

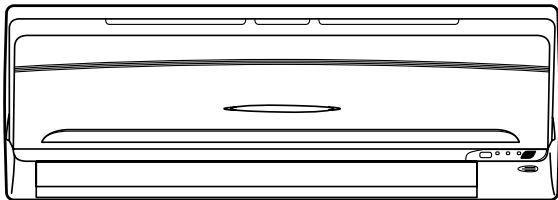
DAIKIN



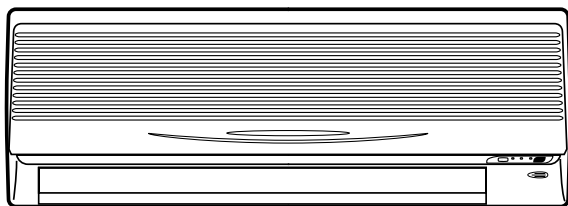
INSTALLATION MANUAL

R-410A Split Series

INVERTER



FTXS, FTKS, FTX, FTK, series.



ATXS, ATKS, ATX, ATK, series.

Models

FTXS25BVMB	FTKS25BVMB
FTXS35BVMB	FTKS35BVMB
FTX25BVMB	FTK25BVMB
FTX35BVMB	FTK35BVMB
ATXS25BVMB	ATKS25BVMB
ATXS35BVMB	ATKS35BVMB
ATX25BVMB	ATK25BVMB
ATX35BVMB	ATK35BVMB

Installation manual
R-410A Split series

English

Installationsanleitung
Split-Baureihe R-410A

Deutsch

Manuel d'installation
Série split R-410A

Français

Montagehandleiding
R-410A Split-systeem

Nederlands

Manual de instalación
Serie Split R-410A

Español

Manuale d'installazione
Serie Multiambienti R-410A

Italiano

Εγχειρίδιο εγκατάστασης
διαιρούμενης σειράς R-410A

Ελληνικά

Manual de Instalação
Série split R-410A

Portugues

Руководство по монтажу
Серия R-410A с раздельной установкой

Russian




Safety Precautions

- Read these Safety Precautions carefully to ensure correct installation.
- This manual classifies the precautions into WARNINGS and CAUTIONS.
Be sure to follow all the precautions below: they are all important for ensuring safety.

⚠ WARNINGSFailure to follow any of WARNING is likely to result in such grave consequences as death or serious injury.




⚠ CAUTIONS.....Failure to follow any of CAUTION may in some cases result in grave consequences.

- The following safety symbols are used throughout this manual:


 Be sure to observe this instruction.	 Be sure to establish an earth connection.	 Never attempt.
--	---	--

- After completing installation, test the unit to check for installation errors. Give the user adequate instructions concerning the use and cleaning of the unit according to the Operation Manual.

WARNINGS

- Installation should be left to the dealer or another professional.
Improper installation may cause water leakage, electrical shock, or fire.
- Install the air conditioner according to the instructions given in this manual.
Incomplete installation may cause water leakage, electrical shock, or fire.
- Be sure to use the supplied or specified installation parts.
Use of other parts may cause the unit to come to lose, water leakage, electrical shock, or fire.
- Install the air conditioner on a solid base that can support the unit's weight.
An inadequate base or incomplete installation may cause injury in the event the unit falls off the base.
- Electrical work should be carried out in accordance with the installation manual and the national electrical wiring rules or code of practice. Insufficient capacity or incomplete electrical work may cause electrical shock or fire.
- Be sure to use a dedicated power circuit. Never use a power supply shared by another appliance.
- For wiring, use a cable long enough to cover the entire distance with no connection.
Do not use an extension cord. Do not put other loads on the power supply, use a dedicated power circuit.
(Failure to do so may cause abnormal heat, electric shock or fire.)
- Use the specified types of wires for electrical connections between the indoor and outdoor units.
Firmly clamp the interconnecting wires so their terminals receive no external stresses. Incomplete connections or clamping may cause terminal overheating or fire.
- After connecting interconnecting and supply wiring be sure to shape the cables so that they do not put undue force on the electrical covers or panels.
Install covers over the wires. Incomplete cover installation may cause terminal overheating, electrical shock, or fire.
- If any refrigerant has leaked out during the installation work, ventilate the room.
(The refrigerant produces a toxic gas if exposed to flames.) 
- After all installation is complete, check to make sure that no refrigerant is leaking out.
(The refrigerant produces a toxic gas if exposed to flames.) 
- When installing or relocating the system, be sure to keep the refrigerant circuit free from substances other than the specified refrigerant (R-410A), such as air.
(Any presence of air or other foreign substance in the refrigerant circuit causes an abnormal pressure rise or rupture, resulting in injury.)
- Be sure to establish an earth. Do not earth the unit to a utility pipe, arrester, or telephone earth.
Incomplete earth may cause electrical shock. A high surge current from lightning or other sources may cause damage to the air conditioner. 
- Be sure to install an earth leakage breaker.
Failure to install an earth leakage breaker may result in electric shocks.

CAUTIONS

- Do not install the air conditioner in a place where there is danger of exposure to inflammable gas leakage.
If the gas leaks and builds up around the unit, it may catch fire. 
- Establish drain piping according to the instructions of this manual.
Inadequate piping may cause flooding.
- Note for installing the outdoor unit. (For heat pump model only.)
In cold area where the outside air temperature keep below or around freezing-point for a few days, the outdoor unit's drain may freeze.
If so, it is recommended to install an electric heater in order to protect drain from freezing.
- Tighten the flare nut according to the specified method such as with a torque wrench.
If the flare nut is tightened too hard, the flare nut may crack after a long time and cause refrigerant leakage.

Accessories

Indoor unit (A) – (L)

(A) Mounting plate	1	(D) Wireless remote controller	1	(H) Indoor unit fixing screws (M4 x 12L)	2
(B) Air purifying filter (FTX25/35, FTK25/35 ATX25/35, ATK25/35)	2	(E) Remote control holder	1	(K) Operation manual	1
(C) Air purifying filter Photocatalytic deodorizing filter (FTXS25/35, FTKS25/35 ATXS25/35, ATKS25/35)	2	(G) AAA dry-cell batteries	2	(L) Installation manual	1

Choosing a Site

- Before choosing the installation site, obtain user approval.

1. Indoor unit.

- The indoor unit should be sited in a place where:
 - 1) the restrictions on installation specified in the indoor unit installation drawings are met,
 - 2) both air intake and exhaust have clear paths met,
 - 3) the unit is not in the path of direct sunlight,
 - 4) the unit is away from the source of heat or steam,
 - 5) there is no source of machine oil vapour (this may shorten indoor unit life),
 - 6) cool air is circulated throughout the room,
 - 7) the unit is away from electronic ignition type fluorescent lamps (inverter or rapid start type) as they may shorten the remote control range,
 - 8) the unit is at least 1 metre away from any television or radio set (unit may cause interference with the picture or sound).

2. Wireless remote controller.

- 1) Turn on all the fluorescent lamps in the room, if any, and find the site where remote control signals are properly received by the indoor unit (within 7 metres).

Installation Tips

1. How to remove the front grille.

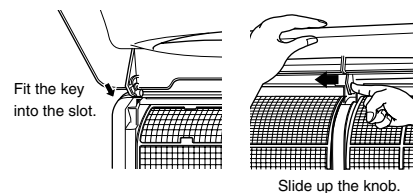
- 1) Hold the grille by the tabs on the two sides and lift it until it stops with a click.
- 2) Supporting the front grille with one hand, release the lock by sliding down the knob with the other hand.
- 3) To remove the front grille, pull it toward yourself with both hands.



Installation Tips

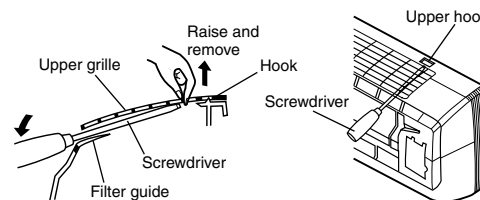
2. How to attach the front grille.

- 1) Set the 3 keys of the front grille into the slots and push them in all the way.
- 2) Supporting the front grille with one hand, fit the lock by sliding up the knob with the other hand.
- 3) Close the front grille slowly in this state.
(Push the grille at the 3 points, two at both sides and in the middle.)



3. How to remove the front panel.

- 1) Open the front grille.
- 2) Remove the screws (2 pcs) on the front panel.
- 3) Pull the lower part of the front panel toward you, then remove the front panel completely.
(There are 2 hooks on the upper part.)
If it is difficult to remove, open the front grille and raise the top grid, using a screwdriver, to unhook the hooks.



4. How to attach the front panel.

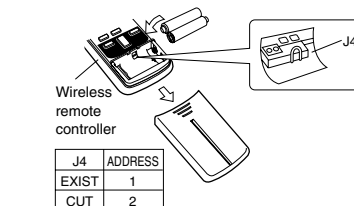
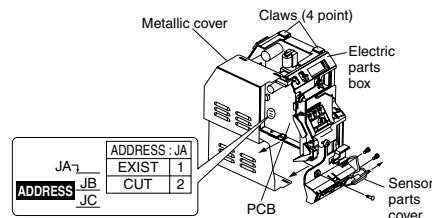
- 1) Attach the front panel to the front grille, and lock the upper hooks (2 points) securely.
- 2) Tighten the screws (2 pcs) on the front panel.
- 3) Close the front grille.

5. How to set te different addresses.

- 1) When two indoor units are installed in one room, the two wireless remote controllers can be set for different addresses.

6. PCB in the indoor unit.

- 1) Remove the front panel.
- 2) Remove the sensor parts cover (2-screws), then remove the electric parts box (1-screw).
- 3) Slide the metallic cover to remove it. (4-claws on the electric parts box).
- 4) Cut the jumper JA on PCB.



7. Wireless remote controller.

- 1) Cut the jumper J4.

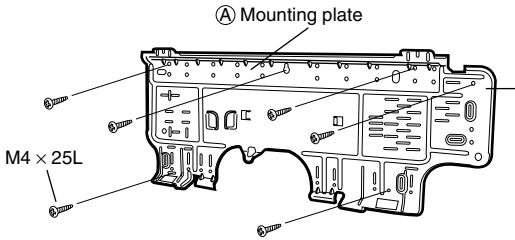
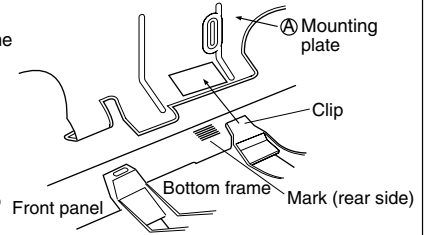
Indoor Unit Installation Drawings

■ How to attach the indoor unit.

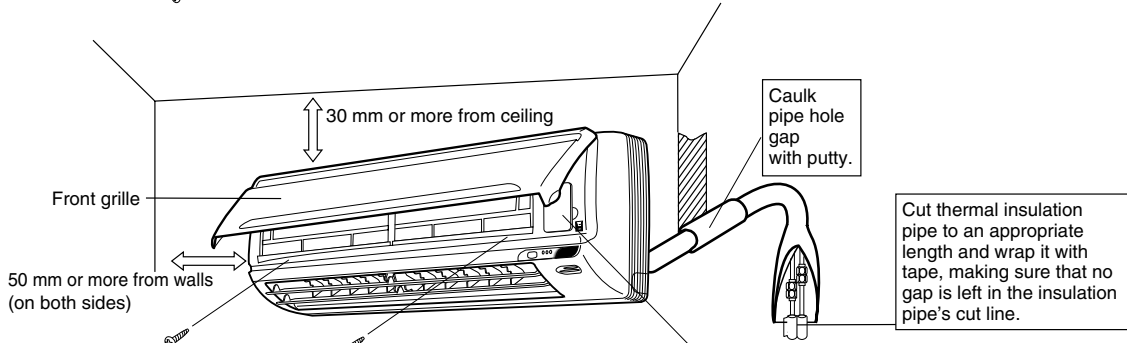
Hook the claws of the bottom frame to the mounting plate.
If the claws are difficult to hook, remove the front panel.

■ How to remove the indoor unit.

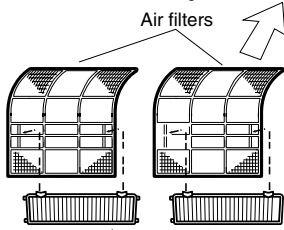
Push up the marked area (at the lower part of the front panel) to release the claws. If it is difficult to release, remove the front panel.



The mounting plate should be installed on a wall which can support the weight of the indoor unit.



Cut thermal insulation pipe to an appropriate length and wrap it with tape, making sure that no gap is left in the insulation pipe's cut line.



Appearance of the indoor unit may differ from some models.

Service lid

This service lid is an open/close type.

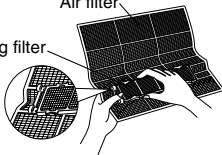
- Remove the screws on the service lid.
- Slide the service lid leftward.
- Rotate the service lid upward.



ⓑ Air purifying filters

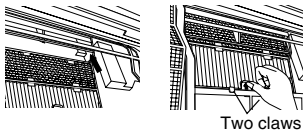
Install air purifying filter on air filter

ⓐ Air purifying filter



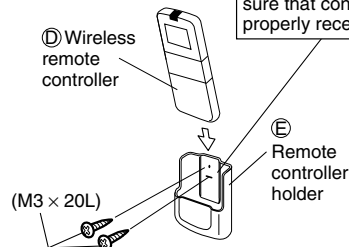
(FTX25/35, FTK25/35
ATX25/35, ATK25/35)

Turn the photocatalytic deodorizing filter (gray) so that it is facing up, then attach it by running it along the indoor unit's guide, push slightly on the grips, align the two claws with the guide holes, and insert the claws on the grips.



(FTXS25/35, FTKS25/35
ATXS25/35, ATKS25/35)

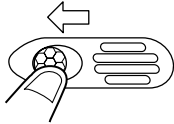
Before screwing the remote control holder to the wall, make sure that control signals are properly received by indoor unit.



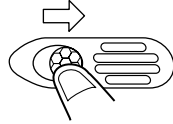
Intelligent-Eye Sensor

1. Adjusting the angle.

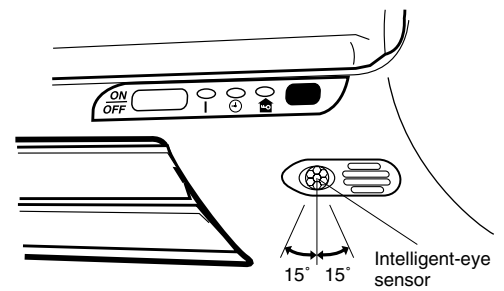
- 1) Once installation of the indoor unit is complete, adjust the angle of the Intelligent-eye sensor to ensure the detection area properly covers the room. (Adjustable angle: 15° to right and left of centre)
- 2) Gently push and slide the sensor to adjust the angle. Aim so that the sensor is pointing to the centre of the room, or to the part of the room that is most frequently used.



Moving the sensor to the left



Moving the sensor to the right



- 3) After adjusting the angle, gently wipe the sensor with a clean cloth, being careful not to scratch the sensor.

■ Caution

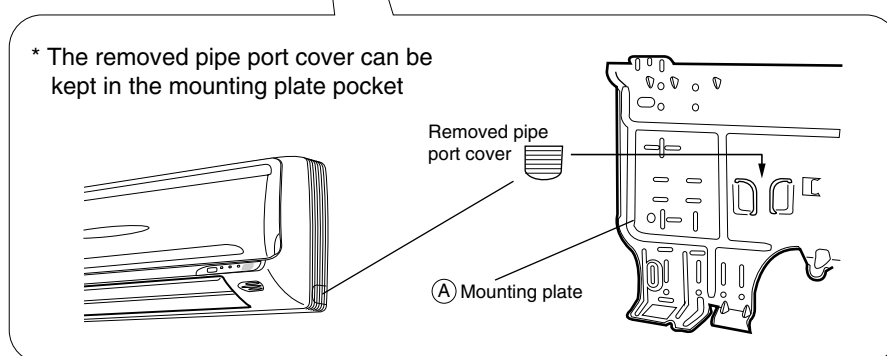
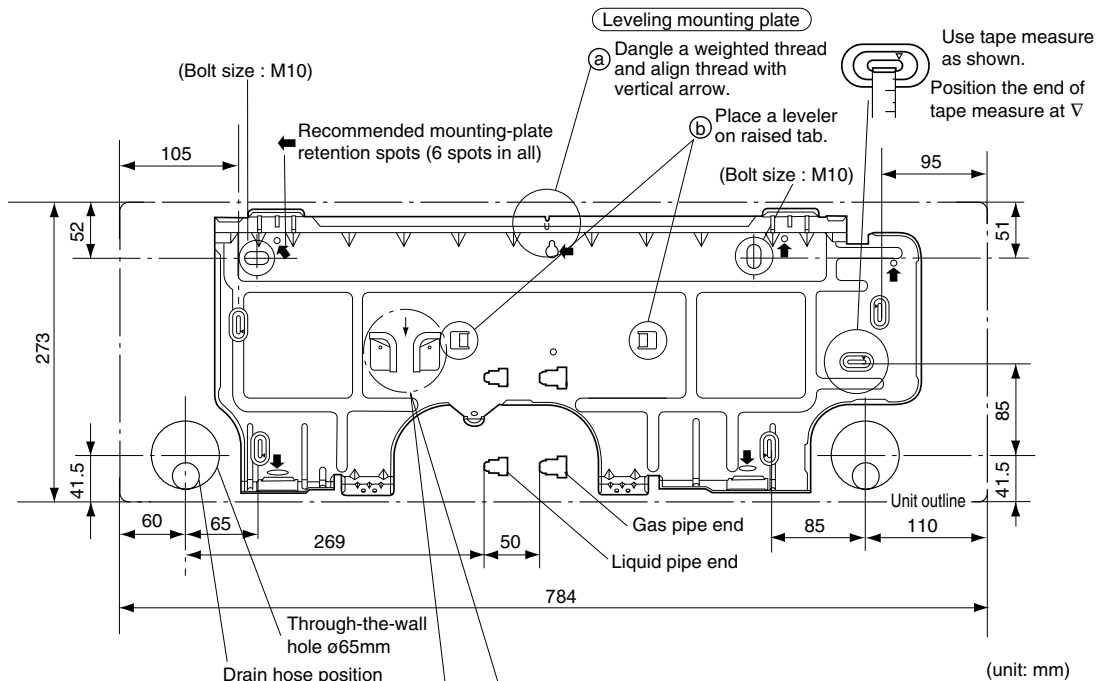
- 1) Do not hit or violently push the Intelligent-eye sensor. This can lead to damage and malfunction.
- 2) Do not place large objects near the sensor. Also keep heating units or humidifiers outside the sensor's detection area.

Indoor Unit Installation

1. Installing the mounting plate.

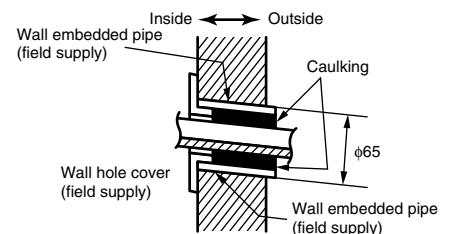
- The mounting plate should be installed on a wall which can support the weight of the indoor unit.
 - Temporarily secure the mounting plate to the wall, make sure that the panel is completely level, and mark the boring points on the wall.
 - Secure the mounting plate to the wall with screws.

Recommended mounting-plate retention spots and Dimensions



2. Boring a wall hole and installing wall embedded pipe.

- For walls containing metal frame or metal board, be sure to use a wall embedded pipe and wall cover in the feed-through hole to prevent possible heat, electrical shock, or fire.
- Be sure to caulk the gaps around the pipes with caulking material to prevent water leakage.
 - Bore a feed-through hole of 65 mm in the wall so it has a down slope toward the outside.
 - Insert a wall pipe into the hole.
 - Insert a wall cover into wall pipe.
 - After completing refrigerant piping, wiring, and drain piping, caulk pipe hole gap with putty.

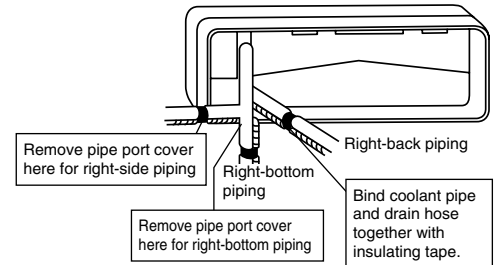


Indoor Unit Installation

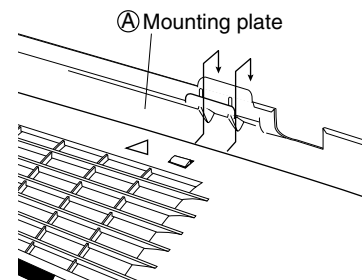
3. Installing indoor unit.

3-1. Right-Side, Right-Back, or Right-Bottom Piping

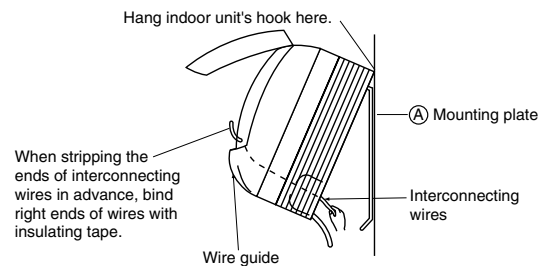
- 1) Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
- 2) Wrap the refrigerant pipes and drain hose together with insulation tape.



- 3) Pass the drain hose and refrigerant pipes through the wall hole, then set the indoor unit on the mounting plate hooks by using the Δ markings at the top of the indoor unit as a guide.

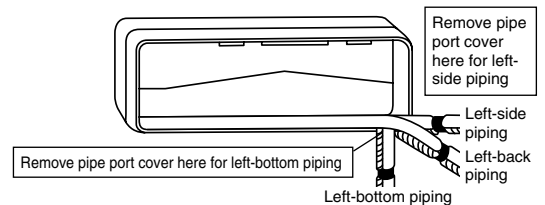


- 4) Open the front grille, then open the service lid. (Refer to Installation tips)
- 5) Pass the interconnecting wires from the outdoor unit through the feed-through wall hole and then through the back of the indoor unit. Pull them through the front side. Bend the ends of tie wires upward in advance for easier work. (If the interconnecting wire ends are to be stripped first, bundle wire ends with adhesive tape.)
- 6) Press the indoor unit's bottom panel with both hands to set it on the mounting plate hooks. Make sure the wires do not catch on the edge of the indoor unit.



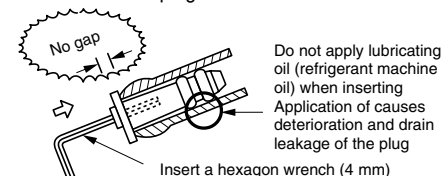
3-2. Left-Side, Left-Back, or Left Bottom Piping

- 1) Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.

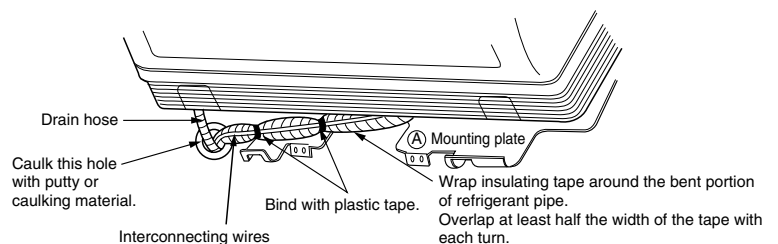


- 2) Be sure to connect the drain hose to the drain port in place of a drain plug.

How to set drain plug

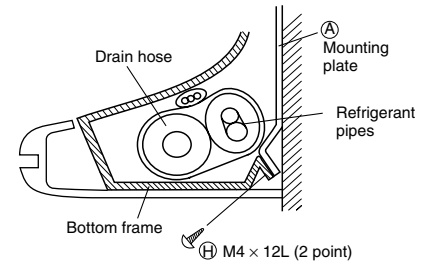


- 3) Shape the refrigerant pipe along the pipe path marking on the mounting plate.
- 4) Pass drain hose and refrigerant pipes through the wall hole, then set the indoor unit on mounting plate hooks, using the Δ markings at the top of indoor unit as a guide.
- 5) Pull in the interconnecting wires.
- 6) Connect the inter-unit piping.



Note:

- 1) Wrap the refrigerant pipes and drain hose together with insulation tape as right figure, in case of setting the drain hose through the back of the indoor unit.
- 2) If it difficult to fix the claws of the bottom frame on the catches of the mounting plate. Secure indoor unit to the mounting plate with screws (M4 × 12L).

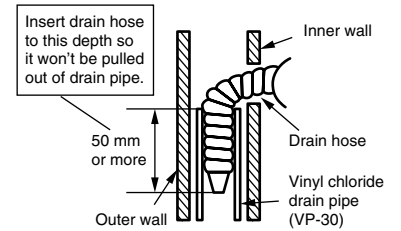


3-3. Wall Embedded Piping

Follow the instructions given under

Left-Side, Left-Back, or Left Bottom Piping

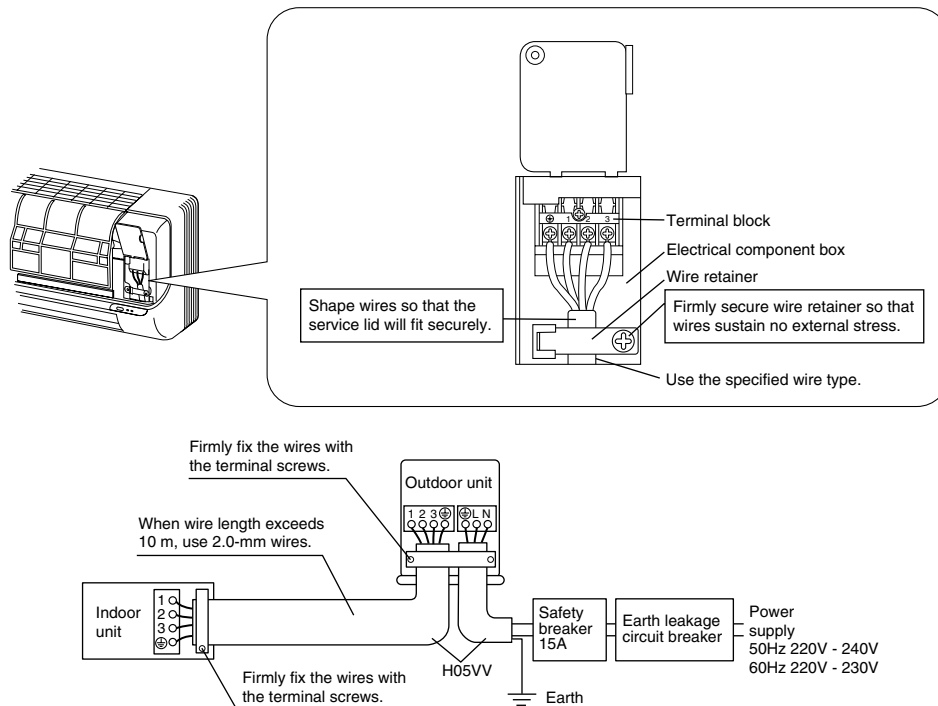
- 1) Insert the drain hose to this depth so it won't be pulled out of the drain pipe.



4. Wiring.

With a Multi indoor unit , install as described in the installation manual supplied with the Multi outdoor unit.

- 1) Strip wire ends (15 mm).
- 2) Match wire colours with terminal numbers on indoor and outdoor unit's terminal blocks and firmly screw wires to the corresponding terminals.
- 3) Connect the earth wires to the corresponding terminals.
- 4) Pull wires to make sure that they are securely latched up, then retain wires with wire retainer.
- 5) Shape the wires so that the service lid fits securely, then close service lid.



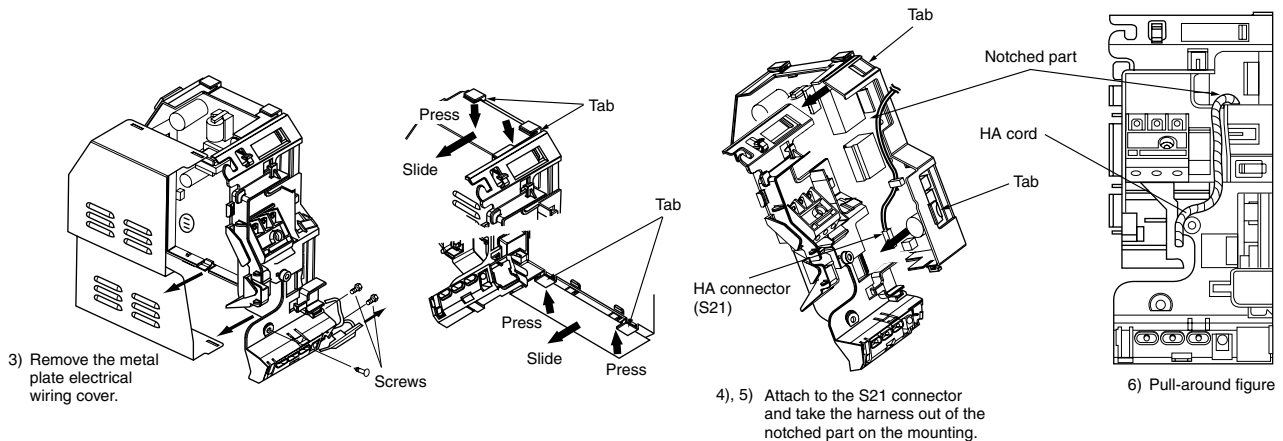
Warning

Do not use taped wires, stand wires, extensioncords, or starburst connections, as they may cause overheating, electrical shock, or fire.

Indoor Unit Installation

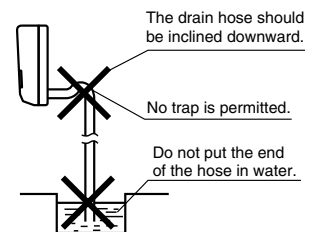
5. When connecting to an HA system.

- 1) Remove the front grille. (2 screws)
- 2) Remove the electrical wiring box. (3 screws)
- 3) Remove the metal plate electrical wiring cover. (4 tabs)
- 4) Remove the resin plastic electrical wiring cover. (2 tabs)
- 5) Attach the connection cord to the S21 connector and pull the harness out through the notched part in the figure.
- 6) Replace the electrical wiring cover as it was, and pull the harness around, as shown in the figure.

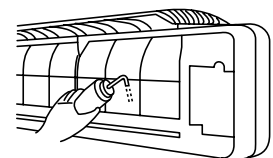


6. Drain piping.

- 1) Connect the drain hose, as described below.

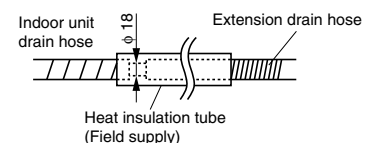


- 2) Remove the air filters and pour some water into the drain pan to check the water flows smoothly.

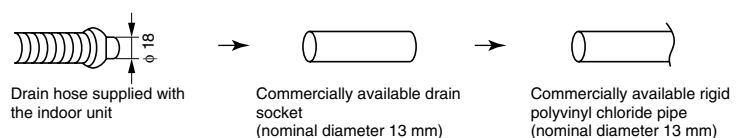


- 3) When drain hose requires extension, obtain an extension hose commercially available.

Be sure to thermally insulate the indoor section of the extension hose.



- 4) When connecting a rigid polyvinyl chloride pipe (nominal diameter 13 mm) directly to the drain hose attached to the indoor unit as with embedded piping work, use any commercially available drain socket (nominal diameter 13 mm) as a joint.

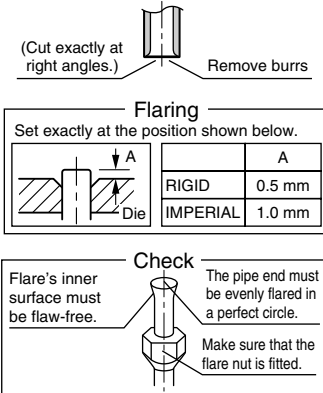


Refrigerant piping work

With a Multi indoor unit, install as described in the installation manual supplied with the Multi outdoor unit.

1. Flaring the pipe end.

- 1) Cut the pipe end with a pipe cutter.
- 2) Remove burrs with the cut surface facing downward so that the chips do not enter the pipe.
- 3) Put the flare nut on the pipe.
- 4) Flare the pipe.
- 5) Check that the flaring is properly made.

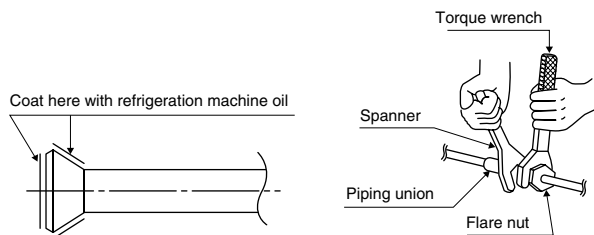


Warning

- 1) Do not use mineral oil on flared part.
- 2) Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.
- 3) Never use piping which has been used for previous installations. Only use parts which are delivered with the unit.
- 4) Do never install a drier to this R-410A unit in order to guarantee its lifetime.
- 5) The drying material may dissolve and damage the system.
- 6) Incomplete flaring may cause refrigerant gas leakage.

2. Refrigerant piping.

- 1) Align the centres of both flares and tighten the flare nuts 3 or 4 turns by hand. Then tighten them fully with the torque wrenches.
 - Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and escaping gas.



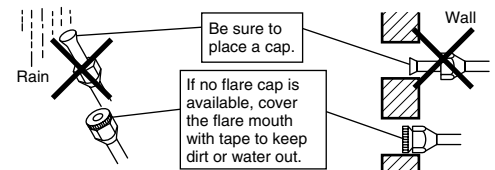
Flare nut tightening torque	
Gas side	Liquid side
3/8 inch	1/4 inch
32.7-39.9N • m (333-407kgf • cm)	14.2-17.2N • m (144-175kgf • cm)

Valve cap tightening torque	
Gas side	Liquid side
3/8 inch	1/4 inch
21.6-27.4N • m (220-280kgf • cm)	21.6-27.4N • m (220-280kgf • cm)

- 2) To prevent gas leakage, apply refrigeration machine oil on both inner and outer surfaces of the flare. (Use refrigeration oil for R-410A)

2-1. Caution on Piping Handling

- 1) Protect the open end of the pipe against dust and moisture.
- 2) All pipe bends should be as gentle as possible. Use a pipe bender for bending.
(Bending radius should be 30 to 40 mm or larger.)



Refrigerant piping work

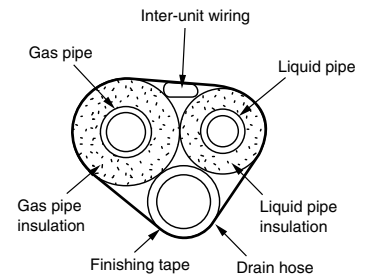
2-2. Selection of Copper and Heat Insulation materials

- When using commercial copper pipes and fittings, observe the following:

- Insulation material: Polyethylene foam
Heat transfer rate: 0.041 to 0.052kW/mK (0.035 to 0.045 kcal/mh°C)
Refrigerant gas pipe's surface temperature reaches 110°C max.
Choose heat insulation materials that will withstand this temperature.
- Be sure to insulate both the gas and liquid piping and to provide insulation dimensions as below.

Gas side	Liquid side	Gas pipe thermal insulation	Liquid pipe thermal insulation
25 class / 35 class		25 class / 35 class	
O.D. 9.5mm	O.D. 6.4mm	I.D. 12-15mm	I.D. 8-10mm
Thickness 0.8mm		Thickness 10mm Min.	

- Use separate thermal insulation pipes for gas and liquid refrigerant pipes.



Trial Operation and Testing

1. Trial Operation and Testing.

1-1 Measure the supply voltage and make sure that it falls in the specified range.

1-2 Trial operation should be carried out in either cooling or heating mode.

■ For Heat pump

- In cooling mode, select the lowest programmable temperature; in heating mode, select the highest programmable temperature.

- 1) Trial operation may be disabled in either mode depending on the room temperature.
- 2) After trial operation is complete, set the temperature to a normal level (26°C to 28°C in cooling mode, 20°C to 24°C in heating mode).
- 3) For protection, the system disables restart operation for 3 minutes after it is turned off.

■ For Cooling only

- Select the lowest programmable temperature.

- 1) Trial operation in cooling mode may be disabled depending on the room temperature. Use the remote control for trial operation as described below.
- 2) After trial operation is complete, set the temperature to a normal level (26°C to 28°C).
- 3) For protection, the unit disables restart operation for 3 minutes after it is turned off.

1-3 Carry out the test operation in accordance with the Operation Manual to ensure that all functions and parts, such as louver movement, are working properly.

- The air conditioner requires a small amount of power in its standby mode. If the system is not to be used for some time after installation, shut off the circuit breaker to eliminate unnecessary power consumption.
- If the circuit breaker trips to shut off the power to the air conditioner, the system will restore the original operation mode when the circuit breaker is opened again.

2. Trial Operation from Remote Controller.

1) Press ON/OFF button to turn on the system.

2) Simultaneously press center of TEMP button and MODE button.

3) Press MODE button twice.

("T" will appear on the display to indicate that Trial Operation mode is selected.)

4) Trial run mode terminates in approx. 30 minutes and switches into normal mode. To quit a trial operation, press ON/OFF button.

3. Test Items.

Test Items	Symptom (diagnostic display on RC)	Check
Indoor and outdoor units are installed properly on solid bases.	Fall, vibration, noise	
No refrigerant gas leaks.	Incomplete cooling/heating function	
Refrigerant gas and liquid pipes and indoor drain hose extension are thermally insulated.	Water leakage	
Draining line is properly installed.	Water leakage	
System is properly earthed.	Electrical leakage	
The specified wires are used for interconnecting wire connections.	Inoperative or burn damage	
Indoor or outdoor unit's air intake or exhaust has clear path of air. Shut-off valves are opened.	Incomplete cooling/heating function	
Indoor unit properly receives remote control commands.	Inoperative	

DAIKIN INDUSTRIES, LTD.

Head office:

Umeda Center Bldg., 4-12, Nakazaki-Nishi 2 chome,
Kita-ku, Osaka, 530-8323 Japan

Tokyo office:

Shinjuku Sumitomo Bldg., 6-1 Nishi-Shinjuku
2-chome, Shinjuku-ku, Tokyo, 163-0235 Japan
<http://www.daikin.com/global/>

DAIKIN EUROPE NV

Zandvoordestraat 300, B-8400 Oostende, Belgium