



# INSTALLATION MANUAL

## Total Heat Exchanger HRV (Heat Reclaim Ventilation) (Ceiling mounted duct type)

Total Heat Exchanger  
HRV (Heat Reclaim Ventilation)  
(Ceiling mounted duct type)

English

Gesamt-Wärmetauscher  
HRV (Wärmerückgewinnungslüftung)  
(Kanal zur Deckenmontage)

Deutsch

Echangeur de chaleur totale  
Unité HRV (unité de ventilation avec récupération de chaleur)  
(Type montée au plafond à canalisations)

Français

Warmtewisselaar  
HRV (Heat Reclaim Ventilation of Hergebruik van warmte)  
(Type voor plafondmontage met kanaalaansluiting)

Nederlands

Intercambiador de Calor Total  
HRV (Ventilación de Reclamo de Calor)  
(Tipo de conducto montado en el techo)

Español

Scambiatore di calore totale  
HRV (ventilazione con recupero di calore)  
(Tipo canalizzato per installazione sul soffitto)

Italiano

Εναλλακτήρας συνολικής θερμότητας  
HRV (Ανάκτηση Θερμότητας Αερισμού)  
(Αεραγωγός οροφής)

Ελληνικά

Permutador Térmico Total  
HRV (Ventilação de Recuperação Térmica)  
(Tipologia em conduta montada no tecto)

Portugues

Инверторный кондиционер системы  
HRV (Вентиляция с регенерацией тепла)  
(Потолочный воздуховод)

русский

VAM150FC  
VAM250FC





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**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** Failure to follow these instructions properly may result in personal injury or loss of life.



**CAUTION** Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.

**WARNING**

- Never inspect or service the unit by yourself. Ask a qualified service person to perform this work.
- Electric shock may result. Before servicing the unit, always shut off power.
- Persons servicing the unit are required to wear gloves.
- All wiring must be performed by an authorized electrician and must comply with the applicable legislation.
- Always use the air filter.  
If the air filter is not used, heat exchange elements will be clogged, possibly causing poor performance and subsequent failure.
- Do not change operations suddenly. It can result not only in malfunction but also failure of switches or relays in the body.
- This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.  
Children should be supervised to ensure that they do not play with the appliance.
- Do not use an HRV or an air suction/discharge grille in the following places:
  - Places such as machinery plants and chemical plants where gas, which contains noxious gas or corrosive components of materials such as acid, alkali, organic solvent and paint, is generated.
  - Places such as bathrooms subjected to moisture. Electric leak or electric shock and other failure can be caused.
  - Places subjected to high temperature or direct flame.  
Avoid a place where the temperature near the HRV unit and the air suction/discharge air grille exceeds 50°C. If the unit is used at high temperature, deformed air filter and heat exchange element or burned motor result. Unit ambient temperature conditions should be between -15°C and 50°C (80% relative humidity or less)
  - Places subjected to much carbon black.  
Carbon black attaches to air filter and heat exchange element, disabling them.
  - The equipment is not intended for use in a potentially explosive atmosphere.
- Improper installation or attachment of equipment or accessories could result in electric shock, short-circuit, leaks, fire or other damage to the equipment. Be sure only to use accessories, optional equipment and spare parts made by Daikin which are specially designed for use with the products as of subject in this manual and have them installed by an installer.

## DIMENSIONS

(See figure 1)

- 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 (Return 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

- **The appliance is designed to be a built-in appliance. It shall not be accessible to the general public. Adequate measures have to be taken to prevent access by other than qualified persons.**
- **Install the unit in a place strong enough to support its weight.**  
Poor installation is hazardous. It also causes vibrations and unusual operating noise.
- **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.)
- **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.)
- **This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.**

### ■ Example of Installation (See figure 2)

- 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  $\geq 1/50$
- 15 SA (Supply air to room)
- 16 RA (Return air from room)
- 17 Round hood (field supply)
- 18 Suspension bolt position
- 19 Additional external damper (field supply)

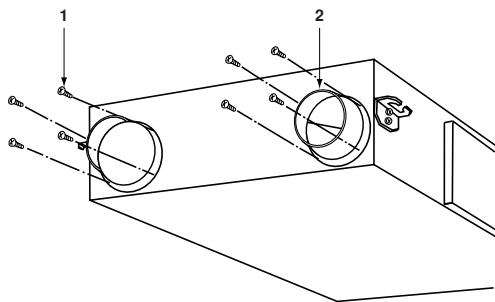


#### CAUTIONS

##### 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.
- Access inside the unit is only allowed through the service hole. Install grilles in case no ducts are installed.
- Unit sound pressure level is less than 70 dB(A).

## Method of installation

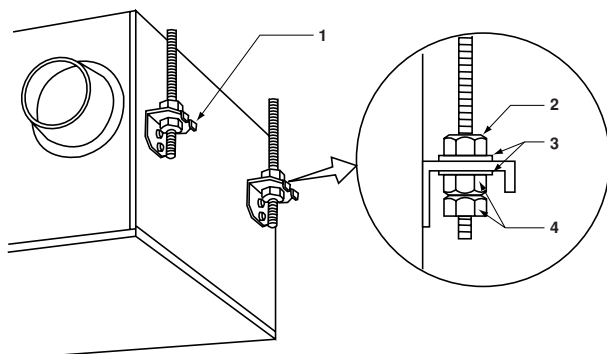


- 1 Screw (accessories)
- 2 Duct connecting flange (accessories)

- 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 |



- 1 Ceiling hook
- 2 Nut
- 3 Washer
- 4 Double nuts

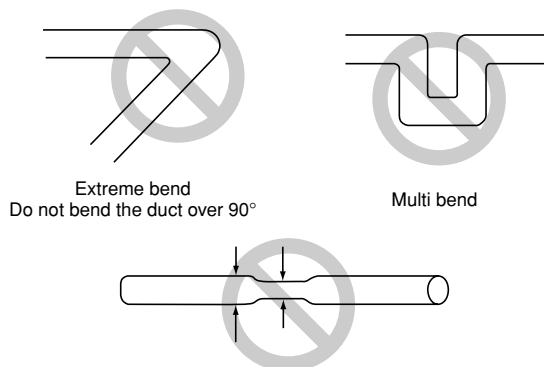
## Installation of HRV

- 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

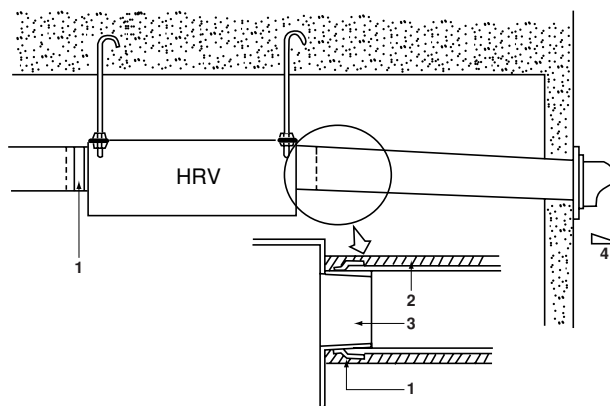


Extreme bend  
Do not bend the duct over 90°

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 aluminium 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.

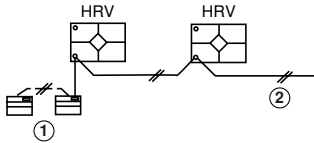
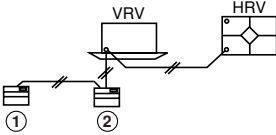
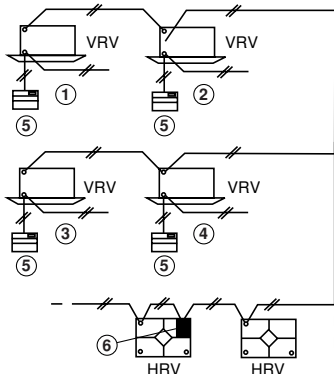


- 1 Aluminium tape (field supply)
- 2 Insulation material (field supply)
- 3 Duct connecting flange (option)
- 4 Slope over 1/50

# SYSTEM

## Independent system

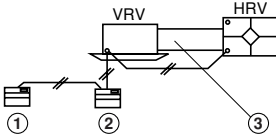
### Air conditioner linked operation system

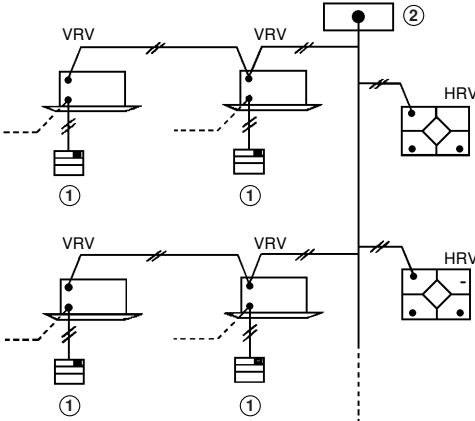
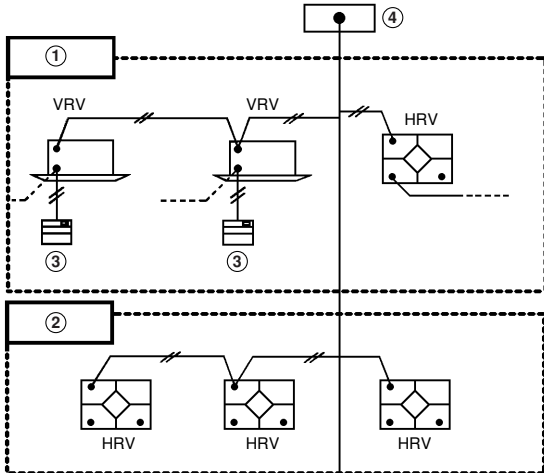
| System  |  | Standard method  | Related items in Electric wiring                          |
|---|--|--|---|
| Independent system  |  <p>1 Remote controller for HRV      2 2-wire cord (produced locally)</p>   | <ul style="list-style-type: none"> <li>Up to 16 units can be controlled with the remote controller for HRV. (A system with two remote controls can be created in the master/slave switching.)</li> <li>All HRV operations can be used and indicated.</li> <li>Operation monitor output and humidifier operation are possible using Adapter PCB.</li> <li>Remote control cord should be procured locally. (Maximum cord length: 500 m)</li> </ul> | "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  <p>1 Remote controller for air conditioner (Remote controller for HRV)      2 Remote controller for air conditioner</p>                      | <ul style="list-style-type: none"> <li>A combined total of up to 16 air conditioners and the HRV can be controlled.</li> <li>The HRV ventilation mode can be operated independently when air conditioners are not being used.</li> <li>Using the local setting of the remote controller for air conditioners, various settings such as precool/pre-heat reservation on/off, ventilation flow rate, ventilation mode, etc.</li> </ul>             | "Standard 1-group linked-control system" on page 13       |
|   | Multi-group (2 or more) linked operation system  <p>1 Group 1      4 Group 4<br/>2 Group 2      5 Remote controller for HRV<br/>3 Group 3      6 Distant control adapter</p> | <ul style="list-style-type: none"> <li>Since all VRV units are connected to a single line in view of installation, all VRV units are subjects for operation.</li> <li>If there are problems operating all VRV units, do not use this system.</li> </ul>  | "Linked control with more than two groups" on page 14     |

#### NOTE



- Adapter PCB: KRP50-2 ; 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 |  <p>1 Remote controller for air conditioner (Remote controller for HRV)      2 Remote controller for air conditioner      3 Duct</p> | <ul style="list-style-type: none"> <li>The HRV will operate only when the air conditioner fan is on.</li> <li>When the air conditioner is not being used, the HRV can be operated in circulation or ventilation modes.</li> <li>Other specifications are the same as those of the standard system.</li> </ul> | "Direct duct connection system for 1-group operation system" on page 14 |

| System                     |                                 | Standard method  | Related items in Electric wiring  |   |
|----------------------------|---------------------------------|--|---|---|
| Centralized control system | "All"/individual control system | <div></div> <div><div>1 Remote controller for air conditioner</div><div>2 Adapter PCB for remote controller , Schedule timer, On/Off controller</div></div> | <ul style="list-style-type: none"><li>• 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)</li><li>• The on/off controller can turn on or off the individual units.</li><li>• 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.</li></ul> | <a href="#">""All"/"individual" control" on page 15</a> |
|                            | Zone control system             | <div></div> <div><div>1 Zone 1</div><div>2 Zone 2</div><div>3 Remote controller for air conditioner</div><div>4 Central controller</div></div>             | <ul style="list-style-type: none"><li>• Use of the centralized controller enables zone control via the centralized control line. (maximum of 64 zones)</li><li>• The central controller displays the "Filter" indication and abnormality warnings, and enables resetting.</li><li>• The centralized controller allows ventilation operation for each zone independently.</li></ul>  | <a href="#">"Zone control system" on page 16</a>        |

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.

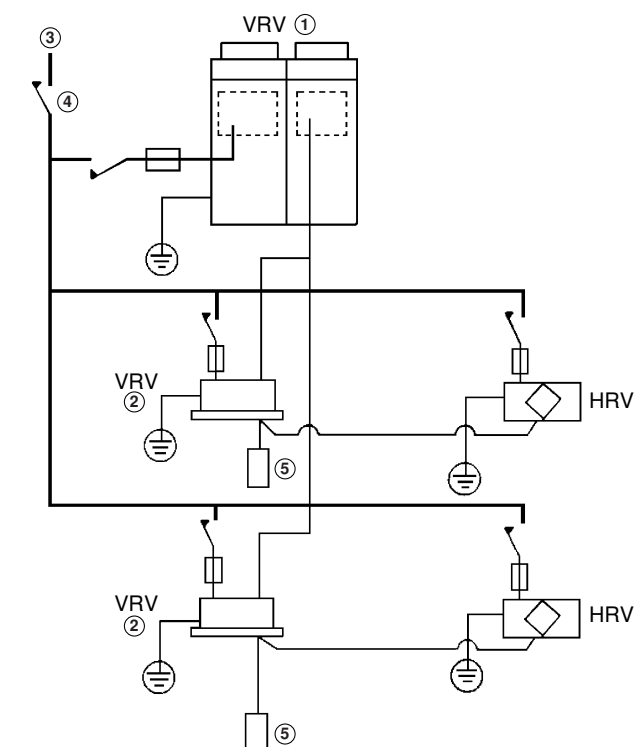
### Connection of wiring

- Connect the wires in accordance with the diagram of each system.
- All wiring must be performed 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 main switch or other means of disconnection, having a contact separation in all poles, must be incorporated in the fixed wiring in accordance with applicable legislation.  
Do not turn on the main switch until all the wiring is complete.
- 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   |
|------------------|------|------------------------------------|--------|
| Units            |      | JVE, 5VE                           |        |
| Type             |      | JVE, 5VE                           |        |
| 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    |
| MFA              | (A)  | 16                                 | 16     |
| Fan motor (*)    |      |                                    |        |
| KW               | (kW) | 0.03x2                             | 0.03x2 |
| FLA              | (A)  | 0.4x2                              | 0.4x2  |

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

### NOTE



For details, refer to ELECTRICAL DATA.

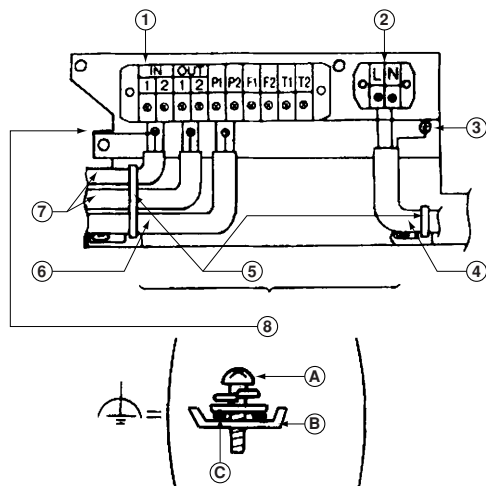


### Specifications for field supplied fuses and wire

| VAM                  |  | 150F                                   | 250F |
|----------------------|--|--|------|
| Type                 |  | JVE, 5VE                               |      |
| 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 <sup>2</sup>              |      |

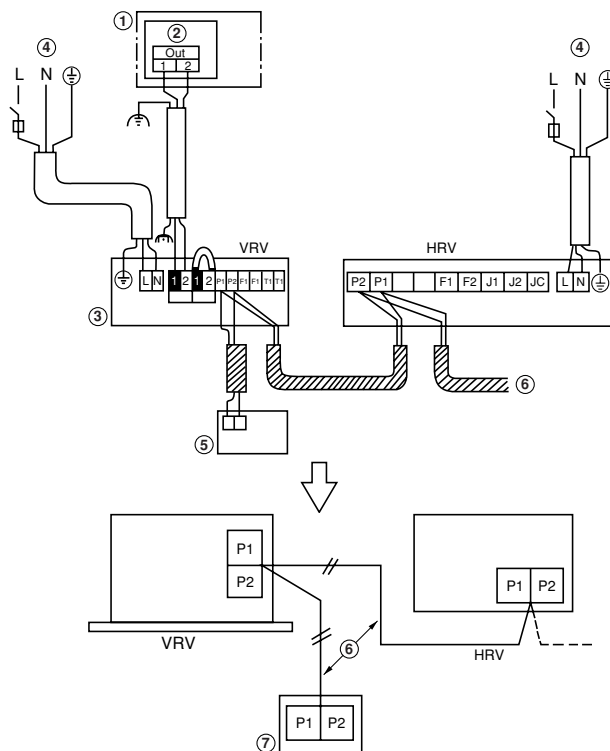
### Precautions

- 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<sup>2</sup> (Ø1.6) gauge wire.  
 Same gauge wires  
 Different gauge wires
- 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<sup>2</sup> (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.
- Do not connect wires of different gauge to the same grounding terminal. Looseness in the connection may deteriorate protection.
- Keep the power supply wiring distant from other wires to prevent noise.
- For remote controller wiring, refer to the "Installation manual of the remote controller".



- 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)

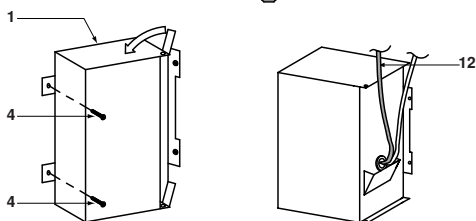
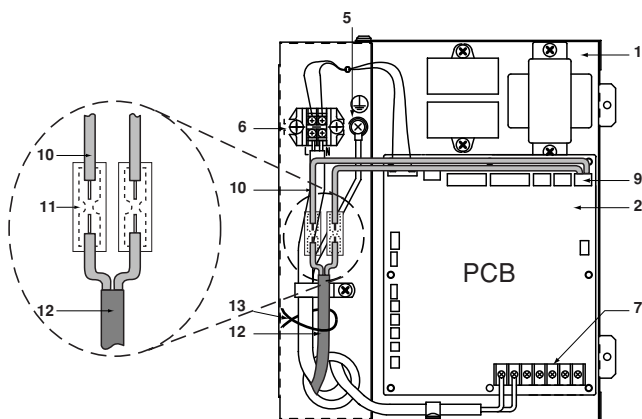
- All transmission wiring except for the remote controller wires is polarized and must match the terminal symbol.
- Use shield wire in transmission wiring. Ground the shield of the shield wire to "⏏", at the grounding screw, with the C-cup washer.
- Sheathed wire materials may be used for transmission 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.



## 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.

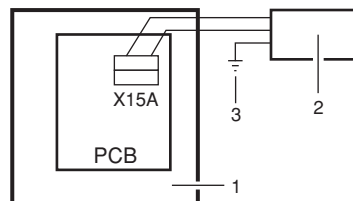


- 1 Electric component mounting base
- 2 Printed circuit board
- 3 Electrical compartment cover
- 4 Securing screw
- 5 Grounding terminal
- 6 Terminal board
- 7 Transmission wiring terminal board
- 8 Slide
- 9 X15A connector
- 10 Harness for connection of additional external damper (supplied accessory)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

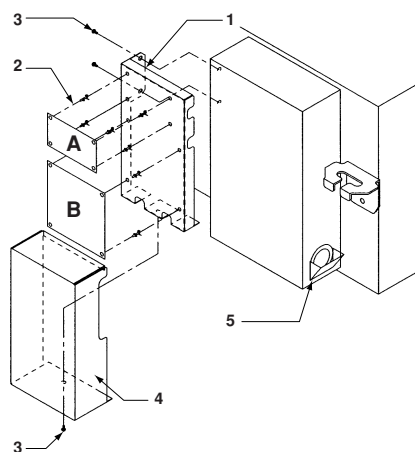
When installing the optional adaptor circuit board, it is necessary to prepare the fixing box (KRP50-2A90)

- 1 Open the electrical compartment cover by following the procedure described in the section "[Opening the switch box](#)" on [page 8](#)".
- 2 Remove the securing screw, and install the adapter circuit board.
- 3 After the wires are connected, fasten the electrical compartment cover.

### 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  $-10^{\circ}\text{C}$  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).

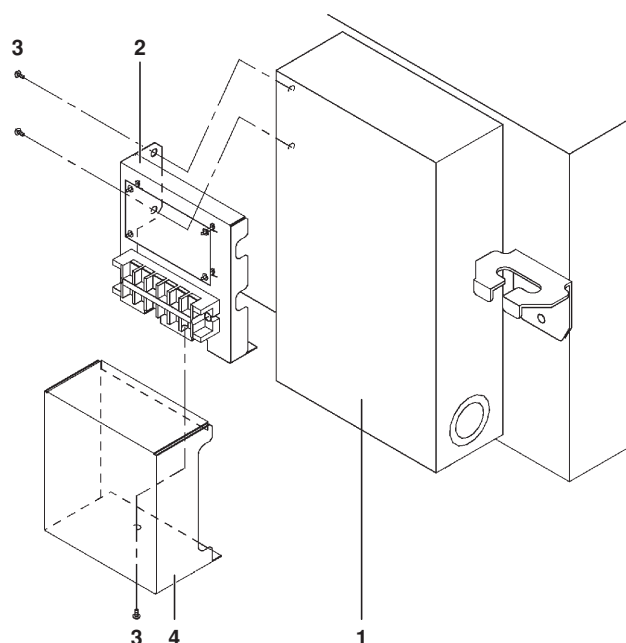


### CAUTION

- 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  $\geq 2$  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.

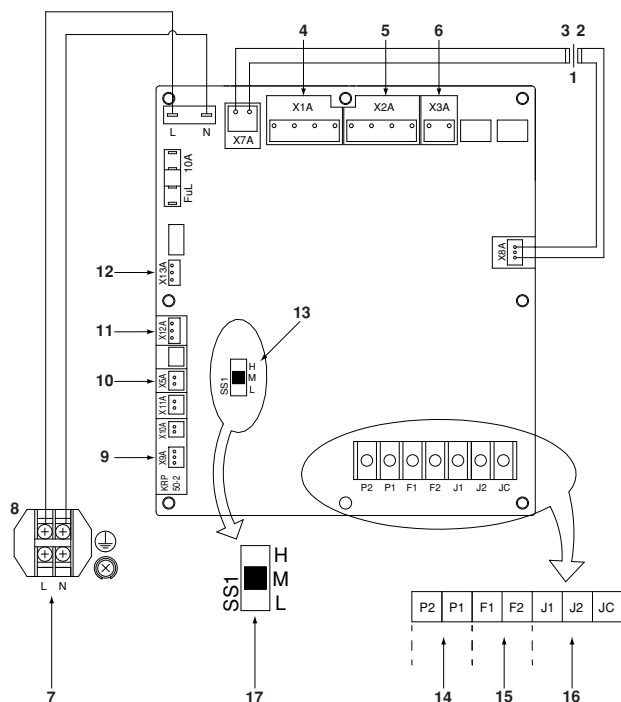
For more detailed information on how to install the BRP4A50 option kit, see the installation manual delivered with the option kit.



- 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 8.
- Be sure to connect the electric grounding (earth).



- |                          |  |
|--------------------------|--|
| 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   |
| 9 For KRP50-2 or BRP4A50 | Be sure to give the electric grounding (earth) connection. |

## Local setting

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

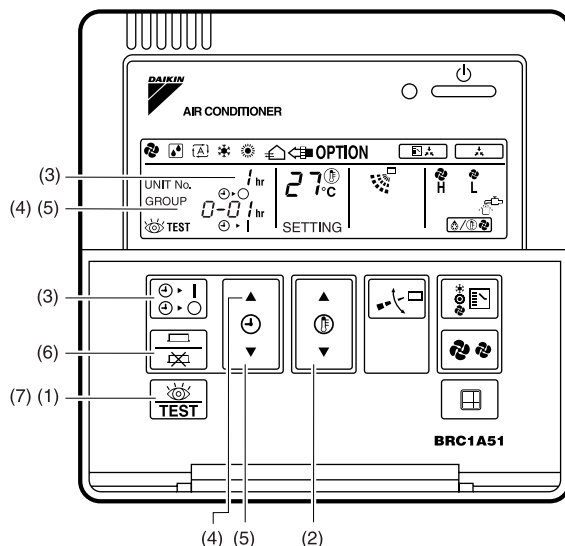
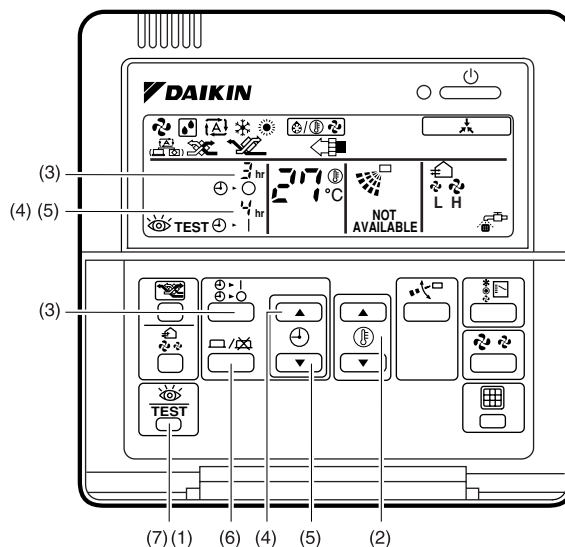
### Initial setting

- 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 setting 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 | —             | —              | —                 |
| 18             | 28                  | 9                  | Preheat time extension setting   | 0 min                             | 30 min                     | 60 min                | 90 min        | —              | —                 |
|                |                     | 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 |
| 19             | 29                  | 9                  | KRP50-2 output switching selection (between 1 and 3)                   | Fan on/off                        | Abnormal                   | —                     | —             | —              | —                 |
|                |                     | 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 | —              | —                 |



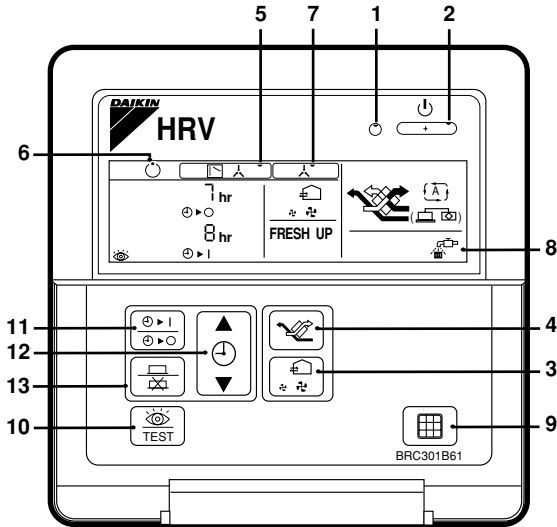
### CAUTION

- 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.
- 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.

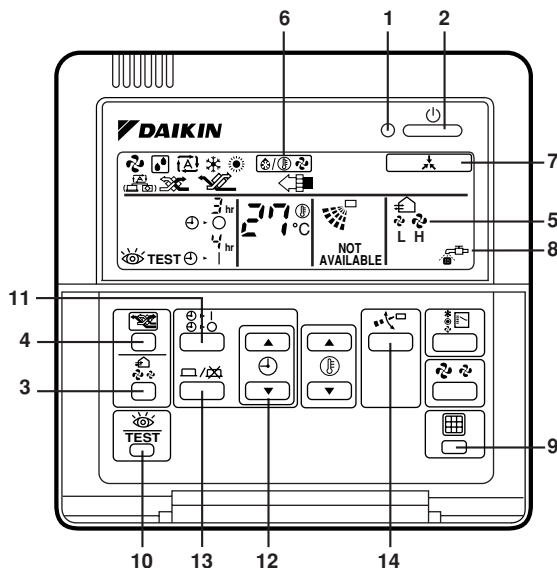
## Operation with the remote control exclusively for Air conditioning operation HRV units. (BRC301B61)

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

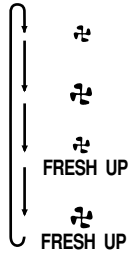
1. Operation lamp  
This pilot lamp (red) light up while the unit is in Operation.
2. Operation/Stop button  
When pushed once, the unit starts operating.  
When pushed twice, the unit stops.
3. Air flow rate changeover button  
Air flow rate can be changed over to "  " [Low] mode or "  " [High] mode,  
"  FRESH UP" [Low FRESH 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 odour and moisture from kitchens and toilets from flowing into the rooms.)
- If it is set to "Fresh up air exhaust": The volume of room air exhausted outdoors is larger than that of outdoor air supplied into the room. (This operation prevents the hospital odour and floating bacteria from flowing out to the corridors.)



### 4. Ventilation mode changeover button

"  " (Automatic) mode

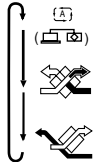
The temperature sensor of the unit automatically changes the ventilation of the unit in [Bypass] mode and [Heat Exchange] mode.

"  " (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 is 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 start operation after the precooling/preheating operation is over.

Precooling/preheating operation 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.

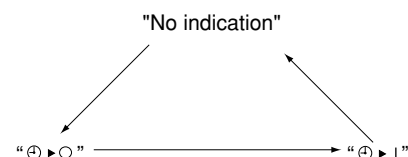
### 9. Filter signal reset button








### 10. Inspection button

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

### How to operate with Timer

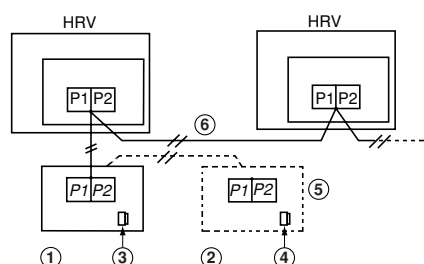
11. Push the button "  " and select either one of "  " or "  ".  
Each time the button is pushed, the indication changes as shown below.



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.

## Independent system

### When connecting to Remote controller for HRV



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



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.)

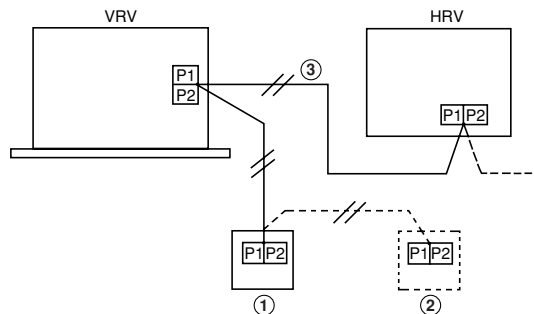
Set the switches on the printed circuit board to the factory setting.



## 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 | 3 Connecting line can be extended up to 500 m maximum |
| 2 Remote controller for HRV             |   |

### 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.

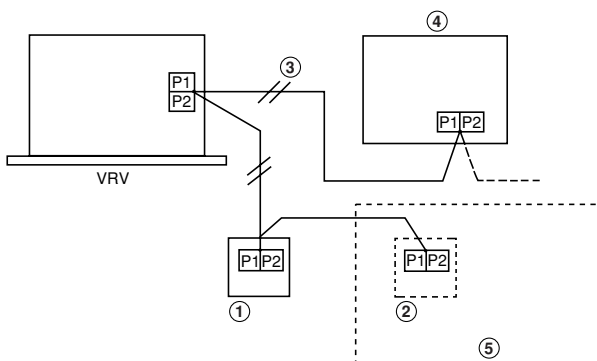
### Example 4:

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.

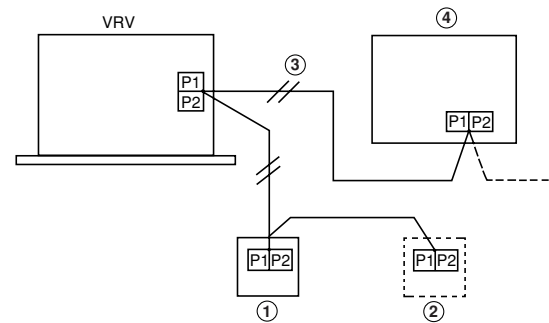


- Determination of heating/cooling selection rights for VRV-systems is performed using the remote controller for HRV. The heating/cooling selection rights can be enabled or disabled using the ventilation mode button of the remote controller for HRV. This operation cannot be performed with the remote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

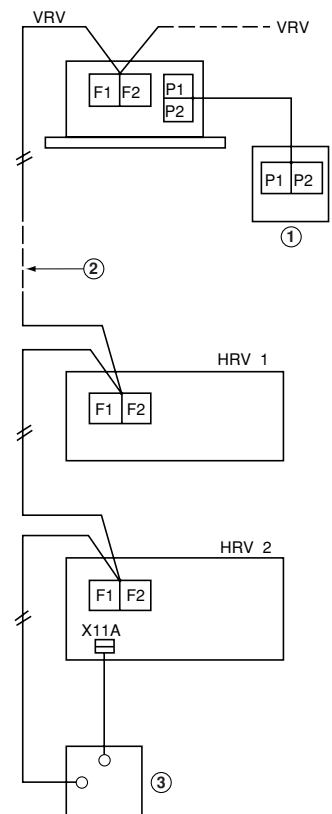
## Linked control with more than two groups

- 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.

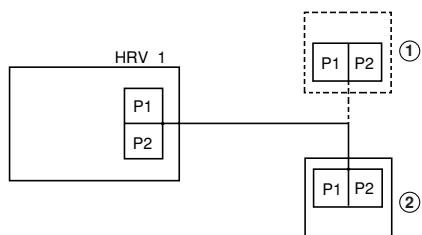
- Use the remote controller of the air conditioner to make the initial settings.

- 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.

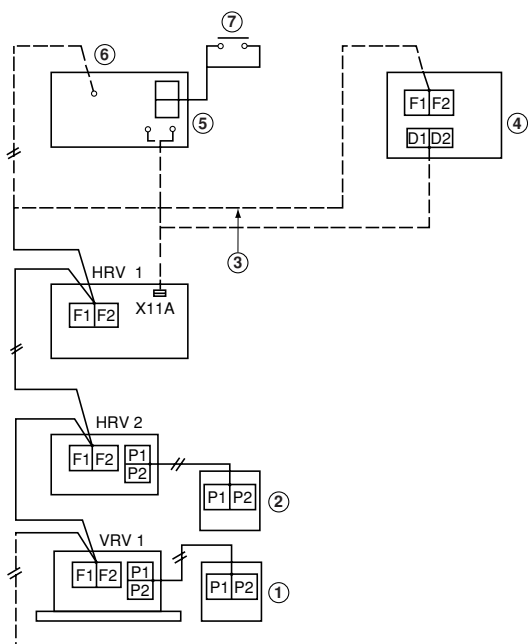
Now the on-site settings are complete.

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)



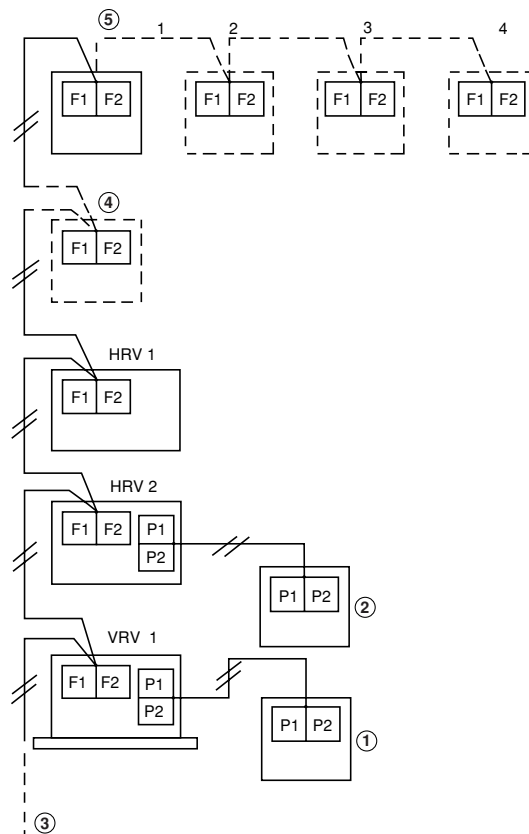
- 1 Remote controller for air conditioner
- 2 Remote controller for HRV
- 3 Connecting line can be extended up to 1000 m maximum
- 4 Schedule timer (DST301B61)
- 5 Adapter PCB for remote control (KRP2A61)
- 6 Distant control adapter
- 7 On/Off signal

- 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

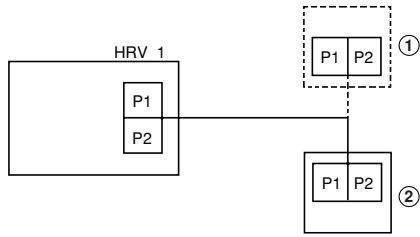
- A maximum of 64 air conditioners and HRV units can be connected to the F1 and F2 terminals.
- This system allows connection of four on/off controllers.
- It is necessary to assign a central control group number to each HRV unit and air conditioner. Regarding the setting of the group number, refer to 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.



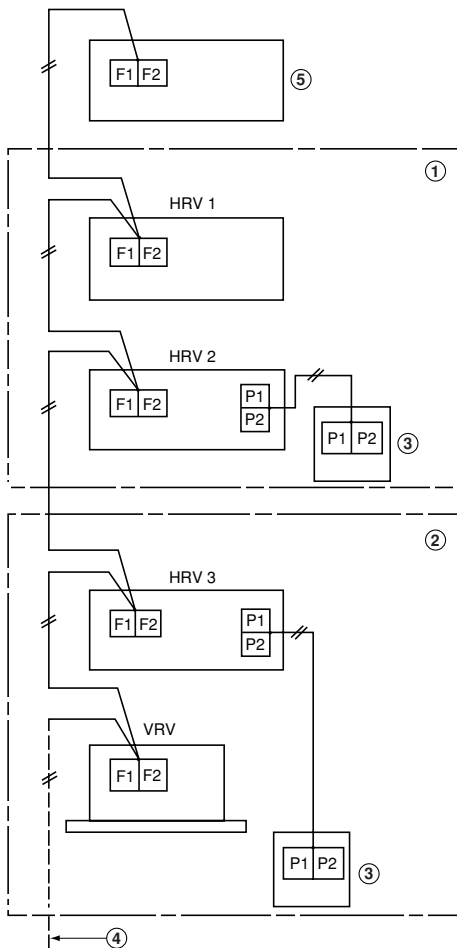
- 1 Remote controller for air conditioner
- 2 Remote controller for HRV

- 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.

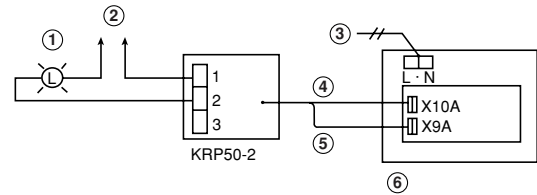
- It is necessary to assign a central control group number to each HRV unit and air conditioner.  
Regarding the setting of the group number, refer to the section on "the centralized control group number setting" in the operating instructions of the Centralized controller. Refer to the section **"All"/"individual" 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 connector
- 5 3P connector
- 6 Printed circuit board

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

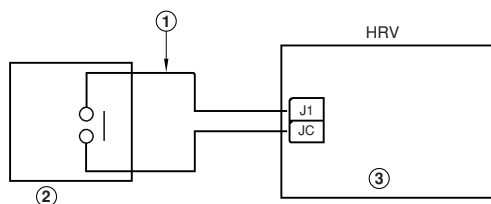
When combined with a local ventilating fan (such as the one in toilet and kitchen), the air flow rate of HRV is balanced by either fan operation or exhaust operation.

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

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

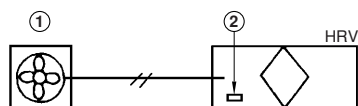
Operation contact of exhaust ventilating fan (Field supply)

### 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<br>(Refer to "Local setting" on page 10) | "J1", "JC"<br>normal open | "J1", "JC"<br>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.

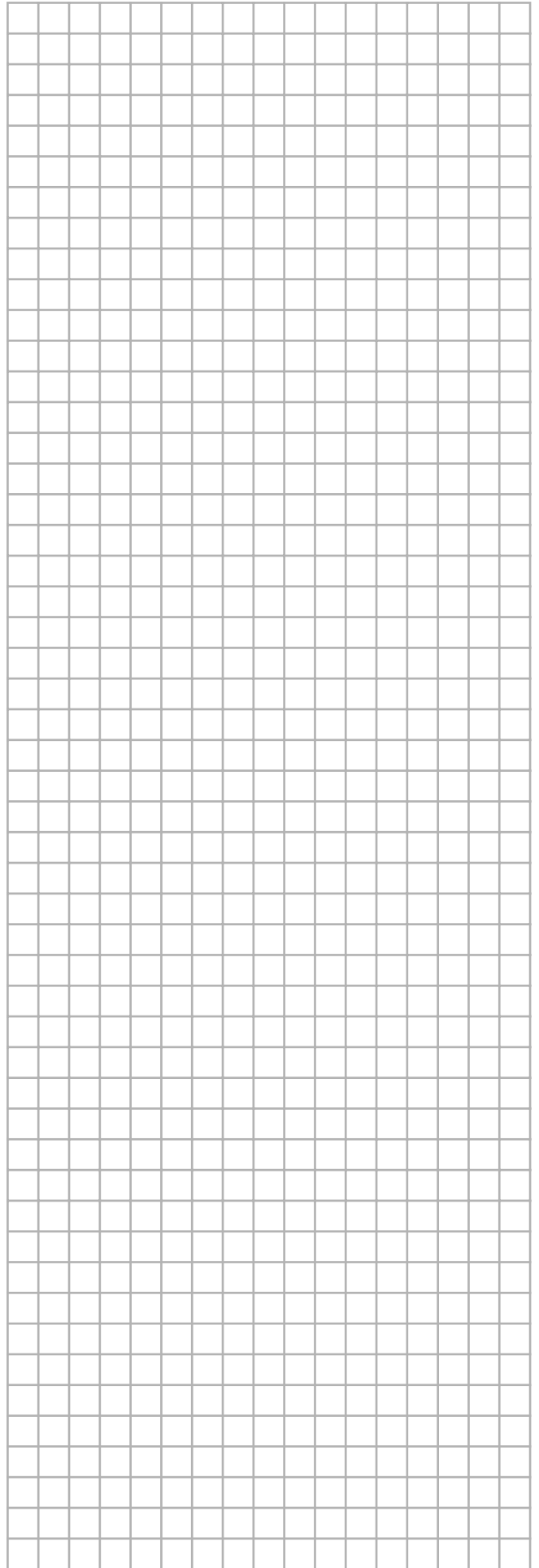
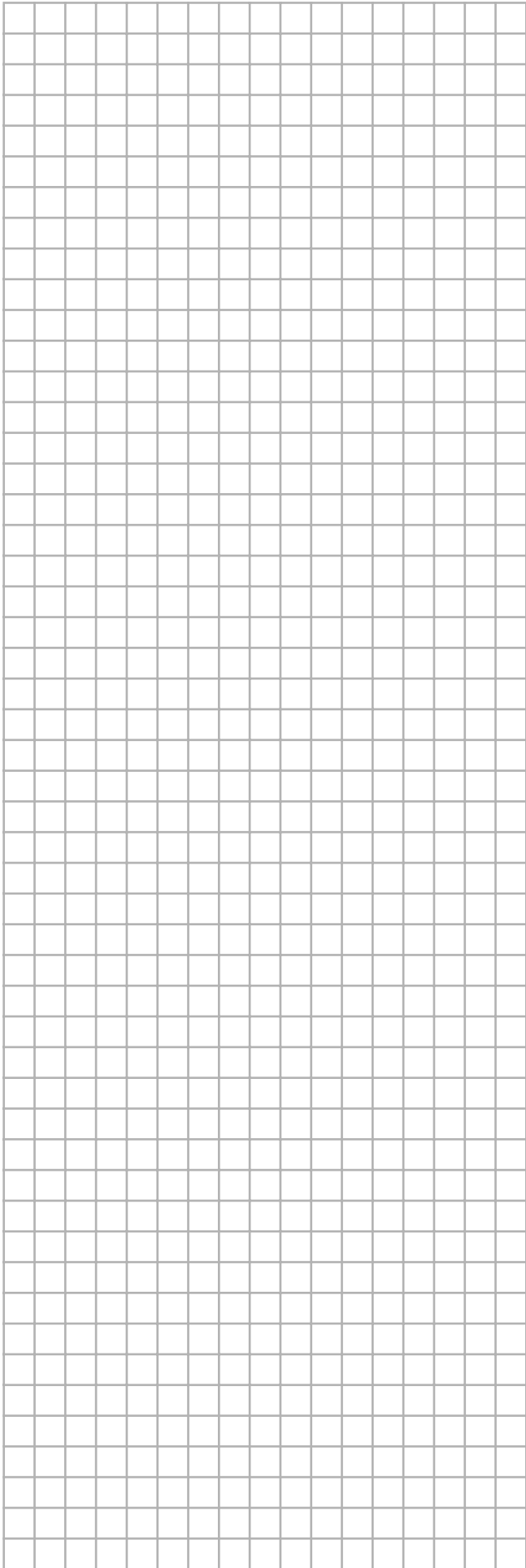
The diagram illustrates the internal wiring of the KRP50-2 control unit. It shows a power supply section with a single-phase input (220-240V/50/60 Hz) connected to terminals L, N, and PE. The power is distributed through a main switch (X1M) and a fuse (F1U) to a terminal block (X1A). The terminal block is connected to a series of relays (K1R, K2R, K3R, K4R, K5R, K6R, K7R) and a thermal relay (T1R). The relays are connected to three motors (M1F, M2F, M1D) through a series of terminal blocks (X2A, X3A, X4A, X5A, X6A, X7A, X8A, X9A, X10A, X11A, X12A, X13A). The diagram also shows an adapter for wiring (optional accessories) (KRP50-2) connected to external output terminals (1, 2, 3). A remote controller (optional accessories) (SS1) is connected to the unit through a series of terminal blocks (P2, P1, P1, P2).

**NOTE**

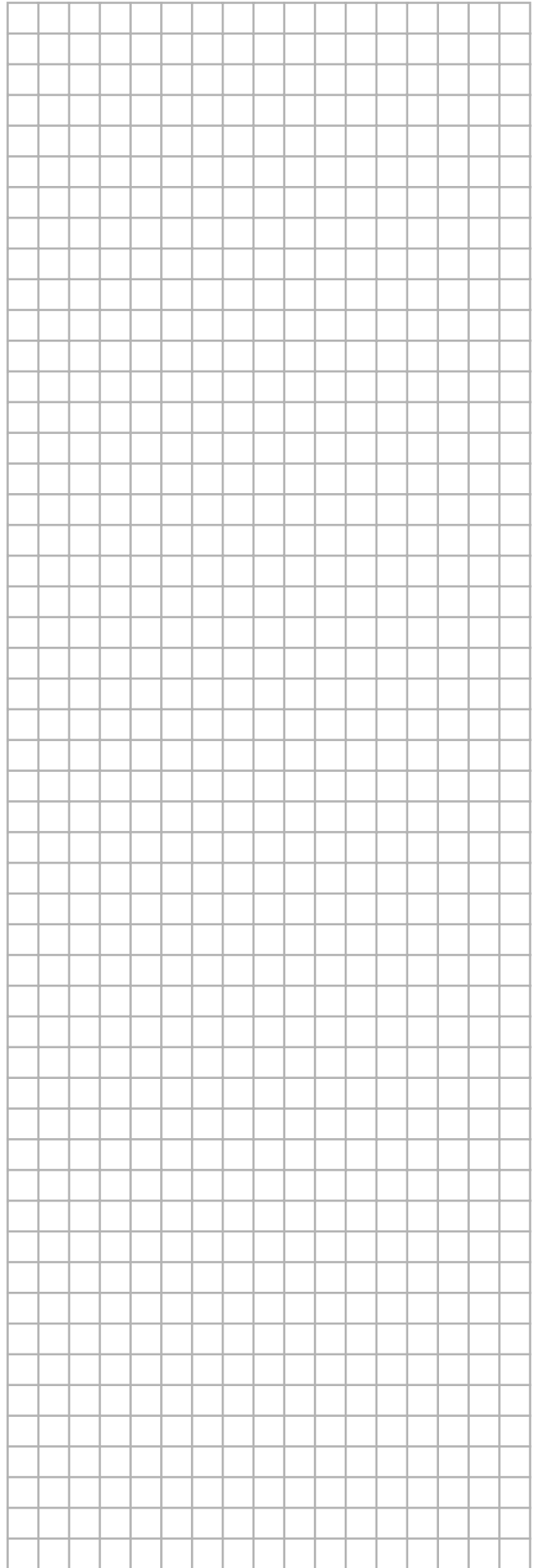
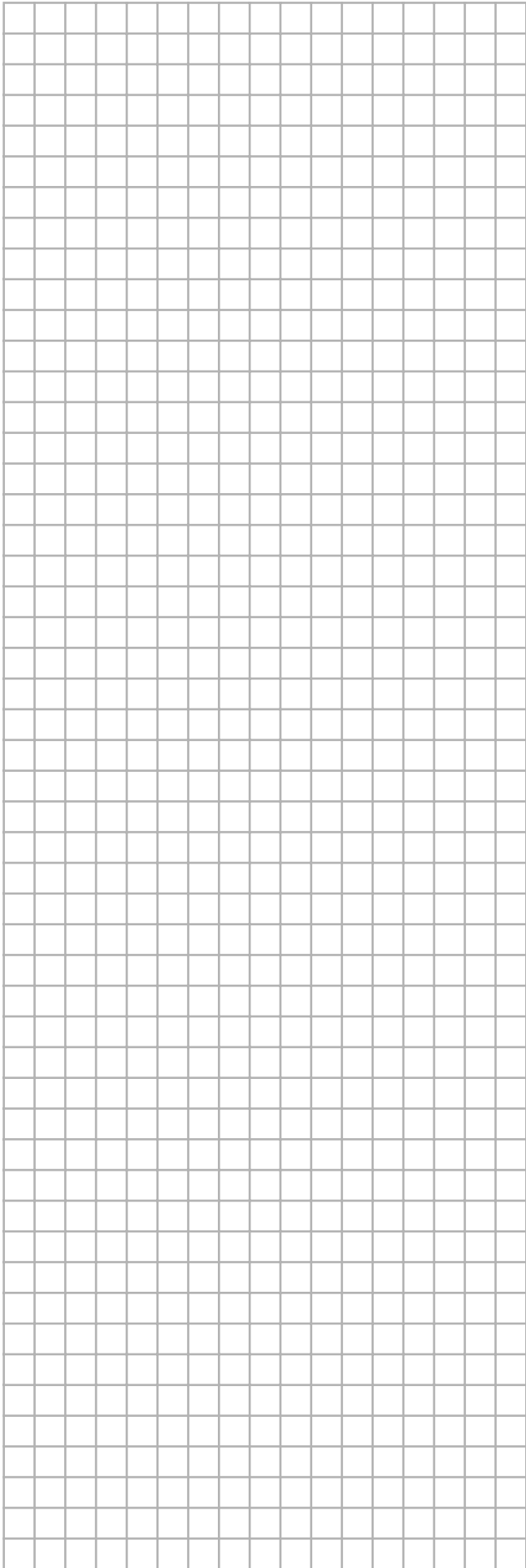
The diagram illustrates five electrical symbols used in wiring diagrams:

- Terminals:** Represented by a horizontal row of four adjacent rectangles.
- Wire clamp:** Represented by a horizontal line with a circle in the center.
- Connectors:** Represented by a rectangle containing two circles, followed by a vertical line with a horizontal bar across its middle, and then a horizontal line with a vertical bar in the center.
- Field wiring:** Represented by a dashed horizontal line.
- Protective earth:** Represented by a circle with a vertical line passing through its center, ending in a horizontal bar.

## NOTES



## NOTES



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