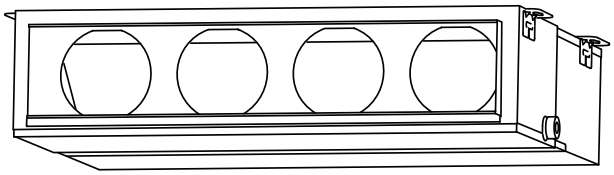
AIRSTAGE™

INSTALLATION MANUAL

INDOOR UNIT (Duct type)

For authorized service personnel only.

English



MANUEL D'INSTALLATION

UNITÉ INTÉRIEURE (type conduit)

Pour le personnel agréé uniquement.

Français

MANUAL DE INSTALACIÓN

UNIDAD INTERIOR (Tipo conducto)

Únicamente para personal de servicio autorizado.

Español

ARUM24TLAV2
ARUM30TLAV2
ARUM36TLAV2

FUJITSU GENERAL LIMITED

PART No. 9373385264-02

INSTALLATION MANUAL

PART No. 9373385264-02
VRF system indoor unit (Duct type)

Contents

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 unit in accordance with this Manual. An improperly installed unit can cause serious accidents such as water leakage, electric shock, or fire. If the 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 control unit, converter or external input device and then cut the breaker. Make sure to operate through the control unit, 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.
Cancer and Reproductive Harm - www.P65Warnings.ca.gov

2. ABOUT THIS PRODUCT

2.1. Precautions for using the 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 leakage, make sure that it does not exceed the concentration limit. If a refrigerant leakage 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 leakage 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

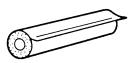
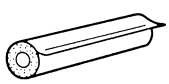
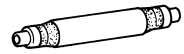
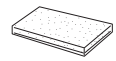
⚠ WARNING
To install a unit that uses the R410A refrigerant, use dedicated tools and piping materials that have been manufactured specifically for R410A use. Because the pressure of the R410A refrigerant is approximately 1.6 times higher than the R22, failure to use dedicated piping material or improper 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	Pressure is huge and cannot be measured with a conventional (R22) 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 500 microns to 768 psi (–0.1 to 5.3 MPa) and a low pressure display range 500 microns to 551 psi (–0.1 to 3.8 MPa).
Charging hose	To increase pressure resistance, the hose material and base size were changed.
Vacuum pump	A conventional (R22) 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 500 microns (–100.7 kPa).
Gas leakage detector	Special gas leakage detector for HFC refrigerant R410A.

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 to fall, 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.

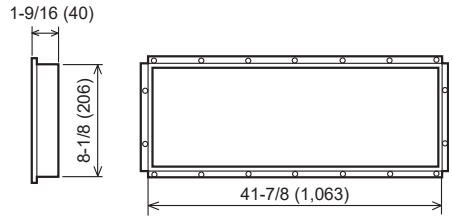
Do not discard any accessories needed for installation until the installation work has been completed.

Name and Shape	Q'ty	Application
Operating manual 	1	
Installation manual 	1	(This book)
Cable tie (large) 	5	For fixing the connection pipe (large and small) and drain cap
Cable tie (medium) 	3	For transmission and remote controller cable binding
Coupler heat insulation (small) 	1	For indoor side pipe joint (small)
Coupler heat insulation (large) 	1	For indoor side pipe joint (large)
Special nut A (large flange) 	4	For suspending the indoor unit from ceiling
Special nut B (small flange) 	4	
Hanger 	4	For suspending the indoor unit from ceiling
Drain hose 	1	For installing drain pipe Φ 3/4 in (19 mm) [I.D.], Φ 1-1/16 in (27 mm) [O.D.]
Hose band 	1	For installing drain hose
Drain hose insulation 	2	Insulates the drain hose and drain cap

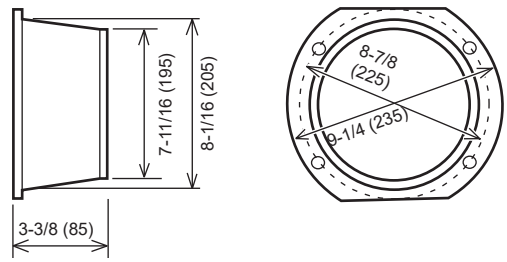
2.4. Optional parts

When connecting the square duct and round duct, use the optional square flange or round flange.

Square flange
Model name: UTD–SF045T (P/N 9098180007)

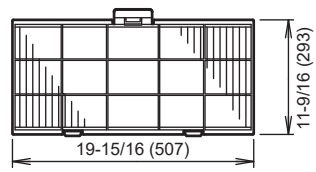


Round flange
Model name: UTD–RF204 (P/N 9093160004)



Unit: in (mm)

Long-life filter
Model name: UTD–LF25NA (P/N 9079892004)



Unit: in (mm)

Other optional parts

Description	Model	Application
IR receiver unit	UTY-TRHX	For the wireless remote controller.
Drain pump unit	UTZ-PU1NBA	
Remote sensor	UTY-XSZX	Room temperature sensor
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)
Wireless LAN adapter	UTY-TFSXZ*	For wireless LAN control.
MODBUS® convertor	UTY-VMSX	For connecting a single indoor unit system to the Modbus® network.
External power supply unit	UTZ-GXXA	Supply power to the indoor unit PCB when the indoor unit is turned off to prevent errors.

When installing, please refer to the installation manual of each optional part.

2.5. About unit of the length

This product is 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

3.1. Selecting an installation location

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

⚠ WARNING

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

⚠ CAUTION

Do not install the 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 flammables 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.

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.

Decide the mounting position with the customer as follows:

(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) A place from where the air can be distributed evenly throughout the room by the unit.
(5) Install the unit where connection to the outdoor unit (or RB unit) is easy.
(6) Install the unit where the connection pipe can be easily installed.
(7) Install the unit where the drain pipe can be easily installed.
(8) Install the unit where noise and vibrations are not amplified.
(9) Take servicing, etc., into consideration and leave the spaces. Also install the unit where the filter can be removed.
(10) Providing as much space as possible between the indoor unit and the ceiling will make work much easier.
(11) If installing in a place where its humidity exceeds 80%, use heat insulation to prevent condensation.

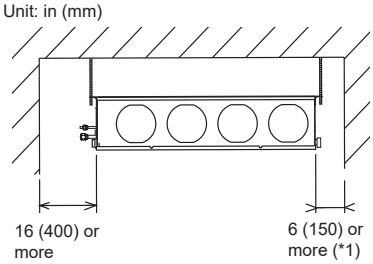
3.2. Installation dimensions

Provide the space around the unit as shown in the following figure.

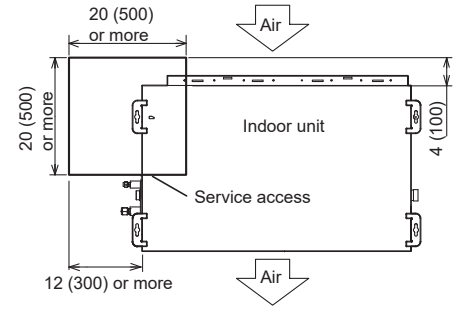
*1: 16 in (400 mm) or more when drain from drain pipe.

- Provide a service access for inspection purposes.
- Do not place any wiring or illumination in the service space, as they will impede service.
- When an air filter is installed on the air inlet, provide enough service space to replace the filter.

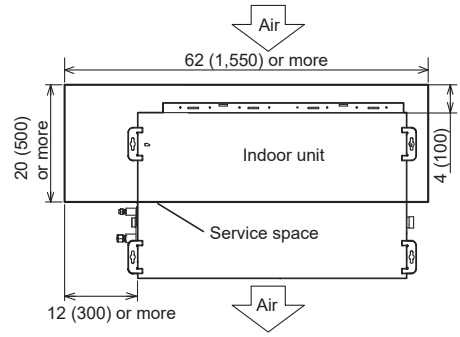
Unit: in (mm)



[Top view] Unit: in (mm)



[Top view] Unit: in (mm)



3.3. Installing the unit

⚠ WARNING

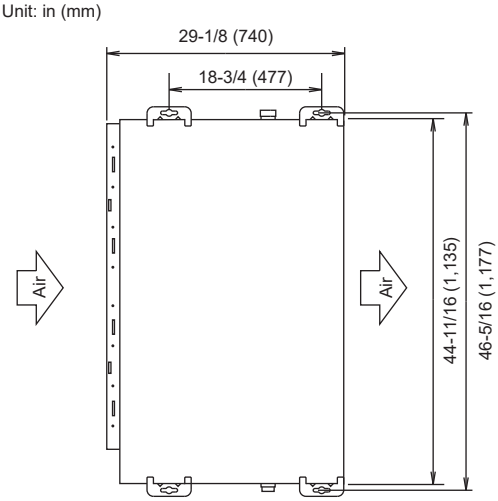
Install the air conditioner in a location which can withstand a load of at least 5 times the weight of the main unit and which will not amplify sound or vibration. If the installation location is not strong enough, the indoor unit may fall and cause injuries.

If the job is done with the panel frame only, there is a risk that the unit will come loose. Please take care.

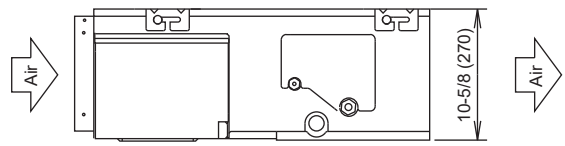
3.3.1. Installing the hangers

Hanging bolt installation diagram.

[Top side] Unit: in (mm)



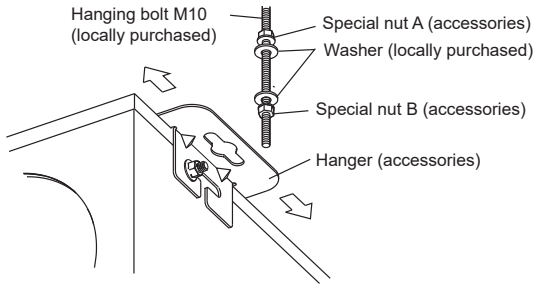
[Right side] Unit: in (mm)



⚠ WARNING

When fastening the hangers, make the bolt positions uniform.

The distance of ※ is adjustable according to the place of the hanging bolts.
(MAX.: 21-5/8 in (550 mm), MIN.: 16-1/8 in (410 mm))
Slide the unit in the arrow direction and fasten it.



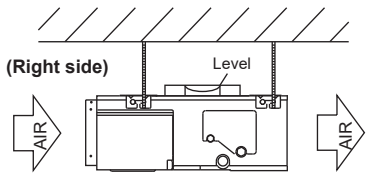
Bolt Strength	86.8 to 130.2 lbf·in (9.81 to 14.71 N·m)

⚠ WARNING

Fasten the unit securely with special nuts A and B.

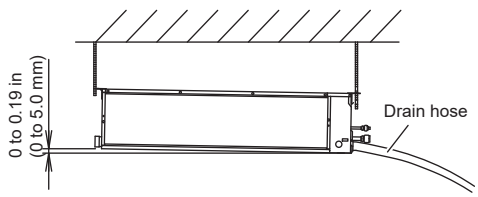
3.3.2. Leveling

Base vertical direction leveling on the unit (right and left).



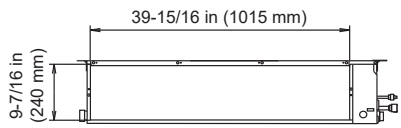
Base horizontal direction leveling on top of the unit.

Give a slight tilt to the side to which the drain hose is connected. The tilt should be in the range of 0 to 0.19 in (0 to 5.0 mm).

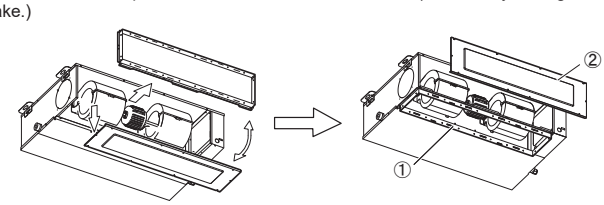


3.3.3. Intake duct

Follow the procedure in the following figure to the ducts.



The air inlet duct can be changed by replacing the intake grille and flange. For the bottom air intake, follow the procedure of ① → ② for installation. (The factory setting is back air intake.)



⚠ CAUTION

When air is taken in from the bottom side, the operating sound of the product will easily enter the room.
Install the product and intake grilles where the effect of the operating sound is small.

3.3.4. Outlet duct

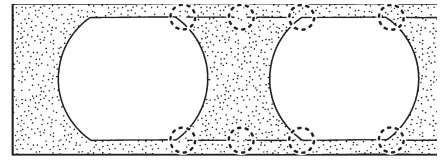
Duct installation pattern (■ CUT PART)

Round duct outlet × 4 (Factory setting.)

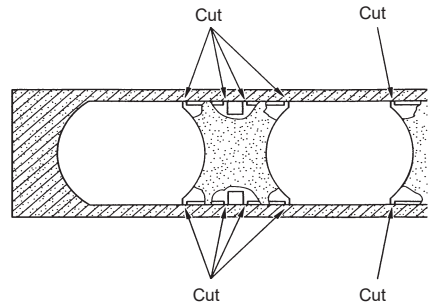
Square duct

• When using the square duct, follow the procedure below to process outlet duct.

(1) Cut the slit seam ⬚ with a cutter.

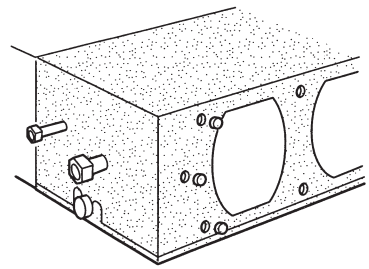


(2) Turn up the insulation around the points to be cut according to the outlet port shape working points so that the insulation does not stick out at the ▨ part.



(3) Cut with nippers and remove the sheet metal.

• The screw holes to install the flange are located behind the round cutouts in the insulation.



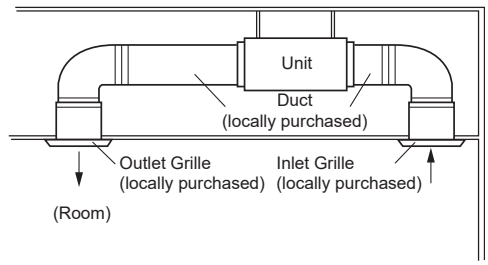
⚠ CAUTION

To prevent people from touching the parts inside the unit, be sure to install grilles on the inlet and outlet ports. The grilles must be designed in such a way that cannot be removed without tools.

The static pressure outside the unit is as follows.
ARUM24/30/36 Model: 0.12 to 0.60 in WG (30 to 150 Pa)

If an intake duct is installed, take care not to damage the temperature sensor (the temperature sensor is attached to the intake port flange).

Install the air inlet grille for air circulation. The correct temperature cannot be detected.

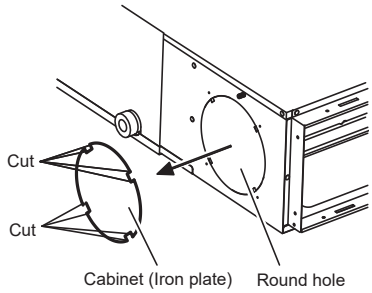


Be sure to install the air filter in the air inlet. If the air filter is not installed, the heat exchanger may be clogged and its performance may decrease.

3.3.5. Fresh air intake

(Processing before use)

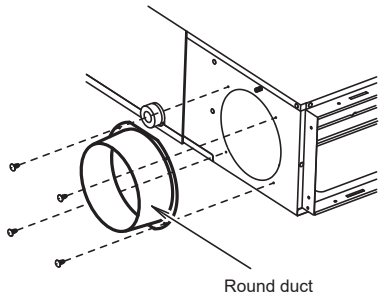
(1) When taking in fresh air, cut a slit shaped cabinet in the left side of the outer case with nippers.



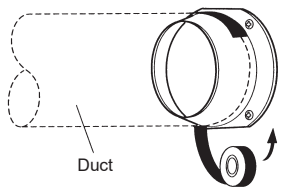
⚠ CAUTION
When removing the cabinet (iron plate), be careful not to damage the indoor unit internal parts and surrounding area (outer case).
When processing the cabinet (iron plate), be careful not to injure yourself with burrs, etc.

(2) Install the round flange (optional parts) to the fresh air intake.

(3) Connect the duct to the round flange.



(4) Seal with a band and vinyl tape, etc. so that air does not leak from the connection.



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 0.004 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)	0.039 (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 hazardous gas if the refrigerant comes into contact with a flame.

4.3.1. Flaring

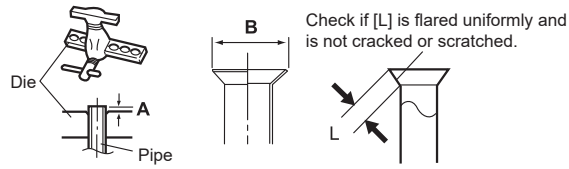
- Use special flare tool exclusive for R410A.

(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.

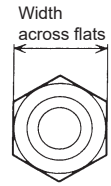
(3) Insert the flare nut (always use the flare nut attached to the indoor and outdoor units (or RB unit) respectively) onto the pipe and perform the flare processing with a flare tool. Use the special R410A flare tool. Leakage of refrigerant may result if other flare nuts are used.

(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 0.02 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.



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

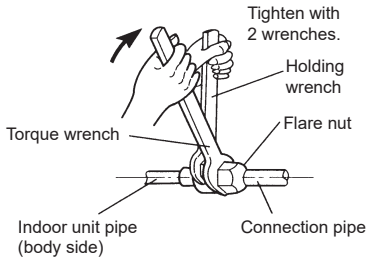
- If pipes are shaped by hand, be careful not to collapse them.
- Do not bend the pipes in an angle more than 90°.
- When pipes are repeatedly bend or stretched, the material will harden, making it difficult to bend or stretch them anymore.
- Do not bend or stretch the pipes more than 3 times.

⚠ 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

⚠ CAUTION
Be sure to install the pipe against the port on the indoor unit correctly. If the centering is improper, the flare nut cannot tighten 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.
Hold the torque wrench at its grip, keeping at the right angle with the pipe, in order to tighten the flare nut correctly.
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 hazardous gas if the refrigerant comes into contact with a flame.

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. (See the table below for the flare nut tightening torques.)



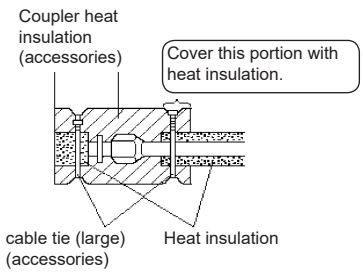
Flare nut [in (mm)]	Tightening torque [lbf·ft (N·m)]
1/4 (6.35) dia.	11.8 to 13.3 (16 to 18)
3/8 (9.52) dia.	23.6 to 31.0 (32 to 42)
1/2 (12.70) dia.	36.1 to 45.0 (49 to 61)
5/8 (15.88) dia.	46.5 to 55.3 (63 to 75)
3/4 (19.05) dia.	66.4 to 81.1 (90 to 110)

4.4. Installing heat insulation

Install the heat insulation material after performing a refrigerant leak check (see the Installation Manual for the outdoor unit for details).

4.4.1. Coupler heat insulation

- Insulate by the coupler heat insulation (accessories) around the gas pipe and liquid pipe of indoor side.
- After installing the coupler heat insulation, wrap both end with vinyl tape so that there is no gap.
- After affixing the coupler heat insulation, secure it with 2 cable ties (large), one on each end of the insulation.
- Make sure that the cable ties overlap the heat insulation pipe.

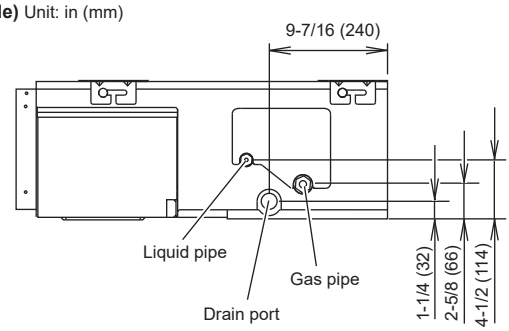


⚠ CAUTION
After checking for gas leaks (refer to the Installation Manual of the outdoor unit), perform this section.
Install heat insulation around both the large (gas) and small (liquid) pipes. Failure to do so may cause water leaks.

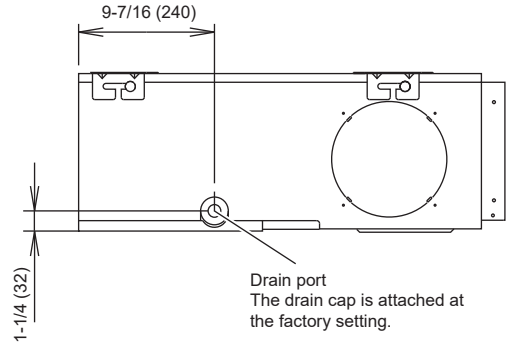
5. INSTALLING DRAIN PIPES

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 hose that matches the size of the drain pipe.
- 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.

(Right side) Unit: in (mm)

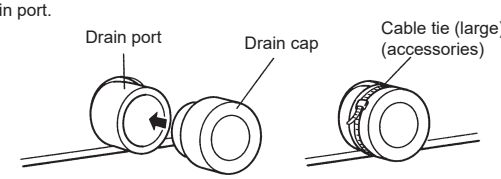


(Left side) Unit: in (mm)

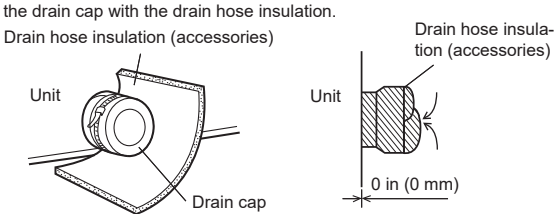


	Pipe size
Drain pipe	Φ 3/4 in (19 mm) [I.D.], Φ 1-1/16 in (27 mm) [O.D.]

- When the unit is shipped from the factory, the drain port is on the right side (control box side).
- When using the drain port on the left side of the unit, reinstall the drain cap to the right side drain port.



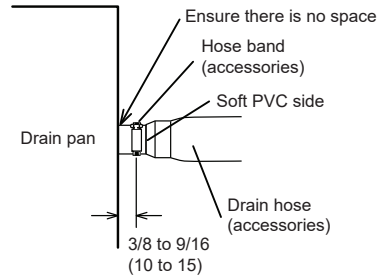
- Cover the drain cap with the drain hose insulation.



Install the drain hose

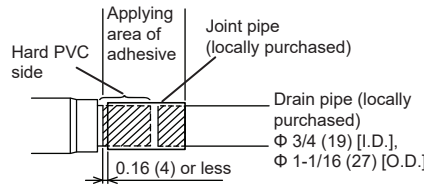
Working procedure

(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.



Unit: in (mm)

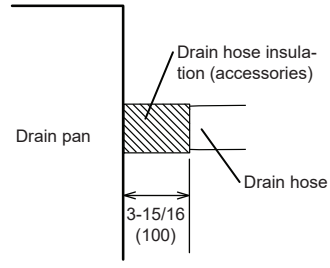
(2) Use vinyl adhesive agent to glue the drain piping (PVC pipe) [Φ 3/4 in (19 mm) I.D. Φ 1-1/16 in (27 mm) O.D.] which is prepared on site or socket. (Apply color adhesive agent evenly until the gauge line and seal)



Unit: in (mm)

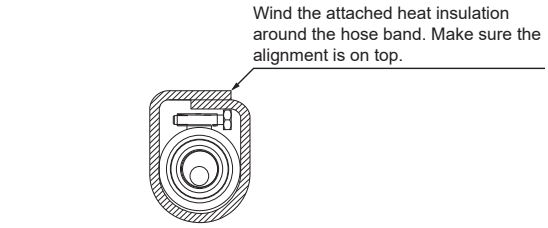
(3) Check the drainage.
(4) Install the heat insulation.
(5) Use the attached heat insulation to insulate the drain port and band parts of the body.

Wrap the Drain hose insulation around the drain hose connection.

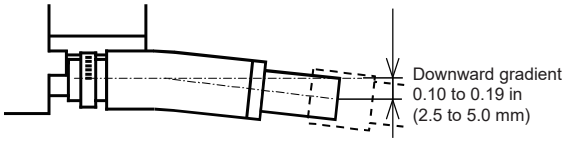


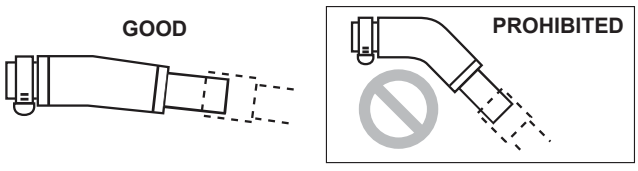
Unit: in (mm)

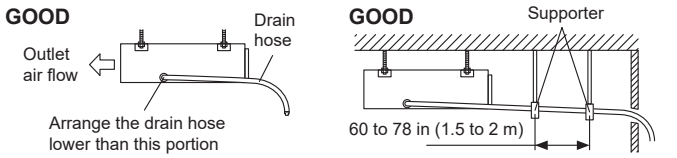
Hose opening view

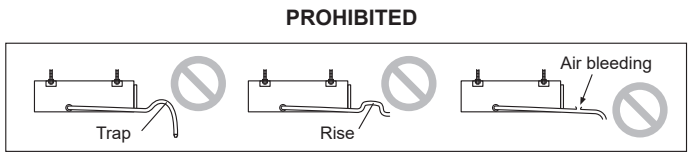


After installing the drain hose, check if the drainage is smooth.









⚠ CAUTION

Always check that the drain cap is installed to the unused drain port and is fastened with the cable tie.
If the drain cap is not installed, or is not sufficiently fastened by the cable tie, water may drip during the cooling operation.

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.

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

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.

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.

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 block 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 leakage may occur.)

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 cables firmly to the terminal board. Imperfect installation may cause a fire.

⚠ WARNING

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 cables 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)
ARUM24TLAV2	1.10 A	15 A
ARUM30TLAV2	1.40 A	
ARUM36TLAV2	1.74 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" (*1)
30 mA, 0.1 sec or less	36 or less
100 mA, 0.1 sec or less	37 to 121 (*2)

*1: Heat pump type: indoor units, Heat recovery type: indoor units and RB units.
*2: If the 100 mA capacity breaker is not provided, split the quantity of the indoor units into small groups of 36 units or less and provide a breaker with capacity of 30 mA for each group.

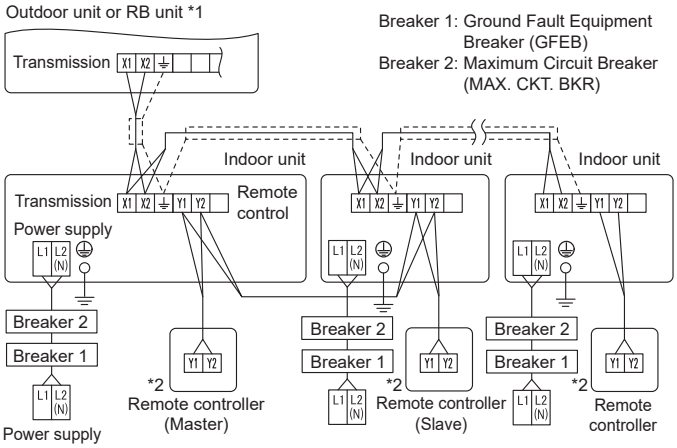
6.1.1. Transmission and remote controller wiring specifications

Follow the specifications below for the transmission and remote controller cable.

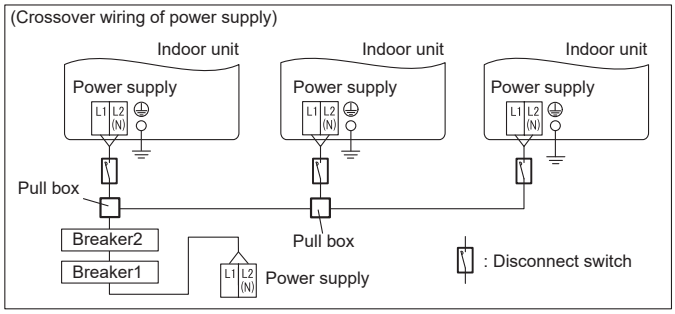
Use	Cable size (AWG)	Cable type	Remarks
Transmission cable	22	LEVEL 4 (NEMA) non-polar 2 core, twisted pair solid core diameter 0.026 in (0.65 mm)	LONWORKS® compatible cable
Remote controller cable (2-wire type)	22 to 16	Sheathed PVC cable	Non polar 2 core, twisted pair
	18	Thermostat cable 2 core	Use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

6.2. Wiring method

EXAMPLE



*1: When connecting to the Heat Recovery System, refer to the installation manual of the RB unit.
*2: The 3-wire type remote controller is not used.



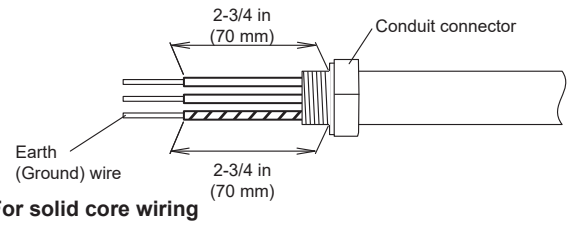
Disconnect switch shall be installed between indoor unit and pull box.

6.3. Unit wiring

Before attaching the cable to terminal block.

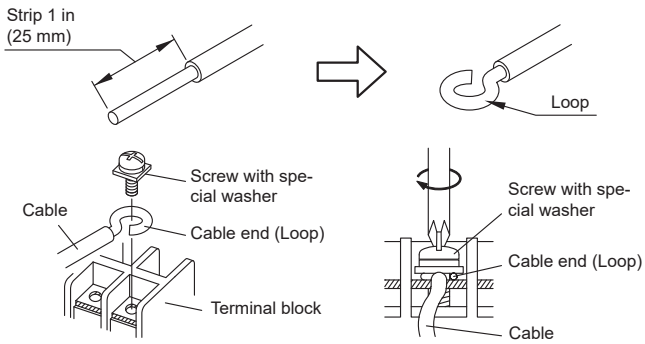
6.3.1. Power supply cable

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



A. For solid core wiring

(1) To connect the electrical terminal, follow the below diagram and connect after looping it around the end of the cable.
(2) Use the specified cables, connect them securely, and fasten them so that there is no stress placed on the terminals.
(3) 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.
(4) Do not tighten the terminal screws too much, otherwise, the screws may break.
(5) See the table for the terminal screw tightening torques.
(6) Please do not fix 2 power supply cables with 1 screw.

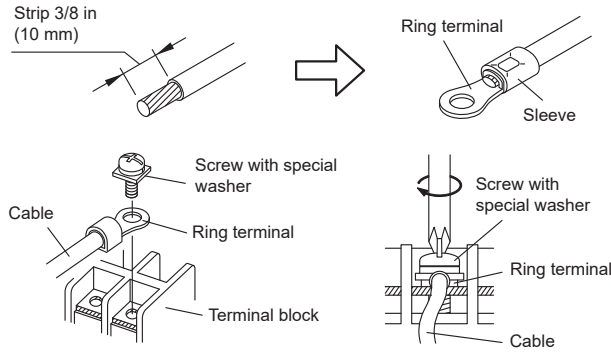


⚠ WARNING

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.

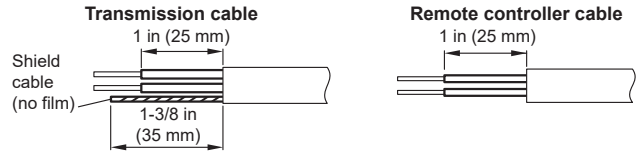


⚠ WARNING

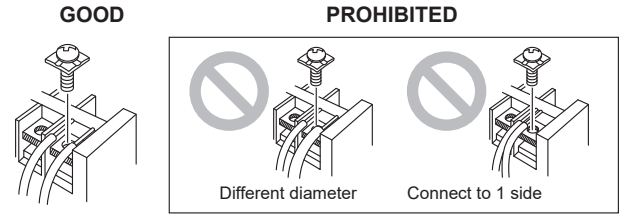
Use ring terminals and tighten the terminal screws to the specified torques, otherwise, abnormal overheating may be produced and possibly cause heavy damage inside the unit.

Tightening torque	
M4 screw (Power supply/L1, L2 (N), GND)	11 to 16 lbf·in (1.2 to 1.8 N·m)

6.3.2. Transmission and Remote controller cable



• When the 2 cables are attached:



⚠ 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)	4.4 to 5.3 lbf·in (0.5 to 0.6 N·m)

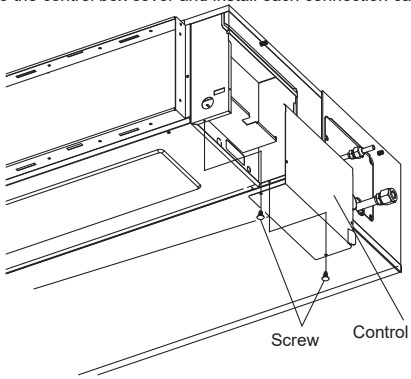
⚠ CAUTION

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

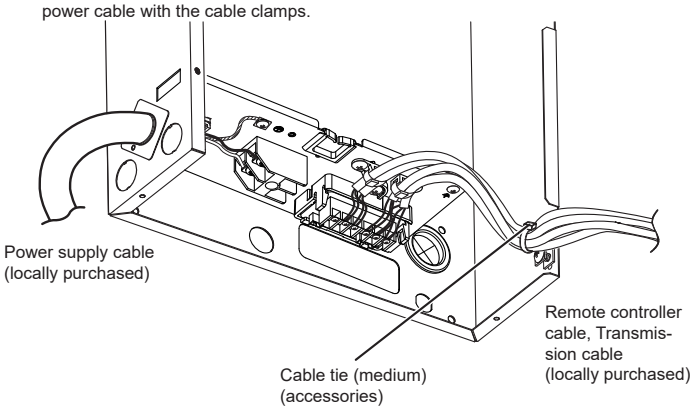
When installing a screw on the terminal block, do not cut the cable by overtightening the screw. On the other hand, an under tightened screw can cause faulty contact, which will lead to a communication failure.

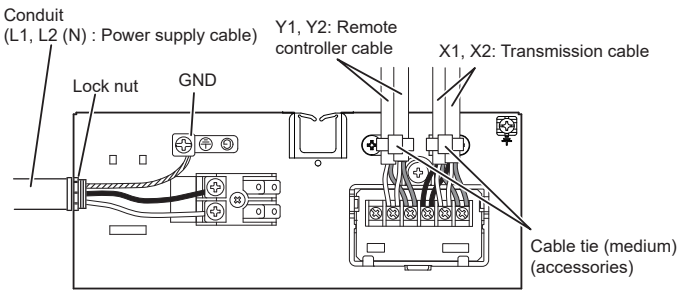
6.4. Connection of wiring

(1) Remove the control box cover and install each connection cable.

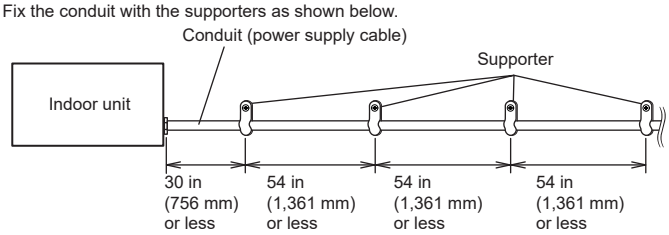


(2) After wiring is complete, secure the remote controller cable, connection cable, and power cable with the cable clamps.





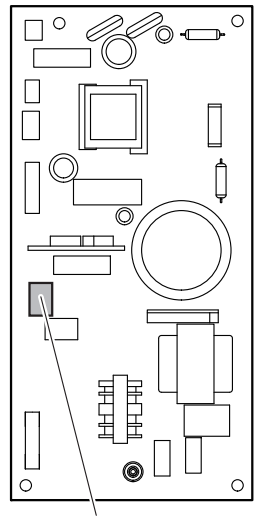
• Fix the conduit with the supporters as shown below.



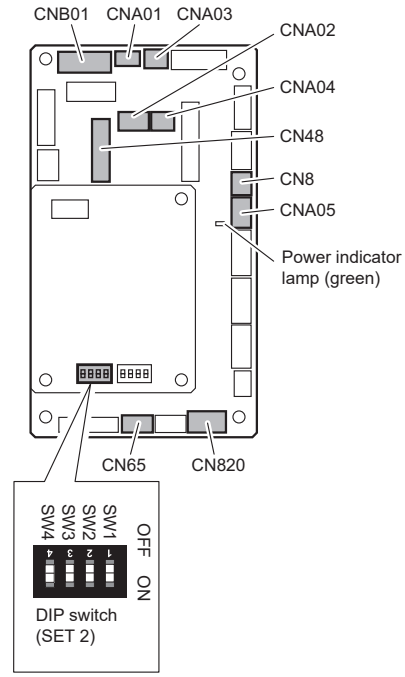
6.5. Optional parts wiring

6.5.1. Layout of the indoor unit PCB

Power supply PCB



Controller PCB



Name	Application	
Power indicator lamp (green)	Indicates the state of the power supply. Refer to “Power indicator lamp status” following.	
CNA01	Apply voltage terminal	For external input
CNA03		
CNA02	Dry contact terminal	
CNA04		
DIP switch SET 2 (SW2)	Input signal type switching	
CNB01	Output terminal	For external output
CN8	For Remote sensor unit (*1)	
CN48	For IR receiver unit (*1)	
CN65	For one of the following. • MODBUS® convertor (*1) • Wireless LAN adapter (*1)	
CNA05	For Drain pump unit (*1)	
CN106		
CN820	For External power supply unit (*1)	

*1: For details, refer to each installation manual.

6.5.2. Power indicator lamp status

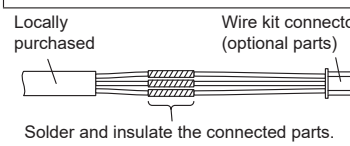
Power indicator lamp (Green)	Status contents
◎ Lit	Lit when the power is turned on.
● Fast flashing (every 0.1 second)	There is a fault with the communication board or the main board.
● Blinking (repeat 3 seconds ON and 1 second OFF)	The indoor unit is turned off and power is supplied from the External power supply unit (optional) to the indoor unit PCB.

6.5.3. Connection methods

Wire modification for External input/output wire

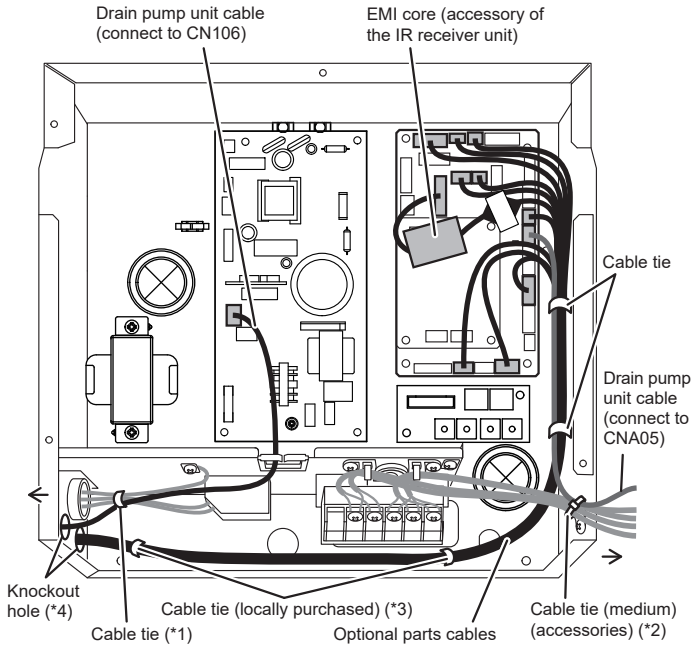
(1) Remove insulation from wire attached to wire kit connector.
(2) Remove insulation from field supplied cable. Use crimp type insulated butt connector to join field cable and wire kit wire.
(3) Connect the wire with connecting wire with solder.

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



Wiring arrangement

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



*1: Accessories of the drain pump unit. Bind the drain pump unit cable (connect to CN106), power supply cable and earth (ground) cable.
*2: Bind the drain pump unit cable (connect to CNA05), remote controller cable and Transmission cable.
*3: Bind the optional parts cables. Separate the these cables from the power supply cable and earth (ground) cable as much as possible.
*4: To protect the cable insulation after opening a knockout hole, remove any burrs from the edge of the hole.
• To prevent entry of insects and small animals, fill the holes and gaps through the cable with putty.

6.6. External input and external output (optional parts)

6.6.1. External input

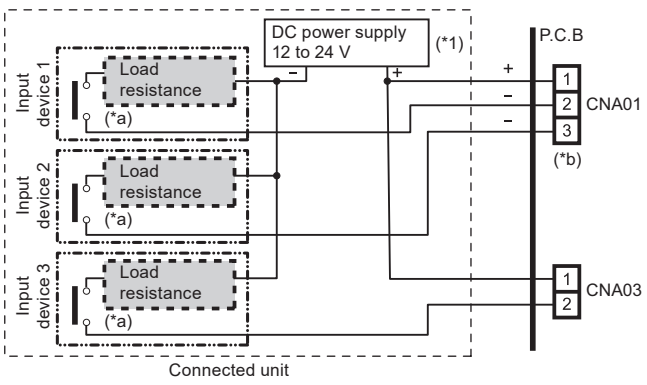
• Indoor unit can be Operation/Stop or Emergency stop or Forced stop by using indoor unit PCB CNA01 or CNA02.
• "Start/Stop" mode or "Emergency stop" mode or "Forced stop" mode can be selected with function setting of indoor unit.
• Indoor unit can be Forced thermostat off by using indoor unit PCB CNA03 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.)

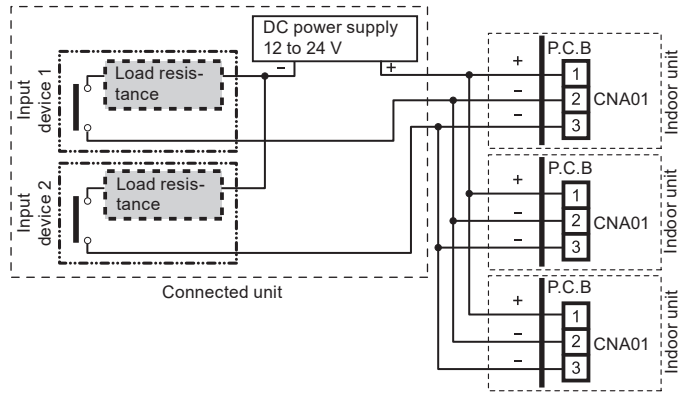
● Apply voltage terminal ([CNA01], [CNA03])

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



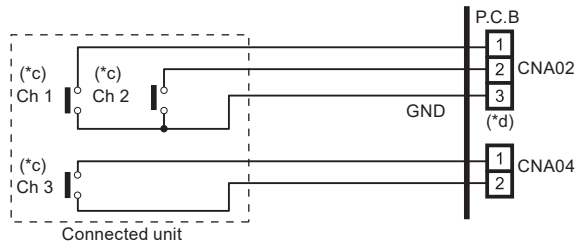
*1: Make the power supply DC 12 to 24 V. Select a power supply capacity with an ample surplus for the connected load.
Do not impress a voltage exceeding 24 V across pins 1-2, and 1-3.
*a: The allowable current is DC 5 mA to 10 mA. (Recommended: DC 5 mA)
Provide a load resistance such that the current becomes DC 10 mA or less.
Select very low current use contacts (usable at DC 12 V, DC 1 mA 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.



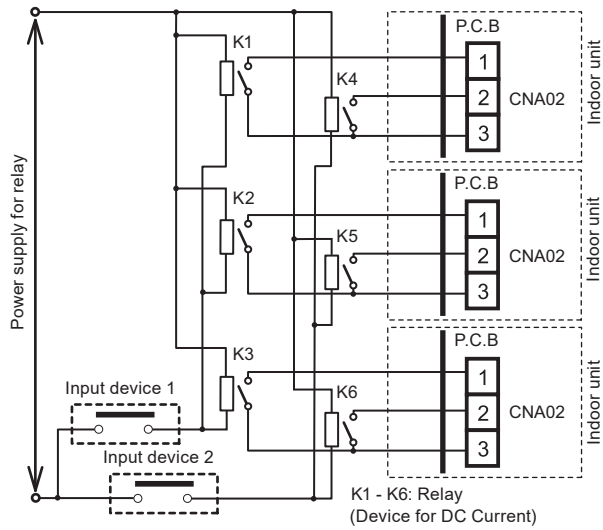
● Dry contact terminal ([CNA02], [CNA04])

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.



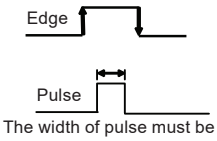
NOTE:
When connected to multiple indoor units directly, it will cause breakdown.

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 [SET2 SW2]	Input signal type
OFF (Factory setting)	Edge
ON	Pulse



The width of pulse must be longer than 200 msec.

● When function setting is “Operation/Stop” mode.

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

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

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

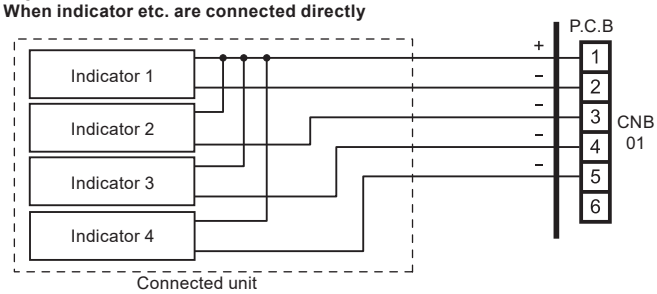
Input	Connector	Input signal	Command
Edge	Ch1 of CNA01 or CNA02	OFF → ON	Thermostat off
		ON → OFF	Normal

(2) External output

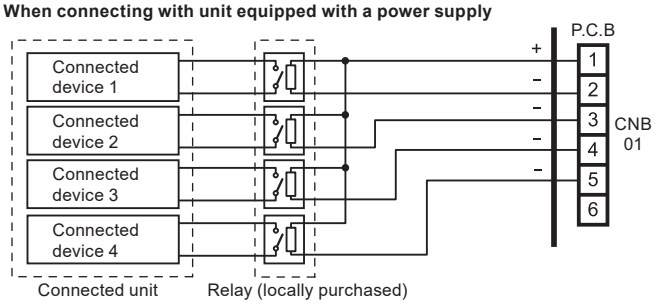
• A twisted pair cable (22AWG) should be used. Maximum length of cable is 82 ft (25 m).
• Use an external input and output cable with appropriate external dimension, depending on the number of cables to be installed.
• Output voltage: Hi DC12V±2V, Lo 0V.
• Permissible current: 50mA

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
CNB01	External output 1 Pins 1-2	0 V	Stop
		DC 12 V	Operation
	External output 2 Pins 1-3	0 V	Normal
		DC 12 V	Error
	External output 3 Pins 1-4	0 V	Indoor unit fan stop
		DC 12 V	Indoor unit fan operation
	External output 4 Pins 1-5	0 V	External heater OFF
		DC 12 V	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	

6.7. Remote sensor (optional parts)

For the installation method, please refer to the INSTALLATION MANUAL of remote sensor.

Connection method

• Remove the existing connector and replace it with the remote sensor connector (ensure that the correct connector is used).
• The original connector should be insulated to ensure that it does not come into contact with other electrical circuitry.
• Use conduit hole when external output cable is used.

Setting for room temperature correction

When a remote sensor is connected, set the function setting of indoor unit as indicated below.
• Function Number “30”:
Set the Setting Number to “00”. (Default)
• Function Number “31”:
Set the Setting Number to “02”.

* Refer to “7.4. Function setting” for details about Function Number and Setting Number

6.8. IR receiver unit (optional parts)

Connection method

• For the installation method, please refer to the INSTALLATION MANUAL of IR receiver unit.
(1) Use 9 pins for receiver unit cable.
(2) At first, connect the receiver unit cable to the controller PCB.
(3) Attach the core that comes between controller PCB and the clamp.
(4) Use conduit hole when external output cable is used.

6.9. Drain pump unit (optional parts)

• For the installation method, please refer to the INSTALLATION MANUAL of drain pump unit.

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.

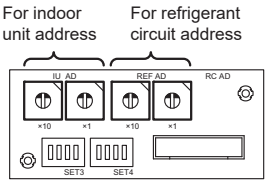
7.1. Setting the address

Manual address setting method

The indoor unit address and the refrigerant circuit address can also be set up through the wireless remote controller.

⚠ CAUTION

Use an insulated screwdriver to set the DIP switches.



Setting	Setting range	Type of switch
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.	0 to 63	Setting example “2”  IU AD × 10 IU AD × 1
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.	0 to 99	Setting example “63”  REF AD × 10 REF AD × 1

- If working in an environment where the wireless remote controller can be used, the addresses can also be set using the remote controller.
- If setting the addresses using the wireless remote controller, set the indoor unit address and refrigerant circuit address to “00”. (For information on setting using the wireless remote controller.)

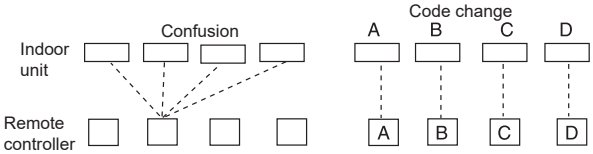
* Do not set the indoor unit address (IU AD SW) at 64 to 99. It may result in failure.

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
⋮	⋮	⋮	⋮	⋮	⋮
10	1	0	10	1	0
11	1	1	11	1	1
⋮	⋮	⋮	⋮	⋮	⋮
99	9	9	63	6	3

7.2. Custom code setting

Selecting the custom code prevents the indoor unit mix-up.
(Up to 4 codes can be set.)
Perform the setting for both the indoor unit and the remote controller.



Custom code setting for indoor unit

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

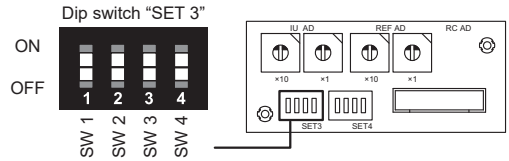


Table B

	Custom code			
	A (Factory setting)	B	C	D
DIP switch SET3 SW1	OFF	ON	OFF	ON
DIP switch SET3 SW2	OFF	OFF	ON	ON

7.3. Static pressure mode

⚠ CAUTION

If the applicable static pressure does not match the static pressure mode, the static pressure mode may be changed to another mode manually.

Recommended range of external static pressure
ARUM24: 0 and 0.56 in WG (0 and 140 Pa) ARUM30: 0 and 0.44 in WG (0 and 110 Pa) ARUM36: 0 and 0.36 in WG (0 and 90 Pa)

It is necessary to set up a static pressure mode for each usage of static pressure.
Static pressure can be set at site.
Relation between set values and static pressure are as the following table.
- 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.

Function Number	Setting Number		Setting Static Pressure		
			ARUM24	ARUM30	ARUM36
26	00	SP mode 00	0 in WG (0 Pa)		
	01	SP mode 01	0.04 in WG (10 Pa)		
	02	SP mode 02	0.08 in WG (20 Pa)		
	03	SP mode 03	0.12 in WG (30 Pa)		
	04	SP mode 04	0.16 in WG (40 Pa)		
	05	SP mode 05	0.20 in WG (50 Pa)		
	06	SP mode 06	0.24 in WG (60 Pa)		
	07	SP mode 07	0.28 in WG (70 Pa)		
	08	SP mode 08	0.32 in WG (80 Pa)		
	09	SP mode 09	0.36 in WG (90 Pa)		
	10	SP mode 10	0.40 in WG (100 Pa)		(0.36 in WG (90 Pa))
	11	SP mode 11	0.44 in WG (110 Pa)		
	12	SP mode 12	0.48 in WG (120 Pa)	(0.44 in WG (110 Pa))	
	13	SP mode 13	0.52 in WG (130 Pa)		
	14	SP mode 14	0.56 in WG (140 Pa)		
	31	Normal SP (Factory setting)	0.16 in WG (40 Pa)		

* Please refer to FAN PERFORMANCE CURVE within Design & Technical Data for the features of each setting.

7.4. 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		
(Forbidden)	20	00	———	○	———
(Forbidden)	23	00	———	○	———
(Forbidden)	24	00	———	○	———
Static pressure	26	Refer to 7.3. Static pressure mode			
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 6 degrees C, use setting 01. To lower the trigger temperature by 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 (*1)	40	00	Enable		Enable or disable automatic system restart after a power outage.
		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) and switching its thermistor are necessary.
		01	Stop		
Switching functions for external inputs and external outputs terminals (*2)	60	00	Mode 0	○	• 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		

Function	Function number	Setting number		Default	Details
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		
		05	Auxiliary heater control by outdoor temperature 3		
		06	Auxiliary heat pump control		
		07	Auxiliary heat pump control by outdoor temperature 1		
		08	Auxiliary heat pump control by outdoor temperature 2		
		09	Auxiliary heat pump control by outdoor temperature 3		
Operating temperature switching of external heaters	62	00	Setting 0	○	• 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		
		06	Setting 6		
		07	Setting 7		
		08	Setting 8		
		09	Setting 9		
		10	Setting 10		
		11	Setting 11		
		12	Setting 12		
		13	Setting 13		
		14	Setting 14		
		15	Setting 15		
		16	Setting 16		
		17	Setting 17		
Auto mode type (*3)	68	00	Single setpoint auto mode (traditional)	○	Switch the setting method of auto mode to single or dual (cooling/heating). For heat pump systems, it is necessary to set the master indoor unit (by wired remote controller).
		01	Dual setpoint auto mode		
Deadband value (*3)	69	00	0°F (0°C)	○	Choose the minimum temperature between cooling and heating settings (deadband) for Dual setpoint auto mode (set in No. 68).
		01	1°F (0.5°C)		
		02	2°F (1.0°C)		
		03	3°F (1.5°C)		
		04	4°F (2.0°C)		
		05	5°F (2.5°C)		
		06	6°F (3.0°C)		
		07	7°F (3.5°C)		
		08	8°F (4.0°C)		
		09	9°F (4.5°C)		
(Forbidden)	70	00	———	○	———

Function	Function number	Setting number		Default	Details
Standby time for auxiliary equipment operation	71	00	Disable	○	Sets the standby time until the auxiliary equipment operation starts during primary equipment operation.
		01	1 minutes		
		02	2 minutes		
		⋮	⋮	⋮	
		98	98 minutes		
		99	99 minutes		
Heat pump backup setting	72	00	Disable	○	Enables or disables the heat pump backup instruction from the outdoor unit. This function will be usable provided that the corresponding outdoor unit is connected.
		01	Enable		
Emergency heat	73	00	Disable	○	Enables or disable of emergency heat input.
		01	Enable		
Fan delay time	74	00	1 minutes	○	Sets the fan delay time when the heater is turned off.
		01	50 seconds		
		02	40 seconds		
		03	30 seconds		
External heater use in defrosting. (*4)	75	00	Disable	○	Enables or disables the external heater use in defrosting.
		01	Enable		

*1: 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.

*2: Inappropriate setting may cause an external device malfunction. Confirm whether all the settings have been performed appropriately according to the installing condition.

*3: Function number 68 and 69 will be usable provided that the corresponding operating device is connected.

*4: When using function number 75, inappropriate heater selection may cause cold air in defrosting.

Temperature conditions when the external heater is ON/OFF

Temperature (t) = Room temperature - set temperature

		Set value of function: 61			
		00		01 to 09	
		ON	OFF	ON	OFF
Set value of function: 62	00	t < -5.4°F (-3°C)	t ≥ -1.8°F (-1°C)	t ≤ -0.9°F (-0.5°C)	t ≥ +0.9°F (+0.5°C)
	01	t < -3.6°F (-2°C)	t ≥ -1.8°F (-1°C)	t ≤ -1.8°F (-1°C)	t ≥ +0.9°F (+0.5°C)
	02	t < -3.6°F (-2°C)	t ≥ -1.8°F (-1°C)	t ≤ -3.6°F (-2°C)	t ≥ +0.9°F (+0.5°C)
	03	t < -5.4°F (-3°C)	t ≥ -1.8°F (-1°C)	t ≤ -5.4°F (-3°C)	t ≥ +0.9°F (+0.5°C)
	04	t < -7.2°F (-4°C)	t ≥ -1.8°F (-1°C)	t ≤ -7.2°F (-4°C)	t ≥ +0.9°F (+0.5°C)
	05	t < -9.0°F (-5°C)	t ≥ -1.8°F (-1°C)	t ≤ -9.0°F (-5°C)	t ≥ +0.9°F (+0.5°C)
	06	t < -5.4°F (-3°C)	t ≥ -0.9°F (-0.5°C)	t ≤ -0.9°F (-0.5°C)	t ≥ 0°F (0°C)
	07	t < -3.6°F (-2°C)	t ≥ -0.9°F (-0.5°C)	t ≤ -1.8°F (-1°C)	t ≥ 0°F (0°C)
	08	t < -3.6°F (-2°C)	t ≥ -0.9°F (-0.5°C)	t ≤ -3.6°F (-2°C)	t ≥ 0°F (0°C)
	09	t < -5.4°F (-3°C)	t ≥ -0.9°F (-0.5°C)	t ≤ -5.4°F (-3°C)	t ≥ 0°F (0°C)
	10	t < -7.2°F (-4°C)	t ≥ -0.9°F (-0.5°C)	t ≤ -7.2°F (-4°C)	t ≥ 0°F (0°C)
	11	t < -9.0°F (-5°C)	t ≥ -0.9°F (-0.5°C)	t ≤ -9.0°F (-5°C)	t ≥ 0°F (0°C)
	12	t < -5.4°F (-3°C)	t ≥ 0°F (0°C)	t ≤ -0.9°F (-0.5°C)	t ≥ -0.9°F (-0.5°C)
	13	t < -3.6°F (-2°C)	t ≥ 0°F (0°C)	t ≤ -1.8°F (-1°C)	t ≥ -0.9°F (-0.5°C)
	14	t < -3.6°F (-2°C)	t ≥ 0°F (0°C)	t ≤ -3.6°F (-2°C)	t ≥ -0.9°F (-0.5°C)
	15	t < -5.4°F (-3°C)	t ≥ 0°F (0°C)	t ≤ -5.4°F (-3°C)	t ≥ -0.9°F (-0.5°C)
	16	t < -7.2°F (-4°C)	t ≥ 0°F (0°C)	t ≤ -7.2°F (-4°C)	t ≥ -0.9°F (-0.5°C)
	17	t < -9.0°F (-5°C)	t ≥ 0°F (0°C)	t ≤ -9.0°F (-5°C)	t ≥ -0.9°F (-0.5°C)

8. TEST RUN

8.1. 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.

8.2. Test run using Remote Controller

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

9. 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?	———	

10. ERROR CODES

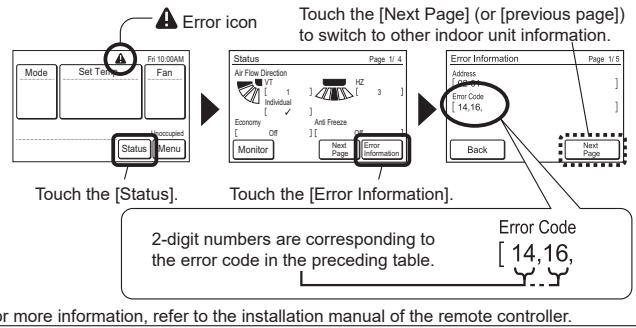
If you use a wired type remote controller, error codes will appear on the remote controller display. If you use a wireless remote controller, the lamp on the photodetector unit will output error codes by way of blinking patterns. See the lamp blinking patterns and error codes in the table below.

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)	◇	9U	Outdoor unit miscellaneous error
● (10)	● (8)	◇	AB	Poor refrigerant circulation
● (13)	● (1)	◇	J1	RB unit error

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

Wired Remote Controller Display

UTY-RNRUZ* (2-wire type)



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