7.7.2 OPERATING PROCEDURES

Heat Recovery Units

Pre-Start Checks	
1	Make internal inspection of air handling unit and check the following as applicable:-
	(a) All tools, material and debris have been removed.
	(b) Ensure that transit bolts have been removed.
	(c) Inspect anti vibration mountings.
	(d) Fan and motor rotate freely.
	(e) Filter media is correctly fitted and pressure sensing lines are clear.
	(f) Plate heat exchangers are free from obstruction.
	(g) All electrical connections are secure.
	(h) General cleanliness.
2	Inspect ductwork distribution system and check the following:-
	(a) Inlet/discharge louvres are free from obstruction.
	(b) Dampers are operational and free from obstruction
	(c) Fire dampers are open and fitted with the correct fusible link.
	(d) All duct and grille volume control dampers are at correct settings.
	(e) Flexible ductwork connections are correctly fitted and undamaged.
	(f) All access doors are correctly fitted and securely sealed.
	(g) Overall cleanliness of the system.
3	Inspect all electrical connections and check:
	(a) Terminal connections are secure.
	(b) The correct overload protection devices is fitted and set to the correct rating.
	(c) That correctly rated fuses/circuit breakers are fitted after preliminary checks are completed.
4	Ensure drip trays and associated condensate drainage pipework is satisfactory.
5	That all stop locks and emergency stop devices are satisfactory.
6	All associated controls are operational.

Start-Up Procedures:-	
1	Ensure that pre-start checks are complete and carry out the following:
	a. Ensure that unit has been commissioned by the manufacturer or manufacturer's agent.
	b. Ensure that local and main isolators are switched 'ON'.
	c. Ensure smooth operation of fan with no undue noise or vibration.
	d. Reinstate fan to AUTO for automatic control.
Shut Down Procedures:-	
1	The services and systems plant previously described will normally run under the dictates of their own time switching arrangements.
2	When shutting down an item of plant by manual switching, it must first be ascertained that any inter-dependent plant or system will not be adversely affected by the operation.
3	To shut down an HRU carry out the following procedures:-
	(a) Switch OFF HRU fan at associated local isolator.
	(b) Ensure that fan stops smoothly.

7.7.3 FAULT FINDING

HRU Units

Ref	Fault	Possible Cause	Recommended Action
1.	Motor fails to start.	Lock stop button closed.	Reset button.
		Overridden by Fireman's switch	Check position of Fireman's Switch. Re-instate as necessary.
		Overload trip.	Check and reset overload
		Bad connections	Check terminals
		Damper end switch not made.	Check all dampers are open and end switches in correct position. (Where fitted).
		Mechanical failure	Determine that motor and drive turn freely. Check for movement in bearings.
		Control system override	Check system in manual mode. Reset controls as necessary.
		Short circuited stator.	Indicated by blown fuses. Motor must be rewound.
		Blown fuse or open circuit	Test motor. Replace fuse or test circuit breaker.
2	Motor stalls.	Low line voltage.	Check across AC line. Correct voltage
3	Motor runs and then slows down.	Partial loss of line voltage.	Check for loose connections. Determine adequacy of main power supply
4	Motor does not attain correct speed.	Low voltage at motor terminals.	Check across AC line and voltage loss if possible.
5	Motor overheats.	Motor fan is clogged with dirt preventing proper ventilation.	Remove fan cover, clean fan and replace cover.
		Three phase motor has one phase down.	Check wiring. Secure all phase connections
		Incorrect line voltage.	Check mains voltage. Consult power company. Step transformer may be

Ref	Fault	Possible Cause	Recommended Action
			necessary.
6	Incorrect or no airflow	Fan drive belts slipping or broken. (Where fitted).	Inspect drive belts. Tighten / replace as necessary
		Fan impellor slipping or damaged	Inspect impellor. Tighten / replace as necessary
		Motor Fault	Inspect motor and motor controls. Investigate and reset as necessary
		Controls Fault	Check operation of controls and control interlocks
7	Increased Noise and/or Vibration	Dirty / damaged fan impellor	Clean / repair as necessary.
		Fan drive belts loose / broken. (Where fitted).	Tighten / replace drive belts with matched set as required.
		Fan/motor anti-vibration mountings worn / damaged.	Inspect / repair as necessary
		Dampers/VCD shut	Inspect system motorised fire dampers, VCD's & smoke activated fire dampers for correct position & operation.
		Motor/fan bearings worn.	Bearings are sealed for life. Replace motor.
8	Low Motor Running Current	Suction side of fan obstructed	Inspect and remove obstruction.
9	High Motor Temperature	Motor cooling vanes dirty or blocked.	Clean / clear vanes.
10	Motor Tripping	Overload incorrectly set.	Check setting of overload reset as required. Test running current of fan motor when reinstated and compare to FLRC of motor.
		Motor single phasing (3 phase motors only)	Inspect fuses and check power supply to motor.
		Fuse / MCCB blown / tripped or overload activated.	Carry out full motor and hard wiring insulation resistance test and motor winding continuity test. If satisfactory replace / reset device.

7.7.4 MAINTENANCE PROCEDURES

Heat Recovery Units

FREQUENCY	:	**TASKS**
Daily	:	None
Weekly	:	1
Monthly	:	None
3-monthly	:	1-4
6-monthly	:	None
Annually	:	1-5

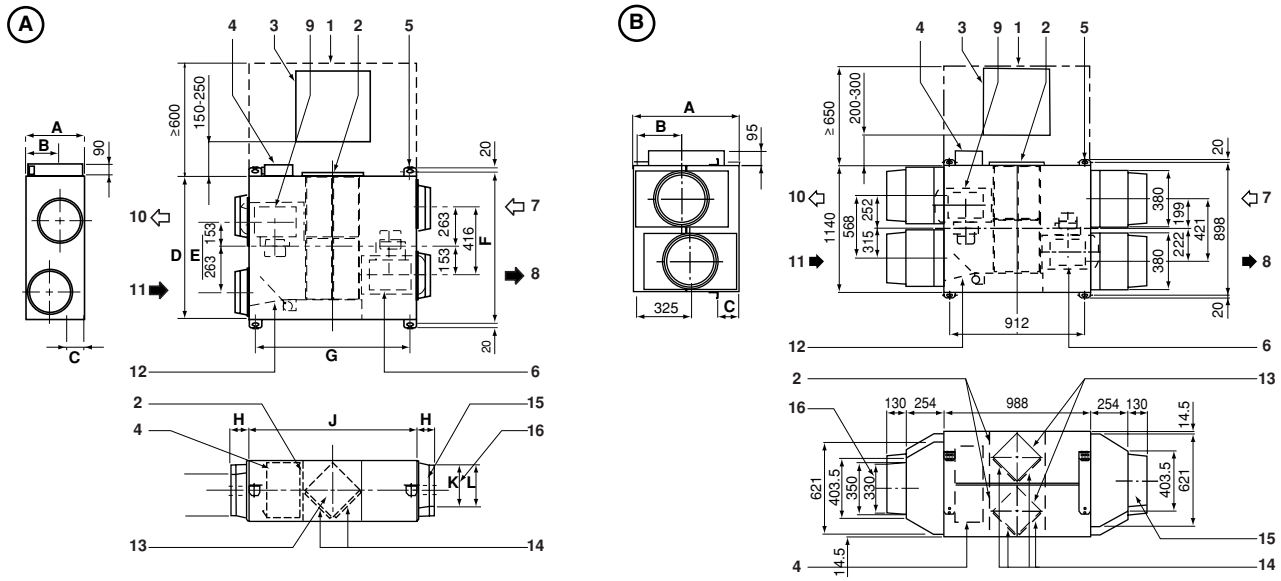
REF	TASK	DONE
1	Ensure that unit is running smoothly with no excess vibration.	
2	Check HRU filters for dirt build up and therefore reduced air flow.	
3	Motors and fans should be visually inspected and any repairs found necessary undertaken.	
4	Visually inspect all electrical connections and ensure that all terminals and connector blocks are secure. Double-check the earth connections.	
5	Check in accordance with the manufacturers recommendations.	

DAIKIN

INSTALLATION MANUAL

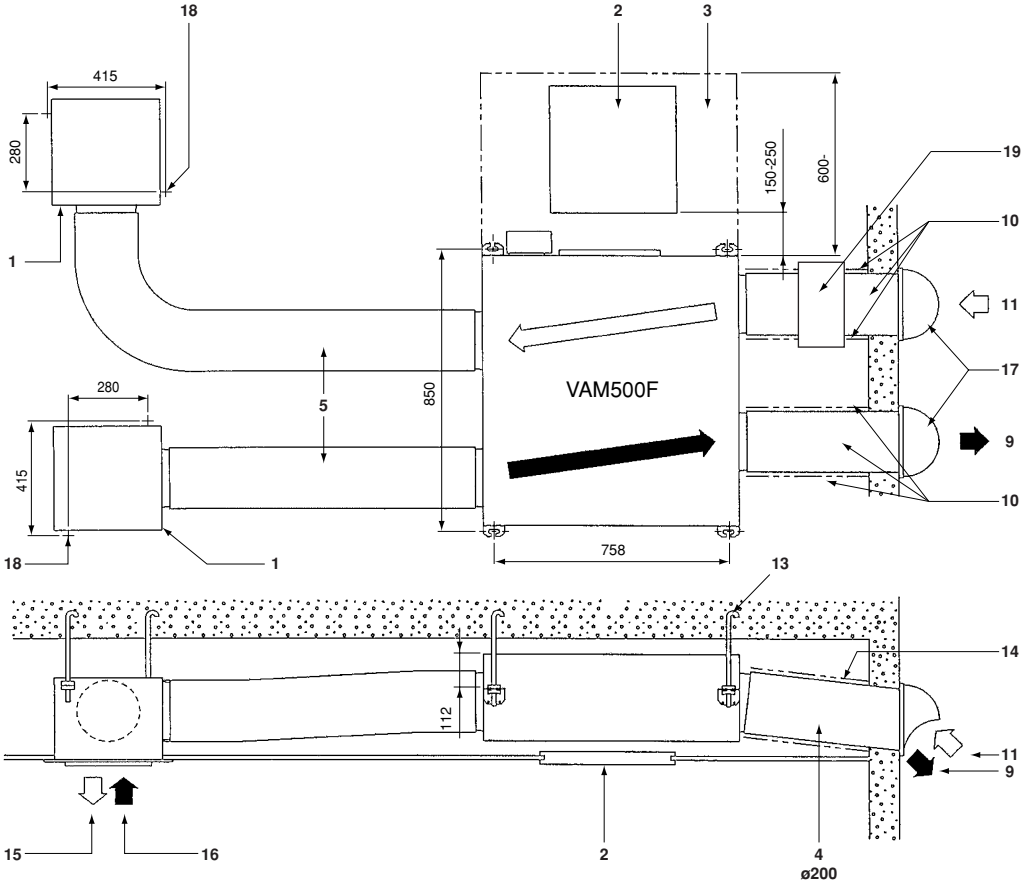
Total Heat Exchanger
HRV (Heat Reclaim Ventilation)

VAM150FA
VAM250FA
VAM350FA
VAM500FA
VAM650FA
VAM800FA
VAM1000FA
VAM1500FA
VAM2000FA



	A	B	C	D	E	F	G	H	J	K	L
VAM150F	269	149	104	509	288	560	718	145	760	97	200
VAM250F								132		146	
VAM350F	285	164	112	800	416	850	758		812		
VAM500F								84		197	
VAM650F	348	204	140	852	421	902	912	137	988	196	250
VAM800F								89		246	263
VAM1000F		203		1140	568	1190					
VAM1500F	710	421	898	–	–	–	–	–	–	–	–
VAM2000F	710	568	1168	–	–	–	–	–	–	–	–

1



2

CONTENTS

HRV – Heat Reclaim Ventilation

Please read this installation manual carefully and install the unit properly to keep it at full capacity for a long time.

Please provide some necessary parts, for example round hoods, air suction/discharge grilles etc., before the installation of the unit.

The English text is the original instruction. Other languages are translations of the original instructions.

SAFETY CONSIDERATIONS

Please read these "Safety considerations" carefully before installing air conditioning equipment and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it maintained.

Also, inform customers that they should store this installation manual along with the operation manual for future reference.

This air conditioner comes under the term “appliances not accessible to the general public”.

Meaning of warning and caution symbols

WARNING

Do not install HRV or an air suction/discharge grille in the following places.

WARNING

- Place such as machinery plant and chemical plant where gas, which contains noxious gas or corrosive conponents of materials such as acid, alkali organic solvent and paint, is generated.
  Place where combustible gas leakag is likely.
  Such gas can cause fire.
- Place subjected to high temperature or direct flame.
  Avoid a place where the temperaure near the HRV unit and the air suction/discharge air grille exceeds 40°C.
  If the unit is used at high temperature, defomed air filter and heat exchange element or burned motor result.
- Place such as bathroom subjected to moisture.
  Electric leak or electric shock and other failure can be caused.
- Place subjected to much carbon black.
  Carbon black attaches to air filter and heat exchange element, making them unable to use.
- The equipment is not intended for use in a potentially explosive atmosphere.

DIMENSIONS

(See figure 1 (A = Models 150F~1000F, B = Models 1500F~2000F))

1	Maintenance space for the heat exchange elements, air filters and fans
2	Maintenance cover
3	Inspection hole □ 450 mm
4	Switch box
5	4x 14x40 mm Ceiling hook (Oval hole)
6	Exhaust air fan
7	OA (Outdoor air) Fresh air from outdoors
8	EA (Exhaust air) Exhaust air to outdoors
9	Supply air fan
10	SA (Supply air) Supply air to room
11	RA (Retun air) Return air from room
12	Damper plate
13	Heat exchange elements
14	Air filters
15	Applicable duct
16	Nominal diameter

INSTALLATION

Installation position

CAUTION

1. **Install the unit in a place strong enough to support its weight.**
   Poor installation is hazardous. It also causes vibrations and usual operating noise.
2. **Provide the service space and the inspection holes.**
   (Be sure to provide the inspection holes to inspect the air filters, the heat exchange elements and fans.)
3. **Do not install the unit directly against a ceiling or wall.**
   (If the unit is in contact with the ceiling or wall, it can cause vibration.)

- Example of Installation, VAM500F (See figure 2), VAM800F (VAM1000F) (See figure 3), VAM2000F (See figure 4)

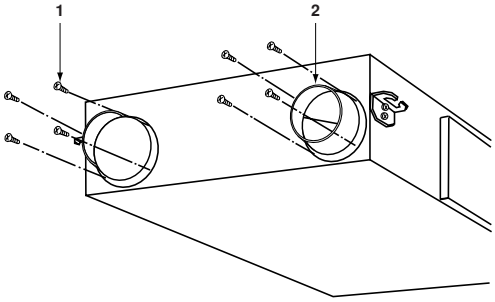
1	Air suction/discharge grille (option)
2	Inspection hole □ 450 mm (field supply)
3	Maintenance space for the heat exchange elements, air filters and fans
4	Duct (field supply)
5	Duct (Ø200) (field supply) or (*) Flexible duct (option)
6	Branch duct (field supply) (only for VAM800~2000F)
7	(*) Flexible duct (option)
8	(*) Silencer (option)
9	EA (Exhaust air to outdoors)
10	Heat Insulator (field supply)
11	OA (Outdoor air) Fresh air from outdoors
12	Metal suspension bracket for absorbing vibration (field supply)
13	Suspension bolt (field supply)
14	Gradient of down to outdoor ≥1/50
15	SA (Supply air to room)
16	RA (Return air from room)
17	Round hood (field supply)
18	Suspension bolt postion
19	Additional external damper (field supply)

CAUTIONS
on installing the ducts

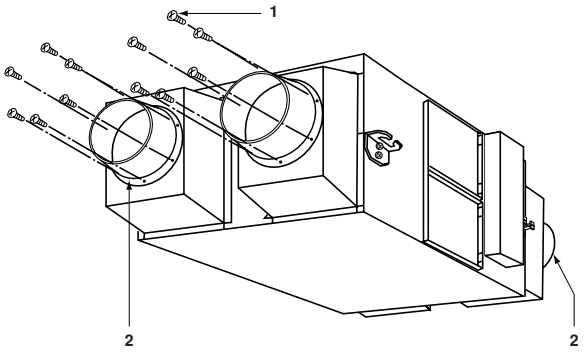
- The parts marked with (*) are effective in reducing blowing noise.
- When using the unit at a quiet place, use the optional silencer box and flexible duct at the part of the air discharge outlet on the indoor side “SA” (supply air to room) of the unit, to counter the noise.
- When selecting installation materials, consider the required volume of air flow and noise level in that particular installation.
- When the outdoor air infiltrates into the ceiling and the temperature and humidity in the ceiling become high, insulate the metal portions of the unit.

The method of installation

■ **VAM150F, VAM250F, VAM350F, VAM500F**



■ **VAM650F, VAM800F, VAM1000F, VAM1500F, VAM2000F**



1 Screw (accessories)

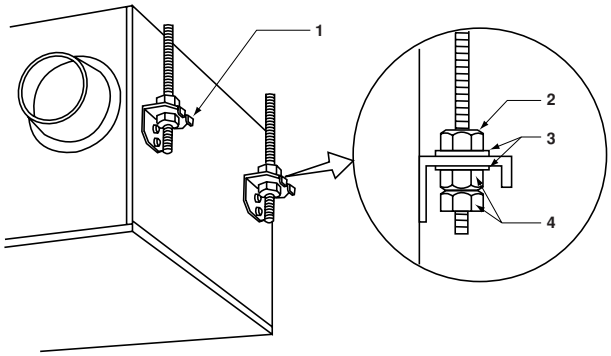
2 Duct connecting flange (accessories)

■ Installation of duct connecting flanges
Attach the provided duct connecting flanges using screws (accessories).

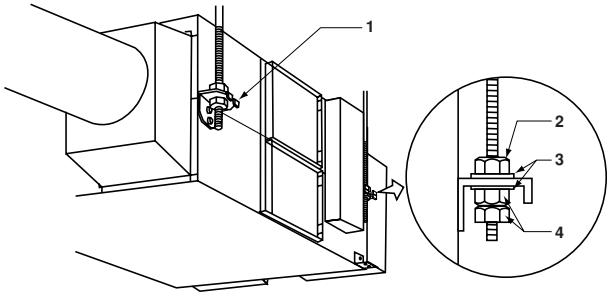
	screws provided
VAM150	16
VAM250	16
VAM350	16
VAM500	16

	screws provided
VAM650	24
VAM800	24
VAM1000	24
VAM1500	24
VAM2000	24

■ **VAM150F, VAM250F, VAM350F, VAM500F, VAM650F, VAM800F, VAM1000F**



■ **VAM1500F, VAM2000F**



1 Ceiling hook

2 Nut

3 Washer

4 Double nuts

Installation of HRV

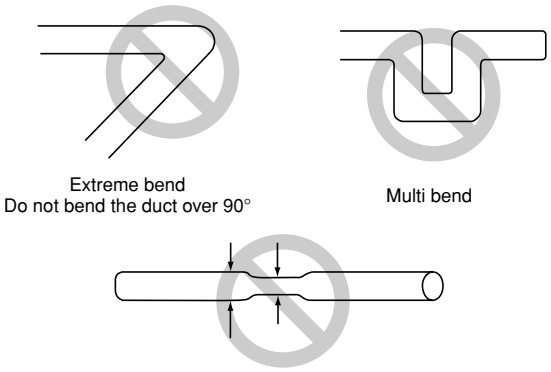
■ Install the anchor bolt (M10 to 12) in advance.
Pass the metal suspension bracket through the anchor bolt and secure the anchor bolt with washer and nut.
(Before installation, check for foreign objects such as vinyl and paper remaining inside the fan housing.)

■ The metal suspension bracket is fitted on top of the standard unit.
If the anchor bolt is long, install it on the bottom of the unit.
(Be sure to screw in the removed mounting screw on top to prevent air leakage.)
Install the duct caution name plate property on the indoor side (SA·RA) and outdoor side (EA·OA).

NOTE Remove the two fixing metals for transportation if it prevents installation work. (Be sure to screw in the removed mounting screw on the body side to prevent air leakage.)

Duct connection

Do not connect the ducts as follows



Extreme bend
Do not bend the duct over 90°

Multi bend

Reduce the diameter of the duct to be connected.
Do not reduce the duct diameter halfway.

1 The minimal radius of bends for flexible ducts are as follows:
300 mm duct: 200 mm diameter
375 mm duct: 250 mm diameter

2 To prevent air leakage, wind aluminum tape round the section after the duct connecting flange and the duct are connected.

3 Install the opening of the indoor air intake as far as from the opening of the exhaust suction.

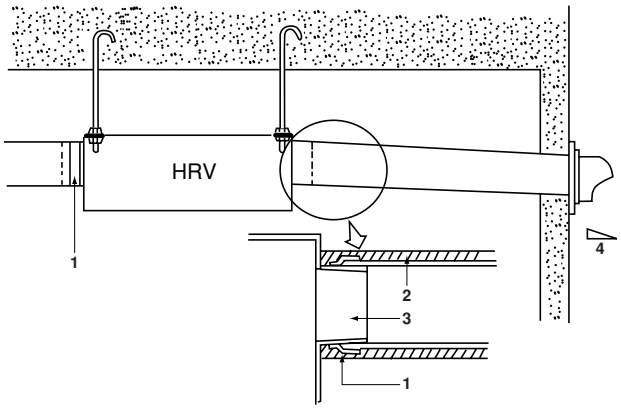
4 Use the duct applicable to the model of unit used (Refer to the outline drawing.)

5 Install the two outdoor ducts with down slope (slope of 1/50 or more) to prevent entry of rain water. Also, provide insulation for both ducts to prevent dew formation. (Material: Glass wool of 25 mm thick)

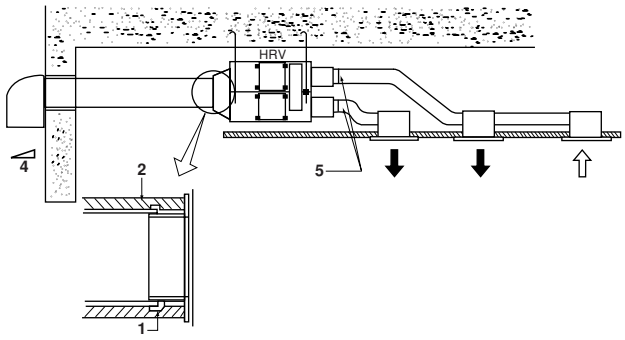
6 If the level of temperature and humidity inside the ceiling is always high, install a ventilation equipment inside the ceiling.

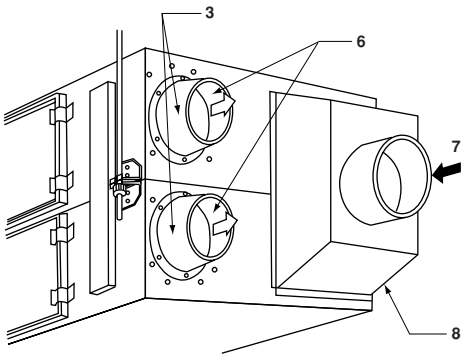
7 Insulate the duct and the wall electrically when a metal duct is to be penetrated through the metal lattice and wire lattice or metal lining of a wooden structure wall.

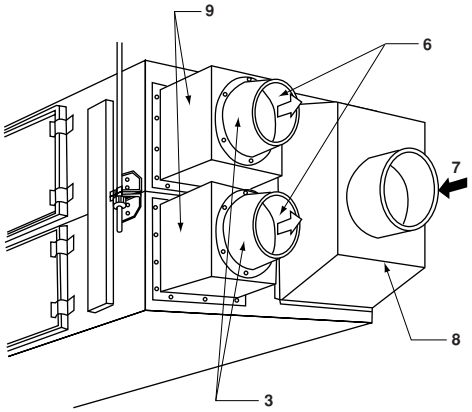
■ **VAM150F, VAM250F, VAM350F, VAM500F, VAM650F, VAM800F, VAM1000F**



■ **VAM1500F, VAM2000F**







1 Aluminium tape (field supply)
2 Insulation material (field supply)
3 Duct connecting flange (option)
4 Slope over 1/50
5 Duct connecting flange (option)
6 SA (Supply air)
7 RA (Return air)
8 Connecting chamber
9 Silencer (option)

■ Using Ø250 mm round ducts for the SA (supply air) and RA (return air) sides

1. Loosen the 12 screws off the SA (supply air) side and remove the connection chamber. Be sure to tighten up these screws back in position in order not to allow any air leak from the unit.

2. Fix the duct connecting flanges (Option) with their accompanying 12 screws.

■ Introducing the silencers and other options.
This model handles a high air flow rate.
To reduce the blow-out noise, some optional attachments are available: silencer, flexible duct, thin air intake/exhaust grille, etc.

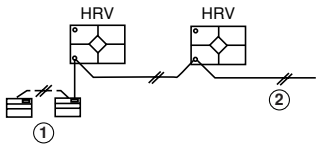
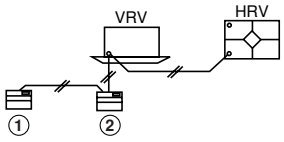
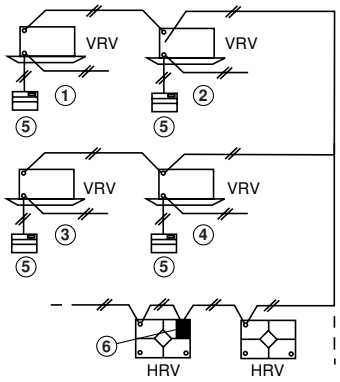
1. Remove the connection chamber off the SA (supply air) side and attach the upper and lower silencers.

2. Now fix the duct connecting flanges (option) and connect the Ø250 mm flexible ducts.

SYSTEM

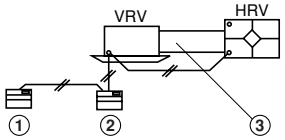
Independent system

Air conditioner linked operation system

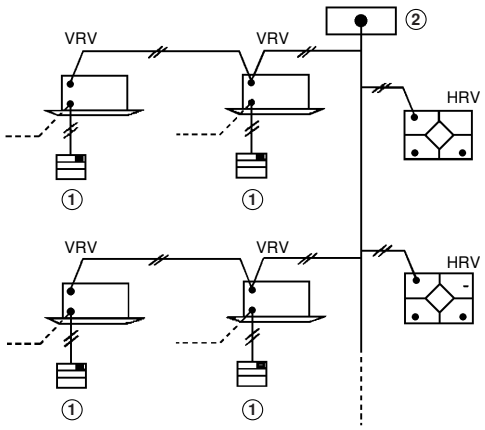
		System	Standard method	Related items in Electric wiring
Independent system		 **1** Remote controller for HRV **2** 2-wire cord (produced locally)	• Up to 16 units can be controlled with the remote controller for HRV. (A system with two remote controls can be created in the master/slave switching.) • All HRV operations can be used and indicated. • Operation monitor output and humidifier operation are possible using Adapter PCB. • Remote control cord should be procured locally. (Maximum cord length: 500 m)	"When connecting to Remote controller for HRV" on page 13
Combined operation system with VRV systems and Sky-air series	1-group linked operation system	 **1** Remote controller for air conditioner (Remote controller for HRV) **2** Remote controller for air conditioner	• A combined total of up to 16 air conditioners and the HRV can be controlled. • The HRV ventilation mode can be operated independently when air conditioners are not being used. • Using the local seting of the remote controller for air conditioners, various settings such as precool/pre-heat reservation on/off, ventilation flow rate, ventilation mode, etc.	"Standard 1-group linked-control system" on page 13
	Multi-group (2 or more) linked operation system	 **1** Group 1 **2** Group 2 **3** Group 3 **4** Group 4 **5** Remote controller for HRV **6** Distant control adapter	• Since all VRV units are connected to a single line in view of installation, all VRV units are subjects for operation. • If there are problems operating all VRV units, do not use this system.	"Linked control with more than two groups" on page 14

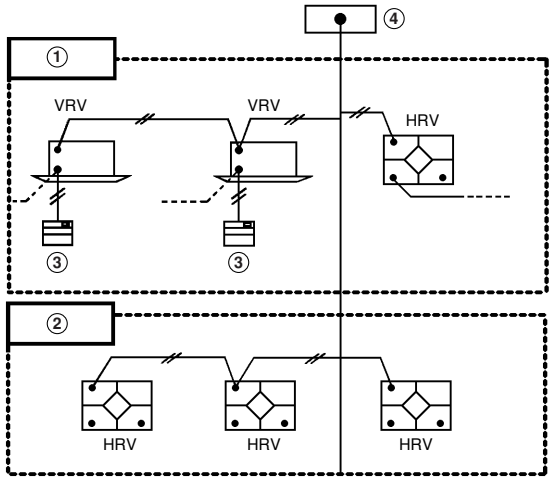
NOTE

- Adapter PCB: KPR50-2 ; Distant control adapter: KRP2A61: Installation box for adapter PCB: KRP50-2A90
- Operation of two or more group is not possible with direct duct connection.
- With VAM types, the direct duct connection shown can also be selected for 1-group operation systems.

	System	Standard method	Related items in Electric wiring
Direct duct connection system	 **1** Remote controller for air conditioner (Remote controller for HRV) **2** Remote controller for air conditioner **3** Duct	• The HRV will operate only when the air conditioner fan is on. • When the air conditioner is not being used, the HRV can be operated in circulation or ventilation modes. • Other specifications are the same as those of the standard system.	"Direct duct connection system for 1-group operation system" on page 14

Centralized control system (VRV system).

<table>
<tr><th></th><th></th><th>System</th><th>Standard method</th><th>Related items in Electric wiring</th></tr>
<tr><td rowspan="2">Centralized control system</td><td>“All”/individual control system</td><td> 

1 Remote controller for for air conditioner
2 Adapter PCB for remote controller , Schedule timer, On/Off controller</td><td>• Use of the on/off controller, Adapter PCB for remote control or schedule timer enables centralized control of the entire system. (maximum of 64 groups)
• The on/off controller can turn on or off the individual units.
• The schedule timer and on/off controller can be used together. However, the Adapter PCB for remote control cannot be used with another centralized control device.</td><td>"“All”/“individual” control" on page 15</td></tr>
<tr><td>Zone control system</td><td> 

1 Zone 1
2 Zone 2
3 Remote controller for air conditioner
4 Central controller</td><td>• Use of the centralized controller enables zone control via the centralized control line. (maximum of 64 zones)
• The central controller displays the “Filter” indication and abnormality warnings, and enables resetting.
• The centralized controller allows ventilation operation for each zone independently.</td><td>"Zone control system" on page 16</td></tr>
</table>

NOTE Wiring adapter for remote contact: KRP50-2, Adapter PCB for remote control: KRP2A61, schedule timer. DST30B61, on/off controller. DCS301B61, controller: DCS302B61, BRC1C517

ELECTRIC WIRING

Before obtaining access to terminal devices, all power supply circuits must be interrupted.

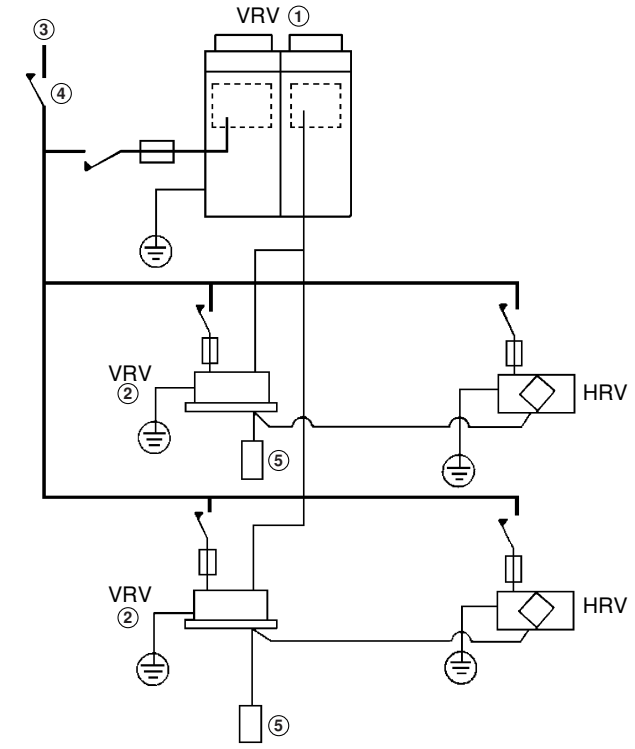
Connection of wiring

- Connect the wires in accordance with the diagram of each system.
- All wiring must be performaed by an authorized electrician.
- All field supplied parts and materials and electric works must conform to local codes.
- Use copper wire only

Connection of wiring

- A circuit breker capable of shutting down power supply to the entire system must be installed.
- A single switch can be used to supply power to units on the same system. However, branch switches and branch circuit breakers must be selected carefully.
- Fit the power supply wiring of each unit with a switch and fuse as shown in the drawing.
- Be sure to give the electric grounding (earth) connection.

Complete system example



Power supply wiring

Transmission wiring

Switch

Fuse

1 Outdoor unit

2 Indoor unit

3 Power supply

4 Main switch

5 Remote controller

Component electrical specifications

VAM		150F	250F	350F	500F	650F	800F	1000F	1500F	2000F
Units										
Type		JVE, 5VE				JVE, 5VE, 7VE				
50 Hz		Power supply Max. 264 V/Min. 198 V								
60 Hz		Power supply Max. 242 V/Min. 198 V								
Power supply (*)										
MCA	(A)	0.9	0.9	1.35	1.35	2.3	3.4	3.4	6.75	6.75
MFA	(A)	16	16	16	16	16	16	16	16	16
Fan motor (*)										
KW	(kW)	0.03x2	0.03x2	0.09x2	0.09x2	0.14x2	0.23x2	0.23x2	0.23x4	0.23x4
FLA	(A)	0.4x2	0.4x2	0.6x2	0.6x2	1.0x2	1.5x2	1.5x2	1.5x2	1.5x2

(*) MCA: Min. Circuit Amps
MFA: Max. Fuse Amps
KW: Moter Rated Output
FLA: Full Load Amps

NOTE For details, refer to ELECTRICAL DATA.

Specifications for field supplied fuses and wire

VAM	150F	250F	350F	500F	650F	800F	1000F	1500F	2000F
Type	JVE, 5VE				JVE, 5VE, 7VE				
Power supply wiring									
Field supplied fuses	16 A								
Wire	H05VV-U3G								
Size	Wire size must comply with local codes								
Transmission wiring									
Wire	Shield wire (2 wire)								
Size	0.75-1.25 mm^2								

Precautions

1 Do not connect wires of different gauge to the same power supply terminal. Looseness in the connection may cause overheating.

When connecting more than one wire to the power supply wiring, use a 2 mm^2 (Ø1.6) gauge wire.

Same gauge wires Different gauge wires

2 Keep total current of crossover wiring between indoor units less than 12 A.

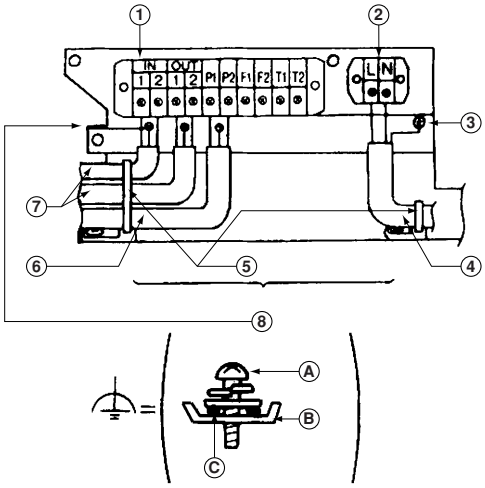
When using two power wiring of a gauge greater than 2 mm^2 (Ø1.6), branch the line outside the terminal board of the unit in accordance with electrical equipment standards.
The branch must be sheathed so as to provide an equal or greater degree of insulation as the power supply wiring itself.

3 Do not connect wires of different gauge to the same grounding terminal. Looseness in the connection may deteriorate protection.

4 Keep the power supply wiring distant from other wires to prevent noise.

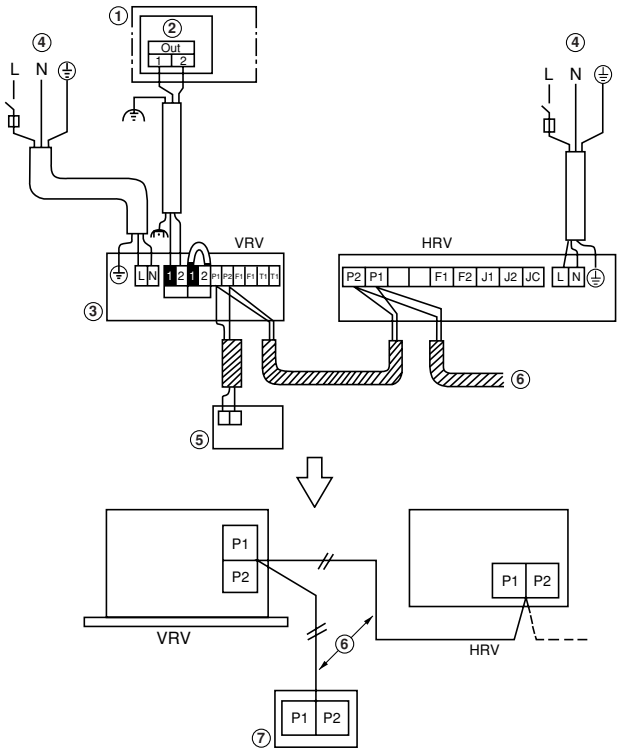
5 For remote controller wiring, refer to the “Installation manual of the remote controller.”.

View seen from VRV



1 Terminal board for transmission wiring
2 Terminal board for power supply
3 Grounding terminal
4 Power supply wiring
5 Clamp material (attached)
6 Remote controller wiring
7 Unit wiring
8 Field supply wire/Earth terminal (attached)
Ground the shield part of shielded wire.
A Earth screw (attached)
B C-cup washer (attached)
C Shield part

Wiring example



1 Outdoor unit/BS unit
2 Switch box
3 Indoor unit
4 Power supply 220-240 V~50 Hz
5 Remote controller (VRV)
6 Transmission wiring
7 Remote controller (HRV)

- All transmission wiring except for the remote controller wires is polarized and must match the terminal symbol.
- Use shield wire in transmission wiring. Ground the shield of the shield wire to " ⏚ ", at the grounding screw, with the C-cup washer.
- Sheathed wire materials may be used for transmission wiring, but they are not suitable for EMC (Electromagnetic Compatibility) (European Directive).
  When using sheathed wire, electromagnetic Compatibility must conform to Japanese standards stipulated in the Electric Appliance Regulatory Act.
  Transmission wiring need not be grounded when using sheathed wire.

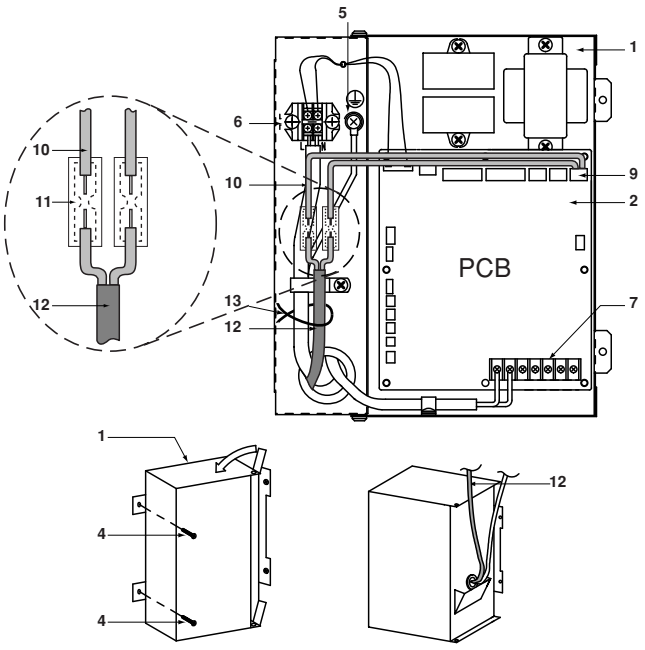
Opening the switch box

CAUTION

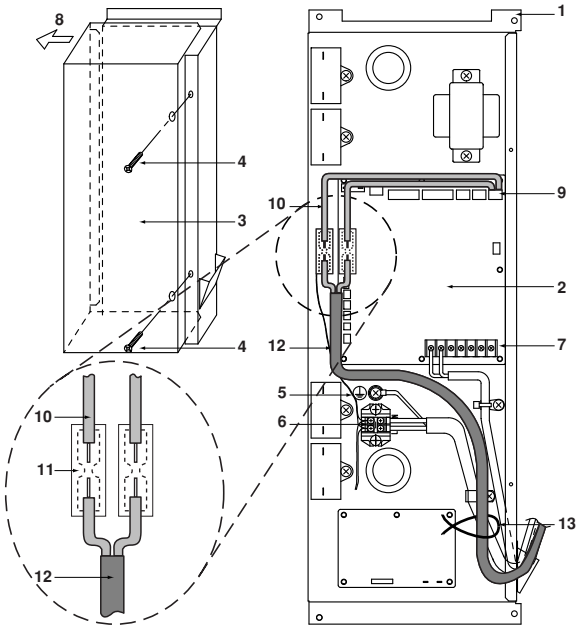
Before opening the cover, be sure to turn off the power switches of the main units and other devices connected with the main units.

- Remove the screw securing the cover and open the switch box.
- Secure the power cord control wires with the clamp, as shown in the next figures.

■ **VAM150F, VAM250F, VAM350F, VAM500F, VAM650F, VAM800F, VAM1000F**



■ **VAM1500F, VAM2000F**

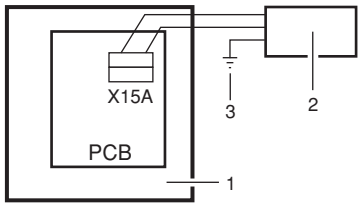


1	Electric component mounting base
2	Printed circuit board
3	Electrical compartment cover
4	Securing screw
5	Grounding terminal
6	Terminal board
7	Transmission wiring terminal board
8	Slide
9	X15A connector
10	Harness for connection of additional external damper (supplied accessory)
11	Insulated splices-closed barrel connector (0.75 mm^2) (field supply)
12	Double or reinforced insulated flexible cable (0.75 mm^2) to external damper (field supply)
13	Tie wrap (field supply)

Required electrical connections for possible additional field supplied external damper

The external damper prevents the intake of outdoor air if the HRV is switched off. (Refer to figures 2, 3, and 4, item 19).

1. The HRV's main unit PCB operates the HRV and supplies power for the external damper.



1	HRV main unit
2	External damper
3	Earth to external damper, if no class II construction (EN60335-2-40)

Source voltage supply starts when HRV starts operating.
Source voltage supply is stopped when HRV is switched off.

Supply voltage	Connected load capacity
220 V	≤0.5 A
230 V	
240 V	

2. Required electrical connections
Connect one end of the accessory harness to the X15A connector on the PCB and the other end to the harness leading to the external damper via a insulated splices-closed barrel connector (0.75 mm^2).
Make sure that the wire is released from strain.

3. Required settings
Default setting of the X15A connector: Not in operation
Change this default setting as follows by means of the remote controller for incorporating function of the external damper in the system:
- Mode No.: 18 (Group control) or 28 (Individual control)
- Setting switch No.: 3
- Setting position No.: 03

How to install the optional adapter circuit board (KRP2A61, KRP50-2)

When installing the optional adaptor circuit board, it is necessary to prepare the fixingbox (KRP50-2A90)

1 Open the electrical compartment cover by following the procedure described in the section "Opening the switch box" on page 7".

2 Remove the securing screw, and install the adapter circuit board.

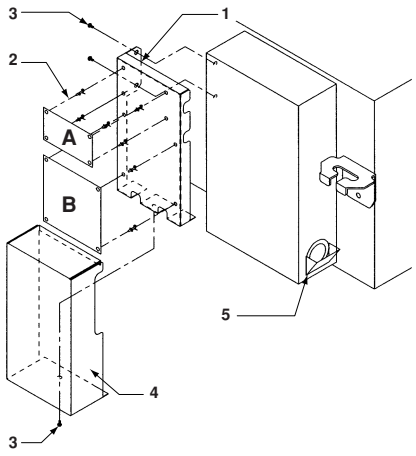
3 After the wires are connected, fasten the electrical compartment cover.

■ **VAM150F, VAM250F, VAM350F, VAM500F, VAM650F, VAM800F, VAM1000F**

KRP50-2A90

Components	
Fixing screw	3 pieces
Clamp	2 pieces

Installation



1 Fixing board

2 PCB support (Attached to adapter PCB)

3 Fixing screw

4 Lid

5 Switch box

	Applicable adapter name	Kit name
A	Adapter PCB for Humidifier	KRP50-2
B	Adapter PCB Remote controller	KRP2A1

How to install the optional heater control kit (BRP4A50)

When operating the HRV units at or below –10°C of the outdoor air temperature, use a field supplied preheater to preheat outdoor air.

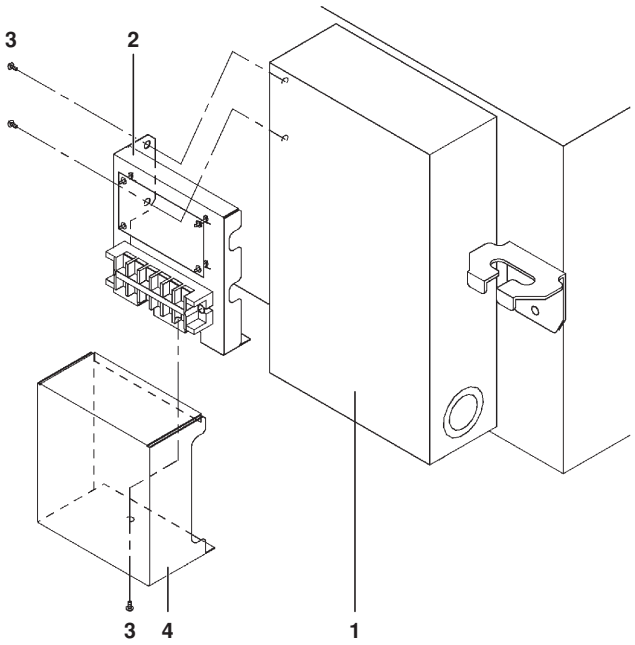
The BRP4A50 kit is required to have an ON/OFF delay control when a preheater is used (initial setting is required).

CAUTION

- For electric heater, safety devices, and installation location, follow the standards or regulations of each country.
- Use a nonflammable duct for the electric heater. Be sure to keep a distance of ≥2 m between the heater and HRV unit for safety.
- Use a different power supply and different circuit breaker for the HRV units and electric heaters.
- For setting the initial setting on the remote controller, see 19(29)-8-03 or 19(29)-8-04 in chapter "List of Settings" on page 11.

Install the heater control kit to the outside of the switch box of the HRV unit as shown below.

For more detailed information on how to install the BRP4A50 option kit, see the installation manual delivered with the option kit.



1 Switch box

2 Heater control kit

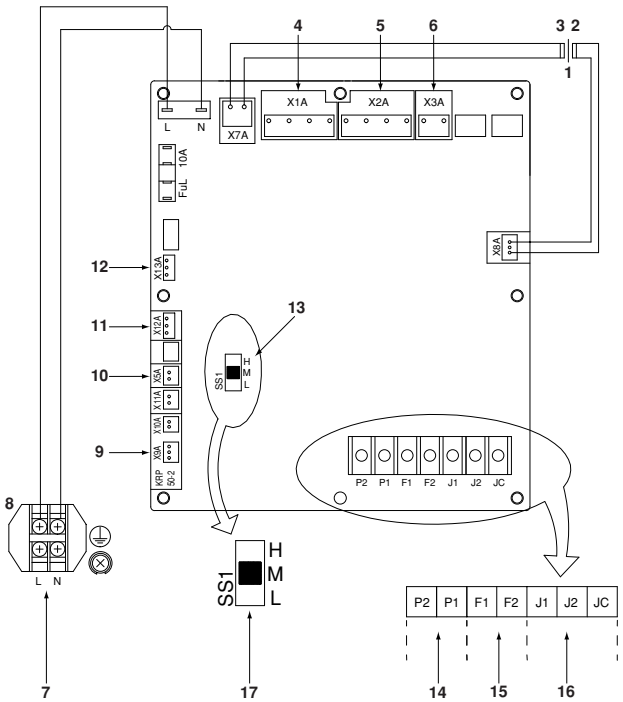
3 Fixing screw

4 Lid

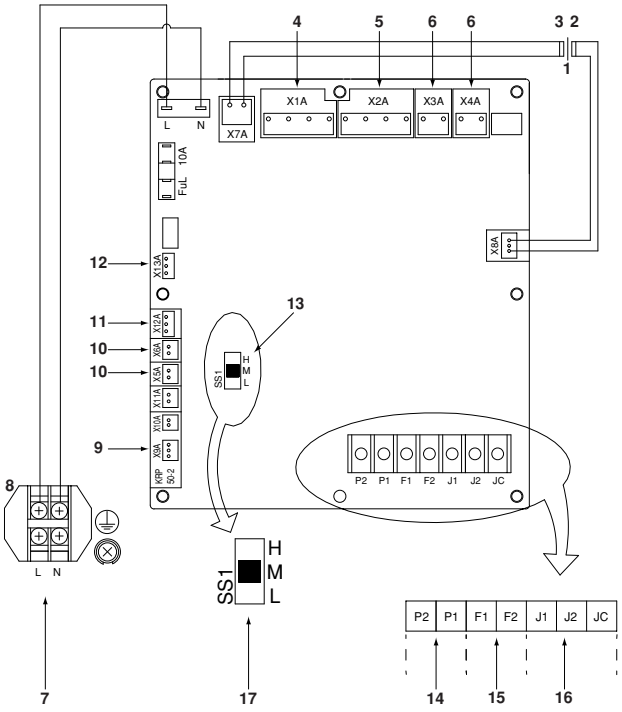
Power cord connection, control wire terminals and switches on the electronic control unit (printed circuit board)

- Connect the power cord to the L and N terminals.
- Secure the power cord with the power cord clamp, as shown in "Opening the switch box" on page 7
- Be sure to give the electric grounding (earth) connection.

- **VAM150F, VAM250F, VAM350F, VAM500F, VAM650F, VAM800F, VAM1000F**



■ **VAM1500F, VAM2000F**



1	Transformer	**10**	Damper
2	Secondary	**11**	Indoor air thermistor
3	Primary	**12**	Outdoor air thermistor
4	Supply air fan	**13**	Air flow
5	Exhaust air fan	**14**	Remote controller
6	Damper	**15**	Centralized control
7	Power supply	**16**	No-voltage external input
8	Terminals	**17**	Factory setting Be sure to give the electric grounding (earth) connection.
9	For KRP50-2 or BRP4A50		

Local setting

Using the remote controller of the VRV-system air conditioner to make HRV unit settings

Initial setting

1 Mode nos. 17, 18 and 19: Group control of HRV units.

2 Mode nos. 27, 28 and 29: Individual control

Operating procedure

The following describes the operating procedure and settings.

1 Press the INSPECTION/TRIAL button for more than four seconds with the unit in the normal mode to enter the local setting mode.

2 Use the TEMPERATURE ADJUSTMENT button to select the desired "**mode number.**" (The code display will blink.)

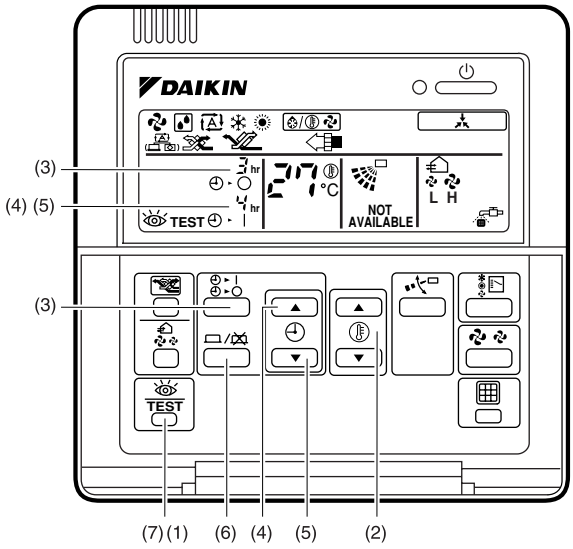
3 To make settings for individual units under group control (when mode No. 27, 28 or 29 is selected), press the TIMER SETTING ON/OFF button to select the "**unit No.**" for which the settings are to be made. (This process is not necessary when settings are made for the entire group.)

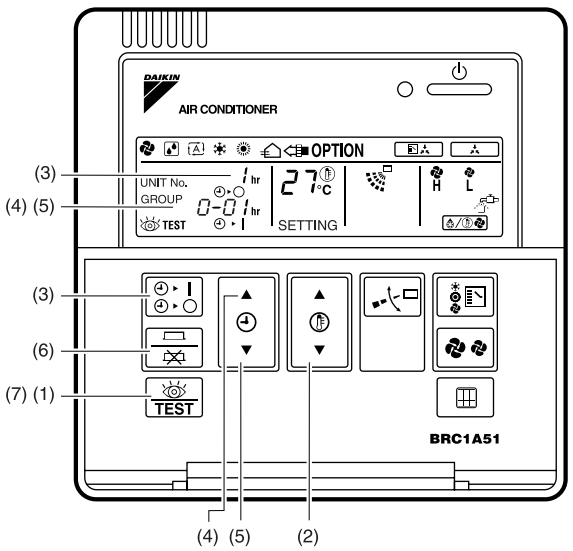
4 Press the top section of the TIMER button to select the "**setting switch No.**"

5 Press the lower section of the TIMER button to select "**setting position No.**"

6 Press the PROGRAM/CANCEL button once to enter the settings. (The code display will stop blinking and light up.)

7 Press the INSPECTION/TRIAL button to return to normal mode.





Example

When adjusting the ventilation air flow to low setting in the group setting mode, enter the mode No., “19” setting switch No., “0” and setting position No., “01”.

List of Settings

Mode No.		Setting switch No.	Description of Setting	Setting position No.(Caution *1.)					
Group settings	Individual settings			01	02	03	04	05	06
17	27	0	Filter cleaning time setting	Approx. 2500 hours	Approx. 1250 hours	No counting	–	–	–
		2	Precool/preheat on/off setting	Off	On	–	–	–	–
		3	Precool/preheat time setting	30 min	45 min	60 min	–	–	–
		4	Fan speed initial setting	Normal	Ultra high	–	–	–	–
		5	Yes/No seting for direct duct connection with VRV system	No duct (Air flow setting)	With duct (fan off)	–	–	–	–
			Setting for cold areas (Fan operation selection for heater thermo OFF)	–	–	No duct		With duct	
						Fan off	Fan L	Fan off	Fan L
		7	Centralized/individual setting	Centralized	Individual	–	–	–	–
		8	Centralized zone interlock setting	No	Yes	Priority on operation	–	–	–
		9	Preheat time extension setting	0 min	30 min	60 min	90 min	–	–
18	28	0	External signal JC/J2	Last command	Priority on external input	–	–	–	–
		1	Setting for direct Power ON	Off	On	–	–	–	–
		2	Auto restart setting	Off	On	–	–	–	–
		3	Setting for external damper	–	–	On	–	–	–
		4	Indication of ventilation mode/Not indication	Indication	No Indication	–	–	–	–
		7	Fresh up air supply/exhaust setting	No Indication	No Indication	Indication	Indication	–	–
				Supply	Exhaust	Supply	Exhaust	–	–
		8	External input terminal function selection (between J1 and JC)	Fresh-up	Overall alarm	Overall malfunction	Forced off	Fan forced off	Air flow increase
		9	KRP50-2 output switching selection (between 1 and 3)	Fan on/off	Abnormal	–	–	–	–
19	29	0	Ventilation air flow setting	Low	Low	Low	Low	High	High
		2	Ventilation mode setting	Automatic	Exchange	By pass	–	–	–
		3	“Fresh Up” on/off setting	Off	On	–	–	–	–
		8	Electric heater setting	No delay	No delay	On, off delay	On, off delay	–	–

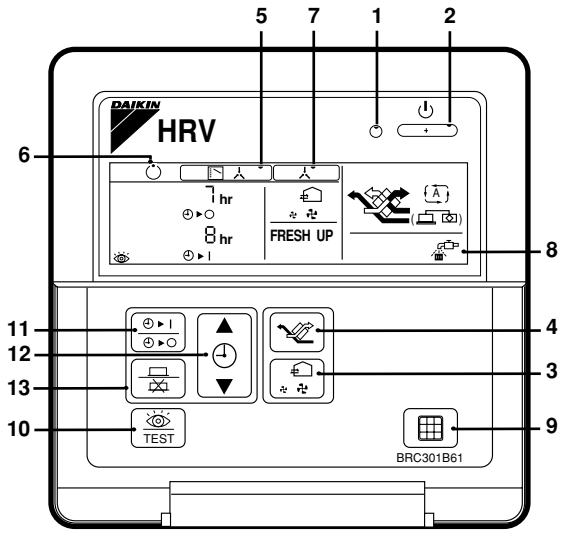
CAUTION

1. The setting positions are set at “01” at the factory. The ventilation air flow, however, is set at “06” (medium) in the HRV unit. When lower or higher setting is desired, change the setting after installation.
2. Group number setting for centralized controller
   Mode No. 00: Group controller
   Mode No. 30: Individual controller
   Regarding the setting procedure, refer to the section “Group number setting for centralized control” in the operating manual of either the on/off controller or the central controller.

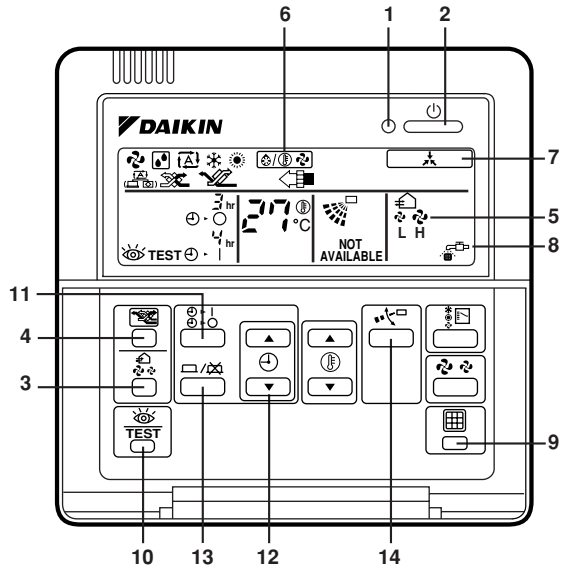
Operation with the remote control exclusively for Air conditioning operation HRV units. (BRC301B61)

For non-independent systems, starting/stopping operation and timer operation may not be possible.

Use the air conditioner remote control or the Centralized controller in such cases.



BRC301B61: Remote controller for VRV



BRC1C51, 61, 517: Remote controller for VRV

1. Operation lamp
This pilot lamp (red) light up while the unit is in Operation.

2. Operation/Stop button
When pushed once, the unit starts operating.
When pushed twice, the unit stops.

3. Air flow rate changeover button

Air flow rate can be changed over to " " [Low] mode or " " [High] mode,

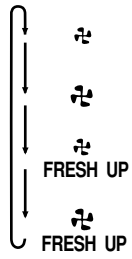
" FRESH UP" [LowFRESH UP] mode,

" FRESH UP" [High FRESH UP] mode.

For "FRESH UP" operation
When this indication does not show: The volume of outdoor air supplied into the room and that of the room air exhausted outdoors is equivalent.

For "FRESH UP" operation,

- If it is set to "Fresh up air supply":The volume of outdoor air supplied into the room is larger than that of room air exhausted outdoors.
  (This operation prevents the odor and moisture from kitchens and toilets from flowing into the rooms.)
- If it is set to "Fresh up air exhust":The volume of room air exhausted outdoors is larger than that of outdoor air suppied into the room.
  (This operation prevents the hospital odor and floating bacteria from flowing out to the corridors.)

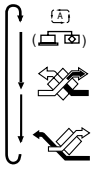


4. Ventilation mode changeover button

" " (Automatic) mode
The temperature sensor of the unit automatically changes the ventilation of the unit in [Bypass] mode and [Heat Exchange] mode.

" " (Heat Exchange) mode
In this mode, the air passes through the heat exchange element to effect [Total Heat Exchanging] ventilation.

" " (Bypass) mode
In this mode, the air does not pass through the heat exchange element but passes it to effect [Bypass] ventilation.



5. Indication of operation control method:
When the operation of HRVs are linked with the air conditioners, this indication may be shown.
While the indication is shown, the ON/OFF of HRVs cannot be operated by the HRV remote controller.

6. Indication of operation standby:
It indicates the precooling/preheating operation. This unit is at stop and will strat opration after the precooling/preheating operation is over.
Precooling/prheating opration means the operation of HRVs is delayed during the startup operation of linked air conditioners such a before the office hours.
During this period the cooling or heating load is reduced to bring the room temperature to the set
temperature in a short time.

7. Indication of centralized control:
When a remote controller for air conditioners or devices for centralized control are connected to the HRVs, this indication may show.
During this indication appears on the display, the ON/OFF and timer operation may not be possible with the HRV remote controllers.

8. Indication of air filter cleaning

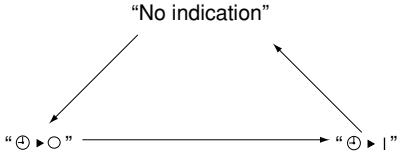
When the indication " " appears on the display, clean the filter.

9. Filter signal reset button

10. Inspection button
This button is to be used only for service. It is not to be used normally.

How to operate with Timer

11. Push the button " " and select either one of " " or " ".
Each time the button is pushed, the indication changes as shown below.



12. Push the button “ ” and set the time.

Each time when “ ▲ ” is pushed, the time advances one hour.

Each time when “ ▼ ” is pushed, the time goes back one hour.

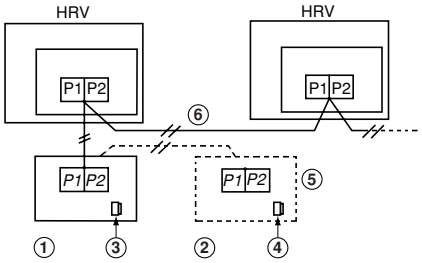
13. Push the button “ ”.
Then, the reservation is finished.
Either “ ” or “ ” changes from flashing to lighting.
After the reservation is finished, the remaining time is indicated in the display.

For cancelling the timer operation, push the button “ ” once again.
The indication disappears.

14. If you press these buttons when using independent operation of the HRV unit, the message “NOT AVAILABLE” will appear on the display for a few seconds.

Independant system

When connecting to Remote controller for HRV



1 Master unit
2 Slave unit
3 Switch position: Slave
4 Switch position: Master
5 Remote controller for HRV
6 Maximum connection line length: 500 m

Factory setting

air flow rate H M L SS1

For raising the remote-controlled ventilation air flow rate from “High” to “Ultra-High”, connect the remote controller for the air-conditioner to HRV and make settings on site.

(Refer to “Initial setting” under item "Local setting" on page 10.)

Set the switches on the printed circuit board to the factory setting.

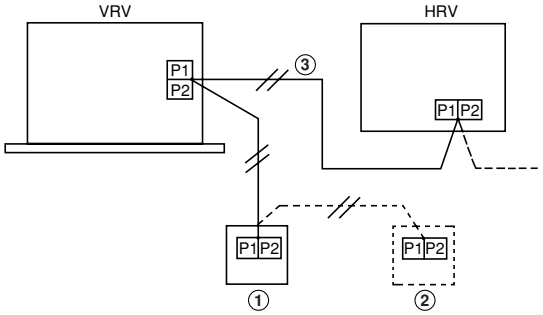
Factory setting

air flow rate H M L SS1

Wiring and connections in combination with “VRV-SYSTEM”

Standard 1-group linked-control system

- The remote control of the air conditioner can be used to control up to 16 air conditioner indoor units and HRV units.
- Initial settings can be made for the functions of the HRV units (pre-cool/pre-heat, ventilation air flow, ventilation mode and “Fresh-Up”).
  Use the remote controller of the air conditioner to make the initial settings for the HRV units.
  Refer to “Initial setting” under Item "Local setting" on page 10”



1 Remote controller for air conditioner
2 Remote controller for HRV
3 Connecting line can be extended up to 500 m maximum

Pre-cool/pre-heat function

When the pre-cool/pre-heat function is set, the HRV unit switches on at the preset time (30, 45 or 60 minutes) after the VRV-system air conditioner begins cooling or heating operation. The function is set OFF at the factory. Therefore, to use this function, the initial setting must be made using the remote controller of the air conditioner.

If the air conditioner is re-started within two hours after the operation was stopped, this function does not operate.

Example 1:

To switch on the pre-cool/pre-heat function, and turn on the HRV unit 60 minutes after the air conditioner is turned on.

- Set the mode No. to “17” for group control, or “27” for individual control, the setting switch No. to “2” and the setting position No. to “02”
- Set the mode No. to “17” for group control, or “27” for individual control, the setting switch No. to “3” and the setting position No. to “03”

Example 2:

To switch the ventilation air flow to ultra high setting. (The units are set at the high air flow setting at the factory)

- Set the mode No. to “17” for group control, or “27” for individual control, the setting switch No. to “4” and the setting position No. to “02”

Example 3:

To switch the ventilation air flow to low setting.

- Set the mode No. to “19” for group control, or “29” for individual control, the setting switch No. to “0” and the setting position No. to “01”

■ Connecting the remote controller for HRV

The remote controller for HRV cannot be used for starting/stopping operation or for timer operation. (The centralized control indication will be lit.)

To set pre-cool/pre-heat function settings, change the remote control air flow rate setting from medium (M) to high (H), etc., perform initial settings from the remote controller for HRV.

Since it will become a two-remote-control system, perform master/slave setting as shown below.

Remote control	Master/slave setting
Remote controller for air conditioner	Slave
Remote controller for HRV	Master

Refer to “preforming initial settings” in the remote control instruction manual.

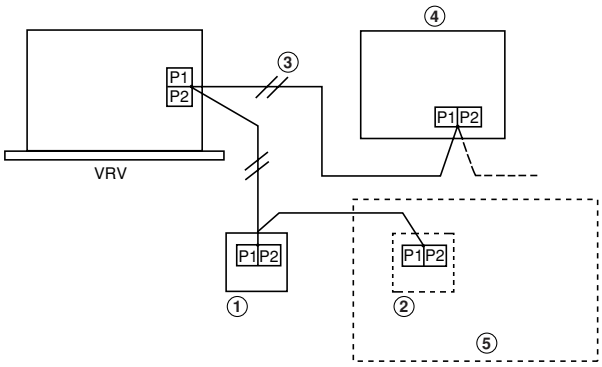
Example 4:

To set the pre-cool/pre-heat reservation function to on and have the HRV start operating 60 minutes after the air conditioner has started, set the same numbers as shown in example 1 using the remote controller for HRV.

Example 5:

To increase the remote control air ventilation rate setting from Medium to High, set the same numbers as shown in example 2 using the remote controller for HRV.

Air ventilation rate setting using remote control	Default factory settings	When set as in example 5
Low	Low (L) air flow rate	Low (L) air flow rate
High	Medium (M) air flow rate	High (H) air flow rate



1 Remote controller for air conditioner
2 Remote controller for HRV
3 Maximum connection line length: 500 m
4 Medium (M) air flow rate
5 When the remote controller for HRV is connected, set the switches on the HRV unit PCB to the default factory settings.

Set the switches of the HRV unit PCB to the default factory settings.

Default factory settings

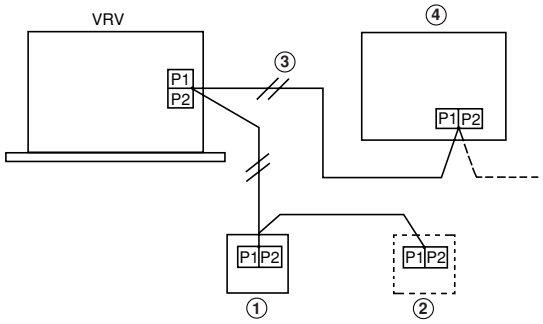
air flow rate — H M L — SS1

■ Determination of heating/cooling selection rights for VRV-systems is performed using the remote controller for HRV.
The heating/cooling selection rights can be enabled or disabled using the ventilation mode button of the remote controller for HRV.
This operation cannot be performed with the remote controller for air conditioner.

Heating/cooling selection rights	Operation switchover control display
Enabled	Not lit
Disabled	Lit
Not set	Blinking

Direct duct connection system for 1-group operation system

Line connections and the settings of the switches on the HRV unit PCB should be the same as for “Standard system for 1-group system”.



1 Remote controller for air conditioner
2 Remote controller for HRV
3 Maximum connection line length: 500 m
4 Medium (M) air flow rate

Set the switches of the HRV unit PCB to the default factory settings.

1 Be sure to set the initial settings to Direct duct connection: Enabled.

■ When the remote contoroller for HRV is not yet connected, initial settings can be performed using the air conditioner remote control. Set the mode number to “17”, the setting switch number to “5”, and the setting position number to “02” according to the procedure in "Local setting" on page 10.

■ When the remote contoroller for HRV, initial settings should be performed using the remote controller for HRV. Set the same numbers as described above when using the remote controller for air conditioner according to the procedure “Making initial settings” in the remote control instruction manual.

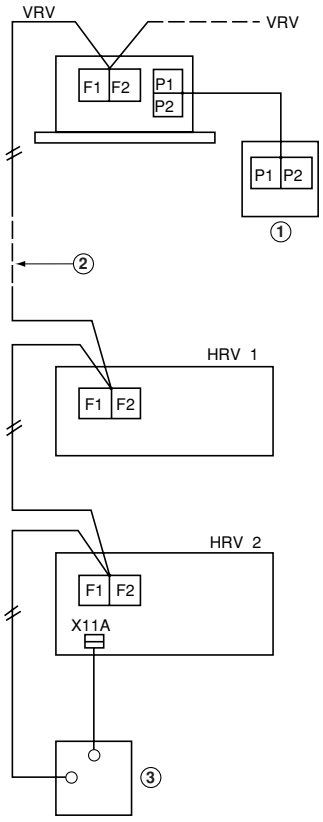
2 Settings for other HRV functions should be made using the same method as in “Standard system for 1-group system”.

Linked control with more than two groups

■ Mount the optional KRP2A61 Adapter PCB for remote control on the electric component mounting base of one HRV unit.

■ A maximum of 64 air conditioners and HRV units can be connected to the F1 and F2 terminals.

■ Use the remote controller of the air conditioner to make the initial settings.

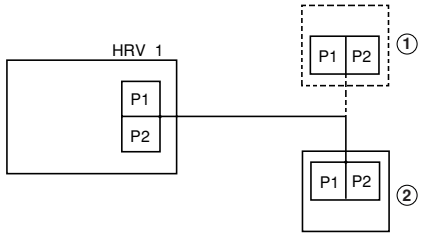


1 Remote controller for air conditioner
2 Connecting line can be extended up to 1000 m maximum
3 Optional distant control adapter KRP2A61

Procedure

1 Turn off the main power.

2 Connect the air-conditioner remote controller.



1 Remote controller for air conditioner

2 Remote controller for HRV

3 Turn on the main power.

4 Make the remote controller settings on site; Set the collective zone interlock to ON. Mode number “17”, setting switch number “8” and setting position number “02”.

5 Turn off the main power.

6 Disconnect the remote controller.

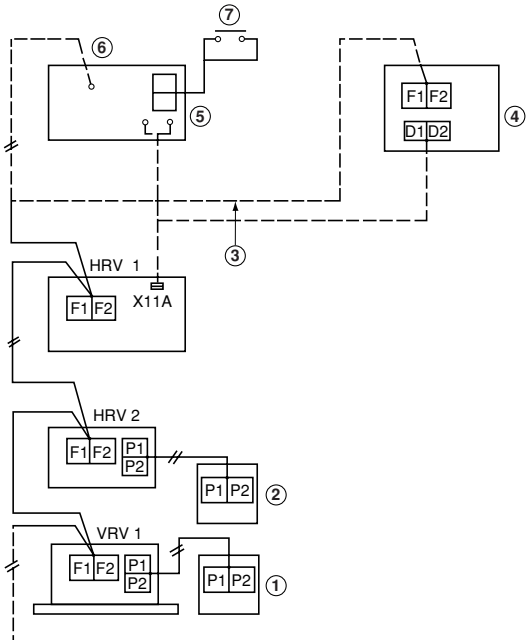
Now the on-site settings are complete.

For raising the remote-controlled ventilation air flow rate “High” to “Ultra-High”, connect the remote controller for the air conditioner to HRV and make settings on site. (Refer to “Initial setting” under item "Local setting" on page 10.)

Centralized control system

“All” control

When using Adapter PCB for remote control (KRP2A61,62,63) or schedule timer (DST301B61)



1 Remote controller for air conditioner

2 Remote controller for HRV

3 Connecting line can be extended up to 1000 m maximum

4 Schedule timer (DST301B61)

5 Adapter PCB for remote control (KRP2A61)

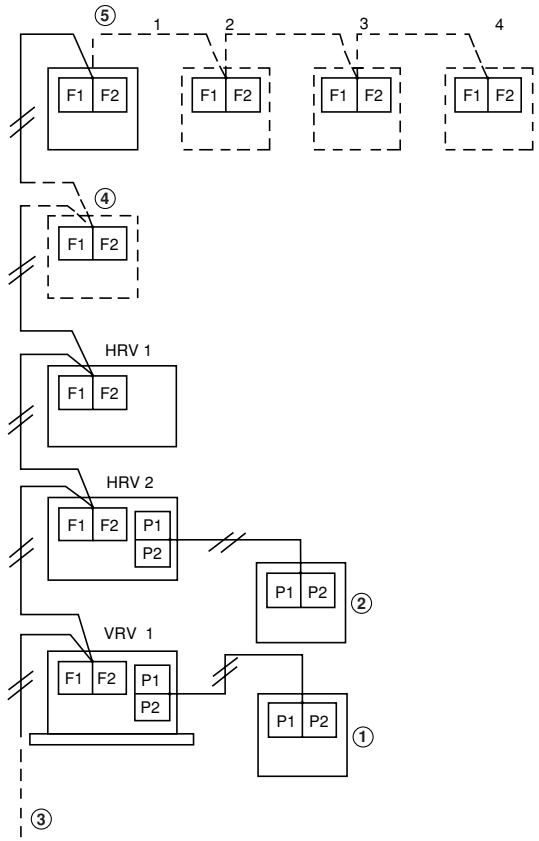
6 Distant control adapter

7 On/Off signal

- A maximum of 64 air conditioners and HRV units can be connected to the F1 and F2 terminals.
- This system does not required group number setting for centralized control. (auto-address system)
- The Adapter PCB for remote control and schedule timer cannot be used together.
- The Adapter PCB for remote control can be mounted on the electric component mounting base of either the HRV unit or air conditioner. (The HRV unit can accept only the KRP2A61)
- For raising the remote-controlled ventilation air flow rate from “High” to “Ultra-High”, connect the remote controller for the air-conditioner to HRV and make settings on site.
  (Refer to “Initial setting” under item "Local setting" on page 10.)

“All”/“individual” control

When using the on/off controller (DCS301B61)



1 Remote controller for air conditioner

2 Remote controller for HRV

3 Connecting line can be extended up to 1000 m maximum

4 Schedule timer

5 On/Off controller

- A maximum of 64 air conditioners and HRV units can be connected to the F1 and F2 terminals.
- This system allows connection of four on/off controllers.
- It is necessary to assign a central control group number to each HRV unit and air conditioner.
  Regarding the setting of the group number, refer to the section on “the centralized control group number setting” in the operating instructions of the On/off controller.
- Use the remote controller of the air conditioner to make the initial settings.

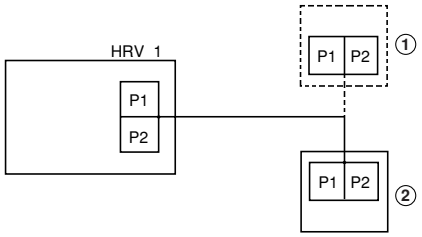
Example:

Follow the procedure below to set the centralized group No. 2-05 to HRV 1.

Procedure

1 Turn off the main switch of the HRV-1 and On/off controller.

2 Connect the air conditioner's remote controller.



1 Remote controller for air conditioner

2 Remote controller for HRV

3 Turn on the main switch of the HRV-1 and On/off controller.

4 Set the central control group number using the local setting on the remote controller.

Mode No.: "00"
Central control group No.: "2-05"

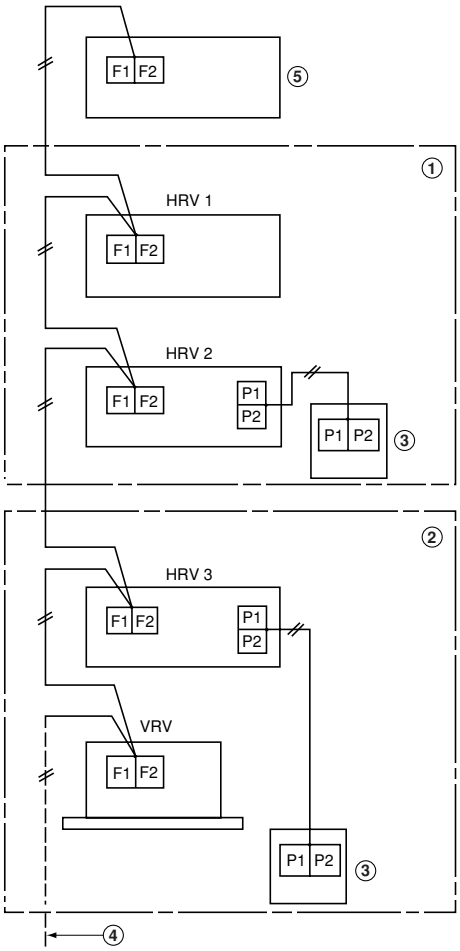
5 Turn off the main switch of the HRV and On/off controller.

6 Disconnect the remote controller.

The setting is now complete.

For the ventilation air flow setting, follow the procedure described in the section "“All” control" on page 15.

Zone control system



1 Zone 1

2 Zone 2

3 Remote controller for HRV

4 Connecting line can be extended up to 1000 m maximum

5 Centralized controller (DCS302B61

- A maximum of 64 air conditioners and HRV units can be connected to the F1 and F2 terminals.
- The HRV units will turn on and off in according with the zone operation command from the centralized controller.

Zone 2

The HRV units operate in the zone-linked mode, as described in the section, "Linked control with more than two groups" on page 14. For the initial setting, follow the procedure described in that section.

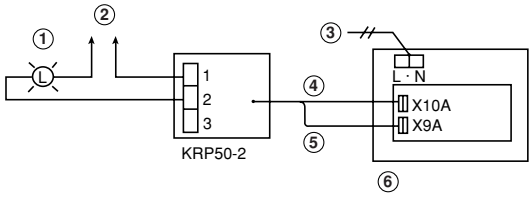
- It is necessary to assign a central control group number to each HRV unit and air conditioner.
  Regarding the setting of the group number, refer to the section on "the centralized control group number setting" in the operating instructions of the Centralized controller. Refer to the section "“All”/“individual” control" on page 15 for the setting procedure.
- For the ventilation air flow setting, follow the procedure described in the section "“All” control" on page 15.
- For the zone setting from the centralized controller, refer to the operating instructions of the centralized controller.
- The centralized controller can be used to control the individual units in the zone for ventilation operation.

Remote control

Monitor of operation

The operation of the HRV can be monitored from the outside by the connection of the adaptor PCB for remote control KRP50-2 (option).

Be sure to connect the terminal strip on the adaptor PCB for remote control KRP50-2 (option).



1 Operation lamp

2 Power source

3 Power source

4 2P connecter

5 3P connecter

6 Printed circuit board

Wiring adapter for remote contact KRP50-2 (option)
(To be placed in the switch box of the HRV)

Fresh-up operation

Purposes

When Combined with a local ventilating fan (such as the one in toilet and kitchen), the air flow rate of HRV is balanced by either fan operation or exhaust operation.

However, a circuit with voltaged and low current (16 V, 10 mA) is fromed between the JC and J1, so a relay with low-load contact point must be used.

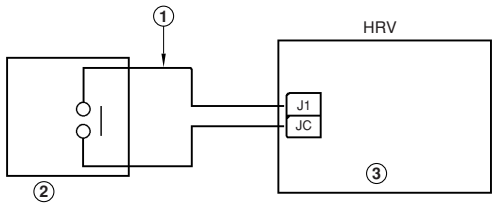
Functions

The unit performs overcharged operation to prevent back flow of odor.

Necessary parts

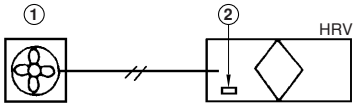
Operation contact of exhaust ventilating fan (Field supply)

Example of control wiring



1 Connecting line can be extended up to 50 m maximum
2 (Field supply)
3 Printed circuit board

System description



1 Local ventilating fan
2 Power supply

The local setting by the remote controller for the air conditioner (Refer to "Local setting" on page 10)	"J1", "JC" normal open	"J1", "JC" normal close
Fresh-up "OFF" (Factory setting)	Normal	Fresh-up
Fresh-up "ON"	Fresh-up	Fresh-up

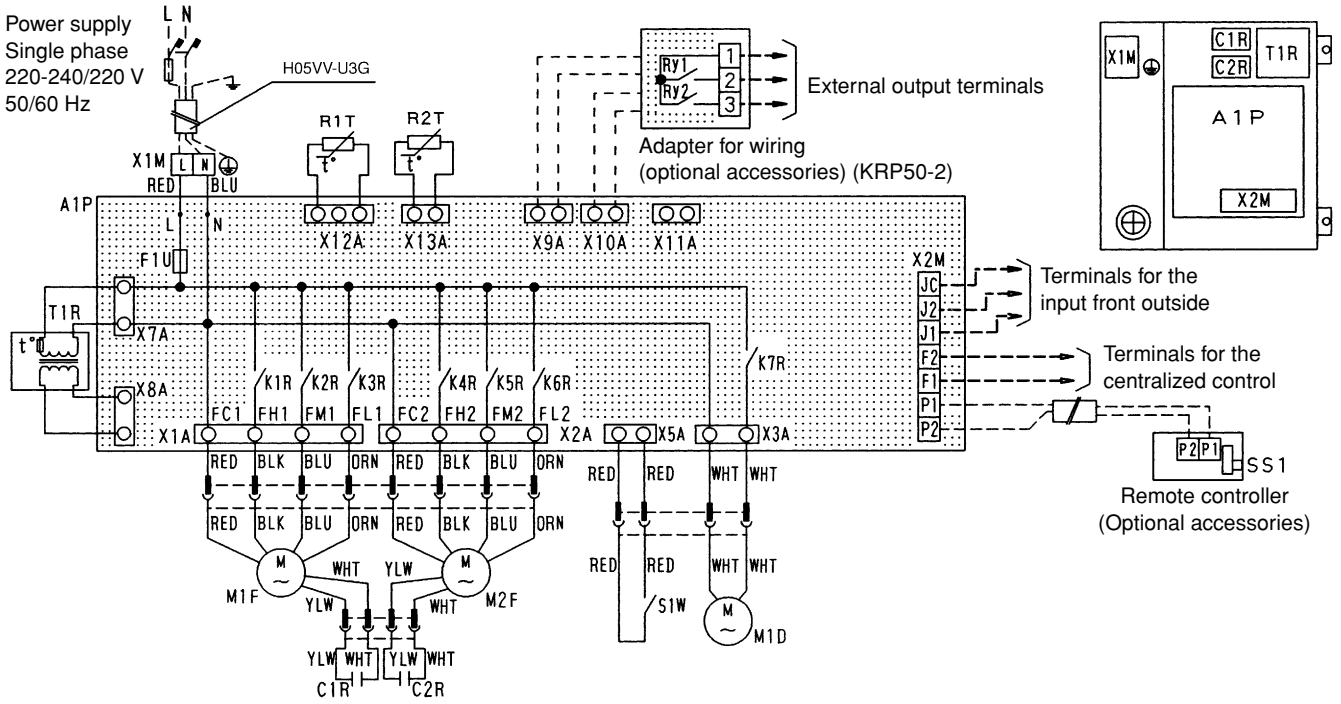
TEST RUN

After completing the installation of the system, check again to make sure that No error was made in wiring or switch setting on the printed circuit boards of the HRV units.

Then, turn on the power of the HRV units. Refer to the manual of the remote controller of each unit (remote controller for air conditioner, central control unit, etc.) for conducting a trial operation.

NOTES

WIRING DIAGRAM VAM150, 250, 350, 500, 650, 800, 100F



L-RED	N-BLU
A1P	Printed circuit board
C1R-C2R	Capacitor (M1F•M2F)
F1U	Fuse (250 V, 10 A)
K1R-K3R	Magnetic relay(M1F)
K4R-K6R	Magnetic relay(M2F)
K7R	Magnetic relay(M1D)
M1D	Motor (Damper motor)
M1F	Motor (Air supply Fan motor)
M2F	Motor (Exhaust Fan motor)
Q1L-Q2L	Thermo switch (M1F-M2F Built-in)
R1T	Thermistor (Indoor air)
R2T	Thermistor (Outdoor air)
S1W	Limit switch
T1R	Transformer (Supply 220-240 V/22 V)
X1M	Terminal (Power supply)
X2M	Terminal (Control)
Optional Accessories	
Adapter for wiring (KRP50-2)	
Ry1	Magnetic relay (On/Off)
Ry2	Magnetic relay (Humifider operation)
X9A•10 A	Connector (KRP50-2)
Remote controller	
SS1	Selector switch (Main/Sub)
Optional Connector	
X11A	Connector (Adaptor power supply)

NOTE

Terminals

Wire clamp

Connectors

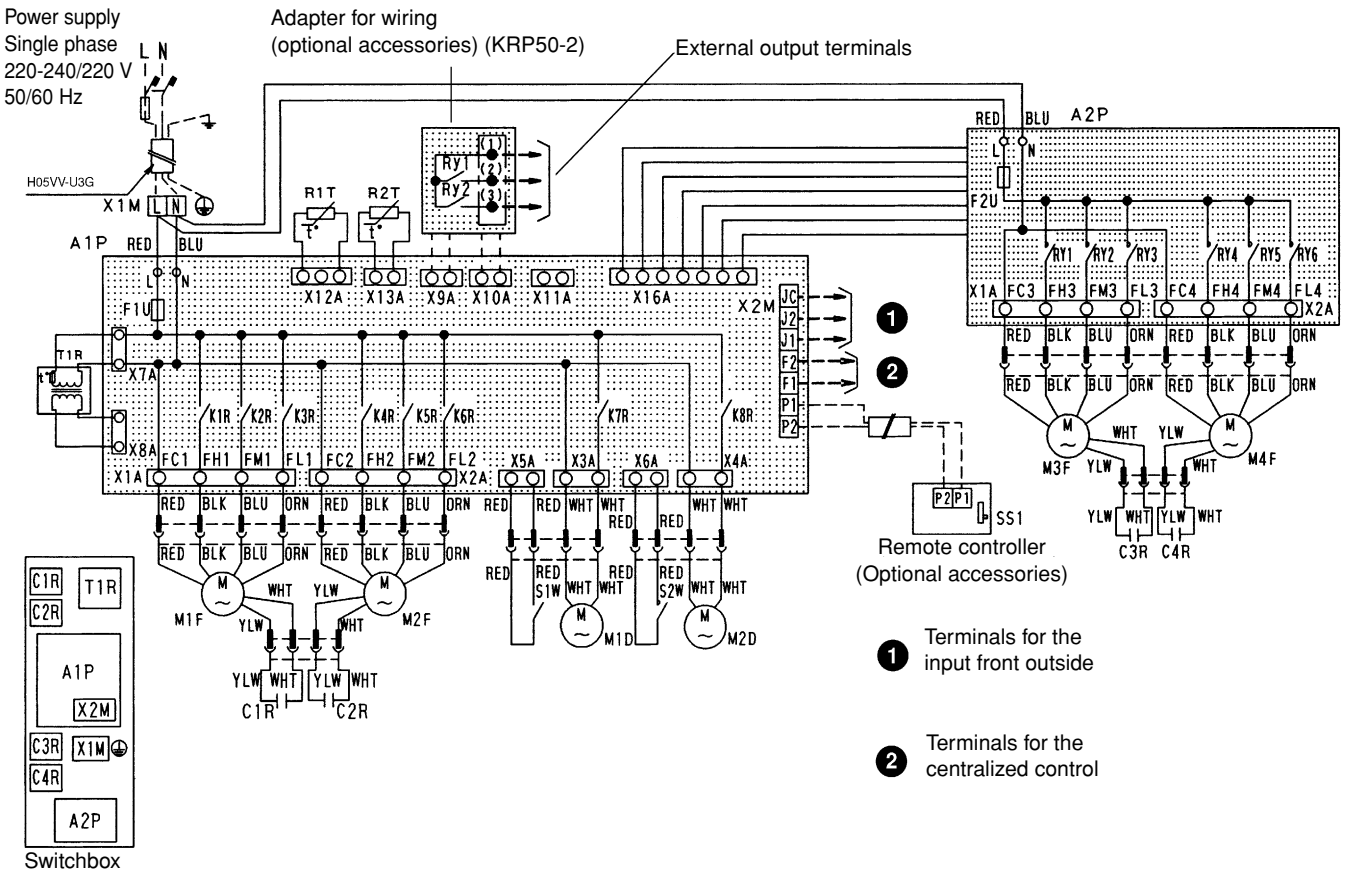
Field wiring

Protective earth

Symbols show as follows:

BLK:	Black
RED:	Red
BLU:	Blue
WHT:	White
YLW:	Yellow
ORN:	Orange
GRN	Green

WIRING DIAGRAM VAM1500, 2000F



L-RED	N-BLU
A1P	Printed circuit board (Control)
A2P	Printed circuit board (Interface)
C1R-C4R	Capacitor (M1F•M4F)
F1U-F2U	Fuse (250 V, 10 A)
K1R-K3R	Magnetic relay(M1F)
K4R-K6R	Magnetic relay(M2F)
K7R	Magnetic relay(M1D)
K8R	Magnetic relay(M2D)
M1D-M2D	Motor (Damper motor)
M1F-M3F	Motor (Air supply Fan motor)
M2F-M4F	Motor (Exhaust Fan motor)
Q1L-Q4L	Thermo switch (MF1-M4F Built-in)
RY1-RY3	Magnetic relay (M3F)
RY4-RY6	Magnetic relay (M4F)
R1T	Thermistor (Indoor air)
R2T	Thermistor (Outdoor air)
S1W-S2W	Limit switch
T1R	Transformer (Supply 220-240 V/22 V)
X1M	Terminal (Power supply)
X2M	Terminal (Control)
Optional Accessories	
Adapter for wiring (KRP50-2)	
Ry1	Magnetic relay (On/Off)
Ry2	Magnetic relay (Humifider operation)
Remote controller	
SS1	Selector switch (Main/Sub)
Optional Connector	
X9A	Connector (for KRP50-2)
X10 A	Connector (for KRP50-2)
X11A	Connector

NOTE

Terminals

Wire clamp

Connectors

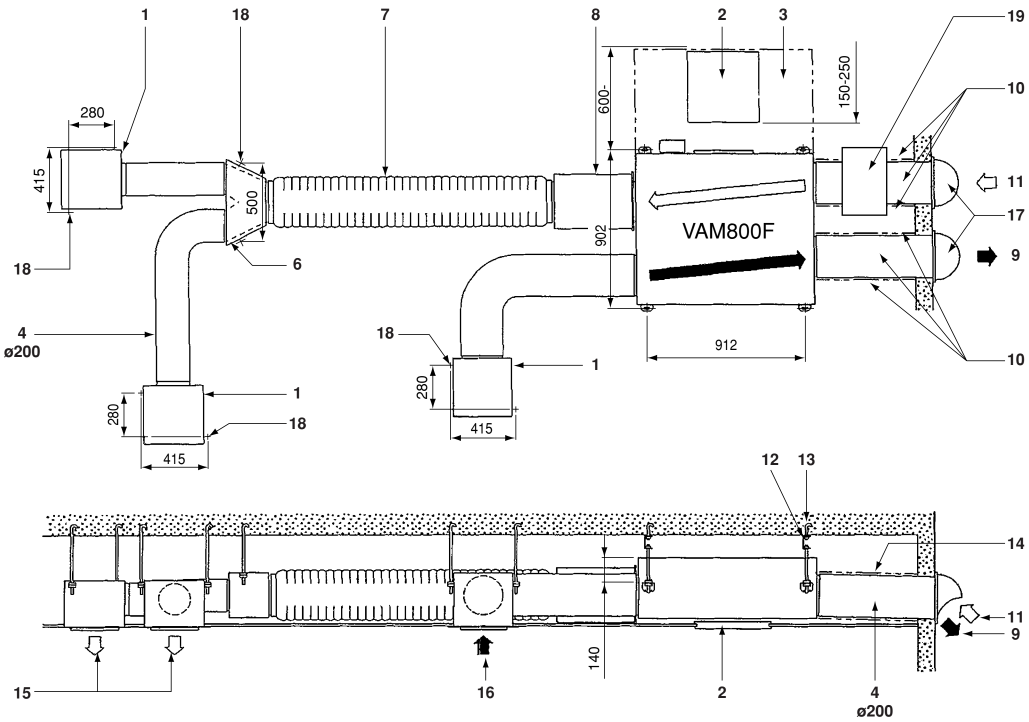
Field wiring

Protective earth

Symbols show as follows:

BLK:	Black
RED:	Red
BLU:	Blue
WHT:	White
YLW:	Yellow
ORN:	Orange
GRN	Green

NOTES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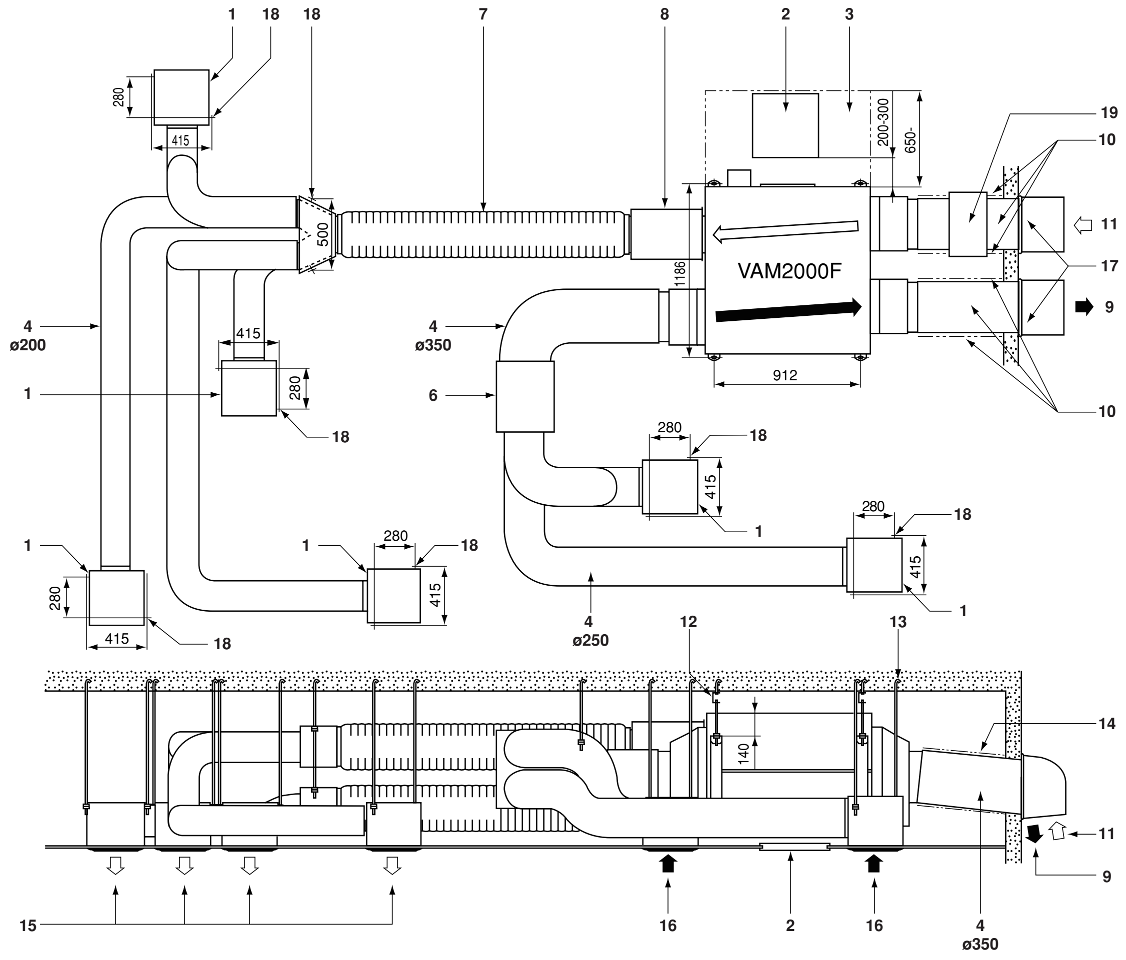
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4PW13545-1 C 0000000M

DAIKIN EUROPE N.V.
Zandvoordestraat 300, B-8400 Oostende, Belgium

4PW13545-1C

VRV Selection

Project Report

Report details

Produced on: 7/5/2021

Application version: 2021.6.24.1

Project details

Project name: Plot 9

Solution name: Unnamed solution (1)

Client Name:

Customer reference:

Quotation reference:

Project number: 805580/976550

The output of the VRV Xpress software is based on Daikin-genuine capacity tables that relate to the Japanese Industry Standard. The VRV Xpress software provides a selection of outdoor and indoor units with optimal efficiency to fit cooling and heating load requirements.

Material list

Model	Quantity	Description
REYQ14U	1	REYQ-U (VRV IV)
REYQ16U	1	REYQ-U (VRV IV)
BS8Q14AV1B	2	Branch selector unit
FXSQ50A	4	FXSQ-A - Concealed ceiling unit with medium ESP
FXSQ63A	8	FXSQ-A - Concealed ceiling unit with medium ESP
FXSQ80A	1	FXSQ-A - Concealed ceiling unit with medium ESP
DCM601A51	1	Intelligent Touch Manager
BRC1H52W	13	Remote controller (white)
KHFP26A100C	3	Pipe closing kit

Indoor unit details

Table of abbreviations

Abbreviation	Description
Name	Logical name of the device
FCU	Device model name
Tmp C	Indoor conditions in cooling
Rq TC	Required total cooling capacity
Rv TC	Revised total cooling capacity (asked from outdoor)
Max TC	Available total cooling capacity
Rq SC	Required sensible cooling capacity
Tevap	Evaporating temperature of indoor unit coil
Tdis C	Indoor unit discharge air temperature in cooling based on maximum capacities
Max SC	Available sensible cooling capacity
PIC	Power input in cooling mode @ 50Hz
Tmp H	Indoor temperature in heating
Rq HC	Required heating capacity
Max HC	Available heating capacity
Tdis H	Indoor unit discharge air temperature in heating based on maximum capacities
PIH	Power input in heating mode @ 50Hz
Sound	Sound pressure level low and high
PS	Power supply (voltage and phases)
MCA	Minimum Circuit Amps
MOP	Maximum Overcurrent Protection
WxHxD	WidthxHeightxDepth
Weight	Weight of the device
Min coil	Minimum coil volume
Max coil	Maximum coil volume
Air Flow Rate	Air Flow Rate

Ground Floor - REYQ16U

Capacity data at conditions and connection ratio (108) as entered

Name	FCU	Cooling								
		Tmp C	Rq TC	Rv TC	Max TC	Rq SC	Tevap	Tdis C	Max SC	PIC
		°C (DBT/RH)	kW	kW	kW	kW	°C	°C	kW	kW
Ind 1	FXSQ80A	26.0/50%	n/a	0.0	8.8	n/a	6.0	12.9	6.2	0.213
Ind 2	FXSQ63A	26.0/50%	n/a	0.0	7.0	n/a	6.0	14.5	4.9	0.188
Ind 3	FXSQ63A	26.0/50%	n/a	0.0	7.0	n/a	6.0	14.5	4.9	0.188
Ind 4	FXSQ63A	26.0/50%	n/a	0.0	7.0	n/a	6.0	14.5	4.9	0.188
Ind 5	FXSQ63A	26.0/50%	n/a	0.0	7.0	n/a	6.0	14.5	4.9	0.188
Ind 6	FXSQ50A	26.0/50%	n/a	0.0	5.5	n/a	6.0	13.5	3.9	0.154
Ind 7	FXSQ50A	26.0/50%	n/a	0.0	5.5	n/a	6.0	13.5	3.9	0.154
			0.0							

Name	FCU	Heating							
		Tmp H	Rq HC	Max HC	Tdis H	PIH	Min coil	Max coil	Air Flow Rate
		°C	kW	kW	°C	kW	m³	m³	l/s
Ind 1	FXSQ80A	20.0	n/a	10.0	41.2	0.209	n/a	n/a	383.33
Ind 2	FXSQ63A	20.0	n/a	8.0	38.6	0.183	n/a	n/a	350.00
Ind 3	FXSQ63A	20.0	n/a	8.0	38.6	0.183	n/a	n/a	350.00
Ind 4	FXSQ63A	20.0	n/a	8.0	38.6	0.183	n/a	n/a	350.00
Ind 5	FXSQ63A	20.0	n/a	8.0	38.6	0.183	n/a	n/a	350.00
Ind 6	FXSQ50A	20.0	n/a	6.3	40.2	0.150	n/a	n/a	253.33
Ind 7	FXSQ50A	20.0	n/a	6.3	40.2	0.150	n/a	n/a	253.33
			n/a						

Name	Room	Sound	PS	MCA	MOP	WxHxD	Weight
		dBA		A		mm	kg
Ind 1		29 - 35	220V 1ph	1.9	Factory Std	1,000 x 245 x 800	36.5
Ind 2		27 - 33	220V 1ph	1.6	Factory Std	1,000 x 245 x 800	35.5
Ind 3		27 - 33	220V 1ph	1.6	Factory Std	1,000 x 245 x 800	35.5
Ind 4		27 - 33	220V 1ph	1.6	Factory Std	1,000 x 245 x 800	35.5
Ind 5		27 - 33	220V 1ph	1.6	Factory Std	1,000 x 245 x 800	35.5
Ind 6		29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0
Ind 7		29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0

Remarks

Reduced operational load

The sum of the required indoor unit capacities is 47.6kW for cooling and 54.6kW for heating. However, the outdoor unit selection uses reduced load values for cooling of 28.1kW (=59%) and for heating of 32.2kW (=59%). Be aware that unrealistic reductions may lead to reduced comfort levels, different noise levels or increased wear and tear.

Outdoor vs. indoor position

Outdoor unit placed at the same level as the indoor units.

First Floor - REYQ14U

Capacity data at conditions and connection ratio (100) as entered

Name	FCU	Cooling								
		Tmp C	Rq TC	Rv TC	Max TC	Rq SC	Tevap	Tdis C	Max SC	PIC
		°C (DBT/RH)	kW	kW	kW	kW	°C	°C	kW	kW
Ind 1	FXSQ63A	26.0/50%	n/a	0.0	7.0	n/a	6.0	14.5	4.9	0.188
Ind 2	FXSQ63A	26.0/50%	n/a	0.0	7.0	n/a	6.0	14.5	4.9	0.188
Ind 3	FXSQ63A	26.0/50%	n/a	0.0	7.0	n/a	6.0	14.5	4.9	0.188
Ind 4	FXSQ63A	26.0/50%	n/a	0.0	7.0	n/a	6.0	14.5	4.9	0.188
Ind 7	FXSQ50A	26.0/50%	n/a	0.0	5.5	n/a	6.0	13.5	3.9	0.154
Ind 6	FXSQ50A	26.0/50%	n/a	0.0	5.5	n/a	6.0	13.5	3.9	0.154
			0.0							

Name	FCU	Heating							
		Tmp H	Rq HC	Max HC	Tdis H	PIH	Min coil	Max coil	Air Flow Rate
		°C	kW	kW	°C	kW	m³	m³	l/s
Ind 1	FXSQ63A	20.0	n/a	8.0	38.6	0.183	n/a	n/a	350.00
Ind 2	FXSQ63A	20.0	n/a	8.0	38.6	0.183	n/a	n/a	350.00
Ind 3	FXSQ63A	20.0	n/a	8.0	38.6	0.183	n/a	n/a	350.00
Ind 4	FXSQ63A	20.0	n/a	8.0	38.6	0.183	n/a	n/a	350.00
Ind 7	FXSQ50A	20.0	n/a	6.3	40.2	0.150	n/a	n/a	253.33
Ind 6	FXSQ50A	20.0	n/a	6.3	40.2	0.150	n/a	n/a	253.33
			n/a						

Name	Room	Sound	PS	MCA	MOP	WxHxD	Weight
		dBA		A		mm	kg
Ind 1		27 - 33	220V 1ph	1.6	Factory Std	1,000 x 245 x 800	35.5
Ind 2		27 - 33	220V 1ph	1.6	Factory Std	1,000 x 245 x 800	35.5
Ind 3		27 - 33	220V 1ph	1.6	Factory Std	1,000 x 245 x 800	35.5
Ind 4		27 - 33	220V 1ph	1.6	Factory Std	1,000 x 245 x 800	35.5
Ind 7		29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0
Ind 6		29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0

Remarks

Reduced operational load

The sum of the required indoor unit capacities is 38.8kW for cooling and 44.6kW for heating. However, the outdoor unit selection uses reduced load values for cooling of 22.9kW (=59%) and for heating of 23.2kW (=52%). Be aware that unrealistic reductions may lead to reduced comfort levels, different noise levels or increased wear and tear.

Outdoor vs. indoor position

Outdoor unit placed at the same level as the indoor units.

Outdoor unit details

Table of abbreviations

Abbreviation	Description
Name	Logical name of the device
Model	Device model name
CR	Connection ratio
Tmp C	Outdoor conditions in cooling
WFR per module	Water flow per outdoor unit module
CC	Available cooling capacity
Rq CC	Required cooling capacity
PIC	Power input in cooling mode
InC	Water inlet temperature in cooling mode
OutC	Water outlet temperature in cooling mode
Tmp H	Outdoor conditions in heating (dry bulb temp. / RH)
HC	Available heating capacity (integrated heating capacity)
Rq HC	Required heating capacity
PIH	Power input in heating mode
InH	Water inlet temperature in heating mode
OutH	Water outlet temperature in heating mode
Piping	Largest distance from indoor unit to outdoor unit
Bse Refr	Standard factory refrigerant charge (16.4ft actual piping length) excluding extra refrigerant charge. For calculation of extra refrigerant charge refer to the databook
Ex Refr	Extra refrigerant charge
PS	Power supply (voltage and phases)
MCA	Minimum Circuit Amps
MOP	Maximum Overcurrent Protection
FLA	Fan Motor Input
RLA	Nominal Running Amps
WxHxD	WidthxHeightxDepth
Weight	Weight of the device
EER	EER value at nominal condition
IEER	IEER value at nominal condition
COP47	COP value at nominal condition and at ambient temperature of 8°C
COP17	COP value at nominal condition and at ambient temperature of -8°C

Outdoor details

Name	Model	CR	Cooling			Heating			Piping
			Tmp C	CC	Rq CC	Tmp H	HC	Rq HC	
		%	°C	kW	kW	°C (DBT/RH)	kW	kW	m
Ground Floor	REYQ16U	107.5	29.0	46.5	28.1	0.0/86%	32.2	32.2	7.5
First Floor	REYQ14U	100.0	29.0	39.1	22.9	0.0/86%	28.9	23.2	7.5

Name	Model	PS	MCA	MOP	RLA	FLA	WxHxD	Weight
			A	A	A	A	mm	kg
Ground Floor	REYQ16U	400V 3Nph	31.0	40.0	18.5	2.6	1,240 x 1,685 x 765	314.0
BS 1	BS8Q14AV1B	230V 1ph					580 x 298 x 430	31.0
First Floor	REYQ14U	400V 3Nph	27.0	32.0	15.6	1.8	1,240 x 1,685 x 765	314.0
BS 1	BS8Q14AV1B	230V 1ph					580 x 298 x 430	31.0

Seasonal Efficiency

Name	Model	$\eta_{s,h}$ heating	$\eta_{s,c}$ cooling	SCOP	SEER	CSPF
		%	%			
Ground Floor	REYQ16U	167.5	243.1	4.30	6.20	-
First Floor	REYQ14U	168.3	255.8	4.30	6.50	-

For more information go to: https://energylabel.daikin.eu/.

Refrigerant information

Name	Model	Refrigerant type	GWP	Base charge kg	Extra charge kg	TCO2 equivalent
Ground Floor	REYQ16U	R410A	2087.5	11.8	unknown	24.6
First Floor	REYQ14U	R410A	2087.5	11.8	unknown	24.6

The system(s) contain fluorinated greenhouse gases.

When extra refrigerant charge requirements are not calculated, TCO2 equivalent is calculated only considering the base refrigerant charge. Depending on the field pipe length extra refrigerant needs to be added which will increase the TCO2 equivalent.

Ground Floor - REYQ16U

Model	Quantity	Description
REYQ16U	1	REYQ-U (VRV IV)
BS8Q14AV1B	1	Branch selector unit
FXSQ50A	2	FXSQ-A - Concealed ceiling unit with medium ESP
FXSQ63A	4	FXSQ-A - Concealed ceiling unit with medium ESP
FXSQ80A	1	FXSQ-A - Concealed ceiling unit with medium ESP
BRC1H52W	7	Remote controller (white)
KHFP26A100C	1	Pipe closing kit

Refrigerant information

Refrigerant type	GWP	Base charge kg	Extra charge kg	TCO2 equivalent
R410A	2087.5	11.8	unknown	24.6

The system(s) contain fluorinated greenhouse gases.

Pipe capacities

Maximum Connection Index	Diameters
149.9	3/8"x5/8"x1/2"
199.9	3/8"x3/4"x5/8"
289.9	3/8"x7/8"x3/4"
419.9	1/2"x1 1/8"x3/4"
639.9	5/8"x1 1/8"x1 1/8"
919.9	3/4"x1 3/8"x1 1/8"
> 919.9	3/4"x1 5/8"x1 1/8"
Main pipe size up	5/8"x1 1/8"x7/8"

Remarks

Please make sure to provide a drain pipe connection to each multi BS-box in the system.

Piping limitations

Description	Value
Maximum total length	1,000.0m
Maximum longest actual length	165.0m
Maximum longest equivalent length	190.0m
Maximum main pipe length (size up of main pipe required if longer)	-
Maximum length first branch to indoor unit(size up of intermediate pipes required if longer)	40.0m
Maximum length first branch to indoor unit	90.0m
Maximum length of indoor units to nearest branch	40.0m
Maximum length difference between longest and shortest distance to indoor units	40.0m
Maximum height difference, outdoor unit below indoor units	90.0m
Minimum connection ratio, outdoor unit below indoor units	-
Maximum height difference, outdoor unit above indoor units	90.0m
Minimum connection ratio, outdoor unit above indoor units	-
Maximum height difference in technical cooling, outdoor unit below indoor units	90.0m
Maximum height difference in technical cooling, outdoor unit above indoor units	90.0m
Maximum height difference between indoor units	30.0m
Connection ratio range	50.0% - 130.0%
Refrigerant pipe diameters	5/8" (liquid) x 1 1/8" (gas) x 7/8" (discharge)
Maximum equivalent length from BP unit or VRV indoor to VRV REFNET (size up of intermediate pipes required if longer)	-
Maximum equivalent length from BP unit or VRV indoor to VRV REFNET	90.0m
Maximum actual length between CM and HM	-
Maximum height difference between CM and HM	-

First Floor - REYQ14U

Model	Quantity	Description
REYQ14U	1	REYQ-U (VRV IV)
BS8Q14AV1B	1	Branch selector unit
FXSQ50A	2	FXSQ-A - Concealed ceiling unit with medium ESP
FXSQ63A	4	FXSQ-A - Concealed ceiling unit with medium ESP
BRC1H52W	6	Remote controller (white)
KHFP26A100C	2	Pipe closing kit

Refrigerant information

Refrigerant type	GWP	Base charge kg	Extra charge kg	TCO2 equivalent
R410A	2087.5	11.8	unknown	24.6

The system(s) contain fluorinated greenhouse gases.

Pipe capacities

Maximum Connection Index	Diameters
149.9	3/8"x5/8"x1/2"
199.9	3/8"x3/4"x5/8"
289.9	3/8"x7/8"x3/4"
419.9	1/2"x1 1/8"x3/4"
639.9	5/8"x1 1/8"x1 1/8"
919.9	3/4"x1 3/8"x1 1/8"
> 919.9	3/4"x1 5/8"x1 1/8"
Main pipe size up	5/8"x1 1/8"x7/8"

Remarks

Please make sure to provide a drain pipe connection to each multi BS-box in the system.

Piping limitations

Description	Value
Maximum total length	1,000.0m
Maximum longest actual length	165.0m
Maximum longest equivalent length	190.0m
Maximum main pipe length (size up of main pipe required if longer)	-
Maximum length first branch to indoor unit(size up of intermediate pipes required if longer)	40.0m
Maximum length first branch to indoor unit	90.0m
Maximum length of indoor units to nearest branch	40.0m
Maximum length difference between longest and shortest distance to indoor units	40.0m
Maximum height difference, outdoor unit below indoor units	90.0m
Minimum connection ratio, outdoor unit below indoor units	-
Maximum height difference, outdoor unit above indoor units	90.0m
Minimum connection ratio, outdoor unit above indoor units	-
Maximum height difference in technical cooling, outdoor unit below indoor units	90.0m
Maximum height difference in technical cooling, outdoor unit above indoor units	90.0m
Maximum height difference between indoor units	30.0m
Connection ratio range	50.0% - 130.0%
Refrigerant pipe diameters	5/8" (liquid) x 1 1/8" (gas) x 7/8" (discharge)
Maximum equivalent length from BP unit or VRV indoor to VRV REFNET (size up of intermediate pipes required if longer)	-
Maximum equivalent length from BP unit or VRV indoor to VRV REFNET	90.0m
Maximum actual length between CM and HM	-
Maximum height difference between CM and HM	-

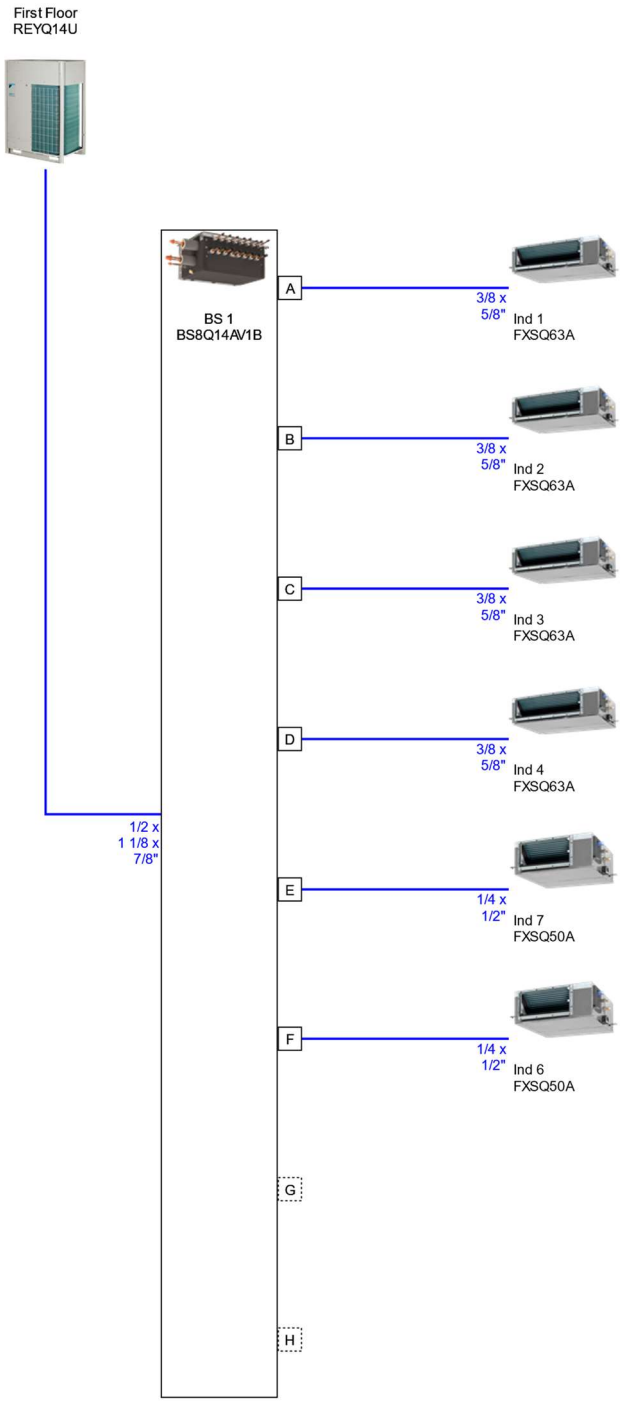
Piping diagrams

Piping Ground Floor

Piping

Warning: The pipe diameter values are purely indicative. Depending on the required pipe lengths, a different pipe diameter might be required.

Piping First Floor

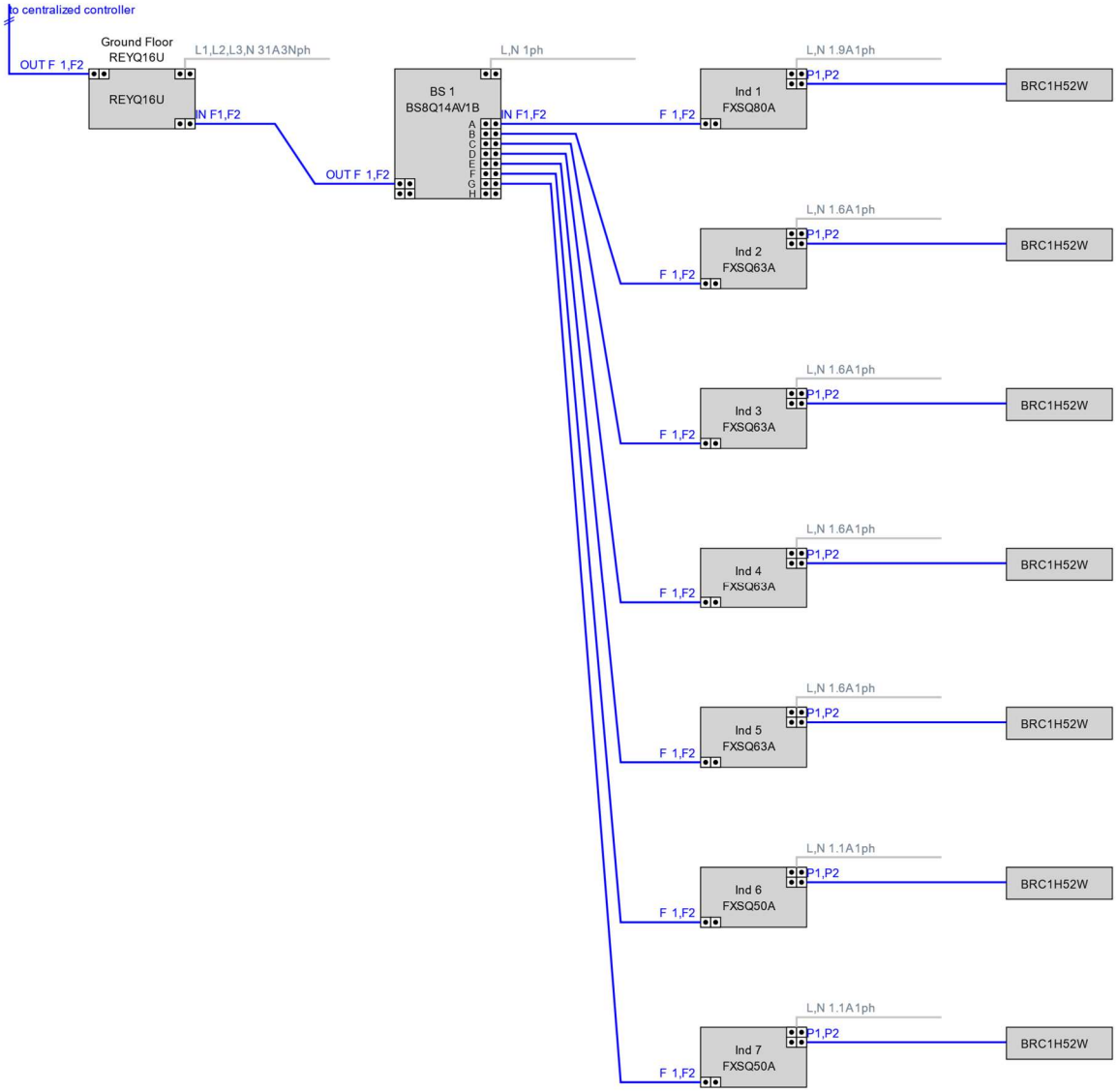


Piping

Warning: The pipe diameter values are purely indicative. Depending on the required pipe lengths, a different pipe diameter might be required.

Wiring diagrams

Wiring Ground Floor



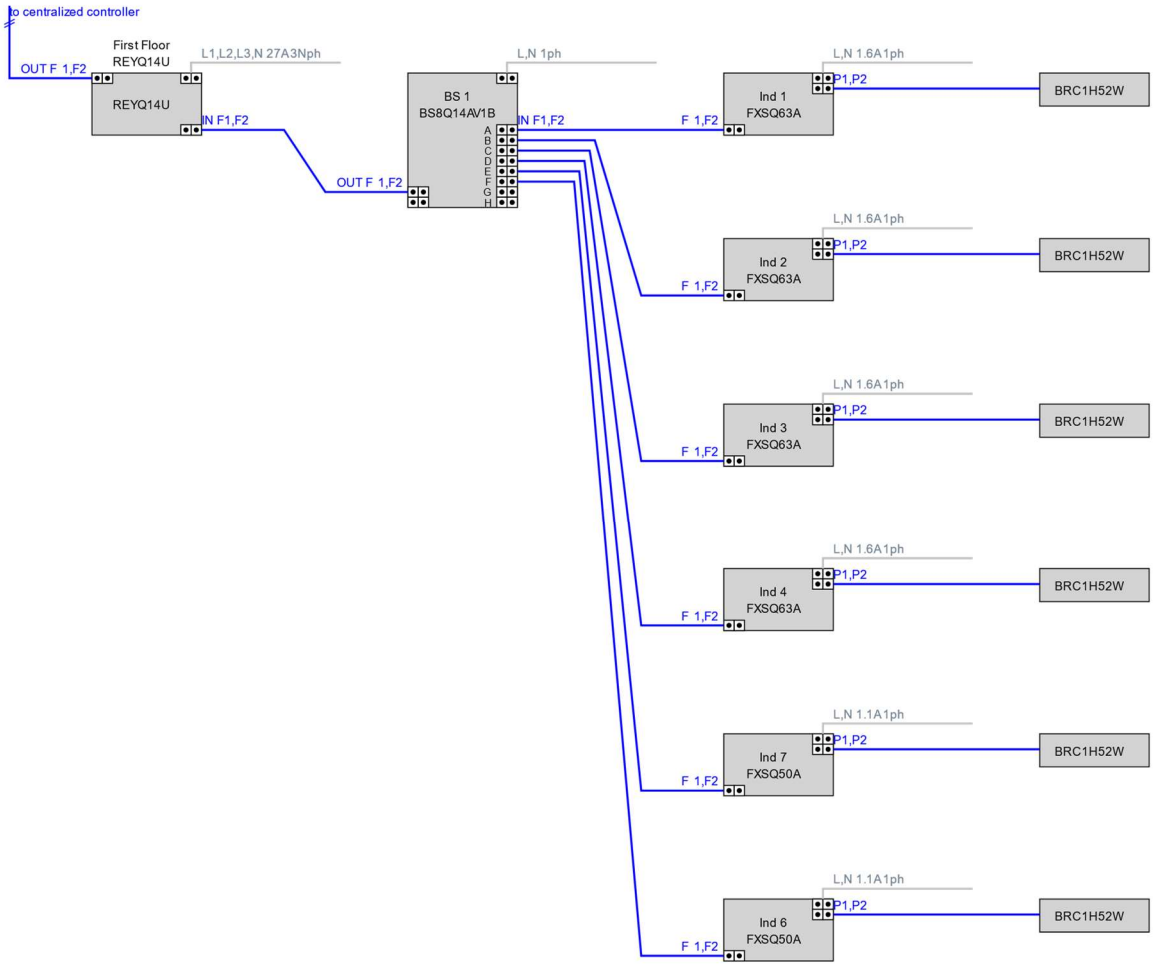
Remarks

P1P2 = AWG 18-2 is required - however always refer to local code for further information.

F1F2 IN/OUT transmission wiring, use 2-core wires of 0,75 to 1,25 mm² size cables, without shield (but shielded cable can be used if required by local regulations and standards).

Note: The shield should only be earthed at outdoor unit side, not at the indoor units!

Wiring First Floor



Remarks

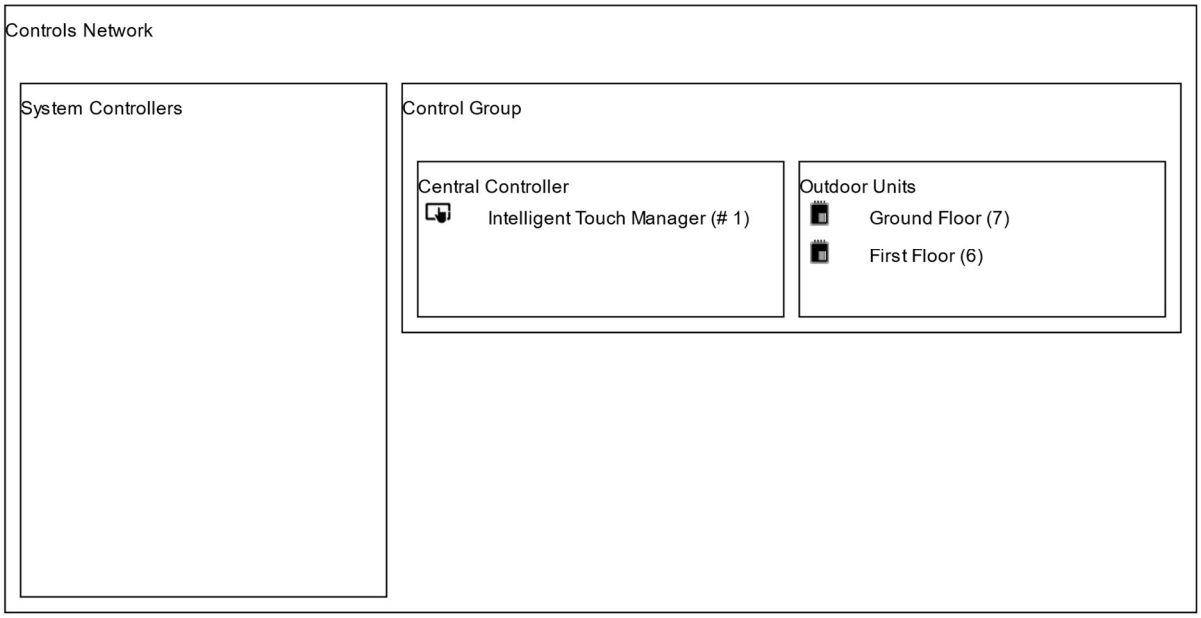
P1P2 = AWG 18-2 is required - however always refer to local code for further information.

F1F2 IN/OUT transmission wiring, use 2-core wires of 0,75 to 1,25 mm² size cables, without shield (but shielded cable can be used if required by local regulations and standards).

Note: The shield should only be earthed at outdoor unit side, not at the indoor units!

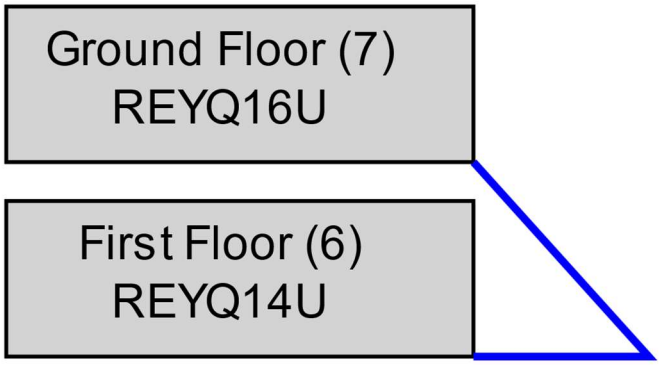
Centralized controllers

Concept



Controller wiring diagrams

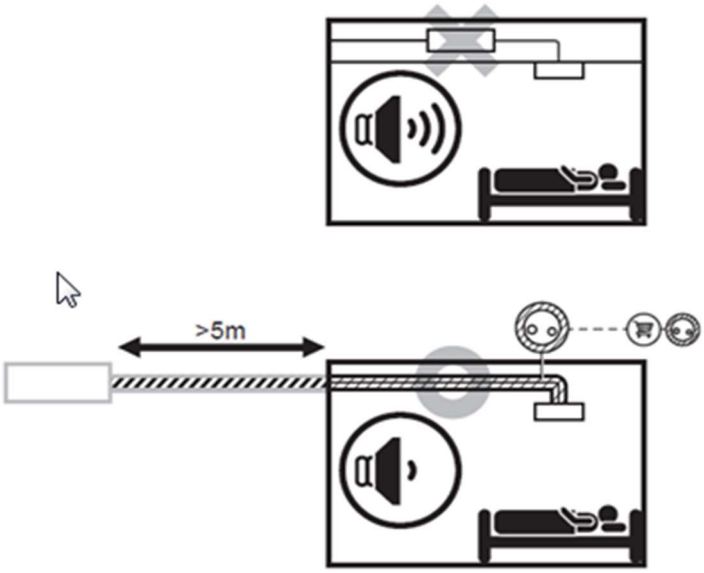
Control Group



Best Practices

Multi BS-box

- Install the multi BS-box on a location where the refrigerant noise cannot disturb the room occupants
- To avoid that refrigerant noise disturbs the people in the room, keep at least 5m piping length between the occupied room and the multi BS unit (See figure)
- If there is no false ceiling in the occupied room, please add sound insulation around the piping between the multi BS-box and indoor unit, or keep much longer length between multi BS-box unit and occupied room (See figure)



Residual Current Circuit Breaker

For better protection of installations against the risk of fire, power supply of indoor and outdoor units must be protected with a Residual Current Circuit Breaker. For protection against fire, we recommend a sensitivity of 300mA. The selected RCCB should be of the type B, suitable for inverter devices and indicated by the symbols here below. Further electrical characteristics of the RCCB must be selected in accordance with local regulation.

For a complete list of all required safety precautions, warnings and attention points, please consult the “general safety precautions manual” delivered with the unit.