

HITACHI

Operation Installation & Maintenance Manual

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

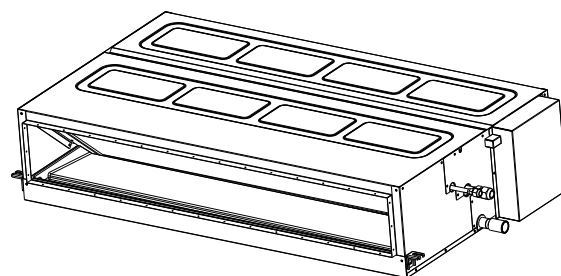
- INDOOR UNIT -

Type	Model	
Ceiling Ducted Type	RPIH-3.0HNAUN1Q	RPIL-1.0HNAUN1Q
	RPIH-3.3HNAUN1Q	RPIL-1.3HNAUN1Q
	RPIH-4.0HNAUN1Q	RPIL-1.5HNAUN1Q
	RPIH-5.0HNAUN1Q	RPIL-1.8HNAUN1Q
	RPIH-6.0HNAUN1Q	RPIL-2.0HNAUN1Q
	RPIM-0.8HNAUN1Q	RPIL-2.3HNAUN1Q
	RPIM-1.0HNAUN1Q	RPIL-2.5HNAUN1Q
	RPIM-1.3HNAUN1Q	RPIL-3.0HNAUN1Q
	RPIM-1.5HNAUN1Q	RPIL-3.3HNAUN1Q
	RPIM-1.8HNAUN1Q	RPIL-4.0HNAUN1Q
	RPIM-2.0HNAUN1Q	RPIL-5.0HNAUN1Q
	RPIM-2.3HNAUN1Q	RPIL-6.0HNAUN1Q
	RPIM-2.5HNAUN1Q	
	RPIL-0.8HNAUN1Q	

This manual is exclusively prepared for R410A indoor unit. Please read this manual in conjunction with corresponding manual for outdoor unit.

IMPORTANT:

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



P01973Q

ORIGINAL INSTRUCTIONS



Declaration of Conformity (Manufacturer's Declaration)



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

Add.: No. 218, Qianwangang Road, Economic and Technological Development Zone, Qingdao, China
declares under its sole responsibility that the air conditioning models to which this declaration relates:

RPIH-3.0~6.0HNAUN1Q, RPIM-0.8~2.5HNAUN1Q, RPIL-0.8~6.0HNAUN1Q

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 IEC 61000-3-2
EN 61000-3-3
EN 55014-2

following the provisions of:

2006/42/EC
2014/30/EU
2012/19/EU
2011/65/EU
2014/35/EU
1907/2006/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 manufacturer's consent.

Johnson Controls Hitachi Air Conditioning Europe SAS is authorized to compile technical file or relevant technical documentation.

Address : Rue de Lombardie, Parc Aktiland II – 69800 Saint Priest, France

HITACHI

Name, Surname : Song Zhenxing

Position/ Title : Director

Date : Aug. 17, 2021

IMPORTANT NOTICE

Signal words (DANGER, WARNING and CAUTION) are used to indicate hazard seriousness. Definitions of the hazard levels are provided below with respective signal words.



DANGER

: Immediate hazard that WILL result in severe personal injury or death.



WARNING

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



CAUTION

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

NOTE

: Useful information for operation and/or maintenance.

- This manual should be considered as a permanent part of the air conditioning equipment. Please keep it properly.
- Hitachi pursues a policy of continuous improvement in design and performance of products. The right is therefore reserved to change specifications without notice.
- Our company shall not be held responsible for any occasional damage to the air conditioner that arises during its operation in specific environment.
- This air conditioner is designed for standard air conditioning only. Do not use it for other purposes such as drying cloth, refrigerating foods or for any other cooling or heating processes. Please don't install the air conditioner in the following environments. Otherwise, fire, machine deformation or failure may arise.
 - *Places with spatter of oil (including machine oil).
 - *Places with sulfured gases or silicon (e.g. hot spring, etc.).
 - *Places with inflammable gases.
 - *Coastal areas with much salt or places exposed to strong acids or bases that may cause corrosion to machine.
- Do not have the air outlet directly faced towards animals or plants, since this may bring about an adverse effect thereon.
- The installation and service engineering have to comply with local standards, laws and regulations.
- As an "appliance inaccessible to the public", the installation height of indoor unit of the air conditioner shall be at least 2.5m.
- This conditioner can only be installed by dealers or professionals. The installation by users may cause water leakage, electric shock or fire.
- In case of any question, please consult the dealer or the service center designated by our company.



DANGER

- Please don't perform installation works such as refrigerant piping connection, drain pipe connection, and wiring connection without reading the Installation Manual. Violations may result in system leakage, electrical failure or fire.
- Do not pour water into the indoor or outdoor unit. This machine is an electric product that may develop serious electric failure when exposed to water.
- Do not open the service cover of indoor or outdoor units without turning OFF the main power supply; otherwise, this may bring about serious safety accident.
- Do not touch or adjust safety devices inside the indoor or outdoor units. If they are touched or readjusted, serious accident may arise.
- Refrigerant leakage may bring about oxygen deficit-induced respiratory difficulty. In case refrigerant leakage is detected, please turn off the main switch immediately, extinguish any naked flame, and contact service dealer.
- Make sure air tightness test is performed.

Refrigerant R410A is non-flammable, non-toxic, and odorless, and may produce toxic gases when exposed to open flame. Since this refrigerant gas is heavier than air, it may result in lack of oxygen, thereby leading to breathing difficulties when the area near the ground is filled with this gas. If that's the case, please turn off the main switch immediately, cut off the power supply, and open the doors and windows for ventilation. Put out any open flame, and contact your service dealer. Performing leak detection and gas tightness test with oxygen, acetylene or other flammable and toxic gases may cause explosion, so nitrogen is recommended for this test.
- The standards for safe refrigerant leakage in construction and system operation are determined based on local regulations or standards.
- Use ELB with medium or higher sensing speed (ELCB with an operating time of 0.1 seconds or less), or electric shock or fire may arise.
- For installation, the refrigerant piping must be firmly connected before the operation of compressor. For repair, the refrigerant piping must be moved, handled and removed after the stop of compressor.
- Please don't short-circuit the protective device (e.g., the pressure switch, etc.) during operation, since this may cause fire or explosion.
- Please turn off power supply as soon as possible when a fire breaks out.
- Please don't touch electrical components since this may result in electric shock.



WARNING

- Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gases within approximately one (1) meter from the system.
- If the earth leakage breaker (ELB) is frequently activated, please stop the system and contact your local dealer or customer services.
- Make sure the ground wire is securely connected. The improper grounding of machine may lead to electrical failure.
- Please don't connect the ground wire to gas pipes, tap water pipes, lightning rods or phone ground wires.
- Make sure there are no flammable materials around during brazing operation. Please wear leather gloves to prevent frostbite when filling refrigerant.
- Prevent rats or other small animals damaging the wiring and electrical components. Bitten unprotected parts may cause a fire.
- Firmly fix the connection wires. The external force of terminal may result in looseness of terminal that may cause a fire.
- Please follow the installation instructions and related regulations and standards for electrical construction; otherwise, electrical failure or fire may occur due to inadequate capacity or inconsistent specifications.
- Never fail to use specified wiring and select correct wiring, since failure to do so may cause electrical failure or fire.
- Please make sure the outdoor unit is not covered with snow or ice before use.
- 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.
- The A-weighted emission sound pressure don't exceed 70 dB(A) .
- 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.



CAUTION

- Do not stamp on the machine or place sundries thereon.
- Do not put extra materials on or in the machine.

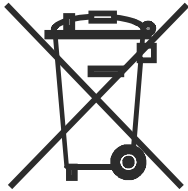
NOTE:

- Rooms are recommended to be ventilated once every 3-4 hours.
- Heat pump air conditioners may malfunction under the following conditions:
 - * The power available from power transformer is less than or equal to the electrical power of air conditioner.
 - * The excessively short distance from the power cord of air conditioner to any high-power electrical equipment results in extremely high inductive surge voltage in the power cord of air conditioner.
- This air conditioner must be serviced by professional maintenance personnel.

CHECKING PRODUCT RECEIVED

- Upon receipt of this product, check 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 parameters (power supply, voltage, and frequency) and accessories to determine if they are correct.
The standard operation method for the machine is described in the present manual. Please contact local dealer when problem arises.
Our company shall not be held responsible for any consequence of the modification to machine performed without its written consent.

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 environmentally safe recycling.

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Section1 Operation Manual

1. Safety Summary

DANGER

- Do not have the indoor unit or outdoor unit exposed to water. All these parts are designed with electronic components that may cause short circuit when exposed to water.
- 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.
- Do not use any sprays such as insecticide, lacquer, hair spray or other flammable gases within approximately one (1) meter from the system.
- If the indoor switchboard or fuse is frequently cut off, please take the air-conditioning system out of service and contact our agency.

NOTE

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

2. Unit Description

This heat-pump type air conditioning unit can consist of one outdoor unit and several indoor units. Detailed configurations are stated in the corresponding installation & maintenance manual for outdoor unit. This heat-pump type air conditioner is applicable for refrigeration, heating, dehumidification and air supply, etc. These features are controlled with a remote control (optional).

3. Part Name

3.1 Indoor Unit

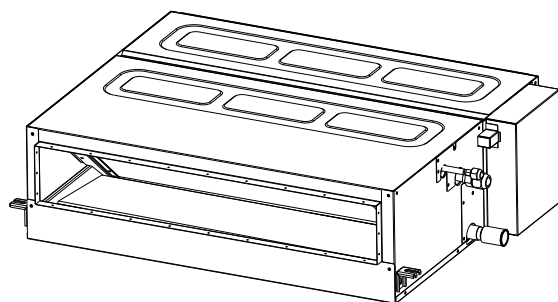
Refer to Fig. 3.1 "Ceiling Ducted Indoor Unit"

3.2 Remote Control

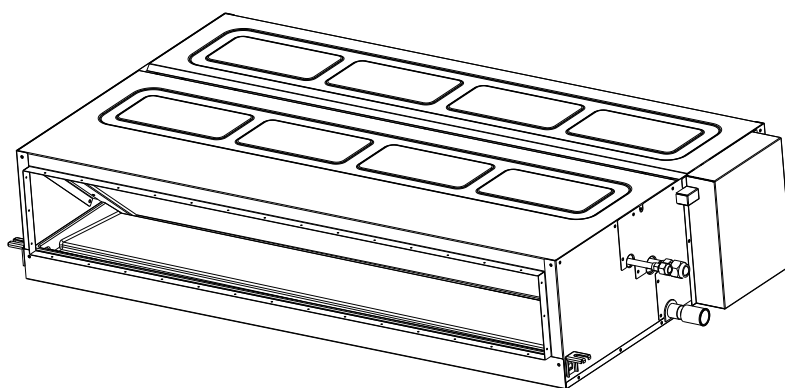
Refer to the remote control instruction manual for operation details.

Table 2.1 Capacities of Indoor Units

Indoor Unit	Nominal Capacity (HP)							
	0.8	1	1.3	1.5	1.8	2.0	2.3	2.5
Ceiling Ducted Type	○	○	○	○	○	○	○	○
	3.0	3.3	4.0	5.0	6.0			
	○	○	○	○	○			



Models: 0.8~2.5



Models: 3.0~6.0

Fig. 3.1 Ceiling Ducted Indoor Unit

4. Before Operation



- The units that have been left unused for a long period of time shall be electrified for more than 12 hours before startup. Do not start the machine immediately after power-on since this may cause damage to compressor due to inadequate warm-up of lubricating oil.
- Please check if the outdoor unit is covered with ice or snow. If yes, please remove the ice or snow with warm water. However, the water temperature shall not exceed 50°C since this may cause damage to plastic parts.
- Turn off the main power supply if the machine is expected to be left unused for more than 3 months, because the oil heater band consumes power even if the compressor is not in service. You are recommended to entrust maintenance personnel to check the unit before startup.

5. Operation Mode

Refer to the instruction manual for the wired control used with the machine.

6. Auto Control

This system is designed with the following features.

NOTE

Please keep the main power supply ON unless the system is left unused for long. By doing so, the drainage pump (if any) starts to function when the level of accumulated water in machine exceeds the predefined level.

● Three-Minute Stop Protection

To protect the compressor, it is prevented for at least 3 minutes from functioning after its stop. The compressor automatically gets started in 3 minutes.

● Three-Minute Operation Protection

Ensure the compressor runs at least for 3 minutes (if the compressor runs for less than 3 minutes, it can't stop unless 3 minutes elapse even if all indoor temperatures reach the set values). However, the compressor that runs for less than 3 minutes can be brought out of service with the remote control.

● Oil Return Operation

When an indoor unit is out of service for more than 2 hours during refrigeration, it will run for a few minutes automatically to prevent the detention of refrigeration oil in the indoor unit in stopped state.

● Freeze Protection during Refrigeration

When the outlet air temperature of indoor unit is excessively low, refrigeration may be automatically switched to air supply mode, in which the unit runs for a period of time to avoid frosting on indoor heat exchanger.

● Cold Air Prevention

To prevent the output of cold air from indoor unit in heating mode, the fan runs at low speed. The fan speed is set based on outlet air temperature of indoor unit.

● Control of Indoor Fan during Defrosting

The indoor fan is out of service during automatic defrosting of outdoor unit.

● Surplus Heat Output from Indoor Unit

Upon completion of heating, the indoor fan will keep on running at low speed for approx. 2 minutes to reduce the temperature of machine body.

● Automatic Defrosting

Press "Run/Stop" key to stop heating. The outdoor unit can automatically detect frost and automatically perform defrosting for up to 10 minutes.

● Overload Protection

Heating stops when outdoor temperature is excessively high during heating. The heating resumes when the outdoor temperature drops to a certain level.

NOTE

If the unit stops due to power breakdown, the system will not automatically get into service even if power supply is restored.
Please restart the unit from Step 1. The settings will not get lost in the case of extremely short power-off time (within 2 seconds). The system will come into operation automatically in approx. 3 minutes.

7. Cleaning of Filter



The operation of indoor unit is strictly prohibited without filter.

Please turn off the main power supply before removing the filter (the previous operational function may occur).

7.1 Removing Filter

7.2 Cleaning Filter

Please clean the filter in the following steps.

Step 1

Use a dust collector or water to remove the dirt from filter.



Never use hot water of which the temperature is above approx. 40°C.

Step 2

Whisk the water off, and air-dry the filter in a space exposed to no sunlight.

7.3 Resetting the Filter Indicator

Press the "Reset" key after the cleaning of filter. The filter screen indicator "FILTER" disappears, while the time of next cleaning of filter is set automatically.

8. Troubleshooting



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.

8.1 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

8.2 No Operation

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

8.3 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.

8.4 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.

● Refrigerant Flow Sound

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

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.

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. Necessary Tools and Instrument for Installation

Check whether the design pressure of machine is 4.15 MPa. The following tools are necessary for the installation & construction.

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

CAUTION

Please use vacuum pump, refrigerant pipe, charging cylinder and gauge manifold designed for R410A. The combination with other refrigerant equipment is prohibited.

DANGER

Since the pressure of new refrigerant R410A is 1.4 times that of traditional refrigerant, its performance is susceptible to impurities like moisture, scale and grease, etc. It's essential to remove the moisture, dust, other refrigerants or refrigerant oils from the refrigeration system.

Hence, the failure to use specified materials and tools may result in explosion, personal injury, refrigerant leakage, electrical failure or fire.

3. Transportation and Handling

3.1 Transportation

Transport the product as close to the installation location as possible 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.

CAUTION

Be careful not to damage on insulation materials of unit's surface when lifting.

4. Indoor Unit Installation

Install the indoor unit as per national standard.

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.

It is recommended that indoor units be installed higher than **2.5** meters from the floor level.

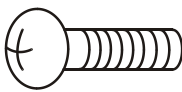
4.1 Factory-Supplied Accessories

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

CAUTION

Please contact the dealer if the accessories are not delivered with machine.

Table 4.1 Factory-Supplied Accessories

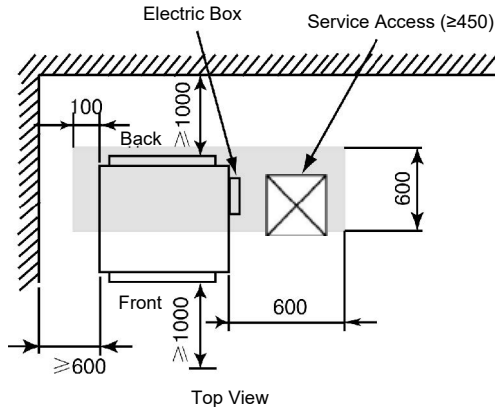
Accessory	Q'ty	Purpose
Washer 	8	For Unit Suspension
Screw 	16	For Fixing Flanges
Hose Clamp 	1	For Drain Hose Connection

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.

Models: 0.8~2.5

Unit: mm



Models: 3.0~6.0

Unit: mm

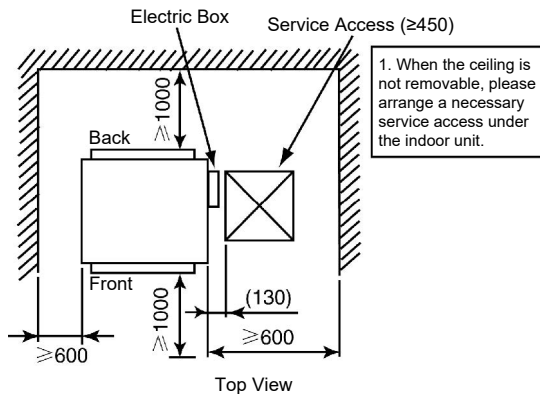


Fig. 4.1 Space around Indoor Unit

- Indoor unit must be so positioned that the indoor temperature is distributed evenly.
- There should be no obstruction that blocks air flow indoors and at air vent.
- Do not install the indoor unit in a machinery shop or kitchen where vapor from oil or its mist flows to the indoor unit.
The oil will deposit on the heat exchanger, thereby reducing the indoor unit performance, and may deform and in the worst case, break the plastic parts of 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 Installation

4.3.1 Suspension Bolts

- (1) Determine the final location and installation direction of the indoor unit paying careful attention to the space for the piping, wiring and maintenance.
- (2) Install suspension bolts as shown in Fig. 4.2.

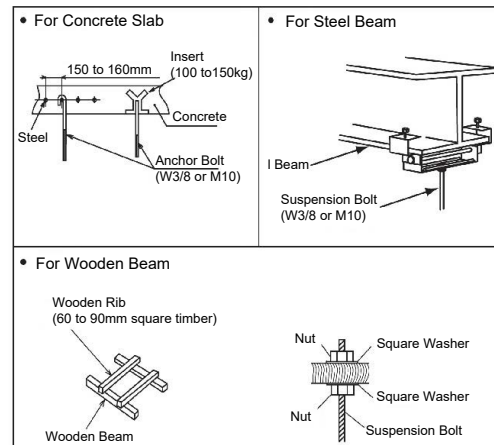
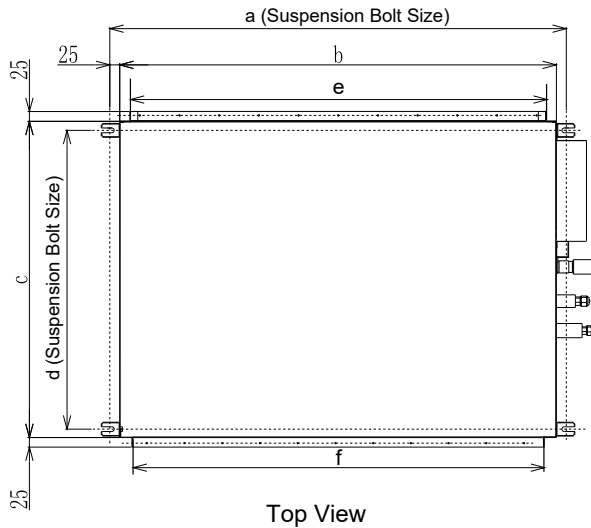


Fig. 4.2 Mounting the Suspension Bolts

4.3.2 Suspension Bolt and Pipe Connection Points

- (1) Indicate the location of suspension bolt, and the connection points of refrigerant pipe and drain pipe.
- (2) Installation dimensions are shown in Fig. 4.3.



Unit: mm

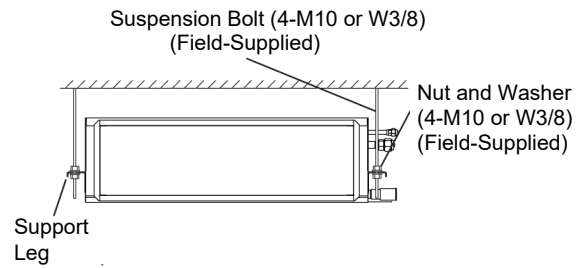
Indoor Unit Capacity (HP)	a	b	c	d	e	f
0.8~1.5	700	650	720	676	606	582
1.8~2.5	950	900	720	676	856	832
3.0~4.0	1,150	1,100	800	756	1047	1036
5.0~6.0	1,450	1,400	800	756	1347	1336

Fig. 4.3 Suspension Bolt

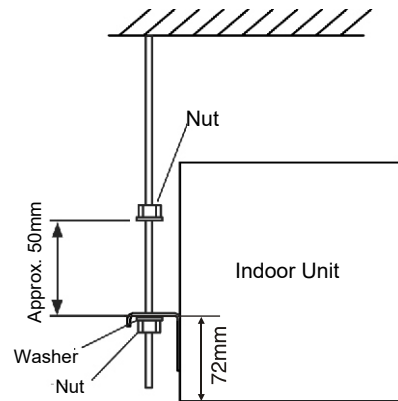
4.3.3 Installation of Indoor Unit

Indoor unit is installed as shown in Fig. 4.4.
Installation of Field-Supplied Parts

Suspension Bolt	4-M10 or W3/8
Nut	8-M10 or W3/8
Washer	8-M10 or W3/8



- (1) How to Install Suspension Bolt and Nut
Mount nuts to the four bolts as shown in Fig. 4.5.



(2) Installation of Indoor Unit

- * Place the left bracket on the nut and washer of suspension bolt as shown in the figure below.
- * Make sure the left bracket is properly placed on the nut and washer, and put the right bracket of indoor unit on the nut and washer.

(The suspension bolt can be slightly shifted for the placement of indoor unit.)

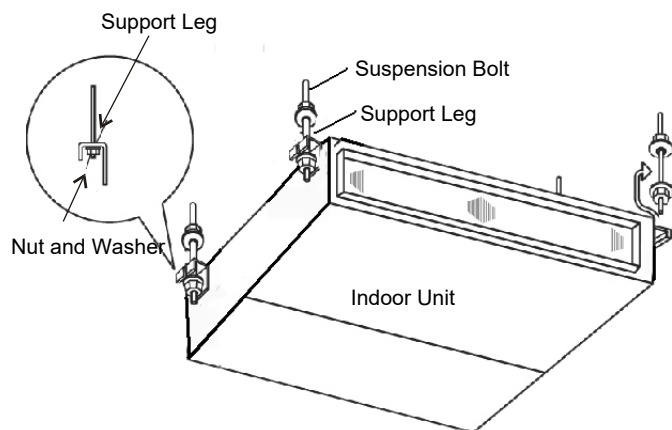


Fig. 4.6 Handling Method

4.3.4 Leveling of Indoor Unit

- (1) Check to ensure the top surface is level, and measure the max. top surface inclination degree.

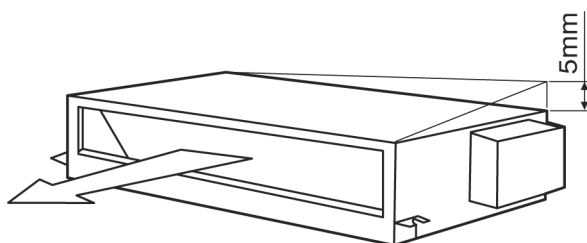


Fig. 4.7 Top Surface Inclination Degree

- (2) As shown in Fig. 4.7, the rear part of indoor unit is slightly lower than its front part (by 0~5mm) so as to facilitate drainage.
- (3) Tighten the suspension nut upon completion of adjustment. It's essential to apply thread locking agent to avoid nut looseness.

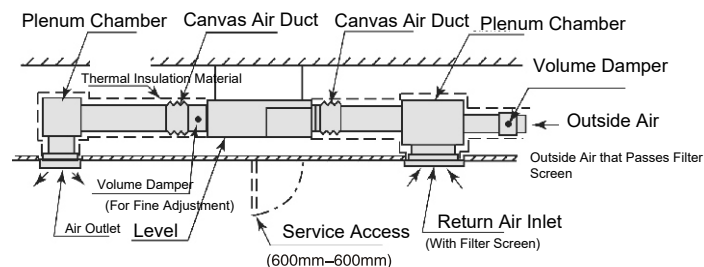
CAUTION

Please cover the machine with plastic cloth during installation so as to keep it clean.

4.3.5 Air Duct Connection

Air duct is connected to indoor unit via canvas hose to effectively isolate noise and vibration. Indoor unit is designed with flange with hole connectible to air duct.

<Example>



Schedule of External Static Pressure

Model	External Static Pressure(Pa)
RPIH-3.0~6.0HNAUN1Q	120(*)/90
RPIM-0.8~2.5HNAUN1Q	50(*)/80
RPIL-0.8~2.5HNAUN1Q	30
RPIL-3.0~6.0HNAUN1Q	60

*: Factory default

Fig. 4.8 Air Duct Connection

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-tightness 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.

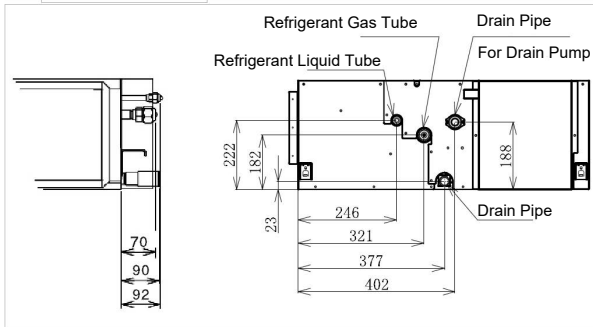
5.1 Piping Materials

- (1) Prepare locally-supplied copper pipes.
- (2) Select 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.
- (3) Select copper pipes based on Fig. 5.2.

5.2 Piping Connection

- (1) Piping connection points are shown in Figs. 5.1 and 5.2.

Models 0.8~2.5



Models 3.0~6.0

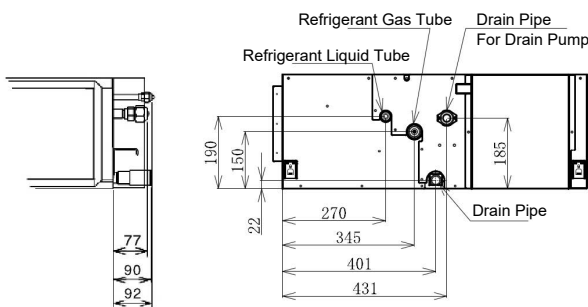


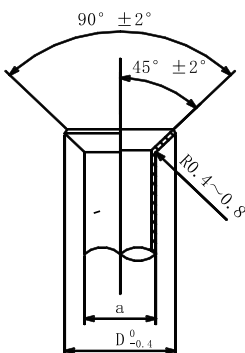
Fig. 5.1 Piping Connection Points

Note: A drain pump can be optionally ordered for these models. The drain pipe is located as shown in Fig. 5.1 when a pump is purchased. The drain hole at lower part is blocked off with a rubber stopper.

mm(in.)		
Indoor Unit Capacity	Gas Pipe	Liquid Pipe
0.8~1.5	φ 12.7(1/2) ※	φ 6.35(1/4)
1.8~2.0	φ 15.88(5/8) ※	φ 6.35(1/4)
2.3~3.3	φ 15.88(5/8) ※	φ 9.53(3/8)
4.0~6.0	φ 15.88(5/8) ※	φ 9.53(3/8)

Fig. 5.2 Pipe Size

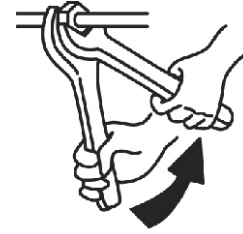
※ Since the nut cap connected at gas pipe is designed exclusively for R410A, the piping flaring connected for off-factory installation is adjusted as compared with R22 and R407C. Please perform the processing operation based on the dimensions shown below: (See Fig. 5.3)



mm(in.)			
Pipe Diameter (a)		φ 12.7 (1/2)	φ 15.88 (5/8)
Flaring Diameter (D)	R22, R407C	16.2	19.4
	R410A	16.6	19.7

Fig. 5.3 Flaring

- (2) As shown in Fig. 5.4, two spanners shall be used for tightening the nut.



Pipe Size (mm)	Tightening Torque (N.m)
φ 6.35	20
φ 9.53	40
φ 12.7	60
φ 15.88	80
φ 19.05	100

Fig. 5.4 Nut Tightening Torque

- (3) Insulate the refrigeration piping with field-supplied insulating pipe as shown in Fig. 5.5 upon completion of refrigerant pipe connection.

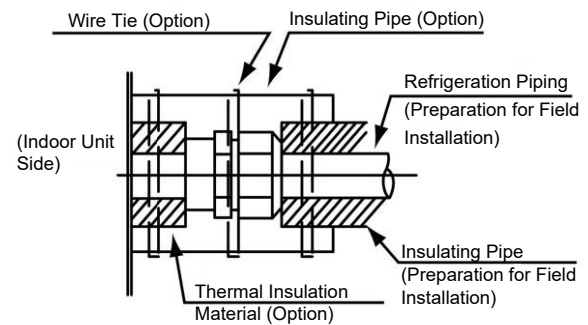
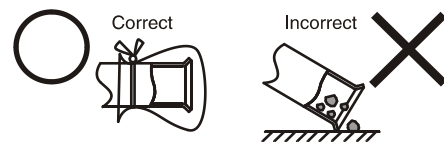


Fig. 5.5 Thermal Insulation of Pipes

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.



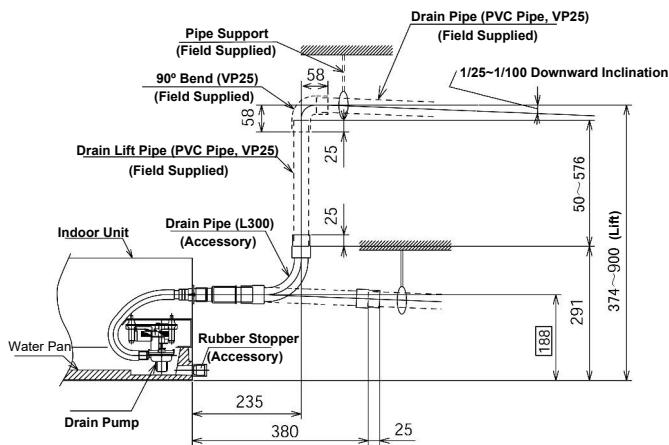
- (4) Evacuation and refrigerant charging procedures should be performed according to "Installation & Maintenance Manual" of the outdoor unit.

⚠ CAUTION

Excessive and inadequate refrigerant is a leading cause of system anomaly. Please inject the right amount of refrigerant.

6. Drain Pipe

- (1) See Fig. 6.1 for connection point of drain pipe.
 - (2) Find a PVC pipe with an outside diameter of 32mm.
 - (3) Fix the PVC pipe to drain pipe through adhesive and factory-supplied clamp. The downward inclination of drain pipe is 1/25~1/100.
 - (4) Make thermal insulation after the proper connection of drain pipe.
- (When a drain pump is ordered)



(When no drain pump is ordered)

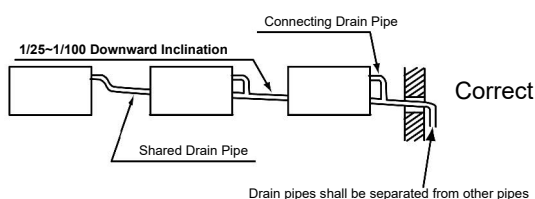
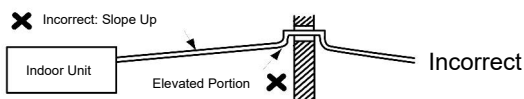
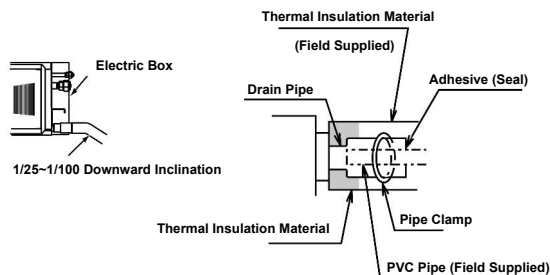


Fig. 6.1 Drain Pipe

⚠ CAUTION

Where the relative humidity of air inlet or ambient air exceeds 80%, an auxiliary drain pan shall be fabricated at installation site and placed under the indoor unit, as shown in Fig. 6.2.

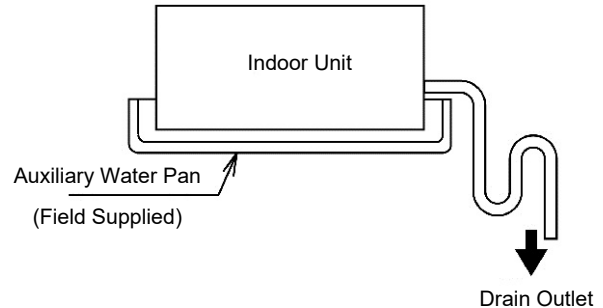


Fig. 6.2 Water pan

⚠ CAUTION

- (1) The drain pipe installed shall slope down; otherwise, the condensate may flow back and leak into the room when the indoor unit is turned off.
- (2) The drain pipe shall not be connected with sewage pipe or other drain pipes.
- (3) Where the main drain is connected to other indoor units, each indoor unit must be higher than the main. Select drain pipes in ample size depending on the refrigerating capacity and quantity of indoor units.
- (4) Check if water flows without obstruction following the procedure shown below after the proper connection of wires and drain pipes.
 - a. Power on.
 - b. Fill the water pan with 2L or 2.5L of water.
 - c. Check and ensure the water flows without obstruction and no leakage exists. Pour 2L of water if no water flows out of pipe end.

7. Electrical Wiring

! WARNING

- Turn OFF the main power switch to the indoor unit and the outdoor unit and wait for at least 10 minutes 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.
- Avoid any wire from contacting with Refrigerant tube, edge of metal plate and electrical part in the equipment, or otherwise the wire may be damaged or even thereby cause fire.
- ELB with intermediate induction rate (with shorter than 0.1 second or fewer) shall be used, or otherwise electric shock or fire may be caused.
- Wire shall be fixed securely, since external force imposed to the connecting terminal may make it loose and thereby cause fire.
- Do not use the power terminal strip used for the air conditioner to sub-connect any power cable, but use power branch box to sub-connect power wire at indoor unit side instead, and be sure to calculate wire capacity, or otherwise too low capacity may cause fire.
- The system shall not be started until all inspections have been performed properly.

! 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.
- Secure the cable of the remote control switch using the cord clamp inside the electrical box.
- Tighten screws according to the following torque.

M4:	1.0~1.3 N.m
M5:	2.0~2.4 N.m
M6:	4.0~5.0 N.m
M8:	9.0~11.0 N.m
M10:	18.0~23.0 N.m

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 the electrical data given in "Technical Catalog". Make sure that the components comply with 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 power source. The system can't be started if the supply voltage is excessively low.
- (4) Check to ensure that the ground wire is connected.

7.2 Electrical Wiring Connection

The electrical wiring connection for the indoor unit is shown in Fig. 7.1.

- (1) Connect the cable of an optional remote control switch or an optional extension cable to the connectors on the printed circuit board inside the electrical box through the connecting hole in the cabinet.
- (2) Connect the power supply and earth wires to the terminals in the electrical box.
- (3) Connect the wires between the indoor unit and the outdoor unit to the terminals in the electrical box.
- (4) Use cord clamps to fasten the wires in electric box.
Seal the finished wiring connection with sealing material (with cover board).
- (5) Upon completion of wiring connection, seal the wire interface with sealing material to keep condensate water and insects off.

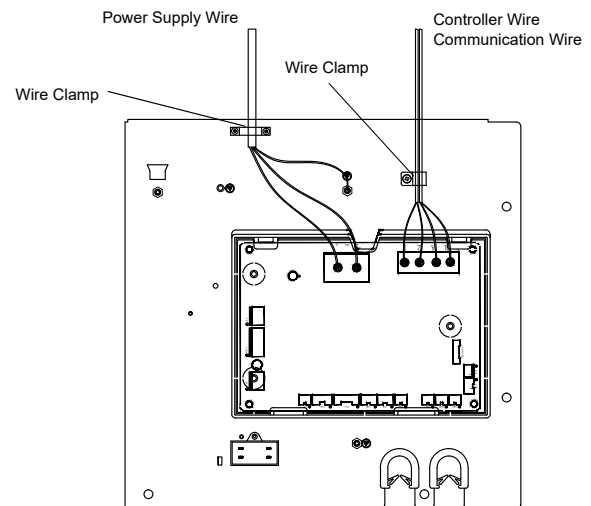


Fig. 7.1 Wiring Connection

! CAUTION

- Tightly secure the power source wire by cord clamp inside the unit.
- Use shielded twisted pair for the connection of transmission wires between the outdoor and indoor units, and the transmission wires between the indoor units and wired controller.

7.3 Static Pressure Selection Wiring

RPIM-0.8~2.5HNAUN1Q	Static Pressure (Pa)	50 (*)	80
	Plug Wording	1	2
RPIH-3.0~6.0HNAUN1Q	Static Pressure (Pa)	120 (*)	90
	Plug Wording	1	2

*: Factory default

The plug printed with number "1" before delivery of above-noted indoor unit is inserted into the socket. To change the static pressure, insert the plug printed with number "2". See Fig. 7.3.

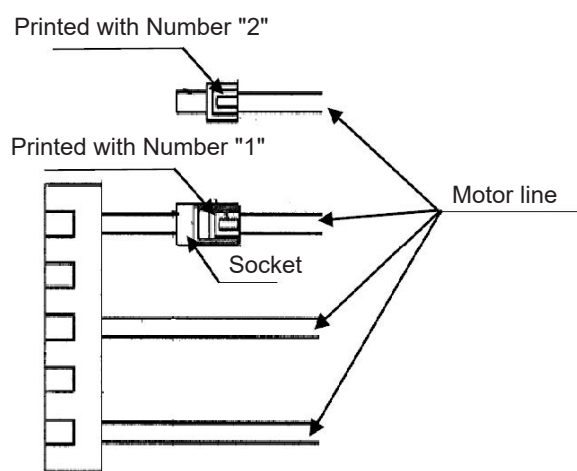


Fig. 7.3 Switching of External Static Pressure

9. Safety and Control Device Setting

Indoor Unit			RPIL-0.8~2.0 HNAUN1Q	RPIL-2.3~2.5 HNAUN1Q	RPIL-3.0~4.0 HNAUN1Q	RPIL-5.0 HNAUN1Q	RPIL-6.0 HNAUN1Q
Temperature Control on Fan Motor of Indoor Unit	Cut-out	°C	130±5	150±5	135±5	150±5	150±5
	Cut-in	°C	90±15	105±15	90±15	100±15	105±15
Capacity of Fuse on Indoor Unit	220-240V ~ 50Hz	A	5				
Freeze Protection Temperature	Cut-out	°C	0				
	Cut-in	°C	14				
Set Temperature Difference		°C	2				

Indoor Unit			RPIM-0.8~1.0 HNAUN1Q	RPIM-1.3~2.0 HNAUN1Q	RPIM-2.3~2.5 HNAUN1Q	RPIH-3.0~5.0 HNAUN1Q	RPIH-6.0 HNAUN1Q
Temperature Control on Fan Motor of Indoor Unit	Cut-out	°C	130±5	130±5	150±5	150±5	150±5
	Cut-in	°C	85±15	90±15	105±15	100±15	85±15
Capacity of Fuse on Indoor Unit	220-240V ~ 50Hz	A	5				
Freeze Protection Temperature	Cut-out	°C	0				
	Cut-in	°C	14				
Set Temperature Difference		°C	2				

8. Test Run

Test run should be performed according to this Manual .



- 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 AC CONTACTOR. It will cause a serious accident.

10. Field Operation

10.1 Field Minimum Wire Size for Power Source Line

Diameters of Field-Connected Wires and Power Cords

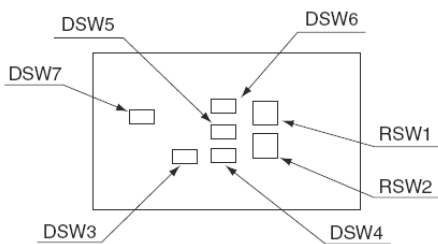
Models	Power Supply	Rated Current	Power Cord Specifications	Signal Wire Specifications
RPIL-0.8~1.0HNAUN1Q	220-240V ~ 50Hz	0.49A	2.5 mm ²	0.75mm ²
RPIL-1.3~1.5HNAUN1Q		0.90A		
RPIL-1.8~2.0HNAUN1Q		0.76A		
RPIL-2.3~2.5HNAUN1Q		1.38A		
RPIL-3.0~4.0HNAUN1Q		2.04A		
RPIL-5.0HNAUN1Q		2.44A		
RPIL-6.0HNAUN1Q		3.03A		
RPIM-0.8~1.0HNAUN1Q	220-240V ~ 50Hz	0.82A	2.5 mm ²	0.75mm ²
RPIM-1.3~1.5HNAUN1Q		0.98A		
RPIM-1.8~2.0HNAUN1Q		1.17A		
RPIM-2.3~2.5HNAUN1Q		1.63A		
RPIH-3.0~4.0HNAUN1Q		2.11A		
RPIH-5.0HNAUN1Q		3.04A		
RPIH-6.0HNAUN1Q		3.62A		
Total Current (A)	Wire (mm ²)			※1 DO NOT connect wires in series when the current exceeds 63A.
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			

Note:

- (1) Field wiring shall be in conformity to local laws and regulations, and all wiring operations must be performed by qualified professionals.
- (2) Refer to relevant standards for above-noted power cord size.
- (3) Where power cord is connected through junction box, be sure to determine the total current and choose wires based on the table above.
- (4) As a minimum, the chosen power cord shall be compliant with requirements on neoprene sheathed wire #57 as stated in IEC 60245-1, while the power cord shall be made from copper conductor.
- (5) The wiring specifications for weak-current communication circuit shall not be lower than that for RVV(S)P shielded wires or equivalent, and the shielding layer shall be grounded.
- (6) A switch that can ensure all-pole disconnection shall be installed between power supply and air conditioning unit in such a manner that the contact spacing shall not be less than 3mm.
- (7) Once the power cord is damaged, the dealer or the professionals from designated maintenance department must be contacted in a timely manner for repair and replacement.
- (8) For the installation of power cord, the ground wire must be longer than the current-carrying conductor.

10.2 Setting of Dip Switches

(A) Positions 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(RSW1&DSW6)

Setting is required. Set the unit No. of all indoor units respectively and serially by following setting position shown in the table below. Numberring must start from "0" for every outdoor unit

Unit No. Setting

DSW6 (Tens Digit)	RSW1 (Units Digit)	Ex.) Set at No.16 Unit
Before shipment, DSW6 and RSW1 are set to "0". Max. 64 units are available to set when all the equipment to be connected are corresponding to H-LINK II. Max. 16 units when the units non-corresponding to H-LINK II.		Set No.1 Pin ON Set at "6"

(2) Refrigerant Cycle No.Setting(RSW2&DSW5)

The refrigeration system codes of all indoor units are required to be set based on the position diagram below. All are set to OFF before delivery.

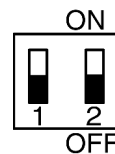
Refrigerant Cycle No. Setting

DSW5 (Tens Digit)	RSW2 (Units Digit)	Ex.) Set at No.5 Cycle
Before shipment, DSW5 and RSW2 are set to "0". Max. 64 cycles are available to set when all the equipment to be connected are corresponding to H-LINK II. Max. 16 cycles when the units non-corresponding to H-LINK II.		Set All Pins OFF Set at "5"

(3) Safety reset (DSW7)

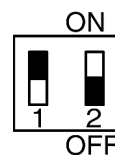
No setup is needed

All are set to OFF before delivery.



* In the case of applying high voltage to terminals 1 and 2 of TB2, the fuse on the PCB, is cut.

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



CAUTION

Other DIP switches than above-noted ones to be set are set up before delivery, and shall not be modified without permission, since unauthorized modification may lead to unit malfunction.

The power supply shall be turned off before the setup of DIP switch. The settings will be invalid if power supply is not turned off.



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

Add.: No. 218, Qianwangang Road, Economic and Technological Development Zone, Qingdao, China

The Company is committed to continuous product improvement. We reserve the right, therefore, to alter the product information at any time and without prior announcement.

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