ESIE16-01A

Service Manual

Heat Pump Solar Unit version 5

Indoor unit
EHSX/H/B04/016P30/50AA

Outdoor unit
ERLQ004/008CAV3
ERLQ011/016CAW1







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Part 1. Introduction 11

1.1. Version log 11

1.2. Safety precautions 12

1.2.1. Meaning of symbols 12

1.2.2. Warnings 12

1.2.3. Cautions 14

1.2.4. Information 14

1.3. General operation 15

1.4. How to use 17

1.4.1. Interactive information flow 17

1.4.2. Parts of the book 18

1.4.2.1. The introduction chapter 18

1.4.2.2. The troubleshooting chapter 18

1.4.2.3. The repair chapter 18

1.4.2.4. The maintenance chapter 18

1.4.2.5. Appendices 18

1.4.3. Contact information 18

Part 2. Troubleshooting 19

2.1. Error codes check 19

2.1.1. Error codes via remote controller 19

2.1.1.1. How to retrieve error codes 20

2.1.1.2. How to reset error codes 20

2.1.1.3. History of error codes 20

2.1.2. Error codes via outdoor unit PCB 20

2.2. Error based troubleshooting 21

2.2.1. Indoor unit 23

2.2.1.1. “A1-01” – Hydro PCB abnormality 23

2.2.1.2. “A5-00” – Freeze-up prevention 23

2.2.1.3. “AA-00” – Electrical heater safety abnormality 24

2.2.1.4. “AC-00” – Booster heater thermal protector abnormality 24

2.2.1.5. “C0-00” – Flow sensor abnormality 25

2.2.1.6. “C4-00” – Refrigerant liquid thermistor abnormality 25

2.2.1.7. “E128” – Return flow thermistor abnormality 26

2.2.1.8. “E129” – Water pressure sensor abnormality 26

2.2.1.9. “E198” – Flow measurement abnormality 27

2.2.1.10. “E200” – Communication fault 27

2.2.1.11. “E75” – External temperature thermistor abnormality 28

2.2.1.12. “E76” – Tank thermistor abnormality 28

2.2.1.13. “E8005” – Water pressure heating circuit abnormality 29

2.2.1.14. “E81” – Communication abnormality 30

2.2.1.15. “E8100” – Communication abnormality 30

2.2.1.16. “E88” – Communication abnormality 30

2.2.1.17. “E91” – Communication abnormality 31

2.2.1.18. “EC-00” – Increased tank temperature abnormality 31

2.2.1.19. “HC-00” – Domestic hot water thermistor abnormality 32

2.2.1.20. “W8006” – Pressure loss warning 32

2.2.1.21. “W8007” – Water pressure heating circuit abnormality 33

2.2.2. Outdoor unit 34

2.2.2.1. “E1-00” – Outdoor unit PCB abnormality 34

2.2.2.2. “E3-00” – Discharge pressure abnormality 34

2.2.2.3. “E4-00” – Suction pressure abnormality 35

2.2.2.4. “E5-00” – Compressor motor lock or overheated 35

2.2.2.5. “E6-00” – Compressor motor lock 36

2.2.2.6. “E7-00” – Fan motor abnormality 37

2.2.2.7. “E9-00” – Electronic expansion valve abnormality 38

2.2.2.8. “E900” – Temporary internal message 38

2.2.2.9. “EA-00” – 4-way valve abnormality 39
2.2.2.10. “F3-00” – Discharge pipe temperature abnormality 39
2.2.2.11. “H3-00” – High pressure switch abnormality 40
2.2.2.12. “H9-00” – Outdoor air temperature thermistor abnormality 41
2.2.2.13. “J1-00” – Pressure sensor abnormality 41
2.2.2.14. “J3-00” – Discharge pipe thermistor abnormality 41
2.2.2.15. “J5-00” – Suction pipe thermistor abnormality 42
2.2.2.16. “J6-00” – Outdoor heat exchanger thermistor abnormality 42
2.2.2.17. “J7-00” – Intermediate heat exchanger thermistor abnormality 42
2.2.2.18. “J8-00” – Liquid pipe thermistor abnormality 43
2.2.2.19. “JA-00” – High pressure sensor abnormality 43
2.2.2.20. “L3-00” – Switch box temperature abnormality 43
2.2.2.21. “L4-00” – Inverter radiating fin temperature abnormality 44
2.2.2.22. “L5-00” – Inverter instantaneous overcurrent (AC output) 44
2.2.2.23. “L8-00” – Electronic thermal overload 45
2.2.2.24. “L9-00” – Stall prevention time lag 46
2.2.2.25. “LC-00” – Transmission system abnormality 46
2.2.2.26. “P1-00” – Open phase or power supply voltage imbalance 47
2.2.2.27. “P4-00” – Radiating fin temperature sensor abnormality 47
2.2.2.28. “PJ-00” – Capacity setting abnormality 47
2.2.3. System 49
2.2.3.1. “U0-00” – Refrigerant shortage 49
2.2.3.2. “U2-00” – Power supply abnormality or instantaneous power failure 49
2.2.3.3. “U4-00” – Transmission abnormality between indoor unit and outdoor unit 50
2.2.3.4. “U5-00” – Transmission user interface-hydro PCB abnormality 51
2.2.3.5. “U7-00” – Transmission outdoor unit-outdoor unit abnormality 51
2.2.3.6. “UA-00” – Improper combination of indoor unit and outdoor unit 52
2.2.4. Others 52
2.3. Symptom based troubleshooting 53
2.3.1. Indoor unit 53
2.3.2. Outdoor unit 53
2.3.3. System 53
2.3.4. Others 53
2.4. Component checklist 54
2.4.1. Indoor unit 55
2.4.1.1. Booster heater 55
2.4.1.2. Flow sensor 56
2.4.1.3. Main PCB 58
2.4.1.4. Water pressure sensor 59
2.4.1.5. Water thermistors 61
2.4.2. Outdoor unit 63
2.4.2.1. 4-way valve 63
2.4.2.2. Compressor 65
2.4.2.3. Electronic expansion valve 67
2.4.2.4. Fan motor 69
2.4.2.5. High pressure switch 70
2.4.2.6. Inverter PCB 71
2.4.2.7. Main PCB 76
2.4.2.8. Muffler 80
2.4.2.9. High pressure sensor 81
2.4.2.10. Refrigerant thermistors 83
2.4.3. System 85
2.4.4. Others 85
2.5. Other capacity range 86

Part 3. Repair 87

3.1. Refrigerant repair procedures 87
3.1.1. Refrigerant piping handling 87
3.1.2. Recovery procedure 87
3.1.2.1. Outdoor unit casing 87
3.1.3. Refrigerant pump down 89
3.1.3.1. Small outdoor unit 89

3.1.3.2. Large outdoor unit 90
3.1.4. Piping repair procedures 90
3.2. Service tools 91
3.3. Unit specific repair procedures 92
3.3.1. Indoor unit 93
3.3.1.1. Basic removal 93
3.3.1.2. Replacing 3-way valve house 96
3.3.1.3. Removing booster heater 97
3.3.1.4. Replacing controller 98
3.3.1.5. Replacing 3-way valve motor 99
3.3.1.6. Replacing flow sensor 100
3.3.1.7. Replacing hydro PCB 101
3.3.1.8. Replacing pressure relief valve 103
3.3.1.9. Replacing water pressure sensor 104
3.3.1.10. Replacing pump motor 105
3.3.1.11. Replacing RoCon BM1 PCB 106
3.3.1.12. Replacing RTX-AL 4 PCB 108
3.3.1.13. Replacing water thermistor 110
3.3.2. Outdoor unit 111
3.3.2.1. Basic removal 111
3.3.2.2. Removing switch box 124
3.3.2.3. Replacing 4-way valve body 126
3.3.2.4. Replacing 4-way valve coil 128
3.3.2.5. Replacing accumulator assembly 129
3.3.2.6. Replacing capacitor 131
3.3.2.7. Replacing communication PCB 133
3.3.2.8. Replacing compressor 135
3.3.2.9. Replacing crankcase heater 138
3.3.2.10. Replacing DC fan motor assembly 139
3.3.2.11. Replacing expansion valve body 140
3.3.2.12. Replacing expansion valve motor 141
3.3.2.13. Replacing high pressure switch 143
3.3.2.14. Replacing inverter PCB 144
3.3.2.15. Replacing main PCB 148
3.3.2.16. Replacing pressure sensor 156
3.3.2.17. Replacing propeller fan blade assembly 157
3.3.2.18. Replacing service PCB 159
3.3.2.19. Replacing solenoid valve body 160
3.3.2.20. Replacing solenoid valve coil 161
3.3.2.21. Replacing thermistor 163

Part 4. Maintenance 165

4.1. Indoor unit 165
4.1.1. General annual maintenance 165
4.1.2. Storage tank 165
4.2. Outdoor unit 166
4.2.1. General maintenance outdoor unit 166

Part 5. Appendix 167

5.1. Field setting 169
5.1.1. Indoor unit 169
5.1.2. Outdoor unit 171
5.1.3. Remote controller 171
5.2. Detailed information setting mode 172
5.2.1. Indoor unit 172
5.2.2. Outdoor unit 172
5.2.3. Remote controller 172
5.3. Wiring diagram 173

5.3.1. Indoor unit 173
5.3.2. Outdoor unit 174
5.3.3. Field wiring 177
5.4. Piping diagram 178
5.4.1. Indoor unit 178
5.4.2. Outdoor unit 179
5.5. Component overview of unit 181
5.5.1. Indoor unit 181
5.5.2. Outdoor unit 182
5.6. Product specific information 185
5.6.1. Error codes 185
5.6.1.1. “E198” - Flow measurement abnormality 185
5.6.1.2. “E7-00” - Fan motor abnormality 185
5.6.1.3. “EA-00” - Malfunction of 4-way valve 185
5.6.1.4. “F3-00” - Discharge pipe temperature abnormality 185
5.6.1.5. “L3-00” - Switch box temperature abnormality 185
5.6.1.6. “L4-00” - Inverter radiating fin temperature abnormality 185
5.6.2. Component checklist 186
5.7. Switch box 187
5.7.1. Indoor unit 187
5.7.2. Outdoor unit 187
5.8. Field information report 188

Figure 2-1: Example error code - controller 19
Figure 2-2: Example error code - heat pump 19
Figure 2-3: Flow sensor 56
Figure 2-4: Flow sensor - flow characteristic 57
Figure 2-5: Flow sensor - temperature characteristic 57
Figure 2-6: Water pressure sensor 59
Figure 2-7: Water pressure sensor characteristic 60
Figure 2-8: Thermistor 61
Figure 2-9: Thermistor characteristic (type 1 / type 2) 62
Figure 2-10: Thermistor characteristic (type 3) 62
Figure 2-11: Check HAP led 76
Figure 2-12: Check HAP led 78
Figure 2-13: Check HAP led 79
Figure 3-1: 1 service port at the stop valves 88
Figure 3-2: 3 service ports at the stop valves 89
Figure 3-3: Removing the cover hood 93
Figure 3-4: Removing the top insulation 94
Figure 3-5: Flip over the switch box panel 95
Figure 3-6: Removing the 3-way diverter valve 3UV DHW 96
Figure 3-7: Removing the controller 98
Figure 3-8: Removing the 3-way valve motor 99
Figure 3-9: Removing the flow sensor 100
Figure 3-10: Removing the hydro PCB - 1 101
Figure 3-11: Removing the hydro PCB - 2 102
Figure 3-12: Removing the pressure relief valve 103
Figure 3-13: Removing the water pressure sensor 104
Figure 3-14: Removing the pump motor 105
Figure 3-15: Removing the RoCon BM1 PCB (1) 106
Figure 3-16: Removing the RoCon BM1 PCB (2) 107
Figure 3-17: Removing the RTX-AL 4 PCB 108
Figure 3-18: Removing the water thermistor 110
Figure 3-19: Removing the top plate 112
Figure 3-20: Removing the front plate assembly 113
Figure 3-21: Removing the stop valve cover assembly 114
Figure 3-22: Removing the right side plate assembly 115
Figure 3-23: Removing the compressor sound insulation 116
Figure 3-24: Removing the top plate assembly 117
Figure 3-25: Removing the front plate 118
Figure 3-26: Removing the front plate assembly 119
Figure 3-27: Removing the cover 120
Figure 3-28: Removing the piping cover (rear) 120
Figure 3-29: Removing the right side plate 121
Figure 3-30: Removing the compressor sound insulation 123

Figure 3-31: Loosening the wire terminal support 124
Figure 3-32: Removing the switch box 125
Figure 3-33: Removing the 4-way valve 126
Figure 3-34: Removing the 4-way valve coil 128
Figure 3-35: Removing the accumulator assembly 130
Figure 3-36: Removing the capacitor C4 131
Figure 3-37: Removing communication PCB 134
Figure 3-38: Removing the compressor 136
Figure 3-39: Removing the crankcase heater 138
Figure 3-40: Removing the DC fan motor assembly 139
Figure 3-41: Removing the expansion valve 140
Figure 3-42: Removing the expansion valve motor 141
Figure 3-43: Locking the expansion valve motor 142
Figure 3-44: Removing the high pressure switch 143
Figure 3-45: Removing the PCB assembly inverter - 2 145
Figure 3-46: Removing inverter PCB 147
Figure 3-47: Removing the PCB assembly main - 1 149
Figure 3-48: Removing the PCB assembly main - 2 150
Figure 3-49: Removing the main PCB (1-phase) 152
Figure 3-50: Removing the main PCB (1-phase) 153
Figure 3-51: Removing the main PCB (1-phase) 154
Figure 3-52: Removing main PCB 155
Figure 3-53: Removing the pressure sensor 156
Figure 3-54: Removing the propeller fan blade assembly 157
Figure 3-55: Removing the propeller fan blade assembly 158
Figure 3-56: Removing the service PCB 159
Figure 3-57: Removing the solenoid valve body 160
Figure 3-58: Removing the solenoid valve coil 161
Figure 1 - Replacing a thermistor 163
Figure 5-1: Setting of DIP switch SS2 169
Figure 5-2: Parameter in rotary switch setting “Configuration” 170
Figure 5-3: Parameter in rotary switch setting “DHW Install” 170
Figure 5-4: Parameter in rotary switch setting “Operating Mode” 170
Figure 5-5: Parameter in rotary switch setting “Set Temp Day” 170
Figure 5-6: Parameter in rotary switch setting “Set Temp Night” 170
Figure 5-7: Parameter in rotary switch setting “DHW Set Temp” 171
Figure 5-8: Parameter in rotary switch setting “Time Program” 171
Figure 5-9: Parameter in rotary switch setting “Remote Param” 171
Figure 5-10: Parameter in rotary switch setting “Info” 171
Figure 5-11: Parameter in rotary switch setting “Sonderfunktion” 171
Figure 5-12: Wiring diagram - indoor unit 173
Figure 5-13: Wiring diagram - outdoor unit 174
Figure 5-14: Wiring diagram - outdoor unit 175

Figure 5-15: Wiring diagram - outdoor unit 176
Figure 5-16: Wiring diagram - field wiring 177
Figure 5-17: Piping diagram - outdoor unit 179
Figure 5-18: Piping diagram - outdoor unit 180
Figure 5-19: Components overview ERLQ004/008CAV3 / ERHQ004/008CAV3 182
Figure 5-20: Components overview ERLQ011/016CAW1 183
Figure 5-21: Components overview ERLQ011/016CAW1 184
Figure 5-22: Switch box - indoor unit 187

Part 1. Introduction

This part contains the following chapters:

Version log 11
Safety precautions 12
General operation 15
How to use 17

1.1. Version log

Version code	Description	Date
ESIE16-01A	Document release	20/10/2016

1.2. 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.

1.2.1. 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.
	**WARNING: RISK OF FIRE** Indicates a situation that could result in fire.
	**CAUTION** Indicates a situation that could result in equipment or property damage.
	**INFORMATION** Indicates useful tips or additional information.

1.2.2. 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 FIRE

- When reconnecting a connector to the PCB, do not apply force or damage the connector or the connector pins on the PCB.

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 diagram" on page 173.
- 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.

1.2.3. 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.

1.2.4. 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.

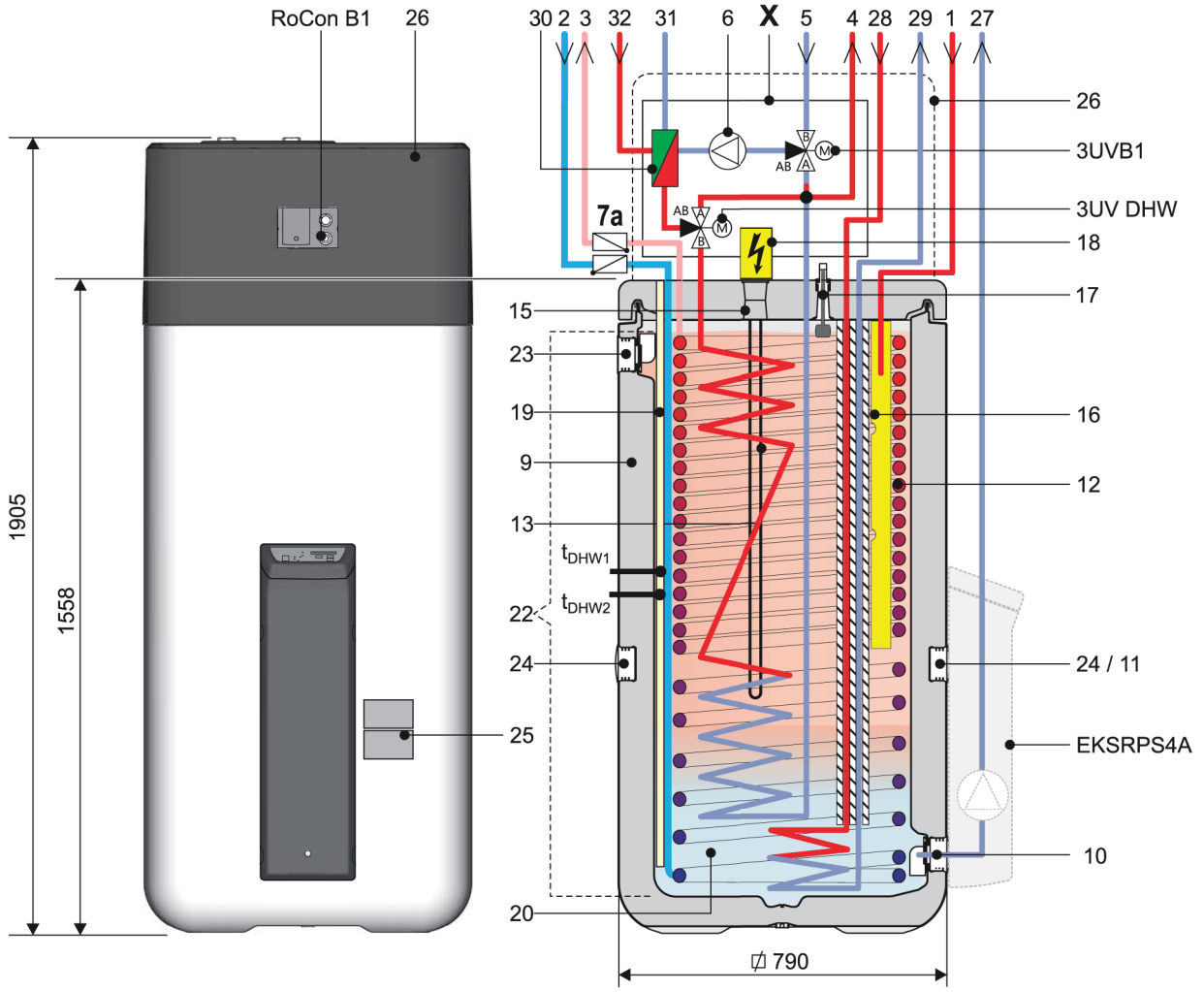
1.3. General operation

The Daikin Altherma Integrated Solar unit can provide heating in winter and cooling in summer with an integrated pressure less buffer tank for instant hot water generation with a small surface of only 0,36 m².

Additionally the Daikin Altherma Integrated Solar unit can be connected to a pressure less AND pressurized heat source to charge the tank via cheaper and/or renewable energy.

The separate coil heat exchanger can either be used for charging the tank and/or extracting energy to your heating system to use the maximum capacity your secondary or third heat source provides.

Due to a small DHW volume in the exchanger coils no stagnation is possible as the coil is always flushed by each tap this combines the comfort of a DHW tank and a high hygienic operation.



1. Solar - flow or connection for additional heat source (1" IG)
2. Cold water flow (1" AG)
3. Hot water flow (1" AG)
4. Heating flow (1" AG)*
5. Heating return (1" AG)*
6. Circulation pump
7. a. Recommended accessories: non-return valves (2 pcs.)
27. Solar - return
28. Solar - feed (3/4" IG + 1" AG)
    Daikin Altherma EHS (X/H) B (only Typ...Biv)
29. Solar - return (3/4" IG + 1" AG)
    Daikin Altherma EHS(X/H) B (only Typ...Biv)
30. Panel heat exchanger
31. Connection coolant fluid line
    Daikin Altherma EHS(X/H)...04P30B/08PxxB:
    Cu Ø 6,4 mm (1/4"),
    Daikin Altherma EHS(X/H)...16P50B: Cu Ø 9.5 mm (3/8")
32. Connection to coolant gas line
    Cu Ø 15,9 mm (5/8")

9. Storage tank (double walled jacket made of polypropylene with PUR hard foam heat insulation)
10. Filling and drainage connection or p=0 Solar - return flow connection
11. Mount for solar controller or handle
12. Heat exchanger (stainless steel) for drinking water heating
13. Heat exchanger (stainless steel) for storage tank charging or heating support
14. Heat exchanger (stainless steel) for pressurised solar storage tank charging
15. Connection for optional electrical Backup-Heater EKBUxx (R 1½," JG)
16. p=0 Solar inflow layering pipe
17. Fill level indicator (tank water)
18. Optional: Electrical Backup-Heater (EKBUxx)
19. Submersible sensor sleeve for storage tank temperature sensor t_{DHW1} and t_{DHW2}
20. Unpressurised storage tank water
21. Solar zone
22. Hot water zone
23. Safety overflow connection
24. Mount for handle
25. Type plate
26. Protective cover

3UVB1: 3-way diverter valve (internal heat generator circuit)

3UV DHW: 3-way diverter valve (hot water/heating)

DS: Pressure sensor

FLS (t_{R1} / V1): Return flow temperature and flow sensor

t_{DHW1}, t_{DHW2}: Storage tank temperature sensor

t_{R2}: Return flow temperature sensor

t_{V1}, $t_{V2:}$ Inflow temperature sensor

$t_{V, BH}$: Flow temperature sensor Backup-Heater

RoCon B1: Operating section Daikin Altherma EHS(X/H) control unit

EKSRPS4A:
Optional: p=0 Daikin Solar regulation and pump unit

Safety devices

Observe tightening torque!

AG: Male thread

IG: Female thread

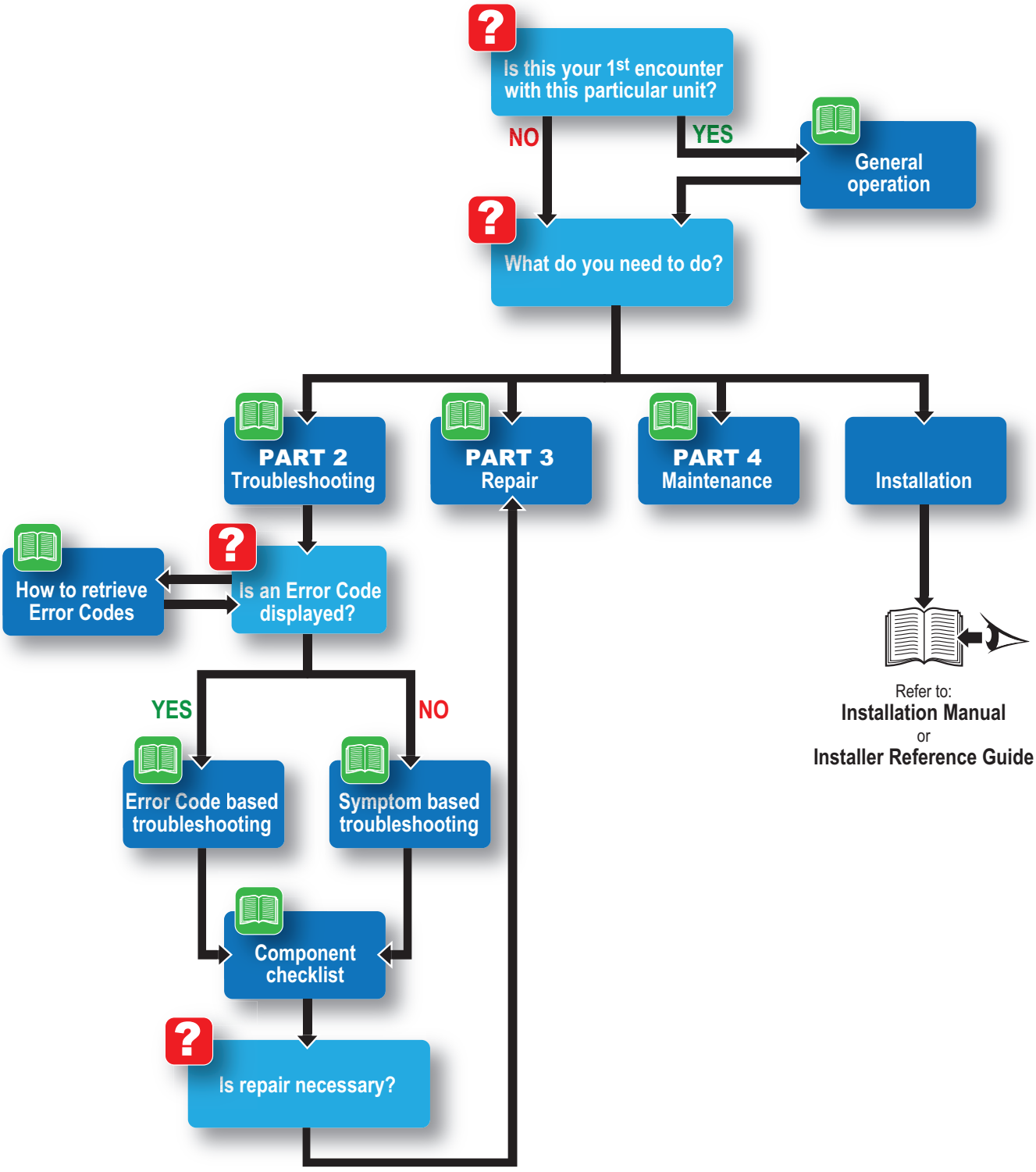
* Ball cock (1" IG) is supplied with the equipment

1.4. How to use

1.4.1. 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 or the arrow in the top right-hand corner of this page can be used to return to the previously viewed page.



1.4.2. 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:

1.4.2.1. The introduction chapter

The chapter "Introduction" on page 11 includes the safety precautions, this topic and the general operation description of the product(s) this manual refers to.

1.4.2.2. The troubleshooting chapter

The chapter "Troubleshooting" on page 19 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.

1.4.2.3. The repair chapter

The chapter "Repair" on page 87 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.

1.4.2.4. The maintenance chapter

The chapter "Maintenance" on page 165 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.

1.4.2.5. Appendices

Finally, the service manual provides in chapter "Appendix" on page 167 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.

1.4.3. 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:

Error codes check 19
Error based troubleshooting 21
Symptom based troubleshooting 53
Component checklist 54
Other capacity range 86

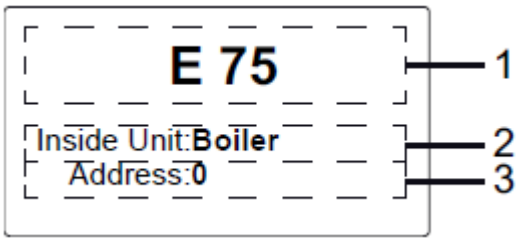
2.1. Error codes check

2.1.1. Error codes via remote controller

Electronic control of the Daikin Altherma CUI:

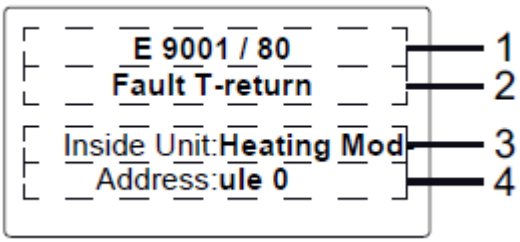
- Signals an error by means of the background of the display lighting up red and shows an error code.
- Shows information message regarding the operating status (not signalled by red background).

Figure 2-1: Example error code - controller



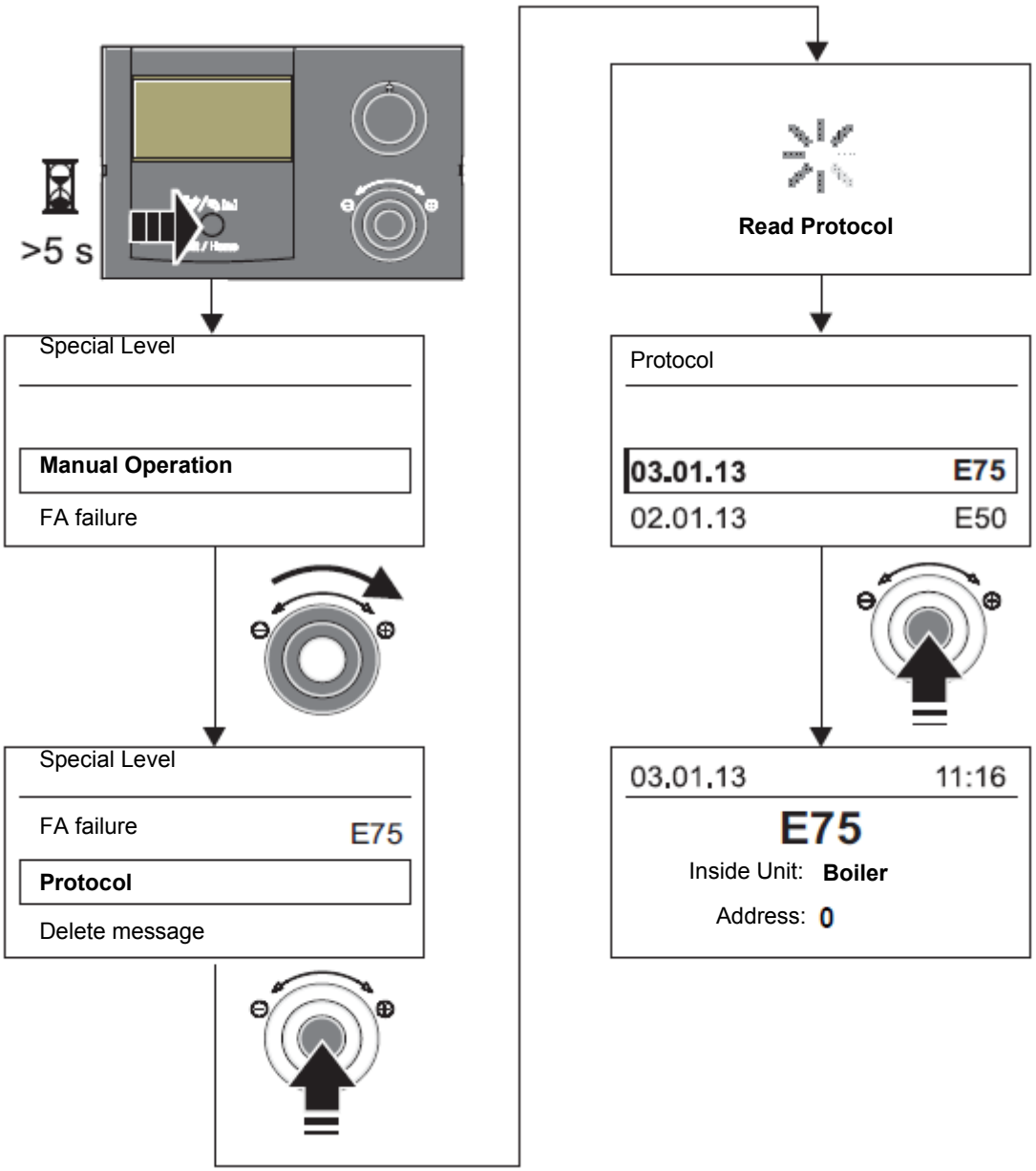
1. Error message as a code
2. Location information (equipment) of the detected fault
3. Device ID for the RoCon unit where the message originates

Figure 2-2: Example error code - heat pump



1. Error message as a code
2. Fault message as plain language
3. Location information (equipment) of the detected fault
4. Device ID for the RoCon unit where the message originates

2.1.1.1. How to retrieve error codes



2.1.1.2. How to reset error codes

Fault codes are displayed as long as the fault conditions are present.

If the fault message is still displayed after the cause of the fault has been corrected, the system must be disconnected from the power supply for at least 10 minutes in order to unlock it.

2.1.1.3. History of error codes

An integrated protocol saves up to 15 error-related or other information messages regarding the operating status that last occurred.

The last received message is in the main screen. All other previous messages are then pushed back. The 15th message will be deleted any time a new message is received.

2.1.2. Error codes via outdoor unit PCB

Not applicable.

2.2. Error based troubleshooting

Overview of error codes:

Indoor unit 23
"A1-01" – Hydro PCB abnormality 23
"A5-00" – Freeze-up prevention 23
"AA-00" – Electrical heater safety abnormality 24
"AC-00" – Booster heater thermal protector abnormality 24
"C0-00" – Flow sensor abnormality 25
"C4-00" – Refrigerant liquid thermistor abnormality 25
"E128" – Return flow thermistor abnormality 26
"E129" – Water pressure sensor abnormality 26
"E198" – Flow measurement abnormality 27
"E200" – Communication fault 27
"E75" – External temperature thermistor abnormality 28
"E76" – Tank thermistor abnormality 28
"E8005" – Water pressure heating circuit abnormality 29
"E81" – Communication abnormality 30
"E8100" – Communication abnormality 30
"E88" – Communication abnormality 30
"E91" – Communication abnormality 31
"EC-00" – Increased tank temperature abnormality 31
"HC-00" – Domestic hot water thermistor abnormality 32
"W8006" – Pressure loss warning 32
"W8007" – Water pressure heating circuit abnormality 33
Outdoor unit 34
"E1-00" – Outdoor unit PCB abnormality 34
"E3-00" – Discharge pressure abnormality 34
"E4-00" – Suction pressure abnormality 35
"E5-00" – Compressor motor lock or overheated 35
"E6-00" – Compressor motor lock 36
"E7-00" – Fan motor abnormality 37
"E9-00" – Electronic expansion valve abnormality 38
"E900" – Temporary internal message 38
"EA-00" – 4-way valve abnormality 39
"F3-00" – Discharge pipe temperature abnormality 39
"H3-00" – High pressure switch abnormality 40
"H9-00" – Outdoor air temperature thermistor abnormality 41
"J1-00" – Pressure sensor abnormality 41
"J3-00" – Discharge pipe thermistor abnormality 41
"J5-00" – Suction pipe thermistor abnormality 42
"J6-00" – Outdoor heat exchanger thermistor abnormality 42
"J7-00" – Intermediate heat exchanger thermistor abnormality 42
"J8-00" – Liquid pipe thermistor abnormality 43
"JA-00" – High pressure sensor abnormality 43
"L3-00" – Switch box temperature abnormality 43
"L4-00" – Inverter radiating fin temperature abnormality 44
"L5-00" – Inverter instantaneous overcurrent (AC output) 44
"L8-00" – Electronic thermal overload 45
"L9-00" – Stall prevention time lag 46
"LC-00" – Transmission system abnormality 46
"P1-00" – Open phase or power supply voltage imbalance 47
"P4-00" – Radiating fin temperature sensor abnormality 47
"PJ-00" – Capacity setting abnormality 47

System 49
“U0-00” – Refrigerant shortage 49
“U2-00” – Power supply abnormality or instantaneous power failure 49
“U4-00” – Transmission abnormality between indoor unit and outdoor unit 50
“U5-00” – Transmission user interface-hydro PCB abnormality 51
“U7-00” – Transmission outdoor unit-outdoor unit abnormality 51
“UA-00” – Improper combination of indoor unit and outdoor unit 52
Others 52

2.2.1. Indoor unit

2.2.1.1. “A1-01” – Hydro PCB abnormality

Trigger	Effect	Reset
Hydro PCB detects EEPROM abnormality.	Unit will stop operating.	Manual reset via user interface.
		Power reset via outdoor unit.

Possible cause	Check	Corrective action
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check hydro PCB wiring.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust hydro PCB wiring when required.
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.

2.2.1.2. “A5-00” – Freeze-up prevention

Trigger	Effect	Reset
Outdoor unit heat exchanger thermistor measures a temperature below 0°C, 15 times in 300 minutes.	Unit will stop operating.	Manual reset via user interface.
Condensing temperature is higher than 59.5°C, 15 times in 300 minutes.		

Possible cause	Check	Corrective action
Refrigerant circuit is clogged.	Check for possible blockage.	Replace blocked part when required.
Faulty expansion valve.	Check the expansion valve (see "Electronic expansion valve" on page 67).	Replace the expansion valve body (see "Replacing expansion valve body" on page 140) or motor (see "Replacing expansion valve motor" on page 141) when required.
Faulty outdoor unit thermistor.	Check all outdoor unit thermistors (see "Refrigerant thermistors" on page 83).	Replace outdoor unit thermistor when required (see "Replacing water thermistor" on page 110).
Water flow is too low.	Check the minimum water flow required for the system.	Adjust water circuit to meet the requirements. Refer to Installer Reference Guide.
	Check for water leaks.	Repair water leak when required.
Faulty shut off valve.	Check shut off valves.	Open shut off valves when required.
Air in water circuit / unit.	Check if all air purge valves are open.	Purge the air out of the unit and field installed water circuit. Refer to Installer Reference Guide.
	Check if air purge valves are installed on the highest points of the field installer water circuit.	Adjust water circuit when required. Refer to Installer Reference Guide.
Water pressure is too low.	Check water pressure on the pressure gauge.	Increase water pressure till ~2 bar. Refer to Installer Reference Guide.
	Check for possible water leaks.	Repair water leak when required.

2.2.1.3. "AA-00" – Electrical heater safety abnormality

Trigger	Effect	Reset
Thermal protector is activated. T measured water temperature > 90 °C.	Unit will stop operating.	Power reset via outdoor unit.

Possible cause	Check	Corrective action
Air in water circuit / unit.	Check if all air purge valves are open.	Purge the air out of the unit and field installed water circuit. Refer to 'Installer Reference Guide'.
	Check if air purge valves are installed on the highest points of the field installer water circuit.	Adjust water circuit when required. Refer to 'Installer Reference Guide'.
Increased water temperature by external heat source.	Check water circuit for external heat source.	Adjust water circuit. Refer to 'Installer Reference Guide'.
Faulty thermal protector.	Check thermal protector.	Replace thermal protector when required.
Faulty outlet water thermistor.	Check outlet water thermistor (see "Water thermistors" on page 61).	Replace outlet water thermistor when required (see "Replacing water thermistor" on page 110).
Faulty back-up heater.	Check back-up heater.	Replace back-up heater when required.
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals ("Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.
Water flow is too low.	Check the minimum water flow required for the system.	Adjust water circuit to meet the requirements. Refer to 'Installer Reference Guide'.
	Check for water leaks.	Repair water leak when required.
Water pressure is too low.	Check water pressure on the pressure gauge.	Increase water pressure till ~2 Bar. Refer to 'Installer Reference Guide'.
	Check for possible water leaks.	Repair water leak when required.

2.2.1.4. "AC-00" – Booster heater thermal protector abnormality

Trigger	Effect	Reset
Booster heater temperature rises above 85°C.	Thermal protector activates = open circuit.	Manual reset of the thermal protector.
	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty booster heater settings.	Check tank and booster heater related settings.	Adjust settings. Refer to Installer Reference Guide.
Faulty thermal protector.	Check the thermal protector and the relay.	Replace thermal protector when required.
Faulty solar pump settings.	Check maximum tank temperature settings.	Adjust settings. Refer to Installer Reference Guide.

Possible cause	Check	Corrective action
Air in water circuit / unit.	Check if all air purge valves are open.	Purge the air out of the unit and field installed water circuit. Refer to Installer Reference Guide.
	Check if air purge valves are installed on the highest points of the field installer water circuit.	Adjust water circuit when required. Refer to Installer Reference Guide.
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.
Faulty booster heater.	Check booster heater (see "Booster heater" on page 55).	Replace booster heater when required (see "Removing booster heater" on page 97).
Water flow is too low.	Check the minimum water flow required for the system.	Adjust water circuit to meet the requirements. Refer to Installer Reference Guide.
	Check for water leaks.	Repair water leak when required.
Water pressure is too low.	Check water pressure on the pressure gauge.	Increase water pressure till ~2 bar. Refer to Installer Reference Guide.
	Check for possible water leaks.	Repair water leak when required.
Faulty wiring between outdoor unit - indoor unit - water tank.	Check power supply, connections, wires, etc.	Adjust wiring when required.
Increased water temperature by external heat source.	Check water circuit for external heat source.	Adjust water circuit. Refer to Installer Reference Guide.

2.2.1.5. “C0-00” – Flow sensor abnormality

Trigger	Effect	Reset
Flow sensor detects water flow 45 seconds after water pump has stopped.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Water flow caused by external pump.	Check water circuit. Refer to ‘Installer Reference Guide’.	Adjust water circuit when required.
Faulty flow sensor.	Check flow sensor (see "Flow sensor" on page 56).	Replace flow sensor when required (see "Replacing flow sensor" on page 100).
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.

2.2.1.6. “C4-00” – Refrigerant liquid thermistor abnormality

Trigger	Effect	Reset
Resistance value is out of range (open or short circuit).	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty refrigerant liquid thermistor.	Check refrigerant liquid thermistor.	Replace refrigerant liquid thermistor when required (see "Replacing water thermistor" on page 110).
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.

2.2.1.7. "E128" – Return flow thermistor abnormality

Trigger	Effect	Reset
Resistance value is out of range. T measured <-40°C or >143°C.	Unit will not stop operating. Red user interface.	Automatic reset when resistance is within range.

Possible cause	Check	Corrective action
Faulty return flow thermistor.	Check return flow thermistor.	Replace return flow thermistor when required.
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Install correct spare part or update RoCon PCB. Adjust wiring to RoCon PCB when required.
Faulty communication (Real-time) PCB.	No check available.	Replace communication (Real-time) PCB.

2.2.1.8. "E129" – Water pressure sensor abnormality

Trigger	Effect	Reset
Water pressure sensor abnormality.	Unit will not stop operating. Red user interface.	Manual reset via outdoor unit

Possible cause	Check	Corrective action
Faulty water pressure sensor.	Check water pressure sensor (see "High pressure sensor" on page 81).	Replace water pressure sensor when required (see "Replacing water pressure sensor" on page 104).

Possible cause	Check	Corrective action
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Install correct spare part or update RoCon PCB. Adjust wiring to RoCon PCB when required.
Faulty communication (Real-time) PCB.	No check available.	Replace communication (Real-time) PCB.

2.2.1.9. “E198” – Flow measurement abnormality

Trigger	Effect	Reset
Flow measurement < 15 l/min, when pump speed is maximum.	Unit will stop operating.	Automatic reset (see "“E198” - Flow measurement abnormality" on page 185).

Possible cause	Check	Corrective action
Faulty flow sensor.	Check flow sensor (see "Flow sensor" on page 56).	Replace flow sensor when required (see "Replacing flow sensor" on page 100).
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Install correct spare part or update RoCon PCB. Adjust wiring to RoCon PCB when required.
Faulty communication (Real-time) PCB.	No check available.	Replace communication (Real-time) PCB.

2.2.1.10. “E200” – Communication fault

Trigger	Effect	Reset
Communication abnormality between Hydro PCB and RoCon PCB.	Unit will stop operating.	Power reset via outdoor unit.

Possible cause	Check	Corrective action
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Adjust wiring to RoCon PCB when required.
Faulty communication (Real-time) PCB.	No check available.	Replace communication (Real-time) PCB.

2.2.1.11. "E75" – External temperature thermistor abnormality

Trigger	Effect	Reset
Resistance value is out of range. T measured: <-40 °C or >120°C.	Unit will not stop operating. Red user interface.	Automatic reset when resistance is within range.

Possible cause	Check	Corrective action
Faulty external temperature thermistor.	Check external temperature thermistor.	Replace external temperature thermistor when required.
Faulty setting 'Outside Config'.	Check setting 'Outside Config'.	Adjust setting 'Outside Config' when required.
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Install correct spare part or update RoCon PCB. Adjust wiring to RoCon PCB when required.
Faulty communication (Real-time) PCB.	No check available.	Replace communication (Real-time) PCB.

2.2.1.12. "E76" – Tank thermistor abnormality

Trigger	Effect	Reset
Resistance value is out of range. T measured <-40°C or >143°C.	Unit will not stop operating. Red user interface.	Automatic reset when resistance is within range.

Possible cause	Check	Corrective action
Faulty Tank thermistor.	Check Tank thermistor.	Replace Tank thermistor when required.
Faulty setting ‘Storage Config’.	Check setting ‘Storage Config’.	Adjust setting ‘Storage Config’ when required.
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Install correct spare part or update RoCon PCB. Adjust wiring to RoCon PCB when required.
Faulty communication (Real-time) PCB.	No check available.	Replace communication (Real-time) PCB.

2.2.1.13. “E8005” – Water pressure heating circuit abnormality

Trigger	Effect	Reset
Measured water pressure < Setting ‘Min Pressure’.	Unit will not stop operating.	Automatic reset when measured pressure > Setting ‘Min Pressure’.

Possible cause	Check	Corrective action
Faulty water pressure sensor.	Check water pressure sensor (see "Water pressure sensor" on page 59).	Replace water pressure sensor when required (see "Replacing water pressure sensor" on page 104).
Water pressure is too low.	Check for possible water leaks.	Repair water leak when required.
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Install correct spare part or update RoCon PCB. Adjust wiring to RoCon PCB when required.
Faulty communication (Real-time) PCB.	No check available.	Replace communication (Real-time) PCB.

2.2.1.14. "E81" – Communication abnormality

Trigger	Effect	Reset
Software (eeprom) abnormality Rocon PCB.	Unit will stop operating.	Automatic reset after eeprom reset.

Possible cause	Check	Corrective action
No eeprom-reset was performed after programming eeprom.	Check if eeprom reset was performed.	Reset eeprom.
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Install correct spare part or update RoCon PCB. Adjust wiring to RoCon PCB when required.
Faulty Bus ID of CAN module.	Check if the Bus ID of CAN modules is duplicated.	Adjust data bus address to unique setting.

2.2.1.15. "E8100" – Communication abnormality

Trigger	Effect	Reset
Modbus initialisation failed after heat pump start-up.	Unit will not operate.	Manual reset via outdoor unit.

Possible cause	Check	Corrective action
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Install correct spare part or update RoCon PCB. Adjust wiring to RoCon PCB when required.
Faulty communication (Real-time) PCB.	No check available.	Replace communication (Real-time) PCB.

2.2.1.16. "E88" – Communication abnormality

Trigger	Effect	Reset
Software (External Flash memory) abnormality Rocon PCB.	Unit will stop operating.	Automatic reset after re-installing eeprom.

Possible cause	Check	Corrective action
Eeprom upload not performed correctly.	Check eeprom software upload.	Upload eeprom when required.
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Install correct spare part or update RoCon PCB. Adjust wiring to RoCon PCB when required.
Faulty Bus ID of CAN module.	Check if the Bus ID of CAN modules is duplicated.	Adjust data bus address to unique setting.

2.2.1.17. “E91” – Communication abnormality

Trigger	Effect	Reset
Connected CAN modules abnormality.	Unit will stop operating.	Manual reset via outdoor unit.

Possible cause	Check	Corrective action
CAN bus ID duplicated.	Check if the Bus ID of CAN modules is duplicated.	Adjust data bus address to unique setting.
Faulty Bus ID of CAN module.	Check if the Bus ID of CAN modules is duplicated.	Adjust data bus address to unique setting.
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Install correct spare part or update RoCon PCB. Adjust wiring to RoCon PCB when required.

2.2.1.18. “EC-00” – Increased tank temperature abnormality

Trigger	Effect	Reset
Water tank thermistor measures a temperature above 89°C	Unit will not stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Increased water temperature by external heat source.	Check water circuit for external heat source.	Adjust water circuit. Refer to Installer Reference Guide.
Faulty water tank thermistor.	Check water tank thermistor (see "Water thermistors" on page 61).	Replace water tank thermistor when required (see "Replacing water thermistor" on page 110).

Possible cause	Check	Corrective action
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.

2.2.1.19. “HC-00” – Domestic hot water thermistor abnormality

Trigger	Effect	Reset
Resistance value is out of range (open or short circuit).	Unit will not stop operating.	Automatic reset when resistance is within range.

Possible cause	Check	Corrective action
Faulty domestic hot water thermistor.	Check domestic hot water thermistor (see "Water thermistors" on page 61).	Replace domestic hot water thermistor when required (see "Replacing water thermistor" on page 110).
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.

2.2.1.20. “W8006” – Pressure loss warning

Trigger	Effect	Reset
Measured water pressure > Setting ‘Set Point Pressure’ - Setting ‘Max Pressure Drop’.	Unit will not stop operating. Red user interface.	Automatic reset when measured pressure is within range.

Possible cause	Check	Corrective action
Faulty water pressure sensor.	Check water pressure sensor (see "Water pressure sensor" on page 59).	Replace water pressure sensor when required (see "Replacing water pressure sensor" on page 104).
Water pressure is too low.	Check for possible water leaks.	Repair water leak when required.
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.

Possible cause	Check	Corrective action
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Install correct spare part or update RoCon PCB. Adjust wiring to RoCon PCB when required.
Faulty communication (Real-time) PCB.	No check available.	Replace communication (Real-time) PCB.

2.2.1.21. “W8007” – Water pressure heating circuit abnormality

Trigger	Effect	Reset
Measured water pressure < Setting ‘Max Pressure’.	Unit will not stop operating.	Automatic reset when measured pressure is < Setting ‘Max pressure’.

Possible cause	Check	Corrective action
Faulty setting ‘Max Pressure’.	Check if setting ‘Max Pressure’ is set too low.	Adjust setting ‘Max Pressure’ when required.
Faulty water pressure sensor.	Check water pressure sensor (see "Water pressure sensor" on page 59).	Replace water pressure sensor when required (see "Replacing water pressure sensor" on page 104).
Water pressure is too high.	Faulty membrane of expansion vessel.	Replace expansion vessel when required.
	Faulty pressure set of system.	Adjust pressure set when required. Drain water circuit.
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals (see "Replacing hydro PCB" on page 101). Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.
Faulty RoCon PCB.	Check if the RoCon receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to RoCon PCB.	Adjust power to the RoCon PCB. Replace RoCon PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106). Install correct spare part or update RoCon PCB. Adjust wiring to RoCon PCB when required.
Faulty communication (Real-time) PCB.	No check available.	Replace communication (Real-time) PCB.

2.2.2. Outdoor unit

2.2.2.1. "E1-00" – Outdoor unit PCB abnormality

Trigger	Effect	Reset
Outdoor main PCB detects that EEPROM is abnormal.	Unit will stop operating.	Manual reset via user interface. Power reset via outdoor unit.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty capacity adapter on outdoor main PCB installed.	Check if the correct capacity adapter is used.	Replace capacity adapter when required.
External factor (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after a while).	Check for source which could cause electrical interference.	
Faulty outdoor fan motor.	Check the fan motor (see "Fan motor" on page 69). Check fan motor connections and wiring.	Replace fan motor when required (see "Replacing DC fan motor assembly" on page 139). Adjust wiring when required.
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.

2.2.2.2. "E3-00" – Discharge pressure abnormality

Trigger	Effect	Reset
High pressure switch opens due to measure pressure > 41.7 bar.	Unit will stop operating.	Manual reset via user interface.
High pressure control (measure pressure > 38 bar) occurs 16 times within 300 minutes.		

Possible cause	Check	Corrective action
Faulty pressure sensor.	Check pressure sensor (see "High pressure sensor" on page 81).	Replace pressure sensor when required (see "Replacing pressure sensor" on page 156).
Faulty high pressure switch.	Check high pressure switch (see "High pressure switch" on page 70).	Replace high pressure switch (see "Replacing high pressure switch" on page 143).
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.
Refrigerant overcharge.	Check for refrigerant overcharge. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.

Possible cause	Check	Corrective action
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 is contaminated.	Check for non condensables in refrigerant.	In case of suspicion of non condensables. Recover, vacuum and recharge refrigerant.
Stop valve is closed.	Check if stop valve is open.	Open stop valve when required.
Faulty outdoor fan motor.	Check the fan motor (see "Fan motor" on page 69). Check fan motor connections and wiring.	Replace fan motor when required (see "Replacing DC fan motor assembly" on page 139). Adjust wiring when required.

2.2.2.3. “E4-00” – Suction pressure abnormality

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

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Bad contact through pressure sensor cable.	Check if pressure sensor connector is properly connected to the outdoor PCB board.	Connect or replace sensor cable when required.
Faulty pressure sensor.	Check pressure sensor (see "High pressure sensor" on page 81).	Replace pressure sensor when required (see "Replacing pressure sensor" on page 156).
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.
Stop valve is closed.	Check if stop valve is open.	Open stop valve when required.
Abnormal drop of low pressure, caused by inadequate refrigerant, abnormal refrigerant piping system or faulty electronic expansion valve.	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.))	Replace the blocked part.

2.2.2.4. “E5-00” – Compressor motor lock or overheated

Trigger	Effect	Reset
Compressor overload is detected.	Unit will stop operating.	Automatic reset if the unit runs for 60 seconds without error.

Possible cause	Check	Corrective action
Faulty discharge pipe thermistor.	Check discharge pipe thermistor (see "Refrigerant thermistors" on page 83).	Replace discharge pipe thermistor when required (see "Replacing thermistor" on page 163).

Possible cause	Check	Corrective action
Faulty outdoor fan motor.	Check the fan motor (see "Fan motor" on page 69). Check fan motor connections and wiring.	Replace fan motor when required (see "Replacing DC fan motor assembly" on page 139). Adjust wiring when required.
Faulty overload protection.	Check the overload protection. Check the overload protection connections and wiring.	Replace the overload protection when required. Adjust wiring when required.
Faulty expansion valve.	Check the expansion valve (see "Electronic expansion valve" on page 67).	Replace the expansion valve body (see "Replacing expansion valve body" on page 140) or motor (see "Replacing expansion valve motor" on page 141) when required.
Faulty 4-way valve.	Check the 4-way valve (see "4-way valve" on page 63).	Replace the 4-way valve coil (see "Replacing 4-way valve coil" on page 128) or body (see "Replacing 4-way valve body" on page 126) when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty power module = faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the HAP LED is blinking in regular intervals (see "Inverter PCB" on page 71). Check if the correct spare part is installed.	Restore the power to the outdoor inverter PCB. Replace the outdoor inverter PCB when required (see "Replacing inverter PCB" on page 144).
Refrigerant shortage.	Check for refrigerant shortage. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
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.
Stop valve is closed.	Check stop valve.	Open stop valve when required.

2.2.2.5. “E6-00” – Compressor motor lock

Trigger	Effect	Reset
The motor rotor does not rotate when the compressor is energized.	Unit will not stop operating.	Automatic reset after a continuous run for about 10 min.
	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty discharge thermistor.	Check the discharge thermistor (see "Refrigerant thermistors" on page 83).	Replace discharge thermistor when required (see "Replacing thermistor" on page 163).
Refrigerant shortage.	Check for refrigerant shortage. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
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.
Stop valve is closed.	Check stop valve.	Open stop valve when required.

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)).	Replace the blocked part.
Faulty compressor.	Check compressor (see "Compressor" on page 65). Check connections and wiring of the compressor. Check expansion valve (liquid back issue) (see "Electronic expansion valve" on page 67). Check the refrigerant charge. Refer to the nameplate for correct charge.	Replace compressor when required (see "Replacing compressor" on page 135). Investigate reason of breakdown. Replace expansion valve when required (see "Replacing expansion valve body" on page 140). Fix possible leak.
Compressor turned off too fast.		Wait for guard timer.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the HAP LED is blinking in regular intervals (see "Inverter PCB" on page 71). Check if the correct spare part is installed.	Restore the power to the outdoor inverter PCB. Replace the outdoor inverter PCB when required (see "Replacing inverter PCB" on page 144).
Faulty 4-way valve.	Check the 4-way valve (see "4-way valve" on page 63).	Replace the 4-way valve coil (see "Replacing 4-way valve coil" on page 128) or body (see "Replacing 4-way valve body" on page 126) when required.
Faulty expansion valve.	Check the expansion valve (see "Electronic expansion valve" on page 67).	Replace the expansion valve body (see "Replacing expansion valve body" on page 140) or motor (see "Replacing expansion valve motor" on page 141) when required.

2.2.2.6. “E7-00” – Fan motor abnormality

Trigger	Effect	Reset
Fan does not start in about 15~30 seconds = fan motor lock. It can occur that E7-00 error is triggered even when the fan motor is running caused by a NG hall signal.	Unit will not stop operating.	Automatic reset after a continuous run. Refer to ""E7-00” – Fan motor abnormality" on page 37.
	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty outdoor fan motor.	Check the fan motor (see "Fan motor" on page 69). Check fan motor connections and wiring.	Replace fan motor when required (see "Replacing DC fan motor assembly" on page 139). Adjust wiring when required.
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the HAP LED is blinking in regular intervals (see "Inverter PCB" on page 71). Check if the correct spare part is installed.	Restore the power to the outdoor inverter PCB. Replace the outdoor inverter PCB when required (see "Replacing inverter PCB" on page 144).
Blown fuse.	Check the fuse on the outdoor unit PCB's.	Replace fuse when required.

2.2.2.7. “E9-00” – Electronic expansion valve abnormality

Trigger	Effect	Reset
1. No continuity of expansion valve. 2. Minimum expansion valve opening and suction superheat < A K and discharge superheat < B K (refer to "Product specific information" on page 185 for values of A and B).	Unit will stop operating.	Manual reset via user interface. Power reset via outdoor unit.

Possible cause	Check	Corrective action
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 returned to the compressor.)	In case wet operation was detected, confirm the cause: • Refrigerant overcharge. • Faulty expansion valve.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty thermistor.	Check thermistor (see "Refrigerant thermistors" on page 83).	Replace thermistor when required (see "Replacing thermistor" on page 163).
Faulty or disturbance of the power supply (imbalance >10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty expansion valve.	Check the expansion valve (see "Electronic expansion valve" on page 67).	Replace the expansion valve body (see "Replacing expansion valve body" on page 140) or motor (see "Replacing expansion valve motor" on page 141) when required.
Faulty pressure sensor.	Check pressure sensor (see "High pressure sensor" on page 81).	Replace pressure sensor when required (see "Replacing pressure sensor" on page 156).
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.
External factory (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after a while).	Check for source which could cause electrical interference.	Avoid electrical interference.

2.2.2.8. “E900” – Temporary internal message

Trigger	Effect	Reset
Temporary internal message.	Not relevant to system operation.	Not applicable.

Possible cause	Check	Corrective action
-	-	-

2.2.2.9. “EA-00” – 4-way valve abnormality

Trigger	Effect	Reset
The room thermistor / indoor heat exchanger are not functioning within operation range. Refer to "Error codes" on page 185 for additional information.	Unit will not stop operating.	Automatic reset when unit runs without error for 60 minutes.
	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty 4-way valve coil.	Check 4-way valve coil (see "4-way valve" on page 63).	Replace 4-way valve coil (see "Replacing 4-way valve coil" on page 128) when required.
Faulty 4-way valve body, blocked.	Check 4-way valve body (see "4-way valve" on page 63).	Replace 4-way valve body (see "Replacing 4-way valve body" on page 126) when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty room thermistor.	Check room thermistor (see "Refrigerant thermistors" on page 83).	Replace room thermistor when required (see "Replacing thermistor" on page 163).
Faulty indoor heat exchanger thermistor.	Check indoor heat exchanger thermistor (see "Refrigerant thermistors" on page 83).	Replace indoor heat exchanger thermistor when required (see "Replacing thermistor" on page 163).
Refrigerant shortage.	Check for refrigerant shortage. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
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.
Stop valve is closed.	Check stop valve.	Open stop valve when required.
Faulty stop valve.	Check the stop valve.	Replace the stop valve when required.

2.2.2.10. “F3-00” – Discharge pipe temperature abnormality

Trigger	Effect	Reset
Discharge temperature is too high: • If the discharge temperature detected is above A°C, 10 times within 200 min. • If within 200 min the discharge temperature detected is 10 times above B°C for 15 min. Refer to "Product specific information" on page 185 for values of A and B.	Unit will not stop operating.	Automatic reset when temperature drops below C°C. Refer to "Product specific information" on page 185 for values of C.
	Unit will stop operating.	Manual reset via remote controller.

Possible cause	Check	Corrective action
Refrigerant shortage.	Check for refrigerant shortage. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
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.

Possible cause	Check	Corrective action
Non condensables in refrigerant.	Check for non condensables in refrigerant.	In case of suspicion of non condensables, recover, vacuum and recharge with virgin refrigerant.
Stop valve is closed.	Check if stop valve is open.	Open stop valve when required.
Faulty 4-way valve.	Check the 4-way valve (see "4-way valve" on page 63).	Replace the 4-way valve coil (see "Replacing 4-way valve coil" on page 128) or body (see "Replacing 4-way valve body" on page 126) when required.
Faulty expansion valve.	Check the expansion valve (see "Electronic expansion valve" on page 67).	Replace the expansion valve body (see "Replacing expansion valve body" on page 140) or motor (see "Replacing expansion valve motor" on page 141) when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty discharge thermistor.	Check discharge thermistor (see "Refrigerant thermistors" on page 83).	Replace discharge thermistor when required.
Faulty heat exchanger thermistor.	Check heat exchanger thermistor (see "Refrigerant thermistors" on page 83).	Replace heat exchanger thermistor when required.
Faulty outdoor temperature thermistor.	Check outdoor temperature thermistor (see "Refrigerant thermistors" on page 83).	Replace outdoor temperature thermistor when required.

2.2.2.11. “H3-00” – High pressure switch abnormality

Trigger	Effect	Reset
High pressure switch is activated when compressor is off.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Stop valve is closed.	Check if stop valve is open.	Open stop valve when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed.	Adjust the power to the outdoor inverter PCB. Replace outdoor inverter PCB (see "Replacing main PCB" on page 148).
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty high pressure switch.	Check high pressure switch (see "High pressure switch" on page 70).	Replace the high pressure switch (see "Replacing high pressure switch" on page 143).
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.2.12. "H9-00" – Outdoor air temperature thermistor abnormality

Trigger	Effect	Reset
Thermistor input voltage is > 4.96 V or < 0.04 V when power is on.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty outdoor air temperature thermistor.	Check outdoor temperature thermistor (see "Refrigerant thermistors" on page 83).	Replace outdoor temperature thermistor when required (see "Replacing thermistor" on page 163).
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).

2.2.2.13. "J1-00" – Pressure sensor abnormality

Trigger	Effect	Reset
Pressure sensor detects an abnormal value for 3 minutes (> 4,5 MPa or < -0,05 MPa).	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty pressure sensor.	Check pressure sensor (see "High pressure sensor" on page 81).	Replace pressure sensor when required (see "Replacing pressure sensor" on page 156).
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.2.14. "J3-00" – Discharge pipe thermistor abnormality

Trigger	Effect	Reset
Thermistor input voltage is > 4.96 V or < 0.04 V when power is on.	Unit will stop operating.	Manual reset via user interface.
Discharge pipe temperature is lower than the heat exchanger temperature.		

Possible cause	Check	Corrective action
Faulty discharge pipe thermistor.	Check discharge pipe thermistor (see "Refrigerant thermistors" on page 83).	Replace discharge pipe thermistor when required (see "Replacing thermistor" on page 163).
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).

2.2.2.15. "J5-00" – Suction pipe thermistor abnormality

Trigger	Effect	Reset
Suction pipe thermistor R3T detects an abnormal value (open or short circuit).	Unit will stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty suction pipe thermistor R3T.	Check suction pipe thermistor R3T (see "Refrigerant thermistors" on page 83).	Replace suction pipe thermistor when required (see "Replacing thermistor" on page 163).
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.2.16. "J6-00" – Outdoor heat exchanger thermistor abnormality

Trigger	Effect	Reset
Thermistor input voltage is > 4.96 V or < 0.04 V when power is on.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty heat exchanger thermistor.	Check heat exchanger thermistor (see "Refrigerant thermistors" on page 83).	Replace heat exchanger thermistor when required (see "Replacing thermistor" on page 163).
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).

2.2.2.17. "J7-00" – Intermediate heat exchanger thermistor abnormality

Trigger	Effect	Reset
Intermediate heat exchanger thermistor R5T detects an abnormal value (open or short circuit).	Unit will stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty intermediate heat exchanger thermistor.	Check intermediate heat exchanger thermistor (see "Refrigerant thermistors" on page 83).	Replace intermediate heat exchanger thermistor when required (see "Replacing thermistor" on page 163).

Possible cause	Check	Corrective action
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.2.18. “J8-00” – Liquid pipe thermistor abnormality

Trigger	Effect	Reset
Liquid pipe thermistor detects an abnormal value (open or short circuit).	Unit will stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty liquid pipe thermistor.	Check liquid pipe thermistor (see "Refrigerant thermistors" on page 83).	Replace liquid pipe thermistor when required (see "Replacing thermistor" on page 163).
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.2.19. “JA-00” – High pressure sensor abnormality

Trigger	Effect	Reset
High pressure sensor detects an abnormal value for 3 minutes (> 4,5 MPa or < -0,05 MPa).	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty high pressure sensor.	Check high pressure sensor (see "High pressure sensor" on page 81).	Replace high pressure sensor when required (see "Replacing pressure sensor" on page 156).
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.2.20. “L3-00” – Switch box temperature abnormality

Trigger	Effect	Reset
Switch box temperature is too high when the compressor is off.	Unit will not stop operating.	Automatic reset when temperature drops. Refer to "“L3-00” - Switch box temperature abnormality" on page 185 for automatic reset information.
	Unit will stop operating.	Manual reset via remote controller.

Possible cause	Check	Corrective action
Faulty outdoor inverter PCB. Faulty radiation fin thermistor.	Check outdoor inverter PCB. Check if the HAP LED is blinking in regular intervals (see "Inverter PCB" on page 71). Check if the correct spare part is installed.	Restore the power to the outdoor inverter PCB. Replace the outdoor inverter PCB when required (see "Replacing inverter PCB" on page 144).
Faulty outdoor fan motor.	Check the fan motor (see "Fan motor" on page 69). Check fan motor connections and wiring.	Replace fan motor when required (see "Replacing DC fan motor assembly" on page 139). Adjust wiring when required.
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Outdoor heat exchanger is dirty.	Check outdoor heat exchanger.	Clean outdoor heat exchanger when required.

2.2.2.21. "L4-00" – Inverter radiating fin temperature abnormality

Trigger	Effect	Reset
Radiation fin temperature rise is detected.	Unit will stop operating.	Automatic reset. Refer to ""L4-00" - Inverter radiating fin temperature abnormality" on page 185 for automatic reset information. Power reset via outdoor unit.

Possible cause	Check	Corrective action
Faulty outdoor fan motor.	Check the fan motor (see "Fan motor" on page 69). Check fan motor connections and wiring.	Replace fan motor when required (see "Replacing DC fan motor assembly" on page 139). Adjust wiring when required.
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty radiating fin thermistor.	Check radiating fin thermistor (see "Refrigerant thermistors" on page 83).	Replace radiating fin thermistor when required (see "Replacing thermistor" on page 163).
Faulty outdoor unit PCB in which radiating fin thermistor is connected.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Silicon grease is not applied properly on the radiation fin.	Check the silicon grease on the outdoor unit PCB.	Adjust silicon grease when required.

2.2.2.22. "L5-00" – Inverter instantaneous overcurrent (AC output)

Trigger	Effect	Reset
An output overcurrent is detected by checking the current that flows in the inverter DC section.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Installation of the unit is not in line with specifications.	Check the installation specifications. Refer to the installation manual.	Adjust the installation when required.
Refrigerant shortage.	Check for refrigerant shortage. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
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.
Stop valve is closed.	Check stop valve.	Open stop valve when required.
Faulty power module = faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the HAP LED is blinking in regular intervals (see "Inverter PCB" on page 71). Check if the correct spare part is installed.	Restore the power to the outdoor inverter PCB. Replace the outdoor inverter PCB when required (see "Replacing inverter PCB" on page 144).
Faulty compressor.	Check compressor (see "Compressor" on page 65). Check connections and wiring of the compressor. Check expansion valve (liquid back issue) (see "Electronic expansion valve" on page 67). Check the refrigerant charge. Refer to the nameplate for correct charge.	Replace compressor when required (see "Replacing compressor" on page 135). Investigate reason of breakdown. Replace expansion valve when required (see "Replacing expansion valve body" on page 140). Fix possible leak.
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.

2.2.2.23. “L8-00” – Electronic thermal overload

Trigger	Effect	Reset
When compressor overload (except during start-up) is detected.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Refrigerant circuit is clogged.	Check for possible blockage.	Replace blocked part when required.
Refrigerant overcharge.	Check for refrigerant overcharge. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
Refrigerant is contaminated.		Replace refrigerant.
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed.	Adjust the power to the outdoor inverter PCB. Replace outdoor inverter PCB (see "Replacing inverter PCB" on page 144).
Faulty compressor	Check compressor (see "Compressor" on page 65). Check connections and wiring of the compressor. Check expansion valve (liquid back issue) (see "Electronic expansion valve" on page 67). Check the refrigerant charge. Refer to the nameplate for correct charge.	Replace compressor when required (see "Replacing compressor" on page 135). Investigate reason of breakdown. Replace expansion valve when required (see "Replacing expansion valve body" on page 140). Fix possible leak.

2.2.2.24. "L9-00" – Stall prevention time lag

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

Possible cause	Check	Corrective action
Refrigerant circuit is clogged.	Check for possible blockage.	Replace blocked part when required.
Refrigerant condition is not OK (HP-LP > 0,2 MPa at start-up).	Check refrigerant condition.	
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed.	Adjust the power to the outdoor inverter PCB. Replace outdoor inverter PCB (see "Replacing inverter PCB" on page 144).
Faulty compressor.	Check compressor (see "Compressor" on page 65). Check connections and wiring of the compressor. Check expansion valve (liquid back issue) (see "Electronic expansion valve" on page 67). Check the refrigerant charge. Refer to the nameplate for correct charge.	Replace compressor when required (see "Replacing compressor" on page 135). Investigate reason of breakdown. Replace expansion valve when required (see "Replacing expansion valve body" on page 140). Fix possible leak.

2.2.2.25. "LC-00" – Transmission system abnormality

Trigger	Effect	Reset
No transmission between outdoor main PCB and outdoor inverter PCB.	Unit will stop operating.	Automatic reset.

Possible cause	Check	Corrective action
Internal wiring is not OK.	Check if wiring between PCB's. (refer to wiring diagram).	Correct wiring.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed.	Adjust the power to the outdoor inverter PCB. Replace outdoor inverter PCB (see "Replacing inverter PCB" on page 144).
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.
External factory (e.g. electrical noise). (cause when error is reset after power reset, and error happens again after a while).	Check for source which could cause electrical interference.	Avoid electrical interference.

2.2.2.26. "P1-00" – Open phase or power supply voltage imbalance

Trigger	Effect	Reset
Outdoor inverter PCB detects incorrect power supply.	Unit will stop operating.	Manual reset via user interface. Automatic reset.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed.	Adjust the power to the outdoor inverter PCB. Replace outdoor inverter PCB (see "Replacing inverter PCB" on page 144).
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.2.27. "P4-00" – Radiating fin temperature sensor abnormality

Trigger	Effect	Reset
Radiating fin thermistor input voltage is < 0.04 V or > 4.96 V when power is on.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty radiating fin thermistor.	Check radiating fin thermistor (see "Refrigerant thermistors" on page 83).	Replace radiating fin thermistor when required (see "Replacing thermistor" on page 163).
Faulty outdoor unit PCB in which radiating fin thermistor is connected.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).

2.2.2.28. "PJ-00" – Capacity setting abnormality

Trigger	Effect	Reset
Outdoor main PCB detects a defective capacity in EEPROM.	Unit will stop operating.	Manual reset via user interface. Power supply reset.

Possible cause	Check	Corrective action
Position of PCB dip switches are not OK.	Check if dip switches are set to default (OFF) position.	

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty capacity adapter on outdoor PCB.	Check if the correct adapter is installed. Check if the correct spare part is installed.	Adjust capacity adapter when required.

2.2.3. System

2.2.3.1. “U0-00” – Refrigerant shortage

Trigger	Effect	Reset
Refrigerant shortage detected.	Unit will stop operating.	Automatic reset (see "Error codes" on page 185).
		Power reset via outdoor unit.

Possible cause	Check	Corrective action
Faulty air thermistor.	Check air thermistor (see "Refrigerant thermistors" on page 83).	Replace air thermistor when required.
Faulty discharge thermistor.	Check discharge thermistor (see "Refrigerant thermistors" on page 83).	Replace discharge thermistor when required.
Faulty outdoor heat exchanger thermistor.	Check outdoor heat exchanger thermistor (see "Refrigerant thermistors" on page 83).	Replace outdoor heat exchanger thermistor when required.
Stop valve is closed.	Check stop valve.	Open stop valve when required.
Refrigerant shortage.	Check for refrigerant shortage. Refer to the nameplate for the correct charge.	Charge the correct refrigerant amount when required.
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.
Faulty compressor.	Check compressor (see "Compressor" on page 65). Check connections and wiring of the compressor. Check expansion valve (liquid back issue) (see "Electronic expansion valve" on page 67). Check the refrigerant charge. Refer to the nameplate for the correct charge.	Replace compressor when required (see "Replacing compressor" on page 135). Investigate reason of breakdown. Replace expansion valve when required (see "Replacing expansion valve body" on page 140). Fix possible leak.
Faulty expansion valve.	Check the expansion valve (see "Electronic expansion valve" on page 67).	Replace the expansion valve body (see "Replacing expansion valve body" on page 140) or motor (see "Replacing expansion valve motor" on page 141) when required.

2.2.3.2. “U2-00” – Power supply abnormality or instantaneous power failure

Trigger	Effect	Reset
There is no zero-cross detected in approximately 10 seconds (indoor unit PCB).	Unit will stop operating.	Power reset via outdoor unit.
Abnormal voltage drop (< 150-180 V) is detected by the DC voltage detection circuit.	Unit will stop operating.	Automatic restart after compressor stand-by of 3 minutes.
Abnormal voltage rise is detected by the over-voltage detection circuit.	Unit will stop operating.	Automatic restart after compressor stand-by of 3 minutes.

Possible cause	Check	Corrective action
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Defective DC voltage detection circuit.	Check PCB with DC voltage detection circuit.	Replace PCB when required.
Defective over-voltage detection circuit.	Check PCB with over-voltage detection circuit.	Replace PCB when required.
Defective PAM control part.	Check PAM control part.	Replace PAM control part when required.
Faulty compressor.	Check compressor (see "Compressor" on page 65). Check connections and wiring of the compressor. Check expansion valve (liquid back issue) (see "Electronic expansion valve" on page 67). Check the refrigerant charge. Refer to the nameplate for correct charge.	Replace compressor when required (see "Replacing compressor" on page 135). Investigate reason of breakdown. Replace expansion valve when required (see "Replacing expansion valve body" on page 140). Fix possible leak.
Faulty outdoor fan motor.	Check the fan motor (see "Fan motor" on page 69). Check fan motor connections and wiring.	Replace fan motor when required (see "Replacing DC fan motor assembly" on page 139). Adjust wiring when required.
Momentary drop of voltage.	-	Wait until compressor restarts.
Momentary power failure.	-	Wait until compressor restarts.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty indoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the indoor main PCB receives power.	Restore the power to the indoor main PCB. Replace indoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106).

2.2.3.3. “U4-00” – Transmission abnormality between indoor unit and outdoor unit

Trigger	Effect	Reset
Data sent from outdoor unit cannot be received normally, content of the send data is abnormal.	Unit will stop operating.	Power reset via outdoor unit.

Possible cause	Check	Corrective action
Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Wiring abnormality between indoor unit and outdoor unit.	Check wiring between indoor unit and outdoor unit.	Adjust wiring between indoor unit and outdoor unit when required. Replace wiring between indoor unit and outdoor unit when required.

Possible cause	Check	Corrective action
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty outdoor fan motor.	Check the fan motor (see "Fan motor" on page 69). Check fan motor connections and wiring.	Replace fan motor when required (see "Replacing DC fan motor assembly" on page 139). Adjust wiring when required.
Faulty indoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the indoor main PCB receives power.	Restore the power to the indoor main PCB. Replace indoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106).

2.2.3.4. "U5-00" – Transmission user interface-hydro PCB abnormality

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

Possible cause	Check	Corrective action
Faulty hydro PCB.	Check if the hydro PCB receives power. Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check the wiring to hydro PCB.	Adjust power to the hydro PCB. Replace hydro PCB when HAP LED is not blinking in regular intervals. Install correct spare part or update hydro PCB. Adjust wiring to hydro PCB when required.
Faulty user interface.	Check user interface.	Replace user interface when required.
External factory (e.g. electrical noise; cause when error is reset after power reset, and error happens again after a while).	Check for source which could cause electrical interference.	Avoid electrical interference.

2.2.3.5. "U7-00" – Transmission outdoor unit-outdoor unit abnormality

Trigger	Effect	Reset
Communication abnormality between outdoor unit PCB's.	Unit will stop operating.	Manual reset via user interface.

Possible cause	Check	Corrective action
Faulty wiring between outdoor unit PCBs.	Check wiring between outdoor unit PCBs.	Adjust wiring between outdoor unit PCBs when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals. Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Adjust the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals. (see "Replacing main PCB" on page 148)

Possible cause	Check	Corrective action
Faulty outdoor inverter PCB.	Check outdoor inverter PCB. Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed.	Adjust the power to the outdoor inverter PCB. Replace outdoor inverter PCB.

2.2.3.6. "UA-00" – Improper combination of indoor unit and outdoor unit

Trigger	Effect	Reset
Signal transmission between indoor unit and outdoor unit abnormality.	Unit will stop operating.	Power reset via outdoor unit.

Possible cause	Check	Corrective action
Improper combination of indoor unit and outdoor unit.	Check combination.	Adjust installation when required.
Wiring abnormality between indoor unit and outdoor unit.	Check wiring between indoor unit and outdoor unit.	Adjust wiring between indoor unit and outdoor unit when required. Replace wiring between indoor unit and outdoor unit when required.
Faulty outdoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the outdoor main PCB receives power.	Restore the power to the outdoor main PCB. Replace outdoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing main PCB" on page 148).
Faulty indoor unit main PCB.	Check if the HAP LED is blinking in regular intervals (see "Main PCB" on page 76). Check if the correct spare part is installed. Check if the indoor main PCB receives power.	Restore the power to the indoor main PCB. Replace indoor main PCB when HAP LED is not blinking in regular intervals (see "Replacing RoCon BM1 PCB" on page 106).

2.2.4. Others

Not applicable.

2.3. Symptom based troubleshooting

2.3.1. Indoor unit

Not available yet.

2.3.2. Outdoor unit

Not available yet.

2.3.3. System

Not applicable.

2.3.4. Others

Not applicable.

2.4. Component checklist

Overview of component checklists:

Indoor unit 55
- Booster heater 55
- Flow sensor 56
- Main PCB 58
- Water pressure sensor 59
- Water thermistors 61

Outdoor unit 63
- 4-way valve 63
- Compressor 65
- Electronic expansion valve 67
- Fan motor 69
- High pressure switch 70
- Inverter PCB 71
- Main PCB 76
- Muffler 80
- High pressure sensor 81
- Refrigerant thermistors 83

System 85
Others 85

2.4.1. Indoor unit

2.4.1.1. Booster heater

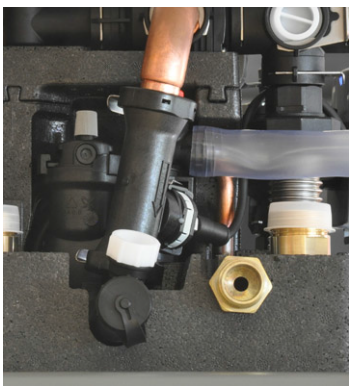
Not applicable

2.4.1.2. Flow sensor

Technical specification		Description	
The water flow sensor output signal versus flow and temperature is shown in the graphs below.		The water flow sensor measures the flow and temperature in the water circuit.	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Indoor unit" on page 178.	See "Indoor unit" on page 173.	Not applicable.	See "Indoor unit" on page 181.
Check procedure			
Mechanical check			

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove cover hood when required.
4. Check all electrical connections of the flow sensor.
5. Check all electrical connections of the power supply.

Figure 2-3: Flow sensor

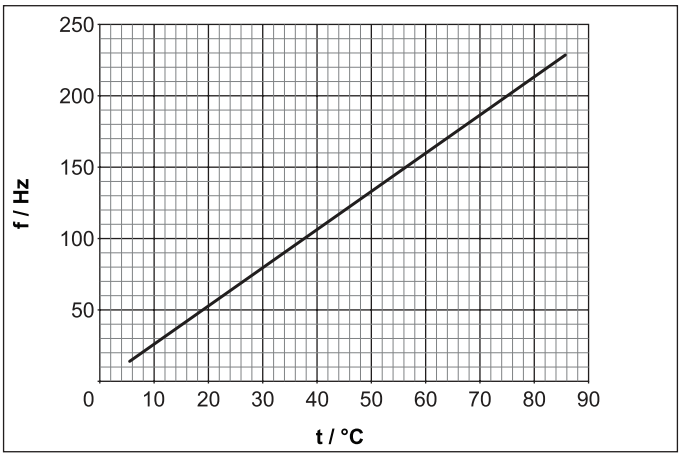


Electrical check

2.4.1.2.1 Flow sensor

1. Switch on the Daikin unit with the field supplied circuit breaker.
2. Switch on the Daikin unit via the user interface.
3. On the user interface, activate heating operation.
4. Select the PCB and connector that must be checked, see table "Component checklist" on page 186.
5. Measure the frequency on the flow sensor connector.
6. If the value is not correct, replace the flow sensor (see "Replacing flow sensor" on page 100).

Figure 2-4: Flow sensor - flow characteristic



f: Frequency m: Flow

2.4.1.2.2 Flow sensor thermistor

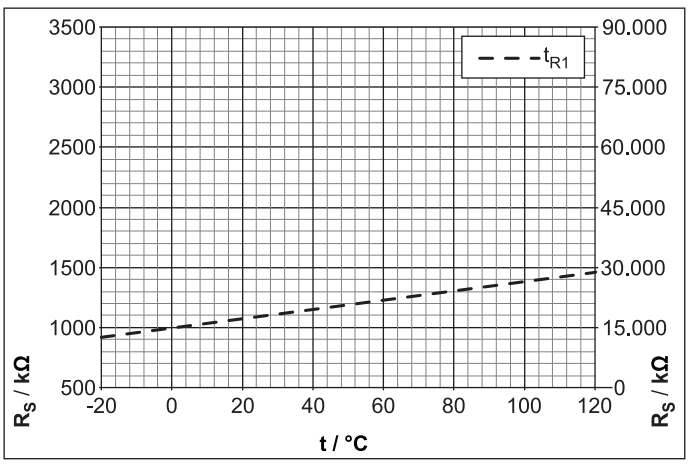
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Measure the temperature of the piping close to the flow sensor of the thermistor using a contact thermometer.

WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

4. Unplug the connector from the appropriate PCB and measure the resistance between the pins, see table "Component checklist" on page 186.
   - Compare the measured resistance with the range determined by the thermistor characteristic below.
5. If the measured voltage does not match the pressure, replace the flow sensor (see "Replacing flow sensor" on page 100).

Figure 2-5: Flow sensor - temperature characteristic



R_S: Sensor resistance (Pt 1000) t_{R1}: Return flow temperature sensor in the flow meter

t: Temperature

2.4.1.3. Main PCB

Not applicable

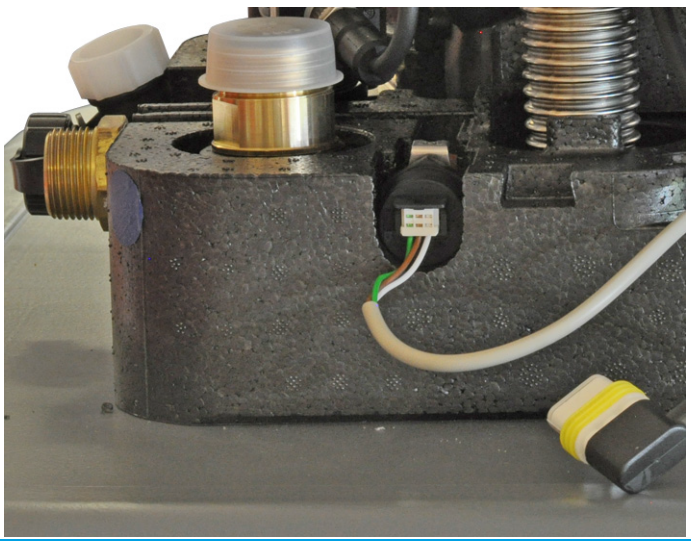
2.4.1.4. Water pressure sensor

Technical specification		Description	
The water pressure sensor is an analog pressure sensor. The water pressure sensor output signal versus pressure is shown in the graph below.		The water flow sensor measures the pressure in the water circuit.	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Indoor unit" on page 178.	See "Indoor unit" on page 173.	Not applicable.	See "Indoor unit" on page 181.
Check procedure			

Mechanical check

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove cover hood when required.
4. Check all electrical connections of the water pressure sensor.
5. Check all electrical connections of the power supply.

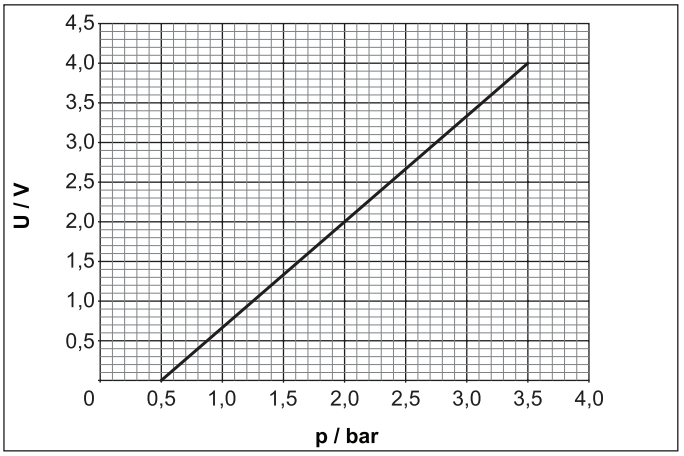
Figure 2-6: Water pressure sensor



Electrical check

1. Switch on the Daikin unit with the field supplied circuit breaker.
2. Switch on the Daikin unit via the user interface.
3. On the user interface, activate heating operation.
4. Select the PCB and connector that must be checked, see table "Component checklist" on page 186.
5. Measure the voltage on the water pressure sensor connector.

Figure 2-7: Water pressure sensor characteristic



p: Water pressure U: Tension

6. If the measured voltage does not match the pressure, replace the pressure sensor (see "Replacing water pressure sensor" on page 104).

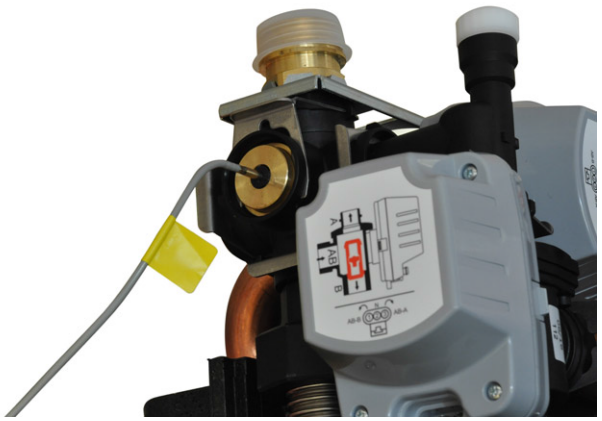
2.4.1.5. Water thermistors

Technical specification		Description	
The resistance vs. temperature characteristics of the thermistors are shown in the graphs below.		The thermistors measure the temperature in the water circuit.	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Indoor unit" on page 178.	See "Indoor unit" on page 173.	Not applicable.	See "Indoor unit" on page 181.
Check procedure			

Mechanical check

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Check all electrical connections of the thermistor.
4. Check all electrical connections of the power supply.

Figure 2-8: Thermistor



Electrical check

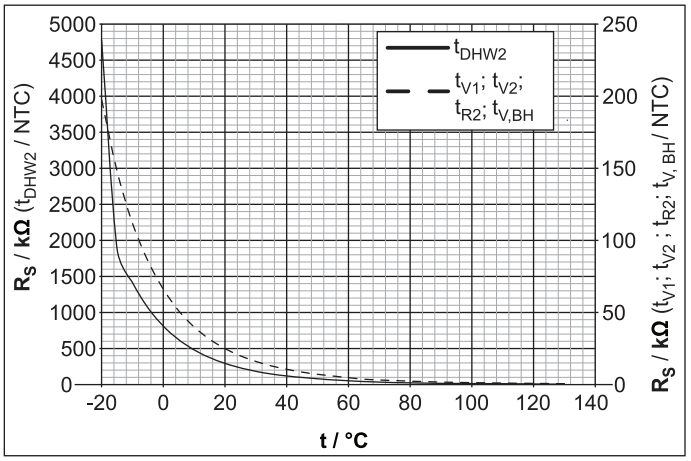
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove cover hood when required.
4. Select the thermistor that must be checked, see table "Component checklist" on page 186.
5. Measure the temperature of the thermistor using a contact thermometer.

WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

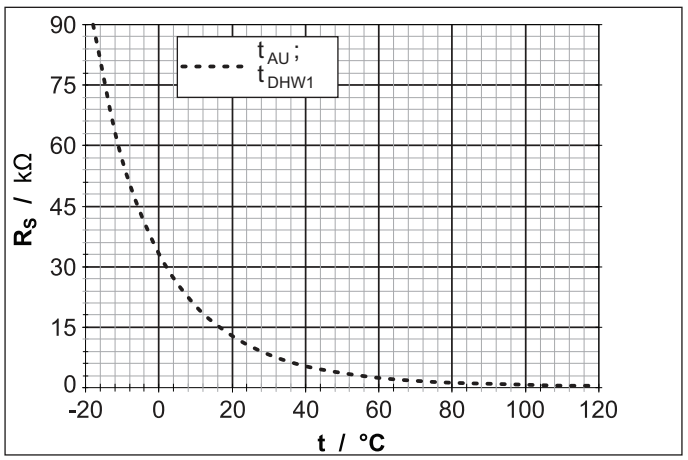
6. Unplug the connector from the appropriate PCB and measure the resistance between the pins.
   - Compare the measured resistance with the range determined by the thermistor characteristic below.
7. If the measured resistance does not match the characteristic value, the thermistor must be replaced (see "Replacing water thermistor" on page 110).

Figure 2-9: Thermistor characteristic (type 1 / type 2)



R_S: Sensor resistance (NTC)	t_{R2}: Return flow temperature sensor
t: Temperature	t_{V1}, t_{V2}: Flow temperature sensor
t_{DHW2}: Storage tank temperature sensor	$t_{V, BH}$: Flow temperature sensor backup-heater

Figure 2-10: Thermistor characteristic (type 3)



R_S: Sensor resistance (NTC)	t_{AU}: External temperature sensor RoCon OT1
t: Temperature	t_{DHW1}: Storage tank temperature sensor

2.4.2. Outdoor unit

2.4.2.1. 4-way valve

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	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Outdoor unit" on page 179.	See "Outdoor unit" on page 174.	See "Outdoor unit" on page 187.	See "Outdoor unit" on page 182.
Check procedure			

Mechanical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

PROCEDURE

1. Loosen the screw and remove the coil from the 4-way valve (refer to "Replacing 4-way valve coil" on page 128).

> **WARNING: RISK OF FIRE**
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

2. Unplug 4-way valve connector from applicable PCB, see table "Component checklist" on page 186.
3. Switch on the Daikin unit via the user interface, start cooling/defrost operation.

   If the temperature after the heat exchanger drops, proceed with next step.

   If the temperature after the heat exchanger rises, the 4-way valve is stuck in heating position, replace the 4-way valve body (refer to "Replacing 4-way valve body" on page 126).

   If the temperature after the 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 any 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 4-way valve body" on page 126).

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

4. 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 4-way valve body" on page 126).

Electrical check

PRELIMINARY ACTIONS

1. Switch off Daikin unit via the user interface.

2. Switch off Daikin unit with the field supplied circuit breaker.

3. Remove plate work when required.

PROCEDURE

1. Switch on the Daikin unit, start heating operation.

> **WARNING: RISK OF FIRE**
>
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

2. Measure the voltage on 4-way valve connector: pin 1-3, see table "Component checklist" on page 186. If the measured voltage does not range 220-240 VAC during switching / 15 VAC after switching, unplug 4-way valve connector from PCB and measure the voltage directly on the PCB: pin 1-3 of 4-way valve connection.
   - If the voltage, measured directly on the PCB does not range 220-240 VAC during switching / 15 VAC after switching, replace main PCB.
   - If the voltage, measured directly on the PCB does range 220-240 VAC during switching / 15 VAC after switching, replace the 4-way valve coil (refer to "Replacing 4-way valve coil" on page 128).

> **WARNING: RISK OF FIRE**
>
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

3. Unplug 4-way valve connector from PCB 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 4-way valve coil" on page 128).

4. Switch on the Daikin unit, start cooling/defrost operation.

   If the temperature after the plate type heat exchanger rises, the control of the 4-way valve is wrong. Replace main PCB.

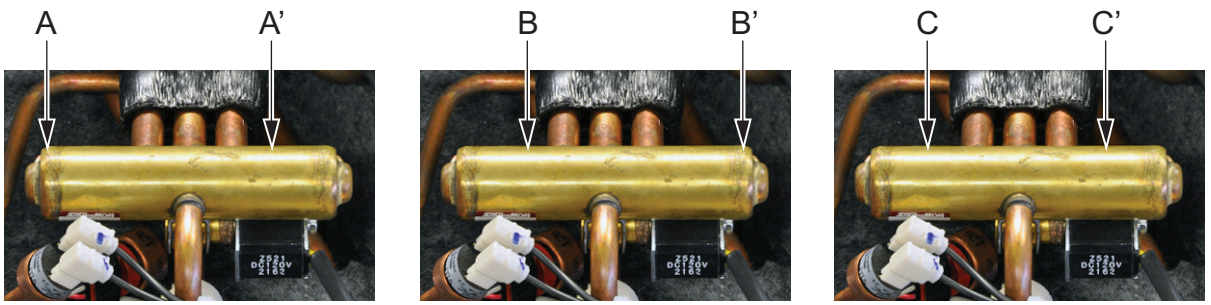
Determine the position of the 4-way valve

1. Switch off Daikin unit via the user interface.

2. Switch off Daikin unit with the field supplied circuit breaker.

3. 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.

4. 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 (refer to "Replacing 4-way valve body" on page 126).



2.4.2.2. Compressor

Technical specification		Description	
Type: inverter driven, swing double swing.		The compressor compresses the refrigerant in the refrigerant circuit.	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Outdoor unit" on page 179.	See "Outdoor unit" on page 174.	See "Outdoor unit" on page 187.	See "Outdoor unit" on page 182.
Check procedure			

Preliminary check

1. Check if the Daikin unit is connected to earth.
2. Check if the stop valve is open.

Mechanical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 111).

PROCEDURE

1. Open the compressor insulation.
2. Check if the condition of the compressor dampers and piping is correct.

Electrical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

PROCEDURE

1. Open the compressor insulation.
2. Switch on the Daikin unit and measure the U, V, W inverter voltages. All voltages must be identical, if not, replace the inverter PCB.
3. Switch off the Daikin unit via the user interface.
4. Switch off the Daikin unit with the field supplied circuit breaker.

INFORMATION

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

5. Disconnect the Faston connectors U, V and W from the compressor, take picture.
6. Measure the compressor motor windings U-V, V-W and U-W.

7. Megger the compressor using 500 or 1000 VDC, the insulation must be higher than 3 MΩ.

8. Replace the compressor if the windings and/or insulation measurements fail (refer to "Replacing compressor" on page 135).

9. Run the compressor and measure the current in each phase; the current for each phase should be identical (refer to "Product specific information" on page 185). In that case it can be decided to preventively replace the compressor (refer to "Replacing compressor" on page 135).

2.4.2.3. Electronic expansion valve

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

Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Outdoor unit" on page 179.	See "Outdoor unit" on page 174.	See "Outdoor unit" on page 187.	See "Outdoor unit" on page 182.

Check procedure

Mechanical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Switch on the Daikin unit and listen to the expansion valve assembly, if the expansion valve body does not create a latching sound, continue with the electrical check.
4. Switch off the Daikin unit via the user interface.
5. Switch off the Daikin unit with the field supplied circuit breaker.
6. Remove plate work when required (refer to "Basic removal" on page 111).

PROCEDURE

1. Remove the expansion valve coil from the expansion valve body.
2. Slide the magnet (tool part N° 9950038) over the expansion valve body and gently rotate the magnet to manually operate the expansion valve body clockwise (closing) and counterclockwise (opening).
3. If it is not possible to open the expansion valve body with the magnet, the expansion valve body is blocked and the expansion valve body must be replaced (refer to "Replacing expansion valve body" on page 140).

Electrical check

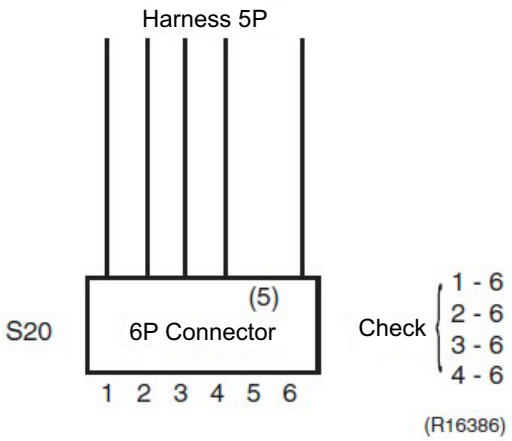
PRELIMINARY ACTIONS

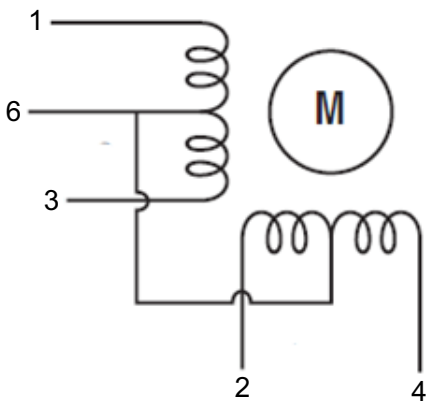
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 111).

PROCEDURE

1. Check if the electrical connector of the expansion valve coil was correctly connected to the PCB, if not, connect the electrical connector.
2. Disconnect the electrical connector of the expansion valve coil and check the continuity between below pins using a multi meter. It should be ± the same value.
   - Connector pin 1-6: connected

- Connector pin 2-6: connected
- Connector pin 3-6: connected
- Connector pin 4-6: connected





3. If one or more of the windings have no continuity, replace the expansion valve coil.

2.4.2.4. 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			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Outdoor unit" on page 179.	See "Outdoor unit" on page 174.	See "Outdoor unit" on page 187.	See "Outdoor unit" on page 182.

Check procedure

Mechanical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 111).

PROCEDURE

1. Check the state of the propeller, replace the propeller if damaged, deformed, cracked or broken (refer to "Replacing propeller fan blade assembly" on page 157).
2. Check the motor shaft bearing friction, only perform electrical check if motor runs with low shaft bearing friction. Replace fan motor if friction is abnormal (refer to "Replacing DC fan motor assembly" on page 139).

Electrical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 111).

PROCEDURE

1. Check fuse on PCB, replace if blown, see table "Component checklist" on page 186.



WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

2. Check if fan motor connector is plugged into PCB.
3. Power the Daikin unit.
4. Check power supply, the measured voltage must be 198 - 240 VAC, if not replace main PCB (refer to "Replacing main PCB" on page 148).

2.4.2.5. High pressure switch

Technical specification		Description	
The high pressure switch 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 is a safety component that stops the compressor if overpressure is detected in the refrigerant circuit.	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Outdoor unit" on page 179.	See "Outdoor unit" on page 174.	See "Outdoor unit" on page 187.	See "Outdoor unit" on page 182.
Check procedure			
Electrical check			

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 111).

PROCEDURE

1. Disconnect the high pressure switch connector from applicable PCB, see table "Component checklist" on page 186.
2. Recover the refrigerant.
3. Pressurize the refrigerant circuit at 41.7 bar with nitrogen.
4. Measure the switch contacts between high pressure switch connector: pins 1-2; the switch must be open.
5. Replace the high pressure switch if the contact is not open (refer to "Replacing high pressure switch" on page 143).
6. Lower the refrigerant circuit pressure to 30 bar.
7. Measure the switch contacts between high pressure switch connector: pins 1-2; the switch must be closed.
8. Replace the high pressure switch if the contact is not closed (refer to "Replacing high pressure switch" on page 143).

2.4.2.6. Inverter PCB

Overview of inverter PCB:

Single fan outdoor unit 71
Double fan outdoor unit 73

2.4.2.6.1 Single fan outdoor unit

Technical specification		Description	
The inverter PCB is a 400 V 3 phase inverter.		The inverter PCB drives the compressor motor and powers the DC fan motor.	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Unit**
Not applicable.	See "Outdoor unit" on page 174.	See "Outdoor unit" on page 187.	See "Outdoor unit" on page 182.
Check procedure			
Electrical check			

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

PROCEDURE

1. Open the compressor insulation.
2. Remove the terminal cover of compressor wiring.

WARNING: RISK OF ELECTROCUTION

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

3. 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.

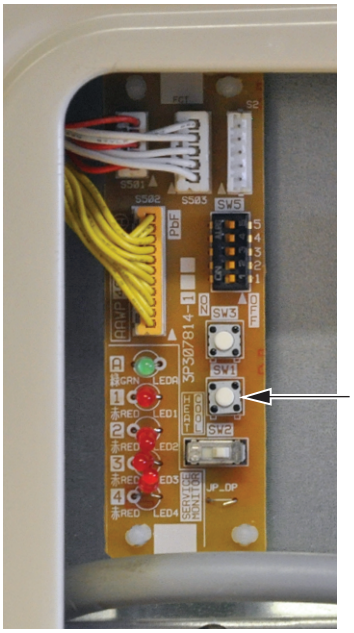
4. Disconnect the compressor wires and connect the compressor wires to the Inverter Analyzer (SPP number 1368521).



5. Power the Daikin unit.

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

6. Locate SW1 on service PCB.



7. Press SW1 for 5 seconds to activate the inverter test.
8. Check that all LED's on the Inverter Analyzer are lit; if not, replace the inverter board, refer to "Replacing inverter PCB" on page 144.
9. Switch off the Daikin unit with the field supplied circuit breaker.
10. Wait a few minutes and confirm that the LED's on the Inverter Analyzer are off.
11. Disconnect the Inverter Analyzer from the U V W wiring.

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

12. Reconnect the U V W leads to the compressor.

2.4.2.6.2 Double fan outdoor unit

Technical specification	Description
The inverter PCB is a 400 V 3 phase inverter.	The inverter PCB drives the compressor.
Location	
/	
Check procedure	
Electrical check	

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

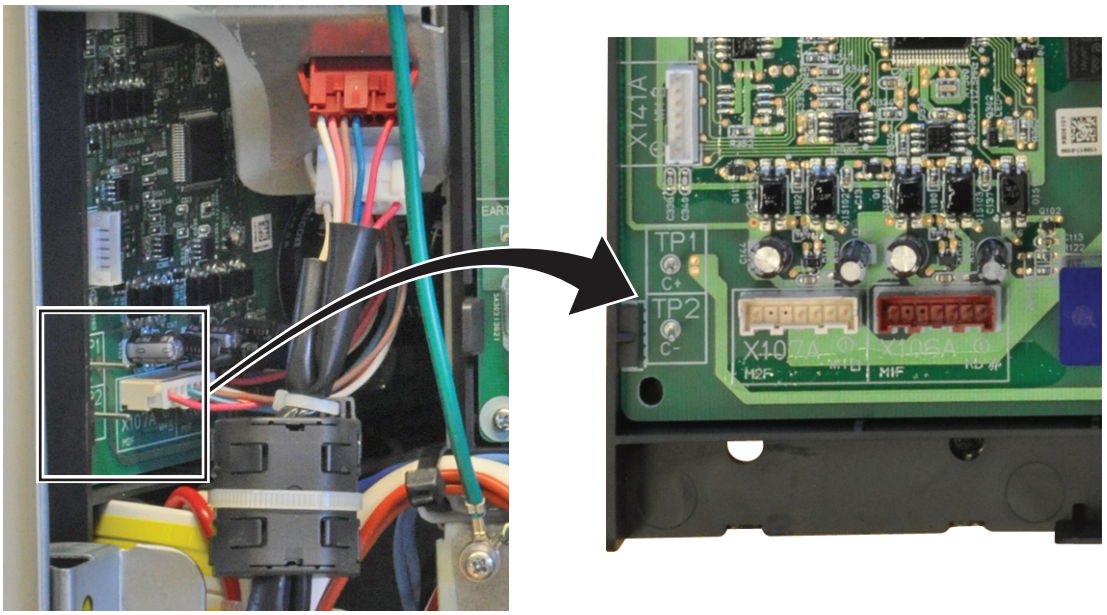
PROCEDURE

1. Open the compressor insulation.

WARNING: RISK OF ELECTROCUTION

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

2. 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.

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



4. Power the Daikin unit.

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

5. 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	●	●	●	●	●	●	●
6. press and hold BS1 for 5 seconds, *LED status (entered monitor mode)*	○	●	●	●	●	●	●
7. 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)*	○	●	●	●	●	●	●

8. Check that all LED's on the Inverter Analyzer are lit; if not, replace the inverter board, refer to "Replacing inverter PCB" on page 144.
9. Switch off the Daikin unit via the user interface.
10. Switch off the Daikin unit with the field supplied circuit breaker.
11. Confirm that LED's on the inverter analyzer stopped blinking and wait for 10 seconds, while the capacitors discharge.
12. Switch off the main power to the unit.
13. Disconnect the inverter analyzer from the U V W wiring.



CAUTION

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

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

2.4.2.7. Main PCB

Overview of check main PCB:

Single fan outdoor unit single phase 76
Double fan outdoor unit single phase 77
Double fan outdoor unit three phase 79

2.4.2.7.1 Single fan outdoor unit single phase

Technical specification		Description	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Outdoor unit" on page 179.	See "Outdoor unit" on page 174.	See "Outdoor unit" on page 187.	See "Outdoor unit" on page 182.
Check procedure			

Mechanical check

Not applicable.

Electrical check

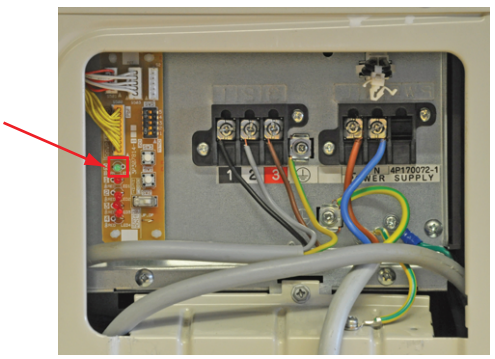
PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 111).

PROCEDURE

1. Switch on the Daikin unit with the field supplied circuit breaker.
2. Locate the HAP led.
3. Make sure the HAP led is blinking in regular intervals (1 second on/ 1 second off).

Figure 2-11: Check HAP led



2.4.2.7.2 Double fan outdoor unit single phase

Technical specification		Description	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Outdoor unit" on page 179.	See "Outdoor unit" on page 174.	See "Outdoor unit" on page 187.	See "Outdoor unit" on page 182.
Check procedure			

Mechanical check

Not applicable.

Electrical check

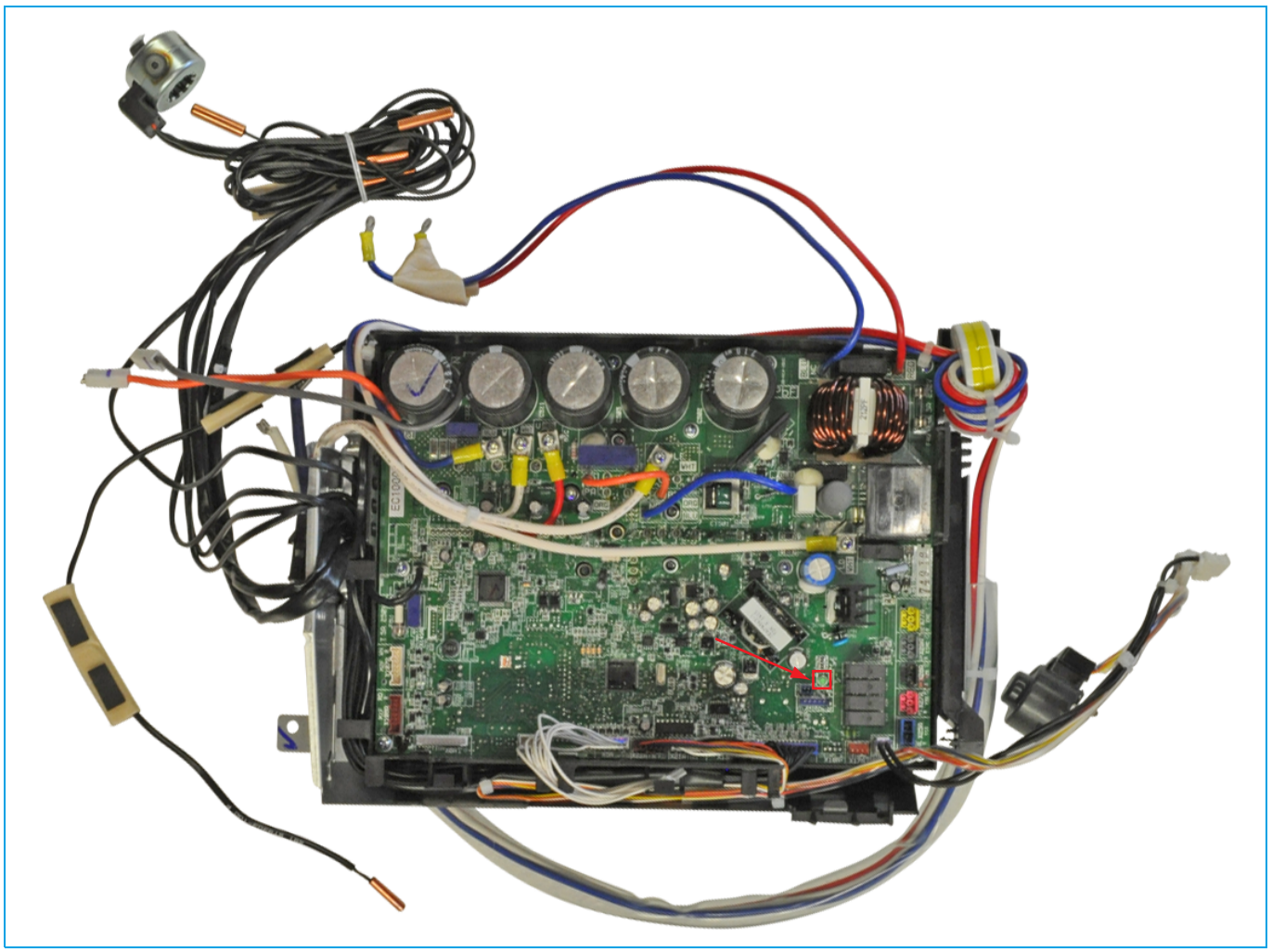
PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 111).

PROCEDURE

1. Switch on the Daikin unit with the field supplied circuit breaker.
2. Locate the HAP led.
3. Make sure the HAP led is blinking in regular intervals (1 second on/ 1 second off).

Figure 2-12: Check HAP led



2.4.2.7.3 Double fan outdoor unit three phase

Technical specification		Description	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Outdoor unit" on page 179.	See "Outdoor unit" on page 174.	See "Outdoor unit" on page 187.	See "Outdoor unit" on page 182.
Check procedure			

Mechanical check

Not applicable.

Electrical check

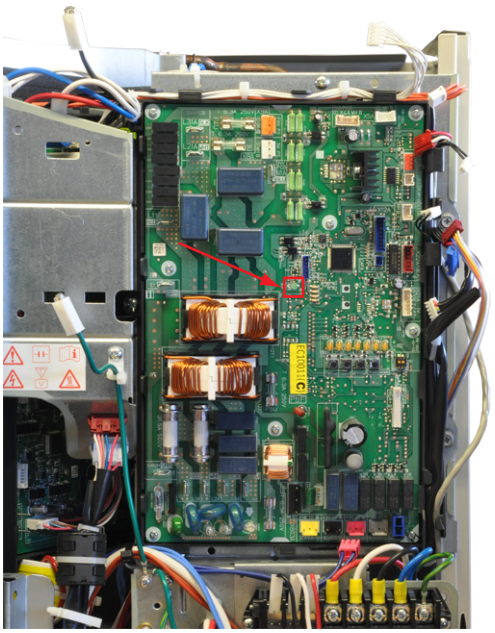
PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 111).

PROCEDURE

1. Switch on the Daikin unit with the field supplied circuit breaker.
2. Locate the HAP led.
3. Make sure the HAP led is blinking in regular intervals (1 second on/ 1 second off).

Figure 2-13: Check HAP led



2.4.2.8. Muffler

Technical specification		Description	
-		The muffler breaks up the pressure pulses which create noise.	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Outdoor unit" on page 179.	See "Outdoor unit" on page 174.	See "Outdoor unit" on page 187.	See "Outdoor unit" on page 182.
Check procedure			
Mechanical check			

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

PROCEDURE

1. Power on the Daikin unit with the field supplied circuit breaker.
2. After the compressor has been running for 5 minutes, measure the temperature before and after the muffler.
3. If a temperature difference above 3°C is measured over the muffler, it indicates the muffler is obstructed and must be replaced.
4. Switch on the Daikin unit via the user interface.

2.4.2.9. High pressure sensor

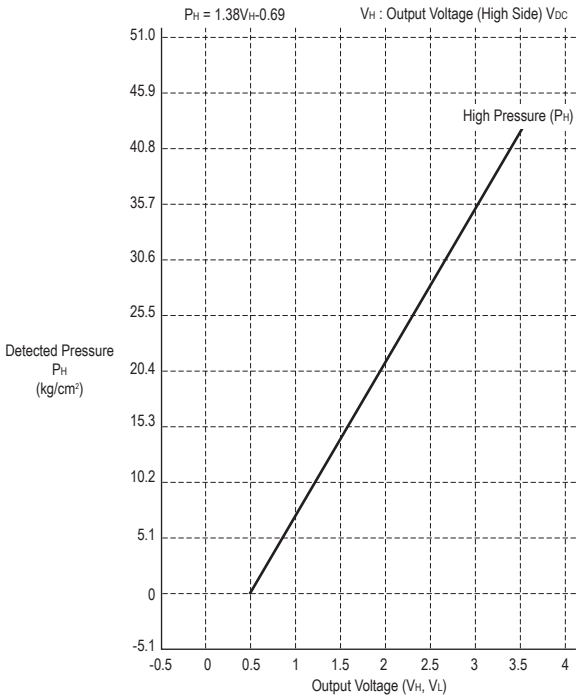
Technical specification		Description	
The pressure sensor is an analog pressure sensor.		The pressure sensor measures the pressure in the high pressure section of the refrigerant circuit.	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Outdoor unit" on page 179.	See "Outdoor unit" on page 174.	See "Outdoor unit" on page 187.	See "Outdoor unit" on page 182.
Check procedure			
Electrical check			

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

PROCEDURE

1. Connect a pressure gauge to the high pressure service port and read the pressure.
2. From the graph below, determine the expected sensor output signal.

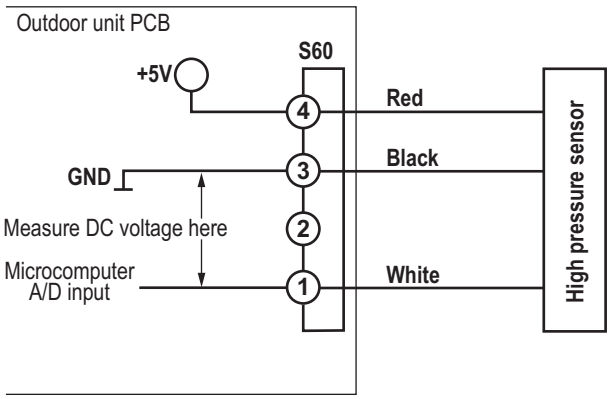


3. Power the Daikin unit.

INFORMATION

To know where to plug in the pressure sensor connector, see "Component checklist" on page 186.

4. Measure the voltage across high pressure sensor connector: pin 1-3 on the PCB; compare the measured voltage with the expected voltage.



5. In case no voltage is measured across high pressure sensor connector: pin 1-3; do following checks:

> **INFORMATION**
>
> If 1 or more checks fail, replace the high pressure sensor.

Check 1

1. Check main PCB (refer to "Main PCB" on page 76).

Check 2

1. Check if the high pressure sensor connector is plugged into PCB.

Check 3

1. Measure the voltage across high pressure sensor connector: pin 4-3; the measured voltage must be 5 VDC, if not replace PCB.

2.4.2.10. Refrigerant thermistors

Technical specification		Description	
A single type of thermistor is used; the resistance vs. temperature characteristics is shown in below table "Thermistor resistance / temperature characteristics (type 1)".		The thermistors are used to measure the temperature at multiple locations inside the Daikin unit. The measured temperatures are processed by the main board.	
Location			
Piping diagram	**Wiring diagram**	**Switch box**	**Component overview of unit**
See "Outdoor unit" on page 179.	See "Outdoor unit" on page 174.	See "Outdoor unit" on page 187.	See "Outdoor unit" on page 182.
Check procedure			

Mechanical check

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit 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.

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

PROCEDURE

1. From the table in the appendix ("Component checklist" on page 186), select the thermistor that must be checked.
2. Measure the temperature of the thermistor using a contact thermometer.

WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

3. Unplug the connector from the appropriate PCB and measure the resistance between the pins listed in the table in the appendix ("Component checklist" on page 186).
   - Compare the measured resistance with the range determined by the lower and higher temperature.
4. If the measured resistance does not match the listed value, the thermistor must be replaced.

INFORMATION

All thermistors have a tolerance of 5%.

E.g. R3T air thermistor - main PCB - connector S90: pin 1-2 type 1:

- 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 below table "Thermistor resistance / temperature characteristics (type 1)":
  - 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 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 applicable PCB.

Table 2-1: Thermistor resistance / temperature characteristics (type 1)

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

Table 2-2: Thermistor resistance / temperature characteristics (type 2)

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
-20	192.08	0	64.17	20	24.45	40	10.41	60	4.87
-19	181.16	1	60.96	21	23.37	41	10.00	61	4.70
-18	170.94	2	57.94	22	22.35	42	9.61	62	4.54
-17	161.36	3	55.08	23	21.37	43	9.24	63	4.38
-16	152.38	4	52.38	24	20.45	44	8.88	64	4.23
-15	143.96	5	49.83	25	19.56	45	8.54	65	4.08
-14	136.05	6	47.42	26	18.73	46	8.21	66	3.94
-13	128.63	7	45.14	27	17.93	47	7.90	67	3.81
-12	121.66	8	42.98	28	17.17	48	7.60	68	3.68
-11	115.12	9	40.94	29	16.45	49	7.31	69	3.56
-10	108.96	10	39.01	30	15.76	50	7.04	70	3.44

T °C	kΩ
-9	103.18
-8	97.73
-7	92.61
-6	87.79
-5	83.25
-4	78.97
-3	74.94
-2	71.14
-1	67.56

T °C	kΩ
11	37.18
12	35.45
13	33.81
14	32.25
15	30.77
16	29.37
17	28.05
18	26.78
19	25.59

T °C	kΩ
31	15.10
32	14.48
33	13.88
34	13.31
35	12.77
36	12.25
37	11.76
38	11.29
39	10.84

T °C	kΩ
51	6.78
52	6.53
53	6.53
54	6.53
55	6.29
56	6.06
57	5.84
58	5.43
59	5.05

T °C	kΩ
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

2.4.3. System

Not applicable.

2.4.4. Others

Not applicable.

2.5. Other capacity range

Not applicable.

Part 3. Repair

This part contains the following chapters:

Refrigerant repair procedures 87
Service tools 91
Unit specific repair procedures 92

3.1. Refrigerant repair procedures

Overview:

Refrigerant piping handling 87
Recovery procedure 87
Refrigerant pump down 89
Piping repair procedures 90

3.1.1. Refrigerant piping handling

- Make sure the applied pressure is never higher than the unit design pressure as indicated on the nameplate (PS).
- Work according the F-gas regulation and/or local regulations.
- Make sure the correct amount according the F-gas regulation label on the unit (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.
- R32 can be charged in gas phase.
- 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 / -1 bar for at least 1 hour.
  - Connect the unit according the available service ports, refer to "Recovery procedure" on page 87.
  - Use related field setting where necessary to open expansion valve/solenoid valve.

3.1.2. Recovery procedure

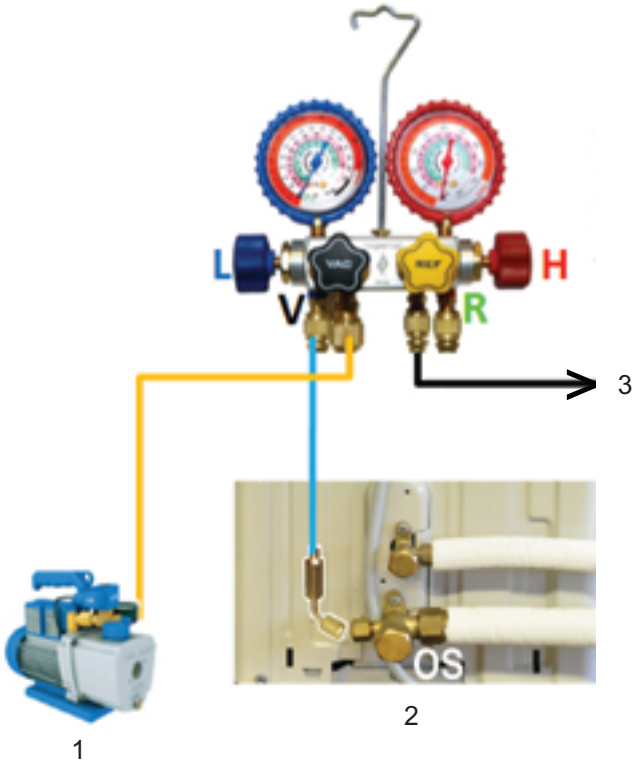
3.1.2.1. Outdoor unit casing

1. Switch off the Daikin unit 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 service port as shown below.

   For the location of the service ports, refer to "Outdoor unit" on page 179.

In case of 1 service port at the stop valves

Figure 3-1: 1 service port at the stop valves



1. Vacuum pump
2. Connect flexible hose to service port 3 stop valve
3. To recovery pump

INFORMATION

See instruction of the recovery pump supplier how to recover the refrigerant.

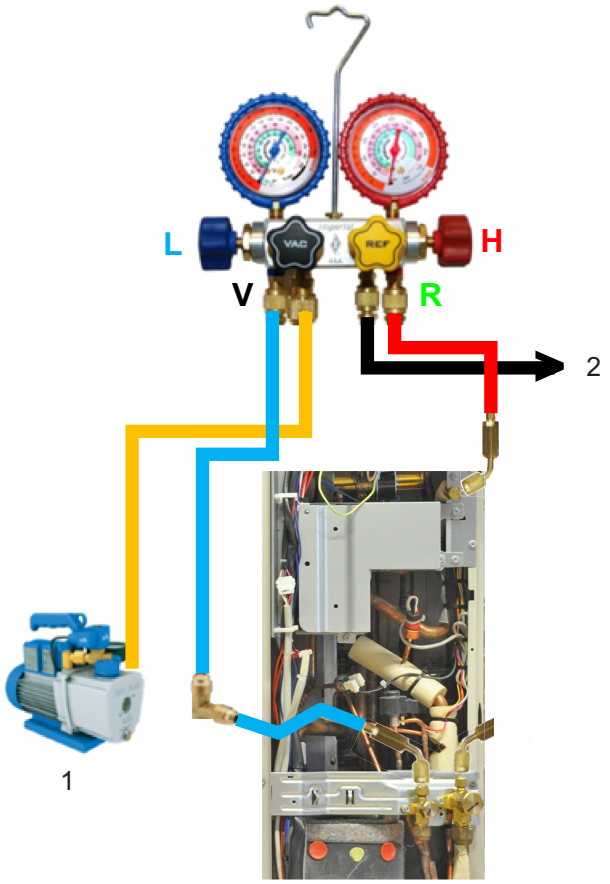
In case of 2 service ports at the stop valves

Connect both stop valve service ports to the manifold.

In case of 3 service ports at the stop valves

Connect 1 hose to the suction stop valve service port and 1 hose to the service port between the expansion valve and outdoor H/E.

Figure 3-2: 3 service ports at the stop valves



1. Vacuum pump	2. To recovery pump

INFORMATION

See instruction of the recovery pump supplier how to recover the refrigerant.

3.1.3. Refrigerant pump down

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

WARNING: RISK OF EXPLOSION

- When the refrigeration circuit has a leak, do not execute pump down with the compressor.
- Use recovery system into separate cylinder.
- Warning, explosive hazard exists when executing pump down.
- Pump down with compressor can lead to self-combustion due to air entering during pump down.

INFORMATION

Some outdoor units are equipped with a low pressure switch to protect the compressor by switching it off.

Never short-circuit the low pressure switch during pump down operation!

3.1.3.1. Small outdoor unit

1. Remove the valve lid from liquid stop valve and gas stop valve.
2. Carry out pump down operation.

	**CAUTION** Refer to Installer Reference Guide for 'Pump down operation' procedure.

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 manifold if vacuum is reached, close gas stop valve and forced cooling operation.

3.1.3.2. Large outdoor unit

1. Stop all demands for the Daikin unit.
2. Switch OFF / ON the power supply of the outdoor unit.
3. Carry out pump down operation.

	**CAUTION** Refer to Installer Reference Guide for 'Pump down operation' procedure.

4. The compressor and outdoor fan will start automatically.
5. Request heating via remote controller to prevent HE freeze-up.
6. a. Check on manifold if vacuum is reached, close gas stop valve and forced cooling operation.
   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” 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 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).

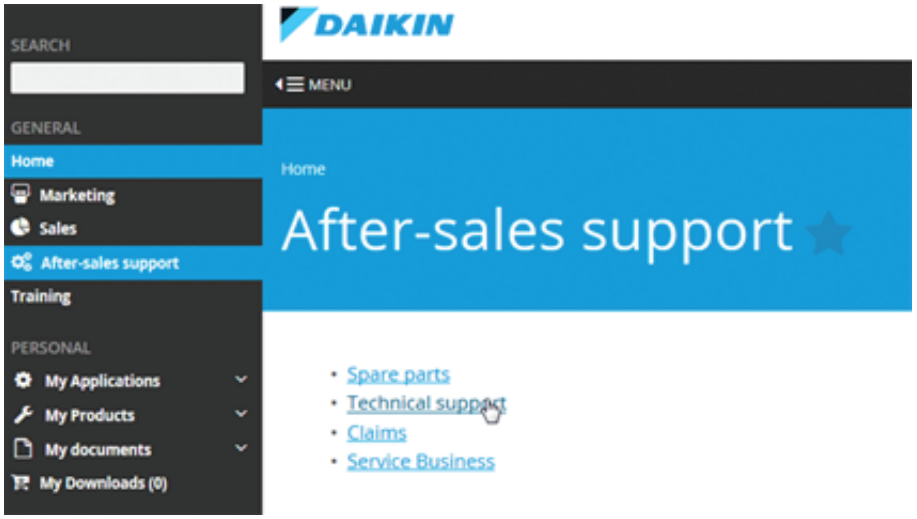
3.1.4. Piping repair procedures

- Make sure to cover open pipe ends during repair 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 just a drop of 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.
  - Flush the piping before brazing with nitrogen to avoid oxidation of the inside of the copper tubes (nitrogen purity ≥ 99,99%).

3.2. Service tools

For an overview of the applicable service tools, please check the Daikin Business Portal: http://www.mydaikin.eu

Go to the tab “After-sales support” on the left side and then select “Technical support”.



You will then find a button “Service tools” which gives you an overview on which service tool to use for which product. Also additional information on the service tool (instruction, latest software) can be found there.

3.3. Unit specific repair procedures

Overview:

Indoor unit ... 93
- Basic removal ... 93
- Replacing 3-way valve house ... 96
- Removing booster heater ... 97
- Replacing controller ... 98
- Replacing 3-way valve motor ... 99
- Replacing flow sensor ... 100
- Replacing hydro PCB ... 101
- Replacing pressure relief valve ... 103
- Replacing water pressure sensor ... 104
- Replacing pump motor ... 105
- Replacing RoCon BM1 PCB ... 106
- Replacing RTX-AL 4 PCB ... 108
- Replacing water thermistor ... 110

Outdoor unit ... 111
- Basic removal ... 111
- Removing switch box ... 124
- Replacing 4-way valve body ... 126
- Replacing 4-way valve coil ... 128
- Replacing accumulator assembly ... 129
- Replacing capacitor ... 131
- Replacing communication PCB ... 133
- Replacing compressor ... 135
- Replacing crankcase heater ... 138
- Replacing DC fan motor assembly ... 139
- Replacing expansion valve body ... 140
- Replacing expansion valve motor ... 141
- Replacing high pressure switch ... 143
- Replacing inverter PCB ... 144
- Replacing main PCB ... 148
- Replacing pressure sensor ... 156
- Replacing propeller fan blade assembly ... 157
- Replacing service PCB ... 159
- Replacing solenoid valve body ... 160
- Replacing solenoid valve coil ... 161
- Replacing thermistor ... 163

3.3.1. Indoor unit

3.3.1.1. Basic removal

3.3.1.1.1 Removing cover hood

PRELIMINARY ACTIONS

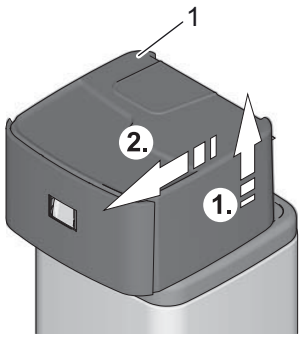
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

1. Lift the cover hood (1) at the back and remove to the front.

Figure 3-3: Removing the cover hood



1. Cover hood

Installation

1. Proceed in reverse order.

3.3.1.1.2 Removing top thermal insulation

CAUTION

The thermal insulation consist of pressure sensitive shaped EPP components that can easily be damaged by inappropriate handling.

- Carry out removal of the thermal insulation only in the sequence and in the directions quoted below.
- Do not use force.
- Do not use tools.

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

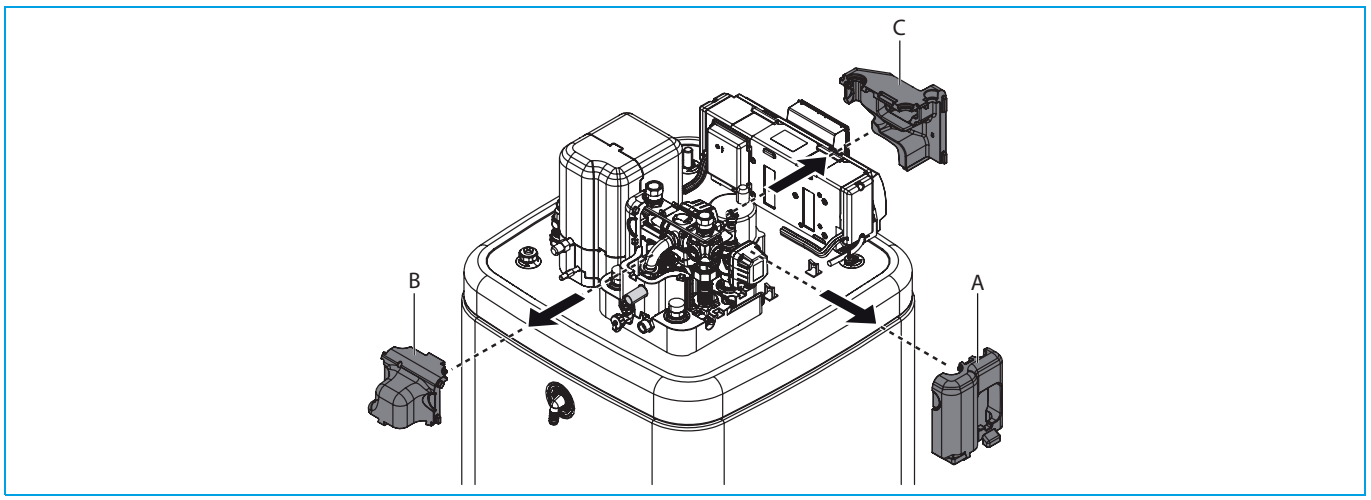
PROCEDURE

Removal

1. Remove the cover hood, refer to "Removing cover hood".
2. Remove the top thermal insulation in the following order

   - pull away the side insulation element (A) horizontally,
   - pull away the rear insulation element (B) horizontally,
   - pull away the front insulation element (C) horizontally.

Figure 3-4: Removing the top insulation



Installation

1. Proceed in reverse order.

3.3.1.1.3 Flipping over the switch box panel

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

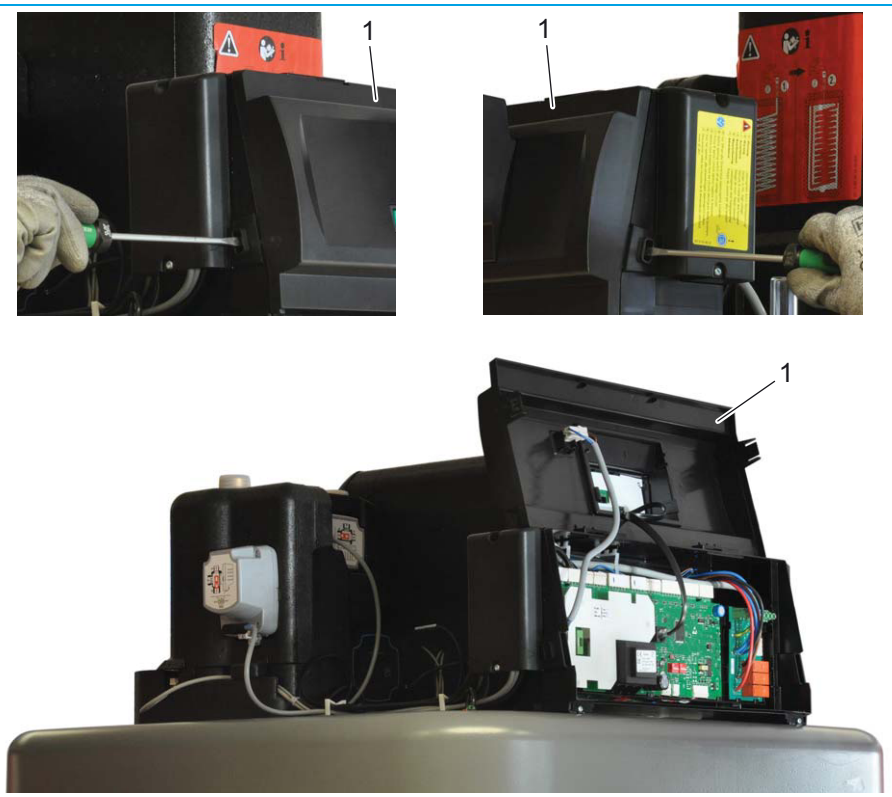
Removal

1. Remove the cover hood, refer to "Removing cover hood".
2. Unlatch the switch box panel (1) at the left and the right.

⚠	**CAUTION** The power switch and controller mounted on the switch box panel are wired to the unit.

3. Flip over the switch box panel (1) and locate it on the control housing.

Figure 3-5: Flip over the switch box panel



1. Switch box panel

Installation

1. Proceed in reverse order.

3.3.1.2. Replacing 3-way valve house

PRELIMINARY ACTIONS

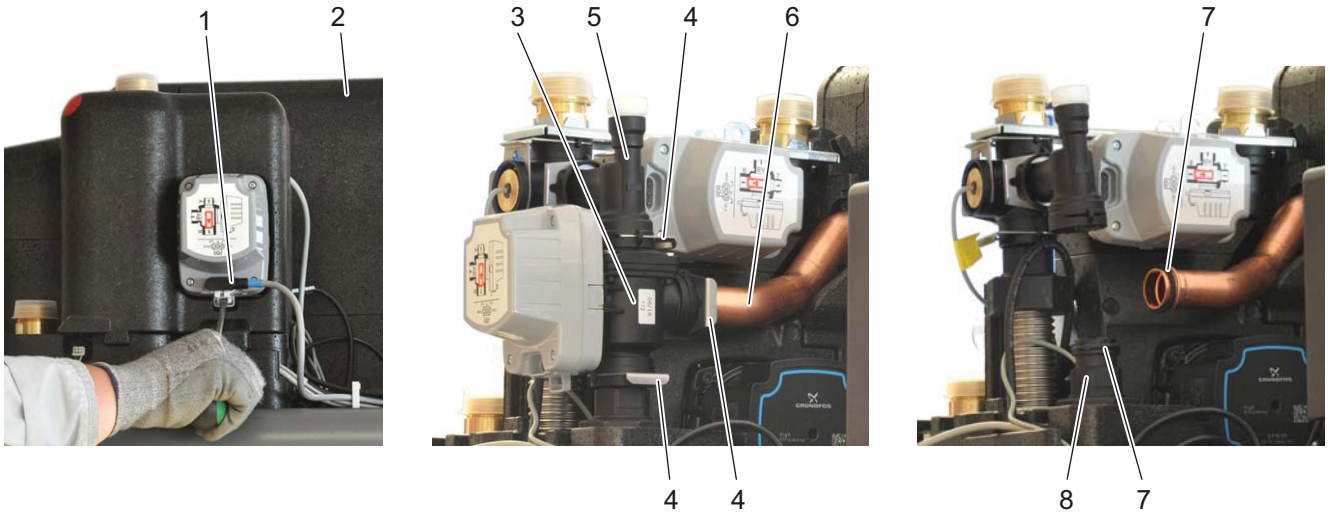
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the cover hood, refer to "Basic removal" on page 93.

PROCEDURE

Removal

1. Close the valves to separate the unit from the external piping.
2. Open the safety valve to drain the water from the hydro box.
3. Remove the connector (1) from the 3-way diverter valve 3UV DHW (3).
4. Remove the connector from the 3-way diverter valve 3UVB1.
5. Remove the insulation (2), refer to "Basic removal" on page 93.
6. Remove the 3 clips (4) from the 3-way diverter valve 3UV DHW (3).
7. Pull the upper pipe (5) and rear pipe (6) away from the 3-way diverter valve 3UV DHW (3).
8. Lift and remove the 3-way diverter valve 3UV DHW (3).
9. Remove the O-rings (7) from the rear pipe (6) and the bottom pipe (8).

Figure 3-6: Removing the 3-way diverter valve 3UV DHW



1. Connector
2. Insulation
3. 3-way diverter valve 3UV DHW
4. Clip
5. Upper pipe
6. Rear pipe
7. O-ring
8. Bottom pipe

Installation

> **CAUTION**
> Install new O-rings.

1. Proceed in reverse order.

3.3.1.3. Removing booster heater

Not available yet.

3.3.1.4. Replacing controller

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the cover hood, refer to "Removing cover hood" on page 93.

PROCEDURE

Removal

1. Unlatch the controller (1) on both sides and turn over the controller (1).
2. Unplug the connector (2) on the rear of the controller (1).
3. Remove the controller (1).

Figure 3-7: Removing the controller



1. Controller
2. Connector

Installation

1. Proceed in reverse order.

3.3.1.5. Replacing 3-way valve motor

PRELIMINARY ACTIONS

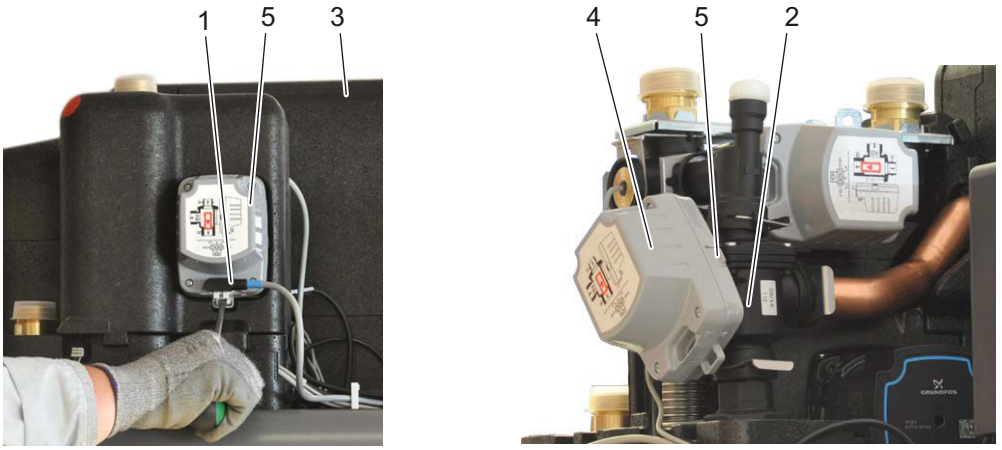
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the cover hood, refer to "Removing cover hood" on page 93.

PROCEDURE

Removal

1. Remove the connector (1) from the 3-way valve motor (5).
2. Remove the insulation (3) from the 3-way valve DHW, refer to "Removing top thermal insulation" on page 93.
3. Press the buttons (4) on both sides of the 3-way valve motor (5) and turn the 3-way valve motor (5) 45°.
4. Pull the 3-way valve motor (5) to detach it from the 3-way valve.

Figure 3-8: Removing the 3-way valve motor



1. Connector
2. 3-way valve DHW
3. Insulation
4. Button
5. 3-way valve motor

Installation

CAUTION

The 3-way valve motor connector must be at the bottom.

1. Proceed in reverse order.

3.3.1.6. Replacing flow sensor

PRELIMINARY ACTIONS

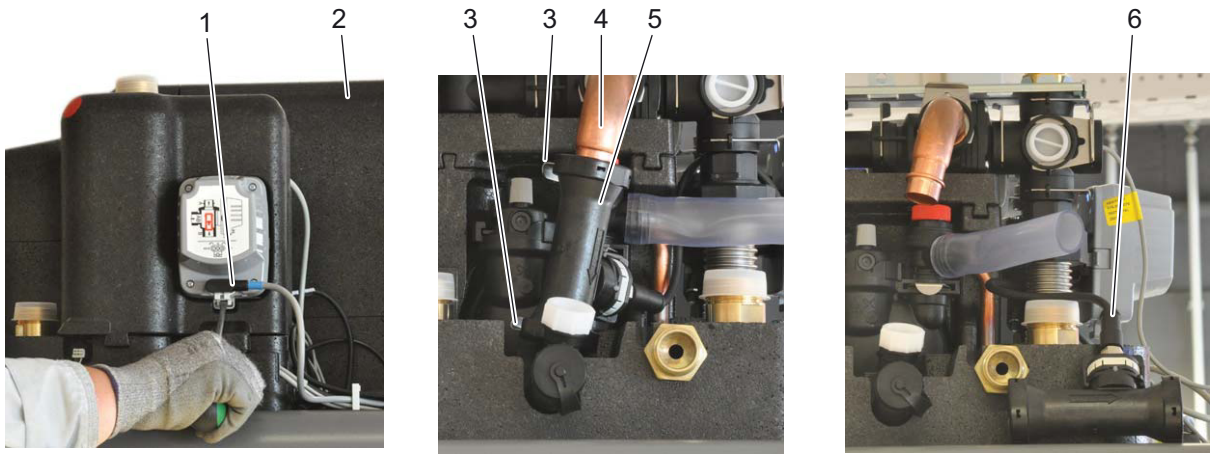
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the cover hood, refer to "Removing cover hood" on page 93.

PROCEDURE

Removal

1. Remove the connector (1) from the 3-way diverter valve 3UV DHW.
2. Remove the insulation (2) from the 3-way diverter valve 3UV DHW, refer to "Removing top thermal insulation" on page 93.
3. Close the valves to separate the unit from the external piping.
4. Open the safety valve to drain the water from the hydro box.
5. Remove the 2 clips (3) from the flow sensor (5).
6. Pull the upper pipe (4) from the flow sensor (5).
7. Remove the flow sensor (5) from the unit.
8. Unplug the connector (6) from the flow sensor (5).

Figure 3-9: Removing the flow sensor



1. Connector
2. Insulation
3. Clip
4. Upper pipe
5. Flow sensor
6. Flow sensor connector

Installation

⚠	**CAUTION** Install new O-rings.

⚠	**CAUTION** The arrow on the flow sensor must point downward.

1. Proceed in reverse order.

3.3.1.7. Replacing hydro PCB

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the cover hood, refer to "Basic removal" on page 93.

PROCEDURE

Removal

1. Remove the RoCon BM1 PCB, refer to "Replacing RoCon BM1 PCB" on page 106.

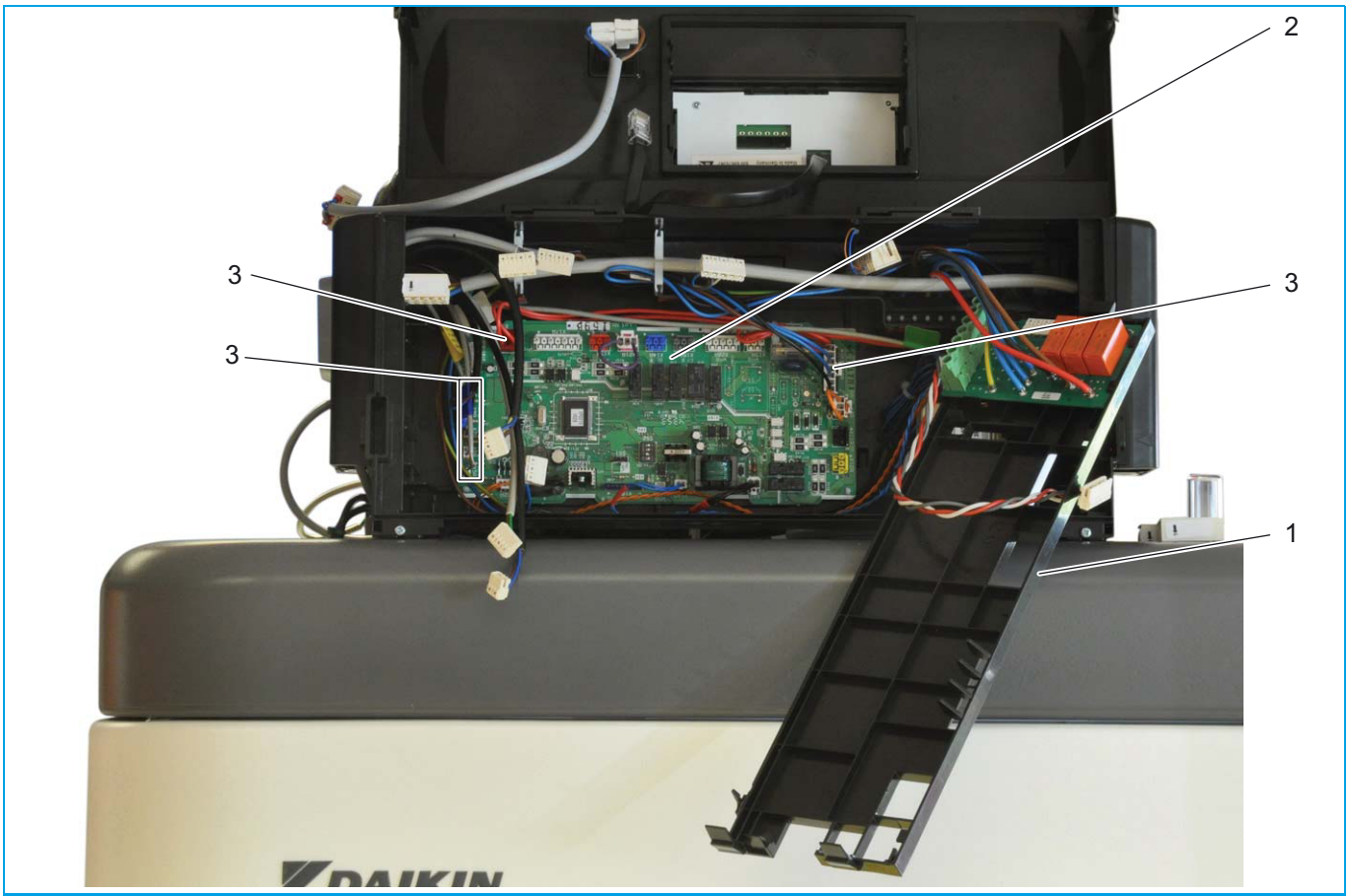
> **CAUTION**
> The RoCon BM1 PCB holder is still wired to the switch box.

2. Put the PCB holder (1) aside.

> **WARNING: RISK OF FIRE**
> When reconnecting a connector to the PCB, do not apply force or damage the connector or the connector pins on the PCB.

3. Unplug the connectors (2) from the Hydro PCB (3).

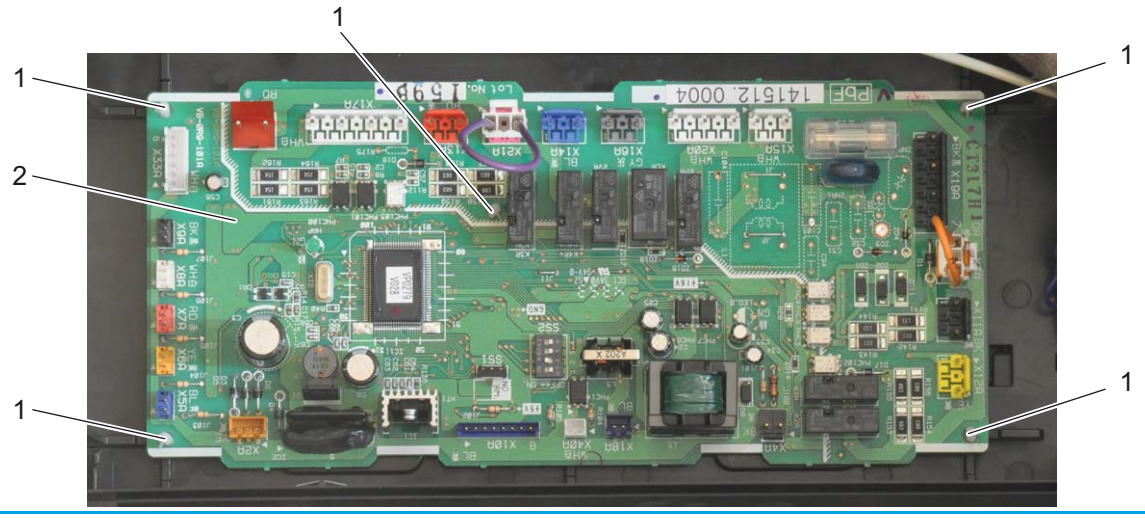
Figure 3-10: Removing the hydro PCB - 1



1. PCB holder
2. Connector
3. Hydro PCB

4. Unlatch the stand-offs (1) and remove the Hydro PCB (2).

Figure 3-11: Removing the hydro PCB - 2



1. Stand-off
2. Hydro PCB

Installation

1. Proceed in reverse order.

3.3.1.8. Replacing pressure relief valve

PRELIMINARY ACTIONS

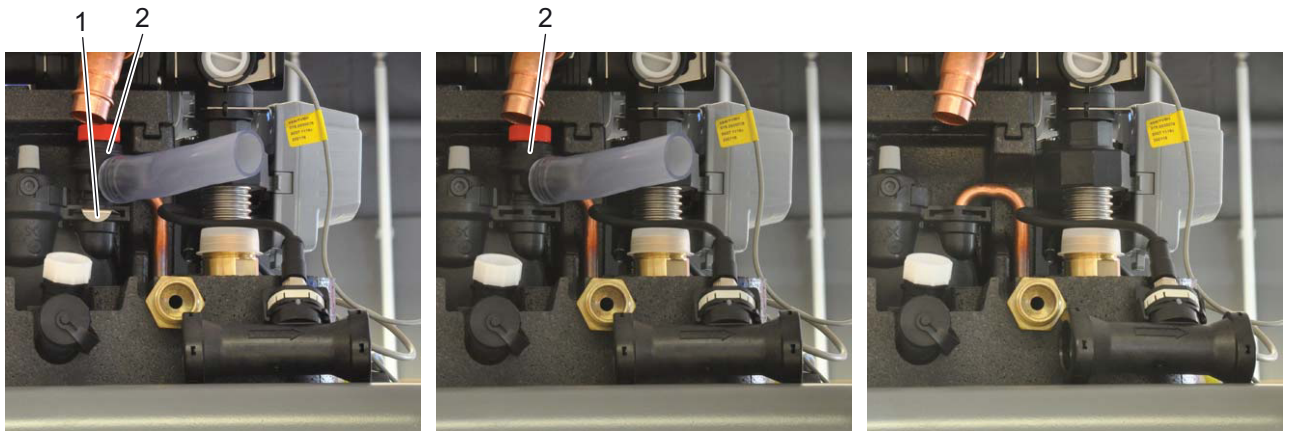
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

1. Remove the flow sensor, refer to "Replacing flow sensor" on page 100.
2. Remove the clip (1) from the pressure relief valve (2).
3. Remove the pressure relief valve (2) from the unit.

Figure 3-12: Removing the pressure relief valve



1. Clip
2. Pressure relief valve

Installation

CAUTION

Install a new O-ring.

1. Proceed in reverse order.

3.3.1.9. Replacing water pressure sensor

PRELIMINARY ACTIONS

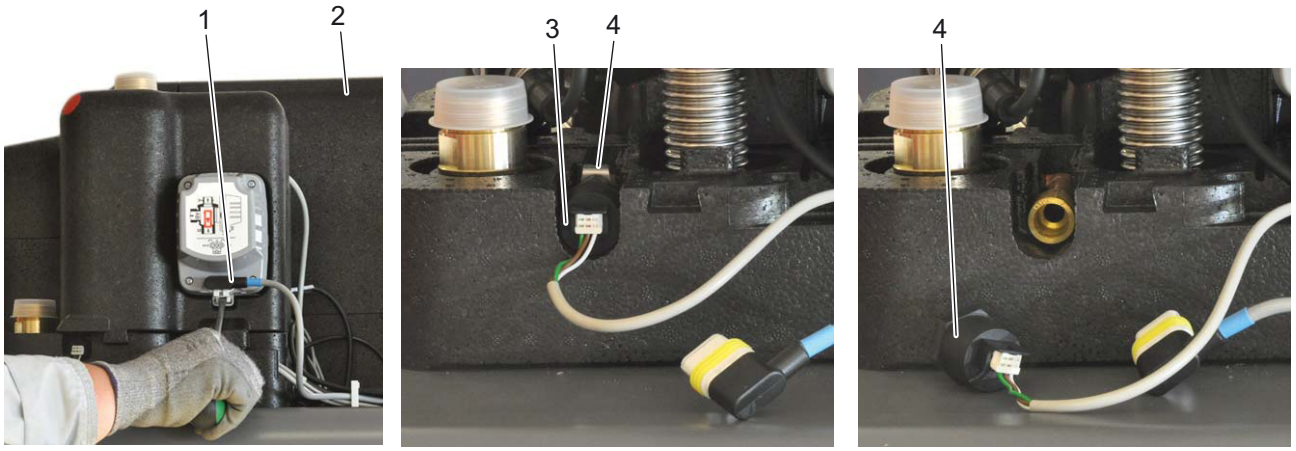
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the cover hood, refer to "Removing cover hood" on page 93.

PROCEDURE

Removal

1. Remove the connector (1) from the 3-way valve.
2. Remove the insulation (2) from the 3-way valve, refer to "Removing top thermal insulation" on page 93.
3. Close the valves to separate the unit from the external piping.
4. Open the safety valve to drain the water from the hydro box.
5. Remove the clip (3) from the water pressure sensor (4).
6. Pull the water pressure sensor (4) out of the unit.
7. Unplug the water pressure sensor wire from the Hydro PCB.

Figure 3-13: Removing the water pressure sensor



1. Connector
2. Insulation
3. Clip
4. Water pressure sensor

Installation

1. Proceed in reverse order.

3.3.1.10. Replacing pump motor

PRELIMINARY ACTIONS

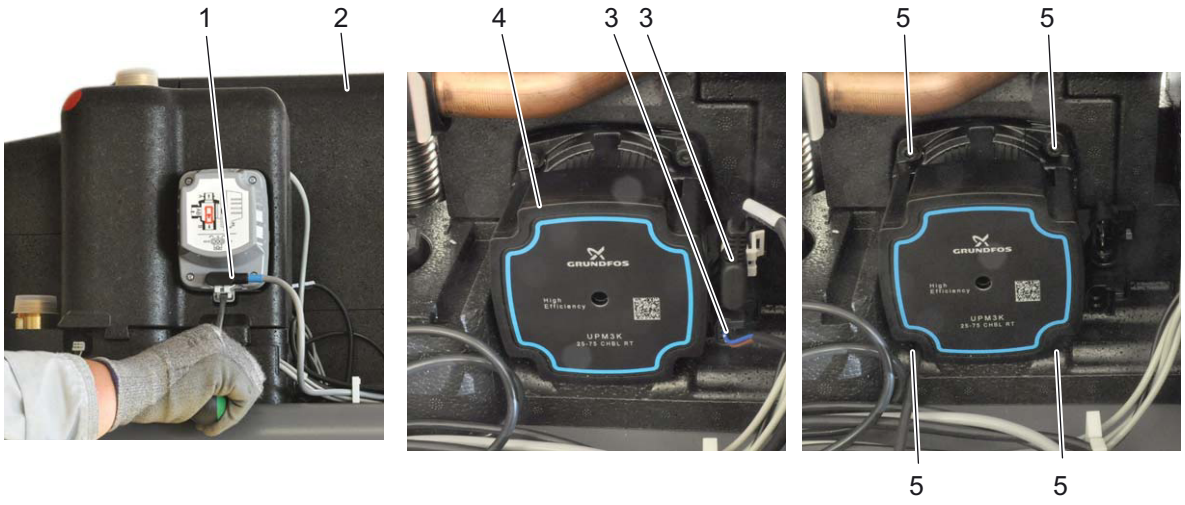
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the cover hood, refer to "Removing cover hood" on page 93.

PROCEDURE

Removal

1. Remove the connectors (1) from the 3-way diverter valves.
2. Remove the insulation (2) from the 3-way diverter valves, refer to "Removing top thermal insulation" on page 93.
3. Close the valves to separate the unit from the external piping.
4. Open the safety valve to drain the water from the hydro box.
5. Remove the 2 connectors (3) from the pump motor (4).
6. Loosen and remove the 4 screws (5) that fix the pump motor (4).
7. Remove the pump motor (4).

Figure 3-14: Removing the pump motor



1. Connector
2. Insulation
3. Connector
4. Pump motor
5. Screws

Installation

CAUTION

Install a new O-ring.

1. Proceed in reverse order.

3.3.1.11. Replacing RoCon BM1 PCB

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the cover hood, refer to "Removing cover hood" on page 93.
4. Flip over the switchbox cover, refer to "Flipping over the switch box panel" on page 94.

PROCEDURE

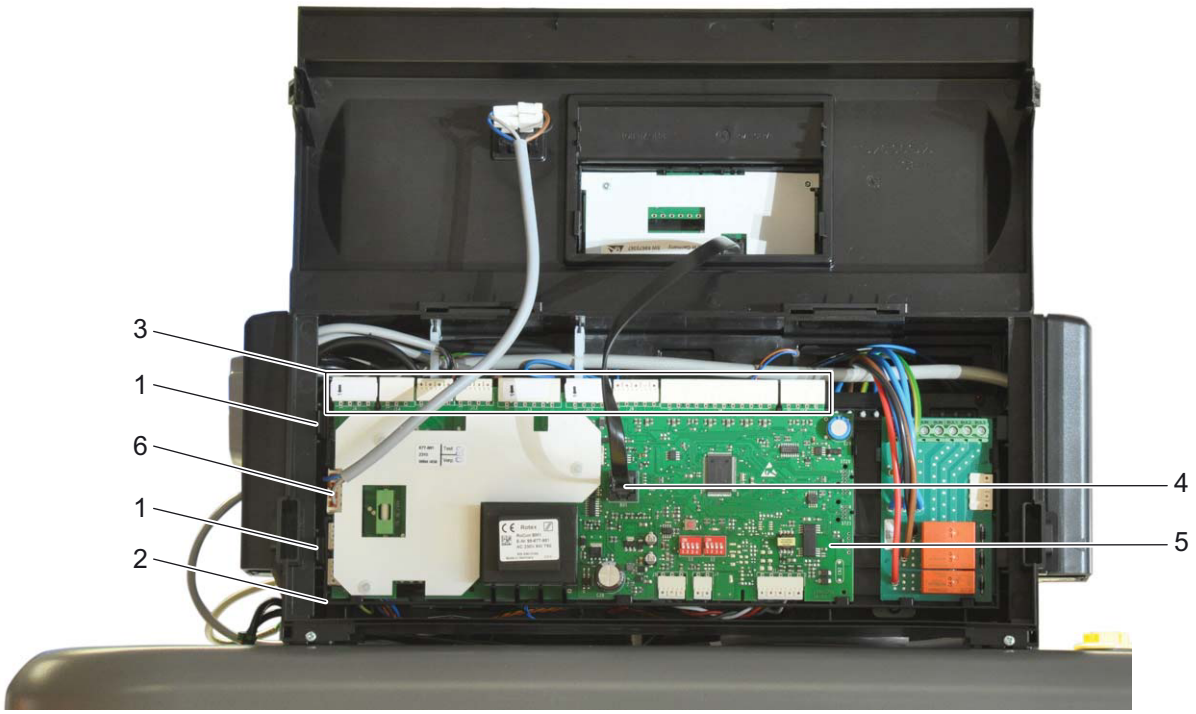
Removal

1. Release the PCB holder (2) by pressing the 2 fingers (1).
2. Unplug the white connectors (3) at the top of the RoCon BM1 PCB (4).

> **WARNING: RISK OF FIRE**
>
> When reconnecting a connector to the PCB, do not apply force or damage the connector or the connector pins on the PCB.

3. Unplug the remote connector (5) from the RoCon BM1 PCB (4).
4. Unplug the power switch connector (6) from the RoCon BM1 PCB (4).

Figure 3-15: Removing the RoCon BM1 PCB (1)



1. Finger	4. RoCon BM1 PCB
2. PCB holder	5. Remote connector
3. White connectors	6. Power switch connector

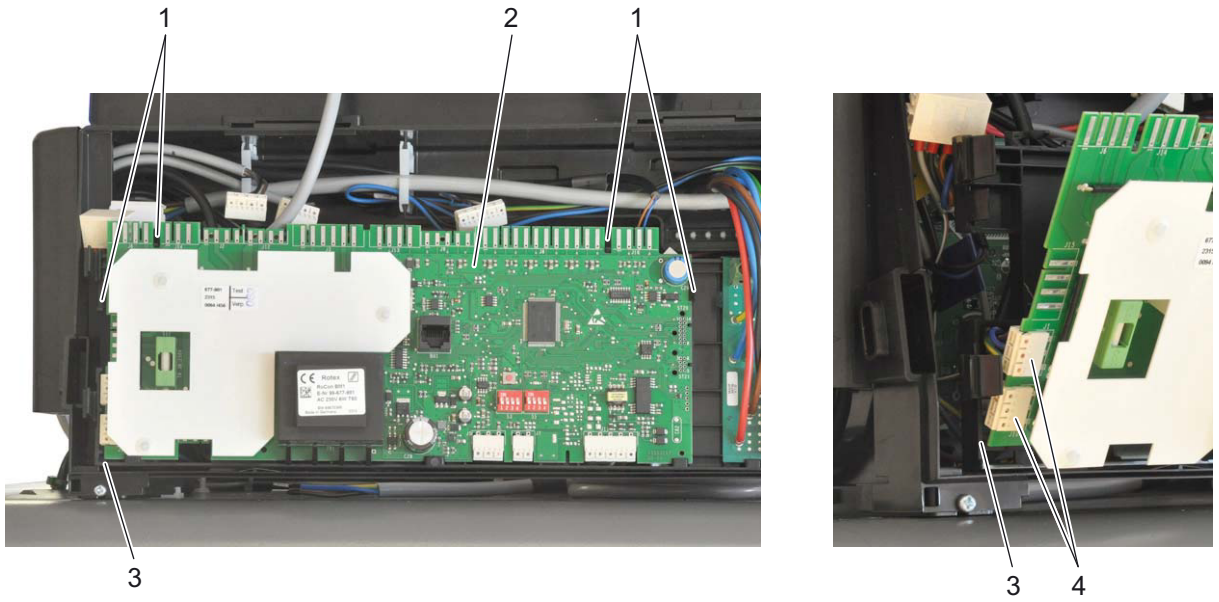
5. Unlock the 4 fingers (1) that fix the RoCon BM1 PCB (2) in the PCB holder (3).
6. Unplug the 2 white connectors (4) from the RoCon BM1 PCB (4).

WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force or damage the connector or the connector pins on the PCB.

7. Remove the RoCon BM1 PCB (2).

Figure 3-16: Removing the RoCon BM1 PCB (2)



1. Finger
2. RoCon BM1 PCB
3. RoCon BM1 PCB holder
4. White connectors

Installation

1. Proceed in reverse order.

3.3.1.12. Replacing RTX-AL 4 PCB

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the cover hood, refer to "Removing cover hood" on page 93.
4. Flip over the switch box panel, refer to "Flipping over the switch box panel" on page 94.

PROCEDURE

Removal

1. Release the PCB holder (1) by pressing the 2 fingers (2).

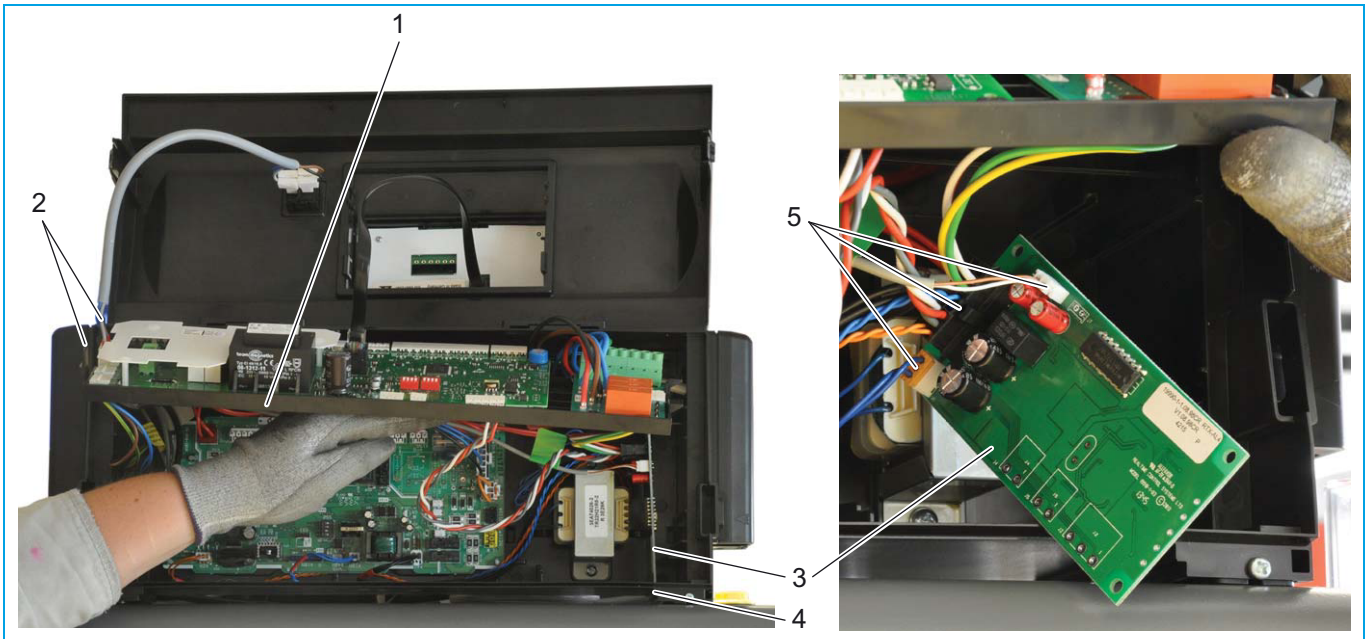
> **CAUTION**
> The PCB holder is still wired to the unit.

2. Rotate the PCB holder (1).
3. Remove the RTX-AL 4 PCB (3) from the RTX-AL 4 PCB slot (4).

> **WARNING: RISK OF FIRE**
> When reconnecting a connector to the PCB, do not apply force or damage the connector or the connector pins on the PCB.

4. Unplug the connectors (5) from the RTX-AL 4 PCB (3).

Figure 3-17: Removing the RTX-AL 4 PCB



1. PCB holder
2. Fingers
3. RTX-AL 4 PCB
4. RTX-AL 4 PCB slot
5. Connectors

Installation

	**CAUTION** Make sure to insert the RTX-AL 4 PCB into the RTX-AL 4 PCB slot.

1. Proceed in reverse order.

3.3.1.13. Replacing water thermistor

PRELIMINARY ACTIONS

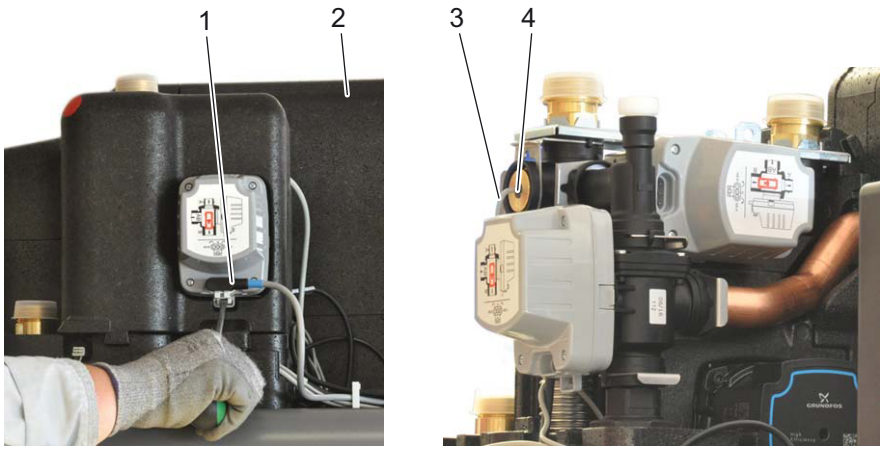
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the cover hood, refer to "Basic removal" on page 93.

PROCEDURE

Removal

1. Remove the connector (1) from the 3-way valve DHW (2).
2. Remove the insulation from the 3-way valve DHW, refer to "Basic removal" on page 93.
3. Pull the water thermistor wire (3) to remove the water thermistor (4) from the unit.
4. Unplug the thermistor wire from the Hydro PCB.

Figure 3-18: Removing the water thermistor



1. Connector
2. 3-way valve DHW
3. Water thermistor wire
4. Water thermistor

Installation

CAUTION

When installing the water thermistor, push the water thermistor until it bottoms out.

1. Proceed in reverse order.

3.3.2. Outdoor unit

3.3.2.1. Basic removal

Overview of basic removal:

Single fan outdoor unit 111
Double fan outdoor unit 117

3.3.2.1.1 Single fan outdoor unit

3.3.2.1.1.1 Removing the top plate

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

1. Loosen and remove the screw (1) that fixes the top plate (2) to the heat exchanger.
2. Loosen and remove the 2 screws (3) that fix the top plate (2) to the right side plate assembly.
3. Loosen and remove the screw (4) that fixes the top plate (2) to the front plate assembly.
4. 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 3-19: Removing the top plate



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

Installation

1. Proceed in reverse order.

3.3.2.1.1.2 Removing the front plate assembly

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

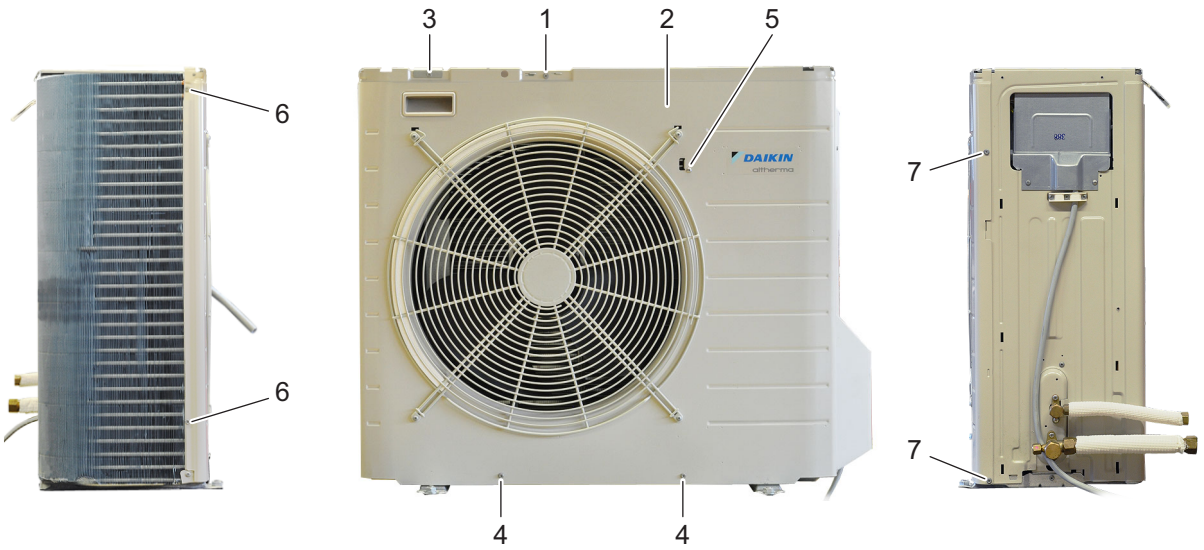
1. Remove the top plate, refer to "Removing the top plate" on page 111.
2. Loosen and remove the screw (1) that fixes the front plate assembly (2) to the fan motor stand assembly.
3. Loosen and remove the screw (3) that fixes the front plate assembly (2) to the top plate support.
4. Loosen and remove 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.

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

Figure 3-20: Removing the front plate assembly



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

Installation

1. Proceed in reverse order.

3.3.2.1.1.3 Removing the stop valve cover assembly

PRELIMINARY ACTIONS

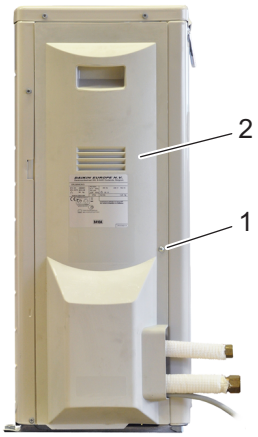
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

1. Loosen and remove the screws (1) that fixes the stop valve cover assembly (2).
2. Lift and remove the stop valve cover assembly (2) from the Daikin unit.

Figure 3-21: Removing the stop valve cover assembly



1. Screw	2. Stop valve cover assembly

Installation

1. Proceed in reverse order.

3.3.2.1.1.4 Removing the right side plate assembly

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

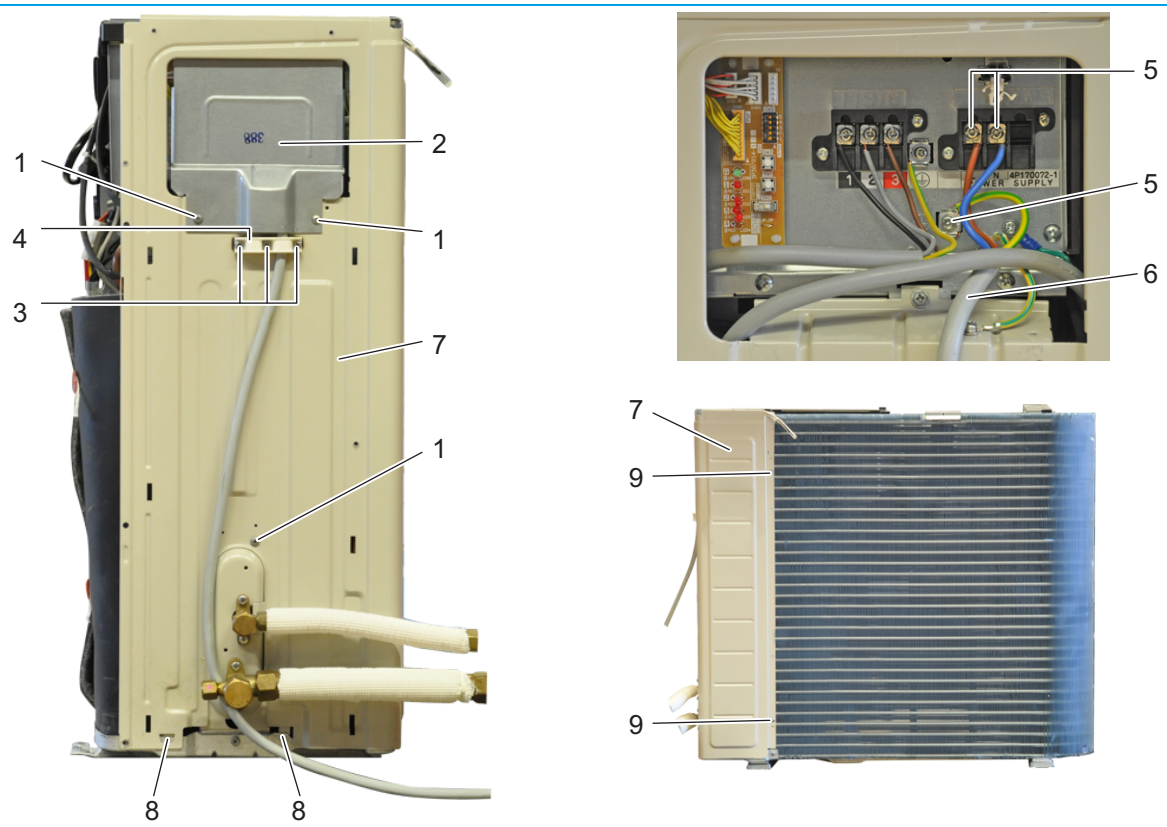
Removal

1. Remove the top plate, refer to "Removing the top plate" on page 111.
2. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 112.
3. Loosen and remove the 2 screws (1) that fix the shield plate (2).
4. Loosen and remove the 3 screws (3) that fix the wire clamp (4).
5. Loosen the 3 wire terminals (5) and remove the power cable (6).
6. Loosen and remove the 2 screws (9) that fix the wire clamp (7).
7. Lift and remove the right side plate assembly (7) from the Daikin unit.

CAUTION

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

Figure 3-22: 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

Installation

1. Proceed in reverse order.

3.3.2.1.1.5 Removing the compressor sound insulation

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

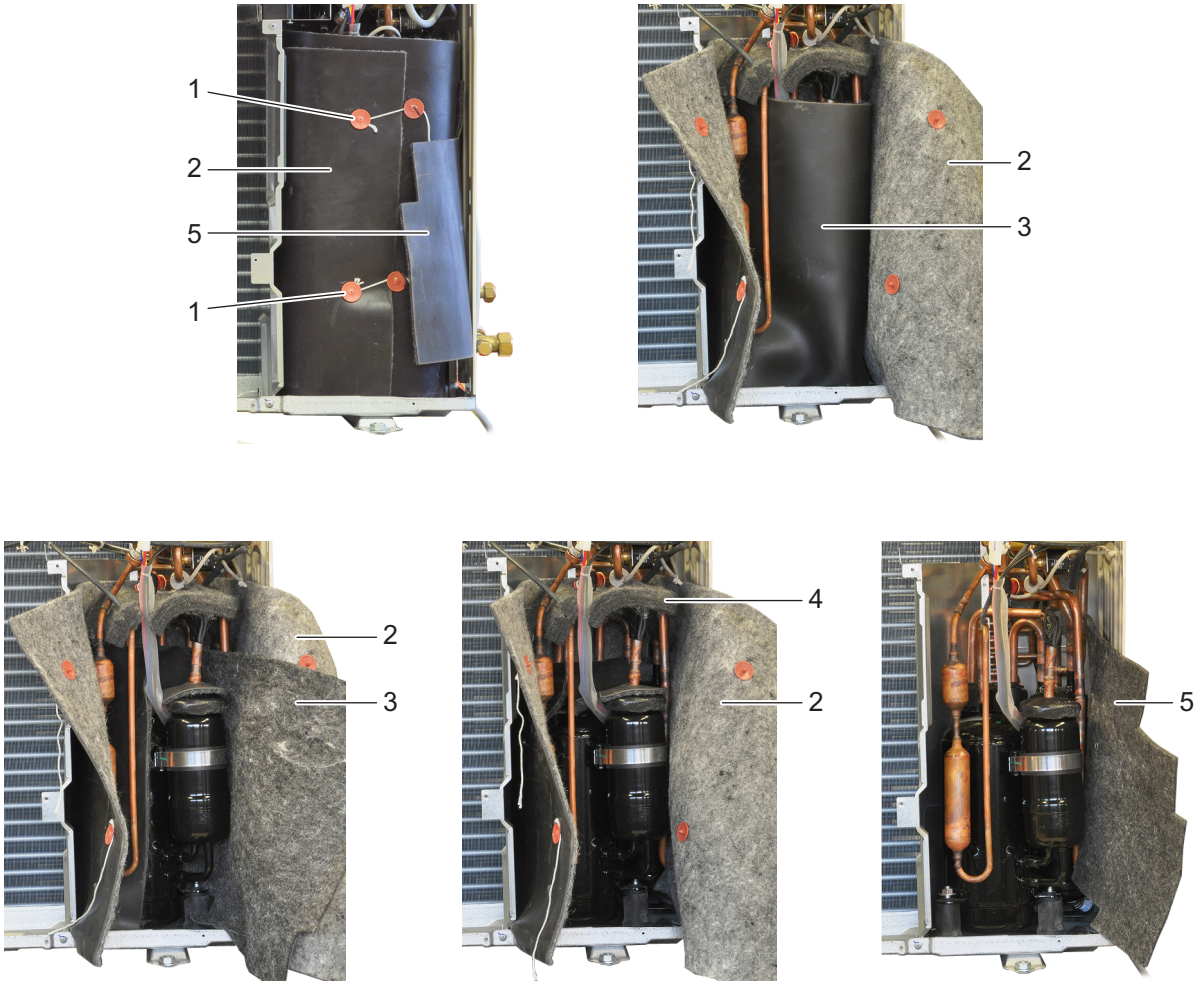
PROCEDURE

Removal

1. Remove the front plate assembly, refer to "Removing the front plate assembly" on page 112.
2. Untie the strings (1) and open the sound insulation (sleeve) (2).
3. Open the sound insulation (inner) (3).
4. Remove the sound insulation (inner) (3).
5. Remove the sound insulation (sleeve) (2).
6. Remove the sound insulation (top) (4).

7. Remove the sound insulation (back) (5).

Figure 3-23: Removing the compressor sound insulation



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

Installation

1. Proceed in reverse order.

3.3.2.1.2 Double fan outdoor unit

3.3.2.1.2.1 Removing the top plate assembly

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

1. Loosen and remove the 8 screws (1) that fix the top plate assembly (2).
2. Lift the top plate assembly (2) and remove it from the unit.

Figure 3-24: Removing the top plate assembly



1. Screw	2. Top panel

Installation

1. Proceed in reverse order.

3.3.2.1.2.2 Removing the front plate

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

1. Remove the top plate, refer to "Removing the top plate assembly".
2. Loosen and remove the screw (1) that fixes the front plate (2).
3. Lift the front plate (2) and remove it from the unit.

Figure 3-25: Removing the front plate



1. Screw
2. Front plate

Installation

1. Proceed in reverse order.

3.3.2.1.2.3 Removing the front plate assembly

INFORMATION

The front plate assembly includes:

- front plate assembly,
- air discharge grill (x2),
- bell mouth (2x)

PRELIMINARY ACTIONS

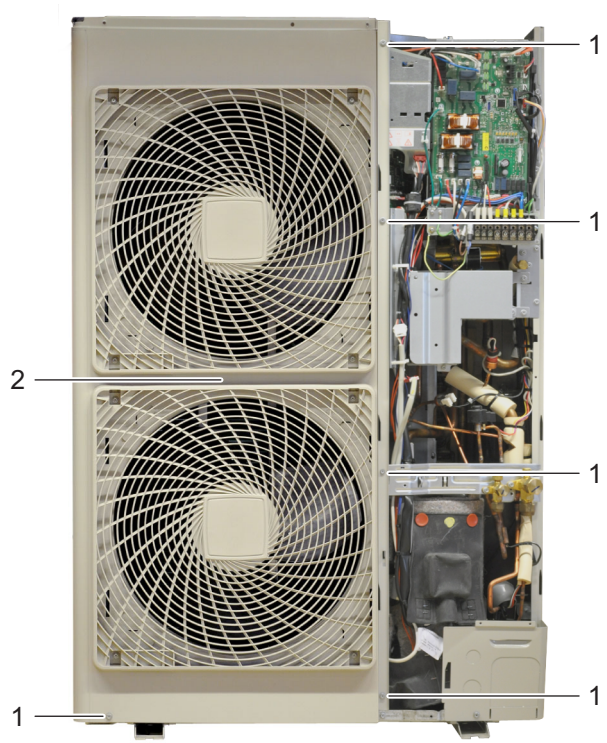
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

1. Remove the top plate, refer to "Removing the top plate assembly".
2. Loosen and remove the 5 screws (1) that fixes the front plate assembly (2).
3. Lift the front plate assembly (2) and remove it from the unit.

Figure 3-26: Removing the front plate assembly



1. Screw
2. Front plate assembly

Installation

1. Proceed in reverse order.

3.3.2.1.2.4 Removing the cover

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

1. Remove the top plate, refer to "Removing the top plate assembly".
2. Remove the front plate, refer to "Removing the front plate".
3. Loosen and remove the screw (1) that fixes the cover (2).
4. Remove the cover (2) from the unit.

Figure 3-27: Removing the cover



1. Screw	2. Cover

Installation

1. Proceed in reverse order.

3.3.2.1.2.5 Removing the piping cover (rear)

PRELIMINARY ACTIONS

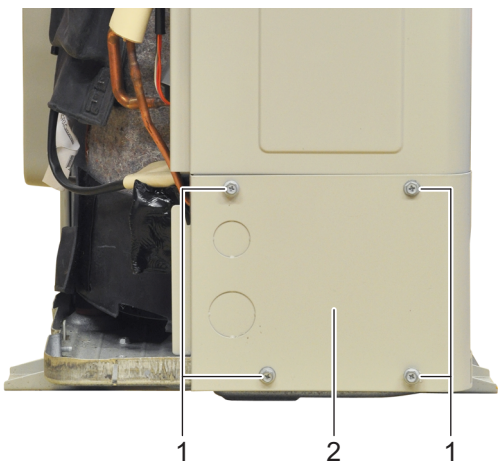
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

1. Remove the top plate, refer to "Removing the top plate assembly".
2. Remove the front plate, refer to "Removing the front plate".
3. Loosen and remove the screw (1) that fixes the cover (2).
4. Remove the cover (2) from the unit.

Figure 3-28: Removing the piping cover (rear)



1. Screw	2. Cover

Installation

1. Proceed in reverse order.

3.3.2.1.2.6 Removing the right side plate

PRELIMINARY ACTIONS

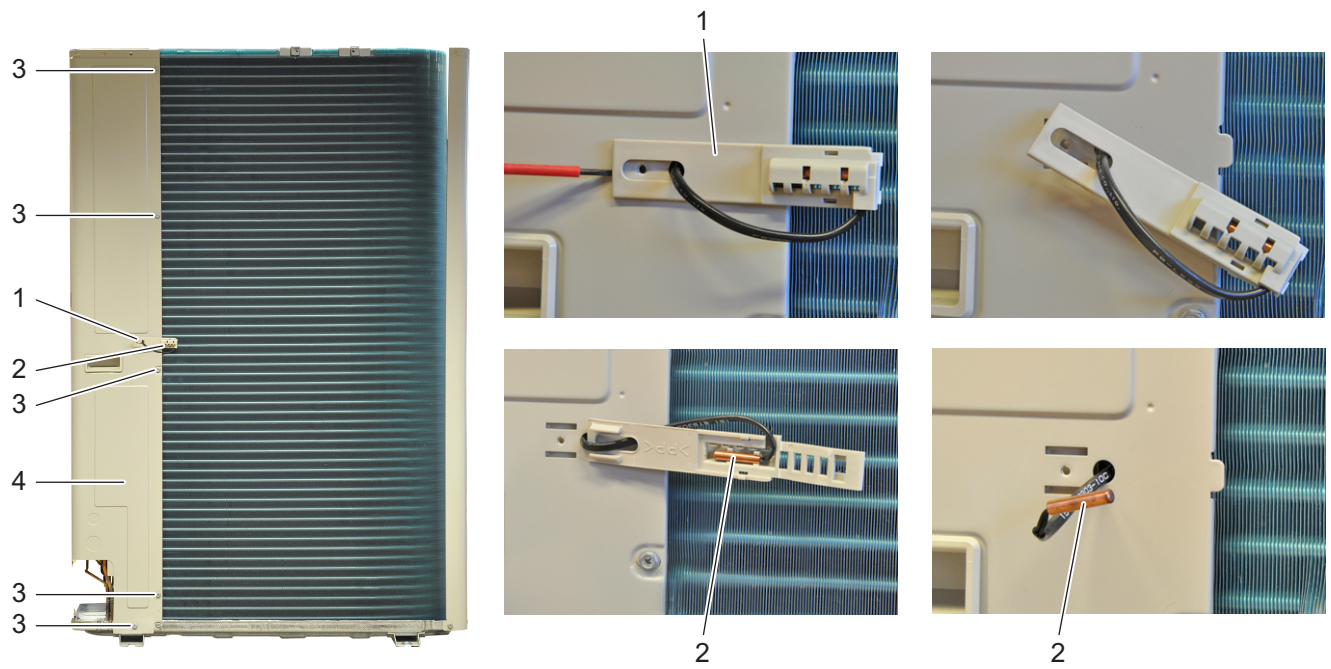
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

1. Remove the top plate, refer to "Removing the top plate assembly".
2. Remove the front plate, refer to "Removing the front plate".
3. Loosen the thermistor fixing plate (2).
4. Remove thermistor R1T (1) from the thermistor fixing plate (2).
5. Remove the thermistor fixing plate (2).
6. Guide the thermistor R1T (1) into the unit.
7. Loosen and remove the 5 screws (3) that fix the right side plate (4).
8. Remove the right side plate (4) from the unit.

Figure 3-29: Removing the right side plate



1. Thermistor R1T
2. Thermistor fixing plate
3. Screw
4. Right side plate

Installation

1. Proceed in reverse order.

3.3.2.1.2.7 Removing the compressor sound insulation

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

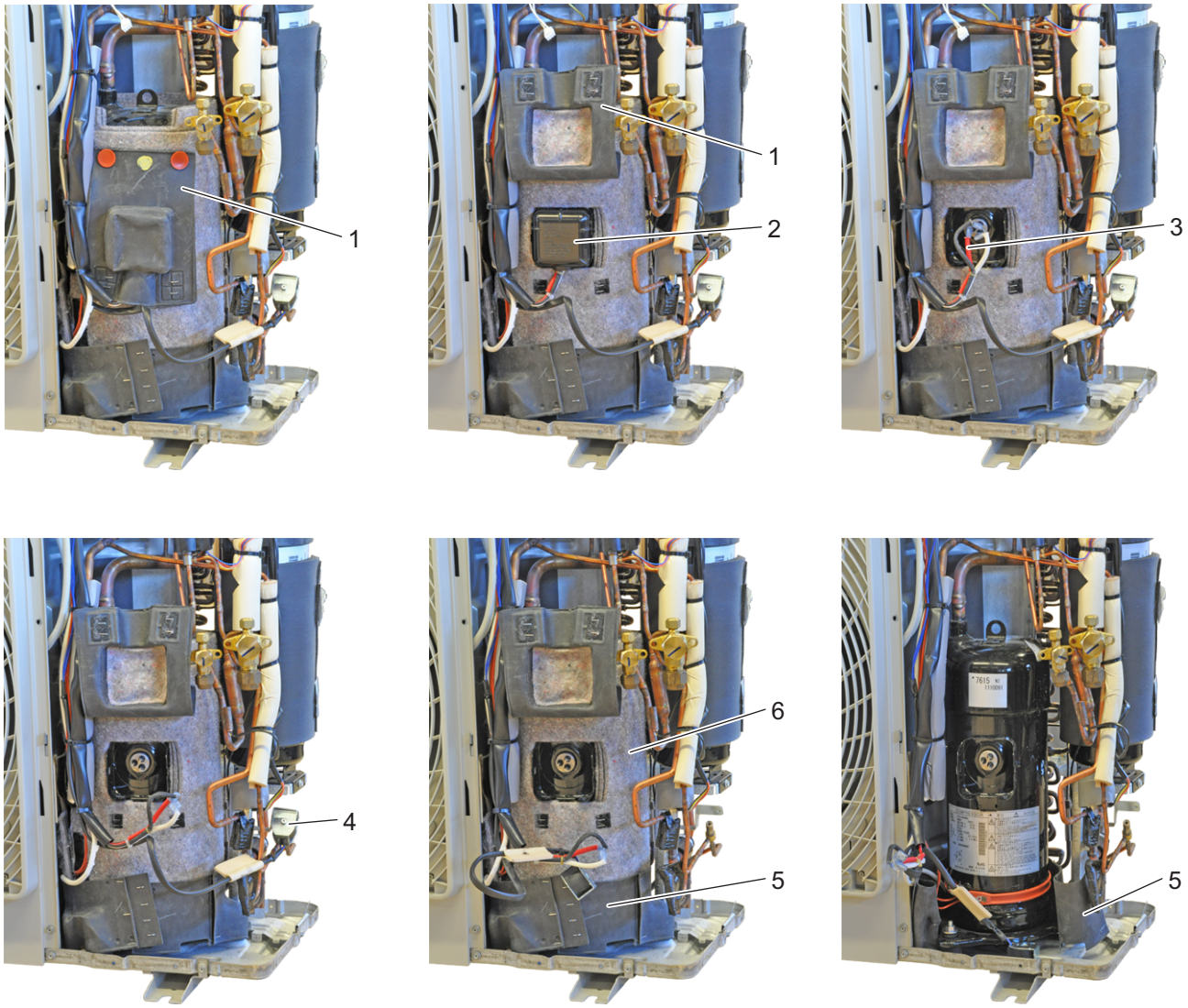
Removal

1. Remove the front plate, refer to "Removing the front plate".
2. Remove the cover, refer to "Removing the cover".
3. Remove the piping cover (rear), refer to "Removing the piping cover (rear)".
4. Remove the cover, refer to "Removing the cover".
5. Remove the right side plate, refer to "Removing the right side plate".
6. Flip the junction box sound insulation (1).
7. Using a flat screwdriver, remove the terminal cover (2).
8. Unplug the compressor wiring (3).
9. Remove solenoid valve Y3S coil (4), refer to "Replacing solenoid valve coil".

> **INFORMATION**
> DO NOT REMOVE the compressor foot cover (6).

10. Detach the velcro strip and remove the compressor sound insulation (5).

Figure 3-30: 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

Installation

1. Proceed in reverse order.

3.3.2.2. Removing switch box

INFORMATION
Removal procedure only applicable for single phase unit.

PRELIMINARY ACTIONS

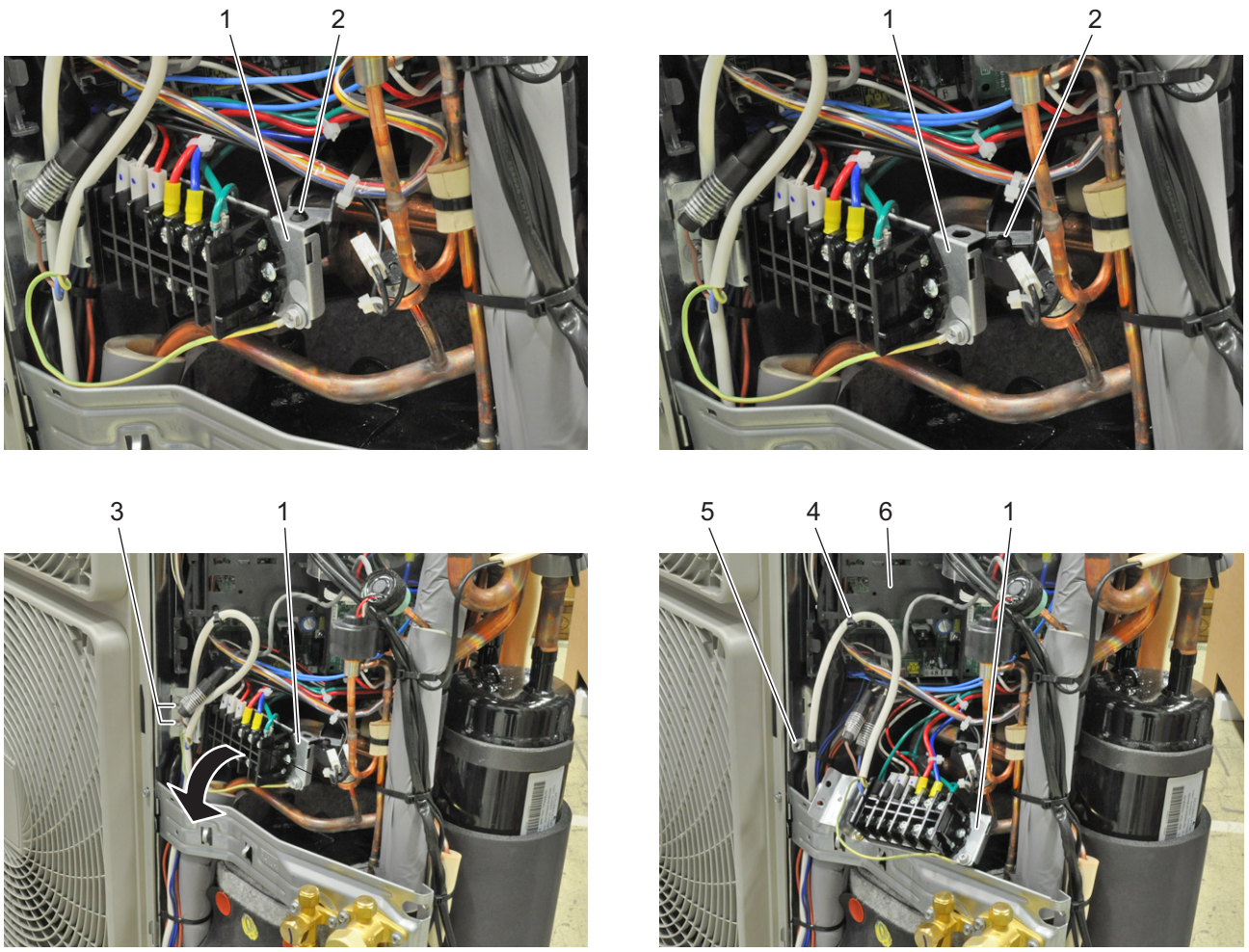
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

PROCEDURE

Removal

3. move plate work when required, refer to "Basic removal" on page 111.
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 3-31: Loosening the wire terminal support



1. Terminal mounting plate
2. Locking pin
4. Switch box
5. Cable clamp

3. Screw	6. Tie wrap

WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force or damage the connector or the connector pins on the PCB.

5. Disconnect connectors 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 3-32: Removing the switch box



1. Screw	2. Switch box

Installation

INFORMATION

Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

3.3.2.3. Replacing 4-way valve body

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Recovery procedure" on page 87.
4. Remove plate work when required (refer to "Basic removal" on page 111).

PROCEDURE

Removal

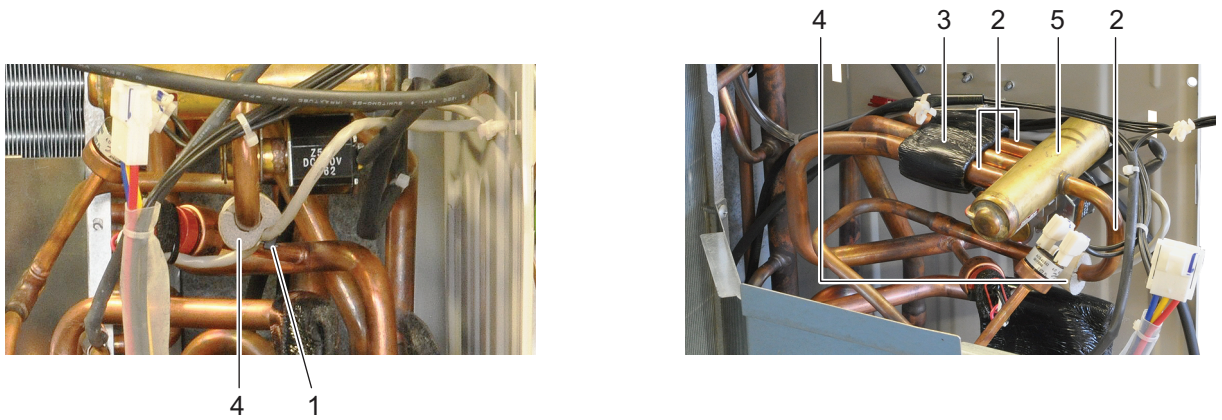
1. Remove any parts that block the way to the 4-way valve.

> **INFORMATION**
>
> Follow local regulations and Daikin refrigerant repair procedures during the repair of your unit, refer to "Refrigerant repair procedures" on page 87.

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

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

Figure 3-33: 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.

3.3.2.4. Replacing 4-way valve coil

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.
4. Remove any part that block the way to the 4-way valve coil.

PROCEDURE

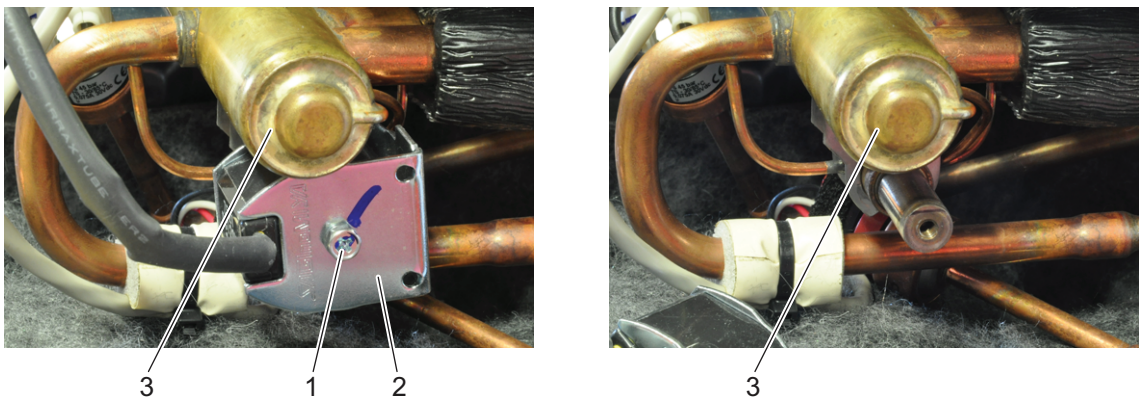
Removal

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.

	**WARNING: RISK OF FIRE** When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

3. Unplug 4-way valve connector from PCB.

Figure 3-34: Removing the 4-way valve coil



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

Installation

1. Proceed in reverse order.

3.3.2.5. Replacing accumulator assembly

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Recovery procedure" on page 87.
4. Remove plate work when required.
5. Remove any part that block the way to the accumulator.

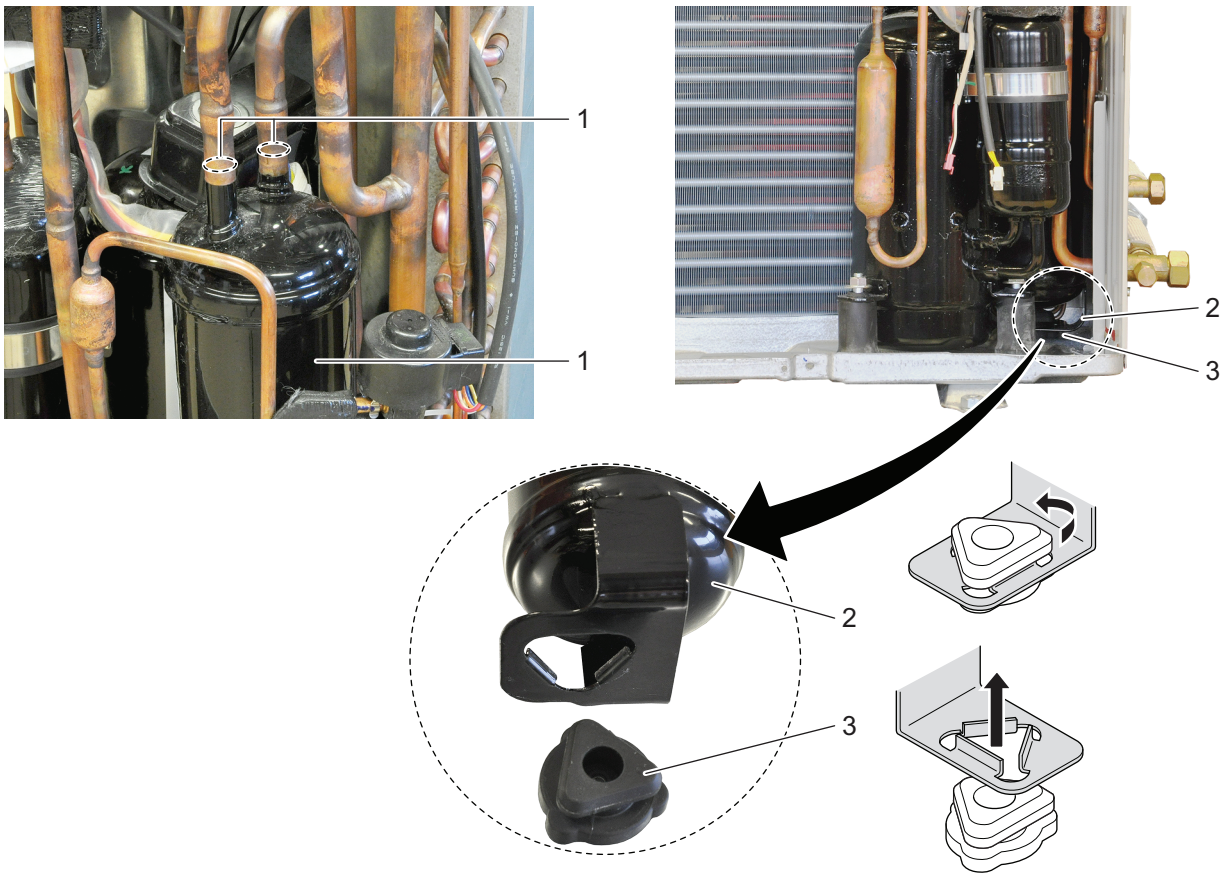
PROCEDURE

	**INFORMATION** Follow local regulations and Daikin refrigerant repair procedures during the repair of your unit, refer to "Refrigerant repair procedures" on page 87.
	**CAUTION** The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

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).
4. Follow local regulations and Daikin refrigerant repair procedures during the repair of your unit, refer to "Refrigerant repair procedures" on page 87.

Figure 3-35: Removing the accumulator assembly



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

Installation

1. Proceed in reverse order.

3.3.2.6. Replacing capacitor

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the switch box, refer to "Removing switch box" on page 124.
4. Remove the A3P PCB, refer to "Replacing communication PCB" on page 133.

PROCEDURE

Removal

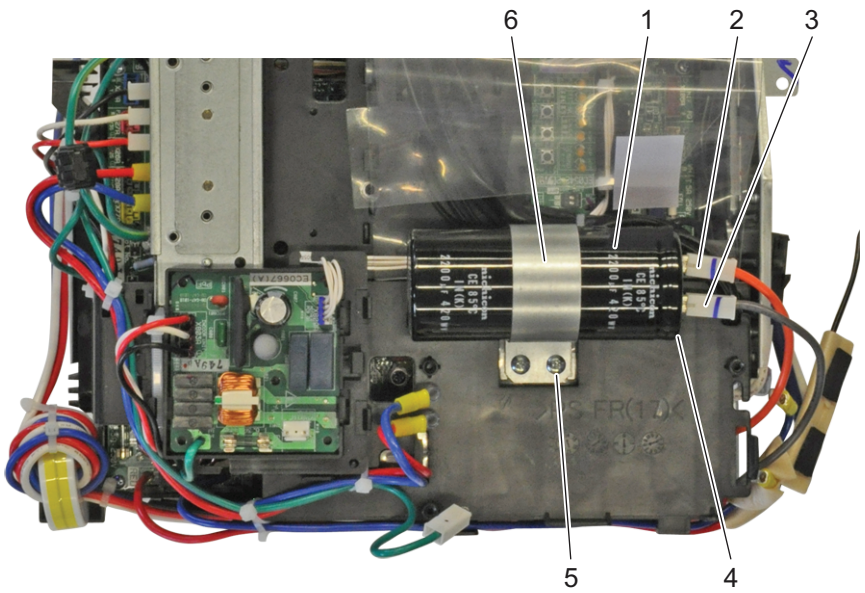
	**WARNING: HIGH VOLTAGE, RISK OF ELECTROCUTION** Capacitor C4 must be discharged (voltage below 10 V) before removal.

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 3-36: 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 not 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.

3.3.2.7. Replacing communication PCB

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the switch box, refer to "Removing switch box" on page 124.

PROCEDURE

Removal

> **INFORMATION**
>
> When removing the switch box as described in "Removing switch box" on page 124, most of the sensor and valves wiring illustrated in figure 3-37 on page 134 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 insulation sheet (2).

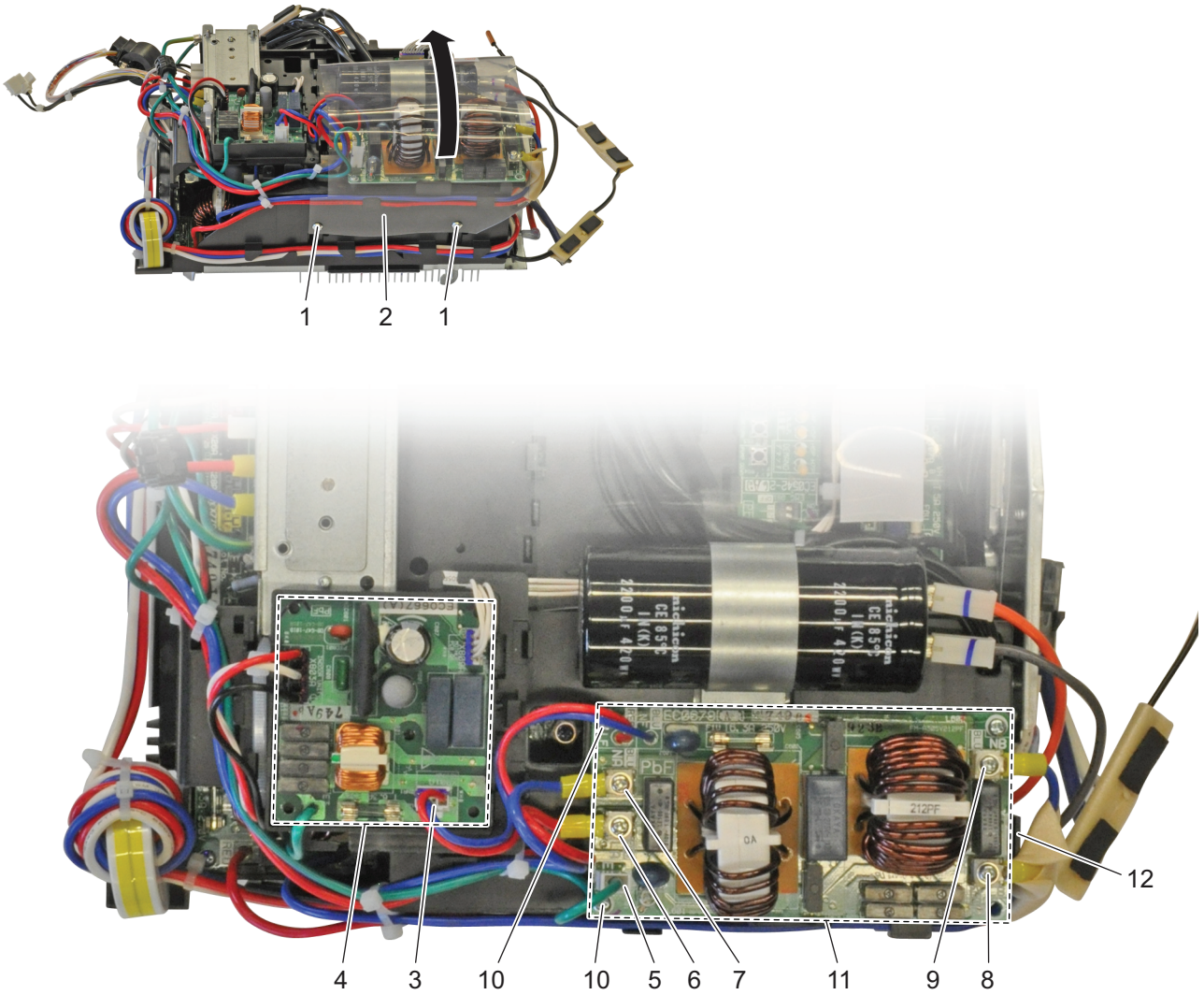
> **WARNING: RISK OF FIRE**
>
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

3. Disconnect connector X801A (3) on PCB A4P (4).

> **WARNING: RISK OF FIRE**
>
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

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 communication PCB (11).
7. Pull the latch (12) to release and remove the communication PCB (11).

Figure 3-37: Removing communication PCB



1. Screw
2. Insulation sheet
3. X801A
4. A4P PCB
5. Faston connector E
6. NA
7. LA
8. LB
9. NB
10. Screw
11. Communication PCB
12. Latch

Installation

1. Proceed in reverse order.

3.3.2.8. Replacing compressor

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Recovery procedure" on page 87.
4. Remove plate work when required.
5. Remove any part that blocks the way to the compressor.

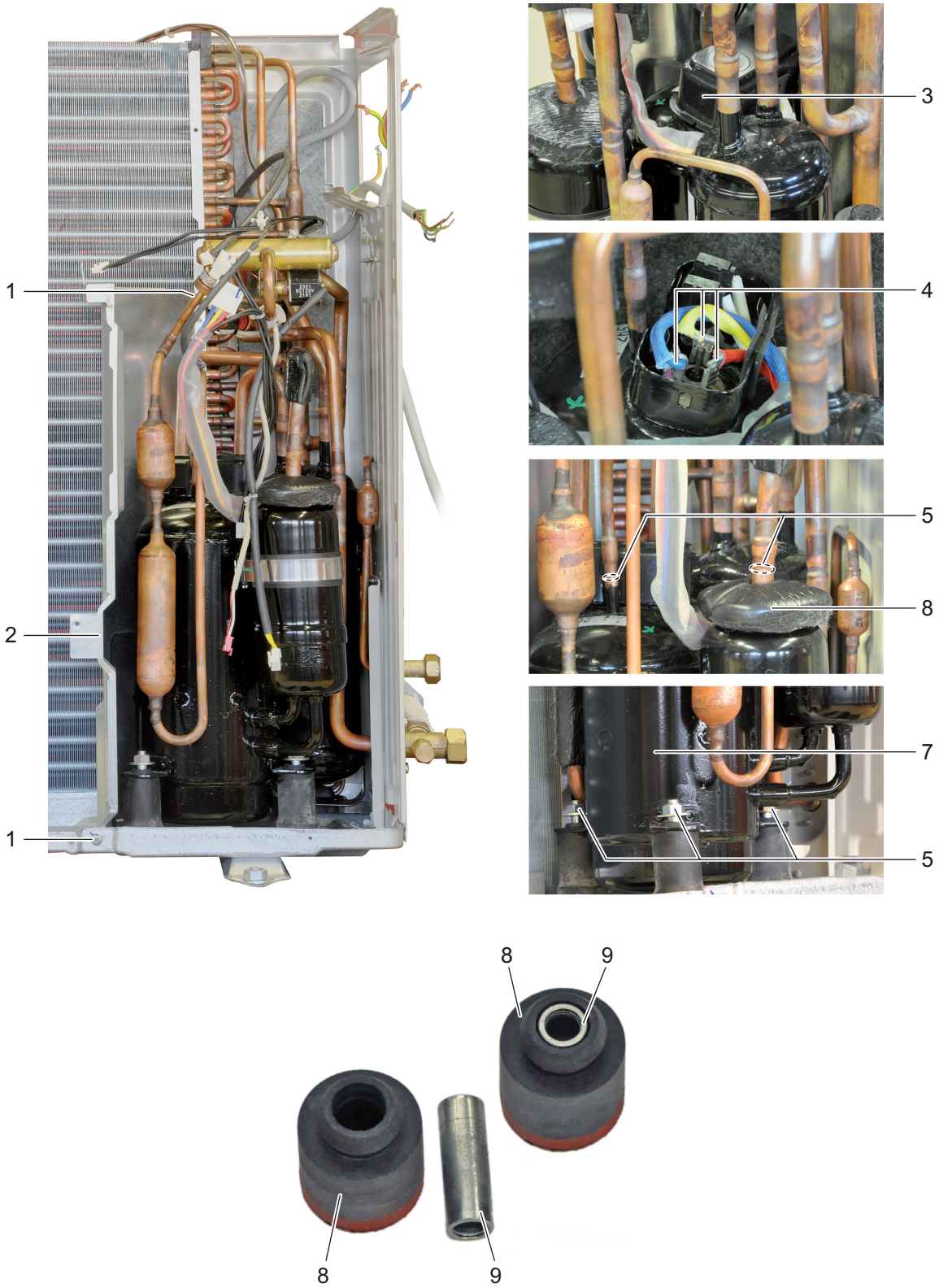
PROCEDURE

	**INFORMATION** Follow local regulations and Daikin refrigerant repair procedures during the repair of your unit, refer to "Refrigerant repair procedures" on page 87.
	**CAUTION** The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

Removal

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

Figure 3-38: Removing the compressor



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

3.3.2.9. Replacing crankcase heater

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.
4. Remove the compressor sound insulation.

PROCEDURE

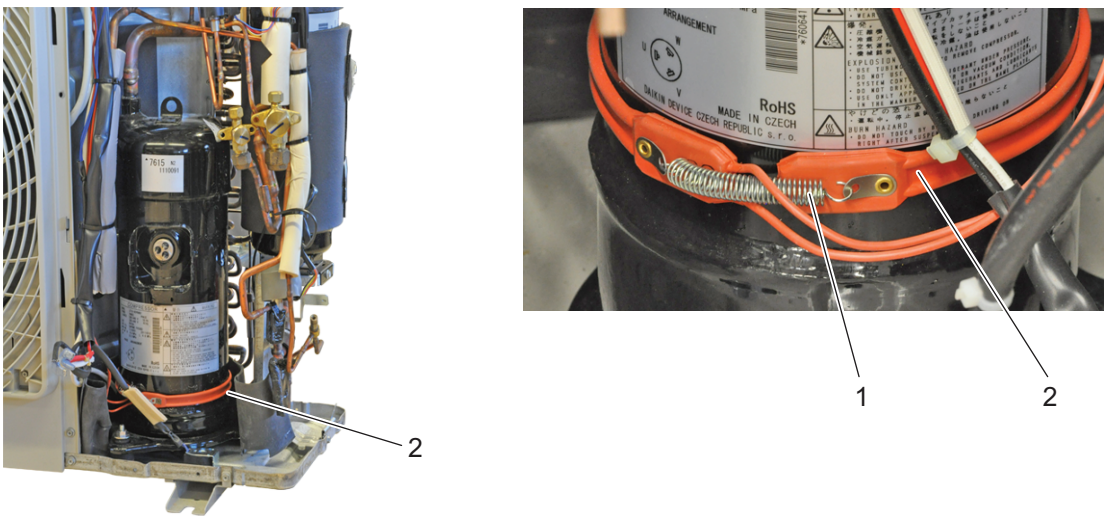
Removal

WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

1. Unplug crankcase heater connector from PCB.
2. Detach the spring (1) that fixes the crankcase heater (2) on the compressor.
3. Cut all tie wraps that fix the crankcase heater wiring.
4. Remove the crankcase heater.

Figure 3-39: 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.

3.3.2.10. Replacing DC fan motor assembly

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the propeller fan blade assembly, refer to "Replacing propeller fan blade assembly" on page 157.

PROCEDURE

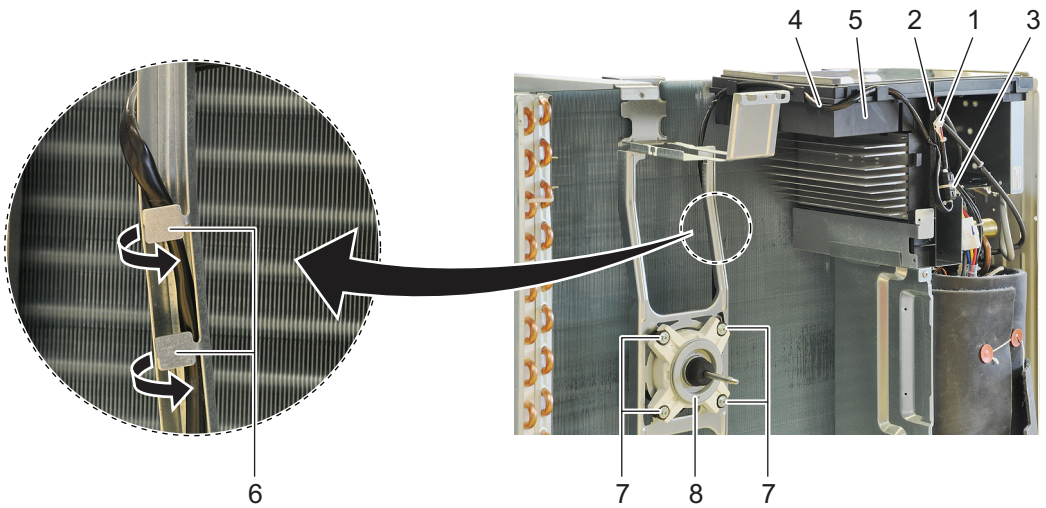
Removal

WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

1. Unplug fan motor connector (1) from PCB (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 screws (7) that fix the DC fan motor assembly (8).
6. Remove the DC fan motor assembly (8).

Figure 3-40: Removing the DC fan motor assembly



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

Installation

1. Proceed in reverse order.

3.3.2.11. Replacing expansion valve body

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the expansion valve motor, refer to "Replacing expansion valve motor" on page 141.
4. Remove plate work when required.
5. Remove any part that block the way to the expansion valve body.

PROCEDURE

INFORMATION

Follow local regulations and Daikin refrigerant repair procedures during the repair of your unit, refer to "Refrigerant repair procedures" on page 87.

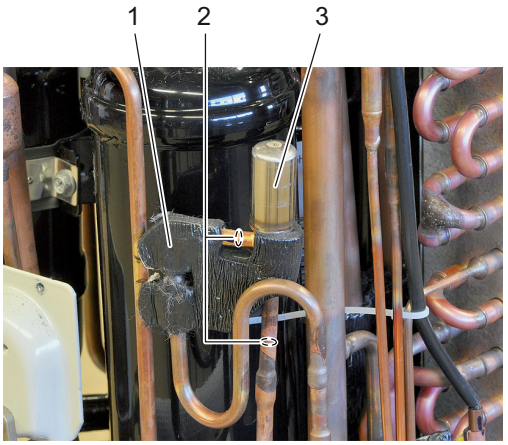
CAUTION

The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

Removal

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

Figure 3-41: Removing the expansion valve



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

Installation

WARNING

Overheating the expansion valve body will damage or destroy it.

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

INFORMATION

Install the putty on the expansion valve body piping.

2. Proceed in reverse order.

3.3.2.12. Replacing expansion valve motor

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.
4. Remove any part that block the way to the expansion valve motor.

PROCEDURE

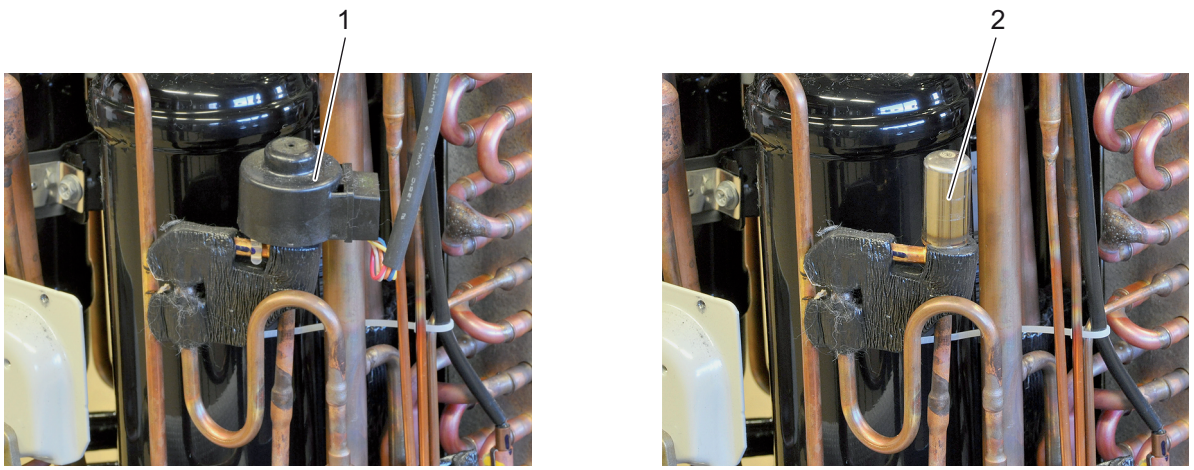
Removal

WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

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

Figure 3-42: Removing the expansion valve motor



1. Expansion valve motor
2. Expansion valve

Installation

INFORMATION

Replace all tie wraps that were cut during removal.

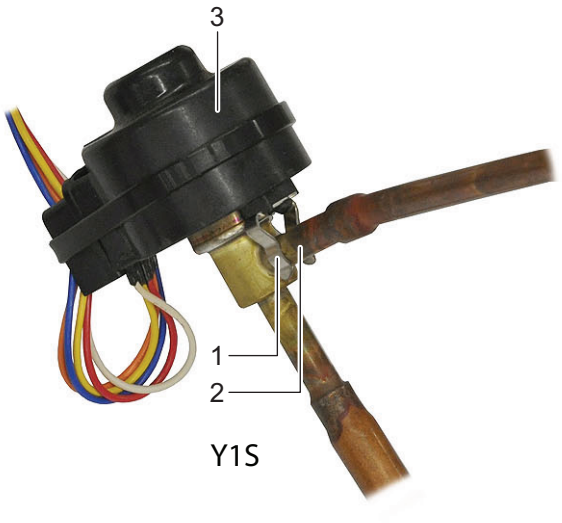
1. Proceed in reverse order.

INFORMATION

The expansion valve 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 motor (3).

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

Figure 3-43: Locking the expansion valve motor



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

3.3.2.13. Replacing high pressure switch

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Recovery procedure" on page 87.
4. Remove plate work when required.
5. Remove any part that block the way to the high pressure switch.

PROCEDURE

INFORMATION

Follow local regulations and Daikin refrigerant repair procedures during the repair of your unit, refer to "Refrigerant repair procedures" on page 87.

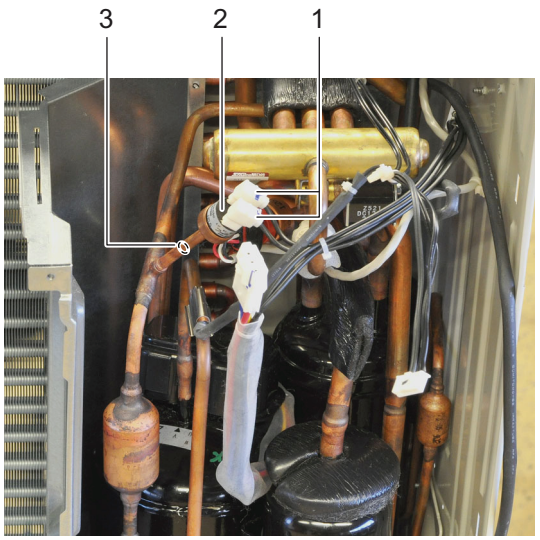
CAUTION

The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

Removal

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

Figure 3-44: Removing the high pressure switch



1. Connector
2. High pressure switch
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.

3.3.2.14. Replacing inverter PCB

Overview of replacing inverter PCB:

Single fan outdoor unit..... 144
Double fan outdoor unit - single phase - three phase..... 146

3.3.2.14.1 Single fan outdoor unit

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the PCB assembly main, refer to "Replacing main PCB" on page 148.

PROCEDURE

Removal

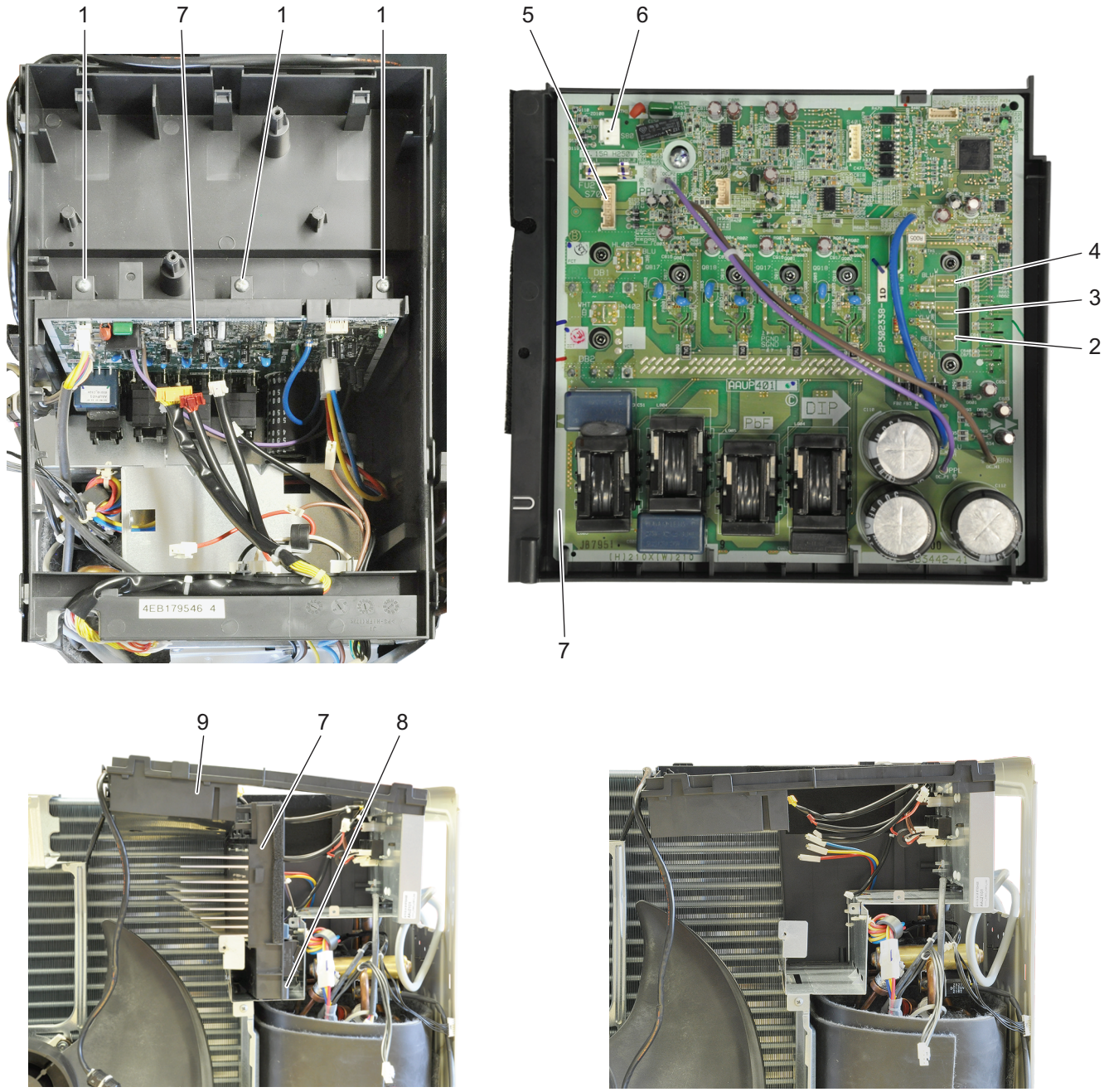


WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

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

Figure 3-45: 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.

3.3.2.14.2 Double fan outdoor unit - single phase - three phase

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 111).

PROCEDURE

Removal

	**WARNING: RISK OF FIRE** When reconnecting a connector to the PCB, do not apply force or damage the connector or the connector pins on the PCB.

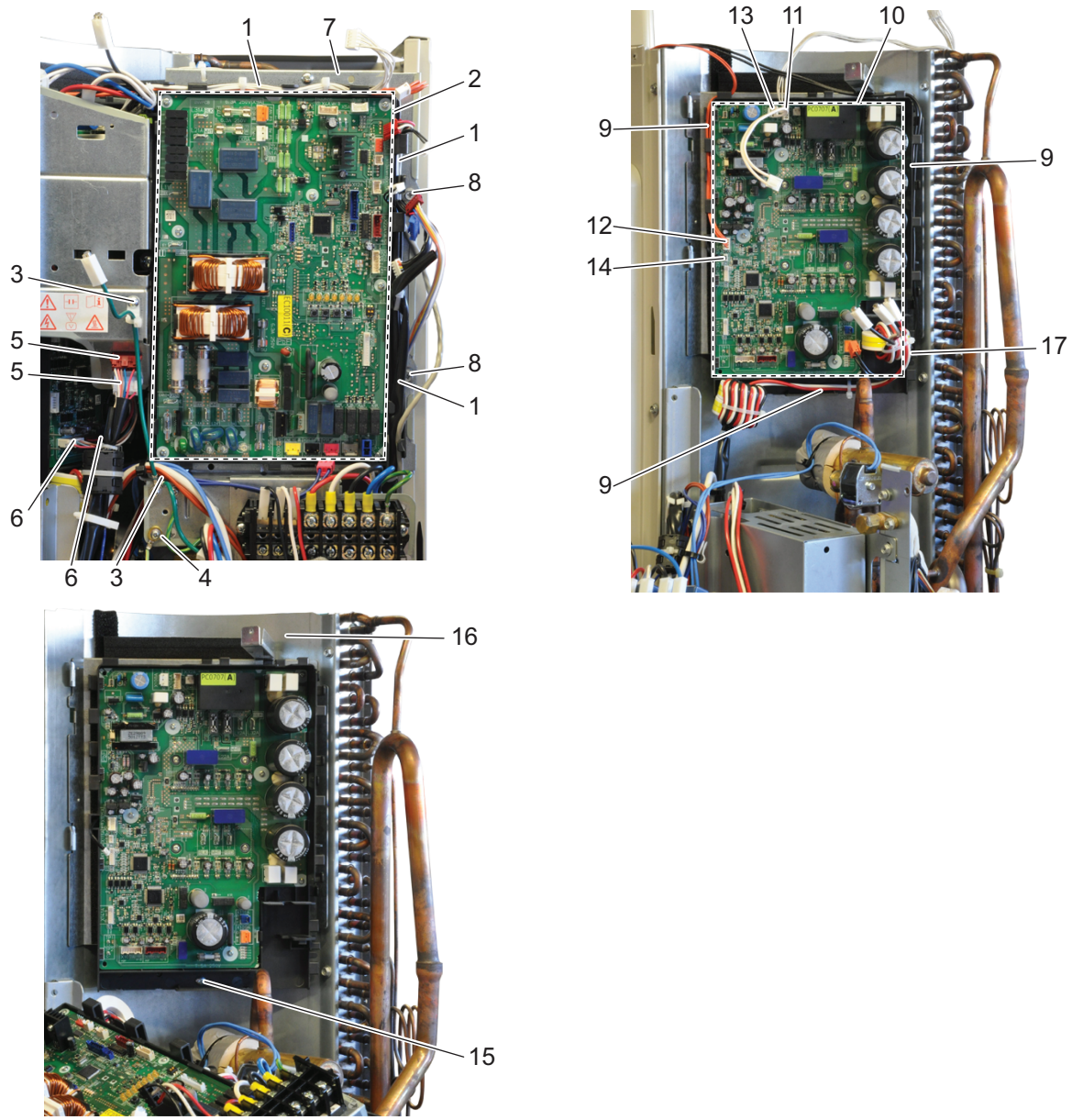
	**INFORMATION** Do not remove the PCB in the next step, only unplug the connectors.

1. Unplug all connectors from the main PCB.
2. Remove the cable booms (1) that surround the main 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 fan connectors.
6. Loosen and remove the 2 screws (8) that fix the main PCB mounting plate (7).
7. Unplug connectors X32A, X191A and X109A from the inverter PCB.
8. Unplug Faston connectors L12A, L22A, L32A, U, V and W from the inverter PCB (10).
9. Cut the tie wraps at the rear of the main PCB mounting plate (7) to improve the manoeuvrability of the main PCB mounting plate (7).

	**CAUTION** The main 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.

10. Lift the main PCB mounting plate (7) and place it on a support.
11. Unplug connectors X104A (11), X105A (12), X108A (13) and X111 (14) from the inverter PCB (10).
12. Cut the 4 tie wraps that fix the compressor cable (17).
13. Remove the cable booms (9) that surround the inverter PCB (10).
14. Loosen and remove the screw (15) that fixes the inverter PCB (10) to the inverter PCB mounting plate (16).
15. Remove the inverter PCB (10) from the inverter PCB mounting plate (16).

Figure 3-46: Removing inverter PCB



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.

3.3.2.15. Replacing main PCB

Overview of replacing main PCB:

Single fan outdoor unit 148
Double fan outdoor unit - single phase 151
Double fan outdoor unit - three phase 155

3.3.2.15.1 Single fan outdoor unit

PRELIMINARY ACTIONS

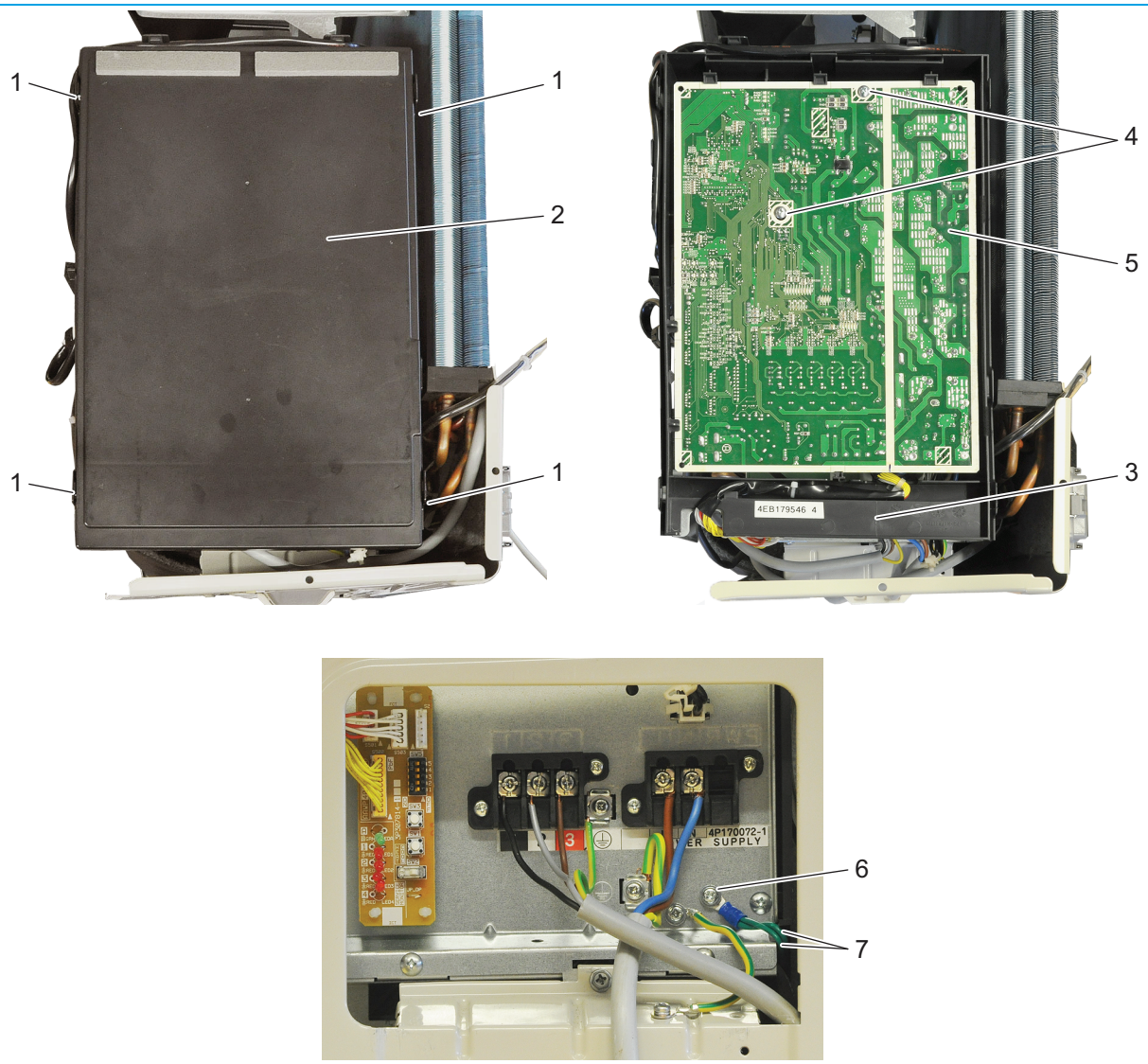
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

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 3-47: Removing the PCB assembly main - 1



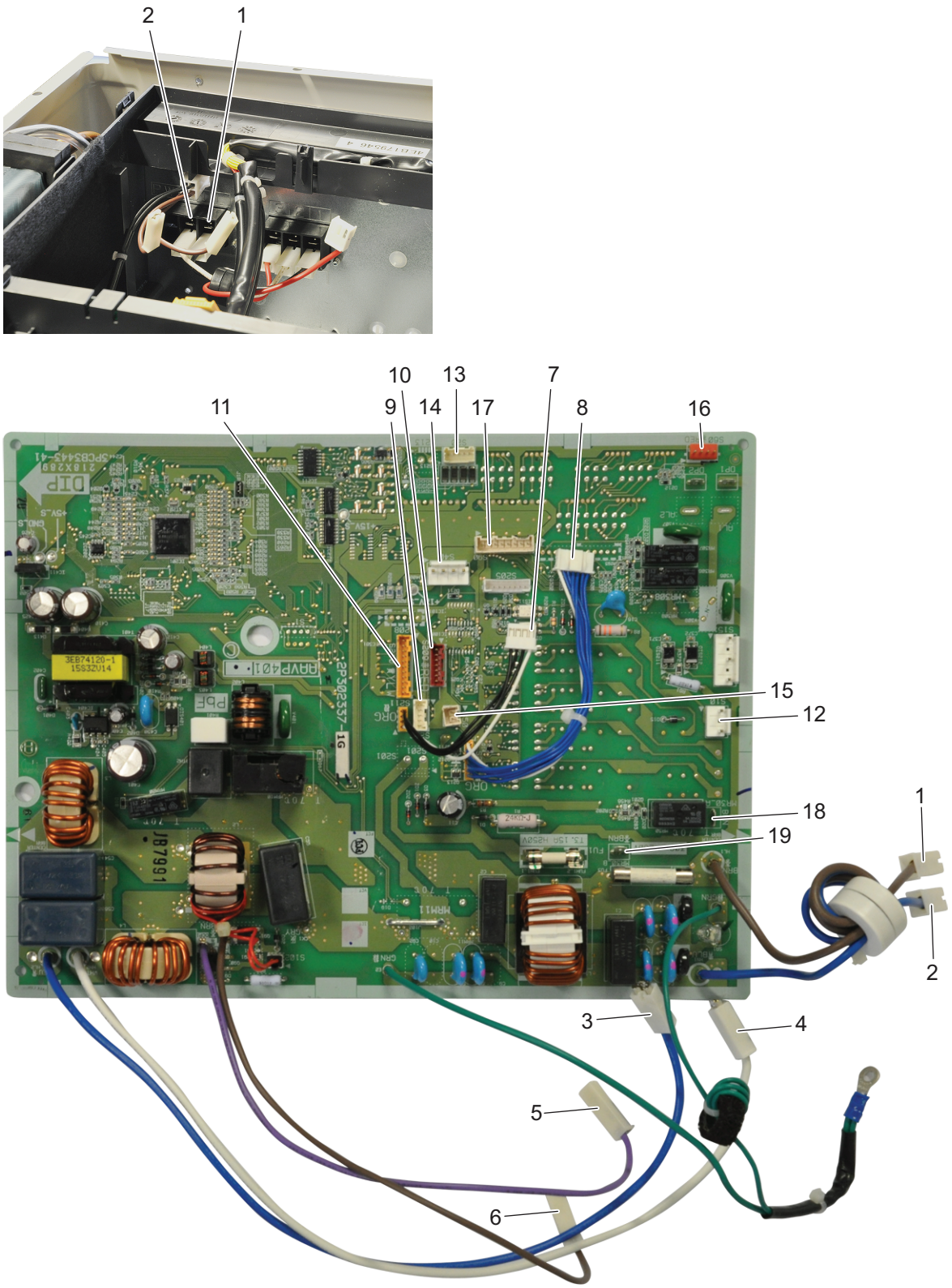
1. Latch
2. Electrical component box cover
3. Electrical component box
4. Screw
5. PCB assembly main
6. Screw
7. Ground wires E1, E2

WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

4. Unplug Faston plugs X1M-L (1) and X1M-N (2).
5. Unplug Faston plugs HL402 (3) and HN402 (4) from inverter PCB.
6. Unplug Faston plugs DCP2 (5) and DCM2 (6) from inverter PCB.
7. Unplug connectors S411 (7) and S401 (8) from inverter PCB.
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 main PCB (5).

Figure 3-48: 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.

3.3.2.15.2 Double fan outdoor unit - single phase

INFORMATION

When removing the switch box as described in "Removing switch box" on page 124, most of the sensor and valves wiring illustrated in figure 3-49 on page 152 and figure 3-50 on page 153 will already be removed.

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the switch box, refer to "Removing switch box" on page 124.

PROCEDURE

Removal

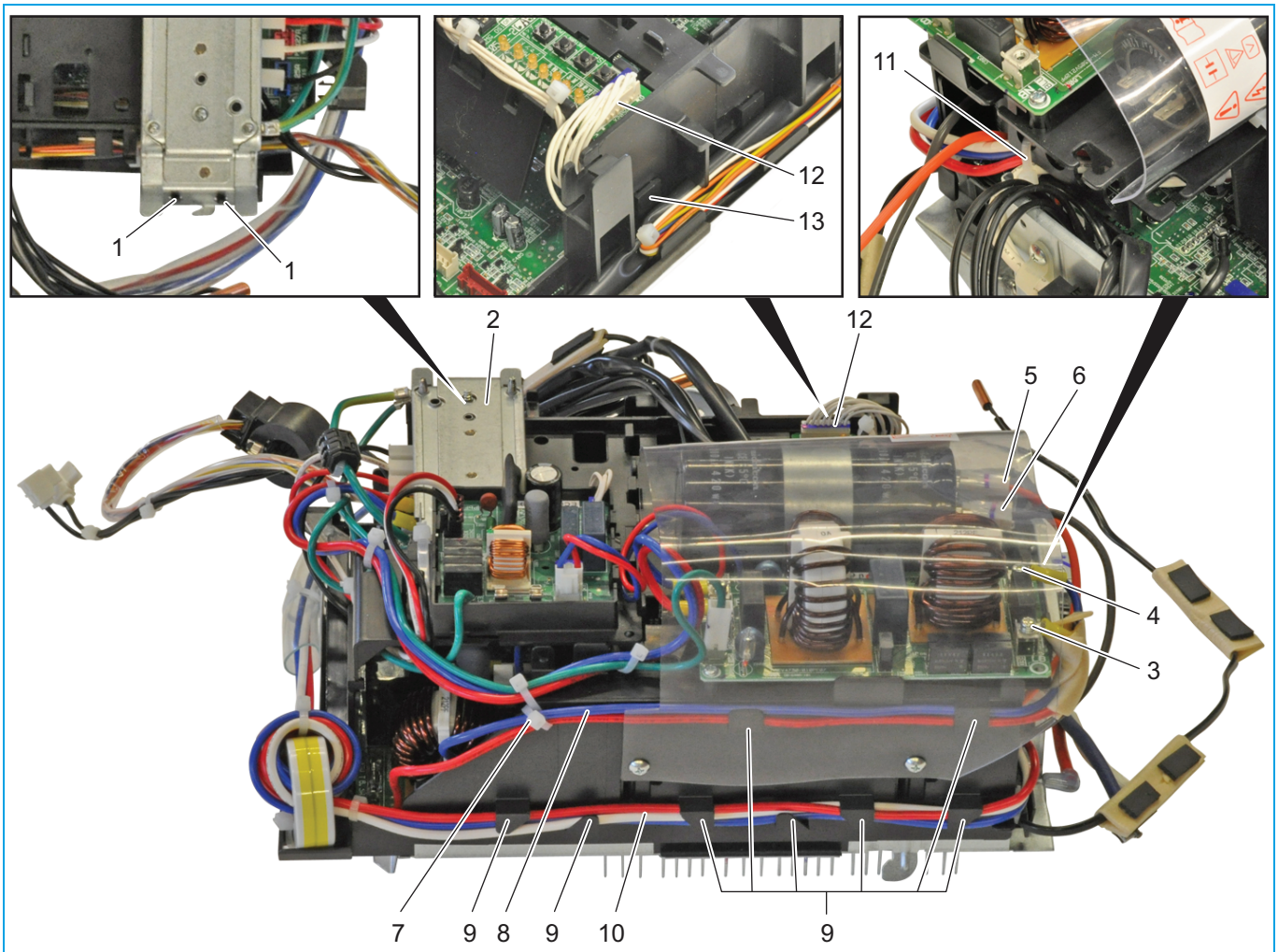
1. Press the 2 latches (1) and lift the wire terminal support (2) to detach it.
2. Turn over the terminal mounting plate (2).
3. Loosen the wires terminals LB (3) and NB (4).

WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

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 3-49: Removing the main PCB (1-phase)



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

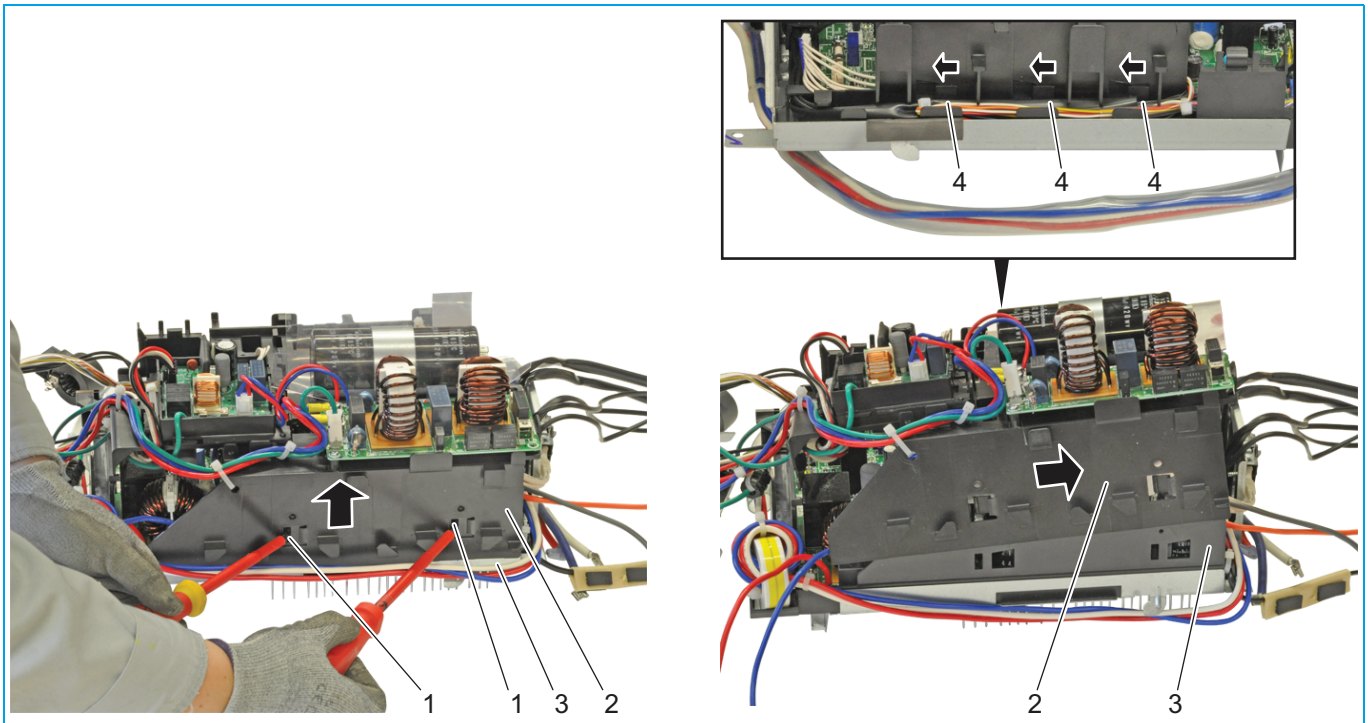
9. Insert 2 flat screwdrivers into the slots (1) and unlatch the upper (2) and lower (3) assemblies.

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 3-50: Removing the main PCB (1-phase)



1. Slot
2. Upper assembly
3. Lower assembly
4. Hook

INFORMATION

When removing the switch box as described in "Removing switch box" on page 124, most of the sensor and valves wiring illustrated in figure 3-51 on page 154 will already be removed.

Some of the steps listed below could be redundant.

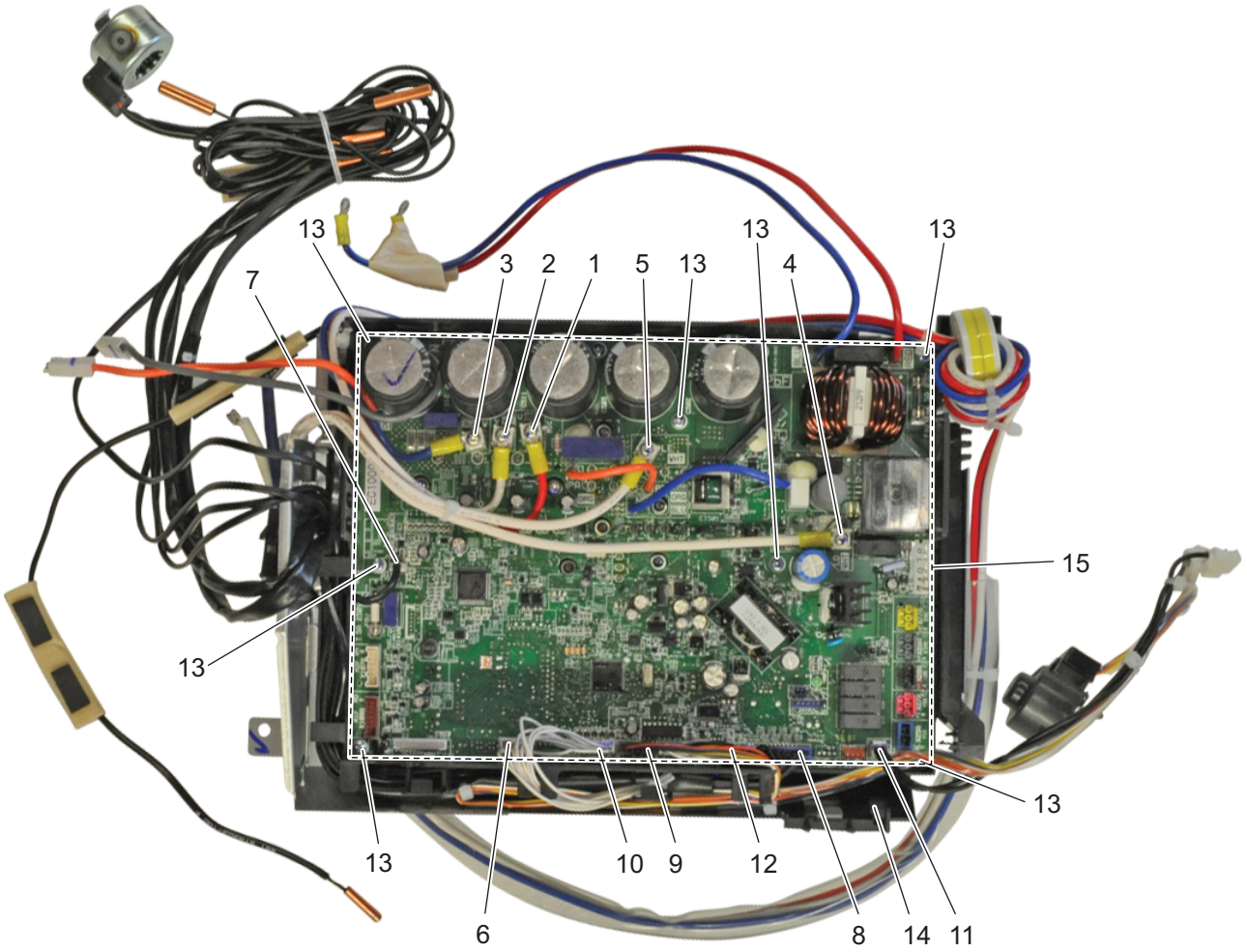
13. Loosen and remove the screws from the wire terminals U (1), V (2), W (3), LD (4), LE (5); remove the wires from the terminals.

WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

14. Disconnect connectors X5A (6), X11 (7), X12A (8), X21 (9), X22A (10), X32 (11) and X111A (12).
15. Loosen the wires terminals NA, LA, LB and NB.
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 3-51: Removing the main PCB (1-phase)



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.

3.3.2.15.3 Double fan outdoor unit - three phase

PRELIMINARY ACTIONS

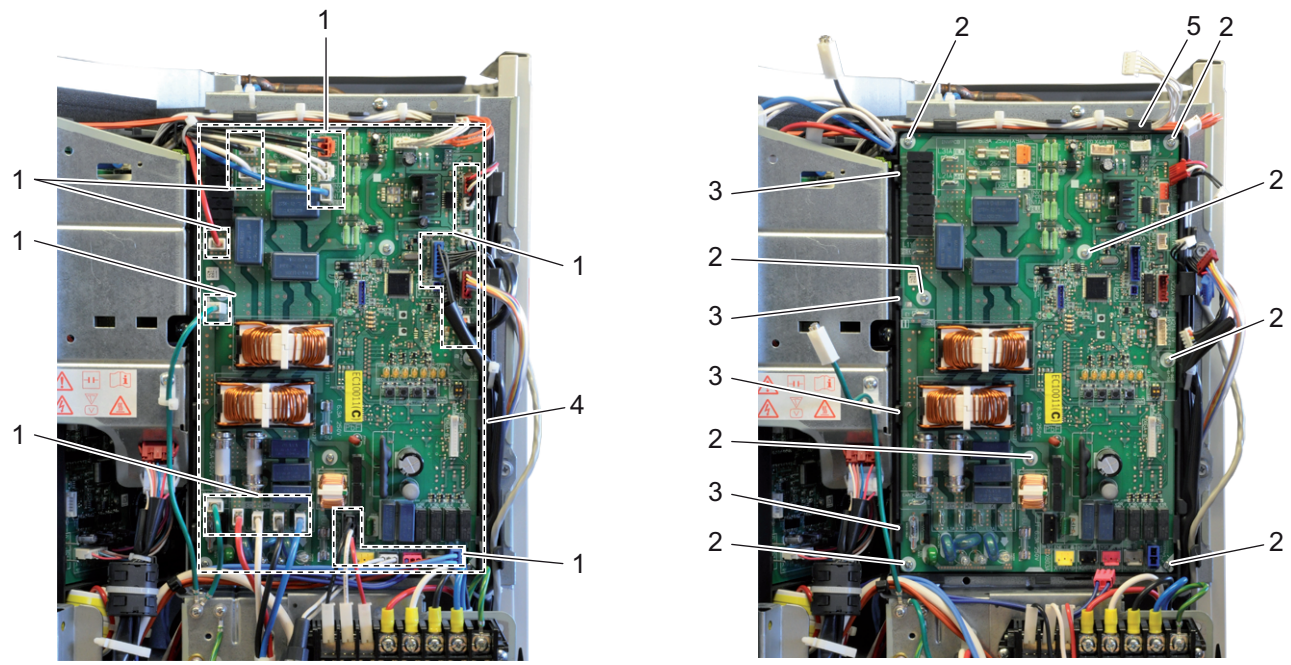
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

PROCEDURE

Removal

1. Unplug all connectors (1) from the main PCB (4).
2. Loosen and remove the 8 screws (2) that fix the main PCB (4).
3. Unlock the PCB brackets (3).
4. Remove the main PCB (4) from the PCB mounting plate (5).

Figure 3-52: Removing main PCB



1. Connector
2. Screw
3. PCB bracket
4. A1P PCB
5. PCB mounting plate

Installation

> **WARNING: RISK OF FIRE**
>
> When reconnecting a connector to the PCB, do not apply force or damage the connector or the connector pins on the PCB.

1. Proceed in reverse order.

3.3.2.16. Replacing pressure sensor

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Recover the refrigerant, refer to "Recovery procedure" on page 87.
4. Remove plate work when required.
5. Remove any part that block the way to the pressure sensor.

PROCEDURE

INFORMATION

Follow local regulations and Daikin refrigerant repair procedures during the repair of your unit, refer to "Refrigerant repair procedures" on page 87.

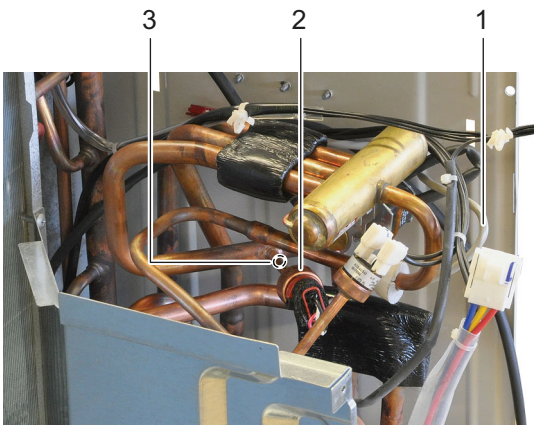
CAUTION

The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

Removal

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

Figure 3-53: Removing the pressure sensor



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

Installation

WARNING

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

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

3.3.2.17. Replacing propeller fan blade assembly

Overview of replacing propeller fan blade assembly:

Single fan outdoor unit propeller fan blade assembly 157
Double fan outdoor unit - single phase - three phase 158

3.3.2.17.1 Single fan outdoor unit propeller fan blade assembly

PRELIMINARY ACTIONS

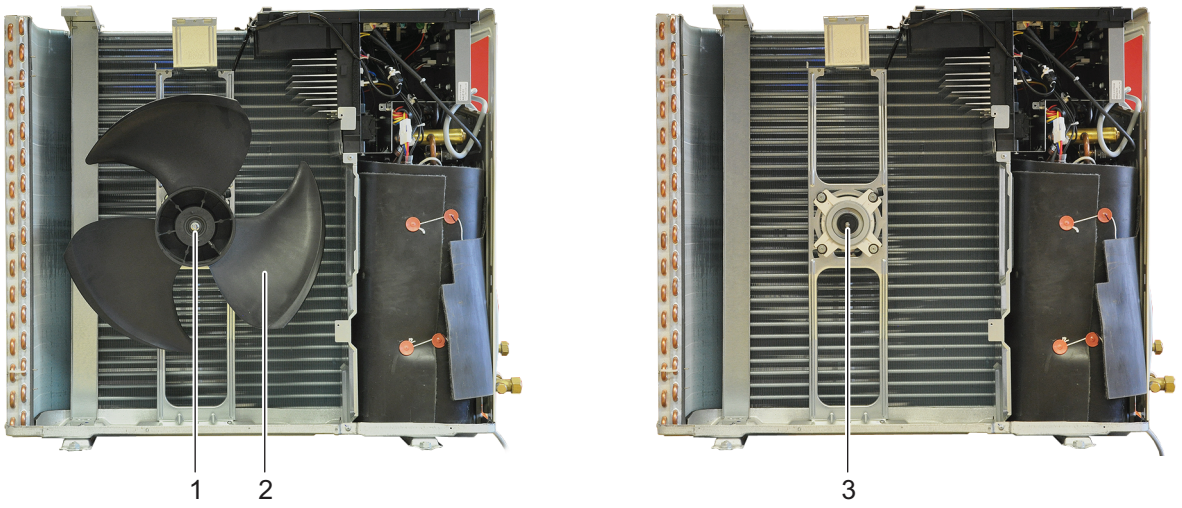
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

PROCEDURE

Removal

1. Remove the nut (1) that fixes the propeller fan blade assembly (3).
2. Pull the propeller fan blade assembly (3) from the fan motor assembly (5).

Figure 3-54: 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.

3.3.2.17.2 Double fan outdoor unit - single phase - three phase

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

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 (4) from the fan motor (5).

Figure 3-55: Removing the propeller fan blade assembly



1. Nut
2. Air discharge grill
3. Nut
4. Propeller fan blade assembly
5. Fan motor

Installation

> **CAUTION**
> Do not install a damaged propeller.

1. Proceed in reverse order.

3.3.2.18. Replacing service PCB

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the switch box, refer to "Removing switch box" on page 124.

PROCEDURE

Removal

INFORMATION

When removing the switch box as described in "Removing switch box" on page 124, most of the sensor and valves wiring illustrated in figure 3-56 on page 159 will already be removed.

Some of the steps listed below could be redundant.

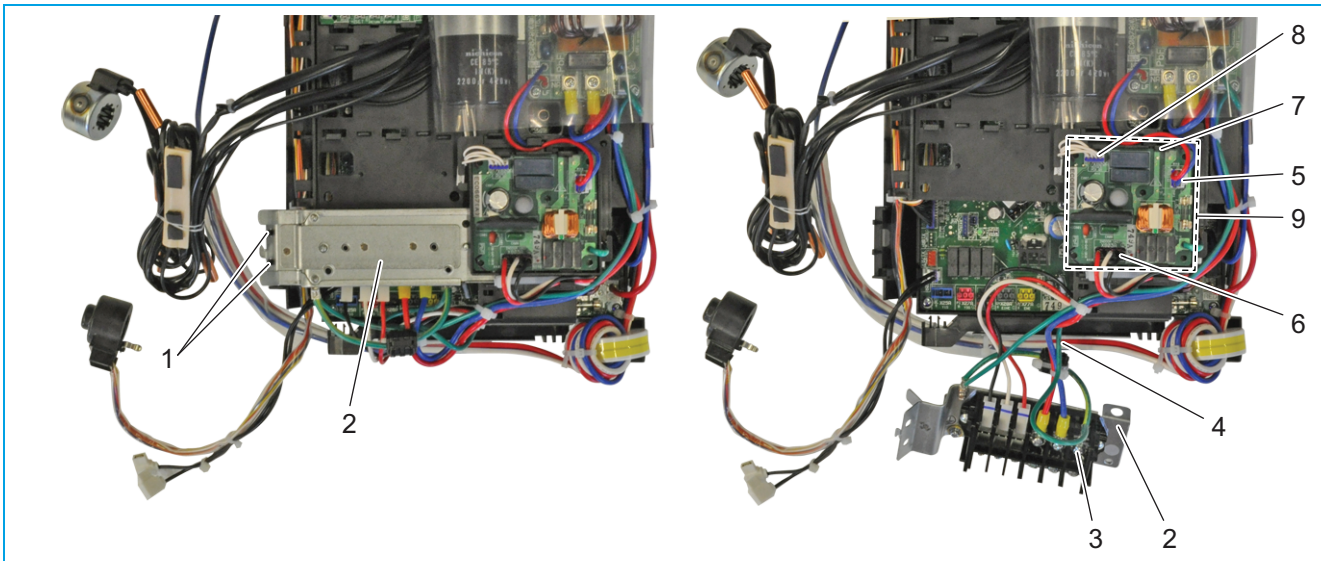
1. Press the 2 latches (1) and lift the wire terminal support (2) to detach it.
2. Turn over the wire terminal support (2).
3. Loosen the wire terminal (3) and remove the ground wire (4) from A4P.

WARNING: RISK OF FIRE

When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

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 3-56: Removing the service PCB



1. Latch
2. Wire terminal support
3. Wire terminal
4. Ground wire
5. X801A
6. X803A
7. X809A
8. Latch
9. A4P PCB

Installation

1. Proceed in reverse order.

3.3.2.19. Replacing solenoid valve body

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.
4. Pump down the refrigerant, refer to "Refrigerant pump down" on page 89.
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.

PROCEDURE

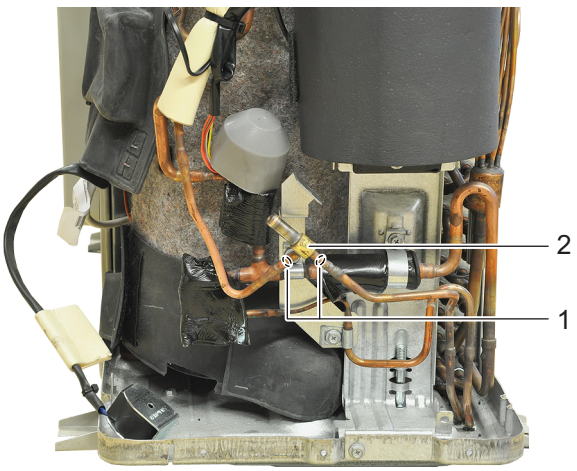
Removal

1. Cut the solenoid valve body pipes (1).
2. Remove the solenoid valve body (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 body pipes (1).
5. When the solder material is liquid, pull the solenoid valve body pipes (1).
6. Cut the nitrogen supply when the piping has cooled down.

Figure 3-57: Removing the solenoid valve body



1. Solenoid valve body pipe
2. Solenoid valve body

Installation

> **WARNING**
> Overheating the solenoid valve body (2) will damage or destroy it.

1. Wrap a wet rag around the solenoid valve body (2).
2. Proceed in reverse order.

3.3.2.20. Replacing solenoid valve coil

PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required.

PROCEDURE

Removal

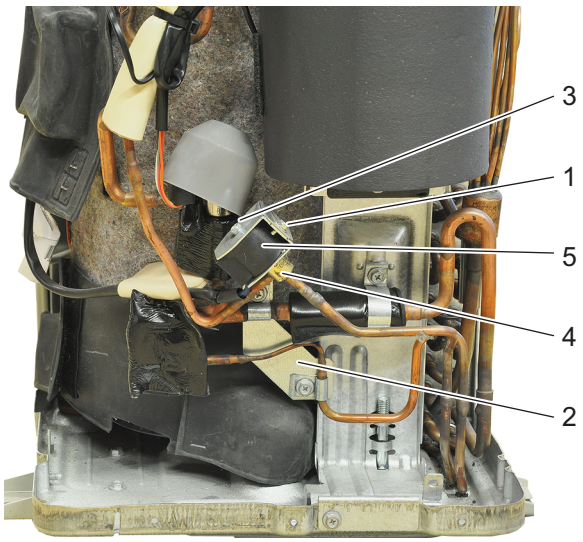
> **CAUTION**
> The screws (1 and 3) have a different thread.

1. Loosen and remove the screw (1) that fixes the solenoid valve coil (4) to the bracket (2).
2. Loosen and remove the screw (3) that fixes the solenoid valve coil (4) to the solenoid valve (5).
3. Remove the solenoid valve coil (4) from the solenoid valve (5).
4. Cut all tie wraps that fix the solenoid valve coil (4) wiring.

> **WARNING: RISK OF FIRE**
> When reconnecting a connector to the PCB, do not apply force, as this may damage the connector or connector pins of the PCB.

5. Unplug solenoid valve connector from PCB.

Figure 3-58: Removing the solenoid valve coil



1. Screw
2. Bracket
3. Screw
4. Solenoid valve coil
5. Solenoid valve

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.

3.3.2.21. Replacing thermistor

PRELIMINARY ACTIONS

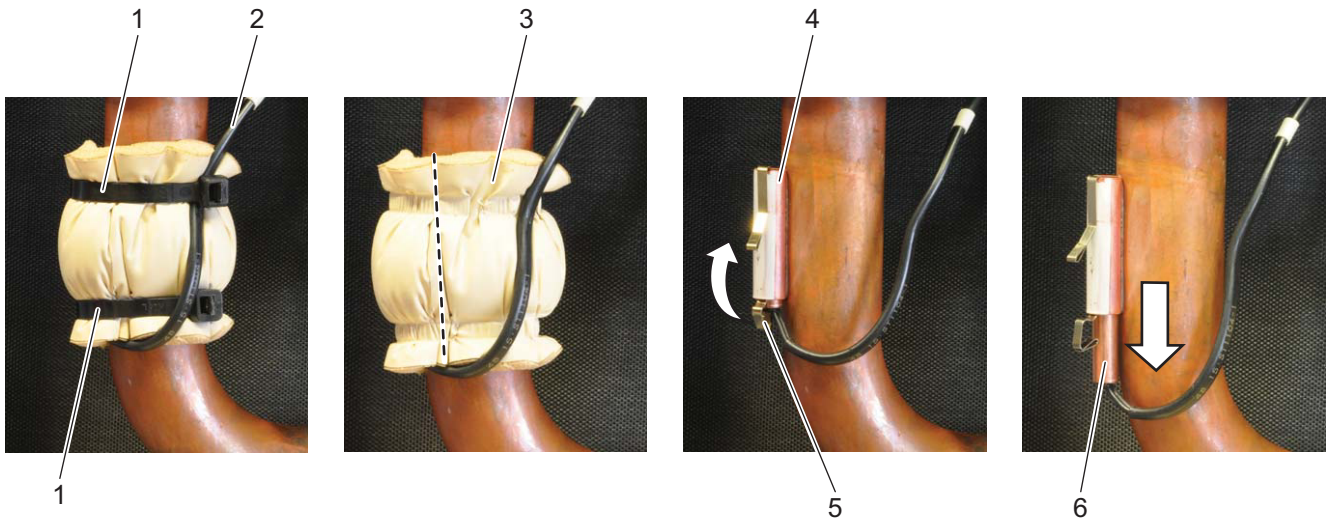
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove platework when required, see "Basic removal" on page 93.

PROCEDURE

Removal

1. Locate themistor that needs to be replaced,
2. Cut the tie wraps (1) that fix the insulation (3) and the thermistor wire (2).
3. Cut the insulation (3) and remove it.
4. Pull the clip (5) that fixes the thermistor (6).
5. Remove the thermistor (6) from the thermistor holder (4).

Figure 1 - Replacing a thermistor



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

Installation

1. Proceed in reverse order.

Part 4. Maintenance

This part contains the following chapters:

Indoor unit 165
Outdoor unit 166

4.1. Indoor unit

Overview:

General annual maintenance 165
Storage tank 165



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 in line with regulations (± 2 bar).

4.1.1. General annual maintenance

Carry out a functional inspection of the Daikin unit and the installed accessory components:

- Switch unit operation
- Check actuators
- Check electrical components, connections and cables
- Check safety overflow and drain hose for leaks
- Visual check of connections, lines and safety pressure relief valve
- Check the water pressure of the cold water supply (< 6 bar)
- Check the water pressure on the RoCon HP controller
- Check and clean the filter/sludge separator
- Check the minimum flow rate, adjust system when required
- Clean plastic surface of tank with a soft and mild cleaning agent. Do not use any cleaners with aggressive solvents (damage to the plastic may occur)
- Fill in field supplied service documents when required

4.1.2. Storage tank

Visual check of the water storage tank:

- Check if the filling level indicator is up
- Top up the tank when required
- Determine the reason of the low water level and adjust the system when required

4.2. Outdoor unit

4.2.1. General maintenance outdoor unit

1. Outdoor unit coil
   - Straighten hair fins.
   - Clear coil from dust, leaves, etc. with a fin-comb, or compressed air/N2. Avoid bending or damaging of the Alu fins during the cleaning process.



CAUTION

Make sure not to bend the hair fins.

2. Correlation of air-conditioner's operation status, pressure and running current.

COOLING	Low pressure	High pressure	Running current
Dirty air filter	Higher	Higher	Higher
Short circuit of air inlet/outlet	Higher	Higher	Higher
Air mixed in refrigerant	Higher	Higher	Higher
Water mixed in refrigerant	Lower*	Lower	Lower
Dirt mixed in refrigerant	Lower**	Lower	Lower
Refrigerant shortage (gas)	Lower***	Lower	Lower

* Water in the refrigerant freezes inside the electronic expansion valve and is basically the same phenomenon as pump down.

** Dirt in the refrigerant clogs filters inside the piping and is basically the same phenomenon as pump down.

*** Pressure differential between high and low pressure becomes low.

Part 5. Appendix

This part contains the following chapters:

Field setting 169
Detailed information setting mode 172
Wiring diagram 173
Piping diagram 178
Component overview of unit 181
Product specific information 185
Switch box 187
Field information report 188

5.1. Field setting

5.1.1. Indoor unit

Setting of DIP switches SS2

1. Disconnect the Daikin unit from the power via circuit breaker.
2. Open the control housing and remove the RoCon BMI board.
3. Check the DIP switch setting on the A1P circuit board of the Daikin unit.
4. Adjust the DIP switch setting when required.

> **INFORMATION**
> Factory preset may only be changed if e.g. an optional accessory was connected.

Figure 5-1: Setting of DIP switch SS2

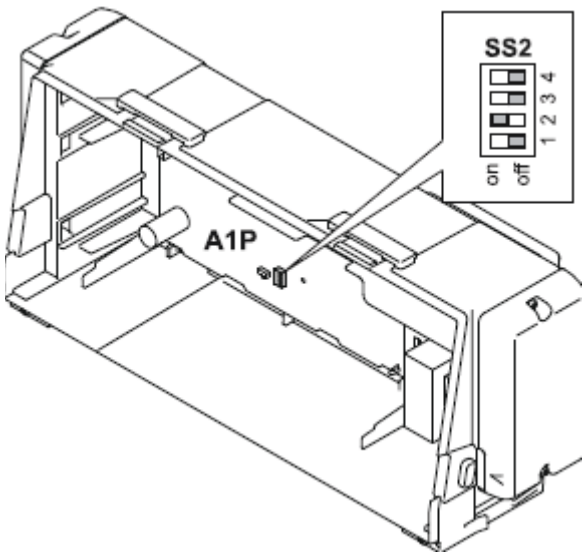


Table 5-1: DIP switch settings

DIP switch	No.	Designation	Factory setting
SS2	1	Do not change.	OFF
	2	Domestic hot water generation	ON
	3	Pump continuous running*	OFF
	4	Do not change.	OFF

* If you intend to run the internal heating circulation pump continuously, it will need to be connected to the circuit board A1P, plug X17A, via a separate connection cable.

Figure 5-2: Parameter in rotary switch setting "Configuration"

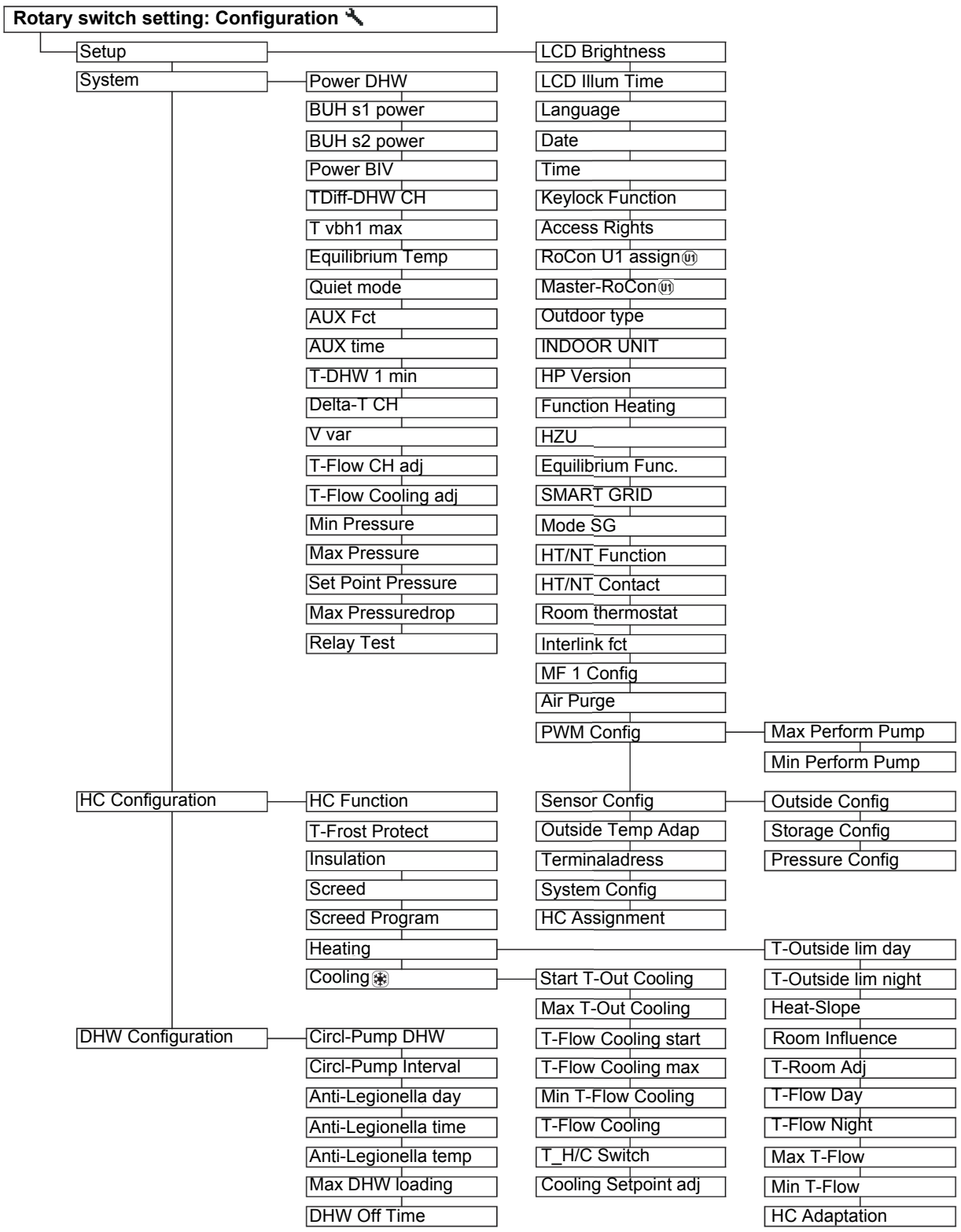


Figure 5-3: Parameter in rotary switch setting "DHW Install"

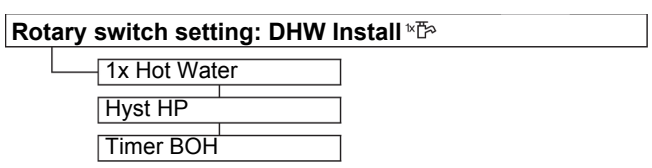


Figure 5-4: Parameter in rotary switch setting "Operating Mode"

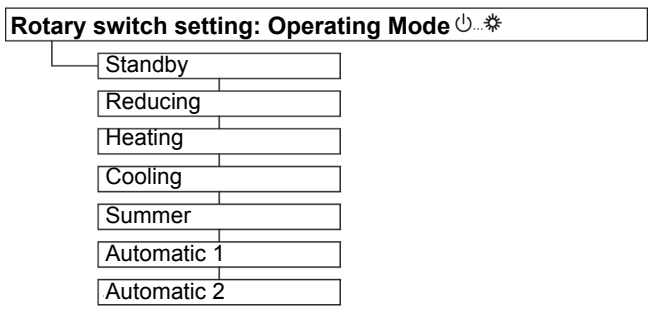


Figure 5-5: Parameter in rotary switch setting "Set Temp Day"

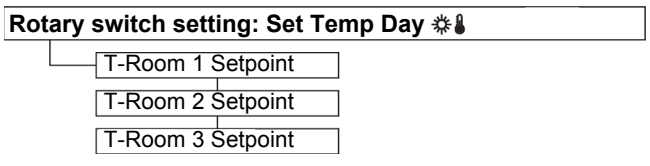


Figure 5-6: Parameter in rotary switch setting "Set Temp Night"

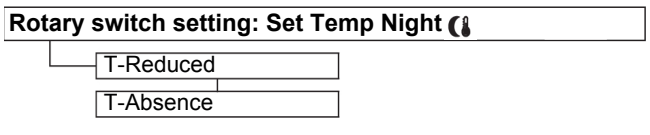


Figure 5-7: Parameter in rotary switch setting “DHW Set Temp”

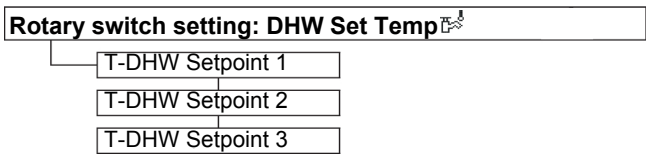


Figure 5-8: Parameter in rotary switch setting “Time Program”

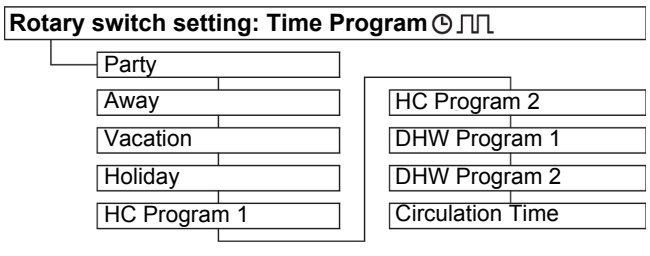


Figure 5-9: Parameter in rotary switch setting “Remote Param”

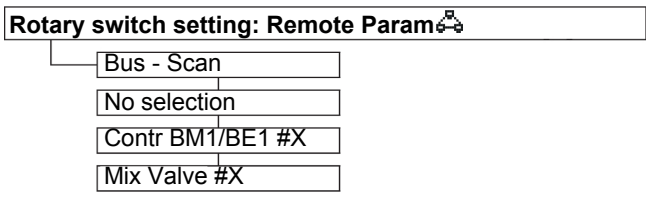


Figure 5-10: Parameter in rotary switch setting “Info”

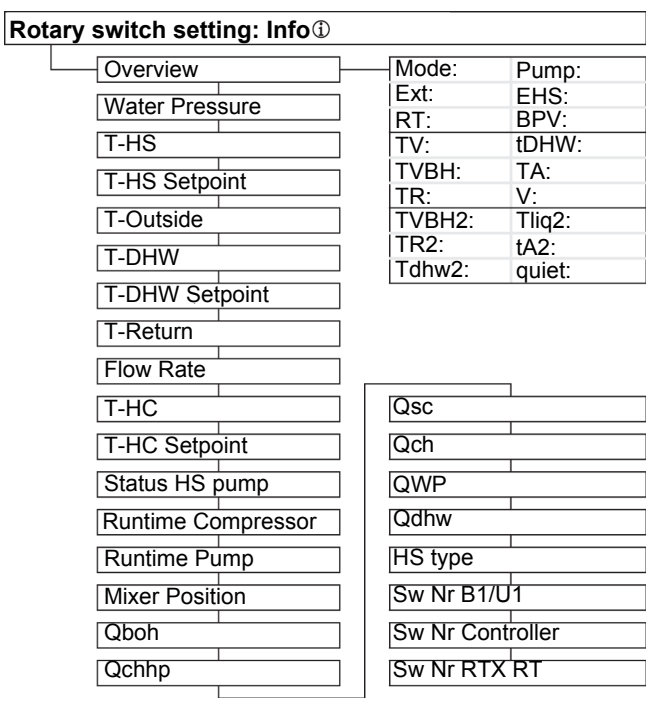
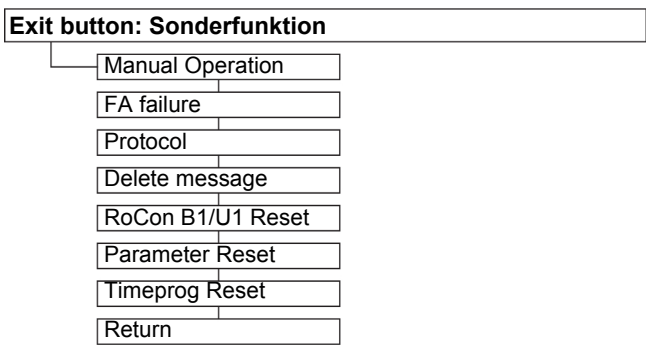


Figure 5-11: Parameter in rotary switch setting “Sonderfunktion”



5.1.2. Outdoor unit

Not applicable.

5.1.3. Remote controller

Not applicable.

5.2. Detailed information setting mode

5.2.1. Indoor unit

Not applicable.

5.2.2. Outdoor unit

Not applicable.

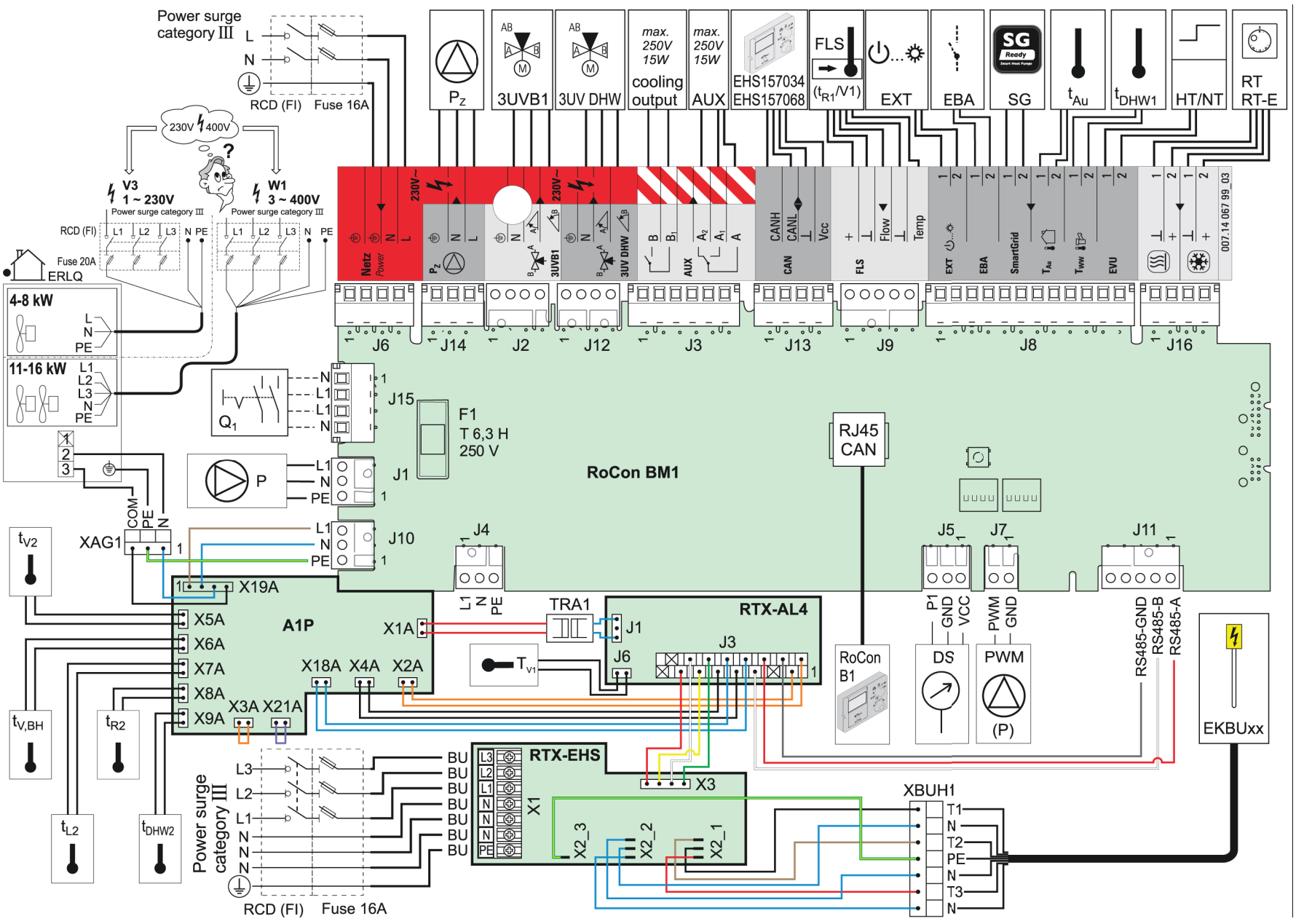
5.2.3. Remote controller

Not applicable.

5.3. Wiring diagram

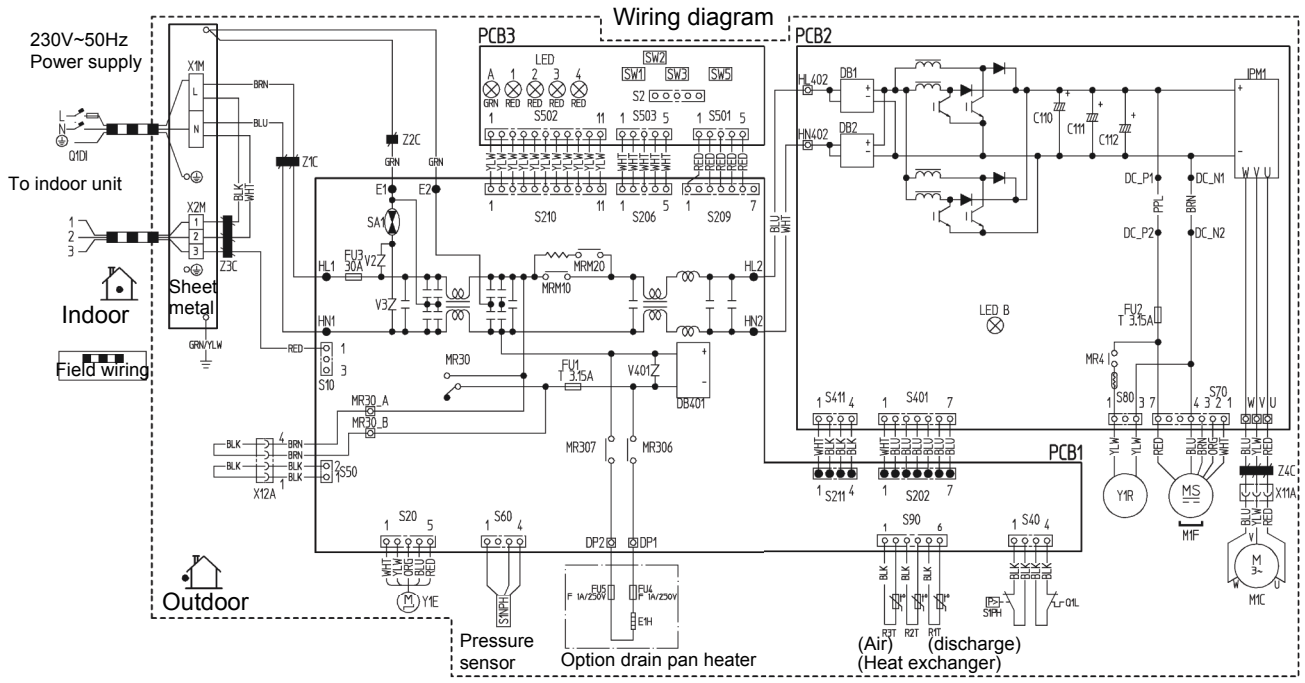
5.3.1. Indoor unit

Figure 5-12: Wiring diagram - indoor unit



5.3.2. Outdoor unit

Figure 5-13: Wiring diagram - outdoor unit



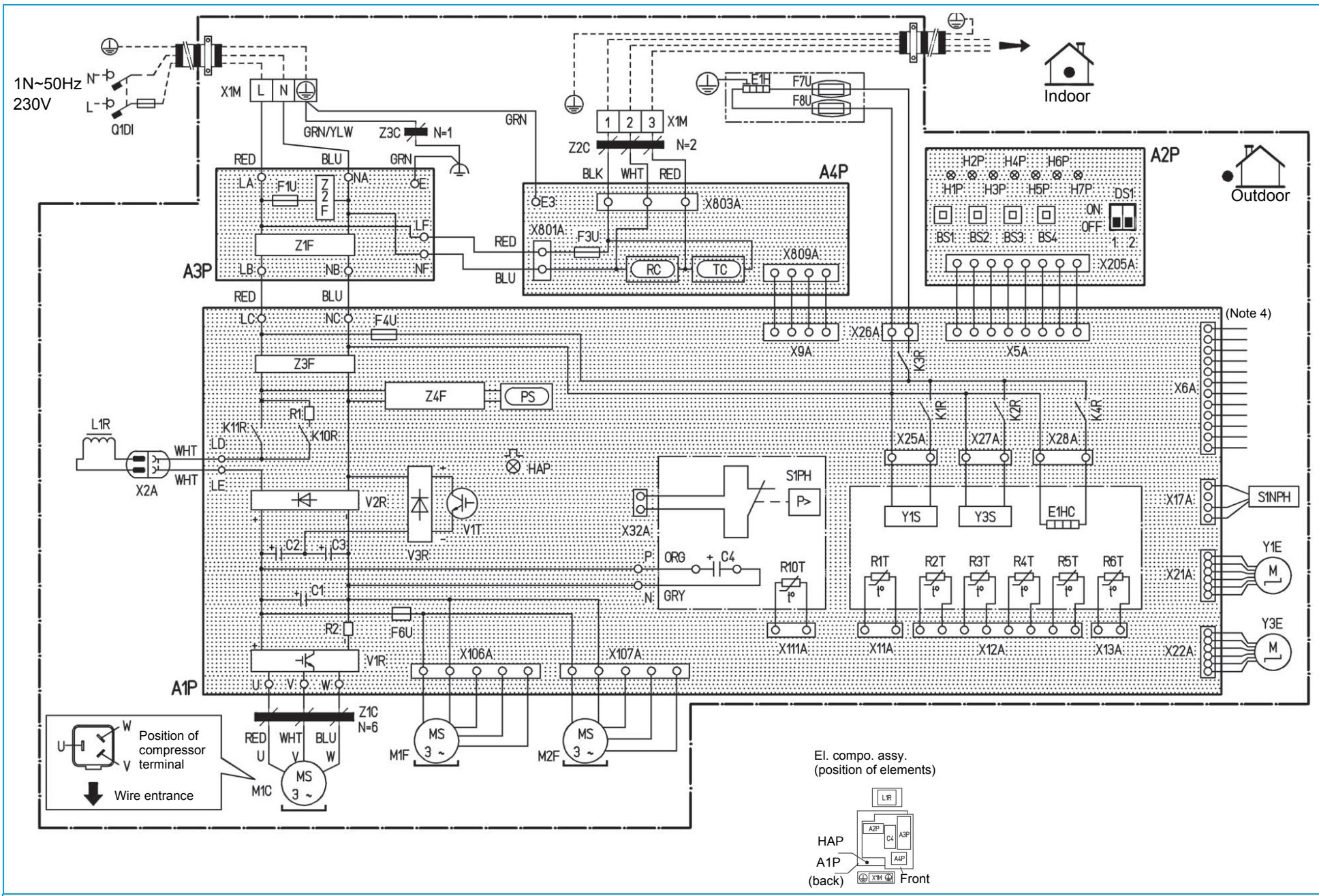
LEGEND

Z1C-Z4C	Ferrite core	L	Live
X1M, X2M	Terminal strip	N	Neutral
Y1E	Electronic expansion valve coil	SW1, SW3	Push buttons
V2, V3, V401	Varistor	SW2, SW5	Dip switches
SA1	Surge arrester	C110, C111, C112	Capacitor
FU1, FU2, FU3, FU4, FU5	Fuse	PCB1	Printed circuit board (main)
HL1, HN1, HL2, HN2, U, V, W, X11A, X12A, E1, E2, DP1, DP2, HL402, HN402, DC_P1, DC_N1, DC_P2, DC_N2, MR30_A, MR30_B	Connector	PCB2	Printed circuit board (inverter)
E1H	Drain pan heater	PCB3	Printed circuit board (service)
S1NPH	Pressure sensor	M1C	Compressor motor
S1PH	Pressure switch (high)	M1F	Fan motor
MR30, MRM10, MRM20, MR307, MR306, MR4	Magnetic relay	LED 1-4	Indication lamps
R1T	Thermistor (discharge)	Q1L	Overload protector
R2T	Thermistor (heat exchanger)	Q1DI	Earth leakage circuit breaker
R3T	Thermistor (air)	DB1, DB2, DB401	Rectifier bridge
S2-S503	Connector	Y1R	Reversing solenoid valve coil
LED A, LED B	Pilot lamp	Sheet metal	Terminal strip fixed plate
IPM1	Intelligent power module		

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.

Figure 5-14: Wiring diagram - outdoor unit



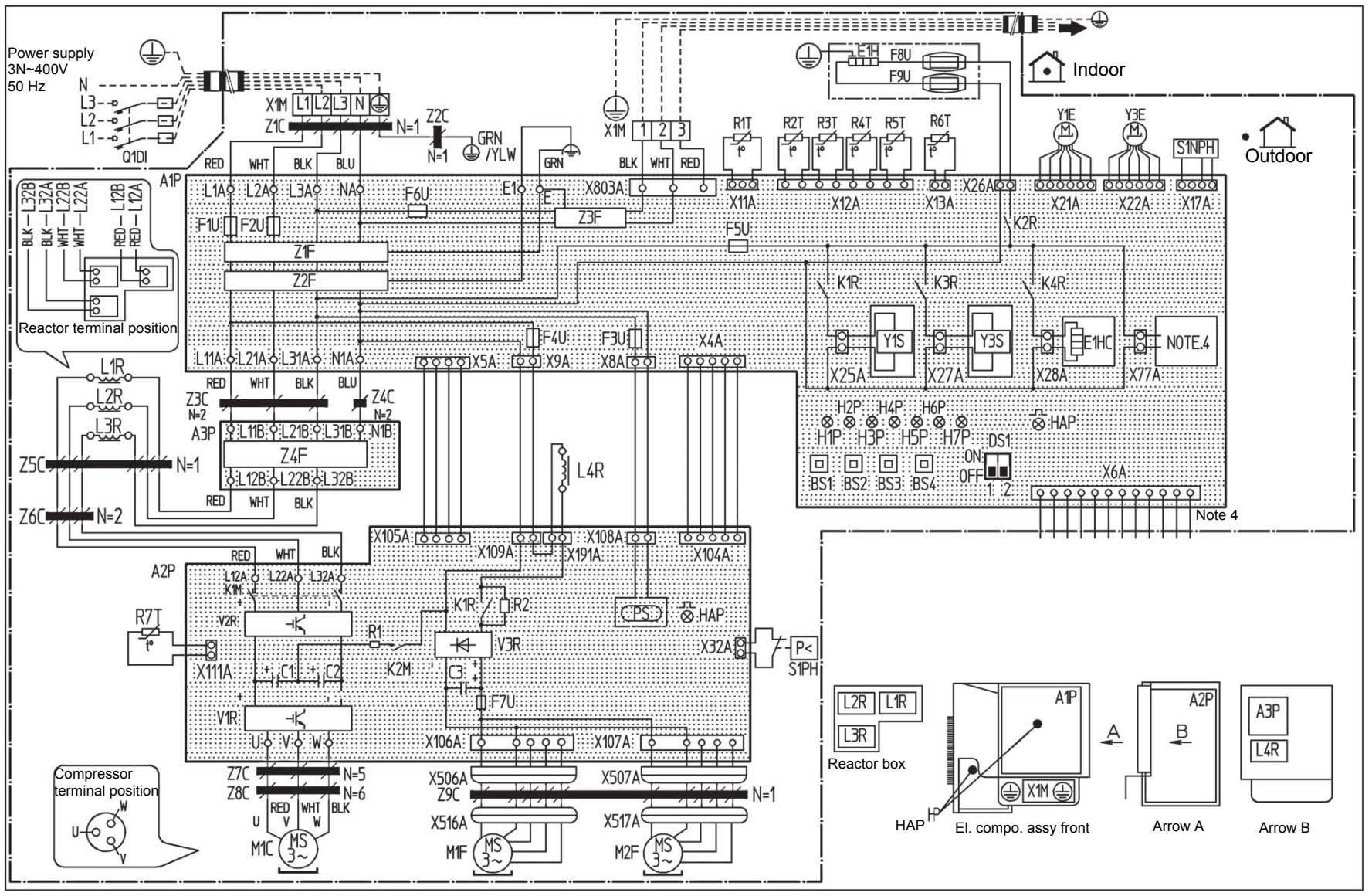
NOTES

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

LEGEND

A1P	Printed circuit board (main)	Q1DI	Earth leakage circuit breaker
A2P	Printed circuit board (service)	R1	Resistor
A3P	Printed circuit board (noise filter)	R2	Resistor
A4P	Printed circuit board (communication)	R1T	Thermistor (air)
BS1~BS4	Push button switch	R2T	Thermistor (discharge)
C1~C4	Capacitor	R3T	Thermistor (suction)
DS1	Dip switch	R4T	Thermistor (heat exchanger)
E1H	Bottomplate heater	R5T	Thermistor (heat exchanger middle)
E1HC	Crankcase heater	R6T	Thermistor (liquid)
F1U, F3U, F4U	Fuse (T 3.6A / 250V)	RC	Signal receiver circuit
F6U	Fuse (T 5.0A / 250V)	R10T	Thermistor (fin)
F7U, F8U	Fuse (F 1.0A / 250V)	S1NPH	Pressure sensor
H1P~7P	Light emit. diode (serv. monitor-orange)	S1PH	Pressure switch (high)
(A2P)	[H2P] Prepare, test.....flickering		
	Malfunction detection ..... light up		
HAP	Light emitting diode	TC	Signal transmission circuit
(A1P)	(Service monitor green)		
K1R	Magnetic relay (Y1S)	V1R	Power module
K2R	Magnetic relay (Y3S)	V2R, V3R	Diode module
K3R	Magnetic relay (E1H)	V1T	IGBT
K4R	Magnetic relay (E1HC)	X1M	Terminal strip (power supply)
K10R	Magnetic relay (upload)	Y1E	Electronic expansion valve (main)
K11R	Magnetic relay (main)	Y3E	Electronic expansion valve (inj)
L1R	Reactor	Y1S	Solenoid valve (4-way valve)
M1C	Motor (compressor)	Y3S	Solenoid valve (hot gas pass)
M1F	Motor (fan) (upper)	Z1C~Z3C	Noise filter (ferrity core)
M2F	Motor (fan) (lower)	Z1F~Z4F	Noise filter
PS	Switching power supply		

Figure 5-15: Wiring diagram - outdoor unit



NOTES

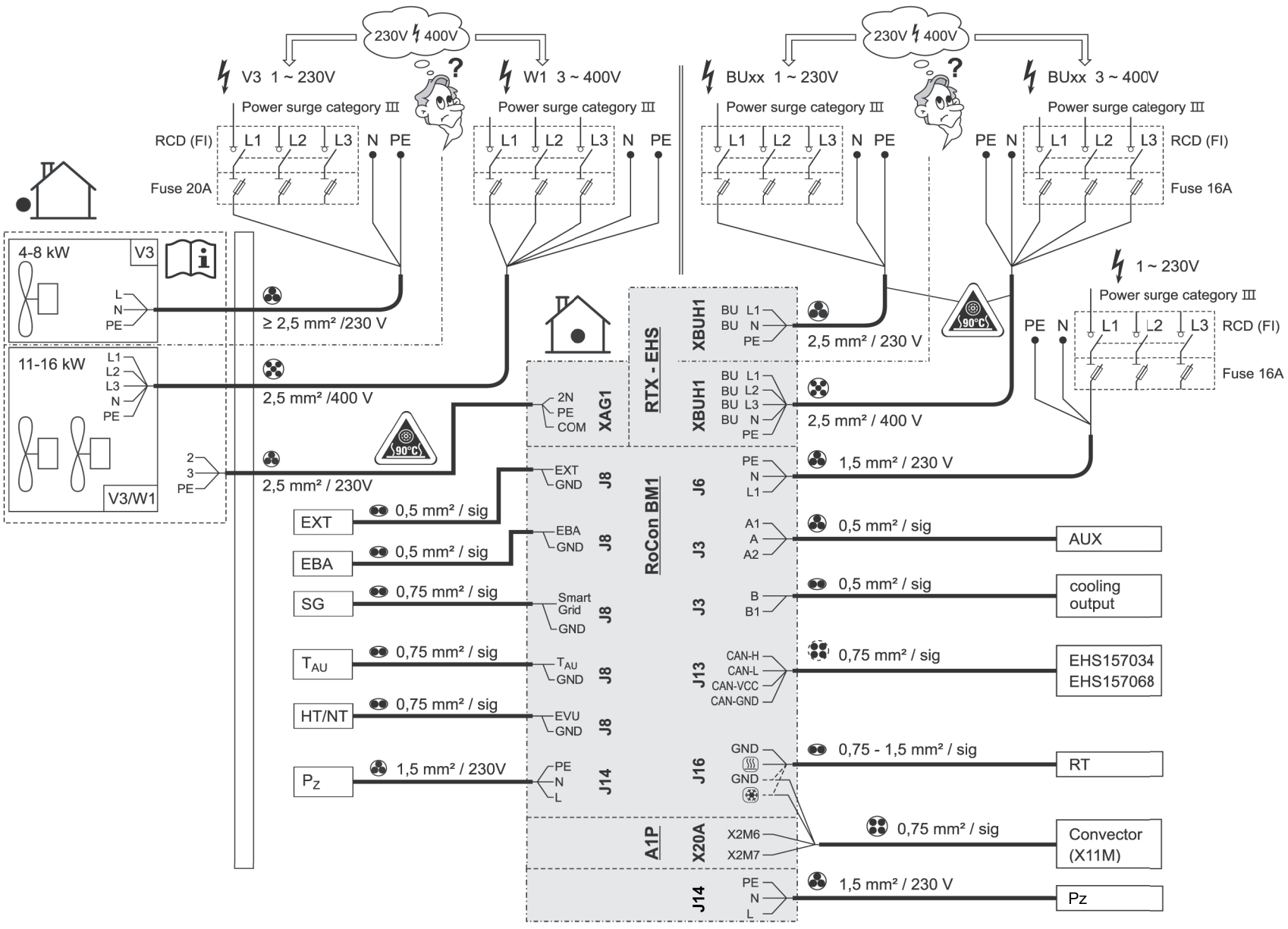
1. This wiring diagram only applies to the outdoor unit
2. L: live, N: neutral, ▬▬ : field wiring
3. ▭ : terminal strip, ◎ : connector, —● : connection, ⏚ : protective earth (screw), —▬: connector, ⏚ : noiseless earth, —○ : terminal
4. Refer to the option manual, for connecting wiring to X6A and X77A.
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

LEGEND

A1P	Printed circuit board (control)	M1C	Motor (compressor)
A2P	Printed circuit board (inv)	M1F	Motor (fan) (upper)
A3P	Printed circuit board (noise filter)	M2F	Motor (fan) (lower)
BS1~BS4	Push button switch	PS	Switching power supply
C1~C4	Capacitor	R1~R4	Resistor
DS1	Dip switch	R1T	Thermistor (air)
E1HC	Crankcase heater	R2T	Thermistor (discharge)
E1H	Bottomplate heater	R3T	Thermistor (suction)
F1U	Fuse (31.5A 500V)	R4T	Thermistor (heat exchanger)
F2U	Fuse (31.5A 500V)	R5T	Thermistor (heat exchanger middle)
F3U	Fuse (T6.3A / 250V)	R6T	Thermistor (liquid)
F4U	Fuse (T6.3A / 250V)	R7T	Thermistor (fin)
F5U	Fuse (T6.3A / 250V)	S1NPH	Pressure sensor
F6U	Fuse (T 6.3A / 250V)	SPH	Pressure switch (high)
F7U	Fuse (F 5.0A / 250V)	V1R, V2R	Power module
F8U, F9U	Fuse (F1.0A / 250V)	V3R	Diode module
HAP (A1P)	Pilot lamp (service monitor-green)	X1M	Terminal strip
HAP (A2P)	Pilot lamp (service monitor-green)	Y1E	Electronic expansion valve (main)
H1P~7P (A1P)	Pilot lamp (service monitor-orange)	Y3E	Electronic expansion valve (inj)
K1M-K2M	Magnetic contactor (main - upload)	Y1S	Solenoid valve (4-way valve)
K1R (A1P)	Magnetic relay (Y1S)	Y3S	Solenoid valve (hot gas pass)
K1R (A2P)	Magnetic relay (upload)	Z1C~Z3C	Noise filter
K2R (A1P)	Magnetic relay (E1H)	Z1F~Z4F	Noise filter
K3R (A1P)	Magnetic relay (Y3S)	Q1DI	Earth leakage circuit breaker
K4R (A1P)	Magnetic relay (E1HC)		Optional connector
L1R~L3R	Reactor	X6A	Connector
L4R	Reactor (for outdoor fan motor)	X77A	Connector

5.3.3. Field wiring

Figure 5-16: Wiring diagram - field wiring



5.4. Piping diagram

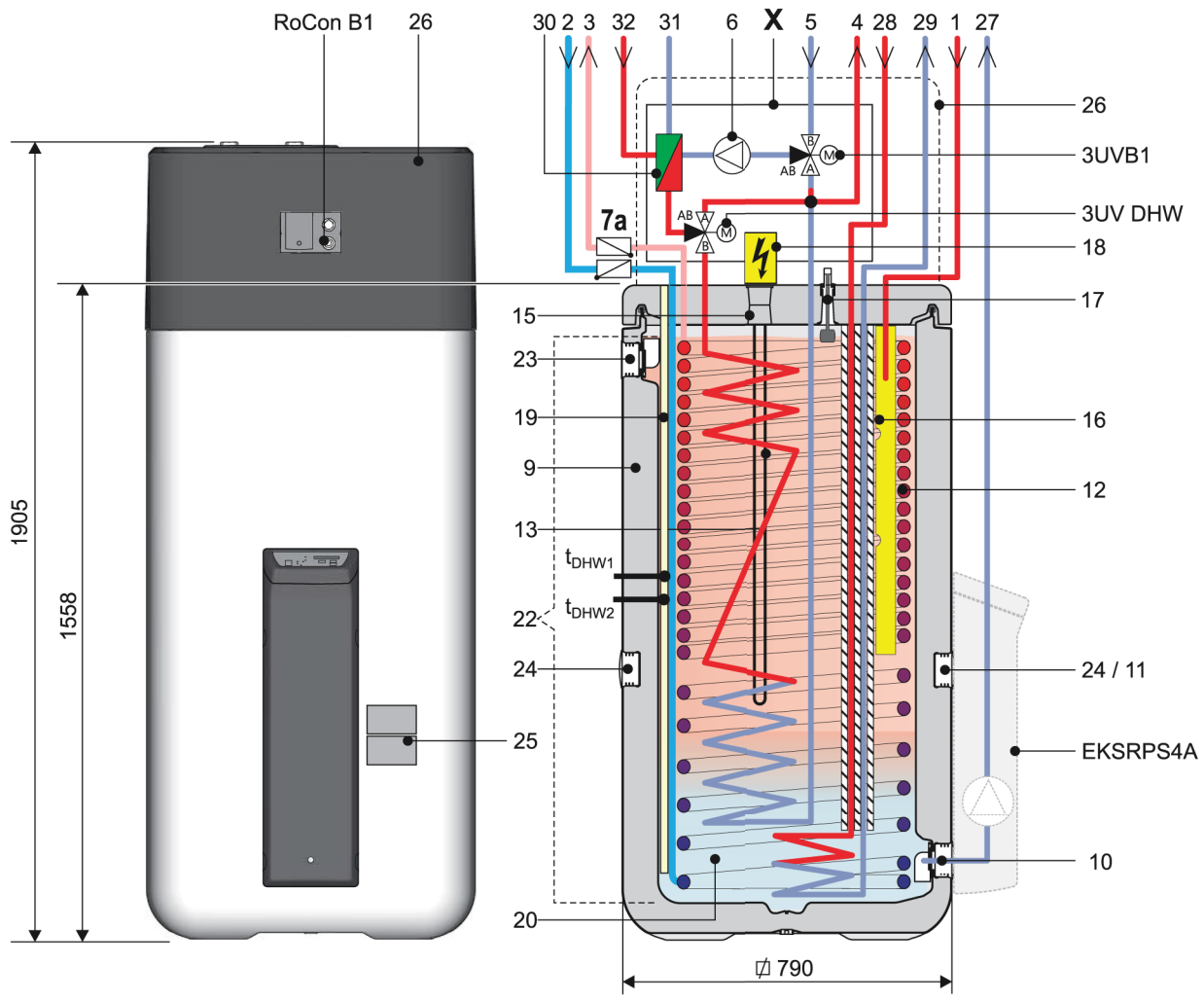
5.4.1. Indoor unit

The Daikin Altherma Integrated Solar unit can provide heating in winter and cooling in summer with an integrated pressure less buffer tank for instant hot water generation with a small surface if only 0,36 m².

Additionally the Daikin Altherma Integrated Solar unit can be connected to a pressure less AND pressurized heat source to charge the tank via cheaper and/or renewable energies.

The separate coil heat exchanger can either be used for charging the tank and/or extracting energy to your heating system to use the maximum capacity your secondary or third heat source provides.

Due to a small DHW volume in the exchanger coils no stagnation is possible as the coil is always flushed by each tap this combines the comfort of a DHW tank and a high hygienic operation.



1. Solar - flow or connection for additional heat source (1" IG)
2. Cold water flow (1" AG)
3. Hot water flow (1" AG)
4. Heating flow (1" AG)*
5. Heating return (1" AG)*
6. Circulation pump
7. a. Recommended accessories: non-return valves (2 pcs.)
9. Storage tank (double walled jacket made of polypropylene with PUR hard foam heat insulation)
10. Filling and drainage connection or Solar - return flow connection
11. Mount for solar controller or handle
12. Heat exchanger (stainless steel) for drinking water heating
13. Heat exchanger (stainless steel) for storage tank charging or heating support
14. Heat exchanger (stainless steel) for pressurised solar storage tank charging
15. Connection for optional electrical Backup-Heater EKBUxx (R 1½," JG)
16. Solar inflow layering pipe
17. Fill level indicator (tank water)
18. Optional: Electrical Backup-Heater (EKBUxx)
19. Submersible sensor sleeve for storage tank temperature sensor t_{DHW1} and t_{DHW2}
20. Unpressurised storage tank water
21. Solar zone
22. Hot water zone
23. Safety overflow connection
24. Mount for handle
25. Type plate
26. Protective cover
27. Solar - return
28. Solar - feed (3/4" IG + 1" AG)
    Daikin Altherma EHS (X/H) B (only Typ...Biv)
29. Solar - return (3/4" IG + 1" AG)
    Daikin Altherma EHS(X/H) B (only Typ...Biv)
30. Panel heat exchanger
31. Connection coolant fluid line
    Daikin Altherma EHS(X/H)...04P30B/08PxxB:
    Cu Ø 6,4 mm (1/4"),
    Daikin Altherma EHS(X/H)...16P50B: Cu Ø 9.5 mm (3/8")
32. Connection to coolant gas line
    Cu Ø 15,9 mm (5/8")

3UVB1: 3-way diverter valve (internal heat generator circuit)

3UV DHW: 3-way diverter valve (hot water/heating)

DS: Pressure sensor

FLS (t_{R1} / V1): Return flow temperature and flow sensor

t_{DHW1}, t_{DHW2}: Storage tank temperature sensor

t_{R2}: Return flow temperature sensor

t_{V1}, t_{V2}: Inflow temperature sensor

$t_{V, BH}$: Flow temperature sensor Backup-Heater

RoCon B1: Operating section Daikin Altherma EHS(X/H) control unit

EKSRPS4A:
Optional: Daikin Solar regulation and pump unit

Safety devices

Observe tightening torque!

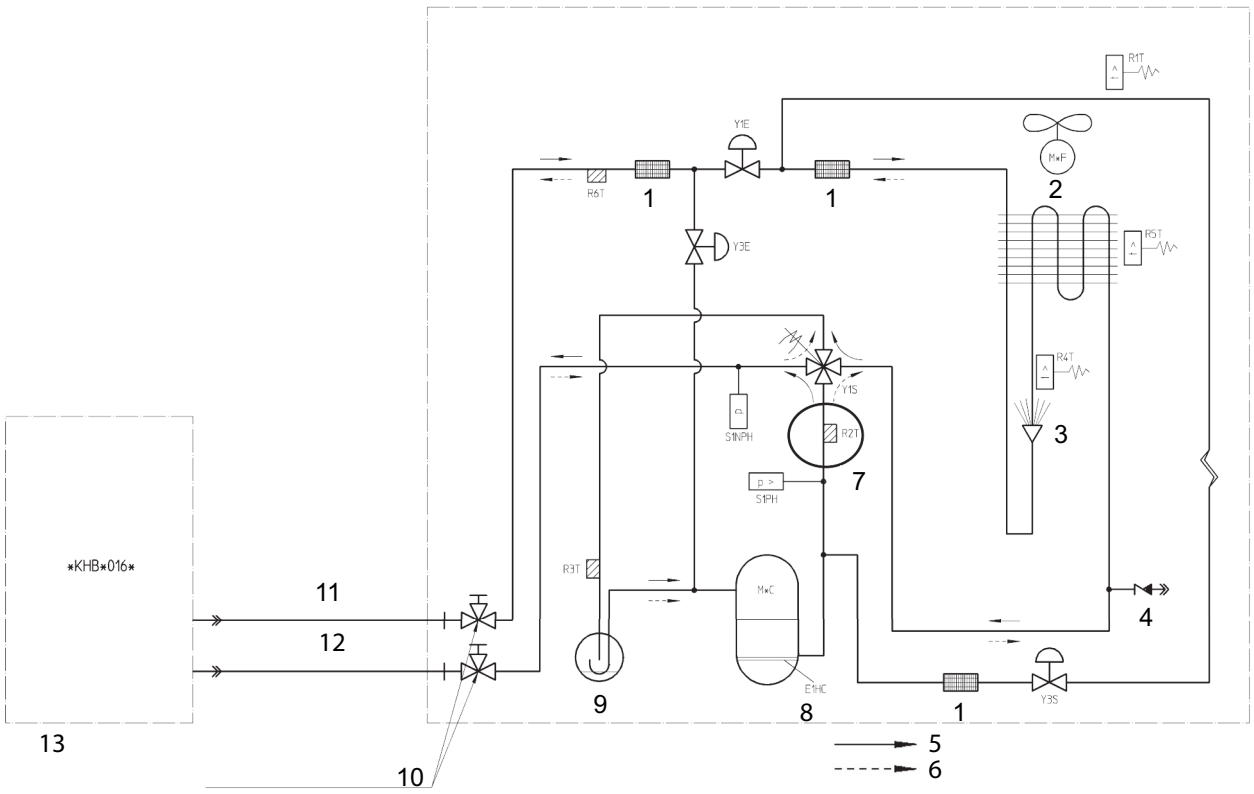
AG: Male thread

IG: Female thread

* Ball cock (1" IG) is supplied with the equipment

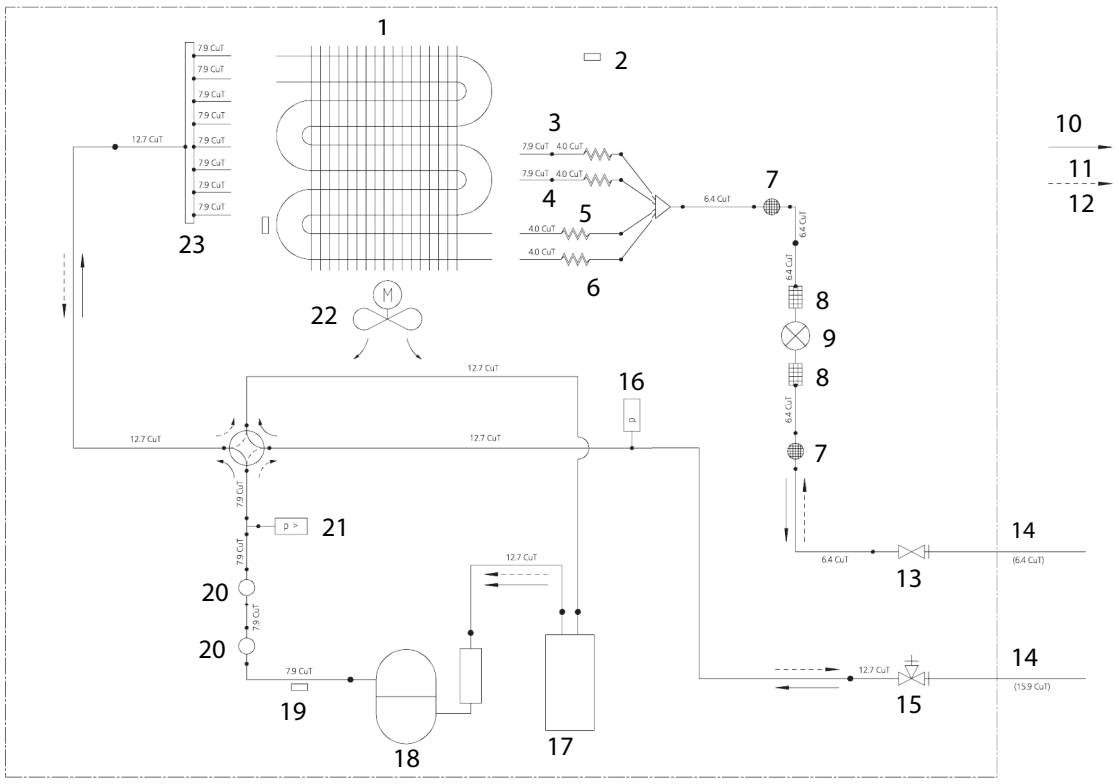
5.4.2. Outdoor unit

Figure 5-17: Piping diagram - outdoor unit



R1T	Thermistor (air)	1.	Filter
R2T	Thermistor (discharge)	2.	Heat exchanger
R3T	Thermistor (suction)	3.	Distributor
R4T	Thermistor (hex)	4.	Service port 5/16”
R5T	Thermistor (middle hex)	5.	Heating
R6T	Thermistor (liquid)	6.	Cooling
S1NPH	Pressure sensor	7.	Muffler
Y1E	Electronic expansion valve (main)	8.	Outdoor unit
Y3E	Electronic expansion valve (INJ)	9.	Accumulator
E1HC	Crankcase heater	10.	Stop valve (with service port 5/16” flare)
Y1S	4-way valve	11.	Field piping ø9.5 C 1220T-0
Y3S	Solenoid valve (hot gas pass)	12.	Field piping ø15.9 C 1220T-0
S1PH	High pressure switch	13.	Indoor unit
M*F	Fan motor		
M*C	Compressor		

Figure 5-18: Piping diagram - outdoor unit



1.	Heat exchanger	13.	Liquid stop valve
2.	Outdoor air temperature thermistor	14.	Field piping
3.	Capillary tube 1	15.	Gas stop valve with service port
4.	Capillary tube 2	16.	Pressure sensor
5.	Capillary tube 3	17.	Accumulator
6.	Capillary tube 4	18.	Compressor
7.	Muffler with filter	19.	Discharge pipe thermistor
8.	Filter	20.	Muffler
9.	Motor-operated valve	21.	High pressure switch
10.	Refrigerant flow	22.	Propeller fan
11.	Cooling	23.	Heat exchanger thermistor
12.	Heating		

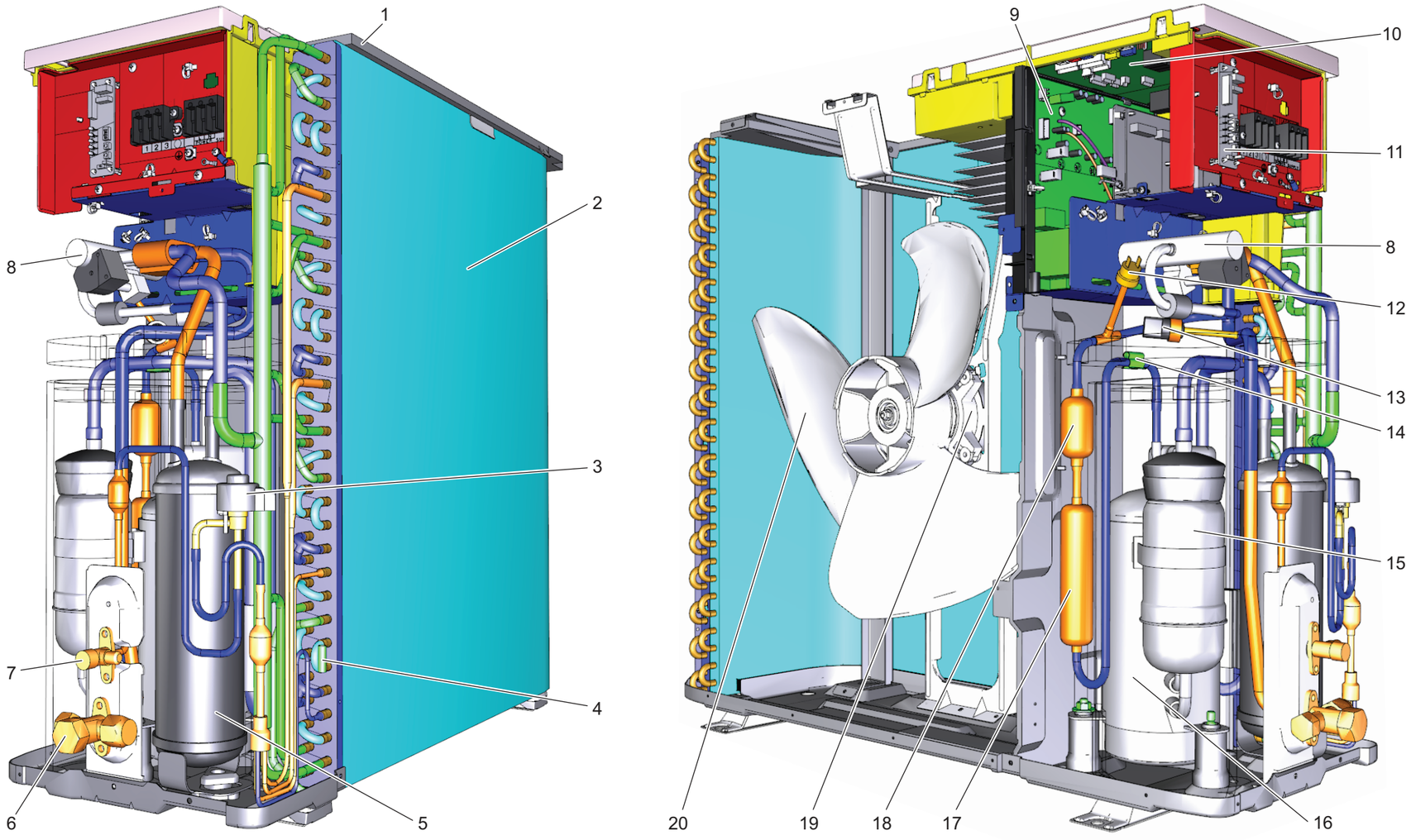
5.5. Component overview of unit

5.5.1. Indoor unit

Not available yet.

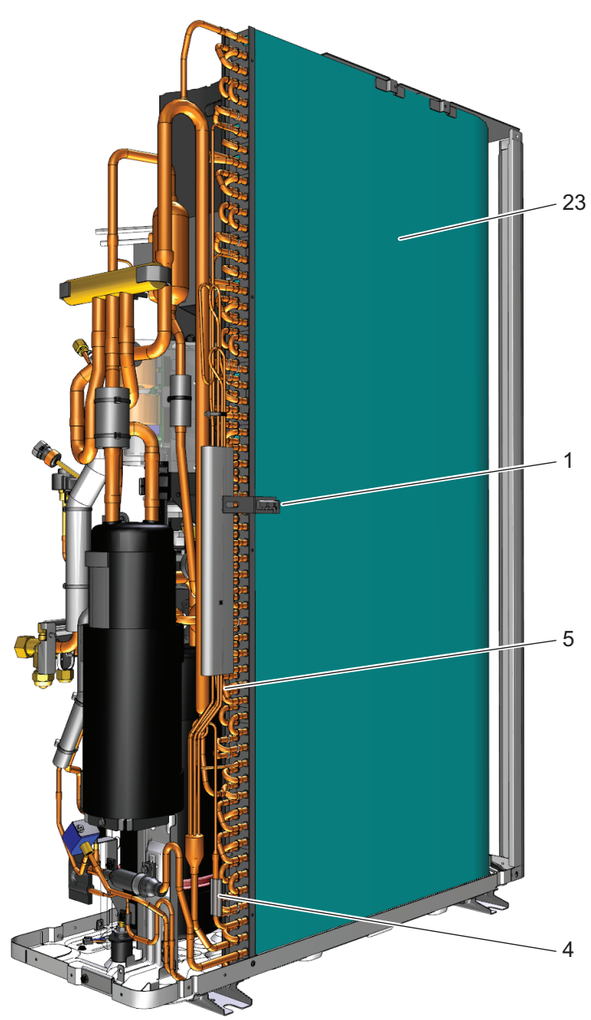
5.5.2. Outdoor unit

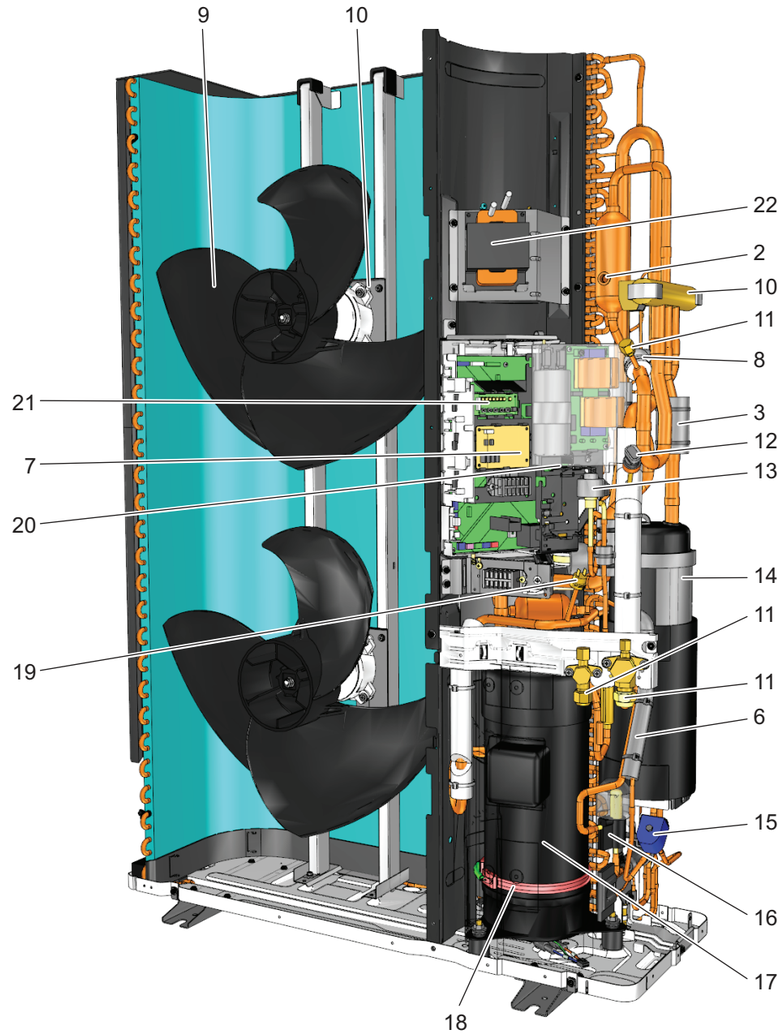
Figure 5-19: Components overview ERLQ004/008CAV3 / ERHQ004/008CAV3



1. R3T
2. Heat exchanger
3. Expansion valve
4. R2T
5. Accumulator
6. Liquid service ports
7. Gas service port
8. 4-way valve coil
9. Inverter PCB
10. PCB (main)
11. Service PCB
12. Switch
13. Sensor
14. R1T
15. Liquid receiver
16. Compressor
17. Muffler + filter
18. Muffler
19. Fan motor
20. Fan

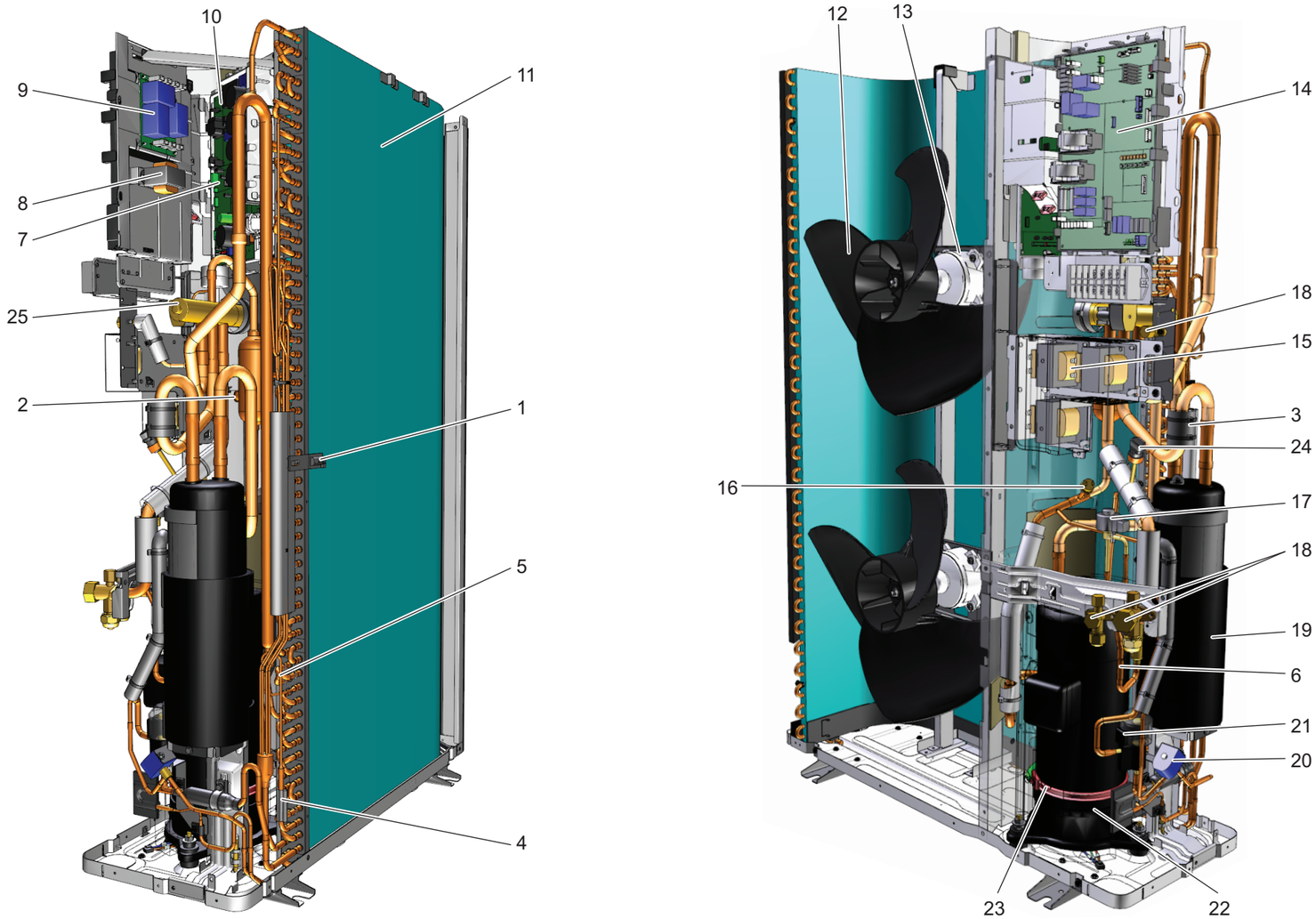
Figure 5-20: Components overview ERLQ011/016CAW1





1. R1T
2. R2T
3. R3T
4. R4T
5. R5T
6. R6T
7. R10T
8. Fan
9. Fan motor
10. 4-Way valve
11. Service port
12. Pressure sensor
13. Expansion valve (Y2E)
14. Accumulator
15. Solenoid valve (Y3S)
16. Expansion valve (Y1E)
17. Compressor
18. Crankcase heater
19. Pressure switch
20. Service PCB + capacitor + noise filter PCB
21. PCB (main)
22. Reactor
23. Heat exchanger

Figure 5-21: Components overview ERLQ011/016CAW1



1. R1T
2. R2T
3. R3T
4. R4T
5. R5T
6. R6T
7. R7T
8. Reactor
9. Noise filter PCB
10. Inverter PCB
11. Heat exchanger
12. Fan
13. Fan motor
14. PCB (main)
15. Reactors
16. Pressure switch
17. Expansion valve (Y2E)
18. Service ports
19. Accumulator
20. Solenoid valve (Y3S)
21. Expansion valve (Y1E)
22. Compressor
23. Crankcase heater
24. Pressure sensor
25. 4-Way valve

5.6. Product specific information

5.6.1. Error codes

5.6.1.1. “E198” - Flow measurement abnormality

Set conditions

If flow < 15 l/min and PWM = 0% (full power of pump) and bypass valve has position > 90% (almost full bypass) error will be created.

Automatic reset conditions

Unit will automatically reset the error if one condition is not true.

During defrost operation PWM is always 0%, if bypass valve has a malfunction and cannot provide sufficient flow, the error will become active during defrost.

5.6.1.2. “E7-00” - Fan motor abnormality

Unit will automatically reset the error after a continuous run for 60 minutes without any other error code.

5.6.1.3. “EA-00” - Malfunction of 4-way valve

Set conditions

Room thermistor/indoor heat exchanger is not functioning within operation range.

Reset conditions

Continuous run for about 60 minutes without any other error.

5.6.1.4. “F3-00” - Discharge pipe temperature abnormality

Set conditions

If the discharge temperature detected is above A, the compressor stops.

Automatic reset conditions

Unit will automatically reset the error when the discharge temperature drops below B for 60 minutes without any other error.

Compressor frequency (Hz)	A (°C)	B (°C)
> 45 Hz and rising > 40 Hz and dropping	110	97
30~45 Hz and rising 25~40 Hz and dropping	105	92
< 30 Hz and rising < 25 Hz and dropping	99	86

5.6.1.5. “L3-00” - Switch box temperature abnormality

Set conditions

When the compressor is off, the radiation fin temperature is above A °C.

Automatic reset conditions

Unit will automatically reset the error when the radiation fin temperature drops below B °C for 60 minutes without any other error.

To cool the electrical components, the outdoor fan starts when the radiation fin temperature rises above C °C and stops when it drops below B °C.

A (°C)	B (°C)	C (°C)
98	75	83

5.6.1.6. “L4-00” - Inverter radiating fin temperature abnormality

Set conditions

When the compressor is ON, the radiation fin temperature is above A °C.

If the error repeats, the system is shut down.

Automatic reset conditions

Unit will automatically reset the error when the radiation fin temperature drops below B °C for 60 minutes without any other error.

A (°C)	B (°C)
98	78

5.6.2. Component checklist

Outdoor unit 4-8 kW	Component	Connector	PCB	Specific
Compressor motor	M1C	WVU	Inverter	-
Fan motor	M1F	S70	Inverter	-
Overload protector	Q1L	S40 pin 3-4	Main	-
Discharge thermistor	R1T	S90 pin 5-6	Main	Type 1
Heat exchanger thermistor	R2T	S90 pin 3-4	Main	Type 1
Outdoor air thermistor	R3T	S90 pin 1-2	Main	Type 1
Reversing solenoid valve coil	Y1R	S80	Inverter	-
Electronic expansion valve coil	Y1E	S20	Main	-
Heater	E1H	-	Main	3 kW
Pressure switch	S1PH	S40 pin 1-2	Main	-
Pressure sensor	S1NPH	S60	Main	-

Outdoor unit 11-16 kW single phase	Component	Connector	PCB	Specific
Compressor motor	M1C	WVU	Main A1P	-
Fan motor 1	M1F	X106A	Main A1P	-
Fan motor 2	M2F	X107A	Main A1P	-
Reactor	L1R	LD/LE	Main A1P	-
Air thermistor	R1T	X11A	Main A1P	Type 1
Discharge thermistor	R2T	X12A ½	Main A1P	Type 2
Suction thermistor	R3T	X12A ¾	Main A1P	Type 1
Heat exchanger thermistor	R4T	X12A 5/6	Main A1P	Type 1
Heat exchanger middle thermistor	R5T	X12A 7/8	Main A1P	Type 1
Liquid thermistor	R6T	X13A	Main A1P	Type 1
Fin thermistor	R10T	X111A	Main A1P	Type 1
Electronic expansion valve main	Y1E	X21A	Main A1P	480 pulses
Electronic expansion valve inj	Y3E	X22A	Main A1P	-
Solenoid valve (4-way valve)	Y1S	X25A	Main A1P	-
Solenoid valve (hot gas pass)	Y3S	X27A	Main A1P	-
Bottom plate heater	E1H	X26A	Main A1P	3 kW
Crankcase heater	E1HC	X28A	Main A1P	
Pressure switch	S1PH	X32A	Main A1P	-
Pressure sensor	S1NPH	X17A	Main A1P	-

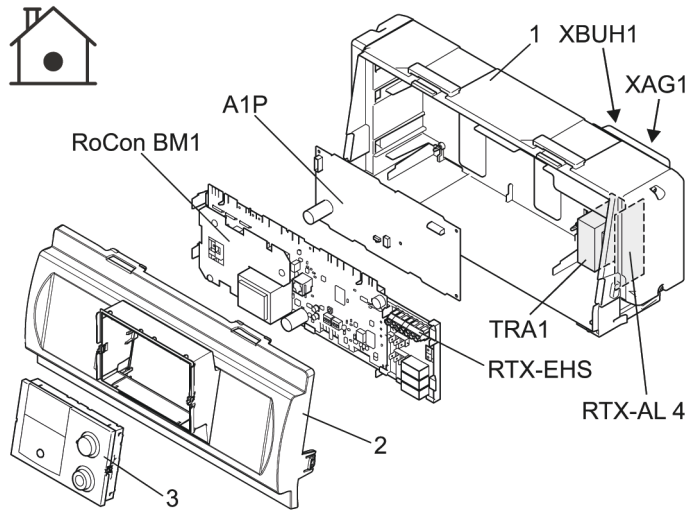
Outdoor unit 11-16 kW three phase	Component	Connector	PCB	Specific
Compressor motor	M1C	WVU	Inverter A2P	-
Fan motor 1	M1F	X106A	Inverter A2P	-
Fan motor 2	M2F	X107A	Inverter A2P	-
Reactor	L4R	X19A	Inverter A2P	-
Air thermistor	R1T	X11A	Main A1P	Type 1
Discharge thermistor	R2T	X12A ½	Main A1P	Type 2
Suction thermistor	R3T	X12A ¾	Main A1P	Type 1
Heat exchanger thermistor	R4T	X12A 5/6	Main A1P	Type 1
Heat exchanger middle thermistor	R5T	X12A 7/8	Main A1P	Type 1
Liquid thermistor	R6T	X13A	Main A1P	Type 1
Fin thermistor	R7T	X111A	Inverter A2P	Type 1
Electronic expansion valve main	Y1E	X21A	Main A1P	480 pulses
Electronic expansion valve inj	Y3E	X22A	Main A1P	-
Solenoid valve (4-way valve)	Y1S	X25A	Main A1P	-
Solenoid valve (hot gas pass)	Y3S	X27A	Main A1P	-
Bottom plate heater	E1H	X26A	Main A1P	3 kW
Crankcase heater	E1HC	X28A	Main A1P	
Pressure switch	S1PH	X32A	Inverter A2P	-
Pressure sensor	S1NPH	X17A	Main A1P	-

Indoor unit 4-16 kW	Component	Connector	PCB	Specific
Water pressure sensor		DS - GND/VCC	Rocon BM1	-
Flow sensor	FLS	FLS - Earth/Flow	Rocon BM1	-
Thermistor	TR1	FLS - Earth/Temp	Rocon BM1	-
Thermistor	Tdhw1	J8 - EVU ½	Rocon BM1	Type 2
Thermistor	Tdhw2	X9A	A1P	Type 1
Thermistor	Tv1	J6	RTX-AL4	Type 3
Thermistor	Tv2	X5A	A1P	Type 3
Thermistor	Tr2	X8A	A1P	Type 3
Thermistor	Tvbh	X6A	A1P	Type 3
Thermistor	TL2	X7A	A1P	Type 3
Thermistor	Tau	J8 - Tww ½	Rocon BM1	Type 2

5.7. Switch box

5.7.1. Indoor unit

Figure 5-22: Switch box - indoor unit



5.7.2. Outdoor unit

Not applicable.

5.8. Field information report

See next page.

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:	
Insert picture of the trouble.	
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 hydro PCB A5P:
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).