		Comfort (cooling)		R/W	-10~10°C, step: 1°C **0°C**		
7.4.2.8		Eco (cooling)		R/W	-10~10°C, step: 1°C **2°C**		
└ Tank temperature							
7.4.3.1	[6-0A]	Storage comfort		R/W	30~[6-0E]°C, step: 1°C **60°C**		
7.4.3.2	[6-0B]	Storage eco		R/W	30~min(50, [6-0E])°C, step: 1°C **45°C**		
7.4.3.3	[6-0C]	Reheat		R/W	30~min(50, [6-0E])°C, step: 1°C **45°C**		
└ Quiet level							
7.4.4				R/W	**0: Level 1** 1: Level 2 2: Level 3		
└ Electricity price							
7.4.5.1	[C-0C] [D-0C]	High		R/W	0,00~990/kWh **0/kWh**		
7.4.5.2	[C-0D] [D-0D]	Medium		R/W	0,00~990/kWh **0/kWh**		
7.4.5.3	[C-0E] [D-0E]	Low		R/W	0,00~990/kWh **0/kWh**		
└ Fuel price							
7.4.6				R/W	0,00~990/kWh 0,00~290/MBtu **8,0/kWh**		
└ Set weather dependent							
└ Main							
└ Set weather-dependent heating							
7.7.1.1	[1-00]	Set weather-dependent heating	Low ambient temp. for LWT main zone heating WD curve.	R/W	-40~5°C, step: 1°C **-10°C**		
7.7.1.1	[1-01]	Set weather-dependent heating	High ambient temp. for LWT main zone heating WD curve.	R/W	10~25°C, step: 1°C **15°C**		
7.7.1.1	[1-02]	Set weather-dependent heating	Leaving water value for low ambient temp. for LWT main zone heating WD curve.	R/W	[9-01]~[9-00]°C, step: 1°C **35°C**		
7.7.1.1	[1-03]	Set weather-dependent heating	Leaving water value for high ambient temp. for LWT main zone heating WD curve.	R/W	[9-01]~min(45, [9-00])°C , step: 1°C **25°C**		
└ Set weather-dependent cooling							
7.7.1.2	[1-06]	Set weather-dependent cooling	Low ambient temp. for LWT main zone cooling WD curve.	R/W	10~25°C, step: 1°C **20°C**		
7.7.1.2	[1-07]	Set weather-dependent cooling	High ambient temp. for LWT main zone cooling WD curve.	R/W	25~43°C, step: 1°C **35°C**		
7.7.1.2	[1-08]	Set weather-dependent cooling	Leaving water value for low ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C **22°C**		
7.7.1.2	[1-09]	Set weather-dependent cooling	Leaving water value for high ambient temp. for LWT main zone cooling WD curve.	R/W	[9-03]~[9-02]°C, step: 1°C **18°C**		
└ Additional							
└ Set weather-dependent heating							
7.7.2.1	[0-00]	Set weather-dependent heating	Leaving water value for high ambient temp. for LWT add zone heating WD curve.	R/W	[9-05]~min(45,[9-06])°C, step: 1°C **35°C**		
7.7.2.1	[0-01]	Set weather-dependent heating	Leaving water value for low ambient temp. for LWT add zone heating WD curve.	R/W	[9-05]~[9-06]°C, step: 1°C **45°C**		
7.7.2.1	[0-02]	Set weather-dependent heating	High ambient temp. for LWT add zone heating WD curve.	R/W	10~25°C, step: 1°C **15°C**		
7.7.2.1	[0-03]	Set weather-dependent heating	Low ambient temp. for LWT add zone heating WD curve.	R/W	-40~5°C, step: 1°C **-10°C**		
└ Set weather-dependent cooling							
7.7.2.2	[0-04]	Set weather-dependent cooling	Leaving water value for high ambient temp. for LWT add zone cooling WD curve.	R/W	[9-07]~[9-08]°C, step: 1°C **8°C**		
7.7.2.2	[0-05]	Set weather-dependent cooling	Leaving water value for low ambient temp. for LWT add zone cooling WD curve.	R/W	[9-07]~[9-08]°C, step: 1°C **12°C**		
7.7.2.2	[0-06]	Set weather-dependent cooling	High ambient temp. for LWT add zone cooling WD curve.	R/W	25~43°C, step: 1°C **35°C**		
7.7.2.2	[0-07]	Set weather-dependent cooling	Low ambient temp. for LWT add zone cooling WD curve.	R/W	10~25°C, step: 1°C **20°C**		
Installer settings							
└ System layout							
└ Standard							
A.2.1.1	[E-00]	Unit type		R/O	0~5 **0: LT split**		
A.2.1.2	[E-01]	Compressor type		R/O	0: 8 1: 16		
A.2.1.3	[E-02]	Indoor software type		R/O	0: Type 1 1: Type 2		
A.2.1.4	[E-03]	Backup heater steps		R/O	0: No BUH 1: 1 step 2: 2 steps		

(*1) *HB*_(*2) *HV*_
(*3) *3V_(*4) *9W_
(*5) *04/08*_
(*6) *11/16*

(#) Setting is not applicable for this unit.

Field settings table

Breadcrumb	Field code	Setting name			Range, step **Default value**	Installer setting at variance with default value Date	Value
A.2.1.5	[5-0D]	BUH type		R/W	0: 1P,(1/2) 1: 1P,(1/1+2) 2: 3P,(1/2) **3: 3P,(1/1+2) (*3)** 4: 3PN.(1/2) **5: 3PN.(1/1+2) (*4)**		
A.2.1.6	[D-01]	Preferential kWh rate		R/W	**0: No** 1: Active open 2: Active closed		
A.2.1.7	[C-07]	Unit control method		R/W	**0: LWT control** 1: Ext RT control 2: RT control		
A.2.1.8	[7-02]	Number of LWT zones		R/W	**0: 1 LWT zone** 1: 2 LWT zones		
A.2.1.9	[F-0D]	Pump operation mode		R/W	0: Continuous **1: Sample** 2: Request		
A.2.1.A	[E-04]	Power saving possible		R/O	0: No 1: Yes		
A.2.1.B		User interface location		R/W	0: At unit **1: In room**		
└ Options							
A.2.2.1	[E-05]	DHW operation		R/W	**0: No (*1)** **1: Yes (*2)**		
A.2.2.3	[E-07]	DHW tank type		R/W	**0~6** **0: Type 1 (*1)** **1: Type 2 (*2)**		
A.2.2.4	[C-05]	Contact type main		R/W	1: Thermo ON/OFF **2: C/H request**		
A.2.2.5	[C-06]	Contact type add.		R/W	1: Thermo ON/OFF **2: C/H request**		
A.2.2.6.1	[C-02]	Digital I/O PCB	Ext. backup heat src	R/W	**0: No** 1: Bivalent 2: - 3: -		
A.2.2.6.2	[D-07]	Digital I/O PCB	Solar kit	R/W	**0: No** 1: Yes		
A.2.2.6.3	[C-09]	Digital I/O PCB	Alarm output	R/W	**0: Normally open** 1: Normally closed		
A.2.2.6.4	[F-04]	Digital I/O PCB	Bottom plate heater	R/W	**0: No** 1: Yes		
A.2.2.7	[D-04]	Demand PCB		R/W	**0: No** 1: Pwr consmp ctrl		
A.2.2.8	[D-08]	External kWh meter 1		R/W	**0: No** 1: 0,1 pulse/kWh 2: 1 pulse/kWh 3: 10 pulse/kWh 4: 100 pulse/kWh 5: 1000 pulse/kWh		
A.2.2.9	[D-09]	External kWh meter 2		R/W	**0: No** 1: 0,1 pulse/kWh 2: 1 pulse/kWh 3: 10 pulse/kWh 4: 100 pulse/kWh 5: 1000 pulse/kWh		
A.2.2.A	[D-02]	DHW pump		R/W	**0: No** 1: Secondary rtrn 2: Disinf. shunt		
A.2.2.B	[C-08]	External sensor		R/W	**0: No** 1: Outdoor sensor 2: Room sensor		
A.2.2.D	[E-0B]	Bi-zone kit	Is a bi-zone kit installed?	R/O	**0: No** (#)		
└ Capacities							
A.2.3.1	[6-02]	Booster heater		R/W	0~10kW, step: 0,2kW **0kW**		
A.2.3.2	[6-03]	BUH: step 1		R/W	0~10kW, step: 0,2kW **3kW**		
A.2.3.3	[6-04]	BUH: step 2		R/W	0~10kW, step: 0,2kW **0kW (*3)** **6kW (*4)**		
A.2.3.6	[6-07]	Bottom plate heater		R/W	0~200W, step: 10W **0W**		
Space operation							
└ LWT settings							
└ Main							
A.3.1.1.1		LWT setpoint mode		R/W	0: Fixed **1: Weather dep.** 2: Fixed + scheduled 3: WD + scheduled		
A.3.1.1.2.1	[9-01]	Temperature range	Minimum temp (heating)	R/W	15~37°C, step: 1°C **25°C**		
A.3.1.1.2.2	[9-00]	Temperature range	Maximum temp (heating)	R/W	37~depending on outdoor unit, step: 1°C **55°C**		
A.3.1.1.2.3	[9-03]	Temperature range	Minimum temp (cooling)	R/W	5~18°C, step: 1°C **5°C**		
A.3.1.1.2.4	[9-02]	Temperature range	Maximum temp (cooling)	R/W	18~22°C, step: 1°C **22°C**		
A.3.1.1.5	[8-05]	Modulated LWT		R/W	**0: No** 1: Yes		
A.3.1.1.6.1	[F-0B]	Shut-off valve	Thermo On/OFF	R/W	**0: No** 1: Yes		
A.3.1.1.6.2	[F-0C]	Shut-off valve	Cooling	R/W	0: No **1: Yes**		
A.3.1.1.7	[9-0B]	Emitter type		R/W	0: Quick **1: Slow**		
└ Additional							
A.3.1.2.1		LWT setpoint mode		R/W	0: Fixed **1: Weather dep.** 2: Fixed + scheduled 3: WD + scheduled		
A.3.1.2.2.1	[9-05]	Temperature range	Minimum temp (heating)	R/W	15~37°C, step: 1°C **25°C**		

(*1) *HB*_(*2) *HV*_
(*3) *3V_(*4) *9W_
(*5) *04/08*_
(*6) *11/16*

(#) Setting is not applicable for this unit.

Field settings table

Breadcrumb	Field code	Setting name			Range, step **Default value**	Installer setting at variance with default value Date	 Value
A.3.1.2.2.2	[9-06]	Temperature range	Maximum temp (heating)	R/W	37~depending on outdoor unit, step: 1°C **55°C**		
A.3.1.2.2.3	[9-07]	Temperature range	Minimum temp (cooling)	R/W	5~18°C, step: 1°C **5°C**		
A.3.1.2.2.4	[9-08]	Temperature range	Maximum temp (cooling)	R/W	18~22°C, step: 1°C **22°C**		
		└ Delta T source					
A.3.1.3.1	[9-09]	Heating		R/W	3~10°C, step: 1°C **5°C**		
A.3.1.3.2	[9-0A]	Cooling		R/W	3~10°C, step: 1°C **5°C**		
		└ Room thermostat					
A.3.2.1.1	[3-07]	Room temp. range	Minimum temp (heating)	R/W	12~18°C, step: A.3.2.4 **12°C**		
A.3.2.1.2	[3-06]	Room temp. range	Maximum temp (heating)	R/W	18~30°C, step: A.3.2.4 **30°C**		
A.3.2.1.3	[3-09]	Room temp. range	Minimum temp (cooling)	R/W	15~25°C, step: A.3.2.4 **15°C**		
A.3.2.1.4	[3-08]	Room temp. range	Maximum temp (cooling)	R/W	25~35°C, step: A.3.2.4 **35°C**		
A.3.2.2	[2-0A]	Room temp. offset		R/W	-5~5°C, step: 0,5°C **0°C**		
A.3.2.3	[2-09]	Ext. room sensor offset		R/W	-5~5°C, step: 0,5°C **0°C**		
A.3.2.4		Room temp. step		R/W	0: 0,5 °C **1: 1 °C**		
		└ Operation range					
A.3.3.1	[4-02]	Space heating OFF temp		R/W	14~25°C, step: 1°C **25°C (*5)**		
					14~35°C, step: 1°C **35°C (*6)**		
A.3.3.2	[F-01]	Space cooling On temp		R/W	10~35°C, step: 1°C **20°C**		
└ Domestic hot water (DHW)							
		└ Type					
A.4.1	[6-0D]			R/W	0: Reheat only 1: Reheat + sched. **2: Scheduled only**		
		└ Disinfection					
A.4.4.1	[2-01]	Disinfection		R/W	0: No **1: Yes**		
A.4.4.2	[2-00]	Operation day		R/W	0: Each day 1: Monday 2: Tuesday 3: Wednesday 4: Thursday **5: Friday** 6: Saturday 7: Sunday		
A.4.4.3	[2-02]	Start time		R/W	0~23 hour, step: 1 hour **23**		
A.4.4.4	[2-03]	Temperature target		R/W	[E-07]≠1 : 55~80°C, step: 5°C **70°C** [E-07]=1 : 60°C **60°C**		
A.4.4.5	[2-04]	Duration		R/W	[E-07]≠1 : 5~60 min, step: 5 min **10 min** [E-07]=1 : 40~60 min, step: 5 min **40 min**		
		└ Maximum setpoint					
A.4.5	[6-0E]			R/W	[E-07]≠1 : 40~80°C, step: 1°C **60°C** [E-07]=1 : 40~60°C, step: 1°C **60°C**		
		└ SP mode					
A.4.6				R/W	**0: Fixed** 1: Weather dep.		
		└ Weather dependent curve					
A.4.7	[0-0B]	Weather-dependent curve	Leaving water value for high ambient temp. for DHW WD curve.	R/W	35~[6-0E]°C, step: 1°C **50°C**		
A.4.7	[0-0C]	Weather-dependent curve	Leaving water value for low ambient temp. for DHW WD curve.	R/W	45~[6-0E]°C, step: 1°C 60**°C**		
A.4.7	[0-0D]	Weather-dependent curve	High ambient temp. for DHW WD curve.	R/W	10~25°C, step: 1°C **15°C**		
A.4.7	[0-0E]	Weather-dependent curve	Low ambient temp. for DHW WD curve.	R/W	-40~5°C, step: 1°C **-10°C**		
└ Heat sources							
		└ Backup heater					
A.5.1.1	[4-00]	Operation mode		R/W	0: Disabled **1: Enabled** 2: Only DHW		
A.5.1.2		Emergency		R/W	**0: Manual** 1: Automatic		
A.5.1.3	[4-07]	Enable BUH step 2		R/W	0: No **1: Yes**		
A.5.1.4	[5-01]	Equilibrium temp.		R/W	-15~35°C, step: 1°C **0°C**		
└ System operation							
		└ Auto restart					
A.6.1	[3-00]			R/W	0: No **1: Yes**		
		└ Preferential kWh rate					
A.6.2.1	[D-00]	Allowed heaters		R/W	**0: None** 1: BSH only 2: BUH only 3: All heaters		
A.6.2.2	[D-05]	Forced pump OFF		R/W	0: Forced off **1: As normal**		
		└ Pwr consumpt. Control					
A.6.3.1	[4-08]	Mode		R/W	**0: No limitation** 1: Continuous 2: Digital inputs		

(*1) *HB*_(*2) *HV*_
(*3) *3V_(*4) *9W_
(*5) *04/08*_
(*6) *11/16*

(#) Setting is not applicable for this unit.

Field settings table

Breadcrumb	Field code	Setting name			Range, step **Default value**	Installer setting at variance with default value Date	 Value
A.6.3.2	[4-09]	Type		R/W	0: Current **1: Power**		
A.6.3.3	[5-05]	Amp. value		R/W	0~50 A, step: 1 A **50 A**		
A.6.3.4	[5-09]	kW value		R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.6.3.5.1	[5-05]	Amp. limits for DI	Limit DI1	R/W	0~50 A, step: 1 A **50 A**		
A.6.3.5.2	[5-06]	Amp. limits for DI	Limit DI2	R/W	0~50 A, step: 1 A **50 A**		
A.6.3.5.3	[5-07]	Amp. limits for DI	Limit DI3	R/W	0~50 A, step: 1 A **50 A**		
A.6.3.5.4	[5-08]	Amp. limits for DI	Limit DI4	R/W	0~50 A, step: 1 A **50 A**		
A.6.3.6.1	[5-09]	kW limits for DI	Limit DI1	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.6.3.6.2	[5-0A]	kW limits for DI	Limit DI2	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.6.3.6.3	[5-0B]	kW limits for DI	Limit DI3	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.6.3.6.4	[5-0C]	kW limits for DI	Limit DI4	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.6.3.7	[4-01]	Priority		R/W	**0: None** 1: BSH 2: BUH		
		└ Averaging time					
A.6.4	[1-0A]			R/W	**0: No averaging** 1: 12 hours 2: 24 hours 3: 48 hours 4: 72 hours		
		└ Ext amb. sensor offset					
A.6.5	[2-0B]			R/W	-5~5°C, step: 0,5°C **0°C**		
		└ Boiler efficiency					
A.6.A	[7-05]			R/W	**0: Very high** 1: High 2: Medium 3: Low 4: Very low		
		└ Overview settings					
A.8	[0-00]	Leaving water value for high ambient temp. for LWT add zone heating WD curve.		R/W	[9-05]~min(45,[9-06])°C, step: 1°C **35°C**		
A.8	[0-01]	Leaving water value for low ambient temp. for LWT add zone heating WD curve.		R/W	[9-05]~[9-06]°C, step: 1°C **45°C**		
A.8	[0-02]	High ambient temp. for LWT add zone heating WD curve.		R/W	10~25°C, step: 1°C **15°C**		
A.8	[0-03]	Low ambient temp. for LWT add zone heating WD curve.		R/W	-40~5°C, step: 1°C **-10°C**		
A.8	[0-04]	Leaving water value for high ambient temp. for LWT add zone cooling WD curve.		R/W	[9-07]~[9-08]°C, step: 1°C **8°C**		
A.8	[0-05]	Leaving water value for low ambient temp. for LWT add zone cooling WD curve.		R/W	[9-07]~[9-08]°C, step: 1°C **12°C**		
A.8	[0-06]	High ambient temp. for LWT add zone cooling WD curve.		R/W	25~43°C, step: 1°C **35°C**		
A.8	[0-07]	Low ambient temp. for LWT add zone cooling WD curve.		R/W	10~25°C, step: 1°C **20°C**		
A.8	[0-0B]	Leaving water value for high ambient temp. for DHW WD curve.		R/W	35~[6-0E]°C, step: 1°C **50°C**		
A.8	[0-0C]	Leaving water value for low ambient temp. for DHW WD curve.		R/W	45~[6-0E]°C, step: 1°C 60**°C**		
A.8	[0-0D]	High ambient temp. for DHW WD curve.		R/W	10~25°C, step: 1°C **15°C**		
A.8	[0-0E]	Low ambient temp. for DHW WD curve.		R/W	-40~5°C, step: 1°C **-10°C**		
A.8	[1-00]	Low ambient temp. for LWT main zone heating WD curve.		R/W	-40~5°C, step: 1°C **-10°C**		
A.8	[1-01]	High ambient temp. for LWT main zone heating WD curve.		R/W	10~25°C, step: 1°C **15°C**		
A.8	[1-02]	Leaving water value for low ambient temp. for LWT main zone heating WD curve.		R/W	[9-01]~[9-00], step: 1°C **35°C**		
A.8	[1-03]	Leaving water value for high ambient temp. for LWT main zone heating WD curve.		R/W	[9-01]~min(45, [9-00])°C , step: 1°C **25°C**		
A.8	[1-04]	Weather dependent cooling of the main leaving water temperature zone.		R/W	0: Disabled **1: Enabled**		
A.8	[1-05]	Weather dependent cooling of the additional leaving water temperature zone		R/W	0: Disabled **1: Enabled**		
A.8	[1-06]	Low ambient temp. for LWT main zone cooling WD curve.		R/W	10~25°C, step: 1°C **20°C**		
A.8	[1-07]	High ambient temp. for LWT main zone cooling WD curve.		R/W	25~43°C, step: 1°C **35°C**		
A.8	[1-08]	Leaving water value for low ambient temp. for LWT main zone cooling WD curve.		R/W	[9-03]~[9-02]°C, step: 1°C **22°C**		
A.8	[1-09]	Leaving water value for high ambient temp. for LWT main zone cooling WD curve.		R/W	[9-03]~[9-02]°C, step: 1°C **18°C**		
A.8	[1-0A]	What is the averaging time for the outdoor temp?		R/W	**0: No averaging** 1: 12 hours 2: 24 hours 3: 48 hours 4: 72 hours		
A.8	[1-0B]	--			**5**		
A.8	[1-0C]	--			**5**		
A.8	[1-0D]	--			**5**		
A.8	[1-0E]	--			**5**		
A.8	[2-00]	When should the disinfection function be executed?		R/W	0: Each day 1: Monday 2: Tuesday 3: Wednesday 4: Thursday **5: Friday** 6: Saturday 7: Sunday		

(*1) *HB*_(*2) *HV*_
(*3) *3V_(*4) *9W_
(*5) *04/08*_
(*6) *11/16*

(#) Setting is not applicable for this unit.

Field settings table

Breadcrumb	Field code	Setting name		Range, step **Default value**	Installer setting at variance with default value Date	 Value
A.8	[2-01]	Should the disinfection function be executed?	R/W	0: No **1: Yes**		
A.8	[2-02]	When should the disinfection function start?	R/W	0~23 hour, step: 1 hour **23**		
A.8	[2-03]	What is the disinfection target temperature?	R/W	[E-07]≠1 : 55~80°C, step: 5°C **70°C** [E-07]=1 : 60°C **60°C**		
A.8	[2-04]	How long must the tank temperature be maintained?	R/W	[E-07]≠1: 5~60 min, step: 5 min **10 min** [E-07]=1: 40~60 min, step: 5 min **40 min**		
A.8	[2-05]	Room antifrost temperature	R/W	4~16°C, step: 1°C **12°C**		
A.8	[2-06]	Room frost protection	R/W	**0: Disabled** 1: Enabled		
A.8	[2-09]	Adjust the offset on the measured room temperature	R/W	-5~5°C, step: 0,5°C **0°C**		
A.8	[2-0A]	Adjust the offset on the measured room temperature	R/W	-5~5°C, step: 0,5°C **0°C**		
A.8	[2-0B]	What is the required offset on the measured outdoor temp.?	R/W	-5~5°C, step: 0,5°C **0°C**		
A.8	[3-00]	Is auto restart of the unit allowed?	R/W	0: No **1: Yes**		
A.8	[3-01]	--		**0**		
A.8	[3-02]	--		**1**		
A.8	[3-03]	--		**4**		
A.8	[3-04]	--		**2**		
A.8	[3-05]	--		**1**		
A.8	[3-06]	What is the maximum desired room temperature in heating?	R/W	18~30°C, step: A.3.2.4 **30°C**		
A.8	[3-07]	What is the mimimum desired room temperature in heating?	R/W	12~18°C, step: A.3.2.4 **12°C**		
A.8	[3-08]	What is the maximum desired room temperature in cooling?	R/W	25~35°C, step: A.3.2.4 **35°C**		
A.8	[3-09]	What is the minimum desired room temperature in cooling?	R/W	15~25°C, step: A.3.2.4 **15°C**		
A.8	[4-00]	What is the BUH operation mode?	R/W	0: Disabled **1: Enabled** 2: Only DHW		
A.8	[4-01]	Which electric heater has priority?	R/W	**0: None** 1: BSH 2: BUH		
A.8	[4-02]	Below which outdoor temperature is heating allowed?	R/W	14~35°C, step: 1°C **25°C (*5)**		
				14~35°C, step: 1°C **35°C (*6)**		
A.8	[4-03]	Operation permission of the booster heater.	R/W	0: Limited 1: No limit 2: Most optimum **3: Optimum**		
A.8	[4-04]	--		**2**		
A.8	[4-05]	--		**0**		
A.8	[4-06]	-- (Do not change this value)		**0/1**		
A.8	[4-07]	Enable the second step of the backup heater?	R/W	0: No **1: Yes**		
A.8	[4-08]	Which power limitation mode is required on the system?	R/W	**0: No limitation** 1: Continuous 2: Digital inputs		
A.8	[4-09]	Which power limitation type is required?	R/W	0: Current **1: Power**		
A.8	[4-0A]	--		**0**		
A.8	[4-0B]	Automatic cooling/heating changeover hysteresis.	R/W	1~10°C, step: 0,5°C **1°C**		
A.8	[4-0D]	Automatic cooling/heating changeover offset.	R/W	1~10°C, step: 0,5°C **3°C**		
A.8	[5-00]	Is backup heater operation allowed above equilibrium temperature during space heating operation?	R/W	0: Allowed **1: Not allowed**		
A.8	[5-01]	What is the equilibrium temperature for the building?	R/W	-15~35°C, step: 1°C **0°C**		
A.8	[5-02]	Space heating priority.	R/W	**0: Disabled [E-07]≠1** **1: Enabled [E-07]=1**		
A.8	[5-03]	Space heating priority temperature.	R/W	-15~35°C, step: 1°C **0°C**		
A.8	[5-04]	Set point correction for domestic hot water temperature.	R/W	0~20°C, step: 1°C **10°C**		
A.8	[5-05]	What is the requested limit for DI1?	R/W	0~50 A, step: 1 A **50 A**		
A.8	[5-06]	What is the requested limit for DI2?	R/W	0~50 A, step: 1 A **50 A**		
A.8	[5-07]	What is the requested limit for DI3?	R/W	0~50 A, step: 1 A **50 A**		
A.8	[5-08]	What is the requested limit for DI4?	R/W	0~50 A, step: 1 A **50 A**		
A.8	[5-09]	What is the requested limit for DI1?	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.8	[5-0A]	What is the requested limit for DI2?	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.8	[5-0B]	What is the requested limit for DI3?	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.8	[5-0C]	What is the requested limit for DI4?	R/W	0~20 kW, step: 0,5 kW **20 kW**		
A.8	[5-0D]	What type of backup heater installation is used?	R/W	0: 1P,(1/2) 1: 1P,(1/1+2) 2: 3P,(1/2) **3: 3P,(1/1+2) (*3)** 4: 3PN,(1/2) **5: 3PN,(1/1+2) (*4)**		
A.8	[5-0E]	--		**1**		
A.8	[6-00]	The temperature difference determining the heat pump ON temperature.	R/W	2~20°C, step: 1°C **2°C**		
A.8	[6-01]	The temperature difference determining the heat pump OFF temperature.	R/W	0~10°C, step: 1°C **2°C**		

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Field settings table

Breadcrumb	Field code	Setting name		Range, step **Default value**	Installer setting at variance with default value Date	 Value
A.8	[6-02]	What is the capacity of the booster heater?	R/W	0~10kW, step: 0,2kW **0kW**		
A.8	[6-03]	What is the capacity of the backup heater step 1?	R/W	0~10kW, step: 0,2kW **3kW**		
A.8	[6-04]	What is the capacity of the backup heater step 2?	R/W	0~10kW, step: 0,2kW **0kW (*3)** **6kW (*4)**		
A.8	[6-05]	--		**0**		
A.8	[6-06]	--		**0**		
A.8	[6-07]	What is the capacity of the bottom plate heater?	R/W	0~200W, step: 10W **0W**		
A.8	[6-08]	What is the hysteresis to be used in reheat mode?	R/W	**2~20°C, step: 1°C** **10°C**		
A.8	[6-09]	--		**0**		
A.8	[6-0A]	What is the desired comfort storage temperature?	R/W	30~[6-0E]°C, step: 1°C **60°C**		
A.8	[6-0B]	What is the desired eco storage temperature?	R/W	30~min(50, [6-0E])°C, step: 1°C **45°C**		
A.8	[6-0C]	What is the desired reheat temperature?	R/W	30~min(50, [6-0E])°C, step: 1°C **45°C**		
A.8	[6-0D]	What is the desired DHW production type?	R/W	0: Reheat only 1: Reheat + sched. **2: Scheduled only**		
A.8	[6-0E]	What is the maximum temperature setpoint?	R/W	[E-07]≠1 : 40~80°C, step: 1°C **60°C** [E-07]=1 : 40~60°C, step: 1°C **60°C**		
A.8	[7-00]	Domestic hot water booster heater overshoot temperature.	R/W	0~4°C, step: 1°C **0°C**		
A.8	[7-01]	Domestic hot water booster heater hysteresis.	R/W	2~40°C, step: 1°C **2°C**		
A.8	[7-02]	How many leaving water temperature zones are there?	R/W	**0: 1 LWT zone** 1: 2 LWT zones		
A.8	[7-03]	--		**2.5**		
A.8	[7-04]	--		**0**		
A.8	[7-05]	Boiler efficiency	R/W	**0: Very high** 1: High 2: Medium 3: Low 4: Very low		
A.8	[8-00]	--		**1 min**		
A.8	[8-01]	Maximum running time for domestic hot water operation.	R/W	5~95 min, step: 5 min **30 min**		
A.8	[8-02]	Anti-recycling time.	R/W	0~10 hour, step: 0,5 hour **0,5 hour [E-07]=1** **3 hour [E-07]≠1**		
A.8	[8-03]	Booster heater delay timer.	R/W	20~95 min, step: 5 min **50 min**		
A.8	[8-04]	Additional running time for the maximum running time.	R/W	0~95 min, step: 5 min **95 min**		
A.8	[8-05]	Allow modulation of the LWT to control the room temp?	R/W	**0: No** 1: Yes		
A.8	[8-06]	Leaving water temperature maximum modulation.	R/W	0~10°C, step: 1°C **3°C**		
A.8	[8-07]	What is the desired comfort main LWT in cooling?	R/W	[9-03]~[9-02], step: 1°C **18°C**		
A.8	[8-08]	What is the desired eco main LWT in cooling?	R/W	[9-03]~[9-02], step: 1°C **20°C**		
A.8	[8-09]	What is the desired comfort main LWT in heating?	R/W	[9-01]~[9-00], step: 1°C **35°C**		
A.8	[8-0A]	What is the desired eco main LWT in heating?	R/W	[9-01]~[9-00], step: 1°C **33°C**		
A.8	[8-0B]	--		**13**		
A.8	[8-0C]	--		**10**		
A.8	[8-0D]	--		**16**		
A.8	[9-00]	What is the maximum desired LWT for main zone in heating?	R/W	37~depending on outdoor unit, step: 1°C **55°C**		
A.8	[9-01]	What is the mimimum desired LWT for main zone in heating?	R/W	15~37°C, step: 1°C **25°C**		
A.8	[9-02]	What is the maximum desired LWT for main zone in cooling?	R/W	18~22°C, step: 1°C **22°C**		
A.8	[9-03]	What is the mimimum desired LWT for main zone in cooling?	R/W	5~18°C, step: 1°C **5°C**		
A.8	[9-04]	Leaving water temperature overshoot temperature.	R/W	1~4°C, step: 1°C **1°C**		
A.8	[9-05]	What is the mimimum desired LWT for add. zone in heating?	R/W	15~37°C, step: 1°C **25°C**		
A.8	[9-06]	What is the maximum desired LWT for add. zone in heating?	R/W	37~depending on outdoor unit, step: 1°C **55°C**		
A.8	[9-07]	What is the mimimum desired LWT for add. zone in cooling?	R/W	5~18°C, step: 1°C **5°C**		
A.8	[9-08]	What is the maximum desired LWT for add. zone in cooling?	R/W	18~22°C, step: 1°C **22°C**		
A.8	[9-09]	What is the desired delta T in heating?	R/W	3~10°C, step: 1°C **5°C**		
A.8	[9-0A]	What is the desired delta T in cooling?	R/W	3~10°C, step: 1°C **5°C**		
A.8	[9-0B]	What emitter type is connected to the main LWT zone?	R/W	0: Quick **1: Slow**		
A.8	[9-0C]	Room temperature hysteresis.	R/W	1~6°C, step: 0,5°C **1 °C**		
A.8	[9-0D]	Pump speed limitation	R/W	0~8, step:1 0 : 100% 1~4 : 80~50% 5~8 : 80~50% **6**		
A.8	[9-0E]	--		**6**		
A.8	[A-00]	--		**0**		
A.8	[A-01]	--		**0 (*5)** **3 (*6)**		

(*1) *HB*_(*2) *HV*_
(*3) *3V_(*4) *9W_
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(*6) *11/16*

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Field settings table

Breadcrumb	Field code	Setting name		Range, step **Default value**	Installer setting at variance with default value Date	 Value
A.8	[A-02]	--		**0 (*5)** **1 (*6)**		
A.8	[A-03]	--		**0**		
A.8	[A-04]	--		**0**		
A.8	[B-00]	--		**0**		
A.8	[B-01]	--		**0**		
A.8	[B-02]	--		**0**		
A.8	[B-03]	--		**0**		
A.8	[B-04]	--		**0**		
A.8	[C-00]	Domestic heating water priority.	R/W	**0: Solar priority** 1: Heat pump priority		
A.8	[C-01]	--		**0**		
A.8	[C-02]	Is an external backup heat source connected?	R/W	**0: No** 1: Bivalent 2: - 3: -		
A.8	[C-03]	Bivalent activation temperature.	R/W	-25~25°C, step: 1°C **0°C**		
A.8	[C-04]	Bivalent hysteresis temperature.	R/W	2~10°C, step: 1°C **3°C**		
A.8	[C-05]	What is the thermo request contact type for the main zone?	R/W	1: Thermo ON/OFF **2: C/H request**		
A.8	[C-06]	What is the thermo request contact type for the add. zone?	R/W	0: - 1: Thermo ON/OFF **2: C/H request**		
A.8	[C-07]	What is the unit control method in space operation?	R/W	**0: LWT control** 1: Ext RT control 2: RT control		
A.8	[C-08]	Which type of external sensor is installed?	R/W	**0: No** 1: Outdoor sensor 2: Room sensor		
A.8	[C-09]	What is the required alarm output contact type?	R/W	**0: Normally open** 1: Normally closed		
A.8	[C-0A]	--		**0**		
A.8	[C-0C]	High electricity price decimal (Do not use)	R/W	0~7 **0**		
A.8	[C-0D]	Medium electricity price decimal (Do not use)	R/W	0~7 **0**		
A.8	[C-0E]	Low electricity price decimal (Do not use)	R/W	0~7 **0**		
A.8	[D-00]	Which heaters are permitted if prefer. kWh rate PS is cut?	R/W	**0: None** 1: BSH only 2: BUH only 3: All heaters		
A.8	[D-01]	Contact type of preferential kWh rate PS installation?	R/W	**0: No** 1: Active open 2: Active closed		
A.8	[D-02]	Which type of DHW pump is installed?	R/W	**0: No** 1: Secondary rtrn 2: Disinf. shunt		
A.8	[D-03]	Leaving water temperature compensation around 0°C.	R/W	**0: Disabled** 1: Enabled, shift 2°C (from -2 to 2°C) 2: Enabled, shift 4°C (from -2 to 2°C) 3: Enabled, shift 2°C (from -4 to 4°C) 4: Enabled, shift 4°C (from -4 to 4°C)		
A.8	[D-04]	Is a demand PCB connected?	R/W	**0: No** 1: Pwr consmp ctrl		
A.8	[D-05]	Is the pump allowed to run if prefer. kWh rate PS is cut?	R/W	0: Forced off **1: As normal**		
A.8	[D-07]	Is a solar kit connected?	R/W	**0: No** 1: Yes		
A.8	[D-08]	Is an external kWh meter used for power measurement?	R/W	**0: No** 1: 0,1 pulse/kWh 2: 1 pulse/kWh 3: 10 pulse/kWh 4: 100 pulse/kWh 5: 1000 pulse/kWh		
A.8	[D-09]	Is an external kWh meter used for power measurement?	R/W	**0: No** 1: 0,1 pulse/kWh 2: 1 pulse/kWh 3: 10 pulse/kWh 4: 100 pulse/kWh 5: 1000 pulse/kWh		
A.8	[D-0A]	--		**0**		
A.8	[D-0B]	--		**2**		
A.8	[D-0C]	What is the high electricity price (Do not use)	R/W	0~49 **0**		
A.8	[D-0D]	What is the medium electricity price (Do not use)	R/W	0~49 **0**		
A.8	[D-0E]	What is the low electricity price (Do not use)	R/W	0~49 **0**		
A.8	[E-00]	Which type of unit is installed?	R/O	0~5 **0: LT split**		
A.8	[E-01]	Which type of compressor is installed?	R/O	0: 8 1: 16		
A.8	[E-02]	What is the indoor unit software type?	R/O	0: Type 1 1: Type 2		
A.8	[E-03]	What is the number of backup heater steps?	R/O	0: No BUH 1: 1 step 2: 2 steps		
A.8	[E-04]	Is the power saving function available on the outdoor unit?	R/O	0: No 1: Yes		
A.8	[E-05]	Can the system prepare domestic hot water?	R/W	**0: No (*1)** **1: Yes (*2)**		
A.8	[E-06]	Is a DHW tank installed in the system?	R/O	0: No 1: Yes		
A.8	[E-07]	What kind of DHW tank is installed?	R/W	0~6 **0: Type 1 (*1)** **1: Type 2 (*2)**		
A.8	[E-08]	Power saving function for outdoor unit.	R/W	**0: Disabled (*6)** **1: Enabled (*5)**		
A.8	[E-09]	--		**0**		
A.8	[E-0A]	--		**0**		

(#) Setting is not applicable for this unit.

(*1) *HB*_(*2) *HV*_
(*3) *3V_(*4) *9W_
(*5) *04/08*_
(*6) *11/16*

Field settings table

Breadcrumb	Field code	Setting name		Range, step **Default value**	Installer setting at variance with default value Date	 Value
A.8	[E-0B]	Is a bi-zone kit installed?	R/O	**0 (#)**		
A.8	[E-0C]	--		**0**		
A.8	[F-00]	Pump operation allowed outside range.	R/W	**0: Disabled** 1: Enabled		
A.8	[F-01]	Above which outdoor temperature is cooling allowed?	R/W	10~35°C, step: 1°C **20°C**		
A.8	[F-02]	Bottom plate heater ON temperature.	R/W	3~10°C, step: 1°C **3°C**		
A.8	[F-03]	Bottom plate heater hysteresis.	R/W	2~5°C, step: 1°C **5°C**		
A.8	[F-04]	Is a bottom plate heater connected?	R/W	**0: No** 1: Yes		
A.8	[F-05]	--		**0**		
A.8	[F-06]	--		**0**		
A.8	[F-09]	Pump operation during flow abnormality.	R/W	**0: Disabled** 1: Enabled		
A.8	[F-0A]	--		**0**		
A.8	[F-0B]	Close shut-off valve during thermo OFF?	R/W	**0: No** 1: Yes		
A.8	[F-0C]	Close shut-off valve during cooling?	R/W	0: No **1: Yes**		
A.8	[F-0D]	What is the pump operation mode?	R/W	0: Continuous **1: Sample** 2: Request		

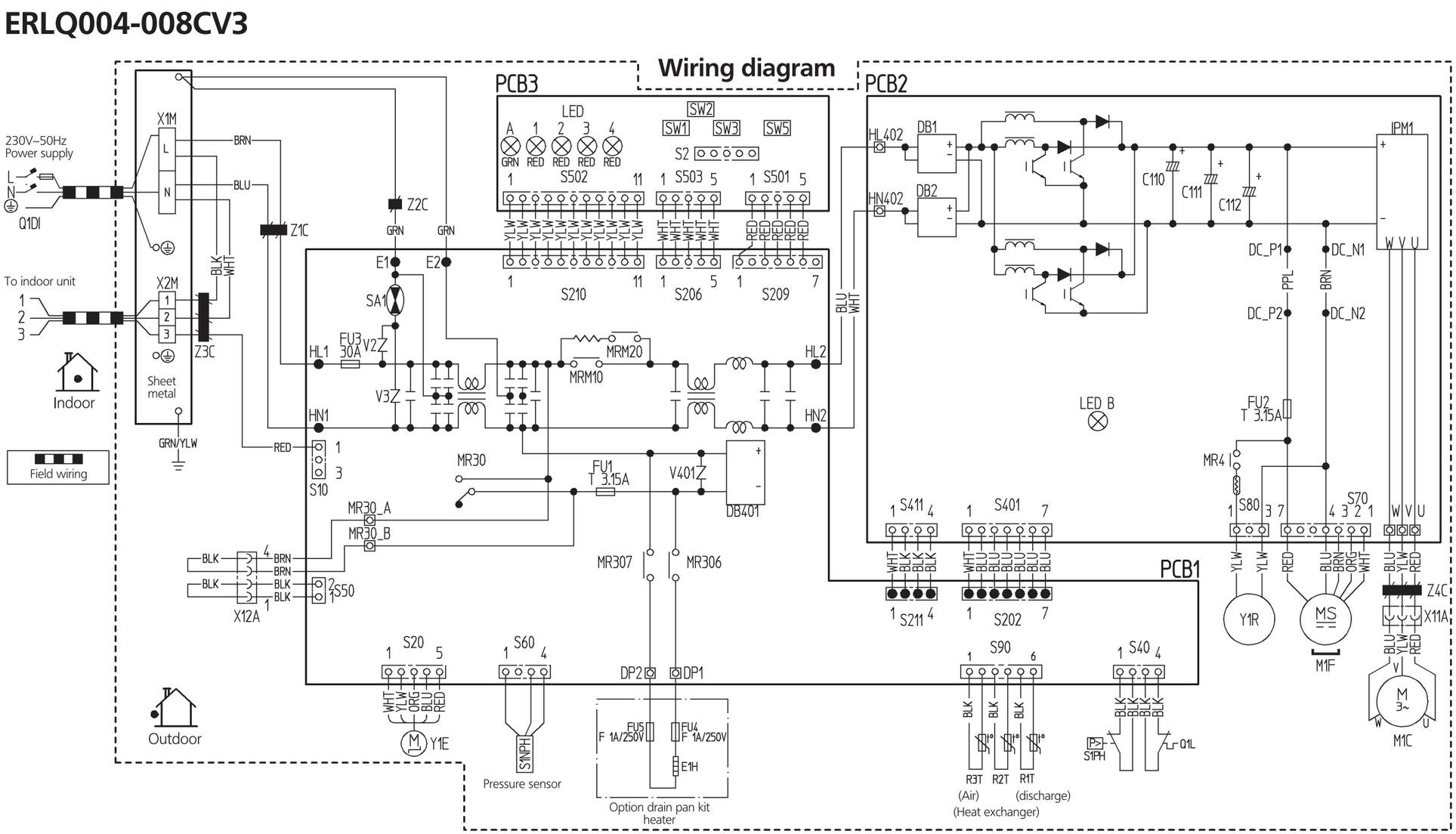
(*1) *HB*_(*2) *HV*_
(*3) *3V_(*4) *9W_
(*5) *04/08*_
(*6) *11/16*

(#) Setting is not applicable for this unit.

2. Wiring diagrams

2.1 Wiring diagram ERLQ004-008CV3

Figure 120 - Wiring diagram ERLQ004-008CV3

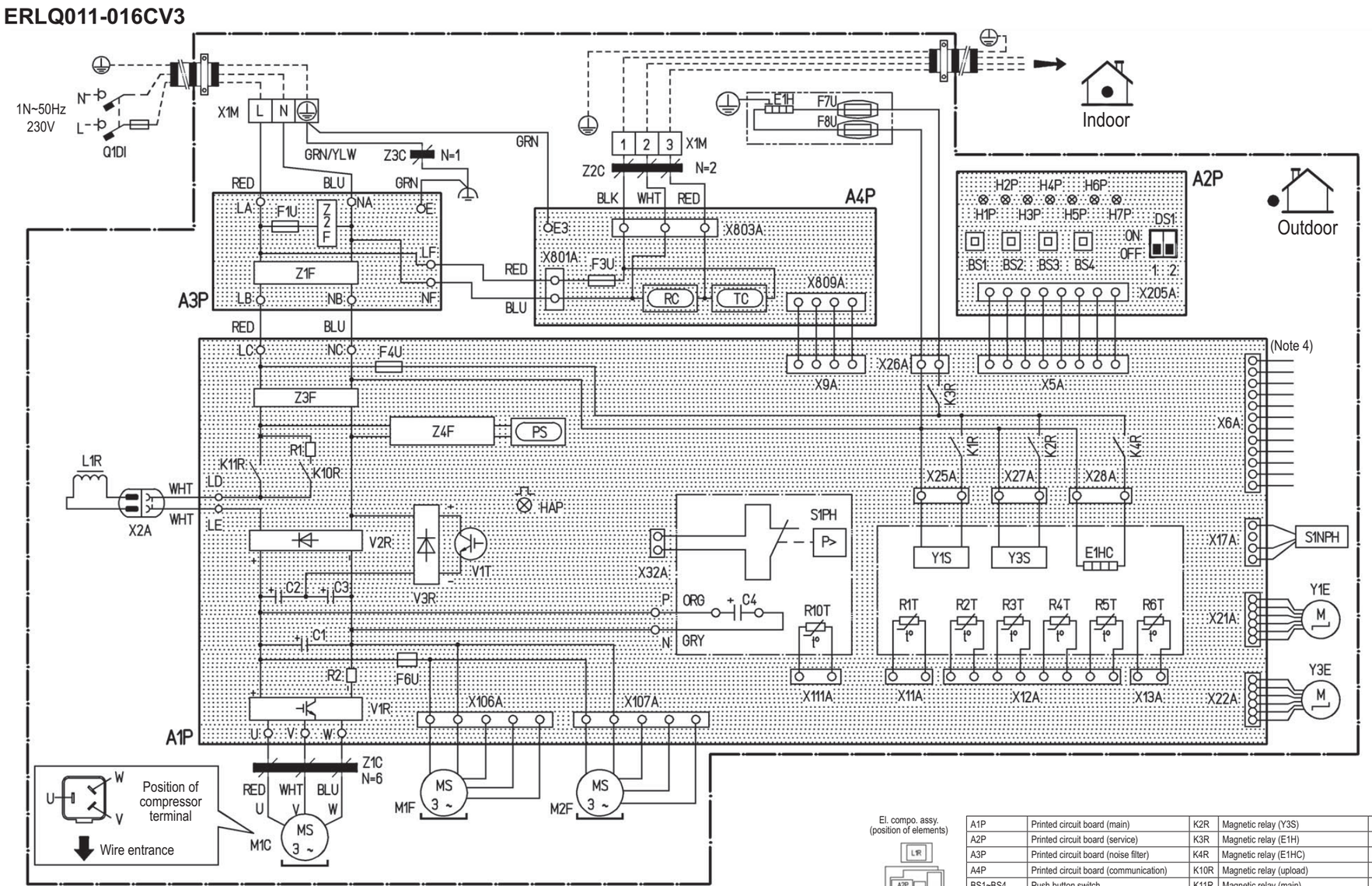


Z1C~Z4C	: Ferrite core	MR30, MRM10, MRM20		PCB1	: Printed circuit board (Main)
X1M, X2M	: Terminal strip	MR307, MR306, MR4	: Magnetic relay	PCB2	: Printed circuit board (Inverter)
Y1E	: Electronic expansion valve coil	R1T	: Thermistor (Discharge)	PCB3	: Printed circuit board (Service)
V2, V3, V401	: Varistor	R2T	: Thermistor (Heat exchanger)	M1C	: Compressor motor
SA1	: Surge arrester	R3T	: Thermistor (Air)	M1F	: Fan motor
FU1, FU2, FU3, FU4, FU5	: Fuse	S2~S503	: Connector	LED 1~4	: Indication lamps
HL1, HN1, HL2, HN2		LED A, LED B	: Pilot lamp	Q1L	: Overload protector
U, V, W, X11A, X12A		IPM1	: Intelligent power module	Q1DI	: Earth leakage circuit breaker
E1, E2, DP1, DP2, HL402, HN402, DC_P1, DC_N1 DC_P2, DC_N2, MR30_A, MR30_B	: Connector	L	: Live	DB1, DB2, DB401	: Rectifier bridge
E1H	: Drain pan heater	N	: Neutral	Y1R	: Reversing solenoide valve coil
S1NPH	: Pressure sensor	SW1,SW3	: Push buttons	Sheet metal	: Terminal strip fixed plate
S1PH	: Pressure switch (high)	SW2,SW5	: Dip switches		
		C110, C111, C112	: Capacitor		

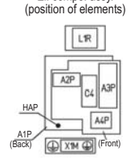
Notes:
1. Refer to purchasing specification AS303002, unless otherwise specified.
2. This drawing was drawn on CAD system.
3. Size: length 140 x width 230.

2.2 Wiring diagram ERLQ011-016CV3

Figure 121 - Wiring diagram ERLQ011-016CV3



El. compo. assy. (position of elements)



A1P	Printed circuit board (main)	K2R	Magnetic relay (Y3S)	R5T	Thermistor (heat exchanger middle)
A2P	Printed circuit board (service)	K3R	Magnetic relay (E1H)	R6T	Thermistor (liquid)
A3P	Printed circuit board (noise filter)	K4R	Magnetic relay (E1HC)	RC	Signal receiver circuit
A4P	Printed circuit board (communication)	K10R	Magnetic relay (upload)	R10T	Thermistor (fin)
BS1~BS4	Push button switch	K11R	Magnetic relay (main)	S1NPH	Pressure sensor
C1~C4	Capacitor	L1R	Reactor	S1PH	Pressure switch (high)
DS1	Dip switch	M1C	Motor (compressor)	TC	Signal transmission circuit
E1H	Bottomplate heater	M1F	Motor (fan) (upper)	V1R	Power module
E1HC	Crankcase heater	M2F	Motor (fan) (lower)	V2R,V3R	Diode module
F1U,F3U,F4U	Fuse (T 3.6A / 250V)	PS	Swtiching power supply	V1T	IGBT
F6U	Fuse (T 5.0A / 250V)	Q1DI	Earth leakage circuit breaker	X1M	Terminal strip (power supply)
F7U,F8U	Fuse (F 1.0A / 250V)	R1	Resistor	Y1E	Electronic expansion valve (main)
H1P~7P (A2P)	Light emit. diode (serv. monitor-orange) [H2P] Prepare, test ..... flickering Malfunction detection..... light up	R2	Resistor	Y3E	Electronic expansion valve (inj)
		R1T	Thermistor (air)	Y1S	Solenoid valve (4 way valve)
		R2T	Thermistor (discharge)	Y3S	Solenoid valve (hot gas pass)
HAP (A1P)	Light emitting diode (Service monitor green)	R3T	Thermistor (suction)	Z1C~Z3C	Noise filter (ferrity core)
		R4T	Thermistor (heat exchanger)	Z1F~Z4F	Noise filter
K1R	Magnetic relay (Y1S)				

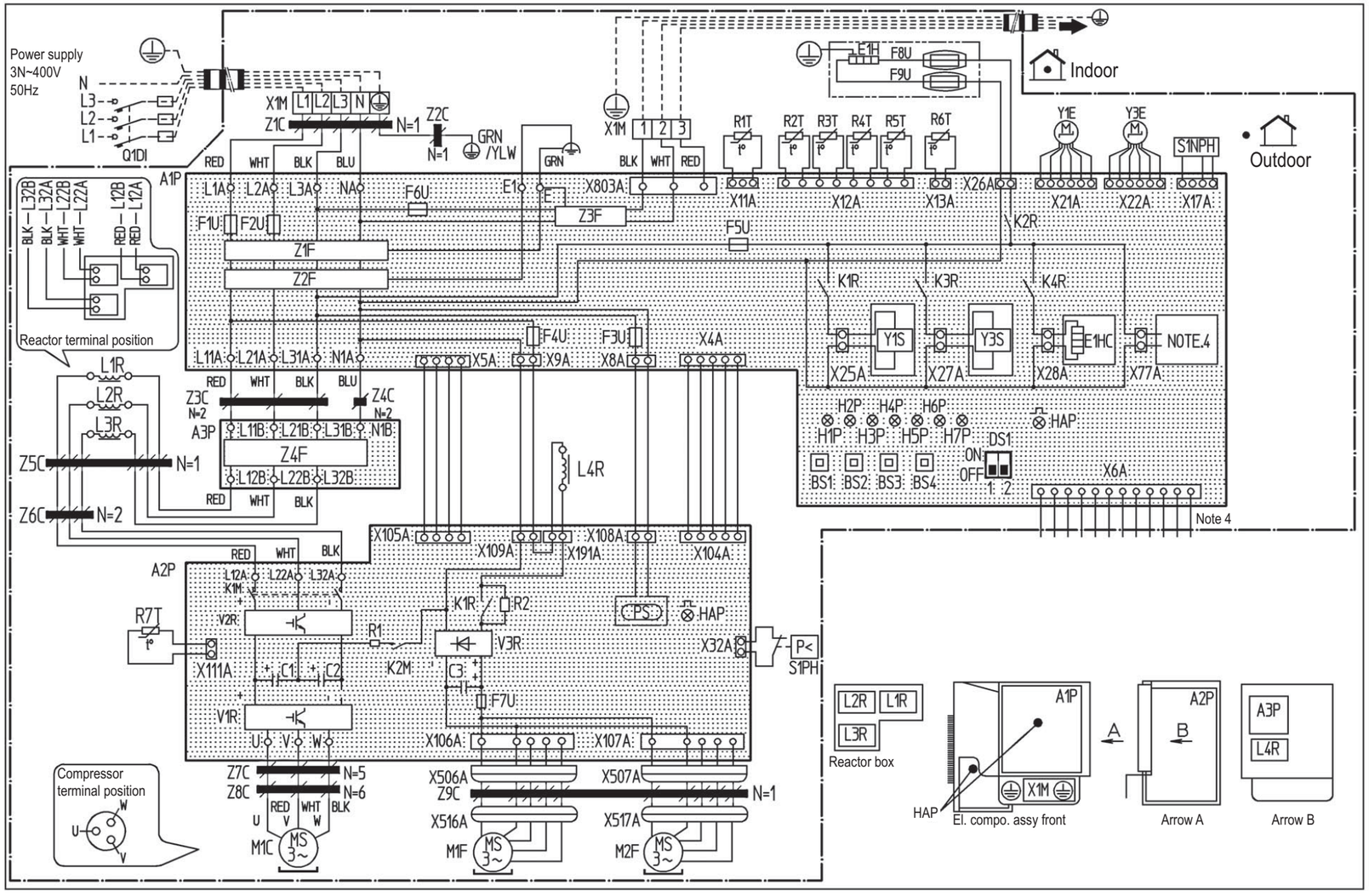
NOTES

1. This wiring diagram only applies to the outdoor unit
2. L: live, N: neutral, ▭: field wiring
3. ▭▭: terminal strip, ⊙⊙: connector, —●—: connection, ⊕: protective earth (screw), —▰—: connector, ⏚: noiseless earth, —○—: terminal
4. Refer to the option manual, for connecting wiring to X6A.
5. Refer to the 'wiring diagram sticker' (on back of front plate) on how to use BS1~BS4 and DS1 switch
6. Do not operate the unit by short-circuiting protection device S1PH
7. Colors: BLU= blue, BRN= brown, GRN= green, RED= red, WHT= white, YLW= yellow, ORG= orange, BLK= black
8. Confirm the method of setting the selector switches (DS1) by service manual; Factory setting of all switches: "off"
9. ▭: option, ⬚: wiring dependent on model

2.3 Wiring diagram ERLQ011-016CW1

Figure 122 - Wiring diagram ERLQ011-016CW1

ERLQ011-016CW1



NOTES

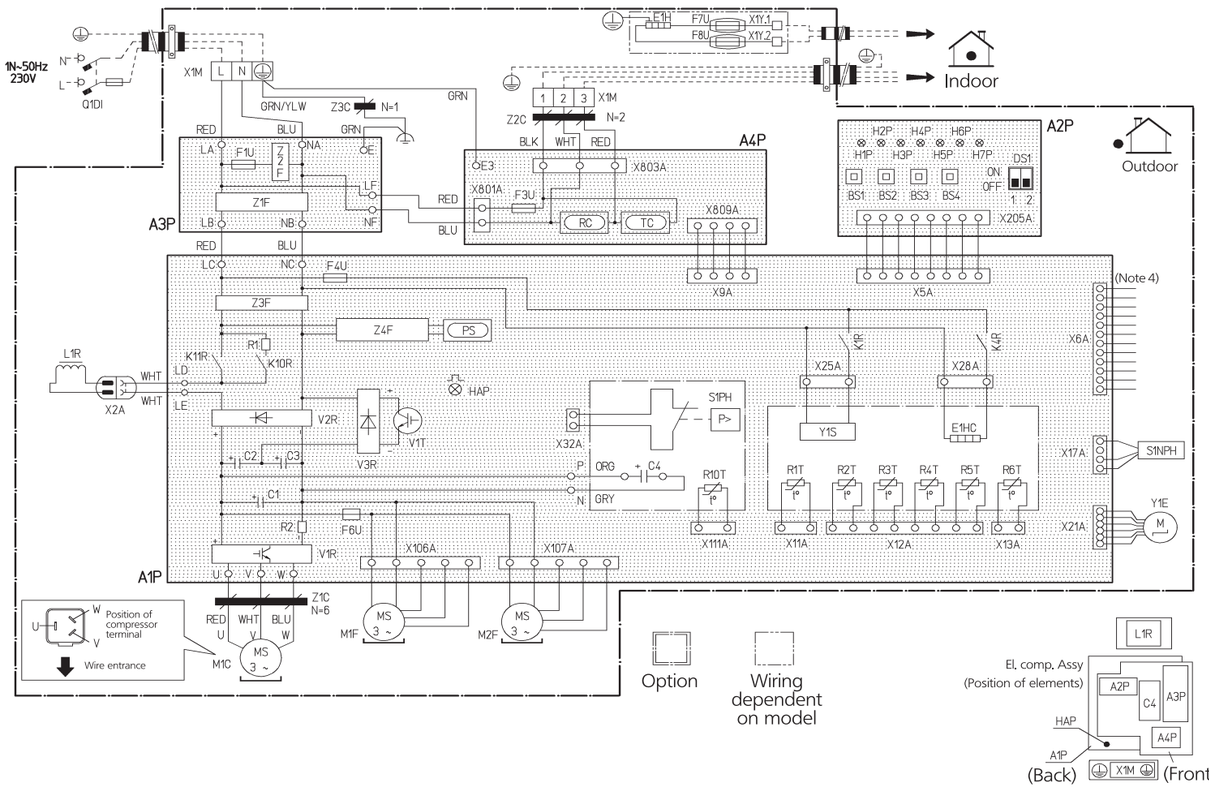
1. This wiring diagram only applies to the outdoor unit
2. L: live, N: neutral, ▬▮▮▮▬: field wiring
3. ▭▭▭: terminal strip, ⊙⊙: connector, ●—: connection, ⊕: protective earth (screw), —▮: connector, ⏚: noiseless earth, —○—: terminal
4. Refer to the option manual, for connecting wiring to X6A and X77A.
5. Refer to the 'wiring diagram sticker' (on back of front plate) on how to use BS1~BS4 and DS1 switch
6. Do not operate the unit by short-circuiting protection device S1PH
7. Colors: BLU= blue, BRN= brown, GRN= green, RED= red, WHT= white, YLW= yellow, ORG= orange, BLK= black
8. Confirm the method of setting the selector switches (DS1) by service manual; Factory setting of all switches: "off"
9. ▭: option, ⬚: wiring dependent on model

A1P	Printed circuit board (control)	H1P~7P (A1P)	Pilot lamp (service monitor-orange)	R5T	Thermistor (heat exchanger middle)
A2P	Printed circuit board (inv)	K1M-K2M	Magnetic contactor (main - upload)	R6T	Thermistor (liquid)
A3P	Printed circuit board (noise filter)	K1R (A1P)	Magnetic relay (Y1S)	R7T	Thermistor (fin)
BS1~BS4	Push button switch	K1R (A2P)	Magnetic relay (upload)	S1NPH	Pressure sensor
C1~C4	Capacitor	K2R (A1P)	Magnetic relay (E1H)	SPH	Pressure switch (high)
DS1	Dip switch	K3R (A1P)	Magnetic relay (Y3S)	V1R,V2R	Power module
E1HC	Crankcase heater	K4R (A1P)	Magnetic relay (E1HC)	V3R	Diode module
E1H	Bottomplate heater	L1R~L3R	Reactor	X1M	Terminal strip
F1U	Fuse (31.5A 500V)	L4R	Reactor (for outdoor fan motor)	Y1E	Electronic expansion valve (main)
F2U	Fuse (31.5A 500V)	M1C	Motor (compressor)	Y3E	Electronic expansion valve (inj)
F3U	Fuse (T 6.3A / 250V)	M1F	Motor (fan) (upper)	Y1S	Solenoid valve (4 way valve)
F4U	Fuse (T 6.3A / 250V)	M2F	Motor (fan) (lower)	Y3S	Solenoid valve (hot gas pass)
F5U	Fuse (T 6.3A / 250V)	PS	Swtiching power supply	Z1C~Z3C	Noise filter
F6U	Fuse (T 6.3A / 250V)	R1~R4	Resistor	Z1F~Z4F	Noise filter
F7U	Fuse (T 5.0A / 250V)	R1T	Thermistor (air)	Q1DI	Earth leakage circuit breaker
F8U,F9U	Fuse (F 1.0A / 250V)	R2T	Thermistor (discharge)	Optional connector	
HAP (A1P)	Pilot lamp (service monitor-green)	R3T	Thermistor (suction)	X6A	Connector
HAP (A2P)	Pilot lamp (service monitor-green)	R4T	Thermistor (heat exchanger)	X77A	Connector

2.4 Wiring diagram ERHQ011-016BV3

Figure 123 - Wiring diagram ERHQ011-016BV3

ERHQ011-016BV3



A1P	Printed circuit board (Main)
A2P	Printed circuit board (Service)
A3P	Printed circuit board (Noise filter)
A4P	Printed circuit board
BS1~BS4	Push button switch
C1~C4	Capacitor
DS1	DIP switch
E1H	Bottomplate heater
E1HC	Crankcase heater
F1U, F3U, F4U	Fuse (T 6.3A/250V)
F6U	Fuse (T 5.0A/250V)
F7U, F8U	Fuse (F 1.0A/250V)
H1P~7P (A2P)	Light emitting diode (service monitor orange) Prepare, Test --------- Flickering Malfunction Detection -- Light up
HAP (A1P)	Light emitting diode (service monitor green)
K1R	Magnetic relay (Y1S)
K4R	Magnetic relay (E1HC)
K10R	Magnetic relay
K11R	Magnetic relay
L1R	Reactor
M1C	Motor (Compressor)
M1F	Motor (Fan) (upper)
M2F	Motor (Fan) (lower)
PS	Switching power supply
Q1DI	Earth leakage circuit breaker
R1	Resistor
R2	Resistor
R1T	Thermistor (Air)
R2T	Thermistor (Discharge)
R3T	Thermistor (Suction)
R4T	Thermistor (Heat exchanger)
R5T	Thermistor (heat exchanger middle)
R6T	Thermistor (Liquid)
RC	Signal receiver circuit
R10T	Thermistor (Fin)
S1NPH	Pressure sensor
S1PH	Pressure switch (High)
TC	Signal transmission circuit
V1R	Power module
V2R, V3R	Diode module
V1T	IGBT
X1M	Terminal strip (Power supply)
Y1E	Electronic expansion valve
Y1S	Solenoid valve (4 way valve)
Z1C~Z3C	Noise filter (ferrity core)
Z1F~Z4F	Noise filter
Optional connector	
X1Y	Connector

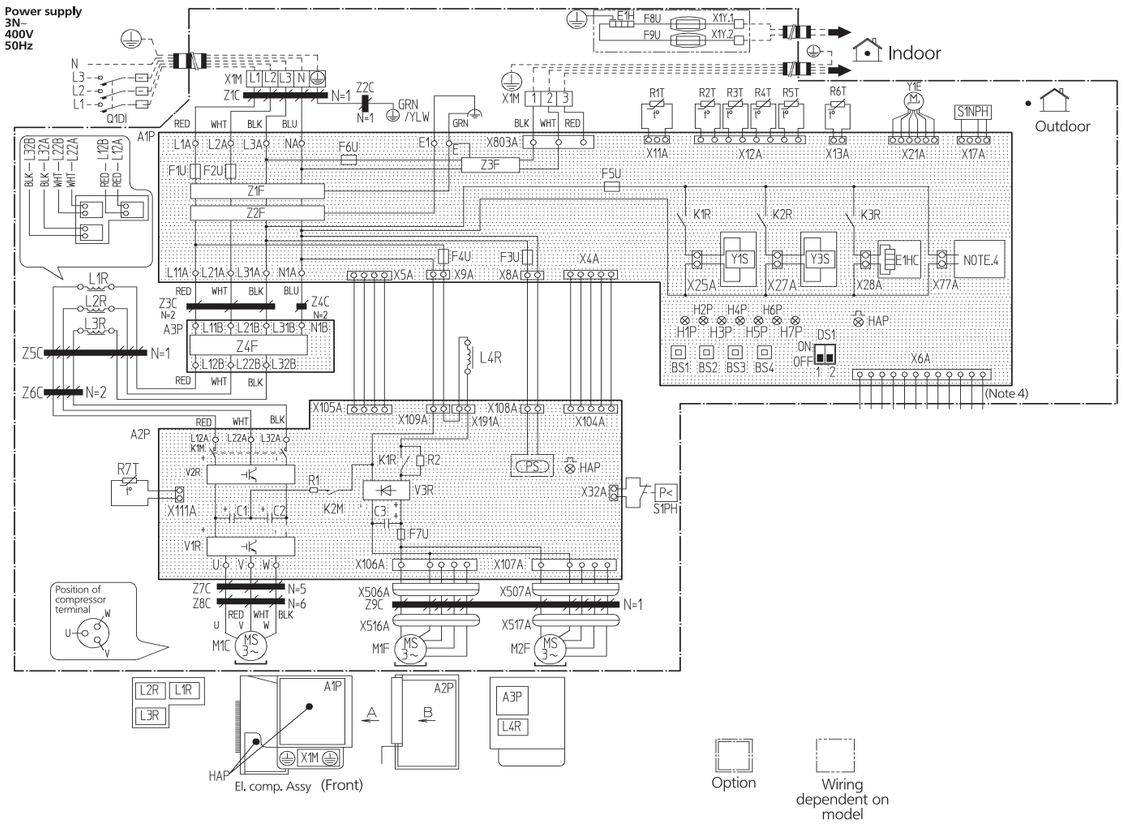
Notes:

1 This wiring diagram only applies to the outdoor unit
2 L: Live N:Neutral : Field wiring
3 : Terminal strip : Connector : Connection : Protective earth (screw)
: Relay connector : Noiseless earth : Terminal
4 Refer to the option manual, for connecting wiring to x6A.
5 Refer to the "Wiring diagram sticker" (on back of front plate) on how to use BS1~ BS4 and DS1 switch.
6 Do not operate the unit by short-circuiting protection device S1PH
7 Colors: BLK: black, RED: red, BLU: blue, WHT: white, YLW: yellow, ORG: orange, BRN: brown, GRN: green
8 Confirm the method of setting the selector switches by service. When the unit is shipped by factory all switches are set to be off.

2.5 Wiring diagram ERHQ011-016BW1

Figure 124 - Wiring diagram ERHQ011-016BW1

ERHQ011-016BW1



A1P	Printed circuit board
A2P	Printed circuit board (INV)
A3P	Printed circuit board (Noise filter)
BS1~BS4	Push button switch
C1~C4	Capacitor
DS1	DIP switch
E1H	Bottomplate heater
E1HC	Crankcase heater
F1U	Fuse (T 31.5A 500V)
F2U	Fuse (T 31.5A 500V)
F3U	Fuse (T 6.3A/250V)
F4U	Fuse (T 6.3A/250V)
F5U	Fuse (T 6.3A/250V)
F6U	Fuse (T 6.3A/250V)
F7U	Fuse (T 5.0A/250V)
F8U, F9U	Fuse (F 1.0A/250V)
HAP (A1P)	Light emitting diode (service monitor green)
HAP (A2P)	Light emitting diode (service monitor green)
H1~7P (A1P)	Pilot lamp (service monitor-orange)
K1M - K2M	Magnetic contactor
K1R (A1P)	Magnetic relay (Y1S)
K1R (A2P)	Magnetic relay
K2R (A1P)	Magnetic relay (Y2S)
K3R (A1P)	Magnetic relay (E1HC)
L1R ~ L3R	Reactor
L4R	Reactor (For outdoor fan motor)
M1C	Motor (Compressor)
M1F	Motor (Fan) (upper)
M2F	Motor (Fan) (lower)
PS	Switching power 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	Thermistor (Fin)
S1NPH	Pressure sensor
S1PH	Pressure switch (High)
V1R V2R	Power module
V3R	Diode module
X1M	Terminal strip
Y1E	Electronic expansion valve
Y1S	Solenoid valve (4 way valve)
Y3S	Solenoid valve
Z1C~Z9C	Noise filter
Z1F~Z4F	Noise filter
Q1DI	Earth leakage circuit breaker
Optional connector	
X6A	Connector
X77A	Connector
X1Y	Connector

Notes:

1 This wiring diagram only applies to the outdoor unit
2 L: Live N:Neutral : Field wiring
3 : Terminal strip : Connector : Connection : Protective earth (screw)
: Relay connector : Noiseless earth : Terminal
4 Refer to the option manual, for connecting wiring to x6A.
5 Refer to the "Wiring diagram sticker" (on back of front plate) on how to use BS1~ BS4 and DS1 switch.
6 Do not operate the unit by short-circuiting protection device S1PH
7 Colors: BLK: black, RED: red, BLU: blue, WHT: white, YLW: yellow, ORG: orange, BRN: brown, GRN: green
8 Confirm the method of setting the selector switches by service. When the unit is shipped by factory all switches are set to be off.

2.6 Wiring diagram EHV(X/H)04-16CB3V/9W, EHB(X/H)04-16CB3V/9W

Figure 125 - Wiring diagram EHV(X/H)04-16CB3V/9W, EHB(X/H)04-16CB3V/9W - 1

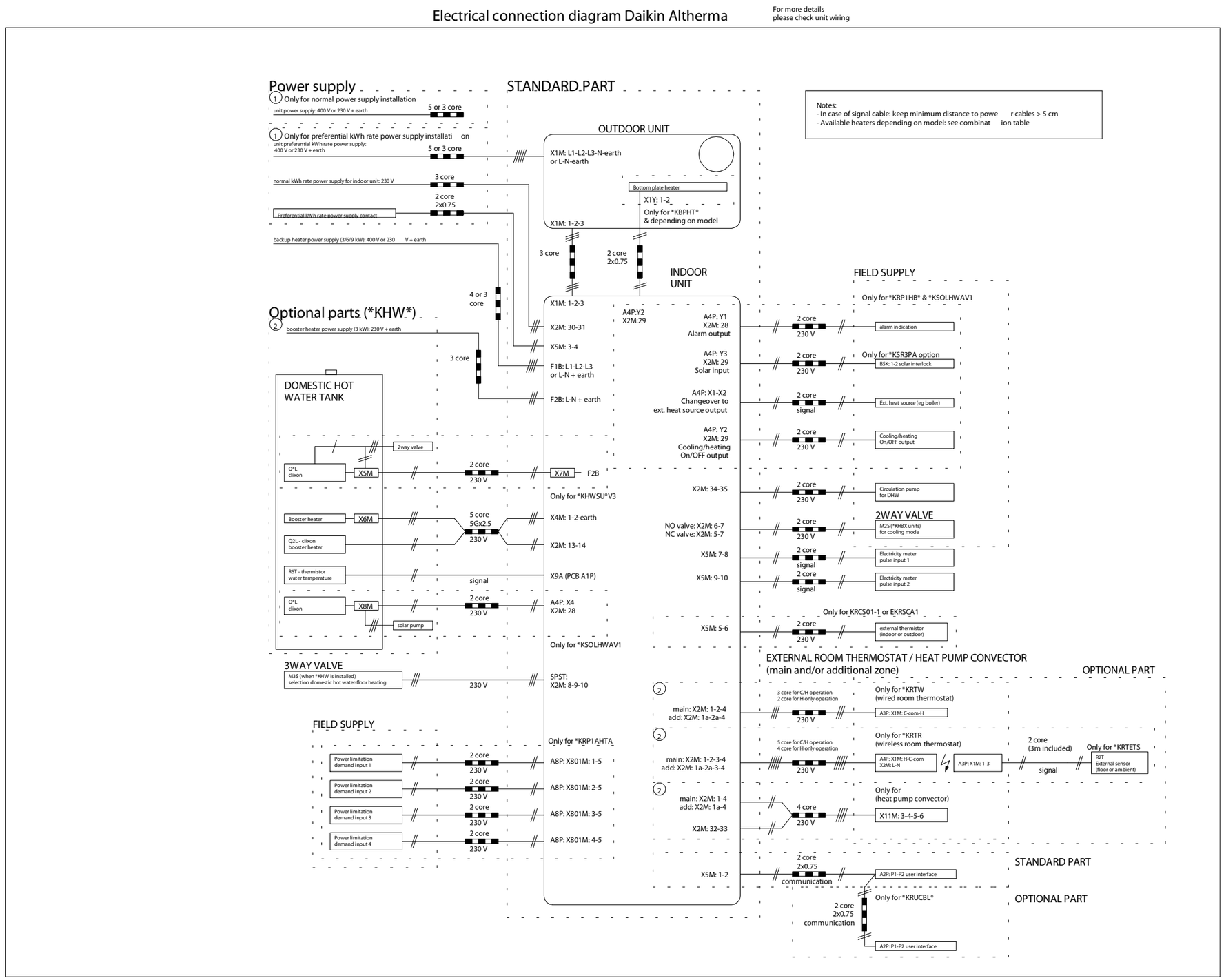


Figure 126 - Wiring diagram EHV(X/H)04-16CB3V/9W, EHB(X/H)04-16CB3V/9W - 2

NOTES to go through before starting the unit

X1M	: Main terminal	X6M, X7M	: Backup heater terminal
X2M	: Field wiring terminal for AC	X4M	: Booster heater terminal
X5M	: Field wiring terminal for DC		

: 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

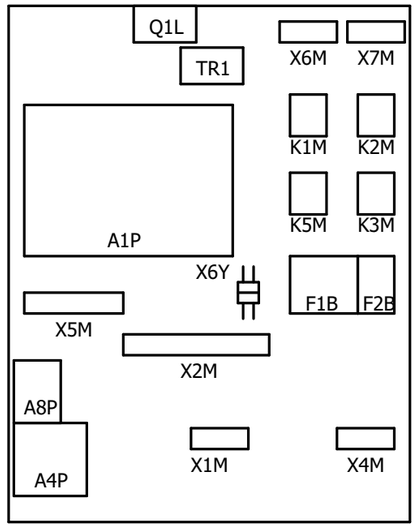
Backup heater configuration (only for *9W)
- ☐ 3V3 (1N~, 230 V, 3 kW)
- ☐ 6V3 (1N~, 230 V, 6 kW)
- ☐ 6WN (3N~, 400 V, 6 kW)
- ☐ 9WN (3N~, 400 V, 9 kW)
- ☐ 6T1 (3~, 230 V, 6 kW)

User installed options:
- ☐ Bottom plate heater
- ☐ Domestic hot water tank
- ☐ Domestic hot water tank with solar connection
- ☐ Remote user interface
- ☐ Ext. indoor thermistor
- ☐ Ext. outdoor thermistor
- ☐ Digital I/O PCB
- ☐ Demand PCB
- ☐ Solar pump and control station

Main LWT:
- ☐ On/OFF thermostat (wired)
- ☐ On/OFF thermostat (wireless)
  - ☐ Ext. thermistor
- ☐ Heat pump convector

Add LWT:
- ☐ On/OFF thermostat (wired)
- ☐ On/OFF thermostat (wireless)
  - ☐ Ext. thermistor
- ☐ Heat pump convector

POSITION IN SWITCH BOX



LEGEND

Translation can be found in the installation manual.

Part n°		Description
A1P		main PCB
A2P		user interface PCB
A3P	*	solar pumpstation PCB
A3P	*	On/OFF thermostat (PC=power circuit)
A3P	*	heat pump convector
A4P	*	digital I/O PCB
A4P	*	receiver PCB (wireless On/OFF thermostat)
A8P	*	demand PCB
B1L		flow sensor
BSK	*	solar pump station relay
DS1 (A8P)	*	dipswitch
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	*	fuse 5 A 250 V for digital I/O PCB
FU1		fuse T 6.3 A 250 V for PCB
PHC1	*	optocoupler input circuit
K1M, K2M		contactor backup heater
K3M	*	contactor booster heater
K5M		safety contactor BUH (only *9W)
K*R		relay on PCB
M1P		main supply pump
M2P	#	domestic hot water pump
M2S	#	2 way valve for cooling mode
M3S	(*)	3 way valve for floorheating /domestic hot water
Q1DI, Q2DI	#	earth leakage circuit breaker
Q1L		thermal protector backup heater
Q2L	*	thermal protector booster heater
R1T		outlet water heat exchanger thermistor
R1T (A2P)		ambient sensor user interface
R1T (A3P)	*	ambient sensor On/OFF thermostat
R2T		outlet backup heater thermistor
R2T	*	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
R1H (A3P)	*	humidity sensor
S1S	#	preferential kWh rate PS contact
S2S	#	electrical meter pulse input 1
S3S	#	electrical meter pulse input 2
S6S-S9S	#	digital power limitation inputs
SS1 (A4P)	*	selector switch
TR1		power supply transformer
X*M		terminal strip
X*Y		connector

* : optional
(*): standard for *HV*, optional for *HB*
\# : field supply

Figure 127 - Wiring diagram EHV(X/H)04-16CB3V/9W, EHB(X/H)04-16CB3V/9W - 3

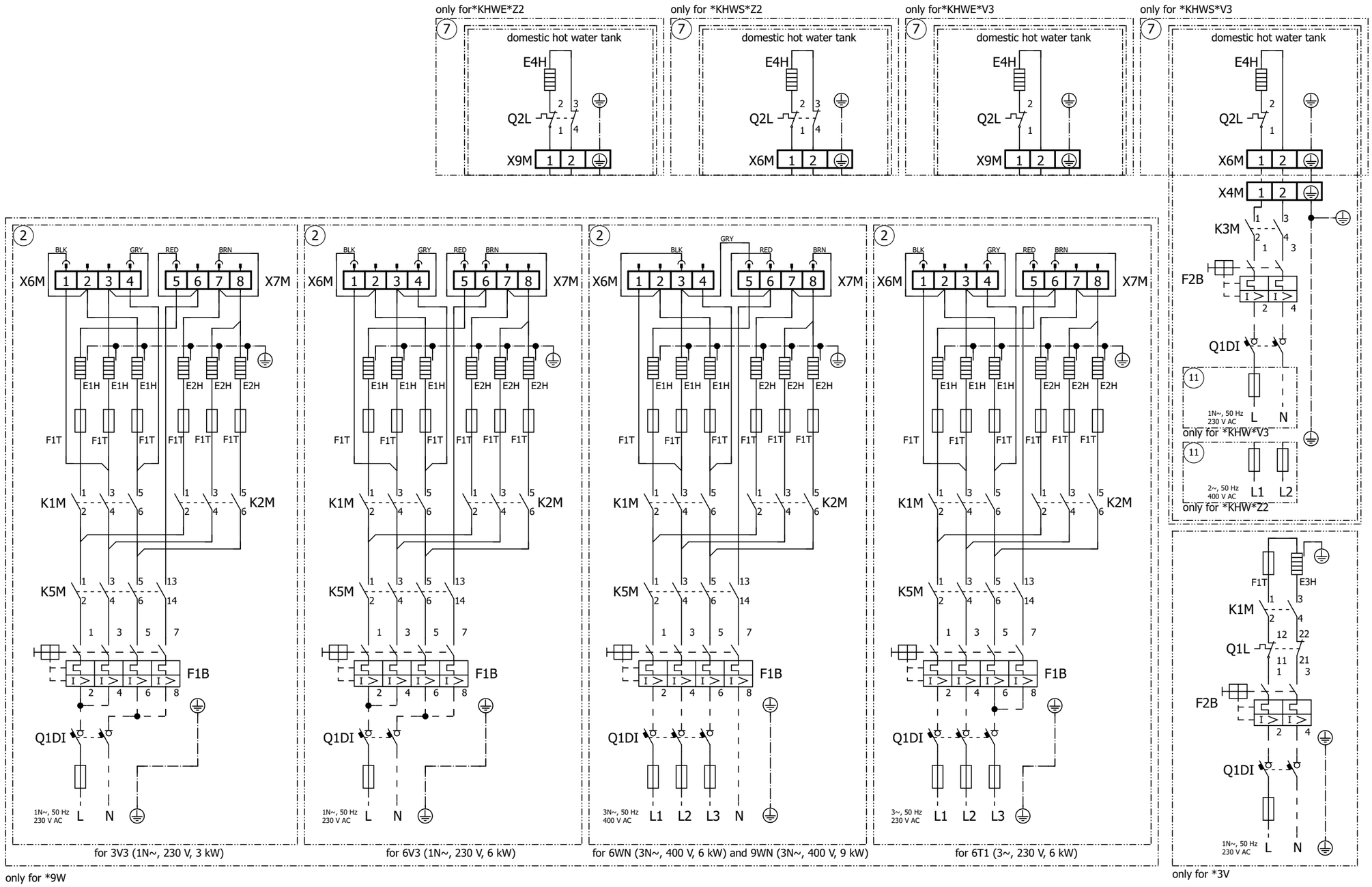


Figure 128 - Wiring diagram EHV(X/H)04-16CB3V/9W, EHB(X/H)04-16CB3V/9W - 4

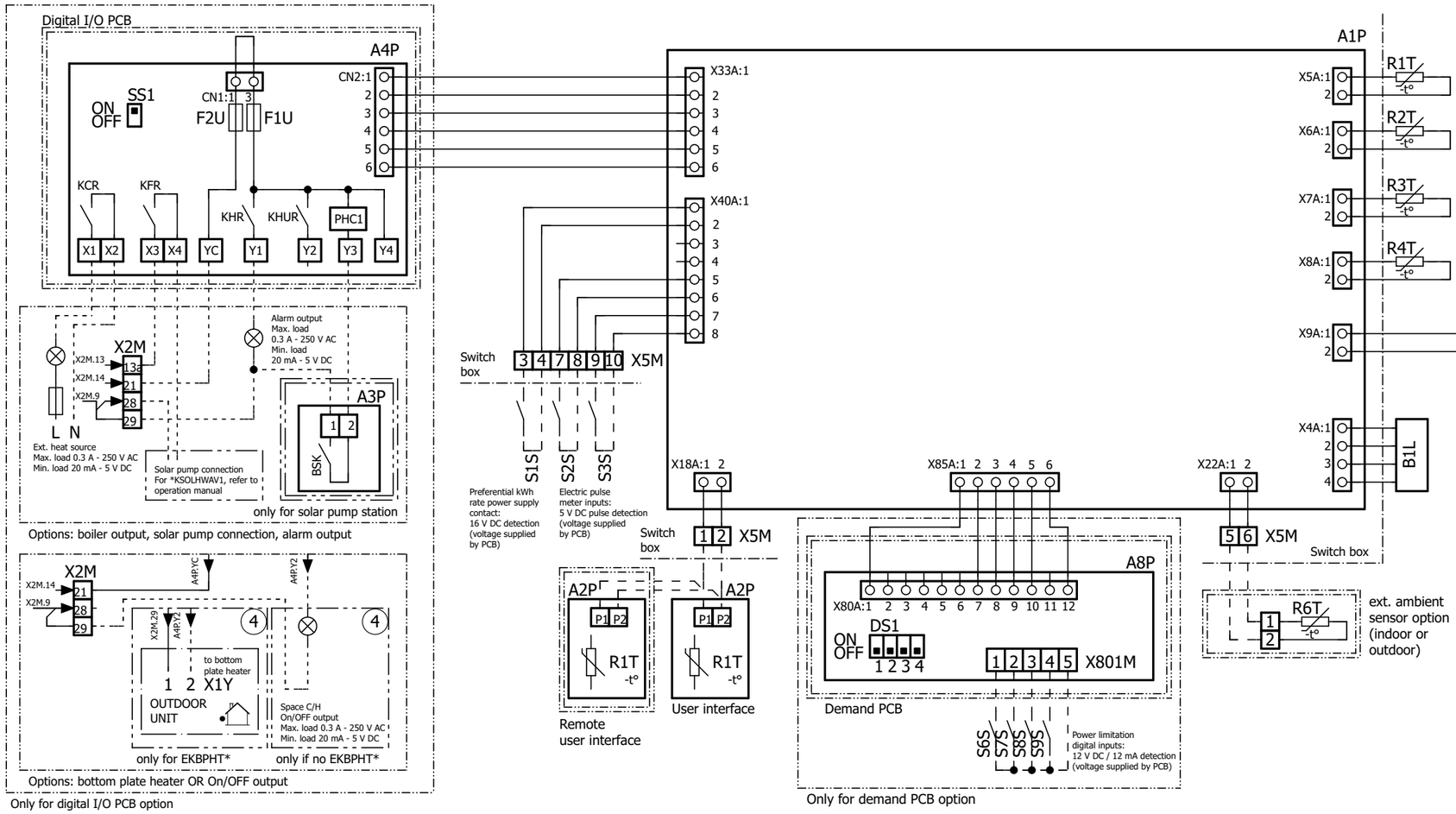
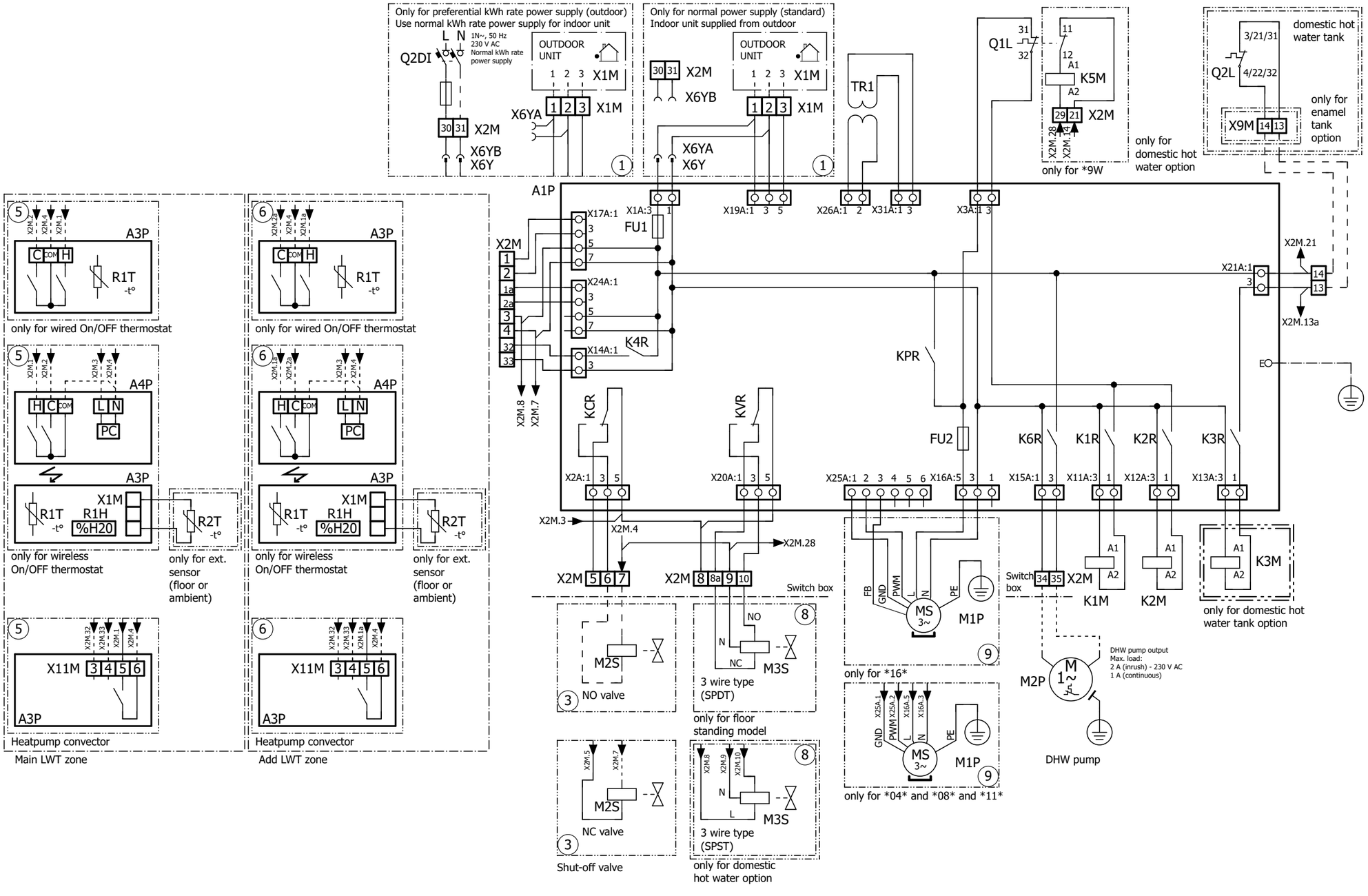


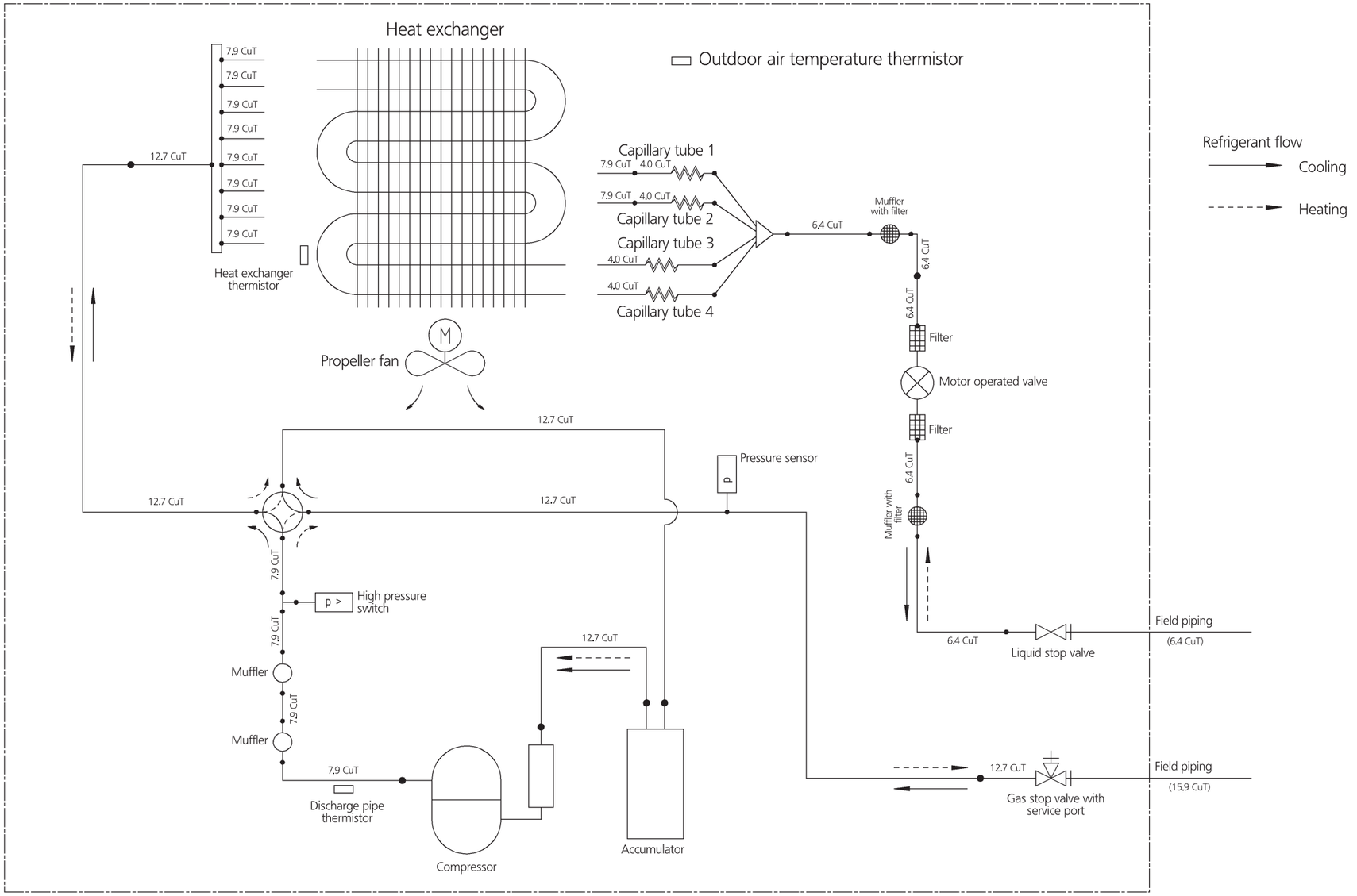
Figure 129 - Wiring diagram EHV(X/H)04-16CB3V/9W, EHB(X/H)04-16CB3V/9W - 5



3. Piping diagram

3.1 Piping diagram ERLQ004-008CV3

Figure 130 - Piping diagram ERLQ004-008CV3

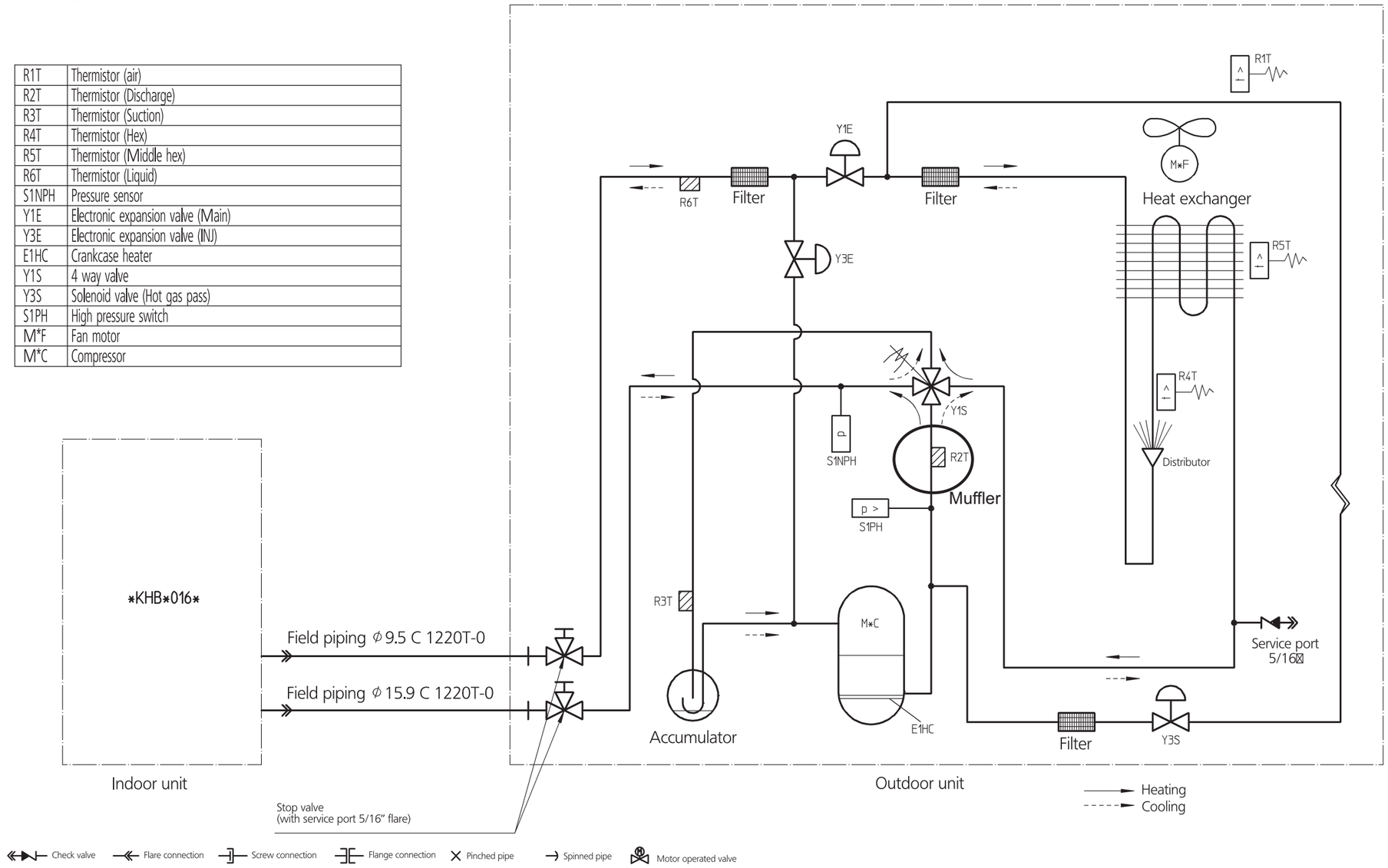


3.2 Piping diagram ERLQ011-016C

Figure 131 - Piping diagram ERLQ011-012C

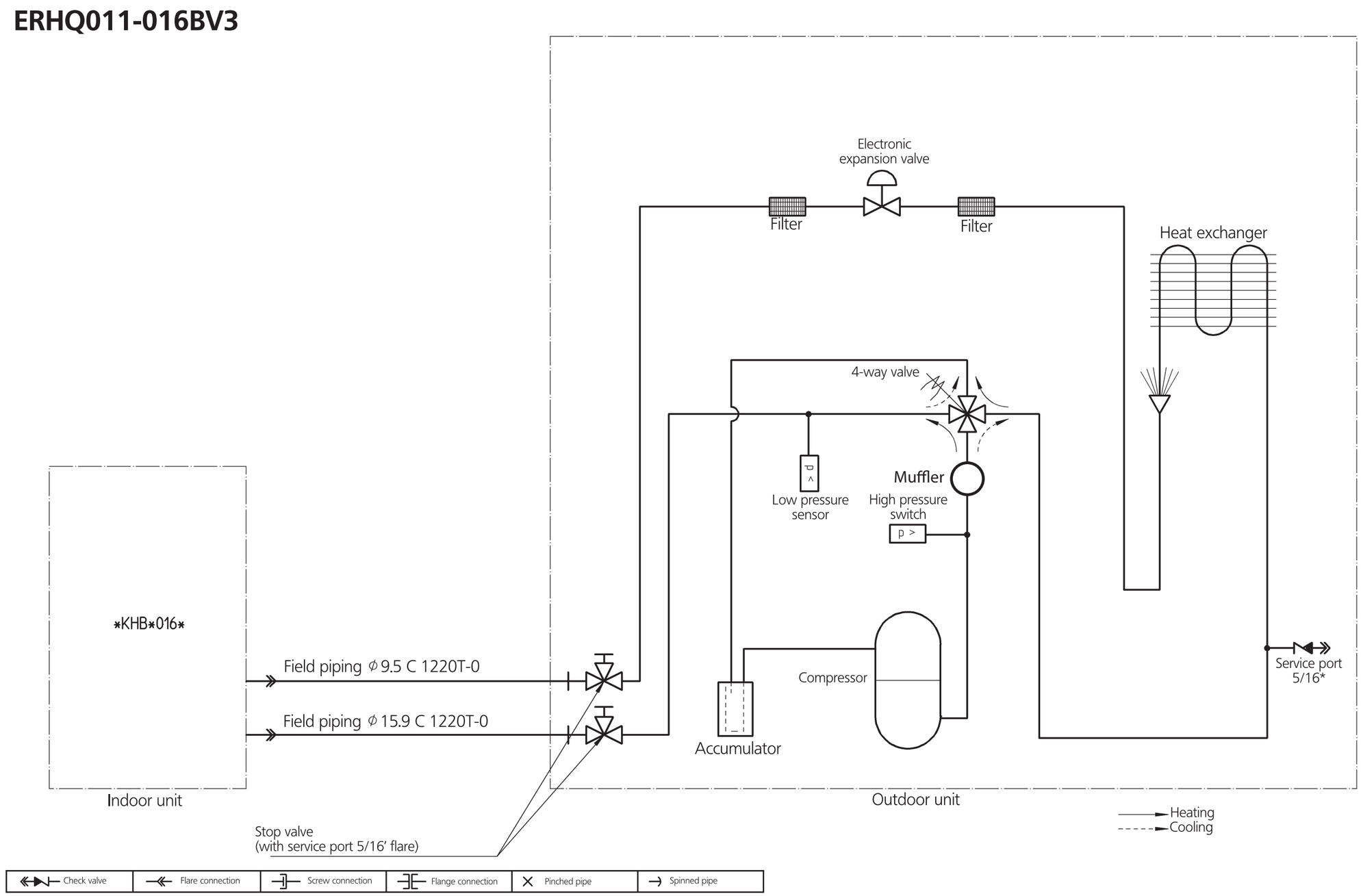
ERLQ011-016C

R1T	Thermistor (air)
R2T	Thermistor (Discharge)
R3T	Thermistor (Suction)
R4T	Thermistor (Hex)
R5T	Thermistor (Middle hex)
R6T	Thermistor (Liquid)
S1NPH	Pressure sensor
Y1E	Electronic expansion valve (Main)
Y3E	Electronic expansion valve (INJ)
E1HC	Crankcase heater
Y1S	4 way valve
Y3S	Solenoid valve (Hot gas pass)
S1PH	High pressure switch
M*F	Fan motor
M*C	Compressor



3.3 Piping diagram ERHQ011-016BV3

Figure 132 - Piping diagram ERHQ011-016BV3

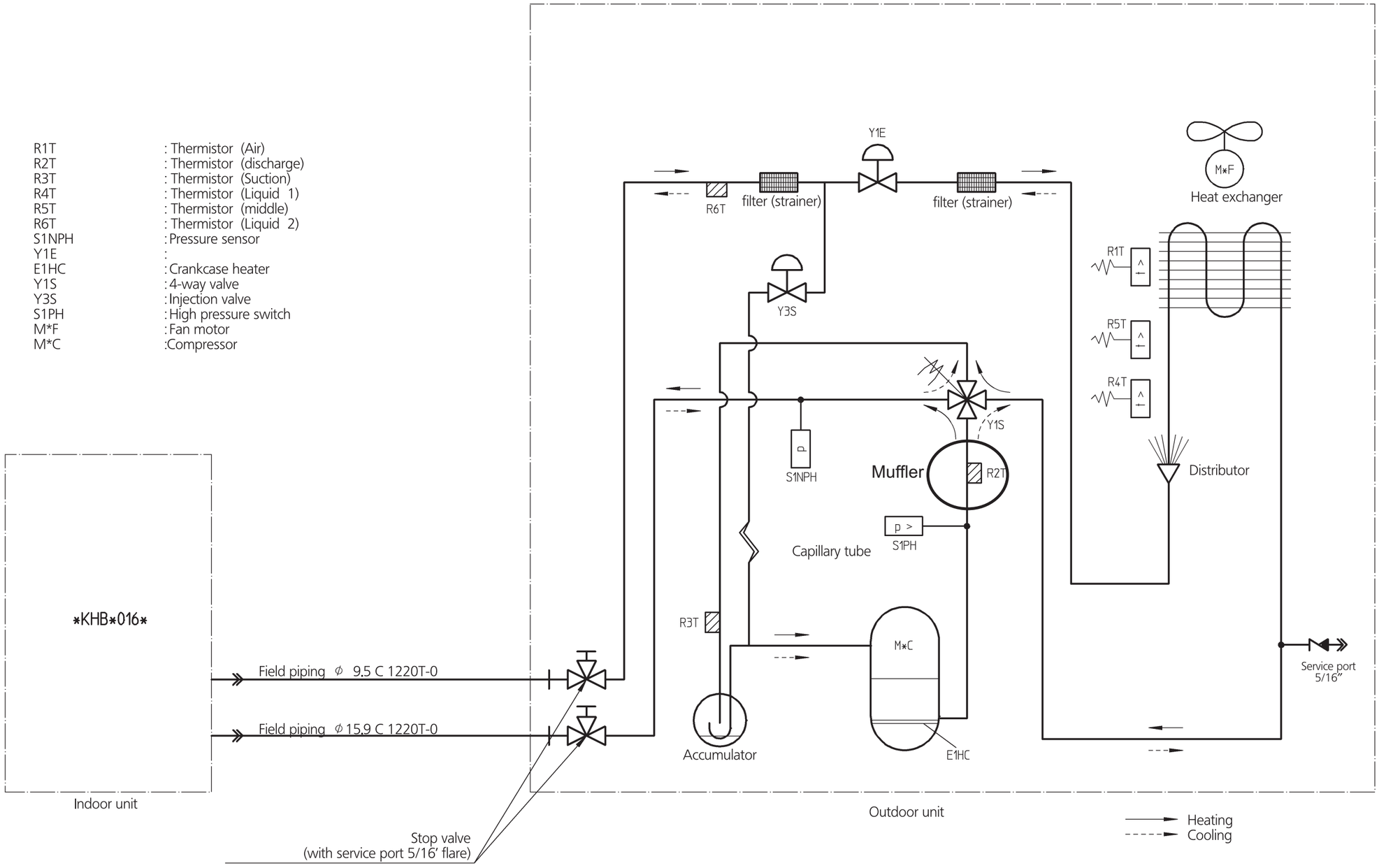


3.4 Piping diagram ERHQ011-016BW1

Figure 133 - Piping diagram ERHQ011-016BW1

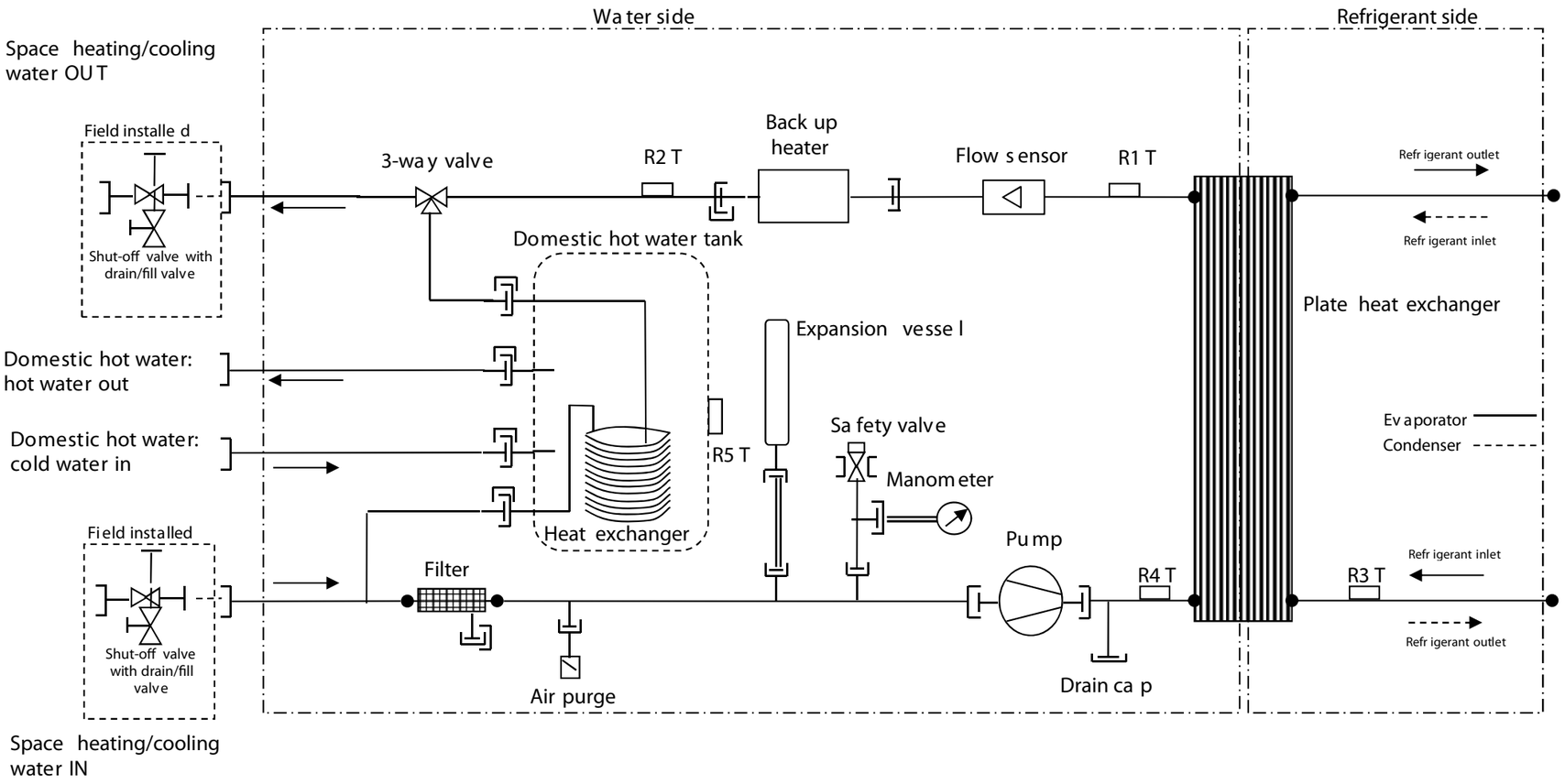
ERHQ011-016BW1

R1T	: Thermistor (Air)
R2T	: Thermistor (discharge)
R3T	: Thermistor (Suction)
R4T	: Thermistor (Liquid 1)
R5T	: Thermistor (middle)
R6T	: Thermistor (Liquid 2)
S1NPH	: Pressure sensor
Y1E	:
E1HC	: Crankcase heater
Y1S	: 4-way valve
Y3S	: Injection valve
S1PH	: High pressure switch
M*F	: Fan motor
M*C	:Compressor



3.5 Piping diagram EHV(X-H)04-16CB3V-9W

Figure 134 - Piping diagram EHV(X-H)04-16CB3V-9W



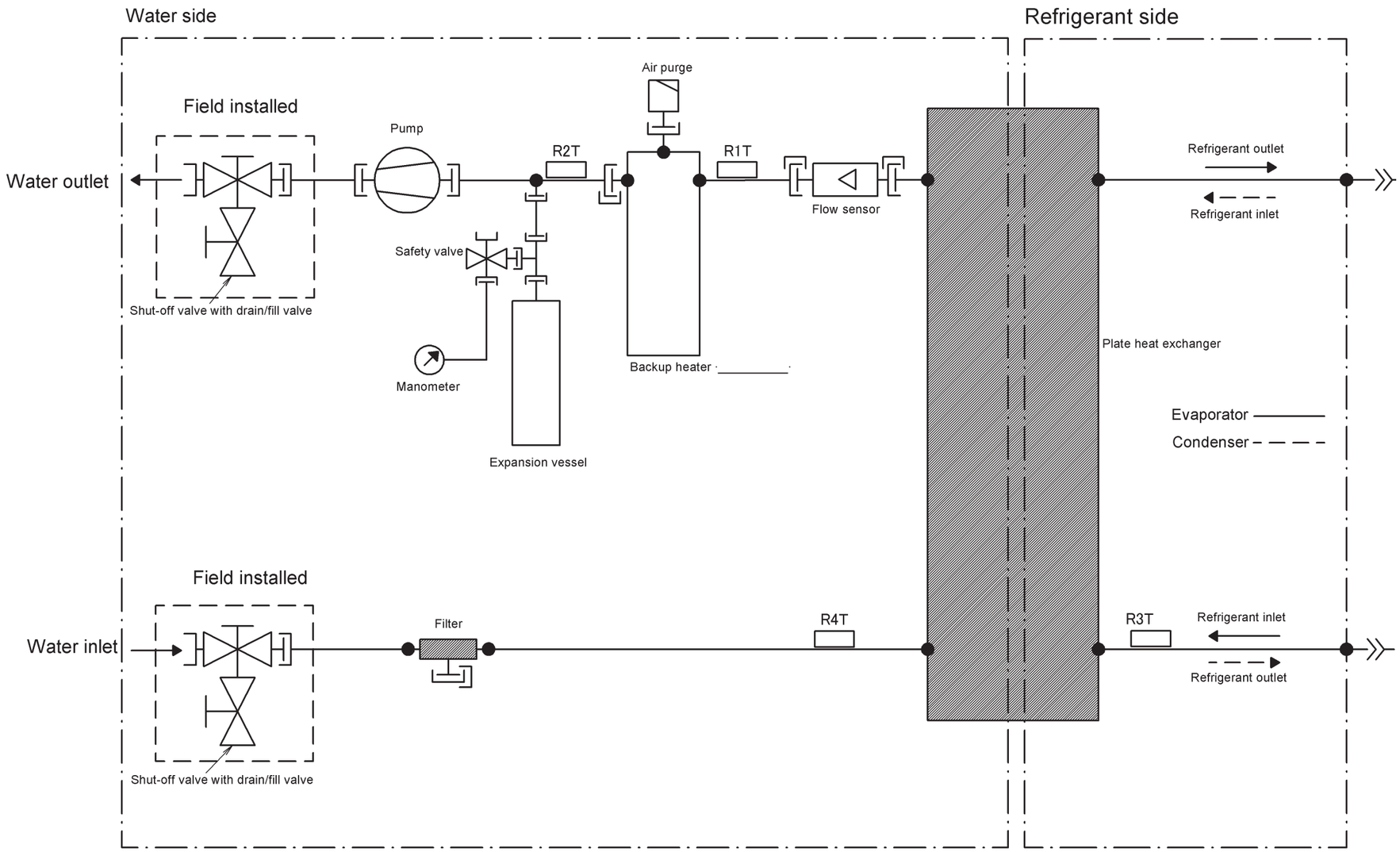
Legend

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

Thermistor	Description
R5T	Tank thermistor
R4T	Inlet water thermistor
R3T	Refrigerant liquid side thermistor
R2T	Outlet water backup heater thermistor
R1T	Outlet water heat exchanger thermistor

3.6 Piping diagram EHB(X-H)04-16CB3V-9W

Figure 135 - Piping diagram EHB(X-H)04-16CB3V-9W

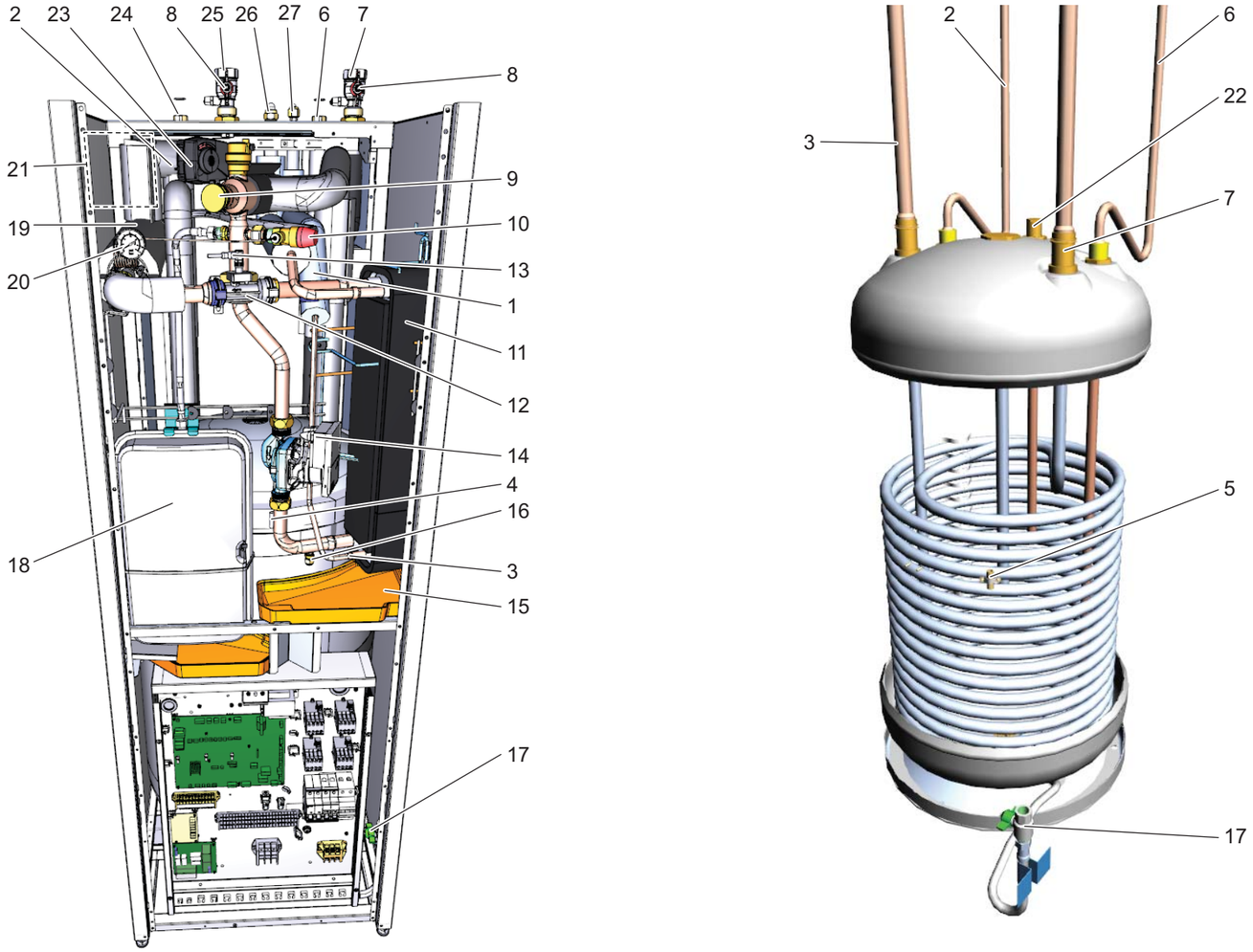


Thermistor · ·	Description
R4T	Inlet water thermistor
R3T	Refrigerant liquid side thermistor
R2T	Outlet water backup heater thermistor
R1T	Outlet water heat exchanger thermistor

4. Components overview

4.1 EHV(X/H)04-16CB3V/9W

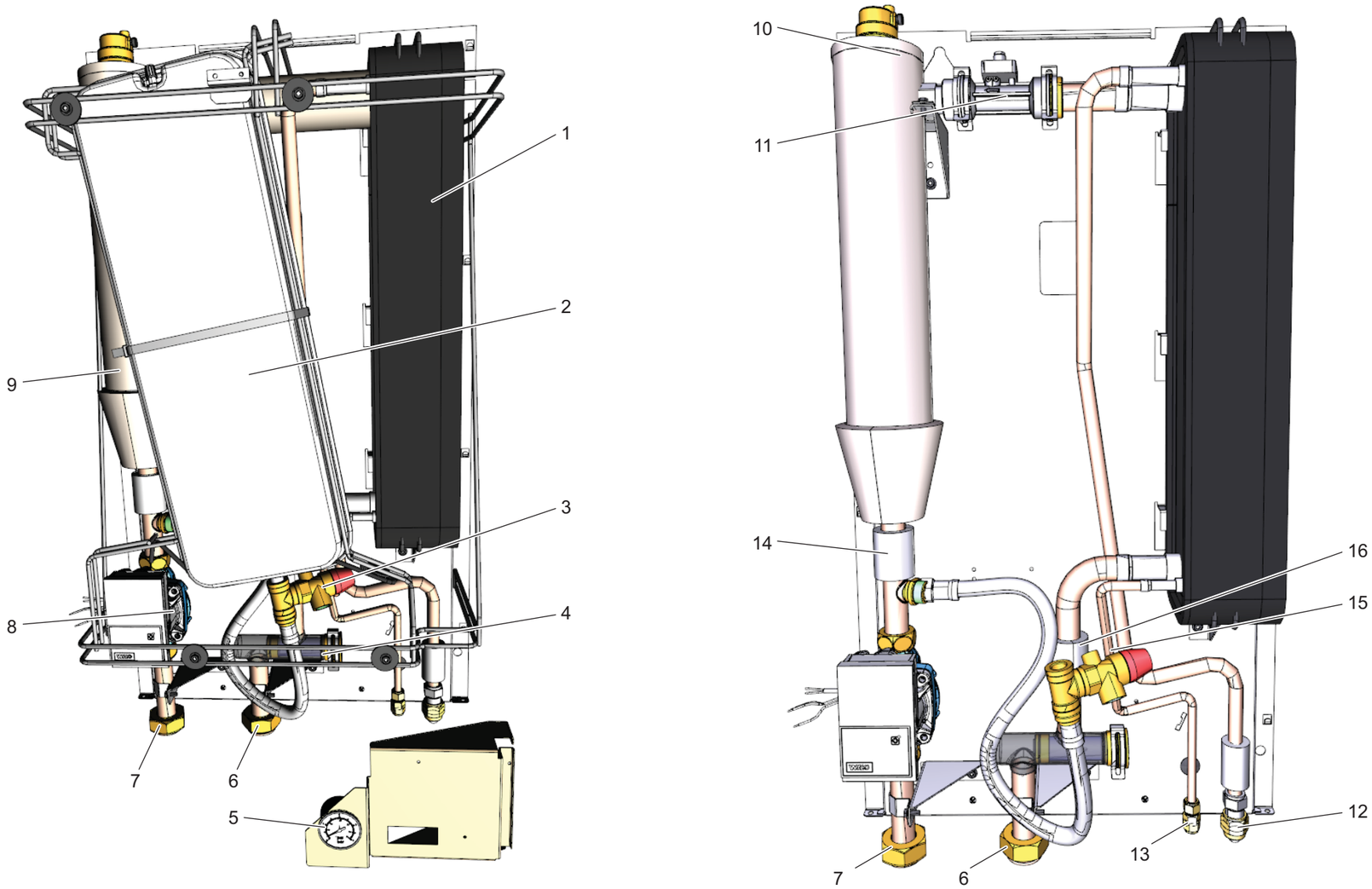
Figure 136 - Components overview EHV(X/H)04-16CB3V/9W



1	R1T	7	Water In (1-1/4”)	13	Harness	19	Backupheater	25	Water Out (1-1/4”)
2	R2T	8	Shut Off Valve with Fill Valve	14	Pump	20	Pressure Gauge	26	Gas Pipe Connection (Ø15.9 flare)
3	R3T	9	Water Filter	15	Drain Pan	21	User Interface	27	Liquid Pipe Connection (Ø6.35 flare)
4	R4T	10	Pressure Relief Valve	16	Water Drain Niple	22	Recirculation Connection G 1/2” (female)		
5	R5T	11	PHE	17	Drain Outlet	23	3-Way Valve		
6	DHW In (cold water)	12	Flow Sensor House	18	Expansion Vessel	24	DHW Out		

4.2 EHB(X/H)04-16CB3V/9W

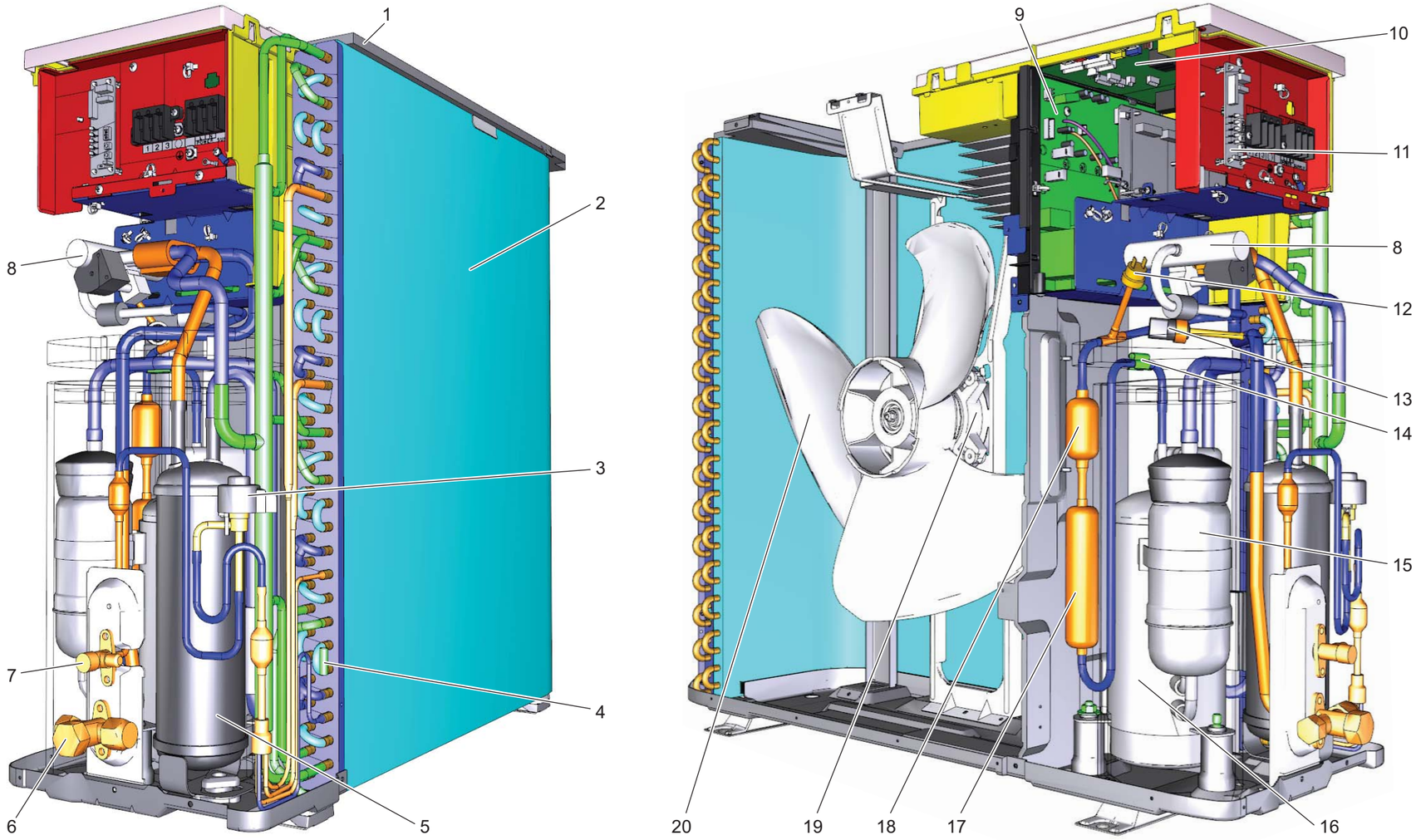
Figure 137 - Components overview EHB(X/H)04-16CB3V/9W



1	PHE	7	Water Outlet	13	Liquid Refrigerant
2	Expansion Vessel	8	Pomp	14	R2T
3	Pressure Relief Valve	9	BUH	15	R3T
4	Filter	10	R1T	16	R4T
5	Manometer	11	Flow Sensor		
6	Water Inlet	12	Gas Refrigerant		

4.3 ERLQ04-08CAV3

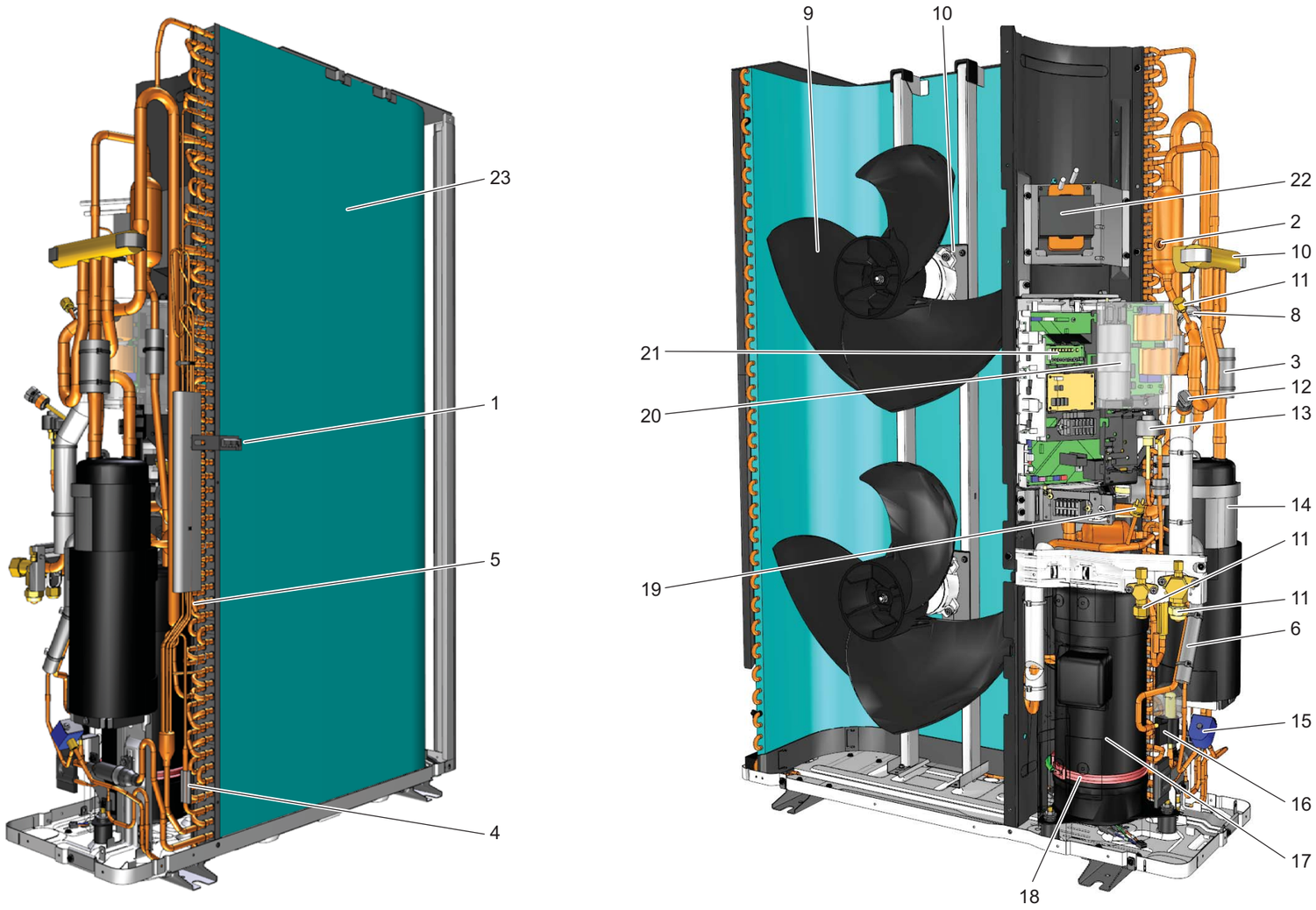
Figure 138 - Components overview ERLQ04-08CAV3



1	R3T	7	Gas Service Port	13	Sensor	19	Fanmotor
2	Heat Exchanger	8	4-Way Valve Coil	14	R1T	20	Fan
3	Expansion Valve	9	Inverter PCB	15	Liquid Reciever		
4	R2T	10	PCB (main)	16	Compressor		
5	Accumulator	11	Service PCB	17	Muffler + Filter		
6	Liquid Service Ports	12	Switch	18	Muffler		

4.4 ERLQ11-16CAV3

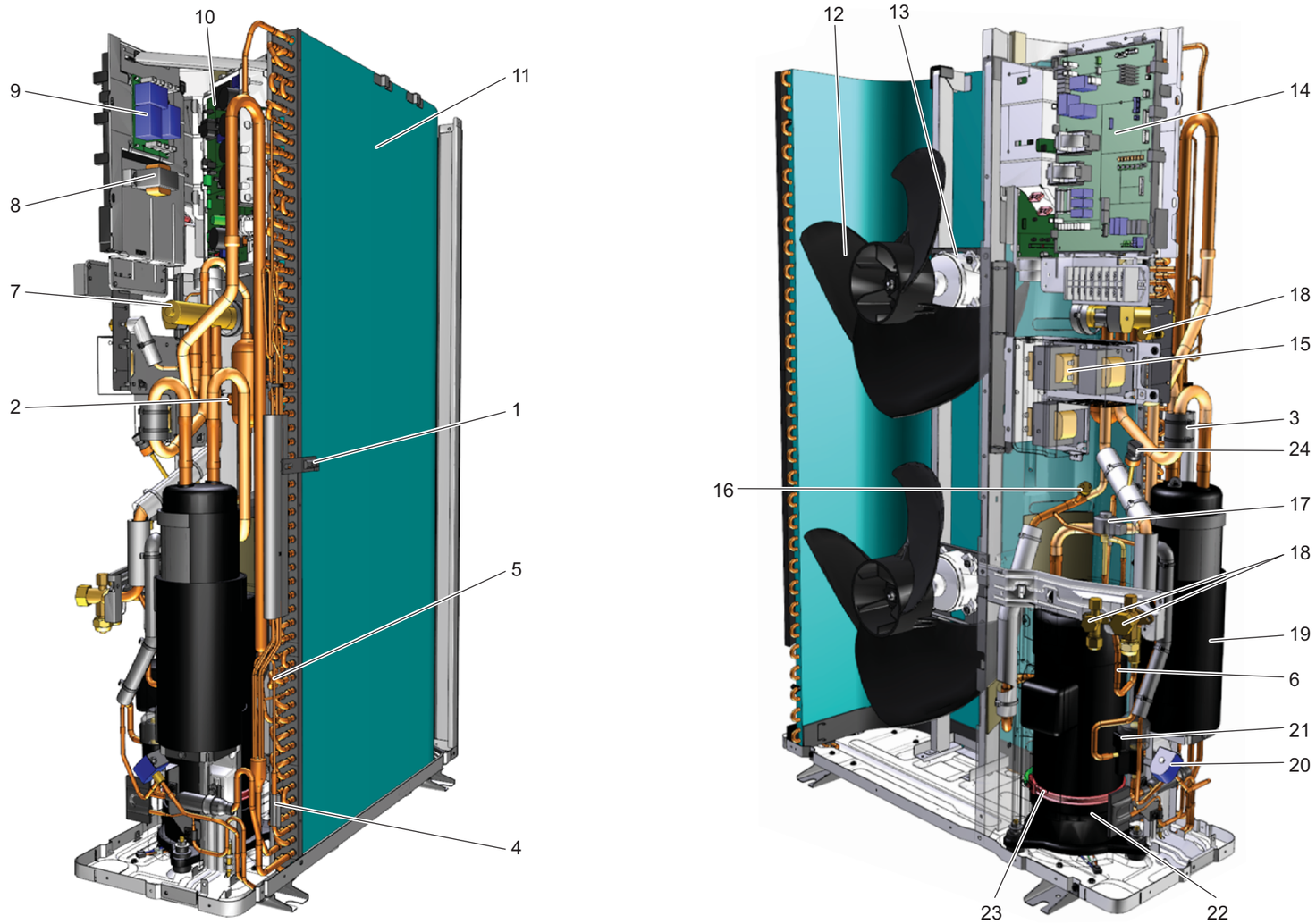
Figure 139 - Components overview ERLQ11-16CAV3



1	R1T	7	R10T	13	Expansion Valve (Y2E)	19	Pressure Switch
2	R2T	8	Fan	14	Accumulator	20	Service PCB + Capacitor + Noise Filter PCB
3	R3T	9	Fan Motor	15	Solenoid Valve (Y3S)	21	PCB (main)
4	R4T	10	4-Way Valve	16	Expansion Valve (Y1E)	22	Reactor
5	R5T	11	Service Port	17	Compressor	23	Heat Exchanger
6	R6T	12	Pressure Sensor	18	Crankcase Heater		

4.5 ERLQ11-16CAW1

Figure 140 - Components overview ERLQ11-16CAW1



1	R1T	7	4-Way Valve	13	Fan Motor	19	Accumulator
2	R2T	8	Reactor	14	PCB (main)	20	Solenoid Valve (Y3S)
3	R3T	9	Noise Filter PCB	15	Reactors	21	Expansion Valve (Y1E)
4	R4T	10	Inverter PCB	16	Pressure Switch	22	Compressor
5	R5T	11	Heat Exchanger	17	Expansion Valve (Y2E)	23	Crankcase Heater
6	R6T	12	Fan	18	Service Ports	24	Pressure Sensor

In case a problem occurred on the unit which could not be resolved by using the content of this service manual or in case you have a problem which could be resolved but of which the manufacturer should be notified, we advise you to contact your distributor.

To facilitate the investigation, additional information is required. Please fill out the following form before contacting your distributor.

DAIKIN

FIELD INFORMATION REPORT

Key person info	
Name:	Company name:
Your contact details Phone number:	E-mail address:
Site address:	
Your reference:	Date of visit:

Claim info	
Title:	
Problem description:	
Error code:	Trouble date:
Problem frequency:	
Investigation steps done:	
Current situation (solved, not solved, …):	
Countermeasures taken:	
Comments and proposals:	
Part available for return (if applicable):	

Application info
Application (house, apartment, office, …):
New project or refurbishment:
Heat emitters (radiators / under floor heating / fan coils / …):
Hydraulic layout (simple schematic):

Unit / Installation info	
Model name:	Serial number:
Installation / commissioning date:	Software version hydro PCB A1P:
Software version user interface:	Software version outdoor PCB:
Minimum water volume:	Maximum water volume:
Brine composition and mixture:	
Brine freeze up temperature:	
Space heating control (leaving water temperature, room thermostat, ext. room thermostat):	
Space heating setpoint:	
Domestic hot water control (reheat only, schedule only, reheat + schedule):	
Domestic hot water setpoint:	

Provide pictures of the field settings overview (viewable on the user interface).