AIR CONDITIONER
INDOOR UNIT
Slim Duct Type

English

Français

Español

INSTALLATION MANUAL

For authorized service personnel only.

Contents

PART NO. 9374342105-05
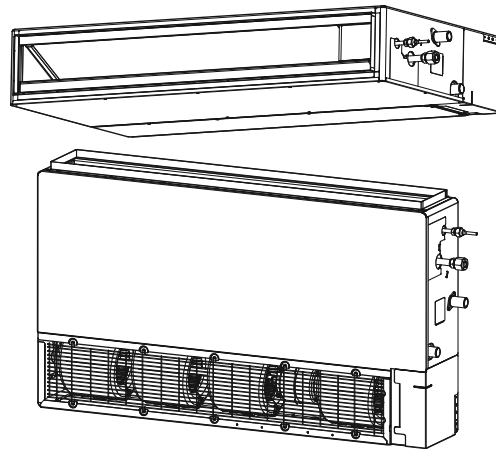
1. SAFETY PRECAUTIONS

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.

• Hazel 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 grounding can cause **accidental injury or death**.
• **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 starting the test run.

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.

2. ABOUT THE UNIT

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 table below.)

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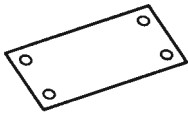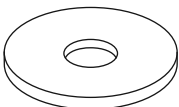
2.4. Accessories
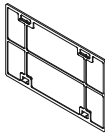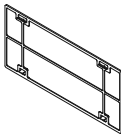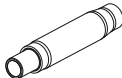
Do not discard any accessories needed for installation until the installation work has been completed.

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)
Binder	Medium 3	For power supply and remote control cable binding.
	Large 4	For fixing the coupler heat insulation.

Name and Shape	Q'ty	Application
Filter (Small)	2 (AR9/12/24)	
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	UTY-LNHUM	For air conditioner operation
Wired Remote Controller	UTY-RNNUM	For air conditioner operation
Simple Remote Controller	UTY-RSNUM	For air conditioner operation
IR Receiver Unit	UTY-LRHUM	For the wireless remote controller
Remote sensor unit	UTY-XSZX	Room temperature sensor
External control set	UTD-ECS5A	For control input/output port

3. GENERAL

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**
AR9/12 model	6.35 mm (1/4 in.)	9.52 mm (3/8 in.)
AR18 model	6.35 mm (1/4 in.)	12.70 mm (1/2 in.)
AR24 model	6.35 mm (1/4 in.)	15.88 mm (5/8 in.)

• 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 15 mm (19/32 in.) or thicker and if the expected humidity exceeds 80%, use heat insulation that is 20 mm (25/32 in.) 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 + 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
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 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 control 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

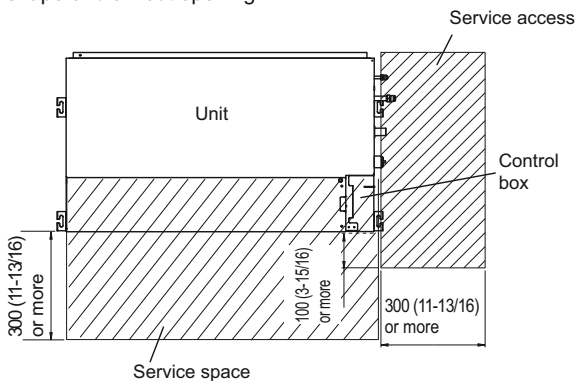## 6.1A. Installation dimensions (Ceiling concealed type)

Provide a service access for inspection purposes.
Do not place any wiring or illumination in the service space, as they will impede service.
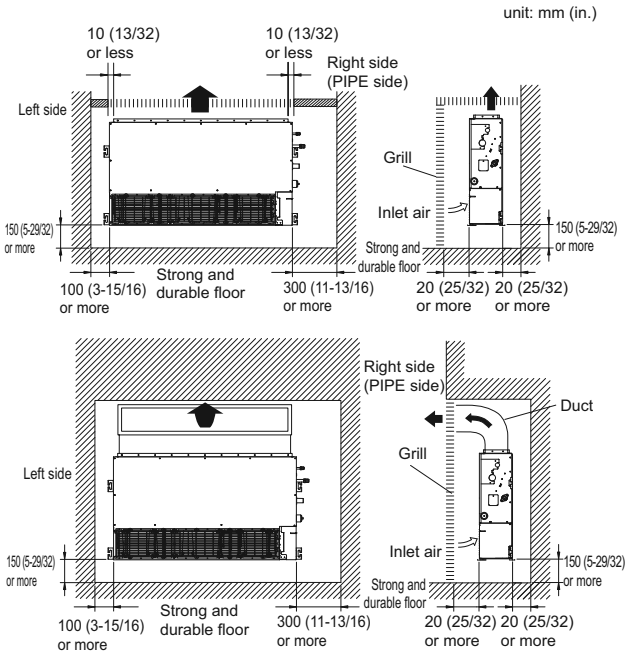
Installation Dimensions
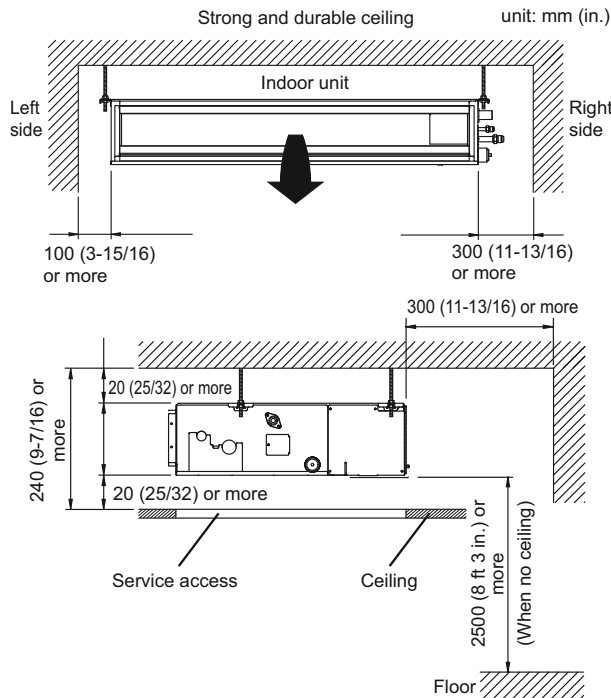
Adjust the wind direction in the room depending on the shape of blow out opening.

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: mm (in.)

6.2A. Installation 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.

| |
|---|
| 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. |
| AR9/12/18 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).
AR24 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 illustration below.

Model	Screw
	M5
AR9/12	9
AR18	11
AR24	13
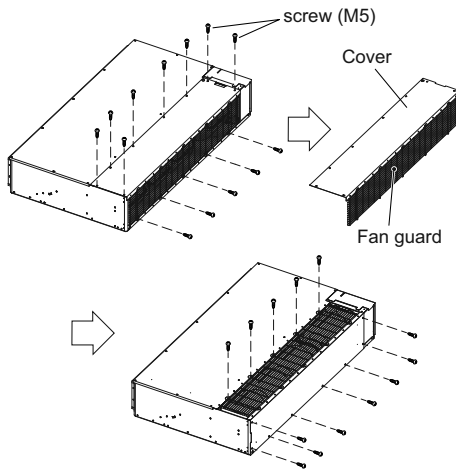
Side Inlet - Side Outlet
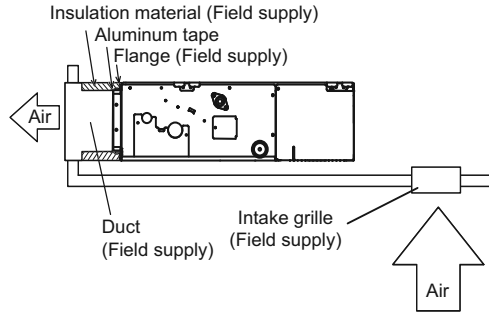
Side Inlet - Side Outlet (Duct)
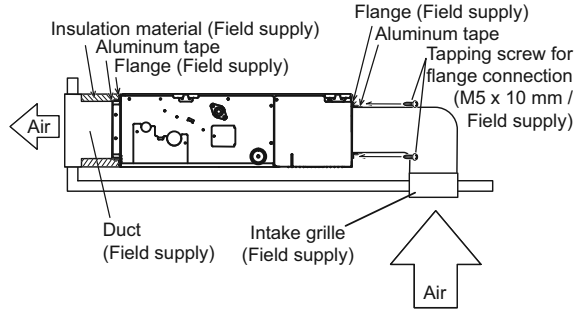
Bottom Inlet - Side Outlet

Outlet side

unit: mm (in.)

Inlet side

unit: mm (in.)
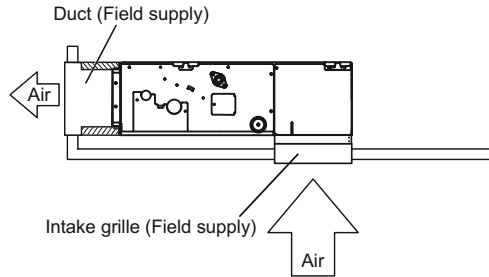
	AR9/12	AR18	AR24
A	650 (25-19/32)	850 (33-15/32)	1050 (41-11/32)
B	P200 (7-7/8) × 2 = 400 (15-3/4)	P200 (7-7/8) × 3 = 600 (23-5/8)	P200 (7-7/8) × 4 = 800 (31-1/2)

6.2A.2. INSTALL THE FILTERS

• Install the filters to the unit.

Filter (Accessories)

AR9/12/18: 2 filters
AR24: 3 filters

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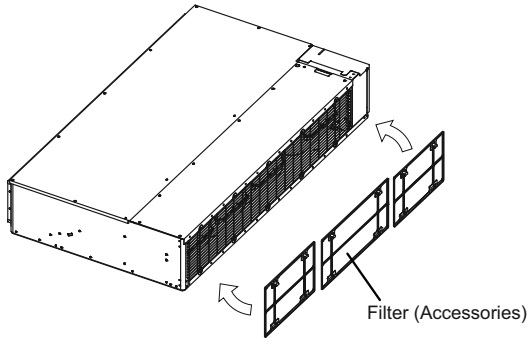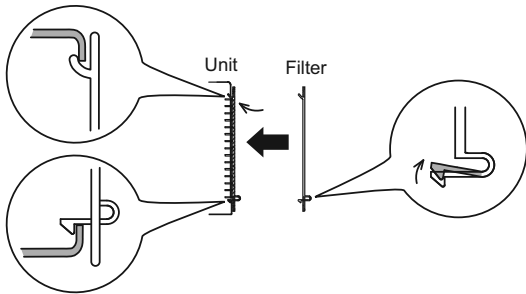
6.2A.3. DRILLING HOLES FOR BOLTS AND IN-STALLING THE BOLTS

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

Installation template

Drilling position
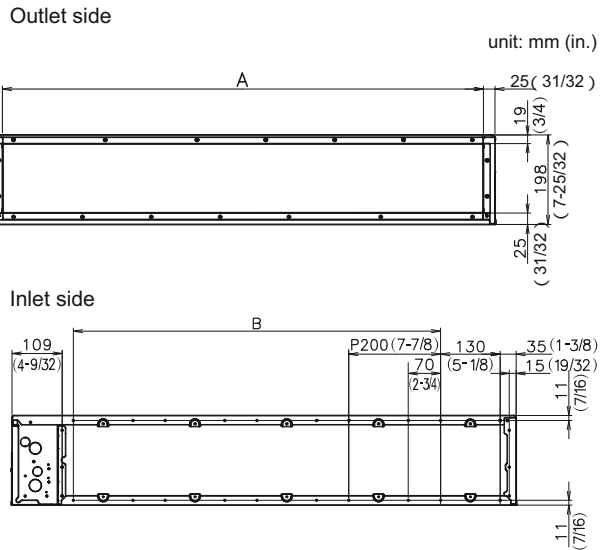for bolts

Air

377 mm
(14-27/32)

A
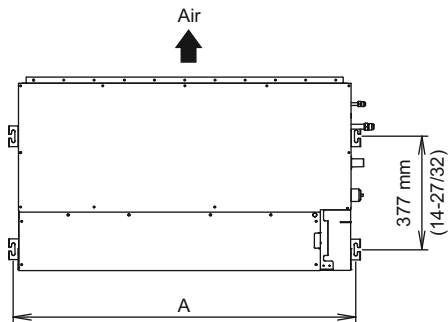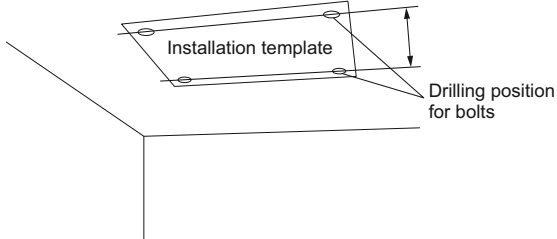
unit: mm (in.)

	AR9/12	AR18	AR24
A	734 (28-29/32)	934 (36-25/32)	1134 (44-21/32)

6.2A.4. FIX THE UNIT

(1) Hang the unit

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)

20 mm
(25/32 in.)
length

Cover

*: It might become difficult to open and shut the Cover /control box cover when the length exceeds 20 mm (25/32 in.).

(2) Leveling

Base horizontal direction leveling on top of the unit.

Ceiling

Level

OK   NO GOOD

10mm (13/32 in.) or less

Level

Air

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

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.

(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.

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

Model	Screw
	M5
AR9/12	9
AR18	11
AR24	13

6.2B.2. INSTALL THE FILTER

• Install the filters (Accessories) to the unit.

Filter

AR9/12/18: 2 filters
AR24: 3 filters

Unit   Filter

Replace drain cap

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

6.2B.3. INSTALLING 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

10 mm or less (13/32 in.)

OK   NO GOOD

Level

10 mm or less (13/32 in.)

OK   NO GOOD
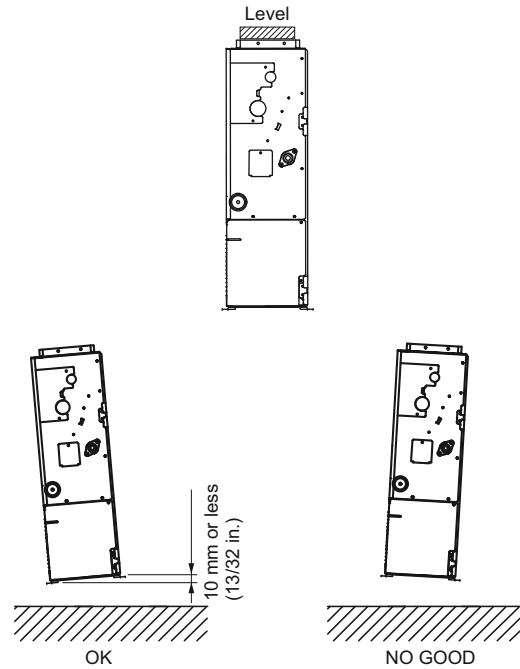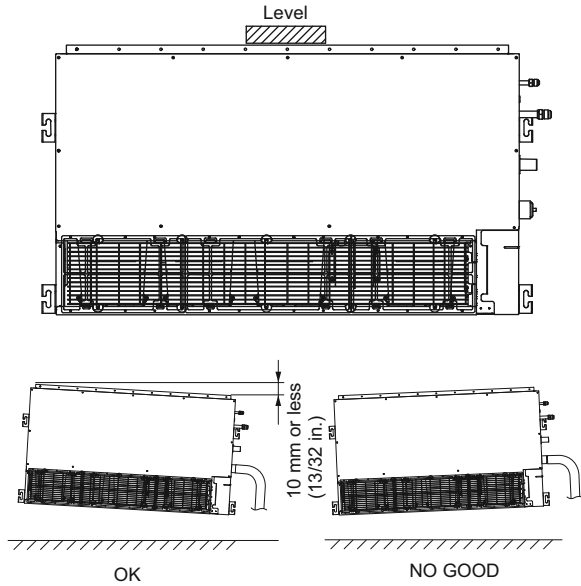
⚠ CAUTION
Fasten the unit securely with Special nuts A and B.

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

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 15mm(19/32 in.) or thicker and if the expected humidity exceeds 80 %, use heat insulation that is 20mm(25/32 in.) 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.
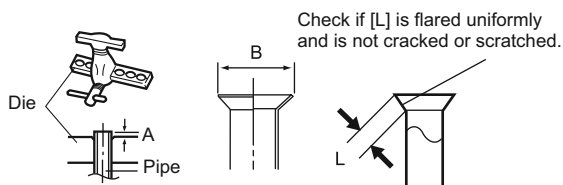
Pipe outside diameter [mm (in.)]	Dimension A [mm (in.)]	Dimension B$_{-0.4}^{0}$ [mm (in.)]
	Flare tool for R410A, clutch type	
6.35 (1/4)		9.1 (11/32)
9.52 (3/8)		13.2 (17/32)
12.70 (1/2)	0 to 0.5 (0 to 0.020)	16.6 (21/32)
15.88 (5/8)		19.7 (25/32)
19.05 (3/4)		24.0 (15/16)

When using conventional flare tools to flare R410A pipes, the dimension A should be approximately 0.5 mm (0.020 in.) 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 [mm (in.)]	Width across flats of Flare nut [mm (in.)]
6.35 (1/4)	17 (21/32)
9.52 (3/8)	22 (7/8)
12.70 (1/2)	26 (1-1/32)
15.88 (5/8)	29 (1-5/32)
19.05 (3/4)	36 (1-13/32)

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 table below for the flare nut tightening torques.)

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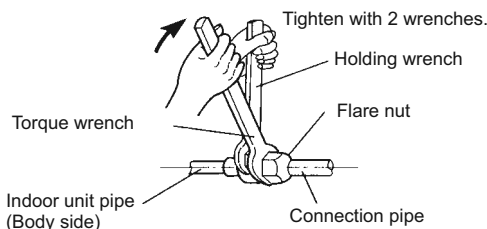
Flare nut [mm (in.)]	Tightening torque [N·m (lbf·ft)]
6.35 (1/4) dia.	16 to 18 (11.8 to 13.3)
9.52 (3/8) dia.	32 to 42 (23.6 to 31.0)
12.70 (1/2) dia.	49 to 61 (36.1 to 45.0)
15.88 (5/8) dia.	63 to 75 (46.5 to 55.3)
19.05 (3/4) dia.	90 to 110 (66.4 to 81.1)

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 binders (large), one on each end of the insulation.
- Make sure that the binders overlap the heat insulation pipe.

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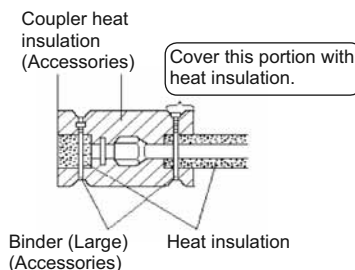
⚠ CAUTION
After checking for gas leaks (refer to the Installation Manual of the outdoor unit), perform this section.
Install heat insulation around both the large (gas) and small (liquid) pipes. Failure to do so may cause water leaks.

8. INSTALLING DRAIN PIPES

8.1A. Installing drain pipes (Ceiling concealed type)

Use general hard polyvinyl chloride pipe and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
Always heat insulate the indoor side of the drain hose.
Use a drain pipe that matches the size of the drain hose (Table A).
 • Do not perform a rise, trap and air bleeding.
 • Provide a downward gradient (1/100 or more).
 • Provide supports 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.

Table A

	Pipe Size
Drain pipe	3/4 in. (O.D. 1-1/16 in.)

 • CEILING CONCEALED TYPE (Use Drain Pump)

 Outlet air flow — Drain hose — Drain cap — OK — Arrange the drain hose lower than this port. — NO GOOD — Trap — NO GOOD — Rise

 Supporter — OK — 1.5-2 m (5'- 6' 6") — Air bleeding — NO GOOD

8.1B. Installing drain pipes (Wall mounted type/Floor standing concealed type)

 Drain cap — OK — Trap — NO GOOD — Rise — NO GOOD
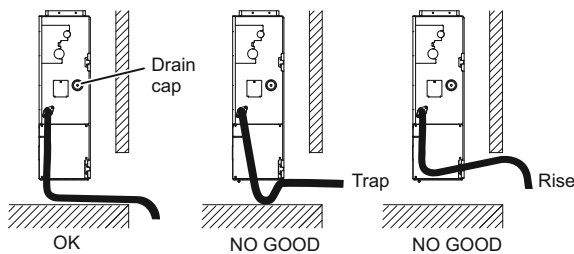
> **⚠ CAUTION**
> • Drain pump cannot be used if it is installed in wall mounted type/floor standing concealed type.
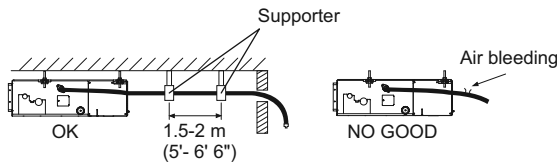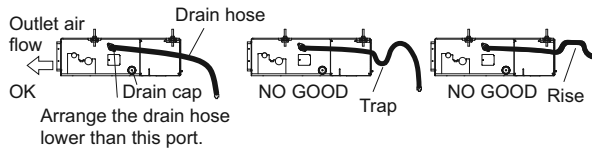> • Set "10.4.Jumper wire setting of Drainage function setting (JM1)".
> • Be sure to connect the pipes for drainage without leakage.
> • To avoid condensation and dripping, always insulate the indoor drain pipe.

 • Install the drain pipe with downward gradient (1/50 to 1/100) and so there are no rises or traps in the pipe.
 • Use general hard polyvinyl chloride pipe [19 mm (3/4 in.) O.D. 27 mm (1-1/16 in.)] and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
 • When the pipe is long. Install supports.
 • Do not perform air bleeding.
 • Always heat insulate the indoor side of the drain pipe.

 Gap of 1.5-2 m (5' - 6' 6") — Supporter — Locally arranged pipe — Max. 300 mm (11-13/16 in.) — O.D.1-1/16 in. (27 mm) — 700 mm (27-9/16 in.) or less — Horizontal or upward gradient

 Air bleeding — Rise — Trap — **BAD**
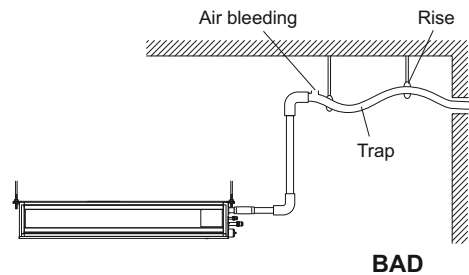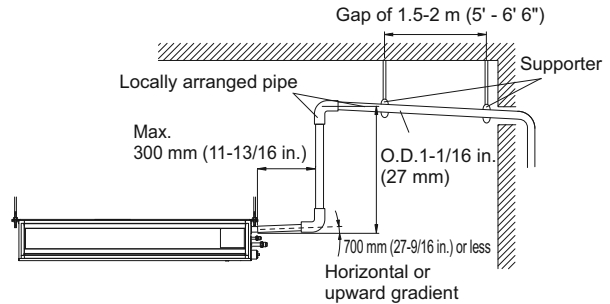
Observe the following procedures to construct centralized drain pipe fittings.

 O.D. 1-5/16 in. (33 mm) or more — Downward gradient 1/100 or more — 700 mm (27-9/16 in.) or less
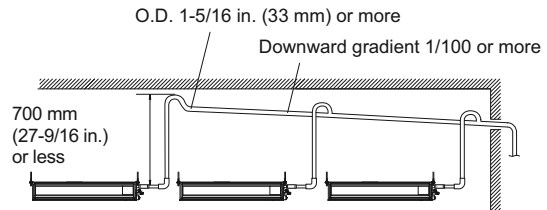
> **⚠ WARNING**
> Do not insert the drain piping into the sewer where sulfurous gas occurs. (Heat exchange erosion may occur)
>
> Insulate the parts properly so that water will not drip from the connection parts.
>
> Check for proper drainage after the construction by using the visible portion of transparent 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)

8.2. 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

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

Hose band

4 mm (5/32 in.) or less

20 mm (25/32 in.)

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

Applying area of adhesive

Joint pipe (Field supply)

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

4 mm (5/32 in.) or less
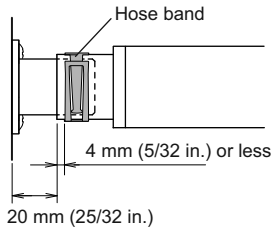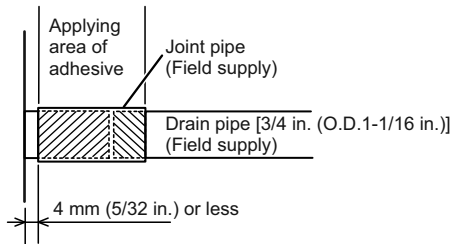
> **⚠ CAUTION**
>
> When drain pump is not used, do not connect the accessory drain hose and soft PVC hose directly.

(2) Be sure to insert Drain hose ① to the very end of the Drain pan of the unit with no space.

Applying area of adhesive

Joint pipe (Field supply)

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

4 mm (5/32 in.) or less
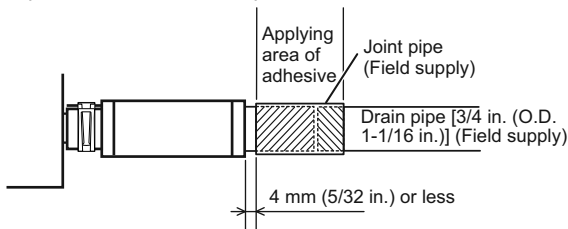
① Drain hose
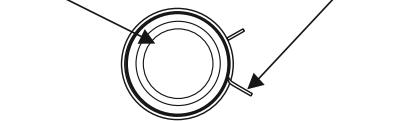
② Hose band

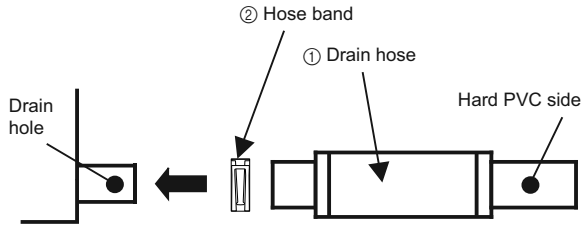Fasten the Hose band ② at the position where vertical against ground.
The Hose band ② must be positioned at the right side of the Drain hose ① as in the figure.

> **⚠ 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.

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

Downward gradient 2.5-5.0 mm (0.10-0.19 in.)
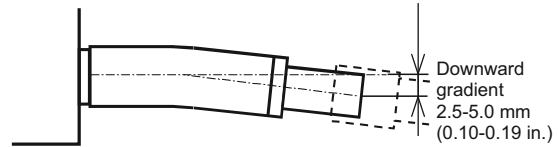
> **⚠ CAUTION**
>
> To prevent excessive force on Drain hose ①, avoid bends or twists. (To bend or twist may cause water leaks.)

(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.

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

Ensure there is no space.

③ Drain hose insulation B

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

Ensure there is no space.
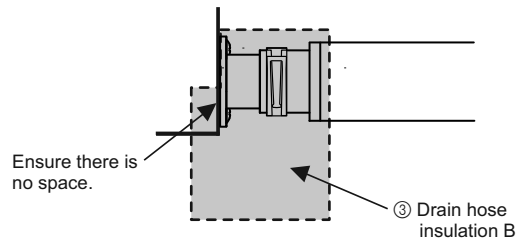
③ Drain hose insulation B
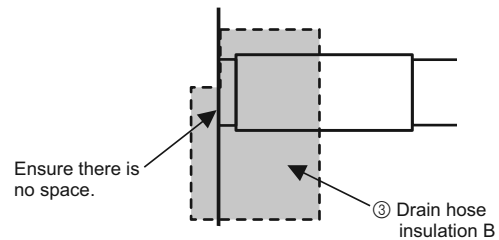
• STEP1~STEP3

Butt the insulation
against the unit.

Unit

Slit

STEP 1

Press firmly

Press firmly

Slit

Press firmly

STEP 2

Slit

Press firmly

Press firmly

Roll the
insulation
over the joint.

STEP 3
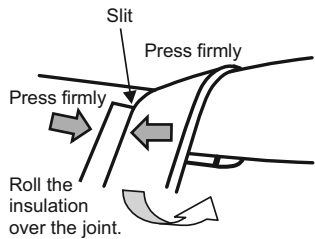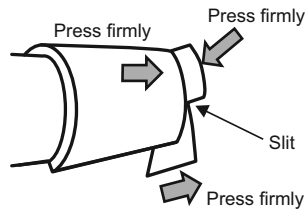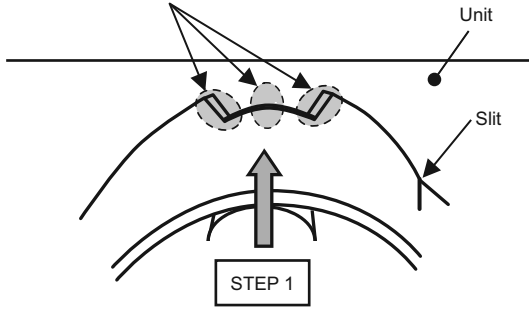
• FINISH

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.
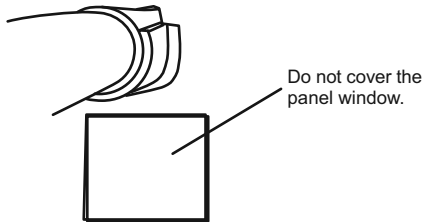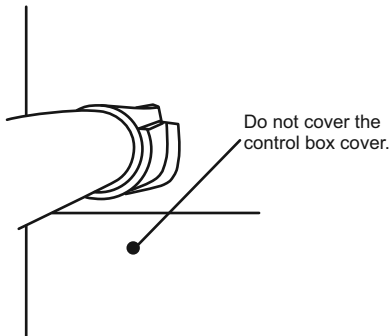
Note: Check for drainage

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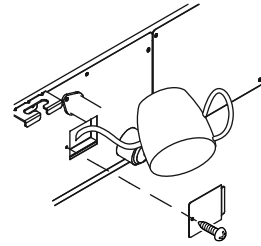
⚠ CAUTION
Make sure the drain water is properly drained.

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 ground wire.

(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 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 10 mm (13/32")

Ring terminal

Sleeve

Screw with
special washer

Ring terminal

Wire

Terminal
board

Terminal block

Screw with
special washer

Ring
terminal

Wire
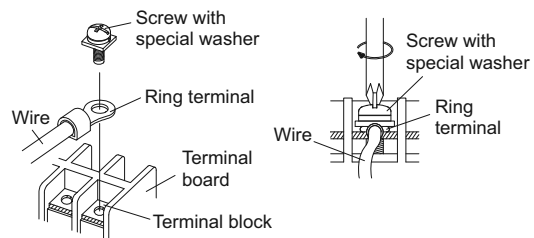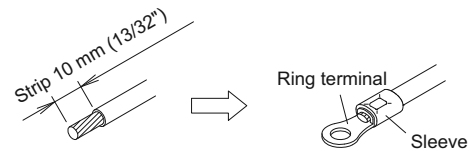
⚠ WARNING

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	1.2 to 1.8 N·m (11 to 16 lbf·in)

9.1. INDOOR UNIT SIDE

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

Screw

Control box cover
Remove the 4 screws and remove the control box cover from the control box.
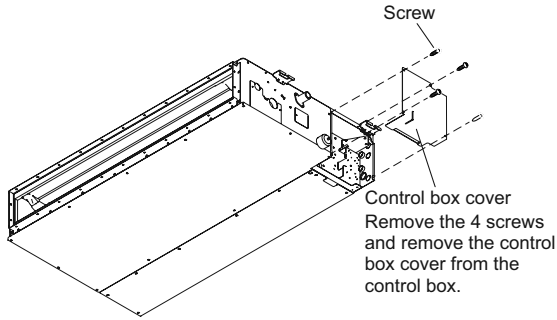
(2) Cable connection
- Connect the connection cable to the terminal board.
- Connect the remote controller cable to the terminal board.
- Fix the remote controller cable to the control box cover with a nylon clamp.

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

Binder (Medium)
(Accessories)

GND

Conduit
(Field supply)

Power supply cable

φ22.2 mm (7/8 in.)

Conduit
(Field supply)

Binder (Medium)
(Accessories)

Remote control cable

Conduit
(Field supply)

Power supply cable

(3) Wiring system diagram

INDOOR UNIT SIDE

OUTDOOR UNIT
or BRANCH BOX

Remote controller line

INDOOR UNIT
TERMINAL

DISCONNECT
SWITCH
(Field supply)

14AWG
(Inter-unit)
Power lines

① 208/230 V
② 208/230 V
③ 208/230 V

G Grounding line

①
②
③

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.

Ground both the indoor and outdoor, branch box units by attaching a ground cable.

Unit shall be 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 above diagram for do correct field wiring. Wrong wiring causes malfunction of the unit.

Check local electrical rules and also any specific wiring instructions or limitation.

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 cooled" or "not heated" will occur even if the air-conditioner is running normally.

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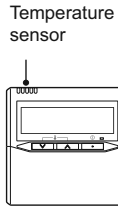
- **Locate where an average temperature for the room being air conditioned will be sensed.**
- **Do not locate directly exposed to the outlet air from the air-conditioner.**
- **Locate out of direct sunlight.**
- **Locate away from the influence of other heat sources.**

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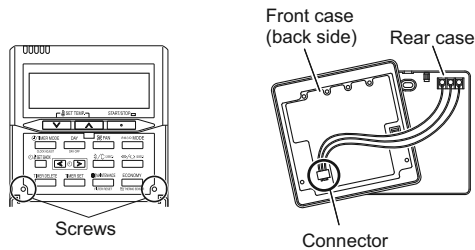
When remote controller cable is concealed
(1) Conceal the remote controller cable.
(2) Pass the remote controller cable through the hole in the rear case and connect the remote controller cable to the remote controller terminal board specified in figure.
(3) Clamp the remote controller cable sheath with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

En-18

Hole   1. Red   2. White   3. Black

Binder (Small)
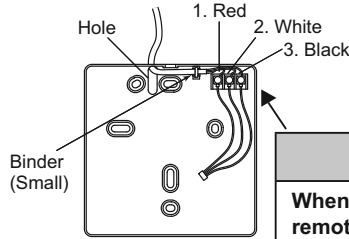
⚠ CAUTION

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

[Example]

Remote controller cable

Connector

Box

Rear case   Screws

120 (4-23/32)   17 (21/32)

120 (4-23/32)

⚭ SET TEMP.   START/STOP ⬜

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

15.3 (19/32)

Hole

23 (29/32)

45.3 (1-25/32)

4.5 (3/16)

8 (11/32)

63.5 (2-1/2)

83.5 (3-9/32)

4.5 (3/16)

12.5 (1/2)

4.5 (3/16)

6 (1/4)

Hole × 2

Hole × 3
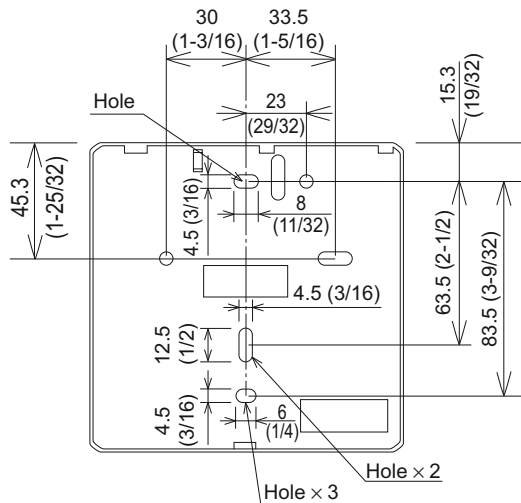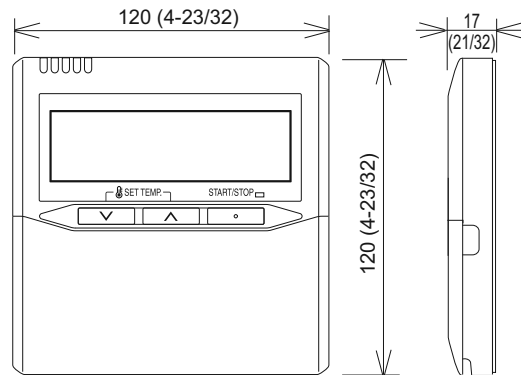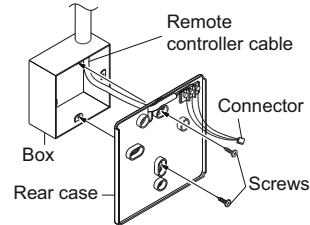
Unit: mm (in.)

⚠ CAUTION

Install the remote controller wires so as not to be direct touched 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

	NO.	SW state		Detail
		OFF	ON	
DIP-switch 1	1	★		Cannot be used. (Do not change)
	2	★		Dual remote controller setting * Refer to 2. DUAL REMOTE CONTROLLERS in 11 SPECIAL INSTALLATION METHODS.
	3	★		Cannot be used. (Do not change)
	4		★	Cannot be used. (Do not change)
	5	★		Cannot be used. (Do not change)
	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.

(★ Factory setting)

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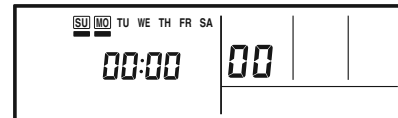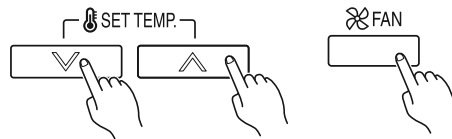
(2) Press the SET BACK button to select the indoor unit number.

SET BACK

SU MO TU WE TH FR SA
00:00   - -
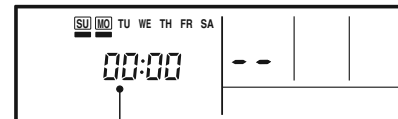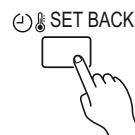
Unit number of INDOOR UNIT

(3) Press the SET TIME (< >) buttons to select the function number.

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

Function number

En-19

(4) Press the SET TEMP. buttons (∨) (∧) to select the set-ting value.
The display flashes as shown to the right during setting value selection.

SET TEMP.
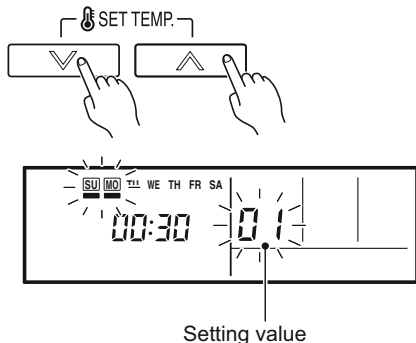
Setting value

(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.

• Function Details

(1) Filter Sign

The indoor unit has a sign to inform the user that it is time to clean the filter. Select the time setting for the filter sign display interval in the table below according to the amount of dust or debris in the room. If you do not wish the filter sign to be displayed, select the setting value for "No indication".

(♦... Factory setting)

Setting description	Function number	Setting value
Standard (400 hours)	11	00
Long interval (1000 hours)		01
Short interval (200 hours)		02
♦　　No indication		03

(2) Static pressure

Select appropriate static pressure according to the installation conditions.

(♦... Factory setting)

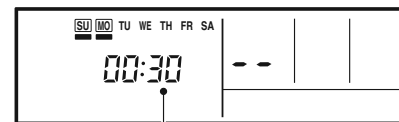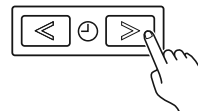| Setting description	Function number	Setting value
0 in. WG (0 Pa)	26	00
0.04 in. WG (10 Pa)		01
0.08 in. WG (20 Pa)		02
0.12 in. WG (30 Pa)		03
0.16 in. WG (40 Pa)		04
0.20 in. WG (50 Pa)		05
0.24 in. WG (60 Pa)		06
0.28 in. WG (70 Pa)		07
0.32 in. WG (80 Pa)		08
0.36 in. WG (90 Pa)		09
♦ 0.1 in. WG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

Range of static pressure is different from one model to other.

Model name	Range of static pressure
ARU9RLF	0 to 0.36 in. WG (0 to 90 Pa)
ARU12RLF	
ARU18RLF	
ARU24RLF	0 to 0.2 in. WG (0 to 50 Pa)

(3) Cooling room temperature correction

Depending on the installed environment, the room tempera-ture sensor may require a correction.
The settings may be selected as shown in the table below.

(♦... Factory setting)

Setting description	Function number	Setting value
♦　　Standard	30	00
Slightly lower control		01
Lower control		02
Warmer control		03

When using floor console installation, change the setting value to "01".

(4) Heating room temperature correction

Depending on the installed environment, the room temperature sensor may require a correction.
The settings may be changed as shown in the table below.

(♦... Factory setting)

Setting description		Function number	Setting value
♦	Standard		00
	Lower control	31	01
	Slightly warmer control		02
	Warmer control		03

When using floor console installation, change the setting value to "01".

(5) Auto restart

Enable or disable automatic system restart after a power outage.

(♦... Factory setting)

Setting description		Function number	Setting value
♦	Yes	40	00
	No		01

* 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, or external input device.

(6) Indoor room temperature sensor switching function
(Only for Wired remote controller)

The following settings are needed when using the Wired remote controller temperature sensor.

(♦... Factory setting)

Setting description		Function number	Setting value
♦	No	42	00
	Yes		01

* If setting value is "00" :
  Room temperature is controlled by the indoor unit temperature sensor.
* If setting value is "01" :
  Room temperature is controlled by either indoor unit temperature sensor or remote controller unit sensor.

(7) Wireless remote controller signal code

Change the indoor unit Signal Code, depending on the wireless remote controllers.

(♦... Factory setting)

Setting description		Function number	Setting value
♦	A		00
	B	44	01
	C		02
	D		03

(8) External input control

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

(♦... Factory setting)

Setting description		Function number	Setting value
♦	Operation/Stop mode		00
	(Setting forbidden)	46	01
	Forced stop mode		02

Setting record

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

Setting	Setting Value
(1) Filter sign	
(2) Static pressure	
(3) Cooler room temperature correction	
(4) Heater room temperature correction	
(5) Auto restart	
(6) Indoor room temperature sensor switching function	
(7) Wireless remote controller signal code	
(8) External input control	

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

SETTING THE ROOM TEMPERATURE DETECTION LOCATION

The detection location of the room temperature can be selected from the following 2 examples. Choose the detection location that is best for the installation location.

A. Indoor unit setting (factory setting)

The room temperature is detected by the indoor unit temperature sensor.

(1) When the THERMO SENSOR button is pressed, the lock display flashes because the function is locked at the factory.
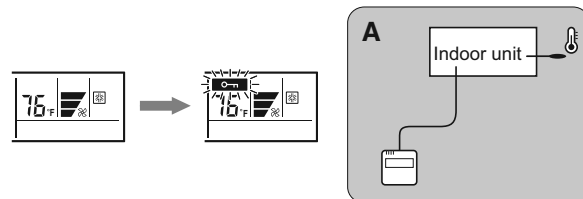
B. Indoor unit/remote controller setting (room temperature sensor selection)

The temperature sensor of the indoor unit or the remote controller can be used to detect the room temperature.

(1) Enable the room temperature sensor selection in FUNCTION SETTING, which will be previous page.
(2) Press the THERMO SENSOR button for 5 seconds or more to select the temperature sensor of the indoor unit or the remote controller.
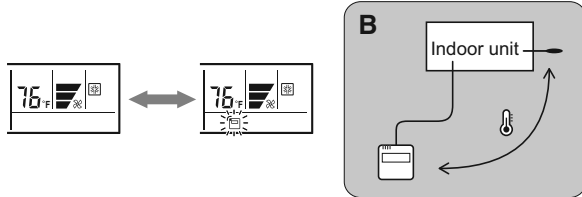
NOTES

If the function to change the temperature sensor is used as shown in examples A (other than example B), be sure to lock the detection location. If the function is locked, the lock display will flash when the THERMO SENSOR button is pressed.

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)

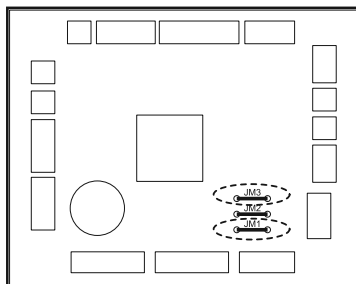| JM1	Drainage function
♦ Connect	Valid
Disconnect	Invalid

(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 control unit normal?
(2) Does each lamp light normally?
(3) Do not air flow direction louvers operate normally?
(4) Is the drain normal?
(5) Is there any abnormal 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 master control button and the fan control button simultaneously for 2 seconds or more to start the test run.
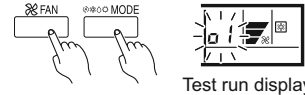
Test run display

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

If "C0" appears in 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 control 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 control unit while the air conditioner is running. (Point the transmitter section of the wireless remote control unit toward the air conditioner and press the test run button with the tip of a ball-point pen, etc.)

Transmitter section

Test run button

• To end test operation, press the wireless remote control unit 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 slave units.

(1) Wiring method (indoor unit to remote controller)

Indoor unit

Remote controller cable

1 2 3

1 2 3
Master unit

1 2 3
Slave unit
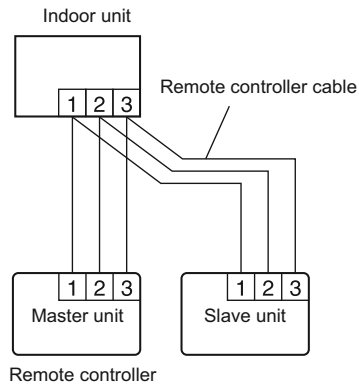
Remote controller

(2) Remote controller DIP switch 1 setting
Set the remote controller DIP switch 1 No. 2 according to the following table.

Number of remote controllers	Master unit	Slave unit
	DIP SW 1 No. 2	DIP SW 1 No. 2
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)
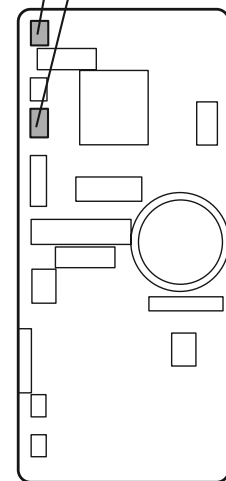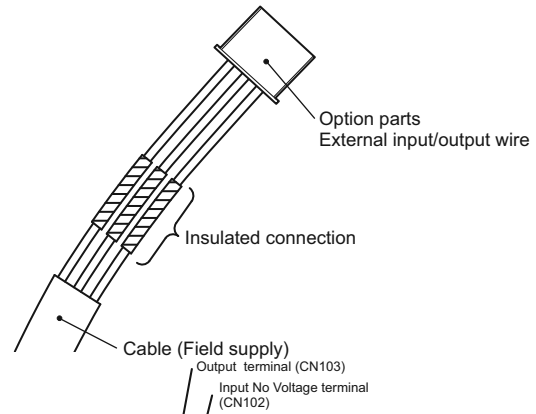
Binder (Medium)
(Accessories)

12.2. Remote sensor (Optional parts)

Connection method
• Connection terminals
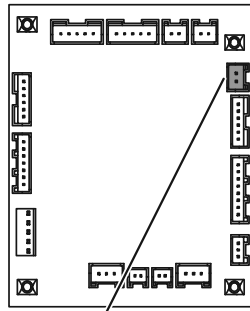
Remote sensor terminal (CN8)

• Wiring arrangement

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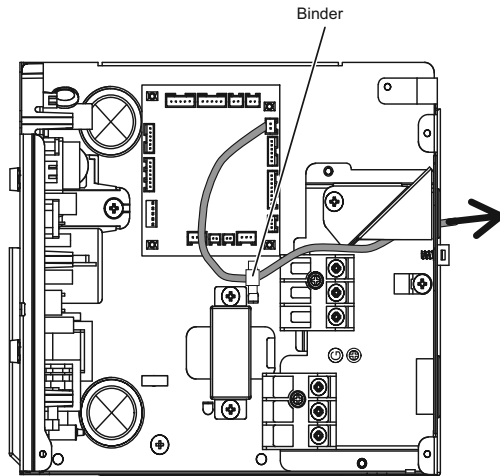
• Remove the existing connector and replace it with the remote sensor connector (ensure that the correct connector is used).
• The original connector should be insulated to ensure that it does not come into contact with other electrical circuitry.

Setting for room temperature correction

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

• Set Function Number "30" (Cool air temperature trigger) to "00" (Default)
• Set Function Number "31" (Hot air temperature trigger) to "02" (Adjust(2))
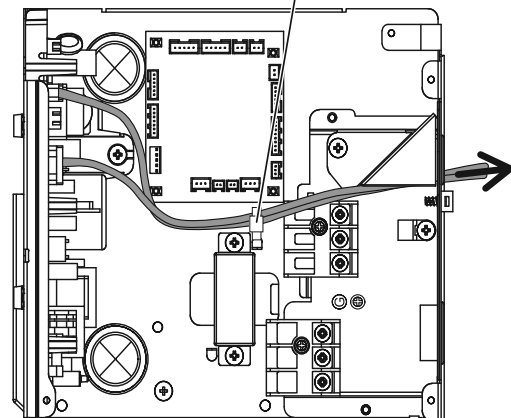
12.3. IR Receiver Unit (Optional parts)

Connection method
• Connection terminals

Reciever unit terminal (CN13)

• Wiring arrangement

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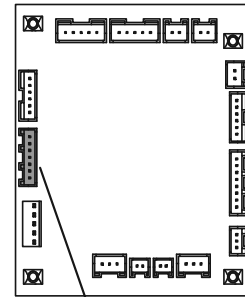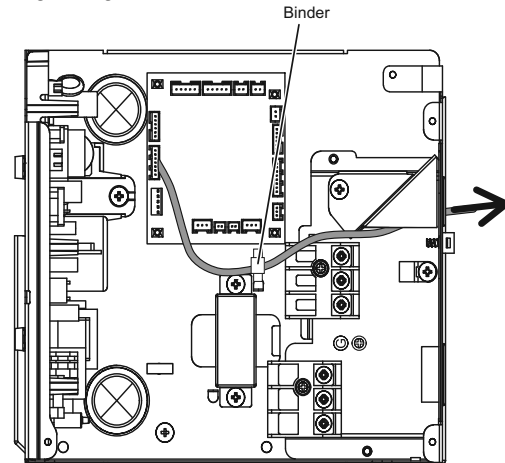
• Use 7 pins for receiver unit cable.
• At first, connect the receiver unit cable to the Receiver unit terminal (CN13).

Binder

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 type remote control, error codes will appear on the remote control display. If you use a wireless remote control, 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 table below. An error display is displayed only during operation.

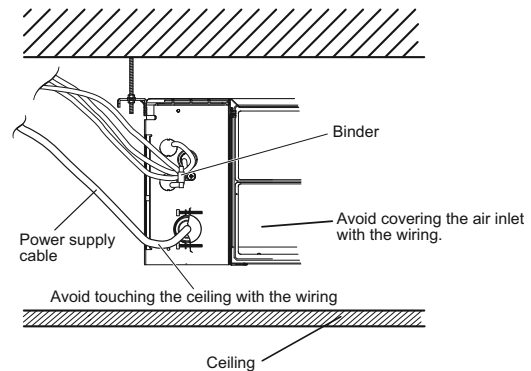| OPERATION lamp (green)	TIMER lamp (orange)	ECONOMY lamp (green)	Wired remote controller Error code	Mode	DESCRIPTION	Remark
● (1)	● (1)	◇	11	Communication	Serial communication error	•When the indoor unit cannot receive the signal from the branch unit •When the branch unit cannot receive the signal from 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 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 control 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 control LCD]

This is possible only on the wired remote control.

[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
```
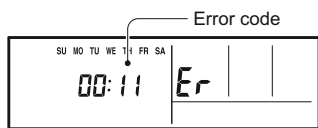
EX. Self-diagnosis

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 control 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 control signal code is changed from A to B, C, or D, it will change back to A when the batteries in the remote are replaced. Explain to the customer how to program the wireless remote for the correct signal code.