



# **INSTALLATION MANUAL**

# >>>> System Inverter Air Conditioners

**MODELS** 

Wall-mounted type

FXYAP20KV1

FXYAP40KV1

FXYAP25KV1

FXYAP50KV1

FXYAP32KV1

FXYAP63KV1

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION. KEEP THIS MANUAL IN A HANDY PLACE FOR FUTURE REFERENCE.

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**CE - CONFORMITEITSVERKLARING CE - DECLARACION DE CONFORMIDAD** 

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CE - FÖRSÄKRAN OM ÖVERENSTÄMMELSE

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FXYSP20KV1, FXYSP25KV1, FXYSP32KV1, FXYSP40KV1, FXYSP50KV1, FXYSP63KV1, FXYSP80KV1, FXYSP100KV1, FXYSP125KV1
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FXYFP32KV1, FXYFP40KV1, FXYFP50KV1, FXYFP63KV1, FXYFP80KV1, FXYFP100KV1, FXYFP125KV1
FXYFP32KVE, FXYFP40KVE, FXYFP50KVE, FXYFP63KVE, FXYFP80KVE, FXYFP100KVE, FXYFP125KVE
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RSEYM40KV1, FXYLMP50KV1, FXYLMP63KV1, RSEYP8KJY1, RSEYP10KJY1, RSEY10KLY1

RSEYM61KLY1E, RSEY10KLY1E, RSXYP5KJY1, RSXYP8KJY1, RSXYP10KJY1, BL2KJV1, BL3KJV1, BR2KJV1, BR3KJV1

FXYK25KJV1, FXYK32KJV1, FXYK40KJV1, FXYK63KJV1, FXYA20KJV1, FXYA25KJV1, FXYA32KJV1, FXYA40KJV1, FXYA50KJV1, FXYA63KJV1

FXYM40KJV1, FXYM50KJV1, FXYM63KJV1, FXYM80KJV1, FXYM100KJV1, FXYM125KJV1, FXYM200KJVE, FXYM250KJVE

FXYL20KJVE, FXYL25KJVE, FXYL32KJVE, FXYL40KJVE, FXYL50KJVE, FXYL63KJVE, BSV100KJV1, BSV160KJV1, BSV250KJV1

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respektive utrustning är utförd i överensstämmelse med och följer följande standard(er) eller andra normgivande dokument, under förutsättning att användning sker i överensstämmelse med våra instruktioner: respektive utstyr er i overensstemmelse med følgende standard(er) eller andre normgivende dokument(er), under forutssetning av at disse brukes i henhold til våre instrukser: vastaavat seuraavien standardien ja muiden ohjeellisten dokumenttien vaatimuksia edellyttäen, että niitä käytetään ohjeidemme mukaisesti:

### EN60335-2-40.

following the provisions of: gemäß den Vorschriften der: conformément aux stipulations des:

overeenkomstig de bepalingen van: siguiendo las disposiciones de: secondo le prescrizioni per:

με τήρηση των διατάξεων των: de acordo com o previsto em: under iagttagelse af bestemmelserne i:

enligt villkoren i: gitt i henhold til bestemmelsene i: noudattaen määrävksiä:

Low Voltage 73/23/EEC Machinery Safety 89/392/EEC Electromagnetic Compatibility 89/336/EEC \*

Directives, as amended. Direktiven, gemäß Änderung Directives, telles que modifiées.

Richtlijnen, zoals geamendeerd. Directivas, según lo enmendado. Direttive, come da modifica.

Οδηγιών, όπως έχουν τροποποιηθεί. Directivas, conforme alteração em. Direktiver, med senere ændringer.

Direktiv, med företagna ändringar, Direktiver, med foretatte endringer. Direktiivejä, sellaisina kuin ne ovat muutettuina.

\* Note Hinweis Remarque as set out in the Technical Construction File DAIKIN.TCF.014 and judged positively by NMi according to the Certificate 9110074503 wie in der Technischen Konstruktionsakte DAIKIN.TCF.014 aufgeführt und von NMi positiv ausgezeichnet gemäß Zertifikat 9110074503 tel que stipulé dans le Fichier de Construction Technique DAIKIN.TCF.014 et jugé positivement par NMi conformément au Certificat 9110074503.

Bemerk Nota Nota

zoals vermeld in het Technisch Constructiedossier DAIKIN.TCF.014 en in orde bevonden door NMi overeenkomstig Certificaat 9110074503. tal como se expone en el Archivo de Construcción Técnica DAIKIN.TCF.014 y juzgado positivamente por NMi según el Certificado 9110074503. delineato nel File Tecnico di Costruzione DAIKIN.TCF.014 e giudicato positivamente da NMi secondo il Certificato 9110074503.

Σημείωση Nota Bemærk

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aki Hirata Manager Quality Control Department Sakai, 1st of September 2000

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# **BEFORE INSTALLATION**

- · Decide upon a line of transport.
- Leave the unit inside its packaging while moving, until reaching the installation site. Use a sling of soft material, where unpacking is unavoidable or protective plates together with a rope when lifting, to avoid damage or scratches to the unit.
- Refer to the installation manual of the outdoor unit for items not described in this manual.

# **CAUTION CONCERNING NEW REFRIGERANT SERIES**

The connectable outdoor units must be RSXYP-K, the outdoor units designed exclusively for R407C.
 If outdoor units for R22 are connected, the system will not work properly.

# **PRECAUTIONS**

- Be sure to read this manual before installing the indoor unit.
- Entrust installation to the place of purchase or a qualified serviceman. Improper installation could lead to leaks and, in worse cases, electric shock of fire.
- When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the
  event of refrigerant leakage. Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen
  deficiency.
- Use only parts provided with the unit or parts satisfying required specifications. Unspecified parts could cause the unit to fall out of place, or could lead to leaks and, in worse cases, electric shock or fire.
- Do not install or operate the unit in rooms mentioned below.
  - Laden with mineral oil, or filled with oil vapor or spray like in kitchens. (Plastic parts may deteriorate which could eventually cause
    the unit to fall out of place, or could lead to leaks.)
  - Where corrosive gas like sulfurous gas exists. (Copper tubing and brazed spots may corrode, which could eventually lead to refrigerant leaks.)
  - · Where volatile flammable gas like thinner or gasoline is used.
  - Where exposed to combustible gases and where volatile flammable gas like thinner or gasoline is used. (Gas in the vicinity of the
    unit could ignite.)
  - · Where machines can generate electromagnetic waves. (Control system may malfunction.)
  - Where the air contains high levels of salt such as that near the ocean and where voltage fluctuates greatly such as that in factories.
     Also in vehicles or vessels.
- · When selecting installation site, refer to the paper pattern.
- This unit, both indoor and outdoor, is suitable for installation in a commercial and light industrial environment. If installed as a household appliance it could cause electromagnetic interference.

### **ACCESSORIES**

Check the following accessories are included with the unit.

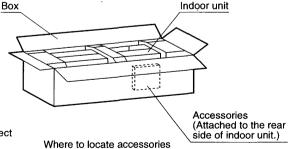
Name	Installation panel	Insulation for fitting (for refrigerant pipe)	Insulation tape	Fixed parts	Paper pattern for installation	Other
Quantity	1	1 set	2	2	1	Installation
Shape	Temporarily fixed to indoor unit.	for liquid pipe for gas pipe				manual Operation manual Clamp (x 2) Accessory screws (1 set) C-cup washer

## **OPTIONAL ACCESSORIES**

 These are two types of remote controllers: wired and wireless. Select a remote controller according to customer request and install in an appropriate place.

Remote controller				
Wired type				
Windless tres	Heat pump type			
Wireless type	Straight cooling type			

NOTE) If the customer wishes to use a remote controller that is not listed above, select a suitable remote controller after consulting catalogs and technical materials.



# FOR THE FOLLOWING ITEMS, TAKE SPECIAL CARE DURING CONSTRUCTION AND CHECK AFTER INSTALLATION IS FINISHED.

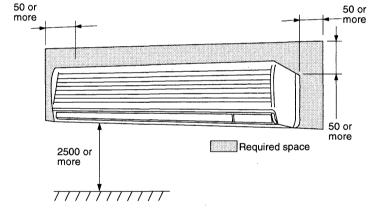
Items to be checked	If not properly done, what is likely to occur	Check
Is the indoor unit fixed firmly?	The unit may drop, vibrate or make noise.	
Is the gas leak test finished?	It may result in insufficient cooling.	
Is the unit fully insulated?	Condensate water may drip.	
Does drainage flow smoothly?	Condensate water may drip.	
Does the power supply voltage correspond to that shown on the name plate?	The unit may malfunction or the components burn out.	
Are wiring and piping correct?	The unit may malfunction or the components burn out.	
Is the unit safely grounded?	Dangerous at electric leakage	
Is wiring size according to specifications?	The unit may malfunction or the components burn out.	
Is something blocking the air outlet or inlet of either the indoor or outdoor units?	It may result in insufficient cooling.	
Are refrigerant piping length and additional refrigerant charge noted down?	The refrigerant charge in the system is not clear.	

# **NOTE TO INSTALLER**

- Read this manual carefully to ensure correct installation. Be sure to instruct the customer how to operate the system showing him/her the
  enclosed operation manual.
- Explain to the customer what system is installed on the site and be sure to fill in what is required in the column shown on "WHAT TO DO BEFORE OPERATION" of the operation manual.

# SELECTING INSTALLATION SITE

- ① Select an installation site where the following conditions are satisfied and that meets with your customer's approval.
  - Where the wall is strong enough to bear the indoor unit weight.
  - Where sufficient clearance for installation and maintenance can be ensured.
  - Where optimum air distribution can be ensured.
  - Where nothing blocks the air passage.
  - Where condensate can be properly drained.
  - Where not exposed to combustible gases.
  - Where piping between indoor and outdoor units is possible within the allowable limit (Refer to the installation manual of the outdoor unit.)

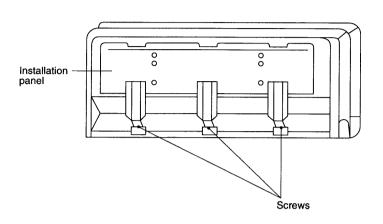


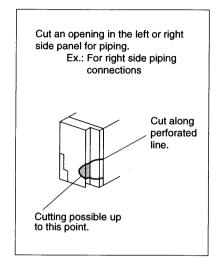
- Keep the indoor and outdoor units, power cable and transmission wiring, at least 1 m from TVs and radios, to prevent distorted pictures and static. (Depending on the type and source of the electrical waves, static may be heard even when more than 1 m away.)
- Install the indoor unit no less than 2.5m above the floor. Where unavoidably lower, take what measures are necessary to keep hands out of the air inlet.
- ② Use the installation mount for installation. Check whether the wall is strong enough to bear the weight of the unit or not. It there is a risk, reinforce the wall before installing the unit.

  (The paper pattern for installation is marked for installation pitch. Hold the pattern to the wall to pinpoint where the wall needs to be reinforced.)
- 3 The indoor unit may not be directly installed on the wall. Use the attached installation panel before installing the unit.

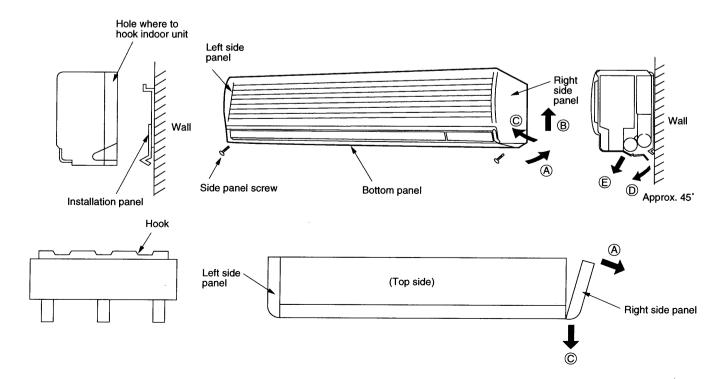
# INDOOR UNIT INSTALLATION

- 1 Detach the installation panel from the indoor unit.
  - The installation panel is attached to the rear of the unit. To detach, remove the screws from the bottom of the panel.
- 2 Attach the installation panel to the wall, using the paper pattern for installation.
  - If using the attached wood screws, fix 4 screws to each the left and right sides (total of 8 or more).
  - If using bolts, attach 2 M8 bolts to each the left and right sides (total of 4).
  - If installing the unit on a concrete wall, attach the panel with a field supplied anchor (M8).
  - · Keep approximately 50 mm between the ceiling and the unit.





- 3 Make a through hole in the wall.
  - Piping can be led out from the left, right or rear sides.
  - The drain hole is on the right side. Installing the unit with a slight drop to the right will allow drainage to flow smoothly.
  - Select the piping route and open a through hole in the wall (\$80). Ensure the hole slopes gradually downward to the outside.
- 4 Hang the indoor unit securely from the hock on the installation panel as shown at below.
  - Install the unit flat against the panel and not leaning forward.
  - Do not hold the indoor unit by the horizontal flaps when lifting. This may damage the flaps or bushing.
- (5) If running pipes from the left side or using embedded pipes, remove the bottom panel to make work easier.
- 6 How to detach side and bottom panels
  - Remove the screws in the side panel and pull the side panel outward (A). Then, while pushing upwards (B), slide the panel towards the front of the unit (C). (Same for both left and right sides)
  - After detaching the side panels, turn the bottom panel downward D about 45°, and pull it outward E.



# DRAIN PIPING WORK

⟨⟨Rig the drain pipe as shown below and take measures against condensation. Improperly rigged piping could lead to leaks and eventually wet furniture and belongings.⟩⟩

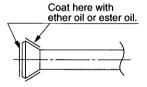
- 1 Rig the drain piping.
  - Keep the drain hose short and sloping downwards, as shown in the drawing, to prevent air pockets from forming.
  - Use a vinyl tube of the same size (nominal diameter: 20 mm, outer diameter: 26 mm) as the pipe connection, or larger.
  - · Insulate all piping inside the building.
- 2 After piping work is finished, check drainage flows smoothly.
  - See "INDOOR UNIT INSTALLATION" and detach the left side panel.
  - Slowly add water to the left side of the drainage pan to check drainage flow.

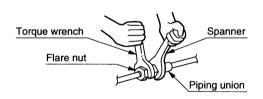
# REFRIGERANT PIPING WORK

⟨⟨For refrigerant piping of outdoor unit, see the installation manual attached to the outdoor unit.⟩⟩
⟨⟨Before rigging tubes, check which type of refrigerant is used. (This unit uses R407C.)⟩⟩

# **CAUTION**

- Use a pipe cutter and flare suitable for R407C.
- . Apply ether oil or ester oil around the flare portions before connecting.
- To prevent dust, moisture or other foreign matter from infiltrating the tube, either pinch the end or cover it with tape.
- The outdoor unit is charged with refrigerant.
- To prevent flare nut cracking and gas leaks, be sure to use both a spanner and torque wrench together, as shown in the drawing below, when connecting or disconnecting pipes to/from the unit.
- · Refer to the table below for flare measurements.
- When connecting the flare nut, coat the flare both inside and outside with refrigerating machine oil and initially tighten by hand 3 or 4 turns before tightening firmly.
- Refer to the table below for tightening torque. Overtightening may damage the flare.
- · Check the pipe connector for gas leaks, then insulate it as shown in the drawing.

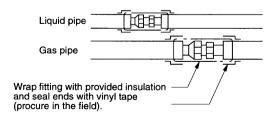




Pipe gauge	Tightening torque	Flare dimension A (mm)	Flare shape
ф 6.4	1420 - 1720N • cm (144 - 176 kgf • cm)	8.3 - 8.7	
φ 9.5	3270 - 3990N • cm (333 - 407 kgf • cm)	12.0 - 12.4	80.4 ~ 0.8
φ 12.7	4950 - 6030N • cm (504 - 616 kgf • cm)	15.4 - 15.8	900-14-0
φ 15.9	6180 - 7540N • cm (630 - 770 kgf • cm)	18.6 - 19.0	

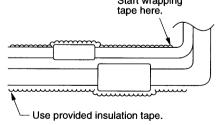
### ⟨ PRECAUTIOINS ⟩

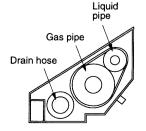
1. Do not overlap insulation for fitting as shown below.

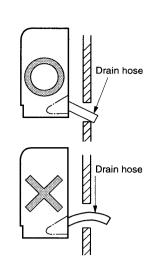


- Wrap the drain hose inside the unit with insulation tape, but separate it from the refrigerant pipe. If wrapped together, both pipes may not fit inside the unit (only when running pipes from the left side).
- 4. When running pipes from the left side, keep pipes and the drain hose as shown on the right.
- Do not bend the liquid pipe within 200 mm of the flare nut, to prevent from damaging the pipe.

Tape the liquid and gas pipe together from the bend up to where they enter the unit.
 Start wrapping







# **ELECTRIC WIRING WORK**

### **GENERAL INSTRUCTIONS**

- All field supplied parts and materials, electric works conform to local codes.
- Use copper wire only.
- Follow the "WIRING DIAGRAM" attached to the unitbody to wire the outdoor unit, indoor units and the remote controller. For details on hooking up the remote controller, refer to the "INSTALLATION MANUAL OF REMOTE CONTROLLER."
- All wiring must be performed by an authorized electrician.
- This system consists of multiple indoor units. Mark each indoor unit as unit A, unit B..., and be sure the terminal board wiring to the outdoor unit and BS unit are properly matched. If wiring and piping between the outdoor unit and an indoor unit are mismatched, the system may malfunction.
- A circuit breaker capable of shutting down power supply to the entire system must be installed.

### **ELECTRICAL CHARACTERISTICS**

Units					Power supply		Fan motor			
Model	Туре	Hz	Volts	Voltage range	MCA	MFA	KW	FLA		
FXYAP20K				Max. 264	0.3	15	0.023	0.2		
FXYAP25K					0.3	15	0.023	0.2		
FXYAP32K			000 040		Max. 264 0.3 15	15	0.023	0.2		
FXYAP40K	V1	Min. 198	50	220 - 240 Min. 198	50 220 - 240		0.4	15	0.023	0.3
FXYAP50K						0.4	15	0.037	0.3	
FXYAP63K					0.4	15	0.037	0.3		

MCA: Min. Circuit Amps (A);

MFA: Max. Fuse Amps (A)

KW: Fan Motor Rated Output (kW);

FLA: Full Load Amps (A)

# SPECIFICATIONS FOR FIELD SUPPLIED FUSES AND WIRE

Model Type	Tuno	Power supply wiring			Transm	Transmission wiring	
	Type	Field fuses	Wire	Size	Wire	Size	
FXYAP20K							
FXYAP25K				Wire size must comply with local codes.	Sheathed wire (2 wire)		
FXYAP32K			H05VV-U3G			2	
FXYAP40K	V1	15A				0.75 – 1.25 mm <sup>2</sup>	
FXYAP50K							
FXYAP63K							

- Allowable length of transmission wiring between indoor/outdoor units and between the indoor unit and the remote controller is as follows.
  - (1) Outdoor unit Indoor unit:

Max. 1000 m (Max. wiring length: 2000 m)

(2) Indoor unit - Remote controller:

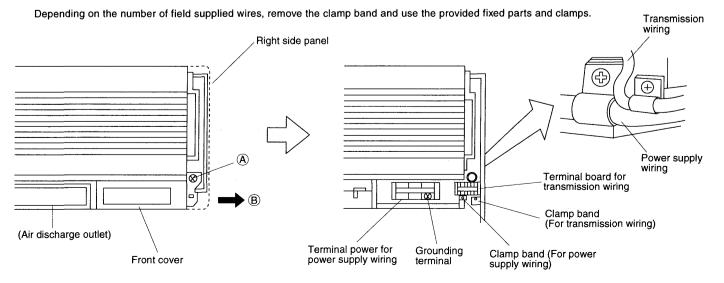
Max. 500 m

• Power supply wining connections

See "INDOOR UNIT INSTALLATION" and detach the right side panel. Next, remove screw (A) and slide front cover to the right (B) and detach. When detached, you can see terminal boards. Feed wires through the clamp and connect to the terminal board.

• Transmission wiring connections

Feed wires through the clamp and connect to the terminal board for transmission wiring.

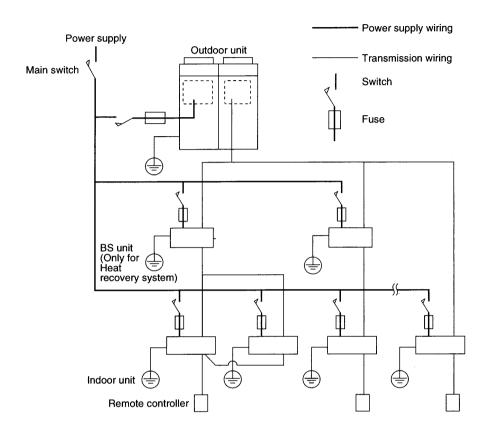


# WIRING EXAMPLE AND HOW TO SET THE REMOTE CONTROLLER

# **WIRING EXAMPLE**

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

### COMPLETE SYSTEM EXAMPLE (3 SYSTEMS)

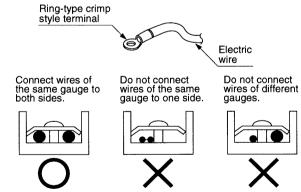


### $\langle$ PRECAUTIONS $\rangle$

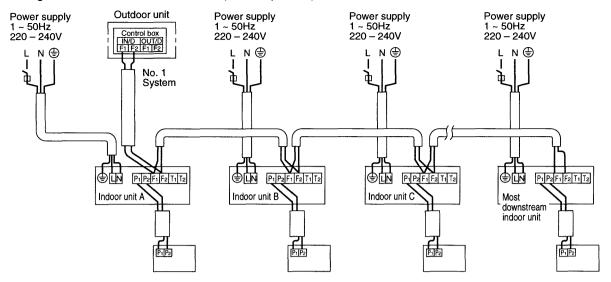
- Use ring-type crimp-style terminals for connecting wires to the power supply terminal board. If unavailable, observe the following points when wiring.
  - Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.)
  - When connecting wires of the same gauge, connect them according to the righthand figure.
  - Use the specified electric wire. Connect the wire securely to the terminal. Lock the wire down without applying excessive force to the terminal. (Tightening torque: 131N·cm±10%)
- 2. Keep total current of crossover wiring between indoor units less than 12 A.

  Branch the line outside the terminal board of the unit in accordance with electrical equipment standards, when using two power wiring of a gauge greater than 2 mm² (\phi1.6).
- The branch must be sheathed to provide an equal or greater degree of insulation as the power supply wiring itself.

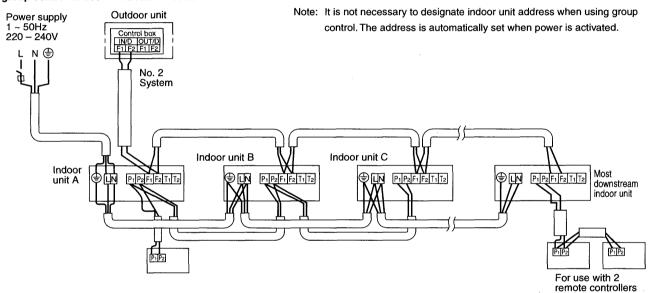
  3. Do not connect wires of different gauge to the same grounding terminal. Looseness in the connection may deteriorate protection.
- 4. Keep transmission wiring at least 50 mm away from power supply wiring. The equipment may malfunction if subjected to electrical (external)
- 5. For remote controller wiring, refer to the "INSTALLATION MANUAL OF REMOTE CONTROLLER".
- 6. Never connect power supply wiring to the terminal board for transmission wiring. A mistake of the sort could damage the entire system.
- 7. Use only specified wire and tightly connect wires to terminals. Be careful wires do not place external stress on terminals. Keep wiring in neat order and so as not to obstruct other equipment such as popping open the service cover. Make sure the cover closes tight. Incomplete connections could result in overheating, and in worse case, electric shock or fire.



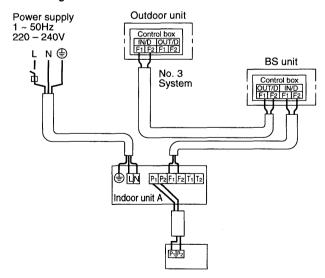
### 1. When using 1 remote controller for 1 indoor unit. (Normal operation)



### 2. For group control or use with 2 remote controllers



### 3. When including BS unit



### ⟨ PRECAUTIONS ⟩

- A single switch can be used to supply power to units on the same system.
   (However, branch switches, branch circuit breakers must be selected carefully.)
- 2. Do not ground the equipment on gas pipes, water pipes or lightning rods, or crossground with telephones. Improper grounding could result in electric shock.

# 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 number", "FIRST CODE NO.", and "SECOND CODE NO.".
- For setting and operation, refer to the "FIELD SETTING" in the installation manual of the remote controller.

# Setting air filter sign

- Remote controllers are equiped with liquid crystal display air filer signs to display the time to clean air filters.
- Change the SECOND CODE NO. according to Table 1 depending on the amount of dirt or dust in the room.
   (SECOND CODE NO. is factory set to "01" for filter contamination-light)

Table 1

Setting	Spacing time of display air filter sign	Mode No.	FIRST CODE NO.	SECOND CODE NO.
Air filter contamination-light	Approx. 200 hrs.	10 (00)		01
Air filter contamination-heavy	Approx. 100 hrs.	10 (20)	U	02

# Setting air flowrate increase mode

• It is possible to raise set air flow (HIGH and LOW) from the field. Change the SECOND CODE NO. as shown in Table 2 to suit your needs.

Table 2

Setting	Mode No.	FIRST CODE NO.	SECOND CODE NO.
Standard			01
A little increase	13 (23)	0	02
Increase			03

#### (When using wireless remote controllers)

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

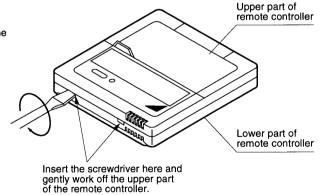
# CONTROL BY 2 REMOTE CONTROLLERS (Controlling 1 indoor unit by 2 remote controllers)

• When using 2 remote controllers, one must be set to "MAIN" and the other to "SUB".

### MAIN/SUB CHANGEOVER

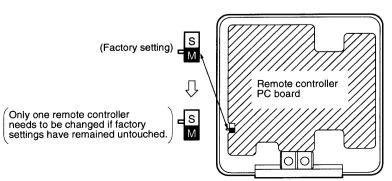
① Insert a wedge-head screwdriver into the recess between the upper and lower parts of remote controller and, working from the 2 positions, remove carefully the upper part.

The remote controller PC board is attached to the upper part of the remote controller.



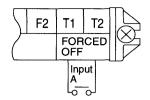
② Turn the MAIN/SUB changeover switch on one of the two remote controller PC boards to "S".

(Leave the switch of the other remote controller set to "M".)



# COMPUTERISED CONTROL (FORCED OFF AND ON/OFF OPERATION)

- 1 Wire specifications and how to perform wiring
  - Connect the input from outside to terminals T1 and T2 of the terminal board (remote controller to transmission wiring).



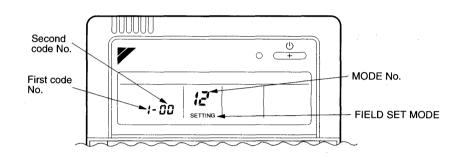
Wire specification	Sheathed vinyl cord or cable (2 wire)	
Gauge	0.75 – 1.25 mm <sup>2</sup>	
Length	Max. 100 m	
External terminal	Contact that can ensure the minimum applicable load of 15V DC, 10 mA.	

### 2 Actuation

• The following table explains FORCED OFF and ON/OFF OPERATIONS in response to Input A.

FORCED OFF	ON/OFF OPERATION
Input "ON" stops operation (impossible by remote controllers).	Input OFF $\rightarrow$ ON turns ON unit.
Input OFF enables control by remote controller.	Input ON → OFF turns OFF unit.

- 3 How to select FORCED OFF and ON/OFF OPERATION
  - Turn the power on and then use the remote controller to selet operation.
  - Set the remote controller to the field set mode.
     For details, refer to the "HOW TO SET IN THE FIELD", in the remote controller manual.
  - When in the field set mode, select mode No. 12, then set the first code (switch) No. to "1". Then set second code (position) No. to "01" for FORCED OFF and "02" for ON/OFF OPERATION. (FORCED OFF at factory set)



# **CENTRALIZED CONTROL**

• For centralized control, it is necessary to designate the group No. For details, refer to the manual of each optional controllers for centralized control.

# **TEST OPERATION**

Refer to the installation manual of the outdoor unit.

• The operation lamp of the remote controller will flash when an error occurs. Check the error code on the liquid crystal display to identify the point of trouble. An explanation of error codes and the corresponding trouble is provided in "CAUTION FOR SERVICING" of the indoor unit.