ESIE17-06

# Service Manual

# VRV4WC+

## RWEYQ8, 10,14 T9Y1B



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# Part 1. Introduction

**This part contains the following chapters:**

Version log....9
Safety precautions....10
General operation....13
How to use....16

## 1.1. Version log

| Version code | Description | Date |
|---|---|---|
| ESIE17-06 | Document release | 30/10/2017 |

# 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**<br>Indicates a situation that could result in death or serious injury. |
|  | **WARNING: RISK OF ELECTROCUTION**<br>Indicates a situation that could result in electrocution. |
|  | **WARNING: RISK OF BURNING**<br>Indicates a situation that could result in burning because of extreme hot or cold temperatures. |
|  | **WARNING: RISK OF EXPLOSION**<br>Indicates a situation that could result in explosion. |
|  | **WARNING: RISK OF POISONING**<br>Indicates a situation that could result in poisoning. |
|  | **WARNING: RISK OF FIRE**<br>Indicates a situation that could result in fire. |
|  | **CAUTION**<br>Indicates a situation that could result in equipment or property damage. |
|  | **INFORMATION**<br>Indicates useful tips or additional information. |

## 1.2.2. Warnings

| | |
|---|---|
|  | **WARNING**<br>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 159.
- 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**

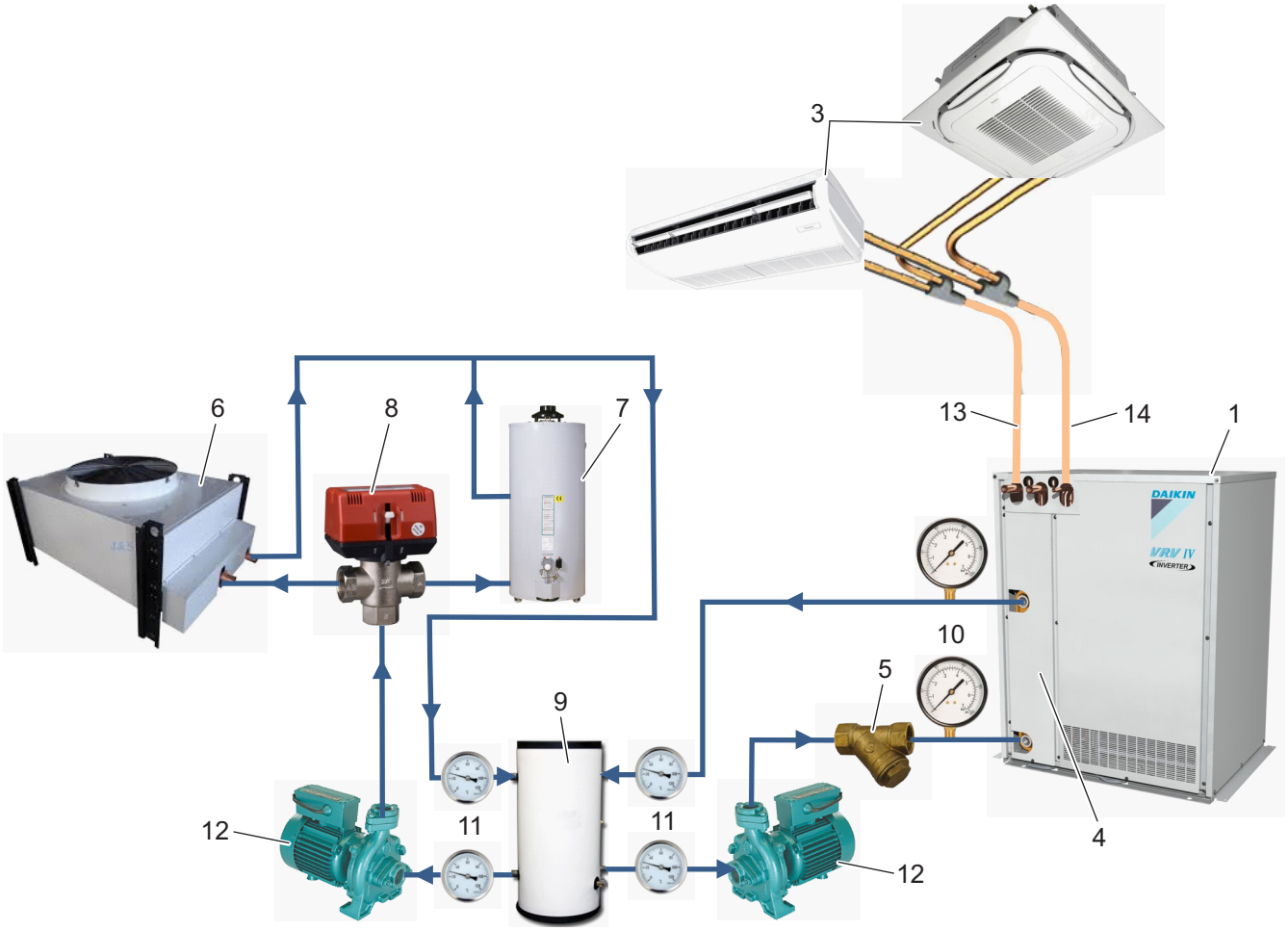
Make sure the field piping and connections are not subjected to stress.

# 1.3. General operation

- VRV IV-Water-cooled unit (1) is typically used for cooling or heating in commercial applications where local restrictions do not allow outdoor A/C equipment to be visible, or when the building does not offer place to install the normal air cooled VRV outdoor unit.
- When the VRV IV-Water-cooled unit is connected without BS boxes (BS = Branch selector), the system operates like a heat-pump unit; all indoor units (3) operate in the same mode (cooling or heating). Refer to figure 1-1 on page 14.
- When the VRV IV-Water-cooled unit is connected via BS boxes (2) to indoor units (3), the system operates like a heat-recovery system: indoor unit(s) at each BS box can operate in cooling or heating individually. Refer to figure 1-2 on page 15.
- VRV IV-Water-cooled unit contains a compressor, and a water cooled plate heat-exchanger instead of the air cooled heat-exchanger.
- VRV IV-Water-cooled unit also contains the inverter driven compressor and the control board.
- The inverter circuit dissipates heat. By field setting [2-74] (see table RWEYQ-T - mode 2 (Field setting mode)) you can set the maximum air temperature allowed in the plant room. When the room temperature exceeds the set temperature, the internal built in evaporator will cool down air discharged through the inverter board back panel (zero energy dissipation function).
- At the water inlet of the plate heat-exchanger (4) of the VRV IV-Water-cooled unit, the standard supplied water filter (5) must be installed.
- Local installed water circuit needs to provide the possibility to:
  - Dissipate heat (example dry-cooler) (6) when the plate heat-exchanger is set to condenser.
  - Absorb heat (example boiler) (7) when the plate heat-exchanger is set to evaporator.
  - The control (8) to switch between heat dissipation or heat source needs to be provided locally.
  - Sufficient water volume (9) to allow control of VRV IV-Water-cooled unit and local control to adjust operation according to the water temperature setting.
  - By field setting [2-50] (see table RWEYQ-T - mode 2 (Field setting mode)), it is possible to use VRV IV-Water-cooled unit in “geothermal” application:
    use ground source (secondary water loop into ground). In this case it is essential to use a glycol solution in the primary circuit (including plate heat-exchanger of VRV IV-Water-cooled unit).
    The pump will need to offer higher water flow and higher pressure drop. Refer to pressure drop data in "Performance Characteristics" on page 166.
  - To easily inspect the operation conditions of the system, it is highly recommended to provide:
    - Gauges (10) at the plate heat-exchanger to see pressure drop
      = indication of flow rate and restricting filter or plate heat-exchanger.
    - Temperature indicators (11) to show the temperature inlet and outlet
      = indication of flow rate and operation range equipment.
- The water flow rate through the plate heat-exchanger can be a fixed flow or variable water flow rate. The change of water flow rate in function of load can be covered by (local supplied) inverter pump, or/and variable water flow rate by (local supplied) water modulating valve. The control VRV IV-Water-cooled unit offers an output signal 2 & 10 DCV output by the control. The selection for variable water flow (pump or/and valve) is chosen by changing field setting [2-24] (see table RWEYQ-T - mode 2 (Field setting mode).
- The VRV IV-Water-cooled unit has 3 refrigerant pipe connections:
  - Refer to figure 1-1 on page 14.
    Without BS boxes use the HP/LP gas pipe (left) (13) + liquid (right) (14) towards the optional refnet(s) towards indoor unit(s).
  - Refer to figure 1-2 on page 15.
    With BS boxes use the 3 connections through refnets to the BS units; HP/LP gas pipe (left) (13) + liquid (right) (14) + suction (15). From the BS box, gas and liquid pipe is connected towards indoor unit(s).

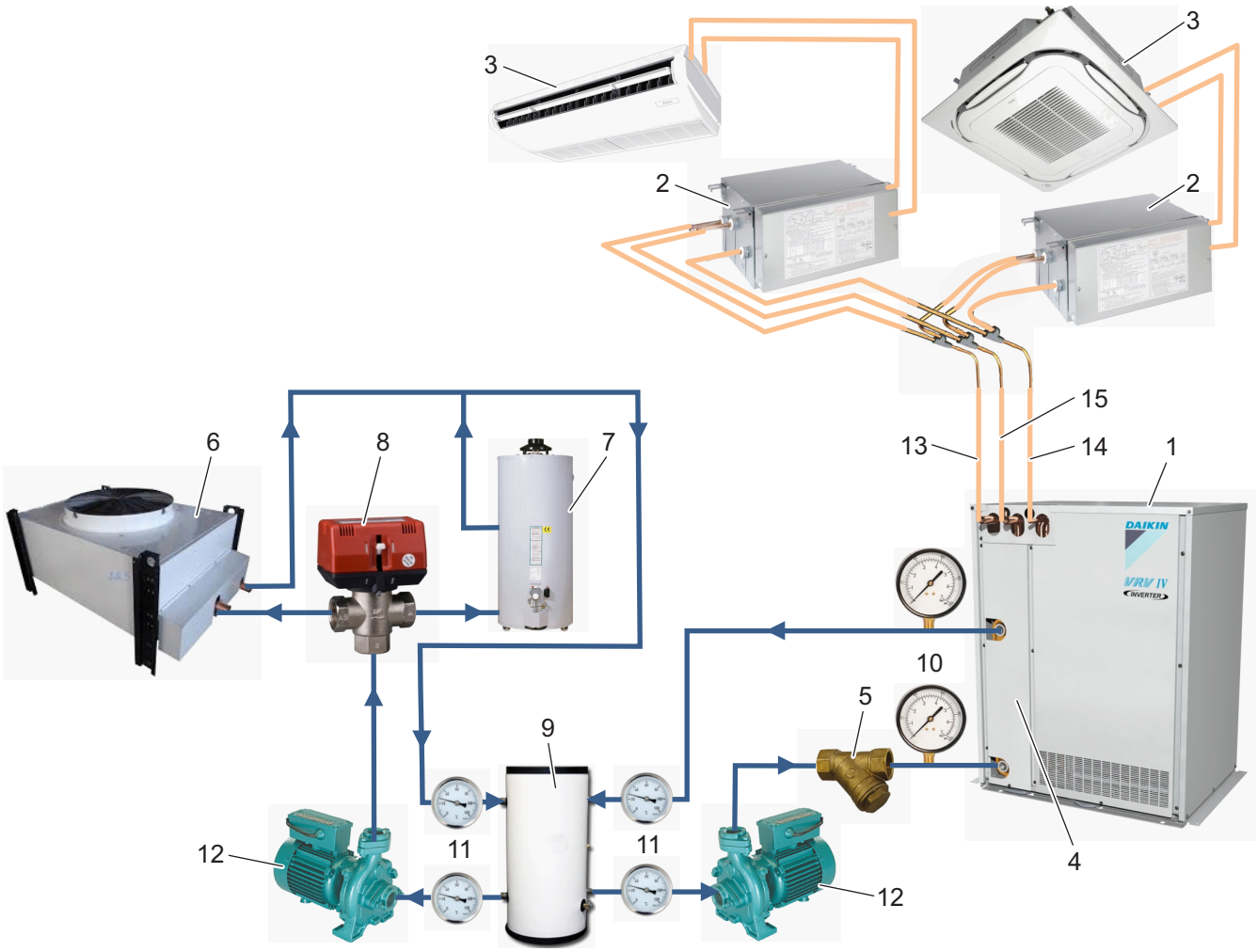
- In cooling mode:
  - The compressor capacity step is controlled based on evaporation temperature. Range of frequency output, see "Control range" on page 165.
  - The plate heat-exchanger is used as condenser.
- In heating mode:
  - The compressor capacity step is controlled based on condensing temperature. Range of frequency output, see "Control range" on page 165.
  - The plate heat-exchanger is used as evaporator.

***Figure 1-1: VRV4WC+ heat-pump application***




1. VRV IV-Water-cooled unit
2. -
3. Indoor unit
4. PHE front plate
5. Water filter
6. Dry-cooler
7. Boiler
8. Heat dissipation or heat source control
9. Buffer tank
10. Pressure gauges
11. Temperature indication
12. Water pump
13. High pressure/Low pressure gas pipe
14. Liquid pipe

*Figure 1-2: VRV4WC+ heat-recovery application*



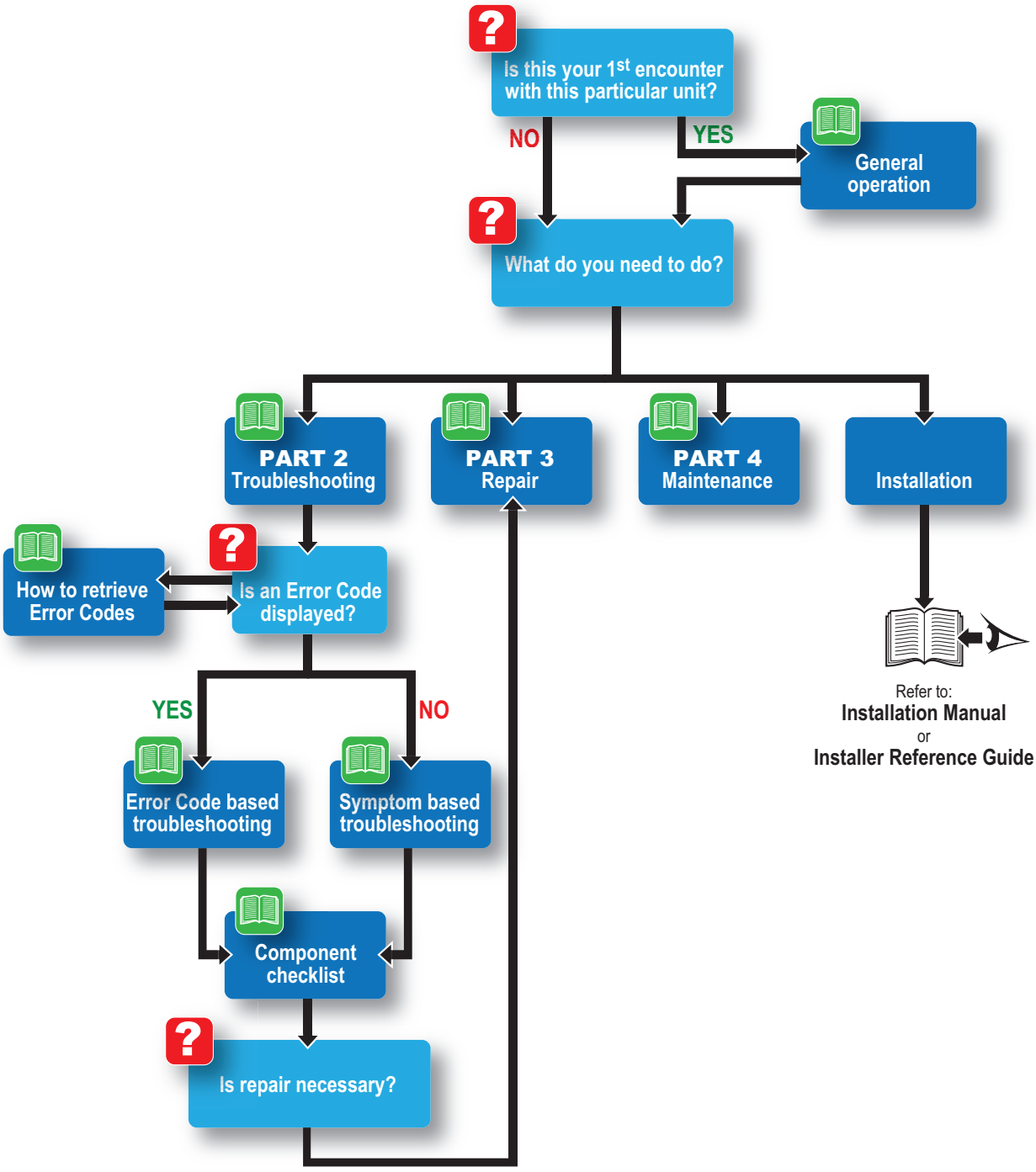

1. VRV IV-Water-cooled unit
2. BS box
3. Indoor unit
4. PHE front plate
5. Water filter
6. Dry-cooler
7. Boiler
8. Heat dissipation or heat source control
9. Buffer tank
10. Pressure gauges
11. Temperature indications
12. Water pump
13. High pressure/Low pressure gas pipe to BS box
14. Liquid pipe to BS box
15. Suction pipe to BS box

# 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 9 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 93 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 151 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 153 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 code based troubleshooting ..... 27
Symptom based troubleshooting ..... 61
Component checklist ..... 66
Other capacity range ..... 91

## 2.1. Error codes check

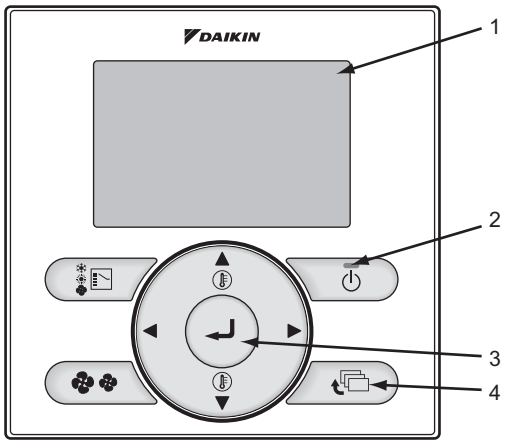
### 2.1.1. Error codes via remote controller

#### 2.1.1.1. Error codes via wired remote controller BRC1E

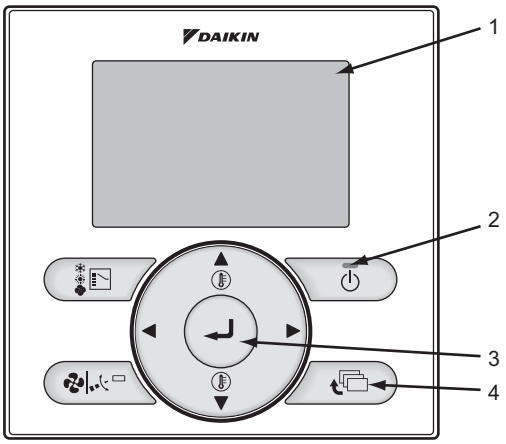
##### 2.1.1.1.1 How to retrieve error codes

The following message will be displayed on the screen when a malfunction or a warning occurs during operation.

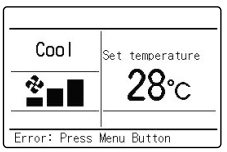
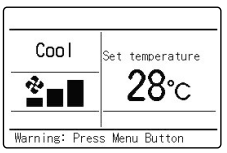
BRC1E51




BRC1E52, BRC1E53




1. Screen
2. Operation lamp
3. ‘menu’ button
4. ‘cancel’ button

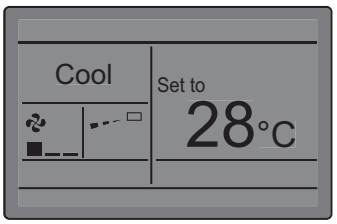
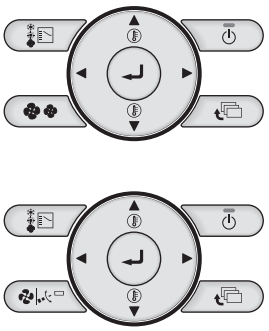
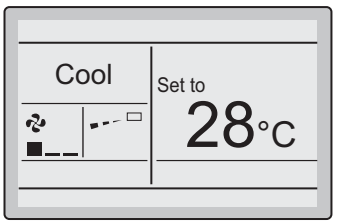
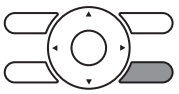
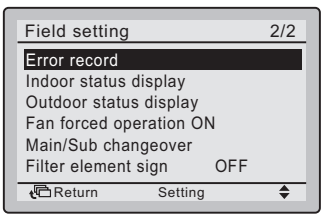
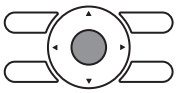
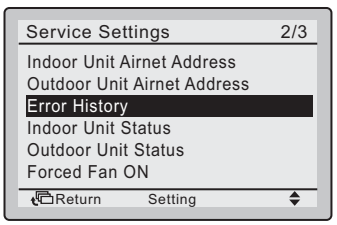
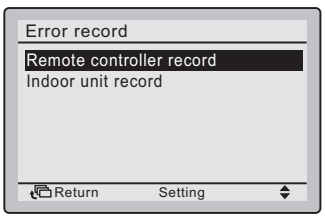
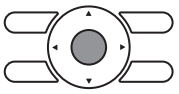
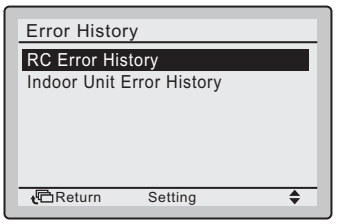
| | Operation Status | Display | |
|---|---|---|---|
| Abnormal shut-down | The system stops operating. | The operation lamp (green) starts to blink. The message “Error: Press Menu button” will appear and blink at the bottom of the screen. |   |
| Warning | The system continues its operation. | The operation lamp (green) remains on. The message “Warning: Press Menu button” will appear and blink at the bottom of the screen. |   |

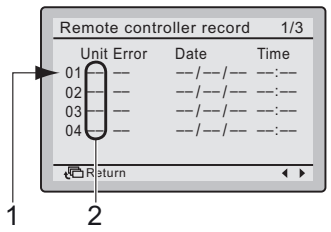
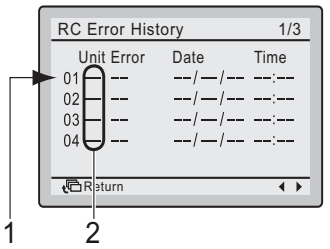
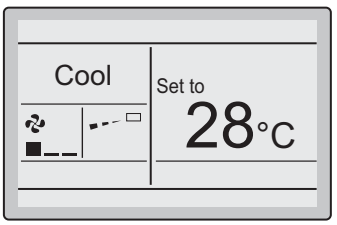
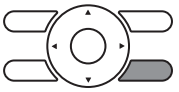
If an error or warning is present, it will be displayed on the user interface screen: for more information about troubleshooting, refer to "Error code based troubleshooting" on page 27.

#### 2.1.1.1.2 How to reset error codes

In "Error code based troubleshooting" on page 27 you find a description of how to reset the specific error or warning.

#### 2.1.1.1.3 History of error codes

| Step | Control Type | Method | Example display | Button location |
|---|---|---|---|---|
| 1 | BRC1E51<br>BRC1E52<br>BRC1E53 | If the backlight is switched off press once any button so that the backlight is activated. |  |  |
| 2 | BRC1E51 | Press and hold the Cancel button for 4 seconds or longer in the Basic screen. The Field Settings menu is displayed. |  | <br>Press and hold the Cancel button for 4 seconds or longer while the backlight is lit. |
| | BRC1E52<br>BRC1E53 | Press and hold the Cancel button for 4 seconds or longer in the Basic screen. The Service Settings menu is displayed. | | |
| 3 | BRC1E51 | Select *Error Record* and press the Menu/Enter button. The Error Record menu is displayed. |  | <br>Press the Menu/Enter button. |
| | BRC1E52<br>BRC1E53 | Select *Error History* and press the Menu/Enter button. The error History menu is displayed. |  | |
| 4 | BRC1E51 | Select *Remote controller record* and press the Menu/Enter button. The error codes and unit No. can be confirmed in the RC Error record screen. |  | <br>Press the Menu/Enter button. |
| | BRC1E52<br>BRC1E53 | Select *RC Error History* and press the Menu/Enter button. The error codes and unit No. can be confirmed in the RC Error History screen. |  | |

| | | | | |
|---|---|---|---|---|
| 5 | BRC1E51 | In the Remote Controller record screen the last 10 items are displayed in order. |  | 1. Latest record<br>2. Unit no. |
| | BRC1E52<br>BRC1E53 | In the RC Error History screen the last 10 items are displayed in order. |  | |
| 6 | BRC1E51 | Press the Cancel button in the Remote Controller record screen 3 times. The Basic screen returns. |  | <br>Press the Cancel button for 3 times. The basic screen returns. |
| | BRC1E52<br>BRC1E53 | Press the Cancel button in the RC Error History screen 3 times. The Basic screen returns. | | |

**INFORMATION**

The indoor unit error history of each indoor unit can be independently consulted. The last 5 items are displayed in order of appearance.

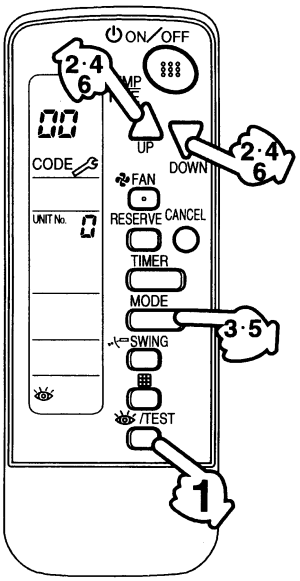
## 2.1.1.2. Error codes via wireless remote controller BRC7

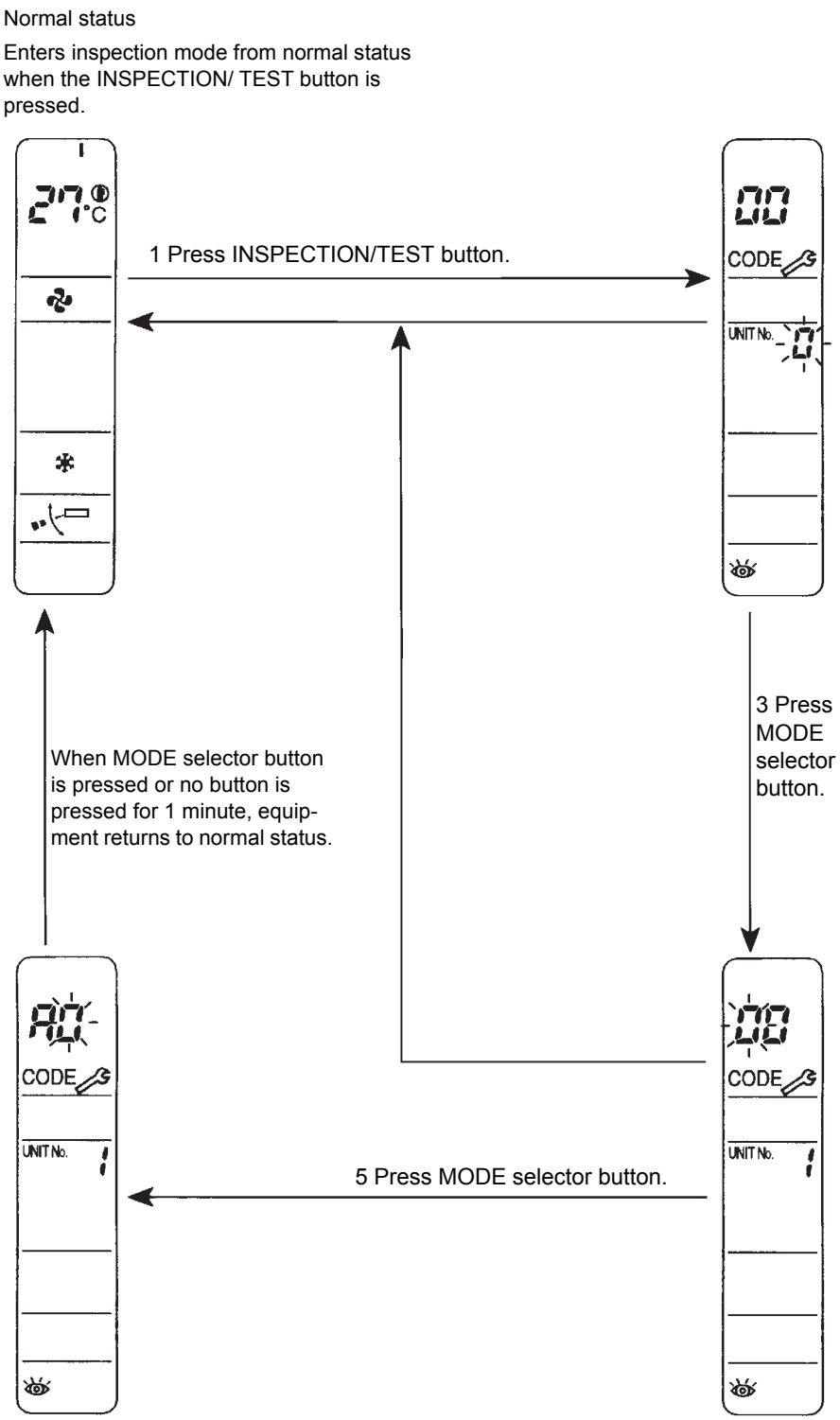
### 2.1.1.2.1 How to retrieve error codes

If the unit stops due to an error, the operation indicating LED on the indoor unit flashes.

The error code can be determined through the wireless remote controller by following the procedure described below.

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

| | | |
|---|---|---|
| 1 | Press the INSPECTION/TEST button to select “inspection”. The equipment enters the inspection mode. The “Unit” indication is displayed and the Unit No. display shows flashing “0” indication. |  |
| 2 | Set the Unit No.<br>Press the UP or DOWN button and change the Unit No. display until the buzzer (*1) is generated from the indoor unit.<br>*1 Number of beeps<br>3 short beeps: Conduct all of the following operations.<br>1 short beep: Conduct steps 3 and 4.<br>Continue the operation in step 4 until a buzzer remains ON. The continuous buzzer indicates that the error code is confirmed.<br>Continuous beep: No abnormality. | |
| 3 | Press the MODE selector button.<br>The left “0” (upper digit) indication of the error code flashes. | |
| 4 | Error code upper digit diagnosis<br>Press the UP or DOWN button and change the error code upper digit until the error code matching buzzer (*2) is generated.<br>• The upper digit of the code changes as shown below when the UP and DOWN buttons are pressed.<br><br>⇨ “UP” button ⇦ “DOWN” button<br>*2 Number of beeps<br>Continuous beep: Both upper and lower digits matched. (Error code confirmed)<br>2 short beeps: Upper digit matched.<br>1 short beep: Lower digit matched. | |
| 5 | Press the MODE selector button.<br>The right “0” (lower digit) indication of the error code flashes. | |
| 6 | Error code lower digit diagnosis<br>Press the UP or DOWN button and change the error code lower digit until the continuous error code matching buzzer (*2) is generated.<br>• The lower digit of the code changes as shown below when the UP and DOWN buttons are pressed.<br><br>⇨ “UP” button ⇦ “DOWN” button | |



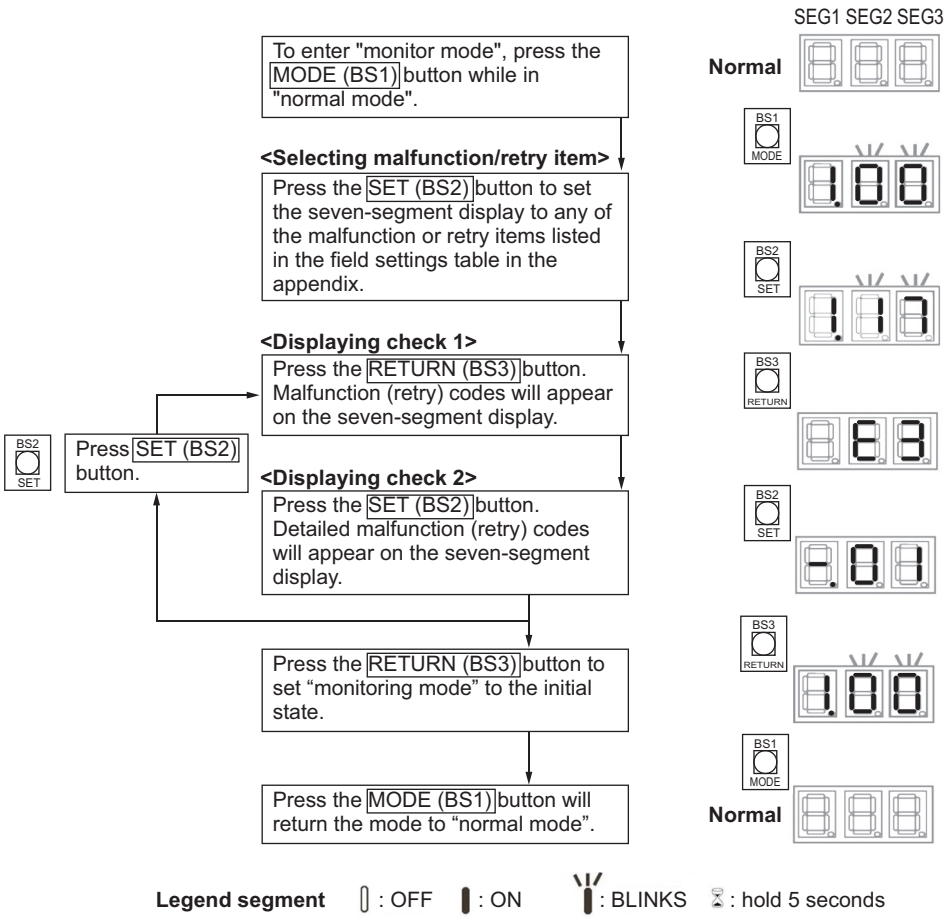

### 2.1.1.2.2 How to reset error codes

In "Error code based troubleshooting" on page 27 you find a description of how to reset the specific error or warning.

## 2.1.2. Error codes via outdoor unit

### 2.1.2.1. How to retrieve error codes

Troubleshooting by 7-Segment display on the main PCB “A1P”




| 7-segment display - Main PCB A1P | | | | |
|---|---|---|---|---|
| **Malfunction code** | | | **Malfunction** | |
| **Main** | | **Sub** | **Contents** | **Location** |
| E | 0 | 02 | Input Err Open | RWEYQ-T9 |
| | 2 | 01 | Earth leakage activated | RWEYQ-T9 |
| | | 06 | Earth leakage input open | |
| | 3 | 01 | High pressure switch open | RWEYQ-T9 |
| | | 02 | High pressure abnormal | RWEYQ-T9 |
| | | 13 | Stop valve closed | |
| | | 18 | High pressure abnormal | |
| | 4 | 01 | Low pressure abnormal | RWEYQ-T9 |
| | 9 | 01 | Coil expansion valve subcool defect | RWEYQ-T9 |
| | | 47 | Coil expansion valve main defect | RWEYQ-T9 |
| F | 3 | 01 | Discharge temperature abnormal high | RWEYQ-T9 |
| | 6 | 02 | Discharge temperature abnormal low | |
| H | 9 | 01 | Air sensor out of range | RWEYQ-T9 |

| 7-segment display - Main PCB A1P | | | | |
|---|---|---|---|---|
| Malfunction code | | | Malfunction | |
| Main | | Sub | Contents | Location |
| J | 3 | 16 | Discharge thermistor open circuit | RWEYQ-T9 |
| | | 17 | Discharge thermistor short circuit | |
| | 4 | 01 | Gas thermistor heat-exchanger - out of range | RWEYQ-T9 |
| | 5 | 01 | Thermistor accumulator inlet - out of range | RWEYQ-T9 |
| | | 02 | Thermistor compressor suction - out of range | |
| | 6 | 01 | Thermistor liquid heat-exchanger - out of range | RWEYQ-T9 |
| | 7 | 06 | Thermistor liquid stop-valve - out of range | RWEYQ-T9 |
| | 9 | 01 | Thermistor gas out sub-cool - out of range | |
| | A | 06 | High pressure sensor - open circuit | |
| | | 07 | High pressure sensor - short circuit | |
| | C | 06 | Low pressure sensor - open circuit | |
| | | 07 | Low pressure sensor - short circuit | |
| L | C | 14 | Communication error control & inverter board | RWEYQ-T9 |
| P | 1 | 01 | Power supply unbalance (> 4%) | RWEYQ-T9 |
| | J | 01 | Capacity setting mixmatch inverter board | RWEYQ-T9 |
| U | 1 | 01 | Reverse phase detection | RWEYQ-T9 |
| | | 04 | Reverse phase detection | |
| | 2 | 01 | Inverter charge DC voltage not possible | |
| | | 02 | Phase missing inverter | |
| | 3 | 03 | Test run not performed | |
| | 4 | 01 | Communication error Outdoor-indoor | |
| | | 03 | Communication error Outdoor-indoor | |
| | | 04 | Test run abnormal ended | |
| | 7 | 01 | Warning faulty wiring (at Q1Q2 terminals) | |
| | | 02 | Malfunction due to faulty wiring | |
| | | 11 | Exceed number or capacity index indoor units | |
| | 9 | 01 | System error (check indoor malfunction code) | |
| | A | 03 | > 1x RDXYQ detected same F1F2-Indoor | RWEYQ-T9 |
| | | 18 | Combination to non-compatible indoor unit (only R410A type indoor) | |
| | H | 01 | Auto address indoor (F1F2) malfunction | RWEYQ-T9 |

For more information about troubleshooting, refer to "Error code based troubleshooting" on page 27.

### 2.1.2.2. How to reset error codes

- When a problem is solved:
  - System will restart automatically, except for error code JC, JA, L1~L9, U1,UA, UF.
  - Indoor unit operation should be switched off and on again for error JC, JA, L1~L9.
  - Power supply to switch off and delay 10 seconds on again for error U1, UA, UF.

### 2.1.2.3. History of error codes and warnings

As described in above procedure, the latest error or warning codes can be consulted in Monitor mode:

#### 2.1.2.3.1 Control board equipped with 7-segment display (RWEYQ-T9)

| Mode 1 - code | Description |
|---|---|
| 17 | Last error - forced off |
| 18 | 2nd last error - forced off |
| 19 | 3rd last error - forced off |

#### 2.1.2.3.2 Content of retry

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

Here, you can find the errors that were created before they were displayed on the indoor control device.

#### 2.1.2.3.3 Control board equipped with 7-segment display (RWEYQ-T9)

| Mode 1 - code | Description |
|---|---|
| 23 | Last error - retry |
| 24 | 2nd last error - retry |
| 25 | 3rd last error - retry |

The procedure to identify the retry code is similar to retrieving the error code.

# 2.2. Error code based troubleshooting

**Overview of error codes:**

Error code BS and outdoor ..... 28
Error code indoor units ..... 35
Error code VRV IV-Water cooled unit ..... 37
"E2" – Earth leakage detection ..... 37
"E3" – Discharge pressure abnormality ..... 37
"E4" – Suction pressure abnormality ..... 38
"E5" – Compressor motor lock ..... 39
"E9" – Electronic expansion valve abnormality ..... 40
"F3" – Discharge pipe temperature abnormality ..... 41
"F4" – Wet operation caution ..... 42
"F6" – Refrigerant overcharge detection during test-run ..... 42
"H3" – Discharge pressure switch abnormality ..... 43
"H9" – Air temperature abnormality ..... 44
"HJ – Faulty watercircuit ..... 44
"J3" – Discharge temperature abnormality ..... 45
"J4" – Gas temperature PHE-$H_2O$ abnormality ..... 45
"J5" – Suction accumulator inlet temperature abnormality ..... 46
"J6" – Liquid Sub-cool heat-exchanger temperature ..... 46
"J7" – Liquid temperature abnormality ..... 47
"J9" – Purge receiver + gas out SCHEX temperature abnormality ..... 47
"JA" – High pressure sensor abnormality ..... 48
"JC" – Low pressure sensor abnormality ..... 48
"L1" – Main board abnormality ..... 49
"L2" – Power Supply quality abnormality ..... 49
"L5" – Output overcurrent detection ..... 50
"L8" – Inverter overcurrent ..... 51
"L9" – Stall prevention ..... 51
"LC" – Transmission system abnormality ..... 52
"P1" – Ripple DC voltage diode module to power transistors ..... 52
"P4" – Overheat power module ..... 53
"PJ" – Capacity setting mixmatch inverter board ..... 53
System ..... 54
"U0" – Refrigerant shortage ..... 54
"U1" – Reverse phase or open phase ..... 55
"U2" – DC voltage DM <-> PM not permanent available ..... 55
"U3" – Test run failed ..... 56
"U4" – Transmission abnormality between outdoor and indoor unit ..... 56
"U7" – Transmission between systems abnormality ..... 57
"U9" – Systems abnormality ..... 58
"UF" – Wiring and piping mismatch ..... 59
"UH" – Auto-address failure ..... 60
Others ..... 60

## 2.2.1. Error code BS and outdoor

| Main | Sub error code | | | Error codes related to BS..Q..AA | | | |
|---|---|---|---|---|---|---|---|
| Error | Main | Sub1 | Sub2 | Status outdoor | Reset | Cause | Solution |
| A3 | 01 | | | Forced stop | Auto recovery | BS unit control board faulty | Check power to BS unit board, check LED “HAP” is blinking, change board |
| F9 | | 01 | | Forced stop | Power reset BS unit | coil Y2E (EVH) BS unit open circuit | check winding expansion valve coil Y2E (gas HP) in BS unit connected to indoor showing error |
| | | 02 | | Forced stop | Power reset BS unit | coil Y3E (EVL) BS unit open circuit | check winding expansion valve coil Y3E (gas LP) in BS unit connected to indoor showing error |
| | | 05 | | Forced stop | Power reset BS unit | coil Y1E (EVSC) BS unit open circuit | check winding expansion valve coil Y1E (liquid sub-cool) in BS unit connected to indoor showing error |

| Main | Sub error code | | | Error codes related to RWEYQ-T9 | | | |
|---|---|---|---|---|---|---|---|
| Error | Main | Sub1 | Sub2 | Status outdoor | Reset | Cause | Solution |
| E1 | | 1 | | Forced stop | BRC... | Main board abnormality | Check power supply stable |
| | | 2 | | Forced stop | Power reset | Main board defect | Replace board |
| E2 | 01 | 02 | 03 | Forced stop | BRC... | Earth leak detection | Repair part cause earth leakage |
| | 06 | 07 | 08 | Forced stop | BRC... | Open circuit detection | Re-connect device |
| E3 | 01 | 03 | 05 | Forced stop | BRC... | HP switch opened | Check cause HP actuation |
| | 13 | 14 | 15 | Forced stop | BRC... | HP liquid check test-run | Open stop valve(s) |
| E4 | 01 | 02 | 03 | Forced stop | BRC... | LP sens detects below 0,07MPa during operation | Check cause of abnormal low pressure during operation |
| E5 | 1 | 2 | 3 | Forced stop | BRC... | inverter compressor lock | Check compressor nr. 1 motor winding |
| E6 | 11 | 13 | 16 | Forced stop | BRC... | inverter board compressor abnormal | Replace inverter board compressor nr.1 |
| | 17 | 19 | 21 | Forced stop | BRC... | inverter board compressor damaged | Replace inverter board compressor nr.1 |
| E9 | 01 | 05 | 08 | Forced stop | Power reset | Motor faulty expansion valve Y2E - Sub-cool liquid | check winding expansion valve coil Y2E. Replace coil or main board A1P |
| | 03 | 06 | 09 | Forced stop | Power reset | Motor faulty expansion valve Y1E - main liquid | check winding expansion valve coil Y1E.Replace coil or main board A1P |
| | 04 | 07 | 10 | Forced stop | Power reset | Motor faulty expansion valve Y3E - purge receiver | check winding expansion valve coil Y3E.Replace coil or main board A1P |
| F3 | 01 | 03 | 05 | Forced stop | BRC... | high temperature discharge pipe thermistor R12T | Check discharge thermistors, operation expansion valves, refrigerant charge |
| | 02 | 04 | 06 | Forced stop | BRC... | Cross gas pipes at BS unit | Change field pipe connections |
| | 20 | 21 | 22 | Forced stop | BRC... | high temperature compressor body thermistor R13T | Check compressor body thermistor, operation expansion valves, refrigerant charge |
| F4 | | 01 | | Forced stop | Power reset | Liquid back alarm | verify heat-exchange efficiency |

| Main | Sub error code | | | Error codes related to RWEYQ-T9 | | | |
|---|---|---|---|---|---|---|---|
| Error | Main | Sub1 | Sub2 | Status outdoor | Reset | Cause | Solution |
| F6 | | 02 | | Forced stop | Power reset | Refrigerant overcharge by high pressure sensor | Verify following sensor, replace if faulty:R12T,S1NPH. Verify refrigerant charge. |
| H3 | 2 | 4 | 6 | Forced stop | BRC... | Connection malfunction main board-inverter | Check communication main board to inverter pcb compressor. |
| H9 | 01 | 02 | 03 | Forced stop | Auto recovery | R1T= air thermistor: out of range | Check resistance R1T=air thermistor, sub board A1P, connector X11A pin1+2 |
| HJ | 01 | 02 | 03 | Forced stop | Power reset | insufficient water flow through PHE-$H_2O$. When PHE-$H_2O$ evaporator Tevapo below 0°C | Adjust water flow rate, or correct field wiring flow switch input, or adjust operation of valve(s) in water circuit. |
| | 06 | 13 | 14 | Forced stop | BRC… | fault detection operation of (optional) modulation water valve. | Correct wring to (optional) modulating water valve. |
| | 15 | 16 | 17 | Forced stop | BRC… | R9T= thermistor $H_2O$ inlet (optional): out of range | Check resistance R9T=thermistor $H_2O$ inlet, main board A1P, terminal X2M nr.7+8 |
| | 18 | 19 | 20 | Forced stop | BRC… | R10T= thermistor $H_2O$ outlet (optional): out of range | Check resistance R10T=thermistor $H_2O$ outlet, main board A1P, terminal X2M nr.9+10 |
| J3 | 17 | 23 | 29 | Forced stop | BRC… | R12T Discharge pipe thermistor: out of range | Check resistance R12T=discharge thermistor, main board A1P, connector X19A pin1+2 |
| | 48 | 50 | 52 | Forced stop | BRC… | R13T compressor body thermistor: out of range | Check resistance R13T= compressor body thermistor, main board A1P, connector X19A pin3+4 |
| J4 | 02 | | | Forced stop | BRC… | R4T Thermistor gas PHE-$H_2O$: out of range. | Check resistance R4T= thermistor gas PHE-$H_2O$, main board A1P, connector X30A pin3+4 |
| J5 | 01 | 03 | 05 | Forced stop | BRC… | R3T= thermistor accumulator inlet: out of range | Check resistance R3T= thermistor accumulator inlet, main board A1P, connector X30A pin1+2 |
| J6 | 01 | 02 | 03 | Forced stop | BRC… | R7T thermistor liquid PHE-$H_2O$: out of range | Check resistance R7T= thermistor liquid PHE-$H_2O$,main board A1P, connector X30A pin9+10 |
| J7 | 01 | 02 | 03 | Forced stop | BRC… | R6T= thermistor liquid receiver↔SCHex: out of range | Check resistance R6T= thermistor liquid receiver↔SCHex, main board A1P, pcb connector X30A pin7+8 |
| | 06 | 07 | 08 | Forced stop | BRC… | R8T= thermistor liquid SCHex↔stop valve: out of range | Check resistance R8T= thermistor liquid SCHex↔ Stop valve, main pcb A1P, connector X29A pin5+6 |
| | 18 | 19 | 20 | Forced stop | BRC… | R11T= thermistor Y2E↔SCPHE: out of range | Check resistance R11T= thermistor Y2E↔SCPHE, main pcb A1P, connector X18A pin1+3 |

| Main | Sub error code | | | Error codes related to RWEYQ-T9 | | | |
|---|---|---|---|---|---|---|---|
| **Error** | **Main** | **Sub1** | **Sub2** | **Status outdoor** | **Reset** | **Cause** | **Solution** |
| J9 | 17 | | | Forced stop | BRC… | R2T= thermistor gas outlet ZDP circuit: out of range | Check resistance R2T= thermistor gas outlet ZDP circuit, sub board A4P, connector X12A pin1+2 |
| JA | 01 | 02 | 03 | Forced stop | BRC… | S1NPH = high pressure sensor: out of range | Check voltage S1NPH = high pressure sensor, main board A1P, connector X32A: check 5VDC pin 4+3, input pin 1+3 |
| JC | 01 | 02 | 03 | Forced stop | BRC… | S1NPL = low pressure sensor: out of range | Check voltage S1NPL = low pressure sensor, main board A1P, connector X31A: check 5VDC pin 4+3, input pin 2+3 |
| L1 | 1 | 7 | 11 | Forced stop | BRC… | Inverter pcb A3P malfunction | Replace A3P inverter board |
| | 2 | 8 | 12 | Forced stop | BRC… | pcb A3P current detection primary circuit | Check possible causes overcurrent inverter circuit compressor |
| | 3 | 9 | 13 | Forced stop | BRC… | pcb A3P current detection secondary circuit | Check possible causes overcurrent inverter circuit compressor nr.1 |
| | 4 | 10 | 14 | Forced stop | BRC… | pcb A3P transistor error | Power transistor check, replace A3P inverter pcb |
| | 5 | 15 | 16 | Forced stop | BRC… | pcb A3P hardware fault | Replace A3P inverter board |
| | 36 | 38 | 40 | Forced stop | BRC… | pcb A3P Eeprom fault | Replace A3P inverter board |
| | 47 | 49 | 51 | Forced stop | BRC… | pcb A3P 16VDC abnormal | Check voltage A3P inverter board, replace A3P |
| L2 | 01 | 02 | 03 | Warning | Power reset outdoor | 50Hz zero crossing error during test-run | Adjust power supply quality frequency 50 Hz ± 3% |
| | 04 | 05 | 06 | Warning | Power reset outdoor | 50Hz zero crossing error during normal operation | Adjust power supply quality frequency 50 Hz ± 3% |
| L4 | 01 | 02 | 03 | Forced stop | BRC… | A3P= inverter board, high fin temperature | Check air circulation + operation fan M1F+M2F, sub board A4P, connector X3A output 230VAC |
| L5 | 3 | 5 | 7 | Forced stop | BRC… | A3P= inverter board, short circuit current | Check inverter circuit + compressor + HP-LP< 0,3 MPa prior to start compressor |
| L8 | 3 | 6 | 7 | Forced stop | BRC… | pcb A3P overcurrent after start-up operation | Check inverter circuit + compressor |
| L9 | 1 | 5 | 6 | Forced stop | BRC… | pcb A3P overcurrent during start-up operation | Check inverter circuit + compressor + HP-LP< 0,3 MPa prior to start compressor |
| LC | 01 | | | Forced stop | BRC… | Transmission error between A1P - A3P | Check connection A1P main board ↔A3P inverter board ↔A4P auxiliary board |
| P1 | 01 | 02 | 03 | Warning | Auto recovery | Unbalance power supply > 4% inverter board A3P | Check power supply unbalance maximum 2% X1M main terminals↔ A2P Noise filter↔A3P Inverter board |
| P4 | 01 | 04 | 05 | Warning | Auto recovery | A3P fin thermistor faulty | Replace inverter board A3P |

| Main | Sub error code | | | Error codes related to RWEYQ-T9 | | | |
|---|---|---|---|---|---|---|---|
| Error | Main | Sub1 | Sub2 | Status outdoor | Reset | Cause | Solution |
| PJ | 4 | 5 | 6 | Forced stop | power reset | Incorrect type of inverter board | Adjust horsepower setting main board, or change inverter board correct type |
| U0 | | | | Warning | Auto recovery | Refrigerant shortage detection - warning | Recover and recharge correct refrigerant charge, replace not correct operating expansion valve(s) |
| | | 5 | | Warning | Auto recovery | Refrigerant shortage detection - abnormality | Recover and recharge correct refrigerant charge, replace not correct operating expansion valve(s) |
| | | 6 | | Warning | Auto recovery | Refrigerant shortage detection - heating | Recover and recharge correct refrigerant charge, replace not correct operating expansion valve(s) |
| U1 | 1 | 5 | 7 | Forced stop | Power Reset outdoor | Reverse phase detection L1-L3 | Check presence of phase L3 at pcb A1P, correct phase sequence at terminal X1M |
| | 4 | 6 | 8 | Forced stop | Power Reset outdoor | Reverse phase detection L1-L3 power-on | Check presence of phase L3 at pcb A1P, correct phase sequence at terminal X1M |
| U2 | 01 | 08 | 11 | Forced stop | Auto recovery | pcb A3P low voltage | Check voltage to A3P, closed contact A7P terminals L31+L32 |
| | 02 | 09 | 12 | Forced stop | Auto recovery | pcb A3P phase missing | Check phases to A3P, change A3P |
| | 03 | 10 | 13 | Forced stop | Auto recovery | Capacitor(s)- DC circuit inverter not charging | Check phases to A3P, change A3P |
| U3 | 02 | | | Forced stop | Restart test-run | Test-run interrupted manually | Restart test-run outdoor |
| | 03 | | | Forced stop | Restart test-run | Test-run not performed yet | Start test-run outdoor |
| | 04 | | | Forced stop | Restart test-run | test-run end abnormal | Check indoor unit error code |
| | 05 | | | Forced stop | Restart test-run | test-run abort initial transmission | check communication-restart test-run outdoor |
| | 06 | | | Forced stop | Restart test-run | test-run abort normal transmission | check communication-restart test-run outdoor |
| | 07 | | | Forced stop | Restart test-run | test-run abort transmission abnormal | check communication-restart test-run outdoor |
| | 08 | | | Forced stop | Restart test-run | test-run abort transmission all units | check communication-restart test-run outdoor |
| U4 | 01 | | | Forced stop | Auto recovery | communication error F1F2 between outdoor & indoor | Check communication between outdoor units, power supply outdoor |
| | 03 | | | Forced stop | Auto recovery | communication error because of faulty part at Indoor unit | check indoor units indicating error related to indoor unit (error start with A or C). |

| Main | Sub error code | | | Error codes related to RWEYQ-T9 | | | |
|---|---|---|---|---|---|---|---|
| **Error** | **Main** | **Sub1** | **Sub2** | **Status outdoor** | **Reset** | **Cause** | **Solution** |
| U7 | | 01 | | Forced stop | Auto recovery | Error DTA104A61,62 | (refer to option handbook) |
| | | 02 | | Forced stop | Auto recovery | error initialisation DTA104A61,62 | Check dip switch settings DTA104A61,62 (refer to option handbook) |
| | 03 | 04 | 05 | Forced stop | Auto recovery | communication error outdoor unit | Check communication between main outdoor unit and sub outdoor units. |
| | | 06 | | Forced stop | Auto recovery | Multi address abnormality | Check address each outdoor unit in same multi-outdoor system |
| | | 07 | | Forced stop | Auto recovery | More than 3 units in multi combination (Q1Q2) | Change installation to maximum 3 outdoor units same system |
| | | 11 | | Forced stop | Auto recovery | Test run detects > 64 indoor units same outdoor or index >200% | change installation to maximum 64 indoor units and limit connection ratio outdoor / indoor max.200% |
| | | 24 | | Caution | Power reset DTA104 | Duplication address setting multiple optional boards DTA104A61,62. | Change to unique address on each optional board DTA104A61,62 in same F1F2 OUT/D bus. |
| U9 | | 01 | | Forced stop | Auto recovery | Minimum 1 indoor unit detects system error (UA,U4,UH,A0) | Follow troubleshooting error code shown on indoor controllers other than U9 |

| Main | Sub error code | | | Error codes related to RWEYQ-T9 | | | |
|---|---|---|---|---|---|---|---|
| Error | Main | Sub1 | Sub2 | Status outdoor | Reset | Cause | Solution |
| UA | | 0 | | Forced stop | | CT address outdoor duplication | Change installation with only R410A type indoor units |
| | | 03 | | Forced stop | | Mix of R22,R407C and R410A indoor units detected. | Change installation with only R410A type indoor units |
| | | 16 | | Forced stop | Auto recovery | More than 64 indoor units detected same system | change installation to have maximum 64 indoor units to same system |
| | | 17 | | Forced stop | Auto recovery | Local setting abnormality | Verify and return field settings outdoor to factory value. |
| | | 18 | | Forced stop | | Outdoor unit not compatible to indoor units (refrigerant type) | Change installation with only R410A type indoor units connect to this outdoor unit(s) |
| | | 19 | | Forced stop | Auto recovery | Local set alarm | Verify and return field settings outdoor to factory value. |
| | | 20 | | Forced stop | Auto recovery | Outdoor unit not compatible in multi-combination | Change outdoor unit(s) to have correct combination. |
| | | 21 | | Alarm | Auto recovery | BPMK units detected | change installation without BPMK units. |
| | | 22 | | Alarm | Auto recovery | Single installation abnormality | Change installation only published combination is used. |
| | | 23 | | Alarm | Auto recovery | BS unit too high index indoor connected | Change installation BS unit within published index. |
| | | 25 | | Alarm | Auto recovery | BS main bus zone alarm | Change field wring between outdoor and BS units to have correct communication. |
| | | 26 | | Alarm | Auto recovery | BS branch bus zone alarm | Change field wring between BS units to have correct communication. |
| | | 28 | | Alarm | Auto recovery | Other than BS-Q-A detected | Only use BS-Q-A to VRV4 heat-recovery system |
| | | 29 | | Alarm | Auto recovery | BS unit too low index indoor connected | Change installation BS unit within published index. |
| | | 38 | | Forced stop | Auto recovery | Altherma Hydro unit detected | Only hydro units LT model HXY-A7 and HT model HXHD125 contactable |
| | | 39 | | Forced stop | Auto recovery | incorrect combination units | Change installation only published combination is used. |
| | | 43 | | Forced stop | Auto recovery | incorrect combination | Change installation only published combination is used. |
| | | 50 | | Forced stop | Auto recovery | HT hydro unit connected to BS unit | change installation HT hydro unit without BS unit |
| | | 51 | | Forced stop | Auto recovery | Only Hydro units detected. | System must detected minimum 50% indoor units connected to BS unit(s) |
| | | 53 | | Forced stop | Power reset | pcb BS unit wrong dip switch setting | Check dip switches BS unit |
| UH | 01 | | | Forced stop | Auto recovery | Auto address F1f2 bus inconsistency | Wait till initialisation outdoor is end, Perform cross wiring check. |

| Main | Sub error code | | | Error codes related to RWEYQ-T9 | | | |
|---|---|---|---|---|---|---|---|
| **Error** | **Main** | **Sub1** | **Sub2** | **Status outdoor** | **Reset** | **Cause** | **Solution** |
| UF | | 01 | | Forced stop | Auto recovery | Test run outdoor - Auto address F1f2 bus inconsistency | Wait till initialisation outdoor is end, Perform cross wiring check. |
| | | 05 | | Forced stop | perform test-run | Test run detect stop valves closed or incorrect. | Open stop valves, verify field piping among outdoor unit(s) and BS unit(s) |
| | | 11 | | Forced stop | perform test-run | connection ratio exceed allowed upper% | Remove number of indoor units to be within allowed connection ratio |

## 2.2.2. Error code indoor units

**INFORMATION**

The Error code indoor unit table listed below is only for your information, as some error codes are directly related to the indoor unit and not to the outdoor unit.

For details refer to the “ESIE15-11 Service Manual VRV4 indoor units”.

| Main | Sub error code | Error codes related to FX..Q-M/N/P/A | | | |
|---|---|---|---|---|---|
| **Error** | **Main** | **Status outdoor** | **Reset** | **Cause** | **Solution** |
| A3 | | Cool thermo off | Auto recovery | Float switch open during thermo on (cooling) | Check float switch status, drain pipe no blockage, drain pipe raiser < 600 mm. |
| A6 | 01 | Thermo off | BRC1.. | Fan motor locked | Rpm counter no signal from motor to indoor main board when output. |
| | 10 | Thermo off | BRC1.. | Fan motor overcurrent | Check motor power circuit. Replace fan motor / indoor board. |
| | 11 | Thermo off | BRC1.. | Fan motor locked | Rpm counter no signal at off condition. |
| AH | 03 | Warning | BRC1.. | Communication error main PCB / self cleaning PCB | Check wire harness connections. |
| | 04 | Warning | BRC1.. | Dust detection sensor error | Check wire harness connections. |
| | 05 | Warning | BRC1.. | Dust collection error | Check for clogging by dust between brush-arm and dust collector box. |
| | 06 | Warning | BRC1.. | Air filter rotation error | Check rotation mechanism air filter. |
| | 07 | Warning | BRC1.. | Damper rotation error | Check rotation mechanism damper. |
| | 08 | Warning | BRC1.. | Filter cleaning time error | Filter auto cleaning program could not be performed 24 hr operation. |
| | 09 | Warning | BRC1.. | Auto self cleaning disabled | Check field settings to enable auto filter cleaning. |
| AF | | Thermo off | BRC1.. | Float switch open during thermo off | Check for drain water returning from other indoor, expansion valve correct closing thermo off. |
| AJ | 01 | Thermo off | Auto recovery | Capacity adaptor missing | Add corresponding capacity adaptor onto spare part PCB |
| | 02 | Thermo off | Power reset | Incorrect expansion valve motor | Use correct expansion valve motor (between gear type and direct drive). |
| C1 | 01 | Thermo off | Auto recovery | Communication error main PCB / inverter PCB fan motor | Check for communication between main PCB and inverter PCB fan motor. |
| | 02 | Thermo off | Auto recovery | Communication error main PCB / auxiliary PCB | Check for communication between main PCB and inverter PCB fan motor. |
| C4 | 02 | Thermo off | Auto recovery | Coil thermistor short circuit | Check coil thermistor resistance. |
| | 03 | Thermo off | Auto recovery | Coil thermistor open circuit | Check wire harness connections coil thermistor. |
| C5 | 02 | Thermo off | Auto recovery | Gas thermistor short circuit | Check gas thermistor resistance. |
| | 03 | Thermo off | Auto recovery | Gas thermistor open circuit | Check wire harness connections gas thermistor. |
| C6 | 01 | Thermo off | Auto recovery | Faulty combination main PCB - inverter PCB fan motor | Change inverter PCB fan motor correct type. |

| Main | Sub error code | Error codes related to FX..Q-M/N/P/A | | | |
|---|---|---|---|---|---|
| Error | Main | Status outdoor | Reset | Cause | Solution |
| C9 | 02 | Thermo off | Auto recovery | Air thermistor short circuit | Check air thermistor resistance. |
| | 03 | Thermo off | Auto recovery | Air thermistor open circuit | Check wire harness connections air thermistor. |
| CJ | 02 | Thermo off | Auto recovery | Air thermistor BRC... short circuit | Check air thermistor BRC… resistance. |
| | 03 | Thermo off | Auto recovery | Gas thermistor open circuit | Check wire soldering air thermistor BRC… . |
| CE | 01 | Thermo off | Auto recovery | No signal from optional presence sensor | Check wire harness connections |
| | 02 | Thermo off | Auto recovery | No signal from optional floor temperature sensor | Check wire harness connections |
| | 03 | Thermo off | Auto recovery | Faulty signal from optional floor temperature sensor | Check pins connector no short circuit |
| | 04 | Thermo off | Auto recovery | High temperature detection or electric noise floor temperature sensor | Check resistance floor temperature sensor |
| U4 | 01 | Thermo off | Auto recovery | Communication error indoor - BS unit | Check communication between BS unit and indoor unit(s) |
| U9 | | Thermo off | Auto recovery | Communication error other indoor unit - BS unit | Check other indoor units with error other than U9 |
| UA | 13 | Thermo off | Power reset | Indoor unit refrigerant type not compatible to outdoor unit | Change system lay out - remove this indoor unit from system |
| | 15 | Thermo off | Power reset | Outdoor unit is not compatible to self cleaning panel (up to VRVII) | Mount standard decoration panel |

## 2.2.3. Error code VRV IV-Water cooled unit

### 2.2.3.1. “E2” – Earth leakage detection

| Trigger | Effect | Reset |
|---|---|---|
| Main board "A1P" detects earth leakage detection power supply unit higher than (see"Safety devices" on page 164). | Unit will stop operating. | Power Reset |
| Connector unplugged from X101A on main board "A1P". | | Reconnect plug to X101A. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Earth leakage of electric component in unit. | Check by megger:<br>• the different coils (of solenoid valves & 4 way-valves), fan motors (for cooling inverter).<br>• compressor motor. | Replace the faulty part; depending on check, related coil fan motor for cooling inverter, compressor. |
| Connector or wire broken of the current core. | Resistance current core 45~50 ohm. | Replace current core when open circuit. |
| Faulty main PCB "A1P". | • Check if the HAP LED is blinking in regular intervals on main board.<br>• Check if the correct spare part is installed.<br>• Check if main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals. (see "Replacing main PCB A1P" on page 141). |
| Refrigerant overcharge. | Check for refrigerant overcharge.<br>Refer to the name plate 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. |

### 2.2.3.2. “E3” – Discharge pressure abnormality

| Trigger | Effect | Reset |
|---|---|---|
| High pressure switch opens due to measured pressure higher than (see "Safety devices" on page 164). | Unit will stop operating. | Automatic reset when high pressure drops below (see "Safety devices" on page 164) and user interface operation ==> off ==> on. |
| High pressure control (measured pressure higher than (see "Safety devices" on page 164) occurs (see "Safety devices" on page 164) times within (see "Safety devices" on page 164) minutes). | | |

| Possible cause | Check | Corrective action |
|---|---|---|
| Insufficient water flow through $H_2O$ plate heat-exchanger. | Check by flow meter and manometer on water inlet and outlet. Compare to published graph (see "Performance Characteristics" on page 166). | Adjust the water flow by the (local installed) water pump. |
| Water inlet temperature above upper limit. | Water inlet temperature should be below 45°C. | Adjust the control of the (local installed) water circuit to drop water inlet temperature between 10 & 45°C. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Blocked $H_2O$ plate heat exchanger (condenser). | • Are the heat exchangers clean?<br>• Check by flow meter and manometer on water inlet and outlet.<br>• Compare to published graph (see "Performance Characteristics" on page 166). | Clean heat exchangers. |
| Faulty high pressure sensor. | Check high pressure sensor (see "High pressure sensor S1NPH" on page 74). | Replace high pressure sensor when required (see "Replacing high pressure sensor" on page 123) |
| Faulty high pressure switch. | Check high pressure switch. | Replace high pressure switch. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board "A1P" receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals. (see "Replacing main PCB A1P" on page 141). |
| Refrigerant overcharge. | Check for refrigerant overcharge. 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. |
| None condensable gas (e.g air or nitrogen) in refrigerant. | Check for none condensable gas in refrigerant | In case of suspicion of none condensable gas, recover, vacuum and recharge with virgin refrigerant. |
| Refrigerant is contaminated. | Check for none condensable gas in refrigerant. | In case of suspicion of none condensable gas, recover, vacuum and recharge refrigerant. |
| Stop valve is closed. | Check if stop valve is open. | Open stop valve when required. |

### 2.2.3.3. “E4” – Suction pressure abnormality

| Trigger | Effect | Reset |
|---|---|---|
| When refrigerant pressure is below (see "Safety devices" on page 164) for 5 minutes (see "Safety devices" on page 164). | Unit will stop operating. | Automatic reset when low pressure drops raises above (see "Safety devices" on page 164) & operation indoor on ==> off ==> on. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Blocked $H_2O$ plate heat exchanger (evaporator). | Are the heat exchangers clean? | Clean heat exchangers. |
| Insufficient water flow through $H_2O$ plate heat-exchanger. | Check by flow meter and manometer on water inlet and outlet. Compare to published graph (see "Performance Characteristics" on page 166). | Adjust the water flow by the (local installed) water pump. |
| Water inlet temperature below lower limit. | Water inlet temperature should be continuous.<br>• Pure water: above 15°C.<br>• Brine solution: above -5°C. | Adjust the control of the (local installed) water circuit to raise water inlet temperature above:<br>• Pure water: above 15°C.<br>• Brine solution: above -5°C. |
| Blocked $H_2O$ plate heat exchanger (condenser). | • Is the $H_2O$ plate heat exchanger clean?<br>• Check by flow meter and manometer on water inlet and outlet.<br>• Compare to published graph (see "Performance Characteristics" on page 166). | Clean $H_2O$ plate heat exchangers. |
| Refrigerant shortage. | Check for refrigerant shortage. Refer to the nameplate for the correct charge. | Charge the correct refrigerant amount when required. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Expansion valve evaporator not opening. Evaporator =<br>• Indoor cooling mode<br>• $H_2O$ PHE heating mode. | Check operation expansion valves. | Replace faulty part expansion valve (coil or body). |
| 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.<br>• Sudden drop in temperature could indicate a blockage (remark: this is not valid for the expansion valve). | Replace the blocked part. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| 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 low pressure sensor. | Check low pressure sensor (see "Low pressure sensor S1NPL" on page 76). | Replace low pressure sensor when required (see "Replacing low pressure sensor" on page 128). |

### 2.2.3.4. “E5” – Compressor motor lock

| Trigger | Effect | Reset |
|---|---|---|
| Compressor overload is detected (see "Safety devices" on page 164). | Unit will stop operating. | Manual reset via user interface. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty discharge pipe thermistor (crankcase heater never energized). | Check discharge pipe thermistor (see "Thermistors" on page 83). | Replace discharge pipe thermistor when required. |
| Faulty overload protection inverter board “A3P”. | • Check resistor inverter board "A3P" not open circuit.<br>• Perform "power transistor check" (see "How to activate inverter test" on page 163) to confirm 6 transistors output is present (use inverter analyser instead of U/V/W compressor). | Replace inverter board “A3P” (see "Replacing inverter board A3P" on page 139). |
| Faulty expansion valve. | Check the expansion valve (see "Electronic expansion valve" on page 89). | Replace the expansion valve body (see "Replacing expansion valve body" on page 121) or motor (see "Replacing expansion valve coil" on page 122) when required. |
| Faulty 4-way valve coil. | Check the 4-way valve coil (see "4-way valve" on page 67). | Replace the 4-way valve coil (see"Replacing 4-way valve coil" on page 113). |
| Refrigerant circuit is clogged. | Check for possible blockage (oil return circuit from oil separator to suction pipe). | Replace blocked part when required. |
| Faulty 4-way valve body, blocked. | Check the 4-way valve body (see "4-way valve" on page 67). | Replace the 4-way valve body when required (see "Replacing 4-way valve body" on page 111). |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty inverter board “A3P”. | • Check inverter board “A3P” (see "Inverter board A3P" on page 78).<br>• Check if the alive led is blinking in regular intervals.<br>• Check if the correct spare part is installed. | • Restore the power to main board “A1P” to reset "standby” mode of inverter board "A3P".<br>• Replace the inverter board "A3P" if reset power "A1P" fails (see "Replacing inverter board A3P" on page 139). |
| Refrigerant overcharge. | Check for refrigerant overcharge. Refer to the nameplate for the correct charge. | Charge the correct refrigerant amount 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 condensable gas.(e.g. air, nitrogen) in refrigerant circuit. | Check for non condensable gas in refrigerant. | In case of suspicion of non condensable gas, recover, vacuum and recharge with virgin refrigerant. |
| Stop valve is closed. | Check if stop valve is open. | Open stop valve when required. |

### 2.2.3.5. “E9” – Electronic expansion valve abnormality

| Trigger | Effect | Reset |
|---|---|---|
| No continuity of expansion valve coil | Unit will stop operating. | Power reset unit. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty expansion valve. Refer to sub-code for location. | Check the expansion valve (see "Electronic expansion valve" on page 89). | Replace the expansion valve body (see "Replacing expansion valve body" on page 121) or motor (see "Replacing expansion valve coil" on page 122) when required. |
| Wet operation. | • Check for wet operation. Wet operation can be detected by checking the suction superheat.<br>• If the suction superheat is 0°C then liquid refrigerant is returned to the compressor.) | In case wet operation was detected, confirm the cause:<br>• Refrigerant overcharge.<br>• Faulty expansion valve. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Faulty thermistor. | Check thermistors Stop unit for 15 minutes. Use monitoring device to check all thermistors show same value 2°C (except R12T discharge thermistor & R13T body thermistor) | Replace thermistor when required (see "Replacing thermistor" on page 110). |
| Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit. | Check if the power supply is conform to the regulations. No fluctuations in frequency. | Adjust power supply when required. Power reset RWEYQ-T. |
| Faulty low pressure sensor. | Check pressure sensor (see "Low pressure sensor S1NPL" on page 76). | Replace pressure sensor when required (see "Replacing low pressure sensor" on page 128). |
| 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. |

## 2.2.3.6. “F3” – Discharge pipe temperature abnormality

| Trigger | Effect | Reset |
|---|---|---|
| Discharge or body temperature is too high:<br>• If the discharge temperature detected is above A°C, D times within E min.<br>• If within E min the discharge temperature or body temperature detected E times above B°C for F min.<br>Refer to "Product specific information" on page 163 for values of A, B, D, E, F. | Unit will not stop operating. | Automatic reset when temperature drops below C°C.<br>Refer to "Product specific information" on page 163 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. |
| Non condensable gas (e.g. air, nitrogen) in refrigerant. | Check for non condensable gas in refrigerant. | In case of suspicion of non condensable gas, 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 coil. | Check the 4-way valve coil (see "4-way valve" on page 67). | Replace the 4-way valve coil (see "Replacing 4-way valve coil" on page 113). |
| Faulty expansion valve body. | Check the expansion valve (see "Electronic expansion valve" on page 89). | Replace the expansion valve body (see "Replacing expansion valve body" on page 121) or motor (see "Replacing expansion valve coil" on page 122) when required. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Faulty discharge pipe thermistor. | Check discharge pipe thermistor (see "Thermistors" on page 83). | Replace discharge pipe thermistor when required. |
| Faulty high pressure sensor. | Check high pressure sensor ("High pressure sensor S1NPH" on page 74). | Replace high pressure sensor when required (see "Replacing high pressure sensor" on page 123). |
| Faulty air thermistor "R1T". (used for correction of discharge temperature). | Check air thermistor “R1T” (see "Thermistors" on page 83). | Replace air thermistor “R1T” when required. |
| Faulty compressor (internal bypass). | Check if low compression ratio and low current to compressor at high frequency step. | Replace compressor. |

### 2.2.3.7. “F4” – Wet operation caution

| Trigger | Effect | Reset |
|---|---|---|
| Discharge superheat is < 10°. | System keeps running. | Discharge superheat > 15°C. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Refrigerant Overcharge. | Check for refrigerant overcharge. Refer to the nameplate for the correct charge. | Charge the correct refrigerant amount when required. |
| None condensable gas in refrigerant resulting in high discharge pressure & low discharge temperature. | Check for none condensable gas in refrigerant. | In case of suspicion of none condensable gas, recover, vacuum and recharge with virgin refrigerant. |
| Faulty expansion valve body. | Check the expansion valve (see "Electronic expansion valve" on page 89). | Replace the expansion valve body (see "Replacing expansion valve body" on page 121) or motor (see "Replacing expansion valve coil" on page 122) when required. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Faulty discharge pipe thermistor. | Check discharge pipe thermistor (see "Thermistors" on page 83). | Replace discharge pipe thermistor when required. |
| Faulty high pressure sensor. | Check high pressure sensor ("High pressure sensor S1NPH" on page 74). | Replace high pressure sensor when required (see "Replacing high pressure sensor" on page 123). |
| Faulty air thermistor “R1T”. (used for correction of discharge temperature) | Check air thermistor “R1T” (see "Thermistors" on page 83) | Replace air thermistor “R1T” when required. |
| Indoor room temperature too low. | Check indoor room temperature does not drop below 20°C. | Warm up the rooms above 20°C. |

### 2.2.3.8. “F6” – Refrigerant overcharge detection during test-run

| Trigger | Effect | Reset |
|---|---|---|
| Discharge superheat is < 10° when solenoid valve hot-gas “Y5” is closed. | Test-run is interrupted. | 1 x BS3 “Return”. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Refrigerant Overcharge. | Check for refrigerant overcharge. Refer to the nameplate for the correct charge. | Charge the correct refrigerant amount when required. |
| None condensable gas in refrigerant resulting in high discharge pressure & low discharge temperature. | Check for none condensable gas in refrigerant. | In case of suspicion of none condensable gas, recover, vacuum and recharge with virgin refrigerant. |
| Faulty expansion valve body. | Check the expansion valve (see "Electronic expansion valve" on page 89). | Replace the expansion valve body (see "Replacing expansion valve body" on page 121) or motor (see "Replacing expansion valve coil" on page 122) when required. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Faulty discharge pipe thermistor. | Check discharge pipe thermistor (see "Thermistors" on page 83). | Replace discharge pipe thermistor when required. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty high pressure sensor. | Check high pressure sensor ("High pressure sensor S1NPH" on page 74). | Replace high pressure sensor when required (see "Replacing high pressure sensor" on page 123). |
| Faulty air thermistor “R1T”. (used for correction of discharge temperature) | Check air thermistor “R1T” (see "Thermistors" on page 83). | Replace air thermistor “R1T” when required. |
| Indoor room temperature too low. | Check indoor room temperature does not drop below 20°C. | Warm up the rooms above 20°C. |

### 2.2.3.9. “H3” – Discharge pressure switch abnormality

| Trigger | Effect | Reset |
|---|---|---|
| High pressure switch opens due to measured pressure higher than (see "Safety devices" on page 164). | Unit will stop operating. | Automatic reset when high pressure drops below (see "Safety devices" on page 164) and user interface operation ==> off ==> on. |
| High pressure control (measured pressure higher than (see "Safety devices" on page 164) occurs (see "Safety devices" on page 164) times within (see "Safety devices" on page 164) minutes. | | |

| Possible cause | Check | Corrective action |
|---|---|---|
| Insufficient water flow through $H_2O$ plate heat-exchanger. | Check by flow meter and manometer on water inlet and outlet. Compare to published graph (see "Performance Characteristics" on page 166). | Adjust the water flow by the (local installed) water pump. |
| Water inlet temperature above upper limit. | Water inlet temperature should be below 45°C. | Adjust the control of the (local installed) water circuit to drop water inlet temperature between 10 & 45°C. |
| Blocked $H_2O$ plate heat exchanger (condenser). | • Are the heat exchangers clean?<br>• Check by flow meter and manometer on water inlet and outlet.<br>• Compare to published graph (see "Performance Characteristics" on page 166). | Clean heat exchangers. |
| Faulty high pressure sensor. | Check high pressure sensor (see "High pressure sensor S1NPH" on page 74). | Replace high pressure sensor when required (see "Replacing high pressure sensor" on page 123). |
| Faulty high pressure switch. | Check high pressure switch. | Replace high pressure switch. |
| Faulty main board "A1P". | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board "A1P" receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals. (see "Replacing main PCB A1P" on page 141). |
| Refrigerant overcharge. | Check for refrigerant overcharge. 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. |
| None condensable gas (e.g. air or nitrogen) in refrigerant. | Check for none condensable gas in refrigerant | In case of suspicion of none condensable gas, recover, vacuum and recharge with virgin refrigerant. |
| Refrigerant is contaminated. | Check for none condensable gas in refrigerant. | In case of suspicion of none condensable gas, recover, vacuum and recharge refrigerant. |
| Stop valve is closed. | Check if stop valve is open. | Open stop valve when required. |

### 2.2.3.10. “H9” – Air temperature abnormality

| Trigger | Effect | Reset |
|---|---|---|
| Thermistor air "R1T" out of range (<-47°C or > 108°C). | Forced stop. | • Thermistor air "R1T" in of range (> -47°C & < 108°C) +<br>• User interface on ==> off ==> on. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Thermistor air “R1T” wire broken or short circuit. | Check wires on connector X11A pin 1+2 auxiliary board A4P. | Replace thermistor air “R1T”. |
| Faulty thermistor air “R1T”. | Check thermistor air “R1T” (see "Thermistors" on page 83). | Replace thermistor air “R1T” when required. |
| Faulty SUB PCB “A4P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if main board “A4P” receives power 16VDC on connector X10A. | • Adjust the power to the SUB PCB “A4P”.<br>• Replace SUB PCB “A4P” when HAP LED is not blinking in regular intervals (see "Replacing SUB PCB A4P" on page 146). |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if output on connector X37A on the main board “A1P” is 16VDC. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |

### 2.2.3.11. “HJ – Faulty watercircuit

| Trigger | Effect | Reset |
|---|---|---|
| • Evaporation < 0°C when $H_2O$ plate heat-exchanger is used as evaporator.<br>• Fault detection (optional) modulating water valve.<br>• Fault (optional) water thermistor. | Unit will stop operating | • Reset power supply.<br>• User interface on ==> off ==> on. Remove cause.<br>• Replace faulty thermistor. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Blocked $H_2O$ plate heat exchanger (evaporator). | Are the heat exchangers clean? | Clean heat exchangers. |
| Insufficient water flow through $H_2O$ plate heat-exchanger. | Check by flow meter and manometer on water inlet and outlet. Compare to published graph (see "Performance Characteristics" on page 166). | Adjust the water flow by the (local installed) water pump. |
| Water inlet temperature below lower limit. | Water inlet temperature should be continuous:<br>• Pure water: above 15°C.<br>• Brine solution: above -5°C. | Adjust the control of the (local installed) water circuit to raise water inlet temperature above:<br>• Pure water: above 15°C.<br>• Brine solution: above -5°C. |
| Blocked $H_2O$ plate heat exchanger (condenser). | Is the $H_2O$ plate heat exchanger clean?<br>Check by flow meter and manometer on water inlet and outlet. Compare to published graph (see "Performance Characteristics" on page 166). | Clean $H_2O$ plate heat exchanger. |
| Expansion valve evaporator not opening. Evaporator = $H_2O$ Plate heat-exchanger in heating mode. | Check operation expansion valves. | Replace faulty part expansion valve (coil or body). |
| Incorrect field wiring to (optional) modulating $H_2O$ valve. | At power-on of A1P: valve switching sequence close ==> open ==> close. | Correct field wiring to (optional) modulating $H_2O$ valve. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty (optional) modulating $H_2O$ valve. | At power-on of A1P: valve switching sequence close ==> open ==> close. | Replace (optional) modulating $H_2O$ valve. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Thermistor water inlet (R9T) or outlet (R10T) not correct mounted to water pipe. | Check firm contact thermistor to water piping (local installation). | Fix thermistor firmly to water pipe. |
| Faulty $H_2O$ flow sensor. (part of optional modulating $H_2O$ valve) | Check $H_2O$ flow sensor. | Replace $H_2O$ flow sensor. |

### 2.2.3.12. “J3” – Discharge temperature abnormality

| Trigger | Effect | Reset |
|---|---|---|
| • Warning:<br>Thermistor discharge pipe "R12T"-thermistor body compressor "R13T" < 20°C,<br>• Discharge pipe abnormal detection:<br>  • >165°C when compressor = 0Hz,<br>  • -20°C when compressor > 0hHz. | • Warning on user interface, units keeps running.<br>• Forced stop. | • Thermistor discharge pipe "R12T"-thermistor body "R13T" 15°C.<br>• User interface on ==> off ==> on. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Thermistor “R12T” or “R13T” not fixed to compressor. | • Check thermistor discharge pipe “R12T” inserted into sensor holder + insulation.<br>• Check thermistor body compressor “R13T” inserted into clip body of compressor. | • Insert thermistor discharge pipe "R12T into holder of discharge pipe. Mount insulation.<br>• Insert thermistor body compressor "R13T" into clip of body of compressor. |
| Faulty thermistor discharge pipe “R12T”. | Check thermistor discharge pipe (see "Thermistors" on page 83). | Replace thermistor discharge pipe “R12T” when required. |
| Faulty thermistor body compressor “R13T”. | Check thermistor body compressor (see "Thermistors" on page 83). | Replace thermistor body compressor “R13T” when required. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Faulty compressor | Check compression > 3 and current > 5 Amp. | Replace compressor. |

### 2.2.3.13. “J4” – Gas temperature PHE-$H_2O$ abnormality

| Trigger | Effect | Reset |
|---|---|---|
| Thermistor gas temperature PHE-$H_2O$ “R4T” out of range (<-47°C or >108°C) | Forced stop. | • Thermistor Gas PHE-$H_2O$ "R4T" in range (> -47°C & < 108°C).<br>• User interface on ==> off ==> on. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Thermistor gas temperature PHE-$H_2O$ “R4T” wire broken or short circuit. | Check wires on connector X30A pin 3+4. | Replace thermistor gas temperature PHE-$H_2O$ “R4T”. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty thermistor gas temperature PHE-$H_2O$ “R4T” | Check thermistor gas temperature PHE-$H_2O$ “R4T” (see "Thermistors" on page 83). | Replace thermistor gas temperature PHE-$H_2O$ “R4T” when required. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |

### 2.2.3.14. “J5” – Suction accumulator inlet temperature abnormality

| Trigger | Effect | Reset |
|---|---|---|
| Thermistor suction accumulator inlet “R3T” out of range (<-47°C or >108°C) | Forced stop. | • Thermistor suction accumulator inlet “R3T” in range (> -47°C & < 108°C).<br>• User interface on ==> off ==> on. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Thermistor suction accumulator inlet “R3T” wire broken or short circuit. | Check wires on connector X30A pin 1+2. | Replace thermistor suction accumulator inlet “R3T”. |
| Faulty thermistor suction accumulator inlet “R3T”. | Check thermistor suction accumulator inlet “R3T” (see "Thermistors" on page 83). | Replace thermistor suction accumulator inlet “R3T” when required. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |

### 2.2.3.15. “J6” – Liquid Sub-cool heat-exchanger temperature

| Trigger | Effect | Reset |
|---|---|---|
| Thermistor liquid sub cool heat exchanger “R7T” out of range (<-47°C or >108°C) | Forced stop. | • Thermistor liquid sub cool heat exchanger “R7T” in range (> -47°C & < 108°C).<br>• User interface on ==> off ==> on. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Thermistor liquid sub cool heat exchanger “R7T” wire broken or short circuit. | Check wires on connector X30A pin 9+10. | Replace thermistor liquid sub cool heat exchanger “R7T”. |
| Faulty thermistor liquid sub cool heat exchanger “R7T”. | Check thermistor liquid sub cool heat exchanger “R7T” (see "Thermistors" on page 83). | Replace thermistor liquid sub cool heat exchanger “R7T” when required. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |

### 2.2.3.16. "J7" – Liquid temperature abnormality

| Trigger | Effect | Reset |
|---|---|---|
| Thermistor between:<br>• liquid receiver <-> Sub-cool heat-exchanger "R6T" out of range (<-47°C or > 108°C).<br>• liquid stop valve <-> Sub-cool heat-exchanger "R8T" out of range (<-47°C or > 108°C).<br>• liquid expansion valve "Y2E" <-> Sub-cool heat-exchanger "R11T" out of range (<-47°C or > 108°C). | Forced stop. | • Thermistor liquid in range (> -47°C & < 108°C):<br>  • liquid receiver <-> Sub-cool heat-exchanger "R6T" +<br>  • liquid stop valve <-> Sub-cool heat-exchanger "R8T"+<br>  • liquid expansion valve "Y2E" <-> Sub-cool heat-exchanger "R11T".<br>• User interface on ==> off ==> on. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Thermistor liquid wire broken or short circuit. | Check wires on connector:<br>• X30A pin 7 + 8 ("R6T")<br>• X29A pin 5+ 6 ("R8T")<br>• X18A pin 1+ 3 ("R11T") | Replace thermistor liquid:<br>• liquid receiver <-> Sub-cool heat-exchanger "R6T"<br>• liquid stop valve <-> Sub-cool heat-exchanger "R8T"<br>• liquid expansion valve "Y2E" <-> Sub-cool heat-exchanger "R11T". |
| Faulty thermistor liquid. | Check (see "Thermistors" on page 83):<br>• liquid receiver <-> Sub-cool heat-exchanger "R6T"<br>• liquid stop valve <-> Sub-cool heat-exchanger "R8T"<br>• liquid expansion valve "Y2E" <-> Sub-cool heat-exchanger "R11T". | Replace thermistor liquid when required.<br>• liquid receiver <-> Sub-cool heat-exchanger "R6T" X30A pin 7+8.<br>• liquid stop valve <-> Sub-cool heat-exchanger "R8T" X29A pin 5+6.<br>• liquid expansion valve "Y2E <-> Sub-cool heat-exchanger "R11T" X18A pin 1+3. |
| Faulty main board "A1P". | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board "A1P" receives power. | • Adjust the power to the main board "A1P".<br>• Replace main board "A1P" when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |

### 2.2.3.17. "J9" – Purge receiver + gas out SCHEX temperature abnormality

| Trigger | Effect | Reset |
|---|---|---|
| Thermistor purge receiver + gas outlet sub cool heat exchanger "R5T" out of range (<-47°C or >108°C) | Forced stop. | • Thermistor purge receiver + gas outlet sub cool heat exchanger "R5T" in range (> -47°C & < 108°C).<br>• User interface on ==> off ==> on. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Thermistor purge receiver + gas outlet sub cool heat exchanger "R5T" wire broken or short circuit. | Check wires on connector X30A pin 5+6. | Replace thermistor purge receiver + gas outlet sub cool heat exchanger "R5T". |
| Faulty thermistor purge receiver + gas outlet sub cool heat exchanger "R5T". | Check thermistor purge receiver + gas outlet sub cool heat exchanger "R5T" (see "Thermistors" on page 83). | Replace thermistor purge receiver + gas outlet sub cool heat exchanger "R5T" when required. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |

### 2.2.3.18. “JA” – High pressure sensor abnormality

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

| Possible cause | Check | Corrective action |
|---|---|---|
| High pressure sensor connector disconnected. | Connection plug of high pressure sensor is mounted (on correct connector). | Connect plug of high pressure sensor to (correct) connector. |
| Faulty high pressure sensor. | Check high pressure sensor (see "High pressure sensor S1NPH" on page 74). | Replace high pressure sensor when required (see "Replacing high pressure sensor" on page 123). |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Operation outside operation range | Water inlet temperature 10~45°C | Correct (local installed) water circuit to improve water supply temperature within published operation range. |

### 2.2.3.19. “JC” – Low pressure sensor abnormality

| Trigger | Effect | Reset |
|---|---|---|
| Low pressure sensor detects an abnormal value for 3 minutes during operation compressor. (> 1,7 MPa or < -0,05 MPa). | Unit will stop operating. | Manual reset via user interface. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Low pressure sensor connector disconnected. | Connection plug of low pressure sensor is mounted (on correct connector). | Connect plug of low pressure sensor to (correct) connector. |
| Faulty low pressure sensor. | Check low pressure sensor (see "Low pressure sensor S1NPL" on page 76). | Replace low pressure sensor when required (see "Replacing low pressure sensor" on page 128). |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Operation outside operation range | Water inlet temperature 10~45°C | Correct (local installed) water circuit to improve water supply temperature within published operation range. |

## 2.2.3.20. “L1” – Main board abnormality

| Trigger | Effect | Reset |
|---|---|---|
| Main board “A1P” detects current/voltage errors. | Unit will stop operating. | Manual reset via user interface.<br>Power reset RWEYQ-T. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Blown fuse. | Check fuse on main board “A1P”. | Replace fuse if blown. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Faulty inverter board “A3P”. | • Check inverter board “A3P”.<br>• Check if the alive led is blinking in regular intervals.<br>• Check if the correct spare part is installed. | • Adjust the power to the inverter board “A3P”.<br>• Replace inverter board “A3P”. |
| Faulty compressor “M1C” | • Check compressor (see "Compressor" on page 87).<br>• Check connections and wiring of the compressor.<br>• Check expansion valve (liquid back issue) (see "Electronic expansion valve" on page 89).<br>• Check the refrigerant charge. Refer to the nameplate for correct charge. | • Replace compressor when required (see "Replacing compressor" on page 114).<br>• Investigate reason of breakdown.<br>• Replace expansion valve when required (see "Replacing expansion valve body" on page 121).<br>• Fix possible leak. |
| Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit. | Check if the power supply is conform to the regulations. No fluctuations in frequency. | Adjust power supply when required.<br>Power reset via compressor module. |
| Faulty capacity setting on main board “A1P”. | • Check if the correct capacity setting is made.<br>• Check if the correct spare part is installed. | Adjust capacity setting 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. | Avoid electrical interference.<br>Respect minimum distance to other electric appliance (refer to installation manual). |

## 2.2.3.21. “L2” – Power Supply quality abnormality

| Trigger | Effect | Reset |
|---|---|---|
| Main board “A1P” detects trouble “zero crossing”: power supply main board “A1P” checks L1-N sinus cross each half period sinus (10 milli-seconds if 50Hz power supply). | Unit stops 3 minutes and retry. (infinitive cycle). | Guard timer 3 minutes. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Power supply incorrect frequency. | Check power supply is 50 or 60 Hz ± 3%. | Correct power supply (especially if use of power generator) |
| 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. Respect minimum distance to other appliance (refer to installation manual). |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals. (see "Replacing main PCB A1P" on page 141) |
| Faulty inverter board “A3P”. | • Check inverter board “A3P”.<br>• Check if the alive led is blinking in regular intervals.<br>• Check if the correct spare part is installed. | • Adjust the power to the inverter board “A3P”.<br>• Replace inverter board “A3P”. |

### 2.2.3.22. “L5” – Output overcurrent detection

| Trigger | Effect | Reset |
|---|---|---|
| Inverter board "A3P" detects overcurrent to power transistor | 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. |
| 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 condensable gas (e.g. air, nitrogen) in refrigerant. | Check for non condensable gas in refrigerant. | In case of suspicion of non condensables, recover, vacuum and recharge with virgin refrigerant. |
| Faulty inverter board “A3P”. | • Check inverter board “A3P”.<br>• Check if the alive led is blinking in regular intervals.<br>• Check if the correct spare part is installed. | • Adjust the power to the inverter board “A3P”.<br>• Replace inverter board “A3P”. |
| Faulty compressor “M1C” | • Check compressor (see "Compressor" on page 87).<br>• Check connections and wiring of the compressor.<br>• Check expansion valve (liquid back issue) (see "Electronic expansion valve" on page 89).<br>• Check the refrigerant charge. Refer to the nameplate for correct charge. | • Replace compressor when required (see "Replacing compressor" on page 114).<br>• Investigate reason of breakdown.<br>• Replace expansion valve when required (see "Replacing expansion valve body" on page 121).<br>• Fix possible leak. |
| Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit. | Check if the power supply is conform to the regulations. No fluctuations in frequency. | Adjust power supply when required. Power reset via outdoor unit. |

### 2.2.3.23. “L8” – Inverter overcurrent

| Trigger | Effect | Reset |
|---|---|---|
| When inverter board detects overcurrent to compressor (except during start-up) is detected. | Unit will stop operating. | Manual reset via user interface. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty inverter board “A3P”. | • Check inverter board “A3P”.<br>• Check if the alive led is blinking in regular intervals.<br>• Check if the correct spare part is installed. | • Adjust the power to the inverter board "A3P".<br>• Replace inverter board “A3P”. |
| Faulty compressor “M1C” | • Check compressor (see "Compressor" on page 87).<br>• Check connections and wiring of the compressor.<br>• Check expansion valve (liquid back issue) (see "Electronic expansion valve" on page 89).<br>• Check the refrigerant charge. Refer to the nameplate for correct charge. | • Replace compressor when required (see "Replacing compressor" on page 114).<br>• Investigate reason of breakdown.<br>• Replace expansion valve when required (see "Replacing expansion valve body" on page 121).<br>• Fix possible leak. |
| 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. |

### 2.2.3.24. “L9” – Stall prevention

| Trigger | Effect | Reset |
|---|---|---|
| Inverter board detects compressor over-current or no rotation at start up. | Unit will stop operating. | Manual reset via user interface. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty inverter board “A3P”. | • Check inverter board “A3P”.<br>• Check if the alive led is blinking in regular intervals.<br>• Check if the correct spare part is installed. | • Adjust the power to the inverter board "A3P".<br>• Replace inverter board “A3P”. |
| Faulty compressor “M1C” | • Check compressor (see "Compressor" on page 87).<br>• Check connections and wiring of the compressor.<br>• Check expansion valve (liquid back issue) (see "Electronic expansion valve" on page 89).<br>• Check the refrigerant charge. Refer to the nameplate for correct charge. | • Replace compressor when required (see "Replacing compressor" on page 114).<br>• Investigate reason of breakdown.<br>• Replace expansion valve when required (see "Replacing expansion valve body" on page 121).<br>• Fix possible leak. |
| 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. | - |

### 2.2.3.25. “LC” – Transmission system abnormality

| Trigger | Effect | Reset |
|---|---|---|
| No transmission between main board “A1P” <-> SUB PCB “A4P” <-> inverter board “A3P”. | Unit will stop operating. | Automatic reset. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Internal wiring is not OK. | Check if wiring between PCB’s (see "Wiring diagram" on page 159). | Correct wiring. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power.<br>• Remove X20A from “A1P”: check presence ±12VDC | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Faulty inverter board “A3P”. | • Check inverter board “A3P”.<br>• Check if the alive led is blinking in regular intervals.<br>• Check if the correct spare part is installed. | • Adjust the power to the inverter board “A3P”.<br>• Replace inverter board “A3P”. |
| Faulty SUB PCB “A4P”. | Check auxiliary board receives 16VDC on connector “X10A”. | Replace SUB PCB “A4P” when HAP LED is not blinking once in regular intervals. |
| Faulty noise filter “A2P”. | Check 3 phase output is present. | Replace noise filter “A2P”. |
| Faulty capacity setting on main board “A1P”. | Check if the correct capacity setting is made.<br>Check if the correct spare part is installed. | Adjust capacity setting 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. | Avoid electrical interference.<br>Respect minimum distance to other electric appliance (refer to installation manual). |

### 2.2.3.26. “P1” – Ripple DC voltage diode module to power transistors

| Trigger | Effect | Reset |
|---|---|---|
| Inverter board “A3P” detects power unbalance > 4%. | Unit will stop operating. | Manual reset via user interface.<br>Automatic reset power unbalance. |

| 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 to the regulations. No fluctuations in frequency. | Adjust power supply when required. Power reset via compressor module. |
| Faulty inverter board “A3P”. | • Check inverter board “A3P” (see "Inverter board A3P" on page 78).<br>• Check if the alive led is blinking in regular intervals.<br>• Check if the correct spare part is installed. | • Adjust the power to the inverter board “A3P”.<br>• Replace inverter board “A3P” (see "Replacing inverter board A3P" on page 139). |

### 2.2.3.27. “P4” – Overheat power module

| Trigger | Effect | Reset |
|---|---|---|
| Inverter board “A3P” detects high temperature at power module. | Unit will stop operating. | Manual reset via user interface.<br>Automatic reset temperature. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty AC fan motor cooling inverter. | • Check if plug to connector correctly mounted X3A on SUB PCB “A4P”.<br>• Check 230VAC power to SUB PCB “A4P”.<br>• Check AC fan motor (see "AC fan motor inverter cooling" on page 70). | • Reconnect plug to connector X3A on auxiliary board "A4P".<br>• Fix 230VAC power to auxiliary board "A4P"<br>• Replace AC fan motor (see "Replacing AC fan inverter cooling" on page 120). |
| Insufficient air circulation. | Check for obstruction grills casing. | Remove obstruction grills casing. |
| Faulty inverter board “A3P”. | • Check inverter board “A3P” (see "Inverter board A3P" on page 78).<br>• Check if the alive led is blinking in regular intervals.<br>• Check if the correct spare part is installed. | • Adjust the power to the inverter board “A3P”.<br>• Replace inverter board “A3P” (see "Replacing inverter board A3P" on page 139). |
| Faulty or disturbance of the power supply: only 2 phase to diode module. | Check if the power supply is conform to the regulations. No fluctuations in frequency. | Adjust power supply when required. Power reset via compressor module. |
| Faulty fin thermistor. | Compare fin temperature to ambient (with checker Type III) after unit is stopped for minimum 30 minutes. | If fin temperature shows abnormal value at stop, replace inverter board “A3P” (see "Replacing inverter board A3P" on page 139). |

### 2.2.3.28. “PJ” – Capacity setting mixmatch inverter board

| Trigger | Effect | Reset |
|---|---|---|
| Main board “A1P” detects other type inverter board than set in EEPROM (factory mounted board) or dipswitches (spare part board). | Unit will stop operating. | Manual reset via user interface.<br>Power reset RWEYQ-T. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Capacity setting main board “A1P” does not correspond to detected inverter board. | Check if capacity setting is made correctly. Read out size from outdoor board (1-21) and user interface. | Make correct capacity setting on main board “A1P”. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals. (see "Replacing main PCB A1P" on page 141) |
| Faulty inverter board “A3P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the inverter board “A3P” receives power. | • Adjust the power to the inverter board “A3P”.<br>• Replace inverter board “A3P” when HAP LED is not blinking in regular intervals. (see "Replacing inverter board A3P" on page 139). |

## 2.2.4. System

### 2.2.4.1. “U0” – Refrigerant shortage

| Trigger | Effect | Reset |
|---|---|---|
| Refrigerant shortage detected when low pressure sensor “SENPL” < 0.05MPa and superheat > 20°C | Unit continues operating. | Automatic reset (automatic if LP > 3.0 MPa & Superheat suction (Taccumulator - Tevaporation) < 15°C). |
| | | Power reset RWEYQ-T. |

| 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. |
| Stop valve is closed. | Check stop valves. | Open stop valve 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. |
| None condensable gas (e.g.air, nitrogen) in refrigerant. | Check for none condensable gas in refrigerant. | In case of suspicion of none condensable gas, recover, vacuum and recharge with virgin refrigerant. |
| Faulty thermistor gas PHE-$H_2O$ “R4T”. | Check thermistor gas PHE-$H_2O$ “R4T” | Replace thermistor gas PHE-$H_2O$ “R4T” when required. |
| Faulty thermistor discharge pipe “R12T”. | Check thermistor discharge pipe “R12T”. | Replace thermistor discharge pipe “R12T” when required. |
| Faulty low pressure sensor “SENSP”. | Check low pressure sensor “SENSPL”. | Replace Low pressure sensor “SENSPL” when required. |
| Faulty compressor. | • Check compressor (see "Compressor" on page 87).<br>• Check connections and wiring of the compressor.<br>• Check expansion valve (liquid back issue) (see "Electronic expansion valve" on page 89).<br>• Check the refrigerant charge. Refer to the nameplate for the correct charge. | • Replace compressor when required (see "Replacing compressor" on page 114).<br>• Investigate reason of breakdown.<br>• Replace expansion valve when required (see "Replacing expansion valve body" on page 121).<br>• Fix possible leak. |
| Faulty expansion valve. | Check the expansion valve (see "Electronic expansion valve" on page 89). | Replace the expansion valve body (see "Replacing expansion valve body" on page 121) or coil (see "Replacing expansion valve coil" on page 122) when required. |

### 2.2.4.2. “U1” – Reverse phase or open phase

| Trigger | Effect | Reset |
|---|---|---|
| Main board “A1P” detects incorrect power supply (missing phase or reverse rotation). | Unit will stop operating. | Power reset unit. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Incorrect sequence 3 phase. | Check rotation sequence power supply. | Correct sequence 3 phase power supply. |
| Missing phase. | Check presence 3 phases. | Trace location where phase is interrupted between main power supply source and Main board “A1P”. |
| Faulty main board “A1P” | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Faulty or disturbance of the power supply (imbalance > 10%). Power drop. Short circuit. | Check if the power supply is conform to the regulations. No fluctuations in frequency. | Adjust power supply when required. Power reset via outdoor unit. |
| Faulty capacity setting on main board “A1P”. | • Check if the correct capacity setting is made.<br>• Check if the correct spare part is installed. | Adjust capacity setting when required. |

### 2.2.4.3. “U2” – DC voltage DM <-> PM not permanent available

| Trigger | Effect | Reset |
|---|---|---|
| There is no zero-cross detected in approximately 10 seconds (main board “A1P”). | Unit will stop operating. | Power reset unit. |
| Abnormal voltage drop (< 212-254 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 to the regulations. No fluctuations in frequency. | Adjust power supply when required. Power reset via compressor module. |
| Reactor(s) open circuit. | Check continuity reactor coil. | Replace reactor if coil open circuit. |
| Fuse broken noise filter. | Check fuse on noise filter. | Replace noise filter is fuse open circuit. |
| Defective DC voltage detection circuit. | Check PCB with DC voltage detection circuit. | Replace inverter board “A3P” when required. |
| Defective over-voltage detection circuit. | Check PCB with over-voltage detection circuit. | Replace inverter board “A3P” when required. |
| Faulty compressor “M1C” | • Check compressor (see "Compressor" on page 87).<br>• Check connections and wiring of the compressor.<br>• Check expansion valve (liquid back issue) (see "Electronic expansion valve" on page 89).<br>• Check the refrigerant charge. Refer to the nameplate for the correct charge. | • Replace compressor when required (see "Replacing compressor" on page 114).<br>• Investigate reason of breakdown.<br>• Replace expansion valve when required (see "Replacing expansion valve body" on page 121).<br>• Fix possible leak. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Momentary drop of voltage. | - | Wait until compressor restarts. |
| Momentary power failure. | - | Wait until compressor restarts. |
| Faulty main board “A1P” | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |

### 2.2.4.4. “U3” – Test run failed

| Trigger | Effect | Reset |
|---|---|---|
| Test run not performed at first installation. | Unit can not be operated. | Perform test run. |
| Pipe length data missing. | Unit can not be operated. | Perform test run. |
| Test-run interrupted by button on main board “A1P”. | Unit can not be operated. | Restart test run. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Test run was not started prior to normal operation. | | Start test run from outdoor unit. |
| Test run could not start because initialisation was not completed. | Check communication is initialised prior to launch test-run. | Restart test run from outdoor unit. |
| Test run was interrupted manually by pressing BS1 “Mode” button. | | Restart test run from outdoor unit. |
| Test run was interrupted by safety device. | Check error history outdoor unit. | Follow troubleshooting according to error code. |

### 2.2.4.5. “U4” – Transmission abnormality between outdoor and indoor unit

| Trigger | Effect | Reset |
|---|---|---|
| Data sent from unit cannot be received normally, content of the sent data is abnormal. | Unit will stop operating. | Automatic restore. |

| 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 to the regulations. No fluctuations in frequency. | Adjust power supply when required. Power unit. |
| Wiring abnormality between RWEYQ-T and indoor unit and BS unit (in case of heat-recovery application). | Check wiring between RWEYQ-T and indoor units and BS unit (in case of heat-recovery application). | • Adjust wiring between RWEYQ-T and indoor units and BS unit (in case of heat-recovery application).<br>• Replace wiring between indoor units and RWEYQ-T, and BS unit (in case of heat-recovery application) when required. |
| At time of test-run when any indoor unit or BS unit (in case of heat-recovery application) detects a fault of component. | • Set system into fan-only.<br>• Operate indoor units to check indoor error. | • Repair cause of indoor unit fault code.<br>• Restart test-run RWEYQ-T. |
| Faulty main board “A1P” | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty board BS unit (in case of heat-recovery application). | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the board BS unit receives power. | • Adjust the power to the board BS unit.<br>• Replace board BS unit when HAP LED is not blinking in regular intervals (see "Replace control board BS box" on page 148 and "Replacing expansion valve coil BS box" on page 149). |
| Faulty indoor unit main board. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the indoor main PCB receives power. | Adjust the power to the indoor main PCB.<br>Replace indoor main PCB when HAP LED is not blinking in regular intervals (refer to service manual ESIE15-11). |
| Missing indoor unit or BS unit (in case of heat-recovery application) since end of initialisation. | • Check number indoor units and BS units (in case of heat-recovery application) monitoring mode (see "Field setting" on page 155).<br>• Check number indoor units start fan when making “cross wiring check” (see "Field setting" on page 155).<br>• Check communication BS indoor by dip switches BS unit. (see "Field setting" on page 155). | Switch on power supply indoor unit(s) or/and BS unit (in case of heat-recovery application) missing from initial initialisation. |

### 2.2.4.6. “U7” – Transmission between systems abnormality

| Trigger | Effect | Reset |
|---|---|---|
| • Communication problem between systems.<br>• Conflict settings DTA104A61,62 and detected configuration. | • Units will not operate.<br>• Units will operate. | • Auto restore when communication is normal.<br>• Correct settings DTA104A61,62 and detected configuration RWEYQ-T. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty wiring between main board “A1P” (example Q1Q2 loop). | Check wiring between main boards “A1P”. | Correct wiring between outdoor main boards “A1P” when required. |
| Faulty main board “A1P” | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| When multiple systems are wired to be same cool/heat zone: no master cool/heat unit set. | Check setting on linked main boards “A1P”: 1 unit needs setting mode 2-0-1, the other units in same zone 2-0-2. | Adjust field setting on main board “A1P” to have 1 cool/heat master and minimum 1 cool/heat slave. |
| Faulty wiring or setting for zone cool-heat control through optional board DTA104A61,62. | • Check wiring between main boards “A1P” (F1/F2-Outd) and DTA104A61,62.<br>• Check led HAP on option PCB DTA104A61,62 blinks.<br>• Check dip switch setting option PCB DTA104A61,62.<br>• Check address setting main PCB compressor module: for zone cool-heat control = mode2-1. | • Adjust the wiring between main boards “A1P” and optional board DTA104A61,62.<br>• Adjust the setting to the main board “A1P”.<br>• Adjust power supply (16 VDC) to DTA104A61,62.<br>• Replace main board “A1P” (see "Replacing main PCB A1P" on page 141). |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty wiring or setting for LNOP/Demand control through optional board DTA104A61,62. | • Check dip switch setting DTA104A61,62.<br>• Check address setting main board “A1P”: for Cool/heat zone mode 2-1, for LNOP or/and Demand = mode2-2. | • Adjust the wiring between main boards “A1P” and optional board DTA104A61,62.<br>• Adjust the setting to the main boards “A1P”.<br>• Replace main board “A1P” (see "Replacing main PCB A1P" on page 141). |

### 2.2.4.7. “U9” – Systems abnormality

| Trigger | Effect | Reset |
|---|---|---|
| Any indoor unit fault prevents system to start. | Units will stop operating. | Automatic restore. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Minimum 1 indoor unit detects a fault that does not allow system to operate. | Check all indoor units for error code (start with A or C). | Perform troubleshooting indoor unit according to error code found during check method. |
| Wiring abnormality between indoor units <-> RWEYQ-T and <-> BS unit (in case of heat-recovery application). | Check wiring between indoor units <-> RWEYQ-T or/and <-> BS unit (in case of heat-recovery application). | Adjust wiring between indoor units <-> RWEYQ-T or/and <-> BS unit (in case of heat-recovery application) when required.<br>Replace wiring between indoor units <-> RWEYQ-T or/and <-> BS unit (in case of heat-recovery application) when required. |
| Faulty main board “A1P” | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Faulty board BS unit (in case of heat-recovery application). | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the board BS unit receives power. | • Adjust the power to the board BS unit.<br>• Replace board BS unit when HAP LED is not blinking in regular intervals (see "Replace control board BS box" on page 148 and "Replacing expansion valve coil BS box" on page 149). |
| Faulty indoor unit main board. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the indoor main PCB receives power. | • Adjust the power to the indoor main PCB.<br>• Replace indoor main PCB when HAP LED is not blinking in regular intervals (refer to service manual ESIE15-11). |
| Missing indoor unit or heat-exchanger module since end of initialisation. | • Check number indoor units monitoring mode mode1-code 5 (for 5 hp), or code 10 (for 8 hp) (see "Field setting" on page 155.)<br>• Check number indoor units start fan when making “cross wiring check” mode 2-code 5 (see "Field setting" on page 155). | Switch on power supply indoor unit(s) and/or BS unit (in case of heat-recovery application) missing from initial initialisation. |

## 2.2.4.8. “UF” – Wiring and piping mismatch

| Trigger | Effect | Reset |
|---|---|---|
| During test-run, minimum 1 indoor unit fails “cross pipe check” or judgment closed stop valve(s) | Unit will stop operating. | Perform test-run again. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Faulty wiring between indoor units, RWEYQ-T and BS unit (in case of heat-recovery application). | Check “cross wiring check” (mode 2-5) to confirm correct indoor units running fan. | Correct field wiring. |
| Incorrect connection between RWEYQ-T and indoor or BS unit (in case of heat-recovery application). | • If RWEYQ-T used as heat-pump, gas pipe should be left side. Middle stop valve should not be used.<br>• If RWEYQ-T used as heat-recovery, left gas pipe = dual pressure, middle pipe = suction, right = liquid. | • Change field pipe connections. Close all stop valves,<br>• Set system in recovery mode,<br>• Recover refrigerant,<br>• Change field piping,<br>• Air tight test,<br>• Vacuum field piping,<br>• Recharge recovered amount,<br>• Open stop valves,<br>• Restart test-run. |
| Refrigerant shortage (incorrect charge/leakage). | Check for refrigerant shortage.<br>Perform a leak test. | If required, repair the leak and charge the correct amount of refrigerant. |
| Refrigerant circuit is clogged. | Check for possible blockage<br>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). | • Check piping for narrow passage (kink in pipe).<br>• Check for blocked refnet (excessive welding result into internal blockage): apply pressure from liquid service port, set outdoor to 2-21 recovery mode, confirm pressure gas service port raises. |
| Incorrect indoor unit coil thermistor. | • Check mounting of coil thermistor to indoor unit heat-exchanger (refer to service manual ESIE15-11).<br>• Check resistance of coil thermistor.<br>• Operate indoor unit in fan-only (> 30 minutes), check air thermistor and coil thermistor are about same value (service checker, D-checker or user interface). | • Correct position of coil thermistor indoor unit into thermistor holder.<br>• Replace coil thermistor if resistance value is incorrect. |
| Stop valve closed at RWEYQ-T. | Remove cap of stop valves to check position of internal shaft. | Open stop valve(s). |

### 2.2.4.9. “UH” – Auto-address failure

| Trigger | Effect | Reset |
|---|---|---|
| A wrong connection is detected by checking the combination of the indoor and main board “A1P”. | Operation halt due to missing auto-address indoor unit. | Reset communication from main board “A1P”. |

| Possible cause | Check | Corrective action |
|---|---|---|
| Initialisation not completed between main board “A1P” and indoor unit(s). | Indication main board “A1P”.<br>Check system data (user interface). | Wait till initialisation is completed before starting indoor unit operation. |
| Missing phase (for 3 phase models). | Check power supply. | Fix power supply. |
| Faulty main board “A1P”. | • Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check if the main board “A1P” receives power. | • Adjust the power to the main board “A1P”.<br>• Replace main board “A1P” when HAP LED is not blinking in regular intervals (see "Replacing main PCB A1P" on page 141). |
| Faulty indoor board. | • Check if error still occurs after turning off power and turning it back on again.<br>• Check if the indoor PCB receives power.<br>• Check if the HAP LED is blinking in regular intervals.<br>• Check if the correct spare part is installed.<br>• Check the wiring to indoor PCB. | • Adjust power to the indoor PCB.<br>• Replace indoor PCB when HAP LED is not blinking in regular intervals.<br>• Install correct spare part or update indoor PCB.<br>• Adjust wiring to indoor PCB when required. |
| Internal wiring is not OK. | Check if wiring between “A1P” board and terminal strip indoor units and BS unit (in case of heat-recovery application) is correct (see "Wiring diagram" on page 159). | Correct wiring. |
| Wiring abnormality main board “A1P” <-> indoor unit. | Check wiring between main board “A1P” <-> indoor unit. | • Adjust wiring main board “A1P” <-> indoor unit when required.<br>• Replace wiring main board “A1P” <-> indoor unit when required. |
| Mismatch of main board “A1P” and indoor units. | Verify connection on combination database. | Replace indoor units when required. |
| Defective DC voltage detection circuit. | • Check that16VDC present at:<br>  • indoor main board “A1P” connector X35A.<br>  • main board “A1P” RWEYQ-T connector X37A.<br>• Check VRV indoor board ±16 DCV at F1F2 and pins connector X35. | • Replace main board “A1P” when required.<br>• Replace VRV indoor board when required. |
| Incorrect voltage. | Check supply voltage. | Adjust 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. | Avoid electrical interference.<br>Respect minimum distance to other electric appliance (refer to installation manual). |

## 2.2.5. Others

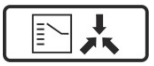
Not applicable.

# 2.3. Symptom based troubleshooting

**Overview of symptom based error situations:**

None of the units operate ..... 62
Operation sometimes stops ..... 63
Some indoor units do not operate ..... 63
Equipment operates but does not cool or does not heat ..... 63
Large operation noise and vibration ..... 64

## 2.3.1. None of the units operate

| Possible failures | Root cause | Check | Corrective action |
|---|---|---|---|
| **Root cause category: Component - electrical** | | | |
| Units does not operate. | Missing power supply to outdoor unit. | Check the rated voltage is supplied. | Restore the power supply. |
| | Power supply outdoor unit missing phase or reverse phase. | When trouble with power supply, fault indication will appear (UH, LC or U1 respectively L1,L2,L3 missing) on RWEYQ-T9. | Arrange correct power supply to RWEYQ-T9. |
| **Root cause category: Installation** | | | |
| Indoor units show fan-only mode. | Initialisation not completed. | • Check indication main board outdoor unit initialisation end (segment display off).<br>• Check that during initialisation, signal F1F2/IND changes between approx. 16V & 0 VDC.<br>• Check HAP service LED BS units (if present) blink. | • Wait till initialisation ended (max.12 min. from power-on).<br>• If initialisation > 12 min., check DCV of F1F2 connections:<br>  • at BS units (when RWEYQ-T9 used as heat-recovery,<br>  • indoor units,<br>if always 0VDC, check F1F2 wiring (open or short circuit) & main pcb A1P.<br>• If 230VAC power present, replace pcb BS unit (if present) or indoor unit if HAP on pcb is off. |
| Units do not operate | Mismatch of combination outdoor unit, BS unit (if present) and/or indoor units. | Check type of BS unit and indoor units (only VRV type are compatible & LT hydro-box HXY-A and HT hydro-box HXHD125A without BS unit) | Install match of combination outdoor unit, BS units and indoor units, LT hydro-box HXY-A, HT hydro-box HXHD125A. |
| | Indoor unit no controller (no control “BRC….” Or no DCS…+ group number) | • Check presence of central control (DCS…) & group numbers are found.<br>• Check presence of central control (DCS…) & group numbers are found. | • If no central control device DCS…, connected wired control BRC…<br>• If only central control & no indoor found, use wired control BRC… to set each indoor group number. |
| **Root cause category: Operating conditions** | | | |
| Units do not operate. | requests cool/heat master indoor unit:<br>• no BS units: among all indoor units.<br>• + BS units: check if more than 1 indoor to same BS unit. | Check symbol on wired remote control is off or on.<br> | If symbol blinks, confirm a VRV indoor unit as cool/heat master (press once cool/heat selector button). |

## 2.3.2. Operation sometimes stops

| Possible failures | Root cause | Check | Corrective action |
|---|---|---|---|
| **Root cause category: Component - electrical** | | | |
| Operation sometimes stops. | A power failure of 2 to 10 cycles can stop the air-conditioner operation (operation lamp off). | Check the power supply. | Restore the power supply. |
| **Root cause category: Operating conditions** | | | |
| Cooling/heating operation stops for 3 minutes and restarts. | Outdoor unit stops by “retry" by safety device: HP or LP, or current or discharge temperature, or current). | Check the retry error code (refer to "Error codes via outdoor unit" on page 24). | Follow troubleshooting according to the error code found in the retry (refer to "Error code based troubleshooting" on page 27). |

## 2.3.3. Some indoor units do not operate

| Possible failures | Root cause | Check | Corrective action |
|---|---|---|---|
| **Root cause category: Installation** | | | |
| Some indoor units do not operate. | Outdoor units, BS unit (if present) or/and indoor unit(s) are not compatible. | Check to make sure that the BS unit (if present) & indoor units are compatible with the RWEYQ-T9 unit. | Install compatible units. |
| | Indoor board does not receive power supply. | • Check presence 230 VAC.<br>• Check fuse(s) on board.<br>• Check HAP blinks. | • Reconnect power supply.<br>• Replace fuse.<br>• Replace indoor unit pcb. |
| | BS unit board (if present) does not receive power supply | • Check presence 230 VAC.<br>• Check fuse(s) on board.<br>• Check HAP blinks. | • Reconnect power supply.<br>• Replace fuse.<br>• Replace BS unit pcb. |

## 2.3.4. Equipment operates but does not cool or does not heat

| Possible failures | Root cause | Check | Corrective action |
|---|---|---|---|
| **Root cause category: Installation** | | | |
| Equipment operates but does not cool or does not heat. | Piping/wiring mismatch. | Perform “wiring/piping check” from outdoor unit. (refer to installation manual) | Adjust piping/wiring. |
| | | Perform “wiring” check from BS unit (multi BS unit BS4~16Q14A). Refer to "Check method Wiring BS-Q14A" on page 156). | Adjust wiring. |
| | Insufficient refrigerant in the refrigerant system. | Diagnosis by service port pressure and operating current. | Recharge the unit when required. |

| Possible failures | Root cause | Check | Corrective action |
|---|---|---|---|
| **Root cause category: Component - Mechanical** | | | |
| Equipment operates but does not cool or does not heat. | Incorrect thermistor values. | Check if all thermistors are still firmly attached in there thermistor pocket. | Remount the thermistor if it is not correct installed in the pocket. |
| | Expansion valve incorrect operation at BS unit (gas side) or indoor unit (liquid side). | Check operation of expansion valve. | Replace expansion valve body. |
| | Cross piping:<br>• If BS unit present: among BS units or/and indoor unit.<br>• Without BS: wiring and refrigerant between RWEYQ-T9 and indoor units | Operate indoor unit(s) to same RWEYQ-T9 unit to confirm no cross piping | Change field wiring between RWEYQ-T9, BS units (if present) and indoor units. |
| **Root cause category: Component - Electrical** | | | |
| Equipment operates but does not cool or does not heat. | Faulty operation of the electronic expansion valve. | Set the units to cooling operation, and compare the temperatures of the liquid side connection pipes of the connection section among the rooms. This to check the opening and closing operation of the electronic expansion valves of the individual units. | • Replace the coil and/or body of the indoor unit(s) indicating faulty operation of the expansion valve.<br>• Replace the coil of BS unit “EVL” if indoor expansion valve is working correctly. |

## 2.3.5. Large operation noise and vibration

| Possible failures | Root cause | Check | Corrective action |
|---|---|---|---|
| **Root cause category: Component - Electrical** | | | |
| Large operation noise and vibration. | Instable output voltage of the inverter PCB. | Verify the operation of the inverter via the inverter checker. | Replace the inverter PCB when the inverter check is not OK. |

| Possible failures | Root cause | Check | Corrective action |
|---|---|---|---|
| **Root cause category: Installation** | | | |
| Large operation noise and vibration. | Indoor or/and BS unit(s) is not installed according the installation manual. | Check to make sure that the required spaces for the installation are provided. | Install the unit according the installation manual. |
| | | Operate some indoor in cooling & other in heating - check that middle pipe all BS units (if present) warms up when outdoor operates ± 5 minutes. | Change field pipe connection BS unit (if present) to have warm pipe middle pipe of BS. |
| | Gas pipes crossed at RWEYQ-T9 | Operate at least 1 indoor unit in heating mode. Right side pipe at RWEYQ-T9 should become warm. Suction gas pipe at RWEYQ-T9 (middle pipe) should not warm. | Recover refrigerant and change pipe connections at RWEYQ-T9 to have right side gas pipe high pressure side. |
| | Gas pipes crossed at BS units (if present) | Operate at least 1 indoor unit in heating mode. Middle pipe of inlet BS unit should become warm. Gas pipe at BS unit should not warm. | Recover refrigerant and change pipe connections at inlet of BS unit(s) to have middle pipe high pressure side. |
| | Liquid compression. | • Check indoor unit thermistors gas and coil.<br>• Check expansion valve of evaporator controls the superheat (default 5°C).<br>• Check refrigerant charge. | • Replace thermistor(s) if faulty signal.<br>• Replace expansion valve coil or/and body when thermistors are correct.<br>• Recover and weight the refrigerant and recharge correct value. |
| | Flash gas liquid pipe. | • Check expansion valve of evaporator controls the superheat (default 5°C): when tend to open fully: poor supply of liquid.<br>• Check field piping at BS units (if present) and indoor unit: minimum 0.5 m straight pipes. | • Replace thermistor(s) if faulty signal.<br>• Replace expansion valve coil or/and body when thermistors are correct.<br>• Recover and weight the refrigerant and recharge correct amount.<br>• Adjust field piping to have minimum 0.5 m straight pipe at BS units (if present) and indoor units. |
| | BS units (if present): change over indoor unit between high and low pressure (heating & cooling). | Check field setting outdoor 2-56.<br>When setting >0, in heating mode, at thermostat-off or/and operation off, after 5 minutes indoor unit is changed to low pressure side. When thermostat-on or/and operation -on, indoor unit is set back to high pressure. | Disable the heating capacity-less (outdoor setting 2-56-0) and eventually equalisation time (setting 2-71) when complaint at time of change over cooling-heating request from indoor unit |

# 2.4. Component checklist

**Overview of component checklists:**

VRV IV-Water cooled unit ..... 67
- 4-way valve ..... 67
- AC fan motor inverter cooling ..... 70
- Thermistor value-read-out ..... 72
- High pressure switch ..... 73
- High pressure sensor S1NPH ..... 74
- Low pressure sensor S1NPL ..... 76
- Inverter board A3P ..... 78
- Main board A1P ..... 82
- Thermistors ..... 83
- Compressor ..... 87
- Electronic expansion valve ..... 89

System ..... 90
Others ..... 90

# 2.4.1. VRV IV-Water cooled unit

## 2.4.1.1. 4-way valve

| Technical specification | Description |
|---|---|
| The 4 way valve is controlled from a pilot valve set in position by a magnetic coil:<br>• Y6S 4Way valve HP/LP gas indoor:<br>  • 0V = suction pressure to indoor,<br>  • 230VAC = discharge pressure to indoor.<br>• Y7S 4Way valve $H_2O$ PHE:<br>  • 0V = discharge pressure to $H_2O$ PHE,<br>  • 230VAC = suction pressure to $H_2O$ PHE. | 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 $H_2O$ heat exchanger in case of<br>• cooling operation,<br>• oil return in heating mode in case of heat-pump application. |

| Location | | | |
|---|---|---|---|
| **Piping diagram** | **Wiring diagram** | **Switch box** | **Component overview of unit** |
| See "Piping diagram" on page 161. | See "Wiring diagram" on page 159. | See "Switch box" on page 167 | See "Component overview of unit" on page 162. |

**Check procedure**

**Mechanical check**

1. Switch off the Daikin indoor unit(s) via the user interface.
2. Switch off the power supply to the unit with the field supplied circuit breaker.
3. Remove plate work when required, refer to "Basic removal" on page 102.
4. Loosen the screw and remove the coil from the 4-way valve (refer to "Replacing 4-way valve coil" on page 113).



**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 4-way valve connector from the main board “A1P”.

| Component no. | Location | Description |
|---|---|---|
| X7A | A1P | 4-way valve HP/LP gas indoor |
| X8A | A1P | 4-way valve $H_2O$ PHE |

6. Switch on the power supply to the unit with the field supplied circuit breaker.
7. Switch on the Daikin indoor unit(s) via the user interface, start cooling operation

   **(a)** 4-way valve connected to the $H_2O$ plate heat-exchanger:

   - If the gas temperature at the $H_2O$ plate the heat exchanger drops, the 4-way valve is stuck in heating position (refer to "Replacing 4-way valve body" on page 111).
   - If the gas temperature at the $H_2O$ plate the heat exchanger rises, proceed with next step 8.
   - If the temperature at the $H_2O$ plate the heat exchanger does not change, check the refrigerant pressure by connecting a manifold to one of the service ports.
     - If pressure = 0 barG, perform a pressure test and fix any leaks.
     - If there is no pressure difference HP-LP,
       or 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 111).
       or the compressor fails compression (internal bypass). Replace the compressor.

**(b)** 4-way valve connected to the HP/LP stop valve:

- If the gas temperature towards the indoor units raises, the 4-way valve is stuck in heating position (refer to "Replacing 4-way valve body" on page 111).
- If the gas temperature towards the indoor units drops, proceed with next step 8.
- If the temperature towards the indoor units does not change, check the refrigerant pressure by connecting a manifold to one of the service ports.
  - If pressure = 0 barG, perform a pressure test and fix any leaks.
  - If there is no pressure difference HP-LP,
    or 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 111).
    or the compressor fails compression (internal bypass). Replace the compressor.



**CAUTION - RISK OF LIQUID ENTERING THE COMPRESSOR**

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

8. While listening to the 4-way valve, place a round permanent magnet on the core of the solenoid valve. If you do not hear the 4-way valve switching, it must be replaced (refer to "Replacing 4-way valve body" on page 111).

## Electrical check

1. Switch off Daikin unit via the user interface.
2. Switch off the power supply to the unit with the field supplied circuit breaker.
3. Remove plate work when required, refer to "Basic removal" on page 102.
4. 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.

5. Measure the voltage on 4-way valve connector:

| Connector no. | Location | Description |
|---|---|---|
| X7A | A1P | 4-way valve HP/LP gas indoor |
| X8A | A1P | 4-way valve $H_2O$ PHE |

- If the measured voltage, does not range 220-240 VAC during switching,
  - stop unit from user interface.
  - once compressor stopped, unplug 4-way valve connector from main board “A1P” (connector see table above).
  - measure the voltage directly on the main board “A1P”(connector see table above).
- If the voltage, measured directly on the main board “A1P” does range 220-240 VAC during switching, replace the 4-way valve coil (refer to "Replacing 4-way valve coil" on page 113).



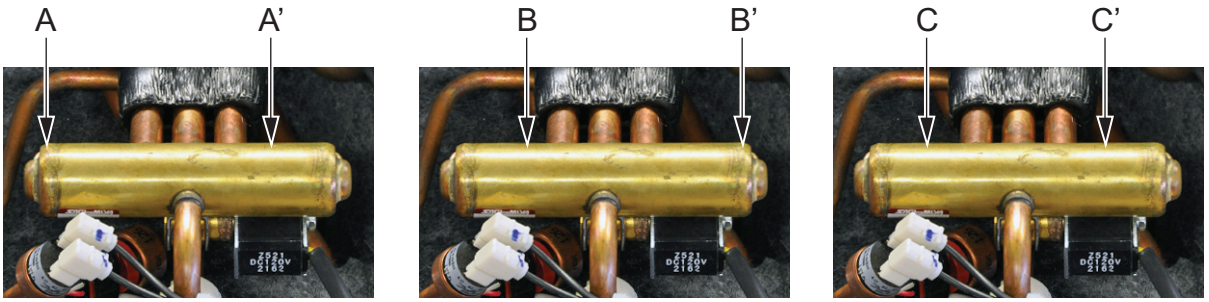
**WARNING: RISK OF FIRE**

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 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 113).
7. Switch on the Daikin indoor unit(s). Start cooling operation.
   - If the temperature after the indoor unit heat exchanger rises, the control of the 4-way valve is wrong. Replace main PCB (refer to "Replacing main PCB A1P" on page 141).

## Determine the position of the 4-way valve

1. Switch off Daikin unit via the user interface.
2. Switch off the power supply to the 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 111).



## 2.4.1.2. AC fan motor inverter cooling

| Technical specification | Description |
|---|---|
| The unit RWEYQ-T9Y1B contains 2 AC fan motors running parallel from same output signal. Each fan assembly contains:<br>• an AC motor equipped with a single connector for 230VAC power supply,<br>• a 5 blade fan propeller. | The fan motor location behind the switchbox operates when the inverter temperature requires cooling. |

| Location | | | |
|---|---|---|---|
| **Piping diagram** | **Wiring diagram** | **Switch box** | **Component overview of unit** |
| See "Piping diagram" on page 161. | See "Wiring diagram" on page 159. | See "Switch box" on page 167.<br>SUB PCB A4P, item 7 in Figure 5-6 on page 167. | See "Component overview of unit" on page 162.<br>Item 34 and 35 in Figure 5-4 on page 162. |

**Check procedure**

**Mechanical check**

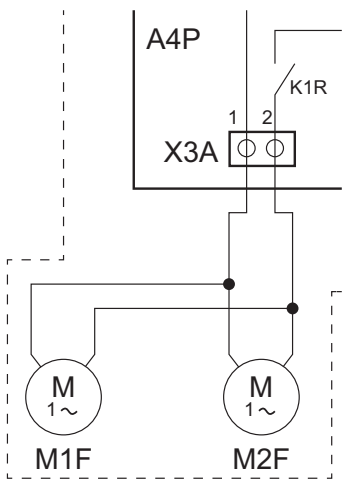
1. Switch off the Daikin unit via the user interface.
2. Switch of the power supply of the unit with the field supplied circuit breaker.
3. Check all electrical connections of the fan motor.
4. Check all electrical connections of the power supply.
5. Check propeller rotates free.

**Electrical check**

**Without power supply**

1. Switch off the power supply to the unit with the field supplied circuit breaker.
2. Disconnect plug at fan motor, refer to the table below.
3. Measure the circuits using the table below.

   At plug X3A, resistance is 1/2 for RWEYQ-T9Y1B (2 fan motors are wired parallel)

| | RWEYQ-T9Y1B |
|---|---|
| Symbols wiring diagram |  |
| Check Method | Resistance check<br>2.075 kΩ (20°C) (tolerance ±10%) |

**With power supply**

1. Reconnect the plug of the fan motor.
2. Switch on the power supply to the unit with the field supplied circuit breaker.
3. Start indoor unit by User interface.
4. Confirm output 230VAC when inverter temperature reaches ±65°C. (fin temperature read out by service checker TypeIII.
5. Confirm the 2 motors run when output 220VAC is measured on connector X3A SUB PCB “A4P”.
6. Confirm motor does not make abnormal noise.
7. Check air circulation: ± 1.6$m^3$/min per fan.

### 2.4.1.3. Thermistor value-read-out

| Technical specification | Description |
|---|---|
| NTC-type thermistor:<br>• when °C up -> kΩ down.<br>• when °C down -> kΩ up. | The thermistors of the unit can be verified by connecting Service Checker TypeIII or D-checker. The value of limited number of sensors & outputs can be displayed by the segment display. |

| Location | | | |
|---|---|---|---|
| **Piping diagram** | **Wiring diagram** | **Switch box** | **Component overview of unit** |
| See "Piping diagram" on page 161. | See "Wiring diagram" on page 159. | See "Switch box" on page 167.<br>SUB PCB A4P, item 7 in Figure 5-6 on page 167. | See "Component overview of unit" on page 162.<br>Item 34 and 35 in Figure 5-4 on page 162. |

**Check procedure**

**Read by monitoring tool (service checker TypeIII or D-checker)**

1. Switch off the Daikin unit via the user interface.
2. Confirm unit stops operation.
3. Wait for about 15 minutes before checking value of thermistors.
4. Compare deviation of read out (maximum 5% to ambient temperature).
5. If any thermistor read out shows “out of range”, use the electric check method to judge if change of thermistor (resistance check fails) or main board (resistance check pass).
   - Type 1: out of range if < -47°C or > 103°C.
   - Type 2: out of range if < -34°C or > 183°C.

**Read by “digital gauge” main board**

1. Enter the mode 1: 1 x BS1 “Mode”,
2. Scroll to the related item (see Table 2-1 on page 72) push BS2 button “Set a number of times till flashing number shows the indicated number in mode 1 (see Table 2-1 on page 72),
3. View value: 1 x BS3 “Return”
4. Return to top list: 1 x BS3 “Return”.
5. To view other sensor, return to step 2
6. To end monitoring mode, 1 x BS1 “Mode”.

***Table 2-1: Table display data by Segment display main board “A1P”, read out per module***

| Mode 1 | Description display | Mode 1 | Description display |
|---|---|---|---|
| 42 | actual Pc (Mpa) | **53** | **Actual gas °C PHE H2O (R4T - "Tg")** |
| 43 | actual Pe (Mpa) | **54** | **Actual liquid receiver °C (R6T - "TL")** |
| 44 | Actual Frequency output (Hz) | 56 | Compressor hours (display= hours/100) |
| 45 | Actual pulses Y1E (display = pulses/10) | 57 | Actual Output X2M 2«3 (0~10VDC) |
| 46 | Actual pulses Y2E (display = pulses/10) | **58** | **Actual H2O inlet °C (R9T)** |
| 47 | Actual discharge pipe °C (R12T - "Tdi") | **59** | **Actual H2O inlet °C (R10T)** |
| 48 | spare item | **60** | **Actual compressor body °C (R13T - "Ti")** |
| 49 | spare item | **61** | **Actual r410A liquid °C H2O PHE (R7T - "Tb")** |
| **50** | **Actual air °C (R1T - "Ta")** | **62** | **Actual liquid °C outlet Y2E (R11T - "Tm")** |
| **51** | **Actual Accumulator inlet °C (R3T - "Ts")** | **63** | **Actual liquid °C stop valve liquid (R8T - "Tsc")** |
| **52** | **Actual gas outlet °C Sub-cool (R5T - "Tsh")** | **64** | **Actual air °C (R1T - "Ta")** |
| | | **65** | **Actual gas °C ZED circuit (R2T - "Tev")** |

## 2.4.1.4. High pressure switch

| Technical specification | Description |
|---|---|
| The high pressure switch has a normally closed contact.<br>If the pressure exceeds 41.7 (+0 / -1) bar the contact will open.<br>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 abnormal high pressure is detected in the refrigerant circuit. |

| Location | | | |
|---|---|---|---|
| **Piping diagram** | **Wiring diagram** | **Switch box** | **Component overview of unit** |
| See "Piping diagram" on page 161. | See "Wiring diagram" on page 159. | See "Switch box" on page 167.<br>Main PCB A1P, item 4 in Figure 5-6 on page 167. | See "Component overview of unit" on page 162.<br>Item 38 in Figure 5-4 on page 162. |

**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 102.

**PROCEDURE**

1. Disconnect the high pressure switch connector from main board “A1P”.
2. Connect a gauge to the service port of the HP/LP gas stop valve.
3. Confirm that saturation pressure corresponds to ambient temperature (± 0.5 MPa)
4. Check whether the contact of the pressure switch is closed (by stopping the unit, the standing pressure in the system should drop below 3.0 MPa).
   - In case of an open contact and the gauge indicates a pressure below 3.0 MPa, replace the high pressure switch. Refer to "Replacing high pressure switch" on page 124.
   - In case of a closed contact and the standing pressure is below 3.0 MPa, check the switching characteristics of the high pressure switch.
     - Recover the refrigerant.
     - Pressurize the refrigerant circuit at 41.7 bar with nitrogen.
     - Measure the switch contacts between the high pressure switch connector: pins 1-2. The switch must be open. Replace the high pressure switch if the contact is not open, refer to "Replacing high pressure switch" on page 124.
     - Reduce the pressure below 3.0 MPa, the contact should close. If it remains open, replace the high pressure switch, refer to "Replacing high pressure switch" on page 124.

     If above checks did not show any abnormality, the E3 fault may be caused by:
     - Faulty main board “A1P”.
     - Micro power failure

## 2.4.1.5. High pressure sensor S1NPH

| Technical specification | Description |
|---|---|
| The pressure sensor is an analogue pressure sensor.<br>The main board “A1P” supplies 5VDC to the pressure sensor. The sensor changes output to main board according to corresponding pressure - refer to graph in step 3 of the procedure | 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 "Piping diagram" on page 161. | See "Wiring diagram" on page 159. | See "Switch box" on page 167.<br>Main PCB A1P, item 4 in Figure 5-6 on page 167. | See "Component overview of unit" on page 162.<br>Item 37 in Figure 5-4 on page 162. |

**Check procedure**

**Electrical check**

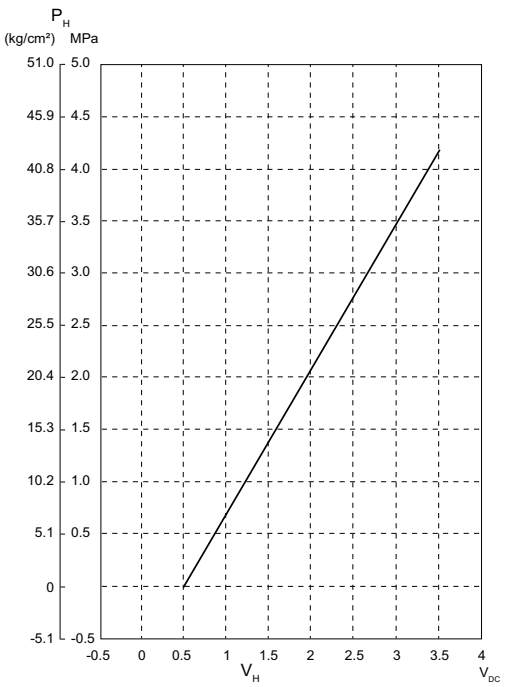
### PRELIMINARY ACTIONS

1. Switch off the Daikin unit via the user interface.
2. Remove plate work when required, refer to "Basic removal" on page 102.

### PROCEDURE

1. Connect a pressure gauge to the pressure service port of the HP/LP gas stop valve, and read the pressure.
2. Start the unit from the user interface in heating mode.
3. Wait till the coil of 4-way valve Y6S is energized.

   From the graph below, determine the expected high pressure sensor output signal.




$P_H$: High pressure (MPa)

$V_H$: Output voltage [high side] VDC

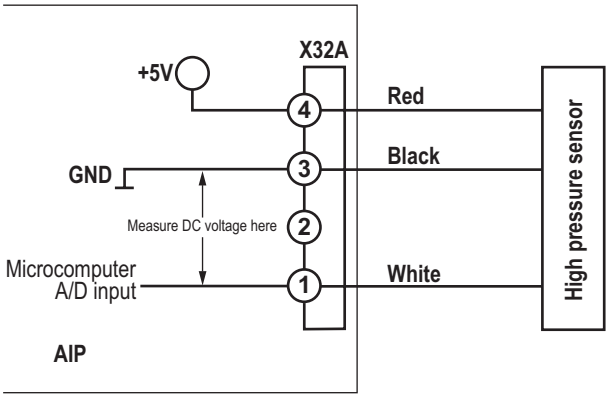
$P_H = 1.38\ V_H - 0.69$

4. Power the Daikin unit.

**INFORMATION**

To know where to plug in the high pressure sensor connector, refer to "Component checklist" on page 163.

5. Measure the voltage across high pressure sensor connector: pin 1-3 on the PCB; compare the measured voltage with the expected voltage (refer to the graph in step3).




6. 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 board A1P" on page 82).

**Check 2**

1. Check if the high pressure sensor connector is plugged into the main board “A1P” connector X32A

**Check 3**

1. Measure the voltage across high pressure sensor connector: pin 4-3; the measured voltage must be 5 VDC.
   If not replace the SUB PCB “A4P” (refer to "Replacing SUB PCB A4P" on page 146).

## 2.4.1.6. Low pressure sensor S1NPL

| Technical specification | Description |
|---|---|
| The pressure sensor is an analogue pressure sensor.<br>The main board “A1P” supplies 5VDC to the pressure sensor. The sensor changes output to main board according to corresponding pressure - refer to graph in step 3 of the procedure | The pressure sensor measures the pressure in the low pressure section of the refrigerant circuit. |

| Location | | | |
|---|---|---|---|
| **Piping diagram** | **Wiring diagram** | **Switch box** | **Component overview of unit** |
| See "Piping diagram" on page 161. | See "Wiring diagram" on page 159. | See "Switch box" on page 167.<br>Main PCB A1P, item 4 in Figure 5-6 on page 167. | See "Component overview of unit" on page 162.<br>Item 36 in Figure 5-4 on page 162. |

**Check procedure**

**Electrical check**

**PRELIMINARY ACTIONS**

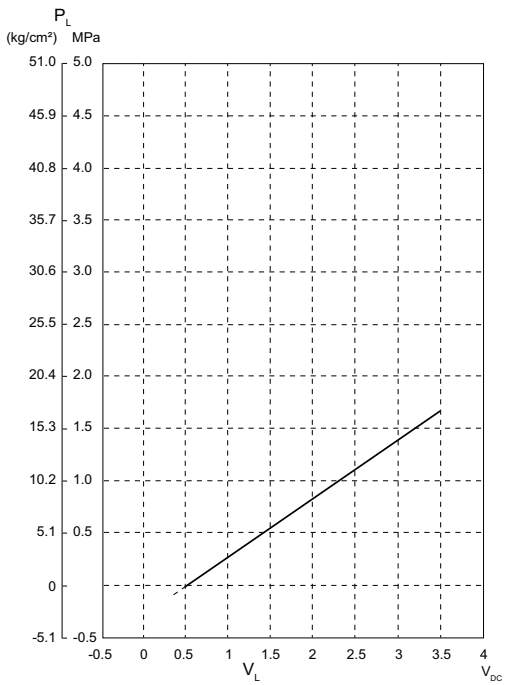
1. Switch off the Daikin unit via the user interface.
2. Remove plate work when required, refer to "Basic removal" on page 102.

**PROCEDURE**

1. In case of a VRV4WC+ heat-pump application, connect a pressure gauge to the pressure service port of the HP/LP gas stop valve, and read the pressure.

   In case of a VRV4WC+ heat-recovery application, connect a pressure gauge to the pressure service port of the suction stop valve, and read the pressure.
2. Start the unit from the user interface in cooling mode.
3. Wait till the coil of 4-way valve Y6S is energized.

   From the graph below, determine the expected high pressure sensor output signal.




$P_L$: Low pressure (MPa)

$V_L$: Output voltage [high side] VDC

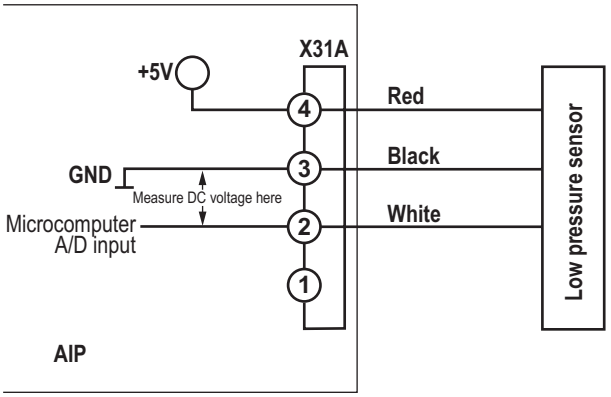
$P_L = 0.57\ V_L - 0.28$

4. Power the Daikin unit.

**INFORMATION**

To know where to plug in the low pressure sensor connector, refer to "Component checklist" on page 163.

5. Measure the voltage across low pressure sensor connector: pin 2-3 on the PCB; compare the measured voltage with the expected voltage (refer to graph in step 3).




6. In case no voltage is measured across low pressure sensor connector: pin 2-3; do following checks:

**INFORMATION**

If 1 or more checks fail, replace the low pressure sensor.

**Check 1**

1. Check main PCB (refer to "Main board A1P" on page 82).

**Check 2**

1. Check if the low pressure sensor connector is plugged into the main board “A1P” connector X31A

**Check 3**

1. Measure the voltage across low pressure sensor connector: pin 4-3; the measured voltage must be 5 VDC. If not replace the SUB PCB “A4P” (refer to "Replacing SUB PCB A4P" on page 146).

### 2.4.1.7. Inverter board A3P

| Technical specification | Description |
|---|---|
| The inverter board contains:<br>• Diode module: converts 3 phase AC power to a DC voltage = 1.73 * ACV (RMS).<br>• Power module: converts DC voltage into PWM output. | The inverter PCB outputs 3 phase PWM voltage to the compressor motor windings. The target rotation speed is set by main PCB based offset to target saturated pressure.<br>Rotation speed can be lowered preventively when reaching abnormal level on low pressure, high pressure, current, discharge pipe temperature or inverter temperature. |

| Location | | | |
|---|---|---|---|
| **Piping diagram** | **Wiring diagram** | **Switch box** | **Component overview of unit** |
| See "Piping diagram" on page 161. | See "Wiring diagram" on page 159. | See "Switch box" on page 167.<br>Inverter PCB A3P, item 6 in Figure 5-6 on page 167. | See "Component overview of unit" on page 162. |

**Check procedure**

**Mechanical check**

1. Check the inverter board “A3P” for cracks, replace main PCB, refer to "Replacing inverter board A3P" on page 139.
2. Check the inverter board “A3P” for burned components, replace inverter board, refer to "Replacing inverter board A3P" on page 139.
3. If any mechanical damage, replace inverter PCB, refer to "Replacing inverter board A3P" on page 139.

**Electrical check**

1. Switch off the Daikin unit via the user interface.
2. Switch off the power supply of the unit with the field supplied circuit breaker.
3. Remove plate work when required (refer to "Basic removal" on page 102).
4. Open the compressor insulation, refer to "Removing the compressor jacket" on page 109.

**WARNING: RISK OF ELECTROCUTION**

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

5. Measure the 500 VDC check point, refer to "Component checklist" on page 163 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 re-installation.

6. Disconnect the Faston connectors U, V and W from the compressor.
7. Using a multimeter in diode measurement, check the compressor inverter board as described in the illustration and table below.

*Figure 2-3: Inverter board transistor/diode check*

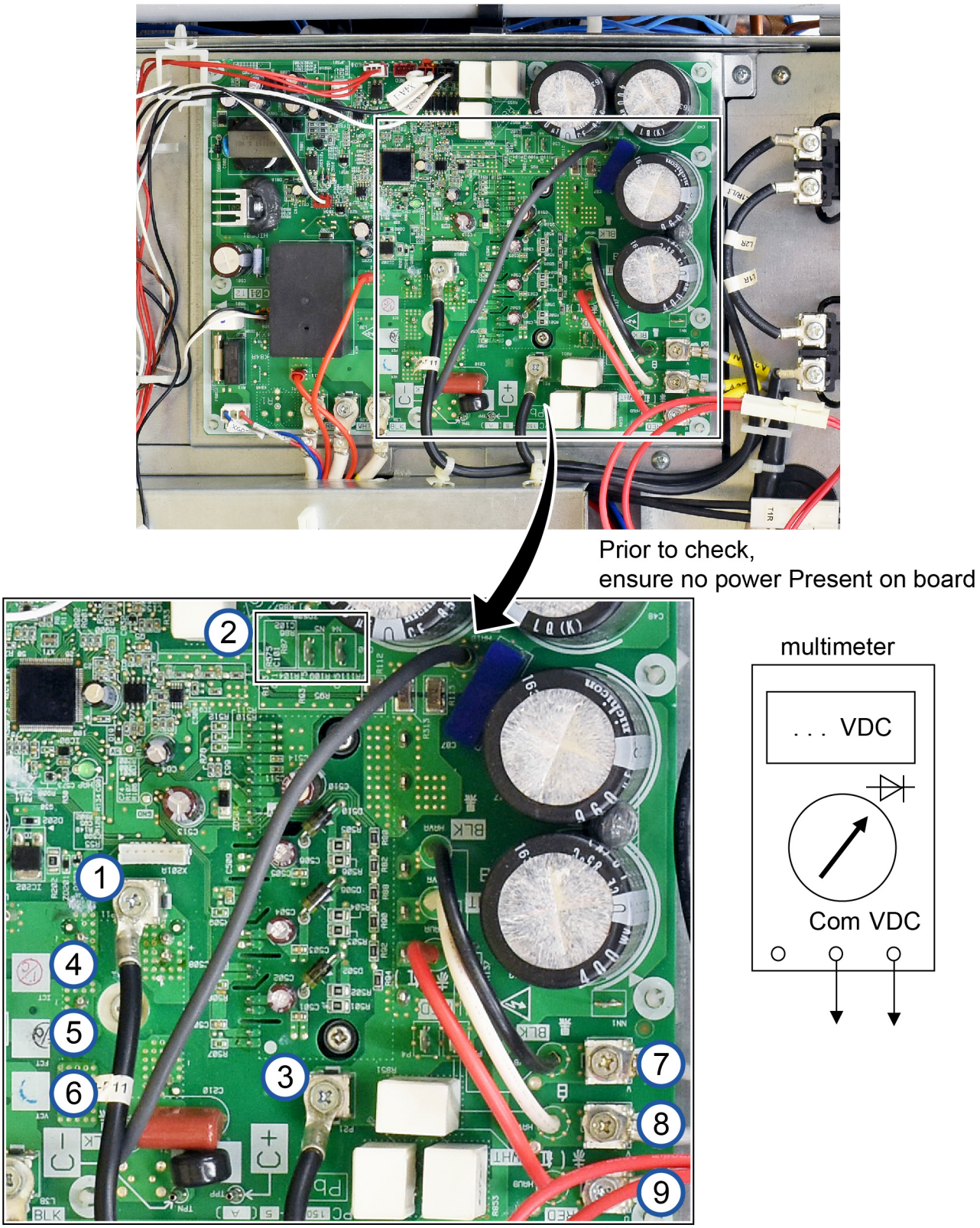


*Table 2-2: Transistor/diode check of compressor inverter*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Diode Module Check Method** | Diode check | | - | | | **Power Module Check Method** | Diode check | | - | | |
| | DCV | | ④ | ⑤ | ⑥ | | DCV read out | | ⑦ | ⑧ | ⑨ |
| | + | ① | 0.4 | 0.4 | 0.4 | | + | ③ | O.L. | O.L. | O.L. |
| | | ② | O.L. | O.L. | O.L. | | | ② | 0.4 | 0.4 | 0.4 |
| | Diode check | | + | | | | Diode check | | + | | |
| | DCV | | ④ | ⑤ | ⑥ | | DCV read out | | ⑦ | ⑧ | ⑨ |
| | - | ① | O.L. | O.L. | O.L. | | - | ③ | 0.4 | 0.4 | 0.4 |
| | | ② | 0.4 | 0.4 | 0.4 | | | ② | O.L. | O.L. | O.L. |

O.L. = Open Loop (∞)

**Check connectors reconnected to the compressor**

1. Switch off the Daikin unit via the user interface.
2. Switch off the power supply of the unit with the field supplied circuit breaker.
3. Remove plate work when required, refer to "Basic removal" on page 102.
4. Open the compressor insulation, refer to "Removing the compressor jacket" on page 109.
5. Remove the cover from the compressor terminal.

**WARNING: RISK OF ELECTROCUTION**

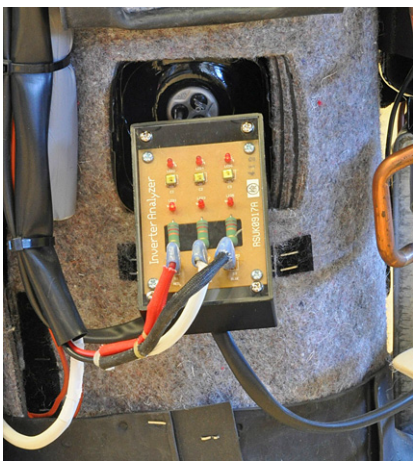
The smoothing capacitor must discharge below 10 VDC before removing the compressor wiring.

6. Measure the 500 VDC check point, refer to "Component checklist" on page 163 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 re-installation.

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




8. Power the Daikin unit.

**WARNING**

Electrical shock hazard. Do not touch live wires.

9. Activate the inverter test (refer to "Component checklist" on page 163).

10. Check that all LED's on the Inverter Analyzer are blinking 10 times/second; if not, replace the inverter board (refer to "Replacing inverter board A3P" on page 139).

11. Switch off the power supply of the unit with the field supplied circuit breaker.

12. Wait a few minutes and confirm that the LED's on the Inverter Analyzer are off.
    2 LED's will shortly light up & reduce brightness till the DC voltage is discharged.

13. Disconnect the Inverter Analyzer from the U V W wiring.

| | |
|---|---|
|  | **CAUTION**<br>When wiring the compressor, observe U V W as indicated on the compressor. |

| | |
|---|---|
|  | **CAUTION**<br>When above described test on inverter board is correct, first check the compressor motor windings before operating the equipment (refer to "Compressor" on page 87):<br>1. Check the correct resistance between U/V/W and<br>2. No earth leakage (use a Megger minimum 500 VDC) between ground and each U/V/W (minimum 1 MOhm). |

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

### 2.4.1.8. Main board A1P

| Technical specification | Description |
|---|---|
| The main board contains a high voltage circuit (230VAC) output to coils of solenoid valves, and a low voltage circuit for communication (16 VDC), energize relays & expansion valve coils (12 VDC) and processor (5 VDC). | The main PCB judges rotation direction of power supply (L1 & L3 to N), input of temperature and pressure, output to multiple components based on logic of processor. |

| Location | | | |
|---|---|---|---|
| **Piping diagram** | **Wiring diagram** | **Switch box** | **Component overview of unit** |
| See "Piping diagram" on page 161. | See "Wiring diagram" on page 159. | See "Switch box" on page 167.<br>Main PCB A1P, item 4 in Figure 5-6 on page 167. | See "Component overview of unit" on page 162. |

**Check procedure**

**Mechanical check**

1. Check the main board “A1P” for cracks, replace main board “A1P”, refer to "Replacing main PCB A1P" on page 141.
2. Check the main board “A1P” for burned components, replace main board “A1P”, refer to "Replacing main PCB A1P" on page 141.
3. If any mechanical damage, replace main board “A1P”, refer to "Replacing main PCB A1P" on page 141.

**Electrical check**

1. Switch off the Daikin unit via the user interface.
2. Switch off the power supply to the unit with the field supplied circuit breaker.
3. Remove plate work when required, refer to "Basic removal" on page 102.
4. Switch on the power supply of the unit with the field supplied circuit breaker.
5. Check if the HAP LED is blinking in regular intervals (1 time per second), if not blinking check if low DC voltage present, refer to "Component checklist" on page 163. If low DC voltage check OK, replace the main PCB board, refer to "Replacing main PCB A1P" on page 141.
6. Measure the supply voltage to the main PCB board: there should be ± 230 V (230 VAC power supply check, refer to "Component overview of unit" on page 162).
7. If the voltage is not correct check main power supply. If present 400 V (L1-L2-L3) and 230 V (L1-N) go next step. If not, check noise filter “A2P” input and output voltage. If no output voltage, replace noise filter “A2P”.
8. Check status of fuses on main board FU1 and FU2. If OK, go to step 10.
9. If fuses damaged, check status of varistors F1S & F2S. If any crack, overvoltage on power supply broke varistors and fuses. Replace main board “A1P”; refer to "Replacing main PCB A1P" on page 141.
10. Check presence 16 VDC at connector X37A on main board “A1P”. If no voltage, replace main board “A1P”

## 2.4.1.9. Thermistors

| Technical specification | Description |
|---|---|
| 2 Types of thermistors are NTC type (negative temperature coefficient:<br>• Type-1 thermistor = Standard type of thermistor, is used for all thermistors, except “R12T” & “R13T”.<br>• Type-2 thermistor = High temperature thermistor discharge pipe “R12T” & thermistor body “R13T”.<br>• The resistance vs. temperature characteristics is shown in below table “Thermistor resistance / temperature characteristics (type 1 & 2)”.<br>. | The thermistors are used to measure the temperature at multiple locations inside the Daikin unit. The measured temperatures are processed by the main board. All thermistors are connected to the main board, except the “R1T” & “R2T” are connected to the auxiliary board “A4P”. |

| Location | | | |
|---|---|---|---|
| **Piping diagram** | **Wiring diagram** | **Switch box** | **Component overview of unit** |
| See "Piping diagram" on page 161. | See "Wiring diagram" on page 159. | See "Switch box" on page 167.<br>Main PCB A1P, item 4 in Figure 5-6 on page 167. | See "Component overview of unit" on page 162.<br>Item 21 till 33 (R1T ~R13T) in Figure 5-4 on page 162. |

**Check procedure**

**Check with monitoring tool**

1. Switch off the Daikin unit via the user interface.
2. Confirm unit stopped operation.
3. Wait for about 15 minutes before checking value of thermistors.
4. Compare deviation of read out (maximum 5% to ambient temperature).
5. If any thermistor read out shows “out of range”, use the electric check method to judge if change of thermistor (resistance check fails) or main PCB (resistance check pass).
   - out of range if < -47°C or > 108°C.

**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. 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.

1. Switch off the Daikin unit via the user interface.
2. Switch off the power supply to unit with the field supplied circuit breaker.
3. Remove plate work when required, refer to "Basic removal" on page 102.

4. Based on the error code (& sub-code) (see "Error code BS and outdoor" on page 28), select the thermistor that must be checked.

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 board and measure the resistance between the pins listed in the error code table (see "Error code BS and outdoor" on page 28).
   - Compare the measured resistance compared to the tables below:
     - Type 1 thermistor, reference point at 20°C = 25kΩ (& vice versa at 25°C = 20kΩ)
     - Type 2 thermistor reference point at 80°C = 25kΩ

7. If the measured resistance does not match the listed value, the thermistor must be replaced. If resistance value matches, replace main board “A1P” (refer to "Replacing main PCB A1P" on page 141).

> **INFORMATION**
>
> All thermistors have a tolerance of 5%.

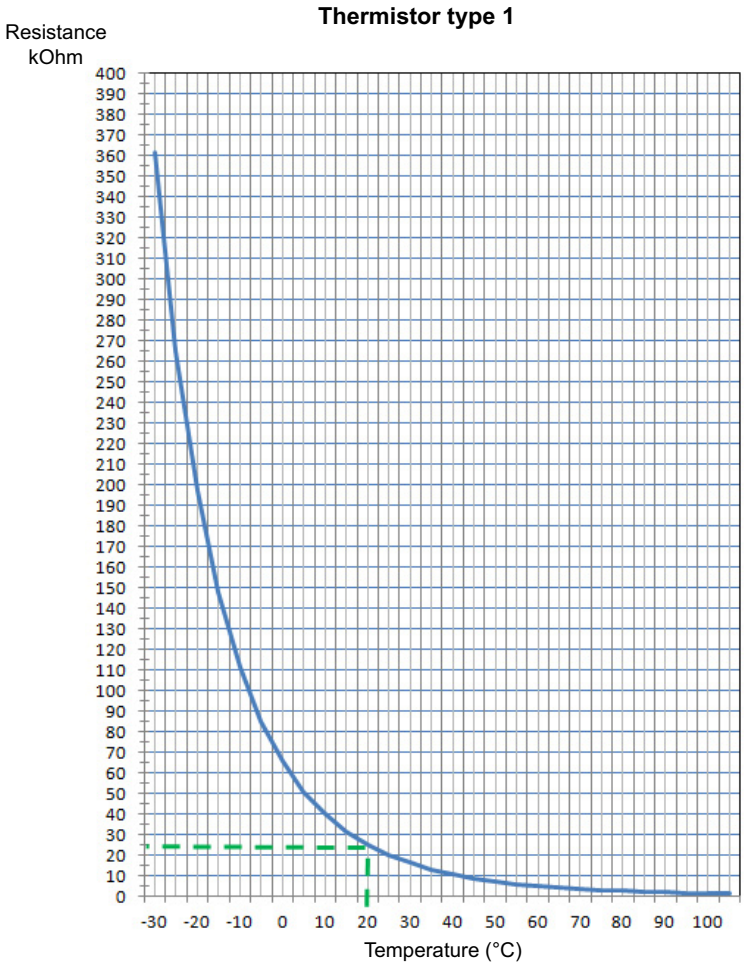
E.g. R3T - main PCB - connector, see table "Component overview of unit" on page 162" - type 1

- Measured temperature with contact thermometer: 23.1°C.
- Unplug the sensor and measure the resistance, see table "Component overview of unit" on page 162.
- The resistance values are defined by below table "Thermistor resistance / temperature characteristics (type 2)":
  - 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 2-3: Thermistor resistance / temperature characteristics (type 1)*

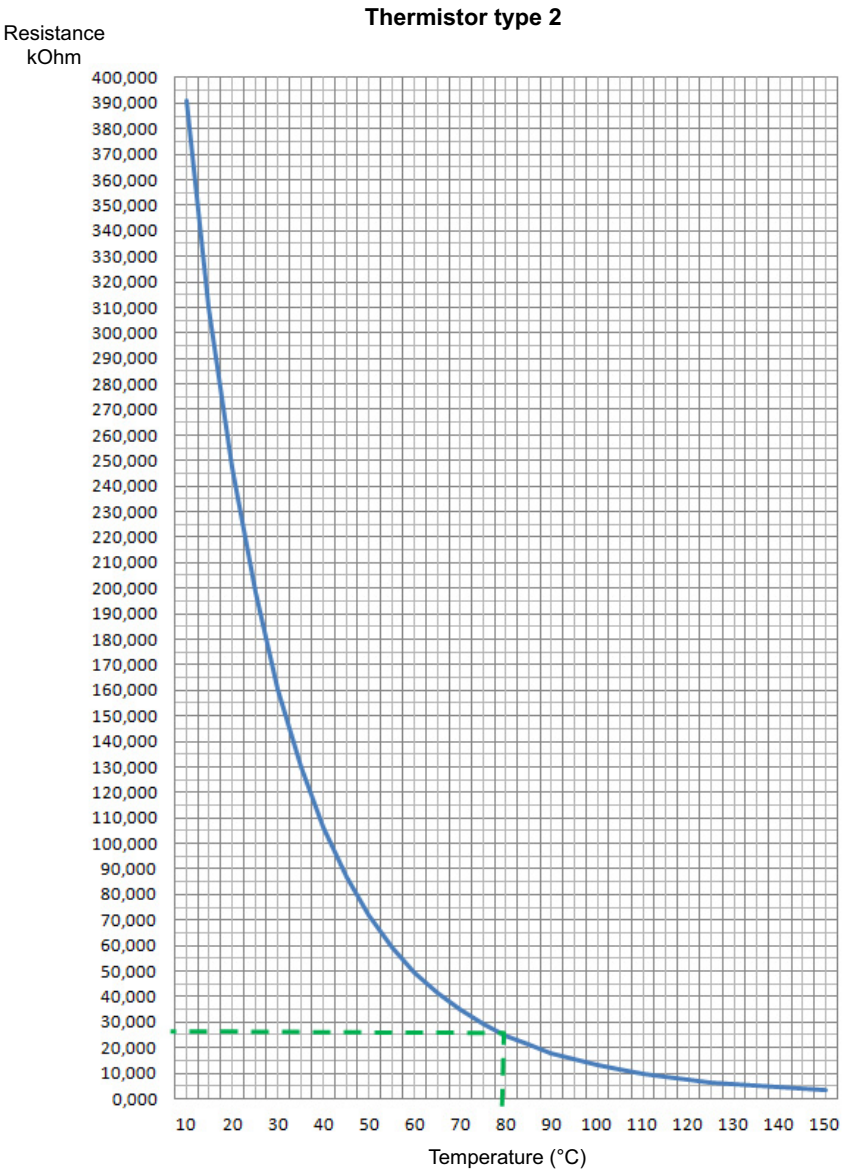
| Sensor type 1 | |
|---|---|
| T°C | kΩ |
| -30 | 361.772 |
| -25 | 265.470 |
| -20 | 196.920 |
| -15 | 147.569 |
| -10 | 111.658 |
| -5 | 85.261 |
| 0 | 65.671 |
| 5 | 50.995 |
| 10 | 39.915 |
| 15 | 31.480 |
| 20 | 25.006 |
| 25 | 20.000 |
| 30 | 16.101 |
| 35 | 13.043 |
| 40 | 10.628 |
| 45 | 8.710 |
| 50 | 7.176 |
| 55 | 5.941 |
| 60 | 4.944 |
| 65 | 4.135 |
| 70 | 3.476 |
| 75 | 2.935 |
| 80 | 2.489 |
| 85 | 2.121 |
| 90 | 1.814 |
| 95 | 1.558 |
| 100 | 1.343 |
| 105 | 1.161 |




Reference point thermistor

*Table 2-4: Thermistor resistance / temperature characteristics (type 2)*

| Sensor type 2 | |
|---|---|
| T°C | kΩ |
| -30 | 3257.371 |
| -25 | 2429.222 |
| -20 | 1827.883 |
| -15 | 1387.099 |
| -10 | 1061.098 |
| -5 | 817.933 |
| 0 | 635.083 |
| 5 | 496.571 |
| 10 | 391.007 |
| 15 | 309.951 |
| 20 | 247.270 |
| 25 | 198.467 |
| 30 | 160.224 |
| 35 | 130.070 |
| 40 | 106.152 |
| 45 | 87.073 |
| 50 | 71.770 |
| 55 | 59.474 |
| 60 | 49.518 |
| 65 | 41.417 |
| 70 | 34.792 |
| 75 | 29.350 |
| 80 | 24.859 |
| 85 | 21.136 |
| 90 | 18.038 |
| 95 | 15.449 |
| 100 | 13.277 |
| 105 | 11.440 |
| 110 | 9.890 |
| 115 | 8.579 |
| 120 | 7.465 |
| 125 | 6.516 |
| 130 | 5.704 |
| 135 | 5.007 |
| 140 | 4.408 |
| 145 | 3.891 |
| 150 | 3.443 |




Reference point thermistor

## 2.4.1.10. Compressor

| Technical specification | Description |
|---|---|
| Scroll compressor with medium pressure liquid injection. | The compressor sucks the refrigerant gas from the evaporator and discharges to the condenser.<br>The rotation speed is changed by the inverter board “A3P” in function of offset to actual to target saturation temperature<br>• in case of cooling: evaporation,<br>• in case of heating: condensation. |

| Location | | | |
|---|---|---|---|
| **Piping diagram** | **Wiring diagram** | **Switch box** | **Component overview of unit** |
| See "Piping diagram" on page 161. | See "Wiring diagram" on page 159. | See "Switch box" on page 167.<br>Item 6 in Figure 5-6 on page 167. | See "Component overview of unit" on page 162.<br>Item 1 in Figure 5-4 on page 162 |

**Check procedure**

**Preliminary check**

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

**Mechanical check**

1. Switch off the Daikin unit via the user interface.
2. Switch off the power supply to the unit with the field supplied circuit breaker.
3. Remove plate work when required, refer to "Basic removal" on page 102.
4. Open the compressor insulation, refer to "Removing the compressor jacket" on page 109.
5. Check if the condition of the compressor dampers and piping is correct.
6. Check the transport plate is slide away from the compressor.

**Electrical check**

1. Switch off the Daikin unit via the user interface.
2. Switch off the power supply to the unit with the field supplied circuit breaker.
3. Remove plate work when required, refer to "Basic removal" on page 102.
4. Open the compressor insulation, refer to "Removing the compressor jacket" on page 109.
5. Remove U-V-W wires from compressor.
6. Check the motor windings: U-V-W: ±0.474Ω (use meter equipped with “Wheatstone bridge” allow read out milli-Ω.
   If resistance is outside tolerance 5%, the compressor needs to be replaced.

   Refer to Figure 2-4 on page 88 and Table 2-5 on page 88
7. Megger the compressor using 500 or 1000 VDC, the insulation must be higher than 3 MΩ.
   If insulation resistance is less than 3MΩ, the compressor needs to be replaced.

8. Reconnect the U-V-W wires to the compressor.

   Refer to Figure 2-4 on page 88

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

9. Close the cover of the motor windings compartment. Mount back the compressor insulation.

10. Switch on power supply to unit.

11. Switch on the unit from the user interface. When compressor operates,

    - Measure the U, V, W inverter voltages
      All voltages must be identical, if not, replace the inverter board “A3P” (refer to "Replacing inverter board A3P" on page 139).
    - Measure the current in each phase.
      The current for each phase should be identical (refer to "Product specific information" on page 163).
      If current is not balanced among the phases, it can be decided to preventively replace the compressor, refer to "Replacing compressor" on page 114.

***Figure 2-4: Compressor motor checking method***

**Prior to check, ensure no power is present on board**

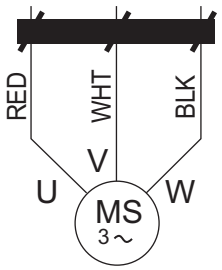



***Table 2-5: Resistance check compressor motor winding***

| Resistance check compressor motor winding (ohm +/- 5%) | | | |
|---|---|---|---|
| JT16KAVDKYR | U | V | W |
| U | | 0,47 | 0,47 |
| V | 0,47 | | 0,47 |
| W | 0,47 | 0,47 | |

## 2.4.1.11. Electronic expansion valve

| Technical specification | Description |
|---|---|
| The electronic expansion valve has a hermetically sealed body. The coil is slide onto the body. To lock or unlock, turn the coil ± 45degree.<br>Main board outputs the required pulses to the related coil:<br>Y1E (Main): 3000 pulses,<br>Y2E (Sub-cool): 480 pulses,<br>Y3E (Purge): 480 pulses. | The electronic expansion valve is used:<br>• To control the flow of refrigerant. Depending on location, the trigger point is sub-cool or superheat.<br>• To stop the flow of refrigerant completely when closing (= 0 pulses). |

| Location | | | |
|---|---|---|---|
| **Piping diagram** | **Wiring diagram** | **Switch box** | **Component overview of unit** |
| See "Piping diagram" on page 161. | See "Wiring diagram" on page 159. | See "Switch box" on page 167.<br>Main PCB A1P, item 4 in Figure 5-6 on page 167. | See "Component overview of unit" on page 162.<br>Item 18, 19 and 20 in Figure 5-4 on page 162. |

**Check procedure**

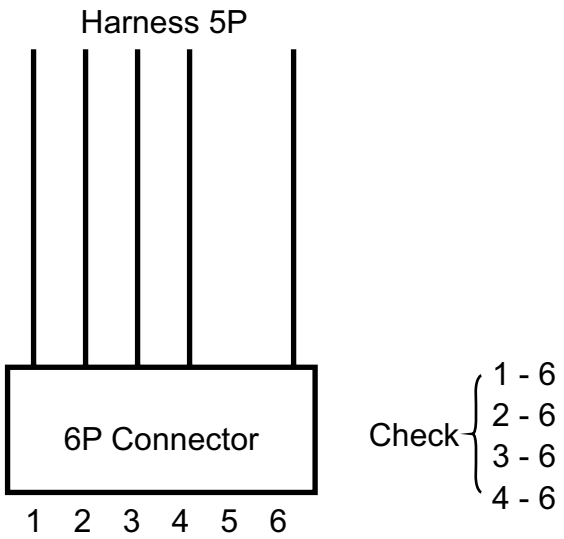
**Mechanical check**

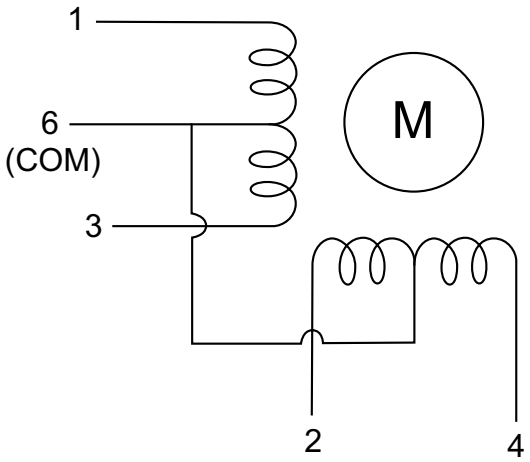
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Switch on the Daikin unit and listen to the expansion valve assembly. If the expansion valve body does not create a latching sound, continue with the electrical check.
4. Switch 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 102).
7. Remove the expansion valve coil from the expansion valve body.
8. Slide the magnet (tool part N° 99S0038 for small type expansion valve, 999133T for large type expansion valve) over the expansion valve body and gently rotate the magnet to manually operate the expansion valve body clockwise (closing) and counterclockwise (opening).
9. 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 121).

**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 plate work when required (refer to "Basic removal" on page 102).
4. Check if the electrical connector of the expansion valve coil was correctly connected to the main board “A1P”.
   If not, connect the electrical connector.

5. 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




6. If one or more of the windings have no continuity, replace the expansion valve coil, "Replacing expansion valve coil" on page 122.

| Plug no. | Coil no. | Wire color | |
|---|---|---|---|
| | | 480 pulses | 3000 pulses |
| 1 | 1 | orange | white |
| 2 | 2 | red | yellow |
| 3 | 3 | yellow | orange |
| 4 | 4 | black | blue |
| 6 | com | grey | red |
| Resistance | | 46 Ω (±3 Ω) | 150 Ω (±15 Ω) |

| Symbol | Color plug | Connector reference | Location (board) |
|---|---|---|---|
| Y1E | Black | X21A | A1P |
| Y2E | White | X22A | A1P |
| Y3E | Yellow | X25A | A1P |

## 2.4.2. System

Not applicable.

## 2.4.3. Others

Not applicable.

## 2.5. Other capacity range

Not applicable.

# Part 3. Repair

**This part contains the following chapters:**

Refrigerant repair procedures ....93
Service tools....100
Unit specific repair procedures....101

## 3.1. Refrigerant repair procedures

**Overview:**

Refrigerant piping handling ....93
Refrigerant recovery procedure....94
Preparation for repair ....97
Piping repair procedures ....97
Indoor unit ....101
RWEYQ-T9 ....102

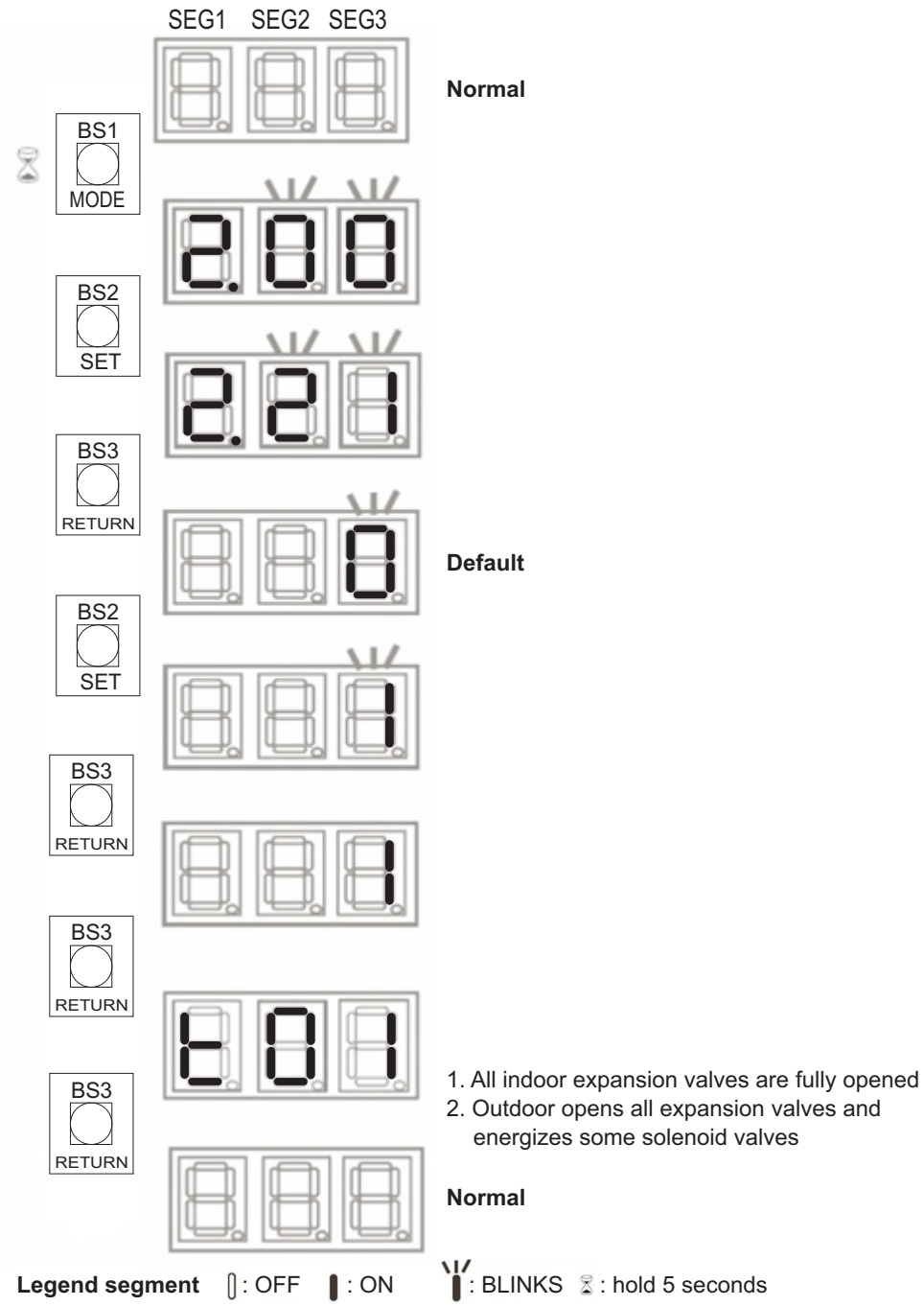
### 3.1.1. Refrigerant piping handling

- 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 of refrigerant according the F-gas regulation label on the unit (factory + additional where required) is charged after repair.
- Make sure to use the appropriate equipment and tools according to the refrigerant and unit type.
- Charge non-azeotropic refrigerant (e.g. R-410A) always in a liquid state.
- Make sure to use a digital scale (no charging cylinder).
- Execute correct vacuum drying procedure after repair work:
  - ≦ -100,7 kPa or 5 Torr or 760 mmHg for at least 1 hour.
  - Connect the unit according the available service ports, refer to "Refrigerant recovery procedure" on page 94.
  - Use related field setting where necessary to open expansion valve/solenoid valve.

## 3.1.2. Refrigerant recovery procedure

1. Set outdoor 2-21-1, BS3 “return” press 2x => indication “t01.

**Refrigerant recovery mode (2-21-1)**



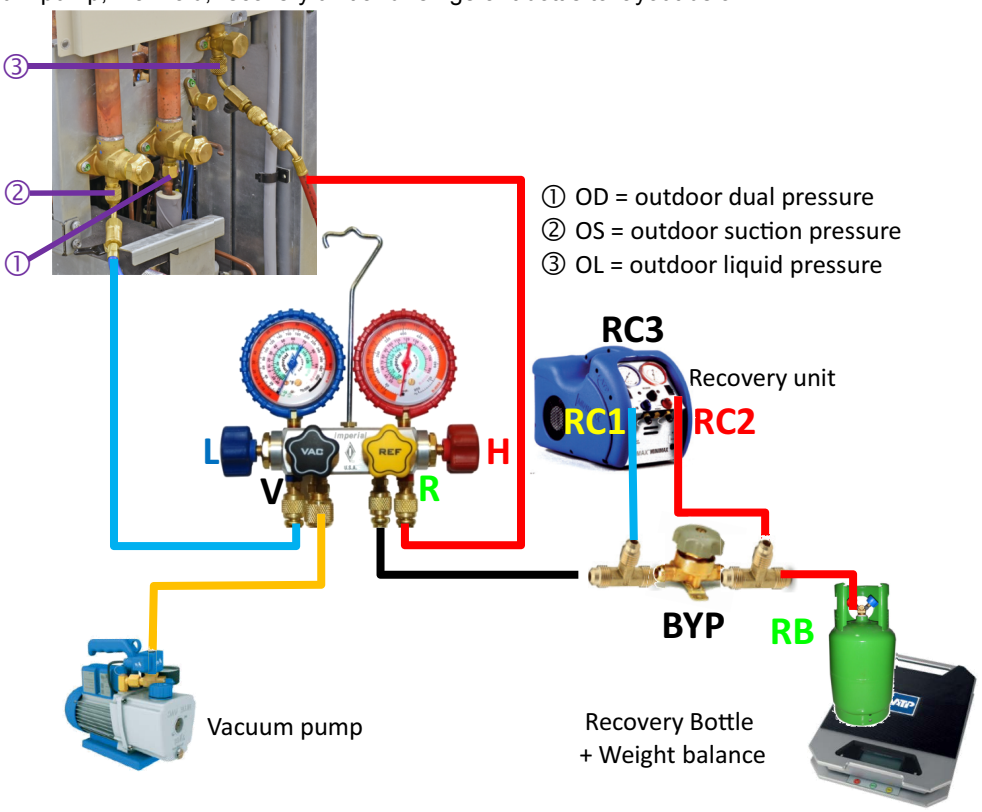

Remark:

If power supply is not available, open expansion valves RWEYQ-T9 by using the special service tool “permanent magnet”:

- For Y1E: magnet diameter 22.0 mm (tool part N° 999133T),
- For Y2E & Y3E: magnet diameter 17.5 mm (tool part N° 99S0038).

### 3.1.2.1. Setup without BS units

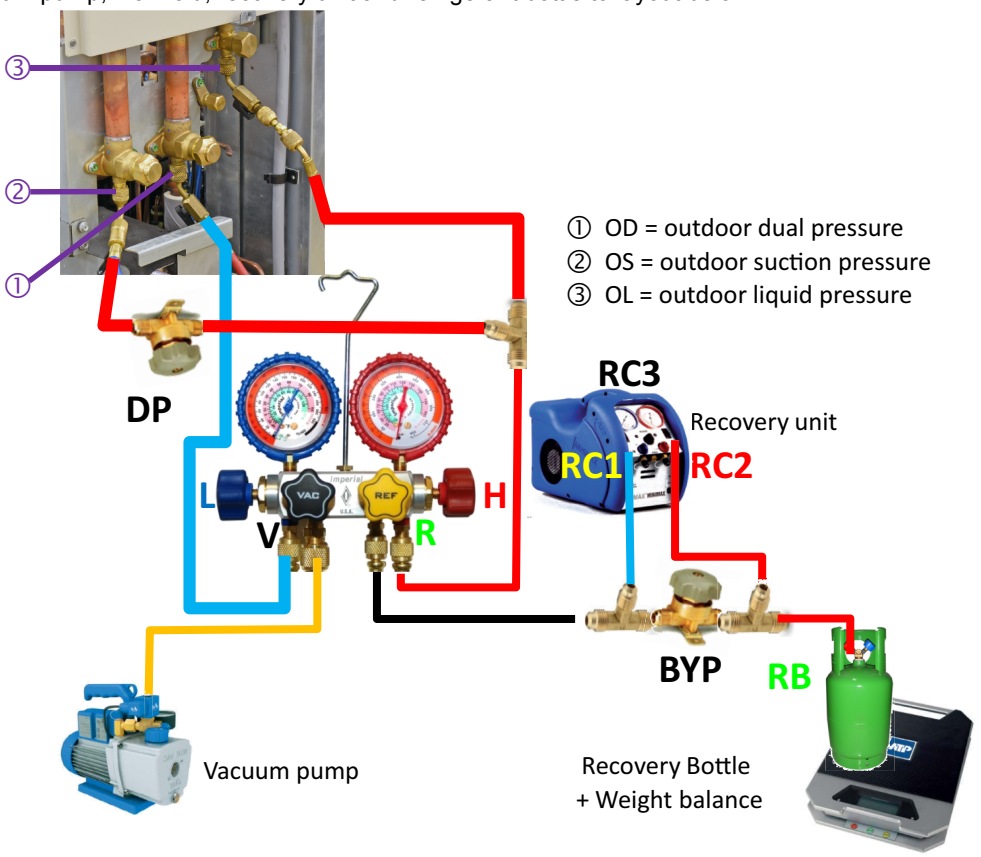
2. Connect vacuum pump, manifold, recovery unit and refrigerant bottle to layout below.




| | Service port outdoor | | | Valve manifold | | | | | Valve recovery unit | | | Valve bottle | Operate | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Purpose | OL | OS | OD | L | V | R | H | BYP | RC1 | RC2 | RC3 | RB | VP | RU |
| Connections | C | C | C | C | C | C | C | C | C | C | Rec | C | × | × |
| Start Vacuuming | C | C | C | O | O | O | O | O | O | O | Rec | C | ✓ | × |
| End vacuuming | C | C | C | O | C | O | O | C | O | O | Rec | O | × | × |
| Recover liquid | O | C | O | C | C | O | O | C | 1/2 | O | Rec | O | × | ✓ |
| Recover gas | O | C | O | O | C | O | O | C | O | O | Rec | O | × | ✓ |
| Purge | O | C | O | C | C | C | C | C | * | O | Pur | O | × | ✓ |
| Disconnect | C | C | C | C | C | C | C | C | C | C | Rec | C | × | × |
| End recovery | Press button BS3 “return” 1x => indication blank (normal) | | | | | | | | | | | | × | × |
| OL= outdoor liquid, OS= outdoor suction, OD= outdoor discharge, C= closed, O= open, 1/2: between indication “liquid” & “gas”, Rec= recovery, Pur: purge, VP= vacuum pump, RU= recovery unit, * Change Inlet valve RC1 gradually to “purge” when pressure drops | | | | | | | | | | | | | | |

### 3.1.2.2. Setup including BS units

1. Connect vacuum pump, manifold, recovery unit and refrigerant bottle to layout below.

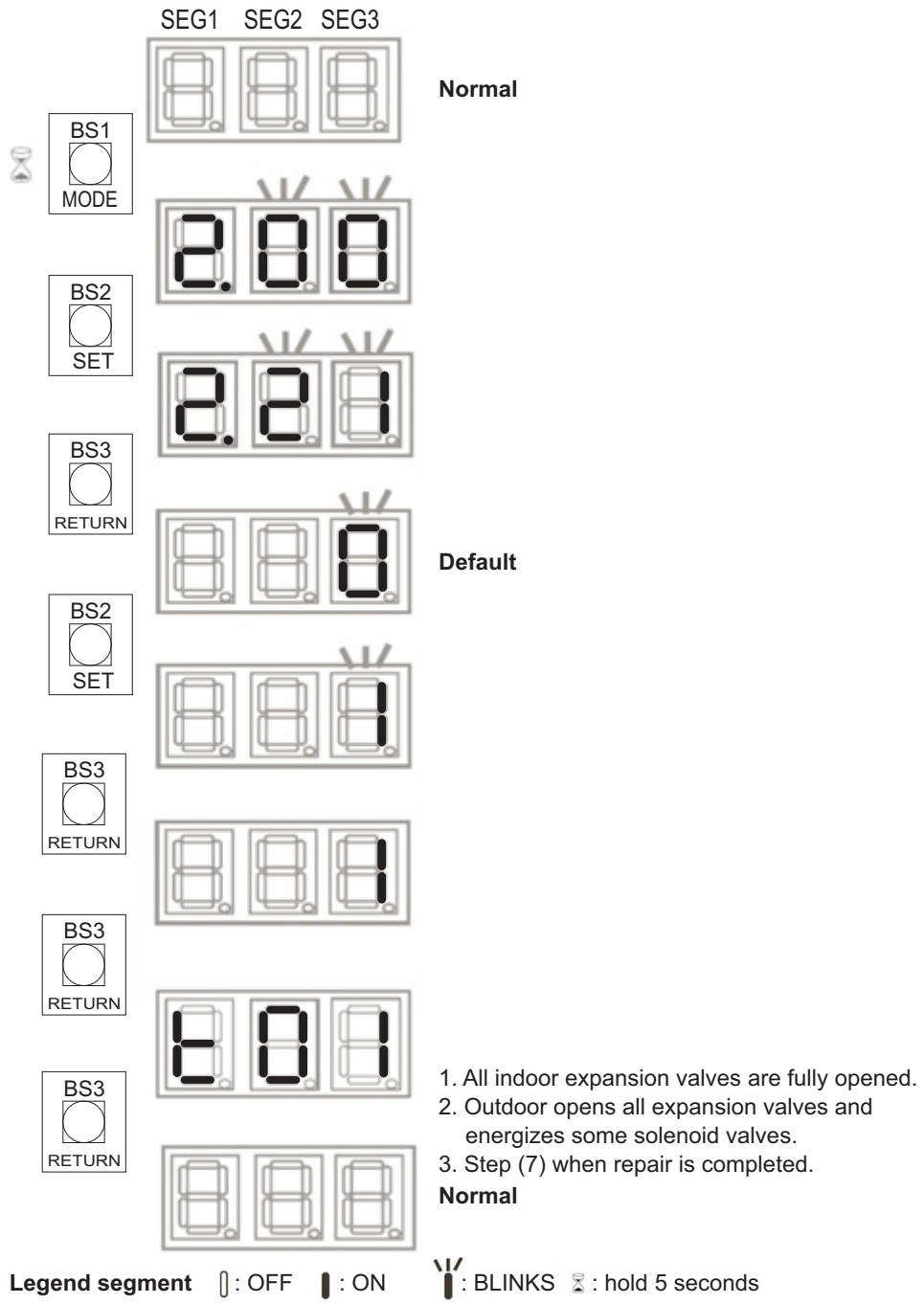



| | Service port outdoor | | | Valve manifold | | | | | Valve recovery unit | | | Valve bottle | Valve HP/LP | Operate | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Purpose | OL | OS | OD | L | V | R | H | BYP | RC1 | RC2 | RC3 | RB | DP | VP | RU |
| Connections | C | C | C | C | C | C | C | C | C | C | Rec | C | C | × | × |
| Start Vacuuming | C | C | C | O | O | O | O | O | O | O | Rec | C | O | ✓ | × |
| End vacuuming | C | C | C | O | C | O | O | C | O | O | Rec | O | O | × | × |
| Recover liquid | O | O | O | C | C | O | O | C | 1/2 | O | Rec | O | C | × | ✓ |
| Recover gas | O | O | O | O | C | O | O | C | O | O | Rec | O | O | × | ✓ |
| Purge | O | O | O | C | C | C | C | C | * | O | Pur | O | C | × | ✓ |
| Disconnect | C | C | C | C | C | C | C | C | C | C | Rec | C | C | × | × |
| End recovery | Press button BS3 “return” 1x => indication blank (normal) | | | | | | | | | | | | | × | × |
| OL= outdoor liquid, OS= outdoor suction, OD= outdoor discharge, C= closed, O= open, 1/2: between indication “liquid” & “gas”, Rec= recovery, Pur: purge, VP= vacuum pump, RU= recovery unit, * Change Inlet valve RC1 gradually to “purge” when pressure drops | | | | | | | | | | | | | | | |

## 3.1.3. Preparation for repair

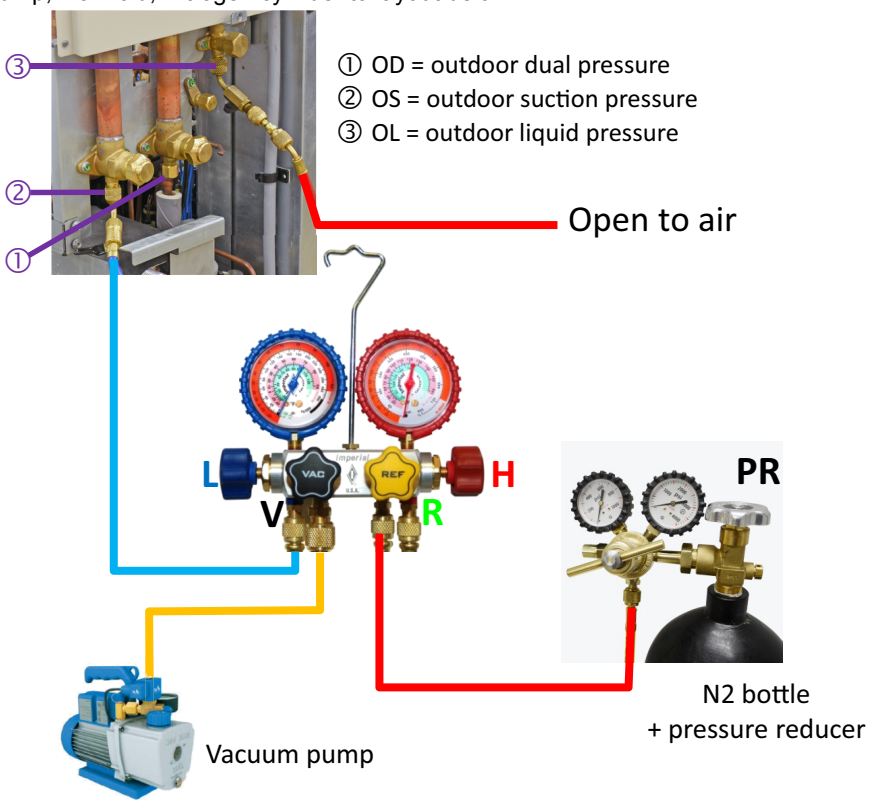
1. Set outdoor 2-21-1, BS3 “return” press 2x => indication “t01.

**Refrigerant recovery mode (2-21-1)**



### 3.1.3.1. Setup without BS units

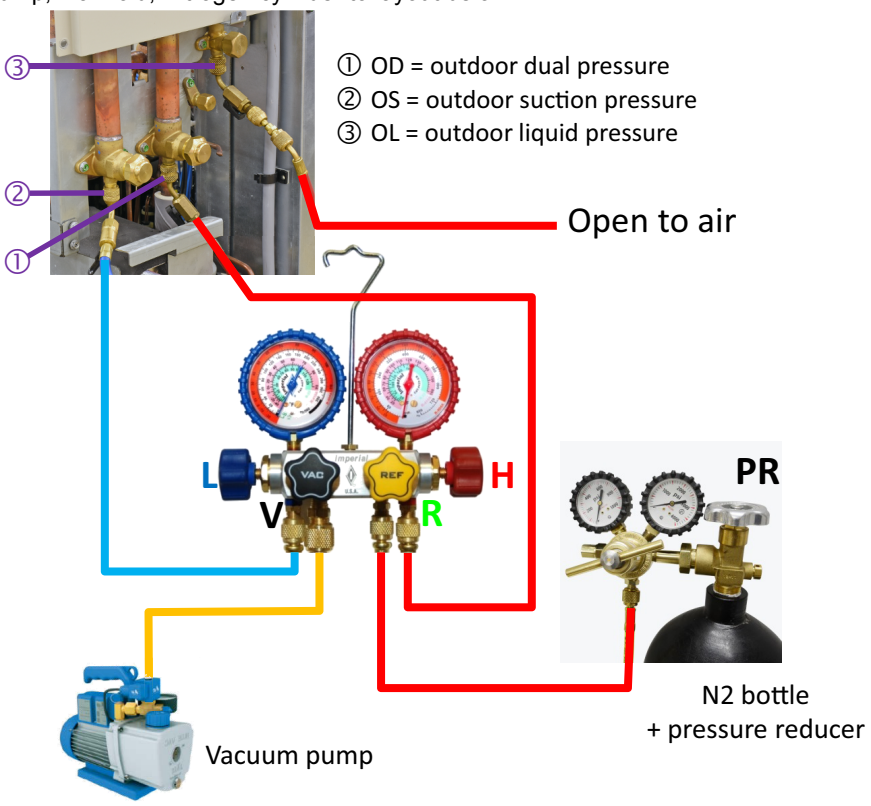
1. Connect vacuum pump, manifold, Nitrogen cylinder to layout below.




| | Service port outdoor | | | Valve manifold | | | | N2 |
|---|---|---|---|---|---|---|---|---|
| Purpose | OL | OS | OD | L | V | R | H | BYP |
| Vacuuming | C | C | C | O | O | O | O | O |
| Pressurize | C | C | C | O | C | O | O | C |
| OL= outdoor liquid pressure, OS= outdoor suction pressure, OD= outdoor dual pressure | | | | | | | | |

### 3.1.3.2. Setup including BS units

1. Connect vacuum pump, manifold, Nitrogen cylinder to layout below.




| | Service port outdoor | | | Valve manifold | | | | N2 |
|---|---|---|---|---|---|---|---|---|
| Purpose | OL | OS | OD | L | V | R | H | BYP |
| Vacuuming | O | O | O | O | O | O | O | C |
| Pressurize | O | O | O | O | C | O | O | O |
| OL= outdoor liquid pressure, OS= outdoor suction pressure, OD= outdoor dual pressure | | | | | | | | |

## 3.1.4. Piping repair procedures

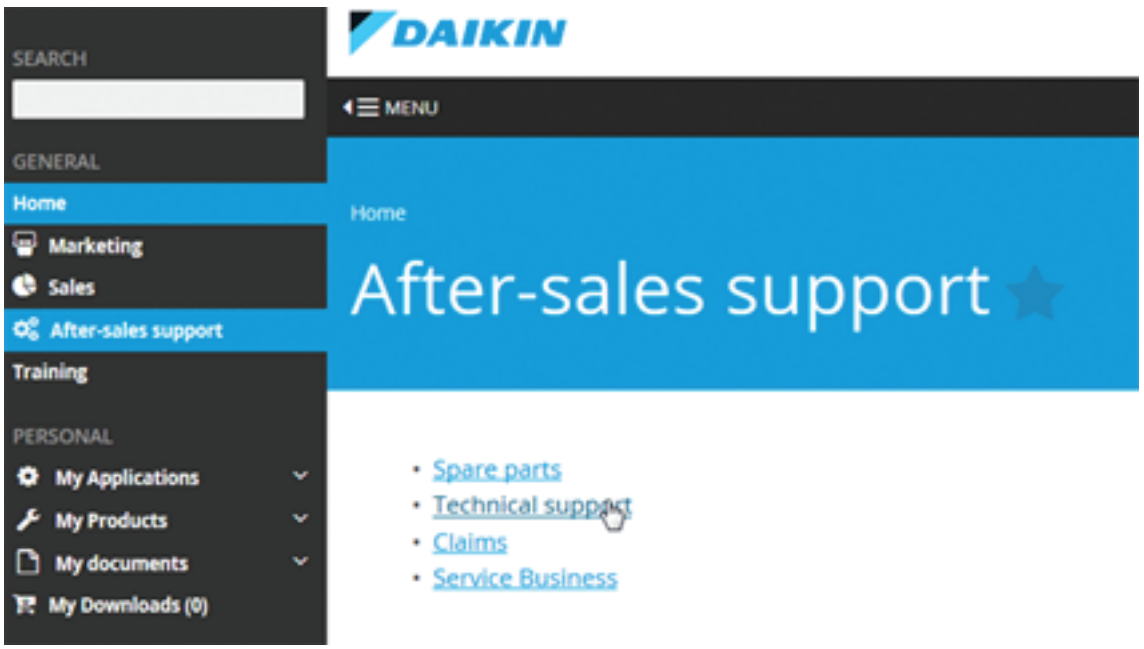
- Make sure to cover open pipe ends during repair work so no dust or moisture can enter.
- Make sure to re-apply insulation removed during repair.
- Pipe expansion / flare making:
  - Remove any burrs on the cut surface and use correct tool such as reamer or scraper (note that excessive deburring can thin the pipe walls and cause cracking of the pipe).
  - Make sure the flare connections at the indoor unit(s) has (have) 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 of your country.

| Country | Link Daikin Business Portal |
|---|---|
| Belgium | https://my.daikin.eu/dab/nl_BE/home.html<br>https://my.daikin.eu/dab/fr_BE/home.html |
| Central Europe | https://my.daikin.eu/dace-at/de_AT/home.html |
| France | https://my.daikin.eu/daf/fr_FR/home.html |
| Germany | https://my.daikin.eu/dag/de_DE/home.html |
| Middle East & Africa | https://my.daikin.eu/dame/en_US/home.html |
| Netherlands | https://my.daikin.eu/danl/nl_NL/home.html |
| Poland | https://my.daikin.eu/content/dapo/pl_PL/home.html |
| Portugal | https://my.daikin.eu/dapt/pt_PT/home.html |
| Spain | https://my.daikin.es/dacs/es_ES/home.html |
| Sweden | https://my.daikin.eu/dasw/sv_SE/home.html |
| United Kingdom | https://my.daikin.eu/dauk/en_GB/home.html |
| Other | https://my.daikin.eu/content/denv/en_US/login.html |

In case you do not have yet access to the Daikin Business portal, please contact the Daikin distributor in your country to be registered and receive a valid password.




To observe and judge operation condition of system, the input and output signals of RWEYQ-T9 and indoor units can be monitored by using following service tools:

- D-checker. The software and the extra required data labels can be found in the portal - Applications - Software finder - in the “Search” window: checker. Choose “D-checker”.
- Checker typeIII. Upgrade the software by included patch to operate minimum software version 1-60. Full software installation (if first time installing CheckerIII software) and patch can be found in the portal - Applications - Software finder - in the “Search” window: checker. Choose “CheckerIII”.

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 ..... 101
RWEYQ-T9 ..... 102
Basic removal ..... 102
Replacing thermistor ..... 110
Replacing 4-way valve body ..... 111
Replacing 4-way valve coil ..... 113
Replacing compressor ..... 114
Replacing oil separator ..... 117
Replacing crankcase heater ..... 119
Replacing AC fan inverter cooling ..... 120
Replacing expansion valve body ..... 121
Replacing expansion valve coil ..... 122
Replacing high pressure sensor ..... 123
Replacing high pressure switch ..... 124
Replacing solenoid valve ..... 125
Replacing solenoid valve coil ..... 127
Replacing low pressure sensor ..... 128
Replacing liquid receiver ..... 129
Replacing accumulator ..... 131
Replacing plate heat exchanger $H_2O$ ..... 133
Replacing heat exchanger inverter cooling ..... 135
Replacing reactor ..... 137
Replacing transformer ..... 138
Replacing inverter board A3P ..... 139
Replacing main PCB A1P ..... 141
Replacing noise filter PCB A2P ..... 144
Replacing SUB PCB A4P ..... 146
Replacing Adapter PCB A8P ..... 147
Branch Selector (BS) box ..... 148
Replace control board BS box ..... 148
Replacing expansion valve coil BS box ..... 149

## 3.3.1. Indoor unit

Not applicable.

# 3.3.2. RWEYQ-T9

## 3.3.2.1. Basic removal

### 3.3.2.1.1 Removing main 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. Loosen and remove the 7 screws (1) that fix the main front plate (2).
2. Lift the main front plate (2) and push it slightly backwards, before lifting and removing it from the unit.

***Figure 3-1: Removing the main front plate***




| | |
|---|---|
| 1. Screw | 2. Main front plate |

**Installation**

1. Proceed in reverse order.

#### 3.3.2.1.2 Removing PHE front plate

**PRELIMINARY ACTIONS**

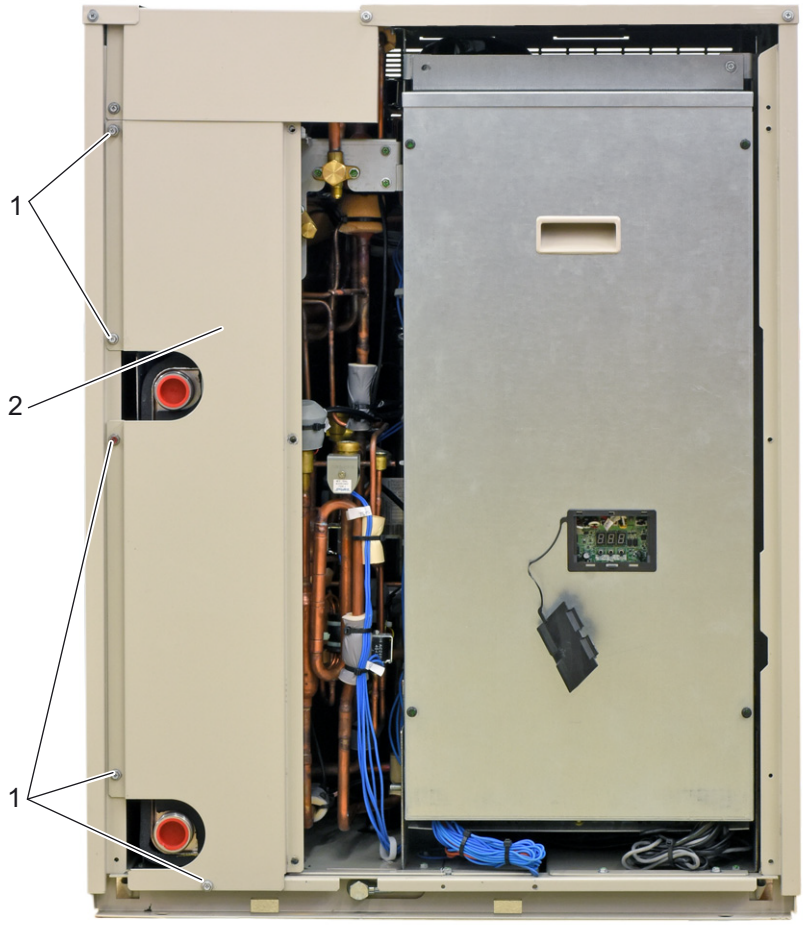
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the main front plate, refer to "Removing main front plate" on page 102.

**PROCEDURE**

**Removal**

1. Loosen and remove the 5 screws (1) that fix the PHE front plate (2).
2. Remove the PHE front plate (2) from the unit.

***Figure 3-2: Removing the PHE front plate***




1. Screw
2. PHE front plate

**Installation**

1. Proceed in reverse order.

#### 3.3.2.1.3 Removing top plate

**PRELIMINARY ACTIONS**

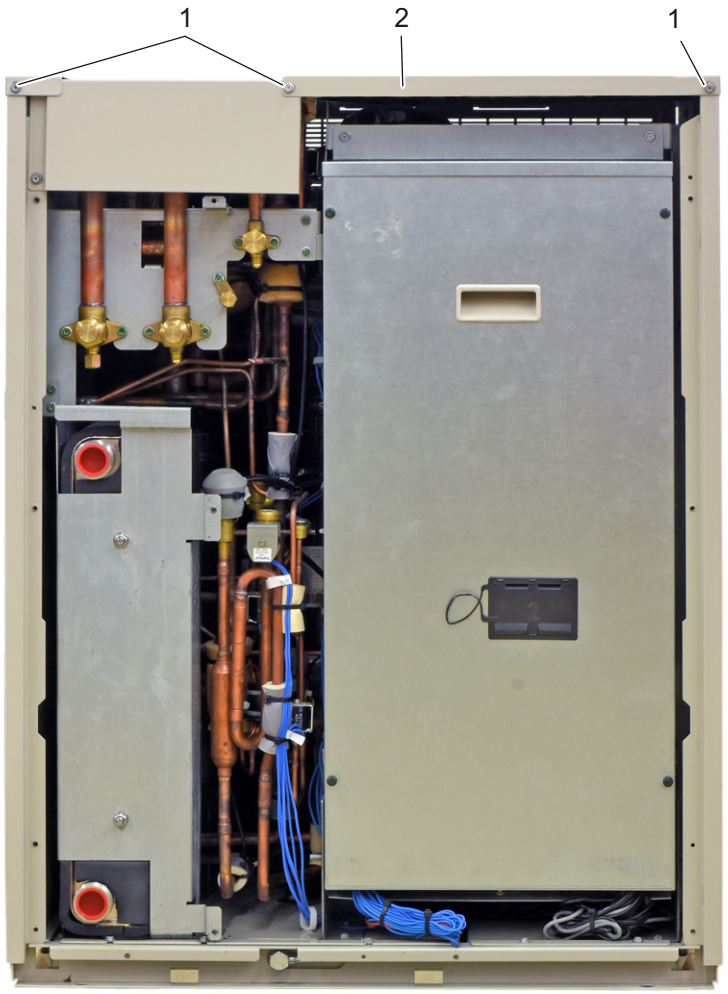
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.

**PROCEDURE**

**Removal**

1. Loosen and remove the 3 screws (1) that fix the top plate (2).
2. Lift the top plate (2) at the front and remove it from the unit.

***Figure 3-3: Removing the top plate***




1. Screw
2. Top plate

**Installation**

1. Proceed in reverse order.

### 3.3.2.1.4 Removing left 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.
3. Remove the PHE front plate, refer to "Removing PHE front plate" on page 103.
4. Remove the top plate, refer to "Removing top plate" on page 104.

**PROCEDURE**

**Removal**

1. Loosen the 5 screws (1) that fix the left side plate (2).
2. Lift the left side plate (2) and remove it from the unit.

***Figure 3-4: Removing the left side plate***




1. Screw
2. Left side plate

**Installation**

1. Proceed in reverse order.

#### 3.3.2.1.5 Removing 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.
3. Remove the top plate, refer to "Removing top plate" on page 104.

**PROCEDURE**

**Removal**

1. Loosen the 4 screws (1) that fix the right side plate (2).
2. Lift the right side plate (2) and remove it from the unit.

***Figure 3-5: Removing the right side plate***




| | |
|---|---|
| 1. Screw | 2. Right side plate |

**Installation**

1. Proceed in reverse order.

### 3.3.2.1.6 Lowering switch box

#### 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 main front plate, refer to "Removing main front plate" on page 102.

#### PROCEDURE

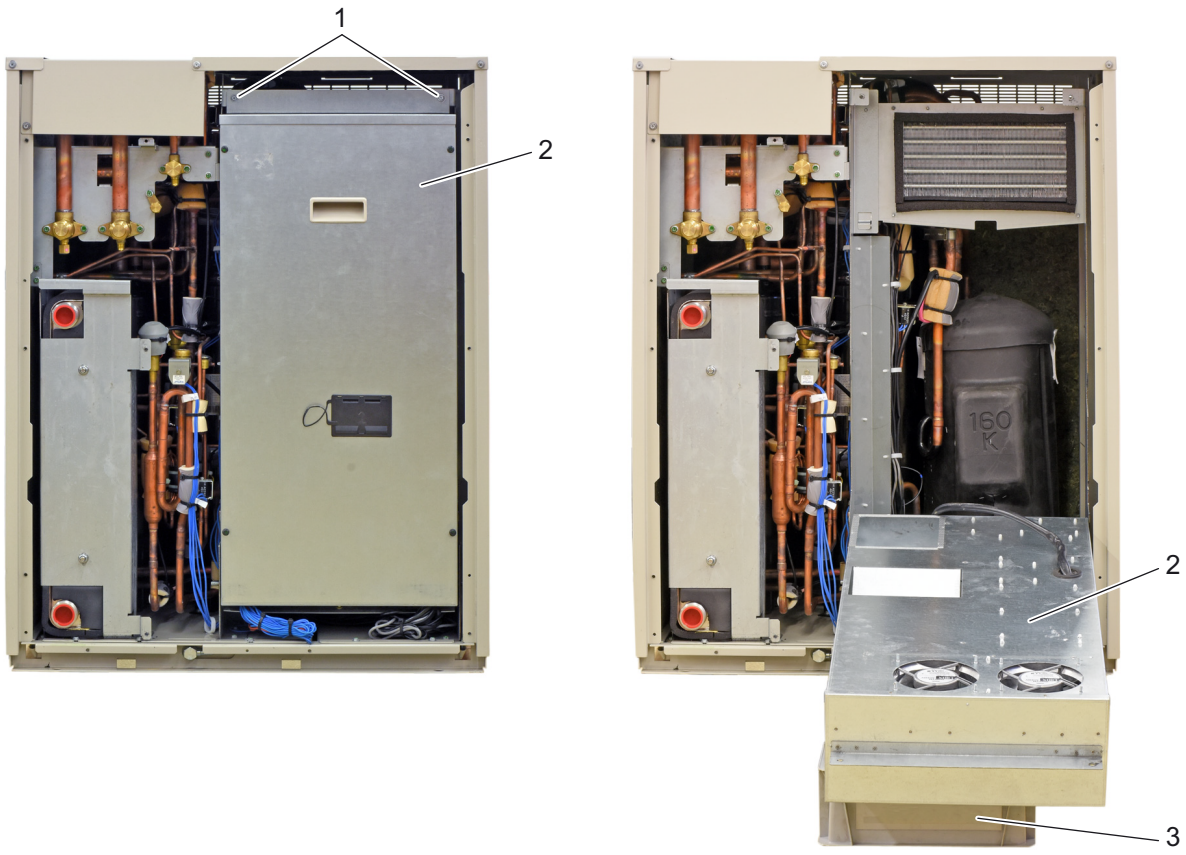
**Removal**

1. Loosen and remove the 2 screws (1) that fix the switch box (3).

> **INFORMATION**
> Use a solid support with a height of approximately 8 inch.

2. Place a support (3) for the switch box in front of the switch box (2).
3. Lower the switch box (2) until it rests on the support (3).

***Figure 3-6: Lowering the switch box***




1. Screw
2. Switch box
3. Support

**Installation**

1. Proceed in reverse order.

### 3.3.2.1.7 Opening switch box

**PRELIMINARY ACTIONS**

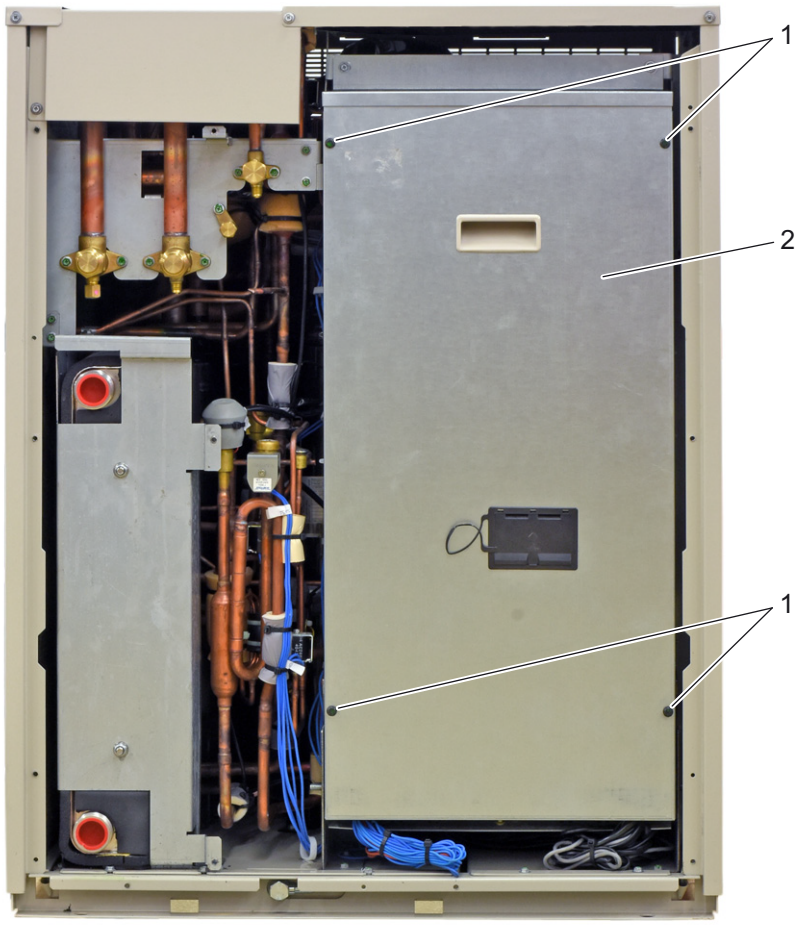
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the main front plate, refer to "Removing main front plate" on page 102.

**PROCEDURE**

**Removal**

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

***Figure 3-7: Opening the switch box***




| | |
|---|---|
| 1. Screw | 2. Switch box cover |

**Installation**

1. Proceed in reverse order.

### 3.3.2.1.8 Removing the compressor jacket

**PRELIMINARY ACTIONS**

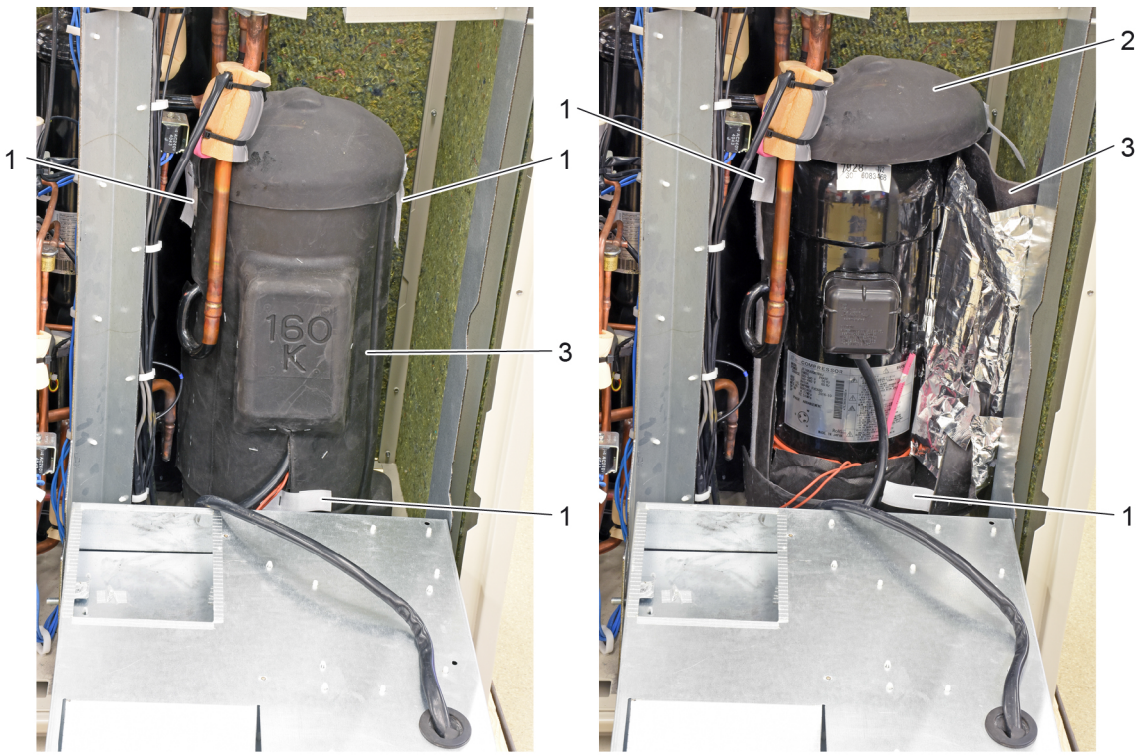
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the main front plate, refer to "Removing main front plate" on page 102.
4. Lower the switch box, refer to "Lowering switch box" on page 107.

**PROCEDURE**

**Removal**

1. Detach the velcro strips (1).
2. Remove the top jacket (2) from the compressor.
3. Detach the velcro strips (1) and remove the body jacket (3) from the compressor.

***Figure 3-8: Removing the compressor jacket***




1. Velcro strip
2. Compressor top jacket
3. Compressor body jacket

**Installation**

1. Proceed in reverse order.

## 3.3.2.2. Replacing thermistor

### PRELIMINARY ACTIONS

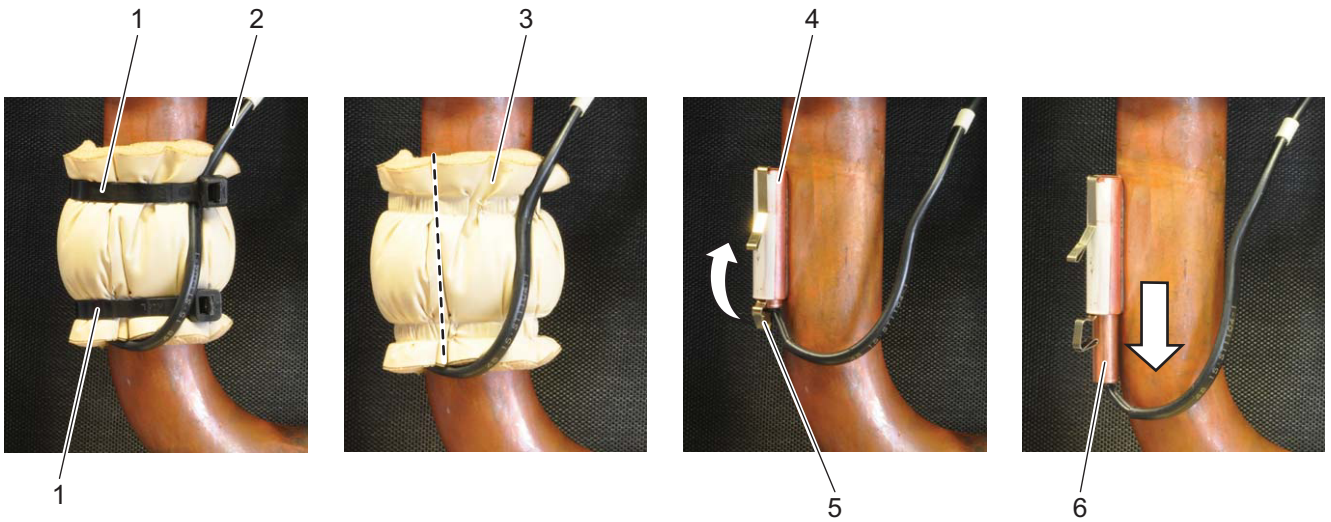
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required, see "Basic removal" on page 102.

### PROCEDURE

#### Removal

1. Locate thermistor that needs to be replaced, see "Component overview of unit" on page 162.
2. Cut the cable ties (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 3-9: Replacing a thermistor***




1. Cable tie
2. Thermistor wire
3. Insulation
4. Thermistor holder
5. Clip
6. Thermistor

#### Installation

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 "Refrigerant recovery procedure" on page 94.
4. Remove plate work when required, refer to "Basic removal" on page 102.
5. Remove the 4-way valve coil, refer to "Replacing 4-way valve coil" on page 113.
6. Connect a nitrogen hose to the gas service ports (HP/LP and suction).
7. Attach a hose with core-depressor to the liquid service port to allow the release of the nitrogen.

### PROCEDURE

#### Removal

1. Remove any parts that block the way to the 4-way valve.
2. Cut the 3 pipes connected to the 4-way valve pipes (1).

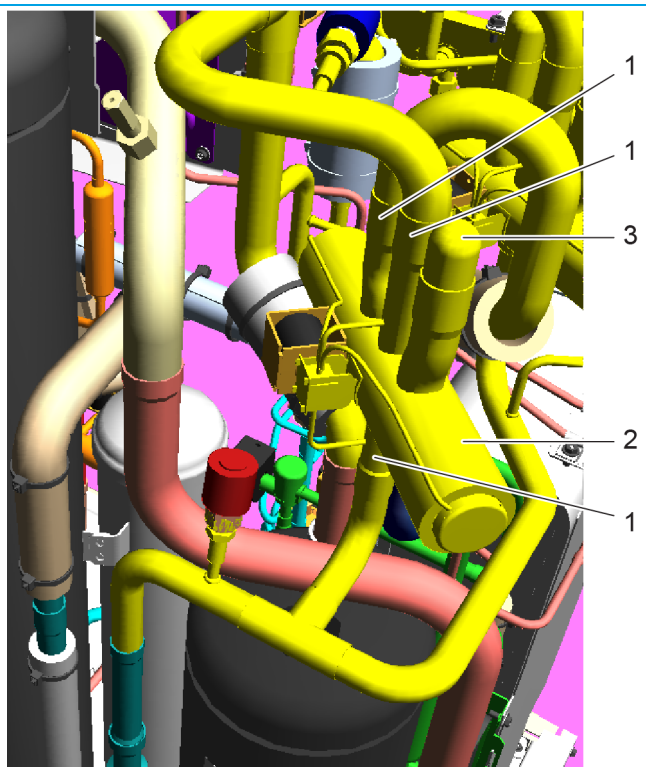
> **CAUTION**
> The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

3. Remove the 4-way valve (2).
4. Supply nitrogen to the piping circuit.
5. Heat the 4-way valve pipes (1) using an oxygen acetylene torch.
6. When the solder is liquid, remove the 4-way valve pipes (1).

> **INFORMATION**
> The stop end plug must be installed on the spare 4-way valve.

7. Heat the stop end plug (3) using an oxygen acetylene torch.
8. When the solder is liquid, remove the stop end plug (3).

*Figure 3-10: Removing the 4-way valve body*




1. 4-way valve pipe
2. 4-way valve
3. Stop end plug

**Installation**

**WARNING**

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

1. Wrap a wet rag around the 4-way valve (2).
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, refer to "Basic removal" on page 102.
4. Open the switch box, refer to "Basic removal" on page 102.

### PROCEDURE

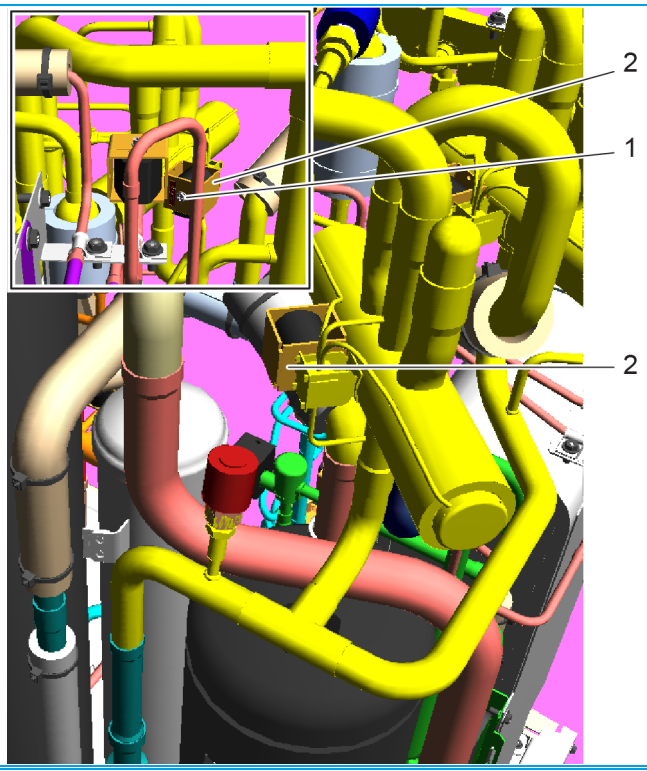
#### Removal

1. Loosen and remove the screw (1) that fixes the 4-way valve coil (2).
2. Cut the cable ties 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.
4. Remove the 4-way valve coil from the 4 way valve.

***Figure 3-11: Removing the 4-way valve coil***




| | |
|---|---|
| 1. Screw | 2. 4-way valve coil |

#### Installation

1. Proceed in reverse order.

## 3.3.2.5. 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 "Refrigerant recovery procedure" on page 94.
4. Remove plate work when required, refer to "Basic removal" on page 102.
5. Lower the switch box, refer to "Lowering switch box" on page 107.
6. Remove the compressor jacket, refer to "Removing the compressor jacket" on page 109.
7. Remove the crankcase heater, refer to "Replacing crankcase heater" on page 119.
8. Remove any part that blocks the way to the compressor.
9. Connect a nitrogen hose to the gas service ports (HP/LP and suction).
10. Attach a hose with core-depressor to the liquid service port to allow the release of the nitrogen.

### PROCEDURE

#### Removal

1. Remove the terminal cover (1).
2. Take a picture of the wiring and unplug the compressor wiring (2).
3. Cut the cable ties (3) that fix the insulation (4).
4. Slide the insulation (4) upwards.
5. Remove the thermistor (5) from the thermistor holder, put the thermistor away from the compressor.
6. Remove the clip (6) from the thermistor holder.
7. Loosen and remove the screw (7) that fixes the clamp (8).
8. Loosen and remove the screw (9) that fixes the clamp (10).

> **INFORMATION**
> The clamp (12) must be installed on the spare compressor.

9. Loosen and remove the screws (11) that fix the clamp (12).
10. Using a pipe cutter, cut the 3 compressor pipes (13) below the soldered joint.
11. Loosen and remove the 3 bolts (15) that fix the compressor (14).
12. Remove the compressor (14).
13. Remove the dampers (16) with bushings (17) from the compressor (14).

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

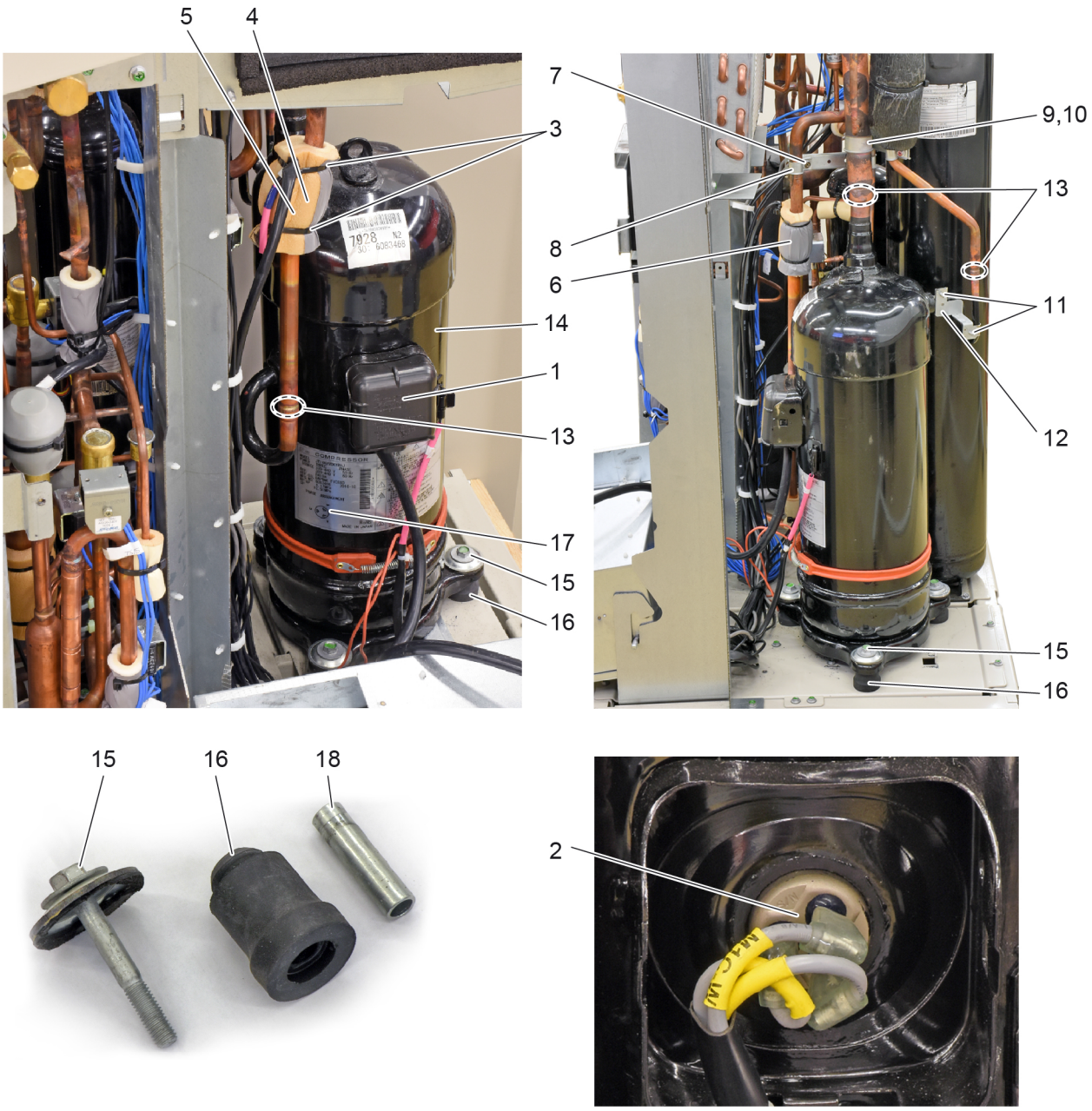
14. Supply nitrogen to the piping circuit.

15. Heat the 3 compressor pipes (13) using an oxygen acetylene torch.

16. When the solder is liquid, remove the 3 compressor pipes (13).

17. Cut the nitrogen supply when the piping has cooled down.

***Figure 3-12: Removing the compressor***




1. Terminal cover
2. Compressor wiring
3. Cable ties
4. Insulation
5. Thermistor
6. Clip
7. Screw
8. Clamp
9. Screw
10. Clamp
11. Screw
12. Clamp
13. Compressor pipe
14. Compressor
15. Bolt
16. Dampers
17. Bushing
18. Compressor wiring label

### Installation

| | |
|---|---|
|  | **CAUTION**<br>The oil in the compressor is hygroscopic. Remove the caps from the compressor piping as late as possible. |
|  | **INFORMATION**<br>Before installing a new compressor, determine the cause of the compressor failure and take all required corrective actions. |
|  | **INFORMATION**<br>If the dampers are worn, replace the dampers. The bushings inside the dampers are recuperated for use with the new dampers. |
|  | **INFORMATION**<br>Install the compressor sound insulation in the same location. |

1. When installing the new compressor, remove the caps from the compression pipe and the suction pipe as late as possible.
2. Check damper status, replace when worn.
3. First install the 3 (new) dampers (without the bushings) on the new compressor.
4. Install the 3 bushings (17) in the dampers.
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. Reconnect the compressor wires are indicated on the compressor wiring label (18).
7. Proceed in reverse order.

## 3.3.2.6. Replacing oil separator

### 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 "Refrigerant recovery procedure" on page 94.
4. Remove plate work when required, refer to "Basic removal" on page 102.
5. Lower the switch box, refer to "Lowering switch box" on page 107.
6. Connect a nitrogen hose to the gas service ports (HP/LP and suction).
7. Attach a hose with core-depressor to the liquid service port to allow the release of the nitrogen.

### PROCEDURE

#### Removal

1. Loosen and remove the 3 bolts (4) that fix the oil separator (6).
2. Loosen and remove the 2 screws (5) that fix the oil separator (6).
3. Using a pipe cutter, cut the oil separator pipe (1) below the soldered joint.

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

4. Supply nitrogen to the piping circuit.
5. Heat and separate the oil separator pipe (2) without damaging it.
6. Heat and separate the oil separator pipe (3) without damaging it.
7. Remove the oil separator pipe.
8. Remove the oil separator (6).
9. Heat the oil separator pipe (1) using an oxygen acetylene torch.
10. When the solder is liquid, remove the oil separator pipe (1).

*Figure 3-13: Removing the oil separator*




| | |
|---|---|
| 1. Liquid receiver pipe | 4. Bolt |
| 2. Liquid receiver pipe | 5. Screw |
| 3. Liquid receiver pipe | 6. Oil separator |

**Installation**

1. Proceed in reverse order.

## 3.3.2.7. 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, refer to "Basic removal" on page 102.
4. Lower the switch box, refer to "Lowering switch box" on page 107.
5. Open but do not remove the compressor jacket, refer to "Removing the compressor jacket" on page 109.

### PROCEDURE

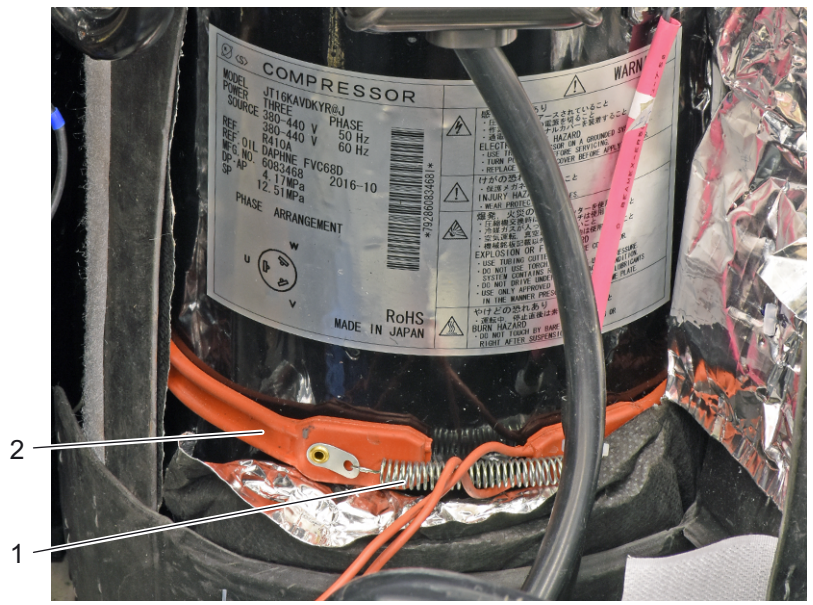
#### Removal

**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 cable ties that fix the crankcase heater wiring.
4. Remove the crankcase heater (2).

***Figure 3-14: Removing the crankcase heater***




1. Spring
2. Crankcase heater

#### Installation

**INFORMATION**

Replace all cable ties that were cut during removal.

1. Proceed in reverse order.

## 3.3.2.8. Replacing AC fan inverter cooling

### PRELIMINARY ACTIONS

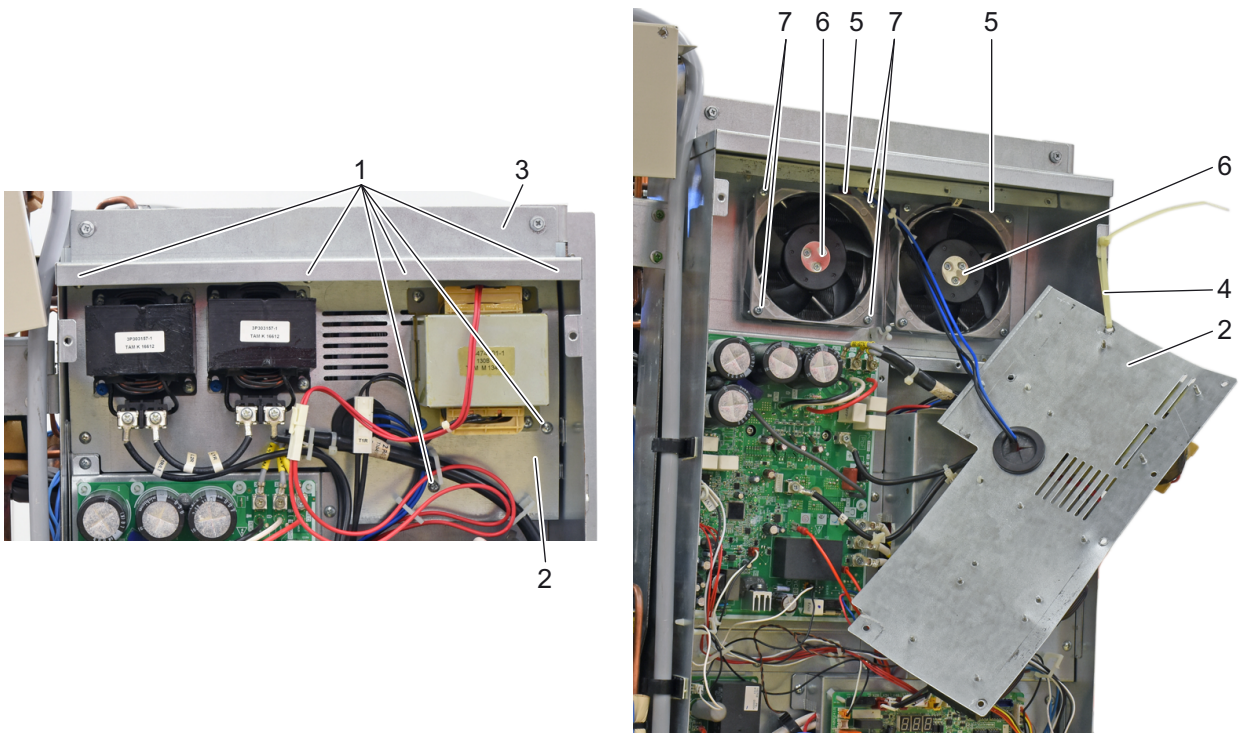
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove plate work when required, refer to "Basic removal" on page 102.
4. Open the switch box, refer to "Opening switch box" on page 108.

### PROCEDURE

#### Removal

1. Loosen the 7 screws (1) that fix reactor plate (2) to the switch box (3).
2. Temporarily attach the reactor plate (2) to the switch box (3) using a cable tie (4).
3. Loosen the 4 screws (7) that fix the AC fan (6) to the switch box (3).
4. Disconnect the 2 Faston connectors (5) from the AC fan (6).
5. Remove the AC fan (6) from the reactor plate (2).

***Figure 3-15: Removing the AC fan inverter cooling***




1. Screw
2. Reactor plate
3. Switch box
4. Cable tie
5. Faston connector
6. AC fan
7. Screw

#### Installation

1. Proceed in reverse order.

## 3.3.2.9. 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 plate work when required, refer to "Basic removal" on page 102.
4. Recover the refrigerant (refer to "Refrigerant recovery procedure" on page 94).
5. Remove the expansion valve coil (refer to "Replacing expansion valve coil" on page 122).
6. Connect a nitrogen hose to the gas service ports (HP/LP and suction).
7. Attach a hose with core-depressor to the liquid service port to allow the release of the nitrogen.

### PROCEDURE

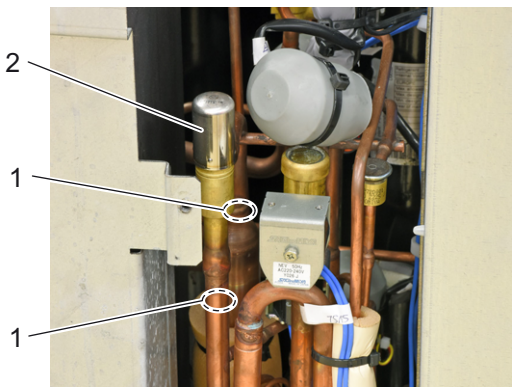
#### Removal

1. Cut the 2 expansion valve pipes (1).
2. Remove the expansion valve (2).

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

3. Supply nitrogen to the piping circuit.
4. Using an oxygen acetylene torch, heat the 2 expansion valve pipes (1).
5. When the solder material is liquid, pull the 2 expansion valve pipes (1).
6. Cut the nitrogen supply when the piping has cooled down.

***Figure 3-16: Removing the expansion valve***




1. Expansion valve pipe
2. Expansion valve

#### Installation

1. Wrap a wet rag around the expansion valve (2).

> **WARNING**
> Overheating the expansion valve will damage or destroy it.

2. Proceed in reverse order.

## 3.3.2.10. Replacing expansion 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, refer to "Basic removal" on page 102.

### PROCEDURE

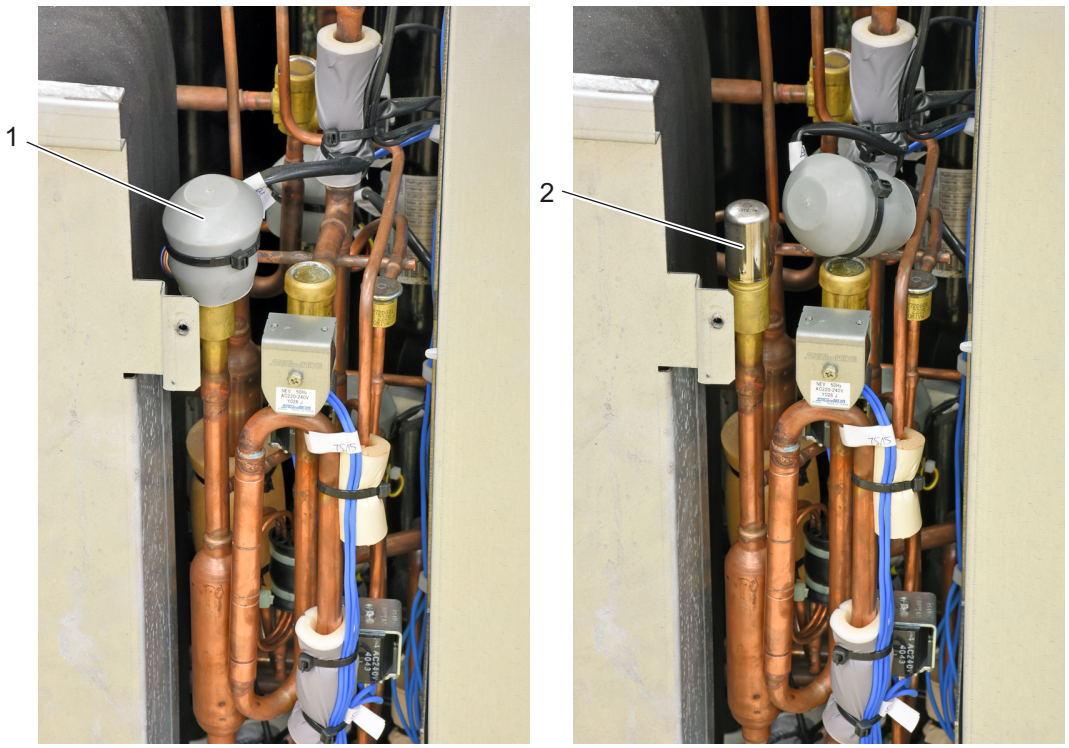
#### Removal

1. Pull the expansion valve coil (1) to remove it from the expansion valve body (2).
2. Cut all cable ties that fix the expansion 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 the expansion valve coil connector, see "Component checklist" on page 163.

***Figure 3-17: Removing expansion valve coil***




1. Expansion valve coil
2. Expansion valve body

#### Installation

> **INFORMATION**
>
> Replace all cable ties that were cut during removal.

1. Proceed in reverse order.
2. When installing the expansion valve coil (1), lock it on the expansion valve body (2).

## 3.3.2.11. Replacing high 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 plate work when required, refer to "Basic removal" on page 102.

### PROCEDURE

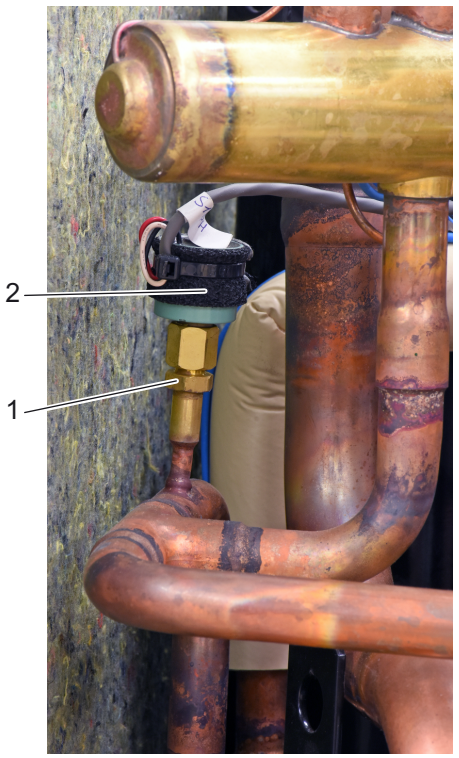
#### Removal

1. Unplug the high pressure sensor connector, refer to "Component checklist" on page 163.
2. Cut the cable ties that fix the high pressure sensor wiring.

| | |
|---|---|
| ⚠ | **CAUTION**<br>The nut (1) must be locked to prevent damage to the piping. |

3. Lock the nut (1) with a 14 mm spanner.
4. Loosen and remove the high pressure sensor (2) with a 9/16” spanner.

***Figure 3-18: Removing high pressure sensor***




1. Nut
2. High pressure sensor

#### Installation

| | |
|---|---|
| ⚠ | **CAUTION**<br>The nut (1) must be locked to prevent damage to the piping. |

1. Proceed in reverse order.

## 3.3.2.12. 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. Remove plate work when required, refer to "Basic removal" on page 102.
4. Recover the refrigerant, refer to "Refrigerant recovery procedure" on page 94.
5. Connect a nitrogen hose to the gas service ports (HP/LP and suction).
6. Attach a hose with core-depressor to the liquid service port to allow the release of the nitrogen.

### PROCEDURE

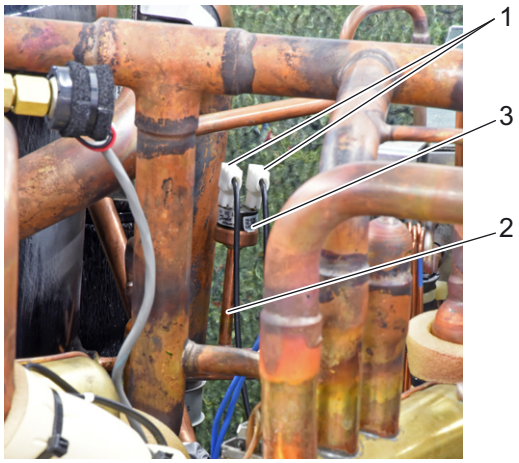
#### Removal

1. Unplug the high pressure switch Faston connector (1).

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

2. Supply nitrogen to the piping circuit.
3. Heat the high pressure switch pipe (2) using an oxygen acetylene torch.
4. When the solder is liquid, pull the pressure switch (3).
5. Cut the nitrogen supply when the piping has cooled down.

***Figure 3-19: Removing high pressure switch***




1. Faston connector
2. High pressure switch pipe
3. High pressure switch

#### Installation

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

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

## 3.3.2.13. Replacing solenoid 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.
3. Remove plate work when required, refer to "Basic removal" on page 102.
4. Recover the refrigerant, refer to "Refrigerant recovery procedure" on page 94.
5. Remove solenoid valve coil, refer to "Replacing solenoid valve coil" on page 127.
6. Connect a nitrogen hose to the gas service ports (HP/LP and suction).
7. Attach a hose with core-depressor to the liquid service port to allow the release of the nitrogen.

### PROCEDURE

#### Removal

1. Cut the solenoid valve body pipes (1).
2. Remove the solenoid valve body (2).

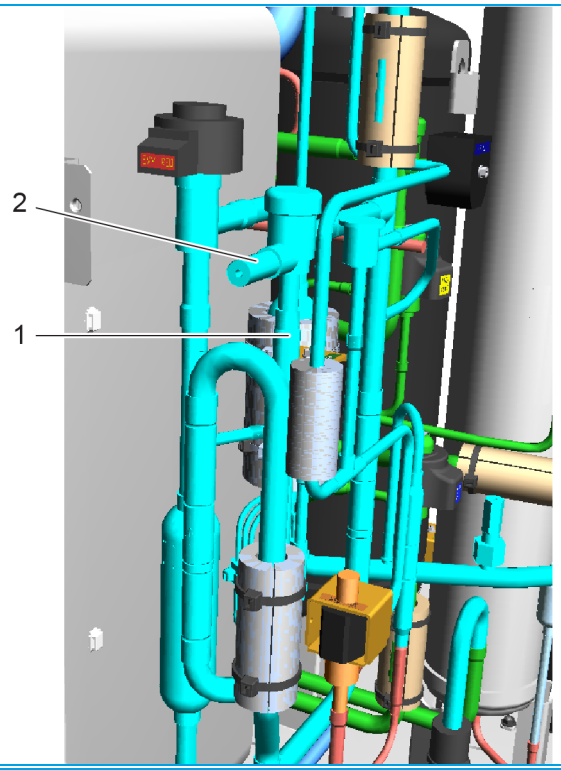


**CAUTION**

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 3-20: 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.

## 3.3.2.14. 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, refer to "Basic removal" on page 102.

### PROCEDURE

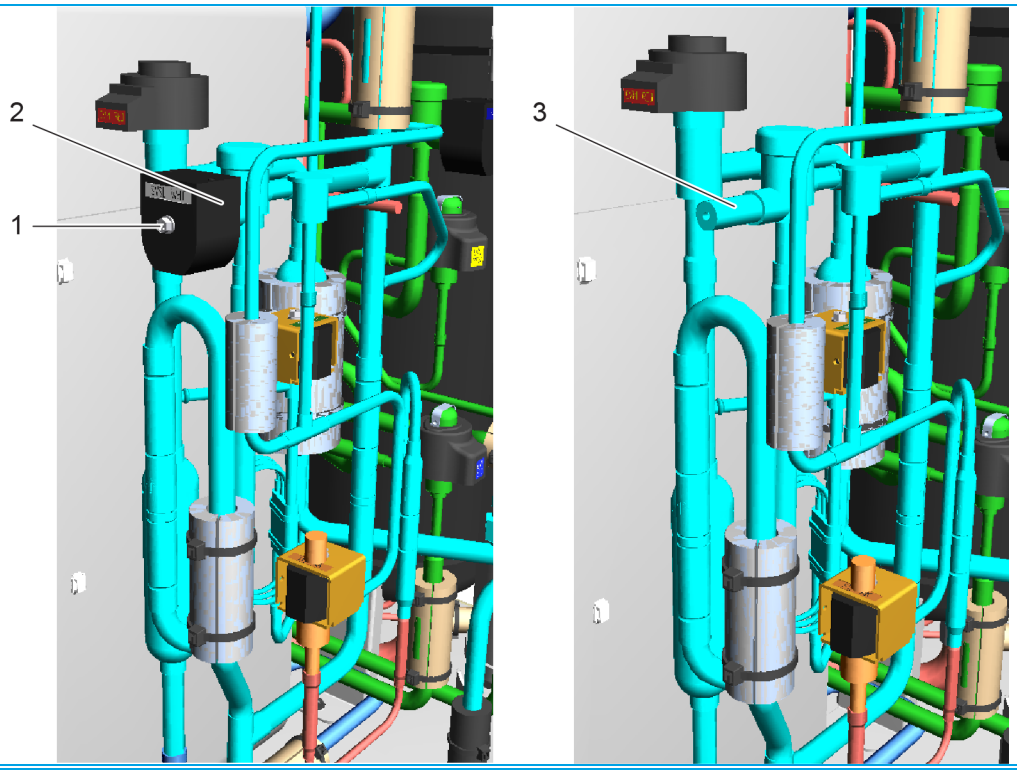
#### Removal

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

4. Unplug the solenoid valve connector from the PCB, see "Component checklist" on page 163.

***Figure 3-21: Removing the solenoid valve coil***




1. Screw
2. Solenoid valve coil
3. Solenoid valve body

#### Installation

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

1. Proceed in reverse order.

## 3.3.2.15. Replacing low 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 plate work when required, refer to "Basic removal" on page 102.

### PROCEDURE

#### Removal

1. Unplug the low pressure sensor connector, refer to "Component checklist" on page 163.
2. Cut the cable ties that fix the high pressure sensor wiring.

| | |
|---|---|
| ⚠ | **CAUTION**<br>The nut (1) must be locked to prevent damage to the piping. |

3. Lock the nut (1) with a 14 mm spanner.
4. Loosen and remove the low pressure sensor (2) with a 9/16” spanner.

***Figure 3-22: Removing low pressure sensor***




| | |
|---|---|
| 1. Nut | 2. Low pressure sensor |

#### Installation

1. Proceed in reverse order.

| | |
|---|---|
| ⚠ | **CAUTION**<br>The nut (1) must be locked to prevent damage to the piping. |

## 3.3.2.16. Replacing liquid receiver

### 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 "Refrigerant recovery procedure" on page 94.
4. Lower the switch box, refer to "Lowering switch box" on page 107.
5. Recover the refrigerant, refer to "Refrigerant recovery procedure" on page 94.
6. Connect a nitrogen hose to the gas service ports (HP/LP and suction).
7. Attach a hose with core-depressor to the liquid service port to allow the release of the nitrogen.

### PROCEDURE

#### Removal

1. Loosen and remove the 2 screws (3) that fix the bracket (4) to the liquid receiver (2).
2. Loosen and remove the 2 screws (6) that oil separator to the liquid receiver (2).
3. Loosen and remove the 4 screws (5) that fix the liquid receiver (2).
4. Using a pipe cutter cut the 2 pipes (1) between soldering joint and the liquid receiver (2).
5. Using a pipe cutter cut the pipe (7) between soldering joint and the liquid receiver (2).
6. Remove the liquid receiver (2).

| | |
|---|---|
|  | **CAUTION**<br>The maximum applied Nitrogen pressure must not exceed 0.02 MPa. |

7. Supply nitrogen to the piping circuit.
8. Heat the 3 pipes (1, 7) using an oxygen acetylene torch.
9. When the solder is liquid, remove the 3 oil separator pipes (1, 7).
10. Cut the nitrogen supply when the piping has cooled down.

*Figure 3-23: Removing the liquid receiver*




1. Liquid receiver pipe
2. Liquid receiver
3. Screw
4. Bracket
5. Screw
6. Screw
7. Liquid receiver pipe

**Installation**

1. Proceed in reverse order.

## 3.3.2.17. Replacing accumulator

### 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 102.
4. Lower the switch box, refer to "Lowering switch box" on page 107.
5. Recover the refrigerant, refer to "Refrigerant recovery procedure" on page 94.

| | |
|---|---|
|  | **CAUTION**<br>The solenoid valve and coil (1) will be re-installed after replacing the accumulator.<br>Do not cut the solenoid valve pipes, cut the oil return accumulator pipe. |

6. Remove the solenoid valve, refer to "Replacing solenoid valve" on page 125.
7. Connect a nitrogen hose to the gas service ports (HP/LP and suction).
8. Attach a hose with core-depressor to the liquid service port to allow the release of the nitrogen.

### PROCEDURE

#### Removal

1. Using a pipe cutter, cut the 2 accumulator pipes (2) below the soldered joint.
2. Loosen the 3 screws (3) that fix the accumulator (4).
3. Remove the accumulator (4).

| | |
|---|---|
|  | **CAUTION**<br>The maximum applied Nitrogen pressure must not exceed 0.02 MPa. |

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

*Figure 3-24: Removing the accumulator*




1. Solenoid valve with coil
2. Accumulator pipe
3. Screw
4. Accumulator

**Installation**

1. Proceed in reverse order.

## 3.3.2.18. Replacing plate heat exchanger $H_2O$

### 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 102.
4. Recover the refrigerant, refer to "Refrigerant recovery procedure" on page 94.
5. Connect a nitrogen hose to the gas service ports (HP/LP and suction).
6. Attach a hose with core-depressor to the liquid service port to allow the release of the nitrogen.

### PROCEDURE

#### Removal

1. Isolate the plate heat exchanger $H_2O$ (1) from the water circuit.
2. Drain the water from the plate heat exchanger $H_2O$ (1).
3. Lift and detach the plate heat exchanger sub-Cool (2) from the plate heat exchanger $H_2O$ plate (5).
4. Loosen and remove the 10 screws (3) that fix the plate heat exchanger $H_2O$ plate (5).
5. Loosen and remove the 2 bolts and washers (4) that fix the plate heat exchanger $H_2O$ (1) to the plate heat exchanger $H_2O$ plate (5).
6. Remove the plate heat exchanger $H_2O$ plate (5).



**CAUTION**

The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

7. Supply nitrogen to the piping circuit.
8. Heat the 2 plate heat exchanger $H_2O$ pipes (6) using an oxygen acetylene torch.
9. When the solder is liquid, disconnect the 2 plate heat exchanger $H_2O$ pipes (6).
10. Remove the plate heat exchanger $H_2O$ (1) with the 2 plate heat exchanger $H_2O$ pipes (6).
11. Cut the nitrogen supply when the piping has cooled down.
12. Separate the 2 plate heat exchanger $H_2O$ pipes (6) from the plate heat exchanger $H_2O$ (1).

*Figure 3-25: Removing the plate heat exchanger*




1. Plate heat exchanger $H_2O$
2. Plate heat exchanger sub-cool
3. Screws
4. Nut & washer
5. Plate heat exchanger $H_2O$ plate
6. Plate heat exchanger $H_2O$ pipe

**Installation**

1. Proceed in reverse order.

## 3.3.2.19. Replacing heat exchanger inverter cooling

### 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 102.
4. Recover the refrigerant, refer to "Refrigerant recovery procedure" on page 94.
5. Connect a nitrogen hose to the gas service ports (HP/LP and suction).
6. Attach a hose with core-depressor to the liquid service port to allow the release of the nitrogen.

### PROCEDURE

#### Removal

1. Loosen and remove the 6 screws (2) that fix the heat exchanger inverter cooling (1).
2. Loosen and remove the 2 screws (3) that fix the bracket (4).
3. Using a pipe cutter cut the 2 heat exchanger inverter cooling pipes (5).
4. Remove the heat exchanger inverter cooling (1).

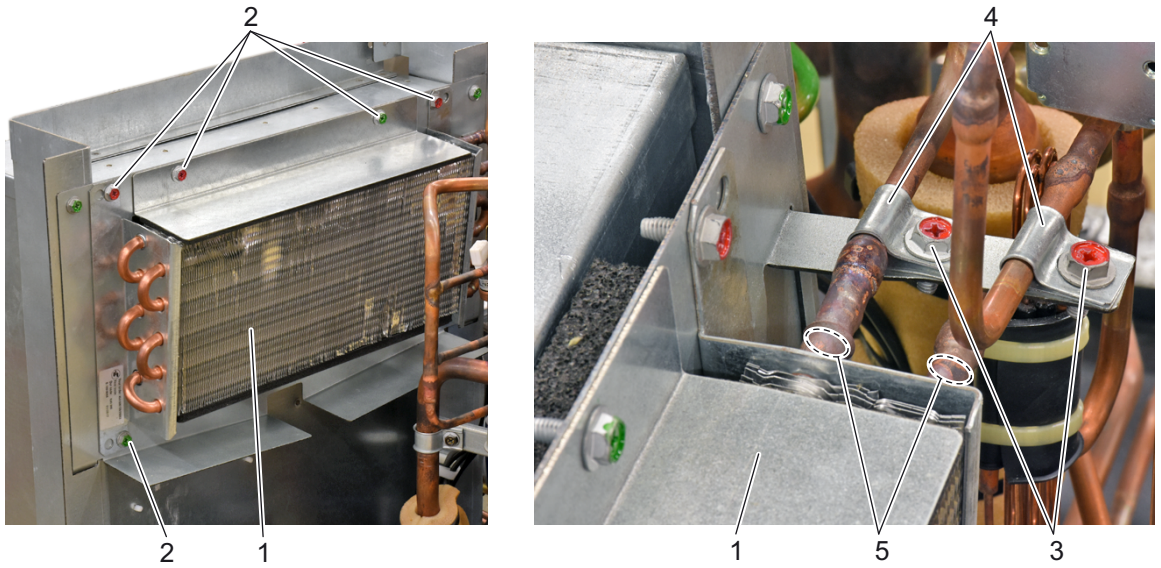


**CAUTION**

The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

5. Supply nitrogen to the piping circuit.
6. Heat the 2 heat exchanger inverter cooling pipes (5) using an oxygen acetylene torch.
7. When the solder is liquid, remove the 2 heat exchanger inverter cooling pipes (5).
8. Cut the nitrogen supply when the piping has cooled down.

*Figure 3-26: Removing the heat exchanger inverter cooling*




1. Heat exchanger inverter cooling
2. Screws
3. Screws
4. Bracket
5. Heat exchanger inverter cooling pipe

**Installation**

1. Proceed in reverse order.

## 3.3.2.20. Replacing reactor

### PRELIMINARY ACTIONS

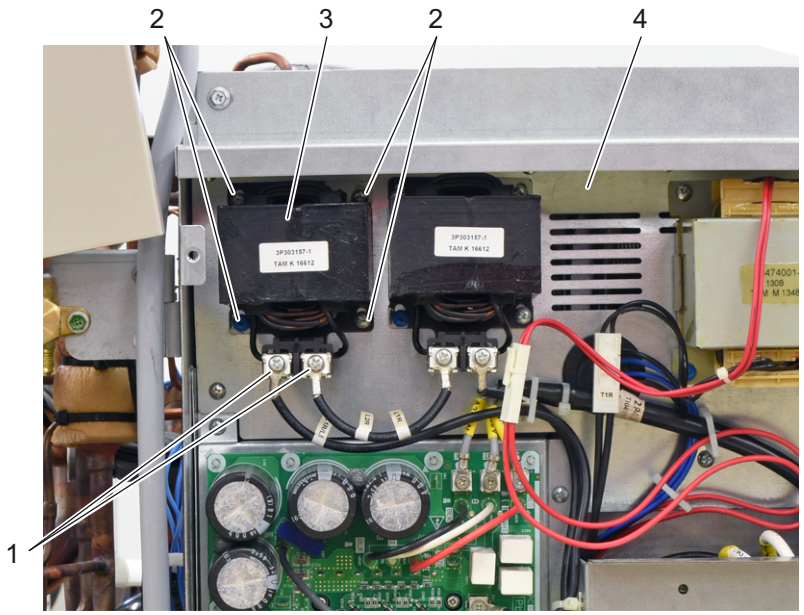
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the main front plate, refer to "Removing main front plate" on page 102.
4. Open the switch box, refer to "Opening switch box" on page 108.

### PROCEDURE

#### Removal

1. Loosen and remove the 2 screws (1) that fix the reactor wiring.
2. Loosen the 4 screws (2) that fix the reactor (3) to the switch box (4).

***Figure 3-27: Removing the reactor***




| | |
|---|---|
| 1. Screw | 3. Reactor |
| 2. Screw | 4. Switch box |

#### Installation

1. Proceed in reverse order.

## 3.3.2.21. Replacing transformer

### PRELIMINARY ACTIONS

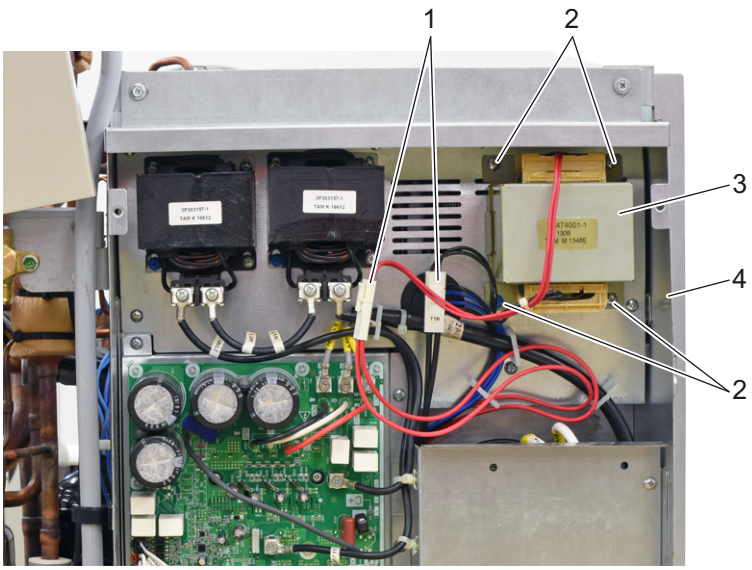
1. Switch off the Daikin unit via the user interface.
2. Switch off the Daikin unit with the field supplied circuit breaker.
3. Remove the main front plate, refer to "Removing main front plate" on page 102.
4. Open the switch box, refer to "Opening switch box" on page 108.

### PROCEDURE

#### Removal

1. Unplug the 2 connectors (1).
2. Loosen the 4 screws (2) that fix the transformer (3) to the switch box (4).

***Figure 3-28: Removing the transformer***




| | |
|---|---|
| 1. Connector | 3. Transformer |
| 2. Screw | 4. Switch box |

#### Installation

1. Proceed in reverse order.

## 3.3.2.22. Replacing inverter board A3P

### 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 main front plate, refer to "Removing main front plate" on page 102.
4. Open the switch box, refer to "Opening switch box" on page 108.

### 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.

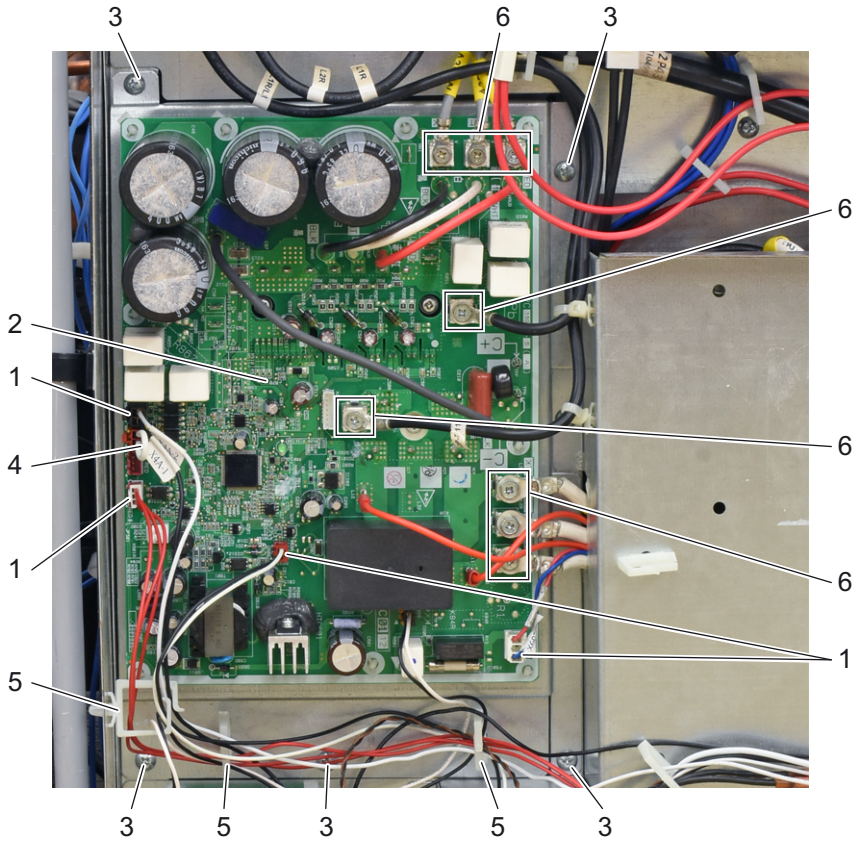
1. Unplug all connectors (1) from the inverter board (2), refer to "Component checklist" on page 163.
2. Remove the 8 screws (6) that fix the wiring to the inverter board (2).
3. Remove the wiring from the cable clamps (5).
4. Remove the 5 screws (3) that fix the inverter board (2).
5. Remove the inverter board (2) from the switch box (7).

**INFORMATION**

The jumper must be plugged on the spare inverter board, refer to "Component checklist" on page 163.

6. Unplug the jumper (4) from the inverter board (2).

*Figure 3-29: Removing the inverter board A3P*




1. Connector
2. Inverter board
3. Screw
4. Jumper
5. Cable clamp
6. Screw
7. Switch box

**Installation**

1. Proceed in reverse order.

## 3.3.2.23. Replacing main PCB A1P

### 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 main front plate, refer to "Removing main front plate" on page 102.
4. Open the switch box, refer to "Opening switch box" on page 108.

### 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.

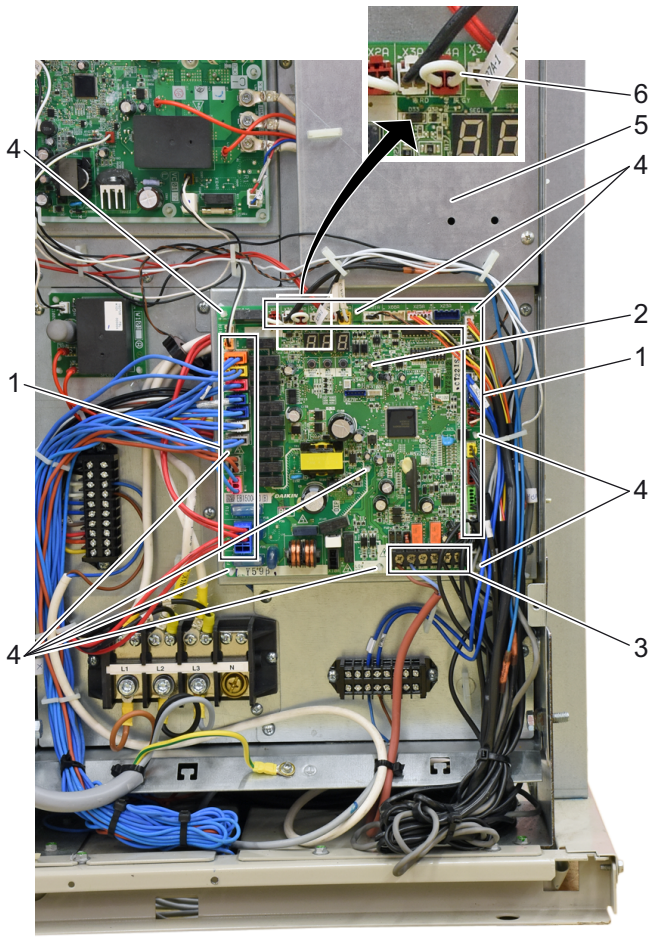
1. Unplug all connectors (1) from the main PCB (2), refer to "Component checklist" on page 163.
2. Remove the screws (3) that fix the wiring to the main PCB (2).
3. Unlatch all PCB stand-offs (4) that fix the main PCB (2).
4. Remove the main PCB (2) from the switch box (5).

**INFORMATION**

The jumper must be plugged on the spare main PCB, refer to "Component checklist" on page 163.

5. Unplug the jumper (6) from the main PCB (2).

*Figure 3-30: Removing the main PCB A1P*




1. Connector
2. Main PCB
3. Screw
4. PCB stand-off
5. Switch box
6. Jumper

**Installation**

1. Proceed in reverse order.
2. Set dip switch on main PCB “A1P” as follows:

   Ensure to change dip switches without power supply to Main PCB “A1P”

***Table 3-6: DIP switch setting spare part PCB RWEYQ-T9Y1B (pcb ref. EB15004-14)***

| | | DS1 | | | | | DS2 | | | | Spare part only |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Model-name** | **Set** | -1 | -2 | -3 | -4 | | -1 | -2 | -3 | -4 | **Setting method dip switches** |
| RWEYQ8T9Y1B | ON | | | | | | | ■ | | | DS2-2: ON (up) |
| | OFF | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | other dip switches OFF (down) |
| RWEYQ10T9Y1B | ON | | | | | | | | ■ | | DS2-3: ON (up) |
| | OFF | ■ | ■ | ■ | ■ | | ■ | ■ | | ■ | other dip switches OFF (down) |
| RWEYQ12T9Y1B | ON | | | | | | | ■ | ■ | | DS2-2 + DS2-3: ON (up) |
| | OFF | ■ | ■ | ■ | ■ | | ■ | | | ■ | other dip switches OFF (down) |
| RWEYQ14T9Y1B | ON | | | | | | | | | ■ | DS2-4: ON (up) |
| | OFF | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | | other dip switches OFF (down) |

3. If you turn the power back on, perform a re-initialization of the communication: hold the BS3 “Return” button for minimum 5 seconds. Check that the voltage at the terminals “F1F2 IN/D” changes few times between ±16 VDC and ±0 VDC. (Re-)initialization takes maximum 12 minutes. At the end of the initialization, the segment display goes off.

4. Perform a test run: after (re-)initialization is completed, press and hold BS2 “SET” till segment display indicates “t01”. Test run will take about 20 minutes.

   If you do not perform a test run, error U3-01 appears when turning on the indoor unit.

5. Test run is completed normally when segment display goes off.

## 3.3.2.24. Replacing noise filter PCB A2P

### 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 main front plate, refer to "Removing main front plate" on page 102.
4. Open the switch box, refer to "Opening switch box" on page 108.

### PROCEDURE

#### Removal

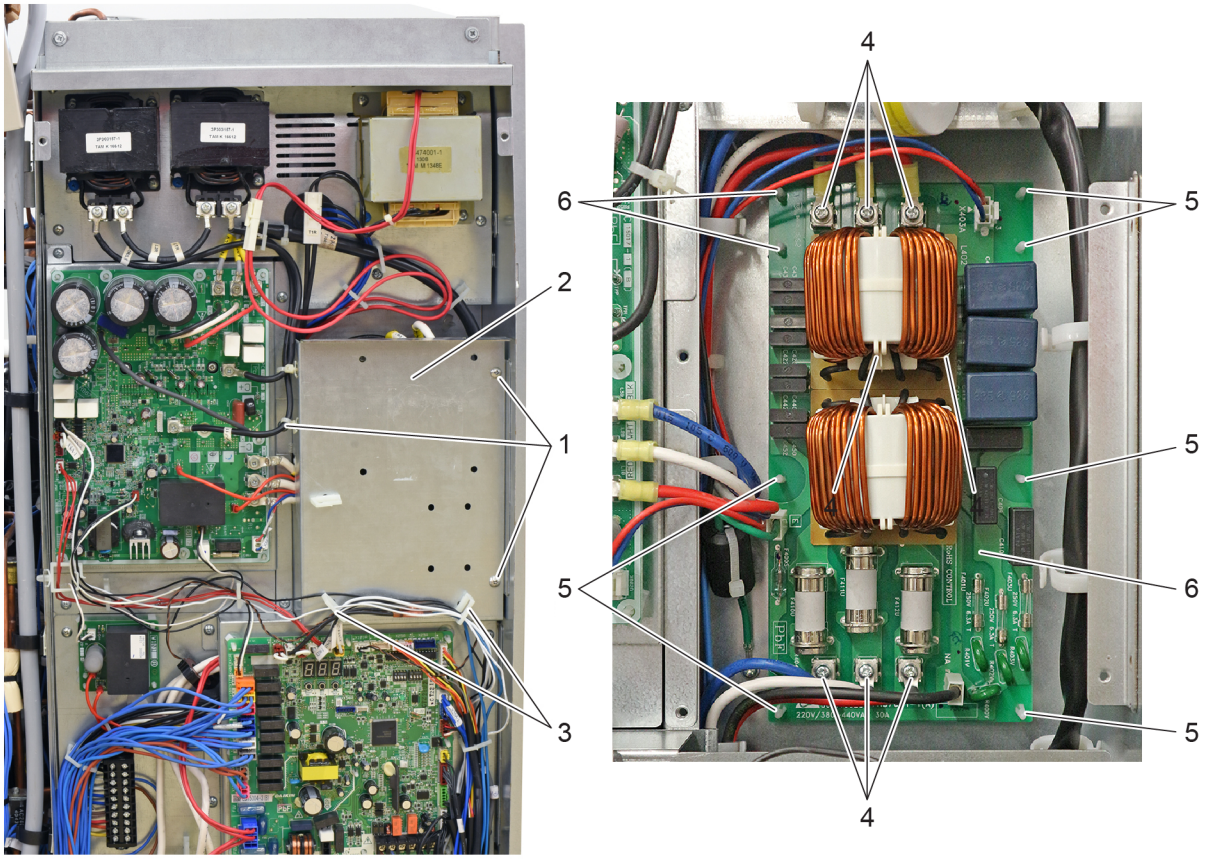


**WARNING: RISK OF FIRE**

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 the 3 screws (1) that fix the mounting plate optional boards (2).
2. Remove the wiring from the cable clamps (3).
3. Turn the mounting plate optional boards (2) to the left.
4. Remove the 6 screws (4) that fix the wiring to the noise filter PCB (6).
5. Unlatch all PCB stand-offs (5) that fix the noise filter PCB (6).
6. Remove the noise filter PCB (6) from the switch box.

*Figure 3-31: Removing the noise filter PCB A2P*




| | |
|---|---|
| 1. Screw | 4. Screw |
| 2. Mounting plate optional boards | 5. PCB stand-off |
| 3. Cable clamp | 6. Noise filter PCB |

**Installation**

**INFORMATION**

Replace all cable ties that were cut during removal.

1. Proceed in reverse order.

## 3.3.2.25. Replacing SUB PCB A4P

### 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 main front plate, refer to "Removing main front plate" on page 102.
4. Open the switch box, refer to "Opening switch box" on page 108.

### PROCEDURE

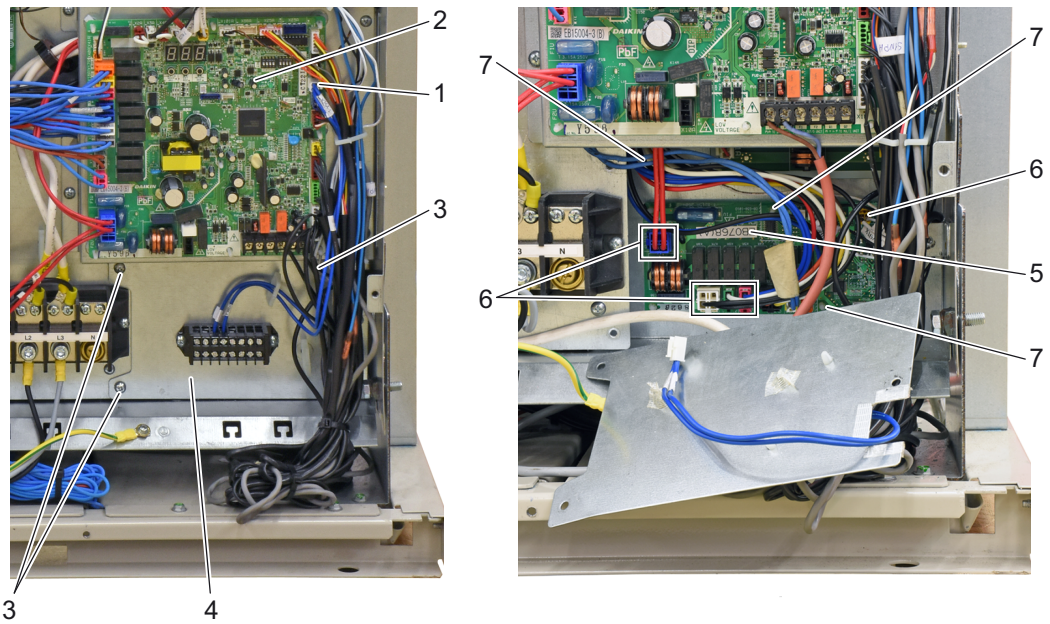
#### Removal

**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 connector X36 (1) from the main PCB (2), refer to "Component checklist" on page 163.
2. Remove the 4 screws (3) that fix the mounting plate low voltage terminal block X2M (4).
3. Turn over and lower the mounting plate low voltage terminal block X2M (4).
4. Unplug the connectors (6) from the SUB PCB “A4P” (5), refer to "Component checklist" on page 163.
5. Unlatch the 6 PCB stand-offs (7) that fix the SUB PCB “A4P” (5).
6. Remove the SUB PCB “A4P” (5) from the switch box (8).

***Figure 3-32: Removing the SUB PCB A4P***




1. Connector X36
2. Main PCB
3. Screw
4. mounting plate low voltage terminal block X2M
5. Sub PCB “A4P”
6. Connectors
7. PCB stand-off
8. Switch box

#### Installation

1. Proceed in reverse order.

## 3.3.2.26. Replacing Adapter PCB A8P

### 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 main front plate, refer to "Removing main front plate" on page 102.
4. Open the switch box, refer to "Opening switch box" on page 108.

### PROCEDURE

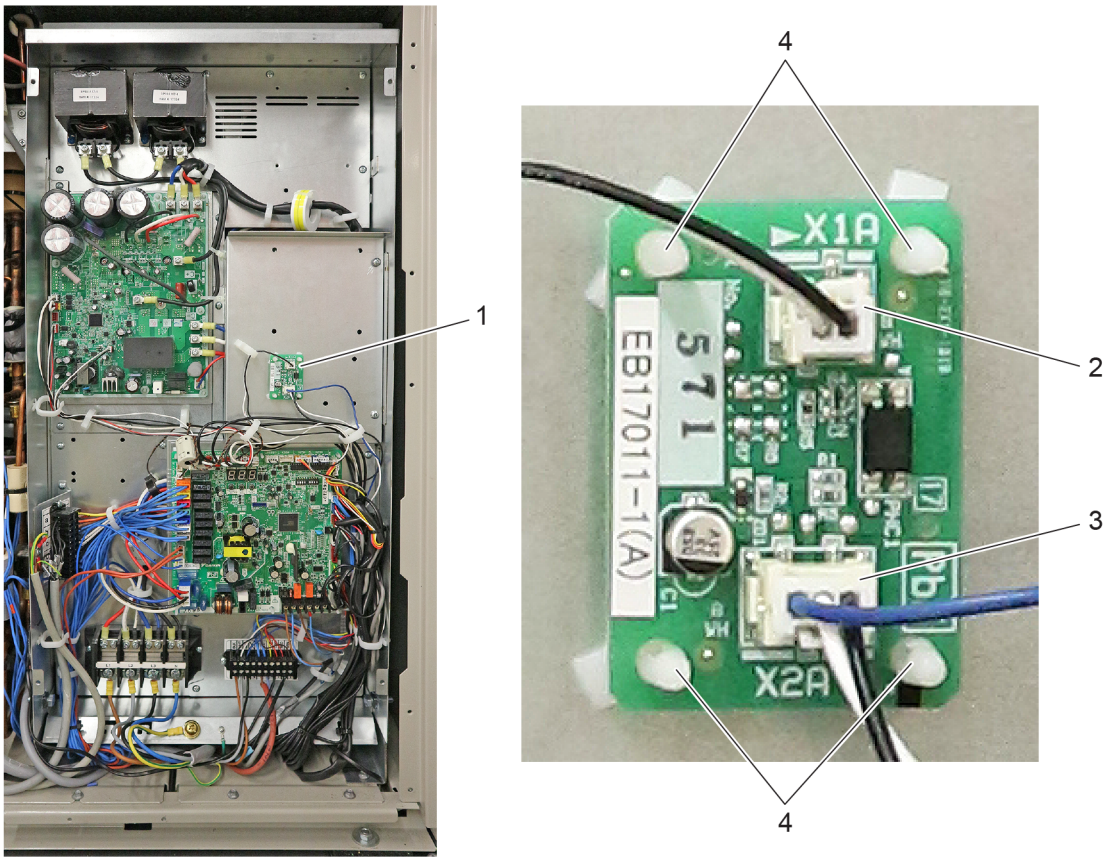
#### Removal

**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 connector X1A (2) and X2A (3) from the Adapter PCB “A8P” (1), refer to "Switch Box RWEYQ-T9Y1B" on page 167.
2. Unlatch the 4PCB stand-offs (4) that fix the Adapter PCB “A8P” (1).
3. Remove the Adapter PCB “A8P” (1) from the switch box.

***Figure 3-33: Removing the Adapter PCB A8P***




1. Adapter PCB A8P
2. Connector X1A
3. Connector X2A
4. PCB stand-off

#### Installation

1. Proceed in reverse order.

# 3.3.3. Branch Selector (BS) box

## 3.3.3.1. Replace control board BS box

### PRELIMINARY ACTIONS

1. Switch off circuit breaker for power supply to BS unit.
2. Loosen and remove the 4 screws (1) that fix the BS box cover (2).
3. Lift the BS box cover (3) and remove it from the BS box.
4. Check power supply is disconnected: green LED be off, and check power supply terminals L-N = 0 VAC

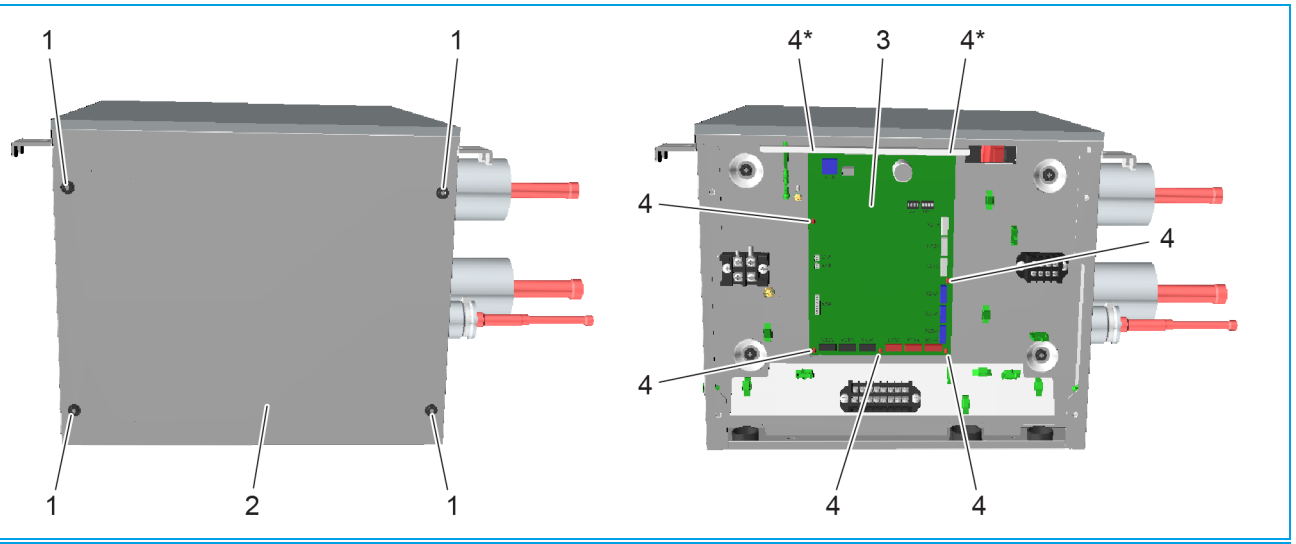
### PROCEDURE

#### Removal

| | |
|---|---|
| ⚠ | **WARNING: RISK OF FIRE**<br>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 all connectors from the control board (3).
2. Unsnap the control PCB carefully from its 7 PCB stand-offs (4).
3. Remove the control board (3) from the BS box.

***Figure 3-34: Removing the control board PCB (e.g. for BS box BS4Q14A)***




| | |
|---|---|
| 1. Screw | 3. Control board |
| 2. BS box cover | 4. PCB stand-off (* stand-off not visible) |

#### Installation

1. Proceed in reverse order.

## 3.3.3.2. Replacing expansion valve coil BS box

### PRELIMINARY ACTIONS

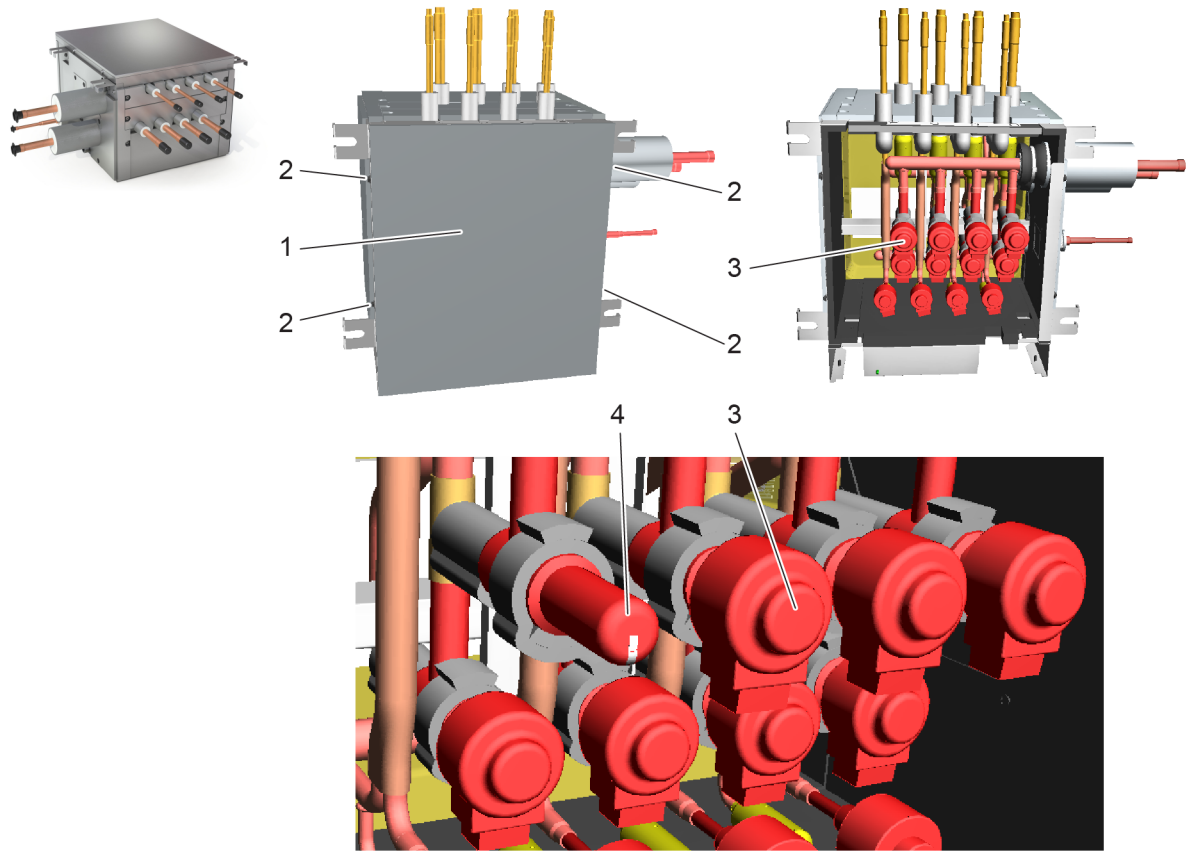
1. Remove the 4 screws (2) that fix the top panel (1).
2. Remove the top panel (1).

### PROCEDURE

#### Removal

1. Locate the expansion valve coil (3)
2. Unlock the expansion valve coil (3) turning clockwise or counter clockwise.
3. Remove the expansion valve coil (3) from the expansion valve (4)

***Figure 3-35: Removing expansion valve coil (e.g. for BS box BS4Q14A)***




| | |
|---|---|
| 1. Top panel | 3. Expansion valve coil |
| 2. Screw | 4. Expansion valve |

#### Installation

1. Proceed in reverse order.

# Part 4. Maintenance

**This part contains the following chapters:**

Indoor unit .....151
RWEYQ-T .....152

## 4.1. Indoor unit

### 4.1.1. General maintenance indoor unit

1. Optimal operation conditions

| | Cooling | Heating |
|---|---|---|
| Differential between suction temperature and discharge temperature | 8~18°C | 14~30°C |
| DB | 27°C | 20°C |
| WB | 19°C | NA |

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

| COOLING | Low pressure | High pressure | Running current |
|---|---|---|---|
| Dirty air filter | Lower | Lower | Lower |
| Short circuit of air inlet/outlet | Lower | Lower | Lower |
| 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 |
| Unsatisfactory compression | Higher*** | 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.

# 4.2. RWEYQ-T

## 4.2.1. General maintenance RWEYQ-T

1. $H_2O$ plate heat-exchanger: check water inlet temperature & water flow rate is within published range.

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 ..... 155
Wiring diagram ..... 159
Wiring diagram ..... 159
Piping diagram ..... 161
Component overview of unit ..... 162
Product specific information ..... 163
Switch box ..... 167
Branch Selector (BS) box ..... 168
Field information report ..... 172

# 5.1. Field setting

## 5.1.1. RWEYQ-T default mode 2 settings

| Mode 2 code no. | Default set | RWEYQ-T |
|---|---|---|
| | | Function |
| 0 | 0 | ❄/✹ zone |
| 1 | 0 | ❄/✹ address |
| 2 | 0 | Demand address |
| 3 | 0 | Info not available |
| 4 | 0 | spare |
| 5 | 0 | forced indoor fan |
| 6 | 0 | forced thermostat-on |
| 7 | 0 | Info not available |
| 8 | 2 | target evaporation (❄) |
| 9 | 6 | target evaporation (✹) |
| 10 | 0 | spare |
| 11 | 0 | Info not available |
| 12 | 0 | Activate DTA104 |
| 13 | 0 | I-net address |
| 14 | 0 | spare |
| 15 | 0 | Info not available |
| 16 | 0 | Info not available |
| 17 | 0 | Info not available |
| 18 | 0 | Info not available |
| 19 | 0 | spare |
| 20 | 0 | R410A additional charge |
| 21 | 0 | Refrigerant recovery |
| 22 | 0 | spare |
| 23 | 0 | VRT control |
| 24 | 0 | Output 0-10 control |
| 25 | 4 | lower limit 0-10 V |
| 26 | 0 | Info not available |
| 27 | 0 | spare |
| 28 | 0 | Power transistor check |
| 29 | 0 | Capacity precedence |
| 30 | 3 | Demand limit 1 |
| 31 | 1 | Demand limit 2 |
| 32 | 0 | Forced demand limit |
| 33 | 0 | Info not available |
| 34 | 0 | Indoor fan limit >130% ratio thermostat on |
| 35 | 0 | Height difference |
| 36 | 2 | Info not available |
| 37 | 0 | Info not available |
| 38 | 0 | Emergency set main module |
| 39 | 0 | Emergency set sub1 module |
| 40 | 0 | Emergency set sub2 module |
| 41 | 0 | Info not available |
| 42 | 0 | delay HJ-04 error |
| 43 | 0 | Info not available |
| 44 | 0 | Info not available |
| 45 | 0 | Technical cooling BS unit |
| 46 | 0 | Info not available |
| 47 | 2 | Target evaporation temperature heat recovery mode |
| 48 | 0 | spare |
| 49 | 0 | Info not available |

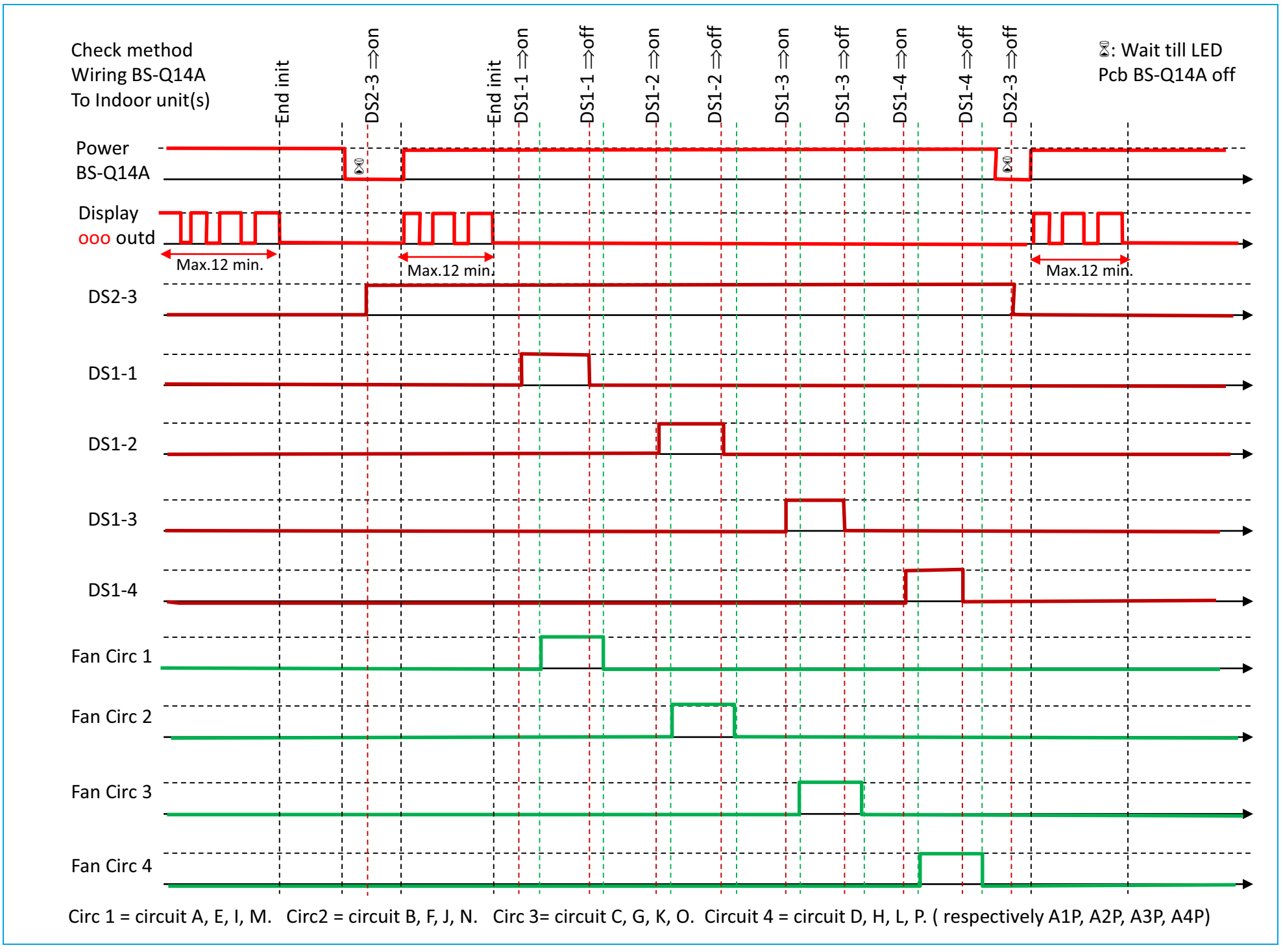
| Mode 2 code no. | Default set | RWEYQ-T |
|---|---|---|
| | | Function |
| 50 | 0 | $H_2O$ brine sol |
| 51 | 0 | Module manual sequence set |
| 52 | 0 | spare |
| 53 | 0 | Info not available |
| 54 | 0 | Target evaporation temperature technical cooling |
| 55 | 2 | Info not available |
| 56 | 0 | Heating capacity less (indoor to LP) |
| 57 | 0 | Info not available |
| 58 | 13 | Info not available |
| 59 | 1 | Info not available |
| 60 | 0 | spare |
| 61 | 0 | Info not available |
| 62 | 0 | Info not available |
| 63 | 0 | Info not available |
| 64 | 0 | spare |
| 65 | 0 | spare |
| 66 | 0 | spare |
| 67 | 0 | spare |
| 68 | 0 | spare |
| 69 | 0 | spare |
| 70 | 0 | spare |
| 71 | 0 | Equalisation time BS unit cool<->heat |
| 72 | 0 | Info not available |
| 73 | 0 | Info not available |
| 74 | 3 | ZED setpoint |
| 75 | 0 | ZED differential |
| 76 | 6 | Info not available |
| 77 | 1 | Info not available |
| 78 | 0 | Info not available |
| 79 | 0 | Info not available |
| 80 | 0 | Info not available |
| 81 | 1 | comfort cool |
| 82 | 1 | comfort heat |
| 83 | 1 | selection cool/heat change over RA (split) indoor, or VRV |
| 84 | 1 | Info not available |
| 85 | 0 | spare |
| 86 | 0 | spare |
| 87 | 0 | Info not available |
| 88 | 0 | Info not available |
| 89 | 0 | spare |
| 90 | 0 | Info not available |
| 91 | 0 | Info not available |
| 92 | 2 | Info not available |
| 93 | 0 | spare |
| 94 | 0 | spare |
| 95 | 0 | Info not available |
| 96 | 0 | Info not available |
| 97 | 0 | spare |
| 98 | 0 | spare |
| 99 | 0 | spare |

# 5.2. Detailed information setting mode

## 5.2.1. Indoor unit

See service manual VRV4 indoor units.

*Figure 5-1: Check method Wiring BS-Q14A*




Circ 1 = circuit A, E, I, M.  Circ2 = circuit B, F, J, N.  Circ 3= circuit C, G, K, O.  Circuit 4 = circuit D, H, L, P. ( respectively A1P, A2P, A3P, A4P)

## 5.2.2. RWEYQ-T9 field settings overview mode1 & 2

| RWEYQ-T - mode 1 (monitoring mode) | | Display indication | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **No.** | **Setting content** | **--** | **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| 0 | Outdoor auto configuration Q1Q2 wiring | not detected | Main | Sub 1 | Sub 2 | - | - | - | - | - |
| 1 | Low noise input DTA104 | 0: open | closed | - | - | - | - | - | - | - |
| 2 | Demand control input DTA104 | 0: open | closed | - | - | - | - | - | - | - |
| 3 | Back up operation | 0: OFF | 1: ON | - | - | - | - | - | - | - |
| 4 | spare item | 0 | - | - | - | - | - | - | - | - |
| 5 | Te target set ❄°C | - | - | 3 | 6 | 7 | 8 | 9 | 10 | 11 |
| 6 | Tc target set ✷°C | - | - | 41 | 42 | 43 | 44 | 45 | 46 | 49 |
| 7 | ❄/✷ zone address | | 0~31 | | | | | | | |
| 8 | Demand address | | 0~31 | | | | | | | |
| 9 | I-Net address | | 0~63 | | | | | | | |
| 10 | Qty indoor (VRV+RA+Hydro) | | 0~63 | | | | | | | |
| 11 | Qty BS units (this system) | | 0~63 | | | | | | | |
| 12 | Info not available | | 0~63 | | | | | | | |
| 13 | Qty outdoor all systems “F1F2 Out/d” | | 0~63 | | | | | | | |
| 14 | Qty BS units all systems “F1F2 Out/d” | | 0~128 | | | | | | | |
| 15 | Qty connected zones “F1F2 Out/d“ (not used) | | 0~63 | | | | | | | |
| 16 | Qty indoor units all systems “F1F2 Out/d” | | 0~128 | | | | | | | |
| 17 | Error code - last forced stop | | Refer to error code list | | | | | | | |
| 18 | Error code - 2nd last forced stop | | Refer to error code list | | | | | | | |
| 19 | Error code - 3rd last forced stop | | Refer to error code list | | | | | | | |
| 20 | Software ID (main number) | | 8 digits, use “Set” BS2 button to view full number | | | | | | | |
| 21 | Horsepower display | - | - | 8 | 10 | 12 | 14 | - | - | - |
| 22 | Software ID (sub number) | | 001~999 | | | | | | | |
| 23 | Error code - last retry | | Refer to error code list | | | | | | | |
| 24 | Error code - 2ndlast retry | | Refer to error code list | | | | | | | |
| 25 | Error code - 3red last retry | | Refer to error code list | | | | | | | |
| 26 | Info not available | | 0~63 | | | | | | | |
| 27 | Info not available | | 0~63 | | | | | | | |
| 28 | Qty modules same system (Q1Q2 wiring) | - | - | 1 | 2 | 3 | - | - | - | - |
| 32 | PCB board judgment | - | Check | Normal | Fault | - | - | - | - | - |
| 40 | ❄ Comfort setting (= set 2-81) | - | Eco | Mild | Quick | Powerfull | - | - | - | - |
| 41 | ✷ Comfort setting (= set 2-81) | - | Eco | Mild | Quick | Powerfull | - | - | - | - |
| 42 | actual Pc (Mpa) | | 0,00~9,99 | | | | | | | |
| 43 | actual Pe (Mpa) | | 0,00~9,99 | | | | | | | |
| 44 | Actual Frequency output (Hz) | | 0~999 | | | | | | | |
| 45 | Actual pulses Y1E (display = pulses/10) | | 0~300 | | | | | | | |
| 46 | Actual pulses Y2E (display = pulses/10) | | 0~48 | | | | | | | |
| 47 | Actual discharge pipe °C(R12T - “Tdi”) | | 0~999 | | | | | | | |
| 48 | spare item | - | 0 | - | - | - | - | - | - | - |
| 49 | spare item | - | 0 | - | - | - | - | - | - | - |
| 50 | Actual air °C (R1T - “Ta”) | | -40,0~99,9 | | | | | | | |
| 51 | Actual Accumulator inlet °C (R3T -”Ts”) | | -40,0~99,9 | | | | | | | |
| 52 | Actual gas outlet °C Sub-cool (R5T -”Tsh”) | | -40,0~99,9 | | | | | | | |
| 53 | Actual gas °C PHE $H_2O$ (R4T - “Tg”) | | -40,0~99,9 | | | | | | | |
| 54 | Actual liquid receiver °C (R6T -”TL”) | | -40,0~99,9 | | | | | | | |
| 56 | Compressor hours (display =hours/100) | | 0~999 | | | | | | | |
| 57 | Actual Output X2M 2«3 (0~10VDC) | | 0~10 | | | | | | | |
| 58 | Actual $H_2O$ inlet °C (R9T) | | -40,0~99,9 | | | | | | | |
| 59 | Actual $H_2O$ inlet °C (R10T) | | -40,0~99,9 | | | | | | | |
| 60 | Actual compressor body °C (R13T - "Ti") | | -40~999 | | | | | | | |
| 61 | Actual r410A liquid °C $H_2O$ PHE (R7T - "Tb") | | -40,0~99,9 | | | | | | | |
| 62 | Actual liquid °C outlet Y2E (R11T -”Tm”) | | -40,0~99,9 | | | | | | | |
| 63 | Actual liquid °C stop valve liquid (R8T - "Tsc") | | -40,0~99,9 | | | | | | | |
| 64 | Actual air °C (R1T - “Ta”) | | -40,0~99,9 | | | | | | | |
| 65 | Actual gas °C ZED circuit (R2T -”Tev”) | | -40,0~99,9 | | | | | | | |

| RWEYQ-T - mode 2 (Field setting mode) | | Display indication | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **No.** | **Setting content** | **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| 0 | ❄/✹ Selection | **individual** | Main | Sub | - | - | - | - | - | - |
| 1 | ❄/✹ Address | **0** ~ 31 | | | | | | | | |
| 2 | Demand address | **0** ~ 31 | | | | | | | | |
| 5 | Cross wiring check | **OFF** | ON | - | - | - | - | - | - | - |
| 6 | Forced thermostat-on | **OFF** | ON | - | - | - | - | - | - | - |
| 8 | Target Te °C (❄) | - | 3 | **6** | 7 | 8 | 9 | 10 | 11 | - |
| 9 | Target Tc °C (✹) | - | 41 | 42 | 43 | 44 | 45 | **46** | 49 | - |
| 11 | Demand set DTA104 | **Off** | LNO | demand | - | - | - | - | - | - |
| 13 | I-Net address | **0** ~ 63 | | | | | | | | |
| 16 | Heat output step1 KRP1 Yc-Y1 | **OFF** | ON | - | - | - | - | - | - | - |
| 20 | +R410A charge | **OFF** | ON | - | - | - | - | - | - | - |
| 21 | R410A Recovery mode | **OFF** | ON | - | - | - | - | - | - | - |
| 23 | VRT control | **❄ + ✹** | only ✹ | only ❄ | Off | - | - | - | - | - |
| 24 | 0-10VDC output | **OFF** | Individual (operation on) | Per system (operation) | Individual (thermostat) | - | - | - | - | - |
| 25 | Output X2M 2-3 minimum % | 0 | 20 | 30 | 40 | **50** | 60 | 70 | 80 | - |
| 28 | Power transistor check | **OFF** | ON | - | - | - | - | - | - | - |
| 29 | Capacity precedence | **OFF** | ON | - | - | - | - | - | - | - |
| 30 | Demand 1 limit current (%) | - | **60** | 65 | 70 | 75 | 80 | 85 | 90 | 95 |
| 31 | Demand 2 limit current (%) | - | **40** | 50 | 55 | - | - | - | - | - |
| 32 | Forced demand (without input DTA104) | **OFF** | set 2-30 | set 2-31 | - | - | - | - | - | - |
| 34 | Indoor fan limit >130% thermostat | **all modes** | ❄ + ✹ & ✹ | OFF | - | - | - | - | - | - |
| 35 | Height different RWEYQ below indoor | **≤ 40 m** | ≦ 90 m | do not set | - | - | - | - | - | - |
| 36 | Demand off setting | - | do not set | default | do not set | - | - | - | - | - |
| 38 | Inverter emergency set main | **OFF** | ON | - | - | - | - | - | - | - |
| 39 | Inverter emergency set sub1 | **OFF** | ON | - | - | - | - | - | - | - |
| 40 | Inverter emergency set sub2 | **OFF** | ON | - | - | - | - | - | - | - |
| 42 | Delay (minutes) “HJ” fault X2M 5-6 open | **Only th-off** | 5 | 10 | 15 | 20 | 25 | 30 | 35 | - |
| 50 | $H_2O$ brine % | **0** | do not set | | | **40** | 5 ~12 do not set | | | |
| 51 | Module setting (Q1Q2 wiring) | **Automatic** | Main | Sub1 | Sub2 | - | - | - | - | - |
| 56 | Heating capacity less (indoor set to LP) | Off | Operation off | Thermo-off | **Operation or Th off** | - | - | - | - | - |
| 71 | Change over time (minutes) BS unit EVL<->EVH | 5 | 3 | 7 | 4 | - | - | - | - | - |
| 73 | ZED function | **OFF** | > capacity | > air °C | - | - | - | - | - | - |
| 74 | ZED setpoint | 25 | 17 | 29 | **31** | 33 | 35 | 37 | 39 | - |
| 75 | ZED 🌡 (°C) | **3** | 2 | 1 | 5 | | | | | |
| 81 | Cooling comfort setting | Eco | **Mild** | Quick | Power full | - | - | - | - | - |
| 82 | Heating comfort setting | Eco | **Mild** | Quick | Power full | - | - | - | - | - |
| 83 | ❄ <-> ✹ selection source (heat-pump only) | VRV | **RA+BPMKS** | | - | - | - | - | - | - |

**xxx : default setting**

## 5.2.3. Remote controller

See service manual ESIE15-11 (VRV4 indoor units)

# 5.3. Wiring diagram

## 5.3.1. RWEYQ-T9Y1B (380~415V)

*Figure 5-2: Wiring diagram*

| Part n° | | Description |
|---|---|---|
| A1P | | main PCB |
| A2P | | noise filter PCB |
| A3P | | inverter PCB |
| A4P | | SUB PCB |
| A8P | | adapter PCB |
| A9P | * | cool/heat selector PCB |
| BS* (A1P) | | push buttons (mode , set, return) |
| C* (A3P) | | capacitor |
| DS* (A1P) | | dipswitch |
| E1HC | | crankcase heater |
| F1S (A2P) | | surge arrestor |
| F1U (A4P) | | fuse T 3,15 A 250 V |
| F401U (A2P) | | fuse T 6,3 A 250 V |
| F402U (A2P) | | fuse T 6,3 A 250 V |
| F403U (A2P) | | fuse T 6,3 A 250 V |
| F410U (A2P) | | fuse T 63 A 600 V |
| F411U (A2P) | | fuse T 63 A 600 V |
| F412U (A2P) | | fuse T 63 A 600 V |
| F*U (A1P) | | fuse T 3,15 A 250 V |
| HAP (A1P) | | running LED (service monitor-green) |
| K1M (A3P) | | magnetic contactor |
| K*R (A*P) | | magnetic relay |
| L*R | | reactor |
| M1C | | motor (compressor) |
| M*F | | motor (fan) |
| PS (A1P) | | power supply |
| Q1DI | # | earth leakage circuit breaker |
| Q1RP (A1P) | | phase reversal detect circuit |
| R* (A3P) | | resistor |
| R*T | | thermistor |
| R*V (A2P) | | varistor |
| S1NPH | | high pressure sensor |
| S1NPL | | low pressure sensor |
| S1PH | | high pressure switch (disch) |
| S1S | | air control switch |
| S2S | | cool / heat switch |
| S3S | | interlock switch |
| SEG*(A1P) | | 7-segment display |
| T1A | | leakage current detection sensor |
| V1R (A3P) | | IGBT power module |
| V2R (A3P) | | diode module |
| X66A | | connector (remote switching cool/heat selector) |
| X*A | | PCB connector |
| X*M | | terminal strip |
| X*M (A*P) | | terminal strip on PCB |
| X*Y | | connector |
| Y*E | | electronic expansion valve |
| Y*S | | solenoïd valve |
| Z*C | | noise filter (ferrit core) |
| Z*F | | noise filter |

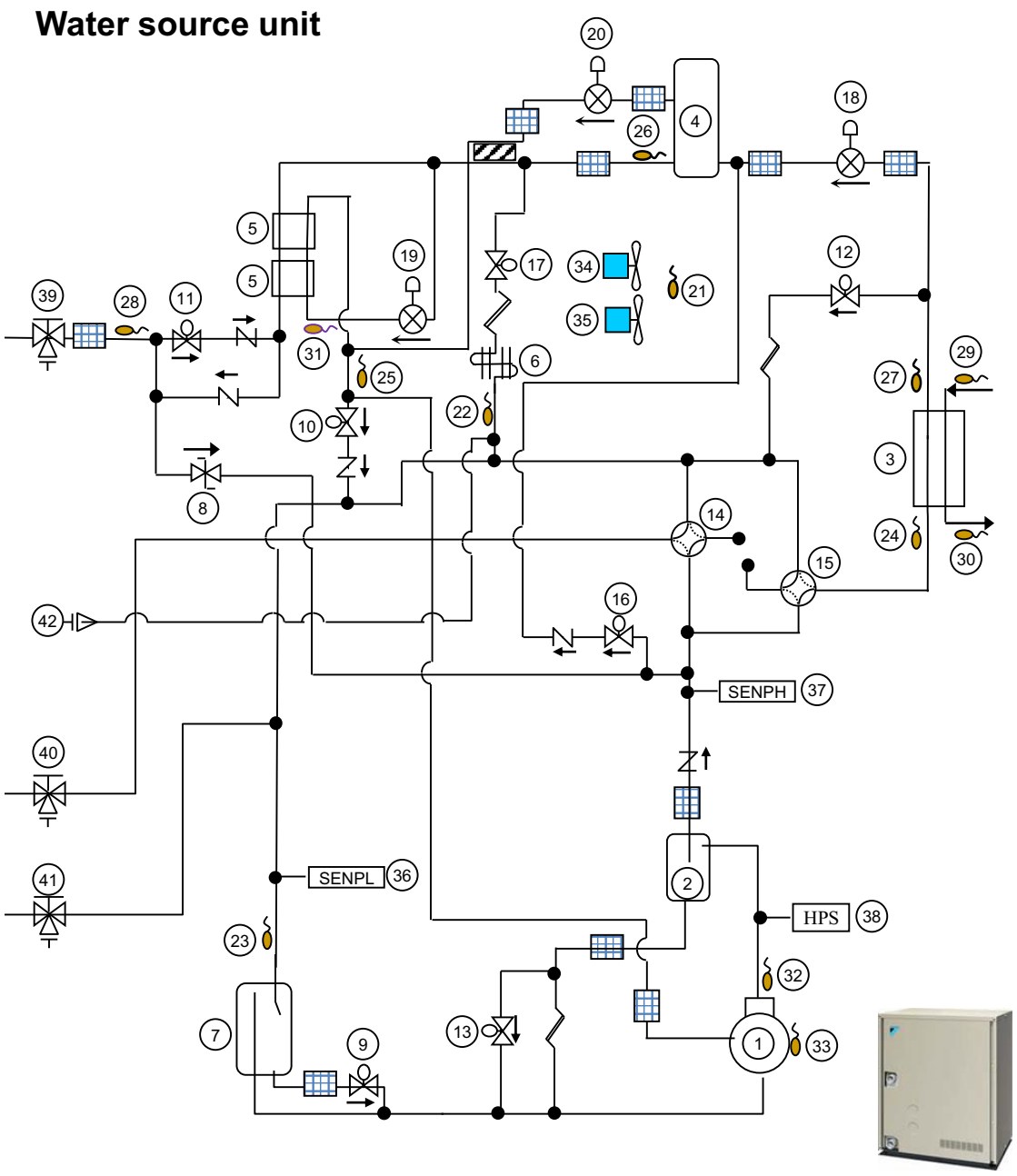
* : optional
\# : field supply

## 5.3.2. Field wiring

Not applicable.

# 5.4. Piping diagram

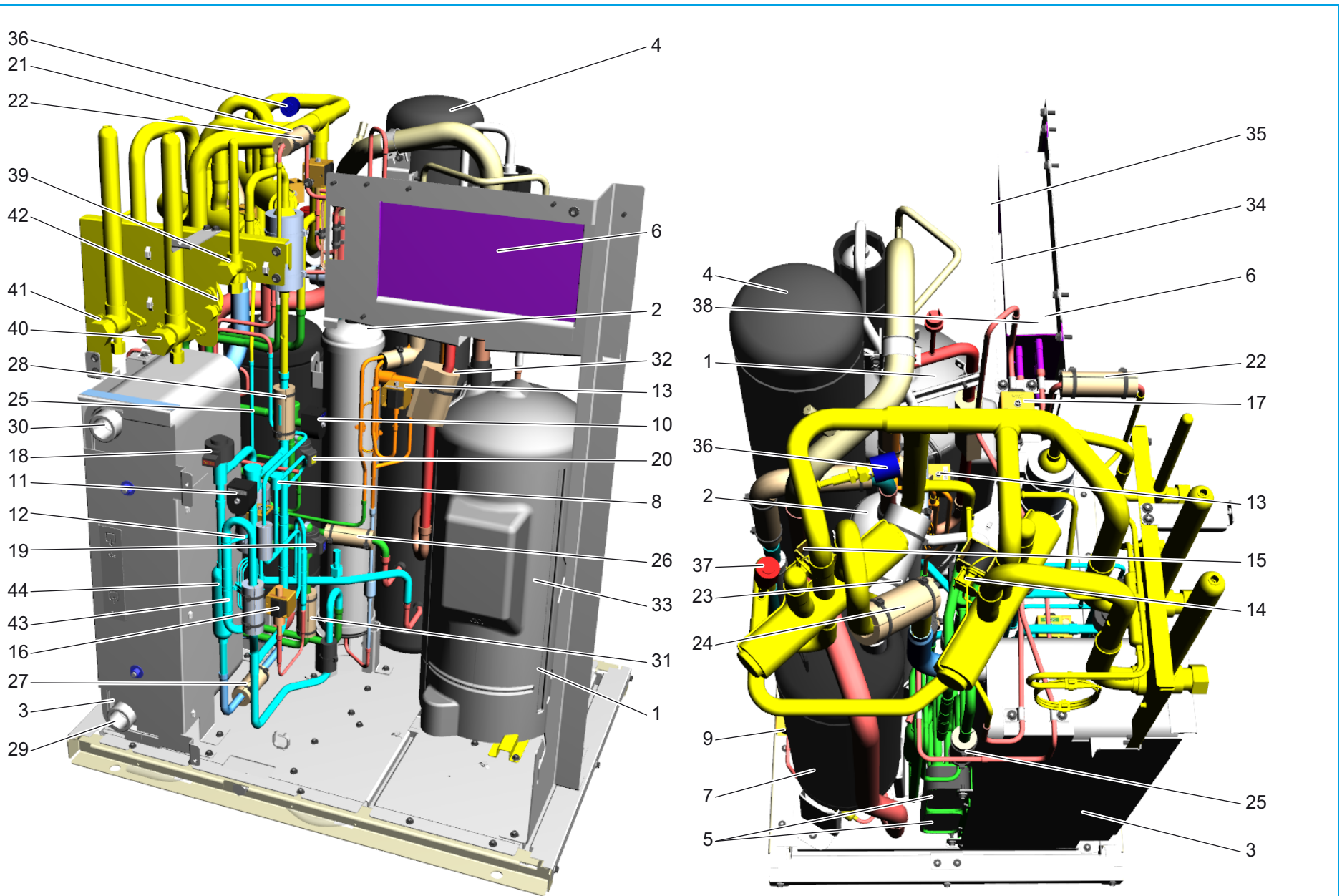
*Figure 5-3: Piping diagram RWEYQ-T9Y1B*




1. Compressor motor
2. Oil separator
3. PHE H20
4. Liquid receiver
5. PHE Sub-cool
6. Heat-exchanger inverter cooling
7. Accumulator
8. Safety valve liquid
9. Stop valve oil return accumulator
10. Stop valve gas SC & Purge
11. Stop valve main liquid
12. Stop valve liquid oil return PHE
13. Stop valve Hot Gas / Oil return
14. 4-way valve Dual Pressure
15. 4-way valve PHE
16. Stop valve hot gas injection liquid
17. Stop valve liquid inverter cooling
18. Expansion valve main liquid
19. Expansion valve sub-cool
20. Expansion valve purge
21. R1T Thermistor inside ambient
22. R2T Thermistor gas outlet inverter cooling
23. R3T Thermistor accumulator inlet
24. R4T Thermistor gas PHE H20
25. R5T Thermistor gas outlet SC & Purge
26. R6T Thermistor liquid receiver ↔ SC circuit
27. R7T Thermistor liquid PHE H20
28. R8T Thermistor liquid ↔ SC Stop valve
29. R9T Thermistor H20 in PHE (future option part)
30. R10T Thermistor H20 out PHE (future option part)
31. R11T Thermistor liquid EVT ↔ SC PHE
32. R12T Thermistor discharge compressor
33. R13T Thermistor body compressor
34. M1F Fan motor n°1 inverter cooling
35. M2F Fan motor n°2 inverter cooling
36. SENPL Low pressure sensor
37. SENPH High pressure sensor
38. S1PH High pressure switch
39. Stop valve liquid
40. Stop valve dual pressure
41. Stop valve suction
42. Refrigerant charge port
43. Non-return valve (1 way valve)
44. Refrigerant filter

# 5.5. Component overview of unit

*Figure 5-4: Component overview RWEYQ-T9Y1B / TATJU/-TAYDU*




1. Compressor motor
2. Oil separator
3. PHE H20
4. Liquid receiver
5. PHE Sub-cool
6. Heat-exchanger inverter cooling
7. Accumulator
8. Safety valve liquid
9. Stop valve oil return accumulator
10. Stop valve gas SC & Purge
11. Stop valve main liquid
12. Stop valve liquid oil return PHE
13. Stop valve Hot Gas / Oil return
14. 4-way valve Dual Pressure
15. 4-way valve PHE
16. Stop valve hot gas injection liquid
17. Stop valve liquid inverter cooling
18. Expansion valve main liquid
19. Expansion valve sub-cool
20. Expansion valve purge
21. R1T Thermistor inside ambient
22. R2T Thermistor gas outlet inverter cooling
23. R3T Thermistor accumulator inlet
24. R4T Thermistor gas PHE H20
25. R5T Thermistor gas outlet SC & Purge
26. R6T Thermistor liquid receiver ↔ SC circuit
27. R7T Thermistor liquid PHE H20
28. R8T Thermistor liquid ↔ SC Stop valve
29. R9T Thermistor H20 in PHE (future option part)
30. R10T Thermistor H20 out PHE (future option part)
31. R11T Thermistor liquid EVT ↔ SC PHE
32. R12T Thermistor discharge compressor
33. R13T Thermistor body compressor
34. M1F Fan motor n°1 inverter cooling
35. M2F Fan motor n°2 inverter cooling
36. SENPL Low pressure sensor
37. SENPH High pressure sensor
38. S1PH High pressure switch
39. Stop valve liquid
40. Stop valve dual pressure
41. Stop valve suction
42. Refrigerant charge port
43. Non-return valve (1 way valve)
44. Refrigerant filter

# 5.6. Product specific information

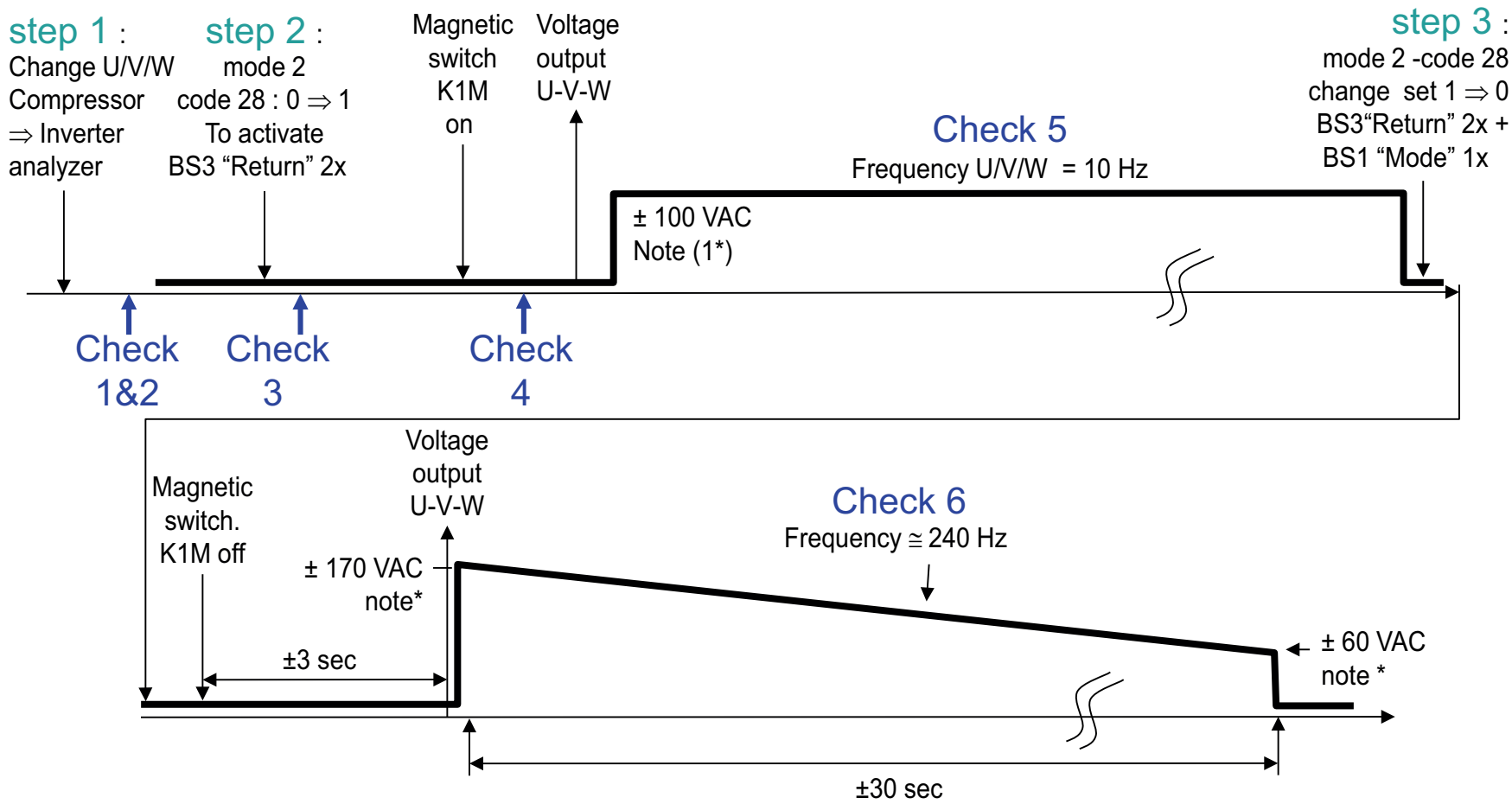
| A (°C) | B (°C) | C (°C) | D | E (min) | F (min) |
|---|---|---|---|---|---|
| 135 | 120 | 100 | 2 | 100 | 10 |

## 5.6.1. Component checklist

### 5.6.1.1. How to activate inverter test

**Power transistor check mode RWEYQ-T9: disconnect U/V/W compressor!**

**Connect U/V/W output inverter board to inverter analyzer.**




**Check 1:** LED HAP inverter board blinks. If not, activate forced thermostat-on (set 2-6). When HAP blinks, deactivate 2-6 again.

**Check 2:** AC power input (L1-L2-L3 inverter board compressor.) 380-415V unbalance max.2%.

**Check 3:** Relay “K1R” on inverter board switches: check DC voltage on P & N increase to ± 500VDC.

**Check 4:** DC = 1.42 x VAC power supply L1~L3: check at terminals P2-N3 on inverter board compressor.

**Check 5:** AC UVW 10 Hz intermediate: check 6 LED on inverter checker blink.

**Check 6:** AC UVW 240 Hz continuous output while voltage drop (discharge capacitors DC). 2 LED’s light on (because high frequency) while brightness reduces.

(note*): Actual voltage value depends on meter characteristics.

### 5.6.1.2. Component checklist RWEYQ-T9Y1B

| RWEYQ-T9Y1B | Wiring symbol | | | Location | | | | Color plug | Check | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Main PCB “A1P” | | | | Terminals | | | Pin no. | | Value | Unit | Tol +/_ |
| S.v. oil return accumulator | Y | 1 | S | X | 12 | A | | Yellow | 2,1 | kΩ | 5% |
| S.v. gas SC & Purge | Y | 2 | S | X | 13 | A | | Pink | 1,3 | kΩ | 5% |
| S.v. main liquid | Y | 3 | S | X | 15 | A | | White | 1,3 | kΩ | 5% |
| S.v. liquid oil return PHE | Y | 4 | S | X | 16 | A | | Yellow | 2,2 | kΩ | 5% |
| S.v. Hot Gas / Oil return | Y | 5 | S | X | 17 | A | | Orange | 2,2 | kΩ | 5% |
| 4Way valve Dual pressure | Y | 6 | S | X | 7 | A | | Green | 2,2 | kΩ | 5% |
| 4Way valve PHE | Y | 7 | S | X | 8 | A | | Blue | 2,2 | kΩ | 5% |
| S.v. hot gas injection liquid | Y | 8 | S | X | 9 | A | | Grey | 2,2 | kΩ | 5% |
| S.v. liquid inverter cooling | Y | 9 | S | X | 4 | A | | Yellow | 2,2 | kΩ | 5% |
| Expansion valve main liquid | Y | 1 | E | X | 21 | A | | Black | 150 | Ω | 15 ohm |
| Expansion valve sub-cool | Y | 2 | E | X | 22 | A | | White | 46 | Ω | 3 ohm |
| Expansion valve purge | Y | 3 | E | X | 25 | A | | Yellow | 46 | Ω | 3 ohm |
| Crankcase heater | E | 1 | HC | X | 11 | A | | Grey | 1,75 | kΩ | 7% |
| High pressure sensor | S1 | NP | H | X | 32 | A | | Red | 0,5~3,5 | VDC | 5% |
| Low pressure sensor | S1 | NP | L | X | 31 | A | | Blue | 0,5~3,5 | VDC | 5% |
| Power supply main board L1 | L1 | - | N | X | 1 | A | | Blue | 230 | VAC | 10% |
| Power supply L3 (rotation check) | L3 | - | N | X | 77 | A | | White | 230 | VAC | 10% |
| Power supply main board rectifier | P | S | | X | 37 | A | | White | 16 | VDC | 10% |
| Th accumulator inlet | R | 3 | T | X | 30 | A | 1-2 | White | 2~200 | kΩ | 5% |
| Th gas PHE H2O | R | 4 | T | X | 30 | A | 3-4 | White | 2~200 | kΩ | 5% |
| Th gas out SCHex & purge | R | 5 | T | X | 30 | A | 5-6 | White | 2~200 | kΩ | 5% |
| Th receiver-SCHex | R | 6 | T | X | 30 | A | 7-8 | White | 2~200 | kΩ | 5% |

| RWEYQ-T9Y1B | Wiring symbol | | | Location | | | | Color plug | Check | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Main PCB "A1P" | | | | Terminals | | | Pin no. | | Value | Unit | Tol +/_ |
| Th Liquid SCHEx | R | 7 | T | X | 30 | A | 9-10 | White | 2~200 | kΩ | 5% |
| Th Liquid stopvalve-SCHex | R | 8 | T | X | 29 | A | 5-6 | Green | 2~200 | kΩ | 5% |
| Th H2O inlet (option) | R | 9 | T | X | 29 | A | 1-2 | Green | 2~200 | kΩ | 5% |
| Th H2O outlet (option) | R | 10 | T | X | 29 | A | 3-4 | Green | 2~200 | kΩ | 5% |
| Th liq EVT-SCHex | R | 11 | T | X | 18 | A | | White | 2~200 | kΩ | 5% |
| Th discharge pipe | R | 12 | T | X | 19 | A | 1-2 | Red | 2~200 | kΩ | 5% |
| Th body compressor | R | 13 | T | X | 19 | A | 3-4 | Red | 2~200 | kΩ | 5% |
| Earth leakage current sensor | T | 1 | A | X | 101 | A | | White | 80 | Ω | 10% |
| Power A1P« A3P | | | | X | 20 | A | | Yellow | 1,5~10 | VDC | 2% |
| Communication A1P <-> A3P | | | | X | 28 | A | 1-2 | | 16,6 | VDC | 2% |
| Communication A1P<-> A3P | | | | X | 28 | A | 3-2 | | 8,5 | VDC | 2% |
| Communication RWEYQ-T<-> indoor | | | | X | 1 | M | IND | | 15~16 | VDC | 2% |
| Communication RWEYQ-T<-> Central | | | | X | 1 | M | OUT | | 15~16 | VDC | 2% |
| Communication RWEYQ-T multi | | | | X3M | -Q1 | X37A-2 | MULTI | White | 2~4 | VDC | 2% |
| Communication RWEYQ-T multi | | | | X3M | -Q2 | X37A-2 | MULTI | White | 2~4 | VDC | 2% |

pin 1=Δ

| RWEYQ-T9Y1B | Wiring symbol | | | Location | | | Color plug | Check | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SUB PCB "A4P" | | | | Terminals | | | | Value | Unit | Tol +/_ |
| Fan motor inverter cooling (!) | M | 1 | F | X | 3 | A | Orange | 2,1 | kΩ | 5% |
| Fan motor inverter cooling (!) | M | 2 | F | X | 11 | A | Orange | 2,1 | kΩ | 5% |
| Th air | R | 1 | T | X | 11 | A | Orange | 2 ~200 | kΩ | 5% |
| Th gas inverter cooler | R | 2 | T | X | 12 | A | Blue | 2 ~200 | kΩ | 5% |
| Power supply auxiliary board L1 | L1 | - | N | X | 1 | A | Blue | 230 | VAC | 10% |

(!): At connector X11A: value / 2

| RWEYQ-T9Y1B | Wiring symbol | | | Location | | | Color plug | Check | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Inverter PCB "A3P" | | | | Terminals | | | | Value | Unit | Tol +/_ |
| Compressor motor | M | 1 | C | U | V | W | | 0,474 | Ω | 5% |
| Power supply inverter board | L1 | L2 | L3 | L1 | L2 | L3 | | 400 | VAC | 10% |
| DC power diode module inverter | V | 2 | R | P21 | <-> | N4 | | 550 | VAC | 10% |
| PWM power transistors inverter | V | 1 | R | U | V | W | | 200~500 | VAC | 10% |

## 5.6.2. Safety devices

### 5.6.2.1. Drop control

Device stops according to certain conditions and restarts without showing immediate error messages (visible in monitoring mode, number 23+24+25)

| Name part | Description | Wiring symbol | RWEYQ...T9Y1B | | | | |
|---|---|---|---|---|---|---|---|
| | | | 8 | 10 | 12 | 14 | |
| Overcurrent | Model compressor | M1C | JT16KAVDKYR@S | | | | Error |
| | Current protection | | >22,0 A > 90 seconds or >22,5 A | | | | L8 |
| Leak current | Power supply protection | T1A | 75 mA (±25%) | | | | E2 |
| Low pressure sensor | LP protection | S1NPL | < 0,07 Mpa (retry 3 times in 60 minutes) | | | | E4 |
| High pressure sensor | HP protection | S1NPH | > 3,71 Mpa (retry 3 times in 40 minutes) | | | | E3 |
| Discharge temperature | Overheat protection | R12T | * if >135°C, or if >120°C > 10 minutes.<br>* Retry 2 times in 100 minutes. | | | | F3 |
| Inverter fin temperature | Compressor | A3P | > 100°C | | | | P4 |

### 5.6.2.2. Forced Stop

Device stops according to certain conditions and displays an error code on the segment display and remote control of indoor units that are currently in operation

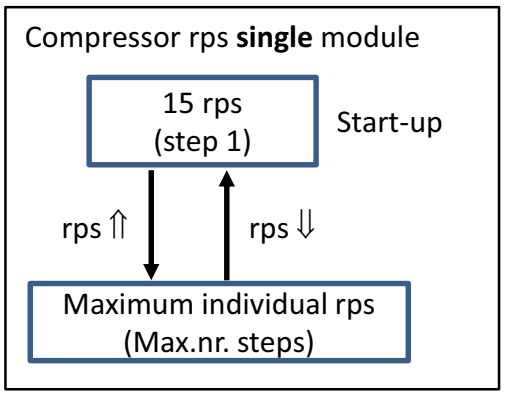
| Name part | Description | Wiring symbol | RWEYQ...T9Y1B | | | | |
|---|---|---|---|---|---|---|---|
| | | | 8 | 10 | 12 | 14 | |
| Overcurrent | Model compressor | M1C | JT16KAVDKYR@S | | | | |
| | 100% current A (Demand control) | | 10.5 | 13.2 | 15.8 | 18.4 | Error |
| | Overcurrent | | >22,0 A > 90 seconds or >22,5 A | | | | L8 |
| Low pressure sensor | LP protection | S1NPL | < 0,07 Mpa (retry 4th time in 60 minutes) | | | | E4 |
| High pressure sensor | HP protection | S1NPH | > 4,15 Mpa if high pressure switch fails to open | | | | JA |
| High pressure switch | | S1PH | > 4,0MPa (+0,0 -0,15), reset < 3,0MP±0,15 | | | | E3 |
| Discharge temperature | Overheat protection | R12T | off >135°C 2 times in 100 minutes. | | | | F3 |
| Body temperature | Overheat protection | R13T | off >120°C 2 times in 100 minutes | | | | F3 |
| Inverter fin temperature | Compressor | A3P | > 100°C | | | | P4 |

| Name part | Description | Wiring symbol | RWEYQ...T9Y1B | | | | |
|---|---|---|---|---|---|---|---|
| | | | 8 | 10 | 12 | 14 | |
| Fuse control | Main board | F1U, F2U | 3,15 A (T) | | | | U4 |
| Fuse noise filter | Noise filer A2P | F410~412U | 40,0 A (T) | | | | LC |
| fuse control | Auxiliary board A4P | F1U | 3,15 A (T) | | | | LC |

## 5.6.3. Control range

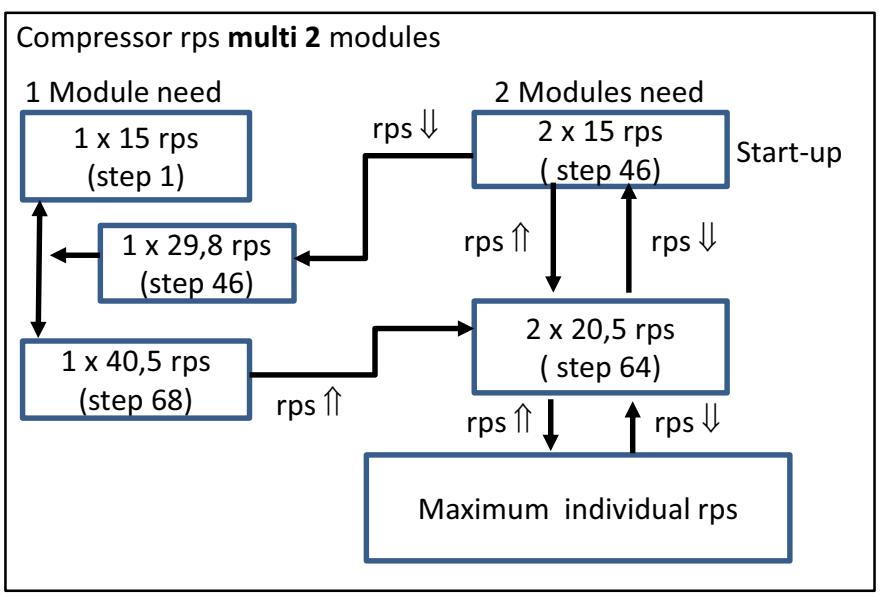
### 5.6.3.1. Compression operation range

Compression operation range

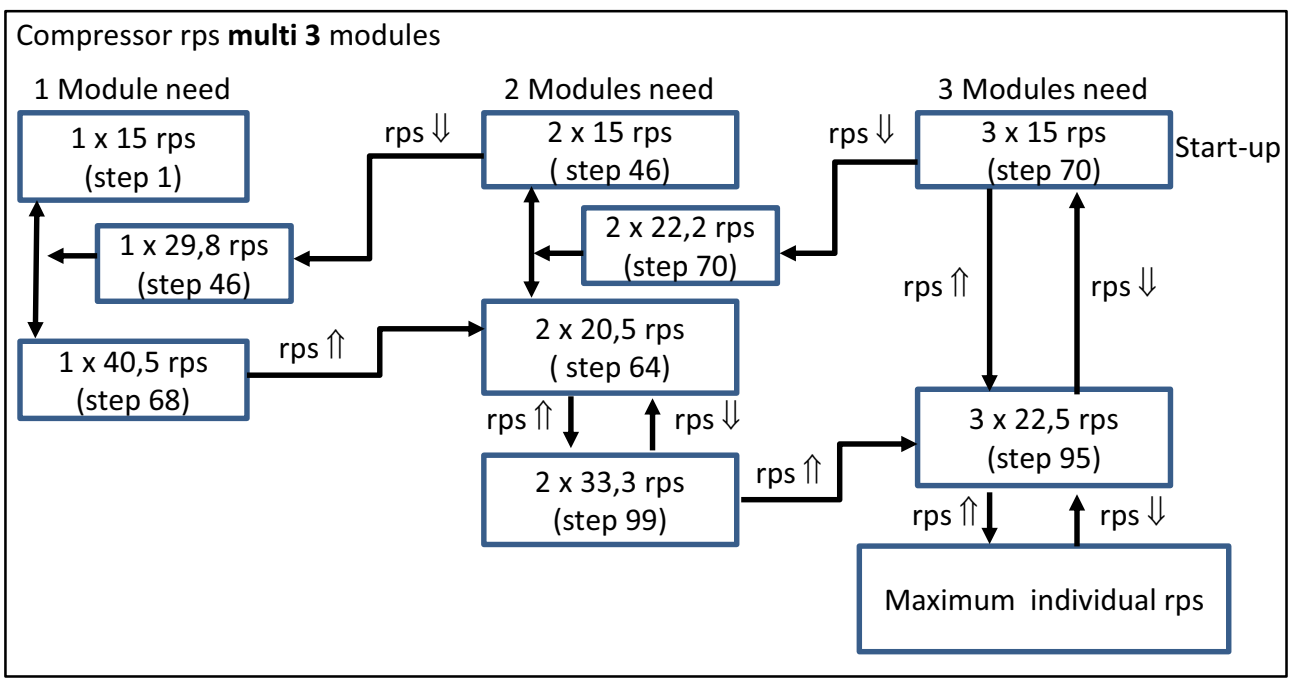



| Range rps compressor | SINGLE MODULE & MULTI COMBINATION | | | |
|---|---|---|---|---|
| RWEYQ-T9Y1B | 8 | 10 | 12 | 14 |
| Max. individual rps | 70,6 | 97,2 | 123,1 | 133,8 |
| Max.nr steps | 108 | 127 | 144 | 150 |

Rps = rotation per second
Hz = rps * 3 (6pole motor)

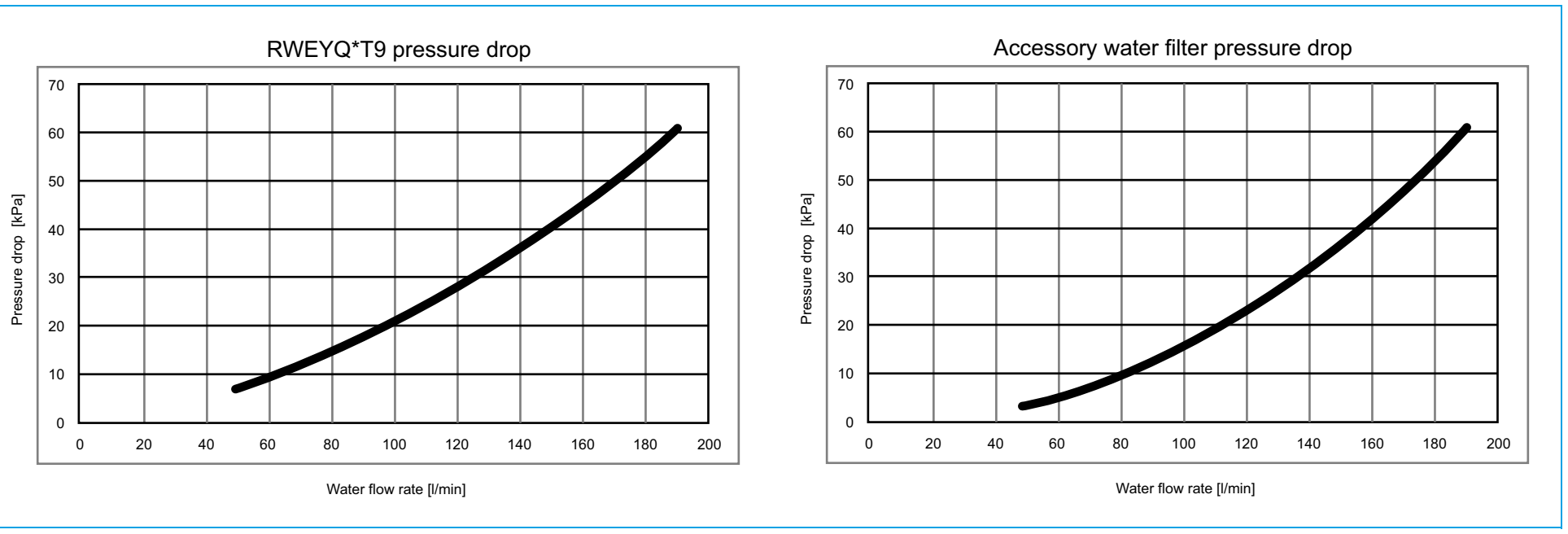



- rps ⇑:
  - ❄ Te > Te target
  - ✹ Tc < Tc target
- rps ⇓ :
  - ❄ Te < Te target
  - ✹ Tc > Tc target
- Rps = in multi modules,
- Modules ≠ size, limit by Max. individual rps.
- Multi operation, unit rotation ⌛30minutes.



## 5.6.4. Performance Characteristics

*Figure 5-5: Performance Characteristics*




**Notes**

The values were measured during nominal cooling operation with an inlet water temperature of +30°C
EG: Ethylene glycol
PG: Propylene glycol
ACH73: plate heat exchanger (100 plates)

Influence on performance:

- EG 30%: = +0.5 K during condensation process, and -0.5 K during the evaporation process.
- EG 40%: = +0.7 K during condensation process, and -0.7 K during the evaporation process.
- PG 30%: = +1.3 K during condensation process, and -1.3 K during the evaporation process.
- PG 40%: = +1.5 K during condensation process, and -1.5 K during the evaporation process.

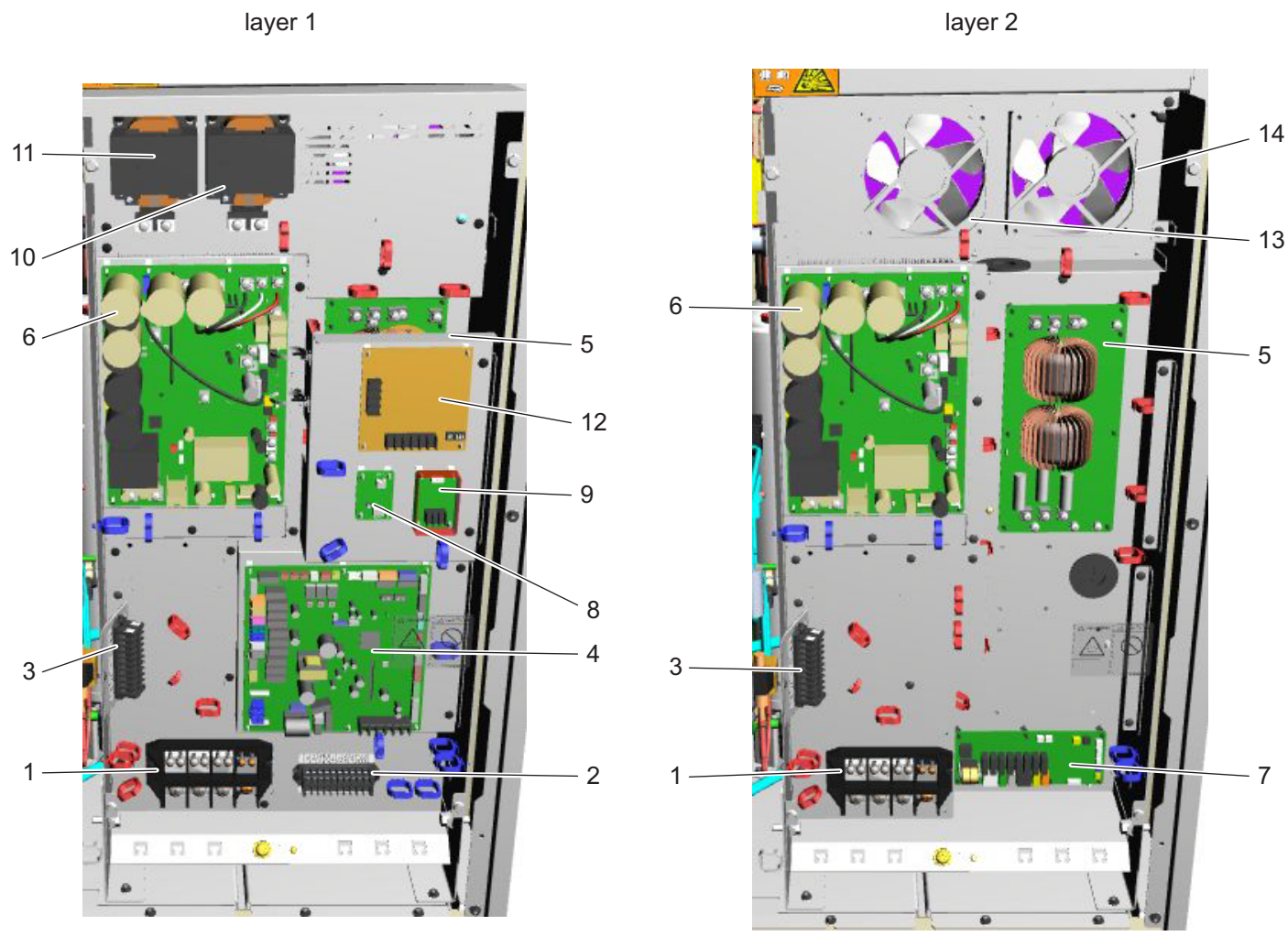
| ACH73 // Delta pressure [kPa] | | | | | |
|---|---|---|---|---|---|
| l/min | Water | 30% EG | 40% EG | 30% PG | 40% PG |
| 50 | 5,4 | 6,9 | 7,0 | 7,2 | 7,5 |
| 60 | 7,4 | 9,4 | 9,6 | 9,8 | 10,2 |
| 70 | 9,7 | 12,2 | 12,5 | 12,8 | 13,3 |
| 80 | 12,3 | 15,5 | 15,9 | 16,2 | 16,9 |
| 90 | 15,2 | 19,1 | 19,6 | 20,1 | 20,8 |
| 100 | 18,4 | 23,2 | 23,7 | 24,3 | 25,2 |
| 110 | 21,9 | 27,6 | 28,2 | 28,9 | 30,0 |
| 120 | 25,7 | 32,2 | 33,1 | 33,8 | 35,1 |
| 130 | 29,7 | 37,5 | 38,4 | 39,3 | 40,7 |
| 140 | 34,1 | 43,0 | 44,0 | 45,1 | 46,8 |
| 150 | 38,8 | 48,9 | 50,1 | 51,2 | 53,2 |
| 160 | 43,8 | 55,2 | 56,5 | 57,8 | 60,0 |
| 170 | 49,1 | 61,9 | 63,3 | 64,8 | 67,3 |
| 180 | 54,7 | 68,9 | 70,5 | 72,2 | 74,9 |
| 190 | 60,6 | 73,6 | 78,1 | 80,0 | 83,0 |

| Water filter // Delta pressure [kPa] | |
|---|---|
| Flow (l/min) | Water |
| 50 | 3,5 |
| 60 | 5 |
| 80 | 8,5 |
| 96 | 12,5 |
| 120 | 20 |
| 150 | 31 |
| 190 | 52 |

# 5.7. Switch box

## 5.7.1. Switch Box RWEYQ-T9Y1B

***Figure 5-6: Switch box - RWEYQ-T9Y1B***

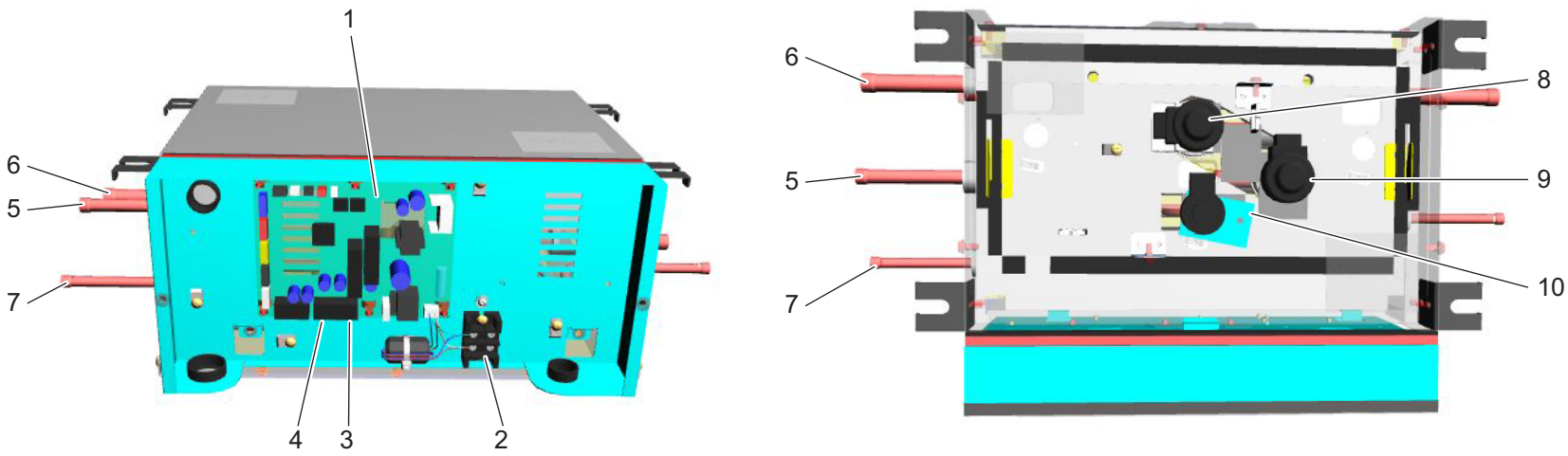



| Item | Description | Symbol |
|---|---|---|
| 1 | Terminal strip power supply | X1M |
| 2 | Terminal strip output signals | X2M |
| 3 | Terminal strip input signals | X3M |
| 4 | Main PCB | A1P |
| 5 | Noise filter PCB | A2P |
| 6 | Inverter PCB | A3P |
| 7 | Sub PCB | A4P |
| 8 | Adapter PCB (0~10VDC output) | A8P |
| 9 | Cool/heat selector PCB | A9P |
| 10 | Reactor nr.1 | L1R |
| 11 | Reactor nr.2 | L2R |
| 12 | DTA104A61 – optional PCB | - |
| 13 | Motor (fan) nr.1 | M1F |
| 14 | Motor (fan) nr.2 | M2F |
| 15 | Motor (fan) nr.3 | M3F |

# 5.8. Branch Selector (BS) box

## 5.8.1. BS1Q10A, BS1Q16A, BS1Q25A

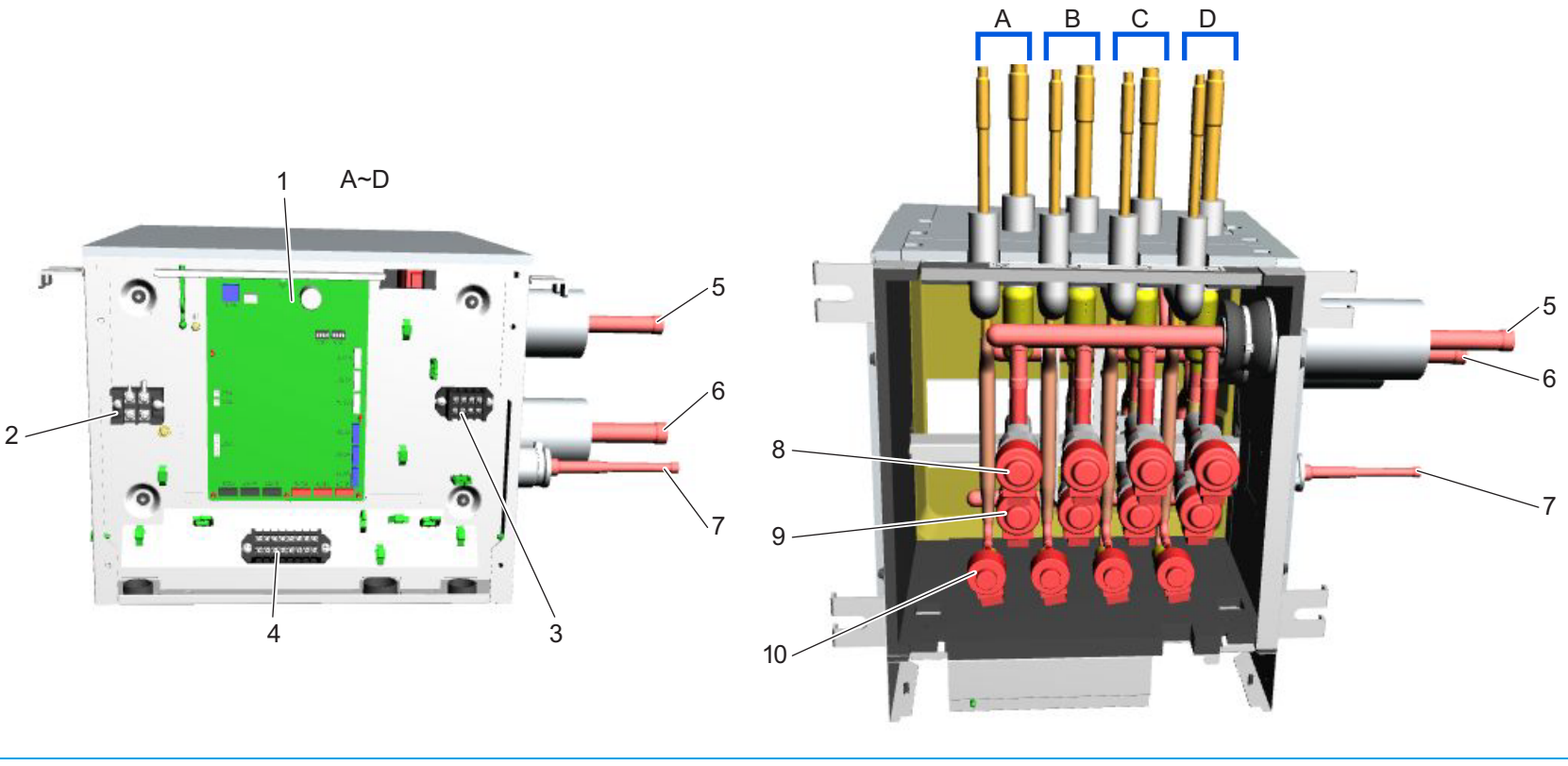
*Figure 5-7: BS box - BS1Q10A, BS1Q16A, BS1Q25A*




| Item | Description |
|---|---|
| 1 | Control board |
| 2 | Power supply terminals |
| 3 | F1F2 outdoor <-> BS unit |
| 4 | F1F2 BS <-> VRV indoor unit |
| 5 | Dual pressure pipe |
| 6 | Suction pipe |
| 7 | Liquid pipe |
| 8 | Expansion valve dual pressure |
| 9 | Expansion valve suction |
| 10 | Expansion valve liquid |

## 5.8.2. BS4Q14A

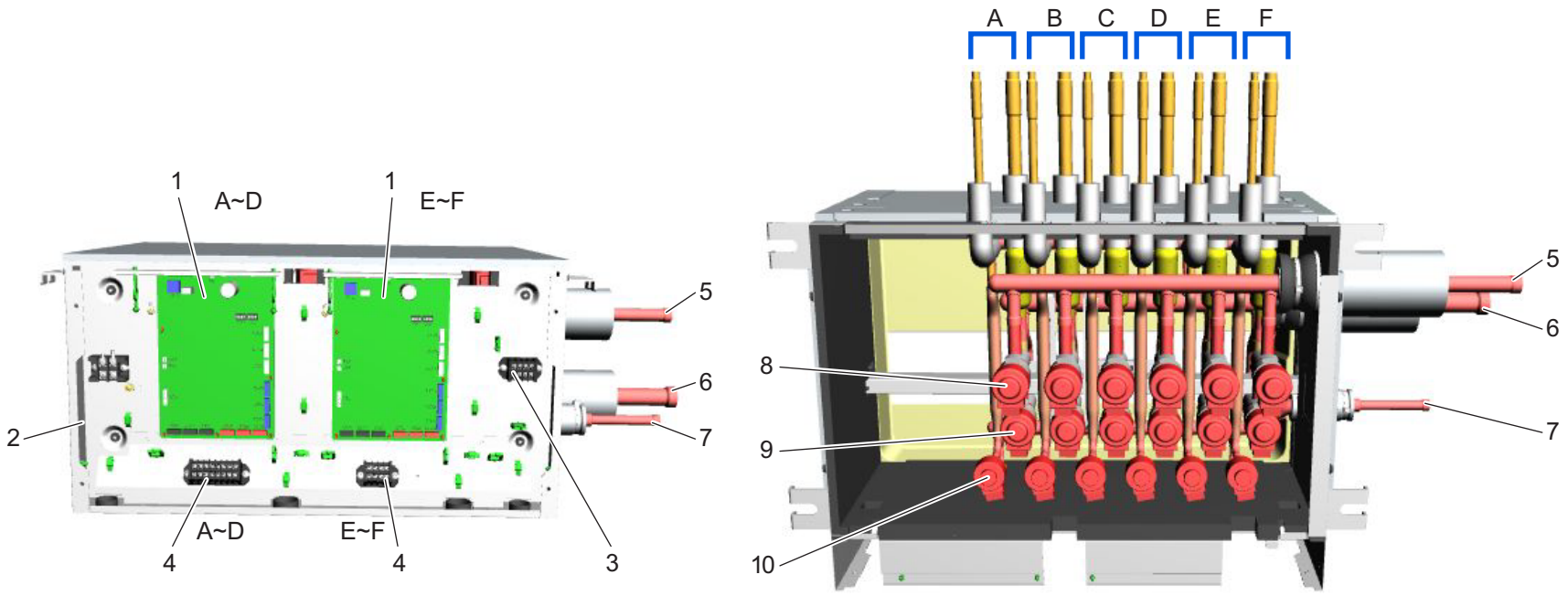
*Figure 5-8: BS box - BS4Q14A*




| Item | Description |
|---|---|
| 1 | Control board |
| 2 | Power supply terminals |
| 3 | F1F2 outdoor <-> BS unit |
| 4 | F1F2 BS <-> VRV indoor unit |
| 5 | Dual pressure pipe |
| 6 | Suction pipe |
| 7 | Liquid pipe |
| 8 | Expansion valve dual pressure |
| 9 | Expansion valve suction |
| 10 | Expansion valve liquid |

## 5.8.3. BS6Q14A

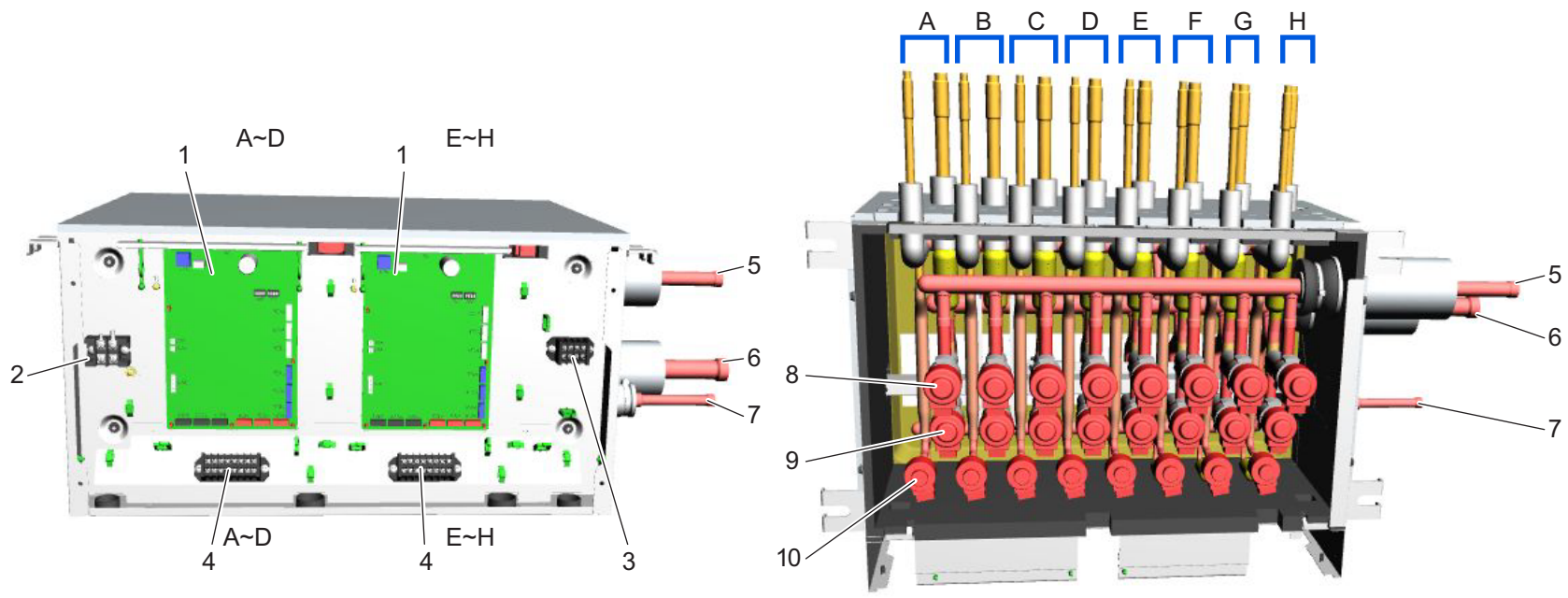
*Figure 5-9: BS box - BS6Q14A*




| Item | Description |
|---|---|
| 1 | Control board |
| 2 | Power supply terminals |
| 3 | F1F2 outdoor <-> BS unit |
| 4 | F1F2 BS <-> VRV indoor unit |
| 5 | Dual pressure pipe |
| 6 | Suction pipe |
| 7 | Liquid pipe |
| 8 | Expansion valve dual pressure |
| 9 | Expansion valve suction |
| 10 | Expansion valve liquid |

## 5.8.4. BS8Q14A

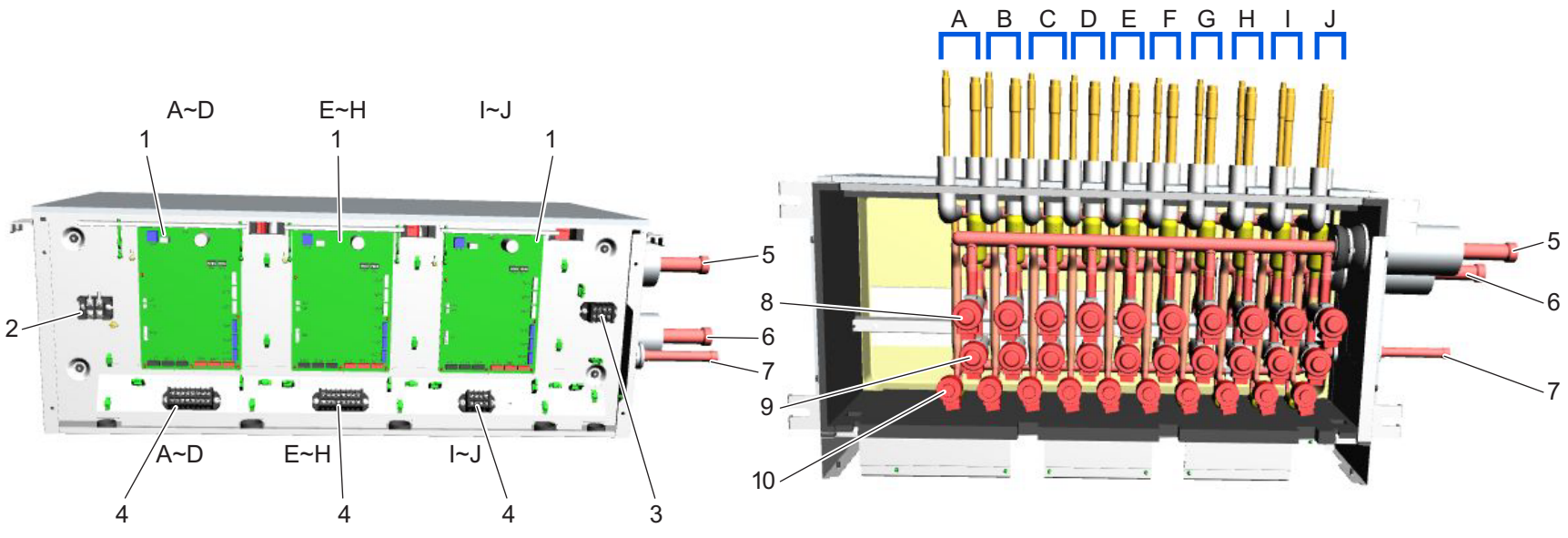
*Figure 5-10: BS box - BS8Q14A*




| Item | Description |
|---|---|
| 1 | Control board |
| 2 | Power supply terminals |
| 3 | F1F2 outdoor <-> BS unit |
| 4 | F1F2 BS <-> VRV indoor unit |
| 5 | Dual pressure pipe |
| 6 | Suction pipe |
| 7 | Liquid pipe |
| 8 | Expansion valve dual pressure |
| 9 | Expansion valve suction |
| 10 | Expansion valve liquid |

## 5.8.5. BS10Q14A

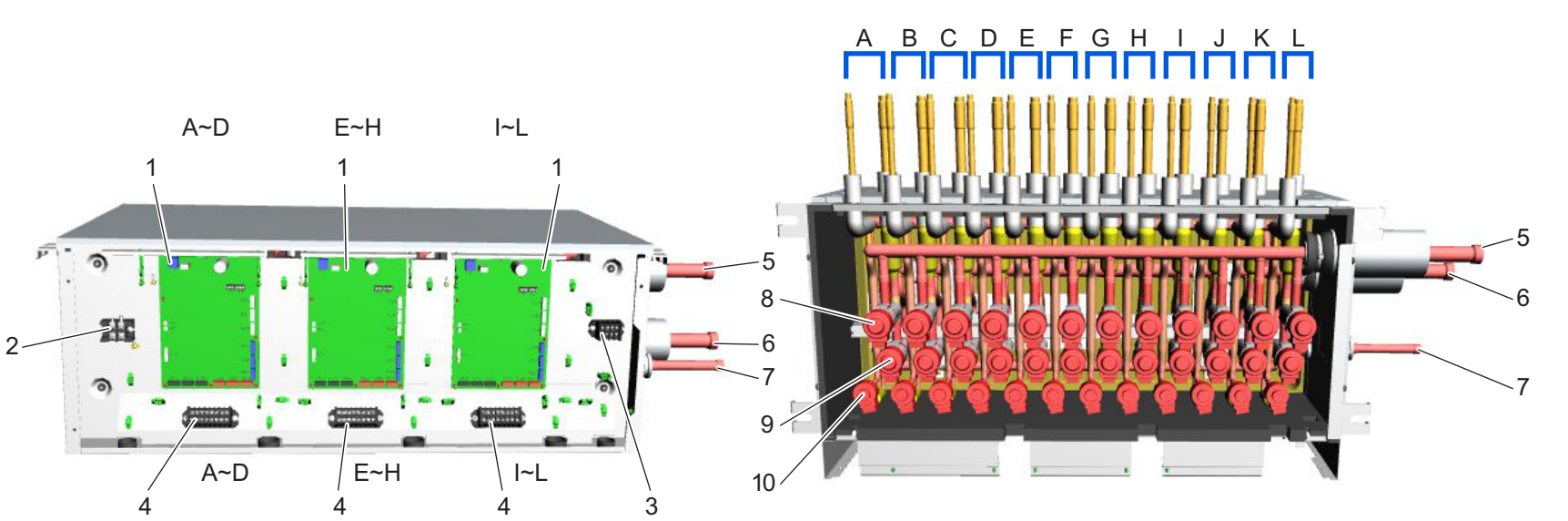
*Figure 5-11: BS box - BS10Q14A*




| Item | Description |
|---|---|
| 1 | Control board |
| 2 | Power supply terminals |
| 3 | F1F2 outdoor <-> BS unit |
| 4 | F1F2 BS <-> VRV indoor unit |
| 5 | Dual pressure pipe |
| 6 | Suction pipe |
| 7 | Liquid pipe |
| 8 | Expansion valve dual pressure |
| 9 | Expansion valve suction |
| 10 | Expansion valve liquid |

## 5.8.6. BS12Q14A

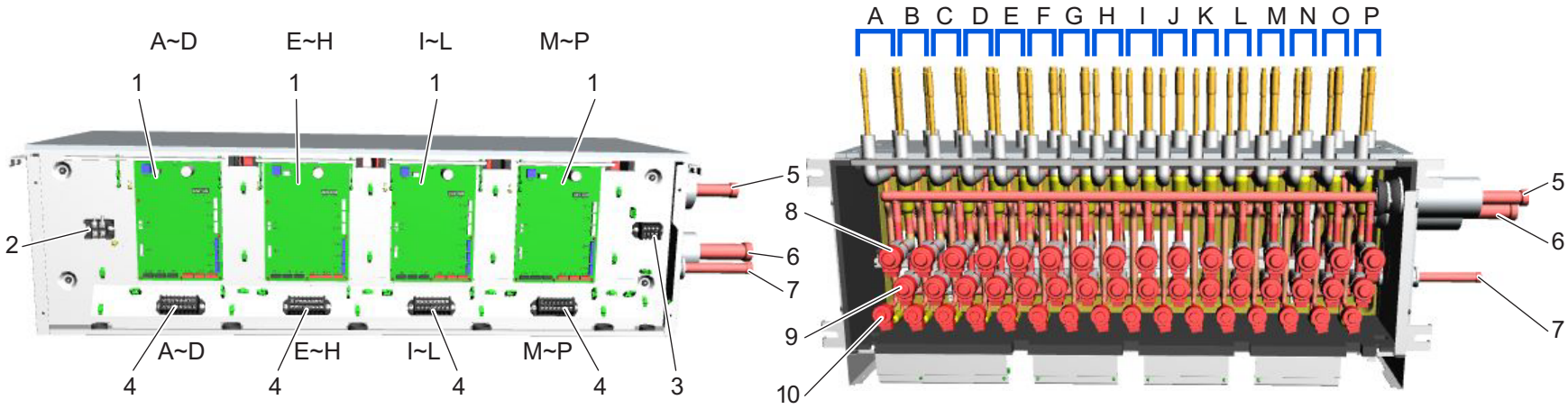
*Figure 5-12: BS box - BS12Q14A*




| Item | Description |
|---|---|
| 1 | Control board |
| 2 | Power supply terminals |
| 3 | F1F2 outdoor <-> BS unit |
| 4 | F1F2 BS <-> VRV indoor unit |
| 5 | Dual pressure pipe |
| 6 | Suction pipe |
| 7 | Liquid pipe |
| 8 | Expansion valve dual pressure |
| 9 | Expansion valve suction |
| 10 | Expansion valve liquid |

## 5.8.7. BS16Q14A

*Figure 5-13: BS box - BS16Q14A*




| Item | Description |
|---|---|
| 1 | Control board |
| 2 | Power supply terminals |
| 3 | F1F2 outdoor <-> BS unit |
| 4 | F1F2 BS <-> VRV indoor unit |
| 5 | Dual pressure pipe |
| 6 | Suction pipe |
| 7 | Liquid pipe |
| 8 | Expansion valve dual pressure |
| 9 | Expansion valve suction |
| 10 | Expansion valve liquid |

# 5.9. 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<br>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). |
| --- |