

# INSTALLATION MANUAL

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## **VRV** SYSTEM Inverter Air Conditioners

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### MODELS

Ceiling Mounted Cassette type (Multi Flow)

**FXZQ05TBVJU**

**FXZQ07TBVJU**

**FXZQ09TBVJU**

**FXZQ12TBVJU**

**FXZQ15TBVJU**

**FXZQ18TBVJU**

English

Français

Español

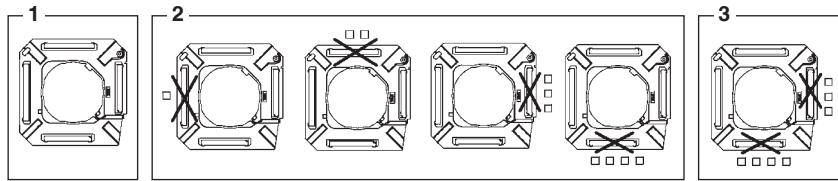
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Read these instructions carefully before installation.  
Keep this manual in a handy place for future reference.  
This manual should be left with the equipment owner.

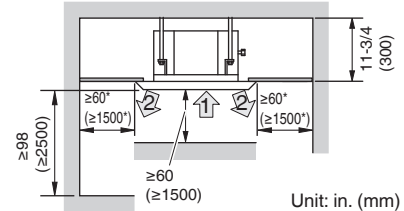
Lire soigneusement ces instructions avant l'installation.  
Conserver ce manuel à portée de main pour référence ultérieure.  
Ce manuel doit être donné au propriétaire de l'équipement.

Lea cuidadosamente estas instrucciones antes de instalar.  
Guarde este manual en un lugar a mano para leer en caso de tener alguna duda.  
Este manual debe permanecer con el propietario del equipo.

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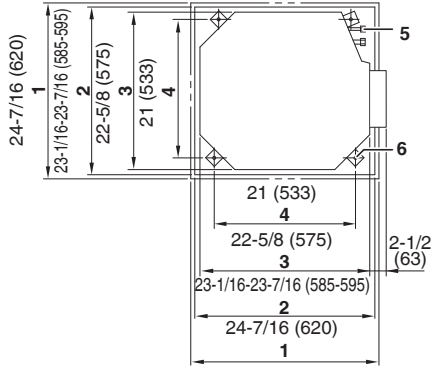


X: Sealing member of air discharge outlet

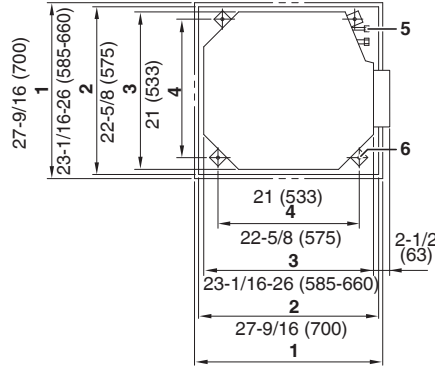


Unit: in. (mm)

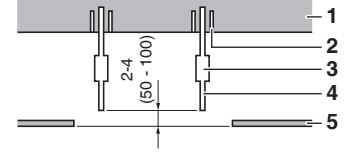
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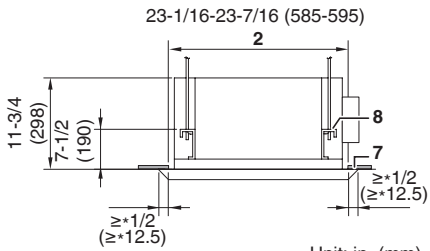


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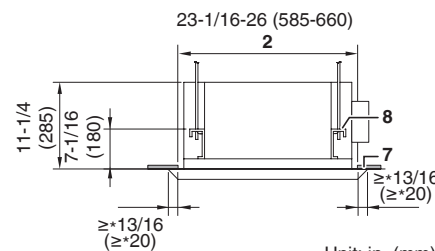


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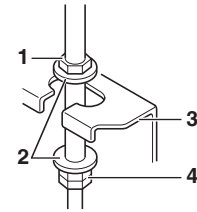
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Unit: in. (mm)



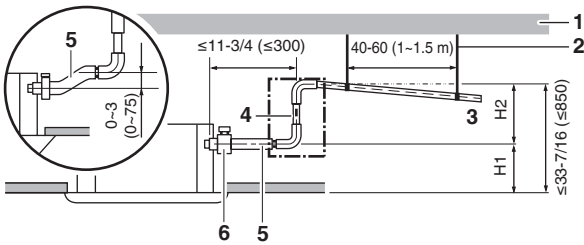
Unit: in. (mm)



3.1

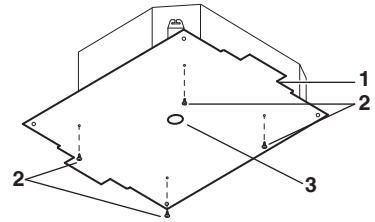
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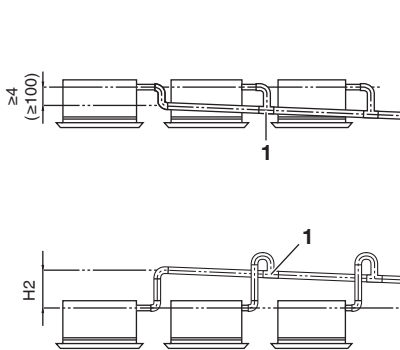
	H1	H2
BYFQ60C3	8-11/16 (220)	≤24-13/16 (≤630)
BYFQ60B3	8-1/16 (205)	≤25-3/8 (≤645)

Unit: in. (mm)



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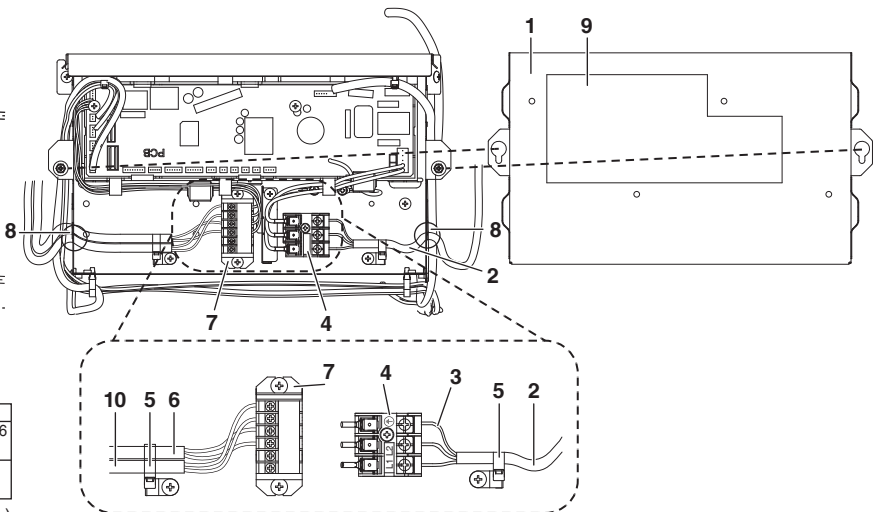
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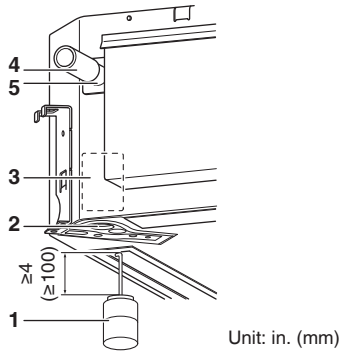
	H2
BYFQ60C3	≤24-13/16 (≤630)
BYFQ60B3	≤25-3/8 (≤645)

Unit: in. (mm)

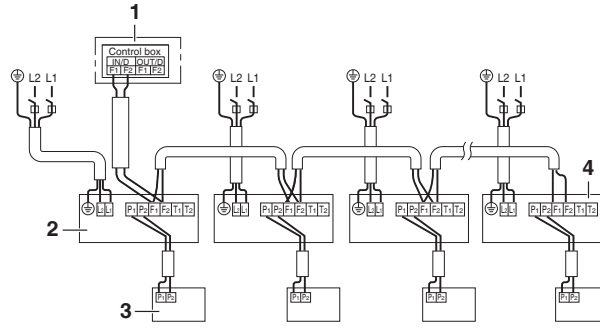
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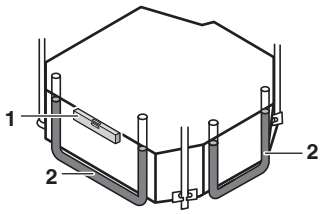
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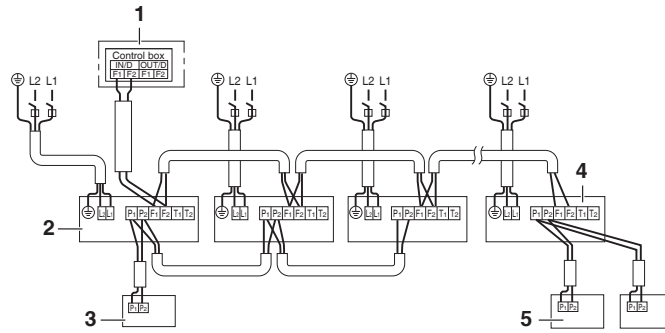
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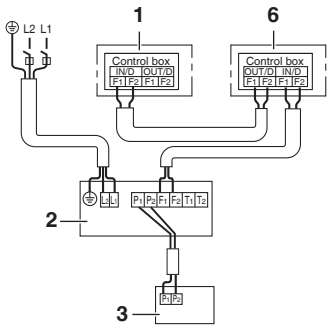
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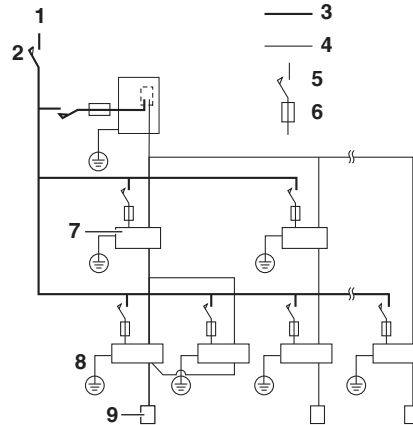
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## SAFETY CONSIDERATIONS

Read these **SAFETY CONSIDERATIONS for Installation** carefully before installing air conditioning equipment. After completing the installation, make sure that the unit operates properly during the startup operation.

Instruct the customer on how to operate and maintain the unit. Inform customers that they should store this Installation Manual with the Operation Manual for future reference.

Always use a licensed installer or contractor to install this product. Improper installation can result in water or refrigerant leakage, electric shock, fire, or explosion.

Meanings of **DANGER**, **WARNING**, **CAUTION**, and **NOTE** Symbols:



**DANGER** .....Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING** .....Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION** .....Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



**NOTE** .....Indicates situations that may result in equipment or property damage accidents only.



### DANGER

- Refrigerant gas is heavier than air and replaces oxygen. A massive leak can lead to oxygen depletion, especially in basements, and an asphyxiation hazard could occur leading to serious injury or death.
- Do not ground units to water pipes, gas pipes, telephone wires, or lightning rods as incomplete grounding can cause a severe shock hazard resulting in severe injury or death. Additionally, grounding to gas pipes could cause a gas leak and potential explosion causing severe injury or death.
- If refrigerant gas leaks during installation, ventilate the area immediately. Refrigerant gas may produce toxic gas if it comes in contact with fire. Exposure to this gas could cause severe injury or death.
- After completing the installation work, check that the refrigerant gas does not leak throughout the system.
- Do not install unit in an area where flammable materials are present due to risk of explosions that can cause serious injury or death.
- Safely dispose of all packing and transportation materials in accordance with federal/state/local laws or ordinances. Packing materials such as nails and other metal or wood parts, including plastic packing materials used for transportation may cause injury or death by suffocation.



### WARNING

- Only qualified personnel must carry out the installation work. Installation must be done in accordance with this installation manual. Improper installation may result in water leakage, electric shock, or fire.
- When installing the unit in a small room, take measures to keep the refrigerant concentration from exceeding allowable safety limits. Excessive refrigerant leaks, in the event of an accident in a closed ambient space, can lead to oxygen deficiency.
- Use only specified accessories and parts for installation work. Failure to use specified parts may result in water leakage, electric shock, fire, or the unit falling.
- Install the air conditioner or heat pump on a foundation strong enough that it can withstand the weight of the unit. A foundation of insufficient strength may result in the unit falling and causing injury.
- Take into account strong winds, typhoons, or earthquakes when installing. Improper installation may result in the unit falling and causing accidents.
- Make sure that a separate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local, state and national regulations. An insufficient power supply capacity or improper electrical construction may lead to electric shock or fire.
- Make sure that all wiring is secured, that specified wires are used, and that no external forces act on the terminal connections or wires. Improper connections or installation may result in fire.
- When wiring, position the wires so that the control box cover can be securely fastened. Improper positioning of the control box cover may result in electric shock, fire, or the terminals overheating.
- Before touching electrical parts, turn off the unit.
- This equipment can be installed with a Ground-Fault Circuit Interrupter (GFCI). Although this is a recognized measure for additional protection, with the grounding system in North America, a dedicated GFCI is not necessary.
- When installing or relocating the system, keep the refrigerant circuit free from substances other than the specified refrigerant (R410A) such as air. Any presence of air or other foreign substance in the refrigerant circuit can cause an abnormal pressure rise or rupture, resulting in injury.
- Do not change the setting of the protection devices. If the pressure switch, thermal switch, or other protection device is shorted and operated forcibly, or parts other than those specified by Daikin are used, fire or explosion may occur.
- Do not install in a wet room such as a bathroom or laundry room due to a risk of fire or electric shock.

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**⚠ CAUTION**

- Do not touch the switch with wet fingers. Touching a switch with wet fingers can cause electric shock.
- Do not allow children to play on or around the unit to prevent injury.
- Do not touch the refrigerant pipes during and immediately after operation as the refrigerant pipes may be hot or cold, depending on the condition of the refrigerant flowing through the refrigerant piping, compressor, and other refrigerant cycle parts. Your hands may suffer burns or frostbite if you touch the refrigerant pipes. To avoid injury, give the pipes time to return to normal temperature or, if you must touch them, be sure to wear proper gloves.
- Heat exchanger fins are sharp enough to cut. To avoid injury wear gloves or cover the fins when working around them.
- Install drain piping to proper drainage. Improper drain piping may result in water leakage and property damage.
- Insulate piping to prevent condensation.
- Be careful when transporting the product.
- Do not turn off the power supply immediately after stopping operation. Always wait for at least 5 minutes before turning off the power supply. Otherwise, water leakage may occur.
- Do not use a charging cylinder. Using a charging cylinder may cause the refrigerant to deteriorate.
- Refrigerant R410A in the system must be kept clean, dry, and tight.
  - (a) Clean and Dry - Foreign materials (including mineral oils such as SUNISO oil or moisture) should be prevented from getting into the system.
  - (b) Tight - R410A does not contain any chlorine, does not destroy the ozone layer, and does not reduce the earth's protection against harmful ultraviolet radiation. R410A can contribute to the greenhouse effect if it is released. Therefore take proper measures to check for the tightness of the refrigerant piping installation. Read the chapter Refrigerant Piping Work and follow the procedures.
- Since R410A is a blend, the required additional refrigerant must be charged in its liquid state. If the refrigerant is charged in a gaseous state, its composition can change and the system will not work properly.
- The indoor unit is for R410A. See the catalog for indoor models that can be connected. Normal operation is not possible when connected to other units.
- Handheld remote controller (wireless kit) transmitting distance can be shorter than expected in rooms with electronic fluorescent lamps (inverter or rapid start types). Install the indoor unit far away from fluorescent lamps as much as possible.
- Indoor units are for indoor installation only. Outdoor units can be installed either outdoors or indoors.
- Do not install the air conditioner or heat pump in the following locations:
  - (a) Where a mineral oil mist or oil spray or vapor is produced, for example, in a kitchen. Plastic parts may deteriorate and fall off or result in water leakage.

- (b) Where corrosive gas, such as sulfurous acid gas, is produced. Corroding copper pipes or soldered parts may result in refrigerant leakage.
- (c) Near machinery emitting electromagnetic waves. Electromagnetic waves may disturb the operation of the control system and cause the unit to malfunction.
- (d) Where flammable gas may leak, where there is carbon fiber, or ignitable dust suspension in the air, or where volatile flammables such as thinner or gasoline are handled. Operating the unit in such conditions can cause a fire.

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**⚠ NOTE**

- Install the power supply and transmission wires for the indoor and outdoor units at least 3.5 ft. (1 m) away from televisions or radios to prevent image interference or noise. Depending on the radio waves, a distance of 3.5 ft. (1 m) may not be sufficient to eliminate the noise.
  - Dismantling the unit, treatment of the refrigerant, oil and additional parts must be done in accordance with the relevant local, state, and national regulations.
  - Do not use the following tools that are used with conventional refrigerants: gauge manifold, charge hose, gas leak detector, reverse flow check valve, refrigerant charge base, vacuum gauge, or refrigerant recovery equipment.
  - If the conventional refrigerant and refrigerator oil are mixed in R410A, the refrigerant may deteriorate.
  - This air conditioner or heat pump is an appliance that should not be accessible to the general public.
  - As design pressure is 580 psi (4.0 MPa), the wall thickness of field-installed pipes should be selected in accordance with the relevant local, state, and national regulations.
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Read these instructions carefully before installation. Keep this manual in a handy place for future reference.

Improper installation or attachment of equipment or accessories could result in electric shock, short-circuit, leak, fire or other damage to the equipment. Be sure only to use accessories made by DAIKIN which are specifically designed for use with the equipment and have them installed by a professional.

If unsure of installation procedures or use, always contact your DAIKIN dealer for advice and information.

The English text is the original instruction. Other languages are translations of the original instructions.

## Before installation

■ Leave the unit inside its packaging until you reach the installation site. Where unpacking is unavoidable, use a sling of soft material or protective plates together with a rope when lifting, this to avoid damage or scratches to the unit.

When unpacking the unit or when moving the unit after unpacking, be sure to lift the unit by holding on to the hanger bracket without exerting any pressure on other parts, especially on refrigerant piping, drain piping and other resin parts.

■ Refer to the installation manual of the outdoor unit for items not described in this manual.  
For installation of the outdoor unit and additional refrigerant charge, refer to the installation manual attached to the outdoor unit.

■ Caution concerning refrigerant series R410A:  
The connectable outdoor units must be designed exclusively for R410A.

## Precautions

■ This appliance is not intended for use by persons, including children, with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

■ This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.

■ Do not install or operate the unit in rooms mentioned below.

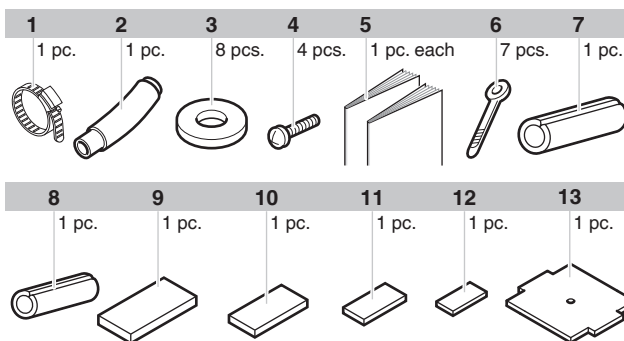
- Places with mineral oil, or filled with oil vapour or spray like in kitchens. (Plastic parts may deteriorate.)
- Where corrosive gas like sulphurous gas exists. (Copper tubing and brazed spots may corrode.)
- Where volatile flammable gas like thinner or gasoline is used.
- Where machines generating electromagnetic waves exist. (Control system may malfunction.)
- Where the air contains high levels of salt such as air near the ocean and where voltage fluctuates a lot (e.g. in factories). Also in vehicles or vessels.

■ When selecting the installation site, use the supplied paper pattern for installation.

■ Do not install accessories on the casing directly. Drilling holes in the casing may damage electrical wires and consequently cause fire.

## Accessories

Check if the following accessories are included with your unit.



- 1 Metal clamp
- 2 Drain hose
- 3 Washer for hanger bracket
- 4 Screw
- 5 Installation and operation manuals
- 6 Clamp
- 7 Insulation for fitting for gas pipe
- 8 Insulation for fitting for liquid pipe
- 9 Large sealing pad
- 10 Medium 1 sealing pad
- 11 Medium 2 sealing pad
- 12 Small sealing pad
- 13 Paper pattern for installation (cut out from upper part of packing)

## Optional accessories

- There are two types of remote controllers: wired and wireless. Select a remote controller according to customer's request and install in an appropriate place. Refer to catalogues and technical literature for selecting a suitable remote controller.
- This indoor unit always requires the optional decoration panel for installation. Depending on the panel, a separately-sold relay harness adapter may be necessary. For details, contact your Daikin dealer.

## For the following items, take special care during construction and check after installation is finished

Tick ✓ when checked	
<input type="checkbox"/>	Is the indoor unit fixed firmly? The unit may drop, vibrate or make noise.
<input type="checkbox"/>	Is the air tight test finished? It may result in insufficient cooling or heating.
<input type="checkbox"/>	Is the unit fully insulated? Condensate water may drip.
<input type="checkbox"/>	Does drainage flow smoothly? Condensate water may drip.
<input type="checkbox"/>	Does the power supply voltage correspond to that shown on the name plate? The unit may malfunction or components may burn out.
<input type="checkbox"/>	Are wiring and piping correct? The unit may malfunction or components may burn out.
<input type="checkbox"/>	Is the unit safely grounded? There may be danger of electric shock.
<input type="checkbox"/>	Is the wiring sized according to specifications? The unit may malfunction or components may burn out.
<input type="checkbox"/>	Is nothing blocking the air outlet or inlet of either the indoor or outdoor units? It may result in insufficient cooling or heating.
<input type="checkbox"/>	Are refrigerant piping length and additional refrigerant charge noted down? The refrigerant charge in the system might not be clear.

## Notes to the installer

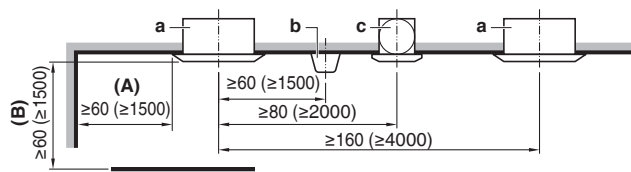
- Read this manual carefully to ensure correct installation. Be sure to instruct the customer how to properly operate the system and show him/her the enclosed operation manual.

## Selecting installation site

When the conditions in the ceiling are exceeding 86°F (30°C) and a relative humidity of 80%, or when fresh air is inducted into the ceiling, an additional insulation is required (minimum 3/8 in. (10 mm) thickness, polyethylene foam).

For this unit you can select different airflow directions. It is necessary to purchase an optional sealing member of air discharge outlet to discharge the air in 2 or 3 (closed corners) directions.

Install the unit so that air vents, lights, or machines near the unit do not interfere with the airflow.



Unit: in. (mm)

- a Indoor unit
- b Lighting  
The figure describes a surface mounted light, but a recessed ceiling light is not restricted.
- c Air fan
- A If the air outlet is closed, space marked (A) should be 8 in. (200 mm) at least.
- B  $\geq 60$  in. ( $\geq 1500$  mm) from any static obstruction

- 1 Select an installation site where the following conditions are fulfilled and that meets your customer's approval.
  - Where optimum air distribution can be ensured.
  - Where nothing blocks air passage.
  - Where condensate water can be properly drained.
  - Where the false ceiling is not noticeably on an incline.
  - Where sufficient clearance for maintenance and service can be ensured.
  - Where there is no risk of flammable gas leaking.
  - The equipment is not intended for use in a potentially explosive atmosphere.
  - Where piping between indoor and outdoor units is possible within the allowable limit. (Refer to the installation manual of the outdoor unit.)
  - Keep indoor unit, outdoor unit, transmission wiring and remote controller wiring at least 3.5 ft. (1 m) away from televisions and radios. This is to prevent image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if 3.5 ft. (1 m) is kept.)
  - When installing the wireless remote controller kit, the communication distance between wireless remote controller and indoor unit might be reduced if there are fluorescent lights (inverter or rapid start types) in the room. The indoor unit must be installed as far as possible away from fluorescent lights.
- 2 Ceiling height  
This indoor unit may be installed on ceilings up to 11-1/2 ft. (3.5 m) in height. However, it becomes necessary to make field settings using the remote controller when installing the unit at a height over 8-3/4 ft. (2.7 m). To avoid accidental touching, it is recommended to install the unit higher than 8-1/4 ft. (2.5 m). Refer to "Field setting" on page 8 and to the decoration panel installation manual.
- 3 Airflow directions  
Select the airflow directions best suited to the room and point of installation. (For air discharge in 3 directions, it is necessary to make field settings by means of the remote controller and to close the air outlet(s). Refer to the installation manual of the optional sealing member of air discharge outlet and to "Field setting" on page 8. (See figure 1)
  - 1 Air discharge in 4 directions
  - 2 Air discharge in 3 directions
  - 3 Air discharge in 2 directions

- 4 Use suspension bolts for installation. Check whether the ceiling is strong enough to support the weight of the indoor unit. If there is a risk, reinforce the ceiling before installing the unit.  
(The installation pitch is marked on the paper pattern for installation. Refer to it to check for points requiring reinforcing.)  
See figure 2 (↕: airflow direction) for space required for installation.

- 1 Air suction
- 2 Air discharge

**NOTE**



Leave 8 in. (200 mm) or more space where marked with \*, on sides where the air outlet is closed.

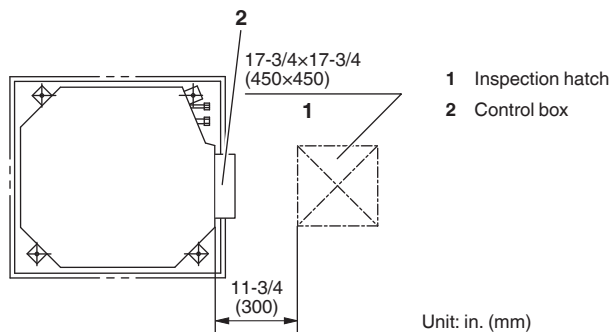
## Preparations before installation

- 1 Relation of ceiling opening to unit and suspension bolt position.

In case of decoration panel  
BYFQ60C3: See figure 3.1  
BYFQ60B3: See figure 3.2

- 1 Decoration panel dimensions
- 2 Ceiling opening dimensions
- 3 Indoor unit dimensions
- 4 Suspension bolt pitch dimensions
- 5 Refrigerant piping
- 6 Suspension bolt (x4)
- 7 False ceiling
- 8 Hanger bracket

- Install an inspection hatch on the control box side where maintenance and inspection of the control box and drain pump are easy.



In case of decoration panel BYFQ60B3

**NOTE**



Installation is possible with a ceiling dimension of 26 in. (660 mm). However, to achieve a ceiling-panel overlapping dimension of 13/16 in. (20 mm) (marked with \*), the spacing between the ceiling and the unit should be 1-12/16 in. (45 mm) or less. If the spacing between ceiling and the unit is over 1-12/16 in. (45 mm), attach ceiling material to the part or recover the ceiling.

- 2 Make the ceiling opening needed for installation where applicable. (For existing ceilings.)

- Refer to the paper pattern for installation for the ceiling opening dimensions.
- Create the ceiling opening required for installation. Implement the refrigerant and drain piping and wiring for remote controller (unnecessary for wireless type) and transmission to connecting points of the unit in advance. Refer to each piping or wiring work section.
- After making an opening in the ceiling, it may be necessary to reinforce ceiling beams to keep the ceiling level and to prevent it from vibrating. Consult the builder for details.

- 3 Install the suspension bolts.

(Use either a M8-M10 size bolt or equivalent.)

Use anchors for existing ceilings, and a sunken insert, sunken anchors or other field supplied parts for new ceilings to reinforce the ceiling in order to bear the weight of the unit. Adjust clearance from the ceiling before proceeding further.

Installation example (See figure 4)

- 1 Ceiling slab
- 2 Anchor
- 3 Long nut or turn-buckle
- 4 Suspension bolt
- 5 False ceiling

**NOTE**



■ All the above parts are field supplied.

■ For other installation than standard installation, contact your dealer for details.

## Indoor unit installation

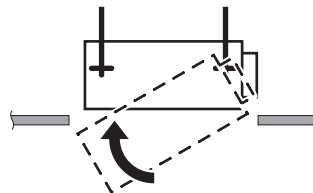
When installing optional accessories (except for the decoration panel), read also the installation manual of the optional accessories.

Depending on the field conditions, it may be easier to install optional accessories before the indoor unit is installed. However, for existing ceilings, always install the fresh air intake kit before installing the unit.

- 1 Install the unit in the ceiling opening.

- Attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using a nut and washer from the upper and lower sides of the hanger bracket.
- Secure the hanger bracket (See figure 5)

- 1 Nut (field supply)
- 2 Washer (supplied with the unit)
- 3 Hanger bracket
- 4 Double nut (field supply, tighten)



- 2 Fix the paper pattern for installation. (For new ceilings only.)

- The paper pattern for installation corresponds with the dimensions of the ceiling opening. Consult the builder for details.
- The center of the ceiling opening is indicated on the paper pattern for installation. The center of the unit is indicated on the unit casing.
- The paper pattern can be rotated by 90° to be able to indicate the correct dimensions on all 4 sides.
- After cutting the paper pattern for installation from packing, attach the paper pattern for installation to the unit with the attached screws as shown in figure 7.

- 1 Paper pattern for installation
- 2 Screws (supplied with the unit)
- 3 Center of the ceiling opening



- 3 Adjust the unit to the right position for installation. (See "Preparations before installation" on page 3.)
- 4 Check if the unit is horizontally levelled.
  - Do not install the unit tilted. The indoor unit is equipped with a built-in drain pump and float switch. (If the unit is tilted against the direction of the condensate flow (the drain piping side is raised), the float switch may malfunction and cause water to drip.)
  - Check if the unit is levelled at all four corners with a water level or a water-filled vinyl tube as shown in figure 11.

- 1 Water level
- 2 Vinyl tube

5 Remove the paper pattern for installation. (For new ceilings only.)

## Refrigerant piping work

For refrigerant piping of outdoor unit, refer to the installation manual supplied with the outdoor unit.

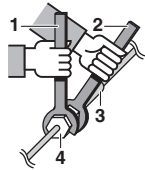
Execute thermal insulation work completely on both sides of the gas piping and liquid piping. Otherwise, this can sometimes result in water leakage.

Before rigging pipes, check which type of refrigerant is used.



Installation shall be done by a licensed refrigeration technician, the choice of materials and installation shall comply with the applicable national and international codes.

- Use a pipe cutter and flare suitable for R410A refrigerant.
- To prevent dust, moisture or other foreign matter from infiltrating the pipe, either pinch the end, or cover it with tape.
- The outdoor unit is charged with refrigerant.
- To prevent water leakage, execute thermal insulation work completely on both sides of the gas and liquid piping. When using a heat pump, the temperature of the gas piping can reach up to approximately 250°F (120°C), use insulation which is sufficiently heat resistant.
- Be sure to use both a spanner and torque wrench together when connecting or disconnecting pipes to/from the unit.



- 1 Torque wrench
- 2 Spanner
- 3 Piping union
- 4 Flare nut

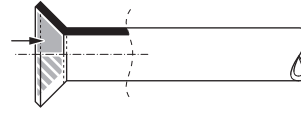
- Do not mix anything other than the specified refrigerant, such as air, etc. inside the refrigerant circuit.
- Only use annealed material for flare connections.
- Refer to Table 1 for the dimensions of flare nut spaces and the appropriate tightening torque. (Overtightening may damage the flare and cause leaks.)

Table 1

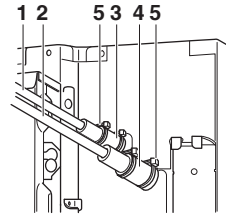
Piping size [in. (mm)]	Tightening torque [lb-ft. (N·m)]	Flare dimensions A [in. (mm)]	Flare [in. (mm)]
φ1/4" (6.4)	10.4-12.7 (15.7±1.5)	0.342-0.358 (8.9±0.2)	
φ1/2" (12.7)	36.5-44.5 (54.9±5.4)	0.638-0.654 (16.4±0.2)	

- Refer to Table 1 to determine the proper tightening torque.

- When connecting the flare nut, coat the flare inner surface with ether oil or ester oil and initially tighten 3 or 4 turns by hand before tightening firmly.

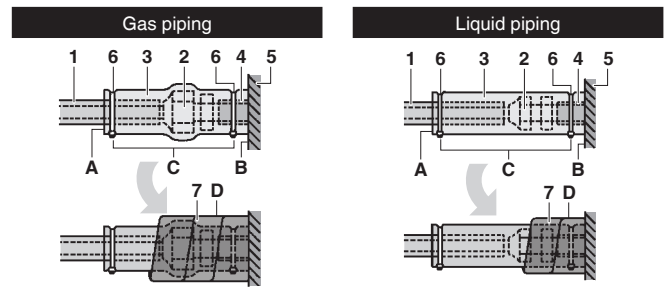


- If the refrigerant gas leaks during the work, ventilate the area. A toxic gas is emitted by the refrigerant gas being exposed to a fire.
- Make sure there is no refrigerant gas leak. A toxic gas may be released by the refrigerant gas leaking indoor and being exposed to flames from an area heater, cooking stove, etc.
- Finally, insulate as shown in the figure below (use the supplied accessory parts).



- 1 Liquid pipe
- 2 Gas pipe
- 3 Insulation for fitting for liquid pipe
- 4 Insulation for fitting for gas pipe
- 5 Clamps (use 2 clamps per insulation)

## Piping insulation procedure



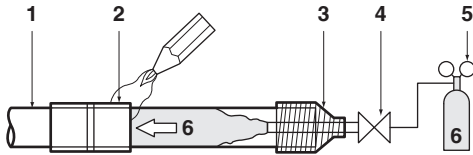
- 1 Piping insulation material (field supply)
  - 2 Flare nut connection
  - 3 Insulation for fitting (supplied with the unit)
  - 4 Piping insulation material (attached to the unit)
  - 5 Unit body
  - 6 Clamp (field supply)
  - 7 Medium 1 sealing pad for gas piping (supplied with the unit)  
Medium 2 sealing pad for liquid piping (supplied with the unit)
- A Turn seams up  
B Attach to base  
C Tighten the part other than the piping insulation material  
D Wrap over from the base of the unit to the top of the flare nut connection



- For field insulation, be sure to insulate field piping all the way into the pipe connections inside the unit. Exposed piping may cause condensation or may cause burns when touched.
- Make sure that no oil remains on plastic parts of the decoration panel (optional accessory). Oil may cause degradation and damage to plastic parts.

## Cautions for brazing

- Be sure to carry out a nitrogen blow when brazing.  
Brazing without carrying out nitrogen replacement or releasing nitrogen into the piping will create large quantities of oxidized film on the inside of the pipes, adversely affecting valves and compressors in the refrigerating system and preventing normal operation.
- When brazing while inserting nitrogen into the piping, nitrogen must be set to 2.9 psi (0.02 MPa) with a pressure-reducing valve (=just enough so that it can be felt on the skin).

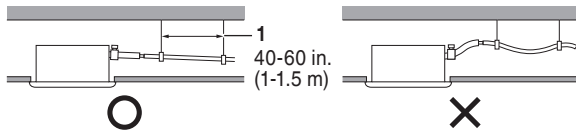


- 1 Refrigerant piping
- 2 Part to be brazed
- 3 Taping
- 4 Hand valve
- 5 Pressure-reducing valve
- 6 Nitrogen

## Drain piping work

### Installation of drain piping

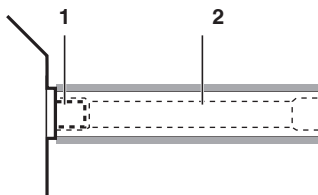
Install the drain piping as shown in the figure and take measures against condensation. Improperly rigged piping could lead to leaks and eventually wet furniture and belongings.



- 1 Suspension bolt

### ■ Install the drain pipes.

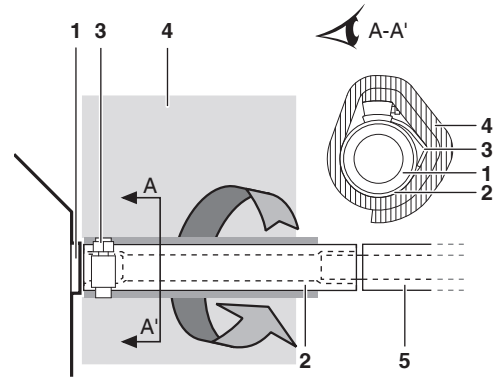
- Keep piping as short as possible and slope it downwards at a gradient of at least 1/100 so that air may not remain trapped inside the pipe.
- Keep pipe size equal to or greater than that of the connecting pipe (vinyl pipe of 13/16 in. (20 mm) nominal diameter and 1 in. (25 mm) outer diameter, without vertical rise pipe).
- Push the supplied drain hose as far as possible over the drain socket.



- 1 Drain socket (attached to the unit)
- 2 Drain hose (supplied with the unit)

- Tighten the metal clamp as indicated in the illustration.

- After the testing of drain piping is finished, attach the drain sealing pad (4) supplied with the unit over the uncovered part of the drain socket (= between drain hose and unit body).



- 1 Drain socket (attached to the unit)
  - 2 Drain hose (supplied with the unit)
  - 3 Metal clamp (supplied with the unit)
  - 4 Large sealing pad (supplied with the unit)
  - 5 Drain piping (field supply)
- NOTE: Bend the tip of the metal clamp to avoid tearing the sealing.

- Wrap the supplied large sealing pad over the metal clamp and drain hose to insulate and fix it with clamps.
- Insulate the complete drain piping inside the building (field supply).
- If the drain hose cannot be sufficiently set on a slope, fit the hose with drain raising piping (field supply).

### ■ How to perform piping (See figure 6)

- 1 Ceiling slab
- 2 Suspension bolt
- 3 Adjustable range
- 4 Drain raising pipe (nominal diameter of vinyl pipe = 1 in. (25 mm))
- 5 Drain hose (supplied with the unit)
- 6 Metal clamp (supplied with the unit)

- Connect the drain hose to the drain raising pipe, and insulate them.
- Connect the drain hose to the drain socket of the unit, and tighten it with the clamp.

### ■ Precautions

- Install the drain raising pipe at a height of less than H2.
- Install the drain raising pipe at a right angle to the unit and no more than 11-3/4 in. (300 mm) from the unit.
- To prevent air bubbles, install the drain hose level or slightly tilted up ( $\leq 3$  in. ( $\leq 75$  mm)).
- Drain pump mounted in the unit is high lift type. Characteristic of this pump is that the higher lifting height, the lower drainage sound. Therefore drain lifting height of 11-3/4 in. (300 mm) or more is recommended.

Decoration panel	H2
BYFQ60C3	24-13/16 in. (630 mm)
BYFQ60B3	25-3/8 in. (645 mm)

**NOTE**



The incline of attached drain hose should be 3 in. (75 mm) or less so that the drain socket does not have to withstand additional force. To ensure a downward slope of 1:100, install suspension bolts every 40 in. (1 m) to 60 in. (1.5 m). When unifying multiple drain pipes, install the pipes as shown in figure 8. Select converging drain pipes whose gauge is suitable for the operating capacity of the units.

- 1 T-joint converging drain pipes

**Testing of drain piping**

After the piping work is finished, check if drainage flows smoothly.

- Add approximately 0.25 gal (1 ℓ) of water gradually through the air discharge outlet.

Method of adding water (See figure 10)

- 1 Plastic container for watering (tube should be about 4 in. (100 mm) long)
- 2 Drain port for service (with rubber plug) (Use this port to drain water from the drain pan)
- 3 Drain pump location
- 4 Drain pipe
- 5 Drain socket (water flow view point)

- Check the drainage flow.

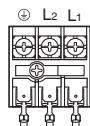
- In case electric wiring work is finished  
Check drainage flow during cooling operation, explained in “Test operation” on page 10.

- In case electric wiring work is not finished
  - Remove the control box cover by means of two screws. Connect the single-phase power supply (208/230V 60Hz) to terminals L1 and L2 on the terminal block for power supply and connect the ground wire firmly (See figure 9).

- Reattach the control box cover and turn on the power.
- Do not touch the drain pump. It may result in electric shock.

- 1 Control box cover
- 2 Power supply wiring
- 3 Ground wire
- 4 Terminal block for power supply
- 5 Clamp
- 6 Transmission wiring
- 7 Terminal block for transmission wiring
- 8 Openings for wires
- 9 Wiring diagram label (on the back side of the control box cover)
- 10 Remote controller wiring

Terminal block for power supply (4)



- Confirm the drain operation looking at the drain socket.
- After checking the drainage flow, turn off power, remove the control box cover and disconnect the power supply wiring from the terminal block for power supply again. Attach the control box cover as before.

**Electric wiring work**

**General instructions**

- All field wiring and components must be installed by a licensed electrician and must comply with relevant national, state and local code.
- Use copper wire only.
- Follow the ‘Wiring diagram label’ attached to the back side of the control box cover to wire outdoor unit, indoor units and the remote controller. For details on hooking up the remote controller, refer to the installation manual of the remote controller.
- All wiring must be performed by an authorized electrician.
- A main switch or other means for disconnection, having a contact separation in all poles, must be incorporated in the fixed wiring in accordance with relevant local and national code.
- Note that the operation will restart automatically if the main power supply is turned off and then turned back on again.
- Be sure to ground the air conditioner.
  - gas pipes: might cause explosions or fire if gas leaks.
  - telephone ground wires or lightning rods: might cause abnormally high electric potential in the ground during lightning storms.
  - plumbing pipes: no grounding effect if hard vinyl piping is used.
- Do not connect the ground wire to:
  - gas pipes: might cause explosions or fire if gas leaks.
  - telephone ground wires or lightning rods: might cause abnormally high electric potential in the ground during lightning storms.
  - plumbing pipes: no grounding effect if hard vinyl piping is used.

**Electrical characteristics**

Model	Indoor units			Power supply		Fan motor	
	Hz	Volts	Voltage range	MCA	MOP	KW	FLA
FXZQ05TBVJU	60	208/230	MAX.253 MIN.187	0.3	15	0.05	0.2
FXZQ07TBVJU				0.3	15	0.05	0.2
FXZQ09TBVJU				0.3	15	0.05	0.2
FXZQ12TBVJU				0.4	15	0.05	0.3
FXZQ15TBVJU				0.4	15	0.05	0.3
FXZQ18TBVJU				0.6	15	0.05	0.5

MCA: Minimum Circuit Ampacity (A)  
 MOP: Maximum Overcurrent Protective Device (A)  
 KW: Fan Motor Rated Output (kW)  
 FLA: Full Load Ampere (A)

**NOTE**



For details, refer to “Electric characteristics” in Engineering Data Book.

**Specifications for field supplied fuses and wiring**

Power supply wiring		Remote controller wiring Transmission wiring	
MOP	Size	Wiring	Size
15A	Wiring size and length must comply with local codes.	2-conductor, stranded non-shielded copper cable PVC/vinyl jacket (NOTE 2)	AWG 18-16 (0.75-1.25 mm <sup>2</sup> )

The lengths of remote controller wiring and transmission wiring are as follows:

- (1) Remote controller wiring (indoor unit - remote controller) .....Max. 1,640 ft. (500 m)
- (2) Transmission wiring .....Total wiring length 6,560 ft. (2,000 m)
  - Outdoor unit - Indoor unit ..... Max. 3,280 ft. (1,000 m)
  - Indoor unit - remote controller .....Max. 1,640 ft. (500 m)

**NOTE**



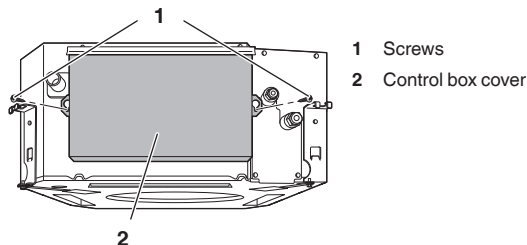
- 1 For details, refer to “Wiring example” on page 8.
- 2 Vinyl cord with sheath or cable. (Insulated thickness : 1/16 in. (1 mm) or more.)

# Wiring example and how to set the remote controller

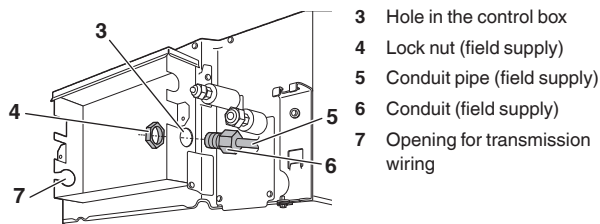
## Connection of power supply, transmission and remote controller wiring

### How to connect wiring (See figure 9)

- (1) Remove the control box cover (2 screws).



- (2) Insert the power supply and ground wires into the conduit pipe, and secure the conduit to the hole in the control box using the lock nut, as shown below.



- (3) Connect the power supply and ground wires to the terminal block for power supply.
- (4) In doing this, pull the wires inside through the conduit pipe and fix them securely with the supplied clamp.
- (5) Give enough slack to the wires between the clamp and terminal block for power supply.
- (6) Pull the transmission and remote controller wires inside through the opening for transmission wiring and connect them to the terminal block for transmission wiring (no polarity). Securely fix the wires with the supplied clamp.
- (7) Give enough slack to the wires between the clamp and the terminal block for transmission wiring.
- (8) Attach the control box cover as before.
- (9) After all the wiring connections are done, fill in any gaps in the wiring openings with putty or sealing pad (small) thus to prevent small animals or dirt from entering the unit from outside and causing short circuit in the control box.

### Precautions

- 1 Observe the notes mentioned below when wiring to the power supply terminal block.
  - Use a round crimp-style terminal for insulation sleeve for connection to the terminal block for wiring the unit. When none is available, follow the instructions below.



- Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.)
- When clamping wiring, use the clamps (supplied with the unit) to prevent outside force being exerted on the wiring connections. Tie up firmly. When doing the wiring, make sure the wiring is neat and does not cause the control box to stick up. Close the cover firmly.
- When connecting wires of the same gauge, connect them according to the figure.



Use the specified electric wire. Connect the wire securely to the terminal. Lock the wire down without applying excessive force to the terminal. Use tightening torques according to the table below.

Unit: ft-lbf (N-m)

Tightening torque (N-m)	
Terminal block for unit transmission and remote controller	0.58-0.72 (0.79~0.97)
Terminal block for power supply	0.87-1.06 (1.18~1.44)

- When attaching the control box cover, make sure not to pinch any wires.
- 2 Do not connect wires of different gauge to the same grounding terminal. Looseness in the connection may deteriorate the protection.
  - 3 Remote controller wiring and transmission wiring should be located at least 1-15/16 in. (50 mm) away from power supply wiring. Not following this guideline may result in malfunction due to electrical noise.
  - 4 For the remote controller wiring, refer to the installation manual supplied with the remote controller.

#### NOTE



The customer has the ability to select the remote controller thermistor.

- 5 Never connect the power supply wiring to the terminal block for transmission wiring. This mistake could damage the entire system.
- 6 Use only specified wires and tightly connect wires to the terminals. Be careful that wires do not place external stress on the terminals. Keep wiring in neat order so that they do not obstruct other equipment such as popping open the service cover. Make sure the cover closes tight. Incomplete connections could result in overheating, and in the worst case, electric shock or fire.

## Wiring example

Fit the power supply wiring of each unit with a switch and fuse as shown in figure 15.

- 1 Power supply
- 2 Main switch
- 3 Power supply wiring
- 4 Transmission wiring
- 5 Switch
- 6 Fuse/Breaker
- 7 Branch selector unit (Heat recovery system only)
- 8 Indoor unit
- 9 Remote controller

### Complete system example (3 systems)

See figures 12, 13 and 14.

- 1 Outdoor unit
- 2 Indoor unit
- 3 Remote controller (Optional accessory)
- 4 Most downstream indoor unit
- 5 For use with 2 remote controllers
- 6 Branch selector unit (Heat recovery system only)

**When using 1 remote controller for 1 indoor unit. (Normal operation)** (See figure 12).

**For group control or use with 2 remote controllers** (See figure 13).

**When including Branch selector unit** (See figure 14).

#### NOTE



It is not necessary to designate indoor unit address when using group control. The address is automatically set when the power is activated.

#### Precautions

- 1 A single switch can be used to supply power to units on the same system. However, branch switches and branch circuit breakers must be selected carefully.
- 2 For a group control remote controller, choose the remote controller that suits the indoor unit which has the most functions.
- 3 Do not connect the ground wire to gas or water pipes, lightning rods or telephone ground wires.

## Installation of the decoration panel

Refer to the installation manual supplied with the decoration panel.

After installing the decoration panel, ensure that there is no space between the unit body and decoration panel. Otherwise air may leak through the gap and cause condensation.

## Field setting

Field setting must be made from the remote controller in accordance with the installation condition.

- Setting can be made by changing the “Mode No.,” “First code No.” and “Second code No.”.
- For setting and operation, refer to the “Field setting” in the installation manual of the remote controller.

## Summary of field settings

Mode No. (Note 1)	First code No.	Description of setting	Second code No. (Note 2)			
			01	02	03	04
10 (20)	0	Filter contamination - Heavy/Light = Setting to filter sign interval Long Life Filter	Light ±2,500 hrs.	Heavy ±1,250 hrs.	—	—
	2	Thermostat sensor selection	Use both unit sensor (or remote sensor if installed) AND remote controller sensor. (See Note 4 and 5)	Use unit sensor only (or remote sensor if installed). (See Note 4 and 5)	Use remote controller sensor only. (See Note 4 and 5)	—
	3	Filter sign displayed or not displayed	Display	Do not display	—	—
	5	Information to I-manager, I-touch controller	Only unit sensor value (or remote sensor value if installed).	Sensor value as set by 10-2-0X or 10-6-0X.	—	—
	6	Thermostat sensor in group control	Use unit sensor only (or remote sensor if installed). (See Note 5)	Use both unit sensor (or remote sensor if installed) AND remote controller sensor. (See Note 3, 4 and 5)	—	—
11 (21)	12	Dry mode set temperature	Room temperature	Same as cooling mode set temperature	—	—

12 (22)	0	Output signal X1-X2 of the optional KRP1B PCB kit	Thermostat-on + compressor run	—	Operation	Malfunction
	1	ON/OFF input from outside (T1/T2 input) = Setting when forced ON/OFF is to be operated from outside.	Forced OFF	ON/OFF operation	—	—
	2	Thermostat differential changeover = Setting when remote sensor is used.	1.8°F (1°C)	0.9°F (0.5°C)	—	—
	3	Fan setting during thermostat OFF at heating operation	LL tap	Set fan speed	—	—
	4	Differential automatic changeover	0°F (0°C)	1.8°F (1°C)	3.6°F (2°C)	5.4°F (3°C) (See Note 6)
	5	Auto-restart after power failure	Disabled	Enabled	OFF	—
	6	Fan setting during thermostat OFF at cooling operation	LL tap	Set fan speed	—	—
13 (23)	0	Setting for air outlet velocity This setting is to be changed in function of ceiling height.	≤8-3/4 ft. (2.7 m or less)	8-3/4 to 10 ft. (2.7-3.0 m)	10 to 11-1/2 ft. (3.0-3.5 m)	—
	1	Selection for airflow direction This setting is to be changed when sealing member of air discharge outlet is used.	4-way flow	3-way flow	2-way flow	—
	4	Airflow direction range setting This setting is to be changed when range of horizontal blade movement needs to be changed.	Upper	Medium	Lower	—

**Note 1:** Setting is carried out in the group mode, however, if the mode number inside parentheses is selected, indoor units can also be set individually.

**Note 2:** Factory settings of the Second code No. are marked in grey background.

**Note 3:** If group control is selected and remote controller sensor is to be used, then set 10-6-02 & 10-2-03.

**Note 4:** If setting 10-6-02 + 10-2-01 or 10-2-02 or 10-2-03 are set at the same time, then setting 10-2-01, 10-2-02 or 10-2-03 have priority.

**Note 5:** If setting 10-6-01 + 10-2-01 or 10-2-02 or 10-2-03 are set at the same time, then setting for group connection, 10-6-01 has priority and for individual connection, 10-2-01, 10-2-02 or 10-2-03 have priority.

**Note 6:** More settings for Differential automatic changeover temperature are:

Second code No.	05	7.2°F (4°C)
	06	9.0°F (5°C)
	07	10.8°F (6°C)
	08	12.6°F (7°C)

■ When using wireless remote controllers, it is necessary to use address setting. Refer to the installation manual attached to the wireless remote controller for the setting instructions.

## For Control with 2 Remote Controllers (To control 1 indoor unit with 2 remote controllers)

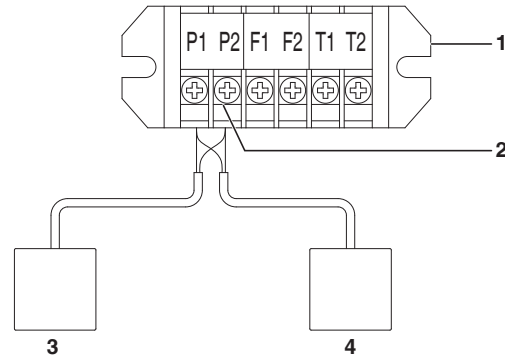
- For control with 2 remote controllers, set one remote controller as Main and the other remote controller as Sub.

### Changeover method from Main to Sub and vice versa

Refer to the installation manual attached to the remote controller.

### Wiring method

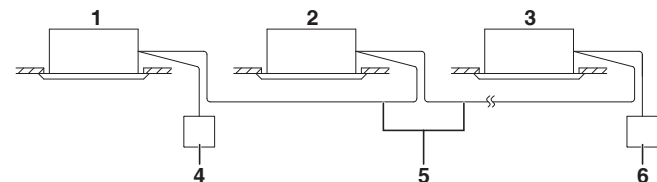
- Remove the control box cover.
- Carry out additional wiring from the remote controller 2 (Sub) to the terminals (P1, P2) for remote controller wiring on the terminal block (X1M) in the control box.



- Terminal block for transmission wiring
- Terminal for remote controller wiring (P1, P2)  
**No polarity**
- Remote controller 1 (Main)
- Remote controller 2 (Sub)

### Caution

- When using the group control and the 2 remote controllers control at the same time, connect the remote controller 2 (Sub) to the indoor unit at the end of the crossover wiring (the largest No.).



- Indoor unit 1
- Indoor unit 2
- Indoor unit largest No.
- Remote controller 1 (Main)
- Crossover wiring (Remote controller)
- Remote controller 2 (Sub)

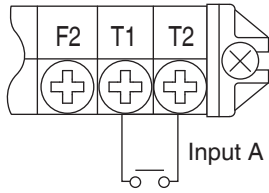
### For centralized control

- When centralized equipment (such as centralized controller) is used for control, it is required to set the group No. on the remote controller. For details, refer to the manuals attached to the centralized equipment.
- Connect the centralized equipment to the indoor unit connected to the remote controller.

## For remote control (force off or on / off operation)

### 1 Wiring method and specification

- Remote control is available by connecting the external input to the terminal T1 and T2 on the terminal block for transmission wiring.



Wiring specification	Sheathed vinyl cord or 2 core cable
Gauge	AWG18-16 (0.75 – 1.25 mm <sup>2</sup> )
Wiring length	Max. 328 ft. (100 m)
External contact spec	Contact that can make and break the min. load of 15 V DC , 1 mA

### 2 Actuation

- Input A of FORCED OFF and ON/OFF OPERATION will be as the table shown below.

	Input A = ON	Input A = OFF
In case of FORCED OFF	Remote controller prohibited	Remote controller permitted
In case of ON/OFF OPERATION	Operation	Stop

### 3 How to choose FORCED OFF or ON/OFF OPERATION

- For choosing FORCED OFF or ON/OFF OPERATION, setting by remote controller is required.
  - [1] Enter into the field setting mode with the remote controller.
  - [2] Select Mode No. 12.
  - [3] Set the First code No. to 1.
  - [4-1] For FORCED OFF, set the Second code No. to 01.
  - [4-2] For ON/OFF OPERATION, set the Second code No. to 02. (It is set to FORCED OFF when shipped from the factory.)

## Test operation

Refer to the installation manual of the outdoor unit.

#### NOTE



When performing field settings or test operation, always attach the decoration panel. Otherwise, this may cause condensation.

The operation lamp of the remote controller will flash when an error occurs. Check the error code on the display to identify the trouble. Refer to the installation manual attached to the outdoor unit or contact your dealer.

- Check the operation of the horizontal blade during test operation.



### CAUTION

After the test operation is completed, check the items mentioned in “For the following items, take special care during construction and check after installation is finished” on page 2.

If the interior finish work is not completed when the test operation is finished, for protection of the air conditioner, ask the customer not operate the air conditioner until the interior finish work is completed. If the air conditioner is operated, the inside of the indoor units may be polluted by substances generated from the coating and adhesives used for the interior finish work and cause water splash and leakage.



### To the operator carrying out test operation

After test operation is completed, before delivering the air conditioner to the customer, confirm that the control box cover is closed.

In addition, explain the power supply status (power supply ON/OFF) to the customer.

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