



# Hisense

## *Operation Installation & Maintenance Manual*

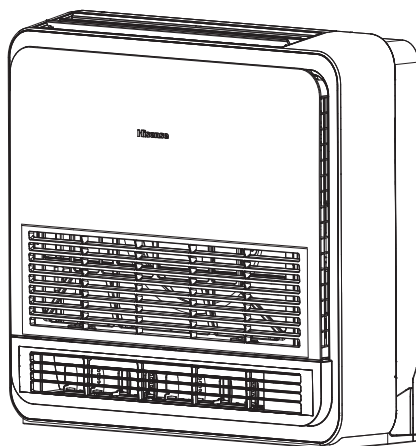
*INVERTER-DRIVEN  
MULTI-SPLIT AIR -  
CONDITIONER  
(HEAT PUMP)*

**- INDOOR UNIT -**

Type	Model
Console Type	AVK-05HJFCAA
	AVK-07HJFCAA
	AVK-09HJFCAA
	AVK-12HJFCAA
	AVK-15HJFCAA
	AVK-17HJFCAA

### **IMPORTANT:**

*READ AND UNDERSTAND  
THIS MANUAL BEFORE  
USING THIS HEAT-PUMP  
AIR CONDITIONERS.  
KEEP THIS MANUAL FOR  
FUTURE REFERENCE.*



M00160Q

ORIGINAL INSTRUCTIONS





## Declaration of Conformity (Manufacturer's Declaration)



Qingdao Hisense Hitachi Air-conditioning Systems Co., Ltd.

Add: 218, Qianwangang Road, Economic & Technical Development Zone, Qingdao, P.R. China  
declares under its sole responsibility that the air conditioning models to  
which this declaration relates:

AVK-05HJFCAA, AVK-07HJFCAA, AVK-09HJFCAA,  
AVK-12HJFCAA, AVK-15HJFCAA, AVK-17HJFCAA

are in conformity with the following standard(s) or other normative document(s), provided that these  
are used in accordance with our instructions:

EN 60335-1  
EN 60335-2-40  
EN 62233  
EN 55014-1  
EN 61000-3-2  
EN 61000-3-3  
EN 55014-2

following the provisions of:

2014/35/EU  
2014/517/EU  
2009/125/EC  
2010/30/EU  
2006/1907/EC

Directives, as amended.

Manufacturing number and manufacturing year: refer to model Nameplate.

Notes:

This declaration becomes invalid, if technical or operational modifications are introduced  
without the manufacturers consent.

Hisense Italia S.r.l. is authorised to Compile the Technical Construction File.

Ad. : Via Montefeltro 6A, 20156 Milano.

**Hisense**

Name, Surname :

Li Hu

Position/ Title :

Director

Date :

June 15, 2018

## **IMPORTANT NOTICE**

- Hisense pursues a policy of continuing improvement in design and performance of products. The right is therefore reserved to vary specifications without notice.
- Hisense cannot anticipate every possible circumstance that might involve a potential hazard.
- This heat pump air conditioner is designed for standard air conditioning only. Do not use this heat pump air conditioner for other purposes such as drying clothes, refrigerating foods or for any other cooling or heating process.
- The installer and system specialist shall secure safety against leakage according to local regulations or standards. The following standards may be applicable if local regulations are not available. British Standard, BS4434 or Japan Standard, KHKS0010.
- No part of this manual may be reproduced without written permission.
- Signal words (DANGER, WARNING and CAUTION) are used to identify levels of hazard seriousness. Definitions for identifying hazard levels are provided below with their respective signal words.

### **▲ DANGER**

: Immediate hazards which WILL result in severe personal injury or death.

### **▲ WARNING**

: Hazards or unsafe practices which COULD result in severe personal injury or death.

### **▲ CAUTION**

: Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

### **NOTE**

: Useful information for operation and/or maintenance.

- It is assumed that this heat pump air conditioner will be operated and serviced by English speaking people. If this is not the case, the customer should add safety, caution and operating signs in the native language.
- If you have any questions, contact your distributor or dealer of Hisense.
- Perform installation work according to local codes and regulations.
- This manual gives a common description and information for this heat pump air conditioner which you operate as well as for other models.
- This heat pump air conditioner has been designed for the following temperatures. Operate the heat pump air conditioner within this range.

Temperature

(°C)

		Maximum	Minimum
Cooling Operation	Indoor	32 DB/23 WB	21 DB/15 WB
	Outdoor	43 DB	-5 DB
Heating Operation	Indoor	27 DB	15 DB
	Outdoor	15 WB	-20 WB

DB: Dry Bulb, WB: Wet Bulb

This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

## **IMPORTANT NOTICE**



### **Correct Disposal of this product**

This marking indicates that this product should not be disposed with other household wastes. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

## **CHECKING PRODUCT RECEIVED**

- Upon receiving this product, inspect it for any shipping damage.  
Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
- Check the model number, electrical characteristics (power supply, voltage and frequency) and accessories to determine if they are correct.

The standard utilization of the unit shall be explained in these instructions.

Therefore, the utilization of the unit other than those indicated in these instructions is not recommended.

Please contact your local agent, as the occasion arises.

**Hisense's** liability shall not cover defects arising from the alteration performed by a customer without.

**Hisense's** consent in a written form.

# TABLE OF CONTENTS

## Section1 Operation Manual

1. Safety Summary .....	1
2. System Description .....	1
3. Indoor Unit .....	2
4. Filter Cleaning .....	3
4.1 Filter Removal and Installation .....	3
4.2 Clean the Filter .....	4
4.3 Reset of Filter Indication .....	4
5. Troubleshooting .....	4
5.1 If Trouble Still Remains .....	4
5.2 No Operation .....	4
5.3 Not Cooling or Heating Well .....	4
5.4 This is Not Abnormal .....	4

## Section2 Installation & Maintenance Manual

1. Safety Summary .....	5
2. Structure .....	5
2.1 Indoor Unit & Refrigerant Cycle .....	5
2.2 Necessary Tools and Instrument List for Installation .....	5
3. Transportation and Handling .....	5
3.1 Transportation .....	5
3.2 Handling of Indoor Unit .....	5
4. Indoor Unit Installation .....	6
4.1 Factory-Supplied Accessories .....	6
4.2 Initial Check .....	8
4.3 Installation .....	9
4.4 Half Concealed Installation .....	11
4.5 Concealed Installation .....	13
4.6 Installation Check .....	14
4.7 Fresh Air Intake .....	14
5. Refrigerant Piping Work .....	15
5.1 Piping Materials .....	15
5.2 Piping Connection .....	15

6. Drain Piping ..... 17

7. Electrical Wiring ..... 18

    7.1 General Check ..... 18

    7.2 Electrical Wiring Connection ..... 19

8. Test Run ..... 19

9. Common ..... 20

    9.1 Field Minimum Wire Size for Power Source Line ..... 20

    9.2 Setting of DIP Switch ..... 21



# Section1 Operation Manual

## 1. Safety Summary

### DANGER

- Do not pour water into the indoor or outdoor unit. These products are equipped with electrical parts. If poured, it will cause a serious electrical shock.
- Do not touch or adjust safety devices inside the indoor or outdoor units. If these devices are touched or readjusted, it may cause a serious accident.
- Do not open the service cover or access the indoor or outdoor units without turning OFF the main power supply.

### WARNING

- Refrigerant leakage can cause difficulty with breathing due to insufficient air. If leakage occurs, turn OFF the main switch, put out fire at once and contact your service contractor.
- Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gases within approximately one (1) meter from the system.
- If earth leakage breaker (ELB) or fuse is often activated, stop the system and contact your service contractor.

### CAUTION

- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Means for disconnection from the supply mains,, which have a contact separation in all poles that provide full disconnection under overvoltage category III conditions, must be incorporated in the fixed wiring in accordance with the wiring rules.
- The appliance shall be installed in accordance with national wiring regulations.
- The maximum working pressure is 4.15MPa. this maximum working pressure shall be considered when connecting the indoor unit to outdoor unit.

- The indoor unit is suitable for refrigerant R410A only and shall only be connected to outdoor unit suitable for the same refrigerant (R410A). Please refer to the instruction manual of the outdoor unit to be used combined with the indoor unit for the refrigerant charging.
- The unit is a partial unit air condition, complying with partial unit requirements of the International Standard, and must only be connected to other units that have been confirmed as complying with corresponding partial unit requirements of the International Standard.

### NOTE

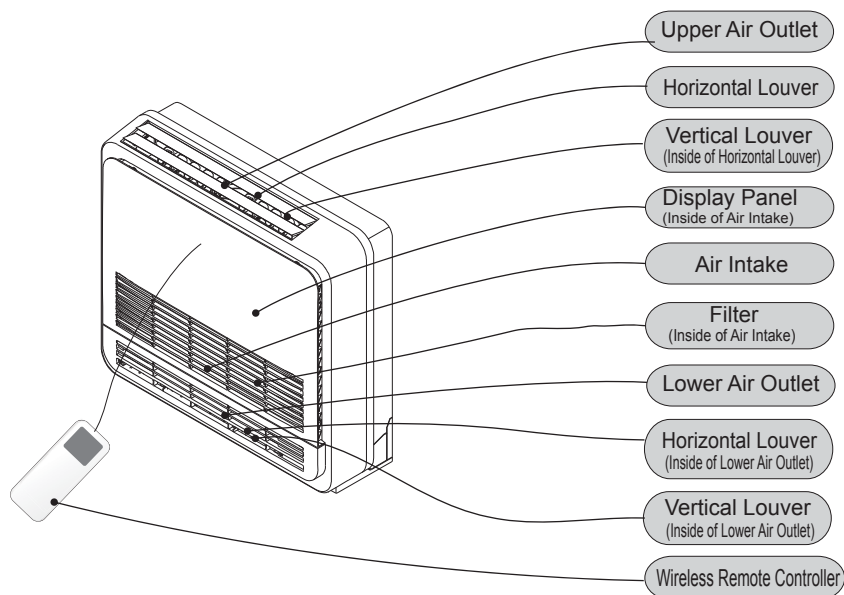
- It is recommended that the room be ventilated every 3 to 4 hours.

## 2. System Description

A maximum total capacity of 130% and a minimum total capacity of 50% can be chosen by combination of the indoor units.

The heat pump air conditioner is designed to offer cooling, heating, dry and fan operations. These operation modes are controlled by the remote control switch.

### 3. Indoor Unit



#### Notes:

Figures in the manual are only simple representation of the appliance. It may not comply with the appearance of the air conditioner you purchased.

#### Display Panel

##### Temperature Indicator



Display the set temperature.

It shows FC after the set hours of service as reminder to clean the filter. (Optional)

After the cleaning of filter, press the Filter Reset button located on the indoor unit behind the front panel in order to reset the display.

It displays the set humidity in humidity mode. (Optional)



##### Running Indicator

It lights up when the AC is running.



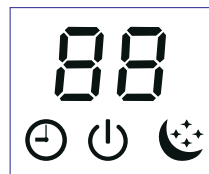
##### Timer Indicator

It lights up during the set period of time.



##### Sleep Indicator

It lights up in sleep mode and will go off after 10 seconds.



☑ • The figures in this manual are based on the external view of a standard model. Consequently, the shape may differ from that of the air conditioner you have selected.

## 4. Filter Cleaning

### CAUTION

Do not operate the system without the air filter to protect the indoor unit heat exchanger against being clogged.

Turn OFF the main power switch before taking out the filter. (The previous operation mode may appear.)

#### 4.1 Filter Removal and Installation

The indication, "FILTER" is shown on the display of the remote control switch after approximately 300 hour operation.

The indication, "FC" is shown on the display panel.

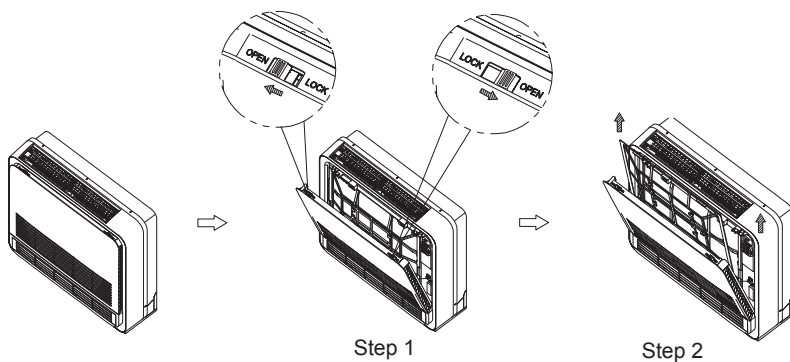
Take out the air filter according to the following steps.

##### ● Removal Procedure

Take out the air filter in the following steps.

Step1: Slide until the 2 stoppers click into place as shown.

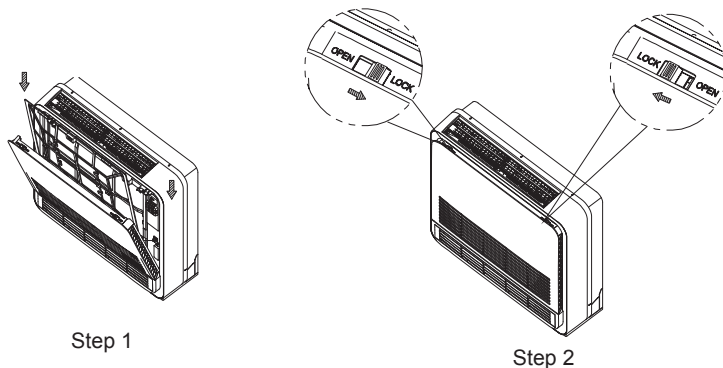
Step2: Open the front grill and take out the air filter from the front panel.



##### ● Installation Procedure

Step1: Insert the filter to the panel and aim the bottom hooks. Make sure the top hooks are locked.

Step2: Close the front grill and slide until the 2 stoppers click into place as shown.



#### 4.2 Clean the Filter

Clean the air filter according to the following steps.

##### Step 1

Use a vacuum cleaner or let water flow onto the air filter for removing the dirt from the air filter.

### CAUTION

**Do not use hot water higher than approximately 40°C.**

##### Step 2

Dry the air filter in the shade after shaking off moisture.

#### 4.3 Reset of Filter Indication

After cleaning the air filter, press the "RESET" button. The FILTER indication will disappear and the next filter cleaning time will be set.

### 5. Troubleshooting

### CAUTION

**When overflow of drain water from the indoor unit occurs, stop the operation and contact your contractor.**

**When you smell or see white smoke coming from the unit, turn OFF the main power supply and contact your contractor.**

#### 5.1 If Trouble Still Remains

If the trouble still remains even after checking the following, contact your contractor and inform them of the following items.

- (1) Unit Model Name
- (2) Content of Trouble
- (3) Alarm Code No. on Liquid Crystal Display

#### 5.2 No Operation

Check whether the SET TEMP is set at the correct temperature.

#### 5.3 Not Cooling or Heating Well

- Check for obstruction of air flow of the outside or inside units.
- Check if too much heat source exists in the room.
- Check if the air filter is clogged with dust.
- Check to see if the doors or windows are opened or not.
- Check if the temperature condition is not within the operation range.

#### 5.4 This is Not Abnormal

##### ● Smells from Indoor Unit

Smell adheres on indoor unit after a long period of time. Clean the air filter and panels or allow a good ventilation.

##### ● Sound from Deforming Parts

During system starting or stopping, an abrading sound might be heard. However, this is due to thermal deformation of plastic parts. It is not abnormal.

##### ● Steam from Outdoor Heat Exchanger

During defrosting operation, ice on the outdoor heat exchanger is melted, resulting in making steam.

##### ● Dew on Air Panel

When the cooling operation continues for a long period of time under high humidity conditions (higher than 27°C/80% R.H.), dew can form on the air panel.

##### ● Refrigerant Flow Sound

While the system is being started or stopped, sound from the refrigerant flow may be heard.

### NOTE

Except for a long period of shutdown, keep the main switch ON, since the oil heater is energized when the compressor is stopping.

# Section2 Installation & Maintenance Manual

## 1. Safety Summary

### WARNING

- Do not perform installation work, refrigerant piping work, drain piping and electrical wiring connection without referring to the installation manual.
- Check that the ground wire is securely connected.
- Connect a fuse of specified capacity.
- Pay a special attention to the place, such as a basement, etc. where refrigerant can stay, since refrigerant is heavier than air.

### CAUTION

Do not install the indoor unit, outdoor unit, remote control switch and cable within approximately 3 meters from strong electromagnetic wave radiators such as medical equipment.

## 2. Structure

### 2.1 Indoor Unit & Refrigerant Cycle

Regarding the structural drawings and the refrigerant cycle diagrams, refer to Technical Catalogue II.

### 2.2 Necessary Tools and Instrument List for Installation

No.	Tool	No.	Tool
1	Handsaw	12	Charging Cylinder
2	Screwdriver	13	Gauge Manifold
3	Vacuum Pump	14	Cutter for Wires
4	Refrigerant Gas Hose	15	Gas Leak Detector
5	Megohmmeter	16	Leveller
6	Copper Pipe Bender	17	Clamper for Solderless Terminals
7	Manual Water Pump	18	Hoist (for Indoor Unit)
8	Pipe Cutter	19	Ammeter
9	Brazing Kit	20	Voltage Meter
10	Hexagon Wrench	21	Wrench
11	Spanner	22	Horizontal meter

### NOTE

About vacuum pump, gas hose, charging cylinder, gauge manifold, please use suitable equipments for R410A respectively. Do not mix other refrigerant.

## 3. Transportation and Handling

### 3.1 Transportation

Transport the product as close to the installation location as practical before unpacking.

### CAUTION

Do not put any material on the product.

### 3.2 Handling of Indoor Unit

### WARNING

Do not put any foreign material into the indoor unit and check to ensure that none exists in the indoor unit before the installation and test run. Otherwise, a fire or failure, etc. may occur.

#### 4. Indoor Unit Installation

### DANGER

Do not install the indoor unit in a flammable environment to avoid fire or an explosion.

### WARNING

- Do not install the indoor unit outdoors. If installed outdoors, an electric hazard or electric leakage will occur.



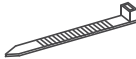




#### 4.1 Factory-Supplied Accessories

Check to ensure that the following accessories are packed with the indoor unit.

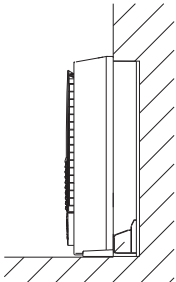
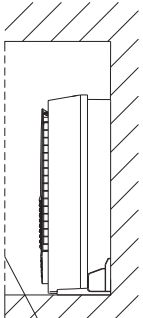
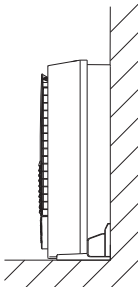
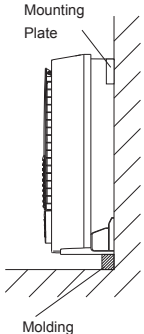
#### NOTE

If any of these accessories are not packed with the unit, please contact your contractor.

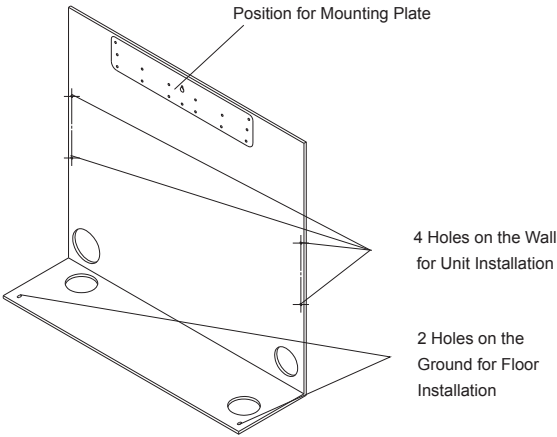
Table 4.1 Factory-Supplied Accessories

Accessory	Q'ty	Purpose
Installation Template 	1	For Unit Hanging And Adjustment
Pipe Insulation 	1	For Refrigerant Piping Connection
Wire Tie 	4	For Fixing electric Wiring and Insulation of Piping
Mounting Plate 	1	For Wall Install
Wireless Remote Control 	1	For Controlling the Unit
Wire Tie 	1	For fixing the magnetic ring
Magnetic Ring 	1	For resisting EMI

• The indoor unit may be mounted in any of the three styles shown below:

Exposed		Half Concealed	Concealed
Floor Mounted	Wall Mounted		
			

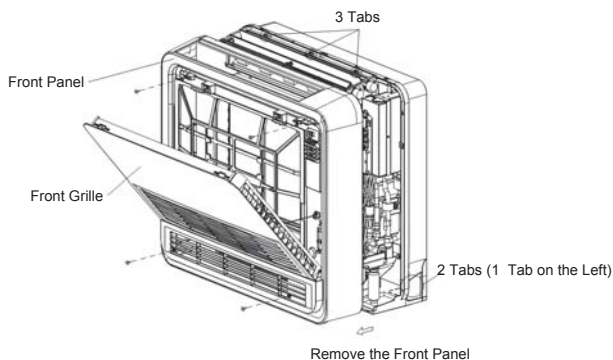
• Location for securing the installation template.



- Removing and installing front panel
- Removal method: Open the front grille. Remove the 4 screws and remove the front panel while pulling it forward(5 tabs) .
- Installation method: Secure the front panel with the 4 installation screws(5 tabs) .Return the front grille to the original position.

**⚠ CAUTION**

Make sure the upper louver is in OPEN position before removing and installing the front panel.



#### 4.2 Initial Check

- Install the indoor unit with a proper clearance around it for operation and maintenance working space, as shown in Fig. 4.1.
- Select the suitable areas to install the unit under approval of the user.
- The air passage is not blocked.
- Condensate can drain properly.
- The wall is strong enough to bear the weight of the indoor unit. If there is a risk that the wall is not strong enough, reinforce the wall before installing the unit.
- Sufficient clearance for maintenance and servicing is ensured.
- When plural indoor units are installed nearby, keep them away for more than 3-4m.

**Space for installation and service**

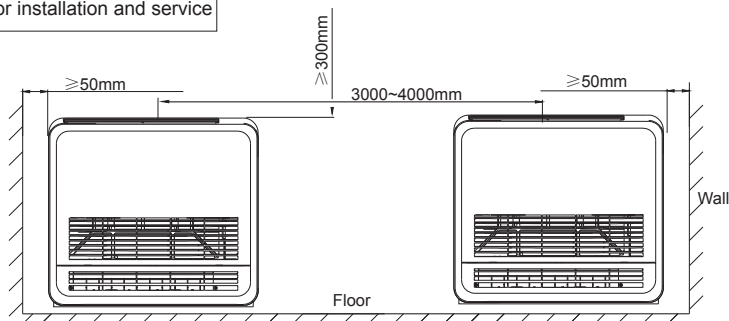


Fig. 4.1. Space for installation and service



- Check to ensure that the wall has a sufficient strength to hang the indoor unit.
- Consider the air distribution from the indoor unit to the space of the room, and select a suitable location so that uniform air temperature in the room can be obtained.
- Do not install flammable parts in the service space for the indoor unit.
- Pay attention to the following points when the indoor unit is installed in a hospital or other facilities where there are electronic waves from medical equipment, etc.
  - (A) Do not install the indoor unit where the electromagnetic wave is directly radiated to the electrical box, remote control cable or remote control switch.
  - (B) Install the indoor unit and components as far as practical or at least 3 meters from the electromagnetic wave radiator.
  - (C) Prepare a steel box and install the remote control switch in it. Prepare a steel conduit tube and wire the remote control cable in it. Then, connect the ground wire with the box and the tube.
  - (D) Install a noise filter when the power supply emits harmful noises.
- To avoid any corrosive action to the heat exchangers, do not install the indoor unit in an acid or alkaline environment.

## 4.3 Exposed Installation

### 4.3.1 Installation Template

- (1) Template Board for installation is in the packing carton of indoor unit.  
Use it to decide an installation location and direction on the unit.
- (2) Press the Template Board tightly onto the surface draw out the hole position for suspension bolts with a pencil.
- (3) Drill a hole (65mm in diameter) in the spot indicated by "o" symbol in installation template as below.
- (4) The location of the hole is different depending on which side of the pipe is taken out.
- (5) Allow space around the pipe for an easier indoor unit pipe connection.

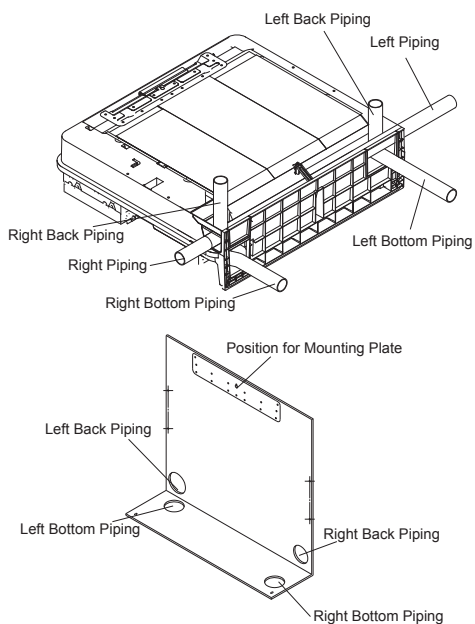
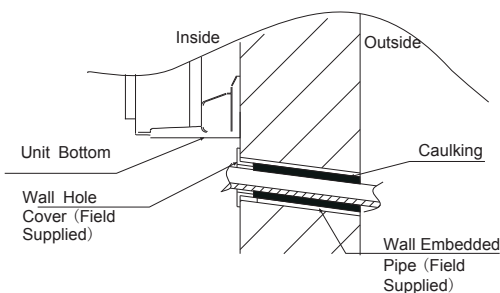
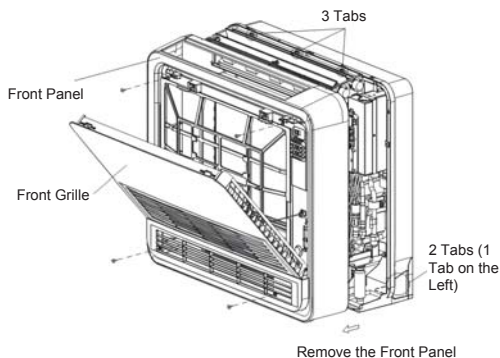


Fig.4.3 Installation Template

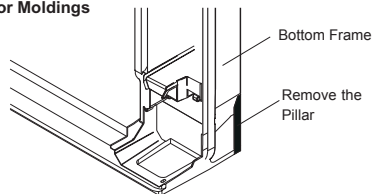
### 4.3.2 Boring a wall hole and installing wall embedded pipe

- For walls containing metal frame or metal board, be sure to use a wall embedded pipe and wall cover in the feed-through hole to prevent possible heat, electrical shock, or fire.
- Be sure to caulk the gaps around the pipes with caulking material to prevent water leakage.

- (1) Bore a feed-through hole of 65mm in the wall so it has a down slope toward the outside.
- (2) Insert a wall pipe into the hole.
- (3) Insert a wall cover into wall pipe.
- (4) After completing refrigerant piping, wiring, and drain piping, caulk pipe hole gap with putty.



#### For Moldings



### 4.3.3 Installing indoor unit

#### Preparation

- Open the front grille, remove the 4 screws and dismount the front panel while pulling it forward.
- Follow the procedure below when removing the split portions.

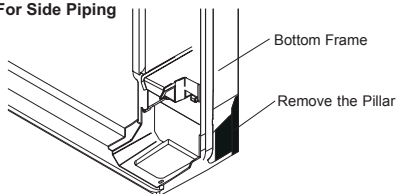
#### ○ For Moldings

- Remove the pillars. (Remove the slit portions on the bottom frame using nippers.)

#### ○ For Side Piping

- Remove the slit portions on the bottom frame using nippers.

#### For Side Piping



#### ⚠ CAUTION

- When you choose the left piping, you only need to remove the left pillars.
- When you choose the right piping, you only need to remove the right pillars.

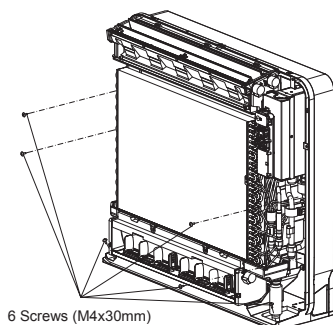
### 4.3.4 Installing styles

#### Floor and wall installation

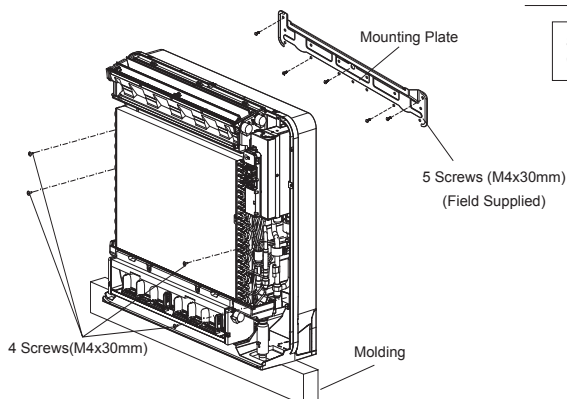
- Secure using 6 screws for floor installations. (Do not forget to secure to the wall behind.)
- For wall installation, secure the mounting plate using 5 screws and the indoor unit using 4 screws.
- The mounting plate should be installed on a wall which can support the weight of the indoor unit.

- (1) Temporarily secure the mounting plate to the wall, make sure that the panel is completely level, and mark the boring points on the wall.
- (2) Secure the mounting plate to the wall with screws.
- (3) Once refrigerant piping and drain piping connections are completed, fill in the gap of the through hole with putty. A gap can lead to condensation on the refrigerant pipe and drain pipe, and the entry of insects into the unit.
- (4) Attach the front panel and front grille in the original positions once all connections are completed.

#### Floor Installation



#### Wall Installation

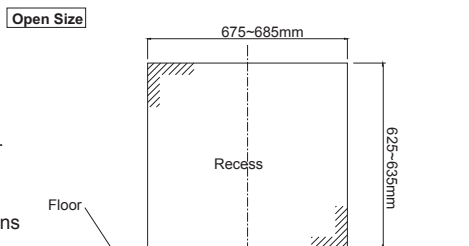


### 4.4 Half Concealed Installation

Only items peculiar to this installation method are given here.

#### 4.4.1 Wall Recess

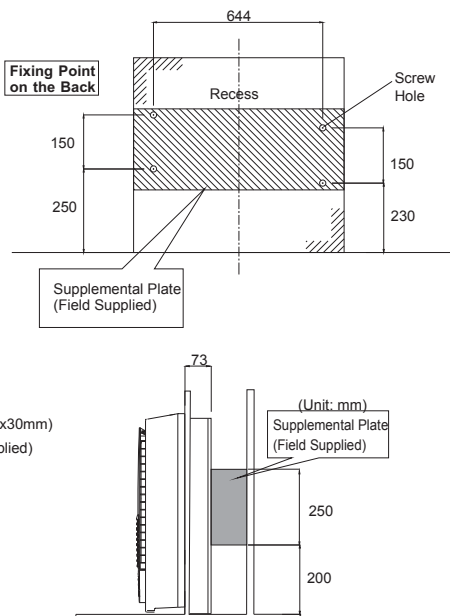
- Drill a wall recess of the size shown in the illustration on the right.



#### 4.4.2 Installation of supplemental plate

- The rear of the unit can be fixed with screws at the points shown in the illustration below.
- Be sure to install the supplemental plate in accordance with the depth of the inner wall.

Unit: mm

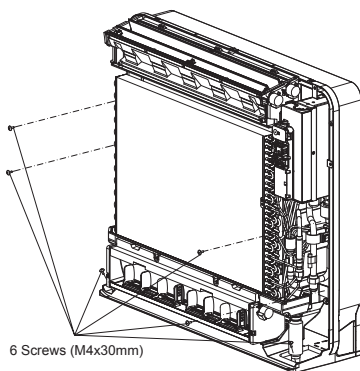


**▲ CAUTION**

. The supplemental plate for installing the main unit must be used, or there will be a gap between the unit and the wall.

#### 4.4.3 Installation of indoor unit

- (1) Remove the front panel
- (2) Attach the indoor unit to the wall and secure using screws in 6 locations (M4x30mm).



**▲ CAUTION**

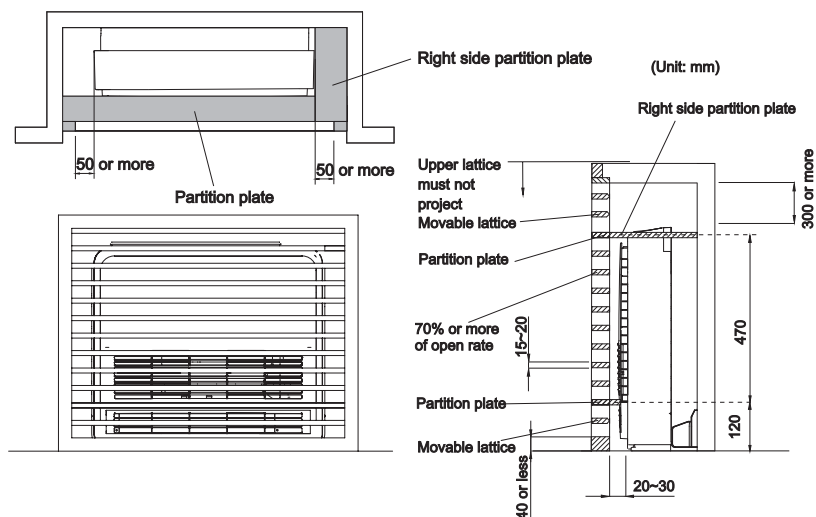
- Use drain pan edge for horizontal projection of the indoor unit.
- Install the indoor unit parallel with wall.

## 4.5 Concealed Installation

Only items peculiar to this installation method are given here.

**Install the unit according to the instructions below. Failure to do so may cause both cooling and heating failure and the condensation inside the house.**

- (1) Allow enough space between the main unit and ceiling not to obstruct the flow of cool/warm air.
- (2) Place a partition plate between outlet and inlet sections.
- (3) Place a partition plate on the right side.
- (4) Change the angle of upper air outlet louver to enable successful air output.
- (5) Use a movable lattice at the air outlet to allow the adjustment of cool/warm air flow direction.
- (6) Lattice size should be 70% or more of open rate.

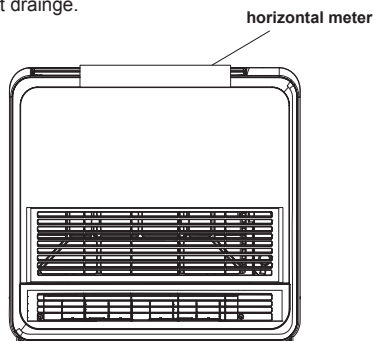


#### 4.6 Installation Check

The levelness of installed machine must be corrected with a level.

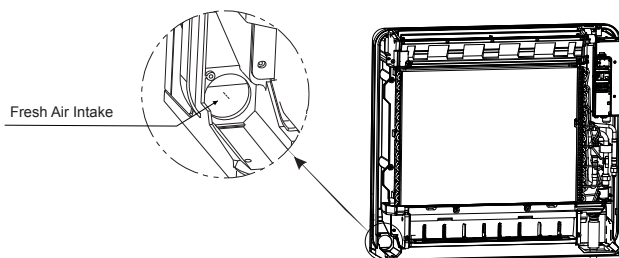


- The machine shall in no case be inclined opposite to the drain opening of water pan, since this may lead to inefficient drainage.



#### 4.7 Fresh Air Intake

The unit refreshes your house with a pipe through the Fresh Air Intake.



# 5. Refrigerant Piping Work

## ⚠ DANGER

Use refrigerant R410A in the refrigerant cycle. Do not charge oxygen, acetylene or other flammable and poisonous gases into the refrigerant cycle when performing a leakage test or an air-tight test. These types of gases are extremely dangerous and can cause an explosion. It is recommended that compressed air, nitrogen or refrigerant be used for these types of tests.

### 5.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select the piping size from the following table.

Table 5.1 Piping Size

Model	mm (in.)	
	Gas Piping	Liquid Piping
05-17	Φ12.7(1/2)	Φ6.35(1/4)

- (3) Select clean copper pipes. Make sure there is no dust and moisture inside. Blow the inside of the pipes with nitrogen or dry air, to remove any dust or foreign materials before connecting pipes.

### 5.2 Piping Connection

- (1) The connection positions of the pipe are shown in Fig. 5.1 .

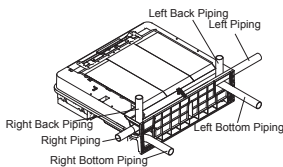


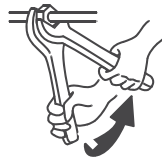
Fig. 5.1 The Connection Positions of the Tube

## NOTE

Cut out the knock-out hole along the groove in the cover using saw blade to avoid sharp edges if piping from right side.

Seal the clearance around pipes with seal material to prevent ingress of dirt and protect wires from damage by sharp edge after piping and wiring .

- (2) When tightening the flare nut, use two spanners as shown in Fig. 5.2.

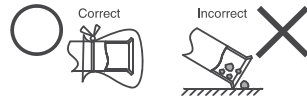


Pipe Size	Tightening Torque (N.m)
Φ6.35mm	20
Φ9.53mm	40
Φ12.7mm	60
Φ15.88mm	80
Φ19.05mm	100

Fig. 5.2 Tightening Work of Flare Nut

## ⚠ CAUTION

- Cap the end of the pipe when the pipe is to be inserted through a hole.
- Do not put pipes on the ground directly without a cap or vinyl tape at the end of the pipe.



- (3) Evacuation and refrigerant charging procedures should be performed according to "Installation & Maintenance Manual" of the indoor unit.

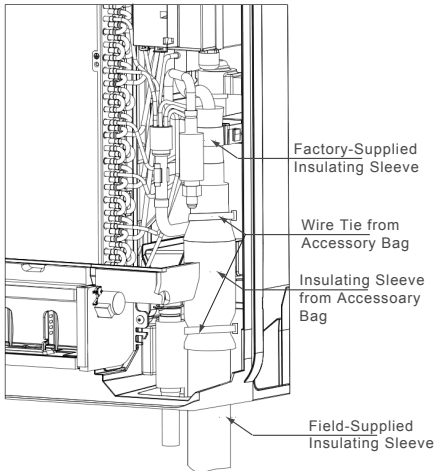


Fig. 5.4 Banding Method for Gas Pipe Insulating Sleeve

The factory-supplied and field-supplied insulating sleeves must be wrapped with the insulating sleeve from accessory bag, which must be then tied tightly with two wire ties as shown in the figure above. Failure to do so may cause the condensate to damage the floor, which is likely to result in customer complaints.



## 6. Drain Piping

- (1) Use commercial rigid polyvinyl chloride pipe  
(outer diameter 26mm, inner diameter 20mm) for drain pipe.
- (2) The drain hose (315mm long) are supplied with the indoor unit.
- (3) The drain pipe should be inclined downward at a gradient at least 1/100 so that water will flow smoothly without any accumulation. (Should not be trap.)
- (4) Insert the drain hose to this depth (50mm or more) so it won't be pulled out of the drain pipe.
- (5) Insulate the indoor drain pipe with 10mm or more of insulation material to prevent condensation.
- (6) Remove the air filters and pour some water (approximately 1000cc) into the drain pan to check if the water flows smoothly.



### CAUTION

- Do not create an upper-slope or rise for the drain piping, since drain water can flow back to the indoor unit and leakage into the room will occur when the system operation is stopped.
- Do not connect the drain pipe with sanitary or sewage piping or any other drainage piping.
- When the common drain piping is connected with other indoor units, the connected position of each indoor unit must be higher than the common piping. The pipe size of the common drain pipe must be large enough according to the unit size and number of units.
- After performing drain piping work and electrical wiring, check to ensure that water flows smoothly.
- Water accumulating in the drain piping can cause the drain to clog.
- Do not twist or bend the drain hose, so that excessive force is not applied to it. Failure to do so may cause water leakage.

## 7. Electrical Wiring

### **⚠ WARNING**

- Turn OFF the main power switch to the indoor unit and the outdoor unit before electrical wiring work or a periodical check is performed.
- Check to ensure that the indoor fan and the outdoor fan have stopped before electrical wiring work or a periodical check is performed.
- Protect the wires, drain pipe, electrical parts, etc. from rats or other small animals. If not protected, rats may gnaw at unprotected parts and at the worst, a fire will occur.
- Tighten screws according to the following torque.

M3.5: 1.2 N-m

### **⚠ CAUTION**

- Wrap the accessory packing around the wires, and plug the wiring connection hole with the seal material to protect the product from any condensate water or insects.
- Tightly secure the wires with the cord clamp inside the indoor unit.
- Secure the cable of the remote control switch using the cord clamp inside the electrical box.

## 7.1 General Check

- (1) Make sure that the field-selected electrical components (main power switches, circuit breakers, wires, conduit connectors and wire terminals) have been properly selected according to National Electrical Code (NEC).
- (2) Check to ensure that the power supply voltage is within  $\pm 10\%$  of the rated voltage.
- (3) Check the capacity of the electrical wires.  
If the power source capacity is too low, the system cannot be started due to the voltage drop.
- (4) Check to ensure that the ground wire is connected.
- (5) Power Source Main Switch  
Install a multi-pole main switch with a space of 3.5mm or more between each phase.

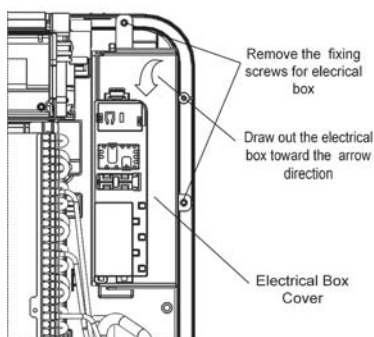


Fig.7.1 Remove electrical box

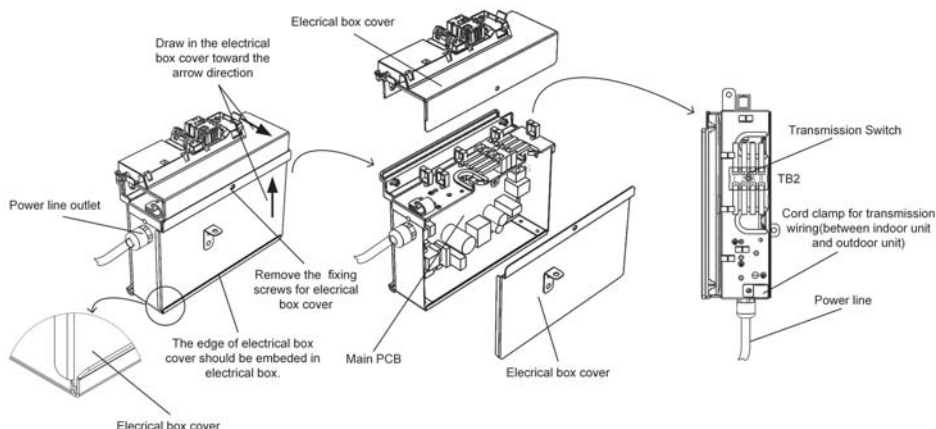


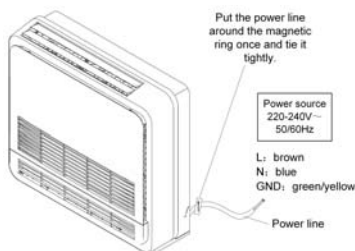
Fig.7.2 Remove Electrical Box Cover

## 7.2 Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown in Fig.7.3.

- (1) Connect the cable of an optional remote control switch or an optional extension cable to the terminals inside the electrical box through the connecting hole.
- (2) The power supply and earth wires have been connected in the factory. Please connect to the power circuit with a **ELB**(Fig.7.3)
- (3) Connect the wires between the indoor unit and the outdoor unit to the terminals in the electrical box.
- (4) Tightly clamp the wires using the cord clamp.
- (5) Take out magnet ring and wire tie from accessory bag, put the power line around the magnetic ring once and tie it tightly.

< Power Source >



< Transmission Wiring >

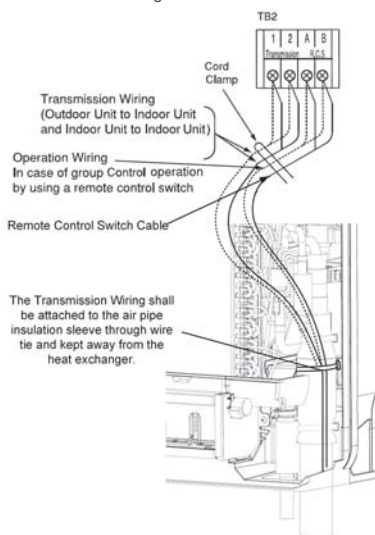


Fig.7.3 Electrical Wiring Connection for Indoor Unit

## CAUTION

Before electrical wiring work, turn **OFF** the power source. If the connectors are connected without turning **OFF** the power source, the auto-swing louver can not activate.

## NOTE

Wired Remote Control Switch and Wireless Remote Control Switch can not be used simultaneously. If Wired Remote Control Switch is connected, Disconnect Wireless Receiver Wiring on the left side as viewed from the discharge grilles

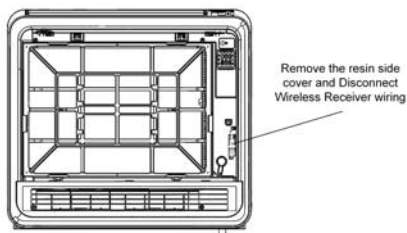


Fig.7.4 Disconnect Wireless Receiver wiring

## 8. Test Run

Test run should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

## WARNING

- Do not operate the system until all the check points have been cleared.
  - (A) Check to ensure that the electrical resistance is more than 1 megohm, by measuring the resistance between ground and the terminal of the electrical parts. If not, do not operate the system until the electrical leakage is found and repaired.
  - (B) Check to ensure that the stop valves of the outdoor unit are fully opened, and then start the system.
  - (C) Check to ensure that the switch on the main power source has been ON for more than 12 hours, to warm the compressor oil by the crankcase heater.

- Pay attention to the following items while the system is running.
  - (A) Do not touch any of the parts by hand at the discharge gas side, since the compressor chamber and the pipes at the discharge side are heated higher than 90°C.
  - (B) DO NOT PUSH THE BUTTON OF THE MAGNETIC SWITCH(ES). It will cause a serious accident.

## 9. Common

### 9.1 Field Minimum Wire Sizes for Power Source



- Use an ELB (Electric Leakage Breaker). If not used, it will cause an electric shock or a fire.
- Run through the cables using conduit tube, and Completely seal the end of conduit tube with sealing materials.

According to EN 60335-1	
Current (A)	Wire Size (mm <sup>2</sup> )
i≤6	2.5
6<i≤10	2.5
10<i≤16	2.5
16<i≤25	4
25<i≤32	6
32<i≤40	10
40<i≤63	16
63<i	※ 1

※1 In the case that current exceeds 63A, do not connect cables in series.

Field Minimum Wire Sizes for Power Source

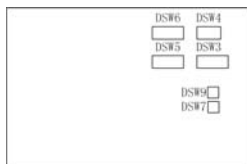
Model	Power Source	Maximum Current	Power Source Cable Size	Transmitting Cable Size
			EN60335-1 *1	EN60335-1 *1
05	220-240V ~ 50/60Hz	0.20A	2.5mm <sup>2</sup>	0.75mm <sup>2</sup>
07		0.21A		
09		0.23A		
12		0.25A		
15		0.27A		
17		0.30A		

#### NOTES:

- 1) Follow local codes and regulations when selecting field wires.
- 2) The wire sizes marked with \*1 in the above table are selected at the maximum current of the unit according to the European Standard, EN60335-1. Use the wires which are not lighter than the ordinary polyvinyl chloride sheathed flexible cord (code designation H05VV-F).
- 3) Use a shielded cable for the transmitting circuit and connect it to ground.
- 4) In the case that power cables are connected in series, add each unit maximum current and select wires below.

## 9.2 Setting of Dip Switches

### (A) Position of Dip Switches

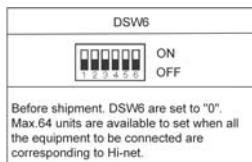


(B) The PCB in the indoor unit is equipped with 2 rotary switches and 5 dip switches. Before testing unit, set these dip switches according to the following instructions. Unless these dip switches are set in the field, the unit can not be operated.

#### (1) Unit No. Setting (DSW6)

Setting is required. Set the unit No. of all indoor units respectively and serially by following setting position shown in the table below. Numbering must start from "1" for every outdoor unit

##### Unit No. Setting



Method for DIP Setup refer to (6)

#### (2) Unit Mode Code Setting (DSW4)

No setting is required.

Setting the model code of the indoor unit.



#### (3) Capacity Code Setting (DSW3)

NO setting is required, due to setting before shipment. This switch is utilized for setting the capacity code which corresponds to the Horse Power of the indoor unit.

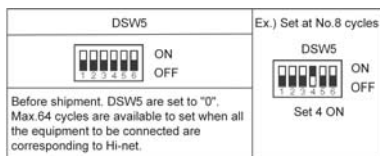
TYPE	05	07	09
DSW3	 1, 2, 3, 4 ON	 1, 2, 3, 4 ON	 3, 4 ON
	12	15	17
	 1, 2, 4 ON	 1, 4 ON	 4 ON

#### (4) Refrigerant Cycle No. Setting (DSW5)

Setting is required.

Setting positions before shipment are all OFF.

##### Refrigerant Cycle No. Setting



#### (5) Fuse Recover (DSW7)

##### \*Factory Setting

\*In the case of applying high voltage to the terminal 1, 2 of TB2, the fuse (0.5A) on the PCB is cut.

In such a case, firstly connect the wiring to TB2, and then turn on NO.1 pin.



#### (6) Example of Method for DIP Setup



### NOTE

- The "■" mark indicates position of dip switches. Figures show setting before shipment.

### CAUTION

**Before setting dip switches, firstly turn OFF power source and set the position of the dip switches. If the switches are set without turning OFF the power source, the switches can not function.**



1100366

**Qingdao Hisense Hitachi Air-conditioning Systems Co., Ltd.**

Add: 218, Qianwangang Road, Economic & Technical Development Zone, Qingdao, P.R. China

<http://www.hisense-vrf.com> E-mail: [export@hisensehitachi.com](mailto:export@hisensehitachi.com)