ESIE15-12
Version A

Service Manual

Mini VRV4 Compact, Standard & Large

Compact
RXYSCQ4TMV1B,
RXYSCQ5TMV1B

Standard
RXYSQ4T7V1B,
RXYSQ5T7V1B,
RXYSQ6T7V1B

Large
RXYSQ8TMY1B,
RXYSQ10TMY1B,
RXYSQ12TMY1B

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Part 1. Introduction

1. Version log

Version history.

Version code	Description	Date
Version A	Preliminary release	13/10/2015

2. Safety precautions

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

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

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

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

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

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

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

2.1. Meaning of symbols

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

INFORMATION

Indicates useful tips or additional information.

2.2. Warnings

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING: RISK OF 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 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 accidentally leaking refrigerant.

WARNING

Always recover the refrigerants. Do NOT release them directly into the environment. Use a vacuum 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 test plug before servicing. The voltage must be less than 10 V DC before you can touch electrical components. For the location of the test plug, refer to "Checking the rectifier voltage" on page 126.
- 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 cables and wires may cause an electrical shock, excessive heat generation or fire.
- Secure all terminal connections and provide proper routing for cables, both inside and outside the switchbox.
- NEVER squeeze bundled cables and make sure they do not come in contact with the piping and sharp edges.
- Make sure no external pressure is applied to the terminal connections.
- Make sure to check the earth wiring. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Improper earth wiring may cause electrical shock.
- Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance.
- Make sure to check the required fuses and/or circuit breakers before starting works.

WARNING

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

2.3. Cautions

CAUTION

Provide adequate measures to prevent that the unit can be used as a shelter by small animals. Small animals that make contact with electrical parts can cause malfunctions, smoke or fire.

2.4. Information

INFORMATION

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

INFORMATION

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

3. System description

3.1. General system layout of a mini VRV heat pump

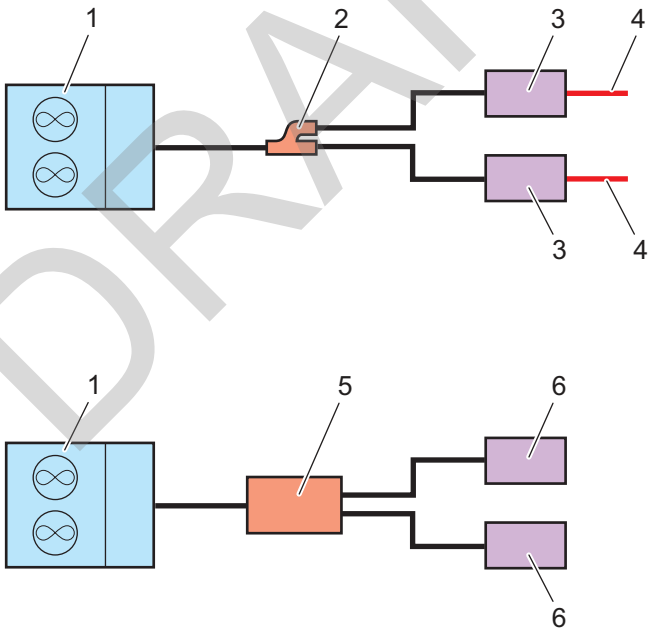
The mini VRV heat pump consist of 2 different types of units:

- Outdoor unit (always single)
- Indoor units
  + Field piping (Field piping must be thermally insulated copper piping, connected to a combination of indoor units)

There are 2 possible types of set-up

- VRV outdoor unit + VRV indoor units
  - Via Daikin optional refnet KHRQ23M
  - Each VRV indoor has it's own power line
- VRV outdoor unit + BPMK option box + split indoor units
  - BPMK is needed for 'translation' betweed VRV outdoor unit and split indoor unit
  - BPMK is needed for his expansion valve
  - BPMK is needed for the power connection of the indoor units

Figure 1 - Mini VRV4 general system layout



1. VRV Outdoor Unit	4. Power supply for VRV Indoor Unit
2. Refnet KHRQ23M	5. BPMK
3. VRV Indoor Unit	6. DX Indoor Unit

The mini VRV 4 exists in different capacities and different casings:

- Compact casing: RXYSCQ4TMV1B & RXYSCQ5TMV1B (Single phase)
- Standard casing: RXYSQ4/5/6T7V1B (Single phase) & RXYSQ4/5/6T7Y1B (Three phase)
- Large casing: TRYSQ8/10/12TMY1B (Three phase)

Indoor units:

- The current available type VRV DX units can be used.
- All compatible split indoor units can be used.

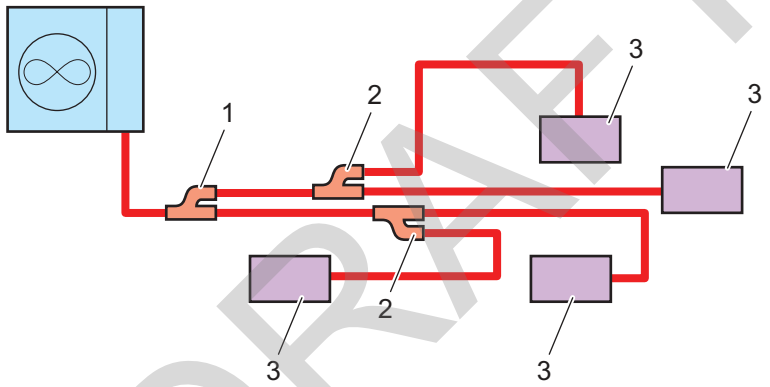
3.2. Refnet Selection

Figure 2 - Mini VRV4 RXYSCQ4TMV1B & RXYSCQ5TMV1B Refnet selection

Main Refnet
KHRQ22M29T

Index entrance	Branch refnet	
Branch refnet	Joint	Header
< 162.5 m	KHRQ22M20T	KHRQ22M29H

RXYSCQ4,5TMV1B



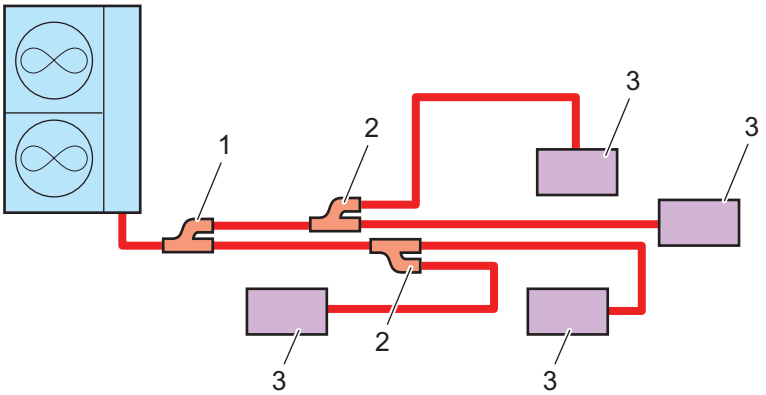
1. Main	3. Indoor Unit
2. Branch	

Figure 3 - Standard RXYSQ4/5/6T7V1B & RXYSQ4/5/6T7Y1B Refnet selection

Main Refnet
KHRQ22M29T

Index entrance	Branch refnet	
Branch refnet	Joint	Header
< 182	KHRQ22M20T	KHRQ22M29H

RXYSQ4,5,6T7V1/Y1B



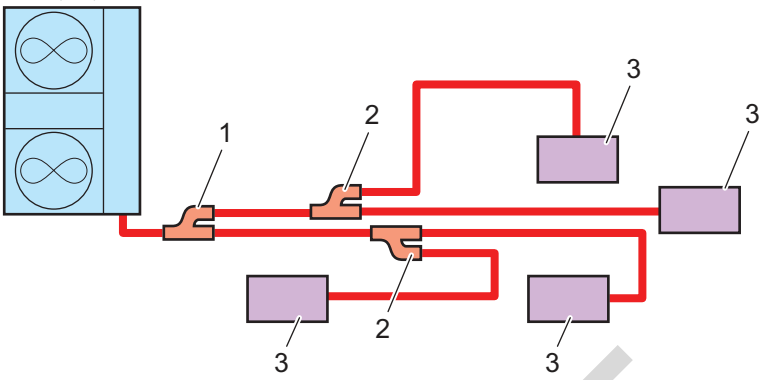
1. Main	3. Indoor Unit
2. Branch	

Figure 4 - Large TRYSQ8/10/12TMY1B Refnet selection

HP	Main Refnet
8	KHRQ22M29T
10	KHRQ22M64T
12	

Index entrance	Branch refnet	
Branch refnet	Joint	Header
< 200	KHRQ22M20T	KHRQ22M29H
200 ~ <290	KHRQ22M29T9	
290 ~ <390	KHRQ22M64T	KHRQ22M64H

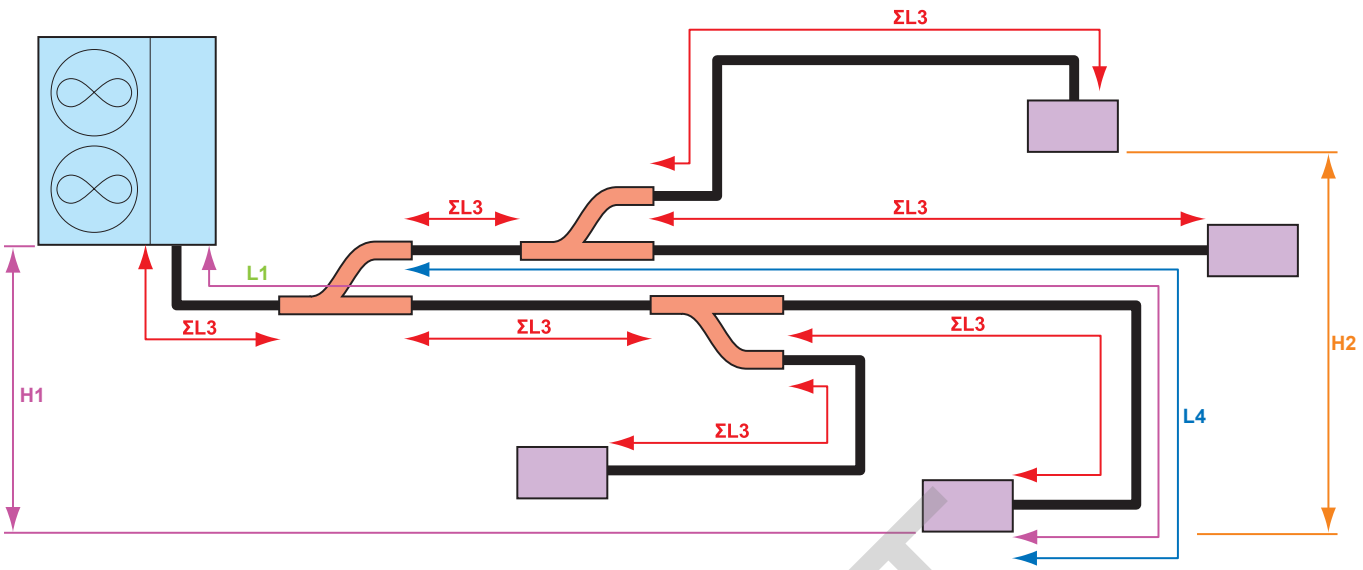
RXYSQ8,10,12TMY1B



1. Main	3. Indoor Unit
2. Branch	

3.3. System pipe lay-out limitations

Figure 5 - System pipe layout limitiations Refnet KHRQ23N



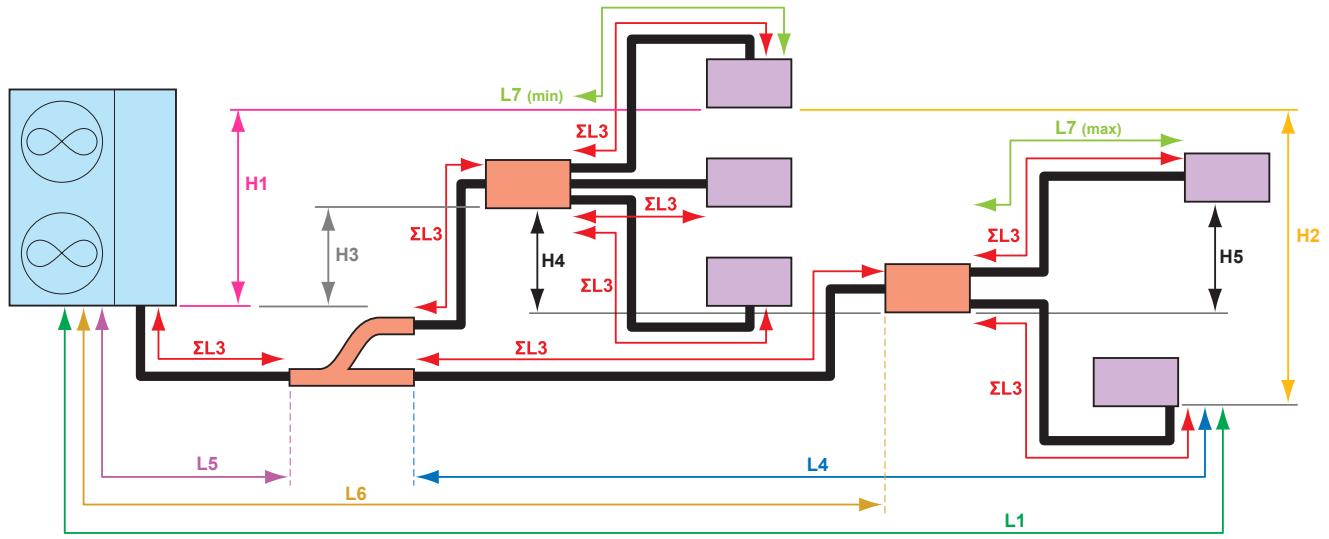
		Compact		Standard			Large		
Description	Symbol	4	5	4	5	6	8	10	12
Maximum Pipe length outdoor-furthest indoor (m)	L1	≤70		≤120			≤100	≤120	
Maximum Equivalent length Outdoor-furthest indoor (m)	L2*	≤90		≤150			≤130	≤150	
Maximum Total pipe length outdoor-branch pipe-indoor (m)	Σ L3	≤300							
Maximum pipe length 1st branch - furthest indoor (m)	L4	≤40							
Maximum Level Outdoor ABOVE indoor (m)	H1	≤30		≤50					
Maximum level Outdoor BELOW indoor (m)		≤30		≤40					
Maximum Level indoor - indoor (m)	H2	≤15							

* L2 equivalent piping length

The equivalent piping length (L2) is the length of actual piping **plus** nominal length for L - joints, refnet joint, refnet headers and BP units, depending on the piping diameter.

Pimpin diameter (mm)	L - joint (m)	Refnet joint (m)	Refnet header (m)	BP unit (m)
6.4	0.16	0.5	1.0	0
9.5	0.18			
12.7	0.20			
15.9	0.25			
19.1	0.35			
22.2	0.40			
25.4	0.45			
28.6	0.50			
31.8	0.55			
38.1	0.65			
44.5	0.80			
50.8	0.90			

Figure 6 - System pipe layout limitiations BPMK KHRQ23N



Description	Symbol	Compact		Standard			Large		
		4	5	4	5	6	8	10	12
Maximum pipe length outdoor-furthest indoor (m)	L1	≤35		≤65			≤80		
Maximum equivalent length outdoor-furthest indoor (m)	L2*	≤45		≤85			≤100		
Maximum total pipe length outdoor-branch pipe-indoor (m)	Σ L3	≤140							
Maximum pipe length 1st branch - furthest indoor (m)	L4	≤40							
Minimum pipe length outdoor - 1st branch (m)	L5	≤5							
Maximum pipe lenght outdoor - furthest BP unit (m)	L6	≤30		≤55					
Minimum pipe length outdoor - 1st branch (m)	L7	≤2							
Maximum pipe length BP-indoor unit (m) indoor < 60		≤15							
Maximum pipe length BP-indoor unit (m) indoor = 60		≤12							
Maximum pipe length BP-indoor unit (m) indoor > 60		≤8							
Maximum Level outdoor ABOVE indoor (m)	H1	≤30							
Maximum level outdoor BELOW indoor (m)		≤30							
Maximum level indoor - indoor (m)	H2	≤15							
Maximum level Outdoor - BP (m)	H3	≤30							
Maximum level BP-BP (m)	H4	≤15							
Maximum level BP - indoor (m)	H5	≤5							

* Refer to "* L2 equivalent piping length" on page 16.

3.4. Piping diameter selection

3.4.1. Piping diameter between outdoor unit and first refnet

Refrigerant Line	Gas (mm)		Liquid (mm)	
# Horse Power	L2 ≤ 90 m	L2 > 90 m	L2 ≤ 90 m	L2 > 90 m
4	15.9	19.1	95.5	Not applicable
5				
6	19.1	22.1		
8				
10	22.2	25.4		
12	25.4	28.6	12.7	15.9

3.4.2. Piping diameter between 2 refnets

Refrigerant line	Gas (mm)	Liquid (mm)
Indoor unit index		
< 150	15.9	9.5
150 ~ < 200	19.1	
200 ~ < 290	22.2	
290 ~ < 390	28.6	12.7

3.4.3. Piping diameter between refnet an BP unit

Refrigerant line	Gas (mm)	Liquid (mm)
Indoor unit index		
15 ~ < 149	15.9	6.4
63 ~ < 149	19.1	9.5
150 ~ < 208	22.2	

3.4.4. Piping diameter between refnet and VRV indoor unit

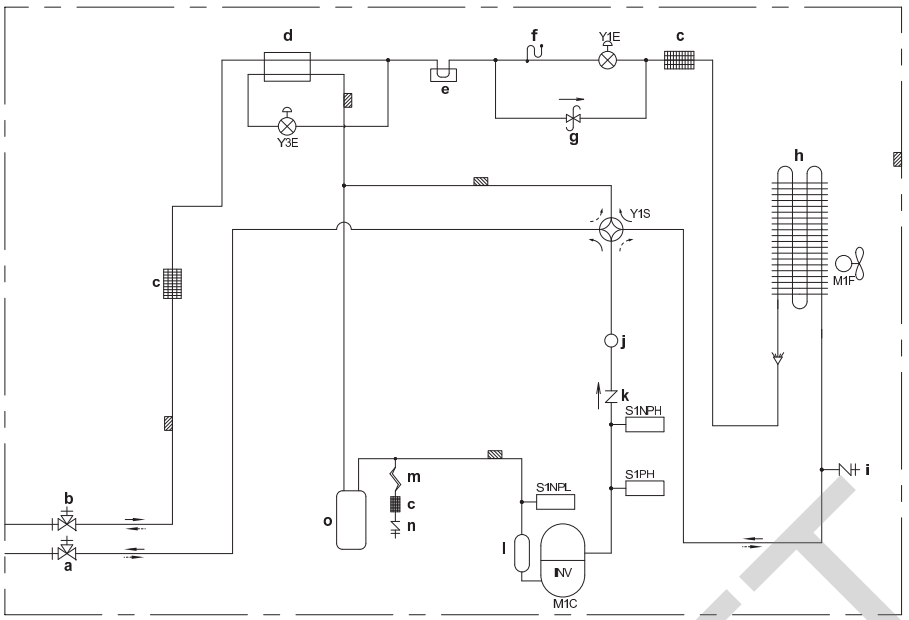
Refrigerant line	Gas (mm)	Liquid (mm)
Indoor unit index		
15 ~ < 50	12.7	6.4
62.5 ~ < 140	15.9	9.5
200	19.1	
250	22.2	

3.4.5. Piping diameter between refnet and DX indoor unit

Refrigerant line	Gas (mm)	Liquid (mm)
Indoor unit index		
15 ~ < 42	9.5	6.4
50	12.7	
60		9.5
71	15.9	

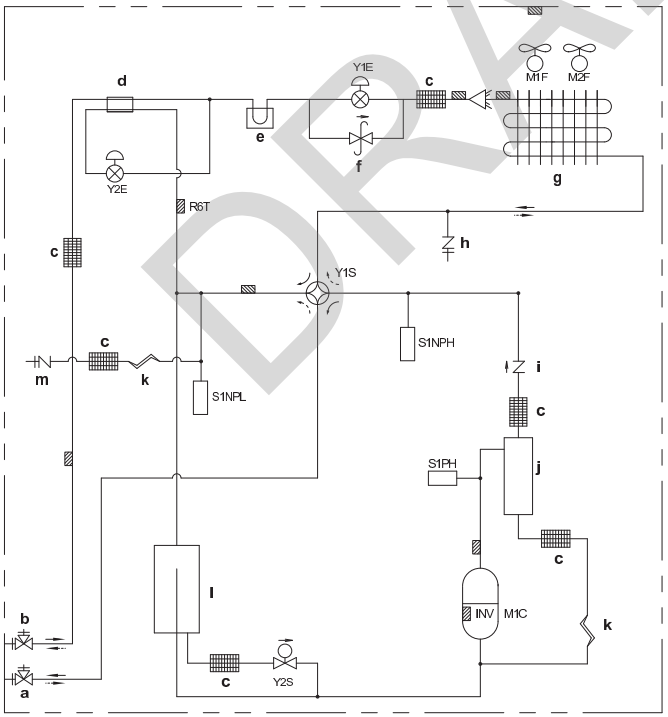
3.5. General built up mini VRV 4

Figure 7 - Mini VRV4 Compact - Standard general built up



a Stop valve (gas)
b Stop valve (liquid)
c Filter (3×)
d Subcool heat exchanger
e Heat sink PCB
f Fusible plug
g Pressure regulating valve
h Heat exchanger
i Service port (high pressure)
j Muffler
k Check valve
l Compressor accumulator
m Capillary tube
n Service port (refrigerant charge)
o Accumulator
M1C Compressor
M1F Fan motor
S1NPH High pressure sensor
S1NPL Low pressure sensor
S1PH High pressure switch
Y1E Electronic expansion valve (main)
Y3E Electronic expansion valve (subcool heat exchanger)
Y1S Solenoid valve (4-way valve)
Heating
Cooling

Figure 8 - Mini VRV4 Large general built up



a Stop valve (gas)
b Stop valve (liquid)
c Filter (6×)
d Subcool heat exchanger
e Heat sink PCB
f Pressure regulating valve
g Heat exchanger
h Service port (high pressure)
i Check valve
j Oil separator
k Capillary tube (2×)
l Accumulator
m Service port (refrigerant charge)
M1C Compressor
M1F-M2F Fan motor
S1NPH High pressure sensor
S1NPL Low pressure sensor
S1PH High pressure switch
Y1E Electronic expansion valve (main)
Y2E Electronic expansion valve (subcool heat exchanger)
Y1S Solenoid valve (4-way valve)
Y2S Solenoid valve
Heating
Cooling

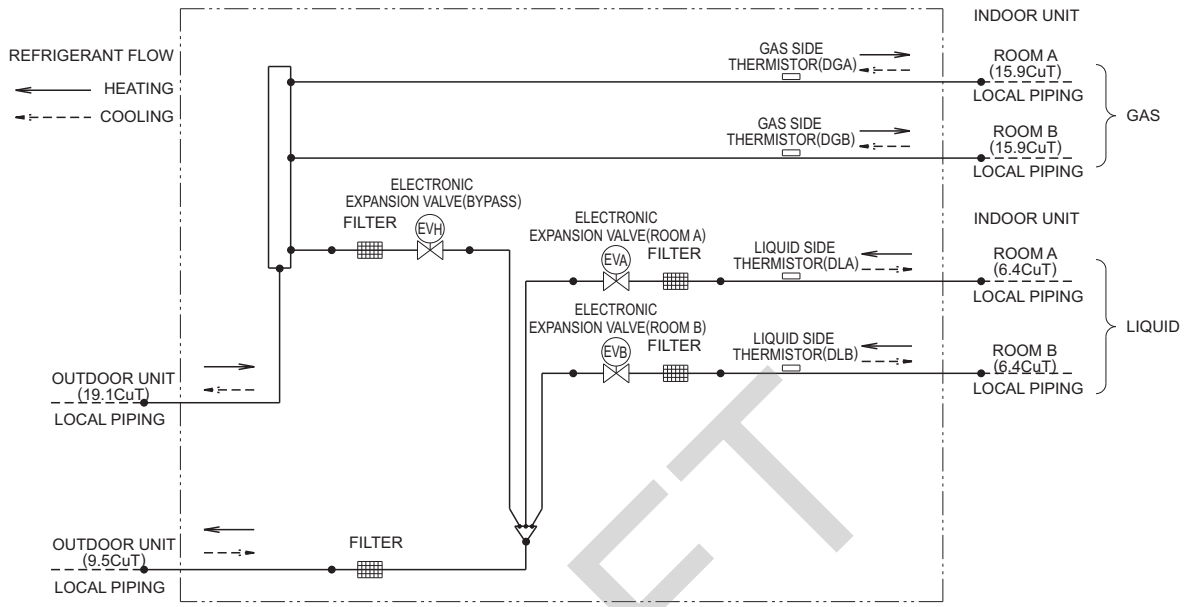
Basic control of the VRV4 heat recovery outdoor unit:

- The rotation speed of the inverter driven compressor, modulated by the inverter, can be varied by 1 rps (= rotation per second). The compressor capacity step is changed in order to reach target compression ratio. The target compression ratio is calculated from deviation between actual and target condensation and evaporation temperature.
- Tc (condensing temperature) is used if any indoor unit operates in heating mode.

- Te (evaporation temperature) is used if any indoor unit operates in cooling mode.
- Target value is based on initial target value chosen by outdoor unit field settings:
  - [2-8] for Te,
  - [2-9] for Tc, and
  - the comfort logic chosen by outdoor field settings [2-81] for Te, [2-82] for Tc.
- Each heat exchanger has an expansion valve to control the refrigerant flow.

3.6. General built up of BP unit

BPMKS967B2B



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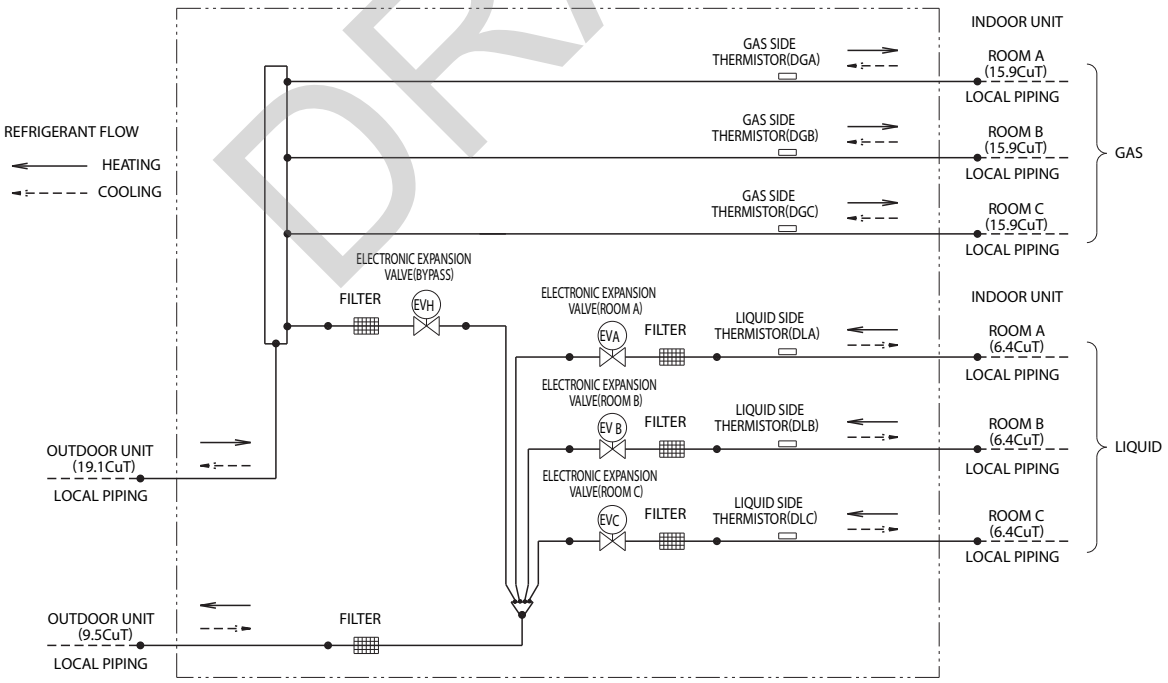
BPMKS967B3B



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- Depending on the delta T (= actual room temperature - room temperature setting) the BP units are used to generate a capacity up or down signal to the outdoor unit.

3.6.1. BP Unit command conversion

1. ΔD (room temperature - temperature setting) signals from BP units are converted to capacity up/down signal.

ΔD signals from BP units are used as the capacity up / capacity down signal in frequency commands (excludes during POWERFUL operation)

ΔD Signal	Capacity up / down signal
0	Thermostat OFF
1	Down
2	
3	Keep
4	
5	UP
6	
7	
8	
9	
A	
B	
C	
D	
E	
F	

2. Processing during POWERFUL operation

   (1) When POWREFUL command is received from indoor units (one or more units)
   (2) Thermostats are not off at the indoor units from which POWERFUL commands are issued.

   When the above conditions are met, the POWRFUL operation is activated, and the POWERFUL operation signal is sent to the outdoor unit.

3.7. Start-up sequence Mini VRV

This control is used to equalize the pressure in the front and back of the compressor prior to the startup of the compressor, thus reducing startup loads. Furthermore, the inverter is turned ON to charge the capacitor.

In addition, to avoid stresses to the compressor due to oil return or else after the startup, the following control is made and the position of the four way valve is also determined. To position the four way valve, the master and slave units simultaneously start up.

3.7.1. Startup Control in Cooling Operation

Thermostat ON

	Pressure equalization control prior to startup	Startup control	
		STEP1	STEP2
Compressor	0 Hz	57 Hz Unload	57 Hz Unload +2 steps/20 sec. (until Pc - Pe>0.39MPa is achieved)
Outdoor unit fan	STEP7	Ta<20°C: OFF Ta≥20°C: STEP4	+1 step/15 sec. (when Pc>2.16MPa) -1 step/15 sec. (when Pc<1.77MPa)
Four way valve (20S1)	Holds	OFF	OFF
Main electronic expansion valve (EV1)	0 pls	480 pls	480 pls
Subcooling electronic expansion valve (EV3)	0 pls	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	OFF	OFF
Ending conditions	OR • Pc - Pe<0.3MPa • A lapse of 1 to 5 min.	A lapse of 10 sec.	OR • A lapse of 130 sec. • Pc - Pe>0.39MPa

3.7.2. Startup Control in Heating Operation

Thermostat ON

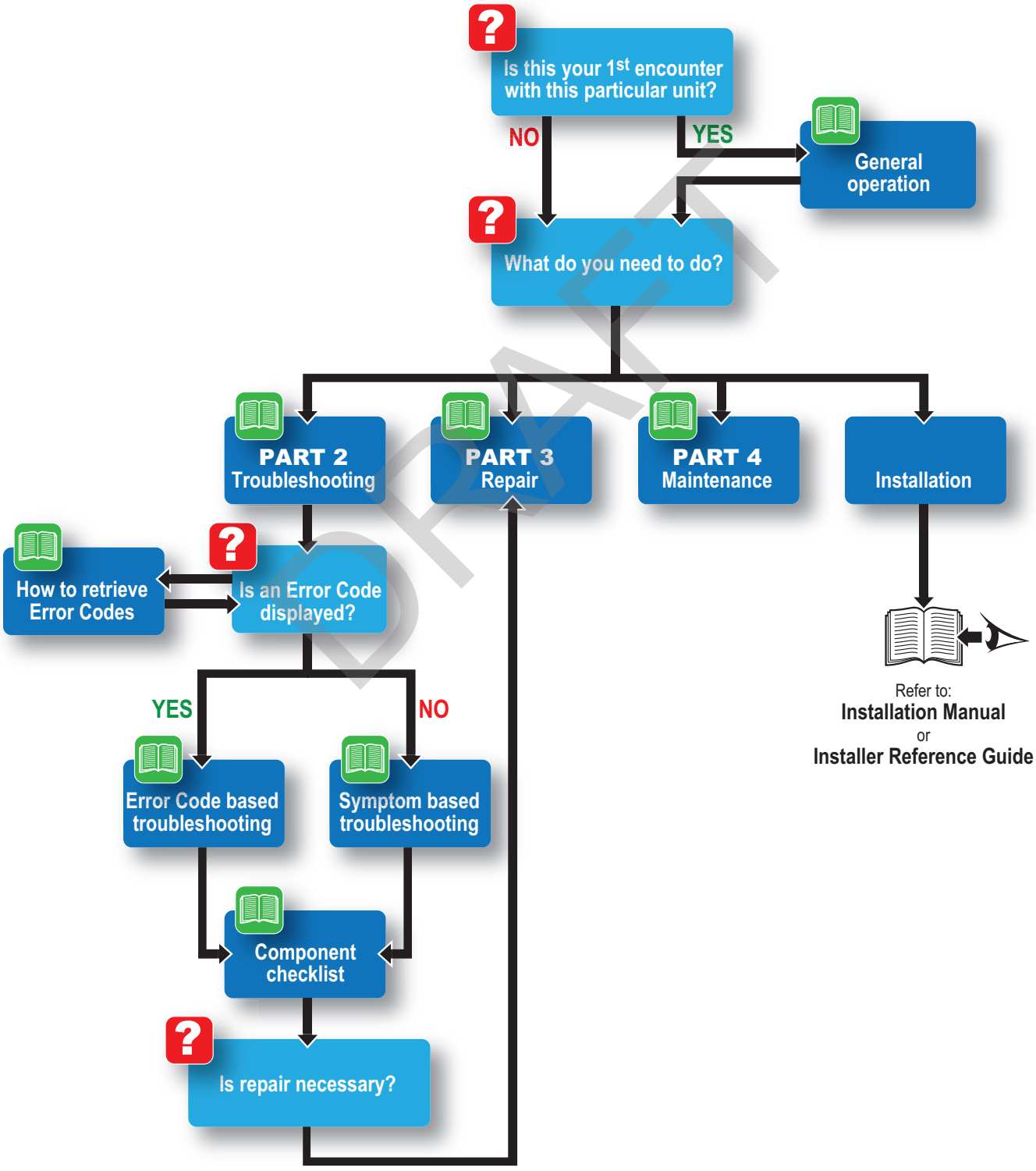
	Pressure equalization control prior to startup	Startup control	
		STEP1	STEP2
Compressor	0 Hz	57 Hz Unload	57 Hz Unload +2 steps/20 sec. (until Pc - Pe>0.39MPa is achieved)
Outdoor unit fan	From starting ~ 1 min. : STEP 7 1 ~ 3 min. : STEP 3 3 ~ 5 min. : OFF	STEP8	STEP8
Four way valve	Holds	ON	ON
Main electronic expansion valve (EV1)	0 pls	0 pls	0 pls
Subcooling electronic expansion valve (EV3)	0 pls	0 pls	0 pls
Hot gas bypass valve (SVP)	OFF	OFF	OFF
Ending conditions	OR • Pc - Pe<0.3MPa. • A lapse of 1 to 5 min.	A lapse of 10 sec.	OR • A lapse of 130 sec. • Pc>2.70MPa • Pc - Pe>0.39MPa

4. How to use this book

4.1. Interactive information flow

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

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



4.2. Parts of the book

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

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

4.2.1. The introduction chapter

The chapter "Introduction" on page 9 includes the safety precautions, this topic and the general operation description of the product(s) this manual refers to.

4.2.2. The troubleshooting chapter

The chapter "Troubleshooting" on page 27 not only deals with the methods to recognize and resolve occurring error codes; it also describes the methods how to solve a problem that does not immediately trigger an error code. Such problems are referred to as 'symptom based'. Both the error code based and symptom based troubleshooting tables, indicate possible causes, the necessary checks and in case required, how to repair. The possible causes have been sorted to probability of occurrence and speed of execution.

4.2.3. The repair chapter

The chapter "Repair" on page 109 handles the removal and replacement of the major components in the product and discusses cleaning methods as well if applicable, such as for filters. Where applicable, refrigerant handling precautions are mentioned for certain actions; please consider these carefully for your own safety.

4.2.4. The maintenance chapter

The chapter "Maintenance" on page 155 of this manual describes the maintenance intervals and procedures to be performed on the product. Remember that a well maintained product, is a more reliable and efficient product.

4.2.5. Appendices

Finally, the service manual provides in chapter "Appendix" on page 165 valuable reference data such as piping/wiring diagrams, field settings overview and a checklist to be filled in when you need to escalate an issue to your dealer.

4.3. Contact information

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

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

Part 2. Troubleshooting

This part contains the following chapters:

1. Error codes

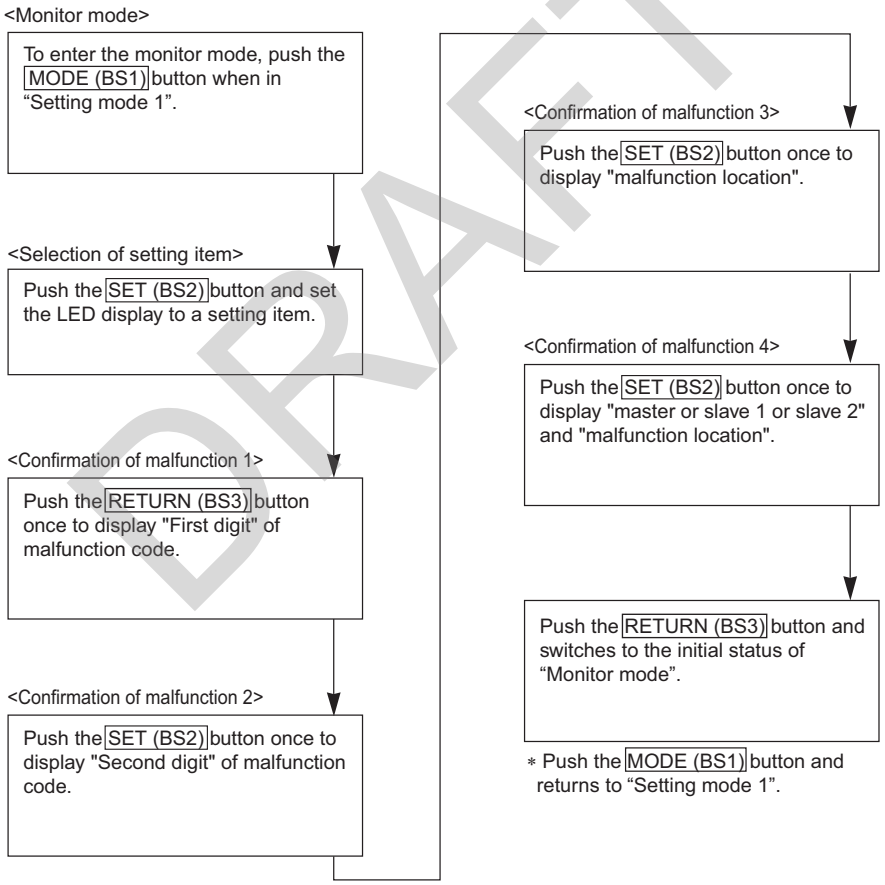
1.1. Check for descriptions of malfunctions/retries (not for Large 10-12)

Check for descriptions of malfunctions/retries following the procedure described below.

1 Remove platework to acces the LED:

2 Perform the steps described below to recover the complete error code.

3 Compare LED read-out with the table, refer to "Error code overview" on page 173.

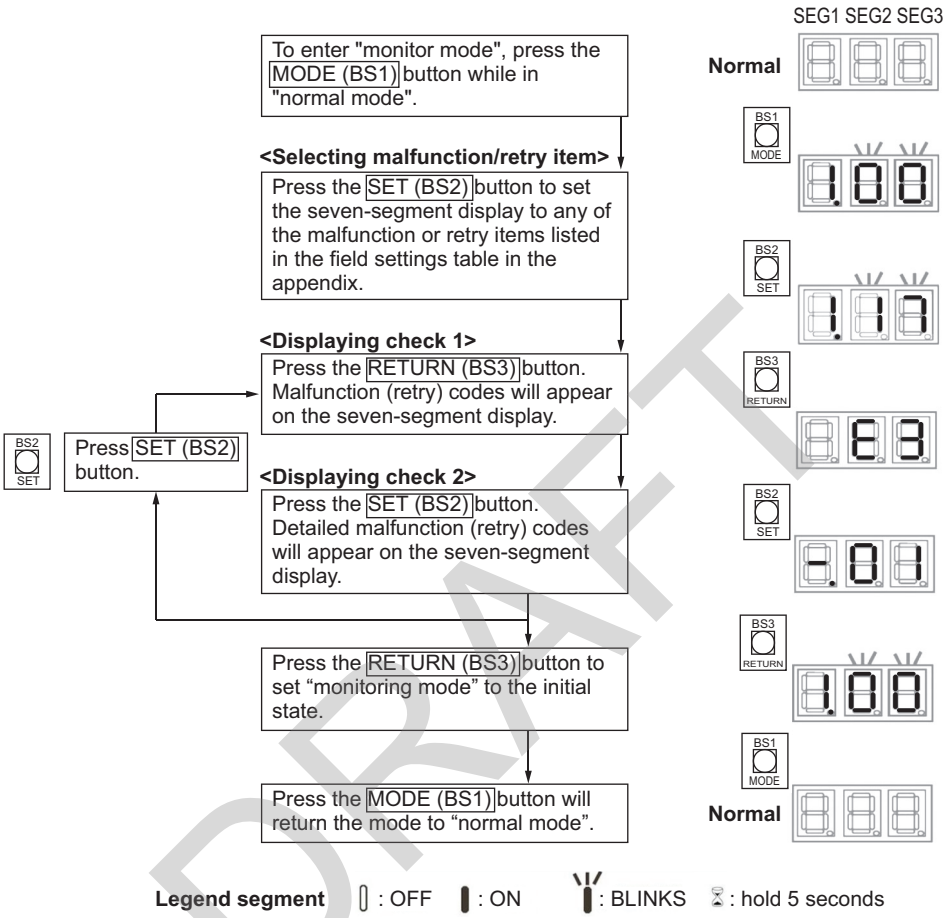


1.2. Check for descriptions of malfunctions/retries (Large 10-12 only)

Check for descriptions of malfunctions/retries following the procedure described below.

The error codes for forced stop outdoor or retry are item:

- 17, 18, 19: description of malfunction (outdoor system stopped operation)
- 23, 24, 25: description of retry

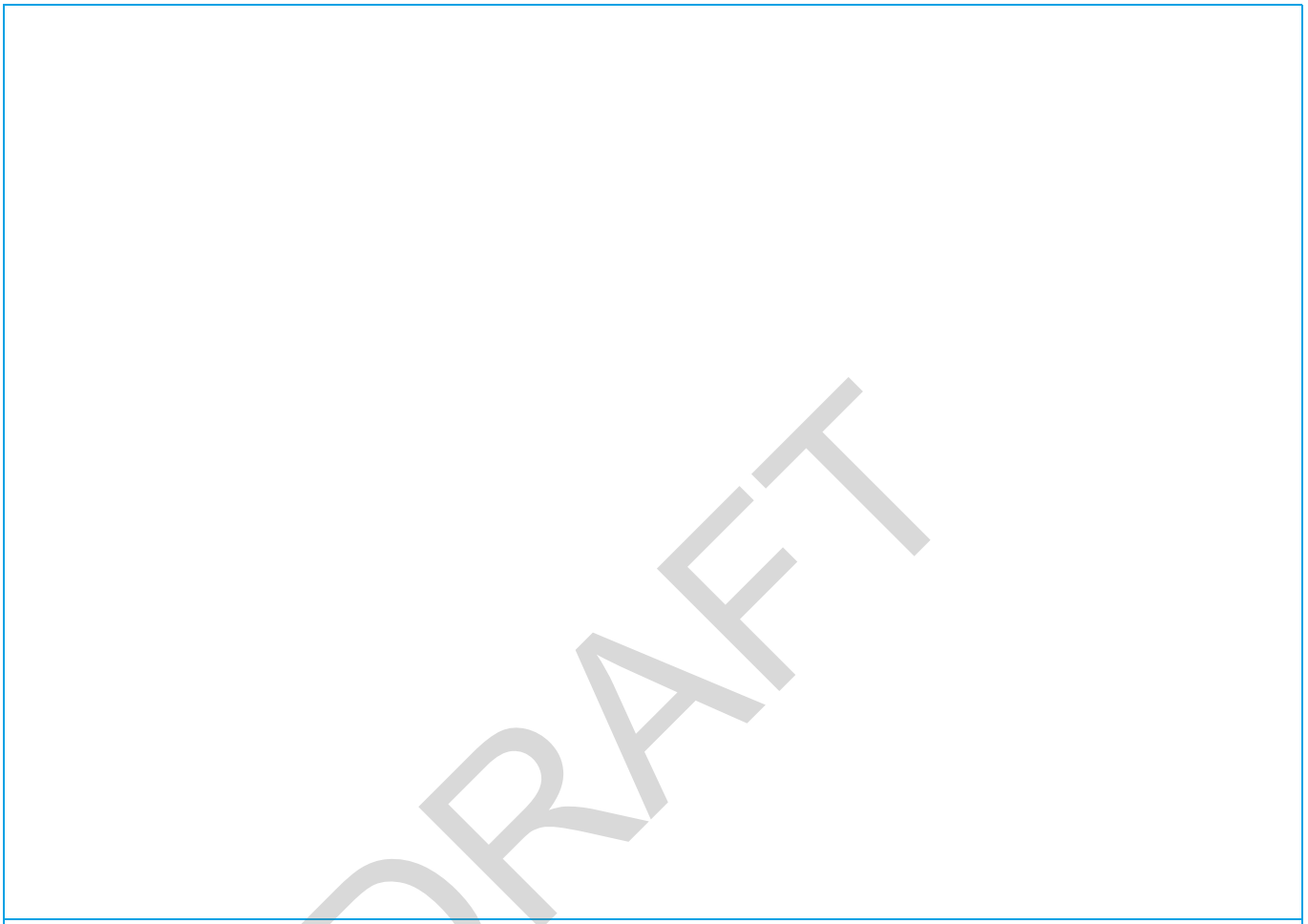


The diagnose display (3) and push buttons (4) are located behind the service plate assembly (1).

To remove the service plate assembly (1), refer to "Removing the top plate" on page 114.

Remove the protective cover (2) to access the display (3) and push buttons (4).

Figure 9 - Diagnose display and push buttons



1. Service plate assembly	3. Diagnose display
2. Protective cover	4. Push buttons

2. Error code based troubleshooting

Overview of error codes:

2.1. "A9" - Electric expansion valve connector not connected (BP unit)

Trigger	Effect	Reset

Possible cause	Check	Corrective action
Faulty expansion valve wire harness.	Check if the wire harness is intact. Check if the wire harness connection is OK.	Replace expansion valve motor when required.
Faulty expansion valve motor	Check expansion valve motor.	Replace expansion valve motor when required.
Faulty BP unit PCB.	Check if the alive led is blinking in regular-intervals. Check if the correct spare part is installed. Check if BP unit PCB receives power.	Replace BP unit PCB when alive led is not blinking in regular intervals. Install correct spare part. Adjust the power to the PCB.
Faulty expansion valve body.	Check expansion valve body.	

2.2. "E1" – Outdoor main board (A1P) abnormality

Trigger	Effect	Reset
Main PCB A1P detects EEPROM is abnormal.	Unit will stop.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check power supply.	Repair faulty part in power supply circuit.
External factor (e.g. electrical noise) (cause when error is reset after power reset, and error happens again after awhile).	Check the source which could cause electrical interference.	Remove source causing electrical interference.
Faulty wiring between indoor and outdoor unit.	Check wiring between indoor and outdoor unit.	Adjust wiring between indoor and outdoor unit when required.

2.3. “E2” – Ground leak malfunction

Trigger	Effect	Reset
Current leakage is detected.	Unit will stop operating.	Via remote controller indoor unit
No current flows at the time of turning ON the power supply	Unit will stop operating.	Via remote controller indoor unit

Possible cause	Check	Corrective action
Faulty ground.	Check the field installed ground.	Adjust field installed ground when required.
Faulty wiring passing through the currenct sensor.	Check the wiring passing through the current sensor	Adjust wiring when required.
Temporary liquid compression or liquid entrance in the compressor.	Check compressor insulation.	Replace compressor when required.
Faulty power wiring.	Check power wiring.	Adjust power wiring when required.
Faulty junction connector.	Check the junction connector.	Adjust the junction connector when required.

2.4. “E2” – Printed circuit board faulty (BP unit)

Trigger	Effect	Reset
BP unit PCB detects eeprom problem.	Unit will not operate.	Via remote controller indoor unit

Possible cause	Check	Corrective action
Faulty or disturbance of the power supply. (Imbalance > 10%) Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty BP unit PCB.	Check if the alive led is blinking in regular-intervals. Check if the correct spare part is installed. Check if BP unit PCB receives power.	Replace BP unit PCB when alive led is not blinking in regular intervals. Install correct spare part. Adjust the power to the PCB.

2.5. “E3” – High pressure abnormality

Trigger	Effect	Reset
1. High pressure switch opens due to discharge pressure > 4,0 MPa.	Unit will stop operating.	If field set 2-15-1 (default): via remote controller indoor unit.
2. High pressure sensor detects HP > 3,72 MPa occurs 3 times within 40 minutes.		If field set 2-15-0 (on site): first BS3, followed by remote controller indoor unit.

Possible cause	Check	Corrective action
Refrigerant overcharge.	Check for refrigerant overcharge.	Recover the refrigerant to check amount of refrigerant when error occurred (see page 109).
Humidity in the 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 (see page 109).
Non condensables (air or nitrogen) in refrigerant.	Check for non-condensables in refrigerant.	In case of suspicion of non-condensables; recover, vacuum and recharge with virgin refrigerant (see page 109).
Refrigerant circuit is clogged.	Check for possible blockage: measure the refrigerant/pipe temperature. Sudden drop in temperature could indicate blockage (remark: this is not valid for expansion valve).	Repair piping where blockage is found.
Stop valve(s) closed.	Check status of all stop valves (low pressure, high pressure, liquid).	Open all stop valves.
Expansion valve condenser side does not open.	Check if expansion valve opens when control gives output to expansion valve motor (see page 66).	Replace the expansion valve coil (see page 142) or the expansion valve body (see page 138) when required.
Faulty high pressure sensor S1NPH main board A1P.	Check high pressure sensor S1NPH (see page 98).	Replace the high pressure sensor S1NPH (see page 132) or PCB A1P (see page 128).
Faulty high pressure switch S1PH main board A1P.	Check high pressure switch S1PH (see page 103).	Replace the high pressure switch S1PH (see page 135) or PCB A1P (see page 128).
Insufficient air flow rate outdoor in cooling mode.	Check outdoor unit air flow is not obstructed on top.	Add elbow to air outlet to guide air discharge to avoid air short circuit.
Air short circuit outdoor unit in cooling mode.	Check air short circuit is limited. Check air temperature in free air and compare to temperature at inlet heat exchanger.	If difference between free air and air inlet heat exchanger is 5 K or more, improve air outlet. Example by elbow on air outlet (locally produced) might be required.
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

2.6. “E4” – Abnormal low suction pressure (S1NPL)

Trigger	Effect	Reset
Low pressure sensor S1NPL detects LP < 0,07 MPa 3 times within 60 minutes.	Unit will stop operating.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Cross piping between systems.	Check by "cross wiring check" method outdoor field set [2-5-1] correct indoor units start fan on H-speed.	Change wiring F1F2-IND between systems cross wiring is found.
Refrigerant shortage.	Check for refrigerant shortage.	Recover the refrigerant to check amount of refrigerant when error occurred (see page 109).
Humidity in the 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 (see page 109).

Refrigerant circuit is clogged.	Check for possible blockage. Blockages can be checked by measuring the refrigerant/pipe temperature. Sudden drop in temperature could indicate blockage (remark: this is not valid for expansion valve).	Repair piping where blockage is found.
Stop valve(s) closed.	Check status of all stop valves (liquid, gas).	Open all stop valves.
Expansion valve condenser side does not open.	Check if expansion valve opens when control gives output to expansion valve motor (see page 66).	Replace the expansion valve coil (see page 142) or the expansion valve body (see page 138) when required.
Expansion valve evaporator side does not open.	Check if expansion valve opens when control gives output to expansion valve motor (see page 66).	Replace the expansion valve coil (see page 142) or the expansion valve body (see page 138) when required.
Faulty low pressure sensor S1NPL main board A1P.	Check low pressure sensor S1NPL (see page 98).	Replace the high pressure switch S1PH (see page 135) or PCB A1P (see page 128).
Insufficient air flow rate heating.	Check outdoor unit air flow is not obstructed on top.	Improve air inlet to unit.
Air short circuit heating.	If difference between free air and air inlet heat exchanger is 5K or more, improve air outlet. Example by elbow on air outlet (local produced) might be required.	If difference between free air and air inlet heat exchanger is 5K or more, improve air outlet. Example by elbow on air outlet (local produced) might be required.

2.7. “E5” – Compressor motor (M1C) lock

Trigger	Effect	Reset
The compressor motor start current is too high.	Unit will stop operating.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Refrigerant circuit is clogged (HP-LP > 0,26 MPa).	Check for possible blockage. Blockages can be checked by measuring the refrigerant/pipe temperature. Sudden drop in temperature could indicate blockage (remark: this is not valid for expansion valve).	Recover the refrigerant to check amount of refrigerant when error occurred (see page 109).
	Check oil return line bottom of oil separator passes through solenoid valve when energized (when discharge superheat exceeds 15K during compressor operation).	Replace solenoid valve coil (see page 136) or solenoid valve body (see page 141).
Faulty compressor.	Check compressor (see page 77).	Replace compressor (see page 146) and also investigate reason of breakdown.
	Check expansion valve operation (liquid back issue).	Replace the expansion valve coil (see page 142) or the expansion valve body (see page 138). indoor or/and outdoor heat exchanger operating as evaporator can not keep minimum superheat of 3°.
	Check refrigerant shortage (overheated issue), check for leak (see page 109).	Repair leak. Recharge unit after completion of pressure test and vacuuming (see page 109).
Faulty compressor wiring.	Check compressor wiring UVW.	Adjust UVW compressor wiring.
Faulty compressor inverter PCB	Check compressor inverter PCB (see page 82). When power supply is (re)connected, service LED HAP on inverter PCB compressor should blink regularly (1 blink per second) (refer to "Error code overview" on page 173 to check faulty part).	Replace compressor inverter PCB when required: When 16 VDC is present and HAP service monitor LED is not blinking after power reset, replace compressor inverter PCB (see page 128).
Stop valve(s) closed	Check status of all stop valves.	Open all stop valves.

2.8. “E6” – Compressor damage alarm

Trigger	Effect	Reset
Actual current value of the compressor is high (130%) for a period of 30 minutes.	Unit will stop operating.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Faulty compressor	Check compressor (see page 77). Check expansion valve operation (liquid back issue). Check refrigerant shortage (overheat issue). Check for leak.	Replace compressor (see page 146) and investigate reason of breakdown.
Faulty expansion valve.	Check expansion valve operation (see page 66).	Replace the expansion valve coil (see page 142) or the expansion valve body (see page 138) when required.
Faulty main PCB A1P	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

2.9. “E7” – Outdoor unit fan motor (M1F, M2F) lock

Trigger	Effect	Reset
Overcurrent detection inverter circuit. Malfunction of rotation detection.	Unit will stop operating after 4 retry fail to operate normal (refer to "Error code overview" on page 173 to check faulty part).	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Connectors not connected or loose fan motor wires.	Check if connectors are completely inserted.	Reconnect fan motor connectors.
Fan motor open windings.	Check motor winding (see page 70) (refer to "Error code overview" on page 173 to check faulty part).	Replace fan motor (see page 144) (refer to "Error code overview" on page 173 to check faulty part).
Fan motor rpm detection fails.	Check motor rpm detection.	Replace fan motor (see page 144) (refer to "Error code overview" on page 173 to check faulty part).
Fan motor locked.	Check motor shaft rotates when moved by hand (initially remove connector on main PCB A1P to avoid start by indoor signal (E3-01 will appear till connector is reconnected) (see page 70).	If propeller touches bellmouth, verify motor is correctly mounted on the motor base.
		If no mechanical touch, cause is wear of internal bearing, replace fan motor (see page 144).

2.10. “E9” – Outdoor unit expansion valve motor (Y1E~Y6E) detection failure

Trigger	Effect	Reset
When power supply is switched on, main and sub board checks that all expansion valve motors windings are present by current check.	Unit will stop operating.	Power supply reset outdoor.
Low suction superheat when related heat exchanger is evaporator.		

Possible cause	Check	Corrective action
Connectors not connected or wire(s) loose.	Check if connectors are completely inserted (see page 66).	Reconnect connectors on main board and auxiliary board (see page 66).
Expansion valve motor open winding.	Check expansion valve motor winding (refer to "Error code overview" on page 173 to check faulty part) (see page 66).	Replace expansion valve motor (refer to subcode to change faulty part) (see page 142).
Faulty low pressure sensor S1NPL.	Check low pressure sensor (see page 98).	Replace low pressure sensor (see page 132).
Faulty refrigerant gas thermistor.	Check gas thermistor (see page 58) based on "Error code overview" on page 173.	Replace gas thermistor (refer to subcode to change faulty part) (see page 130).
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	
External factor (e.g. electrical noise): when error is reset after power reset.	Check the source which could cause electrical interference.	Remove source causing electrical interference.

2.11. “F3” – Abnormal discharge pipe temperature (R2T, R3T, R21T) control

Trigger	Effect	Reset
Discharge temperature > 135°C.	Unit will stop operating when discharge temperature or body temperature J-type compressor exceeds 135°C for 2 times within 100 minutes.	Via remote controller indoor unit.
Body temperature > 135°C (if J-type compressor).		

Possible cause	Check	Corrective action
Connectors discharge thermistor or body thermistor not connected.	Check connectors are completely inserted.	Reconnect connectors on main PCB A1P.
Discharge temperature is too high.	Check discharge thermistor on pipe (see page 58) based on "Error code overview" on page 173 and compare with read out in mode 1.	Replace thermistor (see page 130).
Stop valve discharge or/and liquid closed.	Check stop valves are fully open.	Open stop valves.
Refrigerant shortage.	Check refrigerant charge (see page 109). Perform leak test function.	In case of suspicion of refrigerant shortage, recover the refrigerant to check amount of refrigerant when error occurred. Compare recovered amount with the calculated additional charge value based on the formula using pipe length of each pipe diameter used in the installation (see page 109).
Faulty discharge thermistor.	Check thermistor (see page 58) and compare with read out in mode 1.	Replace thermistor (see page 130).

Faulty compressor (internal bypass).	Check the compressor (refer to "Error code overview" on page 173 to check faulty part).	Replace the compressor (refer to "Error code overview" on page 173 to check faulty part) and also investigate reason of break-down (see page 146).
		Check expansion valves operation (over-heated issue) -> check for leak.
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

2.12. “F4” – Wet alarm

Trigger	Effect	Reset
The unit detects the conditions, based temperature and pressure measurements, in which liquid refrigerant can return to the compressor for 30 min in outdoor unit and (some) indoor units.	Unit will stop operating	Manual reset

Possible cause	Check	Corrective action
Faulty suction pipe thermistor	Check suction pipe thermistor (see page 58) and compare with read out in mode 1.	Replace suction pipe thermistor when required (see page 130).
Faulty discharge pipe thermistor	Check discharge (see page 58)	Replace discharge when required (see page 130).
Faulty high pressure sensor S1NPH on main PCB A1P	Check high pressure sensor S1NPH (see page 98).	Replace high pressure sensor S1NPH when required (see page 132).
Faulty expansion valve	Check expansion valve motor, connector, winding (see page 66).	Replace the expansion valve coil (see page 142) or the expansion valve body (see page 138) when required.
Dirty air filter	Check the condition of the air filter.	When required clean or replace the air fil-ter.

2.13. “F6” – Refrigerant overcharge

Trigger	Effect	Reset
During discharge superheat is < 10 K and suction superheat is low while expansion valve(s) evaporator is/are at minimum opening degree.	Outdoor unit keeps running while F6 appears on controllers and outdoor dis-play for warning of refrigerant overcharge.	Power supply reset outdoor.

Possible cause	Check	Corrective action
Refrigerant overcharge.	Check refrigerant charge (see page 109).	In case of suspicion of refrigerant short-age, recover the refrigerant to check amount of refrigerant when error occurred. Compare recovered amount with the calculated additional charge value based on the formula using pipe length of each pipe diameter used in the installation.
Indoor fan not operating.	Check indoor fan motors are all operating correctly.	Investigate cause indoor fan is not operat-ing.

Indoor air flow blocked.	Check indoor units supply sufficient air flow.	Improve air flow rate, check on obstructions or field setting (in case of duct type unit).
Expansion valve motor or body evaporator faulty.	Check expansion valve coil (see page 63).	Replace expansion valve coil (see page 141) or body (see page 138).
Faulty high pressure sensor.	Check high pressure sensor S1NPH characteristics (see page 103).	Replace high pressure sensor (see page 132).
Faulty discharge pipe thermistor.	Check discharge thermistor R21T, R22T characteristics (see page 58) based on "Error code overview" on page 173.	Replace discharge thermistor (see page 130).
Faulty main PCB A1P.	Check pressure value on outdoor board mode 1 - code 42 and compare with gauge connected to service port liquid stop valve.	Replace PCB A1P (see page 128).
Faulty outdoor air thermistor.	Check outdoor air thermistor (see page 58) based on "Error code overview" on page 173.	Replace outdoor air thermistor when required (page 130).
Faulty heat exchanger thermistor.	Check heat exchanger thermistor (see page 58) based on "Error code overview" on page 173.	Replace heat exchanger thermistor when required (page 130).
Faulty liquid pipe thermistor.	Check liquid pipe thermistor (see page 58) based on "Error code overview" on page 173.	Replace liquid pipe thermistor when required (page 130).

2.14. “H3” – Harness malfunction between Main PCB A1P and inverter PCB

Trigger	Effect	Reset
Faulty transmission between main PCB AP1 and inverter PCB.	Compressor stops running.	Power supply reset via outdoor unit.

Possible cause	Check	Corrective action
Faulty wiring or connection between main PCB A1P and inverter PCB.	Check the wiring and the connectors between main PCB A1P and inverter PCB.	Adjust wiring or connection between the main PCB A1P and the inverter PCB when required.
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	
Faulty compressor inverter PCB	Check compressor inverter PCB (see page 82). When power supply is (re)connected, service LED HAP on inverter PCB compressor should blink regularly (1 blink per second) (refer to "Error code overview" on page 173 to check faulty part).	Replace compressor inverter PCB when required: When 16 VDC is present and HAP service monitor LED is not blinking after power reset, replace compressor inverter PCB (see page 128).

2.15. “H7” – Fan motor signal detection error

Trigger	Effect	Reset
Unit detects abnormal signal from the fan motor at start-up of the fan motor.	Unit will stop operating.	Manual reset.

Possible cause	Check	Corrective action
Faulty fan motor wiring or connection.	Check the wiring and the connectors of the fan motor.	Adjust wiring or connector of the fan motor when required
Faulty fan motor.	Check fan motor (see page 70).	Replace fan motor when required (see page 145).
Faulty fan motor inverter PCB.	When power supply is (re)connected, service LED HAP on fan motor inverter PCB should blink regularly. (Approx. 1 Hz).	When 16VDC present and HAP service monitor LED is not blinking, replace fan motor inverter PCB (see page 128).

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

Trigger	Effect	Reset
Air thermistor detects an abnormal value (open or short circuit) resulting in respectively -47°C or +99,9°C.	Unit will stop operating.	Auto reset when value returns normal.

Possible cause	Check	Corrective action
Faulty outdoor air thermistor	Check outdoor air thermistor (see page 58) based on "Error code overview" on page 173.	Replace outdoor air thermistor when required (see page 130).
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

2.17. “J0” – Liquid and gas thermistor faulty (BP unit)

Trigger	Effect	Reset
Thermistor detects an abnormal value (open or closed circuit).	Unit will stop operating.	Maual reset via remote controller indoor unit.

Possible cause	Check	Corrective action
Faulty thermistor	Check thermistor (see page 58) based on "Error code overview" on page 173.	Replace thermistor when required (see page 130).
Faulty BP unit PCB.	Check if the alive LED blinks in regular intervals.	Replace BP unit PCB when alive led is not blinking in regular intervals. Install correct spare part.
	Check if BP unit PCB receives power.	Adjust the power to the PCB.

2.18. "J3" – Discharge thermistor (R21T, R22T) or compressor body thermistor* (R15T) faulty

*Body compressor thermistor only applicable for J-type compressor = Large 10-12 hp)

Trigger	Effect	Reset
Thermistor detects an abnormal value (open or closed circuit) resulting in respectively -35°C or 183°C.	Unit will stop operating.	Via remote controller indoor unit.
Possible cause	**Check**	**Corrective action**
Faulty outdoor air thermistor	Check outdoor air thermistor (see page 58) based on "Error code overview" on page 173.	Replace outdoor air thermistor when required (see page 130).
Faulty discharge or compressor body thermistor	Check discharge and/or compressor body (see page 58) based on "Error code overview" on page 173.	Replace discharge thermistor or compressor body thermistor when required (see page 130).
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

2.19. "J5" – Suction thermistor or compressor body thermistor* (R2T, R3T, R5T) or compressor body thermistor* (R8T) faulty

*Body compressor thermistor only applicable for J-type compressor = Large 10-12 hp)

Trigger	Effect	Reset
Thermistor detects an abnormal value (open or closed circuit) resulting in respectively -47°C or 99.9°C.	Unit will stop operating.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Faulty suction thermistor.	Check suction thermistor (see page 58) based on "Error code overview" on page 173.	Replace suction thermistor (see page 130).
Faulty suction or compressor body thermistor.	Check suction and/or compressor body thermistor (see page 58) based on "Error code overview" on page 173.	Replace suction or compressor body thermistor when required (see page 130).
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

2.20. “J6” – Outdoor heat exchanger thermistor (R4T - R6T) faulty

Trigger	Effect	Reset
Thermistor detects an abnormal value (open or closed circuit) resulting in respectively -47°C or 99.9°C.	Unit will stop operating.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Faulty outdoor heat exchanger thermistor.	Check outdoor heat exchanger (see page page 58).	Replace outdoor heat exchanger when required (see page 130).
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

2.21. “J7” – Liquid thermistor (R5T - R6T - R7T) faulty

Trigger	Effect	Reset
Thermistor detects an abnormal value (open or closed circuit) resulting in respectively -47°C or 99,9°C.	Unit will stop operating.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Faulty liquid thermistor.	Check liquid thermistor (see page 58) based on "Error code overview" on page 173.	Replace liquid thermistor when required (see page 130).
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

2.22. “J8” – Liquid thermistor malfunction (R4T)

Trigger	Effect	Reset
Thermistor detects an abnormal value (open or closed circuit) resulting in respectively -47°C or 99.9°C.	Unit will stop operating.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Faulty liquid thermistor.	Check liquid thermistor (see page 58) based on "Error code overview" on page 173.	Replace liquid thermistor when required (see page 130).

Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

2.23. "J9" – Gas thermistor (R5T - R5T) after sub-cool faulty

Trigger	Effect	Reset
Thermistor detects an abnormal value (open or closed circuit) resulting in respectively -47°C or 99,9°C.	Unit will stop operating.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Faulty Gas thermistor.	Check Gas thermistor (see page 58) based on "Error code overview" on page 173.	Replace Gas thermistor when required (see page 130).
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

2.24. "JA" – High pressure sensor (S1NPH) abnormality

Trigger	Effect	Reset
High pressure sensor detects an abnormal value for 3 minutes (open circuit < 0,1 MPa or short circuit > 62,1 MPa).	Unit will stop operating.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Faulty high pressure sensor.	Check S1NPH high pressure sensor (see page 98).	Replace S1NPH (see page 132).
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	
Connection mismatch between high pressure sensor and low pressure sensor.	Check if connection between high pressure sensor and low pressure sensor are not switched.	Adjust connection of high pressure sensor and low pressure sensor when required.

2.25. "JC" – Low pressure sensor (S1NPL) abnormality

Trigger	Effect	Reset
Low pressure sensor detects an abnormal value for 3 minutes (open circuit < 0,1 MPa or short circuit > 25,4 MPa).	Unit will stop operating.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	
Connection mismatch between high pressure sensor and low pressure sensor.	Check if connection between high pressure sensor and low pressure sensor are not switched.	Adjust connection of high pressure sensor and low pressure sensor when required.
Faulty wiring or connection of low pressure sensor.	Check the wiring and connector of the low pressure sensor.	Adjust the wiring or connection of the low pressure sensor when required.

2.26. "LC" – Transmission between main board, auxiliary board and inverter boards

Trigger	Effect	Reset
Abnormal or no transmission between main board, auxiliary board and inverter boards.	Unit will stop operating.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Internal wiring is not ok.	Check that the jumper wire (X4A-A5P) is installed on the last inverter board.	Mount the jumper connector on X5A-A5P of last inverter fan board.
Type inverter compressor boards detected different from configuration fixed by horsepower setting.	Incorrect combination inverter boards when mounting spare part.	Mount correct type of inverter board (see page 128 or page 128).
Type inverter fan motor boards detected different from configuration fixed by horsepower setting.	Incorrect horsepower setting spare part main board.	Set dip switches according to instruction sheet delivered with spare part main board (power main board must be disconnected prior to change dip switches).
Faulty compressor inverter PCB	Check compressor inverter PCB (see page 82). When power supply is (re)connected, service LED HAP on inverter PCB compressor should blink regularly (1 blink per second) (refer to "Error code overview" on page 173 to check faulty part).	Replace compressor inverter PCB when required: When 16 VDC is present and HAP service monitor LED is not blinking after power reset, replace compressor inverter PCB (see page 128).
Faulty fan motor inverter board.	When power supply is (re)connected, service LED HAP on inverter fan motor board should blink regularly (approx. 1 Hz) (refer to "Error code overview" on page 173 to check faulty part).	When 16 VDC present and HAP service monitor LED is not blinking, replace fan motor inverter board (see page 128).
External factor (e.g. electrical noise): when error is reset after power reset.	Check the source which could cause electrical interference.	Remove source causing electrical interference.

Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	
Faulty fan motor.	Check fan motor (see page 70).	Replace fan motor when required (see page 145).

2.27. "P1" – Open phase or power supply voltage imbalance

Trigger	Effect	Reset
Inverter board compressor detects incorrect power in the DC circuit (behind diode bridge).	Unit will stop operating.	Auto reset when power in the DC circuit returns normal.

Possible cause	Check	Corrective action
Power supply is not OK -> open phase.	Check the power supply (see page 55).	Restore correct power supply.
Power supply is not OK -> unbalance > 10% (rated power supply: 400 VAC).	Check the power supply for voltage fluctuations (> 10%) (see page 55).	Voltage fluctuations should be less than 10%.
Faulty compressor inverter PCB	Check compressor inverter PCB (see page 82). When power supply is (re)connected, service LED HAP on inverter PCB compressor should blink regularly (1 blink per second) (refer to "Error code overview" on page 173 to check faulty part).	Replace compressor inverter PCB when required: When 16 VDC is present and HAP service monitor LED is not blinking after power reset, replace compressor inverter PCB (see page 128).

2.28. "P4" – Radiator fin malfunction

Trigger	Effect	Reset
Radiator fin thermistor measure a value that is equal to open or short circuit	Unit continues operation.	

Possible cause	Check	Corrective action
Faulty radiator fin.	Check radiator fin thermistor (see page 58) based on "Error code overview" on page 173.	Replace radiator fin thermistor when required (see page 130).
Faulty compressor inverter PCB	Check compressor inverter PCB (see page 82). When power supply is (re)connected, service LED HAP on inverter PCB compressor should blink regularly (1 blink per second) (refer to "Error code overview" on page 173 to check faulty part).	Replace compressor inverter PCB when required: When 16 VDC is present and HAP service monitor LED is not blinking after power reset, replace compressor inverter PCB (see page 128).
Faulty compressor	Check compressor (see page 77).	Replace compressor when required (see page 146).
	Check expansioin valve operation (liquid back issue)	Replace the expansion valve coil (see page 142) or the expansion valve body (see page 138). and/or indoor/outdoor heat exchanger operating.
	Check refrigerant shortage (overheated issue), check for leak.	

Faulty fan motor	Check fan motor (see page 70).	Replace fan motor when required (see page 145).
Faulty fan motor inverter PCB	When power supply is (re)connected, service LED HAP on fan motor inverter PCB should blink regularly. (Approx. 1 Hz)	When 16VDC present and HAP service monitor LED is not blinking, replace fan motor inverter PCB (see page 128).

2.29. "PJ" – Improper combination of inverter PCB and fan motor PCB

Trigger	Effect	Reset
Unit detects a capacity setting mismatch.	Unit will stop operating.	Via remote controller indoor unit.

Possible cause	Check	Corrective action
Mismatch of PCB's.	Check if the correct spare part PCB is installed.	Replace spare part PCB when required.

2.30. "U0" – Gas shortage alarm

Trigger	Effect	Reset
In cooling operation: Low pressure falls below 0.1MPa.	Unit will continue operation.	
In heating operation: Superheat of suction gas exceeds 20°C.	Unit will continue operation.	

Possible cause	Check	Corrective action
Refrigerant shortage.	Check refrigerant charge (see page 109). Perform leak test.	Case of suspicion of refrigerant shortage, recover the refrigerant to check amount of refrigerant when error occurred. Compare recovered amount with the calculated additional charge value based on the formula using pipe length of each pipe diameter used in the installation (see p???).
Refrigerant circuit is clogged.	Check for possible blockage. Blockages can be checked by measuring the refrigerant/pipe temperature. Sudden drops in temperature could indicate blockage (remark: this is not valid for expansion valve).	Recover the refrigerant to check amount of refrigerant when error occurred (see nameplate for the correct amount of refrigerant).
	Check oil return line bottom of oil separator passes through solenoid valve when energized (when discharge superheat exceeds 15 °k during compressor operation.	Replace solenoid valve coil or body when required (see page 141).
Faulty suction pipe thermistor.	Check suction pipe thermistor (see page 58) based on "Error code overview" on page 173.	Replace suction pipe thermistor when required (see page 130).
Faulty wiring or connection of low pressure sensor.	Check the wiring and connector of the high pressure sensor.	Adjust the wiring or connection of the high pressure sensor when required.
Faulty low pressure sensor.	Check the low pressure sensor (see p??).	Replace low pressure sensor when required.

Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

2.31. "U1" – Reverse phase or open phase (L3)

Trigger	Effect	Reset
Main board A1P detects incorrect power supply phase sequence between L1 and L3 other than 240°.	Unit will stop operating.	Power supply reset outdoor.

Possible cause	Check	Corrective action
Power supply is not OK -> open phase (L3).	Check power supply phase L1 and L3 present at main board A1P (see page 55).	Inspect circuit breaker in power supply distribution panel of the building.
Power supply is not OK -> reverse phase.	Check the power supply rotation direction L1-L2-L3 by special 3-phase check tool (available on local market).	Change 2 phases sequence on main power supply terminal X1M: L1 & L2 or L2 & L3.

2.32. "U2" – Power supply inverter circuit abnormality

Trigger	Effect	Reset
Inverter board compressor detects voltage in DC circuit (behind diode bridge) can not reach or maintain minimum 500 VDC.	Unit will stop operating.	Power supply reset outdoor.

Possible cause	Check	Corrective action
Power supply is not OK -> imbalance > 10% (rated power supply: 400 VAC).	Check the power supply for voltage fluctuations (> 10%).	Voltage fluctuations should be less than 10%.
Power supply is not OK (neutral missing at inverter board compressor).	Check the power supply from main power supply terminal X1M, through noise filter to terminals L1, L2, L3 compressor inverter PCB (see page 55).	Replace part that interrupts power supply.
Connector loose or loose wire at connector.	Check connectors correctly mounted and check for loose wires.	Reconnect connector, reconnect loose wire.
Faulty power wiring connections.	Check the power wiring connections.	Adjust the power wiring connections when required.
Faulty compressor inverter PCB	Check compressor inverter PCB (see page 82). When power supply is (re)connected, service LED HAP on inverter PCB compressor should blink regularly (1 blink per second) (refer to "Error code overview" on page 173 to check faulty part).	Replace compressor inverter PCB when required. When 16 VDC is present and HAP service monitor LED is not blinking after power reset, replace compressor inverter PCB (see page 128).
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

Faulty compressor.	Check compressor (see page 77).	Replace compressor when required (see page 146).
	Check expansion valve operation (liquid back issue).	Replace the expansion valve coil (see page 142) or the expansion valve body (see page 138). and/or indoor/outdoor heat exchanger operating.
	Check refrigerant shortage (overheated issue), check for leak.	
Faulty fan motor.	Check fan motor (see page 70).	Replace fan motor when required (see page 145).
Faulty fan motor inverter PCB	When power supply is (re)connected, service LED HAP on fan motor inverter PCB should blink regularly (approx. 1 Hz).	When 16VDC present and HAP service monitor LED is not blinking, replace fan motor inverter PCB (see page 128).

2.33. "U3" – Test run execution failure

Trigger	Effect	Reset
Prior to normal operation, a test run initiated from outdoor unit is required to verify "cross piping", average field pipe length to indoor units, and total refrigerant amount.	Unit will stop operating.	Test run restarted.

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 testrun.	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.

2.34. "U4" – Communication abnormality between outdoor unit and indoor unit

Trigger	Effect	Reset
Main control board A1P detects abnormal transmission to BS unit board or/and indoor unit board.	Unit will stop operating.	Auto reset when communication resumes to normal.

Possible cause	Check	Corrective action
Power supply phase L1 is too low -> minimum required voltage 345 VAC.	Check the power supply phase L1 exceeds 345 VAC (see page 55).	Voltage fluctuations should be less than 10% of voltage range 380-415 VAC.
Power supply to some indoor unit is interrupted since initialisation was completed.	Start indoor units to forced fan operation (mode 2 - code 5 - set 1) and verify number of indoor units operating on high fan speed.	Restore power supply to indoor units that are connected.
Communication problem between outdoor modules connected by Q1Q2 wiring.	Check voltage on Q1Q2 terminals between modules.	If voltage on Q1Q2 terminals is approx. 0 VAC, replace outdoor A1P board (see page 128).
Faulty communication of main PCB A1P.	Start a re-initialisation. Within 60 seconds, voltage on F1F2 should read approx. 16 VDC. Refer to "Check communication".	Replace outdoor main A1P board if voltage at terminals F1F2 remains around 0 VDC after initialisation was started (see page 128).

Faulty board indoor unit.	After initialisation is finished (outdoor display off) check voltage F1F2 indoor approx. 16 VDC. Check by indoor remote controller outdoor unit is recognized.	Replace indoor board when outdoor unit is not recognized when outdoor unit finished initialisation.
External factor (e.g. electrical noise): when error is reset after power reset.	Check the source which could cause electrical interference.	Reduce/suppress electrical noise.
Field wiring between outdoor main PCB A1P and indoor PCB is faulty.	Check if wiring is firmly fixed at terminals of indoor unit andoutdoor unit.	Restore power supply to indoor unit and outdoor unit.
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	

2.35. “U4” – Transmission error between BP unit and indoor unit

Trigger	Effect	Reset
Communication between BP unit PCB and indoor unit PCB has failed.	Unit will stop operating.	Manual reset via remote controller.

Possible cause	Check	Corrective action
Faulty BP unit PCB.	Check if the alive led is blinking in regular-intervals. Check if the correct spare part is installed. Check if BP unit PCB receives power.	Replace BP unit PCB when alive led is not blinking in regular intervals. Install correct spare part. Adjust the power to the PCB.
Faulty indoor unit PCB.	Check if the alive led is blinking in regular-intervals. Check if the correct spare part is installed. Check if indoor unit PCB receives power.	Replace indoor unit PCB when alive led is not blinking in regular intervals. Install correct spare part. Adjust the power to the PCB.
Faulty BP unit wiring.	Check if the wiring is correct, intact, tightened, etc.	Correct the wiring.
Faulty or disturbance of the power supply. (Imbalance > 10%) Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty indoor unit wiring	Check if the wiring is correct, intact, tightened, etc.	Correct the wiring.
Faulty wiring between BP unit and indoor unit.	Check if the wiring is correct, intact, tightened, not too long, etc.	Correct the wiring.
Faulty wiring between outdoor unit and BP unit.	Check if the wiring is correct, intact, tightened, not too long, etc.	Correct the wiring.

2.36. “U5” – Transmission malfunction between remote controller and indoor unit

Trigger	Effect	Reset
Faulty communication between remote controller and indoor unit.	Unit will stop operating.	Manual reset.

Possible cause	Check	Corrective action
Two controllers are both set as main.	Check if SS1 is set to main on both controllers.	Set SS1 on one controller to sub and perform a power reset.
Faulty wiring or connections of the remote controller(s).	Check wiring and connection of the remote controller(s).	Adjust wiring or connection of the remote controller(s).
Faulty main PCB A1P.	Check if the service monitor LED HAP blinks in regular intervals (approx. 1Hz).	If not blinking in regular intervals, replace the main PCB A1P (see page 128).
	Check fuses on main PCB A1P.	Replace blown fuse.
	Check power supply.	Repair faulty part in power supply circuit.
	Check insulation of wires in the unit are not damaged because of contact with metal parts.	
Faulty remote controller.	Check the microcontroller normal monitor indication lamp (green) on the PCB.	Replace remote controller when required.
External factor (e.g. electrical noise).	Check is the error is reset after a power reset. Check the source which could cause electrical interference .	Remove source causing electrical interference.

2.37. “U7” – Wiring to Q1Q2 faulty

Trigger	Effect	Reset
Main PCB A1P detects abnormal transmission between other outdoor units in same system (Q1Q2 terminals) or belonging to other system (F1F2 OUT/D unit).	Unit will stop operating.	Auto reset when communication resumes to normal.

Possible cause	Check	Corrective action
Too many indoor units connected to F1F2 communication bus.	Check the total number of indoor units connected to this system and across all systems connected by "F1F2 OUT/D UNIT" terminals: per system maximum 64, all systems together: maximum 128.	Split number of systems or remove indoor units from system (refrigerant recovery will be necessary to remove from refrigerant circuit).
Low noise operation or/and demand control is active without presence of optional board DTA104A61/62.	Check field setting 2-12.	Only use field setting 2-12-1 when DTA104A61/62 is actually present in the F1F2 field wring.

2.38. “U8” – Transmission malfunction between remote controllers

Trigger	Effect	Reset
Faulty communication between remote controllers.	Unit will stop operating.	Manual reset.

Possible cause	Check	Corrective action
Two controllers are both set as main.	Check if SS1 is set to main on both controllers.	Set SS1 on one controller to sub and perform a power reset.
Low noise operation or/and demand control is active without presence of optional board DTA104A61/62.	Check field setting 2-12.	Only use field setting 2-12-1 when DTA104A61/62 is actually present in the F1F2 field wring.
Faulty wiring or connections of the remote controller(s).	Check wiring and connection of the remote controller(s).	Adjust wiring or connection of the remote controller(s).
Faulty remote controller.	Check the microcontroller normal monitor indication lamp (green) on the PCB.	Replace remote controller when required.

2.39. "U9" – Wrong type of indoor units combined, system mismatch

Trigger	Effect	Reset
When some indoor unit shows an error UA, A1, A9, or F9 error.	Unit will stop operating.	Auto reset when communication resumes normal.

Possible cause	Check	Corrective action
Some indoor unit is not compatible to detected outdoor unit.	Check type indoor unit showing error UA.	Eliminate error code on unit showing error code UA.
Some indoor unit can not operate in the system.	Check error code on indoor units showing error code other than U9.	Eliminate error code on unit showing error code other than U9.
Faulty wiring or connections between units.	Check if the wiring between indoor units and to the outdoor unit is correct.	Adjust the wiring when required.
Faulty expansion valve.	Check the expansion valve (see page 66).	Replace expansion valve coil (see page 141) or body (see page 138).

2.40. "U9" – Transmission error between outdoor unit and BP unit

Trigger	Effect	Reset
Communication between BP unit PCB and outdoor unit PCB has failed.	Unit will stop operating.	Manual reset via remote controller.

Possible cause	Check	Corrective action
Faulty BP unit PCB.	Check if the alive led is blinking in regular-intervals. Check if the correct spare part is installed. Check if BP unit PCB receives power.	Replace BP unit PCB when alive led is not blinking in regular intervals. Install correct spare part. Adjust the power to the PCB.
Faulty indoor unit PCB.	Check if the alive led is blinking in regular-intervals. Check if the correct spare part is installed. Check if indoor unit PCB receives power.	Replace indoor unit PCB when alive led is not blinking in regular intervals. Install correct spare part. Adjust the power to the PCB.
Faulty BP unit wiring.	Check if the wiring is correct, intact, tightened, etc.	Correct the wiring.
Faulty or disturbance of the power supply. (Imbalance > 10%) Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty outdoor unit wiring	Check if the wiring is correct, intact, tightened, etc.	Correct the wiring.
Faulty wiring between BP unit and indoor unit.	Check if the wiring is correct, intact, tightened, not too long, etc.	Correct the wiring.
Faulty wiring between outdoor unit and BP unit.	Check if the wiring is correct, intact, tightened, not too long, etc.	Correct the wiring.

2.41. “UA” – Compatibility failure detection

Trigger	Effect	Reset
When system is initialised, outdoor unit main board checks detected indoor unit(s) are compatible to this type of unit.	Unit will stop operating.	Auto reset when only compatible indoor units and supported combinations are detected after initialisation is finished.

Possible cause	Check	Corrective action
Some indoor unit is not compatible to detected outdoor unit.	Check type indoor unit showing error UA.	Eliminate error code on unit showing error code UA.

2.42. “UF” – Auto address malfunction between outdoor and indoor unit

Trigger	Effect	Reset
During test run outdoor, if check fails on cross piping, closed stop valve(s), or freeze up indoor occurs.	Unit will stop operating.	Test run must be restarted.

Possible cause	Check	Corrective action
Field piping is crossed between systems.	Check for which indoor unit coil temperature did not drop during test run: use BRC1E controller: Maintenance menu - sensor address - code 2.	Verify field piping on blockage or restriction. Verify correct connections between outdoor, BS unit and indoor unit.
Some stop valve is closed.	Check status of all stop valve.	Fully open all stop valves.
Indoor unit(s) enter freeze-up protection.	Indoor fan motor can operate.	Repair indoor unit if fan motor can not operate correctly.

2.43. “UH” – Failure of test run outdoor unit, incorrect interconnection between units

Trigger	Effect	Reset
During initialisation, auto addressing indoor units by outdoor PCB failed.	Unit will stop operating.	Re-initialisation outdoor is required.

Possible cause	Check	Corrective action
Communication interrupted between outdoor and indoor unit.	Check if indoor unit received address from outdoor: use BRC1E controller: Maintenance menu - sensor address - code 4.	Perform a reset of communication on outdoor main board. Wait till outdoor display goes off before restarting.
Faulty interconnection F1F2.	Check the interconnection.	Adjust interconnection on the outdoor unit when required.

2.44. “UJ” – Transmission error between outdoor unit and BP unit

Trigger	Effect	Reset
Communication between BP unit PCB and outdoor unit PCB has failed.	Unit will stop operating.	Manual reset via remote controller.

Possible cause	Check	Corrective action
Faulty BP unit PCB.	Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed. Check if BP unit PCB receives power.	Replace BP unit PCB when alive led is not blinking in regular intervals. Install correct spare part. Adjust the power to the PCB.
Faulty outdoor unit PCB.	Check if the alive led is blinking in regular intervals. Check if the correct spare part is installed. Check if indoor unit PCB receives power.	Replace indoor unit PCB when alive led is not blinking in regular intervals. Install correct spare part. Adjust the power to the PCB.
Faulty BP unit wiring.	Check if the wiring is correct, intact, tightened, etc.	Correct the wiring.
Faulty or disturbance of the power supply. (Imbalance > 10%) Power drop. Short circuit.	Check if the power supply is conform with regulations. No fluctuations in frequency.	Adjust power supply when required. Power reset via outdoor unit.
Faulty outdoor unit wiring	Check if the wiring is correct, intact, tightened, etc.	Correct the wiring.
Faulty wiring between BP unit and indoor unit.	Check if the wiring is correct, intact, tightened, not too long, etc.	Correct the wiring.
Faulty wiring between outdoor unit and BP unit.	Check if the wiring is correct, intact, tightened, not too long, etc.	Correct the wiring.

3. Error code overview

See 'Error code overview' on page 173.

4. Symptom based troubleshooting

Not available yet

5. Component checklist

Overview of component checklists:

INFORMATION

Each component check procedure contains a link to a wiring diagram. If several VRV4 models are listed for a wiring diagram, the link navigates to the wiring diagram of the VRV4 with the lowest capacity.

5.1. Required tools for component check

Figure 10 - Required tools for component check

1. Magnet diam. 17.5 mm (tool part N° 99S0038)
2. Magnet diam. 22.0 mm (tool part N° 999133T)
3. Magnet for ACV coil (local supply)
4. Inverter analyser (tool part N° 1368521)
5. Electronic stethoscope

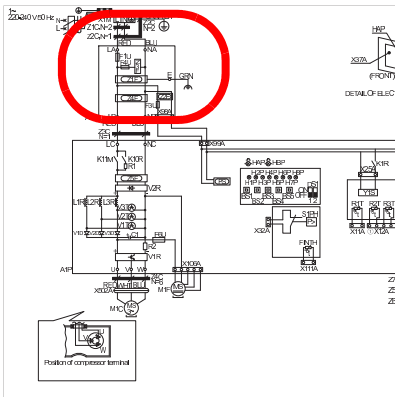
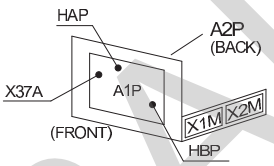
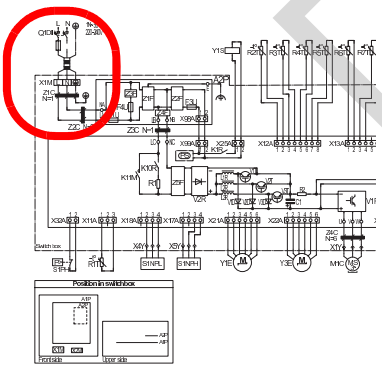
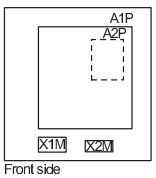
5.2. Power supply

INFORMATION

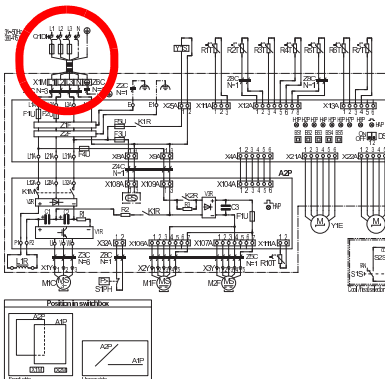
The power supply check is also applicable for the A1P main board.

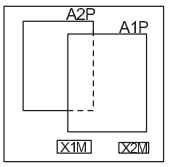
Technical specification	Description
The power supply towards the inverter driven compressor(s) and fan motor(s) contains 3 sections: 1. Incoming power supply 3 phase 400 VAC + neutral + ground. 2. AC-DC converter delivering a stabilized DC voltage of approximately 560 VDC (1,41 x mains voltage). 3. DC-AC 3 phase Pulse Width Modulated frequency inverter.	The power supply to the control board is used: 1. To verify rotation direction for 3 phase motors (indicated by RPP (Reverse Phase Protection)). 2. To supply 230 VAC to coil of solenoid valves and 4-way valves. 3. To generate low voltage DC power supply for main control board and inverter boards.

Location

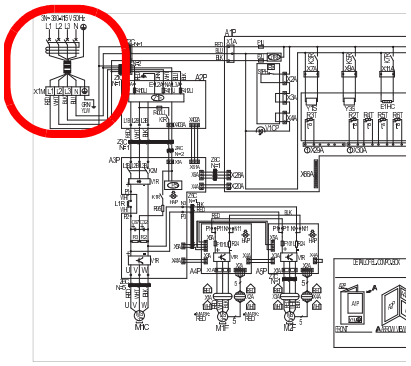
Wiring diagram	Switch Box	Unit
RXYSCQ4+5TMV1B - Compact		
		
RXYSQ4-6T7V1B - Standard 1 ph		
		

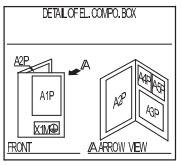
RXYSQ4-6T7Y1B - Standard 3 ph



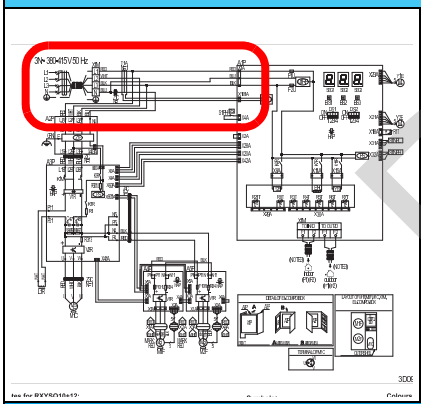


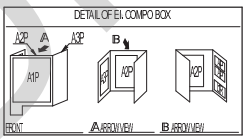
RXYSQ8TMY1B - Large





RXYSQ10-12TMY1B - Large





Check procedure

Mechanical check

1. Confirm that the Daikin VRV indoor units are switched off via the remote controller.
2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (compact), "Removing the switch box cover" on page 121 (standard) or "Removing the switch box cover" on page 125 (large).
3. Confirm that the power supply cable is firmly fixed to the switch box below the power supply terminals and earth connection.
4. Check that the fuses on the main board, auxiliary board and noise filter(s) do not show any damage.
5. Check that the varistors on the main board and the auxiliary boards are not cracked.

Electrical check

Check the power supply cable from the main power distribution board to the outdoor unit:

1. Without power supply: minimum insulation: use a Megger of minimum 500 VDC to confirm insulation between each power supply terminal and ground is minimum 1 Mega Ohm. If insulation is less there is an earth leakage problem.

WARNING: RISK OF ELECTROCUTION.

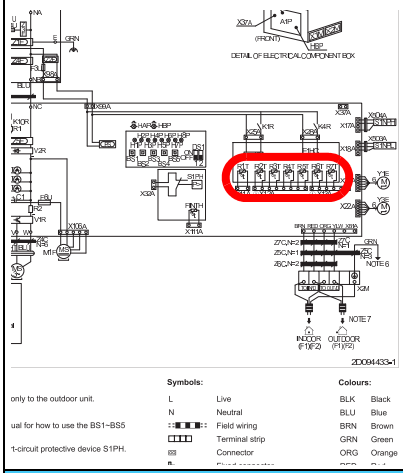
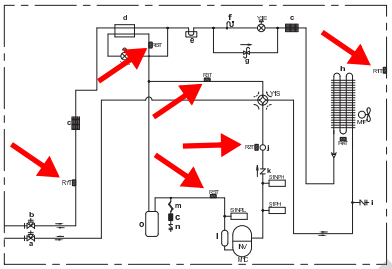
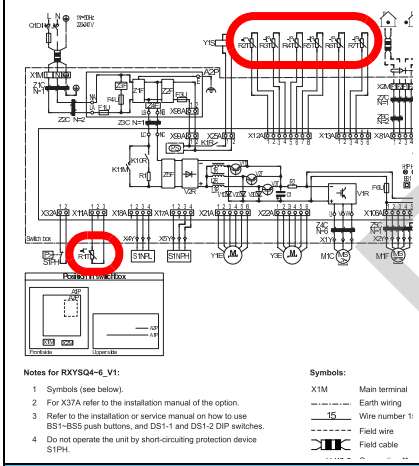
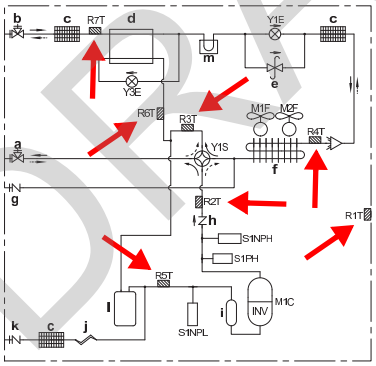
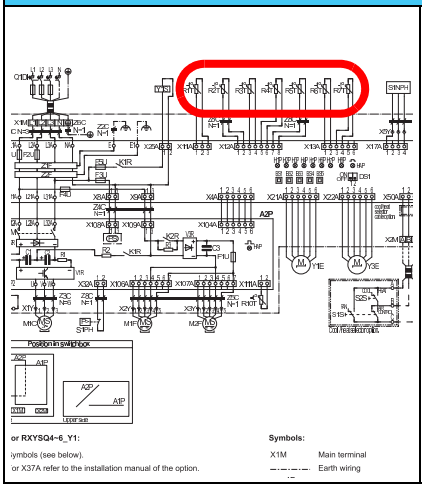
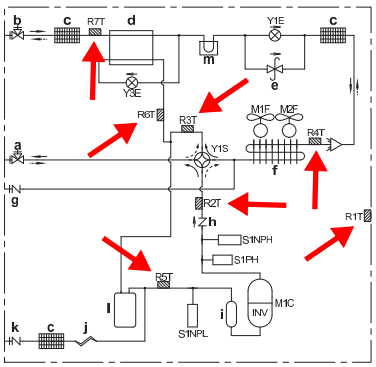
2. After above test is confirmed, switch on circuit breaker. Confirm voltage at the power supply terminals is correct:
   - Between phases L1 – L2 – L3:
     400 VAC ± 10%.
     Unbalance between phases: maximum 2%.
   - Between phase L1 and N: 230 VAC ± 10%.
3. Power supply on the control circuit main board and auxiliary board:
   - Confirm voltage power is present at connector.

Unit	Name	Connector
Compact	RXYSCQ4+5TMV1B	X99A
Standard single phase	RXYSQ4-6T7V1B	X99A
Standard 3 phase	RXYSQ4-6T7Y1B	X108A
Large 8 HP	RXYSQ8TMY1B	X1A
Large 10 HP	RXYSQ10-12TMY1B	X602A

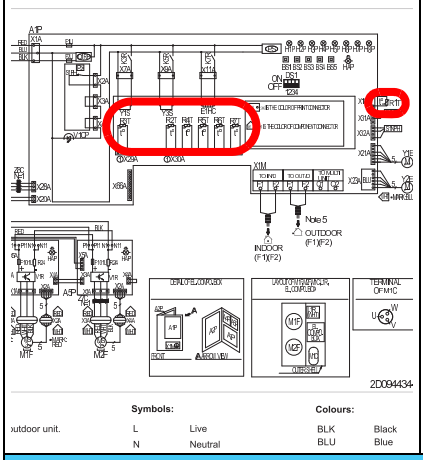
   - Confirm the green Led HAP “service monitor” blinks.
   - Confirm 16 VDC at connector X37A on main control board A1P.

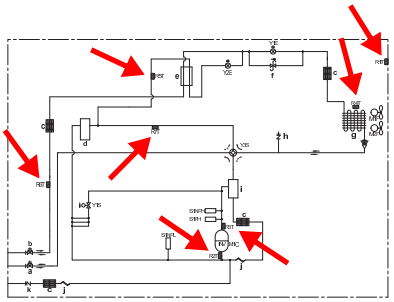
5.3. Thermistors R1T - R15T

Technical specification	Description
2 different types of thermistors are used; the resistance vs. temperature characteristic for each type is shown in Table 2-1 on page 60.	The thermistors are used to measure the temperature at multiple locations inside the Daikin Mini VRV4 unit. The measured temperatures are processed by the main PCB A1P and auxiliary boards.

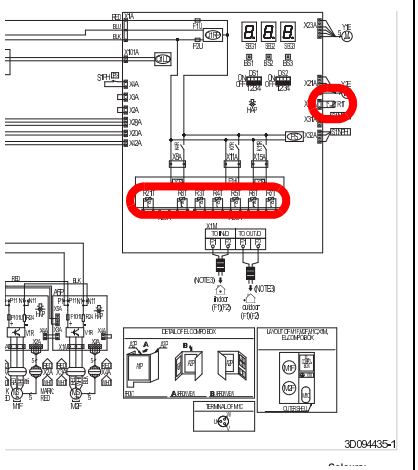
Location		
Wiring diagram	**Piping diagram**	**Unit**
RXYSCQ4+5TMV1B - Compact		
		
RXYSQ4-6T7V1B - Standard 1 ph		
		
RXYSQ4-6T7Y1B - Standard 3 ph		
		

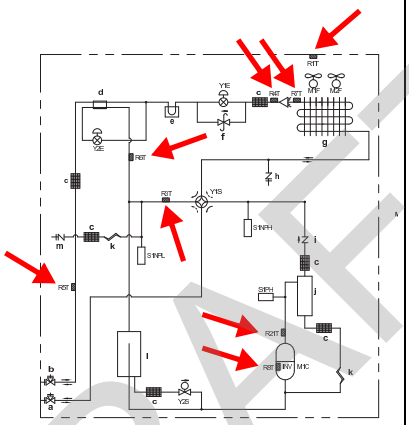
RXYSQ8TMY1B - Large





RXYSQ10-12TMY1B - Large





Check procedure

Mechanical check

1. Switch off the Daikin VRV indoor units via the remote controller.
2. Locate the thermistor and check if thermal contact with the piping or ambient is ensured.

Electrical check

Table 2-1 on page 60 must be used to compare the measured resistance with the correct resistance for the measured temperature with a contact thermometer.

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait till outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.
2. Remove the front plate assembly, refer to "Removing the front plate right" on page 116.

WARNING: RISK OF ELECTROCUTION.

3. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (compact), "Removing the switch box cover" on page 121 (standard) or "Removing the switch box cover" on page 125 (large).
4. From Table 2-1 on page 60, select the connector terminals of the thermistor that must be checked.
5. Measure the temperature of the pipe using a contact thermometer at the location where the sensor is mounted. For checking R1T, measure outdoor air.

6. Unplug the connector from the appropriate PCB and measure the resistance between the pins listed in Table 2-1 on page 60.
   - Compare the measured resistance with the range determined by the temperature in Table 2-2 on page 61 or Table 2-3 on page 62.

7. If the measured resistance does not match the listed value, the thermistor must be replaced, refer to "Replacing a thermistor" on page 130.

   E.g. thermistor R1T “Air thermistor” (main PCB A1P connector X11A - 1/2):

- Measured temperature on the pipe with contact thermometer: 23.1°C.
- Unplug the sensor and measure the resistance on connector X11A between pin 1 and 2: 21.3 kOhm.
- As defined in Table 2-1, this is a type 1 thermistor; the resistance values are defined by Table 2-2 on page 61:
  - Resistance at 20°C: 25.0060 kOhm.
  - Resistance at 25°C: 20.0000 kOhm.
- The measured value 21.3 kOhm is inside the range, thermistor R1T (A1P) passes the check.

INFORMATION

The outdoor main board “digital gauge display” allows to monitor a number of 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 display of the outdoor main control board, replace main board A1P (see page 128) or auxiliary board A2P for R10T - standard 3 phase model (see page 128).

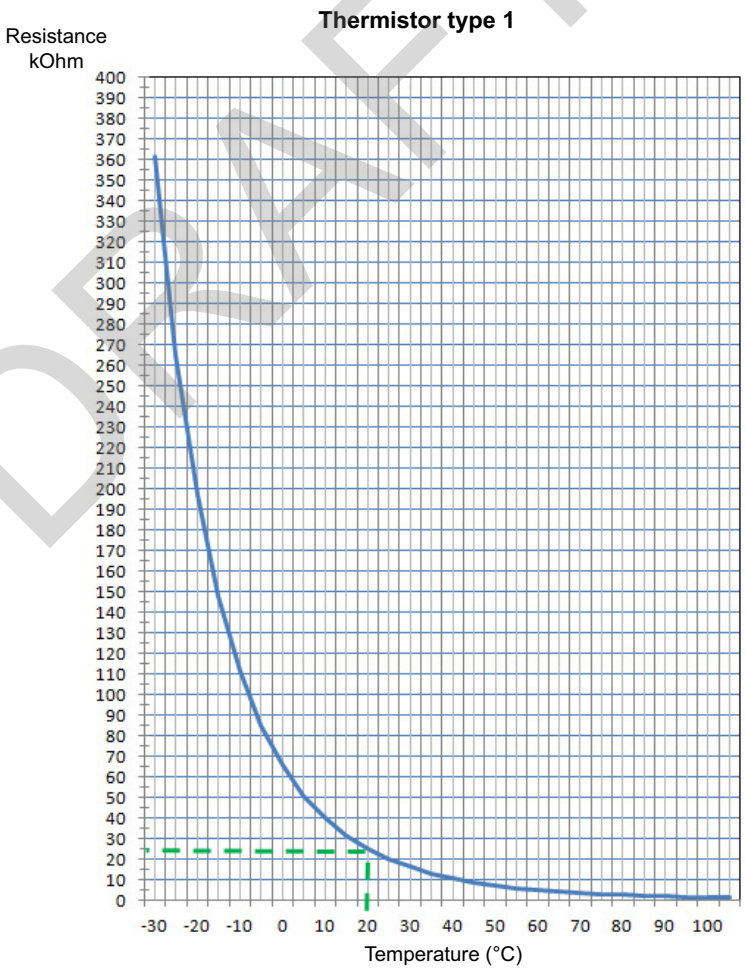
Table 2-1: Thermistors identification, location, connection and type overview

Wiring symbol	Function	Compact	Standard 1F	Standard 3F	Large 8HP	Large 10-12 HP	Type
R1T	Air	A1P X11A	A1P X11A	A1P X11A	A1P X18A	A1P X18A	1
R2T	Discharge	A1P X12A-1/2	A1P X12A-1/2	A1P X12A-1/2	A1P	2	2
R2T	Suction 1				A1P X29A-1/2		1
R21T	Discharge				A1P X30A-1/2	2	2
R3T	Suction 1	A1P X12A-3/4	A1P X12A-3/4	A1P X12A-3/4		A1P X30A-1/2	1
R3T	Discharge				A1P X30A-1/2		2
R4T	Heat exchanger de-icer	A1P X12A-5/6	A1P X12A-5/6	A1P X12A-5/6	A1P X30A-3/4		1
R4T	Heat exchanger liquid pipe					A1P X30A-3/4	1

R5T	Suction 2	A1P X12A-7/8	A1P X12A-7/8	A1P X12A-7/8			1
R5T	Subcool heat exchanger				A1P X30A-5/6		1
R5T	Liquid pipe					A1P X30A-5/6	1
R6T	Subcool heat exchanger	A1P X13A-1/2	A1P X13A-1/2	A1P X13A-1/2		A1P X30A-7/8	1
R6T	Liquid pipe				A1P X30A-7/8		1
R7T	Liquid pipe	A1P X13A-3/4	A1P X13A-3/4	A1P X13A-3/4			1
R7T	Suction 2				A1P X30A-9/10		1
R7T	Heat exchanger de-icer					A1P X30A-9/10	1
R8T	MC1 body					A1P X29A-5/6	2
FINTH	Fin	A1P X111	A1P X111				2
R10T	Fin			A2P X111			1

Table 2-2: Thermistor resistance / temperature characteristics

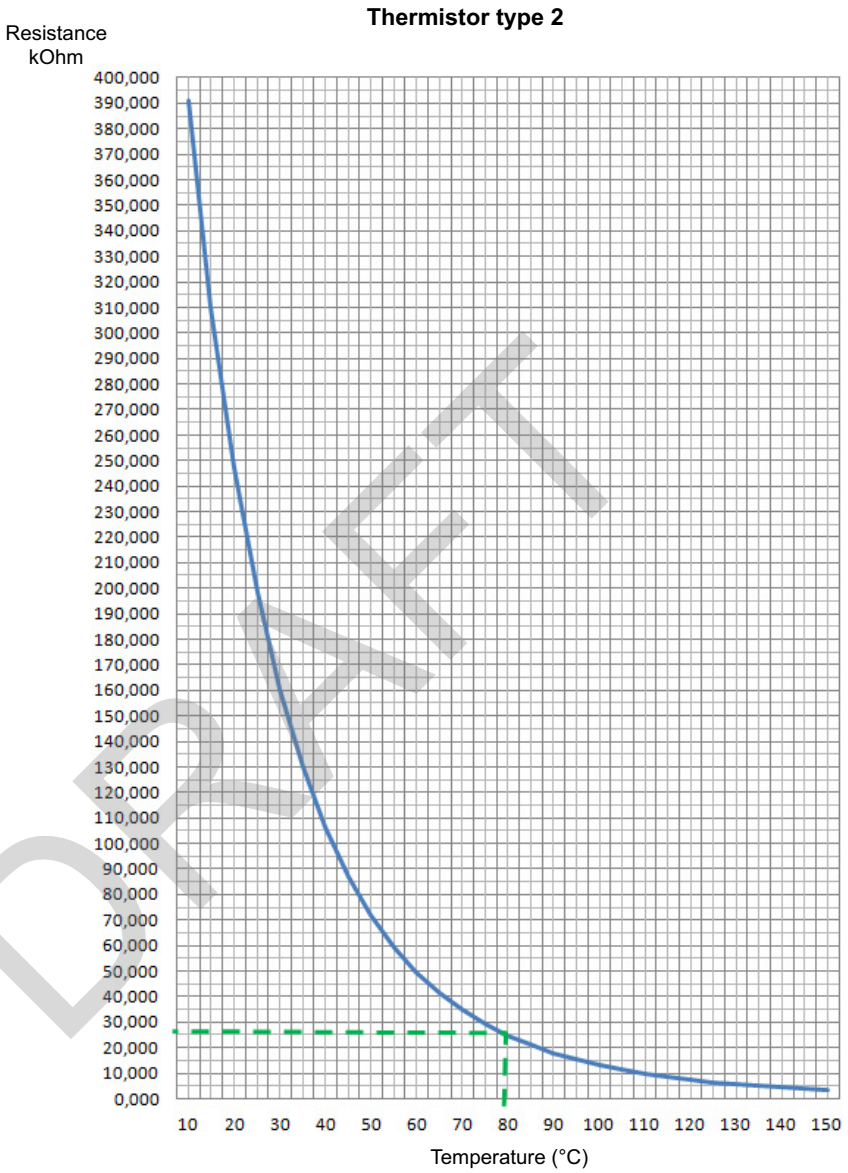
Sensor type 1	
T°C	**kΩ**
-30	361.772
-25	265.470
-20	196.920
-15	147.569
-10	111.658
-5	85.261
0	65.671
5	50.995
10	39.915
15	31.480
20	25.006
25	20.000
30	16.101
35	13.043
40	10.628
45	8.710
50	7.176
55	5.941
60	4.944
65	4.135
70	3.476
75	2.935
80	2.489
85	2.121
90	1.814
95	1.558
100	1.343
105	1.161



Reference point thermistor

Table 2-3: Thermistor resistance / temperature characteristics

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

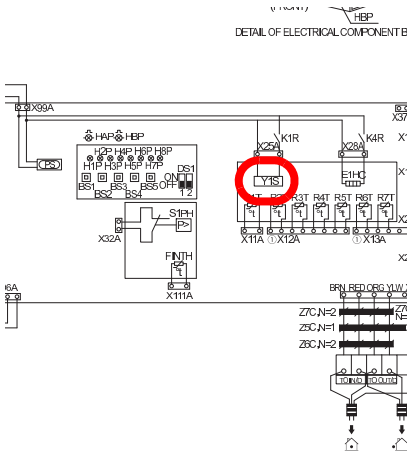
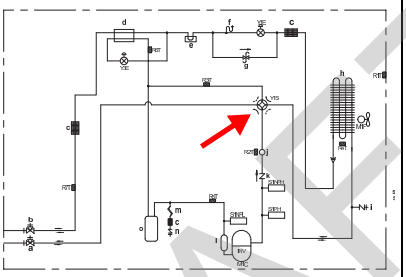
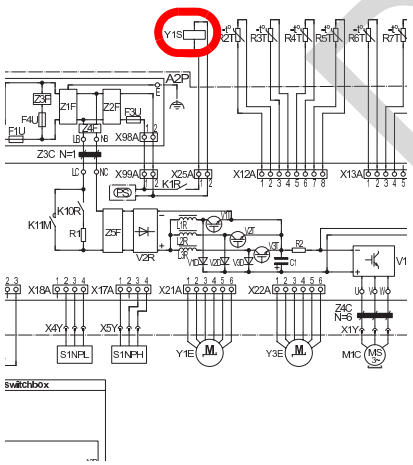
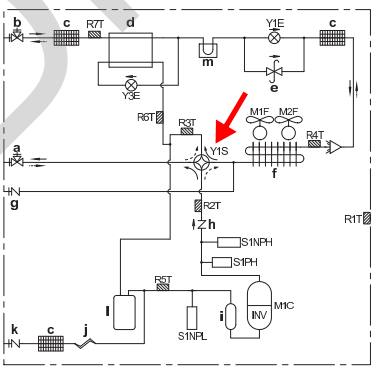


Reference point thermistor

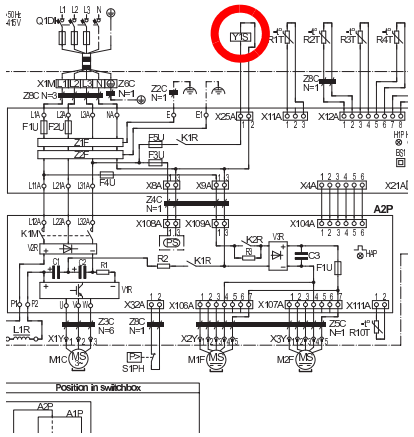
5.4. Solenoid valves Y11S, Y12S, Y2S and 4-way valves Y3S~Y5S

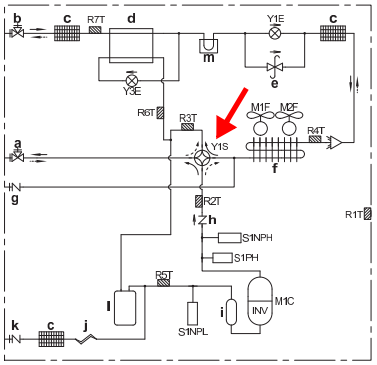
Technical specification	Description
Different types coils are used on: • The 4-way valves (1 piece per unit). • Solenoid valves (maximum 3 pieces per unit).	1. The 4-way valves are used to set the connected circuit: • To discharge pressure (if coil is receiving 0 Volt), or • To suction pressure if coil is receiving 220~240 VAC. 2. The solenoid valves are used to: • Return oil from oil separator to suction pipe of compressor if operating and DSH is minimum 15 K. • Enable flow of liquid to the liquid receiver.

Location

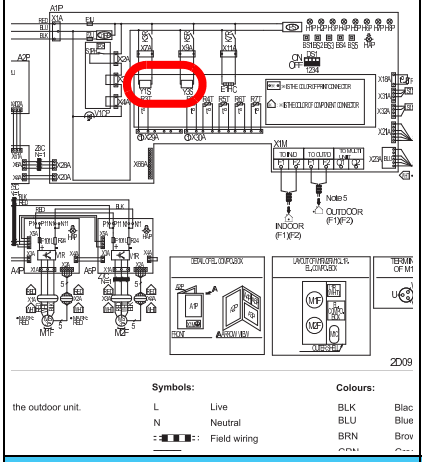
Wiring diagram	Piping diagram	Unit
RXYSCQ4+5TMV1B - Compact		
		
RXYSQ4-6T7V1B - Standard 1 ph		
		

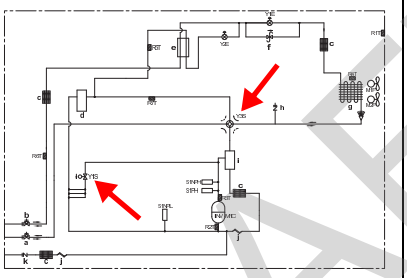
RXYSQ4-6T7Y1B - Standard 3 ph



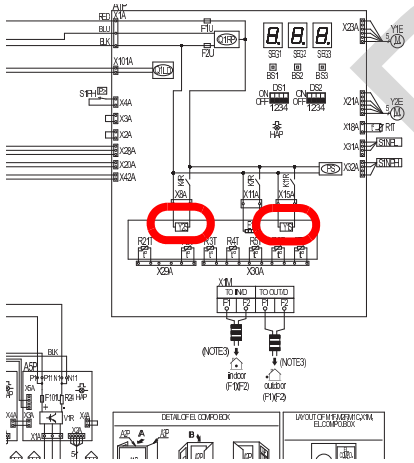


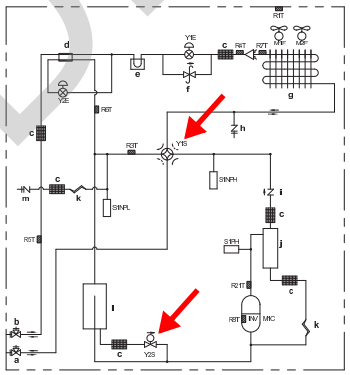
RXYSQ8TMY1B - Large





RXYSQ10-12TMY1B - Large





Check procedure

Mechanical check

1. Switch off the Daikin VRV indoor units via the remote controller.

2. Locate the coil of the 4-way valve or solenoid valve and verify the screw is firmly fixing the coil to the valve body. Check damage (burst).

Electrical check

Table 2-4 below must be used to compare the measured resistance with the correct resistance for the coil of the 4-way valve or solenoid valve.

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait till outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

WARNING: RISK OF ELECTROCUTION.

2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (compact), "Removing the switch box cover" on page 121 (standard) or "Removing the switch box cover" on page 125 (large).
3. From the Table 2-4, select the connector of the coil that must be checked.
4. Unplug the connector from the appropriate PCB and measure the resistance of the coil using a multi-meter.
   - Compare the measured resistance with the value in Table 2-4.
5. If the measured resistance does not match the listed value, the coil must be replaced, refer to "Replacing a 4 way valve coil (Y3S,Y4S, Y5S)" on page 136.

E.g. coil solenoid valve Y2S “solenoid valve inlet liquid receiver” (main board connector X15A):

- Unplug the sensor and measure the resistance on connector X15A: 1.35 kOhm.
- As defined in Table 2-4:
  - Resistance: 1.34 kOhm.
  - Tolerance ± 10%.
- The measured value 1.35 kOhm is inside the range, the coil Y2S passes the check.

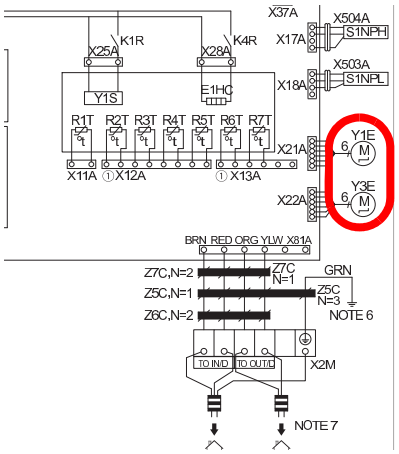
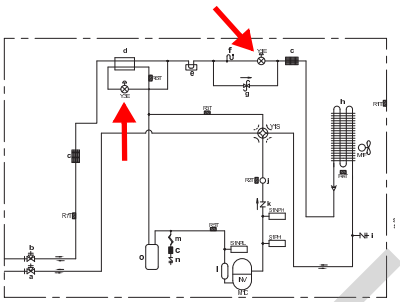
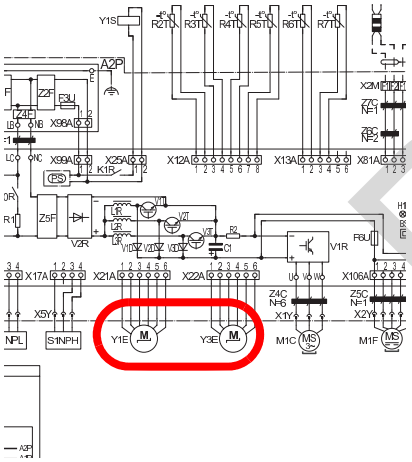
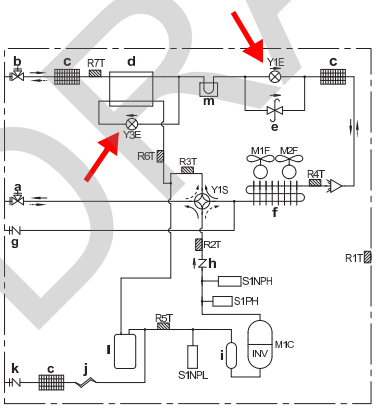
Table 2-4: Solenoid and 4-way valves

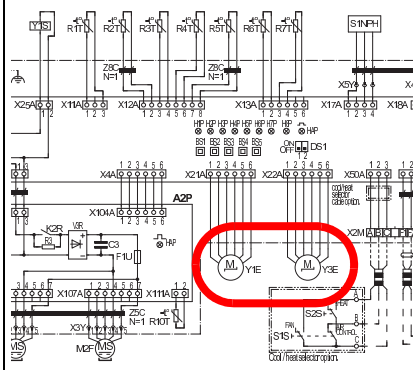
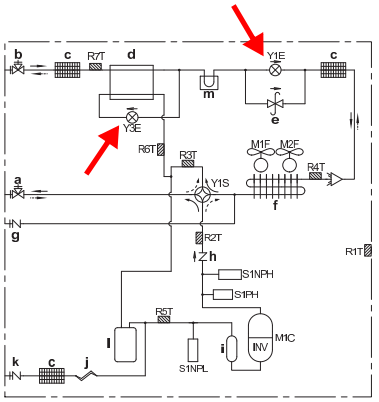
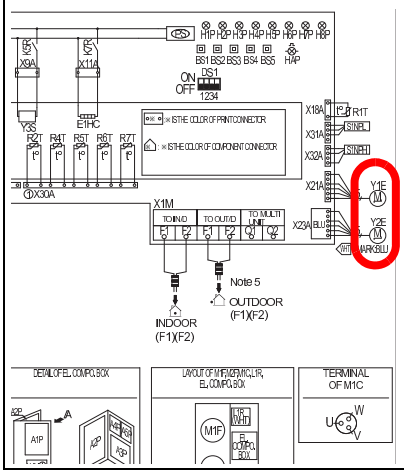
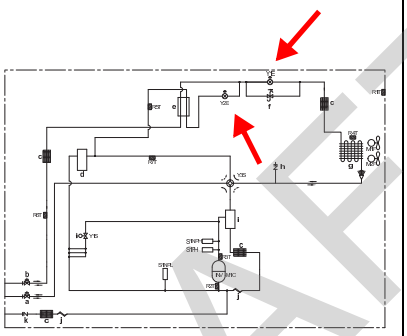
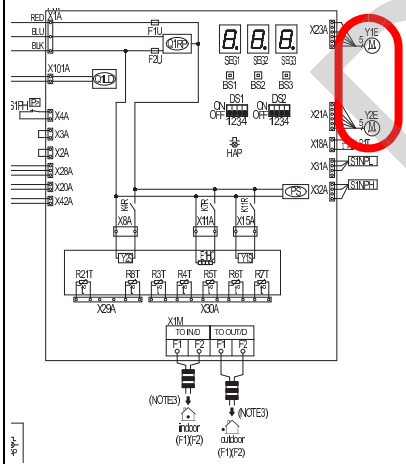
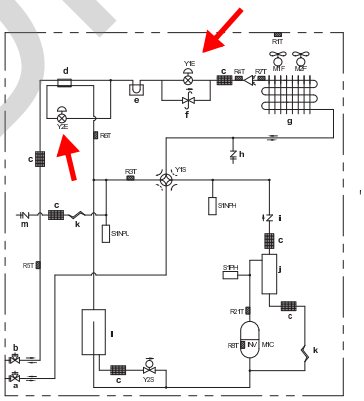
			Resistance (kOhm) +/- 5%				
Wiring symbol	**Function**	**PCB Connector Pin**	**Compact**	**Standard 1PH**	**Standard 3PH**	**Large 8HP**	**Large 10-12 HP**
Y1S	4-way valve	A1P X25A	4.9	5.6	5.6		
		A1P X15A					5.6
Y1S	Solenoid valve	A1P X7A				6.5	
Y2S	Solenoid valve	A1P X8A					6.5
Y3S	4-way valve	A1P X9A				4.9	

5.5. Motorized expansion valve coil Y1E~Y6E

Technical specification	Description
2 different types of coils are used on the expansion valves (6 pieces per unit): • The large size receiving maximum 3000 pulses: 4 sets. • The small size receiving maximum 480 pulses: 2 sets. • On the main board the plugs are the 6 pin type. • On the sub board the plugs are the 5 pin type.	The motorized expansion valves are used: • To control the flow. Depending on location, trigger point is superheat or sub-cool. • To stop flow completely when closing (equivalent 0 pulses).

Location

Wiring diagram	Piping diagram	Unit
RXYSCQ4+5TMV1B - Compact		
		
RXYSQ4-6T7V1B - Standard 1 ph		
		

RXYSQ4-6T7Y1B - Standard 3 ph		
		
RXYSQ8TMY1B - Large		
		
RXYSQ10-12TMY1B - Large		
		

Check procedure

Mechanical check

1. Switch off the Daikin VRV indoor units via the remote controller.
2. Locate the coil of the expansion valve motors and verify coil is firmly slid onto the body of the expansion valve.

Electrical check

Table 2-7 on page 69 must be used to compare the measured resistance with the correct resistance for the coil of the motorized expansion valve.

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait till outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

WARNING: RISK OF ELECTROCUTION.

2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (compact), "Removing the switch box cover" on page 121 (standard) or "Removing the switch box cover" on page 125 (large).
3. From Table 2-5 below, select the connector of the coil that must be checked.
4. Unplug the connector from the appropriate PCB and measure the resistance of the 4 coils using a multi-meter.
   - Compare the measured resistance with the range in Table 2-7 on page 69.
5. If the measured resistance does not match the listed value, the coil must be replaced, refer to "Replacing an expansion valve coil (Y1E, Y2E, Y3E)" on page 142.

E.g. coil expansion valve Y1E “Main” for Mini VRV4 Large 10-12 HP (main PCB A1P connector X23A):

- Unplug the sensor and measure the resistance on connector X23A: between red wire and each other wire (white, yellow, orange and blue): 148 Ω.
- As defined in Table 2-7 on page 69:
  - Resistance: 150 Ω.
  - Tolerance ± 15 Ω.
- The measured value 148 Ω is inside the range, the coil Y1E passes the check.

Table 2-5: Expansion valve coil identification, location, connection and type

					Connector type + Coil				
Wiring symbol	**Function**	**PCB Connector Pin**	**Color**	**Plug Size**	**Compact**	**Standard 1F**	**Standard 3F**	**Large 8HP**	**Large 10-12 HP**
Y1E	Main	A1P X21A	White	Large (6pin)	Type 1 + Coil 1				
		A1P X21A	White	Large (5pin)		Type 2 + Coil 1			
		A1P X21A	Blue	Large (5pin)			Type 2 + Coil 1		
		A1P X21A	White	Large (5pin)				Type 2 + Coil 1	
		A1P X23A	Blue	Large (6pin)					Type 3 + Coil 2
Y2E	Subcool heat exchanger	A1P X23A		Large (6pin)				Type 2 + Coil 1	
		A1P X21A	White	Large (6pin)					Type 3 + Coil 2
Y3E	Subcool heat exchanger	A1P X22A		Large (6pin)	Type 1 + Coil 1	Type 2 + Coil 1	Type 2 + Coil 1		

Table 2-6: Expansion valve connector type

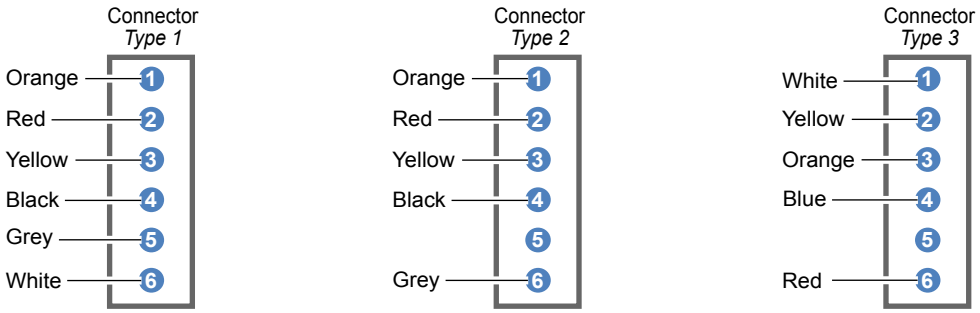
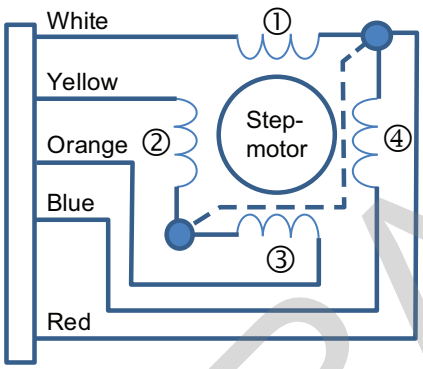
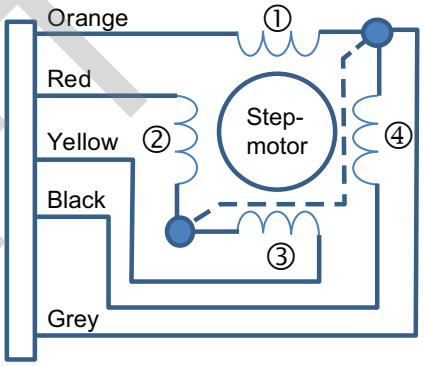


Table 2-7: Expansion valve coil type pulses and resistance overview

Type coil	1	2
Max. Pulses	480	3000
Resitance (Tolerance)	45 Ω (+/- 30Ω)	150 Ω (+/- 15Ω)
Internal wiring coil step motor		

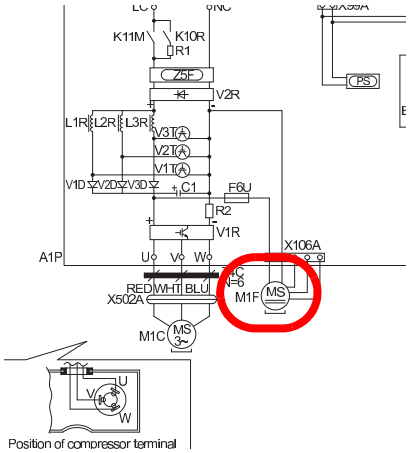
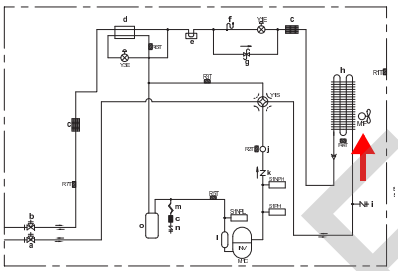
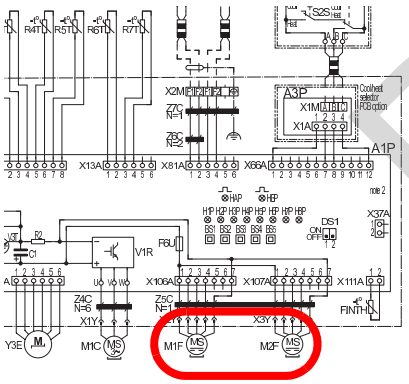
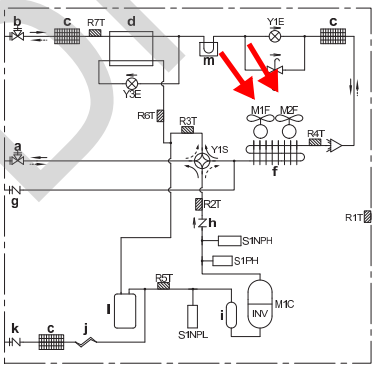
5.6. Fan motor(s) M1F, M2F and PCBs

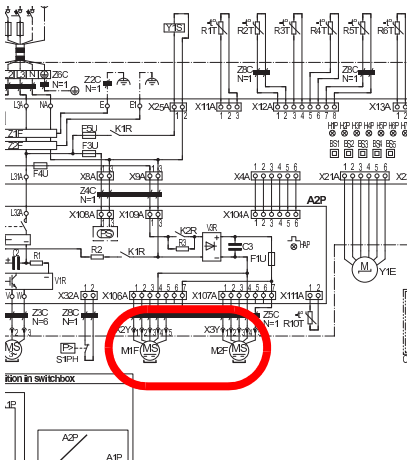
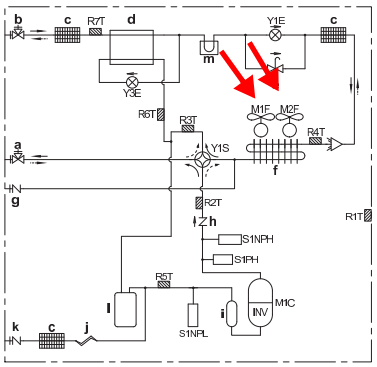
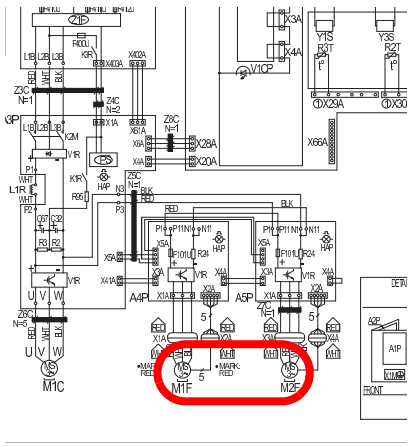
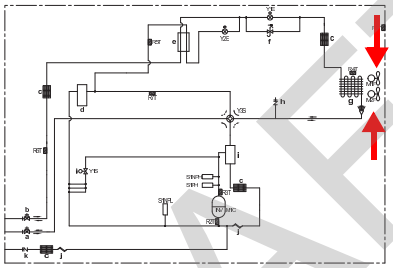
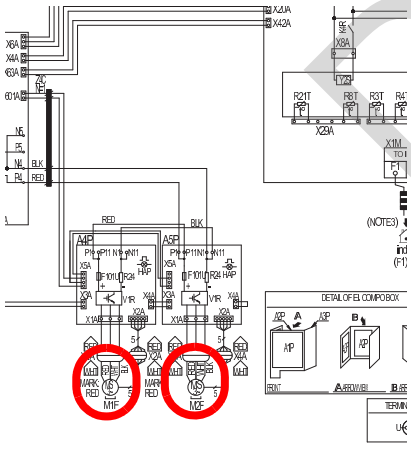
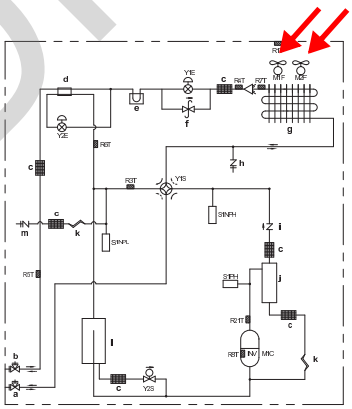
INFORMATION

This check will test the fan and the PCB to which it is connected.

Technical specification	Description
The compact model has 1 fan motor, the standard and large models have 2 fan motors.	The fan motors can run on different speeds to supply the required air flow rate. The required air flow rate is set to reach target condensing and evaporation temperatures.

Location

Wiring diagram	Piping diagram	Unit
RXYSCQ4+5TMV1B - Compact		
		
RXYSQ4-6T7V1B - Standard 1 ph		
		

RXYSQ4-6T7Y1B - Standard 3 ph		
		
RXYSQ8TMY1B - Large		
		
RXYSQ10-12TMY1B - Large		
		

Check procedure

Mechanical check

1. Switch off the Daikin VRV indoor units via the remote controller.
2. Remove the front plate assembly, refer to "Removing the front plate right" on page 116 (Compact only).

WARNING: RISK OF ELECTROCUTION.

3. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (compact), "Removing the switch box cover" on page 121 (standard) or "Removing the switch box cover" on page 125 (large).
4. Locate the connectors of the fan motors (left side in switchbox) and verify all connectors are firmly fixed.
5. Once the outdoor unit has stopped, move propeller(s) by hand to confirm no lock or high friction occurs.

Electrical check

The table below indicates which power modules are installed in which units.

Table 2-8: Internal/External PM overview

Unit	Compact	Standard 1ph	Standard 3ph	Large 8hp	Large 10-12hp
Fan motor 1	Internal PM			External PM	
Fan motor 2	-	Internal PM		External PM	

Table 2-9: Heating/Cooling overview Fan step overview

		Fan 1		Fan 2	
Serie	Horse Power	Min (step 1) rpm	Max (step 8) rpm	Min (step 1) rpm	Max (step 2) rpm
Compact	4, 5, 6	200	900	-	-
Standard	4, 5, 6	250	850	0	850
Large	8	300	970	0	970
	10	300	970	0	970
Control	Keep Tc mininmum 34 °C				

		Fan 1		Fan 2	
Serie	Horse Power	Min (step 1) rpm	Max (step 8) rpm	Min (step 1) rpm	Max (step 2) rpm
Compact	4, 5, 6	200	900	-	-
Standard	4, 5, 6	250	850	0	805
Large	8	300	920	0	920
	10	300	920	0	920
Control	Normal Step 7, capacity up step 8, oil return Tc control				

5.6.1. Internal PM

Table 2-13 on page 76 must be used:

- Two electrical tests must be executed:
  - Electrical test with the fan motor connectors unplugged:
    - Measurement of the motor windings resistance,
    - Diode check of the rpm counter circuit inside the fan motor.

- Electrical test with the fan motor connectors plugged:
  - Measurement to check that the rpm counter for each motor winding gives 4 pulses per rotation.

Check connectors unplugged

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait until the outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

> **WARNING: RISK OF ELECTROCUTION.**

2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (compact) or "Removing the switch box cover" on page 121 (standard).
3. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.
4. From Table 2-13 on page 76, select the connector(s) of the fan motor(s) that must be checked.
5. Use a multimeter to measure the resistance of the motor. If any combination has a value of 0 VDC, replace the motor.
6. Use a multimeter to measure the diodes, compare values with Table 2-10 on page 73.

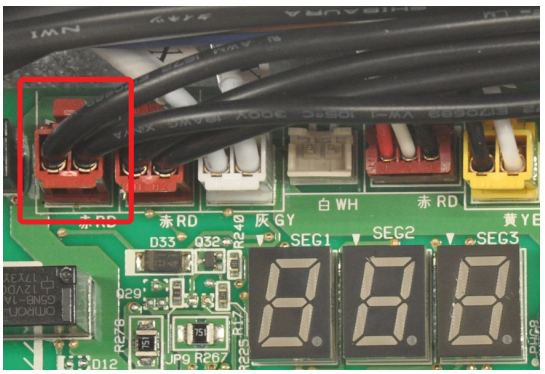
Table 2-10: Diodes measurement overview

Diode check		-				
DCV		red	blue	brown	orange	white
+	red	-	OL	OL	OL	OL
	blue	0.79	-	0.5	OL	OL
	brown	OL	1.94	-	OL	
	orange	OL	OL	OL	-	
	white	OL	OL	OL	OL	-

Check connectors reconnected

> **WARNING**
> This check requires to move the propellor by hand.
> To prevent the automatic start of the fan, a plug will be removed to force an error.

1. Power the outdoor unit.
2. Unplug air thermistor R1T (X11A) from main PCB A1P.

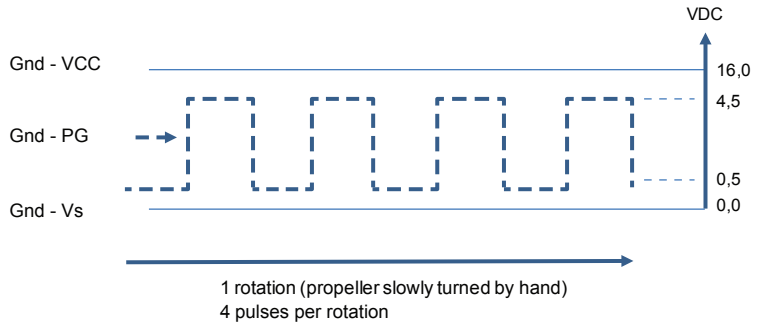


3. Check that the error H9 is displayed.

4. While slowly turning the propeller, verify the feed back signal of the rpm counter. Refer to Figure 11 on page 74.

5. If the measured feedback signal does not match the signal in Figure 11 on page 74, the fan motor must be replaced. Refer to "Replacing a fan propeller" on page 144.

Figure 11 - rpm counter feedback signal (type 1 only)



5.6.2. External PM

Table 2-13 on page 76 must be used:

- Two electrical tests must be executed:
  - Electrical test with the fan motor connectors unplugged:
    - Measurement of the motor windings resistance,
    - Diode check of the rpm counter circuit inside the fan motor.
  - Electrical test with the fan motor connectors plugged:
    - Measurement to check that the rpm counter for each motor winding gives 4 pulses per rotation.

Check connectors unplugged

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait until the outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

WARNING: RISK OF ELECTROCUTION.

2. Remove the switch box cover, refer to "Removing the switch box cover" on page 125 (large).

3. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.

4. From Table 2-13 on page 76, select the connector(s) of the fan motor(s) that must be checked.

5. Use a multimeter to measure the resistance of the motor, compare values with Table 2-11 on page 74. If any measurement has a variation of more than 10%, replace the motor.

Table 2-11: Fan winding resistance

Coil	Reistance (Ω)
U-V	33
V-W	
U-W	

6. Use a multimeter to measure the diodes, compare values with Table 2-12 on page 75.

Table 2-12: Diodes measurement overview

Diode check			-			
DCV		grey	pink	orange	blue	yellow
+	grey	-	0.58	1.17	1.17	1.17
	pink	0.75	-	1.38	1.38	1.38
	oange	1.41	1.25	-	1.85	1.85
	blue	1.41	1.25	1.95	-	1.95
	yellow	1.41	1.25	1.95	OL	-

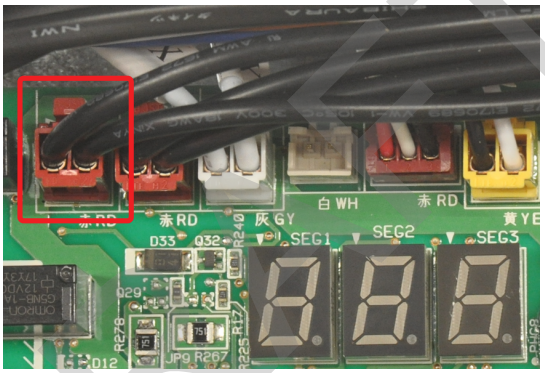
Checking method connectors reconnected

WARNING

This check requires to move the propellor by hand.

To prevent the automatic start of the fan, a plug will be removed to force an error.

1. Power the outdoor unit.
2. Unplug air thermistor R1T (X11A) from main PCB A1P.



3. Check that the error H9 is displayed.
4. While slowly turning the propeller, verify the feed back signal of the rpm counter. Refer to Figure 12 on page 75.
5. If the measured feedback signal does not match the signal in Figure 12 on page 75, the fan motor must be replaced. Refer to "Replacing a fan propeller" on page 144.

Figure 12 - rpm counter feedback signal (type 2 only)

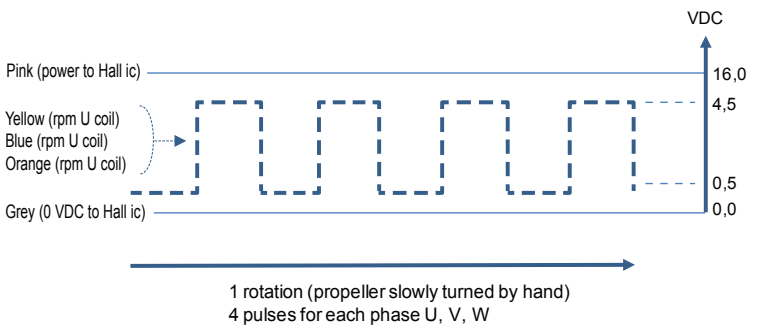


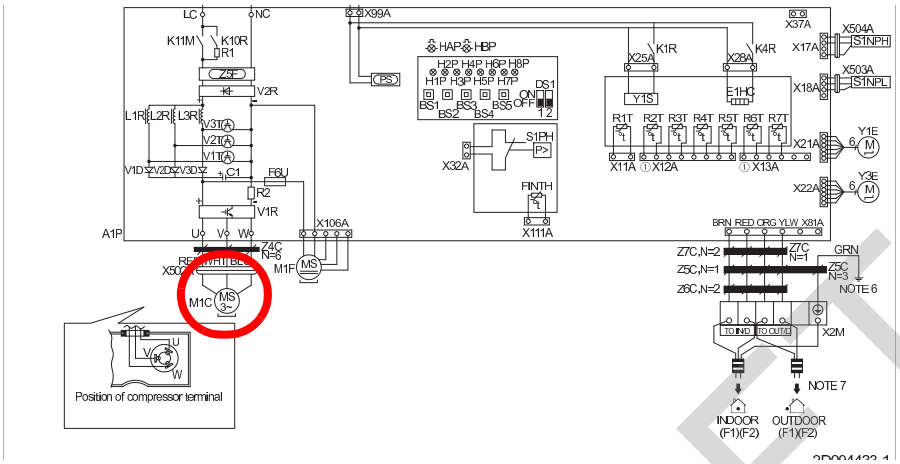
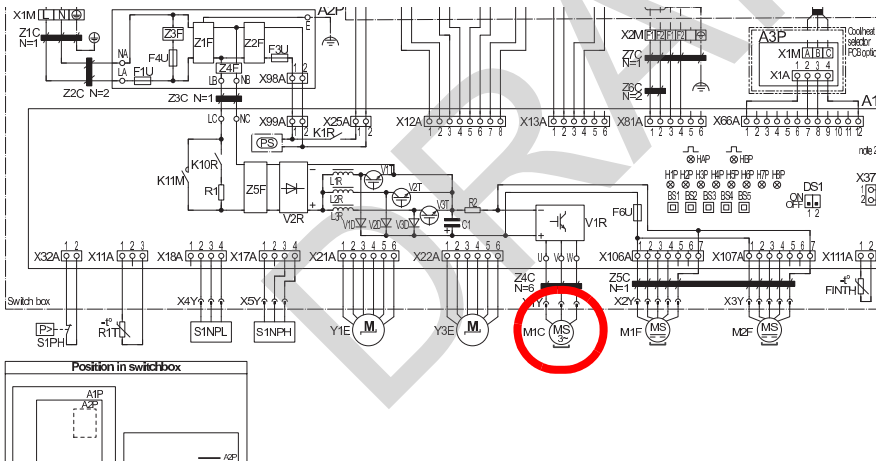
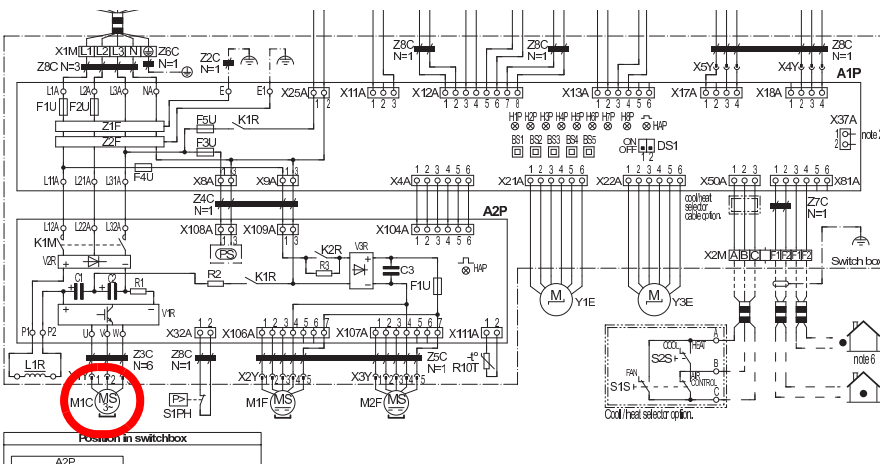
Table 2-13: Fan connector

Unit	Wiring Symbol	PCB Connector	Color	Plug
Compact	M1F	X106A	White	1
Standard 1PH	M1F	X106A	White	2
	M2F	X107A	White	2
Standard 3PH	M1F	X106A	White	2
	M2F	X107A	White	2
Large 8 HP	M1F	X1A (A4P)	White	2
	M2F	X1A (A5P)	White	2
Large 10-12 HP	M1F	X1A (A4P)	White	2
	M2F	X1A (A5P)	White	1

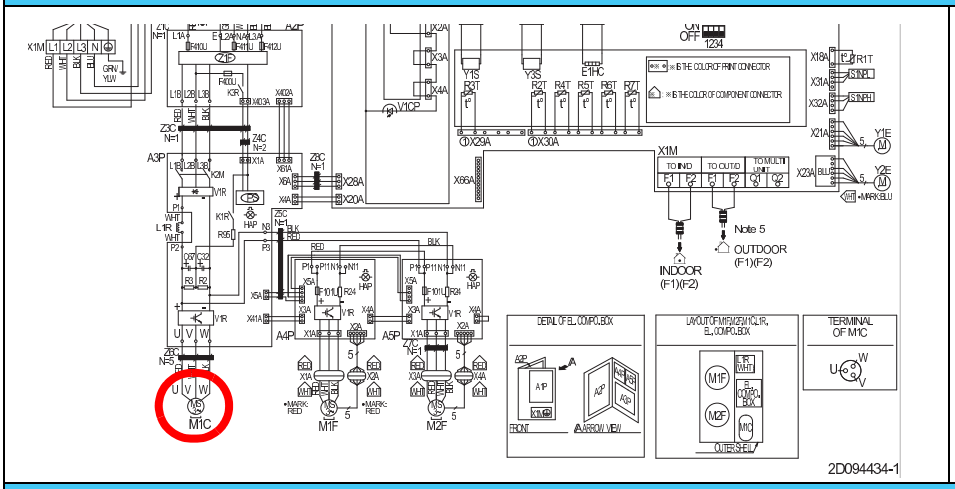
Table 2-14: Connector wiring

Plug 1			Plug 2		
Pin 1	Vm	Red	Pin 1		Yellow
Pin 2	-	-	Pin 2		Blue
Pin 3	GND = 0V	Blue	Pin 3		Orange
Pin 4	Vcc	Brown	Pin 4	Vcc	Pink
Pin 5	Vs	Orange	Pin 7	GND = 0V	Gray
Pin 6	PG	White		-	-

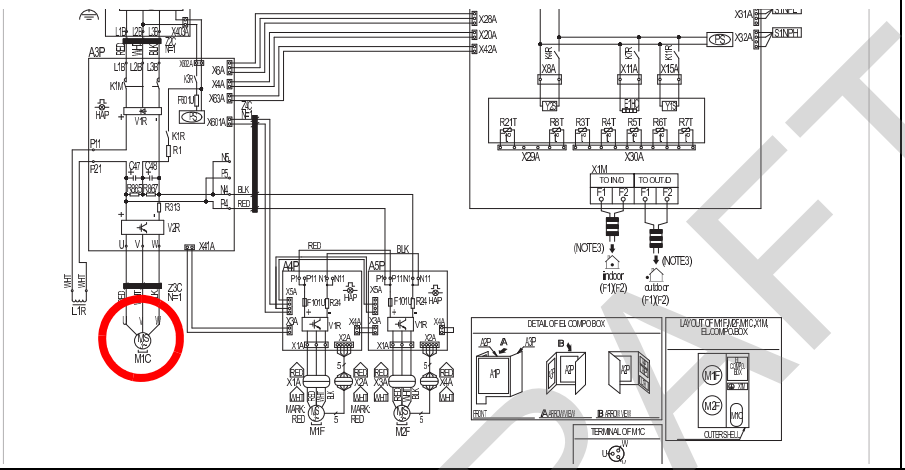
5.7. Compressor motor M1C, M2C

Technical specification	Description
Compressor name: Compact 2YC90EXD#D; Standard single phase 2YC90AXD#C ; Standard three phase 2YC90CXD#C; Large 8 HP JT1GCVDK1YR@S ; Large 12-12 HP JT15JBVDKYR Type: Hermetically sealed scroll compressor	The compressor(s) M1C (M2C) compress(es) the refrigerant in the refrigerant circuit.
Location	
Wiring diagram	**Unit**
RXYSCQ4+5TMV1B - Compact	
	
RXYSQ4-6T7V1B - Standard 1 ph	
	
RXYSQ4-6T7Y1B - Standard 3 ph	
	

RXYSQ8TV1B - Large



RXYSQ10-12TMY1B - Large



Check procedure

Electrical check

- Two electrical tests must be executed:
  - Electrical test with the compressor connectors unplugged:
    - Check of the compressor motor windings.
  - Electrical test with the compressor connectors plugged:
    - Measurement of the 3-phase current and frequency.

Check connectors unplugged

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait until the outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

	WARNING: RISK OF ELECTROCUTION.

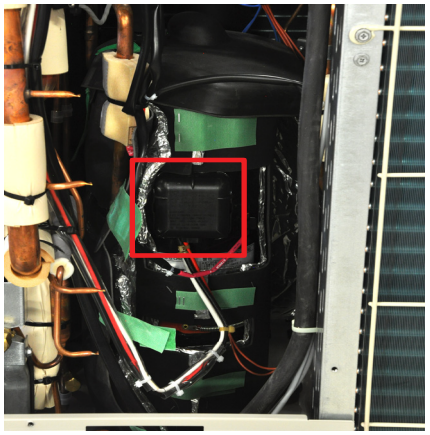
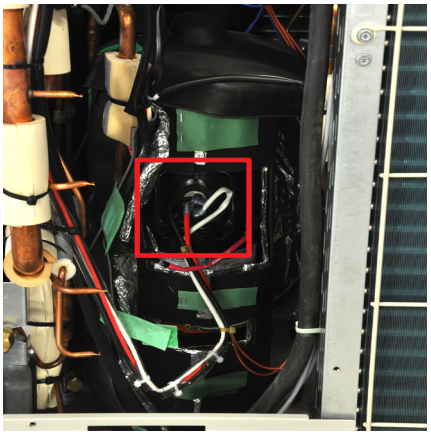
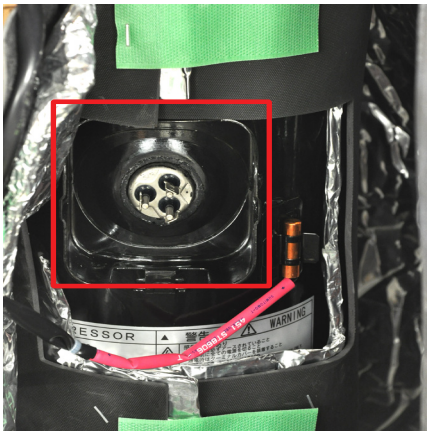
2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (compact), "Removing the switch box cover" on page 121 (standard) or "Removing the switch box cover" on page 125 (large).

3. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.

4. Pull the compressor insulation velcro strip to access the compressor junction box.

5. Remove the cover from the compressor junction box.

6. Remove the wiring from the compressor.

7. Measure the compressor motor windings U-V, V-W and U-W; select the applicable compressor type (Table 2-15 on page 79) and check that all measurements are in accordance with the values.

Table 2-15: Compressor types

Unit	Name	Compressor
Compact	RXYSCQ4+5TMV1B	2YC90EXD#D
Standard single phase	RXYSQ4-6T7V1B	2YC90AXD#C
Standard 3 phase	RXYSQ4-6T7Y1B	2YC90CXD#C
Large 8 HP	RXYSQ8TMY1B	JTIGCVDKYR
Large 10 HP	RXYSQ10-12TMY1B	JTIJ15JVDKYR

8. Megger the compressor using 500 or 1000 V DC, the insulation must be higher than 1 MOhm.

9. Replace the compressor if the compressor motor windings and/or insulation measurements fail. Refer to "Replacing a compressor" on page 146.

Table 2-16: Compressor motor M1C winding resistance (Ω) - 2YC90EXD#D

	U	V	W
U	-	0,343	0,343
V	0,343	-	0,343
W	0,343	0,343	-

Table 2-17: Compressor motor M1C winding resistance (Ω) - 2YC90AXD#C

	U	V	W
U	-	0,36	0,36
V	0,36	-	0,36
W	0,36	0,36	-

Table 2-18: Compressor motor M1C winding resistance (Ω) - 2YC90CXD#C

	U	V	W
U	-	0,47	0,47
V	0,47	-	0,47
W	0,47	0,47	-

Table 2-19: Compressor motor M1C winding resistance (Ω) - JT1GCVDK1YR

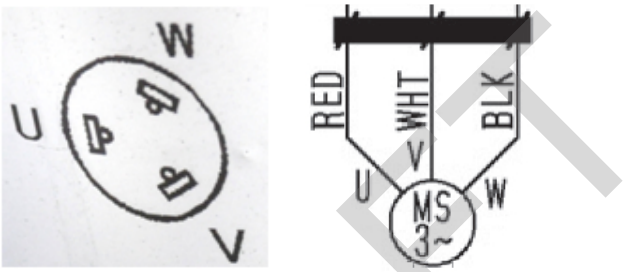
	U	V	W
U	-	0,90	0,90
V	0,90	-	0,90
W	0,90	0,90	-

Table 2-20: Compressor motor M1C winding resistance (Ω) - JT15JVDKYR

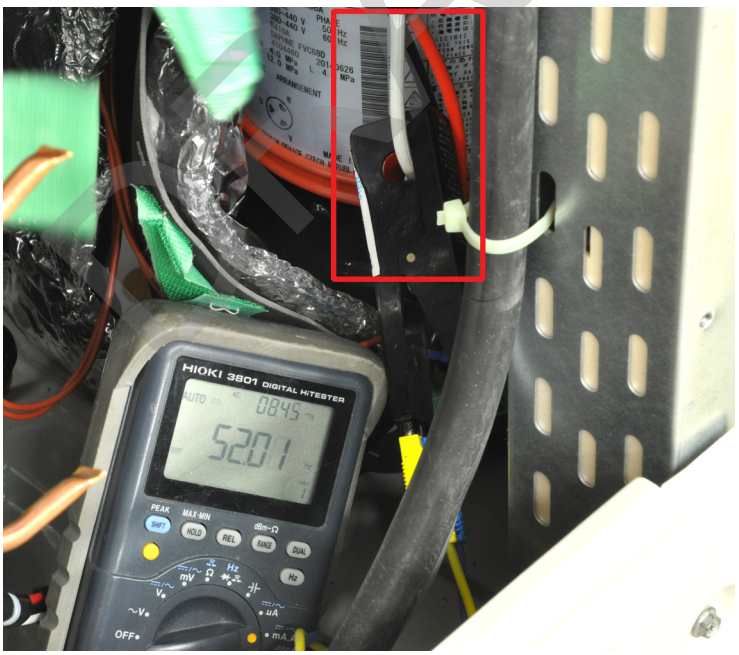
	U	V	W
U	-	0,47	0,47
V	0,47	-	0,47
W	0,47	0,47	-

Check connectors unplugged

1. Reconnect the compressor wires to the compressor, observe the colour code.



2. Clamp the current probe around a single compressor wire.



3. Switch on the Daikin VRV indoor units via the remote controller (indoor control or central control device).

4. Check if the values comply with the reference values in Table 2-21.

Table 2-21: Compressor frequency and rotation speed reference values

		Frequency (Hz)		Rotation speed (rps)	
Serie	Horse Power	Min	Max	Min	Max
Compact	4, 5	45	264	15	88
Standard	4, 5	45	264	15	88
	6	45	279	15	93
Large	8	52	266	26	133
	10	60	301.5	20	100.5
	12	60	329.1	20	109.7
Control	Reach target $T_{evaporation}$				

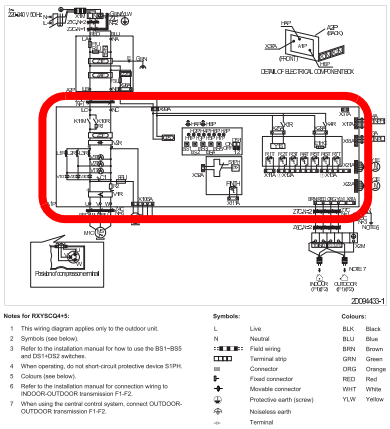
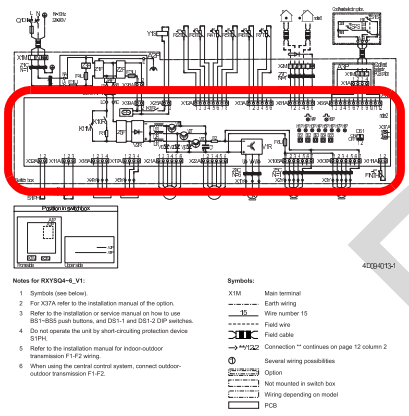
		Frequency (Hz)		Rotation speed (rps)	
Serie	Horse Power	Min (step 1)	Max (step 8)	Min (step 1)	Max (step 2)
Compact	4, 5	45	309	15	103
Standard	4, 5	45	309	15	103
	6	45	327	15	109
Large	8	52	266	26	133
	10	60	382.5	20	127.5
	12	60	387.5	20	129.1
Control	Reach target $T_{condensation}$				

5. Repeat steps 2 to 4 for the 2 other compressor wires.

6. Replace the compressor if the frequency or current measurements fail. Refer to "Replacing a compressor" on page 146.

5.8. Printed circuit board

5.8.1. Inverter board for compact and standard single phase

Technical specification		Description
The inverter is a 400 V 3-phase inverter.		The inverter drives the compressor (type 1).
Location		
Wiring diagram	**Switch box**	**Unit**
RXYSCQ4+5TMV1B - Compact		
		
RXYSQ4-6T7V1B - Standard 1ph		
		
Check procedure		
Electrical check		

- Two electrical tests must be executed:
  - Electrical test with the compressor connectors unplugged:
    - Check of the diodes in the diode module and the transistors in the power module.
  - Electrical test with the compressor connectors plugged:
    - Measurement of the 3-phase output voltages.
    - Measurement of the compressor current and frequency.

Check connectors unplugged

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait until the outdoor

unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

	**WARNING: RISK OF ELECTROCUTION.**

2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (compact) or "Removing the switch box cover" on page 121 (standard).

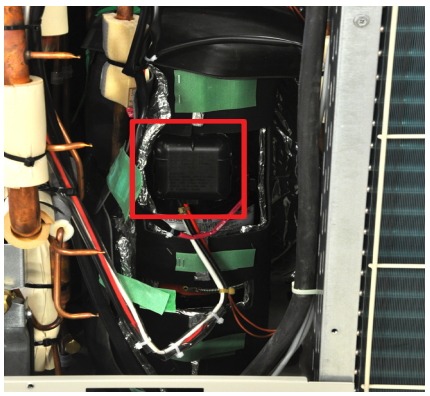
3. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.

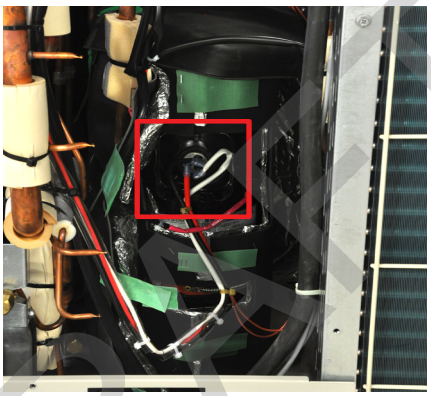
4. Pull the velcro strip of the compressor insulation and pull the insulation away from the junction box.

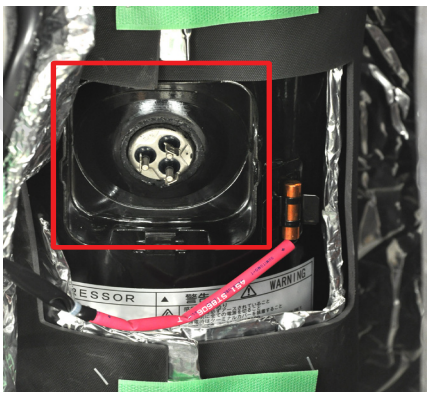
5. Remove the cover from the compressor junction box.

	**CAUTION** Note compressor wiring color coding before removing the compressor wiring.

6. Remove the wiring from the compressor.







7. Using a multimeter in diode measurement, check the compressor inverter board as described in Table 2-22 and Table 2-23.

8. Replace the inverter board if the measurements fail. Refer to "Replacing a switch box (to be replaced by PCBs in the switch box)" on page 128.

INVERTER BOARD “Swing” 1ph power “Compact” & “Standard”

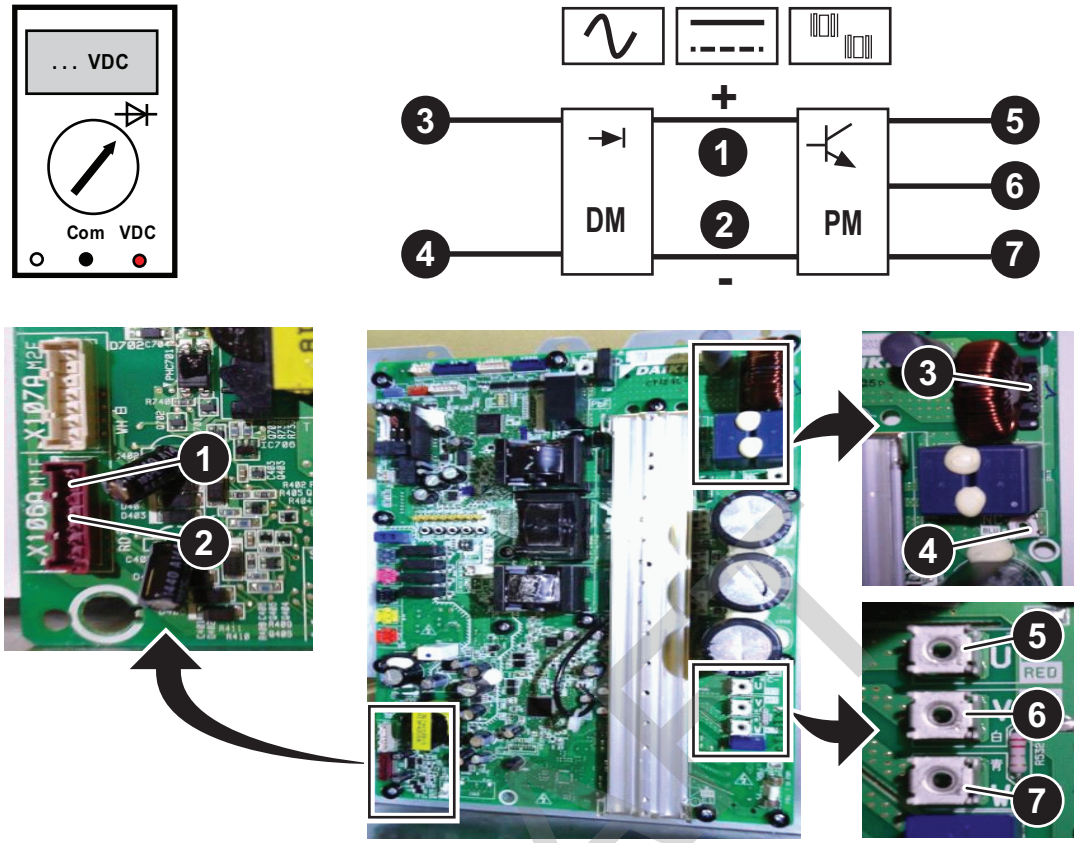


Table 2-22: Diode module check

VDC	Com	Ref	VDC	Com	Ref
1	3	0.4	3	1	OL
1	4	0.4	3	2	0.8
2	3	OL	4	1	OL
2	4	OL	4	2	0.8

Table 2-23: Power module check

VDC	Com	Ref	VDC	Com	Ref	VDC	Com	Ref
1	5	0.4	2	6	OL	6	1	0.4
1	6	0.4	2	7	OL	6	1	OL
1	7	0.4	5	1	0.4	7	1	0.4
2	5	OL	5	2	OL	7	2	OL

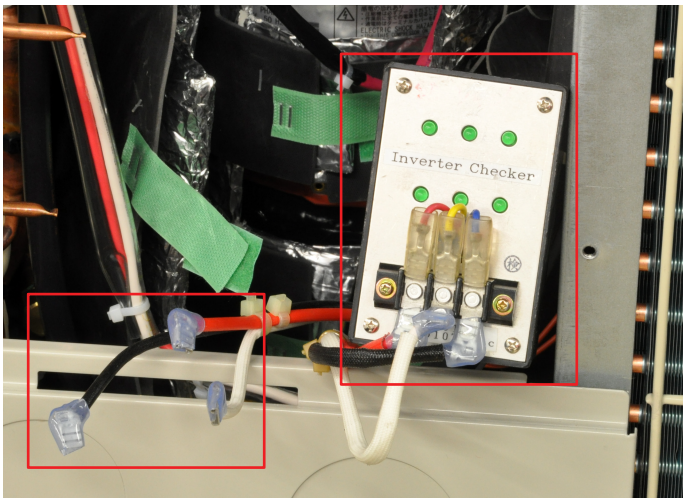
Check connectors reconnected to the compressor

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait until the outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

	WARNING: RISK OF ELECTROCUTION.

2. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.

3. Connect the compressor wires to the inverter analyzer (tool part N° 1368521).



WARNING: RISK OF ELECTROCUTION.

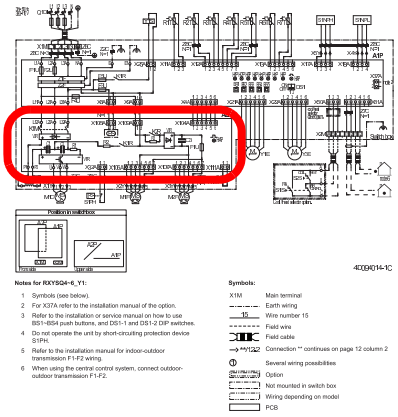
Do not touch the inverter analyser terminals.
Do not touch the compressor wire plugs.

CAUTION

Make sure that the unplugged compressor wires do not touch any part (risk of short circuit).

4. Restore power to the outdoor unit.
5. Start Power transistor (2-28) (= set to 1) (can be done during initialisation of the outdoor unit), press BS3 twice.
6. Check that all 6 LEDs on the inverter analyzer tool blink. Replace the inverter board if the measurements fail. Refer to "Replacing a switch box (to be replaced by PCBs in the switch box)" on page 128.
7. Disable Start Power transistor, press BS1 once.
8. Check that 2 LEDs on the inverter analyzer tool light, gradually dim and eventually turn off.
9. Switch off the Daikin VRV outdoor units by means of an external circuit breaker.
10. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.
11. Reconnect the compressor wires to the compressor, observe the colour code.

5.8.2. Inverter board for compressor standard three phase

Technical specification		Description
The inverter is a 400 V 3-phase inverter.		The inverter drives the compressor (type 2).
Location		
Wiring diagram	**Switch box**	**Unit**
Standard 3ph		
		
Check procedure		

Electrical check

- Two electrical tests must be executed:
  - Electrical test with the compressor connectors unplugged:
    - Check of the diodes in the diode module and the transistors in the power module.
  - Electrical test with the compressor connectors plugged:
    - Measurement of the 3-phase output voltages.
    - Measurement of the compressor current and frequency.

Check connectors unplugged

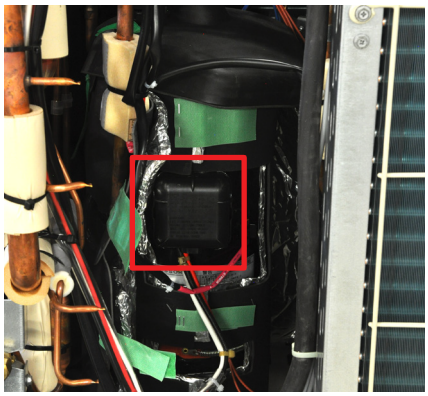
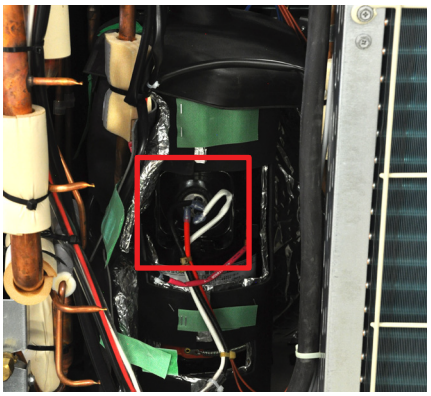
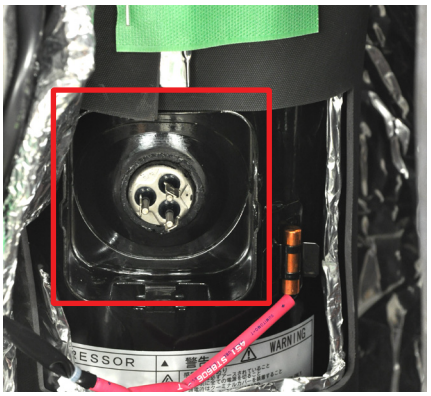
1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait until the outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

> **WARNING: RISK OF ELECTROCUTION.**

2. Remove the switch box cover, refer to "Removing the switch box cover" on page 121 (standard).
3. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.
4. Pull the velcro strip of the compressor insulation and pull the insulation away from the junction box.
5. Remove the cover from the compressor junction box.

> **CAUTION**
>
> Note compressor wiring color coding before removing the compressor wiring.

6. Unplug the wires from the compressor.

7. Using a multimeter in diode measurement, check the compressor inverter board as described in Table 2-24 and Table 2-25.

8. Replace the compressor inverter board if the measurements fail. Refer to "Replacing a switch box (to be replaced by PCBs in the switch box)" on page 128.

Location parts inverter circuit “Standard” RXYSQ-T7Y1

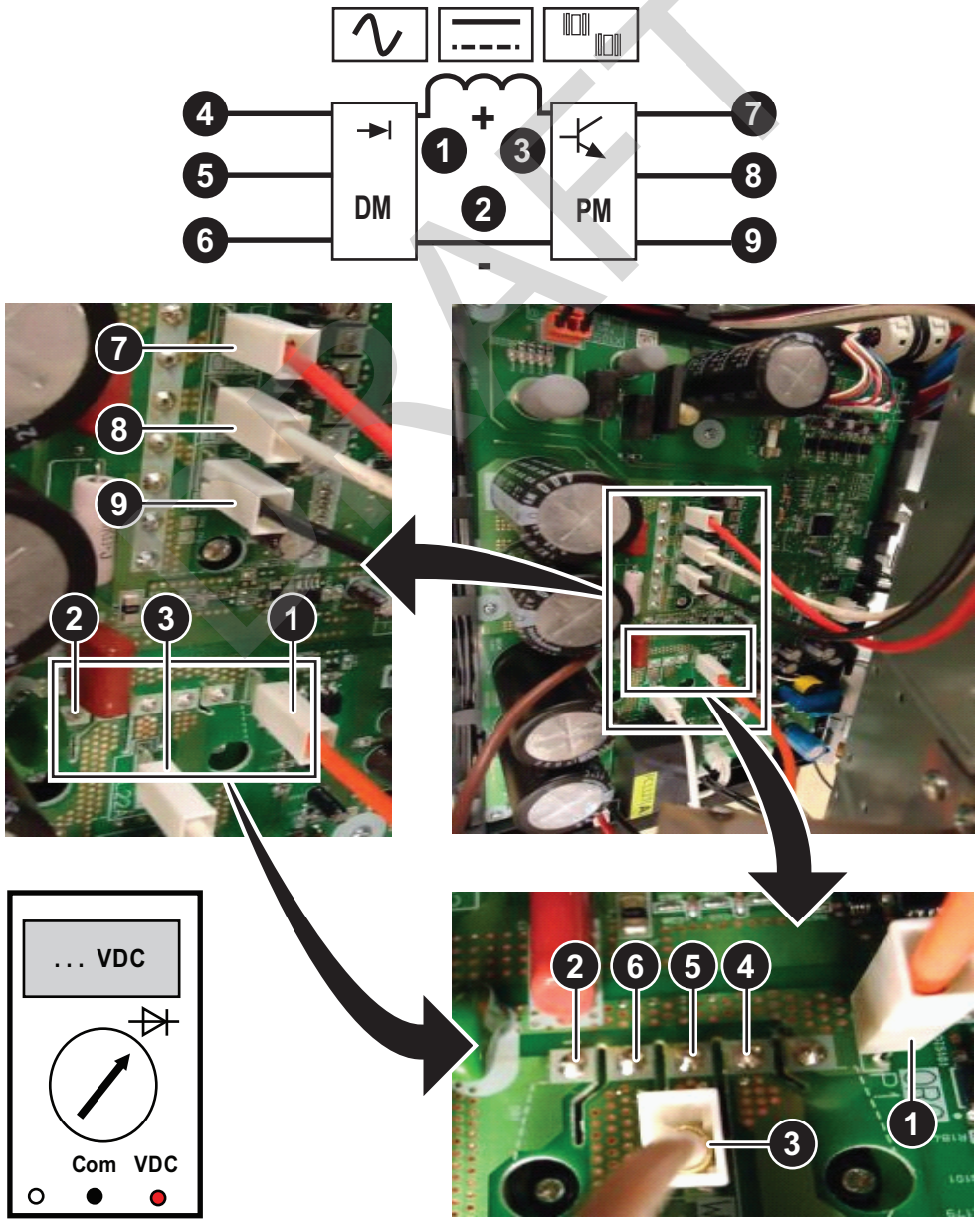


Table 2-24: Diode module check

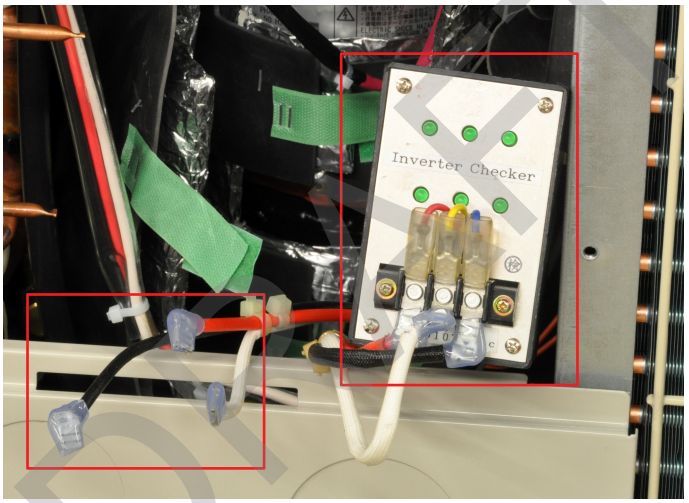
VDC	Com	Ref	VDC	Com	Ref	VDC	Com	Ref
1	3	0.4	2	4	O.L.	5	1	OL
1	4	0.4	2	5	O.L.	3	2	0.4
1	5	0.4	3	1	O.L.	4	2	0.4
2	3	O.L.	4	1	O.L.	5	2	0.4

Table 2-25: Power module check

VDC	Com	Ref	VDC	Com	Ref	VDC	Com	Ref
3	7	0.4	2	8	OL	9	3	O.L.
3	8	0.4	2	9	OL	7	2	0.4
3	9	0.4	7	3	OL	8	2	0.4
2	7	OL	8	3	OL	9	2	0.4

Check connectors reconnected to the compressor

1. Connect the compressor wires to the inverter analyzer (tool part N° 1368521).



WARNING: RISK OF ELECTROCUTION.

Do not touch the inverter analyser terminals.
Do not touch the compressor wire plugs.

CAUTION

Make sure that the unplugged compressor wires do not touch any part (risk of short circuit).

2. Restore power to the outdoor unit.
3. Start Power transistor (2-28) (= set to 1) (can be done during initialisation of outdoor unit), press BS3 twice.
4. Check that all 6 LEDs on the inverter analyzer tool blink. Replace the inverter board if the measurements fail. Refer to or "Replacing a switch box (to be replaced by PCBs in the switch box)" on page 128.
5. Disable Start Power transistor, press BS1 once.
6. Check that 2 LEDs on the inverter analyzer tool light, gradually dim and eventually turn off.
7. Switch off the Daikin VRV outdoor units by means of an external circuit breaker.

8. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.

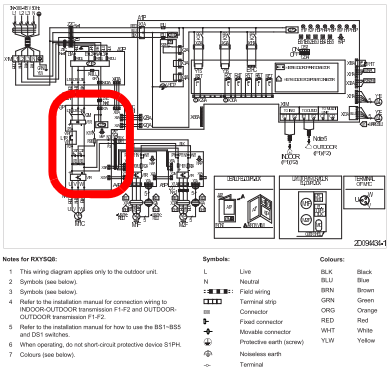
9. Reconnect the compressor wires to the compressor, observe the colour code.

5.8.3. A1P Main board for all units

INFORMATION

The power supply check is also applicable for the A1P main board, refer to "Power supply" on page 55.

5.8.4. Inverter board A3P for Large 8

Technical specification		Description
The Inverter is a 400 V 3-phase inverter.		The inverter drives the compressor (type 1).
Location		
Wiring diagram	**Switch box**	**Unit**
RXYSQ8TMY1B - Large		
		

Check procedure

Electrical check

- Two electrical tests must be executed:
  - Electrical test with the compressor connectors unplugged:
    - Check of the diodes in the diode module and the transistors in the power module.
  - Electrical test with the compressor connectors plugged:
    - Measurement of the 3-phase output voltages.
    - Measurement of the compressor current and frequency.

Check connectors unplugged

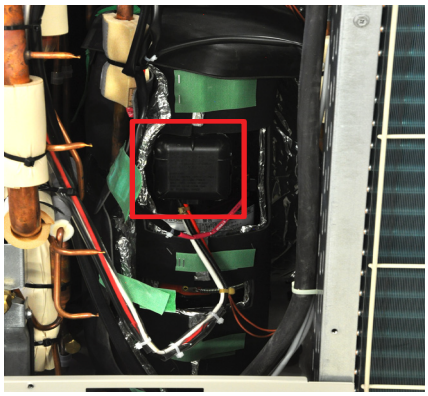
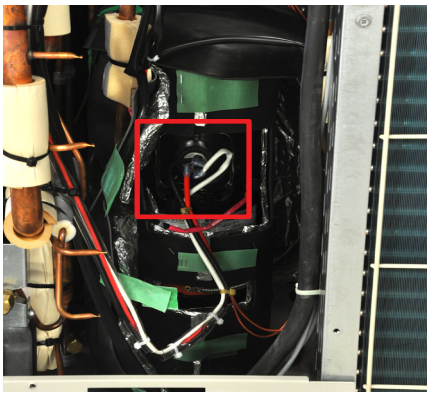
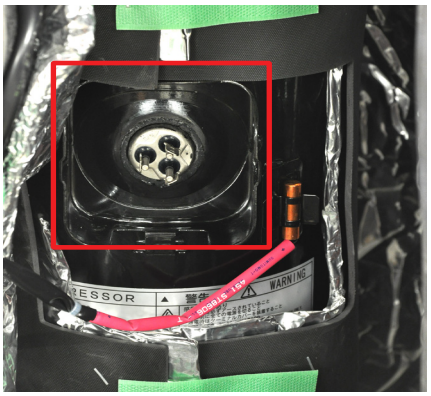
1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait until the outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

> **WARNING: RISK OF ELECTROCUTION.**

2. Remove the switch box cover, refer to "Removing the switch box cover" on page 125 (large).
3. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.
4. Pull the velcro strip of the compressor insulation and pull the insulation away from the junction box.
5. Remove the cover from the compressor junction box.

> **CAUTION**
> Note compressor wiring color coding before removing the compressor wiring.

6. Remove the wiring from the compressor.

7. Using a multimeter in diode measurement, check the compressor inverter board as described in Table 2-26 and Table 2-27.

8. Replace the inverter board if the measurements fail. Refer to "Replacing a switch box (to be replaced by PCBs in the switch box)" on page 128.

INVERTER BOARD “Scroll G” 3ph power Y1 model – Large serie 8hp

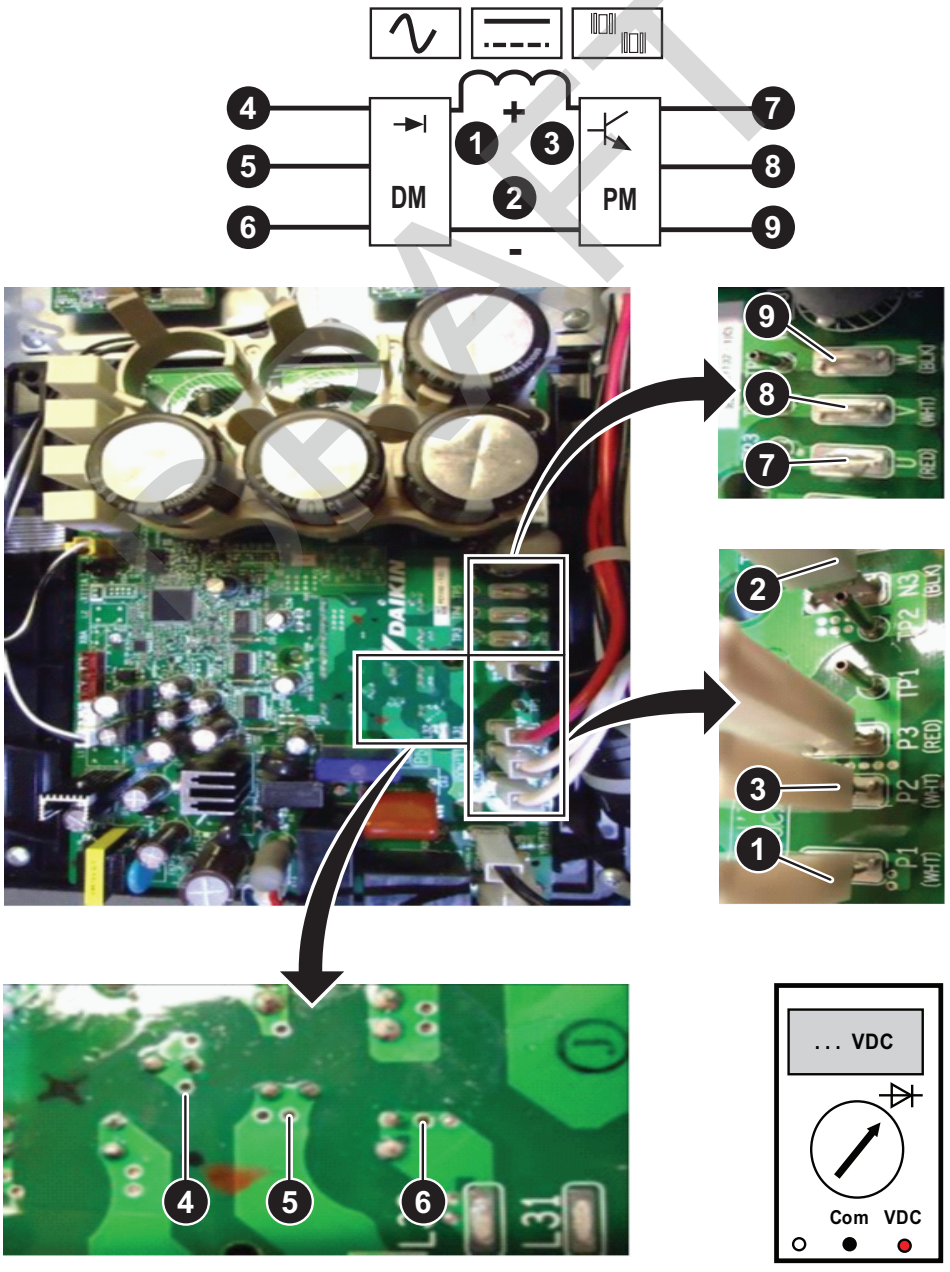


Table 2-26: Diode module check

VDC	Com	Ref	VDC	Com	Ref	VDC	Com	Ref
1	4	0.4	2	5	OL	6	1	OL
1	5	0.4	2	6	OL	4	2	0.4
1	6	0.4	4	1	OL	5	2	0.4
2	4	OL	5	1	OL	6	2	0.4

Table 2-27: Power module check

VDC	Com	Ref	VDC	Com	Ref	VDC	Com	Ref
3	7	0.4	2	8	OL	9	3	OL
3	8	0.4	2	9	OL	7	2	0.4
3	9	0.4	7	3	OL	8	2	0.4
2	7	OL	8	3	OL	9	2	0.4

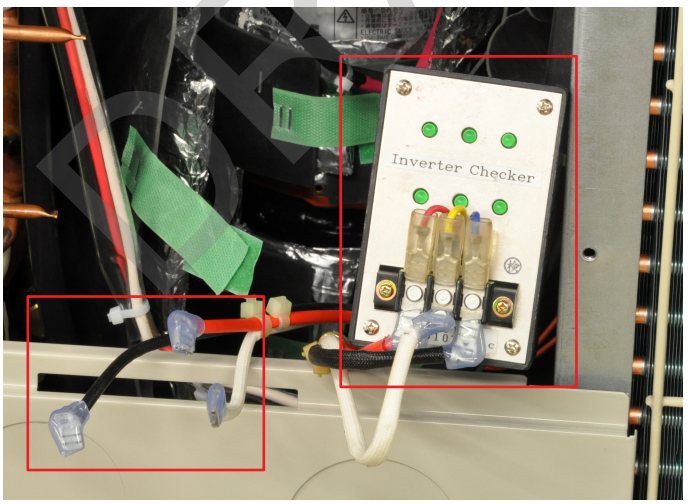
Check connectors reconnected to the compressor

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait until the outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

WARNING: RISK OF ELECTROCUTION.

2. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.

3. Connect the compressor wires to the inverter analyzer (tool part N° 1368521).



WARNING: RISK OF ELECTROCUTION.

Do not touch the inverter analyser terminals.
Do not touch the compressor wire plugs.

CAUTION

Make sure that the unplugged compressor wires do not touch any part (risk of short circuit).

4. Restore power to the outdoor unit.

5. Start Power transistor (2-28) (= set to 1) (can be done during initialisation of the outdoor unit), press BS3 twice.

6. Check that all 6 LEDs on the inverter analyzer tool blink. Replace the inverter board if the measurements fail. Refer to "Replacing a switch box (to be replaced by PCBs in the switch box)" on page 128.

7. Disable Start Power transistor, press BS1 once.

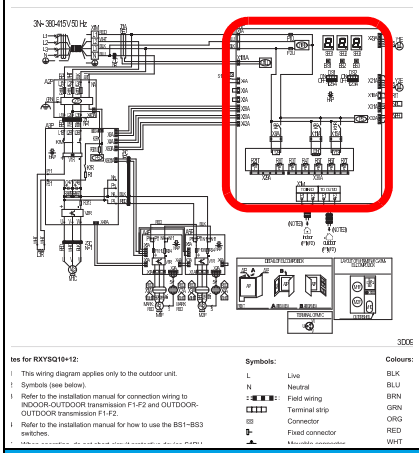
8. Check that 2 LEDs on the inverter analyzer tool light, gradually dim and eventually turn off.

9. Switch off the Daikin VRV outdoor units by means of an external circuit breaker.

10. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.

11. Reconnect the compressor wires to the compressor, observe the colour code.

5.8.5. Inverter board A3P for Large 10-12

Technical specification		Description
The main board.		The main board.
Location		
Wiring diagram	**Switch box**	**Unit**
RXYSQ10-12TMY1B - Large		
		
Check procedure		

Electrical check

- Two electrical tests must be executed:
  - Electrical test with the compressor connectors unplugged:
    - Check of the diodes in the diode module and the transistors in the power module.
  - Electrical test with the compressor connectors plugged:
    - Measurement of the 3-phase output voltages.
    - Measurement of the compressor current and frequency.

Check connectors unplugged

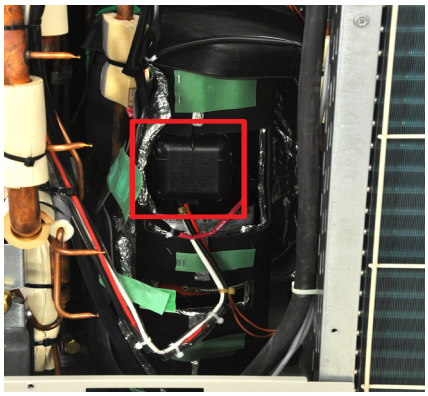
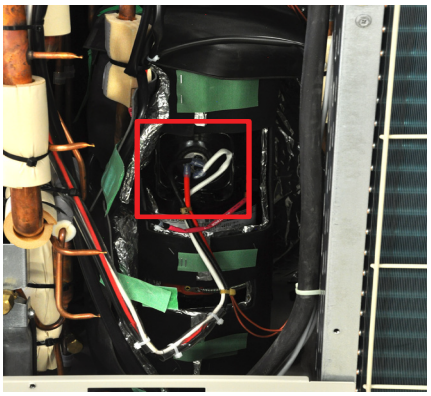
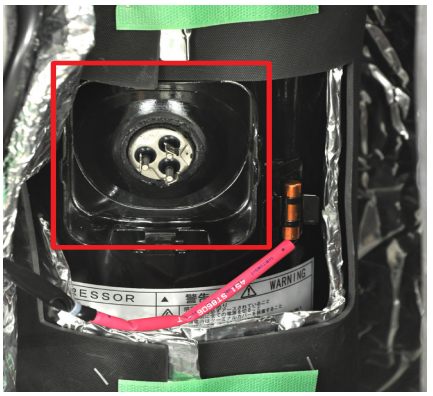
1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait until the outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

	**WARNING: RISK OF ELECTROCUTION.**

2. Remove the switch box cover, refer to "Removing the switch box cover" on page 125 (large).
3. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.
4. Pull the velcro strip of the compressor insulation and pull the insulation away from the junction box.
5. Remove the cover from the compressor junction box.

	**CAUTION** Note compressor wiring color coding before removing the compressor wiring.

6. Remove the wiring from the compressor.

7. Using a multimeter in diode measurement, check the compressor inverter board as described in Table 2-28 and Table 2-29.

8. Replace the inverter board if the measurements fail. Refer to "Replacing a switch box (to be replaced by PCBs in the switch box)" on page 128.

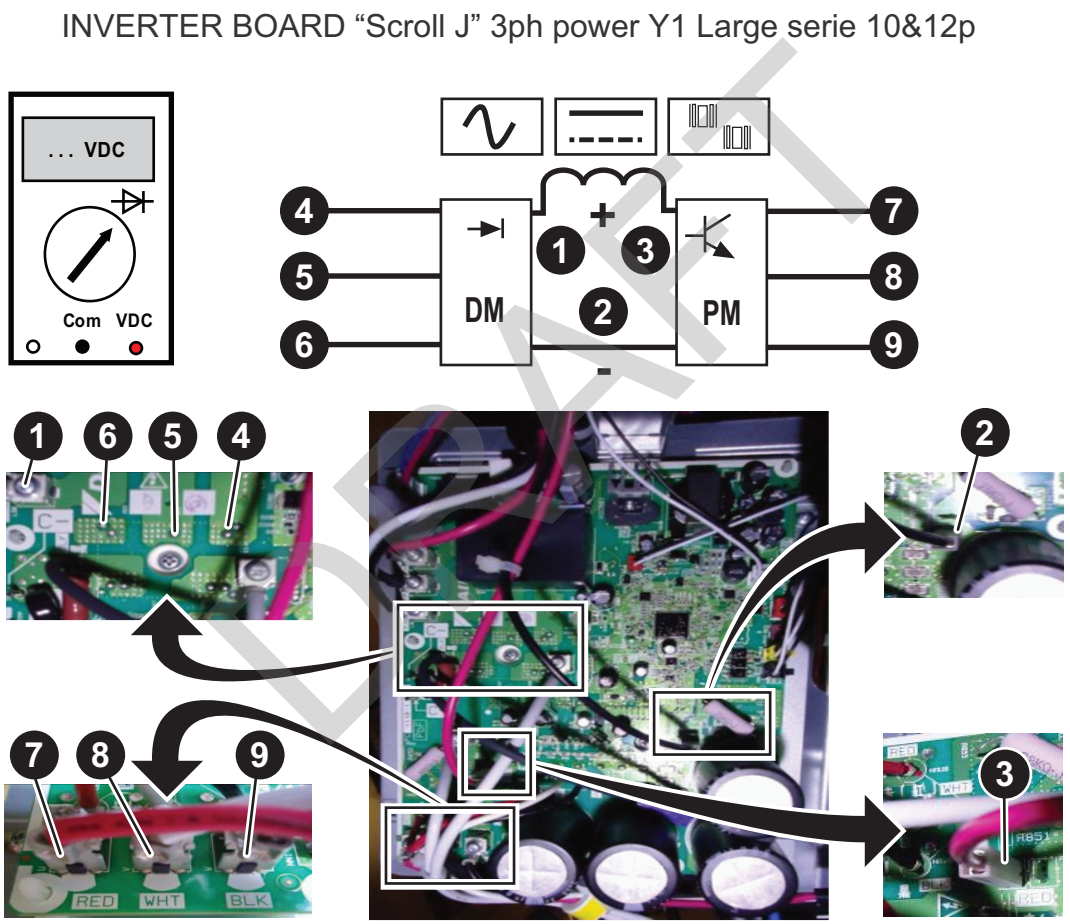


Table 2-28: Diode module check

VDC	Com	Ref	VDC	Com	Ref	VDC	Com	Ref
1	4	0.4	2	5	OL	6	1	OL
1	5	0.4	2	6	OL	4	2	0.4
1	6	0.4	4	1	OL	5	2	0.4
2	4	OL	5	1	OL	6	2	0.4

Table 2-29: Power module check

VDC	Com	Ref	VDC	Com	Ref	VDC	Com	Ref
3	7	0.4	2	8	OL	9	3	OL
3	8	0.4	2	9	OL	7	2	0.4
3	9	0.4	7	3	OL	8	2	0.4
2	7	OL	8	3	OL	9	2	0.4

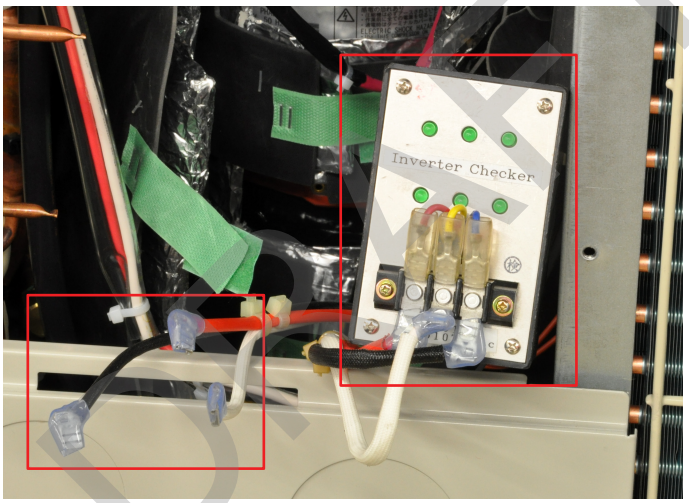
Check connectors reconnected to the compressor

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait until the outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

WARNING: RISK OF ELECTROCUTION.

2. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.

3. Connect the compressor wires to the inverter analyzer (tool part N° 1368521).



WARNING: RISK OF ELECTROCUTION.

Do not touch the inverter analyser terminals.
Do not touch the compressor wire plugs.

CAUTION

Make sure that the unplugged compressor wires do not touch any part (risk of short circuit).

4. Restore power to the outdoor unit.

5. Start Power transistor (2-28) (= set to 1) (can be done during initialisation of the outdoor unit), press BS3 twice.

6. Check that all 6 LEDs on the inverter analyzer tool blink. Replace the inverter board if the measurements fail. Refer to "Replacing a switch box (to be replaced by PCBs in the switch box)" on page 128.

7. Disable Start Power transistor (2-28-0), press BS3 twice.

8. Exit mode 2, press BS1 once.

9. Switch off the Daikin VRV outdoor units by means of an external circuit breaker.

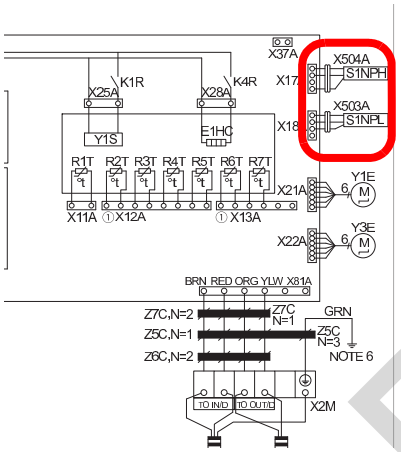
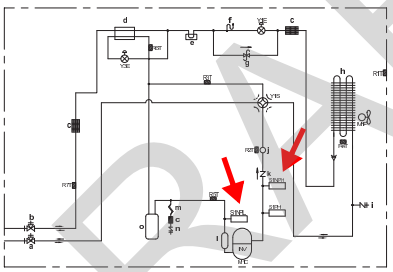
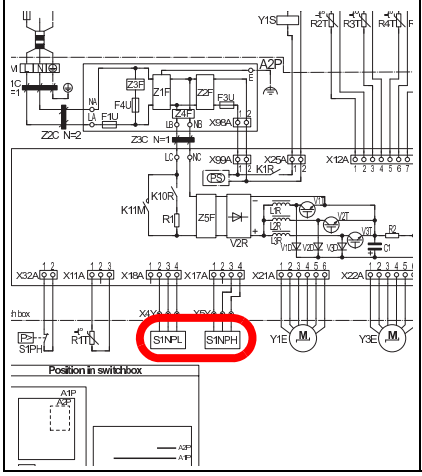
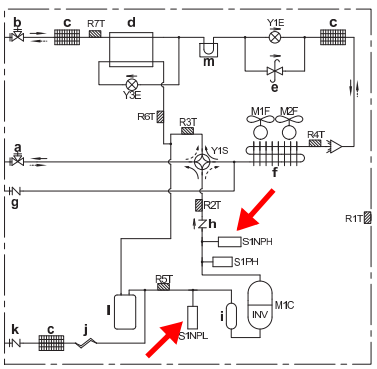
10. Measure the rectifier voltage and wait until the voltage drops below 10 V before proceeding, refer to "Checking the rectifier voltage" on page 126.

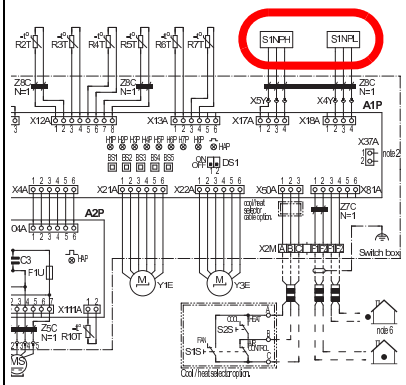
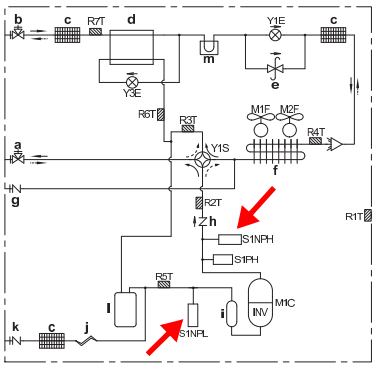
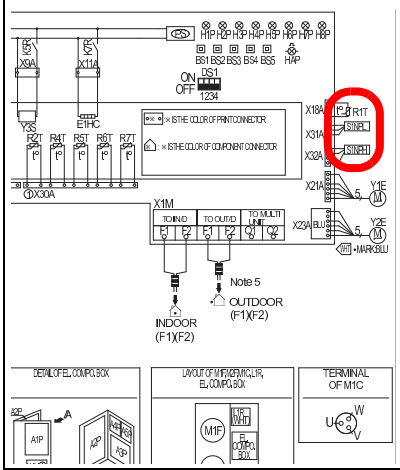
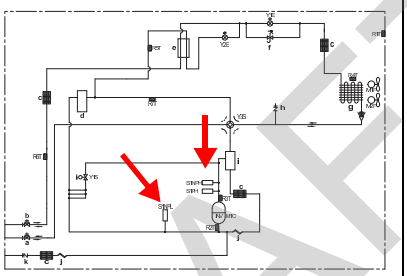
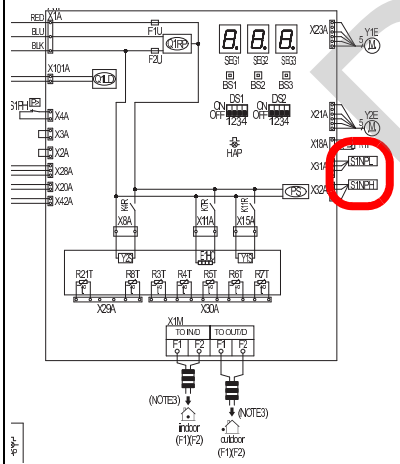
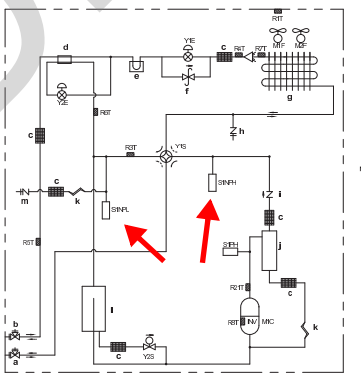
11. Reconnect the compressor wires to the compressor, observe the colour code.

5.9. Pressure sensor S1NPH, S1NPL

Technical specification	Description
The high pressure (discharge) sensor S1NPH is an analog pressure sensor. The low pressure (suction) sensor S1NPL is an analog pressure sensor.	The high pressure sensor S1NPH detects discharge pressure: 1. Cooling: outdoor fan control. 2. Heating = compressor capacity control 3. Protection high discharge pressure. 4. Conversion to saturated condensing temperature to calculate: • Discharge superheat. • Sub-cool. 5. Check minimum and maximum compression ratio. The low pressure sensor S1NPL detects suction pressure: 1. Cooling: compressor capacity control. 2. Conversion to saturated evaporation temperature to calculate: • Suction superheat: heating control EV outdoor evaporator. • Suction superheat liquid sub-cool heat exchanger. • Suction superheat compressor. 3. Protection low suction pressure. 4. Check minimum and maximum compression ratio.

Location

Wiring diagram	Piping diagram	Unit
RXYSCQ4+5TMV1B - Compact		
		
RXYSQ4-6T7V1B - Standard 1ph		
		

RXYSQ4-6T7Y1B - Standard 3ph		
		
RXYSQ8TMY1B - Large		
		
RXYSQ10-12TMY1B - Large		
		

Check procedure

Electrical check

Preliminary actions

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait until the outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

	**WARNING: RISK OF ELECTROCUTION.**

2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (compact), "Removing the switch box cover" on page 121 (standard) or "Removing the switch box cover" on page 125 (large).

3. Remove the lower front plate assembly, refer to "Removing the switch box cover" on page 117 (compact), "Removing the switch box cover" on page 121 (standard) or "Removing the switch box cover" on page 125 (large).

Low pressure sensor S1NPL

1. Connect a manometer to the service port outdoor suction (centre port).

2. Confirm that the outdoor suction stop valve is open.

3. Set the mini VRV4 in cooling mode and read the pressure.

4. From the graph in Figure 13 on page 102, determine the expected sensor output signal.

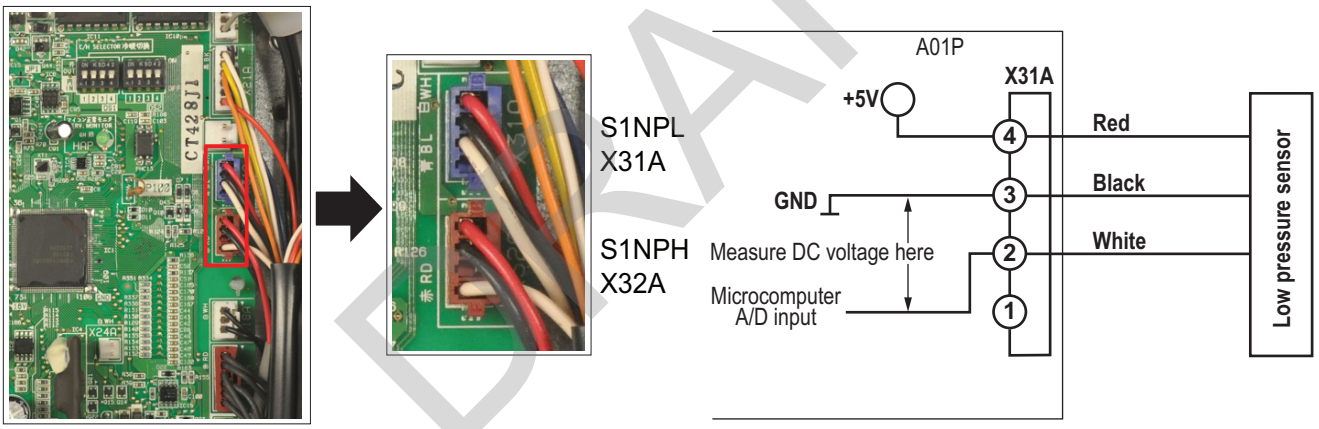
5. Measure the voltage on connector X18A or X31A, Table 2-30 on page 100, pin 3 GND and pin 2, compare the measured voltage with the expected voltage. A maximum deviation of 0.1 VDC is allowed.

Table 2-30: Low pressure sensor connector

Wiring symbol	Function	Color	Compact	Standard 1F	Standard 3F	Large 8HP	Large 10-12 HP
S1NPL	Low pressure sensor	White	X18A	X18A	X18A	X31A	X31A

The low pressure sensor is connected to the main PCB A1P.

Example



6. Confirm the low pressure sensor read out in mode 1 - code 43 (read out MPa) (only for large unit 10-12 HP), or via D-checker.

7. Replace S1NPL if the measured voltage does not match the expected voltage. Refer to "Replacing a pressure sensor (S1NPH, S1NPL)" on page 132.

High pressure sensor S1NPH

Test in cooling mode

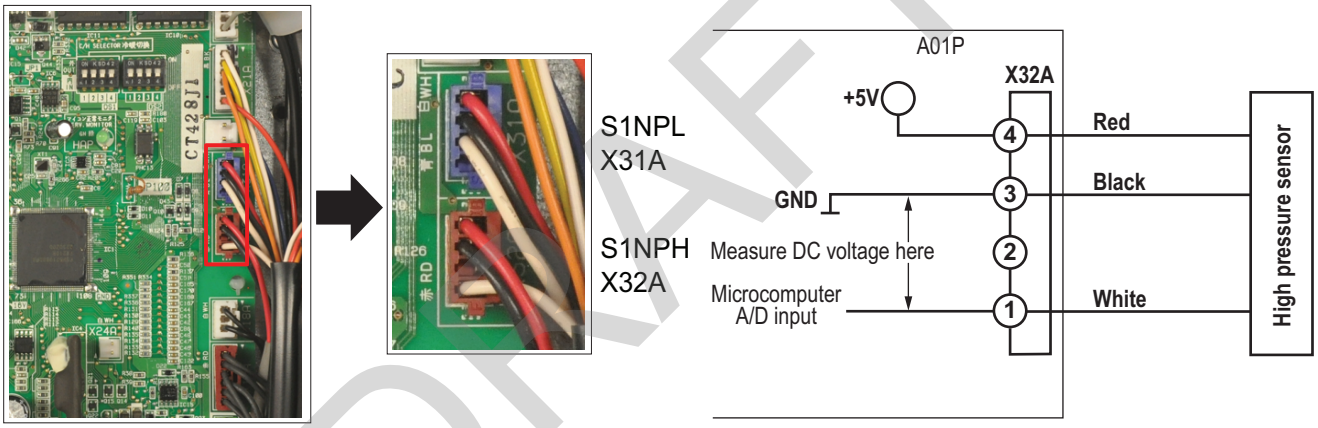
1. Connect a manometer to the service port outdoor liquid (left port).
2. Open the outdoor liquid stop valve.
3. Set the VRV4 in cooling mode and read the pressure.
4. From the graph in Figure 13 on page 102, determine the expected sensor output signal.
5. Measure the voltage on connector X17A or X32A, Table 2-31 on page 101, pin 3 GND and pin 1, compare the measured voltage with the expected voltage. A maximum deviation of 0.1 VDC is allowed.

Table 2-31: High pressure sensor connector

Wiring symbol	Function	Color	Compact	Standard 1F	Standard 3F	Large 8HP	Large 10-12 HP
S1NPH	High pressure sensor	Black	X17A	X17A	X17A	X32A	X32A

The high pressure sensor is connected to the main PCB A1P.

Example



6. Confirm the high pressure sensor read out in mode 1 - code 42 (read out MPa) (only for large unit 10-12 HP), or via D-checker.
7. Replace S1NPH if the measured voltage does not match the expected voltage. Refer to "Replacing a pressure sensor (S1NPH, S1NPL)" on page 132.

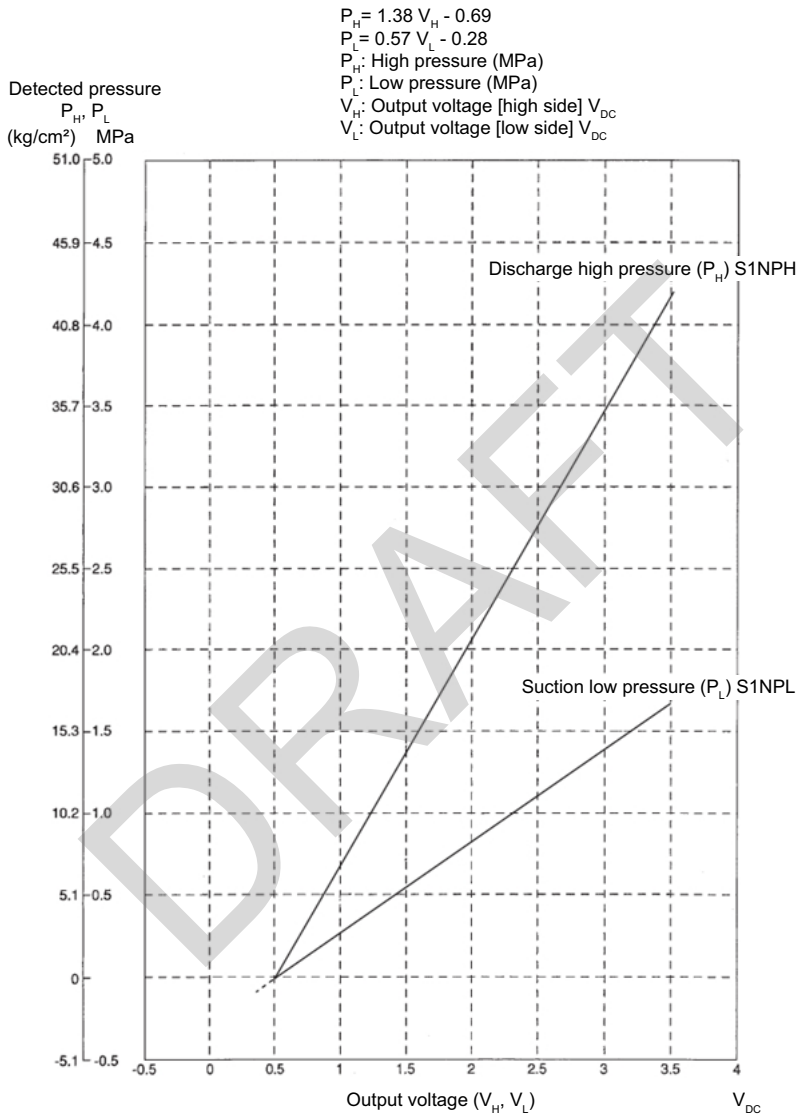
Test in heating mode

1. Connect a manometer to the service port outdoor discharge (right port).
2. Open the outdoor discharge stop valve.
3. Set the VRV4 in heating mode and read the pressure.
4. From the graph in Figure 13 on page 102, determine the expected sensor output signal.
5. Measure the voltage on connector X17A or X32A, Table 2-31 on page 101, pin 3 GND and pin 1, compare the measured voltage with the expected voltage. A maximum deviation of 0.1 VDC is allowed.
6. Confirm the high pressure sensor read out in mode 1 - code 43 (read out MPa) (only for Large model).
7. Replace S1NPH if the measured voltage does not match the expected voltage. Refer to "Replacing a pressure sensor (S1NPH, S1NPL)" on page 132.

Example S1NPH

- The manometer reads 0.75 MPa.
- According to the Figure 13 on page 102, this corresponds with a sensor output voltage of 1.75 Vdc.
- The measured voltage on connector X32, pin 3 - 1 is 1.83 VDC, this is inside the tolerance of 0.1 Vdc.
- S1NPH passes the test.

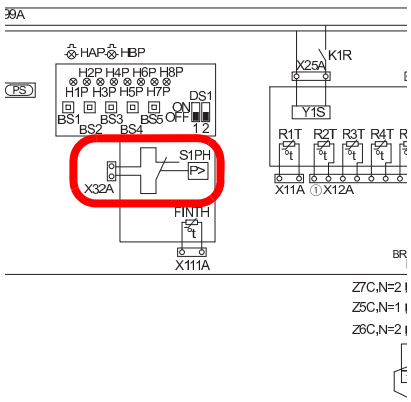
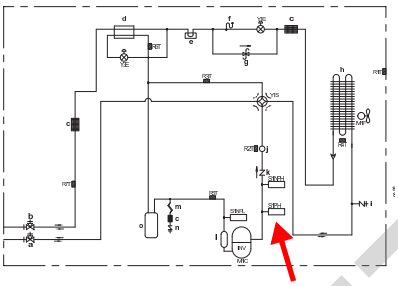
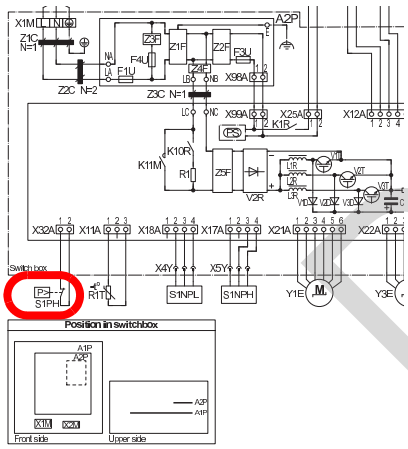
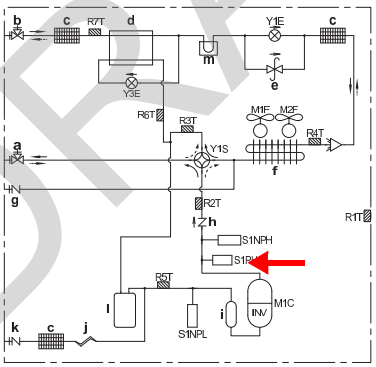
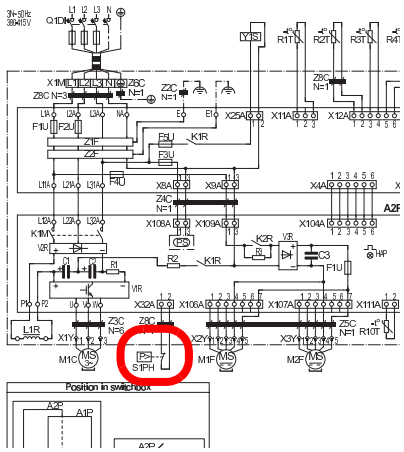
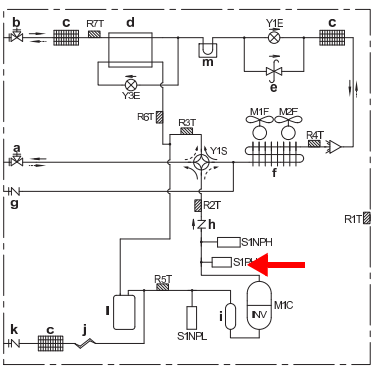
Figure 13 - Pressure sensor S1NPL, S1NPH output voltage

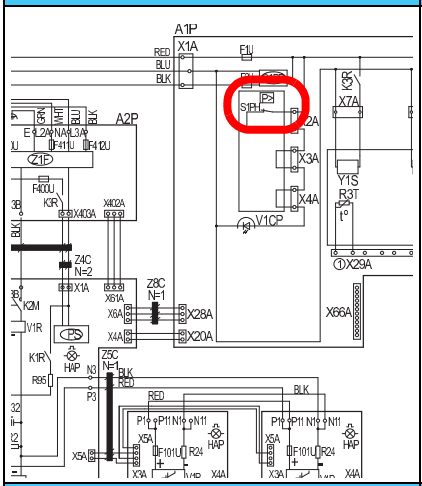
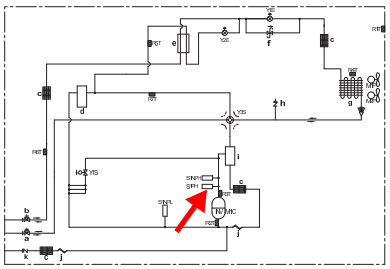
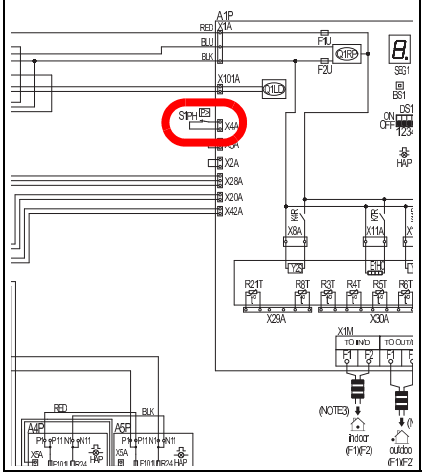
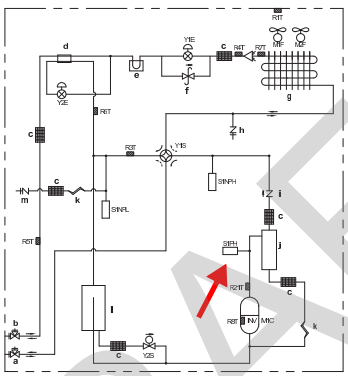


5.10. Pressure switch S1PH

Technical specification	Description
The high pressure switch S1PH has a normally closed contact. If the pressure exceeds 4.0 MPa the contact will open; if the pressure drops below 3.0 MPa the contact will close.	Pressure switch S1PH: protection of discharge pressure compressor M1C. Cut off ≥ 4.0 MPa (+0.0 / -0.12), cut in < 3.0 MPa (± 0.15 MPa).

Location

Wiring diagram	Piping diagram	Unit
RXYSCQ4+5TMV1B - Compact		
		
RXYSQ4-6T7V1B - Standard 1ph		
		
RXYSQ4-6T7Y1B - Standard 3ph		
		

RXYSQ8TMY1B - Large		
		
RXYSQ10-12TMY1B - Large		
		

Check procedure

Electrical check

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device). Wait until the outdoor unit stops: when no more thermostat demand exists, outdoor may perform pump down operation.

> **WARNING: RISK OF ELECTROCUTION.**

2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (compact), "Removing the switch box cover" on page 121 (standard) or "Removing the switch box cover" on page 125 (large).

3. Remove the lower front plate assembly, refer to "Removing the switch box cover" on page 117 (compact), "Removing the switch box cover" on page 121 (standard) or "Removing the switch box cover" on page 125 (large).

4. Connect a manometer to the service port outdoor liquid (left port).

5. Open the outdoor liquid stop valve and read the pressure.

6. Disconnect the plug from the connector (check Table 2-32) from A1P and measure the resistance of the switch S1PH.
   - if the measured pressure is below 3,0 MPa the switch S2PH resistance must be 0 Ω (= closed contact).
   - If the switch S1PH is open it must be replaced. Refer to "Replacing a pressure switch (S1PH, S2PH)" on page 135 .

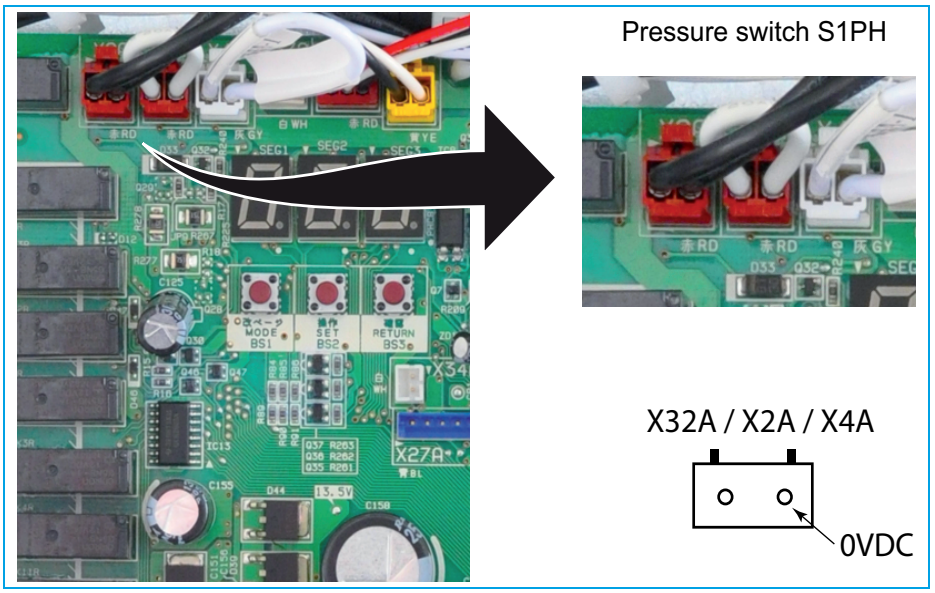
7. When all plugs are connected and power supply is present:
   - Measure the voltage between the connector of S1PH (pin 1 or 2) and 0 VDC (for example X37A - see Figure 14 on page 105).
   - If the test in step 6 passed and no voltage is measured between the S1PH connector and 0 VDC, the main PCB A1P needs to be replaced; "Replacing a switch box (to be replaced by PCBs in the switch box)" on page 128.

Table 2-32: Pressure switch connector

Wiring symbol	Function	Compact	Standard 1PH	Standard 3PH	Large 8HP	Large 10-12 HP
S1PH	Pressure switch	X32A	X32A	X32A	X2A	X4A

The high pressure sensor is connected to the main PCB A1P.

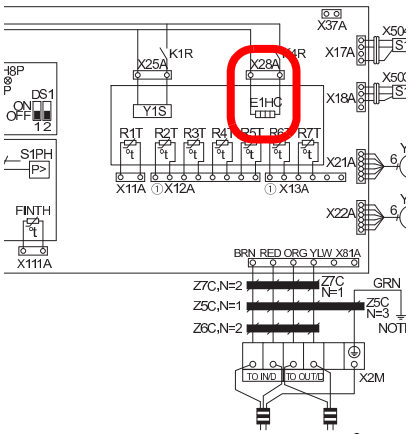
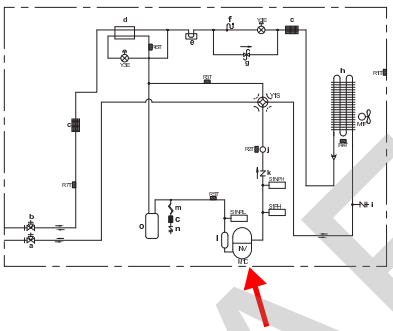
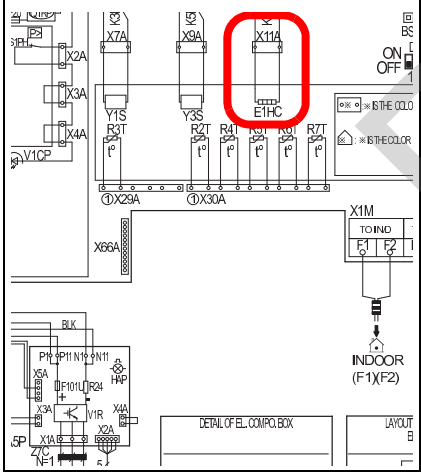
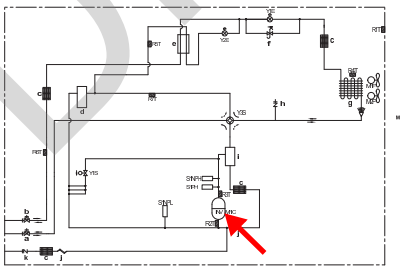
Figure 14 - Connector X37

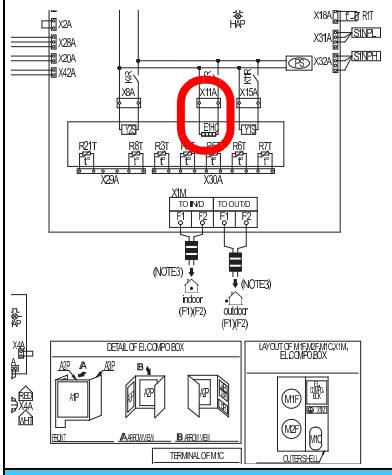
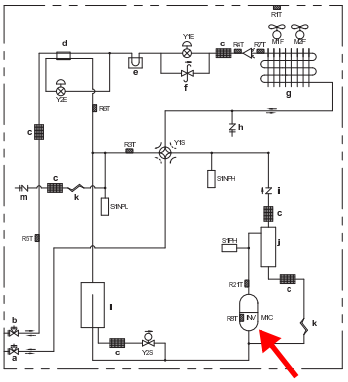


5.11. Crankcase heater E1HC, E2HC

Technical specification	Description
The crankcase heater is an electric 240V, 33 Watt heater. Both compressor types are equipped with the same heater.	Crankcase heater for M1C. When compressor M1C is not operating and the discharge temperature is less than 70°C, the crankcase heater is switched on to ensure that the oil is heated up to limit refrigerant to dissolve into the oil. When there is high amount of refrigerant dissolved into the compressor oil, during operation of the compressor, oil foams heavily. Oil foam results in poor lubrication and oil is discharged quickly outside the compressor. Oil foam will result into compressor failure (locked mechanism).

Location

Wiring diagram	Piping diagram	Unit
RXYSCQ4+5TMV1B - Compact		
		
RXYSQ8TMY1B - Large		
		

RXYSQ10-12TMY1B - Large		
		
RXYSCQ4+5TMV1B - Compact		

Electrical check

Check connectors unplugged

1. Disconnect the plug from the connector, see Table 2-33 on page 107.

Table 2-33: Crankcase heater connector

Wiring symbol	Function	Compact	Large 8HP	Large 10-12 HP
E1HC	Crankcase heater	X28A	X11A	X11A

2. Measure the resistance of E1HC.
3. The measured resistance must be 1.8 KΩ (± 7%).
4. Replace E1HC if the measured resistance does not match the expected resistance. Refer to "Replacing a crankcase heater E1HC" on page 151.
5. Perform a Megger test (minimum 500 V) on E1HC.
6. The isolation resistance must exceed 1 MΩ, If not, the crankcase heater(s) must be replaced. Refer to"Replacing a crankcase heater E1HC" on page 151.

Check connectors reconnected to the compressor

1. Switch off the Daikin VRV indoor units via the remote controller (indoor control or central control device).

	**WARNING: RISK OF ELECTROCUTION.**

2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (compact) or "Removing the switch box cover" on page 125 (large).
3. Switch on the Daikin Mini VRV via the remote controller.
4. Measure the voltage on the connector, see Table 2-33 on page 107). The normal voltage is 240 VAC.

INFORMATION

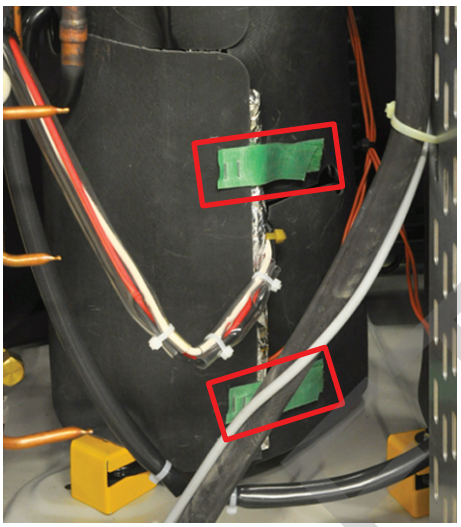
The crankcase heater is powered OFF when:

- the compressor inverter board output UVW = 0 Hz **and** the compressor discharge temperature < 70°C.

The crankcase heater is powered ON when:

- the compressor inverter board output UVW > 0 Hz or when the compressor inverter board output UVW = 0 Hz **and** the compressor discharge temperature compressor > 75°C.

5. Open the insulation of the compressor by pulling the velcro strips.



6. Check that crankcase heater(s) is (are) heating when powered. If not, the crankcase heater(s) must be replaced. Refer to "Replacing a crankcase heater E1HC" on page 151.

Part 3. Repair

1. General Repair procedures

1.1. Refrigerant handling procedures

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

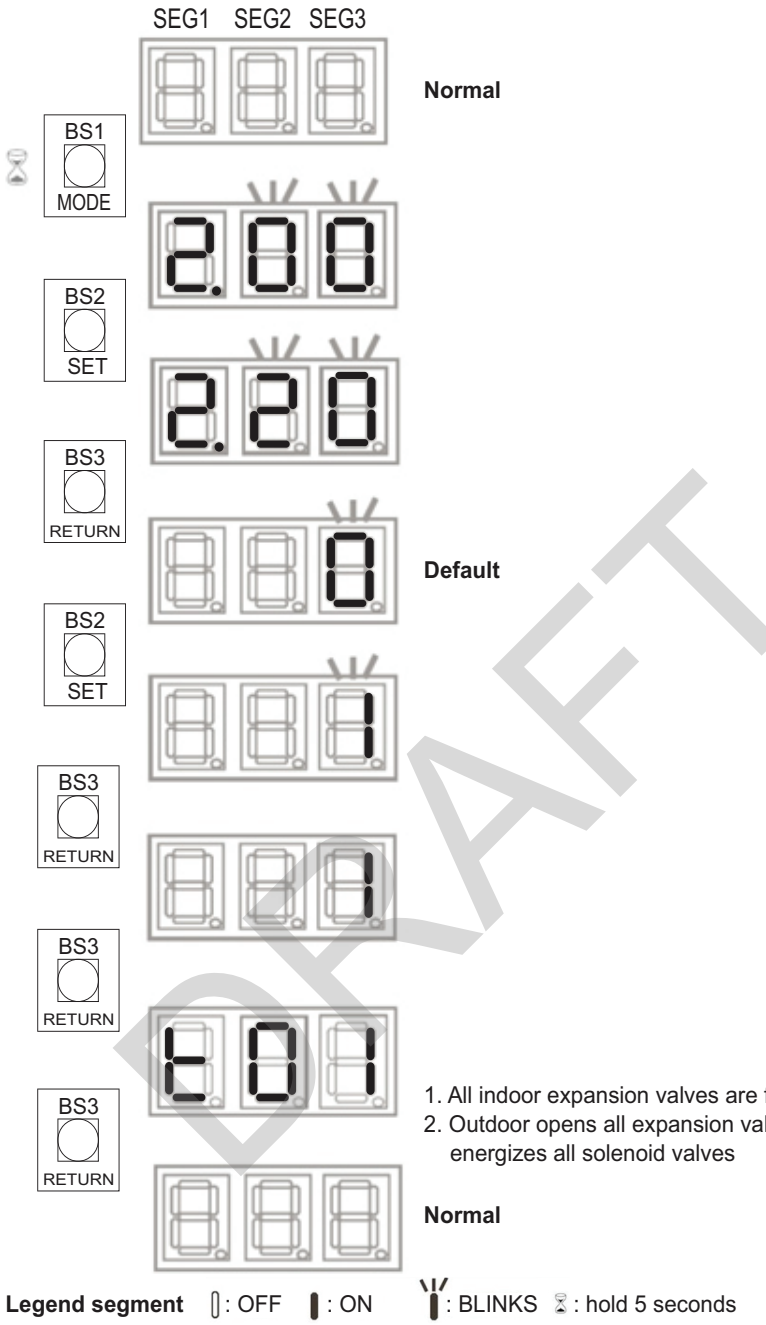
1.1.1. Refrigerant Handling

Refrigerant Action	High Pressure Service Port	Low Pressure Service Port
Recover	x	x
Vacuum	x	x
Charge	x	-

1.1.1.1 Procedure

1. Set outdoor 2-21-1, BS3 “return” press 2x => indication “t01 (applicable for large 10-12 HP)

Refrigerant recovery mode (2-21-1)



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	×	×
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	O	O	C	C	O	O	C	1/2	O	Rec	O	×	✓
Recover gas	O	O	O	O	C	O	O	C	O	O	Rec	O	×	✓
Purge	O	O	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														

1.2. Pipe work procedures

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

1.3. Products

1.3.1. Required products when servicing the Mini VRV4

When the cooling tube of the inverter(s) has been removed, heat sink compound (1) must be applied.

Figure 15 - Required product

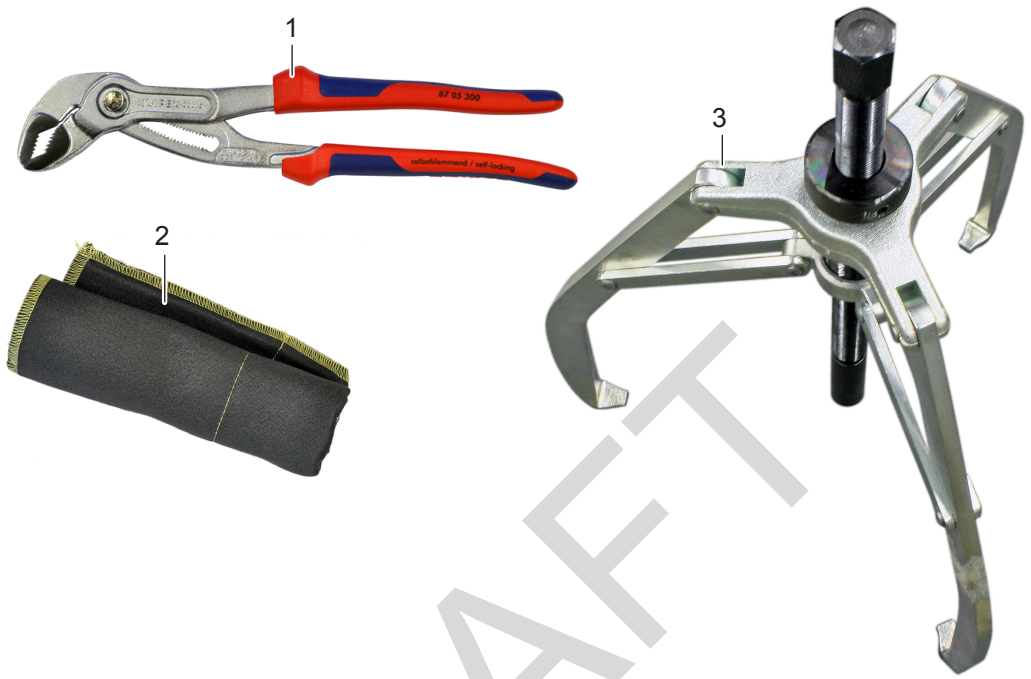
1. Heat sink compound (Part number 5013817))

1.4. Tools

1.4.1. Required special tooling when servicing the Mini VRV4

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

Figure 16 - Required tools



1. Pliers wrench (Knipex 87 05 300 or equivalent)
2. Welding blanket
3. Pulley remover

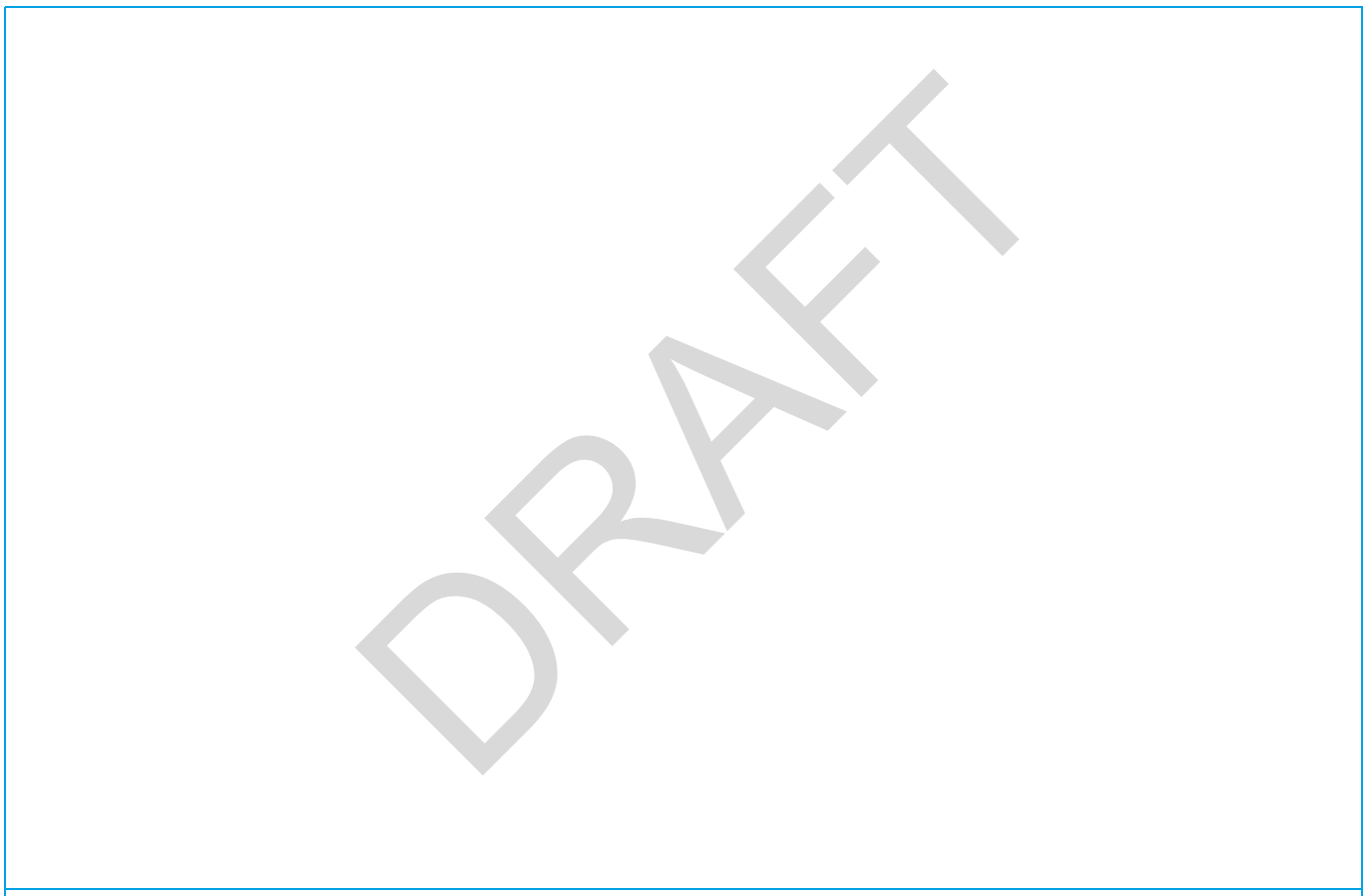
2. Preliminary actions procedures

2.1. Removing bodywork Compact

2.1.1. Removing the top plate

1. Loosen and remove the 2 screws (1) that fix the service plate assembly (2).
2. Remove the service plate assembly (2) from the unit.

Figure 17 - Removing the top plate



1. Screw
2. Top plate

2.1.2. Removing the front plate left

1. Loosen and remove the 7 screws (1) that fix the upper front plate assembly (2).
2. Lift the upper front plate assembly (2) and remove it from the unit.

Figure 18 - Removing the front plate left

1. Screw	2. Front plate left

2.1.3. Removing the front plate right

1. Loosen and remove the 7 screws (1) that fix the front plate assembly (2).
2. Lift the front plate assembly (2) and remove it from the unit.

Figure 19 - Removing the front plate right

1. Screw	2. Front plate right

2.1.4. Removing the switch box cover

	**WARNING** Electrical shock hazard. Remove power from the Mini VRV4 before removing the switch box cover. Do not touch terminals.

1. Switch off the Mini VRV4 via the indoor controller.
2. Remove the 2 screws (1) that fix the switch box cover (2).
3. Remove the switch box cover (2).

Figure 20 - Removing the switch box cover

1. Screw	2. Switch box cover

2.2. Removing bodywork Standard

2.2.1. Removing the top plate

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

Figure 21 - Removing the top plate

1. Screw	2. Top plate

2.2.2. Removing the front plate left

1. Switch off the Mini VRV4 via the indoor controller.
2. Loosen and remove the 7 screws (1) that fix the front plate left (2).
3. Lift the front plate left (2) and remove it from the unit.

Figure 22 - Removing the front plate left

1. Screw	2. Front plate left

2.2.3. Removing the front plate right

1. Loosen and remove the 7 screws (1) that fix the front plate right (2).
2. Lift the front plate right (2) and remove it from the unit.

Figure 23 - Removing the front plate right

1. Screw	2. Front plate right

2.2.4. Removing the switch box cover

1. Loosen and remove the 5 screws (1) that fix the switch box cover (2).
2. Tilt the switch box cover (2) and remove it from the unit.

Figure 24 - Removing the switch box cover

1. Screw	2. Switch box cover

2.3. Removing bodywork Large

2.3.1. Removing the top plate

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

Figure 25 - Removing the top plate

1. Screw	2. Top plate

2.3.2. Removing the front plate left

1. Switch off the Mini VRV4 via the indoor controller.
2. Loosen and remove the 7 screws (1) that fix the front plate left (2).
3. Lift the front plate left (2) and remove it from the unit.

Figure 26 - Removing the front plate left

1. Screw	2. Front plate left

2.3.3. Removing the front plate right

1. Loosen and remove the 7 screws (1) that fix the front plate right (2).
2. Lift the front plate right (2) and remove it from the unit.

Figure 27 - Removing the front plate right

1. Screw	2. Front plate right

2.3.4. Removing the switch box cover

1. Loosen and remove the 5 screws (1) that fix the switch box cover (2).
2. Tilt the switch box cover (2) and remove it from the unit.

Figure 28 - Removing the switch box cover

1. Screw	2. Switch box cover

2.4. Checking the rectifier voltage

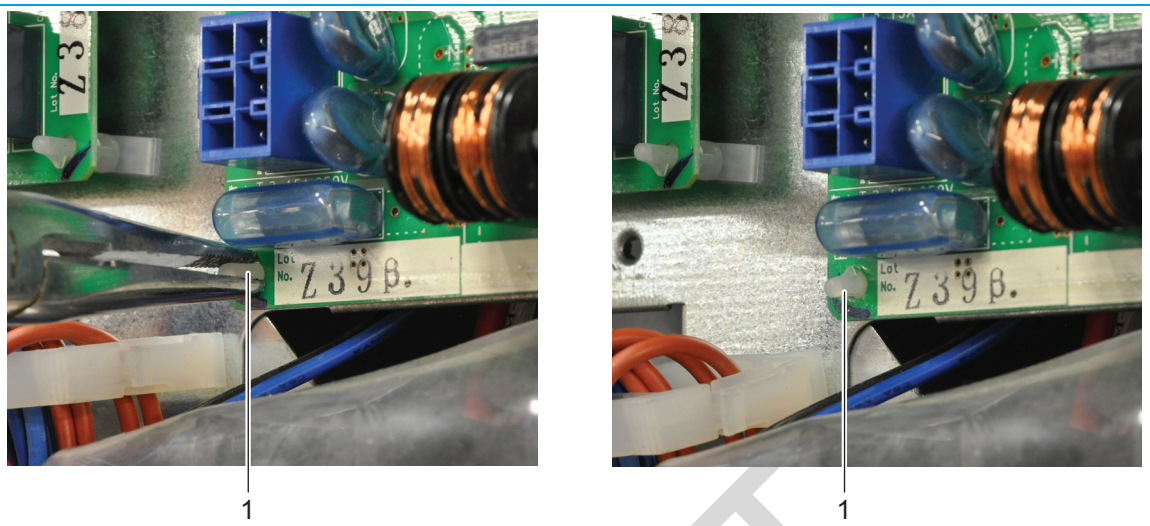
	**WARNING** Electrical shock hazard. Remove power from the Mini VRV4 before removing the switch box cover. Do not touch terminals.

1. Switch off the Mini VRV4 with the field supplied circuit breaker.
2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (REMQ5T7Y1B, REYQ8~12T7Y1B) or "Removing the switch box cover" on page 121 (REYQ14~20T7Y1B).
3. Measure the voltage on connector X3A (REMQ5T7+REYQ8~12T7) or X5A/X6A (REYQ14~20T7), wait until the voltage drops below 10 V before proceeding.

2.5. Unlocking a PCB

1. Carefully pull the PCB at the side and unlatch all the pcb supports (1) one by one using a small pliers.

Figure 29 - PCB spacer unlatching



1. Cable clamp

3. Parts replacement procedures

Overview of parts replacement procedures:

3.1. Replacing a switch box (to be replaced by PCBs in the switch box)

WARNING

Electrical shock hazard. Remove power from the Mini VRV4 before removing the switch box cover.

Do not touch terminals.

Preliminary actions

1. Switch off the Mini VRV4 with the field supplied circuit breaker.
2. Remove the front panel, refer to "Removing the front plate left" on page 115.
3. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (REMQ5T7Y1B, REYQ8~12T7Y1B) or "Removing the switch box cover" on page 121 (REYQ14~20T7Y1B).

Removal

1. Unlatch the cable clamp at the top right corner of the A1P PCB (3) to facilitate its removal 3.

Figure 30 - Replacing a switch box

1. Cable clamp

2. Unplug connectors X1A, X2A, X3A, X4A, X18A, X20A, X21A, X22A, X23A, X25A, X28A, X31A, X32A, X40A, X41A (1) from the A1P PCB (3).
3. Note the field wiring of X1M (2).
4. Loosen the screws from X1M (2) and remove the wiring.
5. Carefully pull the A1P PCB (3) at the side and unlatch the 8 pcb supports (4) one by one using a small pliers, see §2.5.

Figure 31 - Replacing ????

1. Connectors	3. A1P PCB (main)
2. X1M	4. PCB support

Installation

1. Proceed in reverse order.

3.2. Replacing a thermistor

Preliminary actions

1. Remove the front panel, refer to "Removing the front plate left" on page 115.
2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (REMQ5T7Y1B, REYQ8~12T7Y1B) or "Removing the switch box cover" on page 121 (REYQ14~20T7Y1B).

Procedure

The position of all thermistors is illustrated in "Piping overview Compact (RXYSCQ4-5TMV1B)" on page 189 and "Piping overview Standard 1ph-3ph (RXYSQ4-6T7V1B, RXYSQ4-6T7Y1B) - 2" on page 191.

Table 3-34: Thermistors wiring overview

Thermistor	Processed by PCB	Connector	Access Information
R1T (Air)	A1P	X181	No insulation on thermistor.
R21T, R22T (M1C, M2C, Discharge)	A1P	X19A	Must be removed together with R15T.
R15T (Compressor Body)	A8P		Remove compressor insulation, also remove R21T, R22T.
R3T (Liq. Main)	A1P	X30A	R4T, R5T, R6T, R7T must be removed together.
R4T(Heat Exc. Liq. Upper)	A1P		
R5T(Heat Exc. Liq. Lower)	A1P		
R6T (Subcool Heat exc. Gas)	A1P		
R7T (Subcool Heat exc. Liq)	A1P		
R8T (Heat Exc. Gas Upper)	A1P	X29A	R8T, R9T, R10T must be removed together.
R9T (Heat Exc. Gas Lower)	A1P		
R10T (Suction)	A1P		
R11T (Heat Exc. Deicer)	A8P	X15A	R10T, R12T, R13T must be removed together.
R12T (Suction Compressor)	A8P		
R14T (Auto Charge)	A8P		
R13T (Receiver Gas)	A8P	X17A	-

Removal

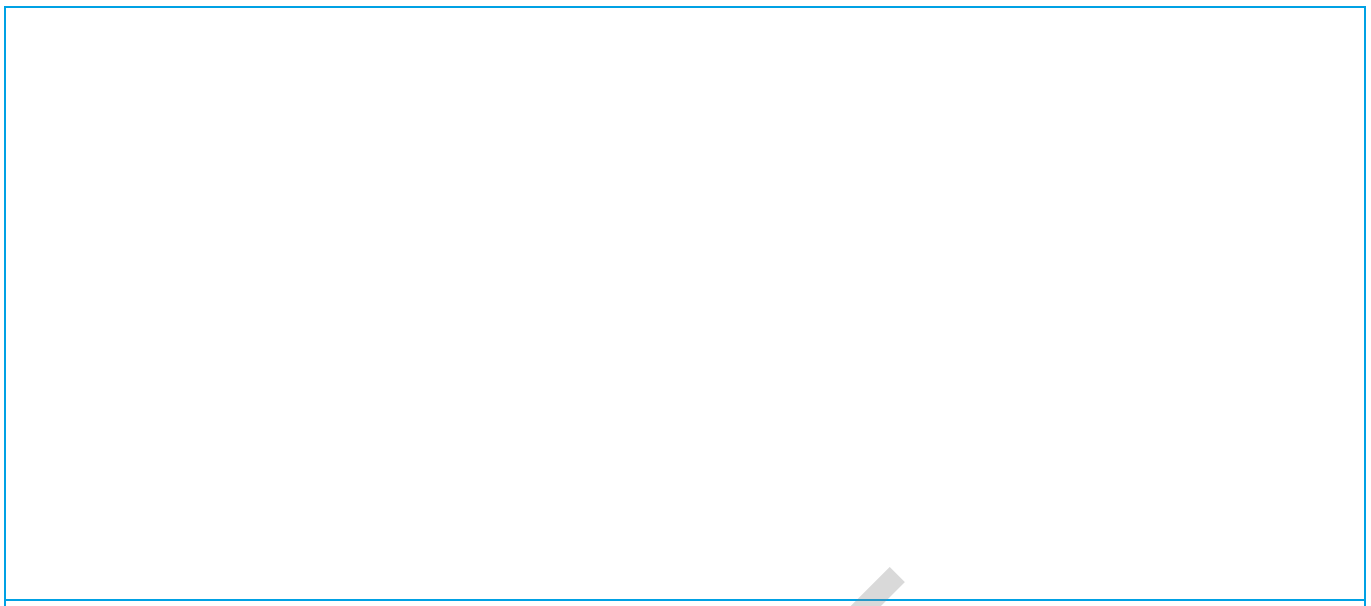
INFORMATION

If a bracket obstructs the insulation displacement, it must be removed.

The procedure below describes the replacement of a single thermistor.

1. Cut the tie wrap (1) that fixes the insulation (3) and the thermistor wire (2).
2. Slide the insulation (3) aside.
3. Press the clip (5) that fixes the sensor (6) in the sensor holder (4).
4. Remove the sensor (6) from the sensor holder (4).
5. If applicable, remove the other sensors that are wired to the same connector, refer to Table 3-34 on page 130.
6. Cut all tie wraps that fix the thermistor wiring.
7. Unplug the appropriate connector, refer to Table 3-34 on page 130.

Figure 32 - Replacing a thermistor



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

Installation

INFORMATION

Relocate all insulation that was displaced during removal of the thermistor.
Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

3.3. Replacing a pressure sensor (S1NPH, S1NPL)

Preliminary actions

1. Remove the front panel, refer to "Removing the front plate left" on page 115.
2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (REMQ5T7Y1B, REYQ8~12T7Y1B) or "Removing the switch box cover" on page 121 (REYQ14~20T7Y1B).
3. Recover the refrigerant, refer to "Refrigerant Handling" on page 109.

Procedure

The removal of a pressure sensor is illustrated in "Removing a pressure sensor (S1NPH, S1NPL) (1)" on page 132.

1. Connect a nitrogen hose (2) to the outdoor suction service port (1) (middle service port).
2. Attach a hose with core-depressor (4) to allow the release of the nitrogen.
   - If Y4S or Y5S is in the off condition (outdoor upper respectively middle heat-exchanger is condenser), attach a hose (4) to the outdoor liquid service port (3) (left service port).
   - If Y4S and Y5S are in the on condition (outdoor upper and middle heat-exchanger are evaporator), attach a hose (4) to the HP/LP service port (8) (right service port).
3. Using a pipe cutter (5), cut the pressure sensor pipe (7).
4. Cut all tie wraps that fix the pressure sensor (6) wiring.
5. Unplug the appropriate connector, refer to "Wiring diagrams" on page 179.

Figure 33 - Removing a pressure sensor (S1NPH, S1NPL) (1)

1. Outdoor suction service port	5. Pipe cutter
2. Nitrogen hose	6. Pressure sensor
3. Outdoor liquid service port	7. Pressure sensor pipe
4. Hose with core-depressor	8. HP/LP service port

6. Remove the insulation (1) surrounding the pressure sensor pipe (3).
7. Put aside the electrical wiring in the neighbourhood of the pressure sensor pipe (3).

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

8. Supply nitrogen to the piping circuit.
9. Heat the pressure sensor pipe (3) using an oxygen acetylene torch (2), remove the pressure sensor pipe (3).
10. Cut the nitrogen supply when the piping has cooled down.

Figure 34 - Removing a pressure sensor (S1NPH, S1NPL) (2)

1. Insulation
2. Oxygen acetylene torch
3. Pressure sensor pipe

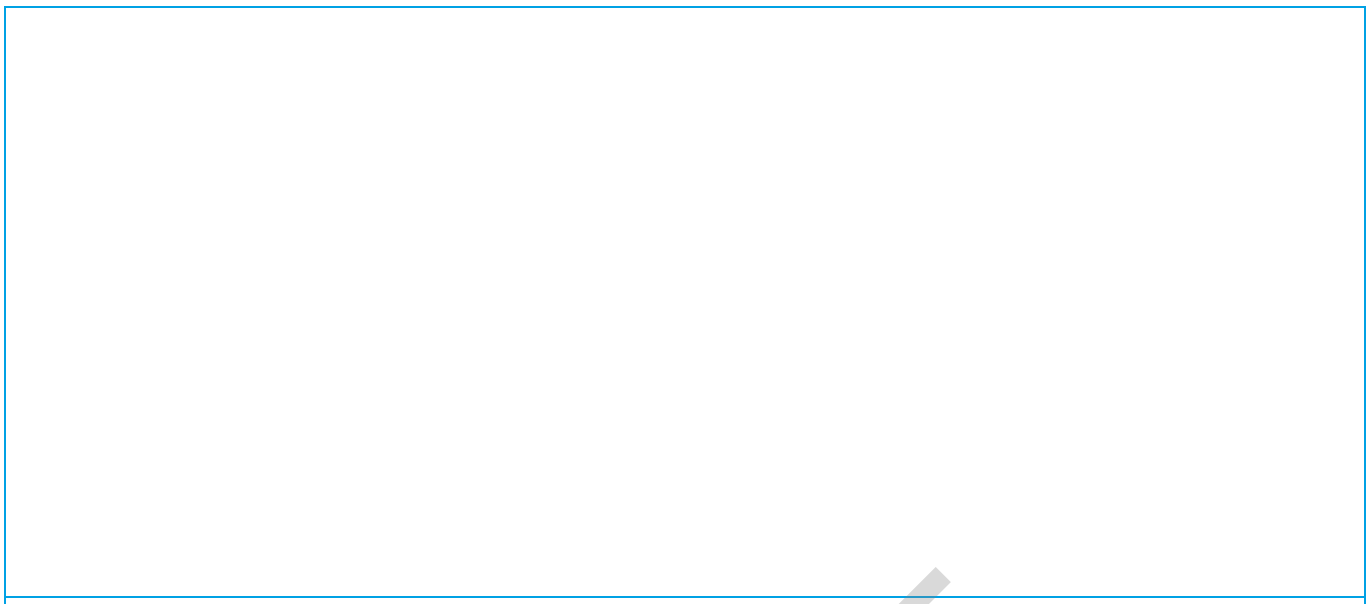
Installation

1. Proceed in reverse order.
2. Install a new pressure sensor (2).

⚠	**CAUTION** Overheating the pressure sensor will damage or destroy it.

3. Cover the pressure sensor (2) with a wet cloth (3) to prevent overheating the pressure sensor (2).

Figure 35 - Installing a pressure sensor (S1NPH, S1NPL)



1. Pressure sensor pipe
2. Pressure sensor
3. Wet cloth

CAUTION

The maximum applied Nitrogen pressure must not exceed 0.02 MPa.

4. Supply nitrogen to the piping circuit.
5. Unsolder the pressure sensor pipe (1).
6. Cut the nitrogen supply when the piping has cooled down.
7. Reconnect the pressure sensor connector, refer to "Wiring diagrams" on page 179.
8. Relocate all insulation that was displaced during removal of the pressure sensor.
9. Replace all tie wraps that were cut during the pressure sensor removal.
10. Remove the hoses from the service ports.

INFORMATION

Relocate all insulation that was displaced during removal of the pressure sensor.
Replace all tie wraps that were cut during removal.

3.4. Replacing a pressure switch (S1PH, S2PH)

INFORMATION

The replacement of a pressure switch is similar to the replacement of a pressure sensor, refer to "Replacing a pressure sensor (S1NPH, S1NPL)" on page 132.

3.5. Replacing a 4 way valve coil (Y3S,Y4S, Y5S)

Preliminary actions

1. Switch off the Mini VRV4 with the field supplied circuit breaker.
2. Remove the upper front plate assembly, refer to "Removing the front plate left" on page 115.
3. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (REMQ5T7Y1B, REYQ8~12T7Y1B) or "Removing the switch box cover" on page 121 (REYQ14~20T7Y1B).

Procedure

The removal of the 4 way valves is illustrated in "Removing a 4 way valve (Y3S,Y4S, Y5S) coil" on page 136.

1. Using a M8 socket, remove the screw (2) that fixes the coil (3) to the 4-way valve (1).
2. Remove the coil (3) from the 4-way valve (1).
3. Cut all tie wraps that fix the 4-way valve wiring.
4. Unplug the appropriate connector, refer to "Wiring diagrams" on page 179.

Figure 36 - Removing a 4 way valve (Y3S,Y4S, Y5S) coil

1. 4 way valve
2. Screw
3. Coil

Installation

INFORMATION

Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

3.6. Replacing a solenoid valve (Y11S, Y12S)

Preliminary actions

1. Switch off the Mini VRV4 with the field supplied circuit breaker.
2. Remove the upper front plate assembly, refer to "Removing the front plate left" on page 115.
3. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (REMQ5T7Y1B, REYQ8~12T7Y1B) or "Removing the switch box cover" on page 121 (REYQ14~20T7Y1B).

Procedure

The removal of the solenoid valves is illustrated in "Removing a solenoid valve (Y11S, Y12S)" on page 137.

1. Using a M7 socket, remove the screw (2) that fixes the coil (4) to the solenoid valve (1).
2. Remove the 2 screws (3) that fix the coil (4) to the bracket (5).
3. Remove the coil (4) from the solenoid valve (1).
4. Cut all tie wraps (6) that fix the solenoid valve wiring.
5. Unplug the appropriate connector, refer to "Wiring diagrams" on page 179.

Figure 37 - Removing a solenoid valve (Y11S, Y12S)

1. Solenoid valve	4. Coil
2. Screw	5. Bracket
3. Screw	6. Tie wrap

Installation

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

1. Proceed in reverse order.

3.7. Replacing an expansion valve

Preliminary actions

1. Switch off the Mini VRV4 with the field supplied circuit breaker.
2. Remove the upper front plate assembly, refer to "Removing the front plate left" on page 115.
3. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (REMQ5T7Y1B, REYQ8~12T7Y1B) or "Removing the switch box cover" on page 121 (REYQ14~20T7Y1B).

Procedure

The removal of the expansion valve is illustrated in "Removing an expansion valve" on page 138.

1. Using a M8 socket, remove the screw (2) that fixes the coil (3) to the solenoid valve (1).
2. Remove the coil (3) from the solenoid valve (1).
3. Cut all tie wraps that fix the solenoid valve wiring.
4. Unplug the appropriate connector, refer to "Wiring diagrams" on page 179.

Figure 38 - Removing an expansion valve

1. Solenoid valve
2. Screw
3. Coil

Installation

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

1. Proceed in reverse order.

3.8. Replacing a 4 way valve (Y3S~Y5S)

Preliminary actions

1. Remove the heat exchanger, refer to "Replacing the fan assembly" on page 150.
2. Remove the 4 way valve coil, refer to "Replacing a 4 way valve coil (Y3S,Y4S, Y5S)" on page 136.

Procedure

The removal of 4 way valve Y4S is illustrated in "Removing 4 way valve Y3S" on page 140.

1. Connect a nitrogen hose (2) to the outdoor suction service port (1) (middle service port).
2. Attach a hose with core-depressor (4) to allow the release of the nitrogen.
   - If Y4S or Y5S is in the off condition (outdoor upper respectively middle heat-exchanger is condenser), attach a hose (4) to the outdoor liquid service port (3) (left service port).
   - If Y4S and Y5S are in the on condition (outdoor upper and middle heat-exchanger are evaporator), attach a hose (4) to the HP/LP service port (8) (right service port).
3. Cut the lower pipe of Y3S (1) between the Y3S body (2) and the weld (3).
4. Remove the 2 screws (4) from the HP/LP stop valve (5).

> **CAUTION**
> Overheating the HP/LP stop valve will damage or destroy it.

5. Wrap a wet rag around the HP/LP stop valve (5).
6. Supply nitrogen to the piping circuit.
7. Using an oxygen acetylene torch, heat the solder connection of the HP/LP pipe (7) and the HP/LP stop valve pipe (6).
8. When the solder material is liquid, pull down the HP/LP stop valve pipe (6).
9. Using an oxygen acetylene torch, heat the suction pipe (9) of Y3S at the T-connection (8).
10. When the brazing material is liquid, pull up the Y4S suction pipe (9) to separate it from the T-connection (8).
11. Using an oxygen acetylene torch, remove the part of the lower pipe of Y3S (1) from the discharge pipe (10).

> **INFORMATION**
> Note the location and orientation of the piping on the 4 way valve.
> The piping on the 4 way valve must be removed and be re-used when installing the new 4 way valve.

12. Using an oxygen acetylene torch, heat and remove all piping from the Y3S (2).
13. Cut the nitrogen supply when the piping has cooled down.

Figure 39 - Removing 4 way valve Y3S

1. Lower pipe	6. HP/LP stop valve pipe
2. Y3S	7. HP/LP pipe/weld
3. Weld	8. T-connection
4. Screw	9. Suction pipe
5. HP/LP stop valve	10. Discharge pipe

Installation

CAUTION

Overheating the 4 way valve will damage or destroy it.

1. Wrap a wet rag around the 4 way valve.

CAUTION

Install the piping in the correct location and orientation to facilitate installation.

3.9. Replacing a solenoid valve (Y11S, Y12S, Y2S)

INFORMATION

The replacement of a solenoid valve is similar to the replacement of an expansion valve, refer to "Replacing an expansion valve" on page 138.

3.10. Replacing an expansion valve coil (Y1E, Y2E, Y3E)

Preliminary actions

1. Remove the upper front plate assembly, refer to "Removing the front plate left" on page 115.
2. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (REMQ5T7Y1B, REYQ8~12T7Y1B) or "Removing the switch box cover" on page 121 (REYQ14~20T7Y1B).

Procedure

The removal of the expansion valves is illustrated in "Removing an expansion valve (Y1E, Y3E, Y4E, Y6E) coil" on page 142.

1. Cut the tie wrap (1).
2. Remove the soft cover (2).
3. Turn the expansion valve coil (3) 1/8th turn counter clockwise to unlock it.
4. Remove the expansion valve coil (3) from the expansion valve (4).
5. Cut all tie wraps that fix the coil wiring.
6. Unplug the appropriate connector, refer to "Wiring diagrams" on page 179.

Figure 40 - Removing an expansion valve (Y1E, Y3E, Y4E, Y6E) coil

1. Tie wrap	3. Expansion valve coil
2. Soft cover	4. Expansion valve

Installation

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

1. Proceed in reverse order.

> **INFORMATION**
>
> The Y1E, Y3E, Y4E, Y6E coils are equipped with a latching mechanism, turn the coil to lock it on the expansion valve.

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

Figure 41 - Locking an expansion valve (Y1E, Y3E, Y4E, Y6E) coil

3.11. Replacing a fan propeller

Preliminary actions

1. Switch off the Mini VRV4 with the field supplied circuit breaker.
2. Remove the upper front plate assembly, refer to "Removing the front plate left" on page 115.
3. Remove the top plate, refer to "Removing the top plate" on page 114.

Procedure

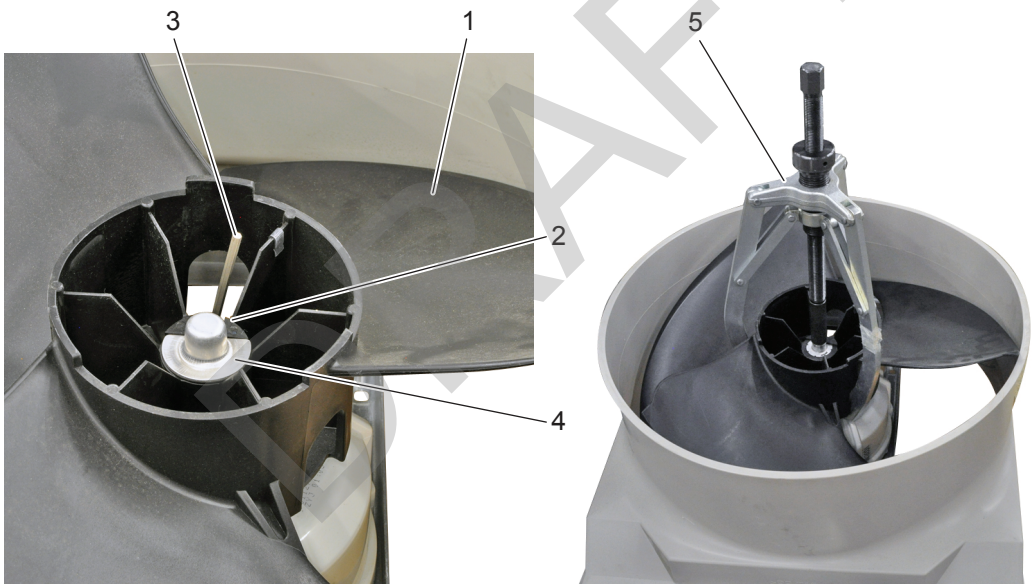
The removal of the fan propeller is illustrated in "Removing a fan propeller" on page 144.

1. Loosen the screw (2) using an Allen key n° 5 (3).
2. Remove the axle cover (4).

> **CAUTION**
> Do NOT use a hammer to remove the propeller.

3. Pull the propeller (1) from the fan motor axle (1). Use a pulley remover (5) if the propeller (1) cannot be removed manually.

Figure 42 - Removing a fan propeller



1. Propeller
2. Screw
3. Allen key
4. Axle cover
5. Pulley remover

Installation

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

1. Proceed in reverse order.

3.12. Replacing a fan motor

Preliminary actions

1. Switch off the Mini VRV4 with the field supplied circuit breaker.
2. Remove the upper front plate assembly, refer to "Removing the front plate left" on page 115.
3. Remove the switch box cover, refer to "Removing the switch box cover" on page 117 (REMQ5T7Y1B, REYQ8~12T7Y1B) or "Removing the switch box cover" on page 121 (REYQ14~20T7Y1B).
4. Remove the fan propeller, refer to "Replacing a fan propeller" on page 144.

Procedure

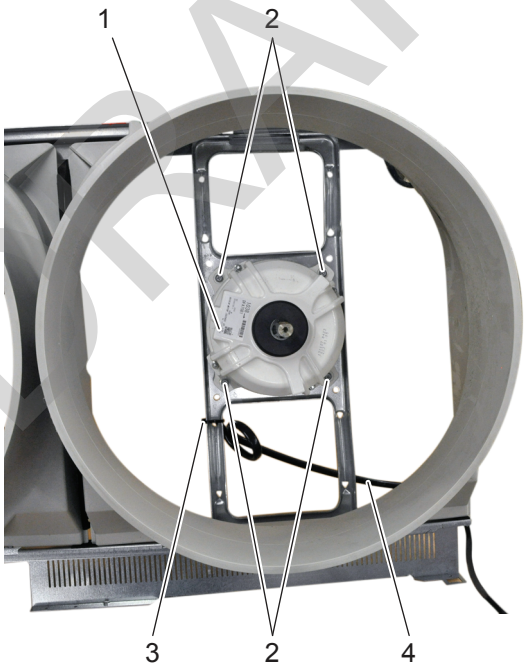
The position of the fan motors is illustrated in "Removing a fan propeller" on page 144.

1. Cut the tie wraps that fix the fan motor cable (4).
2. Cut the tie wrap (3) that fixes the fan motor cable (4).
3. Remove the 4 screws (2) that fix the fan motor (1).

INFORMATION

The dampers and bushing must be installed on the new fan motor.

Figure 43 - Removing a fan motor



1. Fan motor
2. Screw
3. Tie wrap
4. Fan motor cable

Installation

INFORMATION

Replace all tie wraps that were cut during removal.

1. Proceed in reverse order.

3.13. Replacing a compressor

Preliminary actions

1. Remove the front plate assembly, refer to "Removing the front plate right" on page 116.
2. Recover the refrigerant, refer to "Refrigerant Handling" on page 109.

Figure 44 - Displacing the insulation

1. Bracket
2. Insulation

Procedure

The removal of the compressor is illustrated in "Removing the compressor insulation and wiring" on page 147.

1. Open the insulation (2) of the compressor by pulling the velcro strips (1).
2. If the compressor is equipped with a body thermistor (R15T), remove the body thermistor from its support, refer to "Replacing a thermistor" on page 130.

INFORMATION

A J-type compressor has 2 layers of insulation, both layers must be removed.

3. Remove the insulation (2) from the compressor.

Figure 45 - Removing the compressor insulation and wiring

1. Velcro strip
2. Insulation
3. Thermistor (R15T)

4. Remove the crankcase heater, refer to "Replacing a crankcase heater E1HC" on page 151.

5. Remove the cover (1) from the compressor junction box.

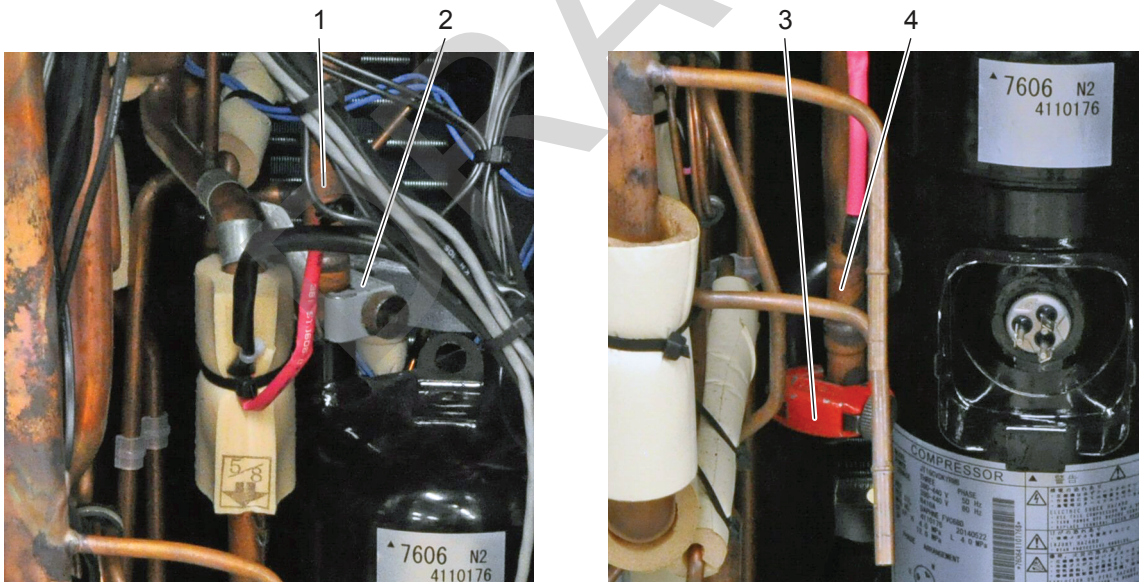
6. Remove the wiring (2) from the compressor.

Figure 46 - Removing the compressor wiring

1. Cover
2. Wiring

7. Using a pipe cutter (2), cut the compressor pipes (3).

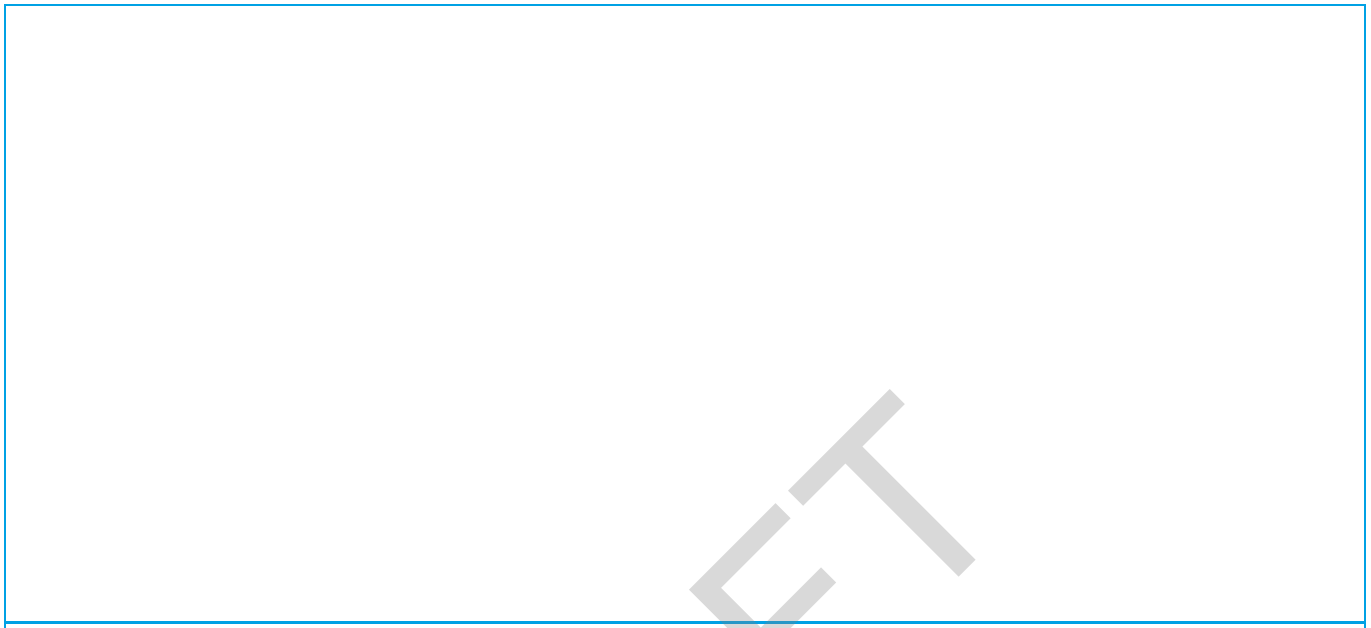
Figure 47 - Cutting the compressor piping



1. Suction pipe
2. Pipe cutter
3. Compressor pipe
4. Compression pipe

8. Using an M13 spanner, remove the 3 screws (1) that fix the compressor (2).
9. Remove the compressor (2).
10. Remove the dampers (3) with bushings (4) from the compressor (2).

Figure 48 - Removing the compressor



1. Screw	3. Damper
2. Compressor	4. Bushing

11. Connect a nitrogen hose to the outdoor suction service port (middle service port).

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

12. Supply nitrogen to the piping circuit.
13. Heat the ends of the compression pipe using an oxygen acetylene torch, remove the ends of compressor pipes.
14. Cut the nitrogen supply when the piping has cooled down.
15. Connect a nitrogen hose to the outdoor liquid service port (left service port).

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

16. Supply nitrogen to the piping circuit.
17. Heat the ends of the suction pipe using an oxygen acetylene torch, remove the ends of compressor pipe.
18. Cut the nitrogen supply when the piping has cooled down.

Installation

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

INFORMATION

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

INFORMATION

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

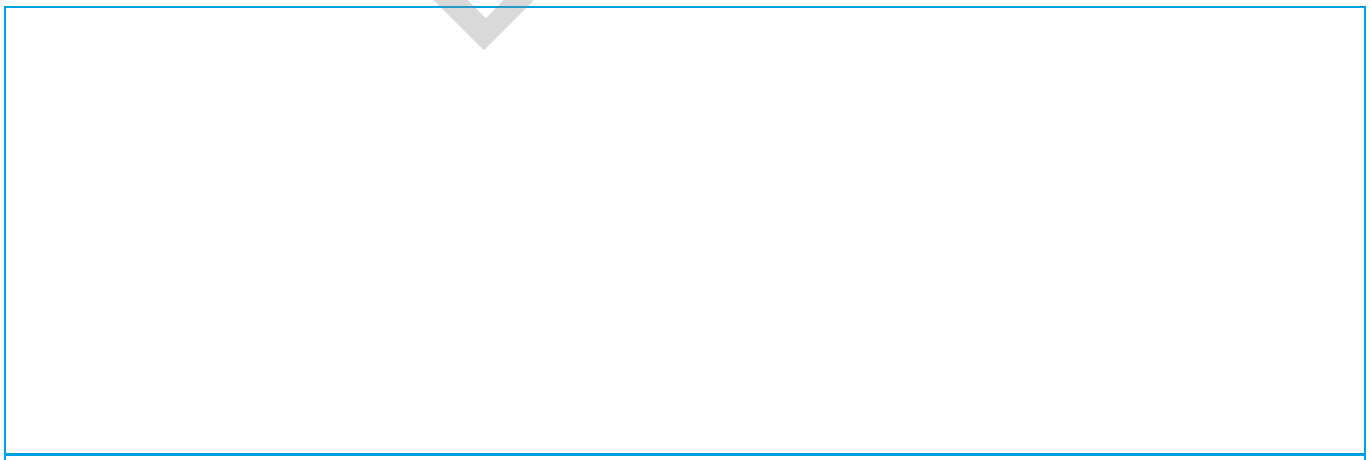
1. Check damper status, replace when worn.
2. First install the 3 (new) dampers (without the bushings) on the new compressor.
3. Install the 3 bushings in the dampers.
4. When installing the new compressor, remove the caps (2) from the compression pipe (1) and the suction pipe (3) as late as possible.

Figure 49 - Installing a new compressor - 1

1. Compression pipe	3. Suction pipe
2. Cap	4. Screw

5. Insert a lint-free cloth (3) into the compression pipe (2) to lower the oil in the compression pipe to the indicated oil level (4).

Figure 50 - Installing a new compressor - 2



1. Compressor	3. Lint-free cloth
2. Compression pipe	4. Oil level

6. When soldering the compressor pipes, cover the compressor pipes with a wet cloth to prevent overheating the compressor (and the oil in the compression pipe).
7. Proceed in reverse order.

3.14. Replacing a crankcase heater E1HC

Preliminary actions

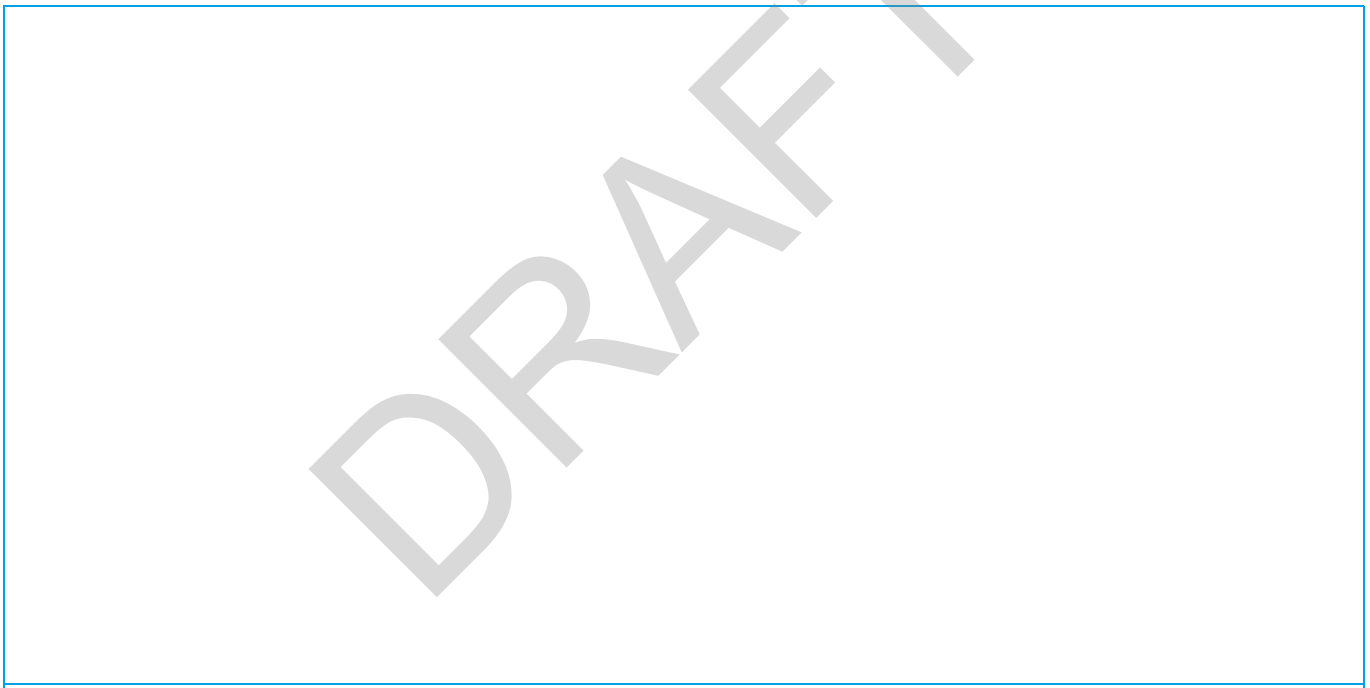
1. Remove the upper front plate assembly, refer to "Removing the front plate left" on page 115.
2. Remove the front plate assembly, refer to "Removing the front plate right" on page 116.

Procedure

The removal of a crankcase heater is illustrated in "Removing a crankcase heater" on page 151.

1. Remove the isolation from the compressor, refer to "Replacing a compressor" on page 146.
2. Detach the spring (1) that fixes the crankcase heater on the compressor.
3. Remove the crankcase heater.
4. Cut the tie wraps that fix the crankcase heater (4).
5. Unplug the appropriate connector, refer to "Wiring diagrams" on page 179.

Figure 51 - Removing a crankcase heater



1. Spring
2. Crankcase heater

Installation

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

1. Proceed in reverse order.

3.15. Replacing a reactor (??)

Preliminary actions

1. Remove the upper front plate assembly, refer to "Removing the front plate left" on page 115.
2. Remove the front plate assembly, refer to "Removing the front plate right" on page 116.
3. Remove the switch box cover, refer to "Removing the switch box cover" on page 117.

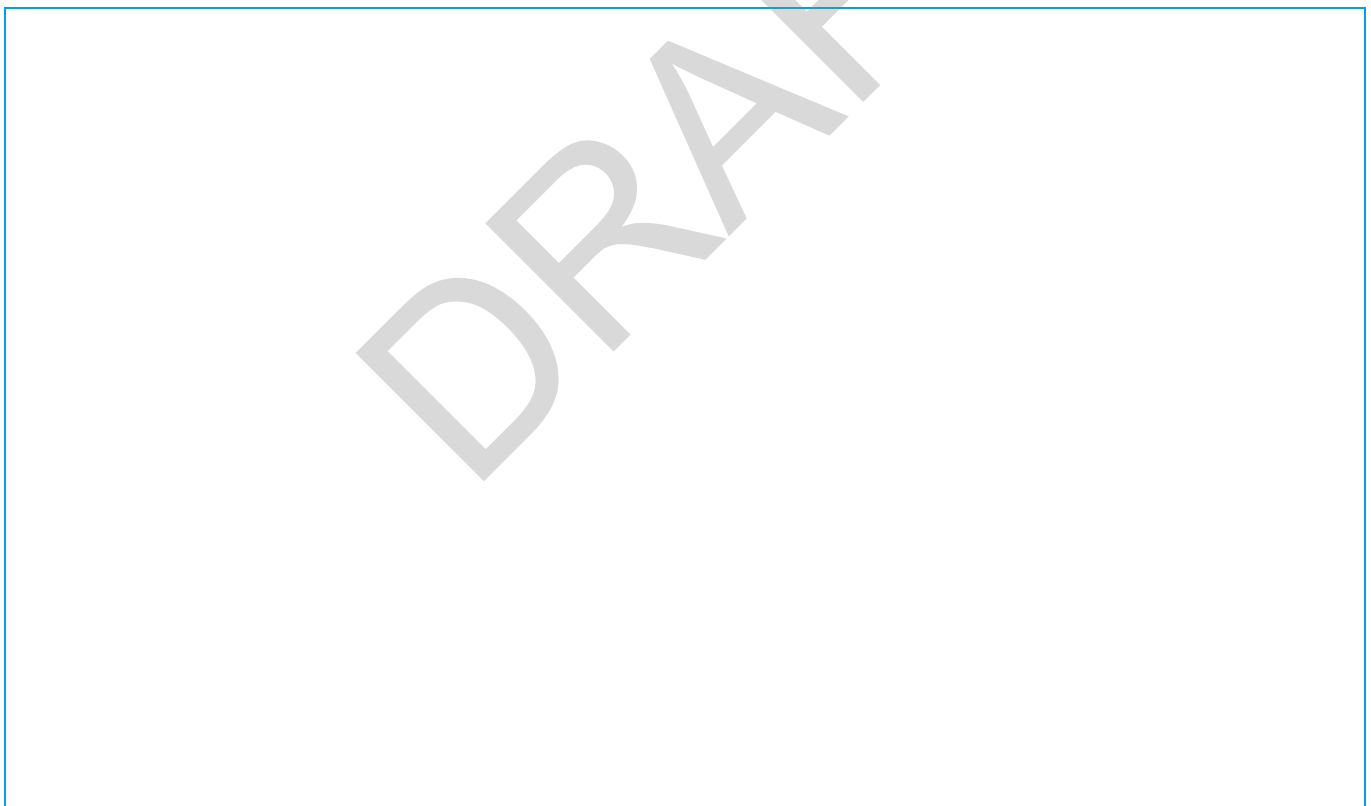
Procedure

> **INFORMATION**
> Depending on the model, the reactor wiring is plugged or screwed and a single or 2 reactors are installed.

The removal of a reactor is illustrated in "Replacing a reactor (??)" on page 152.

1. Remove the 4 screws (1) that fix the reactor (2).
2. Unplug the Faston plugs or loosen the wire terminals (3) and remove the wiring.
3. Remove the 2 screws (4) that fix the reactor (2).
4. Remove the reactor (2).

Figure 52 - Removing a reactor (L1R, L2R)



1. Screw	3. Faston plug or wire terminal
2. Reactor	4. Screw

Installation

1. Proceed in reverse order.

Table 3-35: Reactor configuration overview (REMQ5T7Y1B, REYQ8~12T7Y1B)

Reactor	REMQ5T7Y1B	REYQ8Y1B	REYQ10Y1B	REYQ12Y1B
L1R	G	G	J	J
L2R	-	-	J	J

Part 4. Maintenance

1. Mini VRV IV outdoor unit

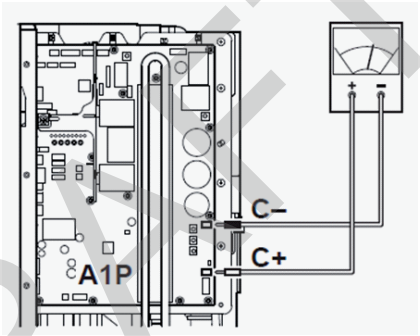
1.1. Safety

WARNING

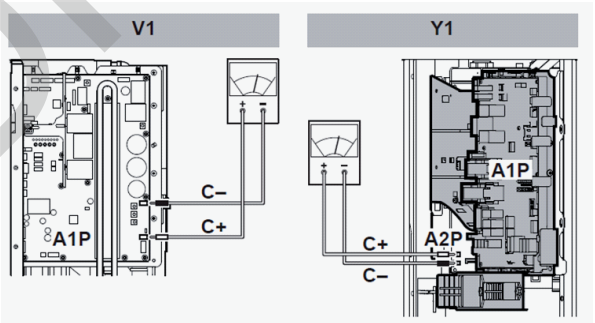
RISK OF ELECTROCUTION

When performing service to inverter equipment:

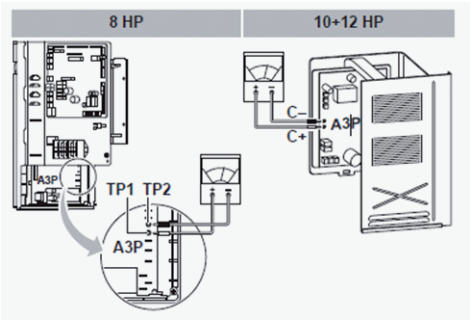
1. Do not open the electrical component box cover for 10 minutes after the power supply is turned off.
2. Measure the voltage between terminals on the terminal block for power supply with a tester and confirm that the power supply is shut off. In addition, check that the voltage of the capacitor in the main circuit is less than 50 V DC, "Checking the rectifier voltage" on page 126.
   - Compact



   - Standard



   - Large



WARNING

RISK OF ELECTROCUTION

3. Disconnect the fan motors connectors in the outdoor unit before starting service operation on the inverter equipment. Be careful not to touch the live parts. (If a fan rotates due to strong wind, it may store electricity in the capacitor or in the main circuit and cause electric shock.)

4. After the service is finished, plug the junction connector back in. Otherwise the malfunction code $E7$ will be displayed on the user interface or on the outdoor unit 7segment display and normal operation will not be performed.

WARNING

The refrigerant in the air conditioner is safe and normally does not leak. If the refrigerant leaks in the room, contact with a fire of a burner, a heater or a cooker may result in a harmful gas.

Turn off any combustible heating devices, ventilate the room and contact the dealer where you purchased the unit.

Do not use the air conditioner until a service person confirms that the portion where the refrigerant leaks is repaired.

WARNING

- Do not modify, disassemble, remove, reinstall or repair the unit yourself as incorrect dismantling or installation may cause an electric shock or fire. Contact your dealer.
- In case of accidental refrigerant leaks, make sure there are no naked flames. The refrigerant itself is entirely safe, nontoxic and noncombustible, but it will generate toxic gas when it accidentally leaks into a room where combustible air from fan heaters, gas cookers, etc. is present. Always have qualified service personnel confirm that the point of leakage has been repaired or corrected before resuming operation

WARNING

RISK OF BURNING.

WARNING

Pay attention to the fan. It is dangerous to inspect the unit while the fan is running. Make sure to turn off the main switch and to remove the fuses from the control circuit located in the outdoor unit.

WARNING

After a long use, check the unit stand and fitting for damage. If damaged, the unit may fall and result in injury.

CAUTION

Do not insert fingers, rods or other objects into the air inlet or outlet. Do not remove the fan guard. When the fan is rotating at high speed, it will cause injury.

CAUTION

Pay attention to the fan.
It is dangerous to inspect the unit while the fan is running. Be sure to turn off the main switch before executing any maintenance task.

CAUTION

Do not wipe the controller operation panel with benzine, thinner, chemical dust cloth, etc. The panel may get discoloured or the coating peeled off. If it is heavily dirty, soak a cloth in waterdiluted neutral detergent, squeeze it well and wipe the panel clean. Wipe it with another dry cloth.

INFORMATION

Maintenance should preferably be carried out yearly by an installer or service agent.

IMPORTANT INFORMATION REGARDING THE REFRIGERANT USED

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.

Refrigerant type: R410A
GWP(1) value: 1975
(1) GWP = global warming potential

Periodical inspections for refrigerant leaks may be required depending on the applicable legislation. Please contact your installer for more information.

1.2. Maintenance

1.2.1. About service mode operation

Refrigerant recovery operation/vacuuming operation is possible by applying setting [2-21]. Refer to the Installer and User reference guide for details how to set mode 2.

When vacuuming/recovery mode is used, check very carefully what should be vacuumed/recovered before starting. See installation manual of the indoor unit for more information about vacuuming and recovery.

1.2.1.1 To use vacuum mode

1. When the unit is at standstill, set the unit in [2-21]=1.

For Large RXYSQ10TTMY1B, RXYSQ12TMY1B only

Result: When confirmed, the indoor and outdoor unit expansion valves will fully open. At that moment the 7-segment display indication= *t01* and the user interface of all indoor units indicate TEST (test operation) and (external control) and the operation will be prohibited.

For Compact, Standard and Large RXYSQ8TMY1B only

Result (for LED display) When confirmed, the indoor and outdoor unit expansion valves will fully open. At that moment H1P lights and the user interface of all indoor units indicate TEST (test operation) and (external control) and the operation will be prohibited.

2. Evacuate the system with a vacuum pump.

3. Press BS1/3 to stop vacuuming mode (BS1 for LED display, BS3 for segemented dispaly).

1.2.1.2 To recover refrigerant

This should be done by a refrigerant reclaimer. Follow the same procedure as for vacuuming method.

1.3. Maintenance after a long stop period

E.g., at the beginning of the season.

- Check and remove everything that might be blocking inlet and outlet vents of indoor units and outdoor units.
- Clean air filters and casings of indoor units. Contact your installer or maintenance person to clean air filters and casings of the indoor unit. Maintenance tips and procedures for cleaning are provided in the installation/operation manuals of dedicated indoor units. Make sure to install cleaned air filters back in the same position.
- Turn on the power at least 6 hours before operating the unit in order to ensure smoother operation. As soon as the power is turned on, the user interface display appears.

1.4. Maintenance before a long stop period

E.g., at the end of the season.

- Let the indoor units run in fan only operation for about half a day in order to dry the interior of the units. Refer to "16.2.2 About cooling, heating, fan only, and automatic operation" in the Installer and user reference guide for details on fan only operation.
- Turn off the power. The user interface display disappears.
- Clean air filters and casings of indoor units. Contact your installer or maintenance person to clean air filters and casings of the indoor unit. Maintenance tips and procedures for cleaning are provided in the installation/operation manuals of dedicated indoor units. Make sure to install cleaned air filters back in the same position.

1.5. After sales service and warranty

- If repairs to the air conditioner are necessary within the warranty period, contact your dealer.

1.5.1. Recommended maintenance and inspection

Since dust collects when using the unit for several years, performance of the unit will deteriorate to some extent. As taking apart and cleaning interiors of units requires technical expertise and in order to ensure the best possible maintenance of your units, we recommend to enter into a maintenance and inspection contract on top of normal maintenance activities. Our network of dealers has access to a permanent stock of essential components in order to keep your air conditioner in operation as long as possible. Contact your dealer for more information.

When asking your dealer for an intervention, always state:

- The complete model name of the air conditioner.
- The manufacturing number (stated on the nameplate of the unit).
- The installation date.
- The symptoms or malfunction, and details of the defect.

1.5.2. Recommended maintenance and inspection cycles

Be aware that the mentioned maintenance and replacement cycles do not relate to the warranty period of the components.

Component	Inspection cycle	Maintenance cycle (replacements and/or repairs)
Electric motor	1 year	20,000 hours
PCB		25,000 hours
Heat exchanger		5 years
Sensor (thermistor, etc.)		5 years
User interface and switches		25,000 hours
Drain pan		8 years
Expansion valve		20,000 hours
Solenoid valve		20,000 hours

The table assumes the following conditions of use:

- Normal use without frequent starting and stopping of the unit. Depending on the model, we recommend not starting and stopping the machine more than 6 times/hour.
- Operation of the unit is assumed to be 10 hours/day and 2,500 hours/year.

NOTE

- The table indicates main components. Refer to your maintenance and inspection contract for more details.
- The table indicates recommended intervals of maintenance cycles. However, in order to keep the unit operational as long as possible, maintenance work may be required sooner. Recommended intervals can be used for appropriate maintenance design in terms of budgeting maintenance and inspection fees. Depending on the content of the maintenance and inspection contract, inspection and maintenance cycles may in reality be shorter than listed.

1.5.3. Shortened maintenance and replacement cycles

Shortening of "maintenance cycle" and "replacement cycle" needs to be considered in following situations:

The unit is used in locations where:

- Heat and humidity fluctuate out of the ordinary.
- Power fluctuation is high (voltage, frequency, wave distortion, etc.) (the unit cannot be used if power fluctuation is outside the allowable range).
- Bumps and vibrations are frequent.
- Dust, salt, harmful gas or oil mist such as sulphurous acid and hydrogen sulfide may be present in the air.
- The machine is started and stopped frequently or operation time is long (sites with 24 hour air-conditioning).

Recommended replacement cycle of wear parts

Component	Inspection cycle	Maintenance cycle (replacements and/or repairs)
Air filter	1 year	5 years
High efficiency filter		1 year
Fuse		10 year
Crankcase heater		8 years
Pressure containing parts		In case of corrosion, contact your dealer

NOTE

- The table indicates main components. Refer to your maintenance and inspection contract for more details.
- The table indicates recommended intervals of maintenance cycles. However, in order to keep the unit operational as long as possible, maintenance work may be required sooner. Recommended intervals can be used for appropriate maintenance design in terms of budgeting maintenance and inspection fees. Contact your dealer for details.

NOTE

Damage due to taking apart or cleaning interiors of units by anyone other than our authorised dealers may not be included in the warranty.

2. FXSQ20~125P7VEB VRV system air conditioners (as reference)

CAUTION

- Only a qualified service person is allowed to perform maintenance.
- Before obtaining access to terminal devices, all power supply circuits must be interrupted.
- Do not use water or air warmer than 50°C for cleaning air filters and outside panels.
- When cleaning the heat exchanger, be sure to remove the switchbox, fan motor, auxiliary electric heater and drain pump. Water or detergent may deteriorate the insulation of electronic components and result in burn-out of these components.
- If the main power supply is turned off during operation, operation will restart automatically after the power turns back on again.

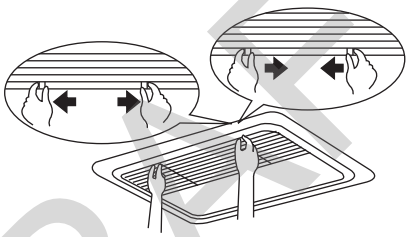
2.1. How to clean the air filter

Clean the air filter when the display shows  (TIME TO CLEAN AIR FILTER).

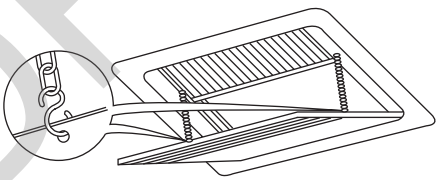
Increase the frequency of cleaning if the unit is installed in a room where the air is extremely contaminated.

If the dirt becomes impossible to clean, change the air filter. (Air filter for exchange is optional.)

1. Open the suction grille. (Only for bottom suction.) Slide both knobs simultaneously as shown and then pull them downward.

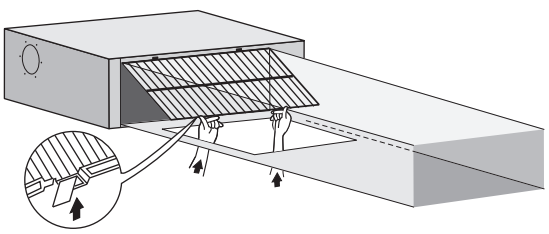


2. If chains are present, unhook the chains.

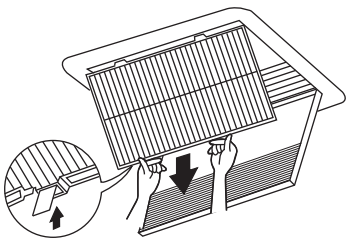


3. Remove the air filters.
   Remove the air filters by pulling their cloth upward (rear suction) or backward (bottom suction).

rear suction



bottom suction

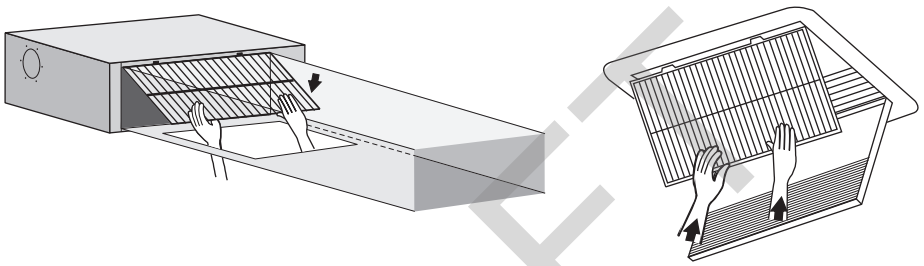


4. Clean the air filter.
   Use vacuum cleaner (A) or wash the air filter with water (B).
   When the air filter is very dirty, use soft brush and neutral detergent.
   Remove water and dry in the shade.

(A) Using a vacuum cleaner (B) Washing water

5. Fix the air filter.
   Align the two hanger brackets and push the two clips in their place (pull the cloth if necessary).
   Confirm that four hangers are fixed.

rear suction bottom suction



6. Shut the air inlet grille. (Only for bottom suction.) Refer to step 1.

7. After turning on the power, press FILTER SIGN RESET button.
   The "TIME TO CLEAN AIR FILTER" display is turned off.

2.2. How to clean air outlet and outside panels

1. Clean with soft cloth.

2. When it is difficult to remove stains, use water of neutral detergent.

3. Clean the air inlet grille when it is shut.

NOTE

Do not use gasoline, benzene, thinner, polishing powder, liquid insecticide. It may cause discolouring or warping.

Do not let the indoor unit get wet. It may cause an electric shock or a fire.

2.3. Start up after a long stop

1. Confirm the following:
   - Check that the air inlet and outlet are not blocked. Remove any obstacle.
   - Check if the earth is connected.
2. Clean the air filter and outside panels.
   - After cleaning the air filter, make sure to attach it.
3. Turn on the main power supply switch.
   - The control panel display lights when the power is turned on.
   - To protect the unit, turn on the main power switch at least 6 hours before operation.

2.4. What to do when stopping the system for a long period

1. Turn on FAN OPERATION for half a day and dry the unit.
   - Refer to the operation manual of the outdoor unit.
2. Cut off the power supply.
   - When the main power switch is turned on, some wattage is being consumed even if the system is not operating.
   - The remote controller display is turned off when the main power switch is turned off.

Part 5. Appendix

1. Field settings

1.1 Field settings outdoor unit

		Setting contents								
Nr	Description setting	0	1	2	3	4	5	6	7	Default
0	Cooling and heating selection	Individual	Main cool / heat	Sub cool / heat						0
1	Cooling and heating simultaneously address	0~31								0
2	Low noise and demand address	0~31								0
3	Commissioning setting 2	OFF	1: ON							0
4	Leak detection operation after heating setting	OFF	1: ON							0
5	Indoor forced fan operation indoor (cross wiring check)	OFF	1: ON							0
6	Indoor forced thermostat operation (operation mode controller)	OFF	1: ON							0
7	Defrost sequential addresses	0~15								0
8	Te set cooling mode	Auto	3°C	6°C	7°C	8°C	9°C	10°C	11°C	0
9	Tc setting heating & heat recovery	Auto	41°C	42°C	43°C	44°C	46°C	47°C	48°C	0
10	Defrost switch setting	Short	Medium	Long						1
12	Low noise / demand set by DTA104	OFF	ON							0
13	Airnet address	0~63								0
14	Added automatic refrigerant filling INPUT	0~21								0
15	E3 alarm mask setting high pressure wait	OFF	ON							1
16	Hot water heater with / without setting	OFF	ON							0
18	High static pressure setting	OFF	ON							0
19	Drain pan heater setting	No output	Enekatto behav-iour	Drain pan heater behaviour (a long time setting OFF)	Drain pan heater operations (long setting 1 ON)	Drain pan heater operations (long setting 2 ON)				0
20	Additional refrigerant charging operation setting	OFF	ON							0
21	Refrigerant recovery mode setting	OFF	ON							0

		Setting contents										
Nr	**Description setting**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Default**
22	Nighttime low noise setting	OFF	Level 1	Level 2	Level 3							0
25	Low noise setting (level) input DTA104		Level 2	Level 2	Level 3							2
26	LNO auto start time		20:00	22:00	0:00							3
27	LNO auto end time		6:00	7:00	8:00							0
28	Power transistor check	OFF	ON									0
29	Ability priority setting	OFF	ON									0
30	Demand 1 setting upper limit		0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95		3
31	Demand 2 setting upper limit		0.30	0.40	0.50							2
32	Always demand setting	OFF	level 1 (2-29)	level 2 (2-30)								0
34	Indoor air volume lower limit setting	Cool / heat / C+H	Heat / C+H	Disabled								0
35	40 - 90 m (outdoor below indoor)	max. 90 m	max. 40 m									1
38	Emergency main unit	Normal	INV1 disabled	INV2 disabled	Full module							0
39	Emergency sub 1 unit	Normal	INV1 disabled	INV2 disabled	Full module							0
40	Emergency sub 2 unit	Normal	INV1 disabled	INV2 disabled	Full module							0
45	Technical cooling	Disabled	Enabled									0
47	Te set except cooling mode	Auto	3°C	6°C	7°C	8°C	9°C	10°C	11°C			0
48	Snow sensor	OFF	ON									0
49	50 - 90 m (outdoor above indoor)	max. 50 m	max. 90 m									0
50	Alternating defrost during the indoor unit setting	Indoor heating	Defrost priority									0
51	Outdoor set main - sub 1 - sub 2	Automatic	Main	Sub 1	Sub 2							0
54	BS evaporating pressure adjustment level setting	3~9°C	0~6°C	1~7°C	2~8°C	4~10°C	5~11°C	6~12°C	7~13°C	8~14°C	9~15°C	0

		Setting contents							
Nr	**Description setting**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**Default**
63	Cooling indoor unit lower opening change	200 pls	160 pls	140 pls	120 pls				1
66	Heating indoor unit lower opening change	200 pls	160 pls	140 pls	120 pls				0
70	Capacity less heating	OFF	Operation off	Thermostat - OFF	Operation off + thermostat - OFF				0
71	Pressure equalization time BS unit mode change over	5 minutes	3 minutes	7 minutes	4 minutes				0
81	Cooling comfort setting	ECO	MILD	Quick	Powerful				1
82	Heating comfort setting	ECO	MILD	Quick	Powerful				1
84	Heating start indoor EV instruction setting	500 pls	400 pls	600 pls	300 pls				1
85	Timer - refrigerant leak detection operation settings (day)	365	180	90	60	30	7	61	0
86	Timer - refrigerant leak detection operation performed setting	OFF	Single	Permanent					0
88	Leakage data acquisition settings for automatic filling not been implemented at the time	OFF	ON						0
90	Soft multi tenant	Disabled	Enabled						0
93	Oil return, BS bypass def during	Enabled	Disabled						0
95	EVH bypass setting heat recovery cooling BS	No bypass	Bypass						1

1.2. Field settings as per type indoor unit

Field set	Code																
Indoor	BRC...	FXKQ-M	FXFQ-P	FXCQ-A	FXSQ-P	FXDQ-M	FXUQ-A	FXFQ-A	FXMQ-P	FXHQ-A	FXDQ-A	FXZQ-A	FXAQ-P	FXLQ	FXNQ	VKM	Biddle	EKEQM
20	0	01	01	01	01	02	01	01	01	01	01	01	01	01	01	01	01	01
	1	na	01	01	na	na	01	01	na	01	04	01	01	na	na	03	01	01
	2	02	02	02	02	02	02	02	02	02	01	02	03	02	03	na	03	02
	3	03	02	01	02	02	01	01	01	01	01	01	01	01	02	02	02	01
	4	spare																
	5	na	02	01	02	01	01	01	02	01	01	01	02	02	02	na	01	02
	6	na	02	01	02	01	01	01	02	01	01	01	02	02	02	na	01	01
	7	na	na	01	na	na	01	01	na	na	01	01	na	na	na	na	na	na
	8	na	02	01	na	na	01	01	na	02	01	02	na	na	na	na	na	01
	9	spare																
		FXKQ-M	FXFQ-P	FXCQ-A	FXSQ-P	FXDQ-M	FXUQ-A	FXFQ-A	FXMQ-P	FXHQ-A	FXDQ-A	FXZQ-A	FXAQ-P	FXLQ	FXNQ	VKM	Biddle	EKEQM
21	0	spare																
	1	spare																
	2	spare																
	3	na	01	01	na	na	01	01	na	01	01	01	na	na	na	na	na	na
	4	spare																
	5	spare																
	6	na	na	03	na	na	03	04	na	na	04	03	na	na	na	na	na	na
	7	na	na	na	02	na	na	na	01	na	na	na	na	na	na	na	na	na
	8	na	na	03	na	na	03	01	na	na	01	03	na	na	na	na	na	na
	9	na	na	03	na	na	03	03	na	na	03	03	na	na	na	na	na	na
		FXKQ-M	FXFQ-P	FXCQ-A	FXSQ-P	FXDQ-M	FXUQ-A	FXFQ-A	FXMQ-P	FXHQ-A	FXDQ-A	FXZQ-A	FXAQ-P	FXLQ	FXNQ	VKM	Biddle	EKEQM
22	0	02	01	01	01	02	01	01	01	01	01	01	01	01	01	01	01	01
	1	02	01	01	01	01	01	01	02	01	01	01	01	04	01	01	02	04
	2	02	02	01	02	01	01	02	02	01	02	01	02	02	02	01	01	02
	3	01	01	03	01	01	01	01	02	01	01	01	01	01	02	na	01	01
	4	01	03	01	02	03	03	03	03	01	01	01	01	01	03	01	01	03
	5	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02
	6	na	02	02	01	02	02	02	02	02	02	02	na	02	na	na	02	02
	7	na	01	01	01	01	01	01	01	01	01	01	na	01	na	na	01	01
	8	na	01	01	01	01	01	01	01	01	01	01	na	01	na	na	01	01
	9	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
		FXKQ-M	FXFQ-P	FXCQ-A	FXSQ-P	FXDQ-M	FXUQ-A	FXFQ-A	FXMQ-P	FXHQ-A	FXDQ-A	FXZQ-A	FXAQ-P	FXLQ	FXNQ	VKM	Biddle	EKEQM
23	0	na	01	01	01	na	01	01	01	01	01	01	01	na	na	na	na	na
	1	na	01	na	na	na	01	01	na	na	na	01	01	na	na	na	na	na
	2	na	na	01	na	na	03	01	na	na	na	01	na	na	na	na	na	na
	3	01	na	na	na	na	na	na	na	na	na	01	01	na	na	na	na	na
	4	02	01	01	na	na	03	03	na	03	02	01	02	na	na	na	na	na
	5	na	01	01	01	na	01	01	01	01	01	01	01	na	na	na	na	na
	6	na	na	na	15	na	na	na	02	na	na	na	na	na	na	na	na	na
	7	na	01	01	na	na	01	01	na	01	01	01	01	na	na	na	na	na
	8	na	na	na	na	na	na	na	na	na	na	na	na	na	na	01	02	01
	9	na	01	01	01	09	01	01	01	01	01	01	na	01	na	na	01	01

		FXKQ-M	FXFQ-P	FXCQ-A	FXSQ-P	FXDQ-M	FXUQ-A	FXFQ-A	FXMQ-P	FXHQ-A	FXDQ-A	FXZQ-A	FXAQ-P	FXLQ	FXNQ	VKM	Biddle	EKEQM
24	0	spare																
	1	na	01	01	01	na	01	01	02	01	01	01	na	na	na	13	na	na
	2	na	01	na	na	na	na	02	na	02	na	na	na	na	na	na	na	na
	3	na	01	na	na	na	na	01	na	01	na	na	na	na	na	01	na	na
	4	na	01	na	na	na	na	01	na	01	na	na	na	na	na	09	na	na
	5	na	01	na	na	na	na	01	na	01	na	na	na	na	na	na	na	na
	6	na	na	na	na	na	na	na	na	na	na	na	na	na	na	05	na	na
	7	01	01	01	01	01	01	01	01	01	01	01	01	02	01	01	01	01
	8	na	02	na	na	na	na	02	na	02	na	na	na	na	na	na	na	na
	9	na	01	na	na	na	na	01	na	01	na	na	na	na	na	na	04	04
		FXKQ-M	**FXFQ-P**	**FXCQ-A**	**FXSQ-P**	**FXDQ-M**	**FXUQ-A**	**FXFQ-A**	**FXMQ-P**	**FXHQ-A**	**FXDQ-A**	**FXZQ-A**	**FXAQ-P**	**FXLQ**	**FXNQ**	**VKM**	**Biddle**	**EKEQM**
25	0	na	02	02	02	na	02	02	01	02	02	02	na	na	na	na	na	na
	1	01	01	01	01	01	01	01	02	01	01	01	01	01	02	01	01	02
	2	na	01	01	na	na	01	01	na	01	01	01	01	na	na	na	na	na
	3	01	01	01	01	01	01	01	01	01	01	01	01	01	01	02	01	02
	4	na	01	01	01	na	01	01	01	01	01	01	01	na	na	na	na	na
	5	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	02
	6	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	02
	7	spare																
	8	spare																
	9	01	01	01	na	01	na	01	01	01	01	01	01	01	01	01	01	02

1.3. Field settings full overview

INFORMATION

The full overview lists all possible settings for the indoor unit (not all combinations are possible for all types, see "Field settings as per type indoor unit" on page 167).

Mode	1st code	Description function	2nd code	Description selection
10(20)	0	Filter contamination heavy / light	01	Filter contamination: light LL 2500 hr / flat 200 hr
			02	Filter contamination: heavy LL 1250 hr / flat 100 hr
	1	Long life filter type	01	Long life filter
			02	Super long life filter
			04	Oil guard filter
	2	Air thermistor selection	01	Combined control
			02	Only the return air thermistor
			03	Only the remote controller thermistor
	3	Display filter sign	01	Display
			02	No display
	4	Spare	--	--
	5	Air thermistor selection in group wiring P1P2	01	Return air thermistor (individual units)
			02	Thermistor designated by field set 20-2 (see above)
	6	Remote controller thermistor visible by central control device in group wiring P1P2	01	No
			02	Yes
	7	Absence delay detecting time (presence sensor)	01	30 minutes
			02	60 minutes
	8	Compensation air sensor heating	01	Add 2.0°C to measurement air sensor
			02	Measurement air sensor
	9	Spare	--	--
11(21)	3	Fan setting of heating	01	Standard
			02	Slight increase
			03	Increase
	6	Sensitivity presence sensor	01	High sensitive
			02	Low sensitive
			03	Standard
			04	Disable presence sensor
	7	Airflow adjustment	01	Manual setting (see mode 23-6 below)
			02	ESP auto judgment completed
			03	Start ESP auto judgment (if control set to fan only + ON)
	8	Compensation by floor sensor	01	Floor sensor disabled
			02	Air suction temperature priority
			03	Standard
			04	Floor temperature priority
	9	Compensation of floor temperature	01	-4°C
			02	-2°C
			03	No correction
			04	+2°C

Mode	1st code	Description function	2nd code	Description selection
12(22)	0	Optional board KRP1A… output X1X2	01	Indoor unit turned ON by thermostat
			02	--
			03	Operation output
			04	Malfunction output
			05	--
	1	T1T2 input signal	01	Forced OFF
			02	ON/OFF control
			03	External protection device input
			04	Forced OFF - multi tenant
	2	Thermostat differential to set point	01	1.0°C (FXFQ, FXZQ, FXCQ, FXKQ, FXUQ, FXHQ, VKM, “Biddle”)
			02	0.5°C (FXSQ, FXMQ, FXAQ, FXLQ, FXNQ, FXDQ, EKEQM)
	3	OFF by thermostat fan speed	01	LL
			02	Set fan speed
			03	OFF
	4	Automatic mode differential	01	0°C
			02	1°C
			03	2°C
			04	3°C
			05	4°C
			06	5°C
			07	6°C
			08	7°C
	5	Auto restart after power failure	01	Disabled
			02	Enabled
	6	Fan speed in cooling thermo off	01	LL
			02	Set speed
			03	OFF
	9	Forced C/H master	01	Disabled (select by cool / heat selection button controller)
			02	ON (not possible by cool / heat selection button controller)

Mode	1st code	Description function	2nd code	Description selection
13(23)	0	Air flow amount setting (ceiling height)	01	Standard
			02	High
			03	Extra high
	1	Number of air outlet 4-blow panel	01	4-blow directions
			02	3-blow directions
			03	2-blow directions
	2	Swing pattern setting if 4 swing motors	01	All direction simultaneously swing
			02	--
			03	Opposite sides synchronization swing
	3	Output to flap motor	01	Enabled
			02	Disabled
			03	--
	4	Air flow position setting	01	Draft prevention
			02	Standard
			03	Ceiling soiling prevention
	5	ESP setting phase control motor	01	Standard
			02	Increase step 1
			03	Increase step 2
			04	--
	6	External static pressure manual set	01	--
			02	50 Pa
			03	60 Pa
			04	70 Pa
			05	80 Pa
			06	90 Pa
			07	100 Pa
			08	110 Pa
			09	120 Pa
			10	130 Pa
			11	140 Pa
			12	150 Pa
			13	160 Pa
			14	180 Pa
			15	200 Pa
	7	Thermostat swing	01	Equipped
			02	Not equipped
	8	Auto cleaning program	01	Choice between auto and schedule
			02	Only schedule (auto not in menu)
	9	Dust amount setting	01	Standard
			02	Dust amount big

Mode	1st code	Description function	2nd code	Description selection
15(25)	0	Air cleaner	01	Not equipped
			02	Equipped
	1	Thermostat OFF excess humidity	01	Not equipped
			02	Equipped
	2	Direct duct connection	01	Not equipped
			02	Equipped
	3	Drain pump operation heating operation (if humidifier is used)	01	Not equipped
			02	Equipped
	4	Filter sign	01	By timer
			02	By external input
	5	Independent ventilation	01	Not equipped
			02	Equipped
	6	Independent unit	01	No
			02	Yes
	9	Demand control	01	Not equipped
			02	Equipped

2. Error code overview

2.1. Compact & Standard

Error		Error code	Installation manual	Error detail confirmation 1: Press BS3 (confirmation) once.							Error detail confirmation 2: Press BS2 (operation) once.							Error detail confirmation 3: Press BS2 (operation) twice.							Error detail confirmation 4: Press BS2 (operation) three times.						
Description of error	Description of error (PGF)			H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P
PCB error	PCB error	**E1**		◎	◎	●	●	●	◎	◎	◎	●	○	●	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●	not applicable	
	PCB fault										◎	●	○	●	●	●	◎	◎	○	●	●	●	●	◎	○	○	●	◎		
Discharge pressure error	HPS operation	**E3**	○								◎	●	○	●	●	◎	◎	◎	○	●	●	●	●	◎	○	○	●	●		
Suction pressure error	Pe error	**E4**	○								◎	●	○	●	◎	●	●	◎	○	●	●	●	●	◎	○	○	●	●		
Compressor lock	Inverter compressor lock detection	**E5**									◎	●	○	●	◎	●	◎	◎	○	●	●	●	●	◎	○	○	●	●		
Outdoor-unit fan motor overload/over	Fan 1 DC fan motor momentary overcurrent	**E7**									◎	●	○	●	◎	◎	◎	◎	○	●	●	●	●	◎	○	○	●	●		
• Lock error	Fan 1 DC fan motor lock detection																	◎	○	●	●	●	●	◎	○	○	●	◎		
	Fan 2 DC fan motor momentary overcurrent																	◎	○	●	●	●	●	◎	○	○	●	●		
	Fan 2DC fan motor lock detection																	◎	○	●	●	●	●	◎	○	○	●	◎		
Electronic expansion valve error	EV1	**E9**	○								◎	●	○	◎	●	●	◎	◎	○	●	●	●	●	◎	○	○	●	●		
	EV2																	◎	○	●	●	●	●	◎	○	○	●	◎		
	EV3																	◎	○	●	●	●	●	◎	○	○	◎	●		
	Heat storage tank EV																	◎	○	●	●	●	●	●	◎	○	○	●	●		
Outdoor-unit fan motor position signal error	Fan 1 DC fan motor position signal error	**H7**		◎	◎	●	●	◎	●	●	◎	●	○	●	◎	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●	not applicable	
	Fan 2 DC fan motor position signal error																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Outdoor temperature sensor error	Sensor Ta error (short circuit)	**H9**									◎	●	○	◎	●	●	◎	◎	○	●	●	●	●	◎	○	○	●	●		
	Sensor Ta error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Discharge pipe temperature error	Td error	**F3**	○	◎	◎	●	●	◎	●	◎	◎	●	○	●	●	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Heat exchanger temperature error	Refrigerant overcharge	**F6**	○								◎	●	○	●	●	◎	◎	●	○	●	●	●	●	●	◎	○	○	●	●		
Current sensor error	Sensor CT1 error	**J2**		◎	◎	●	●	◎	◎	●	◎	●	○	●	●	◎	●	◎	○	●	●	●	●	●	◎	○	○	●	●	not applicable	
	Sensor CT2 error																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
Discharge pipe temperature sensor	Sensor Tdi error (short circuit)	**J3**	○								◎	●	○	●	●	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Tdi error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Suction pipe temperature sensor error	Sensor Ts1 error (short circuit)	**J5**	○								◎	●	○	●	◎	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Ts1 error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
	Sensor Ts2 error (short circuit)																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Sensor Ts2 error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	◎		
Heat exchanger temperature sensor error	Sensor Tb error (short circuit)	**J6**	○								◎	●	○	●	◎	◎	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Tb error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Receiver temperature sensor error	Sensor Tl error (short circuit)	**J7**	○								◎	●	○	●	◎	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Tl error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Supercool heat exchanger temperature sensor error	Sensor Tsh error (short circuit)	**J9**	○								◎	●	○	◎	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Tsh error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Discharge pressure sensor error	Sensor Pc error (short circuit)	**JA**	○								◎	●	○	◎	●	◎	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Pc error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Suction pressure sensor error	Sensor Pe error (short circuit)	**JC**	○								◎	●	○	◎	◎	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Pe error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		

○ : ON
◎ : Flashing
● : OFF

Error type (1st digit) indication section

Error type (2nd digit) indication section

*1

Error detail indication section 1

Error detail indication section 2

*2

*1 Error code identified by error confirmation detail 1 and error confirmation detail 2
*2 Code that enables narrowing down on the cause of error identified based on error confirmation detail 3 and error confirmation detail 4

Error		Error code	Installation manual	Error detail confirmation 1: Press BS3 (confirmation) once.							Error detail confirmation 2: Press BS2 (operation) once.							Error detail confirmation 3: Press BS2 (operation) twice.							Error detail confirmation 4: Press BS2 (operation) three times.						
Description of error	Description of error (PGF)			H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P
Instantaneous stop	* No remote controller indication Judgment made during compressor operation	**(L2)**		◎	◎	●	●	◎	◎	◎	◎	◎	●	●	●	◎	●	◎	◎	●	●	●	●	●	◎	◎	◎	●	●	not applicable	
INV PCB error	IPM malfunction	**L1**		◎	◎	●	●	◎	◎	◎	◎	●	○	●	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Current sensor malfunction determination 1																								◎	○	○	●	◎		
	IGBT error																								◎	○	○	◎	●		
	Interleave error																								◎	○	○	◎	◎		
Inverter heat radiation fin temperature rise	Inverter heat radiation fin overheat	**L4**									◎	●	○	●	◎	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
DC output overcurrent	Inverter instantaneous overcurrent	**L5**									◎	●	○	●	◎	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Electronic thermal relay	Electronic thermal relay 1	**L8**									◎	●	○	◎	●	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Electronic thermal relay 2																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Step-out																	◎	○	●	●	●	●	●	◎	○	○	◎	●		
	Speed decrease after startup																														
	Lightning detection																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Stall prevention (time lag)	Stall prevention (current increase)	**L9**									◎	●	○	◎	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Stall prevention (startup failure)																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Startup waveform abnormality																														
	Step-out																	◎	○	●	●	●	●	●	◎	○	○	◎	●		
Inverter-outdoor unit transmission error	Inverter transmission error	**LC**	○								◎	●	○	◎	◎	●	●	◎	○	●	●	●	●	●	◎	○	○	●	◎		
Open phase/power supply imbalance	Inverter power supply voltage imbalance	**P1**	○	◎	◎	●	◎	●	●	●	◎	●	○	●	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●	not applicable	
Switch box internal temperature sensor error	Inverter box temperature thermistor failure	**P3**									◎	●	○	●	●	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Inverter heat radiation fin temperature sensor error	Inverter fin thermistor failure	**P4**									◎	●	○	●	◎	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
Inverter-fan driver combination error	Inverter combination error	**PJ**									◎	●	○	◎	◎	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Fan driver 1 combination error																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Fan driver 2 combination error																	◎	○	●	●	●	●	●	◎	○	○	◎	●		
Gas shortage	Gas shortage alarm	**U0**		◎	◎	●	◎	●	●	◎	◎	●	○	●	●	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●	not applicable	
Reverse phase	Reverse phase error	**U1**	○								◎	●	○	●	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Power supply voltage error	Inverter low voltage	**U2**	○								◎	●	○	●	●	◎	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Inverter open phase (phase T) Inverter main circuit capacitor Charge error AC voltage sensor error																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
Test run non-executed	Test run non-executed	**U3**	○								◎	●	○	●	●	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Indoor-outdoor unit transmission failure	Indoor-outdoor unit transmission error	**U4**	○								◎	●	○	●	◎	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Indoor-outdoor unit transmission error																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
Outdoor-outdoor unit transmission failure	Sequential start ADP alarm	**U7**	○								◎	●	○	●	◎	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Sequential start ADP error																	◎	○	●	●	●	●	●	◎	○	○	●	●		
Transmission failure with another system	Indoor unit system error on another system or another unit in the same circuit	**U9**	○								◎	●	○	◎	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Onsite setting failure	System transmission error	**UA**	○								◎	●	○	◎	●	◎	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Indoor unit over-connection error																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Onsite setting error																	◎	○	●	●	●	●	●	◎	○	○	◎	●		
	Refrigerant error																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
	TSS onsite setting alarm																	◎	○	●	●	●	●	◎	◎	○	○	◎	●		
	CT address alarm																	◎	○	●	●	●	●	◎	◎	○	○	◎	◎		
System failure	Erroneous wiring (auto address error)	**UH**	○								◎	●	○	◎	●	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Accessory equipment transmission failure	Multi-level converter error	**UJ**									◎	●	○	◎	◎	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Multi-level converter alarm																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
Wiring/piping inconsistency/system setting incomplete	Inverted connection error	**UF**	○								◎	●	○	◎	◎	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		

○ : ON
◎ : Flashing
● : OFF

Error type (1st digit) indication section
Error type (2nd digit) indication section
Error detail indication section 1
Error detail indication section 2

*1
*2

*1 Error code identified by error confirmation detail 1 and error confirmation detail 2
*2 Code that enables narrowing down on the cause of error identified based on error confirmation detail 3 and error confirmation detail 4

2.2. Large 8 hp

Error		Error code	Installation manual	Error detail confirmation 1: Press BS3 (confirmation) once.							Error detail confirmation 2: Press BS2 (operation) once.							Error detail confirmation 3: Press BS2 (operation) twice.							Error detail confirmation 4: Press BS2 (operation) three times.						
Description of error	Description of error (PGF)			H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P
PCB error	PCB error	**E1**		◎	◎	●	●	●	◎	◎	◎	●	○	●	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●	not applicable	
	PCB fault										◎	●	○	●	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	◎		
Discharge pressure error	HPS operation	**E3**	○								◎	●	○	●	●	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Suction pressure error	Pe error	**E4**	○								◎	●	○	●	◎	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
Compressor lock	Inverter compressor lock detection	**E5**									◎	●	○	●	◎	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Outdoor-unit fan motor overload/over • Lock error	Fan 1 DC fan motor momentary overcurrent	**E7**									◎	●	○	●	◎	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Fan 1 DC fan motor lock detection																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Fan 2 DC fan motor momentary overcurrent																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
	Fan 2DC fan motor lock detection																	◎	○	●	●	●	●	◎	◎	○	○	●	◎		
Electronic expansion valve error	EV1	**E9**	○								◎	●	○	◎	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	EV2																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	EV3																	◎	○	●	●	●	●	●	◎	○	○	◎	●		
	Heat storage tank EV																	◎	○	●	●	●	●	●	◎	○	○	●	●		
Outdoor-unit fan motor position signal error	Fan 1 DC fan motor position signal error	**H7**		◎	◎	●	●	◎	●	●	◎	●	○	●	◎	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●	not applicable	
	Fan 2 DC fan motor position signal error																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Outdoor temperature sensor error	Sensor Ta error (short circuit)	**H9**									◎	●	○	◎	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Ta error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Discharge pipe temperature error	Td error	**F3**	○	◎	◎	●	●	◎	●	◎	◎	●	○	●	●	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Heat exchanger temperature error	Refrigerant overcharge	**F6**	○								◎	●	○	●	◎	◎	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
Current sensor error	Sensor CT1 error	**J2**		◎	◎	●	●	◎	◎	●	◎	●	○	●	●	◎	●	◎	○	●	●	●	●	●	◎	○	○	●	●	not applicable	
	Sensor CT2 error																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
Discharge pipe temperature sensor	Sensor Tdi error (short circuit)	**J3**	○								◎	●	○	●	●	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Tdi error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Suction pipe temperature sensor error	Sensor Ts1 error (short circuit)	**J5**	○								◎	●	○	●	◎	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Ts1 error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
	Sensor Ts2 error (short circuit)																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Sensor Ts2 error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	◎		
Heat exchanger temperature sensor error	Sensor Tb error (short circuit)	**J6**	○								◎	●	○	●	◎	◎	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Tb error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Receiver temperature sensor error	Sensor Tl error (short circuit)	**J7**	○								◎	●	○	●	◎	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Tl error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Supercool heat exchanger temperature sensor error	Sensor Tsh error (short circuit)	**J9**	○								◎	●	○	◎	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Tsh error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Discharge pressure sensor error	Sensor Pc error (short circuit)	**JA**	○								◎	●	○	◎	●	◎	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Pc error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Suction pressure sensor error	Sensor Pe error (short circuit)	**JC**	○								◎	●	○	◎	◎	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Sensor Pe error (open circuit)																	◎	○	●	●	●	●	◎	◎	○	○	●	●		

○ : ON
◎ : Flashing
● : OFF

Error type (1st digit) indication section — Error type (2nd digit) indication section — Error detail indication section 1 — Error detail indication section 2

*1 *2

*1 Error code identified by error confirmation detail 1 and error confirmation detail 2

*2 Code that enables narrowing down on the cause of error identified based on error confirmation detail 3 and error confirmation detail 4
Error generating unit in outdoor unit multi-connection identified based on H6P, H7P of error confirmation detail 4 as part of narrowing down on error

Error		Error code	Installation manual	Error detail confirmation 1: Press BS3 (confirmation) once.							Error detail confirmation 2: Press BS2 (operation) once.							Error detail confirmation 3: Press BS2 (operation) twice.							Error detail confirmation 4: Press BS2 (operation) three times.						
Description of error	Description of error (PGF)			H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P	H1P	H2P	H3P	H4P	H5P	H6P	H7P
INV PCB error	IPM malfunction	**L1**		◎	◎	●	●	◎	◎	◎	◎	●	○	●	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●	not applicable	
	Current sensor malfunction determination 1																								◎	○	○	●	◎		
	IGBT error																								◎	○	○	◎	●		
																									◎	○	○	◎	◎		
	Interleave error																														
Inverter heat radiation fin temperature rise	Inverter heat radiation fin overheat	**L4**									◎	●	○	●	◎	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
DC output overcurrent	Inverter instantaneous overcurrent	**L5**									◎	●	○	●	◎	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Electronic thermal relay	Electronic thermal relay 1	**L8**									◎	●	○	◎	●	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Electronic thermal relay 2																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Step-out																	◎	○	●	●	●	●	●	◎	○	○	◎	●		
	Speed decrease after startup																														
	Lightning detection																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
Stall prevention (time lag)	Stall prevention (current increase)	**L9**									◎	●	○	◎	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Stall prevention (startup failure)																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Startup waveform abnormality																														
	Step-out																	◎	○	●	●	●	●	●	◎	○	○	◎	●		
Inverter-outdoor unit transmission error	Inverter transmission error	**LC**	○								◎	●	○	◎	◎	●	●	◎	○	●	●	●	●	●	◎	○	○	●	◎		
Open phase/power supply imbalance	Inverter power supply voltage imbalance	**P1**	○	◎	◎	●	◎	●	●	●	◎	●	○	●	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●	not applicable	
Switch box internal temperature sensor error	Inverter box temperature thermistor failure	**P3**									◎	●	○	●	●	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Inverter heat radiation fin temperature sensor error	Inverter fin thermistor failure	**P4**									◎	●	○	●	◎	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
Inverter-fan driver combination error	Inverter combination error	**PJ**									◎	●	○	◎	◎	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Fan driver 1 combination error																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Fan driver 2 combination error																	◎	○	●	●	●	●	●	◎	○	○	◎	●		
Gas shortage	Gas shortage alarm	**U0**		◎	◎	●	◎	●	●	◎	◎	●	○	●	●	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●	not applicable	
Reverse phase	Reverse phase error	**U1**	○								◎	●	○	●	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Power supply voltage error	Inverter low voltage	**U2**	○								◎	●	○	●	●	◎	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Inverter open phase (phase T)																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Inverter main circuit capacitor																														
	Charge error																														
	AC voltage sensor error																														
Test run non-executed	Test run non-executed	**U3**	○								◎	●	○	●	●	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Indoor-outdoor unit transmission failure	Indoor-outdoor unit transmission error	**U4**	○								◎	●	○	●	◎	●	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Indoor-outdoor unit transmission error																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
Outdoor-outdoor unit transmission failure	Sequential start ADP alarm	**U7**	○								◎	●	○	●	◎	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Sequential start ADP error																	◎	○	●	●	●	●	●	◎	○	○	●	●		
Transmission failure with another system	Indoor unit system error on another system or another unit in the same circuit	**U9**	○								◎	●	○	◎	●	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Onsite setting failure	System transmission error	**UA**	○								◎	●	○	◎	●	◎	●	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Indoor unit over-connection error																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
	Onsite setting error																	◎	○	●	●	●	●	●	◎	○	○	◎	●		
	Refrigerant error																	◎	○	●	●	●	●	◎	◎	○	○	●	●		
	TSS onsite setting alarm																	◎	○	●	●	●	●	◎	◎	○	○	◎	●		
	CT address alarm																	◎	○	●	●	●	●	◎	◎	○	○	◎	◎		
System failure	Erroneous wiring (auto address error)	**UH**	○								◎	●	○	◎	●	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
Accessory equipment transmission failure	Multi-level converter error	**UJ**									◎	●	○	◎	◎	●	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		
	Multi-level converter alarm																	◎	○	●	●	●	●	●	◎	○	○	●	◎		
Wiring/piping inconsistency/system setting incomplete	Inverted connection error	**UF**	○								◎	●	○	◎	◎	◎	◎	◎	○	●	●	●	●	●	◎	○	○	●	●		

○ : ON
◎ : Flashing
● : OFF

Error type (1st digit) indication section

Error type (2nd digit) indication section

Error detail indication section 1

Error detail indication section 2

*1

*2

*1 Error code identified by error confirmation detail 1 and error confirmation detail 2

*2 Code that enables narrowing down on the cause of error identified based on error confirmation detail 3 and error confirmation detail 4
Error generating unit in outdoor unit multi-connection identified based on H6P, H7P of error confirmation detail 4 as part of narrowing down on error

2.3. Large 10-12 hp

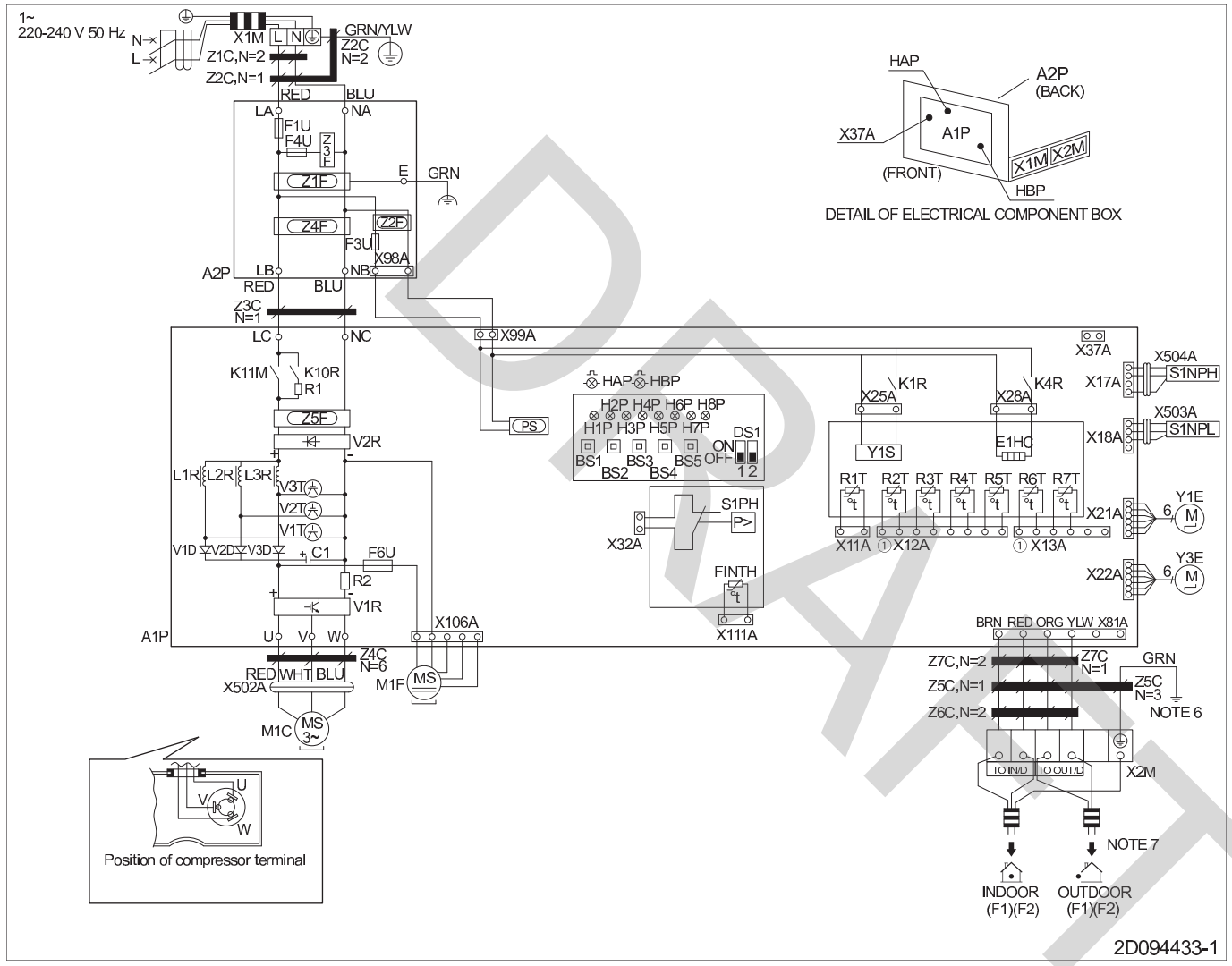
Abnormality content		Abnormality code	Installation manual	Segmentalization code	Inverter	Abnormality Level		Recovery condition	Process
Abnormality content	Abnormality content (PGF)			Master					
P plate abnormality	P plate abnormality	**E1**		**1**		1	Abnormality stop	Remote controller reset	(2 retries at high pressure sensor/30 minutes)
	P plate defect			**2**					
Leak abnormality	Leak detection	**E2**	○	**1**					
	Leak detection core omission			**6**					
Discharge pressure abnormality	HPS actuation	**E3**	○	**1**					
	Test run liquid stop valve closing abnormality			**13**					
Suction pressure abnormality	Pe abnormality	**E4**	○	**1**		1	Abnormality stop	Remote controller reset	(2 retries under normal conditions/100 minutes, 5 retries at startup/100 minutes)
Compressor lock	INV1 compressor lock detection	**E5**		**1**	0x3d	1	Abnormality stop	Remote controller reset	(3 retries/60 minutes)
Outdoor fan motor overload/overcurrent	Fan 1DC fan motor instantaneous overcurrent	**E7**		**5**	0x41	1	Abnormality stop	Remote controller reset	(3 retries/60 minutes)
·Lock abnormality	Fan 1DC fan motor lock detection			**1**	0x42				
	Fan 1DC fan motor IPM protection abnormality			**9**					
	Fan 2DC fan motor instantaneous overcurrent			**6**	0x41				
	Fan 2DC fan motor lock detection			**2**	0x42				
	Fan 2DC fan motor IPM protection abnormality			**10**					
Electronic expansion valve abnormality	EVM	**E9**	○	**4**		1	Abnormality stop	Power supply reset	Judgment at closing power supply, operation prohibited while abnormality continues
	EVT			**1**					
Outdoor fan motor position signal abnormality	INV1 HPS actuation	**H3**		**2**					
	INV2 HPS actuation	**H3**		**3**					
	Fan 1DC fan motor position signal abnormality	**H7**		**1**	0x43	1	Abnormality stop	Remote controller reset	(3 retries/60 minutes)
	Fan 2DC fan motor position signal abnormality			**2**					
Outdoor temperature sensor abnormality	Ta sensor abnormality	**H9**		**1**		2	Abnormality stop	Automatic recovery	Operation not allowed while abnormality continues
Defrosting unmelted frost alarm		**HA**				3	Alarm	Automatic recovery	Operation not allowed while abnormality continues
Discharge pipe temperature abnormality	Td abnormality	**F3**	○	**1**		1	Abnormality stop	Remote controller reset	(2 retries/100 minutes)
Outer shell temperature abnormality	Ti abnormality			**20**					
Compressor suction temperature abnormality	Wet alarm	**F4**	○	**1**		1	Abnormality stop	Remote controller reset	Judgment only at test run and abnormality output at test run completion
Heat exchanger temperature abnormality	Refrigerant over charge	**F6**	○	**2**		1	Abnormality stop	Remote controller reset	Judgment only at test run and abnormality output at test run completion
Discharge pipe temperature sensor abnormality	Tdi1 sensor abnormality (open)	**J3**	○	**16**		1	Abnormality stop	Remote controller reset	Operation possible with emergency operation setting while abnormality continues
	Tdi1 sensor abnormality (short circuit)			**17**					
	Ti sensor abnormality (open)			**47**					
	Ti sensor abnormality (short circuit)			**48**					
	Tdi escape			**56**		4	Warning	Automatic recovery	Operation continued
Suction pipe temperature sensor abnormality	Ts1 sensor abnormality	**J5**	○	**1**		2	Abnormality stop	Automatic recovery	Operation not allowed while abnormality continues
Heat exchanger temperature sensor abnormality	Tb sensor abnormality	**J6**	○	**1**		2	Abnormality stop	Automatic recovery	Operation not allowed while abnormality continues
Liquid pipe temperature sensor abnormality 1	Tsc sensor abnormality	**J7**	○	**6**		2	Abnormality stop	Automatic recovery	Operation not allowed while abnormality continues
Liquid pipe temperature sensor abnormality 2	Tf sensor abnormality	**J8**	○	**1**		2	Abnormality stop	Automatic recovery	Operation not allowed while abnormality continues
Subcooling heat exchanger temperature sensor abnormality	Tsh sensor abnormality	**J9**	○	**1**		2	Abnormality stop	Automatic recovery	Operation continued
Discharge pressure sensor abnormality	Pc sensor abnormality (open)	**JA**	○	**6**		1	Abnormality stop	Remote controller reset	Operation not allowed while abnormality continues
	Pc sensor abnormality (short circuit)			**7**					
Suction pressure sensor abnormality	Pe sensor abnormality (open)	**JC**	○	**6**		1	Abnormality stop	Remote controller reset	Operation not allowed while abnormality continues
	Pe sensor abnormality (short circuit)			**7**					

Abnormality content		Abnormality code	Installation manual	Segmentalization code	Inverter	Abnormality Level		Recovery condition	Process
Abnormality content	Abnormality content (PGF)			Master					
INV P plate abnormality	INV1 IPM malfunction	**L1**		**1**					
	INV1 current sensor malfunction confirmation 1			**2**					
	INV1 current sensor malfunction confirmation 2			**3**					
	INV1 IGBT abnormality			**4**					
	Jumper 1 setting abnormality			**5**					
	INV1 EEPROM abnormality			**36**					
	FAN1 EEPROM abnormality			**28**					
	INV1 15V supply voltage abnormality			**47**					
Switch box temperature rise	INV1 DLC temperature abnormality	**L3**		**1**					
Inverter radiating fin temperature rise	INV1 inverter radiating fin temperature overheat	**L4**		**1**	0x2c	1	Abnormality stop	Remote controller reset	(3 retries/60 minutes)
DC output overcurrent	INV1 instantaneous overcurrent	**L5**		**3**	0x21	1	Abnormality stop	Remote controller reset	(3 retries/30 minutes)
Electronic thermal	INV1 electronic thermal 1	**L8**		**3**	0x23	1	Abnormality stop	Remote controller reset	(3 retries/60 minutes)
	INV1 electronic thermal 2				0x24				Operation possible with emergency operation setting while abnormality continues
	INV1 power swing				0x25				
	Velocity drop after INV1 startup								
	INV1 lightning detection				0x26				
Stall prevention (lag)	INV1 stall prevention (current increase)	**L9**		1	0x27	1	Abnormality stop	Remote controller reset	(3 retries/30 minutes)
	INV1 stall prevention (startup failure)				0x28				Operation possible with emergency operation setting while abnormality continues
	INV1 startup abnormal waveform								
	INV1 power swing				0x29				
Inverter-outdoor unit transmission abnormality	INV1 transmission abnormality	**LC**	○	**14**		2	Abnormality stop	Automatic recovery	Operation possible with emergency operation setting while abnormality continues
	FAN1 transmission abnormality			**19**					
	FAN2 transmission abnormality			**24**					
	Sub P plate transmission abnormality			**33**					
Open-phase/power supply imbalance	INV1 supply voltage imbalance	**P1**	○	**1**	0x31	4	Warning	Automatic recovery	Infinite retry (warning with 4th generation)
DCL sensor abnormality	INV1 DLC1 sensor abnormality	**P3**		**1**					
	INV1 DLC2 sensor abnormality			**4**					
Inverter radiating fin temperature abnormality	INV1 fin thermistor failure	**P4**		**1**	0x2d	4	Warning	Automatic recovery	Operation continued
Service mode operation normal completion alarm		**P9**		**0**		3	Alarm	Operation button (BS pressed twice)	Operation continued
Inverter, fan driver combination defect	INV1 P plate type abnormality	**PJ**		**4**		1	Abnormality stop	Power supply reset	Operation not allowed while abnormality continues
	FAN1 P plate type abnormality			**9**					
	FAN2 P plate type abnormality			**10**					
Gas shortage	Gas shortage abnormality	**U0**		**5**		4	Warning		Operation continued
	Gas shortage abnormality (during heating gas shortage restriction)			**6**					
Reverse phase	Reverse phase abnormality	**U1**	○	**1**		1	Abnormality stop	Power supply reset	Operation not allowed while abnormality continues
	Reverse phase abnormality (power ON)			**4**					
Supply voltage abnormality	INV1 power supply undervoltage	**U2**	○	**1**	0x32	1	Abnormality stop	Automatic recovery	(4 retries/60 minutes)
	INV1 power supply open phase			**2**	0x33	1	Abnormality stop	Automatic recovery	(3 retries/60 minutes)
	INV1 main circuit condenser charging abnormality			**3**					Operation possible with emergency operation setting while abnormality continues
No implementation of test run	No implementation of test run	**U3**	○	**3**		1	Abnormality stop	Test run implementation	
	Abnormal completion of test run			**4**					
	Test run abort (during initial transmission)			**5**					
	Test run abort (during normal transmission)			**6**					
	Test run abort (transmission abnormality)			**7**					
	Test run abort (transmission abnormality for all systems)			**8**					
Indoor-outdoor unit transmission defect	Indoor-outdoor transmission abnormality	**U4**	○	**1**		2	Abnormality stop	Automatic recovery	Operation not allowed while abnormality continues
	Indoor system abnormality			**3**					
Transmission defect between outdoor units	Successive startup ADP alarm	**U7**	○	**1**		3	Alarm	Automatic recovery	Operation continued
	Successive startup ADP abnormality			**2**		2	Abnormality stop	Automatic recovery	Operation not allowed while abnormality continues
Transmission defect in other systems	Other systems or other units of own system Indoor unit system abnormality	**U9**	○	**1**		2	Abnormality stop	Automatic recovery	Operation not allowed while abnormality continues
Local setting defect	System transmission abnormality	**UA**	○	**16**		1	Abnormality stop	Automatic recovery	Operation not allowed while abnormality continues
	Indoor unit over-connection abnormality (number of units connected)			**3**					
	Local setting abnormality			**17**					
	Local setting alarm			**19**					
	Refrigerant abnormality (local setting abnormality)			**18**					
	TSS local setting alarm			**0**		3	Alarm	Automatic recovery	Operation continued
	CT address overlap alarm			**0**					
	BS alarm (indoor over-connection)			**23**					
	Mis-connection abnormality (residential VRV unit)			**21**					
System defect	Incorrect wiring (automatic address error)	**UH**	○	**1**		2	Abnormality stop	Automatic recovery	Operation not allowed while abnormality continues
Wiring/piping mismatch or no system setting	Incorrect wiring check abnormality	**UF**	○	**1**		1	Abnormality stop	Power supply reset	Operation not allowed while abnormality continues
	Test run stop valve abnormality			**5**		1	Abnormality stop	Power supply reset	Operation not allowed while abnormality continues

3. Wiring diagrams

3.1 Wiring diagram Compact (RXYSCQ4TMVIB - RXYSCQ5TMVIB)

Figure 53 - Wiring diagram Compact (RXYSCQ4TMVIB - RXYSCQ5TMVIB)



Notes for RXYSCQ4+5:

1. This wiring diagram applies only to the outdoor unit.
2. Symbols (see below).
3. Refer to the installation manual for how to use the BS1~BS5 and DS1+DS2 switches.
4. When operating, do not short-circuit protective device S1PH.
5. Colours (see below).
6. Refer to the installation manual for connection wiring to INDOOR-OUTDOOR transmission F1-F2.
7. When using the central control system, connect OUTDOOR-OUTDOOR transmission F1-F2.

Symbols:

L	Live
N	Neutral
	Field wiring
	Terminal strip
	Connector
	Fixed connector
	Movable connector
	Protective earth (screw)
	Noiseless earth
	Terminal

Colours:

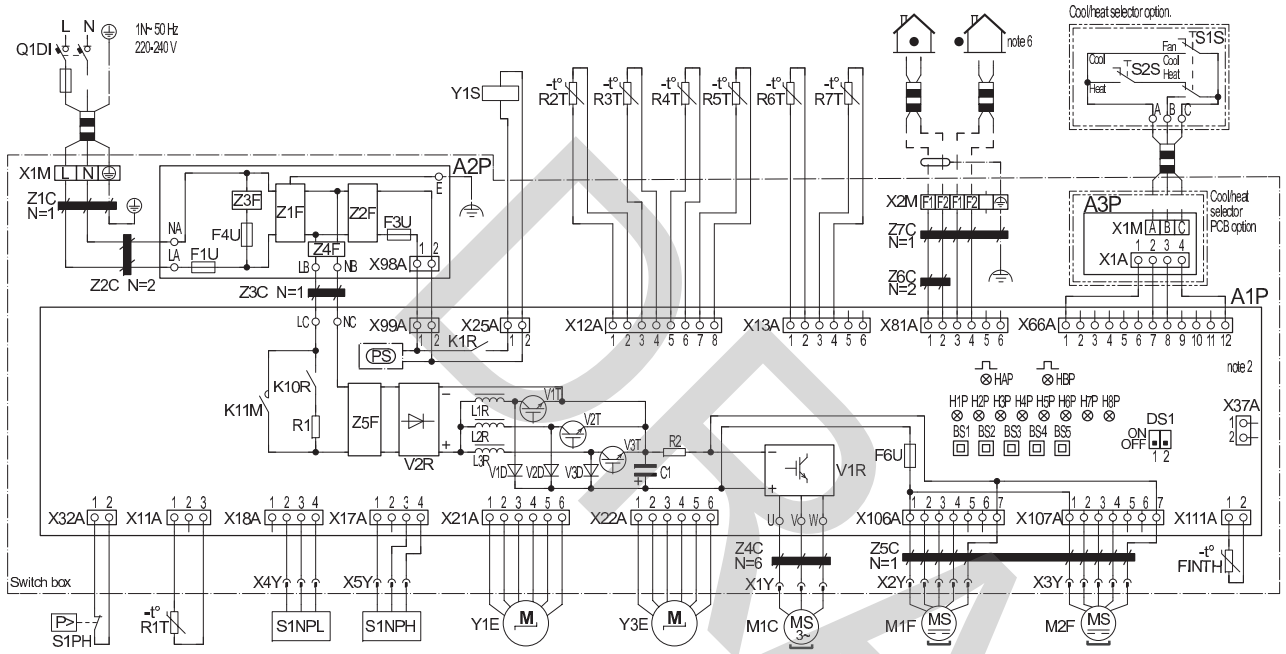
BLK	Black
BLU	Blue
BRN	Brown
GRN	Green
ORG	Orange
RED	Red
WHT	White
YLW	Yellow

Legend for wiring diagram RXYSCQ4+5:

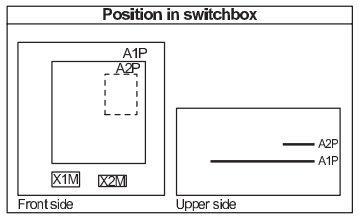
A1P	Printed circuit board (main)
A2P	Printed circuit board
BS1~BS5	Push button switch
C1	Capacitor
DS1	DIP switch
E1HC	Crankcase heater
F1U	Fuse
F3U, F4U	Fuse (T 6.3 A / 250 V)
F6U	Fuse (T 5.0 A / 250 V)
H1P~H8P	Light-emitting diode (service monitor orange) H2P: ▪ Prepare, test: Flickering ▪ Malfunction detection: Light up
HAP	Light-emitting diode (service monitor is green)
HBP	Light-emitting diode (service monitor is green)
K11M	Magnetic contactor
K1R	Magnetic relay (Y1S)
K4R	Magnetic relay (E1HC)
K10R	Magnetic relay
L1R~L3R	Reactor
M1C	Motor (compressor)
M1F	Motor (fan)
PS	Switching power supply
R1, R2	Resistor
R1T	Thermistor (air)
R2T	Thermistor (discharge)
R3T	Thermistor (suction 1)
R4T	Thermistor (heat exchanger de-icer)
R5T	Thermistor (suction 2)
R6T	Thermistor (subcool heat exchanger)
R7T	Thermistor (liquid pipe)
FINTH	Thermistor (fin)
S1NPH	High pressure sensor
S1NPL	Low pressure sensor
S1PH	High pressure switch
V1R	IGBT power module
V2R	Diode module
V1T~V3T	Insulated gate bipolar transistor (IGBT)
V1D~V3D	Diode
X1M, X2M	Terminal strip
X37A	Connector
Y1E	Electronic expansion valve (main)
Y3E	Electronic expansion valve (subcool heat exchanger)
Y1S	Solenoid valve (4-way valve)
Z1C~Z7C	Noise filter (ferrite core)
Z1F~Z5F	Noise filter

3.2 Wiring diagram Standard 1PH (RXYSQ4T7V1B, RXYSQ5T7V1B, RXYSQ6T7V1B)

Figure 54 - Wiring diagram Standard 1PH (RXYSQ4T7V1B, RXYSQ5T7V1B, RXYSQ6T7V1B)



Position in switchbox



Notes for RXYSQ4~6_V1:

1. Symbols (see below).
2. For X37A refer to the installation manual of the option.
3. Refer to the installation or service manual on how to use BS1~BS5 push buttons, and DS1-1 and DS1-2 DIP switches.
4. Do not operate the unit by short-circuiting protection device S1PH.
5. Refer to the installation manual for indoor-outdoor transmission F1-F2 wiring.
6. When using the central control system, connect outdoor-outdoor transmission F1-F2.

Symbols:

X1M	Main terminal
	Earth wiring
15	Wire number 15
	Field wire
	Field cable
—> **/12.2	Connection ** continues on page 12 column 2
①	Several wiring possibilities
	Option
	Not mounted in switch box
	Wiring depending on model
	PCB

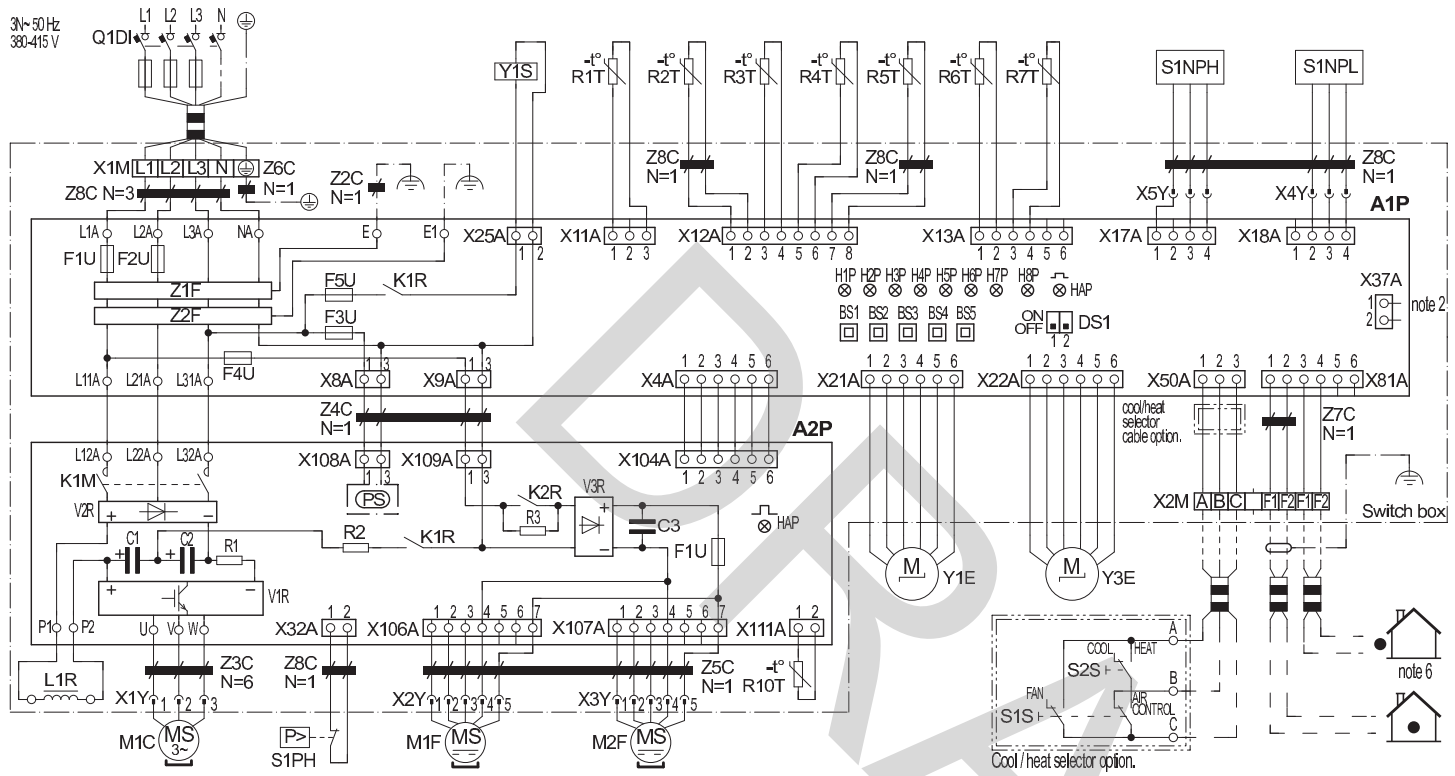
4D094013-1

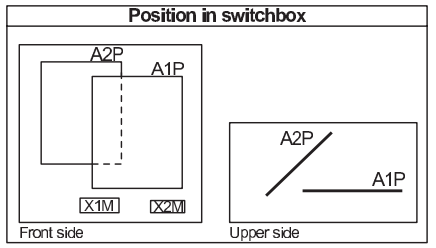
Legend for wiring diagram RXYSQ4~6_V1:

A1P	Printed circuit board (main)
A2P	Printed circuit board (filter)
A3P	Printed circuit board (cool/heat selector) (option)
BS*	Push buttons (mode, set, return, test, reset) (A1P)
C1	Capacitor (A1P)
DS1	DIP switch (A1P)
F1U	Fuse (T 56 A / 250 V) (A2P)
F3U, F4U	Fuse (T 6.3 A / 250 V) (A2P)
F6U	Fuse (T 5.0 A / 250 V) (A1P)
H*P	LED (service monitor orange) (A1P)
HAP	Running LED (service monitor green) (A1P)
HBP	Frequency LED (service monitor green) (A1P)
K11M	Magnetic contactor (A1P)
K*R	Magnetic relay (A1P)
L*R	Reactor (A1P)
M1C	Motor (compressor)
M1F	Motor (upper fan)
M2F	Motor (lower fan)
PS	Switching power supply (A1P)
Q1DI	Earth leakage circuit breaker (field supply)
R*	Resistor (A1P)
R1T	Thermistor (air)
R2T	Thermistor (discharge)
R3T	Thermistor (suction 1)
R4T	Thermistor (heat exchanger)
R5T	Thermistor (suction 2)
R6T	Thermistor (subcool heat exchanger)
R7T	Thermistor (liquid pipe)
FINTH	Thermistor (fin)
S1NPH	High pressure sensor
S1NPL	Low pressure sensor
S1PH	High pressure switch
S1S	Air control switch (option)
S2S	Cool/heat selector switch (option)
V1R	IGBT power module (A1P)
V2R	Diode module (A1P)
V*T	Insulated gate bipolar transistor (IGBT) N-channel (A1P)
V*D	Diode (A1P)
X*A	PCB connector
X*M	Terminal strip
X*Y	Connector
X37A	Connector (power supply for option PCB)
Y1E	Electronic expansion valve (main)
Y3E	Electronic expansion valve (subcool heat exchanger)
Y1S	Solenoid valve (4-way valve)
Z*C	Noise filter (ferrite core)
Z*F (A*P)	Noise filter

3.3 Wiring diagram Standard 3PH(RXYSQ4T7V1B, RXYSQ5T7V1B, RXYSQ6T7V1B)

Figure 55 - Wiring diagram Standard 3PH (RXYSQ4T7V1B, RXYSQ5T7V1B, RXYSQ6T7V1B)





Notes for RXYSQ4~6_Y1:

1 Symbols (see below).

2 For X37A refer to the installation manual of the option.

3 Refer to the installation or service manual on how to use BS1~BS4 push buttons, and DS1-1 and DS1-2 DIP switches.

4 Do not operate the unit by short-circuiting protection device S1PH.

5 Refer to the installation manual for indoor-outdoor transmission F1-F2 wiring.

6 When using the central control system, connect outdoor-outdoor transmission F1-F2.

Symbols:

X1M	Main terminal
	Earth wiring
15	Wire number 15
	Field wire
	Field cable
**/12.2	Connection ** continues on page 12 column 2
①	Several wiring possibilities
	Option
	Not mounted in switch box
	Wiring depending on model
	PCB

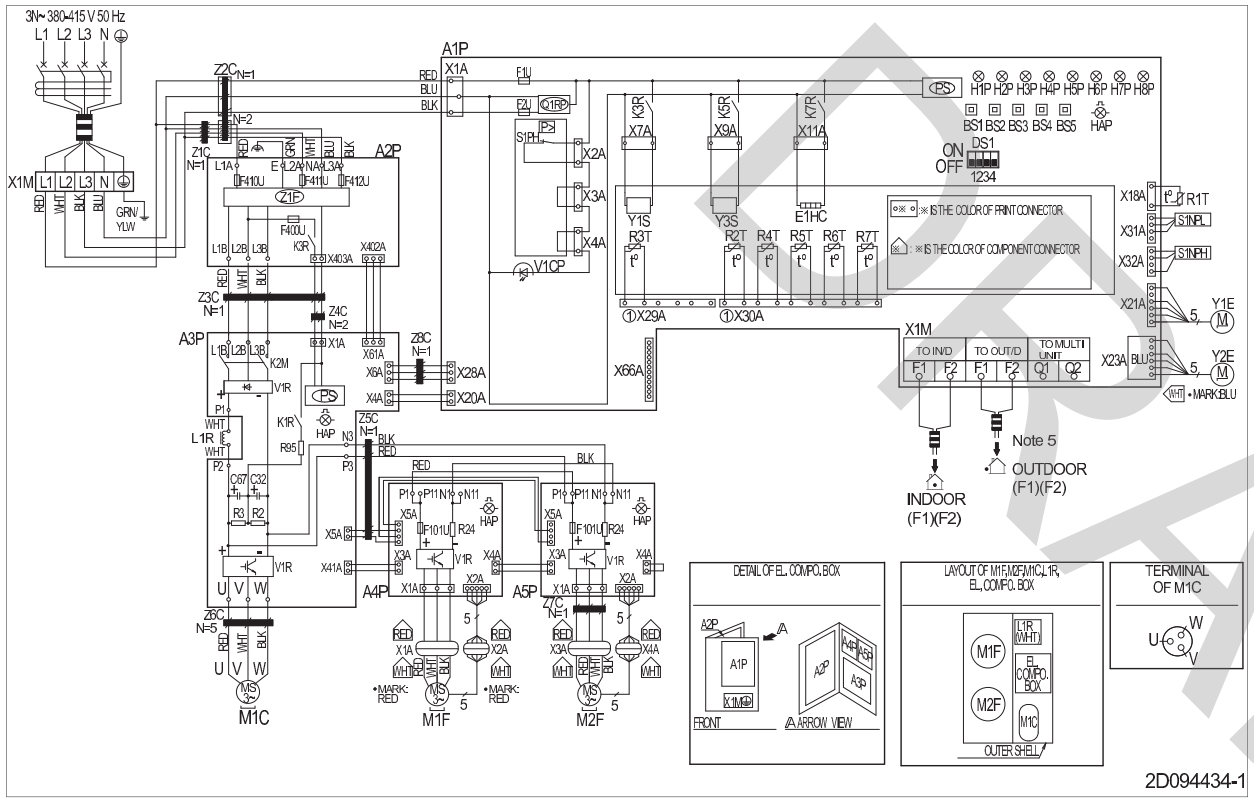
4D094014-1C

Legend for wiring diagram RXYSQ4~6_Y1:

A1P	Printed circuit board (main)
A2P	Printed circuit board (inverter)
BS*	Push buttons (mode, set, return, test, reset) (A1P)
C*	Capacitor (A2P)
DS1	DIP switch (A1P)
F1U, F2U	Fuse (T 31.5 A / 500 V) (A1P)
F1U	Fuse (T 5.0 A / 250 V) (A2P)
F3U, F4U, F5U	Fuse (T 6.3 A / 250 V) (A1P)
H*P	LED (service monitor orange) (A1P)
HAP	Running LED (service monitor green) (A*P)
K1M	Magnetic contactor (A2P)
K*R	Magnetic relay (A*P)
L1R	Reactor
M1C	Motor (compressor)
M1F	Motor (upper fan)
M2F	Motor (lower fan)
PS	Switching power supply (A2P)
Q1DI	Earth leakage circuit breaker (field supply)
R*	Resistor (A2P)
R1T	Thermistor (air)
R2T	Thermistor (discharge)
R3T	Thermistor (suction 1)
R4T	Thermistor (heat exchanger)
R5T	Thermistor (suction 2)
R6T	Thermistor (subcool heat exchanger)
R7T	Thermistor (liquid pipe)
R10T	Thermistor (fin)
S1NPH	High pressure sensor
S1NPL	Low pressure sensor
S1PH	High pressure switch
S1S	Air control switch (option)
S2S	Cool/heat selector switch (option)
V1R	IGBT power module (A2P)
V2R, V3R	Diode module (A2P)
X*A	PCB connector
X*M	Terminal strip
X*Y	Connector
X37A	Connector (power supply for option PCB)
Y1E	Electronic expansion valve (main)
Y3E	Electronic expansion valve (subcool heat exchanger)
Y1S	Solenoid valve (4-way valve)
Z*C	Noise filter (ferrite core)
Z*F	Noise filter

3.4 Wiring diagram Large 8 (RXYSQ8TMY1B)

Figure 56 - Wiring diagram Large 8 (RXYSQ8TMY1B)



Notes for RXYSQ8:

1. This wiring diagram applies only to the outdoor unit.
2. Symbols (see below).
3. Symbols (see below).
4. Refer to the installation manual for connection wiring to INDOOR-OUTDOOR transmission F1-F2 and OUTDOOR-OUTDOOR transmission F1-F2.
5. Refer to the installation manual for how to use the BS1~BS5 and DS1 switches.
6. When operating, do not short-circuit protective device S1PH.
7. Colours (see below).

Symbols:

L	Live
N	Neutral
	Field wiring
	Terminal strip
	Connector
	Fixed connector
	Movable connector
	Protective earth (screw)
	Noiseless earth
	Terminal

Colours:

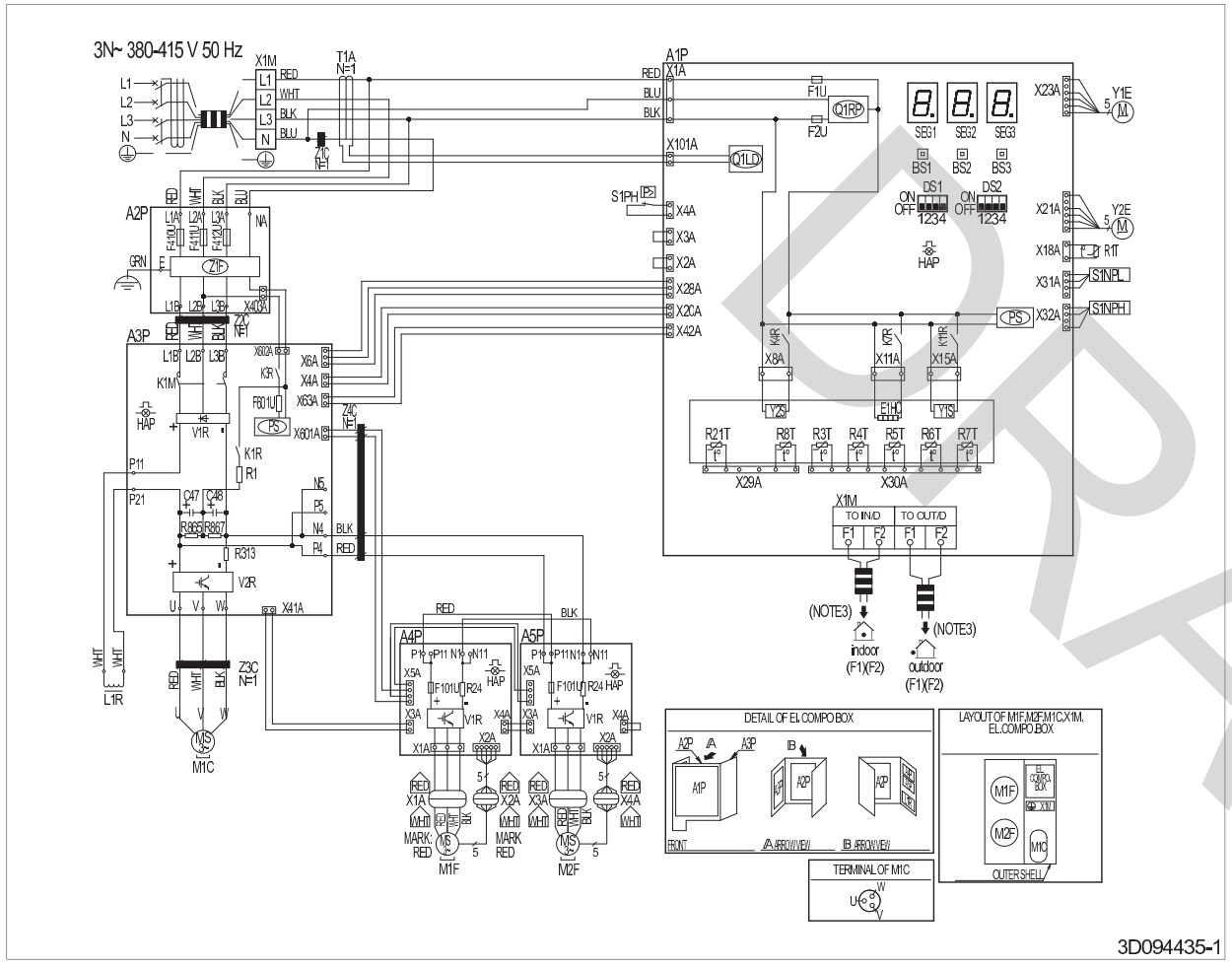
BLK	Black
BLU	Blue
BRN	Brown
GRN	Green
ORG	Orange
RED	Red
WHT	White
YLW	Yellow

Legend for wiring diagram RXYSQ8:

A1P	Printed circuit board (main)
A2P	Printed circuit board (noise filter)
A3P	Printed circuit board (inverter)
A4P	Printed circuit board (fan 1)
A5P	Printed circuit board (fan 2)
BS1~BS5	Push button switch
C32, C67	Capacitor
DS1	DIP switch
E1HC	Crankcase heater
F1U, F2U	Fuse (T 3.15 A / 250 V) (A1P)
F101U	Fuse (5 A, DC650 V) (A4P) (A5P)
F400U	Fuse (T 6.3 A / 250 V) (A2P)
H1P~H8P	Light-emitting diode (service monitor orange)
	H2P: • Prepare, test: Flickering • Malfunction detection: Light up
HAP	Light-emitting diode (service monitor is green)
K1R	Magnetic relay (A3P)
K2M	Magnetic contactor (M1C) (A3P)
K3R	Magnetic relay (A2P)
K3R	Magnetic relay (Y1S)
K5R	Magnetic relay (Y3S)
K7R	Magnetic relay (E1HC)
L1R	Reactor
M1C	Motor (compressor)
M1F, M2F	Motor (upper and lower fan)
PS	Switching power supply (A1P) (A3P)
Q1RP	Reverse phase protector
R2, R3	Resistor
R24	Resistor (current sensor) (A4P) (A5P)
R95	Resistor (current limiting)
R1T	Thermistor (air)
R2T	Thermistor (suction 1)
R3T	Thermistor (discharge)
R4T	Thermistor (heat exchanger de-icer)
R5T	Thermistor (subcool heat exchanger)
R6T	Thermistor (liquid pipe)
R7T	Thermistor (suction 2)
S1NPH	High pressure sensor
S1NPL	Low pressure sensor
S1PH	High pressure switch
V1CP	Safety devices input
V1R	IGBT module (A4P) (A5P)
V1R	Diode bridge IGBT module (A3P)
X1A, X2A	Connector (M1F)
X3A, X4A	Connector (M2F)
X1M	Terminal strip (power supply)
X1M	Terminal strip (control) (A1P)
Y1E	Electronic expansion valve (main)
Y2E	Electronic expansion valve (subcool heat exchanger)
Y1S	Solenoid valve
Y3S	Solenoid valve (4-way valve)
Z1C~Z8C	Noise filter (ferrite core)
Z1F	Noise filter (with surge absorber)

3.5 Wiring diagram Large 10-12 (RXYSQ10TMY1B, RXYSQ12TMY1B)

Figure 57 - Wiring diagram Large 10-12 (RXYSQ10TMY1B, RXYSQ12TMY1B)



Legend for wiring diagram RXYSQ10+12:

A1P	Printed circuit board (main)
A2P	Printed circuit board (noise filter)
A3P	Printed circuit board (inverter)
A4P	Printed circuit board (fan 1)
A5P	Printed circuit board (fan 2)
BS1~BS3	Push button switch (A1P)
C47, C48	Capacitor
DS1, DS2	DIP switch (A1P)
E1HC	Crankcase heater
F1U, F2U	Fuse (T 3.15 A / 250 V) (A1P)
F101U	Fuse (A4P) (A5P)
F411U, F412U	Fuse (A2P)
F601U	Fuse (A3P)
HAP	Light-emitting diode (service monitor is green) (A1P) (A3P) (A4P) (A5P)
K1M	Magnetic contactor (A3P)
K1R	Magnetic relay (A3P)
K3R	Magnetic relay (A3P)
K4R	Magnetic relay (Y2S) (A1P)
K7R	Magnetic relay (E1HC) (A1P)
K11R	Magnetic relay (Y1S) (A1P)
L1R	Reactor
M1C	Motor (compressor)
M1F, M2F	Motor (upper and lower fan)
PS	Switching power supply (A1P) (A3P)
Q1LD	Leakage detection circuit (A1P)
Q1RP	Phase reversal detect circuit (A1P)
R1T	Thermistor (air)
R21T	Thermistor (discharge)
R3T	Thermistor (suction)
R4T	Thermistor (heat exchanger liquid pipe)
R5T	Thermistor (liquid pipe)
R6T	Thermistor (subcool heat exchanger)
R7T	Thermistor (heat exchanger de-icer)
R8T	Thermistor (M1C body)
R1	Resistor (current limiting) (A3P)
R24	Resistor (current sensor) (A4P)
R313	Resistor (current sensor) (A3P)
R865, R867	Resistor (A3P)
S1NPH	High pressure sensor
S1NPL	Low pressure sensor
S1PH	High pressure switch
SEG1~SEG3	7-segment display (A1P)
T1A	Current sensor
V1R	Power module (A3P) (A4P) (A5P)
V2R	Power module (A3P)
X1A, X2A	Connector (M1F)
X3A, X4A	Connector (M2F)
X1M	Terminal strip (power supply)
X1M	Terminal strip (control) (A1P)
Y1E	Electronic expansion valve (main)
Y2E	Electronic expansion valve (subcool heat exchanger)
Y1S	Solenoid valve (4-way valve)
Y2S	Solenoid valve
Z1C~Z4C	Noise filter (ferrite core)
Z1F	Noise filter (with surge absorber) (A2P)

Notes for RXYSQ10+12:

1. This wiring diagram applies only to the outdoor unit.
2. Symbols (see below).
3. Refer to the installation manual for connection wiring to INDOOR-OUTDOOR transmission F1-F2 and OUTDOOR-OUTDOOR transmission F1-F2.
4. Refer to the installation manual for how to use the BS1~BS3 switches.
5. When operating, do not short-circuit protective device S1PH.
6. Colours (see below).

Symbols:

L	Live
N	Neutral
	Field wiring
	Terminal strip
	Connector
	Fixed connector
	Movable connector
	Protective earth (screw)
	Noiseless earth
	Terminal

Colours:

BLK	Black
BLU	Blue
BRN	Brow
GRN	Green
ORG	Orang
RED	Red
WHT	White
YLW	Yello

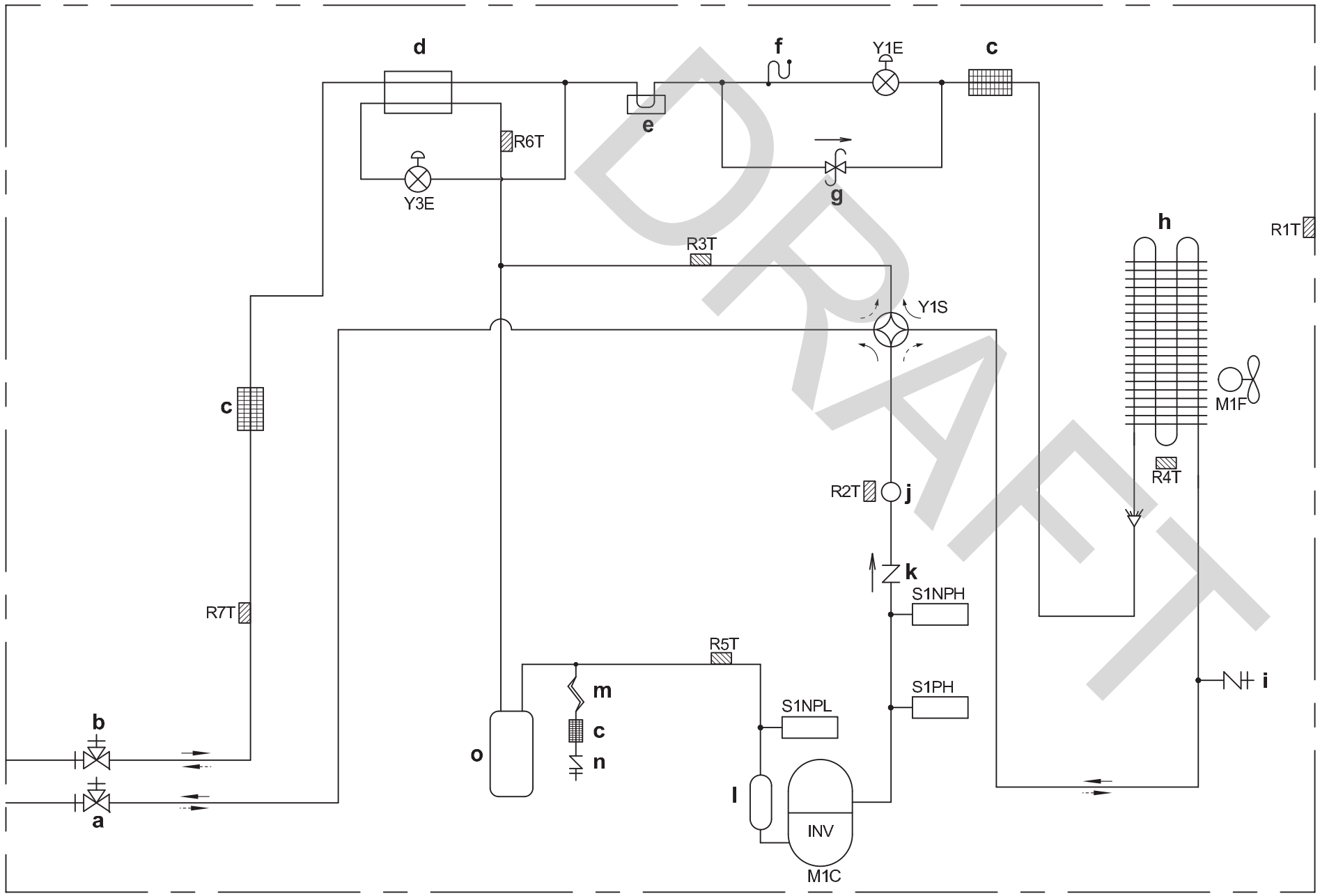
4. Safety devices data

			Compact	Standard		Large	
Name part	**Description**	**Wiring symbol**	**1 phase**	**1 phase**	**3 phase**	**3 phase**	
Compressor 1	Model	M1C	2YC90EXD#D	2YC90AXD#C	2YC90AXD#C		
	Overcurrent (A)		Design	Design		Design	
	Type		Swing	Swing	Scroll G-type	Scroll J-type	
Fan motor 1	Overcurrent (A)	MF1	Design	Design		Design	
Fan motor 2	Overcurrent (A)	MF2	-	-		Design	
Expansion valve	All	Y1E-Y2E	Fully closed = 0 pulses, opening = min 20 ~max 480 pulses; Coil = 46 Ohm				
High pressure switch	Compressor 1	S1PH	Off (open) 4,0 MPa, on (close) below 3,0 MPa				
Discharge temperature (°C)	Compressor 1	R2T	Compressor OFF if > 135°C 2 times in 100 minutes				
Compressor body temperature	Compressor 2	-	-	-	-		
Inverter fin temperature (°C)	Compressor 1	-	99	?	?	?	?
Noise filter PCB (A2P)	Main fuse	F1U	56	56	-	-	-
	Fuse to protect A1P	F3U	6.3	6.3	-	-	-
	Overvoltage protection	F4U	6.3	6.3	-	-	-
		F410U	-	-	-	?	?
		F414U	-	-	-	?	?
		F412U	-	-	-	?	?
		F400U	-	-	-	6.3	-
Main PCB (A1P fuses		F1U & F2U	-	-	3.15	3.15	3.15
		F3U	-	-	6.3	-	-
		F4U	-	-	6.3	-	-
		F5U	-	-	6.3	-	-
	Fuse to protect fan motor	F6U	5	5	-	-	-
Inverter PCB (A2P)	Fuse to protect fan motor	F1U	-	-	5	-	-
Inverter PCB (A3P)	Fuse to protect fan motor	F610U	-	-	-	-	3.15
Fan motor PCB (A4P-A5P)	Fuse to protect fan motor	F1001U	-	-	-	5	5
Fusible plug			?	?	?	?	

5. Piping diagram

5.1 Piping diagram Compact (RXYSCQ4TMV1B - RXYSCQ5TMV1B)

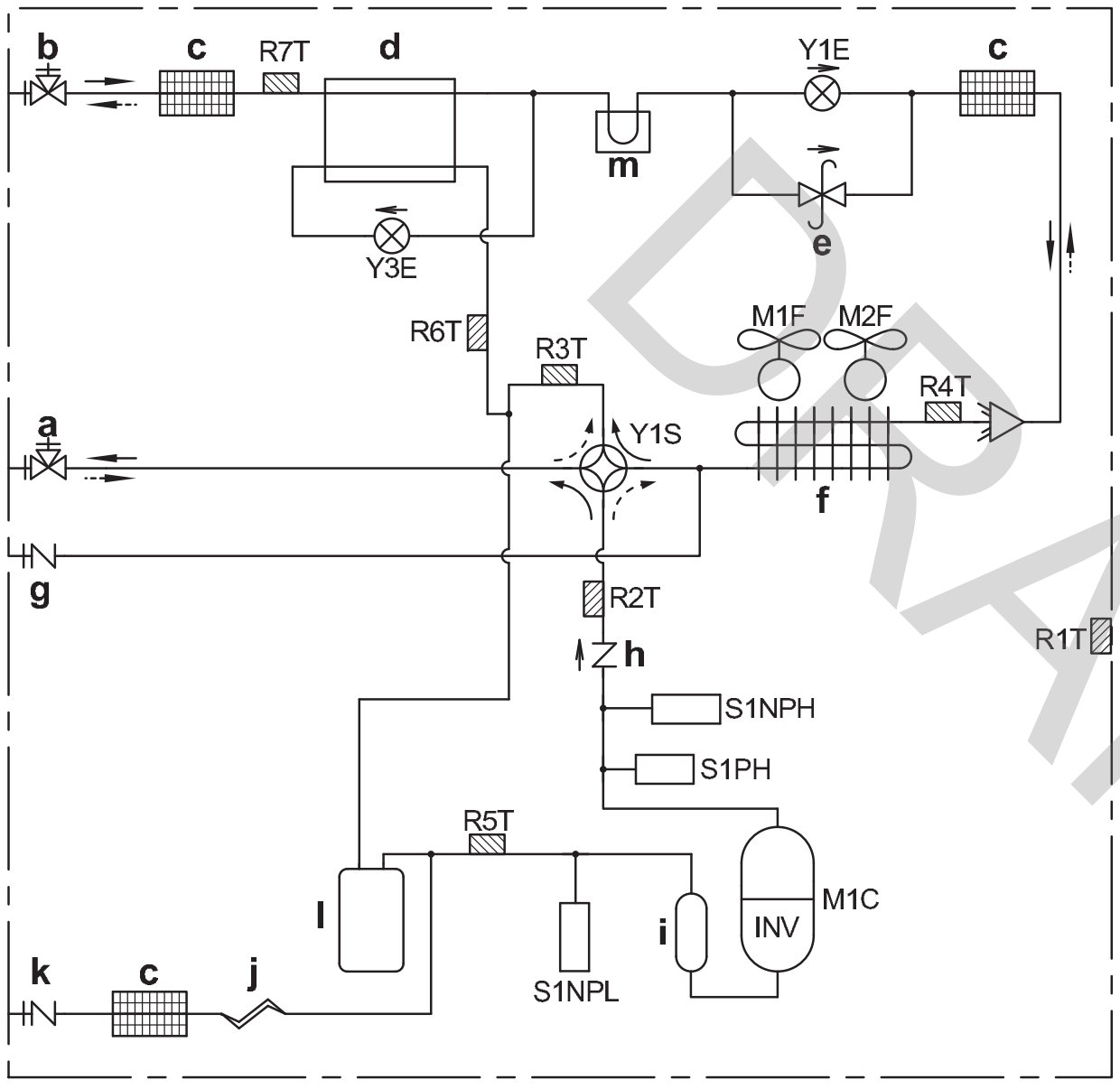
Figure 58 - Piping diagram Compact (RXYSCQ4TMV1B - RXYSCQ5TMV1B)



a Stop valve (gas)
b Stop valve (liquid)
c Filter (3×)
d Subcool heat exchanger
e Heat sink PCB
f Fusible plug
g Pressure regulating valve
h Heat exchanger
i Service port (high pressure)
j Muffler
k Check valve
l Compressor accumulator
m Capillary tube
n Service port (refrigerant charge)
o Accumulator
M1C Compressor
M1F Fan motor
R1T Thermistor (air)
R2T Thermistor (discharge)
R3T Thermistor (suction 1)
R4T Thermistor (heat exchanger de-icer)
R5T Thermistor (suction 2)
R6T Thermistor (subcool heat exchanger)
R7T Thermistor (liquid pipe)
S1NPH High pressure sensor
S1NPL Low pressure sensor
S1PH High pressure switch
Y1E Electronic expansion valve (main)
Y3E Electronic expansion valve (subcool heat exchanger)
Y1S Solenoid valve (4-way valve)
→ Heating
--→ Cooling

5.2 Piping diagram Standard 1ph-3ph (RXYSQ4-6T7V1B, RXYSQ4-6T7Y1B)

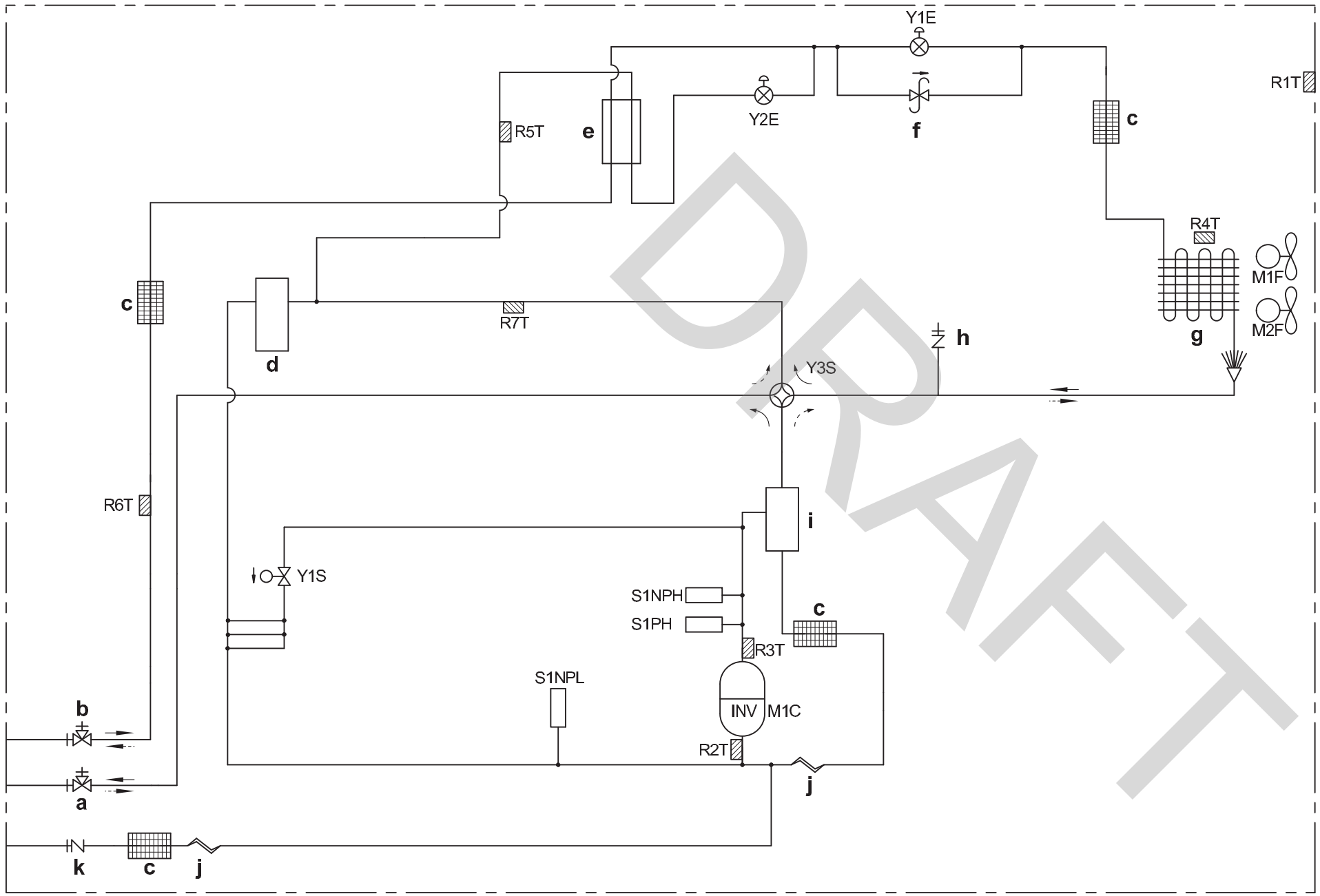
Figure 59 - Piping diagram Standard 1ph-3ph (RXYSQ4-6T7V1B, RXYSQ4-6T7Y1B)



a	Stop valve (gas)
b	Stop valve (liquid)
c	Filter (3×)
d	Subcool heat exchanger
e	Pressure regulating valve
f	Heat exchanger
g	Service port (high pressure)
h	Check valve
i	Compressor accumulator
j	Capillary tube
k	Service port (refrigerant charge)
l	Accumulator
m	Heat sink PCB (only for RXYSQ4~6_V1)
M1C	Compressor
M1F-M2F	Fan motor
R1T	Thermistor (air)
R2T	Thermistor (discharge)
R3T	Thermistor (suction 1)
R4T	Thermistor (heat exchanger)
R5T	Thermistor (suction 2)
R6T	Thermistor (subcool heat exchanger)
R7T	Thermistor (liquid pipe)
S1NPH	High pressure sensor
S1NPL	Low pressure sensor
S1PH	High pressure switch
Y1E	Electronic expansion valve (main)
Y3E	Electronic expansion valve (subcool heat exchanger)
Y1S	Solenoid valve (4-way valve)
→	Heating
⇢	Cooling

5.3 Piping diagram Large 8 (RXYSQ8TM1B)

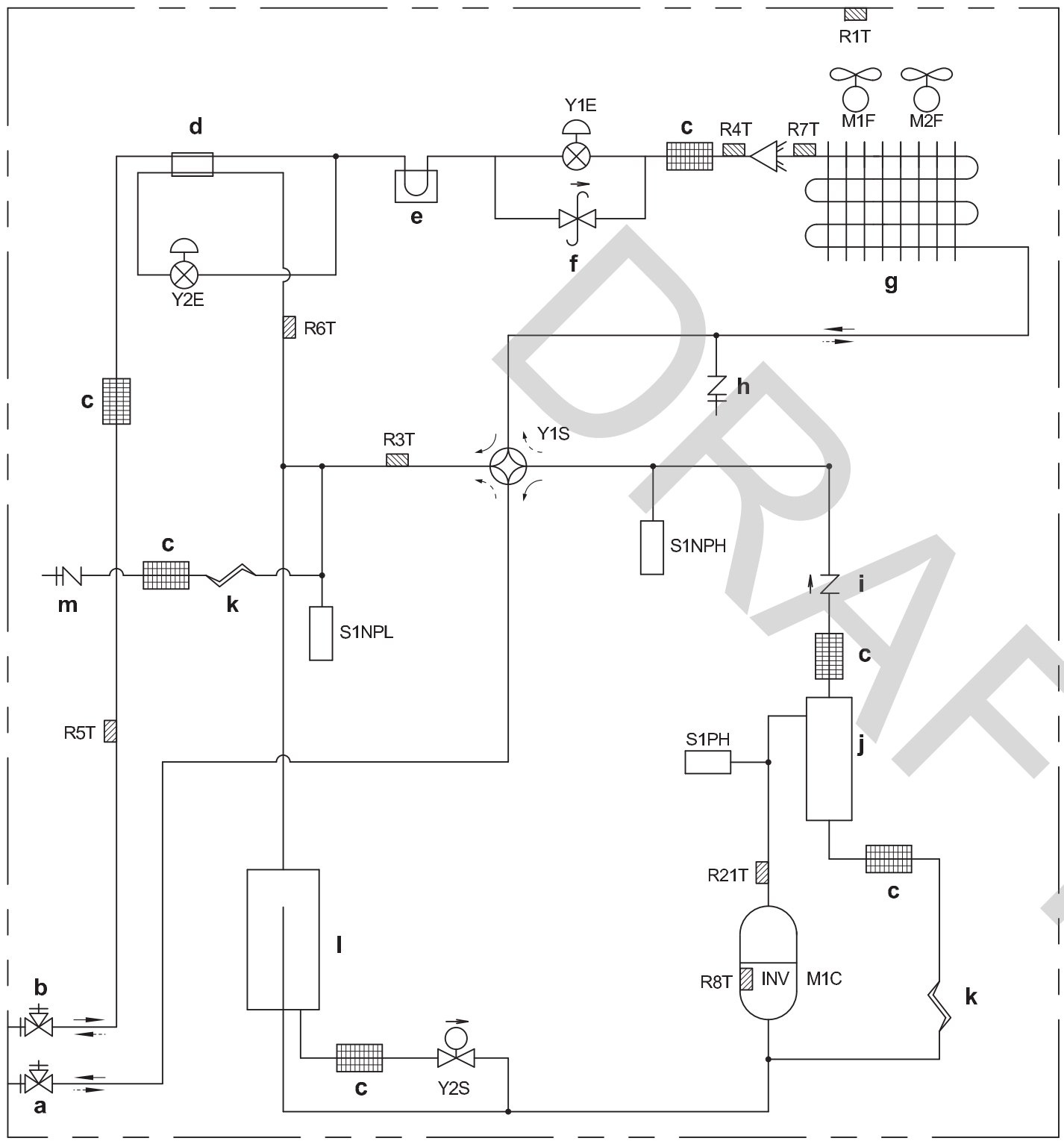
Figure 60 - Piping diagram Large 8 (RXYSQ8TM1B)



a	Stop valve (gas)
b	Stop valve (liquid)
c	Filter (4×)
d	Accumulator
e	Subcool tube heat exchanger
f	Pressure regulating valve
g	Heat exchanger
h	Service port (high pressure)
i	Oil separator
j	Capillary tube (2×)
k	Service port (refrigerant charge)
M1C	Compressor
M1F-M2F	Fan motor
R1T	Thermistor (air)
R2T	Thermistor (suction 1)
R3T	Thermistor (discharge)
R4T	Thermistor (heat exchanger de-icer)
R5T	Thermistor (subcool heat exchanger)
R6T	Thermistor (liquid pipe)
R7T	Thermistor (suction 2)
S1NPH	High pressure sensor
S1NPL	Low pressure sensor
S1PH	High pressure switch
Y1E	Electronic expansion valve (main)
Y2E	Electronic expansion valve (subcool heat exchanger)
Y1S	Solenoid valve
Y3S	Solenoid valve (4-way valve)
→	Heating
--→	Cooling

5.4 Piping diagram Large 10-12 (RXYSQ10-12TMY1B)

Figure 61 - Piping diagram Large 10-12 (RXYSQ10-12TMY1B)



a	Stop valve (gas)
b	Stop valve (liquid)
c	Filter (6×)
d	Subcool heat exchanger
e	Heat sink PCB
f	Pressure regulating valve
g	Heat exchanger
h	Service port (high pressure)
i	Check valve
j	Oil separator
k	Capillary tube (2×)
l	Accumulator
m	Service port (refrigerant charge)
M1C	Compressor
M1F-M2F	Fan motor
R1T	Thermistor (air)
R21T	Thermistor (discharge)
R3T	Thermistor (suction)
R4T	Thermistor (heat exchanger liquid pipe)
R5T	Thermistor (liquid pipe)
R6T	Thermistor (subcool heat exchanger)
R7T	Thermistor (heat exchanger de-icer)
R8T	Thermistor (M1C body)
S1NPH	High pressure sensor
S1NPL	Low pressure sensor
S1PH	High pressure switch
Y1E	Electronic expansion valve (main)
Y2E	Electronic expansion valve (subcool heat exchanger)
Y1S	Solenoid valve (4-way valve)
Y2S	Solenoid valve
→	Heating
--→	Cooling

6. Piping overview

6.1 Piping overview Compact (RXYSCQ4-5TMV1B)

Figure 62 - Piping overview Compact (RXYSCQ4-5TMV1B)

6.2 Piping overview Standard 1ph-3ph (RXYSQ4-6T7V1B, RXYSQ4-6T7Y1B)

Figure 63 - Piping overview Standard 1ph-3ph (RXYSQ4-6T7V1B, RXYSQ4-6T7Y1B)

Figure 64 - Piping overview Standard 1ph-3ph (RXYSQ4-6T7V1B, RXYSQ4-6T7Y1B) - 2

6.3 Piping overview Large 8 (RXYSQ8TM1B)

Figure 65 - Piping overview Large 8 (RXYSQ8TM1B)

6.4 Piping oveview Large 10-12 (RXYSQ10-12TMY1B)

Figure 66 - Piping overview Large 10-12 (RXYSQ10-12TMY1B)

In case a problem occurred on the unit which could not be resolved by using the content of this service manual or in case you have a problem which could be resolved but of which the manufacturer should be notified, we advise you to contact your distributor.

To facilitate the investigation, additional information is required. Please fill out the following form before contacting your distributor.

DAIKIN

FIELD INFORMATION REPORT

Key person info	
Name:	Company name:
Your contact details Phone number:	E-mail address:
Site address:	
Your reference:	Date of visit:

Claim info	
Title:	
Problem description:	
Error code:	Trouble date:
Problem frequency:	
Investigation steps done:	
Current situation (solved, not solved, …):	
Countermeasures taken:	
Comments and proposals:	
Part available for return (if applicable):	

Application info
Application (house, apartment, office, …):
New project or refurbishment:
Heat emitters (radiators / under floor heating / fan coils / …):
Hydraulic layout (simple schematic):

Unit / Installation info	
Model name:	Serial number:
Installation / commissioning date:	Software version hydro PCB:
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).