

(5) Duct connected-Low / Middle static pressure type (FDUM)



(a) Indoor unit

This manual is for the installation of an indoor unit.
 For electrical wiring work (Indoor), refer to page 221. For remote control installation, refer to page 233.
 For wireless kit installation, refer to page 602. For electrical wiring work (Outdoor) and refrigerant pipe work installation for outdoor unit, refer to page 245.

SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, **⚠️WARNING** and **⚠️CAUTION**.
⚠️WARNING: Wrong installation would cause serious consequences such as injuries or death.
⚠️CAUTION: Wrong installation might cause serious consequences depending on circumstances.
 Both mentions the important items to protect your health and safety so strictly follow them by any means.
 ● The meanings of "Marks" used here are as shown on the right:
Ⓜ Never do it under any circumstances. **Ⓜ** Always do it according to the instruction.
- After completing the installation, do commissioning to confirm there are no abnormalities, and explain to the customers about "SAFETY PRECAUTIONS", correct operation method and maintenance method (air filter cleaning, operation method and temperature setting method) with user's manual of this unit.
 Ask your customers to keep this installation manual together with the user's manual. Also, ask them to hand over the user's manual to the new user when the owner is changed.

⚠️ WARNING

- **Installation should be performed by the specialist.**
 If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn of the unit. **⚠️**
- **Install the system correctly according to these installation manuals.**
 Improper installation may cause explosion, injury, water leakage, electric shock, and fire. **⚠️**
- **Check the density referred by the formula (accordance with ISO5149).**
 If the density exceeds the limit density, please consult the dealer and installate the ventilation system. **⚠️**
- **Use the genuine accessories and the specified parts for installation.**
 If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overturn of the unit. **⚠️**
- **Ventilate the working area well in case the refrigerant leaks during installation.**
 If the refrigerant contacts the fire, toxic gas is produced. **⚠️**
- **Install the unit in a location that can hold heavy weight.**
 Improper installation may cause the unit to fall leading to accidents. **⚠️**
- **Install the unit properly in order to be able to withstand strong winds such as typhoons, and earthquakes.**
 Improper installation may cause the unit to fall leading to accidents. **⚠️**
- **Do not mix air in to the cooling cycle on installation or removal of the air-conditioner.**
 If air is mixed in, the pressure in the cooling cycle will rise abnormally and may cause explosion and injuries. **⚠️**
- **Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.**
 Power source with insufficient capacity and improper work can cause electric shock and fire. **⚠️**
- **Use specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in order not to apply unexpected stress on the terminal.**
 Loose connections or hold could result in abnormal heat generation or fire. **⚠️**
- **Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel properly.**
 Improper fitting may cause abnormal heat and fire. **⚠️**
- **Check for refrigerant gas leakage after installation is completed.**
 If the refrigerant gas leaks into the house and comes in contact with a fan heater, a stove, or an oven, toxic gas is produced. **⚠️**
- **Use the specified pipe, flare nut, and tools for R410A.**
 Using existing parts (R22) could cause the unit failure and serious accident due to explosion of the cooling cycle. **⚠️**
- **Tighten the flare nut according to the specified method by with torque wrench.**
 If the flare nut were tightened with excess torque, it could cause burst and refrigerant leakage after a long period. **⚠️**
- **Do not put the drainage pipe directly into drainage channels where poisonous gases such as sulfide gas can occur.**
 Poisonous gases will flow into the room through drainage pipe and seriously affect the user's health and safety. This can also cause the corrosion of the indoor unit and a resultant unit failure or refrigerant leak. **⚠️**
- **Connect the pipes for refrigeration circuit securely in installation work before compressor is operated.**
 If the compressor is operated when the service valve is open without connecting the pipe, it could cause explosion and injuries due to abnormal high pressure in the system. **⚠️**
- **Stop the compressor before removing the pipe after shutting the service valve on pump down work.**
 If the pipe is removed when the compressor is in operation with the service valve open, air would be mixed in the refrigeration circuit and it could cause explosion and injuries due to abnormal high pressure in the cooling cycle. **⚠️**
- **Only use prescribed option parts. The installation must be carried out by the qualified installer.**
 If you install the system by yourself, it can cause serious trouble such as water leaks, electric shocks, fire. **⚠️**
- **Do not repair by yourself. And consult with the dealer about repair.**
 Improper repair may cause water leakage, electric shock or fire. **⚠️**
- **Consult the dealer or a specialist about removal of the air conditioner.**
 Improper installation may cause water leakage, electric shock or fire. **⚠️**
- **Turn off the power source during servicing or inspection work.**
 If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan. **⚠️**
- **Do not run the unit when the panel or protection guard are taken off.**
 Touching the rotating equipment, hot surface, or high voltage section could cause an injury to be caught in the machine, to get burned, or electric shock. **⚠️**
- **Shut off the power before electrical wiring work.**
 It could cause electric shock, unit failure and improper running. **⚠️**

⚠️ CAUTION

- **Perform earth wiring surely.**
 Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth could cause unit failure and electric shock or fire due to a short circuit. **⚠️**
- **Earth leakage breaker must be installed.**
 If the earth leakage breaker is not installed, it could cause electric shocks or fire. **⚠️**
- **Use the circuit breaker of correct capacity. Circuit breaker should be the one that disconnect all poles under over current.**
 Using the incorrect one could cause the system failure and fire. **⚠️**
- **Do not use any materials other than a fuse of correct capacity where a fuse should be used.**
 Connecting the circuit by wire or copper wire could cause unit failure and fire. **⚠️**
- **Do not install the indoor unit near the location where there is possibility of flammable gas leakages.**
 If the gas leaks and gathers around the unit, it could cause fire. **⚠️**
- **Do not install and use the unit where corrosive gas (such as sulfurous acid gas etc.) or flammable gas (such as thinner, petroleum etc.) may be generated or accumulated, or volatile flammable substances are handled.**
 It could cause the corrosion of heat exchanger, breakage of plastic parts etc. And inflammable gas could cause fire. **⚠️**
- **Secure a space for installation, inspection and maintenance specified in the manual.**
 Insufficient space can result in accident such as personal injury due to falling from the installation place. **⚠️**
- **Do not use the indoor unit at the place where water splashes such as laundry.**
 Indoor unit is not waterproof. It could cause electric shock and fire. **⚠️**
- **Do not use the indoor unit for a special purpose such as food storage, cooling for precision instrument, preservation of animals, plants, and a work of art.**
 It could cause the damage of the items. **⚠️**
- **Do not install nor use the system near equipments which generate electromagnetic wave or high harmonics.**
 Equipments like inverter equipment, private power generator, high-frequency medical equipment, or telecommunication equipment might influence the air conditioner and cause a malfunction and breakdown. Or the air conditioner might influence medical equipments or telecommunication equipments, and obstruct their medical activity or cause jamming. **⚠️**
- **Do not install the remote control at the direct sunlight.**
 It could cause breakdown or deformation of the remote control. **⚠️**
- **Do not install the indoor unit at the place listed below.**
 - Places where flammable gas could leak.
 - Places where carbon fiber, metal powder or any powder is floated.
 - Places where the substances which affect the air conditioner are generated such as sulfide gas, chloride gas, acid, alkali or ammoniac atmospheres.
 - On vehicles and ships
 - Places where machinery which generates high harmonics is used.
 - Places where cosmetics or special sprays are frequently used.
 - Highly satted area such as beach.
 - Heavy snow area
 - Places where the system is affected by smoke from a chimney.
 - Altitude over 1000m**⚠️**
- **Do not install the indoor unit in the locations listed below (Be sure to install the indoor unit according to the installation manual for each model because each indoor unit has each limitation)**
 - Locations with any obstacles which can prevent inlet and outlet air of the unit
 - Locations where vibration can be amplified due to insufficient strength of structure.
 - Locations where the infrared receiver is exposed to the direct sunlight or the strong light beam. (in case of the infrared specification unit)
 - Locations where an equipment affected by high harmonics is placed. (TV set or radio receiver is placed within 5m)
 - Locations where drainage cannot run off safely.
 - It can affect performance or function and etc..**⚠️**
- **Do not put any valuables which will break down by getting wet under the air conditioner.**
 Condensation could drop when the relative humidity is higher than 80% or drain pipe is clogged, and it damages user's belongings. **⚠️**
- **Do not use the base frame for the outdoor unit which is corroded or damaged after a long period of use.**
 It could cause the unit falling down and injury. **⚠️**
- **Pay attention not to damage the drain pan by weld sputter when brazing work is done near the unit.**
 If sputter entered into the unit during brazing work, it could cause damage (pinhole) of drain pan and leakage of water. To avoid damaging, keep the indoor unit packed or cover the indoor unit. **⚠️**
- **Install the drain pipe to drain the water surely according to the installation manual.**
 Improper connection of the drain pipe may cause dropping water into room and damaging user's belongings. **⚠️**
- **Do not share the drain pipe for indoor unit and GHP (Gas Heat Pump system) outdoor unit.**
 Toxic exhaust gas would flow into room and it might cause serious damage (some poisoning or deficiency of oxygen) to user's health and safety. **⚠️**
- **Be sure to perform air tightness test by pressurizing with nitrogen gas after completed refrigerant piping work.**
 If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the small room, lack of oxygen can occur, which can cause serious accidents. **⚠️**
- **For drain pipe installation, be sure to make descending slope of greater than 1/100, not to make traps, and not to make air-bleeding.**
 Check if the drainage is correctly done during commissioning and ensure the space for inspection and maintenance. **⚠️**
- **Ensure the insulation on the pipes for refrigeration circuit so as not to condense water.**
 Incomplete insulation could cause condensation and it would wet ceiling, floor, and any other valuables. **⚠️**
- **Do not install the outdoor unit where is likely to be a nest for insects and small animals.**
 Insects and small animals could come into the electronic components and cause breakdown and fire. Instruct the user to keep the surroundings clean. **⚠️**
- **Pay extra attention, carrying the unit by hand.**
 Carry the unit with 2 people if it is heavier than 20kg. Do not use the plastic straps but the grabbing place, moving the unit by hand. Use protective gloves in order to avoid injury by the aluminum fin. **⚠️**
- **Make sure to dispose of the packaging material.**
 Leaving the materials may cause injury as metals like nail and woods are used in the package. **⚠️**
- **Do not operate the system without the air filter.**
 It may cause the breakdown of the system due to clogging of the heat exchanger. **⚠️**
- **Do not touch any button with wet hands.**
 It could cause electric shock. **⚠️**
- **Do not touch the refrigerant piping with bare hands when in operation.**
 The pipe during operation would become very hot or cold according to the operating condition, and it could cause a burn or frostbite. **⚠️**
- **Do not clean up the air conditioner with water.**
 It could cause electric shock. **⚠️**
- **Do not turn off the power source immediately after stopping the operation.**
 Be sure to wait for more than 5 minutes. Otherwise it could cause water leakage or breakdown. **⚠️**
- **Do not control the operation with the circuit breaker.**
 It could cause fire or water leakage. In addition, the fan may start operation unexpectedly and it may cause injury. **⚠️**

○ This model is middle static ducted type air-conditioner unit. Therefore, do not use this model for direct blow type air-conditioner unit.

1 Before installation

- Install correctly according to the installation manual.
- Confirm the following points:
 - Unit type/Power source specification
 - Pipes/Wires/Small parts
 - Accessory items

Accessory item							
For hanging	For refrigerant pipe			For drain pipe			
Flat washer (M10)	Pipe cover (big)	Pipe cover (small)	Strap	Pipe cover (big)	Pipe cover (small)	Drain hose	Hose clamp
8	1	1	4	1	1	1	1
For unit hanging	For heat insulation of gas pipe	For heat insulation of liquid tube	For pipe cover fixing	For heat insulation of drain socket	For heat insulation of drain socket	For drain pipe connecting	For drain hose mounting

Accessory parts are stored inside this suction side.

2 Selection of installation location for the indoor unit

- Select the suitable areas to install the unit under approval of the user.
 - Areas where the indoor unit can deliver hot and cold wind sufficiently. Suggest to the user to use a circulator if the ceiling height is over 3m to avoid warm air being accumulated on the ceiling.
 - Areas where there is enough space to install and service.
 - Areas where it can be drained properly. Areas where drain pipe descending slope can be taken.
 - Areas where there is no obstruction of air flow on both air return grille and air supply port.
 - Areas where fire alarm will not be accidentally activated by the air-conditioner.
 - Areas where the supply air does not short-circuit.
 - Areas where it is not influenced by draft air.
 - Areas not exposed to direct sunlight.
 - Areas where dew point is lower than around 28°C and relative humidity is lower than 80%.

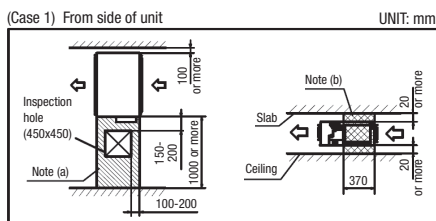
(This indoor unit is tested under the condition of JIS (Japan Industrial Standard) high humidity condition and confirmed there is no problem. However, there is some risk of condensation drop if the air-conditioner is operated under the severer condition than mentioned above. If there is a possibility to use it under such a condition, attach additional insulation of 10 to 20mm thick for entire surface of indoor unit, refrigeration pipe and drain pipe.)

 - Areas where TV and radio stays away more than 1m. (It could cause jamming and noise.)
 - Areas where any items which will be damaged by getting wet are not placed such as food, table wares, server, or medical equipment under the unit.
 - Areas where there is no influence by the heat which cookware generates.
 - Areas where not exposed to oil mist, powder and/or steam directly such as above fryer.
 - Areas where lighting device such as fluorescent light or incandescent light doesn't affect the operation.

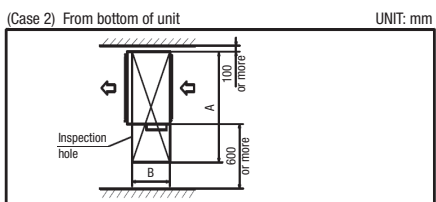
(A beam from lighting device sometimes affects the infrared receiver for the wireless remote control and the air-conditioner might not work properly.)

Space for installation and service

- Make installation altitude over 2.5m. (Indoor Unit)
- Select either of two cases to keep space for installation and services.



Notes (a) There must not be obstacle to draw out fan motor. (b) Install refrigerant pipe, drain pipe, and wiring so as not to cross marked area.

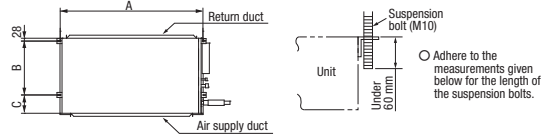


(Size of inspection hole)	UNIT: mm		
Single type	40-50	60-71	100-140
Multi type	22-56	71-90	112-160
A	1100	1300	1720
B	620		725

3 Preparation before installation

- If suspension bolt becomes longer, do reinforcement of earthquake resistant.
 - For grid ceiling
 - When the suspension bolt length is over 500mm, or the gap between the ceiling and roof is over 700mm, apply earthquake resistant brace to the bolt.
 - In case the unit is hanged directly from the slab and is installed on the ceiling plane which has enough strength.
 - When suspension bolt length is over 1000mm, apply the earthquake resistant brace to the bolt.
- Prepare four (4) sets of suspension bolt, nut and spring washer (M10) on site.

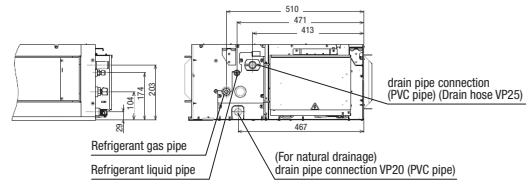
Suspension Bolt Location



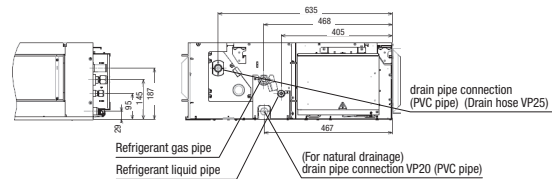
	UNIT: mm		
Multi type	22-56	71-90	112-160
Single type	40-50	60-71	100-140
A	786	986	1404
B	472	472	530
C	135	135	180

Pipe locations UNIT: mm

Multi type	22-90
Single type	40-71



Multi type	112-160
Single type	100-140

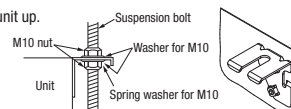


4 Installation of indoor unit

Installation

[Hanging]

Hang the unit up.

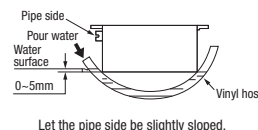


If the measurements between the unit and the ceiling hole do not match upon installation, it may be adjusted with the long holed installation tool.

Adjustment for horizontality

○ Either use a level vial, or adjust the level according to the method below.

- Adjust so the bottom side of the unit will be leveled with the water surface as illustrated below.



○ If the unit is not leveled, it may cause malfunctions or inoperation of the float switch.

⑤ Duct work

① A corrugated board (for preventing sputtering) is attached to the main body of the air-conditioner (on the outlet port). Do not remove it until connecting the duct.

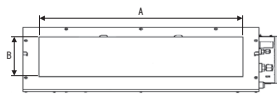
- An air filter can be provided on the main body of the air-conditioner (on the inlet port). Remove it when connecting the duct on the inlet port.

② Blowout duct

- Use rectangular duct to connect with unit.

Duct size for each unit is as shown below.

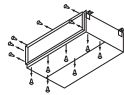
	UNIT: mm		
Single type	40-50	60-71	100-140
Multi type	22-56	71-90	112-140
A	682	882	1202
B	172	172	172



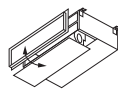
- Duct should be at their minimum length.
- We recommend to use sound and heat insulated duct to prevent it from condensation.
- Connect duct to unit before ceiling attachment.

③ Inlet port

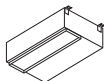
- When shipped the inlet port lies on the back.
- When connecting the duct to the inlet port, remove the air filter if it is fitted to the inlet port.
- When placing the inlet port to carry out suction from the bottom side, use the following procedure to replace the suction duct joint and the bottom plate.



- Remove the screws which fasten the bottom plate and the duct joint on the inlet port side of the unit.



- Replace the removed bottom plate and duct joint.

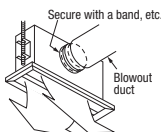


- Fit the duct joint with a screw; fit the bottom plate.

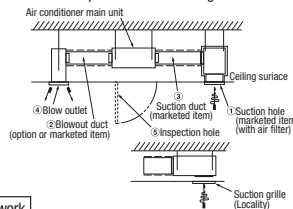
- Make sure to insulate the duct to prevent dewing on it.

④ Install the specific blowout duct in a location where the air will circulate to the entire room.

- Conduct the installation of the specific blowout hole and the connection of the duct before attaching them to the ceiling.
- Insulate the area where the duct is secured by a band for dew condensation prevention.



⑤ Make sure provide an inspection hole on the ceiling. It is indispensable to service electric equipment, motor, functional components and cleaning of heat exchanger.



Bad example of duct work

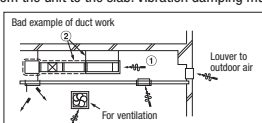
① If a duct is not provided at the suction side but it is substituted with the space over the ceiling, humidity in the space will increase by the influence of capacity of ventilation fan, strength of wind blowing against the out door air louver, weather (rainy day) and others.

a) Moisture in air is likely to condense over the external plates of the unit and to drip on the ceiling. Unit should be operated under the conditions as listed in the above table and within the limitation of wind volume. When the building is a concrete structure, especially immediately after the construction, humidity tends to rise even if the space over the ceiling is not substituted in place of a duct. In such occasion, it is necessary to insulate the entire unit with glass wool (25mm). (Use a wire net or equivalent to hold the glass wool in place.)

b) It may run out the allowable limit of unit operation (Example: When outdoor air temperature is 35°C DB, suction air temperature is 27°C WB) and it could result in such troubles as compressor overload, etc..

c) There is a possibility that the blow air volume may exceed the allowable range of operation due to the capacity of ventilation fan or strength of wind blowing against external air louver so that drainage from heat exchanger may fall to reach the drain pan but leak outside (Example: drip on to the ceiling) with consequential water leakage in the room.

② If vibration damping is not conducted between the unit and the duct, and between the unit and the slab, vibration will be transmitted to the duct and vibration noise may occur. Also, vibration may be transmitted from the unit to the slab. Vibration damping must be performed.



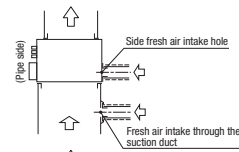
⑤ Duct work (continued)

Connecting the air intake/vent ducts

① Fresh Air Intake

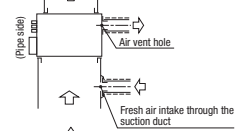
[for air intake duct only]

- Use the side fresh air intake hole, or supply through a part of the suction duct.



[for simultaneous air intake/vent]

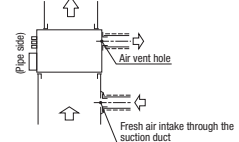
- Intake air through the suction duct. (the side cannot be used)



② Air Vent

- Use the side air vent hole.

(always use together with the air intake)



- Insulate the duct to protect it from dew condensation.

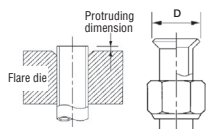
⑥ Refrigerant pipe

Caution

- Be sure to use new pipes for the refrigerant pipes. Use the flare nut attached to the product or a nut compatible with JIS B 8607, Class 2.

Regarding whether existing pipes can be reused or not, and the washing method, refer to the instruction manual of the outdoor unit, catalogue or technical data.

- 1) In case of reuse: Do not use old flare nut, but use the one attached to the unit or compatible with JIS B 8607, Class 2.
- 2) In case of reuse: Flare the end of pipe replaced partially for R410A.



Pipe dia. d mm	Min. pipe wall thickness mm	Protruding dimension for flare, mm		Flare O.D. D mm	Flare nut tightening torque N·m
		For R410A	Conventional (tot)		
6.35	0.8	0-0.5	0.7-1.3	8.9 - 9.1	14 - 18
9.52	0.8			12.8 - 13.2	34 - 42
12.7	0.8			16.2 - 16.6	49 - 61
15.88	1			19.3 - 19.7	68 - 82
19.05	1.2			23.6 - 24.0	100 - 120

- Use phosphorus deoxidized copper alloy seamless pipe (C1220T specified in JIS H 3300) for refrigerant pipe installation. In addition, make sure there is no damage both inside and outside of the pipe, and no harmful substances such as sulfur, oxide, dust or a contaminant stuck on the pipes.

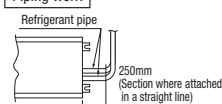
- Do not use any refrigerant other than R410A.

Using other refrigerant except R410A (R22 etc.) may degrade inside refrigeration oil. And air getting into refrigeration circuit may cause over-pressure and resultant it may result in bursting, etc.

- Store the copper pipes indoors and seal the both end of them until they are brazed in order to avoid any dust, dirt or water getting into pipe. Otherwise it will cause degradation of refrigeration oil and compressor breakdown, etc.

- Use special tools for R410A refrigerant.

Piping work



When conducting piping work, make sure to allow the pipes to be aligned in a straight line for at least 250 mm, as shown in the left illustration. (This is necessary for the drain pump to function)

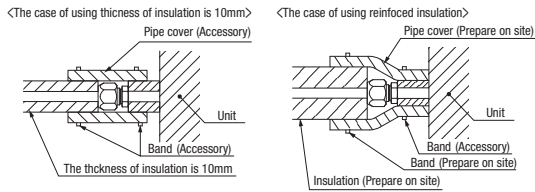
Work procedure

1. Remove the flare nut and blind flanges on the pipe of the indoor unit.
 - ※ Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them. (Gas may come out at this time, but it is not abnormal.)
 - Pay attention whether the flare nut pops out. (as the indoor unit is sometimes pressured.)
2. Make a flare on liquid pipe and gas pipe, and connect the refrigeration pipes on the indoor unit.
 - ※ Bend radius of pipe must be 4D or larger. Once a pipe is bent, do not readjust the bending. Do not twist a pipe or collapse to 2/3D or smaller.
 - ※ Do a flare connection as follows:
 - Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
 - When fastening the flare nut, align the refrigeration pipe with the center of flare nut, screw the nut for 3-4 times by hand and then tighten it by spanner with the specified torque mentioned in the table above. Make sure to hold the pipe on the indoor unit securely by a spanner when tightening the nut in order to avoid unexpected stress on the copper pipe.
3. Cover the flare connection part of the indoor unit with attached insulation material after a gas leakage inspection, and tighten both ends with attached straps.
 - Make sure to insulate both gas pipes and liquid pipes completely.
 - ※ Incomplete insulation may cause dew condensation or water dropping.
 - Use heat-resistant (120 °C or more) insulations on the gas side pipes.
 - In case of using at high humidity condition, reinforce insulation of refrigerant pipes. Surface of insulation may cause dew condition or water dropping, if insulations are not reinforced.

⑥ Refrigerant pipe (continued)

4. Refrigerant is charged in the outdoor unit.
As for the additional refrigerant charge for the indoor unit and piping, refer to the installation manual attached to the outdoor unit.

Caution:
Refrigerating machine oil should not be applied to the threads of union or external surface of flare. It is because, even if the same tightening torque is applied, the oil is likely to decrease the slide friction force on the threads and increase, in turn, the axial component force so that it could crack the flare by the stress corrosion.
Refrigerating machine oil may be applied to the internal surface of flare only.



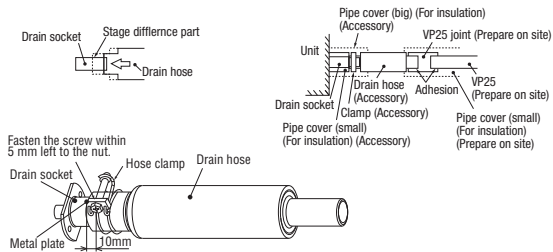
⑦ Drain pipe

Caution

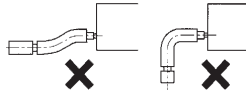
- Install the drain pipe according to the installation manual in order to drain properly. Imperfection in draining may cause flood indoors and wetting the household goods, etc.
- Do not put the drain pipe directly into the ditch where toxic gas such as sulfur, the other harmful and inflammable gas is generated. Toxic gas would flow into the room and it would cause serious damage to user's health and safety (some poisoning or deficiency of oxygen). In addition, it may cause corrosion of heat exchanger and bad smell.
- Connect the pipe securely to avoid water leakage from the joint.
- Insulate the pipe properly to avoid condensation drop.
- Check if the water can flow out properly from both the drain outlet on the indoor unit and the end of the drain pipe after installation.
- Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway. In addition, do not put air vent on the drain pipe. Check if water is drained out properly from the pipe during commissioning. Also, keep sufficient space for inspection and maintenance.

Work procedure

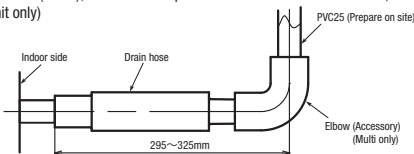
1. Make sure to insert the drain hose (the end made of soft PVC) to the end of the step part of drain socket.
Attach the hose clamp to the drain hose around 10mm from the end, and fasten the screw within 5mm left to the nut.
 - Do not apply adhesives on this end.
 - Do not use acetone-based adhesives to connect to the drain socket.



2. Prepare a joint for connecting VP25 pipe, adhere and connect the joint to the drain hose (the end made of rigid PVC), and adhere and connect VP25 pipe (prepare on site).
 ※As for drain pipe, apply VP25 made of rigid PVC which is on the market.
 - Make sure that the adhesive will not get into the supplied drain hose. It may cause the flexible part broken after the adhesive is dried up and gets rigid.
 - The flexible drain hose is intended to absorb a small difference at installation of the unit or drain pipes. Intentional bending, expanding may cause the flexible hose broken and water leakage.



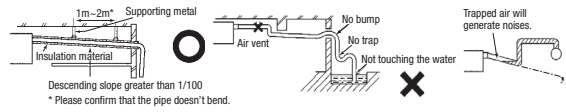
- As for drain pipe, apply VP25 (OD32). If apply PVC25 (OD25), connect the expanded connector to the drain hose, with adhesive. (Multi unit only)



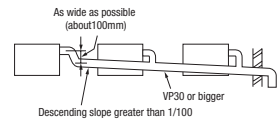
⑦ Drain pipe (continued)

3. Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway.

- Pay attention not to give stress on the pipe on the indoor unit side, and support and fix the pipe as close place to the unit as possible when connecting the drain pipe.
- Do not set up air vent.



- When sharing a drain pipe for more than one unit, lay the main pipe 100mm below the drain outlet of the unit. In addition, select VP30 or bigger size for main drain pipe.

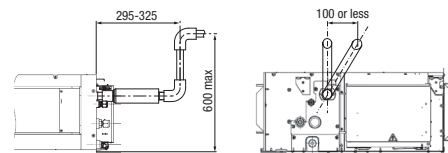


4. Insulate the drain pipe.

- Be sure to insulate the drain socket and rigid PVC pipe installed indoors otherwise it may cause dew condensation and water leakage.
 ※After drainage test implementation, cover the drain socket part with pipe cover (small size), then use the pipe cover (big size) to cover the pipe cover (small size), clamps and part of the drain hose, and fix and wrap it with tapes to wrap and make joint part gapless.

Drain up

- The position for drain pipe outlet can be raised up to 600mm above the ceiling. Use elbows for installation to avoid obstacles inside ceiling. If the horizontal drain pipe is too long before vertical pipe, the backflow of water will increase when the unit is stopped, and it may cause overflow of water from the drain pan on the indoor unit. In order to avoid overflow, keep the horizontal pipe length and offset of the pipe within the limit shown in the figure below.



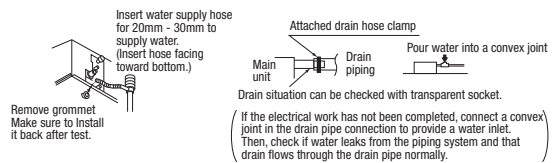
Otherwise, the construction point makes it same as drain pipe construction.

Drain test

1. Conduct a drain test after completion of the electrical work.
2. During the trial, make sure that drain flows properly through the piping and that no water leaks from connections.
3. In case of a new building, conduct the test before it is furnished with the ceiling.
4. Be sure to conduct this test even when the unit is installed in the heating season.

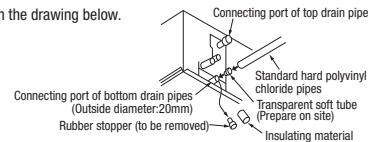
Procedures

1. Supply about 1000 cc of water to the unit through the air outlet by using a feed water pump.
2. Check the drain while cooling operation.



Outline of bottom drain piping work

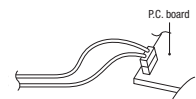
- If the bottom drain piping can be done with a descending gradient (1/50-1/100), it is possible to connect the pipes as shown in the drawing below.



Uncoupling the drain motor connector

- Uncouple the connector CnR for the drain motor as illustrated in the drawing on the right.

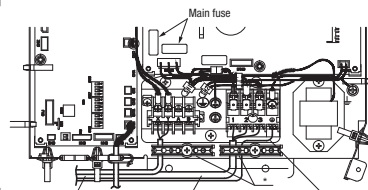
(Note: If the unit is run with the connector coupled, drain water will be discharged from the upper drain pipe joint, causing a water leak.)



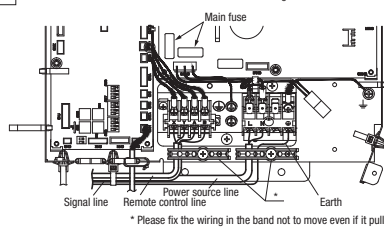
⑧ Wiring-out position and wiring connection

- Electrical installation work must be performed according to the installation manual by an electrical installation service provider qualified by a power provider of the country, and be executed according to the technical standards and other regulations applicable to electrical installation in the country.
Be sure to use an exclusive circuit.
- Use specified cord, fasten the wiring to the terminal securely, and hold the cord securely in order not to apply unexpected stress on the terminal.
- Do not put both power source line and signal line on the same route. It may cause miscommunication and malfunction.
- For the details of electrical wiring work, see attached instruction manual for electrical wiring work.
 1. Remove a lid of the control box (2 screws).
 2. Hold each wiring inside the unit and fasten them to terminal block securely.
 3. Fix the wiring with clamps.
 4. Install the removed parts back to original place.

Single unit wiring connection



Multi unit wiring connection



Main fuse specification

Model	Specification	Port No.
22-56	T3.15A L250V	SSA564A149AF
71-160	T5A L250V	SSA564A149AM

* Please fix the wiring in the band not to move even if it pulls.

⑨ External static pressure setting (continued)

- How to start automatic setting
 - ① Same setting as MANUAL SETTING.
 - ③ Select [AUT] by using button and press button.
 - ② After setting E.S.P. at "AUT", operate unit in FAN mode with certain fan speed (Lo-Uhi).

Indoor unit fan will run automatically and recognize E.S.P. by itself.
The operation for automatic E.S.P. recognition will last about 6 minutes, and it will be stopped after recognition is completed.

Caution

- Be sure to execute AUTOMATIC SETTING by remote control AFTER ducting work is completed.
- When duct specification is changed after AUTOMATIC SETTING, be sure to execute AUTOMATIC SETTING again after power resetting and turning on again.
- Be sure to execute AUTOMATIC SETTING before trial cooling operation.
(See ELECTRICAL WIRING WORK INSTRUCTION about trial cooling operation)
- Before AUTOMATIC SETTING, be sure to check that return air filter in duct is installed and damper is opened.
- Wrong procedure causes excessive air flow or water drop blown out.

Notice

- During operation for automatic recognition (the Auto Operation), fan rotates with certain speeds regardless of set fan speed by remote control.
- When duct is set with low static pressure (around 10-50Pa), even if indoor unit operate with higher air flow volume than rated one, but it is not abnormal.
- When you changed operation mode or stop operation with ON/OFF button during Auto Operation, the Auto operation will be canceled.
- In such case, be sure to execute AUTOMATIC SETTING again according to above procedure.

⑩ Check list after installation

- Check the following items after all installation work completed.

Check if	Expected trouble	Check
The indoor and outdoor units are fixed securely?	Falling, vibration, noise	
Inspection for leakage is done?	Insufficient capacity	
Insulation work is properly done?	Water leakage	
Water is drained properly?	Water leakage	
Power source voltage is same as mentioned in the model name plate?	PCB burnt out, not working at all	
No mis-wiring or mis-connection of piping?	PCB burnt out, not working at all	
Earth wiring is connected properly?	Electric shock	
Cable size comply with specified size?	PCB burnt out, not working at all	
Any obstacle blocks air flow on air inlet and outlet?	Insufficient capacity	
Is setting of E.S.P finished?	Excessive air flow, water drop blown out	

⑨ External static pressure setting

You can set External Static Pressure (E.S.P.) by either method of MANUAL SETTING or AUTOMATIC SETTING by remote control.
Indoor unit will control fan-speed to keep rated air flow volume at each fan speed setting (Lo-Uhi)

1. MANUAL SETTING

You can set required E.S.P. by wired remote control that calculated with the set air flow rate and pressure loss of the duct connected.

Select No.1-10 (10Pa-100Pa) from following table according to calculation result.
Refer to technical manual for details of air flow characteristic.

Setting No.	1	2	3	4	5	6	7	8	9	10
External Static Pressure (Pa)	10	20	30	40	50	60	70	80	90	100

※ When you set No.11-19 by remote control, unit will control fan-speed with setting of No.10
Factory default is at No.5.

- How to set E.S.P by wired remote control

- ① Push "◆" marked button(E.S.P button).
 - ② Select indoor unit No. by using button.
 - ③ Select setting No. by using button and set E.S.P. by button.
- See detailed procedure in technical manual.

Notice

You can NOT set E.S.P. by wireless remote control.

E.S.P. button



Caution

Be sure to set E.S.P. according to actual duct connected.
Wrong settings causes excessive air flow volume or water drop blown out.

2. AUTOMATIC SETTING

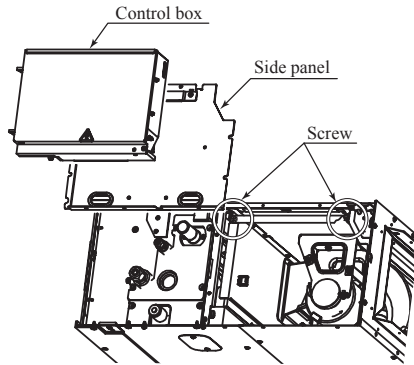
Indoor unit will recognize E.S.P. by itself automatically and select appropriate fan speed No.1-10.

(b) Replacement procedure of the fan unit

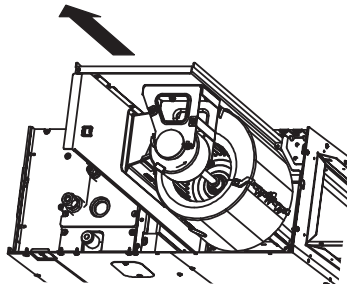
- Notes(1) The unit is a heavy item. It must be supported securely and handled with care not to drop when it is necessary to replace.
 (2) For the maintenance space, refer to page 199.

(i) Model FDUM50VF

- 1) Remove the control box and the side panel, and remove the screws marked in the circles (2 places) in the figure.

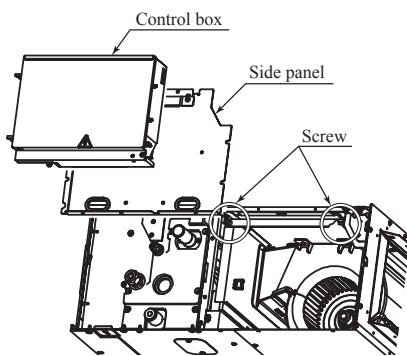


- 2) Take out the fan unit in the arrow direction.

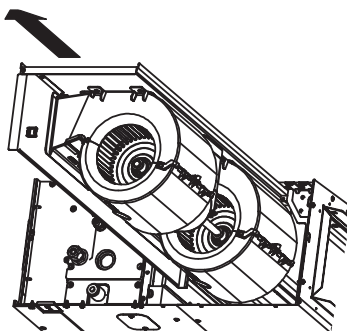


(ii) Models FDUM60VF, 71VF1

- 1) Remove the control box and the side panel, and remove the screws marked in the circles (2 places) in the figure.

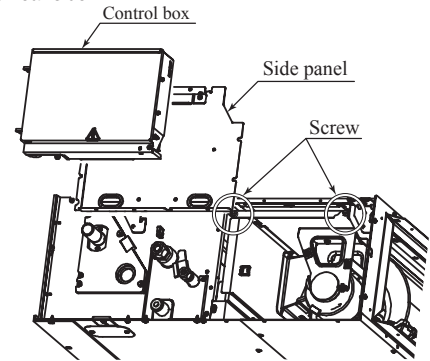


- 2) Take out the fan unit in the arrow direction.

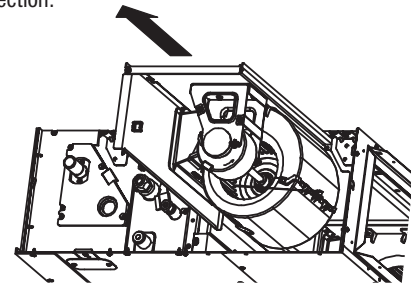


(iii) Models FDUM100VF2, 125VF, 140VF

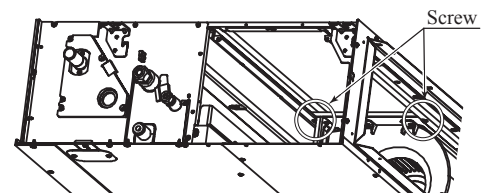
- 1) Remove the control box and the side panel, and remove the screws marked in the circles (2 places) from the unit located at the near side.



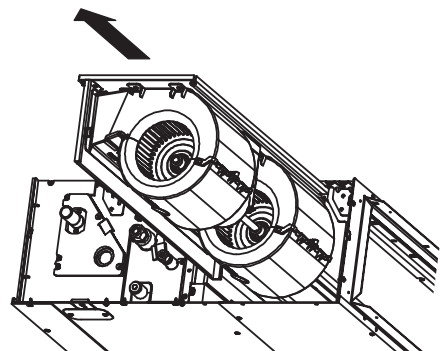
- 2) Take out the fan unit located at the near side in the arrow direction.



- 3) Remove the screws marked in the circles (2 places) from the fan unit located at the far side.



- 4) Take out the fan unit in the arrow direction.



(2) FDTC, FDE, FDUM series

Electrical wiring work must be performed by an electrician qualified by a local power provider according to the electrical installation technical standards and interior wiring regulations applicable to the installation site.

Security instructions

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, **WARNING** and **CAUTION**.
- ▲ **WARNING** : Wrong installation would cause serious consequences such as injuries or death.
- ▲ **CAUTION** : Wrong installation might cause serious consequences depending on circumstances. Both mentions the important items to protect your health and safety so strictly follow them by any means.
- The meanings of "Marks" used here are as shown on the right:
 - ⊘ Never do it under any circumstances.
 - ⊙ Always do it according to the instruction.
- Accord with following items. Otherwise, there will be the risks of electric shock and fire caused by overheating or short circuit.

WARNING

- Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.

Power source with insufficient capacity and improper work can cause electric shock and fire.
- Use specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in order not to apply unexpected stress on the terminal.

Loose connections or hold could result in abnormal heat generation or fire.
- Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel properly.

Improper fitting may cause abnormal heat and fire.
- Use the genuine option parts. And installation should be performed by a specialist.

If you install the unit by yourself, it could cause water leakage, electric shock and fire.
- Do not repair by yourself. And consult with the dealer about repair.

Improper repair may cause water leakage, electric shock or fire.
- Consult the dealer or a specialist about removal of the air-conditioner.

Improper installation may cause water leakage, electric shock or fire.
- Turn off the power source during servicing or inspection work.

If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan.
- Shut off the power before electrical wiring work.

It could cause electric shock, unit failure and improper running.

CAUTION

- Perform earth wiring surely.

Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth could cause unit failure and electric shock due to a short circuit.
- Earth leakage breaker must be installed.

If the earth leakage breaker is not installed, it can cause electric shocks.
- Make sure to install earth leakage breaker on power source line. (countermeasure thing to high harmonics.)

Absence of breaker could cause electric shock.
- Use the circuit breaker of correct capacity. Circuit breaker should be the one that disconnect all poles under over current.

Using the incorrect one could cause the system failure and fire.
- Do not use any materials other than a fuse of correct capacity where a fuse should be used.

Connecting the circuit by wire or copper wire could cause unit failure and fire.
- Use power source line of correct capacity.

Using incorrect capacity one could cause electric leak, abnormal heat generation and fire.
- Do not mingle solid cord and stranded cord on power source and signal side terminal block.

In addition, do not mingle difference capacity solid or stranded cord. Inappropriate cord setting could cause losing screw on terminal block, bad electrical contact, smoke and fire.
- Do not turn off the power source immediately after stopping the operation.

Be sure to wait for more than 5 minutes. Otherwise it could cause water leakage or breakdown.
- Do not control the operation with the circuit breaker.

It could cause fire or water leakage. In addition, the fan may start operation unexpectedly and it may cause injury.

Control mode switching

● The control content of indoor units can be switched in following way. (is the default setting)

Switch No.	Control Content	
SW2	Indoor unit address (0-Fh)	
SW5-1	Master/Slave Switching (plural /Slave unit Setting)	
SW5-2		
SW6-1~4	Model capacity setting	
SW7-1	ON	Operation check, Drain motor test run
	OFF	Normal operation

1 Electrical Wiring Connection

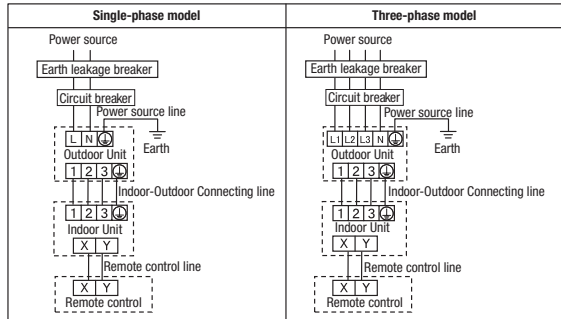
● Electrical wiring work must be performed by an electrician an qualified by a local power provider. These wiring specifications are determined on the assumption that the following instructions are observed:

- Do not use cords other than copper ones.
 - Do not use any supply line lighter than one specified in parentheses for each type below.
 - braided cord (code designation 60245 IEC 51), if allowed in the relevant part 2;
 - ordinary tough rubber sheathed cord (code designation 60245 IEC 53);
 - flat twin tinsel cord (code designation 60227 IEC 41);
 - ordinary polyvinyl chloride sheathed cord (code designation 60227 IEC 53);
- Connect the power supply to the outdoor unit.
- Pay extra attention so as not to confuse signal line and power source line connection, because an error in their connection can be burn all the boards at once.

- Screw the line to terminal block without any looseness, certainly.
- Do not turn on the switch of power source, before all of line work is done.
- Provide a dedicated branching circuit and never share a branching circuit with other equipment. If shared, disconnection at the circuit breaker may occur, which can cause secondary damage.
- Use three-core cable as wiring between indoor and outdoor unit. As for detail, refer to "INSTALLATION MANUAL" of outdoor Unit.
- Set earth of D-type.
- Do not add cord in the middle of line (of indoor power source, remote control and signal) route on outside of unit. If connecting point is flooded, it could cause problem as for electric or communication.
 - (In the case that it is necessary to set connecting point on the signal line way, perform through waterproof measurement.)
- Run the lines (power source, remote control and "between indoor and outdoor unit") upper ceiling through iron pipe or other tube protection to avoid the damage by mouse and so on.
- Keep "remote control line" and "power source line" away from each other on constructing of unit outside.
- Do not connect the power source line [220V/240V/380V/415V] to signal side terminal block. Otherwise, it could cause failure.
- Connection of the line ("Between indoor and outdoor unit", Earth and Remote control)
 - Remove lid of control box before connect the above lines, and connect the lines to terminal block according to number pointed on label of terminal block.
 - In addition, pay enough attention to confirm the number to lines, because there is electrical polarity except earth line. Furthermore, connect earth line to earth position of terminal block of power source.
 - Install earth leakage breaker on power source line. In addition, select the type of breaker for inverter circuit as earth leakage breaker.
 - If the function of selected earth leakage breaker is only for earth-fault protection, hand switch (switch itself and type "B" fuse) or circuit breaker is required in series with the earth leakage breaker.
 - Install isolator or disconnect switch on the power source wiring in accordance with the local codes and regulations. The isolator should be set in the box with key to prevent touching by another person when servicing.

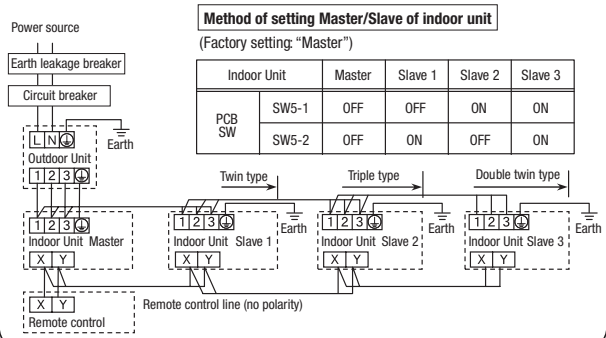
Cable connection for single unit installation

- As for connecting method of power source, select from following connecting patterns. In principle, do not directly connect power source line to inside unit.
 - As for exceptional connecting method of power source, discuss with the power provider of the country with referring to technical documents, and follow its instruction.
- For cable size and circuit breaker selection, refer to the outdoor unit installation manual.



Cable connection for a V multi configuration installation

- Connect the same pairs number of terminal block "①, ②, and ③" and "ⓧ and ④" between master and slave indoor units.
- Do the same address setting of all inside units belong to same refrigerant system by rotary switch SW2 on indoor unit's PCB (Printed circuit board).
- Set slave indoor unit as "slave 1" through "slave 3" by address switch SW5-1, 5-2 on PCB.
- When the [AIR CON No.] button on the remote control unit is pressed after turning on the power, an indoor unit's address number will be displayed. Do not fail to confirm that the connected indoor unit's numbers are displayed on the remote control unit by pressing the or button.



Method of setting Master/Slave of indoor unit

(Factory setting: "Master")

Indoor Unit	Master	Slave 1	Slave 2	Slave 3
PCB SW				
SW5-1	OFF	OFF	ON	ON
SW5-2	OFF	ON	OFF	ON

② Remote control, wiring and functions

● Do not install it on the following places

- ① Places exposed to direct sunlight
- ② Places near heat devices
- ③ High humidity places
- ④ Hot surface or cold surface enough to generate condensation
- ⑤ Places exposed to oil mist or steam directly.
- ⑥ Uneven surface

Installation and wiring of remote control

- ① Install remote control referring to the attached installation manual.
- ② Wiring of remote control should use 0.3mm² × 2 core wires or cables.
The insulation thickness is 1mm or more. (on-site configuration)

③ Maximum prolongation of remote control wiring is 600 m.

If the prolongation is over 100m, change to the size below.

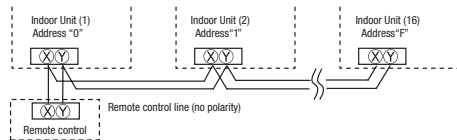
But, wiring in the remote control case should be under 0.5mm². Change the wire size outside of the case according to wire connecting. Waterproof treatment is necessary at the wire connecting section. Be careful about contact failure.

- 100 - 200m 0.5mm² × 2 cores
- Under 300m 0.75mm² × 2 cores
- Under 400m 1.25mm² × 2 cores
- Under 600m 2.0mm² × 2 cores

- ④ Avoid using multi-core cables to prevent malfunction.
- ⑤ Keep remote control line away from earth (frame or any metal of building).
- ⑥ Make sure to connect remote control line to the remote control and terminal block of indoor unit. (No polarity)

Control plural indoor units by a single remote control.

- ① A remote control can control plural indoor units (Up to 16).
In above setting, all plural indoor units will operate under same mode and temperature setting.
- ② Connect all indoor units with 2 cores remote control line.
- ③ Set unique remote control communication address from "0" to "F" to each inside unit by the rotary switch SW2 on the indoor unit's PCB.



Master/ slave setting when more than one remote control unit are used

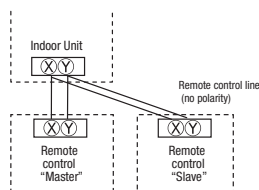
A maximum of two remote control units can be connected to one indoor unit (or one group of indoor units.)

The air-conditioner operation follows the last operation of the remote control regardless of the master/slave setting of it.

Acceptable combination is "two (2) wired remote controls", "one (1) wired remote control and one (1) wireless kit" or "two (2) wireless kits".

Set one to "Master" and the other to "Slave".

Note: The setting "Remote control unit sensor enabled" is only selectable with the master remote control unit in the position where you want to check room temperature.



③ Operation and confirmation from remote control

Operation from RC-EX1A

- 1 Check the number of units connected in the remote control system.
It checks sub units of twin, triple or W-twin connection.

"Menu" → "Next" → "Service & Maintenance" → "Input password" → "IU address"

Operation from RC-E5

Press **AIR CON No.** button to display the IU address. Press the **▼** or **▲** button and check addresses of connected indoor units one by one.

- 2 Check if each unit is connected properly in the remote control system.
It cannot check main and sub units of twin, triple or W-twin connection.

When the operation is stopped, "Menu" → "Next" → "Service & Maintenance" → "Input password" → "IU address" → "check run mode"

If AIR CON No. button is pressed when the operation is stopped, the indoor unit address is displayed. If you select one of addresses for connected indoor units by pressing the **▼** or **▲** button and press the **MODE** button, the unit starts to blow air.

- 3 Setting main/slave remote controls

"Menu" → "Next" → "R/C function settings" → "Input password" → "Main/Sub of R/C"

Set SW1 to "Slave" for the slave remote control unit.

- 4 Checking operation data

"Menu" → "Next" → "Service & Maintenance" → "Input password" → "Operation data"

Press the **CHECK** button. → "PFR (W/A) * " is displayed. → Press the **SET** button. → "W(A) (W) (A) " is displayed. → Press the **→/SET (I/O)** button. → Select one of addresses for connected indoor units by pressing the **▲** or **▼** button. → Press the **SET** button. → "W(A) (W) (A) " is displayed. → Select data by pressing the **▲** or **▼** button.

- 5 Checking inspection display

"Menu" → "Next" → "Service & Maintenance" → "Input password" → "Inspection display"

Press the **CHECK** button. → **▼** button. → ERR DATA. → Press the **SET** button. → "DATA (RDNG) " is displayed. → Data.

- 6 Cooling test run from remote control

"Menu" → "Next" → "Installation settings" → "Input password" → "Test run" → "Cooling test run" → "Start"

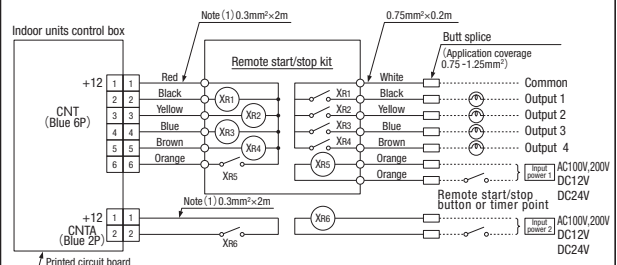
① Start the system by pressing the **ON/OFF** button.
② Select "Cool" with the **MODE** button.
③ Press the **TEST** button for 3 seconds or longer.
The screen display will switch to TEST RUN *.
④ When the **SET** button is pressed while "TEST RUN *" is indicated, a cooling test run will start.
The screen display will switch to TEST RUN *.

- 7 Trial operation of drain pump from remote control

"Menu" → "Next" → "Installation settings" → "Input password" → "Test run" → "Drain pump test run" → "Run"

① Press the **TEST** button for three seconds or longer.
The display will change to "TEST RUN *".
② Press the **▼** button once and cause "DRAIN PMP * " to be displayed.
③ When the **SET** button is pressed, a drain pump operation will start. Display: "DRAIN STOP *".

④ Function of CnT connector of indoor printed circuit board



Note (1): Do not use the length over 2 meter

● CnT connector (local) vendor model
Connector : Made by molex 5264-06
Terminals : Made by molex 5263 T

● Function

Output 1	Air-conditioner operation output (When the air-conditioner ON: Xr1 = ON)
Output 2	Heating output
Output 3	Thermostat ON output (When the thermostat ON: Xr3 = ON)
Output 4	Air-conditioner check ON (When checking air-conditioner: Xr4 = ON)
Input	At shipping Xr5 OFF ⇒ ON: Air-conditioner oper ates.
	Xr5 ON ⇒ OFF: Air-conditioner stops.
*Functions and controls may vary depending on the switching at site.	
Input 2 (FDT etc.)	At shipping Xr6 OFF ⇒ ON: Air-conditioner oper ates.
	Xr6 ON ⇒ OFF: Air-conditioner stops.
*Functions and controls may vary depending on the switching at site.	

* Refer to I/U settings.

● CnTA connector is installed on FDT, etc. Refer to the spec. drawings.
CnTA connector (local) vendor model
Connector : Made by JST XAP02V-1-E
Terminals : Made by JST SXA-01T-P0.6

⑥ Operation and setting from remote control

A: Refer to the instruction manual for RC-EX series.
 B: Refer to the installation manual for RC-EX series.
 C: Loading a utility software via Internet
 ○: Nearly same function setting and operations are possible.
 △: Similar function setting and operations are possible.

Setting & display item	Description	RC-EX series	RC-E5
1. Remote Control network			
1 Control plural indoor units by a single remote control	A remote control can control plural indoor units up to 16 (in one group of remote control network). An address is set to each indoor unit.	○	○
2 Master/slave setting of remote controls	A maximum of two remote controls (include option wireless) can be connected to one indoor unit. Set one to "Master" and the other to "Slave".	B	○
2. TOP screen, Switch manipulation			
1 Menu	"Control", "Settings", or "Details" can be selected. (3.-19.)	A	
2 Operation mode	"Cooling", "Heating", "Fan", "Dry" or "Auto" can be set.	A	○
3 Set temp.	"Set temperature" can be set by 0.5°C interval.	A	○
4 Air flow direction	"Air flow direction". [Individual flap control setting] can be set.	A	○
5 Fan speed	"Fan speed" can be set.	A	○
6 Timer setting	"Timer operation" can be set.	A	○
7 ON/OFF	"On/Off operation of the system" can be done.	A	○
8 High power SW	"High power operation" or "Normal operation" can be selected.	A	
9 Energy-saving SW	"Energy-saving operation" or "Normal operation" can be selected.	A	
3. Energy-saving setting			
1 Auto OFF timer [Administrator password]	For preventing the timer from keeping ON, set hours to stop operation automatically with this timer. •The selectable range of setting time is from 30 to 240 minutes (10minutes interval) •When setting is "Valid", this timer will activate whenever the ON timer is set.	A	△
2 Peak-cut timer [Administrator password]	Power consumption can be reduced by restricting the maximum capacity. Set the [Start time], the [End time] and the capacity limit % (Peak-cut %). •4-operation patterns per day can be set at maximum. •The setting time can be changed by 5-minutes interval. •The selectable range of capacity limit % (Peak-cut %) is from 0% to 40-80% (20% interval). •Holiday setting is available.	A	
3 Automatic temp. set back [Administrator password]	After the elapse of the set time period, the current set temp. will be set back to the [Set back temp.] •The setting can be done in cooling and heating mode respectively. •The selectable range of the set time is from 20 min. to 120 min. (10 min. interval). •Set the [Set back temp.] by 1°C interval.	A	△
4. Individual flap control setting			
Individual flap control setting	The moving range (the positions of upper limit and lower limit) of the flap for individual air outlet port can be set.	A	○
5. Ventilation			
1 External ventilation (In combination with ventilator)	On/Off operation of the external ventilator can be done. •The settings of [Interlock] with AC (air-conditioner), [Single operation] of ventilator or operation [invalid] of ventilation can be done through [Ventilation settings] in the [Remote control] menu.	A	○
6. Filter sign reset			
1 Filter sign reset	The filter sign can be reset.	B	
2 Setting next cleaning date	The next cleaning date can be set.	A	
7. Initial settings			
1 Clock setting	The current date and time can be set or revised.	A	△
2 Date and time display	[Display] or [Hide] the date and/or time can be set, and the [12H] or [24H] display can be set.	A	
3 Summer time	When select [Valid], the +1hour adjustment of current time can be set. When select [Invalid], the [Summer time] adjustment can be reset.	A	
4 Contrast	The contrast of LCD can be adjusted higher or lower.	A	
5 Backlight	Switching on/off a light can be set and the period of the lighting time can be set within the range of 5sec-90sec (5sec interval).	A	
6 Control sound	It can set with or without [Control sound (beep sound)] at touching panel.	A	
8. Timer settings			
1 Set On timer by hour	The period of time to start operation after stopping can be set. •The period of set time can be set within the range of 1hour-12hours (1hr interval). •The operation mode, set temp and fan speed at starting operation can be set.	A	△
2 Set Off timer by hour	The period of time to stop operation after starting can be set. •The period of set time can be set within the range of 1hour-12hours (1hr interval).	A	△
3 Set On timer by clock	The clock time to start operation can be set. •The set clock time can be set by 5 minutes interval. •[Once (one time only)] or [Everyday] operation can be switched. •The operation mode, set temp. and fan speed at starting operation can be set.	A	△
4 Set Off timer by clock	The clock time to stop operation can be set. •The set clock time can be set by 5 minutes interval. •[Once (one time only)] or [Everyday] operation can be switched.	A	△
5 Confirmation of timer settings	Status of timer settings can be seen.	A	
9. Weekly timer			
1 Weekly timer [Administrator password]	On timer and Off timer on weekly basis can be set. •8-operation patterns per day can be set at a maximum. •The setting clock time can be set by 5 minutes interval. •Holiday setting is available. •The operation mode, set temp and fan speed at starting operation can be set.	A	△ △ △
10. Home leave mode			
1 Home leave mode [Administrator password]	When leaving home for a long period like a vacation leave, the unit can be operated to maintain the room temperature not to be hotter in summer or not to be colder in winter. •The judgment to switch the operation mode (Cooling⇔Heating) is done by the both factors of the set temp. and outdoor air temp.. •The set temp. and fan speed can be set.	A	

⑥ Operation and setting from remote control (continued)

Setting & display item	Description	RC-EX series	RC-E5
11. Administrator settings	[Administrator password]	A	
1 Enable/Disable setting	•Enable/Disable setting of operation can be set. [On/Off] [Change set temp.] [Change operation mode] [Change air flow direction] [Individual flap control setting][Fan speed] [High power operation] [Energy-saving operation] [Timer settings] [Weekly timer setting] •Request for administrator password can be set. [Individual flap control setting][Weekly timer][Energy-saving setting][Home leave mode][Administrator settings]	A	△
2 Silent mode timer	The period of time to operate the outdoor unit by prioritizing the quietness can be set. •The [Start time] and the [End time] for operating outdoor unit in silent mode can be set. •The period of the operation time can be set once a day by 5 minutes interval.	A	△
3 Setting temp. range	The upper/lower limit of indoor temp. setting range can be set. •The limitation of indoor temp. setting range can be set for each operation mode in cooling and heating.	A	△
4 Temp. increment setting	The temp. increment setting can be changed by 0.5°C or 1.0°C.	A	
5 RC display setting	Register [Room name] [Name of I/U] Display [indoor temp.] or not. Display [inspection code] or not. Display [Heating stand-by] [Defrost operation] [Auto cooling/heating] or not	A	○ △ ○
6 Change administrator password	The administrator password can be changed. (Default setting is "0000") The administrator password can be reset.	A B	
12. Installer settings	[Service password]	B	
1 Installation date	The [Installation date] can be registered. •When registering the [Installation date], the [Next service date] is displayed automatically. (For changing the [Next service date], please refer the item of [Service & Maintenance].)	B	
2 Service contact	The [Service contact] can be registered and can be displayed on the RC. •The [Contact company] can be registered within 10 characters. •The [Contact phone] can be registered within 13 digits.	B	
3 Test run	On/Off operation of the test run can be done.		
Cooling test run	The [Cooling test run] can be done at 5°C of set temp. for 30 minutes.	B	○
Drain pump test run	Only the drain pump can be operated.		○
Compressor Hz fixed operation	The [Test run] operation can be done with fixed compressor Hz set by installer.		○
4 Static pressure adjustment	In case of combination with only the ducted indoor unit which has a function of static pressure adjustment, the static pressure is adjustable.	B	
5 Change auto-address	The set address of each indoor unit decided by auto-address setting method can be changed to any other address. (For multiple KX units only)	B	△
6 Address setting of Main IU	Main indoor unit address can be set. •Only the Main indoor unit can change operation mode and the Sub indoor units dominated by the Main indoor unit shall follow. •The Main indoor unit can domain 10 indoor units at a maximum.	B	△
13. RC function settings	[Service password]	B	
1 Main/Sub RC setting	The setting of [Main/Sub RC] can be changed.	B	○
2 RC sensor	The offset value of [RC sensor] sensing temp. can be set respectively in heating and cooling.	B	○
9 RC sensor adjustment	The offset value of [RC sensor] sensing temp. can be set respectively in heating and cooling. •The setting range of offset value is ±3°C both in cooling and heating.	B	△
3		B	
4 12 Operation mode	The [Valid/invalid] setting of [Auto][Cooling][Heating] and [Dry] can be done respectively.	B	○
5 13 Fan speed	The setting of [Fan speed] can be done from following patterns. •1-speed, 2-speeds (Hi-Me), 2-speeds (Hi-Lo), 3-speeds, 4-speeds.	B	○
14 External input	The applicable range ([Individual] or [All units]) of CnT input to the multiple indoor units connected in one control system. •[Individual] : Only the unit received CnT input signal. •[All units] : All the units connected to one control system received CnT input signal.	B	○
6			
7 15 Ventilation setting	The setting of [Invalid] operation of ventilator, [Interlock] with AC or [Independent] of ventilator can be selected. •When setting [Interlock], the operation of external ventilator is interlocked with the operation of AC •When setting [Independent], only the operation of external ventilator is available.	B	○
8 16 Flap control	The [Flap control] method can be switched to [Stop at fixed position] or [Stop at any position] •[Stop at fixed position] : Stop the flap at a certain position among the designated 4 positions. •[Stop at any position] : Stop the flap at any arbitrary position just after the stopping command from RC was sent.	B	○
9 17 Auto-restart	The operation control method after recovery of power blackout happened during operation can be set.	B	○
10 18 Auto temp. setting	[Valid] or [Invalid] of [Auto temp. setting] can be selected.	B	
11 19 Auto fan speed setting	[Valid] or [Invalid] of [Auto fan speed setting] can be selected.	B	
14. I/U settings	[Service password]	B	
1 High ceiling	The fan tap of indoor fan can be changed. •[Standard] [High ceiling 1] [High ceiling 2] can be selected.	B	○
2 Filter sign	The setting of filter sign display timer can be done from following patterns.	B	○
3 External input 1	The content of control by external input can be changed. •The selectable contents of control are [On/Off] [Permission/Prohibition] [Cooling/heating] [Emergency stop]	B	○
4 External input 1 signal	The type of external input signal ((Level input)/Pulse input) can be changed.	B	○
5 External input 2	•The selectable contents of control are [On/Off] [Permission/Prohibition] [Cooling/heating] [Emergency stop]	B	
6 External input 2 signal	The type of external input signal ((Level input)/Pulse input) can be changed.	B	
7 Heating thermo-off temp. adjust.	The judgment temp. of heating thermo-off can be adjusted within the range from 0 to +3°C (1°C interval)	B	△
8 Return air sensor adjust.	The sensing temp. of return air temp. sensor built in the indoor unit can be adjusted within the range of ±2°C.	B	△
9 Fan control in heating thermo OFF	The fan control method at heating thermo-off can be changed. •The selectable fan control methods are [Low] [Set fan speed] [Intermittent] [Stop].	B	○
10 Anti-frost temp.	The judgment temp. of anti-frost control for the indoor unit in cooling can be changed to [Temp. High] or [Temp. Low].	B	○
11 Anti-frost control	When the anti-frost control of indoor unit in cooling is activated, the fan speed can be changed.	B	○
12 Drain pump operation	In any operation mode in addition to cooling and dry mode, the setting of drain pump operation can be done.	B	○
13 Residual fan operation in cooling	The time period of residual fan operation after stopping or thermo-off in cooling mode can be set.	B	○
14 Residual fan operation in heating	The time period of residual fan operation after stopping or thermo-off in heating mode can be set.	B	○
15 Intermittent fan operation in heating	The fan operation rule following the residual fan operation after stopping or thermo-off in heating mode can be set.	B	○
16 Fan circulator operation	In case that the fan is operated as the circulator, the fan control rule can be set.	B	
17 Control pressure adjust. (For OA processing unit only)	When only the OA processing units are operated, control pressure value can be changed.	B	○
18 Auto operation mode	The [Auto rule selection] for switching the operation mode automatically can be selected from 3 patterns.	B	
19 Thermo. rule setting	When selecting [Outdoor air temp. control], the judgment temp. can be offset by outdoor temp..	B	
20 Auto fan speed control	Under the [Auto fan speed control] mode, the switching range of fan speed can be selected from following 2 patterns [Auto 1] [Auto 2]. •[Auto 1] : Hi ⇄ Me ⇄ Lo •[Auto 2] : P-Hi ⇄ Hi ⇄ Me ⇄ Lo	B	
15. Service & Maintenance	[Service password]	B	
1 IU address No.	Max. 16 indoor units can be connected to one remote control, and all address No. of the connected indoor units can be displayed. •The indoor unit conforming to the address No. can be identified by selecting the address No. and tapping [Check] to operate the indoor fan.	B	○
2 Next service date	The [Next service date] can be registered. •The [Next service date] and [Service contact] is displayed on the [Periodical check] message screen.	AB	
3 Operation data	Total 39 items of [Operation data] for indoor unit and outdoor unit can be displayed.	B	○
4 Error history	[Date and time of error occurred] [IU address] [Error code] for Max. 16 latest cases of error history can be displayed.	B	△
Display anomaly data	The operation data just before the latest error stop can be displayed.	B	
Reset periodical check	The timer for the periodical check can be reset.	B	○
5 Saving I/U settings	The I/U settings memorized in the indoor PCB connected to the remote control can be saved in the memory of the remote control.	B	
6 Special settings	[Erase I/U address] [CPU reset] [Initializing] [Touch panel calibration]	B	△
16. Inspection		A	△
Confirmation of Inspection	The address No. of anomalous indoor/outdoor unit and error code are displayed.		
17. PC connection		C	
USB connection	Weekly timer setting and etc., can be set from PC.		