<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
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<tbody>
<tr>
<td>VAM150F</td>
<td>269</td>
<td>149</td>
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<td>1140</td>
<td>568</td>
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<tr>
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<tr>
<td>VAM1500F</td>
<td>710</td>
<td>568</td>
<td>1168</td>
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<tr>
<td>VAM2000F</td>
<td>710</td>
<td>568</td>
<td>1168</td>
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<td>–</td>
<td>89</td>
<td>246</td>
<td>263</td>
<td></td>
</tr>
</tbody>
</table>
**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 components 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 temperature near the HRV unit and the air suction/discharge air grille exceeds 40°C. If the unit is used at high temperature, deformed 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. 4x14x40 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**

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 (G200) (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 position
19. Additional external damper (field supply)
The method of installation

- **VAM150F, VAM250F, VAM350F, VAM500F**
  - Installation of duct connecting flanges
    - Attach the provided duct connecting flanges using screws (accessories).

- **VAM650F, VAM800F, VAM1000F, VAM1500F, VAM2000F**
  - 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).

**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.

**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.)

---

**Installation of HRV**

- **VAM150F, VAM250F, VAM350F, VAM500F, VAM650F, VAM800F, VAM1000F**
  - Installation of HRV
    - 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).
  - (Be sure to screw in the removed mounting screw on top to prevent air leakage.)

---

**Screws provided**

<table>
<thead>
<tr>
<th>Screw / Duct Connecting Flange</th>
<th>VAM150</th>
<th>VAM250</th>
<th>VAM350</th>
<th>VAM500</th>
<th>VAM650</th>
<th>VAM800</th>
<th>VAM1000</th>
<th>VAM1500</th>
<th>VAM2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screws (accessories)</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Duct connecting flange (accessories)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Ceiling hook**

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

---

**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*

1. **Extreme bend**
   - Do not bend the duct over 90°

2. **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**

<table>
<thead>
<tr>
<th>System</th>
<th>Standard method</th>
<th>Related items in Electric wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent system</strong></td>
<td>• 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.)&lt;br&gt;• All HRV operations can be used and indicated.&lt;br&gt;• Operation monitor output and humidifier operation are possible using Adapter PCB.&lt;br&gt;• Remote control cord should be procured locally. (Maximum cord length: 500 m)</td>
<td>&quot;When connecting to Remote controller for HRV&quot; on page 13</td>
</tr>
</tbody>
</table>

**Combined operation system with VRV systems and Sky-air series**

<table>
<thead>
<tr>
<th>System</th>
<th>Standard method</th>
<th>Related items in Electric wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1-group linked operation system</strong></td>
<td>• A combined total of up to 16 air conditioners and the HRV can be controlled.&lt;br&gt;• The HRV ventilation mode can be operated independently when air conditioners are not being used.&lt;br&gt;• 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.</td>
<td>&quot;Standard 1-group linked-control system&quot; on page 13</td>
</tr>
</tbody>
</table>

**Multi-group (2 or more) linked operation system**

<table>
<thead>
<tr>
<th>System</th>
<th>Standard method</th>
<th>Related items in Electric wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct duct connection system</strong></td>
<td>• Since all VRV units are connected to a single line in view of installation, all VRV units are subjects for operation.&lt;br&gt;• If there are problems operating all VRV units, do not use this system.</td>
<td>&quot;Linked control with more than two groups&quot; on page 14</td>
</tr>
</tbody>
</table>

### 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**

<table>
<thead>
<tr>
<th>System</th>
<th>Standard method</th>
<th>Related items in Electric wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct duct connection system</strong></td>
<td>• The HRV will operate only when the air conditioner fan is on.&lt;br&gt;• When the air conditioner is not being used, the HRV can be operated in circulation or ventilation modes.&lt;br&gt;• Other specifications are the same as those of the standard system.</td>
<td>&quot;Direct duct connection system for 1-group operation system&quot; on page 14</td>
</tr>
</tbody>
</table>
Centralized control system (VRV system).

<table>
<thead>
<tr>
<th>System</th>
<th>Standard method</th>
<th>Related items in Electric wiring</th>
</tr>
</thead>
<tbody>
<tr>
<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)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The on/off controller can turn on or off the individual units.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 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></td>
<td></td>
</tr>
</tbody>
</table>

### Centralized control system

- **"All"/individual control system**
- **Remote controller for air conditioner**
- **Adapter PCB for remote controller, Schedule timer, On/Off controller**

### Zone control system

- **Remote controller for air conditioner**
- **Central controller**

**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 circuit breaker 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

![Diagram of system wiring](image)

### Component electrical specifications

<table>
<thead>
<tr>
<th>VAM</th>
<th>150F</th>
<th>250F</th>
<th>350F</th>
<th>500F</th>
<th>650F</th>
<th>800F</th>
<th>1000F</th>
<th>1500F</th>
<th>2000F</th>
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<tbody>
<tr>
<td>Type</td>
<td>JVE, 5VE</td>
<td>JVE, 5VE, 7VE</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>50 Hz Power supply</td>
<td>Max. 264 V/Min. 198 V</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>60 Hz Power supply</td>
<td>Max. 242 V/Min. 198 V</td>
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<td></td>
<td></td>
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<td>Power supply (*)</td>
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<tr>
<td>MCA (A)</td>
<td>0.9</td>
<td>0.9</td>
<td>1.35</td>
<td>1.35</td>
<td>2.3</td>
<td>3.4</td>
<td>3.4</td>
<td>6.75</td>
<td>6.75</td>
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<tr>
<td>MFA (A)</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
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<tr>
<td>Fan motor (*)</td>
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<td>FLA (A)</td>
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<td>1.5x2</td>
<td>1.5x2</td>
<td>1.5x2</td>
</tr>
</tbody>
</table>

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

### Specifications for field supplied fuses and wire

<table>
<thead>
<tr>
<th>VAM</th>
<th>150F</th>
<th>250F</th>
<th>350F</th>
<th>500F</th>
<th>650F</th>
<th>800F</th>
<th>1000F</th>
<th>1500F</th>
<th>2000F</th>
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</thead>
<tbody>
<tr>
<td>Type</td>
<td>JVE, 5VE</td>
<td>JVE, 5VE, 7VE</td>
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<td>Power supply wiring</td>
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<tr>
<td>Size</td>
<td>Wire size must comply with local codes</td>
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<td></td>
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<tr>
<td>Wire</td>
<td>Shield wire (2 wire)</td>
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</tr>
</tbody>
</table>

### 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 mm² (Ø1.6) gauge wire.

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 mm² (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)

A. Earth screw (attached)
B. C-cup washer (attached)
C. Shield part

Wiring example

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.
**VAM150~2000F Total Heat Exchanger HRV (Heat Reclaim Ventilation)**

### 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.

   ![Diagram of HRV main unit PCB](image)

   - 1. HRV 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.

<table>
<thead>
<tr>
<th>Supply voltage</th>
<th>Connected load capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>220 V</td>
<td>≤0.5 A</td>
</tr>
<tr>
<td>230 V</td>
<td></td>
</tr>
<tr>
<td>240 V</td>
<td></td>
</tr>
</tbody>
</table>

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 an insulated splices-closed barrel connector (0.75 mm²). 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 adapter 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 7.

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

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

<table>
<thead>
<tr>
<th><strong>KRP50-2A90</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
</tr>
<tr>
<td>Fixing screw</td>
</tr>
<tr>
<td>Clamp</td>
</tr>
</tbody>
</table>

### Components

- Electric component mounting base
- Printed circuit board
- Electrical compartment cover
- Securing screw
- Grounding terminal
- Terminal board
- Transmission wiring terminal board
- Slide
- X15A connector
- Harness for connection of additional external damper (supplied accessory)
- Insulated splices-closed barrel connector (0.75 mm²) (field supply)
- Double or reinforced insulated flexible cable (0.75 mm²) to external damper (field supply)
- Tie wrap (field supply)
Installation

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.

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.

CAUTION

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

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

| 1 | Switch box |
| 2 | Heater control kit |
| 3 | Fixing screw |
| 4 | Lid |

Fixing board
PCB support (Attached to adapter PCB) Fixing screw Lid Switch box

161514 17 7 12 11 10 9 8 7 17 14 15 16 13 1 2 3 4 5
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

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>Setting switch No.</th>
<th>Description of Setting</th>
<th>Setting position No. (Caution *1.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>Filter cleaning time setting</td>
<td>01: Approx. 2500 hours  02: Approx. 1250 hours  03: No counting  04:  05:  06:</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Precool/preheat on/off setting</td>
<td>01: Off  02: On  03:  04:  05:  06:</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Precool/preheat time setting</td>
<td>01: 30 min  02: 45 min  03: 60 min  04:  05:  06:</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Fan speed initial setting</td>
<td>01: Normal  02: Ultra high  03:  04:  05:  06:</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Yes/No setting for direct duct connection with VRV system</td>
<td>01: No duct (Air flow setting)  02: With duct (fan off)  03:  04:  05:  06:</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Centralized/Individual setting</td>
<td>01: Centralized  02: Individual  03:  04:  05:  06:</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Centralized zone interlock setting</td>
<td>01: No duct (Air flow setting)  02: With duct (fan off)  03:  04:  05:  06:</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Preheat time extension setting</td>
<td>01: 0 min  02: 30 min  03: 60 min  04: 90 min  05:  06:</td>
</tr>
<tr>
<td>17</td>
<td>27</td>
<td>External signal JC/J2</td>
<td>01: Last command  02: Priority on external input  03:  04:  05:  06:</td>
</tr>
<tr>
<td>18</td>
<td>28</td>
<td>Setting for direct Power ON</td>
<td>01: Off  02: On  03:  04:  05:  06:</td>
</tr>
<tr>
<td>19</td>
<td>29</td>
<td>Ventilation air flow setting</td>
<td>01: Low  02: Low  03: Low  04: Low  05: High  06: High  07:</td>
</tr>
</tbody>
</table>

### 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.

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.

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 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.

   "No indication"
12. Push the button " \[\text{S} \] \[\text{S} \] " and set the time.
   Each time when " \[\text{S} \] \[\text{S} \] " is pushed, the time advances one hour.
   Each time when " \[\text{S} \] \[\text{S} \] " is pushed, the time goes back one hour.

13. Push the button " \[\text{S} \] \[\text{S} \] ".
   Then, the reservation is finished.
   Either " \[\text{S} \] \[\text{S} \] " or " \[\text{S} \] \[\text{S} \] " 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 " \[\text{S} \] \[\text{S} \] " 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**

- Master unit
- Slave unit
- Switch position: Slave

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master unit</td>
<td>Slave unit</td>
<td>Switch position: Slave</td>
</tr>
</tbody>
</table>

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.

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

<table>
<thead>
<tr>
<th>Remote control</th>
<th>Master/slave setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote controller for air conditioner</td>
<td>Slave</td>
</tr>
<tr>
<td>Remote controller for HRV</td>
<td>Master</td>
</tr>
</tbody>
</table>

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

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.

2 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.

3 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.
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)

- 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.
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

- 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 accordance 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).

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 voltage and low current (16 V, 10 mA) is formed 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)

<table>
<thead>
<tr>
<th>“J1”, “JC” normal open</th>
<th>“J1”, “JC” normal close</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh-up “OFF” (Factory setting)</td>
<td>Normal Fresh-up</td>
</tr>
<tr>
<td>Fresh-up “ON”</td>
<td>Fresh-up Fresh-up</td>
</tr>
</tbody>
</table>

**NOTES**

- 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.
**WIRING DIAGRAM**  VAM150, 250, 350, 500, 650, 800, 100F

Power supply
Single phase
220-240/220 V
50/60 Hz

External output terminals
Adapter for wiring
(optional accessories) (KRP50-2)

Terminals for the input front outside

Terminals for the centralized control

Remote controller
(Optional accessories)

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Single phase</th>
<th>220-240/220 V</th>
<th>50/60 Hz</th>
</tr>
</thead>
</table>

### Terminals

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-RED</td>
<td>A1P Printed circuit board</td>
</tr>
<tr>
<td></td>
<td>C1R-C2R Capacitor (M1F-M2F)</td>
</tr>
<tr>
<td></td>
<td>F1U Fuse (250 V, 10 A)</td>
</tr>
<tr>
<td></td>
<td>K1R-K3R Magnetic relay (M1F)</td>
</tr>
<tr>
<td></td>
<td>K4R-K6R Magnetic relay (M2F)</td>
</tr>
<tr>
<td></td>
<td>K7R Magnetic relay (M1D)</td>
</tr>
<tr>
<td></td>
<td>M1D Motor (Damper motor)</td>
</tr>
<tr>
<td></td>
<td>M1F Motor (Air supply Fan motor)</td>
</tr>
<tr>
<td></td>
<td>M2F Motor (Exhaust Fan motor)</td>
</tr>
<tr>
<td></td>
<td>Q1L-Q2L Thermo switch (M1F-M2F Built-in)</td>
</tr>
<tr>
<td></td>
<td>R1T Thermistor (Indoor air)</td>
</tr>
<tr>
<td></td>
<td>R2T Thermistor (Outdoor air)</td>
</tr>
<tr>
<td></td>
<td>S1W Limit switch</td>
</tr>
<tr>
<td></td>
<td>T1R Transformer (Supply 220-240 V/22 V)</td>
</tr>
<tr>
<td></td>
<td>X1M Terminal (Power supply)</td>
</tr>
<tr>
<td></td>
<td>X2M Terminal (Control)</td>
</tr>
</tbody>
</table>

### Optional Accessories

- Adapter for wiring (KRP50-2)
- Remote controller

### Remote controller

- SS1 Selector switch (Main/Sub)

### Optional Connector

- X11A Connector (Adaptor power supply)

### Symbols

- **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**

**Power supply**
- Single phase
- 220-240/220 V
- 50/60 Hz

**Adapter for wiring** (optional accessories) (KRP50-2)

**External output terminals**

**Remote controller** (Optional accessories)
- Terminals for the input front outside
- Terminals for the centralized control

---

<table>
<thead>
<tr>
<th>L-RED</th>
<th>N-BLU</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1P</td>
<td>Printed circuit board (Control)</td>
</tr>
<tr>
<td>A2P</td>
<td>Printed circuit board (Interface)</td>
</tr>
<tr>
<td>C1R-C4R</td>
<td>Capacitor (M1F-M4F)</td>
</tr>
<tr>
<td>F1U-F2U</td>
<td>Fuse (250 V, 10 A)</td>
</tr>
<tr>
<td>K1R-K3R</td>
<td>Magnetic relay (M1F)</td>
</tr>
<tr>
<td>K4R-K6R</td>
<td>Magnetic relay (M2F)</td>
</tr>
<tr>
<td>K7R</td>
<td>Magnetic relay (M1D)</td>
</tr>
<tr>
<td>K8R</td>
<td>Magnetic relay (M2D)</td>
</tr>
<tr>
<td>M1D-M2D</td>
<td>Motor (Damper motor)</td>
</tr>
<tr>
<td>M1F-M3F</td>
<td>Motor (Air supply Fan motor)</td>
</tr>
<tr>
<td>M2F-M4F</td>
<td>Motor (Exhaust Fan motor)</td>
</tr>
<tr>
<td>Q1L-Q4L</td>
<td>Thermo switch (MF1-M4F Built-in)</td>
</tr>
<tr>
<td>RY1-RY3</td>
<td>Magnetic relay (M3F)</td>
</tr>
<tr>
<td>RY4-RY6</td>
<td>Magnetic relay (M4F)</td>
</tr>
<tr>
<td>R1T</td>
<td>Thermistor (Indoor air)</td>
</tr>
<tr>
<td>R2T</td>
<td>Thermistor (Outdoor air)</td>
</tr>
<tr>
<td>S1W-S2W</td>
<td>Limit switch</td>
</tr>
<tr>
<td>TIR</td>
<td>Transformer (Supply 220-240 V/22 V)</td>
</tr>
<tr>
<td>X1M</td>
<td>Terminal (Power supply)</td>
</tr>
<tr>
<td>X2M</td>
<td>Terminal (Control)</td>
</tr>
</tbody>
</table>

**Optional Accessories**
- Adapter for wiring (KRP50-2)
- 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