

ABUA12TLAV
ABUA14TLAV
ABUA18TLAV
ABUA24TLAV

INSTALLATION MANUAL

INDOOR UNIT (Floor / Ceiling type)

For authorized service personnel only.

MANUEL D'INSTALLATION

UNITÉ INTÉRIEURE (type sol / plafonnier)

Pour le personnel agréé uniquement.

MANUAL DE INSTALACIÓN

UNIDAD INTERIOR (tipo suelo / techo)

Únicamente para personal de servicio autorizado.

English

Français

Español



INSTALLATION MANUAL

PART NO. 9367701124-04

VRF system indoor unit (Floor / Ceiling type)

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1. SAFETY PRECAUTIONS

1.1. IMPORTANT! Please read before starting

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

For safe installation and trouble-free operation, you must:

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state, and national electrical codes.
- Pay close attention to all danger, warning, and caution notices given in this manual.

WARNING: This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

CAUTION: This symbol refers to a hazard or unsafe practice which can result in personal injury and the potential for product or property damage.

- Hazard alerting symbols



Electrical



Safety/alert

If Necessary, Get Help

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

In Case of Improper Installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

1.2. SPECIAL PRECAUTIONS

When Wiring

ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate earthing (grounding) can cause accidental injury or death.
- Earth (Ground) the unit following local electrical codes.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.

When Transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

When Installing...

...In a Ceiling or Wall

Make sure the ceiling/wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.

...In a Room

Properly insulate any tubing run inside a room to prevent "sweating" that can cause dripping and water damage to walls and floors.

...In an Area with High Winds

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

...In a Snowy Area (for Heat Pump-type Systems)

Install the outdoor unit on a raised platform that is higher than drifting snow.

When Connecting Refrigerant Tubing

- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before opening the refrigerant valves.

When Servicing

- Turn the power OFF at the main circuit breaker panel before opening the unit to check or repair electrical parts and wiring.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after you finish, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.
- After installation, explain correct operation to the customer, using the operating manual.

DANGER

Never touch electrical components immediately after the power supply has been turned off. Electrical shock may occur. After turning off the power, always wait 5 minutes or more before touching electrical components.

- Be sure to read this Manual thoroughly before installation.
- The warnings and precautions indicated in this Manual contain important information pertaining to your safety. Be sure to observe them.
- Hand this Manual, together with the Operating Manual, to the customer. Request the customer to keep them on hand for future use, such as for relocating or repairing the unit.

⚠ WARNING

Request your dealer or a professional installer to install the indoor unit in accordance with this Installation Manual. An improperly installed unit can cause serious accidents such as water leakage, electric shock, or fire. If the indoor unit is installed in disregard of the instructions in the Installation Manual, it will void the manufacturer's warranty.

Do not turn ON the power until all work has been completed. Turning ON the power before the work is completed can cause serious accidents such as electric shock or fire.

If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.

Installation must be performed in accordance with the requirement of NEC (National Electrical Code) and CEC (Canadian Electrical Code) by authorized personnel only.

Except for EMERGENCY, never turn off main as well as sub breaker of the indoor units during operation. It will cause compressor failure as well as water leakage. First, stop the indoor unit by operating the controller, converter or external input device and then cut the breaker.

Make sure to operate through the controller, converter or external input device. When the breaker is designed, locate it at a place where the users cannot start and stop in the daily work.

2. ABOUT THIS PRODUCT

2.1. Precautions for using R410A refrigerant

⚠ WARNING

Do not introduce any substance other than the prescribed refrigerant into the refrigeration cycle. If air enters the refrigeration cycle, the pressure in the refrigeration cycle will become abnormally high and cause the piping to rupture.

If there is a refrigerant leak, make sure that it does not exceed the concentration limit. If a refrigerant leak exceeds the concentration limit, it can lead to accidents such as oxygen starvation.

Do not touch refrigerant that has leaked from the refrigerant pipe connections or other area. Touching the refrigerant directly can cause frostbite.

If a refrigerant leak occurs during operation, immediately vacate the premises and thoroughly ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.

2.2. Special tool for R410A

⚠ WARNING

To install a unit that uses R410A refrigerant, use dedicated tools and piping materials that have been manufactured specifically for R410A use. Because the pressure of R410A refrigerant is approximately 1.6 times higher than the R22, failure to use dedicated piping material or improper installation can cause rupture or injury. Furthermore, it can cause serious accidents such as water leakage, electric shock, or fire.

Tool name	Changes
Gauge manifold	The pressure in the refrigerant system is extremely high and cannot be measured with a conventional gauge. To prevent erroneous mixing of other refrigerants, the diameter of each port has been changed. It is recommended to use a gauge manifold with a high pressure display range of 30 in Hg to 768 psi (–0.1 to 5.3 MPa) and a low pressure display range of 30 in Hg to 551 psi (–0.1 to 3.8 MPa).
Charging hose	To increase pressure resistance, the hose material and base size were changed. (The charging port thread diameter for R410A is 1/2 UNF 20 threads per inch.)
Vacuum pump	A conventional vacuum pump can be used by installing a vacuum pump adapter. Be sure that the pump oil does not backflow into the system. Use one capable for vacuum suction of 5 Torr, –755 mm Hg (–100.7 kPa).
Gas leakage detector	Special gas leakage detector for R410A refrigerant.







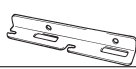
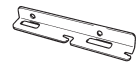



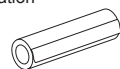


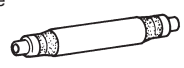

2.3. Accessories

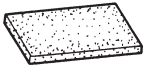

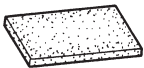
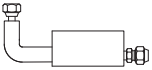
⚠ WARNING

For installation purposes, be sure to use the parts supplied by the manufacturer or other prescribed parts. The use of non-prescribed parts can cause serious accidents such as the unit falling, water leakage, electric shock, or fire.


The following installation parts are furnished. Use them as required.

Keep the Installation Manual in a safe place and do not discard any other accessories until the installation work has been completed.

Name and Shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	(This book)
Cover plate (Left) 	1	
Cover plate (Right) 	1	
Tapping screw (M4 × 10mm) 	2	
Installation template 	1	For positioning the indoor unit For under ceiling type
Bracket (Left) 	1	For suspending the indoor unit from ceiling
Bracket (Right) 	1	
Special nut 	4	
Wall bracket 	2	For suspending the indoor unit on the wall
Tapping screw (M4 × 20mm) 	6	For fixing the wall bracket
Coupler heat insulation 	2	For indoor side pipe joint
Cable tie (Large) 	4	For fixing the coupler heat insulation
Cable tie (Medium) 	2	For power supply, transmission and remote controller cable binding
Drain hose 	1	For installing drain pipe Ø 3/4 in (19 mm) [I.D.], Ø 1-1/16 in (27 mm) [O.D.]
Hose band 	1	For installing drain hose

Name and Shape	Q'ty	Application
Drain hose insulation 	1	Adhesive type 3-15/16 × 8-11/16 in (100 × 220 mm)
VT wire 	1	For fixing the drain hose L 11 in (280 mm)
Insulation (Pipe) 	1	Adhesive type 6-5/16 × 4-5/16 in (160 × 110 mm)
Silencer pipe 	1	Connect the silencer pipe to the small (liquid) pipe.

2.4. Optional parts

Description	Model No.	Application
Auxiliary pipe 	9374714025	For indoor side pipe joint (For AB18, AB24)
External connect kit	UTY-XWZXZC	For output function (Output terminal / CNB01)
	UTY-XWZXZB	For control input function (Apply voltage terminal / CNA01)
	UTY-XWZXZD	For control input function (Dry contact terminal / CNA02)
	UTY-XWZXZ7	For forced thermostat off function (Apply voltage terminal / CNA03)
	UTY-XWZXZE	For forced thermostat off function (Dry contact terminal / CNA04)

2.5. About unit of the length

All Fujitsu General products are manufactured to metric units and tolerances. United States customary units are provided for reference only. In cases where exact dimensions and tolerances are required, always refer to metric units.

3. INSTALLATION WORK

Correct initial installation location is important because it is difficult to move unit after it is installed.

3.1. Selecting an installation location

Decide the mounting position together with the customer as follows.

⚠ WARNING

Select installation locations that can properly support the weight of the indoor unit. Install the units securely so that they do not topple or fall.

⚠ CAUTION

Do not install the indoor unit in the following areas:

- Area with high salt content, such as at the seaside. It will deteriorate metal parts, causing the parts to fail or the unit to leak water.
- Area filled with mineral oil or containing a large amount of splashed oil or steam, such as a kitchen. It will deteriorate plastic parts, causing the parts to fail or the unit to leak water.
- Area that generates substances that adversely affect the equipment, such as sulfuric gas, chlorine gas, acid, or alkali. It will cause the copper pipes and brazed joints to corrode, which can cause refrigerant leakage.
- Area that can cause combustible gas to leak, contains suspended carbon fibers or flammable dust, or volatile inflammables such as paint thinner or gasoline. If gas leaks and settles around the unit, it can cause a fire.
- Area where animals may urinate on the unit or ammonia may be generated.

Do not use the unit for special purposes, such as storing food, raising animals, growing plants, or preserving precision devices or art objects. It can degrade the quality of the preserved or stored objects.

Do not install where there is the danger of combustible gas leakage.

Do not install the unit near a source of heat, steam, or flammable gas.

Install the unit where drainage does not cause any trouble.

⚠ CAUTION

Install the indoor unit, power supply cable, transmission cable, and remote controller cable at least 40 in (1 m) away from a television or radio receivers. The purpose of this is to prevent TV reception interference or radio noise. (Even if they are installed more than 40 in (1 m) apart, you could still receive noise under some signal conditions.)

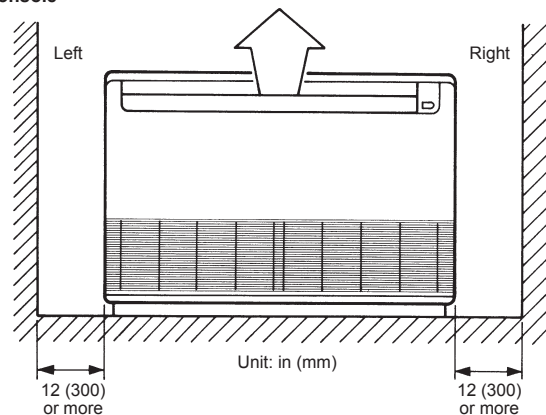
If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.

Take precautions to prevent the unit from falling.

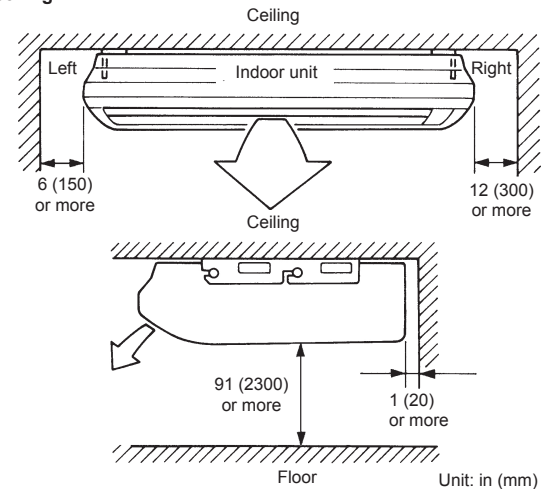
- (1) Install the indoor unit on a place having a sufficient strength so that it withstands against the weight of the indoor unit.
- (2) The inlet and outlet ports should not be obstructed; the air should be able to blow all over the room.
- (3) Leave the space required to service the air conditioner.
- (4) Install the unit where connection to the outdoor unit (or RB unit) is easy.
- (5) Install the unit where the connection pipe can be easily installed.
- (6) Install the unit where the drain pipe can be easily installed.
- (7) Install the unit where noise and vibrations are not amplified.
- (8) Take servicing, etc., into consideration and leave the spaces. Also install the unit where the filter can be removed.
- (9) Do not install the unit where it will be exposed to direct sunlight.

3.2. Installation dimension

Floor console



Under ceiling



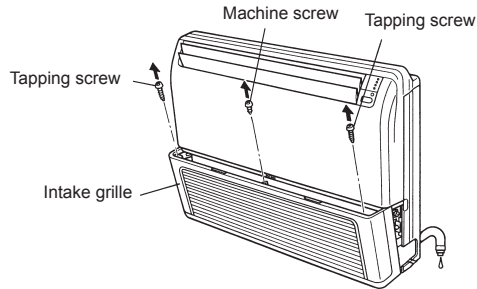
3.3. Installing the unit

⚠ WARNING

Install the air conditioner in a location which can withstand a load of at least 5 times the weight of the main unit and which will not amplify sound or vibration. If the installation location is not strong enough, the indoor unit may fall and cause injuries.

3.3.1. Preparing indoor unit installation

Open the intake grille and remove the 3 screws.



Remark : The main unit can be wired before the indoor unit is installed.
Select the most appropriate installation order.

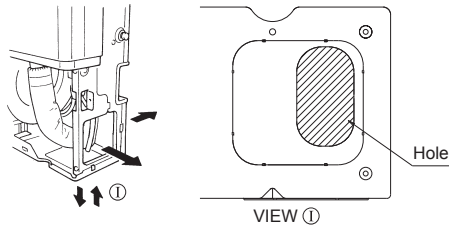
3.3.2. Indoor unit installation

A. Floor console type

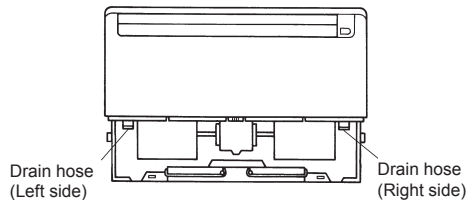
Drilling for piping

Select piping and drain directions.

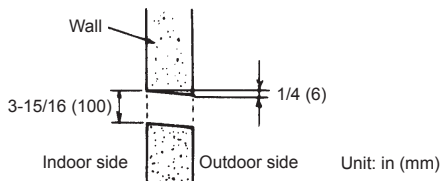
The piping and drain can be made in 3 directions as shown below.



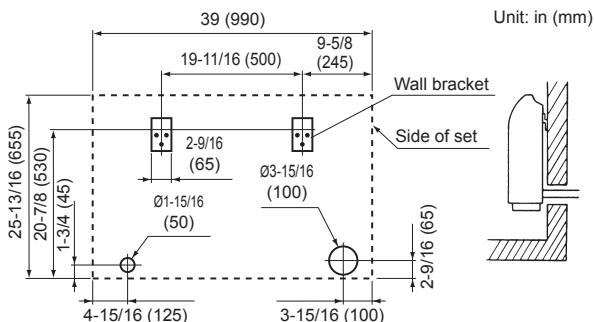
For direction, bore the oval hole shown in the above figure.
The drain hose can be connected to either the left or right side.



When the directions are selected, drill a 3-15/16 in (100 mm) dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow.
When the pipe is led out from the rear, make a hole as shown in the figure, at the position shown.

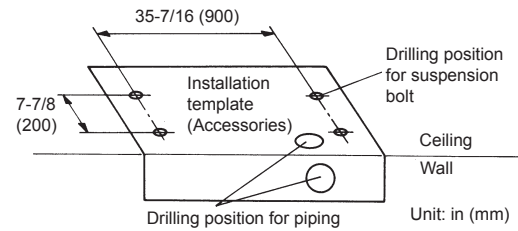


When installing set to wall install the accessory wall bracket at the position as shown in the figure, and mount the set to it.



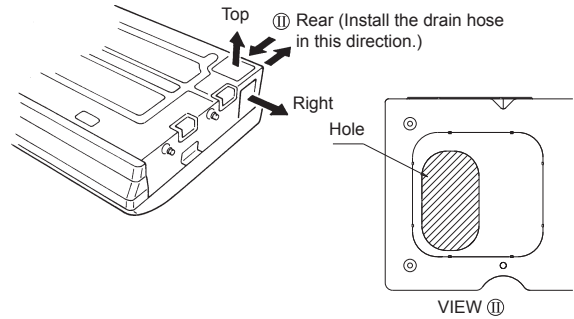
B. Under ceiling type

Using the installation template, drill holes for piping and suspension bolts (for holes).



B-1. Drilling for piping

Select piping and drain directions.

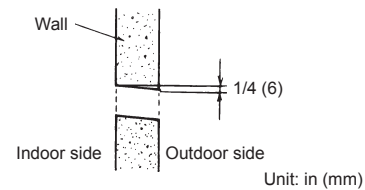


For direction, bore the oval hole shown in the above figure.

⚠ CAUTION

Install the drain hose at the rear; it should not be installed on the top or right side.

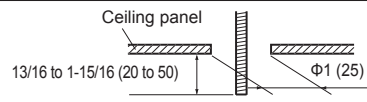
When the directions are selected, drill 3-1/8 in (80 mm) and 1-15/16 in (50 mm) or 5-7/8 in (150 mm) dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow.



B-2. Drilling the holes and attaching the suspension bolts

Drill $\Phi 1$ in (25 mm) holes at the suspension bolt locations, then install the bolts.

Bolt Strength	220 to 330 lbf (980 to 1470 N)
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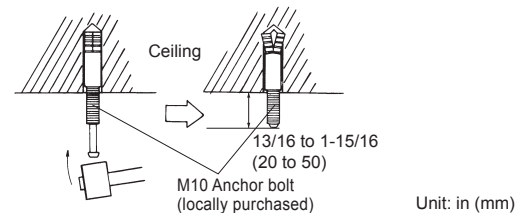


Unit: in (mm)

[If using anchor bolts]

Drill holes for anchor bolts at the locations at which you will set the suspension bolts. Note that anchor bolts are M10 bolts (to be obtained locally).

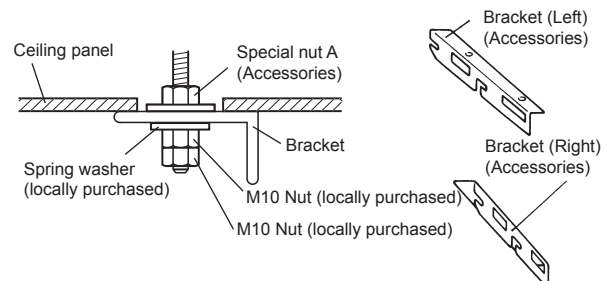
Anchor-Bolt Strength	220 to 330 lbf (980 to 1470 N)
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Unit: in (mm)

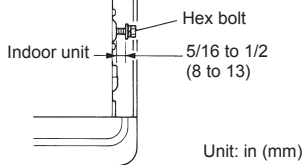
B-3. Installing Brackets

Install the bracket with nuts, spring washers.

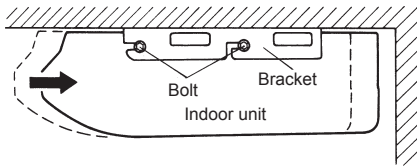


B-4. Installing indoor unit

Reset the hex bolts as shown in the figure



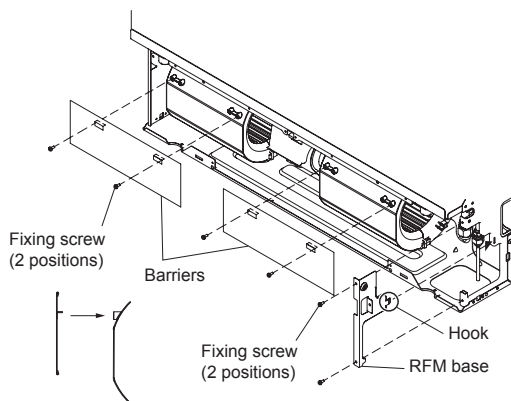
Apply the indoor unit to the brackets.



Now, securely tighten the hex bolts in both sides.

3.3.3. Barrier and RFM base removal and installation

- (1) Remove the barriers by removing the 4 fixing screws (2 screws each).
- (2) Remove the RFM base by removing the 2 fixing screws and unhooking the 1 hook.
- (3) After completing the work, install the barriers and RFM base as they were originally.



Install the barriers in the correct direction.

4. PIPE INSTALLATION

CAUTION

Be more careful that foreign matter (oil, water, etc.) does not enter the piping than with refrigerant R410A models. Also, when storing the piping, securely seal the openings by pinching, taping, etc.

While welding the pipes, be sure to blow dry nitrogen gas through them.

4.1. Selecting the pipe material

CAUTION

Do not use existing pipes from another refrigeration system or refrigerant.

Use pipes that have clean external and internal sides without any contamination which may cause trouble during use, such as sulfur, oxide, dust, cutting waste, oil, or water.

It is necessary to use seamless copper pipes.
Material : Phosphor deoxidized seamless copper pipes It is desirable that the amount of residual oil is less than 0.04 oz/100 ft (40 mg/10 m).

Do not use copper pipes that have a collapsed, deformed, or discolored portion (especially on the interior surface). Otherwise, the expansion valve or capillary tube may become blocked with contaminants.

Improper pipe selection will degrade performance. As an air conditioner using R410A incurs pressure higher than when using conventional (R22) refrigerant, it is necessary to choose adequate materials.

- Thicknesses of copper pipes used with R410A are as shown in the table.
- Never use copper pipes thinner than those indicated in the table even if they are available on the market.

Thicknesses of Annealed Copper Pipes (R410A)

Pipe outside diameter [in (mm)]	Thickness [in (mm)]
1/4 (6.35)	0.032 (0.80)
3/8 (9.52)	0.032 (0.80)
1/2 (12.70)	0.032 (0.80)
5/8 (15.88)	0.039 (1.00)
3/4 (19.05)	0.047 (1.20)

4.2. Pipe requirement

CAUTION

Refer to the Installation Manual of the outdoor unit for description of the length of connecting pipe or for difference of its elevation.

- Use pipe with water-resistant heat insulation.

CAUTION

Install heat insulation around both the gas and liquid pipes. Failure to do so may cause water leaks.

Use heat insulation with heat resistance above 248°F (120°C). (Reverse cycle model only)

In addition, if the humidity level at the installation location of the refrigerant piping is expected to exceed 70 %, install heat insulation around the refrigerant piping.

If the expected humidity level is 70 to 80 %, use heat insulation that is 9/16 in (15 mm) or thicker and if the expected humidity exceeds 80 %, use heat insulation that is 13/16 in (20 mm) or thicker. If heat insulation is used that is not as thick as specified, condensation may form on the surface of the insulation.

In addition, use heat insulation with heat conductivity of 0.045 W/(m·K) or less (at 68°F (20°C)).

4.3. Flare connection (pipe connection)

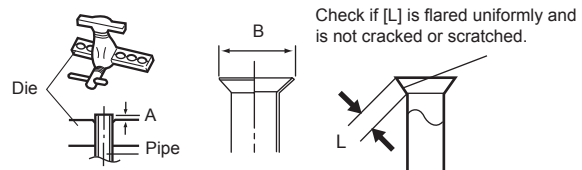
WARNING

Tighten the flare nuts with a torque wrench using the specified tightening method. Otherwise, the flare nuts could break after a prolonged period, causing refrigerant to leak and generate a hazardous gas if the refrigerant comes into contact with a flame.

4.3.1. Flaring

Use special flare tool exclusive for R410A.

- (1) Cut the connection pipe to the necessary length with a pipe cutter.
- (2) Hold the pipe downward so that cuttings will not enter the pipe and remove any burrs.
- (3) Insert the flare nut (always use the flare nut attached to the indoor and outdoor units (or RB unit) respectively) onto the pipe and perform the flare processing with a flare tool. Use the special R410A flare tool. Leakage of refrigerant may result if other flare nuts are used.
- (4) Protect the pipes by pinching them or with tape to prevent dust, dirt, or water from entering the pipes.



Pipe outside diameter [in (mm)]	Dimension A [in (mm)]	Dimension B ^{0 (0)} 0.015 (-0.4) [in (mm)]
	Flare tool for R410A, clutch type	
1/4 (6.35)	0 to 0.020 (0 to 0.5)	3/8 (9.1)
3/8 (9.52)		1/2 (13.2)
1/2 (12.70)		5/8 (16.6)
5/8 (15.88)		3/4 (19.7)
3/4 (19.05)		15/16 (24.0)

When using conventional (R22) flare tools to flare R410A pipes, the dimension A should be approximately 0.020 in (0.5 mm) more than indicated in the table (for flaring with R410A flare tools) to achieve the specified flaring. Use a thickness gauge to measure the dimension A. It is recommended that a R410A flaring tool is used.

Width across flats



Pipe outside diameter [in (mm)]	Width across flats of Flare nut [in (mm)]
1/4 (6.35)	11/16 (17)
3/8 (9.52)	7/8 (22)
1/2 (12.70)	1 (26)
5/8 (15.88)	1-1/8 (29)
3/4 (19.05)	1-7/16 (36)

4.3.2. Bending pipes

- The pipes are shaped by your hands or pipe bender. Be careful not to collapse them.
- Do not bend the pipes in an angle more than 90°.
- When pipes are repeatedly bend or stretched, the material will harden, making it difficult to bend or stretch them any more. Do not bend or stretch the pipes more than 3 times.

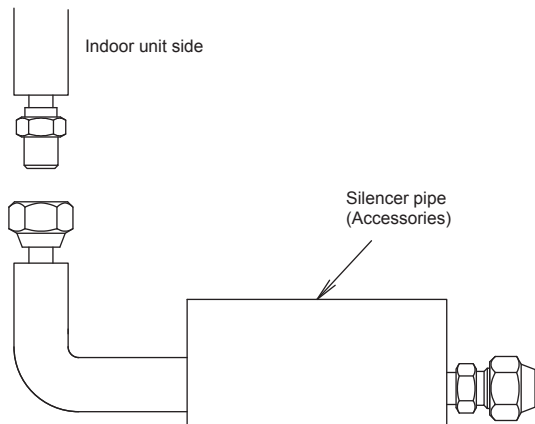
CAUTION

To prevent breaking of the pipe, avoid sharp bends.

If the pipe is bent repeatedly at the same place, it will break.

4.3.3. Pipe connection

Connect the silencer pipe to the small (liquid) pipe.
Centering the pipe against port on the indoor unit, turn the flare nut with your hand.
Be sure that the small pipe is completely installed before connecting the large pipe.



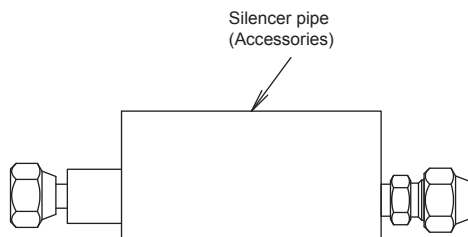
CAUTION

Be sure to install the pipe against the port on the indoor unit and the outdoor unit correctly. If the centering is improper, the flare nut cannot be tightened smoothly. If the flare nut is forced to turn, the threads will be damaged.

Do not remove the flare nut from the indoor unit pipe until immediately before connecting the connection pipe.

Do not use mineral oil on flared part. Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.

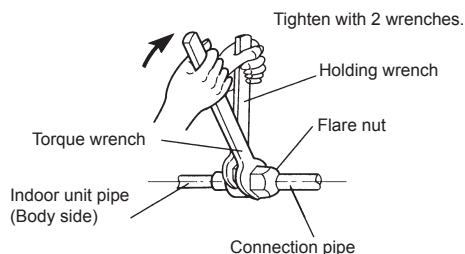
If necessary, cut the silencer pipe and use it.



CAUTION

Hold the torque wrench at its grip, keeping it at a right angle with the pipe, in order to tighten the flare nut correctly.

When the flare nut is tightened properly by your hand, hold the body side coupling with a separate spanner, then tighten with a torque wrench.



Flare nut [in (mm)]	Tightening torque [lbf-ft (N·m)]
1/4 (6.35) dia.	11.8 to 13.3 (16 to 18)
3/8 (9.52) dia.	23.6 to 31.0 (32 to 42)
1/2 (12.70) dia.	36.1 to 45.0 (49 to 61)
5/8 (15.88) dia.	46.5 to 55.3 (63 to 75)
3/4 (19.05) dia.	66.4 to 81.1 (90 to 110)

4.4. Installing heat insulation

CAUTION

After checking for gas leaks (refer to the Installation Manual of the outdoor unit), perform this section.

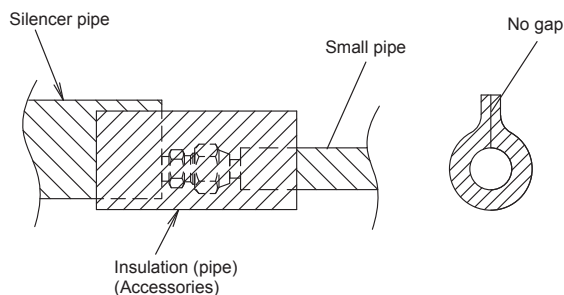
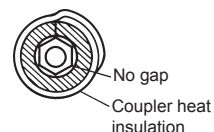
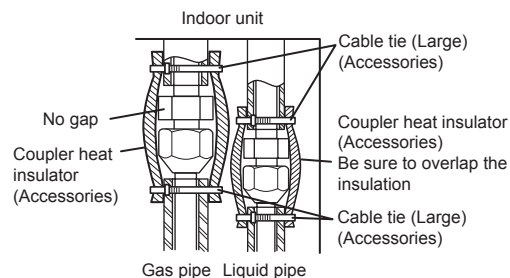
Install heat insulation around both the large (gas) and small (liquid) pipes. Failure to do so may cause water leaks.

After checking for gas leaks, insulate by wrapping insulation around the 2 parts (Gas and Liquid) of the indoor unit coupling, using the coupler heat insulation.

After installing the coupler heat insulation, wrap both ends with vinyl tape so that there is no gap.

Secure both ends of the heat insulation material using Cable tie (Large).

And finally fix connection pipe (Liquid) to connection pipe (Gas) by rolling vinyl tape over coupler heat insulation (Gas) and coupler heat insulation (Liquid).



CAUTION

There should be no gaps between the insulation and the unit.

5. INSTALLING DRAIN HOSE

CAUTION

Install the drain hose in accordance with the instructions in this Installation Manual and keep the area warm enough to prevent condensation. Problems with the piping may lead to water leaks.

Use general hard polyvinyl chloride pipe and connect it with adhesive (polyvinyl chloride) so that there is no leakage.

Always heat insulate the indoor side of the drain hose.

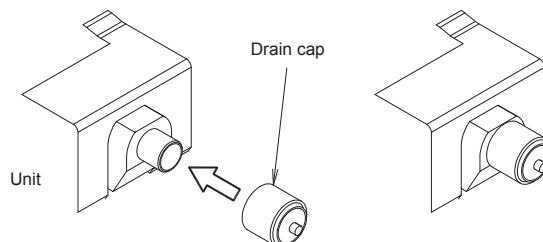
Use a drain pipe that matches the size of the drain hose.

- Do not perform a rise, trap and air bleeding.
- Provide a downward gradient (1/100 or more).
- Provide supporters when long pipes are installed.
- Use an insulation material as needed, to prevent the pipes from freezing.
- Install the pipes in a way that allows for the removal of the control box.

	O.D.
Drain pipe	Φ 3/4 in (19 mm) [I.D.], Φ 1-1/16 in (27 mm) [O.D.]

When using the drain port on the left side of the unit, remove the drain cap and install it to the right side drain port.

(Only when suspended from the ceiling)

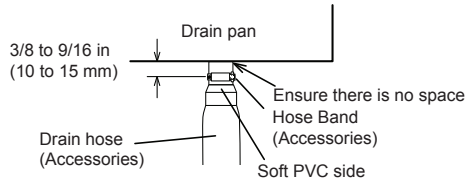


Install the drain hose

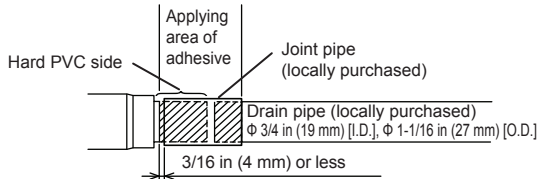
Working procedure

- 1) Install the attached drain hose to the drain port of the body. Install the hose band from the top of the hose within the graphic display area. Secure firmly with the hose band.
- 2) Use vinyl adhesive agent to glue the drain piping (PVC pipe) / [Φ 3/4 in (19 mm) I.D., Φ 1-1/16 in (27 mm) O.D.] which is prepared on site or piping socket. (Apply color adhesive agent evenly until the gauge line and seal)
- 3) Check the drainage.
- 4) Install the heat insulation.
- 5) Use the attached heat insulation to insulate the drain port and band parts of the body.

Top view

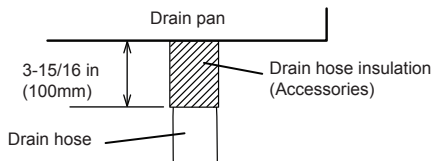


Side view

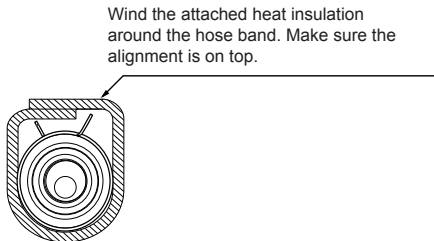


Wrap the Drain hose insulation around the drain hose connection.

Top view



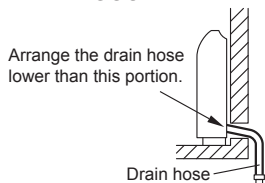
Hose opening view



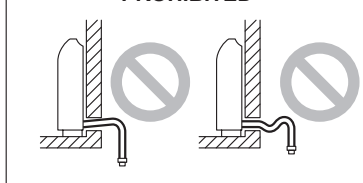
A. Floor console type

Be sure to arrange the drain hose so that it is leveled lower than the drain hose connecting port of the indoor unit.

GOOD

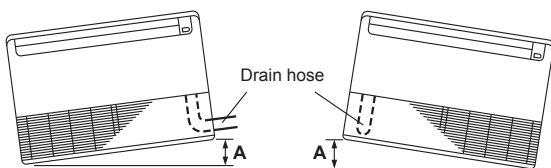


PROHIBITED



CAUTION

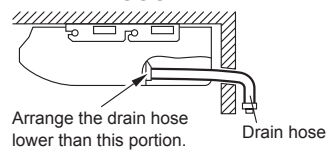
Do not install the unit so that the drain hose side is too high. Height A should be less than 3/16 in (5 mm).



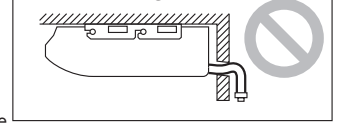
B. Under ceiling type

Be sure to arrange the drain hose so that it is leveled lower than the drain hose connecting port of the indoor unit.

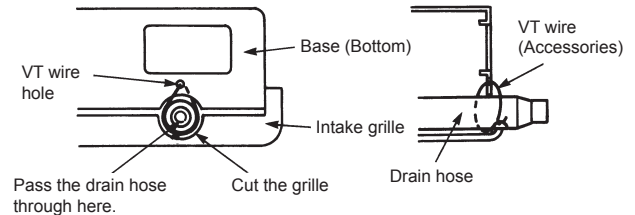
GOOD



PROHIBITED



When drain hose is arranged backward. Secure the drain hose with the VT wire.



6. ELECTRICAL WIRING

WARNING

Electrical work must be performed in accordance with this Manual by a person certified under the national or regional regulations. Be sure to use a dedicated circuit for the unit. An insufficient power supply circuit or improperly performed electrical work can cause serious accidents such as electric shock or fire.

Before starting work, check that power is not being supplied to the all units.

Use the included connection cables and power cables or ones specified by the manufacturer. Improper connections, insufficient insulation, or exceeding the allowable current can cause electric shock or fire.

For wiring, use the prescribed type of cables, connect them securely, making sure that there are no external forces of the cables applied to the terminal connections. Improperly connected or secured cables can cause serious accidents such as overheating the terminals, electric shock, or fire.

Do not modify the power cables, use extension cables, or use any branches in the wiring. Improper connections, insufficient insulation, or exceeding the allowable current can cause electric shock or fire.

Match the terminal board numbers and connection cable colors with those of the outdoor unit (or RB unit). Erroneous wiring may cause burning of the electric parts.

Securely connect the connection cables to the terminal board. In addition, secure the cables with wiring holders. Improper connections, either in the wiring or at the ends of the wiring, can cause a malfunction, electric shock, or fire.

Always fasten the outside covering of the connection cable with the cable clamp. (If the insulator is chafed, electric discharge may occur.)

Securely install the electrical box cover on the unit. An improperly installed electrical box cover can cause serious accidents such as electric shock or fire through exposure to dust or water.

Install sleeves into any holes made in the walls for wiring. Otherwise, a short circuit could result.

We suggest installing GFEB breakers or follow local electrical code. When installing this system, install using ground fault equipment breakers (GFEB) to reduce the risk of leaking current which result in electric shock or potential fire.

Always connect the earth (ground) cable. Improper earthing (grounding) work can cause electric shocks.

Install the remote controller cables so as not to be direct touched with your hand.

Perform wiring work in accordance with standards so that the air conditioner can be operated safely and positively.

Connect the connection cable firmly to the terminal board. Imperfect installation may cause a fire.

If the supply cable is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

CAUTION

Earth (Ground) the unit.
Do not connect the earth (ground) cable to a gas pipe, water pipe, lightning rod, or a telephone earth (ground) cable.
Improper earthing (grounding) may cause electric shock.

Do not connect power supply cables to the transmission or remote controller terminals, as this will damage the product.

Never bundle the power supply cable and transmission cable, remote controller cable together.
Separate these cable by 2 in (50 mm) or more.
Bundling these cables together will cause miss operation or breakdown.

When handling PCB, static electricity charged in the body may cause malfunction of the PCB. Follow the cautions below:

- Establish an earth (ground) for the indoor and outdoor units and peripheral devices.
- Cut power (breaker) off.
- Touch metal part of the indoor unit for more than 10 seconds to discharge static electricity charged in the body.
- Do not touch terminals of parts and patterns implemented on PCB.

6.1. Electrical requirement

Voltage rating	208/230 V
Operating range	187 to 253 V

- Select the power cable type and size in accordance with relevant local and national regulations.
- Specifications for local wiring power cord and branch wiring are in compliance with local code.
- Select the correct cable type and size according to the country or region's regulations.
- Max. wire length: Set a length so that the voltage drop is less than 2%. Increase the wire diameter when the wire length is long.

Breaker should be installed at every refrigerant system. Do not use a breaker in a different refrigerant system.
Refer to the table for the breaker specifications of each installation condition. Perform the power crossover wiring within the range of the same refrigerant system. When the crossover wiring is done, make a connection for indoor units to satisfy conditions A and B below.

A. Current breaker requirements

Model	MCA	MAX. CKT. BKR (Fuse capacity)
ABUA12TLAV	0.40 A	15 A
ABUA14TLAV	0.43 A	
ABUA18TLAV	0.71 A	
ABUA24TLAV	0.93 A	

MCA: Minimum Circuit Ampacity

MAX. CKT. BKR : Maximum Circuit Breaker

When the power crossover wiring is done, make it so that the total of the MCA of the connected RB units and indoor units does not exceed the 11 A. For RB unit MCA, refer to the RB unit installation manual.

If the capacity of connected RB units and indoor units exceeds the upper limit, either add breakers or use a breaker with a greater capacity.

B. Ground Fault Equipment Breaker requirements

Breaker capacity	* Maximum connectable "indoor units" or "indoor units + RB units"
30 mA, 0.1 sec or less	36 or less **
100 mA, 0.1 sec or less	37 to 121

* Heat pump type: indoor units, Heat recovery type: indoor units and RB units.

** If the total number of units connected to the breaker exceeds 36, either add a 30mA breaker, or use breakers with a greater capacity.

6.1.1. Cable specifications

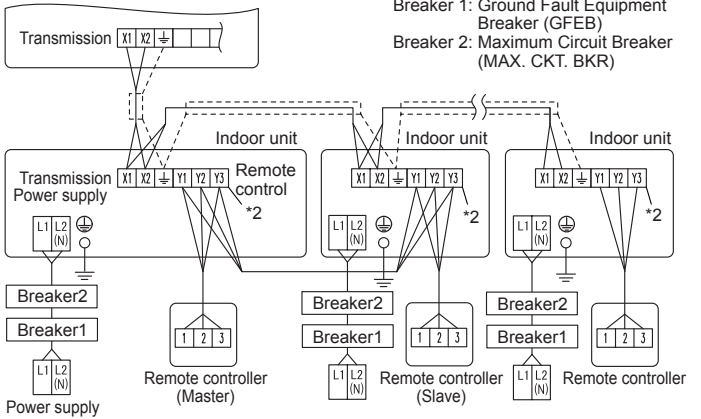
Follow the specifications below for the power supply, transmission and remote controller cable.

	Recommended cable size	Cable type	Remark
Transmission cable	22 AWG (0.33 mm ²)	LONWORKS compatible cable	22 AWG LEVEL 4 (NEMA) non-polar 2 core, twisted pair solid core diameter 0.026 in (0.65 mm)
Remote controller cable (2-wire type)	22 AWG (0.33 mm ²) to 16 AWG (1.25mm ²)	Sheathed PVC cable	Non polar 2 core, twisted pair
	18AWG	Thermostat cable 2 core	Use sheathed non twisted pair cable
Remote controller cable (3-wire type)	22 AWG (0.33 mm ²)	Sheathed PVC cable	Polar 3 core

6.2. Wiring method

EXAMPLE

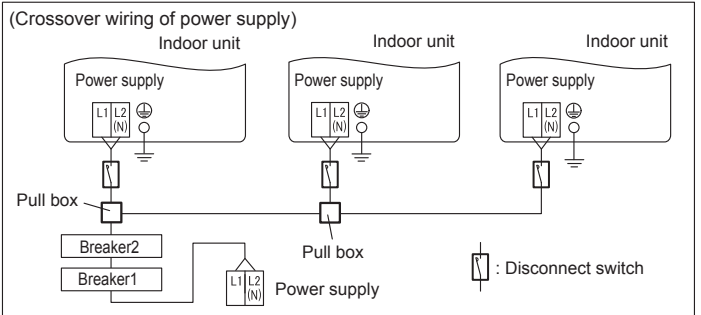
Outdoor unit or RB unit *1



Breaker shall be located in sight from and readily accessible from all indoor units.

*1: When connecting to the Heat Recovery System, refer to the installation manual of the RB unit.

*2: When connecting the 2-wire type remote controller, Y3 is not used.



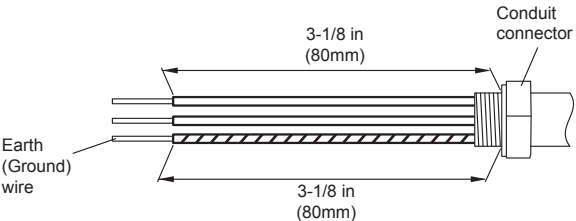
Disconnect switch shall be installed between indoor unit and pull box.

6.3. Unit wiring

Before attaching the cable to terminal block.

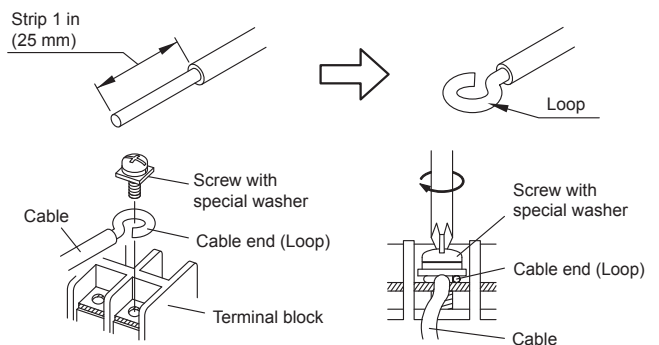
6.3.1. Power supply cable

Adjust the length of power supply cable to avoid excessive tension with referring figure below.



A. For solid core wiring

- To connect the electrical terminal, follow the below diagram and connect after looping it around the end of the cable.
- Use the specified cables, connect them securely, and fasten them so that there is no stress placed on the terminals.
- Use an appropriate screwdriver to tighten the terminal screws. Do not use a screwdriver that is too small, otherwise, the screw heads may be damaged and prevent the screws from being properly tightened.
- Do not tighten the terminal screws too much, otherwise, the screws may break.
- See the table for the terminal screw tightening torques.
- Please do not fix 2 power supply cables with 1 screw.

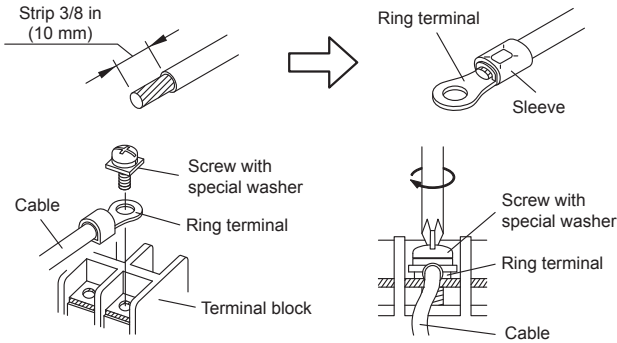


⚠ WARNING

When using solid core cables, do not use the ring terminal. If you use the solid core cables with the ring terminal, the ring terminal's pressure bonding may malfunction and cause the cables to abnormally heat up.

B. For strand wiring

- (1) Use ring terminals with insulating sleeves as shown in the figure below to connect to the terminal block.
- (2) Securely clamp the ring terminals to the cables using an appropriate tool so that the cables do not come loose.
- (3) Use the specified cables, connect them securely, and fasten them so that there is no stress placed on the terminals.
- (4) Use an appropriate screwdriver to tighten the terminal screws. Do not use a screwdriver that is too small, otherwise, the screw heads may be damaged and prevent the screws from being properly tightened.
- (5) Do not tighten the terminal screws too much, otherwise, the screws may break.
- (6) See the table for the terminal screw tightening torques.
- (7) Please do not fix 2 power supply cables with 1 screw.



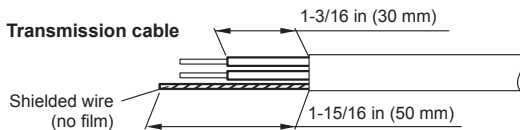
⚠ WARNING

Use ring terminals and tighten the terminal screws to the specified torques, otherwise, abnormal overheating may be produced and possibly cause heavy damage inside the unit.

Tightening torque

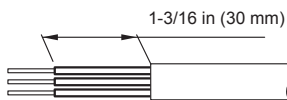
M4 screw (Power supply/L1, L2 (N), GND)	11 to 16 lbf-in (1.2 to 1.8 N-m)
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6.3.2. Transmission and Remote controller cable

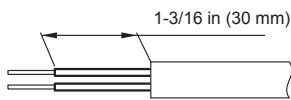


Remote controller cable

For 3-wire type

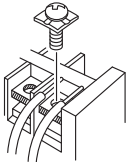


For 2-wire type

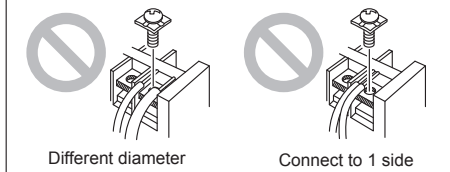


- When the 2 cables are attached:

GOOD



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⚠ WARNING

Tighten the terminal screws to the specified torques, otherwise, abnormal overheating may be produced and possibly cause heavy damage inside the unit.

Tightening torque

M3 screw (Transmission/X1, X2) (Remote controller/Y1, Y2, Y3)	4.4 to 5.3 lbf-in (0.5 to 0.6 N-m)
---	---------------------------------------

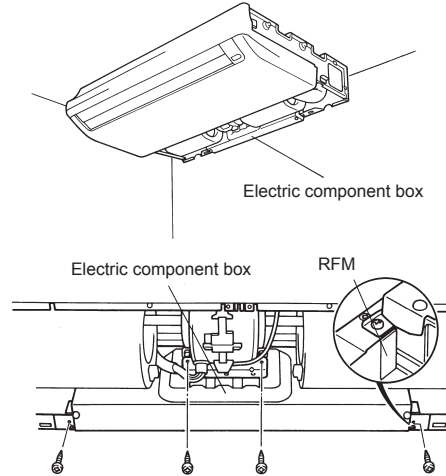
⚠ CAUTION

To peel the film from the lead cable, use a dedicated tool that will not damage the conductor cable.

When installing a screw on the terminal block, do not cut the cable by overtightening the screw. On the other hand, an undertightened screw can cause faulty contact, which will lead to a communication failure.

6.4. Connection of wiring

- (1) Remove the electric component box.

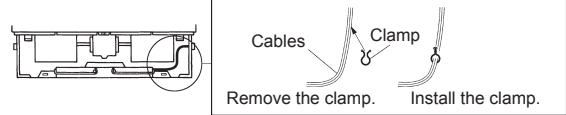


⚠ CAUTION

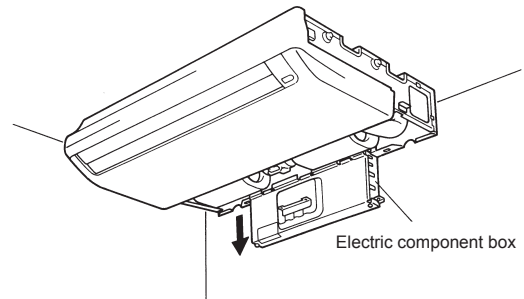
Do not remove the RFM fixing screws. If the stays are removed, the electric component box will fall.

If you use as "Floor console", you must remove screws and RFMs (2 position).

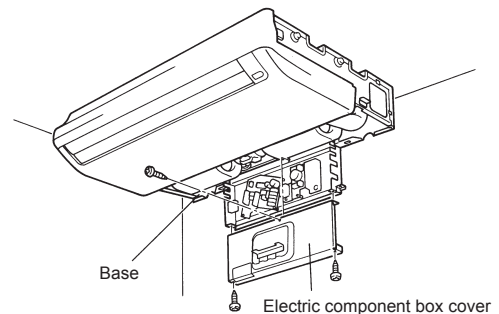
When removing the electric component box, remove the clamp from the cables. After completing the work, fasten the cables as they were originally by installing the clamp.



- (2) Pull out the electric component box.



- (3) Remove the electric component box cover.
Remove the 3 tapping screws.



⚠ CAUTION

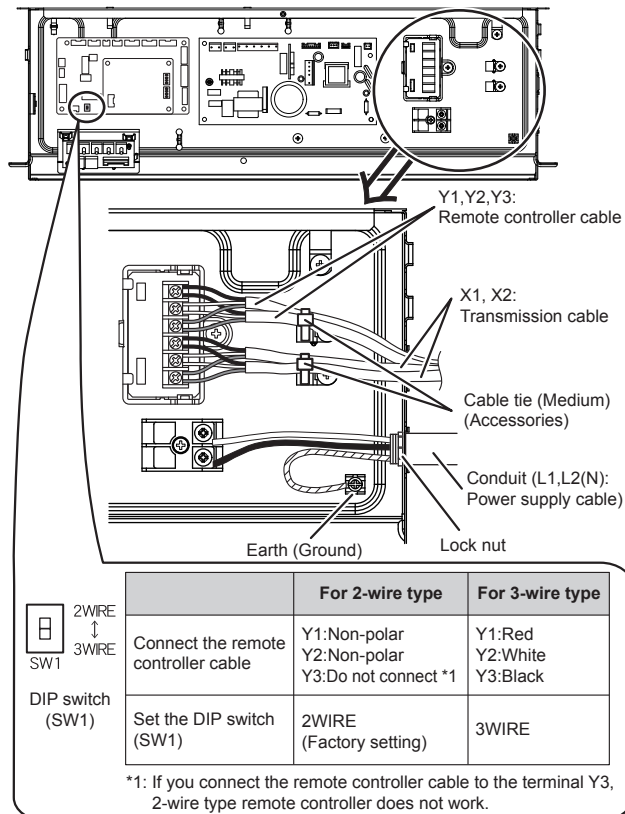
Be careful not to pinch the lead cables between the electric component box and base.

(4) Wiring

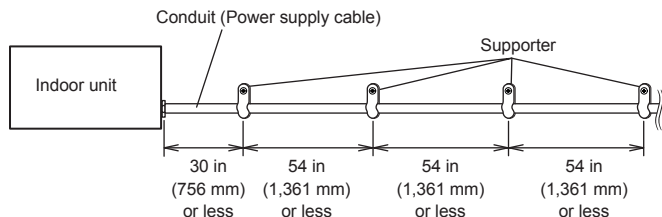
* When there is 1 transmission cable or remote controller cable, fasten it the same way as shown in the figure with a cable tie (medium).

CAUTION

When switching the DIP switch (SW1), be sure to turn off the power supply to the indoor unit. Otherwise, the PC board of the indoor unit may be damaged.



- Fix the conduit with the supporters as shown below.

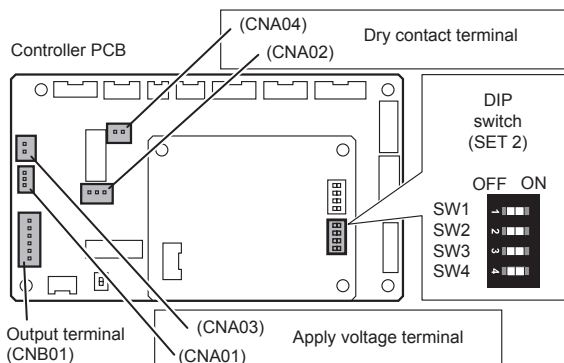


6.5. External input and external output (Optional parts)

CAUTION

Do not operate any switches other than prescribed, as it can cause the unit to operate improperly or malfunction.

Use an insulated screwdriver to set the DIP switches.



(1) External input

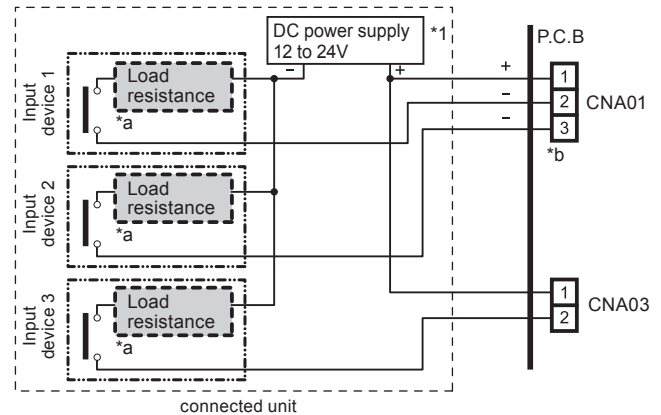
- Indoor unit can be Operation/Stop, Emergency stop or Forced stop by using indoor unit PCB CNA01 or CNA02.
- "Operation/Stop" mode, "Emergency stop" mode or "Forced stop" mode can be selected with function setting of indoor unit.
- Indoor unit can be Forced thermostat off by using indoor unit PCB CNA03 or CNA04.
- A twisted pair cable (22 AWG) should be used. Maximum length of cable is 492 ft (150 m).
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- The wire connection should be separate from the power cable line.

Input select

Use either one of these types of terminal according to the application. (Both types of terminals cannot be used simultaneously.)

• Apply voltage terminal ([CNA01], [CNA03])

When a power supply must be provided at the input device you want to connect, use the Apply voltage terminal ([CNA01], [CNA03]).



*1 Make the power supply DC12 to 24V. Select a power supply capacity with an ample surplus for the connected load.

Do not impress a voltage exceeding 24V across pins 1-2, and 1-3.

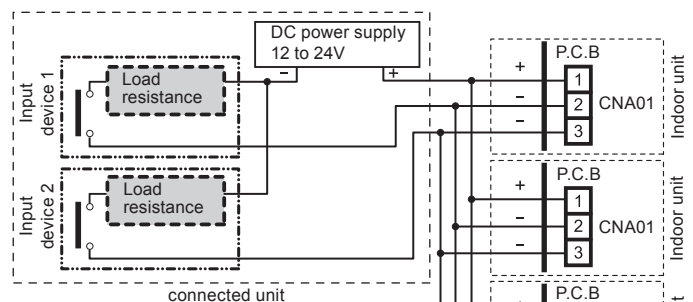
*a The allowable current is DC 5mA to 10mA. (Recommended: DC5mA)

Provide a load resistance such that the current becomes DC10mA or less.

Select very low current use contacts (usable at DC12V, DC1mA or less).

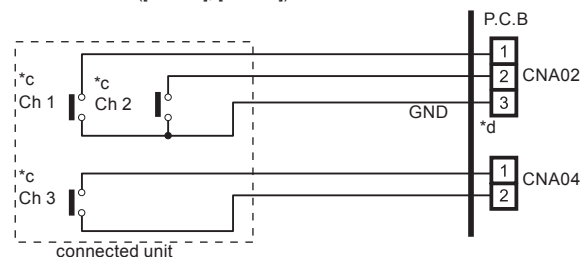
*b The polarity is [+] for pin 1 and [-] for pin 2 and 3. Connect correctly.

When connected to Apply voltage terminals of multiple indoor units with a connected unit, be sure to make a branch outside the indoor unit using a pull box, etc. as shown on below example.



• Dry contact terminal ([CNA02], [CNA04])

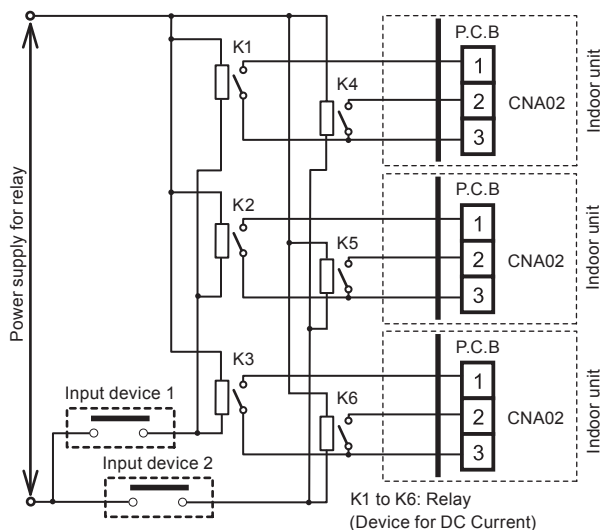
When a power supply is unnecessary at the input device you want to connect, use the Dry contact terminal ([CNA02], [CNA04]).



*c Select very low current use contacts (usable at DC12V, DC1mA or less).

*d The wiring is different from Apply voltage terminals. Be sufficiently careful when wiring.

When connected to Dry contact terminals of multiple indoor units with a connected unit, insulate each indoor unit with relay, etc. as shown on below example.



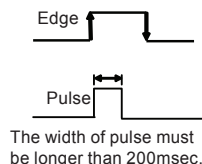
NOTE :
When connected to multiple indoor units directly, it will cause breakdown.

Operation behavior

• Input signal type

The input signal type can be selected.
It is switched by DIP switch on the indoor unit PCB.

DIP switch [Set 2 SW2]	Input signal type
OFF (Factory setting)	Edge
ON	Pulse



• When function setting is "Operation/Stop" mode. [In the case of "Edge" input]

Connector	Input signal	Command
Ch1 of CNA01 or CNA02	OFF → ON	Operation
	ON → OFF	Stop

[In the case of "Pulse" input]

Connector	Input signal	Command
CNA01 or CNA02	Ch1	OFF → ON Operation
	Ch2	OFF → ON Stop

* The last command has priority.

* The indoor units within the same remote controller group operates in the same mode.

• When function setting is "Emergency stop" mode. [In the case of "Edge" input]

Connector	Input signal	Command
Ch1 of CNA01 or CNA02	OFF → ON	Emergency stop
	ON → OFF	Normal

[In the case of "Pulse" input]

Connector	Input signal	Command
CNA01 or CNA02	Ch1	OFF → ON Emergency stop
	Ch2	OFF → ON Normal

* All indoor units of same refrigerant system stops when Emergency stop operates.

• When function setting is "Forced stop" mode. [In the case of "Edge" input]

Connector	Input signal	Command
Ch1 of CNA01 or CNA02	OFF → ON	Forced stop
	ON → OFF	Normal

[In the case of "Pulse" input]

Connector	Input signal	Command
CNA01 or CNA02	Ch1	OFF → ON Forced stop
	Ch2	OFF → ON Normal

* When the forced stop is triggered, indoor unit stops and Operation/Stop operation by a remote controller is restricted.

* When forced stop function is used with forming a remote controller group, connect the same equipment to each indoor unit within the group.

• Selection method of functions

"Operation/Stop" mode or "Emergency stop" mode, "Forced stop" mode can be selected with function setting of indoor unit.

• Forced thermostat off function

["Edge" input only]

*If function setting "60" is set to "00"

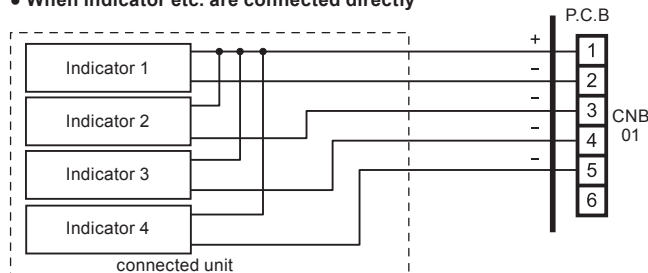
Connector	Input signal	Command
Ch3 of CNA03 or CNA04	OFF → ON	Thermostat off
	ON → OFF	Normal

(2) External output

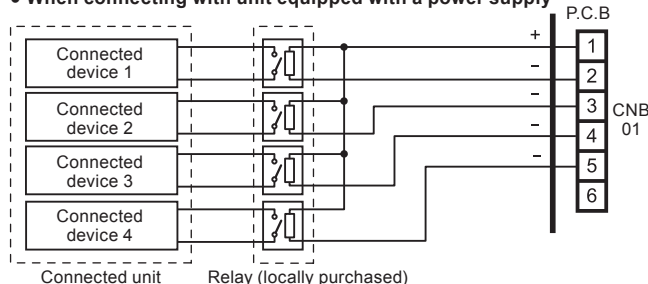
- A twisted pair cable (22AWG) should be used. Maximum length of cable is 82 ft (25 m).
- Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
- Output voltage: Hi DC12V±2V, Lo 0V.
- Permissible current: 50mA

Output select

• When indicator etc. are connected directly



• When connecting with unit equipped with a power supply



Operation behavior

*If function setting "60" is set to "00"

Connector	Output voltage	Status
CNA01	External output1 Pins 1-2	0V Stop
		DC 12 V Operation
	External output2 Pins 1-3	0V Normal
		DC 12 V Error
	External output3 Pins 1-4	0V Indoor unit fan stop
		DC 12 V Indoor unit fan operation
	External output4 Pins 1-5	0 V External heater OFF
		DC 12V External heater ON

• Indoor unit fan setting for external heater

Fan setting when turning ON output to the connected external heater can be set by changing Dip switch on PC board.

Dip switch [SET2 SW3]	Fan setting when ON is output to the external heater	Explanation
OFF (Factory setting)	OFF	For the fan setting details, see the Design & Technical Manual.
ON	ON	

(3) Connection methods

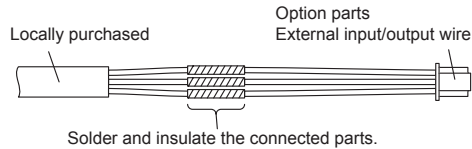
• Wire modification

Remove insulation from wire attached to wire kit connector.

Remove insulation from locally purchased cable. Use crimp type insulated butt connector to join field cable and wire kit wire.

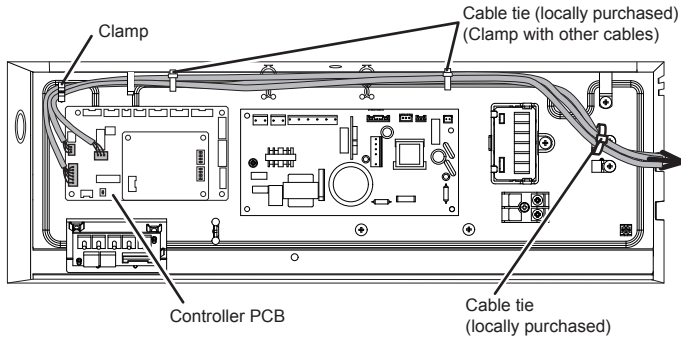
Connect the wire with connecting wire with solder.

IMPORTANT: Be sure to insulate the connection between the wires.



• Connection terminals and wiring arrangement

In following figure, all the possible connectors are connected for description. In actual installation, you cannot connect all the connectors at once.



7. FIELD SETTING

There are 3 methods for address setting by FIELD SETTING as follows.

Set by either of the methods.

Each setting method is described (1) to (3) below.

- (1) IU AD, REF AD SW settings This section (7.1. Setting the address)
- (2) Remote controller settings Refer to the wired or wireless remote controller manual for detailed setting information. (Set IU AD, REF AD SW to 0)
- (3) Automatic address settings Refer to the outdoor unit manual for detailed setting information. (Set IU AD, REF AD SW to 0)

CAUTION

Be sure to turn OFF the power before performing the field setting.

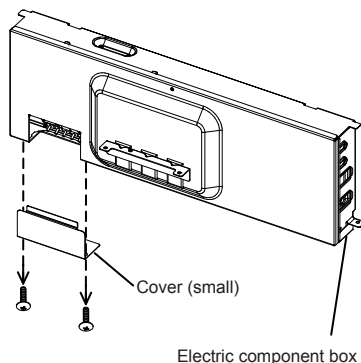
Do not operate any switches other than prescribed, as it can cause the unit to operate improperly or malfunction.

Use an insulated screwdriver to set the DIP switches.

7.1. Setting the address

Manual address setting method

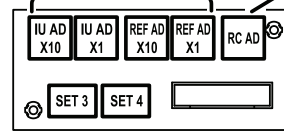
- The indoor unit address and the refrigerant circuit address can also be set up through the wireless remote controller.
 - Set it according to the following procedures when setting manually.
- It can be set manually if the cover (small) is removed under the condition that the electric component box cover is attached.







Rotary switch
Example: "0"



Rotary switch
Example: "0"



Setting	Setting range	Type of switch	
Indoor unit address	0 to 63	Setting example 2	 IU AD x 10  IU AD x 1
Refrigerant circuit address	0 to 99	Setting example 63	 REF AD x 10  REF AD x 1

(1) Indoor unit address

Rotary switch (IU AD × 1) Factory setting "0"

Rotary switch (IU AD × 10) Factory setting "0"

When connecting multiple indoor units to 1 refrigerant system, set the address at IU AD SW as shown in the Table A.

(2) Refrigerant circuit address

Rotary switch (REF AD × 1) Factory setting "0"

Rotary switch (REF AD × 10) Factory setting "0"

In the case of multiple refrigerant systems, set REF AD SW as shown in the Table A for each refrigerant system.

Set to the same refrigerant circuit address as the outdoor unit.

Table A

Address	Rotary switch setting		Address	Rotary switch setting	
Refrigerant circuit	REF AD SW		Indoor unit	IU AD SW	
	× 10	× 1		× 10	× 1
0	0	0	0	0	0
1	0	1	1	0	1
2	0	2	2	0	2
3	0	3	3	0	3
4	0	4	4	0	4
5	0	5	5	0	5
6	0	6	6	0	6
7	0	7	7	0	7
8	0	8	8	0	8
9	0	9	9	0	9
10	1	0	10	1	0
11	1	1	11	1	1
12	1	2	12	1	2
⋮	⋮	⋮	⋮	⋮	⋮
99	9	9	63	6	3


Do not set the indoor unit address (IU AD SW) at 64 to 99.

(3) Remote controller address

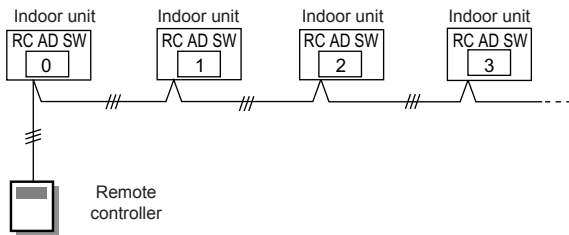
i) 3-wire type

Rotary switch (RC AD SW) ... Factory setting "0"

When connecting multiple indoor units to 1 standard wired remote controller, set the address at RC AD SW in sequence from 0.

Setting	Setting range	Type of switch	
Remote controller address	0 to 15	Setting example 0	 RC AD

Example If 4 indoor units are connected.



RC AD SW	0	1	2	3	4	5	6	7
Address	0	1	2	3	4	5	6	7

RC AD SW	8	9	A	B	C	D	E	F
Address	8	9	10	11	12	13	14	15

ii) 2-wire type

Rotary switch (RC AD SW)...Factory setting "0"

Since the remote controller address settings are automatically configured, you do not need to configure them.

If configuring manually, it is necessary to configure both the indoor unit and the remote controller.

For details, please refer to the remote controller manual.

7.2. Custom code setting

CAUTION

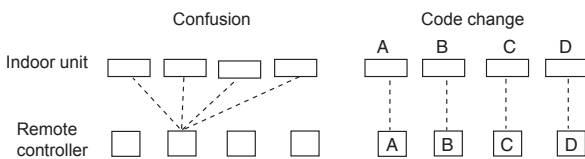
Use an insulated screwdriver to set the DIP switches.

Selecting the custom code prevents the indoor unit mix-up. (Fig. B)

(Up to 4 codes can be set.)

Perform the setting for both the indoor unit and the remote controller.

Fig. B



Custom code setting for indoor unit

Set the DIP switch SET 3 SW1, SW2, referring to the Table B.

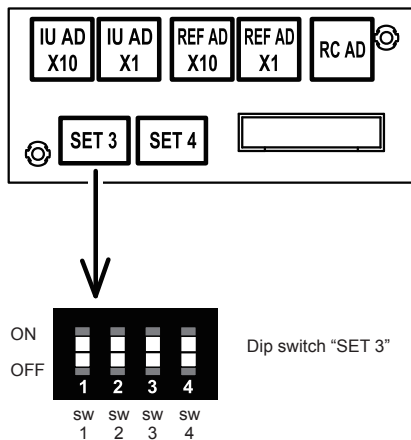


Table B

	Custom code			
	A (Factory setting)	B	C	D
DIP switch SET 3 SW1	OFF	ON	OFF	ON
DIP switch SET 3 SW2	OFF	OFF	ON	ON

7.3. Function setting

- FUNCTION SETTING can be performed with the wired or wireless remote controller. (The remote controller is optional equipment)
- Refer to the wired or wireless remote controller manual for detailed setting information.
- Refer to "7.1. Setting the address" for indoor unit address and refrigerant circuit address settings.
- Turn the power of the indoor unit ON before starting the setting.
 - * Turning on the power to the indoor units initializes EEV, so make sure the piping air tight test and vacuuming have been conducted before turning on the power.
 - * Also check again to make sure no wiring mistakes were made before turning on the power.

Function details

Function	Function number	Setting number	Default	Details
Filter indicator interval	11	00	Standard	Adjust the filter cleaning interval notification. If the notification is too early, change to setting 01. If the notification is too late, change to setting 02.
		01	Longer	
		02	Shorter	
Filter indicator action	13	00	Enable	Enable or disable the filter indicator. Setting 02 is for use with a central remote controller.
		01	Disable	
		02	Display only on central remote controller	
Horizontal swing airflow direction	24	00	Standard	Adjust the horizontal swing airflow direction. (For horizontal swing equipped models)
		01	Left half	
		02	Right half	
Cool air temperature trigger	30	00	Standard	Adjust the cool air trigger temperature. To lower the trigger temperature, use setting 01. To raise the trigger temperature, use setting 02.
		01	Adjust (1)	
		02	Adjust (2)	
Heat air temperature trigger	31	00	Standard	Adjust the heat air trigger temperature. To lower the trigger temperature by 11 degrees F (6 degrees C), use setting 01. To lower the trigger temperature by 7 degrees F (4 degrees C), use setting 02. To raise the trigger temperature, use setting 03.
		01	Adjust (1)	
		02	Adjust (2)	
		03	Adjust (3)	
Auto restart	40	00	Enable	Enable or disable automatic system restart after a power outage. *Auto restart is an emergency function such as for power failure etc. Do not start and stop the indoor unit by this function in normal operation. Be sure to operate by the control unit, converter or external input device.
		01	Disable	
Cool Air Prevention	43	00	Super low	Restrain the cold airflow with making the airflow lower when starting heating operation. To correspond to the ventilation, set to 01.
		01	Follow the setting on the remote controller	
External control	46	00	Start/Stop	Allow an external controller to start or stop the system, or to perform an emergency stop. *If an emergency stop is performed from an external controller, all refrigerant systems will be disabled. *If forced stop is set, indoor unit stops by the input to the external input terminals, and Start/Stop by a remote controller is restricted.
		01	Emergency stop	
		02	Forced stop	
Error report target	47	00	All	Change the target for reporting errors. Errors can either be reported in all locations, or only on the central remote controller.
		01	Display only on central remote controller	
Fan setting when cooling thermostat OFF	49	00	Follow the setting on the remote controller	When set to 01, the fan stops when the thermostat is OFF in cooling operation. Connection of the wired remote controller (2-wire type or 3-wire type) and switching its thermistor are necessary.
		01	Stop	

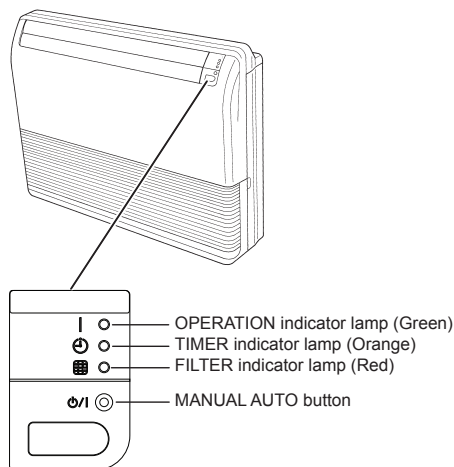
Function	Function number	Setting number	Default	Details
Switching functions for external inputs and external outputs terminals	60	00	Mode 0	<ul style="list-style-type: none"> Set this function when connecting the VRF system to a ventilator, economizer, humidifier, or other external device. The connection terminal functions can be changed depending on the type of external device. For details of the connection terminal functions, see the Design & Technical Manual.
		01	Mode 1	
		02	Mode 2	
		03	Mode 3	
		04	Mode 4	
		05	Mode 5	
		06	Mode 6	
		07	Mode 7	
		08	Mode 8	
Control switching of external heaters	61	00	Auxiliary heater control 1	Sets the control method for the external heater being used. For details of the control method, see the Design & Technical Manual.
		01	Auxiliary heater control 2	
		02	Heat pump prohibition control	
		03	Heater selection control using outdoor temperature 1	
		04	Heater selection control using outdoor temperature 2	
Operating temperature switching of external heaters	62	00	Setting 0	<ul style="list-style-type: none"> Sets the temperature conditions when the external heater is ON. For the temperature conditions, see "Temperature conditions when the external heater is ON". For a more detailed explanation, see the Design & Technical Manual.
		01	Setting 1	
		02	Setting 2	
		03	Setting 3	
		04	Setting 4	
		05	Setting 5	

Temperature conditions when the external heater is ON

Temperature (t) when the external heater is ON= Room temperature - set temperature

		Set value of function: 61				
		00	01	02	03	04
Set value of function: 62	00	t < -5.4°F (-3°C)		t ≤ -0.9°F (-0.5°C)		
	01	t < -3.6°F (-2°C)		t ≤ -1.8°F (-1°C)		
	02	t < -3.6°F (-2°C)		t ≤ -3.6°F (-2°C)		
	03	t < -5.4°F (-3°C)		t ≤ -5.4°F (-3°C)		
	04	t < -7.2°F (-4°C)		t ≤ -7.2°F (-4°C)		
	05	t < -9.0°F (-5°C)		t ≤ -9.0°F (-5°C)		

7.3.1. Button name and function



7.3.2. Checking the function settings

Press and hold the "MANUAL AUTO" button on the indoor unit for 3 seconds to check the function settings. It is necessary to disconnect the power in order to return to normal operation mode.

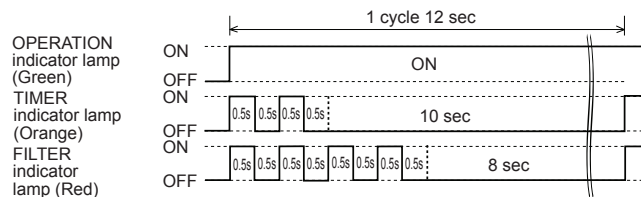
(1) Indoor unit and refrigerant address indication

Indication pattern

Indicator name	Indication pattern	
	Indoor unit address	Refrigerant address
OPERATION indicator lamp (Green)	ON	Flash (1.0s ON/1.0s OFF)
TIMER indicator lamp (Orange)	Address: tens place (0.5s ON/0.5s OFF)	
FILTER indicator lamp (Red)	Address: ones place (0.5s ON/0.5s OFF)	

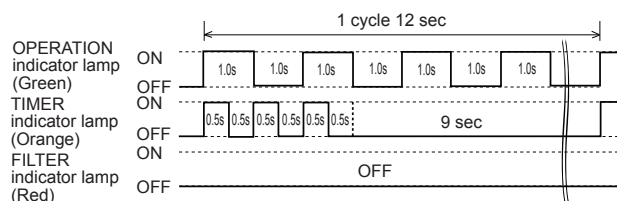
- Indoor unit address example

(Example) ADDRESS : 24



- Refrigerant address example

(Example) ADDRESS : 30



- Setting details

Function number	Item	Setting number
01	Indoor unit address	00 to 63
02	Refrigeration address	00 to 99

For use with a remote controller, set all rotary switches to 0, and refer to "7.1. Setting the address" for details.

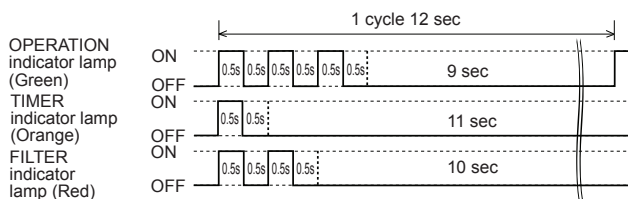
All switches are set to 0 at the factory.

(2) Others

Indication pattern

Indicator Name	Indication pattern
OPERATION indicator lamp (Green)	Function number; tens place (0.5s ON/0.5s OFF)
TIMER indicator lamp (Orange)	Function number; ones place (0.5s ON/0.5s OFF)
FILTER indicator lamp (Red)	Setting number: (0 to 9) (0.5s ON/0.5s OFF)

(Example) Function : 31, Setting number : 2

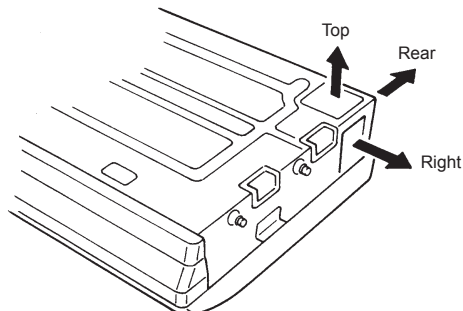


8. MOUNT THE COVER PLATE AND THE INTAKE GRILLE

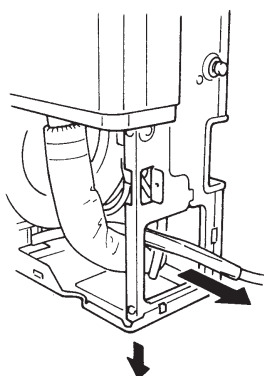
8.1. Handling for the pipe take-off part

When the pipe is pulled out in the direction shown in the figure below, cover the take-off part with material (putty or the like) that will block it off.

Under ceiling type

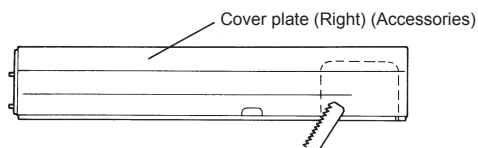


Floor console type

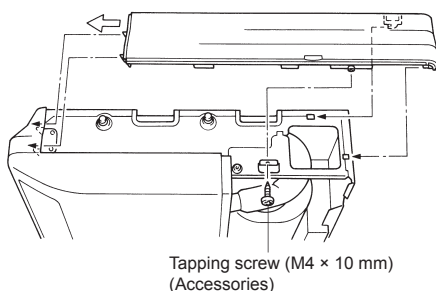


8.2. Mount the cover plate (Right)

- (1) Cut a pipe exit hole in the right plate. This is only when the pipe exits from the right side. (This operation is not required when the protrusion is on the top or rear.)

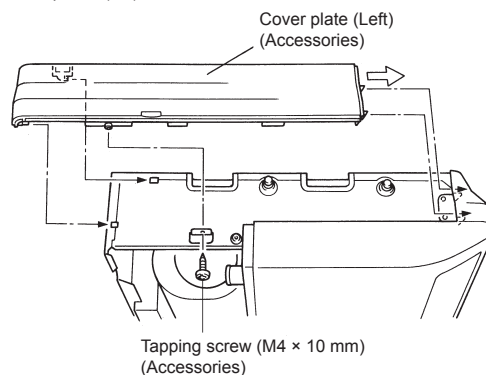


- (2) Join the cover plates (right) and mount with screws.



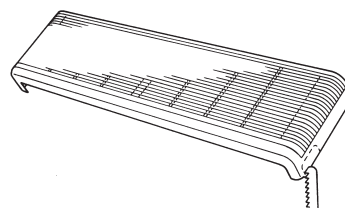
8.3. Mount the cover plate (Left)

- (1) Join the cover plates (left) and mount with screws.

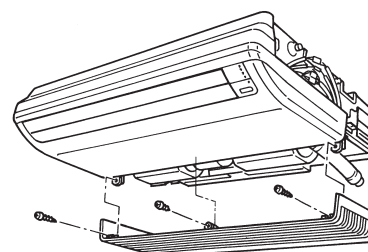


8.4. Mount the intake grille

- (1) Cut the right side of the intake grille. This is only when the pipe exits from the right side.



- (2) Insert the hinges on the bottom of the intake grille into the holes in the base assembly. Then mount the arms to the 3 areas on the top of the intake grille.



9. TEST RUN

9.1. Test run using Outdoor unit (PCB)

- Refer to the Installation Manual for the outdoor unit if the PCB for the outdoor unit is to be used for the test run.

9.2. Test run using remote controller

- Refer to the Installation Manual for the remote controller to perform the test run using the remote controller.
- When the air conditioner is being test run, the OPERATION and TIMER indicator lamps flash slowly at the same time.

10. CHECK LIST

Pay special attention to the check items below when installing the indoor unit(s). After installation is complete, be sure to check the following check items again.

Check items	If not performed correctly	Check box
Has the indoor unit been installed correctly?	Vibration, noise, indoor unit may drop	
Has there been a check for gas leaks (refrigerant pipes)?	No cooling, No heating	
Has heat insulation work been completed?	Water leakage	
Does water drain easily from the indoor units?	Water leakage	
Is the voltage of the power source the same as that indicated on the label on the indoor unit?	No operation, heat or burn damage	
Are the wires and pipes all connected completely?	No operation, heat or burn damage	
Is the indoor unit earthed (grounded)?	Short circuit	
Is the connection cable the specified thickness?	No operation, heat or burn damage	
Are the inlets and outlets free of any obstacles?	No cooling, No heating	
Does start and stop air conditioner operation by remote controller or external device?	No operation	
After installation is completed, has the proper operation and handling been explained to the user?		

11. ERROR CODES

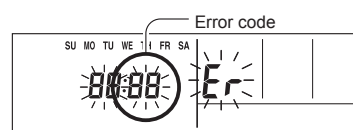
If you use a wired type remote controller, error codes will appear on the remote controller display. If you use a wireless remote controller, the lamp on the photodetector unit will output error codes by way of blinking patterns. See the lamp blinking patterns and error codes in the table below.

Error indications			Wired Remote Controller Error code	Error contents
OPERATION lamp (green)	TIMER lamp (orange)	FILTER lamp (red)		
● (1)	● (2)	◇	12	Remote controller communication error
● (1)	● (4)	◇	14	Network communication error
● (1)	● (6)	◇	16	Peripheral unit communication error
● (2)	● (6)	◇	26	Indoor unit address setting error
● (2)	● (9)	◇	29	Connection unit number error in wired remote controller system
● (3)	● (1)	◇	31	Indoor unit power supply abnormal
● (3)	● (2)	◇	32	Indoor unit main PCB error
● (3)	● (10)	◇	3A	Indoor unit communication circuit (wired remote controller) error
● (4)	● (1)	◇	41	Indoor unit room temp. thermistor error
● (4)	● (2)	◇	42	Indoor unit heat ex. temp. thermistor error
● (5)	● (1)	◇	51	Indoor unit fan motor 1 error
● (5)	● (2)	◇	52	Indoor unit coil (expansion valve) error
● (5)	● (3)	◇	53	Indoor unit water drain abnormal
● (9)	● (15)	◇	90	Outdoor unit miscellaneous error
● (13)	● (1)	◇	J1	RB unit error

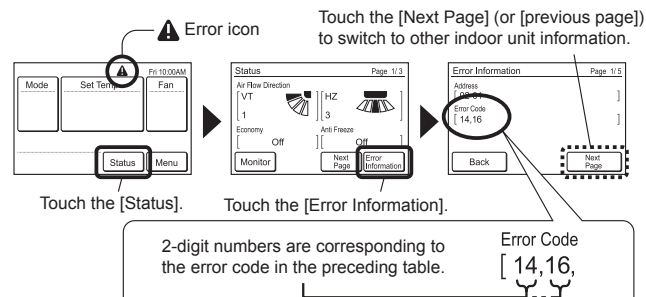
Display mode
 ● : 0.5s ON / 0.5s OFF
 ◇ : 0.1s ON / 0.1s OFF
 () : Number of flashing

Wired Remote Controller Display

UTY-RNKU (3-wire type)



UTY-RNRU (2-wire type)



For more information, refer to the installation manual of the remote controller.