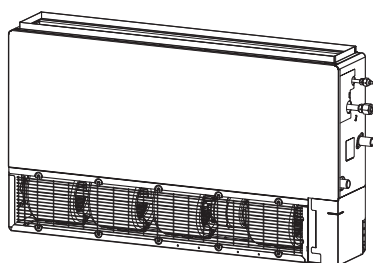# AIR CONDITIONER
INDOOR UNIT
Slim Duct Type

RIDH07AVFJ   RIDH18AVFJ
RIDH09AVFJ   RIDH24AVFJ
RIDH12AVFJ

INSTALLATION MANUAL

For authorized service personnel only.

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 Moist or Uneven Locations

Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

...In an Area with High Winds

Securely anchor the outdoor unit down with bolts and a metal frame.

...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.

⚠ WARNING
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.

2. ABOUT THIS PRODUCT

2.1. Precautions for using R410A refrigerant

**The basic installation work procedures are the same as conventional refrigerant (R22) models.
However, pay careful attention to the following points:**

- Since the working pressure is 1.6 times higher than that of conventional refrigerant (R22) models, some of the piping and installation and service tools are special. (See the following table.)
  Especially, when replacing a conventional refrigerant (R22) model with a new refrigerant R410A model, always replace the conventional piping and flare nuts with the R410A piping and flare nuts.

- Models that use refrigerant R410A have a different charging port thread diameter to prevent erroneous charging with conventional refrigerant (R22) and for safety. Therefore, check beforehand. [The charging port thread diameter for R410A is 1/2 inch.]

- Be more careful that foreign matter (oil, water, etc.) does not enter the piping than with refrigerant (R22) models. Also, when storing the piping, securely seal the opening by pinching, taping, etc

- When charging the refrigerant, take into account the slight change in the composition of the gas and liquid phases, and always charge from the liquid phase side whose composition is stable.

2.2. Special tools for R410A

Tool Name	Contents of Change
Gauge Manifold	Pressure is 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 the gauge with seals 30 in. Hg to 768 psi for high pressure. 30 in. Hg to 551 psi for low pressure.
Charge Hose	To increase pressure resistance, the hose material and base size were changed.
Vacuum Pump	A conventional vacuum pump can be used by installing a vacuum pump adapter.
Gas Leakage Detector	Special gas leakage detector for HFC refrigerant R410A.

Copper pipes

It is necessary to use seamless copper pipes and it is desirable that the amount of residual oil is less than 0.0014 oz/10 m (33 ft). Do not use copper pipes having a collapsed, deformed or discolored portion (especially on the interior surface). Otherwise, the expansion value or capillary tube may become blocked with contaminants.

As an air conditioner using R410A incurs pressure higher than when using R22, 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 that in the table even when it is available on the market.

⚠ WARNING
Do not use the existing (for R22) piping and flare nuts. • If the existing materials are used, the pressure inside the refrigerant cycle will rise and cause failure, injury, etc. (Use the special R410A materials.)
When installing and relocating the air conditioner, do not mix gases other than the specified refrigerant (R410A) to enter the refrigerant cycle. • If air or other gas enters the refrigerant cycle, the pressure inside the cycle will rise to an abnormally high value and cause failure, injury, etc.

2.3. For authorized service personnel only.

⚠ WARNING
For the air conditioner to operate satisfactorily, install it as outlined in this installation manual.
Connect the indoor unit and outdoor unit with the air conditioner piping and cords available from your local distributor. This installation manual describes the correct connections using the installation set available from your local distributor.
Installation work must be performed in accordance with national wiring standards by authorized personnel only.
Do not turn on the power until all installation work is complete.

⚠ CAUTION
This installation manual describes how to install the indoor unit only. To install the outdoor unit, refer to the installation manual included with the outdoor unit.

- Be careful not to scratch the air conditioner when handling it.
- After installation, explain correct operation to the customer, using the operating manual.
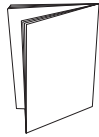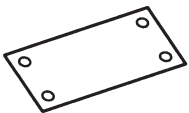
2.4. Accessories
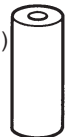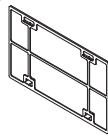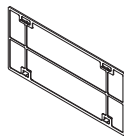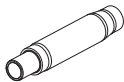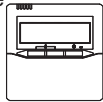
Do not discard any accessories needed for installation until the installation work has been completed.

Name and Shape	Q'ty	Application
Operating Manual	1	
Installation Manual	1	(This book)
Installation Template	1	For positioning the indoor unit
Washer	8	For installing indoor unit
Coupler Heat Insulation (Large)	1	For indoor side pipe joint (Large pipe)
Coupler Heat Insulation (Small)	1	For indoor side pipe joint (Small pipe)
Cable Tie	Small 3	For power supply and remote controller cable binding.
	Large 4	For fixing the coupler heat insulation.

Name and Shape	Q'ty	Application
Filter (Small)	2 (AR7/9/ 12/24)	
Filter (Big)	2 (AR18)	
	1 (AR24)	
Drain Hose	1	For installing drain pipe 3/4 in. (O.D. 1-1/16 in.)
Hose Band	1	For installing drain hose
Drain Hose Insulation B	1	Insulates the drain hose
Wired Remote Controller	1	
Remote Controller Cable	1	For connecting the remote controller
Tapping Screw (M4 × 16 mm)	2	For installing the remote controller

2.5. Optional parts

Description	Model No.	Application
Wireless Remote Controller		For air conditioner operation
Wired Remote Controller	RXRNNUM	For air conditioner operation
Simple Remote Controller	RXRSNUM	For air conditioner operation
IR Receiver Unit		For the wireless remote controller
Remote Sensor Unit		Room temperature sensor
External Control Set		For control input/output port

3. GENERAL SPECIFICATIONS

This INSTALLATION MANUAL briefly outlines where and how to install the air conditioning system. Please read over the entire set of instructions for the indoor and outdoor units and make sure all accessory parts listed are with the system before beginning.

3.1. Type of copper pipe and insulation material

Copper tubing for connecting the outdoor unit to the indoor unit and insulation material is available for purchase locally. When you purchase them, please specify the following.
• Deoxidized annealed copper pipe for refrigerant piping as:

> ⚠ **CAUTION**
>
> **Refer to the Installation Manual for the outdoor unit for description of allowable pipe length and height difference.**

MODEL	Diameter	
	Liquid Pipe	**Gas Pipe**
7/9/12	1/4 in. (6.35 mm)	3/8 in. (9.52 mm)
18	1/4 in. (6.35 mm)	1/2 in. (12.70 mm)
24	1/4 in. (6.35 mm)	5/8 in. (15.88 mm)

• Use pipe with water-resistant heat insulation.
• 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.

> ⚠ **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. (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 70-80%, 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).**

3.2. Additional materials required for installation

A. Refrigeration (armored) tape
B. Insulated staples or clamps for connecting wire (See your local electrical codes.)
C. Putty
D. Refrigeration lubricant
E. Clamps or saddles to secure refrigerant piping

3.3. Operating range

	Cooling/Dry Mode	Heating Mode
Temperature	About 64 to 90 °F	About 60 to 88 °F
Humidity	About 80% or less	—

4. ELECTRICAL REQUIREMENT

Always make the air conditioner power supply a special branch circuit and provide a special switch and receptacle. Do not extend the power cable.

⚠ WARNING

Refer to local codes for acceptable cable type.

Cable	Cable size	Remarks
Connection cable	14 AWG	3 cable + Earth (Ground) 1Φ 208/230 V

Max. Cable Length: Limit voltage drop to less than 2%. Increase cable gauge if voltage drop is 2% or more.

5. SELECTING THE MOUNTING POSITION

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

⚠ WARNING

Install the air conditioner in a location which can withstand a load of at least 3 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.

MODEL	Withstandable weight (Unit weight x 3*)
7/9/12	120 Lbs (54kg)
18	153 Lbs (69kg)
24	179 Lbs (81kg)

*In accordance with UL standards.

⚠ 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 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.

⚠ CAUTION

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, outdoor unit, power supply 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 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.

6. INSTALLATION WORK

6.1A. Installation dimensions (Ceiling concealed type)

Provide a service access for inspection purposes.
Do not place any wiring or illumination in the service space, as they will impede service.

Installation Dimensions
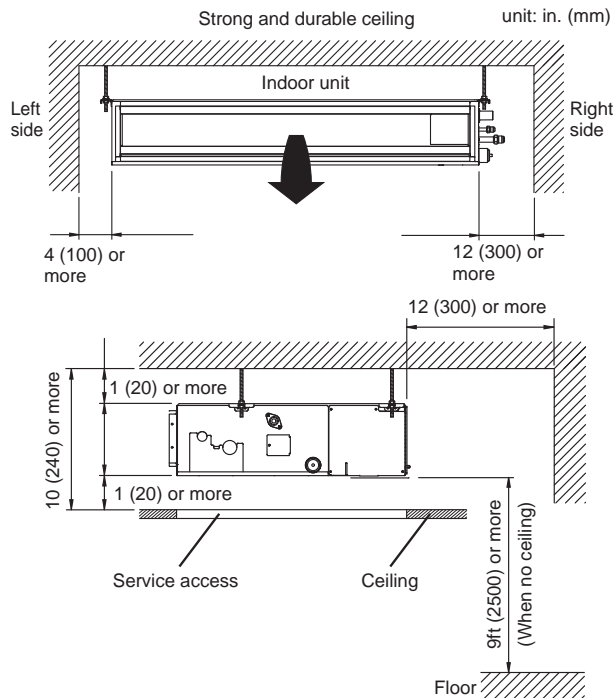
Adjust the wind direction in the room depending on the shape of blow out opening.

6.1B. Installation dimensions (Wall mounted type/Floor standing concealed type)

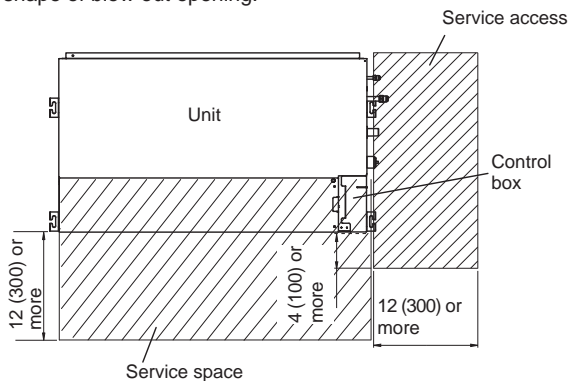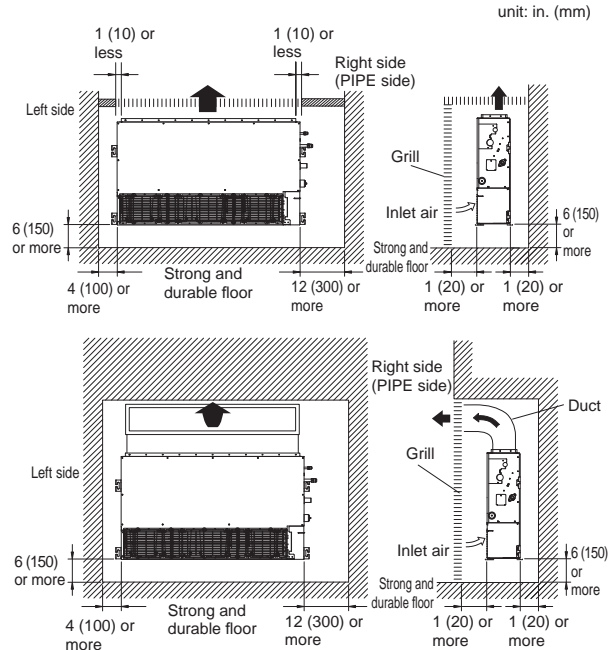The wall mounted type/floor standing concealed type requires a temperature correction setting. Perform this in "10.3. Function setting".

unit: in. (mm)

6.2A. Install the unit (Ceiling concealed type)

⚠ WARNING

Install the air conditioner in a location which can withstand a load do 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.

6.2A.1. UNIT INSTALLATION EXAMPLE (CEILING CONCEALED TYPE)

Connect the locally purchased duct.

(1) Inlet side
- Connect the duct to the locally purchased inlet flange.
- Connect the flange to the body with the locally purchased tapping screws.
- Wind the inlet flange connecting to the duct with the aluminum tape etc. to avoid the air discharge.

⚠ CAUTION

When the duct is connected to inlet side, remove contained filter and surely attach locally purchased filter at inlet opening.
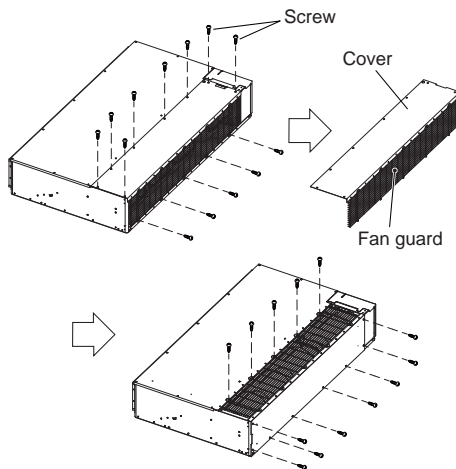
(2) Outlet side
- Connect the duct with adjusting inside of outlet flange.
- Wind the outlet flange connecting to the duct with the aluminum tape etc. to avoid the air discharge.
- Insulate the duct to avoid the dew condensation.

⚠ **CAUTION**
Check that duct work does not exceed the range of external static pressure of equipment.
Make sure to insulate ducts to avoid condensation.
Make sure to insulate between ducts and walls if metal ducts are used.
Please explain handling and washing methods of locally purchased materials to the customer.
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.
When connecting the duct to the outlet port of the indoor unit, be sure to insulate the outlet port and the installation screws to prevent water from leaking around the port.
7/9/12/18 Model • Set the static pressure outside the unit to 0.36 in. WG or less (the allowable range is between 0 and 0.36 in. WG). 24 Model • Set the static pressure outside the unit to 0.2 in. WG or less (the allowable range is between 0 and 0.2 in. WG).

Replace the cover as follows.
• Remove the screws, and then remove cover and fan guard.
• Install the cover with the screws as shown in the following illustration.

Model	Screw
7/9/12	9
18	11
24	13

⚠ **CAUTION**
All items removed (cover, fan guard, screws) must be reinstalled.

Side Inlet - Side Outlet
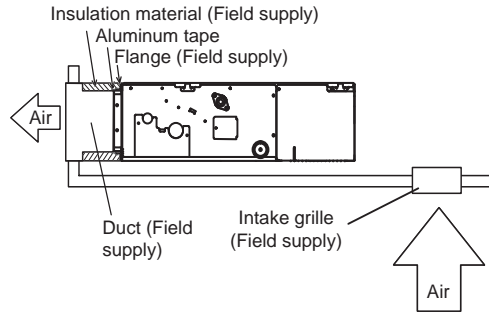
Side Inlet - Side Outlet (Duct)
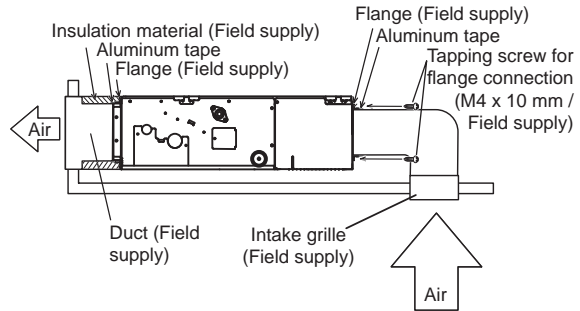
Bottom Inlet - Side Outlet
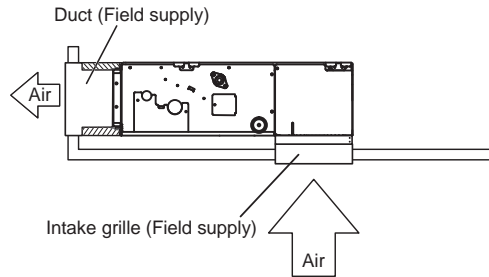
Outlet side
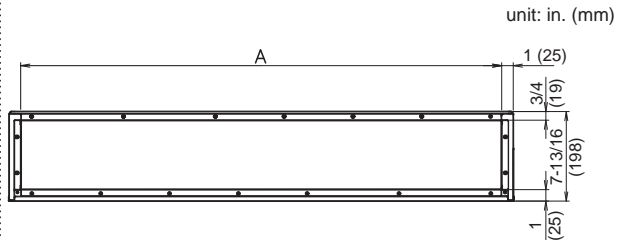
unit: in. (mm)

Inlet side
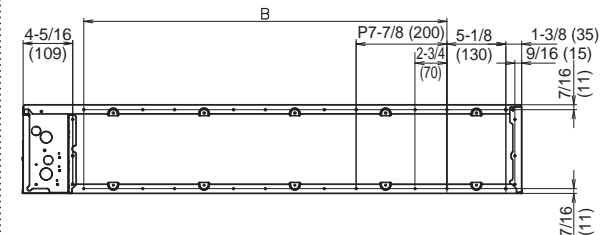
unit: in. (mm)

	7/9/12	18	24
A	25-9/16 (650)	33-7/16 (850)	41-5/16 (1050)
B	P7-7/8 (200) × 2 = 15-3/4 (400)	P7-7/8 (200) × 3 = 23-5/8 (600)	P7-7/8 (200) × 4 = 31-1/2 (800)

6.2A.2. INSTALL THE FILTERS

• Install the filters to the unit.

Filter (Accessories)
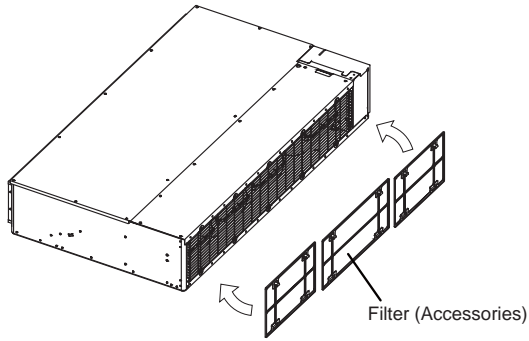
AR7/9/12/18: 2 filters
AR24: 3 filters

Unit   Filter
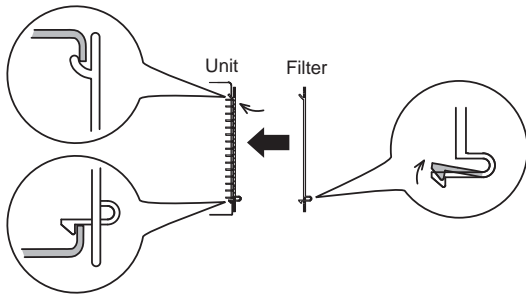
6.2A.3. DRILLING HOLES FOR BOLTS AND IN-STALLING THE BOLTS

• Using the installation template, drill holes for bolts (4 holes).

Installation template

Drilling position
for bolts

Air

14-13/16 in.
(377 mm)

A
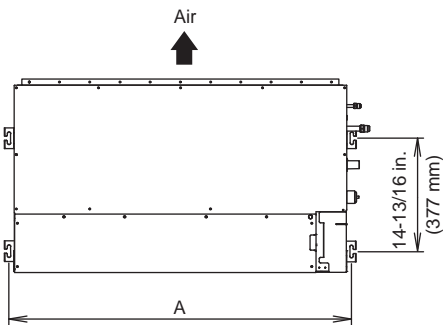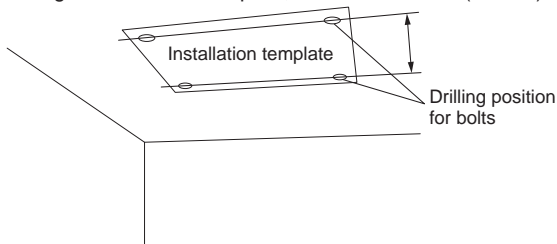
unit: in. (mm)

	7/9/12	18	24
A	28-7/8 (734)	36-3/4 (934)	44-5/8 (1134)

6.2A.4. FIX THE UNIT

(1) Hang the unit

• Use hanger bolts of size M8 or M10 (5/16 or 3/8 in.).

Hanger
Hanger bolt
Nut A (Field supply)
Washer (Accessories)
Nut B (Field supply)

Hanger bolt
Nut A (Field supply)
Hanger
Washer (Accessories)
Unit
Nut B (Field supply)

13/16 in.
(20 mm)
length
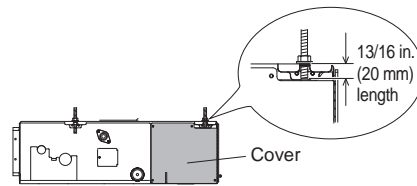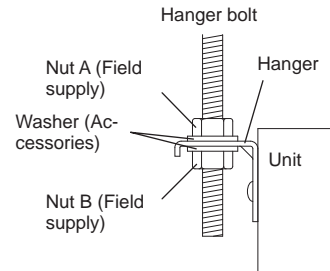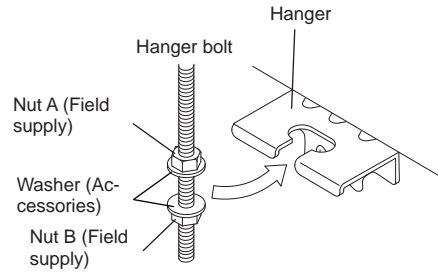
Cover

*: It might become difficult to open and shut the Cover /control box cover when the length exceeds 13/16 in. (20 mm).

(2) Leveling

Base horizontal direction leveling on top of the unit.

Ceiling

Level gauge

OK   1 in. (10 mm) or less   PROHIBITED

Level gauge

Air
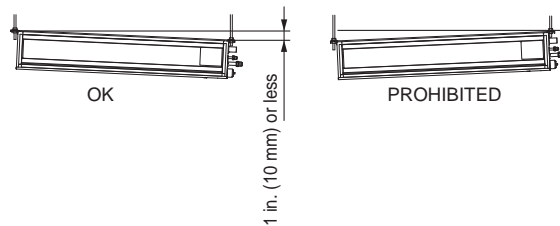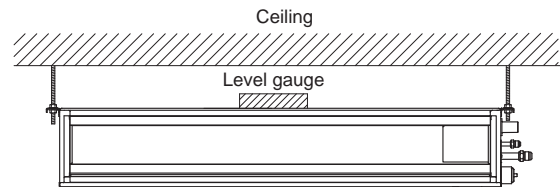
⚠ **CAUTION**
Leave a space of 4 in. (100 mm) or more between the inlet port and the ceiling.
Fasten the unit securely with Nuts A and B.

6.2B. Install the unit (Wall mounted type/ Floor standing concealed type)

⚠ **WARNING**
Install the air conditioner in a location which can withstand a load do 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.

6.2B.1. UNIT INSTALLATION EXAMPLE (Wall mounted type/Floor standing concealed type)

Connect the locally purchased duct.
 (1) Inlet side
 • Connect the duct to the locally purchased inlet flange.
 • Connect the flange to the body with the locally purchased tapping screws.
 • Wind the inlet flange connecting to the duct with aluminum tape etc. to avoid the air discharge.

⚠ **CAUTION**
When duct is connected to inlet side, remove filter provided with unit and attach locally purchased filter at return air grille or in return duct.

 (2) Outlet side
 • Connect the duct to outlet flange.
 • Wind the outlet flange connecting to the duct with aluminum tape etc. to avoid the air discharge.
 • Insulate the duct to avoid condensation.

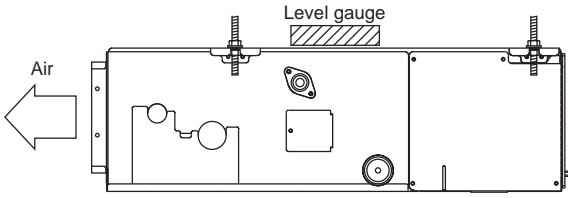| ⚠ **CAUTION** |
|---|
| Check that duct work does not exceed the range of external static pressure of equipment. |
| Make sure to insulate ducts to avoid condensation. |
| Make sure to insulate between ducts and walls if metal ducts are used. |
| Please explain handling and washing methods of locally purchased materials to the customer. |
| 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. |
| When connecting the duct to the outlet port of the indoor unit, be sure to insulate the outlet port and the installation screws to prevent water from leaking around the port. |
| 7/9/12/18 Model • Set the static pressure outside the unit to 0.36 in. WG or less (the allowable range is between 0 and 0.36 in. WG). 24 Model • Set the static pressure outside the unit to 0.2 in. WG or less (the allowable range is between 0 and 0.2 in. WG). |

 • Remove the screws, and then remove cover and fan guard.
 • Install the cover with the screws as shown in the following illustration.

Model	Screw
7/9/12	9
18	11
24	13

6.2B.2. INSTALL THE FILTERS

• Install the filters (Accessories) to the unit.
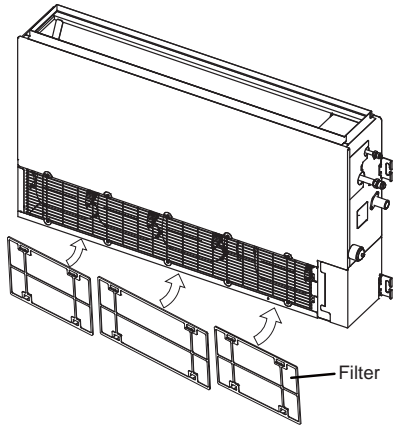
7/9/12/18: 2 filters
24: 3 filters

Unit Filter
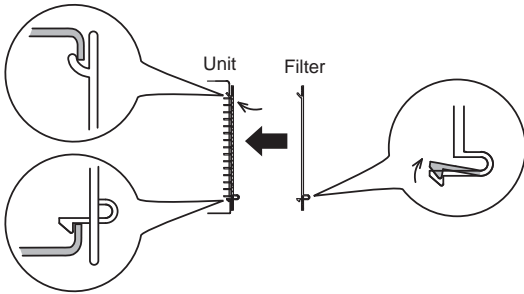
6.2B.3. INSTALL THE UNIT

• To prevent overturning, attach the unit to the floor or the wall.
• To avoid vibration of the unit, install vibration isolation pad between the unit and the floor or the wall.

Leveling

Level unit before attaching to floor or wall.

Level gauge

1 in. or less (10 mm)

OK   PROHIBITED

Level gauge

1 in. or less (10 mm)

OK   PROHIBITED
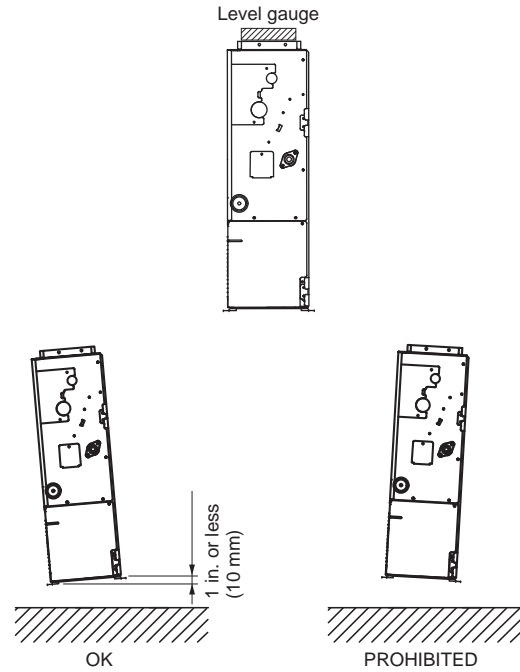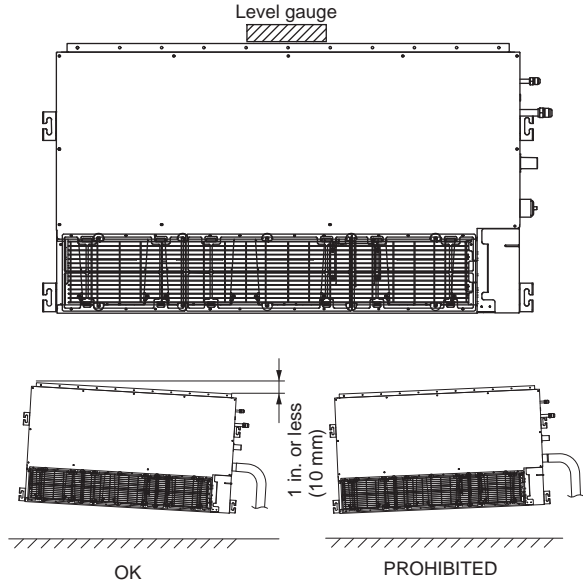
⚠ CAUTION
Fasten the unit securely with Nuts A and B.

7. PIPE INSTALLATION

⚠ CAUTION

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

While brazing the pipes, be sure to purge with dry nitrogen gas.

7.1. Selecting the pipe material

⚠ CAUTION

Do not use existing pipes.

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 40 mg/10 m (33 ft).

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 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)

7.2. 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. (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 70-80 %, use heat insulation that is 9/16 in. (15mm) or thicker and if the expected humidity exceeds 80 %, use heat insulation that is 13/16 in. (20mm) 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).

7.3. 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.

7.3.1. Flaring

- Use special pipe cutter and 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 respectively) onto the pipe and perform the flare processing with a flare tool. Use the special R410A flare tool, or the conventional 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.

Check if [L] is flared uniformly and is not cracked or scratched.
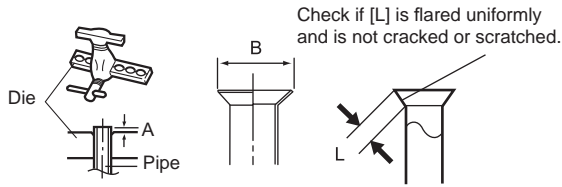
Pipe Outside Diameter [in. (mm)]	Dimension A [in. (mm)]	Dimension B $_{-0.4}^{0}$ [in. (mm)]
	Flare Tool for R410A, Clutch Type	
1/4 (6.35)		3/8 (9.1)
3/8 (9.52)		1/2 (13.2)
1/2 (12.70)	0 to 0.020 (0 to 0.5)	5/8 (16.6)
5/8 (15.88)		3/4 (19.7)
3/4 (19.05)		15/16 (24.0)

When using conventional 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.

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)

7.3.2. 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 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.

7.3.3. 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 it at a 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 a hazardous gas if the refrigerant comes into contact with a flame. |

⚠ CAUTION
Connect the piping so that the control box cover can easily be removed for servicing when necessary.
In order to prevent water from leaking into the control box, make sure that the piping is well insulated.

When the flare nut is tightened properly by your hand, hold the body side coupling with wrench, then tighten with a torque wrench. (See the following table for the flare nut tightening torques.)

Tighten with 2 wrenches.
Holding spanner
Flare nut
Torque wrench
Indoor unit pipe (Body side)
Connection pipe
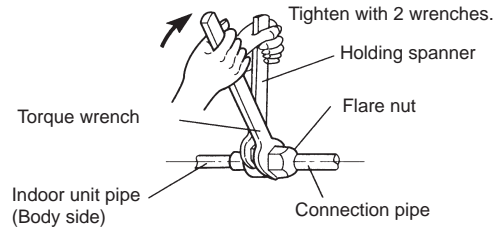
Flare Nut [in. (mm)]	Tightening Torque [lbf·ft (N·m)]
1/4 (6.35) dia.	11.8 to 13.3 (16 to 18)
3/8 (9.52) dia.	23.6 to 31.0 (32 to 42)
1/2 (12.70) dia.	36.1 to 45.0 (49 to 61)
5/8 (15.88) dia.	46.5 to 55.3 (63 to 75)
3/4 (19.05) dia.	66.4 to 81.1 (90 to 110)

7.4. Installing heat insulation

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

7.4.1. COUPLER HEAT INSULATION

- Insulate with the coupler heat insulation (Accessories) around the gas pipe and liquid pipe at indoor unit.
- After installing the coupler heat insulation, wrap both ends 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.

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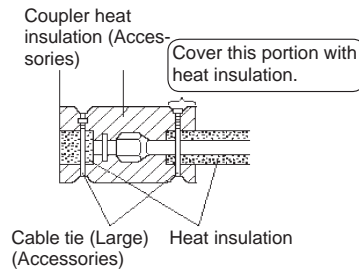
⚠ CAUTION
After checking for gas leaks (refer to the Installation Manual of the outdoor unit), perform this section.
Install heat insulation around both the large (gas) and small (liquid) pipes. Failure to do so may cause water leaks.

8. INSTALLING DRAIN PIPES

⚠ WARNING

Do not insert the drain piping into the sewer where sulfurous gas occurs. (Heat exchange erosion may occur)

Insulate the parts properly so that water will not drip from the connection parts.

Check for proper drainage after the construction by using the visible portion of transparent drain port and the drain piping final outlet on the body.
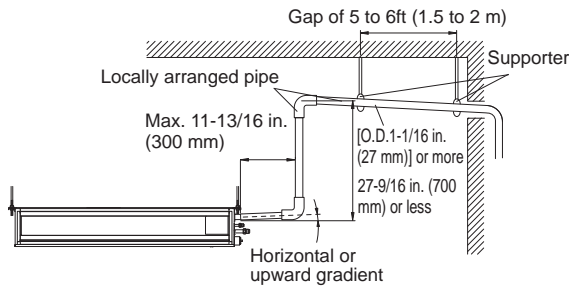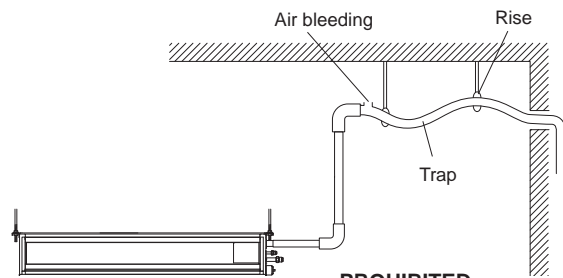
⚠ CAUTION

Do not apply adhesive agent on the drain port of the body. (Use the attached drain hose and connect the drain piping)

8.1A. When drain pump is used

- Use general hard polyvinyl chloride pipe ø 3/4 in. (19 mm) [I.D.], ø 1-1/16 in. (27 mm) [O.D.].
- 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.

Gap of 5 to 6ft (1.5 to 2 m)

Supporter

Locally arranged pipe

Max. 11-13/16 in. (300 mm)

[O.D.1-1/16 in. (27 mm)] or more

27-9/16 in. (700 mm) or less

Horizontal or upward gradient

GOOD

Air bleeding   Rise

Trap

PROHIBITED

Observe the following procedures to construct centralized drain pipe fittings.

[O.D.1-5/16 in. (33 mm)] or more

Downward gradient 1/100 or more

27-9/16 in. (700 mm) or less
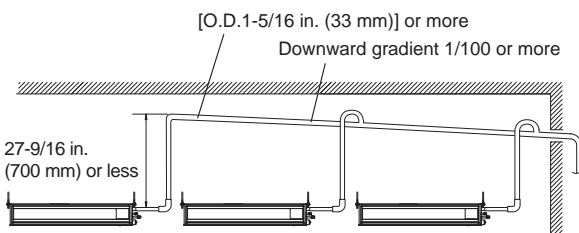
8.1B. When drain pump is not used (Natural drainage)

⚠ CAUTION

Set "Drainage function setting (JM1)" in "10.4. Jumper wire setting."
Drain pump cannot be used if it is installed in wall mounted type/floor standing concealed type.

If the drain pump is not used, please replace with the drain cap.
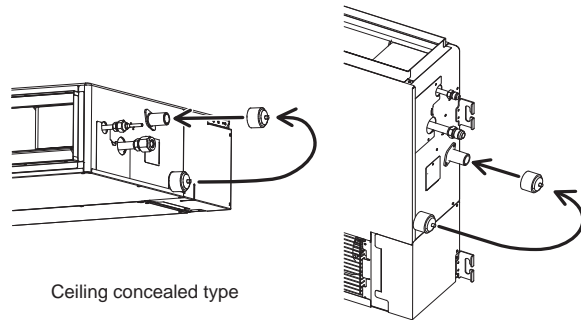
Ceiling concealed type

Wall mounted type /
Floor standing concealed type

- Use general hard polyvinyl chloride pipe ø 3/4 in. (19 mm) [I.D.], ø 1-1/16 in.(27 mm) [O.D.] .
- 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.

(1) Ceiling concealed type
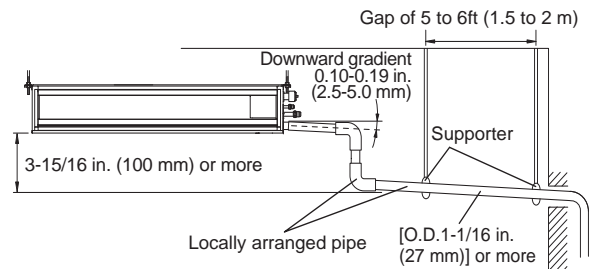
Gap of 5 to 6ft (1.5 to 2 m)
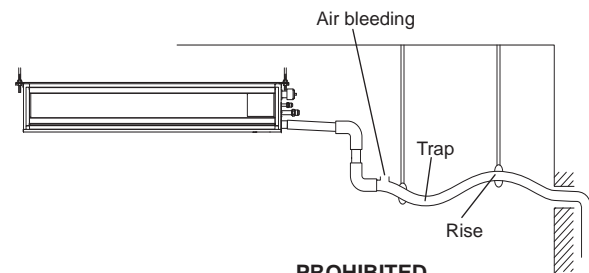
Downward gradient 0.10-0.19 in. (2.5-5.0 mm)

Supporter

3-15/16 in. (100 mm) or more

Locally arranged pipe

[O.D.1-1/16 in. (27 mm)] or more

GOOD

Air bleeding

Trap

Rise

PROHIBITED

Observe the following procedures to construct centralized drain pipe fittings.

[O.D.1-5/16 in. (33 mm)] or more

Downward gradient 1/100 or more

(2) Wall mounted type / Floor standing concealed type

Downward gradient 0.10-0.19 in. (2.5-5.0 mm)

3-15/16 in. (100 mm) or more

[O.D.1-1/16 in. (27 mm)] or more

Locally arranged pipe

GOOD

Air bleeding

Trap

Rise

PROHIBITED

Observe the following procedures to construct centralized drain pipe fittings.

[O.D.1-5/16 in. (33 mm)] or more

Downward gradient 1/100 or more
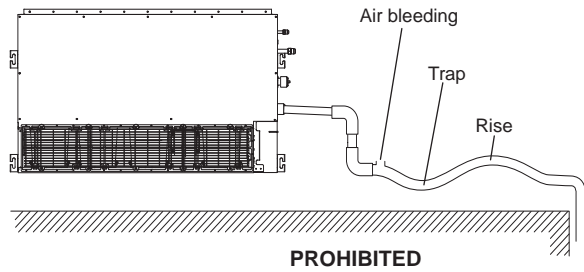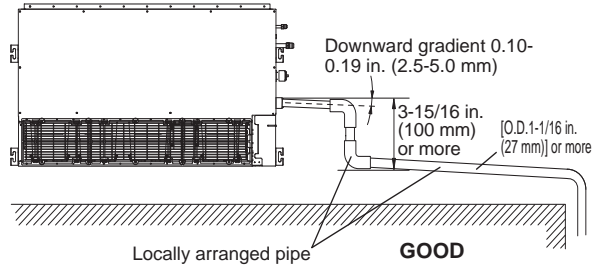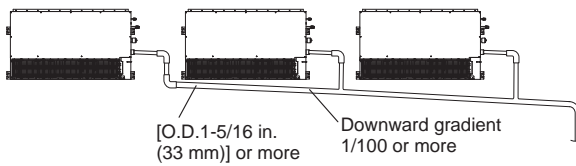
8.2. Install the drain pipe

(1) Be sure to use supplied Drain hose ① and Hose band ②

② Hose band

① Drain hose

Hard PVC side

Drain hole

Hose band

3/16 in. (4 mm) or less

13/16 in. (20 mm)

① Drain hose

② Hose band

Fasten the Hose band ② at the position where horizontal against earth (ground).
The Hose band ② must be positioned at the right side of the Drain hose ① as in the figure.
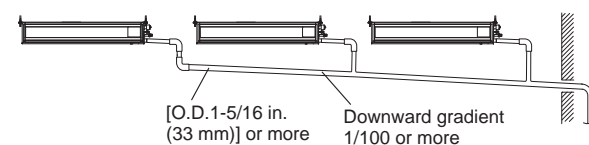
---
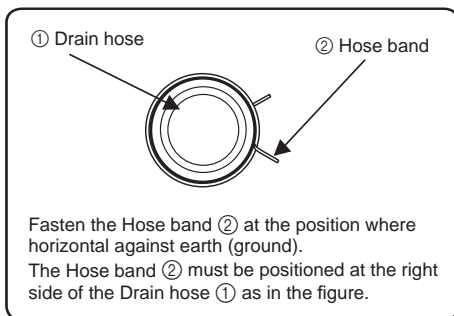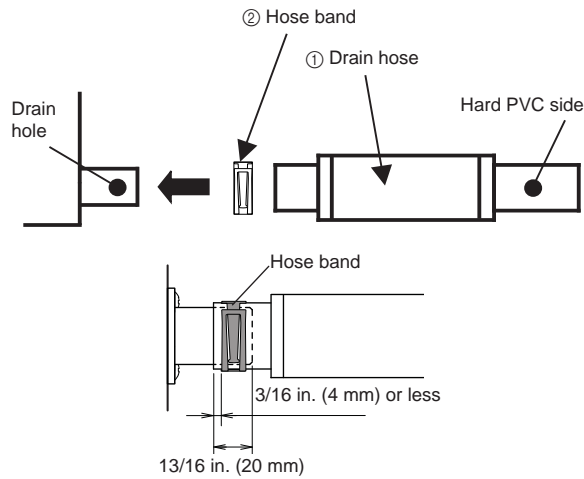
(2) Be sure to connect Drain pipe with adhesive (polyvinyl chloride) so that there is no leakage.

Applying area of adhesive

Joint pipe (Field supply)

Drain pipe [3/4 in. (19 mm) O.D.1-1/16 in. (27 mm)] (Field supply)

3/16 in. (4 mm) or less
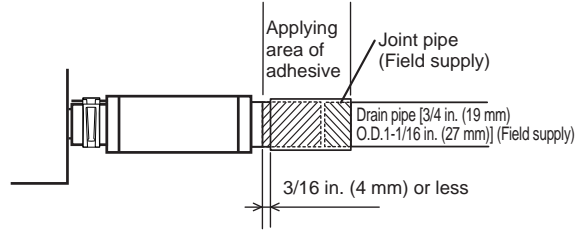
> ⚠ **CAUTION**
>
> Do not connect to the Drain hole with adhesive. Using adhesive may cause damage and water leaks.

(3) After installing the Drain hose ①, check if the drainage is smooth.

> ⚠ **CAUTION**
>
> To prevent excessive force on Drain hose ①, avoid bends or twists. (To bend or twist may cause water leaks.)

(4) After checking for drainage, attach the Drain hose insulation B ③ to insulate, following the instructions as in the figures.
To avoid space with Drain hose ① and Hose band ②, press firmly the Drain hose insulation B ③.

Ensure there is no space.

③ Drain hose insulation B
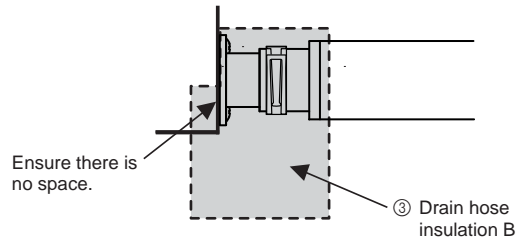
- STEP1~STEP3

Butt the insulation against the unit.

Unit

Slit

STEP 1

Press firmly

Press firmly

Slit

Press firmly

STEP 2

En-15

Slit

Press firmly

Press firmly

Roll the insulation over the joint.

STEP 3
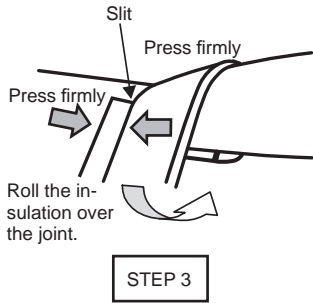
• FINISH

Check that there is no gap between the unit and the drain hose insulation.

• When drain pump is used. (Ceiling concealed type only)

Do not cover the panel window.

• When drain pump is not used. (Natural drainage)

Do not cover the control box cover.

Note: Check for drainage
Pour about 1 liter of water from the position shown in the diagram or from the airflow outlet to the dew tray. Check for any abnormalities such as strange noises and whether the drain pump functions normally.
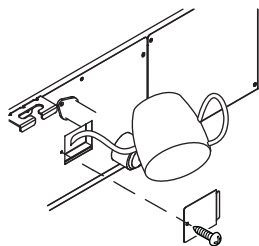
⚠ CAUTION
Make sure the drain water is properly drained.

9. ELECTRICAL WIRING

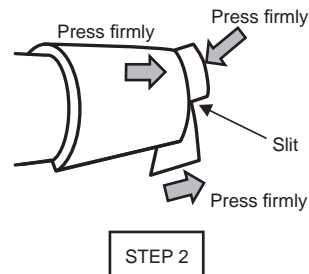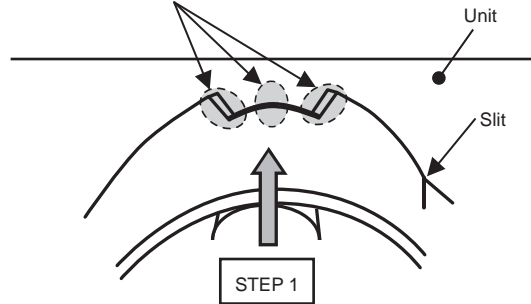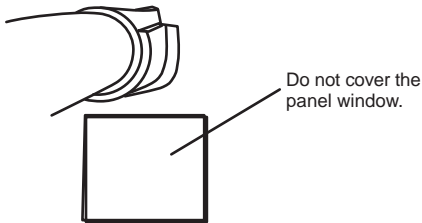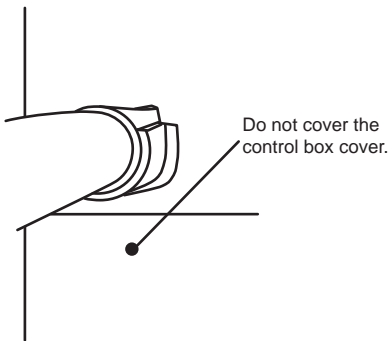| ⚠ WARNING |
|---|
| Before starting work, check that power is not being supplied to the indoor unit and outdoor unit. |
| Match the terminal board numbers and connection cord colors with those of the outdoor unit or branch box. Erroneous wiring may cause burning of the electric parts. |
| Connect the connection cords firmly to the terminal board. Imperfect installation may cause a fire. |
| Always fasten the outside covering of the connection cord with the cable clip. (If the insulator is chafed, electric leakage may occur.) |
| Always connect the earth (ground) wire. |

(1) Use ring terminals with insulating sleeves as shown in the following figure to connect to the terminal block.
(2) Securely clamp the ring terminals to the wires using an appropriate tool so that the wires do not come loose.
(3) Use the specified wires, 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 1 for the terminal screw tightening torques.

Strip 6/16 in. (10 mm)

Ring terminal

Sleeve

Screw with special washer

Ring terminal

Wire

Terminal board

Terminal block

Screw with special washer

Ring terminal

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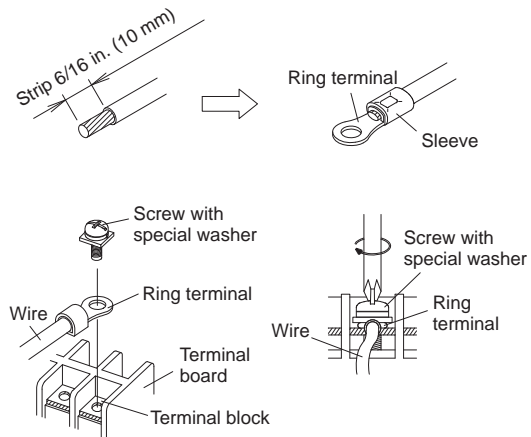
⚠ WARNING
Use ring terminals and tighten the terminal screws to the specified torques, otherwise, abnormal overheating may be produced and possibly cause heavy damage inside the unit.

Table 1

Tightening Torque	
M4 screw	11 to 16 lbf·in (1.2 to 1.8 N·m)

9.1. INDOOR UNIT SIDE

(1) Remove the control box cover from the control box.

Cover

Screw
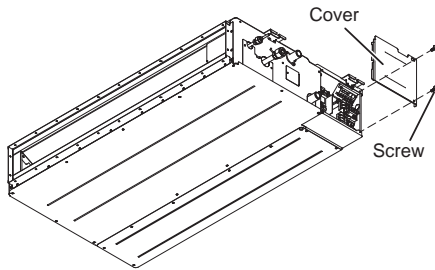
(2) Cable connection
- Connect the connection cable to the terminal board.
- Connect the remote controller cable to the terminal board.
- Fix the remote controller cable to the control box cover with a nylon clamp.

Remote controller cable
1: Red
2: White
3: Black

Cable tie (Small)
(Accessories)

Conduit (Field supply)

Earth (Ground)

Power supply cable

φ7/8 in. (22.2 mm)

Conduit (Field supply)

Cable tie (Small) (Accessories)

Remote controller cable

Conduit (Field supply)

Power supply cable

(3) Wiring system diagram

INDOOR UNIT SIDE

INDOOR UNIT

TERMINAL

DISCONNECT SWITCH (Field supply)

14AWG (Inter-unit) Power lines

Power line

Control line

Earth (Ground) line

Remote controller line

OUTDOOR UNIT or BRANCH BOX

Disconnect Switch - Field supplied if required by local code.

Select the correct capacity of disconnect switch according to the load.

⚠ CAUTION
Tighten the indoor unit connection cable and power supply indoor and outdoor unit, branch box terminal board connections firmly with the terminal board screws. Faulty connection may cause a fire.
If the indoor unit connection cable and power supply are wired incorrectly, the air conditioner may be damaged.
Connect the indoor unit connection cable by matching the numbers of the outdoor, branch box and indoor units terminal board numbers as shown in terminal label.
Earth (Ground) both the indoor, outdoor and branch box units by attaching a earth (ground) cable.
Unit shall be earthed (grounded) in compliance with the applicable local and national rules.

⚠ WARNING
Disconnect switch for over current protection given in the system diagram is to be installed between the indoor unit and the outdoor unit, branch box.

⚠ CAUTION
Be sure to refer to the previous diagram for do correct field wiring. Wrong wiring causes malfunction of the unit.
Check local electrical rules and also any specific wiring instructions or limitations.

10. REMOTE CONTROLLER SETTING

⚠ CAUTION

When detecting the room temperature using the remote controller, please set up the remote controller according to the following conditions. If the remote controller is not located properly, the correct room temperature will not be detected, and thus abnormal conditions like "not cooling" or "not heating" will occur even if the air-conditioner is running normally.

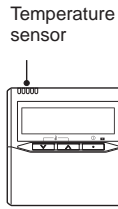Temperature sensor

- **Locate where an average temperature for the room being air conditioned will be sensed.**
- **Do not locate where it may be directly exposed to the outlet air from the air-conditioner.**
- **Locate out of direct sunlight.**
- **Locate away from the influence of other heat sources.**

Do not touch the remote controller PC board and PC board parts directly with your hands.

Do not wire the remote controller cable together with or parallel to the connection cables, and power supply cable of the INDOOR UNIT, OUTDOOR UNIT, and BRANCH BOX. It may cause erroneous operation.

When installing the bus wire near a source of electromagnetic waves, use shielded wire.

Do not set the DIP switches, either on the air conditioner or the remote controller, in any way other than indicated in this manual that is supplied with the air conditioner. Doing so may result in improper operation.

10.1. Installing the remote controller

Open the operation panel on the front of the remote controller, remove the 2 screws indicated in the following figure, and then remove the front case of the remote controller.

When installing the remote controller, remove the connector from the front case. The wires may break if the connector is not removed and the front case hangs down.
When installing the front case, connect the connector to the front case.

Front case (back side)   Rear case

Screws   Connector
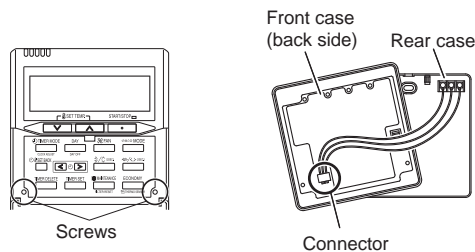
When remote controller cable is concealed
(1) Conceal the remote controller cable.
(2) Pass the remote controller cable through the hole in the rear case and connect the remote controller cable to the remote controller terminal board specified in figure.
(3) Clamp the remote controller cable sheath with the cable tie as shown in figure.
(4) Cut off the excess cable tie.
(5) Install the rear case to the wall, box, etc., with 2 screws figure.

En-18

Hole   1. Red   2. White   3. Black

Cable tie (Small)
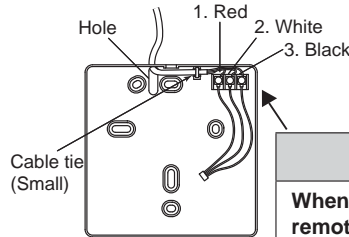
⚠ CAUTION

When connecting the remote controller wires, do not overtighten the screws.

[Example]

Remote controller cable
Connector
Box
Rear case
Screws

4-3/4 (120)   11/16 (17)

4-3/4 (120)

SET TEMP.   START/STOP

1-3/16 (30)   1-5/16 (33.5)

Hole

7/8 (23)   5/8 (15.3)

1-13/16 (45.3)

3/16 (4.5)   5/16 (8)

2-1/2 (63.5)   3-5/16 (83.5)

3/16 (4.5)

1/2 (12.5)

3/16 (4.5)   1/4 (6)

Hole ×2

Hole ×3
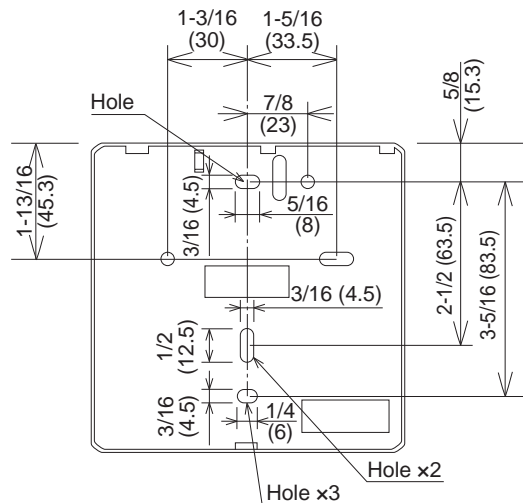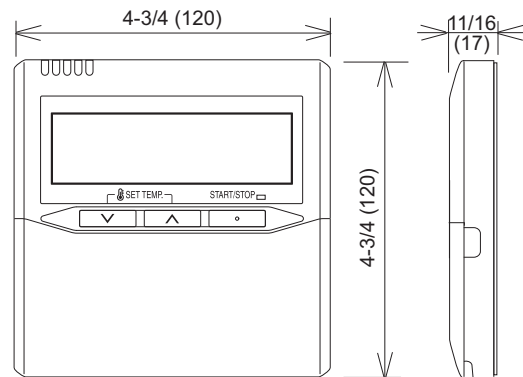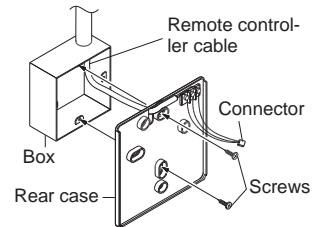
unit: in. (mm)

⚠ CAUTION

Install the remote controller wires so as not to be touched directly with your hand.

Do not touch the remote controller PC board and PC board parts directly with your hands.

10.2. Setting the dip switches

Set the remote controller DIP switches.

[Example]

Front case (back side)

OFF ON

DIP switch 1

ON

(★ Factory setting)

	NO.	SW state		Detail
		OFF	ON	
DIP-Switch 1	SW 1	★		Cannot be used. (Do not change)
	SW 2	★		Dual remote controller setting * Refer to "DUAL REMOTE CONTROLLERS" in "11. SPECIAL INSTALLATION METHODS".
	SW 3	★		Use prohibited. (Do not change)
	SW 4		★	Use prohibited. (Do not change)
	SW 5	★		Use prohibited. (Do not change)
	SW 6	★ Invalidity	Validity	Memory backup setting * Set to ON to use batteries for the memory backup. If batteries are not used, all of the settings stored in memory will be deleted if there is a power failure.

10.3. Function setting

This procedure changes the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause the indoor unit to malfunction. This procedure should be performed by authorized installation or service personnel only.
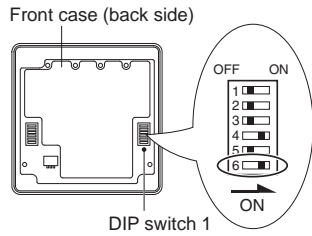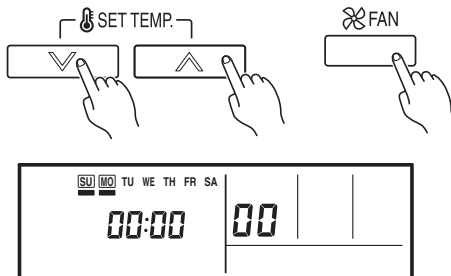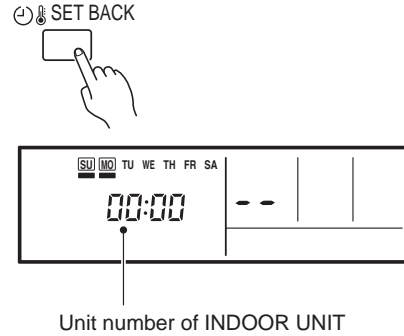
Perform the Function Setting according to the installation conditions using the remote controller. (Refer to the indoor unit installation manual for details on the function numbers and setting values.)

(1) Press the SET TEMP. buttons (∨) (∧) and FAN button simultaneously for more than 5 seconds to enter the function setting mode.

SET TEMP.   FAN

SU MO TU WE TH FR SA
00:00   00

(2) Press the SET BACK button to select the indoor unit number.

SET BACK

SU MO TU WE TH FR SA
00:00   - -

Unit number of INDOOR UNIT

(3) Press the Set time (< >) buttons to select the function number.

SU MO TU WE TH FR SA
00:30   - -

Function number
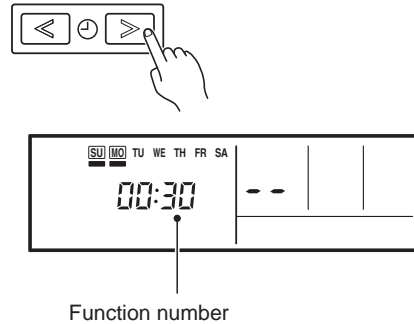
(4) Press the SET TEMP. buttons (∨) (∧) to select the setting value.

The display flashes as shown to the right during setting value selection.

SET TEMP.

SU MO TU WE TH FR SA
00:30   01
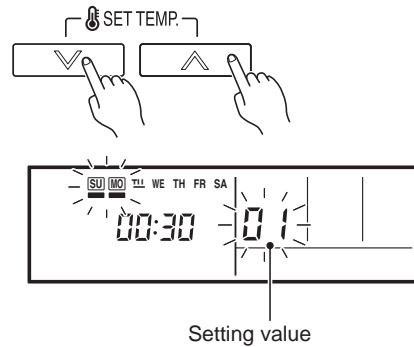
Setting value

(5) Press the TIMER SET button to confirm the setting.
Press the TIMER SET button for a few seconds until the setting value stops flashing.
If the setting value display changes or if "- -" is displayed when the flashing stops, the setting value has not been set correctly.
(An invalid setting value may have been selected for the indoor unit.)

(6) Repeat steps 2 to 5 to perform additional settings.
Press the SET TEMP. buttons (∨) (∧) and FAN button simultaneously again for more than 5 seconds to cancel the function setting mode. In addition, the function setting mode will be automatically canceled after 1 minute if no operation is performed.

(7) After completing the FUNCTION SETTING, be sure to turn off the power and turn it on again.

10.3.1. Function Details

Filter sign

Select appropriate intervals for displaying the filter sign on the indoor unit according to the estimated amount of dust in the air of the room.
If the indication is not required, select "No indication" (03).

(♦... Factory setting)

Function Number	Setting Value	Setting Description	
11	00	Standard (400 hours)	
	01	Long interval (1000 hours)	
	02	Short interval (200 hours)	
	03	No indication	♦

Static pressure

Select the appropriate static pressure according to the installation conditions.

(♦... Factory setting)

Function Number	Setting Value	Setting Description	
26	00	0 in. WG (0 Pa)	
	01	0.04 in. WG (10 Pa)	
	02	0.08 in. WG (20 Pa)	
	03	0.12 in. WG (30 Pa)	
	04	0.16 in. WG (40 Pa)	
	05	0.20 in. WG (50 Pa)	
	06	0.24 in. WG (60 Pa)	
	07	0.28 in. WG (70 Pa)	
	08	0.32 in. WG (80 Pa)	
	09	0.36 in. WG (90 Pa)	
	31	0.1 in. WG (25 Pa) [Standard]	♦

Range of static pressure is different by model.

Model Name	Range of Static Pressure
7	
9	0 to 0.36 in. WG (0 to 90 Pa)
12	
18	
24	0 to 0.2 in. WG (0 to 50 Pa)

Auto restart

Enable or disable automatic restart after a power interruption.

(♦... Factory setting)

Function Number	Setting Value	Setting Description	
40	00	Enable	♦
	01	Disable	

* Auto restart is an emergency function such as for power outage etc. Do not attempt to use this function in normal operation. Be sure to operate the unit by remote controller or external device.

Room temperature sensor switching

(Only for Wired remote controller)
When using the Wired remote controller temperature sensor, change the setting to "Both" (01).

(♦... Factory setting)

Function Number	Setting Value	Setting Description	
42	00	Indoor unit	♦
	01	Both	

00: Sensor on the indoor unit is active.
01: Sensors on both indoor unit and wired remote controller are active.
* Remote controller sensor must be turned on by using the remote controller

Remote controller custom code

(Only for wireless remote controller)
The indoor unit custom code can be changed.
Select the appropriate custom code.

(♦... Factory setting)

Function Number	Setting Value	Setting Description	
44	00	A	♦
	01	B	
	02	C	
	03	D	

External input control

"Operation/Stop" mode or "Forced stop" mode can be selected.

(♦... Factory setting)

Function Number	Setting Value	Setting Description	
46	00	Operation/Stop mode	♦
	01	(Setting prohibited)	
	02	Forced stop mode	

Room temperature sensor switching (Aux.)

To use the temperature sensor on the wired remote controller only, change the setting to "Wired remote controller" (01). This function will only work if the function setting 42 is set at "Both" (01)

(♦... Factory setting)

Function Number	Setting Value	Setting Description	
48	00	Both	
	01	Wired remote controller	♦

Setting record

- Record any changes to the settings in the following table.

Setting	Setting Value
Filter sign	
Static pressure	
Auto restart	
Room temperature sensor switching	
Remote controller custom code	
External input control	
Room temperature sensor switching (Aux.)	

After completing the Function Setting, be sure to turn off the power and turn it on again.

10.3.2. Temperature Correction

NOTE:

When changing Function 95, perform this setting before other Room temp. control settings (Function 30, 31, 92, 93).

If Function 95 is not set first, Room temperature control settings (Function 30, 31, 92, 93) will be reset and you must re-do them again.

Heat Insulation condition (building insulation)

Heat insulation conditions differ according to the installed environment.

Standard insulation "00" allows system to rapidly respond to the cooling or heating load changes.

High insulation "01" is when the heat insulation structure of the building is high and does not require system to rapidly respond to cooling or heating load changes.

When High insulation "01" is selected;

• Overheating (overcooling) is prevented at the start-up.

• All room temp. control settings (Function 30, 31, 92, 93) will reset to No correction [0.0°F (0.0°C)].

(♦... Factory setting)

Function Number	Setting Value	Setting Description	
95	00	Standard insulation	♦
	01	High insulation	

Room temperature control for indoor unit sensor

Depending on the installed environment, correction of the room temperature sensor may be required.

Select the appropriate control setting according to the installed environment.

The temperature correction values show the difference from the Standard setting "00" (manufacturer's recommended value).

* When Function 95-01(High insulation) is set, the Standard setting "00" will be the same as No correction "01" [0.0°F (0.0°C)].

(♦... Factory setting)

Function Number	Setting Value	Setting Description	
30 (For cooling)	31 (For heating)	00	Standard setting*	♦
		01	No correction 0.0°F (0.0°C)	
		02	-1°F (-0.5°C)	More Cooling Less Heating
		03	-2°F (-1.0°C)	
		04	-3°F (-1.5°C)	
		05	-4°F (-2.0°C)	
		06	-5°F (-2.5°C)	
		07	-6°F (-3.0°C)	
		08	-7°F (-3.5°C)	
		09	-8°F (-4.0°C)	
		10	+1°F (+0.5°C)	Less Cooling More Heating
		11	+2°F (+1.0°C)	
		12	+3°F (+1.5°C)	
		13	+4°F (+2.0°C)	
		14	+5°F (+2.5°C)	
		15	+6°F (+3.0°C)	
		16	+7°F (+3.5°C)	
		17	+8°F (+4.0°C)	

In case of Slim duct type and Floor/Ceiling type models:
In floor console installations, select "01".

Room temperature control for wired remote controller sensor

Depending on the installed environment, correction of the wire remote temperature sensor may be required.

Select the appropriate control setting according to the installed environment.

To change this setting, set Function 42 to Both "01", and Function 48 to Wired remote controller "01".

Ensure that the Thermo Sensor icon is displayed on the remote controller screen.

(♦... Factory setting)

Function number	Setting value	Setting description	
92 (For cooling)	93 (For heating)	00	No correction 0.0°F (0.0°C)	♦
		01	No correction 0.0°F (0.0°C)	
		02	-1°F (-0.5°C)	More Cooling Less Heating
		03	-2°F (-1.0°C)	
		04	-3°F (-1.5°C)	
		05	-4°F (-2.0°C)	
		06	-5°F (-2.5°C)	
		07	-6°F (-3.0°C)	
		08	-7°F (-3.5°C)	
		09	-8°F (-4.0°C)	
		10	+1°F (+0.5°C)	Less Cooling More Heating
		11	+2°F (+1.0°C)	
		12	+3°F (+1.5°C)	
		13	+4°F (+2.0°C)	
		14	+5°F (+2.5°C)	
		15	+6°F (+3.0°C)	
		16	+7°F (+3.5°C)	
		17	+8°F (+4.0°C)	

Setting record

● Record any changes to the settings in the following table.

Setting	Setting Value	
Heat Insulation condition (building insulation)		
Room temperature control for indoor unit sensor	Cooling	
	Heating	
Room temperature control for wired remote controller sensor	Cooling	
	Heating	

After completing the Function Setting, be sure to turn off the power and turn it on again.
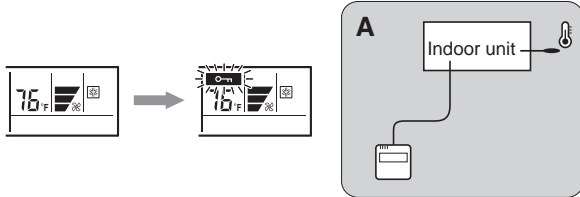
SETTING THE ROOM TEMPERATURE DETECTION LOCATION

The location of the sensor detecting the room temperature can be selected from the following 2 examples. Choose the best location depending on the installing condition.
Refer to "10.3. Function setting".

A. Indoor unit sensor setting (factory setting)

The room temperature is detected by the indoor unit temperature sensor. When using this function, the "Room temperature sensor switching (Function number: 42)" is set at "Indoor unit (00)"

(1) When the THERMO SENSOR button is pressed, the lock display flashes because the function is locked at the factory.

B. Indoor unit/remote controller sensor setting

The temperature sensor of both the indoor unit and the remote controller is used to detect the room temperature.
When using this function, the "Room temperature sensor switching (Function number: 42)" is set at "Both (01)"

(1) Activate the sensor switching function as described in "Room temperature sensor switching (Function number: 42)."
(2) Press the THERMO SENSOR button for 5 seconds or more to select the temperature sensor of the indoor unit or the remote controller.
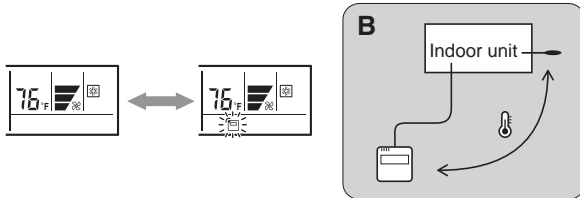
10.4. Jumper wire setting

(1) Drainage function setting (JM1)

If contained drain pump is not used, set the drainage function to "Invalid" in the drainage function switching.

• If contained drain pump is not use:
When used under "WALL MOUNTED TYPE/FLOOR STANDING CONCEALED TYPE".
When used in natural drainage under "CEILING CONCEALED TYPE".

(♦... Factory setting)

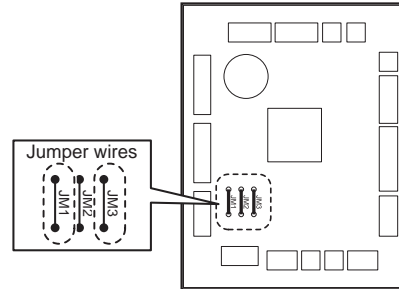| JM1	Drainage Function
♦ Connect	Valid
Disconnect	Invalid

(2) Fan delay setting (JM3)

It is a function to delay the stop of cooling fan when the air conditioner is stopped.

(♦... Factory setting)

JM3	Fan Delay
♦ Connect	Invalid
Disconnect	Valid

• **Switching position**

• **JM2 setting forbidden**

10.5. Test run

⚠ CAUTION

Always turn on the power 12 hours prior to the start of the operation in order to ensure compressor protection.

CHECK ITEMS

(1) Is operation of each button on the remote controller normal?
(2) Does each lamp light normally?
(3) Do the airflow direction louvers operate normally?
(4) Is the drain normal?
(5) Is there any error noise and vibration during operation?

• Do not operate the air conditioner in test run for a long time.

[OPERATION METHOD]

• For the operation method, refer to the operating manual.
(1) Stop the air conditioner operation.
(2) Press the MODE button and the FAN button simultaneously for 2 seconds or more to start the test run.
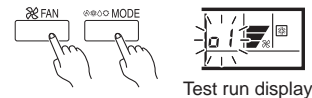
Test run display

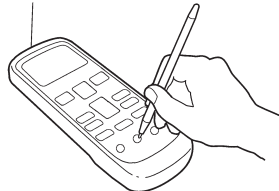(3) Press the START/STOP button to stop the test run.

If "C0" appears on the unit number display, there is a remote controller error. Refer to the installation manual included with the remote controller.

Unit Number	Error Code	Content
C0	15	Incompatible indoor unit is connected
C0	12	Indoor unit ↔ remote controller communication error

[Using the wireless remote controller for test run] (Option)

- For the operation method, refer to the operating manual.
- The outdoor unit may not operate depending on the room temperature. In this case, press the test run button on the wireless remote controller unit while the air conditioner is running. (Point the transmitter section of the wireless remote controller toward the air conditioner and press the test run button with the tip of a ball-point pen and so on.)

Transmitter section

Test run button

- To end test operation, press the wireless remote controller START/STOP button.

  (When the air conditioner is run by pressing the test run button, the OPERATION indicator lamp and TIMER indicator lamp will simultaneously flash slowly.)

11. SPECIAL INSTALLATION METHODS

⚠ CAUTION

When setting DIP switches, do not touch any other parts on the circuit board directly with your bare hands.

Be sure to turn off the main power.

DUAL REMOTE CONTROLLERS

- 2 separate remote controllers can be used to operate the indoor units.
- The timer and self-diagnosis functions cannot be used on the secondary units.

(1) Wiring method (indoor unit to remote controller)
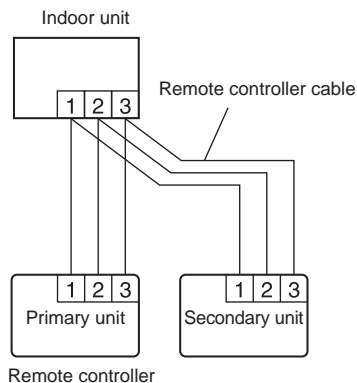
(2) Remote controller DIP switch 1 setting

Set SW2 on the remote controller DIP switch 1 according to the following table.

Number of Remote Controllers	Primary Unit	Secondary Unit
	SW2	SW2
1 (Normal)	OFF	–
2 (Dual)	OFF	ON

12. OPTIONAL PARTS

⚠ WARNING

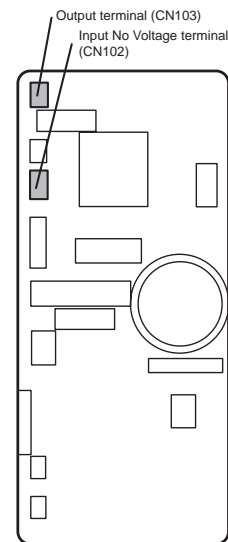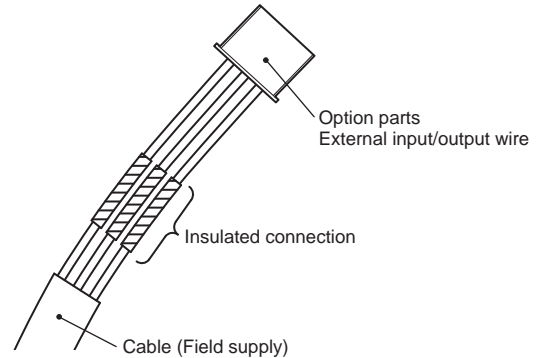Refer to local codes for acceptable cable type.

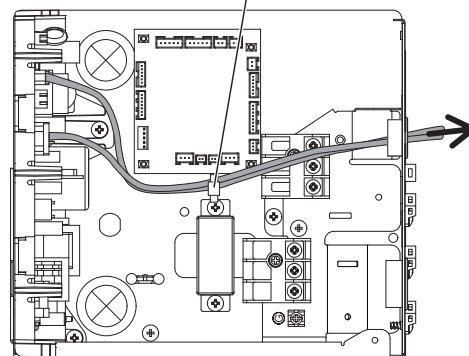### 12.1. External input and external output

Connection methods

- Wire modification

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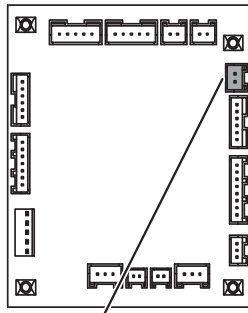Use crimp type insulated butt connector to join field cable and wire kit wire.

Option parts
External input/output wire

Insulated connection

Cable (Field supply)

Output terminal (CN103)
Input No Voltage terminal (CN102)

Cable tie (Small) (Accessories)

En-23

12.2. Remote sensor (Optional parts)
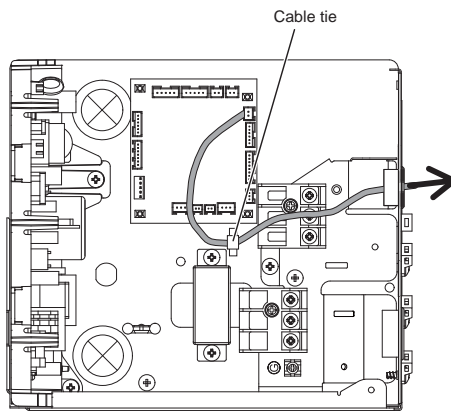
Connection method
• Connection terminals

Remote sensor terminal (CN8)

• Wiring arrangement

Cable tie

• 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.

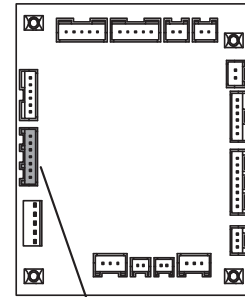Setting for room temperature correction

When a remote sensor is connected, set the function setting of indoor unit as follows.

• Set Function Number "30" (Room temperature control for cooling) to "00" (Factory setting)
• Set Function Number "31" (Room temperature control for heating) to "02"
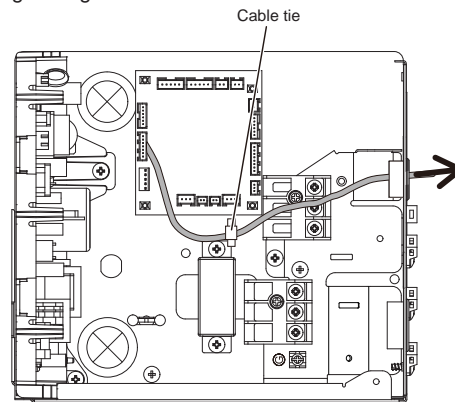
12.3. IR Receiver Unit (Optional parts)
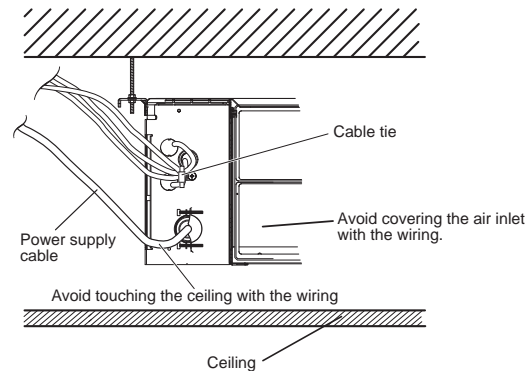
Connection method
• Connection terminals

Receiver unit terminal (CN13)

• Wiring arrangement

Cable tie

• Use 7 pins for receiver unit cable.
• At first, connect the receiver unit cable to the Receiver unit terminal (CN13).

Cable tie

Avoid covering the air inlet with the wiring.

Power supply cable

Avoid touching the ceiling with the wiring

Ceiling

Do not bind the power supply cable and other cables together.

13. ERROR CODES

If you use a wired remote controller, error codes will appear on the remote controller display. If you use a wireless remote controller, the lamps on the IR receiver unit will output error codes by way of blinking patterns. See the lamp blinking patterns and error codes in the following table. An error display is displayed only during operation.

| Error Display			Wired Remote Controller Error Code	Mode	DESCRIPTION	Remark
Operation Lamp (green)	Timer Lamp (orange)	ECONOMY Lamp (green)				
● (1)	● (1)	◇	11	Communication	Serial communication error	•When the indoor unit cannot receive the signal from the branch unit •When the branch unit cannot receive the signal from the indoor unit
● (1)	● (2)	◇	12	Communication	Remote controller communication error	•Wired remote controller communication error
● (1)	● (5)	◇	15	Communication	Scan error	•Check operation incompletion error (normally, operation disabled)
● (2)	● (1)	◇	21	Function setting	Initial setting error	•Wiring mistake
● (2)	● (2)	◇	22	Function setting	Indoor unit capacity error	•Indoor unit capacity error
● (2)	● (3)	◇	23	Function setting	Connection disabled (series error)	•Combination error
● (2)	● (4)	◇	24	Function setting	Connection unit number error	•Connection unit number error (indoor unit) •Connection unit number error (branch unit)
● (3)	● (2)	◇	32	Indoor unit	Indoor unit main PCB error	•Indoor unit PCB Model information error
● (3)	● (5)	◇	35	Indoor unit	Manual auto switch error	•Manual auto switch error
● (4)	● (1)	◇	41	Indoor unit	Room error	•Inlet thermistor error
● (4)	● (2)	◇	42	Indoor unit	Indoor unit Heat Ex. sensor error	•Indoor unit Heat Ex. Middle thermistor error
● (5)	● (1)	◇	51	Indoor unit	Indoor unit fan motor 1 error	•Main fan motor lock error •Main fan motor revolution speed error
● (5)	● (3)	◇	53	Indoor unit	Water Drain error	•Drain pump error
● (5)	● (15)	◇	5U	Indoor unit	Indoor unit error	•Indoor unit error
● (6)	● (2)	◇	62	Outdoor unit	Outdoor unit main PCB error	•Outdoor unit PCB Model information error •Outdoor unit PCB microcomputer communication error
● (6)	● (3)	◇	63	Outdoor unit	Inverter PCB error	•Inverter error
● (6)	● (4)	◇	64	Outdoor unit	Active filter error, PFC circuit error	•Voltage error stoppage permanently •Voltage error (can restore) •Over current protected operation stoppage permanently •PFC hardware error
● (6)	● (5)	◇	65	Outdoor unit	IPM error	•Trip terminal L error
● (6)	● (10)	◇	6A	Outdoor unit	Display panel error	•Microcomputers communication error
● (7)	● (1)	◇	71	Outdoor unit	Discharge thermistor error	•Discharge thermistor 1 error
● (7)	● (2)	◇	72	Outdoor unit	Compressor thermistor error	•Compressor thermistor 1 error
● (7)	● (3)	◇	73	Outdoor unit	Outdoor unit Heat Ex. Sensor error	•Outdoor unit Heat Ex. liquid thermistor error
● (7)	● (4)	◇	74	Outdoor unit	Outdoor thermistor error	•Outdoor thermistor error
● (7)	● (5)	◇	75	Outdoor unit	Suction Gas thermistor error	•Suction Gas thermistor error
● (7)	● (7)	◇	77	Outdoor unit	Heat sink thermistor error	•Heat sink thermistor error
● (8)	● (2)	◇	82	Outdoor unit	Sub-cool Heat Ex. gas thermistor error	•Sub-cool Heat Ex. gas inlet thermistor error •Sub-cool Heat Ex. gas outlet thermistor error
● (8)	● (3)	◇	83	Outdoor unit	Liquid pipe thermistor error	•Liquid pipe thermistor 1 error
● (8)	● (4)	◇	84	Outdoor unit	Current sensor error	•Current sensor 1 error (stoppage permanently)
● (8)	● (6)	◇	86	Outdoor unit	Pressure sensor error	•Discharge pressure sensor error •Suction pressure sensor error •High pressure switch 1 error
● (9)	● (4)	◇	94	Outdoor unit	Trip detection	•Trip detection
● (9)	● (5)	◇	95	Outdoor unit	Compressor motor control error	•Rotor position detection error (stoppage permanently)
● (9)	● (7)	◇	97	Outdoor unit	Outdoor unit fan motor 1 error	•Duty error
● (9)	● (9)	◇	99	Outdoor unit	4-way valve error	•4-way valve error
● (10)	● (1)	◇	A1	Refrigerant system	Discharge temperature 1 error	•Discharge temperature 1 error
● (10)	● (3)	◇	A3	Refrigerant system	Compressor temperature error	•Compressor 1 temperature error
● (10)	● (5)	◇	A5	Refrigerant system	Pressure error 2	•Low pressure error
● (13)	● (2)	◇	J2	Branch box	Unit flow divider error	•EEPROM access error •Equipment type information error •Serial communication error to outdoor unit •Branch units serial communication error •Serial communication error to indoor unit •Liquid pipe thermistor error •Gas pipe thermistor error •Expansion valve full closure operation error •Remote controller communication error •Branch unit error

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

[Troubleshooting at the remote controller LCD]

This is possible only on the wired remote controller.

[Self-diagnosis]

If an error occurs, the following display will be shown.
("Er" will appear in the set room temperature display)

Error code

SU MO TU WE TH FR SA

00:11 Er
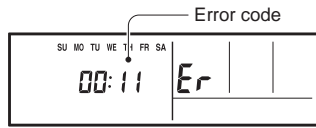
EX. Self-diagnosis

14. CUSTOMER GUIDANCE

Explain the following to the customer in accordance with the operating manual:

(1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote controller unit operations.

(2) Air filter removal and cleaning, and how to use the air louvers.

(3) Give the operating manual to the customer.

(4) If the wireless remote controller custom code is changed from A to B, C, or D, it will change back to A when the batteries in the remote controller are replaced. Explain to the customer how to program the wireless remote controller for the correct custom code.